

CITY OF LICENSE  
CALL LETTERS  
PREPARED FOR  
VERSION  
JOB

Seven Oaks, OR  
K232EM  
Community Media Assistance Project  
1.0  
115037

# **CONSOLIDATED**

# **ENGINEERING EXHIBIT**

FCC Form 349 - Section III-a - Engineering

**ENGINEERING STATEMENT**  
**MINOR-CHANGE TO K232EM, SEVEN OAKS, OR**  
**CHANGING LOCATION, HEIGHT, ERP, PATTERN AND CHANNEL**  
**Community Media Assistance Project**

**SUMMARY**

Community Media Assistance Project (CMAP), hereby submits a proposed minor change to FM translator K232EM, Seven Oaks, OR. A change in the location to a developed tower at Roxy Ann Peak, near Medford, is proposed. The antenna height, pattern and ERP would also change. The frequency would also change one channel to Ch231. Finally, a change in the Community of License is being requested, to better reflect the actual area to be served.

The translator would continue to rebroadcast KSKQ (FM), Ashland, OR. **Exhibit 10** shows the fill-in status of this proposal.

Both CMAP, and the owner of KSKQ (Multicultural Association of Southern Oregon), are non-profit entities operating the stations on a non-commercial basis.

The antenna is 5 meters below the nearest existing directional broadcast antenna (K243AF), which is far greater than 1 wavelength (2.9-3.4m) - the normal distance required by antenna manufacturers to avoid potential pattern distortion.

