

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

PROPOSED NEW FM TRANSLATOR STATION
MACOMB, ILLINOIS
FACILITY ID: 140186
103.7 MHz / 0.250 kW ERP / ND

PRESTIGE COMMUNICATIONS, INC.

JULY, 2013

AMENDMENT TO APPLICATION FOR CONSTRUCTION PERMIT

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

This amendment is being submitted as part of the Commission's Translator Auction 83 "settlement window" process. The information contained within this application is a short-form amendment to the pending engineering proposal, although the information presented is essentially the full amount required for a long-form application. This amendment will modify the original proposal sufficiently to create a singleton out of the pending application.

The original application submitted by Prestige was assigned FCC File No. BNPFT-20030311AQB. Upon the initial review by the Commission, the application was determined to be mutually exclusive with another translator application submitted by Covenant Network ("Covenant").² Both applications specified transmitter sites in close proximity to each other, and a separation of three FM channels. Prestige seeks to eliminate the mutual exclusivity between the two applications through a channel change. In addition, the site proposed by Prestige over ten years ago is no longer available for use by the translator. As a result, Prestige proposes in this application a different site from that originally specified, but one that would result in a minor change to the original proposal. Exhibit E-1 illustrates the 60 dBu service contour of the original proposal along with that of the amended proposal, and demonstrates that there would be overlap between these two contours.

¹ The Facility ID for the proposed translator facility is 140186.

² See FCC File No. BNPFT-20030314CKF. The Facility ID for the Covenant proposed facility is 143932.

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The proposed facility as amended would operate on channel 279, which is fifty-three (53) channels above the originally proposed channel. This change in the channel would be a minor change, as one of the intermediate frequency split channels is proposed. In addition, the primary station proposed for the facility would be changed from the originally specified WMQZ at Colchester, Illinois to AM station WLRB at Macomb, Illinois.³

The proposed translator would be co-located with WLRB. The WLRB tower is located just north of Macomb. This structure is registered with the Commission, and has been assigned 1010572 as its Antenna Structure Registration Number (ASRN).

The proposed facility would operate with an effective radiated power of 250 Watts utilizing a non-directional antenna. The proposed center of radiation is 270.0 meters AMSL, which corresponds to an elevation of 53.0 meters above ground level. The proposed facility would be considered a fill-in translator for AM station WLRB. Exhibit E-2 illustrates the predicted 60 dBu service contour of the proposed translator along with the daytime 2 mV/m service contour of WLRB and a 25 mile (40.2 kilometer) circle centered on the WLRB transmitter site. As this map demonstrates, the 60 dBu contour of the translator would be wholly contained within both WLRB structures.

The proposed facility would comply with the provisions of Section 74.1204 of the Commission's Rules. Section 74.1205 is not applicable due to the channel of operation. Exhibit E-3 is a tabular based allocation study for the proposed facility. As this study demonstrates, the

³ The Facility ID for WLRB at Macomb, Illinois is 60017. WLRB is licensed to Prestige.

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mutual exclusivity between Prestige and Covenant would be eliminated. In addition, the proposed facility would have no normally prohibited contour overlap with any other facility with the exception of WMQZ(FM) at Colchester, Illinois.⁴ This tabular study is illustrated graphically in Exhibit E-4.

Although there would be normally prohibited contour overlap between the proposed translator and co-owned FM station WMQZ(FM) at Colchester, Illinois, the potential interference area is predicted to affect zero persons. Exhibit E-5 illustrates the location of the proposed site along with the 69.8 F(50,50) service contour from WMQZ. As indicated, the 69.8 dBu service contour intersects the proposed translator site. Since interference for a second adjacent facility is predicted to occur when the field strength of the interfering signal is 40 dB or more above the desired signal, interference in this case may occur when the translator field strength equals or exceeds 109.8 dBu.

The power density for the proposed facility at a field strength of 112 dBu is given by the following equation:

$$S = \frac{E^2}{Z_0} = \frac{(0.3090)^2}{377} = 0.00025331$$

In this equation, S represents the calculated power density in Watts per square meter, E is the electric field intensity, which for 109.8 dBu is 0.3090 Volts per meter, and Z₀ is the characteristic impedance of free space of 377 ohms.

The power density is also given by:

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

⁴ The Facility ID for WMQZ(FM) at Colchester, Illinois is 78977. WMQZ is licensed to Prestige.

