

ASSESSMENT OF EXISTING USE OF

LAND MOBILE ALLOCATIONS

Parke Davis

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INTRODUCTION.

This report will provide an analysis of the extent of usage of the existing land mobile allocations in various cities in Canada. In the report, the land mobile allocations have been subdivided into six or seven bands. The channel bandwidth and the total number of frequencies or channels which are theoretically available in each band is shown.

As may be seen from reviewing the number of clear frequencies still available, in any of the Canadian cities shown in Attachment A, the usage of each of the land mobile bands differs. The lowest band between 30 and 50 MHz is not particularly attractive for land mobile operations due to the interference potential at those frequencies from distant assignments. Each of the other bands appears relatively attractive for use by land mobile operations with the exception of the band from 170-174 in the vicinity of a channel 7 TV assignment where land mobile operations cause interference to television reception.

METHODOLOGY.

An assessment of the overall band utilization was made by comparing the number of clear frequencies to the total number of land mobile frequencies available in the five major Canadian cities shown in Attachment A. The extent of band utilization is shown as a percentage of the number of clear frequency channels compared to the total number of allocated channels for any particular city.

Attachment A-Summary gives the results for these cities. In total, there are approximately 3,068 frequencies or land mobile channels available for use in any one locality.

OBSERVATIONS

Attachment A for each of the cities, gives a point-in-time assessment of the utilization of each of the land mobile bands.

Attachment B for Toronto and Hamilton shows the growth in base station assignments and in mobile licences in the land mobile service in each area over the last five years. The growth rate shown in Attachment B for stations in each of the land mobile bands gives a direct indication of the extent of utilization of that band. For example, in the Toronto district office area, the band from 150-174 MHz has experienced a declining growth rate from 7% during 1973/74 to approximately 0% in 1976/77. This indicates that the band is fully utilized and that all further growth in base stations is directed or diverted into other bands, notably bands 4 and 5 shown in Attachment B. As may be expected, the number of mobiles in the district office areas increase in all bands. This relates basically to the additional loading of mobiles on to existing systems. However, the growth in the number of land mobiles operating in a band will approach zero some years after the growth in base stations has reached the zero level, as each of the channels available in the band reaches its maximum carrying capacity in terms of number of mobiles.

From a review of Attachment A - Summary, it may be seen that the land mobile utilization of the existing allocations is highest in Toronto and lowest in Halifax among the five cities surveyed. In Toronto, only 6% of the total number of channels allocated to land mobile are available as clear frequencies to meet the need of additional users in future. Montreal, Edmonton and Vancouver, all have approximately 25-30% of their allocated land mobile channels available for future assignments. The smallest of the cities, Halifax, still has 85% of its existing land mobile allocation available for future use.

CONCLUSIONS.

The following points may be concluded from the assessment of existing land mobile allocation utilization in these five cities of Canada:

1. Toronto has virtually no clear channels for future use and expansion of land mobile systems in the existing land mobile allocations.
2. Montreal, Edmonton and Vancouver, while they do have existing capacity in the present land mobile allocations, will require additional allocations prior to the year 2000 to accommodate even conventional land mobile growth.

ATTACHMENT A - SUMMARY

CITY	NUMBER OF CLEAR FREQUENCIES AVAILABLE FOR ASSIGNMENTS	PRESENT BAND UTILIZATION - NUMBER OF ASSIGNED FREQUENCY CHANNELS COMPARED TO THE TOTAL NUMBER OF ALLOCATED CHANNELS
VANCOUVER	951	70%
EDMONTON	889	71%
TORONTO	154	94%
MONTREAL	767	75%
HALIFAX	2607	15%

ATTACHMENT A

LAND MOBILE BANDS - VANCOUVER B.C. AREA

<u>BAND MHZ</u>	<u>CHANNELLED</u>	<u>NO. OF FREQS.</u>	<u>CLEAR FREQUENCIES STILL AVAILABLE</u>
30 - 50	20 kHz	999	559
138 -144	30 kHz	200	66
148 -150.8	30 kHz	88	25
150.8-174	30 kHz	581	0
410 -420	25 kHz	400	200 (Approx.)
450 -470	25 kHz	800	101

NOTE: (1) Unable to determine actual number of frequencies still available for assignment in 410 - 420 MHz band as U.S. listing shows a large number of assignments as continental U.S.A. (Actual co-ordination of specific frequencies needed to obtain more accurate results).

