

CITY OF LICENSE
CALL LETTERS
FACILITY ID
PREPARED FOR
VERSION
JOB

Salem
K264AA
65756
Willamette Information, News, and Entertainment Service
1.2
119029

CONSOLIDATED ENGINEERING EXHIBIT

FCC Form 349 - Section III-A - Engineering

BROWN BROADCAST SERVICES
INCORPORATED

Michael D. Brown

3740 S.W. Comus St.

Portland, Oregon 97219-7418

503-245-6065

ENGINEERING STATEMENT
MINOR MODIFICATION OF CONSTRUCTION PERMIT BPFT-20170718AEM
MINOR CHANGE TO LICENSED FM TRANSLATOR K264AA
- increase ERP, new directional antenna -
Willamette Information, News, and Entertainment Service

SUMMARY

Willamette Information, News, and Entertainment Service (WINES) hereby seeks a minor-modification of the above captioned CP, which in turn seeks a minor-change to licensed FM translator K264AA. WINES proposes to change the antenna system to achieve a wider coverage area, and increase the ERP. No change in location is proposed.

This translator will provide fill-in service to KMWV (HD2), and KTUP (HD2), Dallas, Oregon. These stations are approved for a time share, and have filed Form 340 minor-mod applications to share a common transmitter and antenna.¹

Exhibit 10 demonstrates the fill-in status of this proposal.

¹KMWV, Dallas OR BMPED-20190805ACE; KTUP, Dallas OR BMPED-20190805ACF

Exhibit 10
K264AA Proposed Mod.
vs. Primary Station KMWV-HD2/KTUP-HD2, Dallas, OR
-showing fill-in status -
vs Licensed K264AA

Brown Broadcast Services, Inc.
Job: K264AA Dielectric Antenna_Aug2019.fmj
Master Database: 2019_Aug_06.fmd
Lat: N44:51:18 Lon: W123:07:19 NAD-83
Scale: 1:500000
Channel: 264 Class: DX

rfInvestigator Version 3.8.16
by rfSoftware, Inc.
Date: 8/6/2019 9:10:32 PM

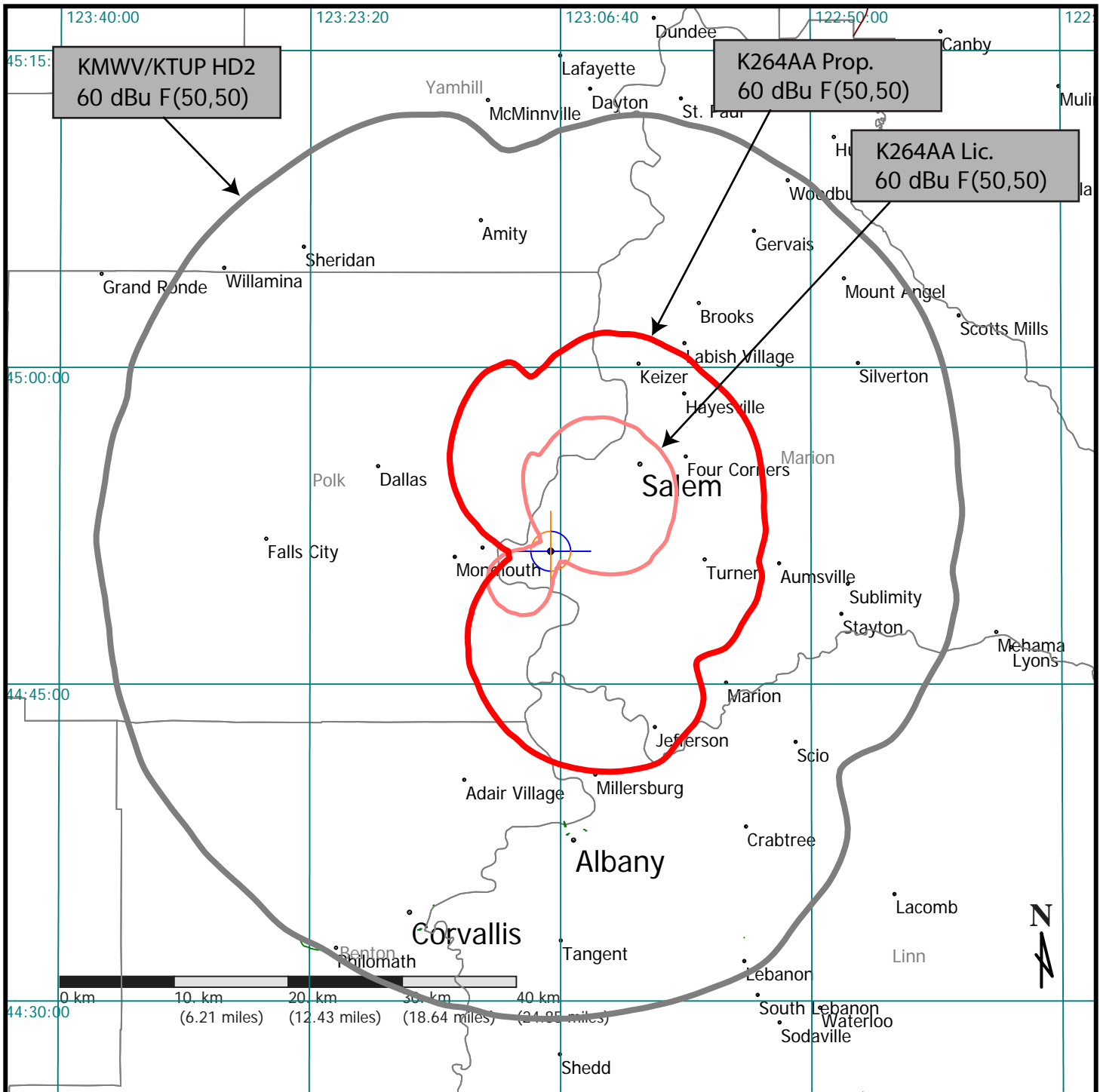


EXHIBIT 13

OVERLAP REQUIREMENTS

INTERFERENCE PROTECTION

This minor-change application proposes a power increase to 210W ERP, and a change of the directional antenna. The input station would also change.

This is a fill-in proposal, as shown by **Exhibit 10**. The tower site would not change.

This proposal meets all contour overlap requirements.

K264AA Dielectric Antenna											
Willamette Information, News, And Entertainment Service											
REFERENCE		CH# 264D - 100.7 MHz, Pwr= 0.21 kW DA, HAAT= 275.0 M, COR= 372 M								DISPLAY DATES	
44 51 18.0 N.		Average Protected F(50-50)= 20.7 km								DATA 07-11-19	
123 07 15.0 W.		Standard Directional								SEARCH 07-11-19	
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*
264D Salem	K264AA!	CP DC	OR	0.0 0.0	BPFT20170718AEM	44 51 18.0 123 07 15.0	0.245		---Reference---		
								371	Willamette Information, Ne		
264D Salem	K264AA!	LIC DC	OR	0.0 0.0	BLFT20150112AA0	44 51 18.0 123 07 15.0	0.034		---Reference---		
								371	Willamette Information, Ne		
264C2 Depoe Bay	KPPT-FM	LIC CX	OR	261.8 74.13	BLH20030926AQJ	44 45 23.0 124 03 01.0	17.500 255	125.2 328	49.9 Agpal Broadcasting Inc.	-58.3*	2.0
266C Portland	KXL-FM	LIC C	OR	22.3 79.53	BLH20100503ACD	45 30 58.0 122 43 59.0	100.000 502	12.8 594	88.1 Alpha Media Licensee Lic	46.2	-9.5*
262C Portland	KKRZ	LIC C	OR	21.5 79.81	BLH20011214AAE	45 31 21.0 122 44 45.0	100.000 470	12.4 561	85.7 Citicasters Licenses, Inc.	46.8	-6.8*
264L1 Hillsboro	KQRZ-LP	LIC	OR	16.4 69.87	BMLL20190409AAH	45 27 27.7 122 52 04.8	0.010 95			29.6	1.4
								226	Oregon Amateur Radio Club		
264L1 Hillsboro	KQRZ-LP	LIC	OR	16.4 69.87	BXLL20160503ABS	45 27 27.7 122 52 04.8	0.010 91			30.1	1.5
								221	Oregon Amateur Radio Club		
264L1 Hillsboro	KQRZ-LP	LIC	OR	16.4 69.87	BLL20160205AAC	45 27 27.7 122 52 04.8	0.006 123			33.0	2.4
								219	Oregon Amateur Radio Club		
264L1 Hillsboro	KQRZ-LP	LIC	OR	16.4 69.87	BXLL20160205AAD	45 27 27.7 122 52 04.8	0.005 129			33.4	2.5
								226	Oregon Amateur Radio Club		
264C1 Bend	KMGX	LIC EN	OR	120.7 166.28	BLH5892	44 04 40.0 121 19 49.0	50.000 158	145.5 1320	57.7 Gcc Bend, Lic	3.1	51.6
211A Salem	KAJC	LIC DCX	OR	218.0 13.50	BLED20050124AHZ	44 45 33.0 123 13 34.0	0.560 39	0.0 150	0.0 Calvary Chapel Monmouth-in	9.5R	4.0M
263D Sweet Home	K263AF	LIC DH	OR	158.0 54.63	BLFT20080602AJQ	44 23 57.0 122 51 47.0	0.250 428	5.3 678	3.0 Bi coastal Media Licenses V	28.6	16.2
264L1 Portland	KBSF-LP	LIC	OR	34.4 87.83	BLL20170508ABH	45 30 19.1 122 29 03.7	0.100 8			48.4	18.4
								103	Slavic Community Center Of		
263C3 Cottage Grove	KMME	LIC NCX	OR	176.8 121.80	BMLLED20110520ABF	43 45 40.0 123 02 07.0	10.500 154	78.6 531	52.5 Catholic Broadcasting Nort	23.9	40.4
265D Eugene	K265DF	LIC DC	OR	179.6 94.93	BMLFT20140905ABN	44 00 04.0 123 06 45.0	0.250 505	38.0 505	25.1 Educational Media Foundati	37.7	42.5
210C1 Portland	KQAC	LIC CY	OR	22.3 79.53	BLED20110517AEK	45 30 58.0 122 43 59.0	5.900 440	0.0 529	0.0 All Classical Public Media	21.5R	58.0M

