

WESTERN OREGON RADIO CLUB, INC.
MINOR CHANGE OF LICENSED FACILITIES LOW POWER FM
KISN-LP PORTLAND, OREGON FAC ID # 195134

Parameters

Coordinates: 45 29 53.4 N 122 32 8.9 W (NAD 27)
45 29 52.8 N 122 32 13.2W (NAD 83)
CH: 236
Frequency: 95.1 MHz
Power: 0.1 kW
Type: LPFM
Ground: 78.3 M AMSL
COR: 102.7 M AMSL
HAAT: 6.2 M
AGL: 24.4 M



FCC 60 dBu F(50,50)

Spacing

Western Oregon Radio Club, Inc.

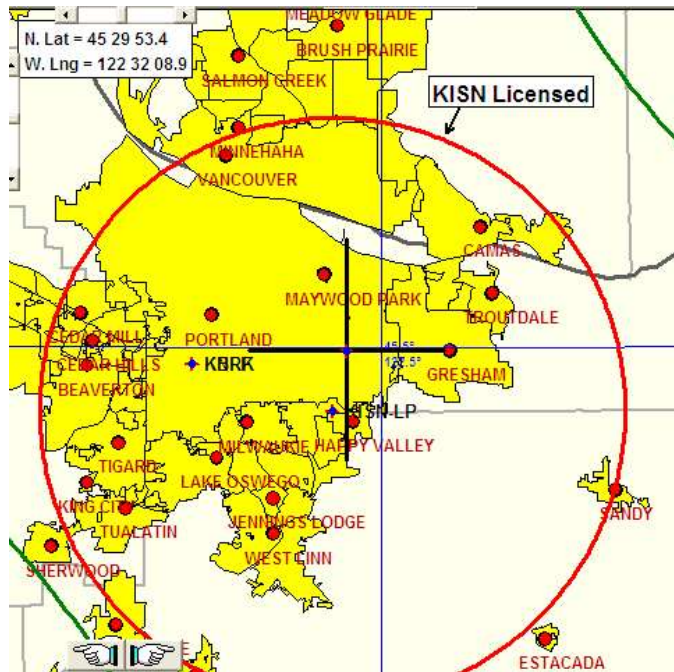
REFERENCE		DISPLAY DATES
45 29 53.4 N.	CLASS = L1 Int = L1	DATA 05-27-17
122 32 08.9 W.	Current Spacings to 2nd Adj.	SEARCH 09-25-17
----- Channel 236 - 95.1 MHz -----		

Call	Channel	Location		Azi	Dist	FCC	Margin
*KBFF	LIC 238C0	Portland	OR	265.3	12.44	83.5	-71.1
*KNRK	LIC-Z 234C2	Camas	WA	265.3	12.44	52.5	-40.1
KISN-LP	LIC 236L1	Portland	OR	192.9	4.95	23.5	-18.6
KSND	LIC 236C3	Monmouth	OR	231.5	108.06	77.5	30.6
AU9861581VAC	236A	Trout Lake	WA	50.4	97.59	66.5	31.1
K236BV	LIC-D 236D	Bethany	OR	341.7	77.91	31.5	46.4

Reference station has protected zone issue: Canada
All separation margins include rounding