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Where S is the same units, P is the power in Watts (250 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:

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

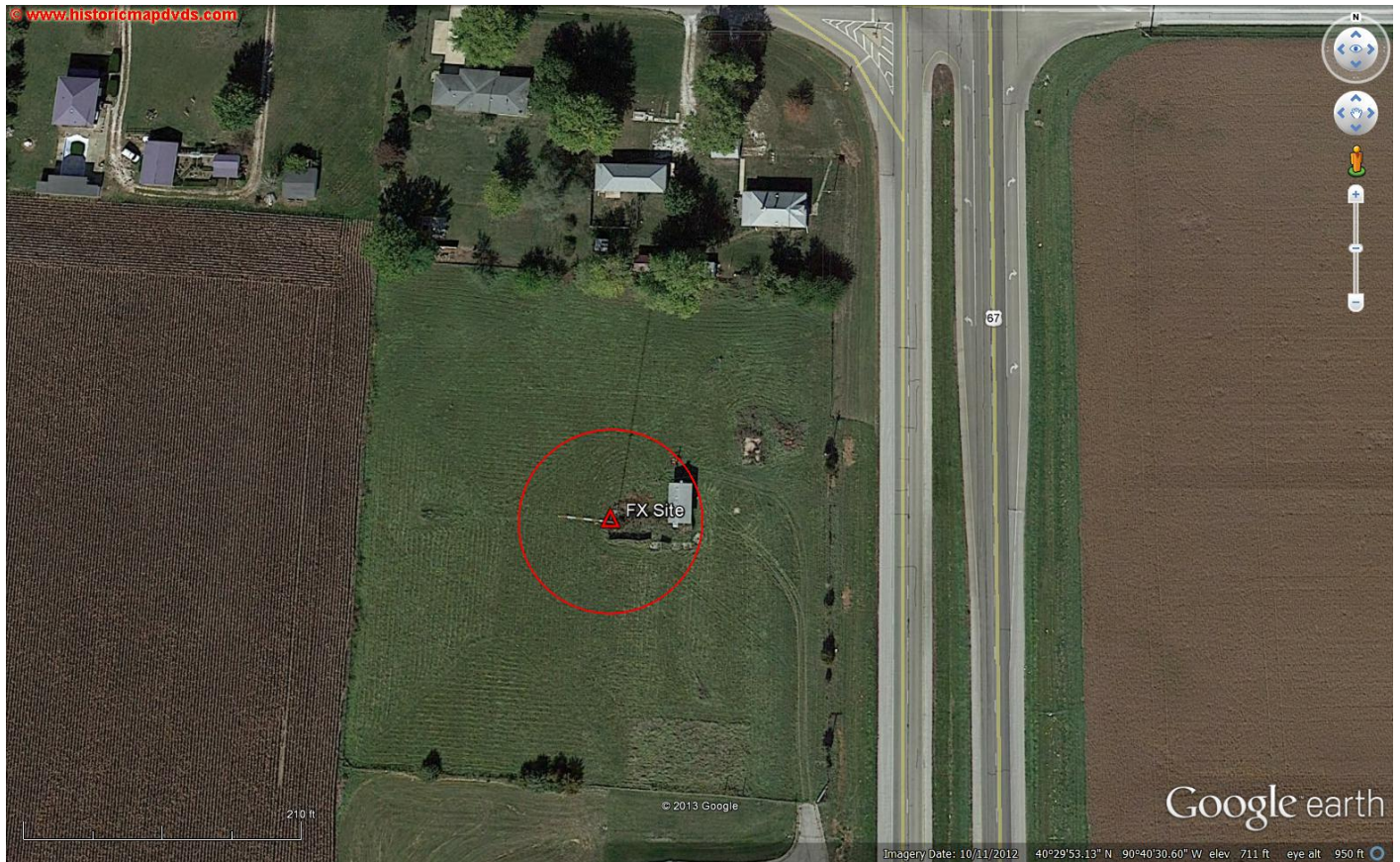
The results of these calculations for depression angles of 0 degrees to 90 degrees are tabulated in Exhibit E-6. The data in this exhibit is based on the use of a non-directional antenna. In addition to the tabular data in Exhibit E-6, several graphs are included, which graphically illustrate the interference situation for a given azimuth slice. As indicated on the form pages, a Shively model 6812B-3 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.

