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RADIO PAGING STUDY

FOR

THE DEPARTMENT OF COMMUNICATIONS

OTTAWA

SUMMARY

OF

SURVEY BACKGROUND DATA

Contract Serial No: OGE5-0267
DSS File No: 02GK.36100-4-2039

Ottawa, October 15th, 1976

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PREFACE

This report contains a summary of the background data associated with a study on the radio paging industry conducted on behalf of the Federal Department of Communications (DOC) by InTel Consultants Limited of Ottawa, under DSS contract (File No. 02GR.36100-4-2039). The survey objectives and methodology were reviewed and subsequently approved by the Special Survey Coordination Division of Statistics Canada; the work was carried out during the period between July 1975 and July 1976.

This study was initiated by the Spectrum & Radio Systems Policy Group of the National Telecommunications Branch of DOC.

* to determine the nationwide status and extent of radio paging activities in both the public and private sectors.

* to assess the probable significance of technological trends, the potential for future growth of the industry, and the impact these factors may have on future spectrum demand.

The results of the survey are to be used to support policy development work related to the forecasted needs for future paging service.

Data contained herein comprise the responses of paging operators to each question included in the survey, and are made available to the reader for his own use and analysis. Since the statistical information associated with public paging systems is of a highly sensitive nature, it has been reduced to an aggregated format.

RADIO PAGING STUDY

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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 Survey

1.2.1 - 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

Province	Questionnaire Issue	Replies
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
	202	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

répondant enquêté

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. A tabulation of pager population distribution is also included for each region.

.1 - Quantified Information

All quantified information extracted was reproduced in the format shown in Table 2.1 Section 2 entitled: Private Paging Statistics - Pacific Region. This comprises the InTel identifying code together with four 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

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

b) - Coverage Radius

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

c) - 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.

d) - Daily Calls

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

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 by responses to the second part of question 2B.

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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 2.3, 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

Where applicable, comments were integrated with data identified with check marks as noted in .2 above.

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1.2.3 - 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 2.2 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" pearing 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 para. 1.2.2 above re: Private Paging questionnaires also apply in the Public Paging area. However it will be noted that only aggregated figures are given for unregulated paging systems reporting from each of the four regions surveyed, and that the tabulation of pager population distributions is limited to only one which covers all unregulated installations with fewer than 800 pagers. Regional breakdowns are not provided for paging systems operated by public carriers. However an estimate of the total pagers served by public systems is given in Table 3.1 of Section 3.

.1) Quantified Information

Quantified data extracted from unregulated operator questionnaires is reproduced for each region in an aggregated format in Table 3.3 of Section 3 of this document. Since some of the questions requesting quantified data produced limited information of any value, they were omitted. The following data was included:

a) 1976/1981 Subs & Pagers

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

b) Daily Calls

These are aggregated operator estimates of the average number of pages handled daily by the installations.

c) 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.

d) 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.

A summary listing is given in Table 3.3 for the totals reported for each statistical item, together with the relevant averages based on the number of systems reporting useful data from the Quebec, Ontario and Pacific regions.

.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 3.5 and 4.2 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 3.9 Section 3.0 of this document.

.3) Operator Comments

Where applicable, comments were integrated with data identified with check marks as noted in .2) above.

1.3.3 - Pager Population Distribution Tabulations

A single population distribution tabulation (Table 3.4 Section 3) is included covering all reporting unregulated systems with fewer than 800 pagers. It should be noted that this tabulation only includes unregulated systems in the Quebec, Ontario and Pacific regions. The Central region was not surveyed, and no pager population data was received from the Atlantic region.

SECTION 2.0

PRIVATE PAGING SYSTEM DATA

2.1 - Private Paging Data

Pacific Region.

TABLE 2.1
PRIVATE PAGING STATISTICS - PACIFIC REGION

PROVINCE	INTEL Q.-NO	COV'GE (RADIUS-M)	PAGERS 1976	PAGERS 1981	DAILY CALLS	TONE PAGERS
BRITISH COLUMBIA						
	3	1.5	6	10	40	6
	4	12.0	41	45	NR	0
	6	1.0	30	NR	100	30
	7	6.0	5	5	20	5
	9	1.0	15	15	175	0
	12	0.5	8	16	50	8
	13	15.0	65	120	300	0
	15	BLDG	143	200	750	0
	16	2.0	25	25	NR	0
	19	1.0	5	5	100	0
	20	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 2.2
PAGER POPULATION DISTRIBUTION - PRIVATE OPERATORS

PACIFIC 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.

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TABLE 2.3
PRIVATE OPERATOR QUESTIONNAIRE REPLY SUMMARY - PACIFIC REGION

	PACIFIC R	PACIFIC NR
1-FREQ USAGE		0
FREQ SHARED	0	
FREQ NOT SHARED	11	
1C-SYSTEM FEATURES		
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
1C-PAGER FEATURES:		
GROUP CALL	3	8
MULT. ADDRESS	2	9
ALERT STORAGE	0	11
HANDS OFF OPER'N	1	10
OTHER	2	9
2C-USER FUNCTIONS:		
EXECUTIVE	4	7
ENGINEERING	7	4
FOREMEN	4	7
PLANT MAINTENANCE	8	3
CUSTOMER SVC	3	8
MEDICAL	5	6
OTHER	5	6
2D-SYSTEM SATISFACTION:		
FULL	0	11
ADEQUATE	9	2
POOR	2	9
2E-SYSTEM SHORTCOMINGS		
POOR SERVICEABILITY	5	6
INADEQUATE COVERAGE	2	9
INCONVENIENT ACCESS	0	11
LIMTED OP. PERIODS	0	11
OTHER	7	4
3A-REASON PRIVATE SYSTEM		
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
3B-PUBLIC SYSTEM USE		1
ALSO USE PUB SYSTEMS	3	
DON'T USE PUB SYSTEMS	7	

