

KVFS-LP SPOKANE WASHINGTON

Fac ID 135324

MINOR CHANGE

Channel	262
New Location:	47° 37' 48.7" N, 117° 24' 08.0"W -- NAD 83
Relocation:	Minor Change
Antenna AGL	12 m
Antenna Ground	698 m
Antenna COR	710 m
Total Tower Height	15 m
HAAT	39 m (see below)
Power	61 w (see below)
Spacing	Complies with minimum 73.807 spacing, except for second adjacent channels; waiver request below

Antenna Height Above Average Terrain Calculations -- Results

Input Data

Latitude 47° 37' 48.9" North

Longitude 117° 24' 8" West (NAD 83)

These coordinates convert to NAD 27 coordinates of
47° 37' 49.29", North, 117° 24' 04.24" West (NAD 27).

Height of antenna radiation center above mean sea level: 710 meters AMSL.

Number of Evenly Spaced Radials = 8 0° is referenced to True North

Results

Calculated HAAT = 39 meters

Antenna Height Above Average Terrain calculated
using FCC 30 second terrain database (continental USA only)

Individual "Radial HAAT" Values, in meters

0°	115.3 m
45°	60.2 m
90°	36.1 m
135°	-71.8 m
180°	17.9 m
225°	18.6 m
270°	8.2 m
315°	126.7 m

Select Contour Type:

F(50,50) Service Contour -- FM and NTSC (analog) TV
F(50,10) Interfering Contour
F(50,90) Digital TV Service Contour

Select Channel Range:
(not TV Virtual Channel)

FM Radio or TV Transmit Channels 2-6
TV Transmit Channels 7-13
TV Transmit Channels 14-69

Find This:

Field Strength, given a Distance (in km)
Distance, Given a Field Strength (in dBu)
FM ERP, given Distance and Field Strength [F(50,50) Service Contour]

1
ERP (kW)

5.64
Distance (km)

39
HAAT (meters)

60
Field (dBu)

Find Result

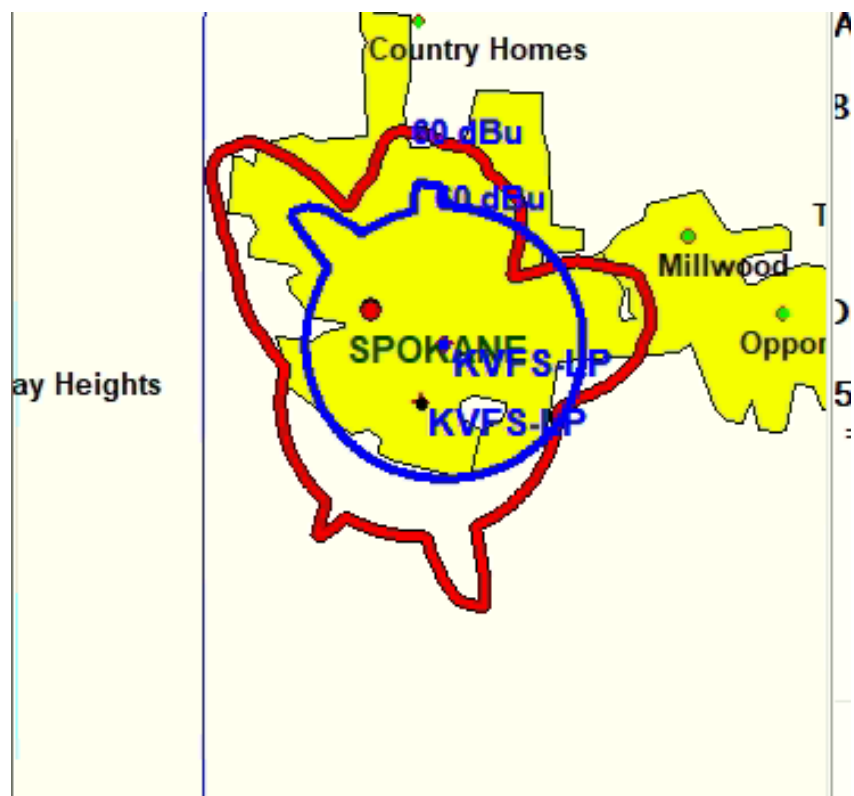
Clear Form

Results:

Calculated ERP (rounded per Section 73.212) = **0.061 kW**
(FM 60 dBu Service Contour only)

Unrounded ERP = 0.060806 kW

The proposed site's 60 dBu contour also complies with overlap of 60 dBu from the licensed facility (below). Below affirms minor change eligibility.



Spokane Translator Association

REFERENCE		DISPLAY DATES
47 37 48.90 N.	CLASS = L1	DATA 05-30-23
117 24 08.10 W.	Current Spacings to 3rd Adj.	SEARCH 08-19-23
----- Channel 262 - 100.3 MHz -----		

Call	Channel	Location		Azi	Dist	FCC	Margin
*KXLY-FM	LIC	260C	Spokane	WA	33.5	38.91	92.5 -53.6
KVFS-LP	LIC	262L1	Spokane	WA	22.6	2.17	23.5 -21.3
*K264CH	LIC	264D	Spokane	WA	117.1	8.71	20.5 -11.8
K262CR	LIC	262D	Coeur D'alene	ID	77.1	51.70	31.5 20.2
KQZB	LIC-N	263C3	Troy	ID	157.9	98.17	66.5 31.7
KWIIQ-FM	LIC	263C2	Moses Lake	WA	247.7	150.79	79.5 71.3

Reference station has protected zone issue: Canada
All separation margins include rounding
* See second adjacent waiver request

TOWAIR

DETERMINATION Results

PASS SLOPE(100:1): NO FAA REQ-RWY MORE THAN 10499 MTRS & 7612.68 MTRS (7.61270 KM) AWAY

Type	C/R	Latitude	Longitude	Name	Address	Lowest Elevation (m)	Runway Length (m)
AIRP	R	47-40-45.00N	117-19-53.00W	FELTS FLD	SPOKANE SPOKANE, WA	593.3	1828.8

Your Specifications

NAD83 Coordinates

Latitude	47-37-48.7 north
Longitude	117-24-08.0 west

Measurements (Meters)

Overall Structure Height (AGL)	15
Support Structure Height (AGL)	15
Site Elevation (AMSL)	698

Structure Type

MAST - Mast

Second Adjacent 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 using Free Space methodology of calculation.

