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**Engineering Statement  
Digital Flash Cut Application for K08LG  
Channel 8 at Silver Lake, OR  
October 2010**

This Engineering Statement has been prepared on behalf of Oregon Public Broadcasting, licensee of TV translator station K08LG at Oakridge, 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. (Interference is shown only with the licensed K08LG facility.)

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: 10-05-2010 Time: 18:16:10

## Record Selected for Analysis

K08LG USERRECORD-01 SILVER LAKE, ETC. OR US  
Channel 08 ERP 0.3 kW HAAT 344. m RCAMSL 01730 m SIMPLE MASK  
Latitude 043-09-54 Longitude 0120-52-44  
Status APP Zone 2 Border Site number: 01  
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  
Service Class = LD  
Maximum height/power limits not checked

Site number	1			
Azimuth	ERP	HAAT	48.0 dBu F(50,90)	
(Deg)	(kW)	(m)	(km)	
0.0	0.260	394.7	49.9	
45.0	0.281	404.5	51.0	
90.0	0.069	363.3	38.1	
135.0	0.021	246.4	25.4	
180.0	0.016	342.9	27.1	
225.0	0.018	354.2	28.1	
270.0	0.272	407.2	50.9	
315.0	0.259	241.6	41.3	

## Contour Overlap to Proposed Station

Station  
K08LG 8 SILVER LAKE, ETC. OR BLTTV19910906IC

Station inside contour of Digital LPTV station  
K08LG 8 SILVER LAKE, ETC. OR USERRECORD01

Contour Overlap Evaluation to Proposed Station Complete

## SPACING VIOLATION FOUND BETWEEN STATION

K08LG 08 SILVER LAKE, ETC. OR USERRECORD01 Site # 01

and station

SHORT TO: KBNZ-LD 07 BEND OR BLDVL 20081016AEM  
044-04-41 0121-19-57  
Req. separation => 11.0 <= 125.0 Actual separation 107.8 Short 17.2( 96.8) km

SHORT TO: K07PS 07 CHEMULT, ETC. OR BLTTV 19800424IC  
043-18-19 0121-42-56  
Req. separation => 11.0 <= 125.0 Actual separation 69.7 Short 55.3( 58.7) km

SHORT TO: K07NR-D 07 LAKEVIEW, ETC. OR BLDTV 20081201AKV  
042-12-18 0120-19-37  
Req. separation => 11.0 <= 125.0 Actual separation 115.8 Short 9.2(104.8) km

SHORT TO: K08OR-D 08 CANBY CA BLDTV 20081017AFR  
041-26-26 0120-43-53  
Req. separation 273.6 Actual separation 191.9 Short 81.7 km

SHORT TO: K08OB-D 08 NEWELL CA BLDTV 20081215ACC  
041-51-16 0121-19-42  
Req. separation 273.6 Actual separation 150.2 Short 123.4 km

SHORT TO: K08EQ 08 SEIAD VALLEY CA BLTTV 4006  
041-50-21 0123-14-17  
Req. separation 273.6 Actual separation 243.5 Short 30.1 km

SHORT TO: K08NP 08 JOHN DAY OR BLTVL 20060721AAK  
044-26- 2 0118-57-27  
Req. separation 273.6 Actual separation 209.3 Short 64.3 km

SHORT TO: K08NP 08 JOHN DAY OR BDFCDVL 20100113AAN  
044-26- 2 0118-57-27  
Req. separation 273.6 Actual separation 209.3 Short 64.3 km

SHORT TO: KSYS 08 MEDFORD OR BLEDT 20090520ABE  
042-41-32 0123-13-45  
Req. separation 273.6 Actual separation 198.9 Short 74.7 km

SHORT TO: K08KN 08 PRINEVILLE, ETC. OR BLTTV 19910821IF  
044-11-51 0120-58-35  
Req. separation 273.6 Actual separation 115.0 Short 158.6 km

SHORT TO: K08LG 08 SILVER LAKE, ETC. OR BLTTV 19910906IC  
043-09-55 0120-52-50  
Req. separation 273.6 Actual separation 0.1 Short 273.5 km

SHORT TO: K09YE 09 LA PINE OR BLTTV 20070504ACK  
043-39- 0 0121-25-44  
Req. separation => 11.0 <= 125.0 Actual separation 69.9 Short 55.1( 58.9) km

SHORT TO: K09VC 09 PAISLEY OR BLTTV 19890322IA  
042-41-42 0120-33-13  
Req. separation => 11.0 <= 125.0 Actual separation 58.6 Short 66.4( 47.6) km

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

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Start of Interference Analysis

Channel	Proposed Station Call	City/State	ARN
08	K08LG	SILVER LAKE, ETC. OR	USERRECORD01