**BROWN BROADCAST SERVICES**  
INCORPORATED

Michael D. Brown

3740 S.W. Comus St.

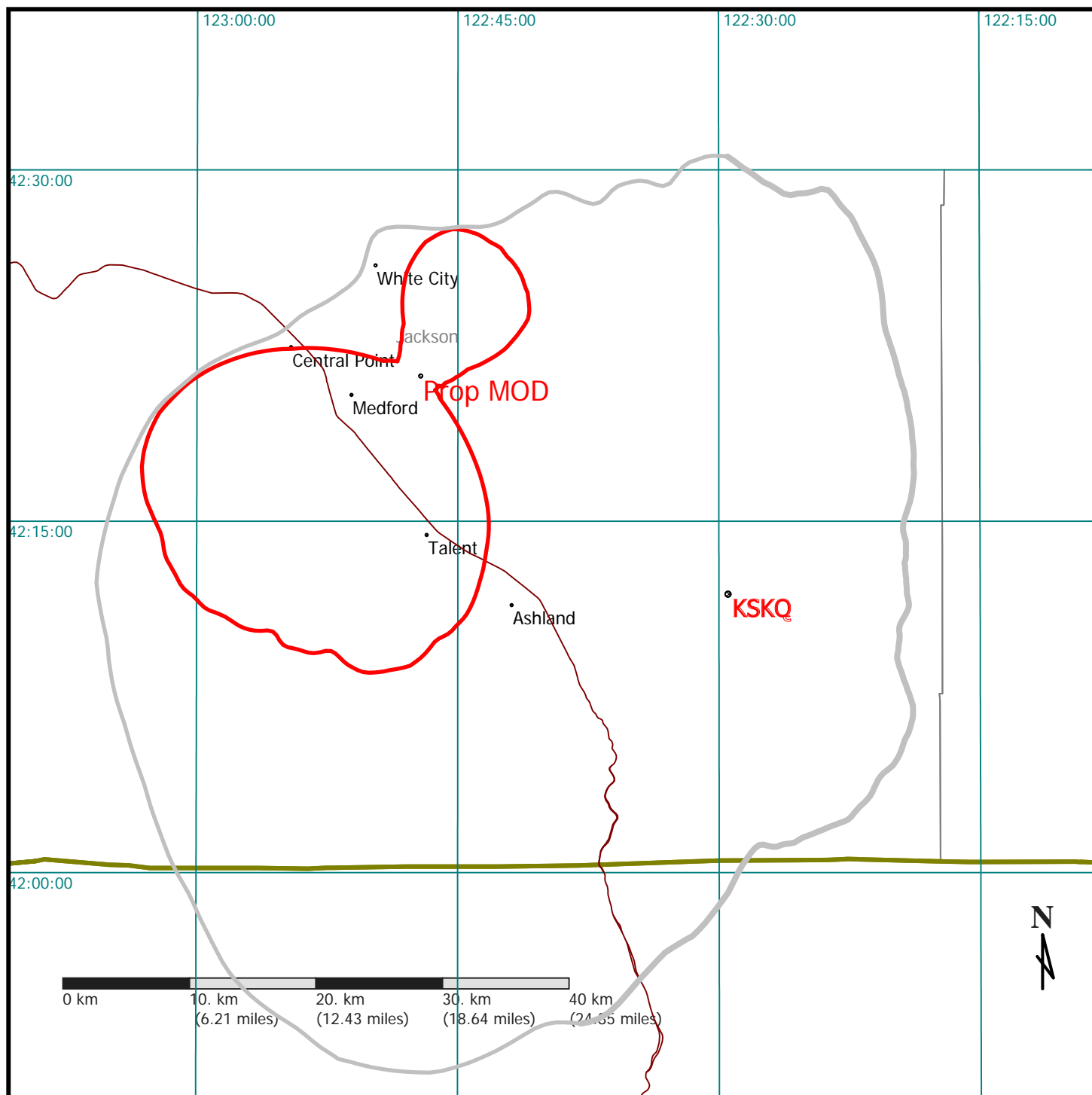
Portland, Oregon 97219-7418

503-245-6065

**Exhibit 10**  
**Proposed K232EM 60dBu**  
**vs Primary Station KSKQ, Ashland, OR 60dBu**  
**-showing fill-in status-**

Brown Broadcast Services, Inc.  
Job: K232EM Roxy Ann Final Oct 2016.fmj  
Master Database: 2016\_Oct\_15.fmd  
Lat: N42:21:12 Lon: W122:47:08 NAD-27 (at prop. XLTR site)  
Scale: 1:450000  
Channel: 231 Class: DX

rfInvestigator Version 3.8.16  
by rfSoftware, Inc.  
Date: 10/15/2016 11:19:26 PM



# EXHIBIT 13

## FM OVERLAP REQUIREMENTS

### INTERFERENCE PROTECTION

K232EM TO ROXY ANN										
REFERENCE		Community Media Assistance Project							DISPLAY DATES	
42 21 12.0 N.		CH# 231D - 94.1 MHz, Pwr= 0.11 kW DA, HAAT= 477.5 M, COR= 1086 M							DATA 09-10-16	
122 47 08.0 W.		Average Protected F(50-50)= 23.1 km							SEARCH 09-28-16	
Standard Directional										