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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= West Zone, Co to
3rd adjacent.
All separation margins (if shown) include rounding. Call signs with exclamation marks need not be
protected.
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 restricted contour.
« = Contour protection provided by ratio method.

CONTOUR PROTECTION TO 2nd AND 3rd- ADJACENT STATIONS

Contour protection to 2nd adjacent stations KXL-FM, Portland OR, and KKRZ, Portland
OR, is provided using the ratio method. See **Exhibit 13e**.

PROTECTED ZONES REPORT

Protected zones report for K264AA.C on channel 264D 08-06-2019
Lat. 44 51 18.0 Lng. 123 07 15.0, ERP= 0.21 kw, HAAT= 275 m

Facility is okay with respect to Canada. Distance = 375.6 km.

Facility is okay with respect to AM station towers.

Closest AM Facility is KBZY, SALEM, OR, L, ND2 at 74.5° at a distance of 11.1 km

Facility is okay with respect to FCC monitoring stations.

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Exhibit 13a

Co-Channel Contour Protection

Brown Broadcast Services, Inc.
Job: K264AA Dielectric Antenna_Aug2019.fmj
Master Database: 2019_Aug_06.fmd
Lat: N44:51:18 Lon: W123:07:19 NAD-83
Scale: 1:1000000
Channel: 264 Class: DX

rfInvestigator Version 3.8.16
by rfSoftware, Inc.
Date: 8/6/2019 9:46:14 PM
Key:
City Grade
Protected
Co-Channel
1st Adj
2nd/3rd Adj

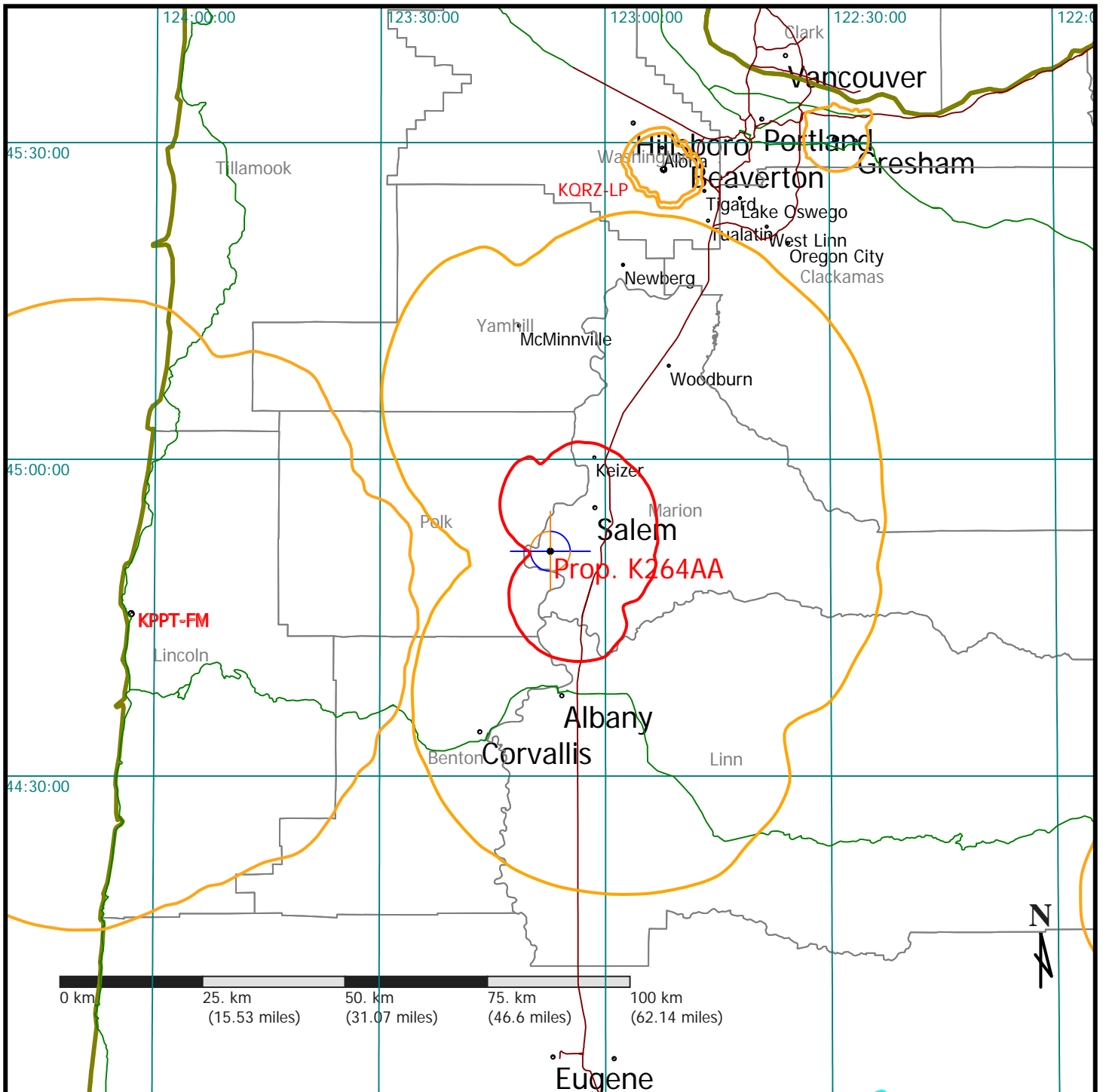


EXHIBIT 13b

FMOVER ANALYSIS

Proposed vs. KPPT

08-06-2019 Terrain Data: FCC NGDC 30 Sec FMOver Analysis

KPPT-FM BLH20030926AQJ

K264AA.C

Channel = 264C2
Max ERP = 17.5 kW
RCAMSL = 328 m
N. Lat. 44 45 23.0
W. Lng. 124 03 01.0
Protected
60 dBu

Channel = 264D
Max ERP = 0.21 kW
RCAMSL = 372 m
N. Lat. 44 51 18.0
W. Lng. 123 07 15.0
Interfering
40 dBu

Aziimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Aziimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
036.0	017.5000	0258.6	052.4	306.8	000.0124	0306.8	052.6	33.01	
037.0	017.5000	0259.7	052.4	306.8	000.0125	0306.9	051.7	33.40	
038.0	017.5000	0258.9	052.4	306.8	000.0124	0306.8	050.7	33.73	
039.0	017.5000	0255.8	052.2	306.5	000.0121	0306.4	049.8	33.98	
040.0	017.5000	0250.6	051.8	306.0	000.0117	0305.9	049.0	34.15	
041.0	017.5000	0245.0	051.4	305.4	000.0112	0305.4	048.1	34.29	
042.0	017.5000	0240.2	051.0	304.8	000.0108	0305.0	047.3	34.44	
043.0	017.5000	0235.7	050.7	304.3	000.0103	0304.7	046.4	34.57	
044.0	017.5000	0230.5	050.3	303.6	000.0098	0304.3	045.6	34.66	
045.0	017.5000	0226.4	050.0	303.0	000.0093	0304.0	044.8	34.76	
046.0	017.5000	0224.0	049.8	302.5	000.0089	0303.7	044.0	34.91	
047.0	017.5000	0222.0	049.7	302.0	000.0086	0303.4	043.2	35.06	
048.0	017.5000	0218.7	049.4	301.3	000.0081	0303.0	042.5	35.13	
049.0	017.5000	0214.2	049.0	300.5	000.0075	0302.4	041.8	35.10	
050.0	017.5000	0210.3	048.7	299.7	000.0070	0301.9	041.1	35.09	
051.0	017.5000	0207.9	048.5	299.0	000.0067	0301.5	040.4	35.17	
052.0	017.5000	0206.3	048.4	298.3	000.0063	0301.1	039.6	35.26	
053.0	017.5000	0203.6	048.2	297.5	000.0059	0300.7	039.0	35.27	
054.0	017.5000	0198.7	047.8	296.4	000.0054	0300.4	038.4	35.13	
055.0	017.5000	0192.4	047.3	295.2	000.0049	0299.6	037.9	34.85	
056.0	017.5000	0186.1	046.8	293.8	000.0043	0297.7	037.5	34.46	
057.0	017.5000	0181.2	046.4	292.6	000.0038	0294.1	037.1	34.04	
058.0	017.5000	0180.2	046.3	291.8	000.0035	0290.8	036.5	33.85	
059.0	017.5000	0182.8	046.5	291.3	000.0033	0288.9	035.7	33.92	
060.0	017.5000	0185.2	046.7	290.7	000.0031	0286.8	034.9	33.95	
061.0	017.5000	0184.4	046.6	289.7	000.0028	0284.9	034.4	33.73	
062.0	017.5000	0180.4	046.3	288.4	000.0025	0285.2	034.0	33.44	
063.0	017.5000	0180.0	046.3	287.4	000.0023	0286.2	033.5	33.36	
064.0	017.5000	0184.5	046.6	286.8	000.0022	0286.8	032.6	33.57	
065.0	017.5000	0195.3	047.5	286.7	000.0022	0286.9	031.4	34.16	
066.0	017.5000	0205.8	048.4	286.6	000.0022	0287.1	030.2	34.75	
067.0	017.5000	0213.8	049.0	286.1	000.0021	0287.5	029.2	35.18	
068.0	017.5000	0218.9	049.4	285.2	000.0019	0288.0	028.3	35.35	
069.0	017.5000	0222.1	049.7	284.1	000.0017	0288.0	027.6	35.31	
070.0	017.5000	0226.3	050.0	282.9	000.0015	0287.4	026.9	35.25	
071.0	017.5000	0231.0	050.4	281.7	000.0013	0286.6	026.1	35.15	
072.0	017.5000	0235.9	050.7	280.4	000.0011	0286.2	025.4	34.97	
073.0	017.5000	0238.2	050.9	278.8	000.0010	0285.5	024.8	34.74	
074.0	017.5000	0238.6	050.9	276.9	000.0008	0286.6	024.4	34.46	
075.0	017.5000	0235.0	050.7	274.7	000.0007	0288.9	024.4	33.83	
076.0	017.5000	0230.3	050.3	272.5	000.0006	0291.0	024.5	33.00	
077.0	017.5000	0226.6	050.0	270.4	000.0005	0289.7	024.5	32.04	
078.0	017.5000	0223.5	049.8	268.2	000.0005	0286.3	024.6	31.73	
079.0	017.5000	0223.8	049.8	266.2	000.0005	0283.7	024.4	31.75	

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080.0	017.5000	0225.4	049.9	264.2	000.0005	0281.3	024.2	31.83
081.0	017.5000	0225.3	049.9	262.2	000.0005	0281.4	024.2	31.85
082.0	017.5000	0223.0	049.7	260.1	000.0005	0281.6	024.4	31.72
083.0	017.5000	0218.6	049.4	258.2	000.0006	0284.3	024.8	32.28
084.0	017.5000	0214.2	049.0	256.3	000.0007	0286.5	025.3	32.74
085.0	017.5000	0211.4	048.8	254.5	000.0008	0288.3	025.6	33.19
086.0	017.5000	0213.9	049.0	252.6	000.0009	0291.4	025.6	33.94
087.0	017.5000	0218.3	049.4	250.5	000.0010	0292.8	025.5	34.70
088.0	017.5000	0222.8	049.7	248.4	000.0013	0294.2	025.5	35.79
089.0	017.5000	0227.1	050.1	246.3	000.0016	0296.4	025.5	36.85
090.0	017.5000	0227.9	050.1	244.5	000.0020	0299.2	025.8	37.50
091.0	017.5000	0228.5	050.2	242.7	000.0023	0301.8	026.1	38.03
092.0	017.5000	0229.2	050.2	241.0	000.0027	0302.1	026.5	38.39
093.0	017.5000	0229.2	050.2	239.4	000.0031	0300.5	027.0	38.66
094.0	017.5000	0225.0	049.9	238.3	000.0035	0299.2	027.8	38.65
095.0	017.5000	0221.5	049.6	237.3	000.0039	0298.2	028.5	38.63
096.0	017.5000	0217.5	049.3	236.3	000.0042	0297.4	029.3	38.52
097.0	017.5000	0216.0	049.2	235.2	000.0047	0296.4	030.0	38.54
098.0	017.5000	0215.4	049.1	234.1	000.0052	0295.3	030.6	38.59
099.0	017.5000	0215.3	049.1	233.0	000.0057	0294.5	031.2	38.64
100.0	017.5000	0213.5	049.0	232.2	000.0061	0294.7	032.0	38.57
101.0	017.5000	0212.4	048.9	231.3	000.0065	0295.4	032.7	38.53
102.0	017.5000	0214.5	049.1	230.1	000.0071	0296.6	033.2	38.67
103.0	017.5000	0217.6	049.3	228.9	000.0079	0297.0	033.8	38.88
104.0	017.5000	0220.0	049.5	227.8	000.0087	0296.4	034.4	38.97
105.0	017.5000	0221.0	049.6	227.0	000.0093	0295.8	035.1	38.93
106.0	017.5000	0222.0	049.7	226.2	000.0100	0295.5	035.8	38.87
107.0	017.5000	0223.0	049.7	225.4	000.0106	0295.2	036.5	38.78
108.0	017.5000	0223.4	049.8	224.7	000.0111	0294.9	037.3	38.63
109.0	017.5000	0222.6	049.7	224.3	000.0115	0294.6	038.1	38.39
110.0	017.5000	0221.0	049.6	223.9	000.0118	0294.5	038.9	38.11
111.0	017.5000	0219.0	049.4	223.6	000.0121	0294.4	039.8	37.81
112.0	017.5000	0215.4	049.1	223.6	000.0121	0294.3	040.7	37.42
113.0	017.5000	0210.6	048.8	223.6	000.0121	0294.4	041.6	36.98
114.0	017.5000	0206.3	048.4	223.7	000.0120	0294.4	042.5	36.56
115.0	017.5000	0204.5	048.3	223.5	000.0122	0294.3	043.4	36.25
116.0	017.5000	0205.7	048.4	223.1	000.0125	0294.2	044.1	36.05
117.0	017.5000	0208.7	048.6	222.5	000.0131	0294.2	044.9	35.91
118.0	017.5000	0212.3	048.9	221.9	000.0136	0294.5	045.7	35.79
119.0	017.5000	0216.0	049.2	221.3	000.0142	0294.8	046.4	35.65
120.0	017.5000	0218.1	049.3	220.9	000.0146	0295.1	047.2	35.44
121.0	017.5000	0217.2	049.3	220.8	000.0146	0295.2	048.1	35.13
122.0	017.5000	0213.8	049.0	221.0	000.0145	0295.0	049.0	34.73
123.0	017.5000	0209.8	048.7	221.2	000.0143	0294.8	049.9	34.31
124.0	017.5000	0208.6	048.6	221.2	000.0143	0294.8	050.7	33.97
125.0	017.5000	0210.1	048.7	221.0	000.0145	0295.0	051.6	33.71

