APPLICATION FOR CONSTRUCTION PERMIT

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K238BD - WICHITA, KANSAS
FACILITY ID: 147346
95.5 MHz / 250 W ERP DA

COMMUNITY BROADCASTING, INC.

JULY, 2016

APPLICATION FOR CONSTRUCTION PERMIT

The following engineering statement and attached exhibits have been prepared for

Community Broadcasting, Inc. ("CBI"), licensee of FM translator station K238BD at Haysville,

Kansas, and are in support of their application for construction permit.[1] This application is a minor

change to the existing license for K238BD under FCC File No. BLFT-20080519AAQ, however, CBI

proposes a change in the community of license to Wichita, Kansas.

K238BD is currently licensed on FM channel 238 with a maximum effective radiated power

of 250 Watts, circularly polarized, at a center of radiation of 464 meters above mean sea level

utilizing a non-directional antenna. CBI proposes that the translator continue operation on channel

238, also with a maximum effective radiated power of 250 Watts, however, the proposed center of

radiation is 518.7 meters above mean sea level, and the antenna to be utilized is a directional

antenna comprised of an array of three horizontally polarized Kathrein/Scala CL-FM log-periodic

antennas. Equal power division between the individual antennas would be utilized, with orientation

azimuths of 50, 300, and 355 degrees true.

No change to the channel of operation is proposed under this application. Although

K238BD would be relocated, predicted overlap occurs between the licensed 60 dBu service

contour and the proposed 60 dBu service contour. Exhibit E-1 illustrates these two contours along

with the predicted region of overlap between them.

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[1] The Facility ID for K238BD is 147346.

7.27.2016

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Currently, the primary station for K238BD is KCVW(FM) at Kingman, Kansas.[2] Under this application, it is proposed that the primary station be changed to AM station KJRG at Newton, Kansas.[3] Exhibits E-2 and E-3 demonstrate that the proposed facility would qualify as a fill-in translator for KJRG. As indicated on these two maps, the proposed 60 dBu service contour for the translator is wholly contained within both of the KJRG constructs.

The proposed facility complies with the provisions of Section 74.1204 of the Commission's Rules. Due to the continued operation on channel 238, Section 74.1205 is not applicable. Exhibit E-4 is a tabular interference study for the proposed facility. This study demonstrates that the contour overlap provisions of Section 74.1204 would be met by the proposed facility to all relevant authorizations with the exception of KICT-FM at Wichita, Kansas.[4] KICT-FM operates on a channel second adjacent to the proposed translator. The interference situation to this full-power station will be studied under Section 74.1204(d) of the Commission's Rules. The tabular interference study is graphically depicted in the contour map that comprises Exhibit E-5.

Although normally prohibited contour overlap would exist between the proposed translator and KICT-FM, no interference is predicted to occur within any populated region. Exhibit E-6 illustrates the proposed transmitter site for K238BD, along with the KICT-FM 87.20 dBu service contour. This map demonstrates that the specified KICT-FM contour intersects the proposed K238BD transmitter site.

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[2] The Facility ID for KCVW at Kingman, Kansas is 6506.
[3] The Facility ID for KJRG at Newton, Kansas is 35021.
[4] The Facility ID for KICT-FM at Wichita, Kansas is 63548.

KICT-FM operates second adjacent to the proposed channel of operation for K238BD. Therefore, interference to the reception of KICT-FM may potentially occur in regions where the translator field strength is at least 40 dB above the field strength of the full-power station. Specifically, interference to KICT-FM may occur in regions where the K238BD field strength is at least 127.20 dBu.

The power density for the interfering field strength is given by the following equation:

$$S = \frac{E^2}{Z_0}$$

In this equation, S represents the calculated power density in Watts per square meter, E is the electric field intensity, and Z_0 is the characteristic impedance of free space of 377 ohms.

The power density is also given by:

$$S = \frac{P}{4\pi R^2}$$

Where S is the same units, P is the total power in Watts and R is the distance from the antenna. Rearranging the terms in the equation, it can be solved for the distance to the desired power density as follows:

$$R^2 = \frac{P}{4\pi S}$$

The results of these calculations for depression angles of 0 degrees to 90 degrees are tabulated in Exhibit E-7. The values listed for the relative field at the various depression angles were obtained from published manufacturer data for a single CL-FM antenna. The listed radii values on the tabulation indicate the boundary of the worst-case three-dimensional region in which

interference may occur. The worst-case condition results from the fact that the proposed antenna is directional in the horizontal plane, and this tabulation assumes a relative field in the horizontal plane of 1.0 at all azimuths. As indicated by the tabulation, the worst-case distance to the boundary of the interference region is 48.4 meters.

The following satellite image illustrates the proposed structure along with a 48.4 meter radius. As this image demonstrates, this radius does not intersect any structures, other than the transmitter building, and intersects no populated regions. As a result, the proposed facility is not predicted to result in any interference to any populated region.
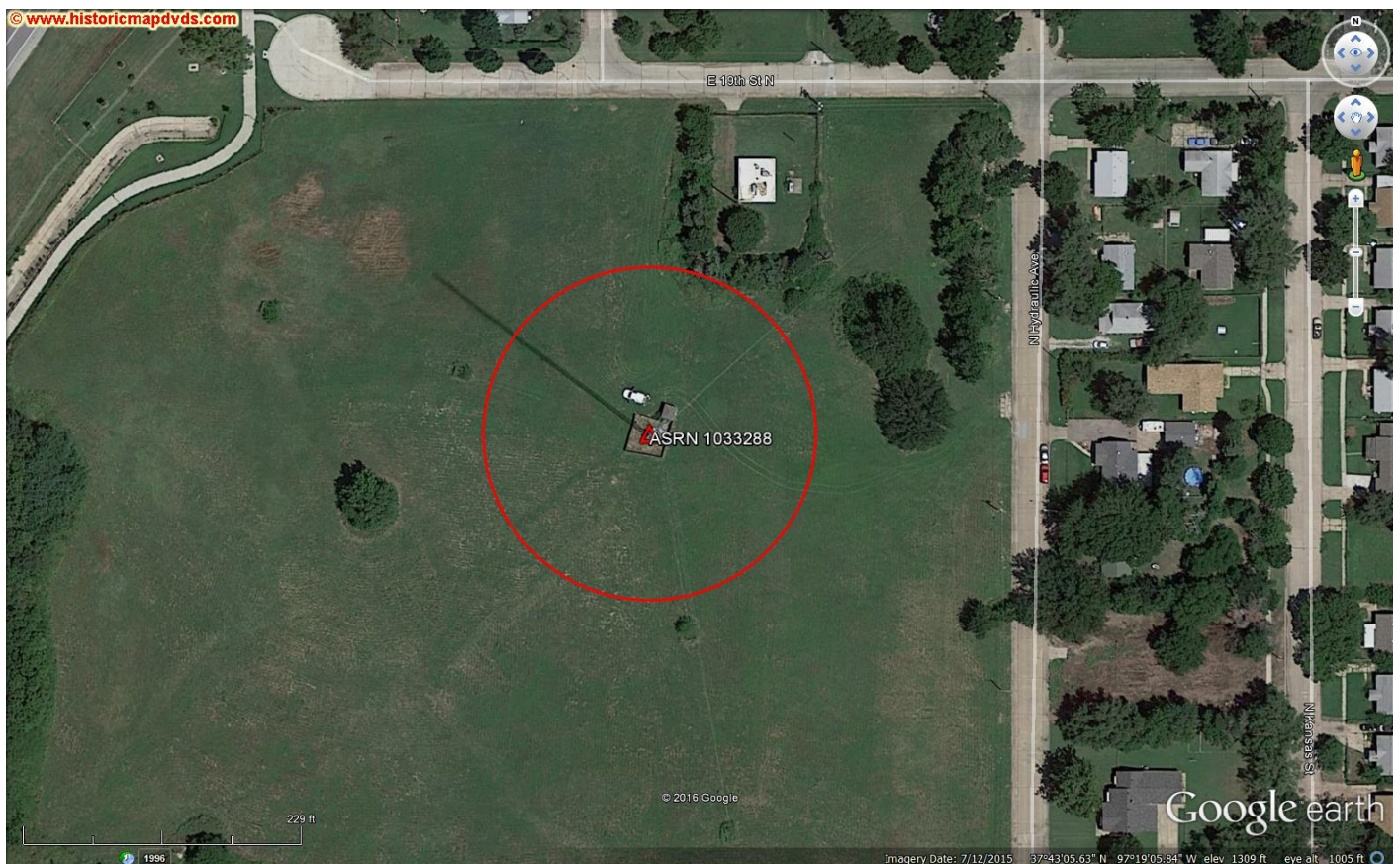
JEREMY RUCK & ASSOCIATES, INC.

