

RESTRICTED
DIFFUSION RESTREINTE

①
RADIO PAGING STUDY

FOR

THE DEPARTMENT OF COMMUNICATIONS

OTTAWA

Industry Canada
Library Queen

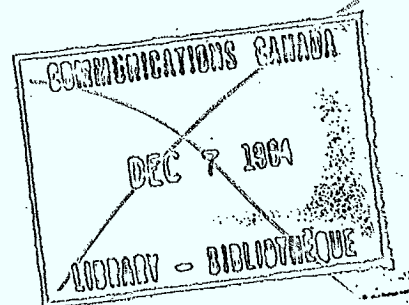
JUL 22 1998

Industrie Canada
Bibliothèque Queen

PART III

SURVEY BACKGROUND DATA

(VOLUME 3 OF 3)

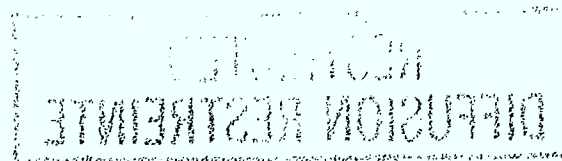
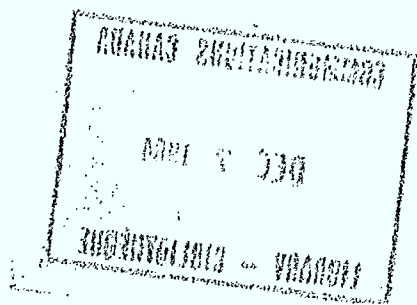


RESTRICTED
DIFFUSION RESTREINTE

InTel Consultants Ltd
56 Sparks Street
Ottawa
K1P 5A9
Canada

Contract Serial No: OGR5-0267
DSS File No: 02GR.36100-4-2039

Ottawa, October 15th, 1976



D
91
C655
R33.
1976
pt. 3

DD 4831573
DL 4831611

RADIO PAGING STUDY

INDEX

PART III - SURVEY BACKGROUND DATA

Section 1 - Methodology

Page III-

1.0 -	Methodology	1
1.1 -	General	1
1.2 -	Private Paging Survey	2
1.2.1 -	Questionnaire Issue	2
1.2.2 -	Data Breakout	3
.1 -	Quantified Information	3
.2 -	Data Identified by Check Marks	6
.3 -	Comments	7
1.2.3 -	Licensee Listings	8
1.2.4 -	Pager Population Distribution Tabulations	8
1.3 -	Public Paging Installations	9
1.3.1 -	Questionnaire Issue	9
1.3.2 -	Data Breakout	11
.1 -	Quantified Information	11
.2 -	Data Identified by Check Marks	13
.3 -	Operator Comments	13
1.3.3 -	Licensee Listings	14
1.3.4 -	Pager Population Distribution Tabulations	14

Section 2 - Private Paging System Data

2.1 -	Pacific Region	16
	Table 2.1 - Licensees	17
	Table 2.2 - Paging Statistics	19
	Table 2.3 - Pager Population Distribution	20
	Table 2.4 - Questionnaire Reply Summary	21
2.2 -	Central Region	22
	Table 2.5 - Licensees	23
	Table 2.6 - Paging Statistics	25
	Table 2.7 - Pager Population Distribution	26
	Table 2.8 - Questionnaire Reply Summary	27
2.3 -	Ontario Region	28
	Table 2.9 - Licensees	29
	Table 2.10 - Paging Statistics	32
	Table 2.11 - Pager Population Distribution	33
	Table 2.12 - Questionnaire Reply Summary	34
2.4 -	Quebec Region	35
	Table 2.13 - Licensees	36
	Table 2.14 - Paging Statistics	40
	Table 2.15 - Pager Population Distribution	41
	Table 2.16 - Questionnaire Reply Summary	42

Section 2 - Index continued

2.5 -	<u>Atlantic Region</u>	43
	Table 2.17 - Licensees	44
	Table 2.18 - Paging Statistics	46
	Table 2.19 - Pager Population Distribution	49
	Table 2.20 - Questionnaire Reply Summary	48
2.6 -	<u>Regions Combined</u>	49
	Table 2.21 - Pager Population Distribution	50
	Table 2.22 - Questionnaire Reply Summary	51
2.7 -	<u>Questionnaire & Respondent Comments</u>	53
	Fig. 2.1 - Private Systems Questionnaire	54
	Table 2.23 - Comments: Terminal Services (Q-1C)	56
	Table 2.24 - Comments: Pager Features (Q-1C)	56
	Table 2.25 - Comments: User-Occupations (Q-2C)	57
	Table 2.26 - Comments: User-Occupations (CONT'D) (Q-2E)	58
	Table 2.27 - Comments: System Dissatisfaction (Q-2E)	59
	Table 2.28 - Comments: Reasons for System (Q-3A)	61
	Table 2.29 - Comments: Operator Comments (Q-3C)	62

Section 3.0 - Unregulated Paging Data

3.1 -	<u>Pacific Region</u>	66
	Table 3.1 - Licensees	67
	Table 3.2 - Statistics	68
	Table 3.3 - Pager Population Distribution	69
	Table 3.4 - Questionnaire Reply Summary	70
3.2 -	<u>Central Region</u>	71
	Table 3.5 - Regulated and Unregulated Licensees	72
3.3 -	<u>Ontario Region</u>	73
	Table 3.6 - Licensees (Small Operators)	74
	Table 3.7 - Statistics Summary	75
	Table 3.8 - Statistics (Small Operators)	76
	Table 3.9 - Statistics (Large Operators)	77
	Table 3.10 - Pager Population Distribution	78
	Table 3.11 - Questionnaire Reply Summary	79
3.4 -	<u>Quebec Region</u>	82
	Table 3.12 - Licensees	83
	Table 3.13 - Statistics (All Operators)	84
	Table 3.14 - Statistics (Small Operators)	85
	Table 3.15 - Statistics (Large Operators)	86
	Table 3.16 - Pager Population Distribution	87
	Table 3.17 - Questionnaire Reply Summary	88
3.5 -	<u>Atlantic Region</u>	90
	Table 3.18 - Licensees	91
	Table 3.19 - Statistics	92
	Table 3.20 - Questionnaire Reply Summary	93

Section 3.0 - Index continued

3.6 -	<u>All Survey Regions Combined</u>	94
	Table 3.21A - Pager Population Distribution	95
	Table 3.21B - Pager Population Distribution (for systems with less than 800 Pagers)	96
	Table 3.22 - Questionnaire Reply Summary	97
3.7 -	<u>Questionnaire & Comments</u>	100
	Fig. 3.1 - Questionnaire: Small Unregulated Operator	101
	Fig. 3.2 - Questionnaire: Large Unregulated Operator	105
	Table 3.23 - Comments: Terminal Services (Q-1D/A)	110
	Table 3.24 - Comments: Pager Features (Q-1D/A)	110
	Table 3.25 - Comments: User Occupations (Q-2E)	111
	Table 3.26 - Comments: Rural Paging Needs (Q-3C)	111
	Table 3.27 - Comments: Interconnection (Q-3F)	112
	Table 3.28 - Comments: Operator Agreements (Q-4C)	113
	Table 3.29 - Comments: Charging Methods (Q-4F)	114
	Table 3.30 - Comments: Reason for Privates (Q-4G)	114
	Table 3.31 - Comments: Operator Comments (Q-4H)	115

Section 4.0 - Regulated Operators 119

4.1 -	<u>Regulated Operator Data</u>	120
	Table 4.1 - Regulated Paging Operators	121
	Table 4.2 - Statistics	122
	Table 4.3 - Questionnaire Reply Summary	123
4.2 -	<u>Questionnaire & Respondent Comments</u>	124
	Fig. 4.1 - Questionnaire	125
	Table 4.4 - Operator Comments	129

Section 5 - Interviews 132

5.1 -	McLean-Hunter Communication (Operator)	134
5.2 -	National Laser Products (Operator)	137
5.3 -	Pagette Airsignals (Operator)	144
5.4 -	Canadian Motorola Electronics (Operator)	148
5.5 -	Bell Canada (Operator)	151
5.6 -	Time Communications (Operator)	154
5.7 -	Phone Answering Service (Operator)	156
5.8 -	Canadian Motorola Electronics (Manufacturer)	157
5.9 -	Omicron Data Systems (Manufacturer)	163
5.10 -	Acme Devices Inc. (Manufacturer)	167
5.11 -	General Sound & Theatre Systems (Agent)	169
5.12 -	Canadian General Electric (Manufacturer)	172
5.13 -	Pye Electronics (Manufacturer)	173
5.14 -	Canadian Marconi Ltd. (Manufacturer)	174

PART III SECTION I

METHODOLOGY

1.0 - Methodology

1.1 - General

Questionnaire material for both the private and public paging areas was prepared in co-operation with the Department. Several versions of the material were prepared prior to ultimate finalisation of the nature of the information to be requested in each paging area.

All questionnaires were issued in the language indicated on the relevant licenses as being that of the licensees concerned. Where this information was not available, or was in doubt, material was provided in both English and French. Questionnaire issues were followed up three to four weeks after the initial mailing in all instances where replies had not been received.

Interviews and contacts with public paging operators in the Quebec and Ontario regions, and with manufacturers and suppliers of paging equipment provided supporting information for that derived from questionnaire reply data.

1.2 - Private Paging Survey1.2.1 - Questionnaire Issue

Private Paging information was drawn from license printouts made available by the DOC for this purpose. Questionnaire forms were forwarded to 200 licensees, randomly selected from a total of about 550, across the country.

The selection was such that the 200 questionnaires were distributed amongst the provinces in proportion to the number of private paging operators in each. Approximately 61% of the questionnaires were returned, duly completed; distribution in the private area was as follows:

Private Paging - Methodology

<u>Province</u>	<u>Questionnaire Issue</u>	<u>Replies</u>
BC	20	11
ALTA	19	13
SASK	5	3
MAN	10	3
ONTARIO	58	41
QUEBEC	69	38
NB	11	7
NS	8	5
NFLD	2	2
	<hr/> 202	<hr/> 123

1.2.2 - Data Breakout

Three methods of obtaining information from the respondent were used in the questionnaire format:

- 1 - rectangular boxes in which applicable quantities were to be inserted
- 2 - small circles which were to be check marked if the data item was applicable
- 3 - comment areas which the respondent could use for any applicable remarks

Each group of the foregoing information areas within the questionnaire was appropriately coded and a computer used to extract the information in appropriate formats as noted in paragraphs .1, .2 and .3 below. Pager licensee listings and a tabulation of pager population distributions are also included for each region.

.1 - Quantified Information

All quantified information extracted was reproduced in the format shown in Table 2.2, Section 2 entitled: Private Paging Statistics - Pacific Region. This comprises InTel and DOC identifying codes, together with five statistical data items:

a) - InTel Questionnaire Serial Number

To simplify filing and reference each questionnaire issued was identified by province and the serial number of the questionnaire

issued in that province. Typically "NB - 5" indicated the fifth questionnaire mailed to the New Brunswick area.

b) - DOC Code

This comprises the DOC reference code assigned to each licensee.

c) - Coverage Radius

This comprises the licensees assessment of the radius of coverage realised by his paging installation.

d) - Pagers 1976 & 1981

The 1976 column indicates the total number of pager units each licensee reported as presently being in service, while the 1981 column is an estimate of the number of pagers which will be in service in five years time.

e) - Daily Calls

An assessment of the average number of paging calls handled by each system with its present pager loading.

f) - Tone Pagers

The total "Tone" pagers in use at the present time is derived by the computer from the "Percentage of Tone Pagers" indicated by responses to the second part of question 2B.

At the foot of each regional listing there is a summary. This totals and averages each column, neglecting those items for which no report was given. The designation "NR" (no report) appearing occasionally in the data columns indicates that the respondent did not provide figures for the data item in question.

Figures given in the "Avg/System Reporting" line therefore indicates the average of the data item concerned for the systems providing the relevant data.

.2 - Data Identified by Check Marks

Applicable data identified by means of check marks was reproduced in the format shown in Table 2.4, Section 2 entitled "Private Questionnaire Reply Summary - Pacific Region". This data covered the following specific areas:

Q-1: Frequency Usage

Establishes whether the Paging System uses a shared or dedicated frequency.

Q-1C: System Features

Identifies the essential features of the operational capabilities of the terminal facility.

Q-1C: Pager Features

Identifies any special features of the pager units associated with the respondent's system.

Q-2C: User Functions

Identifies typical Pager Unit user occupations within private paging system.

Q-2D: System Satisfaction

Q-2E: System Shortcomings

These two sections establish the degree to which private paging system operators are satisfied with their installations, and any reasons for dissatisfaction.

Q: 3A Reason for Private System

Identifies reason for installing a private system in preference to using a public paging service.

Q: 3B Public System Use

Determines how many private paging operators also subscribe to public paging systems.

It should be noted that column "R" of each output sheet indicates the total number of respondents check marking the data item in question. Figures appearing in the "NR" column indicate the number of questionnaires giving no response to the item in question. The total of the two columns will therefore equal the total replies.

Since questions 1 and 3B are essentially of the "Yes or No" type, the single figure in the "NR" column indicates the number of respondents who totally ignored the question.

.3 - Comments

Comments made by respondents in various areas of the questionnaire were coded and reproduced by the computer in the format typical of Table 2.23, Section 2 entitled "Comments Re*Private Pager Terminal Services* (Question 1C) "

Comments applicable to each area of the questionnaire are printed for all regions under the heading of the specific questionnaire item to which they refer.

1.2.3 - Licensee Listings

Licensee listings are provided for each region, their content being typified by that contained in Table 2.1, Section 2 entitled "Private Paging Licensees - Pacific Region". The "InTel #" is the serial number of the questionnaire issued to the region, a "0" indicating that no request for information was mailed to the licensee concerned. Multiple licenses for a given frequency issued to the same licensee in any one locality were counted as single installations.

1.2.4 - Pager Population Distribution Tabulations

Pager population distribution tabulations provided for each region are based on the 1976 pager population statistics reported for each region. Typically, Table 2.3 indicates that a total of 4, or 36% of the reporting installations in the Pacific Region serve less than 10 pagers each, etc.

1.3 - Public Paging Installations

1.3.1 - Questionnaire Issue

An unregulated operator mailing list was initially compiled on the basis of telephone directory yellow page advertisements; this data was subsequently augmented by information contained in license printouts made available by the department.

Useful replies were received from a total of 47 unregulated paging companies, representing approximately 45% of the estimated total of 106 unregulated paging companies providing service in Canada. Questionnaires were returned from 7 public carriers, 2 of which are not in the paging business; this represents a 50% response when considered in terms of the total of 10 public carriers actively providing paging services to the public.

Two questionnaire formats were issued to unregulated operators, one being designated "UNREG (S)" and the other "UNREG (L)" sample copies of these appear in figures 3.1 and 3.2 in Section 3, of this part of the report. Question content is essentially identical, however operators reporting on more than one paging installation would find the "UNREG (L)" easier to complete.

A further questionnaire designated "REG" appearing in Figure 4.1 was prepared specifically for regulated carriers. The requested information is similar to that asked for on the unregulated operator

format, however questions 4A through 4D were directed specifically to policy queries regarding SWAP and INTERCONNECTION.

1.3.2 - Data Breakout

The comments noted in paragraph 1.2.2 Re Private Paging questionnaires apply also to public paging operator questionnaires. Each data area was suitably coded, and a computer was used to extract the information in appropriate formats.

.1) Quantified Information

Quantified data extracted from unregulated operator questionnaires was reproduced for each region in formats typical of Table 3.2 in Section 3 of this document. Since some of the questions requesting quantified data produced limited information of any value, they were omitted from the statistical printout sheets. The following data was included:

a) InTel Questionnaire Serial Number

Unregulated operator questionnaire serial numbers started at 100 for each region. The relevant serial for each questionnaire returned by a respondent appears in the "Q-#" column. The appearance of a "0" in this column indicates that the statistical data reported in the table is from sources other than a questionnaire.

b) DOC Code

The DOC Code assigned to each licensee is provided in the column headed "DOC-#".

c) 1976/1981 Subs & Pagers

The subsequent four columns report the 1976 sub and pager count together with the operators' 1981 projections for these two items.

d) Daily Calls

This is an operator estimate of the average number of pages handled daily by the installation.

e) Tone Pagers

The total "Tone" pagers in use at the present time is derived by the computer from the "Percentage of Tone Pagers" indicated in the questionnaire returns.

f) Frequency Usage

The final two columns indicate the reported number of frequencies dedicated to paging use, and the number shared by paging with other services.

The summary listing at the foot of each statistical sheet indicates the totals reported for each statistical item, together with the relevant averages based on the number of installations reporting useful data.

.2) Data Identified by Check Marks

Applicable data identified by means of check marks was reproduced by a computer in the format shown in Tables 3.4 and 4.3 for unregulated and regulated paging operators respectively. In the case of unregulated operators, questionnaire reply summaries are presented for each region.

The significance of the "R" and "NR" columns is the same as in the case of the private questionnaire reply summaries noted in sub paragraph .2) of paragraph 1.2.2 above.

A composite questionnaire reply summary for all unregulated operators surveyed appears in Table 3.22 Section 3.6 of this document.

.3) Operator Comments

Comments made by unregulated operators in various areas of the questionnaires are given in Tables 3.23 through 3.31, Section 3.7. Comments by regulated carriers appear in Table 4.4 of Section 4.2.

1.3.3 - Licensee Listings

Unregulated operators are listed by locality for each region. The information presented is similar in most instances to that provided in lists of private paging licensees. A list of public carriers providing paging services appears in Table 4.1 of Section 4.0 together with other data which was made available by the carriers in various areas.

1.3.4 - Pager Population Distribution Tabulations

Pager population distribution tabulations are provided for all except the Central Region. These are based on the 1976 pager populations of the unregulated paging operators reporting the relevant information. These distributions are also given for all reporting systems combined in Table 3.21A of Section 3.6, and for all operators reporting less than 800 pagers in Table 3.21B. The latter Table is relevant to the method used in estimating the number of pagers served by unregulated operators in paragraph 2.1, Section 2 of Part II of the report.

PART III SECTION 2.0

PRIVATE PAGING SYSTEM DATA

2.1 - Private Paging Data

Pacific Region.

TABLE 2.1
PRIVATE PAGING LICENSEES - PACIFIC REGION (1 OF 2)

LOCATION	LICENSEE	DOC#	INTEL#	FREQ (MHz)	PWR
BAMBERTON	1-B.C. CEMENT	808756	0	31.920	5
CAMPBELL	2-DELTA PROP. LTD.	813705	0	27.275	18
COPPER ISLAND	3-GRANISLE COPPER LTD.	824388	0	152.300	24
CRANBROOK	4-CRANBROOK GEN'L HOSP	840844	0	30.020	12
ELKO	5-CROWS NEST IND. LTD.	831165	3	27.095	4
FORT ST.JAMES	6-STUART LAKE HOSP.	855689	1	27.275	16
HANEY	7-BERRYLAND CANNING CO	853533	0	27.275	20
KAMLOOPS	8-AGNES HALLIDAY	853169	2	167.130	6
	9-DELTA PROP.LTD	813705	0	27.275	4
KELOWNA	10-CAPOZZI ENTERPRISES	817903	0	27.275	8
NANAIMO	11-GABRIOLA HOTELS LTD	855903	0	27.265	6
PENTICTON	12-PENTICTON HOSP.	806929	4	30.420	37
	13-PENTICTON HOSP.	806929	4	153.710	24
PORT ALBERNI	14-WEST COAST GEN'L HOS	815841	6	30.020	7
PRINCE GEORGE	15-DELTA PROP.LTD	813705	0	27.265	7
	16-PRINCE GEORGE REGION	807564	0	30.420	30
PRINCE RUPERT	17-PRINCE RUPERT REG. H	805329	0	30.420	35
SQUAMISH	18-B.C. RAIL CO.	804446	0	27.265	7
VANCOUVER	19-CARIBOO TRAIL HOTEL	857270	0	27.275	1
	20-MARC CAPOZZI CTR	854996	0	149.620	7
	21-J.MANLY LTD	854938	8	27.275	9
	22-RICHMOND INN LTD.	853972	0	27.245	20
	23-SURREY MEMORIAL HOSP	852765	90	27.265	10
	24-FAIRVIEW CORP.	852470	0	27.265	3
	25-VANCOUVER CITY COLL.	850126	0	27.265	4
	26-BLOCK BROS. IND.	849895	10	149.290	105
	26-BLOCK BROS. IND.	849895	0	149.290	87
	26-BLOCK BROS. IND.	849895	0	149.290	105
	27-BLOCK BROS. IND.	849895	11	414.063	8
	28-LIONS GATE HOSP.	849054	0	149.020	25
	28-LIONS GATE HOSP.	849054	0	149.020	25
	29-SHERATON VILLA INN	848238	12	30.220	4
	30-XEROX OF CA.	848066	13	464.475	200
	30-XEROX OF CA.	848066	0	464.475	102
	31-BANK OF NOVA SCOTIA	843192	14	27.245	4
	32-VANCOUVER GEN'L HOSP	833970	15	30.020	45
	33-TRIZEC EQUITIES LTD	830519	0	33.920	20
	34-I.B.M. OF CA. LTD.	823560	0	454.300	113
	35-P.N. EXHIBITION	820094	16	27.275	25
	36-WALL & REDEKOP CORP.	817866	0	27.275	10
	37-GROSVENOR HOTEL	817728	0	27.265	1
	38-WOSKS LTD.	817518	17	27.265	1
	39-AMCO SERV.	815140	0	170.910	12
	40-DELTA PROP. LTD	813705	0	27.265	6
	41-T.EATON CO. LTD	812744	18	27.245	13
	42-B.C. CANCER TREAT.	808198	0	27.960	20
	43-TRIANGLE PAC. FOREST	807650	0	27.560	4
	44-BAYSHORE INN	805455	19	27.275	4
	45-UNIV. OF B.C.	803000	0	27.275	6
	46-AMERICAN CAN OF CA	800640	20	464.200	14

TABLE 2.1 CONT'D

PRIVATE PAGING LICENSEES - PACIFIC REGION (2 OF 2)

LOCATION	LICENSEE	DOC#	INTEL#	FREQ (MHz)	PWR
STEVESTON	47-B.C. PACKERS	800073	0	27.760	25
VANDERHOOF	48-ST.JOHN HOSP.	861420	0	27.275	16
VERNON	49-VILLAGE GREEN INNS	852396	0	27.275	2
VICTORIA	50-CITATION ESTATES	856327	5	27.095	35
	51-C.P. HOTELS	824618	0	457.450	13
	52-VICTORIA PRESS	804961	7	31.420	18

TABLE 2.2
PRIVATE PAGING STATISTICS - PACIFIC REGION

PROVINCE	INTEL Q.-NO	DOC CODE	COV'GE (RADIUS-M)	PAGERS 1976 1981	DAILY CALLS	TONE PAGERS	
BRITISH COLUMBIA							
	3	831165	1.5	6	10	40	6
	4	806929	12.0	41	45	NR	0
	6	815841	1.0	30	NR	100	30
	7	804961	6.0	5	5	20	5
	9	852765	1.0	15	15	175	0
	12	848238	0.5	8	16	50	8
	13	848066	15.0	65	120	300	0
	15	833970	BLDG	143	200	750	0
	16	820094	2.0	25	25	NR	0
	19	805455	1.0	5	5	100	0
	20	800640	5.0	14	29	150	0
TOTALS REPORTED:				357	470	1685	49
SYSTEMS REPORTING:				11	10	9	11
AVG/SYSTEM REPORTING:				32	47	187	4
SYSTEMS ANALYSED:	11						

TABLE 2.3

PAGER POPULATION DISTRIBUTION - PRIVATE OPERATORSPACIFIC REGION

CELL#	LOWER LIMIT	NO. OF OBS	%RELATIVE FREQ
1	0.0000	4	36.3
2	10.0000	2	18.1
3	20.0000	1	9.0
4	30.0000	1	9.0
5	40.0000	1	9.0
6	50.0000	0	0.0
7	60.0000	1	9.0
8	70.0000	0	0.0
9	80.0000	0	0.0
10	90.0000	0	0.0
11	100.0000	0	0.0
12	110.0000	0	0.0
13	120.0000	0	0.0
14	130.0000	0	0.0
15	140.0000	1	9.0

N= 11

MEAN= 32.4545

STD.DEV= 41.0667

SKEWNESS= 1.7057

KURTOSIS= 4.8794

XMIN= 5.0000

XMAX= 143.0000

RANGE= 138.0000

Note: Pager quantities served by individual systems are distributed into cell ranges of 10 pagers each. The "No of Obs" column indicates the number of private systems having pager complements within each cell range, while the "% Relative Frequency" column indicates the percentage of the total observations which fall within each cell range.

TABLE 2.4

PRIVATE OPERATOR QUESTIONNAIRE REPLY SUMMARY - PACIFIC REGION

	PACIFIC	
	R	NR
<u>1-FREQ USAGE</u>		
FREQ SHARED	0	0
FREQ NOT SHARED	11	
<u>1C-SYSTEM FEATURES</u>		
TONE	3	8
TONE & VOICE	8	3
DIAL ACCESS	4	7
OPTR ACCESS	6	5
MESSG DEPOSIT	1	10
24 HR SVC	5	6
OTHER	2	9
<u>1C-PAGER FEATURES:</u>		
GROUP CALL	3	8
MULT. ADDRESS	2	9
ALERT STORAGE	0	11
HANDS OFF OPER'N	1	10
OTHER	2	9
<u>2C-USER FUNCTIONS:</u>		
EXECUTIVE	4	7
ENGINEERING	7	4
FOREMEN	4	7
PLANT MAINTENANCE	8	3
CUSTOMER SVC	3	8
MEDICAL	5	6
OTHER	5	6
<u>2D-SYSTEM SATISFACTION:</u>		
FULL	0	11
ADEQUATE	9	2
POOR	2	9
<u>2E-SYSTEM SHORTCOMINGS</u>		
POOR SERVICEABILITY	5	6
INADEQUATE COVERAGE	2	9
INCONVENIENT ACCESS	0	11
LIMITED OP. PERIODS	0	11
OTHER	7	4
<u>3A-REASON PRIVATE SYSTEM</u>		
LESS COSTLY	7	4
LIMITED COVERAGE NEEDS	6	5
SPEC COVERAGE NEEDS	1	10
ADDED TO 2-WAY RADIO	0	11
NO PUBLIC SERVICE	1	10
OTHER	4	7
<u>3B-PUBLIC SYSTEM USE</u>		
ALSO USE PUB SYSTEMS	3	1
DON'T USE PUB SYSTEMS	7	

TOTAL
REPLIES:- 11

2.2 - Private Paging Data

Central Region

TABLE 2.5

PRIVATE PAGING LICENSEES - CENTAL REGION (1 OF 2)

LOCATION	LICENSEE	DOC#	INTEL#	FREQ (MHz)	PWR
PROVINCE OF ALBERTA					
BANFF	1-WARNOCK HERSEY INT'L	816517	4	32.420	4
	2-C.P.R.	800121	7	30.420	4
CALGARY	3-HOLY CROSS HOSP	854549	0	149.290	93
	4-HIGHLANDER MOTOR HOT	853242	0	27.560	2
	5-CARRIAGE HOUSE MOTOR	853229	1	35.220	14
	6-BLACKFOOT MOTOR INN	853228	0	30.220	2
	7-FAIRVIEW CORP. LTD.	852470	0	27.275	23
	8-XEROX OF CA.	848066	2	464.925	23
	9-CALGARY INN	843901	0	27.275	9
	10-POST OFF DEPT.	831900	0	32.420	20
	11-UNIV. OF CALGARY	829867	3	30.220	20
	12-I.B.M. OF CA. LTD	823560	0	454.300	60
	13-ALB. NATURAL GAS	815372	0	27.560	3
	14-MOUNT ROYAL COLL.	803199	5	27.235	12
	15-MOUNT ROYAL COLL.	803199	5	30.200	2
	16-ALB. GOV. SERVICES	800768	0	27.095	5
	17-HUDSON'S BAY C.	800235	0	453.500	10
	18-C.P.R.	800121	6	32.420	35
	19-PROV.ALB.DEPT.OF GOV	800768	15	31.920	20
COLD LAKE	20-DEPT. OF NAT'L DEFEN	838923	9	27.235	16
EDMONTON	21-EDMONTON EXHIBITON A	850791	8	31.920	40
	22-XEROX OF CA. LTD	848066	0	464.925	73
	23-BURNS FOOD LTD	844677	0	27.760	4
	24-GLENROSE PROV. GEN'L	836325	0	27.265	2
	25-NORTHERN HARDWARE CO	834528	0	27.966	4
	26-DEPT. OF ADVANCED ED	834268	10	119.000	1
	27-POST OFF. DEPT.	831900	0	32.420	20
	28-GAINERS LTD.	827131	0	27.960	4
	29-I.B.M. OF CA. LTD	823560	11	454.300	190
	30-ABBEY GLEN PROP.	816571	0	27.265	14
	31-UNIV. OF ALB.	815596	0	469.900	100
	32-RIVIERA HOTEL CO.	815128	12	27.560	4
	33-ALB. RESEARCH COUNCI	805856	0	27.095	4
	34-PROV.ALB.DEPT.OF GOV	800768	14	31.420	20
	34-PROV.ALB.DEPT.OF GOV	800768	0	31.420	16
	35-ALB. GOV. TELEPHONE	800714	16	27.245	2
	36-IMP OIL LTD & IMP OI	800257	17	149.020	175
	37-HUDSON'S BAY CO.	800235	0	149.290	46
	38-HUDSONS BAY CO.	800235	0	30.420	4
	39-HUDSONS BAY CO	800235	18	30.420	4
	40-C.N.R. CO.	800119	19	27.235	25
FORESTBURG	41-ALB. POWER LTD	800151	0	30.020	16
FORT SASKATCHEWA	42-SHERRIT GORDON MINES	800604	0	464.100	19
GRANDE CACHE	43-ALB. POWER LTD	800151	0	30.020	36
JASPER	44-C.N.R.	800119	0	27.235	25
LAKE LOUISE	45-C.P.R.	800121	0	27.960	17
LETHBRIDGE	46-CA PACKERS LTD.	820170	0	149.020	39
	47-LETHBRIGE COM. COLL.	807544	0	27.235	25
OLIVER	48-ALTA SOC. SERV. & CO	803630	0	167.880	112
RED DEER	49-CENTRAL ALB. DAIRY P	800458	0	27.760	7
	50-PROV.ALB. DEPT.OF GO	800768	0	31.420	40

TABLE 2.5 CONT'D

PRIVATE PAGING LICENSEES - CENTAL REGION (2 OF 2)

LOCATION	LICENSEE	DOC#	INTEL#	FREQ (MHz)	PWR
VERMILION	51-PROV. ALB. DEPT. OF	800768	0	31.420	4
PROVINCE OF SASKATCHEWAN					
NORTH BATTLEFORD	52-DEPT. SASK. PUBLIC HEA	805776	0	30.020	32
PRINCE ALBERT	53-PRINCE ALBERT PULP C	841554	0	464.100	19
	54-HOLY FAMILY HOSP	807435	0	30.020	28
REGINA	55-S. SASK. HOSPITAL	837650	4	149.020	80
	56-BROAD ST. PARK DEV.	816492	5	27.275	5
	57-SASK. POWER CORP.	800452	0	149.290	85
SASKATOON	58-BESSBOROUGH HOTEL LT	858644	1	27.235	25
	59-SASKATOON CITY HOSP	853301	0	30.420	20
	60-UNIV. OF SASK HOSP.	825689	2	30.020	28
SWIFT CURRENT	61-MRS DOROTHY IRWIN	829434	0	27.760	17
WEYBURN	62-MRS GLADYS ZIRK	849521	3	168.450	2
YORKTON	63-YORKTON UNION HOSP	815377	0	30.020	32
PROVINCE OF MANITOBA					
THOMPSON	64-SCH. DIST. OF MYSTER	809744	0	27.960	31
WINNIPEG	65-WINNIPEG ART GAL	852743	0	27.195	3
	66-SMITH ST. DEVELOPP.	851504	0	27.195	3
	67-WELLINGTON HOTEL LTD	851417	2	27.255	6
	68-MAN. CANCER TREAT.	850104	0	31.920	6
	69-XEROX OF CA. LTD	848066	0	464.675	250
	70-CAE AIRCRAFT LTD.	847039	3	27.195	3
	71-MISERICORDIA GEN'L H	846501	0	31.920	25
	72-MISERICORDIA GEN'L H	846501	0	149.020	85
	73-UNIV OF WINNIPEG	841501	0	31.420	18
	74-HEALTH SCIENCES CTR	833285	4	30.020	22
	75-I.B.M. OF CA. LTD.	823560	0	454.300	238
	76-C.T. LOUNT CONST. CO	821224	0	27.255	5
	77-PUBLIC PRESS CO.	818893	5	27.195	3
	78-A.A. DEFEHR MFT.	817962	0	27.195	3
	79-IMP. DEV. (INTN'L) LT	817420	0	27.195	2
	80-CHILDRENS HOSP OF WI	814333	6	27.560	18
	81-WESCOTT FASHIONS	813738	0	27.195	3
	82-MAN. DEPT OF P.W.	812245	7	27.195	3
	83-VICTORIA GEN'L HOSP.	807636	8	27.960	32
	84-BROADWAY HOTELS LTD	806886	0	149.020	110
	85-WINNIPEG INN LTD.	806849	9	27.275	10
	86-MONARCH WEAR LTD	801521	0	27.265	5
	87-WINNIPEG FREE PRESS	800519	0	30.420	4
	88-HUDSON'S BAY CO. LTD	800235	10	464.900	70
	89-C.N.R.	800119	0	30.420	38

TABLE 2.6

PRIVATE PAGING STATISTICS - CENTRAL REGION

PROVINCE	INTEL Q.-NO	DOC CODE	COV'GE (RADIUS-M)	PAGERS 1976 1981		DAILY CALLS	TONE PAGERS
ALBERTA	1	853229	BLDG	3	5	1000	2
	3	829867	NR	80	100	75	NR
	4	816517	0.5	6	15	45	NR
	5	803199	5.0	20	20	60	0
	8	850791	4.0	23	35	50	0
	10	834268	20.0	35	50	50	35
	14	800768	BLDG	1	1	2	1
	15	800768	5.0	20	25	40	20
	16	800714	1.0	5	10	2	0
	17	800257	15.0	68	130	50	0
	18	800235	0.2	7	13	70	0
	19	800119	BLDG	17	NR	NR	17
	83	829867	NR	80	100	75	NR
SASKATCHEWAN	2	825689	8.0	100	200	NR	0
	4	837650	15.0	70	70	NR	0
	5	816492	2.0	10	20	50	0
MANITOBA	1	854506	0.1	10	10	20	10
	3	847039	0.1	12	NR	10	12
	5	818893	0.5	9	9	15	9
TOTALS REPORTED:				576	813	1614	106
SYSTEMS REPORTING:				19	17	16	16
AVG/SYSTEM REPORTING:				30	48	101	7
SYSTEMS ANALYSED: 19							

TABLE 2.7

III-26

PAGER POPULATION DISTRIBUTION - PRIVATE OPERATORSCENTRAL REGION

CELL#	LOWER LIMIT	NO. OF OBS	%RELATIVE FREQ
1	0.0000	6	31.5
2	10.0000	4	21.0
3	20.0000	3	15.7
4	30.0000	1	5.2
5	40.0000	0	0.0
6	50.0000	0	0.0
7	60.0000	1	5.2
8	70.0000	1	5.2
9	80.0000	2	10.5
10	90.0000	0	0.0
11	100.0000	1	5.2

N= 19
MEAN= 30.3158
STD.DEV= 31.8417
SKEWNESS= 0.9348
KURTOSIS= 2.2185
XMIN= 1.0000
XMAX= 100.0000
RANGE= 99.0000

Note: Pager quantities served by individual systems are distributed into cell ranges of 10 pagers each. The "No of Obs" column indicates the number of private systems having pager complements within each cell range, while the "% Relative Frequency" column indicates the percentage of the total observations which fall within each cell range.

