

## BACKGROUND

KRRC is a Class D non-commercial, educational FM facility that has served the Portland, Ore community since 1958. On 03/28/2008 the FCC granted commercial licensee Cumulus Licensing LLC permission to move commercial full power FM station KNRQ-FM from Eugene, Ore or Tualatin, Ore, and subsequently approved BMPH-20100805AKO, a community of license move to Aloha, Ore. The change in community of license effectively moves KNRQ-FM 171.4 km to the north to serve the Portland, Ore metropolitan area on Channel 250. Currently KRRC is licensed to Channel 250. By nature of Class D licensee, KRRC is required to vacate Channel 250 at the time of KNRQ-FM's construction permit completion (BMPH-20100805AKO expiration date is 01/16/2013). In cases of encroachment, the FCC affords Class D facilities channel relocation to possible vacant channels.

## PROPOSED

Licensee has spent months scrutinizing possibilities for channel relocation. Because of the roughly twelve translators currently serving the vicinity, and eighteen translators pending in the metropolitan area, no single secondary service frequency presented itself as an exceptional relocation solution. Licensee opted not to displace existing translators as to facilitate the smoothest relocation option for all stakeholders. Relocation to Channel 216 presents itself as the only viable channel relocation solution to continue on-air operation while ensuring adequate protection to all licensed full power facilities:

- (1) Proposed location continues to serve Portland, Ore; the proposed location has overlapping 1 mv/m contour with previous location.
- (2) Per revision to Class D facility rules, the proposed 1 mv/m contour is proposed as limited to 5 kilometers.<sup>1</sup>
- (3) Consent approval has been concurrently furnished to the Commission with this application regarding relocating second-adjacent to two full power facilities.
- (4) Using U/D methodology, the proposed relocation will provide zero-population interference overlap areas with both second-adjacent channels:

*Concerning CH 214, KBOO (FM):*

At the proposed KRRC transmitter location KOPB has a signal strength of 100.5 dBu (see *Map*, next page). Interference will occur when the interfering signal exceeds the desired signal by 40 dbu. So the area of predicted interference would then be bounded by the 140.5 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):

$$P = 8 \text{ w}, E = 140.5 \text{ dBu} = 104.712 \text{ 10471 V/m} = 10.5 \text{ v/m}$$

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<sup>1</sup> See Para. 44, 1998 Biennial Regulatory Review – Streamlining of Radio Technical Rules in Parts 73 and 74 of the Commission's Rules, MM Docket No. 98-93 (November 1, 2000).

D = 1.5 meters.

Conclusion: The area of interference resides 1.9 meters around the antenna; no population affected.

