

April 2016
FM Translator K236CI
Medford, Oregon Channel 236D
Allocation Study

The instant application proposes modification of the K236CI construction permit, to operate from the authorized tower, but at a lower height and using a different model of antenna.

The attached spacing study shows the spacing between the proposed translator site and the location of cochannel and adjacent channel stations and proposals. This study was made with the Commission's Class A spacing requirements, and individual situations were examined to determine the lack of prohibited contour overlap per the requirements of §74.1204 of the Rules. The attached allocation study maps demonstrate compliance with the Commission's Rules for protection of FM broadcast stations and FM translators as outlined in §74.1204.

The proposed translator transmitter site is located within the 60 dBu protected contour of third-adjacent channel station KBOY-FM 239C1 Medford. The proposed site is 30.63 km from the KBOY-FM transmitter site at a bearing of 124 degrees True. Given the KBOY-FM antenna's 434 meter HAAT and 60 kW ERP along this radial, KBOY-FM places an 81.4 dBu contour at the translator transmitter site. The corresponding interfering contour from the translator is $81.4 + 40 = 121.4$ dBu. The attached map of the proposed transmitter site depicts the 121.4 dBu contour from the proposed facility, which extends 94 meters from the antenna per a Free Space calculation. There is no population within this contour. Therefore, the proposed facility is believed to satisfy the requirements of §74.1204(d) with respect to KBOY-FM.

The attached spacing study demonstrates compliance with §73.207 of the Commission's Rules regarding spacing restrictions to stations which are 53 or 54 channels removed from the proposed operation.