P.O. Box 415   Tel: 309.647.1200
221 S. 1st Avenue   Fax: 855.332.9537
Canton, IL 61520   jeremyruck.com

CBI also holds a construction permit for K225CD at Newton, Kansas, which specifies KJRG as the primary station.[5] Exhibit E-8 illustrates the predicted 60 dBu service contour for K225CD along with the 60 dBu service contour of the proposed K238BD facility. As this map demonstrates, there is no overlap between these two contours.

The proposed facility would not constitute a significant environmental impact, and is exempt from environmental processing. The translator antenna would utilize an existing structure that is registered with the Commission. The addition of the translator antenna to this tower would not increase the existing environmental impact already present from the structure.

In addition, the proposed facility would not constitute a radiofrequency radiation hazard to persons at the site. The Commission's on-line *FM Model* utility calculates a maximum power density of 0.166 μW/cm^2 at a distance of 68meters from the tower. This value complies with the uncontrolled environment condition of the Commission's safety standard, and is sufficiently low to categorically exclude the facility.

CBI certifies that it will coordinate with all other users of the site to ensure that workers and other personnel are not exposed to levels of radiofrequency radiation in excess of the applicable safety standards. Coordination activities will include, but are not necessarily limited to, a reduction in transmitter power or cessation of operation.

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[5] See FCC File No. BMPFT-20160129AFI. The Facility ID for that translator is 139227.

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7.27.2016

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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.
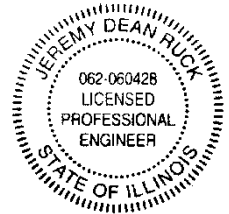
Above signature is digitized copy of actual signature
License Expires November 30, 2017
Jeremy D. Ruck, PE
July 27, 2016

JEREMY RUCK & ASSOCIATES, INC.

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7.27.2016

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K238BD.X
BLFT20080519AAQ
Latitude: 37-43-05 N
Longitude: 097-19-04.80 W
ERP: 0.25 kW
Channel: 238
Frequency: 95.5 MHz
AMSL Height: 518.7 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None

K238BD
BLFT20080519AAQ
Latitude: 37-36-05 N
Longitude: 097-19-43 W
ERP: 0.25 kW
Channel: 238
Frequency: 95.5 MHz
AMSL Height: 464.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

Jeremy Ruck & Associates, Inc.

Proposed K238BD 60 dBu Service Contour
Licensed K238BD 60 dBu Service Contour
Contour Overlap Area

Proposed K238BD
60 dBu Service Contour

Area of Contour
Overlap

Licensed K238BD
60 dBu Service Contour

Exhibit E-1
Service Contour Comparison
K238BD - Wichita, Kansas
Community Broadcasting, Inc.
July, 2016

Scale 1:250,000

| | | | km |
| 0 | 3 | 6 | 9 |
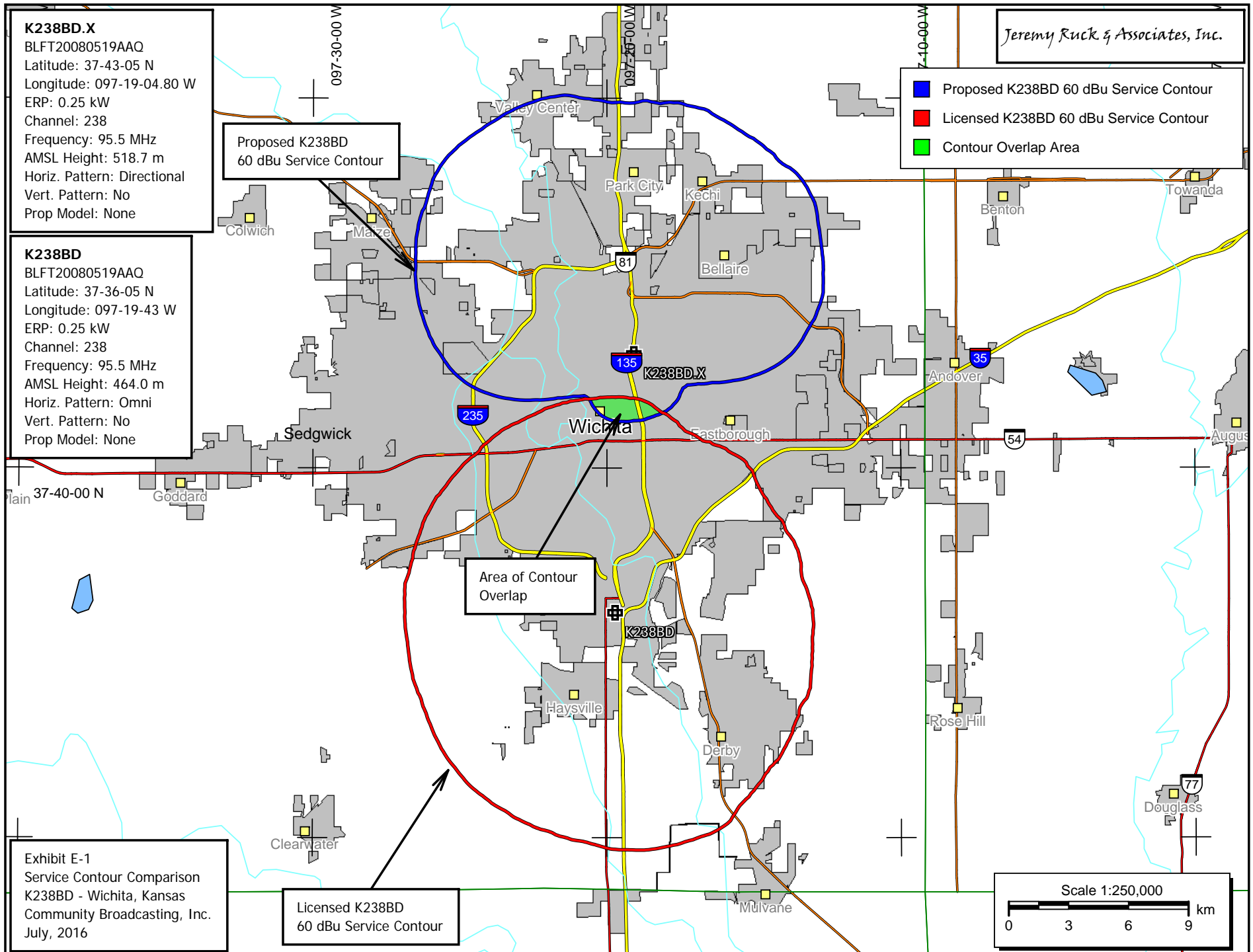
K238BD.X
BLFT20080519AAQ
Latitude: 37-43-05 N
Longitude: 097-19-04.80 W
ERP: 0.25 kW
Channel: 238
Frequency: 95.5 MHz
AMSL Height: 518.7 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None

