

Comprehensive Technical Exhibit
Application for Construction Permit
KXMA-DT – Dickinson, North Dakota
Reiten Television, Inc.
June, 2008

General

The following engineering statement and attached exhibits have been prepared for **Reiten Television, Inc.** ("Reiten"), licensee of digital television station KXMA-DT at Dickinson, North Dakota¹, and are in support of their application for construction permit to modify that facility.²

KXMA-DT currently operates with a maximum effective radiated power of 50 kW at a center of radiation of 217 meters above average terrain utilizing a directional antenna. This application seeks to increase the effective radiated power of the facility. No change in the antenna system or transmitter location is proposed under this application.

Discussion of KXMA-DT Allotment and Proposed Facilities

In the Appendix B table of allotments, KXMA-DT is specified as operating in the post-transition environment on channel 19. The technical parameters specified in the appropriate entry are consistent with the parameters authorized under BMPCT-20030609AGE and subsequently constructed. This application seeks to modify those parameters in order to increase the coverage of KXMA-DT in the post-transition environment.

Under the proposed changes to the facility, KXMA-DT would increase its maximum effective radiated power from 50 kW to 100 kW. There is no proposed change to the channel of operation or antenna system. In addition, no change in height or transmitter location is proposed.

As expected since this application is to increase the coverage of KXMA-DT facility, the proposed technical parameters would increase the noise limited service contour of the facility

¹ Reiten submitted its license application for the current KXMA-DT facilities on June 7, 2006 (BLC DT-20060607ACT). Although this application has been accepted for filing by the Commission, the CDBS is not indicative of a grant of the license application.

² The facility ID for KXMA is 55684.

beyond that specified in the Appendix B entry. This increase, however, would be less than five miles in all directions. Exhibit E-1 illustrates the proposed and authorized noise limited service contours, while Exhibit E-2 tabulates the distance to these contours.

The proposed increase in the maximum effective radiated power would also increase the population served by KXMA-DT. Exhibit E-3 provides a map illustrating the service area of the proposed facility. A tabulation of the population and other facilities considered for interference purposes is contained in Exhibit E-4.

The proposed facility will continue to utilize the Dielectric Communications model 881-24 antenna currently in use. This is a directional antenna with 0.75 degrees of electrical beam tilt and no mechanical beam tilt. Following Exhibit E-4 are six pages which comprise Exhibit E-5. Exhibit E-5 contains the manufacturer's data for the proposed antenna pursuant to Section 73.625(c) of the Commission's Rules. It should be noted that the horizontal plane radiation pattern contained in this exhibit is without rotation. The actual orientation of the main lobe of the antenna is at 90 degrees true. This antenna is not located on a constituent element in an AM antenna system nor in close proximity to an AM facility.

The proposed facility would be in compliance with the post-transition interference protection provisions of Section 73.616 of the Commission's Rules. Exhibit E-6 contains a Longley-Rice based interference study for the proposed facility. In the creation of this study, a 3-second linearly interpolated terrain database was utilized. The cell size utilized was 2.0 km with terrain elevations sampled at 1.0 km spacing per OET Bulletin 69. As this study demonstrates, the proposed facility is not predicted to cause interference to any other authorization or proposal.

The proposed KXMA-DT facilities would satisfy the principal community coverage requirements of Section 73.625 of the Commission's Rules. Exhibit E-7 contains a map illustrating the 48 dBu and 41 dBu F(50,90) service contours along with the corresponding Longley-Rice determined signal level bounded by the 41 dBu F(50,90) service contour. As this map demonstrates, the community of license (Dickinson, North Dakota) would not only lie entirely within the predicted 48 dBu F(50,90) service contour, but also would receive a signal well in excess of 48 dBu as predicted by the Longley-Rice propagation model.

The proposed KXMA-DT facility would not constitute a substantial environmental impact. The absence of any significant environmental impact is based on the fact that no construction or excavation will take place in the vicinity of the site relative to the proposed facility. KXMA-DT would continue to utilize its existing antenna system and transmission facility.

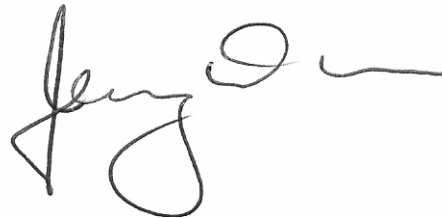
The proposed facility would also not constitute an RF exposure hazard to persons at the site. Utilizing the equations in OET Bulletin 65 and assuming that all radiation from the antenna is directed at the ground, the worst case power density from KXMA-DT is predicted to be 170 $\mu\text{W}/\text{cm}^2$. Since this is less than the upper limit of the uncontrolled environment condition of the applicable safety standard, it is evident that the proposed facility would not by itself constitute an RF exposure hazard. The applicant certifies that it will coordinate with all users of the site to ensure that workers are not exposed to levels of non-ionizing radiation in excess of the applicable safety standards. Such coordination will include, but is not necessarily limited to, a reduction in transmitter power or cessation of operation.

The requirements of Section 73.1030 of the Commission's Rules are not applicable in this particular case. The proposed facility would not operate in any of the zones described in the referenced section, and is not in close proximity to any of the installations described in that section. In addition, the proposed facility is not located in proximity to any protected FCC installation.

The structure utilized for the facilities described in this application has been registered with the Commission. Specifically an Antenna Structure Registration Number of 1037970 has been assigned to the tower.

Affidavit

The preceding statement and attached exhibits have been prepared by me, or under my direction, and are true and accurate to the best of my belief and knowledge.



Above signature is digitized copy of actual signature
License Expires November 30, 2009

Jeremy D. Ruck, PE
June 6, 2008

KXMA-D.C

BMPCDT-20030609AGE
BLCDT-20060607ACT
Latitude: 46-43-35 N
Longitude: 102-54-57 W
ERP: 50.00 kW
Channel: 19
Frequency: 503.0 MHz
AMSL Height: 1033.6 m
Elevation: 893.4 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: FCC Method

KXMA-D.PRO**PROPOSED**

Latitude: 46-43-35 N
Longitude: 102-54-57 W
ERP: 100.00 kW
Channel: 19
Frequency: 503.0 MHz
AMSL Height: 1033.6 m
Elevation: 893.4 m
Horiz. Pattern: Directional
Vert. Pattern: Yes
Elec Tilt: 0.75
Prop Model: FCC Method

D.L. Markley & Associates, Inc.

