

Comprehensive Technical Exhibit
Application for Construction Permit
K209EC - Kansas City, Missouri
Community Broadcasting, Inc.
December, 2011

Application for Construction Permit

The following engineering statement and attached exhibits have been prepared for **Community Broadcasting, Inc.** ("CBI"), licensee of FM translator station K209EC at Kansas City, Missouri, 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 of the facility, relocate the facility, change the effective radiated power, and increase the center of radiation.

The changes proposed under this application are being requested for two purposes. First, CBI seeks displacement relief for the translator due to the upgrade of NCE station KJCV-FM at Country Club, Missouri.² Secondly, as part of the displacement relief, CBI seeks to provide fill-in translator service for AM station KCCV at Overland Park, Kansas.³

At present K209EC is licensed to operate with an effective radiated power of 205 Watts vertically polarized at a center of radiation of 343 meters above mean sea level. This authorization specifies the tower registered under the Antenna Structure Registration Number 1057465, and bears FCC File No. BLFT-20010724ABT. The use of this tower was lost when the license was transferred from Pensacola Christian College, Inc. ("Pensacola").⁴ Prior to this period, the translator went silent as a result of the upgrade of KJCV-FM.⁵

CBI acquired the translator from Pensacola to attempt to preserve its operation. Since the acquisition, it has attempted to negotiate a relocation of the translator. Under the conventional rules, however, such relocation has proved problematic due to site restrictions and channel

¹ The Facility ID for K209EC at Kansas City, Missouri is 92765.

² The Facility ID for KJCV-FM at Country Club, Missouri is 89276.

³ The Facility ID for KCCV at Overland Park, Kansas is 6491.

⁴ See FCC File No. BALFT-20100907AAW.

⁵ See FCC File Nos. BPED-20091117AAI and BLED-20100707FCN.

availability in the congested Kansas City metropolitan area. As a result, CBI respectfully requests treatment of this application as a displacement of the translator so it may return to full operation.

It is believed that a grant of this request would be in the public interest. First, a grant would permit the facility to return to reliable operation instead of alternating between intermittent periods of operation and requests for silent authority to protect the license. Second, a change in the channel of operation would eliminate the interference issues with co-channel NCE facility KJCV-FM at Country Club. Finally, under the proposed change, CBI would utilize the translator as a fill-in translator for standard broadcast station KCCV at Overland Park, Kansas.

KCCV is a class-D facility that operates with a secondary nighttime operation. Due to the proximity of the 0.5 mV/m 50% Skywave contour of co-channel class A AM facility WJR at Detroit, Michigan, the coverage of KCCV during nighttime hours to the east of its array is extremely limited.⁶ In addition, since KCCV is a class-D facility, the nighttime authorization could be cancelled by the Commission. The use of this translator as a fill-in for that facility will aid in its coverage to the east of the site, which is an area in which development has historically occurred.

Exhibit E-1 illustrates the predicted 60-dBu service contour of the proposed facility along with service contours of KCCV and a twenty-five mile radius centered on the KCCV transmitter site. As depicted, the predicted 60-dBu service contour would be wholly contained within both the 2.0 mV/m daytime service contour and a twenty-five mile radius centered on the transmitter site of KCCV. This map also demonstrates the extent to which the nighttime signal from KCCV is reduced in an easterly direction. Based on this exhibit, the proposed facility qualifies as a fill-in translator.

⁶ The Facility ID for WJR at Detroit, Michigan is 8626.

In Exhibit E-2, a comparison is made between the 60-dBu service contour of the proposed facility, and the licensed 60-dBu service contour. As demonstrated in this exhibit, the proposed 60-dBu service contour is wholly contained within the proposed 60-dBu service contour. The change in the service area of the translator would be considered a minor change in the facility.

Although the service area is change due to overlap between the proposed and licensed service contours, the proposed change in the channel of operation would normally be considered a major change. As previously discussed, CBI respectfully seeks a waiver of Section 74.1233(a)(1) of the Commission's Rules such that this application would be considered a minor change subject to displacement conditions.

K209EC qualifies for displacement in that it was operational at its currently licensed facilities for several years prior to the upgrade of KJCV-FM. The upgrade of KJCV-FM resulted in a situation where the translator would cause widespread interference to the reception of KJCV-FM north of the Kansas City metropolitan area. Exhibit E-3 illustrates the extent of this interference, and considers interference to KJCV-FM from the licensed K209EC facility by FCC contours and by the Longley-Rice model. As depicted, there is a small area of prohibited contour overlap indicated in orange, and an extensive area of real world interference illustrated by the pink pixels.