The resulting radii values indicate the volume in which interference is potentially predicted to occur relative to the center of radiation of the antenna. As indicated, most of the interference area would reside above 7 meters AGL, or above the average height of a two-story dwelling. In one region, however, the interference area would be closer to the ground than that level. Specifically for depression angles in the range of 65 to 75 the potential interference area would reside closer to the ground level. Within this range of depression angles, however, the horizontal distance from the tower utilized by the proposed translator ranges from approximately 12 meters to 22 meters.

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The image above is a satellite photograph of the site at which the proposed translator antenna would be located. The tower depicted in the photo is the WLRB transmission tower, and the red circle indicated is a radius of 22 meters. There is only one structure within this radius, which is the transmitter building for WLRB and the proposed transmitter. The remainder of the interference radius does not extend beyond the boundaries of the site. As a result, the affected population by the potential interference area is zero persons.

The addition of the proposed translator to the WLRB tower would not increase the environmental impact already present from that structure. No excavation would be required to add the translator antenna. In addition, the presence of the translator antenna would not result in an RF exposure hazard to the general public.

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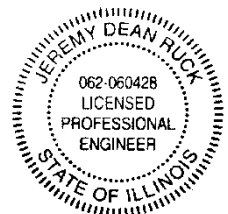
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7.4.2013

The Commission's *FM Model* software package predicts a maximum power density of 0.602 $\mu\text{W}/\text{cm}^2$ at a distance of 28 meters from the base of the tower. This value is low enough that the translator would be categorically excluded. Although Prestige is the only user of the site, it will coordinate with any other future user to ensure that workers and other personnel at 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 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 4, 2013

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631469.A

BNPFT20030311AOB
Latitude: 40-27-33 N
Longitude: 090-40-11 W
ERP: 0.10 kW
Channel: 226
Frequency: 93.1 MHz
AMSL Height: 232.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

631469.X

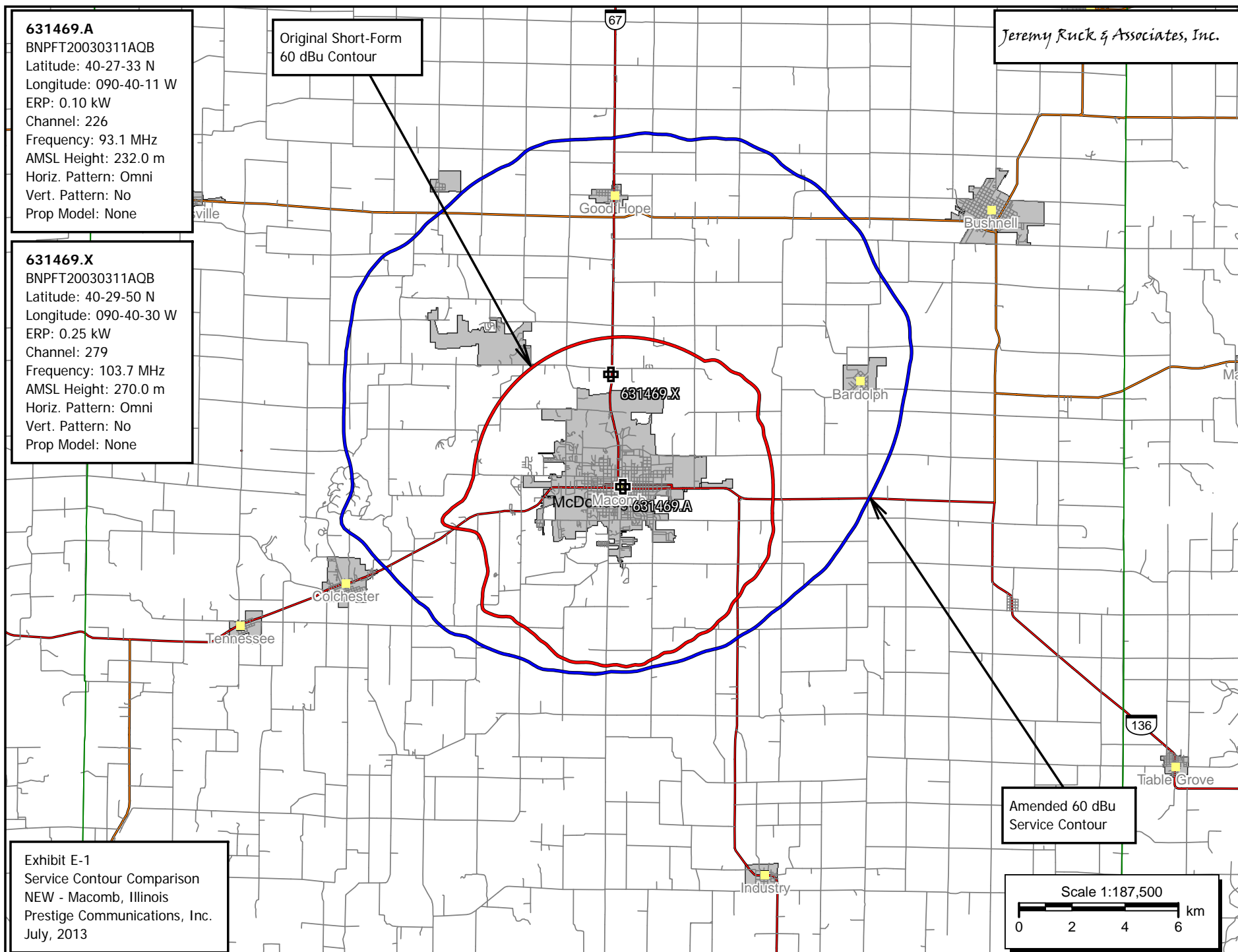
BNPFT20030311AOB
Latitude: 40-29-50 N
Longitude: 090-40-30 W
ERP: 0.25 kW
Channel: 279
Frequency: 103.7 MHz
AMSL Height: 270.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

