

TECHNICAL EXHIBIT
DTV DISPLACEMENT APPLICATION FOR
LPTV STATION W58CU (FACILITY ID 64442)
MUSKEGON, MICHIGAN
CH 52(-) 21.7 KW-DA

Technical Narrative

This technical exhibit supports a digital television (DTV) displacement application for low power television (LPTV) station W58CU at Big Rapids, Michigan. Station W58CU is currently licensed to operate on channel 58 with a Scala 4DR-16S directional antenna (DA) system (BLTT-19960228JB, Facility ID 64442). The major lobe of the antenna pattern is oriented toward 70 degrees True (east-northeast). The maximum visual effective radiated power (ERP) is 22.2 kilowatts (kW). The antenna center of radiation is 435 meters above mean sea level (AMSL). The transmitter site coordinates are 43-41-01, 85-34-56.

Proposed Facilities

Station W58CU is being displaced from its current operation by the co-channel WCMV DTV allotment and proposed operation on channel 58 at Cadillac, Michigan. Station WCMV-DT is located only 55 kilometers north-northeast of the present W58CU site. This is less than the 265 kilometers specified in Section 73.3572 of the FCC rules and therefore qualifies W58CU for DTV displacement relief.

It is proposed to change W58CU's frequency to channel 52 with a minus (-) carrier offset, and relocate to an existing tower near Twin Lake, Michigan. The FCC tower registration number for the structure is 1231051. The site coordinates for the structure are 43-18-50, 86-09-17 (NAD-27). It is proposed to install an Andrew ALP24L3-HSW directional antenna system on the structure. The major lobe of the pattern will be oriented toward 255

degrees True (see Figure 2). The antenna system will be installed with the center of radiation at 128 meters above ground level (AGL) and 328 meters AMSL (see Figure 1). The power gain for the proposed antenna system is 39.3. It is proposed to couple the antenna system to a 1 kW transmitter through approximately 137.2 meters (450 feet) of Andrew HJ7-50A Heliax 1-5/8 inch air dielectric coaxial transmission line. The efficiency of the transmission line on channel 52 is 55.2%. The proposed maximum visual ERP will be 21.7 kW.

NTSC Allocation Considerations

A study has been conducted using the provisions of Sections 74.705, 74.707 and 74.709 to assure that the proposal will not create prohibited interference with other authorized or pending analog (NTSC) full-power TV, LPTV and Class A TV stations. The proposed W58CU operation complies with the FCC's allocation standards with respect to analog assignments except for station WGVK(TV) on channel 52 at Kalamazoo, Michigan.

With respect to station WGVK, interference calculations have been made using the procedures outlined in the FCC's OET-69 Bulletin and a 1 kilometer grid. Figure 3 shows the calculated interference caused to WGVK analog service from pertinent authorized analog and DTV assignments. The proposed W58CU operation causes new or unique interference to 154 people within the WGVK analog service area. This interference (154 people) represents 0.045% of the WGVK analog service population (341,993 people), and is less than the FCC's 0.5% "de minimis" interference standard. Waiver of the FCC rules is respectfully requested based on use of the OET-69 procedures.

The proposed W58CU channel 52 site is 274 kilometers from the nearest point of the US/Canada border. The proposed 19 dBu F(50,10) and 31.8 dBu F(10,10) interfering contours do not cross the border. Therefore coordination with Canada should not be an issue.

DTV Allocation Considerations

Pertinent DTV allotments and assignments on channels 51, 52 and 53 have been examined using the procedures outlined in the FCC's OET-69 Bulletin.¹ Figure 4 shows the calculated interference caused by the proposed W58CU channel 52 operation to pertinent DTV allotments and assignments. The proposed W58CU channel 52 operation complies with the FCC's "de minimis" (0.5%) interference policy.

An examination of the Canada DTV allotment table indicates no allocation problems for the proposed W58CU channel 52 operation.

The applicant recognizes the proposal is secondary to authorized full-service analog and DTV operations. The applicant understands that it must correct and/or eliminate prohibited interference that may result from its proposed operation. If necessary, a waiver of the FCC rules is respectfully requested based on use of the procedures outlined in the FCC's OET-69 Bulletin.

Radiofrequency Electromagnetic Field Exposure

The proposed W58CU channel 52 facilities were evaluated in terms of potential radio frequency (RF) energy exposure at ground level to workers and the general public. A maximum visual ERP of 21.7 kW with 10% aural power was assumed. A conservative relative field value of 0.3 was assumed for the Andrew directional antenna's downward radiation (see Figure 2). The calculated power density at a point 2 meters (6.6 feet)

¹ The duTreil, Lundin & Rackley, Inc. DTV interference analysis program is based on the program and procedures outlined by the FCC in the Sixth Report and Order; subsequent Memorandum Opinion and Order; and FCC OET Bulletin No. 69. A nominal grid size resolution of 1 km was employed. An Alpha based processor computer system was employed. The results have been found to be in very close agreement with the results of the FCC implementation of OET Bulletin No. 69.

above ground level is 0.0028 mW/cm^2 . This is less than 1% of the FCC's recommended limit of 0.47 mW/cm^2 for channel 52 for an "uncontrolled" environment. It is less than 0.2% of the FCC's recommended limit for a "controlled" environment.

