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B. W. St. Clair

Comprehensive Technical Exhibit

Application for Construction Permit

KXND-DT, Minot, ND

FCC Facility ID 82615

Prime Cities Broadcasting, Inc.

July 31, 2008

Introduction. The following engineering statement is prepared for Prime Cities Broadcasting, Inc., licensee of KXND and applicant for DTV post-transition facility KXND-DT as shown on the within application.

KXND currently operates on channel 24 as an NTSC facility and is not presently operating in DTV mode. The within application seeks a digital construction permit on the same channel—a “flash cut” to its digital channel as shown in Appendix B, FCC 08-72A2.

Variations from Appendix B. The applied—for facility is as described in Appendix B with the exception that the application specifies use of the present NTSC antenna, an Andrew ALP-32M3-HSOC. This unit is listed in the FCC CDBS database as antenna ID #40270. The antenna specified in Appendix B is FCC antenna ID #74756, apparently derived from the mathematics of attempting to replicate the NTSC coverage pattern. Both are effectively omnidirectional antennas and inasmuch as the antenna specified in the within application is the same antenna as is now used in the presently licensed NTSC channel, they are effectively identical.

The application is not an attempt to maximize the facility; indeed, its noise-limited contour is subsequently shown to be virtually identical to the Appendix B service contour of KXND as contemplated in FCC 08-72A2. At no point along its perimeter does the new noise-limited F(50,90) contour exceed the Appendix B contour by more than 0.5 km. Study maps (1a and 1b) are attached as an appendix to this exhibit and demonstrates the relationships and facts outlined within this paragraph.

Interference Study. An interference study was run employing the Techware, Inc. analysis program *tv_process_pt_d_08* as used at the FCC. No interference beyond 0.5% was shown to be caused any facility save this proposal’s own allotment by this program; a copy of the result is available for review upon request.

Principal Community Coverage. An attached coverage contour map (2) demonstrates the relationship between the noise-limited contour, the 48 dBu contour and the principal community of Minot, ND. Clearly shown is the fact that the community is entirely contained within all relevant contours.

Antenna. The proposed antenna is as stated in the technical portion of the application. It is the same antenna as is used for current NTSC service and is presented as omnidirectional in accordance with the foregoing discussion. Its elevation radiation information is attached as an appendix (items 3a, b, and c)

Environmental concerns; OET Bulletin 65 information. The facility proposed will use the existing KXND antenna and tower; accordingly, for the purposes of OET 65 analysis, the new facility is identical in all aspects to the licensed KXND facility with the following exception: the proposal's Effective Radiated Power is 50 kW digital; the licensed facility's ERP is 740.4 kW NTSC, shut down post-transition. Thus, there will be no new tower construction and no changes in surface features.

The digital television proposal's worst-case non-ionizing radiation information in accordance with OET Bulletin 65 is calculated as follows:

$$S = \frac{33.4 (F^2) (ERP)}{R^2}$$

Where

S = power density in $\mu\text{W}/\text{cm}^2$

F = relative field in the downward direction of interest (see antenna tabulation)

ERP = total DT ERP in watts

R = distance from 2m AGL to antenna c/r

Thus,

$$S = \frac{33.4 (.206^2) (50,000)}{200^2} = \frac{70808}{40000} = 1.77 \mu\text{W}/\text{cm}^2$$

Colocated facilities. There are no colocated facilities on the tower, but another tower located only 90 meters distant houses two broadcast FM facilities. As this proximity creates an area of concern located between the two towers, the FMs are considered here. There are two locations where the area of highest signal intensity of both FMs and the within proposal intersect and are therefore potentially additive. These two small areas are centered nominally 36 meters on either side of a reference point along a line between both towers. That point is 69 meters from the TV tower and 21 meters from the FM tower. Each FM applicant submitted a worst-case OET 65 evaluation of its power density; for the purposes of this study, these statements are used.

