



**Kessler and Gehman Associates**  
Consultants • Broadcast • Wireless

# MINOR MODIFICATION TO A LICENSED TELEVISION BROADCAST STATION

**CALL SIGN: KREM**  
**FACILITY ID: 34868**  
**FCC FILE NO.: BLCDT-20050623ABG**  
**LOCATION: SPOKANE, WA**

## **Prepared For:**

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## **1.0 EXECUTIVE SUMMARY**

KING Broadcasting Company is the licensee of a television broadcast station having call sign KREM facility ID 34868. It is herein proposed to modify the licensed facility as follows:

- Replace the Dielectric TFU-24DSB-H(C) antenna with a Dielectric TFU-24EST/VP-R H150 having a similar antenna pattern.
- Increase the antenna height by 33.1m.
- Change the polarity from Horizontal to Elliptical.
- Increase the ERP from 893kW to 1000kW

Pursuant to 47 CFR § 73.3572 the instant application is considered a minor modification since no change in community of licensed or channel change is proposed.

## **2.0 ALLOCATION AND LARGEST STATION IN THE MARKET ANALYSIS**

Appendix A are the summarized results from TVStudy V2.2.5 which illustrates that the proposed facility does not cause prohibited interference to surrounding stations. Appendix A indicates that the proposed ERP exceeds the maximum threshold of 266kW. KHQ-TV is the largest same band station in geographic size in the Spokane, Washington Designated Market Area (DMA) with a 38.83 dBµV/m F(50,90) contour that has a geographic area of 48,706.4 km<sup>2</sup> according to TVStudy. KREM as modified herein has a predicted 39.36 dBµV/m F(50,90) noise limited contour coverage area of 47,846.8 km<sup>2</sup> according to TVStudy and is thus smaller than the licensed KHQ-TV facility. KREM is entitled<sup>1</sup> to an ERP of 1000 kW to best match the geographic area of KHQ-TV.

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<sup>1</sup> 47 C.F.R. Section 73.622(f)(5)

### **3.0 SECTION § 73.625 PREDICTED CONTOUR COMPLIANCE**

Appendix B illustrates the § 73.625 predicted F(50,90) 39.36 dBµV/m noise limited protected contour and the F(50,90) 48.0 dBµV/m principal community coverage contour. As illustrated the proposed 48 dBµV/m contour completely subsumes the principal community of license as required.

The Appendix B predicted coverage contours were generated using V-Soft Probe-5<sup>2</sup> software in accordance with § 73.625(b) methodology using F(50,90) propagation curves. The average terrain was extracted from three arc second USGS terrain along eight equally spaced cardinal radials from 3 kilometers to 16 kilometers from the site and beginning from true north.

### **4.0 NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)**

#### **4.1 General Environmental Requirements**

The proposed antenna is to be top mounted to an existing tower which is registered with the FAA and FCC and will not require modification since there is no change in overall height. Since the existing structure has been previously accepted by the FAA and the FCC, it is thus presumed that the following screening criteria has already been mitigated:

- Require high intensity white lighting.
- Is not located in an official designated wilderness area or wildlife preserve.
- Does not threaten the existence or habitat of endangered species.
- Does not affect districts, sites, buildings, structures or objects significant in American history, architecture, archaeology, engineering or culture that are listed in the National Register of Historic Places or are eligible for listing.

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<sup>2</sup> Version 5.47

- Does not affect Indian religious sites.
- Is not located in a floodplain
- Does not require construction that involves significant changes in surface features (e.g., wetland fill, deforestation, or water diversion).

#### 4.2 Radio Frequency Radiation (RFR) Compliance.

A theoretical analysis has been conducted of the human exposure to radio frequency radiation (“RFR”) using the calculation methodology described in OET Bulletin 65, Edition 97-01. The RFR analysis is conducted pursuant to the following methodology:

Terrain extraction is compiled from the support structure site, if the support structure is on a rooftop with no higher elevations (e.g., elevator shaft) then flat terrain is compiled. Terrain is extracted using radial lengths of 0.25 miles in 0.001-mile increments for 360 radials. The power density is calculated for each terrain point at 6 feet above ground level using the elevation and azimuth pattern of the proposed broadcast antenna. The power density calculations are conducted using the lower edge of the proposed channel frequency. To account for ground reflections, a coefficient of 1.6 was included in the calculation.