Using U/D methodology, at the proposed KVFS-LP transmitter location KXLY-FM has a signal strength of 83.4 dBu.¹ K264CH has a signal strength of 82.0 dBu.² Interference will occur when the interfering signal exceeds the desired signal by 40 dbu for the lowest signal value. So the area of predicted interference would then be bounded by the 122 dBu contour.

Compliance is achieved by use of multi-bay antenna and power of 61 w ERP. The field strength of the proposed LPFM's antenna system falls quickly at depression angles below the horizon. With the antenna data provided by NCG Company for a single CFM5SL antenna (attached), an array factor is used to drive an elevation pattern for a CFM-95SL-3 (3 bay 0.84 spaced CFM-95SL). This pattern was previously approved by the FCC in application for LPFM CP BMPL-20171103ABI. The distance to the 122 dBu contour at various depression angles is tabulated below. The data shows that the lowest point at which the signal strength rises to 122 dBu is 7.6 meters below the center of radiation of the antenna system, or 4.4 meters above the ground. Therefore, this is sufficient clearance (adjacent to a one-story house), and the interference area is above the population. The tables below show that the lowest elevation point of the 122 dBu F(50,10) interfering contour is 4.4 meters above the ground, and the derived elevation pattern.

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 a second adjacent waiver based upon evidence no interference is proposed.

¹ Using FCC Contours

² Using Longley-Rice contour (ITS-ITM) with FCC. settings (Climate: Continental temperate, Conductivity 0.005, Dielec Const 15, Refractivity 311, Receiver Ht AG 9.1m, Receiver Gain 0 db, Time Variability 50%, Sit. Variability 50%, ITM Mode: Broadcast)

MAX ERP	DEPRESSI ON ANGLE	RELATIVE FIELD	dB FROM RELATIVE	ERP	ANGULAR DISTANCE TO 120 dBu CONTOUR	VERTICAL DISTANCE (below antenna)	HORIZON TOL DISTANCE TO 120 dBu CONTOUR	CLEAREN CE OF CONTOUR ABOVE GROUND
61	0	0.7856	-2.096	37.65	34.1	0	34.1	12
61	1	0.8111	-1.819	40.13	35.2	0.6	35.1	11.4
61	2	0.8201	-1.723	41.03	35.6	1.2	35.5	10.8
61	3	0.8193	-1.731	40.95	35.6	1.8	35.5	10.2
61	4	0.8042	-1.893	39.45	34.9	2.4	34.8	9.6
61	5	0.786	-2.092	37.69	34.1	2.9	33.9	9.1
61	6	0.7885	-2.064	37.93	34.2	3.5	34	8.5
61	7	0.7658	-2.318	35.77	33.3	4	33	8
61	8	0.7411	-2.602	33.50	32.2	4.4	31.8	7.6
61	9	0.7008	-3.088	29.96	30.4	4.7	30	7.3
61	10	0.6697	-3.482	27.36	29.1	5	28.6	7
61	11	0.6335	-3.965	24.48	27.5	5.2	26.9	6.8
61	12	0.6044	-4.374	22.28	26.2	5.4	25.6	6.6
61	13	0.5511	-5.175	18.53	23.9	5.3	23.2	6.7
61	14	0.4836	-6.310	14.27	21	5	20.3	7
61	15	0.4463	-7.007	12.15	19.4	5	18.7	7
61	16	0.3899	-8.181	9.27	16.9	4.6	16.2	7.4
61	17	0.333	-9.551	6.76	14.4	4.2	13.7	7.8
61	18	0.2838	-10.940	4.91	12.3	3.7	11.6	8.3
61	19	0.2266	-12.895	3.13	9.8	3.1	9.2	8.9
61	20	0.1643	-15.687	1.65	7.1	2.4	6.6	9.6
61	21	0.1212	-18.330	0.90	5.2	1.8	4.8	10.2
61	22	0.0688	-23.248	0.29	2.9	1	2.6	11
61	23	0.0183	-34.751	0.02	0.7	0.2	0.6	11.8
61	24	0.0294	-30.633	0.05	1.2	0.4	1	11.6
61	25	0.0745	-22.557	0.34	3.2	1.3	2.9	10.7
61	26	0.1154	-18.756	0.81	5	2.1	4.4	9.9
61	27	0.1549	-16.199	1.46	6.7	3	5.9	9
61	28	0.1891	-14.466	2.18	8.2	3.8	7.2	8.2
61	29	0.2171	-13.267	2.88	9.4	4.5	8.2	7.5
61	30	0.2413	-12.349	3.55	10.4	5.1	9	6.9

61	31	0.2643	-11.558	4.26	11.4	5.8	9.7	6.2
61	32	0.2767	-11.160	4.67	12	6.3	10.1	5.7
61	33	0.2831	-10.961	4.89	12.3	6.6	10.3	5.4
61	34	0.292	-10.692	5.20	12.6	7	10.4	5
61	35	0.3008	-10.434	5.52	13	7.4	10.6	4.6
61	36	0.3024	-10.388	5.58	13.1	7.6	10.6	4.4
61	37	0.2934	-10.651	5.25	12.7	7.6	10.1	4.4
61	38	0.2772	-11.144	4.69	12	7.3	9.4	4.7
61	39	0.2729	-11.280	4.54	11.8	7.4	9.1	4.6
61	40	0.2621	-11.631	4.19	11.3	7.2	8.6	4.8
61	41	0.2422	-12.317	3.58	10.5	6.8	7.9	5.2
61	42	0.2276	-12.857	3.16	9.8	6.5	7.2	5.5
61	43	0.2048	-13.773	2.56	8.9	6	6.5	6
61	44	0.1799	-14.899	1.97	7.8	5.4	5.6	6.6
61	45	0.1629	-15.762	1.62	7	4.9	4.9	7.1
61	46	0.1376	-17.228	1.15	5.9	4.2	4.1	7.8
61	47	0.1143	-18.839	0.80	4.9	3.5	3.3	8.5
61	48	0.0946	-20.482	0.55	4.1	3	2.7	9
61	49	0.0714	-22.926	0.31	3.1	2.3	2	9.7
61	50	0.0491	-26.178	0.15	2.1	1.6	1.3	10.4
61	51	0.029	-30.752	0.05	1.2	0.9	0.7	11.1
61	52	0.0099	-40.087	0.01	0.4	0.3	0.2	11.7
61	53	0.0085	-41.412	0.00	0.3	0.2	0.1	11.8
61	54	0.0257	-31.801	0.04	1.1	0.8	0.6	11.2
61	55	0.0409	-27.766	0.10	1.7	1.3	0.9	10.7
61	56	0.0548	-25.224	0.18	2.3	1.9	1.2	10.1
61	57	0.0677	-23.388	0.28	2.9	2.4	1.5	9.6
61	58	0.078	-22.158	0.37	3.3	2.7	1.7	9.3
61	59	0.0861	-21.300	0.45	3.7	3.1	1.9	8.9
61	60	0.0935	-20.584	0.53	4	3.4	2	8.6
61	61	0.1	-20.000	0.61	4.3	3.7	2	8.3
61	62	0.1038	-19.676	0.66	4.5	3.9	2.1	8.1
61	63	0.1086	-19.283	0.72	4.7	4.1	2.1	7.9
61	64	0.1109	-19.101	0.75	4.8	4.3	2.1	7.7
61	65	0.11	-19.172	0.74	4.7	4.2	1.9	7.8