SEARCH PARAMETERS

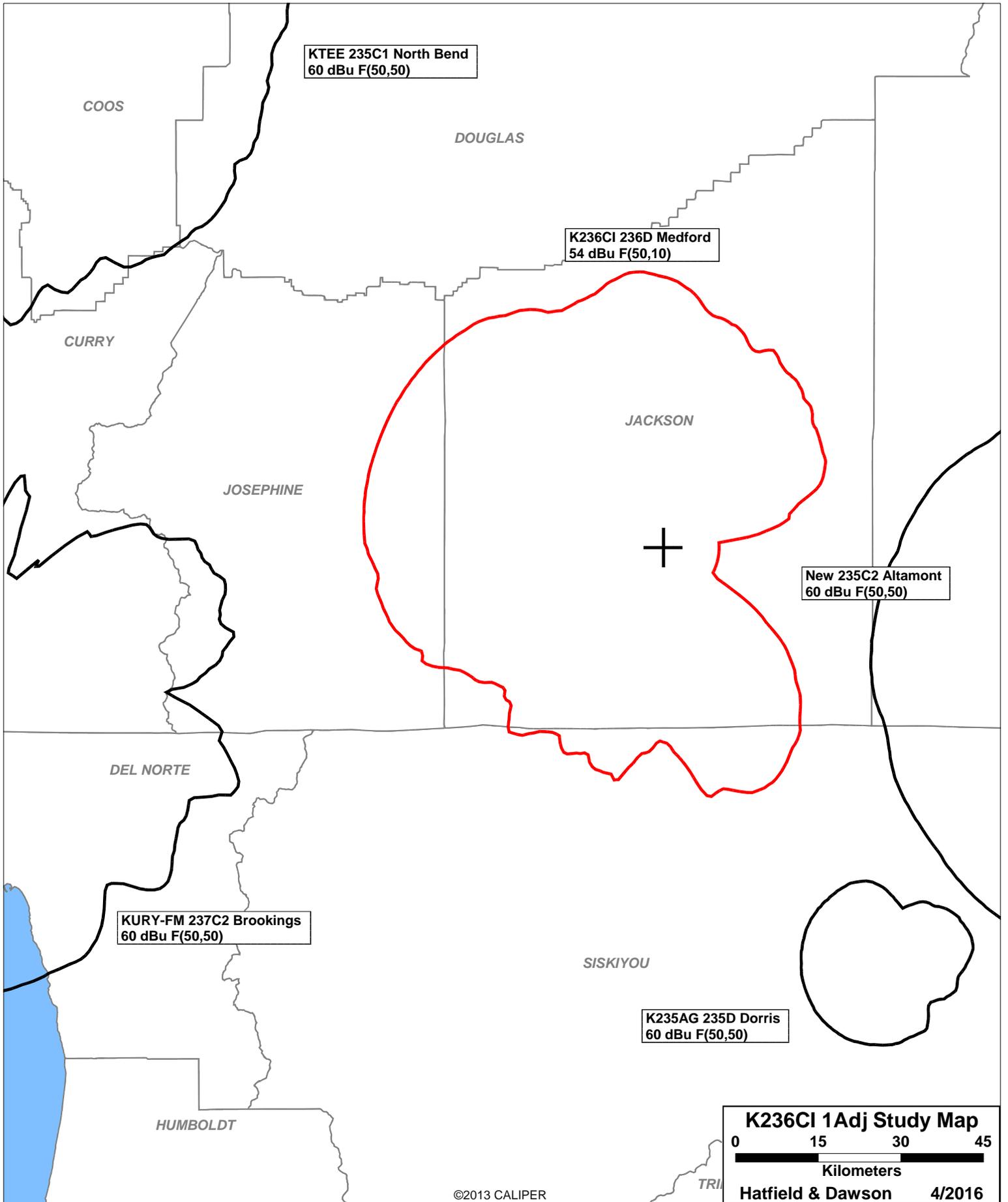
FM Database Date: 160411

Channel: 236A 95.1 MHz
 Latitude: 42 17 55
 Longitude: 122 44 53
 Safety Zone: 50 km
 Job Title: K236CI MOD

Page 1

Call Status	City St	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
KRRM LIC	ROGUE RIVER OR	BLH-941027KC	234A 94.7	0.130 623.0	42-26-44 123-12-56	293.2 SS	41.82 10.82	31 CLEAR
K235AG LIC	DORRIS CA	BLFT-30212ABD	235D 94.9	0.010 1197.0	41-37-48 122-13-50	149.9	85.76 0.00	0 TRANS
NEW CP	ALTAMONT OR	BNPH-51009ADO	235C2 94.9	1.800 653.0	42-05-50 121-37-59	103.3	94.77 -11.23	106 SHORT
KTEE LIC	NORTH BEND OR	BLH-10525ABX	235C1 94.9	89.000 191.0	43-12-18 124-18-07	309.0 SS	162.24 29.24	133 CLEAR
K236CI CP	PHOENIX OR	BNPFT-50424AAY	236D 95.1	0.250 737.0	42-17-55 122-44-53	0.0	0.00 0.00	0 TRANS
KURY-FM LIC	BROOKINGS OR	BLH-940124KA	237C2 95.3	8.700 355.0	42-07-23 124-17-56	261.8	129.54 23.54	106 CLEAR
KBOY-FM LIC	MEDFORD OR	BLH-51128AOF	239C1 95.7	60.000 299.0	42-27-11 123-03-21	304.3	30.61 -44.39	75 SHORT
K290BX CP	PINEHURST OR	BNPFT-30326AEA	290D 105.9	0.010 DA 1050.0	42-03-53 122-28-42	139.4	34.23 0.00	0 TRANS
K290AF LIC	ROGUE RIVER OR	BLFT-980305TE	290D 105.9	0.080 DA 849.0	42-26-44 123-12-56	293.2	41.82 0.00	0 TRANS

