

***AMENDMENT TO APPLICATION
FOR CONSTRUCTION PERMIT***

PROPOSED NEW FM TRANSLATOR STATION
SHERMAN, ILLINOIS
FACILITY ID: 138451
94.7 MHz / 0.027 kW ERP / ND

COMMUNITY BROADCASTING, INC.

JULY, 2013

AMENDMENT TO APPLICATION FOR CONSTRUCTION PERMIT

The following engineering statement and attached exhibits have been prepared for **Community Broadcasting, Inc.** ("CBI"), applicant for a new FM translator station to serve Sherman, Illinois, and are in support of their amendment to application for construction permit.¹

This amendment is being submitted as part of the Commission's Translator Auction 83 settlement process. The original application submitted by CBI was assigned FCC File No. BNPFT-20030312AVJ. Upon initial review by the Staff, it was determined that the application was mutually exclusive with three other applications, all of which specified Springfield, Illinois as their community of license.² With the exception of the CBI application, all applicants in MX Group 203 specified channel 287 as their proposed channel of operation.

The technical parameters proposed by CBI in this amendment will eliminate the mutual exclusivity between its application and all of the other applications remaining in the MX group. In order to eliminate the mutual exclusivity, CBI proposes a change in the channel of operation as well as a change in the site location that would be utilized by the facility. Other technical parameters associated with the facility would necessarily change by virtue of the proposed site relocation.

The proposed CBI facility as amended would operate on channel 234, which is a change in the channel of operation of 54 channels. The proposed facility would operate with an effective

¹ The Facility ID for the proposed translator facility is 138451.

² See FCC File Nos. BNPFR-20030310ACN, BNPFT-20030317ANB, and BNPFT-20030312BDQ.

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radiated power of 27 Watts at a center of radiation of 256.0 meters AMSL.³ A non-directional antenna continues to be proposed for use under this amendment. Exhibit E-1 illustrates the original 60 dBu service contour of the translator along with the 60 dBu service contour proposed under this amendment. As indicated these two contours would overlap, thus the proposed changes to the originally specified facility are minor in nature.

The primary station for the proposed translator would remain as KSIV-FM at St. Louis, Missouri. The Facility ID for KSIV-FM is 4276. Exhibit E-2 illustrates the 60 dBu service contour of both the proposed translator and the primary station.

The proposed change in site location and channel would have no impact on LFPM licensing opportunities in any of the Appendix A markets. The closest Appendix A market to the proposed facility is the St. Louis market. Exhibit E-3 illustrates the proposed site along with its location relative to the St. Louis, Indianapolis, and Quad Cities markets. As this map demonstrates, the proposed site location would lie outside the buffer of all three market grids.

The proposed facility would comply with the provisions of Section 74.1204 of the Commission's Rules. Exhibit E-4 is a tabular allocation study for the proposed facility. This study demonstrates that the proposed facility would comply with the contour overlap provisions of that section to all facilities with the exception of WDZQ(FM) at Decatur, Illinois.⁴ The tabular study is graphically illustrated by the contour map in Exhibit E-5.

³ The average terrain for the proposed facility is determined by the 120 degree true radial on which the average elevation is 160.0 meters AMSL. Terrain was sampled from the FCC 30-second terrain database.

⁴ The Facility ID for WDZQ(FM) at Decatur, Illinois is 47004.

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Although normally prohibited contour overlap between the proposed facility and WDZQ(FM) would occur, no populated areas would be affected by the potential interference region. Exhibit E-6 illustrates the predicted 61.78 dBu service contour of WDZQ along with the site of the proposed translator. Interference in the vicinity of the translator site would therefore occur when the field strength from the translator is greater than 101.78 dBu.⁵

The power density for the proposed facility at a field strength of 101.78 dBu is given by the following equation:

$$S = \frac{E^2}{Z_0} = \frac{(0.1227)^2}{377} = 0.00003996$$

In this equation, S represents the calculated power density in Watts per square meter, E is the electric field intensity, which for 101.78 dBu is 0.1227 Volts per meter, and Z₀ 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 power in Watts (27 Watts in this case), 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:

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

⁵ The specified value for interference is based on the 40 dB ratio for second adjacent facilities.

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The results of these calculations for depression angles of 0 degrees to 90 degrees are tabulated in Exhibit E-7. The data in this exhibit is based on the use of a non-directional antenna. In addition to the tabular data in Exhibit E-7, several graphs are included, which graphically illustrate the interference situation for a given azimuth slice. As indicated on the form pages, a Shively model 6832-2 antenna is proposed for use by the facility. The relative field value listed at the various depression angles is based on the published data for this antenna, and was obtained from the Shively web page.

As the tabulation and graphs depict, the potential interference area resides in a region at least 20.8 meters above ground level. At this point of closest approach to ground level, the distance from the tower is 133 meters.

