

**March 2017**  
**FM Translator K243CG**  
**Spokane, Washington Channel 243D**  
**Allocation Study**

**Allocation Study**

The attached spacing study shows the spacing between the proposed translator site and the location of cochannel and adjacent channel stations and proposals. This study was made with the Commission's Class A spacing requirements, and individual situations were examined to determine the lack of prohibited contour overlap per the requirements of §74.1204 of the Rules. The attached allocation study map demonstrates compliance with the Commission's Rules for protection of FM broadcast stations and FM translators as outlined in §74.1204.

The attached spacing study demonstrates compliance with §73.207 of the Commission's Rules regarding spacing restrictions to stations which are 53 or 54 channels removed from the proposed operation.

***KIIX-FM 241C Opportunity***

The proposed translator transmitter site is located within the 60 dBu protected contour of second-adjacent channel station KIIX-FM 241C Opportunity. The following calculation, performed using the *Living Way* methodology, demonstrates interference protection to that station.

| Protected Station        | Distance & Bearing to Proposal | Station ERP and HAAT on that azimuth | Station Field Strength at Proposal | Corresponding Translator Interfering Contour | Distance to Translator Interfering Contour |
|--------------------------|--------------------------------|--------------------------------------|------------------------------------|--|--|
| KIIX-FM 241C Opportunity | 23.41 km<br>306 deg True       | 60 kW<br>911 meters                  | 92.86 dBu<br>F(50,50)              | 132.86 dBu                                   | 25 meters<br>Free Space                    |

The attached map of the proposed transmitter site depicts the 25 meter radius from the proposed facility. There is no population within this contour. Therefore, the proposed facility is believed to satisfy the requirements of §74.1204(d) with respect to KIIX-FM.

***KEZE 245C2 Spokane***

The proposed translator transmitter site is located within the 60 dBu protected contour of second-adjacent channel station KEZE 245C2 Spokane. The following calculation, performed using the *Living Way* methodology, demonstrates interference protection to that station.

| Protected Station  | Distance & Bearing to Proposal | Station ERP and HAAT on that azimuth | Station Field Strength at Proposal | Corresponding Translator Interfering Contour | Distance to Translator Interfering Contour |
|--------------------|--------------------------------|--------------------------------------|------------------------------------|--|--|
| KEZE 245C2 Spokane | 12.93 km<br>114 deg True       | 8.2 kW<br>362 meters                 | 86.47 dBu<br>F(50,50)              | 126.47 dBu                                   | 53 meters<br>Free Space                    |

The attached map of the proposed transmitter site depicts the 53 meter radius from the proposed

facility. There is no population within this contour. Therefore, the proposed facility is believed to satisfy the requirements of §74.1204(d) with respect to KEZE.

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SEARCH PARAMETERS FM Database Date: 170322