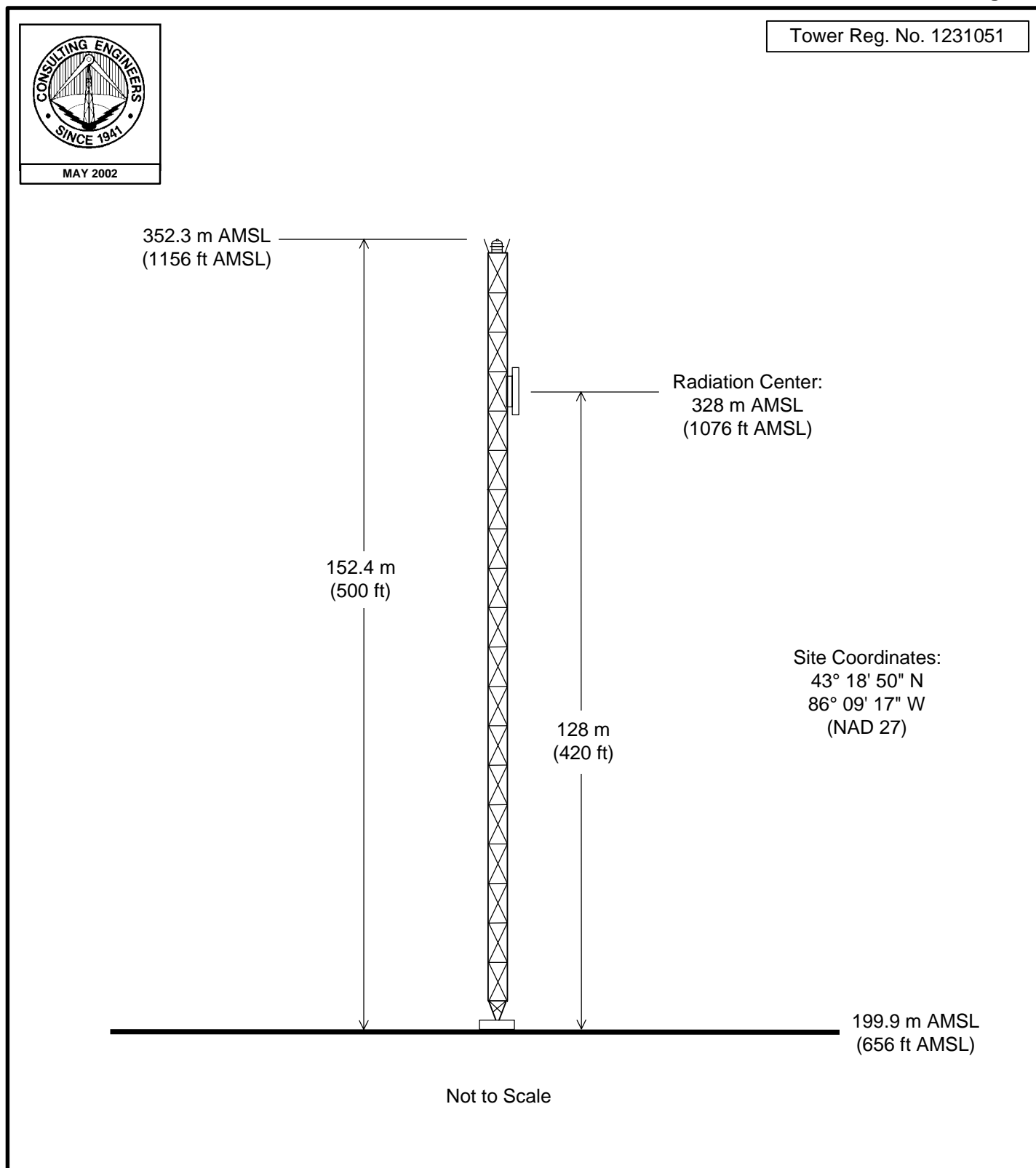
Access to the transmitting site will be restricted and appropriately marked with warning signs. In the event that workers or other authorized personnel enter restricted areas or climb the tower, appropriate measures will be taken to assure worker safety with respect to radio frequency radiation exposure. Such measures include reducing the average exposure by spreading out the work over a longer period of time, wearing "accepted" RFR protective clothing and/or RFR exposure monitors or scheduling work when the stations are at reduced power or shut down. The proposed W58CU channel 52 operation appears to be otherwise categorically excluded from environmental processing as it complies with all the criteria for such an exclusion in Section 1.1306.