KZPR, Facility 9675, employs an "EPA Type 3, 12– bay 1.06 wavelength" model antenna at 135 meters AGL. The applicant subjected its installation to the standard OET 65 calculations which yielded a power density for its application of:

$$39.20 \mu\text{W}/\text{cm}^2$$

KIZZ, Facility 15968, employs an "EPA Type 3, 12– bay 0.94 wavelength 'Rototiller'" model at 139 meters AGL. The applicant subjected its installation to the standard OET 65 calculations which yielded a power density for its application of:

$$1.87 \mu\text{W}/\text{cm}^2$$

Environmental concerns; OET Bulletin 65 information, continued.

Summary. As calculated and totaled, the total worst-case power density produced by the FM occupants of neighboring tower ASR #1205086 is **41.07 $\mu\text{W}/\text{cm}^2$** . This power density is just 20.5% of the uncontrolled environment 200 $\mu\text{W}/\text{cm}^2$ 30-300 MHz limit contemplated by OET Bulletin 65.

As calculated, the total worst-case power density produced by the within TV proposal at tower ASR #1063427 is **1.77 $\mu\text{W}/\text{cm}^2$** . This power density is just 0.5% of the uncontrolled environment 360 $\mu\text{W}/\text{cm}^2$ 545 MHz limit contemplated by OET Bulletin 65.

Accordingly, the total exposure of the facilities proposed or permitted at the site post-DTV transition will be just 21% of OET 65 limits for uncontrolled exposure and thus will not constitute a hazard to passers-by. Nonetheless, the site is already equipped with RF hazard signage and limitation of access to areas to which only employees or other authorized professional personnel proceed.

Further, as the within applicant is licensee of the pre-transition NTSC facility at the site, applicant has already established practices of power limitation or radiation cessation when service personnel are in proximity of the radiating elements or other more hazardous areas at the site. Other licensees not under the direction or control of KXND-DT and operating at the nearby tower have expressed within their FCC filings their willingness to undertake similar operating procedures and have represented that they will similarly observe all precautions.