The resulting cylindrical polar analysis is then summarized into a coordinate plane graph using the following methodology:

Starting from the origin the maximum calculated RFR value is determined among the 360-degree radials for each 0.001 mile increment, the value is then converted into a percentage of the

maximum allowable general population or uncontrolled exposure and plotted as a function of perpendicular distance from the tower.

The resulting RFR study in Appendix C demonstrates that the peak exposure is 0.15% of the most restrictive permissible exposure threshold. Pursuant to OET Bulletin 65 concerning multiple-user transmitter sites only those licensees whose transmitters produce power density levels greater than 5.0% of the exposure limit are considered significant contributors to RFR. Since the proposed operation is within 5% of the most permissible exposure at any location 2 meters above the ground, it is not considered a significant contributor to RFR exposure. Thus, contributions to exposure from other RF sources in the vicinity of the proposed facility were not considered. The instant application is compliant with the FCC limits for human exposure to RF radiation and thus is excluded from further environmental processing.

## **5.0 CERTIFICATION**

The foregoing statement and the report regarding the aforementioned engineering work are true and correct to the best of my knowledge. Executed on April 12, 2024

Ryan Wilhour



Consulting Engineer

## KREM – Minor Modification to a Licensed Television Broadcast Station

Spokane, WA

### APPENDIX A – KREM Proposed TVStudy V2.2.5 Allocation Analysis

Study created: 2024.04.12 10:15:42

Study build station data: LMS TV 2024-04-12

Proposal: KREM D20 DT LIC SPOKANE, WA  
File number: KREM Proposed  
Facility ID: 34868  
Station data: User record  
Record ID: 1720  
Country: U.S.  
Zone: II

Search options:  
Non-U.S. records included

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	KBOI-TV	D20	DT	CP	BOISE, ID	BLANK0000226094	436.7 km
No	KBOI-TV	D20	DT	BL	BOISE, ID	DTVBL49760	436.7
No	KTVM-TV	D20	DT	CP	BUTTE, MT	BLANK0000157471	409.4
No	KTVM-TV	D20	DT	BL	BUTTE, MT	DTVBL18066	409.4
Yes	KECI-TV	D20	DT	CP	MISSOULA, MT	BLANK0000156965	255.8
Yes	KECI-TV	D20	DT	BL	MISSOULA, MT	DTVBL18084	255.8
No	KECI-TV	D21	DT	APP	MISSOULA, MT	BLANK0000219405	255.8
No	KYVE	D21	DT	LIC	YAKIMA, WA	BLEDT20030910ACL	270.2
No	CKAL-DT	D20	DT	LIC	CALGARY, AB	BLANKCANADA13	444.7
No	CH5653	D20	DC	LIC	PASSMORE, BC	BLANKCANLP253	219.3
Yes	CHBC-DT-2	D20	DT	LIC	VERNON, BC	BLANKCANADA99	332.6

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D20  
Latitude: 47 35 41.00 N (NAD83)  
Longitude: 117 17 57.00 W  
Height AMSL: 1375.1 m  
HAAT: 675.1 m  
Peak ERP: 1000 kW  
Antenna: Dielectric TFU-24EST/VP-R H150 0.0 deg  
Elev Pattn: Generic  
Elec Tilt: 1.00

39.4 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	704 kW	713.6 m	126.9 km
45.0	847	757.1	130.8
90.0	433	600.8	116.2
135.0	348	589.7	113.7
180.0	266	632.6	113.3
225.0	891	669.3	127.2
270.0	667	685.4	125.0
315.0	984	752.4	132.2

ERP exceeds maximum  
ERP: 1000 kW ERP maximum: 266 kW

\*\*Proposal is within coordination distance of Canadian border  
Distance to Canadian border: 156.2 km

Distance to Mexican border: 1666.4 km

Conditions at FCC monitoring station: Ferndale WA  
Bearing: 293.2 degrees Distance: 417.1 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:  
Bearing: 126.3 degrees Distance: 1268.5 km