CH	CALL	TYPE	ANT	AZI	DIST	LAT	Pwr(kW)	INT(km)	PRO(km)	*OUT*
CITY		STATE		<--	FILE #	LNG	HAAT(M)	COR(M)	LICENSEE	(Overlap in km)
229C Medford	KTMT-FM	LIC	C OR	169.7 349.8	30.75 BMLH20091214AFD	42 04 52.0 122 43 09.0	31.000 980	10.9 2297	95.4 Mapleton License Of Medfor	-65.1*
232D Seven Oaks	K232EM!	LIC	C OR	153.4 333.4	6.73 BLFT20160429AAB	42 17 57.0 122 44 56.0	0.010	20.4 1175	13.1 Community Media Assistance	-23.7
234A Rogue River	KRRM	LIC	NCN OR	286.3 106.1	36.76 BLH19941027KC	42 26 44.0 123 12 56.0	0.130 623	0.8 1173	30.5 Shirley M. Bell	5.9
232L1 Shady Cove	KSHD-LP	LIC		356.5 176.5	30.09 BLL20150113ABR	42 37 24.6 122 48 28.8	0.100	439	City Of Shady Cove, Or	8.1
232L1 Rogue River	KRRC-LP	LIC		287.9 107.7	32.31 BLL20150414AAR	42 26 32.0 123 09 37.0	0.100	450	Fai th Lutheran Church	9.2
232D Yreka	K232BH	LIC	DVN CA	173.7 353.8	67.91 BLFT19840910MA	41 44 46.0 122 41 47.0	0.071 416	13.3 1481	8.7 Yreka Christian Radio	28.4
TRANSLATOR FOR KVI PFM, REDDING, CA.										