61	66	0.1078	-19.348	0.71	4.6	4.2	1.8	7.8
61	67	0.1073	-19.388	0.70	4.6	4.2	1.7	7.8
61	68	0.1059	-19.502	0.68	4.6	4.2	1.7	7.8
61	69	0.1039	-19.668	0.66	4.5	4.2	1.6	7.8
61	70	0.1008	-19.931	0.62	4.3	4	1.4	8
61	71	0.0936	-20.574	0.53	4	3.7	1.3	8.3
61	72	0.0898	-20.934	0.49	3.9	3.7	1.2	8.3
61	73	0.0839	-21.525	0.43	3.6	3.4	1	8.6
61	74	0.0775	-22.214	0.37	3.3	3.1	0.9	8.9
61	75	0.0707	-23.012	0.30	3	2.8	0.7	9.2
61	76	0.0644	-23.822	0.25	2.8	2.7	0.6	9.3
61	77	0.0583	-24.687	0.21	2.5	2.4	0.5	9.6
61	78	0.0529	-25.531	0.17	2.3	2.2	0.4	9.8
61	79	0.0476	-26.448	0.14	2	1.9	0.3	10.1
61	80	0.044	-27.131	0.12	1.9	1.8	0.3	10.2
61	81	0.0395	-28.068	0.10	1.7	1.6	0.2	10.4
61	82	0.0365	-28.754	0.08	1.5	1.4	0.2	10.6
61	83	0.0325	-29.762	0.06	1.4	1.3	0.1	10.7
61	84	0.0301	-30.429	0.06	1.3	1.2	0.1	10.8
61	85	0.0271	-31.341	0.04	1.1	1	0	11
61	86	0.0247	-32.146	0.04	1	0.9	0	11.1
61	87	0.0217	-33.271	0.03	0.9	0.8	0	11.2
61	88	0.0195	-34.199	0.02	0.8	0.7	0	11.3
61	89	0.0181	-34.846	0.02	0.7	0.6	0	11.4
61	90	0.0179	-34.943	0.02	0.7	0.6	0	11.4
61	91	0.0176	-35.090	0.02	0.7	0.6	0	11.4
61	92	0.0183	-34.751	0.02	0.7	0.6	0	11.4
61	93	0.0211	-33.514	0.03	0.9	0.8	0	11.2
61	94	0.0249	-32.076	0.04	1	0.9	0	11.1
61	95	0.0295	-30.604	0.05	1.2	1.1	-0.1	10.9
61	96	0.0353	-29.045	0.08	1.5	1.4	-0.1	10.6
61	97	0.0408	-27.787	0.10	1.7	1.6	-0.2	10.4
61	98	0.0472	-26.521	0.14	2	1.9	-0.2	10.1
61	99	0.0549	-25.209	0.18	2.3	2.2	-0.3	9.8
61	100	0.0608	-24.322	0.23	2.6	2.5	-0.4	9.5

61	101	0.0678	-23.375	0.28	2.9	2.8	-0.5	9.2
61	102	0.0741	-22.604	0.33	3.2	3.1	-0.6	8.9
61	103	0.0819	-21.734	0.41	3.5	3.4	-0.7	8.6
61	104	0.0852	-21.391	0.44	3.7	3.5	-0.8	8.5
61	105	0.0919	-20.734	0.52	3.9	3.7	-1	8.3
61	106	0.0951	-20.436	0.55	4.1	3.9	-1.1	8.1
61	107	0.1026	-19.777	0.64	4.4	4.2	-1.2	7.8
61	108	0.1083	-19.307	0.72	4.7	4.4	-1.4	7.6
61	109	0.1162	-18.696	0.82	5	4.7	-1.6	7.3
61	110	0.1203	-18.395	0.88	5.2	4.8	-1.7	7.2
61	111	0.1272	-17.910	0.99	5.5	5.1	-1.9	6.9
61	112	0.1324	-17.562	1.07	5.7	5.2	-2.1	6.8
61	113	0.1353	-17.374	1.12	5.8	5.3	-2.2	6.7
61	114	0.1363	-17.310	1.13	5.9	5.3	-2.3	6.7
61	115	0.1371	-17.259	1.15	5.9	5.3	-2.4	6.7
61	116	0.1371	-17.259	1.15	5.9	5.3	-2.5	6.7
61	117	0.1334	-17.497	1.09	5.8	5.1	-2.6	6.9
61	118	0.1285	-17.822	1.01	5.5	4.8	-2.5	7.2
61	119	0.1224	-18.244	0.91	5.3	4.6	-2.5	7.4
61	120	0.1138	-18.877	0.79	4.9	4.2	-2.4	7.8
61	121	0.1029	-19.752	0.65	4.4	3.7	-2.2	8.3
61	122	0.0915	-20.772	0.51	3.9	3.3	-2	8.7
61	123	0.0791	-22.036	0.38	3.4	2.8	-1.8	9.2
61	124	0.0648	-23.768	0.26	2.8	2.3	-1.5	9.7
61	125	0.0482	-26.339	0.14	2	1.6	-1.1	10.4
61	126	0.0298	-30.516	0.05	1.2	0.9	-0.7	11.1
61	127	0.0097	-40.265	0.01	0.4	0.3	-0.2	11.7
61	128	0.0113	-38.938	0.01	0.4	0.3	-0.2	11.7
61	129	0.0336	-29.473	0.07	1.4	1	-0.8	11
61	130	0.0565	-24.959	0.19	2.4	1.8	-1.5	10.2
61	131	0.0802	-21.917	0.39	3.4	2.5	-2.2	9.5
61	132	0.1038	-19.676	0.66	4.5	3.3	-3	8.7
61	133	0.1273	-17.903	0.99	5.5	4	-3.7	8
61	134	0.1512	-16.409	1.39	6.5	4.6	-4.5	7.4
61	135	0.175	-15.139	1.87	7.6	5.3	-5.3	6.7