- Authorized Noise Limited Service Contour
- Proposed Noise Limited Service Contour

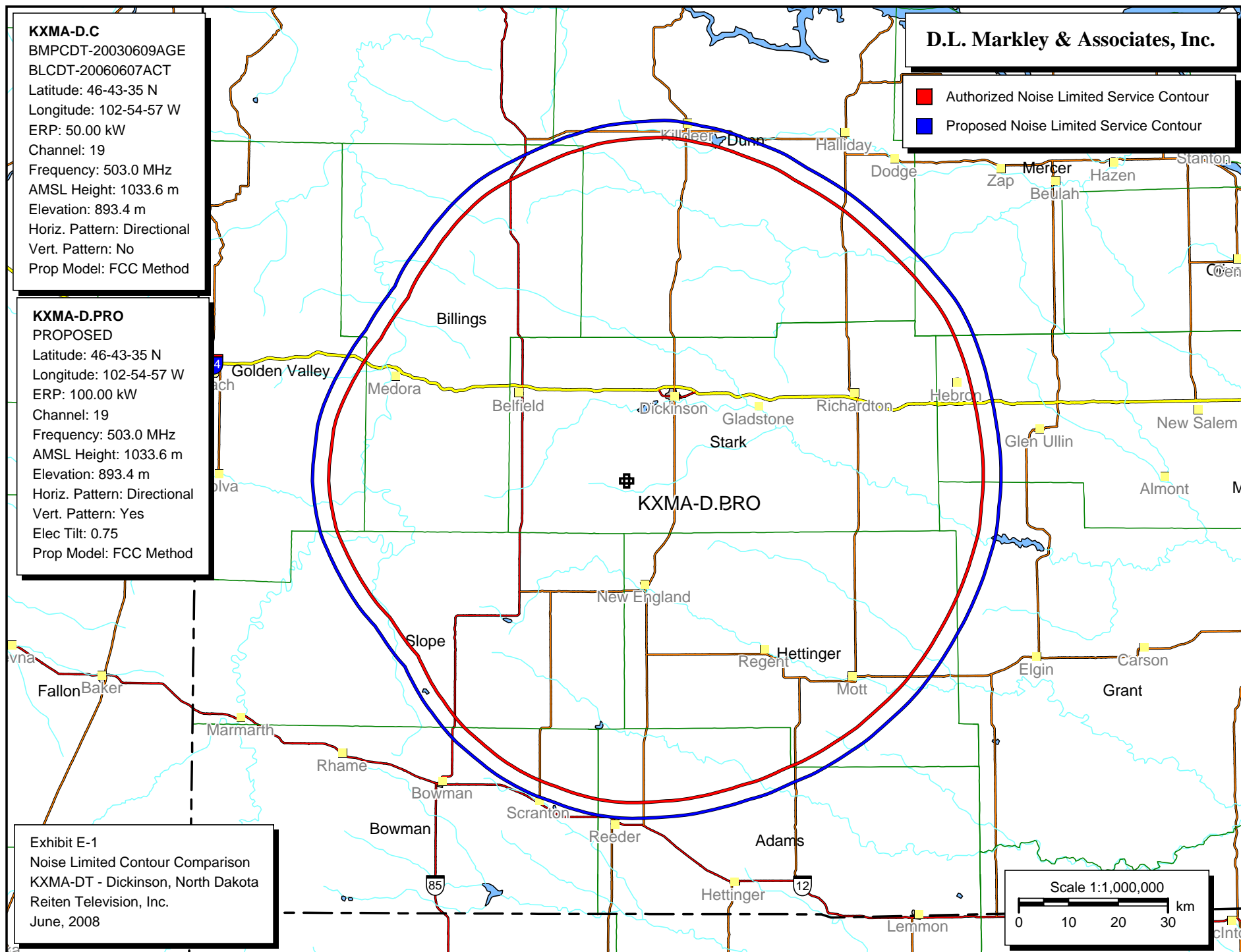


Exhibit E-2 - Comparison of Proposed and Authorized Contours

Azimuth	HAAT in meters	Contour Distance in kilometers		Proposed to Allocation Difference	
		Authorized	Proposed	kilometers	miles
0	252.2	68.5	71.9	3.4	2.11
10	257.3	69.5	72.9	3.4	2.11
20	248.1	69.4	72.7	3.3	2.05
30	238.2	69.2	72.5	3.3	2.05
40	237.8	69.7	73.0	3.3	2.05
50	238.3	70.2	73.6	3.4	2.11
60	252.1	71.6	75.2	3.6	2.24
70	250.6	71.9	75.5	3.6	2.24
80	243.1	71.6	75.1	3.5	2.17
90	242.4	71.6	75.2	3.6	2.24
100	237.7	71.2	74.7	3.5	2.17
110	227.0	70.3	73.7	3.4	2.11
120	218.9	69.4	72.8	3.4	2.11
130	211.5	68.4	71.8	3.4	2.11
140	202.0	67.3	70.6	3.3	2.05
150	190.9	66.1	69.3	3.2	1.99
160	185.1	65.3	68.5	3.2	1.99
170	187.7	65.0	68.2	3.2	1.99
180	190.7	64.6	67.8	3.2	1.99
190	187.4	63.5	66.7	3.2	1.99
200	185.2	62.0	65.2	3.2	1.99
210	183.3	59.9	63.1	3.2	1.99
220	187.5	57.4	60.8	3.4	2.11
230	183.1	54.6	58.1	3.5	2.17
240	183.0	54.9	58.3	3.4	2.11
250	183.6	57.0	60.3	3.3	2.05
260	191.0	59.0	62.3	3.3	2.05
270	195.4	59.8	63.1	3.3	2.05
280	202.4	59.7	63.0	3.3	2.05
290	207.3	58.4	61.8	3.4	2.11
300	217.4	57.0	60.5	3.5	2.17
310	225.2	57.2	60.7	3.5	2.17
320	227.3	59.9	63.3	3.4	2.11
330	232.4	63.0	66.2	3.2	1.99
340	230.9	64.9	68.1	3.2	1.99
350	239.8	66.8	70.1	3.3	2.05

Note: Noise Limited Contour (Proposed and Authorized) is 41 dBu F(50,90).
Contour value is not dipole adjusted.

D.L. Markley & Associates, Inc.
Consulting Engineers
2104 West Moss Avenue
Peoria, Illinois 61604

KXMA-D.PRO

PROPOSED

Latitude: 46-43-35 N

Longitude: 102-54-57 W

ERP: 100.00 kW

Channel: 19

Frequency: 503.0 MHz

AMSL Height: 1033.6 m

Horiz. Pattern: Directional

Vert. Pattern: Yes

Elec Tilt: 0.75

Prop Model: Longley/Rice

Climate: Cont temperate

Conductivity: 0.0050

Dielec Const: 15.0

Refractivity: 301.0

Receiver Ht AG: 10.0 m

Receiver Gain: 0 dB

Time Variability: 90.0%

Sit. Variability: 50.0%

ITM Mode: Broadcast

Service Area Population: 29,467

D.L. Markley & Associates, Inc.

