

BENJAMIN F. DAWSON III, PE
THOMAS M. ECKELS, PE
STEPHEN S. LOCKWOOD, PE
DAVID J. PINION, PE

ERIK C. SWANSON, PE
THOMAS S. GORTON, PE
MICHAEL H. MEHIGAN, EIT

HATFIELD & DAWSON
CONSULTING ELECTRICAL ENGINEERS
9500 GREENWOOD AVE. N.
SEATTLE, WASHINGTON 98103

TELEPHONE (206) 783-9151
FACSIMILE (206) 789-9834
E-MAIL hatdaw@hatdaw.com

JAMES B. HATFIELD, PE
PAUL W. LEONARD, PE
CONSULTANTS

MAURY L. HATFIELD, PE
(1942-2009)

**Engineering Statement
Digital Flash Cut Application for K46AK
Channel 46 at Prineville, OR
March 2010**

This Engineering Statement has been prepared on behalf of KING Broadcasting Company, licensee of TV translator station K46AK at Prineville, 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: 03-25-2010 Time: 12:29:13

Record Selected for Analysis

K46AK USERRECORD-05 PRINEVILLE, ETC. OR US
 Channel 46 ERP 1.35 kW HAAT 675. m RCAMSL 01734 m STRINGENT MASK
 Latitude 044-26-17 Longitude 0120-57-13
 Status APP Zone 2 Border
 Dir Antenna Make usr Model USRPAT05 Beam tilt N Ref Azimuth 198.
 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	0.000	627.0	3.9
45.0	0.000	420.7	3.7
90.0	0.247	613.2	41.7
135.0	1.236	764.0	54.4
180.0	0.981	780.8	53.2
225.0	0.876	748.9	51.9
270.0	1.101	679.2	52.1
315.0	0.064	762.4	35.9

Contour Overlap to Proposed Station

Station
 NEW 47 BEND OR BNPTTL20000810AAY

Station inside contour of Digital LPTV station
 K46AK 46 PRINEVILLE, ETC. OR USERRECORD05

Station
 NEW 47 BEND OR BNPTTL20000807AEH

Station inside contour of Digital LPTV station
 K46AK 46 PRINEVILLE, ETC. OR USERRECORD05

Station
 K52AK 47 PRINEVILLE OR BDISTT20061212ABI

Station inside contour of Digital LPTV station
 K46AK 46 PRINEVILLE, ETC. OR USERRECORD05

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
46	K46AK	PRINEVILLE, ETC. OR	USERRECORD05