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May 7, 2002

Figure 1



PROPOSED ANTENNA AND SUPPORTING STRUCTURE

TELEVISION STATION W58CU

MUSKEGON, MI

CH 52(-) 21.7 KW-DA

du Treil, Lundin & Rackley, Inc., Sarasota, Florida



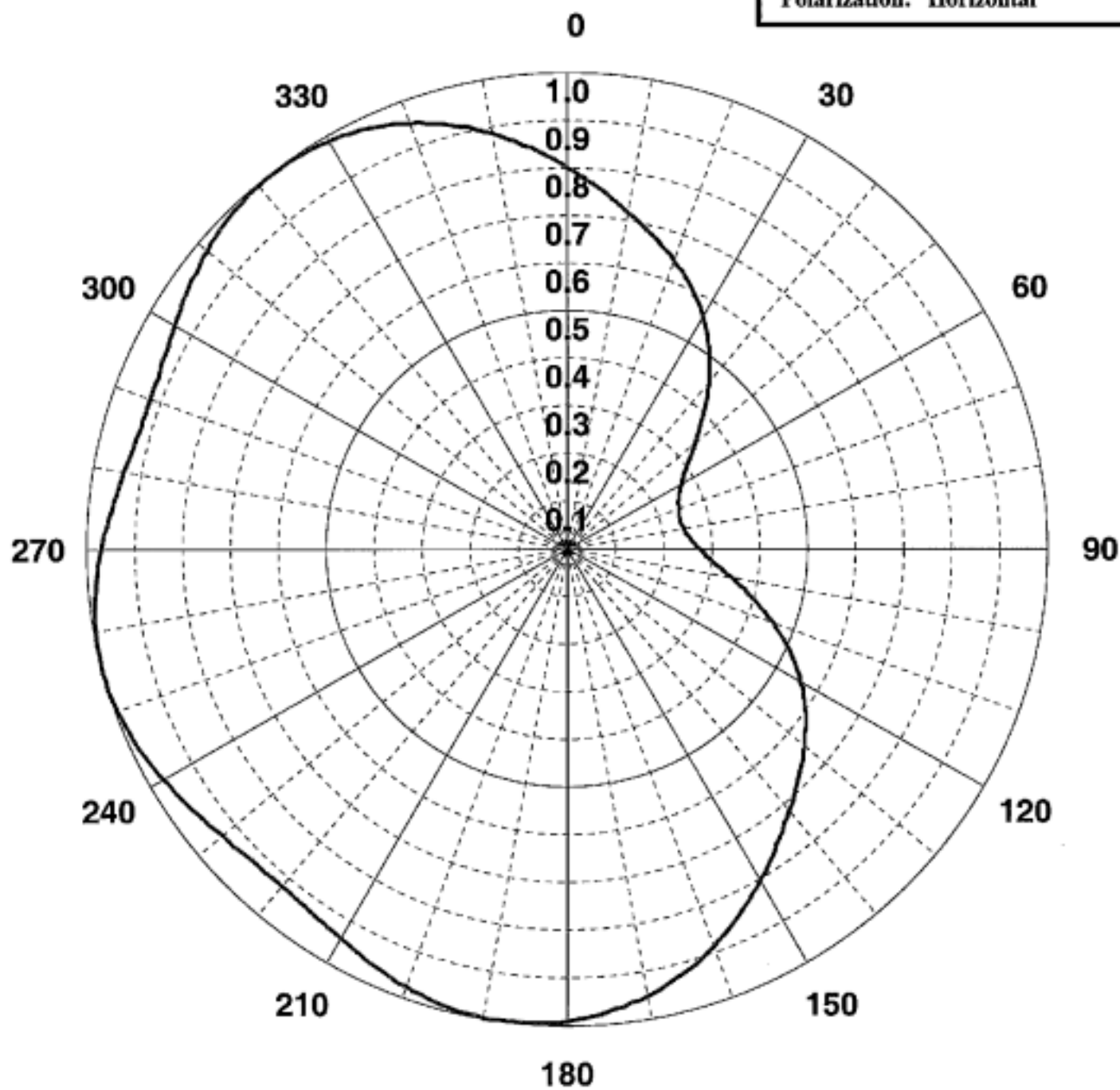
ANDREW

Channel: 52

Type: ALP-W

Gain: 1.56 (1.93 dB)

Polarization: Horizontal



ANDREW CORPORATION
10500 W. 153rd Street
Orland Park, Illinois U.S.A. 60462

Company:
Site:
Proposal Number:

Date: 5/3/02
Author:

Figure 2
Sheet 2 of 3

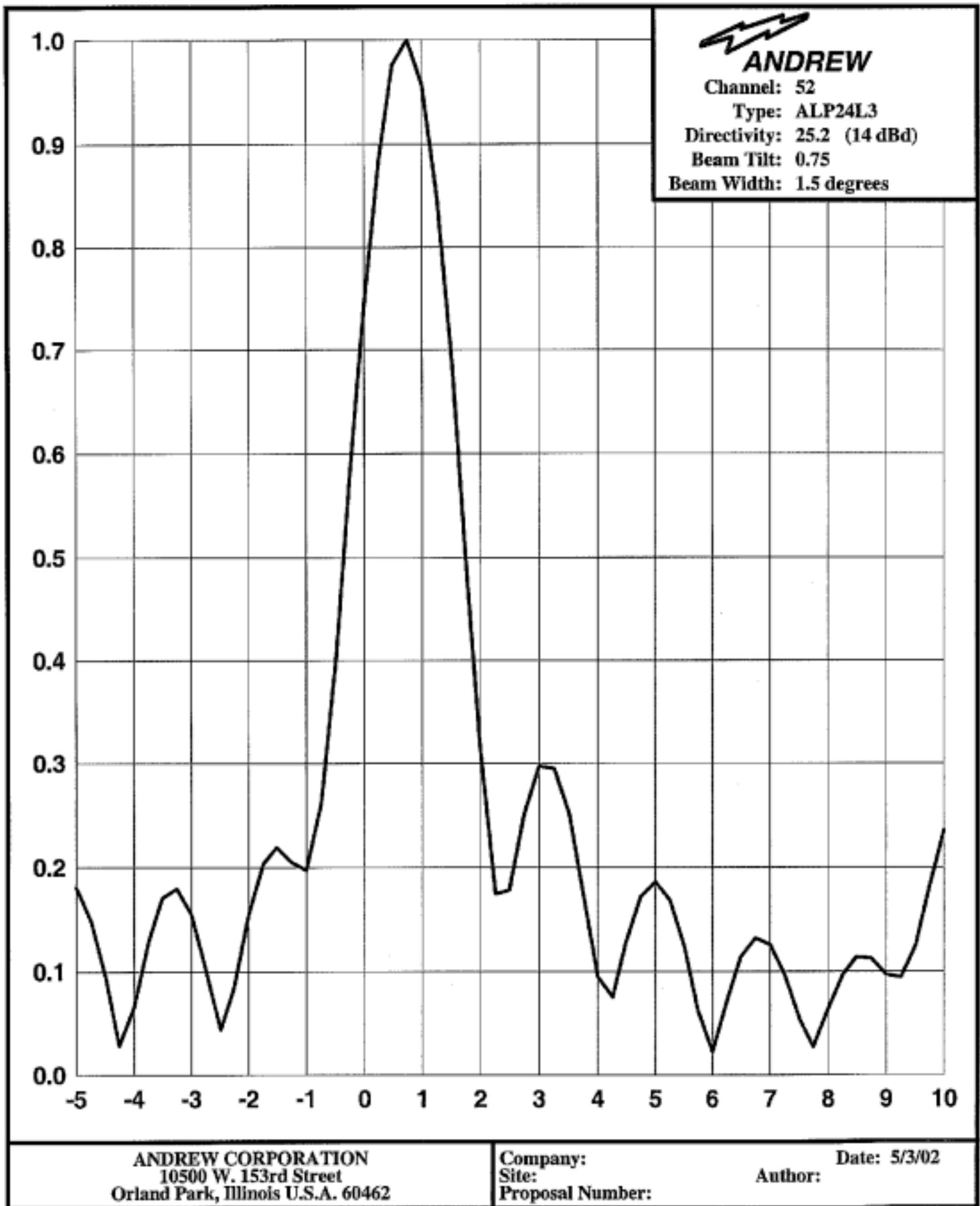
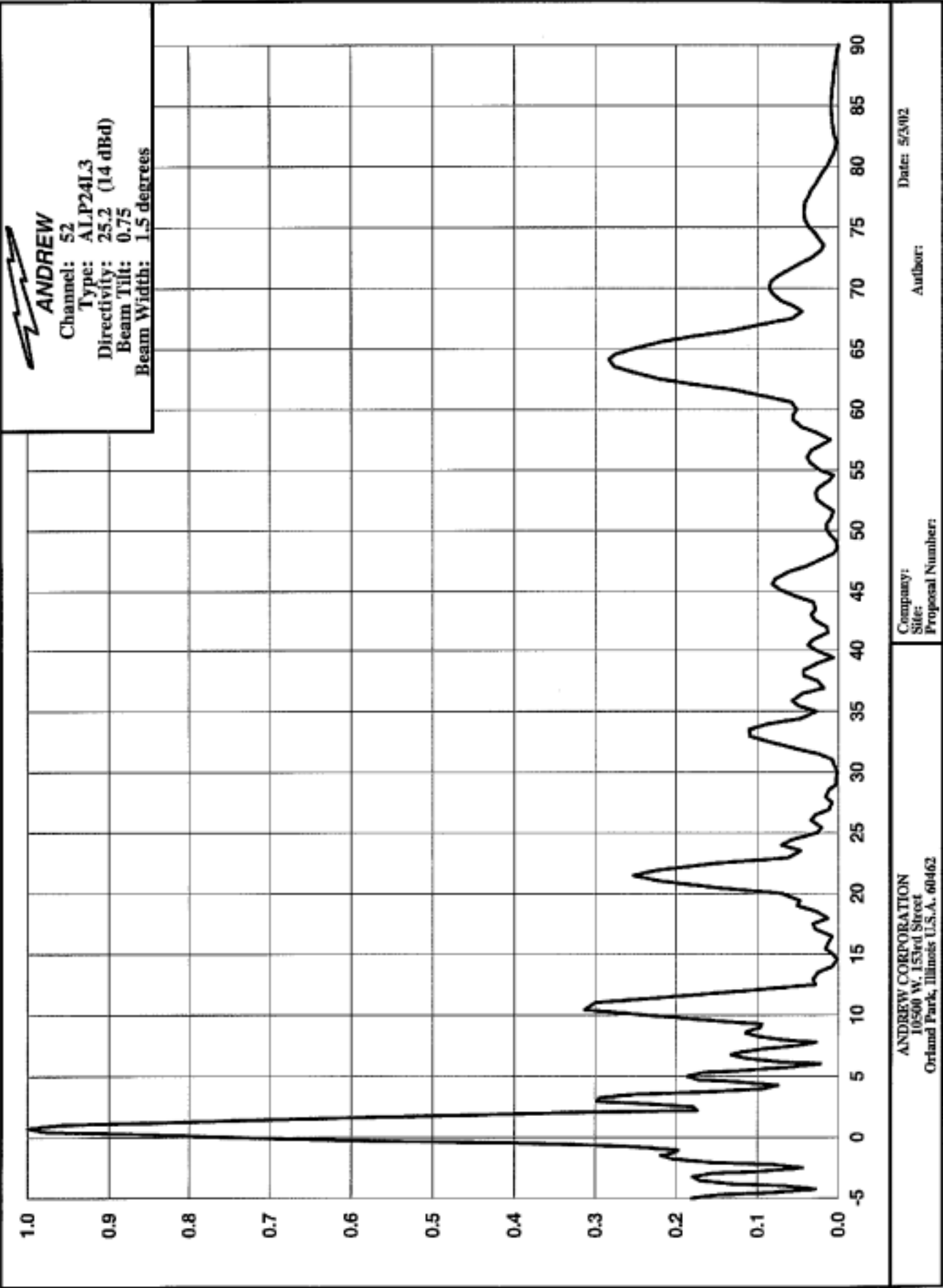


Figure 2
Sheet 3 of 3



Study Date: 20020503
Study Start: 10:03:11

**INTERFERENCE RECEIVED BY WGVK FROM SURROUNDING AUTHORIZED NTSC & DTV ASSIGNMENTS
AND PROPOSED W58CU CHANNEL 52 LPTV OPERATION**

CELL SIZE : 1.00 km

Using offset in determining thresholds

Per 6th Report & Order and FCC OET-69 Bulletin

WGVK(TV) 42-18-24 085-39-25 52(+) 44.7 kW 386 m AMSL 50.0 % 65.1 dBu
KALAMAZOO MI 4028 341 FCC NTSC BL: 341993 FCC IX POP%: 2.4
LIC BLET-19841012KH

Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	4045.3 sq km	343099
not affected by terrain losses	4034.4	341990

DWLLA 42-33-52 085-27-31 45(0) 50.0 kW-DA 578 m AMSL 10.0 % 41.6 dBu
KALAMAZOO MI 16437 1351 DTVSERVICE: 1351000 NTSCSERVICE: 1439000
DTVALT DTV ALLOTMENT

0.73	0.87	0.95	0.98	0.95	0.89	0.77	0.65	0.54	0.49	0.51	0.56
0.60	0.59	0.57	0.55	0.57	0.63	0.75	0.87	0.96	0.95	0.97	0.90
0.78	0.65	0.54	0.49	0.52	0.57	0.58	0.59	0.57	0.55	0.57	0.63

Ref Az: 0.0

Using DEFAULT vertical antenna pattern

D/U Baseline: -35.00 dB

	Area	Pop
Interference	1.0 sq km	35 (0.01%)

