

Comprehensive Technical Exhibit
Application for Construction Permit
K249EL - Williamsburg, Iowa
Extreme Grace Media, Inc.
November, 2011

Application for Construction Permit

The following engineering statement and attached exhibits have been prepared for **Extreme Grace Media, Inc.** ("XGM"), licensee of FM translator station K249EL at Williamsburg, Iowa, and are in support of their application for construction permit to modify that facility.¹ It is proposed under this application to change the channel of operation and city of license, the transmit antenna, and increase the effective radiated power. No change in the physical location of the translator would be proposed, and the center of radiation would remain at the same elevation that is currently authorized.

K249EL currently translates NCE FM Station KXGM-FM at Hiawatha, Iowa. Under this application it is proposed that the primary station be changed to KZIA(FM) at Cedar Rapids, Iowa. The Facility ID for KZIA(FM) at Cedar Rapids, Iowa is 35556. Exhibit E-1 compares the proposed K249EL 60 dBu service contour to the licensed KZIA(FM) 60 dBu service contour. As indicated on this map, the entire 60 dBu service contour of the translator would lie within the 60 dBu service contour of KZIA(FM), thus the translator would be considered a fill-in translator.

The proposed facility would comply with the interference provisions of Section 74.1204 of the Commission's Rules. The television channel six interference provisions of Section 74.1205 are not applicable due to the channel of operation. Compliance with the interference provisions is demonstrated through contour, Longley-Rice, and tabular methodologies.

Exhibit E-2 is a tabular contour based allocation study for the proposed facility, while Exhibit E-3 graphically illustrates the contour situation. As these two exhibits demonstrate, the proposed

¹ The Facility ID for K246BE at Williamsburg, IA is 152290.

facility would not have any prohibited contour overlap with any proposed or authorized co-channel or first adjacent channel facility. Normally prohibited contour overlap would exist between the proposed facility at WMT-FM at Cedar Rapids, however, this overlap is not predicted to cause interference to resident or transient population in the vicinity of the K249EL facility.²

Exhibits E-4 and E-5 comprise a Longley-Rice based interference study for the proposed facility. No predicted areas of interference are depicted on the map in Exhibit E-4. Similarly the tabulation in Exhibit E-5 demonstrates no resident population is predicted to be affected by the proposed facility.

In addition to the Longley-Rice study, a contour/tabulation based field strength study was also performed. This study considered a family of FCC service contours from WMT-FM, and then using the defined U/D ratio for interference determined the field strength at which interference is predicted to occur. Exhibit E-6 illustrates the family of contours, and demonstrates that the WMT-FM field strength is approximately 77 dBu in the immediate vicinity of the proposed tower site. For the purposes of this study, the WMT-FM field strength will be reduced to 76.5 dBu for a worst-case scenario.

The proposed facility would operate as a second adjacent facility to WMT-FM. Since the U/D ratio for third adjacent facilities is 40 dB, the field strength at which interference from the proposed facility to WMT-FM would occur is 116.5 dBu.

² The Facility ID for WMT-FM at Cedar Rapids, IA is 73594.

The power density for the proposed facility at a field strength of 116 dBu is given by the following equation:

$$S = \frac{E^2}{Z_0} = \frac{(0.6683)^2}{377} = \mathbf{0.001185} \quad \text{Eq. 1}$$

In this equation, S represents the calculated power density in Watts per square meter, E is the electric field intensity, which for 116.5 dBu is 0.6683 Volts per meter, and Z_0 is the characteristic impedance of free space of 377 Ohms.

The power density is also given by:

$$S = \frac{P}{4\pi R^2} \quad \text{Eq. 2}$$

Where S is in the same units, P is the power in Watts (165 in this case), and R is the distance. Rearranging the terms in the equation, it can be solved for the distance to the desired power density as follows:

$$R^2 = \frac{P}{4\pi S} \quad \text{Eq. 3}$$

The results of these calculations for depression angles of 0 degrees to 90 degrees are tabulated in Exhibit E-7. It was assumed for these calculations that a Systems With Reliability (SWR) FM1/2 antenna would be utilized. This antenna is assumed to be omni-directional in the horizontal plane. The relative field values at the listed depression angles are based on the published data for the antenna.

The resulting "R" or radius value from Eq. 3 corresponds to the "Field Strength Radius" column in Exhibit E-7. Since each radius is assigned to a specific depression angle, the radius has

both a horizontal and vertical component to it. The specific horizontal and vertical distances from the center of radiation were derived using basic trigonometry. Depression angles where the vertical radius is less than approximately 3 meters AGL, including negative values, result in areas where interference may potentially be experienced by persons in the area. As indicated in the tabulation, these areas may exist within a radius of approximately 21 meters from the base of the supporting structure.

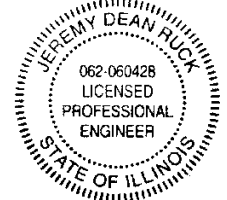
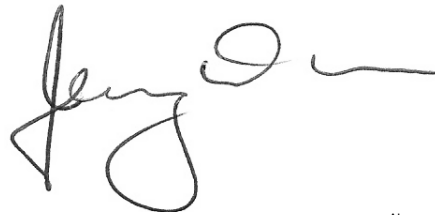
Exhibit E-8 consists of a photograph that illustrates the area around the location of the proposed site. Illustrated on this photograph is a circle denoting the 21 meter radius centered on the supporting structure. From the image in Exhibit E-8 it can be seen that there are no structures within the indicated radius other than an uninhabited garage. As a result, any population that would be in this area would be highly transient in nature. Furthermore, the indicated region is on private property, the owners of which are being compensated for the use of their land.