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EXHIBIT 13c

FMOVER ANALYSIS

Proposed vs. KQRZ-LP

(the KQRZ-LP record most closely-spaced to this proposal)

08-06-2019 Terrain Data: FCC NGDC 30 Sec FMOver Analysis

KQRZ-LP BMLL20190409AAH

K264AA.C

Channel = 264L1
 Max ERP = 0.01 kW
 RCAMSL = 225.5 m
 N. Lat. 45 27 27.7
 W. Lng. 122 52 04.8
 Protected
 60 dBu

Channel = 264D
 Max ERP = 0.21 kW
 RCAMSL = 372 m
 N. Lat. 44 51 18.0
 W. Lng. 123 07 15.0
 Interfering
 40 dBu

Azi muth (degrees)	ERP (kW)	HAAT (m)	Di st (km)	Azi muth (degrees)	ERP (kW)	HAAT (m)	Di st (km)	Actual (dBu)	I X (km)
152.0	000.0100	0140.6	006.9	020.6	000.1776	0287.4	065.2	39.12	
153.0	000.0100	0142.9	006.9	020.6	000.1775	0287.4	065.0	39.16	
154.0	000.0100	0145.2	007.0	020.6	000.1775	0287.3	064.9	39.21	
155.0	000.0100	0147.6	007.0	020.5	000.1774	0287.3	064.8	39.25	
156.0	000.0100	0149.6	007.1	020.5	000.1773	0287.2	064.7	39.29	
157.0	000.0100	0151.1	007.1	020.4	000.1773	0287.2	064.5	39.32	
158.0	000.0100	0152.2	007.1	020.4	000.1771	0287.1	064.4	39.36	
159.0	000.0100	0153.0	007.2	020.3	000.1770	0287.0	064.3	39.39	
160.0	000.0100	0153.3	007.2	020.2	000.1769	0286.9	064.3	39.41	
161.0	000.0100	0152.1	007.1	020.1	000.1767	0286.7	064.2	39.42	
162.0	000.0100	0150.0	007.1	020.0	000.1766	0286.6	064.2	39.43	
163.0	000.0100	0147.9	007.0	019.9	000.1763	0286.4	064.1	39.43	
164.0	000.0100	0146.2	007.0	019.8	000.1760	0286.2	064.1	39.43	
165.0	000.0100	0144.4	007.0	019.7	000.1758	0286.1	064.1	39.43	
166.0	000.0100	0143.2	006.9	019.5	000.1756	0285.9	064.0	39.43	
167.0	000.0100	0142.4	006.9	019.4	000.1753	0285.7	064.0	39.44	
168.0	000.0100	0142.9	006.9	019.4	000.1751	0285.6	063.9	39.46	
169.0	000.0100	0143.9	006.9	019.3	000.1750	0285.4	063.8	39.48	
170.0	000.0100	0143.3	006.9	019.2	000.1747	0285.2	063.8	39.48	
171.0	000.0100	0140.1	006.9	019.1	000.1744	0285.0	063.8	39.46	
172.0	000.0100	0138.0	006.8	018.9	000.1742	0284.8	063.7	39.46	
173.0	000.0100	0137.3	006.8	018.8	000.1739	0284.6	063.7	39.46	
174.0	000.0100	0136.4	006.8	018.7	000.1737	0284.4	063.7	39.46	
175.0	000.0100	0135.3	006.7	018.6	000.1735	0284.3	063.7	39.45	
176.0	000.0100	0134.7	006.7	018.5	000.1732	0284.1	063.6	39.45	
177.0	000.0100	0133.3	006.7	018.4	000.1730	0283.9	063.6	39.45	
178.0	000.0100	0131.4	006.7	018.3	000.1727	0283.7	063.6	39.44	
179.0	000.0100	0129.5	006.6	018.2	000.1725	0283.6	063.6	39.42	
180.0	000.0100	0128.5	006.6	018.1	000.1723	0283.4	063.6	39.42	
181.0	000.0100	0129.2	006.6	018.0	000.1720	0283.3	063.5	39.43	
182.0	000.0100	0130.0	006.6	017.9	000.1718	0283.2	063.5	39.43	
183.0	000.0100	0130.4	006.6	017.8	000.1716	0283.1	063.4	39.44	
184.0	000.0100	0130.2	006.6	017.7	000.1714	0283.0	063.4	39.44	
185.0	000.0100	0129.8	006.6	017.6	000.1712	0282.9	063.4	39.44	
186.0	000.0100	0129.7	006.6	017.5	000.1709	0282.9	063.4	39.44	
187.0	000.0100	0127.7	006.6	017.4	000.1707	0282.8	063.4	39.42	
188.0	000.0100	0122.5	006.5	017.3	000.1704	0282.8	063.5	39.38	
189.0	000.0100	0116.4	006.3	017.1	000.1701	0282.7	063.6	39.33	
190.0	000.0100	0110.1	006.1	017.0	000.1699	0282.7	063.8	39.26	
191.0	000.0100	0103.1	005.9	016.9	000.1696	0282.7	064.0	39.19	
192.0	000.0100	0096.2	005.7	016.8	000.1694	0282.8	064.2	39.11	
193.0	000.0100	0090.6	005.6	016.7	000.1692	0282.8	064.3	39.05	
194.0	000.0100	0085.9	005.4	016.6	000.1690	0282.8	064.5	38.99	

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195.0	000.0100	0083.0	005.3	016.5	000.1688	0282.9	064.6	38.95
196.0	000.0100	0081.0	005.2	016.4	000.1686	0282.9	064.6	38.93
197.0	000.0100	0078.8	005.2	016.4	000.1684	0282.9	064.7	38.90
198.0	000.0100	0077.4	005.1	016.3	000.1682	0283.0	064.8	38.88
199.0	000.0100	0077.1	005.1	016.2	000.1681	0283.0	064.8	38.87
200.0	000.0100	0076.4	005.1	016.1	000.1679	0283.0	064.8	38.86
201.0	000.0100	0076.5	005.1	016.0	000.1677	0283.1	064.8	38.85
202.0	000.0100	0077.4	005.1	016.0	000.1675	0283.1	064.8	38.86
203.0	000.0100	0078.1	005.1	015.9	000.1674	0283.1	064.8	38.86
204.0	000.0100	0079.1	005.2	015.8	000.1672	0283.1	064.8	38.86
205.0	000.0100	0081.3	005.2	015.7	000.1670	0283.2	064.7	38.88
206.0	000.0100	0083.9	005.3	015.6	000.1668	0283.2	064.6	38.90
207.0	000.0100	0086.2	005.4	015.5	000.1666	0283.2	064.6	38.91
208.0	000.0100	0087.9	005.5	015.4	000.1664	0283.2	064.5	38.92
209.0	000.0100	0089.0	005.5	015.3	000.1662	0283.2	064.5	38.92
210.0	000.0100	0089.7	005.5	015.3	000.1660	0283.2	064.5	38.91
211.0	000.0100	0091.1	005.6	015.2	000.1658	0283.2	064.5	38.92
212.0	000.0100	0092.6	005.6	015.1	000.1655	0283.2	064.5	38.92
213.0	000.0100	0092.7	005.6	015.0	000.1654	0283.2	064.5	38.90
214.0	000.0100	0091.1	005.6	014.9	000.1652	0283.2	064.6	38.87
215.0	000.0100	0089.3	005.5	014.8	000.1651	0283.2	064.7	38.84
216.0	000.0100	0088.8	005.5	014.8	000.1649	0283.2	064.7	38.81
217.0	000.0100	0088.7	005.5	014.7	000.1647	0283.2	064.8	38.80
218.0	000.0100	0087.5	005.5	014.6	000.1646	0283.2	064.8	38.77
219.0	000.0100	0085.1	005.4	014.6	000.1645	0283.2	064.9	38.72
220.0	000.0100	0082.1	005.3	014.5	000.1644	0283.2	065.1	38.68
221.0	000.0100	0080.2	005.2	014.5	000.1643	0283.2	065.2	38.64
222.0	000.0100	0080.3	005.2	014.4	000.1641	0283.2	065.2	38.62
223.0	000.0100	0081.7	005.3	014.3	000.1639	0283.1	065.2	38.61
224.0	000.0100	0083.0	005.3	014.2	000.1637	0283.1	065.2	38.60
225.0	000.0100	0084.0	005.3	014.2	000.1636	0283.0	065.2	38.59
226.0	000.0100	0085.8	005.4	014.1	000.1633	0282.9	065.2	38.58
227.0	000.0100	0087.8	005.5	014.0	000.1631	0282.8	065.2	38.57
228.0	000.0100	0089.2	005.5	013.9	000.1629	0282.8	065.2	38.56
229.0	000.0100	0090.4	005.5	013.8	000.1627	0282.7	065.3	38.54
230.0	000.0100	0092.5	005.6	013.7	000.1625	0282.5	065.3	38.53
231.0	000.0100	0095.9	005.7	013.5	000.1622	0282.3	065.2	38.53
232.0	000.0100	0099.4	005.8	013.4	000.1619	0282.2	065.2	38.52
233.0	000.0100	0100.8	005.9	013.3	000.1617	0282.0	065.2	38.50
234.0	000.0100	0100.3	005.9	013.3	000.1616	0281.9	065.3	38.47
235.0	000.0100	0099.7	005.8	013.2	000.1615	0281.8	065.4	38.43
236.0	000.0100	0100.5	005.9	013.1	000.1613	0281.7	065.5	38.40
237.0	000.0100	0101.4	005.9	013.0	000.1611	0281.5	065.5	38.38
238.0	000.0100	0101.3	005.9	013.0	000.1610	0281.4	065.6	38.34
239.0	000.0100	0099.8	005.8	012.9	000.1609	0281.3	065.7	38.30
240.0	000.0100	0098.1	005.8	012.9	000.1609	0281.3	065.8	38.26
241.0	000.0100	0096.7	005.8	012.9	000.1608	0281.2	065.9	38.22