The change in the channel of operation from the licensed 209 to the proposed 225 would eliminate this interference issue. In fact, the proposed facility is not predicted to cause interference to any proposed or existing facility. Exhibit E-4 is a tabular based contour overlap study for the proposed facility. Exhibit E-5 illustrates the information in Exhibit E-4, but in a contour based graphical form.

As demonstrated in Exhibits E-4 and E-5, there would be no prohibited contour overlap between the proposed facility, and any other relevant facility with the exception of KCCV-FM at Olathe, Kansas, and KMXV(FM) at Kansas City, Missouri.⁷ In both of these cases, however, the contour overlap would not result in a situation where interference would be experienced in populated areas.

The map in Exhibit E-6 demonstrates that the signal level in the vicinity of the K209EC site is approximately 61 dBu for KCCV-FM and 103 dBu for KMXV. KCCV-FM is third adjacent to the proposed K209EC channel and KMXV is second adjacent to the proposed K209EC channel. In both cases, interference is defined to exist when the K209EC field strength is more than 40 dBu greater than the field strength from either full power FM station. Thus, for interference to occur to KCCV-FM the field strength from K209EC must be approximately 101 dBu, and for KMXV approximately 143 dBu.

Due to the 42 dB difference between the field strength required to cause interference to KCCV-FM and to KMXV, it is only necessary to consider KCCV-FM. If it can be reasonably demonstrated that no interference would be predicted to that facility, then it can be reasonably inferred that no interference would be caused to KMXV. This is true as the field strength necessary to cause interference to KMXV is some 200 times greater than that necessary to cause interference to KCCV-FM.

Due to the proximity of the potential interference area to the proposed K209EC site, the standard FCC contour method is not the most accurate methodology of determining the location of

⁷ The Facility ID for KCCV-FM at Olathe, Kansas is 6492. The Facility ID for KMXV(FM) at Kansas City, Missouri is 2446.

the interfering contours. Rather, a determination of the field strength through the use of free space equations is more appropriate. Exhibit E-7 tabulates the distance to the location of field strength of 101 dBu from the K209EC antenna. The tabulation is created by this methodology:

The power density for the proposed facility at field strength of 101 dBu is given by the following equation:

$$S = \frac{E^2}{Z_0} = \frac{(0.1122)^2}{377} = 3.339 \times 10^{-5} \quad \text{Eq. 1}$$

In this equation, S represents the calculated power density in Watts per square meter, E is the electric field intensity, which for 101 dBu is 0.0003339 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 (99 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 an Electronics Research, Inc. (ERI) LPX-2E 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 three 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 zone between radii of approximately 102 meters and 142 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 are two circles denoting the 102 and 142 meter radii. From the image in Exhibit E-8, it can be seen that there are no structures within the potential interference zone. Any population in this area would be transitory in nature during the approach to the transmitter building.

Although a small region of interference in the vicinity of the antenna supporting structure may potentially occur, this interference is in an unpopulated area, and within a tower compound. It is also an area that would be subject to potential blanketing interference from other facilities at the site. It is therefore believed that these studies demonstrate proper compliance with the provision of Section 74.1204(d) of the Commission's Rules.

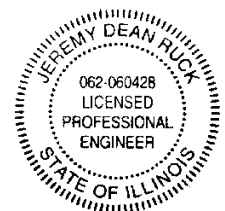
The proposed translator should be exempt from environmental processing. The supporting structure that would be utilized by the translator is an existing structure. This structure is registered

with the Commission. The proposed construction necessary for the translator will not increase the existing environmental impact already present from the structure.

The proposed facility also will not constitute an RF exposure hazard. The Commission's *FM Model* software package predicts a maximum power density of $0.021 \mu\text{W}/\text{cm}^2$ from the proposed facility at ground level at a distance of 142 meters from the base of the tower. This level is so low that it essentially results in no contribution to the ambient power density from the structure. Numerically this is approximately 9,500 times less than the level permitted under the uncontrolled environment condition.