Jeremy Ruck & Associates, Inc.

■ Proposed K238BD 60 dBu Service Contour
■ KJRG 2 mV/m Daytime Contour
■ KJRG 25 mile Site Radius

Exhibit E-2
Service Contour Comparison
K238BD - Wichita, Kansas
Community Broadcasting, Inc.
July, 2016

Scale 1:750,000

0   10   20   30   km

K238BD.X
BLFT20080519AAQ
Latitude: 37-43-05 N
Longitude: 097-19-04.80 W
ERP: 0.25 kW
Channel: 238
Frequency: 95.5 MHz
AMSL Height: 518.7 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None

Jeremy Ruck & Associates, Inc.

■ Proposed K238BD 60 dBu Service Contour
■ KJRG 2 mV/m Daytime Contour
■ KJRG 25 mile Site Radius
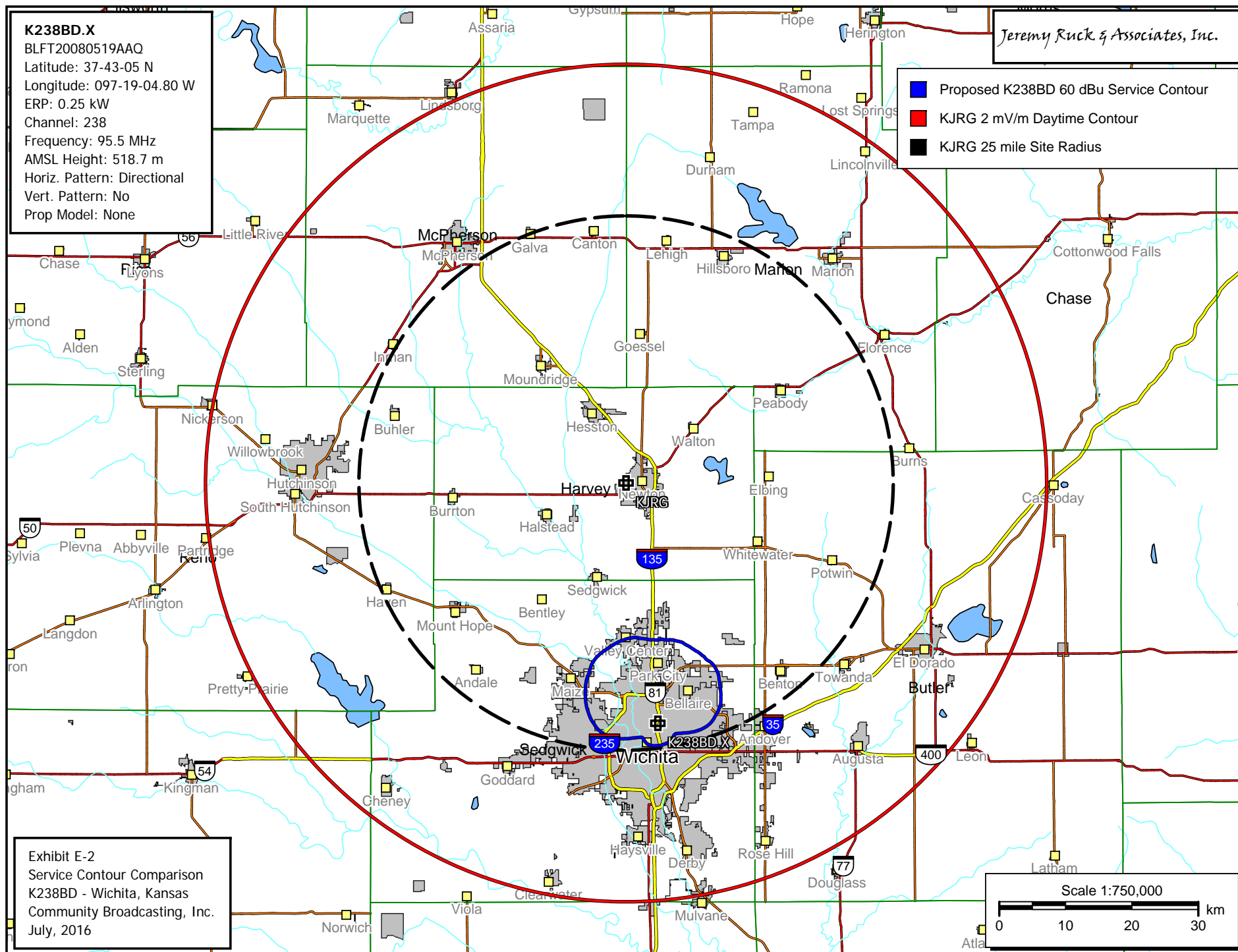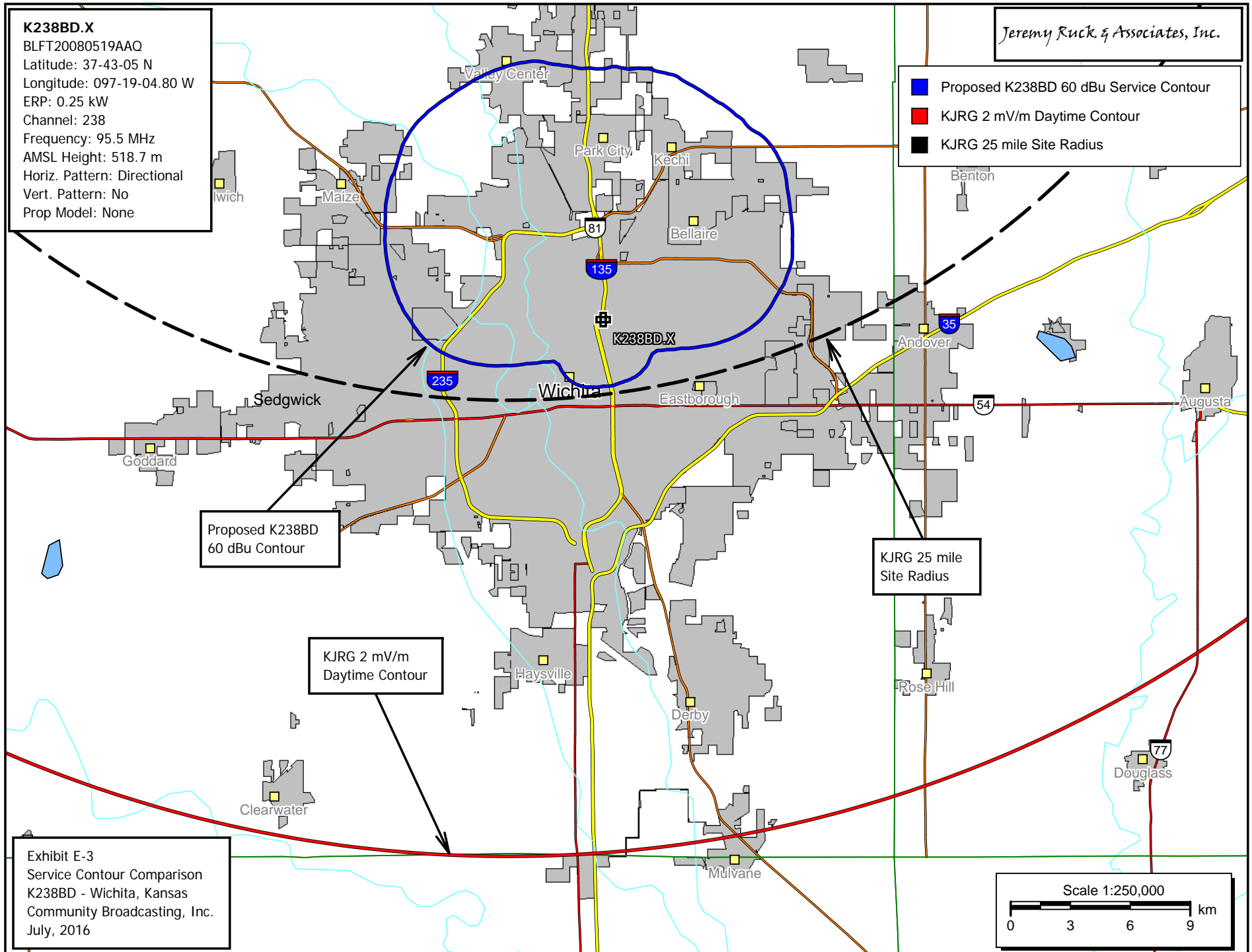
Proposed K238BD
60 dBu Contour

