TECHNICAL ATTACHMENT
NEW LFPM FOR EUGENE, ORE

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PARAMETERS

Channel	243
New Location:	44° 03' 55.5" N 123° 02' 48.6" W -- NAD 83
Antenna AGL	15
Tower Total	35.7
Antenna Ground	132.6
Antenna COR	147.6
HAAT	-38.3
Power	50

CHANNEL SPACING

REFERENCE DISPLAY DATES
44 03 55.50 N. CLASS = L1 DATA 10-16-23
123 02 48.60 W. Current Spacings to 2nd Adj. SEARCH 11-10-23
---------- Channel 243 - 96.5 MHz ----------

Call	Channel	Location		Azi	Dist	FCC	Margin
*KZEL-FM	RSV-A 241C	Eugene	OR	174.9	17.88	92.5	-74.6
*KZEL-FM	LIC 241C0	Eugene	OR	216.7	8.94	83.5	-74.6
*K245AA	CP -D 245D	Eugene	OR	217.4	8.78	20.5	-11.7
*K245AA	LIC-D 245D	Eugene	OR	217.9	8.81	20.5	-11.7
KCRF-FM	LIC 244C1	Lincoln City	OR	314.3	110.80	99.5	11.3
K244DL	LIC 244D	Cottage Grove	OR	179.5	32.04	20.5	11.5
K243CW	CP 243D	Corvallis	OR	346.4	60.42	25.5	34.9
K243CW	LIC 243D	Corvallis	OR	346.4	60.42	25.5	34.9
K245DI	LIC-D 245D	Albany	OR	2.1	65.49	20.5	45.0
KPIK-LP	CP 243L1	Stayton	OR	17.0	80.64	23.5	57.1
KPIK-LP	LIC 243L1	Stayton	OR	17.0	80.65	23.5	57.2
K244FG	LIC-D 244D	Salem	OR	356.1	87.80	27.5	60.3

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*Second Adj Waiver

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.

The second adjacent channels are (with signal strength at the proposed site):

KZEL-FM	241C0	102.3 dBu
K245AA-C	245D	75 dBu
K245AA	245D	72.3 dBu

Using U/D methodology, interference will occur when the smaller of three station's (K245AA) signal strength's interfering signal exceeds the desired signal by 40 dBu. So the area of predicted interference would then be bounded by the 112.3 dBu contour.

The distance to this contour, using free space method:
$D = (7.01*P^{1/2})/E$,
where P is power (watts), E is field strength (v/m), and D is distance to contour (meters):
P = 50 w, E = 112.3 dBu D = 120 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 Scala for Model FMVMP antenna setup (4 bay 0.75 wave spaced) the distance to the 112.3 dBu contour at various depression angles is tabulated below. The data shows that the lowest point at which the signal strength rises to 112.3 dBu is 12.5 meters below the center of radiation of the antenna system, or 2.5 meters above the ground. Therefore, this is sufficient clearance of the nearby one-story office park structures, and the interference area encompasses zero population. The table below shows that the lowest elevation point of the 112.3 F(50,10) interfering contour is 2.5 meters above 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 a second adjacent waiver based upon evidence no interference is proposed.

MAX ERP	DEPRESSION ANGLE	RELATIVE FIELD	dB FROM RELATIVE	ERP	ANGULAR DISTANCE TO 112.3 dBu CONTOUR	VERTICAL DISTANCE (below antenna)	HORIZONTAL DISTANCE TO 112,3	CLEARANCE OF CONTOUR ABOVE GROUND