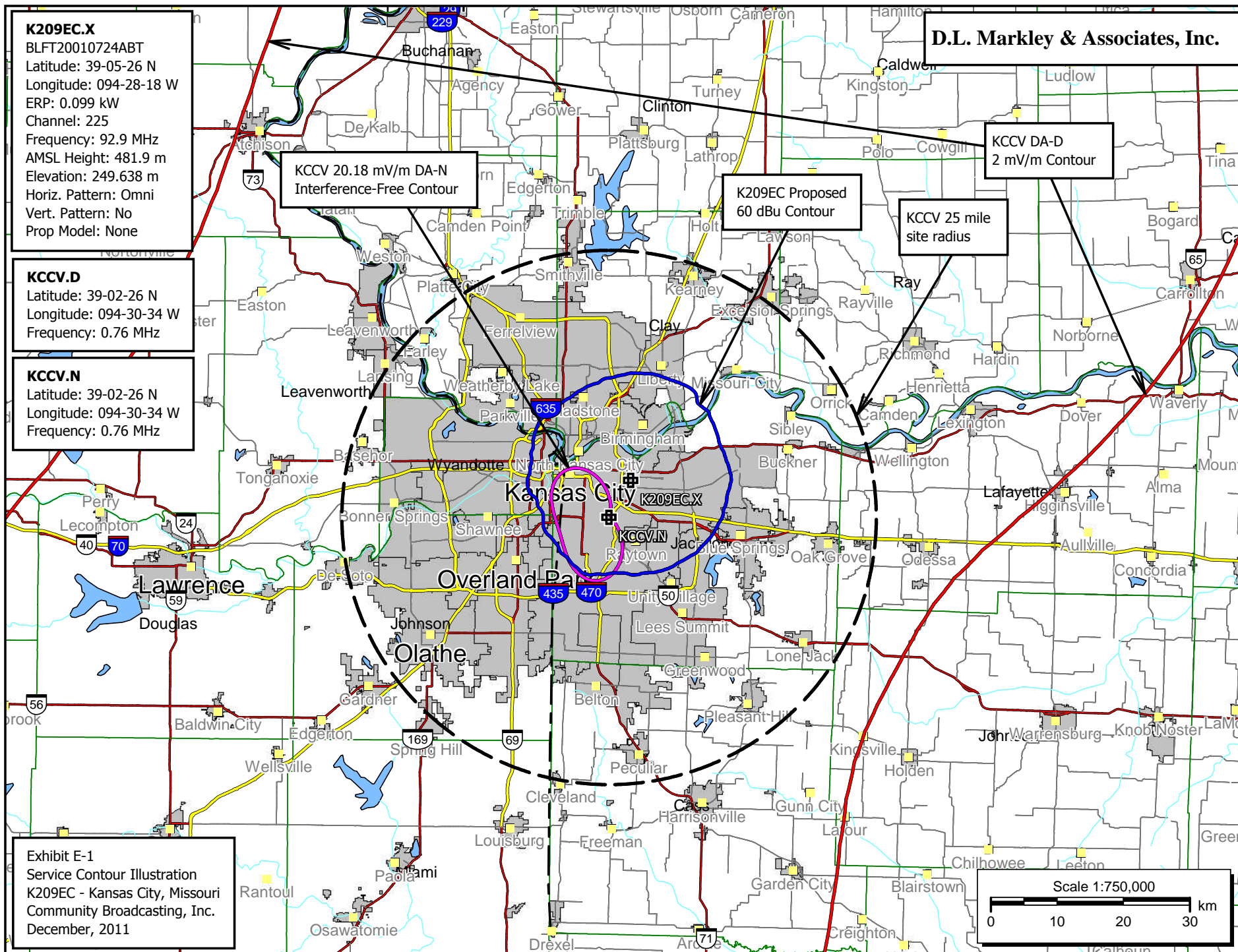
CBI certifies that it will coordinate with all other present and future users of the site to ensure that workers having access to the structure are protected from exposure to levels of radiofrequency radiation in excess of those permitted under the safety standard. Such coordination will include, but is not necessarily limited to, a reduction in power or cessation of operation as necessary.

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
December 13, 2011



K209EC.X

PROPOSED

Latitude: 39-05-26 N
Longitude: 094-28-18 W
ERP: 0.099 kW
Channel: 225
Frequency: 92.9 MHz
AMSL Height: 481.9 m
Elevation: 249.638 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

K209EC

BLFT20010724ABT

Latitude: 39-04-59 N
Longitude: 094-28-49 W
ERP: 0.205 kW
Channel: 209
Frequency: 89.7 MHz
AMSL Height: 343.0 m
Elevation: 252.0 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None

D.L. Markley & Associates, Inc.

