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**Engineering Statement
Digital Flash Cut Application for K11VI
Channel 11 at Elkton, OR
July 2009**

This Engineering Statement has been prepared on behalf of Oregon Public Broadcasting, licensee of TV translator station K11VI at Elkton, Oregon. This material has been prepared in connection with an application for digital flash-cut.

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

Census data selected: 2000

Post DTV Transition Database Selected

TV INTERFERENCE and SPACING ANALYSIS PROGRAM

Date: 07-15-2009 Time: 12:51:23

Record Selected for Analysis

K11VI USERRECORD-01 ELKTON OR US
Channel 11 ERP 0.13 kW HAAT 145. m RCAMSL 00401 m STRINGENT MASK
Latitude 043-37-16 Longitude 0123-32-03
Status APP Zone 2 Border
Dir Antenna Make usr Model USRPAT01 Beam tilt N Ref Azimuth 0.
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

Facility meets maximum power limit

Azimuth (Deg)	ERP (kW)	HAAT (m)	48.0 dBu F(50,90) (km)
0.0	0.002	121.5	10.4
45.0	0.005	150.5	14.0
90.0	0.005	85.8	10.8
135.0	0.004	35.1	6.6
180.0	0.012	226.7	21.6
225.0	0.121	95.9	24.3
270.0	0.052	238.3	30.2
315.0	0.094	206.6	32.1

Contour Overlap to Proposed Station

Station
K11BX 11 IDLEYLD PARK, ETC. OR BLTTV284 causes

Contour overlap to Digital LPTV station

K11VI 11 ELKTON OR USERRECORD01
Required D/U ratio: 2.0

Contour Overlap Evaluation to Proposed Station Complete

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
11	K11VI	ELKTON OR	USERRECORD01

Stations Potentially Affected by Proposed Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
10	K10LR	BROOKINGS OR	184.3	LIC	BLTTV	-19820728IB
10	KTVL	MEDFORD OR	183.6	CP MOD	BMPCDT	-20081112AIS
11	KEET	EUREKA CA	323.6	LIC	BLEDT	-20071101AAG
11	K11JM	FALL RIVER MILLS, ETC CA	336.3	LIC	BLTTV	-20060428AER
11	K11GO	HAPPY CAMP, ETC. CA	196.5	LIC	BLTTV	-4604
11	K11NE	HOOPA CA	278.4	CP	BDFCDVA	-20060703AAW
11	K11NE	HOOPA CA	278.4	LIC	BLTTV	-4815
11	K11LD	LIKELY CA	367.6	LIC	BLTTV	-4191
11	KOAB-TV	BEND OR	183.6	LIC	BLEDT	-20060823AAP
11	K11GT	COLLEGE HILL, ETC. OR	54.7	LIC	BLTTV	-3293
11	KCBY-TV	COOS BAY OR	54.4	CP MOD	BMPCDT	-20080620AHU
11	K11KI	DISSTON OR	57.0	CP	BDFCDTV	-20081210AEU
11	K11KI	DORENA, ETC. OR	57.1	LIC	BLTT	-3642
11	K11BX	IDLEYLD PARK, ETC. OR	48.0	LIC	BLTTV	-284
11	K11NM	MONUMENT OR	351.3	LIC	BLTTV	-4746
11	K11SZ	OAKRIDGE OR	92.5	LIC	BLTTV	-19981005JE
11	K11LT	PRAIRIE CITY OR	418.6	LIC	BLTTV	-4838
11	K11RM	SILVER LAKE, ETC. OR	220.2	LIC	BLTTV	-19830418IN
11	K11GH	TRI CITY, ETC. OR	82.5	LIC	BLTTV	-3327
12	K12JD	SEIAD VALLEY CA	199.5	LIC	BLTTV	-5032
12	K12KX	GRANTS PASS OR	136.1	LIC	BLTTV	-19781117ID
12	KDRV	MEDFORD OR	106.2	CP	BPCDT	-20080215APP
12	K12IA	OAKLAND, ETC. OR	30.1	LIC	BLTTV	-3742

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

NONE.

II. NIER 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.

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

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 (19 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 0.290 at these angles, based on the

manufacturer's vertical plane pattern for the horizontally-polarized Scala HDCA-10 antenna proposed in this application. This relative field value yields a worst-case adjusted average effective radiated power of 10.9 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 $1.0 \mu\text{W}/\text{cm}^2$, which is 0.5% of $200 \mu\text{W}/\text{cm}^2$ (the FCC maximum for uncontrolled environments at the Channel 11 frequency).

These calculations show that the worst-case 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.

July 15, 2009

Erik C. Swanson, P.E.