- ☒ KXMA-D.PRO
- ☐ K19FF
- ☐ K19FF-D.C
- ☐ KDSE-D
- ☐ K19CG
- ☐ ???C
- ☐ K19HP.C

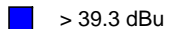
 > 39.3 dBu

Exhibit E-3
Proposed Service Area
KXMA-DT - Dickinson, North Dakota
Reiten Television, Inc.
June, 2008

Scale 1:1,000,000
0 10 20 30 km

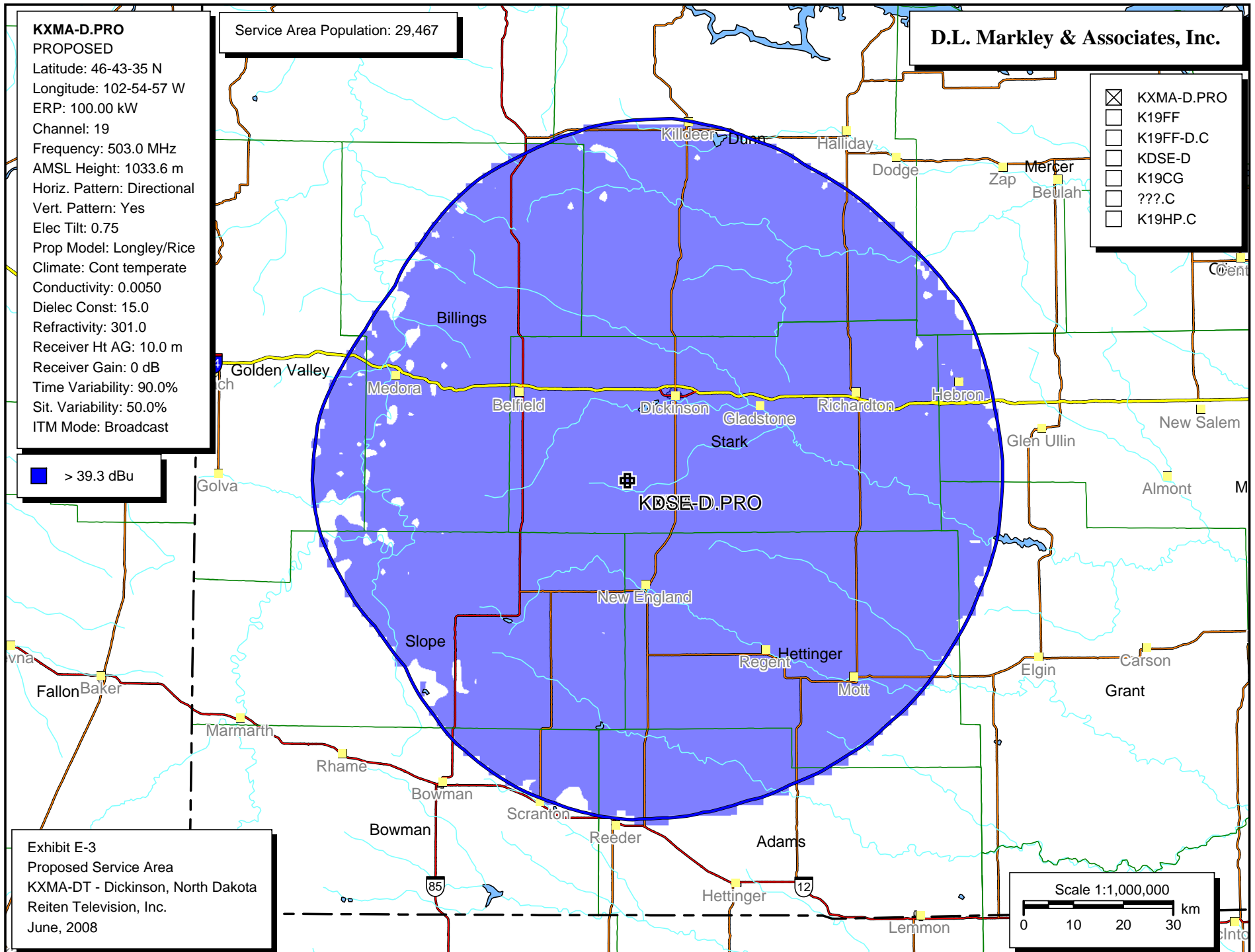


Exhibit E-4
Proposed KXMA-DT Service Area Population Summary

KXMA-D.PRO (19) Dickinson, ND - PROPOSED
Broadcast Type: Digital Service: T
Lat: 46-43-35 N Lng: 102-54-57 W ERP: 100.0 kW AMSL: 1033.6 m
TV Incoming Interference Study
Interference Considered Within: FCC Contour: 39.254 dBu
Signal Resolution: 2.0 km
LR Profile Spacing Increment: 1.0 km
Consider NTSC Taboo: Yes
KWX error points are considered to
be interference free coverage.
of radials computed for protected contour: 360
Protected contour calculated using 8 radial HAAT.
Threshold for reception: 39.2539
Pop Centroid DB: 2000 US Census (SF1)

Study Date: 6/6/2008
TV Database Date: 6/6/2008

Primary Terrain: V-Soft 3 Second US Terrain
Secondary Terrain: V-Soft 30 Second US Database

Population Database: 2000 US Census (SF1)

Percentages calculated using a baseline population of 29,467.

Stations considered which do not cause interference:

K19FF (19-)
K19FF-D.C (19)
KDSE-D (20)
K19CG (19N)
???.C (19N)
K19HP.C (19Z)

Call Letters	City	State	Dist	Bear
K19FF (19-)	Miles City	MT	227.1	262.9
K19FF-D.C (19)	Miles City	MT	227.0	262.9
KDSE-D (20)	Dickinson	ND	0.0	0.0
K19CG (19N)	Belle Fourche	SD	241.2	197.8
???.C (19N)		UN	227.0	262.9
K19HP.C (19Z)	Gillette	WY	334.2	217.2

Totals for KXMA-D.PRO (19)

Calculation Area Population:	29,536	(	14626.4 sq. km)
Not Affected by Terrain Loss:	29,467	(	14441.4 sq. km)
Total NTSC Interference:	0	(	0.0 sq. km)
DTV Only Interference:	0	(	0.0 sq. km)
Total DTV Interference:	0	(	0.0 sq. km)
Interfered Population:	0	(	0.0 sq. km)
Interference Free:	29,467	(	14441.4 sq. km)

Percent Interference: 0.00

Terrain Blocked Population:	69	(	185.0 sq. km)
Contour Area Population:	29,398		

Interference Free Breakdown:

White:	28,636	(	97.2%)
Black:	53	(	0.2%)
Hispanic:	270	(	0.9%)
Native American:	224	(	0.8%)
Asian:	59	(	0.2%)
Pacific Islander:	8	(	0.0%)
Mixed Race:	207	(	0.7%)
Other:	10	(	0.0%)
Total:	29,467		

	Housing Units	Population	% of County
North Dakota			
Adams County			
County Pop	1,416	2,593	
KXMA-D.PRO (19)	116	202	
Ix Free	116	202	100.00
Billings County			
County Pop	529	888	
KXMA-D.PRO (19)	471	831	
Ix Free	471	831	100.00
Bowman County			
County Pop	1,596	3,242	
KXMA-D.PRO (19)	116	235	
Ix Free	116	235	100.00
Dunn County			
County Pop	1,965	3,600	
KXMA-D.PRO (19)	630	1,510	
Ix Free	630	1,510	100.00
Golden Valley County			
County Pop	973	1,924	
KXMA-D.PRO (19)	7	11	