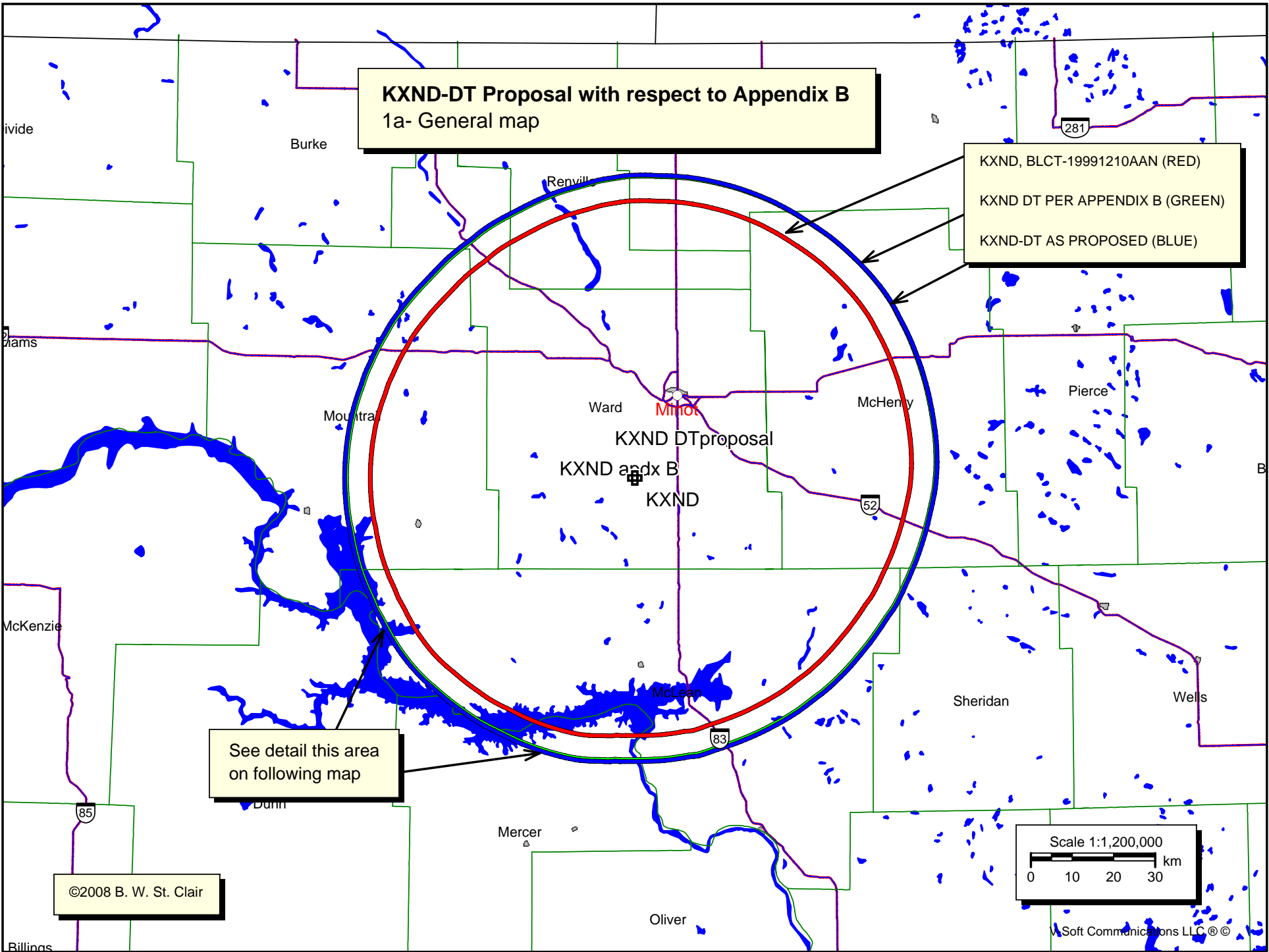
The foregoing statement and technical portions of the within application have been prepared by me and are correct and complete to the best of my knowledge.



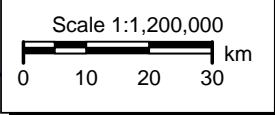
*Jim McDonald
31 July 2008*

**KXND-DT Proposal with respect to Appendix B
1a- General map**

- KXND, BLCT-19991210AAN (RED)
- KXND DT PER APPENDIX B (GREEN)
- KXND-DT AS PROPOSED (BLUE)



See detail this area
on following map



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KXND-DT Proposal with respect to Appendix B
1b- Detail map

KXND, BLCT-19991210AAN (RED)
KXND DT PER APPENDIX B (GREEN)
KXND-DT AS PROPOSED (BLUE)