W58CU-P 43-18-50 086-09-17 52(-) 21.7 kW-DA 328 m AMSL 10.0 % 75.1 dBu
MUSKEGON MI
PROPOSED LPTV

1.00	0.99	0.95	0.93	0.93	0.96	0.99	1.00	0.98	0.92	0.85	0.76
0.68	0.61	0.51	0.40	0.30	0.25	0.24	0.25	0.30	0.40	0.51	0.61
0.68	0.76	0.85	0.92	0.98	1.00	0.99	0.96	0.93	0.93	0.95	0.99

Ref Az: 255.0

Using DEFAULT vertical antenna pattern

D/U Baseline: 28.00 dB

	Area	Pop
Interference	50.6 sq km	746 (0.22%)

WLS-DT 41-52-44 087-38-10 52(N) 153.6 kW 696 m AMSL 10.0 % 42.1 dBu
CHICAGO IL 29047 8459 DTVSERVICE: 8459000 NTSCSERVICE: 8361000
LIC BLCDDT-20010109AAV
Using DEFAULT vertical antenna pattern

D/U Baseline: 34.00

	Area	Pop
Interference	238.2 sq km	6501 (1.9%)

WFUM-DT 42-53-56 083-27-41 52(N) 200.0 kW-DA 550 m AMSL 10.0 % 42.1 dBu
FLINT MI 14635 2661 DTVSERVICE: 2661000 NTSCSERVICE: 2578000
CP BPEDT-20000420ABD
0.95 0.74 0.61 0.82 0.98 0.97 0.85 0.67 0.72 0.80 0.52 0.29
0.44 0.56 0.56 0.46 0.31 0.55 0.80 0.70 0.66 0.83 0.97 0.97
0.83 0.62 0.77 0.95 0.75 0.63 0.81 0.95 0.94 0.82 0.64 0.29
Ref Az: 0.0
Using DEFAULT vertical antenna pattern

D/U Baseline: 34.00 dB

	Area	Pop
Interference	12.9 sq km	91 (0.03%)

WGGN-TV 41-23-48 082-47-31 52(Z) 1450.0 kW 431 m AMSL 10.0 % 65.1 dBu
SANDUSKY OH 13432 657 FCC NTSC BL: 657392 FCC IX POP%: 0.0
LIC BLCT-19940310KE
Using DEFAULT vertical antenna pattern

D/U Baseline: 28.00 dB

	Area	Pop
Interference	5.0 sq km	474 (0.14%)

WWSR-TV 43-26-11 088-31-34 52(Z) 5000.0 kW-DA 495 m AMSL 10.0 % 65.1 dBu
MAYVILLE WI 2155 85 FCC NTSC BL: 87045 FCC IX POP%: 0.8
CP MOD BMPCT-20001012AAY
0.99 0.99 0.92 0.79 0.65 0.54 0.48 0.48 0.54 0.65 0.79 0.92
0.99 0.99 0.92 0.79 0.65 0.54 0.48 0.48 0.54 0.65 0.79 0.92
0.99 0.99 0.92 0.79 0.65 0.54 0.48 0.48 0.54 0.65 0.79 0.92
(5.0 1.00)(125.0 1.00)(245.0 1.00)
Ref Az: 0.0
Using DEFAULT vertical antenna pattern

D/U Baseline: 28.00 dB

	Area	Pop
Interference	22.8 sq km	585 (0.17%)

WLAJ(TV) 42-25-13 084-31-25 53(-) 1170.0 kW 588 m AMSL 10.0 % 65.2 dBu
 LANSING MI 11637 775 FCC NTSC BL: 776743 FCC IX POP%: 0.0
 CP BPCT-19991116AIS
 Using DEFAULT vertical antenna pattern

D/U Baseline: -13.00 dB

	Area	Pop
Interference	32.8 sq km	875 (0.26%)

lost to NTSC IX	100.2 sq km	2656
lost to additional IX by DTV	189.6	5497
total lost to DTV IX	244.1	6577

Call Sign	No.cells	Unique Area	Unique Pop
DWLLA	1	1.0 sq km	35
W58CU-P	15	14.9	154 (0.045%)
WLS-DT	188	186.6	5462
WFUM-DT	1	1.0	0
WGGN-TV	2	2.0	423
WWSR(TV)	2	2.0	183
WLAJ(TV)	26	25.8	806

lost to all IX	289.8	8153
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Total SERVICE	3744.6	333837
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Study end time: 10:04:30

Per 6th Report & Order and FCC OET-69 Bulletin

Interference	0 sq km	0 (0.0%)
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FIGURE 4
Sheet 2 of 8

DWLAJ 42-25-11 084-31-26 51(0) 50.0 kW-DA 588 m AMSL 90.0 % 42.0 dBu
LANSING MI 11745 777 DTVSERVICE: 777000 NTSCSERVICE: 775000

DTVALT DTV ALLOTMENT

1.00	0.90	0.77	0.63	0.47	0.31	0.18	0.15	0.18	0.18	0.17	0.20
0.28	0.38	0.52	0.70	0.89	0.99	0.99	0.91	0.79	0.61	0.41	0.29
0.20	0.16	0.15	0.15	0.16	0.20	0.27	0.37	0.50	0.66	0.84	0.99

Ref Az: 0.0

Using DEFAULT vertical antenna pattern

USING NTSC GRADE B FOR SERVICE AREA

	Area	Pop
within Noise Limited Contour	11772.7 sq km	776808
not affected by terrain losses	11770.7	776793

W58CU-P 43-18-50 086-09-17 52(-) 21.7 kW-DA 328 m AMSL 10.0 % 75.1
MUSKEGON MI

PROPOSED LPTV

1.00	0.99	0.95	0.93	0.93	0.96	0.99	1.00	0.98	0.92	0.85	0.76
0.68	0.61	0.51	0.40	0.30	0.25	0.24	0.25	0.30	0.40	0.51	0.61
0.68	0.76	0.85	0.92	0.98	1.00	0.99	0.96	0.93	0.93	0.95	0.99

Ref Az: 255.0

Using DEFAULT vertical antenna pattern

D/U Baseline: -49.00 dB

	Area	Pop
Interference	0 sq km	0 (0.0%)