These two studies have demonstrated that a small amount of normally prohibited contour overlap would occur. This area, however, does not result in predicted interference to WMT-FM. This is due to the fact that the field strength from WMT-FM in this region is quite high, and the maximum effective radiated power of the proposed facility quite low. The lack of interference is consistent with the provisions of Section 74.1204(d) of the Commission's Rules.

The proposed translator should be exempt from environmental processing. The supporting structure to be utilized by XGM for this translator is a mast that will not require excavation at the site. In addition, the structure is of insufficient height to be considered an obstruction to air navigation, and as such, does not require registration or obstruction lighting. RF exposure hazards to the general public will not exist due to the low effective radiated power. The Commission's *FM*

Model software package predicts a maximum power density at ground level of $2.31 \mu\text{W}/\text{cm}^2$ at 17 meters from the base of the structure. This is considerably less than the upper limit permissible under the uncontrolled environment condition of the applicable safety standard. XGM will coordinate with other users to reduce power or cease operation as necessary to prevent workers from being exposed to levels of radiofrequency radiation in excess of applicable standards.

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, 2013

Jeremy D. Ruck, PE
November 29, 2011

K249EL.X

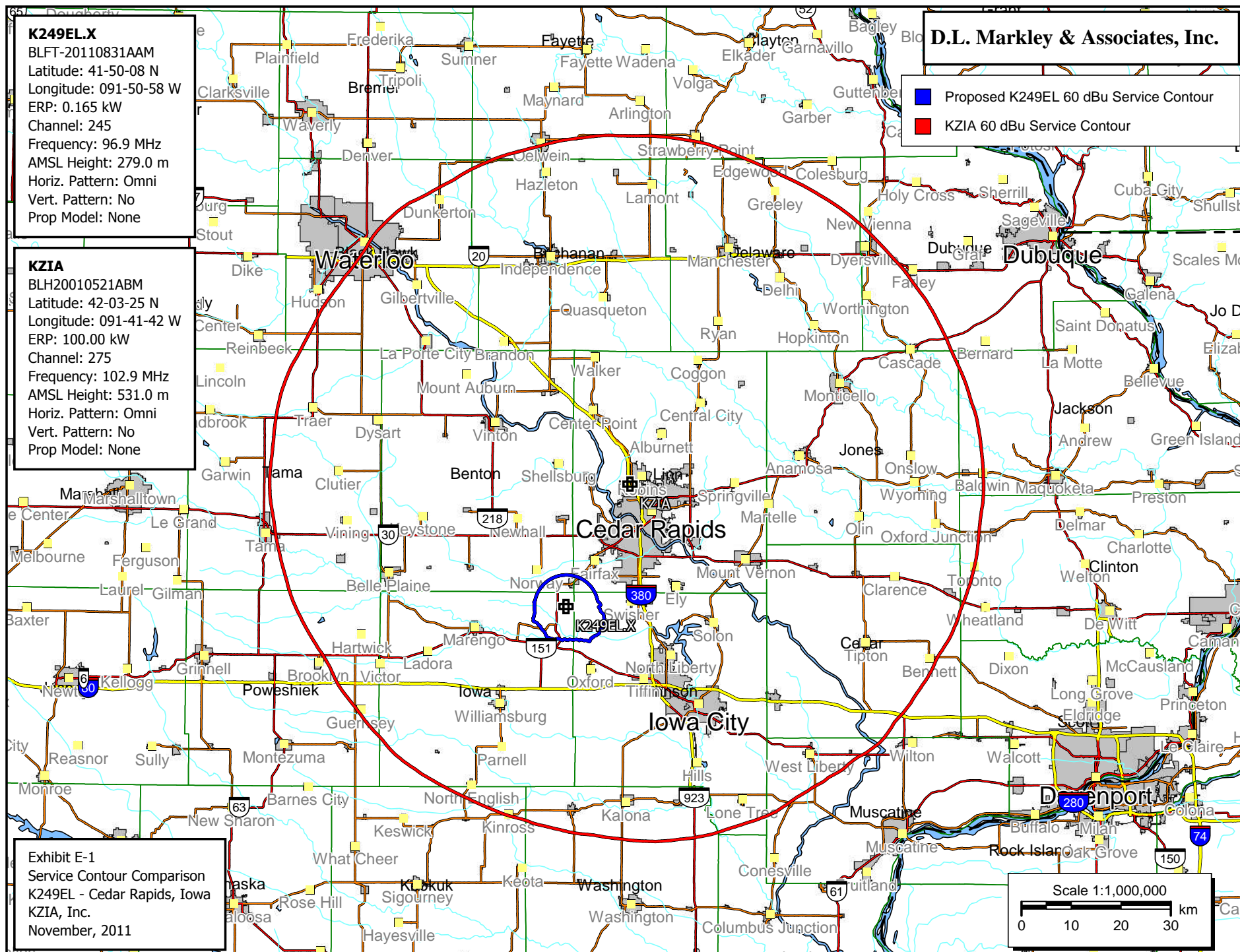
BLFT-20110831AAM
Latitude: 41-50-08 N
Longitude: 091-50-58 W
ERP: 0.165 kW
Channel: 245
Frequency: 96.9 MHz
AMSL Height: 279.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

KZIA

BLH20010521ABM
Latitude: 42-03-25 N
Longitude: 091-41-42 W
ERP: 100.00 kW
Channel: 275
Frequency: 102.9 MHz
AMSL Height: 531.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

D.L. Markley & Associates, Inc.