As shown by the contour overlap study above, and by **Exhibits 13b to 13d**, all stations except KTMT-FM are easily cleared by this proposal. **Exhibit 13a** shows that a significant portion of the proposed 60dBu contour overlaps the licensed 60dBu contour, qualifying this proposal as a minor change.

### CONTOUR PROTECTION TO KTMT-FM

Contour protection to 3rd-adjacent station KTMT-FM, Medford, OR is provided using the ratio method. The F(50/50) contour of KTMT-FM is 87.7dBu at the proposed translator site. Using the appropriate U/D ratio of 40dB, the interfering contour of the proposed translator is therefore 127.7dBu. **Exhibit 13b** shows the area encompassed by this contour, which does not contain any populated structures. Therefore, no interference would be caused to any station, in populated areas.

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Michael D. Brown

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**PROTECTED ZONES REPORT**

Protected zones report for K232EM on channel 231D 10-15-2016

Lat. 42 21 12.0 Lng. 122 47 08.0, ERP= 0.11 kw, HAAT= 477.5 m

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Facility is okay with respect to AM station towers.

Closest AM Facility is KRTA, MEDFORD, OR, L, DA2 at 18.9° at a distance of 4.0 km

Facility is okay with respect to FCC monitoring stations.

Closest FCC Monitoring Station is 521.4 km= Livermore, CA

Facility is okay toward West Virginia Quiet Zone. Distance to center = 3703.2 km

Facility is okay toward Table Mountain. Distance to Center = 1491.3 km, Azimuth = 93.7

Degrees True

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INCORPORATED

Michael D. Brown

3740 S.W. Comus St.

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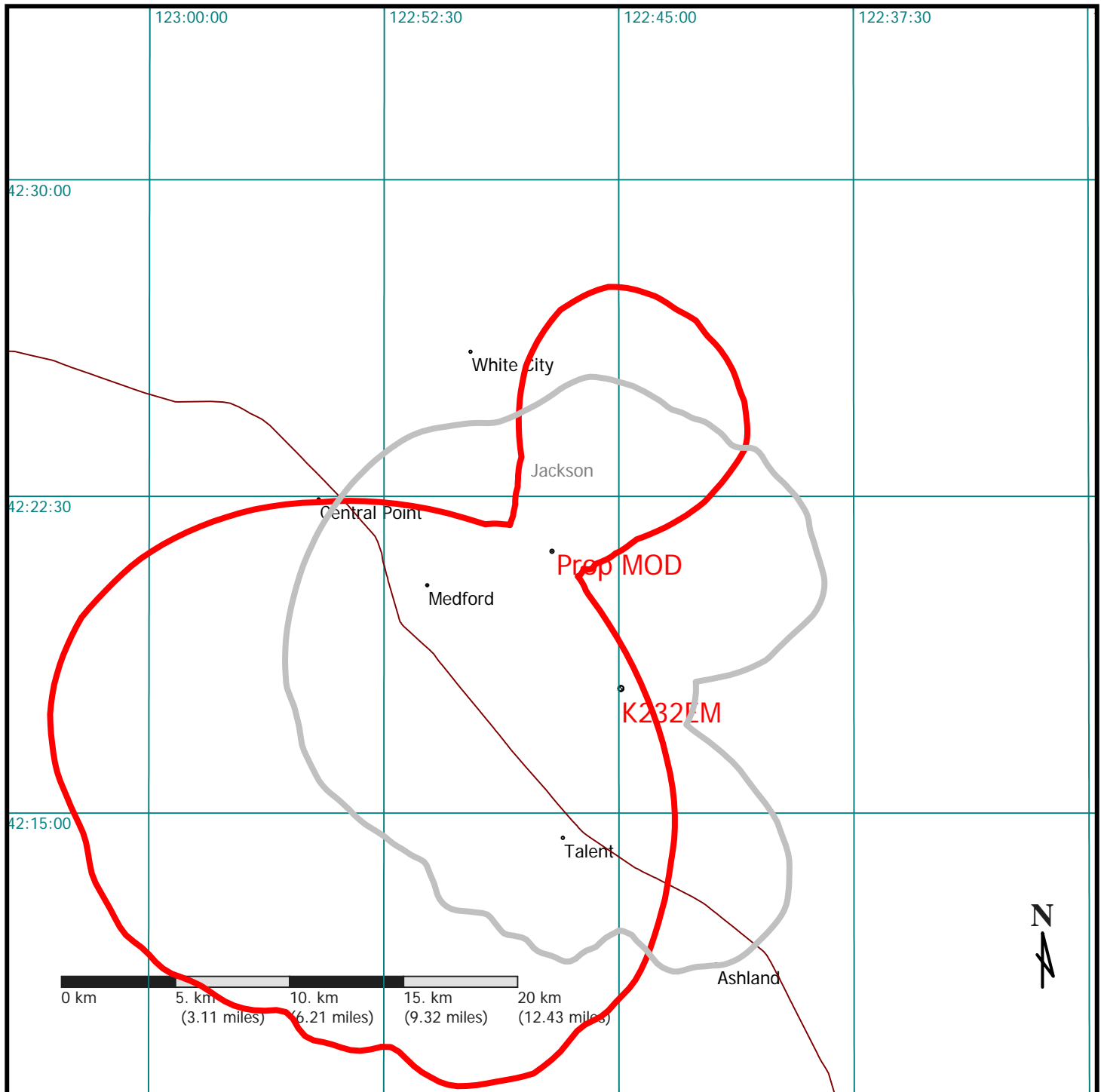
503-245-6065

