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**Engineering Statement
Application for Digital Displacement Channel for TV Translator Station
K55FM at Myrtle Point, OR
August 2011**

This Engineering Statement has been prepared on behalf of Oregon Public Broadcasting, in connection with an application for a digital displacement channel for TV translator station K55FM at Myrtle Point, Oregon.

I. Allocation Study

Study has been made of all cochannel and adjacent-channel facilities in the vicinity of the proposed operation, including a detailed Longley-Rice interference study to demonstrate that the proposed operation will not cause interference to any facilities with which contour overlap exists. This study was performed using the SunDTV program from V-Soft Communications and a 1 km grid spacing. The SunDTV program identically duplicates the FCC's OET-69 processing program.

The results of this study indicate that the proposed facility is predicted to cause zero additional interference to any of the listed stations. Based on the foregoing allocation and interference study, it is believed that the proposed facility can operate without risk of interference to other stations.

Summary Study

Percent allowed new interference: 0.500
Percent allowed new interference to non Class A LPTV: 2.000
Census data selected 2000
Data Base Selected
./data_files/pt_tvdb.sff
TV INTERFERENCE and SPACING ANALYSIS PROGRAM

Date: 08-22-2011 Time: 13:00:25

Record Selected for Analysis

K55FM USERRECORD-02 MYRTLE POINT OR US
Channel 33 ERP 0.325 kW HAAT 127. m RCAMSL 00225 m SIMPLE MASK
Latitude 043-10-45 Longitude 0124-09-09
Status APP Zone 2 Border Site number: 01
Dir Antenna Make usr Model USRPAT02 Beam tilt N Ref Azimuth 240.
Last update Cutoff date Docket
Comments
Applicant

Cell Size for Service Analysis 1.0 km/side

Distance Increments for Longley-Rice Analysis 1.00 km

Not full service station
Service Class = LD
Maximum height/power limits not checked

Site number	1			
Azimuth	ERP	HAAT	51.0 dBu F(50,90)	
(Deg)	(kW)	(m)	(km)	
0.0	0.006	128.1	9.6	
45.0	0.000	105.8	3.3	
90.0	0.000	121.7	3.5	
135.0	0.074	109.1	16.1	
180.0	0.309	132.7	25.6	
225.0	0.258	118.8	23.6	
270.0	0.205	154.8	25.0	
315.0	0.250	142.8	25.2	

Contour Overlap to Proposed Station

Contour Overlap Evaluation to Proposed Station Complete

NO LANDMOBILE SPACING VIOLATIONS FOUND

Checks to Site Number 01

Proposed facility OK to FCC Monitoring Stations

Proposed facility OK toward West Virginia quiet zone

Proposed facility OK toward Table Mountain

Proposed facility is beyond the Canadian coordination distance

Proposed facility is beyond the Mexican coordination distance

Proposed station is OK toward AM broadcast stations

Start of Interference Analysis

Channel	Proposed Station	Call	City/State	ARN
33	K55FM	MYRTLE POINT	OR	USERRECORD02