61	136	0.1962	-14.146	2.35	8.5	5.9	-6.1	6.1
61	137	0.2169	-13.275	2.87	9.4	6.4	-6.8	5.6
61	138	0.2326	-12.668	3.30	10.1	6.7	-7.4	5.3
61	139	0.2494	-12.062	3.79	10.8	7	-8.1	5
61	140	0.2632	-11.594	4.23	11.4	7.3	-8.7	4.7
61	141	0.2726	-11.289	4.53	11.8	7.4	-9.1	4.6
61	142	0.2776	-11.132	4.70	12	7.3	-9.4	4.7
61	143	0.2803	-11.048	4.79	12.1	7.2	-9.6	4.8
61	144	0.2797	-11.066	4.77	12.1	7.1	-9.7	4.9
61	145	0.2779	-11.122	4.71	12	6.8	-9.8	5.2
61	146	0.2681	-11.434	4.38	11.6	6.4	-9.6	5.6
61	147	0.2581	-11.764	4.06	11.2	6.1	-9.3	5.9
61	148	0.2423	-12.313	3.58	10.5	5.5	-8.8	6.5
61	149	0.225	-12.956	3.09	9.7	5	-8.3	7
61	150	0.1914	-14.361	2.23	8.3	4.1	-7.1	7.9
61	151	0.169	-15.442	1.74	7.3	3.5	-6.3	8.5
61	152	0.1445	-16.803	1.27	6.2	2.9	-5.4	9.1
61	153	0.1162	-18.696	0.82	5	2.2	-4.4	9.8
61	154	0.0849	-21.422	0.44	3.6	1.5	-3.2	10.5
61	155	0.053	-25.514	0.17	2.3	0.9	-2	11.1
61	156	0.0206	-33.723	0.03	0.8	0.3	-0.7	11.7
61	157	0.0126	-37.993	0.01	0.5	0.1	-0.4	11.9
61	158	0.0457	-26.802	0.13	1.9	0.7	-1.7	11.3
61	159	0.0791	-22.036	0.38	3.4	1.2	-3.1	10.8
61	160	0.1116	-19.047	0.76	4.8	1.6	-4.5	10.4
61	161	0.1438	-16.845	1.26	6.2	2	-5.8	10
61	162	0.1752	-15.129	1.87	7.6	2.3	-7.2	9.7
61	163	0.2063	-13.710	2.60	8.9	2.6	-8.5	9.4
61	164	0.2362	-12.534	3.40	10.2	2.8	-9.8	9.2
61	165	0.2623	-11.624	4.20	11.4	2.9	-11	9.1
61	166	0.2877	-10.821	5.05	12.5	3	-12.1	9
61	167	0.3134	-10.078	5.99	13.6	3	-13.2	9
61	168	0.3334	-9.541	6.78	14.4	3	-14	9
61	169	0.3408	-9.350	7.08	14.8	2.8	-14.5	9.2
61	170	0.353	-9.045	7.60	15.3	2.6	-15	9.4

61	171	0.3723	-8.582	8.46	16.1	2.5	-15.8	9.5
61	172	0.3847	-8.298	9.03	16.7	2.3	-16.5	9.7
61	173	0.3928	-8.117	9.41	17	2	-16.8	10
61	174	0.3967	-8.031	9.60	17.2	1.8	-17.1	10.2
61	175	0.401	-7.937	9.81	17.4	1.5	-17.3	10.5
61	176	0.4051	-7.849	10.01	17.6	1.2	-17.5	10.8
61	177	0.4056	-7.838	10.04	17.6	0.9	-17.5	11.1
61	178	0.4031	-7.892	9.91	17.5	0.6	-17.4	11.4
61	179	0.399	-7.981	9.71	17.3	0.3	-17.2	11.7
61	180	0.3951	-8.066	9.52	17.1	0	-17	12
61	181	0.3884	-8.214	9.20	16.8	-0.2	-16.7	12.2
61	182	0.3793	-8.420	8.78	16.4	-0.5	-16.3	12.5
61	183	0.369	-8.659	8.31	16	-0.8	-15.9	12.8
61	184	0.358	-8.922	7.82	15.5	-1	-15.4	13
61	185	0.3436	-9.279	7.20	14.9	-1.2	-14.8	13.2
61	186	0.3309	-9.606	6.68	14.3	-1.4	-14.2	13.4
61	187	0.3135	-10.075	6.00	13.6	-1.6	-13.5	13.6
61	188	0.2959	-10.577	5.34	12.8	-1.7	-12.6	13.7
61	189	0.2781	-11.116	4.72	12	-1.8	-11.8	13.8
61	190	0.2593	-11.724	4.10	11.2	-1.9	-11	13.9
61	191	0.2402	-12.389	3.52	10.4	-1.9	-10.2	13.9
61	192	0.2202	-13.144	2.96	9.5	-1.9	-9.2	13.9
61	193	0.2005	-13.958	2.45	8.7	-1.9	-8.4	13.9
61	194	0.18	-14.895	1.98	7.8	-1.8	-7.5	13.8
61	195	0.1595	-15.945	1.55	6.9	-1.7	-6.6	13.7
61	196	0.1381	-17.196	1.16	6	-1.6	-5.7	13.6
61	197	0.1171	-18.629	0.84	5	-1.4	-4.7	13.4
61	198	0.0966	-20.300	0.57	4.2	-1.2	-3.9	13.2
61	199	0.0773	-22.236	0.36	3.3	-1	-3.1	13
61	200	0.0582	-24.702	0.21	2.5	-0.8	-2.3	12.8
61	201	0.0398	-28.002	0.10	1.7	-0.6	-1.5	12.6
61	202	0.0224	-32.995	0.03	0.9	-0.3	-0.8	12.3
61	203	0.006	-44.437	0.00	0.2	0	-0.1	12
61	204	0.0095	-40.446	0.01	0.4	-0.1	-0.3	12.1
61	205	0.0238	-32.468	0.03	1	-0.4	-0.9	12.4