*See second adj waiver request

Spacing Map



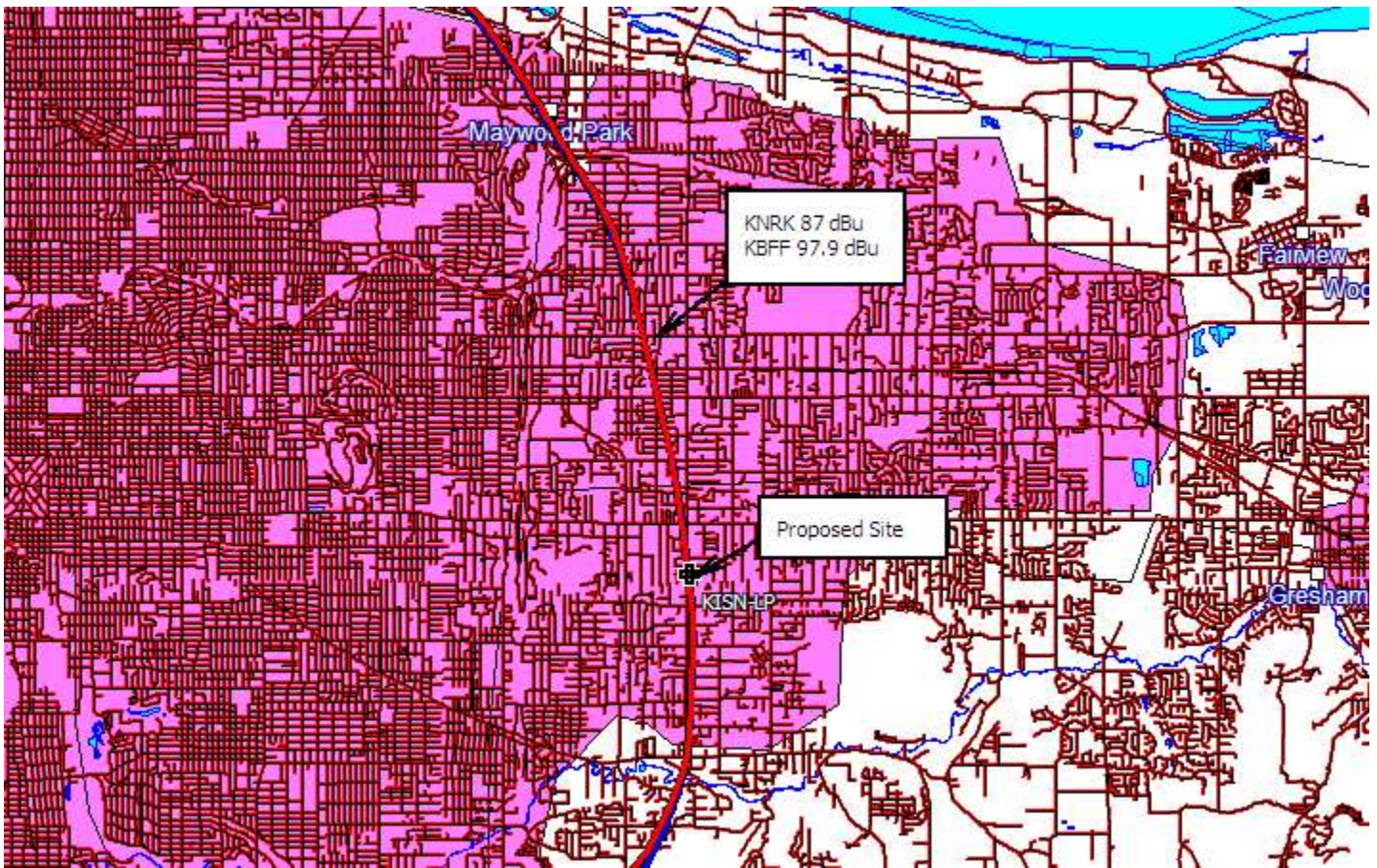
TOWAIR Determination (PASS)

DETERMINATION Results	
Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates you provided.	
Your Specifications	
NAD83 Coordinates	
Latitude	45-29-52.8 north
Longitude	122-32-13.2 west
Measurements (Meters)	
Overall Structure Height (AGL)	36.5
Support Structure Height (AGL)	36.5
Site Elevation (AMSL)	78.3
Structure Type	
MTOWER - Monopole	

Second Adjacent Channel Waiver Request

License respectfully requests a "second adjacent channel waiver" with regards to Section 47 C.F.R. Section 73.807 of the FCC rules based upon the "Living Way" precedence (Living Way Ministries, Inc., Memorandum Opinion and Order, 17 FCC Red 17054, 17056, ¶ 5 (2002), recon. denied 23 FCC Red 15070 (2008)). This will be accomplished by used Free Space methodology of calculation.