ATTACHMENT A (CONT'D)

LAND MOBILE BANDS - EDMONTON ALBERTA AREA

<u>BAND MHZ</u>	<u>CHANNELLED</u>	<u>NO. OF FREQS.</u>	<u>CLEAR FREQUENCIES STILL AVAILABLE</u>
30 - 50	20 kHz	999	145
138 -144	30 kHz	200	33
148 -150.8	30 kHz	88	17
150.8-174	30 kHz	715	87
410 -420	25 kHz	400	316
450 -470	25 kHz	800	302

NOTE: Central Region have indicated that about 600 of the 999 Channels in the 30-50 MHz band are not being used in the Edmonton area due to possible interference to TV reception. This constraint plus current assignments leaves a balance of 145 channels available for assignment.

ATTACHMENT A (CONT'D)

LAND MOBILE BANDS - TORONTO ONT. AREAS

<u>BAND MHZ</u>	<u>CHANNELLED</u>	<u>NO. OF FREQS.</u>	<u>COMMENTS</u>
30 - 50	20 kHz	999	About 100 clear frequencies still available for assignment.
138 -144	30 kHz	200	About 15 or 16 frequencies still available for assignment.
148.0-150.8	30 kHz	88	About 5 or 6 frequencies still available for assignment.
150.8-170	30 kHz	581	No clear frequencies available.
170-174	30 kHz	134	This portion of the spectrum restricted in its use due to reception of Channel 7, Buffalo, N.Y. About 20-25 frequencies can be utilized however for low power systems on a case by case basis.
410 -420	25 kHz	400	Reserved primarily in Toronto for Government use. Unable to determine actual number of frequencies still available for Canadian use as U.S. lists show a large number of frequencies as continental U.S.A. (Actual co-ordination of specific frequencies needed to obtain idea).
450 -470	25 kHz	800	About 20 clear frequencies still available for assignment.

ATTACHMENT A (CONT'D)

LAND MOBILE BANDS - MONTREAL QUE. AREA

<u>BAND MHZ</u>	<u>CHANNELLED</u>	<u>NO. OF FREQS.</u>	<u>CLEAR FREQUENCIES STILL AVAILABLE</u>
30 - 50	20 kHz	999	449
138 -144	30 kHz	200	0.
148 -150.8	30 kHz	88	1
150.8-174	30 kHz	715	17
410 -420	25 kHz	400	204 (approx.)
450 -470	25 kHz	800	101

NOTE: Unable to determine actual number of frequencies still still available for assignment in 410 - 420 MHz band as U.S. listing shows a large number of assignments as continental U.S.A. (Actual co-ordination of specific frequencies needed to obtain more accurate results).

ATTACHMENT A (CONT'D)

LAND MOBILE BANDS - HALIFAX N.S. AREA

<u>BAND MHZ</u>	<u>CHANNELLED</u>	<u>NO. OF FREQS.</u>	<u>CLEAR FREQUENCIES STILL AVAILABLE</u>
30 - 50	20 kHz	999	943
138 -144	30 kHz	200	147
148 -150.8	30 kHz	88	67
150.8-174	30 kHz	715	307
410 -420	25 kHz	400	382
450 -470	25 kHz	800	759

BASE STATIONS IN THE LAND MOBILE SERVICE
IN THE TORONTO DISTRICT OFFICE AREA

442: TORONTO	1972/1973	1973/1974	1974/1975	1975/1976	1976/1977
BAND 1 - (27.2250 - 50.0000 MHz)					
- Actual Number Land Stations Licensed at Years End	1096	1126	1061	1113	1119
- Annual % Growth at Years End		2.74%	-5.77%	4.90%	.54%
BAND 2 - (138.0000 - 150.0000 MHz)					
- Actual Number Land Stations Licensed at Years End	126	176	221	232	246
- Annual % Growth at Years End		39.68%	25.57%	4.98%	6.03%
BAND 3 - (150.0001 - 174.0000 MHz)					
- Actual Number Land Stations Licensed at Years End	1718	1840	1922	1973	1972
- Annual % Growth at Years End		7.10%	4.46%	2.65%	-.05%
BAND 4 - (410.0000 - 421.0000 MHz)					
- Actual Number Land Stations Licensed at Years End	30	30	35	53	68
- Annual % Growth at Years End		0.00%	16.67%	51.43%	28.30%
BAND 5 - (450.0000 - 470.0000 MHz)					
- Actual Number Land Stations Licensed at Years End	236	308	449	560	688
- Annual % Growth at Years End		30.51%	45.78%	24.72%	22.86%