TOTAL REPLIES:- 11

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2.2 - Private Paging Data

Central Region

TABLE 2.4

PRIVATE PAGING STATISTICS - CENTRAL REGION

PROVINCE	INTEL Q.-NO	COV'GE (RADIUS-M)	PAGERS 1976	PAGERS 1981	DAILY CALLS	TONE PAGERS
ALBERTA						
	1	BLDG	3	5	1000	2
	3	NR	80	100	75	NR
	4	0.5	6	15	45	NR
	5	5.0	20	20	60	0
	8	4.0	23	35	50	0
	10	20.0	35	50	50	35
	14	BLDG	1	1	2	1
	15	5.0	20	25	40	20
	16	1.0	5	10	2	0
	17	15.0	68	130	50	0
	18	0.2	7	13	70	0
	19	BLDG	17	NR	NR	17
	83	NR	80	100	75	NR
SASKATCHEWAN						
	2	8.0	100	200	NR	0
	4	15.0	70	70	NR	0
	5	2.0	10	20	50	0
MANITOBA						
	1	0.1	10	10	20	10
	3	0.1	12	NR	10	12
	5	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 2.5

PAGER POPULATION DISTRIBUTION - PRIVATE OPERATORS

CENTRAL 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 ot the total observations which fall within each cell range.

TABLE 2.6
PRIVATE OPERATOR QUESTIONNAIRE REPLY SUMMARY - CENTRAL REGION

	CENTRAL R	CENTRAL NR
1-FREQ USAGE		1
FREQ SHARED	2	
FREQ NOT SHARED	16	
1C-SYSTEM FEATURES		
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
1C-PAGER FEATURES:		
GROUP CALL	6	13
MULT. ADDRESS	2	17
ALERT STORAGE	0	19
HANDS OFF OPER'N	0	19
OTHER	1	18
2C-USER FUNCTIONS:		
EXECUTIVE	7	12
ENGINEERING	5	14
FOREMEN	10	9
PLANT MAINTENANCE	14	5
CUSTOMER SVC	7	12
MEDICAL	3	16
OTHER	6	13
2D-SYSTEM SATISFACTION:		
FULL	7	12
ADEQUATE	7	12
POOR	1	18
2E-SYSTEM SHORTCOMINGS		
POOR SERVICEABILITY	4	15
INADEQUATE COVERAGE	2	17
INCONVENIENT ACCESS	1	18
LIMTED OP. PERIODS	1	18
OTHER	6	13
3A-REASON PRIVATE SYSTEM		
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
3E-PUBLIC SYSTEM USE		0
ALSO USE PUB SYSTEMS	6	
DON'T USE PUB SYSTEMS	13	

TOTAL REPLIES: 19

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2.3 Private Paging Data

Ontario Region

TABLE 2.7
PRIVATE PAGING STATISTICS - ONTARIO REGION

PROVINCE	INTEL Q.-NO	COV'GE (RADIUS-M)	PAGERS 1976	PAGERS 1981	DAILY CALLS	TONE PAGERS
ONTARIO						
	2	0.5	36	39	118	0
	5	0.5	12	20	75	NR
	6	15.0	5	5	10	0
	7	4.0	40	40	75	0
	8	3.0	8	12	90	8
	9	1.0	25	35	250	0
	10	10.0	15	30	100	0
	11	2.0	13	15	60	13
	12	15.0	130	175	70	0
	14	0.7	5	1	5	0
	15	2.0	45	55	100	0
	17	1.0	NR	NR	NR	NR
	18	2.0	1	1	30	NR
	19	1.5	125	350	300	0
	21	1.0	11	11	25	0
	22	20.0	155	NR	NR	0
	23	40.0	450	550	1000	0
	24	0.5	40	60	450	0
	26	15.0	26	26	50	0
	27	4.0	46	44	NR	0
	29	0.5	27	27	50	27
	31	10.0	140	348	700	0
	33	BLDG	5	5	30	5
	35	15.0	9	12	25	0
	36	4.0	98	98	500	0
	37	1.0	16	20	100	16
	38	1.0	40	50	160	0
	39	5.0	55	55	150	0
	40	1.0	75	100	100	72
	42	BLDG	70	100	35	0
	45	BLDG	20	25	300	4
	46	2.0	61	NR	625	0
	47	2.5	85	100	300	0
	48	NR	35	35	25	0
	51	1.0	68	NR	500	58
	52	15.0	4	10	16	0
	53	1.5	32	32	120	0
	54	NR	44	NR	NR	0
	55	1.0	16	NR	50	16
	56	4.0	15	15	45	15
	58	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 2.8

