

CITY OF LICENSE  
CALL LETTERS  
FACILITY ID  
PREPARED FOR  
VERSION  
JOB

West Haven, OR  
K296FT  
158590  
Metro East Community Media  
1.0  
121019

# **CONSOLIDATED**

# **ENGINEERING EXHIBIT**

FCC Form 2100, Schedule 349

**BROWN BROADCAST SERVICES**  
INCORPORATED

Michael D. Brown

3740 S.W. Comus St.

Portland, Oregon 97219-7418

503-245-6065

**ENGINEERING STATEMENT**  
**APPLICATION FOR A MINOR MODIFICATION OF**  
**K296FT, WEST HAVEN, OR**  
**Metro East Community Media**

**SUMMARY**

The applicant seeks a minor modification of licensed translator K296FT. The following changes are proposed:

1. change of primary station to KXRY, Portland, OR, necessitating (2)
2. change in status to a non-fill-in translator, necessitating (3)
3. reduction in ERP to comply with §74.1235(b)(2)
4. rotate existing directional antenna 10dg
5. minor correction to antenna height AGL
6. change to direct over-the-air reception

The antenna location will remain unchanged.

The directional pattern is based on data supplied by the manufacturer, for this specific frequency. This antenna is not an “off-the-shelf” FCC standard pattern.

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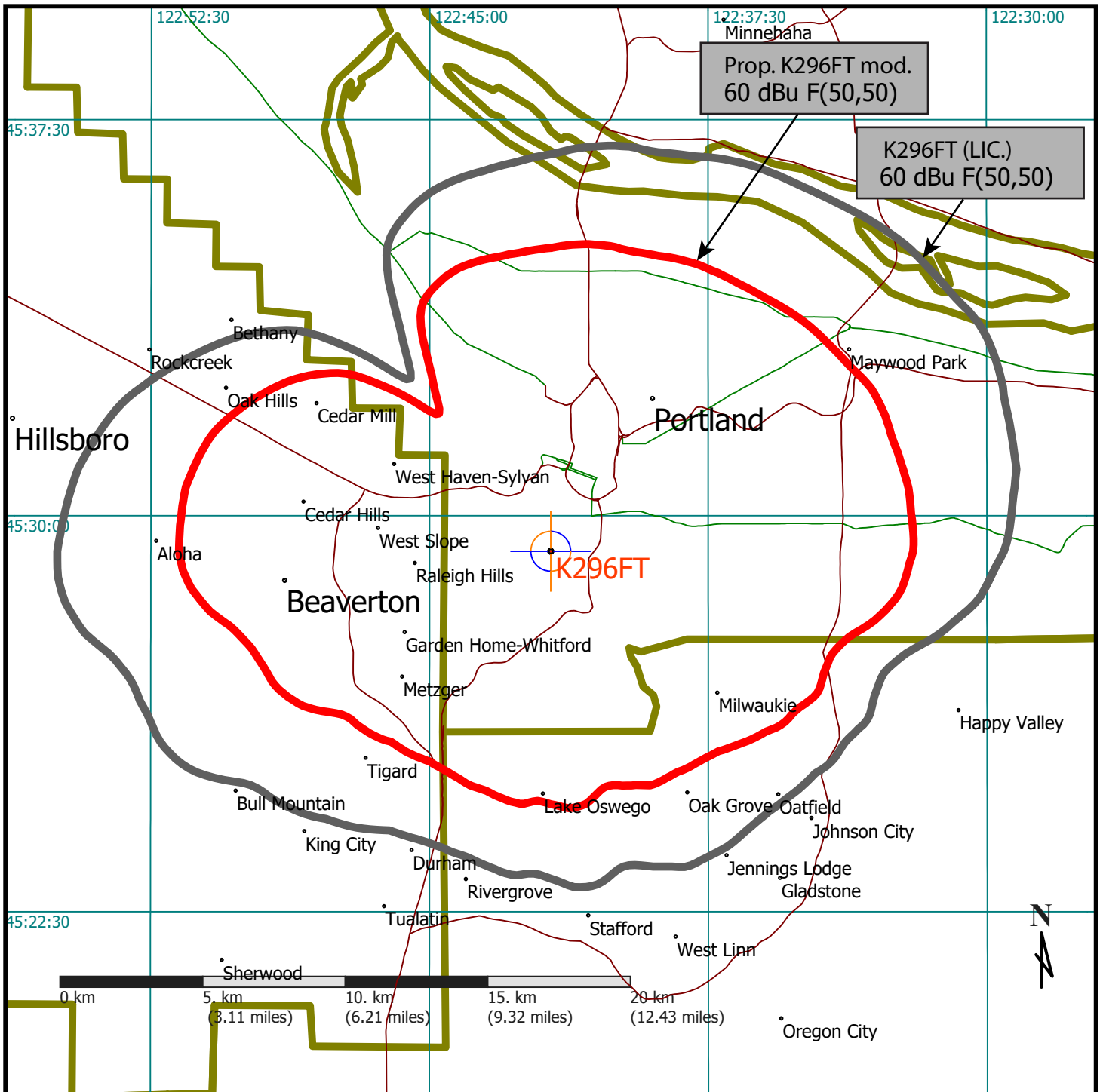
503-245-6065

