CASCADE COMMUNITY RADIO
KDOO-LP 101.5 FM PORTLAND, OREGON
FAC ID NO. 196380

MINOR CHANGE OF LICENSED FACILITY

Channel	268L1
New Location:	45° 31' 04.9" N 122° 29' 54.1" W-- NAD 83
	45° 31' 05.5" N 122° 29' 49.8" W -- NAD 27
Antenna AGL	10.6 m
Tower Total	10.7 m
Antenna Ground	76 m
Antenna COR	86.6 m
HAAT	-5 m
Power	50 w

Cascade Community Radio

REFERENCE DISPLAY DATES
45 31 05.5 N. CLASS = L1 DATA 06-30-19
122 29 49.8 W. Current Spacings to 2nd Adj. SEARCH 07-16-19

---------- Channel 268 - 101.5 MHz ----------

Call	Channel	Location		Azi	Dist	FCC	Margin
*KINK	LIC-N 270C	Portland	OR	269.4	18.42	92.5	-74.1
*KXL-FM	LIC 266C	Portland	OR	269.4	18.43	92.5	-74.1
KDOO-LP	LIC 268L1	Portland	OR	295.5	5.79	23.5	-17.7
**1792539	APP-D 268D	Portland	OR	271.5	19.43	25.5	-6.1
**1762816	APP-D 268D	Portland	OR	271.5	19.43	25.5	-6.1
KXYQ-LP	LIC 268L1	Portland	OR	257.1	29.80	23.5	6.3
KDOA	LIC-N 268C3	The Dalles	OR	78.2	109.89	77.5	32.4
KFLY	LIC 268C0	Corvallis	OR	211.4	159.23	121.5	37.7
K268BN	LIC-D 268D	Eufaula/longview	WA	339.1	76.94	38.5	38.4

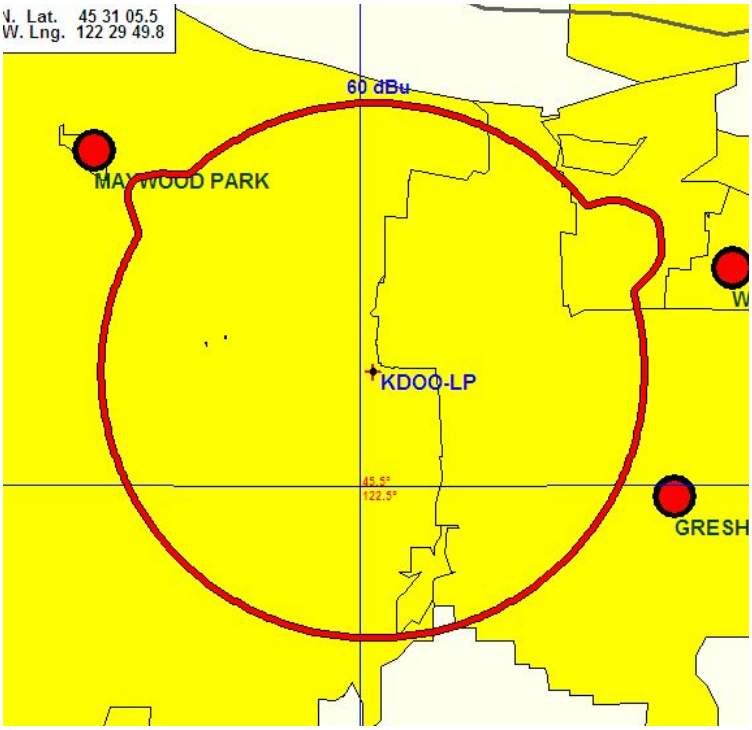
Reference station has protected zone issue: Canada
All separation margins include rounding
** Applications 1792539, 1762816, grandfathered short spacing KDOO-LP Licensed has not been exceeded
* See second adjacent waiver

Minor Change Move

Facility proposes 5.8 km move from licensed facility, which is considered a minor change. Minor change moves of 5.6 km prescribed in Section 73.870(a) round to 6.0 km, for which covers moves up to 6.499 km considering rounding.[1] Similar LPFM moves have been approved without waiver (e.g., BMPL-20150205ABP, The Rock FM Communications, Inc, LPFM, St. Cloud, MN, BMPL-20170602AAA, KOUV-LP, Recording NW, LPFM for Vancouver, WA).

