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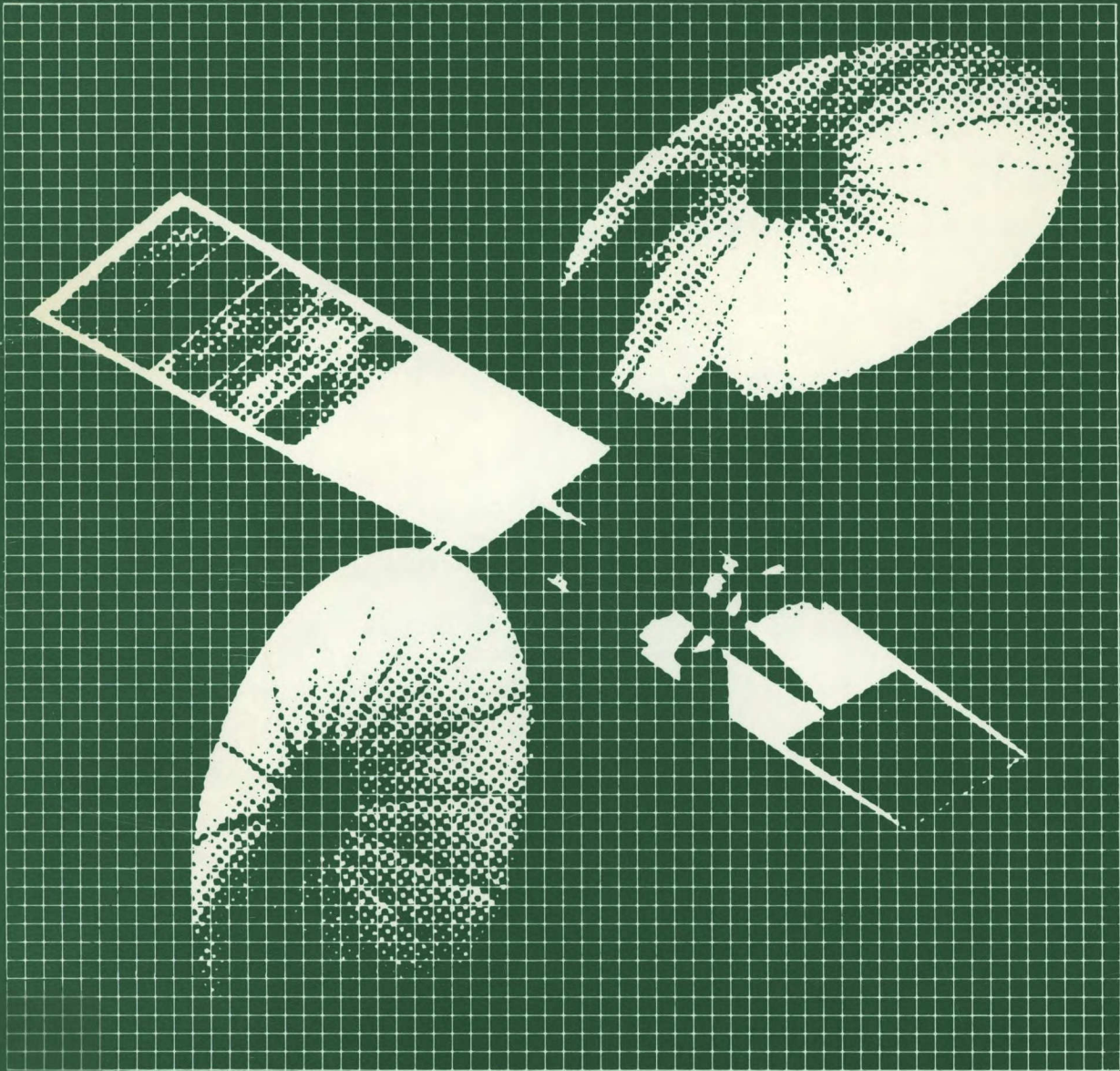
MSAT USERS' GUIDE

(Issue #2)