- Proposed K249EL 60 dBu Service Contour
- KZIA 60 dBu Service Contour



D.L. Markley & Associates, Inc.
Consulting Engineers

Exhibit E-2 - Tabular Allocation Study

K249EL - Cedar Rapids, Iowa

CH# 245D - 96.9 MHz, Pwr= 0.165 kW, HAAT= 0.0 M, COR= 279 M
Average Protected F(50-50)= 6.39 km
Omni-directional

DISPLAY DATES
DATA 11-25-11
SEARCH 11-28-11

REFERENCE
41 50 08.0 N.
91 50 58.0 W.

CH CITY	CALL	TYPE STATE	ANT AZI <--	DIST FILE #	LAT LNG	PWR(kw) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
243C1 Cedar Rapids	WMT-FM	LIC _CX IA	38.9 219.1	27.5 BMLH20050908ACY	42 01 40.0 91 38 25.0	100.000 158	7.5 411	60.4 Citicasters Licenses, Inc.	13.7	-33.7*
246D Williamsburg	K249EL	CP _C_ IA	0.0 0.0	0.0 BPFT20110706AAE	41 50 08.0 91 50 58.0	0.062	7.1 279	5.0 Extreme Grace Media, Inc.	-13.5*	-14.1*
245B Moline	WXLN	LIC _CN IL	113.9 294.8	134.5 BLH4960	41 20 16.0 90 22 46.0	50.000 152	138.3 374	65.7 Cumulus Licensing Llc	-11.6*	30.5
246A North English	NONE	CP _CX IA	208.5 28.3	48.2 BNPH20070430AAC	41 27 15.0 92 07 30.0	6.000 100	45.8 343	29.7 Justin McLuckie	-4.8	8.2
248D Cedar Rapids	635405	APP _C_ IA	46.5 226.7	18.9 BNPFT20030314BHO	41 57 09.0 91 41 00.0	0.140 113	0.8 359	11.7 Educational Media Foundati	11.7	6.3
247D Iowa City	634455	APP _C_ IA	122.9 303.1	30.1 BNPFT20030311ANL	41 41 17.0 91 32 43.0	0.250 73	1.1 300	10.6 Starboard Media Foundation	21.2	18.6
247D Iowa City	649751	APP _C_ IA	120.7 300.9	31.7 BNPFT20030317HOX	41 41 24.0 91 31 19.0	0.250 69	1.1 296	10.4 E-string Wireless, Ltd	22.7	20.4
248D Iowa City	637524	APP _C_ IA	114.5 294.7	34.8 BNPFT20030317FZG	41 42 20.0 91 28 07.0	0.250 69	1.1 300	10.9 Educational Media Foundati	26.0	23.0
247D Iowa City	636837	APP _C_ IA	126.7 306.9	32.9 BNPFT20030314CCW	41 39 31.0 91 31 58.0	0.250 16	1.1 238	7.1 University Of Northern Iow	23.7	24.9
247D Iowa City	645359	APP _C_ IA	126.1 306.4	36.5 BNPFT20030317DUI	41 38 30.2 91 29 43.3	0.250 38	1.1 259	8.0 Radio Assist Ministry, Inc	27.3	27.6
248D West Liberty	640150	APP _C_ IA	108.0 288.4	55.0 BNPFT20030317HFW	41 40 51.9 91 13 15.4	0.205 97	1.0 324	11.2 Radio Assist Ministry, Inc	46.5	43.0
246D Tama	K246AP	LIC _C_ IA	283.4 102.9	62.1 BLFT20070803ADY	41 57 44.0 92 34 42.0	0.250 -15	10.1 265	7.1 Starboard Media Foundation	45.6	45.9
245C1 Clarion	KIAQ	LIC _CN IA	296.9 115.3	211.6 BLH19870120KA	42 40 18.0 94 09 11.0	100.000 176	158.5 518	61.2 Three Eagles Of Fort Dodge	46.7	129.1

Terrain database is NGDC 30 SEC , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM
Contour distances are on direct line to and from reference station. Reference zone= West Zone, Co to 3rd adjacent.
Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, _= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)
"*"affixed to 'IN' or 'OUT' values = site inside protected contour.

K249EL.X

BLFT-20110831AAM
Latitude: 41-50-08 N
Longitude: 091-50-58 W
ERP: 0.165 kW
Channel: 245
Frequency: 96.9 MHz
AMSL Height: 279.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

D.L. Markley & Associates, Inc.