Channel: 243A 96.5 MHz Page 1

Latitude: 47 41 39

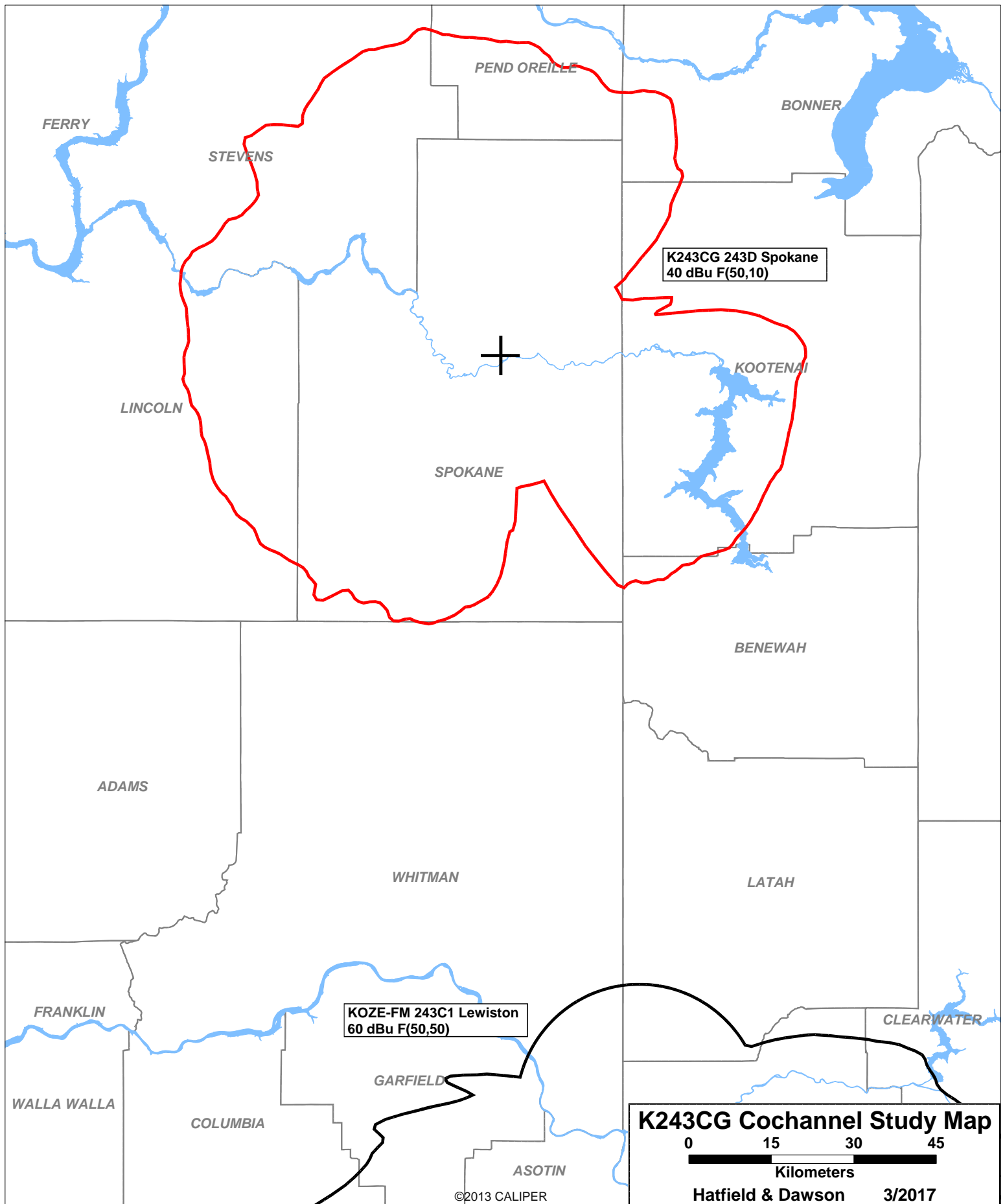
Longitude: 117 20 3

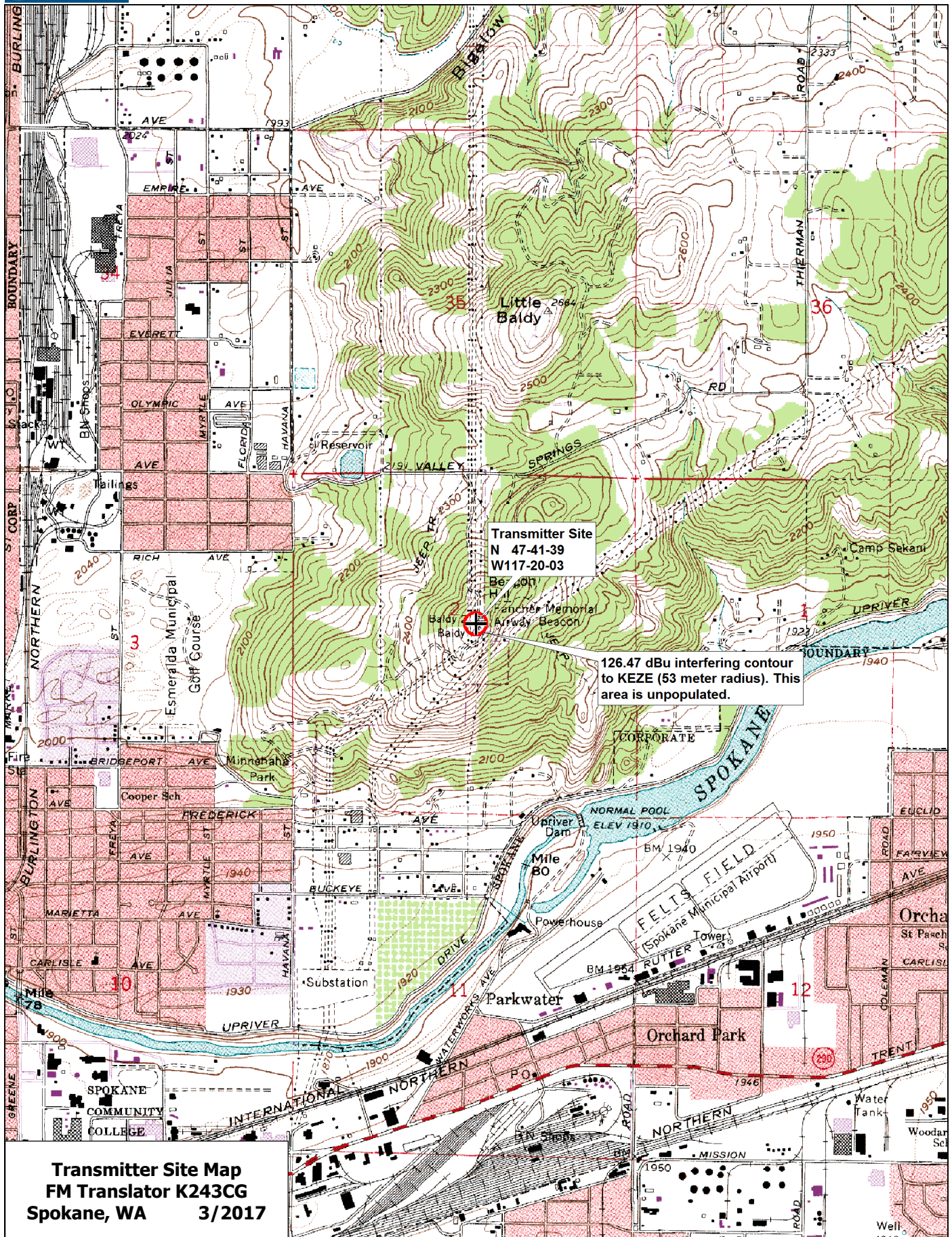
Safety Zone: 50 km

Job Title: K243CG SPOKANE

| Call<br>Status | City<br>St        | FCC File No. | Channel<br>Freq. | ERP(kW)<br>HAAT(m) | Latitude<br>Longitude | Bearing<br>deg-True | Dist<br>(km) | Req<br>(km) |
|----------------|-------------------|--------------|------------------|--------------------|-----------------------|---------------------|--------------|-------------|
| KIIX-FM        | OPPORTUNITY       | 241C         | 60.000           | 47-34-14           | 125.9                 | 23.41               | 95           |             |
| LIC            | WA BMLH-41112AIN  | 96.1         | 744.0            | 117-04-55          |                       | -71.59              | SHORT        |             |
|                | CRANBROOK         | 243C         | 0.000            | 49-27-30           | 32.0                  | 233.06              | 247          |             |
|                | BC -              | 96.5         | 0.0              | 115-37-45          |                       | -13.94              | SHORT        |             |
| KOZE-FM        | LEWISTON          | 243C1        | 25.000           | 46-27-48           | 169.4                 | 139.16              | 200          |             |
| LIC            | ID BLH-901128KC   | 96.5         | 226.0            | 117-00-01          |                       | -60.84              | SHORT        |             |