TABLE 2.8

PRIVATE OPERATOR QUESTIONNAIRE REPLY SUMMARY - CENTRAL REGION

	CENTRAL	
	R	NR
<u>1-FREQ USAGE</u>		
FREQ SHARED		1
FREQ NOT SHARED	2	
	16	
<u>1C-SYSTEM FEATURES</u>		
TONE	10	9
TONE & VOICE	12	7
DIAL ACCESS	4	15
OPTR ACCESS	5	14
MESSG DEPOSIT	2	17
24 HR SVC	9	10
OTHER	2	17
<u>1C-PAGER FEATURES:</u>		
GROUP CALL	6	13
MULT. ADDRESS	2	17
ALERT STORAGE	0	19
HANDS OFF OPER'N	0	19
OTHER	1	18
<u>2C-USER FUNCTIONS:</u>		
EXECUTIVE	7	12
ENGINEERING	5	14
FOREMEN	10	9
PLANT MAINTENANCE	14	5
CUSTOMER SVC	7	12
MEDICAL	3	16
OTHER	6	13
<u>2D-SYSTEM SATISFACTION:</u>		
FULL	7	12
ADEQUATE	7	12
POOR	1	18
<u>2E-SYSTEM SHORTCOMINGS</u>		
POOR SERVICEABILITY	4	15
INADEQUATE COVERAGE	2	17
INCONVENIENT ACCESS	1	18
LIMITED OP. PERIODS	1	18
OTHER	6	13
<u>3A-REASON PRIVATE SYSTEM</u>		
LESS COSTLY	12	7
LIMITED COVERAGE NEEDS	5	14
SPEC COVERAGE NEEDS	6	13
ADDED TO 2-WAY RADIO	1	18
NO PUBLIC SERVICE	2	17
OTHER	6	13
<u>3B-PUBLIC SYSTEM USE</u>		
ALSO USE PUB SYSTEMS		0
DON'T USE PUB SYSTEMS	6	
	13	
TOTAL		
REPLIES:	19	

2.3 Private Paging Data

Ontario Region

TABLE 2.9

III-29

PRIVATE PAGING LICENSEES - ONTARIO (1 OF 3)

LOCATION	LICENSEE	DOC #	INTEL#	FREQ(MHz)	PWR
AURORA	1-STERLING DRUG LTD	816827	0	27.960	4
AYLMER	2-IMPERIAL LEAF TOBACC	820130	0	27.255	4
BELLEVILLE	3-FOUR SEASONS HOTELS	818822	8	30.020	14
BRAMALEA	4-LEPAGE'S LTD	808837	0	27.275	11
	5-THOMAS J. LIPTON LTD	801725	0	30.420	5
	6-NORTHERN ELCT CO LTD	800719	17	27.045	17
BRAMPTON	7-AMERICAN MOTORS CO L	821965	16	27.195	1
BRANTFORD	8-MASSEY FERGUSON	800120	0	27.560	3
BROCKVILLE	9-BROCKVILLE GEN'L HOS	839583	0	49.020	63
CAMBRIDGE	10-SOUTH WATERLOO MEMOR	839493	0	30.220	3
CHATHAM	11-COMMONWEALTH HOLIDAY	846644	0	27.275	63
CLARKSON	12-INTERN'L NICKEL OF C	801122	0	70.875	10
CORKSVILLE	13-FRUEHAUF TRAILR CO O	803115	0	30.020	4
DURHAM	14-DURHAM MEMORIAL HOSP	836465	0	149.020	36
ESPANOLA	15-EDDY FOREST PRODS	800696	0	149.020	16
EXETER	16-SOUTH HURON HOSP ASS	819242	21	27.960	18
GUELPH	17-UNIV OF GUELPH	839239	0	149.290	28
	18-ST JOSEPH'S HOSP	841393	0	30.420	22
HAMILTON	19-ATLAS STEEL CO	805464	27	149.290	15
	20-McMASTER UNIV	831231	23	149.020	120
	21-INTERN'L HARVESTER C	822933	0	27.275	8
HAMILTON	22-ST JOSEPH HOSP	822780	0	31.420	18
	23-HAMILTON GEN'L HOSP	822083	24	30.420	33
	24-CHEDOKE HOSP	817220	0	454.225	5
	25-PROCTOR & GAMBLE CO	807024	0	27.265	11
	25-PROCTOR & GAMBLE CO	807024	0	27.265	46
	26-STEEL CO OF CA LTD	803211	0	27.195	1
	27-MINISTRY OF HEALTH	827944	0	33.920	10
HAWKESBURY	28-AMOCO CA PETROLEUM C	848078	0	464.175	54
	29-C'DIAN INTERN'L PAPE	800111	0	30.020	28
	30-DUPLATE CAN LTD	821315	5	464.100	21
IROQUOIS FALLS	31-ABITIBI PAPER CO LTD	800054	0	169.020	33
KAPUSKASING	32-SPRUCE FALLS POWER &	800958	0	30.020	20
KINGSTON	33-KINGSTON GEN'L HOSP	825764	0	27.560	58
	34-D.A. WHITE CO LTD	810267	0	27.265	5
	35-HOLIDAY INN	80991	0	27.265	5
KITCHENER	36-JM SCHNEIDER LTD	839357	15	30.020	22
LEAMINGTON	37-H.J.HEINZ CO	816241	2	27.045	1
LINDSAY	38-ROSS MEMORIAL HOSP	850033	0	27.235	15
LITTLE CURRENT	39-ST JOSEPH HOSP	842566	11	30.020	23
LONDON	40-ST JOSEPH'S HOSP	849401	0	27.960	18
	41-PARKWOOD HOSP	839157	0	27.560	63
	42-VICTORIA HOSP	832738	19	30.020	22
	43-LONDON HEALTH ASSOC	815444	0	30.420	18
	44-COMMONWEALTH HOLIDAY	846644	18	27.265	1
MAITLAND	45-BROCKVILLE CHEM.	804913	0	27.235	2
MISSISSAUGA	46-ST LAWRENCE CEMENT C	811222	48	27.275	9
NIAGARA FALLS	47-CYANAMID OF CA LTD	802562	0	27.560	18
	48-C'DIAN CARBORUNDUM C	801985	28	149.020	30
NORTH BAY	49-ST JOSEPH HOSP	850172	0	27.960	18
OAKVILLE	50-FORD MOTOR CO OF CA	800203	0	469.600	188
ORANGEVILLE	51-ONT. HYDRO	800237	0	27.560	2
ORILLIA	52-MIN OF HEALTH	827944	39	27.045	2
OSHAWA	53-OSHAWA GEN'L HOSP	836952	36	30.020	22
	54-DUPLATE CA LTD	821315	0	30.220	15
	55-GM OF CAN LTD	800237	0	31.420	42

TABLE 2.9 CONT'D

PRIVATE PAGING LICENSEES - ONTARIO (2 OF 3)

LOCATION	LICENSEE	DOC#	INTEL#	FREQ (MHz)	PWR
OTTAWA	56-TWP OF NEPEAN	850081	3	27.235	5
	57-XEROX OF CA LTD	848066	0	464.125	242
	58-SKYLINE HOTEL	847090	4	30.020	22
	59-COMMONWEALTH HOLIDAY	846644	0	27.265	6
	60-I.B.M. OF CA LTD	823560	0	451.800	230
	61-DEPT OF EXTERNAL AFF	813091	0	149.020	30
	62-J.M. HILL & SONS TD	811142	0	27.275	1
	63-C.N.R. CO.	800119	55	27.275	20
PICTON	64-LAKE ONT. CEMENT LTD	801921	9	30.020	18
PRESTON	65-EASTERN STEEL PROD L	850095	13	27.275	6
ST. CATHERINE	66-BROCK UNIV	833306	0	27.275	18
	67-THOMPSON PROD. LTD	821327	25	30.020	5
ST THOMAS	68-ONT.DEPT.OF HEALTH C	827944	20	149.290	32
SARNIA	69-SARNIA GEN'L HOSPITA	850348	0	149.020	120
	70-POLYSAR LTD	806399	0	27.255	5
SAULT STE MARY	71-IMP OIL LTD & IMP OI	800203	22	140.880	250
	72-ALGOMA STEEL CORP LT	800814	12	149.020	22
SIMCOE	73-NORFOLK GEN'L HOSP	810202	26	149.290	123
SMITHS FALLS	74-BEACH IND LTD	808663	6	27.560	4
SOUTH PORCUPINE	75-MINISTRY OF HEALTH	827944	0	30.420	35
	76-SUDBURY MEMORIAL HOS	805496	0	27.960	72
SUDBURY	77-CASWELL HOTEL LTD	804364	0	27.560	5
TALBOTVILLE	78-FORD MOTOR CO OF CA	800203	0	46.460	74
TECUMSEH	79-GREEN GIANT OF CAN	806267	0	27.045	2
TERRACE BAY	80-KIMBERLY-CLARK OF CA	804402	57	33.920	20
THUNDER BAY	81-OGILVIE FLOUR MILLS	849965	0	27.255	12
	82-CONFEDERATION COLLEG	837972	0	27.245	11
	83-CONFEDERATION COLLEG	837972	0	9300.000	80
	84-CONFEDERATION COLLEG	837972	0	9480.000	20
	85-CONFEDERATION COLLEG	837972	0	166.800	6
	86-LAKEHEAD UNIV	836805	56	27.960	45
	87-C'DIAN CAR DIV.	811328	0	27.275	13
	88-LORNE EXT. LTD	806445	0	167.160	10
	89-GEN'L HOSP OF PORT A	801434	0	31.420	9
	90-NORTHERN WOOD PRES L	800711	0	27.265	10
	91-GREAT LAKES PAPER CO	800387	58	32.420	20
	92-LIVINGSTON IND LTD	822494	0	27.265	12
TILLSONBURG	93-ST.MARY'S GEN'L HOSP	800910	10	30.420	23
TIMMINS	94-ROBERT SIMPSON CO LT	851178	29	31.420	18
TORONTO	95-TORONTO E.GEN'L & OR	849884	30	30.020	3
	96-EMPRIRE REALTY CO LT	849571	0	27.235	5
	97-TRITON CTRS LTD	848539	0	27.245	12
	98-XEROX OF CA LTD	848066	31	464.125	211
	99-THE GUILD INN	847835	0	30.020	22
	100-SKYLINE HOTEL	847090	0	27.960	22
	101-COMMONWEALTH HOLIDAY	846644	32	27.275	63
	101-COMMONWEALTH HOLIDAY	846644	0	27.275	63
	102-NORTH YORK BRANSON H	846283	0	30.020	5
	103-C'DIAN MOTOROLA ELEC	801010	52	149.020	9
	104-THE SIMPSON TOWER LT	844932	33	30.020	22
	105-SEAWAY HOTELS	800242	0	27.255	10
	106-YORK UNIVERSITY	827103	40	30.420	13
	107-NEW MOUNT SINAI HOSP	843845	0	27.195	2
	108-NORTH AMERICAN LIFE	842454	0	27.255	2
	109-SCARBOROUGH GEN'L HO	842021	34	30.020	22

TABLE 2.9 (CONTD)

PRIVATE PAGING LICENSEES - ONTARIO (3 OF 3)

III-31

LOCATION	LICENSEE	DOC#	INTEL#	FREQ(MHz)	PWR
TORONTO	110-CA WIRE & CABLE CO.	839377	0	30.220	25
	111-FERGUSON IND	800120	0	27.560	3
	112-NORTH YORK GEN'L HOS	839118	0	30.220	22
	113-MANUF LIFE INSU CO.	837796	35	27.560	22
	114-MANUF. LIFE INSU. CO	837796	0	30.420	22
	115-PILKINGTON BROS. CAL	836910	37	27.265	22
	116-SUTTON PL. LTD.	836160	0	30.420	22
	117-SUNNYBROOK HOSP.	831992	0	27.760	3
	118-MINISTRY OF HEALTH	827944	0	27.560	2
	119-MINISTRY OF HEALTH	827103	40	30.420	13
	120-CONSTEL. HOTEL CRP.	825309	0	27.560	10
	121-WESTBURY HOTEL	823895	0	27.045	1
	122-WINDSOR ARMS HOTEL	823811	41	27.255	1
	123-I.B.M. OF CA. LTD	823560	0	419.900	1
	124-I.B.M. OF CA. LTD.	823560	0	451.800	223
	125-I.B.M. OF CA. LTD.	823560	0	454.300	60
	126-DOCTORS HOSP	823145	0	27.275	8
	127-QUEEN ELIZABETH HOSP	822717	42	27.760	5
	128-CA. PACKERS LTD	820170	0	27.045	1
	129-RYERSON POLY. INST	819850	43	27.245	30
	130-C'DIAN SWISS HOTELS	819842	0	160000.000	15
	131-DOMINION CO. OR CORP	819577	0	27.275	1
	132-ST. JOSEPH HOSP	819079	44	31.420	18
	133-GOODYEAR T.&R. OF CA	818982	0	27.960	22
	134-FOUR SEASONS MOTOR H	818822	0	27.960	22
	135-FOUR SEASONS HOTELS	818822	45	27.900	5
	136-SCARBOROUGH GEN'L HO	815667	0	27.275	36
	137-WELLESLEY HOSP.	815483	46	33.920	18
	138-PHILIPS ELECT. IND L	813769	0	27.275	8
	139-T. EATON CO. LTD	812744	0	30.020	4
	140-UNIV. OF TORONTO	811960	47	469.925	64
	141-WOMENS COLLEGE HOSP	808029	0	32.420	25
	142-KING EDWARD HOTEL	807132	49	27.760	5
	143-ANACONDA AMERICAN BR	803229	0	27.560	2
	144-A.R. CLARK & CO. LT	805371	0	46.460	4
	145-C'DIAN IMP BANK OF C.	804746	50	27.560	28
	146-SEIBERLING RUBBER CO	804086	0	27.255	1
	147-HOSP FOR SICK CHILD	803045	51	27.960	22
	148-TORONTO WESTERN HOSP	801885	0	30.020	3
	149-ONT HYDRO	800237	53	27.045	2
	150-ONT. HYDRO.	800237	0	31.420	28
	151-C'DIAN PACIFIC LTD	800121	54	27.560	6
	152-MASSEY FERGSON IND.	800120	0	27.960	18
WATERLOO	153-MUTUAL LIFE ASSUR.CO	849373	14	31.420	2
WELLAND	154-UNION CARBIDE CA LTD	800186	0	30.020	20
	155-ATLAS STEEL CO	805464	27	149.290	15
WHITBY	156-MINISTRY OF HEALTH	827944	0	27.045	3
WINDSOR	157-VISCOUNT MOTOR HOTEL	835678	0	30.020	4
	158-WINDSOR RACEWAY HOLD	826293	1	30.420	21
	159-UNIV OF WINDSOR	823205	1	27.960	22
WOODSTOCK	160-CHARLES H. MAJOR	831724	0	27.560	72
	161-ONT. DEPT OF HEALTH	827944	0	49.020	24

TABLE 2.10
PRIVATE PAGING STATISTICS - ONTARIO REGION

PROVINCE	INTEL Q.-NO	DOC CODE	COV'GE (RADIUS-M)	PAGERS 1976 1981	DAILY CALLS	TONE PAGERS	
ONTARIO							
	2	816241	0.5	36	39	118	0
	5	821315	0.5	12	20	75	NR
	6	808663	15.0	5	5	10	0
	7	8000110	4.0	40	40	75	0
	8	818822	3.0	8	12	90	8
	9	801921	1.0	25	35	250	0
	10	800910	10.0	15	30	100	0
	11	842566	2.0	13	15	60	13
	12	800814	15.0	130	175	70	0
	14	849373	0.7	5	1	5	0
	15	839357	2.0	45	55	100	0
	17	800719	1.0	NR	NR	NR	NR
	18	846644	2.0	1	1	30	NR
	19	832738	1.5	125	350	300	0
	21	819242	1.0	11	11	25	0
	22	800257	20.0	155	NR	NR	0
	23	831231	40.0	450	550	1000	0
	24	822083	0.5	40	60	450	0
	26	810202	15.0	26	26	50	0
	27	805464	4.0	46	44	NR	0
	29	851178	0.5	27	27	50	27
	31	848066	10.0	140	348	700	0
	33	844932	BLDG	5	5	30	5
	35	837796	15.0	9	12	25	0
	36	836952	4.0	98	98	500	0
	37	836910	1.0	16	20	100	16
	38	830454	1.0	40	50	160	0
	39	827944	5.0	55	55	150	0
	40	827103	1.0	75	100	100	72
	42	822717	BLDG	70	100	35	0
	45	818822	BLDG	20	25	300	4
	46	815483	2.0	61	NR	625	0
	47	811960	2.5	85	100	300	0
	48	811222	NR	35	35	25	0
	51	803045	1.0	68	NR	500	58
	52	801010	15.0	4	10	16	0
	53	800237	1.5	32	32	120	0
	54	800121	NR	44	NR	NR	0
	55	800119	1.0	16	NR	50	16
	56	836805	4.0	15	15	45	15
	58	800387	1.0	70	100	2	70
TOTALS REPORTED:				2173	2601	6641	304
SYSTEMS REPORTING:				40	35	37	38
AVG/SYSTEM REPORTING:				54	74	179	8
SYSTEMS ANALYSED:	41						

TABLE 2.11

PAGER POPULATION DISTRIBUTION - PRIVATE OPERATORS
 ONTARIO REGION

III-33

CELL#	LOWER LIMIT	NO. OF OBS	%RELATIVE FREQ
1	0.0000	7	17.5
2	10.0000	7	17.5
3	20.0000	4	10.0
4	30.0000	3	7.5
5	40.0000	6	15.0
6	50.0000	1	2.5
7	60.0000	2	5.0
8	70.0000	3	7.5
9	80.0000	1	2.5
10	90.0000	1	2.5
11	100.0000	0	0.0
12	110.0000	0	0.0
13	120.0000	1	2.5
14	130.0000	1	2.5
15	140.0000	1	2.5
16	150.0000	1	2.5
17	160.0000	0	0.0
18	170.0000	0	0.0
19	180.0000	0	0.0
20	190.0000	0	0.0
21	200.0000	0	0.0
22	210.0000	0	0.0
23	220.0000	0	0.0
24	230.0000	0	0.0
25	240.0000	0	0.0
26	250.0000	0	0.0
27	260.0000	0	0.0
28	270.0000	0	0.0
29	280.0000	0	0.0
30	290.0000	0	0.0
31	300.0000	0	0.0
32	310.0000	0	0.0
33	320.0000	0	0.0
34	330.0000	0	0.0
35	340.0000	0	0.0
36	350.0000	0	0.0
37	360.0000	0	0.0
38	370.0000	0	0.0
39	380.0000	0	0.0
40	390.0000	0	0.0
41	400.0000	0	0.0
42	410.0000	0	0.0
43	420.0000	0	0.0
44	430.0000	0	0.0
45	440.0000	0	0.0
46	450.0000	1	2.5

N= 40
 MEAN= 54.3250
 STD.DEV= 75.5681
 SKEWNESS= 3.6541
 KURTOSIS= 19.0076
 XMIN= 1.0000
 XMAX= 450.0000
 RANGE= 449.0000

Note: Pager quantities served by individual systems are distributed into cell ranges of 10 pagers each. The "No of Obs" column indicates the number of private systems having pager complements within each cell range, while the "% Relative Frequency" column indicates the percentage of the total observations which fall within each cell range,

PRIVATE OPERATOR REPLY SUMMARY - QUEBEC REGION

	ONTARIO	
	R	NR
<u>1-FREQ USAGE</u>		0
FREQ SHARED	4	
FREQ NOT SHARED	37	
<u>1C-SYSTEM FEATURES</u>		
TONE	9	32
TONE & VOICE	34	7
DIAL ACCESS	3	38
OPTR ACCESS	18	23
MESSG DEPOSIT	4	37
24 HR SVC	25	16
OTHER	5	36
<u>1C-PAGER FEATURES:</u>		
GROUP CALL	14	27
MULT. ADDRESS	6	35
ALERT STORAGE	2	39
HANDS OFF OPER'N	5	36
OTHER	6	35
<u>2C-USER FUNCTIONS:</u>		
EXECUTIVE	25	16
ENGINEERING	25	16
FOREMEN	30	11
PLANT MAINTENANCE	33	8
CUSTOMER SVC	10	31
MEDICAL	15	26
OTHER	20	21
<u>2D-SYSTEM SATISFACTION:</u>		
FULL	23	18
ADEQUATE	15	26
POOR	3	38
<u>2E-SYSTEM SHORTCOMINGS</u>		
POOR SERVICEABILITY	9	32
INADEQUATE COVERAGE	8	33
INCONVENIENT ACCESS	1	40
LIMITED OP. PERIODS	1	40
OTHER	16	25
<u>3A-REASON PRIVATE SYSTEM</u>		
LESS COSTLY	22	19
LIMITED COVERAGE NEEDS	18	23
SPEC COVERAGE NEEDS	9	32
ADDED TO 2-WAY RADIO	4	37
NO PUBLIC SERVICE	6	35
OTHER	7	34
<u>3B-PUBLIC SYSTEM USE</u>		0
ALSO USE PUB SYSTEMS	14	
DON'T USE PUB SYSTEMS	27	

ANALYSED
REPLIES:- 41

2.4 - Private Paging Data

Quebec Region

TABLE 2.13

III-36

PRIVATE PAGING LICENSEES - QUEBEC (1 OF 4)

LOCATION	LICENSEE	DOC#	INTEL#	FREQ (MHz)	PWR
ALMA	1-HOTEL-DIEU D'ALMA	827125	0	30.020	22
AMOS	2-HOP HOTEL DIEU D'AMO	809431	0	149.290	9
AMQUI	3-HOP D'AMQUI	808089	21	149.290	45
ARTHABASKA	4-HOP HOTEL-DIEU ARTHA	805923	0	149.020	67
ASBESTOS	5-CDN JOHNS-MANVILLE C	804217	0	149.020	36
BAIE ST-PAUL	6-CTRE HOSP CHARLEVOIX	840371	0	27.045	2
BEAUCEVILLE	7-HOP ST JOSEPH	840095	0	149.290	51
BEAU PORT	8-JB DESCHAMPS INC.	870778	0	27.195	3
BEAUPRE	9-ABITIBI STE ANNE PAP	820370	0	27.045	1
BERTHIERVILLE	10-GREAT LAKES CARBON	839504	6	149.020	10
BROWNSBURG	11-C'DIAN IND LTD	826770	0	149.290	11
CABANO	12-PAPIER CASCADES (CABA	869976	8	27.095	5
CAPE AUX MEULES	13-CTRE HOSP N.D. GUARD	864413	0	143.475	14
CAP-DE-LA-MADELE	14-REYNOLDS ALUM CO OF	866230	5	149.290	49
CHANDLER	15-HOP GEN'L CHANDLER	861609	0	149.290	60
CHICOUTIMI	16-HOP DE CHICOUTIMI IN	861795	0	27.145	2
COATICOOK	17-CTR HOP DE COATICOOK	804244	0	149.290	29
DRUMMONDVILLE	18-HOP ST CROIX	808954	32	149.020	22
	19-PAVILLON GEORGES FRE	803005	34	149.290	17
EAST-ANGUS	20-DOMTAR PACKAGING LTD	819313	0	30.020	20
FARHAM	21-COLLINS & AIKMAN CO.	869574	27	27.960	5
FERMONT	22-CAN MET-CHEM CONS	871242	3	149.020	45
	23-COMSTOCK(QUE)LTD	846521	0	162.030	55
GATINEAU	24-CDN INTN'L PAPER CO	800111	7	27.235	1
GASPE	25-CTRE HOP SAN ROSS GA	860049	12	30.220	4
	26-HOTEL DIEU GASPE	806653	22	27.235	16
GRANBY	27-ESMOND MILLS CO LTD	864077	0	30.020	21
	28-HOP GEN'L DE SHEFFOR	804994	33	149.290	54
GRANDE-VALLEE	29-CLSC DE GRAND-VALLEE	870077	7	30.020	20
HAUTERIVE	30-HOP HOTEL-DIEU HAUTE	810703	4	30.220	19
HULL	31-HOP DU SACRE-COEUR	854614	69	27.195	3
JOLIETTE	32-HOP ST CHARLES JOLIE	833619	0	149.290	45
	33-HOP ST EUSEBE DE JOL	808651	0	30.020	27
JONQUIERE	34-CTR HOSP JONQUIERE A	864319	25	149.290	124
KENOGAMI	35-LA CO. PRICE LTD	800737	0	31.420	13
KNOWLTON	36-CLAIROL OF CANADA IN	836500	30	30.420	8
LACHINE	37-ALLIS CHALMERS CA LT	869284	36	27.760	22
	38-HUMTPY DUMPTY FOODS	854138	0	27.265	10
	39-NORTHERN ELECT CO LT	800719	0	27.045	2
LAC QUEUILLON	40-DOMTAR LIMITEE	855796	0	27.960	47
LAC-MEGANTIC	41-HOP ST JOSEPH	868918	0	149.290	5
LAC MEGANTIC	41-HOP ST JOSEPH	840095	0	149.290	5
LA MALBAIE	42-CO.DONOHUE LTD	804930	23	149.290	97
LA POCATIERE	43-HOP N.-D. DE FATIMA	809433	0	149.020	38
	44-MATERIEL DE TRANSP B	868826	9	31.420	21
LA TUQUE	45-CDN INT. PAPER CO.	862801	0	30.420	44
LAUZON	46-CEGEP LEVIS-LAUZON	867599	0	27.760	22
LAVAL	47-COL BOUL DE L'AVENIR	864575	0	27.760	32
LES ESCOUMAINS	48-CTR HOP ST.ALEXANDRE	868133	0	30.020	22
LONGUEUIL	49-GEN'L WOODS & VENEER	839519	0	30.420	10
	50-CEGEP EDWARD PETIT	803826	0	149.290	12

TABKE 2.13 (CONT'D)

PRIVATE PAGING LICENSEES - QUEBEC (2 OF 4)

LOCATION	LICENSEE	DOC#	INTEL#	FREQ(MHz)	PWR
MALARTIC	51-CAMPLO MINES LT	851561	0	149.020	63
MANIWAKI	52-HOP ST JOSEPH	870137	0	149.020	26
MARIA	53-CTR HOSP BAIE-DES-CH	856969	13	162.060	68
MATANE	54-CEGEP DE MATANE	869278	0	30.020	18
MONTEBELLO	55-C'DIAN PACIFIC HOTEL	824618	0	30.020	4
MONT GABRIELLE	56-O'CONNELL MONT GABRI	827566	0	27.045	1
MONT JOLI	57-ALAIN TROTTIER	814014	0	149.020	8
MONT LAURIER	58-ACHILLE OUELLET & FI	869168	0	30.020	20
	59-HOP NOTRE-DAME ST CR	809196	62	149.020	48
MONTMAGNY	60-HOTEL-DIEU MONTMAGNY	861396	0	30.020	20
MONTREAL	61-CONSTELLATION HOTEL	868154	37	27.960	5
	62-HOTEL BONAVENTURE	865305	0	452.200	11
	63-DORCHESTER PROP	863011	40	27.265	10
	64-JOSEPH ROBB & CO LTD	862088	0	27.760	5
	65-E.R. SQUIBB & SONS L	860242	0	30.020	4
	66-OP STE JEANNE D'ARC	855457	42	30.020	18
	67-MONTREAL GN'L HOSP	855255	0	27.235	30
	68-INSTITUT DE CARDIOLO	852155	43	143.085	6
	69-CEGEP DU VIEUX MONTR	850231	0	149.290	5
	70-UNIV.DU QUE MONTREAL	848980	44	149.680	12
	71-IMPERIAL TOBACCO LTD	848849	0	27.760	5
	72-XEROX OF CA LTD	848066	0	464.150	125
	73-HOSP N.-D. MERCI INC	845686	0	27.235	22
	74-SUN LIFE ASS'CE CO O	839716	0	31.420	35
	75-ARMSTRONG CORK CA LT	839520	48	30.220	10
	76-HOP RIVIERE DES PRAI	838117	49	27.760	18
	77-SIR GEORGE WILLIAMS	833814	51	27.235	18
	78-HOP SACRE-COEUR	833730	0	27.235	22
	79-HOTEL DIEU MONTREAL	833088	52	27.095	3
	80-LA REGIE DE LA PLACE	833041	0	30.420	22
	81-REV PERE ALBERT DUMO	829006	0	27.960	9
	82-C'DIAN STEEL WHEEL L	828545	53	149.290	5
	83-HUDSONS BAY CO LTD	827873	0	27.275	22
	84-INSTITUTE ALERT PREV	827399	54	27.275	13
	85-COPPER REFINERS LTD	827207	0	27.275	24
	86-CPR HOTELS LTD	824618	55	149.290	5
	87-IBM CA LTD	823560	56	454.800	125
	87-IBM CA LTD	823560	0	454.800	212
	88-CA PACKERS LTD	820170	0	27.045	1
	89-C'DIAN STEEL FOUNDRI	819898	57	27.560	5
	90-HOP ST JEAN DE DIEU	819866	0	27.760	20
	91-MONTREAL LOCOMOTIVE	819566	0	27.045	2
	92-HOP JEAN TALON	818670	0	30.020	10
	93-ROYAL VICTORIA HOSP	818407	0	27.560	18
	94-DORCHESTER COMMERCE	817324	59	27.045	2
	95-UNIV OF MONTREAL	815560	0	27.275	22
	96-HOP NOTRE-DAME	814665	60	30.020	24
	97-UNION KENNDY CORP	814253	0	27.255	17
	98-T EATON CO LTD	812744	61	176.550	1
	99-RITZ CARLETON HOTEL	809228	0	27.265	14
	100-DORCHESTER UNIV HOLD	806476	0	464.400	5