Government of Canada
Department of Communications

Gouvernement du Canada
Ministère des Communications



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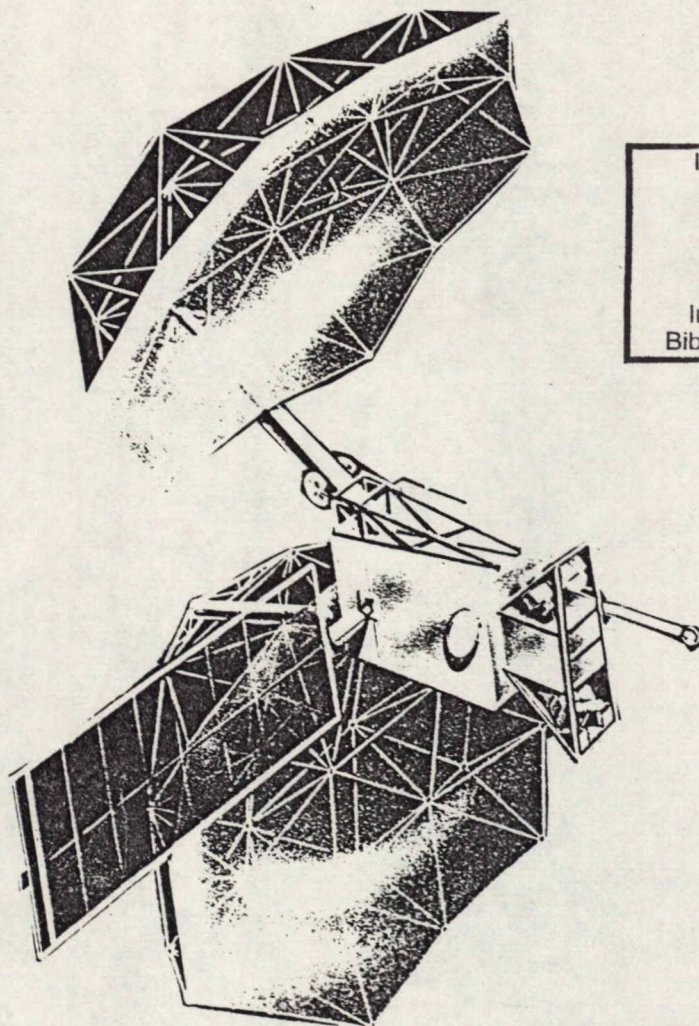
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TECHNOLOGY AND INDUSTRY SECTOR
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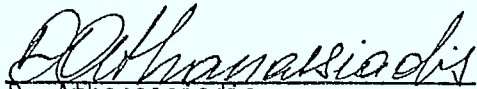
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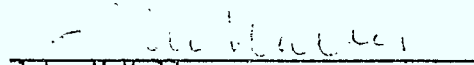
APPLICABILITY: The DOC supported trials to be offered on the commercial MSAT System.

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Reviewed By:



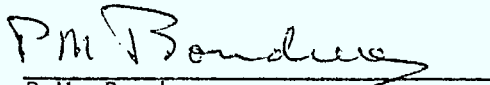
D. Athanassiadis
Manager - MSAT Post-Launch
Communications Program and Policy



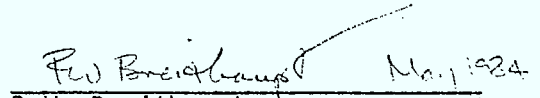
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Project Manager

Approved By:

Released By:



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 May 1984

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FOREWORD

The information provided in this revised MSAT Users' Guide should be considered as preliminary and provisional only, for the purpose of providing early information to prospective participants in the MSAT Post-Launch Communications Program which is in the planning stage and subject to further government approval. The content of this document is therefore subject to some change at a later date.

INTRODUCTION

This guide has been prepared for mobile communications users, service providers, manufacturers and others who wish to participate in the DOC sponsored MSAT Post-Launch Communications Program involving experiments, demonstrations and trials with the commercial MSAT system planned for launch in 1988.

It was originally issued in July 1983 and has been revised in order to:

- a) Reflect the change in the MSAT program direction from the originally announced plans for a demonstration MSAT system to be implemented by the Department of Communications (DOC), to a commercial MSAT system to be implemented by the private sector with the support of DOC;
- b) Define the activities covered by the Post-Launch Communications Program in greater detail;
- c) Extend the final date for submission of proposals to participate in the MSAT Post-Launch Communications Program from 28 February 1984 to 31 August 1984.

1. BACKGROUND

The DOC, in continuing its tradition of fostering the development of advanced satellite telecommunications services, intends to support a proposed new satellite system for mobile communications, called MSAT, which is planned to be implemented by Telesat in conjunction with other telecommunications carriers, in late 1988. This is subject to final Telesat and government decisions expected in late 1984 at the completion of the MSAT Project Definition Phase.

The MSAT system would provide mobile telephone, mobile radio and various mobile data communications services across Canada. The MSAT system would be complementary to existing and developing terrestrial mobile radio systems and would be of particular benefit to those areas of the country which are presently underserved or sparsely populated.

One of the principle forms of DOC support to the establishment of commercial MSAT services will be through a DOC sponsored program of post-launch trials and experiments to be offered to potential MSAT users, carriers, manufacturers and others.