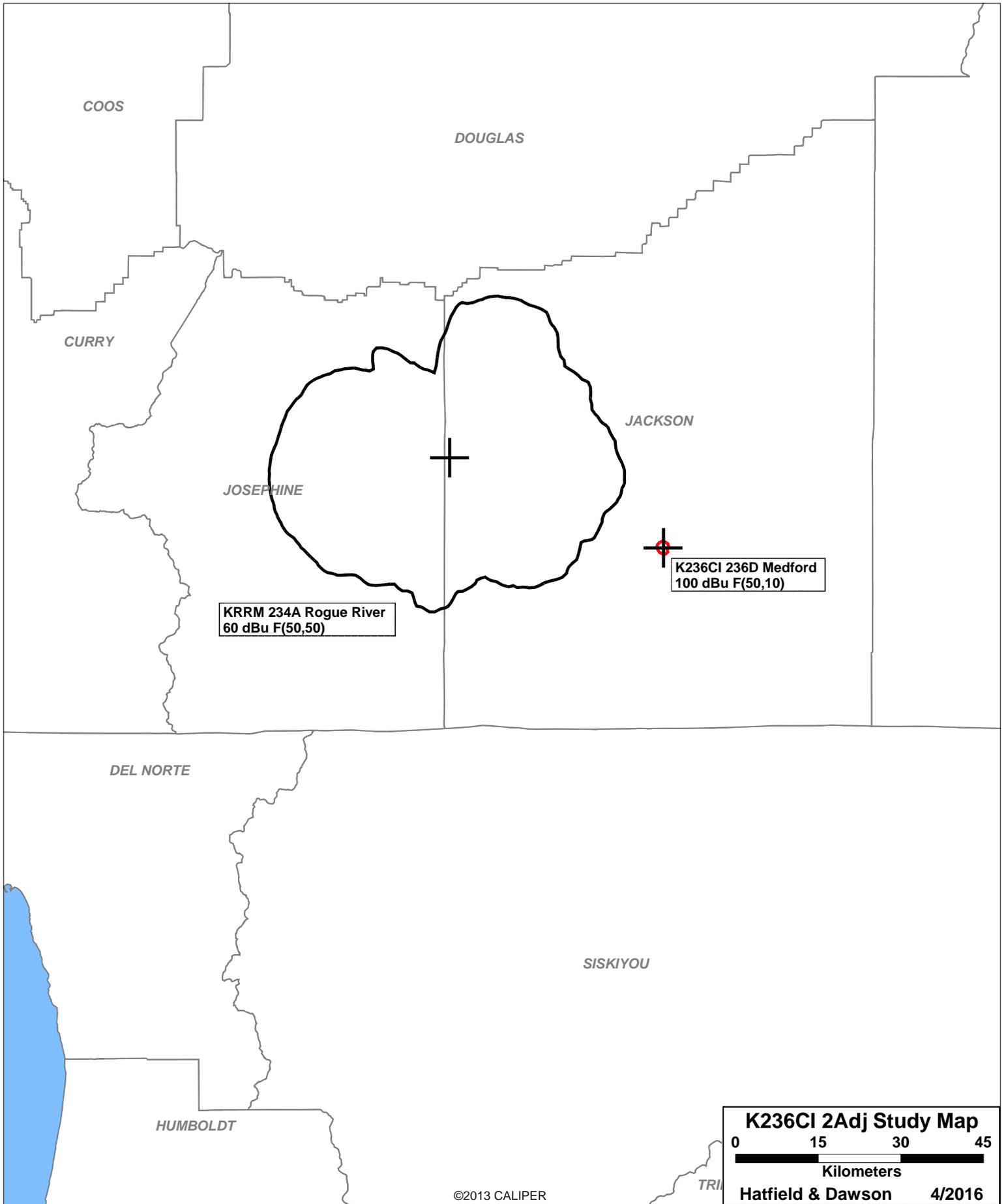
==== END OF FM SPACING STUDY FOR CHANNEL 236 =====



