Comprehensive Technical Statement

Bravo Mic Communications, LLC, Permittee

Minor Modification to Construction Permit BMPFT-20170822AAF

K244FF, FCC Facility ID # 157004, Las Cruces, MN

Introduction

This application proposes to change the antenna height and effective radiated power from the values in Construction Permit BMPFT-20170822AAF ("the CP").

Construction was begun, but it was discovered that mechanical conflicts required that the antenna be mounted lower on the tower. The CP specifies a height of 70 m above ground level (AGL), and the highest point on the tower at which the antenna can be mounted is 47 m. That makes the antenna center 1233 m above mean sea level (AMSL).

The proposal is for the same site with reduced antenna height and effective radiated power (ERP).

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 set to use 30-second terrain data.

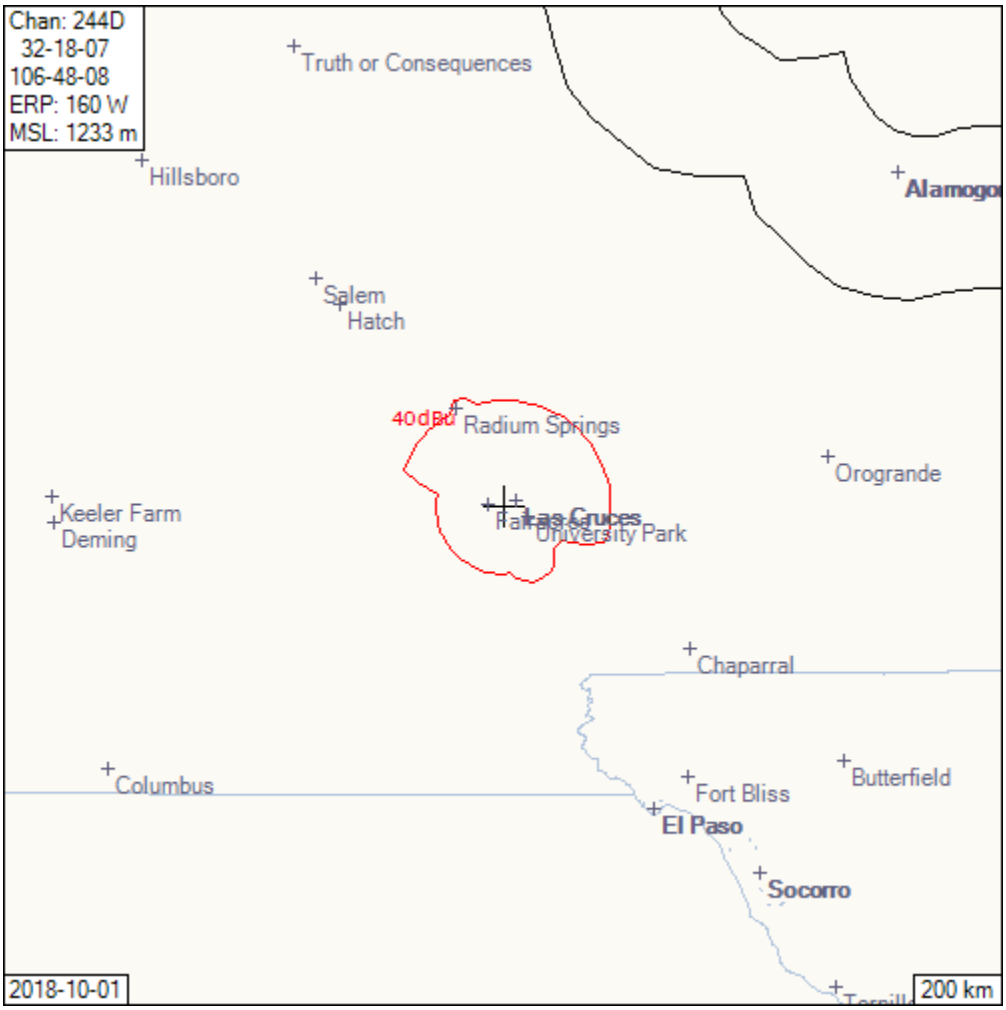
Dates shown on the maps represent the last change date in the CDBS downloads in use at the time this statement was prepared.

Skywaves Consulting LLC
PO Box 4, Millbury, MA 01527
Main Number: 401-354-2400
http://www.skywaves.com Washington: 202-370-6357 consultants@skywaves.com

Detailed Interference Study

The following collection of maps and the narrative accompanying each show that no prohibited overlap will occur between the proposed facility and any potentially conflicting facility or proposal. Interfering f(50,10) contours are shown as red polygons, and protected f(50,50) contours are shown as black polygons.

Map 1 – Co-channel Outbound Interference



There is no overlap of the interfering contour with the protected contour of any co-channel station or proposal.

