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**Engineering Statement
Digital Flash Cut Application for K17GV
Channel 17 at Rainier, OR
August 2009**

This Engineering Statement has been prepared on behalf of Rural Oregon Wireless TV, Inc., licensee of TV translator station K17GV at Rainier, 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: 08-07-2009 Time: 16:11:03

Record Selected for Analysis

K17GV USERRECORD-04 RAINIER OR US
Channel 17 ERP 0.34 kW HAAT 219. m RCAMSL 00399 m STRINGENT MASK
Latitude 046-09-46 Longitude 0122-51-05
Status APP Zone 2 Border
Dir Antenna Make usr Model USRPAT04 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

Facility meets maximum power limit

Azimuth (Deg)	ERP (kW)	HAAT (m)	51.0 dBu F(50,90) (km)
0.0	0.001	180.6	7.1
45.0	0.002	58.1	5.1
90.0	0.000	171.2	2.4
135.0	0.001	105.2	5.1
180.0	0.025	287.5	20.7
225.0	0.282	300.1	33.8
270.0	0.167	334.9	32.0
315.0	0.003	311.5	12.0

Contour Overlap to Proposed Station

Station
K17HA 17 ASTORIA OR BLTT20050616AAQ causes

Contour overlap to Digital LPTV station

K17GV 17 RAINIER OR USERRECORD04
Required D/U ratio: 2.0

Contour Overlap Evaluation to Proposed Station Complete

LANDMOBILE SPACING VIOLATIONS FOUND

NONE

Proposed facility OK to FCC Monitoring Stations

Proposed facility OK toward West Virginia quiet zone

Proposed facility OK toward Table Mountain

Proposed facility is within the Canadian coordination distance
Distance to border = 234.5km

Proposed facility is beyond the Mexican coordination distance

Proposed station is OK toward AM broadcast stations

Start of Interference Analysis

Channel	Call	City/State	ARN
17	K17GV	RAINIER OR	USERRECORD04

Stations Potentially Affected by Proposed Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
16	KORS-CA	PORTLAND OR	71.6	CP	BDFCDTA	-20090630ACS
16	KORS-CA	SALEM OR	71.6	CP	BPTTA	-20040902AAJ
16	KORS-CA	SALEM OR	71.6	APP	BSTA	-20090518AAC
16	KSLM-LD	SALEM OR	133.7	LIC	BLDTL	-20081009AET
16	KSLM-LD	SALEM OR	133.7	CP	BPDTL	-20090107ACQ
16	KNDO	YAKIMA WA	184.5	CP MOD	BMPCDT	-20080624AAP
17	K17GK	ARLINGTON OR	206.2	LIC	BLTT	-20060522ADH
17	K17GK	ARLINGTON OR	206.2	CP	BDFCDTT	-20080325AHM
17	K17HA	ASTORIA OR	81.5	LIC	BLTT	-20050616AAQ
17	KABH-LD	BEND OR	260.9	CP	BDCCDTL	-20061025ADR
17	K17IJ-D	BUTTE FALLS OR	399.6	CP	BDCCDTT	-20061030AHC
17	K17DU	CHRISTMAS VALLEY OR	367.8	LIC	BLTTL	-19970505JE
17	K17AA	COOS BAY, ETC. OR	335.4	LIC	BLTT	-19840702IA
17	KMTR	EUGENE OR	227.8	LIC	BLCDT	-20030618AAY
17	KWVT-LP	SALEM OR	133.7	LIC	BLTTL	-20080512AFV
17	K17IL-D	ELLENSBURG, ETC. WA	201.1	LIC	BLDTT	-20090506ACN
17	K17IL-D	ELLENSBURG, ETC. WA	201.1	CP	BDISTT	-20061002AEO
17	K58BW	EVERETT WA	214.9	APP	BDISDTT	-20090505ABJ
18	K18EL	NEWBERG/TIGARD OR	90.4	LIC	BLTTL	-19940506IN
18	K18EL	NEWBERG/TIGARD OR	90.4	APP	BSTA	-20060608ACM
18	K18EL	NEWBERG/TIGARD OR	90.4	CP	BDFCDTL	-20060331BBL
18	K18FR	NEWPORT OR	182.0	LIC	BLTT	-20021217AAQ
18	K18FR	NEWPORT OR	182.1	CP	BPTT	-20080321ACA
18	K18FR	NEWPORT OR	182.1	CP	BDFCDTT	-20090210AAG
18	K18HH	THE DALLES OR	143.2	LIC	BLTT	-20070622ABB
19	K19EI	PACIFIC C/CLOVERDALE OR	126.7	LIC	BLTT	-20020311AAN
19	K67GU	SALEM OR	147.0	APP	BPTTL	-20020521AAX
19	K63BZ	ELLENSBURG WA	201.1	CP	BDISTT	-20061002AEP
20	K20DD	ALBANY, ETC. OR	184.5	LIC	BLTTL	-19940114JN
20	K20EH	HOOD RIVER OR	108.6	LIC	BLTTL	-19940114JR
20	K20EH	HOOD RIVER OR	108.9	CP	BPTTL	-20070815ABA
20	K63GK	PORTLAND OR	64.6	APP	BPTTL	-20020627AAR
20	K20HT	ROCKAWAY OR	96.1	LIC	BLTT	-20030609AGF
20	KOXI-CA	CAMAS WA	71.6	LIC	BLTTA	-20070831ACY
21	K21HG	RAINIER OR	0.0	LIC	BLTT	-20070209ABR
21	K21GX	SALEM OR	133.6	LIC	BLTTL	-20070103AAN
21	K21DE	SEASIDE-ASTORIA OR	81.6	LIC	BLTTL	-19940902IE
24	KKEI-CA	PORTLAND OR	71.6	APP	BDISTTA	-20090102ACF
24	NEW	WARM SPRINGS OR	186.2	APP	BNPTTL	-20000831BZN
25	K25KS	THE DALLES OR	143.2	LIC	BLTT	-20090617AAM
25	K25CG	ABERDEEN WA	108.9	LIC	BLTT	-19890801IB
25	K25CH	CENTRALIA WA	46.3	LIC	BLTT	-20031124AHA
25	K25FP	ELLENSBURG WA	201.2	LIC	BLTTL	-19971103IP

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.

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

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 (13 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 0.200 at these angles, based on the manufacturer's vertical plane pattern for the horizontally-polarized Scala 1X1KBBU broadband

antenna array proposed in this application. This relative field value yields a worst-case adjusted average effective radiated power of 13.6 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 $2.7 \mu\text{W}/\text{cm}^2$, which is 0.8% of $327 \mu\text{W}/\text{cm}^2$ (the FCC maximum for uncontrolled environments at the Channel 17 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.

August 19, 2009

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