

Comprehensive Technical Statement

In support of

Metroplex Communications, Inc.

Application for Minor Change for FM Translator W286AJ

94.3 MHz, Channel 232D, FCC Facility ID # 144705

Alton, IL

Introduction

Metroplex Communications, Inc. proposes the following changes to its FM translator W286AJ, FCC Facility ID # 144705:

- Power
- Antenna location
- Antenna height
- Antenna type to directional

Data Sources

Distances were calculated using the FCC method defined in 73.208 of the Commission's Rules.

All contours shown in this report were generated using antenna center above mean sea level, NAD-27 coordinates, and the FCC online HAAT calculator, which uses 30-second terrain data. Tabulations were generated using USGS03 three-second terrain data.

Detailed Interference Study

The following collection of maps and the narrative accompanying each show conclusively that no prohibited interference will occur between the proposed facility and any potentially conflicting facility or proposal.

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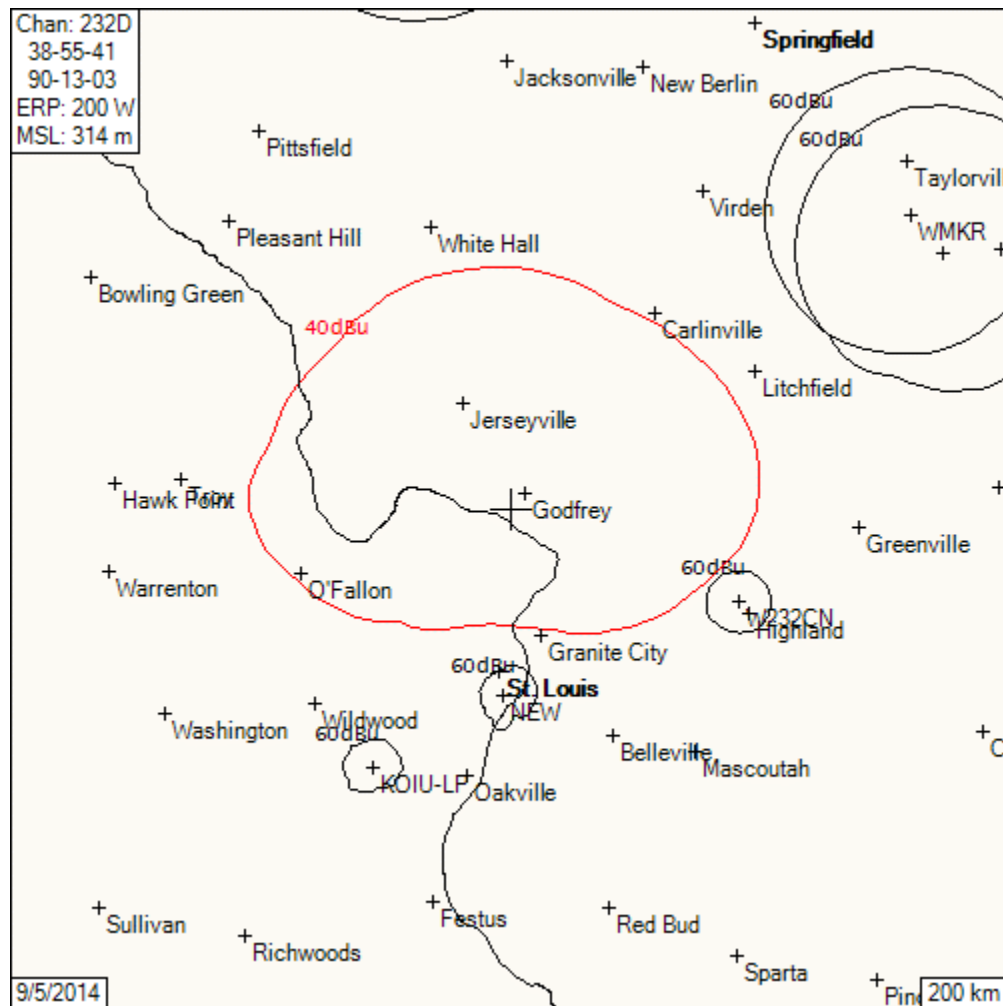
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Map 1 – Co-channel Outbound Interference



The proposed site is in Zone 1. However, all potential conflicts are protected to the 60 dBu f(50,50) contour, and use of the 40 dBu f(50,10) contour is appropriate.

There is no overlap of the proposed 40 dBu f(50,10) contour with the protected contour of any of these facilities. W232CN is close, and a tabulation is provided below.