**Exhibit E-1**  
**K296FT, West Haven, OR**  
**Proposed vs Licensed 60dBu Contours**

Brown Broadcast Services, Inc.  
Job: K296FT 2021.fmj  
Master Database: 2021\_Aug\_06.fmd  
Lat: N45:29:20 Lon: W122:41:44 NAD-83  
Scale: 1:200000  
Channel: 296 Class: DX

rfInvestigator Version 3.8.16  
by rfSoftware, Inc.  
Date: 8/13/2021 9:09:29 AM  
Key:

City Grade  
Protected  
Co-Channel  
1st Adj  
2nd/3rd Adj



## EXHIBIT E-2

### OVERLAP REQUIREMENTS

#### CONTOUR PROTECTION

This application meets all requirements of 47 CFR §74.1204 regarding interference protection to other stations and authorizations.

<div style="text-align: right;">K296FT Prop. Mod to 34w ERP Metroeast Community Media</div> <div> <div>REFERENCE</div> <div>CH# 296D - 107.1 MHz, Pwr= 0.034 kw DA, HAAT= 265.7 M, COR= 352.3 M</div> <div> <div>45 29 19.4 N.</div> <div>122 41 44.3 W.</div> </div> </div> <div style="text-align: right;"> <div>DISPLAY DATES</div> <div>DATA 08-11-21</div> <div>SEARCH 08-11-21</div> </div>										
<div style="text-align: center;">Average Protected F(50-50)= 12.9 km Standard Directional</div>										
CH CITY	CALL	TYPE STATE	ANT STATE	AZI. <--	DIST FILE #	LAT. LNG.	Pwr(kw) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*OUT* (Overlap in km)
294C Lake Oswego	KLTH	LIC OR	CN OR	315.2 135.1	4.26 BLH20100416AAO	45 30 57.40 122 44 03.40	100.000 502	12.6 594	87.1 Ihm Licenses, LLC	-83.1*
298C0 Banks	KXJM	LIC OR	CN OR	315.3 135.3	4.27 BLH20091013ABB	45 30 57.80 122 44 03.20	71.000 502	11.4 594	83.6 Ihm Licenses, LLC	-79.7*
296D West Haven	K296FT!	LIC OR	DCN OR	0.0 0.0	0.00 BLFT20190417AAR	45 29 19.40 122 41 44.30	0.099	354	---Reference--- Metroeast Community Media	
296C1 Sweet Home	KLTV	LIC OR	NCN OR	175.4 355.5	112.17 BLED20151029AHG	44 28 58.40 122 34 58.30	10.000 725	151.1 1249	66.2 Educational Media Foundati	14.6
296C3 Castle Rock	KRQT	LIC WA	NCN WA	341.9 161.7	99.41 BLH20081216AAF	46 20 17.30 123 05 49.40	0.800 523	97.4 809	35.6 Bicoastal Media Licenses I	28.4
296D Longview	KRQT-FM1	LIC WA	DCN WA	345.5 165.4	74.21 BLFTB20001018ACF	46 08 05.40 122 56 10.40	2.000	23.8 21	7.1 Bicoastal Media Licenses I	32.0
296D Parkdale	K296GO	LIC OR	CN OR	87.4 268.1	85.65 BLFT20170103ABM	45 31 08.40 121 35 50.20	0.140 -316	20.4 546	6.1 Radio Tierra	37.1
<div>Terrain database is FCC NGDC 30 Sec, R= 73.215 qualifying spacings or FCC minimum spacings in KM, M= Margin in KM</div> <div>In &amp; Out distances between contours are shown at closest points. Reference Zone= West Zone, Co to 3<sup>rd</sup> adjacent.</div> <div>All separation margins (if shown) include rounding. Call signs with exclamation marks need not be protected.</div> <div>Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, _= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)</div> <div>Incoming contour overlap is ignored.</div> <div>***affixed to 'IN' or 'OUT' values = site inside restricted contour. Protection to these stations is shown by the ratio method.</div>										

