

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](mailto:hatdaw@hatdaw.com)

JAMES B. HATFIELD, PE  
CONSULTANT

MAURY L. HATFIELD, PE  
(1942-2009)

PAUL W. LEONARD, PE  
(1925-2011)

**Engineering Statement  
Amendment to Digital Replacement Translator Application for KXLY-TV  
Channel 42 at Sandpoint, ID  
November 2011**

This Engineering Statement has been prepared on behalf of Spokane Television, Inc., licensee of television station KXLY-TV at Spokane, Washington. This material has been prepared in connection with an amendment to an application for a digital replacement translator to provide continued digital service to KXLY-TV viewers in the vicinity of Sandpoint, Idaho.

KXLY-TV has historically operated on low-VHF Channel 4. The station's move to post-transition operations on high-VHF Channel 13 has been demonstrated to result in a loss of service to viewers in the vicinity of Sandpoint.

**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

## WARNING WARNING WARNING

The following list of station records has been excluded from the analysis due to the fact that they have the same state, city and channel as the proposed station - This could cause the program to not find a potential fail situation

You can force the program to include these records by setting the state of the proposed record to ZZ and re-running the analysis

KXLY-TV 42 SANDPOINT ID BDRTCT 20090406ALA

## TV INTERFERENCE and SPACING ANALYSIS PROGRAM

Date: 11-15-2011 Time: 12:20:37

Record Selected for Analysis

SAND USERRECORD-01 SANDPOINT ID US  
Channel 42 ERP 0.33 kW HAAT 887. m RCAMSL 01897 m STRINGENT MASK  
Latitude 048-19-53 Longitude 0116-41-35  
Status APP Zone 2 Border Site number: 01  
Dir Antenna Make usr Model USRPAT01 Beam tilt N Ref Azimuth 125.  
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	51.0 dBu F(50,90)	
(Deg)	(kW)	(m)	(km)	
0.0	0.002	378.4	11.7	
45.0	0.225	550.1	40.1	
90.0	0.233	1095.3	48.7	
135.0	0.295	1147.6	50.9	
180.0	0.320	1118.0	51.1	
225.0	0.111	965.2	42.2	
270.0	0.000	1001.6	2.1	
315.0	0.000	836.1	2.1	

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 within the Canadian coordination distance  
Distance to border = 74.3km

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	Call	City/State	ARN
42	SAND	SANDPOINT ID	USERRECORD01

## Stations Potentially Affected by Proposed Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
38	KMNZ-LP	COEUR D'ALENE ID	66.7	LIC	BLTTL	-20041115AFH
41	K41FJ	COEUR D'ALENE, ETC. ID	66.7	LIC	BLTT	-20021023AAB
41	K41GW	JULIAETTA ID	194.8	APP	BSTA	-20110706AAX
41	K41GW	JULIAETTA ID	194.8	CP	BDFCDTT	-20110705AJL
41	K41GW	JULIAETTA ID	194.8	LIC	BLTT	-20020122ABK
41	K41MH-D	MULLAN ID	119.2	CP	BNPDTL	-20100505AFF
41	K41IW-D	POLSON MT	203.0	LIC	BLDTT	-20110701ABS
42	K42GT-D	PRIEST LAKE ID	33.2	LIC	BLDTT	-20110927ADI
42	K42KS-D	DRUMMOND MT	319.0	CP	BNPDTL	-20100505AFX
42	K42JA-D	HOT SPRINGS MT	181.5	CP	BNPDTT	-20090825AHA
42	KTMF-LP	KALISPELL MT	174.4	APP	BSTA	-20071206ACH
42	KTMF-LP	KALISPELL MT	174.4	CP	BDFCDTL	-20090414ABK
42	KTMF-LP	KALISPELL MT	174.4	LIC	BLTTL	-20080813ADW
42	K42EO	MISSOULA MT	264.8	LIC	BLTT	-20021115AAN
42	K42HO-D	ST. IGNATIUS MT	206.2	LIC	BLDTT	-20090720ADS
42	K42IT-D	PENDLETON OR	336.7	LIC	BLDTT	-20091124AHC
42	KVBI-LP	CLARKSTON WA	210.7	LIC	BLTTL	-20010807AAP
42	KVBI-LP	CLARKSTON WA	210.7	CP	BPTTA	-20060324AAQ
42	K42IH-D	EAST WENATCHEE WA	284.3	LIC	BLDTL	-20100106AEC
42	K42IH-D	EAST WENATCHEE, ECT WA	287.4	CP	BDFCDTL	-20090610ABR
42	K42KA-D	MOSES LAKE WA	236.3	CP	BNPDTL	-20090825ABH
42	K42JY-D	RICHLAND WA	316.2	CP	BNPDTL	-20090825AGL
42	KWDK	TACOMA WA	403.5	LIC	BLEDT	-20050421AAE
43	K43GE-D	JULIAETTA ID	194.8	LIC	BLDTT	-20110705ACI
43	K43NN-D	THOMPSON FALLS MT	133.2	LIC	BLDTT	-20111011AFV
43	K43GZ	SPOKANE WA	94.9	LIC	BLTT	-20051206ADC
43	K43GZ	SPOKANE WA	94.9	CP	BDFCDTL	-20091217ADF
44	K44EC	COEUR D'ALENE ID	66.7	LIC	BLTT	-19961126JL
46	K32HA-D	BONNERS FERRY, ETC. ID	44.7	APP	BSTA	-20051107AAC
50	K50DM	COEUR D'ALENE ID	66.7	LIC	BLTT	-19940525JK

%%%

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

NONE.

## II. RF Exposure 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 (10 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 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  $1.4 \mu\text{W}/\text{cm}^2$ , which is 0.3% of  $425 \mu\text{W}/\text{cm}^2$  (the FCC maximum for uncontrolled environments at the Channel 42 frequency).

These calculations show that the 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 RF exposure 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 exposure in excess of FCC guidelines.

November 15, 2011

Erik C. Swanson, P.E.