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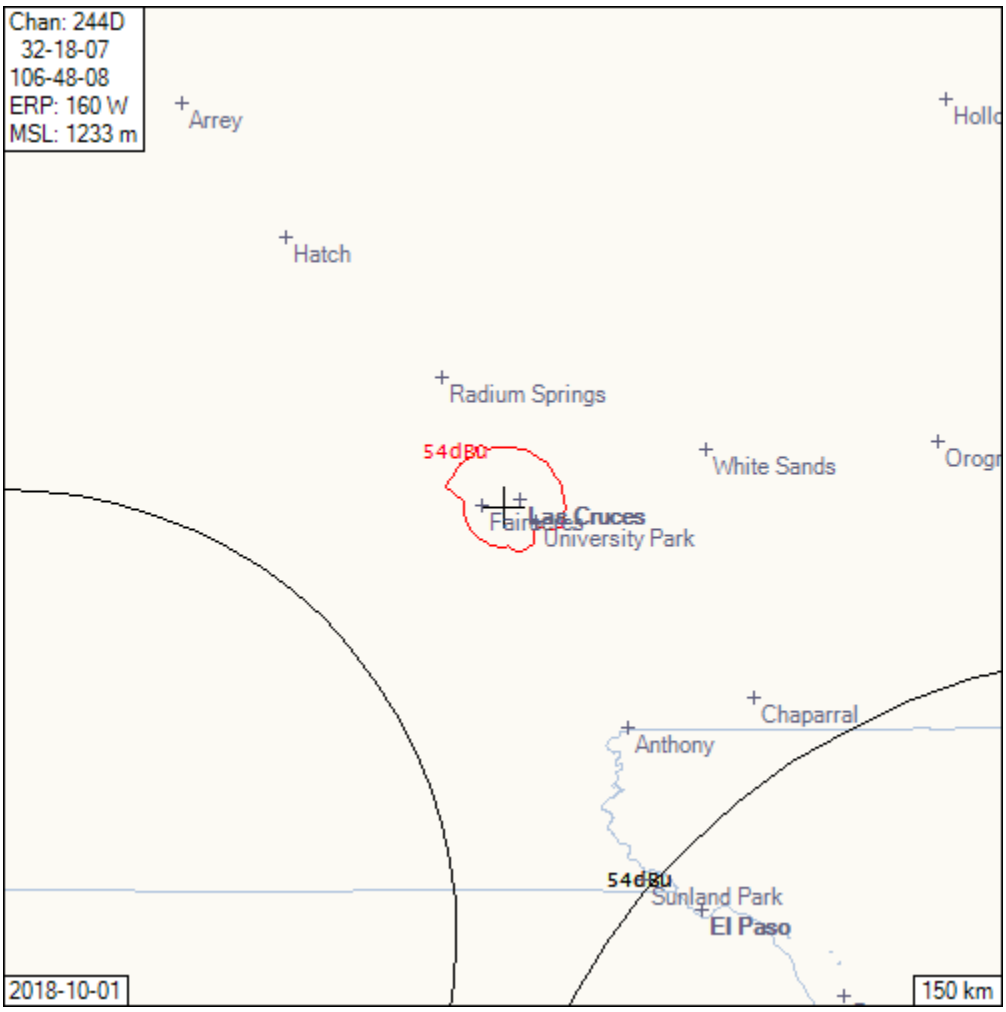
Map 2 – First Adjacent Outbound Interference



There is no overlap of the interfering contour with the protected contour of any first-adjacent station or proposal.

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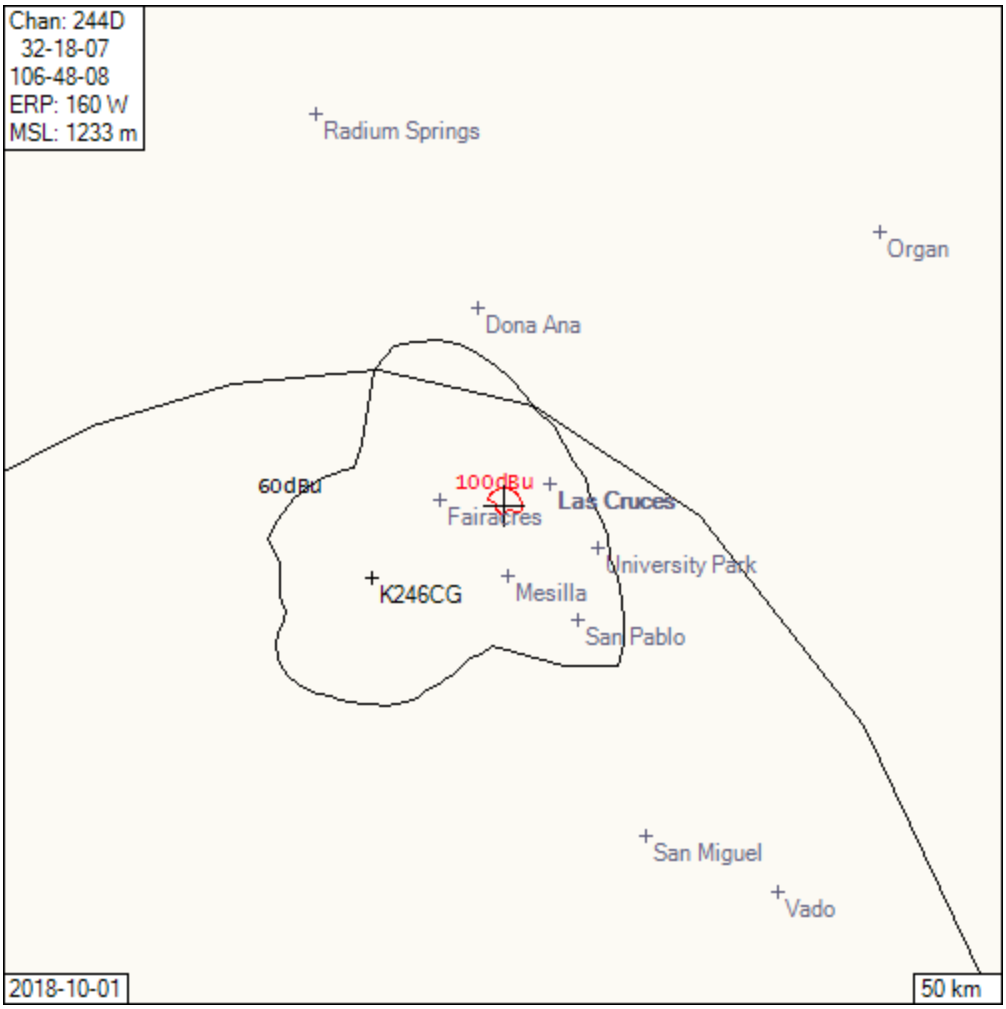
http://www.skywaves.com Washington: 202-370-6357 consultants@skywaves.com

