

**February 2013
KQRZ-LP Channel 264L1
Hillsboro, OR
Allocation Study**

Background

LPFM station KQRZ-LP currently holds a license on Channel 242L1, but has a pending application to operate on Channel 268L1 at a new transmitter site, in order to accommodate the authorized modification of station KWLZ-FM to operate on Channel 242C3 at West Linn, Oregon. KQRZ-LP currently operates on Channel 268L1 under Special Temporary Authority, pending grant of a construction permit.

The instant application proposes to locate KQRZ-LP at the STA transmitter site, on Channel 264L1. The licensee's experience operating on Channel 268L1 under STA is that cochannel Class C0 station KFLY Corvallis causes unacceptable interference to reception of KQRZ-LP, limiting its potential audience reach. Operation on Channel 264L1 will eliminate this cochannel interference, as the nearest cochannel stations will be a) a 16 watt translator located 96 km distant, and b) a Class C2 station located on the Oregon coast, separated from KQRZ-LP by the Coast Mountain Range.

Spacing Study

The attached spacing study shows that the proposed KQRZ-LP operation meets the co-channel and adjacent channel spacing requirements for Class L1 stations as prescribed in §73.207 of the Commission's Rules, with the exception of short-spacings to two second-adjacent-channel stations and one IF channel station, as described below:

KKRZ Channel 262C Portland: The proposed LPFM operation will be short-spaced to second-adjacent channel station KKRZ on Channel 262C at Portland. The proposed LPFM transmitter site is located within the 60 dBu protected contour of KKRZ, 11.94 km from the KKRZ transmitter site at a bearing of 233 degrees True. However, given the KKRZ antenna's 458 meter HAAT and 100 kW ERP along this radial, KKRZ places a 100 dBu contour at the LPFM transmitter site. The corresponding interfering contour from the LPFM is $100 + 40 = 140$ dBu, which extends at most 1.6 meters from the LPFM transmitting antenna according to a Free Space calculation.

Given that the LPFM antenna will be installed at a height of 15 meters above ground, and taking into consideration the vertical plane pattern of the LPFM antenna, the interference area will not reach ground level. Consistent with §73.807(e)(1) of the Commission's Rules, the applicant requests waiver of the second-adjacent channel spacing requirement since there is no population in the interference area.

KXL-FM Channel 266C Portland: The proposed LPFM operation will be short-spaced to second-adjacent channel station KXL-FM on Channel 266C at Portland. The proposed LPFM transmitter site is located within the 60 dBu protected contour of KXL-FM, 12.37 km from the KXL-FM transmitter site at a bearing of 238 degrees True. However, given the KXL-FM antenna's 487 meter HAAT and 100 kW ERP along this radial, KXL-FM places a 100 dBu contour at the LPFM transmitter site. The corresponding interfering contour from the LPFM is $100 + 40 = 140$ dBu, which extends at most 1.6 meters from the LPFM transmitting antenna according to a Free Space calculation. Given that the LPFM antenna will be installed at a height of 15 meters above ground, and taking into consideration the vertical plane pattern of the LPFM antenna, the interference area will not reach ground level. Consistent with §73.807(e)(1) of the Commission's Rules, the applicant requests waiver of the second-adjacent channel spacing requirement since there is no population in the interference area.

KQAC Channel 210C1 Portland: The spacing study indicates that the proposed LPFM operation will be short-spaced to the IF channel operation of KQAC on Channel 210C1 at Portland. However, the FCC has eliminated the IF channel spacing requirement for LPFM stations, recognizing that the low ERP of LPFM stations is highly unlikely to result in the creation of any interference. (The proposed LPFM operation will be with an ERP of just 5 watts.)

