

THOMAS M. ECKELS, PE
STEPHEN S. LOCKWOOD, PE
DAVID J. PINION, PE
ERIK C. SWANSON, PE

THOMAS S. GORTON, PE
MICHAEL H. MEHIGAN, PE

JAMES B. HATFIELD, PE
BENJAMIN F. DAWSON III, PE
CONSULTANTS

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

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

**Engineering Statement
Displacement of K38KK-D
Channel 26 at Pullman, WA
January 2018**

This Engineering Statement has been prepared on behalf of Spokane Television, Inc. ("Spokane"), licensee of digital TV translator station K38KK-D at Pullman, Washington. This material has been prepared in connection with a displacement application and request for Special Temporary Authority.

I. Background and Waiver Request

The translator currently operates on a channel above Channel 36, which will be the highest channel remaining for terrestrial television broadcasting per the results of the 2017 spectrum auction. The translator licensee has received a 120-day notice from T-Mobile informing it that the translator station is likely to cause interference in areas where the wireless licensee intends to commence operations or FFA testing. Included with this Engineering Statement is a copy of that notice. Termination of operations would need to occur before the Special Displacement Window opens.

Under these circumstances, Spokane respectfully requests a waiver of the Displacement Freeze, in accordance with the procedures announced by Public Notice on June 14, 2017. (See DA 17-584, *Incentive Auction Task Force and Media Bureau Set Forth Tools Available to LPTV/Translator Stations Displaced Prior to the Special Displacement Window*.) Grant of this waiver will allow the station to continue providing service to viewers with as little disruption as possible.

Accordingly, Spokane is filing both a displacement application, and a request for Special Temporary Authority to begin operations on the requested channel.

II. Interference 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 Commission's TVStudy software.

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 interference study, it is believed that the proposed facility can operate without risk of interference to other stations.

Study created: 2018.01.10 15:16:48

Study build station data: LMS TV 2018-01-10 (91)

Proposal: K38KK-D D26 LD APP PULLMAN, WA
File number: PULL26
Facility ID: 167858
Station data: User record
Record ID: 444
Country: U.S.

Build options:
Protect pre-transition records not on baseline channel

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
Yes	K25NZ-D	D25	LD	LIC	LEWISTON, ID	BLANK0000006594	46.7 km
No	K41MU-D	D25	LD	APP	LA GRANDE, OR	BLANK0000029899	167.8
No	K25MS-D	D25	LD	CP	KENNEWICK, WA	BNPDTL20100802AAB	171.8
No	K26LT-D	D26	LD	CP	BOISE, ID	BPDTL20100517AAT	373.0
No	K26LE-D	D26	LD	LIC	CASCADE, ID	BLDTT20110919AFL	274.2
Yes	K26LJ-D	D26	LD	LIC	COEUR D'ALENE, ID	BLDTT20120301AEK	102.3
Yes	K26CK-D	D26	LD	LIC	COTTONWOOD/GRANGEVIL, ID	BLDTT20120525ACY	103.5
No	K26KA-D	D26	LD	CP	DRUMMOND, MT	BLANK0000019043	305.4
No	K26KA-D	D26	LD	LIC	DRUMMOND, MT	BLDTT20131122AWS	305.4
No	K26DD-D	D26	LD	LIC	KALISPELL, MT	BLDTL20120322AEH	257.5
No	K26LM-D	D26	LD	LIC	LIBBY, MT	BLDTT20111114AUE	214.3
No	K26FQ-D	D26	LD	LIC	JOHN DAY, OR	BLDTT20110415AAI	303.3
No	K26FV-D	D26	LD	LIC	LA GRANDE, OR	BLDTT20120625ABI	177.8
Yes	K38KL-D	D26	LD	APP	ELLENSBURG, WA	BLANK0000031938	248.2
No	K26GV-D	D26	LD	LIC	OMAK, WA	BLDTL20110830AAN	238.0
Yes	KNDU	D26	DT	LIC	RICHLAND, WA	BLCDT20091007ACO	171.8
No	K26IV-D	D26	LD	CP	WENATCHEE, WA	BDCCDTT20061030AGJ	242.4
Yes	KVEW	D27	DT	CP	KENNEWICK, WA	BLANK0000034066	171.9

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D26
Mask: Stringent
Latitude: 46 51 42.30 N (NAD83)
Longitude: 117 10 32.50 W
Height AMSL: 1123.6 m
HAAT: 0.0 m

Hatfield & Dawson Consulting Engineers

Peak ERP: 6.00 kW
Antenna: Omnidirectional
Elev Pattn: Generic
Elec Tilt: 1.25

50.0 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	6.00 kW	330.5 m	53.4 km
45.0	6.00	333.2	53.6
90.0	6.00	265.2	49.9
135.0	6.00	323.0	53.0
180.0	6.00	357.5	54.8
225.0	6.00	365.5	55.1
270.0	6.00	409.1	57.0
315.0	6.00	381.4	55.8

Database HAAT does not agree with computed HAAT
Database HAAT: 0 m Computed HAAT: 346 m

Proposal 24.95 dBu contour does not cross Canadian border
Distance to Canadian border: 237.6 km

Distance to Mexican border: 1584.4 km

Conditions at FCC monitoring station: Ferndale WA
Bearing: 302.1 degrees Distance: 463.3 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 123.6 degrees Distance: 1214.2 km

Study cell size: 1.00 km
Profile point spacing: 1.00 km

Maximum new IX to full-service and Class A: 0.50%
Maximum new IX to LPTV: 2.00%

----- Below is IX received by proposal PULL26 -----

Proposal receives 2.79% interference from scenario 1
No IX check failures found.

III. 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.

Hatfield & Dawson Consulting Engineers

Power density levels produced by the proposed facility were calculated for an elevation of 2 meters above ground (35 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 0.093 at these angles, based on the manufacturer's vertical plane pattern for the elliptically-polarized ERI Model AL12O-26-PLE antenna proposed in this application (6 kW horizontal, 2.57 kW vertical). This relative field value yields a worst-case adjusted average effective radiated power of 74.1 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 $2.0 \mu\text{W}/\text{cm}^2$, which is 0.6% of $361.3 \mu\text{W}/\text{cm}^2$ (the FCC maximum for uncontrolled environments at the Channel 26 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 applicant's 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.

January 10, 2018

Erik C. Swanson, P.E.

Hatfield & Dawson Consulting Engineers