- 60 dBu F(50,50) Service Contour
- 40 dBu F(50,10) Interference Contour
- 54 dBu F(50,10) Interference Contour
- 100 dBu F(50,10) Interference Contour

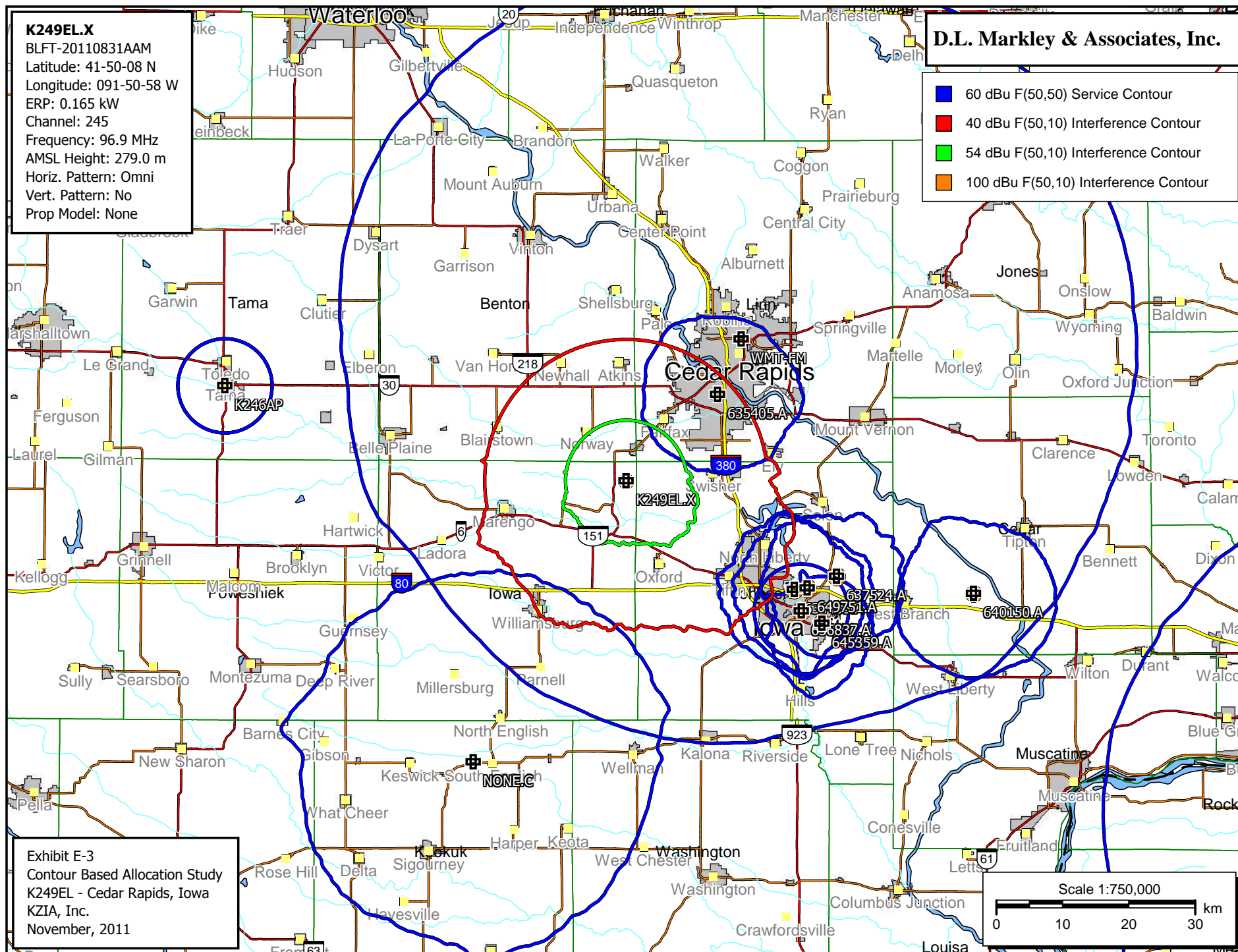


Exhibit E-3
Contour Based Allocation Study
K249EL - Cedar Rapids, Iowa
KZIA, Inc.
November, 2011

Scale 1:750,000
0 10 20 30 km

WMT-FM

BMLH20050908ACY

Latitude: 42-01-40 N

Longitude: 091-38-25 W

ERP: 100.00 kW

Channel: 243

Frequency: 96.5 MHz

AMSL Height: 411.0 m

Elevation: 259.0 m

Horiz. Pattern: Omni

Vert. Pattern: No

Prop Model: Longley/Rice

Climate: Cont temperate

Conductivity: 0.0050

Dielec Const: 15.0

Refractivity: 311.0

Receiver Ht AG: 9.1 m

Receiver Gain: 0 dB

Time Variability: 50.0%

Sit. Variability: 50.0%

ITM Mode: Broadcast

WMT-FM Transmitter Site

D.L. Markley & Associates, Inc.

□ WMT-FM (243)

□ K249EL.X (245)

K249EL Site

Cedar Rapids

WMT-FM

K249EL.X

Exhibit E-4

Longley-Rice Interference Study

K249EL - Cedar Rapids, Iowa

KZIA, Inc.