[1] Rounding is used FM station distance calculation from § 73.208(c)(8). See Calvary Chapel of Costa Mesa, Inc., 27 FCC 557 (2012), where “The issue is whether a licensee filing a corrective modification of license application under Section 73.1690 may use the rounding methodology of Section 73.208”, reflecting on In Leonard S. Joyce, Esq. (13 FCC Rcd at 19605) for decision, where "The staff found that rigid application of the spacing requirements in such circumstances might have a deterrent effect."

60 dBu FCC Contour

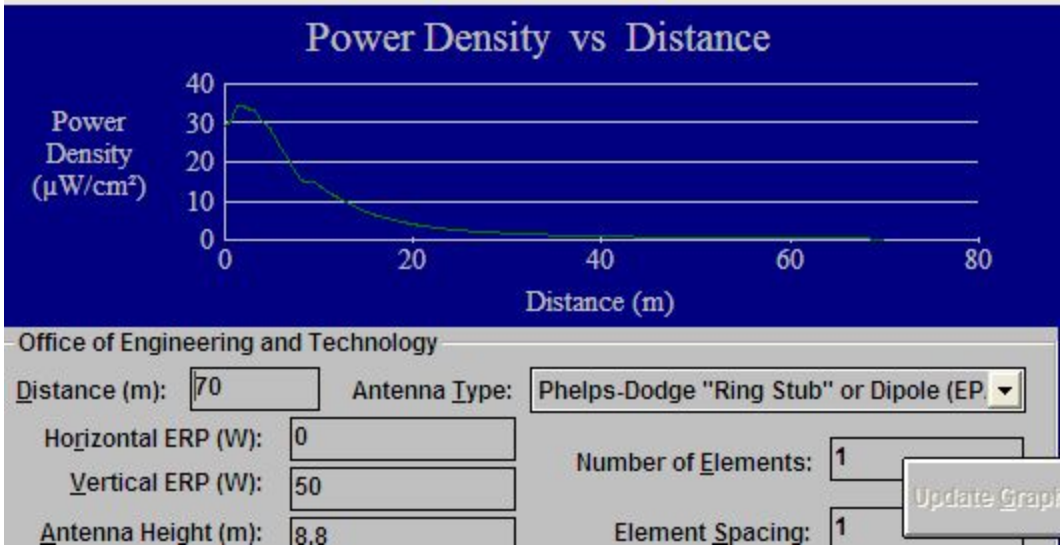


TOWAIR (PASS)

DETERMINATION Results	
Structure does not require registration. The structure meets the 6.10-meter (20-foot) Rule criteria.	
Your Specifications	
NAD83 Coordinates	
Latitude	45-31-04.9 north
Longitude	122-29-54.1 west
Measurements (Meters)	
Overall Structure Height (AGL)	10.7
Support Structure Height (AGL)	7
Site Elevation (AMSL)	76
Structure Type	
B - Building	

Environmental Compliance

A one bay dipole was used to gauge the maximum RF for the proposal in OET program FM Model for Windows demonstrating a peak exposure of 34.4 μW/cm^2 1.5 from the antenna for a person 1.8 meters standing under the antenna. This is 17.2% of the FCC Maximum Permissible Exposure (MPR) for 200 μW/cm^2 for Unrestricted Areas so the proposal passes compliance.



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 used Free Space methodology of calculation.