- Proposed 60 dBu Service Contour
- Licensed 60 dBu Service Contour
- Area of Common Overlap

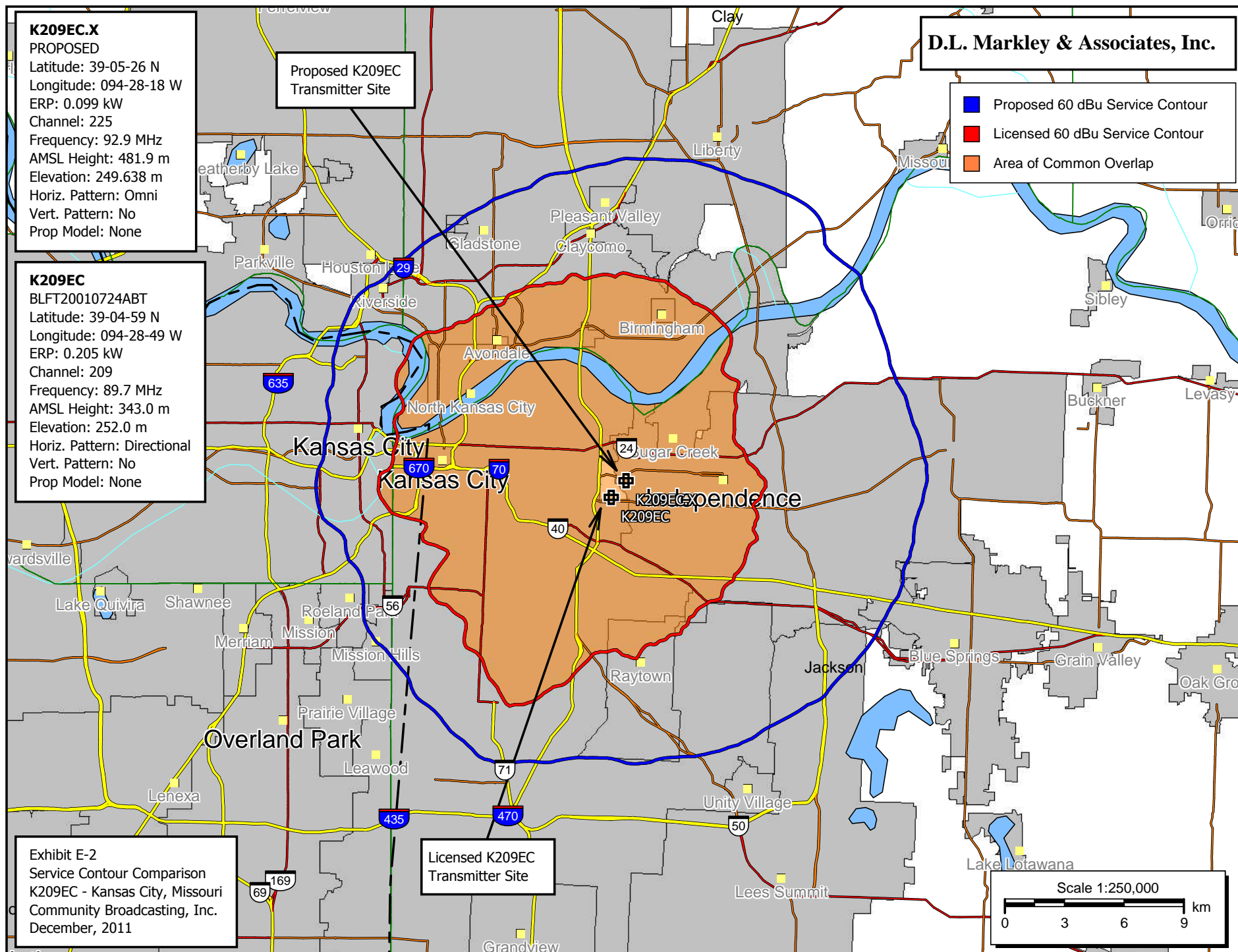


Exhibit E-2
Service Contour Comparison
K209EC - Kansas City, Missouri
Community Broadcasting, Inc.
December, 2011

Licensed K209EC
Transmitter Site

Proposed K209EC
Transmitter Site

Scale 1:250,000

0 3 6 9 km

KJCV-FM

BLED20100707FCN

Latitude: 39-44-42 N

Longitude: 094-45-06 W

ERP: 25.00 kW

Channel: 209

Frequency: 89.7 MHz

AMSL Height: 385.5 m

Elevation: 275.8 m

Horiz. Pattern: Directional

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.