TABLE 2.13 (CONT'D)

PRIVATE PAGING LICENSEES - QUEBEC (3 OF 4)

LOCATION	LICENSEE	DOC#	INTEL#	FREQ (MHz)	PWR
MONTREAL	101-KRAFT FOODS LTD	805431	0	30.420	22
	102-McGILL UNIV	803280	0	27.195	72
	103-THE STEEL OF CA LTD	803211	66	27.045	1
	104-SHELL CA LTD	800555	0	27.235	28
	105-AIR CANADA	800488	67	452.500	10
	106-IMPERIAL OIL LTD	800257	0	149.290	57
	107-C'DIAN PACIFIC LTD	800121	68	27.560	5
	108-C'DIAN BROADCASTING	800154	0	143.655	125
	109-C'DIAN PACIFIC LTD	800121	0	27.560	5
MONT AIGUILLE	110-HOP MURDOCKVILLE INC	808131	0	30.020	20
NORANDA	111-HOP YOUVILLE	810558	0	143.475	38
NOTRE-DAME-DU-LA	112-HOP NOTRE-DAME-DU-LA	814677	0	27.235	34
POINT CLAIRE	113-ELECTROLUX CA LTD	851768	0	31.420	5
	114-COMMOWEALTH HOL IN C	846644	45	27.265	7
POINTE NOIRE	115-ARNAUD RAILWAY CO	818100	0	27.095	2
PORTNEUF	116-J.FORD & CO LTD.	870147	0	149.020	96
QUEBEC	117-HOP CENL DE QUE	861681	11	27.760	20
	118-HILTON PLACE QUE LTD	857702	0	149.290	4
	119-MINIST AFF.CULT.QUE	854306	0	149.020	15
	120-STRUTAL INC	852226	0	27.095	5
	121-WILFRID POSLUNS	847848	0	27.245	4
	122-COMMONWEALTH HOLIDAY	846644	15	27.255	7
	123-HOP HOTEL-DIEU QUE	825451	0	143.475	125
	124-HOP HOTEL-DIEU QUE	825451	0	70.875	10
	125-HOP CHRIST-ROY	824694	17	27.045	1
	126-C.P. HOTELS	824618	0	27.235	24
	127-HOP ENFANT-JESUS	818727	0	30.420	23
	128-HOP DU ST-SACREMENT	801184	24	30.020	21
	129-HOP ST FRANCOIS D'AS	800228	0	27.195	3
	130-HOTEL GRANDE ALLEE	857692	0	149.290	5
QUEBEC MASTAI	131-HOP ST MICHEL ARCHAN	800358	0	143.475	48
RIMOUSKI	132-CEGEP DE RIMOUSKI	850053	14	30.420	4
	133-HOP ST JOSEPH RIMOUS	822937	18	30.020	19
RIVIERE DU LOUP	134-HOTEL-DIEU RIV.DU LO	805075	0	149.020	60
ROBERVAL	135-CTR PSY DE ROBERVAL	844444	0	27.960	24
	136-HOTEL-DIEU ROBERVAL	834094	26	30.220	24
STE ADELE	137-SUN VALLEY FARM INC	856659	0	30.020	4
ST ANNE DES MONT	138-CORP HOP DESMONTS	802006	0	464.150	70
ST CANUT	139-INDUS MIN LTD	844865	0	30.020	4
ST FERDINAND CTE	140-HOP ST JULIEN	807316	0	149.290	68
STE FOY	141-XEROX DU CANADA LTD	848066	0	149.020	125
	142-HOP LAVAL	823477	0	30.220	22
	143-ATLIFIC INNS INC	817707	19	27.275	12
	144-ATLIFIC INNS INC	817707	0	27.250	12
ST-GEDEO CTE	145-CANAM STEEL WORKS IN	857179	28	30.020	20
ST-GEORGES OUEST	146-H.-D. N.-D. DE BEAUC	801923	0	149.020	53
ST HYACINTHE	147-HOP H.-D. ST HYACINT	863271	0	30.020	22
	148-HOP HONORIE MRCIER I	805067	64	149.290	44
ST JEROME	149-CEGEP DE ST JEROME	870284	35	31.420	22
ST JOUITE	150-GREY ROCKS INN LTD	804490	65	30.020	22

TABLE 2.13 (CONT'D)

PRIVATE PAGING LICENSEES - QUEBEC (4 OF 4)

LOCATION	LICENSEE	DOC#	INTEL#	FREQ (MHz)	PWR
ST LAURENT	151-L.M. ERICSSON LTD	842295	0	27.195	1
	152-AVIATION ELECT LTD	834304	50	27.560	4
	153-ROBERT MITCHELL CO.L	824058	0	454.300	125
	154-VANIER COLLEGE OF GE	814208	0	149.290	2
STE MARIE DE BEA	155-VACHON INC	841666	0	27.560	2
ST PAUL L'ERMITTE	156-CANADIAN ARSENALS LT	843502	47	27.095	5
ST TERESE DE BLA	157-COL LIONEL GROULX	864713	0	27.245	20
SHAWINIGAN	158-CENTRE HOP ST TERESE	869642	0	143.475	107
SHERBROOKE	159-CDN INGERSOLL-RAND L	842099	29	27.145	5
	160-HOP D'ASBESTOS INC	844026	0	149.290	62
	161-HOP GEN'L ST VINCENT	828920	0	30.020	24
	162-HOTEL DIEUX HOSP	826579	0	30.420	24
	163-CLINIQUE U DE SHER	844026	0	45.070	62
	164-SHERBROOKE HOSP	825857	31	27.245	18
	165-COMBUSTION ENG SUP H	802865	0	30.220	44
SOREL	166-NORTH AMERICAN ELEVA	863637	0	149.900	22
	167-N.-D. DE SOREL	844782	46	27.195	5
TEMISKAMING	168-PROD FORESTIERS TEMB	856343	1	27.560	5
THETFORD MINES	169-BELL ASBESTOS MINES	816801	0	30.020	3
TRACY	170-TIOXIDE OF CA LD	843871	0	27.245	15
	171-QUE IRON & TITANIUM	810574	0	27.045	22
	172-ATLAS STEEL CO	805464	63	30.020	22
TROIS-RIVIERE	173-CENTRAL QUE STEEL LT	855992	0	27.195	2
VALCARTIER	174-IND. VALCARTIER INC	831346	16	27.095	1
VAL D'OR	175-HOP ST SAUVEUR INC	843911	2	30.020	20
VALLEYFIELD	176-GOODYEAR TIRE & RUBB	818982	58	27.045	2
VILLE NEUVE	177-CIE CEMENTS ST LAURE	811222	20	149.290	38
VILLE ST LAURENT	178-YKK ZIPPER CO CA LTD	866041	0	149.680	5
VILLE VANIER	179-JEAN CHARLES FLAMAND	862667	0	149.020	43
VARENNES	180-HERCULES CA LTD	862435	0	149.680	5
	181-CAD'N TITANIUM PIGME	839099	0	149.290	10
VERDUN	182-DOUGLAS HOSP CTR	860670	41	30.020	24
VILLE D'ANJOU	183-BP REFINERY CA LTD	815533	0	27.960	5
WABUSH LAKE	184-WABUSH LAKE RAIL CO	807241	0	149.020	72
WESTMOUNT	185-MONDEV CORP LTD	836097	0	27.265	16
	186-REDDY MEMORIAL HOSP	823321	0	27.960	5
ASBESTOS	187-HOP D'ASBESTOS	854247	0	149.290	43
CHANDLER	188-CO GASPEZIA LTEE	802263	0	149.290	31

TABLE 2.14
PRIVATE PAGING STATISTICS - QUEBEC

PROVINCE	INTEL Q.-NO	DOC CODE	COV'GE (RADIUS-M)	PAGERS 1976	PAGERS 1981	DAILY CALLS	STONE PAGERS
QUEBEC							
	1	856343	1.0	50	65	50	21
	3	871242	12.0	115	0	200	0
	5	866230	0.3	25	40	100	0
	7	870077	35.0	2	NR	NR	0
	8	869976	2.0	10	10	5	2
	10	867223	5.0	6	NR	15	0
	11	861681	6.0	8	10	75	0
	12	860049	1.0	12	NR	50	0
	16	831346	1.0	10	15	50	10
	18	822937	10.0	181	106	177	127
	20	811222	25.0	14	16	100	1
	21	808089	6.0	10	15	25	0
	23	804930	10.0	15	15	5	0
	24	801184	2.5	36	46	34	0
	25	864319	10.0	20	NR	NR	0
	26	834094	1.0	23	23	50	0
	27	869574	2.0	4	10	25	0
	28	857179	1.0	6	NR	20	0
	29	842099	20.0	2	2	3	0
	31	825857	5.0	10	10	50	0
	32	808954	15.0	44	NR	50	0
	33	804994	15.0	16	30	20	NR
	34	803005	NR	NR	NR	NR	NR
	39	863981	3.0	16	16	50	0
	40	863011	BLDG	10	10	40	0
	41	860670	25.0	43	45	NR	NR
	42	855457	0.3	15	NR	150	NR
	48	839520	0.5	18	30	100	18
	52	833088	1.0	35	50	10	0
	53	828545	NR	14	19	30	14
	56	823560	25.0	104	154	310	0
	57	819898	1.0	36	45	200	0
	61	812744	BLDG	24	24	60	24
	62	809196	5.0	10	15	15	4
	64	805067	12.0	24	25	150	24
	65	804490	5.0	8	8	100	0
	68	800121	0.5	7	0	100	7
	69	854614	1.3	20	30	NR	20

TOTALS REPORTED:	1003	884	2419	272
SYSTEMS REPORTING:	37	30	33	34
AVG/SYSTEM REPORTING:	27	29	73	8
SYSTEMS ANALYSED:	38			

TABLE 2.15
PAGER POPULATION DISTRIBUTION - PRIVATE OPERATORS
QUEBEC REGION

CELL#	LOWER LIMIT	NO. OF OBS	%RELATIVE FREQ
1	0.0000	8	21.6
2	10.0000	14	37.8
3	20.0000	6	16.2
4	30.0000	3	8.1
5	40.0000	2	5.4
6	50.0000	1	2.7
7	60.0000	0	0.0
8	70.0000	0	0.0
9	80.0000	0	0.0
10	90.0000	0	0.0
11	100.0000	1	2.7
12	110.0000	1	2.7
13	120.0000	0	0.0
14	130.0000	0	0.0
15	140.0000	0	0.0
16	150.0000	0	0.0
17	160.0000	0	0.0
18	170.0000	0	0.0
19	180.0000	1	2.7

N= 37
 MEAN= 27.1081
 STD.DEV= 35.5573
 SKEWNESS= 2.8076
 KURTOSIS= 11.1347
 XMIN= 2.0000
 XMAX= 181.0000
 RANGE= 179.0000

Note: Pager quantities served by individual systems are distributed into cell ranges of 10 pagers each. The "No of Obs" column indicates the number of private systems having pager complements within each cell range, while the "% Relative Frequency" column indicates the percentage of the total observations which fall within each cell range.

TABLE 2.16

III-42

PRIVATE OPERATOR QUESTIONNAIRE SUMMARY - QUEBEC REGION

	QUEBEC	
	R	NR
<u>1-FREQ USAGE</u>		
FREQ SHARED	3	2
FREQ NOT SHARED	33	
<u>1C-SYSTEM FEATURES</u>		
TONE	11	27
TONE & VOICE	31	7
DIAL ACCESS	4	34
OPTR ACCESS	24	14
MESSG DEPOSIT	3	35
24 HR SVC	26	12
OTHER	3	35
<u>1C-PAGER FEATURES:</u>		
GROUP CALL	8	30
MULT. ADDRESS	6	32
ALERT STORAGE	0	38
HANDS OFF OPER'N	1	37
OTHER	2	36
<u>2C-USER FUNCTIONS:</u>		
EXECUTIVE	18	20
ENGINEERING	15	23
FOREMEN	28	10
PLANT MAINTENANCE	25	13
CUSTOMER SVC	5	33
MEDICAL	13	25
OTHER	17	21
<u>2D-SYSTEM SATISFACTION:</u>		
FULL	14	24
ADEQUATE	17	21
POOR	6	32
<u>2E-SYSTEM SHORTCOMINGS</u>		
POOR SERVICEABILITY	6	32
INADEQUATE COVERAGE	6	32
INCONVENIENT ACCESS	0	38
LIMITED OP. PERIODS	0	38
OTHER	11	27
<u>3A-REASON PRIVATE SYSTEM</u>		
LESS COSTLY	24	14
LIMITED COVERAGE NEEDS	12	26
SPEC COVERAGE NEEDS	5	33
ADDED TO 2-WAY RADIO	1	37
NO PUBLIC SERVICE	11	27
OTHER	11	27
<u>3B-PUBLIC SYSTEM USE</u>		
ALSO USE PUB SYSTEMS	7	1
DON'T USE PUB SYSTEMS	30	

TOTAL
REPLIES:- 38

2.5 - PRIVATE PAGING DATA

ATLANTIC REGION

TABLE 2.17

PRIVATE PAGING LICENSEES - ATLANTIC REGION (1 OF 2)

III-44

LOCATION	LICENSEE	DOC#	INTEL#	FREQ (MHz)	PWR
PROVINCE OF NEW BRUNSWICK					
BELLE DUNE 'PT	1-BRUNS. MINING	858411	10	30.420	36
BEAUSEJOUR	2-CN TELECOMM	800119	2	30.020	25
CAMPBELTON	3-HONOURABLE MIN.	831160	5	30.420	32
CARAQUET	4-HOP ENFANT JESUS	818727	11	149.020	75
CULLERTON	5-ST ANNE NACK. PULP	847918	0	30.420	32
DALHOUSIE	6-HOSP ST JOSEPH	855458	0	149.290	86
EDMUNSTON	7-HCTEL DIEU ST JOS	801957	0	30.420	31
FLORENCEVILLE	8-MCCAIN PRODUCE	804648	8	30.220	22
FREDERICTON	9-VICTORIA PUB HOSP	809174	0	30.020	36
GRAND FALLS	10-MCCAIN PRODUCE	804648	0	30.220	21
LORNVILLE	11-NB ELECT PWR COM	800342	0	27.265	23
MARYSVILLE	12-WHITTAKER TEXTILES	858198	4	30.220	3
MONCTON	13-GEORGE L DUMMONT HOS	852866	0	27.235	5
	14-MONCTON CITY HOSP	831144	1	149.290	51
	15-EATON CO LTD	812744	0	149.020	51
NEWCASTLE	16-MIRAMICHI TIMBER	847571	0	30.420	15
ST STEPHEN	17-CHARLOTTE CO. HOSP	866044	3	149.290	11
ST JOHN	18-KEDDYS MOTOR INN	868475	0	27.265	30
	19-ROCMARA NURSING	862190	0	27.195	6
	20-ST JOSEPHS HOSP	861088	0	27.235	38
	21-IRVING PULP	847918	0	142.005	14
	22-HONOURABLE MIN	831160	6	149.290	101
	23-WEST ST JOHN HOSP	818466	0	27.245	10
	24-ATLANTIC SUGAR	818059	7	31.420	15
	25-ATLIFIC INNS	817707	0	27.275	1
	26-ST JOHN GEN HOSP	801445	0	27.960	33
SUSSEX	27-KINGS CO. MEM HOSP	867905	0	149.290	11
TRACADIE	28-HOTEL DIEU ST JOS	862457	0	149.920	70
PROVINCE OF NOVA SCOTIA					
BATTERY POINT	29-LUNENBURG SEA PRODS	824026	0	27.560	5
CRANION	30-MICHELIN CDA LTD	840254	0	149.020	11
DARTMOUTH	31-DARTMOUTH GENL HOSP	865617	1	149.920	35
	32-DEPT HEALTH-NS	802398	0	27.760	68
HALIFAX	33-IMPERIAL OIL	800257	8	149.290	75
	34-SCOTIA SQR HOTEL	862712	0	149.020	23
	35-ARMDALE MOTEL	858022	2	27.275	8
	36-ST VINCENTS GUEST H.	831987	4	27.960	16
	37-HALIFAX INFIRMARY	827015	5	27.265	8
	38-SIMPSON-SEARS	817894	6	30.220	47
	39-LORD NELSON HOTEL	817088	0	27.560	5
	40-LANE MEM. HOSP	808163	0	30.220	29
	41-DALHOUSIE UNIV	807411	7	31.420	34
	42-DEPT HEALTH-NS	802398	0	304.200	80
	43-DEPT HEALTH-NS	802398	0	166.020	28
KENTVILLE	44-N.S. SANATORIUM	822452	0	27.095	5
LUNENBURG	45-SWEENEY FUN HOME	862613	0	149.020	21
SIDNEY	46-CAPE BRETON DEV	818342	0	27.235	20
TRENTON	47-HAWKER SIDDELEY	848233	0	27.960	22
TRURO	48-COLCHESTER HOSP	852340	3	27.265	35
WATERVILLE	49-KINGS CO. HOSP	856789	0	27.195	3
WINDSOR	50-HANTS COMM HOSP	866193	0	30.220	16
YARMOUTH	51-YARMOUTH REG HOSP	853095	0	27.760	18

TABLE 2.17 (CONT'D)

PRIVATE PAGING LICENSEES - ATLANTIC REGION (2OF 2)

LOCATION	LICENSEE	DOC#	INTEL#	FREQ(MHz)	PWR
PROVINCE OF NEWFOUNDLAND					
CORNERBROOK	52-BOWATERS NFLD	802098	2	27.960	18
FORTUNE	53-BOUTH FISHERIES	800070	0	30.020	19
GRAND FALLS	54-GRAND FALLS HOSP	807036	1	30.020	18
	55-PRICE PULP&PAPER	801442	0	27.560	9
ST JOHNS	56-CN TELECOM	800119	0	31.420	5
	57-NATL SEA PRODS	826764	0	30.020	4
ST LAURENT	58-ALUM CO CDA LTD	800063	0	30.020	19

TABLE 2.18

PRIVATE PAGING STATISTICS - ATLANTIC REGION

PROVINCE	INTEL Q.-NO	DOC CODE	COV'GE (RADIUS-M)	PAGERS 1976 1981	DAILY CALLS	TONE PAGERS
NEW BRUNSWICK						
	1	831144	12.0	54	NR	130
	2	800119	3.0	10	NR	30
	3	866044	12.0	8	10	5
	6	831160	3.0	50	60	200
	7	818059	1.0	14	14	36
	10	858411	1.0	26	30	12
	11	818727	15.0	10	15	100
NOVA SCOTIA						
	3	852340	3.0	10	15	90
	4	831987	BLDG	6	NR	25
	5	827015	3.0	87	87	300
	7	807411	5.0	6	20	25
	8	800257	15.0	21	30	25
NEWFOUNDLAND						
	1	807036	25.0	20	40	50
	2	802098	2.0	20	50	18
TOTALS REPORTED:				342	371	1046
SYSTEMS REPORTING:				14	11	14
AVG/SYSTEM REPORTING:				24	34	75
SYSTEMS ANALYSED:	14					4

TABLE 2.19

PAGER POPULATION DISTRIBUTION - PRIVATE OPERATORS
ATLANTIC REGION

CELL#	LOWER LIMIT	NO. OF OBS	%RELATIVE FREQ
1	0.0000	3	21.4
2	10.0000	4	28.5
3	20.0000	4	28.5
4	30.0000	0	0.0
5	40.0000	0	0.0
6	50.0000	2	14.2
7	60.0000	0	0.0
8	70.0000	0	0.0
9	80.0000	1	7.1

N= 14
 MEAN= 24.4286
 STD.DEV= 23.5003
 SKEWNESS= 1.4323
 KURTOSIS= 3.9737
 XMIN= 6.0000
 XMAX= 87.0000
 RANGE= 81.0000

Note: Pager quantities served by individual systems are distributed into cell ranges of 10 pagers each. The "No of Obs" column indicates the number of private systems having pager complements within each cell range, while the "% Relative Frequency" column indicates the percentage of the total observations which fall within each cell range.

TABLE 2.20

PRIVATE OPERATOR REPLY SUMMARY - ATLANTIC REGION

	ATLANTIC	
	R	NR
<u>1-FREQ USAGE</u>		0
FREQ SHARED	0	
FREQ NOT SHARED	14	
<u>1C-SYSTEM FEATURES</u>		
TONE	4	10
TONE & VOICE	10	4
DIAL ACCESS	5	9
OPTR ACCESS	4	10
MESSG DEPOSIT	1	13
24 HR SVC	11	3
OTHER	1	13
<u>1C-PAGER FEATURES:</u>		
GROUP CALL	4	10
MULT. ADDRESS	1	13
ALERT STORAGE	0	14
HANDS OFF OPER 'N	3	11
OTHER	3	11
<u>2C-USER FUNCTIONS:</u>		
EXECUTIVE	11	3
ENGINEERING	5	9
FOREMEN	8	6
PLANT MAINTENANCE	12	2
CUSTOMER SVC	1	13
MEDICAL	9	5
OTHER	4	10
<u>2D-SYSTEM SATISFACTION:</u>		
FULL	6	8
ADEQUATE	6	8
POOR	1	13
<u>2E-SYSTEM SHORTCOMINGS</u>		
POOR SERVICEABILITY	2	12
INADEQUATE COVERAGE	2	12
INCONVENIENT ACCESS	1	13
LIMITED OP. PERIODS	0	14
OTHER	2	12
<u>3A-REASON PRIVATE SYSTEM</u>		
LESS COSTLY	7	7
LIMITED COVERAGE NEEDS	6	8
SPEC COVERAGE NEEDS	1	13
ADDED TO 2-WAY RADIO	1	13
NO PUBLIC SERVICE	4	10
OTHER	3	11
<u>3B-PUBLIC SYSTEM USE</u>		1
ALSO USE PUB SYSTEMS	6	
DON'T USE PUB SYSTEMS	7	

TOTAL
REPLIES:- 14

2.6 - PRIVATE PAGING DATA

ALL REGIONS COMBINED

TABLE 2.21

PAGER POPULATION DISTRBUTION - PRIVATE OPERATORS

III-50

ALL REGIONS COMBINED

CELL#	LOWER LIMIT	NO. OF OBS	%RELATIVE FREQ
1	0.0000	28	23.1
2	10.0000	31	25.6
3	20.0000	18	14.8
4	30.0000	8	6.6
5	40.0000	9	7.4
6	50.0000	4	3.3
7	60.0000	4	3.3
8	70.0000	4	3.3
9	80.0000	4	3.3
10	90.0000	1	0.8
11	100.0000	2	1.6
12	110.0000	1	0.8
13	120.0000	1	0.8
14	130.0000	1	0.8
15	140.0000	2	1.6
16	150.0000	1	0.8
17	160.0000	0	0.0
18	170.0000	0	0.0
19	180.0000	1	0.8
20	190.0000	0	0.0
21	200.0000	0	0.0
22	210.0000	0	0.0
23	220.0000	0	0.0
24	230.0000	0	0.0
25	240.0000	0	0.0
26	250.0000	0	0.0
27	260.0000	0	0.0
28	270.0000	0	0.0
29	280.0000	0	0.0
30	290.0000	0	0.0
31	300.0000	0	0.0
32	310.0000	0	0.0
33	320.0000	0	0.0
34	330.0000	0	0.0
35	340.0000	0	0.0
36	350.0000	0	0.0
37	360.0000	0	0.0
38	370.0000	0	0.0
39	380.0000	0	0.0
40	390.0000	0	0.0
41	400.0000	0	0.0
42	410.0000	0	0.0
43	420.0000	0	0.0
44	430.0000	0	0.0
45	440.0000	0	0.0
46	450.0000	1	0.8

Note: Pager quantities served by individual systems are distributed into cell ranges of 10 pagers each. The "No of Obs" column indicates the number of private systems having pager complements within each cell range, while the "% Relative Frequency" column indicates the percentage of the total observations which fall within each cell range.

N= 121

MEAN= 36.7851

STD.DEV= 52.3952

SKEWNESS= 4.5728

KURTOSIS= 33.2422

XMIN= 1.0000

XMAX= 450.0000

RANGE= 449.0000

TABLE 2.22

PRIVATE PAGING QUESTIONNAIRE REPLY SUMMARY - ALL REGIONS (page 1 of 2)

	PACIFIC		CENTRAL		ONTARIO		QUEBEC		ATLANTIC REGION		COMBINED	
	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR
1 - <u>FREQ USAGE</u>		0		1		0		2		0		2
Freq shared	0		2		4		3		0		9	
Freq not shared	11		16		37		33		14		111	
1C <u>SYSTEM FEATURES</u>												
Tone	3	8	10	9	9	32	11	27	4	10	37	86
Tone & Voice	8	3	12	7	34	7	31	7	10	4	95	28
Dial Access	4	7	4	15	3	38	4	34	5	9	20	103
OPTR Access	6	5	5	14	18	23	24	14	4	10	57	66
MESSG Deposit	1	10	2	17	4	37	3	35	1	13	11	112
24 NR SVC	5	6	9	10	25	16	26	12	11	3	76	47
Other	2	9	2	17	5	36	3	35	1	13	13	110
1C <u>PAGER FEATURES</u>												
Group call	3	8	6	13	14	27	8	30	4	10	35	88
Mult. Address	2	9	2	17	6	35	6	32	1	13	17	106
Alert storage	0	11	0	19	2	39	0	38	0	14	2	121
"Hand off" oper'n	1	10	0	19	5	36	1	37	3	11	10	113
Other	2	9	1	18	6	35	2	36	3	11	14	109
2C <u>USER FUNCTIONS</u>												
Executive	4	7	7	12	25	16	18	20	11	3	65	58
Engineering	7	4	5	14	25	16	15	23	5	9	57	66
Foremen	4	7	10	19	30	11	28	10	8	6	80	53
Plant Maintenance	8	3	14	5	33	8	25	13	12	2	92	31
Customer Svc	3	8	7	12	10	31	5	33	1	13	26	97
Medical	5	6	3	16	15	26	13	25	9	5	45	78
Other	5	6	6	13	20	21	17	21	4	10	52	71
2D <u>SYSTEM SATISFACTION</u>												
Full	0	11	7	12	23	18	14	24	6	8	50	73
Adequate	9	2	7	12	15	26	17	21	6	8	54	69
Poor	2	9	1	18	3	38	6	32	1	13	13	110

TABLE 2.22 (CONT'D)

PRIVATE PAGING QUESTIONNAIRE REPLY SUMMARY - ALL REGIONS (page 2 of 2)

	PACIFIC		CENTRAL		ONTARIO		QUEBEC		ATLANTIC REGION		COMBINED	
	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR
<u>2E - SYSTEM SHORT COMINGS</u>												
Poor Serviceability	5	6	5	14	9	32	6	32	2	12	26	97
Inadequate Coverage	2	9	2	17	8	33	6	32	2	12	20	103
Inconvenient Access	0	11	1	18	1	40	0	38	1	13	3	120
Limited OP. Periods	0	11	1	18	1	40	0	38	0	14	2	121
Other	7	4	6	13	16	25	11	27	2	12	42	81
<u>3A - REASON PRIVATE SYSTEM</u>												
Less Costly	7	4	12	7	22	19	24	14	7	7	72	51
Limited Coverage Needs	6	5	5	14	18	23	12	26	6	8	47	76
Spec. Coverage Needs	1	10	6	13	9	32	5	33	1	13	22	101
Added to 2-way radio	0	11	1	18	4	37	1	37	1	13	7	116
No Public Service	1	10	2	17	6	35	11	27	4	10	24	99
Other	4	7	6	13	7	34	11	27	3	11	31	92
<u>3B - PUBLIC SYSTEM USE</u>												
		1		0		0		1		1		3
Also Use Pub Systems	3		6		14		7		6		36	
Don't Use Pub Systems	7		13		27		30		7		84	
<u>ANALYSED REPLIES</u>												
		11		19		41		38		14		123

2.7 - PRIVATE PAGING DATA
QUESTIONNAIRE & COMMENTS

RADIO PAGING SURVEY QUESTIONNAIRE

(Private System)

ORGANIZATION (OR NAME):

ADDRESS:

PERSON TO WHOM ENQUIRIES

SHOULD BE DIRECTED:PHONE.....

NATURE OF BUSINESS OR

FUNCTION OF ORGANIZATION:

1 - SYSTEM DETAIL

Please provide the following system information:

A - Location of service Coverage radius milesB - Do you also use your paging frequency for other radio services (e.g. two-way mobile etc.)? ☐ yes ☐ no

C - Please check features/services provided by your paging system, specify any not included in the list below:

Paging Terminal Features/Services

- ☐ Tone
- ☐ Tone & Voice
- ☐ Dial access to pagers
- ☐ Operator access to pagers
- ☐ Message depository
- ☐ 24 Hour service
- ☐ Other (please specify)
-
-

Pager Features

- ☐ Simultaneous paging of two or more units (emergency teams, group etc.)
- ☐ Distinctive tones to identify standard messages in TONE ONLY operation (e.g. "Call home" "Call office" etc.)
- ☐ Optional storage of tone alerts for subsequent interrogation (to avoid interruptions at meetings, etc.)
- ☐ Optional "hands off" operation when receiving voice messages (e.g. when driving etc.)
- ☐ Other (please specify)
-
-

2 - OPERATIONAL DATA

Please provide the following operational information: (indicate applicable quantities in the rectangular boxes of "A" and "B" below).

A - Number of pager units in service: → Estimated number of pager units in 5 years: B - Average number of paging calls daily: → Percentage of pagers which are TONE ONLY:

OPERATIONAL DATA (cont'd)

C - Identify typical functions of personnel using facility:

- | | |
|-----------------------------------|---|
| <input type="radio"/> Executive | <input type="radio"/> Plant maintenance |
| <input type="radio"/> Engineering | <input type="radio"/> Customer Service |
| <input type="radio"/> Foremen | <input type="radio"/> Medical |

Other (please specify)

.....

D - Please indicate the degree to which you feel your system meets your paging requirements:

- | | |
|----------------------------------|------------|
| <input type="radio"/> FULLY | → go to 3A |
| <input type="radio"/> ADEQUATELY | } → |
| <input type="radio"/> POORLY | |

E - Identify shortcomings of your existing paging installation:

- | | |
|---|---|
| <input type="radio"/> Poor serviceability | <input type="radio"/> Inconvenient access |
| <input type="radio"/> Inadequate coverage | <input type="radio"/> Limited operational periods |

Other (please specify)

.....

.....

3 - GENERAL

A - Indicate reason for installing a private system in preference to using service offered by public paging operators:

- | | |
|--|--|
| <input type="radio"/> Less costly | <input type="radio"/> Paging added to an existing Two-Way radio installation |
| <input type="radio"/> Limited coverage needs | |
| <input type="radio"/> Special coverage needs not met by local operations | <input type="radio"/> No public service in the area |
| <input type="radio"/> Other (please specify) | |
| | |

B - Do you also subscribe to public paging service in your area?

- ☐ Yes ☐ No

C - COMMENTS

(please add any comments you would like to make, particularly with regard to possible means of making your facilities more useful or effective. Please note any specific problems which might be alleviated by changes in existing D.O.C. licensing policies.)

