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**Engineering Statement
Digital Flash Cut Application for K39FD
Channel 39 at La Grande, OR
August 2009**

This Engineering Statement has been prepared on behalf of Blue Mountain Translator District, licensee of TV translator station K39FD at La Grande, 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: 08-27-2009 Time: 15:04:05

Record Selected for Analysis

K39FD USERRECORD-06 ELGIN OR US
Channel 39 ERP 0.41 kW HAAT 771. m RCAMSL 02182 m SIMPLE MASK
Latitude 045-18-35 Longitude 0117-43-58
Status APP Zone 2 Border
Dir Antenna Make usr Model USRPAT06 Beam tilt N Ref Azimuth 245.
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	0.011	489.6	22.0
45.0	0.000	519.9	6.5
90.0	0.003	475.3	15.2
135.0	0.017	300.0	19.2
180.0	0.286	832.0	46.1
225.0	0.211	1163.3	48.9
270.0	0.240	1320.4	51.6
315.0	0.223	1068.5	48.1

Contour Overlap to Proposed Station

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 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
39	K39FD	ELGIN OR	USERRECORD06

Stations Potentially Affected by Proposed Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
31	K31GN	LA GRANDE OR	0.0	LIC	BLTT	-20030609AAT
35	K35GA	LA GRANDE OR	0.0	LIC	BLTT	-20011212AAE
38	K38AH	PENDLETON, ETC. OR	122.7	LIC	BLTT	-19950612II
38	K38KK-D	PULLMAN WA	177.8	CP	BDCCDTT	-20061030AGU
38	KTNW	RICHLAND WA	139.7	CP	BPEDT	-20090312AAB
38	KTNW	RICHLAND WA	139.7	LIC	BLEDT	-20030429AAW
39	NEW	BOISE ID	246.2	APP	BNPTTL	-20000831BNM
39	KKJB	BOISE ID	215.5	CP	BPCDT	-20080312AEB
39	K39CT	COTTONWOOD, ETC. ID	129.7	LIC	BLTT	-19911104IR
39	K39HZ	CROUCH ID	191.6	CP	BNPTTL	-20000831BFM
39	K22JB-D	KALISPELL MT	395.3	APP	BDISDTL	-20081124AGD
39	KFXO-LP	BEND OR	315.5	CP	BPTTA	-20080811ACD
39	KFXO-LP	BEND OR	284.3	LIC	BLTTL	-19931014JH
39	KFXO-LP	BEND OR	315.5	CP MOD	BMPDTA	-20080725ABT
39	K39JP-D	BURNS OR	222.5	CP	BDCCDTT	-20061030ABF
39	K39ES	HEPPNER, ETC. OR	225.8	LIC	BLTT	-19980803JH
39	K25KS	THE DALLES OR	267.3	CP	BDISTT	-20071120AET
39	DK39DM	ELLENSBURG WA	272.9	CP	BPTTL	-20060127ARI
39	DK39DM	ELLENSBURG WA	272.9	APP	BSTA	-20090724AEE
39	K39DL	MOSES LAKE WA	218.0	CP	BDFCDTL	-20090810ACW
39	K39DL	MOSES LAKE WA	218.0	LIC	BLTTL	-19980107JB
39	KHBA-LD	SPOKANE WA	254.5	CP	BPDTL	-20081210AAA
39	KHBA-LD	SPOKANE WA	254.5	APP	BSTA	-20081212ACL
39	KHBA-LD	SPOKANE WA	254.4	LIC	BLDTL	-20081204AAA
39	K39FU	YAKIMA WA	253.1	CP	BDFCDTL	-20080709AKQ
39	K39FU	YAKIMA WA	253.2	LIC	BLTTL	-20040616AAS
40	K40AJ	BAKER VALLEY, ETC. OR	78.0	LIC	BLTT	-19820816IE
40	K40FM	MILTON-FREEWATER OR	71.1	CP	BDFCDTT	-20090728ADR
40	K40FM	MILTON-FREEWATER OR	73.0	LIC	BLTT	-20030108AAW
40	K40IK	WALLOWA OR	28.7	LIC	BLTT	-20080902ABE
40	K40EE	PULLMAN WA	177.8	LIC	BLTT	-19951130JT
41	K41EO	CROUCH, GARDEN VALLE ID	189.1	LIC	BLTT	-19990831JA
41	K41GW	JULIAETTA ID	162.4	LIC	BLTT	-20020122ABK
41	K41HS-D	MCCALL ID	135.0	CP	BPTTL	-20060718AAQ
42	K42AI	BAKER OR	78.0	LIC	BLTT	-19820511IC
42	KVBI-LP	CLARKSTON WA	137.5	LIC	BLTTL	-20010807AAP
42	KVBI-LP	CLARKSTON WA	137.5	APP	BPTTA	-20060324AAQ
43	K43CI	GRANGEVILLE, ETC. ID	129.7	LIC	BLTT	-19890705IJ
43	K43GE	JULIAETTA ID	162.5	LIC	BLTT	-20001124AAL
46	K46HX	GRANGEVILLE ID	129.7	LIC	BLTT	-20070103ACZ
46	K46AM	BAKER, ETC. OR	78.0	LIC	BLTT	-19810121LB
46	KPMT-LP	PULLMAN WA	162.0	LIC	BLTTL	-20070220ABL
46	K46FL	WALLA WALLA WA	71.1	LIC	BLTT	-20020211AAA
47	K47BW	LEWISTON, ETC. ID	137.5	LIC	BLTTL	-19880523IH
47	K67FI	TERRACE LAKES ID	189.1	CP	BDISTT	-20090302AAC

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 (4 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 0.100 at these angles, based on the manufacturer's vertical plane pattern for the horizontally-polarized Scala 4X2KBBU broadband antenna array proposed in this application. This relative field value yields a worst-case adjusted average effective radiated power of 4.1 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 $8.6 \mu\text{W}/\text{cm}^2$, which is 2.1% of $415 \mu\text{W}/\text{cm}^2$ (the FCC maximum for uncontrolled environments at the Channel 39 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 27, 2009

Erik C. Swanson, P.E.