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Tabulation of W232CN 60 dBu f(50,50) signal at proposed interfering 40 dBu f(50,10) contour:

az	eRel	kW	terht	eah	km	lat	lon	km	brg	eRel	kW	terht	eah	fs	margin
100	0.803	0.129	154.5	159.5	45.72	38 51 19.80	89 41 50.14	10.35	357.5	1	0.013	168.8	89.2	50.10	9.90
101	0.787	0.124	154.8	159.2	45.24	38 50 57.44	89 42 15.83	9.71	353.7	1	0.013	168.0	90.0	51.30	8.70
102	0.770	0.119	155.2	158.8	44.77	38 50 35.71	89 42 42.04	9.14	349.3	1	0.013	167.4	90.6	52.41	7.59
103	0.754	0.114	155.5	158.5	44.28	38 50 14.63	89 43 08.78	8.65	344.3	1	0.013	166.8	91.2	53.39	6.61
104	0.737	0.109	155.7	158.3	43.81	38 49 54.10	89 43 35.49	8.26	338.8	1	0.013	165.9	92.1	54.24	5.76
105	0.721	0.104	156.5	157.5	43.27	38 49 34.76	89 44 05.24	8.01	332.5	1	0.013	163.7	94.3	54.95	5.05
106	0.704	0.099	157.2	156.8	42.74	38 49 16.08	89 44 35.12	7.89	325.9	1	0.013	160.1	97.9	55.56	4.44
107	0.688	0.095	157.0	157.0	42.29	38 48 57.25	89 45 01.83	7.82	319.6	1	0.013	158.0	100.0	55.90	4.10
108	0.671	0.090	156.6	157.4	41.87	38 48 38.79	89 45 27.94	7.84	313.4	1	0.013	156.7	101.3	55.97	4.03
109	0.655	0.086	156.0	158.0	41.46	38 48 20.75	89 45 53.76	7.96	307.4	1	0.013	155.1	102.9	55.86	4.14
110	0.638	0.081	155.4	158.6	41.04	38 48 03.41	89 46 20.31	8.18	301.7	1	0.013	154.3	103.7	55.47	4.53
111	0.625	0.078	154.8	159.2	40.72	38 47 45.50	89 46 43.35	8.40	296.5	1	0.013	154.3	103.7	55.02	4.98
112	0.612	0.075	154.4	159.6	40.36	38 47 28.49	89 47 08.01	8.74	291.6	1	0.013	153.6	104.4	54.43	5.57
113	0.599	0.072	154.4	159.6	39.96	38 47 12.50	89 47 34.40	9.17	287.3	1	0.013	153.1	104.9	53.62	6.38
114	0.586	0.069	154.3	159.7	39.57	38 46 57.14	89 48 01.21	9.67	283.5	1	0.013	152.7	105.3	52.73	7.27
115	0.573	0.066	153.8	160.2	39.20	38 46 41.89	89 48 27.00	10.19	280.1	1	0.013	152.6	105.4	51.81	8.19
116	0.559	0.063	152.8	161.2	38.89	38 46 26.37	89 48 50.92	10.69	277.0	1	0.013	151.8	106.2	51.01	8.99
117	0.546	0.060	150.8	163.2	38.67	38 46 09.95	89 49 11.61	11.14	274.1	1	0.013	150.4	107.6	50.38	9.62

The first six columns show the calculation of distance to the proposed 40 dBu f(50,10) contour, followed by the latitude and longitude of the point described by the azimuth and distance from the proposal. The following columns show the calculation of the f(50,50) signal from W232CN at each location, and the margin below the 60 dBu limit. (A negative margin indicates prohibited overlap.)

As shown on the above table, the worst-case margin is more than 4 dB, and the proposed 40 dBu f(50,10) signal does not reach the 60 dBu f(50,50) contour of W232CN.