# Exhibit 13a

## Proposed vs. Licensed K232EM 60dBu

Brown Broadcast Services, Inc.  
Job: K232EM Roxy Ann Final Oct 2016.fmj  
Master Database: 2016\_Oct\_15.fmd  
Lat: N42:21:12 Lon: W122:47:08 NAD-27  
Scale: 1:250000  
Channel: 231 Class: DX

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by rfSoftware, Inc.  
Date: 10/16/2016 10:46:27 AM



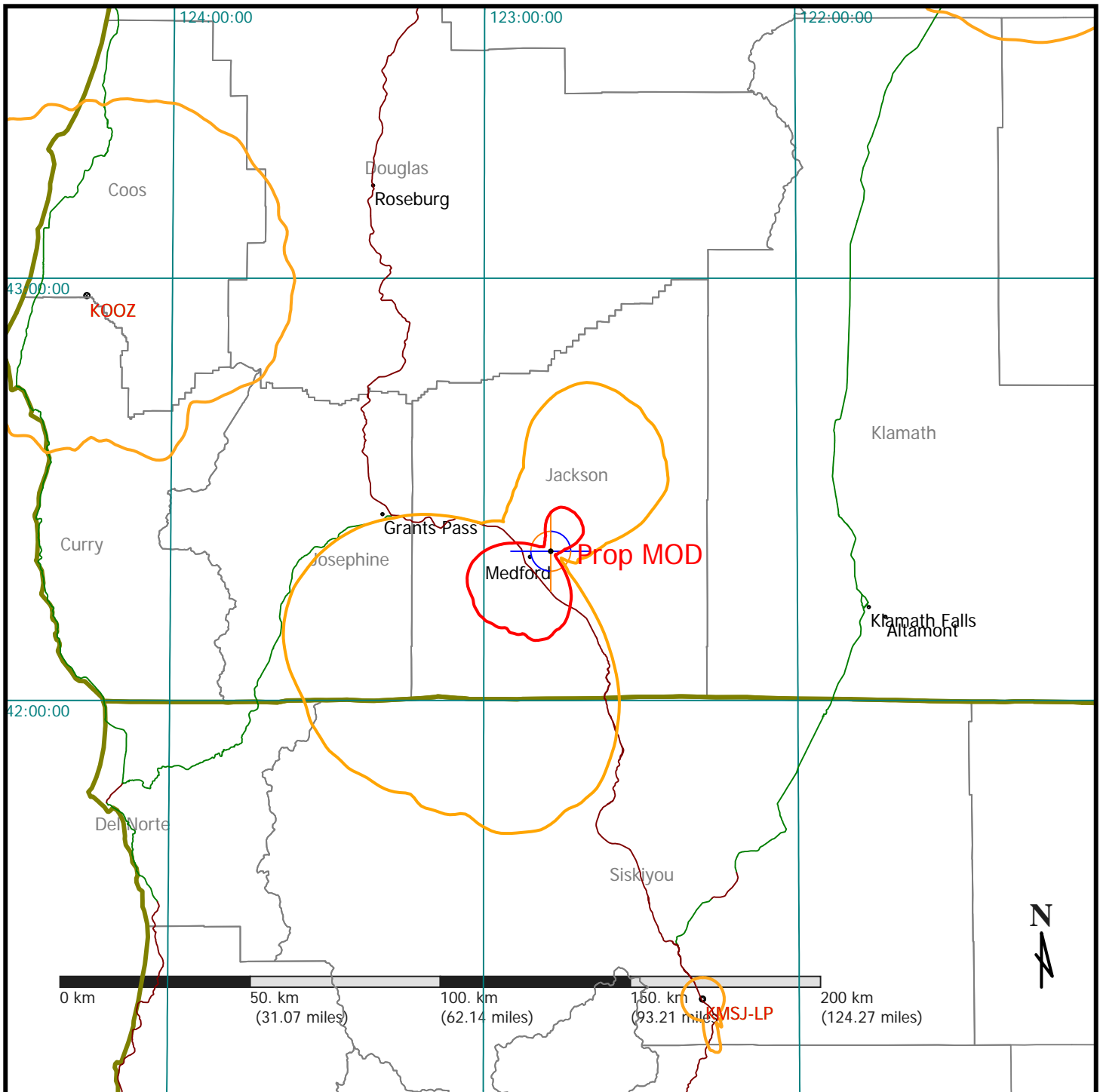
# Exhibit 13b

## Co-Channel Contour Protection

Brown Broadcast Services, Inc.  
Job: K232EM Roxy Ann Final Oct 2016.fmj  
Master Database: 2016\_Oct\_15.fmd  
Lat: N42:21:12 Lon: W122:47:08 NAD-27  
Scale: 1:1500000  
Channel: 231 Class: DX

**PROPOSED**  
**Interfering: 40dBu F(50,10)**  
**AFFECTED**  
**Protected: 60dBu F(50,50)**

rfInvestigator Version 3.8.16  
by rfSoftware, Inc.  
Date: 10/16/2016 12:50:23 PM  
Key:  
City Grade  
Protected  
Co-Channel  
1st Adj  
2nd/3rd Adj