Exhibit E-1

Service Contour Comparison
NEW - Macomb, Illinois
Prestige Communications, Inc.
July, 2013

Original Short-Form
60 dBu Contour

Jeremy Ruck & Associates, Inc.



Amended 60 dBu
Service Contour

Scale 1:187,500

0 2 4 6 km

BNPFT20030311AQB
Latitude: 40-29-50 N
Longitude: 090-40-30 W
ERP: 0.25 kW
Channel: 279
Frequency: 103.7 MHz
AMSL Height: 270.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

1. *Journal of the American Medical Association*, 2000; 283: 2686-2692.

5

Exhibit E-2
Service Contour Comparison
NEW - Macomb, Illinois
Prestige Communications, Inc.
July, 2013

Scale 1:500,000

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

Exhibit E-3 - Tabular Allocation Study
NEW - Macomb, Illinois
CH# 279D - 103.7 MHz, Pwr= 0.25 kW, HAAT= 68.1 M, COR= 270 M
Average Protected F(50-50)= 10.76 km
Omni-directional

REFERENCE
40 27 33.0 N.
90 40 11.0 W.

DISPLAY DATES
DATA 07-04-13
SEARCH 07-04-13

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*
279CO Davenport	WLLR-FM	LIC_CY IA	7.6 187.7	122.02 BLH19821112AR	41 32 49.0 90 28 35.0	100.000 363	180.3 564	77.7 Citicasters Licenses, Inc.	-68.4*	11.1
279B Springfield	WDBR	LIC_CX IL	128.9 309.6	116.90 BMLH20120629AAB	39 47 37.0 89 36 18.0	50.000 91	131.0 268	57.5 Saga Communications Of Ill	-25.1*	5.1
281A Colchester	WMOZ	LIC_CN IL	297.0 116.9	18.27 BLH19990309KA	40 32 01.0 90 51 45.0	6.000 100	2.7 310	28.2 Prestige Communications In	5.3	-11.0*
226D Macomb	631469	APP_C_ IL	0.0 0.0	0.00 BNPFT20030311AQB	40 27 33.0 90 40 11.0	0.100 30	75.3 232	50.0 Prestige Communications In	9.5R	-9.5M
276C3 Burlington	KDMG	LIC_CN IA	302.0 121.6	58.05 BLH19990129KB	40 44 04.0 91 15 15.0	12.000 145	4.3 335	42.4 Pritchard Broadcasting Cor	43.7	14.6
277A Canton	WLSE	CP_ZCX IL	86.0 266.4	60.76 BNPED20100224ACL	40 29 44.0 89 57 10.0	5.700 102	2.6 271	26.2 Canton Seventh-day Adventi	47.5	33.0
277D Canton	W277AQ	LIC_C_ IL	78.3 258.7	55.35 BLFT20070406AAO	40 33 30.0 90 01 41.0	0.080 15	0.6 207	5.3 Wpeo Radio Foundation	44.0	48.9
282D Canton	W282AO	LIC_C_ IL	70.7 251.2	56.78 BLFT20070507AFJ	40 37 33.0 90 02 04.0	0.038 46	0.4 253	5.3 Illinois Association Of Se	45.6	50.2
280A Quincy	WQCY	LIC_CX IL	233.8 53.2	96.64 BLH20021125AAY	39 56 30.0 91 35 03.0	1.800 133	39.3 299	26.0 Staradio Corp.	45.6	53.7