61	206	0.0366	-28.730	0.08	1.5	-0.6	-1.3	12.6
61	207	0.0482	-26.339	0.14	2	-0.9	-1.7	12.9
61	208	0.0584	-24.672	0.21	2.5	-1.1	-2.2	13.1
61	209	0.068	-23.350	0.28	2.9	-1.4	-2.5	13.4
61	210	0.0747	-22.534	0.34	3.2	-1.5	-2.7	13.5
61	211	0.081	-21.830	0.40	3.5	-1.7	-3	13.7
61	212	0.086	-21.310	0.45	3.7	-1.9	-3.1	13.9
61	213	0.0857	-21.340	0.45	3.7	-2	-3.1	14
61	214	0.0865	-21.260	0.46	3.7	-2	-3	14
61	215	0.0856	-21.351	0.45	3.7	-2.1	-3	14.1
61	216	0.0839	-21.525	0.43	3.6	-2.1	-2.9	14.1
61	217	0.0836	-21.556	0.43	3.6	-2.1	-2.8	14.1
61	218	0.0825	-21.671	0.42	3.5	-2.1	-2.7	14.1
61	219	0.0796	-21.982	0.39	3.4	-2.1	-2.6	14.1
61	220	0.0756	-22.430	0.35	3.2	-2	-2.4	14
61	221	0.0717	-22.890	0.31	3.1	-2	-2.3	14
61	222	0.0663	-23.570	0.27	2.8	-1.8	-2	13.8
61	223	0.0608	-24.322	0.23	2.6	-1.7	-1.9	13.7
61	224	0.0543	-25.304	0.18	2.3	-1.5	-1.6	13.5
61	225	0.0474	-26.484	0.14	2	-1.4	-1.4	13.4
61	226	0.0411	-27.723	0.10	1.7	-1.2	-1.1	13.2
61	227	0.0347	-29.193	0.07	1.5	-1	-1	13
61	228	0.0282	-30.995	0.05	1.2	-0.8	-0.8	12.8
61	229	0.0221	-33.112	0.03	0.9	-0.6	-0.5	12.6
61	230	0.0158	-36.027	0.02	0.6	-0.4	-0.3	12.4
61	231	0.0096	-40.355	0.01	0.4	-0.3	-0.2	12.3
61	232	0.0033	-49.630	0.00	0.1	0	0	12
61	233	0.003	-50.458	0.00	0.1	0	0	12
61	234	0.0092	-40.724	0.01	0.4	-0.3	-0.2	12.3
61	235	0.0154	-36.250	0.01	0.6	-0.4	-0.3	12.4
61	236	0.0215	-33.351	0.03	0.9	-0.7	-0.5	12.7
61	237	0.0273	-31.277	0.05	1.1	-0.9	-0.6	12.9
61	238	0.0326	-29.736	0.06	1.4	-1.1	-0.7	13.1
61	239	0.0378	-28.450	0.09	1.6	-1.3	-0.8	13.3
61	240	0.0428	-27.371	0.11	1.8	-1.5	-0.9	13.5

61	241	0.0474	-26.484	0.14	2	-1.7	-0.9	13.7
61	242	0.0524	-25.613	0.17	2.2	-1.9	-1	13.9
61	243	0.0555	-25.114	0.19	2.4	-2.1	-1	14.1
61	244	0.0593	-24.539	0.21	2.5	-2.2	-1.1	14.2
61	245	0.0639	-23.890	0.25	2.7	-2.4	-1.1	14.4
61	246	0.0673	-23.440	0.28	2.9	-2.6	-1.1	14.6
61	247	0.0715	-22.914	0.31	3.1	-2.8	-1.2	14.8
61	248	0.0748	-22.522	0.34	3.2	-2.9	-1.2	14.9
61	249	0.0773	-22.236	0.36	3.3	-3	-1.1	15
61	250	0.0802	-21.917	0.39	3.4	-3.1	-1.1	15.1
61	251	0.0827	-21.650	0.42	3.5	-3.3	-1.1	15.3
61	252	0.0839	-21.525	0.43	3.6	-3.4	-1.1	15.4
61	253	0.0851	-21.401	0.44	3.7	-3.5	-1	15.5
61	254	0.087	-21.210	0.46	3.7	-3.5	-1	15.5
61	255	0.0879	-21.120	0.47	3.8	-3.6	-0.9	15.6
61	256	0.0882	-21.091	0.47	3.8	-3.6	-0.9	15.6
61	257	0.0883	-21.081	0.48	3.8	-3.7	-0.8	15.7
61	258	0.0877	-21.140	0.47	3.8	-3.7	-0.7	15.7
61	259	0.0872	-21.190	0.46	3.7	-3.6	-0.7	15.6
61	260	0.0867	-21.240	0.46	3.7	-3.6	-0.6	15.6
61	261	0.0858	-21.330	0.45	3.7	-3.6	-0.5	15.6
61	262	0.0855	-21.361	0.45	3.7	-3.6	-0.5	15.6
61	263	0.0841	-21.504	0.43	3.6	-3.5	-0.4	15.5
61	264	0.0834	-21.577	0.42	3.6	-3.5	-0.3	15.5
61	265	0.0824	-21.681	0.41	3.5	-3.4	-0.3	15.4
61	266	0.0803	-21.906	0.39	3.4	-3.3	-0.2	15.3
61	267	0.0782	-22.136	0.37	3.4	-3.3	-0.1	15.3
61	268	0.0765	-22.327	0.36	3.3	-3.2	-0.1	15.2
61	269	0.0767	-22.304	0.36	3.3	-3.2	0	15.2
61	270	0.0725	-22.793	0.32	3.1	-3	0	15
61	271	0.0696	-23.148	0.30	3	-2.9	0	14.9
61	272	0.0668	-23.504	0.27	2.9	-2.8	0	14.8
61	273	0.0645	-23.809	0.25	2.8	-2.7	0.1	14.7
61	274	0.061	-24.293	0.23	2.6	-2.5	0.1	14.5
61	275	0.0572	-24.852	0.20	2.4	-2.3	0.2	14.3