Map 3 – Second/Third Adjacent Outbound Interference Detail



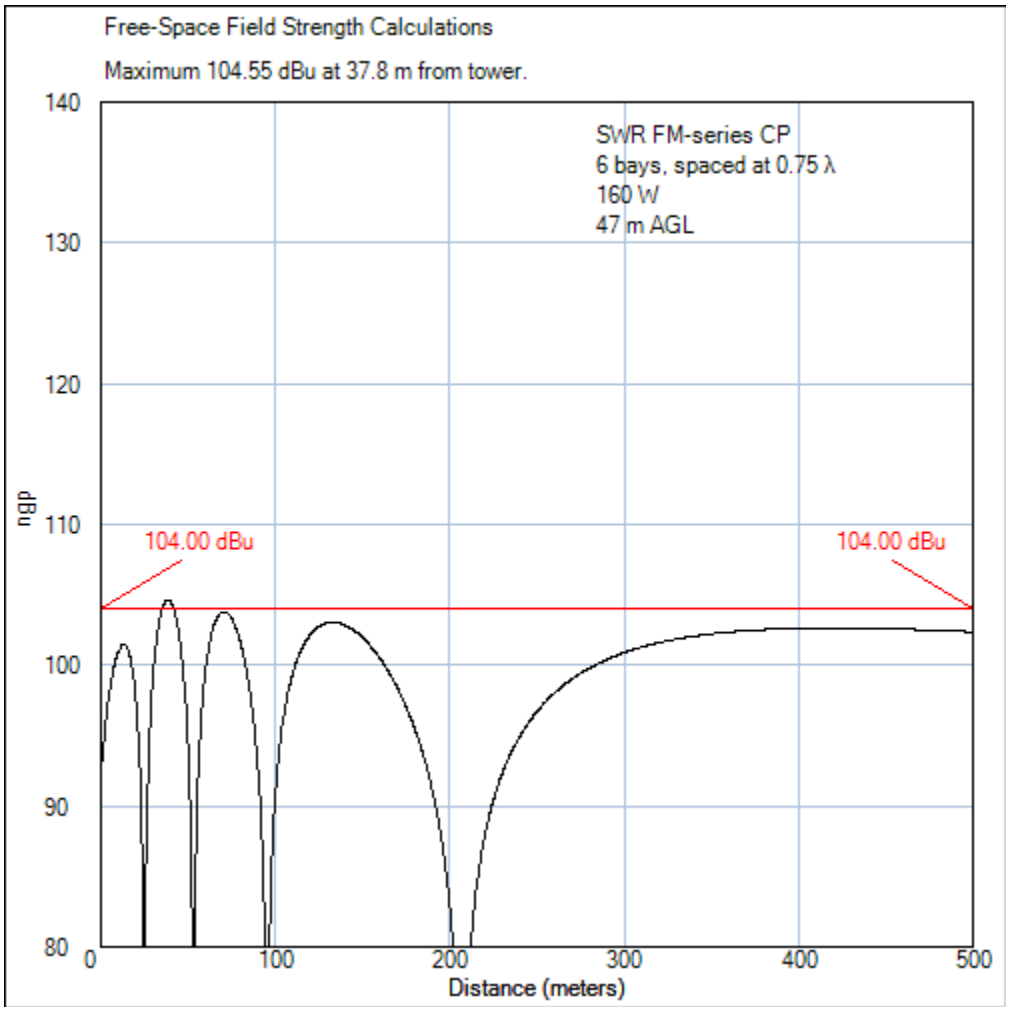
The proposed transmitter site is within the protected contours of K246CG and KHEY.

At the proposed site, the field strength of K246CG is 68.0 dBu, and the field strength of KHEY is 64.0 dBu. KHEY is the more limiting, and the allowable interfering signal from the proposal is 104.0 dBu.

The second-adjacent interference showing on the following page shows that the proposal comports with 74.1204(d), which permits interference in unpopulated areas.

Second-Adjacent Interference Showing

The proposed antenna is an SWR FMEC-6-SS with a bay spacing of 0.75 λ. It will be centered 47 m above the ground.



The above plot shows that the interfering signal on the ground will never reach the 104.0 dBu limit beyond about 50 m, but it would exceed the limit within 50 m.