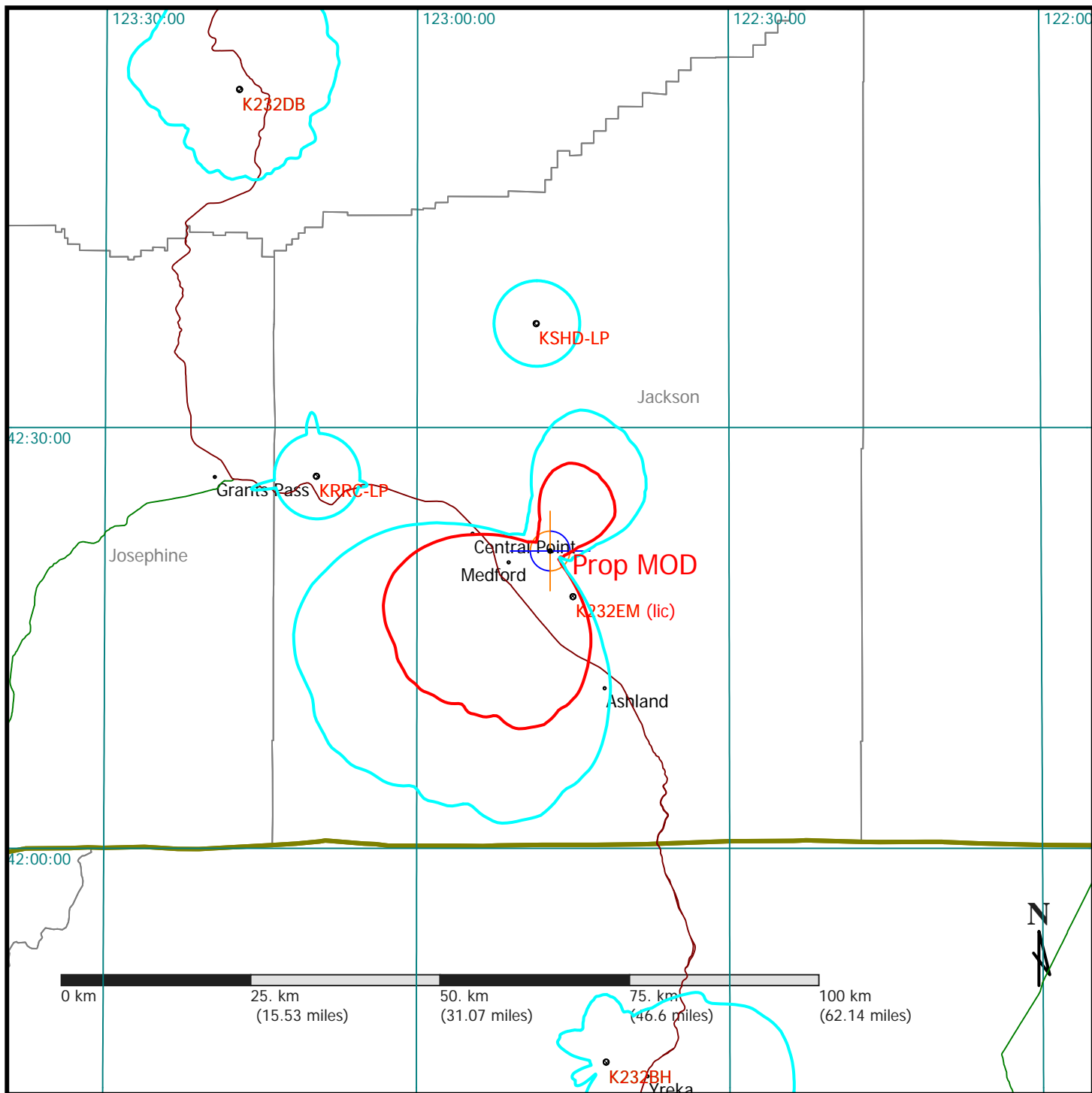
# Exhibit 13c

## First-Adjacent-Channel Contour Protection

Brown Broadcast Services, Inc.  
Job: K232EM Roxy Ann Final Oct 2016.fmj  
Master Database: 2016\_Oct\_15.fmd  
Lat: N42:21:12 Lon: W122:47:08 NAD-27  
Scale: 1:750000  
Channel: 231 Class: DX

**PROPOSED**  
Interfering: 54dBu F(50,10)  
**AFFECTED**  
Protected: 60dBu F(50,50)

rfInvestigator Version 3.8.16  
by rfSoftware, Inc.  
Date: 10/16/2016 12:52:08 PM  
Key:  
City Grade  
Protected  
Co-Channel  
1st Adj  
2nd/3rd Adj





**Exhibit 13d**  
**3rd-Adjacent-Channel Contour Protection**  
**vs KRRM**

Brown Broadcast Services, Inc.  
Job: K232EM Roxy Ann Final Oct 2016.fmj  
Master Database: 2016\_Oct\_15.fmd  
Lat: N42:21:12 Lon: W122:47:08 NAD-27  
Scale: 1:500000  
Channel: 231 Class: DX

