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**Engineering Statement  
Digital Flash Cut Application for K20HT  
Channel 20 at Rockaway Beach, OR  
March 2010**

This Engineering Statement has been prepared on behalf of Rural Oregon Wireless TV, Inc., licensee of TV translator station K20HT at Rockaway Beach, 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: 03-26-2010 Time: 11:35:23

Record Selected for Analysis

K20HT USERRECORD-01 ROCKAWAY OR US  
Channel 20 ERP 0.975 kW HAAT 397. m RCAMSL 00493 m SIMPLE MASK  
Latitude 045-44-38 Longitude 0123-56-23  
Status APP Zone 2 Border  
Dir Antenna Make usr Model USRPAT01 Beam tilt N Ref Azimuth 160.  
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	0.004	302.9	12.6
45.0	0.002	266.3	10.7
90.0	0.016	309.7	19.4
135.0	0.593	341.2	39.6
180.0	0.721	484.3	45.4
225.0	0.039	493.0	28.2
270.0	0.002	493.0	14.9
315.0	0.001	486.8	12.6

Contour Overlap to Proposed Station

Station  
K63GK 20 PORTLAND OR BPTTL20020627AAR causes

Contour overlap to Digital LPTV station

K20HT 20 ROCKAWAY OR USERRECORD01  
Required D/U ratio: 2.0

Station  
KOXI-CA 20 CAMAS WA BLTTA20070831ACY causes

Contour overlap to Digital LPTV station

K20HT 20 ROCKAWAY OR USERRECORD01  
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 = 277.2km

Proposed facility is beyond the Mexican coordination distance

Proposed station is OK toward AM broadcast stations

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## Start of Interference Analysis

Channel	Proposed Station	Call	City/State	ARN
20	K20HT	ROCKAWAY OR		USERRECORD01

## Stations Potentially Affected by Proposed Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
19	K19GH-D	EUGENE, ETC. OR	195.5	LIC	BLDTA	-20091211AEO
19	K19GH-D	EUGENE, ETC. OR	195.5	LIC	BLTTA	-20090619ADJ
19	K19EC-D	MAPLETON OR	188.0	LIC	BLDTL	-20100223ACV
19	K19EI	PACIFIC C/CLOVERDALE OR	60.7	LIC	BLTT	-20020311AAN
19	K19EI	PACIFIC C/CLOVERDALE OR	60.7	CP	BDFCDTT	-20090220ABE
19	K67GU	SALEM OR	117.8	APP	BPTTL	-20020521AAX
19	KCKA	CENTRALIA WA	112.8	CP	BPEDT	-20080620ABA
19	KCKA	CENTRALIA WA	112.8	LIC	BLEDT	-20051005AAZ
20	K20DD	ALBANY, ETC. OR	157.7	CP	BDFCDTL	-20090630ACM
20	K20DD	ALBANY, ETC. OR	157.7	LIC	BLTTL	-19940114JN
20	K20IR-D	COTTAGE GROVE OR	229.7	LIC	BLDTT	-20090303ACH
20	K20DT	GRANTS PASS OR	369.5	LIC	BLTTL	-19970818JD
20	K20EH	HOOD RIVER OR	183.0	LIC	BLTTL	-19940114JR
20	K20EH	HOOD RIVER OR	183.1	CP	BPTTL	-20070815ABA
20	K20EH	HOOD RIVER OR	183.1	CP	BDFCDTL	-20090824ACD
20	NEW	MEDFORD OR	373.2	APP	BNPDTL	-20100301ADM
20	K29GX	MERLIN OR	341.6	APP	BPTTL	-20040108AKI
20	K20BI	NESIKA BEACH OR	373.5	LIC	BLTT	-19980413JV
20	K20ES	PENDLETON, ETC. OR	366.7	LIC	BLTTL	-19960301JC
20	K63GK	PORTLAND OR	122.6	APP	BPTTL	-20020627AAR
20	K20JK-D	PRINEVILLE OR	275.6	CP	BDCCDTT	-20061030ABE
20	KOXI-CA	CAMAS WA	96.0	LIC	BLTTA	-20070831ACY
20	K20JL-D	ELLENSBURG, ETC. WA	297.1	LIC	BLDTT	-20090506ACI
20	K20KG-D	PASCO WA	360.7	CP	BNPDTL	-20090825AJY
20	NEW	WENATCHEE WA	333.8	APP	BNPDTL	-20090825ALG
20	K20JO-D	YAKIMA WA	277.9	CP	BDCCDTL	-20060927AIQ
21	K21FS	EUGENE OR	187.5	LIC	BLTT	-20011005ABD
21	K21FS	EUGENE OR	187.5	CP	BDFCDTT	-20090217AEV
21	K21HG	RAINIER OR	96.1	LIC	BLTT	-20070209ABR
21	K21GX	SALEM OR	105.5	LIC	BLTTL	-20070103AAN
21	K21DE	SEASIDE-ASTORIA OR	60.4	LIC	BLTTL	-19940902IE
21	K21DE	SEASIDE/ASTORIA OR	60.4	CP	BDFCDTL	-20090810ABT
23	K23GK	ASTORIA OR	60.4	LIC	BLTT	-20051014ADU
23	KEVU-LP	EUGENE OR	204.4	LIC	BLTTA	-20020802AAR
23	K52ET	TILLAMOOK OR	60.6	CP	BDISTT	-20061212ABH
28	K28FP	ASTORIA OR	60.4	LIC	BLTTL	-19990727JG
28	K28CQ	HOOD RIVER OR	183.1	CP	BPTT	-20070822AAQ