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The following table shows the interfering signal strength from the tower base to 80 m:

dist	dangle	srange	hfld	dbk	dBu	delta
0	90.00	47.0	0.024	-40.51	92.98	11.02
2	87.56	47.0	0.032	-37.73	95.75	8.25
4	85.14	47.2	0.041	-35.69	97.77	6.23
6	82.72	47.4	0.049	-34.12	99.30	4.70
8	80.34	47.7	0.056	-32.98	100.39	3.61
10	77.99	48.1	0.059	-32.47	100.83	3.17
12	75.68	48.5	0.064	-31.79	101.42	2.58
14	73.41	49.0	0.064	-31.83	101.28	2.72
16	71.20	49.6	0.060	-32.40	100.61	3.39
18	69.04	50.3	0.052	-33.69	99.21	4.79
20	66.95	51.1	0.039	-36.13	96.64	7.36
22	64.92	51.9	0.022	-40.98	91.64	12.36
24	62.95	52.8	0.002	-60.41	72.07	31.93
26	61.05	53.7	0.020	-42.07	90.26	13.74
28	59.22	54.7	0.043	-35.39	96.78	7.22
30	57.45	55.8	0.064	-31.78	100.22	3.78
32	55.75	56.9	0.084	-29.49	102.34	1.66
34	54.12	58.0	0.099	-28.01	103.65	0.35
36	52.55	59.2	0.110	-27.13	**104.35**	**-0.35**
38	51.04	60.4	0.115	-26.76	**104.54**	**-0.54**
40	49.60	61.7	0.114	-26.84	**104.28**	**-0.28**
42	48.22	63.0	0.107	-27.40	103.53	0.47
44	46.89	64.4	0.094	-28.49	102.27	1.73
46	45.62	65.8	0.077	-30.25	100.32	3.68
48	44.40	67.2	0.056	-33.03	97.36	6.64
50	43.23	68.6	0.032	-37.82	92.38	11.62
52	42.11	70.1	0.007	-51.05	78.96	25.04
54	41.04	71.6	0.019	-42.59	87.24	16.76
56	40.01	73.1	0.043	-35.19	94.46	9.54
58	39.02	74.7	0.067	-31.45	98.02	5.98
60	38.07	76.2	0.088	-29.06	100.23	3.77
62	37.16	77.8	0.107	-27.41	101.70	2.30
64	36.29	79.4	0.122	-26.25	102.68	1.32
66	35.46	81.0	0.133	-25.46	103.30	0.70
68	34.65	82.7	0.141	-24.95	103.64	0.36
70	33.88	84.3	0.146	-24.68	103.74	0.26
72	33.14	86.0	0.147	-24.61	103.63	0.37
74	32.42	87.7	0.145	-24.75	103.32	0.68
76	31.73	89.4	0.139	-25.08	102.83	1.17
78	31.07	91.1	0.131	-25.60	102.15	1.85
80	30.43	92.8	0.121	-26.32	101.26	2.74

104 dBu is exceeded from 36 to 38 meters from the tower.

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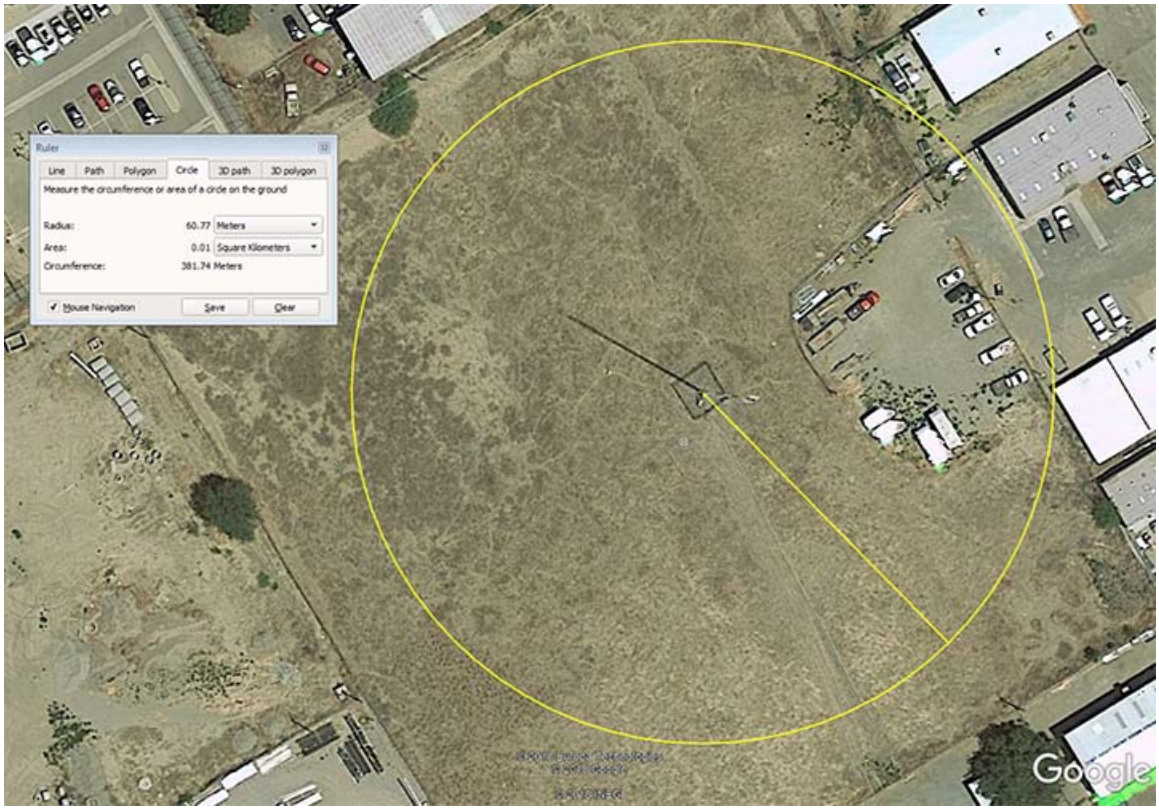
Here is a Google Earth image of the property showing that the nearest building is more than 60 m from the tower:



Since the interfering signal will never reach into any habitable place, the proposal meets the requirements of 74.1204(d).