PAGER POPULATION DISTRIBUTION - PRIVATE OPERATORS
ONTARIO REGION

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

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 2.9

PRIVATE OPERATOR REPLY SUMMARY - ~~QUEBEC~~ ONTARIO REGION

	ONTARIO R	ONTARIO NR
1-FREQ USAGE		0
FREQ SHARED	4	
FREQ NOT SHARED	37	
1C-SYSTEM FEATURES		
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
1C-PAGER FEATURES:		
GROUP CALL	14	27
MULT. ADDRESS	6	35
ALERT STORAGE	2	39
HANDS OFF OPER'N	5	36
OTHER	6	35
2C-USER FUNCTIONS:		
EXECUTIVE	25	16
ENGINEERING	25	16
FOREMEN	30	11
PLANT MAINTENANCE	33	8
CUSTOMER SVC	10	31
MEDICAL	15	26
OTHER	20	21
2D-SYSTEM SATISFACTION:		
FULL	23	18
ADEQUATE	15	26
POOR	3	38
2E-SYSTEM SHORTCOMINGS		
POOR SERVICEABILITY	9	32
INADEQUATE COVERAGE	8	33
INCONVENIENT ACCESS	1	40
LIMTED OP. PERIODS	1	40
OTHER	16	25
3A-REASON PRIVATE SYSTEM		
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
3B-PUBLIC SYSTEM USE		0
ALSO USE PUB SYSTEMS	14	
DON'T USE PUB SYSTEMS	27	

ANALYSED REPLIES:- 41

2.4 - Private Paging Data

Quebec Region

TABLE 2.10
PRIVATE PAGING STATISTICS - QUEBEC

PROVINCE	INTEL Q.-NO	COV'GE (RADIUS-M)	PAGERS 1976	PAGERS 1981	DAILY CALLS	TONE PAGERS
QUEBEC						
	1	1.0	50	65	50	21
	3	12.0	115	0	200	0
	5	0.3	25	40	100	0
	7	35.0	2	NR	NR	0
	8	2.0	10	10	5	2
	10	5.0	6	NR	15	0
	11	6.0	8	10	75	0
	12	1.0	12	NR	50	0
	16	1.0	10	15	50	10
	18	10.0	181	106	177	127
	20	25.0	14	16	100	1
	21	6.0	10	15	25	0
	23	10.0	15	15	5	0
	24	2.5	36	46	34	0
	25	10.0	20	NR	NR	0
	26	1.0	23	23	50	0
	27	2.0	4	10	25	0
	28	1.0	6	NR	20	0
	29	20.0	2	2	3	0
	31	5.0	10	10	50	0
	32	15.0	44	NR	50	0
	33	15.0	16	30	20	NR
	34	NR	NR	NR	NR	NR
	39	3.0	16	16	50	0
	40	BLDG	10	10	40	0
	41	25.0	43	45	NR	NR
	42	0.3	15	NR	150	NR
	48	0.5	18	30	100	18
	52	1.0	35	50	10	0
	53	NR	14	19	30	14
	56	25.0	104	154	310	0
	57	1.0	36	45	200	0
	61	BLDG	24	24	60	24
	62	5.0	10	15	15	4
	64	12.0	24	25	150	24
	65	5.0	8	8	100	0
	68	0.5	7	0	100	7
	69	1.3	20	30	NR	20
TOTALS REPORTED:			1003	684	2419	272
SYSTEMS REPORTING:			37	30	33	34
AVG/SYSTEM REPORTING:			27	29	73	8

SYSTEMS ANALYSED: 38

TABLE 2.11
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 2.12

PRIVATE OPERATOR QUESTIONNAIRE SUMMARY - QUEBEC REGION

	QUEBEC R	QUEBEC NR
1-FREQ USAGE		2
FREQ SHARED	3	
FREQ NOT SHARED	33	
1C-SYSTEM FEATURES		
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
1C-PAGER FEATURES:		
GROUP CALL	8	30
MULT. ADDRESS	6	32
ALERT STORAGE	0	38
HANDS OFF OPER'N	1	37
OTHER	2	36
2C-USER FUNCTIONS:		
EXECUTIVE	18	20
ENGINEERING	15	23
FOREMEN	28	10
PLANT MAINTENANCE	25	13
CUSTOMER SVC	5	33
MEDICAL	13	25
OTHER	17	21
2D-SYSTEM SATISFACTION:		
FULL	14	24
ADEQUATE	17	21
POOR	6	32
2E-SYSTEM SHORTCOMINGS		
POOR SERVICEABILITY	6	32
INADEQUATE COVERAGE	6	32
INCONVENIENT ACCESS	0	38
LIMTED OP. PERIODS	0	38
OTHER	11	27
3A-REASON PRIVATE SYSTEM		
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
3B-PUBLIC SYSTEM USE		1
ALSO USE PUB SYSTEMS	7	
DON'T USE PUB SYSTEMS	30	

TOTAL REPLIES:- 38

2.5 - PRIVATE PAGING DATA

ATLANTIC REGION

TABLE 2.13
PRIVATE PAGING STATISTICS - ATLANTIC REGION

PROVINCE	INTEL Q.-NO	COV'GE (RADIUS-M)	PAGERS 1976	PAGERS 1981	DAILY CALLS	TONE PAGERS
NEW BRUNSWICK						
	1	12.0	54	NR	130	NR
	2	3.0	10	NR	30	10
	3	12.0	8	10	5	0
	6	3.0	50	60	200	0
	7	1.0	14	14	36	14
	10	1.0	26	30	12	26
	11	15.0	10	15	100	0
NOVA SCOTIA						
	3	3.0	10	15	90	0
	4	BLDG	6	NR	25	6
	5	3.0	87	87	300	0
	7	5.0	6	20	25	0
	8	15.0	21	30	25	0
NEWFOUNDLAND						
	1	25.0	20	40	50	0
	2	2.0	20	50	18	0
TOTALS REPORTED:			342	371	1046	56
SYSTEMS REPORTING:			14	11	14	13
AVG/SYSTEM REPORTING:			24	34	75	4