Garrison

Pick City

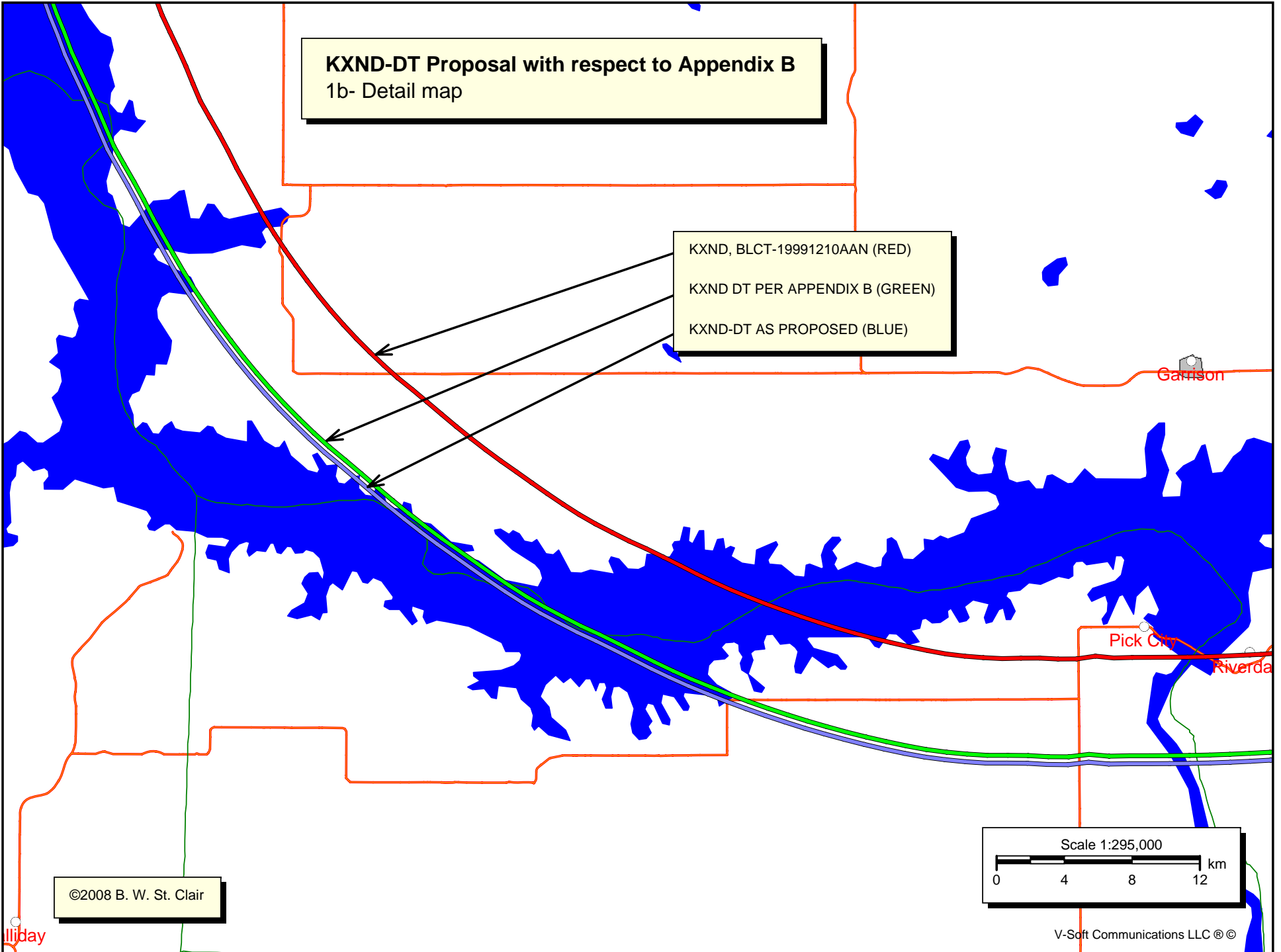
Riverda

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Scale 1:295,000

0 4 8 12 km

V-Soft Communications LLC ©



KXND-DT Proposal with respect to community coverage
2 - F(50,90) coverage contours per 73.625(a)

KXND DT Proposal

DT proposal
Latitude: 48-03-14 N
Longitude: 101-26-03 W
ERP: 50.00 kW
Channel: 24
Frequency: 533.0 MHz
AMSL Height: 866.0 m
Elevation: 664.0 m
Horiz. Pattern: Omni
Vert. Pattern: Yes
Elec Tilt: 0.75
Prop Model: Longley/Rice
Climate: Cont temperate
Conductivity: 0.0050
Dielec Const: 15.0
Refractivity: 311.0
Receiver Ht AG: 10.0 m
Receiver Gain: 0 dB
Time Variability: 90.0%
Sit. Variability: 50.0%
ITM Mode: Broadcast

F(50,90) contours:

48.0 dBu Principal Community
39.76 dBu Noise-limited

Minot, ND
Community of License

KXND DT Proposal

Scale 1:1,200,000

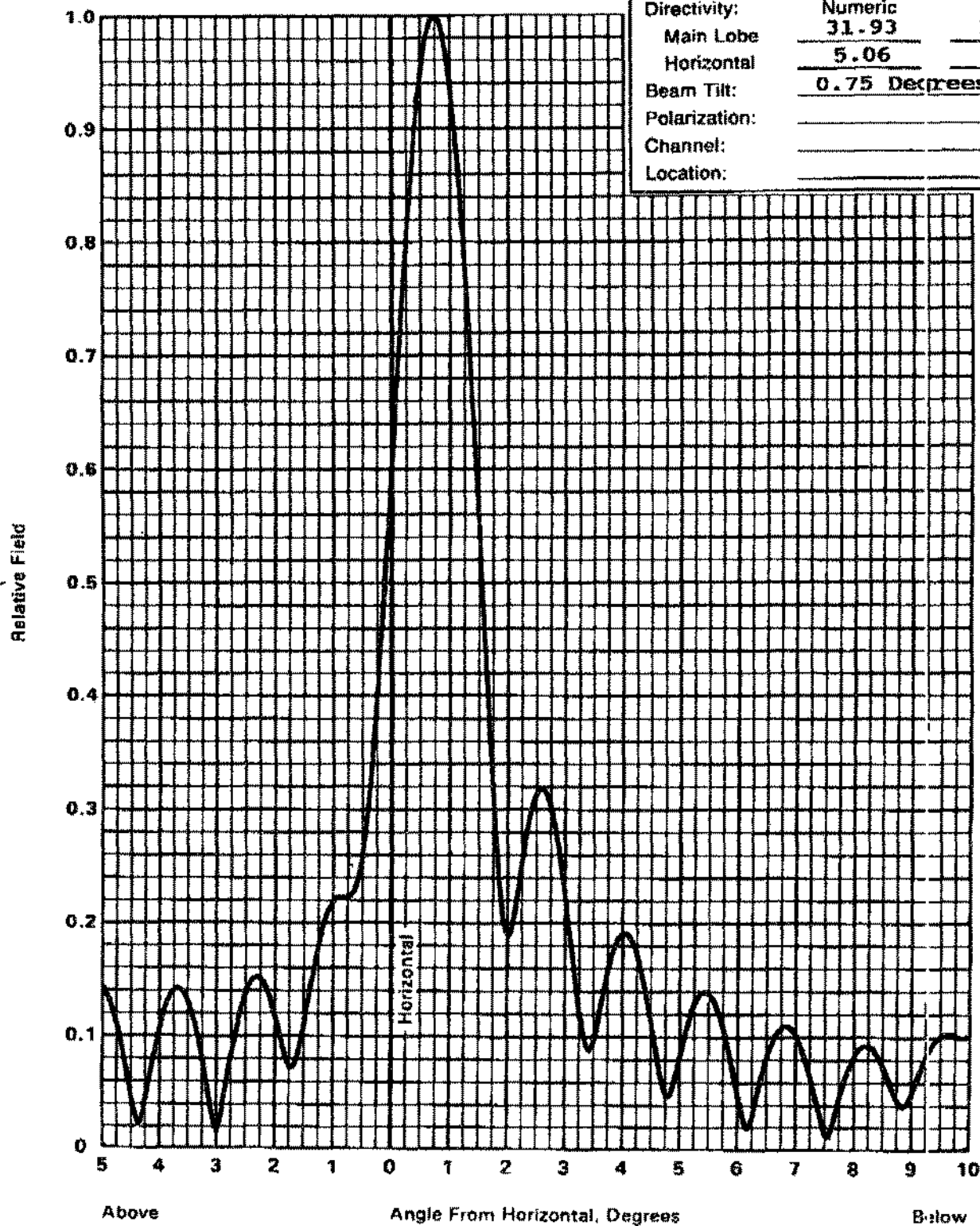
0 10 20 30 km

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ANDREW **ELEVATION PATTERN**