Using U/D methodology, at the proposed KDOO-LP transmitter location KXL and KINK both have a signal strength of 94.3 dBu. Interference will occur when the KXL/KINK's signal strength's interfering signal exceeds the desired signal by 40 dbu. So the area of predicted interference would then be bounded by the 134.3 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 = 134.3 dBu D = 10.7 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 a vertical dipole antenna setup (Model FMV - https://www.kathreinusa.com/patterns/product-number-fmvmp/),

the distance to the 134.3 dBu contour at various depression angles is tabulated below. The data shows that the lowest point at which the signal strength rises to 134.3 dBu is 3.9 meters below the center of radiation of the antenna system, or 6.7 meters above the ground. The antenna is mounted upon a single story building with a vaulted ceiling. Therefore, this is sufficient clearance, and the interference area encompasses zero population. The table below show that the lowest elevation point of the 134.3 F(50,10) interfering contour is 6.7 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 second adjacent waiver based upon evidence no interference is proposed.

MAX ERP	DEPRESSION ANGLE	RELATIVE FIELD	dB FROM RELATIVE	ERP	ANGULAR DISTANCE TO 134.3 dBu CONTOUR	VERTICAL DISTANCE (below antenna)	HORIZONTOL DISTANCE TO 134.3 dBu CONTOUR	CLEARENCE OF CONTOUR ABOVE GROUND
50	-90	0.025	-31.890	0.03	0.2	0.1	0	10.5
50	-89	0.017	-35.560	0.01	0.1	0	0	10.6
50	-88	0.01	-40.000	0.01	0	0	0	10.6
50	-87	0.01	-40.000	0.01	0	0	0	10.6
50	-86	0.01	-39.940	0.01	0	0	0	10.6
50	-85	0.019	-34.300	0.02	0.1	0	0	10.6
50	-84	0.028	-30.910	0.04	0.2	0.1	0	10.5
50	-83	0.038	-28.420	0.07	0.3	0.2	0	10.4
50	-82	0.047	-26.480	0.11	0.4	0.3	0	10.3
50	-81	0.057	-24.860	0.16	0.5	0.4	0	10.2
50	-80	0.067	-23.490	0.22	0.6	0.5	0.1	10.1
50	-79	0.077	-22.270	0.30	0.7	0.6	0.1	10
50	-78	0.087	-21.200	0.38	0.8	0.7	0.1	9.9
50	-77	0.098	-20.210	0.48	0.9	0.8	0.2	9.8
50	-76	0.108	-19.330	0.58	1	0.9	0.2	9.7
50	-75	0.119	-18.490	0.71	1.1	1	0.2	9.6
50	-74	0.13	-17.730	0.84	1.2	1.1	0.3	9.5

50	-73	0.141	-17.010	1.00	1.3	1.2	0.3	9.4
50	-72	0.152	-16.340	1.16	1.4	1.3	0.4	9.3
50	-71	0.164	-15.690	1.35	1.5	1.4	0.4	9.2
50	-70	0.176	-15.08	1.55	1.6	1.5	0.5	9.1
50	-69	0.188	-14.5	1.77	1.7	1.5	0.6	9.1
50	-68	0.201	-13.95	2.01	1.9	1.7	0.7	8.9
50	-67	0.214	-13.41	2.28	2	1.8	0.7	8.8
50	-66	0.226	-12.9	2.56	2.1	1.9	0.8	8.7
50	-65	0.24	-12.4	2.88	2.2	1.9	0.9	8.7
50	-64	0.254	-11.92	3.21	2.4	2.1	1	8.5
50	-63	0.268	-11.45	3.58	2.5	2.2	1.1	8.4
50	-62	0.282	-11.01	3.96	2.6	2.2	1.2	8.4
50	-61	0.296	-10.57	4.39	2.8	2.4	1.3	8.2
50	-60	0.31	-10.16	4.82	2.9	2.5	1.4	8.1
50	-59	0.326	-9.75	5.30	3.1	2.6	1.5	8
50	-58	0.341	-9.35	5.81	3.2	2.7	1.6	7.9
50	-57	0.356	-8.96	6.35	3.4	2.8	1.8	7.8
50	-56	0.372	-8.59	6.92	3.5	2.9	1.9	7.7
50	-55	0.388	-8.22	7.53	3.7	3	2.1	7.6
50	-54	0.404	-7.87	8.17	3.8	3	2.2	7.6
50	-53	0.421	-7.52	8.85	4	3.1	2.4	7.5
50	-52	0.438	-7.18	9.57	4.1	3.2	2.5	7.4
50	-51	0.455	-6.85	10.33	4.3	3.3	2.7	7.3
50	-50	0.472	-6.53	11.12	4.5	3.4	2.8	7.2
50	-49	0.489	-6.22	11.94	4.6	3.4	3	7.2
50	-48	0.506	-5.92	12.79	4.8	3.5	3.2	7.1
50	-47	0.523	-5.63	13.68	4.9	3.5	3.3	7.1
50	-46	0.541	-5.34	14.62	5.1	3.6	3.5	7
50	-45	0.558	-5.07	15.56	5.3	3.7	3.7	6.9
50	-44	0.575	-4.8	16.56	5.4	3.7	3.8	6.9
50	-43	0.593	-4.54	17.58	5.6	3.8	4	6.8
50	-42	0.61	-4.29	18.62	5.8	3.8	4.3	6.8
50	-41	0.628	-4.05	19.68	5.9	3.8	4.4	6.8
50	-40	0.645	-3.81	20.80	6.1	3.9	4.6	6.7

