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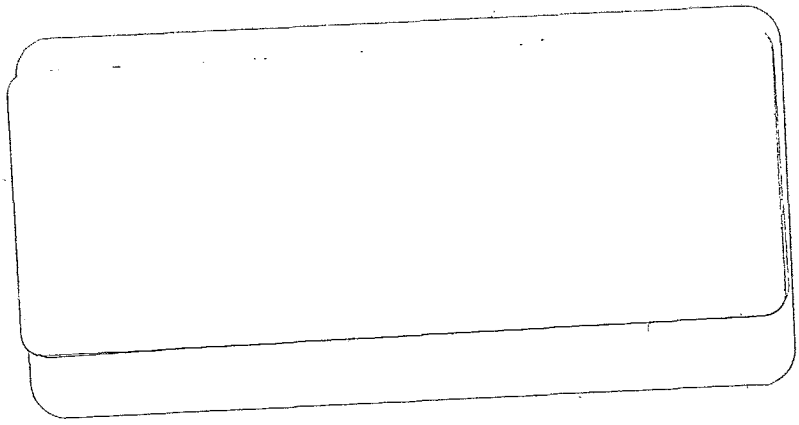
IMPLEMENTATION OF THE STANDARDS INITIATIVE

TELECOMMUNICATIONS SECTOR CAMPAIGN

INDUSTRY CANADA

FINAL REPORT



Serving the Telecommunications Industry Across Canada

IMPLEMENTATION OF THE STANDARDS INITIATIVE

TELECOMMUNICATIONS SECTOR CAMPAIGN

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FINAL REPORT

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I INTRODUCTION

Purpose of the Study

The purpose of the study was to examine the needs of Small to Medium size Enterprises ("SMEs") for services in facilitating access to export markets through improved access to standards information. The study was designed to define the needs of SME's in the above area, to examine how these needs could be addressed, assuming there was evidence to suggest that there was a problem with meeting the needs at present.

Objectives and Scope of the Study

This assignment was directly related to the Telecommunications Sector Campaign in that this initiative included a Standards Initiative. The objectives of this assignment are complimentary to this initiative and were the following:

- to develop a consensus on how to achieve this sectoral growth among key sector organizations such as NWCRF, CTAC, TCC, CCMC and CITEC;
- to develop descriptions of the services required by sector participants to ensure that the above referenced Sector Campaign initiative are implemented down to the level of firms operating in the sector;
- to establish an "action plan" to ensure that the above described services are made available to all segments of the industry through respective industry associations;
- to help ensure that the Industry Canada Sector Campaign accomplishes its objectives.

The scope of the study was defined by the following key parameters:

- what are the needs of SME's to obtain access to export markets of interest;
- how do companies address the development and evolution of new standards.

Within these parameters the assignment worked to define the key product groupings that were key in terms of SME's trying to export. The assignment also took steps to define which markets in the world were key to SME's and what types of services were these firms able to secure as they attempted to secure sales in these various markets.

Methodology Used

The methodology used to address these objectives and the scope of the study included the following key components:

- hypotheses were developed for each of the key tasks in the assignment and the methodology employed for each of the tasks was designed to test the stated hypotheses.

- a series of interviews were held with key officials of Industry Canada to identify the background behind the inclusion of the Standards Program within the Telecommunications Sector Campaign and the key issues associated with its inclusion;

- a national survey was conducted with NWCRF obtaining the co-operation of CITEC and CCMC in order to help ensure that the majority of SME's operating in the telecommunications sector had the opportunity to present their needs as well as the problems associated with securing access to export markets;

- a series of case studies was undertaken that examined how individual successful companies had addressed problems that they had encountered in the standards area; and

- information was obtained from both primary sources, surveys and case studies, and secondary sources literature and several previous studies on certification services and the problems associated with new and evolving standards and this information was factored into the findings on both the needs and the services required to service the defined needs of SME's.

The survey produced a response rate of 12% on a national basis. The non-sampling error was measured through telephone interviews with non-respondents, who provided the following basis for their non-participation:

- personal time constraints, including resistance to "yet another survey"

- companies had not experienced standards difficulties due to their non-exporting status based on size or company age

- companies that may have had past difficulties, but were either unable or unwilling to share this information (changed ownership or personnel were cited in several cases)

None of the non-respondents contacted stated reservations about the validity of standards as a topic for exploration.

Background and Study Issues

Industry Canada has recently completed a three year consultative process with all segments of the telecommunications industry. The product of this process has been a Telecommunications Sector Campaign currently in the midst of securing approval and funding by the department. The Sector Campaign will be implemented during the next five years.

The Canadian Telecommunications Advisory Council (CTAC) has been the industry based body offering Industry Canada advice on the document and has been central to its development.

CTAC, together with Industry Canada, will need to take steps to ensure that the Campaign is implemented. Industry Canada officials are of the opinion that industry must lead the implementation process covering the majority of the initiatives in the Campaign as Industry Canada possesses neither the human nor the financial resources to significantly alter the behaviour or the performance of the sector. Therefore, it is felt that industry associations can and must play a very major role in this implementation.

The Industry Canada Telecommunications Sector Campaign defines key initiatives required to be pursued if the industry is going to grow and be profitable. These initiatives are:

- *Industry Consortia*: the objective of this initiative will be to have industry take on collaborative projects and to form partnerships to facilitate the development of synergy to help ensure the projects come to fruition;

- *Standards*: the objectives of this initiative are improved awareness, participation, and adoption of technical standards by telecommunication equipment SME's so as to capitalize on global market opportunities;

- *Management of Software Development*: the objective is to increase SME awareness of the impact of software development management issues on future competitive performance and to expand the application of software productivity methodologies and tools to improve firm efficiency and conformance to reliability and quality standards;

- *Intelligence Provision*: the objective is to strengthen firm decision making capabilities by providing timely and accurate intelligence to telecommunications equipment SMEs

This assignment was developed in co-operation with Industry Canada to assess the need for a standards program under the Sector Campaign. This document tests the need for action to be taken on the standards issue and defines the type of services required to respond to the array of demonstrated needs for standards information and support.

Specific attention is drawn to the issues of ACCESS to standards information, and MANAGERIAL AWARENESS of standards issues. These topics are covered in Section II, including the preferred context for the term "Managerial Awareness", which appears at the end of Section II.

II THE NEEDS TO BE SERVICED

Needs of Firms Seeking Access to Export Markets

The first approach to the definition of the needs of the firms interested in the standards project were to classify the needs in terms of product groupings. The idea of defining needs in this fashion was initially felt to be instrumental in terms of the eventual servicing of these needs with the types of information that the firms may require.

In order to define needs in this fashion, the following hypothesis was submitted and approved by the Project Authority:

- *There will be three types of product groupings that need to be addressed by standards information sources.*

The three product groupings that were used in both the mail out survey and in the case studies were the following:

- radio/RF related;
- telephony/voice communications; and
- computer or datacomm equipment

The definitions of these categories are as follows:

- Radio and RF-related:

  - Devices which are, by design and intent, part of a wireless communications process, and therefore falling under the jurisdiction of agencies and standards concerned specifically with RF spectrum management, interference tolerance and mitigation, and interworking with other RF-oriented devices. As an example, the (former) CCIR is such an agency.

- Telephony and Voice products:

  - Telephones, transmission equipment, switching and other gear constituting either an integral part of, or an interworking attachment to, traditionally-defined telephone networks and systems, where the carriage of voice (or voice-bandwidth) communications is the primary objective. The CCITT was the most commonly referenced source of recommendations concerning interworking compatibility of such devices.

- Computer and Data Communications products

  Equipment designed to be part of a computer system or network where digitally-encoded information transfer is the primary objective, and where computer-based entities, as opposed to people, are the direct generators and recipients of information traversing a system. The International Standards Organization (ISO) is the most often quoted agency in this category.

It is important to note that many agencies claim or exercise jurisdiction over two or more of the above topics, and that the trend is decidedly toward convergence between categories; the divisions, however, were chosen as a reflection of historic convention, and were assumed to be easily understood by the SME.

The Telephony/Voice category represented approximately 50% of the product categories selected by respondents to both the mini-survey and the case study, with the remainder again split in roughly equal proportion between RF and Data categories. Several offer products in two or more categories.

Respondents to both the surveys and the case studies did not have any difficulty linking their firms and the products into these three categories. All of the respondents felt that their firms were represented by one of the three categories and as such the categories do serve to make an initial step in the definition of the type of information that may be required for standards information.

In terms of servicing potential users, it is abundantly clear from the information obtained in the surveys and the case studies that each firm will need information from a series of data sources, as the sources covering standards tend to be product based. The survey results indicate that users will need information from more than one source. Reference Appendix B-1, section 1.1.

The study was established to define the needs of firms who were wanting to export products and services to key export markets. It was felt that certain markets would be more important than others and if an organization was going to begin to facilitate exports the organization should be prepared to deal with certain key markets.

Accordingly, the following hypothesis was developed:

- *there will be four key markets of concern to SME's and these will be:*
  - *United States*
  - *Europe*
  - *Mexico*
  - *Australia and New Zealand*

The SME's responding to the question on key markets of interest were able to link their needs to these four key markets for the most part. The most definitive finding from the responses was that the United States constituted by far the most frequently stated market of interest (virtually all respondents), and was the MOST important to six of the ten case study participants. The second most important market for those firms responding to the survey was Europe. Companies stating Europe as an important market always ranked it behind the United States and only 75% of the companies that stated the U.S. was important felt that Europe was of secondary importance. Reference Appendix B-1, section 1.1.

Companies with more than two markets of interest identified that the markets located the furthest away geographically were less important than those markets closer to the company.

Consistent with the above finding is the fact that western-based companies indicated a strong interest in the Asean markets with this covering the entire Pacific Rim region.

With the above group of hypotheses defining the types of markets and products that the companies were interested in the assignment shifted its focus to assess the types of information that would be required to address these potential needs.

The hypothesis defined for this purpose was:

- *there is no single identifiable source of standards information that covers all significant markets.*

The survey listed several potential sources of information that could be used by companies interested in securing standards information. Virtually every one of the listed sources was referenced by the survey respondents. (These included ETSI, ITU, SCC and ANSI/T1.)

Certainly some of the information sources were referenced more frequently than others and ITU was the most frequent.

Case study respondents however, illustrated the need for country specific documents. Reference Appendix B-1, section 2.2.

Additional support for this hypothesis is quite succinctly shown in the Patton & Associates document (Appendix E) showing for each European country, the approvals, testing and standards bodies for each. This document, along with others from the same source, are contained in Appendix E. [The reference items credited to Patton & Associates are part of the training documentation provided participants in seminars on Export Certification offered by CCL of the U.S. Patton & Associates is a U.K. firm specializing in European approvals.]

The potential correlation between markets and information bases used to obtain access to the market in question was not definitive. That is, companies used ITU to access information for use in moving their product into export markets, but not all companies in this situation stated that they had used the ITU.

> It is important to make a distinction between organizations such as the ITU and ETSI, the International Telecommunications Union (an agency of the United Nations) and the European Telecommunications Standards Institute, respectively, and specific NATIONAL bodies. The ITU, in an effort to promote global standardization and compatibility of telecommunications systems, produces recommendations that MAY be adopted by participating nations. The primary value of the documents available is in describing "how things work". ETSI is similar in only some respects, and could be seen as an agency that tells others "how things work, according to the benefit of European Telecomm Manufacturers".
>
> Each country has a set of what are generally called "mandatory" standards, covering such items as network compatibility (specifying "safe" or non-interfering signal levels, resistance to electromagnetic phenomena, etc.).

Obviously, both types of "standard" are necessary to the exporter's efforts. Outside of North America, telecommunications networks "work differently"; the ITU documents provide that information, allowing at least interworking between devices to take place. The mandatory standards, on the other hand, are the ones most frequently used as barriers to imports by offending countries. These are generally NOT available from, for example, the ITU or any specific single party, but generally are obtained through agencies in the target country.

In terms of defining the needs of firms for information on existing standards, the surveys and the case studies were the prime sources utilized for this study. There was little complementary information on these subjects but where additional relevant information was found this was also factored in.

Virtually every company queried in this context stated that they had problems determining which standards applied to the product and/or market being pursued. None of the information sources listed in the responses to the survey and the case study indicated that the information contained therein was all that was required.

The problem identified by companies was that the standards process was made very complicated as it was extremely difficult if not impossible to ascertain whether or not the information source being utilized had any limitations with respect to the product or market in question. Companies were aware and in some cases involved in the development of new standards for new products and as such knew that the information bases were somewhat out of date.

Another problem encountered with the information sources was that they were not mutually exclusive, one from the other. As such it was difficult for the company users to be confident that the information they had secured from one source was the only information that they required for the market in question. Reference Appendix B-1, sections 2.1 and 2.2

For those companies that could eventually determine which standards applied to the market in question, 90% then experienced problems securing copies of the needed standards documentation. This figure, based upon the "mini-survey", became 50% among those experienced firms taking part in the case studies, itself an alarmingly high percentage. Reference Appendix B-1, section 1.2.

Companies, having identified which markets they were interested in, became convinced that additional information requirements would have to be met if the companies were going to secure access to the markets in question. Three-quarters of these companies experienced problems trying to define what other types of information were required in order to secure access to the market in question. [40% of case study respondents, all of them experienced in foreign certifications, identified "other" factors as problems; these were generally procedural factors.] Reference Appendix B-1, section 1.2.

Another significant problem raised by respondents was that it was also exceedingly difficult to find qualified labs that could certify products to existing standards. [As the case study results show, the real obstacle is the refusal of many jurisdictions, primarily European ones, to accept the findings of out-of-country labs.] Reference Appendix B-1, section 1.2.

It is extremely interesting to note that all companies responding to the survey and to the case study stated that there were problems/concerns related to existing standards. However, only 25% of respondents stated that access to information on standards constituted a barrier to entering export markets. In essence, while companies did encounter difficulties in securing the right information and in dealing with certification, etc., they did find ways to surmount these problems. This strategy is clear when one examines the detailed process used by case study participants and the rationale for the approach used by these various companies. Reference Appendix B-1, sections 2.3 & 2.4.

Case study participants confirmed the survey findings and stated that there were a number of problems in determining which standards apply where and in securing copies of the needed documents. However, these companies went through the various processes defined for them as they identified that there were significant benefits to be derived from securing access to these markets. These companies had in several cases spent over $100,000 to enter the market in terms of dealing with the standards issues. The profits derived from obtaining access to these export markets clearly paid for the standards process. An attempt to identify these costs more directly is made in Section IV. Reference Appendix B-1, section 2.5.

The review of the literature identified that the following sources of information were available for use in securing needed information on standards:

- *ETSI*
- *SCC*
- *ITU (CCITT,CCIR)*
- *ANSI/T1*

These sources are used by different firms wishing to secure access to particular markets; the information available from each is somewhat restricted. The key issue is that the standards material covering any one market area is extremely large. The categorization and organization of the information offered by each of the above is non-uniform. Reference Appendix G, Information Service Directories.

For this reason the above databases do not support the idea of consolidation. Database designers operate on the assumption that users know that they want to obtain access into a particular market. They will pay for access to an information source that provides them with the information that essentially opens the door to the desired market.

These facts were confirmed through the survey. The information secured in this fashion identifies that the key information source utilized by the majority of firms involved in the survey was the ITU. This correlates with the reality of most export markets following the recommendations of the ITU. Also see Appendix G, Information Service Directories.

> One could conclude, based upon just the information received from case study participants, that U.S. documents presented access problems; this is NOT the experience of most firms. In fact, U.S. penetration is taken for granted by most Canadian SMEs (Appendix B), with some indication that the domestic Canadian market is more difficult to deal with in terms of information access.

Respondents to both the survey and the case studies highlighted the fact that in the majority of instances the SME community is using an intermediary to sort through the information and to select the key pieces that will provide the needed access to the desired market. This is a de facto statement on the size and related difficulty in the management of these data sources, and this essentially preempts the establishment of a single database to service all products and all markets. Reference Appendix B-1, section 2.2.

In terms of responding to these needs this assignment was to examine the types of services that would be required or are in existence that address these needs. Companies initially addressed the question in terms of the sources for the information that they felt they required in order to obtain access to the markets in question. Companies were asked to state which of the following organizations they had used for these needs and how would they assess the quality of the services they received. The organizations/ databases that they were asked about were the following:

- *ETSI*
- *SCC*
- *ITU (CCITT,CCIR)*
- *ANSI/T1*

Just over 50% of survey respondents stated that they were relying on ITU for their required information. It is interesting to note that over 50% of respondents may not know the information source being accessed but rather relied exclusively on an intermediary to secure whatever information was required from wherever.

While companies clearly demonstrated that ITU was the preferred source of information on existing standards, this ranking was not necessarily a function of the level of service provided by ITU to its clients. The SME's ranked ITU services on the basis of timeliness, accuracy, and availability of interpretation on standards as mediocre. Less than 1% of respondents placed these services as excellent. However, none of the respondents ranked the services as poor.

Another very significant point raised in assessing the quality of the services offered was that firms saw too many sources for the same or similar information on standards. This fact in many cases precipitated the utilization of intermediaries to sort through the various sources to ensure that the optimal information was being secured and relied upon.

We consider the hypothesis proven, based upon both the survey instrument responses, and the documents prepared by Patton & Associates in Appendix E.

The assignment examined some of the steps that had been taken by companies wishing to obtain access to export markets with this potentially offering further insight into the definition of the needs of firms in this area.

The first hypothesis developed to examine this facet of the assignment was the following:

- *there is no (single) intermediary assessing the various information sources and providing clients with these assessments for a fee.*

As referenced, intermediaries play a key role in providing services to SME's so that these firms may move into selected export markets.

The intermediaries named in the case studies fell into the following categories - hired consultants, 30%; testing agencies, 10%; distributors, 10%; suppliers TO the firm, 10%, and the (customer) PTT, 10%. As implied, the type of intermediary and the type of service rendered varied from one firm to another, thus illustrating the hypothesis. Reference Appendix B1, section 2.2.

TSACC and the Standards Council of Canada have both mentioned "One Stop Shopping" for information on standards. The focus of both groups has been somewhat limited, either due to their defined roles and alliances (SCC, for example, at the time of writing, were restricted to ISO, IEC and Cenelec data, as SCC is the Canadian signatory to these agencies) or resources.

There are U.S. firms and U.K. firms that claim the ability to source documents for a fee, and in fact, these are used by some Canadian exporters. These firms are, in the strictest sense of the word, consultants who render a service, tailored to each specific client, for an appropriate fee.

No evidence of such a role for an intermediary has been presented, and the hypothesis is considered to be proven.

A manifestation of the hypothesis was further shown in the case study responses to the questions relating to the acquisition of documents. Fully one half of all respondents noted problems, while the sources for documents generally included the ITU, specific target-country national bodies, and sometimes consultants.

It was anticipated that the tailored services would increase the costs and as such the following hypothesis was designed for the assignment:

- *there are very significant costs associated with securing access to the needed standards information.*

The more detailed rationale for the role of the intermediary was identified in the case study process and in a detailed review of the information sources used for standards information. The case studies, as suggested above, showed that even 50% of "experienced" firms had difficulty sourcing documents. In addition to the costs associated with identifying the needed documents, the interpretation and (sometimes) translation of same also add significant incremental costs. Many firms responding to both the survey and the case study did not, however, cite these difficulties. There is, then, the implication that SOME attempts to secure information are expensive, that costs will be variable. We consider the hypothesis proven.

Another dimension to the definition of the needs of SME's was to document the problems most frequently listed by SME's in trying to address the various "standards issues" of concern to them. The hypothesis developed for this segment was the following:

- *SME's are not able to accurately select the "right" information base or the "right" process to use to access the desired market.*

The most frequently raised issue of concern in the survey and case studies was simply that there were too many information sources that could be accessed, that these sources normally did not co-operate with one another so the user of the information base was not completely clear on what information could be obtained from whatever source.

> The case studies identified language and translation as significant problems, to 60% of the respondents. Reference Appendix B1, section 2.3.
>
> An even more startling finding was the 40% of respondents who identified "other" factors, such as unwritten procedural requirements, as problems. Reference Appendix B1, sections 2.3, 2.4.

Certain companies were able to quickly secure the right information but this was clearly demonstrated as a function of the experience these companies possessed in utilizing the information bases. But subsequently these same companies found themselves in the situation of having to adapt their product, late in the process, to comply with these standards. [Actually, the problem was identified as being the result of either unique standards in a given country, or even a unique interpretation of common wording.] The definition of the required "right" process to use to obtain certification could not come from the information base. This had to come from other sources such as the Canadian government (trade or embassy officials, in-country) in some instances, and strategic alliance partners in the market of interest more frequently. Reference Appendix B1, section 2.4.

Based upon the above, plus the high proportion of firms citing problems, the hypothesis is considered to be proven.

Similarly another hypothesis is the following:

- *information can be catalogued on the basis of product groupings as defined earlier.*

The information that has been obtained from survey respondents identifies that the firms do not have difficulty placing their principle product line into one or two of three product groupings.

This activity restricted itself to the information provided by ANSI T1, ITU, SCC, and ETSI, as these information sources are available in electronic format, and are thus easily processed. Operational difficulties were encountered with SCC (long delays in registration formalities) and ITU (administrative problems in Geneva) databases, which prevented their timely use in this analysis. This resulted in the ANSI/T1 facility being used for both its own sponsoring group's information, and that pertaining to ETSI, which is also maintained there, although the latter suffers from some lack of currency.

The approach chosen to test the hypothesis involves the generation of relevant "keywords" that are contained in the text of documents maintained by the specific agency, and the use of these, in turn, as an index from which pointers into appropriate source documents could be contrived. Reference Appendix C.

The size of the databases (the ETSI files were used) proves a challenge for the keyword approach. The example contained in Appendix C shows that one keyword generates so many records that this information is not easily processable by the SME. A further sorting of records with multiple-linked keywords significantly increases the focus coming from the retrieved records. It is only through an iterative process that the "right" combination can be developed that generates the right information needed to define the standards information needed. This iterative process bears little or no resemblance to the previously mentioned product groupings.

It was noted during study of the ETSI information base, that their documents tended to follow the structure of the working groups set up to generate (common European) recommendations. This structure, due to both the convergence of technologies, and the partitioning of functional network blocks, does not map directly to the three categories of product defined earlier in this study. Therefore, a particular product could easily be impacted by several of the arbitrary ETSI groupings, requiring a more global approach to data searching.

Appendix C contains the results of an exercise to extract, edit and catalog a manageable list of technical keywords for two categories of document, ETSI Released Recommendations and ETSI Questions under Study. Our conclusion is that while such lists may be quite easily generated using modern computer database and text tools, this method is necessary, so the hypothesis is disproven.

The next hypothesis states that these electronically based databases are well suited to searching through a keyword system.

As evidenced in the earlier hypothesis there is demonstrated value in the utilization of keywords to access the database. The databases are amenable to keywords and they are simply too large to address through more generic sorting processes such as product groupings or other broad cataloguing systems.

Another dimension of the keywording required to secure the needed information is that the keywords will need to be very technical. Very technical in this instance refers to certain keywords that are part of the jargon associated with the product itself. However, more difficult to identify are the keywords that are required, that are also technical but are defined as relevant based on the knowledge of the database.

In order to make the process work in accessing the correct information from a database, a detailed description of the product needing access to the export market is required. This definition MUST be made in the context of the available "pointers" into standards documents, as determined by the product developer, or as has historically been the case, intimate knowledge of the entire range of standards and documents on the part of the potential exporter.

The mere fact that no SME is likely to possess the familiarity with standards necessary to identify all those likely to be relevant, due to the rare occurrence of a need for such activity, certainly clarifies a need for an intermediary in the process.

Therefore, significant editing must be done of the various keywords found in the target database, in order to both reduce the number of entries to manageable proportions, but more importantly, to maintain meaningful and explicit terms that would allow a knowledgeable company representative (or a VERY knowledgeable third party) to select those keywords that together, comprehensively define the standards SOURCE documents applicable to the target product.

The example in Appendix C reflects this editing, and provides some search examples of what the researchers defined as representative product characteristics. Based on these results, we have concluded that this portion of the hypothesis is proven.

The next hypothesis examined how the SME might deal with the databases that could be most effectively accessed through the use of the keyword systems. The hypothesis was the following:

- *access by SME's will need to be through an intermediary due to the complexity of the source information.*

Also as illustrated in the examples of Appendices A and B, the tables of contents of the sample document registers do not easily (even to a fairly seasoned telecommunications professional) yield enough useful information to allow a reader to immediately determine whether or not a given document contains pertinent information.

Similarly, the keyword lists extracted suggest a heuristic approach to retrieval strategy for a given client/product.

The suggested approach, then, would employ an intermediary who is familiar with the subject matter (telecommunications technologies), who is similarly able to quickly synthesize INITIAL search parameters from product documentation or from the SME's product specialists, and who is possessed of the skills necessary to quickly turn these search parameters into a preliminary report from a database.

> Based upon many conversations with SMEs outside of the case study process, we believe it unlikely that the activities of the intermediary in isolation would be satisfactory in extracting ALL of the pertinent sections from a given data store. It is anticipated that this, as in previous exercises, would be an iterative process involving both the intermediary and a product expert from the company.

These characteristics de facto define the types of services that can be provided by intermediaries. The information retrieval processes are deemed too complex and too time consuming to sort through for the average company. These companies clearly are relying on strong market studies that identify that these export markets will yield significant sales and profits and therefore the services of the intermediary will pay for themselves once the product achieves access to the market.

The role of the intermediary has been demonstrated to be significant in terms of the tailoring of the services specifically to the needs of the clients, and we consider the hypothesis proven.

Several of the earlier hypotheses have indicated that there is a role for an intermediary to play in assisting the SME to work through the standards process. In order to test the validity of this value-added role, the following hypothesis was developed to determine how much SME's would be willing to pay for this service:

- *SME's are willing to pay for access at a rate of 1% of the sales in the market being accessed.*

The suggestion implied in this hypothesis was that if an SME is wanting to get his product into a new export market and realize incremental sales of $5 million, he would be willing to pay $50,000 for the standards documentation necessary to accomplish access.

Further analysis of reported costs of certification, and subsequent follow-up with respondents, revealed that at least one firm used the 1% threshold as a qualifier for market entry. If the projected annual sales of the product to be certified do not reach the costs of certification, it is not attempted.

The costs of certification are made up of several components, and while data on each of the steps in the process are not available, it is easily assumed that the costs associated with information acquisition do not represent the majority of all those incurred.

Some inferences can, however, be drawn from the case study data. By far the highest cost element shown by respondents is the pursuit of Network Compatibility certification, followed by Health and Safety certification. These costs are reported to be indirect (personnel, lodging, etc.) rather than fee-based. Anecdotal evidence suggests that much of the cost results from a lack of knowledge of process and procedures at the time of entry into the testing queue. It may therefore be implied that an intermediary might quite early and clearly be able to effect significant savings, by shortening the learning curve that seems to inevitably accompany each new certification attempt.

There was insufficient information to prove or disprove the hypothesis, there being some evidence that a fee would be acceptable, while the 1% figure may not.

With the above findings being established the assignment moved forward to define the types of services that were required. The hypothesis developed for this purpose was the following:

- *access can be provided by the intermediary in two ways:*

  i) the technical information can be supplied in response to questions from the client or,

  ii) information and the process can be supplied to the less experienced client, with the obvious cost implications

This was deemed to be a moot hypothesis, as the case study results clearly showed a wide variety of intermediary types used, and a wide variety of intermediary services being rendered. The hypothesis is not, therefore relevant.

The selection of testing laboratories has been identified by many as a problem in itself, with no clear guide available to determine the skills with which each facility is equipped, or the probability of satisfaction by a client using a particular firm's services. The hypothesis was thus:

- *There are too many organizations providing certification and testing services for the SME to make informed choices of testing labs for specific products and market requirements*

This question requires some qualification in that North American testing labs are not generally recognized abroad, particularly in the problematic EC. The hypothesis effectively is restricted to North American markets, since SMEs have no choice at least in Europe.

The most disturbing finding of this portion of the survey was the high level of dissatisfaction with the labs used. Comments by respondents were frequently charged with considerable (negative) emotion, reflecting their respective experiences with some labs. It should be noted that Canadian labs, although not specifically identified in many cases, were the objects of this dissatisfaction. (See "Certification Issues")

The above finding is, in itself, a strong indication that insufficient information about available labs was amassed or considered by the firms involved.

In order to test this hypothesis, data were collected from various directories and journals to help determine which firms offer which types of compliance testing services. The word "accessible" is an important one as it allows U.S.-based facilities to be included with Canadian ones. The experiences of individual firms is reported in Section II under the heading "Certification Issues" while the laboratory data gathered appear in Appendix D.

The reports from firms and the Table illustrating the vast array of laboratories available, prove the hypothesis.

> There is also a strong indication that a service opportunity exists in the area of providing both more detailed data on the stated capabilities of the various testing facilities, and anecdotal or other reports from users of same.
>
> Another possible observation arising from analysis of the data is that more and better preparation by the SME could lessen the probability of failure or disenchantment, and that this may be aided by the use of consultants during the preparation and testing phases. This topic is discussed in more detail in "Recommendations", in Section V.

For markets outside of North America, there are two hypotheses presented, both of them pertaining to certification testing in offshore markets.

The first of these relates to in-country assistance:

- *SMEs cannot utilize (offshore) certification and testing services without an intermediary*

Virtually all of the respondents employed some form of in-country resource during the certification process. While this does not prove the hypothesis, the conclusion is nearly inevitable, based upon the fact that the majority of respondents were "mature" exporters to the target countries, and employed methods that succeeded. This is confirmed by the "Patton" checklist in Appendix E; also, Appendix B1, section 2.6.

> It must be emphasized that the utilization of experiences gained by more experienced exporters enhances, rather than erodes, the value of this information to the newly-exporting SME.

The specific type of resource employed by these reporting firms, tended to vary somewhat, but this appeared to be based more upon the type of presence the company had already achieved in the target country, than on any other factor. To illustrate, some firms use their in-country distributors/reps; other use their own staff, or staff from a related firm. Still others depended upon their in-country clients. The important conclusion is, however, that all obviously enjoyed some benefit from in-country assistance.

The hypothesis is essentially proven by the first statement in this topic.

The next hypothesis based upon offshore certification states:

- *Intermediaries will not be able to provide SMEs with a generic set of services, but rather will need to supply "value added" services specifically tailored to the needs of individual SMEs.*

The context here is not necessarily one of "in-country" intermediaries, although all of the case study respondents identified this as desirable or mandatory, but one encompassing any supporting service which may be desired or required to assist the SME in achieving product certification in target countries.

The various services identified by respondents, as well as those inferred from the problems reported by them, include:

- Language translation
- Knowledge of administrative processes
- Interpretation of printed technical requirements and tests
- Scheduling of testing
- Selection of test lab (see "*", below)
- Knowledge of related requirements in other countries in the target region or elsewhere

* BABT in the U.K was named as the facility frequently used by firms desiring entry in several EC markets. While there is much discussion of harmonizing requirements between EC countries, and of accepting foreign test lab results as being valid, there is little basis in fact for optimism or economy in the process at this time. Therefore, there is, in effect, no choice available to the SME. Reference Appendix B1, section 2.3.

The "Patton" checklist itemizes a number of key points in preparedness; many of these have been shown to require country-specific attention, thus voiding any "generic" approach.

The conclusion drawn from the questionnaires and case studies points toward a "value-added" rather than "generic" support service that could be provided by an intermediary. A significant part of this service would be knowledge-based, and requiring a fairly large body of experience amassed by firms going through the certification quest. The question of "local conventions" appears to be a very significant one.

The hypothesis is therefore considered to be proven.

Evolving Standards

Evolution of standards is another very significant topic in the whole area of standards information. The concern has been often expressed about the capability of small and medium sized companies to be involved in the establishment of new standards. The problem was cost. However, certain common views were that if these companies were not involved in the establishment of standards there was a distinct possibility that newly established standards may not provide for the products being developed by these smaller companies.

In recognition of the above point, the assignment examined the evolution of standards and raised this issue with the following hypothesis:

- *exporting SME's are not aware of the issues being raised in key standards making bodies*

The mini-survey indicated that over 45% of respondents were not aware of which organizations were working on which standards. Reference Appendix B1, section 3.2. This was pointed out as a significant problem by certain of the case studies. Companies had found that certain organizations were working on new standards only when these companies went to re-export their products or entered a new market.

One of the problems associated with keeping track of the evolution of standards was the fact that this required a significant amount of time in many instances. Over 30% of respondents stated that they were simply not in a position to dedicated internal resources.

It is important to point out that the monitoring of new standards was not seen as a task that could easily be handed over to an intermediary. The general feeling is that such outsiders cannot possibly have enough knowledge of each company's present and possible future activities to provide worthwhile "connections" between these and possibly significant facts emerging from standards-making bodies. For this reason it appears to require an internal resource rather than a hired expert who simply addresses a particular issue at a particular time.

The case studies also indicated in some cases that the material generated from standards formulation committees was frequently not reliable. The stated view was that if standards evolution was important it meant that companies had to be present at the meetings where these points were discussed. Reference Appendix B1, section 4.0. It could not be

assumed that the periodic readings of proceedings was enough to keep firms abreast of developments in a timely fashion. Companies could not read proceedings, identify that there was a problem and then move to try and correct the problem. More often the proceedings were not distributed in a timely fashion and as such if a problem was picked up in the proceedings there was a distinct possibility that it would have been dealt with by the time the reader reacted to the document.

> One-half of the case study respondents claimed good knowledge of evolving standards; the other half gave poor to fair assessments of their awareness. This effectively proves the hypothesis, and the topic is discussed in Section V in more detail.

Additional points were to be examined with regard to the evolution of standards and this was in part covered with the following hypothesis:

- *SME's are not interested in participating in standards formulation due to the time and cost factors associated with the involvement.*

SMEs, based on widely-held views, cite financial and time problems associated with being involved with the formulation of new standards. Many of SMEs feel that the role of government funding, at least of travel costs associated with this involvement, was a very useful service. Reference Appendix B1. Companies in some cases were prepared to pay the time costs associated with this evolution but were not willing and in many cases not able to pay both the travel and the time costs.

The wording of the hypothesis does not deny the importance of monitoring of standards evolution. Most companies were therefore very interested in the subject area but were simply not in a position to be able to demonstrate their interest with participation.

The hypothesis is effectively proven by the non-participation, which is on record.

Certification Issues

Ten local (BC) companies have been contacted to collect information on how they handle product testing and certifications. While the sample is relatively small, it shows that all companies use outside test laboratories to assist them, that they find the process both necessary and onerous. The comments received are summarized in the following section, without reference to who made individual comments.

Table 1 on the following page lists the companies responding to the phone survey. The types of approvals they normally seek are also shown.

All companies used one or more outside lab for product testing and assistance with approval filings. Table 2 gives a listing of the testing labs named by the interviewed companies.

TABLE 1 INTERVIEW LIST

COMPANY	CONTACT	PHONE #	Telco Interconnect ISC/FCC	Emissions FCC	Radio ISC/FCC	Safety CSA/UL	INTERNA-TIONAL
CREO	R. Lavaseur	(604) 451-2700	No	Yes	No	Yes	No
DANIELS	R. Small	(604) 382-8268	Yes	Yes	Yes	No	Yes
DBA	A. Hewitt	(604) 985-9521	Yes	Yes	No	Yes	Yes
DEES	S. Spiro	(604) 946-8433	Yes	Yes	No	Yes	No
IMAN	A. Tsang	(604) 946-5630	No	Yes	No	Yes	No
NORSAT	D. Filmer	(604) 597-6209	No	Yes	No	Yes	Yes
OMNEX	A. Severinson	(604) 944-9247	No	Yes	Yes	No	No
SIERRA WIRELESS	N. Toms	(604) 668-7328	Yes	Yes	Yes	No	No
VISCOUNT	F. Jubany	(604) 327-9446	Yes	Yes	No	Yes	No
XINEX	P. Lancaster	(604) 526-1585	Yes	Yes	No	Yes	No

TABLE 2 Laboratories Used by Interviewed Companies

LABORATORY	USED BY	TYPES OF TESTING
ACME Wash.	4 companies	all kind, all countries
Certelecom Ottawa	2 companies	all kind
CSA, Edmonton & Rexdale	5 companies	safety, CSA & UL
Dash, Straus & Goodhue Mass.	1 company	all kind
Electronic Test Centre Edmonton	3 companies	all kind
Spectrum Technology Seattle	2 companies	radio, emissions
Warnock Hersey Coquitlam	1 company	safety, CSA & ETL

The companies tend to use the same lab(s) repeatedly. All companies found that they received good assistance from the lab they use, including help to fix minor deficiencies.

One company used a US lab for approvals in all countries. All others who do non-American approvals go to lab(s) in the country for which they want certification.

A couple of companies made use of local consultants to assist them in identifying relevant standards and to get their products ready for testing. Messrs. Marz Neumeister, Brad Sullivan and Darcy Smith were mentioned. One company uses a pre-test service offered by MPR Teltech to check their "approval readiness". MPR possess the necessary facilities for FCC Part 15 type testing, but lack the official certification to allow measurements to be used in actual filings. At $500 for a half day it may be a valuable resource for Vancouver companies.

Comments were made on the growing number of standards to be met. For example, Stentor and Bell Canada are now implementing their own compatibility and immunity testing, which get added to IC, CSA and others.

IC (former DOC) standards for radio equipment was commented on as being significantly more stringent than those required by agencies in any other countries, forcing additional engineering for the small Canadian market. Significantly greater harmonization in product approvals and spectrum usage between IC and FCC would be very beneficial.

IC's policy of regional autonomy, causing a different frequency assignment strategy in every local IC office, was also seen as a major hindrance in providing effective (legal) radio service in Canada.

CSA seemed to be the preferred lab for safety testing, both to CSA and UL rules. They were considered to be significantly less expensive than other labs. Labs in both Rexdale, ON, Edmonton, AB, and in Vancouver, BC were used. The Rexdale user probably went there due to old habits, and the good service received. Some companies thought that they got quicker response from the Edmonton lab than from Vancouver and thus the preference to go there. Edmonton's offices were seen as more oriented towards telecom equipment than the Vancouver office. All facilities were viewed as giving good service and as being co-operative.

UL was generally considered to be very bureaucratic and most people avoided them by having UL approvals done through CSA.

One company gets CSA and ETL (UL equivalent) testing done by a Coquitlam company called Warnock Hersey. Some other companies were considering using their services. Warnock Hersey is fairly new on the Vancouver scene.

One company has taken the approach of doing their own CSA/UL approval. Two reasons were given; one is that the equipment is large and difficult to move, the second is that they did not have to send the equipment away for a substantial amount of time during critical phases of the development. CSA has well documented procedure to help with the company approvals. Two different pieces of test equipment had to be rented to carry out the prescribed tests. Visits from a CSA inspector were done, and some retesting had been ordered, but all in all it was judged to have been a good approach and they were going to do it again on new equipment.

One company selling products in Japan claimed that they had got their CSA approvals recognized in Japan and they did not have to do any retesting to enter that market (they needed safety approval only). The CSA 950, UL 1950 and IEC 950 specifications are claimed to be virtually identical, greatly assisting the company in getting wide reaching approvals with minimum effort.

Two companies have approached Aprel but have not received quotations and did not pursue them further.

Companies dealing with Germany generally found specifications to be tight, but the process of approvals seemed well handled by the German labs they used.

One company commented that specifications in Spain were probably written to keep foreign companies out, doubting that any local company could meet the demands in the specifications.

Reference Appendix D, Laboratory Directory

Adoption of Standards:

The findings of both the survey and the case study illustrate the real nature of this topic. Exporting firms must either adopt the standards which prevail in the market of interest, or they do not have the opportunity to do business there.

However, in recent history, the context for this subject has been based upon ISO-900X classes of standards which, if adopted by Canadian industry, would maintain the ability of our domestic exporters to tap into existing and new markets in export countries.

> As indicated by case study responses, 50% of respondents have achieved ISO9K certification, or expect to do so shortly.

The Canadian Government has taken some steps to apply these standards to their own purchases, to provide some impetus to the transition; this was reported in the case studies to be at least partially positive, and while there are many dissenters, the move is seen as somewhat beneficial.

Telecommunications product makers, the focus of this study, do not encounter difficulties as the result of failing to adopt any class of standards. In Canada, it is widely recognized that if a product is to be connected to the telephone network, it must comply with several types of standard. If it plugs into an electrical socket, it must comply with several standards. It follows naturally and logically that foreign countries extract the same types of tolls.

Definition of SME

The acronym is derived from the words Small to Medium Enterprise. In the reports generated by CTAC, and later issued by NGL Consulting, the definition embraces the 200 or so telecommunications product firms "smaller than Northern Telecom", and specifically names such firms as Mitel, SR Telecom, Gandalf, Glenayre and Newbridge as the more significant players in this category.

This definition is assumed throughout this document.

Managerial Awareness

As above, for the SME attempting to export telecommunications products, the issue is not awareness, but access to standards information.

However, this particular member of the telecomm standards lexicon of the '90s carries several connotations, each with a context based on a particular point of view:

- Senior managers of firms are not aware of the importance of standards, for if they were, they would be much more supportive of employee participation in standards-making bodies.

This context is an important one with respect to export markets, and is valid, as demonstrated by the major telephone carriers and equipment makers trend toward the reduction in such participation. For example, the support of committee Chair activities has largely been withdrawn by Stentor and the BCE group.

The context has, however, been used as a platform for other positions. Canada's DOMESTIC standards-making bodies are declining in participation (largely, one would expect, from the need to accept some harmonization of our standards with ROTW) by all firms. SMEs rarely have been participants in any event. Another example of this phenomenon is CIGOS, which has a very valid mission at present, but which was also part of the "Protocol Wars", between ISO X.400 and the TCP/IP camps.

- Senior managers of firms are not aware of various trends in standards-making, and could benefit greatly from knowledge of ISO9000 proliferation, the progress and potential impact of ETSI, and other developments.

  This is a more relevant definition, in the eyes of the SME, since it does provide strategically valuable insight into the happenings elsewhere (and domestically, for government purchases).

- Senior managers of SMEs are not aware of the developments taking place within standards-making bodies that could directly impact their specific products or product plans.

  This context is understood to be that held by Industry Canada's Standards Program Office. The standards-making bodies involved include the various study groups, Joint Technical Committees, and others working in the areas of new or evolving technologies, where knowledge of the subject matter being studied, the positions of the respective participants, and the issues resisting resolution could be strategically important.

There is also the narrowly held view that access is only a problem to those very small firms with no experience in exporting. This view is firmly refuted by the case study findings that fully 50% of the more powerful SMEs in the country (Mitel, Newbridge, Marconi, Glenayre, for example) reported access difficulties.

The stated focus of Industry Canada's Telecommunications Sector Campaign, and the consequent focus of this study, is the export of telecommunications products by SMEs.

Managerial Awareness then, if this focus is honoured, embraces the latter two examples of context.

There are many internationally diverse committees in which Canadian representation is being provided, that are potentially important to Canadian SMEs, and that should benefit from the Sector Campaign. Except for a select group of individuals, the broad SME community in Canada is unaware of the scope or intent of such groups as CNO/CCIR or JTC-1.

This issue is explored in Section V, Action Plan portion of this report.

III. SERVICE PROVIDERS

Service providers are those agencies rendering services in aid of exporting firms. These are broadly classed into governmental, Canada-domiciled, and foreign. The latter group could be collected into those rendering their services in the target market country, and those in, say, the U.K. or U.S.A., who provide services outside of the target country. There is no apparent reason to thus complicate the study, so this latter distinction will not be observed, except as the context dictates.

Government of Canada (standards-related) services theoretically available to domestic firms could be defined to include the following:

- participation in ITU and ISO standards-making
- provision of information, and sometimes documents, relating to standards applying to products exported into specific foreign markets (including Standards Council of Canada information service)
- in-country embassy and trade officials who can assist Canadian companies in doing business, selecting partners, obtaining data, etc.

A key question addressed by the case studies is the definition of the type of service that should be provided by the government. In order to define the possible services the following hypothesis was developed:

- *the role of government will be precisely defined as a support function.*

Responses from companies were singular in their definition of the role of government as that of support only. Companies do not see the government involved in any role other than supporting the development of international standards by companies and in assisting companies to comply with international standards by helping to make this information available to the companies that require same.

An important continuing role is the support of Canadian participation in international standards-making bodies. The scope of this activity is well hidden from most SMEs, to whom acronyms such as "CNO/CCITT", and "JTC-1" are unfamiliar. This fact illustrates a potential impact on the Managerial Awareness and Action Plan sections of this document.

Companies expressed a number of views on the specific types of support services they would like to receive from the government. The primary role seen for the government was as a provider of information on existing standards. As stated earlier in the report companies have experienced the greatest difficulty defining which standards apply to which markets and products. Companies have no choice but to move quickly to address international markets due to the size of the domestic market for telecommunications equipment.

Domestic non-government service providers are largely testing laboratories which are resources who can assist with many aspects of information provision, product qualification (where accepted) and the various other processes associated with achieving product certification.

There is a large community of consultants with varying levels of credentials and qualifications, who can represent an extremely valuable role in planning and processing of certification steps.

Foreign agencies providing services include the major standards-making bodies (ISO, ITU, ANSI), a number of testing agencies who specialize in information provision and in (pertinent) certification testing, and a number of consulting firms who act as intermediaries in the evolving standards monitoring processes.

There are also those firms providing standards and regulatory information through newsletters and other publications. Some firms either stock, or provide other expedited access to standards documents.

Document translation into English (or French) from the prevailing language in the target country is supported (for the EC) by the British Standards Agency.

Electronic Information Services are provided domestically by the Standards Council of Canada (ISO, IEC). The International Telecommunications Union in Geneva supports information related to ITU and ETSI via their service, using a variety of access methods, which include the internet, MCI mail, telephone and others. The third major service is offered by Committee T1 of the American National Standards Institute (ANSI) in the United States.

The SCC "standard" service is limited to ISO and IEC standards. The ITU information base is accessible by virtually anyone, but many documents are available only in hardcopy form, for reasons of revenue preservation. Only members of specific study groups are able to access more than very cursory "in process" standards documents, thus limiting the effectiveness of the service to most firms. The ITU resource also is theoretically an access path to ETSI documents, but this pathway is of mixed performance success.

The ANSI/T1 resource provides dial-up and internet access to most documents (standards, meeting minutes, submissions to study groups), and also provides an archived list of ETSI documents. This latter data resource was used for the information studied in Appendix G, as part of the information cataloguing effort.

The "NAFTA" markets (the U.S. and Mexico) are quite accessible by Canadian SMEs. Except in Canada (ironically), standards are not generally used as barriers to trade. And, except for Mexico, which has historically been in "ITU" territory, and whose telephone system has been built using signalling and transmission schemes common to "ROTW" (the Rest Of The World; Canada and the U.S. are an island of home-grown conventions), not only is there a "plug and play" capability, the respective jurisdictions generally accept test results from any of many laboratories, including in-house ones.

This strongly infers that service providers within Canada are capable of supporting exports to other NAFTA countries. The observations reported in the section on testing laboratories do not deny this capability, but certainly indicate many failures to demonstrate it.

The conclusion that must be reached from these observations is that there are many service providers, that the concept of providing services in exchange for fees is well established for this sector, albeit at rates spanning a broad range, and that the take-up of these services is not uniform across the SME telecomm industry base.

IV. GAP ANALYSIS

Needs versus Services

The material received from companies via both the case study process and the surveys indicates that there is a very important set of basic needs that require addressing. The needs are seen as somewhat generic in that there is not a wide range of needs defined from the information obtained.

However, there is a series of wide ranging services that are required to address these needs. The servicing of needs is for the most part directly a function of products and markets. Within the standards process these needs are addressed through the provision of information. Information sources are currently numerous as evidenced in earlier study findings. While these sources are not all mutually exclusive one from the other they tend to be market based and are influenced through continuance product development and standards development to cover the new products.

The problem is that in the information sources required to address all markets and all products are very large. The selecting of the relevant information that pertains to the key products and the key markets is a difficult one due to the size and the complexity of the information sources utilized.

The service providers are responsible for producing the most up-to-date information on the products and markets that are covered by the information source. This is a major task due to the degree of regulation that impacts on the marketplace. The complexity of the information source is exacerbated due to the continual innovation process that brings new technology and new products into the regulated marketplace.

Further compounding the above problems that the service providers are attempting to grapple with is the powerful movement towards globalization of the sector and the products therein. The companies supplying information for this assignment have stated it very concisely. The Canadian market is too small to provide a viable marketplace for high technology telecommunications products. Therefore Canadian producers as well as producers in many other countries are moving to export markets very quickly. In so doing these manufacturers are hoping to secure enough of a world market share that economies of scale can be generated in the production process.

If there is going to be the economies of scale achieved by the production entity it is critical that the products moving to all of the markets selected are the same products. this can only be achieved if products are sold in markets with automatic compliance with international standards that are consistent from market to market.

The gap defined here is that standards are not consistent from market to market and yet the manufacturer must produce for a share of the world market. Some companies seek to have new standards evolve in a consistent fashion from market to market and this addresses the economies of scale production problem. In some cases this strategy is

very workable and companies have proven that this is the case. However, there is a heavy time and dollar cost associated with this strategy and as such this option is not available to all companies involved with new products and new markets.

Another dimension of the above gap is that of existing standards. As companies increase production capacity and capability generally they are interested to move products into more markets. In so doing, firms must seek to find a balance between product modification to ensure compliance with the standards of the new market and the need for consistency in the production process that is going to provide for the benefits of economies of scale production.

Companies have addressed this aspect of the gap between service providers and needs by seeking markets that require minimal product adjustments in order to comply with the standards. This is a technical question in many instances as the information source containing the standards for the market in question may require a very detailed review. The company who is very familiar with the product it produces is in all likelihood not familiar with the information base, with the standards in place and requires assistance to bridge this gap. This assistance is not provided by the information provider who is involved full time with the maintenance of the database. Assistance must be obtained from a source that is familiar with the information base. This normally requires engagement of a professional intermediary of some sort and this gap solution strategy can be costly.

In summary, the difference between the needs of the companies and the services available from the information sources is that not all information sources are complimentary one of the other and the information must be tailored to the specific needs of the companies.

The specific problems identified are clearly,

- identification and access to standards documents, complicated by translation and interpretation of content
- information pertaining to the administrative and other local culture in destination countries, as it pertains to certification; some indication that the identification of potential resources who could assist in-country is a challenge
- costs associated with providing on-site company personnel participation in the process of certification testing (and waiting)
- preparation of both the company and the product for offshore penetration is lacking in many cases
- in-Canada resources to assist with offshore certification and other activities are either not available, or not identified to the average SME
- for North America, there is a gap in the ability of SMEs to locate and select testing labs which will deliver the desired result

- advance intelligence of evolving standards is lacking in half of the "mature" firms reporting in the case studies, and one could easily infer that the proportion of smaller firms would show a much worse result.

- the ability of SMEs to access the activities of already-sponsored Canadian participation in international standards-making activities is negligible

Impact of Closing the Gap

Globalization has recently been demonstrated as the optimal trade strategy. The elimination of the above gaps would help to move Canadian telecommunication equipment manufacturers onto more equal ground in the global trade situation.

The most often mentioned barrier to the penetration of export markets was delay, as shown in the case study returns. Industry experts have assessed the overall impact of a six month delay in product introduction at 30% to 50% of cumulative gross sales of the product. It is obvious that those countries employing standards and certification as barriers to imports are aware of this fact; this in turn provides a basis for many of the analyses attempted, and for those still to be addressed in future programs.

For each of the difficulties outlined in the preceding section, the consequent impact of possible remedies is discussed.

- *identification and access to standards documents, complicated by translation and interpretation of content*

Each firm wishing to export products must individually search out applicable documents governing each product they wish to export to each country. Each such document must be translated into English or French by an agency or expert who is sufficiently familiar with the subtleties of the interpretation of the technical language to avoid serious errors; this latter qualification applies with or without language translation. The internal costs to a firm to seek out and procure these documents is estimated at $1,000 per product per country for an experienced firm. Anecdotal reports indicate that a NEW exporter could easily expend 2-3 person-months in this phase alone. The interpretive problems are assumed to result in a 10% rate of certification failure, based upon case study findings and undocumented interviews with participants.

Assuming that 100 firms each address 5 new product/market ventures per year, the direct cost to these firms exceeds $500,000 per year. If a product certification carries an average cost of $10,000, the cost to industry of the failed 10% is another $500.000. Document translations are never inexpensive - there are services offered in the U.K. (into English) that are unknown to many SMEs, who may incur an unknown penalty in pursuing other routes.

It is estimated that up to $1 million per year could be saved by Canadian SMEs, were there a central source for the above information.

The basis for the above projections of costs and savings is the population of 200+ firms, the knowledge that just one of these firms pursued more than 20 product/country certifications in 1993, and the knowledge that typical loaded labour rates for typical technical personnel in this industry average over $300 per day.

- *information pertaining to the administrative and other local culture in destination countries, as it pertains to certification; some indication that the identification of potential resources who could assist in-country is a challenge*

Experience is the only apparent means of acquiring the knowledge of process that might mitigate the delays and other penalties inherent in the path to product certification. Generally, this experience is held captive by the sponsoring firm. All of the mature firms involved in the case studies placed a high value on in-country intermediaries, who were divided among clients, distributors and consultants. While companies will choose their clients and distributors according to their own commercial opportunity analysis, some sensitivity exists in the area of consultant expertise. No attempt was made to place a value on this particular factor, but it is obviously a candidate for further analysis.

- *costs associated with providing on-site company personnel participation in the process of certification testing (and waiting).*

The bulk of the costs of certification were assumed to be salaries, travel and lodging for company employees participating in the certification process. All of the case study respondents cited employees as the most valuable contributors to the process. If we assume, again, 500 new product/country certifications per year, at an average cost of $10,000, the total expenditure of the domestic industry will likely exceed $5 million per year. [One firm interviewed expends more than $250,000 per year on salary, travel and lodging for certifications of a limited product line; this figure is more than 1% of the firm's gross worldwide sales.] This adds credence to the suggested government roles, as suggested by some case study respondents, that a program to offset these costs be supported.

The impact of any direct cost-offsets would be felt directly by the industry; the timing of such offsets would be most beneficial if it were coincident with the expenditures by the firms.

- *preparation of both the company and the product for offshore penetration is lacking in many cases*

No firm data were available to allow an estimate of the costs of this presumed lack of preparation, the information being largely anecdotal and subjective. However, as recommended by Patton & Associates (Appendix E), a checklist approach to preparation of equipment and personnel does offer some promise. Were a service offered to SMEs which clearly identified the broad spectrum of preparatory steps and hazards associated with each destination market, the costs of preparation and failure would likely be decreased dramatically.

- *In-Canada resources to assist with offshore certification and other activities are either not available, or not identified to the average SME*

In an attempt to rationalize this statement with the presence of under-utilized knowledgeable Canadian professionals, the critical piece of information turns out to be surprise on the part of the companies that costs and delays are so extreme. It follows naturally from this fact, that if firms knew in advance what costs would be, they would be more aggressive in attempting to reduce these costs, and the use of accessible consultants would likely increase. [There is also the propensity of company employees to under-estimate or understate the costs associated with standards and certification, particularly on items which have exceeded their budgets, further aggravating the situation.]

This category of difficulties is possibly best addressed as part of the preparation challenge above.

- *For North America, there is a gap in the ability of SMEs to locate and select testing labs who will deliver the desired result*

The problems cited by both survey and case study participants include not only information gaps, but large disparities in costs. These disparities span not only service and fee dissimilarities, but costs of preparation and attendance during testing. Particularly for the beginning exporter, there are many errors which can be made, any of which can result in many months of delay in product introduction, and in many thousands of dollars in direct and salary costs.