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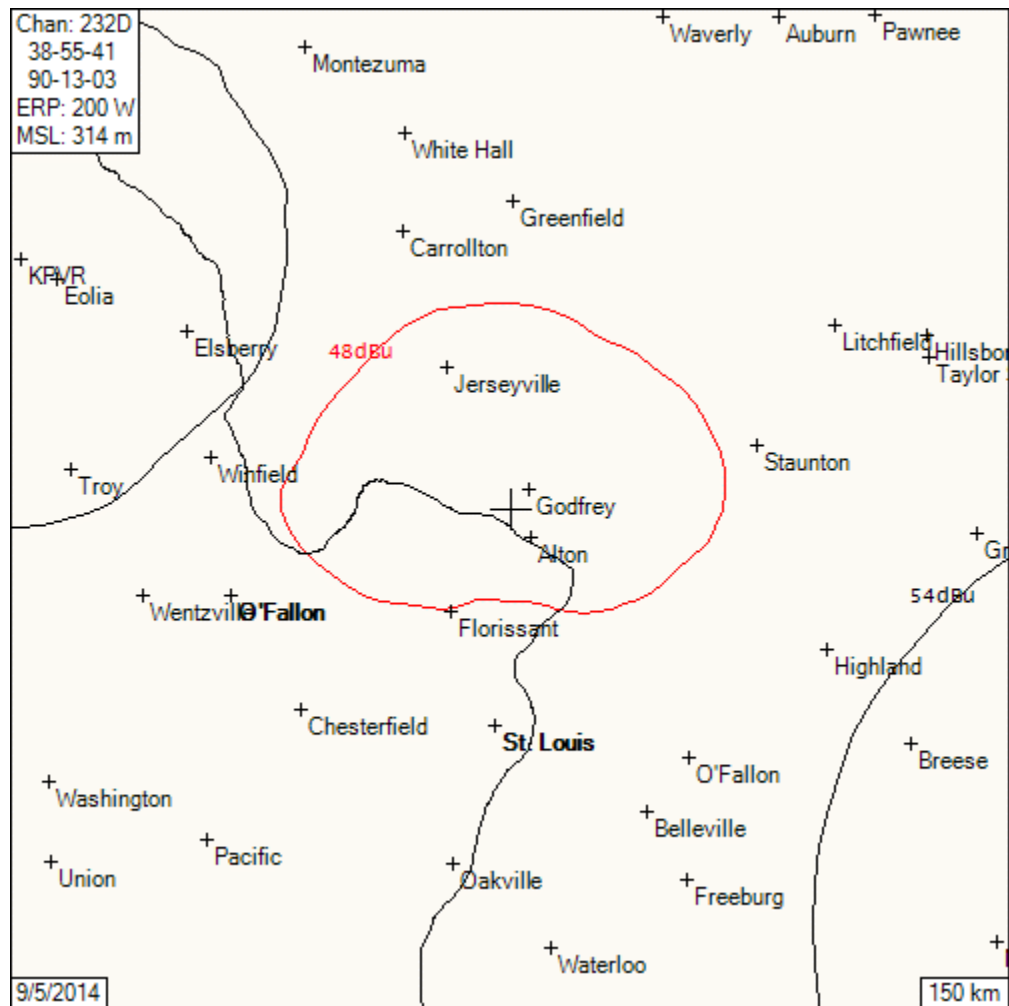
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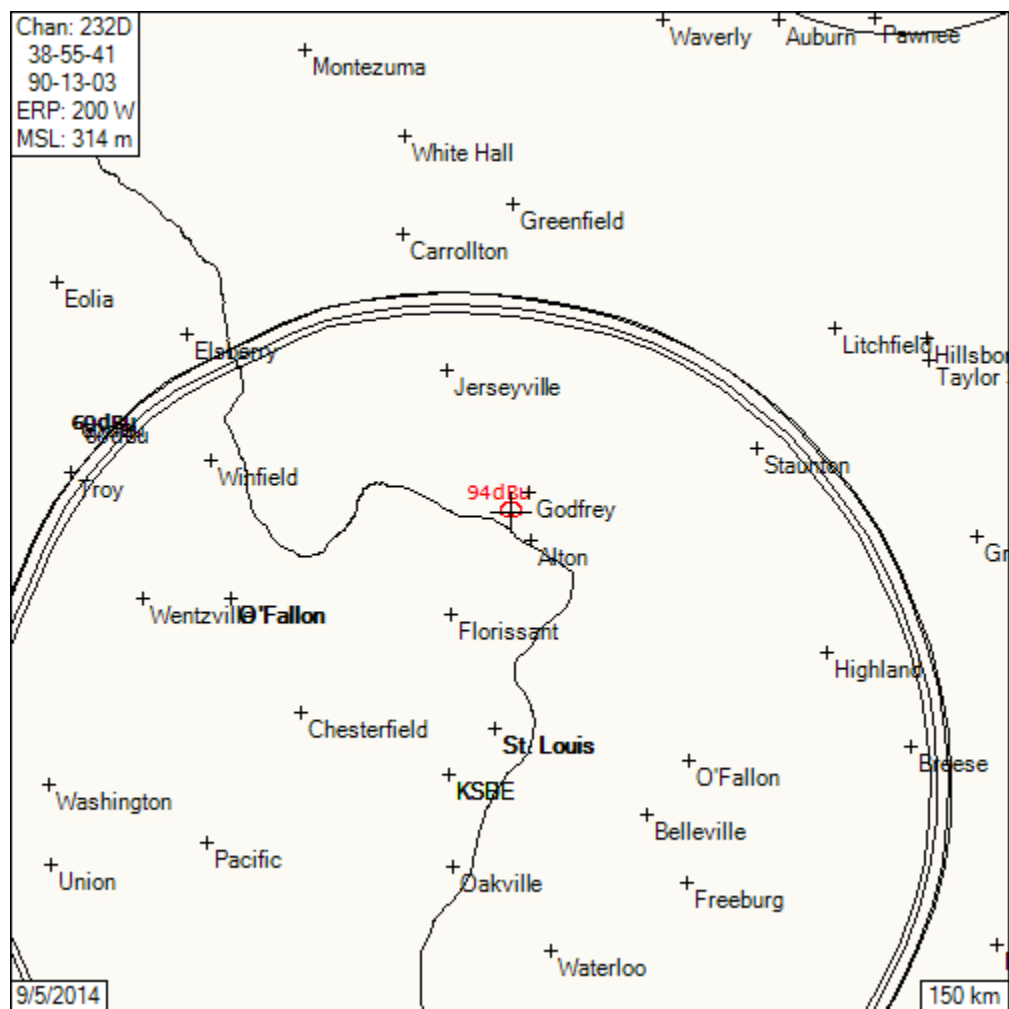
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Map 2 – First Adjacent Outbound Interference



There is no overlap of the proposed 48 dBu f(50,10) contour with any protected contour.