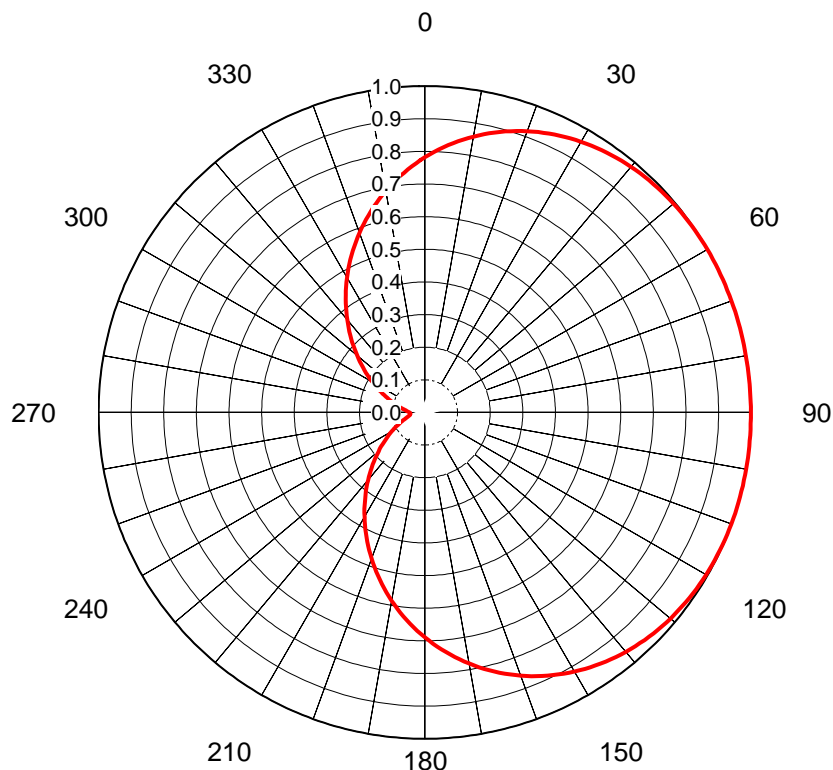
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503-245-6065



AZIMUTH PATTERN

In Free Space

Proposal No. **C-06745**
Date **22-Jul-19**
Call Letters **K264AA**

Frequency **100.7 MHz FM**
Antenna Type **DCRT02B50 OS**
Gain **1.92 (2.83dB)**
Calculated
Circularity **+/- 14.0 dB**

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.782	36	0.974	72	1.000	108	1.000	144	0.944	180	0.689	216	0.309	252	0.064	288	0.106	324	0.412
1	0.790	37	0.977	73	1.000	109	1.000	145	0.940	181	0.679	217	0.299	253	0.061	289	0.112	325	0.423
2	0.798	38	0.979	74	1.000	110	1.000	146	0.935	182	0.669	218	0.290	254	0.059	290	0.117	326	0.434
3	0.807	39	0.981	75	1.000	111	0.999	147	0.931	183	0.659	219	0.280	255	0.056	291	0.123	327	0.444
4	0.814	40	0.983	76	0.999	112	0.999	148	0.927	184	0.649	220	0.271	256	0.054	292	0.129	328	0.455
5	0.822	41	0.984	77	0.999	113	0.999	149	0.922	185	0.639	221	0.261	257	0.052	293	0.136	329	0.466
6	0.830	42	0.986	78	0.999	114	0.998	150	0.917	186	0.628	222	0.252	258	0.050	294	0.142	330	0.477
7	0.837	43	0.987	79	0.999	115	0.998	151	0.912	187	0.618	223	0.243	259	0.049	295	0.149	331	0.488
8	0.844	44	0.989	80	0.999	116	0.998	152	0.907	188	0.607	224	0.235	260	0.047	296	0.156	332	0.499
9	0.852	45	0.990	81	0.999	117	0.997	153	0.901	189	0.597	225	0.226	261	0.046	297	0.163	333	0.510
10	0.858	46	0.991	82	0.999	118	0.997	154	0.896	190	0.586	226	0.217	262	0.045	298	0.170	334	0.521
11	0.865	47	0.992	83	0.999	119	0.996	155	0.890	191	0.575	227	0.209	263	0.045	299	0.177	335	0.532
12	0.872	48	0.993	84	0.999	120	0.995	156	0.884	192	0.564	228	0.201	264	0.044	300	0.185	336	0.543
13	0.878	49	0.994	85	0.999	121	0.994	157	0.878	193	0.553	229	0.193	265	0.044	301	0.193	337	0.553
14	0.884	50	0.995	86	0.999	122	0.993	158	0.872	194	0.543	230	0.185	266	0.044	302	0.201	338	0.564
15	0.890	51	0.996	87	0.999	123	0.992	159	0.865	195	0.532	231	0.177	267	0.045	303	0.209	339	0.575
16	0.896	52	0.997	88	0.999	124	0.991	160	0.858	196	0.521	232	0.170	268	0.045	304	0.217	340	0.586
17	0.901	53	0.997	89	0.999	125	0.990	161	0.852	197	0.510	233	0.163	269	0.046	305	0.226	341	0.597
18	0.907	54	0.998	90	0.999	126	0.989	162	0.844	198	0.499	234	0.156	270	0.047	306	0.235	342	0.607
19	0.912	55	0.998	91	0.999	127	0.987	163	0.837	199	0.488	235	0.149	271	0.049	307	0.243	343	0.618
20	0.917	56	0.998	92	0.999	128	0.986	164	0.830	200	0.477	236	0.142	272	0.050	308	0.252	344	0.628
21	0.922	57	0.999	93	0.999	129	0.984	165	0.822	201	0.466	237	0.136	273	0.052	309	0.261	345	0.639
22	0.927	58	0.999	94	0.999	130	0.983	166	0.814	202	0.455	238	0.129	274	0.054	310	0.271	346	0.649
23	0.931	59	0.999	95	1.000	131	0.981	167	0.807	203	0.444	239	0.123	275	0.056	311	0.280	347	0.659
24	0.935	60	1.000	96	1.000	132	0.979	168	0.798	204	0.434	240	0.117	276	0.059	312	0.290	348	0.669
25	0.940	61	1.000	97	1.000	133	0.977	169	0.790	205	0.423	241	0.112	277	0.061	313	0.299	349	0.679
26	0.944	62	1.000	98	1.000	134	0.974	170	0.782	206	0.412	242	0.106	278	0.064	314	0.309	350	0.689
27	0.947	63	1.000	99	1.000	135	0.972	171	0.773	207	0.401	243	0.101	279	0.067	315	0.319	351	0.699
28	0.951	64	1.000	100	1.000	136	0.969	172	0.764	208	0.391	244	0.096	280	0.071	316	0.329	352	0.709
29	0.954	65	1.000	101	1.000	137	0.967	173	0.756	209	0.380	245	0.091	281	0.075	317	0.339	353	0.718
30	0.958	66	1.000	102	1.000	138	0.964	174	0.746	210	0.370	246	0.087	282	0.078	318	0.349	354	0.728
31	0.961	67	1.000	103	1.000	139	0.961	175	0.737	211	0.360	247	0.083	283	0.083	319	0.360	355	0.737
32	0.964	68	1.000	104	1.000	140	0.958	176	0.728	212	0.349	248	0.078	284	0.087	320	0.370	356	0.746
33	0.967	69	1.000	105	1.000	141	0.954	177	0.718	213	0.339	249	0.075	285	0.091	321	0.380	357	0.756
34	0.969	70	1.000	106	1.000	142	0.951	178	0.709	214	0.329	250	0.071	286	0.096	322	0.391	358	0.764
35	0.972	71	1.000	107	1.000	143	0.947	179	0.699	215	0.319	251	0.067	287	0.101	323	0.401	359	0.773