While the costs of these difficulties have not been estimated, there appears to be an opportunity to reduce them drastically through the methods presenting themselves in pursuit of the previous two challenges above.

- *Advance intelligence of evolving standards is lacking in half of the "mature" firms reporting in the case studies, and one could easily infer that the proportion of smaller firms would show a much worse result.*

No valuation of this gap or its closure was attempted. The category is "strategic" in nature, and likely to not show any effect for several years after any information is obtained. Of equal concern to firms is the transition of common carriers to an unregulated status; each country's conditions and pace are different, and opportunities for not only sales, but equity frequently arise from the latter.

The provision of advance intelligence, while largely related to standards, is considered to be best categorized in the "Strategic Information" portion of the Telecommunications Sector Campaign.

- *The ability of SMEs to access the activities of already-sponsored Canadian participation in international standards-making activities is negligible*

Tempering the statements above with respect to advance information on evolving standards, is the fact that there appear to be many government and private personnel engaged in various international standards-making bodies. An Industry Canada manager

was heard to state that there does not appear to be a centralized list of people, companies, agencies or committees involved. CNO/ITU thrusts are presumably known, but their reach to SMEs is negligible. Many ISO and Joint Technical Committees have Canadian participants, but once again, their reach to SMEs is minuscule.

The cost of this failure to communicate with the SME community is not estimated in this study, but closure of this information gap would clearly be of great benefit to these SMEs.

V. Conclusions and Recommendations

The Gap, Recommendations and the Role of National Wireless

- *Identification and access to standards documents, complicated by translation and interpretation of content*

  Recommendation:

  A common repository for information which would allow Canadian SMEs to easily and inexpensively determine which standards apply to virtually any type of telecommunications product, and the means to cross-reference and maintain current, the contents of the repository. Additionally, the sources and costs for each document should be provided, and subsidiary information relating to document translation and/or interpretation resources should be provided.

  National Wireless Role:

  NWCRF believe they are capable of playing a major role in the planning, building and operation of such a service, in cooperation with Industry Canada and the various departments and services currently being supported by them.

- *Advance information upon which SMEs may prepare their products, their relationships with domestic and in-country intermediaries, their certification budgets and personnel allotments, and their schedules are lacking*

  Recommendation:

  A catalog, a tutorial and a series of ongoing seminars, containing both generic and market specific information on preparation, administrative hurdles, technical factors, and intermediary use and provision. This set of resources would contain not only currently available official publications, but the summary of experiences of firms proceeding through the compliance and certification processes. If appropriate, these items could be divided into market-specific, and/or product family specific versions, to reduce the amount of information to be digested by participants.

  National Wireless Role:

  There are two strategies which would be employed. Firms such as CCL of Utah, and Patton & Associates, already provide packaged seminars and consultative services for some of the above items. Additionally, there may be Canadian testing laboratories or other agencies who have already developed materials which could contribute to closing this gap. The strategy for these existing services would be to contract delivery of the appropriate documents or presentations to these organizations, or perhaps license the material for delivery directly.

  The second strategy addresses the more detailed information which may be required in a specific case, where assistance in locating domestic and in-country intermediaries could be required, on a specific contract basis.

Both of these strategies are felt to be within the mandate and the capability of National Wireless to undertake.

- *Information pertaining to the administrative and other local culture in destination countries, as it pertains to certification appears to be obtained only through direct experience by each firm*

Recommendation:

Reduce the duplication of this "learning curve" through not only the information provision strategies outlined in the previous item, but provide a means of acquiring and disseminating the benefits of the experience gained by individual companies undergoing certification processes, either by direct contributions of information by the companies, or by increasing the pool of knowledge available through the consulting community. This latter strategy is dependent upon some means of increasing the awareness regarding, and the use of, such existing consultants by the SME community.

A two stage process, then, is suggested. In stage one, the above topic which proposes an information program to more adequately inform SMEs of the problems to be encountered, would clearly identify the need for assistance in foreign market entry. A logical spin-off of this task would identify persons and firms able to render this assistance. The increased use of these would lead to the desired increased experience.

National Wireless Role:

There are two distinct roles for an organization such as NWCRF. One of these is to maintain, if the information service in the first item of this section is to be provided, files of data on country-specific "lore" relating to establishing a presence there. This information would also reference resources known to be knowledgeable in a given product/market area. Both types of information would be made available to SMEs under the rules of access that may be put into place.

There is no inference that National Wireless would provide personnel directly, although the possibility of doing so under government or other contract is open for discussion.

- *Costs associated with providing on-site company personnel participation in the process of certification testing (and waiting) are excessive and unexpected in many cases*

Recommendation:

This barrier to exports impacts the smaller firms more heavily than the larger ones, and carries its greatest penalty during a firm's initial entry into the export arena. Therefore, some means of offsetting these costs that can be delivered directly to the firm in a timely fashion is desired.

Direct subsidies for travel and lodging may not be easily implemented in the increasingly open trade environments of the '90s. However, there appears to be a definite correlation between a firm's initial sorties into exporting, and their need for consultative assistance in preparation for this step.

The recommendation, therefore, is for government to provide funding for consulting services related to export and certification preparation, with a bias toward new exporters, or at least new destination markets. This funding could be administered by non-profit entities, as initially proposed for other programs, such as the Management of Software Development item identified in the Sector Campaign documents.

National Wireless Role:

National Wireless are both mandated for and capable of the administration of such a program on behalf of Industry Canada, based upon the organization's role under the Technical Outreach Program, and the consequent reach to industry, and in-house understanding of the processes involved.

- *For North America, there is a gap in the ability of SMEs to locate and select testing labs who will deliver the desired result*

- *For offshore certification, there is a large gap due to the fact that Canadian testing laboratories are not recognized by many destination market certification agencies.*

Recommendation:

Undertake a program to more accurately assess both the scope and depth of each testing facility's offerings. Essential to the process are two further steps, the compilation of firms who have previously used each facility's services, so that inquiring SMEs may directly receive the benefit of these firms' experiences, and the ongoing maintenance of these data, to reflect the incremental increases in experience by each firm, and possible changes in strategy by them.

National Wireless Role:

A study to assess the capabilities of each test laboratory is felt to be partially within the mandate of National Wireless, through our Technical Outreach Program objectives. Assistance in defining and perhaps administering such a study contract would be a minimum role that Wireless would wish to play.

The ongoing maintenance of laboratory capabilities and users would fit closely into an information system providing other strategic standards/certification information to SMEs, as indicated throughout this Section, and would be sought by National Wireless.

- *Advance intelligence on evolving standards is lacking, as is that on regulatory structure changes in many export markets*

Recommendation:

There are three obvious pathways by which such information may be obtained and disseminated:

- Participants in standards-making bodies, as in the last item in this Section, represent a promising source of strategically important information. There is no means in place to collect and disseminate same. Earlier suggestions put forward in various documents from Dr. Denis Hall, and by the Standards Council and other bodies, have suggested means of obtaining reports from these individuals or companies. Specifically, an inventory of all participants in such bodies is a mandatory first step. Once that is complete, we recommend that this information be presented to the SME community for analysis, so that a determination may be made of the potential value of employing this method of information access. Finally, a workable strategy should be sought, in consultation with both the SME community and those organizations, such as National Wireless, who may be able to assist in the access and dissemination of tasks.

- Government officials abroad may be in a position to garner important data on at least regulatory evolution in various countries, as part of the Strategic Information Program under the Sector Campaign. A means to collect, collate and disseminate same is required. The recommendation is to proceed with this program, but to do so in consultation with industry and associated organizations, to assist with definitions of information and access thereto.

- Existing and pending electronic information services offer varying degrees of currency and detail regarding topics under discussion, and in some cases, even proposals and meeting minutes covering current topics. Specific agreements with each of the organizations (including Standards Council of Canada, the ITU, ANSI Committee T1, possibly ETSI) must be reached with respect to copyright, confidentiality, and fees. This would be a first step.

  The second recommendation follows on the successful catalog exercise undertaken under this contract, and would, given the above permissions, expand the scope of the information catalog to embrace all of the agreeing organizations' data, and to further enhance the structure of this information for more targeted retrieval. The obvious third recommendation is to structure a service which would actually make the data retrieval function available to SMEs, for a fee, and possibly on an international basis, if feasible. This last item is offered as a topic for further discussion and study.

National Wireless Role:

As implied above, National Wireless propose to undertake programs to gather and deliver strategic information made available by participants in

international standards-making bodies. This may be multi-faceted, as some parts of this have been proposed to be undertaken by the Standards Council of Canada. National Wireless would propose to combine such information with that obtained from sources not easily accessed by SCC, for single-source packaging and delivery to SMEs.

With respect to government participation in the gathering of strategic information, National Wireless foresees a valuable role in assisting government planners with the definition and categorization of information and its sources, at the outset, but more importantly, in providing a dissemination mechanism to the telecommunications SME community. It is felt important to emphasize the value of a single channel through which such information can pass, to avoid duplication, to effect cross-referencing, and to more tightly target the potential recipients thereof.

The third task, the operation of a centralized information retrieval and extraction service which employs existing electronic information services for source data, was earlier proposed by National Wireless, and is felt to be of increasing potential value to the SME community, based upon the results of this study.

- *There is an unknown, but significant level of participation in international standards-making bodies by Canadian nationals, but SMEs have no means of gaining any known benefit from this participation, much of which is funded by government programs.*

This item is covered in the above sections.

Managerial Awareness

The following key points were developed in Section II:

- Senior managers of SMEs are very aware of the importance of standards to their business, and this fact, supported by the findings of this study, appears to render invalid the definition of the Managerial Awareness thrust of the Telecommunications Sector Campaign.

- There are admitted gaps in the knowledge of SMEs with respect to standards evolution, and there was no recognition of the roles of such government sponsored activities as CNO/ITU shown by case study participants.

- Managers of smaller SMEs are unaware of the real costs and obstacles in the way of achieving product certification in foreign markets.

These findings indicate a more appropriate focus for the effort and funds originally identified for this activity in the Sector Campaign.

Recommendations:

The first recommendation would allocate Managerial Awareness program funds toward the action plan identified here, with a focus on educating SMEs in the complexities of foreign certification of products.

The second recommendation places a new item into the Sector Campaign "Strategic Information" thrust, which must be some means to disseminate to SMEs the advance information available to federally funded standards-making participants.

National Wireless Role:

If this Action Plan is approved, National Wireless propose to coordinate and arrange for delivery of the service in the first recommendation above, and to assist Industry Canada in defining a method of accomplishing the second recommendation, and eventually performing the dissemination.

The above role appears obvious, given the position of Wireless to be the single focus for SME-oriented Standards Support programs in Canada.

Access to Standards Information:

The case studies showed that even seasoned exporters experience difficulty, on a continuing basis, in identifying and acquiring standards documents. While generally firms did not see availability of these documents as a deliberate "barrier" to trade, they did experience problems.

There are several strategies proposed to handle the three basic problems identified:

- Database of standards document facts - providing cross-referenced keyword data, sources of documents, costs, etc.
- Associated database of "experts" capable of assisting with the interpretation of these documents, both in Canada and abroad; the latter would be assumed to be capable of assisting firms with "administrative" issues in the target country.
- Sources of translation services, or translated documents, referenced above, that could be used by SMEs working in either official language.

Recommendation:

The provision of an information service which includes the above-listed data, and which supports the sourcing, maintenance and dissemination-for-fee of extracts therefrom is recommended.

A fundamental concept of this service would dictate that it be "Need-driven" based upon industry requirements. [By contrast, the existing SCC information base is

driven by that organization's affiliations with ISO, IEC and CENELEC, and there has historically been no mandate to include ITU, ETSI, ANSI/T1 or other agencies' information in their service.]

A second concept assumes that some significant level of operating costs can be derived from fees charged for many of the services. Some reservations exist with respect to services which may have a significant impact on a sector-wide basis, but for which individual SMEs are unlikely to pay a representative fee. Smaller SMEs, for example, should be exposed to longer-lead time information on evolving standards, but are unlikely to equate the value received to current expenditures for the service.

The exercise undertaken within this study to assess the viability and usefulness of a keyword-based information retrieval method would be used as a model for this service. It is assumed that conventional relational database tools can be implemented to support the remaining functions described above.

National Wireless Role:

National Wireless has demonstrated the feasibility of the approach, the ability to structure and model this information service, and has the mandate and focus upon the telecommunications SME clientele to accurately target the service to the desired client SMEs.

National Wireless then, as the single focal point for the Telecomm Standards Support of SMEs, can deliver this set of VALUE-ADDED and individually tailored services in the most appropriate form.

Action Plan

In August of 1993, National Wireless circulated within Industry Canada and CTAC, a document describing a Standards Support Program, to be undertaken by Wireless and to be funded under the Telecommunications Sector Campaign.

The findings of the survey and the case study do not materially change the elements of this proposal.

There has been some evolution in information services, including a pilot service sponsored by TSACC, and there have been a number of additional resources identified which may be used in acquiring information for use by SMEs.

Canadian SMEs were assumed to have a set of basic needs associated with the attainment of product certification in target countries. These assumed needs were presented to an experienced segment of the SME community as questions related to hypotheses to be tested for correlation with these needs.

Responses to these questions verified the vast majority of these assumptions and hypotheses, and thus supported the contentions advanced in the August, 1993 proposal. Given that no major failures of these hypotheses were encountered, the validity of the objectives of that proposal stands.

Tactical Changes:

There have, as suggested above, been some advances in the provision of data by various service providers. The task identified to evaluate the form and contents of these various data sources would require modification to capitalize on these new developments.

The difficulties experienced by SMEs in various markets have been localized to Europe and Australia as the most serious problem areas, allowing more time-sensitive attention to be paid these critical markets.

The level of appreciation of certification costs by junior SMEs is lower than anticipated, and a series of materials and seminars is indicated to close this gap. As a consequence of this educational process, it is anticipated that SMEs would be better able to both appreciate costs to be encountered, and to define and price value-added services crafted to assist them in improved costs and response times.

The level of difficulty experienced by the more seasoned respondents to the case study was higher than anticipated, suggesting that value-added services capable of attracting participation by these firms may also be larger than originally thought.

A strong desire was evidenced for broader government support of SME certification expenses in foreign markets. Given free trade pressures, an alternative program is proposed, wherein organizations like Wireless could be the conduit through which government support of Preparation steps could be directed to consultants. This would bypass potential difficulties with "export subsidies".

The breadth of some of the tasks defined in that earlier proposal would benefit from some additional funding allocations, although a thorough analysis of the effects of the passage of 9 months or more since the original estimates, has not been done.

Conclusion:

This study clearly demonstrates the many issues facing SME as they prepare their product for sale:

- Identification and Access to Standards documents
- Advance information to prepare products and relationships
- Administrative and local culture information as it pertains to certification
- High costs of providing on site personnel to assist in certification testing
- The Gap in the ability of SMEs to locate and select testing labs
- Lack of recognition of Canadian testing laboratories by foreign agencies
- Advance intelligence on evolving standards.

The study has supported the need for intermediaries to assist companies in meeting and solving many of these challenges.

National Wireless, through the organization's unique position as both a focal point for the Telecomm SME Community and as a demonstrated source of knowledge and experience in analyzing the standards issues presented, is the ideal organization to formulate and deliver the services defined in this document.

The Telecommunications Sector Campaign seeks to provide solutions to these needs through the provisioning of specific services available to SMEs and the original submission of National Wireless to implement that portion of the Telecommunications Sector Campaign submitted in August of 1993 remains as a valid proposal to address the solutions.

These needs form the basis for the offering of services to the SMEs that may be a profitable venture.

The National Wireless Foundation strongly urges immediate action on the part of Industry Canada to implement the recommendations outlined in this and in the earlier Wireless Standards support documents.

APPENDIX A

Questionnaire Copies

NWCRF Telecom Standards

Mini Survey

In an effort to prioritize services to be offered under National Wireless' proposed Telecomm Standards Support Program, we would appreciate receiving input from product designers and producers on the following subjects:

1. What are the types of issues you are concerned about regarding existing Telecomm Standards in Export Markets?
   - ___ determining which standards apply
   - ___ obtaining copies of standards documents
   - ___ finding qualified labs which can certify to existing standards
   - ___ information on other requirements for entry to a new export market (other than standards)
   - ___ no issues of concern relating to existing standards
   - ___ Other issues (specify)_____

2. Has access to information on existing Telecomm Standards been a barrier to entering new export markets?
   - ___ Yes
   - ___ No

3. Please identify the ONE organization your company uses most frequently for information on Telecomm Standards affecting Export Markets.
   - ___ TSACC
   - ___ SCC
   - ___ ITU (CCITT, CCIR)
   - ___ CNO/ITU
   - ___ ANSI/TI

4. Please rank the services provided by that organization.

	Excellent				Poor
Timeliness of Responses	1	2	3	4	5
Accuracy of Information	1	2	3	4	5
Available Interpretation of Standards	1	2	3	4	5

5. What are the most significant issues of concern in the establishment of **NEW STANDARDS** and the evolution of existing Standards in the Telecomm area?
   - ___ identifying which organizations are working on particular standards
   - ___ dedicating internal resources to participation in standard formulation
   - ___ defining the commercial link to these activities focusing on technical standard formulation
   - ___ securing technical advice to assist in standards formulation
   - ___ minimal understanding by senior corporate management regarding the importance of new standards formulation

6. What should the role of government be in the formulation and dissemination of Telecomm Standards in support of Canadian exporters?

The following questions are designed to identify the characteristics of your organization for the purposes of grouping responses with those of comparable companies.

1. What is the size of your company based on last year's sales?
   - ___ less than $1 million
   - ___ $1 million - $2.5 million
   - ___ $2.5 million - $5 million
   - ___ $5 million - $7.5 million
   - ___ $7.5 million - $10 million
   - ___ Over $10 million

2. Where is the head office of your company located?
   - ___ Eastern region (Maritimes)
   - ___ Central region (Quebec & Ontario)
   - ___ Western region (Manitoba, Saskatchewan & Alberta)
   - ___ Pacific region (British Columbia)
   - ___ Foreign country _____

3. How many full-time employees are currently on staff in Canada?
   - ___ less than 50
   - ___ 51 - 100
   - ___ 101 - 500
   - ___ more than 500

4. What are the product groups that are of interest to your firm?
   - ___ Radio/RF related
   - ___ Telephony/Voice Communications
   - ___ Computer or Datacomm Equipment

5. Please rank the export markets that are important to your firm.
   - ___ United States
   - ___ Japan
   - ___ Other Asia _____
   - ___ Mexico/Latin America
   - ___ Europe
   - ___ Other _____

****

PLEASE FAX or MAIL your Response to:

NWCRF, #450 - 1122 Mainland Street
Vancouver, BC V6B 5L1
Fax: (604) 687-7563 / Tel: (604) 687-7644

(Optional):

Company Name _____

Contact _____ Phone _____

APPENDIX B

Case Study Form and Response Summary

NATIONAL WIRELESS - TELECOMM STANDARDS CASE STUDY

1. Introduction:

1.1 Company Profile:

Approximate Gross Annual Sales: _____

Head Office Location: _____

Full Time Employees in Canada: _____

Number of years of significant export activity: _____

Product Groupings:

____ Radio / RF
____ Telephony / Voice
____ Computer / Datacomm

Export Markets (Please rank...)

____ U.S.A.
____ Japan
____ Other Asia
____ Mexico / Latin America
____ Europe
____ Other _____

Which standards required by export target markets have the most impact on your company's activities?

____ Network Compatibility (voltages, signal levels etc.)
____ Interworking Compatibility (ITU, for example)
____ Health and Safety (IEC, for example)
____ Product / Quality / Design (ISO 900X, for example)
____ Other _____

Does the company have a formal QA program? ____
Does the company have any ISO900X certifications? ____
Is the company a member of CSA's Quality Institute? ____

1.2 For EXISTING Telecomm Standards In EXPORT Markets, which of the following do you consider to represent significant challenges?

____ determining which standards apply
____ obtaining copies of appropriate standards documents
____ accessing qualified labs to conduct certification testing
____ identifying "other" requirements to entry into new export markets
____ other issues not listed above: _____

_____

2.0 Export Standards Challenges

2.1 What Happened?

The objective of this section is to document specific experiences in attempting to gain access to export markets, in order to identify and illustrate areas which could benefit from government or other support programs.

Please outline a typical, or a particularly trying example: _____

Which of the following personnel were involved?

____ Senior Management
____ Technical
____ Marketing
____ Number of people within the organization routinely deal with standards issues?

2.2 Information Sources:

Which organization or agency was used in the identification and procurement of the necessary standards documents? _____

Was it possible, using the same source, to identify and make arrangements for certification testing?
Comments: _____

Did you encounter, or are you now aware of any centralized agency (ETSI, for example, in Europe) through whom information governing several countries could be obtained? _____

In the case of such an organization, do you feel that their activities help or hinder the process of gaining approval in several countries within such a trading bloc? _____

2.3 Information Access and Relevance:

Outline any particular difficulties encountered in accessing the necessary standards or compliance information _____

Were there problems associated with:

Document translation? _____
Interpretation of contents? _____
Adapting for compliance? _____

Were any exemptions from specific standards requirements offered, sought, granted? ____
Explain: _____

Was an outside firm or consultant used to assist with procurement, interpretation, compliance or testing?
____ Who? _____ Comments: _____

2.4 Barriers Encountered:

Outline difficulties experienced with the testing, acceptance and certification processes:

_____

_____

Have you encountered problems with any non-technical issues that impede product testing and certification for sale? ____ Comment: _____

_____

Is it necessary or beneficial to make use of "strategic partnerships" in target countries to assist with the compliance / certification processes? _____

Do the capabilities of accessible testing laboratories present any problems to your activities?

_____

Is the elapsed time required to effect compliance a major problem?

_____

Describe YOUR perception of recent trends in the above areas; getting better? Worse?

_____

_____

2.5 Costing Information:

Including internal effort, contract services, travel, fees and other costs, what is your estimate of the costs associated with standards compliance, for a "typical" product?

$_____ Network Compatibility (voltages, signal levels etc.)
$_____ Interworking Compatibility (ITU, for example)
$_____ Health and Safety (IEC, for example)
$_____ Product / Quality / Design (ISO 900X, for example)
$_____ Other _____

$_____ Total

2.6 Additional Issues:

The "CULTURE" governing approvals in many countries, even within trading blocs such as the EC, can provide challenges unique to a given country. On a scale of 1-10, please rate the importance of each of the following factors in gaining equipment certification:

____ In-country assistance with "administrative" process
____ In-country technical assistance to support testing processes
____ Company employee present during testing
____ Other factors (for example, the ability to speedily correct problems encountered, to avoid being bumped to the back of the waiting list....)

_____

_____

Are there prevailing standards in Canada governing the products exported? _____

Are these compatible with those in force in your export markets? _____

Are you aware of any Canadian Government agencies or individuals who might influence the interpretation or application of, or exemptions from, prevailing standards in your target markets?

_____

3.0 New and Evolving Standards:

Strategic planning information can sometimes be extracted from analysis of ongoing standards development. Regulatory changes are also having a profound effect on the deployment of newer technologies and products, and the emergence of agencies such as ETSI promises to introduce new challenges to the exporter.

3.1 Domestic Standards:

Is the move toward harmonization of Canadian telecomm and safety standards with others providing any benefit to your company's efforts? _____

Which of the following limit the effectiveness of introducing new products in Canada before they are taken to export markets:

____ Regulatory delays
____ Delays in adopting standards
____ Adoption of unique, or incompatible standards
____ None of the above

Comments: _____

Using the logic that it will assist Canadian manufacturers of telecomm and other infotech products in addressing foreign markets, several government agencies have begun to demand ISO9XXX compliance, among others. Is this a good strategy? ____ What, if any, additional standards should be applied to such purchases? _____

3.2 European and other Export Standards:

European Community countries are making progress toward a harmonized set of telecomm standards. Please use % figures to describe the present and 2-year projections to indicate YOUR perception of how effective this will be, in the context of gaining entry into additional countries in the bloc:

	Present	2-years
Health / Safety	____	____
Telecomm Interworking	____	____
Network Compatibility	____	____
Product / Quality	____	____
Other	____	____

Do you agree with the observation that standards are used by many countries as a non-tariff barrier to imports? ____ Which countries offer the most formidable barriers, through the use of this method of limiting competition? _____

For Europe in particular, and export markets in general, how effective do you consider your advance information on changing standards to be? _____

Are you aware of any organization, government-sponsored or other, who can provide the necessary advance strategic knowledge? _____

4.0 Summary:

What government action, what organizations, what other activities are desirable in order to ease the problems currently associated with standards compliance in export markets?

Are there changes that you would recommend be made in the Canadian telecomm standards-making process?

In terms of overcoming export compliance challenges, which are the most important sources of expertise and advice?

____ Employee experience and knowledge
____ Govement organizations
____ Commercial organizations
____ In-country alliances
____ Other

If the Canadian government were to introduce a program to assist your industry with standards and compliance problem-solving:

What services should be made available?

Which ministry, if government-operated, would logically provide these services?

Do industry associations make attractive candidates to deliver these services?

Should these services be made available electronically? ____ With local or provincial deployment points? ____ Or from a centralized national base? ____

Other Comments:

Thank you for taking the time to assist us in gathering this information. Please complete the following section for our records. No information contained in this form will be disclosed in a form identifying the information provider.

Company Name: _____ Person: _____
Phone: _____ Fax: _____ Date: _____

National Wireless #450, 1122 Mainland Street, Vancouver, B.C. V6B 5L1
Ph: 604 687 7644 Fax: 604 687 7563

Case Study Summary:

Background:

The objective of this task was to identify export problems related to standards and certification, and seek solutions to them.

The original strategy chosen to do this was a "pilot" program, in which SMEs would be invited to submit requests for assistance in solving current and outstanding problems being encountered by them.

When the overall program eventually received final approval to proceed, however, it was apparent that very few firms were in that position, and that little or no data on either problems or solutions were likely to result.

* Another document, the "mini survey", was sent to approximately 500 firms in the west, Quebec and the maritimes; the results of this are summarized elsewhere, but the important point is that no significant demand for this "pilot" service was seen to exist during the December, 1993 polling period.

As an alternative strategy, a number of the more seasoned, exporting SMEs were approached with requests for a wide range of specific details on their experiences in broaching export standards / certification problems. 10 "quality" responses were received, primarily from the western region and the Ottawa area. (Mitel, Gandalf, Newbridge, Pika, Marconi, Calian/Skywave, Glenayre, DBA, Norsat and Novatel responded; NT were not approached, while SR Telecom, SED/Calian, Nexus, Spilsbury/RACE, Develcon and a number of others were either unable to respond due to workload or personnel travel, or felt that they had no information of significance.)

The above response was considered very good on the basis of representation of the mainstream of SME "mature" exporters, and given that experience with both problems and solutions was desired.

* Telecomm products (as opposed to software or services) was and is the focus of all parts of this project; this is an important qualifier when considering the above results. The above companies represent $2 billion or more in annual sales, most of it exports, and in terms of "non-NT" product suppliers, a very large proportion of the total Canadian output. It is tempting to draw negative conclusions of the sample size relative to industry lists such as Evert Communications' "Export-Capable Telecommunications Suppliers", which lists several hundred firms. More detailed analysis of the latter, however, reveals that the majority of those listed firms are NOT part of the telecomm products family at all. The reader is also directed to the NGL profile of the industry as done in 1990(?).

Summary of Results:

Product Categories -	RF/Radio, Telephony/Voice, Computer/Data. Results: 4,8,4.
Geographic Markets -	US most important to 6 respondents and mentioned by virtually all, while Asia and Europe are next most popular destinations. Mexico is a significant market, while Japan, Australia and African nations received less attention.
Standards Type -	Network Compatibility was mentioned by all but one firm; the next most important area was "product" related, like ISO9000. Interworking and Health/Safety standards were mentioned by less than half of the respondents.
Quality Programs -	All firms have formal QA programs in place, while more than half are already ISO9000 certified, or expect to be shortly.
Standards Issues -	The most burning issues are the identification of prevailing standards, for a given product in a given marketplace, and the accessing of suitable laboratory facilities to perform testing. 5 of the firms noted problems with obtaining copies of standards documents, while a significant 4 identified "Other Factors" as being problems. While not identified in the written answers, many reported falling victim to unwritten procedural pitfalls, such as a 7-day re-submission deadline on products failing some certification testing procedure; expiry of this deadline caused one firm to be bumped to the back of the (1-year) queue for retesting. Europe and Australia are thought to be the worst offenders. Costs of certification, delays in scheduling and national variants of presumably "uniform" standards were cited by many as being problematic.
Specific Problems -	No product-specific pattern appears to be present; most of the reported "stories" appear to reflect autocratic or cavalier treatment by approval agencies, taking the form of delays, obstructions and misinterpretations. In one case, no information on the existing network equipment or specifications (for interworking) was available, and in another, no standards had yet been published in the product area being dealt with; the latter report is somewhat suspect.

Personnel Involved -	From 3 to 10 people routinely deal with standards-related issues in the reporting firms; these are generally technical personnel, but frequently include marketing and senior management persons.
Document Sourcing -	In-country PTTs or certification agencies provided the majority of documents, while ITU, ETSI and other were also used by some.
Testing Agency -	The agency providing the standards documents was also responsible for conducting or specifying the testing in only 3 of the reported cases.
Trading Bloc Effect -	4 firms mentioned some benefit of inter-country standards activity (all ETSI); all reported incomplete recognition throughout the trading bloc
Document Problems -	6 firms noted language translation as a problem in using a given national standard document. 6 firms also noted "Interpretation" of the document as being a problem, while 5 firms reported "adapting of product" as an area of difficulty.
In-country Assistance -	Consultants were noted by 3 firms; testing agencies by one, distributors by one, suppliers by one, and the PTT by one, as sources of help within the target country.
Non-Technical Barriers -	Delays, test equipment, costs, language and document interpretation were all mentioned by one firm (this was a poorly worded question, and specific problems are more thoroughly covered in other sections)
Value of Local Help -	Unanimously necessary
Lab Access Problems -	Only 2 firms mentioned delays in access as a problem
Compliance Effort -	4 firms mentioned the elapsed time to comply with test recommendations as a problem; however, since bureaucratic delay is mentioned by all, it is more likely that this is the real problem.
Trends -	4 firms believe that the certification process is getting better, while one believes that it is eroding. 4 others report no change or mixed signals in the process.
In-Country Problems -	Assistance with Administrative processes was considered an "8" (on a scale of 10) by the average company, as was the value of having employees in-country during the testing processes. In-country technical consultants rated just 5.5 with the respondents, with only 2 of them rating it as 8 or better.
Canadian Standards -	Were both applicable and of value in meeting foreign requirements in the opinion of only 3 firms, and only "partially" with those.
Canadian Government -	Has not been considered as a resource in any attempts to achieve waivers or exemptions in any certification procedure.
Canadian Standards -	6 firms objected to Canada's UNIQUE standards as being barriers to Canadian firms' success; Comments ranged from "Export Now" to "proprietary standards are bad" to "Canadian Standards are barriers to Canadian companies"
ISO 9000 Purchases -	Three firms agree with government requirements for ISO9K compliance by vendor firms; three others rated the policy as "all such requirements are bad" or questionable. Two firms suggested that various CSA standards should be added.
Worst Export Barriers -	Individual EC countries, or the EC in general were mentioned by 7 firms, India by one, Japan by one, and Canada by one, as above.
Advance Intelligence -	Five firms consider their knowledge of advance work on standards to be good, another 5 poor to fair. No government agency was identified as a source of such strategic information.
Government Action -	Four firms desire adoption of global standards in Canada as a first priority - one of these suggests participation in international standards-making. Translated documents (into English?), subsidized foreign testing and certification costs, and the expedited development of domestic knowledge of offshore standards were all mentioned by one firm.
Domestic Standards -	The few comments received were "Cooperate with ETSI, MITI etc.", "Stamp out BCE/NT".

Expertise Sources - Company employees and in-country affiliates were mentioned by 9 firms as being the most important sources of expertise on export standards. Commercial organizations (including consultants and testing labs) were mentioned by two firms. The choice "govemment" was not selected by any firm, and was specifically discouraged by one.

Government Services - 5 firms believe that standards documents and information should be provided by government. One firm specifically named SCC as an agency that should NOT be used as this vehicle. Two firms mentioned subsidized offshore compliance testing as a potential government program, while one each also mentioned negotiating reciprocity of test results in export markets, the provision of contacts and resources, and participation in offshore standars bodies.

Which Agency? - Associations were acceptable means of delivering standards related services to 5 firms. EDC was mentioned by two firms, and CSA/DOC by one. (* the question pertaining to associations was poorly placed on the page, and it is suspected that the response may have been higher, as there were no "no" or other non-yes answers to the question

Electronic Info - All but one firm desired that any source of information be electronic in nature. The lone dissenter extended the earlier point that knowledgeable people were the real shortage.

APPENDIX B - 1

Detailed Response

of

Five Large Company Case Studies

NATIONAL WIRELESS - TELECOMM STANDARDS CASE STUDY

1. Introduction:

1.1 Company Profile:

Approximate Gross Annual Sales: >$350 million

Head Office Location: Canada

Full Time Employees in Canada: > 600

Number of years of significant export activity: >9 yrs

Product Groupings:

1/5	Radio/RF
4/5	Telephony / Voice
4/5	Computer / Datacomm

Export Markets (As ranked by five large companies only)

#1-all	U.S.A.
_5__	Japan
_4__	Other Asia
_3__	Mexico / Latin America
#2-all	Europe
_6__	Other Australia/NZ, Middle East, Africa

Which standards required by export target markets have the most impact on your company's activities?

#1	Network Compatibility (voltages, signal levels etc.)
#3	Interworking Compatibility (ITU, for example)
#4	Health and Safety (IEC, for example)
#2	Product / Quality / Design (ISO 900X, for example)
#5	Other _____

Does the company have a formal QA program? ***yes for all five large companies***
Does the company have any ISO900X certifications? ***yes for all five large companies***
Is the company a member of CSA's Quality Institute? NA

1.2 For EXISTING Telecomm Standards in EXPORT Markets, which of the following do you consider to represent significant challenges?
(Ranking of 5 large companies only)

#1 determining which standards apply
#3 obtaining copies of appropriate standards documents
Not a problem in the US, but definitely a problem in Europe and Pac Rim
#2 accessing qualified labs to conduct certification testing
Finding Labs within the Target country is not a problem. Getting labs in Canada or US that will be accepted there is very difficult
#4 identifying "other" requirements to entry into new export markets
#5 other issues not listed above***: Costs, Approval/Testing and Cycle time***

2.0 Export Standards Challenges

2.1 What Happened?

The objective of this section is to document specific experiences in attempting to gain access to export markets, in order to identify and illustrate areas which could benefit from government or other support programs.

Please outline a typical, or a particularly trying example:

COMPANY 1
"Complying with requirements for local representation in some markets, including Europe. "
COMPANY 2
"Safety assessment of modem type product was non compliant due to different interpretations of international standard - resulting in large cost increases to reach compliance"
COMPANY 3
"Most trying problem is getting an interpretation of the requirement without submitting product for test (Safety/Network Protection requirements), lab seems to be given the power to interpret the requirements and their is NO arbitrator. We have Had ongoing standards disagreement with BABT over their interpretation of the network protection safety requirements for UK and now for EC.

Government needs peer to peer relationship with other countries or regions so that tests done in Canada are accepted in other countries."
COMPANY 4
"Type approvals were part of a supply contact. Product engineering and testing were included as costs in the contract. Some delays were encountered in obtaining AUSTEL approval components, but they were sourced and installed. Testing was done in the US. The system was then sent to Australia for final approval and installation.
COMPANY 5
Chinese R2 MFC signalling was quoted as R2 MFC STANDARD, but was found to be provincial variant and was not CCITT compliant. Documentation translation was also a big issue specifically the technical part of the information. Sourcing appropriate test equipment was very frustrating; we had to hook up to the local PSTN to move out the design. A costly exercise when it is in China."

Which of the following personnel were involved?

*_3/5_*	Senior Management
_5/5	Technical
*_4/5_*	Marketing
*_5>10_*	Number of people within the organization routinely deal with standards issues?

2.2 Information Sources:

Which organization or agency was used in the identification and procurement of the necessary standards documents?

BSI British Standards Institute, FCC, Standards Council of Canada, CSA, DTI, NKT (HOLLAND GOVERNMENT LAB), AUSTEL.

Was it possible, using the same source, to identify and make arrangements for certification testing?
Comments: ***Service not well developed, and for the second company special arrangements had to be made by their local office for testing in Germany. Company 5 arranged for site testing on their own.***

Did you encounter, or are you now aware of any centralized agency (ETSI, for example, in Europe) through whom information governing several countries could be obtained?

Company 1 said NO, the others YES, and Company 3: "Sort of! ETSI & Cenelec can provide EC standards BUT country specific standards are often still required."

In the case of such an organization, do you feel that their activities help or hinder the process of gaining approval in several countries within such a trading bloc? _____

Company 1 and 5 said HELP!, Company 2 said "Standards are same but testing requirements still are different", Company 4 said there was neither help nor hinderance

2.3 Information Access and Relevance:

Outline any particular difficulties encountered in accessing the necessary standards or compliance information

COMPANY 1. "Language Barriers"
COMPANY 2. "Procurement time, cost, translation
COMPANY 3. "It is not always clear when EC standards replace national standards. Different rules for the same equipment in different countries."
COMPANY 4. Delays through foreign agency bureaucracies
COMPANY 5. Standards were not the real issue. Getting information on what was actually there was the biggest stumbling block.

Were there problems associated with:

Document translation?

COMPANY 1. Yes
COMPANY 2. Yes Costly and time consuming
COMPANY 3 Sometimes
COMPANY 4. No
COMPANY 5. Yes, Chinese

Interpretation of contents?

COMPANY 1. No
COMPANY 2. Yes - Multiple testing Cycles
COMPANY 3, 4 & 5. Sometimes

Adapting for compliance?

COMPANY 1 & 4. Sometimes
COMPANY 2. Yes - Cost and Space Problems
COMPANY 3. Yes
COMPANY 5. System specific, little problem

Were any exemptions from specific standards requirements offered, sought, granted? Explain:

Company 4: "We sell to national phone companies and they sometimes waive approval requirements.

Was an outside firm or consultant used to assist with procurement, interpretation, compliance or testing?***COMPANY 1, 4 & 5*** Who?_***Test Labs, suppliers*** Comments: ***Helping with approvals in some southern & Eastern European countries***

COMPANY 3. _YES Who? Comments:***Very helpful, good knowledge of Both Euro and German requirements and ways to approach the testing.***

2.4 Barriers Encountered:

Outline difficulties experienced with the testing, acceptance and certification processes:

COMPANY 1. "Local representation and language differences"
COMPANY 2. "Cycle time, waiting in Que for retesting, cost of having personnel present during testing"
COMPANY 4. "Overcoming bureaucratic delays at foreign approval agencies"
COMPANY 5. "Limited availability and access to equipment."

Have you encountered problems with any non-technical issues that impede product testing and certification for sale?

COMPANY 1. YES Comment: ***Local representation and language differences***
COMPANY 3. YES Comment: ***"Trying to Figure out the marketing requirements"***
COMPANY 4. YES Comment: ***"Slow response time, as many interpretations of standards requirements needed."***
COMPANY 5. YES Comment: ***"Cultural differences"***

Is it necessary or beneficial to make use of "strategic partnerships" in target countries to assist with the compliance / certification processes?

COMPANY 1. YES
COMPANY 2. "It is necessary to have someone in target country to obtain compliance and certifications.
COMPANY 3. "It is beneficial sometimes, probably necessary"
COMPANY 4. "Extremely difficult, almost necessary"
COMPANY 5. "Yes, these can make the "bridges" required to span the cultural differences "

Do the capabilities of accessible testing laboratories present any problems to your activities?

COMPANY 1. Sometimes
COMPANY 2. "No, Only problem is lack of recognition"
COMPANY 3, 4, & 5. No

Is the elapsed time required to effect compliance a major problem?

COMPANY 1. " YES, SOME TAKE 6 MONTHS!! TO COMPLETE"
COMPANY 2. Yes
COMPANY 3. "It is always Unclear"
COMPANY 4 & 5. No

Describe YOUR perception of recent trends in the above areas; getting better? Worse?

COMPANY 1. "BETTER IN SOME AND WORSE IN OTHERS"
COMPANY 3. "In some markets example - EC countries- getting worse"
COMPANY 4. "Getting better, although real standards harmonization is still years away.
COMPANY 5. "Getting better as equipment availability improves."

2.5 Costing Information:(5 large companies only)

Including internal effort, contract services, travel, fees and other costs, what is your estimate of the costs associated with standards compliance, for a "typical" product?

COMPANY 1.

$__$50k__	Network Compatibility (voltages, signal levels etc.)
$__$25k__	Interworking Compatibility (ITU, for example)
$__$30k__	Health and Safety (IEC, for example)
$__$10k__	Product / Quality / Design (ISO 900X, for example)
$__$25k__	Other _EMC_____
$__$140k_	Total

COMPANY 2.

$__$6k__	Network Compatibility (voltages, signal levels etc.)
$__$1k__	Interworking Compatibility (ITU, for example)
$__$9k__	Health and Safety (IEC, for example)
$__$1k__	Product / Quality / Design (ISO 900X, for example)
$__ __	Other _____
$__$17k_	Total

COMPANY 3. No estimate given

COMPANY 4.

$60K, APPROXIMATELY, (FRANCE IN THIS EXAMPLE)

COMPANY 5

$__$50k__	Network Compatibility (voltages, signal levels etc.)
$_____	Interworking Compatibility (ITU, for example)
$__$16k__	Health and Safety (IEC, for example)
$__$?k__	Product / Quality / Design (ISO 900X, for example)
$__ __	Other _____
$__$66k_	Total

2.6 Additional Issues:

The "CULTURE" governing approvals in many countries, even within trading blocs such as the EC, can provide challenges unique to a given country. On a scale of 1-10, please rate the importance of each of the following factors in gaining equipment certification:

(Ranking of 5 large companies)

8	In-country assistance with "administrative" process
5.5	In-country technical assistance to support testing processes
8	COMPANY employee present during testing
9.5	Other factors (for example, the ability to speedily correct problems encountered, to avoid being bumped to the back of the waiting list....)

COMPANY 1. Local representation

COMPANY 2. identified in-country assistance, and company employees presence as effecting cycle time of testing.

Are there prevailing standards in Canada governing the products exported?

COMPANY 1 No

COMPANY 2, 3,& 4 Yes

COMPANY 5 DOC, CSA

Are these compatible with those in force in your export markets?

COMPANY 1 & 3 No

COMPANY 2 Only Safety

COMPANY 4 Partly, better than US standards

Are you aware of any Canadian Government agencies or individuals who might influence the interpretation or application of, or exemptions from, prevailing standards in your target markets?

COMPANY 1 Canadian reps to IEC technical committees

COMPANY 4 & 5 NO

3.0 New and Evolving Standards:

Strategic planning information can sometimes be extracted from analysis of ongoing standards development. Regulatory changes are also having a profound effect on the deployment of newer technologies and products, and the emergence of agencies such as ETSI promises to introduce new challenges to the exporter.

3.1 Domestic Standards:

Is the move toward harmonization of Canadian telecomm and safety standards with others providing any benefit to your company's efforts?

COMPANY 1. " Yes, but going too slow on telecom side and too narrow in scope."
COMPANY 3. "Harmonization of safety standards could help, FCC/DOC harmonization will help in US and Canada. There is no effort in Canada to Harmonize telecom interface or protocol standards but there should be."
COMPANY 4. "Yes, reduces times and testing required of foreign agencies"
COMPANY 5. "Yes, Being aware of these standards early in the development cycle is beneficial."

Which of the following limit the effectiveness of introducing new products in Canada before they are taken to export markets:

(summary of 5 largest)

	Regulatory delays
1/5	Delays in adopting standards
4/5	Adoption of unique, or incompatible standards
1/5	None of the above

Comments:

COMPANY 2. "Products that are universally aprovable are more costly and difficult to configure.
COMPANY 3. "Need reciprocal agreements for testing/certifications with other countries. Use of proprietary specifications by Canadian Telcos a major problem not usable elsewhere"
COMPANY 4. "We normally export first and then sell in Canada"

Using the logic that it will assist Canadian manufacturers of telecomm and other infotech products in addressing foreign markets, several government agencies have begun to demand ISO9XXX compliance, among others. Is this a good strategy? ***YES for 5/5*** What, if any, additional standards should be applied to such purchases?

COMPANY 3. "Quality programs are good but must focus on needs of country"
COMPANY 5. "Yes in that ISO9xxx compliance may get you a sale. No in that ISO9xxx is cost prohibitive for smaller companies.

3.2 European and other Export Standards:

European Community countries are making progress toward a harmonized set of telecomm standards. Please use % figures to describe the present and 2-year projections to indicate YOUR perception of how effective this will be, in the context of gaining entry into additional countries in the bloc:

	COMPANY 1		*COMPANY 2*		*COMPANY 3*	
	Now	*2-years*	*Now*	*2-years*	*Now*	*2-years*
Health / Safety	*_80%*	*_95%_*	*70%*	*100%*	*20%*	*40%*
Telecomm Interworking	*_0%_*	*_25%_*	*10%*	*10%*	*10%*	*25%*
Network Compatibility	*_0%_*	*_25%_*	*30%*	*50%*	*10%*	*25%*
Product / Quality	*100%*	*____*	*100%*	*100%*	*10%*	*40%*
Other	*_50%*	*_80%_*				

	COMPANY 4		*COMPANY 5*	
	Now	*2-years*	*Now*	*2-years*
Health / Safety	*_10%*	*_30%_*	*10%*	*40%*
Telecomm Interworking	*_10%_*	*_30%_*	*40%*	*70%*
Network Compatibility	*_10%_*	*_30%_*	*60%*	*80%*
Product / Quality	*20%*	*_30%___*	*30%1*	*50%*
Other	*_10%*	*_30%_*		

Do you agree with the observation that standards are used by many countries as a non-tariff barrier to imports? ***YES for all*** Which countries offer the most formidable barriers, through the use of this method of limiting competition?

COMPANY 1. FRANCE
COMPANY 2. Australia and UK,
COMPANY 3. Canada
COMPANY 4. France, Japan, India
COMPANY 5 EC.

For Europe in particular, and export markets in general, how effective do you consider your advance information on changing standards to be?

COMPANY 1. Somewhat effective in Europe
COMPANY 2, 4 & 5. Very effective
COMPANY 3. Good for Europe & US, not good for other countries.

Are you aware of any organization, government-sponsored or other, who can provide the necessary advance strategic knowledge? ***YES for all***

4.0 Summary:

What government action, what organizations, what other activities are desirable in order to ease the problems currently associated with standards compliance in export markets?

COMPANY 1.

- ***Harmonize telecom standards***
- ***Establish registry for global standards***
- ***Subsidize export markets consultancy***

COMPANY 2

- ***Ability to obtain current translated standards***
- ***Recognition of local testing labs by export markets***

COMPANY 3

- ***Get some experts in Canada that know what standards are applicable in other countries***
- ***Get peer to peer relationships with other countries to accept canadian test results***

COMPANY 4

- ***Harmonizing CSA/DOC requirements with foreign agencies to allow acceptance of test results/certification***

COMPANY 5

- ***Participation in the international standards bodies; moving to adopt these as national standards thereby reducing the cost of product compliance and certification.***

Are there changes that you would recommend be made in the Canadian telecomm standards-making process?

COMPANY 1. Reduce BCE/Northern Bias
COMPANY 3. Most important change would be for Canadian telcos to be required to use standards either international or national ones based on international standards.
COMPANY 4 More co-operation with major foreign agencies (ETSI, MITI) reducing duplications, improving acceptance process.

In terms of overcoming export compliance challenges, which are the most important sources of expertise and advice?

(ranking of 5 large companies)

#1	Employee experience and knowledge	
	Government organizations	_not mentioned_____
#2	Commercial organizations	_____
	In-country alliances	_____
____	Other	_____

If the Canadian government were to introduce a program to assist your industry with standards and compliance problem-solving:

What services should be made available?

COMPANY 1.- Provide agency contacts, standards, consultancy subsidies
COMPANY 2. Standards Service
COMPANY 3 Access to experts on foreign standards and their interpretations. Foreign acceptance of Canadian test results
COMPANY 4. Library of current standards and set up of certification acceptance standards
COMPANY 5 Funding the attendance of Standards bodies working groups.

Which ministry, if government-operated, would logically provide these services?

COMPANY 2. Ministry responsible for export
COMPANY 3. No opinion but EAICT should be involved
COMPANY 4. DOC/CSA
COMPANY 5. EDC

Do industry associations make attractive candidates to deliver these services? ***2/5 large companies and 5/10 said YES***

Should these services be made available electronically? ***COMPANY 1,2,4 & 5 yes, COMPANY 3 - not possible- the need is for people.***

With local or provincial deployment points? ***all companies - yes***_Or from a centralized national base? ____

Other Comments:

COMPANY 4. THE KEY PROBLEMS ARE FAST ACCESS TO CURRENT STANDARDS AND AVAILABILITY OF APPROVED LABS IN CANADA TO DO FOREIGN APPROVAL TESTING.

APPENDIX C

Keyword Search Data

Keyword Catalogue and Search Tasks

The ETSI files available from archives maintained by ANSI, Committee T1, are divided into two distinct groups: approved recommendations, and topics undergoing study.

These files were downloaded and imported into a database management program where the individual line items in each file were parsed into a set of fields within a record. The field containing the document descriptor was subjected to an indexing process, wherein each word found (save for common connector words and other non-relevant words, which were placed in a "stop list") became associated with an array of document numbers (another field in the record) whose document descriptors contained that word.

This index was initially subjected to manual editing to allow further fine-tuning of contents, so that the volume of text strings to be studied by a potential client or intermediary became more manageable.

> Two such sets of keywords are included; one of these is the edited version of the "approved recommendations" file, while the other is the largely unedited file from the "questions under review" category. The latter is included to illustrate the degree of processing required to compress the list to manageable proportions.

Attachment 1 contains the parsed file of the released documents for illustration of the form in which the text is made available by ETSI; the level of detail provided for each document descriptor.

GENERAL INFORMATION ON ETSI

The ability for companies to compete in global markets largely depends on their capacity to communicate in a cost-effective and reliable manner. In Europe, telecommunications standardization is an important step towards building a harmonized economic market. The Commission of European Communities has set an ambitious pace for achieving a unified, Single Market and, in addition, the members of the European Free Trade Association and other CEPT countries recognize the benefits of harmonized telecommunications.

The European Telecommunications Standards Institute (ETSI) is a non-profit making organization whose mission is to determine and produce the telecommunications standards that will be used for decades to come. It is an open forum that unites 289 members from 24 countries representing Administrations, public network operators, manufacturers, service providers, users and counsellors. Any European organization proving an interest in promoting European telecommunications standards has the right to represent that interest in ETSI and thus to directly influence the standards making process.

ETSI's approach to standards making is innovative and dynamic. It is ETSI's members that fix the standards work program in function of market needs. Accordingly, ETSI produces voluntary standards; some of these may go on to be adopted by the CEC as the technical basis for Directives or Regulations. However the fact that the voluntary standards are requested by those who subsequently implement them, means that the standards remain practical rather than abstract.

ETSI promotes the worldwide standardization process whenever possible. Its Work Program is based on and coordinated with the activities of international standardization bodies, mainly the CCITT and the CCIR.

ETSI consists of a General Assembly, a Technical Assembly and a Secretariat. The Technical Assembly produces and approves technical standards. It encompasses 12 Technical Committees, about 60 Technical Sub-Committees and more than 140 Working or Rapporteurs Groups. These Committees are set up to deal with the following technical areas:

- Network Aspects
- Business Telecommunications
- Signalling Protocols and Switching
- Transmission and Multiplexing
- Terminal Equipment
- Equipment Engineering
- Radio Equipment and Systems
- Special Mobile Group
- Paging Systems
- Satellite Earth Stations
- Advanced Testing Methods
- Human Factors

Furthermore, there are four Special Committees dealing with the following topics: integrated Services, Digital Network Standards Management, Intellectual Property Rights, Strategic Review of Standards required for network evolution, and a Joint Technical committee with the European Broadcasting Union.

More than 2000 experts are att present working for ETSI in over 200 groups. In order to promote and accelerate standardization work in specific areas, Project Teams have been established. They, in general work on a full time basis at the ETSI Headquarters in Southern France. At present, there are abut 28 Project Teams with around 100 experts. The Work Program includes more than 600 standardization projects. Up to now, 96 European Standards have been adopted and 250 have reached the stage of Public Enquiry. It is estimated that 170 standards will have been adopted at the end of February 1992.