Type:	ALP32L3	(32M3)
Directivity:	Numeric	dBd
Main Lobe	31.93	15.04
Horizontal	5.06	7.04
Beam Tilt:	0.75 Degrees	
Polarization:		
Channel:		
Location:		



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

ALP32L3

3b

-5.00	0.140	-17.10	11.00	0.301	-10.43
-4.75	0.103	-19.74	11.50	0.296	-10.57
-4.50	0.039	-28.23	12.00	0.181	-14.84
-4.25	0.049	-26.14	12.50	0.056	-24.99
-4.00	0.111	-19.10	13.00	0.048	-26.36
-3.75	0.141	-17.04	13.50	0.040	-27.98
-3.50	0.126	-17.96	14.00	0.011	-39.13
-3.25	0.072	-22.83	14.50	0.009	-40.53
-3.00	0.015	-36.28	15.00	0.003	-49.51
-2.75	0.087	-21.16	15.50	0.001	-60.93
-2.50	0.140	-17.08	16.00	0.007	-42.86
-2.25	0.150	-16.50	16.50	0.012	-38.67
-2.00	0.115	-18.79	17.00	0.002	-52.53
-1.75	0.072	-22.87	17.50	0.018	-34.81
-1.50	0.113	-18.95	18.00	0.019	-34.27
-1.25	0.183	-14.77	18.50	0.004	-47.21
-1.00	0.220	-13.14	19.00	0.028	-31.08
-0.75	0.225	-12.94	19.50	0.025	-32.09
-0.50	0.263	-11.59	20.00	0.022	-33.13
-0.25	0.402	-7.92	20.50	0.049	-26.25
0.00	0.604	-4.37	21.00	0.055	-25.13
0.25	0.805	-1.88	21.50	0.116	-18.72
0.50	0.950	-0.45	22.00	0.207	-13.68
0.75	1.000	0.00	22.50	0.244	-12.27
1.00	0.941	-0.53	23.00	0.192	-14.35
1.25	0.781	-2.15	23.50	0.087	-21.17
1.50	0.555	-5.11	24.00	0.052	-25.62
1.75	0.320	-9.89	24.50	0.075	-22.51
2.00	0.191	-14.38	25.00	0.046	-26.75
2.25	0.249	-12.06	25.50	0.022	-33.16
2.50	0.312	-10.10	26.00	0.041	-27.81
2.75	0.304	-10.35	26.50	0.028	-31.03
3.00	0.229	-12.81	27.00	0.010	-39.84
3.25	0.126	-17.96	27.50	0.024	-32.24
3.50	0.094	-20.55	28.00	0.018	-34.67
3.75	0.154	-16.23	28.50	0.003	-50.90
4.00	0.190	-14.43	29.00	0.013	-37.43
4.25	0.174	-15.20	29.50	0.011	-38.99
4.50	0.116	-18.74	30.00	0.001	-57.65
4.75	0.051	-25.82	30.50	0.005	-45.35
5.00	0.077	-22.28	31.00	0.004	-47.96
5.25	0.125	-18.06	31.50	0.001	-64.53
5.50	0.138	-17.20	32.00	0.001	-56.83
5.75	0.111	-19.08	32.50	0.006	-44.57
6.00	0.056	-25.10	33.00	0.011	-39.01
6.25	0.023	-32.61	33.50	0.031	-30.14
6.50	0.075	-22.45	34.00	0.064	-23.92
6.75	0.106	-19.48	34.50	0.089	-20.99
7.00	0.103	-19.71	35.00	0.089	-21.04
7.25	0.070	-23.15	35.50	0.059	-24.63
7.50	0.018	-34.70	36.00	0.025	-31.89
7.75	0.039	-28.07	36.50	0.041	-27.76
8.00	0.079	-22.08	37.00	0.047	-26.59
8.25	0.092	-20.72	37.50	0.027	-31.42
8.50	0.078	-22.21	38.00	0.019	-34.48
8.75	0.047	-26.54	38.50	0.035	-29.00
9.00	0.045	-26.98	39.00	0.031	-30.12
9.25	0.077	-22.22	39.50	0.011	-38.91
9.50	0.100	-20.01	40.00	0.023	-32.89
9.75	0.102	-19.81	40.50	0.032	-30.00
10.00	0.101	-19.92	41.00	0.020	-34.00