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.

631469.X

BNPFT20030311AQB

Latitude: 40-29-50 N

Longitude: 090-40-30 W

ERP: 0.25 kW

Channel: 279

Frequency: 103.7 MHz

AMSL Height: 270.0 m

Horiz. Pattern: Omni

Vert. Pattern: No

Prop Model: None

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

Exhibit E-4

Contour Allocation Study

NEW - Macomb, Illinois

Prestige Communications, Inc.

July, 2013

Scale 1:1,500,000



631469.X

BNPFT20030311AQB
Latitude: 40-29-50 N
Longitude: 090-40-30 W
ERP: 0.25 kW
Channel: 279
Frequency: 103.7 MHz
AMSL Height: 270.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

WMOZ

BLH19990309KA
Latitude: 40-32-01 N
Longitude: 090-51-45 W
ERP: 6.00 kW
Channel: 281
Frequency: 104.1 MHz
AMSL Height: 310.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

Jeremy Ruck & Associates, Inc.

WMOZ Transmitter Site

WMOZ 69.8 dBu
F(50,50) Contour

FCC F(50-50) 69.80 dBu

631469.X

Proposed Translator Site

Exhibit E-5
Service Contour Illustration
NEW - Macomb, Illinois
Prestige Communications, Inc.
July, 2013