ETSI KEYWORD LIST

FROM

APPROVED RECOMMENDATIONS

A-BIS
ACCESS
ACCESSIBILITY
ACTIVITY
ADAPTATION
ADAPTION
ADAPTORS
ADDRESS
AIR
ANALOGUE
ANGLE-MODULATED
ANTENNA
AOC
AOC-D
AOC-E
AOC-S
ASYNCHRONOUS
ATTACHMENT
ATTACHMENTS
AUDIO
AUDIOGRAPHIC
BALANCED
BASIC
BEACONS
BEARER
BIS
BROADCAST
BSC
BSS
BSS-MSC
BSSMSC
CCITT
CELL
CELLULAR
CENTRALISED
CENTRE
CEPT
CHANNEL
CHANNELS
CHARACTERISATION
CHARACTERISTICS
CHARGE
CHARGES
CHARGING
CIRCUIT
CIRCUIT-MODE
CLASS
CLASSIFICATION
CLIP
CLIR
CLOSED
CODEC
CODING
COLLECTION
COLP
COLR
COMBINED
COMMON
COMMUNICATIONS
COMMUNITY
COMPATIBILITY
COMPLETION
COMPONENT
CONDITIONS
CONF
CONFERENCE
CONFIGURATION
CONFORMANCE
CONFORMITY
CONNECT
CONNECTED
CONNECTION
CONNECTIONLESS
CONNECTIONS
CONNECTOR
CONTRIBUTION
CONTROL
CONTROLLER
CORDLESS
CORE
CROSS
CSPDN
CUG
CUSTOMER
CW
D-CHANNEL
DATA
DDI
DECT
DETECTION
DIALLING
DIGITAL
DIRECT-PRINTING
DIRES
DISPATCHING
DISPLAY
DISTRIBUTION
DRX
DSRR
DSS1
DTE
DTES
DTMF
DTX
EARTH
EMC
EMERGENCY
EMISSION
END
ENGINEERING
ENVIRONMENTAL
EPIRBS
EQUIPMENT
ERMES
EUROPEAN
EXCHANGE
EXTERNAL
FACSIMILE
FIXED-CONNECTION
FLOWS
FRAME
FREQUENCY
FULL
G4
GATEWAYS
GENERATION
GENERIC
GROUP
GSM
HANDOVER
HANDSET
HIERARCHICAL
HIERARCHIES
HIERARCHY
HOLD
HOME
HOMING
HOST
IDENTIFICATION
IDENTIFIER
IDENTITIES
IDENTITY
INBAND
INDICATING
INDICATION
INDICATIONS
INPUT
INTELLIGENT
INTERCOMMUNICATION
INTERCONNECTION
INTERFACE
INTERNAL
INTERNATIONAL
INTERWORKING
INTRODUCTION
ISDN
ISM
ISUP
KBITS
KBITS-BASED
KEYPAD
KHZ
LANGUAGE
LAPB
LAYER
LINE
LINK
LINKS
LOCAL
LOST
MACHINE-MACHINE
MAINTENANCE
MALICIOUS
MANAGEMENT
MAPPING
MARITIME
MBITS
MCID
ME
MEASUREMENT
MECHANISMS
MEET-ME
MESSAGE
METEOROLOGICAL
MFHF
MHS
MMC
MOBILE
MODE
MODULATION
MODULO
MONITORING
MOU
MS-BS
MS-BSS
MS-BSSBSS-MSC
MSC
MSN
MTP
MULTI
MULTILINK
MULTIPLE
MULTIPLEXING
MUTING
NARROW-BAND
NAVTEX
NETWORK
NICAMBSS
NOISE
NON-SPEECH
NUMBER
NUMBERING
PABX
PACKET
PAD
PAGING
PATH
PDNS
PERMANENT
PHASE
PHI
PHYSICAL
PLAN
PLESIOCHRONOUS
PLMN
PMBS
PORTABILITY
PORT
POSITION-INDICATING
POWER
PR
PRESENTATION
PRIVATE
PROGRESS
PROTECTION
PROTOCOL
PSPDN
PSTN
PTN
PUBLIC
PVC
QUALITY
RACKS
RADAR
RADIATED
RADIO
RADIOTELEPHONE
RADIOTELEX
RANGE
~~RECEIVE~~
RECEIVE
REGULATED
REMOTE
RESCUE
RESTORATION
RESTRICTION
REVOLUTION
RF
ROUTING
SAFETY
SATELLITE
SCCP
SCOPE
SDL
SEARCH
SECOND
SECURITY
SERVEABILITY
SERVICE-CELL
SES
SET-UP
SHORT
SIDE
SIGNALLING
SIGNALS
SIMULATOR
SIMULTANEOUS
SMS
SMSCB
SOUND
SPEECH
SPS
ST
STANDARD
STATION
SUBADDRESSING
SUBSCRIBER
SUBSTITUTION
SWITCH
SYNCHRONIZATION
SYNCHRONOUS
SYNTAX
SYNTAX-BASED
SYSTEM
TAF
TCAP
TE
TELECONFERENCE
TELEFAX
TELEGRAPH
TELEMATIC
TELEPHONE
TELESERVICE
TELETEX
TELEVISION
TERMINAL
TERMINALS
TERMINOLOGY
TERRESTRIAL
TEST
TFI
TRAFFIC
TRANSACTION
TRANSCEIVER
TRANSCODERS
TRANSCODING
TRANSFER
TRANSMISSION
TRANSPARENT
TRANSPONDERS
TRANSPORT
TS
TTE
TTM
TTR
TVRO
VHF
VIDEO
VIDEOTEX
VIRTUAL
VISITOR
VISUAL
VOCABULARY
VOICE
VSAT
VSATS
WAITING
X

APPENDIX C, ATTACHMENT 1 - ETSI DOCUMENT TITLES

300 001 DRAFT prETS	Attachments to Public Switched Telephone Network (PSTN);
300 001 DRAFT prETS	Attachments to Public Switched Telephone Network (PSTN);
300 002 DRAFT prETS	Public Switched Telephone Network (PSTN);
300 003 I-ETS25)	Transmission characteristics of digital PABXs
300 004 I-ETS	Transmission characteristics at 2-wire analogue interfaces of a digital Private Automatic Branch Exchange (PABX)
300 005 I-ETS	Transmission characteristics at 4-wire analogue interfaces of a digital Private Automatic Branch Exchange (PABX)
300 006 I-ETS	Transmission characteristics at digital interfaces of a digital Private Automatic Branch Exchange (PABX)
300 007 FINAL DRAFT prETS	Integrated Services Digital Network (ISDN); Support of packet-mode terminal equipment by an ISDN
300 008 DRAFT prETS	CCITT signalling system number 7; Message Transfer Part (MTP) to support international interconnection (T/S 43-01)
300 009 DRAFT prETS	CCITT signalling system number 7; Signalling Connection Control Part (SCCP) (connectionless service) to support international interconnection (T/S 43-03)
300 010-1 DRAFT prETS	Synchronous cross connect equipment 64 and n x 64 kbit/s cross connection rate 2048 kbit/s access ports - Part 1 : Core functions and characteristics (L 03-17)
300 011 DRAFT prETS	Integrated Services Digital Network (ISDN); Primary rate user-network interface - Layer 1 specification and test principles.
300 012 DRAFT prETS	Integrated Services Digital Network (ISDN); Basic user- network interface - Layer 1 specification and test principles
300 015 DRAFT prETS	Requirements for teletex terminal equipment participating in the teletex service (T/TE 07-01)
300 016 DRAFT prETS	Service intercommunication requirements for teletex terminal equipment participating in a regulated service teletex service (T/TE 07-04)
300 017 DRAFT prETS	Test procedures for teletex (T/TE 07-05)
300 018 DRAFT prETS	Attachment requirements for teletex terminal equipment participating in a regulated teletex service (T/TE 07-07) (Candidate NET 32)
300 019-A DRAFT prETS	Environmental conditions and environmental tests for telecommunications equipment - Part A: Introduction and terminology (T/TR 02-12).
300 019-B DRAFT prETS	Environmental conditions and environmental tests for telecommunications equipment - Part B: Classification of environmental conditions (T/TR 02-12)
300 046-1 DRAFT prETS	Integrated Service Digital Network (ISDN); Primary rate access - safety and protection - Part 1: General (T/TE 046- 1)
300 046-2 DRAFT prETS	Integrated Services Digital Network (ISDN); Primary rate access - safety and protection - Part 2: Interface Ia - safety (T/TE 047-2-1)
300 046-3 DRAFT prETS	Integrated Services Digital Network (ISDN); Primary rate access - safety and protection - Part 3: Interface Ia - protection (T/TE 300 046-2-2)
300 046-4 DRAFT prETS	Integrated Services Digital Network (ISDN); Primary rate access - safety and protection - Part 4: Interface Ib - safety (T/TE 300 046-2-3)
300 046-5 DRAFT prETS	Integrated Services Digital Network (ISDN); Primary rate access - safety

	and protection - Part 5: Interface Ib - protection (T/TE 300 046-2-4)
300 047-1 DRAFT prETS	Integrated Services Digital Network (ISDN); Basic access - safety and protection - Part 1: General (T/TE 047-1)
300 047-2 DRAFT prETS	Integrated Services Digital Network (ISDN); Basic access - safety and protection - Part 2: Interface Ia - safety (T/TE 047-2-1)
300 047-3 DRAFT prETS	Integrated Services Digital Network (ISDN); Basic access - safety and protection - Part 3: Interface Ia - protection (T/TE 047-2-2)
300 047-4 DRAFT prETS	Integrated Services Digital Network (ISDN); Basic access - safety and protection - Part 4: Interface Ib - safety (T/TE 047-2-3)
300 047-5 DRAFT prETS	Integrated Services Digital Network (ISDN); Basic access - safety and protection - Part 5: Interface Ib - protection (T/TE 047-2-4)
300 048 DRAFT prETS	Integrated Services Digital Network (ISDN); ISDN Packet Mode Bearer Service (PMBS) - ISDN Virtual call (VC) and permanent Virtual Circuit (PVC) bearer services provided by the B channel of the user access - basic and primary rate (T/NA1(89)29)
300 049 DRAFT prETS	Integrated Services Digital Network (ISDN); ISDN Packet Mode Bearer Service (PMBS) ISDN Virtual Call (VC) and Permanent Virtual Circuit (PVC) bearer services provided by the D channel of the user access - basic and primary rate (T/NA1(89)30)
300 050 FINAL DRAFT prETS	Integrated Services Digital Network (ISDN); Multiple Subscriber Number (MSN) supplementary service - Service description (T/NA1(89)20)
300 051 FINAL DRAFT prETS	Integrated Services Digital Network (ISDN); Multiple Subscriber Number (MSN) supplementary service - Functional capabilities and information flows
300 052 FINAL DRAFT prETS	Integrated Services Digital Network (ISDN); Multiple Subscriber Number (MSN) supplementary service - Digital Subscriber Signalling System No. one (DSS1) protocol
300 053 FINAL DRAFT prETS	Integrated Services Digital Network (ISDN); Terminal Portability (TP) supplementary service - Service Description
300 054 FINAL DRAFT prETS	Integrated Services Digital Network (ISDN); Terminal Portability (TP) supplementary service - Functional capabilities and information flows
300 055 FINAL DRAFT prETS	Integrated Services Digital Network (ISDN); Terminal Portability (TP) supplementary service - Digital Subscriber Signalling System No. one (DSS1) protocol
300 056 FINAL DRAFT prETS	Integrated Services Digital Network (ISDN); Call Waiting (CW) supplementary service - Service Description
300 057 FINAL DRAFT prETS	Integrated Services Digital Network (ISDN); Call Waiting (CW) supplementary service Functional capabilities and informations flows
300 058 FINAL DRAFT prETS	Integrated Services Digital Network (ISDN); Call Waiting (CW) supplementary service - Digital Subscriber Signalling System No. one (DSS1) protocol
300 059 FINAL DRAFT prETS	Integrated Services Digital Network (ISDN); Subaddressing (SUB) supplementary service - Service Description
300 060 FINAL DRAFT prETS	Integrated Services Digital Network (ISDN); Subaddressing (SUB) supplementary service - Functional capabilities and information flows
300 061 FINAL DRAFT prETS	Integrated Services Digital Network (ISDN); Subaddressing (SUB) supplementary service - Digital Subscriber Signalling System No. one (DSS1) protocol
300 062 FINAL DRAFT prETS	Integrated Services Digital Network (ISDN); Direct Dialling In (DDI) supplementary service - Service Description
300 063 FINAL DRAFT prETS	Integrated Services Digital Network (ISDN); Direct Dialling In (DDI)

	supplementary service - Functional capabilities and information flows
300 064 FINAL DRAFT prETS	Integrated Services Digital Network (ISDN); Direct Dialling In (DDI) supplementary service - Digital Subscriber Signalling System No. one (DSS1) protocol
300 065 DRAFT prETS	Narrow-band direct-printing telegraph equipment for receiving meteorological information (NAVTEX) - Technical characteristics and methods of measurement
300 066 DRAFT prETS	Float-free maritime satellite emergency position-indicating radio beacons (EPIRBs) operating on 406.025 MHz Technical characteristics and methods of measurement
300 067 ETS	Radiotelex equipment operating in the maritime MF/HF service; Technical characteristics and methods of measurement
300 072 ETS	Videotex presentation layer protocol; Videotex presentation layer data syntax
300 073 ETS	Videotex presentation layer data syntax; Geometric display (CEPT Recommendation T/TE 06-02, Edinburgh 1988)
300 074 ETS	Videotex presentation layer data syntax transparent data (CEPT Recommendation T/TE 06-03, Edinburgh 1988)
300 075 ETS	Videotex processable data
300 076 ETS	Videotex Terminal Facility Identifier (TFI)
300 077 DRAFT prETS	Integrated Services Digital Network (ISDN); Attachment requirements for terminal adaptors to connect to an ISDN at the S/T reference point (T/TE 04-10) - (Candidate NET 7)
300 078 DRAFT prI-ETS	European digital cellular telecommunications system (phase 1); Layer 1-general requirements (GSM 04.04)
300 079 DRAFT prETS	Integrated Services Digital Network (ISDN); Syntax-based Videotex - End-to-end protocols (T/TE 06-10)
300 080 DRAFT prETS	Integrated Services Digital Network (ISDN); ISDN lower layer protocols for telematic terminals (T/TE 12-04)
300 081 DRAFT prETS	Integrated Services Digital Network (ISDN); Teletex end-to end protocol over the ISDN (T/TE 07/11)
300 082 DRAFT prETS	Integrated Services Digital Network (ISDN); 3.1 kHz telephony teleservice - End-to-end compatibility (T/TE 12- 05)
300 083 DRAFT prETS	Integrated Services Digital Network (ISDN); Circuit mode structured bearer service category usable for speech information transfer - End-to-end compatibility (T/TE 12-07)
300 084 DRAFT prETS	Integrated Services Digital Network (ISDN); Circuit mode structured bearer service category usable for 3.1 kHz audio information transfer - End-to-end compatibility (T/TE 12-08)
300 085 ETS	Integrated Services Digital Network (ISDN); 3.1 kHz telephony teleservice - Attachment requirements for handset terminals
300 086 ETS	Technical characteristics and test conditions for radio equipment with an internal or external RF connector intended primarily for analogue speech
300 087 DRAFT prETS	Integrated Services Digital Network (ISDN); Facsimile group 4 class 1 equipment on the ISDN - Functional specification of the equipment (T/TE 05-09)
Draft prETS 300 088	Integrated Services Digital Network (ISDN); Facsimile Group 4 class 1 equipment on the ISDN - General and service aspects (T/TE 05-06)
300 089 FINAL DRAFT prETS	Integrated Services Digital Network (ISDN); Calling Line Identification Presentation (CLIP) supplementary service - Service description

300 090 FINAL DRAFT prETS	Integrated Services Digital Network (ISDN); Calling Line Identification Restriction (CLIR) supplementary service - Service description
300 091 FINAL DRAFT prETS	Integrated Services Digital Network (ISDN); Calling Line Identification Presentation (CLIP) and Calling Line Identification Restriction (CLIR) supplementary services - Functional capabilities and information flows
300 092 FINAL DRAFT prETS	Integrated Services Digital Network (ISDN); Calling Line Identification Presentation (CLIP) supplementary service - Digital Subscriber Signalling System No. one (DSS1) protocol
300 093 FINAL DRAFT prETS	Integrated Services Digital Network (ISDN); Calling Line Identification Restriction (CLIR) supplementary service - Digital Subscriber Signalling System No. one (DSS1) protocol
300 094 FINAL DRAFT prETS	Integrated Services Digital Network (ISDN); Connected Line Identification Presentation (COLP) supplementary service - Service description
300 095 FINAL DRAFT prETS	Integrated Services Digital Network (ISDN); Connected Line Identification Restriction (COLR) supplementary service - Service description
300 096 FINAL DRAFT	Integrated Services Digital Network (ISDN); Connected Line Identification Presentation (COLP) and Connected Line Identification Restriction (COLR) supplementary services - Functional capabilities and information flows
300 097 FINAL DRAFT prETS	Integrated Services Digital Network (ISDN); Connected Line Identification Presentation (COLP) supplementary service - Digital Subscriber Signalling System No. one (DSS1) protocol
300 098 FINAL DRAFT prETS	Integrated Services Digital Network (ISDN); Connected Line Identification Restriction (COLR) supplementary service - Digital Subscriber Signalling System No. one (DSS1) protocol
300 099 DRAFT prETS	Integrated Services Digital Network (ISDN); Specification of the Packet Handler Access Point Interface (PHI) for the provision of prETS 300 007 (CCITT Recommendation X.31) packet mode services (T/NA2(89)10)
300 100 FINAL DRAFT prETS	Integrated services Digital Network (ISDN); Routing In support or ISUP version 1 services.
300 101 DRAFT prETS	Integrated Services Digital Network (ISDN); International Digital Audiographic Teleconference (T/N 33-01)
300 102-1 ETS	Integrated Services Digital Network (ISDN); User-network interface layer 3 - Specifications for basic call control
300 102-2 ETS	Integrated Services Digital Network (ISDN); User-network interface layer 3 - Specifications for basic call control; Specification Description Language (SDL) diagrams
300 103 ETS	Integrated Services Digital Network (ISDN); Support of CCITT Recommendation X.21, X.21 bis and X.20 bis based Data Terminal Equipments (DTEs) by an ISDN - Synchronous and asynchronous terminal adaption functions.
300 104 ETS	Integrated Services Digital Network; Attachment requirements for terminal equipment to connect to an ISDN using ISDN basic access - Layer 3 aspects
300 105 DRAFT prETS	Videotex Interworking (T/TE 06-20)
300 106 DRAFT prETS	International interworking between a terminal and a host (T/TE 06-21)
300 107 DRAFT prETS	International interworking between gateways (T/TE 06-22)
300 108 DRAFT prETS	Integrated Services Digital Network (ISDN); Circuit-mode 64 kbit/s unrestricted 8 kHz structured bearer service category (T/NA1(89)35) - Service description
300 109 DRAFT prETS	Integrated Services Digital Network (ISDN); Circuit-mode 64 kbit/s 8 kHz structured bearer service category (T/NA1(89)36) - Service description

300 110 DRAFT prETS	Integrated Services Digital Network (ISDN); Circuit-mode 64 kbit/s 8 kHz structured bearer service category (T/NA1(89)37) usable for 3.1 kHz audio information transfer - Service description
300 111 DRAFT prETS	Integrated Services Digital Network (ISDN); Telephony 3.1 kHz teleservice - Service description
300 112 DRAFT prETS	Integrated Services Digital Network (ISDN); Facsimile group 4 class 1 equipment on the ISDN - End-to-end protocols (T/TE 05-07)
300 113 DRAFT prI-ETS	Technical characteristics and test conditions for non-speech and combined analogue speech/non-speech equipment with an internal or external antenna connector intended for the transmission of data (draft I-ETS A)
300 119-2 DRAFT prETS	European Telecommunication Standard for Equipment Practice - Part 2: Engineering requirements for racks (T/TM 02-13 Part B)
300 120 DRAFT prETS	Integrated Services Digital Network (ISDN); Telefax G4 (T/NA1(90)02)
300 121 DRAFT prETS	Integrated Services Digital Network (ISDN); Application of the ISDN user part of CCITT Signalling System No. 7 for international ISDN interconnections. CCITT Recommendation Q.767 draft edition 3:1990-modified (ISUP version 1-T/S 43- 14)
300 122 FINAL DRAFT prETS	Integrated Services Digital Network (ISDN); Generic keypad protocol for the support of supplementary services; Digital Subscriber No. 1 (DSS1) protocol
300 123 ETS	Attachment requirements for Data Terminal Equipment (DTE) to connect to Packet Switched Public Data Networks (PSPDN) using CCITT Recommendation X.25 (1984) interface Requirements applicable to DTEs subscribing to Link Access Procedure Balanced (LAPB) extended (modulo 128) operation
300 124 ETS	Attachment requirements for Data Terminal Equipment (DTE) to connect to Packet Switched Public Data Networks (PSPDN) using CCITT Recommendation X.25 (1984) interface Requirements applicable to DTEs subscribing to Multilink operation
300 126 DRAFT prETS	Integrated Services Digital Network (ISDN); Equipment with ISDN interface at basic and primary rate EMC Requirements (D/DE-4001)
300 127 DRAFT prETS	Radiated emission testing of physically large systems (DE/EE-4002)
300 128 DRAFT prETS	Integrated Services Digital Network (ISDN); Malicious Call Identification (MCID) supplementary service - Service description (T/NA1(89)03)
300 129 DRAFT prETS	Integrated Services Digital Network (ISDN); Malicious Call Identification (MCID) supplementary service - Functional capabilities and information flows (T/S 22-10)
300 130 DRAFT prETS	Integrated Services Digital Network (ISDN); Malicious Call Identification (MCID) supplementary service - Digital Subscriber Signalling System No. one (DSS1) protocol (T/S 46-33N)
300 131 DRAFT prI-ETS	Second generation cordless telephones - Common air interface specification to be used for the interworking between cordless telephone apparatus including public access services
300 132 DRAFT prETS	Equipment Engineering; Power supply interface at the input to telecommunications equipment (DE/EE-2001)
300 133-1 DRAFT prETS	Paging Systems; European Radio Message System (ERMES) - Part 1: General aspects
300 133-2 DRAFT prETS	Paging Systems; European Radio Message System (ERMES) - Part 2: Service aspects
300 133-3 DRAFT prETS	Paging Systems; European Radio MEssage System (ERMES) - Part 3: Network aspects
300 133-4 DRAFT prETS	Paging Systems; European Radio MEsage System (ERMES) - Part 4: Air

	interface specification
300 133-5 DRAFT prETS	Paging Systems (PS); European Radio MEssage System (ERMES) - Part 5: Receiver conformance specification
300 133-6 DRAFT prETS	Paging Systems (PS); European Radio MEssage System (ERMES) - Part 6: Base station conformance specification
300 133-7 DRAFT prETS	Paging Systems (PS); European Radio MEssage System (ERMES) - Part 7: Operations and maintenance aspects (DE/PS-3001-7)
300 134 DRAFT prETS	Integrated Services Digital Network (ISDN); CCITT Signalling System No. 7 - Transaction Capabilities Application Part (TCAP) (T/S 43-05)
300 135 ETS	Radio Equipment and Systems; Angle-modulated Citizen's Band radio equipment (CEPT PR 27 Radio Equipment) - Technical characteristics and methods of measurement
300 136 DRAFT prETS	Integrated Services Digital Network (ISDN); Closer User Group (CUG) supplementary service - Service description (T/NA1(89)21)
300 137 DRAFT prETS	Integrated Services Digital Network (ISDN); Closed User Group (CUG) supplementary service - Functional capabilities and information flows (T/S 22-03)
300 138 DRAFT prETS	Integrated Services Digital Network (ISDN); Closed User Group (CUG) supplementary service - Digital Subscriber Signalling System No. one (DSS1) protocol (T/S 46-33H)
300 139 DRAFT prETS	Integrated Services Digital Network (ISDN); Call Hold (HOLD) supplementary service - Service description (T/NA1(89)27)
300 140 DRAFT prETS	Integrated Services Digital Network (ISDN); Call Hold (HOLD) supplementary service - Functional capabilities and information flows (T/S 22-19)
300 141 DRAFT prETS	Integrated Services Digital Network (ISDN); Call Hold (HOLD) supplementary service - Digital Subscriber Signalling one (DSS1) protocol (T/S 46-33S)
300 142 DRAFT prETS	Integrated Services Digital Network (ISDN) and other digital telecommunications networks; Audio-visual teleservices - Video codec for audio-visual services at p* 64 kbit/s (T/N 31-04) 64 kbit/s, where p is the
300 143 DRAFT prETS	Integrated Services Digital Network (ISDN) and other digital
300 144 DRAFT prETS	Integrated Services Digital Network (ISDN) and other digital 300 145 DRAFT prETS
300 146 DRAFT prETS	Integrated Services Digital Network (ISDN) and other digital telecommunications networks; Audio-visual teleservices - Frame synchronous control and indication signals for Audio- visual systems (T/N 32-06)
300 147 DRAFT prETS	Transmission and multiplexing; Synchronous digital hierarchy - Multiplexing Structure (DE/TM-3001)
300 148 DRAFT prETS	Terminal Equipment; Requirements for Teletex systems participating in the Teletex service (T/TE 07-10)
300 149 DRAFT prETS	Terminal Equipment; Videotex - Audio syntax (T/TE 06/07)
300 150 DRAFT prETS	Transmission and multiplexing; Protocol suites for Q interfaces for management of transmission systems (DE/TM- 2001)
300 151 I-ETS	Radio Equipment and Systems; 9GHZ radar transponders for use in search and rescue operations - Technical characteristics and methods of measurement
300 152 ETS	Radio Equipment and Systems. Maritime Emergency Position Indicating Radio Beacons (EPIRBs) intended for use on the frequency 121.5 Mhz or

	the frequencies 121.5 MHz and 243 MHz for homing purposes only - Technical characteristics and methods of measurement
300 153 DRAFT prETS	Integrated Services Digital Network (ISDN); Attachment requirements for terminal equipment to connect to an ISDN using ISDN basic access (T/TE 04-08)
300 154 DRAFT prETS	Terminal Equipment (TE); Optional applications between teletex equipments - Transparent mode and local dispatching at the receiving side (T/TE 07-09)
300 155 DRAFT prETS	Integrated Services Digital Network (ISDN); Facsimile group 4, class 1 equipment on the ISDN - End-to-end protocols tests (T/TE 05-08)
300 156 DRAFT prETS	Integrated Services Digital Network (ISDN); Attachment requirements for terminal equipment to connect to an ISDN using ISDN primary rate access (T/TE 04-24)
300 157 DRAFT prETS	Satellite Earth Stations (SES); Receive-Only VSATs used for data distribution (DE/SES-2001)
300 158 DRAFT prETS	Satellite Earth Stations (SES); Television Receive-Only (TVRO) satellite earth stations (DE/SES-4001)
300 159 DRAFT prETS	Satellite Earth Stations (SES); Transmit/receive VSATs used for data communications (DE/SES-2002)
300 160 DRAFT prETS	Satellite Earth Stations (SES); Control and Monitoring functions at a VSAT (DE/SES-3005)
300 161 DRAFT prETS	Satellite Earth Stations (SES); Centralised control and monitoring functions for VSAT networks (DE/SES-3004)
300 162 DRAFT prETS	Radio equipment and systems Radiotelephone transmitters and receivers for the maritime mobile service operating in VHF bands Technical characteristics and methods of measurement
300 163 DRAFT prETS	Television systems; Specification for transmission of two- channel digital sound with terrestrial television systems B, G, H and I (NICAM)(BSS 424)
300 164 DRAFT prETS	Integrated Services Digital Network (ISDN); Meet-Me Conference (MMC) supplementary service - Service Description (T/NA1(89)26)
300 165 DRAFT prETS	Integrated Services Digital Network (ISDN); Meet- Me Conference (MMC) supplementary service - Functional capabilities and information flows (T/S 22-11)
300 166 DRAFT prETS	Transmission and multiplexing; Physical/electrical characteristics of hierarchical digital interfaces for equipment using the 2048 kbit/s-based plesiochronous or synchronous digital hierarchies (DE/TM-3002)
300 167 DRAFT prETS	Transmission and multiplexing; Functional characteristics of 2 Mbit/s interfaces (DE/TM-3006)
300 168 Draft prI-ETS	Radio Equipment and Systems; Digital Short Range Radio (DSRR) (DI/RES-7001)
300 169 DRAFT prETS	Data link layer protocol for the D-channel of the interfaces at the reference point between terminal equipment and private telecommunications networks (standard ECMA-105, third edition, June 1990)
300 170 DRAFT prETS	Data link layer protocol at the Q reference point for the signalling channel between two private telecommunication network exchanges (standard ECMA-141, June 1990)
300 171 DRAFT prETS	Specification, functional model and information flows for control aspects of circuit mode basic services in private telecommunications networks (standard ECMA-142, June 1990)
300 172 DRAFT prETS	Layer 3 protocol for signalling between exchanges of private telecommunication networks for the control of circuit- swiched calls (standard ECMA-143,June 1990)

300 173 DRAFT prETS	Identification supplementary services in private telecommunication networks - Specification, functional model and information flows
300 174 DRAFT prETS	Network Aspects; Digital coding of component television signals for contribution quality applications in the range 34-45 Mbit/s
300 175-1 DRAFT prETS	Radio Equipment and Systems; Digital European Cordless Telecommunications Common interface - Part 1: Overview (DE/RES 3001-1)
300 175-2 DRAFT prETS	Radio Equipment and Systems; Digital European Cordless Telecommunications - Common interface - Part 2: Physical layer (DE/RES 3001-2)
300 175-3 DRAFT prETS	Radio Equipment and Systems; Digital European Cordless Telecommunications - Common interface - Part 3: Medium access control layer (DE/RES 3001-3)
300 175-4 DRAFT prETS	Radio Equipment and Systems; Digital European Cordless Telecommunications - Common interface - Part 4: Data link control layer (DE/RES 3001-4)
300 175-5 DRAFT prETS	Radio Equipment and Systems; Digital European Cordless Telecommunications - Common interface - Part 5: Network layer (DE/RES 3001-5)
300 175-6 DRAFT prETS	Radio Equipment and Systems; Digital European Cordless Telecommunications - Common interface - Part 6: Identities and addressing (DE/RES 3001-6)
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300 175-8 DRAFT prETS	Radio Equipment and Systems; Digital European Cordless Telecommunications - Common interface - Part 8: Speech coding and transmission (DE//RES 3001-8)
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300 176 DRAFT prl-ETS	Radio Equipment and Sytems; Digital European Cordless Telecommunications - Approval Test Specification (DI/RES 3002)
300 178 DRAFT prETS	Integrated Services Digital Network (ISDN); Advice of charge: charging information at call set-up time (AOC-S) supplementary service - Service descrption (T/NA1 (89)13)
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300 181 DRAFT prETS	Integrated Services Digital Network (ISDN); Advice of Charge (AOC) supplementary service - Functional capabilities and information flows (T/S 22-04)
300 182 DRAFT prETS	Integrated Services Digital Network (ISDN); Advice of Charge (AOC) supplementary service - Digital Subscriber Signalling System No. one (DSS1) protocol (T/S 46-33K)
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300 185 DRAFT prETS	Integrated Services Digital Network (ISDN); Conference call add-on (CONF) supplementary service - Digital Subscriber Signalling System No. one (DSS1) protocol (T/S 46-33J1)
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ETR 002	Network Aspects (NA); Guidelines for the Provision of X.75 Links at Data Rates higher than 64 Kbit/s
ETR 003	Network Aspects (NA); General Aspects of Quality of Service and Network Performance in Digital Networks including ISDN
ETR 004	Business Telecommunications (BT); Transmission Plan Aspects of a Private Branch Network for Voice Connections with access to the Public Network
ETR 005	Terminal Equipment (TE); Technical Requirements for Data Terminal Equipment for Connection to High Speed Digital Fixed-Connection Services
ETR 006	Network Aspects; Numbering and Addressing for the Memorandum of Understanding (MoU) on Integrated Services Digital Network (ISDN) (priorities 1 and 2)
ETR 008	Networks Aspects (NA); The method for the characterisation of the Machine-Machine Interfaces utilised by a Telecommunications Management Network (TMN)
ETR 010	ISDN Standards Managements (ISM); The ETSI basic guide on the European Integrated Services Digital Network
ETR 011	Network Aspects (NA); The relationship between Component Performance and the Overall Network Performance
ETR 015	Radio Equipment and Systems Digital European Cordless Telecommunications (DECT) reference document
ETR O16	Business Telecommunications (BT); Serveability Performance Objectives for Private Telecommunications Networks (PTN)
ETR 018	Integrated Services Digital Network (ISDN); Application of the BC-, HLC-, LLC-, information elements by terminals supporting ISDN services
ETR 019	Transmission and Multiplexing; Specification of New Generation High-Capacity Digital Radio Systems
ETR 020	Network Aspects; Numbering and Addressing for X.31 services
ETR 023	Network Aspmects; Intelligent Networks : Framework
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ETSI/TC 03.09	Handover Procedures
ETSI/TC GSM 03.10	GSM PLMN Connection Types
ETSI/TC GSM 03.11	Technical realization of supplementary services - general aspects
ETSI/TC GSM 03.12	Location Registration Procedures
ETSI/TC GSM 03.12-DCS	Location Registration Procedures

ETSI/TC GSM 03.13	Discontinuous Reception (DRX) in the GSM system
ETSI/TC GSM O3.14	Support of DTMF via the GSM system
ETSI/TC GSM 03.20	Security Related Network Functions
ETSI/TC GSM 03.40	Technical Realization of the SMS point-to-point
ETSI/TC GSM 03.41	Technical Realization of Short Message Service-Cell Broadcast
ETSI/TC GSM 03.42	Technical realization of advanced Data MHS access
ETSI/TC GSM 03.43	Technical realization of Videotex
ETSI/TC GSM 03.44	Support of Teletex in a GSM PLMN
ETSI/TC GSM 03.45	Technical realization of Facsmile Group 3 - Transparent
ETSI/TC GSM 03.46	Technical realization of Facsmile Group 3 -Non-transparent
ETSI/TC GSM 03.48	GSM Short Message Service Cell Broadcast
ETSI/TC GSM 03.50	Transmission planning aspects of the speech service in the GSM PLMN System
ETSI/TC GSM 03.70	Routing of calls to/from PDNs
ETSI/TC GSM 03.82	Technical realization of Call Offering supplementary services
ETSI/TC GSM 03.88	Technical realization of call restriction supplementary services
ETSI/TC GSM 04.01	MS-BS Interface - General aspects and principles
ETSI/TC GSM 04.02	GSM PLMN access reference configuration
ETSI/TC GSM 04.03	MS-BS Interface - Channel structures and access capabilities
ETSI/TC GSM 04.04.	Layer 1 - General Requirements
ETSI/TC GSM 04.05	Data Link Layer - General Aspects
ETSI/TC GSM 04.06	The scope of this recommendation is to define the data link layer protocol to be used for signalling, and possibly also for other applications, on the MS-BS interface.
ETSI/TC GSM 04.07	Mobile Radio Interface Signalling Layer 3 - General Aspects
ETSI/TC GSM 04.08	Mobile Radio Interface : Layer 3 Specification
ETSI/TC GSM 04.08-DCS	Mobile Radio Interface Layer 3 Specification
ETSI/TC GSM 04.10	Mobile Radio Interface Layer 3 Supplementary Services Specification General Aspects.
ETSI/TC GSM 04.11	Point-to-point Short Message Service Support on Mobile Radio Interface
ETSI/TC GSM 04.12	Short Message Service Cell Broadcast (SMSCB) support on Mobile Radio Interface
ETSI/TC GSM O4.21	Rate adaption on the MS-BSS Interface
ETSI/TC GSM 04.22	Radio Link Protocol for Data and Telematic Services on the MS-BSS Interface
ETSI/TC GSM 04.80	Mobile Radio Interface Layer 3 supplementary services - Specification Formats and Coding
ETSI/TC 04.82	Mobile Radio Interface Layer 3 Call Offering Supplementary Services Specification
ETSI/TC GSM 04.88	Mobile Radio Interface Layer 3 Call Restriction Supplementary Services Specification

ETSI/TC GSM 05.01	Physical Layer on the Radio Path: General description
ETSI/TC GSM 05.01-DCS	Physical Layer on the Radio Path: General desription
ETSI/TC GSM 05.02	Multiplexing and Multiple Access on the Radio Path.
ETSI/TC GSM 05.03	Channel Coding
ETSI/TC GSM 05.04	Modulation
ETSI/TC GSM 05.05	Radio Transmission and Reception
ETSI/TC GSM 05.05-DCS	Radio Transmission and Reception
ETSI/TC GSM 05.08	Radio Sub-System Link Control
ETSI/TC GSM 05.08-DCS	Radio Sub-System Link Control
ETSI/TC GSM 05.10	Radio Sub-System Synchronization
ETSI/TC GSM 06.01.	Speech Processing Functions: General description
ETSI/TC GSM 06.10	GSM Full Rate of Speech Transcoding
ETSI/TC GSM 06.11	Substitution and Muting of Lost Frames for Full-Rate Speech Traffic Channels
ETSI/TC GSM 06.12	Comfort Noise Aspects for Full-Rate Speech Traffic Channels
ETSI/TC GSM 06.31	Discontinuous Transmission (Dtx) for Full-Rate Speech Traffic Channels
ETSI/TC GSM 06.32.	Voice Activity Detection
ETSI/TC GSM 07.01	General on Terminal Adaptation Functions for Mobile Stations
ETSI/TC GSM 07.02.	Terminal Adaptation Functions (TAF) for services using Asynchronous Bearer Capabilities
ETSI/TC GSM 07.03	Terminal Adaptation Functions for services using Synchronous Bearer Capabilities
ETSI/TC GSM 08.01	Base Station System to Mobile switching Centre Interface, General Aspects
ETSI/TC GSM 08.02	BSS/MSC Interface - Interface Principles 64 kbit/s channels which can be used
ETSI/TC GSM 08.06	Signalling Transport Mechanisms between the BSS and MSC
ETSI/TC GSM	Mobile Switching Centre (MSC) to Base Station System (BSS)
ETSI/TC GSM 08.09	Network Management Signalling Support Related to the BSS
ETSI/TC GSM 08.20	Rate Adaption on the BSS-MSC Interface
ETSI/TC GSM 08.51	Base Station Controller (BSC) to Base Transceiver Station
ETSI/TC GSM 08.52	Base Station Controller (BSC) to Base Transceiver Station
ETSI/TC GSM 08.54	Base Station Controller (BSC) to Base Transceiver Station
ETSI/TC GSM 08.56	Base Station Controller (BSC) to Base Transceiver Station
ETSI /TC GSM 08.58	Base Station Controller (BSC) to Base Transceiver Station
ETSI/TC GSM 08.58-DCS	Base Station Controller (BSC) to Base Transceiver Station
ETSI/TC GSM 08.59	Base Station Controller (BSC) to Base Transceiver Station
ETSI/TC GSM 08.60	Inband Control of Remote Transcoders and Rate Adaptors
ETSI/TC GSM 09.01	General Aspects on PLMN Interworking

ETSI/TC GSM 09.02	Mobile Application Part Specification
ETSI/TC GSM 09.02-DCS	Mobile Application Part Specification
ETSI/TC GSM 09.03	Signalling Requirements on Interworking between the ISDN or
ETSI/TC GSM 09.04	Interworking between the PLMN and the CSPDN
ETSI/TC GSM 09.05	Interworking between the PLMN and the PSPDN for PAD Access
ETSI/TC GSM 09.06	Interworking between a PLMN and a PSPDN/ISDN for the support
ETSI/TC GSM 09.07	General Requirements on Interworking between the PLMN and
ETSI/TC GSM 09.09	Detailed Signalling Interworking within the PLMN and with
ETSI/TC GSM 09.10	Information element mapping between MS-BSS/BSS-MSC
ETSI/TC GSM 09.10-DCS	Information Element Mapping between MS-BSS/BSS-MSC
ETSI/TC GSM 09.11	Signalling interworking for supplementary services
ETSI/TC GSM 11.10	Mobile Station conformity specifications
ETSI/TC GSM 11.11	Specifications of the SIM-ME Interface
ETSI/TC GSM 11.11-DCS	Specifications of the SIM-ME Interface
ETSI/TC GSM 11.20	The GSM Base Station System: Equipment specification
ETSI/TC GSM 11.30	Mobile Services Switching Centre
ETSI/TC GSM 11.31	Home Location Register Specification
ETSI/TC GSM 11.32	Visitor Location Register Specification
ETSI/TC GSM 11.40	System Simulator specification
ETSI/TC GSM 12.00	Objectives and Structure of Network Management
ETSI/TC GSM 12.01	Common Aspects of GSM Network Management
ETSI/TC GSM 12.02	Subscriber, Mobile Equipment and Services Data
ETSI/TC GSM 12.03	Security Management
ETSI/TC GSM 12.04	Performance Data Measurements
ETSI/TC GSM 12.05	Subscriber Related Event and Call Data
ETSI/TC GSM 12.06	GSM Network Change Control
ETSI/TC GSM 12.07	Operations and Performance Management
ETSI/TC GSM 12.10	Maintenance Provisions for Operational Integrity of Mobile
ETSI/TC GSM 12.11	Maintenance of The Base Station System BSS
ETSI/TC GSM 12.13	Maintenance of the Mobile-Services Switching Centre
ETSI/TC GSM 12.14	Maintenance of Location Registers
ETSI/TC GSM 12.20	Network Management Procedures and Messages
ETSI/TC GSM 12.21	Network Management Procedures and Messages on the A-bis
Other documents	A Revolution in European Telecommunications Standards Making
Other documents	Mobile Telecommunications
Other documents	Mobile Telecommunications MEG Core Report and Annexes

Appendix C, Attachment 2; Examples of Search Results - 2 examples provided

ETSI APPROVED STANDARDS CONTAINING THE KEY SEARCH STRING 'MULT'

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DOCUMENT.....	DESCRIPTION.....
ETR 019	Transmission and Multiplexing; Specification of New Generation High-Capacity Di
300 166 DRAFT prETS	Transmission and multiplexing; Physical/electrical characteristics of hierarchi
ETSI/TC GSM 02.84	Multi Party supplementary services GSM
300 052 FINAL DRAFT	Integrated Services Digital Network (ISDN); Multiple Subscriber Number (MSN) su
300 124 ETS	Attachment requirements for Data Terminal Equipment (DTE) to connect to Packet
300 147 DRAFT prETS	Transmission and multiplexing; Synchronous digital hierarchy - Multiplexing Str
ETSI/TC GSM 05.02	Multiplexing and Multiple Access on the Radio Path.
300 050 FINAL DRAFT	Integrated Services Digital Network (ISDN); Multiple Subscriber Number (MSN) su
300 051 FINAL DRAFT	Integrated Services Digital Network (ISDN); Multiple Subscriber Number (MSN) su
ETSI/TC GSM 02.05	Simultaneous and Alternative use of Services GSM
300 150 DRAFT prETS	Transmission and multiplexing; Protocol suites for Q interfaces for management
300 167 DRAFT prETS	Transmission and multiplexing; Functional characteristics of 2 Mbit/s interface

ETSI STANDARDS IN PROCESS CONTAINING THE KEY SEARCH STRING 'MULT'

DOCNAME...	DESCRIPTION.....
MI/TM-2205 DE/TM-1013	Management of flexible multiplexers & 64 kbit/s cross connect. Flexible Multiplexer Equipment Part 2: Digital multiplex and/or transmission facilities functional block
DI/TM-1006	Transmission and Multiplexing (TM); Single-mode optical fibre cables to be used for aerial application
DE/SPS-502	Integrated Services Digital Network (ISDN); Multiple Subscriber Number (MSN) Supplementary Service; protocol implementation conformance statement (PICS) proforma for Digital Subscriber Signalling Syst
SI/NA-1241	List of multimedia services
T/S	Integrated Services Digital Network (ISDN); Multiple Subscriber Number (MSN) supplementary service Digital Subscriber Signalling System No. one (DSS1) protocol
DE/TM-1013	Flexible Multiplexer Equipment Part 4: Flexible access termination Additions to DE/TM-3001 'SDH multiplexing structure'
GSM	European digital cellular telecommunications system (phase 1); Multiplexing and multiple access on the radio path (GSM 05.02)
DTR/TM-400	Transmission and Multiplexing Specification of new generation high-capacity digital radio systems
RTS/SMG-00	European digital cellular telecommunications system; Simultaneous and Altemate Use of Services
RTS/SMG-00	European digital cellular telecommunications system; Simultaneous and Altemate Use of Services
DE/TM-4003	Transmission and Multiplexing (TM); Parameters for radio-relay systems for the transmission of digital signals and analogue video signals operating at 23 GHz (DE/TM-4003)
T/S	Conformance Test Specification for multiple subscriber number (MSN)

DOCNAME...	DESCRIPTION.....
MI/NA-1240	Input to NA4 on methodology for multimedia services. Coordination and results from RACE and SGXVIII
DE/TM-1002	Functional requirements of flexible multiplexer equipments
MI/TM-1001	Multimode graded index optical fibres
DE/BT-3006	Supplementary service: Multi PTN attendant (MPA) Stage 1 and stage 2 descriptions
GSM	European digital cellular telecommunications system (phase 2); Multiplexing and multiple access on the radio path (GSM 05.02)
DTR/HF-101	A multiple index approach for the evaluation of pictogram proposals
DE/TM-2001	Transmission and Multiplexing (TM); Protocol suites for Q interfaces for management of transmission systems
RI/SMG-020	European digital cellular telecommunications system; Multiplexing and Multiple Access on the Radio Path
DE/TM-3002	Transmission and multiplexing Physical/electrical characteristics of hierarchical digital interfaces for equipment using the 2048 kbit/s-based plesiochronous or synchronous digital hierarchies (DE/TM-
DTR/TM-401	Low capacity point to multipoint digital systems
DTR/HF-100	User Procedures for Multipoint Videotelephony
DTR/TM-300	Applications and network functional architecture of flexible Multiplexers & 64 kbit/s cross-connects
DTR/TE-100	Multipoint for audiovisual services
Draft	Attachment requirements for Data Terminal Equipment (DTE) to connect to Packet Switched Public Data Networks (PSPDN) using CCITT Recommendation X.25 (1984) interface Requirements applicable to DTEs su
DTR/ECMA-0	Multi-PTN attendant (ECMA-TR/MPA)

DOCNAME...	DESCRIPTION.....
MI/TE5	Specification of 2 Mbit/s data multipexer/cross connect system and 64 kbit/s multipexer
DE/ECMA-00	Supplementary service Multi-PTN attendant (MPA) stage 2 description
DTR/NA-522	Multimedia methodology
T/S	Integrated Services Digital Network (ISDN); Multiple Subscriber Number (MSN) supplementary service Functional capabilities and information flows
DE/TM-1013	Functional requirements of flexible multiplexer (FM) equipments
MI/HF-1013	Human factors aspects of multimedia telecommunications
DI/TM-1004	Transmission and Multiplexing (TM); Single-mode optical fibre cables to be used in ducts and for directly buried application
DE/TM-4005	Transmission and Multiplexing (TM); High capacity digital radio-relay systems carrying 1 x STM-1 signals and operating in frequency bands with about 30 MHz channel spacing and alternated arrangements
DTR/TM-101	Transmission and Multiplexing (TM); Technical report on statistical approach design
Draft	General principles for multi-application Intelligent Cards and Card Terminals for telecommunications use (TE 11-01)
T/NA1(89)2	Integrated Services Digital Network (ISDN); Multiple Subscriber Number (MSN) supplementary service Service Description
RTS/SMG-01	European digital cellular telecommunications system; Multi-party Supplementary Services
RI/SMG-020	European digital cellular telecommunications system; Multiplexing and Multiple Access on the Radio Path
MI/TE-1000	Multipoint for audiovisual services

DOCNAME...	DESCRIPTION.....
DE/TM-1013	Flexible Multiplexer Equipment Part 1: Flexible multiplexer functional blocks
MI/SPS	Flexible multiplexer interfaces on exchanges
DE/TM-3003	Transmission and Multiplexing (TM); Digital section for ISDN primary rate access
RTS/SMG-03	European digital cellular telecommunications system; Mobile Radio Interface Layer 3 - Multi-party SS Specification
DI/TM-1008	Tramsmission and Multiplexing (TM); CCITT Recommendation G.652-type single-mode optical fibre
DI/TM-1020	Transmission and Multiplexing (TM); CCITT Recommendation G.653-type dispersion shifted single-mode optical fibre
DE/TM-3006	Transmission and multiplexing Functional characteristics of 2 Mbit/s interfaces (DE/TM-3006)
DE/TM-3001	Transmission and multiplexing Synchronous digital hierarchy Multiplexing structure
DTR/TM-500	Transmission and Multiplexing (TM); Digital European Cordless Telecommunications (DECT); Transmission aspects 3,1 kHz telephony Interworking with other networks
DTR/NA-124	Base document on multimedia services
DE/TM-1013	Flexible Multiplexer Equipment Part 3: Management & control functions functional block
RTS/SMG-03	European digital cellular telecommunications system; Technical Realization of Multi-party Supplementary Services
MI/NA-1240	Input to CCITT on multimedia services
DE/TM-1014	Transmission and Multiplexing (TM); Synchronous cross connect 64 and n x 64 kbit/s cross connection rate 2 048 kbit/s access ports Part 1: Core functions and characteristics

DOCNAME...	DESCRIPTION.....
DTR/NA-241	Network Aspects (NA); Terminal selection principles for priority I and II services of MoU - ISDN, applicable in multi-terminal environments at customer premises
DE/TM-1011	Transmission and Multiplexing (TM); Optical parameters for interfaces for the Synchronous Digital Hierarchy (SDH)
T/TE	Multi-profile Videotex terminal for the use on the PSTN

ETSI KEYWORD LIST FROM TOPICS UNDER STUDY

A-BIS
A-LAW
AL
CCESS
ACCOUNTING
ACCREDITAT
CESSIBILI
COUSTIC
DAPT
ADDRESS
ADMINISTRA
DRESS
DVANCED
AERIAL
AERONAUTIC
GEING
GENT
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AIR
ALARM
LGORITHM
LGORITHMS
ALLOCATION
ALPHA-MOSA
LPHABET
MH
MH13
AMPLIFIERS
ANALOG
NF
NGLE-MODU
ANNEX
ANTENNA
AOC
AOC-D
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AOC-S
APERTURE
API
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APPROVAL
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ATTACHMENT
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ATTENDANT
AUDIO
AUDIOGRAPH
AUDIOTEX
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AUTHENTICA
AUTOMATIC
AVAILIBILI
B-CHANNEL
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BALANCED
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BONDING
BROADBAND
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BSC
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ISOISP
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KEYPAD
KHZ
KU-BAND
LAN
LAND
LANGUAGE
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MEET-ME
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MHS-ACCES
MHZ
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MIGRATION
MILLIMETRI
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MOBILE-SER
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NATIONAL
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PAGING
PAN-EUROPE
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PASSIVE
PATH
PATHS
PAYMENT

AYPHONE
PAYPHONES
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PERFORMACE
PERFORMANC
ERFORMANC
ERMANENT
PERSONAL
PHASE
PHASES
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PHOTOGRAPH
PHYSICAL
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HYSICALLY
PICS
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PICTOGRAMS
PIXIT
PLAN
PLANE
PLANNING
PLANS
PLCP
PLESIOCHRO
PLMN
PLMNS
PLUG-IN
PLUS
PMBS
PMR
POINT
POINT-TO-P
POINTS
PORTABILIT
PORTABLE
PORTS
POSITION
POSSIBLE
POWER
PR
PRACTICE
PRACTICES
PREAMBLE
PREDICTION
PREMISES
PREMIUM
PREPARATIO
PRESENTATI
PRESENTED
PRETS
PRIMARILY
PRIMARY
PRINC
PRINCIPLES
PRINTING
PRIORITIES
PRIORITY
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PRIVACY
PRIVAT
PRIVATE
PRIVATEPUB
PRM
PROCEDUR
PROCEDURAL
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PROCEDURES
PROCESS
PROCESSABL
PROCESSING
PRODUCING
PRODUCTS
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PROFILE
PROFILES
PROFORMA
PROGRAM
PROGRAMME
PROGRAMMES
PROGRAMMIN
PRDGRESS
PRDPOSALS
PROPOSED
PROSE
PROTECTED
PROTECTION
PROTOCDL
PROTOCOLS
PROVIDED
PROVIDING
PROVISION
PROVISIONS
PS
PSDN
PSPDN
PSPDNISDN
PSPDNS
PSTN
PSTN'S
PSTNISD
PTN
PTN-PUBLIC
PTNS
PTNXS
PTNXSPABXS
PTS
PUBLIC
PUM
PURPOSE
PURPOSES
PVC
Q
Q-PROFILES
Q3
Q3-INTERFA
Q511
Q512
Q513
QOS
QUALITY
R-INTERFAC
RACE
RACKS
RADAR
RADIATED
RADIATION
RADIO
RADID-RELA
RADIOCOMMU
RADIOTELEP
RADIOTELEX
RANGE
RATE
RATES
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RDSS
REACHABLE
REALISATIO
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RECALL
RECEIVE
RECEIVE-ON
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REQUIRE
REQUIRED
REQUIREMEN
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RES
RESCUE
RESEARCH
RESOURCE
RESPECT
RESPONDER
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RESTORATIO
RESTRICTIO
RESULTS
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REVERSE
REVISED
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RF
RFACE
RFIF
RIBBON
RIBBONS
RLP
ROAMING
ROLE
ROUTE
ROUTEING
ROUTING
RULES
RUNK
S
S-
S-REFERENC
SA
SAFETY
SATELLITE
SATTELITE
SCCP
SCEF
SCENARIO
SCENARIOS
SCHEME
SCLC
SCOC
SCREENING
SCS
SCT
SDH
SDH-
SDH-1
SDH-BASED
SDL
SE
SEARCH
SECOND
SECTION
SECURITY
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SEE
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SERV
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SET
SET-UP
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SG
SGXVIII
SHIFTED
SHIP
SHORT
SIDE
SIGNAL
SIGNALLING
SIGNALS
SIM-ME
SIMME
SIMPLE
SIMULATION
SIMULATOR
SIMULTANEO
SINGLE
SINGLE-MOD
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SITE
SITUATIONS
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SUB-64
UB-NETWOR
UB-SYSTEM
SUBADDRESS
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SUPPLY
SUPPORT
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TE7-01
TE7-04
TE7-06
TECHNICAL
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TELEACTION
TELECOM
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TELECONFER
TELEFAX
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TRAIL
TRAMSMISSI
TRANSACTIO
TRANSCODER
TRANSCODIN
TRANSFER
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TRANSMITTE
TRANSMITTI
TRANSPAREN
TRANSPONDE
TRANSPORT
TRANSPORTA
TRANSPORTA
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TUTORIAL
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TVRO
TVRO-BSS
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TWO-CHANNE
TWO-WAY
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TYPES
UNCERTAINT
UNCONDITIO
UNDER
UNDERSTAND
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UNIFIED
UNITS
UNIVERSAL
UNRESTRICT
UNSTRUCTUR
UNSUCCESFU
UNSUCCESSF
UP
UPDATING
UPT
URED
USABILITY
USABLE
USAGE
USE
USED
USER
USER-NETWO
USER-TERMI
USER-TO-US
USER-USER
USERS'
USING
UTILISATIO
UTILISED
UUS
V
V-INTERFAC
V-SERIES
V5
V5-INTERFA
VALIDATION
VALUES
VARIOUS
VC
VEHICLE
VEHICULAR
VERSION
VERY
VHF
VHFFM
VIA
VIDEO
VIDEOCODIN
VIDEOPHONE
VIDEOPHONY
VIDEOTELEP
VIDEOTELEP
VIDEOTEX
VIEW
VII
VIII
VIRTUAL
VISITOR
VISUAL
VOC
VOCABULARY
VOICE
VPN
VPVC
VSAT
VSATS
WAITING
WATCH
WEATHER
WEATHER-PR
WEATHERPRO
WHEN
WHERE
WHICH
WHOLLY
WIDE-SCREE
WIDEBAND
WIRE
WIRELESS
WIRING
WITH
WITHIN
WITHOUT
WORK
WORKPLAN
WORKSTATIO
X
X-SERIES
XVIII
Y
Z

KEYWORD/CATALOG/INFORMATION MANAGEMENT

Appendix C - Keyword / Catalog / Information Management

AAL
ACCESS
ADDRESS
ADPCM
ADSL
AERO
ALPHABET
ATM
AUT
BROADBAND
CAP
CARRIER
CHANNEL
COMMON
COMPAT
COMPRESS
CONNECT
CROSS
DATA
DEFLECT
DIGITAL
DSL
DS1
DS3
DTE
DUPLEX

ECHO
EDI
ERROR
FACSIMILE
FIBRE
FORWARD
FPAD
FRAME
HDSL
HUMAN
IDENT
INTELLIGENT
INTER
ISDN

JITTER
LAN
LAND
LANGUAGE
LAP
LINK
LOUD
MARITIME
MEASURE
MESSAGE
MOBILE
MODEM
MULTIPLEX
NETWORK
NNI
NUMBER
OMAP
OPEN
OPTIC
OSI
PACKET
PAD
PCS
PCM
PCN
PERSONAL
PICS
PRESENTATION
PRIVA
PROTOCOL
PSC
PSDN
PSTN
QAM
QOS
QUALITY
RESTOR
ROUT
SDH
SESSION
SIGNAL
SOUND
STATIST
STORE
SWITCH
SYNCH
TDM
TE1
TE2
TELE
TELEVIS
TEST
TRAFFIC
TRANSPORT
UPT
VIDEO
VOICE
WIRELESS
X.

APPENDIX D

Directory of Testing Laboratories

TEST LABORATORY FACILITIES AND SERVICES

1. INTRODUCTION

This appendix lists a number of facilities and services available for standards approval engineering, testing and application services. The material comes largely from the 1993 Directory Issue of EMC Test & Design. For more complete and detailed information, please refer to that publication.

The attached table lists a number of randomly selected companies and the type of facilities and services offered. The category numbers used in the table are defined on the next page.