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The satellite image above illustrates the tower location along with the radius of 133 meters centered on the tower. As this image depicts not only are there no structures greater than 20.8 meters in height, there are no structures other than the transmitter building at the tower within this radius. As a result, any potential interference that may occur would affect zero population.⁶

The proposed facility would not result in a significant environmental impact, and is exempt from environmental processing. The addition of the translator antenna to the structure would not increase the already existing environmental impact from the existing tower. In addition, the translator would not constitute an RF exposure hazard to persons on the ground in the vicinity of the structure.

⁶ The interchange ramps at Interstate 55 lie in a range of distances of 110 to 135 meters from the tower location. At this distance, the interference zone is 20 to 22 meters above ground level.

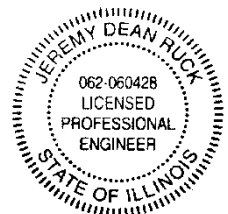
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Under a worst-case scenario, the Commission's *FM Model* software package predicts a maximum power density at ground level of $0.175 \mu\text{W}/\text{cm}^2$ at all locations in the vicinity of the tower to be utilized by CBI. This value categorically excludes the proposed facility. CBI certifies, however, that it will coordinate with all other users of the site to ensure that workers and other personnel having access to the site are not exposed to levels of radiofrequency 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 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
July 7, 2013

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7.7.2013

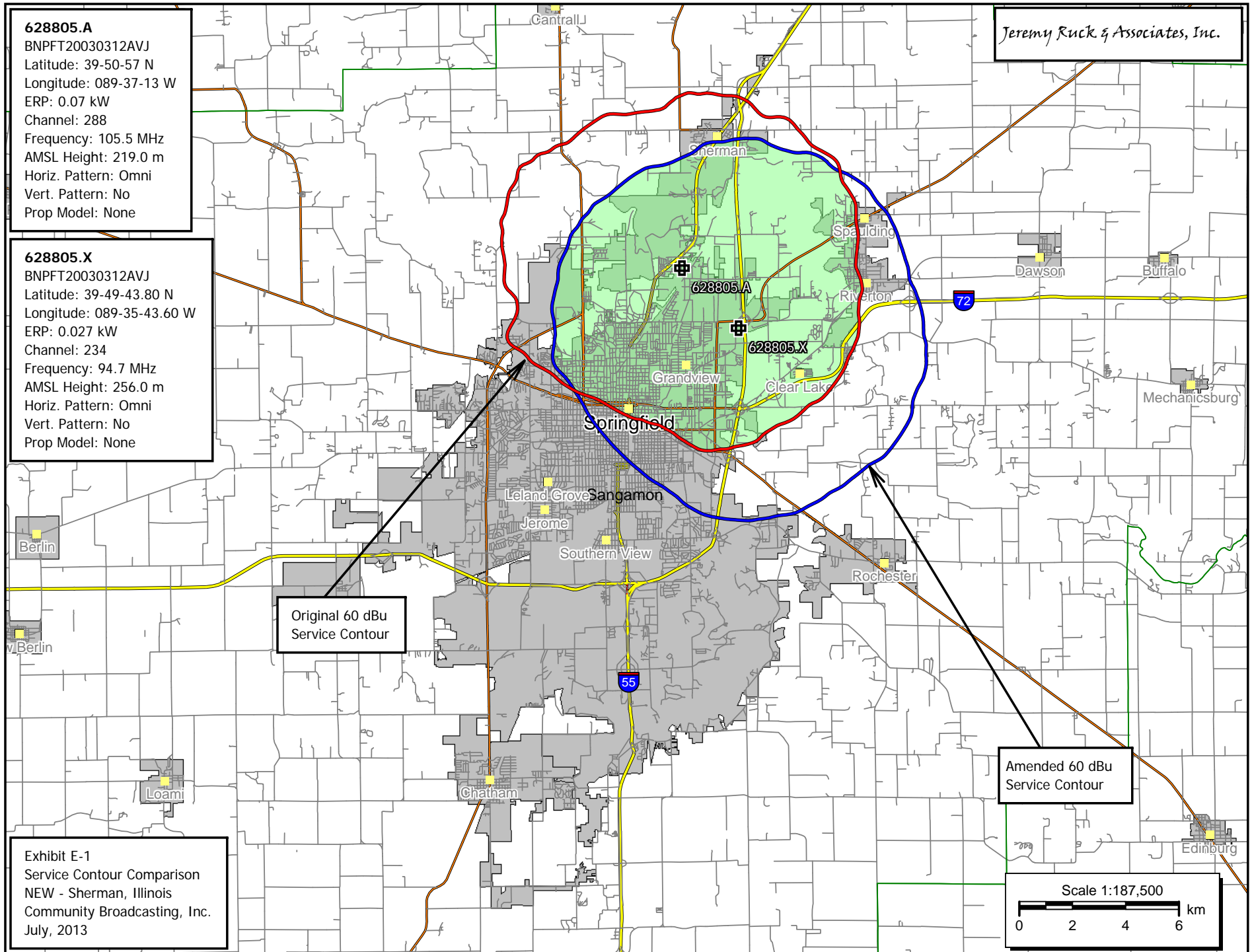
628805.A

BNPFT20030312AVJ
Latitude: 39-50-57 N
Longitude: 089-37-13 W
ERP: 0.07 kW
Channel: 288
Frequency: 105.5 MHz
AMSL Height: 219.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