- KJCV-FM 60 dBu F(50,50) Contour
- K209EC Licensed 40 dBu F(50,10) Contour
- Area of Prohibited Contour Overlap
- Areas of Predicted Interference by Longley-Rice

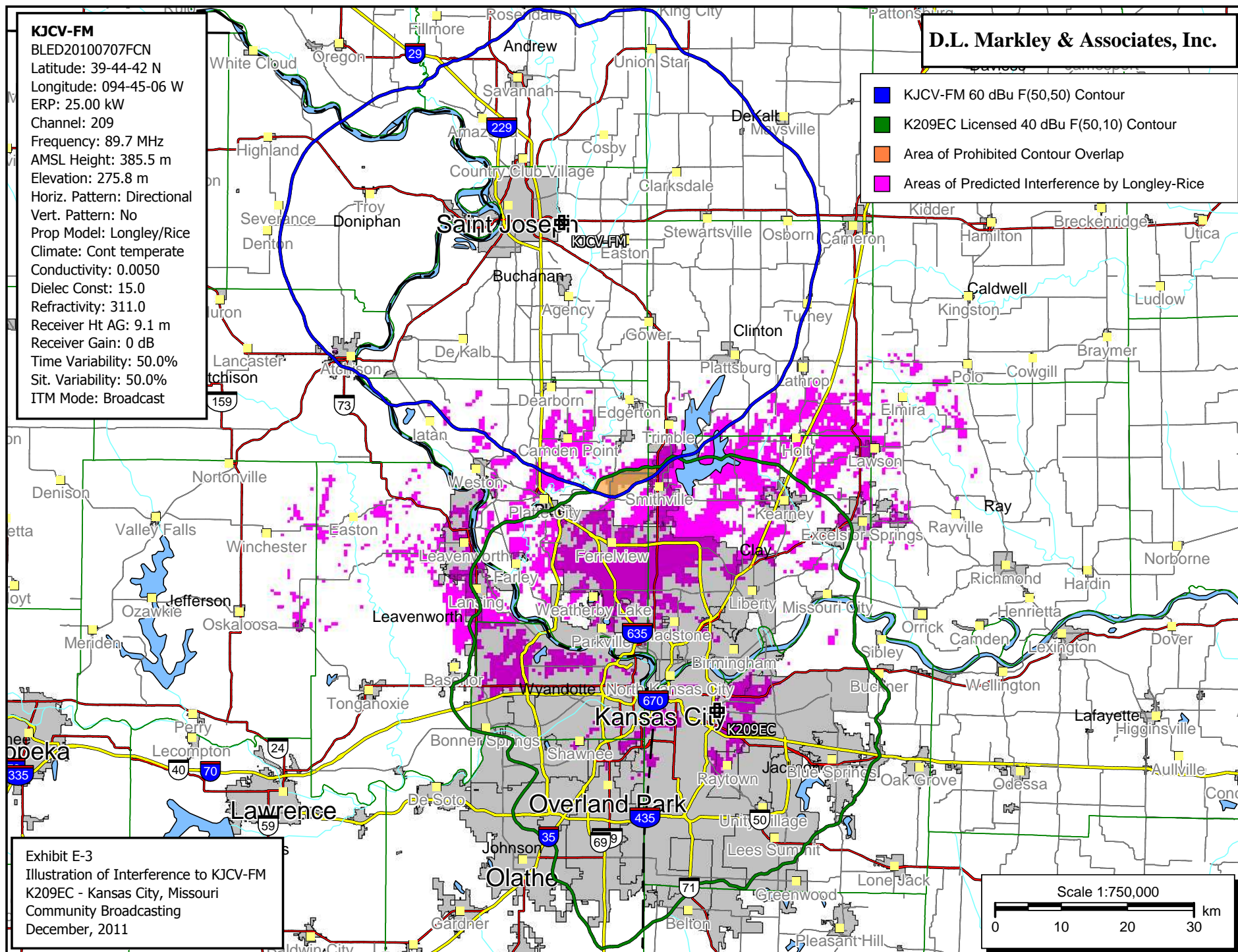


Exhibit E-3

Illustration of Interference to KJCV-FM

K209EC - Kansas City, Missouri

Community Broadcasting

December, 2011

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

Exhibit E-4 - Tabular Allocation Study

K209EC - Kansas City, Missouri

CH# 225D - 92.9 MHz, Pwr= 0.099 kw, HAAT= 223.1 M, COR= 481.9 M

Average Protected F(50-50)= 15.31 km

Omni-directional

DISPLAY DATES

DATA 12-13-11

SEARCH 12-13-11

REFERENCE
39 05 26.0 N.
94 28 49.0 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*
227C0 Kansas City	AL1942	RSV-A MO	___	195.3 15.3	8.6 RMKS213	39 00 57.0 94 30 24.0	100.000 450	12.4 724	85.6	-18.9*	-77.7*
227C0 Kansas City	KMXV	LIC _CN MO		195.3 15.3	8.6 BLH19870318KG	39 00 57.0 94 30 24.0	100.000 325	11.0 599	76.6 Wilks License Company-kans	-17.4*	-68.7*
225C2 Osage City	KMXN	LIC NCX KS		247.5 66.8	100.8 BLH20061026ADZ	38 44 22.0 95 33 07.0	42.000 163	134.5 492	51.2 Great Plains Media, Inc.	-47.9*	3.0
222C3 Olathe	KCCV-FM	LIC _CN KS		241.5 61.3	35.9 BLH19951113KA	38 56 10.0 94 50 41.0	8.300 172	3.8 465	38.8 Bott Broadcasting Company	17.4	-3.6*
224C2 Savannah	KSJQ	LIC _CN MO		336.8 156.5	107.2 BLH19911003KA	39 58 34.0 94 58 37.0	50.000 150	81.4 445	55.0 Eagle Communications, Inc.	10.0	28.4