Map 3 – Second/Third Adjacent Outbound Interference



The proposed site is within the protected 60 dBu f(50,50) contours of second-adjacent KSHE, Crestwood, MO, FCC Facility ID # 19523, and third-adjacent KSD, St. Louis, MO, FCC Facility ID # 20360. Both stations have license and construction permit records.

appid	facid	adj	chan	status	call	st	city	erp	da	haat	brg	dkm	f(50,50)
1507163	20360	3	229C1	CP	KSD	MO	ST. LOUIS	85	N	309	193	40.4	74.16
1435064	19523	2	234C0	CP	KSHE	MO	CRESTWOOD	100	N	309	193	40.4	74.87
1224509	20360	3	229C1	LIC	KSD	MO	ST. LOUIS	74	N	313	193	40.5	73.65
1153530	19523	2	234C0	LIC	KSHE	MO	CRESTWOOD	100	N	313	192	40.5	74.96

Calculated using USGS03 terrain data, the lowest protected signal at the proposed site is that of the KSD license, at 73.65 dBu. 500 m beyond the proposed site, the KSD signal falls slightly to 73.38 dBu. The permissible interfering signal is 113.38 to 113.65 dBu.

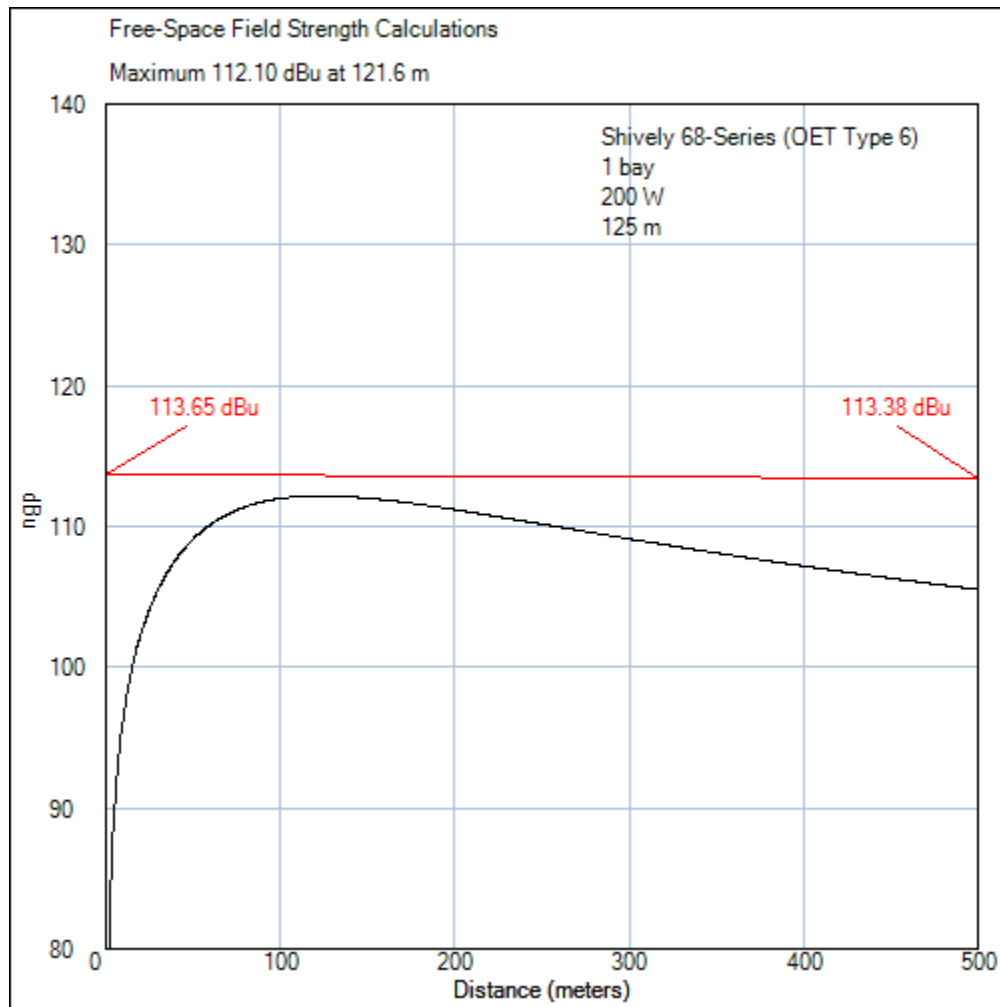
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The single bay Shively 68-series antenna will be mounted 125 m above the ground. The vertical pattern of this antenna is attached to this statement. The signal strength never reaches the permitted level of 113.38 to 113.65 dBu. The proposal therefore meets the requirements of 74.1204(d).