628805.X

BNPFT20030312AVJ
Latitude: 39-49-43.80 N
Longitude: 089-35-43.60 W
ERP: 0.027 kW
Channel: 234
Frequency: 94.7 MHz
AMSL Height: 256.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

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628805.X
BNPFT20030312AVJ
Latitude: 39-49-43.80 N
Longitude: 089-35-43.60 W
ERP: 0.027 kW
Channel: 234
Frequency: 94.7 MHz
AMSL Height: 256.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

KSIV-FM
BLED20120626ABO
Latitude: 38-34-27.70 N
Longitude: 090-19-31.50 W
ERP: 85.00 kW
Channel: 218
Frequency: 91.5 MHz
AMSL Height: 462.2 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

KSIV-FM 60 dBu
Service Contour

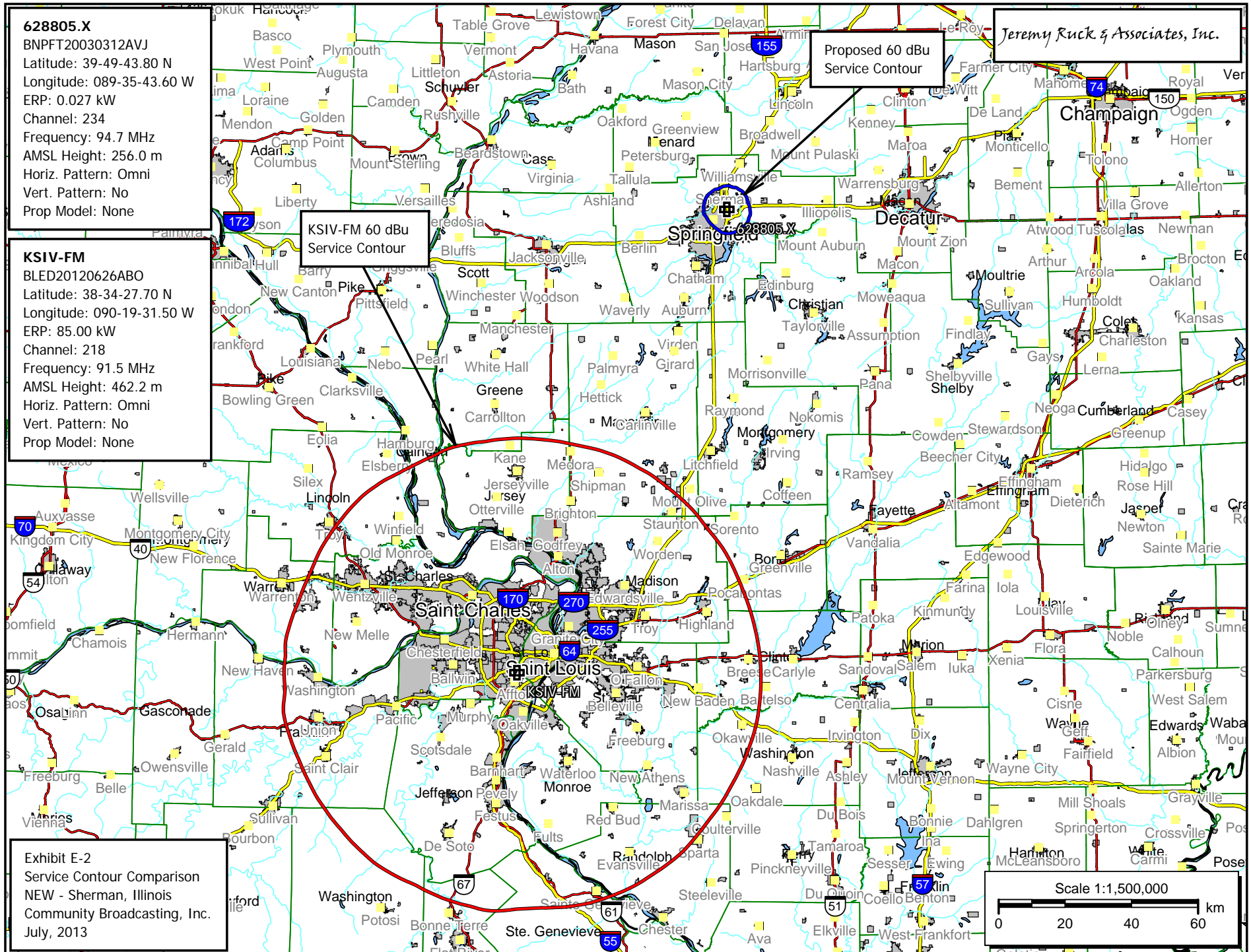
Proposed 60 dBu
Service Contour

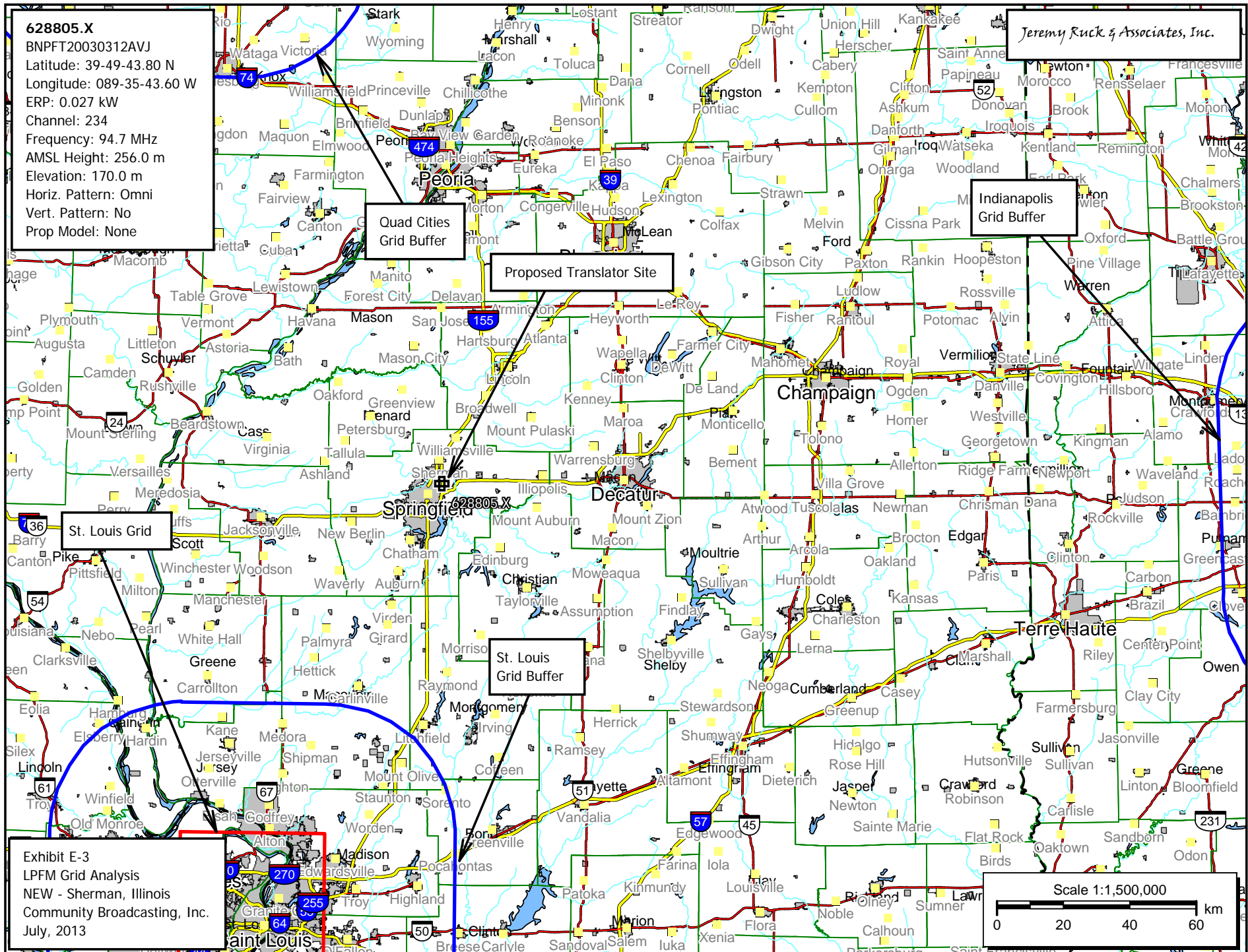
Jeremy Ruck & Associates, Inc.