November, 2011

Note: The map is not indicative
of any predicted interference
by the Longley-Rice model.

Scale 1:200,000

0 2 4 6 km

Exhibit E-5 - Summary of Longley-Rice Interference Study

Population Database: 2010 US Census (PL)

WMT-FM (243) Cedar Rapids, IA - BMLH20050908ACY

Lat: 42-01-40 N Lng: 091-38-25 W ERP: 100.00 kW AMSL: 411.0 m

FM Interference Study

Protected: Circle: R = 100 km

Interference considered within 100 km.

Signal Resolution: 0.5 km

Study Date: 11/29/2011

FM Database Date: 11/25/2011

D/U Ratios Used:

Co: 20.0 dB

First Adj: 6.0 dB

Second Adj: -40.0 dB

Third Adj: -40.0 dB

Threshold for reception: 48.0 dBu.

Primary Terrain: V-Soft 3 Second US Terrain

Secondary Terrain: V-Soft 30 Second US Database

Population Database: 2010 US Census (PL)

Percentages calculated using a baseline population of 731,464.

Stations considered which do not cause interference:

K249EL.X (245)

Call Letters	City	State	Dist	Azi
K249EL.X (245)	Williamsburg	IA	27.5	219.2

Totals for WMT-FM (243)

Calculation Area Population:	924,080	[31416.4 sq. km]
Not Affected by Terrain Loss:	731,464	[24581.1 sq. km]
Interfered Population:	0	[0.0 sq. km]
Interference Free:	731,464	[24581.1 sq. km]

Percent Interference: 0.00 %

Terrain Blocked Population:	192,616	[6835.3 sq. km]
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Interference Free Breakdown:

White:	650,846	[89.0%]
Black:	27,366	[3.7%]
Hispanic:	25,693	[3.5%]
Native American:	1,670	[0.2%]
Asian:	13,422	[1.8%]
Pacific Islander:	494	[0.1%]
Mixed Race:	11,378	[1.6%]
Other:	595	[0.1%]
Total:	731,464	

	Housing Units	Population	%
Illinois			
Mercer County			
Total	7,358	16,434	
WMT-FM (243)	91	204	
IxFree	91	204	100.00
Rock Island County			
Total	65,756	147,546	
WMT-FM (243)	528	1,241	
IxFree	528	1,241	100.00
Iowa			
Benton County			
Total	11,095	26,076	
WMT-FM (243)	11,095	26,076	
IxFree	11,095	26,076	100.00
Black Hawk County			
Total	55,887	131,090	
WMT-FM (243)	53,038	124,069	
IxFree	53,038	124,069	100.00
Bremer County			
Total	9,915	24,276	
WMT-FM (243)	1,937	4,623	
IxFree	1,937	4,623	100.00
Buchanan County			
Total	8,968	20,958	
WMT-FM (243)	8,960	20,941	
IxFree	8,960	20,941	100.00
Butler County			
Total	6,682	14,867	
WMT-FM (243)	29	71	
IxFree	29	71	100.00
Cedar County			
Total	8,064	18,499	
WMT-FM (243)	8,061	18,491	
IxFree	8,061	18,491	100.00
Clayton County			
Total	8,999	18,129	
WMT-FM (243)	1,775	3,869	
IxFree	1,775	3,869	100.00
Clinton County			
Total	21,733	49,116	
WMT-FM (243)	4,128	9,433	

IxFree	4,128	9,433	100.00
Delaware County			
Total	8,028	17,764	
WMT-FM (243)	7,853	17,430	
IxFree	7,853	17,430	100.00
Dubuque County			
Total	38,951	93,653	
WMT-FM (243)	6,369	16,245	
IxFree	6,369	16,245	100.00
Fayette County			
Total	9,558	20,880	
WMT-FM (243)	4,838	10,549	
IxFree	4,838	10,549	100.00
Grundy County			
Total	5,530	12,453	
WMT-FM (243)	1,358	3,140	
IxFree	1,358	3,140	100.00
Henry County			
Total	8,280	20,145	
WMT-FM (243)	641	1,519	
IxFree	641	1,519	100.00
Iowa County			
Total	7,258	16,355	
WMT-FM (243)	7,042	15,851	
IxFree	7,042	15,851	100.00
Jackson County			
Total	9,415	19,848	
WMT-FM (243)	2,983	6,520	
IxFree	2,983	6,520	100.00
Jasper County			
Total	16,181	36,842	
WMT-FM (243)	51	99	
IxFree	51	99	100.00
Jefferson County			
Total	7,594	16,843	
WMT-FM (243)	42	93	
IxFree	42	93	100.00
Johnson County			
Total	55,967	130,882	
WMT-FM (243)	55,908	130,751	
IxFree	55,908	130,751	100.00
Jones County			
Total	8,911	20,638	
WMT-FM (243)	8,646	19,989	
IxFree	8,646	19,989	100.00
Keokuk County			
Total	4,931	10,511	
WMT-FM (243)	3,054	6,435	
IxFree	3,054	6,435	100.00
Linn County			
Total	92,251	211,226	
WMT-FM (243)	92,251	211,226	
IxFree	92,251	211,226	100.00
Louisa County			
Total	5,002	11,387	
WMT-FM (243)	1,583	3,826	