Using U/D methodology, at the proposed KISN-LP transmitter location KBFF has a signal strength of 97.9 dBu and KNRK has a signal strength of 87 dBu. Interference will occur when the interfering signal exceeds the desired signal by 40 dbu. So the area of predicted interference would then, using the smaller value of 87 dBu, be bounded by the 127 dBu contour.



The distance to this contour, using free space method:

$D = (7.01 \cdot P^{1/2}) / E$, where P is power (watts), E is field strength (v/m), and D is distance to contour (meters):

P = 100 w, E = 127 dBu

D = 31 meters

However, the field strength of the proposed LPFM's antenna system falls quickly at depression angles below the horizon. Using elevation pattern data provided by Nicom (2 bay 0.5 spaced BKG88 antenna) for a 0.5 wave spaced antenna, the distance to the 127 dBu contour at various depression angles is tabulated below. The data shows that the lowest point at which the signal strength rises to 127 dBu is 15 meters below the center of radiation of the antenna system, or 9.4 meters above the ground. Therefore, this is sufficient clearance, and the interference area encompasses zero population. The table below show that the lowest elevation point of the 127 dBu F(50,10) interfering contour is 9.4 meters above the ground.

Due to zero population within this radiation radius, this meets the "Living way" Criteria to qualify for a Waiver of 47 C.F.R. Section 73.807.

Thus, the applicant requests second adjacent waiver based upon evidence no interference is proposed.

A MAX ERP
B DEPRESSION ANGLE BELOW HORIZON
C RELATIVE FIELD
D dB FROM RELATIVE
E ERP
F ANGULAR DISTANCE TO 122.65 dBu CONTOUR
G VERTICAL DISTANCE (below antenna)
H HORIZONTAL DISTANCE TO 122.65 dBu CONTOUR
I CLEARANCE OF CONTOUR ABOVE GROUND

A	B	C	D	E	F	G	H	I
100	0	1	0.000	100.00	31.3	0	31.3	24.4
100	0.5	1	0.000	100.00	51.6	0.4	51.5	24
100	1	0.999	-0.009	99.80	51.6	0.9	51.5	23.5
100	1.5	0.999	-0.009	99.80	51.6	1.3	51.5	23.1
100	2	0.998	-0.017	99.60	51.5	1.7	51.4	22.7
100	2.5	0.997	-0.026	99.40	51.5	2.2	51.4	22.2
100	3	0.995	-0.044	99.00	51.4	2.6	51.3	21.8
100	3.5	0.994	-0.052	98.80	51.3	3.1	51.2	21.3
100	4	0.992	-0.070	98.41	51.2	3.5	51	20.9
100	4.5	0.99	-0.087	98.01	51.1	4	50.9	20.4
100	5	0.988	-0.105	97.61	51	4.4	50.8	20
100	5.5	0.985	-0.131	97.02	50.8	4.8	50.5	19.6
100	6	0.982	-0.158	96.43	50.7	5.2	50.4	19.2
100	6.5	0.979	-0.184	95.84	50.5	5.7	50.1	18.7
100	7	0.976	-0.211	95.26	50.4	6.1	50	18.3
100	7.5	0.972	-0.247	94.48	50.2	6.5	49.7	17.9
100	8	0.969	-0.274	93.90	50	6.9	49.5	17.5
100	8.5	0.965	-0.309	93.12	49.8	7.3	49.2	17.1
100	9	0.961	-0.346	92.35	49.6	7.7	48.9	16.7
100	9.5	0.956	-0.391	91.39	49.3	8.1	48.6	16.3
100	10	0.952	-0.427	90.63	49.1	8.5	48.3	15.9
100	10.5	0.945	-0.491	89.30	48.8	8.8	47.9	15.6
100	11	0.939	-0.547	88.17	48.5	9.2	47.6	15.2
100	11.5	0.932	-0.612	86.86	48.1	9.5	47.1	14.9
100	12	0.925	-0.677	85.56	47.7	9.9	46.6	14.5
100	12.5	0.918	-0.743	84.27	47.4	10.2	46.2	14.2
100	13	0.911	-0.810	82.99	47	10.5	45.7	13.9

