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

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

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

JAMES B. HATFIELD, PE
CONSULTANT

MAURY L. HATFIELD, PE
(1942-2009)
PAUL W. LEONARD, PE
(1925-2011)

Engineering Statement
Application for Digital Flash Cut for TV Translator Station
K09VC at Paisley, OR
December 2011

This Engineering Statement has been prepared on behalf of Oregon Public Broadcasting, in connection with an application for a digital flash cut for TV translator station K09VC at Paisley, Oregon.

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

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: 12-05-2011 Time: 12:21:55

Record Selected for Analysis

K09VC USERRECORD-01 PAISLEY OR US
Channel 09 ERP 0.13 kW HAAT 36. m RCAMSL 01366 m SIMPLE MASK
Latitude 042-41-44 Longitude 0120-33-10
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 (Deg)	ERP (kW)	HAAT (m)	48.0 dBu F(50,90) (km)
0.0	0.113	33.0	14.1
45.0	0.006	33.0	6.9
90.0	0.014	33.0	8.6
135.0	0.124	39.5	15.6
180.0	0.041	33.0	11.1
225.0	0.001	33.0	4.3
270.0	0.001	33.0	4.7
315.0	0.064	68.7	17.6

Database HAAT does not agree with computed HAAT
Database HAAT: 36 Computed HAAT: 38

Contour Overlap to Proposed Station

Contour Overlap Evaluation to Proposed Station Complete

NO LANDMOBILE SPACING VIOLATIONS FOUND

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

Proposed Station

Channel	Call	City/State	ARN
09	K09VC	PAISLEY OR	USERRECORD01

Stations Potentially Affected by Proposed Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
08	K08OR-D	CANBY CA	140.3	LIC	BLDTV -20081017AFR
08	K08OB-D	NEWELL CA	113.1	LIC	BLDTV -20081215ACC
08	KSYS	MEDFORD OR	218.6	LIC	BLEDT -20090520ABE
08	K08LG	SILVER LAKE, ETC. OR	58.5	CP	BDFCDTV -20101015ABF
09	K09VQ	CRESCENT CITY CA	309.2	LIC	BLTTV -19951106II
09	KUVU-LP	EUREKA CA	358.4	LIC	BLTVL -20060925AAA
09	K09PI	HAPPY CAMP, ETC. CA	248.4	LIC	BLTTV -19801204IE
09	KIXE-TV	REDDING CA	290.6	LIC	BLEDT -20080909ABK
09	KBCI-DR	BOISE ID	379.5	APP	BPRM -20090529ARY
09	KBOI-TV	BOISE ID	379.5	CP	BPCDT -20091001AAR
09	K09LO-D	CASCADE ID	415.6	LIC	BLDTV -20091106ABY
09	K09XP	BEOWAWE NV	395.1	LIC	BLTTV -20051006ADG
09	K09MM	PARADISE VALLEY NV	271.2	LIC	BLTTV -4603
09	KEZI	EUGENE OR	252.9	LIC	BLCDT -20090225ADH
09	K09YE	LA PINE OR	127.7	LIC	BLTTV -20070504ACK
09	K51LM-D	MEDFORD OR	206.7	CP	BNPDVL -20090825BEZ
10	KTVL	MEDFORD OR	190.5	LIC	BLCDT -20090612AGJ

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

NONE.

II. RF Exposure 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.

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

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 (5 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 1.000 at these angles. This relative field value yields a worst-case adjusted average effective radiated power of 130 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 173.7 μW/cm², which is 87% of 200 μW/cm² (the FCC maximum for uncontrolled environments at the Channel 9 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.

December 5, 2011
Erik C. Swanson, P.E.