							dBu CONTOUR	
50	-90	0.016	-35.918	0.01	1.9	1.8	0	13.2
50	-89	0.01	-40.000	0.01	1.2	1.1	0	13.9
50	-88	0.01	-40.000	0.01	1.2	1.1	0	13.9
50	-87	0.01	-40.000	0.01	1.2	1.1	0	13.9
50	-86	0.01	-40.000	0.01	1.2	1.1	0	13.9
50	-85	0.012	-38.416	0.01	1.4	1.3	0.1	13.7
50	-84	0.017	-35.391	0.01	2	1.9	0.2	13.1
50	-83	0.023	-32.765	0.03	2.7	2.6	0.3	12.4
50	-82	0.028	-31.057	0.04	3.3	3.2	0.4	11.8
50	-81	0.033	-29.630	0.05	3.9	3.8	0.6	11.2
50	-80	0.037	-28.636	0.07	4.4	4.3	0.7	10.7
50	-79	0.042	-27.535	0.09	5	4.9	0.9	10.1
50	-78	0.046	-26.745	0.11	5.5	5.3	1.1	9.7
50	-77	0.05	-26.021	0.13	6	5.8	1.3	9.2
50	-76	0.053	-25.514	0.14	6.3	6.1	1.5	8.9
50	-75	0.056	-25.036	0.16	6.7	6.4	1.7	8.6
50	-74	0.058	-24.731	0.17	6.9	6.6	1.9	8.4
50	-73	0.06	-24.437	0.18	7.2	6.8	2.1	8.2
50	-72	0.061	-24.293	0.19	7.3	6.9	2.2	8.1
50	-71	0.061	-24.293	0.19	7.3	6.9	2.3	8.1
50	-70	0.061	-24.293	0.19	7.3	6.8	2.5	8.2
50	-69	0.06	-24.437	0.18	7.2	6.7	2.5	8.3
50	-68	0.057	-24.883	0.16	6.8	6.3	2.5	8.7
50	-67	0.054	-25.352	0.15	6.4	5.8	2.5	9.2
50	-66	0.05	-26.021	0.13	6	5.4	2.4	9.6
50	-65	0.045	-26.936	0.10	5.4	4.8	2.2	10.2
50	-64	0.039	-28.179	0.08	4.6	4.1	2	10.9
50	-63	0.032	-29.897	0.05	3.8	3.3	1.7	11.7
50	-62	0.024	-32.396	0.03	2.8	2.4	1.3	12.6
50	-61	0.015	-36.478	0.01	1.8	1.5	0.8	13.5
50	-60	0.01	-40.000	0.01	1.2	1	0.6	14
50	-59	0.01	-40.000	0.01	1.2	1	0.6	14
50	-58	0.018	-34.895	0.02	2.1	1.7	1.1	13.3

50	-57	0.03	-30.458	0.05	3.6	3	1.9	12
50	-56	0.043	-27.331	0.09	5.1	4.2	2.8	10.8
50	-55	0.056	-25.036	0.16	6.7	5.4	3.8	9.6
50	-54	0.069	-23.223	0.24	8.2	6.6	4.8	8.4
50	-53	0.082	-21.724	0.34	9.8	7.8	5.9	7.2
50	-52	0.095	-20.446	0.45	11.4	8.9	7	6.1
50	-51	0.107	-19.412	0.57	12.8	9.9	8	5.1
50	-50	0.118	-18.562	0.70	14.1	10.7	9	4.3
50	-49	0.128	-17.856	0.82	15.3	11.5	10	3.5
50	-48	0.136	-17.329	0.92	16.3	12.1	10.9	2.9
50	-47	0.142	-16.954	1.01	17	12.4	11.5	2.6
50	-46	0.146	-16.713	1.07	17.5	12.5	12.1	2.5
50	-45	0.148	-16.595	1.10	17.8	12.5	12.5	2.5
50	-44	0.147	-16.654	1.08	17.6	12.2	12.6	2.8
50	-43	0.143	-16.893	1.02	17.2	11.7	12.5	3.3
50	-42	0.135	-17.393	0.91	16.2	10.8	12	4.2
50	-41	0.125	-18.062	0.78	15	9.8	11.3	5.2
50	-40	0.111	-19.094	0.62	13.3	8.5	10.1	6.5
50	-39	0.094	-20.537	0.44	11.3	7.1	8.7	7.9
50	-38	0.074	-22.615	0.27	8.9	5.4	7	9.6
50	-37	0.051	-25.849	0.13	6.1	3.6	4.8	11.4
50	-36	0.025	-32.041	0.03	3	1.7	2.4	13.3
50	-35	0.01	-40.000	0.01	1.2	0.6	0.9	14.4
50	-34	0.031	-30.173	0.05	3.7	2	3	13
50	-33	0.061	-24.293	0.19	7.3	3.9	6.1	11.1
50	-32	0.092	-20.724	0.42	11	5.8	9.3	9.2
50	-31	0.121	-18.344	0.73	14.5	7.4	12.4	7.6
50	-30	0.149	-16.536	1.11	17.9	8.9	15.5	6.1
50	-29	0.175	-15.139	1.53	21	10.1	18.3	4.9
50	-28	0.198	-14.067	1.96	23.8	11.1	21	3.9
50	-27	0.216	-13.311	2.33	25.9	11.7	23	3.3
50	-26	0.229	-12.803	2.62	27.5	12	24.7	3
50	-25	0.236	-12.542	2.78	28.3	11.9	25.6	3.1
50	-24	0.236	-12.542	2.78	28.3	11.5	25.8	3.5
50	-23	0.229	-12.803	2.62	27.5	10.7	25.3	4.3