Exhibit E-2
Service Contour Comparison
NEW - Sherman, Illinois
Community Broadcasting, Inc.
July, 2013

Scale 1:1,500,000

0 20 40 60 km





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

Exhibit E-4 - Tabular Allocation Study

NEW - Sherman, Illinois

REFERENCE CH# 234D - 94.7 MHz, Pwr= 0.027 kW, HAAT= 88.4 M, COR= 256 M
39 49 43.8 N.
89 35 43.6 W.
Average Protected F(50-50)= 6.97 km
Omni-directional

DISPLAY DATES
DATA 07-07-13
SEARCH 07-07-13

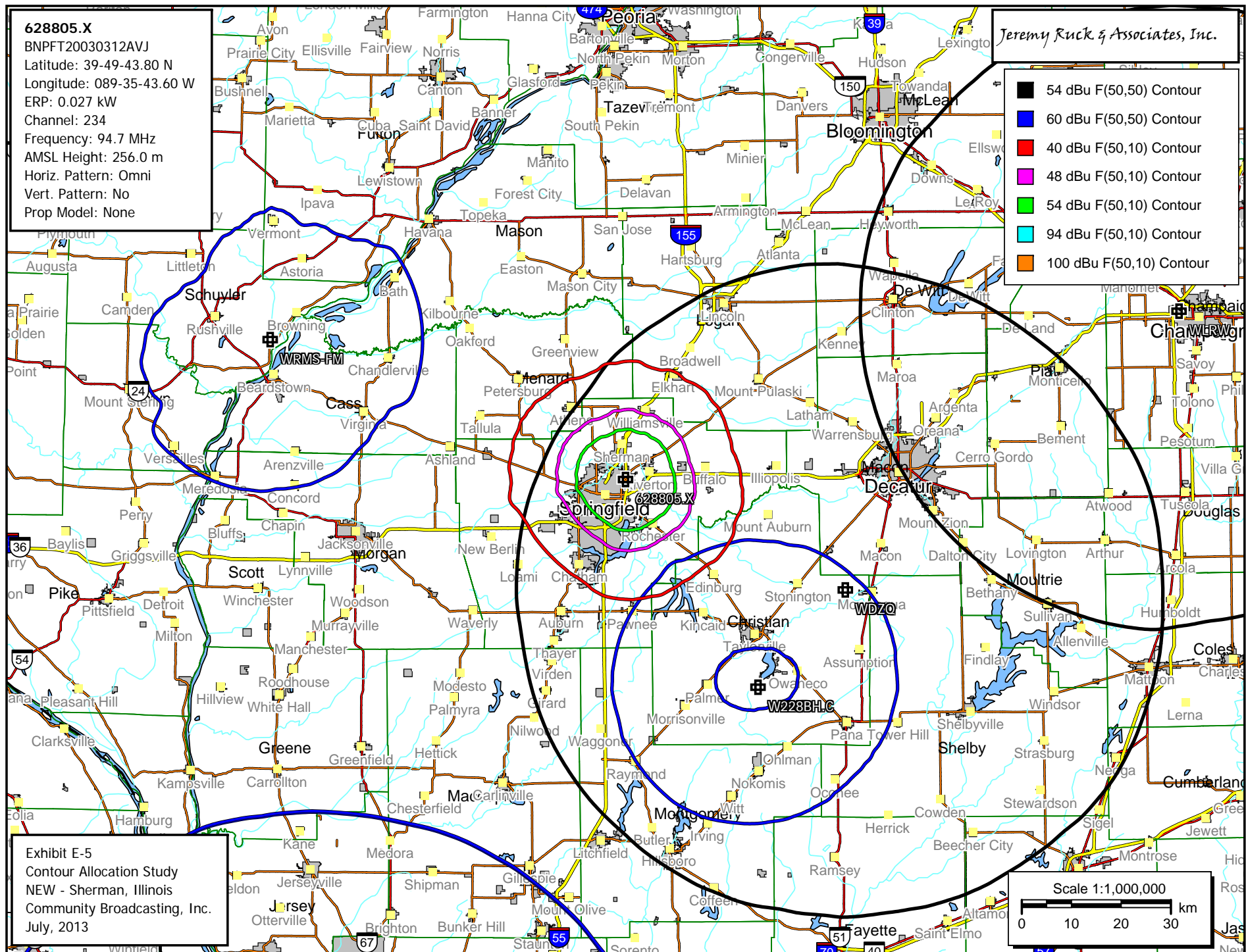
CH CITY	CALL	TYPE ANT STATE	AZI <--	DIST FILE #	LAT LNG	PWR(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
234C0 KSHE Crestwood		LIC _CX MO	204.5 24.0	153.08 BMLH20061011ADJ	38 34 24.0 90 19 30.0	100.000 313	173.7 466	73.5 Emmis Radio License, LLC	-27.5*	57.2
234C0 KSHE Crestwood		CP _CX MO	204.5 24.0	152.99 BPH20120228ADA	38 34 27.7 90 19 31.5	100.000 309	173.2 462	73.2 Emmis Radio License, LLC	-27.1*	57.4
236B WDZQ Decatur		LIC _C_ IL	116.8 297.1	49.35 BLH20000509AA0	39 37 40.0 89 04 51.0	50.000 150	6.1 341	66.0 Neuhoff Family Limited Par	36.0	-17.4*
232A WMKR Pana		LIC _CX IL	147.6 327.8	49.54 BLH20011109ACL	39 27 08.0 89 17 10.0	5.600 104	2.9 295	30.1 Miller Communications, Inc	39.6	18.9
232A AL1763 Pana		RSV-A _ IL	146.6 326.9	59.36 RM9928	39 22 56.0 89 12 56.0	6.000 100	2.9 300	29.7	49.4	29.1
233B WLRW Champaign		LIC _CX IL	73.0 253.9	116.01 BLH20051107AB0	40 07 35.0 88 17 25.0	50.000 138	77.1 357	64.2 Saga Communications Of Ill	32.1	38.8
231D W228BH Taylorville		CP DC_ IL	147.6 327.8	49.54 BPFT20130508AJC	39 27 08.0 89 17 10.0	0.050	0.4 285	8.5 Miller Communications, Inc	42.0	40.6
232A WRMS-FM Beardstown		LIC _CN IL	291.6 111.0	76.59 BMLH19900904KE	40 04 45.0 90 25 58.0	6.000 91	2.9 249	30.5 Lb Sports Productions LLC	66.5	45.8