IxFree	1,583	3,826	100.00
Mahaska County			
Total	9,766	22,381	
WMT-FM (243)	109	195	
IxFree	109	195	100.00
Marshall County			
Total	16,831	40,648	
WMT-FM (243)	421	972	
IxFree	421	972	100.00
Muscatine County			
Total	17,910	42,745	
WMT-FM (243)	9,614	23,273	
IxFree	9,614	23,273	100.00
Poweshiek County			
Total	8,949	18,914	
WMT-FM (243)	4,990	11,629	
IxFree	4,990	11,629	100.00
Scott County			
Total	71,835	165,224	
WMT-FM (243)	4,249	9,902	
IxFree	4,249	9,902	100.00
Tama County			
Total	7,766	17,767	
WMT-FM (243)	5,393	12,121	
IxFree	5,393	12,121	100.00
Washington County			
Total	9,516	21,704	
WMT-FM (243)	9,044	20,632	
IxFree	9,044	20,632	100.00
Wisconsin			
Grant County			
Total	21,581	51,208	
WMT-FM (243)	30	49	
IxFree	30	49	100.00

WMT-FM

BMLH20050908ACY

Latitude: 42-01-40 N

Longitude: 091-38-25 W

ERP: 100.00 kW

Channel: 243

Frequency: 96.5 MHz

AMSL Height: 411.0 m

Elevation: 259.0 m

Horiz. Pattern: Omni

Vert. Pattern: No

Prop Model: Longley/Rice

Climate: Cont temperate

Conductivity: 0.0050

Dielec Const: 15.0

Refractivity: 311.0

Receiver Ht AG: 9.1 m

Receiver Gain: 0 dB

Time Variability: 50.0%

Sit. Variability: 50.0%

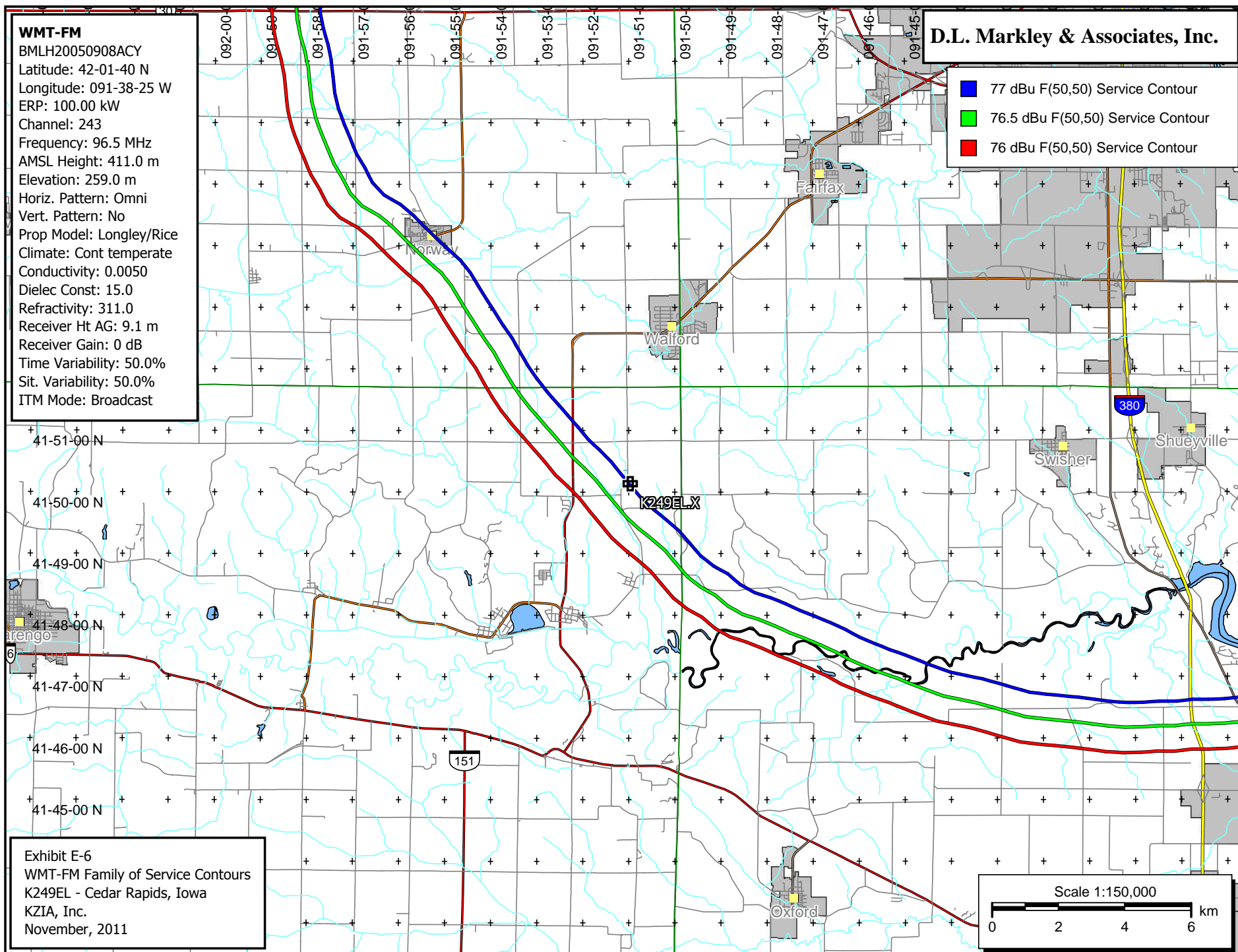
ITM Mode: Broadcast

D.L. Markley & Associates, Inc.