IF Separation requirements

The closest current IF-separated record is for the subject facility's current license, which has been replaced by license application BLFT-20140902AAC, and may be ignored. The proposal is treated as Class A for IF separation purposes. The greatest IF separation requirement of Class A to any other Class is 29 km. The nearest other IF-separated facility is KBWX, FCC Facility ID # 13793. That station is more than 40 km from the proposed site. The proposal therefore meets the requirements of 73.217 with respect to IF separations.

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Channel 6 Interference

The proposed facility is not on a channel that is implicated in channel 6 interference.

International

The FM Agreements with Canada and Mexico require evaluation and potential coordination of any proposal within 320 km of the border.

The distance to the nearest point along the US/Canada border is 687 km. Coordination with Canada is not required.

The distance to the nearest point along the US/Mexico border is 1,443 km. Coordination with Mexico is not required.

Quiet Zones

The proposed site is outside the National Radio Quiet Zone (National Radio Astronomy Observatory Notification Area) in West Virginia.

The proposed site is outside the Arecibo Observatory notification area in Puerto Rico.

The proposed site is not within a 100 km extension of the Table Mountain Radio Receiving Zone in Colorado.

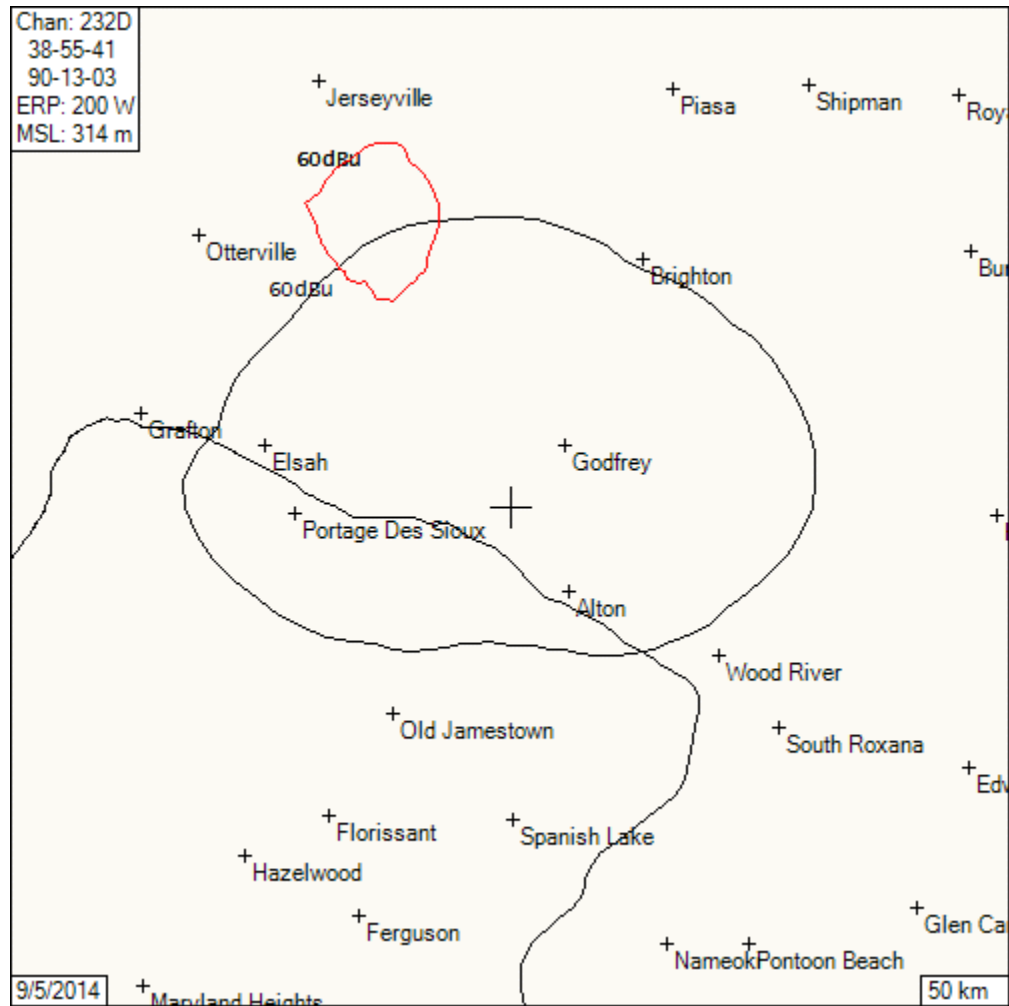
Protected Monitoring Stations

The nearest Protected Monitoring Station is 544 km distant, in Allegan, MI. This is well beyond any potential 80 dBu contour.

Antenna Location

The antenna will be mounted 125 m above ground on an existing 126 m high tower, ASR # 1023824. No change is proposed to the height of the tower.