TABLE 2.23COMMENTS RE *PRIVATE PAGER TERMINAL SERVICES* (QUESTION 1-C)

INT Q-NO	C O M M E N T S
NB- 10	*PAGER LEAVES PHONE NUMBER WITH SECURITY WHO OPERATE SYSTEM
Q- 16	*BELL TELEPHONE SYSTEM (BELLBOY)
Q- 20	*MESSAGES ARE TRANSMITTED BY OUR RECEPTIONIST VIA OUR TRANSMITTER.
O- 5	*EQUIPMENT MALFUNCTION; TONE SIGNAL
O- 19	*GROUP ALERT FOR CARDIAC ARREST TEAM
O- 22	*AUTOMATIC IDENTIFIER; RECORDING AND PLAYBACK OF EMERGENCY MESSAGES
O- 36	*PAGING FROM NURSING DESK FOR HEAD NURSES
A- 5	*ONLY TONE IS USED
S- 4	*DIAL ACCESS TO PAGERS IN 6 MONTHS
BC- 6	*ENCODER-PUSH BUTTON TO PAGES

TABLE 2.24COMMENTS RE *PRIVATE PAGER FEATURES* (QUESTION 1-C)

INT Q-NO	C O M M E N T S
NB- 1	*SYSTEM HAS SLOW & FAST BEEPS (REGULAR AND EMERGENCY)
NB- 2	*TWO TYPES OF TONE SIGNAL
NS- 5	*SIMULTANEOUS PAGING FOR 8 PAGERS (CARDIAC ARREST)
Q- 5	*DISTINCTIVE TONES TO IDENTIFY FROM WHICH OF OUR TWO ENCODERS THE MESSAGE ORIGINATED
Q- 90	*RECHARGEABLE BATTERIES
O- 23	*EMERGENCY CALL; STANDARD CALL
O- 31	*TONE TRIGGER FOLLOWED BY VOICE PAGE
O- 36	*TWO TONES: EMERGENCY & REGULAR
O- 45	*ONE TONE TO CALL HOTEL OPERATOR
BC- 15	*PAGER NUMBER INTERCHANGE

TABLE 2.25

COMMENTS RE *PRIVATE PAGER USER-OCCUPATIONS* (QUESTION 2-C)

INT Q-NO	C O M M E N T S
NB- 3	*X-RAY; LAB; OPERATING ROOM.
NB- 6	*X-RAY; ECG; PHYSIO.
NB- 11	*ADMISSION; OUT-PATIENT DEPT; EMERGENCY DEPT.
NS- 3	*NURSING SERVICE; OTHER PARAMEDICAL; STORES; HOUSEKEEPING.
NF- 1	*EMPLOYEES ON CALL IN LAB, X-RAY & OPERATING ROOM
NF- 2	*SAFETY
Q- 5	*SECURITY STAFF
Q- 10	*SECURITY
Q- 12	*COMMISSIONAIRE; STOREKEEPER; SOCIAL WORKER; CHAPLAIN
Q- 18	*NEARLY ALL WHO ARE RESPONSIBLE FOR SERVICES WITHIN THE HOSPITAL
Q- 20	*OUR MESSENGER
Q- 21	*LAB TECHS; X-RAY TECHS; DUTY NURSES; NURSING SUPERVISORS
Q- 24	*NURSES
Q- 90	*DATA CENTER
Q- 30	*DUTY PERSONNEL
Q- 40	*SECURITY OFFICERS
Q- 41	*NURSING STAFF; SECURITY; CHAPLAINCY
Q- 61	*SENIOR FLOOR MANAGERS.
Q- 62	*X-RAY TECHS; LAB; OPERATING ROOM NURSES; OXYGEN TEAM.
Q- 65	*HOUSEKEEPER; SECURITY.
Q- 69	*SECURITY
O- 10	*KEY STAFF; STAFF ON CALL
O- 11	*PARAMEDICAL; LABORATORY; AMBULANCE ATTENDANTS
O- 15	*PLANT SUPERINTENDENTS
O- 19	*NURSING; LAB; X-RAY TECHS ETC
O- 21	*DEPARTMENT HEADS
O- 22	*FIRE CREWS
O- 23	*ADMINISTRATIVE PERSONNEL
O- 24	*SUPERVISORS; DOCTORS; NURSING SUPERVISORS; LAB; X-RAY; MED. DIAGNOSTICS
O- 26	*MEDICAL; X-RAY TECHS; DEPT. HEADS; NURSING STAFF.
O- 27	*FIRE PATROL; CANTEEN REPAIR FACILITY.
O- 29	*SECURITY PERSONNEL.
O- 31	*MACHINE SERVICE TECHS AND THEIR SUPERVISORS
O- 40	*CARETAKING SUPERVISORS; ELEVATOR REPAIR MECHANIC.
O- 42	*NURSES
O- 46	*PARA-MEDICAL; SECURITY; SUPERVISOR.
O- 47	*LEAD HANDS; CARETAKERS.
O- 52	*SALESMEN
O- 54	*SECURITY
O- 56	*CONSTRUCTION GROUPS WHEN ON CAMPUS
O- 58	*MANUFACTURING AND MAINTENANCE DEPARTMENT SUPERINTENDENTS

TABLE 2.26COMMENTS RE *PRIVATE PAGER USER-OCCUPATIONS* (QUESTION 2-C) cont'd

INT Q-NO

C O M M E N T S

A- 5	*SECURITY
A- 18	*SECURITY PERSONNEL
A- 19	*MANAGER
S- 2	*MAINTENANCE AND HOUSEKEEPING USE A SEPARATE 2-WAY SYSTEM
S- 5	*HOUSEKEEPER; SECURITY
BC- 4	*BC: HOSPITAL HOUSEKEEPING, EMERGENCY STAFF AFTER HOURS OPERAT'G ROOM, LAB, RADIOLOGY
BC- 6	*DOCTORS IN HOSPITAL
BC- 9	*NURSING SUPV., EXECUTIVE HOUSEKEEPER, PLANT MGR
BC- 15	*SERVICE DEPT PERS. - INTENSIVE CARE, OXYGEN THERAPY HOUSEKEEPING, NURSING SUPVS., PHYSIOTHERAPY, MESSENGER

TABLE 2.27 (CONT'D)

COMMENTS RE DISSATISFACTION WITH PRIVATE SYSTEMS*(2-E cont'd)

INT Q-NO	C O M M E N T S
A- 1	*1) RECEIVING UNITS FREQUENTLY BREAK AND REPAIRS COSTLY AND LONG. 2) CONTINUOUS PROBLEMS IN SENDING UNIT
A- 5	*SATISFACTORY
A- 8	*MANY RECEIVERS REQUIRE FREQUENT SERVICE
A- 18	*THERE ARE SOME AREAS IN THE STORE WHERE RECEPTION IS NOT GOOD. OPERATOR HAS TO MOVE OUT OF THESE AREAS TO RECEIVE VOICE
S- 4	*THE POCKET PAGERS ARE A COMPONENT IN OUR COMMUNICATIONS NETWORK (DOCTOR REGISTRY, PUBLIC ADDRESS, POCKET PAGERS)
S- 5	*ONE WAY COMMUNICATION ONLY
BC- 6	*DOUBTFUL VALUE VS PUBLIC ADDRESS PAGING
BC- 9	*LIMITED RANGE (1 MILE). HOSPITAL RENTS THREE LONG RANGE BEEPERS (20 MILE RANGE) FROM THE TELEPHONE COMPANY
BC- 15	*FUNCTIONALLY OUR PAGING SYSTEM IS SATISFACTORY, WE REQUIRE MORE PAGERS FOR HOUSE STAFF - COST IS DETERRENT IN OBTAINING MORE, SERVICE ALSO COSTLY AND USUALLY HAVE 10% OUT FOR REPAIR
BC- 16	*LACKS 2-WAY VOICE, SOME RESTRICTION IN STEEL AND CONCRETE BUILDINGS
BC- 20	*PERSON BEING PAGED CANNOT ANSWER & MUST GO TO NEAREST TELEPHONE. PAGING PERSON DOESN'T KNOW IF MESSAGE WAS RECEIVED OR NOT. MANY MESSAGES REQUIRE IMMEDIATE RESPONSE

COMMENTS RE DISSATISFACTION WITH PRIVATE SYSTEMS* (QUESTION 2-E)

INT Q-NO	C O M M E N T S
NB- 1	*IF SOME OF THE FEATURES LISTED ON THE FIRST PAGE OF YOUR QUESTIONNAIRE WERE AVAILABLE (AND THEY WORKED), THE SYSTEM WOULD BE MORE HELPFUL
NB- 3	*WOULD LIKE TO HAVE WIDER RANGE
NF- 2	*PERHAPS GREATER RANGE
Q- 1	*IN NOISY AREAS THE PAGER CANNOT BE HEARD IF THE BATTERIES ARE WEAK
Q- 5	*PRIVACY OF FREQUENCY FOR IN-HOUSE CONFIDENTIAL MESSAGE PURPOSES.
Q- 16	*A TONE PLUS VOICE SYSTEM WOULD BE MORE SATISFACTORY
Q- 18	*BAD RECEPTION - WHEN THE (VOICE) BUTTON IS PRESSED
Q- 20	*NETWORK SATURATION; INTERFERENCE IS CAUSED BY OTHER TRANSMITTERS.
Q- 23	*OUR PAGING SYSTEM SERVES A MOUNTAINOUS REGION, THEREFORE IT IS NOT RELIABLE EVERYWHERE. VOICE MESSAGES ARE NOT ALWAYS UNDERSTANDABLE
Q- 30	*WE CANNOT TELL IF THE MESSAGE HAS BEEN RECEIVED BECAUSE THERE IS NO RESPONSE FROM THE PAGER
Q- 41	*SERVICE IS SATISFACTORY
Q- 62	*DIFFICULT TO REPAIR SINCE THIS CANNOT BE DONE IN REGION
Q- 68	*LACKING VOICE - ALL UNITS TO BE REPLACED BY 2-WAY PORTABLES IN THE FUTURE
Q- 69	*PAGERS ARE OUT OF SERVICE 50% OF THE TIME
O- 10	*WE ARE PRESUMABLY CHANGING TO AN F.M. SYSTEM TO COMPENSATE FOR SHORTCOMINGS
O- 7	*SERVICE IS REASONABLY PROMPT, BUT THE NATURE OF THE MECHANISM MAKES IT PRONE TO DAMAGE
O- 11	*WITHOUT SACRIFICING SIZE, A REPLY SIGNAL TO VERIFY RECEIVING MESSAGE WOULD ELIMINATE THE UNCERTAIN ACKNOWLEDGEMENT OF THE CALL BEING RECEIVED
O- 12	*REPAIR RATIO IS VERY HIGH
O- 19	*NOT DEPENDABLE
O- 23	*SOME PROBLEMS WITH DOWNTOWNWN COVERAGE (HAMILTON)
O- 31	*LOW LEVEL OF CONCERN ON PART OF EQUIPT. SUPPLIERS
O- 36	*SOME AREAS IN HOSPITAL UNABLE TO RECEIVE PAGING
O- 37	*UNITS CARRIED BY TRADESMEN ARE STILL NOT TOUGH ENOUGH
O- 38	*TWO WAY VOICE COMMUNICATION PREFERRED TO EXISTING OPERATOR GIVING MESSAGE ONLY TO PAGER
O- 40	*FREQUENT REPAIRS REQUIRED; HEAVY BATTERY DRAIN
O- 42	*FREQUENT BREAKDOWNS OF PAGERS
O- 48	*CANNOT BE HEARD OVER NOISE LEVEL OF PLANT. UNITS ARE TOO FRAGILE
O- 52	*DIRECT DIAL INTERCONNECT INTO TELEPHONE SYSTEM WOULD BE ADVANTAGEOUS
O- 55	*TONE SIGNAL NOT RECEIVED IN CERTAIN SECTIONS OF THE HOTEL, PARTICULARLY BASEMENT AND SUBBASEMENT
O- 58	*LIMITED BATTERY LIFE IS A COSTLY NUISANCE. INADEQUATE STOCK OF ADDITIONAL UNITS FOR EXPANSION, APPROXIMATELY 8 WEEKS DELIVERY

TABLE 2.28

COMMENTS RE *REASON FOR INSTALLING PRIVATE SYSTEM* (QUESTION 3-A)

INT Q-NO	C O M M E N T S
NB- 1	*THIS SYSTEM IS RENTED FROM NB-TEL
NB- 6	*CONVENIENCE AND EASE OF OPERATION
NS- 3	*RENTALS ON THIS TYPE OF EQUIPMENT NOT PAID BY THE HOSPITAL COMMISSION. SOME MEMBERS OF THE STAFF RENT PAGERS FOR *ON-CALL* COVERAGE AT THEIR OWN EXPENSE
NF- 1	*PAGING IS DONE FROM OUR SWITCHBOARD WHERE STAFF ARE READILY AVAILABLE 24 HOURS A DAY
Q- 3	*LESS COSTLY
Q- 20	*RAPIDITY OF MESSAGE TRANSMISSION.
Q- 25	*MORE EFFICIENT
Q- 27	*EFFICIENCY
Q- 30	*TO ENSURE BETTER SERVICE FOR DUTY PERSONNEL
Q- 41	*EASY ACCESS TO DOCTORS FOR EMERGENCIES, ALSO STAFF
Q- 52	*TONE PLUS VOICE; GROUP CALL.
Q- 56	*CONVENIENCE.
Q- 61	*PAGING & 2-WAY RADIO INSTALLED JOINTLY
Q- 62	*PURCHASED EXISTING SYSTEM, PAID FOR BY THE DOCTORS THEMSELVES.
O- 10	*CONTROL OF COST INCREASES INDEPENDENCE OF THE OPERATION
O- 19	*MUST HAVE INSTANTANEOUS USE OF SYSTEM FOR SPECIAL MEDICAL CRISIS CALLS
O- 60	*TO HAVE OPERATION FROM HOSPITAL SWITCHBOARD
O- 31	*DOUBLE HANDLING OF MESSAGES
O- 47	*TYPE OF MESSAGE GIVEN OFTEN OF EMERGENCY OR CONFIDENTIAL NATURE AND BETTER IF NOT ENTRUSTED TO UNAUTHORIZED OR OUTSIDE PERSONNEL
O- 56	*AS SECURITY IS INVOLVED, WE PREFER STRICT CONFIDENTIALITY AND ALSO PREFER OUR OWN SYSTEM.
O- 58	*LIMITED PUBLIC SERVICE IN THE AREA.
A- 1	*PAGING SERVICE SUPPLIED BY FIRM SUPPLYING OTHER SERVICES TO HOTEL
A- 2	*HEAD OFFICE DECISION
A- 17	*PABX INTERCONNECT; GROUP CALLS.
A- 18	*BECAUSE OF THE NATURE OF OUR BUSINESS WE WANTED OUR CALLS TO BE SECRET
S- 4	*THE HOSPITAL'S INITIAL PLAN WAS TO HAVE 100% PAGER COVERAGE. DUE TO COST PER UNIT AND CONTROL OF UNITS AND EDUCATION OF PART-TIME PHYSICIANS, THE 100% PROGRAM WAS ABANDONED
S- 5	*PUBLIC SYSTEM NEVER EXPLAINED TO US
BC- 4	*NO PUBLIC PAGING SERVICE EXISTED WHEN EQUIPMENT WAS INSTALLED.
BC- 13	*MESSAGES TOO LONG & COMPLICATED FOR PUBLIC SYSTEM
BC- 16	*BC-ONLY REQUIRED ON OUR 172 ACRE AREA, MAXIMUM RANGE 1.5 TO 2 MILES

TABLE 2.29

PRIVATE OPERATORS' *VOLUNTARY COMMENTS* (QUESTION 3-C)

INT Q-NO	C O M M E N T S
NB- 10	*NB-(BRUNSWICK SMELTING - BELLEDUNE): WE HAVE TWO BELLBOYS FOR USE BY OUR SERVICE TRUCKS WHEN IN BATHURST, AND FOR STAFF PERSONNEL WHO ARE IN BATHURST WHILE ON CALL. WE ARE IN THE PROCESS OF REDUCING THE NUMBER OF UNITS FROM 45 TO 30. THE EXTRA 15 WERE USED BY PEOPLE WHO WERE SELDOM CALLED. WE ALSO HAVE A MOBILE RADIO SYSTEM RENTED FROM NB-TEL WHICH WORKS WELL EXCEPT IN HEAVY EQUIPMENT
NS- 8	*NS-(IMPERIAL OIL - DARTMOUTH): PUBLIC PAGING SERVICE MAY BE ELIMINATED IF PRIVATE SYSTEM PROVES ADEQUATE FOR ALL OFF-REFINERY PAGING
Q- 3	*QUE-(CONSULTANTS CAN-MET CHEM - MONTREAL): IT TAKES TIME TO GET A LICENSE.
Q- 10	*QUE-(FODERIE ST CROIX - ST CROIX): FOR NOW, OUR RADIO REQUIREMENTS ARE WELL MET. WE ONLY NEED TO CONTACT PERSONNEL WHO WORK IN VARIOUS PLANT DEPARTMENTS
Q- 18	*QUE-(HOP. ST JOSEPH - RIMOUSKI): THE PROBLEMS MENTIONED IN THIS REPORT WERE RESOLVED BY THE PURCHASE OF A MOTOROLA SYSTEM WE NOW GET THE DESIRED COVERAGE AT LESS COST THAN A QUEBEC TEL INSTALLATION WOULD BE. WE WOULD LIKE THE FREQUENCY & WATTAGE (90W) NECESSARY TO MAKE THE SYSTEM USEFUL AND EFFICIENT.
Q- 20	*QUE-(CIMENTS DU ST LAURENT - BEAUPORT): TRANSMITTER CODING SOLD IN OUR AREA LEAVES MUCH TO BE DESIRED; OFTEN VARIOUS COMPANIES SUCH AS MOTOROLA, GE ETC. USE THE SAME CODE, - THE SELECVTIVIY IS VERY POOR.
Q- 21	*QUE-(HOPITAL AMQUI - AMQUI): WE WOULD LIKE OUR SYSTEM TO COVER A GREATER DISTANCE, PARTICULARLY IN THE CAUSAPSCAL DIRECTION, BUT THE COST WOULD BE ONEROUS AND WE MUST BE CONTENT WITH OUR PRESENT SYSTEM.
Q- 23	*QUE-(DONOHUE LTEE - CHARELEVOIX): BECAUSE OF THE MOUNTAINOUS REGION WE MUST COVER, WE SHOULD BE PERMITTED HIGHER OPERATING POWER TO IMPROVE RECEPTION IN AREAS WHERE OPERATION IS POOR
Q- 29	*QUE-(INGERSOLL RAND - SHERBROOKE): IN OUR SITUATION, IT WOULD IT WOULD HELP A GREAT DEAL IF THE CALLING PARTY COULD HIMSELF GIVE THE NATURE OF THE MESSAGE
Q- 52	*QUE-(HOTEL DIEU - MONTREAL): THE COVERAGE RADIUS SHOULD BE EXTENDED TO A MINIMUM OF 10 MILES WITH THE CAPABILITY TO RECEIVE VOICE MESSAGES
Q- 57	*QUE-(CNDN STEEL FOUND. - MONTREAL): NO SPECIFIC PROBLEM; SERVICE IS VERY USEFUL AND EFFECTIVE
Q- 62	*QUE-(HOP. N.D. ST CROIX - MONT LAURIER): COVERAGE SHOULD BE EXTENDED TO 15 MILES. REPAIR OF PAGERS BY LOCAL TECHNICIANS WOULD BE POSSIBLE IF PAGERS WERE NOT SO COMPLEX AND *SECRET*, E.G., AVAILABILITY OF SCHEMATIC DIAGRAMS.

TABLE 2.29 (CONT'D)

PRIVATE OPERATORS' *VOLUNTARY COMMENTS*(3-C cont'd)

INT Q-NO	C O M M E N T S
Q- 68	*QUE--(CPR ST LUC - MONTREAL):DUE TO THE HIGH NUMBER OF CALLS AND THE NEED TO CONVEY DETAILED 2-WAY INFORMATION, PAGERS CAUSE A GREAT LOSS OF TIME BECAUSE THE USER MUST ALWAYS RUN TO A TELEPHONE; TWO-WAY RADIO SOLVES THIS PROBLEM
Q- 69	*QUE--(CTR HOSP SACRE COEUR - HULL):VERY GOOD SERVICE FROM T.A.S.
O- 3	*ONT--(NEPEAN SPORTSPLEX - NEPEAN):DOES NOT OPERATE IN SOME AREAS, IS NOT RELIABLE. THIS SYSTEM HAS NOT BEEN IN USE SINCE SHORTLY AFTER ITS RECEIPT BECAUSE OF ITS UNRELIABILITY
O- 9	*ONT--(LAKE ONT CEMENT - PICTON): EQUIPMENT THAT WOULD ENABLE DIAL ACCESS FOR 24 HR OPERATION WOULD BE A GREAT ASSET. THE COST OF THIS EQUIPMENT CANNOT BE JUSTIFIED WITH THE SYSTEM WE PRESENTLY HAVE
O- 12	*ONT--(ALGOMA STEEL - SAULT STE MARIE):PRESENT SYSTEM IS WORKING SATISFACTORILY. CONSIDERING THE AREAS WITHIN THE MILLS WHERE THESE PAGERS ARE USED, OUR REPAIR RATIO IS QUITE HIGH BUT SERVICE BY CGE IS GOOD
O- 15	*ONT--(SCHNEIDER LTD - KITCHENER):OUR SYSTEM HAS TWO TONES AND A VOICE MESSAGE WHICH CAN BE TRANSMITTED ONE-WAY BY THE OPERATOR. A SIMPLE *ACKNOWLEDGE* SIGNAL BACK TO THE OPERATOR WOULD BE A DESIREABLE ADDED FEATURE
O- 17	*ONT--(NORTHERN TELECOM - BRAMALEA): USED:- A) ONLY IN SPECIAL CASES FOR SHORT PERIODS, B) FOR MEDICAL OFFICER AND SERVICE TRUCK (LOCAL PICKUP AND DELIVERY)
O- 26	*ONT--(NORFOLK GEN'L HOSP - SIMCOE): PRESENT SYSTEM MEETS NORFOLK GENERAL HOSPITAL'S NEEDS
O- 31	*ONT--(XEROX - TORONTO):JUST GONE OFF AIR ON TEMPORARY TEST BASIS,BECAUSE:1)SIGNAL PENETRATION IN DOWNTOWN BUILDINGS IS NOT RELIABLE, 2)EXISTING DOC REGS LIMITING POWER INCREASE SITE NEEDS BEYOND COST JUSTIFICATION. 3) SUITABLE TOWER LOCATIONS DIFFICULT TO FIND & EXPENSIVE. 4) 6 MONTHS OF RED TAPE TO GET DOC ACCEPTANCE. 5)INCONSISTENT RESPONSE FROM SUPPLIER RE PROBLEMS
O- 47	*ONT--(U OF T COMMUNICATIONS - TORONTO): INTERFERENCE ON OUR POLICE 2-WAY DUE TO PROXIMITY OF HIGH PWR PAGING SYSTEMS WHICH TEND TO OVERLAP OUR RX CHANNEL CAUSING CONTINUAL INTERFERENCE ON OUR PORTABLES. OTHERS EXPERIENCING SAME PROBLEM.FEEL THAT HIGH POWER PAGING COMPANIES SHOULD RECEIVE FREQUENCIES WELL REMOTE FROM 2-WAY, PARTICULARLY WHEN OPERATING FROM CN TOWER
O- 52	*ONT--(MOTOROLA - TORONTO): DIRECT DIAL ACCESS INTO PUBLIC TELEPHONE SYSTEM WOULD BE VERY BENEFICIAL TO ALL CONCERNED. WHILE NOT INTERFERING WITH TELEPHONE SYSTEM. ONLY AN INTERFACE WOULD BE REQUIRED.

TABLE 2.29 (CONT'D)

PRIVATE OPERATORS' *VOLUNTARY COMMENTS* (3-C cont'd)

INT Q-NO	C O M M E N T S
A- 8	*ALT--(EDMONTON EXHIBITION ASSOC - EDMONTON): ALLOWING 24 HOUR USAGE THROUGH A TELEPHONE EXCHANGE OR SIMILAR SETUP (WOULD MAKE THE FACILITY MORE EFFECTIVE)
A- 16	*ALTA--(ALTA GOVT TEL - EDMONTON): AGT RENTS PAGING EQUIPMENT TO MANY CUSTOMERS FOR IN-HOUSE AND FOR WIDE-AREA PAGING. THE ABOVE IS THE ONLY PRIVATE SYSTEM THEY USE THEMSELVES, IT IS OLD AND WILL BE UPDATED SOON
A- 18	*ALT--(THE BAY - EDMONTON): PRIOR TO OUR RADIOS, SECURITY PERSONNEL WERE CALLED BY NUMBERS ON THE PUBLIC PAGING. CULPRITS KNEW WHEN SECURITY WERE CALLED. WE EXPERIENCED TROUBLE WHEN OUR NEW SYSTEM WAS INSTALLED BECAUSE OTHERS WERE USING OUR FREQUENCY NEARBY. WE WERE PICKING UP THEIR TRANSMISSIONS, THIS HAS SINCE BEEN CORRECTED
S- 2	*SASK--(UNIVERSITY HOSPITAL - SASKATOON): PRESENT PAGING & TWO-WAY RADIO SYSTEMS ARE ADEQUATE, AND CO-OPERATION ETC WITH THE DOC IS EXCELLENT
S- 4	*SASK--(PLAINS HEALTH CENTER - REGINA): THE IDEA OF 100% PAGER COVERAGE FOR PHYSICIANS AND OTHER KEY PERSONNEL IS GOOD. THE PROBLEM THAT THE INDUSTRY FACES IS THAT THE COST PER UNIT IS STILL HIGH. IF THE COST OF PAGERS DROPPED IN THE SAME MANNER AS THE PRICE IN POCKET CALCULATORS, INDUSTRY POCKET PAGERS WOULD HAVE WIDER ACCEPTANCE
BC- 6	*BC--(WEST COAST GEN'L HOSP - PORT ALBERNI): LONGER RANGE WOULD SEEM TO BE DESIREABLE BUT PHYSICIANS NOT WILLING TO ACCEPT COSTS OR LOSS OF PRIVACY
BC- 9	*BC--(SURREY MEM HOSP - SURREY): WE HAVE ON OCCASION HAD FOUR LONG RANGE BEEPERS (PAGERS) AT A TOTAL RENTAL COST OF \$100/MONTH. HOSPITALS IN THE AREA HAVE BEEN CONSIDERING A SELF-OWNED SYSTEM AS A GROUP. IN THE LONG TERM IT WOULD BE MORE ECONOMIC.
BC- 13	*BC--(XEROX OF CAN -VANCOUVER): WE REQUIRE BETTER COVERAGE. THERE ARE MANY POOR RECEPTION AREAS (A FUNCTION OF GEOGRAPHY) MORE POWER OR A DIFFERENT FREQUENCY, UHF VS VHF MIGHT HELP
BC- 16	*BC--(PAC NAT'L EXHIBITION - VANCOUVER): WE USE THE SYSTEM ON A LIMITED BASIS ALL YEAR BUT EXTEND IT FULLY DURING OUR ANNUAL EXHIBITION. TWO-WAY VOICE COMMUNICATION MIGHT BE AN ASSET AND WE WILL LOOK TO THIS INNOVATION WHEN THE TIME COMES TO REPLACE OUR PRESENT SYSTEM

PART III SECTION 3.0

UNREGULATED PAGING OPERATOR DATA

3.1 - UNREGULATED OPERATOR DATA

PACIFIC REGION

TABLE 3.1

UNREGULATED PAGING OPERATORS - PACIFIC REGION (BY LOCALITY)

LOCATION	LICENSEE	DOC#	FREQ (MHz)	APP DATE
ABBOTSFORD	1- ABBOTSFORD TELEPAGE	384	168.420	7203
CAMPBELL RIVER	2- HARRISON-NOWELL	159		
	3- SHIPWAY, WH	0		
COURTENAY	4- HARRISON-NOWELL	159		
CRANBROOK	5- LANGAN, H	322	167.100	7301
DUNCAN	6- **RADICON SYSTEMS	303	168.405	7312
FORT ST JOHN	7- SMITH, L	355	163.440	7312
	8- QUASAR COMMUNICATION	343	158.490	7310
KAMLOOPS	9- FISHER, STELLA	441	163.440	7412
NANAIMO	10- NANAIMO TEL-AN	231	163.860	6802
NELSON	11- EPP, W	397	163.440	7412
PRINCE GEORGE	12- WEST PROF COMM	424	167.100	7504
TRAIL	13- ALTON, D	235	167.100	6805
VANCOUVER	14- **CANADIAN MOTOROLA	180		
	15- MCSORLEY, MJ	408	452.550	7502
	16- HASTINGS RADIO	407	456.513	7410
	17- PAC COMM TEL	309		
	18- PAGETTE AIRSIGNALS L	270		
	19- TRAEGER COMM	287		
	20- TASCO (NAT'L LASER)	103	164.400	6305
	21- TASCO (NAT'L LASER)	103	35.220	0
	22- WEST'N RADIO DISP	106	167.100	7009
	23- WEST'N RADIO DISP	106	164.250	7009
	24- WEST'N RADIO DISP	106	167.640	7009
	25- WEST'N RADIO DISP	106	171.360	7009
VERNON	26- VERNON ANS SVC	372	164.370	7405
VICTORIA	27- ARTEL LEASING	323		
	28- BALL & SHEMILT	194		
	29- HARRISON-NOWELL	159	168.420	7304

**NOTE: PROVIDE PAGING SERVICES TO OTHERS
THROUGH RCCMRS FACILITIES.

NUMBER OF SYSTEMS: 29
NUMBER OF COMPANIES: 23

TABLE 3.2

UNREGULATED OPERATOR STATISTICS - PACIFIC REGION

LICENSEE	Q-#	DOC-#	1976		1981		DAILY	TONE	DED'D	SHARED
			SUBS	PGRS	SUBS	PGRS	CALLS	PGRS	FREQS	FREQS
ALTON, D	136	900235	1	73	NR	NR	50	36	1	0
CANDIAN MOTOROLA	0	900180	NR	50	NR	NR	NR	NR	NR	NR
EPP, W	128	900397	9	14	15	30	10	0	1	0
FISHER,S (FORMERLY)	122	900441	NR	12	0	NR	30	0	1	0
HARRISON-NOWELL	105	900159	50	300	150	1000	900	300	3	2
HASTINGS RADIO & T	139	900407	40	40	NR	NR	NR	NR	1	0
MCSORLEY, MJ	140	900408	12	40	400	1000	30	4	1	0
VERNON ANS SVC	148	900372	3	8	150	100	4	0	0	1
RADICON SYSTEMS	107	900303	NR	38	NR	NR	NR	0	#	1
WEST'N PROF COMM	133	900424	1	70	1	200	150	0	1	0
TASCO (NAT'L LASER)	144	900103	NR	1600	NR	4800	NR	640	1	NR
*TASCO (NAT'L LASER	144	900103	NR	NR	NR	1800	NR	NR	1	NR
WEST'N RADIO DISP	110	900106	800	1350	2800	5400	NR	135	4	NR

NOTE: (#) INDICATES SAME FREQUENCY/IES RE-EMPLOYED
 (*) INDICATES NEW SYSTEM

TOTALS REPORTED	916	3595	3516	14330	1174	1115	15	9
SYSTEMS REPORTING	8	12	7	8	7	10	12	
AVG/SYSTEM REPORTING	114	299	502	1791	167	111		4
SYSTEMS ANALYSED:-	13							

TABLE 3.3

PAGER POPULATION DISTRIBUTION - UNREGULATED OPERATORS
PACIFIC REGION

CELL#	LOWER LIMIT	NO. OF OBS	%RELATIVE FREQ
1	0.0000	9	75.0
2	100.0000	0	0.0
3	200.0000	0	0.0
4	300.0000	1	8.3
5	400.0000	0	0.0
6	500.0000	0	0.0
7	600.0000	0	0.0
8	700.0000	0	0.0
9	800.0000	0	0.0
10	900.0000	0	0.0
11	1000.0000	0	0.0
12	1100.0000	0	0.0
13	1200.0000	0	0.0
14	1300.0000	1	8.3
15	1400.0000	0	0.0
16	1500.0000	0	0.0
17	1600.0000	1	8.3

N= 12
 MEAN= 299.5833
 STD.DEV= 557.0437
 SKEWNESS= 1.5399
 KURTOSIS= 3.5667
 XMIN= 8.0000
 XMAX= 1600.0000
 RANGE= 1592.0000

Note: Pager quantities served by individual systems are distributed into cell ranges of 100 pagers each. The "No of Obs" column indicates the number of private systems having pager complements within each cell range, while the "% Relative Frequency" column indicates the percentage of the total observations which fall within each cell range.