WLUK-DT 44-20-01 087-58-55 51(N) 1000.0 kW-DA 614.8 m AMSL 90.0 % 42.0 dBu
GREEN BAY WI 33121 1007 DTVSERVICE: 1007000 NTSCSERVICE: 956000

APP BMPCDT-20020424AAU

0.71	0.76	0.86	0.75	0.55	0.63	0.80	0.74	0.59	0.55	0.59	0.74
0.80	0.63	0.55	0.75	0.86	0.76	0.71	0.91	0.99	0.82	0.70	0.80
0.78	0.70	0.86	1.00	0.86	0.70	0.78	0.80	0.70	0.82	0.99	0.91

(198.0 1.00)(234.0 0.81)(306.0 0.81)(342.0 1.00)

Ref Az: 0.0

Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	28759.3 sq km	992536
not affected by terrain losses	28704.4	991300

W58CU-P 43-18-50 086-09-17 52(-) 21.7 kW-DA 328 m AMSL 10.0 % 75.1
MUSKEGON MI

PROPOSED LPTV

1.00	0.99	0.95	0.93	0.93	0.96	0.99	1.00	0.98	0.92	0.85	0.76
0.68	0.61	0.51	0.40	0.30	0.25	0.24	0.25	0.30	0.40	0.51	0.61
0.68	0.76	0.85	0.92	0.98	1.00	0.99	0.96	0.93	0.93	0.95	0.99

Ref Az: 255.0

Using DEFAULT vertical antenna pattern

D/U Baseline: -49.00 dB

	Area	Pop
Interference	0 sq km	0 (0.0%)

WLUK-DT 44-24-31 087-59-29 51(N) 1000.0 kW 575 m AMSL 90.0 % 42.0 dBu
GREEN BAY WI 33121 1007 DTVSERVICE: 1007000 NTSCSERVICE: 956000
CP BPCDT-19991028ADW

Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	30979.5 sq km	989511
not affected by terrain losses	30922.7	988534

W58CU-P 43-18-50 086-09-17 52(-) 21.7 kW-DA 328 m AMSL 10.0 % 75.1
MUSKEGON MI
PROPOSED LPTV

1.00	0.99	0.95	0.93	0.93	0.96	0.99	1.00	0.98	0.92	0.85	0.76
0.68	0.61	0.51	0.40	0.30	0.25	0.24	0.25	0.30	0.40	0.51	0.61
0.68	0.76	0.85	0.92	0.98	1.00	0.99	0.96	0.93	0.93	0.95	0.99

Ref Az: 255.0

Using DEFAULT vertical antenna pattern

D/U Baseline: -49.00 dB

	Area	Pop
Interference	0 sq km	0 (0.0%)

DWLUK 44-24-31 087-59-29 51(0) 1000.0 kW-DA 614 m AMSL 90.0 % 42.0 dBu
GREEN BAY WI 33121 1007 DTVSERVICE: 1007000 NTSCSERVICE: 956000
DTVALT DTV ALLOTMENT

1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99	0.99	0.99	0.99
0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.99	0.99	0.99	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Ref Az: 0.0

Using DEFAULT vertical antenna pattern

USING NTSC GRADE B FOR SERVICE AREA

	Area	Pop
within Noise Limited Contour	33244.5 sq km	1009558
not affected by terrain losses	33177.9	1008392

W58CU-P 43-18-50 086-09-17 52(-) 21.7 kW-DA 328 m AMSL 10.0 % 75.1
MUSKEGON MI
PROPOSED LPTV

1.00	0.99	0.95	0.93	0.93	0.96	0.99	1.00	0.98	0.92	0.85	0.76
0.68	0.61	0.51	0.40	0.30	0.25	0.24	0.25	0.30	0.40	0.51	0.61
0.68	0.76	0.85	0.92	0.98	1.00	0.99	0.96	0.93	0.93	0.95	0.99

Ref Az: 255.0

Using DEFAULT vertical antenna pattern

D/U Baseline: -49.00 dB

	Area	Pop
Interference	0 sq km	0 (0.0%)

FIGURE 4
Sheet 4 of 8

DWPWR 41-52-44 087-38-10 51(0) 194.8 kW-DA 677 m AMSL 90.0 % 42.0 dBu
GARY IN 25797 8325 DTVSERVICE: 8325000 NTSCSERVICE: 8307000

DTVALT DTV ALLOTMENT

0.81	0.71	0.58	0.33	0.38	0.38	0.33	0.58	0.71	0.81	0.85	0.76
0.70	0.86	1.00	0.84	0.56	0.66	0.84	0.88	0.61	0.48	0.93	0.77
0.46	0.66	0.88	0.84	0.65	0.56	0.83	1.00	0.87	0.70	0.76	0.84

Ref Az: 0.0

Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	25883.1 sq km	8340745
not affected by terrain losses	25880.2	8340614

W58CU-P 43-18-50 086-09-17 52(-) 21.7 kW-DA 328 m AMSL 10.0 % 75.1
MUSKEGON MI

PROPOSED LPTV

1.00	0.99	0.95	0.93	0.93	0.96	0.99	1.00	0.98	0.92	0.85	0.76
0.68	0.61	0.51	0.40	0.30	0.25	0.24	0.25	0.30	0.40	0.51	0.61
0.68	0.76	0.85	0.92	0.98	1.00	0.99	0.96	0.93	0.93	0.95	0.99

Ref Az: 255.0

Using DEFAULT vertical antenna pattern

D/U Baseline: -49.00 dB

	Area	Pop
Interference	0 sq km	0 (0.0%)

WPWR-DT 41-52-44 087-38-10 51(N) 1000.0 kW-DA 703 m AMSL 90.0 % 42.0 dBu
GARY IN 25797 8325 DTVSERVICE: 8325000 NTSCSERVICE: 8307000