61	276	0.0539	-25.368	0.18	2.3	-2.2	0.2	14.2
61	277	0.0513	-25.798	0.16	2.2	-2.1	0.2	14.1
61	278	0.0487	-26.249	0.14	2.1	-2	0.2	14
61	279	0.0455	-26.840	0.13	1.9	-1.8	0.2	13.8
61	280	0.0432	-27.290	0.11	1.8	-1.7	0.3	13.7
61	281	0.0411	-27.723	0.10	1.7	-1.6	0.3	13.6
61	282	0.0392	-28.134	0.09	1.7	-1.6	0.3	13.6
61	283	0.0373	-28.566	0.08	1.6	-1.5	0.3	13.5
61	284	0.0354	-29.020	0.08	1.5	-1.4	0.3	13.4
61	285	0.034	-29.370	0.07	1.4	-1.3	0.3	13.3
61	286	0.0326	-29.736	0.06	1.4	-1.3	0.3	13.3
61	287	0.0316	-30.006	0.06	1.3	-1.2	0.3	13.2
61	288	0.0302	-30.400	0.06	1.3	-1.2	0.3	13.2
61	289	0.0293	-30.663	0.05	1.2	-1.1	0.3	13.1
61	290	0.0282	-30.995	0.05	1.2	-1.1	0.4	13.1
61	291	0.0276	-31.182	0.05	1.2	-1.1	0.4	13.1
61	292	0.0266	-31.502	0.04	1.1	-1	0.4	13
61	293	0.0263	-31.601	0.04	1.1	-1	0.4	13
61	294	0.0255	-31.869	0.04	1.1	-1	0.4	13
61	295	0.0247	-32.146	0.04	1	-0.9	0.4	12.9
61	296	0.0243	-32.288	0.04	1	-0.8	0.4	12.8
61	297	0.0238	-32.468	0.03	1	-0.8	0.4	12.8
61	298	0.0226	-32.918	0.03	0.9	-0.7	0.4	12.7
61	299	0.0217	-33.271	0.03	0.9	-0.7	0.4	12.7
61	300	0.0208	-33.639	0.03	0.9	-0.7	0.4	12.7
61	301	0.0192	-34.334	0.02	0.8	-0.6	0.4	12.6
61	302	0.0175	-35.139	0.02	0.7	-0.5	0.3	12.5
61	303	0.0152	-36.363	0.01	0.6	-0.5	0.3	12.5
61	304	0.0125	-38.062	0.01	0.5	-0.4	0.2	12.4
61	305	0.0096	-40.355	0.01	0.4	-0.3	0.2	12.3
61	306	0.0061	-44.293	0.00	0.2	-0.1	0.1	12.1
61	307	0.0021	-53.556	0.00	0	0	0	12
61	308	0.0024	-52.396	0.00	0.1	0	0	12
61	309	0.0075	-42.499	0.00	0.3	-0.2	0.1	12.2
61	310	0.0131	-37.655	0.01	0.5	-0.3	0.3	12.3

61	311	0.0194	-34.244	0.02	0.8	-0.6	0.5	12.6
61	312	0.0259	-31.734	0.04	1.1	-0.8	0.7	12.8
61	313	0.0328	-29.683	0.07	1.4	-1	0.9	13
61	314	0.0402	-27.915	0.10	1.7	-1.2	1.1	13.2
61	315	0.0481	-26.357	0.14	2	-1.4	1.4	13.4
61	316	0.0558	-25.067	0.19	2.4	-1.6	1.7	13.6
61	317	0.0636	-23.931	0.25	2.7	-1.8	1.9	13.8
61	318	0.0712	-22.950	0.31	3	-2	2.2	14
61	319	0.0795	-21.993	0.39	3.4	-2.2	2.5	14.2
61	320	0.0859	-21.320	0.45	3.7	-2.3	2.8	14.3
61	321	0.0934	-20.593	0.53	4	-2.5	3.1	14.5
61	322	0.0998	-20.017	0.61	4.3	-2.6	3.3	14.6
61	323	0.1056	-19.527	0.68	4.5	-2.7	3.5	14.7
61	324	0.1092	-19.236	0.73	4.7	-2.7	3.7	14.7
61	325	0.1126	-18.969	0.77	4.8	-2.7	3.9	14.7
61	326	0.1141	-18.854	0.79	4.9	-2.7	4	14.7
61	327	0.1143	-18.839	0.80	4.9	-2.6	4.1	14.6
61	328	0.1129	-18.946	0.78	4.9	-2.6	4.1	14.6
61	329	0.1084	-19.299	0.72	4.7	-2.4	4	14.4
61	330	0.1027	-19.769	0.64	4.4	-2.2	3.8	14.2
61	331	0.0941	-20.528	0.54	4	-1.9	3.4	13.9
61	332	0.0836	-21.556	0.43	3.6	-1.6	3.1	13.6
61	333	0.0696	-23.148	0.30	3	-1.3	2.6	13.3
61	334	0.0538	-25.384	0.18	2.3	-1	2	13
61	335	0.0358	-28.922	0.08	1.5	-0.6	1.3	12.6
61	336	0.0145	-36.773	0.01	0.6	-0.2	0.5	12.2
61	337	0.0094	-40.537	0.01	0.4	-0.1	0.3	12.1
61	338	0.0355	-28.995	0.08	1.5	-0.5	1.3	12.5
61	339	0.0655	-23.675	0.26	2.8	-1	2.6	13
61	340	0.0975	-20.220	0.58	4.2	-1.4	3.9	13.4
61	341	0.1317	-17.608	1.06	5.7	-1.8	5.3	13.8
61	342	0.1657	-15.614	1.67	7.2	-2.2	6.8	14.2
61	343	0.2066	-13.697	2.60	8.9	-2.6	8.5	14.6
61	344	0.2485	-12.093	3.77	10.8	-3	10.3	15
61	345	0.2869	-10.845	5.02	12.4	-3.2	11.9	15.2