As shown above, and by Exhibit E-3, there are no co-channel contour-overlap issues.

There are no first-adjacent stations within range. With a proposed ERP of under 100 watts, there are no I.F. spacing requirements.

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Contour protection to 2<sup>nd</sup> adjacent stations KLTH, Lake Oswego, OR and KXJM, Banks, OR is provided using the ratio method. The F(50/50) contour of KLTH is 113.2dBu at the proposed translator site. For KXJM, the contour is 111.7dBu. Using the appropriate U/D ratio of 40dB, the corresponding “worst-case” interfering contour of the proposed translator is therefore 151.7dBu. At 34 watts peak ERP, this contour would extend to a distance of 1 meter from the antenna. The antenna is proposed to be at 42 meters above the ground, therefore no interference will occur in populated areas.

This translator is in the Canadian zone. The proposed 34 dBu F(50,10) contour does not extend onto Canadian soil.

#### **COMPLIANCE WITH §74.1235 ERP LIMITS**

<b>BEARING</b>	<b>DIRECTIONAL ANTENNA relative field</b>	<b>ANTENNA HAAT (m)</b>	<b>MAX ERP (W) §74.1235(b)(2)</b>	<b>PROPOSED ERP (W)</b>
0	0.605	296.0	28	12.44
30	0.675	302.5	28	15.49
60	0.876	282.2	34	26.09
90	0.961	268.6	34	31.40
120	0.624	277.9	34	13.24
150	0.449	284.7	34	6.85
180	0.512	242.6	41	8.91
210	0.445	262.7	34	6.73
240	0.624	274.7	34	13.24
270	0.981	278.2	34	32.72
280	1.000	271.6	34	34.00
300	0.910	226.9	41	28.16
330	0.686	192.0	75	16.00

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**DIRECTIONAL ANTENNA PATTERN**