Ix Free	7	11	100.00
Grant County			
County Pop	1,722	2,841	
KXMA-D.PRO (19)	18	39	
Ix Free	18	39	100.00
Hettinger County			
County Pop	1,419	2,715	
KXMA-D.PRO (19)	1,360	2,604	
Ix Free	1,360	2,604	100.00
McKenzie County			
County Pop	2,719	5,737	
KXMA-D.PRO (19)	0	0	
Ix Free	0	0	
Morton County			
County Pop	10,587	25,303	
KXMA-D.PRO (19)	494	935	
Ix Free	494	935	100.00
Slope County			
County Pop	451	767	
KXMA-D.PRO (19)	261	464	
Ix Free	261	464	100.00
Stark County			
County Pop	9,722	22,636	
KXMA-D.PRO (19)	9,722	22,636	
Ix Free	9,722	22,636	100.00



Proposal Number

Date **29 May 2003**

Call Letters **881-24**

Location

Customer

Antenna Type **881-24**

Revision

Channel **19**

AZIMUTH PATTERN

Gain

2.10 (3.22 dB)

Frequency

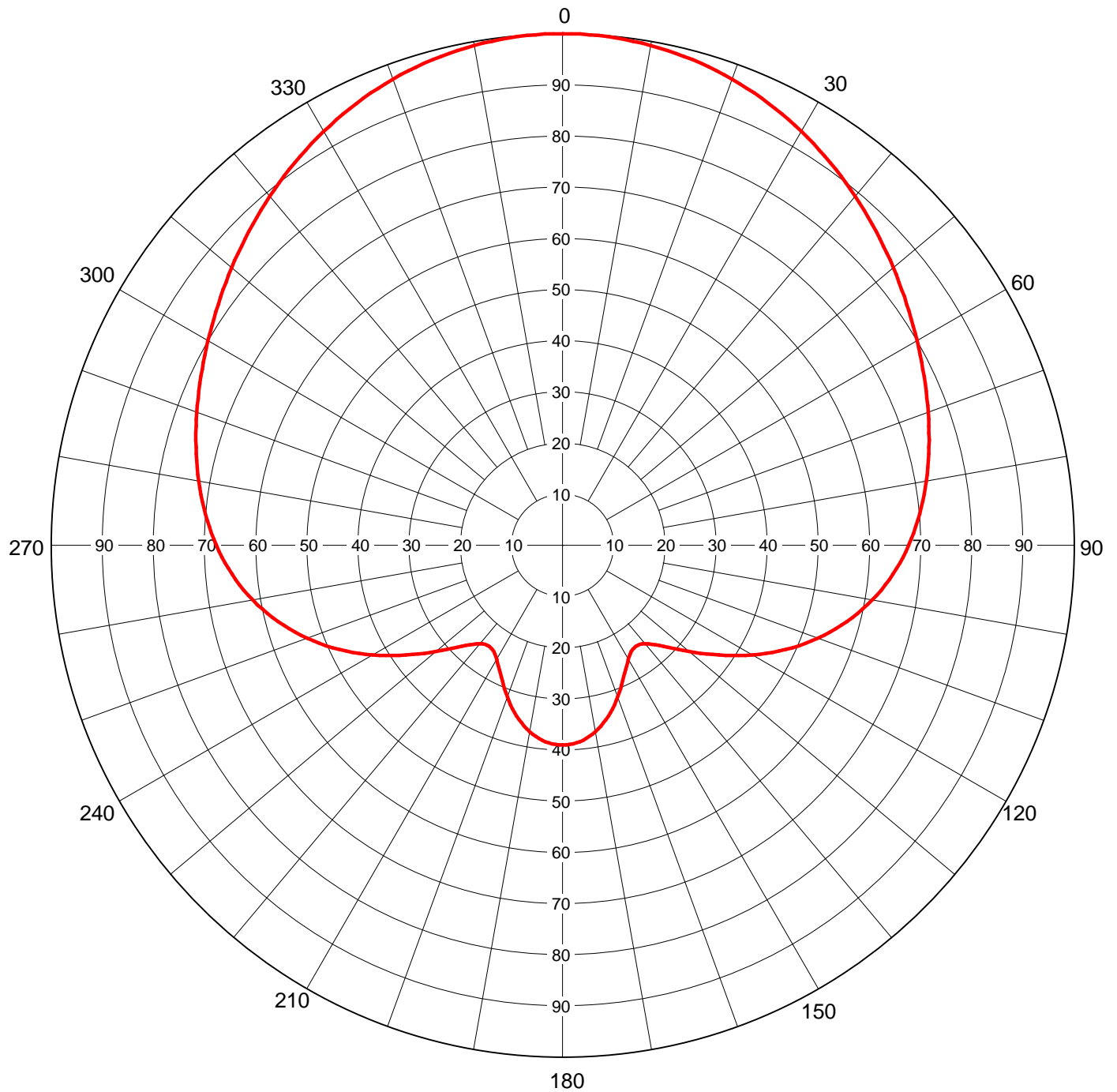
503 MHz

Calculated / Measured

Calculated

Drawing #

881-19



Remarks:



Proposal Number

Revision

Date **29 May 2003**

Call Letters **881-24**

Channel **19**

Location

Customer

Antenna Type **881-24**

TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing # **881-19**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	1.000	45	0.867	90	0.677	135	0.279	180	0.391	225	0.279	270	0.677	315	0.867
1	1.000	46	0.863	91	0.672	136	0.272	181	0.390	226	0.287	271	0.682	316	0.872
2	1.000	47	0.858	92	0.666	137	0.266	182	0.390	227	0.295	272	0.687	317	0.877
3	0.999	48	0.853	93	0.660	138	0.260	183	0.389	228	0.304	273	0.692	318	0.881
4	0.999	49	0.849	94	0.655	139	0.255	184	0.387	229	0.313	274	0.696	319	0.886
5	0.998	50	0.844	95	0.648	140	0.251	185	0.385	230	0.323	275	0.701	320	0.890
6	0.997	51	0.840	96	0.642	141	0.248	186	0.383	231	0.332	276	0.705	321	0.895
7	0.996	52	0.835	97	0.636	142	0.246	187	0.380	232	0.343	277	0.710	322	0.899
8	0.995	53	0.831	98	0.629	143	0.244	188	0.377	233	0.353	278	0.714	323	0.904
9	0.994	54	0.826	99	0.622	144	0.244	189	0.374	234	0.363	279	0.718	324	0.908
10	0.992	55	0.822	100	0.615	145	0.244	190	0.370	235	0.374	280	0.722	325	0.913
11	0.991	56	0.817	101	0.608	146	0.245	191	0.366	236	0.385	281	0.726	326	0.917
12	0.989	57	0.813	102	0.600	147	0.247	192	0.361	237	0.396	282	0.730	327	0.921
13	0.987	58	0.809	103	0.592	148	0.250	193	0.356	238	0.407	283	0.734	328	0.926
14	0.985	59	0.804	104	0.584	149	0.253	194	0.351	239	0.418	284	0.738	329	0.930
15	0.982	60	0.800	105	0.576	150	0.257	195	0.346	240	0.428	285	0.742	330	0.934
16	0.980	61	0.796	106	0.568	151	0.262	196	0.340	241	0.439	286	0.746	331	0.938
17	0.978	62	0.792	107	0.559	152	0.267	197	0.334	242	0.450	287	0.749	332	0.942
18	0.975	63	0.788	108	0.550	153	0.272	198	0.328	243	0.461	288	0.753	333	0.946
19	0.972	64	0.784	109	0.541	154	0.278	199	0.322	244	0.471	289	0.757	334	0.949
20	0.969	65	0.780	110	0.531	155	0.284	200	0.316	245	0.482	290	0.761	335	0.953
21	0.966	66	0.776	111	0.522	156	0.290	201	0.309	246	0.492	291	0.765	336	0.956
22	0.963	67	0.772	112	0.512	157	0.296	202	0.303	247	0.502	292	0.768	337	0.960
23	0.960	68	0.768	113	0.502	158	0.303	203	0.296	248	0.512	293	0.772	338	0.963
24	0.956	69	0.765	114	0.492	159	0.309	204	0.290	249	0.522	294	0.776	339	0.966
25	0.953	70	0.761	115	0.482	160	0.316	205	0.284	250	0.531	295	0.780	340	0.969
26	0.949	71	0.757	116	0.471	161	0.322	206	0.278	251	0.541	296	0.784	341	0.972
27	0.946	72	0.753	117	0.461	162	0.328	207	0.272	252	0.550	297	0.788	342	0.975
28	0.942	73	0.749	118	0.450	163	0.334	208	0.267	253	0.559	298	0.792	343	0.978
29	0.938	74	0.746	119	0.439	164	0.340	209	0.262	254	0.568	299	0.796	344	0.980
30	0.934	75	0.742	120	0.428	165	0.346	210	0.257	255	0.576	300	0.800	345	0.982
31	0.930	76	0.738	121	0.418	166	0.351	211	0.253	256	0.584	301	0.804	346	0.985
32	0.926	77	0.734	122	0.407	167	0.356	212	0.250	257	0.592	302	0.809	347	0.987
33	0.921	78	0.730	123	0.396	168	0.361	213	0.247	258	0.600	303	0.813	348	0.989
34	0.917	79	0.726	124	0.385	169	0.366	214	0.245	259	0.608	304	0.817	349	0.991
35	0.913	80	0.722	125	0.374	170	0.370	215	0.244	260	0.615	305	0.822	350	0.992
36	0.908	81	0.718	126	0.363	171	0.374	216	0.244	261	0.622	306	0.826	351	0.994
37	0.904	82	0.714	127	0.353	172	0.377	217	0.244	262	0.629	307	0.831	352	0.995
38	0.899	83	0.710	128	0.343	173	0.380	218	0.246	263	0.636	308	0.835	353	0.996
39	0.895	84	0.705	129	0.332	174	0.383	219	0.248	264	0.642	309	0.840	354	0.997
40	0.890	85	0.701	130	0.323	175	0.385	220	0.251	265	0.648	310	0.844	355	0.998
41	0.886	86	0.696	131	0.313	176	0.387	221	0.255	266	0.655	311	0.849	356	0.999
42	0.881	87	0.692	132	0.304	177	0.389	222	0.260	267	0.660	312	0.853	357	0.999
43	0.877	88	0.687	133	0.295	178	0.390	223	0.266	268	0.666	313	0.858	358	1.000
44	0.872	89	0.682	134	0.287	179	0.390	224	0.272	269	0.672	314	0.863	359	1.000

Remarks:



Proposal Number

Date

Call Letters

Location

Customer

Antenna Type

Revision

29 May 2003

881-24

Channel

19

ELEVATION PATTERN

RMS Gain at Main Lobe

17.3 (12.38 dB)

Beam Tilt

0.75 Degrees

RMS Gain at Horizontal

15.0 (11.76 dB)

Frequency

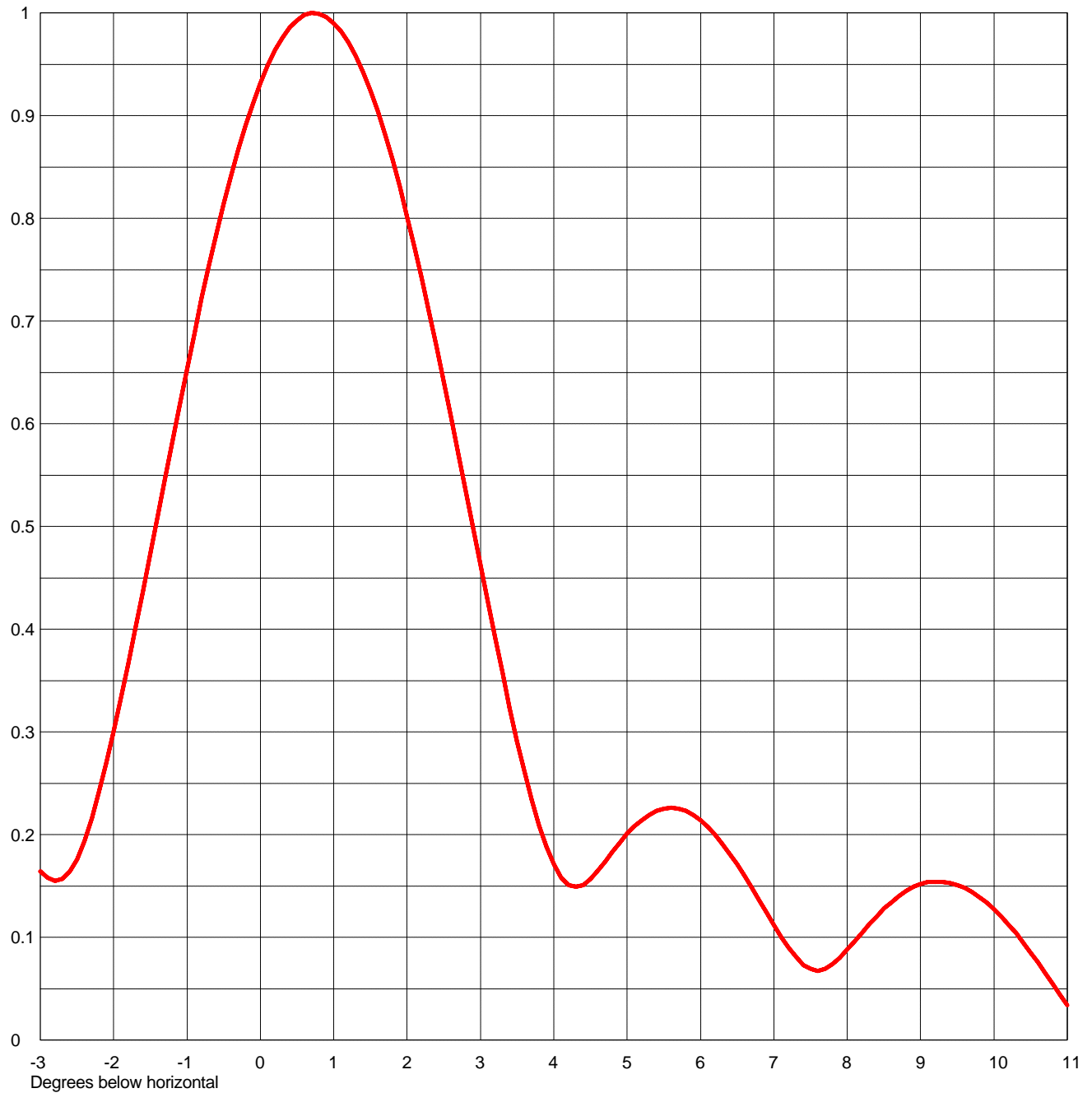
503.00 MHz

Calculated / Measured

Calculated

Drawing #

241173075



Remarks:



Proposal Number

Date

Call Letters

Location

Customer

Antenna Type

Revision

29 May 2003

881-24

Channel

19

ELEVATION PATTERN

RMS Gain at Main Lobe

17.3 (12.38 dB)

Beam Tilt

0.75 Degrees

RMS Gain at Horizontal

15.0 (11.76 dB)

Frequency

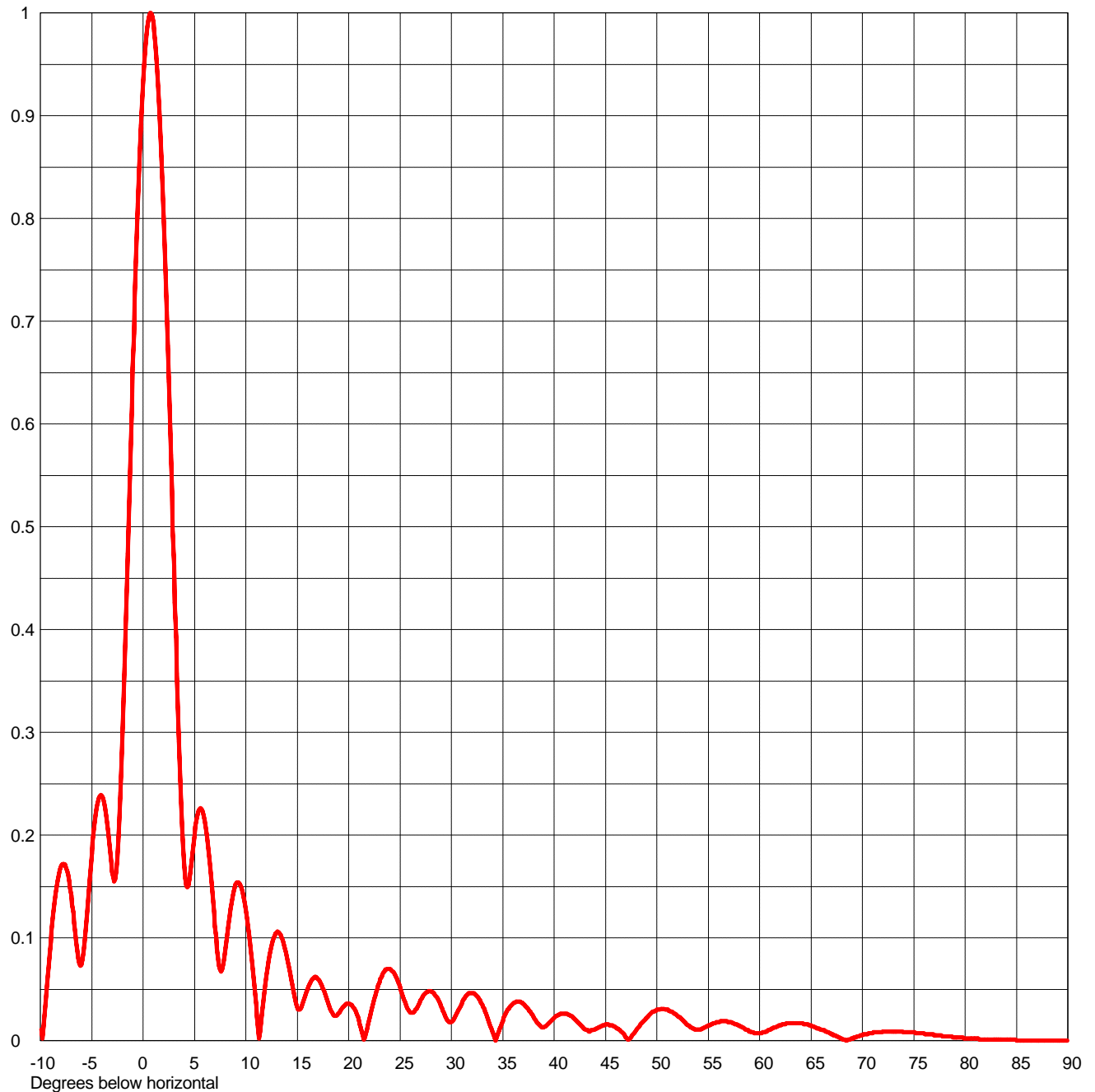
503.00 MHz

Calculated / Measured

Calculated

Drawing #

241173075-90



Remarks:



Proposal Number

Date **29 May 2003**

Call Letters **881-24**

Location

Customer

Antenna Type

Revision

Channel **19**

TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing # **241173075-90**

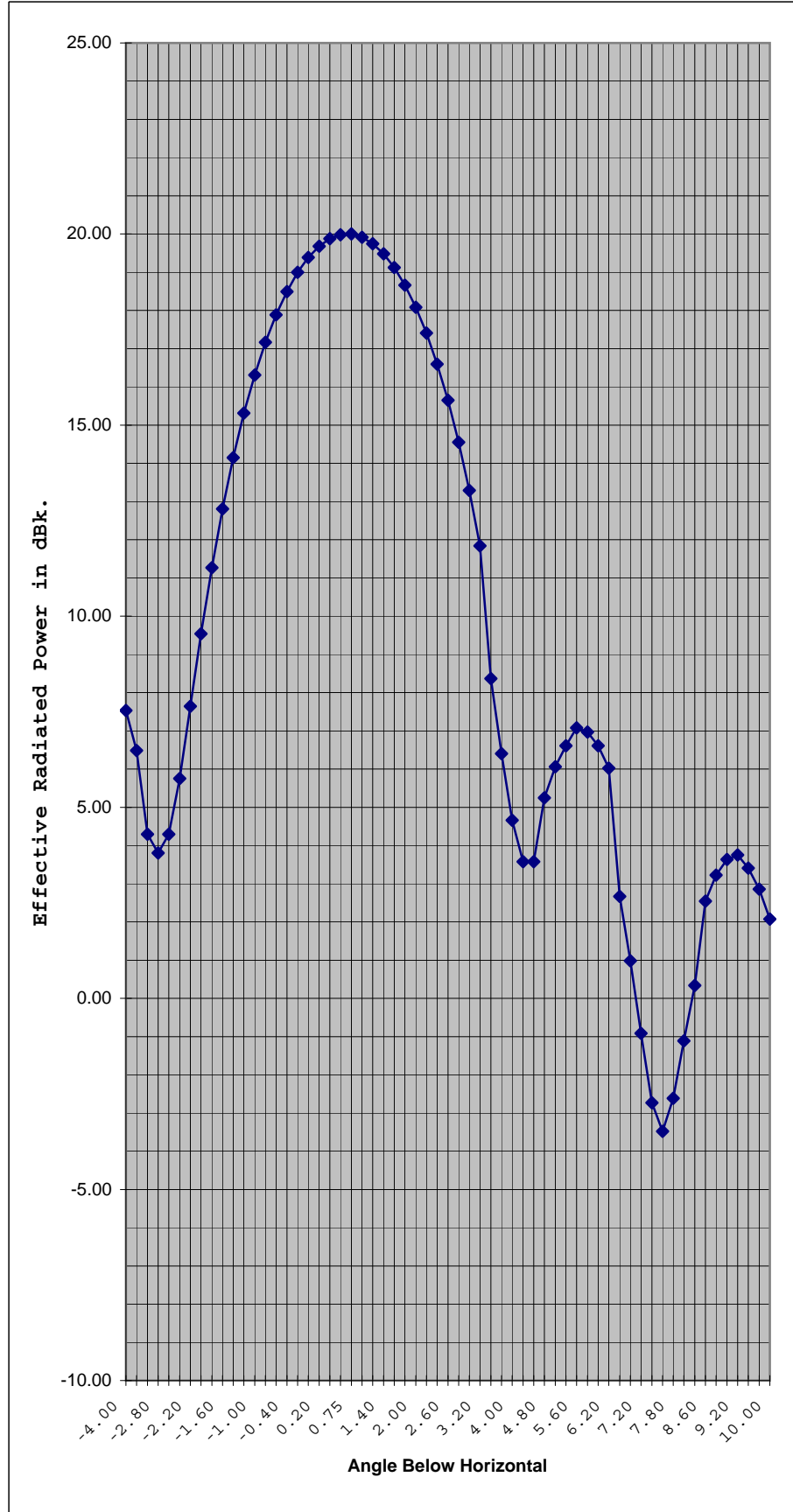
Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.022	2.4	0.676	10.6	0.076	30.5	0.026	51.0	0.030	71.5	0.008
-9.5	0.037	2.6	0.606	10.8	0.055	31.0	0.036	51.5	0.028	72.0	0.009
-9.0	0.096	2.8	0.534	11.0	0.034	31.5	0.044	52.0	0.024	72.5	0.009
-8.5	0.143	3.0	0.462	11.5	0.018	32.0	0.046	52.5	0.020	73.0	0.009
-8.0	0.169	3.2	0.391	12.0	0.063	32.5	0.043	53.0	0.015	73.5	0.009
-7.5	0.168	3.4	0.323	12.5	0.093	33.0	0.035	53.5	0.012	74.0	0.008
-7.0	0.141	3.6	0.262	13.0	0.105	33.5	0.023	54.0	0.011	74.5	0.008
-6.5	0.096	3.8	0.209	13.5	0.100	34.0	0.009	54.5	0.012	75.0	0.008
-6.0	0.074	4.0	0.171	14.0	0.081	34.5	0.006	55.0	0.015	75.5	0.007
-5.5	0.119	4.2	0.151	14.5	0.055	35.0	0.019	55.5	0.017	76.0	0.007
-5.0	0.182	4.4	0.151	15.0	0.032	35.5	0.030	56.0	0.018	76.5	0.006
-4.5	0.227	4.6	0.165	15.5	0.035	36.0	0.036	56.5	0.019	77.0	0.005
-4.0	0.238	4.8	0.183	16.0	0.050	36.5	0.038	57.0	0.018	77.5	0.005
-3.5	0.211	5.0	0.201	16.5	0.060	37.0	0.036	57.5	0.017	78.0	0.004
-3.0	0.164	5.2	0.214	17.0	0.060	37.5	0.031	58.0	0.015	78.5	0.004
-2.8	0.155	5.4	0.223	17.5	0.051	38.0	0.023	58.5	0.012	79.0	0.003
-2.6	0.164	5.6	0.226	18.0	0.037	38.5	0.016	59.0	0.009	79.5	0.003
-2.4	0.194	5.8	0.223	18.5	0.025	39.0	0.013	59.5	0.007	80.0	0.002
-2.2	0.241	6.0	0.214	19.0	0.026	39.5	0.017	60.0	0.007	80.5	0.002
-2.0	0.300	6.2	0.200	19.5	0.033	40.0	0.022	60.5	0.008	81.0	0.002
-1.8	0.366	6.4	0.181	20.0	0.036	40.5	0.025	61.0	0.011	81.5	0.001
-1.6	0.437	6.6	0.160	20.5	0.032	41.0	0.026	61.5	0.013	82.0	0.001
-1.4	0.510	6.8	0.136	21.0	0.019	41.5	0.025	62.0	0.015	82.5	0.001
-1.2	0.583	7.0	0.112	21.5	0.001	42.0	0.021	62.5	0.016	83.0	0.001
-1.0	0.654	7.2	0.090	22.0	0.020	42.5	0.016	63.0	0.017	83.5	0.001
-0.8	0.722	7.4	0.073	22.5	0.041	43.0	0.011	63.5	0.017	84.0	0.001
-0.6	0.784	7.6	0.067	23.0	0.057	43.5	0.009	64.0	0.017	84.5	0.001
-0.4	0.841	7.8	0.074	23.5	0.067	44.0	0.011	64.5	0.016	85.0	0.000
-0.2	0.891	8.0	0.088	24.0	0.070	44.5	0.014	65.0	0.015	85.5	0.000
0.0	0.932	8.2	0.104	24.5	0.064	45.0	0.016	65.5	0.013	86.0	0.000
0.2	0.964	8.4	0.120	25.0	0.052	45.5	0.015	66.0	0.011	86.5	0.000
0.4	0.986	8.6	0.134	25.5	0.038	46.0	0.013	66.5	0.009	87.0	0.000
0.6	0.998	8.8	0.145	26.0	0.027	46.5	0.009	67.0	0.006	87.5	0.000
0.8	0.999	9.0	0.152	26.5	0.030	47.0	0.003	67.5	0.004	88.0	0.000
1.0	0.990	9.2	0.154	27.0	0.039	47.5	0.003	68.0	0.002	88.5	0.000
1.2	0.971	9.4	0.153	27.5	0.046	48.0	0.010	68.5	0.000	89.0	0.000
1.4	0.942	9.6	0.148	28.0	0.048	48.5	0.017	69.0	0.002	89.5	0.000
1.6	0.904	9.8	0.139	28.5	0.043	49.0	0.022	69.5	0.004	90.0	0.000
1.8	0.857	10.0	0.127	29.0	0.034	49.5	0.027	70.0	0.005		
2.0	0.802	10.2	0.112	29.5	0.022	50.0	0.030	70.5	0.006		
2.2	0.742	10.4	0.095	30.0	0.018	50.5	0.031	71.0	0.007		