77 dBu F(50,50) Service Contour

76.5 dBu F(50,50) Service Contour

76 dBu F(50,50) Service Contour

**Exhibit E-6**

WMT-FM Family of Service Contours

K249EL - Cedar Rapids, Iowa

KZIA, Inc.

November, 2011

Exhibit E-7 - Summary of Power Density Calculations								
Facility:	K249EL							
COR:		27.0	m AGL				Z0 (Ohms)	377
ERP:		165	Watts				ALL distances meters	
Antenna:		SWR FM1/2						
FS Contour:		116.5	dBu					
E Field Strength:		0.6683	V/m					
Power Density:		0.0011848371	W/m^2					
Dep.			ERP in	Radius	Field Strength	Radius	Radius	Radius
θ	Erel	Prel	Watts	Squared	Radius	Vert. Dist.	AGL	Horiz. Dist.
0	1.000	1.000	165.00	11081.931	105.27	0.00	27.00	105.27
1	0.999	0.998	164.67	11059.778	105.17	1.84	25.16	105.15
2	0.995	0.990	163.35	10971.388	104.74	3.66	23.34	104.68
3	0.989	0.978	161.39	10839.469	104.11	5.45	21.55	103.97
4	0.980	0.960	158.47	10643.086	103.17	7.20	19.80	102.91
5	0.969	0.939	154.93	10405.501	102.01	8.89	18.11	101.62
6	0.956	0.914	150.80	10128.175	100.64	10.52	16.48	100.09
7	0.941	0.885	146.10	9812.839	99.06	12.07	14.93	98.32
8	0.923	0.852	140.57	9441.018	97.16	13.52	13.48	96.22
9	0.903	0.815	134.54	9036.306	95.06	14.87	12.13	93.89
10	0.881	0.776	128.07	8601.362	92.74	16.10	10.90	91.33
11	0.858	0.736	121.47	8158.118	90.32	17.23	9.77	88.66
12	0.832	0.692	114.22	7671.178	87.59	18.21	8.79	85.67
13	0.805	0.648	106.92	7181.368	84.74	19.06	7.94	82.57
14	0.776	0.602	99.36	6673.273	81.69	19.76	7.24	79.26
15	0.745	0.555	91.58	6150.749	78.43	20.30	6.70	75.75
16	0.714	0.510	84.12	5649.524	75.16	20.72	6.28	72.25
17	0.681	0.464	76.52	5139.367	71.69	20.96	6.04	68.56
18	0.647	0.419	69.07	4638.996	68.11	21.05	5.95	64.78
19	0.612	0.375	61.80	4150.671	64.43	20.97	6.03	60.92
20	0.576	0.332	54.74	3676.719	60.64	20.74	6.26	56.98
21	0.539	0.291	47.94	3219.534	56.74	20.33	6.67	52.97
22	0.502	0.252	41.58	2792.691	52.85	19.80	7.20	49.00
23	0.465	0.216	35.68	2396.190	48.95	19.13	7.87	45.06
24	0.427	0.182	30.08	2020.557	44.95	18.28	8.72	41.06
25	0.389	0.151	24.97	1676.929	40.95	17.31	9.69	37.11
26	0.352	0.124	20.44	1373.096	37.06	16.24	10.76	33.31
27	0.314	0.099	16.27	1092.634	33.06	15.01	11.99	29.45
28	0.277	0.077	12.66	850.305	29.16	13.69	13.31	25.75
29	0.240	0.058	9.50	638.319	25.26	12.25	14.75	22.10
30	0.203	0.041	6.80	456.675	21.37	10.68	16.32	18.51
31	0.168	0.028	4.66	312.776	17.69	9.11	17.89	15.16
32	0.132	0.017	2.87	193.092	13.90	7.36	19.64	11.78
33	0.098	0.010	1.58	106.431	10.32	5.62	21.38	8.65
34	0.065	0.004	0.70	46.821	6.84	3.83	23.17	5.67
35	0.032	0.001	0.17	11.348	3.37	1.93	25.07	2.76
36	0.001	0.000	0.00	0.011	0.11	0.06	26.94	0.09
37	0.029	0.001	0.14	9.320	3.05	1.84	25.16	2.44
38	0.058	0.003	0.56	37.280	6.11	3.76	23.24	4.81