**PROPOSED**  
**Interfering: 100dBu F(50,10)**  
**AFFECTED**  
**Protected: 60dBu F(50,50)**

rfInvestigator Version 3.8.16  
by rfSoftware, Inc.  
Date: 10/16/2016 12:53:41 PM  
Key:  
City Grade  
Protected  
Co-Channel  
1st Adj  
2nd/3rd Adj

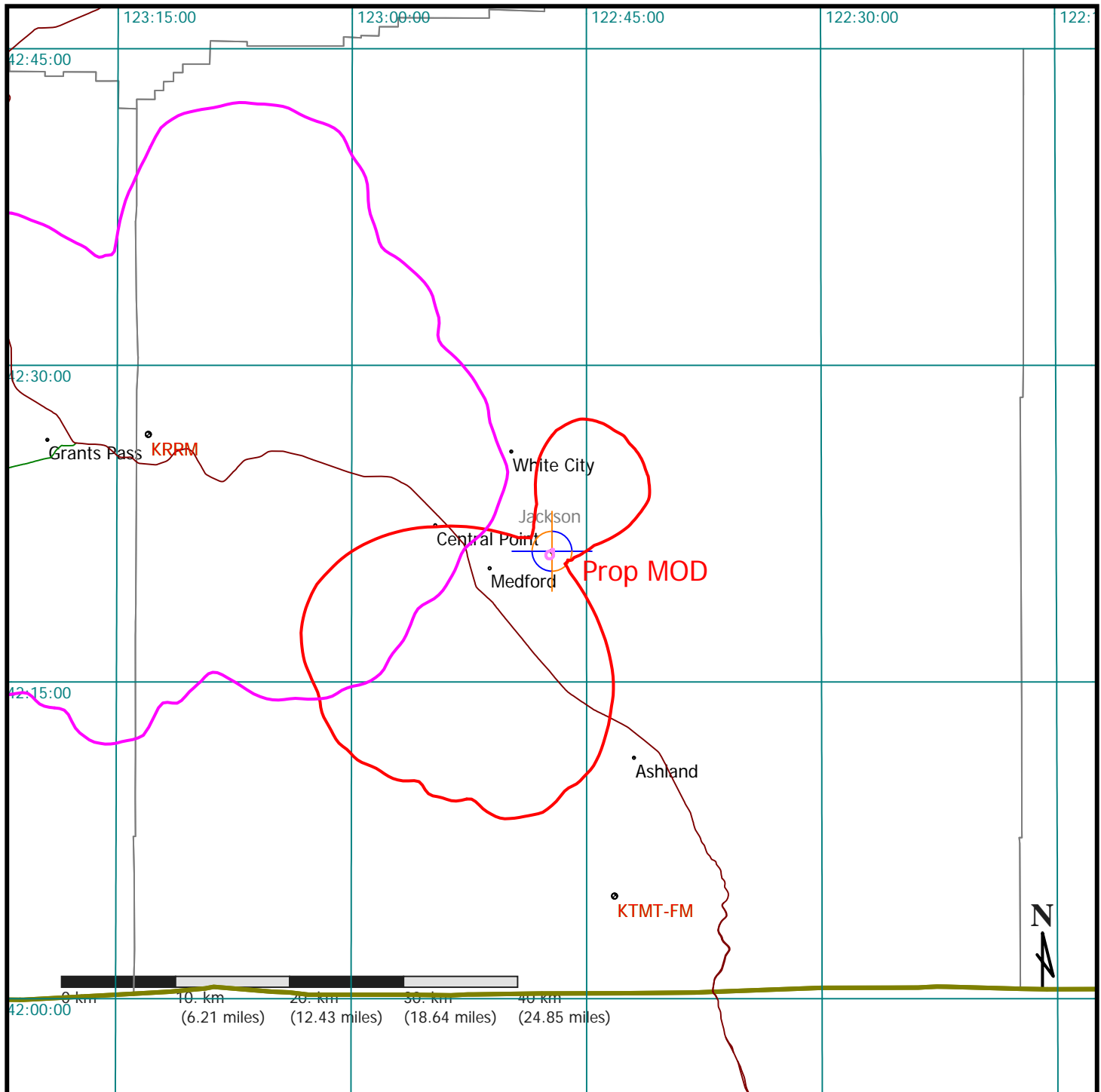


EXHIBIT 13e  
127.7dBu Interfering Contour vs. KTMT-FM  
>showing no populated areas<



Google Earth

feet 100  
meters 50



Only one unattended transmitter building is located within the interfering contour.

