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

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

THOMAS S. GORTON, PE

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

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
Engineering STA for Displacement of K44JC-D
Channel 23 at Lewiston, ID
April 2018

This Engineering Statement has been prepared on behalf of Spokane Television, Inc. ("STV"), licensee of digital TV translator station K44JC-D at Lewiston, Idaho. This material has been prepared in connection with a displacement application.

I. Background

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.

STV has previously filed a displacement application. Now that the T-Mobile letter has been received, STV is additionally filing this 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 authorized or pending proposed facilities. 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: 2018.02.22 11:14:04

Study build station data: LMS TV 2018-02-22 (97)

```
    Proposal: K44JC-D D23 LD APP LEWISTON, ID
 File number: LEWISTON23
 Facility ID: 167857
Station data: User record
   Record ID: 455
     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
No	K21CC-D	N21	TX	LIC	LEWISTON, ID	BLTT19880525IL	0.0 km
No	KLEW-TV	D22	LD	LIC	LEWISTON, ID	BLCDT20130726ABH	41.3
No	K22JJ-D	D22	LD	LIC	MILTON-FREEWATER, OR	BLDTT20111206BCQ	116.1
No	KTNW	D22	DT	CP	RICHLAND, WA	BLANK0000034858	164.5
No	KXLY-TV	D22	LD	LIC	SPOKANE, WA	BLANK0000024398	126.5
No	NEW	D23	LD	APP	BOISE, ID	BNPDTL20090825BBG	290.5
No	K23NB-D	D23	LD	CP	BOISE, ID	BNPDTL20090825AXP	308.6
No	NEW	D23	LD	APP	BOISE, ID	BNPDTL20090825BNQ	308.6
No	K44KK-D	D23	LD	CP	BONNERS FERRY, ID	BDFCDTT20081002AAY	247.2
No	K23KY-D	D23	LD	LIC	COUNCIL, ID	BLDTT20110516AEJ	204.2
No	K23JH-D	D23	LD	LIC	LEADORE, ID	BLDTT20101116BIO	349.3
No	K23HT-D	D23	LD	LIC	ST. MARIES, ID	BLDTT20110727AEA	112.3
No	KTMF	D23	DT	LIC	MISSOULA, MT	BLCDT20090612AEQ	239.6
Yes	K23DB-D	D23	LD	LIC	LA GRANDE, OR	BLANK0000004187	137.5
No	K23FH-D	D23	LD	LIC	MILTON-FREEWATER, OR	BLDTT20110902ABY	116.1
No	K23MU-D	D23	LD	LIC	BRIDGEPORT, WA	BLDTT20130910ACO	268.2
No	K50KK-D	D23	LD	APP	ELLENSBURG, WA	BLANK0000031967	263.5
No	K23JU-D	D23	LD	LIC	PROSSER, WA	BLDTL20100504ALB	209.9
No	KIRO-TV	D23	DT	CP	SEATTLE, WA	BLANK0000025164	423.0
No	K23KI-D	D23	LD	CP	Seattle, WA	BLANK0000024400	405.1
No	KIRO-TV	D23	DT	APP	SEATTLE, WA	BLANK0000034847	423.0
No	NEW	D23	LD	APP	YAKIMA, WA	BNPDTL20090825ANG	265.8
Yes	K24JN-D	D24	LD	LIC	LEWISTON, ID	BLDTT20120301AEI	0.0
No	K51DF-D	D24	LD	APP	MILTON-FREEWATER, OR	BLANK0000030152	116.1
No	KQUP	D24	DT	LIC	PULLMAN, WA	BLCDT20100120ACV	89.8
No	KQUP	D24	DT	APP	PULLMAN, WA	BLANK0000036055	128.6

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

```
    Channel: D23
       Mask: Stringent
   Latitude:  46 27  2.90 N (NAD83)
  Longitude: 117  2 50.10 W
Height AMSL: 873.9 m
       HAAT: 0.0 m
   Peak ERP: 3.00 kW
    Antenna: KAT-75010210-2 180.0 deg
Elev Pattrn: Generic
  Mech Tilt: 4.00 @ 180.0 deg
```

49.7 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	0.025 kW	41.9 m	8.5 km
45.0	0.009	42.3	6.6
90.0	0.007	477.1	21.0
135.0	0.644	497.9	47.1
180.0	3.00	548.3	57.8
225.0	0.670	439.4	45.4
270.0	0.011	312.7	19.0
315.0	0.013	10.0	6.2

Database HAAT does not agree with computed HAAT
Database HAAT: 0 m Computed HAAT: 296 m

Proposal 24.66 dBu contour does not cross Canadian border

```
Distance to Canadian border: 283.2 km

Distance to Mexican border: 1537.9 km

Conditions at FCC monitoring station: Ferndale WA
Bearing: 306.1 degrees   Distance: 497.0 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 122.1 degrees   Distance: 1181.2 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%

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.

Power density levels produced by the proposed facility were calculated for an elevation of 2 meters above ground (9.6 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 0.150 at these angles, based on the manufacturer's vertical plane pattern for the horizontally-polarized Kathrein 2-level 75010210 antenna array proposed in this application. This relative field value yields a worst-case adjusted average effective radiated power of 67.5 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 from the proposed facility is calculated to be 24.5 μW/cm², which is 7.0% of 349.3 μW/cm² (the FCC maximum for uncontrolled environments at the Channel 23 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 exposure in excess of FCC guidelines.

April 16, 2018
Erik C. Swanson, P.E.