Exhibit E-7 - Summary of Power Density Calculations								
Facility:	K249EL							
COR:		27.0 m AGL					Z0 (Ohms)	377
ERP:		165 Watts					ALL distances meters	
Antenna:		SWR FM1/2						
FS Contour:		116.5 dBu						
E Field Strength:		0.6683 V/m						
Power Density:		0.0011848371 W/m^2						
Dep.			ERP in	Radius	Field Strength	Radius	Radius	Radius
θ	Erel	Prel	Watts	Squared	Radius	Vert. Dist.	AGL	Horiz. Dist.
39	0.086	0.007	1.22	81.962	9.05	5.70	21.30	7.04
40	0.112	0.013	2.07	139.012	11.79	7.58	19.42	9.03
41	0.137	0.019	3.10	207.997	14.42	9.46	17.54	10.88
42	0.161	0.026	4.28	287.255	16.95	11.34	15.66	12.60
43	0.183	0.033	5.53	371.123	19.26	13.14	13.86	14.09
44	0.204	0.042	6.87	461.186	21.48	14.92	12.08	15.45
45	0.224	0.050	8.28	556.047	23.58	16.67	10.33	16.67
46	0.242	0.059	9.66	649.002	25.48	18.33	8.67	17.70
47	0.258	0.067	10.98	737.658	27.16	19.86	7.14	18.52
48	0.273	0.075	12.30	825.925	28.74	21.36	5.64	19.23
49	0.287	0.082	13.59	912.808	30.21	22.80	4.20	19.82
50	0.299	0.089	14.75	990.736	31.48	24.11	2.89	20.23
51	0.310	0.096	15.86	1064.974	32.63	25.36	1.64	20.54
52	0.319	0.102	16.79	1127.708	33.58	26.46	0.54	20.67
53	0.327	0.107	17.64	1184.980	34.42	27.49	-0.49	20.72
54	0.334	0.112	18.41	1236.256	35.16	28.45	-1.45	20.67
55	0.339	0.115	18.96	1273.547	35.69	29.23	-2.23	20.47
56	0.343	0.118	19.41	1303.778	36.11	29.93	-2.93	20.19
57	0.346	0.120	19.75	1326.684	36.42	30.55	-3.55	19.84
58	0.348	0.121	19.98	1342.066	36.63	31.07	-4.07	19.41
59	0.348	0.121	19.98	1342.066	36.63	31.40	-4.40	18.87
60	0.347	0.120	19.87	1334.364	36.53	31.63	-4.63	18.26
61	0.345	0.119	19.64	1319.027	36.32	31.76	-4.76	17.61
62	0.343	0.118	19.41	1303.778	36.11	31.88	-4.88	16.95
63	0.339	0.115	18.96	1273.547	35.69	31.80	-4.80	16.20
64	0.334	0.112	18.41	1236.256	35.16	31.60	-4.60	15.41
65	0.328	0.108	17.75	1192.238	34.53	31.29	-4.29	14.59
66	0.322	0.104	17.11	1149.019	33.90	30.97	-3.97	13.79
67	0.315	0.099	16.37	1099.605	33.16	30.52	-3.52	12.96
68	0.306	0.094	15.45	1037.668	32.21	29.87	-2.87	12.07
69	0.298	0.089	14.65	984.120	31.37	29.29	-2.29	11.24
70	0.288	0.083	13.69	919.180	30.32	28.49	-1.49	10.37
71	0.278	0.077	12.75	856.456	29.27	27.67	-0.67	9.53
72	0.267	0.071	11.76	790.020	28.11	26.73	0.27	8.69
73	0.256	0.066	10.81	726.265	26.95	25.77	1.23	7.88
74	0.244	0.060	9.82	659.774	25.69	24.69	2.31	7.08
75	0.231	0.053	8.80	591.343	24.32	23.49	3.51	6.29
76	0.218	0.048	7.84	526.658	22.95	22.27	4.73	5.55
77	0.205	0.042	6.93	465.718	21.58	21.03	5.97	4.85

Exhibit E-7 - Summary of Power Density Calculations								
Facility:	K249EL							
COR:		27.0	m AGL				Z0 (Ohms)	377
ERP:		165	Watts				ALL distances meters	
Antenna:		SWR FM1/2						
FS Contour:		116.5	dBu					
E Field Strength:		0.6683	V/m					
Power Density:		0.0011848371	W/m^2					
Dep.			ERP in	Radius	Field Strength	Radius	Radius	Radius
θ	Erel	Prel	Watts	Squared	Radius	Vert. Dist.	AGL	Horiz. Dist.
78	0.191	0.036	6.02	404.280	20.11	19.67	7.33	4.18
79	0.177	0.031	5.17	347.186	18.63	18.29	8.71	3.56
80	0.162	0.026	4.33	290.834	17.05	16.79	10.21	2.96
81	0.148	0.022	3.61	242.739	15.58	15.39	11.61	2.44
82	0.132	0.017	2.87	193.092	13.90	13.76	13.24	1.93
83	0.117	0.014	2.26	151.701	12.32	12.22	14.78	1.50
84	0.101	0.010	1.68	113.047	10.63	10.57	16.43	1.11
85	0.085	0.007	1.19	80.067	8.95	8.91	18.09	0.78
86	0.069	0.005	0.79	52.761	7.26	7.25	19.75	0.51
87	0.052	0.003	0.45	29.966	5.47	5.47	21.53	0.29
88	0.036	0.001	0.21	14.362	3.79	3.79	23.21	0.13
89	0.018	0.000	0.05	3.591	1.89	1.89	25.11	0.03
90	0.000	0.000	0.00	0.000	0.00	0.00	27.00	0.00

Exhibit E-8
Satellite Image of Vicinity