The large number of companies included in this partial list of companies attests to the significant business that exists around product design for compatibility, testing and regulatory approvals. The twenty-four different categories in the table also highlights the significant diversity of approval types, specialized skills and the range of facilities required and available.

2. CANADIAN COMPANIES

A total of nine Canadian companies were found on the list:

Ancom Electromagnetics	Dorval	QUE
Aprel Inc	Nepean	ONT
Canadian Standards Association	Point-Claire	QUE
Certelecom Laboratories	Ottawa	ONT
CRIQ	Montreal	QUE
Electronics Test Centre	Edmonton	ALB
Emcon Emanation Controls	Nepean	ONT
MPB Technologies	Ottawa	ONT
Ultratech Engineering Labs	Mississauga	ONT

3. **CAPABILITY CATEGORIES LIST:**

CATEGORY	DESCRIPTION	MINI GLOSSARY
TEST FACILITIES		
1	Indoor Test Range	
2	Open Area Test Site	
3	NARTE-Certified Personnel	NARTE - National Association of Radio and Telecommunications Engineers
4	Nationally Recognized Test Lab	
5	NVLAP Accredited	NVLAP - National Voluntary Laboratory Accreditation Program
TEST CAPABILITIES		
6	EC Competent or Notified Body	EC - European Community
7	Failure Analysis	
8	FCC - Part 15	FCC - Federal Communications Commission
9	FCC - Part 68	
10	European EMC	EMC - ElectroMagnetic Compatibility
11	Other International EMC	
12	Military EMC Standards	
13	TEMPEST	TEMPEST - US govn. radiated emissions security program
14	Automotive EMC	
15	ESD	ESD - ElectroStatic Discharge
16	EFT, Surge	EFT - Electrical Fast Transient
17	ELF Measurement	ELF - Extremely Low Frequency
18	EMP, Lighting	EMP - ElectroMagnetic Pulse
19	Radiation Hazards	
20	Susceptibility / Immunity	
21	Shielding Effectiveness	
ADDITIONAL SERVICES		
22	Calibration Services	
23	EMC Site Surveys	
24	ESD Site Surveys	

TEST LABORATORY FACILITIES AND SERVICES

COMPANY NAME Contact	ADDRESS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Bema Technology **Jagtar Sahota**	4063 Clipper Court Fremont, CA 94538 (510) 490-9215		■						■	■	■	■						
Bull HN Information System, Inc. Blake Bisson	300 Concord Road Billerica, MA 01821 (508) 294-2900	■	■					■	■		■	■	■			■	■	
C&C Laboratory, Inc Carl Felts	49000 Milmont Drive Fremont, CA 94539 (510) 440-3838		■				■		■	■	■	■	■		■	■	■	■
C.C. Moore Co. Chuck Moore	22965 La Cadena Laguna hills, CA 92653 (714) 588-8899		■					■	■									
Canadian Standards Association *Linda Castonguay*	*865 Ellingham Street* *Point-Claire, QUE H9R 5E8, (514) 694-8110*	■	■				■											
Cardinal Technologies Michael A. Royer	1827 Freedom Road Lancaster, PA 17601 (717) 293-3092	■	■						■									
Carl T. Jones Corporation Michael Nicolay	7901 Yarnwood Court Springfield, VA 22153 (703) 569-7704	■	■						■		■							
Carnel Labs Paul Bender	21434 Osborne Street Canoga Park, CA 91304 (818) 882-3977								■				■					
Celect Testing Laboratories Steven G. Davis	7500 Innovation Way Mason, OH 45040 (513) 573-6809	■	■		■				■		■	■	■	■	■			
CERTELECOM Labrotories, Inc. *Rae Dulmage*	*3325 River Road, R.R 5* *Ottawa, ONT K1G 3N3* *(613) 737-9691*	■	■	■	■	■			■	■	■	■	■		■	■	■	
Certitech Corporation David C. Bloksom	B-8800 Irvine Center Drive Irvine, CA 92718 (800) 346-9906	■	■						■		■	■	■		■	■		
CF Europe, Ltd.	Westfields House, West Ave. Kidsgrove, Stoke-on-Trent, Staffordshire, England ST7 1TL 0782-774234	■	■			■					■	■		■		■	■	
Chase EMC, Ltd. Graham Mays	Bramley Business Center Station Road, Bramley Surrey, England GU5 0AZ 44-483-898969	■	■		■		■	■	■		■	■	■			■	■	
Cincinnati Electronics Steve Davis	7500 Innovation Way Mason, OH 45040 (513) 573-6100	■							■	■	■	■	■	■	■	■		
CKC Laboratories, Ltd. Chuck Kendall	5473 A Clouds Rest Mariposa, CA 95338 (209) 966-5240	■	■						■	■	■	■	■		■			
Cliff Tomack Consulting **Cliff Tomack**	19220 Beardsley Road Los Gatos, CA 95030 (408) 354-1015								■		■					■	■	
Communication Certification Lab. Joseph W. Jackson	1940 West Alexander St Salt Lake City, UT 84119 (801) 972-6146	■	■	■	■				■	■	■	■				■		
Compatible Electronics Inc., Agoura James K. Baer	2337 Troutdate Drive Agoura, CA 91301 (818) 597 0600		■	■					■	■	■	■				■	■	

TEST LABORATORY FACILITIES AND SERVICES

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Bema Technology **Jagtar Sahota**	4063 Clipper Court Fremont, CA 94538 (510) 490-9215		■						■	■	■	■						
Bull HN Information System, Inc. Blake Bisson	300 Concord Road Billerica, MA 01821 (508) 294-2900	■	■					■	■		■	■	■			■	■	
C&C Laboratory, Inc Carl Felts	49000 Milmont Drive Fremont, CA 94539 (510) 440-3838		■				■		■	■	■	■	■		■	■	■	■
C.C. Moore Co. Chuck Moore	22965 La Cadena Laguna hills, CA 92653 (714) 588-8899		■					■	■									
Canadian Standards Association *Linda Castonguay*	*865 Ellingham Street* *Point-Claire, QUE H9R 5E8, (514) 694-8110*	■	■				■											
Cardinal Technologies Michael A. Royer	1827 Freedom Road Lancaster, PA 17601 (717) 293-3092	■	■						■									
Carl T. Jones Corporation Michael Nicolay	7901 Yarnwood Court Springfield, VA 22153 (703) 569-7704	■	■						■		■							
Carnel Labs Paul Bender	21434 Osborne Street Canoga Park, CA 91304 (818) 882-3977								■				■					
Celect Testing Laboratories Steven G. Davis	7500 Innovation Way Mason, OH 45040 (513) 573-6809	■	■		■				■		■	■	■	■	■			
CERTELECOM Labrotories, Inc. *Rae Dulmage*	*3325 River Road, R.R 5* *Ottawa, ONT K1G 3N3* *(613) 737-9691*	■	■	■	■				■	■	■	■	■	■	■	■		
Certitech Corporation David C. Bloksom	B-8800 Irvine Center Drive Irvine, CA 92718 (800) 346-9906	■	■						■		■	■	■					
CF Europe, Ltd.	Westfields House, West Ave. Kidsgrove, Stoke-on-Trent, Staffordshire, England ST7 1TL 0782-774234	■	■			■					■	■		■		■	■	
Chase EMC, Ltd. Graham Mays	Bramley Business Center Station Road, Bramley Surrey, England GU5 0AZ 44-483-898969	■	■		■	■	■	■			■	■	■			■		
Cincinnati Electronics Steve Davis	7500 Innovation Way Mason, OH 45040 (513) 573-6100	■							■	■	■	■	■	■	■	■		
CKC Laboratories, Ltd. Chuck Kendall	5473 A Clouds Rest Mariposa, CA 95338 (209) 966-5240	■	■						■		■	■	■			■		
Cliff Tomack Consulting **Cliff Tomack**	19220 Beardsley Road Los Gatos, CA 95030 (408) 354-1015								■		■		■			■		
Communication Certification Lab. Joseph W. Jackson	1940 West Alexander St Salt Lake City, UT 84119 (801) 972-6146	■	■	■	■	■			■		■	■	■					
Compatible Electronics Inc., Agoura James K. Baer	2337 Troutdate Drive Agoura, CA 91301 (818) 597 0600		■	■					■		■	■	■			■	■	

TEST LABORATORY FACILITIES AND SERVICES

COMPANY NAME Contact	ADDRESS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Compliance Consulting Services. Michael Azar	P.O. Box 612650 San Jose, CA 95161 (408) 463-0885																	
Computer Crossroads of America, Inc. Mark E. Bushnell	P.O. Box 832117 1380 Presidential Drive Richardson, TX 75083 (214) 231-6108																	
Consolidated Spectrum Services	22 Merrill Drive Atkinson, NH 03811 (603) 362-5977																	
Continental Viking Labs Ed Sawyer	8385 South US Hwy 17-92 Fern Park, FL 32730 (407)831-2700																	
CRIQ *Benoit Nadeau*	*8475 rue Christophe-Colomb, B.P. 2000, Succursale Youville Montreal, QUE H9P 2X1 (514) 383-3250*																	
Cummins Electronics Company, Inc. Dean Dringenburg	2851 State Street Columbus, IN 47201 (812) 377-5072																	
D.L.S. Electronic Systems Inc. Don Sweeney	10350 Dearlove Road Glenview , IL 60025 (708) 699-9060																	
Dash, Straus & Goodhue William R. O'Brien	593 Massachusetts Ave. Boxborough, MA 01719 (508) 263-2662																	
Dayton T. Brown, Inc. - Engineering & Test Division Joe Deo	555 Church Road Bohemia, NY 11716 (516) 589-6300																	
Detroit Testing Laboratory Judy Caudill	P.O. Box 869 7111 E. Eleven Mile road Warren, MI 48090 (313) 754-9000																	
Diversfeild T.E.S.T. Technologies Inc.	Route 222, P.O. Box 8 Groton, NY 13073 (607) 898-4218																	
DNB Engenering, Inc Douglas Broaddus	3535 W. Commonwealth Ave. Fullerton, CA 92633 (714) 870-7781																	
E.C.L.I. Electronic Compliance Labs. Inc. Eugene Tovar	325 Preston Ct. Livermore, CA 94550 (510) 373-2588																	
ECR Laboratories, Inc. Henry Lee	265-E Sobrante Way Sunnyvale, CA 94086 (408) 738-8754																	
E.F. Electronics Co. Ed French	912 W. Industrial Drive Aurora, IL 60506 (708) 897-1950																	
EESI - Electromagnetics Engineering Services John Lavery	11696 Sorrento Valley Rd San Diego, CA 92121 (619) 259-4943																	
Electro Magnetic Applications, Inc. Rodney A. Perala	P.O. Box 260283 Denver, CO 80226 (303) 980-0070																	

TEST LABORATORY FACILITIES AND SERVICES

COMPANY NAME Contact	ADDRESS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Electro Service Corp. Charles Slease	2 Davis Drive Belmont, CA 94002 (415) 943-5111																	
Electronic Development Incorporated Patrick Means	707 Balfour Road Grosse Point Park, MI 48230, (313) 824-0456																	
Electronic Resources Inc. Ed Draper	1790-10 E. Market St. Harrisonburg, VA 22801 (703) 289-5571																	
ELECTRONICS TEST CENTRE *Chris Talliss*	*250 Karl Clark Road* *Edmonton, ALB T6N 1E4* *(403) 450-5368*																	
Elite Electronic Engineering Company John B. Schmit	1516 Centre Circle Downers Grove, IL 60515 (708) 495-9770																	
Elliot Associated Laboratories, Inc. Barry W. Klinger	3A-897 Independence Ave Mountain View, CA 94043 (415) 967-4166																	
EMACO Product Sevice Al H. Mills	7562 Trade Street San Diego, CA 92121 (619) 578-1480																	
EMC Baden AG Mr. F. Gassmann	c/o ABB Research Center Segelhof, Baden-Dattwil Switzerland, CH-5405 41-56-76 8805																	
EMC Fribourg SA Hubert Sauvain	Centre Technologique de Montenaz Rossens, Switzerland CH-1728 41-37-31-31-51																	
EMC Sales Inc.	P.O. Box 114 Brookline, NH 03033 (603) 672-4455																	
EMCC Dr. Rasek Dr. Rasek	Moggast 72-74 Ebermannstadt, Germany D-W-8553 49-9194-9016																	
EMCE Engineering, Inc. Steve Sawyer	4615 Enterprise Common Fremont, CA 94538 (510) 490-4307																	
Emcon Emanation Control Ltd. *Peter Doig*	*14 Colonnade Rd.* *Nepean, ONT K2E 7M6* *(613) 723-1838*																	
EMI Measurements	300 Maranatha Drive Hollister, CA 95023 (408) 636-2860																	
Emitech Belgium Ivan J. Hendrikx	Kapeldreef 60 Leuven, Belgium B-3001 32-16-270-440																	
Environment Associates, Inc.-EMI Test Division Gordon Levey	5700 Corsa Ave., Suite 111 Westlake Village, CA 91362, (818) 889-9364																	

TEST LABORATORY FACILITIES AND SERVICES

COMPANY NAME Contact	ADDRESS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
ETL Testing Laboratories Barbara Judge	260 E. Grant Avenue #38 South San Francisco, CA 94080, (415) 871-1414																	
Euro EMC Service (EES) Dr. Hansen	Potsdamer Strasse 10 D-O-1530 Teltow Berlin/Brandenburg, Germany, 49-3328477141																	
Euroconsult, Inc. Werner W. Paster	P.O. Box 243, 66 Summer St, Manchester, MA 01944 (508) 526-1687																	
Eurotest Laboratories Ltd. Liz Roger	Matthews Drive P.O. Box 262 East Haddam, CT 06423 (203) 873-1451																	
General Datacom Inc. Charles W. Reed	Park Rd. Ext Middlebury, CT 06762 (203) 758-1811																	
General Test Laboratories, Inc. Peter Nijessen	977 Benicia Avenue Sunnyvale, CA 94086 (408) 245-7100																	
Globetek, Inc. Jon Landau	186 Veterans Drive Northvale, NJ 07647 (201) 784-1000																	
Grace Electronic Materials	77 Dragon Court Woburn, MA 01888 (800) 225-1936																	
GTE Testmark Laboratories Richard Lawrence	3050 Harrodsburg Road Lexington, KY 40503 (606) 223-3061																	
Hetra Computer and Comm. Ind. Inc. Ed Busch	10300-102nd Terrace Sebastian, FL 32958 (407) 589-7331																	
Hi-Rel Laboratories Michael Gorham	12311 Loraleen St. Garden Grove, CA 92641 (714) 530-9667																	
Hitachi Ferrite, Ltd T. Danbara	1-17-8 Nishikata Bunkyo-Ku, Tokyo, Japan 113, 03-5800-2553																	
Hoffman Electronics Corp. N. Hoffman	P.O. Box 1173 Chadds Ford, PA 19317 (215) 388-0722																	
Hughes Aircraft Co. Kent Jackson	P.O. Box 3310 Bldg TC16, MS C108 Fullerton, CA 92634 (714) 732-7005																	
Hyger Physics, Inc. Hugh Hyatt	E-537 Constitution Avenue Camarillo, CA 93010 (805) 388-7884																	
IBM Alison Hammrack	1701 North Street Endicott, NY 13760 (607) 755-2616																	
Instrument Specialties Western Division David Badtorff	505 Porter Way Placentia, CA 92670 (714) 579-7123																	

TEST LABORATORY FACILITIES AND SERVICES

COMPANY NAME Contact	ADDRESS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
International Compliance Corporations Val L. Erwin	1911 E. Jeter Road Argyle, TX 76226 (817) 491-3696																	
International Science & Technology, Inc Larry K. Stillings	P.O. Box 580 Black Hall Road Epsom, NH 03234 (603) 736-8414																	
John M. Dailey & Associates John M. Dailey	30753 Ganado Drive Palos Verdes, CA 90274 (310) 377-5940																	
Key Tronic Denise Razzeto	P.O. Box 14687 Spokane, WA 99214 (509) 928-8000																	
L-CAD, Inc.	A-26 Keewaydin Drive Salem, NH 03079 (603) 893-3696																	
LCR Electronics Inc. Dottie Foster	9 South Forest Avenue Norristown, PA 19401 (215) 278-0840																	
Liberty Labs, Inc. Mike Howard	4411 Bornholm Street P.O. Box 147 Elk Horn, IA 51531 (712) 764-2199																	
Lightning Technologies, Inc. J.A Plumer	10 Downing Parkway Pittsfield, MA 01201 (413) 499-2135																	
Loral, Western Development Lab. Tony Mangerie	7100 Standard Drive Hanover, MD 21076 (410) 796-3514																	
M. Flom Associates, Inc. Morton Flom	3356 N. San Marcos P. S-107 Chandler, AZ 85224 (602) 926-3100+																	
Mark Lapchak & Associates Mark Lapchak	6721 S. Leyden Ct. Englewood, CO 80112 (303) 771-6925																	
Mercatus International Marketing Inc Bill Rathsburg	J-5355 Avenida Encinas Carlbad, CA 92008 (619) 431-7555																	
Matech Associates Dr. B. Chowdhury	150 E. Grove Street Scranton, PA 18510 (717) 344-4067																	
Materials Research, Inc. John Hunt	790 East 700 South Centerville, UT 84014 (801) 298-4000																	
Messelectronik Berlin GMBH Michael Rehfeldt	Landsberger Alleee 399 Berlin, Germany D-126 81 49 30 93922126																	
Met Laboratories, Inc. Joyce Holton	914 W. Patapsco Avenue Baltimore, MD 21230 (410) 354-3300																	
Micro Energy, Inc. Don Fisher	745 West State Road 434 Longwood, FL 32750 (407) 262-7307																	
Mikes Product Service GMBH Gunter Mikes	Ohmstrasse 2-4 P.O. Box 28, 8444 Strasskirchen, Germany, 49-9424-1031																	

TEST LABORATORY FACILITIES AND SERVICES

COMPANY NAME Contact	ADDRESS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Mooser Consulting GMBH Mr. J. Mooser	Biberkorstrass 14 Berg/Stamstrasse See 4 Germany, D-82335 - 49-8171 29696																	
MPB Technologies, Inc. *Dave Scribailo*	*Bulding M-50, NRC* *Montreal Road, Ottawa* *ONT K1A 0R6* *(613) 744-3273*																	
National Technical Systems Hal Lipchik	200-24007 Ventura Blvd. Calabasas, CA 91302 (818) 591-0776																	
Nearfeild Systems, Inc. greg Masters	524-1330 E. 223rd Street Carson, CA 90745 (310) 518-4277																	
Norand EMC Test Lab. Cedric Brownfield	550 2nd St. SE Cedar Rapids, IA 52401 (319) 846-2415																	
Northrop ESD-RMS	600 Hicks Road Rolling Meadows, IL 60008, (708) 259-9600																	
Oneida Research Services, Inc Kathleen L. Smith	P.O. Box 678 503 Randolph Street Meadville, PA 16335 (814) 336-2125																	
Parametrics, Inc. NDT Division Meindert Anderson	221 Cresent Street Waltham, MA 02254 (800) 225-8330																	
Patton and Associates David Patton	4718 W. El Camino Drive Glendale, AZ 85302 (602) 934-5458																	
PCTest Engineering Laboratory, Inc. Chris Harvey	6660-B Dobbin Road Columbia, MD 21045 (410) 290-6652																	
PDE Labs Kim Bushy	950 Calle Negocio San Clemente, CA 92673 (714) 361-9189																	
Philips Consumer Electronics Co. Fred Fisher	One Philips Drive P.O. Box 14810 Knoxville, TN 37914 (615) 521-4720																	
Product Safety Engineering, Inc. Herb Watkins	12955 Bellamy Brothers Blvd. Dade City, FL 33525 (904) 588-2209																	
Product Verification Specialists Paul Mohr	K-11211 Sorrento Valley Rd, San Diego, CA 92121 (619) 452-9665																	
Professional Testing (EMI), Inc. Becky Patterson	1303 W. Industrial Blvd. Round Rock, TX 78681 (512) 244-3371																	
Pulver Laboratories Inc. Alisa Pulver	419 S. 8th Street Boise, ID 83702 (208) 342-1000																	
Quest Engineering Solutions Blake Bisson	300 Concord Road Billerica, MA 01821 (508) 294-2900																	

TEST LABORATORY FACILITIES AND SERVICES

COMPANY NAME Contact	ADDRESS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
R&B Enterprises Richard R. Rogers	20 Clipper Road West Conshohocken, PA 19428, (215) 825-1960	■	■			■			■		■	■	■		■	■		
Racal-Comsec Ltd. S. Withnall	Green Lane, Newton Tewkesbury, Glos. England GL20 8HD, 44-684-293821	■										■	■	■				
Radiation Sciences Inc. Tony Mauriello	3131 Detwiler Road Hareysville, PA 19438 (215) 256-4133	■	■	■					■		■	■	■	■	■	■	■	■
Radiometrics Midwest Corporation Dennis Rollinger	106-55 West 22nd Street Lombard, IL 60148 (708) 932-7262	■	■	■					■		■	■	■		■	■	■	■
Ray Proof Ltd. Andrew Dyke	Boulton Road, Pin Green Industrial Area, Stevenage, Herts, England, SG1 4TH 44-0438-747477	■									■							
Reliability Analysis Center Preston R. MacDiamid	201 Mill Street Rome, NY 13440 (315) 337-0900							■										
Retlif Testing Laboratories Walter Poggi	795 Marconi Avenue Ronkonkoma, NY 11779 (516) 737-1500	■	■			■			■	■	■	■	■		■	■	■	
RFI Consultants Ali Hashemi	6489 South Castlefield Lane, Murray, UT 84107 (801) 261-3036	■	■						■		■					■		
RFI Controls Company Erec Pulver	320 N. Santa Cruz Ave. Los Gatos, CA 95039 (408) 399-7007	■	■						■	■	■	■						
RFI Industries Dick Davis	54 Holloway Drive Bayswater, Victoria Austraila 3153 61-3-7208522	■	■		■				■	■	■	■	■		■	■		■
RHEIN Tech Laboratories, Inc. Shelly Grandy	1400-360 Herndon Parkway, Hendron, VA 22070, (703) 689-0368	■	■						■		■	■						
Rockford Engineering Services. Spencer L. Brown	9959 Calveras Road P.O. Box 543 Sunol, CA 94586 (510) 862-2944		■						■	■	■	■	■	■		■	■	■
Rockwell International John M. Stadille	3370 Miraloma Avenue P.O. Box 3105 Anaheim, CA 92803 (714) 762-6181			■				■					■			■		
Rutherford Research Corp. A.R. Blanck	P.O. Drawer 249 Rutherford, NJ 07070 (201) 933-2091							■								■	■	
SAE Power Jonathan Sek	282 Brokaw Road Santa Clara, CA 95050 (408) 987-2700	■							■	■								
Secure Facility Integrators Charles Peart	400 Longbranch Road Simi Valley, CA 93065 (805) 526-8823	■	■		■								■	■				
Siemens Matsushita Components GMBH+CO.KG A. Hinrichs	Siemensstr. 81 D-7920 Heidenheim/Brenz, Germany 07321-326-120	■	■						■		■	■	■	■		■		

TEST LABORATORY FACILITIES AND SERVICES

COMPANY NAME Contact	ADDRESS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Singapore Institute of Standards and Industrial Research (SISIR) Chong Weng Hoe	1 Science Park Drive Singapore 0511, Republic of Singapore (065) 7729721																	
Smith Electronics, Inc. Kenneth P. Klann	8200 Snowville Road Cleveland, OH 44141 (216) 526-4386																	
Solid State Testing, Inc James D. Roberts	56 Middlesex Turnpike Burlington, MA 01803 (617) 272-0972																	
Southwest Research Institute.	6220 Culebra Road P.O Drawer 28510 San Antonio, TX 78228 (210) 522-3631																	
Space Electronics, Inc. Edward Li	4031 Sorrento Valley Blvd. San Diego, CA 92121 (619) 452-5495																	
Special Projects/Services Audrey J. Rowe	5-7875 Convoy Court San Diego, CA 92111 (619) 278-0936																	
Spectrum Control, Inc. D.K. Reynolds	6000 West Ridge Road Erie, PA 16506 (814) 835-4000																	
Spectrum Measurement Corporation. R.W. Johnsun	2820 Grant Street Concord, CA 94520 (510) 687-7620																	
Spectrum Research and Testing Lab, Inc. Dorothy Cao	1603 Skinners Turn Road Owings, MD 20736 (301) 855-2262																	
Spectrum Technology, Inc. Rod Munro	205-209 Dayton St. Edmonds, WA 98020 (206) 771-4482																	
System Enviroment Associates Donn L. Ingram	100-5700 Corsa Avenue Westlake Village, CA 91362 (818) 889-2242																	
Teccom Co. Mike Harris	18 Ridgetop Way Napa, CA 94558 (707) 258-1360																	
Technology International, Inc. Penny A. Caran	705 Twin Ridge Lane Richmond, VA 23235 (804) 560-5334																	
Telecomunications Technology Inc. John Holt	7303 Stony Hill Road Wake Forest, NC 27587 (919) 556-7101																	
Tempest Incorporated L. Gnecco	112 Elden Street Herndon, VA 22070 (703) TEMPEST																	
Teseo S.P.A. Pietro Comerro	Corso Cincinnato 228/B Torino, Italy 39-11-7399815																	
The Schenectady Materials and Processes Lab. Thomas J. Nowak	1520 Maxon Road P.O. Box 724 Schenectady, NY 12301 (518) 382-0082																	
Timco Engineering, Inc. Christine S. Bohn	14260 S.W. 136 Street Miami, FL 33186 (800) 233-3587																	

TEST LABORATORY FACILITIES AND SERVICES

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Timonta AG Reihold Grob	San Marino, Mendrisio Switzerland CH-6850 41-091-48-0131																	
TKC Ken Keenan	8609 66th Street N. Pinellas Park, FL 34666 (813) 544-2594																	
TRL EMC Ltd. Paul Harris	Long Green, Forthampton Gloucester, England 44-684-81818																	
TRW Systems Engineering & Development Division Kevin Foreman	ANMA, 400-6000 Uptown Albuquerque, NM 87110 (505) 880-5167																	
TUV, Essen Laboratories Wayne Gruber	6 Brighton Road Clifton, NJ 07012 (201) 773-8880																	
TUV Reinland David Lohbeck	4236 Commercial Way Glenview, IL 60025 (708) 699-0310																	
U.S. Tech Scott Proffitt	3505 Francis Circle Alpharetta, GA 30201 (404) 740-0717																	
Ultratech Engineering Labs Inc. *Victor Kee*	*33-4181 Sladeview Cres.* *Mississauga, ONT* *L5L 5R2 (416) 569-2550*																	
Underwriters Laboratories Inc. Steve Urbanski	333 Pfingsten Road Northbrook, IL 60062 (800) 873-ULEMC																	
Unisys Corporation Dave Fowler	322 North 2200 West Salt Lake City, UT 84116 (801) 594-4845																	
Unisys Corp.- Enviromental Compatibility Eng.	P.O. Box 203 2476 Swedesford Road Paoli, PA 19301 (215) 648-2860																	
United States Testing Co., Inc. Daniel Vanover	5555 Telegraph Road Los Angeles, CA 90040 (800) 285-8378																	
Velonex, Inc. Mike Coffey	560 Robert Avenue Santa Clara, CA 95050 (408) 727-7370																	
Violette Engineering Corp. Bill Osburn	B-120 E. Broad Street Falls Church, VA 22046 (703) 532-1355																	
Washington Laboratories, Ltd. Mike Violette	8227 Helgerman Court Gaitersburg, MD 20877 (301) 417-0220																	
W.L. Gore & Associates, Inc. Bob Gibson	2401 Singerly Road Elktow, Md 21921 (410) 398-6400																	
Wyle Laboratories Ron Panche	6995 Airport Hwy Lane Pennsauken, NJ 08109 (609) 665-6810																	

APPENDIX E

Excerpts From Patton & Associates Manual

Appendix E - Extracts from Patton & Associates Guide

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START WITH THE MARKETING PLAN

- OBTAIN A LIST OF TARGET COUNTRIES
- BE PREPARED FOR UPDATES TO THE LIST
  - The List Will Change
- DRAFT A TASK LIST
  - Establish a local representative
  - Organize document translation
  - Pre-Test to essential & common requirements
  - Obtain Manufacturer Facility Certificate

LOCAL REPRESENTATION

- LICENSE HOLDER MUST BE EC BASED
- TRY AND LET THIS BE A SUBSIDIARY COMPANY
- LOCAL HELP IS REQUIRED
    - Local branch office
    - Associated company
    - Local consultant
    - Local distributor
- LOCAL REPRESENTATIVE MUST
    - Obtain and complete all application forms
    - Undertake or check translations
    - Plan and book laboratory testing
    - Submit the Application

COUNTRY:	APPROVALS BODY:	TESTING AUTHORITY:	STANDARDS BODY:
AUSTRIA	Ministry of the PTT	FZA	O N & For Safety OVE
BELGIUM	S A M T	BELCOMLAB	S A M T
DENMARK	National Telecom Agency Denmark	3 for Telecom Plus DEMKO for safety	National Telecom Agency Denmark
FINLAND	Telecom Admin Centre	PTT and HTC + Safety lab	Telecom Admin Centre
FRANCE	D R G	CNET + LCIE	CNET + UTE
GERMANY	BZT + BAPT	BZT + DBT	BAPT/FTZ/VDE
GREECE	OTE (PTT)	OTE	ELOT
IRELAND	DOC	EOLAS + TE	DOC
ITALY	IGT--MINISTRY	ISPT	ISPT
NETHERLANDS	HDTP-MINISTRY	Telification	HDTP
NORWAY	NTRA	NTRA +NEMKO	NTRA
PORTUGAL	ICP	CET + TLP	ICP
SPAIN	DGT	DGT + Telefonica + LEII Bilbao	BOE
SWEDEN	TELESTYRELSEN	Teletest + SP + SEMKO	SIS & TELEVERKET
UK	BABT	BSI + BT + KTL + AS + WT	BSI + DTI/OFTEL

ESTIMATED COST AND TIME FOR APPROVAL OF SIMPLE ATTACHMENTS

TELEPHONES, ANSWERING MACHINES & DATA MODEMS

EC or EFTA COUNTRY	<$2.5K	<$5.0K	<$7.5K	TIME IN MONTHS
AUSTRIA		X		2 - 4
BELGIUM		X		2 - 3
DENMARK		X		2 - 3
FINLAND		X		3 - 5
FRANCE			X	5 - 12
GERMANY			X	4 - 8
GREECE	X			4 - 6
ICELAND	X			1 - 6
IRELAND			X	3 - 4
ITALY		X		4 - 6
LUXEMBOURG	NA	NA	NA	1 - 2
NETHERLANDS			X	3 - 5
NORWAY			X	2 - 3
PORTUGAL	X			4 - 6
SPAIN		X		3 - 6
SWEDEN		X		2 - 5
SWITZERLAND		X		2 - 3
UNITED KINGDOM			X	3 - 7

FIGURE 1

ESTIMATED COST AND TIME FOR APPROVAL OF VOICE PABX

EC or EFTA COUNTRY	<$10K	<$25K	<$50K	<75K	<100K	TIME IN MONTHS
AUSTRIA	X					4 - 8
BELGIUM	X					6 - 10
DENMARK			X			6 - 10
FINLAND		X				6 - 10
FRANCE					X	8 - 14
GERMANY					X	8 - 14
GREECE	X					4 - 8
ICELAND	X					6 - 10
IRELAND			X			6 - 10
ITALY		X				8 - 14
LUXEMBOURG	NR	NR	NR	NR	NR	1 - 2
NETHERLANDS				X		6 - 10
NORWAY			X			6 - 10
PORTUGAL	X					4 - 8
SPAIN		X				4 - 8
SWEDEN			X			6 - 10
SWITZERLAND	NA	NA	NA	NA	NA	N.A.
UNITED KINGDOM					X	8 - 14

FIGURE 2

APPENDIX F

Hypotheses and Statement of Work

DETAILED WORKPLAN TO COVER TESTING OF HYPOTHESES

In order to show how the tasks described in the Statement of Work will serve to construct a set of findings and conclusions, we have developed a series of hypotheses that pertain to each of the previously stated tasks. The study will work towards testing each of the stated hypotheses in the fashion described after each hypotheses. In this fashion a set of results will be defined for each of the tasks included in the workplan. The consolidation, analysis and recommendations that flow from these tests will constitute the Action Plan and the subsequent Final Report.

Task One

The hypotheses to be tested in the first task are as follows:

There will be three types of product groupings that need to be addressed by standards information sources.

TO BE TESTED VIA SURVEY AND CASE STUDIES

Respondents are being asked about their inclusion in one of three product groupings or in a category "other". This hypothesis finding will be an attestation that the three categories previously defined in the instrument are valid.

There will be four key markets of concern to SME's and these will be:

- United States
- Europe
- Mexico
- Australia and New Zealand

TO BE TESTED VIA SURVEY AND CASE STUDIES

Survey respondents are being asked which export markets are of interest to them. The analysis of these results will identify that the above listing is reflective of the majority of survey responses.

There is no single identifiable source of standards information that covers all significant markets.

TO BE TESTED VIA SURVEY AND CASE STUDIES

Survey respondents are being asked about the information sources they are or have used to deal with their standards problems. These responses will be consolidated and it assumed that companies will be using a range of information sources.

There is no intermediary assessing the various information sources and providing clients with these assessments for a fee.

TO BE TESTED VIA SURVEY AND CASE STUDIES

The case studies will provide the bulk of the information used to assess this hypothesis. Companies will be asked this question. It is assumed that companies dealing with a range of problems, ie. information sourcing, certification, testing, etc., will use a number of support services to work through these steps and that there is no single source that deals with a company at the beginning of the process and helps them through all steps in the process and assists in the final securing of export sales.

There are very significant costs associated with securing access to the needed standards information.

TO BE TESTED VIA SURVEY AND CASE STUDIES PLUS ACQUISITION OF RELEVANT SECONDARY INFORMATION

Respondents and particularly case study participants will detail the costs associated with securing access to various markets. The survey and case studies findings will be supplemented with selected secondary information that we are confident will further support the findings derived from this small survey sample.

SME's are not able to accurately select the "right" information base or the "right" process to use to secure access to the desired market.

ANALYSIS OF SURVEY FINDINGS PLUS REVIEW OF LITERATURE (HALL REPORT, etc)

The results obtained from both the survey and the case studies will be consolidated. This hypothesis assumes that companies have been experiencing a number of problems, have been paying high costs and have being immersed in a series of decision processes that require decisions but they have little to base the decisions on. This hypothesis test will be a qualitative review of findings.

Task Two

The hypotheses to be tested in this task are as follows:

Information can be catalogued on the basis of product groupings as defined in Task One.

INFORMATION SOURCES WILL BE SECURED AND THE PRODUCT GROUPS CONTAINED THEREIN WILL BE LINKED TO THE PRODUCT GROUPINGS AS DEFINED IN TASK ONE

There are information sources that have been obtained at this stage in the assignment and these contain over 150 product groupings. These groupings will be analyzed to determine whether or not they easily correlate with the product groupings defined by clients and survey respondents.

Information cannot be catalogued in any fashion that permits access by the inexperienced person.

THE ABOVE SYSTEM OF CATALOGUING WILL BE STRUCTURED FOR USE USING A KEY WORD SYSTEM

The view is that the catalogue accessing process will involve a number of keywords of a technical nature in order to access the entire database and not all these keywords will be easily understood by the inexperienced potential user. Possible keyword systems will be tested with local firms to determine their receptivity.

Access by SME's will need to be through an intermediary due to the complexity.

TO BE TESTED VIA SURVEY AND CASE STUDIES PLUS ASSESSMENT OF CATALOGUE OPTIONS

As discussed earlier, the hypothesis will be proven that intermediaries will be required by SME's. The findings on the two previous hypotheses on cataloguing will be consolidated with this point on intermediaries.

SME's are willing to pay for access at a rate of 1% of sales in the market being accessed.

TO BE TESTED VIA SURVEY AND CASE STUDIES PLUS REVIEW OF CCL REPORT AND OTHER MATERIALS

Respondents in the survey are being asked whether or not they would pay for services related to standards. The case studies are focussing on past problems companies have experienced in securing export market sales. The case studies will document the costs incurred in the "standards process" and will document the success achieved in the export market of concern. All this information will be used to assess the possible fee structure for "standards services" and to assess the overall viability of providing the services to companies with needs.

Access can be provided by the intermediary in two ways:

- the technical information can be supplied in response to questions from the client, or
- information and the process can be supplied to the less experienced client;

with the obvious cost implications.

AN ANALYSIS OF CASE STUDY FINDINGS, REVIEW OF RESEARCH, INTERVIEWS WITH LOCAL PEOPLE/BOARD MEMBERS AND TESTIMONIALS

The testing of this hypothesis will be achieved through the consolidation of all relevant information secured through survey results case studies, the literature and in talking to experts in the area. Again this will be primarily a qualitative consolidation, but some quantitative information may be added in if it is available.

Task Three

This task is a continuance of the work covered in the earlier tasks but is not directly affected by the results achieved in the earlier tasks.

There are a large number of organizations providing certification and testing services. This task will identify organizations offering these services and will assist in the definition of processes to be used to secure the certification services in a cost-effective manner.

The hypotheses to be tested in this task are the following:

For North American Markets:

There are too many organizations providing certification and testing services for the SME's to become knowledgeable about and to provide them with the capability to make informed decisions on which organizations to select for which services.

TO BE TESTED VIA SURVEY AND CASE STUDIES

The survey and the case studies will ask a number of questions about the points raised in this hypothesis. All the information obtained from these primary sources as well as any comparable information from secondary sources will be captured and scrolled. This will define the magnitude of the problems facing SME's and illustrate the difficulty of interpreting and extracting the relevant items.

The study can identify randomly selected organizations that have a track record with certain Canadian companies.

TO BE TESTED VIA SURVEY AND CASE STUDIES

NWF officials have selected a number of goods that have been successfully exported, and the case studies are documenting the ease with which exporting companies were able to achieve these objectives. These findings will state which organizations have been proven to be effective through the on-going and evolving use of these organizations. The assessment made by the case study participants will be reported. This will acknowledge which organizations have been used for which purposes and will comment on how these services were received by the organizations.

For Most Other Export Markets:

SME's cannot utilize these certification and testing services without an intermediary.

TO BE TESTED VIA SURVEY AND CASE STUDIES

Respondents to the case studies will be asked a number of questions focussing on the certification and testing services. A detailed review of the problems experienced by SME's will assist in the development of conclusions on the need for an intermediary.

Intermediaries will not be able to provide SME's with a generic set of services, but rather will need to supply "value added" services specifically tailored to the needs of individual SME's.

TO BE TESTED VIA SURVEY AND CASE STUDIES

The survey asks respondents to describe the types of services and assistance they believe they require. The case studies will document the possible range of services needed as there is a definite possibility that the services required need to be specifically tailored to the precise needs of the SME.

Task Four

Again this task is a separate undertaking addressing the question of dealing with new and evolving standards. As such it is only marginally related to the previous tasks.

They hypotheses to be proven in this task are the following:

Exporting SME's are not aware of the issues being raised in key standards-making bodies.

TO BE TESTED VIA SURVEY AND CASE STUDIES

Questions in both the survey and the case studies will identify this level of knowledge from the answers given. The analysis will be broadly based and will focus on whether or not this organization has previously been involved with the decision process. The involvement or lack of involvement in these issues will also be documented.

SME's are not interested in participating in standards formulation due to the time and cost factors associated with this involvement.

TO BE TESTED VIA SURVEY AND CASE STUDIES

Through the surveys small business will be asked whether or not they are interested in being involved in the formulation of new standards. The assumption here is that these firms do not have the time or the funding to permit this involvement. Also, it is believed that SME's are too pressed with other responsibilities to ever permit these to be afforded significant attention and these factors will be examined in the case studies.

Task Five

This task covering the pilot test will produce much of the information needed to test the above hypotheses. A tracking system will be designed to document all activity and the impacts of this activity within the pilot test period. Also, this system will be constructed so as to provide a management tool for possible use by the intermediary once the study is complete. In addition to the previously listed hypotheses the following are to be provided through the pilot test as well:

It is feasible to define and operate a third party service to assist export ready SME's to reach export markets successfully and in a very cost effective fashion.

TO BE TESTED VIA SURVEY AND CASE STUDIES

All survey and case study findings will be consolidated to reach a definite conclusion on the need for a third party to assist the SME in securing access to an export market.

The third party service will be perceived as a value added service by the SME and therefore it will be paid for by the SME.

TO BE TESTED VIA SURVEY AND CASE STUDIES

All findings will be re-analyzed to attempt to draw a conclusion on the value per perceived by SME's from the services that could be offered by a third party. This analysis will try to quantify the value in order to project certain pricing policy options.

The responding to the needs of SMEs with these tailored value added services will constitute available business for the intermediary operating on a national basis.

ANALYSIS OF SURVEY AND CASE STUDY FINDINGS

A quantitative analysis will be undertaken to try and forecast what the total demand might be for value added services from an intermediary operating on a national basis and providing information to SME's on selected key markets and product groups. These findings will be combined with previous findings on the pricing strategies. Also an assessment will be made of the potential costs to be incurred in providing these services and this will define the potential in providing these tailored services.

The role of government will be precisely defined as a support function.

TO BE TESTED VIA CASE STUDIES

Respondents are being asked this question and the case study participants are being encouraged to have some dialogue on the matter in order to develop more precise findings on this issue.

The issues of access and awareness raised in the sector campaign will be defined and ranked through the pilot test.

TO BE TESTED VIA SURVEY AND CASE STUDIES

Respondents are again being asked these questions. Case studies will delve further into the issue and try to identify a correlation if any between increasing company size and a difference in the significance of either access or awareness.

Task Six

This task involves the writing of an action plan and a final report for the Project Authority. There will be no hypotheses specifically pertaining to this task. Rather this task will simply report on the results of the previous tests.

APPENDIX G

Electronic Information Service Directories

Group: T1

T1/93-002 Dated: 10/01/93 Registerd: 10/01/93
Source: Barbara Engel Smith, Southwestern Bell Technology Resources, 314-529-7622
Title: Southwestern Bell Comments on Ring Interworking Recommended Solutions
Summary: This contribution presents Southwestern Bell's comments on Ring Interworking Recommended Solutions.
From: To:

Group: T1AG

T1AG/93-000 Dated: 04/15/93 Registerd: 04/15/93
Source: Gopal Iyengar, NTI, Tel.: (919) 991-7000
Title: Future Directions for T1 Mechanization
Summary: This contribution proposes future directions for T1 Mechanization and the T1 Mechanization Group.
From: To:

T1E1.1/93-016 Dated: 05/11/93 Registerd: 05/11/93
Source: Martin Carroll, Bell Atlantic.....
Title: Demo of Document Register TDOCS for T1E1.1
Summary: Test of TDOCS
From: To:

Group: T1E1.2

T1E1.2/93-000 Dated: 07/20/93 Registerd: 07/20/93
Source: Curtis Brownmiller, Chairman Ad Hoc Group on DS1 Idle Signal, MCI Telecommunications, 214-918-2541
Title: Meeting Report, Ad Hoc Group on DS1 Idle Signal July 20, 1993
Summary: This document contains the report of the July 20, 1993 Ad Hoc Group on DS1 Idle Signal, conference call.
From: To:

Group: T1E1.4

T1E1.4/93-000 Dated: 01/26/93 Registerd: 05/06/93
Source: Vice-Chair T1E1.4
Title: T1E1.4 1993 Document Register
Summary: T1E1.4 Document List for 1993 - Updated to March 5, 1993
From: To:

T1E1.4/93-001 Dated: 01/26/93 Registerd: 05/06/93
Source: Vice-Chair T1E1.4
Title: T1E1.4 Combined Mailing and Participant List - Updated to 03/05/93
Summary: T1E1.4 Combined Mailing and Participant List
From: To:

T1E1.4/93-002 Dated: 01/26/93 Registerd: 05/06/93
Source: Chair T1E1.4
Title: Living List for HDSL Issue II Technical Report
Summary: Living List for HDSL Issue II T.R.
From: To:

T1E1.4/93-010 Dated: 01/26/93 Registerd: 05/06/93
Source: Chair T1E1.4
Title: Agenda for March T1E1.4 Meeting
Summary: Agenda for March T1E1.4 Meeting
From: To:

T1E1.4/93-011 Dated: 01/26/93 Registerd: 05/06/93
Source: Chair T1e1.4
Title: Letter from the Chair (March T1E1.4 Meeting)
Summary: Letter from the Chair
From: To:

T1E1.4/93-012 Dated: 01/20/93 Registerd: 05/06/93
Source: GTE:N. Epstein
Title: Minutes from T1E1.4/T1A1.5 Conference Call on January 11, 1993
Summary: Minutes from conference call on testing issues
From: To:

T1E1.4/93-013 Dated: 01/20/93 Registerd: 05/06/93
Source: RTEC: W. Chen
Title: Reliance Comm/Tec Patent Letter to ANSI
Summary: ADSL Patent Letter
From: To:

T1E1.4/93-014 Dated: 01/20/93 Registerd: 05/06/93
Source: Bell Atlantic: K. Sistanazadeh, D. Little
Title: Focus of ADSL Efforts in T1E1
Summary: Focus of ADSL Efforte in T1E1.4 Working Group
From: To:

T1E1.4/93-015 Dated: 01/20/93 Registerd: 05/06/93
Source: Ameritech: T. Starr
Title: ADSL Characteristics
Summary: ADSL Characteristics
From: To:

T1E1.4/93-016 Dated: 01/20/93 Registerd: 05/06/93
Source: Chair T1E1.4
Title: Letter from the Chair (April Interim T1E1.4 Meeting)
Summary: Interim Meeting Announcement
From: To:

T1E1.4/93-017 Dated: 01/20/93 Regieterd: 05/06/93
Source: RTEC: W. Chen
Title: Near-End Crosstalk in Cable Test Facilities
Summary: Near-End Crosstalk in Cable Test Facilities
From: To:

T1E1.4/93-018 Dated: 03/08/93 Registerd: 05/06/93
Source: Amati: K. Maxwell, J. Bingham
Title: Why DMT should be chosen for ADSL now.
Summary: DMT ADSL Contribution
From: To:

T1E1.4/93-019 Dated: 03/08/93 Registerd: 05/06/93
Source: Amati: J. Cioffi, J. Aslantis
Title: Spectral Compatibility and Extrapolations from DMT Measurements
Summary: DMT ADSL Contribution
From: To:

T1E1.4/93-020 Dated: 03/08/93 Registerd: 05/06/93
Source: Amati: J. Cioffi, J. Bingham
Title: Echo Cancellation for ADSL
Summary: DMT ADSL Contribution
From: To:

T1E1.4/93-021 Dated: 03/08/93 Registerd: 05/06/93
Source: Amati: J. Cioffi
Title: Revisiting Recommended DMT Line Code
Summary: DMT ADSL Contribution
From: To:

T1E1.4/93-022 Dated: 03/08/93 Registerd: 05/06/93
Source: Amati: J.S. Chow, J. Cioffi
Title: DMT Initialization Parameters needed for Specification in a Standard
Summary: DMT ADSL Contribuiton
From: To:

T1E1.4/93-023 Dated: 03/08/93 Registerd: 05/06/93
Source: Amati: J. T. Aslantis, J. S. Chow
Title: A Selective Error Correction Proposal for ADSL
Summary: DMT ADSL Contribution
From: To:

T1E1.4/93-024 Dated: 03/08/93 Registerd: 05/06/93
Source: Amati: K. Maxwell, J. Cioffi
Title: Alterations to Bellcore FA Consequent to DMT Line-Code Selection
Summary: DMT ADSL Contribution
From: To:

T1E1.4/93-025 Dated: 03/08/93 Registerd: 05/06/93
Source: Amati: J. Cioffi, P. T. Tong
Title: VLSI DMT Implementation for ADSL
Summary: DMT ADSL Contribution
From: To:

T1E1.4/93-026 Dated: 03/08/93 Registerd: 05/06/93
Source: Amati: K. Maxwell, J. M. Cioffi
Title: Spectral Compatibility Advanatages of DMT
Summary: DMT ADSL Contribution
From: To:

T1E1.4/93-027 Dated: 03/08/93 Registerd: 05/06/93
Source: Amati: R. K. Maxwell, J.M. Cioffi
Title: OAM & P Suggestions for ADSL
Summary: DMT ADSL Contribution
From: To:

T1E1.4/93-028 Dated: 03/08/93 Registerd: 05/06/93
Source: Amati: R.K. Maxwell
Title: Issues & Answers for DMT ADSL
Summary: Issues & Answers for DMT ADSL
From: To:

T1E1.4/93-029 Dated: 03/08/93 Registerd: 05/06/93
Source: Bellcore: B.A. Blake
Title: Description of the Transmission Tests Performed on ADSL Transceiver Prototypes at Bellcore
Summary: Bellcore ADSL Test Plan
From: To:

T1E1.4/93-030 Dated: 03/08/93 Registerd: 05/06/93
Source: Bellcore: B. A. Blake
Title: Results of Transmission Tests on an ADSL Transceiver Prototype from Reliance Comm/Tec and Bellcore
Summary: RTEC ADSL Test Results
From: To:

T1E1.4/93-031 Dated: 03/08/93 Registerd: 05/06/93
Source: Bellcore: B.A. Blake
Title: Results of Transmission Tests on an ADSL Transceiver Prototype from Amati Communications Corporation
Summary: Amati ADSl Test Results
From: To:

T1E1.4/93-032 Dated: 03/08/93 Registerd: 05/06/93
Source: Bellcore: B.A. Blake
Title: Results of Transmission Tests on an ADSL Transceiver Prototype from AT&T Paradyne
Summary: AT&T Paradyne ADSL Test Results
From: To:

T1E1.4/93-033 Dated: 03/08/93 Registerd: 05/06/93
Source: Bellcore: W.Y. Chen
Title: The Effects of ADSL Spectrum on T1 Performance
Summary: ADSL/T1 Spectral Compatibility
From: To:

T1E1.4/93-034 Dated: 03/08/93 Registerd: 05/06/93
Source: Bellcore: K. Kerpez, C. Valenti
Title: Impulse Noise Testing for ADSL Transceivers
Summary: ADSL Impulse Noise Contribution
From: To:

T1E1.4/93-035 Dated: 03/08/93 Registerd: 05/06/93
Source: Bellcore: K. Kerpez
Title: An Update on the Recommended Reed-Solomon Code for ADSL
Summary: Error Correcting Codes
From: To:

T1E1.4/93-036 Dated: 03/08/93 Registerd: 05/06/93
Source: Bellcore: M. Hoque, J. Lichtig, M. Barton
Title: Electromagnetic Compatibility of QAM ADSL
Summary: ADSL EMI Contribution
From: To:

T1E1.4/93-037 Dated: 03/08/93 Registerd: 05/06/93
Source: ADTRAN: M. Turner
Title: Some Performance Comparisons for DMT and QAM/CAP ADSL
Summary: CAP vs. DMT Comparisons
From: To:

T1E1.4/93-038 Dated: 03/08/93 Registerd: 05/06/93
Source: Adtran: M. Turner
Title: HDSL Start-Up and Retraining
Summary: HDSL Start-Up Contribuiton
From: To:

T1E1.4/93-039 Dated: 03/08/93 Regieterd: 05/06/93
Source: Bell Atlantic: K. Sistanizadeh, D. Little
Title: Very High-Rate Digital Subscriber Lines (VADSL)
Summary: ADSL Contribution
From: To:

T1E1.4/93-040 Dated: 03/08/93 Registerd: 05/06/93
Source: Bell Atlantic: K. Sistanizadeh, D. Little
Title: Asymmetric Transport Capabilities of the Loop Plant
Summary: ADSL Contribuiton
From: To:

T1E1.4/93-041 Dated: 03/08/93 Registerd: 05/06/93
Source: Chair T1E1.4
Title: Liaison from T1A1.5
Summary: Liaison Letter on ADSL Testing
From: To:

T1E1.4/93-042 Dated: 03/08/93 Registerd: 05/06/93
Source: Chair T1E1.4
Title: Liaison from IEEE P.1007
Summary: Liaison Letter
From: To:

T1E1.4/93-043 Dated: 03/08/93 Registerd: 05/06/93
Source: AT&T Network Systems: L. Schaeffer
Title: Frame Alignment procedure Issue for T1.605
Summary: T Interface DSL Contribution
From: To:

T1E1.4/93-044 Dated: 03/08/93 Registerd: 05/06/93
Source: AT&T Network Systems: R. Townsend

Title: Discussion and Work Plan for Proposed New Question N in CCITT S.G. XVIXI
Summary: T interface DSL Contribution
From: To:

T1E1.4/93-045 Dated: 03/08/93 Registerd: 05/06/93
Source: AT&T Network Systems: H. Bond
Title: NT Maintenance Mode Trigger Signal - Requirements Deficiency
Summary: U-Interface DSL Contribution
From: To:

T1E1.4/93-046 Dated: 03/08/93 Registerd: 05/06/93
Source: Bellcore: J. Kuzin, R. McDonald
Title: End User Premises Equipment Powering Proposal for ISDN
Summary: T-Interface DSL Contribution
From: To:

T1E1.4/93-047 Dated: 03/08/93 Registerd: 05/06/93
Source: Bellcore: S. Ungar
Title: Sealing Current Provisioning
Summary: U-Interface DSL Contribution
From: To:

T1E1.4/93-048 Dated: 03/08/93 Registerd: 05/06/93
Source: GTE: R. Gross
Title: Measured Performance of Amati/NTI ADSL System Operating at 6.3 Mbps
Summary: DMT ADSL Contribution
From: To:

T1E1.4/93-049 Dated: 03/08/93 Registerd: 05/06/93
Source: Teltrend: G. Cerulli
Title: Modifications to HDSL Loopback Method
Summary: HDSL Contribution
From: To:

T1E1.4/93-050 Dated: 03/08/93 Registerd: 05/06/93
Source: BellSouth: P. Kyees
Title: Laboratory Measurement of insertion Loss of ADSL Test loops at 5-1000 kHz
Summary: ADSL Contribution
From: To:

T1E1.4/93-051 Dated: 03/08/93 Registerd: 05/06/93
Source: BellSouth: P. Kyees
Title: Attributes for ADSL
Summary: ADSL Contribution
From: To:

T1E1.4/93-052 Dated: 03/08/93 Registerd: 05/06/93
Source: ECI: T. Throop
Title: Suggestion for the Inclusion of 6 Mbps Payload in ADSL work
Summary: ADSL Contribution
From: To:

T1E1.4/93-053R0] Dated: 03/08/93 Registerd: 05/06/93
Source: UCLA: H. Samueli
Title: Progress Report on the Design of a Single Chip QAM ADSL Transceiver
Summary: QAM ADSL Contribution
From: To:

T1E1.4/93-054 Dated: 03/08/93 Registerd: 05/06/93
Source: AT&T: D. Kelly, L.M. Smith, M. Sorbara, J.J. Werner
Title: Discussion of the AT&T Unit Submitted for Test at Bellcore and NyNex
Summary: CAP ADSL Contribution
From: To:

T1E1.4/93-157R1 Dated: 03/08/93 Registerd: 07/07/93
Source: UCLA: H. Samueli
Title: Progress Report on Design of a Single Chip QAM ADSL Transceiver
Summary: QAM ADSL Contribution
From: To:

Group: T1MECH

T1MECH/93-000 Dated: 04/15/93 Registerd: 04/15/93
Source: Gopal Iyengar, NTI, Tel.: (919) 991-7000
Title: Future Directions for T1 Mechanization
Summary: This contribution proposes future directions for T1 Mechanization and the T1 Mechanizat0]ion group.
From: To:

Group: T1P1

T1P1/93-001 Dated: 01/22/93 Registerd: 01/22/93
Source: WAYNE LOHMAN, NEC AMERICA, 708-698-2122
Title: DOCUMENT REGISTER
Summary: DOCUMENT REGISTER
From: To:

Group: T1P1.1

T1P1.1/93-000 Dated: 01/04/93 Registerd: 01/22/93
Source: G. Fishman
Title: T1P1.1 DOCUMENT REGISTER
Summary: T1P1.1 DOCUMENT REGISTER
From: To:

T1P1.1/93-001 Dated: 02/07/93 Registerd: 02/07/93
Source: G. Fishman, AT&T Communications Systems, 908-234-3780
Title: Draft Technical Report on program management of standards for complex projects
Summary: This is a guide for Program Management of Standards related to complex projects.
From: To:

T1P1.1/93-002 Dated: 01/08/93 Registerd: 02/07/93
Source: P. Johnson
Title: Liaison from T1M1 on OA&M
Summary: Liaison from T1M1 on OA&M
From: To:

T1P1.1/93-003 Dated: 02/08/93 Registerd: 02/08/93
Source: S. Heeralall, NTI, 201 292-5726
Title: UPT & Other standards activities in Japan
Summary: Fax from Japan to bring clarifications to T1P1 on UPT activities in Japan.
From: To:

T1P1.1/93-004 Dated: 01/21/93 Registerd: 02/08/93
Source: S. Engelman, MCI, (214)918-5166
Title: Results of T1P1 LB/92-02
Summary: Results of T1P1 LB/92-02
From: To:

T1P1.1/93-005 Dated: 01/17/93 Registerd: 02/08/93
Source: S. Engelman, MCI, (214)918-5166
Title: TIA Liaison
Summary: TIA Liaison
From: To:

T1P1.1/93-006 Dated: 02/01/93 Registerd: 02/08/93
Source: Bradley J. Frison, Bell Atlantic, (703)974-3138
Title: Report of joint discussion between TR45.4 & T1P1.3 service description group chairs.
Summary: Responsibility for Service Description Work.
From: To:

T1P1.1/93-007 Dated: 02/01/93 Registerd: 02/08/93
Source: Frank LaPorta, AT&T, (908)234-4668
Title: Proposal for work on stage 1 service description for PCS.
Summary: Proposed work on Stage 1 Service Descriptions for PCS.
From: To:

T1P1.1/93-008 Dated: 12/10/93 Registerd: 02/08/93
Source: S. Engleman, MCI, (214)918-5166
Title: Liaison from T1E1
Summary: Activities to specify higher layer Interface 1 requirements.
From: To:

T1P1.1/93-009 Dated: 02/01/93 Registerd: 02/08/93
Source: C. Bailey, Southwestern Bell, (314)529-7538
Title: Network interface requirements in accordance with the functional network architecture for PCS
Summary: Requirements for functional network arch. for PCS
From: To:

T1P1.1/93-010 Dated: 02/05/93 Registerd: 02/08/93
Source: S. Engelman, MCI, (214)918-5166
Title: Request for Liaison
Summary: Request liaison with TIA TR46 and its subordinate commities
From: To:

T1P1.1/93-011 Dated: 02/05/93 Registerd: 02/08/93
Source: G. Fishman, AT&T, (908)234-3780
Title: T1P1.1 MEETING NOTES
Summary: T1P1.1 Meeting Notes
From: To:

T1P1.1/93-012 Dated: 02/02/93 Registerd: 02/08/93
Source: G. Patterson , BellSouth Telecommunications (205)977-7639
Title: Presentation of T1P1.2 PCS Systems Engineering Work to T1S1.1 IN SWG, SBSD SWG, and the T1S1.3 TC&AL SWG
Summary: Joint Meeting Between T1P1.2, T1S1.1, and T1S1.3
From: To:

T1P1.1/93-013 Dated: 02/04/93 Registerd: 02/08/93
Source: M. Wienshienk, AG Communication System, (602)582-7503
Title: Draft Technical Report on Program Management of Standards for PCS
Summary: Draft TR on Program Mgmt. for PCS
From: To:

T1P1.1/93-014 Dated: 02/01/93 Registerd: 02/08/93
Source: G. Fishman
Title: Program management of personal communications standards-allocation of standards work for service descriptions.
Summary: Allocation of standards work
From: To:

T1P1.1/93-015 Dated: 02/05/93 Registerd: 02/08/93
Source: M. Wienshienk, AG Communication System, (602)582-7503
Title: Comment resolutions for T1P1 LB-02
Summary: Comment Resolutions for T1P1 LB-02
From: To:

T1P1.1/93-016 Dated: 02/04/93 Registerd: 02/08/93
Source: M. Wienshienk, AG Communication Systems, (602)582-7503
Title: Report of ad hoc group on program management technical reports
Summary: T1P1.1 ad hoc meeting report
From: To:

T1P1.1/93-017 Dated: 02/03/93 Registerd: 02/08/93
Source: J. Papadopoulos, NYNEX, (212)564-5159
Title: Report of Program Management Team, 2-3 Feb. 1993
Summary: PMT meeting report
From: To:

T1P1.1/93-018 Dated: 02/04/93 Registerd: 02/08/93
Source: G. Fishman, AT&T, (908)234-3780
Title: Liaison to T1AG on general program management draft Technical Report
Summary: Liaison to T1AG
From: To:

T1P1.1/93-019 Dated: 02/04/93 Registerd: 02/08/93
Source: J. Papadopoulos, NYNEX, (212)967-3622
Title: Response to T1E1 liaison on JTC activities
Summary: Response to T1E1 liaison on JTC activities
From: To:

T1P1.1/93-020 Dated: 02/04/93 Registerd: 02/08/93
Source: J. McDonough,
Title: Presentation to personal communication standards PHT,2/2/93
Summary: same as title
From: To:

T1P1.1/93-021 Dated: 02/22/93 Registerd: 02/22/93
Source: WAYNE LOHMAN, NEC AMERICA, 708-698-2122
Title: CONTRIBUTION TO TR ON PROGRAM MANAGEMENT OF STANDARDS
Summary: QUESTIONS THAT NEED TO BE ASKED WHEN MANAGING COMPLEX PROJECTS
From: To:

T1P1.1/93-022 Dated: 02/27/93 Registerd: 02/27/93
Source: Wayne Lohman,NEC America, (708)698-2122
Title: Pert chart for PCS
Summary: Pert Chart showing dates and dependancies for PCS
From: To:

T1P1.1/93-023 Dated: 10/15/93 Registerd: 10/15/93
Source: Mel Woinsky and Chris Wallace (NTI) Tel (201) 292-5726
Title: PCS T1P1/T1S1 Work Allocation
Summary: This contribution proposes a work allocation between T1S1 and T1P1 for low power wireless access standards supporting PCS.
From: To:

Group: T1P1.2

T1P1.2/93-001 Dated: 10/29/92 Registerd: 03/26/93
Source: T1P1.2 Chairman / Greg Patterson (BellSouth, 205/977-5096)
Title: Full Report of the October 26-29, 1992 T1P1.2 Working Group Meeting
Summary: See report
From: To:

T1P1.2/93-002 Dated: 02/01/93 Registerd: 03/26/93
Source: T1P1.2 Chairman / Greg Patterson (BellSouth, 205/977-5096)
Title: Tentative Agenda for T1P1.2 Regular Meeting, St. Louis, Missouri, February 1-5, 1993
Summary: See agenda
From: To:

T1P1.2/93-003 Dated: 11/02/92 Registerd: 03/26/93
Source: T1P1.2 Chairman / Greg Patterson (BellSouth, 205/977-5096)
Title: Report on Presentation of T1P1.2 PCS Systems Engineering Work to T1S1.1 IN (Intelligent Network) Sub-Working Group (SWG), SBSD (Supplementary and Bearer Service Description) SWG, and the T1S1.3 TC&AL (Transaction Capabilities and Application Layer) SWG
Summary: Report of meeting held with the above listed T1S1 groups at the Hyatt Rickeys in Palo Alto, California, 1:30 pm to 4:30 pm on November 2, 1992.