50	-39	0.662	-3.59	21.88	6.3	3.9	4.8	6.7
50	-38	0.678	-3.37	23.01	6.4	3.9	5	6.7
50	-37	0.695	-3.16	24.15	6.6	3.9	5.2	6.7
50	-36	0.711	-2.96	25.29	6.7	3.9	5.4	6.7
50	-35	0.727	-2.77	26.42	6.9	3.9	5.6	6.7
50	-34	0.743	-2.58	27.60	7	3.9	5.8	6.7
50	-33	0.758	-2.4	28.77	7.2	3.9	6	6.7
50	-32	0.774	-2.23	29.92	7.3	3.8	6.1	6.8
50	-31	0.788	-2.07	31.04	7.5	3.8	6.4	6.8
50	-30	0.803	-1.91	32.21	7.6	3.7	6.5	6.9
50	-29	0.816	-1.76	33.34	7.8	3.7	6.8	6.9
50	-28	0.83	-1.62	34.43	7.9	3.7	6.9	6.9
50	-27	0.842	-1.49	35.48	8	3.6	7.1	7
50	-26	0.855	-1.36	36.56	8.1	3.5	7.2	7.1
50	-25	0.867	-1.24	37.58	8.2	3.4	7.4	7.2
50	-24	0.878	-1.13	38.55	8.3	3.3	7.5	7.3
50	-23	0.889	-1.02	39.53	8.4	3.2	7.7	7.4
50	-22	0.899	-0.92	40.45	8.5	3.1	7.8	7.5
50	-21	0.909	-0.83	41.30	8.6	3	8	7.6
50	-20	0.918	-0.74	42.17	8.7	2.9	8.1	7.7
50	-19	0.927	-0.66	42.95	8.8	2.8	8.3	7.8
50	-18	0.935	-0.58	43.75	8.9	2.7	8.4	7.9
50	-17	0.942	-0.51	44.46	9	2.6	8.6	8
50	-16	0.95	-0.45	45.08	9	2.4	8.6	8.2
50	-15	0.956	-0.39	45.71	9.1	2.3	8.7	8.3
50	-14	0.962	-0.34	46.23	9.1	2.2	8.8	8.4
50	-13	0.967	-0.29	46.77	9.2	2	8.9	8.6
50	-12	0.973	-0.24	47.31	9.2	1.9	8.9	8.7
50	-11	0.977	-0.2	47.75	9.3	1.7	9.1	8.9
50	-10	0.982	-0.16	48.19	9.3	1.6	9.1	9
50	-9	0.985	-0.13	48.53	9.4	1.4	9.2	9.2
50	-8	0.989	-0.1	48.86	9.4	1.3	9.3	9.3
50	-7	0.991	-0.08	49.09	9.4	1.1	9.3	9.5
50	-6	0.993	-0.06	49.31	9.4	0.9	9.3	9.7