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ELEVATION PATTERN

Proposal No. **C-06745**

Date **22-Jul-19**

Call Letters **K264AA**

Frequency **100.7 MHz FM**

Antenna Type **DCRT02B50 OS**

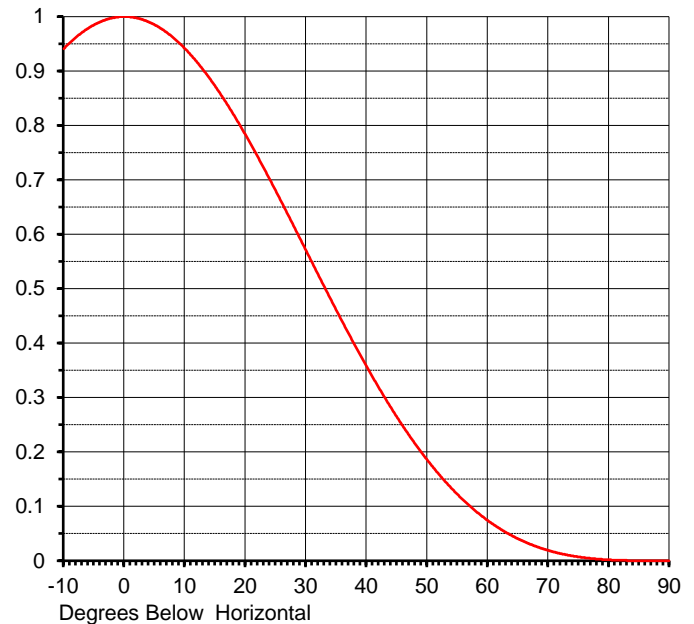
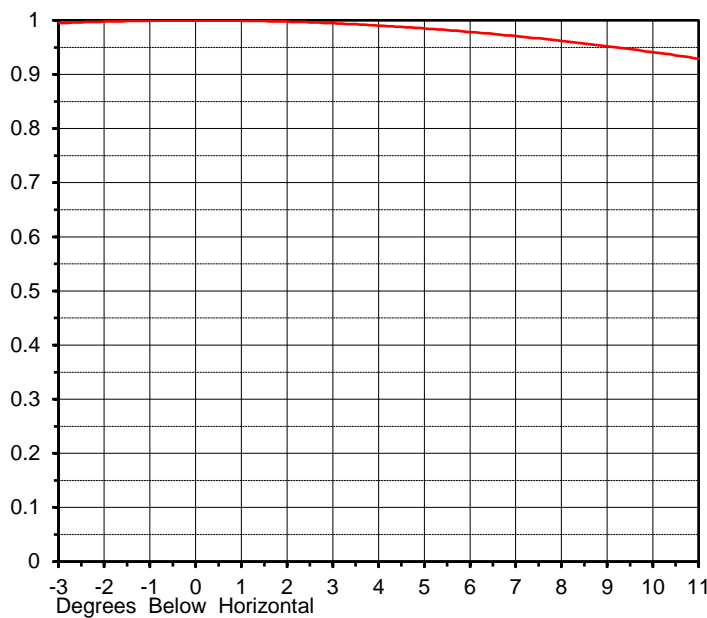
RMS Directivity at Main Lobe **1.5 (1.70 dB)**

RMS Directivity at Horizontal **1.5 (1.76 dB)**

Calculated

Beam Tilt **0.00 deg**

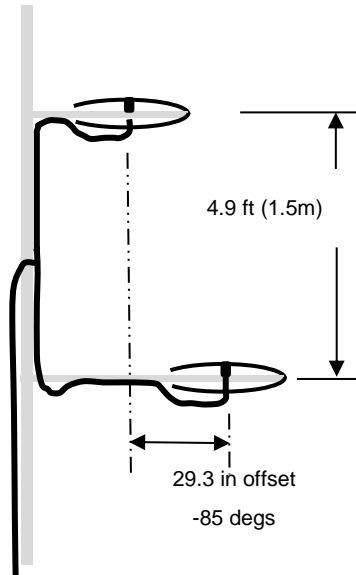
Pattern Number **02T015000**



Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.941	10.0	0.941	30.0	0.570	50.0	0.185	70.0	0.019
-9.0	0.952	11.0	0.929	31.0	0.548	51.0	0.171	71.0	0.016
-8.0	0.962	12.0	0.916	32.0	0.526	52.0	0.158	72.0	0.013
-7.0	0.971	13.0	0.902	33.0	0.504	53.0	0.145	73.0	0.011
-6.0	0.978	14.0	0.888	34.0	0.482	54.0	0.133	74.0	0.009
-5.0	0.985	15.0	0.872	35.0	0.460	55.0	0.122	75.0	0.007
-4.0	0.990	16.0	0.855	36.0	0.439	56.0	0.111	76.0	0.006
-3.0	0.995	17.0	0.838	37.0	0.418	57.0	0.101	77.0	0.004
-2.0	0.998	18.0	0.820	38.0	0.397	58.0	0.091	78.0	0.003
-1.0	0.999	19.0	0.802	39.0	0.377	59.0	0.082	79.0	0.002
0.0	1.000	20.0	0.783	40.0	0.357	60.0	0.074	80.0	0.002
1.0	0.999	21.0	0.763	41.0	0.337	61.0	0.066	81.0	0.001
2.0	0.998	22.0	0.743	42.0	0.318	62.0	0.059	82.0	0.001
3.0	0.995	23.0	0.722	43.0	0.300	63.0	0.052	83.0	0.000
4.0	0.990	24.0	0.701	44.0	0.282	64.0	0.046	84.0	0.000
5.0	0.985	25.0	0.680	45.0	0.264	65.0	0.040	85.0	0.000
6.0	0.978	26.0	0.658	46.0	0.247	66.0	0.035	86.0	0.000
7.0	0.971	27.0	0.636	47.0	0.231	67.0	0.030	87.0	0.000
8.0	0.962	28.0	0.614	48.0	0.215	68.0	0.026	88.0	0.000
9.0	0.952	29.0	0.592	49.0	0.200	69.0	0.022	89.0	0.000
								90.0	0.000

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MECHANICAL SPECIFICATIONS



Proposal No. **C-06745**
Date **22-Jul-19**
Call Letters **K264AA**

Frequency **100.7 | FM**
Antenna Type **DCRT02B50 OS**

Preliminary Specifications

Side Mounted

Without ice TIA/EIA-222-F

Height AGL 50 ft (15.2 m)
Basic Wind Speed 70 m/h (112.7 km/h)

Mechanical Specifications

Height	H2	4.9 ft (1.5m)	
Height of Center of Radiation	H3	2.5 ft (0.8m)	
Force Coeff. x Projected Area	CaAc	5.7 ft² (0.5m²)	Mounts Excluded
Weight	W	50 lb (0t)	Mounts Excluded

Antenna designed in accordance with AISC specifications for design of structural steel as prescribed by TIA/EIA-222-F

Prepared by: JBC

Date: 22-Jul-19

ME:

EE:

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EXHIBIT 13e

2nd-ADJACENT CONTOUR PROTECTION

Contour protection to 2nd adjacent stations KXL-FM, Portland OR, and KKRZ, Portland OR, is provided using the ratio method. The F(50,50) contour of KXL-FM 63.6dBu at the proposed translator site. For KKRZ, the contour is 62.5dBu. Using the appropriate U/D ratio of 40db, the corresponding “worst-case” interfering contour of the proposed translator is therefore 102.5dBu.

The Google Earth map in **Exhibit 13f** shows a pink contour. This represents the 102.5dBu interfering contour of this proposal, using only the directional antenna data from **Exhibit 13d**. There are two houses within this contour. All other buildings are uninhabited storage, outbuildings, barns, etc.