100	13.5	0.904	-0.877	81.72	46.7	10.8	45.4	13.6
100	14	0.896	-0.954	80.28	46.2	11.1	44.8	13.3
100	14.5	0.889	-1.022	79.03	45.9	11.4	44.4	13
100	15	0.881	-1.100	77.62	45.5	11.7	43.9	12.7
100	15.5	0.873	-1.180	76.21	45.1	12	43.4	12.4
100	16	0.864	-1.270	74.65	44.6	12.2	42.8	12.2
100	16.5	0.855	-1.361	73.10	44.1	12.5	42.2	11.9
100	17	0.846	-1.453	71.57	43.7	12.7	41.7	11.7
100	17.5	0.838	-1.535	70.22	43.2	12.9	41.2	11.5
100	18	0.828	-1.639	68.56	42.7	13.1	40.6	11.3
100	18.5	0.819	-1.734	67.08	42.3	13.4	40.1	11
100	19	0.81	-1.830	65.61	41.8	13.6	39.5	10.8
100	19.5	0.801	-1.927	64.16	41.3	13.7	38.9	10.7
100	20	0.791	-2.036	62.57	40.8	13.9	38.3	10.5
100	20.5	0.781	-2.147	61.00	40.3	14.1	37.7	10.3
100	21	0.771	-2.259	59.44	39.8	14.2	37.1	10.2
100	21.5	0.76	-2.384	57.76	39.2	14.3	36.4	10.1
100	22	0.75	-2.499	56.25	38.7	14.4	35.8	10
100	22.5	0.739	-2.627	54.61	38.1	14.5	35.2	9.9
100	23	0.728	-2.757	53.00	37.6	14.6	34.6	9.8
100	23.5	0.718	-2.878	51.55	37	14.7	33.9	9.7
100	24	0.707	-3.012	49.98	36.5	14.8	33.3	9.6
100	24.5	0.696	-3.148	48.44	35.9	14.8	32.6	9.6
100	25	0.686	-3.274	47.06	35.4	14.9	32	9.5
100	25.5	0.675	-3.414	45.56	34.8	14.9	31.4	9.5
100	26	0.664	-3.557	44.09	34.3	15	30.8	9.4
100	26.5	0.653	-3.702	42.64	33.7	15	30.1	9.4
100	27	0.642	-3.849	41.22	33.1	15	29.4	9.4
100	27.5	0.631	-3.999	39.82	32.6	15	28.9	9.4
100	28	0.62	-4.152	38.44	32	15	28.2	9.4
100	28.5	0.609	-4.308	37.09	31.4	14.9	27.5	9.5
100	29	0.598	-4.466	35.76	30.8	14.9	26.9	9.5
100	29.5	0.588	-4.612	34.57	30.3	14.9	26.3	9.5
100	30	0.577	-4.776	33.29	29.8	14.8	25.8	9.6
100	30.5	0.565	-4.959	31.92	29.1	14.7	25	9.7
100	31	0.553	-5.145	30.58	28.5	14.6	24.4	9.8
100	31.5	0.542	-5.320	29.38	28	14.6	23.8	9.8
100	32	0.53	-5.514	28.09	27.3	14.4	23.1	10
100	32.5	0.519	-5.697	26.94	26.8	14.3	22.6	10.1
100	33	0.508	-5.883	25.81	26.2	14.2	21.9	10.2
100	33.5	0.496	-6.090	24.60	25.6	14.1	21.3	10.3
100	34	0.485	-6.285	23.52	25	13.9	20.7	10.5
100	34.5	0.474	-6.484	22.47	24.4	13.8	20.1	10.6
100	35	0.463	-6.688	21.44	23.9	13.7	19.5	10.7
100	35.5	0.452	-6.897	20.43	23.3	13.5	18.9	10.9
100	36	0.44	-7.131	19.36	22.7	13.3	18.3	11.1
100	36.5	0.429	-7.351	18.40	22.1	13.1	17.7	11.3
100	37	0.418	-7.576	17.47	21.5	12.9	17.1	11.5
100	37.5	0.407	-7.808	16.56	21	12.7	16.6	11.7
100	38	0.396	-8.046	15.68	20.4	12.5	16	11.9
100	38.5	0.385	-8.291	14.82	19.8	12.3	15.4	12.1
100	39	0.375	-8.519	14.06	19.3	12.1	15	12.3
100	39.5	0.364	-8.778	13.25	18.8	11.9	14.5	12.5
100	40	0.354	-9.020	12.53	18.2	11.6	13.9	12.8
100	40.5	0.344	-9.269	11.83	17.7	11.4	13.4	13
100	41	0.333	-9.551	11.09	17.2	11.2	12.9	13.2
100	41.5	0.323	-9.816	10.43	16.6	10.9	12.4	13.5
100	42	0.313	-10.089	9.80	16.1	10.7	11.9	13.7
100	42.5	0.303	-10.371	9.18	15.6	10.5	11.5	13.9
100	43	0.293	-10.663	8.58	15.1	10.2	11	14.2
100	43.5	0.284	-10.934	8.07	14.6	10	10.5	14.4
100	44	0.274	-11.245	7.51	14.1	9.7	10.1	14.7
100	44.5	0.265	-11.535	7.02	13.6	9.5	9.7	14.9
100	45	0.256	-11.835	6.55	13.2	9.3	9.3	15.1
100	45.5	0.247	-12.146	6.10	12.7	9	8.9	15.4
100	46	0.238	-12.468	5.66	12.2	8.7	8.4	15.7
100	46.5	0.23	-12.765	5.29	11.8	8.5	8.1	15.9
100	47	0.221	-13.112	4.88	11.4	8.3	7.7	16.1
100	47.5	0.213	-13.432	4.54	11	8.1	7.4	16.3
100	48	0.205	-13.765	4.20	10.5	7.8	7	16.6
100	48.5	0.197	-14.111	3.88	10.1	7.5	6.6	16.9
100	49	0.189	-14.471	3.57	9.7	7.3	6.3	17.1
100	49.5	0.182	-14.799	3.31	9.4	7.1	6.1	17.3

