

WMFN.L
Present Operation
Freq: 640 kHz
Class: B
Latitude: 42-48-59 N
Longitude: 085-57-24 W
Power: 1.2 kW
RMS: 308.2 mV/m @1km
Towers: 1
Augs: 0

— 5.0 mV/m
— 0.5 mV/m
- - 0.25 mV/m
— 0.025 mV/m

Exhibit 14.1 Present Domestic Map M-3 Allocation Study

Page 1 of 2

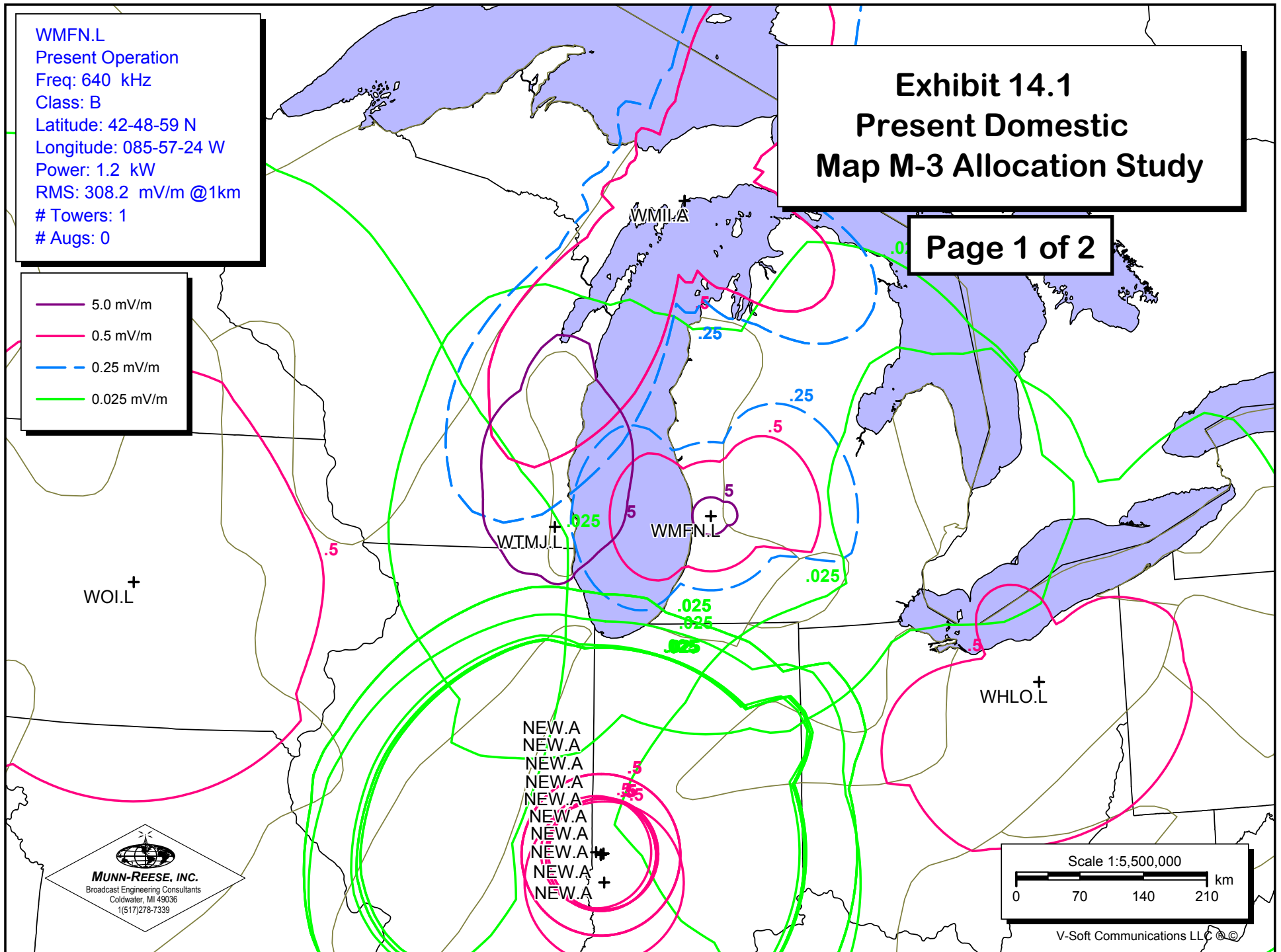


Exhibit 14.1 ☐

Present Domestic Map M-3 Allocation Study ☐

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AM Daytime Study

Reference Station:

Call: WMFN.L

Freq: 640 kHz

ZEELAND, MI, US

Lat: 42-48-59 N

Power: 1.2 kW

Lng: 085-57-24 W

Theo RMS: 308.20 mV/m @ 1km

#	Field Ratio	Phase (deg)	Spacing (deg)	Orient (deg)	Height (deg)	Ref Swch	TL Swch	A (deg)	B (deg)	C (deg)	D (deg)
1	1.000	0.0	0.0	0.0	93.7	0	0	0.0	0.0	0.0	0.0

Call	Freq	City	ST	Dist	Azi	In	Out
WHLO.L	640	AKRON	OH	406.1	119.8	88.88	-1601.25
NEW.A	640	TERRE HAUTE	IN	389.4	197.9	55.34	62.40
NEW.A	640	TERRE HAUTE	IN	389.4	197.9	55.34	62.40
NEW.A	640	TERRE HAUTE	IN	389.4	197.9	55.34	62.40
WTMJ.L	620	MILWAUKEE	WI	173.1	265.3	76.03	76.03
WOI.L	640	AMES	IA	643.0	259.2	51.17	76.20
NEW.A	640	NORTH TERRE	IN	387.3	197.6	101.84	87.74
NEW.A	640	TERRE HAUTE	IN	387.3	197.6	101.84	87.74
NEW.A	640	TERRE HAUTE	IN	388.4	198.7	102.21	88.40
NEW.A	640	TERRE HAUTE	IN	389.4	197.9	103.11	89.41
NEW.A	640	TERRE HAUTE	IN	389.4	197.9	103.11	89.41
NEW.A	640	TERRE HAUTE	IN	389.4	197.9	103.11	89.41
NEW.A	640	SHELURN	IN	417.1	196.2	72.66	90.15
WMII.C	650	MANISTIQUE	MI	347.2	355.6	163.44	176.17
WMII.A	650	MANISTIQUE	MI	347.2	355.6	163.44	176.17

Negative values in the "In" and "Out" columns reflect km² areas of Incoming and Outgoing overlap ☐ respectively. Positive values reflect linear distance of clearance to the offending contour. In response ☐ to FCC attempts to streamline the application process, tabulations of distances to contours and Map ☐ M-3 Conductivities for each station have been omitted. These tabulations will be supplied upon ☐ request.

Overlaps occur entirely over water as seen in supplied Maps

Exhibit 14.2 Proposed Domestic Map M-3 Allocation Study

Page 1 of 2

WMFN.p
Proposed Operation
Freq: 640 kHz
Class: B
Latitude: 42-48-59 N
Longitude: 085-57-24 W
Power: 2.5 kW
RMS: 475.503 mV/m @1km
Towers: 2
Augs: 0

5.0 mV/m
0.5 mV/m
0.25 mV/m
0.025 mV/m

WOI.L

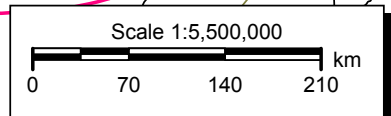
WTMJ.L

WMIA

WMFN.p

WHLO.L

NEW.A
NEW.A
NEW.A
NEW.A
NEW.A
NEW.A
NEW.A
NEW.A
NEW.A



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Exhibit 14.2

Proposed Domestic Map M-3 Allocation Study

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AM Daytime Study

Reference Station:

Call: WMFN.p

Freq: 640 kHz

ZEELAND, MI, US

Lat: 42-48-59 N

Power: 2.5 kW

Lng: 085-57-24 W

Theo RMS: 475.50 mV/m @ 1km

#	Field Ratio	Phase (deg)	Spacing (deg)	Orient (deg)	Height (deg)	Ref Swrch	TL Swrch	A (deg)	B (deg)	C (deg)	D (deg)
1	0.600	-58.0	0.0	0.0	93.7	0	0	0.0	0.0	0.0	0.0
2	1.000	0.0	190.0	135.0	93.7	0	0	0.0	0.0	0.0	0.0