KJRG 25 mile
Site Radius

KJRG 2 mV/m
Daytime Contour

Exhibit E-3
Service Contour Comparison
K238BD - Wichita, Kansas
Community Broadcasting, Inc.
July, 2016

Scale 1:250,000

km
0   3   6   9

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                    Jeremy Ruck & Associates, Inc.
                    Consulting Engineers - Canton, Illinois

                    Exhibit E-4 - Tabular Interference Study
                         K238BD - Wichita, Kansas
REFERENCE           CH#  238D  - 95.5 MHz, Pwr= 0.25 kW DA,  HAAT= 109.5 M,  COR= 518.7 M   DISPLAY DATES
37 43 05.0 N.             Average Protected F(50-50)= 13.45 km                       DATA    07-27-16
97 19 04.8 W.                       Standard Directional                            SEARCH 07-27-16
-----------------------------------------------------------------------------------------------------
CH    CALL      TYPE  ANT   AZI    DIST          LAT        PWR(kW) INT(km)  PRO(km)   *IN*     *OUT*
CITY            STATE      <--     FILE #         LNG        HAAT(M) COR(M)   LICENSEE   (Overlap in km)
-----------------------------------------------------------------------------------------------------
236C1 KICT-FM   LIC _CX   294.8   20.81         37 47 47.0  100.000   10.0   71.7      -1.6     -51.7*
Wichita          KS       114.7   BLH20140908ACX 97 31 59.0   276     699    Scripps Broadcasting Holdi

238D  K238BD    LIC _C_   184.1   13.00         37 36 05.0  0.250     36.6   10.7     -27.0*     -9.2
Haysville        KS         4.1   BLFT20080519AAQ 97 19 43.0   69     464    Community Broadcasting, In

238C3 KVOB      LIC _CN   342.9   110.40        38 40 00.0  15.500   108.1   39.4     -11.2      24.7
Lindsborg        KS       162.7   BLH19940822KD  97 41 30.0   127     542    Rocking M Media, Llc

238C  KWEN      LIC _CX   147.0   200.94        36 11 46.0  100.000   185.2  81.6      11.5     108.6
Tulsa            OK       327.7   BLH20080826AAF 96 05 53.0   453     687    Cox Radio, Inc.

239L1 KZTF-LP   CP  ___    80.4   32.18         37 45 57.0  0.100            14.2      14.2      13.5
Towanda          KS       260.6   BNPL20131112ABL 96 57 25.0   27     431    Butler County Christian Br

240C3 KSOK-FM   LIC NCX   154.7   78.96         37 04 32.0  15.200    4.0    38.6      71.6      40.1
Winfield         KS       334.9   BLH20041027AEE 96 56 13.0   128     481    Cowley County Broadcasting

240A  KWHK      LIC _CX   301.4   71.17         38 02 57.0  2.850     2.7    29.7      55.4      40.4
Hutchinson       KS       120.9   BLH20070206AAH 98 00 44.0   149     629    Ad Astra Per Aspera Broadc

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Terrain database is FCC 30 meter , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM
In & Out distances between contours are shown at closest points. Reference zone=  West Zone, Co to 3rd adjacent.
All separation margins (if shown) include rounding. Call signs with strikeout need not be protected.
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 restricted contour.
Reference station has protected zone issue: AM tower
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K238BD.X