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IF Separation requirements

There are no IF-separated facilities or proposals within 50 km of the proposal.

Channel 6 Interference

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

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 283 km distant, in Douglas, AZ. This is well beyond any potential 80 dBu contour.
Minor Change

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 1,855 km. Coordination with Canada is not required.

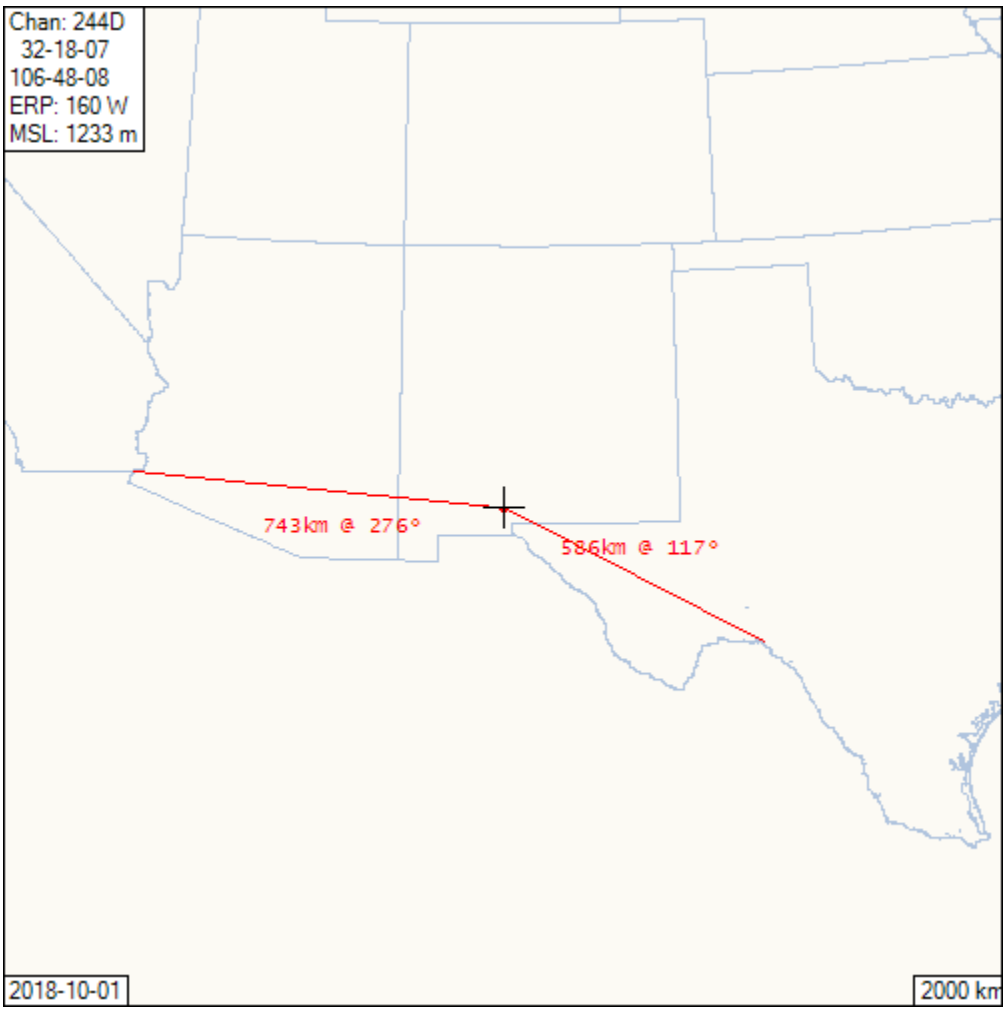
The distance to the nearest point along the US/Mexico border is 57.6 km from the proposed site. Evaluation with respect to Mexican facilities and proposals is required.

International Considerations with Respect to Mexico

In the US-Mexico FM Agreement of 1995, Section 2 deals with "Low Power FM Stations" including translators. It provides the following limits "in the direction of the other country" to proposals within 125 km of the border:

- 50 Watts maximum effective radiated power (ERP)
- 32 km maximum distance to the interfering contour
- 8.7 km to the protected contour

The following map shows the direction and distance to the most limiting points in the direction of Mexico from the proposed site:



On this conservative basis, "the direction of Mexico" spans from 117° clockwise to 276°.