61	346	0.3239	-9.792	6.40	14	-3.4	13.5	15.4
61	347	0.3701	-8.634	8.36	16	-3.6	15.5	15.6
61	348	0.4111	-7.721	10.31	17.8	-3.7	17.3	15.7
61	349	0.4519	-6.899	12.46	19.6	-3.7	19.2	15.7
61	350	0.4905	-6.187	14.68	21.3	-3.7	20.9	15.7
61	351	0.5272	-5.560	16.95	22.9	-3.6	22.6	15.6
61	352	0.569	-4.898	19.75	24.7	-3.5	24.4	15.5
61	353	0.6187	-4.170	23.35	26.9	-3.3	26.6	15.3
61	354	0.6567	-3.653	26.31	28.5	-3	28.3	15
61	355	0.6853	-3.282	28.65	29.8	-2.6	29.6	14.6
61	356	0.7231	-2.816	31.90	31.4	-2.2	31.3	14.2
61	357	0.7545	-2.447	34.73	32.8	-1.8	32.7	13.8
61	358	0.7736	-2.230	36.51	33.6	-1.2	33.5	13.2
61	359	0.7584	-2.402	35.09	32.9	-0.6	32.8	12.6

CFM-95SL Antenna Computed composite

Depression Angle	Relative Field	1-bay Field	Array Factor	Relative Field
-90	0.0218	0.0259	0.6906	0.0179
-89	0.0221	0.0263	0.6901	0.0181
-88	0.0238	0.0284	0.6887	0.0195
-87	0.0265	0.0316	0.6865	0.0217
-86	0.0302	0.0362	0.6833	0.0247
-85	0.0331	0.04	0.6792	0.0271
-84	0.0367	0.0446	0.6741	0.0301
-83	0.0397	0.0487	0.6681	0.0325
-82	0.0444	0.0551	0.6612	0.0365
-81	0.0482	0.0605	0.6532	0.0395
-80	0.0536	0.0682	0.6443	0.044
-79	0.058	0.075	0.6344	0.0476
-78	0.0645	0.0848	0.6234	0.0529
-77	0.071	0.0953	0.6114	0.0583
-76	0.0786	0.1077	0.5983	0.0644
-75	0.0861	0.121	0.5841	0.0707

-74	0.0944	0.1362	0.5688	0.0775
-73	0.1022	0.1518	0.5524	0.0839
-72	0.1094	0.1678	0.5349	0.0898
-71	0.1142	0.1813	0.5163	0.0936
-70	0.1229	0.2031	0.4965	0.1008
-69	0.1267	0.2185	0.4755	0.1039
-68	0.1291	0.2336	0.4535	0.1059
-67	0.1309	0.2494	0.4303	0.1073
-66	0.1315	0.2656	0.406	0.1078
-65	0.1342	0.2891	0.3806	0.11
-64	0.1352	0.3131	0.3542	0.1109
-63	0.1324	0.3323	0.3268	0.1086
-62	0.1265	0.3477	0.2985	0.1038
-61	0.122	0.3715	0.2693	0.1
-60	0.114	0.3909	0.2392	0.0935
-59	0.105	0.4131	0.2085	0.0861
-58	0.0951	0.4405	0.1771	0.078
-57	0.0826	0.4662	0.1453	0.0677
-56	0.0669	0.4852	0.113	0.0548
-55	0.0498	0.5076	0.0805	0.0409
-54	0.0313	0.5362	0.0479	0.0257
-53	0.0104	0.5587	0.0153	0.0085
-52	0.0121	0.5801	0.017	0.0099
-51	0.0354	0.5926	0.049	0.029
-50	0.0599	0.6116	0.0803	0.0491
-49	0.0871	0.6444	0.1108	0.0714
-48	0.1153	0.6742	0.1403	0.0946
-47	0.1394	0.6779	0.1686	0.1143
-46	0.1678	0.7044	0.1954	0.1376
-45	0.1987	0.739	0.2205	0.1629
-44	0.2194	0.7386	0.2436	0.1799
-43	0.2498	0.774	0.2647	0.2048
-42	0.2775	0.8034	0.2833	0.2276
-41	0.2953	0.8092	0.2993	0.2422
-40	0.3195	0.8387	0.3124	0.2621

-39	0.3328	0.846	0.3226	0.2729
-38	0.338	0.8415	0.3295	0.2772
-37	0.3578	0.8813	0.3329	0.2934
-36	0.3687	0.9085	0.3328	0.3024
-35	0.3668	0.9143	0.329	0.3008
-34	0.356	0.9086	0.3213	0.292
-33	0.3452	0.9142	0.3097	0.2831
-32	0.3374	0.9409	0.2941	0.2767
-31	0.3222	0.9627	0.2745	0.2643
-30	0.2942	0.9618	0.2509	0.2413
-29	0.2647	0.9724	0.2233	0.2171
-28	0.2306	0.9861	0.1918	0.1891
-27	0.1889	0.9898	0.1565	0.1549
-26	0.1407	0.9815	0.1176	0.1154
-25	0.0908	0.9898	0.0753	0.0745
-24	0.0359	0.9901	0.0297	0.0294
-23	0.0223	0.9771	0.0187	0.0183
-22	0.0839	0.9852	0.0698	0.0688
-21	0.1478	0.9837	0.1232	0.1212
-20	0.2003	0.9203	0.1785	0.1643
-19	0.2763	0.9627	0.2353	0.2266
-18	0.3461	0.9679	0.2933	0.2838
-17	0.4061	0.9466	0.3518	0.333
-16	0.4754	0.9497	0.4105	0.3899
-15	0.5442	0.9519	0.4689	0.4463
-14	0.5897	0.9186	0.5265	0.4836
-13	0.672	0.9456	0.5828	0.5511
-12	0.737	0.9484	0.6373	0.6044
-11	0.7725	0.9188	0.6896	0.6335
-10	0.8165	0.9061	0.7391	0.6697
-9	0.8546	0.8924	0.7854	0.7008
-8	0.9036	0.8949	0.8281	0.7411
-7	0.9337	0.8835	0.8668	0.7658
-6	0.9614	0.875	0.9011	0.7885
-5	0.9584	0.8445	0.9307	0.786