SYSTEMS ANALYSED: 14

TABLE 2.14

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 2.15

PRIVATE OPERATOR REPLY SUMMARY - ATLANTIC REGION

	ATLANTIC R	NR
1-FREQ USAGE		0
FREQ SHARED	0	
FREQ NOT SHARED	14	
1C-SYSTEM FEATURES		
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
1C-PAGER FEATURES:		
GROUP CALL	4	10
MULT. ADDRESS	1	13
ALERT STORAGE	0	14
HANDS OFF OPER'N	3	11
OTHER	3	11
2C-USER FUNCTIONS:		
EXECUTIVE	11	3
ENGINEERING	5	9
FOREMEN	8	6
PLANT MAINTENANCE	12	2
CUSTOMER SVC	1	13
MEDICAL	9	5
OTHER	4	10
2D-SYSTEM SATISFACTION:		
FULL	6	8
ADEQUATE	6	8
POOR	1	13
2E-SYSTEM SHORTCOMINGS		
POOR SERVICEABILITY	2	12
INADEQUATE COVERAGE	2	12
INCONVENIENT ACCESS	1	13
LIMTED OP. PERIODS	0	14
OTHER	2	12
3A-REASON PRIVATE SYSTEM		
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
3B-PUBLIC SYSTEM USE		1
ALSO USE PUB SYSTEMS	6	
DON'T USE PUB SYSTEMS	7	

TOTAL REPLIES:- 14

2.6 - PRIVATE PAGING DATA

ALL REGIONS COMBINED

2.6.1 - Private System Pager Population Estimate - National

Based on information used for purposes of this survey there are known to be a MINIMUM of 550 private paging licensees across the country. On the basis of the size of the available data sample from this group, the 95% confidence limits for the total pager population associated with 550 systems lie between a minimum of 15,000 and a maximum of 25,000 units. If the calculation is based on the average number of pager units per system in the sample, the total for 550 systems would be slightly in excess of 20,000.

It should be noted that the foregoing estimate does not include systems authorized to operate private paging as a secondary function of assigned MRS frequencies.

TABLE 2.16

PAGER POPULATION DISTRBUTION - PRIVATE OPERATORS

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

10

TABLE 2.17

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 - FREQ USAGE		0		1		0		2		0		2
Freq shared	0		2		4		3		0		9	
Freq not shared	11		16		37		33		14		111	
1C SYSTEM FEATURES												
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 PAGER FEATURES												
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 USER FUNCTIONS												
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 SYSTEM SATISFACTION												
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 2.17 (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
2E - SYSTEM SHORT COMINGS												
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
3A - REASON PRIVATE SYSTEM												
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
3B - PUBLIC SYSTEM USE		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	
ANALYSED REPLIES		11	19		41		38		14		123	

FIGURE 2.1

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 [ ] miles

B - Do you also use your paging frequency for other radio services (e.g. two-way mobile etc.)? O yes O no

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

Paging Terminal Features/Services	Pager Features
O Tone	O Simultaneous paging of two or more units (emergency teams, group etc.)
O Tone & Voice	O Distinctive tones to identify standard messages in TONE ONLY operation. (e.g. "Call home" "Call office" etc.)
O Dial access to pagers	O Optional storage of tone alerts for subsequent interrogation (to avoid interruptions at meetings, etc.)
O Operator access to pagers	O Optional "hands off" operation when receiving voice messages (e.g. when driving etc.)
O Message depository	
O 24 Hour service	
O Other (please specify)	O 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: [ ]

200

FIGURE 2.1 (CONT'D)
OPERATIONAL DATA (cont'd)

C - Identify typical functions of personnel using facility:

O Executive
O Engineering
O Foremen
O Plant maintenance
O Customer Service
O Medical

Other (please specify) .....

.....

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

O FULLY → go to 3A
O ADEQUATELY
O POORLY

E - Identify shortcomings of your existing paging installation:

O Poor serviceability
O Inadequate coverage
O Inconvenient access
O 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:

O Less costly
O Limited coverage needs
O Special coverage needs not met by local operations
O Paging added to an existing Two-Way radio installation
O No public service in the area

O Other (please specify) .....

.....

B - Do you also subscribe to public paging service in your area? O Yes O 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.)

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SECTION 3.0

UNREGULATED PAGING OPERATOR DATA

TABLE 3.1

ESTIMATED TOTAL PAGERS SERVED BY PUBLIC SYSTEMS - NATIONAL

Unregulated Public Systems	31,000 - 44,000
Regulated Public Systems (All regions except Central)	25,000
Public Paging Systems - Central Rgn. (Regulated & unregulated)	4,500
Estimated National Total	60,5000 - 73,500

30

TABLE 3.2

NATIONAL DISTRIBUTION OF UNREGULATED PAGING COMPANIES & SYSTEMS

REGION	UNREGULATED COMPANIES	UNREGULATED SYSTEMS
Pacific	23	29
Ontario	47	67
Québec	24	34
Atlantic	5	7
Sub Total	99	137
Central	21	34
	120*	171

*NOTE: Because of duplications in various regions, the national total of unregulated companies is reduced to 106.