Terrain database is FCC NGDC 30 Sec , 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= East Zone, Co to 3rd adjacent.
All separation margins (if shown) include rounding
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.

628805.X
BNPFT20030312AVJ
Latitude: 39-49-43.80 N
Longitude: 089-35-43.60 W
ERP: 0.027 kW
Channel: 234
Frequency: 94.7 MHz
AMSL Height: 256.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

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- 54 dBu F(50,50) Contour
- 60 dBu F(50,50) Contour
- 40 dBu F(50,10) Contour
- 48 dBu F(50,10) Contour
- 54 dBu F(50,10) Contour
- 94 dBu F(50,10) Contour
- 100 dBu F(50,10) Contour



WDZQ

BLH20000509AAO
Latitude: 39-37-40 N
Longitude: 089-04-51 W
ERP: 50.00 kW
Channel: 236
Frequency: 95.1 MHz
AMSL Height: 341.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

628805.X

BNPFT20030312AVJ
Latitude: 39-49-43.80 N
Longitude: 089-35-43.60 W
ERP: 0.027 kW
Channel: 234
Frequency: 94.7 MHz
AMSL Height: 256.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

Exhibit E-6
Allocation Study
NEW - Sherman, Illinois
Community Broadcasting, Inc.
July, 2013

Jeremy Ruck & Associates, Inc.

FCC F(50-50) 61.78 dBu (FCC HAAT)

Proposed Translator Site

628805.X

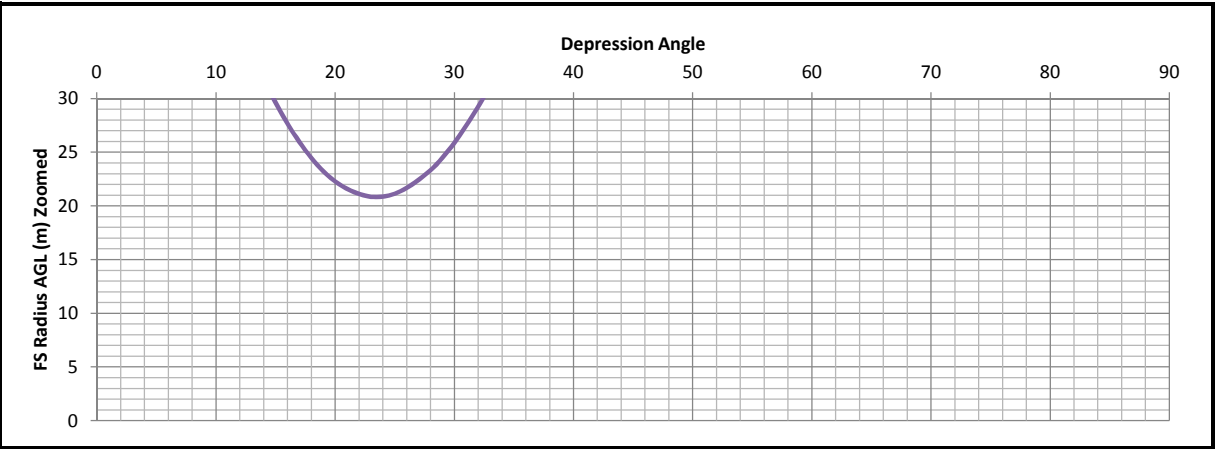
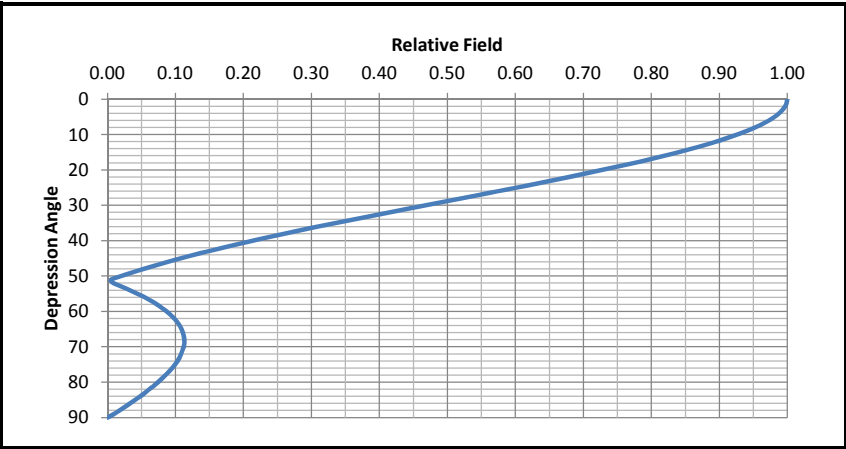
WDZQ 61.78 dBu
Service Contour