-4	0.9806	0.8418	0.9553	0.8042
-3	0.999	0.8405	0.9747	0.8193
-2	1	0.8295	0.9887	0.8201
-1	0.989	0.8134	0.9972	0.8111
0	0.9579	0.7856	1	0.7856
1	0.9248	0.7606	0.9972	0.7584
2	0.9433	0.7824	0.9887	0.7736
3	0.92	0.7741	0.9747	0.7545
4	0.8817	0.7569	0.9553	0.7231
5	0.8356	0.7364	0.9307	0.6853
6	0.8008	0.7288	0.9011	0.6567
7	0.7544	0.7138	0.8668	0.6187
8	0.6938	0.6871	0.8281	0.569
9	0.6428	0.6712	0.7854	0.5272
10	0.5981	0.6636	0.7391	0.4905
11	0.5511	0.6554	0.6896	0.4519
12	0.5013	0.6451	0.6373	0.4111
13	0.4513	0.635	0.5828	0.3701
14	0.3949	0.6151	0.5265	0.3239
15	0.3498	0.6119	0.4689	0.2869
16	0.303	0.6054	0.4105	0.2485
17	0.2519	0.5873	0.3518	0.2066
18	0.202	0.5649	0.2933	0.1657
19	0.1606	0.5596	0.2353	0.1317
20	0.1188	0.5459	0.1785	0.0975
21	0.0799	0.5318	0.1232	0.0655
22	0.0433	0.5084	0.0698	0.0355
23	0.0115	0.5038	0.0187	0.0094
24	0.0177	0.489	0.0297	0.0145
25	0.0436	0.4755	0.0753	0.0358
26	0.0656	0.4576	0.1176	0.0538
27	0.0849	0.445	0.1565	0.0696
28	0.102	0.4362	0.1918	0.0836
29	0.1148	0.4216	0.2233	0.0941
30	0.1252	0.4093	0.2509	0.1027

31	0.1322	0.395	0.2745	0.1084
32	0.1376	0.3838	0.2941	0.1129
33	0.1394	0.3691	0.3097	0.1143
34	0.1392	0.3552	0.3213	0.1141
35	0.1373	0.3422	0.329	0.1126
36	0.1331	0.3281	0.3328	0.1092
37	0.1288	0.3172	0.3329	0.1056
38	0.1217	0.303	0.3295	0.0998
39	0.1139	0.2895	0.3226	0.0934
40	0.1047	0.2748	0.3124	0.0859
41	0.0969	0.2656	0.2993	0.0795
42	0.0868	0.2514	0.2833	0.0712
43	0.0776	0.2404	0.2647	0.0636
44	0.0681	0.2292	0.2436	0.0558
45	0.0587	0.2182	0.2205	0.0481
46	0.049	0.2059	0.1954	0.0402
47	0.04	0.1944	0.1686	0.0328
48	0.0316	0.1846	0.1403	0.0259
49	0.0236	0.175	0.1108	0.0194
50	0.016	0.1637	0.0803	0.0131
51	0.0091	0.153	0.049	0.0075
52	0.003	0.1438	0.017	0.0024
53	0.0025	0.1366	0.0153	0.0021
54	0.0074	0.1274	0.0479	0.0061
55	0.0117	0.1192	0.0805	0.0096
56	0.0152	0.1106	0.113	0.0125
57	0.0185	0.1043	0.1453	0.0152
58	0.0214	0.0989	0.1771	0.0175
59	0.0234	0.0922	0.2085	0.0192
60	0.0253	0.0868	0.2392	0.0208
61	0.0265	0.0808	0.2693	0.0217
62	0.0276	0.0758	0.2985	0.0226
63	0.029	0.0728	0.3268	0.0238
64	0.0296	0.0685	0.3542	0.0243
65	0.0301	0.0649	0.3806	0.0247

66	0.0311	0.0628	0.406	0.0255
67	0.0321	0.0612	0.4303	0.0263
68	0.0325	0.0588	0.4535	0.0266
69	0.0337	0.058	0.4755	0.0276
70	0.0344	0.0569	0.4965	0.0282
71	0.0357	0.0567	0.5163	0.0293
72	0.0369	0.0565	0.5349	0.0302
73	0.0385	0.0571	0.5524	0.0316
74	0.0397	0.0573	0.5688	0.0326
75	0.0414	0.0582	0.5841	0.034
76	0.0432	0.0592	0.5983	0.0354
77	0.0454	0.061	0.6114	0.0373
78	0.0479	0.063	0.6234	0.0392
79	0.0501	0.0648	0.6344	0.0411
80	0.0527	0.067	0.6443	0.0432
81	0.0555	0.0697	0.6532	0.0455
82	0.0594	0.0737	0.6612	0.0487
83	0.0625	0.0767	0.6681	0.0513
84	0.0658	0.08	0.6741	0.0539
85	0.0697	0.0842	0.6792	0.0572
86	0.0743	0.0892	0.6833	0.061
87	0.0786	0.0939	0.6865	0.0645
88	0.0815	0.097	0.6887	0.0668
89	0.0849	0.1009	0.6901	0.0696
90	0.0885	0.1051	0.6906	0.0725

Environmental Compliance

A three bay ring-stub (a “worst case” downwards radiation emitter) was used to gauge the maximum RF for the proposal in OET program FM Model for Windows demonstrating a peak exposure of 35.6 $\mu\text{W}/\text{cm}^2$ 2.2 from the antenna for a person 1.7 meters standing under the antenna. This is 17.8% of the FCC Maximum Permissible Exposure (MPR) for 200 $\mu\text{W}/\text{cm}^2$ for Unrestricted Areas so the proposal passes compliance. The antenna is on private property. A RF warning sign shall be posted. In the case any work is done to the station shall be temporarily de-powered.