K236CI 1 Adj Study Map

0 15 30 45
Kilometers

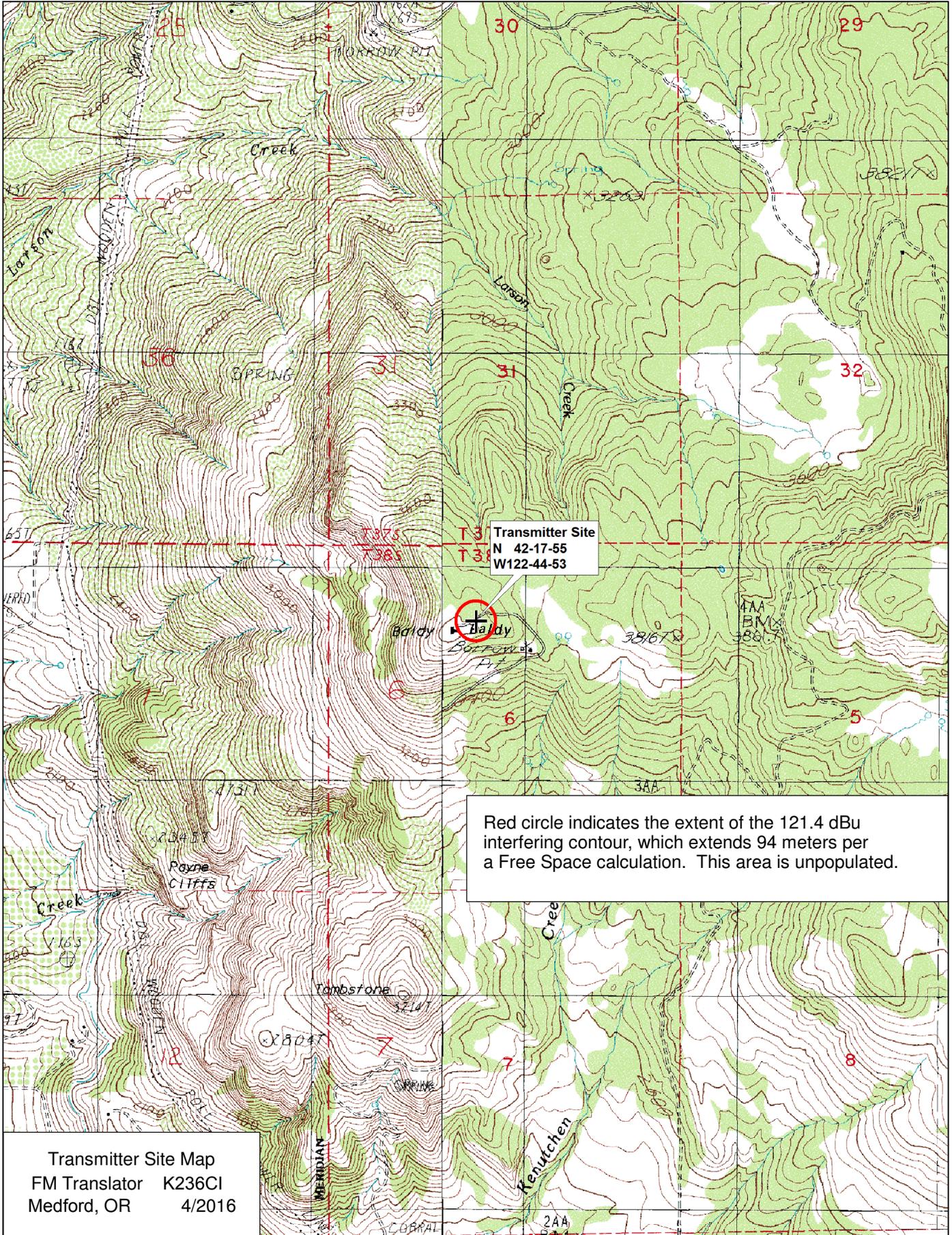
Hatfield & Dawson 4/2016



K236CI 2Adj Study Map

0 15 30 45
Kilometers

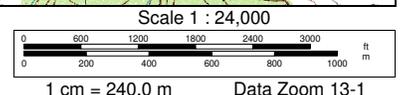
Hatfield & Dawson 4/2016



Data use subject to license.

© DeLorme. XMap® 7.

www.delorme.com



April 2016
FM Translator K236CI
Medford, Oregon Channel 236D
RF Exposure Study

Facilities Proposed

The proposed operation will be on Channel 236D (95.1 MHz) with an effective radiated power of 250 watts. Operation is proposed with an antenna to be mounted on an existing tower on Baldy Mountain.

The proposed antenna support structure does not exceed 60.96 meters (200 feet) above ground and does not require notification to the Federal Aviation Administration. Therefore, this structure does not require an Antenna Structure Registration Number.

RF Exposure Calculations

OET Bulletin 65 Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields (Edition 97-01) states in part that:

When performing an evaluation for compliance with the FCC's RF guidelines all significant contributors to the ambient RF environment should be considered. . . For purposes of such consideration, significance can be taken to mean any transmitter producing more than 5% of the applicable exposure limit (in terms of power density or the square of the electric or magnetic field strength) at accessible locations.

As will be demonstrated below, the proposed operation of K236CI will produce less than 5% of the applicable exposure limit for both controlled and uncontrolled environments. Thus, the proposed facility is categorically excluded from the requirement of further study. Therefore, pursuant to §1.1307(b)(3) of the Commission's Rules no calculations are required for the other FM and TV facilities in the vicinity, and precise calculations are made only with regard to the levels from this proposal.

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.