Minor Change



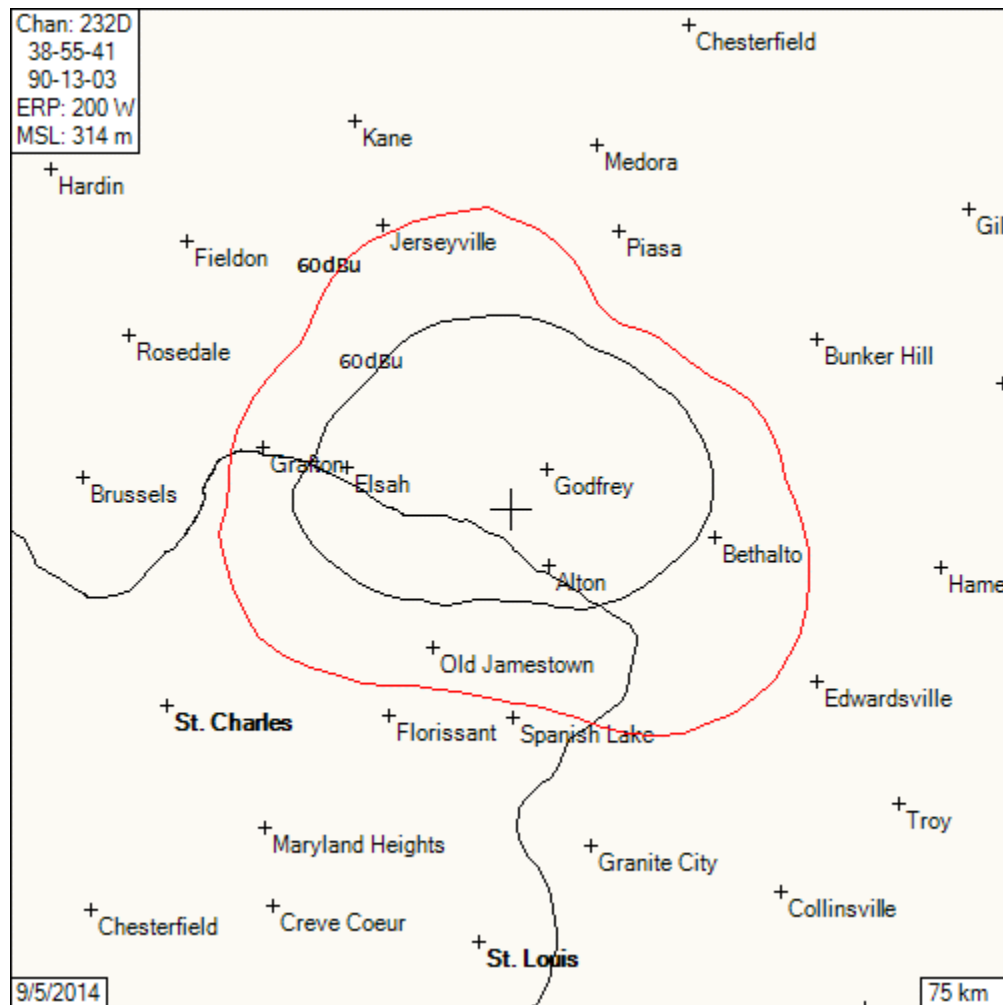
The proposed 60dbu f(50,50) contour, shown in black, intersects the licensed 60 dBu contour, shown in red.

No change in channel is proposed.

Therefore, the proposal is for a minor change.

Fill-In Translator

The proposed primary station is WLCA (FM), Godfrey, IL, FCC Facility ID # 37167.