50	-22	0.215	-13.351	2.31	25.8	9.6	23.9	5.4
50	-21	0.192	-14.334	1.84	23	8.2	21.4	6.8
50	-20	0.161	-15.863	1.30	19.3	6.5	18.1	8.5
50	-19	0.121	-18.344	0.73	14.5	4.7	13.7	10.3
50	-18	0.073	-22.734	0.27	8.7	2.6	8.2	12.4
50	-17	0.018	-34.895	0.02	2.1	0.6	2	14.4
50	-16	0.044	-27.131	0.10	5.2	1.4	4.9	13.6
50	-15	0.113	-18.938	0.64	13.5	3.4	13	11.6
50	-14	0.187	-14.563	1.75	22.4	5.4	21.7	9.6
50	-13	0.264	-11.568	3.48	31.7	7.1	30.8	7.9
50	-12	0.345	-9.244	5.95	41.4	8.6	40.4	6.4
50	-11	0.427	-7.391	9.12	51.3	9.7	50.3	5.3
50	-10	0.509	-5.866	12.95	61.2	10.6	60.2	4.4
50	-9	0.588	-4.612	17.29	70.7	11	69.8	4
50	-8	0.665	-3.544	22.11	79.9	11.1	79.1	3.9
50	-7	0.736	-2.662	27.08	88.5	10.7	87.8	4.3
50	-6	0.801	-1.927	32.08	96.3	10	95.7	5
50	-5	0.859	-1.320	36.89	103.3	8.9	102.9	6.1
50	-4	0.908	-0.838	41.22	109.2	7.6	108.9	7.4
50	-3	0.947	-0.473	44.84	113.9	5.9	113.7	9.1
50	-2	0.976	-0.211	47.63	117.3	4	117.2	11
50	-1	0.994	-0.052	49.40	119.5	2	119.4	13
50	0	1	0.000	50.00	120.2	0	120.2	15
50	1	0.994	-0.052	49.40	119.5	2	119.4	13
50	2	0.976	-0.211	47.63	117.3	4	117.2	11
50	3	0.947	-0.473	44.84	113.9	5.9	113.7	9.1
50	4	0.908	-0.838	41.22	109.2	7.6	108.9	7.4
50	5	0.859	-1.320	36.89	103.3	8.9	102.9	6.1
50	6	0.802	-1.917	32.16	96.4	10	95.8	5
50	7	0.736	-2.662	27.08	88.5	10.7	87.8	4.3
50	8	0.665	-3.544	22.11	79.9	11.1	79.1	3.9
50	9	0.588	-4.612	17.29	70.7	11	69.8	4
50	10	0.509	-5.866	12.95	61.2	10.6	60.2	4.4
50	11	0.427	-7.391	9.12	51.3	9.7	50.3	5.3
50	12	0.345	-9.244	5.95	41.4	8.6	40.4	6.4

50	13	0.264	-11.568	3.48	31.7	7.1	30.8	7.9
50	14	0.187	-14.563	1.75	22.4	5.4	21.7	9.6
50	15	0.113	-18.938	0.64	13.5	3.4	13	11.6
50	16	0.044	-27.131	0.10	5.2	1.4	4.9	13.6
50	17	0.018	-34.895	0.02	2.1	0.6	2	14.4
50	18	0.073	-22.734	0.27	8.7	2.6	8.2	12.4
50	19	0.121	-18.344	0.73	14.5	4.7	13.7	10.3
50	20	0.161	-15.863	1.30	19.3	6.5	18.1	8.5
50	21	0.192	-14.334	1.84	23	8.2	21.4	6.8
50	22	0.215	-13.351	2.31	25.8	9.6	23.9	5.4
50	23	0.229	-12.803	2.62	27.5	10.7	25.3	4.3
50	24	0.236	-12.542	2.78	28.3	11.5	25.8	3.5
50	25	0.236	-12.542	2.78	28.3	11.9	25.6	3.1
50	26	0.229	-12.803	2.62	27.5	12	24.7	3
50	27	0.216	-13.311	2.33	25.9	11.7	23	3.3
50	28	0.198	-14.067	1.96	23.8	11.1	21	3.9
50	29	0.175	-15.139	1.53	21	10.1	18.3	4.9
50	30	0.149	-16.536	1.11	17.9	8.9	15.5	6.1
50	31	0.121	-18.344	0.73	14.5	7.4	12.4	7.6
50	32	0.092	-20.724	0.42	11	5.8	9.3	9.2
50	33	0.061	-24.293	0.19	7.3	3.9	6.1	11.1
50	34	0.031	-30.173	0.05	3.7	2	3	13
50	35	0.01	-40.000	0.01	1.2	0.6	0.9	14.4
50	36	0.025	-32.041	0.03	3	1.7	2.4	13.3
50	37	0.051	-25.849	0.13	6.1	3.6	4.8	11.4
50	38	0.074	-22.615	0.27	8.9	5.4	7	9.6
50	39	0.094	-20.537	0.44	11.3	7.1	8.7	7.9
50	40	0.111	-19.094	0.62	13.3	8.5	10.1	6.5
50	41	0.125	-18.062	0.78	15	9.8	11.3	5.2
50	42	0.135	-17.393	0.91	16.2	10.8	12	4.2
50	43	0.143	-16.893	1.02	17.2	11.7	12.5	3.3
50	44	0.147	-16.654	1.08	17.6	12.2	12.6	2.8
50	45	0.148	-16.595	1.10	17.8	12.5	12.5	2.5
50	46	0.146	-16.713	1.07	17.5	12.5	12.1	2.5
50	47	0.142	-16.954	1.01	17	12.4	11.5	2.6