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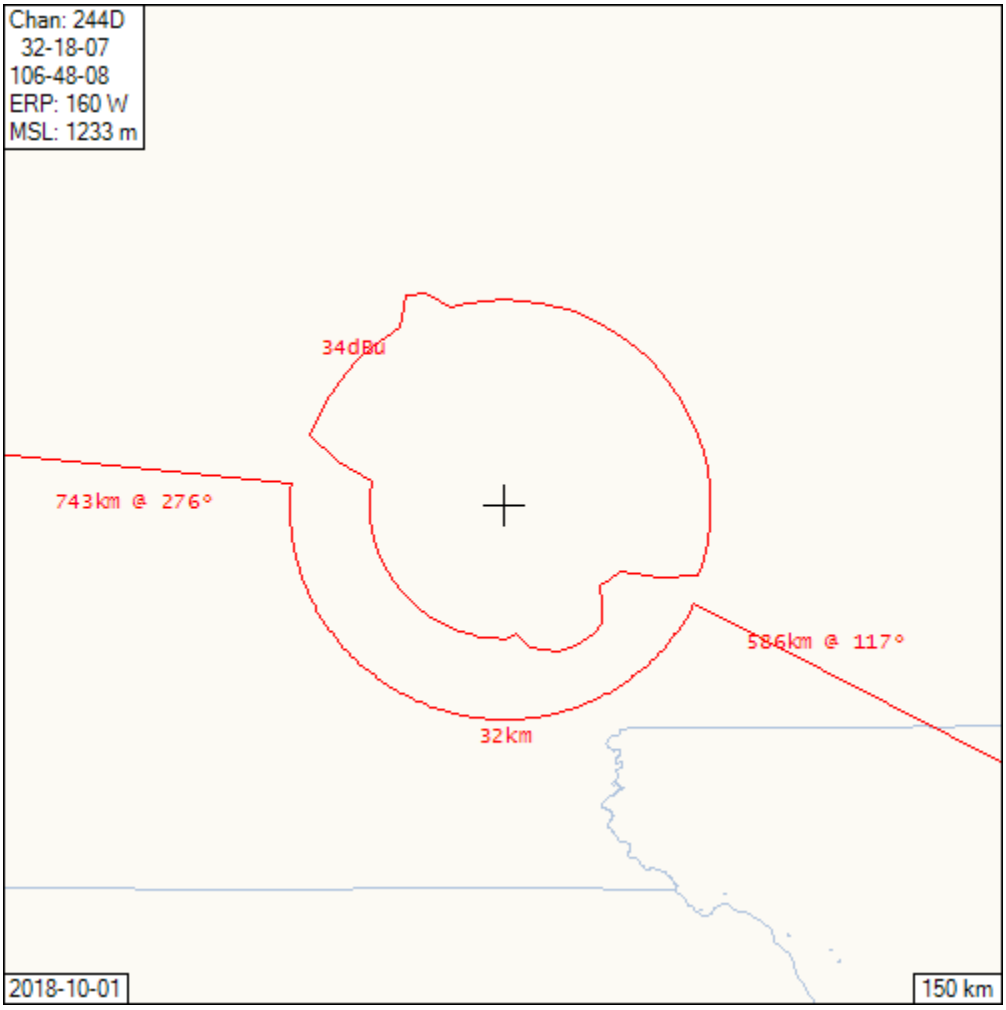
The maximum ERP is 160 W. The maximum relative field in the directional pattern from 110° to 280° is 0.447. The relative field of 0.447 corresponds to a power of 32 Watts.

The following plot shows the worst-case 34 dBu f(50,10) interfering contour (red polygon) plotted against the 32 km limit (red arc):



The interfering contour does not exceed 32 km from 117° clockwise to 276°.

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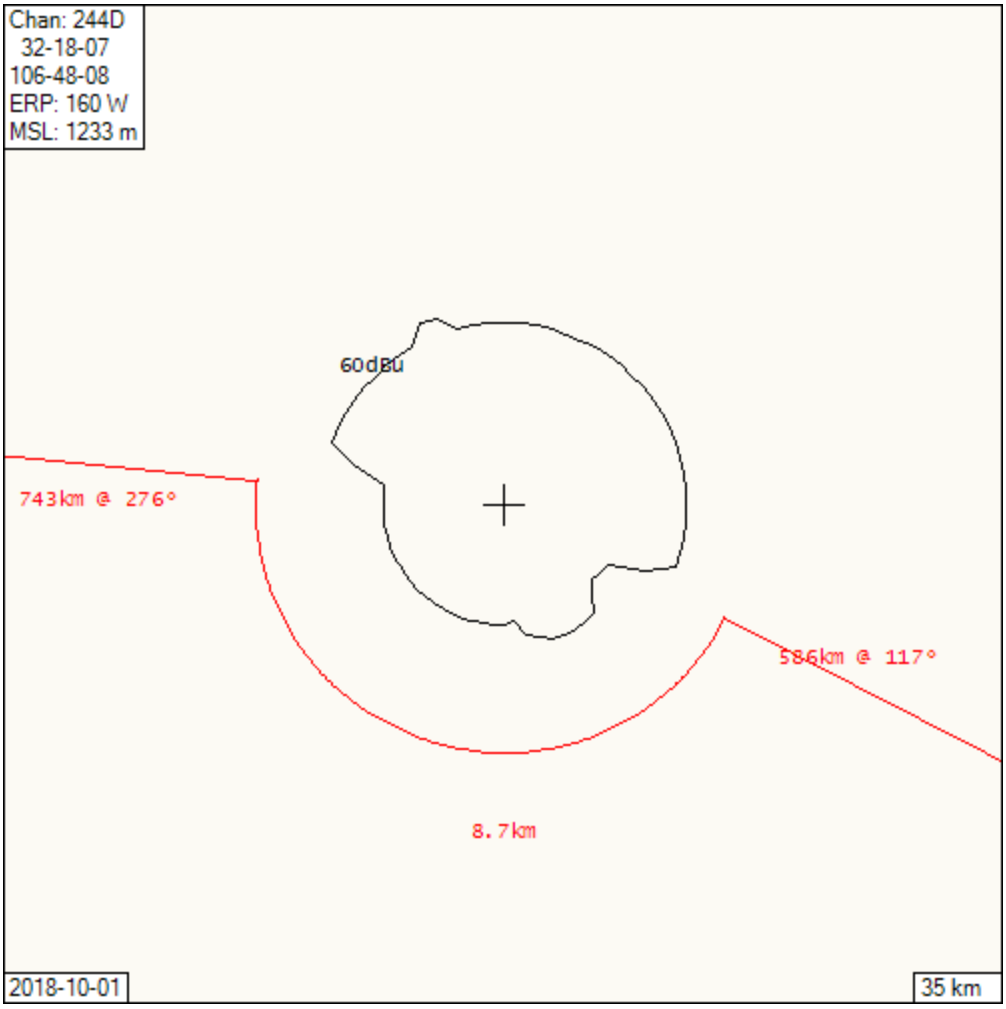
The following plot shows the proposed 60 dBu f(50,50) protected contour (black polygon) plotted against the 8.7 km protected contour limit (red arc):