Call	Freq	City	ST	Dist	Azi	In	Out
WHLO.L	640	AKRON	OH	406.1	119.8	84.29	-1721.75
WOI.L	640	AMES	IA	643.0	259.2	12.13	7.13
WTMJ.L	620	MILWAUKEE	WI	173.1	265.3	58.32	58.32
NEW.A	640	TERRE HAUTE	IN	389.4	197.9	-371.25	73.56
NEW.A	640	TERRE HAUTE	IN	389.4	197.9	-371.25	73.56
NEW.A	640	TERRE HAUTE	IN	389.4	197.9	-371.25	73.56
NEW.A	640	TERRE HAUTE	IN	388.4	198.7	103.94	95.44
NEW.A	640	TERRE HAUTE	IN	387.3	197.6	104.93	100.46
NEW.A	640	NORTH TERRE	IN	387.3	197.6	104.93	100.46
NEW.A	640	TERRE HAUTE	IN	389.4	197.9	105.83	100.58
NEW.A	640	TERRE HAUTE	IN	389.4	197.9	105.83	100.58
NEW.A	640	TERRE HAUTE	IN	389.4	197.9	105.83	100.58
NEW.A	640	SHELBURN	IN	417.1	196.2	77.37	109.59
WMII.A	650	MANISTIQUE	MI	347.2	355.6	148.65	156.50
WMII.C	650	MANISTIQUE	MI	347.2	355.6	148.65	156.50

Negative values in the "In" and "Out" columns reflect km² areas of Incoming and Outgoing overlap respectively. Positive values reflect linear distance of clearance to the offending contour. In response to FCC attempts to streamline the application process, tabulations of distances to contours and Map M-3 Conductivities for each station have been omitted. These tabulations will be supplied upon request.

Overlaps occur entirely over water as seen in supplied Maps

Munn-Reese, Inc.

Broadcast Engineering Consultants

Coldwater, MI 49036

WMFN.L
Present Operation
Freq: 640 kHz
Class: B
Latitude: 42-48-59 N
Longitude: 085-57-24 W
Power: 1.2 kW
RMS: 308.2 mV/m @1km
Towers: 1
Augs: 0