From: To:

T1P1.2/93-004 Dated: 11/19/92 Registerd: 03/26/93
Source: T1P1.3 Chairman / Asok Chatterjee (Pacific Bell, 510/867-6625)
Title: T1P1.3/92-278
Summary: Response to liaisons T1P1.2/92-119R1 (T1P1.3/92-232) and T1P1.2/92-141 (T1P1.3/92-215). Items directed to Wireless Access Sub-Working Group.
From: To:

T1P1.2/93-005 Dated: 11/13/92 Registerd: 03/26/93
Source: IBM Corporation / Robert M. Amy (929/254-4141)
Title: T1S1 Intelligent Network Consensus Document
Summary: T1S1.1 Intelligent Network Conseneus Document. This document to provide an awareness of issues under study in the Intelligent Networking Sub-Working Group. Of specific note, Appendix 5 of this document contains the T1S1.1 IN work plan that aligns with the CCITT IN work plan for the 1993-1996 study period. This is an effort toward aligning of mutual efforts between T1P1 and T1S1.
From: To:

T1P1.2/93-006 Dated: 01/07/93 Registerd: 03/26/93
Source: Ericsson Network Systems / Nils Bojeryd (214/997-0363)
Title: Approach to Inter-PCS Switching Center Handover
Summary: This contribution compares different approaches to inter-PCS handover proposes that the anchor-switch concept is chosen for inter-PCS handovers.
From: To: T1P1.2/93-R1

T1P1.2/93-007R1 Dated: 02/01/93 Registerd: 03/26/93
Source: Ameritech / Ron Czaplewski, Gary Bannack, Deborah McCann (708/248-4766)
Title: PCS Reference Model Call Flows
Summary: This contribution provides updated information flows that conform with the format of the Reference Model. Minor modifioations made since the Jan. 6-7 meeting.
From: To:

T1P1.2/93-008 Dated: 01/04/93 Registerd: 03/26/93
Source: Motorola / Lynn Whittington (817/232-6030)
Title: Proposed Additions to the Information Flows
Summary: It was agreed in the Daytona meeting that the next step in enhancing the information flows would be to include a description of each step of each flow in the parameters of each message identified. This submission is intended to provide the agreed upon level of detail.
From: To:

T1P1.2/93-009 Dated: 01/07/93 Registerd: 03/26/93
Source: Ericsson Network Systems / Nils Bojeryd (214/997-0363)
Title: Single Call Reference Approach for Multi-Call Features on ISDN Accesses
Summary: This contribution proposes a technique of allowing a PCS user involved in multiple calls to experience seamless handover.
From: To:

T1P1.2/93-010 Dated: 01/06/93 Registerd: 03/26/93
Source: Bellcore / Mark Hansen (908/758-5178)
Title: Proposed Call Flow for Registration
Summary: This contribution proposes a registration call flow for the teohnical report on "Network Capabilities, Architeotures, and Interfaces for Personal Communications" (T1P1.2/92-156)
From: To:

T1P1.2/93-011 Dated: 01/06/93 Registerd: 03/26/93
Source: Bellcore / Mark Hansen (908/758-5178)
Title: Proposed Call Flow for Call Origination
Summary: This contribution proposes a call origination call flow for the "Te hnical Report on Network Capabilities, Architectures, and Interfaces for Personal Communications" (T1P1.2/92-156)
From: To:

T1P1.2/93-012 Dated: 01/06/93 Registerd: 03/26/93
Source: Bellcore / Mark Hansen (908/758-5178)
Title: Proposed Call Flow for Call Delivery
Summary: This contribution proposes a call delivery call flow for the Technical Report on Network Capabilities, Architectures, and Interfaces for Personal Communications" (T1P1.2/92-156)
From: To:

T1P1.2/93-013 Dated: 05/01/93 Registerd: 03/26/93
Source: Editor / Dwight Hakim (Bellcore)
Title: Technical Report on Network Capabilities, Architectures, and Interfaces for Personal Communications
Summary: This draft Technical report identifies network capabilities to support wireless access, terminal mobility, and personal mobility for personal communications. Included within is the Reference Architecture for Personal Communications, as well ae information flows based on the Reference Architecture for registration, authentication/privacy, call origination and delivery, and handover. Potential physical architectures based on the Reference Architecture are also provided. Finally, standards impacts and requirements are specified relative to Intelligent Network standards and standards applicable to the various reference points.
From: To:

T1P1.2/93-014 Dated: 01/06/93 Registerd: 03/26/93
Source: AT&T Network Systems / Brian Murphy (908/949-0772)
Title: Format for Information Flows
Summary: This contribution propose that the information flows to be included in Section 6 of the draft "Technical Report on Network Capabilities, Architectures, and Interfaces for Personal Communioations be based on the methodology described in CCITT Recommendation Q.65.
From: To:

T1P1.2/93-015 Dated: 12/11/92 Registerd: 03/26/93
Source: T1M1 Chairman / Phil Johnson
Title: PCS OAM&P Future Efforts
Summary: Liaison from T1M1 (Ref: T1M1/92-093 & T1M1.5/92-284) discussing PCS OAM&P requirements and the need for more interaction between T1M1 and T1P1.
From: To:

T1P1.2/93-016 Dated: 01/06/93 Registerd: 03/26/93
Source: T1P1.2 RMAD SWG Chairman / Brian Murphy (AT&T NS)
Title: T1P1.2 Reference Model and Architecture Development Sub-Working Group Meeting Report (1/6-7/93, Bedford, Texas)
Summary: See report
From: To:

T1P1.2/93-017 Dated: 01/22/93 Registerd: 03/26/93
Source: Motorola / Lynn Whittington (817/232-6655)
Title: Proposed Information Flows and Text for Section 6 of the TR
Summary: This submission provides a step-by-step description of the information flows, building upon the work accomplished at the Daytona meeting whioh was subsequently refined at the interim meeting in Ft. Worth. Additionally, a summary of all messages, their parameters, and an indication of their mandatory or optional status is provided.
From: To:

T1P1.2/93-018 Dated: 01/27/93 Registerd: 03/26/93
Source: GTE Labs / Dave Morris (617/466-2413), GTE TelOps/Jay Hilton, Bernard Harris
Title: Proposed Functional Architecture for Personal Communications
Summary: This contribution proposes a functional architecture to support the delivery of Personal Communications Services for the consideration of T1P1. The proposed functional architecture is based on the T1P1 PCS Reference Model and relates these concepts to the work in T1S1 on Intelligent Networks.
From: To:

T1P1.2/93-019 Dated: 02/01/93 Registerd: 03/26/93
Source: Bellcore / Dwight Hakim (908/758-4648)
Title: Proposal for a Hierarchical Information Model for PCS
Summary: Efforts to develop information flows have revealed that the process of mapping functional capabilities to the reference model could benefit from the additional activity: developing a data model. A data model could augment the reference model with the dimension of distribution of data (and associated functionality), while preserving its simple structure. This contribution contains a proposal for a hierarchical information model to assist in the development of the information flows for the Technical Report on Network Capabilities, Architectures, and Interfaces for Personal Communications
From: To:

T1P1.2/93-020 Dated: 02/01/93 Registerd: 03/26/93
Source: TR Editor / Dwight Hakim (908/758-4648)
Title: An Example of an Information Flow for Section 6 of the "Technical Report on Network Capabilities, Architectures, and Interfaces for Personal Communications"
Summary: This contribution provides an example of the desired format of information flows for Section 6 of the "Technical Report on Network Capabilities, Architectures, and Interfaces for Personal Communications. Its purpose is to encourage the submission of information flows in a format that reflects the agreements of the interim meeting and promote clarity through consistency.
From: To:

T1P1.2/93-021 Dated: 02/01/93 Registerd: 03/26/93
Source: Bellcore / Dwight Hakim (908/758-4648)
Title: Proposed Reference Model - Revisions for Clarity
Summary: This contribution is a proposal to add clarity to the PCS Reference Model. The complexity and ambiguity of the 'C' reference points of the model has resulted in many differing interpretations. This contribution proposes to distill the 'C' reference points into two distinct types and further proposes to exchange the labels for the 'H' and 'N' reference points to be compatible with other industry publications.
From: To:

T1P1.2/93-022 Dated: 01/22/93 Registerd: 01/22/93
Source: Shila Heeralall, NTI, 201-292-5726, Mel Woinsky
Title: T1P1.2 1993 Document Register
Summary: This contribution presents a fax received from Japan to bring clarifications to T1P1.2/92-163 on UPT activities in Japan from the last meeting. This contribution is provided to T1P1 for information only and no action is required
From: To:

T1P1.2/93-023 Dated: 01/17/93 Registerd: 03/26/93
Source: Chairman - TIA Mobile and Personal Communications Division / Jesse Russell
Title: (Liaison from TIA MCD)
Summary: On November 17, 1992, the Mobile Communications Division (MCD) of the TIA adopted a proposal to establish a new Section to address personal communications, initially in the 1.8 GHz region. In addition, the new Section will sponsor a new technical standards committee, TR46...
From: To:

T1P1.2/93-024 Dated: 02/01/93 Registerd: 03/26/93
Source: AT&T Network Systems / Helen Chu (201/386-3547)
Title: Radio Network Topology for Personal Communications Services
Summary: This contribution proposes various radio network topologies for the PCS network. This is a revision of contribution T1P1.2/92-152, which was submitted at the October '92 T1P1 meeting.
From: To:

T1P1.2/93-025 Dated: 02/01/93 Registerd: 03/26/93
Source: US West Advanced Technologiee / Brent Hirschman
Title: Standards Requirements for "P" Reference Point
Summary: This contribution supports the standardization of the "P" reference point from the reference model. It proposes text for the Standards Requirements section of the draft Technical Report on Network Capabilities, Architectures, and Interfaces for Personal Communications
From: To:

T1P1.2/93-026 Dated: 02/01/93 Registerd: 03/26/93
Source: US West Advanced Technologies / Brent Hirschman
Title: Addition of "CR" Reference Point
Summary: This contribution proposes the addition of the "CR" reference point to the reference model. This reference point addresses the issues of peer-level handover between RPCs. Text is proposed for the draft Technical Report on Network Capabilities, Architectures, and Interfaces for Personal Communications. Revision of the Reference Model figure is also proposed.
From: To:

T1P1.2/93-027 Dated: 02/01/93 Registerd: 03/26/93
Source: Telocator Personal Communications Section / Technical & Engineering (T&E) Committee/Network Subcommittee [Contacts: T&E Cmte. Chair C. C. Bailey (314/529-7538) / Network Subcmte. Chair Don Salerno (212/509-5115)]
Title: Network Interface Standards Requirements Document for Personal Communications
Summary: This document identifies the network interface rsquirements in accordance with the functional network architecture for Personal Communicatione Services (PCS) previously adopted by the Telocator PCS Section.
From: To:

T1P1.2/93-028 Dated: 01/29/93 Registerd: 03/26/93
Source: Telocator Personal Communications Services Section / Technical & Engineering Access Subcommittee
Title: Draft of Telocator Spectrum Sharing Report
Summary: In support of the legislative, regulatory, and industry bodies examining the feasibility of spectrum sharing (co-existence), the Telocator Technical & Engineering Committee has reviewed currently available information among its members on co-existence techniques. This draft report is intended to bring attention to the complex issues in spectrum sharing between PCS and fixed microwave services and to survey some of the existing proposals for addressing these issues.
From: To:

T1P1.2/93-029 Dated: 12/10/92 Registerd: 03/26/93
Source: T1E1 Chairman / William J. Buckley / Verilink (408/945-1199)
Title: Letter Re TIA TR45.4/R/T1E1.9 Joint Technical Committee (JTC) on Personal Communications Air Interface Standards Extensive Review of the Report of the Joint Experts' Meeting on PCS Air Interface Standards.
Summary: See liaison
From: To:

T1P1.2/93-030 Dated: 02/04/93 Registerd: 03/26/93
Source: Telocator Personal Communications Section / Technical & Engineering (T&E) Committee [Contact: T&E Cmte. Chair C. C. Bailey (314/529-7538)
Title: Report on the Joint Experts Meeting on Personal Communications Air Interface Standards
Summary: This document is the final report from the Joint Experts Meeting [JEM) on Personal Communications Air Interface Standards held November 9-13, 1992.
From: To:

T1P1.2/93-031 Dated: 02/04/93 Registerd: 03/26/93
Source: T1P1.2 RMAD SWG
Title: Liaison to T1P1.3, Clarifications Needed on Low-Power Wireless Access Service Description
Summary: See liaison
From: To:

T1P1.2/93-032 Dated: 02/04/93 Registerd: 03/26/93
Source: T1P1.2 RMAD SWG
Title: Liaison to T1S1.1, T1S1.2, T1S1.3, T1E1.9, TR45.4 JTC, T1P1.3 transmitting T1P1 Draft Technical Report on Network Capabilities, Architectures, and Interfaces for Personal Communications
Summary: See liaison
From: To:

T1P1.2/93-033 Dated: 02/04/93 Registerd: 03/26/93
Source: T1P1.2 RMAD SWG
Title: Liaison to TR45.4, Telocator Technical & Engineering Committee transmitting Draft Technical Report on Network Capabilities, Architectures, and Interfaces for Personal Communications
Summary: See liaison
From: To:

T1P1.2/93-034 Dated: 02/04/93 Registerd: 03/26/93
Source: T1P1.2 RMAD SWG
Title: Liaison to CCITT SG XI/XVIII, CCIR TG8/1, ETSI NA7 / SMG5, TTC transmitting Draft Technical Report on Network Capabilities, Architectures, and Interfaces for Personal Communications
Summary: See liaison
From: To:

T1P1.2/93-035R1 Dated: 02/04/93 Registerd: 03/26/93
Source: T1P1.2 RMAD SWG Chairman / Brian Murphy
Title: Report of Reference Model and Architecture Development Sub-Working Group
Summary: See report
From: To:

T1P1.2/93-036 Dated: 02/03/93 Registerd: 03/26/93
Source: T1P1.2 WASD Acting Chairman / Greg Patterson
Title: Report of the Wireless Access Systems Development (WASD) SWG
Summary: See report
From: To:

T1P1.2/93-037 Dated: 02/04/93 Registerd: 03/26/93
Source: T1P1.2 RMAD SWG
Title: Text and Information Flows for Draft Technical Report on Network Capabilities, Architectures, and Interfaces for Personal Communications
Summary: Text and flows developed at the February 1993 T1P1.2 meeting.
From: To:

T1P1.2/93-038 Dated: 02/04/93 Registerd: 03/26/93
Source: Motorola / Herb Calhoun
Title: T1M1.5/T1P1.2 Joint Meeting Agenda
Summary: T1M1.5/T1P1.2 March 30-31, 1993 Agenda for Joint Meeting on PCS OAM&P
From: To:

T1P1.2/93-039 Dated: 02/01/93 Registerd: 03/26/93
Source: T1P1.2 Chair/Greg Patterson
Title: Report of the OAM&P Issues Ad Hoc
Summary: See report
From: To:

T1P1.2/93-040 Dated: 03/05/93 Registerd: 03/05/93
Source: N/A
Title: Not Used
Summary: N/A
From: To:

T1P1.2/93-041 Dated: 03/29/93 Registerd: 03/05/93
Source: Telocator, C.C. Bailey, Chairman, T&E Committee
Southwestern Bell Technology Resources [314) 529-7538
Title: Telecommunications Management Standards Requirements Document for Personal Communications Services (Version 1, draft Revision 3)
Summary: This Standards Requirements Document (SRD) identifies requirements to support telecommunications management standards organizations in creating a minimum set of telecommunication management standards to support PCS.
From: To:

T1P1.2/93-042 Dated: 03/30/93 Registerd: 03/05/93
Source: Greg Patterson, Chairman, T1P1.2
Title: Full Report of the T1P1.2 Working Group Meeting, Feb 1-4, 1993, St. Louis
Summary: See Report
From: To:

T1P1.2/93-043 Dated: 03/10/93 Registerd: 03/10/93
Source: Chairman, T1P1.2 / Greg Patterson (BellSouth) 205-977-5096
Title: Tentative Agenda for T1P1.2 Regular Meeting; Dallas, Texas; May 3-6, 1993
Summary: N/A
From: To:

T1P1.2/93-044 Dated: 03/10/93 Registerd: 03/10/93
Source: Chairman, T1M1.5 / John McDonough
Chairman, T1P1.2 / Greg Patterson
Title: Agenda: Joint T1M1.5/T1P1.2 Working Group Meeting on PCS OAM&P March 30 - March 31, 1993
Summary: N/A
From: To:

T1P1.2/93-045 Dated: 03/24/93 Registerd: 03/24/93
Source: Lynn Whittington, Motorola, (817) 232-6655, 5555 N. Beach St., Ft. Worth, TX 76137
Title: Proposed Addition to Section 7 of the Technical Report
Summary: Potential physical configurations have been solicited from the manufacturers to represent possible product configurations which may be built based upon the PCS Architecture under development by T1P1. This submission illustrates one such configuration whi
From: To:

T1P1.2/93-046 Dated: 03/24/93 Registerd: 03/24/93
Source: Lynn Whittington, Motorola, (817) 232-6655, 5555 N. Beach St. Ft. Worth, TX 76137
Title: Proposed Addition to Section 7 of the Technical Report
Summary: Proposed addition to Section 7 of TR describing possible configuration for DS-CDMA PCS system.
From: To:

T1P1.2/93-047 Dated: 03/24/93 Registerd: 03/24/93
Source: Lynn Whittington, Motorola, (817) 232-6655, 5555 N. Beach St. ft. Worth, TX 76137
Title: Proposed Addition to Section 5.2.2 and 5.2.3 of the Technical Report
Summary: Additional text to clarify the P and F reference points.
From: To:

T1P1.2/93-048 Dated: 03/25/93 Registerd: 03/25/9
Source: Herb Calhoun, Motorola, (817) 232-6262, 5555 N. Beach St. Ft. Worth, TX 76137
Title: Proposal for Support of E911 Service for PCS Terminals
Summary: This contribution proposes design considerations and information flows for E911 service to PCS terminals.
From: To:

T1P1.2/93-049 Dated: 03/26/93 Registerd: 03/26/9
Source: Herb Calhoun, Motorola, (817) 232-6262, 5555 N. Beach St. Ft. Worth, TX 76137
Title: Analysis of the effects of handover during authentication.
Summary: Authentication must allow for handovers to occur without corrupting the transaction(s).
From: To:

T1P1.2/93-050 Dated: 03/29/93 Registerd: 04/30/
Source: CCIR TG 8/1 c/o John Wilber, GTE Telephone Operations, 214-718-6205
Title: FPLMTS Network Management
Summary: This document is a liaison to CCITT from CCIR TG 8/1 which describes Future Public Land Mobile Telecommunication Systems (FPLMTS) Network Management Requirements in a manner which is generally aligned with the TMN and H.3010.
From: To:

T1P1.2/93-051 Dated: 02/08/93 Registerd: 04/30/93
Source: John McDonough (NYNEX), Chairman T1M1.5, 212-967-3623
Title: T1P1 Proposed Draft Technical Report: Privacy and Authentication Objectives for Wireless Access to Personal Communications
Summary: This report focuses on call security rather than management security. T1M1.5/T1P1.2 may be able to provide comment to assist T1P1.3.
From: To:

T1P1.2/93-052 Dated: 03/11/93 Registerd: 04/30/93
Source: R. N. Truscott, AT&T Communications, 908-234-7659
Title: Accounting Management
Summary: n/a
From: To:

T1P1.2/93-058 Dated: 03/30/93 Registerd: 04/30/93
Source: Brian Murphy, AT&T Bell Labs, 908-949-0772
Title: Editorial Corrections to Draft Technical Report on Network Capabilities, Architectures, and Interfaces for Personal Communications.
Summary: This contribution specifies editorial correotions to Draft Technical Report on Network Capabilities, Architectures, and Interfaces for Personal Communications [T1P1.2/93-013R2) based on agreed material from the February 1993 meeting.
From: To:

T1P1.2/93-059 Dated: 03/30/93 Registerd: 04/30/93
Source: Brian Murphy, AT&T Bell Labs, 908-949-0772
Title: Results of T1S1 Review of Draft Technical Report on Network Capabilities, Architectures, and Interfaces for Personal Communications (T1P1.2/93-013R2)
Summary: This contribution provides "unofficial" results from the recent T1S1 ad hoc meeting at which the draft Technical Report on Network Capabilities, Architectures, and Interfaces for Personal Communications was reviewed.
From: To:

T1P1.2/93-060 Dated: 02/04/93 Registerd: 04/30/93
Source: Asok Chatterjee, Chairman, T1P1.3, 510-867-6625
Title: Liaison Responding to T1P1.2/92-170 "Additional Questions Regarding Wireless Terminal Service"
Summary: n/a
From: To:

T1P1.2/93-061 Dated: 02/04/93 Registerd: 04/30/93
Source: Asok Chatterjee, Chairman, T1P1.3, 510-867-6625
Title: Copy of Liaison to T1S1.1 on PCS Service Description documents and Activities
Summary: n/a
From: To:

T1P1.2/93-062 Dated: 03/30/93 Registerd: 04/30/93
Source: Brian Murphy, AT&T Bell Labs, 908-949-0772
Title: Proposed Changes to Draft Technical Report on Network Capabilities, Architectures, and Interfaces for Personal Communications (T1P1.2/93-013R2)
Summary: This contribution proposes changes to draft Technical Report on Network Capabilities, Architectures, and Interfaces for Personal Communications (T1P1.2/93-013R2).
From: To:

T1P1.2/93-063 Dated: 03/30/93 Registerd: 04/30/93
Source: Brian Murphy, AT&T Bell Labs, 908-949-0772
Title: Proposed Changes to Draft Technical Report Section 8.2.1 - Intelligent Network Standards Impact
Summary: This contribution revisits material on Intelligent Network standards impacts added to Section 8.2.1 of the draft Technical Report on Network Capabilities, Architectures, and Interfaces for Personal Communications. There is concern that introducing a "functional" view as part of this material may lead to confusion as the rest of the TR focuees on the reference architecture in Section 5. In addition, the material in Section 8.2.1 established new relationships between access and control functional elements which go beyond the reference architecture. Whils it is valuable to maintain material related to IN standards impacts in the TR, this contribution proposes changes to address the aforementioned concsrns.
From: To:

T1P1.2/93-064 Dated: 03/30/92 Registerd: 04/30/93
Source: Brent Hirschman, U. S. West Advanced Tschnologies, 303-541-6234
Title: Proposed Distributed RPC Architecture
Summary: This contribution proposes the addition of a new physical architecture for Personal Communications. Distributed RPCs focus on handover functionality in the RPC and minimize switch development. A new network element, the VLR/DN Manager acts as a gateway between the HLR and the RPC for caching user information.
From: To:

T1P1.2/93-065 Dated: 03/30/92 Registerd: 04/30/93
Source: Brent Hirschman, U. S. West Advanced Technologies, 303-541-6234
Title: Cr" Reference Point text for Section 8.
Summary: This contribution proposes the addition of text in Section 8 to support the "Cr" reference point. It discusses the various potential physical interfaces that could support the reference point. The text is proposed for the completeness of the Technical Report.
From: To:

T1P1.2/93-066 Dated: 03/30/92 Registerd: 04/30/93
Source: Brent Hirschman, U. S. West Advanced Technologies, 303-541-6234
Title: Cr" Reference Point Message Scope
Summary: This contribution proposes addition to the "Cr" reference point text adopted in the March T1P1 meeting. Additional scope for

the messages is proposed to include the exchange of Registration, Authentication, service profiles, and other user information.
From: To:

T1P1.2/93-067 Dated: 03/30/93 Registerd: 04/30/93
Source: GTE Telephone Operations, J.R. Hilton (214-718-6295), B.Harris, D.G.Morrie
Title: Clarification and Modifications to Section 8.2.1 (Intelligent Networks) of the Technical Report on Network Capabilities, Architectures, and Interfaces for Personal Communications.
Summary: This contribution proposes introductory text for Section 8.2.1 (Intelligent Networks) of the Technical Report. Modifications to the diagrams of Section 8.2.1 are included to clarify the use of the general IN infrastructure to support services such as PCS.
From: To:

T1P1.2/93-068 Dated: 04/12/93 Registerd: 04/30/93
Source: Brian Murphy (AT&T NS), Chairman T1P1.2 RHAD
Title: Report of Reference Model and Architecture Development Sub-working Group Interim Meeting (March 30 - April 1, 1993)
Summary: This meeting was collocated with the joint T1P1.2/T1M1.5 meeting in Bellevue Washington.
From: To:

T1P1.2/93-069 Dated: 03/30/93 Registerd: 04/30/93
Source: John McDonough (NYNEX), Chairman T1M1.5, 212-967-3623
Title: T1M1.5 List of Reference Documents
Summary: This is a list of documents which was developed to assist T1M1.5 progress the development of TMN standards to support PCS.
From: To:

T1P1.2/93-070 Dated: 03/30/93 Registerd: 04/30/93
Source: John McDonough (NYNEX), Chairman T1M1.5, 212-967-3623
Title: T1M1.5/T1P1.2 Documents for Joint Meeting Consideration
Summary: This is a list of documents which were intended to assist in addressing the meeting agenda.
From: To:

T1P1.2/93-071 Dated: 02/04/93 Registerd: 04/30/93
Source: Asok Chatterjee, Chairman, T1P1.3, 510-867-6625
Title: Copy of Liaison to T1S1.1 on PCS Service Description documents and Activities
Summary: This document is a duplicate of T1P1.2/93-061.
From: To:

T1P1.2/93-072 Dated: 03/30/93 Registerd: 04/30/93
Source: Brad Frison (Bell Atlantic), Chairman T1P1.3 Service Descriptions SWG, 703-974-3138
Title: CCITT Draft Recommendation F.851 "Universal Personal Telecommunication (UPT) - Service Description, Version 8 Geneva, 12-16 October 1992"
Summary: This document forms the basis of the service description for wired access to Personal Communications Services (PCS) being developed in T1P1.3
From: To:

T1P1.2/93-073 Dated: 03/30/93 Registerd: 04/30/93
Source: Brad Frison (Bell Atlantic), Chairman T1P1.3 Service Descriptions SWG, 703-974-3138
Title: T1P1-proposed Change to the Description of Multi-level Precedence and Pre-emption (MLPP) of CCITT F.851 UPT Service Description
Summary: This document was generated at the February T1P1 meeting.
From: To:

T1P1.2/93-074 Dated: 03/30/93 Registerd: 04/30/93
Source: Brad Frison (Bell Atlantic), Chairman T1P1.3 Service Descriptions SWG, 703-974-3138
Title: High-level Service Description of Low-power Wireless Access Service Capabilities, Version 1, October 1992
Summary: In light of FCC encouragement of innovative use of the licensed PCS spectrum to be allocated for public use, it appears most appropriate to standardize the service "capabilities" that should be supported across the interfaces of Personal Communications Systems, as opposed to standardizing specific services such as "telepoint." This approach will allow service providers the greatest amount of flexibility to design service offerings to meet market needs while providing sufficient requirements to allow the deployment of interoperable equipment across multiple service providers.
From: To:

T1P1.2/93-075 Dated: 03/30/93 Registerd: 04/30/93
Source: Brad Frison (Bell Atlantic), Chairman T1P1.3 Service Descriptions SWG, 703-974-3138
Title: CCITT Draft Recommendation F.115 "Operational and Service Provisions for Future Public Land Mobile Telecommunication Systems (FPLMTS)"
Summary: n/a
From: To:

T1P1.2/93-076 Dated: 03/30/93 Registerd: 04/30/93
Source: Brad Frison (Bell Atlantic), Chairman T1P1.3 Service Descriptions SWG, 703-974-3138
Title: T1P1 Draft Technical Report "System and Service Objectives for Low-power Wireless Access to Personal Communications Services"
Summary: This report describes objectives for services using wireless access to Personal Communications. It further establishes system objectives for wireless systems necessary for a quality wireless service. It is primarily intended for use in defining specifications for low-power radio systems operating in the frequency spectrum for emerging technologies, but may be used broadly for higher power systems as well. This document was developed by Committee T1 as part of its overall responsibility for Project Management for Personal Communications Services standards.
From: To:

T1P1.2/93-077 Dated: 03/30/93 Registerd: 04/30/93
Source: Brad Frison (Bell Atlantic), Chairman T1P1.3 Service Descriptions SWG, 703-974-3138
Title: T1P1-proposed Changes to Section 1.3 "Definitions and Terminology" in CCITT draft Recommendation F.851
Summary: This document was generated at the February T1P1 meeting.
From: To:

T1P1.2/93-078 Dated: 03/30/93 Registerd: 04/30/93
Source: Brad Frison (Bell Atlantic), Chairman T1P1.3 Service Descriptions SWG, 703-974-3138
Title: T1P1-proposed Changes to Section 4.2 "Service Aspects of Numbering and Dialing" in CCITT draft Recommendation F.851
Summary: This document was generated at the February T1P1 meeting.
From: To:

T1P1.2/93-079 Dated: 03/30/93 Registerd: 04/30/93
Source: Brad Frison (Bell Atlantic), Chairman T1P1.3 Service Descriptions SWG, 703-974-3138
Title: T1P1-proposed Changes to Section 4.3.1 "User Perspective Aspects" in CCITT draft Recommendation F.851
Summary: This document was generated at the February T1P1 meeting.
From: To:

T1P1.2/93-080 Dated: 03/30/93 Registerd: 04/30/93
Source: Brad Frison (Bell Atlantic), Chairman T1P1.3 Service Descriptions SWG, 703-974-3138
Title: T1P1-proposed Changes to Section 4.4.2 "Authentication" in CCITT draft Recommendation F.851
Summary: This document was generated at the February T1P1 meeting.
From: To:

T1P1.2/93-081 Dated: 03/30/93 Registerd: 04/30/93
Source: Brad Frison (Bell Atlantic), Chairman T1P1.3 Service Descriptions SWG, 703-974-3138
Title: T1P1-proposed Changes to Section 4.5.3 "Stored Service Profile Information" in CCITT draft Recommendation F.851
Summary: This document was generated at the February T1P1 meeting.
From: To:

T1P1.2/93-082 Dated: 03/30/93 Registerd: 04/30/93
Source: Brad Frison (Bell Atlantic), Chairman T1P1.3 Service Descriptions SWG, 703-974-3138
Title: T1P1-proposed Changes to the Annex in CCITT draft Recommendation F.851
Summary: This document was generated at the February T1P1 meeting.
From: To:

T1P1.2/93-083 Dated: 03/30/93 Registerd: 04/30/93
Source: Brad Frison (Bell Atlantic), Chairman T1P1.3 Service Descriptions SWG, 703-974-3138
Title: T1P1-proposed Changes to Optional Features of CCITT draft Recommendation F.851
Summary: This document was generated at the February T1P1 meeting.
From: To:

T1P1.2/93-084 Dated: 03/30/93 Registerd: 04/30/93
Source: Brad Frison (Bell Atlantic), Chairman T1P1.3 Service Descriptions SWG, 703-974-3138
Title: T1P1-proposed Changes to Supplementary Services of CCITT draft Recommendation F.851
Summary: This document was generated at the February T1P1 meeting.
From: To:

T1P1.2/93-085 Dated: 03/30/93 Registerd: 04/30/93
Source: Brad Frison (Bell Atlantic), Chairman T1P1.3 Service Descriptions SWG, 703-974-3138
Title: T1P1-proposed Changes to Section 4.6 "Protection of Third Parties" in CCITT draft Recommendation F.851
Summary: This document was generated at the February T1P1 meeting.
From: To:

T1P1.2/93-086 Dated: 02/08/93 Registerd: 04/30/93
Source: John McDonongh (NYNEX), T1M1.5 Chairman (212-967-3623)
Title: Architecture for Billing Functions and Operations
Summary: This contribution is intended to avoid the duplication of standardization effort in the area of Accounting Management for PCS.
From: To:

T1P1.2/93-087 Dated: 03/30/93 Registerd: 04/30/93
Source: John McDonongh (NYNEX)- T1M1.5 Chairman (212-967-3623), Greg Patterson (BellSouth) - T1P1.2 Chairman (205-977-5096)
Title: Report of the T1M1.5/T1P1.2 Joint Working Group Meeting
Summary: This meeting was held March 30-March 31, 1993 in Bellevue, Washington and collocated with the T1M1 meeting.
From: To:

T1P1.2/93-088 Dated: 04/29/93 Registerd: 04/29/93
Source: Brent Hirschman, U S WEST, (303) 541-6234, FAX (303) 541-8239
Title: Mapping Reference Model to Potential Physical Architecture for Section 7 of Draft TR.
Summary: This contriubtion proposes five potential physical architecture mappings of the reference model.
From: To:

T1P1.2/93-089 Dated: 04/29/93 Registerd: 04/29/93
Source: Brent Hirschman, U S WEST, (303) 541-6234, FAX (303) 541-6234
Title: Proposed Distributed RPCU Architecture
Summary: This contribution proposes the addition of a new physical architecture into Annex 1.
From: To:

T1P1.2/93-090 Dated: 04/29/93 Registerd: 04/29/93
Source: Brent Hirschman, U S WEST, (303) 541-6234, FAX (303) 541-8239
Title: Alignment of Section 8 of Draft TR to revisions of Section 7
Summary: Thsi contribution aligns the text in Section 8 with the physical interfaces instead of the reference points.
From: To:

T1P1.2/93-091 Dated: 04/29/93 Registerd: 04/29/93
Source: Brent Hirschman, U S WEST, (303) 541-6234, FAX (303) 541-8239
Title: Clarification of Anchor Concept in Section 5 of the Draft TR.
Summary: This contribution proposes text to clarify the anchor concept for RPC, RASC, and PSC in Section 5 of the Draft TR.
From: To:

T1P1.2/93-092 Dated: 04/29/93 Registerd: 04/29/93
Source: Brent Hirschman, U S WEST, (303) 541-6234, FAX (303) 541-8239
Title: Comparison of Draft TR work to International UPT work on F.851 and Q.76.
Summary: This contribution highlights the differences in focus of the work between the Draft TR and UPT Rec. F.851 and Q.76
From: To:

T1P1.2/93-093 Dated: 04/29/93 Registerd: 04/29/93
Source: Herb Calhoun, Motorola, 817-232-6262
Title: Recommendation to change OAM&P reference points names to aling with T1M1 usage.
Summary: The Oe and Op reference points are more properly referred to as q and x.
From: To:

T1P1.2/93-094 Dated: 04/29/93 Registerd: 04/29/93
Source: Herb Calhoun, Motorola, 817-232-6262
Title: Additional information for sections 5.1.x.3 based on analysis of section 6 information flows.
Summary: Information flows in section 6 of the draft TR imply additional information
From: To:

T1P1.2/93-095 Dated: 04/02/93 Registerd: 04/29/93
Source: John McDonough, Chairman T1M1.5, NYNEX, 212-967-3623
Title: Liaison from T1M1.5
Summary: This letter transmits T1M1.5's intentions for PCS OAM&P work as well as PCS OAM&P Preliminary Requirements Analysis performed by their PCS Mgmt ad hoc group.
From: To:

T1P1.2/93-096 Dated: 04/30/93 Registerd: 04/30/93
Source: RHAD SWG Convenor, Brian Murphy, AT&T Bell Labs, 908-949-0772
Title: Definitions (Section 3) for Draft Technical Report on Network Capabilities, Architectures and Interfaces for Personal Communications
Summary: Provides definitions and abbreviations for the draft TR.
From: To:

T1P1.2/93-097 Dated: 04/30/93 Registerd: 04/30/93
Source: AT&T Network Systems, Brian Murphy, 908-949-0772
Title: Proposed Changes to Draft Technical Report on Network Capabilities, Architectures, and Interfaces for Personal Communications
Summary: Follow-up to T1P1.2/93-062 in which Attachments 2 and 3 were

inadvertently omitted. This contribution provides that material.
From: To:

T1P1.2/93-098 Dated: 05/01/93 Registerd: 05/01/93
Source: Sandro Cianci, NTI, (514)765-8271
Title: Proposed mapping between T1P1 reference elements and IN functional entities.
Summary: This contribution proposes text and a figure for Section 8.2.1 of the draft "Technical Report on Network Capabilities, Architectures and Interfaces for Personal Communications".
From: To:

T1P1.2/93-099 Dated: 05/03/93 Registerd: 06/25/93
Source: Ericsson, Nils Bojeryd, (214) 997-0363
Title: Inter-System Handover
Summary: This contribution suggests text to be put into the T1P1.2 Technical Report, including: the anchor-switch concept, reference element definitions, and text for inter-system handover information flow sequences.
From: To:

T1P1.2/93-100 Dated: 04/29/93 Registerd: 06/25/93
Source: Chirman T1P1, Steve Engelman (214) 918-5166, Vice-Chair T1P1, Mel Woinsky
Title: PCS Standards Development
Summary: This contribution discusses the future of T1P1 and PCS standards development.
From: To:

T1P1.2/93-101 Dated: 05/06/93 Registerd: 06/25/93
Source: Chairman, RMAD SWG, Brian Murphy, (908) 949-0772
Title: Report of Reference Model and Architecture Development Sub-Working Group
Summary: This provides the RMAD report of the May 1993 regular meeting of T1P1.2 RMAD SWG
From: To:

T1P1.2/93-102R1 Dated: 05/07/93 Registerd: 06/25/93
Source: Chairman, T1P1.2, Greg Patterson (205) 977-5096
Title: Proposed Liaison to T1S1 (T1S1.1, T1S1.2, T1S1.3)
Summary: The liaison transmits T1P1.2's draft Technical Report 'Network Capabilities, Architectures, and Interfaces for Personal Communications" to the above groups and responds to issues raised at T1S1's Ad hoc meeting about the draft TR.
From: To:

T1P1.2/93-103 Dated: 05/06/93 Registerd: 06/25/93
Source: Chairman T1P1.2, Greg Patterson, (205) 977-5096
Title: Liaison to JTC(air), T1M1.5, T1A1.6
Summary: Transmits T1P1.2 draft Technical Report "Network Capabilities, Architectures, and Interfaces" to the above groups.
From: To:

T1P1.2/93-104 Datsd: 05/06/93 Registerd: 06/25/93
Source: Chairman T1P1.2, Greg Patterson, (205) 977-5096
Title: Liaison to TR45.4, TR46, and Telocator Tech. & Eng. Committee
Summary: Transmits T1P1.2 draft Technical Report "Network Capabilities, Architectures, and Interfaces for Personal Communications" to the above groups.
From: To:

T1P1.2/93-105 Dated: 05/06/93 Registerd: 06/25/93
Source: Chairman T1P1.2, Greg Patterson, (205) 977-5096
Title: Proposal to transmit T1P1.2 draft Technical Report "Network Capabilities, Architectures, and Interfaces for Personal Communications" to ITU RS via Region II Rapporteur
Summary: see title
From: To:

T1P1.2/93-106 Dated: 04/27/93 Registerd: 06/25/93
Source: Chairman T1A1.6, Antony Crossman, PicturTel Corp.
Title: Liaison from T1A1.6 on Acoustic Echo Cancellation in Hands-free Telephony
Summary: Addresses acoustic echo cancellation in hands-free telephony
From: To:

T1P1.2/93-107 Dated: 05/06/93 Registerd: 06/25/93
Source: Chairman T1P1.2, Greg Patterson, (205) 977-5096
Title: Reply Liaison to T1A1.6 on Acoustic Echo Cancellation
Summary: n/a
From: To:

T1P1.2/93-108 Dated: 07/26/93 Registerd: 06/25/93
Source: Heather Sinnott, c/o Ed Ehrlich, Northern Telecom, Inc., (201) 292-5274
Title: Comments on Handover
Summary: Provides additional technical comments to accompany NTI's Letter Ballot response to T1P1/LB93-02 entitled "Network Capabilities, Architectures, and Interfaces for Personal Communications"
From: To:

T1P1.2/93-109 Dated: 07/26/93 Registerd: 06/25/93
Source: David Gallagher, c/o Ed Ehrlich, Northern Telecom, Inc., (201) 292-5724
Title: Comments on Call Delivery
Summary: Provides additional technical comments to accompany NTI's Letter Ballot response to T1P1/LB93-02 antitled "Network Capabilities, ARchitectures, and Interfaces for Personal Communications".
From: To:

T1P1.2/93-110 Dated: 07/15/93 Registerd: 07/15/93
Source: Reference Model and Architecture Development Sub-Working Group Convenor
Title: Collated Comments on T1P1/LB93-02, "Technical Report on Network Capabilities, Architectures, and Interfaces for Personal Communications"
Summary: xxx
From: To:

T1P1.2/93-112 Dated: 07/22/93 Registerd: 07/22/93
Source: GTE Telephone Operations: J.R. Hilton, B. Harris, D.G. Morris 617-466-2413&0
Title: Updated Diagram Depicting the Mapping and Relationships between T1P1 Reference Architecture and the Intelligent Network Functional Architecture
Summary: This contribution provides an updated diagram for Section 8.2.1 (Intelligent Networks) of the Technical Report on Network Capabilities, Architectures and Interfaces for Personal Communications
From: To:

T1P1.2/93-113 Dated: 07/23/93 Registerd: 07/23/93
Source: Andy McGregor, NTI, (201) 292-4160, Ed Ehrlich
Title: Protocol Stack for PCS Applications
Summary: A layered protocol model for PCS is proposed, which clearly separates the radio-dependent aspects from the radio independent aspects. This separation should help the definition of the specific components, which comprise the C interface of PCS, which is within the scope of T1P1.2. This contribution is for the info of T1P1.2 and has previously been presented to the JTC(AIR).
From: To:

T1P1.2/93-114 Dated: 07/23/93 Registerd: 07/23/93
Source: Heather Sinnott, NTI, Ed Ehrlich, (201) 292-4160
Title: Proposed Attributes for PCS Air Interface Layer III Signalling
Summary: Attributes of layer III signalling for the PCS air interface are discussed, particularly the categorization of messages, the decoupling of radio-dependent and radio independent messages and the need to be compatible with upstream layer III interfaces. This separation should help the definition of the specific components, which comprise the C interface of PCS, which is within the scope of T1P1.2. This contribution is for the information of T1P1.2 and has previously been presented to the JTC(AIR).
From: To:

T1P1.2/93-115 Dated: 07/23/93 Registerd: 07/23/93
Source: Chairman, T1P1.2, Greg Patterson
Title: Tentative Agenda for T1P1.2 Regular Meeting of July 26-30, 1993
Summary: n/a
From: To:

T1P1.2/93-116 Dated: 07/23/93 Registerd: 07/23/93
Source: ITU-RS TG 8/1 Region 2 Rapporteur (Rolyn Callahan, SWB, 314-529-7424)
Title: ITU-RS TG 8/1 Liaison Report
Summary: n/a
From: To:

T1P1.2/93-117 Dated: 07/02/93 Registerd: 07/23/93
Source: T1P1 Chair & Vice-chair, T1E1 Chair, T1E1 Chair & Vice-chair, & JTC Co-chair
Title: JTC Transition Plan
Summary: In compliance with the T1 motion passed on June 18, 1993 to transfer the JTC to T1P1, a transition plan is presented.
From: To:

T1P1.2/93-118 Dated: 07/01/93 Registerd: 07/23/93
Source: Gary Jones, Chairman, TR46.3.3; Charles Cook, Chairman, T1E1.9
Title: Liaison from JTC(air) requesting input on signaling work
Summary: n/a
From: To:

T1P1.2/93-119 Dated: 07/25/93 Registerd: 07/25/93
Source: Chairman, T1P1.2 (Greg Patterson, 205-977-5096)
Title: Full Report of the T1P1.2 Working Group Meeting (May, 1993, Dallas, Texas
Summary: n/a
From: To:

T1P1.2/93-120 Dated: 07/22/93 Registerd: 08/27/93
Source: John McDonough (NYNEX), Chairman, T1M1.5; (212) 967-3623
Title: Liaison from T1M1.5 on PCS OAM&P
Summary: Provides T1P1.2 with status, work plan, and draft standard for PCS OAM&P
From: To:

T1P1.2/93-121 Dated: 07/15/93 Registerd: 08/27/93
Source: Chuck Bailey (SWB), Chairman, Teleocator T&E Committee
Title: Liaison from Teleocator Technical & Engineering Committee
Summary: Documents need for a "C" interface standard
From: To:

T1P1.2/93-122 Dated: 07/29/93 Registerd: 08/27/93
Source: Brian Murphy (AT&T NS), Chairman, T1P1.2 RMAD SWG
Title: Resolution of Letter Ballot Comments on T1P1/LB93-02 "Technical Report on Network Capabilities, Architectures, and Interfaces for Personal Communications"
Summary: Documents comment resolution during July 1993 meeting.
From: To:

T1P1.2/93-123 Dated: 07/29/93 Registerd: 08/27/93
Source: Greg Patterson, Chairman, T1P1.2
Title: Proposed Liaison from T1P1 to TR46 Re: Reference Models to Support PCS
Summary: n/a
From: To:

T1P1.2/93-124 Dated: 07/29/93 Registerd: 08/27/93
Source: Greg Patterson, Chairman, T1P1.2
Title: Proposed Liaison to ETSI SMG 5 Transmitting Draft Technical Report on Network Capabilities, Architectures, and Interfaces for Personal Communications
Summary: n/a
From: To:

T1P1.2/93-125 Dated: 07/29/93 Registerd: 08/27/93
Source: Greg Patterson, Chairman, T1P1.2
Title: Liaison to JTC(air) Re: Air Interface Signaling Work
Summary: Provides response to liaison from JTC on air interface signaling.
From: To:

T1P1.2/93-126 Dated: 08/27/93 Registerd: 08/27/93
Source: Greg Patterson, Outgoing Chairman, T1P1.2
Title: Full Report of the T1P1.2 Working Group Meeting; July 26-29, 1993 at Annapolis, Maryland
Summary: n/a
From: To:

T1P1.2/93-127 Dated: 08/24/93 Registerd: 08/31/93
Source: Anil Kripalani, Chairman, TR46
Title: Liaison from TR46 Regarding Reference Model Development
Summary: This is a reply liaison to T1P1.2's request to develop T1 and TIA reference models with some common reference points. A joint meeting was requested.
From: To:

T1P1.2/93-128 Dated: 09/16/93 Registerd: 09/16/93
Source: T1P1.2 Chairman / Jose Costa (NTI, Tel.: 613-763-7574)
Title: Draft Agenda, T1P1.2 Meeting, 1-4 November 1993, Phoenix, AZ
Summary: Meeting of T1P1.2
From: To:

T1P1.2/93-129 Dated: 09/21/93 Registerd: 10/06/93
Source: T1S1 (Robert Amy, Chair, Tel.: 919-254-4141)
Title: Liaison from T1S1: Summary of activity in T1S1 on PCS Coordination
Summary: During the week of August 30th, T1S1 held a two hour coordination meeting on the subject of PCS and subsequently continued this discussion in T1S1.2 during the week. The results are provided.
From: To:

T1P1.2/93-130 Dated: 10/15/93 Registerd: 10/15/93
Source: Mel Woinsky and Chris Wallace (NTI) Tel.: (201) 292-5726
Title: PCS T1P1/T1S1 Work Allocation
Summary: This contribution proposes a work allocation between T1S1 and T1P1 for low power wireless access standards supporting PCS.
From: To:

T1P1.2/93-131 Dated: 10/22/93 Registerd: 10/22/93
Source: Heather Sinnott (NTI) Tel (613) 765-2015
Title: Comments on Handover: Reformatted
Summary: Provide reformatting of handover examples provided in previous contribution T1P1.2/93-108.
From: To:

T1P1.2/93-132 Dated: 10/26/93 Registerd: 10/26/93
Source: AT&T Network Systems
Title: Resolution of AT&T Network Systems' Comments on Terminal Authentication and Privacy Information Flows in T1P1/LB93-02

Summary: This contribution proposes an alternative resolution for AT&T Network Systems' T1P1 letter ballot comments concerning the Terminal Authentication and Privacy information flows in T1P1/LB93-02, Technical Report on Network Capabilities, Architectures, and Interfaces for Personal Communications
From: To:

T1P1.2/93-133 Dated: 11/01/93 Registerd: 11/03/93
Source: Luc Samson, NTI
Title: PCS Modelling Methodology
Summary: This contribution contains a copy of CCITT Recommendations I.130 and Q.65 for defining services. This contribution was previously distributed as T1P1.3-91-028,
From: To:

T1P1.2/93-134 Dated: 11/01/93 Registerd: 11/03/93
Source: Chris Wallace and Mel Woinsky, NTI, Tel.: 201-292-5726
Title: Proposed T1S1 service definition methodology
Summary: This contribution is the current version of the T1S1 service definition methodology as of the August 1993 meeting.
From: To:

T1P1.2/93-135 Dated: 11/01/93 Registerd: 11/03/93
Source: J.R. Hilton and D.G. Morris, GTE, Tel.: 617-466-2413
Title: Information Flows, Information Elements and Information Elements Descriptions for Three IN Supported Terminal Mobility Features, based on the T1P1.2 Technical Report.
Summary: This contribution contains sequences of Information Flows (IF) for three IN supported Terminal Mobility service features.
From: To:

Group: T1P1.3

T1P1.3/93-033 Dated: 02/05/93 Registerd: 03/18/93
Source: Leon Hofer, US West
Title: Proposed text for abstract to TR on System and Service Objectives (T1P1.3/92-039R7)
Summary: Proposes next text for the document
From: To:

T1P1.3/93-034 Dated: 02/05/93 Registerd: 03/18/93
Source: Charles Cook, US West
Title: Task to dsvelop a contribution to CCIR Task Group 8/1
Summary: Proposes a CCIR contribution
From: To:

T1P1.3/93-035 Dated: 02/05/93 Registerd: 03/18/93
Source: Steve Engelman, Chairman - T1P1
Title: Liaison from T1E1 on Air Interface Standards
Summary: Text of liaison
From: To:

T1P1.3/93-036 Dated: 02/05/93 Registerd: 03/18/93
Source: Carl Bedingfield, Secretary - T1P1.3
Title: T1P1.3 summary meeting report for T1P1 - Feb, 1993
Summary: Summarizes meeting report for St. Louis meeting
From: To:

T1P1.3/93-037 Dated: 02/05/93 Registerd: 03/18/93
Source: Brad Frison, Chairman - Service Deecription SWG
Title: Service Description Subworking Group Meeting Report, Feb., 1993
Summary: Report given to T1P1.3 in St. Louis
From: To:

T1P1.3/93-038 Dated: 02/05/93 Registerd: 03/18/93
Source: Fred Gaechter, Chairman - Numbering, Addressing, and Routing SWG
Title: Numbering, Addressing, and Routing Subworking Group Meeting Report, Feb., 1993
Summary: Report given to T1P1.3 in St. Louis
From: To:

T1P1.3/93-039 Dated: 02/05/93 Registerd: 03/18/93
Source: Leon Hofer, Convenor - System and Service Objectives Ad Hoc Group
Title: System and Service Objectives Ad Hoc Group Group Meeting Report, Feb., 1993
Summary: Report given to T1P1.3 in St. Louis
From: To:

T1P1.3/93-040 Dated: 02/05/93 Registerd: 03/18/93
Source: Jose Costa, Convenor - Definitions Ad Hoc Group Group
Title: Definitions Ad Hoc Group Group Meeting Report, Feb., 1993
Summary: Report given to T1P1.3 in St. Louis
From: To:

T1P1.3/93-041 Dated: 02/05/93 Registerd: 03/18/93
Source: Carl Bedingfield, Convenor - Security Ad Hoc Group
Title: Security Ad Hoc Group Meeting Report, Feb., 1993
Summary: Report given to T1P1.3 in St. Louis
From: To:

T1P1.3/93-042 Dated: 02/05/93 Registerd: 03/18/93
Source: Jose Costa, Convenor - Definitions Ad Hoc Group Group
Title: Disposition of Comments Report
Summary: Summarizes comment disposition on the Letter Ballot for the draft TR on Terminology
From: To:

T1P1.3/93-043 Dated: 02/05/93 Registerd: 03/18/93
Source: Jose Costa, Convenor - Definitions Ad Hoc Group Group
Title: Revised version of draft TR on Personal Communications Terminology
Summary: This version incorporates the comments resulting from the letter ballot
From: To:

T1P1.3/93-044 Dated: 02/05/93 Registerd: 03/18/93
Source: Carl Bedingfield, Convenor - Security Ad Hoc Group
Title: Draft Technical Report on Privacy and Authentication for Personal Communications
Summary: Version proposed for T1P1 letter ballot
From: To:

T1P1.3/93-045 Dated: 02/05/93 Registerd: 03/18/93
Source: Leon Hofer, Convenor - System and Service Objectives Ad Hoc Group
Title: Revised Version of draft TR on System and Sarvice Objectives for Low-power Wireless Access for Personal Communications
Summary: This version incorporates comments resulting from the T1P1 letter ballot
From: To:

T1P1.3/93-046 Dated: 02/05/93 Registerd: 03/18/93
Source: Leon Hofer, Convenor - System and Service Objectives Ad Hoc Group
Title: Comment Resolution for System and Service Objectives draft TR letter ballot
Summary: Provides comment disposition on the Letter Ballot for the draft TR on System and Service Objectives
From: To:

T1P1.3/93-047 Dated: 02/05/93 Registerd: 03/18/93
Source: Leon Hofer, Convenor - System and Service Objectives Ad Hoc Group
Title: Interim Comment Resolution for System and Service Objectives draft TR latter ballot
Summary: Provides summary of comment disposition on the Letter Ballot for the draft TR on System and Service Objectives for presentation at T1P1.3 meeting
From: To:

T1P1.3/93-048 Dated: 02/05/93 Registerd: 03/18/93
Source: Carl Bedingfield, Convenor - Security Ad Hoc Group
Title: Recommended liaisons from T1P1 to T1M1, T1E1, T1A1, TR45.4, Telocator, X3T4, and US CCIR Task Group 8/1
Summary: Recommends liaisons on privacy and authentication; requests interest in experts' meeting
From: To:

T1P1.3/93-049 Dated: 02/05/93 Registerd: 03/18/93
Source: Brad Frison, Chairman - Service Description SWG
Title: Response liaison to T1P1.2 on wireless terminal services
Summary: Answers additional questions
From: To:

T1P1.3/93-050 Dated: 02/05/93 Registerd: 03/18/93
Source: Brad Frison, Chairman - Service Description SWG
Title: Liaison to T1S1.1 on PCS Service Description documents and activities
Summary: General transfer of information
From: To:

T1P1.3/93-051 Dated: 02/05/93 Registerd: 03/18/93
Source: Brad Frison, Chairman - Service Description SWG
Title: Liaison to TR45.4 on PCS Service Description documents and activities
Summary: General transfer of information
From: To:

T1P1.3/93-052 Dated: 02/05/93 Registerd: 03/18/93
Source: Brad Frison, Chairman - Service Description SWG
Title: Recommended contribution to CCITT Study Group 35/I on MLPP
Summary: Proposes new text and clarifications of contentious text
From: To:

T1P1.3/93-053 Dated: 02/05/93 Registerd: 03/18/93
Source: Brad Frison, Chairman - Service Description SWG
Title: Recommended contribution to CCITT Study Group 35/I on Definitions and Terminology
Summary: Proposes new text and clarifications of contentious text
From: To:

T1P1.3/93-054 Dated: 02/05/93 Registerd: 03/18/93
Source: Brad Frison, Chairman - Service Description SWG
Title: Recommended contribution to CCITT Study Group 35/I on Numbering and Dialing
Summary: Proposes new text and clarifications of contentious text
From: To:

T1P1.3/93-055 Dated: 02/05/93 Registerd: 03/18/93
Source: Brad Frison, Chairman - Service Description SWG
Title: Recommended contribution to CCITT Study Group 35/I on User Perspective Aspects
Summary: Proposes new text and clarifications of contentious text
From: To:

T1P1.3/93-056 Dated: 02/05/93 Registerd: 03/18/93
Source: Brad Frison, Chairman - Service Description SWG
Title: Recommended contribution to CCITT Study Group 35/I on Authentication
Summary: Proposes new text and clarifications of contentious text
From: To:

T1P1.3/93-057 Dated: 02/05/93 Registerd: 03/18/93
Source: Brad Frison, Chairman - Service Description SWG
Title: Recommended contribution to CCITT Study Group 35/I on Stored Service Profile Information
Summary: Proposes new text and clarifications of contentious text
From: To:

T1P1.3/93-058 Dated: 02/05/93 Registerd: 03/18/93
Source: Brad Frison, Chairman - Service Description SWG
Title: Recommended contribution to CCITT Study Group 35/I on the Annex to F.851
Summary: Proposes new text and clarifications of contentious text
From: To:

T1P1.3/93-059 Dated: 02/05/93 Registerd: 03/18/93
Source: Brad Frison, Chairman - Service Description SWG
Title: Recommended contribution to CCITT Study Group 35/I on UPT Optional Feature Set in F.851
Summary: Proposes new text and clarifications of contentious text
From: To:

T1P1.3/93-060 Dated: 02/05/93 Registerd: 03/18/93
Source: Brad Frison, Chairman - Service Description SWG
Title: Recommended contribution to CCITT Study Group 35/I on UPT Supplementary Services in F.851
Summary: Proposes new text and clarifications of contentious text
From: To:

T1P1.3/93-061 Dated: 02/05/93 Registerd: 03/18/93
Source: Brad Frison, Chairman - Service Description SWG
Title: Recommended contribution to CCITT Study Group 35/I on Protection of Third Parties, F.851
Summary: Proposes new text and clarifications of contentious text
From: To:

T1P1.3/93-062 Dated: 02/05/93 Registerd: 03/18/93
Source: Carl Bedingfield, Secretary, T1P1.3
Title: Meeting Report for February, 1993 T1P1.3 Meeting
Summary: Report for February, 1993 Meeting in St. Louis, MO.
From: To:

T1P1.3/93-063 Dated: 02/05/93 Registerd: 03/18/93
Source: Carl Bedingfield, Secretary, T1P1.3
Title: Tentative Agenda for May, 1993 T1P1.3 Meeting
Summary: Proposed Meeting Agenda
From: To:

T1P1.3/93-000 Dated: 01/14/93 Registerd: 01/14/93
Source: Secretary, T1P1.3 via T1BBS
Title: Document Log for T1P1.3 - 1993
Summary: List of Documents for T1P1.3, 1993
From: To:

T1P1.3/93-001 Dated: 01/14/93 Registerd: 01/14/93
Source: Asok Chatterjee, Chairman - T1P1.3
Title: Draft Agenda for Feb. Meeting
Summary: Tentative Agenda for Feb., 1993 Meeting
From: To:

T1P1.3/93-002 Dated: 01/14/93 Registerd: 01/14/93
Source: Alfred Gaechter, Chairman, SWG NA&R, and representative of the NANP Administrator
Title: Continuation of the development of Technical Reports on PCS/UPT numbering within the T1P1.3 Subworking Group on Numbering, Addressing, and Routing (SWG on NA&R)
Summary: This document conatins a responseto the AT&T, MCI, and Sprint statement presented at the October 29, 1992 T1P1.3 closing plenary.
From: To:

T1P1.3/93-003 Dated: 01/15/93 Registerd: 01/15/93
Source: Gayle Murdock, US West, 206-346-7775
Title: Draft Technical Report for UPT Numbering, Addressing, and Routing

Summary: Proposed technical report
From: To:

T1P1.3/93-004 Dated: 01/19/93 Registerd: 01/19/93
Source: T1M1 - Philip Johnson, Chairman
Title: Liaison on PCS OAM&P from T1M1
Summary: Response to previous liaison; includes order of standardization of PCS OAM&P requirements.
From: To:

T1P1.3/93-005 Dated: 01/19/93 Registerd: 01/19/93
Source: T1P1.2 - Greg Patterson, Chairman
Title: Liaison from T1P1.2 on Wireless Terminal Service
Summary: Three questions posed to Service Descriptions SWG on Wireless Terminal Service.
From: To:

T1P1.3/93-006 Dated: 01/20/93 Registerd: 01/20/93
Source: Sam George - Defense Information Systems Agency
Title: Proposed CCITT Contribution Revising the Description of Multi-level Precedence and Preemption (MLPP) in Draft CCITT Recc F.851.
Summary: COntribution to correct minor errors in transfer of text
From: To:

T1P1.3/93-007 Dated: 01/21/93 Registerd: 01/21/93
Source: Joan Michaels, Bellcore/NA&R SWG Technical Report Editor, and Alfred Gaechter, Chairman NA&T SWG/NANP Administrator
Title: Proposed Re-organization of the "Technical Report on PCS/UPT Numbering and Addressing in World Zone 1"
Summary: This contribution proposes a re-organization of the NA&R SWG that is based on the T1AG recommendation and an outline agreed to by the T1P1 Chairman, the T1P1.3 Chairman, and the NA&R SWG Chairman. The re-organized technical report as proposed captures all of the work-in-progress.
From: To:

T1P1.3/93-008 Dated: 01/22/93 Registerd: 01/22/93
Source: Frank LaPorta - AT&T Communications
Title: Proposed Changes to CCITT Draft Recommendation F.851, UPT Service Description
Summary: The document discusses proposed changes to F.851, and is being presented to T1P1.3 for discussion and resolution.
From: To:

T1P1.3/93-009 Dated: 01/22/93 Registerd: 01/22/93
Source: Shila Heeralall, NTI, (201)292-5726, Mel Woinsky
Title: UPT and Other Standards Activities in Japan
Summary: This contribution presents a fax received from Japan to bring clarifications to T1P1.2/92-163, on UPT activities in Japan, from the last meeting. This contribution is provided to T1P1 for information only and no action is required.
From: To:

T1P1.3/93-010 Dated: 01/25/93 Registerd: 01/25/93
Source: Steve Engelman - Chairman, T1P1
Title: Results of T1P1 Letter Ballot LB92-01
Summary: This contribution reports the results of the letter ballot on the Draft TR on Personal Communications Terminology
From: To:

T1P1.3/93-011 Dated: 01/25/93 Registerd: 01/25/93
Source: Steve Engelman - Chairman, T1P1
Title: Results of T1P1 Letter Ballot LB92-03
Summary: This contribution reports the results of the letter ballot on draft TR fpr Systsm and Service Objectives for Low-vPower Wireless Access to Personal Communications Services
From: To:

T1P1.3/93-012 Dated: 01/27/93 Registerd: 01/27/93
Source: jose Costa, NTI, (201)292-5726, Mel Woinsky
Title: Export Considerations in Privacy and Authentication Standards
Summary: This contribution proposes an approach to take into account export issues in the development of privacy and authentication standards for personal communications.
From: To:

T1P1.3/93-013 Dated: 01/01/93 Registerd: 01/27/93
Source: Bradley J. Frison - Bell Atlantic
Title: Report of Joint Discussion between TR45.4 and T1P1.3 Service Description Group Chairs
Summary: The chairs responsible for Service Description Work in T1P1.3 and TR45.4 met informally to exchange information and work plans.
From: To:

T1P1.3/93-014 Dated: 02/01/93 Registerd: 01/27/93
Source: Bradley J. Frison - Bell Atlantic
Title: Proposal to consider adoption of CCITT F.851 as the baseline T1 service description for UPT
Summary: It is proposed that T1P1 consider the merits of adopting F.851 as the T1 UPT service description at the May 1993 meeting.
From: To:

T1P1.3/93-015 Dated: 01/27/93 Registerd: 01/27/93
Source: Steve Engelman - Chairman, T1P1
Title: TIA Liaison letter
Summary: Liaison Letter from TIA
From: To:

T1P1.3/93-016 Dated: 01/27/93 Registerd: 01/27/93
Source: Steve Engelman - Chairman, T1P1; Asok Chatterjee, Chairman, T1P1.3; Fred Gaechter - Chairman, Numbering, Addressing, and Routing Subworking Group
Title: Recommendation on how to proceed based on the results of T1AG PCS/UPT numbering discussions
Summary: Recommendation on continuation of numbering work
From: To:

T1P1.3/93-017 Dated: 01/27/93 Registerd: 01/27/93
Source: Ben Levitan ARINC 410 266-4111
Title: Criteria For Safe Operation of Portable Electronic Device on Aircraft
Summary: FOR INFORMATION - The FAA is asking for manufacturers of Personal Electronic Devices to show that devices are safe on Aircraft
From: To:

T1P1.3/93-018 Dated: 02/01/93 Registerd: 01/28/93
Source: AT&T Communications - Frank La Porta
Title: Proposal for Work on Stage 1 Service Descriptions for PCS
Summary: Describes three different types of services descriptions required to support Personal Communications and proposes actions for T1P1.1 PMT.
From: To:

T1P1.3/93-019 Dated: 01/29/93 Registerd: 01/29/93
Source: AT&T - John Carl Brown, Marian Hosmer; (908)949-8048
Title: Text for Home-Based Numbering Scheme section
Summary: This contribution contains text for integration into the Home-Based Numbering Scheme section of the UPT Technical Report on Numbering
From: To:

T1P1.3/93-020 Dated: 01/29/93 Registerd: 01/29/93
Source: AT&T - John Carl Brown, Marian Hosmer; (908)949-8048
Title: Text for Country-Based Numbering Scheme section
Summary: This contribution contains text for integration into the Country-Based Numbering Scheme section of the UPT Technical Report on Numbering
From: To:

T1P1.3/93-021 Dated: 01/29/93 Registerd: 01/29/93
Source: AT&T - John Carl Brown, Marian Hosmer; (908)949-8048
Title: Text for Global-Based Numbering Scheme section
Summary: This contribution contains text for integration into the Global-Based Numbering Scheme section of the UPT Technical Report on Numbering
From: To:

T1P1.3/93-022 Dated: 01/29/93 Registerd: 01/29/93
Source: AT&T - John Carl Brown, Marian Hosmer; (908)949-8048
Title: Text for UPT/PCS Numbering Space Scheme section
Summary: This contribution contains text for integration into the UPT/PCS Numbering Space Scheme section of the UPT Technical Report on Numbering
From: To:

T1P1.3/93-023 Dated: 01/29/93 Registerd: 01/29/93
Source: AT&T - John Carl Brown, Marian Hosmer ; (908)949-8048
Title: Revised Attribute Criteria Evaluation Matrix
Summary: This contribution contains text for integration into the UPT Technical Report on Numbering
From: To:

T1P1.3/93-024 Dated: 01/29/93 Registerd: 01/29/93
Source: √Rolyn Callahan, Bellcore
Title: Submission of CCIR TG8/1 document Security Principles for FMPLTS (FPLMTS.SCRT)
Summary: This contribution introduces CCIR TG8/1 document Security Principles for FMPLTS (FPLMTS.SCRT), 22 Oct 1992, for consideration by T1P1.3
From: To:

T1P1.3/93-025 Dated: 01/29/93 Registerd: 01/29/93
Source: Rolyn Callahan, Bellcore
Title: Submission of revised F.115, Study Group I Service Description for FMPLTS:P Service and Operational Provisions for FPLMTS
Summary: This contribution introduces revised F.115, Study Group I Service Description for FMPLTS:P Service and Operational Provisions for FPLMTS, for consideration by T1P1.3
From: To:

T1P1.3/93-026 Dated: 01/29/93 Registerd: 01/29/93
Source: Rolyn Callahan, Bellcore
Title: Proposal for using F.115 as baseline Service Description Document
Summary: This contribution proposes the use of F.115 as baseline Service Description Document
From: To:

T1P1.3/93-027 Dated: 01/29/93 Registerd: 01/29/93
Source: Marian Hosmer, AT&T; Tony Toubassi, MCI; Jim Lord, U.S. Sprint
Title: Consensus on the Development of the PCS Numbering Technical Report
Summary: This contributions discusses the consensus in the T1P1.3 Numbering, Addressing, and Routing Subworking Group with respect to the development of PCS Numbering Technical Reports
From: To:

T1P1.3/93-028 Dated: 01/29/93 Registerd: 01/29/93
Source: Asok Chatterjee - Chairman, T1P1.3
Title: Liaison from CCIR TG 8/1
Summary: This liaison requests an input document to CCIR Task Group 8/1 on System and Service Objectives
From: To:

T1P1.3/93-029R Dated: 01/29/93 Registerd: 01/29/93
Source: Rolyn Callahan, Bellcore
Title: Submission of CCIR Study Group I document, Performance Requirements for FPLMTS
Summary: This contribution introduces CCIR Study Group I document, Performance Requirements for FPLMTS, for consideration by T1P1.3
From: To:

T1P1.3/93-030 Dated: 01/29/93 Registerd: 01/29/93
Source: Rolyn Callahan- Bellcore'
Title: Working Document Towards Draft Recommendation FPLMTS System Framework for the Radio Interface (FPLMTS.SFRI)
Summary: Submission of TG 8/1 Document
From: To:

T1P1.3/93-031 Dated: 01/29/93 Registerd: 01/29/93
Source: Carl Bedingfield - BellSouth (404)332-2122
Title: Proposed New Figure for draft TR on PCS Terminology
Summary: This contribution consists of a redrawn version of the Figure 1 for the draft TR. The contents of the figure have not changed.
From: To:

T1P1.3/93-032 Dated: 01/29/93 Registerd: 01/29/93
Source: Carl Bedingfield - BellSouth (404)332-2122
Title: Recommendation to incorporate FPLMTS.SCRT into draft TR on Security, as appropriate.
Summary: This contribution recommends that the appropriate portions of FPLMTS.SCRT be considered for use in the draft TR on Security
From: To:

T1P1.3/93-064 Dated: 03/24/93 Registerd: 03/24/93
Source: Marian Hosmer, AT&T
Title: Country-based scheme for PCS
Summary: Contribution to Draft TR for interim meeting of NA&R SWG
From: To:

T1P1.3/93-065 Dated: 03/24/93 Registerd: 03/24/93
Source: John Brown, AT&T
Title: Prefix-based scheme for PCS
Summary: Text submitted for draft TR for interim meeting
From: To:

T1P1.3/93-066 Dated: 03/29/93 Registerd: 03/29/93
Source: Gayle Murdock, US West
Title: UPT Numbering - Further clarification regarding the use and purpose of a prefix
Summary: Contribution for interim meeting
From: To:

T1P1.3/93-067 Dated: 03/29/93 Registerd: 03/29/93
Source: Ameritech and US West
Title: Clarification of contribution T1P1.3/92-097 "UPT numbering call flow analysis"
Summary: Contribution to interim meeting
From: To:

T1P1.3/93-068 Dated: 03/29/93 Registerd: 03/29/93
Source: Hugh Burrows, Stentor
Title: SRCI comments on restricting Technical Report to numbering
Summary: Contribution to interim meeting
From: To:

T1P1.3/93-069 Dated: 03/29/93 Registerd: 03/29/93
Source: Dennis J. Byrne, USTA
Title: Comments on structure and content of "TR on PCS/UPT numbering and addressing in World Zone 1"
Summary: Text for interim meeting

From: To:

T1P1.3/93-070 Dated: 03/29/93 Registerd: 03/29/93
Source: Norman Epstein, GTE
Title: Comments on the Country-based numbering scheme
Summary: Text for interim meeting
From: To:

T1P1.3/93-071 Dated: 03/30/93 Registerd: 03/30/93
Source: Fred Gaechter, NANPA
Title: Modifications to E.168
Summary: E.168 Modifications
From: To:

T1P1.3/93-072 Dated: 04/05/93 Registerd: 04/05/93
Source: Jim Lord, Sprint, 913-624-3158
Title: NA&R SWG Interim Meeting Minutes
Summary: Meeting minutes for NA&R SWG interim meeting, March 30-31,1993
From: To:

T1P1.3/93-073 Dated: 04/12/93 Registerd: 04/12/93
Source: T1P1.2
Title: Liaison from T1P1.2, draft TR on Network Capabilities, Architectures, and Interfaces for Personal Communications
Summary: Transmits latest version of draft TR
From: To:

T1P1.3/93-074 Dated: 04/12/93 Registerd: 04/12/93
Source: T1P1.2
Title: Liaison from T1P1.2 on service description items
Summary: Requests clarification of items
From: To:

T1P1.3/93-075 Dated: 04/12/93 Registerd: 04/12/93
Source: TR45.4
Title: Liaison from TR45.4 on Service Description work
Summary: Comments on status report from T1P1.3
From: To:

T1P1.3/93-076 Dated: 04/12/93 Registerd: 04/12/93
Source: Joint Technical Committee
Title: Liaison from JTC(AIR)
Summary: Comments on proposed privacy and authentication JEM
From: To:

T1P1.3/93-077 Dated: 04/12/93 Registerd: 04/12/93
Source: Chairman, Subworking Group on Numbering, Addressing, and Routing
Title: Request for clarification of direction regarding draft TR
Summary: Letter requesting clarification regarding draft TR as a result of contributions to NAR SWG interim meeting
From: To:

T1P1.3/93-078 Dated: 04/12/93 Registerd: 04/12/93
Source: Telocator Technical and Engineering Committee
Title: Network Interface Standards Requirements Document
Summary: Identifies network interface requirements
From: To:

T1P1.3/93-079 Dated: 04/15/93 Registerd: 04/15/93
Source: Jose M. Costa, NTI, Tel.: (613) 763-7574
Title: Definition of Radio Interface
Summary: This contribution proposes a terminology definition for "Radio Interface".
From: To:

T1P1.3/93-080 Dated: 04/26/93 Registerd: 04/26/93
Source: Howard Sherry, Bellcore
Title: Support for proposed expert's meeting on privacy and authentication
Summary: Support for proposed meeting
From: To:

T1P1.3/93-081 Dated: 05/06/93 Registerd: 09/30/93
Source: Carl Bedingfield-BellSouth
Title: Proposed questions for propoeed privacy and authentication experts' meeting
Summary: -
From: To:

T1P1.3/93-082 Dated: 05/06/93 Registerd: 09/30/93
Source: Jim Dahl - US West
Title: Human factors for PCS
Summary: -
From: To:

T1P1.3/93-083 Dated: 05/06/93 Registerd: 09/30/93
Source: Brad Frison - Bell Atlantic
Title: Proposal to adopt ITU-TSS document F.851 as the ANSI Service Description for UPT
Summary: -
From: To:

T1P1.3/93-084 Dated: 05/06/93 Registerd: 09/30/93
Source: Brad Frison - Bell Atlantic
Title: Proposal to modify T1P1.3/92-274 and forward it for approval as a technical report
Summary: -
From: To:

T1P1.3/93-085 Dated: 05/06/93 Registerd: 09/30/93
Source: Jim Longua - Ameritech
Title: U.S. Position on ITU-TS IFS numbering and routing proposal
Summary: -
From: To:

T1P1.3/93-086 Dated: 05/06/93 Registerd: 09/30/93
Source: Steve Engelman - Chairman, T1P1
Title: Results of the T1 letter ballot on terminology
Summary: -
From: To:

T1P1.3/93-087 Dated: 05/06/93 Registerd: 09/30/93
Source: Frank LaPorta - AT&T Communications
Title: UPT Service Description Draft Version 9
Summary: -
From: To:

T1P1.3/93-088 Dated: 05/06/93 Registerd: 09/30/93
Source: Frank LaPorta - AT&T Communications
Title: ETSI Technical Reports on UPT
Summary: -
From: To:

T1P1.3/93-089 Dated: 05/06/93 Registerd: 09/30/93
Source: Frank LaPorta - AT&T Communications
Title: UPT Work plan and UPT joint coordination group
Summary: -
From: To:

T1P1.3/93-090 Dated: 05/06/93 Registerd: 09/30/93
Source: Rolyn Callahan - Southwestern Bell
Title: Operational and service provisions for FPLMTS
Summary: -
From: To:

T1P1.3/93-091 Dated: 05/03/93 Registerd: 05/03/93
Source: T1P1
Title: Letter Ballot Comments on dpTR, Privacy and Authentication
Summary: Letter Ballot Comments
From: To:

T1P1.3/93-092 Dated: 05/06/93 Registerd: 09/30/93
Source: Jose Costa - Convenor, Ad hoc group on definitions
Title: Input on terms and definitions from TR45.4
Summary: -
From: To:

T1P1.3/93-093 Dated: 05/06/93 Registerd: 09/30/93
Source: T1S1
Title: Meeting Report, T1S1 ad hoc group on Personal Communications
Summary: -
From: To:

T1P1.3/93-094 Dated: 05/06/93 Registerd: 09/30/93
Source: Definitions ad hoc group
Title: Report for May '93 meeting
Summary: -
From: To:

T1P1.3/93-095 Dated: 05/06/93 Registerd: 09/30/93
Source: Definitions ad hoc group
Title: Disposition of Comments - T1 letter ballot 335
Summary: -
From: To:

T1P1.3/93-096 Dated: 05/06/93 Registerd: 09/30/93
Source: Definitions ad hoc group
Title: Draft 5 of TR, incorporating T1LB335 comments
Summary: -
From: To:

T1P1.3/93-097 Dated: 05/06/93 Registerd: 09/30/93
Source: Privacy and authentication ad hoc group
Title: Report for May '93 meeting
Summary: -
From: To:

T1P1.3/93-098 Dated: 05/06/93 Registerd: 09/30/93
Source: Service description sub-working group
Title: Report for May '93 meeting
Summary: -
From: To:

T1P1.3/93-099 Dated: 05/06/93 Registerd: 09/30/93
Source: Numbering, addressing, and routing sub-working group
Title: Report for May '93 meeting
Summary: -
From: To:

T1P1.3/93-100 Dated: 05/06/93 Registerd: 09/30/93
Source: Privacy and authentication ad hoc group
Title: Disposition of comments, T1P1 letter ballot 93-001
Summary: -
From: To:

T1P1.3/93-101 Dated: 05/06/93 Registerd: 09/30/93
Source: Privacy and authentication ad hoc group
Title: Announcement of ad hoc meeting for privacy and authentication
Summary: -
From: To:

T1P1.3/93-102 Dated: 05/06/93 Registerd: 09/30/93
Source: Service description sub-working group
Title: Proposed liaison to TR45.4 on service description activities
Summary: -
From: To:

T1P1.3/93-103 Dated: 05/06/93 Registerd: 09/30/93
Source: Service description sub-working group
Title: Proposed liaison to T1S1 on service description activities
Summary: -
From: To:

T1P1.3/93-104 Dated: 05/06/93 Registerd: 09/30/93
Source: Privacy and authentication ad hoc group
Title: Proposed liaison to TR46, T1M1, etc., on privacy and authentication
Summary: -
From: To:

T1P1.3/93-105 Dated: 05/06/93 Registerd: 09/30/93
Source: Service description sub-working group
Title: Proposed liaison to TR46, T1M1, etc. on service description activities
Summary: -
From: To:

T1P1.3/93-106 Dated: 05/06/93 Registerd: 09/30/93
Source: T1P1.3
Title: Summary report to T1P1 of May meeting
Summary: -
From: To:

T1P1.3/93-107 Dated: 06/22/93 Registerd: 09/30/93
Source: Chairman, T1P1.3
Title: Draft Agenda for July, 1993 meeting
Summary: -
From: To:

T1P1.3/93-108 Dated: 06/22/93 Registerd: 09/30/93
Source: Chairman, T1P1
Title: T1/TIAG Action Report
Summary: -
From: To:

T1P1.3/93-109 Dated: 06/22/93 Registerd: 09/30/93
Source: Secretary, T1P1.3
Title: Report of May meeting
Summary: -
From: To:

T1P1.3/93-110 Dated: 07/06/93 Registerd: 09/30/93
Source: Frank LaPorta - ATT-C
Title: Draft Recc. F.851 Service Description
Summary: -
From: To:

T1P1.3/93-111 Dated: 07/06/93 Registerd: 09/30/93
Source: Frank LaPorta - ATT-C
Title: Proposed changes to draft Recc. F.851
Summary: -
From: To:

T1P1.3/93-112 Dated: 07/06/93 Registerd: 09/30/93
Source: Frank LaPorta - ATT-C
Title: Delta document regarding F.851
Summary: -
From: To:

Dated: Registerd: 07/13/93
Source:
Title:
Summary:

From: To:

T1P1.3/93-113 Dated: 07/14/93 Registerd: 07/14/93
Source: Gail Murdock, U.S. West; Jim Longua, Ameritech
Title: International Freephone Project Proposal
Summary: -
From: To:

T1P1.3/93-114 Dated: 07/14/93 Registerd: 07/14/93
Source: Ben Levitan, ARINC
Title: Draft Recommendation E.IFS Number (Source, Study Group II)
Summary: Information copy
From: To:

T1P1.3/93-115Ro Dated: 07/16/93 Registerd: 07/16/93
Source: James Dahl, U S WEST, 303-541-6230
Title: Research into Human Factors for PCS Handsets
Summary: -
From: To:

T1P1.3/93-116 Dated: 07/16/93 Registerd: 07/16/93
Source: James Dahl, U S WEST, 303-541-6230
Title: PCS Services in F.851
Summary: Two proposed ITU contributions
From: To:

T1P1.3/93-117 Dated: 07/16/93 Registerd: 07/16/93
Source: Steve Engelman, Chairman, T1P1
Title: Results of T1AG meeting on International Freephone Service Numbering
Summary: -
From: To:

T1P1.3/93-118 Dated: 07/22/93 Registerd: 07/22/93
Source: Brad Frison, Bell Atlantic
Title: Collation of results of T1P1/LB93-03
Summary: -
From: To:

T1P1.3/93-119 Dated: 07/22/93 Registerd: 07/22/93
Source: Brad Frison, Bell Atlantic
Title: Proposed changes to draft Rec. F.851, version 9
Summary: -
From: To:

T1P1.3/93-120 Dated: 07/22/93 Registerd: 07/22/93
Source: Asok Chatterjee, Pacific Bell
Title: Formation of a Sub-working group for Definitions and Terminology under T1P1.3
Summary: -
From: To:

T1P1.3/93-121 Dated: 07/23/93 Registerd: 07/23/93
Source: John Brown - AT&T Communications
Title: Proposed text for Section 9 (Prefix Numbering Scheme) of UPT draft TR
Summary: -
From: To:

T1P1.3/93-122 Dated: 07/23/93 Registerd: 07/23/93
Source: Jose Costa, NTI, Tel.: (613) 763-7574
Title: Terminology for UPT and Mobile Networks in ITU-TS SG 13
Summary: This contribution reports on the work on terminology for UPT and mobile networks in ITU-TS Study Group 13, which included input from T1P1. It is proposed that T1P1 continuss to input to this work in ITU.
From: To:

T1P1.3/93-123 Dated: 07/23/93 Registerd: 07/23/93
Source: Rolyn Callahan, Southwestern Bell
Title: Service/System Description Standards for Personal Communication Wireless Access Systems
Summary: -
From: To:

T1P1.3/93-124 Dated: 07/23/93 Registerd: 07/23/93
Source: Rolyn Callahan, Southwestern Bell
Title: ITU Radiocommunication Sector Task Group 8/1 Liaison Report
Summary: -
From: To:

T1P1.3/93-125 Dated: 07/23/93 Registerd: 07/23/93
Source: Gayle Murdock, U S WEST, 206-346-7775
Title: Universal International Freephone Service Evaluation Criteria
Summary: Evaluation factors
From: To:

T1P1.3/93-126 Dated: 07/23/93 Registerd: 07/23/93
Source: Gayle Murdock, U S WEST, 206-346-7775
Title: Universal International Freephone Service Technical Issues to be addressed
Summary: Techn ical iesues of UIFS
From: To:

T1P1.3/93-127 Dated: 07/23/93 Registerd: 07/23/93
Source: Gayle Murdock, U S WEST, 206-346-7775
Title: Functionality of the prefix '011' in World Zone 1
Summary: Role of prefix
From: To:

T1P1.3/93-128 Dated: 07/23/93 Registerd: 07/23/93
Source: Gayle Murdock, U S WEST, 206-346-7775
Title: UIFS Contributions Submitted to SG2 Meeting in June
Summary: Contributions to TSS meeting
From: To:

T1P1.3/93-129 Dated: 07/26/93 Registerd: 11/08/93
Source: Privacy and Authentication Ad Hoc Group
Title: July Meeting Report
Summary: -
From: To:

T1P1.3/93-130 Dated: 07/23/93 Registerd: 07/23/93
Source: Gayle Murdock, U S WEST, 206-346-7775
Title: UPT/PCS E.174 Modifications
Summary: mmm
From: To:

T1P1.3/93-131 Dated: 07/23/93 Registerd: 07/23/93
Source: James Dahl, U S WEST, 303-541-6230
Title: Universal International Frsephone Service- Service Principles
Summary: ppp
From: To:

T1P1.3/93-132 Dated: 07/23/93 Registerd: 07/23/93
Source: Norman Epstein, GTE
Title: Proposed Work Plan for IFS Numbering for T1P1.3
Summary: -
From: To:

T1P1.3/93-133 Dated: 07/26/93 Registerd: 11/08/93
Source: Privacy and Authentication Ad Hoc Group
Title: Comment Resolution for T1 Letter Ballot 346
Summary: -
From: To:

T1P1.3/93-134 Dated: 07/24/93 Registerd: 07/24/9
Source: Carl Bedingfield, BellSouth
Title: Liaison from TR46 on Privacy and Authentication Experts' Meeting
Summary: -
From: To:

T1P1.3/93-135 Dated: 07/24/93 Registerd: 07/24/9
Source: Carl Bedingfield, BellSouth
Title: Privacy and Authentication experts' meeting planning status report
Summary: -
From: To:

T1P1.3/93-136 Dated: 07/26/93 Registerd: 11/08/9
Source: Service Description SWG
Title: Results of Letter Ballot T1P1/LB933-03
Summary: -
From: To:

T1P1.3/93-137 Dated: 07/26/93 Registerd: 11/08/93
Source: System/Service Objectives Ad Hoc Group
Title: July Meeting Report
Summary: -
From: To:

T1P1.3/93-138 Dated: 07/26/93 Registerd: 11/08/93
Source: Definitions Ad Hoc Group
Title: July Meeting Report
Summary: -
From: To:

T1P1.3/93-139 Dated: 07/26/93 Registerd: 11/08/93
Source: Norm Epstein - GTE
Title: Proposed TS Contribution on UPT/PCS Numbering and Addressing
Summary: -
From: To:

T1P1.3/93-140 Dated: 07/26/93 Registerd: 11/08/93
Source: Steve Engelman, Chairman T1P1
Title: t
Summary: Results of Letter Ballot T1LB344, System and Service Objectives
From: To:

T1P1.3/93-141 Dated: 07/26/93 Registerd: 11/08/93
Source: Steve Engelman, Chairman T1P1
Title: Results of Letter Ballot T1LB346, Privacy and Authentication
Summary: -
From: To:

T1P1.3/93-142 Dated: 07/26/93 Registerd: 11/08/93
Source: Steve Engelman, Chairman T1P1
Title: Liaison from Joint Technical Committee (AIR)
Summary: -
From: To:

T1P1.3/93-143 Dated: 07/26/93 Registerd: 11/08/93
Source: Asok Chatterjee, Chairman T1P1.3
Title: Liaison from T1M1.5
Summary: -
From: To:

T1P1.3/93-144 Dated: 07/26/93 Registerd: 11/08/93
Source: Numbering, Addressing, and Routing SWG
Title: July Meeting Report
Summary: -
From: To:

T1P1.3/93-145 Dated: 07/26/93 Registerd: 11/08/93
Source: Numbering, Addressing, and Routing SWG
Title: Working Document on Universal International Freephone Service Standards Project Proposal
Summary: -
From: To:

T1P1.3/93-146 Dated: 07/26/93 Registerd: 11/08/93
Source: Numbering, Addressing, and Routing SWG
Title: Proposed Study Group II Contribution on Universal International Freephone Service Numbering
Summary: -
From: To:

T1P1.3/93-147 Dated: 07/26/93 Registerd: 11/08/93
Source: Service Description SWG
Title: Draft Proposed ANSI Standard on UPT Service Description
Summary: -
From: To:

T1P1.3/93-148 Dated: 07/26/93 Registerd: 11/08/93
Source: Service Description SWG
Title: Working Document for Future UPT Services
Summary: -
From: To:

T1P1.3/93-149 Dated: 07/26/93 Registerd: 11/08/93
Source: Service Description SWG
Title: July Meeting Report
Summary: -
From: To:

T1P1.3/93-150 Dated: 07/26/93 Registerd: 11/08/93
Source: Service Description SWG
Title: Resolution of Comments, T1P1LB93-03
Summary: -
From: To:

T1P1.3/93-151 Datad: 07/26/93 Registerd: 11/08/93
Source: Service Description SWG
Title: Draft Proposed Standard on System/Service Requirements for PCS Wireless Access Systems
Summary: -
From: To:

T1P1.3/93-152 Dated: 07/26/93 Registerd: 11/08/93
Source: Service Description SWG
Title: Draft Proposed Standard on System/Service Framework for PCS Wireless Access Systems
Summary: -
From: To:

T1P1.3/93-153 Dated: 07/26/93 Registerd: 11/08/93
Source: Service Description SWG
Title: Proposed Liaison to TR32 on Human Factors
Summary: -
From: To:

T1P1.3/93-154 Dated: 07/26/93 Registerd: 11/08/93
Source: Privacy and Authentication Ad Hoc Group
Title: Proposed JEM Meeting Announcement
Summary: -
From: To:

T1P1.3/93-155 Dated: 07/26/93 Registerd: 11/08/93
Source: Secretary, T1P1.3
Title: Summary Report to T1P1 of July T1P1.3 Meeting
Summary: -
From: To:

T1P1.3/93-156 Dated: 09/30/93 Registerd: 09/30/93
Source: Carl Bedingfield, Secretary, T1P1.3
Title: Report of July Meeting, T1P1.3
Summary: -
From: To:

T1P1.3/93-157 Dated: 09/30/93 Registerd: 09/30/93
Source: Marian Hosmer, AT&T
Title: Tutorial on IFS/ILB
Summary: -
From: To:

T1P1.3/93-158 Dated: 09/30/93 Registerd: 09/30/93
Source: Marian Hosmer, AT&T
Title: Tutorial on Universal IFS
Summary: -
From: To:

T1P1.3/93-159 Dated: 09/30/93 Registerd: 09/30/93
Source: Lee Van Der Bokke, Bellcore
Title: NA&R TR Acronym List (Annex D)
Summary: -
From: To:

T1P1.3/93-160 Dated: 09/30/93 Registerd: 09/30/93
Source: Asok Chatterjee, Chairman T1P1.3 - Pacific Bell
Title: Proposed Agenda for Nov, 93 T1P1.3 Meeting
Summary: -
From: To:

T1P1.3/93-161 Dated: 10/05/93 Registerd: 10/05/93
Source: Jim Lord, Sprint, 913-624-3158
Title: NA&R SWG Interim Meeting Minutes
Summary: Meeting Minutes
From: To:

T1P1.3/93-162 Dated: 10/15/93 Registerd: 10/15/93
Source: Mel Woinsky and Chris Wallace (NTI) Tel (201) 292-5726
Title: PCS T1P1/T1S1 Work Allocation
Summary: This contribution proposes a work allocation between T1S1 and T1P1 for low power wireless access standards supporting PCS.
From: To:

T1P1.3/93-163 Dated: 10/19/93 Registerd: 10/19/93
Source: vChairman, T1S1
Title: Liaison from T1S1
Summary: -
From: To:

T1P1.3/93-164 Dated: 10/20/93 Registerd: 10/20/93
Source: Chairman, X3V1.9
Title: Response Liaison from X3V1.9 on Human Factors
Summary: -
From: To:

T1P1.3/93-165 Dated: 10/22/93 Registerd: 10/22/93
Source: Lee van der Bokke - Bellcore
Title: Removal of Interworking Section, TR on UPT Numbering and Addressing
Summary: -
From: To:

T1P1.3/93-166 Dated: 10/22/93 Registerd: 10/22/93
Source: Lee van der Bokke
Title: UPT Portability
Summary: -
From: To:

T1P1.3/93-167 Dated: 10/22/93 Registerd: 10/22/93
Source: Lee van der Bokke
Title: Removal of Annex B, TR on UPT PCS Numbering
Summary: -
From: To:

T1P1.3/93-168 Dated: 10/22/93 Registerd: 10/22/93
Source: Lee van der Bokke
Title: InCall Routing TR Proposal
Summary: -
From: To:

T1P1.3/93-169 Dated: 10/25/93 Registerd: 10/25/93
Source: Frank LaPorta - AT&T Communications
Title: Contribution on UPT Numbering
Summary: -
From: To:

T1P1.3/93-170 Dated: 10/25/93 Registerd: 10/25/93
Source: Frank LaPorta - AT&T Communications
Title: Privacy and Authentication Contribution
Summary: -
From: To:

T1P1.3/93-171 Dated: 10/27/93 Registerd: 10/27/93
Source: Sam George - DISA
Title: Proposed ITU Contribution adding MLPP to draft Rec. F.115
Summary: -
From: To:

T1P1.3/93-172 Dated: 10/28/93 Registerd: 10/28/93
Source: Gayle Murdock - US West and Jim Longua - Ameritech
Title: Universal IFS Ottawa Contributions
Summary: -
From: To:

T1P1.3/93-173 Dated: 10/28/93 Registerd: 10/28/93
Source: Gayle Murdock - US West and Jim Longua - Ameritech
Title: UPT draft Rec E.174
Summary: -
From: To:

T1P1.3/93-174 Dated: 10/28/93 Registerd: 10/28/93
Source: Gayle Murdock - US West and Jim Longua - Ameritech
Title: UPT CCITT Rec. E.168 Section 4.3 Clarifying Text
Summary: -
From: To:

Group: T1X1

T1X1/93-000 Dated: 02/18/93 Registerd: 02/18/93
Source: T1X1 Secretary
Title: T1X1 1993 Document Register
Summary: 1993 Document Register for T1X1
From: To:

T1X1/93-001 Dated: 02/18/93 Registerd: 02/18/93
Source: T1X1 Chair
Title: Letter Requesting a T1X1 Default Letter Ballot for T1X1 LB 92-02
Summary: NA
From: To:

T1X1/93-002 Dated: 05/03/93 Registerd: 05/03/93
Source: BA
Title: Test Tdocs
Summary: test.....
From: To:

Group: T1X1.2

T1X1.2/93-000 Dated: 01/05/93 Registerd: 01/05/93
Source: Chairman T1X1.2
Title: Reserved for the T1X1.2 1993 Document register
Summary: 1993 Document Log
From: To:

T1X1.2/93-001 Dated: 01/11/93 Registerd: 01/05/93
Source: T1X1.3 Chairman
Title: Liaison from T1X1.3 to T1X1.2 on SONET synchronization modeling
Summary: Request by T1X1.3 for T1X1.2 to validate SONET DS3 island model and to complete their work on the DS1 SONET island model
From: To:

T1X1.2/93-002 Dated: 03/01/93 Registerd: 01/05/93
Source: NYNEX James Burkitt (914) 644-5075
Title: Number of DS-1 SONET Islands in the NYNEX Network
Summary: This contribution addresses the number of DS-1 SONET Islands required to support the NYNEX network during the transition to full SONET dsployment
From: To:

T1X1.2/93-003 Dated: 01/18/93 Registerd: 01/18/93
Source: Barbara Smith, Southwestern Bell Technology Resources, 314-529-7622
Title: SONET Ring Interconnection Issues
Summary: This contribution addresses technical issues and related concerns with regard to the interconnection of SONET Rings. The discussion is based on dual ring interconnection of unidirectional rings, bidirectional rings, or a combination of unidirectional and bidirectional architectures utilizing the Drop and Continue Feature.
From: To:

T1X1.2/93-004 Dated: 03/01/93 Registerd: 02/01/93
Source: Barbara Engel Smith, Southwestern Bell Technology Resources, 314-529-7622
Title: DS1 Reference Model for SONET Islands
Summary: This contribution provides Southwestern Bell's estimate of the number of SONET islands for a DS1 reference circuit.
From: To:

T1X1.2/93-005 Dated: 02/08/93 Registerd: 02/08/93
Source: Denny Smithson, Bellsouth Telecommunications, Contact is John Spencer 205-977-7657
Title: Comments on the Number of SONET Islands to Consider in the hypothetical Reference Circuit
Summary: This contribution provides BellSouths's position regarding the number of SONET islands to be contained in the hypothetical reference circuit
From: To:

T1X1.2/93-006R1 Dated: 02/08/93 Registerd: 02/08/93
Source: Joseph Sosnosky,Bellcore,908-758-5505
Title: T1 Technical Report on SONET Ring Interworking-Baseline Document
Summary: Baseline Document
From: To:

T1X1.2/93-007 Dated: 03/01/93 Registerd: 02/09/93
Source: .
Title: Withdrawn prior to distribution
Summary: .
From: To:

T1X1.2/93-008 Dated: 03/01/00 Registerd: 02/16/93
Source: Kirk Mahon, Stentor Room 490 160 Elgin Street Ottawa, Ontario K1G 3J4 Canada 613-781-7491
Title: Further Discussion on the Number of DS3 SONET Islands in Stentor's Network
Summary: This contribution is intended to further the discussuin on the IEC allocation of DS3 SONET islands as it pertains to the development of the SONET Island Hypothetical Reference Circuit. It is our intention to resolve the issue concerning the number of potential DS3 SONET Islands in Stentor's network and to support the establishment of a jitter accumulation model that will ultimately support good network jitter performances
From: To:

T1X1.2/93-009 Dated: 03/01/00 Registerd: 02/16/93
Source: Kirk Mahon Stentor Room 490 160 Elgin Street Ottawa,Ontario K1G 3J4 Canada
Title: Number of DS1 SONET Islands in Stentor's Network
Summary: This contribution presents information on the number of DS1 SONET islands in the Stentor network and is intended to support the establishment of a SONET Island Hypothetical Reference Circuti theat will ultimately support good network jitter performance
From: To:

T1X1.2/93-010R1 Dated: 03/01/93 Registerd: 02/16/93
Source: Chairman T1X1.2, James Burkitt, NYNEX, 914-644-5075
Title: Agenda for T1X1.2 meeting on March 1, 1993
Summary: Agenda
From: To:

T1X1.2/93-011 Dated: 02/25/93 Registerd: 02/16/93
Source: T1S1.5 contact James Burkittt NYNEX 914-644-5075
Title: Liaison from T1S1.5 on Line FEBE on BISDN NNI
Summary: Request to add Line FEBE to SONET NNI
From: To:

T1X1.2/93-012 Dated: 02/18/93 Registerd: 02/18/93
Source: G. Scott Henderson, MCI Telecommunications, (214) 918 5220
Title: Technical Report - Synchronization Distribution Architecture and SONET
Summary: DRAFT Technical Report on changes to synchronization distribution required by SONET. Includes hybrid networks, and CCITT draft recommendations.
From: To:

T1X1.2/93-013 Dated: 03/01/93 Registerd: 02/22/93
Source: Joseph Sosncsky, Bellcore, 9087585505
Title: SWB Ring Interconnection Architecture Issues and Proposed Interim Solutions
Summary: This contribution addresses Southwestern Bell's issues and related concerns in T1X1.2/93-003. Several possible solutions are described.
From: To:

T1X1.2/93-014 Dated: 03/03/93 Registerd: 03/03/93
Source: James Burkitt NYNEX 914-644-5075 Chairman T1X1.2
Title: Report of March 1, 1993 T1X1.2 Meeting
Summary: Report of March 1, 1993 T1X1.2 Meeting
From: To:

T1X1.2/93-015 Dated: 03/03/93 Registerd: 03/03/93
Source: James Burkitt NYNEX 914-644-5075 Chairman T1X1.2
Title: Liaison to T1X1.3 on SONET Islands
Summary: Reports the Number of DS1 and DS3 SONET Islands for T1X1.3 to use for jitter analysis
From: To:

T1X1.2/93-016 Dated: 03/03/93 Registerd: 03/03/93
Source: James Burkitt NYNEX 914-644-5075 Chairman T1X1.2

Title: Liaison to T1X1.5 on Line FEBE
Summary: Requests T1X1.5 to add Line FEBE to SONET overhead for all interfaces
From: To:

T1X1.2/93-017 Dated: 04/21/93 Registerd: 04/21/93
Source: Chairman T1X1.2, James Burkitt, NYNEX, 914-644-5075, email jimb@nynexst.com
Title: T1X1.2 Meeting Announcement fot May 1993 Meeting
Summary: Meeting Notice
From: To:

T1X1.2/93-018 Dated: 05/17/93 Registerd: 04/29/93
Source: Bellcore, Sabit Say 908-758-5477, Room NVC 2X259, 331 Newman Springs Read, Red Bank NJ 07701, ssay@cc.bellcore.com
Title: Section Trace function on C1 Byte
Summary: This contribution points to the difference in the definition of the C1 byte of the transport overhead in SONET and SDH: in particular to the recent provisional agreements in CCITT to use this byte for a section trace function. T1X1 should consider the implications of this change and generate a response to SG15 by the next meeting.
From: To:

T1X1.2/93-019 Dated: 05/17/93 Registerd: 04/29/93
Source: Author: S. Vedula, Contact Benson Wang, AT&T Communications, Room 5A210, 900 Route 202.206 North, Bedminster, NJ 07921
Title: Proposal to include a scenario in the SONET Ring Interworkin -Baseline Document
Summary: This contribution proposed to include a specific interconnection scenario in the SONET Ring Interworking - Baseline Document. The scenario is the interconnection of the SONET ring of one carrier (Carrier 1) with the SONET node of another carrier (Carrier 2) over a 'ring interconnection interface'.
From: To:

T1X1.2/93-020 Dated: 05/17/93 Registerd: 04/29/93
Source: Author: Graham Copley and John Gruber. Contact: Arun Arunachalam, PO Box 13478, Research Triangle Park, NC 27709 tel 919-991-8039
Title: Comments on the Technical Report on SONET-SDH Interworking
Summary: This contribution comments on the Technical Report on SONET-SDH Interworking. tho comments are intended to enhance clarity, provide updating information and provide expansion where it is thoughvt to be beneficial
From: To:

T1X1.2/93-021 Dated: 05/17/93 Registerd: 04/29/93
Source: James Burkitt, NYNEX, Room 387F, 120 Bloomingdale Road, White Plains NY 10605, 914-644-5075, jimb@nynexst.com
Title: SONET Interface below STS-1
Summary: This contribution discusses SONET interfaces below the STS-1 rate. In Particular, 6 Mbit/s interface advantages are covered
From: To:

T1X1.2/93-023R1 Dated: 05/04/93 Registerd: 05/04/93
Source: Chairman T1X1.2, James Burkitt 914-644-5075, jimb@nynexst.com
Title: Agenda for May 17, 1993 T1X1.2 Meeting
Summary: Agenda
From: To:

T1X1.2/93-024R1 Dated: 05/04/93 Registerd: 05/04/93
Source: Editor - Kusuma Rao, AT&T, Room 2G-421, Crawford Corners Road, Holmdel, NJ
Title: Draft Proposed Technical Report on The Comparison of SONET/SDH Revision of T1X1.2/92-017R1
Summary: SONET and SDH are compatible, but not identical, digital hierarchies. Both define similar sets of overheads and functions, however, there are differences in the usage of the two overhead structures. The purpose of this technical report is to identify the areas where SONET and SDH differ.
From: To:

T1X1.2/93-025 Dated: 05/04/93 Registerd: 05/04/93
Source: Malcolm Betts, Northern Telecom, 705 Westech Drive, Norcross GA 30092, 404-246-2548
Title: Policy for the acceptance of contributions to T1X1 meetings
Summary: This contribution proposes that T1X1 adopt a policy on the acceptance and disposition of contributions. The intent of this policy is to improve the efficiency of the standards development process in T1X1 by ensuring that technical contributions are distributed before the start of the meeting.
From: To:

T1X1.2/93-026 Dated: 05/17/93 Registerd: 06/27/93
Source: Bellcore - L.H. Castellon Room 2Z273 331 Newman Springs Road Red Bank NJ 908-758-5507
Title: Proposal for a VT Group Interface at 6.912 Mb/s
Summary: This contribution proposes development of a new interface signal at 6.912 Mb/s.
From: To:

T1X1.2/93-027 Dated: 05/17/93 Registerd: 06/27/93
Source: Southwest Bell Barbara Smith
Title: Need for VT-1.5 Interface
Summary: Explains SWB's requirement for a VT1.5 interface
From: To:

T1X1.2/93-028 Dated: 05/18/93 Registerd: 06/27/93
Source: Sab Say - Bellcore
Title: Report of the May 1993 T1X1.2 Meeting
Summary: Report of the May 1993 T1X1.2 Meeting
From: To:

T1X1.2/93-029 Dated: 05/17/93 Registerd: 06/27/93
Source: James Burkitt Chairman T1X1.2
Title: Liaison from T1X1.2 to T1X1.3 on SONET DS1 NRC
Summary: This liaison confirms that the information in T1X1.2/93-015 in no longer tentative and has been approved by T1X1.2
From: To:

T1X1.2/93-030 Dated: 05/17/93 Registerd: 06/27/93
Source: James Burkitt Chairman T1X1.2
Title: Liaison from T1X1.2 to T1X1.5 on Line FEBE
Summary: Informs T1X1.5 that T1X1.2 believes that Line FEBE is a required function for NNI's
From: To:

T1X1.2/93-031 Dated: 05/17/93 Registerd: 06/27/93
Source: James Burkitt Chairman T1X1.2
Title: Liaison from T1X1.2 to T1X1.5 on Section Trace
Summary: This liaison decribes several reasons for providing Section trace
From: To:

T1X1.2/93-032 Dated: 06/27/93 Registerd: 06/27/93
Source: Andrew Nunn, BT, Room 2-02,PH1, Bibb Way, Ipswich 1P1 2EQ, UK +44 473 227139
Title: Provision of the section trace function using the C1 byte
Summary: This contribution provides the rationale for the provision of the section trace function and proposes that the section trace function, as provisionall agreed by CCITT SG XVIII, should be adopted by T1X1.
From: To:

T1X1.2/93-034 Dated: 07/03/93 Registerd: 07/03/93
Source: James Burkitt Chairman T1X1.2
Title: Meeting Notice for August 2, 1993 T1X1.2 meeting
Summary: Meeting Notice
From: To:

T1X1.2/93-035 Dated: 07/03/93 Registerd: 07/03/93
Source: James Burkitt Chairman T1X1.2
Title: Agenda for August 2, 1993 T1X1.2 Meeting
Summary: Agenda
From: To:

T1X1.2/93-036 Dated: 08/02/93 Registerd: 07/16/93
Source: Malcolm Betts, Northern Telecom, (404) 246-2548
Title: System Requirements for OC-192
Summary: Requests input to identify and prioritize the requirements for transmission systems operation at rates above OC-48
From: To:

T1X1.2/93-037 Dated: 07/16/93 Registerd: 07/16/93
Source: Fujitsu Network Transmission System Jonathan Morgan 2801 Telcom Parkway, Richardson Tx 75082 214-918-8981
Title: Functional Needs of VT-Group Interface
Summary: Proves Functional requirements for a VT-group Interface
From: To:

T1X1.2/93-038 Dated: 07/16/93 Registerd: 07/16/93
Source: Luis Castellon, Bellcore, (908) 758-5507
Title: Guidelines and Approaches for a VT Group Interface
Summary: This contribution addresses the features of a VT Group interface listed by T1X1.5 at the May meeting and discusses possible approaches.
From: To:

T1X1.2/93-039 Dated: 07/19/93 Registerd: 07/19/93
Source: Stentor, Steve Corkovick, 613-781-9129
Title: Comments on Technical Report comparing SONET and SDH
Summary: Comments on Draft Technical Report
From: To:

T1X1.2/93-040 Dated: 07/23/93 Registerd: 07/23/93
Source: Ameritech - Corey Parollina, 614-223-8130
Title: Sub STS-1 Interfaces
Summary: Discusses functions required for Sub STS-1 interfaces
From: To:

T1X1.2/93-041 Dated: 07/23/93 Registerd: 07/23/93
Source: Bob Cubbage, Alcatel, 214-996-2182
Title: Applications for Newly Defined Section Trace Functions
Summary: At the January 1993 ITU-TS meeting of SGXVIII, it was provisionally agreed to allocate the C1 byte for the use of the Section Trace function. T1X1 is also discussing a similar usage of the C1 byte in SONET standards. This contribution shows the network applications where section trace will be beneficial, and makes recommendations on the structure of the section trace message that will satisfy the network applications.
From: To:

T1X1.2/93-042 Dated: 07/23/93 Registerd: 07/23/93
Source: Robert Cubbage, Alcatel, 214-996-2182
Title: Possible Solutions to VT/STS Ring Interworking Issue
Summary: This contribution proposes some possible solutions to issues raised in T1X1.2/93-003.
From: To:

T1X1.2/93-043 Dated: 07/28/93 Registerd: 07/28/93
Source: Neville Golding IBM 919-254-4130
Title: Terminology
Summary: Requests that T1X1.2 define such terms as NNI and UNI as there is confusion in the industry
From: To:

T1X1.2/93-044 Dated: 07/28/93 Registerd: 07/28/93
Source: Chairman T1X1.2 James Burkitt 914-644-5075
Title: T1X1.2 and .5 Interrelationships
Summary: This contribution discusses the role on T1X1.2 and .5 and asks how work should proceed
From: To:

T1X1.2/93-045 Dated: 08/02/93 Registerd: 07/28/93
Source: Chairman T1X1.2 James Burkitt 914-64-5075
Title: Liaison to T1X1.3 on SONET HRC
Summary: Recommends that T1X1.3 be careful when using the SONET HRC's for uses that wure not intended when they were developed
From: To:

T1X1.2/93-046 Dated: 08/12/93 Registerd: 08/12/93
Source: Bellcore Joseph Sosnosky 908-758-5505 js2@cc.bellcore.com
Title: Need for a Payload Failure Indication in SONET Ring Interworking
Summary: This contribution discusses a possible SONET solution to dual office interconnects between access and interoffice ring networks using a intervening NE for grooming of traffic between rings. It is a follow-up to Bellcore's contribution T1X1.2/93-013 that addressed the problem presented by SWB T1X1.2/93-003. The proposed solution involves defining a code i STS path overhead that a path protection switch element can interpret as a trigger for switching STS level signals. A payload failure indication would indicate taht all or part of the payload being carried in the STS level signal has failed
From: To:

T1X1.2/93-047 Dated: 08/12/93 Registerd: 08/12/93
Source: Bellcore Luis Castellon
Title: Comments on the Technical Report "Comparison of SONET and SDH"
Summary: Comments on the Technical Report "Comparison of SONET and SDH"
From: To:

T1X1.2/93-048 Dated: 08/12/93 Registerd: 08/12/93
Source: Sabit Say Vice Chairman
Title: Report of the August 1993 T1X1.2 Meeting
Summary: Report of the August 1993 T1X1.2 Meeting
From: To:

T1X1.2/93-049 Dated: 08/12/93 Registerd: 08/12/93
Source: Chairman T1X1.2 James burkitt 914-644-5075
Title: Liaison to T1X1.5 on SONET Section Trace
Summary: SONET Section Trace needs are discussed
From: To:

T1X1.2/93-050 Dated: 08/12/93 Registerd: 08/12/93
Source: James Burkitt Chairman T1X1.2 914-644-5075
Title: Liaison to T1X1.5 on Functional Requirements for a Sub STS-1 Interface
Summary: Functional Requirements for a Sub STS-1 interfaces
From: To:

T1X1.2/93-051 Dated: 09/20/93 Registerd: 09/20/93
Source: Chairman T1X1.2
Title: T1X1.2 October 1993 Meeting Announcement
Summary: October 1993 Meeting Announcement
From: To:

T1X1.2/93-052 Dated: 09/20/93 Registerd: 09/20/93
Source: T1X1.3
Title: Liaison from T1X1.3 requesting T1X1.2 to work on a DS1 SONET NRC of 500 miles
Summary: Liaison from T1X1.3 requestion T1X1.2 to work on a DS1 SONET NRC

fo 500 miles
From: To:

T1X1.2/93-053 Dated: 09/20/93 Registerd: 09/20/93
Source: T1E1.4
Title: Liaison to T1X1.2 and T1X1.5 from T1E1.4 on Transport of SONET virtual tributary rates over ADSL
Summary: Liasion from T1E1.4 about ADSL and SONET VT interfaces
From: To:

T1X1.2/93-054R Dated: 09/28/93 Registerd: 09/28/93
Source: joseph sosnosky Bellcore 9087585505
Title: Recommended Solutions to SONET VT/STS Ring Interworking Issues
Summary: This contribution presents the solutions that are recommended to be standardized to solve the problems highlighted in T1X1.2/93-003
From: To:

T1X1.2/93-055 Dated: 10/01/93 Registerd: 10/01/93
Source: Barbara Engel Smith, Southwestern Bell Technology Resources, 314-529-7622
Title: Southwestern Bell Comments on Ring Interworking Solutions
Summary: This contributions provides Southwestern Bell's comments on Ring Interworking Solutions proposed to date.
From: To:

T1X1.2/93-056 Dated: 10/07/93 Registerd: 10/06/93
Source: Jonathan A. Morgan Fujitsu Network Transmission System, Inc. (214) 918-8981
Title: Sub STS-1 Interface Standard Working Document
Summary: This contribution is presented to T1X1.2 and T1X1.5 as the working document for the Sub STS-1 standard. This contribution seeks to pull together ideas and text from previous contributions and previous meetings to document agreements, open issuss, and requirement for the standardization of sub STS-1 interfaces.
From: To:

T1X1.2/93-057 Dated: 10/01/93 Registerd: 10/06/93
Source: Jonathan A. Morgan Fujitsu Network Transmission System, Inc. (214) 918-8981
Title: Need for a DCC in a Virtual Tributary Group Interface
Summary: This contribution addresses the need for a Data Communication Channel (DCC) in a Virtual Tributary Group interface and format. This contribution discusses why Fujitsu feels that a DCC ie needed and describes some specific implemenatation issues concerning the DCC.
From: To:

T1X1.2/93-058 Dated: 10/04/93 Registerd: 10/06/93
Source: Steven Gorshe NEC America steveg@tdd.hbo.nec.com
Title: Recommendation to Use OC-1 Interfaces for applications requireing a LAPD Data Link, and not including a Data Link in Sub-STS-1 Interfaces
Summary: NEC is concerned about the introduction of a new LAPD data link into sub-STS1 interfaces. The standard OC-1 signal is recommended for applications requiring the complexity of a data link. The need for this data link in sub-STS-1 signals has not been demonstrated, and the complexity of providing it appears to be prohibitive.
From: To:

T1X1.2/93-059 Dated: 10/07/93 Registerd: 10/07/93
Source: James Burkitt NYNEX (914) 644-5075
Title: Proposed 500 Mile SONET DS1 HRC
Summary: This contribution addresses values for a 500 mile SONET DS1 HRC in reply to a request by T1X1.3
From: To:

T1X1.2/93-060 Dated: 10/07/93 Registerd: 10/08/93
Source: MCI G.Scott Henderson (214) 918-5220
Title: VT1.5 Electrical Interface Requirements
Summary: This contribution discusses the general need and functions of an intra-facility VT1.5 electrical interface
From: To:

T1X1.2/93-061 Dated: 10/25/93 Registerd: 10/08/93
Source: Stephen Corkovic, Brian Kent Stentor Resource Centre INC. (306) 777-2728
Title: Drop and Continue Methods for Ring Interworking
Summary: This contribution examins lternatives for Drop and Continue use for Dual Ring Interworking from a Ring capacity perspective. It advocates taht protectin bandwidth use be accepted as a valid approach for "Same Side" circuits
From: To:

T1X1.2/93-062 Dated: 10/22/93 Registerd: 10/08/93
Source: Editor of Technical Report
Title: SONET-SDH Technical Report combined T1X1 and T1 letter ballot comments
Summary: Combines all comments into one document
From: To:

T1X1.2/93-063 Dated: 10/22/93 Registerd: 10/08/93
Source: T1S1.5
Title: Liaison from T1S1.5 to T1X1.2 on the definition for "Network Node"
Summary: Gives a tentative definition for the term "Network Node"
From: To:

T1X1.2/93-064 Dated: 10/22/93 Registerd: 10/22/93
Source: James Burkitt Chairman of T1X1.2 914-644-5075
Title: Agenda for the October 1993 meeting of T1X1.2
Summary: Agenda
From: To:

Group: T1X1.5

T1X1.5/93-000 Dated: 03/04/93 Registerd: 02/01/93
Source: Andy Turudic, Southwestern Bell Technology Resources, 314-529-7708
Title: Proposed Standard for an Electrical VT1.5 Interface
Summary: This contribution provides an Electrical VT1.5 Interface proposal to allow SONET Ring Interconnection and physical grooming in the Central Office at VT1.5 rates.
From: To:

Approved American National Standards of Committee T1
As of January 11, 1994
(P) - Published by ANSI

* Synchronization Interface Standards for Digital Networks (ANSI T1.101-1987) (P)

* Digital Hierarchy - Electrical Interfaces (ANSI T1.102-1993) (P)

* Digital Hierarchy - Synchronous DS3 Format Specifications (ANSI T1.103-1987) (P)

* Supplement ANSI T1.103a-1990 (P)

* Exchange-Interexchange Carrier Interfaces-Individual Channel Signaling Protocols (ANSI T1.104-1991) (P)

* Digital Hierarchy-Optical Interface Rates and Formats Specifications (ANSI T1.105-1991) (P)

* Supplement ANSI T1.105a-1991 (P)

* Digital Hierarchy-Optical Interface Specifications: Single-Mode (ANSI T1.106-1988) (P)

* Digital Hierarchy - Formats Specifications (ANSI T1.107-1988) (P)

* Supplement ANSI T1.107a-1990 (P)

* Supplement ANSI T1.107b-1991 (P)

* Exchange-Interexchange Carrier Interfaces - 950+XXXX Access Signaling Protocols (ANSI T1.109-1990) (P)

* Signaling System No. 7, General Information (ANSI T1.110-1992) (P)

* Signaling System No. 7, Message Transfer Part (ANSI T1.111-1992) (P)

* Signaling System No. 7, Signaling Connection Control Part (ANSI T1.112-1992) (P)

* Signaling System No. 7, ISDN User Part (ANSI T1.113-1992) (P)

* Supplement ANSI T1.113a-1993, ISUP Procedures for NxDSO Multi-rate Connection Type (P)

* Signalling System No. 7 (SS7) - Transaction Capability Application Part (TCAP) (ANSI T1.114-1992) (P)

* Monitoring and Measurements for Signaling System No. 7 Networks (ANSI T1.115-1990) (P)

* Signaling System No. 7 Operations, Maintenance and Administrative Part (ANSI T1.116-1990) (P)

* Digital Hierarchy Optical Interface Specifications (Short Reach) (ANSI T1.117-1991) (P)

* SS7 - Intermediate Signaling Network Identification (ISNI) (ANSI T1.118-1992) (P)

* Information Interchange-Structure for the Identification of Location Entities for the North American Telecommunications System (ANSI T1.201-1987) (P)

* Internetwork Operations - Guidelines for Network Management of the Public Switched Networks Under Disaster Conditions (ANSI T1.202-1988) (P)

* Operation, Administration, Maintenance and Provisioning - Human-Machine Language (ANSI T1.203-1988) (P)

* OAM&P - Lower Layer Protocols for Telecommunication Management Network (TMN) Interfaces Between Operations Systems and Network Elements (ANSI T1.204-1993) (P)

* Representation of Places, States of the United States, Provinces and Territories of Canada, Countries of the World and Other Areas for the North American Telecommunications System for Information Interchange (ANSI T1.205-1988) (P)

* Digital Circuit Loopback Test Line for Digital Exchange and PBXs (ANSI T1.206-1988) (P)

* Terminating Test Line Capabilities and Access Arrangements (ANSI T1.207-1989) (P)

* OAM&P - Upper Layer Protocols for TMN Interfaces Between Operations Systems and Network Elements (ANSI T1.208-1993) (P)

* Network Tones and Announcements (ANSI T1.209-1989) (P)

* OAM&P - Principles of Functions, Architectures, and Protocol for Telecommunications Management Network (TMN) Interfaces (ANSI T1.210-1993) (P)

* Information Interchange - Representation of National Security Emergency Preparedness - Telecommunications Service Priority (ANSI T1.211-1989) (P)

* Telecommunications Credit Card Physical Characteristics and Numbering Structure (ANSI T1.212-1990) (P)

* Coded Identification of Equipment Entities of the North American Telecommunications System for the Purpose of Information Exchange (ANSI T1.213-1990) (P)

* OAM&P - A Generic Network Model for Interfaces Between Operations Systems and Network Elements (ANSI T1.214-1990) (P)
* Supplement ANSI T1.214a-1992 (P)
* OAM&P - Fault Management Messages for Interfaces between Operation Systems and Network Elements (ANSI T1.215-1990) (P)
* ISDN Management - Basic Rate Physical Layer (ANSI T1.216-1991) (P)
* ISDN Management - Primary Rate Physical Layer (ANSI T1.217-1991) (P)
* ISDN Management - Data Link and Network Layers (ANSI T1.218-1991) (P)
* ISDN Management - Overview and Principles (ANSI T1.219-1991) (P)
* Coded Representation of the North American Telecommunication Industry Manufacturers, Suppliers, and Related Service Companies (ANSI T1.220-1991) (P)
* In-Service, Nonintrusive Measurement Device (NMD) Voice Service Measurement (ANSI T1.221-1991) (P)
* Identification of Exchange Carrier Company Names and Codes for the North American Telecommunications System (ANSI T1.222-1991) (P)
* Stucture and Representation of Network Channel (NC) and Network Channel Interface (NCI) Codes for the North American Telecommunication System (ANSI T1.223-1991) (P)
* OAM&P - Protocols for Interfaces between Operations Systems in Different Jurisdictions (ANSI T1.224- 1992) (P)
* Information Interchange - Structure and Coded Representation of Interexchange Access Customers for the North American Telecommunication Systems (ANSI T1.225-1992) (P)
* OAM&P - Management of Functions for Signaling System No. 7 (SS7) Network Interconnections (ANSI T1.226-1992) (P)
* OAM&P - Extension to Generic Network Model for Interface Between Operations Systems Across Jurisdictional Boundaries (ANSI T1.227-1992) (P)
* OAM&P - Fault Management Functional Area Trouble Report Administration Services for Interfaces Between Operations Systems Across Jurisdictional Boundaries (ANSI T1.228-1992) (P)
* OAM&P - Performance Management Functional Area Services for Interfaces between Operations Systems and Network Elements (ANSI T1.229-1992) (P)
* Digital Hierarchy - Layer 1 In-Service Digital Transmission Performance Monitoring (ANSI T1.231-1993)
* OAM&P - G Interface Specification for Use with the Telecommunications Management Network (TMN)(ANSI T1.232-1993)
* OAM&P - Security Framework for Telecommunications Management Network (TMN) Interfaces (ANSI T1.233-1993)
* Digital Processing of Voice-Band Signals - Algorithm and Line Format for 32-kbit/s ADPCM (ANSI T1.301-1987) Replaced by ANSI T1.302 and T1.303
* Digital Processing of Voice-Band Signals - 32 kbit/s ADPCM Line Format Standard (ANSI T1.302-1989) (P)
* Supplement ANSI T1.302a-1992 (P)
* Digital Processing of Voice-Band Signals - Algorithm for 24, 32 and 40 kbit/s ADPCM (ANSI T1.303-1989)(P)
* Standard for Central Office Telecommunications Equipment - Ambient Temperature and Humidity Requirements (ANSI T1.304-1989) (P)
* Compatibility Characteristics of 14/11 Bit Coders/Decoders - 15 kHz Program Audio Signal (ANSI T1.305-1990) (P)
* Digital Processing of Audio Signals - Algorithm and Line Format for Transmission of 7kHz Audio Signals at 64/56 kbit/s (ANSI T1.306-1990) (P)
* Fire Resistance Criteria, Part 1- Ignitability Requirements for Equipment Assemblies, and Fire Spread Requirements for Interconnection Wire and Cable Distribution Assemblies (ANSI T1.307-1990) (P)
* Central Office Equipment - Electrostatic Discharge Requirements (ANSI T1.308-1990) (P)
* DCME - Interface Functional and Performance Specification (ANSI T1.309-1990) (P)
* Digital Processing of Voice-Band Signals - Algorithms for 5-, 4-, 3- and 2-bit/sample Embedded ADPCM (ANSI T1.310-1991) (P)
* DC Power Systems - Telecommunications Environment Protection (ANSI T1.311-1991) (P)
* Voice Packetization - Packetized Voice Protocol (ANSI T1.312-1991) (P)
* Electrical Protection for Central Offices and Similar Type Facilities (ANSI T1.313-1991) (P)
* Digital Processing of Video Signals - Video Coder/Decoder for Audiovisual Services at 56 to 1536 kbit/s (ANSI T1.314-1991) (P)
* Electrical Protection of Telecommunications Outside Plant (ANSI T1.316-1992) (P)

* Uniform Language for Accessing Power Plants - Human-Machine Language (ANSI T1.317-1993)
* Interface Between Carriers and Customer Installations - Analog Voicegrade Switched Access Lines Using Loop-Start and Ground-Start Signaling (ANSI T1.401-1993)
* Carrier to Customer Installation, DS1 Metallic Interface Specification (ANSI T1.403-1989) (P)
* Customer Installation-to-Network - DS3 Metallic Interface Specification (ANSI T1.404-1989) (P)
* Interface Between Carriers and Customer Installations - Analog Voicegrade Switched Access Using Loop Reverse Battery Signaling (ANSI T1.405-1989) (P)
* Interface Between Carriers and Customer Installations - Analog Voicegrade Special Access Lines Using Customer Installation Provided Loop-Start Supervision (ANSI T1.407-1990) (P)
* ISDN Primary Rate - Customer Installation Metallic Interfaces, Layer 1 Specification (ANSI T1.408-1990) (P)
* Interface Between Carriers and Customer Installations - Analog Voicegrade Special Access Lines Using E&M Signaling (ANSI T1.409-1991) (P)
* Carrier to Customer Metallic Interface - Digital Data at 64 kbit/s and Subrates (ANSI T1.410-1992) (P)
* Network Performance Standards - 32 kbit/s ADPCM Tandem Encoding Limits (ANSI T1.501-1988) (P)
* System M-NTSC TV Signals - Network Interface Specifications and Performance Parameters (ANSI T1.502-1988) (P)
* Network Performance Parameters for Dedicated Digital Service - Definitions and Measurement Methods (ANSI T1.503-1989) (P)
* Performance Parameters for Packet Switched Data Communication Service (ANSI T1.504-1989) (P)
* Supplement ANSI T1.504a-1991 - Performance Measurement Methods (P)
* Supplement ANSI T1.504b-1993 - Performance Objectives (P)
* Advanced Digital Program Audio Services-Analog Interface and Performance Specifications (ANSI T1.505-1989) (P)
* Switched Exchange Access Network Transmission Specification (ANSI T1.506-1990) (P)
* Supplement ANSI T1.506a-1992 (P)
* Network Performance Parameters for Circuit Switched Digital Services - Definitions and Measurements (ANSI T1.507-1990) (P)
* Network Performance - Loss Plan for Evolving Digital Networks (ANSI T1.508-1992) (P)
* Supplement ANSI T1.508a-1993
* ISDN Basic Access Interface for Use on Metallic Loops for Application at the Network Side of NT, Layer 1 Specification (ANSI T1.601-1992) (P)
* ISDN Signaling Specification for Application at the User-Network Interface - Layer 2 Specification (ANSI T1.602-1989) (P)
* Minimal Set of Bearer Services for the ISDN Primary Rate Interface (ANSI T1.603-1990) (P)
* Minimal Set of Bearer Services for the ISDN Basic Rate Interface (ANSI T1.604-1990) (P)
* ISDN Basic Access Interface for S and T Reference Points - Layer 1 Specification (ANSI T1.605-1991) (P)
* Frame Relaying Bearer Service - Architectural Framework and Service Description (ANSI T1.606-1990) (P)
* Supplement ANSI T1.606a-1992 - Congestion Management (P)
* Supplement ANSI T1.606b-1993 - Network-to-Network Interface Requirements
* Digital Subscriber Signaling System No. 1 - Layer 3 Signaling Specification for Circuit Switched Bearer Service (ANSI T1.607-1990) (P)
* Digital Subscriber Signaling System No. 1 (DSS1) - Signaling Specification for X.25 Packet Switched Bearer Service (ANSI T1.608-1991) (P)
* Supplement ANSI T1.608a-1992 (P)
* Interworking Between the ISDN User-Network Interface Protocol and the Signaling System No. 7 ISDN User Part (ANSI T1.609-1990) (P)
* DSS1 - Generic Procedures for the Control of ISDN Supplementary Services (ANSI T1.610-1990) (P)
* Supplement ANSI T1.610a-1992 - Display Procedures (P)
* Signaling System Number 7 - Supplementary Services for non-ISDN Subscribers (ANSI T1.611-1991) (P)
* ISDN Terminal Adaptation Using Statistical Multiplexing (ANSI T1.612-1992) (P)
* Digital Subscriber Signaling System No. 1 (DSS1) ISDN Call Waiting (ANSI T1.613-1991) (P)

* Packet Mode Bearer Service Category Description (ANSI T1.614-1991) (P)
* Digital Subscriber Signaling System No. 1 (DSS1) - Layer 3 Overview (ANSI T1.615-1992) (P)
* ISDN - Call Hold Supplementary Services (ANSI T1.616-1992) (P)
* Digital Subscriber Signaling System No. 1 (DSS1) - Signaling Specification for Frame Relay Bearer Service (ANSI T1.617-1991) (P)
* Digital Subscriber Signaling System No. 1 (DSS1) - Core Aspects of Frame Protocol for Use with Frame Relay Bearer Service (ANSI T1.618-1991) (P)
* Multi-Level Precedence and Preemption (MLPP) Service, ISDN Supplementary Service Description (ANSI T1.619-1992) (P)
* ISDN - Circuit-Mode Bearer Service Category Description (ANSI T1.620-1991) (P)
* Supplement ANSI T1.620a-1992 (P)
* User-to-User Signaling - Supplementary Service Description (ANSI T1.621-1992) (P)
* Message Waiting Indicator Control and Notification Supplementary Services and Associated Switching and Signalling Specifications (ANSI T1.622-1992) (P)
* Digital Subscriber Signalling System No. 1 (DSS1) - Signalling Specification for the User Signalling Bearer Service (ANSI T1.623-1993)
* B-ISDN User-Network Interfaces Rates and Formats Specifications (ANSI T1.624-1993) (P)
* ISDN-Calling Line Identification Presentation and Restriction Supplementary Services (ANSI T1.625-1993) (P)
* Switch-Computer Applications Interface (SCAI) (ANSI T1.626-1993) (P)
* B-ISDN-ATM Layer Functionality and Specification (ANSI T1.627-1993) (P)
* Routing, Bridging and Transfer of Emergency Service Calls (ANSI T1.628-1993) (P)
* B-ISDN - ATM Adaptation Layer 3/4 Common Part Functions and Specification (ANSI T1.629-1993) (P)
* B-ISDN - ATM Adaptation Layer Constant Bit Rate Service Functionality and Specification (ANSI T1.630-1993)
* High Probability of Completion (HPC) Network Capability (ANSI T1.631-1993) (P)
* ISDN Supplementary Service Normal Call Transfer (ANSI T1.632-1993)
* Frame Relaying Bearer Service Interworking (ANSI T1.633-1993)
* Frame Relay Service Specific Convergence Sublayer (ANSI T1.634-1993)

T1 Approved Technical Reports
(P) - Published by T1

TR No. 1 June 1986 - Status of the Compatibility Standard for the Interface Between a Cellular Mobile Carrier and a Wireline Exchange Carrier (C-E Interface) (P)

TR No. 2 March 1989 - The Performance of AMI Signals Through B8ZS Optional Equipment Across Network Boundaries (P)

TR No. 3 August 1989 - Test Vectors for the 24-, 32-, and 40- kbit/s ADPCM Algorithms Specified in ANSI T1.303-1989 (P)

TR No. 4 October 1990 - Mathematical Modeling of DS1, DS1A, DS1C, DS3 and DS4NA Waveshapes (P)

TR No. 5 June 1990 - Carrier to Customer Installation Interface Connector Wiring Configuration Catalog (P)

TR No. 6 June 1990 - Slave Stratum Clock Performance Measurement Guidelines (P)

TR No. 7 February 1991 - 3 DSO Transport of ISDN Basic Access on a DS1 Facility (P)

TR No. 8 February 1991 - Jitter Measurement Methodology (P)

TR No. 9 February 1991 - Maximum Skew One-Tenth Maximum (MSTM) Model for Mode-Partition Noise (MPN) (P)

TR No. 10 July 1991 - Test Vectors for the Algorithm for 5-, 4-, 3- and 2-bit/sample Embedded ADPCM Specified in ANSI T1.310 (P)

TR No. 11 June 1991 - Switched Exchange-Access Network Traffic Availability Performance (P)

TR No. 12 September 1991 - Application Guidelines for Use of the DS1 Extended Superframe Format Data Link (P)

TR No. 13 December 1991 - A Methodology for Specifying Telecommunications Management Network Interfaces (P)

TR No. 14 April 1992 - Exchange - Interexchange Carrier Interfaces - INF Code Assignment and Administration (P)

TR No. 15 March 1992 - Private ISDN Networking (P)

TR No. 16 December 1992 - DS-3 Transport for Contribution Application of Systems M-NTSC Television Signals - Analog Interface and Performance Objectives (P)

TR No. 17 May 1993 - The Effects of SONET on Payload Output Jitter (P)

TR No. 18 June 1993 - Methodology for Establishing In-Service, Non-Intrusive Measurement Device (INMD) Test Limits (P)

TR No. 19 June 1993 - Wireless Personal Communications: Transmission Performance Guidelines for Speech and Voiceband Data (P)

TR No. 20 September 1993 - Technology-Independent, User-Oriented, Objective Assessment of Speech Transmission Quality (P)

TR No. 21 September 1993 - System and Service Objectives for Low-Power Wireless Access to Personal Communications Services (P)

TR No. 22 September 1993 - Privacy and Authentication Objectives for Wireless Access to Personal Communications (P)

TR No. 23 September 1993 - Personal Communications Terminology (P)

TR No. 24 November 1993 - Network Survivability Performance (P)

TR No. 25 November 1993 - Test Patterns for DS1 Circuits (P)

TR No. 26 November 1993 - Program Management of Standards for Personal Communications (P)

TR No. 27 November 1993 - Echo Cancelling (P)

TR No. 28 December 1993(?) - High-Bit-Rate Digital Subscriber Line (HDSL)

TR No. 29 January 1994 - Program Management of Standards for Complex Projects

TITLES

From uunet!cernvax.cern.ch!amr Tue Oct 8 02:13:33 1991
Received: by fai.fai.com; id AA16548; Tue, 8 Oct 91 02:13:28-1795
Received: from mcsun.EU.net by relay2.UU.NET with SMTP
(5.61/UUNET-internet-primary) id AA23383; Tue, 8 Oct 91 05:01:23 -0400
Received: from cernvax.cern.ch by mcsun.EU.net with SMTP;
id AA08767 (5.65a/CWI-2.115); Tue, 8 Oct 1991 10:00:58 +0100
Received: by cernvax.cern.ch (5.57/Ultrix2.0-B)
id AA00363; Tue, 8 Oct 91 09:43:18 +0100
Date: Tue, 8 Oct 91 09:43:18 +0100
From: uunet!cernvax.cern.ch!amr (anthony rutkowski)
Message-Id: <9110080843.AA00363@cernvax.cern.ch>
To: stevem@fai.fai.com
Subject: Re: Retransmission
Cc: carl@malamud.com
Status: RO

1	I	Regulatory provisions
2	I	Official service documents
3	I	Terminology
4	I	Telegram service
5	I	Phototelegraph services
6	I	Telemessage service
7	I	Telex service
8	I	Mobile telephone, telegraph, telematic and data services
9	I	Teletex service
10	I	General service framework for document communication
11	I	A general service framework for interactive modes to be used by telematic services with document transfer capabilities
12	I	Bureaufax service
13	I	Subscriber facsimile service
14	I	Facsimile store-and-forward services
15	I	Message handling services
16	I	International public directory services
17	I	Audiovisual services
18	I	Videotex service
20	I	International multi-destination telecommunication services via satellite
21	I	New services on the ISDN
22	I	Broadband services on the ISDN
23	I	Existing telematic and data transmission services on the ISDN
24	I	Suitability of new services and facilities to meet the needs of users
25	I	International Telephone Instructions and operation of telephone relations
26	I	New international telecommunication services
27	I	Customer satisfaction and efficiency when using world-wide telecommunications
28	I	Symbols, pictograms and keypad layout
29	I	Customer control procedures in the PSDN and ISDN
30	I	User indications in the PSTN and the ISDN
31	I	Human factors aspects of access to voice and non-voice terminals using public terminals
32	I	Human factors issues of new telecommunications services
33	I	Computerized directory assistance for numbers in foreign countries
34	I	International telecommunication credit card service
3	II	Network operational aspects of international telephone service
4	II	International interconnection of mobile services and the PSTN
5	II	Evolution of numbering and numbering plan interworking for ISDN era
6	II	Evolution of routing plan in the ISDN era
7	II	Non-voice aspects of networks during transition from PSTN to ISDN
8	II	Service quality of networks (PSTN/ISDN)
9	II	International network management
10	II	Traffic measurement requirements on telecommunications networks
11	II	Terms and definitions for QOS, dependability and traffic engineering
12	II	Traffic, operational and network planning objectives of common channel signalling networks
13	II	Design alternatives for telecommunication networks
14	II	Methods for forecasting international traffic
15	II	Traffic models and measurements for traffic offered to network and grade of service
16	II	Application of traffic measurements in telecommunication networks
17	II	Traffic reference models for ISDN traffic engineering
18	II	Grade of service during and after a total failure of network components or traffic peak conditions
19	II	Call oriented models for the serveability performance in networks
20	II	Serveability performance and service integrity of telecommunication services
21	II	CCITT Handbood(s) on application and implementation of Recommendations on quality of service
1	III	General principles for the lease of international private telecommunication circuits
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summary of recommendations from the International Telecommunication nion arrived recently in the telecom mail and I share it with you at his time.

PAT

From: lagran@itu.cch
Subject: ITU-T Recommendations posted on ITUDOC
Date: Tue, 25 Jan 1994 10:30 cet
Organization: International Telecommunication Union

Dear telecommunication practitionners,

Please find hereunder the current list of ITU-T Recommendations already posted on ITUDOC.

e plan to post a few hundred more during the first semester of 1994, tarting with post-Blue Book Recs but also including "dynamic" Blue ook Recommendations (e.g. X.208-X.209, I.25x series... the criterion eing that these Recs, still in force, are of interest for you and are not proposed for revision this year).

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D.3	06/16/92	2	Principles for the lease of analogue international circuits for private service
.7	01/24/92	3	Concept and implementation of "one-stop shopping" for international private leased telecommunication circuits
D.10	07/15/91	3	General tariff principles for international public data communication services
).35	01/24/92	2	General charging principles in the international public message handling services and associated applications
D.40	06/16/92	4	General tariff principles applicable to telegrams exchanged in the international public telegram service
).45	06/16/92	2	Charging and accounting principles for the international telemessage service
D.60	07/15/91	2	Guiding principles to govern the apportionment of accounting rates in intercontinental telex relations
).67	07/15/91	4	Charging and accounting in the international telex service
D.70	06/16/92	3	General tariff principles for the international public facsimile service between public bureaux (bureaufax service)
).71	06/16/92	2	General tariff principles for the public facsimile service between subscriber stations (telefax service)
D.73	06/16/92	2	General tariff and international accounting principles for interworking between the international bureaufax and telefax services
).91	03/22/91	10	Transmission in encoded form of maritime telecommunications accounting information
D.94	01/24/92	4	Charging, billing and accounting principles for international aeronautical mobile service, and international aeronautical mobile-satellite service
D.95	10/01/92	8	Charging, billing, accounting and refunds in the data messaging land/maritime mobile-satsllite service
).103	06/16/92	1	Charging in automatic service for calls terminating on a recorded announcsment stating ths reason for the call not being completed
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D.188	10/01/92	3	General charging and accounting principles applicable to an international videoconferencing service
D.192	06/16/92	2	Principles for charging and accounting of service telecommunications
D.196	06/26/92	2	Clearing of international telecommunication balances of accounts
D.197	07/05/91	3	Notification of change of address(es) for accounting and settlement purposes
D.220	03/22/91	2	Charging and accounting principles to be applied to international circuit-mode demand bearer services provided ovsr the integrated services digital network (ISDN)
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D.250	07/15/91	2	Gensral charging and accounting principles for non-voice services provided by interworking between the ISDN and existing public data networks
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D.300 R	10/01/92	10	Determination of accounting rate shares in telephone relations between countries in Europe and the Mediterranean Basin
D.306 R	07/15/91	2	Remuneration of public packet-switched data transmission networks between the countries of Europe and the Mediterranean Basin
D.307 R	07/15/91	4	Remuneration of digital systems and channels used in telecommunication relations between the countries of Europe and the Mediterranean Basin
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.252.5	08/04/92	9	Call Deflection
.254.2	08/04/92	10	Three-Party Supplementary Service
I.255.5	08/04/92	6	Outgoing call barring
I.257.1	08/04/92	16	User-to-User Signalling
.321	04/05/91	7	B-ISDN protocol reference model and its application
..328	10/01/92	4	Intelligent network - Service plane architecture
I.329	10/01/92	12	Intelligent network - Global functional plane architecture
.362	03/01/93	3	B-ISDN ATM adaptation layer (AAL) functional description
I.370	10/25/91	10	Congestion management for the ISDN frame relaying bearer service
I.464	10/25/91	1	Multiplexing, rate adaption and support of existing interfaces for restricted 64 kbit/s transfer capability
* Series K			
K.29	01/15/92	4	Coordinated protection schemes for telecommunications cables below ground
* Series L			
.12	07/31/92	7	Optical fibre joints
L.13	07/31/92	4	Sheath joints and organizers of optical fibre cables in the outside plant
.14	07/31/92	5	Measurement method to determine the tensile performance of optical fibre cables under load
** Series M			
M.10	10/05/92	10	Scope and application of Recommendations for maintenance of telecommunication networks and services
..20	10/05/92	21	Maintenance philosophy for telecommunications networks
M.21	10/05/92	5	Maintenance philosophy for telecommunication services
..75	10/05/92	2	Technical service
..85	10/05/92	2	Fault report points
M.1130	10/05/92	2	General definitions and general principles of operation/maintenance procedures to be used in satellite mobile systems
M.1300	10/05/92	9	International data transmission systems operating in the range 2.4 kbit/s to 2048 kbit/s
M.1530	10/05/92	6	Network maintenance information
M.3010	10/05/92	64	Principles for a telecommunications management network
M.3020	10/05/92	11	TMN interface specification methodology
M.3180	10/05/92	16	Catalogue of TMN management information
M.3300	10/05/92	11	TMN management facilities presented at the F interface
M.3400	10/05/92	24	TMN management functions
M.3603	10/05/92	8	Application of maintenance principles to ISDN basic rate access
M.3605	10/05/92	5	Application of maintenance principles to static multiplexed ISDN basic rate access
M.3620	10/05/92	4	Principles for the use of ISDN test calls, systems and responders
M.3660	10/05/92	5	ISDN interface management services
** Series Q			
Q.733.1	02/04/92	9	Call waiting (CW)
Q.785	09/10/91	49	ISUP protocol test specification for supplementary services
Q.922	02/04/92	109	ISDN data link layer specification for frame mode bearer services
Q.953.1	02/04/92	11	Call waiting
Q.955.1	02/04/92	21	Closed user group
Q.1202	10/01/92	4	Intelligent network - Service plane architecture
** Series T			
T.35	01/18/91	5	Procedure for the allocation of CCITT defined codes for non-standard facilities
T.50	09/18/92	20	International Reference Alphabet (IRA) (Formerly International Alphabet No. 5 or IA5) - Information technology - 7-bit coded character set for information interchange
T.80	09/18/92	11	Common components for image compression and communication - Basic principles
T.90	02/25/92	58	Characteristics and protocols for terminals for telematic services in ISDN
T.503	01/18/91	8	A document application profile for the interchange of group 4 facsimile documents
T.522	09/18/92	5	Communication application profile BT1 for document bulk transfer
T.571	09/18/92	11	Terminal characteristics for the telematic file transfer within the teletex service
** Series V			
V.32 bis	02/22/91	22	A duplex modem operating at data signalling rates of up to 14 400 bit/s for use on the general switched telephone network and on leased point-to-point 2-wire telephone-type circuits
V.42 bis	01/31/90	27	Data compression procedures for data circuit terminating equipment (DCE) using error correcting procedures
V.120	09/18/92	36	Support by an ISDN of data terminal equipment with V-Series type interfaces with provision for statistical multiplexing
** Series X			
X.5	02/10/92	8	Facsimile packet assembly/disassembly facility (FPAD) in a public data network
X.21	09/10/92	56	Interface between data terminal equipment and data circuit-terminating equipment for synchronous operation on public data networks
X.39	02/10/92	17	Procedures for the exchange of control information and user data between a facsimile packet assembly/disassembly (FPAD) facility and a packet mode data terminal equipment (DTE) or another FPAD
X.121	09/10/92	17	International numbering plan for public data networks
X.134	09/10/92	10	Portion boundaries and packet layer reference events: basis for defining packet-switched performance parameters
X.135	09/10/92	29	Speed of service (delay and throughput) performance values for public data networks when providing international packet-switched services
X.136	09/10/92	18	Accuracy and dependability performance values for public data networks when providing international packet-switched services
X.137	09/10/92	17	Availability performance values for public data networks when providing international packet-switched services
X.139	09/10/92	14	Echo, drop, generator and test DTEs for measurement of performance values in public data networks when providing international packet-switched services
X.217	09/10/92	24	Service definition for the association control service element
X.227	09/10/92	41	Connection-oriented protocol specification for the association control service element
X.237	09/10/92	12	Connectionless protocol specification for the association control service element
X.248	09/10/92	15	Reliable transfer service element - Protocol implementation conformance statement (PICS) proforma

.293	01/17/92	13	OSI conformance testing methodology and framework for protocol Recommendations for CCITT applications - Test realization
X.294	01/17/92	31	OSI conformance testing methodology and framework for protocol Recommendations for CCITT applications - Requirements on test laboratories and clients for the conformance assessment process
.400	03/01/93	80	Message handling systems: System and service overview
X.402	09/10/92	84	Message handling systems: Overall architecture
.419	09/10/92	44	Message handling systems - Protocol specifications
X.435	03/22/91	120	Message handling systems: Electronic data interchange messaging system
.480	09/10/92	10	Message handling systems and directory services - Conformance testing
.481	09/10/92	32	P2 protocol: Protocol implementation conformance statement (PICS) proforma
X.482	09/10/92	40	P1 Protocol - Protocol implementation conformance statement (PICS) proforma
.581	09/10/92	21	Directory access protocol - Protocol implementation conformance statement (PICS)
X.582	09/10/92	27	Directory system protocol - Protocol implementation conformance statement (PICS)
.613	09/10/92	11	Information technology - Use of X.25 packet layer protocol in conjunction with X.21/X.21 bis to provide the OSI connection-mode network service
X.614	09/10/92	9	Information technology - Use of X.25 packet layer protocol to provide the OSI connection-mode network service over the telephone network
.650	01/17/92	29	Open Systems Interconnection (OSI) - Reference model for naming and addressing
X.660	09/10/92	15	Information technology - Open Systems Interconnection - Procedures for the operation of OSI Registration Authorities - General procedures
.665	09/10/92	6	Information technology - Open Systems Interconnection - Procedures for the operation of OSI Registration Authorities: Application processes and application entities
.700	09/10/92	11	Management framework for Open Systems Interconnection (OSI) for CCITT applications
X.701	01/17/92	27	Information technology - Open Systems Interconnection - Systems management overview
.710	03/22/91	39	Common management information service definition for CCITT applications
X.711	03/22/91	40	Common management information protocol specification for CCITT applications
.712	09/10/92	61	Information technology - Open Systems Interconnection - Common management information protocol: Protocol implementation conformance statement proforma
.720	01/17/92	31	Information technology - Open Systems Interconnection - Structure of Management Information: Management information model
X.721	02/10/92	63	Information technology - Open Systems Interconnection - Structure of Management Information: Definition of management information
.730	01/17/92	24	Information technology - Open Systems Interconnection - Systems Management: Object management function
X.731	01/17/92	23	Information technology - Open Systems Interconnection - Systems Management: State management function
.732	01/17/92	17	Information technology - Open Systems Interconnection - Systems Management: Attributes for representing relationships
X.733	02/10/92	20	Information technology - Open Systems Interconnection - Systems Management: Alarm reporting function
.734	09/10/92	19	Information technology - Open Systems Interconnection - Systems Management: Event report management function
.735	09/10/92	20	Information technology - Open Systems Interconnection - Systems Management: Log control function
.736	01/17/92	15	Information technology - Open Systems Interconnection - Systems Management: Security alarm reporting function
.740	09/10/92	27	Information technology - Open Systems Interconnection - Systems Management: Security audit trail function
.800	03/22/91	46	Security architecture for Open Systems Interconnection for CCITT applications
.861	09/10/92	74	Open Systems Interconnection - Distributed transaction processing: service definition

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Correlation of CCITT Questions To RSO Subject Areas of High Interest and RSO Areas of Work

Qstn	Study Grp	Title	H.I. Area	ETSI Wrk	TTC Wrk	TI Wrk
1	I	Regulatory provisions				
2	I	Official service documents				
3	I	Terminology				
4	I	Telegram service				
5	I	Phototelegraph services				
6	I	Telemessage service				
7	I	Telex service				
8	I	Mobile telephone, telegraph, telematic and data services				
9	I	Teletex service				
10	I	General service framework for document communication				
11	I	A general service framework for interactive modes to be used by telematic services with document transfer capabilities				
12	I	Bureaufax service				
13	I	Subscriber facsimile service				
14	I	Facsimile store-and-forward services				
15	I	Message handling services				
16	I	International public directory services				
17	I	Audiovisual services				
18	I	Videotex service				
20	I	International multi-destination telecommunication services via satellite				
21	I	New services on the ISDN				
22	I	Broadband services on the ISDN				
23	I	Existing telematic and data transmission services on the ISDN				
24	I	Suitability of new services and facilities to meet the needs of users				
25	I	International Telephone Instructions and operation of telephone relations				
26	I	New international telecommunication services				

Qstn	Study Grp	Title	H.I. Area	ETSI Wrk	TTC Wrk	T1 Wrk
27	I	Customer satisfaction and efficiency when using world-wide telecommunications				
28	I	Symbols, pictograms and keypad layout				
29	I	Customer control procedures in the PSDN and ISDN				
30	I	User indications in the PSTN and the ISDN				
31	I	Human factors aspects of access to voice and non-voice terminals using public terminals				
32	I	Human factors issues of new telecommunications services				
33	I	Computerized directory assistance for numbers in foreign countries				
34	I	International telecommunication credit card service				
3	II	Network operational aspects of international telephone service				
4	II	International interconnection of mobile services and the PSTN				
5	II	Evolution of numbering and numbering plan interworking for ISDN era				
6	II	Evolution of routing plan in the ISDN era				
7	II	Non-voice aspects of networks during transition from PSTN to ISDN				
8	II	Service quality of networks (PSTN/ISDN)				
9	II	International network management				
10	II	Traffic measurement requirements on telecommunications networks				
11	II	Terms and definitions for QOS, dependability and traffic engineering				
12	II	Traffic, operational and network planning objectives of common channel signalling networks				
13	II	Design alternatives for telecommunication networks				
14	II	Methods for forecasting international traffic				
15	II	Traffic models and measurements for traffic offered to network and grade of service				
16	II	Application of traffic measurements in telecommunication networks				
17	II	Traffic reference models for ISDN traffic engineering				

Qstn	Study Grp	Title	H.I. Area	ETSI Wrk	TTC Wrk	TI Wrk
18	II	Grade of service during and after a total failure of network components or traffic peak conditions				
19	II	Call oriented models for the serveability performance in networks				
20	II	Serveability performance and service integrity of telecommunication services				
21	II	CCITT Handbood(s) on application and implementation of Recommendations on quality of service				
1	III	General principles for the lease of international private telecommunication circuits				
2	III	Special conditions for the lease of continental telecommunication circuits for private service				
3	III	Special conditions for the lease of intercontinental telecommunication circuits for private service				
4	III	Tariff principles for the leasing of international transmission facilities intended for the transmission of data by digital techniques				
5	III	Development of tariff principles for international telecommunication services to meet the specific requirements of certain categories of users				
6	III	General tariff principles applicable to data communication on public data networks				
7	III	Tariff principles and accounting arrangements for public data communication services on public packet-switched networks				
8	III	Tariff principles and accounting arrangements applicable to public data communication services in public circuit-switched networks				
9	III	General tariff and accounting principles for the different public data communication network interworking options				
10	III	Tariff principles in the international public telegram service				
11	III	Tariff principles in the international public telemessage service				
12	III	Tariff principles for the international telex service				
13	III	Tariff principles for international public facsimile services				
14	III	Tariff principles for the international Teletex service				
15	III	Tariff and international accounting principles to be applied to the Videotex services				

Qstn	Study Grp	Title	H.I. Area	ETSI Wrk	TTC Wrk	T1 Wrk
16	III	Charging and accounting principles in the international telephone service				
17	III	Occasional provision of circuits for international sound and television programme transmissions				
18	III	Leased international sound and television programme circuits				
19	III	General tariff principles for mobile telecommunications services				
20	III	Tariff and accounting principles for services not covered by a specific question				
21	III	Charging and accounting principles to be applied to the services offered by an integrated services digital network				
22	III	General charging and accounting principles for non-voice services provided by interworking between the ISDN and existing public data networks				
23	III	Tariff and accounting principles to be applied to permanent and reserved services within the ISDN				
24	III	General charging and accounting principles to be applied to multi-point-to-point international telecommunication services via satellite				
25	III	General charging and accounting principles to be applied to two-way multiple access international telecommunication services via satellite				
26	III	General consideration of the tariff and accounting provisions of D-Series Recommendations in light of the content of the new International Telecommunication Regulations adopted by the WATTC-88				
27	III	Cost studies for determining the basic tariff components for telecommunication services				
28	III	Cost study for determining the basic tariff components for sound- and television-programme transmissions				
29	III	Methodology to be followed for the determination of costs and the establishment of national tariffs				
30	III	Terms and definitions for the Recommendations dealing with tariff and accounting principles				
31	III	Amendments and additions to be made to Rec. C.1 relating to telecommunication statistics				
1	IV	Terminology and definitions				

Qstn	Study Grp	Title	H.I. Area	ETSI Wrk	TTC Wrk	T1 Wrk
2	IV	Use of the CCITT Man-Machine Language for maintenance				
4	IV	Maintenance of mobile telecommunications systems				
5	IV	Standardized information exchange between administrations				
6	IV	Maintenance philosophy, principles and strategy for networks and services				
7	IV	Keeping Volume IV of the CCITT Book up to date				
8	IV	Assessment of network performance and exchange of information for maintenance purposes				
9	IV	Restoration of failed international exchanges, transmission systems, path, etc.				
10	IV	Measuring instrument specifications				
11	IV	Transmission measuring equipment and associated maintenance test access lines				
12	IV	Maintenance of international sound-programme circuits				
13	IV	Maintenance of international television circuits				
14	IV	General maintenance organization				
15	IV	Maintenance of international videoconference circuits				
17	IV	Designation of international circuits, groups, blocks etc. and related information				
18	IV	Maintenance of telephone type circuits (other than leased or special circuits)				
19	IV	Maintenance of leased and special circuits with analogue presentation at the users premises				
20	IV	Maintenance aspects of data transmission systems, leased and special circuits with digital presentation at the users premises				
21	IV	Maintenance of ISDNs				
23	IV	Telecommunication Management Networks (TMNs) and their relationship to associated network elements				
1	V	Arrangement and purpose of protective components fitted at main distribution frames and other connection points				
5	V	Protection policy against over-voltages				
6	V	Coordinated protection schemes for telecommunication cables				
7	V	Characteristics and testing of protective components and assemblies				

Qstn	Study Grp	Title	H.I. Area	ETSI Wrk	TTC Wrk	T1 Wrk
8	V	Interference testing and measurement				
11	V	Disturbance to telecommunications circuits from powerline carrier systems				
13	V	Unbalance of telephone installations				
15	V	Magnitudes of harmonics in power and traction lines and methods to reduce their effects				
16	V	Levels of voltages and currents related to disturbances from power and traction installations				
17	V	Electromagnetic compatibility (EMC) of telecommunications networks and equipment				
18	V	Radiated radio frequency interference and telecommunications equipment and systems				
19	V	Conducted radio frequency interference on telecommunication equipment and systems				
20	V	Survey on provisions intended to mitigate adverse effects (danger and disturbance) of electromagnetic origin				
21	V	Test to be carried out on repeaters or regenerators to check the efficiency of protection from external interference with local or remote power feeding				
22	V	Protection of telecommunication lines and installations against lightning				
24	V	Earthing in telecommunication systems				
26	V	Directives concerning the protection of telecommunication lines against harmful effects from electric power and electrified railway lines				
1	VI	Conductive plastic materials as protective covering for metal cable sheaths				
2	VI	Fire safety of telecommunication installation				
3	VI	Application of computers and micro-processors to the construction, installation and protection of telecommunication cables				
4	VI	Coordinated protection schemes for telecommunication cables				
5	VI	Amendments and additions to the Handbook outside plant technologies for public networks				
6	VI	Copper networks for ISDN services.				