No land mobile station failures found

Study cell size: 2.00 km

## KREM – Minor Modification to a Licensed Television Broadcast Station

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*Spokane, WA*

Profile point spacing: 1.00 km

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

Maximum new IX to LPTV: 2.00%

Proposal causes no interference to BLANK0000156965 CP

Proposal causes no interference to DTVBL18084 BL

Proposal causes no interference to BLANKCANADA99 LIC

---- Below is IX received by proposal KREM Proposed ----

Proposal receives 0.37% interference from scenario 2

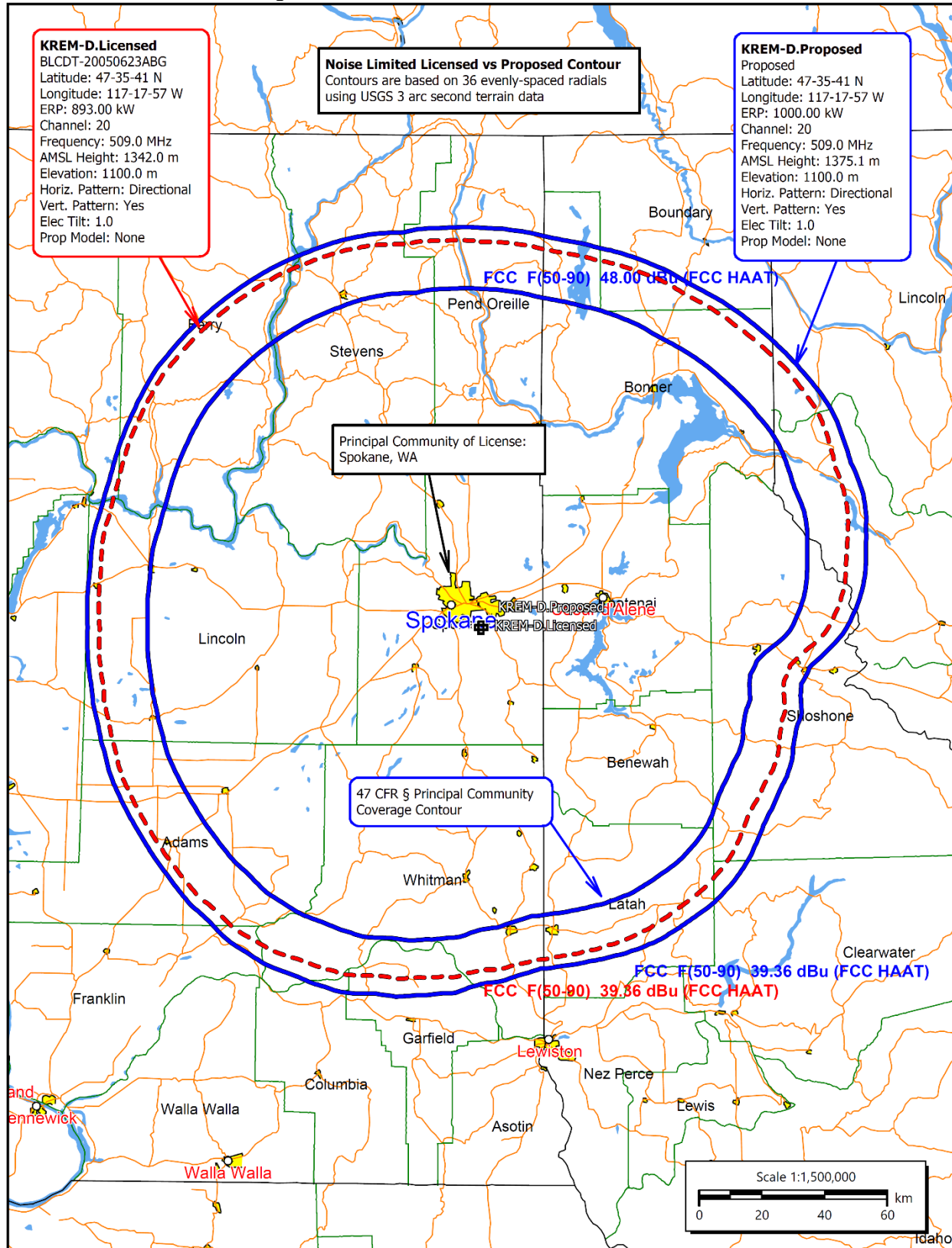
No IX check failures found.



# KREM – Minor Modification to a Licensed Television Broadcast Station

Spokane, WA

## APPENDIX B – 47 CFR § 73.625 Predicted Contours



APPENDIX C – Far Field Exposure to RF Emissions