50	48	0.136	-17.329	0.92	16.3	12.1	10.9	2.9
50	49	0.128	-17.856	0.82	15.3	11.5	10	3.5
50	50	0.118	-18.562	0.70	14.1	10.7	9	4.3
50	51	0.107	-19.412	0.57	12.8	9.9	8	5.1
50	52	0.095	-20.446	0.45	11.4	8.9	7	6.1
50	53	0.082	-21.724	0.34	9.8	7.8	5.9	7.2
50	54	0.069	-23.223	0.24	8.2	6.6	4.8	8.4
50	55	0.056	-25.036	0.16	6.7	5.4	3.8	9.6
50	56	0.043	-27.331	0.09	5.1	4.2	2.8	10.8
50	57	0.03	-30.458	0.05	3.6	3	1.9	12
50	58	0.018	-34.895	0.02	2.1	1.7	1.1	13.3
50	59	0.01	-40.000	0.01	1.2	1	0.6	14
50	60	0.01	-40.000	0.01	1.2	1	0.6	14
50	61	0.015	-36.478	0.01	1.8	1.5	0.8	13.5
50	62	0.024	-32.396	0.03	2.8	2.4	1.3	12.6
50	63	0.032	-29.897	0.05	3.8	3.3	1.7	11.7
50	64	0.039	-28.179	0.08	4.6	4.1	2	10.9
50	65	0.045	-26.936	0.10	5.4	4.8	2.2	10.2
50	66	0.05	-26.021	0.13	6	5.4	2.4	9.6
50	67	0.054	-25.352	0.15	6.4	5.8	2.5	9.2
50	68	0.057	-24.883	0.16	6.8	6.3	2.5	8.7
50	69	0.06	-24.437	0.18	7.2	6.7	2.5	8.3
50	70	0.061	-24.293	0.19	7.3	6.8	2.5	8.2
50	71	0.061	-24.293	0.19	7.3	6.9	2.3	8.1
50	72	0.061	-24.293	0.19	7.3	6.9	2.2	8.1
50	73	0.06	-24.437	0.18	7.2	6.8	2.1	8.2
50	74	0.058	-24.731	0.17	6.9	6.6	1.9	8.4
50	75	0.056	-25.036	0.16	6.7	6.4	1.7	8.6
50	76	0.053	-25.514	0.14	6.3	6.1	1.5	8.9
50	77	0.05	-26.021	0.13	6	5.8	1.3	9.2
50	78	0.046	-26.745	0.11	5.5	5.3	1.1	9.7
50	79	0.042	-27.535	0.09	5	4.9	0.9	10.1
50	80	0.037	-28.636	0.07	4.4	4.3	0.7	10.7
50	81	0.033	-29.630	0.05	3.9	3.8	0.6	11.2
50	82	0.028	-31.057	0.04	3.3	3.2	0.4	11.8

50	83	0.023	-32.765	0.03	2.7	2.6	0.3	12.4
50	84	0.017	-35.391	0.01	2	1.9	0.2	13.1
50	85	0.012	-38.416	0.01	1.4	1.3	0.1	13.7
50	86	0.01	-40.000	0.01	1.2	1.1	0	13.9
50	87	0.01	-40.000	0.01	1.2	1.1	0	13.9
50	88	0.01	-40.000	0.01	1.2	1.1	0	13.9
50	89	0.01	-40.000	0.01	1.2	1.1	0	13.9
50	90	0.016	-35.918	0.01	1.9	1.8	0	13.2