The protected contour does not exceed 8.7 km from 117° clockwise to 276°.

Conclusion:

Using the most conservative assumptions, the proposal comports with all aspects of the US-Mexico FM Agreement of 1995.

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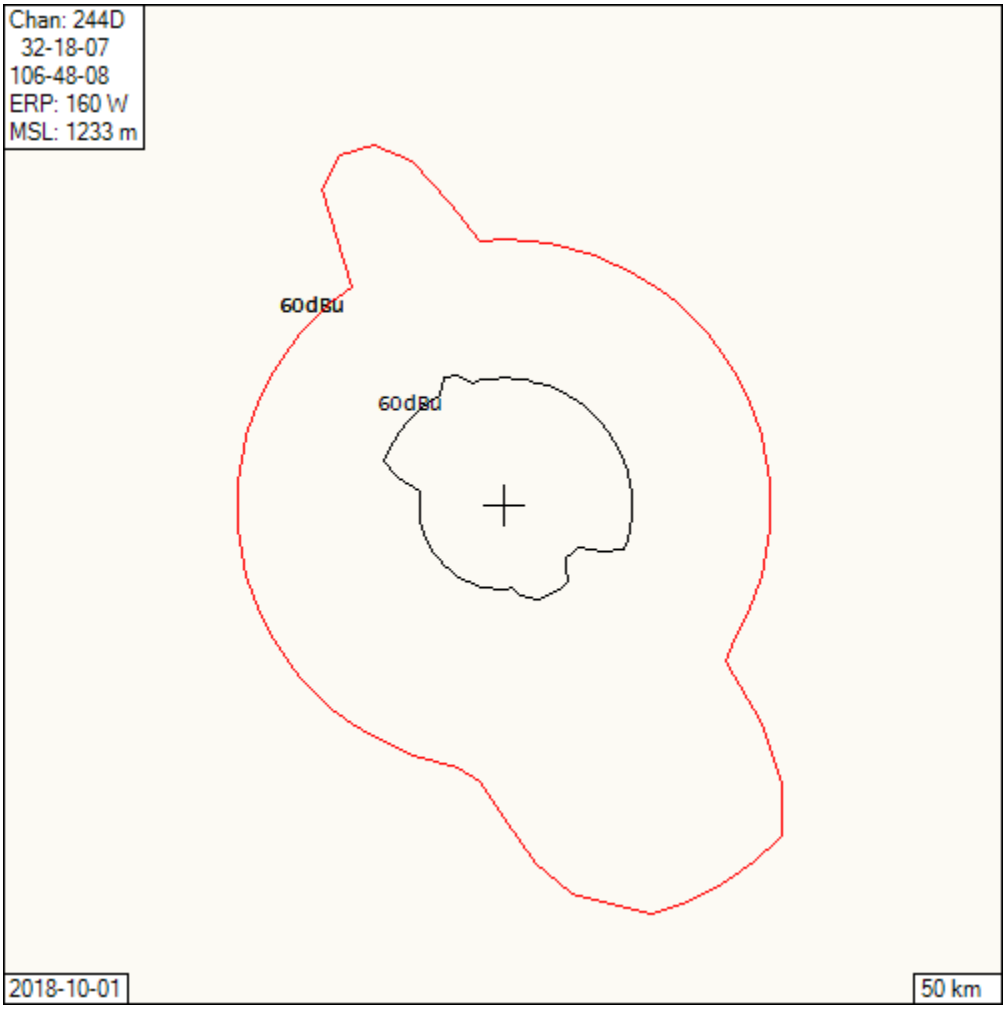
Fill-In Translator

The proposed primary station is KMVR HD-2, Mesilla Park, NM, FCC Facility ID # 54946.