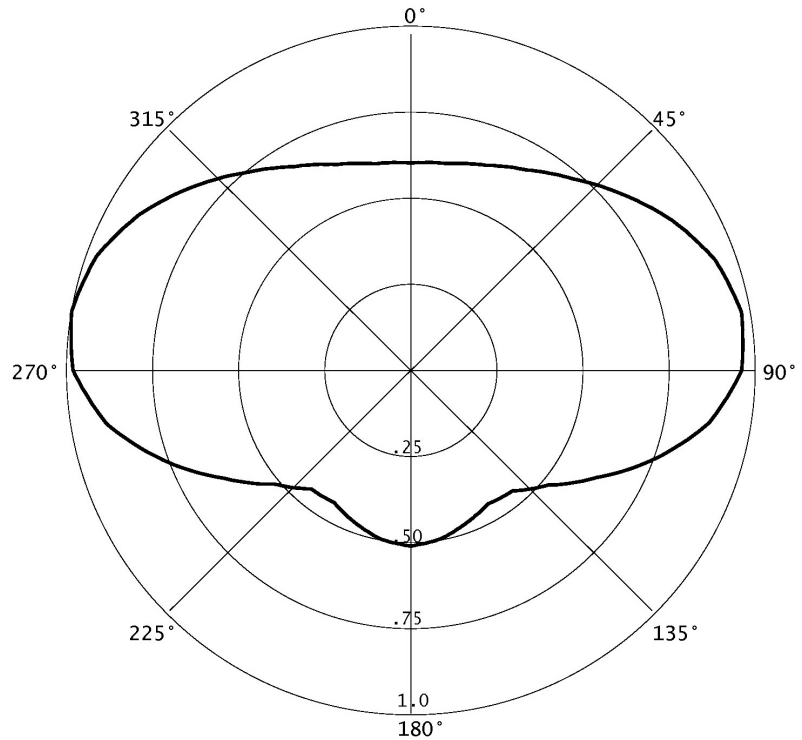
K296FT

08-12-2021

RMS(V)= .719

Graph is Relative Field

Azi	Field	dBk	kw
000	0.605	-19.050	0.012
010	0.613	-18.936	0.013
020	0.637	-18.602	0.014
030	0.675	-18.099	0.015
040	0.730	-17.419	0.018
050	0.800	-16.623	0.022
060	0.876	-15.835	0.026
070	0.941	-15.213	0.030
080	0.975	-14.905	0.032
090	0.961	-15.031	0.031
100	0.880	-15.796	0.026
110	0.754	-17.138	0.019
120	0.624	-18.782	0.013
130	0.520	-20.365	0.009
140	0.459	-21.449	0.007
150	0.449	-21.640	0.007
160	0.473	-21.188	0.008
170	0.499	-20.723	0.008
180	0.512	-20.500	0.009
190	0.500	-20.706	0.009
200	0.473	-21.188	0.008
210	0.445	-21.718	0.007
220	0.451	-21.602	0.007
230	0.516	-20.432	0.009
240	0.628	-18.726	0.013
250	0.765	-17.012	0.020
260	0.897	-15.629	0.027
270	0.981	-14.852	0.033
280	1.000	-14.685	0.034
290	0.972	-14.932	0.032
300	0.910	-15.504	0.028
310	0.831	-16.293	0.023
320	0.752	-17.161	0.019
330	0.686	-17.959	0.016
340	0.639	-18.575	0.014
350	0.612	-18.950	0.013