As mentioned in the November 29, 1983 press release by the Department of Communications, the support of a potential commercial MSAT system represents an important advance over the originally envisaged government-owned demonstration system.

The main purpose for the revision of this document is to clearly define the opportunity for Canadians to participate in the Post-Launch Communications Program offered by the DOC within the context of a commercial MSAT system and to extend the final date for submission of proposals from 28 February 1983 to 31 August 1984.

2. THE MSAT SERVICE OPPORTUNITIES

Although mobile radio service (MRS), mobile telephone service (MTS) and mobile data service (MDS) have been considered to be the main service offerings of the MSAT system at the outset, a number of other important service offerings have emerged as a result of the dialogue with potential end users and service providers.

For instance, a flexible and cost effective digital message service called Data Acquisition and Control (DACS) has evolved that will cater to data collection platforms of any type and the exchange of control and response messages with a host of control and alarm devices, such as employed by hydro electric, pipeline, rail, trucking and numerous other operations.

Similarly a number of wide area vehicle paging applications have emerged that will cater to remote area paging requirements not satisfied through presently available services.

The possible MSAT applications are being continuously expanded and refined and therefore potential users, service providers and manufacturers are encouraged to propose new and imaginative applications.

3. THE MSAT PROGRAM EVOLUTION

As a result of extensive studies for improved and expanded mobile communications over the past decade, the DOC became convinced that although terrestrial mobile systems provide cost-effective services in most urban and some rural areas of Canada there remains an urgent need for better coverage and higher quality of mobile telecommunications services in rural and remote areas of the country, where satellite service is much more cost effective.

With a view of satisfying this need, DOC requested and received government approval in 1982 to proceed with the Project Definition Phase (Phase B) of the MSAT Program.

The principle activities of the program to date can be summarized as follows:

- Engineering definition studies for the first generation MSAT system;
- Technology development for MSAT terminals and the spacecraft;
- Viability assessment of various commercial system options and plans for marketing associated services, products and technologies;
- Definition of a comprehensive Post-Launch Communications Program plan for trials, experiments and demonstrations;
- Assessment of all socio-economic benefits;
- Proposals for the resolution of regulatory, policy and frequency issues; and
- Definition of cooperative arrangements with Telesat and NASA.

Inasmuch as the ultimate goal of the program is to support and facilitate the early development of commercially viable services and in view of the increasingly strong interest by both the service providers and users in Canada and the US, the Department in consultation with NASA, Telesat and other communications carriers decided in 1983 to realign the MSAT Program by eliminating the intermediate step of a government demonstration system in favour of an initial commercial system led by the private sector with government support.

4. THE POST-LAUNCH COMMUNICATIONS PROGRAM EVOLUTION

As a result of consultation with Telesat and other communications carriers as well as with potential users the DOC believes that the concept of government supported experiments, demonstrations and service trials, offered under the original plan for the Post-Launch Communications Program, in conjunction with full commercial service, would be of great benefit to both service providers and users to ensure the earliest commercial viability of the system. Commercial service will also be available from the outset.

Therefore the Department intends to continue to proceed as planned with definition activities already initiated for the provision of government supported trial services under the conditions detailed in the subsequent paragraphs. To date these activities have resulted in keen interest by over one hundred private and public sector entities, many of which have submitted detailed proposals for trial service participation.

Under the Post-Launch Communications Program the Department intends to support the following specific activities using trial satellite capacity and trial service obtained from Telesat and service providers::

- a) Scientific and Product Development Experiments: Intended to support scientific or product development evaluation of system and equipment performance parameters.
- b) Demonstrations: Intended to provide demonstrations of MSAT equipment and services for promotion and marketing purposes.
- c) User Trials: Intended to afford individual prospective end user organizations the opportunity to assess the viability of MSAT services in their operations.

- d) Technology Trials: Intended to allow authorized end user service providers to evaluate and optimize the performance of their subsystems and the administrative practices relating to the offered services.
- e) Market Trials: Intended to allow authorized end user service providers to perform multiuser service trials to assess and develop the market for MSAT services and its features.

5. CONDITIONS APPLYING TO THE PROVISION OF TRIAL SERVICE

5.1 Eligibility

There are two eligibility aspects associated with the MSAT Post Launch Communications Program.

- i) Eligible participants
- ii) Eligible services

5.1.1 Eligible Participants

There is essentially no restriction as to who may participate in the Post-Launch Communications Program.