Scale 1:125,000

0 2 4 6 km

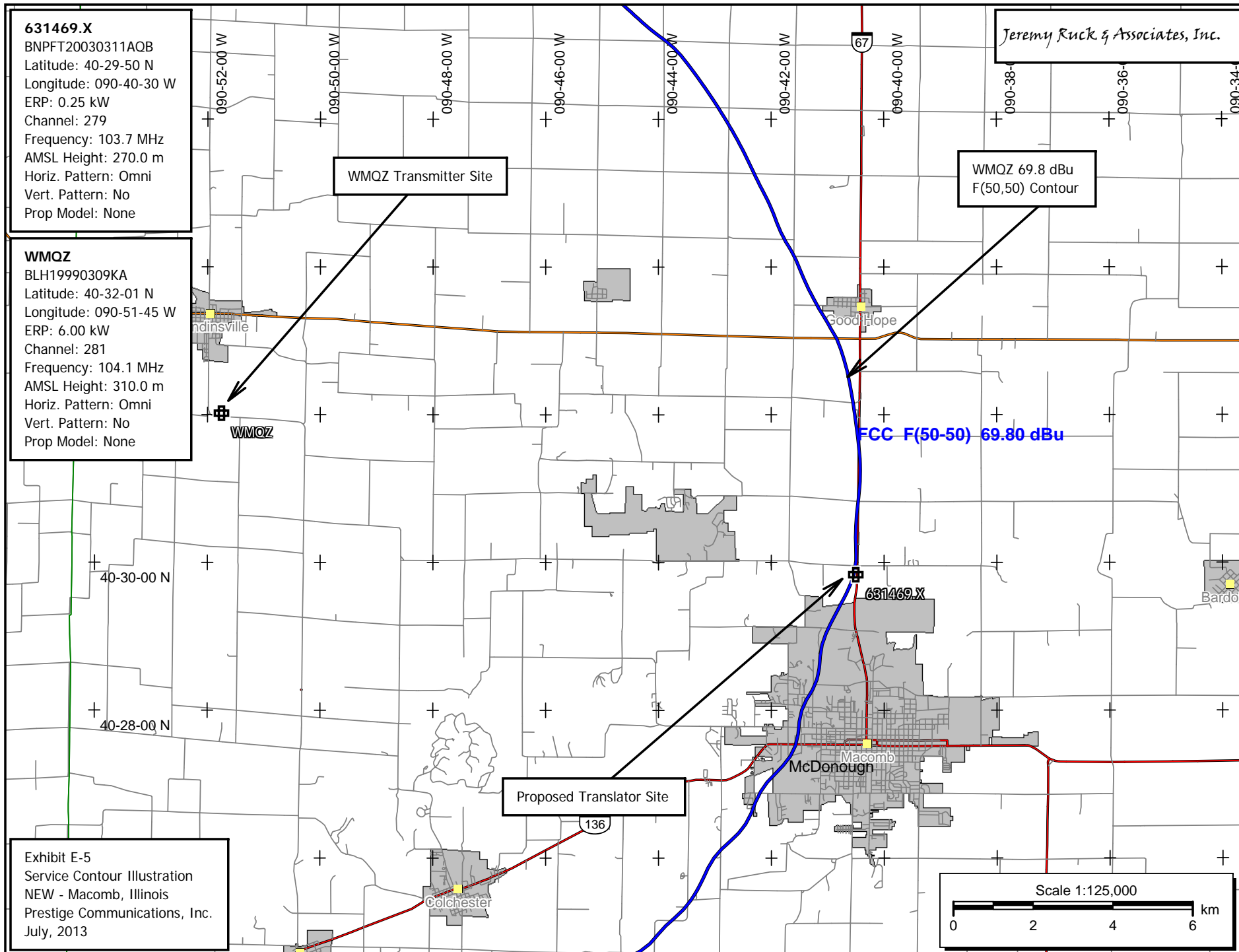
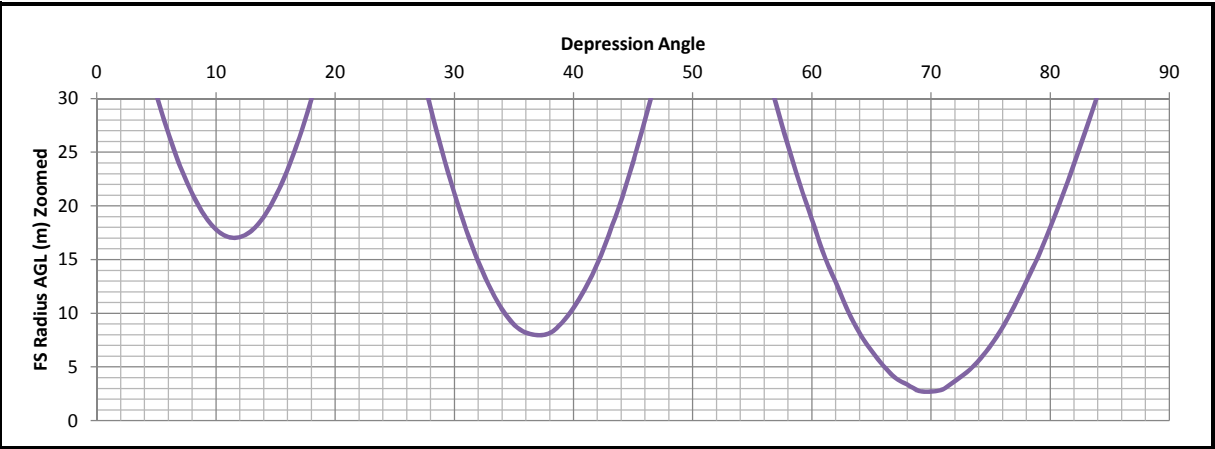
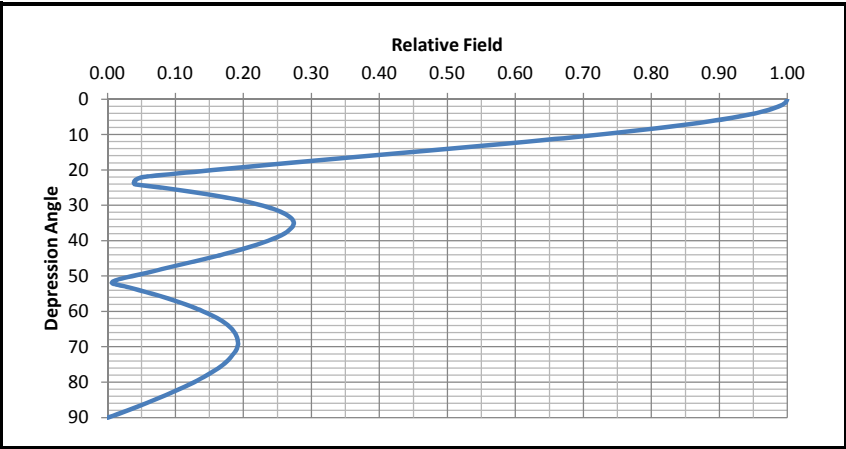