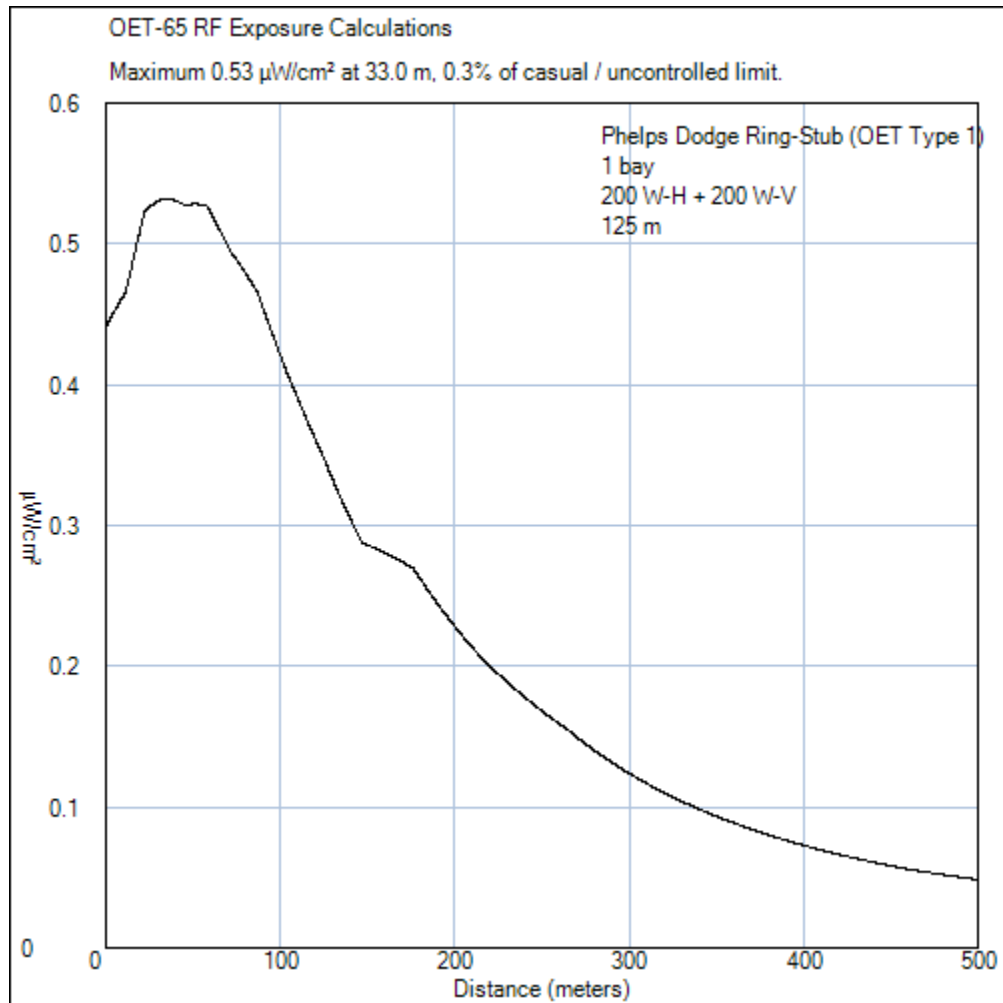
The WLCN 60 dBu f(50,50) contour, shown in red, completely encompasses the proposed 60 dBu f(50,50) contour, shown in black. Therefore, the proposal qualifies for fill-in service.

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RF Exposure



Assuming the worst-case antenna, OET Type 1, the maximum RF exposure will be well under 1% of the limit for casual / uncontrolled exposure.

The base of the tower is fenced and appropriate access controls and signage are provided.

The applicant agrees to reduce power or shut down in order to protect workers at the site.

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Form 349 Tech Box Data

Channel 232

Primary Station Facility ID # 37167
WLCA (FM)
Godfrey, IL

Delivery Method Other, direct feed from studio

Coordinates (NAD-27) 38 55 41 N Lat
90 13 03 W Lon

Coordinates (NAD-83) 38 55 41.0 N Lat
90 13 03.0 W Lon

ASR 1023824

Site Elevation AMSL 189 m

Overall Tower Height AGL 126 m

Radiation Center AGL 125 m

Effective Radiated Power 200 W-H + 200 W-V

Antenna type Directional – see below

Manufacturer / Model SHI 6810-1-DA

Proposed Directional Antenna pattern											
Rotation	0.0										
az	eRel	az	eRel	az	eRel	az	eRel	az	eRel	az	eRel
0	1.000	10	1.000	20	1.000	30	1.000	40	1.000	50	1.000
60	1.000	70	1.000	80	0.980	90	0.920	100	0.803	110	0.638
120	0.507	130	0.403	140	0.320	150	0.254	160	0.202	170	0.179
180	0.179	190	0.179	200	0.202	210	0.254	220	0.320	230	0.403
240	0.507	250	0.638	260	0.803	270	0.920	280	0.980	290	1.000
300	1.000	310	1.000	320	1.000	330	1.000	340	1.000	350	1.000
Supplemental Radials											
none											