Exhibit 14.3 Present Region 2 Canadian Allocation Study

Page 1 of 2

— 0.5 mV/m
— 0.025 mV/m

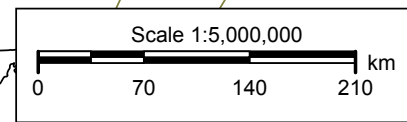
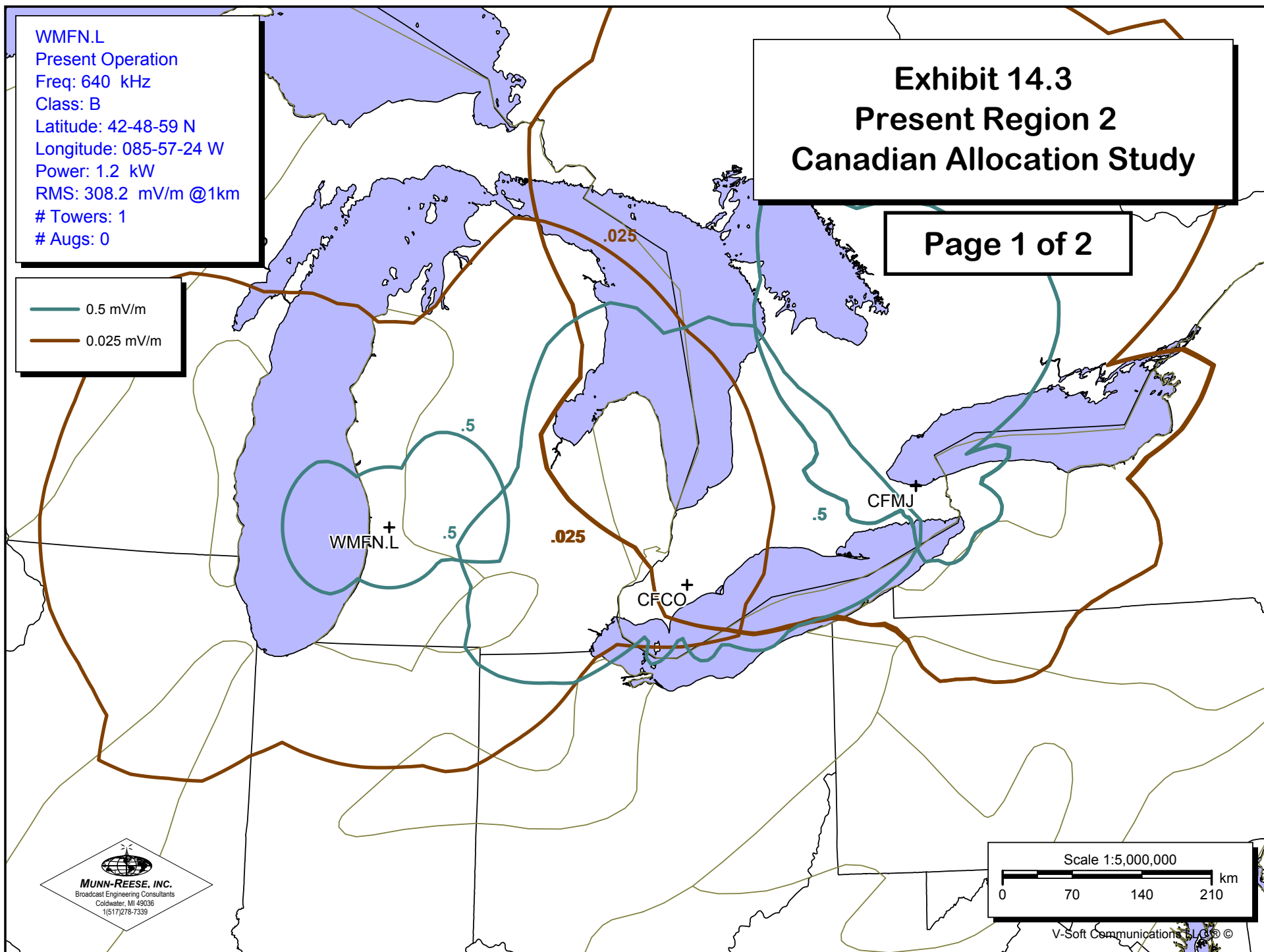


Exhibit 14.3

Present Region 2 Canadian Allocation Study

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AM Daytime Study

Reference Station:

Call: WMFN.L	Freq: 640 kHz	ZEELAND, MI, US
Lat: 42-48-59 N	Power: 1.2 kW	
Lng: 085-57-24 W	Theo RMS: 308.20 mV/m @ 1km	

#	Field Ratio	Phase (deg)	Spacing (deg)	Orient (deg)	Height (deg)	Ref Swch	TL Swch	A (deg)	B (deg)	C (deg)	D (deg)
1	1.000	0.0	0.0	0.0	93.7	0	0	0.0	0.0	0.0	0.0

Call	Freq	City	ST	Dist	Azi	In	Out
CFCO	630	CHATHAM	ON	306.4	101.3	-1708.25	-1708.25
CFMJ	640	RICHMOND HILL	ON	533.3	87.9	73.84	55.45
CFMJ	640	RICHMOND HILL	ON	533.3	87.9	75.22	56.14

Negative values in the "In" and "Out" columns reflect km² areas of Incoming and Outgoing overlap respectively. Positive values reflect linear distance of clearance to the offending contour. In response to FCC attempts to streamline the application process, tabulations of distances to contours and Map M-3 Conductivities for each station have been omitted. These tabulations will be supplied upon request.

Munn-Reese, Inc.

Broadcast Engineering Consultants
Coldwater, MI 49036

Exhibit 14.4 Proposed Region 2 Canadian Allocation Study

WMFN.p
Proposed Operation
Freq: 640 kHz
Class: B
Latitude: 42-48-59 N
Longitude: 085-57-24 W
Power: 2.5 kW
RMS: 475.66 mV/m @1km
Towers: 2
Augs: 0

— 0.5 mV/m
— 0.025 mV/m

WMFN.p

CFCO

CFMJ

MUNN-REESE, INC.
Broadcast Engineering Consultants
Coldwater, MI 49036
1(517)278-7339

Scale 1:5,000,000

0 70 140 210 km

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Exhibit 14.4

Proposed Region 2 Canadian Allocation Study

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AM Daytime Study

Reference Station:

Call: WMFN.p

Freq: 640 kHz

ZEELAND, MI, US

Lat: 42-48-59 N

Power: 2.5 kW

Lng: 085-57-24 W

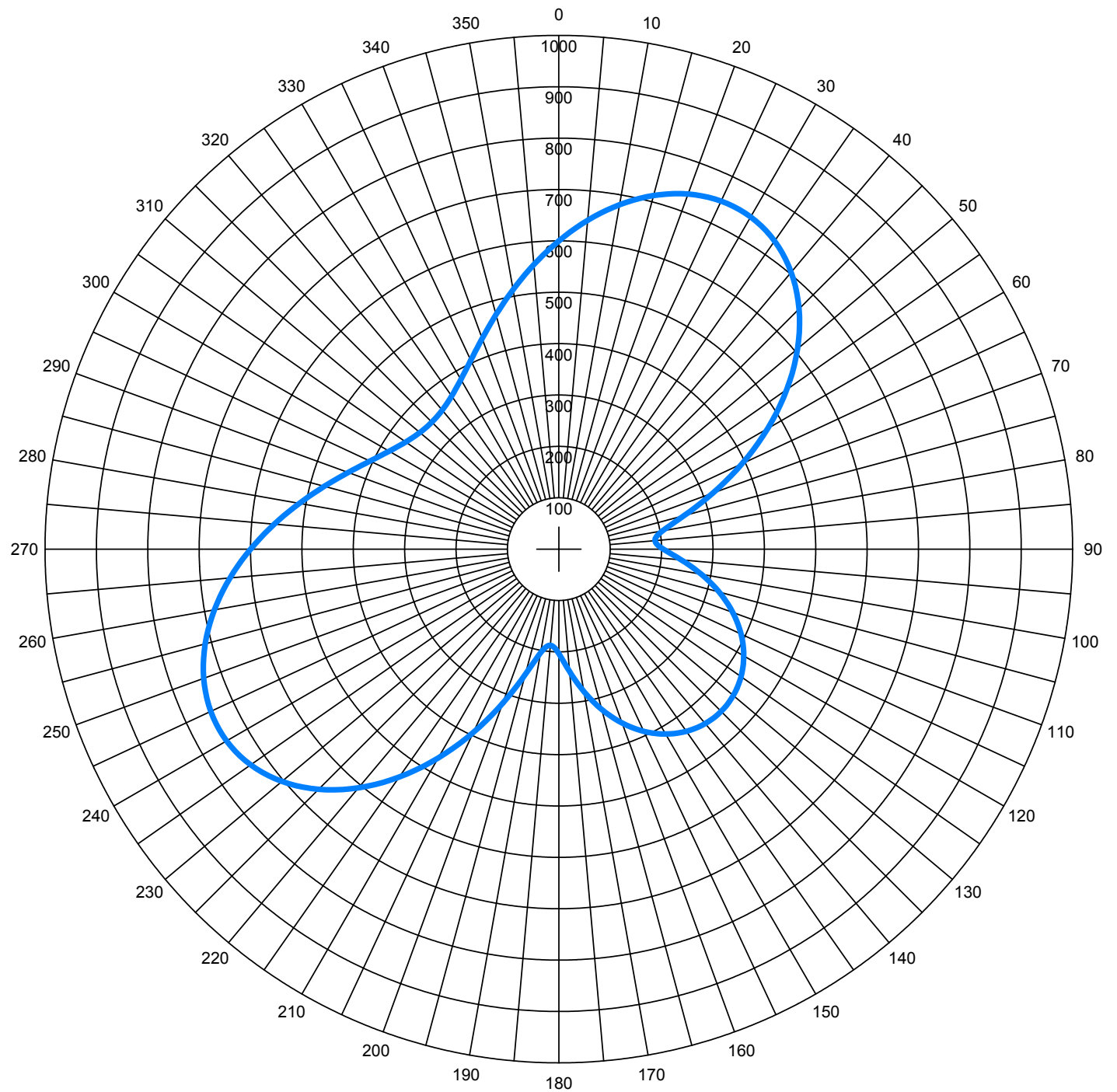
Theo RMS: 475.66 mV/m @ 1km

#	Field Ratio	Phase (deg)	Spacing (deg)	Orient (deg)	Height (deg)	Ref Swch	TL Swch	A (deg)	B (deg)	C (deg)	D (deg)
1	0.600	-58.0	0.0	0.0	93.9	0	0	0.0	0.0	0.0	0.0
2	1.000	0.0	190.0	135.0	93.9	0	0	0.0	0.0	0.0	0.0