Any organization incorporated in Canada under federal or provincial law, or any department or agency of the federal government or of a provincial or municipal government will be able to apply to participate in the Post-Launch Communications Program. This will include:

- Communications service providers;

- Commercial end-users such as, marine shipping companies, bus lines, truckers, forest industries, exploration companies, hydro-electric utilities and security agencies;
- Governments and their agencies, such as law enforcement and forest-fire fighting agencies;
- Non-profit organizations, such as hospitals and educational institutions;
- Manufacturers wishing to assess the performance of their products; and
- Research organizations and universities wishing to conduct experiments.

In order that applications for participation in the Post-Launch Communications Program be limited to manageable numbers, DOC will encourage individual Canadians wishing to participate in the program to aggregate their requirements with those of communications carriers or other participating organizations, whenever possible.

5.1.2 Eligible Services

In general, all mobile communications and related services are eligible under the MSAT Post-Launch Communications Program provided they are technically feasible and allowed under DOC policy and licensing ground rules. The services expected to be offered on MSAT are described in detail in the "MSAT Service Description" document. Proposed policy and licensing ground rules for MSAT are described in the "MSAT Policy Discussion Paper". As indicated in the service description document,

applications within large urban centres are not intended to be served by the MSAT system, the only exceptions being base stations or headquarters located in urban areas and communicating with mobile stations operating in rural areas. In certain cases technical and regulatory factors may constrain eligibility of some service applications. In addition, interconnection to the public telephone network will be subject to the agreements of the carriers offering such telephone service.

Users requiring further clarification of eligible services should contact the DOC, as indicated on page 14.

5.2 Selection - Priority

5.2.1 Selection

The MSAT Program staff will assist, to the extent possible, prospective participants in the planning and definition of their experiments, demonstrations and trials. Thereafter, proposals received by DOC for participation in the Post-Launch Communications Program will go through an evaluation and selection process. This process will involve consultation with the participant as needed and may result in suggestions for revision of proposals. This process will take into account a number of factors such as:

- Technical feasibility
- Potential demonstrated for improved communications especially in underserved areas;
- Demonstrated intention to subscribe to commercial service or to offer commercial service after a positive viability assessment from the trials.

- Contribution to the development of the Canadian telecommunications service industry;
- Implications on communications policy, institutional arrangements and regulations;
- Contribution to Canadian skills and to the development of Canadian space technology, products and services in the private sector;
- Contribution to other social and economic benefits;

Within the proposal evaluation and selection process it will also be necessary to ensure balanced representation of types of services, types of users, regional distribution and satellite capacity and other resource limitation aspects.

5.2.2 Priority

To a great extent, once proposals have gone through the selection process and have been accepted by the DOC, priority for access to the satellite capacity will in general be based on a first come first served basis. However, in order to maintain flexibility for catering to urgent applications which may be identified later in the program, the DOC intends to retain for future allocation a certain amount of the satellite capacity leased for trial services. Users will always have the option of subscribing immediately to commercial services through the MSAT service providers.

5.3 Duration and Size of Trials

The intended spirit of the government supported trials is to provide potential users and service providers with the opportunity to assess the cost effectiveness of the service for the user and commercial viability of the service for the service provider and thus assist in the earliest commercialization of the MSAT services.

In order to ensure that no one receives an unfair competitive advantage or obtains long term services from the government sponsored trials to the detriment of commercial service providers, the following two rules will apply for the duration of end user and market trials and for the number of terminals provided. Scientific and product development experiments and demonstrations will be in general of short duration and in some cases may require periodic access to the satellite. No particular guidelines on their duration have been established at this time.

a) Duration of Trials

For any one organization the trial duration will be limited to the minimum interval sufficient for a viability assessment of the services involved for the users and the service providers as applicable. Although trial duration will depend on a number of factors and therefore may vary from one case to another, an absolute maximum of one year will generally apply to any given trial by users and service providers and an average of six months is the expected norm for all user trials.

b) Size of Trials

The number of terminals provided by DOC to any given user or service provider would be limited to the absolute minimum required to meet

the agreed objectives of the trials and to make a proper viability assessment of MSAT services. The actual numbers will be determined through analysis of the individual needs of the participant. Hence the number of terminals offered to a user or service provider for trials will constitute only a small fraction of the total potential commercial demand projected for that user or service provider.

5.4 Cost Sharing for Trials

For scientific and product development experiments, demonstrations and user trials, the MSAT space and ground segment service costs, except toll charges incurred through interconnection, would normally be absorbed by the Department through arrangements to be negotiated with the authorized commercial MSAT service providers. This would include the satellite airtime usage and the lease costs of the necessary standard MSAT base stations and terminals. Participants would normally be responsible for transportation and installation charges of MSAT user equipment as well as operating, administration and special engineering costs that the potential user might incur.