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SEARCH PARAMETERS FM Database Date: 130206

Channel: 264L1 100.7 MHz Page 1

Latitude: 45 27 29

Longitude: 122 52 5

Safety Zone: 32 km

Job Title: KQRZ-LP 264L1

Call Status	City St	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
KQAC	PORTLAND		210C1	5.900	45-30-58	58.4	12.37	20
LIC	OR BLED-10517AEK		89.9	440.0	122-43-59		-7.63	SHORT
KQACaux	PORTLAND		210C2	3.700	45-30-58	58.4	12.37	0
CP	OR BMXPED-10215AAB		89.9	483.0	122-43-59		0.00	AUX
KQACaux	PORTLAND		210C2	4.000	45-30-58	58.4	12.37	0
LIC	OR BXLED-10421ABP		89.9	473.0	122-43-59		0.00	AUX
KKRZaux	PORTLAND		262C	40.000	45-31-21	52.9	11.92	0
LIC	OR BXLH-30617ABD		100.3	409.0	122-44-46		0.00	AUX
KKRZ	PORTLAND		262C	100.000	45-31-21	53.0	11.94	93
LIC	OR BLH-11214AAE		100.3	470.0	122-44-45		-81.06	SHORT
K264AA	CORVALLIS, ETC.		264D	0.016	44-38-25	199.5	96.33	32
LIC	OR BLFT-90918ACY		100.7	385.0	123-16-25		64.33	TRANS
KPPT-FM	DEPOE BAY		264C2	17.500	44-45-23	230.4	121.40	91
LIC	OR BLH-30926AQJ		100.7	255.0	124-03-01		30.40	CLEAR
KXL-aux	PORTLAND		266C	22.500	45-30-57	58.9	12.48	0
LIC	OR BLH-970715KE		101.1	395.0	122-43-52		0.00	AUX
KXL-FM	PORTLAND		266C	100.000	45-30-58	58.4	12.37	93
LIC	OR BLH-00503ACD		101.1	502.0	122-43-59		-80.63	SHORT

===== END OF FM SPACING STUDY FOR CHANNEL 264 =====

**February 2013
KQRZ-LP Channel 264L1
Hillsboro, OR
RF Exposure Study**

Facilities Proposed

The proposed operation will be on Channel 264L1 (100.7 MHz) with an effective radiated power of 0.005 kilowatts. Operation is proposed with a 1-element circularly-polarized omni-directional antenna.

RF Exposure Calculations

The power density calculations shown below were made using the techniques outlined in OET Bulletin No. 65. "Ground level" calculations in this report have been made at a reference height of 2 meters above ground to provide a worst-case estimate of exposure for persons standing on the ground in the vicinity of the tower. The equation shown below was used to calculate the ground level power density figures from each antenna.