BLFT20080519AAQ
Latitude: 37-43-05 N
Longitude: 097-19-04.80 W
ERP: 0.25 kW
Channel: 238
Frequency: 95.5 MHz
AMSL Height: 518.7 m
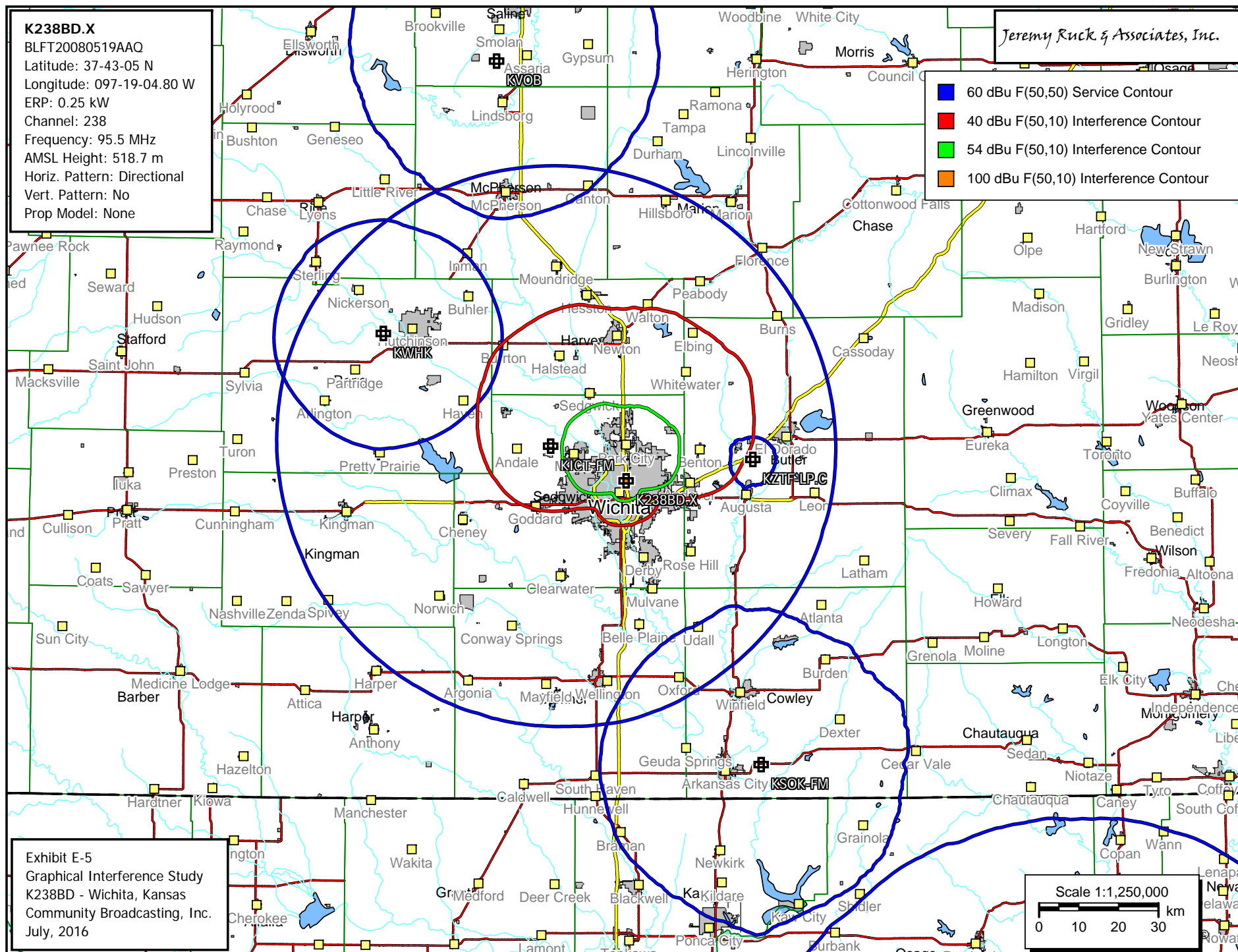Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None

Jeremy Ruck & 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-5
Graphical Interference Study
K238BD - Wichita, Kansas
Community Broadcasting, Inc.
July, 2016

Scale 1:1,250,000

km
0   10   20   30

K238BD.X
BLFT20080519AAQ
Latitude: 37-43-05 N
Longitude: 097-19-04.80 W
ERP: 0.25 kW
Channel: 238
Frequency: 95.5 MHz
AMSL Height: 518.7 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None

KICT-FM
BLH20140908ACX
Latitude: 37-47-47 N
Longitude: 097-31-59 W
ERP: 100.00 kW
Channel: 236
Frequency: 95.1 MHz
AMSL Height: 699.1 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

Jeremy Ruck & Associates, Inc.

KICT-FM Transmitter
Site Location

Proposed K238BD
Transmitter Site

FCC F(50-50) 87.20 dBu (FCC HAAT)

KICT-FM

K238BD.X

Sedgwick

Wichita

Eastborough

Bentley

Mount-Hope

Andale

Colwich

Maize

Valley Center

Park City

Kechi

Bellaire

Benton

Andover

Garden Plain

Goddard

heney

Haysville

Exhibit E-6
Interference Study
K238BD - Wichita, Kansas
Community Broadcasting, Inc.
July, 2016

KICT-FM 87.20 dBu
Service Contour

Scale 1:250,000

0   3   6   9   km
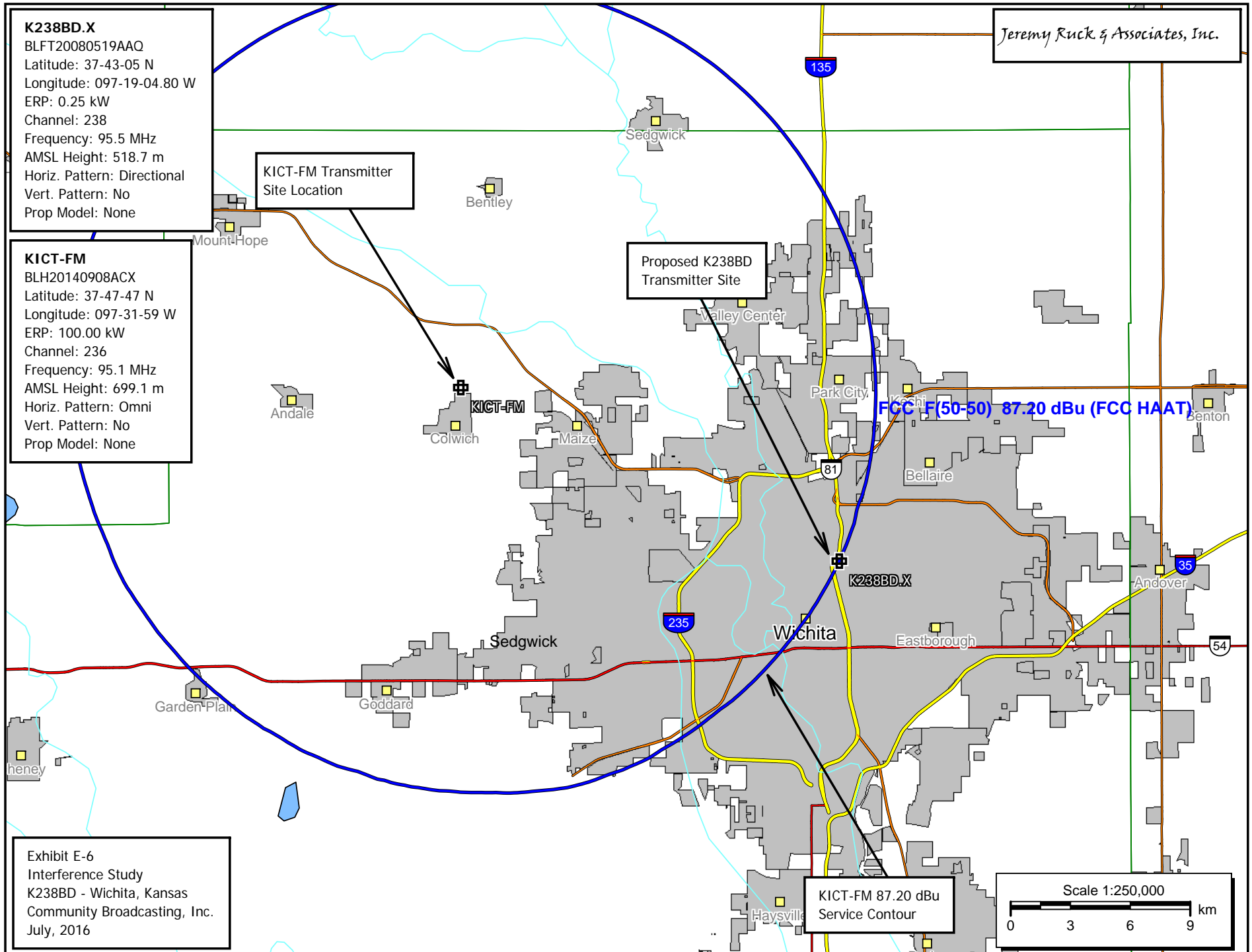
Antenna No:	83
Manufacturer:	Scala
Model:	CL-FM(H)
Number of Bays:	N/A
Bay Spacing:	Log