Exhibit E-6
Translator Proximity Interference Analysis
NEW - Macomb, Illinois

Antenna No:	3	⋮	⋮	Center of Radiation:	53 m AGL
Manufacturer:	Shively	⋮	⋮	Effective Radiated Power:	250 Watts
Model:	6812-3			FS Contour:	109.8 dBu
Number of Bays:	3			E Field Strength:	0.30903 V/m
Bay Spacing:	Lambda			Z0 (Ohms):	377 Ohms
				Power Density:	0.000253314 W/m^2



Depression Angle	Relative Field	Relative Power	ERP Watts	Radii in meters			
				Field Strength	Horizontal	Vertical	AGL
0	1.0000	1.0000	250.00	280.24	280.24	0.00	53.00
1	0.9970	0.9940	248.50	279.40	279.36	4.88	48.12
2	0.9880	0.9761	244.04	276.88	276.71	9.66	43.34
3	0.9730	0.9467	236.68	272.68	272.30	14.27	38.73
4	0.9520	0.9063	226.58	266.79	266.14	18.61	34.39
5	0.9260	0.8575	214.37	259.51	258.52	22.62	30.38
6	0.8940	0.7992	199.81	250.54	249.17	26.19	26.81
7	0.8580	0.7362	184.04	240.45	238.66	29.30	23.70
8	0.8160	0.6659	166.46	228.68	226.45	31.83	21.17
9	0.7710	0.5944	148.61	216.07	213.41	33.80	19.20
10	0.7230	0.5227	130.68	202.62	199.54	35.18	17.82
11	0.6710	0.4502	112.56	188.04	184.59	35.88	17.12
12	0.6160	0.3795	94.86	172.63	168.86	35.89	17.11
13	0.5600	0.3136	78.40	156.94	152.91	35.30	17.70
14	0.5020	0.2520	63.00	140.68	136.50	34.03	18.97
15	0.4430	0.1962	49.06	124.15	119.92	32.13	20.87
16	0.3840	0.1475	36.86	107.61	103.44	29.66	23.34
17	0.3250	0.1056	26.41	91.08	87.10	26.63	26.37
18	0.2670	0.0713	17.82	74.83	71.16	23.12	29.88
19	0.2100	0.0441	11.03	58.85	55.64	19.16	33.84
20	0.1550	0.0240	6.01	43.44	40.82	14.86	38.14
21	0.1020	0.0104	2.60	28.58	26.69	10.24	42.76
22	0.0520	0.0027	0.68	14.57	13.51	5.46	47.54
23	0.0400	0.0016	0.40	11.21	10.32	4.38	48.62
24	0.0400	0.0016	0.40	11.21	10.24	4.56	48.44
25	0.0810	0.0066	1.64	22.70	20.57	9.59	43.41
26	0.1180	0.0139	3.48	33.07	29.72	14.50	38.50
27	0.1510	0.0228	5.70	42.32	37.70	19.21	33.79
28	0.1810	0.0328	8.19	50.72	44.79	23.81	29.19
29	0.2060	0.0424	10.61	57.73	50.49	27.99	25.01
30	0.2270	0.0515	12.88	63.62	55.09	31.81	21.19
31	0.2440	0.0595	14.88	68.38	58.61	35.22	17.78
32	0.2570	0.0660	16.51	72.02	61.08	38.17	14.83
33	0.2660	0.0708	17.69	74.54	62.52	40.60	12.40
34	0.2720	0.0740	18.50	76.23	63.19	42.63	10.37
35	0.2740	0.0751	18.77	76.79	62.90	44.04	8.96
36	0.2720	0.0740	18.50	76.23	61.67	44.80	8.20
37	0.2670	0.0713	17.82	74.83	59.76	45.03	7.97
38	0.2600	0.0676	16.90	72.86	57.42	44.86	8.14
39	0.2490	0.0620	15.50	69.78	54.23	43.91	9.09
40	0.2360	0.0557	13.92	66.14	50.66	42.51	10.49
41	0.2210	0.0488	12.21	61.93	46.74	40.63	12.37
42	0.2050	0.0420	10.51	57.45	42.69	38.44	14.56
43	0.1860	0.0346	8.65	52.13	38.12	35.55	17.45
44	0.1670	0.0279	6.97	46.80	33.67	32.51	20.49
45	0.1460	0.0213	5.33	40.92	28.93	28.93	24.07