The green plot shows the 102.5dBu contour, corrected for the factory-supplied elevation pattern, at critical azimuths. As shown on this map, both houses are outside this contour. Therefore, no prohibited overlap would be caused to the 2nd-adjacent stations listed above.

In the chart on Page 2 of this exhibit, **Column C** shows the horizontal distance to the interfering contour, without the elevation data employed. At the terminus of each radial studied, the ground elevation was noted (from Google Earth), and recorded in **Column D**. Since the houses are two stories tall, 3 meters were added to this elevation, and recorded in **Column E**. **Column F** shows the height of the houses’ 2nd floors, below the proposed antenna center of radiation (372m AMSL). From this data, a depression angle of the radio beam from the antenna to the destination was computed and noted in **Column G**, and an elevation pattern relative field recorded in **Column H**. Finally, angular and horizontal distances-to-contour were recorded in **Columns K and L**.

DISTANCES TO 102.5dBu CONTOUR - 210W PEAK ERP, WITH ANTENNA ELEVATION PATTERN CONSIDERED											
W/O ELEV. PATTERN			WITH ELEVATION PATTERN INCLUDED								
A	B	C	D	E	F	G	H	I	J	K	L
AZ	AZIMUTH PATTERN RELATIVE FIELD	DISTANCE TO CONTOUR IN HORIZONTAL PLANE (m)	ELEVATION AMSL AT 102.5dBu CONTOUR TERMINUS (m)	ELEVATION AMSL AT 2ND FLOOR (+3M)	DISTANCE OF 2ND FLR BELOW ANTENNA RAD CENTER	DEPRESSIO N ANGLE of 2nd FLOOR BELOW HORIZON	ELEVATION PATTERN RELATIVE FIELD	AZIMUTH PATTERN TIMES ELEVATION PATTERN	EFFECTIVE ERP AT THIS AZIMUTH & ELEVATION	RESULTANT ANGULAR DISTANCE TO CONTOUR (m)	RESULTANT HORIZONTAL DISTANCE TO CONTOUR (m)
0	0.782	596	269	272	100	9.5	0.947	0.741	115.3	564	557
5	0.822	621	272	275	97	8.9	0.953	0.783	128.7	596	589
10	0.858	648	278	281	91	8	0.962	0.825	142.9	628	622
15	0.89	678	283	286	86	7.2	0.969	0.862	156.0	657	652
20	0.917	692	278	281	91	7.5	0.967	0.887	165.2	676	670
25	0.94	710	268	271	101	8.1	0.961	0.903	171.2	688	681
85	0.999	761	278	281	91	6.8	0.972	0.971	198.4	740	735
90	0.999	761	278	281	91	6.8	0.972	0.971	198.4	740	735
95	1	762	279	282	90	6.7	0.973	0.973	198.8	741	736
100	1	762	280	283	89	6.7	0.973	0.973	198.8	741	736
105	1	762	280	283	89	6.7	0.973	0.973	198.8	741	736

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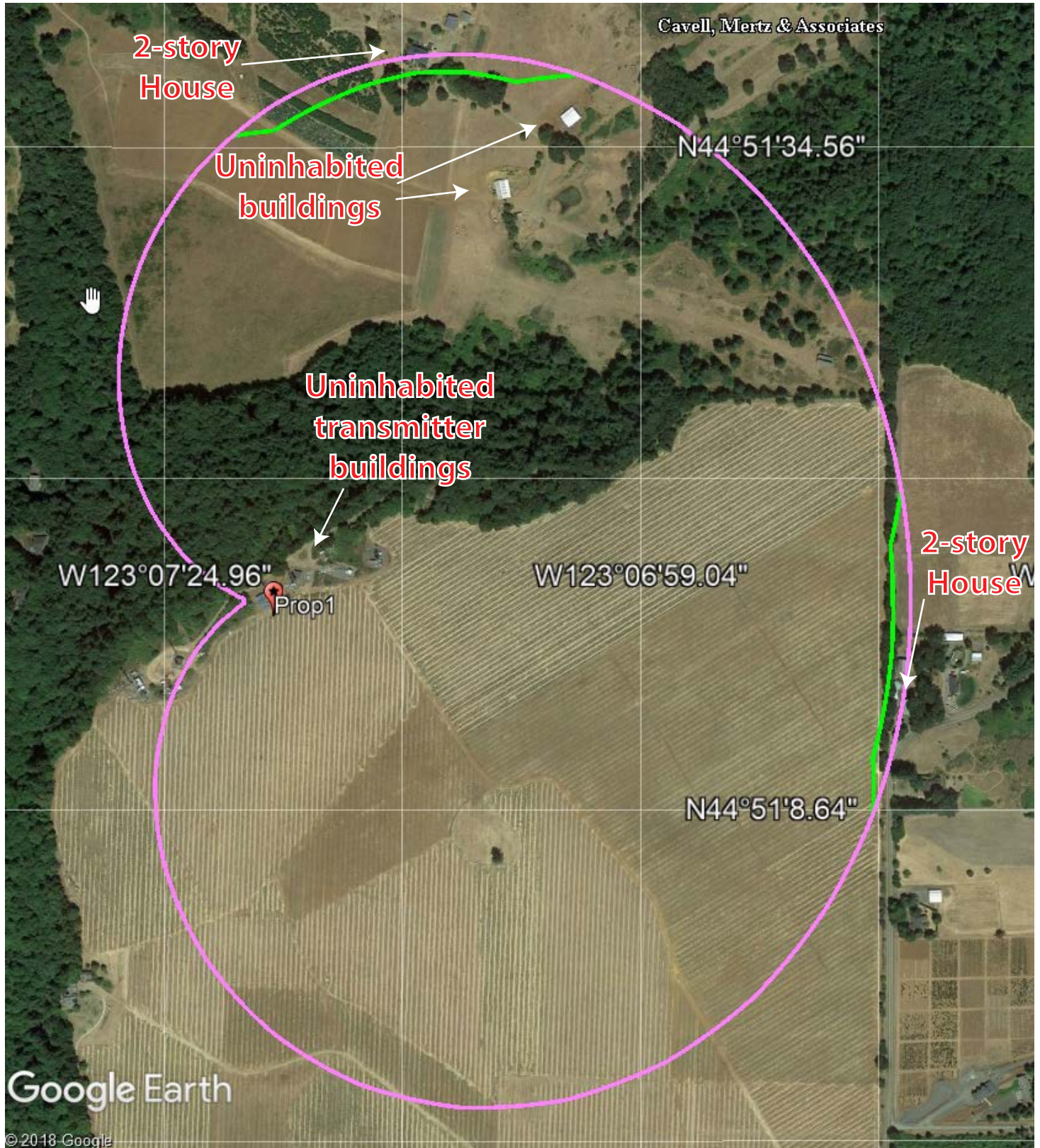
Portland, Oregon 97219-7418

503-245-6065

EXHIBIT 13f

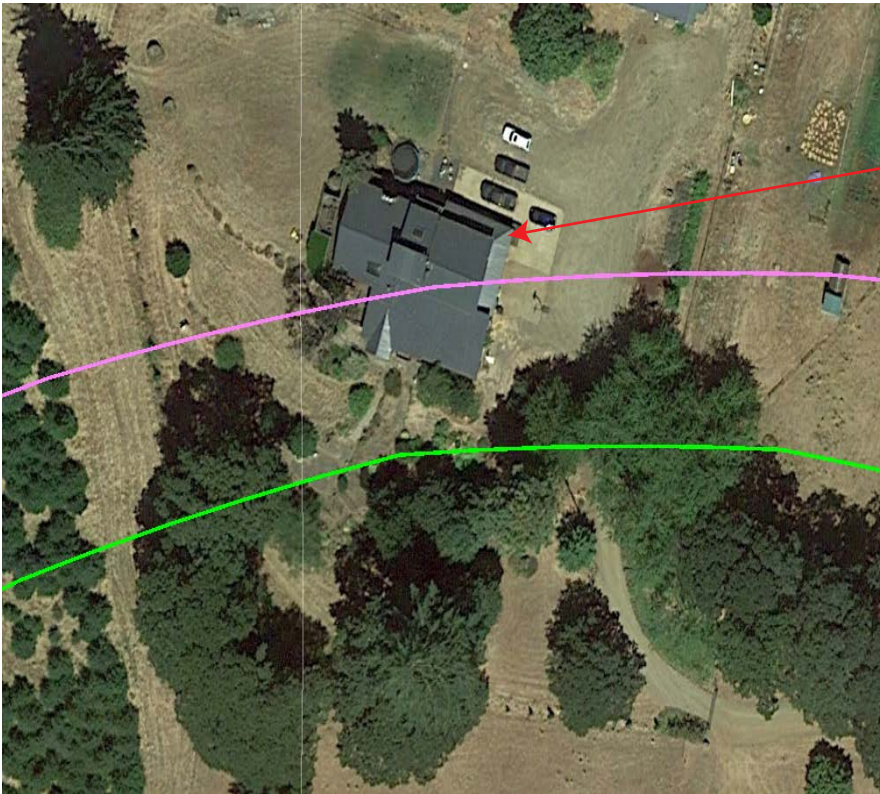
102.5dBu Interfering Contour

> green contour includes antenna elevation pattern <



All habitated structures are outside the green interfering contour, corrected for the antenna elevation pattern, as supplied by the manufacturer.