223A Richmond	KAYX	LIC _CX MO		78.9 259.3	56.9 BMLH20080222ACG	39 11 14.0 93 50 03.0	2.350 163	2.6 390	29.5 Bott Communications, Inc.	39.9	26.7
222D Knob Noster	K223BY	APP _V_ MO		144.2 324.4	50.3 BPFT20111013AFZ	38 43 23.0 94 08 29.0	0.250	1.1 259	7.1 Alpine Broadcasting Corpor	34.9	42.5
225D Butler	636774	APP _C_ MO		171.0 351.1	97.5 BNPFT20030317JCP	38 13 22.9 94 18 19.3	0.092 148	40.1 401	11.9 Radio Assist Ministry, Inc	43.1	38.7
223D Knob Noster	K223BY	LIC _V_ MO		136.6 316.9	60.3 BLFT20110803ABI	38 41 44.0 94 00 09.0	0.205	1.0 295	6.7 Alpine Broadcasting Corpor	44.7	52.9

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.

Latitude: 39-05-26 N
Longitude: 094-28-18 W
ERP: 0.099 kW
Channel: 225
Frequency: 92.9 MHz
AMSL Height: 481.9 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None




-  60 dBu F(50,50) Protected Contour
-  K209EC 54 dBu F(50,10) Interfering Contour
-  K209EC 100 dBu F(50,10) Interfering Contour

Exhibit E-5
Contour Allocation Study
K209EC - Kansas City, Missouri
Community Broadcasting, Inc.
December, 2011

Scale 1:1,000,000

Latitude: 39-05-26 N
Longitude: 094-28-18 W
ERP: 0.099 kW
Channel: 225
Frequency: 92.9 MHz
AMSL Height: 481.9 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

K209EC Proposed
Transmitter Site

KCCV-FM 61 dBu
F(50,50) Contour

KCCV-FM
Transmitter Site

KCCV-FM

KMXV
Transmitter Site

Exhibit E-6
Interference Study
K209EC - Kansas City, Missouri
Community Broadcasting, Inc.
December, 2011