TABLE -3.4.

UNREGULATED OPERATOR QUESTIONNAIRE REPLY SUMMARY - PACIFIC REGION

	UNREG OPS			UNREG OPS	
	R	NR		R	NR
<u>1A-SYSTEM FEATURES(E)</u>		2	<u>3A/B-RURAL NEEDS</u>		
TONE	7		SVC REQUIRED	2	
TONE & VOICE	10		SVC NOT REQUIRED	6	4
DIAL ACCESS	3		NEED MET/TO BE MET	1	
OPTR ACCESS	6		NEED NOT BEING MET	0	11
MESSG DEPOSIT	3		<u>3D/E-INTERCONNECTION</u>		
24 HR SVC	9		SUBSCRIBER DEMAND	7	
OTHER	1		LOW SUBS DEMAND	3	2
<u>1A-PAGER FEATURES(E)</u>		4	IMPORTANT TO OPER'N	7	
GROUP CALL	4		NOT IMPORTANT TO OPER'N	2	3
MULT. ADDRESS	1		<u>4A-SHARING FREQS/EQUPT</u>		
ALERT STORAGE	2		METRO AREAS - YES	6	
HANDS OFF OPER'N	4		METRO AREAS - NO	1	5
OTHER	3		SMALL TOWNS - YES	5	
<u>1A-SYSTEM FEATURES(P)</u>		10	SMALL TOWNS - NO	2	5
TONE	0		<u>4B-SPECIAL AGREEMENTS</u>		
TONE & VOICE	0		YES	1	
DIAL ACCESS	2		NO	8	3
OPTR ACCESS	1		<u>4D-STANDARDISATION</u>		
MESSG DEPOSIT	1		NEED FOR MORE	6	
24 HR SVC	0		ADEQUATE NOW	4	2
OTHER	0		<u>4E-REGULATION</u>		
<u>1A-PAGER FEATURES(P)</u>		10	REGULATE ALL PAG'G	3	
GROUP CALL	1		DEREGULATE ALL PAG'G	5	4
MULT. ADDRESS	1		<u>4F-CHARGING METHODS</u>		
ALERT STORAGE	0		FLAT RATE	10	
HANDS OFF OPER'N	0		FLAT RATE + CALL	1	
OTHER	0		FLAT R./LIMITED CALLS	1	
<u>1E-TRANSM'N METHOD</u>		6	OTHER	0	
RANDOM	4		<u>4G-REASON FOR PRIVATES</u>		
STORE THEN XMIT	1		LESS COSTLY	5	
OTHER	1		LIMITED COV'GE NEED	1	
<u>2E-USER FUNCTIONS</u>		4	SPEC COV'GE NEED	2	
CONSTRUCTION	3		ADDED TO 2-WAY	5	
MANUFACTURING	2		NO PUB SVC AT TIME	2	
REAL ESTATE	3		OTHER	2	
TRANSPORTATION	3				
UTILITIES	2				
WHOLESALE/RETAIL	0				
ACCOMMODATION	0				
CATERING	0				
MEDICAL	6				
OTHER	3				

REPLIES
ANALYSED:- 12

3.2 - REGULATED & UNREGULATED OPERATOR DATA

CENTRAL REGION

TABLE 3.5

REGULATED & UNREGULATED PAGING OPERATORS - CENTRAL REGION

LOCATION	LICENSEE	DOC#	*RF CH USAGE	
			PAGING	RCCMRS (P)
BROOKS CALGARY	1-BROOKS ANS SVC	413	1	0
	2-ALBERTA ANS SVC	279	0	1
	3-**-A.G.T.	73	1	0
	4-CALGARY ANS SVC	386	1	0
	5-CDN MOTOROLA	180	0	2
	6-ALERT ANS SVC	279	1	0
	7-DISTACOMM	234	1	0
	8-PAGETTE	270	0	1
	9-CALTRONICS	0	1	0
	10-WESTCAN	383	1	0
CAMROSE EDMONTON	11-CAMROSE ANS SVC	278	0	1
	12-PAGETTE	270	1	0
	13-CDN MOTOROLA	180	0	1
	14-ALLIED	240	0	1
	15-WESTCAN	383	1	0
	16-DISTACOMM	234	1	0
	17-DELTON SECURITY	0	1	0
FT MCMURRAY	18-NORTHWEST	321	0	1
	19-FT MCMURRAY ANS SVC	348	0	1
GRANDE PRAIRIE	20-STORRIE,G	306	1	0
HIGH LEVEL	21-CAMPBELL,J	0	1	0
LETHBRIDGE	22-LETHBRIDGE TEL ANS	233	0	1
MEDICINE HAT	23-PAGETTE	270	1	0
RED DEER	24-BOETCHERS TEL ANS	334	0	1
REGINA	25-**-SASKTEL	119	1	0
	26-TEL DUTY DAY & NITE.	313	1	0
	27-PAGETTE	270	0	1
	28-DISTACOMM	234	1	0
	29-PAGETTE	270	0	1
	30-CDN MOTOROLA	180	0	1
SASKATOON	31-PAGETTE	270	0	1
WEYBURN	32-NAT'L TYPEWRITER	330	1	0
BRANDON	33-CDN MOTOROLA	180	1	0
WINNIPEG	34-HARRISON-NOWELL	159	1	0
	35-NAT'L TYPEWRITER	330	0	1
	36-VIP COMM	381	0	1

TOTAL CENTRAL REGION PAGERS: 4,495

NOTES: * -RCCMRS(P)- REFERS TO RCCMRS CHANNELS
 LICENSED FOR SECONDARY PAGING

** INDICATES REGULATED OPERATOR

-NUMBER OF UNREG. SYSTEMS: 34
 -NUMBER OF UNREG. COMPANIES: 21
 -NUMBER OF REG. SYSTEMS: 2
 -NUMBER OF REG. COMPANIES: 2

3.3 - UNREGULATED OPERATOR DATA

ONTARIO REGION

TABLE 3.6

III-74

UNREGULATED OPERATORS (SMALL) - ONTARIO REGION (BY LOCALITY)

(LARGER SYSTEMS ARE LISTED IN TABLE 3.9)

LOCATION	LICENSEE	DOC#	FREQ(MHZ)	APP DATE
BALLANTRAE	1-STANDARD BUS MACH	299	148.285	7203
BARRIE	2-STANDARD BUS MACH	299	148.285	7207
	3-CDN MOTOROLA	327		
BELLEVILLE	4-TEL ANS SVC	172	148.405	7502
	5-TEL ANS SVC	172	36.220	7001
BRAMPTON	6-BRAMPTON TEL ANS	312	148.225	7209
CHATHAM	7-KEL COMM LTD	403	149.380	7501
	8-ESSEX COMM LTD	151		
CORNWALL	9-LIHOU,RR	208		
HAMILTON	10-AUTOMATIC COMM	285		
	11-PROF ANS SVC	186	148.045	7012
	12-SAME DAY TV	315	459.350	7209
KINGSTON	13-HAWTH PROT SVCS	356	149.260	7402
KITCHENER	14-GEN-RAL	0		
	15-EW RUNKE COMM	153		
LONDON	16-COMCO PAGING	374	148.405	7311
	17-LONDON PAGE	251		
NORTH BAY	18-MANSAN ENT	390	164.820	7210
OAKVILLE	19-TEL PAGE SVC	292	148.435	7201
ORANGEVILLE	20- WHYTE ELECTRONICS	415	36.140	0
ORILLIA	21-ORILLIA TEL SEC	302	148.075	7205
OWEN SOUND	22-O'LEARY, IF	274	167.100	7009
OTTAWA	23- TIME COMM LTD	281		
	24-MARC TREPANIER	353	150.215	7312
	25- CHRISTIE WALTHERS	199		
	26-DOW, LEE M	329	149.890	7302
	27-AARON,STANLEY	291	149.260	7110
	28- AIR PAGE OTT.	238	165.570	6805
	29-AIRTEL LTD	149	167.100	6608
PETERBOROUGH	30-ODYSSEY COMM LTD	328	148.240	7312
PORT ELGIN	31-MILROY, WK	411	148.285	7502
SARNIA	32-TEL ANS SVC	265	164.820	7111
	33-KEL COMM LTD	403	149.380	7501
SAULT STE MARIE	34-KETTLES,D	202		
	35-LANE,JW	135	149.380	7406
SMITHS FALLS	36-BINGLEY,BLAIR M	284	148.795	7107
SUDBURY	37-KANNEN,EN	431	149.380	7506
	38-STEEL ELECTRONICS	200	163.440	6803
TIMMINS	39-BON AIR MOTEL	430	149.260	7505
THUNDER BAY	40-W EXELL COMM LTD	344		
	41-LACOM	261		
TORONTO	42-MOVIS LTD (359)	308	148.555	7210
	43-CENTRAL ANS SVC	359	464.425	7504
TRENTON	44-TEL ANS SVC	172	36.220	7408
WINDSOR	45-KEL COMM LTD	403	140.070	7501
	46-CHERY,LJ	316	148.555	7208
	47-E&A MGMNT ENT	182	148.255	7208

NUMBER OF SYSTEMS: 67*

NUMBER OF COMPANIES: 47*

* NOTE THAT ABOVE FIGURES INCLUDE DATA FOR LARGER SYSTEMS APPEARING
TABLE 3.9

TABLE 3.7

UNREGULATED OPERATOR STATISTICS - ONTARIO

<u>LICENSEE</u>	1976		1981		<u>DAILY CALLS</u>	<u>TONE PGRS</u>	<u>DED'D FREQS</u>	<u>SHARED FREQS</u>
	<u>SUBS</u>	<u>PGRS</u>	<u>SUBS</u>	<u>PGRS</u>				
SMALL OPERATORS	878	1892	4010	8935	1945	153	15	2
LARGE OPERATORS	7908	11,968	20,271	32,311	20,950	4,234	13	0
TOTALS REPORTED:	8786	13,860	24,281	41,246	22,895	4,387	28	2
SYSTEMS REPORTED	28	35	27	31	19	33	36	16
AVG/SYSTEM REPORTING	314	396	899	1331	1205	133		
SYSTEMS ANALYSED: -38								

NOTE: THE ABOVE TABLE SUMMARISES THE CONTENT OF TABLES 3.8 AND 3.9 WHICH FOLLOW.

TABLE 3.8

UNREGULATED OPERATOR STATISTICS (SMALL) -- ONTARIO

LICENSEE	Q-#	DOC-#	1976		1981		DAILY CALLS	TONE PGRS	DED'D FREQS	SHARED FREQS
			SUBS	PGRS	SUBS	PGRS				
MOTOROLA (PAGET, FM	135	900191	7	7	NR	NR	NR	NR	0	1
BRAMPTON TEL ANS	136	900312	150	200	240	300	NR	10	NR	NR
LIHOU, RR	149	900208	50	60	200	250	200	0	1	0
PROF ANSWERING SVC	141	900186	315	500	1500	2500	NR	50	2	0
COM-CO PAGING	173	900374	NR	45	NR	750	NR	1	1	0
LONDON PAGE	174	900251	46	52	50	60	300	0	1	0
WHYTE ELECTRONICS	185	900415	NR	NR	20	100	NR	NR	0	1
DOW, LEE M	201	900329	50	100	800	2000	100	10	1	0
TIME COMMUNICATION	194	900281	NR	NR	NR	NR	NR	NR	1	0
MILROY, WK	212	900411	NR	25	NR	100	50	NR	1	0
TELE ANS SVC	216	900265	NR	208	NR	500	400	10	1	0
KANNEN, ERIC	230	0	NR	100	NR	400	NR	20	1	0
LANE, JW	219	900135	NR	65	NR	175	45	26	NR	NR
W EXELL COMM	234	900344	NR	30	NR	NR	NR	1	1	0
BON AIR PAGING	239	900430	125	125	200	300	250	0	1	0
KEL COMMUNICATIONS	119	900403	135	150	1000	1500	100	3	1	0
CHERY, LJ	171	900316	NR	NR	NR	NR	NR	NR	1	0
STEEL ELECTRONICS	231	900200	NR	225	NR	NR	500	22	1	0
TOTALS REPORTED			878	1892	4010	8935	1945	153	15	2
SYSTEMS REPORTING			8	15	8	113	9	13	16	16
AVG/SYSTEM REPORTING			109	126	501	687	216	11		
SYSTEMS ANALYSED:-	18									

TABLE 3.9

UNREGULATED OPERATOR STATISTICS (LARGE) -- ONTARIO

LICENSEE	Q-#	DOC-#	1976		1981		DAILY CALLS	TONE PGRS	DED'D FREQS	SHARED FREQS
			SUBS	PGRS	SUBS	PGRS				
BRANT TEL-BRTFD	110	900207	63	73	NR	NR	NR	73	1	NR
BRANT TEL-BRTFD	110	900207	86	112	200	280	NR	0	1	NR
BRANT TEL-KITCH	110	900207	38	43	115	130	NR	0	#	NR
BRANT TEL-CAMB'G	110	900207	37	47	111	140	NR	0	#	NR
BRANT TEL-HAMLTN	110	900207	27	27	100	110	NR	0	#	NR
BRANT TEL-SIMCOE	110	900207	18	20	70	80	NR	0	#	NR
BRANT TEL-ST THOM	110	900207	12	12	60	85	NR	0	#	NR
BRANT TEL-LONDON	110	900207	12	14	70	85	NR	0	#	NR
NAT'L LASER-H'SHOE	108	900360	2200	3835	6600	11840	9500	2262	2	NR
NAT'L LASER-TOR	108	900360	32	66	190	366	200	39	1	NR
NAT'L LASER-SCARB	108	900360	150	180	450	780	260	81	1	NR
PAGETTE-HAMILTON	105	900270	142	200	270	400	NR	12	1	NR
PAGETTE-TORONTO	105	900270	922	1291	1850	2840	3000	219	2	NR
PAGETTE-OTTAWA	105	900270	699	748	1225	1340	NR	112	1	NR
MACL.HUNT-TOR	123	900328	2200	3700	6600	11100	5500	1110	2	NR
MACL.HUNT-LONDON	123	900328	375	475	675	875	600	95	#	NR
MACL.HUNT-ST CAT	123	900328	575	750	975	1350	1250	165	#	NR
MACL.HUNT-KGSTN	123	900328	225	250	375	NR	375	37	#	NR
ROWELL-WOODSTOCK	117	900255	70	95	210	330	215	23	1	NR
ROWELL-STRATFORD	117	900255	25	30	125	180	50	6	#	NR

NOTE: (#) INDICATES SAME FREQUENCY/IES RE-EMPLOYED

TOTALS REPORTED	7908	11968	20271	32311	20950	4234	13	0
SYSTEMS REPORTING	20	20	19	18	10	20	20	0
AVG/SYSTEM REPORTING	395	598	1066	1795	2095	211		
SYSTEMS ANALYSED:- 20								

TABLE 3.10

PAGER POPULATION DISTRIBUTION - UNREGULATED OPERATORSONTARIO REGION

CELL#	LOWER LIMIT	NO. OF OBS	%RELATIVE FREQ
1	0.0000	17	48.5
2	100.0000	6	17.1
3	200.0000	5	14.2
4	300.0000	0	0.0
5	400.0000	1	2.8
6	500.0000	1	2.8
7	600.0000	0	0.0
8	700.0000	2	5.7
9	800.0000	0	0.0
10	900.0000	0	0.0
11	1000.0000	0	0.0
12	1100.0000	0	0.0
13	1200.0000	1	2.8
14	1300.0000	0	0.0
15	1400.0000	0	0.0
16	1500.0000	0	0.0
17	1600.0000	0	0.0
18	1700.0000	0	0.0
19	1800.0000	0	0.0
20	1900.0000	0	0.0
21	2000.0000	0	0.0
22	2100.0000	0	0.0
23	2200.0000	0	0.0
24	2300.0000	0	0.0
25	2400.0000	0	0.0
26	2500.0000	0	0.0
27	2600.0000	0	0.0
28	2700.0000	0	0.0
29	2800.0000	0	0.0
30	2900.0000	0	0.0
31	3000.0000	0	0.0
32	3100.0000	0	0.0
33	3200.0000	0	0.0
34	3300.0000	0	0.0
35	3400.0000	0	0.0
36	3500.0000	0	0.0
37	3600.0000	0	0.0
38	3700.0000	1	2.8
39	3800.0000	1	2.8

Note: Pager quantities served by individual systems are distributed into cell ranges of 100 pagers each. The "No of Obs" column indicates the number of private systems having pager complements within each cell range, while the "% Relative Frequency" column indicates the percentage of the total observations which fall within each cell range.

N= 35
 MEAN= 396.0000
 STD.DEV= 883.7037
 SKEWNESS= 3.1726
 KURTOSIS= 12.1821
 XMIN= 7.0000
 XMAX= 3835.0000
 RANGE= 3828.0000

TABLE - 3.11

UNREGULATED OPERATOR QUESTIONNAIRE REPLY SUMMARY - ONTARIO REGION

	SMALL OPS		LARGE OPS		COMBINED	
	R	NR	R	NR	R	NR
<u>1A-SYSTEM FEATURES (E)</u>		4		0		4
TONE	9		4		13	
TONE & VOICE	14		5		19	
DIAL ACCESS	2		4		6	
OPTR ACCESS	11		5		16	
MESSG DEPOSIT	9		4		13	
24 HR SVC	14		5		19	
OTHER	2		2		4	
<u>1A-PAGER FEATURES (E)</u>		7		1		8
GROUP CALL	5		1		6	
MULT. ADDRESS	0		1		1	
ALERT STORAGE	4		3		7	
HANDS OFF OPER'N	10		4		14	
OTHER	0		2		2	
<u>1A-SYSTEM FEATURES (P)</u>		7		4		11
TONE	4		1		5	
TONE & VOICE	4		0		4	
DIAL ACCESS	7		0		7	
OPTR ACCESS	1		0		1	
MESSG DEPOSIT	0		0		0	
24 HR SVC	1		0		1	
OTHER	0		0		0	
<u>1A-PAGER FEATURES (P)</u>		10		3		13
GROUP CALL	6		1		7	
MULT. ADDRESS	6		0		6	
ALERT STORAGE	4		0		4	
HANDS OFF OPER'N	0		0		0	
OTHER	0		1		1	
<u>1E-TRANSM'N METHOD</u>		2		5		7
RANSOM	13		0		13	
STORE THEN XMIT	2		0		2	
OTHER	1		0		1	
<u>2E-USER FUNCTIONS</u>		5		2		7
CONSTRUCTION	7		1		8	
MANUFACTURING	3		0		3	
REAL ESTATE	8		3		11	
TRANSPORTATION	1		2		3	
UTILITIES	5		0		5	
WHOLESALE/RETAIL	1		0		1	

UNREGULATED OPERATOR QUESTIONNAIRE REPLY SUMMARY - ONTARIO REGION

	SMALL OPS		LARGE OPS		COMBINED	
	E	NR	R	NR	R	NR
<u>2E-USER FUNCTIONS (cont)</u>						
ACCOMMODATION	0		0		0	
CATERING	0		0		0	
MEDICAL	10		1		11	
OTHER	3		2		5	
<u>3A/B RURAL NEEDS</u>						
SVC REQUIRED	7		5	0	12	3
SVC NOT REQUIRED	8	3	0		8	
NEED MET/TO BE MET	4		4	1	8	
NEED NOT BEING MET	2	12	0		2	13
<u>3D/E INTERCONNECTION</u>						
SUBSCRIBER DEMAND	12		4		16	
LOW SUBS DEMAND	6	0	1	0	7	0
IMPORTANT TO OPER'N	9		5		14	
NOT IMPORTANT TO OPER'N	5	4	0	0	5	4
<u>4A/SHARING FREQS/EQUIPT</u>						
METRO AREAS - YES	9		1		10	
METRO AREAS - NO	3	6	3	1	6	7
SMALL TOWNS - YES	12		3		15	
SMALL TOWNS - NO	4	2	2	0	6	2
<u>4B/SPECIAL AGREEMENTS</u>						
YES	2		3		5	
NO	16	0	2	0	18	0
<u>4D/STANDARDISATION</u>						
NEED FOR MORE	8		3		11	
ADEQUATE NOW	7	3	2	0	9	3
<u>4E/REGULATION</u>						
REGULATE ALL PAG'G	6		1		7	
DEREGULATE ALL PAG'G	7	5	2	2	9	7
<u>4F/CHARGING METHODS</u>						
FLAT RATE	14		2		16	
FLAT RATE - CALL	0		0		0	
FLAT R./LIMITED CALLS	4		3		7	
OTHER	0		1		1	

TABLE - 3.11 (CONT'D)

UNREGULATED OPERATOR QUESTIONNAIRE REPLY SUMMARY - ONTARIO REGION

	SMALL OPS		LARGE OPS		COMBINED	
	R	NR	R	NR	R	NR
<u>4G-REASON FOR PRIVATES</u>		1		0		1
LESS COSTLY	6		3		9	
LIMITED COV'GE NEED	5		3		8	
SPEC COV'GE NEED	6		2		8	
ADDED TO 2-WAY	5		3		8	
NO PUB SVC AT TIME	6		0		6	
OTHER	2		2		4	
	REPLIES		REPLIES		REPLIES	
	ANALYSED:-18		ANALYSED:-5		ANALYSED:-23	

3.4 UNREGULATED OPERATOR DATA

QUEBEC REGION

TABLE 3.12
UNREGULATED OPEATORS - QUEBEC REGION (BY LOCALITY)

LOCATION	LICENSEE	DOC#	FREQ(MHZ)	APP DATE
ARTHABASKA	1-COMM GRC INC	373	167.100	7403
BAIE COMEAU	2-LANGEVIN, H	468	150.200	7510
CHICOUTIMI	3-CENTRE DE COMM	385	143.205	7501
	4-SETELCO	310	165.960	7112
DRUMMONDVILLE	5-HEBERT, ELIANNE	236	164.400	6810
GRANBY RGN	6-DESLANDES, PA	319	163.440	7505
LEVIS	7-AUTO VOX INC	339	150.215	7112
MONTREAL	8-PULSAR LTD	398	150.185	7411
	9-PAGETTE AIRSIGNALS L	270	149.020	7104
	10-PAGETTE AIRSIGNALS L	270	150.215	7104
	11-NAT'L LASER PRODS	360	35.220	7401
	12-CENTRAL ANS SVC	359	454.275	7506
	13-SCOTCOMM RADIO	335	143.175	7304
	14-SCOTCOMM RADIO	335	143.745	7304
NORANDA	15-CLOUTIER, J	378	163.440	7408
QUEBEC RGN	16-BOULINGUEZ COMMUNICA	223	163.680	6707
QUEBEC	17-MATTE, R	0		
	18-QUE ELECTRON SVC	206	143.175	7502
	19-TASCO	103	163.440	7505
RIMOUSKI	20-SVC TEL TAS	439	167.100	7509
RIV. DU LOUP	21-RADIO CJFP	257	163.440	7507
STE AGATHE	22-SCOTCOMM RADIO	335	143.175	7501
STE FOY	23-CENTRE DE COMM	385	143.205	7408
	24-AUTO VOX INC	339	150.215	7112
	25-PAGETTE AIRSIGNALS L	270	167.460	7104
ST NAZAIRE	26-SERCOLAC	435	150.200	7508
SEPT ILES	27-CENTRE DE COMM	283	143.205	7106
SHERBROOKE	28-PAGETTE AIRSIGNALS L	270	164.340	7104
	29-COMM SVC DE SHERBROO	247	167.100	7104
SOREL	30-SCOTCOMM RADIO	335	143.175	7501
THETFORD RGN	31-TELE SVC DE THETFORD	253	163.440	7401
THREE RIVERS RGN	32-BOULINGUEZ COMMUNICA	223	163.680	7303
TROIS RIVIERES	33-CENTRE DE COMM	385	143.205	7501
	34-MARCHAND, L	295	167.100	7112

NOTE: NUMBER OF SYSTEMS:- 34
 NUMBER OF COMPANIES:- 24

TABLE 3.13

UNREGULATED OPERATOR STATISTICS (LARGE & SMALL) - QUEBEC

LICENSEE	Q-#	DOC-#	1976		1981		DAILY CALLS	TONE PGRS	DED'D FREQS	SHARED FREQS
			SUBS	PGRS	SUBS	PGRS				
DESLANDES, PA	133	900319	47	NR	300	650	250	NR	1	1
HEBERT, ELIANNE	130	900236	16	16	NR	NR	60	NR	1	0
MATTE, ROGER	153	0	325	400	950	1200	1100	400	1	0
QUEBEC ELECTRON SV	155	900206	65	260	200	1000	NR	NR	1	0
SERCOLAC	166	900435	60	70	200	210	100	NR	1	0
RADIO CJFP	111	900257	NR	NR	NR	NR	NR	NR	NR	NR
TELE SVC DE THETFO	171	900253	100	110	350	400	120	NR	1	2
SCOTCOMM-MTL#1	114	900335	400	1100	1900	6100	1500	693	1	NR
SCOTCOMM-MTL#2	114	900335	NR	NR	800	3000	NR	NR	1	NR
SCOTCOMM-ST AGATHE	114	900335	NR	NR	100	500	NR	NR	#	NR
SCOTCOMM-SOREL	114	900335	10	40	100	500	150	3	#	NR
BOULINGUEZ-QUE	100	900223	NR	NR	NR	NR	600	NR	1	NR
BOULINGUEZ-3 RVRS	100	900223	80	125	200	400	250	15	#	NR
NAT'L LASER-MTL	108	900360	500	980	3000	5980	3800	666	1	NR
PAGETTE-MTL	105	900270	1332	2134	2330	3950	NR	576	2	NR
PAGETTE-QUE	105	900270	415	667	750	1335	NR	66	1	NR
PAGETTE-SHERBK	105	900270	153	313	215	480	NR	93	1	NR

NOTE: (#) INDICATES SAME FREQUENCY/IES RE-EMPLOYED

TOTALS REPORTED	3503	6215	11395	25705	7930	2512	14	3
SYSTEMS REPORTING	13	12	14	14	10	8	16	6
AVG/SYSTEM REPORTING	269	517	813	1836	793	314		
SYSTEMS ANALYSED:-	17							

TABLE 3.14

UNREGULATED OPERATOR STATISTICS (SMALL) - QUEBEC

LICENSEE	Q-#	DOC-#	1976		1981		DAILY CALLS	TONE PGRS	DED'D FREQS	SHARED FREQS
			SUBS	PGRS	SUBS	PGRS				
DESLANDES, PA	133	900319	47	NR	300	650	250	NR	1	1
HEBERT, ELIANNE	130	900236	16	16	NR	NR	60	NR	1	0
MATTE, ROGER	153	0	325	400	950	1200	1100	400	1	0
QUEBEC ELECTRON SV	155	900206	65	260	200	1000	NR	NR	1	0
SERCOLAC	166	900435	60	70	200	210	100	NR	1	0
RADIO CJFP	111	900257	NR	NR	NR	NR	NR	NR	NR	NR
TELE SVC DE THETFO	171	900253	100	110	350	400	120	NR	1	2

NOTE: (#) INDICATES SAME FREQUENCY/IES RE-EMPLOYED

TOTALS REPORTED	613	856	2000	3460	1630	400	6	3
SYSTEMS REPORTING	6	5	5	5	5	1	6	6
AVG/SYSTEM REPORTING	102	171	400	692	326	400		
SYSTEMS ANALYSED:-	7							

TABLE 3.15

UNREGULATED OPERATOR STATISTICS (LARGE) - QUEBEC

LICENSEE	Q-#	DOC-#	1976		1981		DAILY CALLS	TONE PGRS	DED'D FREQS	SHARED FREQS
			SUBS	PGRS	SUBS	PGRS				
SCOTCOMM-MTL#1	114	900335	400	1100	1900	6100	1500	693	1	NR
SCOTCOMM-MTL#2	114	900335	NR	NR	800	3000	NR	NR	1	NR
SCOTCOMM-ST AGATHE	114	900335	NR	NR	100	500	NR	NR	#	NR
SCOTCOMM-SOREL	114	900335	10	40	100	500	150	3	#	NR
BOULINGUEZ-QUE	100	900223	NR	NR	NR	NR	600	NR	1	NR
BOULINGUEZ-3 RVRS	100	900223	80	125	200	400	250	15	#	NR
NAT'L LASER-MTL	108	900360	500	980	3000	5980	3800	666	1	NR
PAGETTE-MTL	105	900270	1332	2134	2330	3950	NR	576	2	NR
PAGETTE-QUE	105	900270	415	667	750	1335	NR	66	1	NR
PAGETTE-SHERBK	105	900270	153	313	215	480	NR	93	1	NR

NOTE: (#) INDICATES SAME FREQUENCY/IES RE-EMPLOYED

TOTALS REPORTED	2890	5359	9395	22245	6300	2112	8	0
SYSTEMS REPORTING	7	7	9	9	5	7	10	0
AVG/SYSTEM REPORTING	412	765	1043	2471	1260	301		
SYSTEMS ANALYSED:-	10							

TABLE 3.16

III-87

PAGER POPULATION DISTRIBUTION - UNREGULATED OPERATORSQUEBEC REGION

CELL#	LOWER LIMIT	NO. OF OBS	%RELATIVE FREQ
1	0.0000	3	25.0
2	100.0000	2	16.6
3	200.0000	1	8.3
4	300.0000	1	8.3
5	400.0000	1	8.3
6	500.0000	0	0.0
7	600.0000	1	8.3
8	700.0000	0	0.0
9	800.0000	0	0.0
10	900.0000	1	8.3
11	1000.0000	0	0.0
12	1100.0000	1	8.3
13	1200.0000	0	0.0
14	1300.0000	0	0.0
15	1400.0000	0	0.0
16	1500.0000	0	0.0
17	1600.0000	0	0.0
18	1700.0000	0	0.0
19	1800.0000	0	0.0
20	1900.0000	0	0.0
21	2000.0000	0	0.0
22	2100.0000	1	8.3

N= 12
 MEAN= 517.9167
 STD.DEV= 625.9860
 SKEWNESS= 1.3720
 KURTOSIS= 3.9052
 XMIN= 16.0000
 XMAX= 2134.0000
 RANGE= 2118.0000

Note: Pager quantities served by individual systems are distributed into cell ranges of 100 pagers each. The "No of Obs" column indicates the number of private systems having pager complements within each cell range, while the "% Relative Frequency" column indicates the percentage of the total observations which fall within each cell range.