TABLE 3.3

UNREGULATED OPERATOR STATISTICS

	1976 SUBS	1976 PAGERS	Projected 1981 SUBS	Projected 1981 PAGERS	DAILY CALLS	TONE PGRS	DED'D FREQS	SHARED FREQS
PACIFIC REGION								
TOTALS REPORTED	916	3,595	3,516	14,330	1,174	1,115	15	9
SYSTEMS REPORTING	8	12	7	8	7	10	12	
AVG/SYSTEM REPORTING	114	299	502	1,791	167	111		4
SYSTEMS ANALYSED: 13								
ONTARIO REGION								
TOTALS REPORTED:	8,786	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	1,331	1,205	133		
SYSTEMS ANALYSED: 38								
QUEBEC REGION								
TOTALS REPORTED	3,503	6,215	11,395	25,705	7,930	2,512	14	3
SYSTEMS REPORTING	13	12	14	14	10	8	16	6
AVG/SYSTEM REPORTING	269	517	813	1,836	793	314		
SYSTEMS ANALYSED: 17								
SUMMARY TOTALS (QUE, ONT & PAC)								
TOTALS REPORTED	13,205	23,670	39,192	81,281	31,999	8,014	57	14
SYSTEMS REPORTING	49	59	48	53	36	51	64	26
AVG/SYSTEM REPORTING	269	401	817	1,534	889	157		

CENTRAL REGION

TOTAL PAGERS 4,495*
TOTAL SYSTEMS 36*

ATLANTIC REGION nil report

*NOTE: these figures include two public carrier systems

TABLE 3.4

PAGER POPULATION DISTRIBUTION - UNREGULATED OPERATORS

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

SYSTEMS EXCEEDING 800 PAGERS

8 additional systems (each with a complement in excess of 800 pagers) reported a total of 15,990 units.

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 unregulated 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 3.5
UNREGULATED OPERATOR QUESTIONNAIRE REPLY SUMMARY - PACIFIC REGION

	UNREG OPS R	NR
1A-SYSTEM FEATURES(E)		2
TONE	7	
TONE & VOICE	10	
DIAL ACCESS	3	
OPTR ACCESS	6	
MESSG DEPOSIT	3	
24 HR SVC	9	
OTHER	1	
1A-PAGER FEATURES(E)		4
GROUP CALL	4	
MULT. ADDRESS	1	
ALERT STORAGE	2	
HANDS OFF OPER'N	4	
OTHER	3	
1A-SYSTEM FEATURES(P)		10
TONE	0	
TONE & VOICE	0	
DIAL ACCESS	2	
OPTR ACCESS	1	
MESSG DEPOSIT	1	
24 HR SVC	0	
OTHER	0	
1A-PAGER FEATURES(P)		10
GROUP CALL	1	
MULT. ADDRESS	1	
ALERT STORAGE	0	
HANDS OFF OPER'N	0	
OTHER	0	
1E-TRANSM'N METHOD		6
RANDOM	4	
STORE THEN XMIT	1	
OTHER	1	
2E-USER FUNCTIONS		4
CONSTRUCTION	3	
MANUFACTURING	2	
REAL ESTATE	3	
TRANSPORTATION	3	
UTILITIES	2	
WHOLESALE/RETAIL	0	
ACCOMMODATION	0	
CATERING	0	
MEDICAL	6	
OTHER	3	

	UNREG OPS R	NR
3A/E-RURAL NEEDS		
SVC REQUIRED	2	4
SVC NOT REQUIRED	6	
NEED MET/TO BE MET	1	11
NEED NOT BEING MET	0	
3D/E-INTERCONNECTION		
SUBSCRIBER DEMAND	7	2
LOW SUBS DEMAND	3	
IMPORTANT TO OPER'N	7	3
NOT IMPORTANT TO OPER'N	2	
4A-SHARING FREQS/EQUPT		
METRO AREAS - YES	6	5
METRO AREAS - NO	1	
SMALL TOWNS - YES	5	5
SMALL TOWNS - NO	2	
4B-SPECIAL AGREEMENTS		
YES	1	3
NO	8	
4D-STANDARDISATION		
NEED FOR MORE	6	2
ADEQUATE NOW	4	
4E-REGULATION		
REGULATE ALL PAG'G	3	4
DEREGULATE ALL PAG'G	5	
4F-CHARGING METHODS		2
FLAT RATE	10	
FLAT RATE + CALL	1	
FLAT R./LIMITED CALLS	1	
OTHER	0	
4G-REASON FOR PRIVATES		2
LESS COSTLY	5	
LIMITED COV'GE NEED	1	
SPEC COV'GE NEED	2	
ADDED TO 2-WAY	5	
NO PUB SVC AT TIME	2	
OTHER	2	