KMXV 103 dBu
F(50,50) Contour

Scale 1:250,000

0 3 6 9 km

Exhibit E-7 - Summary of Power Density Calculations								
Facility:	K209EC							
COR:		213	m AGL				Z0 (Ohms)	377
ERP:		99	Watts				ALL distances meters	
Antenna:		LPX-2E						
FS Contour:		101	dBu					
E Field Strength:		0.1122	V/m					
Power Density:		0.0000333932	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	99.00	235921.044	485.72	0.00	213.00	485.72
1	0.998	0.996	98.60	234978.303	484.75	8.46	204.54	484.67
2	0.994	0.988	97.82	233098.484	482.80	16.85	196.15	482.51
3	0.985	0.970	96.05	228896.495	478.43	25.04	187.96	477.78
4	0.974	0.949	93.92	223812.632	473.09	33.00	180.00	471.94
5	0.960	0.922	91.24	217424.834	466.29	40.64	172.36	464.51
6	0.942	0.887	87.85	209347.841	457.55	47.83	165.17	455.04
7	0.922	0.850	84.16	200552.704	447.83	54.58	158.42	444.49
8	0.899	0.808	80.01	190671.623	436.66	60.77	152.23	432.41
9	0.873	0.762	75.45	179802.269	424.03	66.33	146.67	418.81
10	0.845	0.714	70.69	168453.523	410.43	71.27	141.73	404.20
11	0.814	0.663	65.60	156320.340	395.37	75.44	137.56	388.11
12	0.781	0.610	60.39	143902.636	379.35	78.87	134.13	371.06
13	0.745	0.555	54.95	130942.077	361.86	81.40	131.60	352.58
14	0.708	0.501	49.63	118258.726	343.89	83.19	129.81	333.67
15	0.669	0.448	44.31	105589.058	324.94	84.10	128.90	313.87
16	0.629	0.396	39.17	93340.038	305.52	84.21	128.79	293.68
17	0.587	0.345	34.11	81291.078	285.12	83.36	129.64	272.66
18	0.544	0.296	29.30	69817.530	264.23	81.65	131.35	251.30
19	0.499	0.249	24.65	58744.576	242.37	78.91	134.09	229.17
20	0.455	0.207	20.50	48841.554	221.00	75.59	137.41	207.67
21	0.409	0.167	16.56	39465.108	198.66	71.19	141.81	185.46
22	0.363	0.132	13.05	31087.080	176.32	66.05	146.95	163.48
23	0.317	0.100	9.95	23707.470	153.97	60.16	152.84	141.73
24	0.272	0.074	7.32	17454.382	132.12	53.74	159.26	120.69
25	0.226	0.051	5.06	12049.903	109.77	46.39	166.61	99.49
26	0.180	0.032	3.21	7643.842	87.43	38.33	174.67	78.58
27	0.135	0.018	1.80	4299.661	65.57	29.77	183.23	58.42
28	0.091	0.008	0.82	1953.662	44.20	20.75	192.25	39.03
29	0.048	0.002	0.23	543.562	23.31	11.30	201.70	20.39
30	0.006	0.000	0.00	8.493	2.91	1.46	211.54	2.52
31	0.036	0.001	0.13	305.754	17.49	9.01	203.99	14.99
32	0.076	0.006	0.57	1362.680	36.91	19.56	193.44	31.31
33	0.114	0.013	1.29	3066.030	55.37	30.16	182.84	46.44
34	0.151	0.023	2.26	5379.236	73.34	41.01	171.99	60.80
35	0.187	0.035	3.46	8249.923	90.83	52.10	160.90	74.40
36	0.221	0.049	4.84	11522.620	107.34	63.09	149.91	86.84
37	0.253	0.064	6.34	15101.070	122.89	73.95	139.05	98.14
38	0.284	0.081	7.98	19028.448	137.94	84.93	128.07	108.70