CP BPCDT-19991101ALA

0.72	0.52	0.27	0.20	0.38	0.47	0.38	0.20	0.27	0.52	0.72	0.84
0.90	0.94	0.98	1.00	0.98	0.91	0.82	0.78	0.82	0.90	0.97	1.00
0.97	0.90	0.82	0.78	0.82	0.91	0.98	1.00	0.98	0.94	0.90	0.84

Ref Az: 0.0

Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	36425.0 sq km	8695586
not affected by terrain losses	36333.2	8691920

W58CU-P 43-18-50 086-09-17 52(-) 21.7 kW-DA 328 m AMSL 10.0 % 75.1
MUSKEGON MI

PROPOSED LPTV

1.00	0.99	0.95	0.93	0.93	0.96	0.99	1.00	0.98	0.92	0.85	0.76
0.68	0.61	0.51	0.40	0.30	0.25	0.24	0.25	0.30	0.40	0.51	0.61
0.68	0.76	0.85	0.92	0.98	1.00	0.99	0.96	0.93	0.93	0.95	0.99

Ref Az: 255.0

Using DEFAULT vertical antenna pattern

D/U Baseline: -49.00 dB

	Area	Pop
Interference	0 sq km	0 (0.0%)

DWLS 41-52-44 087-38-10 52(0) 153.6 kW-DA 697 m AMSL 90.0 % 42.1 dBu
CHICAGO IL 29047 8459 DTVSERVICE: 8459000 NTSCSERVICE: 8361000

DTVALT DTV ALLOTMENT

1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Ref Az: 0.0

Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	29073.3 sq km	8465577
not affected by terrain losses	29062.3	8464962

W58CU-P 43-18-50 086-09-17 52(-) 21.7 kW-DA 328 m AMSL 10.0 % 75.1
MUSKEGON MI

PROPOSED LPTV

1.00	0.99	0.95	0.93	0.93	0.96	0.99	1.00	0.98	0.92	0.85	0.76
0.68	0.61	0.51	0.40	0.30	0.25	0.24	0.25	0.30	0.40	0.51	0.61
0.68	0.76	0.85	0.92	0.98	1.00	0.99	0.96	0.93	0.93	0.95	0.99

Ref Az: 255.0

Using DEFAULT vertical antenna pattern

D/U Baseline: 2.00 dB

	Area	Pop
Interference	0 sq km	0 (0.0%)

WLS-DT 41-52-44 087-38-10 52(N) 153.6 kW 696 m AMSL 90.0 % 42.1 dBu
CHICAGO IL 29047 8459 DTVSERVICE: 8459000 NTSCSERVICE: 8361000

LIC BLCDT-20010109AAV

Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	29027.4 sq km	8461127
not affected by terrain losses	29016.4	8460512

W58CU-P 43-18-50 086-09-17 52(-) 21.7 kW-DA 328 m AMSL 10.0 % 75.1
MUSKEGON MI

PROPOSED LPTV

1.00	0.99	0.95	0.93	0.93	0.96	0.99	1.00	0.98	0.92	0.85	0.76
0.68	0.61	0.51	0.40	0.30	0.25	0.24	0.25	0.30	0.40	0.51	0.61
0.68	0.76	0.85	0.92	0.98	1.00	0.99	0.96	0.93	0.93	0.95	0.99

Ref Az: 255.0

Using DEFAULT vertical antenna pattern

D/U Baseline: 2.00 dB

	Area	Pop
Interference	0 sq km	0 (0.0%)

DWFUM 42-53-57 083-27-42 52(0) 120.9 kW-DA 554 m AMSL 90.0 % 42.1 dBu
FLINT MI 14635 2661 DTVSERVICE: 2661000 NTSCSERVICE: 2578000
DTVALT DTV ALLOTMENT
0.91 0.85 0.82 0.76 0.69 0.60 0.50 0.39 0.28 0.21 0.19 0.24
0.28 0.31 0.31 0.28 0.23 0.19 0.21 0.26 0.37 0.48 0.57 0.64
0.71 0.77 0.80 0.86 0.90 0.94 0.96 0.98 0.99 0.98 0.97 0.94
(316.0 1.00)

Ref Az: 0.0

Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	14737.8 sq km	2824732
not affected by terrain losses	14736.8	2822700

W58CU-P 43-18-50 086-09-17 52(-) 21.7 kW-DA 328 m AMSL 10.0 % 75.1
MUSKEGON MI
PROPOSED LPTV
1.00 0.99 0.95 0.93 0.93 0.96 0.99 1.00 0.98 0.92 0.85 0.76
0.68 0.61 0.51 0.40 0.30 0.25 0.24 0.25 0.30 0.40 0.51 0.61
0.68 0.76 0.85 0.92 0.98 1.00 0.99 0.96 0.93 0.93 0.95 0.99

Ref Az: 255.0

Using DEFAULT vertical antenna pattern

D/U Baseline: 2.00 dB

	Area	Pop
Interference	0 sq km	0 (0.0%)

WFUM-DT 42-53-56 083-27-41 52(N) 200.0 kW-DA 550 m AMSL 90.0 % 42.1 dBu
FLINT MI 14635 2661 DTVSERVICE: 2661000 NTSCSERVICE: 2578000
CP BPEDT-20000420ABD
0.95 0.74 0.61 0.82 0.98 0.97 0.85 0.67 0.72 0.80 0.52 0.29
0.44 0.56 0.56 0.46 0.31 0.55 0.80 0.70 0.66 0.83 0.97 0.97
0.83 0.62 0.77 0.95 0.75 0.63 0.81 0.95 0.94 0.82 0.64 0.29

Ref Az: 0.0

Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	16962.3 sq km	4072186
not affected by terrain losses	16960.3	4070977

W58CU-P 43-18-50 086-09-17 52(-) 21.7 kW-DA 328 m AMSL 10.0 % 75.1
MUSKEGON MI
PROPOSED LPTV
1.00 0.99 0.95 0.93 0.93 0.96 0.99 1.00 0.98 0.92 0.85 0.76
0.68 0.61 0.51 0.40 0.30 0.25 0.24 0.25 0.30 0.40 0.51 0.61
0.68 0.76 0.85 0.92 0.98 1.00 0.99 0.96 0.93 0.93 0.95 0.99