| K243CG         | SPOKANE           | 243D         | 0.250 DA         | 47-41-39           | 0.0                   | 0.00                | 0            |             |
| LIC            | WA BLFT-60603AAW  | 96.5         | 0.0              | 117-20-03          |                       | 0.00                | TRANS        |             |
| KEZE           | SPOKANE           | 245C2        | 8.200 DA         | 47-43-33           | 74.1                  | 12.93               | 55           |             |
| LIC            | WA BLH-01120AAJ   | 96.9         | 365.0            | 117-10-06          |                       | -42.07              | SHORT        |             |
| KPKL           | DEER PARK         | 296C3        | 25.000           | 48-01-45           | 332.1                 | 42.20               | 12           |             |
| LIC            | WA BLH-40929AND   | 107.1        | 100.0            | 117-35-57          |                       | 30.20               | CLEAR        |             |
| KPKL-FM1       | SPOKANE           | 296D         | 5.000 DA         | 47-38-37           | 241.1                 | 11.65               | 10           |             |
| LIC            | WA BLFTB-21105AKF | 107.1        | 16.0             | 117-28-12          |                       | 1.65                | CLEAR        |             |
| KPKL-FM1       | SPOKANE           | 296D         | 5.000 DA         | 47-41-52           | 271.7                 | 13.85               | 10           |             |