Scale 1:93,750

0 1 2 3 km

Exhibit E-7
Translator Proximity Interference Analysis
NEW - Sherman, Illinois

Antenna No:	72	⋮	⋮	Center of Radiation:	80 m AGL
Manufacturer:	Shively	⋮	⋮	Effective Radiated Power:	27 Watts
Model:	6832-2			FS Contour:	101.78 dBu
Number of Bays:	2			E Field Strength:	0.12274 V/m
Bay Spacing:	Lambda			Z0 (Ohms):	377 Ohms
				Power Density:	3.99631E-05 W/m^2



Depression Angle	Relative Field	Relative Power	ERP Watts	Radii in meters			
				Field Strength	Horizontal	Vertical	AGL
0	1.0000	1.0000	27.00	231.87	231.87	0.00	80.00
1	0.9990	0.9980	26.95	231.64	231.60	4.04	75.96
2	0.9970	0.9940	26.84	231.18	231.04	8.07	71.93
3	0.9930	0.9860	26.62	230.25	229.93	12.05	67.95
4	0.9880	0.9761	26.36	229.09	228.53	15.98	64.02
5	0.9810	0.9624	25.98	227.47	226.60	19.82	60.18
6	0.9730	0.9467	25.56	225.61	224.38	23.58	56.42
7	0.9630	0.9274	25.04	223.29	221.63	27.21	52.79
8	0.9520	0.9063	24.47	220.74	218.59	30.72	49.28
9	0.9400	0.8836	23.86	217.96	215.28	34.10	45.90
10	0.9260	0.8575	23.15	214.71	211.45	37.28	42.72
11	0.9110	0.8299	22.41	211.24	207.35	40.31	39.69
12	0.8950	0.8010	21.63	207.53	202.99	43.15	36.85
13	0.8770	0.7691	20.77	203.35	198.14	45.74	34.26
14	0.8590	0.7379	19.92	199.18	193.26	48.19	31.81
15	0.8390	0.7039	19.01	194.54	187.91	50.35	29.65
16	0.8190	0.6708	18.11	189.90	182.55	52.34	27.66
17	0.7970	0.6352	17.15	184.80	176.73	54.03	25.97
18	0.7750	0.6006	16.22	179.70	170.91	55.53	24.47
19	0.7520	0.5655	15.27	174.37	164.87	56.77	23.23
20	0.7280	0.5300	14.31	168.80	158.62	57.73	22.27
21	0.7030	0.4942	13.34	163.01	152.18	58.42	21.58
22	0.6780	0.4597	12.41	157.21	145.76	58.89	21.11
23	0.6530	0.4264	11.51	151.41	139.38	59.16	20.84
24	0.6270	0.3931	10.61	145.38	132.81	59.13	20.87
25	0.6010	0.3612	9.75	139.35	126.30	58.89	21.11
26	0.5740	0.3295	8.90	133.09	119.62	58.34	21.66
27	0.5470	0.2992	8.08	126.83	113.01	57.58	22.42
28	0.5210	0.2714	7.33	120.81	106.66	56.71	23.29
29	0.4940	0.2440	6.59	114.54	100.18	55.53	24.47
30	0.4670	0.2181	5.89	108.28	93.78	54.14	25.86
31	0.4400	0.1936	5.23	102.02	87.45	52.55	27.45
32	0.4130	0.1706	4.61	95.76	81.21	50.75	29.25
33	0.3870	0.1498	4.04	89.73	75.26	48.87	31.13
34	0.3610	0.1303	3.52	83.71	69.40	46.81	33.19
35	0.3350	0.1122	3.03	77.68	63.63	44.55	35.45
36	0.3090	0.0955	2.58	71.65	57.96	42.11	37.89
37	0.2840	0.0807	2.18	65.85	52.59	39.63	40.37
38	0.2600	0.0676	1.83	60.29	47.51	37.12	42.88
39	0.2360	0.0557	1.50	54.72	42.53	34.44	45.56
40	0.2130	0.0454	1.22	49.39	37.83	31.75	48.25
41	0.1900	0.0361	0.97	44.06	33.25	28.90	51.10
42	0.1680	0.0282	0.76	38.95	28.95	26.07	53.93
43	0.1470	0.0216	0.58	34.09	24.93	23.25	56.75
44	0.1260	0.0159	0.43	29.22	21.02	20.30	59.70
45	0.1070	0.0114	0.31	24.81	17.54	17.54	62.46