REPLIES ANALYSED: 12

TABLE - 3.6

UNREGULATED OPERATOR QUESTIONNAIRE REPLY SUMMARY - ONTARIO REGION

	SMALL OPS R	SMALL OPS NR	LARGE OPS R	LARGE OPS NR	COMBINED R	COMBINED NR
1A-SYSTEM FEATURES (E)		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	
1A-PAGER FEATURES (E)		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	
1A-SYSTEM FEATURES (P)		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	
1A-PAGER FEATURES (P)		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	
1E-TRANSM'N METHOD		2		5		7
RANSOM	13		0		13	
STORE THEN XMIT	2		0		2	
OTHER	1		0		1	
2E-USER FUNCTIONS		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	

TABLE - 3.6 (CONT'D)

UNREGULATED OPERATOR QUESTIONNAIRE REPLY SUMMARY - ONTARIO REGION

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

TABLE - 3.7

UNREGULATED OPERATOR QUESTIONNAIRE REPLY SUMMARY - QUEBEC REGION

	SMALL OPS		LARGE OPS		COMBINED	
	R	NR	R	NR	R	NR
1A-SYSTEM FEATURES(E)		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	
1A-PAGER FEATURES(E)		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	
1A-SYSTEM FEATURES(P)		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	
1A-PAGER FEATURES(P)		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	
1E-TRANSM'N METHOD		3		4		7
RANDOM	3		0		3	
STORE THEN XMIT	0		0		0	
OTHER	1		0		1	
2E-USER FUNCTIONS		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 - 3.7 CONT'D

UNREGULATED OPERATOR QUESTIONNAIRE REPLY SUMMARY - QUEBEC REGION

	SMALL OPS		LARGE OPS		COMBINED	
	R	NR	R	NR	R	NR
3A/B-RURAL NEEDS						
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	
3D/E-INTERCONNECTION						
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	
4A-SHARING FREQS/EQUPT						
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	
4B-SPECIAL AGREEMENTS						
YES	2	0	1	2	3	2
NO	5		1		6	
4D-STANDARDISATION						
NEED FOR MORE	5	2	0	2	5	4
ADEQUATE NOW	0		2		2	
4E-REGULATION						
REGULATE ALL PAG'G	5	2	2	2	7	4
DEREGULATE ALL PAG'G	0		0		0	
4F-CHARGING METHODS		0		2		2
FLAT RATE	7		2		9	
FLAT RATE + CALL	0		0		0	
FLAT R./LIMITED CALLS	0		1		1	
OTHER	0		2		2	
4G-REASON FOR PRIVATES		1		2		3
LESS COSTLY	3		2		5	
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 ANALYSED: 7		REPLIES ANALYSED: 4		REPLIES ANALYSED: 11	

TABLE - 3.8

UNREGULATED OPERATOR QUESTIONNAIRE REPLY SUMMARY - ATLANTIC REGION

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

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

REPLIES ANALYSED: 1

TABLE 3.9

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

	PACIFIC		ONTARIO		QUEBEC		ATLANTIC		COMBINED	
	R	NR	R	NR	R	NR	R	NR	R	NR
1A-SYSTEM FEATURES(E)		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	
1A-PAGER FEATURES(E)		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	
1-A SYSTEM FEATURES(P)		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	
1A-PAGER DEATURES(P)		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 3.9 CONT'D

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

	PACIFIC		ONTARIO		QUEBEC		ATLANTIC		COMBINED	
	R	NR	R	NR	R	NR	R	NR	R	NR
1E-TRANSM'N METHOD		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	
2E-USER OCCUPATIONS		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	
3A/B-RURAL NEEDS										
SVC REQUIRED	2	4	12	3	3	3	0	0	17	10
SVC NOT REQUIRED	6		8		5		1		20	
NEED MET/TO BE MET	1	11	8	13	4	7	0	1	13	32
NEED NOT BEING MET	0		2		0		0		2	
3D/E-INTERCONNECTION										
SUBSCRIBER DEMAND	7	2	16	0	5	2	0	0	28	4
LOW SUBS DEMAND	3		7		4		1		15	
IMPORTANT TO OPER'N	7	3	14	4	4	3	0	0	25	10
NOT IMPORTANT TO OPER'N	2		5		4		1		12	

TABLE 3.9 CONT'D

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

	PACIFIC		ONTARIO		QUEBEC		ATLANTIC		COMBINED	
	R	NR	R	NR	R	NR	R	NR	R	NR
4A/SHARING FREQS/EQUIPT										
METRO AREAS - YES	6	5	10	7	6	4	0	0	22	16
METRO AREAS - NOT	1		6		1		1		9	
SMALL TOWNS - YES	5	5	15	2	5	5	0	0	25	12
SMALL TOWNS - NO	2		6		1		1		10	
4A/SPECIAL AGREEMENTS										
YES	1	3	5	0	3	2	0	0	9	5
NO	8		18		6		1		33	
4D-STANDARDISATION										
NEED FOR MORE	6	2	11	3	5	4	0	0	22	9
ADEQUATE NOW	4		9		2		1		16	
4E-REGULATION										
REGULATE ALL PAG'G	3	4	7	7	7	4	0	0	17	15
DEREGULATE ALL PAG'G	5		9		0		1		15	
4F-CHARGING METHODS		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	
4G-REASON FOR PRIVATES		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	
ANALYSED REPLIES		12		23		11		1		47

FIGURE 3.1

RADIO SURVEY QUESTIONNAIRE

(Unregulated Public Operators)

ORGANISATION: .....

ADDRESSEE: .....