Remarks:

Exhibit E-5 - VERTICAL RADIATION PATTERN

Angle	Relative Field	ERP dBk.
-4.00	0.238	7.53
-3.50	0.211	6.49
-3.00	0.164	4.30
-2.80	0.155	3.81
-2.60	0.164	4.30
-2.40	0.194	5.76
-2.20	0.241	7.64
-2.00	0.300	9.54
-1.80	0.366	11.27
-1.60	0.437	12.81
-1.40	0.510	14.15
-1.20	0.583	15.31
-1.00	0.654	16.31
-0.80	0.722	17.17
-0.60	0.784	17.89
-0.40	0.841	18.50
-0.20	0.891	19.00
0.00	0.932	19.39
0.20	0.964	19.68
0.40	0.986	19.88
0.60	0.998	19.98
0.75	1.000	20.00
1.00	0.990	19.91
1.20	0.971	19.74
1.40	0.942	19.48
1.60	0.904	19.12
1.80	0.857	18.66
2.00	0.802	18.08
2.20	0.742	17.41
2.40	0.676	16.60
2.60	0.606	15.65
2.80	0.534	14.55
3.00	0.462	13.29
3.20	0.391	11.84
3.60	0.262	8.37
3.80	0.209	6.40
4.00	0.171	4.66
4.20	0.151	3.58
4.40	0.151	3.58
4.80	0.183	5.25
5.00	0.201	6.06
5.20	0.214	6.61
5.60	0.226	7.08
5.80	0.223	6.97
6.00	0.214	6.61
6.20	0.200	6.02
6.80	0.136	2.67
7.00	0.112	0.98
7.20	0.090	-0.92
7.40	0.073	-2.73
7.60	0.067	-3.48
7.80	0.074	-2.62
8.00	0.088	-1.11
8.20	0.104	0.34
8.60	0.134	2.54
8.80	0.145	3.23
9.00	0.152	3.64
9.20	0.154	3.75
9.60	0.148	3.41
9.80	0.139	2.86
10.00	0.127	2.08

Note: Relative field same for all azimuths.
ERP in dBk based on maximum ERP azimuths.



KXMA-D.C**PROPOSED**

Latitude: 46-43-35 N

Longitude: 102-54-57 W

ERP: 100.00 kW

Channel: 19

Frequency: 503.0 MHz

AMSL Height: 1033.6 m

Horiz. Pattern: Directional

Vert. Pattern: Yes

Elec Tilt: 0.75

Prop Model: Longley/Rice

Climate: Cont temperate

Conductivity: 0.0050

Dielec Const: 15.0

Refractivity: 301.0

Receiver Ht AG: 10.0 m

Receiver Gain: 0 dB

Time Variability: 10.0%

Sit. Variability: 50.0%

ITM Mode: Broadcast

D.L. Markley & Associates, Inc.

- ☒ KXMA-D.C
- ☐ K19FF
- ☐ K19FF-D.C
- ☐ KJRE
- ☐ KDSE-D
- ☐ K19CG
- ☐ KPRY-D
- ☐ KPRY-D.C
- ☐ ???C
- ☐ KPRY-D

**KDSE-D.C****K19CG-D.C****KJRE****K19CG****Exhibit E-6**

Outgoing Interference Study

KXMA-DT - Dickinson, North Dakota

Reiten Television, Inc.

June, 2008

**Note: No interference predicted
to occur to facilities considered.**

Scale 1:3,000,000

0 40 80 120 km

Exhibit E-6
 Outgoing Interference Population Report
 Based on Proposed KXMA-DT Facilities

KXMA-D.C (19) Dickinson, ND - PROPOSED
 Broadcast Type: Digital Service: T
 Lat: 46-43-35 N Lng: 102-54-57 W ERP: 100.0 kW AMSL: 1033.6 m
 TV Outgoing Interference Study
 Signal Resolution: 2.0 km
 Consider NTSC Taboo: Yes
 KWX error points are considered to
 be interference free coverage.
 Default # of radials computed for contours: 72
 Contours calculated using 8 radial HAAT.
 LR Profile Spacing Increment: 1.0 km
 Masked interference points are being
 counted as interference.
 Pop Centroid DB: 2000 US Census (SF1)

Study Date: 6/6/2008
 TV Database Date: 6/6/2008

Primary Terrain: V-Soft 3 Second US Terrain
 Secondary Terrain: V-Soft 30 Second US Database

Population Database: 2000 US Census (SF1)

 Stations Considered:

Call Letters	City	State	Dist	Bear
K19FF (19-)	Miles City	MT	227.1	262.9
K19FF-D.C (19)	Miles City	MT	227.0	262.9
KJRE (19-)	Ellendale	ND	314.4	97.2
KDSE-D (20)	Dickinson	ND	0.0	0.0
K19CG (19N)	Belle Fourche	SD	241.2	197.8
KPRY-D (19)	Pierre	SD	370.7	142.3
KPRY-D.C (19)	Pierre	SD	370.7	142.3
???.C (19N)		UN	227.0	262.9
KPRY-D (19)	PIERRE	SD	370.7	142.3

Call	Area	HUnits	Contour	Masked Ix	Unmasked Ix	%
K19FF (19-)	0.0	0	10,379	0	0	0.0
K19FF-D.C (19)	0.0	0	10,420	0	0	0.0
KJRE (19-)	0.0	0	11,014	0	0	0.0
KDSE-D (20)	0.0	0	28,850	0	0	0.0
K19CG (19N)	0.0	0	3,890	0	0	0.0
KPRY-D (19)	0.0	0	32,378	0	0	0.0
KPRY-D.C (19)	0.0	0	40,198	0	0	0.0

???.C (19N)	0.0	0	10,599	0	0	0.0
KPRY-D (19)	0.0	0	46,329	0	0	0.0

	Housing Units	Population
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KXMA-D.PRO**PROPOSED**

Latitude: 46-43-35 N

Longitude: 102-54-57 W

ERP: 100.00 kW

Channel: 19

Frequency: 503.0 MHz

AMSL Height: 1033.6 m

Elevation: 893.4 m

Horiz. Pattern: Directional

Vert. Pattern: Yes

Elec Tilt: 0.75

Prop Model: Longley/Rice

Climate: Cont temperate

Conductivity: 0.0050

Dielec Const: 15.0

Refractivity: 301.0

Receiver Ht AG: 10.0 m

Receiver Gain: 0 dB

Time Variability: 90.0%

Sit. Variability: 50.0%

ITM Mode: Broadcast

D.L. Markley & Associates, Inc.City of License
Dickinson, North Dakota**KXMA-D.PRO**

> 48.0 dBu

41.0 - 48.0

Exhibit E-7

Predicted Coverage

KXMA-DT - Dickinson, North Dakota

Reiten Television, Inc.

June, 2008

Scale 1:1,000,000

0 10 20 30 km