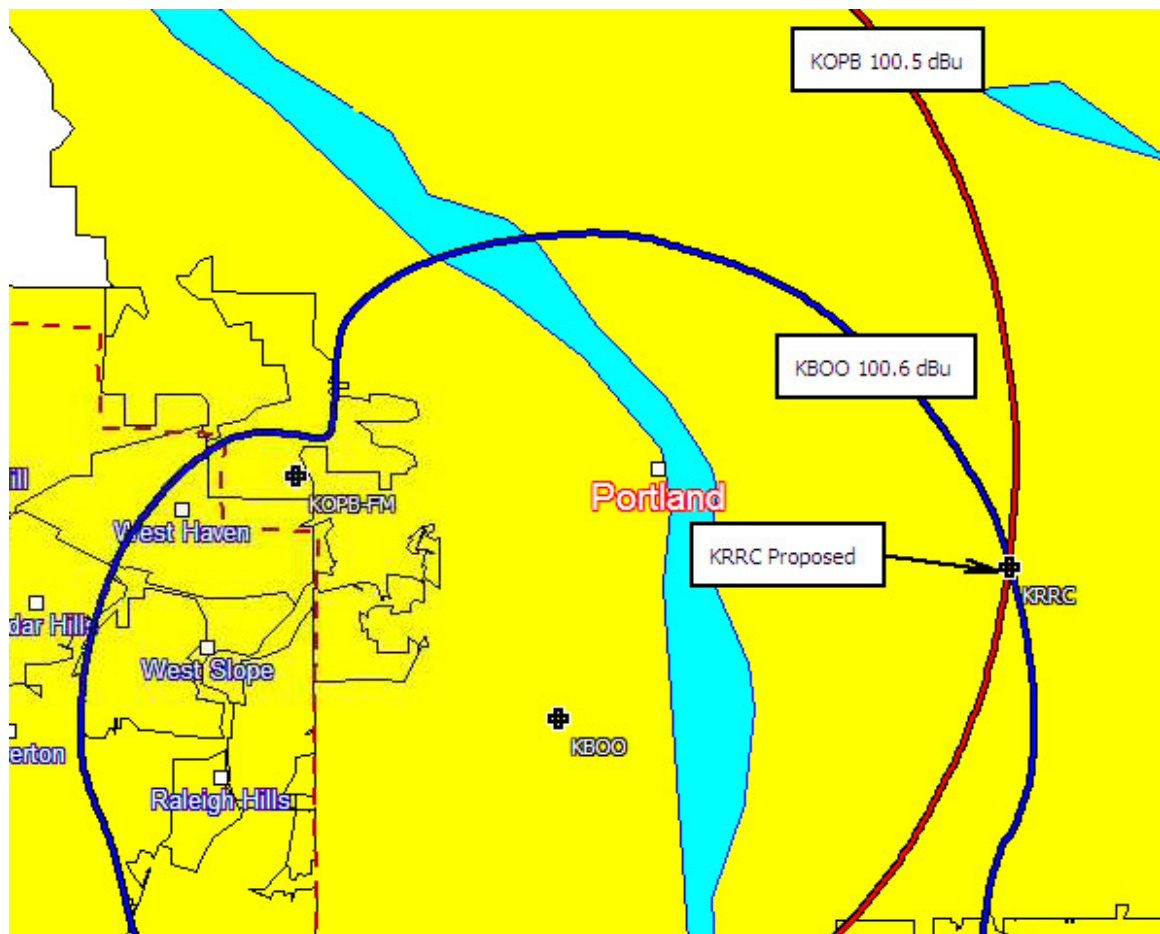
*Concerning CH 218, KOPB-FM:*

Using U/D methodology: At the proposed KRRC transmitter location KOPB has a signal strength of 100.6 dBu (coincidentally). Interference will occur when the interfering signal exceeds the desired signal by 40 dbu. So the area of predicted interference would then be bounded by the 140.6 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 = 8 w, E = 140.6dBu = 104.712 10471 mV/m = 10.5 v/m

Conclusion: The area of interference resides 1.9meters around the antenna; no population affected.



Map

Channel study is included on next page.

Common Frequency, Inc.

REFERENCE	CH# 216D - 91.1 MHz, Pwr= 0.008 kW, HAAT= -14.9 M, COR= 74 M	DISPLAY DATES
45 30 34.7 N.	Average Protected F(50-50)= 3.0 km	DATA 07-17-12
122 36 21.0 W.	Omni-directional	SEARCH 01-23-13