TABLE - 3.17

UNREGULATED OPERATOR QUESTIONNAIRE REPLY SUMMARY - QUEBEC REGION

	SMALL OPS R NR	LARGE OPS R NR	COMBINED R NR
<u>1A-SYSTEM FEATURES(E)</u>	1	2	3
TONE	1	2	3
TONE & VOICE	6	2	8
DIAL ACCESS	1	2	3
OPTR ACCESS	4	2	6
MESSG DEPOSIT	2	2	4
24 HR SVC	6	2	8
OTHER	1	0	1
<u>1A-PAGER FEATURES(E)</u>	3	2	5
GROUP CALL	1	2	3
MULT. ADDRESS	1	2	3
ALERT STORAGE	2	1	3
HANDS OFF OPER'N	2	1	3
OTHER	1	1	2
<u>1A-SYSTEM FEATURES(P)</u>	5	4	9
TONE	1	0	1
TONE & VOICE	1	0	1
DIAL ACCESS	1	0	1
OPTR ACCESS	0	0	0
MESSG DEPOSIT	1	0	1
24 HR SVC	1	0	1
OTHER	0	0	0
<u>1A-PAGER FEATURES(P)</u>	5	4	9
GROUP CALL	2	0	2
MULT. ADDRESS	0	0	0
ALERT STORAGE	0	0	0
HANDS OFF OPER'N	0	0	0
OTHER	0	0	0
<u>1E-TRANSM'N METHOD</u>	3	4	7
RANDOM	3	0	3
STORE THEN XMIT	0	0	0
OTHER	1	0	1
<u>2E-USER FUNCTIONS</u>	4	2	6
CONSTRUCTION	2	0	2
MANUFACTURING	0	0	0
REAL ESTATE	3	0	3
TRANSPORTATION	0	0	0
UTILITIES	2	1	3
WHOLESALE/RETAIL	1	1	2
ACCOMMODATION	0	0	0
CATERING	0	0	0
MEDICAL	0	0	0
OTHER	1	2	3

TABLE - 3.17 CONT'D

UNREGULATED OPERATOR QUESTIONNAIRE REPLY SUMMARY - QUEBEC REGION

	SMALL OPS		LARGE OPS		COMBINED	
	R	NR	R	NR	R	NR
<u>3A/B-RURAL NEEDS</u>						
SVC REQUIRED	2	1	1	2	3	3
SVC NOT REQUIRED	4		1		5	
NEED MET/TO BE MET	2	5	2	2	4	7
NEED NOT BEING MET	0		0		0	
<u>3D/E-INTERCONNECTION</u>						
SUBSCRIBER DEMAND	3	0	2	2	5	2
LOW SUBS DEMAND	4		0		4	
IMPORTANT TO OPER'N	2	1	2	2	4	3
NOT IMPORTANT TO OPER'N	4		0		4	
<u>4A-SHARING FREQS/EQUPT</u>						
METRO AREAS - YES	4	3	2	1	6	4
METRO AREAS - NO	0		1		1	
SMALL TOWNS - YES	3	3	2	2	5	5
SMALL TOWNS - NO	1		0		1	
<u>4B-SPECIAL AGREEMENTS</u>						
YES	2	0	1	2	3	2
NO	5		1		6	
<u>4D-STANDARDISATION</u>						
NEED FOR MORE	5	2	0	2	5	4
ADEQUATE NOW	0		2		2	
<u>4E-REGULATION</u>						
REGULATE ALL PAG'G	5	2	2	2	7	4
DEREGULATE ALL PAG'G	0		0		0	
<u>4F-CHARGING METHODS</u>						
FLAT RATE	7	0	2	2	9	2
FLAT RATE + CALL	0		0		0	
FLAT R./LIMITED CALLS	0		1		1	
OTHER	0		2		2	
<u>4G-REASON FOR PRIVATES</u>						
LESS COSTLY	3	1	2	2	5	3
LIMITED COV'GE NEED	1		0		1	
SPEC COV'GE NEED	1		1		2	
ADDED TO 2-WAY	0		0		0	
NO PUB SVC AT TIME	3		1		4	
OTHER	0		1		1	
REPLIES		REPLIES		REPLIES		
ANALYSED:- 7		ANALYSED:- 4		ANALYSED:- 11		

3.5 UNREGULATED OPERATOR DATA

ATLANTIC REGION

TABLE 3.18.

UNREGULATED OPERATORS - MARITIME REGION

LOCATION	LICENSEE	DOC#	FREQ (MHZ)	APP DATE
FRASER MNTN-NB	1-ATLANTIC AIR PAGE	0	167.100	0
MONCTON-NB	2-AIR PAGE ANS SVC	276	163.440	7206
	3-UNIVERSAL ANS SVC	474	167.100	7506
ST JOHN-NB	4-AIR PAGE ANS SVC	276	163.440	0
HALIFAX-NS	5-AIR PAGE ANS SVC	276	164.580	7110
	6-TEL ANS SVC	0	459.350	0
ST JOHN'S-NFLD	7-ANS TEL SVC	248	163.440	6901

NUMBER OF SYSTEMS:- 7
 NUMBER OF COMPANIES:- 5

NOTE: VERY LITTLE STATISTICAL DATA WAS RETURNED FROM OPERATORS IN THE MARITIME REGION. CENTRAL ANSWERING SERVICE OF MONCTON REPLIED ADVISING A SYSTEM IS PLANNED SOON FOR THE MONCTON AREA. ONE OTHER QUESTIONNAIRE RETURNED FROM THE REGION ADVISED THAT THE RECIPIENT WAS NOT IN THE PAGING BUSINESS.

TABLE 3.19

UNREGULATED OPERATOR STATISTICS - MARITIME REGION

LICENSEE	Q-#	DOC-#	1976		1981		DAILY CALLS	TONE PGRS	DED'D FREQS	SHARED FREQS
			SUBS	PGRS	SUBS	PGRS				
*CENTRAL ANS SVC	105	0	NR	NR	100	100	NR	NR	NR	1

NOTE: (*) INDICATES PLANNED SYSTEM

TOTALS REPORTED			0	0	100	100	0	0	0	1
SYSTEMS REPORTING			0	0	1	1	0	0	0	1

SYSTEMS ANALYSED:- 1

TABLE - 3.20

UNREGULATED OPERATOR QUESTIONNAIRE REPLY SUMMARY - ATLANTIC REGION

	UNREG R	OPS NR		UNREG R	OPS NR
<u>1A-SYSTEM FEATURES(E)</u>		1	<u>3A/B-RURAL NEEDS</u>		
TONE	0		SVC REQUIRED	0	0
TONE & VOICE	0		SVC NOT REQUIRED	1	
DIAL ACCESS	0		NEED MET/TO BE MET	0	1
OPTR ACCESS	0		NEED NOT BEING MET	0	
MESSG DEPOSIT	0				
24 HR SVC	0		<u>3D/E-INTERCONNECTION</u>		
OTHER	0		SUBSCRIBER DEMAND	0	0
<u>1A-PAGER FEATURES(E)</u>		1	LOW SUBS DEMAND	1	
GROUP CALL	0		IMPORTANT TO OPER'N	0	0
MULT. ADDRESS	0		NOT IMPORTANT TO OPER'N	1	
ALERT STORAGE	0				
HANDS OFF OPER'N	0		<u>4A-SHARING FREQS/EQUPT</u>		
OTHER	0		METRO AREAS - YES	0	0
<u>1A-SYSTEM FEATURES(P)</u>		0	METRO AREAS - NO	1	
TONE	1		SMALL TOWNS - YES	0	0
TONE & VOICE	1		SMALL TOWNS - NO	1	
DIAL ACCESS	0		<u>4B-SPECIAL AGREEMENTS</u>		
OPTR ACCESS	1		YES	0	0
MESSG DEPOSIT	1		NO	1	
24 HR SVC	1		<u>4D-STANDARDISATION</u>		
OTHER	0		NEED FOR MORE	0	0
<u>1A-PAGER FEATURES(P)</u>		0	ADEQUATE NOW	1	
GROUP CALL	1		<u>4E-REGULATION</u>		
MULT. ADDRESS	0		REGULATE ALL PAG'G	0	0
ALERT STORAGE	0		DEREGULATE ALL PAG'G	1	
HANDS OFF OPER'N	1		<u>4F-CHARGING METHODS</u>		0
OTHER	0		FLAT RATE	1	
<u>1E-TRANSM'N METHOD</u>		0	FLAT RATE + CALL	0	
RANDOM	1		FLAT R./LIMITED CALLS	0	
STORE THEN XMIT	0		OTHER	0	
OTHER	0		<u>4G-REASON FOR PRIVATES</u>		0
<u>2E-USER FUNCTIONS</u>		0	LESS COSTLY	0	
CONSTRUCTION	1		LIMITED COV'GE NEED	0	
MANUFACTURING	0		SPEC COV'GE NEED	0	
REAL ESTATE	1		ADDED TO 2-WAY	0	
TRANSPORTATION	0		NO PUB SVC AT TIME	0	
UTILITIES	0		OTHER	1	
WHOLESALE/RETAIL	0				
ACCOMMODATION	0				
CATERING	0				
MEDICAL	1				
OTHER	0				

 REPLIES
 ANALYSED:- 1

3.6 UNREGULATED OPERATOR DATA

ALL REGIONS COMBINED

TABLE 3.21A
PAGER POPULATION DISTRIBUTION - UNREGULATED OPERATORS
QUEBEC, ONTARIO AND PACIFIC REGIONS COMBINED

CELL#	LOWER LIMIT	NO. OF OBS	%RELATIVE FREQ
1	0.0000	29	49.1
2	100.0000	8	13.5
3	200.0000	6	10.1
4	300.0000	2	3.3
5	400.0000	2	3.3
6	500.0000	1	1.6
7	600.0000	1	1.6
8	700.0000	2	3.3
9	800.0000	0	0.0
10	900.0000	1	1.6
11	1000.0000	0	0.0
12	1100.0000	1	1.6
13	1200.0000	1	1.6
14	1300.0000	1	1.6
15	1400.0000	0	0.0
16	1500.0000	0	0.0
17	1600.0000	1	1.6
18	1700.0000	0	0.0
19	1800.0000	0	0.0
20	1900.0000	0	0.0
21	2000.0000	0	0.0
22	2100.0000	1	1.6
23	2200.0000	0	0.0
24	2300.0000	0	0.0
25	2400.0000	0	0.0
26	2500.0000	0	0.0
27	2600.0000	0	0.0
28	2700.0000	0	0.0
29	2800.0000	0	0.0
30	2900.0000	0	0.0
31	3000.0000	0	0.0
32	3100.0000	0	0.0
33	3200.0000	0	0.0
34	3300.0000	0	0.0
35	3400.0000	0	0.0
36	3500.0000	0	0.0
37	3600.0000	0	0.0
38	3700.0000	1	1.6
39	3800.0000	1	1.6

N= 59
 MEAN= 401.1864
 STD.DEV= 771.9629
 SKEWNESS= 3.0921
 KURTOSIS= 12.9297
 XMIN= 7.0000
 XMAX= 3835.0000
 RANGE= 3828.0000

Note: Pager quantities served by individual systems are distributed into cell ranges of 100 pagers each. The "No of Obs" column indicates the number of private systems having pager complements within each cell range, while the "% Relative Frequency" column indicates the percentage of the total observations which fall within each cell range.

TABLE 3.21B

PAGER POPULATION DISTRIBUTION - UNREGULATED OPERATORS

III-96

QUEBEC, ONTARIO AND PACIFIC REGIONS COMBINED

(For systems with less than 800 pagers)

CELL#	LOWER LIMIT	NO. OF OBS	%RELATIVE FREQ
1	0.0000	7	13.7
2	20.0000	6	11.7
3	40.0000	8	15.6
4	60.0000	7	13.7
5	80.0000	1	1.9
6	100.0000	4	7.8
7	120.0000	2	3.9
8	140.0000	1	1.9
9	160.0000	0	0.0
10	180.0000	1	1.9
11	200.0000	3	5.8
12	220.0000	1	1.9
13	240.0000	1	1.9
14	260.0000	1	1.9
15	280.0000	0	0.0
16	300.0000	2	3.9
17	320.0000	0	0.0
18	340.0000	0	0.0
19	360.0000	0	0.0
20	380.0000	0	0.0
21	400.0000	1	1.9
22	420.0000	0	0.0
23	440.0000	0	0.0
24	460.0000	1	1.9
25	480.0000	0	0.0
26	500.0000	1	1.9
27	520.0000	0	0.0
28	540.0000	0	0.0
29	560.0000	0	0.0
30	580.0000	0	0.0
31	600.0000	0	0.0
32	620.0000	0	0.0
33	640.0000	0	0.0
34	660.0000	1	1.9
35	680.0000	0	0.0
36	700.0000	0	0.0
37	720.0000	0	0.0
38	740.0000	2	3.9

N= 51
 MEAN= 150.5882
 STD.DEV= 186.1478
 SKEWNESS= 1.9016
 KURTOSIS= 5.9486
 XMIN= 7.0000
 XMAX= 750.0000
 RANGE= 743.0000

Note: Pager quantities served by individual systems are distributed into cell ranges of 20 pagers each. The "No of Obs" column indicates the number of private systems having pager complements within each cell range, while the "% Relative Frequency" column indicates the percentage of the total observations which fall within each cell range.

TABLE 3.22

UNREGULATED OPERATOR QUESTIONNAIRE REPLY SUMMARY-ALL REGIONS SUVEYED (PAGE 1 of 3)

	<u>PACIFIC</u>		<u>ONTARIO</u>		<u>QUEBEC</u>		<u>ATLANTIC</u>		<u>COMBINED</u>	
	R	NR	R	NR	R	NR	R	NR	R	NR
<u>1A-SYSTEM FEATURES (E)</u>		2		4		3		1		10
TONE	7		13		3		0		23	
TONE & VOICE	10		19		8		0		37	
DIAL ACCESS	3		6		3		0		12	
OPTR ACCESS	6		16		6		0		28	
MESSG DEPOSIT	3		13		4		0		20	
24 HR SVC	9		19		8		0		36	
OTHER	1		4		1		0		6	
<u>1A-PAGER FEATURES (E)</u>		4		8		5		1		18
GROUP CALL	4		6		3		0		13	
MULT. ADDRESS	1		1		3		0		5	
ALERT STORAGE	2		7		3		0		15	
HANDS OFF OPER'N	4		14		3		0		21	
OTHER	3		2		2		0		7	
<u>1-A SYSTEM FEATURES (P)</u>		10		11		9		0		30
TONE	0		5		1		1		7	
TONE & VOICE	0		4		1		1		6	
DIAL ACCESS	2		7		1		0		10	
OPTR ACCESS	1		1		0		1		3	
MESSG DEPOSIT	1		0		1		1		3	
24 HR SVC	0		1		1		1		3	
OTHER	0		0		0		0		0	
<u>1A-PAGER DEATURES (P)</u>		20		13		9		0		32
GROUP CALL	1		7		2		1		11	
MULT. ADDRESS	1		6		0		0		7	
ALERT STORAGE	0		4		0		0		4	
HANDS OFF OPER'N	0		0		0		1		1	
OTHER	0		1		0		0		1	

TABLE 3.22 CONT'D

UNREGULATED OPERATOR QUESTIONNAIRE REPLY SUMMARY - ALL REGIONS SURVEYED (PAGE 2 of 3)

	<u>PACIFIC</u>		<u>ONTARIO</u>		<u>QUEBEC</u>		<u>ATLANTIC</u>		<u>COMBINED</u>	
	R	NR	R	NR	R	NR	R	NR	R	NR
<u>1E-TRANSM'N METHOD</u>		6		7		7		0		20
RANDOM	4		13		3		1		21	
STORE THEN XMIT	1		2		0		0		3	
OTHER	1		1		1		0		3	
<u>2E-USER OCCUPATIONS</u>		4		7		6		0		17
CONSTRUCTION	3		8		2		1		14	
MANUFACTURING	2		3		0		0		5	
REAL ESTATE	3		11		3		1		18	
TRANSPORTATION	3		3		0		0		6	
UTILITIES	2		5		3		0		10	
WHOLESALE/RETAIL	0		1		2		0		3	
ACCOMMODATION	0		0		0		0		0	
CATERING	0		0		0		0		0	
MEDICAL	6		11		0		1		18	
OTHER	3		5		3		0		11	
<u>3A/B-RURAL NEEDS</u>										
SVC REQUIRED	2		12		3		0		17	
SVC NOT REQUIRED	6	4	8	3	5	3	1	0	20	10
NEED MET/TO BE MET	1		8		4		0		13	
NEED NOT BEING MET	0	11	2	13	0	7	0	1	2	32
<u>3D/E-INTERCONNECTION</u>										
SUBSCRIBER DEMAND	7		16		5		0		28	
LOW SUBS DEMAND	3	2	7	0	4	2	1	0	15	4
IMPORTANT TO OPER'N	7		14		4		0		25	
NOT IMPORTANT TO OPER'N	2	3	5	4	4	3	1	0	12	10

TABLE 3.22 CONT'D

UNREGULATED OPERATOR QUESTIONNAIRE REPLY SUMMARY - ALL REGIONS SURVEYED (PAGE 3 of 3)

	<u>PACIFIC</u>		<u>ONTARIO</u>		<u>QUEBEC</u>		<u>ATLANTIC</u>		<u>COMBINED</u>	
	R	NR	R	NR	R	NR	R	NR	R	NR
<u>4A/SHARING FREQS/EQUIPT</u>										
METRO AREAS - YES	6		10		6		0		22	
METRO AREAS - NOT	1	5	6	7	1	4	1	0	9	16
SMALL TOWNS - YES	5		15		5		0		25	
SMALL TOWNS - NO	2	5	6	2	1	5	1	0	10	12
<u>4A/SPECIAL AGREEMENTS</u>										
YES	1		5		3		0		9	
NO	8	3	18	0	6	2	1	0	33	5
<u>4D-STANDARDISATION</u>										
NEED FOR MORE	6		11		5		0		22	
ADEQUATE NOW	4	2	9	3	2	4	1	0	16	9
<u>4E-REGULATION</u>										
REGULATE ALL PAG'G	3		7		7		0		17	
DEREGULATE ALL PAG'G	5	4	9	7	0	4	1	0	15	15
<u>4F-CHARGING METHODS</u>										
		2		1		2		0		5
FLAT RATE	10		16		9		1		36	
FLAT RATE - CALL	1		0		0		0		1	
FLAT R./LIMITED CALLS	1		7		1		0		9	
OTHER	0		1		2		0		3	
<u>4G-REASON FOR PRIVATES</u>										
		2		1		3		0		6
LESS COSTLY	5		9		5		0		19	
LIMITED COV'GE NEED	1		8		1		0		10	
SPEC COV'GE NEED	2		8		2		0		12	
ADDED TO 2-WAY	5		8		0		0		13	
NO PUB SVC AT TIME	2		6		4		0		12	
OTHER	2		4		1		1		8	
<u>ANALYSED REPLIES</u>		12		23		11		1		47

3.7 UNREGULATED OPERATOR DATA
QUESTIONNAIRES & COMMENTS:

FIGURE 3.1

RADIO SURVEY QUESTIONNAIRE
(Unregulated Public Operators)

III-101

ORGANISATION:

ADDRESSEE:

PERSON TO WHOM ENQUIRIES
SHOULD BE DIRECTED: PHONEOTHER NAMES BY WHICH YOUR
PAGING OPERATION IS KNOWN:

IN WHAT NAME IS RADIO LICENSE ISSUED?

1 - SYSTEM DATA

Please supply the following information relative to your paging operation:

A - Operational Area No. of paging
transmitters
(e.g. Greater Toronto, London, Kitchener-Waterloo)B - Coverage: Attach map indicating coverage (99% of receivers/99% of time) or
include verbal description under Section E below.C - How many R.F. a) Used for b) Shared by PAGING
CHANNELS are: : PAGING ONLY? ☐ & RCCMRS ? ☐D - Please check features/services offered by your paging installation; please
specify any not included in the list below: (E-existing, P-planned)Paging Terminal Features/Services

E	P	
O	O	Tone
O	O	Tone & Voice
O	O	Dial access to pager
O	O	Operator Access to pagers
O	O	Message depository
O	O	24 Hour Service
O	O	Other (please specify)
	
	

Pager Features

E	P	
O	O	Simultaneous paging of two or more units (emergency teams, group etc.)
O	O	Distinctive tones to identify stan- dard message in TONE ONLY operation. (e.g. "Call home" "Call office" etc.)
O	O	Optional storage of tone alerts for subsequent interrogation (to avoid interruptions at meetings, etc.)
O	O	Optional "hands off" operation when receiving voice messages (e.g. when driving etc.)
O	O	Other (please specify)
	
	

E - Please check method of transmitting pages: O At random O First stored, then many transmitted O Other

F - Indicate any new areas where paging services are planned and where new frequencies
may be required within the next five years: (e.g. Barrie, etc.)

FIGURE 3.1 CONT'D

G - Briefly describe your paging operation, e.g. whether an adjunct to other services or primarily a paging facility, coverage description if a sketch is not included, etc.: (Use back of sheet if space not adequate).

2-OPERATIONAL DATA

Please indicate the applicable quantities in the boxes below, as they relate to your paging operation:

A - Subs in Service: Pagers in Service: Projected subs in 5 years: Projected pagers in 5 years:

B - % Pages TONE ONLY: % Pagers TONE ONLY: Busy hour delay (mins): Number of times page transmitted:

C - Avg pages* each day: Avg pages* in busy hr: Based on existing mix and user patterns, estimate max pager load per R.F. channel:

D - Terminal occupation times (avg secs): TONE ONLY TONE PLUS Pages: VOICE pages:

* Note: TONE and TONE PLUS VOICE mixed.

E - Please identify the three largest groups to which you provide service. Some typical occupational groupings are listed below:

- | | | |
|---|--|-------------------------------------|
| <input type="radio"/> CONSTRUCTION | <input type="radio"/> TRANSPORTATION | <input type="radio"/> ACCOMMODATION |
| <input type="radio"/> MANUFACTURING | <input type="radio"/> UTILITIES | <input type="radio"/> CATERING |
| <input type="radio"/> REAL ESTATE | <input type="radio"/> WHOLESALE/RETAIL | <input type="radio"/> MEDICAL |
| <input type="radio"/> If <u>OTHER</u> than above, please specify: | | |
| | | |
| | | |

3-SUBSCRIBER REQUIREMENTS

A - In your experience, do paging needs exist on farms or in rural areas? ☐ YES → ☐ NO → go to 'D'

B - If 'A' is 'YES' are you meeting these needs, or will you do so soon? ☐ YES → go to 'D' ☐ NO →

C - If the answer to 'B' is 'NO' please specify reason/s:

.....

.....

D - Is there significant demand from subscribers to access pagers via the public network? ☐ YES ☐ NO

E - Is interconnection to the public network important to your paging operation? ☐ YES → ☐ NO → go to 4A

F - If the answer to 'E' is 'YES', please give reasons:

.....

FIGURE 3.1 CONT'D

4 GENERAL

A In the interest of economy, would you object to sharing frequencies, encoding terminals, transmitters etc with other companies providing paging services to the public?

In large metropolitan centers: O YES
 O NO

In smaller communities O YES
 O NO

B Do you have any special agreements at this time with other paging operators or public carriers for the sharing of facilities or services which permits you to provide better service to your subscribers?

0 YES → Go to '4C'

O NO Go to '4D'

C - Please indicate nature of agreement/s:

.....

.....

.....

D - Do you feel that a greater degree of operational and/or equipment standardisation would be of benefit to the industry?

O YES

O NO

E - Telephone companies providing paging services interconnected with public network are regulated. Should you be given similar interconnect privileges, it is possible that that one or other of the following policies would be implemented. If a choice had to be made, which do you feel is preferable?

0 Regulation of all paging services or

0 De-regulation of all public carrier paging services.

F - Please indicate method of charging for paging services (if applicable, check more than one):

0 Flat monthly rate*

0 Flat monthly rate plus
call charge

O Flat monthly rate includes limited number of free calls, thereafter call charges apply

0 Other (please specify)

* NOTE: Flat rate is presumed to include rental for pager unit,
if otherwise please indicate.

4 General (cont'd)

UNREG (S) - 4

G - Private paging systems exist in areas presently served by regulated and unregulated operators. Identify your opinion of the main reason/s for their existence and why they do not take advantage of existing public services:

- | | |
|--|---|
| <input type="radio"/> Less costly | <input type="radio"/> Paging added to existing two-way radio facility |
| <input type="radio"/> Limited coverage needs | |
| <input type="radio"/> Special coverage needs not met by public paging services | <input type="radio"/> No public service at time of installation |
| <input type="radio"/> Other (please specify) | |

.....
.....
.....

H - COMMENTS

(It would be helpful if you would expand on areas of particular concern to your paging operations. Typically, your views on SYSTEM-WIDE-AREA-PAGING (SWAP); the roles played by regulated and unregulated public operators and any manner in which these might be beneficially altered; any DOC policy changes which you feel could improve spectrum efficiency, coverage, or other aspects of existing paging services, etc.)

RADIO PAGING SURVEY QUESTIONNAIRE

(Unregulated Public Operators)

ORGANISATION:

ADDRESS:

PERSON TO WHOM ENQUIRIES

SHOULD BE DIRECTED: PHONE

IN WHAT NAME IS RADIO LICENSE ISSUED:

OTHER NAMES BY WHICH YOUR

PAGING OPERATION IS KNOWN:

1 - SYSTEM DATA

- A - Please check features/services offered by your larger and more important paging systems, specify those not listed below: (E-existing, P-planned)

Paging Terminal Features/Services

E P

- ☐ ☐ Tone
☐ ☐ Tone & Voice
☐ ☐ Dial Access to Pagers
☐ ☐ Operator Access to Pagers
☐ ☐ Message Depository
☐ ☐ 24 Hour Service
☐ ☐ Other (please specify)

Pager Features

E P

- ☐ ☐ Group Call
☐ ☐ Multiple Alert Tone
☐ ☐ Deferred Paging (Storable Alerts)
☐ ☐ Auto-reset for "Hands Off"
 Operation (Voice)
☐ ☐ Other (please specify)

- B - Would you please complete paging network information called for under Section 5 where a simplified format is presented for this purpose. If available, please provide map or sketch indicating coverage in each area served (99% of receivers/99% of the time).

- C - The following 2 questions relate to your planning for the 1976 - 1981 period only; please answer them accordingly:

- 1 - Referring to the column (10) data in Section 5, indicate ITEM NUMBERS of areas where projected 5 years increase in pagers can only be accommodated by additional frequencies (e.g.: Items 1.2, 3.5 etc.)
-

- 2 - Indicate new areas where paging services are planned, and for which frequencies will be required: (eg Barrie, Orangeville, etc.)
-

FIGURE 3.2 CONT'D

OPERATIONAL DATA

Please indicate applicable quantities in the boxes below, as they relate to your larger and more important paging installations:

A - Average occupation time per paging call (seconds): → TONE ONLY → TONE & VOICE

B - Number of times each page is transmitted → TONE ONLY → TONE & VOICE

C - Based on typical usage patterns, etc. estimate max. number of pagers per R.F. channel consistent with an acceptable grade of service: → TONE ONLY → TONE & VOICE

D - Indicate delays typically experienced during your busiest paging periods: MINS

E - Please identify the three largest groups to which you provide service. Some typical occupational groupings are listed below:

- | | | |
|-------------------------------------|--|-------------------------------------|
| <input type="radio"/> CONSTRUCTION | <input type="radio"/> TRANSPORTATION | <input type="radio"/> ACCOMMODATION |
| <input type="radio"/> MANUFACTURING | <input type="radio"/> UTILITIES | <input type="radio"/> CATERING |
| <input type="radio"/> REAL ESTATE | <input type="radio"/> WHOLESALE/RETAIL | <input type="radio"/> MEDICAL |

☐ If OTHER than above please specify:

.....

.....

3 - SUBSCRIBER REQUIREMENTS

A - In you experience, do paging needs exist on farms or in rural areas? ☐ YES → ☐ NO → go to 'D'

B - If 'A' is 'YES' are you meeting these needs, or will you do so soon? ☐ YES → go to 'D' ☐ NO →

C - If the answer to 'B' is 'NO' please specify reason/s:

.....

.....

D - Is there significant demand from subscribers to access pagers via the public network? ☐ YES ☐ NO

E - Is interconnection to the public network important to your paging operation? ☐ YES → ☐ NO → go to 4A

F - If the answer to 'E' is 'YES', please give reasons:

.....

.....

FIGURE 3.2 CONT'D

4 - GENERAL

A - In the interest of economy, would you object to sharing frequencies, encoding terminals, transmitters etc with other companies providing paging services to the public?

In large metropolitan	O YES	In smaller	O YES
centers:	O NO	communities:	O NO

B - Do you have any special agreements at this time with other paging operators or public carriers for the sharing of facilities or service which permits you to provide better service to your subscribers ?

O YES
O NO → go to 'D'

C - Please indicate nature of agreement/s:

.....

.....

.....

D - Do you feel that a greater degree of operational and/or equipment standardisation would be of benefit to the industry?

O YES O NO

E - Telephone companies providing paging services interconnected with public network are regulated. Should you be given similar interconnect privileges, it is possible that one or other of the following policies would be implemented, if a choice had to be made, which do you feel is preferable?

O Regulation of all paging services, or

O De-regulation of all public carrier paging services.

F - Please indicate method of charging for paging services (if applicable, check more than one):

O Flat monthly rate*

O Flat monthly rate includes limited number of free calls, thereafter call charges apply.

O Flat monthly rate plus call charge

O Other (please specify)

.....

* NOTE: Flat rate is presumed to include rental for pager unit if otherwise please indicate.

FIGURE 3.2 CONT'D

4 - General (cont'd)

G - Private paging systems exist in areas presently served by regulated and unregulated operators. Identify your opinion of the main reason/s for their existence, and why they do not take advantage of existing public services:

- | | |
|--|---|
| <input type="radio"/> Less costly | <input type="radio"/> Paging added to existing two-way radio facility |
| <input type="radio"/> Limited coverage needs | |
| <input type="radio"/> Special coverage needs not met by public paging services | <input type="radio"/> No public service at time of installation |
| <input type="radio"/> Other (please specify) | |
| | |
| | |

H - COMMENTS

(It would be helpful if you would expand on areas of particular concern to your paging operations. Typically, your views on SYSTEM-WIDE-AREA-PAGING (SWAP); the roles played by regulated and unregulated public operators and any manner in which these might be beneficially altered; any DOC policy changes which you feel could improve spectrum efficiency, coverage, or other aspects of existing paging services, etc. Use extra sheet if necessary)

III-109

ITEM	PAGING TERMINAL (MAKE/MODEL)	AREA/S SERVED (BY TERMINAL)	PAGER FREQ/S (MHZ)	NO OF XMTRS	NO IN SERVICE		% TONE ONLY	ESTIMATED % INCREASE IN 5 YEARS		NO OF PAGES		MAX PAGER CAPACITY OF SYSTEM	COMMENTS
					SUBS	PAGERS		SUBS	PAGERS	DAILY	B/HR		
(1)	(2)*	(3)	(4)*	(5)	(6)	(7)	(8)*	(9)	(10)	(11)*	(12)*	(13)*	(14)
	<u>EXAMPLE</u>												
1.1	AMCOR 2003A	TORONTO	a & b	8	1,233	1,615							
1.2		KITCHENER-WATERLOO	a	2	217	300	30	300	325	1000	150	7000	See attached map for approx TX locations & system coverage.
1.3		LONDON	a	2	176	209							
2.1	MAN. ENCODER	NORTH BAY	A	1	50	61	50	200	220	60	15	350	Guarantee 15 mi city radius

(Please circle any channels in col. 4 shared with other services, e.g. 2-way radio, etc.)

NOTES: Col (2) If other than simple manual encoder used, indicate make & model of paging terminal, e.g. AMCOR 2003A

(4) Alternatively, small letters may be used to designate 27-50 MHz assignments and capital letters to designate 138-174 MHz assignments, PROVIDING each appearance in table indicates identical FREQS. If other bands used, please specify frequencies.

(8) Give percentage of pagers which are TONE ONLY

(11) (12) Give estimate of average daily and busy hour (B/HR) pages completed on existing systems

(13) Base estimate on max capacity of EXISTING system, pager mix, usage patterns etc.