ALP32

3c

42.00	0.024	-32.27
42.50	0.027	-31.45
43.00	0.012	-38.54
43.50	0.010	-39.64
44.00	0.024	-32.29
44.50	0.022	-32.97
45.00	0.011	-38.91
45.50	0.020	-34.06
46.00	0.029	-30.73
46.50	0.028	-30.91
47.00	0.037	-28.71
47.50	0.060	-24.37
48.00	0.080	-21.89
48.50	0.085	-21.44
49.00	0.072	-22.88
49.50	0.048	-26.36
50.00	0.024	-32.52
50.50	0.008	-41.53
51.00	0.007	-43.23
51.50	0.005	-45.99
52.00	0.001	-60.69
52.50	0.001	-56.56
53.00	0.002	-54.15
53.50	0.006	-44.95
54.00	0.009	-40.54
54.50	0.010	-40.33
55.00	0.006	-44.95
55.50	0.006	-44.84
56.00	0.013	-37.84
56.50	0.017	-35.49
57.00	0.015	-36.65
57.50	0.007	-43.30
58.00	0.006	-44.39
58.50	0.016	-35.76
59.00	0.022	-33.13
59.50	0.021	-33.72
60.00	0.012	-38.40
60.50	0.003	-51.42
61.00	0.015	-36.28
61.50	0.025	-32.00
62.00	0.028	-31.07
62.50	0.023	-32.68
63.00	0.015	-36.50
63.50	0.018	-35.11
64.00	0.030	-30.40
64.50	0.041	-27.83
65.00	0.045	-26.94
65.50	0.046	-26.80
66.00	0.052	-25.64
66.50	0.073	-22.75
67.00	0.104	-19.66
67.50	0.138	-17.20
68.00	0.169	-15.44
68.50	0.192	-14.32
69.00	0.205	-13.77
69.50	0.206	-13.73
70.00	0.195	-14.18
70.50	0.175	-15.13
71.00	0.148	-16.59
71.50	0.117	-18.64
72.00	0.086	-21.36

72.50	0.040	-28.06
73.00	0.037	-28.69
73.50	0.044	-27.12
74.00	0.052	-25.73
74.50	0.056	-25.03
75.00	0.056	-24.97
75.50	0.053	-25.46
76.00	0.048	-26.46
76.50	0.040	-27.94
77.00	0.032	-29.92
77.50	0.024	-32.41
78.00	0.017	-35.26
78.50	0.013	-37.63
79.00	0.013	-38.05
79.50	0.014	-36.91
80.00	0.017	-35.62
80.50	0.018	-34.71
81.00	0.020	-34.20
81.50	0.020	-34.03
82.00	0.020	-34.15
82.50	0.019	-34.50
83.00	0.018	-35.07
83.50	0.016	-35.81
84.00	0.015	-36.71
84.50	0.013	-37.75
85.00	0.011	-38.94
85.50	0.010	-40.27
86.00	0.008	-41.75
86.50	0.007	-43.41
87.00	0.005	-45.30
87.50	0.004	-47.51
88.00	0.003	-50.23
88.50	0.002	-53.92
89.00	0.001	-60.05
89.50	0.000	-99.99
90.00		