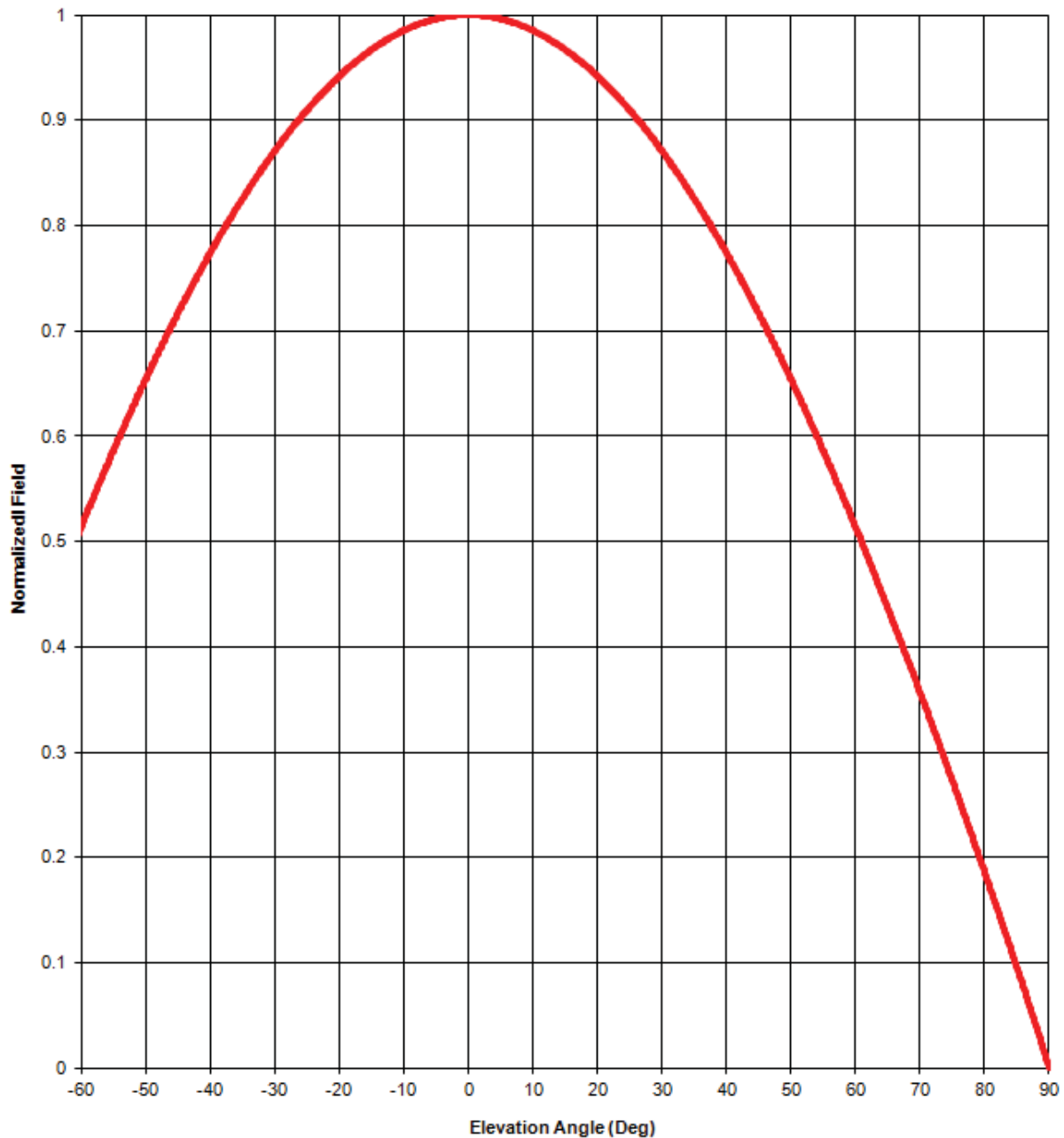
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Elevation pattern



Antenna models: 6014, 6015, 6020, 6510, 6513, 6600, 68xx except 6832, & Versa2une, single bay

Test frequency: 98.1 MHz

Gain (maximum):

	Power	dB
6014, 6015, 68xx:	0.45	-3.43 dB
6510, 6513, 6600:	0.91	-0.43 dB

Document No. 68xx-1 bay fw (130701)

A Division of Howell Laboratories, Inc., P. O. Box 389, Bridgton, Maine 04009 USA

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Degrees	Rel. Field	Degrees	Rel. Field	Degrees	Rel. Field	Degrees	Rel. Field	Degrees	Rel. Field
1	1.000	19	0.948	37	0.806	55	0.586	73	0.307
2	0.999	20	0.942	38	0.796	56	0.572	74	0.290
3	0.999	21	0.936	39	0.785	57	0.558	75	0.273
4	0.998	22	0.930	40	0.774	58	0.544	76	0.256
5	0.996	23	0.924	41	0.763	59	0.529	77	0.239
6	0.995	24	0.917	42	0.752	60	0.514	78	0.221
7	0.993	25	0.910	43	0.741	61	0.499	79	0.204
8	0.991	26	0.903	44	0.729	62	0.484	80	0.186
9	0.988	27	0.895	45	0.717	63	0.469	81	0.168
10	0.985	28	0.887	46	0.705	64	0.453	82	0.151
11	0.982	29	0.879	47	0.693	65	0.437	83	0.133
12	0.979	30	0.871	48	0.680	66	0.422	84	0.114
13	0.975	31	0.862	49	0.667	67	0.406	85	0.096
14	0.971	32	0.854	50	0.654	68	0.390	86	0.078
15	0.967	33	0.845	51	0.641	69	0.373	87	0.059
16	0.963	34	0.835	52	0.628	70	0.357	88	0.040
17	0.958	35	0.826	53	0.614	71	0.341	89	0.021
18	0.953	36	0.816	54	0.600	72	0.324	90	0.000

Elevation Pattern Tabulation

Antenna models: 6014, 6015, 6020, 6510, 6513, 6600, 68xx except 6832, & Versa2une, single bay.

Relative Field at 0° Depression = 1.000