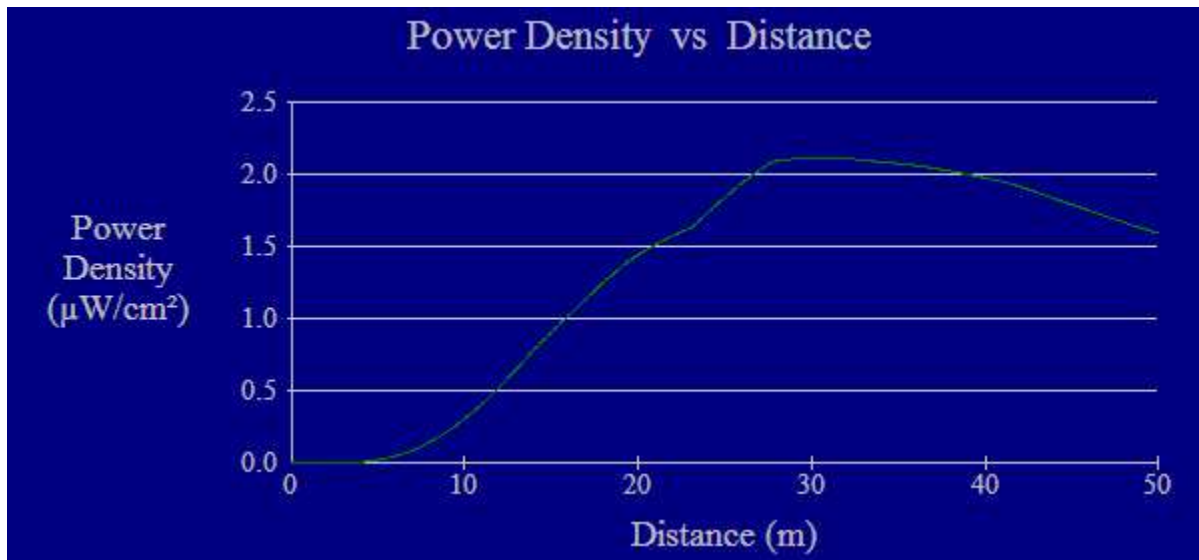
100	50	0.174	-15.189	3.03	8.9	6.8	5.7	17.6
100	50.5	0.167	-15.546	2.79	8.6	6.6	5.4	17.8
100	51	0.16	-15.918	2.56	8.2	6.3	5.1	18.1
100	51.5	0.153	-16.306	2.34	7.9	6.1	4.9	18.3
100	52	0.146	-16.713	2.13	7.5	5.9	4.6	18.5
100	52.5	0.14	-17.077	1.96	7.2	5.7	4.3	18.7
100	53	0.133	-17.523	1.77	6.8	5.4	4	19
100	53.5	0.127	-17.924	1.61	6.5	5.2	3.8	19.2
100	54	0.121	-18.344	1.46	6.2	5	3.6	19.4
100	54.5	0.115	-18.786	1.32	5.9	4.8	3.4	19.6
100	55	0.11	-19.172	1.21	5.6	4.5	3.2	19.9
100	55.5	0.104	-19.659	1.08	5.3	4.3	3	20.1
100	56	0.099	-20.087	0.98	5.1	4.2	2.8	20.2
100	56.5	0.093	-20.630	0.86	4.8	4	2.6	20.4
100	57	0.088	-21.110	0.77	4.5	3.7	2.4	20.7
100	57.5	0.083	-21.618	0.69	4.2	3.5	2.2	20.9
100	58	0.079	-22.047	0.62	4	3.3	2.1	21.1
100	58.5	0.074	-22.615	0.55	3.8	3.2	1.9	21.2
100	59	0.07	-23.098	0.49	3.6	3	1.8	21.4
100	59.5	0.065	-23.742	0.42	3.3	2.8	1.6	21.6
100	60	0.061	-24.293	0.37	3.1	2.6	1.5	21.8
100	60.5	0.057	-24.883	0.32	2.9	2.5	1.4	21.9
100	61	0.053	-25.514	0.28	2.7	2.3	1.3	22.1
100	61.5	0.05	-26.021	0.25	2.5	2.1	1.1	22.3
100	62	0.046	-26.745	0.21	2.3	2	1	22.4
100	62.5	0.043	-27.331	0.18	2.2	1.9	1	22.5
100	63	0.039	-28.179	0.15	2	1.7	0.9	22.7
100	63.5	0.036	-28.874	0.13	1.8	1.6	0.8	22.8
100	64	0.033	-29.630	0.11	1.7	1.5	0.7	22.9
100	64.5	0.031	-30.173	0.10	1.6	1.4	0.6	23
100	65	0.028	-31.057	0.08	1.4	1.2	0.5	23.2
100	65.5	0.025	-32.041	0.06	1.2	1	0.4	23.4
100	66	0.023	-32.765	0.05	1.1	1	0.4	23.4
100	66.5	0.02	-33.979	0.04	1	0.9	0.3	23.5
100	67	0.018	-34.895	0.03	0.9	0.8	0.3	23.6
100	67.5	0.016	-35.918	0.03	0.8	0.7	0.3	23.7