Qstn	Study Grp	Title	H.I. Area	ETSI Wrk	TTC Wrk	T1 Wrk
7	VI	Optical fibre cable installations				
8	VI	Optical fibre cable restoration				
9	VI	Optical fibre cable construction				
10	VI	Performance tests for optical fibre cables and associated hardware				
11	VI	Optical fibre cables inside buildings				
12	VI	Optical fibre cable distribution networks				
13	VI	Passive optical components				
1	VII	Standardization of the technical characteristics of user classes of service, international data transmission services and optional user facilities in PDNs and ISDNs and the categories of access for DTEs				
2	VII	Call progress signals				
3	VII	Technical characteristics of connectionless services in public networks				
4	VII	Network performance and quality of service in data communications networks				
5	VII	Testing and verification of data communication protocols				
6	VII	Further study on Recommendations for DTE-DCE interfaces for circuit switched services				
7	VII	Further study of DTE-DCE interfaces for terminals operating in the packet mode				
8	VII	Study of DTE/DCE interface procedures for dissimilar terminal interworking				
9	VII	Principles of maintenance in user-network interfaces for public data networks				
10	VII	General technical principles for interworking between public networks or between public networks and other networks for the provision of data services				
11	VII	Arrangements generic to different interworking (circuit and packet modes) between public networks or between public networks and other networks, for the provision of data services				
12	VII	Management aspects of interworking between public networks, and between public networks and other networks when involved in the provision of data services				

Qstn	Study Grp	Title	H.I. Area	ETSI Wrk	TTC Wrk	T1 Wrk
13	VII	Interworking between circuit-switched public data network (CSPDN) and Integrated Services Digital Network (ISDN)				
14	VII	Interworking between public data networks and the telex network				
15	VII	Arrangements for interworking between networks other than ISDNs and telex, for the provision of data services				
16	VII	Packet mode signalling between public networks providing data transmission services				
17	VII	Arrangements for CSPDNs interworking and associated inter-network signalling				
18	VII	Message handling systems				
19	VII	Framework for support of distributed applications				
20	VII	Directory systems				
21	VII	Numbering plan for public data networks				
22	VII	Routing principles for public data networks				
23	VII	Open Systems Interconnection (OSI) Architecture				
24	VII	Open Systems Interconnection (OSI) Management				
25	VII	Open Systems Interconnection (OSI) Application Layer				
26	VII	Open Systems Interconnection (OSI) Presentation and Session Layers				
27	VII	Open Systems Interconnection (OSI) Transport and Network Layers				
28	VII	Open Systems Interconnection (0SI) Data link and physical layers				
29	VII	Application of formal description techniques to X-Series recommendations				
30	VII	Support of X-Series interfaces in an ISDN and new interface aspects for data services in ISDNs				
31	VII	Requirements and arrangements for the provision of data services in ISDNs				
32	VII	Continue the preparation of definitions which arise during the study of all Questions entrusted to Study Group VII				
33	VII	Revision of recommendations				
1	VIII	Revision of Recommendations				

Qstn	Study Grp	Title	H.I. Area	ETSI Wrk	TTC Wrk	T1 Wrk
2	VIII	Definitions				
3	VIII	Study of telephone-type circuit dependent problems in facsimile transmission				
4	VIII	Group 4 facsimile apparatus				
5	VIII	Choice of modulation techniques to be used with telematic services connected to the PSTN				
6	VIII	Terminal characteristics for mixed mode and processable mode				
7	VIII	Digital phototelegraphy equipment				
8	VIII	Coding of alphanumeric characters and associated control functions for telematic services				
9	VIII	Protocols for interactive audiovisual services				
10	VIII	Terminal characteristics and standardized options for the teletex terminals				
11	VIII	Conversion				
12	VIII	Telematic interworking				
13	VIII	Development of conformance procedures to ensure the international compatibility of teletex				
14	VIII	Syntax aspects of interactive Videotex				
15	VIII	Protocol aspects of interactive Videotex				
16	VIII	Common components for image communications				
17	VIII	Terminal characteristics and protocols for telematic services on ISDN				
18	VIII	Group 3 facsimile apparatus				
19	VIII	Operational structure application profiles				
20	VIII	Imaging conversion rules interworking between different facsimile apparatus groups				
21	VIII	Development of session control procedures for telematic services				
22	VIII	Network independent basic transport protocol for telematic application				
23	VIII	Equipment characteristics and protocols for audiographic conferencing				
24	VIII	Communication application profiles				

Qstn	Study Grp	Title	H.I. Area	ETSI Wrk	TTC Wrk	T1 Wrk
25	VIII	Enhancement to the application rules to physical, data link and network layer protocols for telematic application				
26	VIII	Document application profiles for Teletex, Facsimile Group 4 and message handling services				
27	VIII	Document architecture, Transfer and Manipulation				
1	IX	Revision of recommendations				
2	IX	Mobile (satellite) service transmission standards and the interconnection of mobile (satellite) telegraph and telematic serviceswith the international telex network				
3	IX	Quality, reliability and availability of telegraph transmission				
4	IX	Transmission standards for terminal equipment using modulation rates up to 300 bauds				
7	IX	Automatic maintenance tests of telegraph circuits				
8	IX	Technical aspects of the store and forward service for telex subscribers				
9	IX	Standardization of modems for telegraph TDM system in the R-Series Recommendations				
10	IX	TDM systems for telegraphy employing a new technique of multiplexing				
11	IX	Definitions concerning telegraph networks and terminals				
12	IX	Statistical muldexes and muldexes/concentrators				
14	IX	Code and speed dependent TDM systems				
15	IX	Interworking between the telex and teletex services				
16	IX	Further standardization of signalling systems				
17	IX	Integration of the telex network with other networks that use common channel signalling, particularly ISDN				
18	IX	Use of data networks for provision of the international telex service				
19	IX	Network plans for telegraph networks				
20	IX	Interworking between telex and services provided on other networks				
21	IX	Various telex network facilities to be provided in real time				
22	IX	Unavailability of telex terminals/store and forward units/non-telex terminals				

Qstn	Study Grp	Title	H.I. Area	ETSI Wrk	TTC Wrk	T1 Wrk
23	IX	Expanded coding techniques for text transmission over the international telex networks				
24	IX	Transmission aspects of data communication networks				
25	IX	Numbering plan for telex networks				
1	X	Reorganization and extension of existing Recommendations Z.311 to Z.323				
2	X	New recommendations and maintenance of existing Recommendations to account for centralized environments				
3	X	Supplementing international standardization work to enhance the use of CCITT MML in interfacing to telecommunication networks				
4	X	Improved methodology to specify Human-Machine Interface (HMI)				
5	X	Specification of the Human-Machine Interface to support the management of telecommunication networks				
6	X	Support environments for telecommunication systems through their lifetimes				
7	X	Software quality, software testing and verification for telecommunication systems				
8	X	Maintenance of SDL				
9	X	Specification and description techniques needed for telecommunication systems				
10	X	Quality assurance, testing and verification for telecommunications specifications				
11	X	Harmonization of the use of SDL and CHILL				
12	X	Maintenance, training, compliance and promotion aspects of CHILL				
1	XI	New switching and signalling techniques				
2	XI	Signalling and OAM protocol architecture				
3	XI	Switching functions and signalling information flows for implementation of basic and supplementary services				
4	XI	Switching functions and signalling information flows for implementation of OAM functions				
5	XI	Application of the stage 2 Recommendations to the signalling protocols for services				

Qstn	Study Grp	Title	H.I. Area	ETSI Wrk	TTC Wrk	T1 Wrk
6	XI	Application of the stage 2 Recommendations to the signalling protocols for OAM				
7	XI	Updating of Q-series Recommendations				
8	XI	Structure and use of Signalling System No. 7 networks				
9	XI	Common channel Signalling System No. 7 - Signalling Connection Control Part				
10	XI	Evolution of the ISDN user part				
11	XI	Call control and bearer control protocols in Signalling System No. 7 for the full range of ISDN telecommunication services				
12	XI	Transaction capabilities				
13	XI	Signalling System No. 7 Operation, Maintenance, and Administration Part (OMAP)				
14	XI	Signalling System No. 7 protocol testing and test specification				
15	XI	Guidelines for implementing Signalling System No. 7 in national networks				
16	XI	Interworking of Signalling Systems				
17	XI	Signalling for existing and future land mobile systems				
18	XI	Interworking with mobile satellite networks				
19	XI	Signalling requirements for new transmission equipments				
20	XI	Updating and enhancements of ISDN user-network interface call control protocol				
21	XI	Updating and enhancements of ISDN user-network interface data link layer protocol				
22	XI	ISDN user-network protocol (DSS 1) conformance				
23	XI	Common channel Signalling System No. 7 - Message transfer part				
24	XI	Enhancement and extension of the Q.500-Q.544 series of Recommendations on digital exchanges				
25	XI	Protocols for remote operation of specific OAM applications				
26	XI	Definitions for switching and signalling				
1	XII	Future programme of work				
2	XII	Hands free telephony.				

Qstn	Study Grp	Title	H.I. Area	ETSI Wrk	TTC Wrk	T1 Wrk
3	XII	Definitions in the field of telephonometry and of characteristics of international connections and circuits				
4	XII	Updating of the CCITT telephonometric and transmission planning Handbooks				
5	XII	Speech synthesis/recognition systems				
6	XII	Harmonization of G.100-Series of Recommendations				
7	XII	Models for predicting transmission quality from objective measurements				
8	XII	Improvement of the methods for the determination of loudness ratings				
9	XII	Sidetone				
10	XII	Speech transmission characteristics for digital handset telephones				
11	XII	Transmission degradation introduced by interaction between voice operated devices				
12	XII	Artificial mouths and ears				
13	XII	Methods for the evaluation of non-linear distortions				
14	XII	Application for the artificial voice				
15	XII	Loudness rating, algorithm and application rules				
16	XII	Impedance strategy in the local network				
17	XII	Actual and preferred speech levels in telephone connections				
18	XII	Transmission performance of digital systems				
19	XII	Recommended values for loudness ratings				
20	XII	Wideband telephony				
21	XII	Relative level at the boundary between national systems and the international chain				
22	XII	International telephone conference				
23	XII	Coupling of hearing aids to telephone receivers				
24	XII	Integration of mobile systems into the public switched network				
25	XII	Transmission impairments in the evolving mixed analogue/digital and ISDN networks				
26	XII	Setting objectives for mixed analogue-digital circuits				

Qstn	Study Grp	Title	H.I. Area	ETSI Wrk	TTC Wrk	T1 Wrk
27	XII	Talker echo, propagation time, and stability in telephone networks, ISDN and interconnection with ISDN				
28	XII	Listener echo (receive and echo) in the public switched telephone networks				
29	XII	Transmission plan aspects of the interworking between PSTN and ISDN in the evolving network				
30	XII	Methods for evaluating the transmission performance of digital telephone sets				
1	XV	Characteristics of equipment for digital transmission of sound programme signals				
2	XV	Characteristics of equipment for digital transmission of television signals				
3	XV	Visual telephone systems including videoconferencing and videophone				
4	XV	Harmonization of audiovisual systems				
5	XV	Characteristics of direct transmission restoration systems of the 1+1 and N+M type (link protection switching)				
6	XV	Characteristics of automatic rerouting systems for the restoration of transmission links (network protection switching)				
7	XV	Characteristics of network echo control equipment				
8	XV	Characteristics of acoustic echo control equipment				
9	XV	Operations, Administration and Maintenance (OAM) interfaces for transmission equipment intended for connection to a Telecommunication Management Network (TMN)				
10	XV	Characteristics of Digital Circuit Multiplication Equipment (DCME) and Systems (DCMS)				
11	XV	Characteristics and test methods for single-mode optical fibre cables				
12	XV	Characteristics and test methods for multi-mode optical fibre cables				
13	XV	Characteristics for submarine optical fibre cables and systems				
14	XV	Characteristics of optical cables for local networks				
15	XV	Characteristics of line systems on optical fibre cables				
16	XV	Characteristics of digital line systems for use in local networks, including narrow-band and broadband ISDN access				

Qstn	Study Grp	Title	H.I. Area	ETSI Wrk	TTC Wrk	T1 Wrk
17	XV	Characteristics of coding (e.g. PCM, ADPCM) and digital multiplexing equipment for use in local networks, including narrow-band and broadband ISDN access				
18	XV	Availability and reliability of line systems on optical fibres				
19	XV	Characteristics of digital multiplexing equipment for the new synchronous hierarchy				
20	XV	Characteristics of digital cross-connect equipment				
21	XV	16 kbit/s speech signal encoding and extension to other bandwidths and bit rates				
22	XV	Encoding of stored digitized voice signals				
23	XV	Encoding of speech signals into bit rates of less than 16 kbit/s				
24	XV	Speech packetization systems				
25	XV	Characteristics of monitoring points on digital transmission equipments and systems				
26	XV	Harmonization and update of the texts in Recommendations in Vol. III of the Blue Book insofar as they relate to transmission equipment metallic cables and systems				
27	XV	Terminology for transmission equipment, media and systems				
28	XV	Characteristics of new multiplexing equipment for the digital hierarchy as given in G.702				
29	XV	Characteristics of digital systems on optical fibre cables for the synchronous hierarchy				
30	XV	Performance characteristics of PCM and ADPCM channels at voice frequencies				
31	XV	Guide for the application of new technologies in local networks				
32	XV	Enhancement and extension of the Q.550-Series of Recommendations on the transmission performance of digital exchanges				
1	XVII	Supplement to the vocabulary for data transmissions				
2	XVII	Measurement on telephone-type circuits used for data transmission systems between subscribers				
3	XVII	Modems for transmission of data and other digital signals on the General Switched Telephone Network (GSTN) and on two-wire telephone-type leased circuits				

Qstn	Study Grp	Title	H.I. Area	ETSI Wrk	TTC Wrk	T1 Wrk
4	XVII	Modems for the transmission of data and other digital signals on four-wire telephone-type leased circuits				
5	XVII	Error control in modems				
6	XVII	Characteristics of a device used to interface a DTE to digital channels other than ISDN				
8	XVII	Measuring criteria for telephone-type circuits appropriate to their use for transmission of data signals				
9	XVII	Network management				
11	XVII	Support of DTEs (TE2) with V-series type interfaces on an ISDN, and interworking of DTEs with modems on PSTNs with TE2s and TE1s on ISDNs				
12	XVII	Comparative tests of data communication equipments for use over telephone-type circuits				
13	XVII	Interchange circuits				
14	XVII	Refinement and extension of Recommendation V.25bis functions and protocols				
15	XVII	Data transmission over intercontinental switched telephone connections				
18	XVII	Revision of the existing Series-V Recommendations				
22	XVII	Digital performance of data transmission services using V-series modems over the telephone network				
23	XVII	General data communication interface				
1	XVIII	General aspects of ISDN				
2	XVIII	Asynchronous transfer mode (ATM)				
3	XVIII	Network aspects of synchronous digital hierarchies				
4	XVIII	Network application of Synchronous Digital Hierarchy with reference to the Network Node Interface (NNI)				
5	XVIII	General aspects of quality of service and network performance in digital networks including ISDNs				
6	XVIII	Network performance objectives for ISDN circuit mode information transfer				
7	XVIII	Performance objectives for timing and controlled slips (synchronization), filter, wander and propagation delay				
8	XVIII	Network performance objectives for ISDN connection, processing and packet mode information transfer				

Qstn	Study Grp	Title	H.I. Area	ETSI Wrk	TTC Wrk	T1 Wrk
9	XVIII	Performance objectives for ISDN availability				
10	XVIII	Impact of signal processing on ISDN				
11	XVIII	Internetworking of ISDNs with other networks, including compatibility checking and terminal selection				
12	XVIII	Interworking between networks using different digital hierarchies -Layer 1 functionality				
13	XVIII	Network capabilities for the support of broadband services in ISDNs				
14	XVIII	ISDN network capabilities for the support of additional and/or new services				
15	XVIII	ISDN packet mode bearer services - services and user-network interface aspects				
16	XVIII	ISDN architecture and functional principles, characterisation methods and reference configurations (including user/network interfaces)				
17	XVIII	ISDN protocol reference model				
18	XVIII	ISDN connection types				
19	XVIII	Network capabilities for the integration of mobile network services into the ISDN				
20	XVIII	Layer 1 characteristics of ISDN interfaces and ISDN access				
21	XVIII	Vocabulary for ISDNs				
22	XVIII	Broadband ISDN influence on principles for video encoding				
23	XVIII	Guidelines for implementing ISDN field trials in developing countries				

APPENDIX H

Tracking System

Tracking System

The provision of services relating to standards, to SME's in order to facilitate their access to export markets warrants the development of a measurement system to help ensure that these services do facilitate access. A system of performance tracking has been developed to measure the performance of the service provider and the impacts serviced from the services provided.

The tracking system has four key components:

- what are the costs of the services offered?
- what are the specific service outputs that were provided to the user?
- who is the recipient of these outputs and are these recipients representative of a segment or a population?
- what are the impacts derived from the recipient of the services provided?

It is the intention of the tracking system that all costs are tracked, all service outputs are tracked, the listing of which users received which services is tracked on a perpetual basis. Direct, and immediate impacts derived from receipt of the services is measured on a periodic basis.

Through the utilization of the tracking systems, the costs of the services provided will be known. By knowing what services were delivered to whom it is possible to obtain information on the direct and immediate impacts of the service. These impacts can be obtained through surveys conducted by third parties or by service recipients being asked to report on the immediate results achieved as a result of obtaining the service offered.

This type of tracking system has been successfully used in a variety of other contexts especially where a range of services are offered and the results of the services produce short and long term results. By measuring the immediate results and tracking the trend line associated with these measurements, the service provider can seek to improve the performance by improving the trend lines. As the trend line is monitored so is the performance of the service provider. From time to time, an impacts survey may also be undertaken to measure the validity and the merits of the service be continued.

In terms of the establishment of the tracking system, it is critical that the organization that is providing services to a client is able to fully cost the services provided. In determining the associated costs of the provision of the service certain elements of the costs are easily definable, such as:

- cost of data acquisition
- cost of computer time
- other "out-of-pocket" costs associated with servicing a particular client

However, a key cost element in the servicing of clients with this type of service is the amount of professional time involved. The tracking of "time spent" by each professional responding to clients is central to the costing system required for this tracking system.

The second key step in the establishment of the tracking system is the documentation of all outputs being offered to clients. It is anticipated that the "service provider" will generate the following service outputs; all of which will need to be costed as discussed earlier:

- responses to initial inquiries
- definition of the type of service required
- identification of key database to be accessed
- definition of proven testing facility to be employed
- definition of the "roadmap" for the client to follow in addressing all facets of the standards process

The third critical component to the tracking system is the definition of the client who is receiving the service output being offered. This client should be tracked by name, location, telephone/fax number and the type of service output received. Further, it is assumed that this client is a part of a "primary market segment" or a secondary market segment. These segments should be defined both in terms of size and characteristics.

The fourth component to the model is the direct and immediate impacts to be accomplished upon receipt of the service output. Basically, the impact measurement component defines what the results were of the client receiving the service output and also, why did the service provider offer the service output; ie.e. what was expected by the service provider.

The last component is seeking to measure the changes in the behaviour of the client subsequent to the receipt of the service. Also the component should measure client satisfaction with the service output provided.

Another dimension to this component is that impacts may change over time and therefore immediate impacts should be tracked over time with all service recipients. For example, it is very possible that the receipt of a service output does not precipitate an immediate change in behaviour but if this client were asked whether or not behaviour changed six months after receiving the service the answer could be different. Therefore it is suggested that each client/service user be asked the same questions over an extended period of time. Also, by asking the same questions of all service users, the service provider will be able to measure the trend line behind the impact of individual clients. That is, the trend line for the various impact indicators may be one of the most useful indicators of the impacts being created through the delivery of the service.

While tracking of each service user over time is critical in determining the value of the service offered and the true results accomplished there is merit in a periodic evaluation of the results being achieved by the service. This type of evaluation involves a third party obtaining the views of service users on the services utilized, the results achieved that are attributable to the service and other information that may prove useful such as other needs that could be addressed.

APPENDIX I

Proposal for the

Telecommunications Sector Campaign

of

Industry Canada

THE STANDARDS INITATIVE

NATIONAL WIRELESS COMMUNICATIONS RESEARCH FOUNDATION

PROPOSAL FOR THE

TELECOMMUNICATIONS SECTOR CAMPAIGN

OF

INDUSTRY SCIENCE AND TECHNOLOGY CANADA

THE STANDARDS INITIATIVE

Table of Contents

I. INTRODUCTION

This is the National Wireless Communications Research Foundation (NWCRF) proposal to deliver a portion of the Industry and Science Canada Telecommunications Products Sector Campaign. The specific component of the sector campaign being addressed by this proposal is the Standards Initiative.

1. National Wireless Foundation

The NWCRF has the following mission statement:

> **NWCRF is a non-profit industry led organization whose mission is to enhance the growth, profitability and competitiveness of the Canadian telecommunications industry in world markets.**
>
> **NWCRF will deliver services directly and through alliances with other organizations, government bodies and universities on a regional and national basis.**
>
> **The telecommunications industry is defined as those companies and organizations which produce communications hardware, software and systems and those which provide services utilizing these products.**
>
> **The areas in which the NWCRF delivers services are:**
> - **people development**
> - **product development**
> - **business development**
> - **funding and consortia development**

NWCRF is currently working from a very strong base in British Columbia and is actively moving to deliver services nationally through linkages now in place with organizations as far east as Quebec.

NWCRF is actively involved with the Canadian Telecommunications Action Committee and has been actively involved with the issues raised through the CTAC mechanism.

The recent development of a new strategic plan for NWCRF, together with the CTAC involvement and the linkages made with other organizations across the country place NWCRF in an ideal position to facilitate delivery of the sector campaign for the department.

2. Sector Campaign

I&SC has recently completed a three year consultative process with all segments of the telecommunications industry. The product of this process has been a Telecommunications Sector Campaign currently in the process of securing approval and

funding by the department. The sector campaign will be implemented during the next five years.

3. Other Key Organizations Involved With Standards

The Canadian Telecommunications Action Committee (CTAC) has been the industry based body offering I&SC advice on the document and has been central to its development.

CTAC, together with I&SC will need to take steps to ensure that the campaign is implemented. I&SC officials are of the opinion that industry must lead the implementation process covering the majority of the initiatives in the campaign as I&SC possesses neither the human nor the financial resources to significantly alter the behaviour or the performance of the sector. Therefore, it is felt that industry associations can and must play a very major role in this implementation.

The I&SC Telecommunications Sector Campaign defines key initiatives required to be pursued if the industry is going to grow and be profitable. These initiatives are:

- Industry Consortia: the objective of this initiative will be to have industry take on collaborative projects and to form partnerships to facilitate the development of synergy to help ensure the projects come to fruition;

- Standards: the objectives of this initiative are improved awareness, participation, and adoption of technical standards by telecommunication equipment SME's so as to capitalize on global market opportunities;

- Management of Software Development: the objective is to increase SME awareness of the impact of software development management issues on future competitive performance and to expand the application of software productivity methodologies and tools to improve firm efficiency and conformance to reliability and quality standards;

- Intelligence Provision: the objective is to strengthen firm decision making capabilities by providing timely and accurate intelligence to telecommunications equipment SME's.

This proposal from NWCRF specifically addresses the initiative of Standards. This proposal is submitted with input from the Telecommunications Consortia of Canada (TCC) with whom NWCRF is working very closely. NWCRF has welcomed input from TCC in this proposal and in turn NWCRF is working closely with TCC on their proposal to address delivery of the Industry Consortia initiative.

4. Objectives of the Proposed Program

The sector campaign and the standards initiative have the objectives as stated earlier. The objectives of this Standards Implementation Plan will be:

- to develop a consensus on how to achieve this sectoral growth objective among key sector organizations such as NWCRF, CTAC, CITR, and TCC;
- to develop descriptions of the services required by sector participants to ensure that the above referenced sector campaign initiative are implemented down to the level of firms operating in the sector;
- to establish an "action plan" to ensure that the above described services are made available to all segments of the industry through respective industry associations; and,
- to help ensure that the I&SC Sector Campaign is effective in accomplishing its objectives.

In order to attain the above objectives a specific action plan and program design will be formulated to achieve the following sub-objective covering the key initiative addressed by this proposal:

- **Standards:** to define the groups across the country that can be linked to review the relevant issues pertaining to the dissemination, and possible formulation of standards for the primary purpose of enhancing the global competitiveness of Canadian firms. In addition, the action plan will define the specific strategies for awareness, participation and testing and certification which are three defined critical components of the Standards Initiative and the plan will define how these will be addressed. The Standards program will define specific activities to cover all participants in the sector and thereby ensure that the Canadian industry is fully cognizant of standards affecting their products, are involved in the formulation of new standards relevant to their areas and are able to comply with current and new standards through improved access to testing and certification services.

5. Scope of the Work

The scope of the work will firstly be limited to the standards initiative in the sector campaign. This proposal provides for a limited degree of planning at the commencement of the project and this will define the action plan required to deliver the initiative. The key segment of the project will involve the delivery of the program designed during the planning process and this will cover the bulk of the time and resources required for this initiative.

The plan and the associated program design will be fully operational for a three year period and will cover all issues including awareness, participation and testing and certification, with the particular emphases outlined elsewhere in this document.

II. BACKGROUND

As a result of an extensive study done by CTAC in 1991, two key goals were developed:

- Canadian equipment industry revenues to reach $20 billion by the year 2000 with this being a significant increase over the $6.4 billion in sales in 1990;
- reversal of the negative trend in the balance of trade for the sector as the 1991 balance was in a negative $33 million position.

These goals were the fundamental rational for the Department to move towards the formulation of a sector campaign. This is the type of instrument the Department has relied upon heavily in recent years to address issues of sectoral international competitiveness.

The Sector Campaign was developed through extensive consultation with a number of stakeholders within both the public and private sectors. This has led to the production of a document that contains the earlier referenced initiatives. These initiatives are basically designed to achieve sustainable improvement in the competitive position of the telecommunications product industry and the second objective is to contribute in a very positive way to the overall competitiveness of the country due to the fact that telecommunications in an "enabling" technology that can be used in a myriad of sectors.

III. PROGRAM ISSUES/METHODOLOGY

PROPOSED PROGRAMS:

1. **EXISTING STANDARDS:** See Table 1.

   The proposal from NWCRF to meet the points raised in the I&SC Sector Campaign - Standards for Improving Managerial Awareness will be addressed as a section called Existing Standards.

   #### a) Background

   The most common inquiry received from SMEs, by Wireless, is of the form *"I wish to sell my (product) to (a country's) PTT; what standards apply? How do I get a copy of them? How do I get certification?"*

(A service to support this type of inquiry from industry was defined for inclusion in Wireless' programs, during the organization's recent Strategic Review, conducted under the auspices of the Technology Outreach Program of I&SC. Analysis shows a fairly extensive effort to be required to implement such a program of support; it is hoped that the Sector Campaign be used to support the implementation and delivery of this service.)

b) Methodology and Implementation

In order to answer these basic questions, a minimum set of actions is required:

- for each significant export market (beginning with the U.S. and those embracing ITU recommendations), it is necessary to identify each of the standards agencies claiming some jurisdiction over various telecomm product types;

- to catalog the various standards documents (and their sources for procurement) and their areas of focus;

- to extract from either the documents themselves, or from available directories of these documents, sufficient keyword and other information to easily relate the characteristics of a given product to the appropriate standards;

- to tabulate the primary contacts within each market area, through whom certification inquiries should be directed.

Sources of data from which this information might be extracted will obviously include electronic data stores, such as the information services supported by the International Telecommunications Union (ITU) "Teledoc" system, and the American National Standards Institute's T1 bulletin board system, "T1BBS", both of which are currently accessible via several public and private network means. As the SCC/TSACC database becomes operational and relevant to the exporting telecomm sector, it will be a crucial element in the information source base.

The processing of this data is proposed to be done within an NWCRF system, operated by NWCRF personnel, where these services are not already provided by others. It is also assumed that the operators of these source information systems will wish to provide the appropriate summary documents, as this would assist them in the provision of their own services. Value-added services that may be provided under SCC or TSACC auspices would not be duplicated by NWCRF.

The structure and scope of exactly what database applications will be implemented by NWCRF remains open, pending further study of additional needs, development and maintenance effort, and TSACC/SCC developments.

2. EVOLVING AND NEW STANDARDS: See Table 2

The I&SC Sector Campaign - Standards section called Improved SME Participation in Standards Development will be addressed by NWCRF in this section titled Evolving and New Standards.

a) Access to Information

Once again, with a primary focus on export development, NWCRF experience with Canadian SMEs provides a strong indication of the need for information on new standards topics, and on proposed changes to existing ones, within the international community.

Recognizing that in the U.S. and other fora, standards are frequently created or altered in response to the actions of individual manufacturers, or of individual nations on behalf of their domestic industry, it is to be expected that knowledge of pending changes or developments could be of extreme strategic importance to our own exporters, current or potential.

This information is typically desired for two primary purposes:

- on an individual country (or economic bloc) basis, an evolving standard will provide an implied warning of a threat to a planned or established product, to which the company would be able to respond in some manner (see "representation");

- on a broader scale, where one or more agencies are studying a particular topic, industry will be able to use this information as a guide to their own advanced product planning; where the data are broadly based and current, an opportunity to anticipate, or even create a de facto standard could develop, but in any event, the planning process will be served.

The sources of data, at least for the two primary export market information sources (ITU and ANSI-T1, again), are available in raw form, as minutes and committee reports resident in the (currently accessible) data systems operated by these groups. The key information, of course, is that which describes which working groups are active, and what specific issues are being addressed.

The processing of the raw data, which is seen to be a major (but as yet unestimated) task, would be done by NWCRF personnel, possibly with the help of consultants who possess particular intimate knowledge of the various working groups within these organizations.

The storage and report generation from these data would be supported by the proposed in-house NWCRF database.

An obvious means of deriving, interpreting and presenting information on specific strategic information is the use of knowledgeable standards professionals, who are active in the specific fields of interest to the SME community. This service has been proposed both within the Sector Campaign documents, and for domestic activity, by TSACC.

> A current activity is underway to assess the complexity and cost of the necessary parts of this program.

b) Representation

It is a widely-held belief that Canada's SME Telecomm firms are largely unaware of the various standards activities that are unfolding around the world. An implied benefit of the "Access" program above would be a greater awareness of strategic events; some of these will undoubtedly precipitate a (company's) desire for representation or intervention within a given working group.

It follows that if the activities of these groups are not widely known, then it is probable that whatever Canadian participation in them is being undertaken, is similarly not widely known. Therefore, we may assume that Canadian (or "friendly" foreign) participants in various working groups are potential ASSETS, who may be available to provide some form of support to other Canadian firms.

> It also follows that this support could take the form of information provision, or even of actual representation on behalf of another firm.

Identification of participants in the various working groups of the key organizations is possible via (once again) existing electronic services operated by these agencies, via word-of-mouth from known participants, and in some cases, from existing government agencies.

It is here implied that the previous section's basic data describing the various working groups and their active issues is available.

The proposed NWCRF database would support the speedy retrieval of information identifying the current "hot" topics of standards-making activity, and the range of possible assets currently participating in the process.

> *A particularly important facet of representation is the inclusion of SMEs in the preparation of Canadian positions on specific issues, where Canadian government bodies are the recognized signatories or contributors to same. This recognizes, and attempts to deal with, the difficulty that DOC and other agencies have had in assessing and implementing the needs of the important SME community.*

c) Methodology and Implementation

Once a baseline amount of information on standards-making activity is accessible, along with a means to identify companies and individuals taking part in the process, it is proposed to circulate these data broadly among the SME community (preserving sensitive information, wherever necessary), to determine the areas of any interest from the community at large, in either capturing more data, or in effecting some form of representation within a working committee.

Where this interest is present, NWCRF will attempt to link the firm to a (compatible) already-active participant in the issue, or to facilitate the identification of a suitable candidate from other sources.

A specific target project being studied by Wireless would attempt to form a strategic "Wireless" team to formulate ITU recommendations on wireless and associated standards and methods, in pursuit of the massive Pacific Rim wireless infrastructures that will be used in place of wired methods.

Where indicated, the provision for assisting the company in accessing desired information, or in effecting representation (hired consultant) in a given forum, is necessary. However, it is felt that a blanket travel assistance program is not indicated at this time, but that a targeted program covering representation or other value-added services, or in some cases, travel costs, would be more effective. This contention arises in part from the need for more basic information, and the costs of providing same, in light of the limited funds available to the overall program.

Within Canada, there are definitely regional disparities in travel and manpower costs of participating in standards activities, which follow from the convenience of conducting these activities largely in Central Canada. SMEs in any locale suffer proportionally greater burdens than large firms, in attending out-of-country meetings; most firms doing $20M or more of business per year will easily justify attending strategically important meetings, with the major problem being identified as a lack of awareness of activity in these critical areas.

Special Reports, based upon either specific current standards activities, or based upon multi-agency probes of existing standards, would be prepared at a lower level by NWCRF staff, by extracting database-resident information from (NWCRF and other) data sources, and at a higher level, by consultants drawn from the community of current or retired standards professionals knowledgeable in the area of interest. It is expected that these reports will be either sector-specific, or company-specific. In the former case, they would normally be circulated to SMEs as indications of opportunities, at minimal cost to them, while the company-specific reports would normally be revenue-positive, to reflect both the value to the user, and the cost of preparation.

3. CERTIFICATION TESTING: See Table 3

The I&SC Sector Campaign - Standards section "Improve Adoption of Standards" will be addressed by NWCRF as "Certification Testing".

a) Program Description

As part of the collection of data on standards bodies required to support the above activities, an incremental task would add data on the certification processes and agencies associated with each of the standards covered.

There are widely varying processes necessary to effect certification in a given market. There is obviously a need for compliance with the product safety and suitability requirements, with the regulatory requirements, and with the performance and interworking requirements. In many cases, particularly in countries where standards remain as a non-tariff barrier to imports, there is a political obstacle to be overcome. In some countries, only government-operated agencies can effect certification, while others will allow offshore engineering reports to be used.

These parameters describe some part of the "process" necessary for certification; only in-country experience may suffice to completely describe this process. An obvious service to provide, then, is one linking prospective exporters to consultants or others who are able to assist with preparation for testing, expediting the in-country process, or in conducting the actual tests. NWCRF proposes to gradually acquire the necessary data to support this service.

A long-term goal, and probably an activity best carried out by government, is the recognition of (Canadian) domestic test labs' certification for acceptance by, at least, major export markets.

b) Methodology and Implementation

NWCRF proposes to assemble the data related to certification processes, test criteria and available resources, as they pertain to mainstream standards in major markets, within the initial phase of the "Certification Support" program. Pending evaluation of the results of this phase, the program could be extended to more countries, more agencies, and more domestic resources.

The funding proposed for this thrust should be adequate to support both the (I&SC-suggested) survey of test labs / industry needs, and the tabulation of the data outlined above.

IV. DELIVERABLES

1. Listing of Deliverables

The deliverables of the NWCRF proposal are summarized in Tables 1, 2 and 3. These Tables compare the focus given by I&SC in the Sector Campaign and clarify the differences proposed by NWCRF. The differences stem from feedback already obtained through extensive discussions held with industry members, with representatives of Government bodies and with telecommunications experts.

The proposal recognizes the importance placed on making Managers aware of Standards, but more emphasis is given to improving the access by SMEs to existing standards information. The primary issue for SMEs is not that of making managers aware of standards, rather it is to make access easier.

TABLE 1 EXISTING STANDARDS

I&SC AUGUST PROPOSAL	NWCRF PROPOSAL - EXISTING STANDARDS
#1 IMPROVE MANAGERIAL AWARENESS • Improve Awareness at Managerial Level - Roundtables - Workshops - Seminars - Production of Brochures • Consultancy Support to Companies by RETIRED Telecom EXPERTS - Use of newsletters - Use of Bulletin Boards	NWCRF proposes to support SME access to existing standards documents, in (industry-defined) primary export markets The NWCRF PROPOSAL HAS; • 12 days per year for seminars and workshops Specific formats and content to be defined after the planning phase is completed. • Dissemination of information collected to expand the awareness and to solicit input from SMEs
Budget 300k	**Proposal from NWCRF** Total $340.4K Revenue from industry $ 22.0K

TABLE 2 EVOLVING AND NEW STANDARDS

I&SC AUGUST PROPOSAL	NWCRF PROPOSAL - EVOLVING AND NEW STANDARDS
#2 IMPROVE SME PARTICIPATION IN STANDARDS DEVELOPMENT • Develop Early Understanding by SME's • Share cost of International Participation • Development of Shared Database	Exactly meets the recommendations AND provides a greater focus on the gathering and dissemination of strategically important information on evolving standards. • The NWCRF proposal places LESS emphasis on travel subsidies, except where tightly targeted • Support from Telecom experts to SME's delivering "ad hoc reports" • Standards Activity Bulletins • Topic reports
Budget 150k	**Proposal from NWCRF** Total $320.4k Revenue from Industry $135k

Table 3 CERTIFICATION TESTING

I&SC AUGUST PROPOSAL	NWCRF PROPOSAL - CERTIFICATION TESTING
#3 IMPROVE ADOPTION OF STANDARDS • Study Existing and Proposed Public and Private Testing Facilities • Some funding to support testing facilities to improve their facilities	Will provide the study as proposed by I&SC but will also provide concrete data to service users, as per the following: Deliverables • Inventory of testing facilities in North America and other jurisdictions • Inventory of consultants who are capable of assisting SME's in preparing materials for certification • Assistance in managing the Process of Certification testing • Seminars to assist SME's in knowing and learning what and how to get products certified. This will be done in co-operation with Affiliate partners • Support to existing Government Departments to expand the recognition of Canadian testing labs • Inventory of companies willing to share information on the process they successfully followed in getting products certified. • Information in the form of bulletins and How To manuals for certifying products in different jurisdictions
Budget $150k	**Proposal from NWCRF** Total $99.2k Revenue from Industry $1.5k

2. Program Phasing:

A number of basic assumptions are made, regarding program delivery:

- There have been many studies of the standards environment, and many recommendations from learned persons, regarding the items requiring action, and the form of that action. As a general rule, we are attempting to outline specific action, and delivery of services to the SME community, in preference to yet more studies.

- There are, however, many changes taking place in the global standards environment, within our own government agencies, and within the community we are attempting to serve. Therefore, in order to provide both timely service benefits, and adaptability of those benefits to reflect a changing environment, there will be evaluation and fine-tuning processes associated with most of the services outlined.

- Based upon this need for trial and consultation, and upon the phasing of funding proposed by I&SC, we plan to adopt a two-phased approach to most program activities. The first phase will provide a demonstration of the service, probably using information gathered primarily manually. This will be followed by an evaluation process, in which the objectives of each of the services will be fine-tuned to reflect industry or other comments. The second phase will provide for ramp-up of the various services.

- Pending TSACC / SCC Database definition and delivery dates, this resource may enhance some of the effort outlined by NWCRF.

- Initial activity on some issues could begin to deliver meaningful services to the SME community within a few months of project commencement.

3. Evaluation Assessment/Framework

The program will be designed to have particular impacts and effects in both the short and long term as a result of the activities undertaken by the program. It is important that these results are measured, in some cases at the time of delivery in order to not only assess the effectiveness of the program but to ensure the program is properly managed. The development of an evaluation assessment and framework will provide for the information collection that will facilitate measurement of result during the period in which the program is being delivered.

This evaluation assessment/framework will identify the key information to be collected in order to answer the key questions that will determine the effectiveness of the program. The utilization of this instrument will also facilitate the measurement of the total sector campaign with the latter being a responsibility of the Department.

a) Definition of Program Delivery Processes

This component of the methodology covers scheduling, the parties delivering and the topics addressed nationally. A complete identification of the deliverables by the NWCRF will be completed approximately six months after award of the contract, at the end of the planning phase.

b) Development of Evaluation Framework for Standards Program

The methodology to be used for this segment of the program would be in line with the federal government approach to evaluation frameworks. That is the issues and the information used to measure the effectiveness of the program will be identified at the beginning of the delivery of the program. In this manner management systems can be put in place to collect the required information in a cost effective fashion. This will likely mean that certain information is collected as the program is delivered, while other types of information are collected on a periodic basis.

By structuring information collection in this way a management tool is produced that is very useful in the management of the program on a day-to-day basis. Also as the information potentially indicates that an activity is not extremely effective and the activity can be altered before many resources are wasted.

Information and issues will be identified through interviews with program managers and potential users. Information collection procedures will be defined as information requirements become known. A logic model specifying short and long term impacts and effects for the program will be defined. This will produce the required framework and the program will be delivered in accordance with the framework Also the program will be evaluated on a periodic basis using the framework.

V. FINANCIALS

The total cost of the program will be $800,000. With expected revenues of $200,000, the cost of the program to I&SC will be $600,000.

APPENDIX I STANDARDS INFORMATION FLOW

The attached diagram, Figure 1: NWCRF Database - Standards Information Flow, attempts to show, in graphical form, the flow of information that would take place within and around the proposed NWCRF database.

The services supported by this database include:

- **Responses to ad hoc inquiries**, regarding the prevailing standards or certification bodies relevant to a given product type in a given export market

- **Special Reports**, describing either comprehensive lists of documents and activities related to given technological or application areas, or outlining specific standards-making activities which impact a given company or sector

- **Support of** access to, and preparation for, **certification testing** facilities relevant to specific product types in specific markets.

Specific terms used in the diagram that may require definition are:

- **Jurisdiction:** This term attempts to capture the various descriptors relevant to a given standards agency, which would aid in identifying that agency as the correct one in affairs relating to the use of a given product in a given application in a given locale.

- **Jurisdictional descriptors** are further divided into Geographic, Class of Standard, and Customer Type categories

  - **Geographic** may pertain to a governmental zone, an economic bloc (such as EC), or some other grouping

  - **Classes** of standards reflect the concern of a particular agency with "Suitability" criteria (vendor qualifications, quality/ISO 9001 issues, health and safety etc.), "Regulatory" criteria (physical/electrical interfaces, signal levels, electromagnetic compatibility, licensing, spectrum allocations/modulation types etc.), and "Interworking" issues, which generally describe signalling parameters, languages, and how things work and interwork.

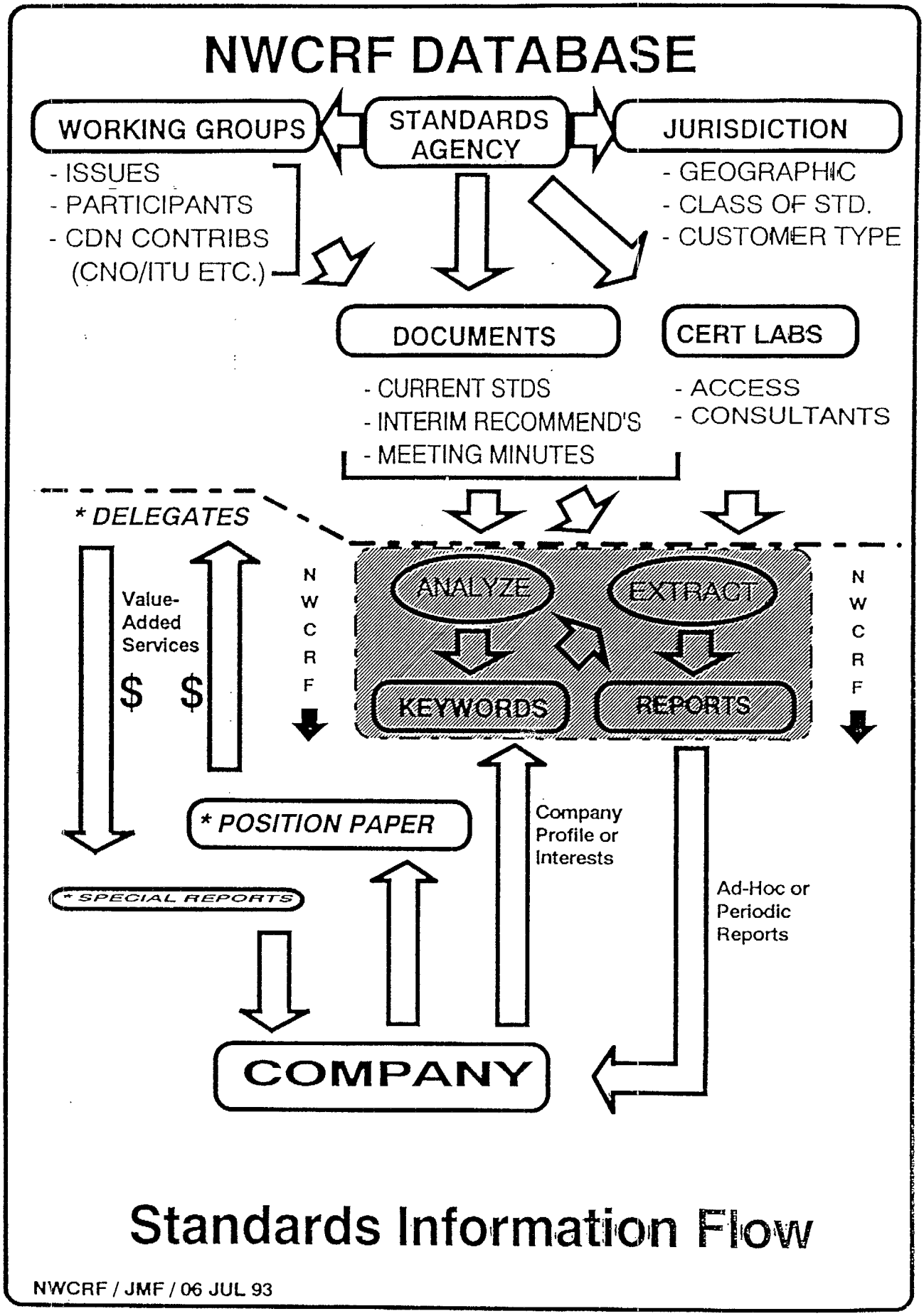
  - **Customer** types that may impose different standards within the same set of geographic and class categories, include PTTs/Telcos, Military, Governments, Consumer, Industrial etc. groupings.

- **KEYWORDS** are terms found in standards documents which may be used as pointers into those documents, in an effort to compile sources of information fitting a given profile. They may be used singly, or in combination with each other (when

used as search parameters), and a given company or ad hoc search would employ a subset of approved keywords to profile their interests.

- **Position Paper** is a company-generated document, in this context, intended for presentation to a standards-making body, either directly, or via an approved intermediary (CNO/ITU, for example).

FIGURE 1 Standards Information Flow



APPENDIX II STARTUP TASK DEFINITIONS

The attached pages describe in flowchart, and in tabular form, the various startup tasks envisioned for the project, the costs and projected schedule for same, and the relationships between these tasks.

The effort required is divided into two stages, "planning" and "processing", to allow possible differentiation of personnel involved.

"Expert", "Clerical", "Management" and "Consultant/Outside" resources are defined; the Expert category implies the need for an understanding of both telecommunications and the standards processes, familiarity with computer database management tools and structures, or both. The term "Management" implies policy-making and negotiating authority, particularly as it impacts relationships with other Canadian agencies who may be involved in program delivery or access.

Deliverable items are noted with an [*] in the table, and are described in more detailed fashion in Appendix III.

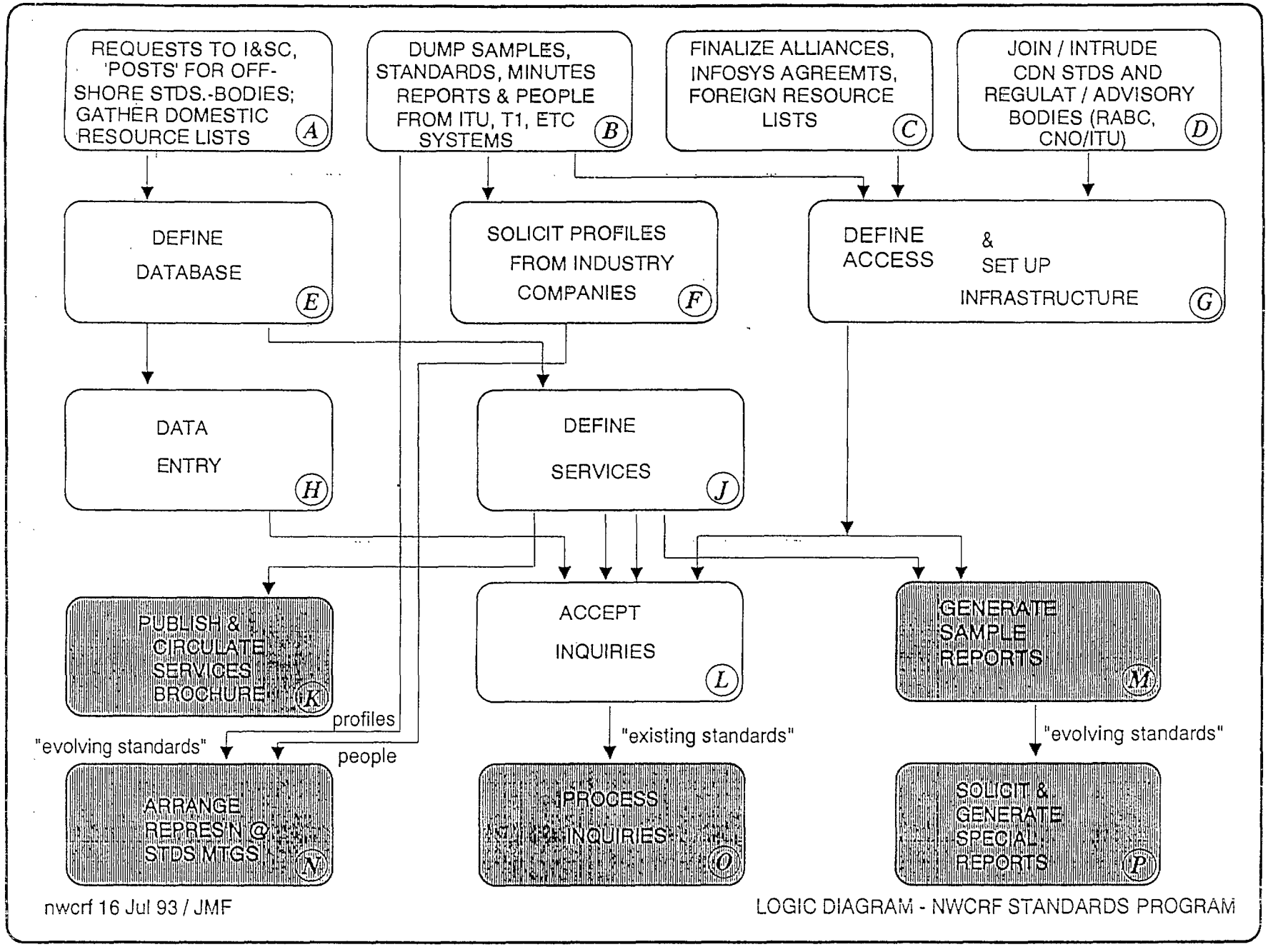


FIGURE 3 LOGIC DIAGRAM OF NWCRF STANDARDS PROGRAM

FIGURE 2 STARTUP TASK DESCRIPTIONS AND ESTIMATES (PERSON-DAYS)

TASK	DESCRIPTION
A	Solicit (from I&SC etc.) offshore stds., cert., and support agencies; also domestic test labs, consultants, other sources of data and assistance
B	Extract Data from ITU, T1, SCC databases (standards, meeting minutes, reports, calendars, working groups, issues, participants)
C	Formalize alliances with other agencies, for access to our services, access to electronic data by NWCRF.
D	Effect Participation in domestic advisory groups (RABC, SCOT etc) and delegations to foreign agencies (CNO/ITU), on behalf of SMEs
E	Define Database - based on form and content of information available from electronic sources (ITU, T1, SCC etc.)
F *	Solicit Industry Profiles of interest, based upon information retrieved in (E) - determines interest categories for screening
G	Establish Infrastructure and access methods - tasks A,B will define nature and quality of source data. This task defines appropriate forms, processes for access by industry.
H	Data Entry; work not included in other tasks
J	Define Services - similar to (G), this task establishes the types of service that can be provided, based on actual source information
K *	Services Brochure - (Dependent upon [J]) to solicit client utilization of services
L,O *	Accept and Process Inquiries - limited to ad-hoc inquiries on existing standards, and on certification, in countries covered by data. Costs and effort included in "incremental" category
M *	Sample Report Preparation - pilot trial of system, to determine quality and effort associated with initially available data; assists with cost and effort estimates
	* EXP = "EXPERT", MGT = "MANAGEMENT CLR = "CLERICAL, CNS = "CONSULTANT/OUTSIDER" (ALL FIGURES IN PERSON-DAYS)

Notes: Columns "PLAN" and "PROCESS" relate to the planning and processing phases of each task, respectively.
* = DELIVERABLES

APPENDIX III SUMMARY OF DELIVERABLES

1. Industry Profile (F)

A summary of the working groups active within ITU, ANSI Committee T1, and other accessible standards-making bodies will be prepared from raw data provided by electronic means and others.

This summary will contain and present, for each of the working groups, the various **questions** being addressed by each, the registered **participants** in each, and any **background** information that can be obtained from available sources - Canadian participants, government departments etc.

In turn this document will be circulated among the **SME community**, who will be asked to **identify** any **issues** which are **of interest** to them. This process will, in turn, lead to the extraction of key words and other information pertinent to each company, representing a "profile" of that company's interests.

The objective of the profile is to allow maintenance of a broadly-based "standards-watch" service, which may lead to periodic bulletins, and perhaps to additional activity either in reporting, or in meetings of appropriate standards-making bodies.

2. Final Services Definition; Services Brochure (J,K)

The initial service definition will be based upon the form and content of the information available to NWCRF, from the various standards-making bodies included. Depending upon the agency and the type of document (directory, meeting minutes, report), there will be a variable level of effort necessary to extract the key points from same, for indexing. In some cases, the document will be virtually meaningless, containing only terse reports of who moved what, but lacking reference to the key issues involved.

The initial services offering, then, will be dependent upon the quality of a very broad sampling of source documents, and the services in turn will reflect the quality of the source material.

The brochure and other promotional material will be delayed until the scope of services can be determined from the above exercise.

3. Standards "ad hoc" Inquiries, and Certification Inquiries (L,0)

Routine questions regarding existing standards and certification procedures and agencies, for a given market, depend upon the availability of the base information describing same. The principal activities associated with this deliverable are the requests for data from various agencies (I&SC, SCC, DOC, etc.), their provision of those data, and the computer-based retrieval and management processes to extract same.

The scope of countries and agencies supported could be limited by the quality of data forthcoming from government and other sources.

4. Sample Reports (M)

Covering a technical topic, or a specific market, 1 - 2 reports requiring "knowledgeable" analysis and interpretation of data derived from electronic and other documents, are necessary to provide a measure of the complexity of the preparation, and the quality of the resulting product.

These reports will be used, if appropriate, as examples of studies that could be undertaken for industrial clients.

It is important to re-emphasize the requirement for analysis and contributions by persons knowledgeable in the subject material, and probably in a target firm's business, which will be necessary to the creation of a truly valuable report. This task may reveal the need for much more "expert" analysis than originally estimated; the methodology and scope of such studies and reports will likely undergo significant redefinition as the result of this sample generation.

5. Detailed "Strategic" Reports

As implied in the above paragraph, this service will be defined and developed in the period following the "sample" task delivery.

6. SME Management Seminars

These seminars will be delivered in conjunction with the Affiliates identified above over the three years of the program. The objective to be addressed by these seminars is to establish a commitment on the part of the management of Canadian SME's in the telecommunication sector to be aware and involved in the standards issues and to be leaders in adopting their existing and new products to conform to international standards. This commitment needs to be put in place across the country and accordingly, the seminars need to be delivered on a national basis..

7. Testing and Certification Capability Inventory

The issue of standards, including participation and adoption, requires access to testing and certification capability. A program to be established under this initiative is to prepare an inventory of this capability and to continually update and disseminate this information to the parties potentially interested to utilize this capability. This program would be assembled and delivered by NWCRF as this organization has positioned itself to manage the network of telecommunications industry associations on a national basis.

8. National Needs Assessment Program

One of the key problems with the delivery of a standards program is that there is a huge amount of information pertaining to standards, yet not all information pertains to all parties. Therefore, if a program can be established to definitively define the standards needs of industry associations, this will provide for the sorting of information at the dissemination end. This should contribute to a significant value-added dimension to standards services.