TABLE 3.23UNREGULATED OPTR COMMENTS RE * TERMINAL SERVICES" (Question 1-D/A)

INT Q-NO	C O M M E N T S
O - 108	* DIRECT LINES FROM BULK USERS
O - 123	* WIDE AREA - INTER CITY PAGING - WITH IN WATTS ACCESS TO ENTRAL DISPATCH OFFICE
O - 212	* ACTIVATE FIRE SIREN FOR FIRE DEPT.
Q - 171	* ALL CALL RECORDS ARE KEPT AT LEAST 6 MONTHS FOR FURTHER CONFIRMATION

TABLE 3.24UNREGULATED OPTR COMMENTS RE *PAGER FEATURES* (Question 1-D/A)

INT Q-NO	C O M M E N T S
BC - 133	*Automatic Voice Message, Push to reset
BC - 136	Pagers are automatic hands free
O - 108	*Silent Vibration
O - 123	*Vibration alert and plan use of digital readout.
Q - 100	*Automatic transfer by the computer

TABLE 3.25

III-111

COMMENTS RE PAGER *USER-OCCUPATIONS* (UNREGULATED OPTR QUESTION 2-E)

INT Q-NO	C O M M E N T S
BC - 122	*Unknown
BC - 133	*Industrial support services i.e. plumbing, heating, refrigeration, electrical etc. - Industry, Pulp & Paper
BC - 140	*Learning insts. - i.e. colleges
BC - 148	*Towing companies, servicing companies (Plumbers etc.)
O - 108	*Service trades
O - 110	*Construction including plumbers, electricians swimming pools, etc.
O - 123	*Service companies (electricians, plumbers etc.)
O - 135	*Auto rental dealers
O - 136	*Farm/Agricultural and related services i.e. veterinarians
O - 174	*Building maintenance, hospital
O - 201	*Fuel, oil, plumbing & heating, delivery services
O - 234	*Service - electrical, furnace etc.
Q - 100	*Hospital, construction & lodging
Q - 111	*Veterinary, St. Eleuthere Hospital
Q - 117	*Public Works
Q - 114	*News media
Q - 130	*Medicines, garage, security service, salesmen
Q - 155	*Hospital, government
Q - 133	*Medicines
Q - 171	*Public Works

TABLE 3.26

UNREGULATED OPTRS COMMENTS RE *REASON WHY RURAL PAGING NEEDS ARE NOT/CANNOT BE MET* (QUESTION 3-C)

INT - NO	C O M M E N T S
O - 110	*To some extent-where coverage is that required by subscriber
O - 173	*Wide area coverage is not available
O - 201	*Do not presently provide full coverage to outlying areas on farms
Q - 100	*No request in Quebec region

UNREGULATED OPTRS COMMENTS RE *REASONS WHY INTERCONNECTION IS
IMPORTANT* (QUESTION 3-F)

INT Q-NO	C O M M E N T S
BC - 105	*Speed of service especially tone only
BC - 128	*People demand more and more services and inter connect is a must
BC - 133	*Unpredictable manpower costs; human error problems (i.e. customers put on hold for peak periods); costs; equipment write off asset
BC - 140	*They like to hear there own voices. Repeated message sometimes confused
O - 105	*Greater utilization of the paging service by dialing directly into the terminal will create a greater awarness of the benefits available from a radio paging service.
O - 108	*Only for answering devices designed to dial for pager after message has been logged.
O - 110	*To allow a direct dialled page to another city without involving land lines or radio links
O - 117	*Not directly at this time, but if competitors offer this feature in the future it will become extremely important. Tone Only paging is a natural for interconnection and we would like to offer it on that basis in the future
O - 123	*To enable our subscribers to alert pagers by direct dial (Tone Only), however network addressing is not necessary to accomplish this. This is a pseudo form of inter-connection, which is now permitted.
O - 231	*Believe there is a need from conversation with potential customers
O - 136	*Based on the assumption that we remain a viable local paging service, 3E is not important to us.
O - 141	*Complicated terminology used by technical group, confidentiality. Speed, conditioning of people to dial direct
O - 171	*Direct dial is imperative is this area. Only one TAS in this city capable of providing proper 24hr service. (Windsor, On.)
O - 173	*To facilitate public demand
O - 194	*Better & faster service than provided by existing pax
O - 201	*Allow users to page from any public telephone network instead of going through answering service operator
O - 216	*Direct paging provides purer message content
O - 230	*Less likelihood of lost or innaccurate message if no operator required
O - 234	*Customer convenience and exceptance
O - 239	*Because it is an axe the monopolistic telephone company will use to sway business in its direction.

UNREGULATED OPTRS COMMENTS RE *REASONS WHY INTERCONNECTION IS IMPORTANT*
(QUESTION 3-F)

INT Q-NO	C O M M E N T S
Q - 100	*Speed and more accuracy in the text of the message and more comments in the same time on the text
Q - 114	*Flexibility, cost savings, validation of voice by recognition, more users per channel by 2-3 times
Q - 153	*The client has need of telephone answering service
Q - 171	*For exploitation price
BC - 110	*More efficient use of spectrum through storage and automatic dispatch of message. Very much lower dispatch costs due to elimination of operators
BC - 144	*For faster operation, lower labour costs

TABLE 3.28

UNREGULATED OPTRS COMMENTS RE *NATURE OF EXISTING AGREEMENTS WITH OTHER COMPANIES* (QUESTION 4-C)

INT Q-NO	C O M M E N T S
BC - 105	*Zone
BC - 128	*We agree if a pager from another area is in my area then he has to use our paging facilities. The opposite is also true.
BC - 136	*1 month notice of cancellation by both parties
O - 108	*Agincourt Answering, Canadian Answering using paging system, plus system is open to any company wishing to have access to our terminal or system
O - 110	*Kel Communication who operate in Windsor, Sarnia and Chatham on the same frequency. We have each reserved a block of numbers for subscribers who require coverage in all areas.
O - 117	*Frequency shared with other operator in nearby area. Allows extended coverage for both parties and exchange of pager stock in emergencies
O - 135	*Canadian Motorola own licence & repeater, I am buying the pager & encoder & radio.
O - 173	*In contract with firm to provide wide area coverage
Q - 114	*Roving service between 3 cities covering approx 300 miles with other RCC operators. Also 3 other answering services use our facilities.
Q - 171	*Special codes for each operator

TABLE 3.29

III-114

UNREGULATED OPTRS COMMENTS RE: *OTHER METHODS OF CHARGING FOR PAGING SERVICES* (QUESTION 4-F)

INT Q-NO	C O M M E N T S
O - 110	*We also have an extra charge for any pages outside of the subscribers base city. EG. A Brantford subscriber paged in Hamilton
O - 123	*At our option which we have not yet exercised
Q - 100	*15¢ message after 90 messages; no limit on on automatic calls.
Q - 114	*Airtime used per pager per month

TABLE 3.30

UNREGULATED OPTRS COMMENTS RE: *OTHER REASONS FOR THE ESTABLISHMENT OF PRIVATE SYSTEMS* (QUESTION 4-G)

INT Q-NO	C O M M E N T S
BC - 110	*Special services; i.e. Tone & Voice & Message retention. Pre screening of calls to doctors etc.
BC - 136	*More secrecy in operation, more personal
BC - 140	*One way voice message not available from public service
O - 110	*Desire to handle their dispatching
O - 123	*Availability of air time when required (Tone + Voice)
O - 135	*Bell Canada are trying to push their pagers over the small business & push us under. They get enough in rental of present equipment and can not supply phones for customers but up everyones rates because they need the money for what? Pagers to put the small business out?
Q - 100	*Better service for subscribers; better technical service; better overall service
NS - 103	*As an answering service we lose customers because we are unable to provide paging service

UNREGULATED OPERATORS *VOLUNTARY COMMENTS* (QUESTION 4-H)

INT Q-NO

COMMENTS

BC - 105

*BC-(Harrison - Nowell Mobile Radio Services - Victoria)
Our opinion to provide SWAP type of service would be best provided with dual or have address tone only paging in view of voice paging limited air time. Our company has plans to provide entire Vancouver Island service thru the use of trunk facilities UHF to VHF paging on 168.42 & prefer to see via direct dial access.

BC - 122

*BC - (Office and Sec. Services - Kamloops)
Limitation of number of public systems in any area to make it economically feasible for anyone putting in a system.

BC - 128

Control of air waves ;

*BC-(W. EPP - Nelson)

I would like to see this statistical information compiled and distributed back/to the RCC and Paging companies.

I believe that we should not be controlled by D.O.C. on interconnect this is something between the tel. company and ourselves.

BC - 136

*BC-(Dan Alton - B.C.)

I would like to see a clamp down on spectrum use; some are using it as a toy and are a nuisance to the dispatching, life saving, ambulances and wreckling operations. Whatever usefulness these people have is nullified by the fact that they are causing problems to essential services.

O - 105

O-(Tas Communications - Toronto): System Wide Area paging is a practical benefit to probably less than 10% of potential paging users. Consequently we have placed more emphasis on the price of the paging service and the efficiency of making exchanges to achieve greater market penetration rather than dilute our exchange service and increase our rental rates for increase coverage. Without reliable local service centres in distant areas to provide exchanges customer satisfaction would not be attainable where good local competitive paging service exists.

Regulation of all paging services appears to be the palatable approach provided regulation is on a local basis. Paging users would quite likely benefit from cost sensitive rates and the RCC operator would be in a position to justify large capital expenditures to improve service knowing that new competition would have to prove that a real need existed for his paging service. However, in being regulated we would want the same interconnect privileges as the telephone companies-selector level and rates as are charged by the Trans Canada Telephone System.

UNREGULATED OPERATORS *VOLUNTARY COMMENTS* (QUESTION 4-H) cont.

INT Q-NO	COMMENTS
O - 108	<p>*O-(NAT'L Laser Calling all People TASCO-Richmond Hill) The main view of S.W.A.P. is that it is far from the answer to paging. If you really think about it, why is Bell even in the business, we continually hear it has not even got enough money for Network Capital Expense. Further it was Bell System who for years held up the expansion of good public paging companies, as a result of poor lines etc. Paging markets are best serviced by unregulated public service oriented small companies WHO can provide instant service and tailored needs. Bell must not be given another monopoly as they have in the network.</p>
O - 110	<p>*O-Brantford Telephone Answering Serv. Ltd. - Brantford) Although many subscribers want coverage in all the small centers we currently serve, with a few exceptions they only use this coverage a few times a month. This usage at present is not enough to justify radio links and simultaneous paging in all cities, in fact such a system would eventually restrict air time, as we can now page different numbers simultaneously in say London and Brantford with no problem. We do anticipate that the triangle of Kitchener, Cambridge and Guelph will eventually require radio links and simultaneous coverage because of the movement of subscribers within this area.</p>
O - 117	<p>*O-(F.E. Rowell Ltd. - Woodstock) As in the mobile market, paging coverage requirements vary from area to area. Generally it appears that a wide area service has more appeal to the smaller centers where there is considerable traffic between communities. i.e. service business serves a number of smaller communities rather than one heavily populated area. Our system has been designed with this concept in mind.</p>
O - 123	<p>*O-(Maclean Hunter Communications Ltd. - Rexdale) We question whether the public carrier should be authorized to provide paging service, since their facilities could become an essential part of the service offered by public operators. The conflict here is self evident.</p>
O - 136	<p>*O-(Brampton Telephone Answering Ser. Ltd. - Brampton) We are in a position to provide local reliable coverage in a mixed rural urban area, with no intention of providing wider area (metropolitan Toronto) coverage. From comments received from subscribers and from the big guys (i.e. McLean-Hunter) it appears to us that some larger operators have full intentions of running the small guys out of business. We refer all wider area requirements to one of several yellow page listings but our experience has been that 90% of enquiries require only that range we provide. We are not qualified to comment of spectrum efficiency, DOC policy etc.</p>

UNREGULATED OPERATORS *VOLUNTARY COMMENTS* (QUESTION 4-H) Cont.

INT Q-NO

COMMENTS

O - 173

*O-(Com-Co Paging Systems Ltd. - London)
SWAP: should be regulated as to their numbers based upon consumer demand and needs for wide area coverage. It would be our opinion that if the public carriers are allowed to expand in wide area paging, that they do so as a wholesaler of service to private carriers, as is presently the case with answering service systems. DOC Policy; use of spectrum efficiency in medium size cities; i.e. London at present time is being well maintained by DOC. However, it would seem a greater degree of frequency control will be necessary in larger Metro areas and wide area coverage frequency allocations. These areas may be more efficiently used - 1. by the introduction of narrower frequency band allocations, shared by users in other cities with a mileage separation greater than fifty miles. 2. by limiting the number of frequency allocations of wide area coverage. i.e. a wide area coverage allocated to Bell Canada or CN/CP Telecommunications as public carriers, which could be wholesaled as a service to all local private carriers on a shared basis.

O - 201

*O-(Telephone Answering Bureau - Ottawa)
Interconnecting into the Public Telephone Network would certainly be beneficial to all paging operators and should be offered or allowed.

O - 219

*O-(Algoma Answering Service - Algoma)
No opinions at this time without further investigation and study.

O - 239

*O-(Bon Air Paging - Timmins)
Although there may be just cause some minds, it seems that to request an increase in power for one frequency serving 125-150 customers should be looked at with a more liberal eye than those working a base station and three mobiles who want an extra 5 miles range. Our request for doubling our power ERP was received with such an attitude that they managed to talk us out of increasing power. Otherwise, please let me add the service from DOC and their personnel (North Bay) has been first class and only in the one instance did we feel like children asking for a second desert.

TABLE 3.31 CONT'D

UNREGULATED OPERATORS *VOLUNTARY COMMENTS* (QUESTION 4-H) Cont.

INT Q-NO	COMMENTS
Q - 100	*Q-(Boulinguez Communications Inc. - Québec) It is inconceivable that we should be saddled with such difficulties when applying for permission to increase the radiated power in order to better penetrate concrete buildings. The equipment is able to deliver up to 500 watts of radiated power, but existing DOC policies make it difficult for us to obtain authorisation for 225 watts ERP.
Q - 114	*Q-(Scotcomm Radio Inc. - Chomedey Laval) Limit number of public paging system licensed in line with population requirements in area. Allow for some frequency wide area coverage by one company or in association with many companies of different areas.
Q - 133	*Q-(Comtech - Grandby) If you regulated all the small paging operators (who incidentally, provide a better service than Bell), Bell can modify their prices by defraying costs, and by taking other such steps possible to a large company in which paging is only a sideline. If you don't regulate the telephone companies, the same problems will exist. Question 4E of your questionnaire therefore offers us a choice between the frying pan and the fire. If existing regulation policies are altered, the situation will become ten times worse, and probably accomplish little in the way of improving the present status quo.
Q - 171	*Q-(Tele Service de Thetford Inc. -Thetford Mines) 1 - Frequency for 50,000 of population 2 - The telephone network should be more accessible.
NB - 105	*NB-(Central Answering Service - Moncton) SWAP is of limited value to my customers

PART III SECTION 4.0

REGULATED OPERATOR DATA

4.1 REGULATED OPERATOR DATA

TABLE 4.1

REGULATED PAGING OPERATORS

<u>PACIFIC REGION:</u>	B.C. TELEPHONE
<u>CENTRAL REGION:</u>	ALBERTA GOVT. TELEPHONES. SASKTEL
<u>ONTARIO REGION:</u>	BELL CANADA NORTHERN TELEPHONE
<u>QUEBEC REGION:</u>	BELL CANADA QUEBEC TELEPHONE
<u>ATLANTIC REGION:</u>	NEW BRUNSWICK TELEPHONE MARITIME TEL & TEL NEWFOUNDLAND TELEPHONE.

TABLE 4.2

REGULATED OPERATOR PAGING STATISTICS

LICENSEE	Q-#	DOC-#	1976		1981		DAILY CALLS	TONE PGRS	DED'D FREQS
			SUBS	PGRS	SUBS	PGRS			
BELL EAST RGN-SWAP	1	0	NR	11000	NR	NR	NR	NR	1
BELL WEST RGN-SWAP	1	0	NR	9000	NR	NR	NR	NR	#
SWAP(NS)-HALIFAX	12	0	160	230	480	920	NR	230	#
SWAP(NS)-TRURO	12	0	25	30	35	45	NR	30	#
SWAP(NS)-AMHERST	12	0	13	15	16	20	NR	15	#
SWAP(NS)-NEW GLASG	12	0	45	60	91	171	NR	60	#
SWAP(NS)-SYDNEY	12	0	80	115	173	345	NR	115	#
SWAP(NB)-EDMUNSTON	5	0	NR	NR	NR	NR	NR	NR	#
SWAP(NB)-WOODSTOCK	5	0	NR	NR	NR	NR	NR	NR	#
SWAP(NB)-FREDERICT	5	0	NR	NR	NR	NR	NR	NR	#
SWAP(NB)-ST JOHN	5	0	NR	NR	NR	NR	NR	NR	#
SWAP(NB)-MONCTON	5	0	NR	NR	NR	NR	NR	NR	#
SWAP(NB)-SHEDIAC	5	0	NR	NR	NR	NR	NR	NR	#
SWAP(NB)-NEWCASTLE	5	0	NR	NR	NR	NR	NR	NR	#
SWAP(NB)-BATHURST	5	0	NR	NR	NR	NR	NR	NR	#
SWAP(NB)-CAMPBELLT	5	0	NR	NR	NR	NR	NR	NR	#
NF TEL-ST JOHNS#1	4	0	100	100	NR	NR	NR	100	1
NF TEL-ST JOHNS#2	4	0	1	150	NR	300	NR	0	1
QUE TEL-RIMOUSKI	9	0	20	25	70	120	85	0	1
QUE TEL-SEPT ILES	9	0	70	100	200	250	NR	0	1
NORTHERN TELEPHONE	7	0	NR	NR	NR	NR	NR	NR	NR

NOTE: (#) INDICATES SAME FREQUENCY/IES RE-EMPLOYED

TOTALS REPORTED	514	20825	1065	2171	85	550	5
SYSTEMS REPORTING	9	11	7	8	1	9	20
AVG/SYSTEM REPORTING	57	1893	152	271	85	61	
SYSTEMS ANALYSED:- 21							

TABLE 4.3

III-123

REGULATED OPERATOR QUESTIONNAIRE REPLY SUMMARY

(NFLD-TEL, NB-TEL, MT & T. QUEBEC-TEL, NORTHERN-TEL, THUNDER BAY-TEL & CNT)

	R	NR		R	NR
<u>1A-SYSTEM FEATURES (E)</u>		2	<u>4A/B/C - SWAP</u>		
TONE	3		DO/WILL PROVIDE SWAP	4	
TONE & VOICE	3		SWAP IS NOT PLANNED	2	1
DIAL ACCESS	4		NETWK AVAIL FOR SWAP	0	4
OPTR ACCESS	2		NETWK NOT AVAILABLE	3	
MESSG DEPOSIT	0		PGR RENTAL BY OTHERS	2	4
24 HR SVC	5		NO PGR RENTAL BY OTHERS	1	
OTHER	1		SWAP CONNECT FOR UNREG OPS	1	3
<u>1A-PAGER FEATURES (E)</u>		5	NO UNREG OP SWAP CONNECT	3	
GROUP CALL	1				
MULT. ADDRESS	1		<u>4D-NETWORK INTERCONNECT</u>		
ALERT STORAGE	0		UNREG INTERCONNECT	0	2
HANDS OFF OPENR'N	1		NO UNREG ALLOWED	5	
OTHER	0				
<u>1A-SYSTEM FEATURES (P)</u>		5	<u>4D-STANDARDISATION</u>		
TONE	1		NEED FOR MORE	4	2
TONE & VOICE	0		ADEQUATE NOW	1	
DIAL ACCESS	1				
OPTR ACCESS	0		<u>4E-REGULATION</u>		
MESSG DEPOSIT	0		REGULATE ALL PAG'G	3	2
24 HR SVC	0		DEREGULATE ALL PAG'G	2	
OTHER	0				
<u>1A-PAGER FEATURES (P)</u>		6	<u>4F-CHARGING METHODS</u>		2
GROUP CALL	1		FLAT RATE	5	
MULT. ADDRESS	0		FLAT RATE + CALL	0	
ALERT STORAGE	0		FLAT R./LIMITED CALLS	0	
HANDS OFF OPER'N	1		OTHER	1	
OTHER	1				
<u>2E-USER FUNCTIONS</u>		2	<u>4G-REASON FOR PRIVATES</u>		1
CONSTRUCTION	3		LESS COSTLY	2	
MANUFACTURING	1		LIMITED COV'GE NEED	0	
REAL ESTATE	0		SPEC COV'GE NEED	0	
TRANSPORTATION	2		ADDED TO 2-WAY	1	
UTILITIES	0		NO PUB SVC AT TIME	3	
WHOLESALE/RETAIL	2		OTHER	2	
ACCOMMODATION	1				
CATERING	0				
MEDICAL	3				
OTHER	1				
<u>3A/B-RURAL NEEDS</u>					
SVC REQUIRED	2	2			
SVC NOT REQUIRED	3				
NEED MET/TO BE MET	0	6			
NEED NOT BEING MET	1				

REPLIES ANALYSED: 7

4.2 REGULATED OPERATOR
QUESTIONNAIRE AND
COMMENTS

RADIO PAGING SURVEY QUESTIONNAIRE
(Regulated Public Carriers)

III-125
REG - 1

ORGANISATION:.....

ADDRESS.....

PERSON TO WHOM ENQUIRIES
SHOULD BE DIRECTED:.....PHONE.....

IN WHAT NAME IS RADIO
LICENSE ISSUED:.....

SYSTEM DATA

- A - Please check features/services offered by your larger and more important paging installations, specify those not listed below: (E-Existing, P-Planned)

Paging Terminal Features/Services

E P

- ☐ ☐ Tone
☐ ☐ Tone & Voice
☐ ☐ Dial Access to Pager
☐ ☐ Operator Access to Pager
☐ ☐ Message Depository
☐ ☐ 24 Hour Service
☐ ☐ Other (Please Specify)
-
-

Pager Features

E P

- ☐ ☐ Group Call
☐ ☐ Multiple Alert Tones
☐ ☐ Deferred Paging (Storable Alerts)
☐ ☐ Auto-Reset for "Hands Off"
☐ ☐ Operation (Voice)
☐ ☐ Other (Please Specify)
-
-

- B - Would you please complete paging network information called for under Section 5 where a simplified format is presented for this purpose. If available, please provide map or sketch indicating coverage in each area served (99% of receivers/99% of the time).
- C - The following two questions relate to your planning for the 1976-1981 period only; please answer them accordingly:

- 1) Referring to the column (10) data in Section 5, indicate ITEM NUMBERS of areas where projected 5 year increase in pagers can only be accommodated by additional frequencies (eg: Items 1.2, 3.5, etc.)
-
- 2) Indicate new areas where paging services are planned, and for which frequencies will be required: (eg: Barrie, Orangeville, etc.)
-

OPERATIONAL DATA

Please indicate applicable quantities in the boxes below, as they related to your larger and more important paging installations:

A - Average occupation time per paging call (seconds): → TONE ONLY → TONE & VOICE

B - Number of times each page is transmitted: → TONE ONLY → TONE & VOICE

FIGURE 4.1 CONT'D
- OPERATIONAL DATA (Cont'd)

III-126
REG - 2

C - Based on typical usage patterns, etc. estimate max. number of pagers per R.F. channel consistent with an acceptable grade of service:

→ TONE ONLY

→ TONE & VOICE

D - Indicate delays typically experienced during your busiest paging periods:

MINS

Please identify the three largest groups to which you provide service. Some typical occupational groupings are listed below:

- ☐ CONSTRUCTION
- ☐ MANUFACTURING
- ☐ REAL ESTATE

- ☐ TRANSPORTATION
- ☐ UTILITIES
- ☐ WHOLESALE/RETAIL

- ☐ ACCOMMODATION
- ☐ CATERING
- ☐ MEDICAL

☐ If OTHER than above, please specify:

.....
.....
.....

3 - RURAL REQUIREMENTS:

A - In your experience, do paging needs exist on farms or in rural areas?

☐ YES →

☐ NO → go to "4A"

B - If 'A' is 'YES', are you meeting these needs, or will you do so soon?

☐ YES — go to 'D'

☐ NO —

C - If the answer to 'B' is 'NO' please specify reason/s:.....
.....
.....

- GENERAL

A - Do you/or do you intend to provide SYSTEM WIDE AREA PAGING (SWAP)?

☐ YES
☐ NO

B - If you do not intend to provide SWAP, would you permit private entrepreneurs to do so through your network?

☐ YES
☐ NO

C - If you are already providing system wide area paging, or if you intend to do so in the future:

1) Will you allow private entrepreneurs to rent pagers for use on your system?
☐ YES
☐ NO

2) Will you permit interconnection with other SWAP systems operated by private entrepreneurs using networks other than your own?
☐ YES
☐ NO

D - Do you presently permit non-regulated (competitive) paging systems providing public service to interconnect with the switched telephone network?
☐ YES
☐ NO

E - Do you feel that a greater degree of operational and/or equipment standardi- sation would be beneficial to the paging industry?
☐ YES
☐ NO

F - Telephone companies providing paging services interconnected with the public network are regulated. If unregulated paging operators who are providing paging service to the public are given similar interconnect privileges, it is possible that one or other of the following policies will be implemented, in such an event, which of them do you feel should be adopted?

- o Regulation of ALL operators providing public paging services, or
- o De-regulation of all public carrier paging services?

G - Indicate method of charging for paging services:

- o Flat monthly rate* o Flat monthly rate includes limited number of free calls, thereafter call charges apply.
- o Flat monthly rate PLUS call charge o Other (Please specify)

* Flat monthly rate is presumed to include pager rental, if otherwise please indicate.

H - Private paging systems exist in areas presently served by regulated and unregulated operators. Identify your opinion of the main reason/s for their existence, and why they do not take advantage of existing public service:

- o Less costly
- o Limited coverage needs
- o Special coverage needs not met by public paging services
- o Paging added to existing two-way radio facility
- o No public service at time of installation
- o Other (please specify)

I - COMMENTS

(It would be most helpful if you would expand on areas of particular concern to your present or future paging operations. Please indicate any changes you feel are desirable in national paging policy, particularly with regard to the roles played by regulated and unregulated operators who provide a public service, and any manner in which these might be beneficially altered. Identify any technical, operational or regulatory changes which you feel could improve spectrum efficiency, coverage or other aspects of present or planned services to your subscribers. Append extra sheet if necessary).

ITEM	PAGING TERMINAL (MAKE/MODEL)	AREA/S SERVED (BY TERMINAL)	PAGER FREQ/S (MHZ)	NO OF XMTRS	NO IN SERVICE		% TONE ONLY	ESTIMATED % INCREASE IN 5 YEARS		NO OF PAGES		MAX PAGER CAPACITY OF SYSTEM	COMMENTS
					SUBS	PAGERS		SUBS	PAGERS	DAILY	B/HR		
(1)	(2)*	(3)	(4)*	(5)	(6)	(7)	(8)*	(9)	(10)	(11)*	(12)*	(13)*	(14)
	<u>EXAMPLE</u>												
1.1	AMCOR 2003A	TORONTO	a & b	8	1,233	1,615							
1.2		KITCHENER-WATERLOO	a	2	217	300	30	300	325	1000	150	7000	See attached map for approx TX locations & system coverage.
1.3		LONDON	a	2	176	209							
2.1	MAN. ENCODER	NORTH BAY	A	1	50	61	50	200	220	60	15	350	Guarantee 15 mi city radius
(Please circle any channels in col. 4 shared with other services, e.g. 2-way radio, etc.)													

* NOTES: Col (2) If other than simple manual encoder used, indicate make & model of paging terminal, e.g. AMCOR 2003A

(4) Alternatively, small letters may be used to designate 27-50 MHz assignments and capital letters to designate 138-174 MHz assignments, PROVIDING each appearance in table indicates identical FREQS. If other bands used, please specify frequencies.

(8) Give percentage of pagers which are TONE ONLY

(11)(12) Give estimate of average daily and busy hour (B/HR) pages completed on existing systems

(13) Base estimate on max capacity of EXISTING system, pager mix, usage patterns etc.

REGULATED OPTRS *VOLUNTARY COMMENTS* (QUESTION 4-I)

INT Q-NO

C O M M E N T S

REG - 1

*(BELL CANADA)

System Wide Area Paging: SWAP service is now provided in virtually all major localities within our operating territory. Numbers of transmitters now in place are as follows:

Toronto Area	13
Remainder of Ontario	32
Montreal Area	11
Remainder of Quebec	19

Total 75

- NOTE: 1) When a call is placed within a city that has two or more transmitters, all transmitters are operated simultaneously.
- 2) All units are leased on a flat monthly rate.

REG - 2

*(CTN)

The few paging facilities which CTN has provided are private, in-house systems. None are integrated with the CTN Telephone System".

REG - 3

*(CP TELECOM)

To date we have not actively marketed paging systems. We will be doing so in the near future. However because of our lack of previous demonstrable experience in this field we feel inadequate in responding to your associated questionnaire. Hopefully in a year's time, if such a survey is conducted again, we may be able to provide you with more meaningful information

REG - 4

*(NFLD-TEL)

No comment

REG - 5

*(NB-TEL)

A combined Market Research Survey is presently underway, the results of which may yield answer to many of your questions. However, at present we are not in a position to answer some questions we deem proprietary

REG - 7

*(NORTHERN TEL)

No comment

REG - 8

*(TELEBEC)

We do not offer paging services

REG - 9

*(QUEBEC TEL)

Considering our geographic and demographic situation, our potential for an extensive paging system is very restricted. It is more advantageous for the client to obtain his own equipment restricted and the pager requirement is limited.

REG - 10

*(TELEONTARIO)

We did not complete your Paging Questionnaire because our company does not provide this service or have any experience in this field.

REG - 11

*(THUNDER BAY TEL)

At present we do not provide radio paging in our area, but Bell Canada does through mutual agreement.

REGULATED OPTRS *VOLUNTARY COMMENTS* (QUESTION 4-I)

INT Q-NO

C O M M E N T S

REG - 12

*(MARITIME TEL & TEL)

Some of the questions in section 4 could not be answered with a simple yes or no and we therefore offer the following comments. These comments are merely observations and suggestions that could perhaps improve both spectrum usage and user service but do not necessarily represent the policy or intention of this Company.

In our local area there are currently three RF channels in use for wide area paging services. Each of the three operate at only a fraction of capacity and we have recently discovered that there may be a fourth or even fifth channel within the year.

It is conceivable that all present pagers could be served from one large automated terminal with one or at most, two RF channels in operation (one tone only, one tone and voice). There could also be sufficient capacity in the common equipment to support the expected growth for many years to come. All present receiver suppliers could perhaps continue to market receivers on the terminal. With a reduction in the number of "terminals" fixed costs would be distributed over a larger base of receivers resulting in cost reduction for the user.

An additional benefit may occur with a reduction in the number of types or receivers offered, the signalling systems designed etc. and perhaps manufacturers would concentrate on greater receiver and equipment standardization.

A reduction of terminal equipment suppliers would also reduce the number of interfaces between governmental agencies and paging system operators thus simplifying licensing, gathering forecast data, clearing interference, etc.

The above only indicates the type of benefits that could perhaps be realized in each province or centre was to have one dominant terminal or system supplier with many of the existing and new receiver suppliers selling service on the one system. These comments were offered in response to your request and do not necessarily represent the intention or policy of this Company at this time.

REG - 13

*(BC TELEPHONE)

B.C. Tel provides paging service in the greater Vancouver area along with Victoria, Prince George and Kamloops. This service is tone only on a dial basis and is charged on a flat monthly rental basis. All other pertinent information is contained in our application and should be available from the files of the Department of Communications.

TABLE 4.4 CONT'D

REGULATED OPTRS *VOLUNTARY COMMENTS* (QUESTION 4-I)

INT Q-NO

C O M M E N T S

- REG - 5 *(NB TEL)
 *A combined Market Reseach Survey is presently underway, the results of which may yield answers to many of your questions. However, at present we are not in a position to answer some questions we deem proprietary
- REG - 9 *(QUEBEC TEL)
 *Considering our geographic and demographic situation, our potential for an extensive paging system is very restricted. It is more advantageous for the client to obtain his own equipment for in most cases, their coverage requirements are restricted and the pager requirement is limited.
- REG - 12 *(MARITIME TEL&TEL)
 *Some of the questions in section 4 could not be answered with a simple yes or no and we therefore offer the following comments. These comment are merely observations and suggestions that could perhaps improve both spectrum usage and user service but do not necessarily represent the policy or intention of this Company. In our local area there are currently three RF channels in use for wide area paging services. Each of the three operate at only a fraction of capacity and we have recently discovered that there may be a fourth or even a fifth channel within the year. It is conceivable that all present pagers could be served from one large automated terminal with one or at most, two RF channels in operation (one tone only, one tone and voice). There could also be sufficient capacity in the common equipment to support the expected growth for many years to come. All present receiver suppliers could perhaps continue to market receivers on the one terminal. With a reduction in the number of "terminals" fixed costs would be distributed over a larger base of receivers resulting in the cost reduction for the user. An additional benefit may occur with a reduction in the number of types of receivers offered, the signalling systems designed etc. and perhaps manufacturers would concentrate on greater receiver and equipment standardization. A reduction of terminal equipment suppliers would also reduce the number of interfaces between governmental agencies and paging system operators thus simplifying licensing, gathering forecast data, clearing interference, etc. The above only indicates the type of benefits that could perhaps be realized if each province or centre was to have one dominant terminal or system supplier with many of the existing and new receiver suppliers selling service on the one system. These comments were offered in response to your request and do not necessarily represent the intention or policy of this Company at this time.