Stations Potentially Affected by Proposed Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
07	KBNZ-LD	BEND OR	107.8	LIC	BLDVL	-20081016AEM
07	K07KT	CANYONVILLE, ETC. OR	197.7	LIC	BLTTV	-3954
07	K07PS	CHEMULT, ETC. OR	69.5	LIC	BLTTV	-19800424IC
07	K07RQ	JACKSONVILLE OR	190.6	LIC	BLTTV	-19830810IA
07	K07PU	KLAMATH FALLS, ETC. OR	126.0	LIC	BLTTV	-19840629IA
07	K07NR-D	LAKEVIEW, ETC. OR	115.8	LIC	BLDTV	-20081201AKV
07	K07IA	OAKLAND OR	198.3	LIC	BLTTV	-1145
07	K07GI	PROSPECT OR	148.9	LIC	BLTTV	-1469
07	K07IL	WINSTON OR	206.0	LIC	BLTTV	-3153
08	K08OR-D	CANBY CA	192.1	LIC	BLDTV	-20081017AFR
08	KEET	HOOPA CA	326.0	CP	BDRTEDT	-20090825BMP
08	K08LD	MIRANDA CA	409.1	LIC	BLTTV	-19900424JD
08	K08OB-D	NEWELL CA	150.2	LIC	BLDTV	-20081215ACC
08	K08HJ	ORLEANS CA	300.1	LIC	BLTTV	-3942
08	K08NH	OROVILLE CA	415.6	LIC	BLTVL	-20020618AAT
08	KVFR-LD	REDDING CA	309.9	LIC	BLDVL	-20090908ADG
08	K08EQ	SEIAD VALLEY CA	243.1	LIC	BLTTV	-4006
08	NEW	BOISE ID	376.8	APP	BNPDVL	-20100723AQQ
08	K08NM	OROVADA NV	309.1	LIC	BLTTV	-20030307ADM
08	K08NP	JOHN DAY OR	208.9	LIC	BLTVL	-20060721AAK
08	K08NP	JOHN DAY OR	208.9	CP	BDFCDVL	-20100113AAN
08	KSYS	MEDFORD OR	198.4	LIC	BLEDT	-20090520ABE
08	K08AK-D	PORT ORFORD, ETC. OR	298.7	LIC	BLDTV	-20100204ABC
08	KGW	PORTLAND OR	301.1	CP MOD	BMPCDT	-20080620AHM
08	K08KN	PRINEVILLE, ETC. OR	115.0	LIC	BLTTV	-19910821IF
08	K08KW	RICHLAND OR	351.9	LIC	BLTTV	-20020320ABT
08	K08LG	SILVER LAKE, ETC. OR	0.1	LIC	BLTTV	-19910906IC
08	K08LU	SUNNYSIDE-GRANDVIEW WA	347.4	LIC	BLTVL	-19950308IE
08	K08LU	SUNNYSIDE-GRANDVIEW WA	347.4	CP	BDFCDTV	-20100907ACJ
09	K09LJ	DREWSEY OR	213.3	LIC	BLTTV	-4084
09	KEZI	EUGENE OR	200.6	LIC	BLCDT	-20090225ADH
09	K09YE	LA PINE OR	69.8	LIC	BLTTV	-20070504ACK
09	K09YU-D	MEDFORD OR	194.6	CP	BNPDVL	-20090825BEZ
09	K09MZ	MONUMENT OR	217.9	LIC	BLTTV	-4745
09	K09VC	PAISLEY OR	58.6	LIC	BLTTV	-19890322IA

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

The following station failed the de minimis interference criteria.

8D OR SILVER LAKE, ETC. USERRECORD01  
ERP 0.30 kW HAAT 344.0 m RCAMSL 1730.0 m  
Antenna usr USRPAT01

Due to interference to the following station and scenario: 1

8N OR SILVER LAKE, ETC. BLTTV 19910906IC  
ERP 0.01 kW HAAT 411.0 m RCAMSL 1730.0 m  
Antenna CDB 00000000021580

Percent new DTV interference from proposal: 100.0000 BLTTV 19910906IC

## 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 using the manufacturer's vertical plane radiation pattern for the Scala HDCA-10 antenna used by K08LG. The highest calculated power density from the proposed antenna alone occurs 23 meters from the base of the antenna support structure. At this point the power density is calculated to be 4.6  $\mu\text{W}/\text{cm}^2$ , which

is 2.3% 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.

October 6, 2010

Erik C. Swanson, P.E.

K08LG Silver Lake Ground-Level RFR Calculation

Antenna

ERP

Antenna AGL

Maximum is

HDCA10H

220 Watts H (avg)

0 Watts V (avg)

14 meters less 2m is

12 meters above the reference plane

4.62 uW/cm² at

23 meters from the tower

Power Density vs Distance