Stations Potentially Affected by Proposed Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
44	K44AH	PRINEVILLE, ETC. OR	0.0	LIC	BLTT	-19970724JE
45	K45KM-D	BEND OR	50.0	CP	BDPDTL	-20090722AAL
45	K45KM-D	BEND OR	50.0	LIC	BLDTL	-20080908ABQ
45	K45KF-D	BURNS OR	174.6	CP	BDCCDTT	-20061030ABH
45	K45CV	CORVALLIS OR	159.2	LIC	BLTT	-19930604IG
45	KNMT	PORTLAND OR	184.2	LIC	BLCDDT	-20060619AAM
46	NEW	BOISE ID	394.9	APP	BNPDTL	-20090825BNW
46	K46HX	GRANGEVILLE ID	395.2	LIC	BLTT	-20070103ACZ
46	K46HX	GRANGEVILLE ID	395.2	CP	BDFCDTT	-20071221ADE
46	K46AM	BAKER VALLEY OR	251.9	CP	BDFCDTT	-20090921ABP
46	K46AM	BAKER, ETC. OR	252.5	LIC	BLTT	-19810121LB
46	K46AS	COOS BAY OR	279.7	LIC	BLTT	-19980911JB
46	K46IP-D	COTTAGE GROVE OR	182.1	LIC	BLDTT	-20090330AAN
46	NEW	EUGENE OR	178.9	APP	BNPDTL	-20090825AXF
46	K46CH	GOLD HILL OR	277.9	LIC	BLTT	-19890525II
46	K46CU	HEPPNER, ETC. OR	152.6	LIC	BLTT	-19980803JI
46	KGWZ-LD	MADRAS & CULVER OR	185.4	CP	BDPDTL	-20090924ABB
46	KGWZ-LD	MADRAS & CULVER OR	116.0	LIC	BLDTT	-20090921ACJ
46	K53CU	ROSEBURG OR	236.8	APP	BDISDTT	-20090826ACI
46	K53CU	ROSEBURG OR	236.9	APP	BDISTT	-20090501APM
46	KUMN-LD	MOSES LAKE, ETC. WA	284.7	CP	BDCCDTL	-20061030AGL
46	KPMT-LP	PULLMAN WA	388.0	LIC	BLTTL	-20070220ABL
46	KUSE-LD	SEATTLE WA	349.7	LIC	BLDTL	-20091211ADW
46	K46FL	WALLA WALLA WA	261.9	CP	BDFCDTT	-20090728AEN
46	K46FL	WALLA WALLA WA	261.9	LIC	BLTT	-20020211AAA
46	NEW	WENATCHEE WA	335.1	APP	BNPDTL	-20090825ALA
46	NEW	YAKIMA WA	256.3	APP	BNPDTL	-20090825BIL
46	NEW	YAKIMA WA	235.6	APP	BNPDTL	-20090827ABB
47	NEW	BEND OR	50.0	APP	BNPTTL	-20000810AAY
47	NEW	BEND OR	59.1	APP	BNPTTL	-20000830ASA
47	NEW	BEND OR	59.1	APP	BNPTTL	-20000830AIW
47	NEW	BEND OR	50.2	APP	BNPTTL	-20000807AEH
47	K47AV	COTTAGE GROVE OR	182.2	LIC	BLTT	-19860113IE
47	K47AV	COTTAGE GROVE OR	182.1	CP	BDFCDTT	-20081003AEI
47	KUNP-LP	PORTLAND OR	185.1	LIC	BLTTL	-20060809ABC
47	K52AK	PRINEVILLE OR	0.0	CP	BDISTT	-20061212ABI

48	K48BL	TERREBONNE-BEND, ETC OR	11.9	LIC	BLTTA	-20010711ABF
49	KAMK-LP	EUGENE OR	178.7	CP	BDISTTL	-20051230AAL
49	NEW	WARM SPRINGS OR	56.5	APP	BNPTTL	-20000831BPV
50	K50CE	HOOD RIVER OR	153.0	CP	BPTT	-20070822AAV
50	K50CE	HOOD RIVER OR	153.5	LIC	BLTT	-19880603IK
50	KUBN-LP	PRINEVILLE-REDMOND OR	26.8	LIC	BLTT	-19951019IC
50	K50GG	SALEM OR	183.2	LIC	BLTTL	-20020916ABF
53	K53JV	BEND OR	50.1	LIC	BLTT	-20071024ABG
53	KAMK-LP	EUGENE OR	178.7	LIC	BLTTL	-19930201JH
53	K53EI	HOOD RIVER OR	153.5	LIC	BLTT	-19920504IG
54	K54BK	MAUPIN OR	83.0	LIC	BLTT	-19980427JC
54	K54AP	PRINEVILLE OR	0.0	LIC	BLTT	-19920518IL

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

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 (15 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 0.112 at these angles, based on the manufacturer's vertical plane pattern for the horizontally-polarized Scala 4DR-16-2HW antenna proposed in this application. This relative field value yields a worst-case adjusted effective radiated power of 16.9 Watts at depression angles between 45 and 90 degrees below the horizontal. Assuming this power level 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 $2.5 \mu\text{W}/\text{cm}^2$, which is 0.6% of $443 \mu\text{W}/\text{cm}^2$ (the FCC maximum for uncontrolled environments at the Channel 46 frequency).

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 25, 2010

Erik C. Swanson, P.E.