CH CITY	CALL	TYPE	ANT STATE	AZI. <--	DIST FILE #	LAT. LNG.	Pwr (kW) HAAT (M)	INT (km) COR (M)	PRO (km) LICENSEE	*IN* (Overlap in km)	*OUT*	
218C0 Portland	KOPB-FM	LIC	C OR	277.5 97.4	10.99 BLED20030213AAI	45 31 21.0 122 44 45.0	73.000 470	11.4 561	82.4 Oregon Public Broadcasting	-3.3*	-73.0*	#
214C1 Portland	KBOO	LIC	CY OR	251.6 71.5	7.28 BLED19910909KC	45 29 20.0 122 41 40.0	26.500 386	7.7 480	65.7 The Kboo Foundation	-3.4*	-60.1*	#
216C2 Kelso	KTJC	LIC	DEX WA	343.2 163.0	95.25 BLED20040302AAC	46 19 46.0 122 57 50.0	8.000 189	118.7 385	49.2 Calvary Chapel Of Twin Fal	-26.4*	36.4	+
216A Brightwood	KZME	LIC	CX OR	105.7 286.4	72.76 BLED20110505ABP	45 19 44.0 121 42 35.0	0.125 436	83.9 1771	27.6 Metro East Community Media	-14.1*	35.6	+
216D Portland	KRRC	LIC	 OR	274.0 94.0	6.66	45 30 49.7 122 41 28.1	0.008 4	9.6 54	3.0 User	-5.9*	-5.9	
216C1 Eugene	KWAX	LIC	EN OR	193.6 13.2	172.42 BLED19930308KB	44 00 04.0 123 06 45.0	21.500 370	152.0 562	65.3 Oregon St Board Of Higher	17.4	97.5	
216A Tillamook	KTMK	LIC	CX OR	267.8 86.8	102.52 BLED20050728AMH	45 27 59.0 123 55 11.0	0.140 356	67.0 453	21.5 Oregon Public Broadcasting	32.5	71.4	
06 D Eugene	1337136	AP	N OR	192.9 12.5	165.47 BNPDVL20091020AAK	44 03 28.0 123 04 02.0	0.300 31	0.2 146	1.2 Live Sports Radio, Inc.	132.5R	33.0M	
216D Colton	K216EH	LIC	DV OR	149.6 329.8	48.74 BLFT20040824AAV	45 07 52.0 122 17 28.0	0.010 627	6.1 1330	0.7 Calvary Chapel Of Twin Fal	39.7	38.5	
06 D Eugene	1328857	AP	D N OR	193.7 13.3	172.38 BNPDVL20090825ASQ	44 00 06.6 123 06 52.7	0.300 320	0.2 445	1.2 Mako Communications Llc	132.5R	39.9M	
06-D Redmond	K06PA-D	CP	D N OR	131.9 313.1	176.29 BNPTVL20000829ANN	44 26 17.0 120 57 13.0	2.500 746	0.2 1659	1.2 Kenneth E. Lewetag	132.5R	43.8M	

Terrain database is NGDC 30 SEC, R= 73.215 qualifying spacings or FCC minimum spacings in KM, M= Margin in KM  
 Contour distances are on direct line to and from reference station. Reference Zone= - Zone 2, Co to 3rd adjacent.  
 All separation margins (if shown) include rounding

Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, \_= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)  
\*\*"affixed to 'IN' or 'OUT' values = site inside protected contour.

Notes:

# See U/D showing (see previous page)

+ Proposed facility introduces no outgoing interference into full powers facility protected contours.

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## **Exhibit 22: Non-Ionizing Electromagnetic Radiation (NEIR) Analysis**

The Effective Radiated Power for proposed will be 8 (EIGHT) wattts, mounted on a guyed pole. 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"  
Horizontal ERP (W): 8  
Vertical ERP (W): 8  
Antenna Height (m): 8  
Number of Elements: 1

The ACTUAL ANTENNA is a HORIZONTAL-ONLY polarized antenna, as the radiation would be obviously less. The Phelps-Dodge Antenna (circular polarized) was selected in FM Model as an exaggerated "worst case" emitter. Using these settings, the maximum predicted RF exposure for a human standing on the ground would be  $8.9 \mu\text{W}/\text{cm}^2$  at 1.6 m. This represents less than 5% of the FCC Maximum Permissible Exposure (MPE) of  $200 \mu\text{W}/\text{cm}^2$  for uncontrolled environments. 47 CFR 1.1307(b)(3) exempts applicants from preparing an Environmental Assessment when the predicted exposure levels when the predicted exposure levels would be less than 5% of the FCC limits.

However, we would like further reassurance to the FCC that all radiation limits are at negligible concern since the mast is set up in a grassy area in the back of a residential unit. The unit is one story; the mast is affixed 20 feet to the west from the unit. Even someone standing on the side of the roof (3 meters above ground), the radiation from our "worst case" scenario with be  $11.4 \mu\text{W}/\text{cm}^2$  (5.7 % of  $\mu\text{W}/\text{cm}^2$  for uncontrolled environments). A shed lies 17 feet to the south where the transmitter will be stored. The closest adjacent unit not on the property is 20 feet away (a garage). A residential unit resides 70 feet to the back of the property.

The proposed EIGHT WATT facility is assessed to overwhelmingly comply with environmental requirements.