No interference will be caused to any station, in populated areas.

# EXHIBIT 17

## ENVIRONMENTAL PROTECTION ACT / NIER ANALYSIS

The applicant proposes mounting a new antenna on an existing 29 meter tower. The proposed center of radiation is 8m AGL. A 1-bay Kathrein/Scala CA2-FM/CP circularly-polarized directional antenna is proposed. Since this antenna is not specifically listed in Appendix B of the FM Model (online version) Public Notice, the "Type-1" (worst-case) setting was employed. FM Model predicted a peak exposure of  $122.9\mu\text{W}/\text{cm}^2$ , at 1.6 meters from the tower.

There are three other FM translators, and one full-power FM station, on this tower. An examination of the RF Exposure contributions is listed below:

RF EXPOSURE OF BROADCAST FACILITIES									
CALL	STAT	CITY	CL	ANENNA	AGL(m)	W ERP	FM MODEL SETTING	FM MODEL RF EXPOSURE uw/cm2	NOTES
<b>K232EM</b>	<b>PROP MOD</b>	<b>Medford</b>	<b>DX</b>	<b>Kathrein/Scala CA2-FM/CP</b>	<b>8</b>	<b>110</b>	<b>Type 1</b>	<b>122.9</b>	24uw/cm2 using factory-supplied elevation pattern data
KYVL	LIC	Eagle Point	FM	Jampro JLPC-2, 0.5 wave spaced	27	1000	Type 2	11.2	
K243AF	LIC	Jacksonville	DX	Kathrein/Scala 2-CLFM-V	13 vert only	250	Type 1	65.7	7.4uw/cm2 using factory-supplied elevation pattern data
K216DR	LIC	Central Point	DX	Kathrein/Scala CA2-FM/CP	17	10	Type 1	1.8	
K251AX	LIC	Medford	DX	Kathrein/Scala 2-CA2-FM/CP	21	41	Type 1	3.2	
		<b>TOTAL</b>						<b>204.8</b>	

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INCORPORATED  
3740 S.W. Comus St. Portland, Oregon 97219-7418

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For the following reasons, the applicant believes that this proposal should be considered to be in compliance with RF Exposure limits.

1. The applicant believes that the site should be considered an occupational/limited access site, in that it is at a remote mountaintop, accessible by a single road with a locked gate, and is marked with RF exposure warning signs. It also is not at the highest peak, which is 230 meters to the north. Hikers on foot can access the higher peak, with panoramic views, and do not normally go to the “lower peak” with the tower and obstructed views.
2. On the basis of an occupational/limited access area, the exposures predicted by FM Model represent 20.3% of the Maximum Permissible Exposures (MPE).
3. If factory-supplied antenna elevation data was employed, the total predicted exposures from these 5 broadcast facilities would be less than  $40\mu\text{W}/\text{cm}^2$ .
3. The peak exposure points are at different distances from the tower. The chart totals do not take this into account. The actual peak combined predicted exposures are lower.
5. All other facilities on this tower and nearby are non-broadcast in nature, and are not expected to be significant contributors to ground-level RF exposures.

Access to the tower is restricted by locked perimeter fencing. Appropriate RF exposure warning signs are in place. If tower climbing by authorized personnel becomes necessary, transmitter power will be reduced or operation will cease, as necessary, so as to not exceed the RF exposure limits.

**BROWN BROADCAST SERVICES**

Michael D. Brown

INCORPORATED  
3740 S.W. Comus St. Portland, Oregon 97219-7418

503-245-6065