$$S(\mu W / cm^2) = \frac{33.40981 \times AdjERP(Watts)}{D^2}$$

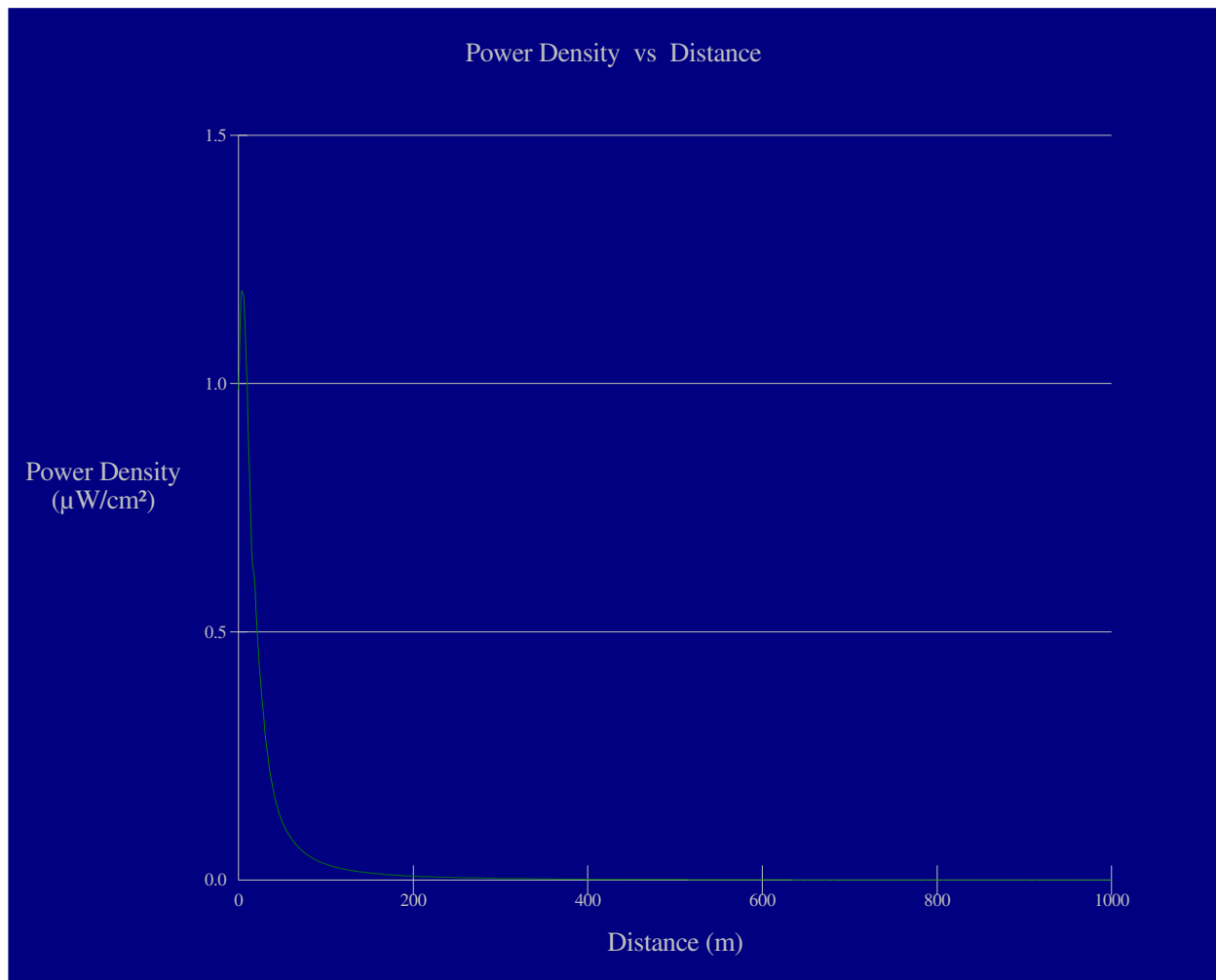
Where: *AdjERP(Watts)* is the maximum lobe effective radiated power times the element pattern factor times the array pattern factor.

D is the distance in meters from the center of radiation to the calculation point.

Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 1000 meters. Values past this point are increasingly negligible.

Calculations of the power density produced by the proposed antenna system assume a Type 1 element pattern, which is the "worst case" element pattern. The highest calculated ground level power density occurs at a distance of 4 meters from the base of the antenna support structure. At this point the power density is calculated to be 1.2 $\mu W/cm^2$, which is 0.6% of 200 $\mu W/cm^2$ (the FCC standard for uncontrolled environments).

The permittee/licensee in coordination with other users of the site must reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency radiation in excess of FCC guidelines.



Ground-Level RF Exposure

OET FMModel

KQRZ-LP Hillsboro

Antenna Type: ring-stub assumed for this study

No. of Elements: 1

Element Spacing: dna

Distance: 1000 meters

Horizontal ERP: 5 Watts

Vertical ERP: 5 Watts

Antenna Height: 15 meters AGL

Maximum Power Density is 1.2 $\mu\text{W}/\text{cm}^2$ at 4 meters from the antenna structure.

Hatfield & Dawson Consulting Engineers