Center of Radiation:	120 m AGL
Effective Radiated Power:	250 Watts
FS Contour:	127.2 dBu
E Field Strength:	2.29087 V/m
Z0:	377 Ohms
Power Density:	0.013920622 W/m^2
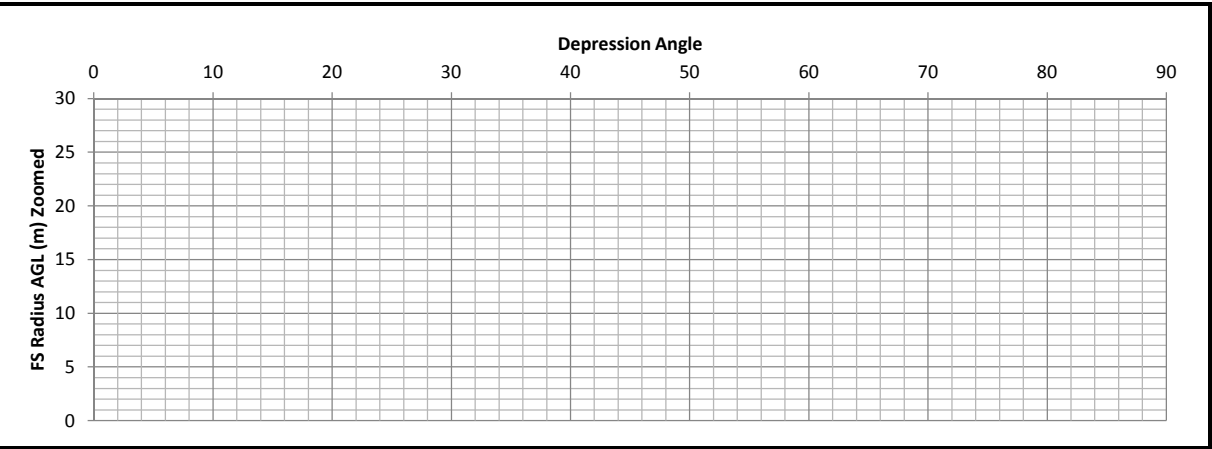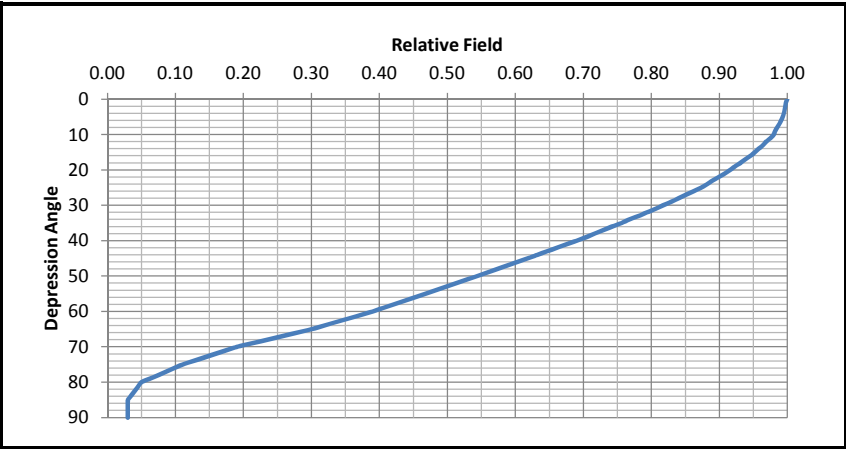
Relative Field

Depression Angle

Depression Angle	Relative Field	Relative Power	ERP Watts	Radii in meters			
				Field Strength	Horizontal	Vertical	AGL
0	1.0000	1.0000	250.00	48.41	48.41	0.00	120.00
1	0.9980	0.9960	249.00	48.32	48.31	0.84	119.16
2	0.9970	0.9940	248.50	48.27	48.24	1.68	118.32
3	0.9960	0.9920	248.00	48.22	48.15	2.52	117.48
4	0.9950	0.9900	247.51	48.17	48.05	3.36	116.64
5	0.9930	0.9860	246.51	48.07	47.89	4.19	115.81
6	0.9910	0.9821	245.52	47.98	47.71	5.01	114.99
7	0.9880	0.9761	244.04	47.83	47.48	5.83	114.17
8	0.9850	0.9702	242.56	47.69	47.22	6.64	113.36
9	0.9820	0.9643	241.08	47.54	46.96	7.44	112.56
10	0.9800	0.9604	240.10	47.44	46.72	8.24	111.76
11	0.9750	0.9506	237.66	47.20	46.33	9.01	110.99
12	0.9690	0.9390	234.74	46.91	45.89	9.75	110.25
13	0.9640	0.9293	232.32	46.67	45.47	10.50	109.50
14	0.9580	0.9178	229.44	46.38	45.00	11.22	108.78
15	0.9520	0.9063	226.58	46.09	44.52	11.93	108.07
16	0.9460	0.8949	223.73	45.80	44.02	12.62	107.38
17	0.9380	0.8798	219.96	45.41	43.43	13.28	106.72
18	0.9310	0.8668	216.69	45.07	42.87	13.93	106.07
19	0.9230	0.8519	212.98	44.68	42.25	14.55	105.45
20	0.9160	0.8391	209.76	44.35	41.67	15.17	104.83
21	0.9080	0.8245	206.12	43.96	41.04	15.75	104.25
22	0.8990	0.8082	202.05	43.52	40.35	16.30	103.70
23	0.8900	0.7921	198.03	43.09	39.66	16.84	103.16
24	0.8820	0.7779	194.48	42.70	39.01	17.37	102.63
25	0.8730	0.7621	190.53	42.26	38.30	17.86	102.14
26	0.8620	0.7430	185.76	41.73	37.51	18.29	101.71
27	0.8510	0.7242	181.05	41.20	36.71	18.70	101.30
28	0.8400	0.7056	176.40	40.67	35.91	19.09	100.91
29	0.8290	0.6872	171.81	40.13	35.10	19.46	100.54
30	0.8170	0.6675	166.87	39.55	34.25	19.78	100.22
31	0.8060	0.6496	162.41	39.02	33.45	20.10	99.90
32	0.7930	0.6288	157.21	38.39	32.56	20.34	99.66
33	0.7810	0.6100	152.49	37.81	31.71	20.59	99.41
34	0.7670	0.5883	147.07	37.13	30.78	20.76	99.24
35	0.7560	0.5715	142.88	36.60	29.98	20.99	99.01
36	0.7420	0.5506	137.64	35.92	29.06	21.11	98.89
37	0.7290	0.5314	132.86	35.29	28.19	21.24	98.76
38	0.7160	0.5127	128.16	34.66	27.32	21.34	98.66
39	0.7040	0.4956	123.90	34.08	26.49	21.45	98.55
40	0.6900	0.4761	119.03	33.40	25.59	21.47	98.53
41	0.6750	0.4556	113.91	32.68	24.66	21.44	98.56
42	0.6610	0.4369	109.23	32.00	23.78	21.41	98.59
43	0.6460	0.4173	104.33	31.27	22.87	21.33	98.67
44	0.6320	0.3994	99.86	30.60	22.01	21.25	98.75
45	0.6180	0.3819	95.48	29.92	21.16	21.16	98.84