50	-5	0.995	-0.04	49.54	9.5	-0.8	9.4	11.4
50	-4	0.997	-0.03	49.66	9.5	-0.6	9.4	11.2
50	-3	0.998	-0.02	49.77	9.5	-0.4	9.4	11
50	-2	0.999	-0.01	49.89	9.5	-0.3	9.4	10.9
50	-1	0.999	0	50.00	9.5	-0.1	9.4	10.7
50	0	1	0	50.00	9.5	0	9.5	10.6
50	1	0.999	0	50.00	9.5	0.1	9.4	10.5
50	2	0.999	-0.01	49.89	9.5	0.3	9.4	10.3
50	3	0.998	-0.02	49.77	9.5	0.4	9.4	10.2
50	4	0.997	-0.03	49.66	9.5	0.6	9.4	10
50	5	0.995	-0.04	49.54	9.5	0.8	9.4	9.8
50	6	0.993	-0.06	49.31	9.4	0.9	9.3	9.7
50	7	0.991	-0.08	49.09	9.4	1.1	9.3	9.5
50	8	0.989	-0.1	48.86	9.4	1.3	9.3	9.3
50	9	0.985	-0.13	48.53	9.4	1.4	9.2	9.2
50	10	0.982	-0.16	48.19	9.3	1.6	9.1	9
50	11	0.977	-0.2	47.75	9.3	1.7	9.1	8.9
50	12	0.973	-0.24	47.31	9.2	1.9	8.9	8.7
50	13	0.967	-0.29	46.77	9.2	2	8.9	8.6
50	14	0.962	-0.34	46.23	9.1	2.2	8.8	8.4
50	15	0.956	-0.39	45.71	9.1	2.3	8.7	8.3
50	16	0.95	-0.45	45.08	9	2.4	8.6	8.2
50	17	0.942	-0.51	44.46	9	2.6	8.6	8
50	18	0.935	-0.58	43.75	8.9	2.7	8.4	7.9
50	19	0.927	-0.66	42.95	8.8	2.8	8.3	7.8
50	20	0.918	-0.74	42.17	8.7	2.9	8.1	7.7
50	21	0.909	-0.83	41.30	8.6	3	8	7.6
50	22	0.899	-0.92	40.45	8.5	3.1	7.8	7.5
50	23	0.889	-1.02	39.53	8.4	3.2	7.7	7.4
50	24	0.878	-1.13	38.55	8.3	3.3	7.5	7.3
50	25	0.867	-1.24	37.58	8.2	3.4	7.4	7.2
50	26	0.855	-1.36	36.56	8.1	3.5	7.2	7.1
50	27	0.842	-1.49	35.48	8	3.6	7.1	7
50	28	0.83	-1.62	34.43	7.9	3.7	6.9	6.9