The following plot shows the protected 60 dBu f(50,50) contours of the proposal (black polygon) and the primary station (red polygon):



The proposed 60 dBu f(50,50) contour falls entirely within the primary 60 dBu f(50,50).

The applicant is the licensee of KMVR.

The proposal therefore qualifies as fill-in service.

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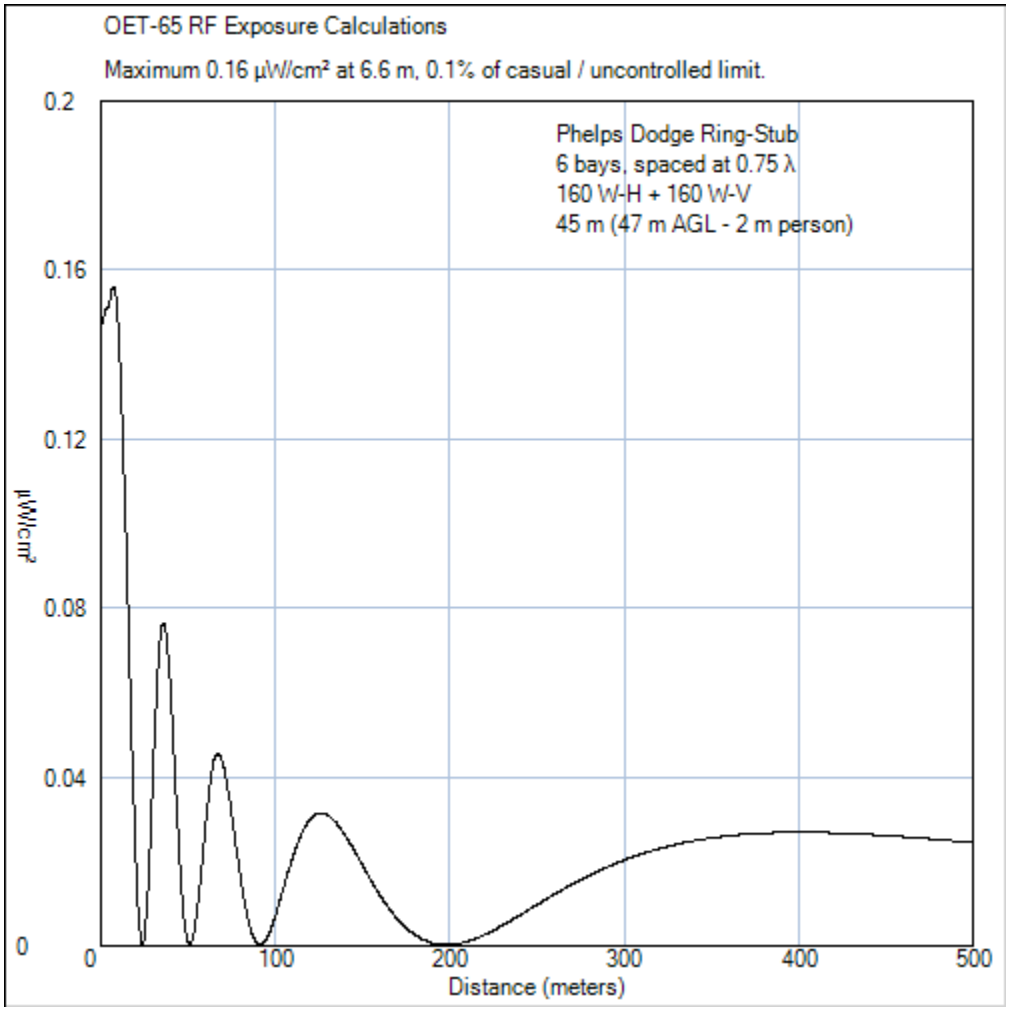
Environmental

The proposed site is an existing tower, ASR # 1002503. No construction, excavation, or increase to the height of the tower is proposed.

The proposed effective radiated power is 250 W-H + 250 W-V. The six-bay 0.75 λ spaced antenna will be centered 70 m above ground level. Assuming the worst-case OET Type 1 antenna model, the OET-65 algorithm returns a maximum exposure of 0.1% of the limit for casual / uncontrolled exposure:



The online FM Model page agrees.

Appropriate access controls and safety signage are provided. The applicant agrees to coordinate with other users of the site to reduce power or shut down in order to protect workers on the tower.

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Form 349 Tech Box Data

Channel	244
Primary Station	Facility ID 54946 KMVR HD2 Mesilla Park, NM
Delivery Method	Other (Terrestrial)
Coordinates (NAD-27)	32 18 07 N Lat 106 48 08 W Lon
Coordinates (NAD-83)	32 18 07.0 N Lat 106 48 10.0 W Lon
ASR	1002503
Site Elevation AMSL	1186 m
Overall Tower Height AGL	78 m
Radiation Center AGL	47 m
Effective Radiated Power	160 W-H + 160 W-V
Antenna type	Directional
Manufacturer / Model	SWR FMEC-6-SS (0.75λ)

Directional Pattern:

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	1.000	90	1.000	100	1.000	110	1.000
120	0.447	130	0.400	140	0.330	150	0.330	160	0.330	170	0.400
180	0.447	190	0.447	200	0.447	210	0.447	220	0.447	230	0.447
240	0.447	250	0.447	260	0.447	270	0.447	280	0.447	290	1.000
300	1.000	310	1.000	320	1.000	330	1.000	340	1.000	350	1.000

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