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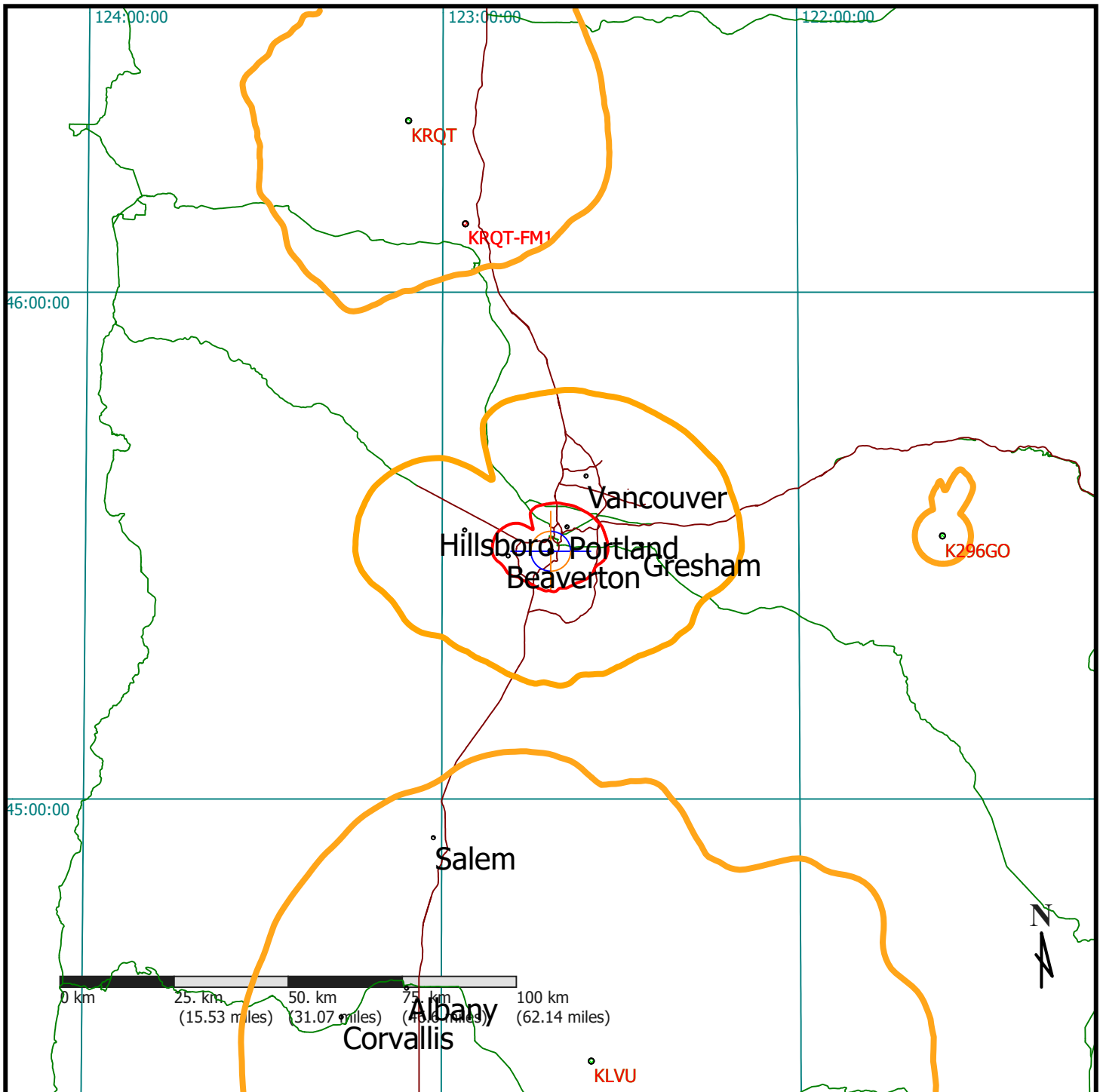
# Exhibit E-3

## Co-Channel Contour Protection

Brown Broadcast Services, Inc.  
Job: K296FT 2021.fmj  
Master Database: 2021\_Aug\_06.fmd  
Lat: N45:29:20 Lon: W122:41:44 NAD-83  
Scale: 1:1250000  
Channel: 296 Class: DX

rfInvestigator Version 3.8.16  
by rfSoftware, Inc.  
Date: 8/13/2021 10:06:04 AM  
Key:

City Grade  
Protected  
Co-Channel  
1st Adj  
2nd/3rd Adj



## **EXHIBIT E-4**

### **ENVIRONMENTAL PROTECTION ACT / NIER ANALYSIS**

The applicant proposes an antenna on an existing 189 meter registered tower. The proposed center of radiation is 42m AGL. A one-bay Bext TFC2K-D circularly-polarized antenna is proposed. Calculations were made using FM Model for Windows, online version, using the appropriate “EPA Type 2: Opposed V Dipole” setting. FM Model predicted a peak ground-level exposure of  $0.39\mu\text{W}/\text{cm}^2$ , at 41 meters from the tower. This represents 0.2% of the Maximum Permissible Exposure (MPE) of  $200\mu\text{W}/\text{cm}^2$  for uncontrolled environments.

Public access to the tower is restricted by fencing and locked access doors. The site is posted with appropriate RF exposure warning signs. If tower climbing by authorized personnel becomes necessary, transmitter power will be reduced or operation will cease, as necessary, so as to not exceed the RF exposure limits.

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