Ref Az: 255.0

Using DEFAULT vertical antenna pattern

D/U Baseline: 2.00 dB

	Area	Pop
Interference	0 sq km	0 (0.0%)

FIGURE 4
Sheet 7 of 8

DWIPB 40-09-38 085-22-42 52(0) 50.0 kW-DA 454 m AMSL 90.0 % 42.1 dBu
MUNCIE IN 9558 534 DTVSERVICE: 534000 NTSCSERVICE: 532000
DTVALT DTV ALLOTMENT
1.00 0.99 0.99 0.99 0.99 0.98 0.98 0.98 0.98 0.98 0.97 0.97
0.96 0.96 0.96 0.96 0.96 0.97 0.97 0.97 0.98 0.98 0.98 0.98
0.99 0.99 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Ref Az: 0.0

Using DEFAULT vertical antenna pattern
USING NTSC GRADE B FOR SERVICE AREA

	Area	Pop
within Noise Limited Contour	9572.7 sq km	536479
not affected by terrain losses	9570.7	536432

W58CU-P 43-18-50 086-09-17 52(-) 21.7 kW-DA 328 m AMSL 10.0 % 75.1
MUSKEGON MI
PROPOSED LPTV
1.00 0.99 0.95 0.93 0.93 0.96 0.99 1.00 0.98 0.92 0.85 0.76
0.68 0.61 0.51 0.40 0.30 0.25 0.24 0.25 0.30 0.40 0.51 0.61
0.68 0.76 0.85 0.92 0.98 1.00 0.99 0.96 0.93 0.93 0.95 0.99
Ref Az: 255.0

Using DEFAULT vertical antenna pattern

D/U Baseline: 2.00 dB

	Area	Pop
Interference	0 sq km	0 (0.0%)

WIPB-DT 40-09-38 085-22-42 52(N) 45.0 kW 441 m AMSL 90.0 % 42.1 dBu
MUNCIE IN 9558 534 DTVSERVICE: 534000 NTSCSERVICE: 532000
CP BPEDT-20000414AAV
Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	11765.7 sq km	664743
not affected by terrain losses	11730.4	659527

W58CU-P 43-18-50 086-09-17 52(-) 21.7 kW-DA 328 m AMSL 10.0 % 75.1
MUSKEGON MI
PROPOSED LPTV
1.00 0.99 0.95 0.93 0.93 0.96 0.99 1.00 0.98 0.92 0.85 0.76
0.68 0.61 0.51 0.40 0.30 0.25 0.24 0.25 0.30 0.40 0.51 0.61
0.68 0.76 0.85 0.92 0.98 1.00 0.99 0.96 0.93 0.93 0.95 0.99
Ref Az: 255.0

Using DEFAULT vertical antenna pattern

D/U Baseline: 2.00 dB

	Area	Pop
Interference	0 sq km	0 (0.0%)

WGBO-DT 41-53-56 087-37-23 53(N) 180.0 kW-DA 582 m AMSL 90.0 % 42.2 dBu
JOLIET IL 15996 7887 DTVSERVICE: 7887000 NTSCSERVICE: 8010000

CP BPCDT-19991029AHU

0.30	0.18	0.11	0.12	0.17	0.24	0.27	0.24	0.17	0.12	0.11	0.18
0.30	0.46	0.61	0.73	0.81	0.86	0.88	0.89	0.91	0.94	0.97	0.99
1.00	0.99	0.97	0.94	0.91	0.89	0.88	0.86	0.81	0.73	0.61	0.46

Ref Az: 0.0

Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	20301.6 sq km	8109948
not affected by terrain losses	20288.9	8109113

W58CU-P 43-18-50 086-09-17 52(-) 21.7 kW-DA 328 m AMSL 10.0 % 75.1
MUSKEGON MI

PROPOSED LPTV

1.00	0.99	0.95	0.93	0.93	0.96	0.99	1.00	0.98	0.92	0.85	0.76
0.68	0.61	0.51	0.40	0.30	0.25	0.24	0.25	0.30	0.40	0.51	0.61
0.68	0.76	0.85	0.92	0.98	1.00	0.99	0.96	0.93	0.93	0.95	0.99

Ref Az: 255.0

Using DEFAULT vertical antenna pattern

D/U Baseline: -48.00 dB

	Area	Pop
Interference	0 sq km	0 (0.0%)

DWGBO 41-53-56 087-37-23 53(0) 134.4 kW-DA 574 m AMSL 90.0 % 42.2 dBu
JOLIET IL 15996 7887 DTVSERVICE: 7887000 NTSCSERVICE: 8010000

DTVALT DTV ALLOTMENT

0.40	0.30	0.09	0.02	0.05	0.05	0.02	0.02	0.05	0.09	0.19	0.24
0.31	0.42	0.46	0.59	0.78	0.80	0.92	0.96	0.95	0.95	1.00	0.96
0.97	0.96	0.90	0.92	0.80	0.76	0.71	0.76	0.62	0.62	0.56	0.45

Ref Az: 0.0

Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	17805.8 sq km	8016468
not affected by terrain losses	17801.9	8016459

W58CU-P 43-18-50 086-09-17 52(-) 21.7 kW-DA 328 m AMSL 10.0 % 75.1
MUSKEGON MI

PROPOSED LPTV

1.00	0.99	0.95	0.93	0.93	0.96	0.99	1.00	0.98	0.92	0.85	0.76
0.68	0.61	0.51	0.40	0.30	0.25	0.24	0.25	0.30	0.40	0.51	0.61
0.68	0.76	0.85	0.92	0.98	1.00	0.99	0.96	0.93	0.93	0.95	0.99

Ref Az: 255.0

Using DEFAULT vertical antenna pattern

D/U Baseline: -48.00 dB

	Area	Pop
Interference	0 sq km	0 (0.0%)

Study end time: 10:01:45