100	68	0.014	-37.077	0.02	0.7	0.6	0.2	23.8
100	68.5	0.012	-38.416	0.01	0.6	0.5	0.2	23.9
100	69	0.01	-40.000	0.01	0.5	0.4	0.1	24
100	69.5	0.009	-40.915	0.01	0.4	0.3	0.1	24.1
100	70	0.007	-43.098	0.00	0.3	0.2	0.1	24.2
100	70.5	0.006	-44.437	0.00	0.3	0.2	0.1	24.2
100	71	0.004	-47.959	0.00	0.2	0.1	0	24.3
100	71.5	0.003	-50.458	0.00	0.1	0	0	24.4
100	72	0.002	-53.979	0.00	0.1	0	0	24.4
100	72.5	0.001	-60.000	0.00	0	0	0	24.4
100	73	0	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
100	73.5	0.001	-60.000	0.00	0	0	0	24.4
100	74	0.002	-53.979	0.00	0.1	0	0	24.4
100	74.5	0.003	-50.458	0.00	0.1	0	0	24.4
100	75	0.004	-47.959	0.00	0.2	0.1	0	24.3
100	75.5	0.004	-47.959	0.00	0.2	0.1	0	24.3
100	76	0.005	-46.021	0.00	0.2	0.1	0	24.3
100	76.5	0.005	-46.021	0.00	0.2	0.1	0	24.3
100	77	0.006	-44.437	0.00	0.3	0.2	0	24.2
100	77.5	0.006	-44.437	0.00	0.3	0.2	0	24.2
100	78	0.007	-43.098	0.00	0.3	0.2	0	24.2
100	78.5	0.007	-43.098	0.00	0.3	0.2	0	24.2
100	79	0.007	-43.098	0.00	0.3	0.2	0	24.2
100	79.5	0.007	-43.098	0.00	0.3	0.2	0	24.2
100	80	0.008	-41.938	0.01	0.4	0.3	0	24.1
100	80.5	0.008	-41.938	0.01	0.4	0.3	0	24.1
100	81	0.008	-41.938	0.01	0.4	0.3	0	24.1
100	81.5	0.008	-41.938	0.01	0.4	0.3	0	24.1
100	82	0.008	-41.938	0.01	0.4	0.3	0	24.1
100	82.5	0.008	-41.938	0.01	0.4	0.3	0	24.1
100	83	0.008	-41.938	0.01	0.4	0.3	0	24.1
100	83.5	0.009	-40.915	0.01	0.4	0.3	0	24.1
100	84	0.009	-40.915	0.01	0.4	0.3	0	24.1
100	84.5	0.009	-40.915	0.01	0.4	0.3	0	24.1
100	85	0.008	-41.938	0.01	0.4	0.3	0	24.1
100	85.5	0.009	-40.915	0.01	0.4	0.3	0	24.1
100	86	0.009	-40.915	0.01	0.4	0.3	0	24.1