LAND MOBILE STATIONS IN THE TORONTO DISTRICT OFFICE AREA

	1972/1973	1973/1974	1974/1975	1975/1976	1976/1977
D 1 - (27.2250 - 50.0000 MHz)					
- Total Number Stations Licensed at Years End	5773	6213	5369	5414	6067
- Annual % Growth at Years End		7.62%	13.58%	.84%	12.06%
D 2 - (138.0000 - 150.0000 MHz)					
- Total Number Stations Licensed at Years End	616	853	1390	1410	1546
- Annual % Growth at Years End		38.47%	62.95%	1.44%	9.65%
D 3 - (150.0001 - 174.0000 MHz)					
- Total Number Stations Licensed at Years End	14970	18639	19600	18681	20350
- Annual % Growth at Years End		24.51%	5.23%	-4.69%	8.93%
D 4 - (410.0000 - 421.0000 MHz)					
- Total Number Stations Licensed at Years End	0	0	90	353	457
- Annual % Growth at Years End				292.22%	29.46%
D 5 - (450.0000 - 470.0000 MHz)					
- Total Number Stations Licensed at Years End	1637	2437	3964	5233	6301
- Annual % Growth at Years End		48.87%	62.66%	32.01%	20.41%

BASE STATIONS IN THE LAND MOBILE SERVICE
IN THE HAMILTON DISTRICT OFFICE AREA

443: HAMILTON	1972/1973	1973/1974	1974/1975	1975/1976	1976/1977
BAND 1 - (27.2250 - 50.0000 MHz)					
- Actual Number Land Stations Licensed at Years End	116	141	151	198	239
- Annual % Growth at Years End		21.55%	7.09%	31.12%	20.71%
BAND 2 - (138.0000 - 150.0000 MHz)					
- Actual Number Land Stations Licensed at Years End	26	37	41	51	77
- Annual % Growth at Years End		42.31%	10.81%	24.39%	50.98%
BAND 3 - (150.0001 - 174.0000 MHz)					
- Actual Number Land Stations Licensed at Years End	645	710	759	816	898
- Annual % Growth at Years End		10.08%	6.90%	7.51%	10.05%
BAND 4 - (410.0000 - 421.0000 MHz)					
- Actual Number of Land Stations Licensed at Years End	0	0	0	7	11
- Annual % Growth at Years End		0.00%	0.00%		57.14%
BAND 5 - (450.0000 - 470.0000 MHz)					
- Actual Number Land Stations Licensed at Years End	44	68	95	118	171
- Annual % Growth at Years End		54.55%	39.71%	24.21%	44.92%

LAND MOBILE STATIONS IN THE HAMILTON DISTRICT OFFICE AREA

	1972/1973	1973/1974	1974/1975	1975/1976	1976/1977
BAND 1 - (27.2250 - 50.0000 MHz) - Total Number Stations Licensed at Years End - Annual % Growth at Years End	277	401 44.78%	568 41.65%	690 21.48%	822 19.13%
BAND 2 - (138.0000 - 150.0000 MHz) - Total Number Stations Licensed at Years End - Annual % Growth at Years End	46	267 480.43%	320 19.85%	423 32.19%	563 33.10%
BAND 3 - (150.0001 - 174.0000 MHz) - Total Number Stations Licensed at Years End - Annual % Growth at Years End	3833	4911 28.12%	5550 13.01%	5710 2.88%	6105 6.92%
BAND 4 - (410.0000 - 421.0000 MHz) - Total Number Stations Licensed at Years End - Annual % Growth at Years End	0	0	0	44	109 147.73%
BAND 5 - (450.0000 - 470.0000 MHz) - Total Number Stations Licensed at Years End - Annual % Growth at Years End	468	586 25.21%	776 32.42%	1170 50.77%	1394 19.15%



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AUG 22 1978

JUN 25 1979

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