5.0 INTERVIEWS

5.0 - Interviews

Interviews were conducted with a number of paging operators, manufacturers and equipment distributors to obtain a first hand feel for the present status of the industry, and its future potential.

Shortage of time and a limited budget demanded the researching of those sources apt to prove most productive. Effort was therefore concentrated on a few of the more important people associated with the paging industry.

The interview reports which follow are those which were considered most productive and worthwhile presenting.

5.1 Interview Report

Company: McLean-Hunter Communications
Toronto Ontario

Contract/s: Mr. G. Allard, President
Mr. Doug. Richardson

5.1.1 RCCA (Radio Common Carriers Assoc.)

As president of the RCCA, Mr. Allard was asked to comment on the effectiveness of the association from the viewpoint of unregulated paging operators:

Mr. Allard stated that the RCCA is a young organisation made up largely of mobile radio service operators. The total membership is 58, some 15 or 20 of which are in the paging business.

However most of these operators are functioning on a relatively small scale. In the Toronto area for instance, there are only three large paging enterprises in the unregulated sector: Pagette, National Laser and McLean-Hunter.

The RCCA is endeavouring to make its voice heard, hitherto however it has lacked financial muscle.

5.1.2 Voice Paging

It is recognized that voice paging, as it presently exists, must go in the interest of spectrum efficiency. McLean-Hunter see the substitute for this type of service in the pager with a digital display anticipate the need for changeover when suitable equipment becomes available.

5.1.3 D.O.C. Policies

A major complaint is that companies (particularly those which are wholly Canadian) who are in a position to load frequencies efficiently, and to finance a good system, are not given the recognition and assistance from DOC which should be due them on the basis of their performance.

Airtel Ltd, a McLean-Hunter subsidiary, was the first company in Toronto to offer public paging service (1 week ahead of Bell). For 7 years Airtel was the only unregulated company providing service. Then Pagette and National Laser arrived on the scene. Since the advent of National Laser and Pagette, there have been numerous others whose cumulative pager complement is not sufficient to fill a single radio channel.

Mr. Allard indicated that overtures re expansion of the McLean-Hunter system began in June 1975,

and nothing has been resolved yet. McLean-Hunter have limited time left before their system is filled; no other unregulated company has their degree of saturation in the Toronto area.

Two channels are operative. The first serves 2400 pagers, one third of which are "Tone Only". The second channel serves 1500 pagers. Based on the same mix as the first channel, an additional 800-900 units might be added. Growth over the past year has averaged about 100 pagers a month, at this rate the McLean-Hunter system will be saturated within 9 months.

5.1.4

Network Control on a Competitor's Facilities

In a discussion centering on the use of wirelines as an alternative to radio links for system control, it was indicated that the idea of having a portion of their system dependent on a competitors facilities (over which no control could be exercised) was highly objectionable.

Furthermore, it was stated that Bell could not meet McLean-Hunter's technical requirements for such facilities, and that the changes necessary could be as much as 10% on a fully loaded system.

5.2 Interview Report

Company: National Laser Products

Montreal - Contact: Henry Campbell, Pres.

Toronto - Contact: Bev Poste, Eng. Consultant
Dave Campbell, Proprietor

5.2.1 Montreal Visit

National Laser Products operate paging systems in Montreal, Toronto and Vancouver. As an operating company, it is unique in that it is also actively engaged in R & D work in the paging field.

Henry Campbell is a man with ideas, guarded in his communication about company activities but wishing to develop RCCMRS and paging equipment as he sees it will be needed in the future. Mr. Campbell stated that he felt that "voice paging" as such is a dying breed, indicating that the only way to optimize spectrum usage is to keep air time as short as possible.

R & D within National Laser is therefore biased in favour of the "tone only" approach to paging, the use of digital readouts, voice synthesis etc. - or whatever means makes most constructive use of the frequency spectrum.

Mr. Campbell feels that we have barely scratched the surface of paging potential in Canada, and that a considerable amount of PR work

is necessary to familiarize the public with its possibilities.

Disillusionment with the RCCA was expressed, and National Laser are dropping out of the membership. The organisation is considered ineffective and its lack of communication with DOC was criticized.

A fear was expressed that because DOC was enamoured with regulated carrier paging systems (presumably referring to "SWAP"), that telephone companies would wind up controlling the available frequencies.

5.2.2 Toronto Visit: Bev Poste (Chief Engineer-National Laser)
Dave Campbell (Proprietor-National Laser)

a) Future for Paging

Mr. Poste stated that National Laser have about 4000 pagers in the Toronto area, and estimates the total in the Toronto region alone to be in the order of 24-25,000. He felt however, that this total should be closer to 100,000, and indicated that the potential market has hardly been touched as yet.

A major problem is the fact that the public does not know what paging is, or what it can do for them. At present National Laser is selling at the rate of about 100 pagers a month, and this pattern

is expected to increase and continue over the next five years. At present, National Laser's best customers are service companies, over 400 units are used by elevator technicians.

c) Voice Paging

Voice paging in its present form must go for two reasons: firstly because of air time limitations, and secondly because voice message quality leaves much to be desired. Digital readouts would be more positive and reliable.

d) Role of the Public Carrier

National Laser feel that Bell should not be in the paging business, and indicated the following reasons for this opinion:

- 1) - Bell claim capital limitations prevent them from expanding or installing many services. Typically, subscribers attempting to place a pager call on the Bell Boy system are often greeted with a recorded announcement which states in effect: "Because of limited plant equipment, the traffic is too heavy at this time to complete your call".
- 2) - An industry with a monopoly on wireline services should not be permitted to use these profits to write off paging losses.

- 3) - Current pager cost differential between Bell and National Laser in the Toronto region is about \$6.00 per month (\$21.50 versus \$27.50) the paging operation is the sole source of income for the small operator, but this is not so for the Telco.
- 4) - Bells pager advertising costs them nothing in the yellow pages. National Laser are spending about \$65 montly for their paging ad in the Toronto directory.
Furthermore, a standard Bell paging ad appears in every Bell directory, and this regardless of whether service is available in the Bell area concerned or not. Ads should be limited to the areas served.
- 5) - Public carriers are not always able to provide the product to the customer. Recently it took Mr. Poste five calls to locate a "BellBoy" paging representative; he was then told he would have to wait 3-4 weeks for service.
- 6) - Bell does not give out alternate pagers if trouble develops in a customer's unit. In Toronto, customers must take the unit downtown to a designated location and pay a \$20 service charge. Unit will be available for pickup a few days later.
- 7) - Pager billing is combined with the phone bill; any argument over the pager bill and Bell cuts off the telephone service.
- 8) - Personnel, office space etc. for paging is probably absorbed in telephone overhead by Bell.

d) Wireline Versus Radio Links in System Control

National Laser state that Bell want small operators to drop their link frequencies and go to wirelines for system control.

Such a move would leave operators at the mercy of Bell, and would introduce phasing problems. Mr. Poste indicated that radio links largely eliminated phasing difficulties, while wireline phasing problems varied with weather conditions.

Furthermore, Mr. Poste indicated that Bell only permitted one drop off for each wireline, thus unnecessarily multiplying costs where more than one drop off is practical or preferable.

National Laser suggest withdrawing all 150MHz radio links and using UHF or microwave instead. It was stated that if present National Laser radio links were wirelines, the cost would be in the order of \$20,000 per month, making the microwave alternative a viable proposition.

If Hydro, oil companies etc. can have their own microwave systems, why not paging operators? Operators now know what the market will bear and microwave would be economic. National Laser presently have three VHF links, and indicated that they would be happy to change over.

e) Spectrum Conservation

National Laser feel that in the interest of minimizing frequency usage, some RCC'S should specialise in the provision of terminal services

to other paging operators (transmitters, terminal equipment, etc.). DOC should license some independents to provide this type of service, and encourage RCC's to lease space on their frequencies.

Independents licensed to provide this type of service should, however be required to limit their operations to the supply of primary system equipment and should not be engaged in pager sales to the general public. Such licensees would also be required to:

- * Remain competitive by keeping their technology current.
- * Maintain specific coverage capabilities (e.g. similar to CRTC broadcast contour requirements)
- * Provide interconnection with similar paging companies in adjacent operational areas.

Paging operators taking advantage of these terminal services would rent blocks of pager codes, and sell or rent the necessary pager units to their respective customers. Periodic reports would keep DOC informed on the number of pagers in service, etc.

Henry Campbell of National Laser has recently discussed the possibilities of the foregoing concept with DOC. The department felt that there would be a need to somehow license all operators sharing the service. National Laser indicated that

they are in a position to provide this type of service to other paging operators, but that it would not be economic for them to do so as long as DOC continue to assign new paging frequencies to whoever may request them.

f) Conclusion

National Laser feel it is essential that DOC policies be such that independent operators are given every opportunity to develop in the paging field. Competition alone will encourage continued progress and development in the paging field.

5.3 Interview Report

Company: Pagette Airsignals

Toronto, Ontario

Contact: Mr. Jerry Izzard, President
Eastern Region.

5.3.1 RCCA (Radio Common Carriers' Assoc.)

As president elect of the RCCA Mr. Izzard was asked to comment on the association.

Mr. Izzard stated that the present RCCA membership includes 60-70% of the RCC fraternity. The association is endeavouring to improve this ratio with a view to building the organisation into a more effective and influential group. Although Bell Canada attends all RCCA meetings and functions, it is not a member as such.

Asked about complaints that the RCCA lacked close enough ties with Ottawa, Mr. Izzard indicated that he anticipated this situation would improve in the near future.

5.3.2 Paging Developments

Mr. Izzard foresees the development of a "Throw-Away" pager unit with citywide coverage capabilities, hopefully for less than \$100. Units will become smaller and lighter, possibly

of wrist watch or pencil design. There will probably be two basic products, one designed for local coverage and a second for citywide coverage. These pager units will be sold across the counter in neighbourhood stores, and will be designed for "Tone only" operation.

Mr. Izzard feels there will be a shakedown in larger metropolitan areas to two or three of the larger operators, but he doubts there will be any sharing of facilities within metropolitan areas as such. Voice paging equipment will be played down and tone played up; voice paging must be structured to make it less attractive.

5.3.3 Paging Growth Potential

Hitherto Pagette growth has been running at an annual rate of 43-48%. However, over the next 5 years, Pagette will budget for an annual growth rate of 18-20%. This reduction is largely occasioned by the appearance of new competitors.

5.3.4 Standardisation

Mr. Izzard feels that there is a reasonable degree of standardisation in the paging field now. He indicated that RCCs are not anxious to be tied down to a single product.

5.3.5 Pager Units

The primary consideration from the viewpoint of customer acceptance, is the reliability of the pager product. While the second is the size and weight of the unit itself. Mr. Izzard indicated that some Pagette subscribers had purchased their own units after having found models which they liked.

Asked about the "multiple address" feature offered on some pager models. Mr. Izzard indicated that Illinois Bell in the U.S. are reported to have only about 5% of their units equipped with this feature. He went on to point out that the "Tone only" arrangement is a natural when associated with a telephone answering service, and that the type of service received from a paging company is an important consideration in the determining which company a subscriber will select.

5.3.6 DOC Frequency Policies

Mr. Izzard feels that more frequencies should be made available for public commercial paging, and that these should be drawn from the mobile area. He also indicated that we should apply for more frequencies in Canada to prevent those which are available from being entirely consumed in the U.S.

5.3.7 Regulation

It is Mr. Izzard's personal opinion that the public would be better served if all paging were regulated. However, in such an event, telephone companies should be required to provide selector level service to competitive paging operators. His feeling is that the deregulation of telephone companies would solve no problems, since they still have the network; competitive operators need the network. Furthermore firm regulation should exist to limit the number of systems which are permitted to enter the paging business.

5.3.8 Role of the Public Carrier

Mr. Izzard pointed out that the public carriers are already in paging, and their operations are a potent competitive force. However, he feels that these extended area facilities should be available to permit servicing the 10% or less of Pagette's subscribers who require occasional out-of-town paging coverage.

Pagette's present solution to the out-of-town coverage difficulty is to have all messages recorded with the answering service. A more elegant solution would be to have co-operative agreements with others who could satisfy these needs when required, typically Bell Swap, McLean-Hunter, etc.

5.4 Interview Report

Company: Canadian Motorola Electronics
Contact: Mr. W.T. Knutson,
i/c Motorola RCCMRS Operations.

5.4.1 General

Motorola provide paging facilities for private customers, but do not operate public paging service in the normal sense. Existing services are tone plus voice, the installations where paging is provided are as follows:

<u>Location</u>	<u>Approx. Pagers</u>
Edmonton	30
Vancouver	50
Winnipeg	200

5.4.2 Installation Operation

All Motorola paging systems are "Piggy Backed" on existing MRS installations, none are dedicated to paging. Paging customers are provided with a 3-5 watt base station which is operated as a fixed mobile; each has a directional antenna beamed on a community repeater.

16 codes are available to open the repeater, one or two of which are assigned to paging. A paging encoder is associated with each customer

terminal to enable him to originate the code of the pager he wishes to call. The paging subscriber effects each page by:

- 1 - Holding down his mike button
- 2 - Punching out the desired pager code, then
- 3 - Delivering a brief message into the microphone.

5.4.3 Standardisation

It is felt that a greater degree of coding standardisation is necessary in order to cut down on the number of different coding schemes.

5.4.4 Frequency Conservation

Mr. Knutson pointed out that the RCCA supports the present feeling that "Voice type paging" must give way to "Tone paging" in the interest of spectrum efficiency. He also stated that some operators have been thinking in terms of sharing facilities on a broader scale than presently exists, and that they are now thinking in more positive terms of querying their competitors on the possibilities of such co-operation.

DOC should insist on more efficient use of the spectrum by establishing loading criteria and having licensees show cause why they should be allowed to retain their licenses. Channel loading

criteria should be determined jointly between the department and the operators.

5.4.5 Regulation

Motorola do not favor the concept of regulation per se, however they do feel that some method of controlling the number of paging operators in each area is necessary. Otherwise, the market in many districts will be watered down to the point that the establishment of an efficient paging service is not practical from an economic viewpoint.

5.4.6 Role of Public Carriers

Motorola feels that the regulated carriers have as much right as anyone else to be in the paging business. However, they feel that network interconnection should be made available without the "Store and forward" requirement.

5.5 Interview Report

Company: Bell Canada

Contacts: R. Vosburg, Pager Marketing, Eastern Region
D. Vanwight, Product Management, Western Region

5.5.1 Bellboy 150 (Swap)

The Bell system wide area paging facility comprises computerized terminals located in Montreal and Toronto, and a total of 75 transmitters distributed throughout Ontario and Quebec.

The Montreal terminal, in addition to serving the Quebec region, also provides switching for communities in Ontario as far west as Kingston, as well as for 11 cities in Nova Scotia and New Brunswick.

A total of 52 cities are served in Ontario and Quebec. All locations with populations of 100,000 or more are covered by Swap, and service exists in some communities with as few as 15,000. By 1980, "Swap" should be available in 170 communities. The viability of systems in smaller districts depends on the use of higher ERP than is presently permitted in larger city areas. The degree of viable expansion possible into (say towns of 10,000) population) will depend on the ERP Bell are permitted to use. To open new locations, Bell require an initial demand for 50 units.

5.5.2 System Operation

All transmitters covering a given area are simultaneously operated. It was stated that this was preferable to sequential operation because it did not limit the opportunity to penetrate specific target areas, and to develop shadow areas. However, line equalisation must be good enough to ensure that the critical delay period between transmitters serving a given area is not exceeded. (50 milliseconds was quoted).

5.5.3 Paging Techniques

It was stated that the demand for voice paging in large areas was tending to flatten out, and that 80% of current one-way pager messages could be reduced to a small number of codes. Current Bellboy pagers are capable of responding to eight different addresses, each producing a distinctive calling tone which the subscriber can readily identify.

By 1978, Bell expect to see digital readouts on pagers, and the capacity to display a 30 word message. Such messages would be displayed in digital form, and stored in the pager until called up by the subscriber; the display would produce a limited number of characters at a time which would flow past the display at a readable rate.

The transmission time for a 30 word message was indicated to be two seconds. Such loading would take up the air time required for 8-10 tone type pages.

5.5.4 Digital two-way Systems

It was stated that a major two-way market will develop in the "two-way message pager". This will comprise a small Tx/Rx unit constructed like a small pocket calculator. The keyboard will be alpha-numeric; a L.E.D. display will provide readout of incoming messages, while the keyboard will permit encoding messages to digital form for transmission back to the terminal. This development will come into its own with the advent of the cellular technique.

5.5.5 Costs

It was stated that the current Motorola Page-boy II one-way voice pager costs about \$360. The digital display feature as described above would add about 10% to the pager cost. It was stated that a "Tone" pager in 1960 cost \$360, and by 1970 this had dropped to \$168. In 1975, a multifunction "Tone" pager was in the order of \$85. It is felt that disposable units may eventually sell for as little as \$30 each.

5.6 Interview Report

Company: Time Communications
Contact: B.V. Hampeln, Proprietor.

5.6.1 General

Time Communications have not yet commenced paging service, but have a frequency assignment for the Ottawa area. Not having active experience in paging, Mr. Hampeln is still in the process of formulating his opinions.

5.6.2 Swap

Mr. Hampeln is not too familiar with Swap operation, but does not see the need for such broad coverage except in certain areas of the country. He feels nevertheless that the concept is good from the viewpoint of frequency conservation.

5.6.3 Role of Public Carriers

Public carriers should provide the necessary lines, however they should not be excluded from activities at the end of the line.

Industries such as Time Communications are not competitive with Bell; they give the customer what he wants, but what they are able to provide is sometimes limited by Bell. For instance, Bell should

make selector levels available. Mr. Hampeln pointed out that although the RCC offerings in the U.S. are more expensive than those of the public carriers, the public carriers have only a minor share of the available market.

5.6.4 Regulation of RCC Paging Operations

There should be a requirement for operators to demonstrate that frequencies are being efficiently used. Mr. Hampeln quoted the instance of an operator with 20 pagers on his system who is applying for a second frequency.

Any imposed regulation should not be of a type which restricts competition. Regulation of service quality would be acceptable, but it must be flexible on price so that the operator is free to improve his service as he sees fit.

5.7 Interview Report

Company: Phone Answering Service, North Bay
Contact: Mrs. Gauthier, Manager/Owner (July 1975)

The company presently serves about 65 pager subscribers, and has been in the paging business for about two and a half years.

Paging coverage is guaranteed for a 15 mile radius, but it is said to have an effective radius of about 25. Pagers are actually served in Mattawa, a distance of 41 miles away.

Mrs. Gauthier stated that nearly half her present paging subscribers were taken from Bell Canada. There were two reasons for this changeover to her system:

- 1 - The availability of a message service, and
- 2 - Busy long distance circuits frequently prevented the subscribers from accessing the Bell Swap terminal.

While indicating a definite "no" to monopolies of any sort, Mrs. Gauthier indicated that some territorial responsibility could prove advantageous, particularly with a long term view to some form of network integration which would permit outsiders to be paged in her community.

5.8 Interview Report

Company: Canadian Motorola Electronics, Toronto
Contact: Dale Baker, Asst. General Manager, Director
of Distribution.

5.8.1 General

Mr. Baker handled Telco pager sales in the U.S.A. from 1963 to 1974 before coming to Canada; he is therefore thoroughly familiar with the American market situation, and for this reason many of the facts and figures noted below relate to his U.S. experience.

5.8.2 Private Paging

Private paging systems may be divided into two basic types:

- 1 - Adjuncts to mobile (typically Ford of Oakville),
- 2 - Dedicated paging systems (typically, IBX, Xerox, etc.).

Approximately 5% of all pagers in use would be adjuncts of existing two-way mobile systems, while approximately 10% would be associated with dedicated private systems.

Paging is currently the only practical means of providing communications to an individual

at random locations at indefinite times. Mobile radio is limited to the time the person is in the vehicle. Paging is relatively inexpensive to provide:

- in a private system, the cost is about 30¢ per pager day.
- in a small complex (pulp mill, MFG operation, etc) a system can be operated economically on as low as ten pagers.
- compared to rental of pagers from public systems, costs will be about 50% lower for the owned system.
- in citywide systems such as Xerox, IBM etc. the cost is about 50¢ per pager day (this covers investment, operation and maintenance)

5.8.3 Loop Systems

Motorola have made no equipment for loop systems since 1968-1969, reasons:

- installation costs are high
- re-structuring of system necessary whenever the coverage areas are changed.
- power line carrier in hydro would also get into the systems and destroy their usefulness.
- Operation generally in the 60-120 KHz band:
- RF is more viable.

5.8.4 Capacities

In the U.S. they are sharing paging frequencies, hence each operator using/sharing frequencies must have separate set of codes from others also using same facilities.

- tone + voice: up to 3200 different codes
- tone only: (digital) 400,000 +, or well in excess of given system handling capability.
- call rate in high speed systems is 250 milliseconds per call (tone only)
- tone + Voice systems: message allowance is 15-20 seconds.
- most private systems will accom. 300-600 pagers, dependent on the Tone + Voice discipline employed.

5.8.5 Private Systems (a Baker guestimate)

- 20% of all private commercial mobiles have some paging (variable mix)
- Baker states that it would be more economical and better sense to let adjuncts remain on existing systems.

5.8.6 Influence of Paging Operations on Telephone Revenues

Pacific Northwest Bell (Seattle) conducted a study to determine the effect of "Tone only" paging on telephone revenues. The result indicated that

on the average, 7 telephone calls per day were generated for each pager user; the resulting additional revenue equalled that realized from the bellboy units.

The philosophy used in structuring pager lease rates took this factor into account until it was challenged by private operators who didn't have the advantage of pay phone and toll revenues.

Voice message pagers, though more expensive to rent, are less expensive to the end user in the long run. Unfortunately they are less efficient spectrally, however there is a requirement for this type of service.

5.8.7 U.S. Public Systems

U.S. landline carriers and independent operators can provide interconnected paging service on a tariff basis. Telcos provide trunk service to independent paging operators generally on the same basis as they provide the service to themselves.

The majority of public service systems therefore, are "Tone only". Since interconnect, there has been a 5/1 increase in "Tone" systems, and now "Tone" systems are dominant.

Specific benefits have resulted because of the competition offered by independents to the U.S. landline carriers:

- 1 - Competition has forced landline carriers to provide a good grade of service. Previously, equipment, coverage and service were poor.
- 2 - Competition has increased the use of paging because both the independents and the landline carriers have been active in stimulating the market.

5.8.8 DOC Policy Changes

"The most important action the federal government can take to provide paging service to the general public at the lowest possible cost is to promote direct interconnect with the landline switched network for paging terminals."

- paging service has positive impact: results in lower use of energy, and more efficient use of labour.
- paging is spectrally efficient compared with the mobile services.
- because of the revenues to telephone companies indirectly derived from paging services, the carriers should not feel their resources are being diluted.
- equipment should be standardized with regard to the interconnect application - in other areas however, standardisation would result in limited development.

5.8.9 Paging in the Future

The next development is to provide, on a mechanical basis, more communication than is presently available:

- digital (liquid crystal readouts) : multiplicity of messages, or the potential to provide an alpha/numeric message...even LEDs getting more economical from power consumption viewpoint.
- the "meet me" system arrangement which is presently possible. Calling party awaits paged person on a switch in telco facility, paged party dials a given number which connects him to the line upon which the calling party is waiting. MAYO CLINIC has such a system - however telco costs for this drive pager unit costs sky high..
- it is believed that the displays will be used more for coded messages: a substitute to some extent for the convenience of the Voice + Tone convenience.

5.8.10 Growth

Pager growth is about double mobile because it is economically more viable, and has a broader range of application.

5.9 Interview Report

Company: Omicron Data Systems, Montreal

Contact: Mr. Fraser

5.9.1 General

Omicron commenced business as computer oriented consultants. Subsequently the firm entered the product manufacturing field specializing in paging systems control terminals for "Swap" type operations, but incorporating other telephone oriented items in their product line.

Omicron is wholly Canadian. Their major problem is the fact that their system is too large for the Canadian market, being economic for 10,000 or more subscribers. In North America there are about 18 large paging systems of which Omicron have 6; of the remainder Martin Marietta have 2 and Motorola 9 or 10.

Omicron are active in the international market, and are presently engineering a system to cover the British Isles.

5.9.2 The Bell System

Omicron provided the Bell System paging control terminals located in Montreal and Toronto.

- Present Installations: (Montreal and Toronto)

Input lines: 15 (can be increased to 40)

Sub Capacity: 30,000 (limited by number of input lines)

Calls per Hour: 1,500 (approx. No. of calls handled
at present by each of Bell terminals)

Note:

- 1) - Terminals are designed to process a maximum of 5 calls per second
= $5 \times 3,600$
= 18,000 calls per hour.
- 2) - System capacity is limited by the number of input lines to the terminal, 18,000 calls per hour being realized only when full complement of input lines have been installed.
- 3) - Present Bell terminals will handle 18,000 calls per hour when present input line complement is upgraded from 15 to 40.

5.9.3

Costs

- Terminal Capital Cost

Omicron terminal for 30,000 subscriber capacity
(plus 3 months of hand holding) would run about \$200,000.

- Estimated System Operating Cost (monthly)
(based on 30,000 subs.)

	<u>Cost per Subscriber</u>
Terminal	\$3.00
Pager	\$6.00
Line, XMTR MNTINCE, etc.	\$1.00
Total:	<u>\$10.00</u>

5.9.4 - Pagers

Mr. Fraser stated that the availability of digital units of adequate quality constituted an expansion bottleneck.

- Motorola pager rated best.
- Multitone is cheaper but not as good as Motorola.
- Motorola, Multitone and Martin Mariette are the only three high capacity pagers presently out in the field.
- Nippon also produce a high capacity pager but is not yet out in field.

5.9.5 - Developments

Potential methods of message handling in Swap type systems are being considered by Omicron.

A major objection to the digital display of coded messages on the pager is that \$25 - 30 would be added to the price of each unit. Omicron are

considering the following technique which would add \$1 to the per pager cost in a 30,000 subscriber system. (Note: an initial R & D cost of \$150K to \$200K would be involved.)

In brief, the Omicron approach involves synthesizing the message and storing it in a digitized format in the terminal memory in an area associated with the called pager. Digital synthesizing obviates the need for mechanical recording and the extended search time usually associated with such devices. The called paging subscriber dials the terminal and receives the synthesized message - thus eliminating multiple phone calls.

5.9.6

Shared RCC Systems

Omicron have made attempts to interest unregulated operators in large centers in the possibilities of integrating their operations within a single terminal system. However they found independents a fragmented lot who are difficult to organize. One such system exists in the Los Angeles area; four independents share a common frequency and terminal facility.

5.10 Interview Report

Company: Acme Devices Inc., Montreal

Contact: Mr. McGregor, President.

5.10.1 Paging - Acme Devices Inc.General

Acme Devices Inc., (a wholly Canadian company) have been in business for the last 6-7 years, specializing in paging terminal switching equipment. Units are custom built to accomodate systems of up to 10,000 subscribers. This fall, equipment will be available for systems up to 100,000.

All equipment is solid state, the essential differences between Omicron and Acme are as follows:

- 1 - Omicron economic for 10,000 up.
Acme economic for substantially smaller systems.
- 2 - Omicron use PDP computer plus software.
Acme approach is based on hardware only
- 3 - Acme system cost \$15 - 20,000 (or lower depending on needs) for system of 3,000 + subscribers.
Omicron does not cater to systems of less than 10,000.

5.10.2 Market

- Broad market in North America for systems of 5,000 and less. Approximately 60% of sales are standard packages, and 40% are custom.

- Present models don't include IMTS features; could be incorporated but price would run \$100 - 150,000 to be comparable with what is on today's market.
- Sask. Tel. covers nine cities from one ADI terminal.
- ADI in process of automating TAS across Canada. Toronto and Montreal systems are operational.
- ADI expect shortly to be in a position to supply full turnkey systems.
- ADI expect good U.S. market this year, particularly since AMCOR may become defunct. Superior Continental, owner of AMCOR, recently sold their manufacturing division; result may be that ADI are left alone in the market.

5.10.3 Future

The company is in a good position from a marketing point of view since it will shortly be able to equip systems up to 100,000 subscribers

The impression received was that development is largely concentrated along conventional lines (e.g. expanding equipment capacities, etc). No particular consideration appears to have been given to the need to conserve air time on voice type pages etc. The company is small, but has the facility and the expertise to adapt quickly to new demands, hence concerns itself more with what is wanted in the immediate future.

5.11 Interview Report

Company: General Sound & Theatre Systems, Toronto

Contact: Mr. George Halliday.

5.11.1 General

The company handles both RF and LOOP type paging installations (Ericsson and Teletrac International); all installations are of the private type. RF installations are of the conventional variety. The company feels that the old LOOP technique is coming back into its own again for the following reasons:

- 1 - RF systems frequently fail to give reliable service throughout a building structure, even with the assistance of "radiac" type cable to ensure better distribution of the RF signal.
- 2 - Properly designed LOOP systems provide reliable coverage and are generally (if only marginally) less expensive. The LOOP pager units cost approximately \$40 less than their RF equivalents (\$275 vs \$315)
Editing Note: Total LOOP system costs are very much a function of the difficulties involved in installing the LOOP, particularly in existing buildings).
- 3 - LOOP system maintenance costs are lower than for RF type installations.
- 4 - LOOP system coverage areas are well defined, hence do not complicate current frequency management problems.

Mr. Halliday worked for Teletracer International in New York on LOOP systems for many years before coming to Canada, and is thoroughly versed in the capabilities of such systems. He stated that they have about 50 installations in the Quebec, Ontario and Maritime areas, as well as one each in Calgary and Vancouver.

Hitherto, most installations have been in hospitals; however more and more industrial concerns are favouring LOOPS. Canadian Tire's main Toronto warehouse has such a system, and Toronto's Wellesley Hospital has a LOOP serving 300 pagers:

5.11.2 LOOP Installation Costs

Costs vary according to the situation. However, if LOOPS can be installed during building construction, the labour time will be cut to about 40% of that needed if system is installed in an existing building. Frequently, the LOOP costs are minimal; in the case of a recent motel installation it was only necessary to run the LOOP around the roof perimeter.

In the case of buildings with 3-4 floors or more, where construction is metal with reinforced concrete etc., LOOPS will probably be required on each floor. TW-12 stranded wire is used, and the LOOP is tuned, then matched to equipment impedance requirements. Generally the carrier is about 28 KHz. LOOP amplifiers are required for every 2000 feet of LOOP wire.

5.11.3 Interference Problems

Asked about potential interference problems, Mr. Halliday stated that he had never experienced anything that he could not deal with satisfactorily. He also stated that he had never encountered interference difficulties due to power line carrier signals

5.11.4 System Costs

Basic central equipment costs for a system capable of handling up to 50 pagers, including a 2000 foot LOOP would be in the order of \$2000.
(basic without frills)

A sophisticated installation capable of handling up to 1000 pagers, complete with all frills & facilities including a 2000 foot LOOP would cost about \$7000. The equivalent RF system would be about \$8000.

5.12

Interview Report

Company: Canadian General Electric

Contact: J.M. Wilson

Canadian General Electric are not seriously into the paging business. About five years ago they came out with a pager unit which they discontinued two years later. Recently they have placed a new pager on the market.

Canadian General Electric paging activities are limited strictly to private systems. The most recent pager was produced to enable the company to bid on "MRS" tenders with adjunct paging requirements. The necessary encoder units are provided, but the company offers no dial access equipment or other system refinements.

5.13 Interview Report

Company: Pye Electronics, Montreal

Contact: W.A. Bitcon, Marketing Services.

Pye electronics do not manufacture or actively promote the sale of paging equipment in Canada. In the event that one of their customers approaches them with a paging requirement, they will satisfy it by purchasing the equipment from other suppliers. For the time being at least, this company entertains no intention of seriously entering the paging market; to date, total paging receiver sales in Canada amount to less than 500 units.

5.14

Interview Report

Company: Canadian Marconi Ltd., Montreal

Contact: D. Thompson, Sales.

Other than to take an occasional look into paging market potential Canadian Marconi have done nothing positive about becoming actively involved. If sales came up, the needed equipment would be purchased from other manufacturers.

38725

P
91
C655
R33e
1976
Pt. 3

[illegible]

QUEEN P 91 .C655 R33 1976 Pt
Intel Consultants
Radio paging study for the D