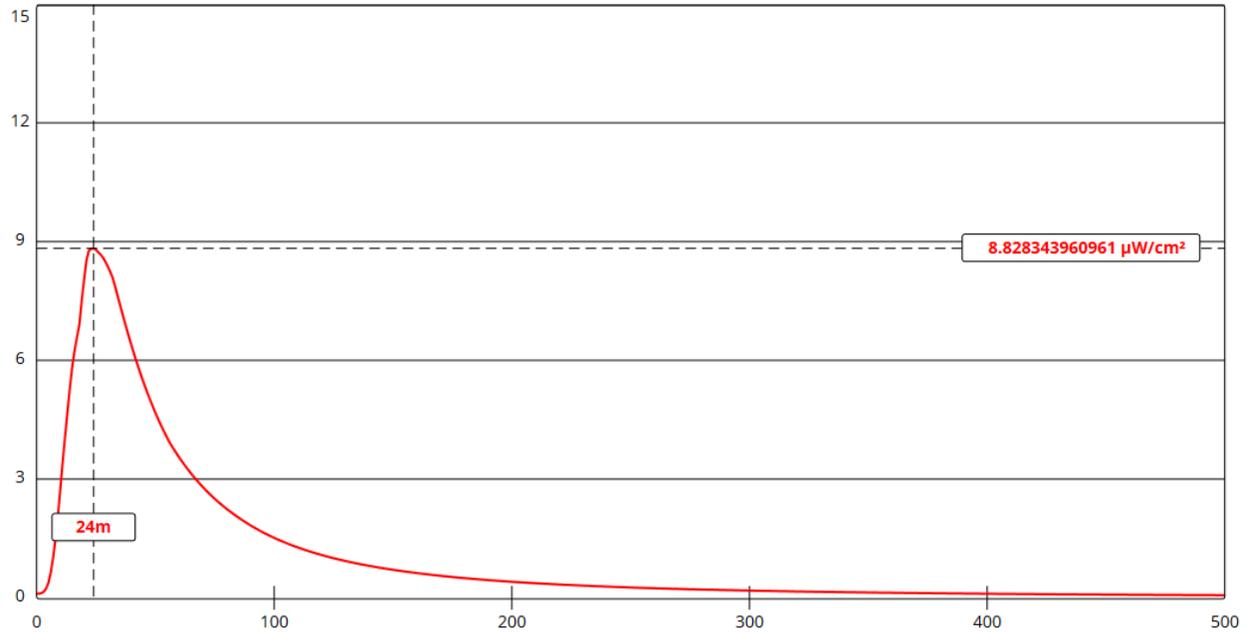
Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 1000 meters. Values past this point are increasingly negligible.

Calculations of the power density produced by the proposed antenna system assume a Type 1 element pattern, which is the element pattern the FCC currently considers valid for the Shively 6812C-2-SS antenna proposed for use.¹ The highest calculated ground level power density occurs at a distance of 24 meters from the base of the antenna support structure. At this point the power density is calculated to be 8.8 $\mu\text{W}/\text{cm}^2$, which is 4.4% of 200 $\mu\text{W}/\text{cm}^2$ (the FCC standard for uncontrolled environments).

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of K236CI alone is less than 5% of the applicable FCC exposure limit at all locations between 1 and 1000 meters from the base of the antenna support structure. Section 1.1307(b)(3) of the Commission's Rules excludes applications for new facilities or modifications to existing facilities from the requirement of preparing an environmental assessment when the calculated emissions from the applicants proposed facility are predicted to be less than 5% of the applicable FCC exposure limit. Therefore, the proposed facility is in compliance with Section 1.1301 *et seq* and no further analysis of RF exposure at this site is required in this application.

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.

¹ See Public Notice "Office of Engineering and Technology Announces Updates to *FMMModel* Software", DA 16-340, Released March 31, 2016.



Ground-Level RF Exposure

OET FMModel

K236CI Medford

Antenna Type: Shively 6812C-2-SS

No. of Elements: 2

Element Spacing: 0.5 wavelength

Distance: 1000 meters

Horizontal ERP: 0.250 kW

Vertical ERP: 0.250 kW

Antenna Height: 17 meters AGL

Maximum Calculated Power Density is $8.8 \mu\text{W}/\text{cm}^2$ at 24 meters from the antenna structure.