Depression Angle	Relative Field	Relative Power	ERP Watts	Radii in meters			
				Field Strength	Horizontal	Vertical	AGL
45	0.6180	0.3819	95.48	29.92	21.16	21.16	98.84
46	0.6020	0.3624	90.60	29.14	20.25	20.96	99.04
47	0.5880	0.3457	86.44	28.47	19.41	20.82	99.18
48	0.5730	0.3283	82.08	27.74	18.56	20.62	99.38
49	0.5580	0.3114	77.84	27.01	17.72	20.39	99.61
50	0.5440	0.2959	73.98	26.34	16.93	20.17	99.83
51	0.5280	0.2788	69.70	25.56	16.09	19.87	100.13
52	0.5130	0.2632	65.79	24.84	15.29	19.57	100.43
53	0.4980	0.2480	62.00	24.11	14.51	19.25	100.75
54	0.4830	0.2333	58.32	23.38	13.74	18.92	101.08
55	0.4670	0.2181	54.52	22.61	12.97	18.52	101.48
56	0.4520	0.2043	51.08	21.88	12.24	18.14	101.86
57	0.4360	0.1901	47.52	21.11	11.50	17.70	102.30
58	0.4210	0.1772	44.31	20.38	10.80	17.28	102.72
59	0.4050	0.1640	41.01	19.61	10.10	16.81	103.19
60	0.3900	0.1521	38.03	18.88	9.44	16.35	103.65
61	0.3720	0.1384	34.60	18.01	8.73	15.75	104.25
62	0.3540	0.1253	31.33	17.14	8.05	15.13	104.87
63	0.3360	0.1129	28.22	16.27	7.38	14.49	105.51
64	0.3180	0.1011	25.28	15.40	6.75	13.84	106.16
65	0.3000	0.0900	22.50	14.52	6.14	13.16	106.84
66	0.2780	0.0773	19.32	13.46	5.47	12.30	107.70
67	0.2560	0.0655	16.38	12.39	4.84	11.41	108.59
68	0.2340	0.0548	13.69	11.33	4.24	10.50	109.50
69	0.2120	0.0449	11.24	10.26	3.68	9.58	110.42
70	0.1900	0.0361	9.03	9.20	3.15	8.64	111.36
71	0.1740	0.0303	7.57	8.42	2.74	7.96	112.04
72	0.1580	0.0250	6.24	7.65	2.36	7.27	112.73
73	0.1420	0.0202	5.04	6.87	2.01	6.57	113.43
74	0.1260	0.0159	3.97	6.10	1.68	5.86	114.14
75	0.1100	0.0121	3.03	5.33	1.38	5.14	114.86
76	0.0980	0.0096	2.40	4.74	1.15	4.60	115.40
77	0.0860	0.0074	1.85	4.16	0.94	4.06	115.94
78	0.0740	0.0055	1.37	3.58	0.74	3.50	116.50
79	0.0620	0.0038	0.96	3.00	0.57	2.95	117.05
80	0.0500	0.0025	0.63	2.42	0.42	2.38	117.62
81	0.0460	0.0021	0.53	2.23	0.35	2.20	117.80
82	0.0420	0.0018	0.44	2.03	0.28	2.01	117.99
83	0.0380	0.0014	0.36	1.84	0.22	1.83	118.17
84	0.0340	0.0012	0.29	1.65	0.17	1.64	118.36
85	0.0300	0.0009	0.23	1.45	0.13	1.45	118.55
86	0.0300	0.0009	0.23	1.45	0.10	1.45	118.55
87	0.0300	0.0009	0.23	1.45	0.08	1.45	118.55
88	0.0300	0.0009	0.23	1.45	0.05	1.45	118.55
89	0.0300	0.0009	0.23	1.45	0.03	1.45	118.55
90	0.0300	0.0009	0.23	1.45	0.00	1.45	118.55

Depression Angle — FS Radius AGL (m)

Field Strength Radius (meters)

Horizonal Radius (meters)

Depression Angle — Vertical Radius (meters)