Exhibit E-7 - Summary of Power Density Calculations								
Facility:	K209EC							
COR:		213	m AGL				Z0 (Ohms)	377
ERP:		99	Watts				ALL distances meters	
Antenna:		LPX-2E						
FS Contour:		101	dBu					
E Field Strength:		0.1122	V/m					
Power Density:		0.0000333932	W/m^2					
Dep.			ERP in	Radius	Field Strength	Radius	Radius	Radius
θ	Erel	Prel	Watts	Squared	Radius	Vert. Dist.	AGL	Horiz. Dist.
39	0.312	0.097	9.64	22965.498	151.54	95.37	117.63	117.77
40	0.339	0.115	11.38	27112.282	164.66	105.84	107.16	126.14
41	0.364	0.132	13.12	31258.595	176.80	115.99	97.01	133.43
42	0.387	0.150	14.83	35333.659	187.97	125.78	87.22	139.69
43	0.409	0.167	16.56	39465.108	198.66	135.48	77.52	145.29
44	0.428	0.183	18.14	43216.960	207.89	144.41	68.59	149.54
45	0.445	0.198	19.60	46718.265	216.14	152.84	60.16	152.84
46	0.461	0.213	21.04	50138.176	223.92	161.07	51.93	155.54
47	0.475	0.226	22.34	53229.685	230.72	168.73	44.27	157.35
48	0.487	0.237	23.48	55953.158	236.54	175.79	37.21	158.28
49	0.497	0.247	24.45	58274.621	241.40	182.19	30.81	158.37
50	0.506	0.256	25.35	60404.280	245.77	188.27	24.73	157.98
51	0.513	0.263	26.05	62087.105	249.17	193.64	19.36	156.81
52	0.518	0.268	26.56	63303.278	251.60	198.26	14.74	154.90
53	0.522	0.272	26.98	64284.710	253.54	202.49	10.51	152.59
54	0.524	0.275	27.18	64778.256	254.52	205.91	7.09	149.60
55	0.525	0.276	27.29	65025.738	255.00	208.88	4.12	146.26
56	0.525	0.276	27.29	65025.738	255.00	211.41	1.59	142.59
57	0.523	0.274	27.08	64531.247	254.03	213.05	-0.05	138.35
58	0.520	0.270	26.77	63793.050	252.57	214.19	-1.19	133.84
59	0.516	0.266	26.36	62815.393	250.63	214.83	-1.83	129.08
60	0.511	0.261	25.85	61603.939	248.20	214.95	-1.95	124.10
61	0.505	0.255	25.25	60165.764	245.29	214.53	-1.53	118.92
62	0.498	0.248	24.55	58509.363	241.89	213.57	-0.57	113.56
63	0.490	0.240	23.77	56644.643	238.00	212.06	0.94	108.05
64	0.482	0.232	23.00	54810.121	234.12	210.42	2.58	102.63
65	0.472	0.223	22.06	52559.434	229.26	207.78	5.22	96.89
66	0.462	0.213	21.13	50355.931	224.40	205.00	8.00	91.27
67	0.452	0.204	20.23	48199.613	219.54	202.09	10.91	85.78
68	0.440	0.194	19.17	45674.314	213.72	198.15	14.85	80.06
69	0.429	0.184	18.22	43419.145	208.37	194.53	18.47	74.67
70	0.416	0.173	17.13	40827.552	202.06	189.87	23.13	69.11
71	0.404	0.163	16.16	38506.089	196.23	185.54	27.46	63.89
72	0.391	0.153	15.14	36067.845	189.92	180.62	32.38	58.69
73	0.377	0.142	14.07	33531.222	183.12	175.11	37.89	53.54
74	0.364	0.132	13.12	31258.595	176.80	169.95	43.05	48.73
75	0.350	0.123	12.13	28900.328	170.00	164.21	48.79	44.00
76	0.336	0.113	11.18	26634.542	163.20	158.35	54.65	39.48
77	0.321	0.103	10.20	24309.540	155.92	151.92	61.08	35.07

Exhibit E-7 - Summary of Power Density Calculations								
Facility:	K209EC							
COR:		213	m AGL				Z0 (Ohms)	377
ERP:		99	Watts				ALL distances meters	
Antenna:		LPX-2E						
FS Contour:		101	dBu					
E Field Strength:		0.1122	V/m					
Power Density:		0.0000333932	W/m^2					
Dep.			ERP in	Radius	Field Strength	Radius	Radius	Radius
θ	Erel	Prel	Watts	Squared	Radius	Vert. Dist.	AGL	Horiz. Dist.
78	0.307	0.094	9.33	22235.322	149.12	145.86	67.14	31.00
79	0.292	0.085	8.44	20115.572	141.83	139.22	73.78	27.06
80	0.277	0.077	7.60	18101.986	134.54	132.50	80.50	23.36
81	0.262	0.069	6.80	16194.564	127.26	125.69	87.31	19.91
82	0.247	0.061	6.04	14393.307	119.97	118.80	94.20	16.70
83	0.232	0.054	5.33	12698.214	112.69	111.85	101.15	13.73
84	0.217	0.047	4.66	11109.286	105.40	104.82	108.18	11.02
85	0.202	0.041	4.04	9626.522	98.11	97.74	115.26	8.55
86	0.187	0.035	3.46	8249.923	90.83	90.61	122.39	6.34
87	0.172	0.030	2.93	6979.488	83.54	83.43	129.57	4.37
88	0.156	0.024	2.41	5741.375	75.77	75.73	137.27	2.64
89	0.141	0.020	1.97	4690.346	68.49	68.48	144.52	1.20
90	0.126	0.016	1.57	3745.482	61.20	61.20	151.80	0.00

Exhibit E-8
Satellite Photograph of Tower Vicinity