Depression Angle	Relative Field	Relative Power	ERP Watts	Radii in meters			
				Field Strength	Horizontal	Vertical	AGL
45	0.1070	0.0114	0.31	24.81	17.54	17.54	62.46
46	0.0880	0.0077	0.21	20.40	14.17	14.68	65.32
47	0.0690	0.0048	0.13	16.00	10.91	11.70	68.30
48	0.0520	0.0027	0.07	12.06	8.07	8.96	71.04
49	0.0360	0.0013	0.03	8.35	5.48	6.30	73.70
50	0.0200	0.0004	0.01	4.64	2.98	3.55	76.45
51	0.0050	0.0000	0.00	1.16	0.73	0.90	79.10
52	0.0090	0.0001	0.00	2.09	1.28	1.64	78.36
53	0.0210	0.0004	0.01	4.87	2.93	3.89	76.11
54	0.0330	0.0011	0.03	7.65	4.50	6.19	73.81
55	0.0450	0.0020	0.05	10.43	5.98	8.55	71.45
56	0.0550	0.0030	0.08	12.75	7.13	10.57	69.43
57	0.0640	0.0041	0.11	14.84	8.08	12.45	67.55
58	0.0730	0.0053	0.14	16.93	8.97	14.35	65.65
59	0.0800	0.0064	0.17	18.55	9.55	15.90	64.10
60	0.0870	0.0076	0.20	20.17	10.09	17.47	62.53
61	0.0930	0.0086	0.23	21.56	10.45	18.86	61.14
62	0.0980	0.0096	0.26	22.72	10.67	20.06	59.94
63	0.1030	0.0106	0.29	23.88	10.84	21.28	58.72
64	0.1060	0.0112	0.30	24.58	10.77	22.09	57.91
65	0.1090	0.0119	0.32	25.27	10.68	22.91	57.09
66	0.1110	0.0123	0.33	25.74	10.47	23.51	56.49
67	0.1120	0.0125	0.34	25.97	10.15	23.91	56.09
68	0.1130	0.0128	0.34	26.20	9.82	24.29	55.71
69	0.1130	0.0128	0.34	26.20	9.39	24.46	55.54
70	0.1120	0.0125	0.34	25.97	8.88	24.40	55.60
71	0.1100	0.0121	0.33	25.51	8.30	24.12	55.88
72	0.1080	0.0117	0.31	25.04	7.74	23.82	56.18
73	0.1060	0.0112	0.30	24.58	7.19	23.50	56.50
74	0.1030	0.0106	0.29	23.88	6.58	22.96	57.04
75	0.0990	0.0098	0.26	22.96	5.94	22.17	57.83
76	0.0950	0.0090	0.24	22.03	5.33	21.37	58.63
77	0.0900	0.0081	0.22	20.87	4.69	20.33	59.67
78	0.0850	0.0072	0.20	19.71	4.10	19.28	60.72
79	0.0800	0.0064	0.17	18.55	3.54	18.21	61.79
80	0.0740	0.0055	0.15	17.16	2.98	16.90	63.10
81	0.0680	0.0046	0.12	15.77	2.47	15.57	64.43
82	0.0610	0.0037	0.10	14.14	1.97	14.01	65.99
83	0.0550	0.0030	0.08	12.75	1.55	12.66	67.34
84	0.0480	0.0023	0.06	11.13	1.16	11.07	68.93
85	0.0400	0.0016	0.04	9.27	0.81	9.24	70.76
86	0.0330	0.0011	0.03	7.65	0.53	7.63	72.37
87	0.0250	0.0006	0.02	5.80	0.30	5.79	74.21
88	0.0170	0.0003	0.01	3.94	0.14	3.94	76.06
89	0.0090	0.0001	0.00	2.09	0.04	2.09	77.91
90	0.0000	0.0000	0.00	0.00	0.00	0.00	80.00