28 K28CQ HOOD RIVER, ETC. OR 183.0 LIC BLTT -19890324IE

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

NONE.

## II. NIER Study

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.

ROWT owns and is filing applications for digital flash cut for its six TV translators operating from this transmitter site. Calculations of the power density produced by these facilities are summarized in the following table:

Call	Avg or Peak ERP Antenna Model	Relative Field	Height AGL	Calculated Max Exposure	Gen Pub FCC Limit	% of Limit
K20HT-D	0.975 kW avg KAT 2X1KBBU	0.125	5 m	56.6 $\mu\text{W}/\text{cm}^2$	339 $\mu\text{W}/\text{cm}^2$	16.7%
K36GU-D	0.975 kW avg KAT 2X1KBBU	0.125	5 m	56.6 $\mu\text{W}/\text{cm}^2$	403 $\mu\text{W}/\text{cm}^2$	14.0%
K41GG-D	0.975 kW avg KAT 2X1KBBU	0.125	5 m	56.6 $\mu\text{W}/\text{cm}^2$	423 $\mu\text{W}/\text{cm}^2$	13.4%
K44AV-D	0.975 kW avg KAT 2X1KBBU	0.125	5 m	56.6 $\mu\text{W}/\text{cm}^2$	435 $\mu\text{W}/\text{cm}^2$	13.0%
K47CD-D	0.975 kW avg KAT 2X1KBBU	0.125	5 m	56.6 $\mu\text{W}/\text{cm}^2$	447 $\mu\text{W}/\text{cm}^2$	12.7%
K51FK-D	0.975 kW avg KAT 2X1KBBU	0.125	5 m	56.6 $\mu\text{W}/\text{cm}^2$	463 $\mu\text{W}/\text{cm}^2$	12.2%

Nearby FM translator K291BI operates with an ERP of less than 100 Watts and is therefore excluded from this study.

(For TV translators, the relative field value indicated is the maximum value which occurs at 45 degrees or more below the horizontal, based on the manufacturer's vertical plane pattern. The

resulting adjusted ERP value is assumed to be radiated straight down to a point 2 meters above ground level at the base of the tower.)

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed digital flash cut facilities at this site (were their maxima to coincide) is 82% of the FCC standard for uncontrolled environments.

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.

March 26, 2010

Erik C. Swanson, P.E.