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

OTHER 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. CHANNELS are: a) Used for PAGING ONLY? ☐ b) Shared by PAGING & 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			Pager Features	
E	P		E	P
O	O	Tone	O	O	Simultaneous paging of two or more units (emergency teams, group etc.)
O	O	Tone & Voice	O	O	Distinctive tones to identify standard message in TONE ONLY operation. (e.g. "Call home" "Call office" etc.)
O	O	Dial access to pager	O	O	Optional storage of tone alerts for subsequent interrogation (to avoid interruptions at meetings, etc.)
O	O	Operator Access to pagers	O	O	Optional "hands off" operation when receiving voice messages (e.g. when driving etc.)
O	O	Message depository			
O	O	24 Hour Service			
O	O	Other (please specify)	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.)

230

.....

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 Pages: ☐ TONE PLUS 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:

O CONSTRUCTION	O TRANSPORTATION	O ACCOMMODATION
O MANUFACTURING	O UTILITIES	O CATERING
O REAL ESTATE	O WHOLESALE/RETAI	O MEDICAL

O If OTHER than above, please specify: .....

.....

.....

3-SUBSCRIBER REQUIREMENTS

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

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

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

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

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?

O 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?

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 plus call charge

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

O Other (please specify) .....

.....

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

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:

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

.....

.....

.....

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.)

FIGURE 3.2

UNREG (L) - 1

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			Pager Features		
E	P		E	P	
O	O	Tone	O	O	Group Call
O	O	Tone & Voice	O	O	Multiple Alert Tone
O	O	Dial Access to Pagers	O	O	Deferred Paging (Storable Alerts)
O	O	Operator Access to Pagers	O	O	Auto-reset for "Hands Off" Operation (Voice)
O	O	Message Depository			
O	O	24 Hour Service			
O	O	Other (please specify)	O	O	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:

O CONSTRUCTION	O TRANSPORTATION	O ACCOMMODATION
O MANUFACTURING	O UTILITIES	O CATERING
O REAL ESTATE	O WHOLESALE/RETAIL	O MEDICAL

O If OTHER than above please specify: .....

.....

.....

---

3 - SUBSCRIBER REQUIREMENTS

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

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

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

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

.....

.....

20(

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 centers:	O	YES	In smaller communities:	O	YES
	O	NO		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 ageement/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 plus call charge

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

O Other (please specify) .....

.....

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

920

FIGURE 3.2 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:

- O Less costly
- O Limited coverage needs
- O Special coverage needs not met by public paging services
- O Other (please specify)

.....

.....

- O Paging added to existing two-way radio facility
- O No public service at time of installation

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)

5 - PAGING NETWORK INFORMATION

FIGURE 3.2 CONT'D

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	COMMENTS
					SUBS	PAGERS		SUBS	PAGERS	DAILY	B/HR	OF SYSTEM	
(1)	(2)*	(3)	(4)*	(5)	(6)	(7)	(8)*	(9)	(10)	(11)*	(12)*	(13)*	(14)
	EXAMPLE												
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.

FIGURE 3.2 CONT'D

SECTION 4.0

REGULATED PAGING OPERATOR

QUESTIONNAIRE AND REPLY SUMMARY

TABLE 4.1

REGULATED PAGING OPERATORS

PACIFIC REGION:	BRITISH COLUMBIA TELEPHONE COMPANY
CENTRAL REGION:	ALBERTA GOVERNMENT TELEPHONES. SASKTEL
ONTARIO REGION:	BELL CANADA NORTHERN TELEPHONE LTD.
QUEBEC REGION:	BELL CANADA QUEBEC TELEPHONE
ATLANTIC REGION:	NEW BRUNSWICK TELEPHONE COMPANY MARITIME TELEGRAPH AND TELEPHONE COMPANY LTD. NEWFOUNDLAND TELEPHONE COMPANY.

TABLE 4.2

REGULATED OPERATOR QUESTIONNAIRE REPLY SUMMARY

	R	NR
1A-SYSTEM FEATURES(E)		2
TONE	3	
TONE & VOICE	3	
DIAL ACCESS	4	
OPTR ACCESS	2	
MESSG DEPOSIT	0	
24 HR SVC	5	
OTHER	1	
1A-PAGER FEATURES(E)		5
GROUP CALL	1	
MULT. ADDRESS	1	
ALERT STORAGE	0	
HANDS OFF OPENR'N	1	
OTHER	0	
1A-SYSTEM FEATURES(P)		5
TONE	1	
TONE & VOICE	0	
DIAL ACCESS	1	
OPTR ACCESS	0	
MESSG DEPOSIT	0	
24 HR SVC	0	
OTHER	0	
1A-PAGER FEATURES(P)		6
GROUP CALL	1	
MULT. ADDRESS	0	
ALERT STORAGE	0	
HANDS OFF OPER'N	1	
OTHER	1	
2E-USER FUNCTIONS		2
CONSTRUCTION	3	
MANUFACTURING	1	
REAL ESTATE	0	
TRANSPORTATION	2	
UTILITIES	0	
WHOLESALE/RETAIL	2	
ACCOMMODATION	1	
CATERING	0	
MEDICAL	3	
OTHER	1	
3A/B--RURAL NEEDS		
SVC REQUIRED	2	2
SVC NOT REQUIRED	3	
NEED MET/TO BE MET	0	6
NEED NOT BEING MET	1	