Stations Potentially Affected by Proposed Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
18	K18EP	BROOKINGS, ETC. OR	118.0	LIC	BLTT	-19960829JA
18	K18AN	GRANTS PASS OR	111.1	LIC	BLTT	-19850621IA
18	K18AN	GRANTS PASS OR	103.2	CP	BPTT	-20080125ADF
25	K25FG	ROSEBURG OR	67.6	LIC	BLTTL	-20090310AAZ
31	K31GP	BROOKINGS, ETC. OR	125.7	LIC	BLTT	-20051214ACA
31	K31AE	SUTHERLIN OR	90.7	LIC	BLTT	-19970513JB
32	K32JY-D	: EUGENE OR	132.9	CP	BNPDTL	-20090825BHV
32	K32ET	CANYONVILLE OR	76.9	LIC	BLTTA	-20011130ABA
32	K32HF-D	FLORENCE OR	86.7	LIC	BLDTT	-20100119ADV
32	NEW	GRANTS PASS OR	90.6	APP	BNPDTL	-20090825BGO
32	K32DY	MEDFORD OR	150.7	CP	BDFCDTA	-20090313AAD
32	K32DY	MEDFORD OR	150.7	LIC	BLTTA	-20070412ABL
32	K32JL-D	POWERS OR	29.8	CP	BNPDTT	-20090825BMY
32	K32FI-D	YONCALLA OR	84.0	LIC	BLDTL	-20110228AFN
33	K33DI	EAST WEED CA	243.5	LIC	BLTTL	-19910206JJ
33	KEMY-LP	EUREKA CA	273.0	LIC	BLTTL	-20050729AMZ
33	KEMY-LP	EUREKA CA	273.0	CP	BDFCDTL	-20110404AEY
33	K33HH	REDDING CA	311.5	LIC	BLTTL	-20030507AAC
33	K33JP-D	APPLEGATE VALLEY OR	140.5	CP	BDCCDTT	-20061030AIR
33	K33AG	BEND OR	248.0	LIC	BLTTL	-19871223ID
33	K33AG	BEND OR	248.0	CP	BDFCDTT	-20060330ADV
33	K33CP	GOLD BEACH OR	85.6	LIC	BLTT	-19900329JJ
33	KFTS	KLAMATH FALLS OR	238.5	LIC	BLEDT	-20060202AHF
33	K33KD-D	LONDON SPRINGS OR	99.6	LIC	BLDTT	-20091109AAX
33	K33GJ-D	MERLIN OR	90.9	LIC	BLDTL	-20110527ALR
33	K33FE	ROSEBURG OR	62.4	LIC	BLTT	-20020503AAS
33	KRCW-TV	SALEM OR	283.2	LIC	BMLCDT	-20070123ABS
33	KRCW-TV	SALEM OR	283.2	CP	BPCDT	-20080619AKY
33	NEW	TOKELAND WA	395.6	APP	BNPDTL	-20100324ABC
34	K34KJ-D	CRESCENT CITY, ETC. CA	134.5	LIC	BLDTL	-20100802AZM
34	K34IC	GLIDE OR	90.7	CP	BDFCDTL	-20090804ABY
34	K34IC	GLIDE OR	90.7	LIC	BLTTL	-20061113AAJ
34	K34LG-D	HARRISBURG OR	124.4	CP	BNPDTL	-20090825APQ
34	K49JE-D	MURPHY, ETC. OR	111.0	APP	BSTA	-20060707AFC
34	K34DJ	PHOENIX, ETC. OR	150.6	LIC	BLTT	-19920408IC
34	K61EH	POWERS OR	29.8	CP	BDISDTT	-20090211ADI
36	K36HL	GRANTS PASS OR	111.0	LIC	BLTT	-20051110AED
40	K40BL	HUGO, ETC. OR	90.9	LIC	BLTT	-19880527IG
41	KORY-CA	EUGENE OR	124.0	LIC	BLTTA	-20020722ABH
41	K41IX	MEDFORD OR	125.6	LIC	BLTT	-20060227ADC

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Study of this proposal found the following interference problem(s):

NONE.

II. RF Exposure Study

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 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.

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

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.

Power density levels produced by the proposed facility were calculated for an elevation of 2 meters above ground (15 meters below the antenna radiation center). The worst case power density levels occur at depression angles between 45 and 90 degrees below the horizontal. The calculations in this report assume a worst-case relative field value of 0.257 at these angles, based on the manufacturer's vertical plane pattern for the horizontally-polarized Scala 4DR-4-2HW antenna proposed in this application. This relative field value yields a worst-case adjusted average effective radiated power of 21.5 Watts at depression angles between 45 and 90 degrees below the horizontal. Assuming this power and the shortest distance between the antenna radiation center

and 2 meters above ground level (i.e. straight down), the highest calculated power density from the proposed antenna alone occurs at the base of the antenna support structure. At this point the power density is calculated to be $3.2 \mu\text{W}/\text{cm}^2$, which is 0.8% of $389 \mu\text{W}/\text{cm}^2$ (the FCC maximum for uncontrolled environments at the Channel 33 frequency).

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation 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 non-ionizing radiation at this site is required in this application.

Pursuant to OET Bulletin No. 65, all station personnel and contractors are required to follow appropriate safety procedures before any work is commenced on the antenna tower, including reduction in power or discontinuance of operation before any maintenance work is undertaken. 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.

August 22, 2011

Erik C. Swanson, P.E.