Call	Freq	City	ST	Dist	Azi	In	Out
CFCO	630	CHATHAM	ON	306.4	101.3	-843.00	-843.00
CFMJ	640	RICHMOND HILL	ON	533.3	87.9	102.38	120.16
CFMJ	640	RICHMOND HILL	ON	533.3	87.9	103.77	120.85

Negative values in the "In" and "Out" columns reflect km² areas of Incoming and Outgoing overlap respectively. Positive values reflect linear distance of clearance to the offending contour. In response to FCC attempts to streamline the application process, tabulations of distances to contours and Map M-3 Conductivities for each station have been omitted. These tabulations will be supplied upon request.

Exhibit 14.5 - Polar Plot of Proposed Daytime Directional Standard Pattern



Theo RMS: 475.66 mV/m@1km
Std RMS: 499.72 mV/m@1km
Q: 15.81 mV/m@1km

Horizontal Plane Standard Pattern

———— Pattern (mV/m @ 1km)
———— Pattern X10

#	Field Ratio	Phase (deg)	Spacing (deg)	Orient (deg)	Height (deg)	Ref Switch	TL Switch	A (deg)	B (deg)	C (deg)	D (deg)
1	0.600	-58.0	0.0	0.0	93.9	0	0	0.0	0.0	0.0	0.0
2	1.000	0.0	190.0	135.0	93.9	0	0	0.0	0.0	0.0	0.0

Call: WMFN.p
Freq: 640 kHz
ZEELAND, MI, US
Lat: 42-48-59 N
Lng: 085-57-24 W
Power: 2.5 kW
Theo RMS: 475.66 mV/m @ 1km

Munn-Reese, Inc.
Broadcast Engineering Consultants
Coldwater, MI 49036

Exhibit 14.6

Tabulation of Proposed Daytime Directional Standard Pattern

Call: WMFN.p
 Freq: 640 kHz
 ZEELAND, MI, US
 Lat: 42-48-59 N
 Lng: 085-57-24 W
 Power: 2.5 kW
 Theo RMS: 475.66 mV/m @ 1km

#	Field Ratio	Phase (deg)	Spacing (deg)	Orient (deg)	Height (deg)	Ref Switch	TL Switch	A (deg)	B (deg)	C (deg)	D (deg)
1	0.600	-58.0	0.0	0.0	93.9	0	0	0.0	0.0	0.0	0.0
2	1.000	0.0	190.0	135.0	93.9	0	0	0.0	0.0	0.0	0.0

Standard Horizontal Plane Pattern

Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)
0.0	600.16	120.0	415.75	240.0	746.92
5.0	642.54	125.0	433.08	245.0	747.70
10.0	680.92	130.0	443.43	250.0	735.77
15.0	712.80	135.0	446.88	255.0	712.80
20.0	735.77	140.0	443.43	260.0	680.92
25.0	747.70	145.0	433.08	265.0	642.54
30.0	746.92	150.0	415.75	270.0	600.16
35.0	732.37	155.0	391.47	275.0	556.24
40.0	703.71	160.0	360.43	280.0	513.05
45.0	661.40	165.0	323.29	285.0	472.56
50.0	606.75	170.0	281.67	290.0	436.38
55.0	541.86	175.0	239.19	295.0	405.71
60.0	469.62	180.0	203.48	300.0	381.36
65.0	393.79	185.0	187.94	305.0	363.80
70.0	319.25	190.0	205.13	310.0	353.22
75.0	252.92	195.0	252.92	315.0	349.70
80.0	205.13	200.0	319.25	320.0	353.22
85.0	187.94	205.0	393.79	325.0	363.80
90.0	203.48	210.0	469.62	330.0	381.36
95.0	239.19	215.0	541.86	335.0	405.71
100.0	281.67	220.0	606.75	340.0	436.38
105.0	323.29	225.0	661.40	345.0	472.56
110.0	360.43	230.0	703.71	350.0	513.05
115.0	391.47	235.0	732.37	355.0	556.24