| CP             | WA BPFTB-61202ABM | 107.1        | 0.0              | 117-31-07          |                       | 3.85                | CLEAR        |             |

===== END OF FM SPACING STUDY FOR CHANNEL 243 =====

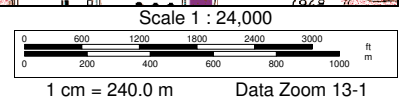




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**March 2017**  
**FM Translator K243CG**  
**Spokane, Washington Channel 243D**  
**RF Exposure Study**

**Facilities Proposed**

The proposed operation will be on Channel 243D (96.5 MHz) with an effective radiated power of 250 watts. Operation is proposed with an antenna to be mounted on an existing pole on Beacon Hill, currently used by KSPO(FM).

The Antenna Structure Registration Number is 1200038.

**RF Exposure Calculations**

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.

Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 500 meters. Values past this point are increasingly negligible.

Calculations of the power density produced by the proposed antenna system assume a Type 2 element pattern, which is the element pattern for the Nicom BKG77-1 antenna proposed for use. The highest calculated ground level power density occurs at a distance of 1 meters from the base of the antenna support structure. At this point the power density is calculated to be 93.8  $\mu W/cm^2$ .

Calculations of the power density produced by the translator and the other stations at this transmitter site are summarized in the following table:

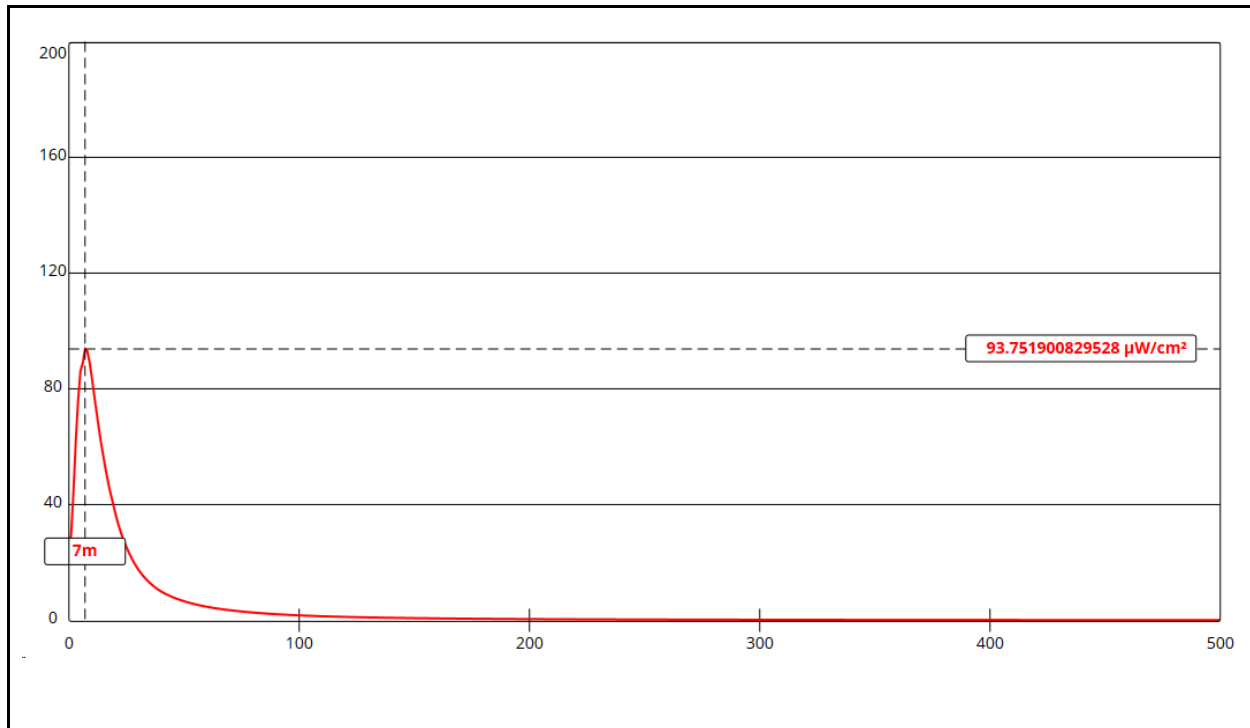
| Call           | Avg or Peak ERP<br>Antenna Model          | Relative<br>Field  | Height<br>AGL | Calculated Max<br>Exposure | Gen Pub<br>FCC Limit | % of Limit |
|----------------|---|--------------------|---------------|----------------------------|----------------------|------------|
| K243CG<br>243D | 0.250 kW H<br>0.250 kW V<br>Nicom BKG77-1 | FMMModel<br>Type 2 | 9 m           | 93.8 $\mu W/cm^2$          | 200 $\mu W/cm^2$     | 46.9%      |

|                 |   |                    |      |                                |                               |       |
|-----------------|---|--------------------|------|--------------------------------|-------------------------------|-------|
| KSPO<br>293A    | 2.25 kW H<br>2.25 kW V<br>JAM 4-bay<br>halfwave | FMMModel<br>Type 2 | 15 m | 24.2 $\mu\text{W}/\text{cm}^2$ | 200 $\mu\text{W}/\text{cm}^2$ | 12.1% |
| KDYS-LD<br>Ch32 | 12.3 kW H<br>ERI AL8                            | 0.125              | 19 m | 22.2 $\mu\text{W}/\text{cm}^2$ | 385 $\mu\text{W}/\text{cm}^2$ | 5.8%  |

(For TV translators, the relative field value indicated is the maximum value which occurs at 45 degrees or more below the horizontal, based on the manufacturer's vertical plane pattern. The resulting adjusted ERP value is assumed to be radiated straight down to a point 2 meters above ground level at the base of the tower.)

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of the translator and the present operation of the other stations at this site (were their maxima to coincide, which they do not) is 64.8% of the FCC standard for uncontrolled environments.

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.



## Ground-Level RF Exposure

OET FMModel

### K243CG Spokane

Antenna Type: Nicom BKG77-1 (Type 2)  
No. of Elements: 1  
Element Spacing: 1.0 wavelength

Distance: 1000 meters  
Horizontal ERP: 250 W  
Vertical ERP: 250 W

Antenna Height: 9 meters AGL

Maximum Calculated Power Density is  $93.8 \mu\text{W}/\text{cm}^2$  at 7 meters from the antenna structure.