100	86.5	0.009	-40.915	0.01	0.4	0.3	0	24.1
100	87	0.009	-40.915	0.01	0.4	0.3	0	24.1
100	87.5	0.009	-40.915	0.01	0.4	0.3	0	24.1
100	88	0.009	-40.915	0.01	0.4	0.3	0	24.1
100	88.5	0.009	-40.915	0.01	0.4	0.3	0	24.1

NON-IONIZING ELECTROMAGNETIC RADIATION (NEIR) ANALYSIS

The Effective Radiated Power for proposed will be 100 watts, mounted on guyed tower 20 meters above the ground. The OET program FM Model for Windows, Version 2.10 Beta was used to determine the maximum predicted RF exposure. The settings used were:

Antenna: Phelps-Dodge Ring Stub or Dipole
 Vertical ERP (W): 100
 Horizontal ERP (W): 100
 Antenna Height (m): 24.4
 Number of Elements: 2
 Spacing: 0.5



Using these settings, the maximum predicted RF exposure for a human standing on the ground would be less than 2.2 $\mu\text{W}/\text{cm}^2$ at 30.6 m. This represents less than 1.2% of the FCC Maximum Permissible Exposure (MPE) of 200 $\mu\text{W}/\text{cm}^2$ for uncontrolled environments. There are no other RF emitters at the site. 47 CFR 1.1307(b) (3) exempts applicants from preparing an Environmental Assessment when the predicted exposure level would be less

than 5% of the FCC limit.

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The mast will be inaccessible by the public (on private property) and will have a no climbing with a warning sign to potential climbers and a fence around it. If work on tower is required facility will be temporarily powered down.