50	29	0.816	-1.76	33.34	7.8	3.7	6.8	6.9
50	30	0.803	-1.91	32.21	7.6	3.7	6.5	6.9
50	31	0.788	-2.07	31.04	7.5	3.8	6.4	6.8
50	32	0.774	-2.23	29.92	7.3	3.8	6.1	6.8
50	33	0.758	-2.4	28.77	7.2	3.9	6	6.7
50	34	0.743	-2.58	27.60	7	3.9	5.8	6.7
50	35	0.727	-2.77	26.42	6.9	3.9	5.6	6.7
50	36	0.711	-2.96	25.29	6.7	3.9	5.4	6.7
50	37	0.695	-3.16	24.15	6.6	3.9	5.2	6.7
50	38	0.678	-3.37	23.01	6.4	3.9	5	6.7
50	39	0.662	-3.59	21.88	6.3	3.9	4.8	6.7
50	40	0.645	-3.81	20.80	6.1	3.9	4.6	6.7
50	41	0.628	-4.05	19.68	5.9	3.8	4.4	6.8
50	42	0.61	-4.29	18.62	5.8	3.8	4.3	6.8
50	43	0.593	-4.54	17.58	5.6	3.8	4	6.8
50	44	0.575	-4.8	16.56	5.4	3.7	3.8	6.9
50	45	0.558	-5.07	15.56	5.3	3.7	3.7	6.9
50	46	0.541	-5.34	14.62	5.1	3.6	3.5	7
50	47	0.523	-5.63	13.68	4.9	3.5	3.3	7.1
50	48	0.506	-5.92	12.79	4.8	3.5	3.2	7.1
50	49	0.489	-6.22	11.94	4.6	3.4	3	7.2
50	50	0.472	-6.53	11.12	4.5	3.4	2.8	7.2
50	51	0.455	-6.85	10.33	4.3	3.3	2.7	7.3
50	52	0.438	-7.18	9.57	4.1	3.2	2.5	7.4
50	53	0.421	-7.52	8.85	4	3.1	2.4	7.5
50	54	0.404	-7.87	8.17	3.8	3	2.2	7.6
50	55	0.388	-8.22	7.53	3.7	3	2.1	7.6
50	56	0.372	-8.59	6.92	3.5	2.9	1.9	7.7
50	57	0.356	-8.96	6.35	3.4	2.8	1.8	7.8
50	58	0.341	-9.35	5.81	3.2	2.7	1.6	7.9
50	59	0.326	-9.75	5.30	3.1	2.6	1.5	8
50	60	0.31	-10.16	4.82	2.9	2.5	1.4	8.1
50	61	0.296	-10.57	4.39	2.8	2.4	1.3	8.2
50	62	0.282	-11.01	3.96	2.6	2.2	1.2	8.4

50	63	0.268	-11.45	3.58	2.5	2.2	1.1	8.4
50	64	0.254	-11.92	3.21	2.4	2.1	1	8.5
50	65	0.24	-12.4	2.88	2.2	1.9	0.9	8.7
50	66	0.226	-12.9	2.56	2.1	1.9	0.8	8.7
50	67	0.214	-13.41	2.28	2	1.8	0.7	8.8
50	68	0.201	-13.95	2.01	1.9	1.7	0.7	8.9
50	69	0.188	-14.5	1.77	1.7	1.5	0.6	9.1
50	70	0.176	-15.08	1.55	1.6	1.5	0.5	9.1
50	71	0.164	-15.69	1.35	1.5	1.4	0.4	9.2
50	72	0.152	-16.34	1.16	1.4	1.3	0.4	9.3
50	73	0.141	-17.01	1.00	1.3	1.2	0.3	9.4
50	74	0.13	-17.73	0.84	1.2	1.1	0.3	9.5
50	75	0.119	-18.49	0.71	1.1	1	0.2	9.6
50	76	0.108	-19.33	0.58	1	0.9	0.2	9.7
50	77	0.098	-20.21	0.48	0.9	0.8	0.2	9.8
50	78	0.087	-21.2	0.38	0.8	0.7	0.1	9.9
50	79	0.077	-22.27	0.30	0.7	0.6	0.1	10
50	80	0.067	-23.49	0.22	0.6	0.5	0.1	10.1
50	81	0.057	-24.86	0.16	0.5	0.4	0	10.2
50	82	0.047	-26.48	0.11	0.4	0.3	0	10.3
50	83	0.038	-28.42	0.07	0.3	0.2	0	10.4
50	84	0.028	-30.91	0.04	0.2	0.1	0	10.5
50	85	0.019	-34.3	0.02	0.1	0	0	10.6
50	86	0.01	-39.94	0.01	0	0	0	10.6
50	87	0.01	-40	0.01	0	0	0	10.6
50	88	0.01	-40	0.01	0	0	0	10.6
50	89	0.017	-35.56	0.01	0.1	0	0	10.6
50	90	0.025	-31.89	0.03	0.2	0.1	0	10.5