EXHIBIT 13f - Page 2 of 2
102.5dBu Interfering Contour



2-Story Houses
outside of (green)
interfering contour
corrected for
elevation pattern

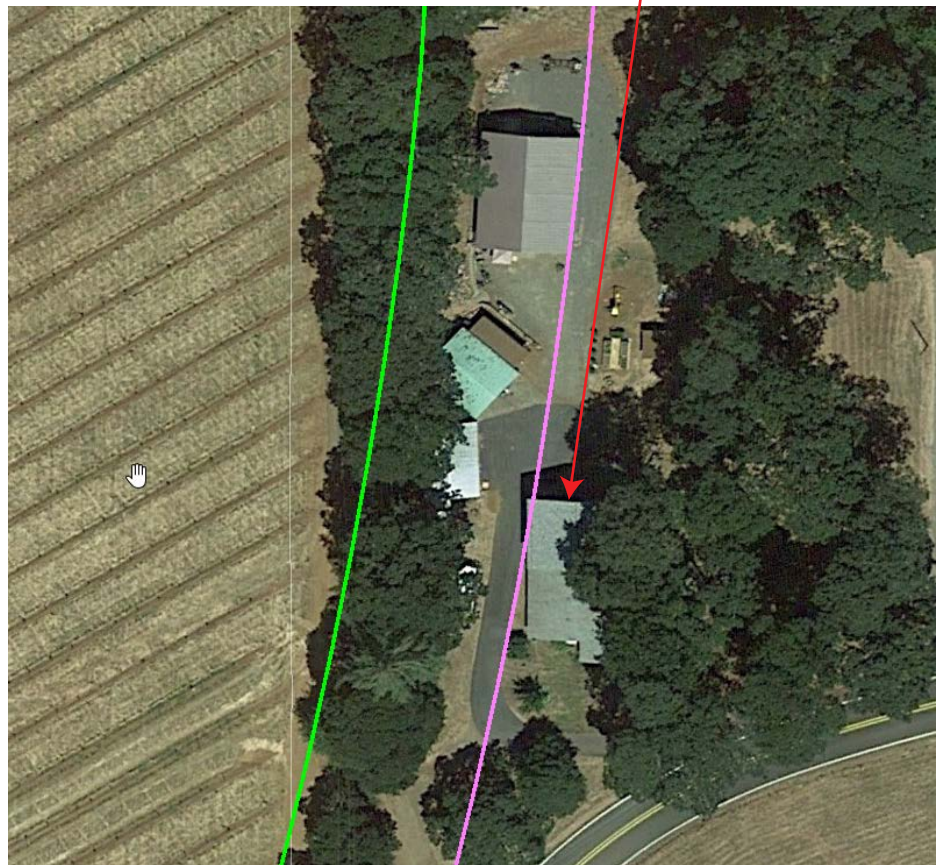


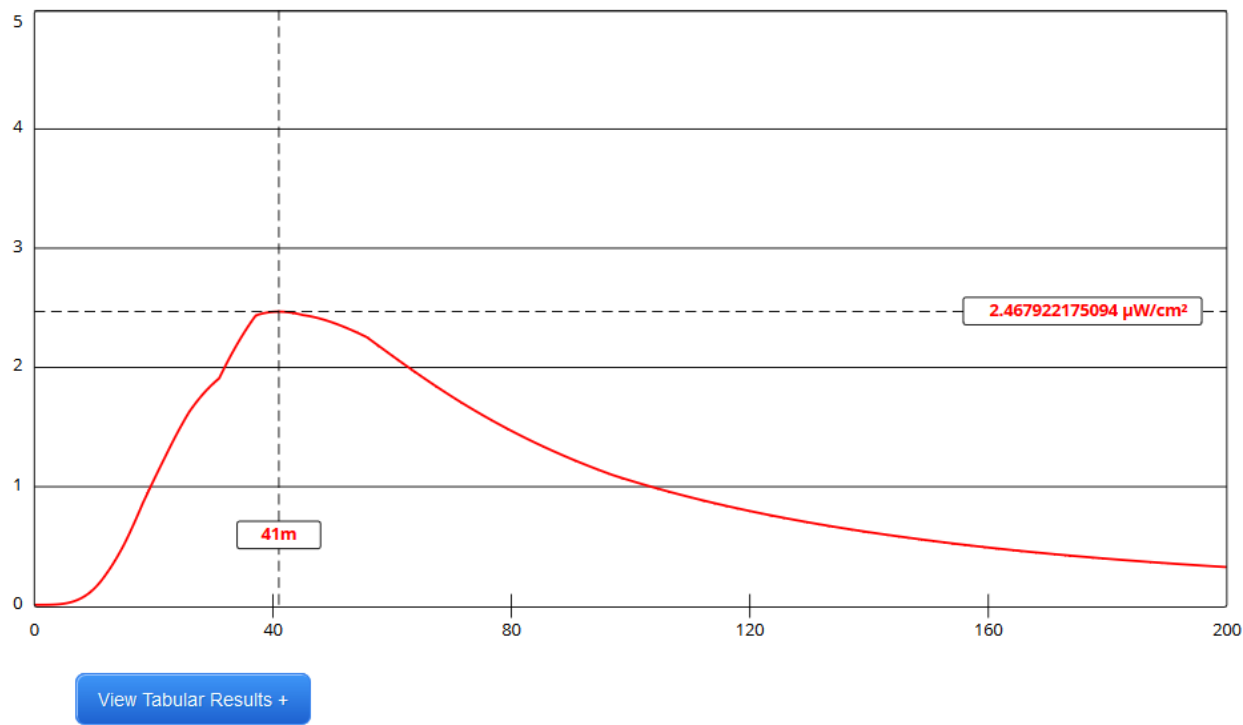
EXHIBIT 17

ENVIRONMENTAL PROTECTION ACT / NIER ANALYSIS

The applicant proposes mounting a Dielectric DCRT02B50 OS, 2 bay, $\frac{1}{2}$ wave-spaced antenna, on an existing tower. The proposed center of radiation is 28m AGL. Calculations were made using FM Model for Windows, online version, with the “worst case” Type-1 setting employed. This resulted in a predicted peak exposure of $2.47\mu\text{W}/\text{cm}^2$, at 41 meters from the tower.

The tower sits on a high ridgeline, with no inhabited buildings or higher terrain nearby. Public access to the entire area is controlled by perimeter fencing and locked gates. The applicant believes that the site can be considered an Occupational/Controlled area. However, out of an abundance of caution, it will be examined for compliance using the standards for General Population/Uncontrolled areas. $2.47\mu\text{W}/\text{cm}^2$ represents 1.2% of the $200\mu\text{W}/\text{cm}^2$ Maximum Permitted Exposure for Uncontrolled areas. §1.1307(b)(3) exempts applicants from preparing an Environmental Assessment when the predicted exposure levels would be less than 5% of the FCC limits.

The applicant will ensure that 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.



Channel Selection	Channel 264 (100.7 MHz) ▾		
Antenna Type +	EPA Type 1: Ring-and-Stub or "Other" ▾		
Height (m)	<input type="text" value="28"/>	Distance (m)	<input type="text" value="200"/>
ERP-H (W)	<input type="text" value="210"/>	ERP-V (W)	<input type="text" value="210"/>
Num of Elements	<input type="text" value="2"/>	Element Spacing (λ)	<input type="text" value=".5"/>
Num of Points	<input type="text" value="1000"/>	<input type="button" value="Apply"/>	

BROWN BROADCAST SERVICES

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