For technology trials by service providers, DOC would expect that the interested service providers would procure at their cost the base and gateway stations and other associated facilities needed for the trials. The DOC contribution would be limited to the portion of satellite airtime charges levied by the satellite operator for the trials.

For market trials by service providers the DOC contribution would vary depending on a number of factors such as the size of trial, whether or not participating users are charged, etc., in order to ensure that market trial sizes are kept within reasonable size and that market trials do not result into a net gain for service providers at the expense of the government. Service providers would be responsible to

procure at their cost the MSAT base stations, gateway stations and other equipment needed for the market trial. Service providers would also select end users for their trials with criteria agreed by DOC. The government contribution would normally cover the cost of the satellite airtime used for the market trial. In the event that the end users are charged for satellite airtime the DOC contribution will be reduced by the amount of that charge.

The DOC would reserve the right to limit its contribution of terminals and satellite airtime.

5.5 DOC Procurement of Trial Service

In order to implement the Post Launch Communications Program, DOC would procure the MSAT services (space and ground segment) from Telesat and other authorized MSAT service providers at the commercial tariffs. Although potential participants must submit and have their proposals approved by the DOC, each user would ultimately obtain the services in question from one of the authorized service providers and in accordance with contracts, policies and procedures to be agreed by DOC.

5.6 Option to Obtain Full Commercial Service

Any user who is satisfied in advance that the MSAT services constitute a viable solution to his communications needs would be encouraged to obtain full commercial service directly from the MSAT service providers from the outset without a trial.

5.7 Commitment

The submission of a proposal to participate in the Post-Launch Communications Program by August 1984 and the subsequent approval of the proposal by the DOC would guarantee the potential participant his place in the program, subject to government program approval and system implementation by the private sector. A letter of intent will be signed by DOC and the user to reflect commitment on each part.

If the Implementation Phase of the MSAT Program is approved by the government and industry in late 1984, participants with approved proposals will be required to plan the details of their trials or other activities and to cooperate with the DOC and the service providers in accordance with a detailed agreement to be executed prior to the launch in 1988.

User or service provider commitment to commercial service will be required, given a positive viability assessment during the trial.

5.8 Trial Service Date

Trials and experiments will be conducted after the MSAT launch planned for late 1988 in accordance with a schedule agreed upon between the DOC, Telesat, the service providers and the users involved.

6. ROLES AND RESPONSIBILITIES

6.1 Department of Communications (DOC)

The DOC will be responsible for the following:

- 1) The management of the Post-Launch Communications Program including the selection and approval of trials and other projects;
- 2) The arrangements required with the approved service providers for the delivery of the experiments, trials and demonstrations including access to satellite airtime and loan of limited number of terminals to participants;
- 3) The provision of limited DOC technical consultation when required for individual trials and experiments; and

- 4) The review and analysis of the results of the Post-Launch Communications Program activities to evaluate their contribution to MSAT viability.

6.2 Participants

Participants will be responsible for the following:

- 1) Preparation of a proposal in the required format to be submitted to the DOC;
- 2) Adequate planning for the implementation of their projects within agreed-upon schedules;
- 3) The conduct of their trials/experiments/demonstrations and the provision of the personnel, equipment and supplies required, except for such equipment (e.g., terminals) and technical specialists as the DOC agrees to provide;
- 4) The submission of reports to the DOC on the results of their projects in accordance with an agreed schedule;
- 5) The preparation of an evaluation of the commercial viability of the mobile service they are testing; and
- 6) Making a viability decision based on (5) above.

7. THE APPLICATION AND APPROVAL PROCESS

Step 1:

Obtain MSAT information details by contacting:

D. Athanassiadis
Manager - MSAT Post-Launch Communications Program and Policy
Department of Communications
Journal Tower South
365 Laurier Avenue West
Ottawa, Ontario
K1A 0C8
Telephone (613) 995-7783

Step 2:

Consider the opportunity to take part in the Post-Launch Communications Program as a user, service provider, manufacturer or for other research purposes. Express your interest in writing to the address provided in Step 1.

Step 3:

On receipt of your letter you will be contacted by a member of staff in the communications program management to discuss in detail your application requirements, ensure their applicability to MSAT and assist you in submitting a formal proposal for participation in the program. This must be submitted to DOC by 31 August 1984.

Step 4:

Your proposal will be assessed in accordance with agreed selection criteria and acceptance, modification or rejection will be recommended for the concurrence of DOC management.

Step 5:

The DOC will make arrangements that a formal letter of intent is drafted and signed by both parties, for the proposals approved in accordance with the selection criteria.

This letter will be conditional upon government and Telesat approval of implementation of the MSAT system in late 1984.