	R	NR
4A/B/C - SWAP		
DO/WILL PROVIDE SWAP	4	1
SWAP IS NOT PLANNED	2	
NETWK AVAIL FOR SWAP	0	4
NETWK NOT AVAILABLE	3	
PGR RENTAL BY OTHERS	2	4
NO PGR RENTAL BY OTHERS	1	
SWAP CONNECT FOR UNREG OPS	1	3
NO UNREG OP SWAP CONNECT	3	
4D-NETWORK INTERCONNECT		
UNREG INTERCONNECT	0	2
NO UNREG ALLOWED	5	
4D-STANDARDISATION		
NEED FOR MORE	4	2
ADEQUATE NOW	1	
4E-REGULATION		
REGULATE ALL PAG'G	3	2
DEREGULATE ALL PAG'G	2	
4F-CHARGING METHODS		2
FLAT RATE	5	
FLAT RATE + CALL	0	
FLAT R./LIMITED CALLS	0	
OTHER	1	
4G-REASON FOR PRIVATES		1
LESS COSTLY	2	
LIMITED COV'GE NEED	0	
SPEC COV'GE NEED	0	
ADDED TO 2-WAY	1	
NO PUB SVC AT TIME	3	
OTHER	2	

REPLIES ANALYSED: 7

QUESTIONNAIRE D'ENQUETE: SERVICE RADIO DE TELEAPPEL REG.1

(Opérateurs publics reglementés)

ORGANISME: .....

ADRESSE: .....

PERSONNE A QUI DIRIGER LES QUESTIONS: ..... TELEPHONE:.....

A QUEL NOM LA LICENCE RADIO EST-ELLE INSCRITE: .....

1. CARACTERISTIQUES DU SYSTEME

A. Indiquer les caractéristiques de service offertes par vos systèmes de télé-appel les plus grands et les important; spécifier ceux qui ne sont pas dans la liste suivante (E - existant, P - prévu)

Terminal de téléappel caractéristiques et services			Particularités du télé-appel		
E	P		E	P	
o	o	Tonalité	o	o	Appel de groupe
o	o	Tonalité et voix	o	o	Tonalités d'alerte multiples
o	o	Accès aux usagers de télé-appel par composition au cadran	o	o	Appel différé
o	o	Accès aux usagers de téléappel par l'opérateur	o	o	Activation automatique du récepteur en opération "mains libres" (voix)
o	o	Dépôt du message			
o	o	Service 24 heures	o	o	Autres (indiquer s.v.p.)
o	o	Autres (indiquer s.v.p.)			
.....			.....		
.....			.....		

B. SVP, veuillez compléter les informations du réseau de télé-appel demandées a l'article 5 de ce questionnaire. Si possible, veuillez fournir une carte ou un dessin indiquant la couverture de la zone desservie (99% des récepteurs / 99% du temps).

C . Les 2 questions qui suivent ont trait seulement à votre planification pour la période 1976-1980, veuillez s.v.p. répondre en conséquence:

1. Considérant les données de la colonne (10) dans la Section 5, indiquer les nos. des articles concernant les secteurs pour lesquels les prévisions quinquennales conduiront à l'utilisation de fréquences additionnelles (i.e., articles 1.2, 3.5 etc)

   .....

2. Indiquer pour quels nouveaux secteurs où des services sont prévus qui nécessiteront de nouvelles fréquences (e.g., Barrie, Orangeville, etc.).

   .....

2. DONNES D'EXPLOITATION.

S.v.p. indiquer les informations suivantes pour vos systèmes de télé-appel les plus grands et les plus importants.

RADIO PAGING SURVEY QUESTIONNAIRE
(Regulated Public Carriers)

REG - 1

ORGANISATION:.....

ADDRESS.....

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

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

1 - 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			Pager Features		
E	P		E	P	
o	o	Tone	o	o	Group Call
o	o	Tone & Voice	o	o	Multiple Alert Tones
o	o	Dial Access to Pager	o	o	Deferred Paging (Storable Alerts)
o	o	Operator Access to Pager	o	o	Auto-Reset for "Hands Off"
o	o	Message Depository	o	o	Operation (Voice)
o	o	24 Hour Service	o	o	Other (Please Specify)
o	o	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.)

.....

2 - 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 [ ]

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:

o CONSTRUCTION	o TRANSPORTATION	o ACCOMMODATION
o MANUFACTURING	o UTILITIES	o CATERING
o REAL ESTATE	o WHOLESALE/RETAIL	o MEDICAL

O If OTHER than above, please specify: .....

.....

.....

RURAL REQUIREMENTS:

A - In your experience, do paging needs exist on farms or in rural areas? o YES → o NO → go to "4A"

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

B - If you do not intend to provide SWAP, would you permit private entrepreneurs to do so through your network? o YES o 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? o YES o NO

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

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

E - Do you feel that a greater degree of operational and/or equipment standardisation would be beneficial to the paging industry? o YES o 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).

5 - PAGING NETWORK INFORMATION

FIGURE 4.1 CONT'D

EM	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)
	EXAMPLE												
.1	AMCOR 2003A	TORONTO	a & b	8	1,233	1,615							
.2		KITCHENER-WATERLOO	a	2	217	300	30	300	325	1000	150	7000	See attached map for approx TX locations & system coverage.
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(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.

--Radio paging study for the Dept. of Communications.