ERP in Watts

Relative Power
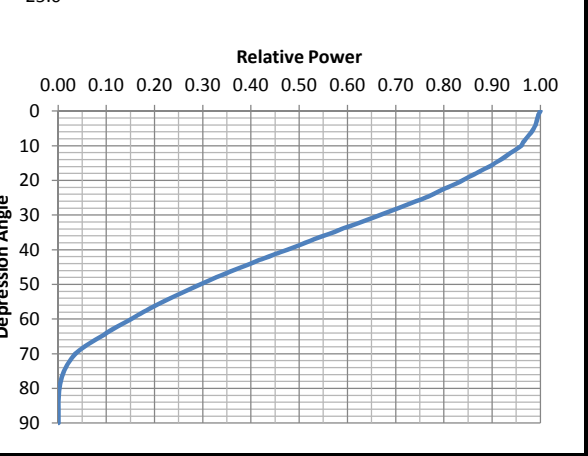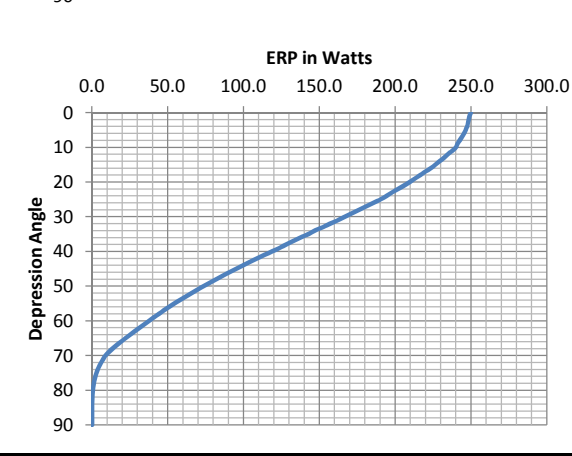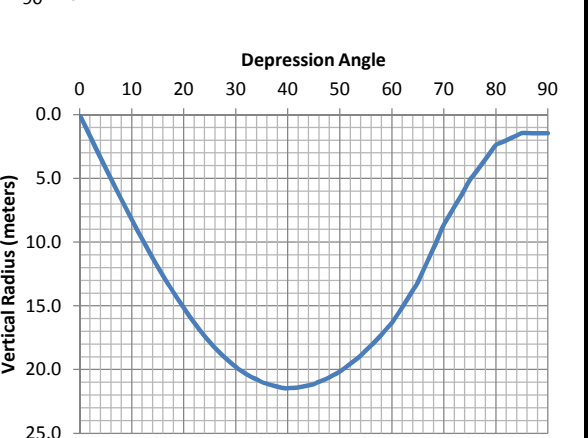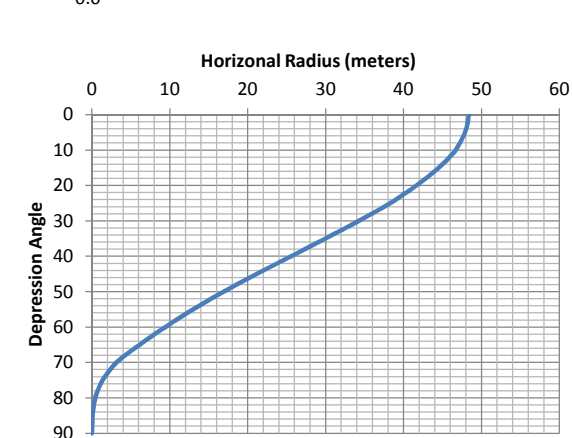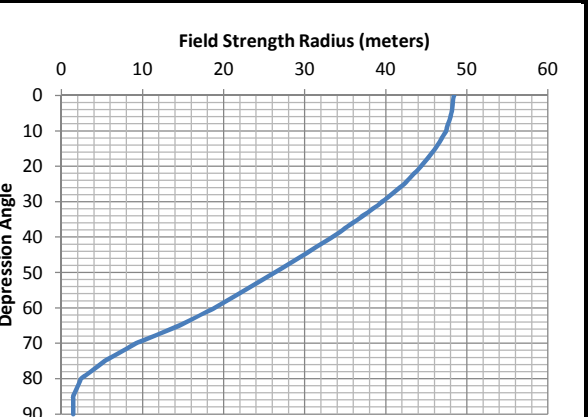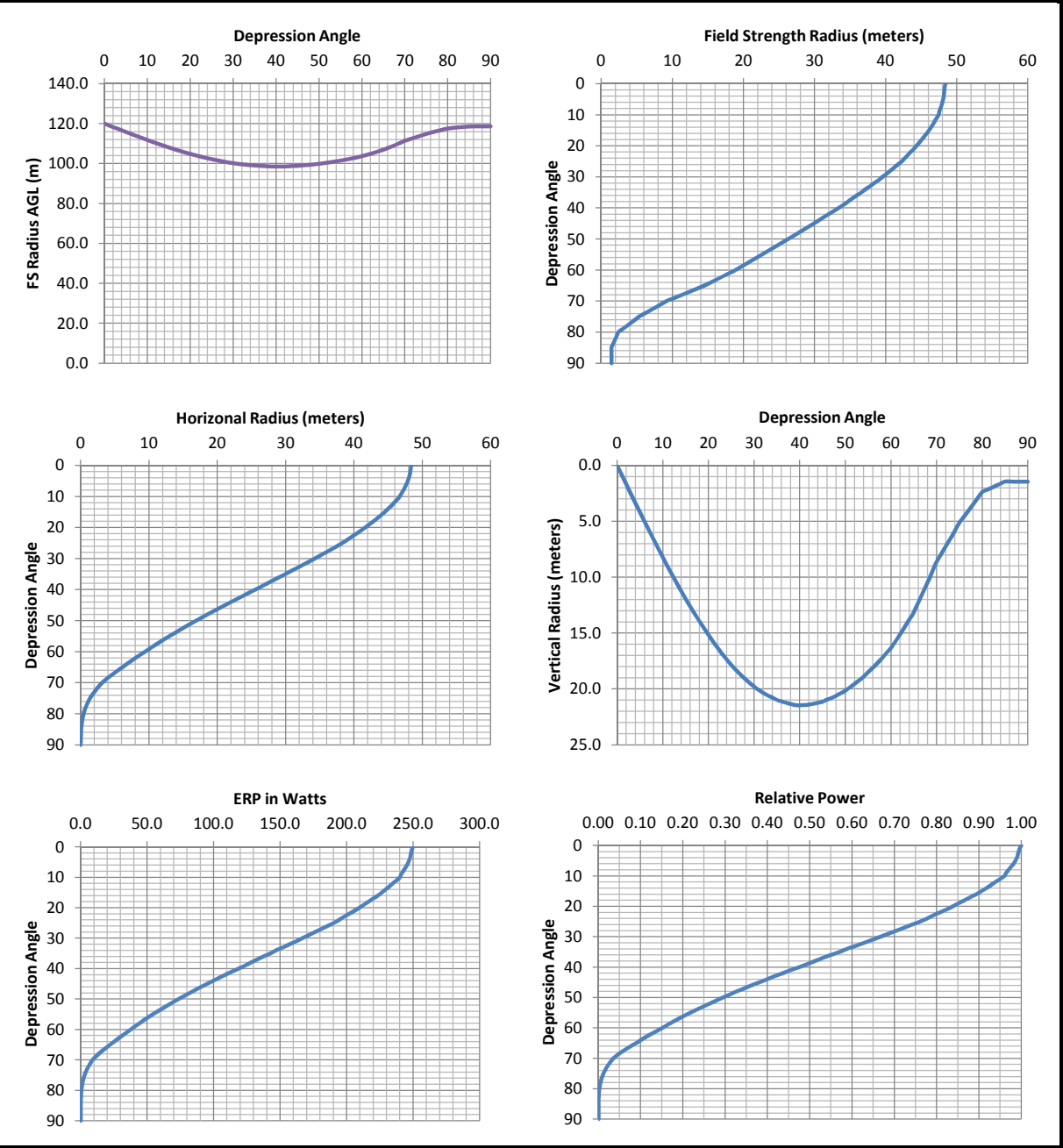
K225CD.C
BMPFT20160129AFI
Latitude: 38-02-39 N
Longitude: 097-22-21 W
ERP: 0.25 kW
Channel: 295
Frequency: 106.9 MHz
AMSL Height: 538.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

K238BD.X
BLFT20080519AAQ
Latitude: 37-43-05 N
Longitude: 097-19-04.80 W
ERP: 0.25 kW
Channel: 238
Frequency: 95.5 MHz
AMSL Height: 518.7 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None

Jeremy Ruck & Associates, Inc.

K225CD CP
60 dBu Contour

K238BD Proposed
60 dBu Contour

Exhibit E-8
Service Contour Comparison
K238BD - Wichita, Kansas
Community Broadcasting, Inc.
July, 2016

Scale 1:500,000

km
0   7   14   21