Depression Angle	Relative Field	Relative Power	ERP Watts	Radii in meters			
				Field Strength	Horizontal	Vertical	AGL
45	0.1460	0.0213	5.33	40.92	28.93	28.93	24.07
46	0.1240	0.0154	3.84	34.75	24.14	25.00	28.00
47	0.1020	0.0104	2.60	28.58	19.49	20.91	32.09
48	0.0800	0.0064	1.60	22.42	15.00	16.66	36.34
49	0.0580	0.0034	0.84	16.25	10.66	12.27	40.73
50	0.0360	0.0013	0.32	10.09	6.48	7.73	45.27
51	0.0140	0.0002	0.05	3.92	2.47	3.05	49.95
52	0.0070	0.0000	0.01	1.96	1.21	1.55	51.45
53	0.0280	0.0008	0.20	7.85	4.72	6.27	46.73
54	0.0470	0.0022	0.55	13.17	7.74	10.66	42.34
55	0.0660	0.0044	1.09	18.50	10.61	15.15	37.85
56	0.0840	0.0071	1.76	23.54	13.16	19.52	33.48
57	0.1000	0.0100	2.50	28.02	15.26	23.50	29.50
58	0.1150	0.0132	3.31	32.23	17.08	27.33	25.67
59	0.1290	0.0166	4.16	36.15	18.62	30.99	22.01
60	0.1410	0.0199	4.97	39.51	19.76	34.22	18.78
61	0.1530	0.0234	5.85	42.88	20.79	37.50	15.50
62	0.1620	0.0262	6.56	45.40	21.31	40.09	12.91
63	0.1710	0.0292	7.31	47.92	21.76	42.70	10.30
64	0.1780	0.0317	7.92	49.88	21.87	44.83	8.17
65	0.1830	0.0335	8.37	51.28	21.67	46.48	6.52
66	0.1870	0.0350	8.74	52.41	21.32	47.87	5.13
67	0.1900	0.0361	9.03	53.25	20.80	49.01	3.99
68	0.1910	0.0365	9.12	53.53	20.05	49.63	3.37
69	0.1920	0.0369	9.22	53.81	19.28	50.23	2.77
70	0.1910	0.0365	9.12	53.53	18.31	50.30	2.70
71	0.1890	0.0357	8.93	52.97	17.24	50.08	2.92
72	0.1850	0.0342	8.56	51.85	16.02	49.31	3.69
73	0.1810	0.0328	8.19	50.72	14.83	48.51	4.49
74	0.1760	0.0310	7.74	49.32	13.60	47.41	5.59
75	0.1700	0.0289	7.23	47.64	12.33	46.02	6.98
76	0.1630	0.0266	6.64	45.68	11.05	44.32	8.68
77	0.1550	0.0240	6.01	43.44	9.77	42.32	10.68
78	0.1460	0.0213	5.33	40.92	8.51	40.02	12.98
79	0.1370	0.0188	4.69	38.39	7.33	37.69	15.31
80	0.1270	0.0161	4.03	35.59	6.18	35.05	17.95
81	0.1160	0.0135	3.36	32.51	5.09	32.11	20.89
82	0.1050	0.0110	2.76	29.43	4.10	29.14	23.86
83	0.0930	0.0086	2.16	26.06	3.18	25.87	27.13
84	0.0810	0.0066	1.64	22.70	2.37	22.58	30.42
85	0.0690	0.0048	1.19	19.34	1.69	19.26	33.74
86	0.0560	0.0031	0.78	15.69	1.09	15.66	37.34
87	0.0420	0.0018	0.44	11.77	0.62	11.75	41.25
88	0.0290	0.0008	0.21	8.13	0.28	8.12	44.88
89	0.0150	0.0002	0.06	4.20	0.07	4.20	48.80
90	0.0000	0.0000	0.00	0.00	0.00	0.00	53.00

