

**December 2023  
KBSX(FM) Channel 218C  
Boise, Idaho  
Allocation Study**

The instant application proposes a power increase and class upgrade for KBSX, at its licensed transmitter site. The attached spacing study shows the co-channel and adjacent channel spacing between stations and demonstrates that the proposed operation meets the IF channel spacing requirements as prescribed in §73.207 of the Commission's Rules.

Individual stations were examined to confirm the lack of prohibited contour overlap as prescribed in §73.509 of the Commission's Rules. The attached allocation study exhibits demonstrate requisite contour protection for the following domestic stations:

First-adjacent:	KBSM	219C3 McCall
	KBSW	219C3 Twin Falls
	New	217C3 Challis (CP)
	New	219C Arock (CP)
Second-adjacent:	New	216C1 Huntington (CP)
	New	220C1 Vale (CP)
	KBSC	220A Cambridge
Third-adjacent:	KGCL	216C1 Jordan Valley

**TV Channel 6**

Section 73.525 of the Commission's Rules specifies a threshold distance of 166 kilometers for FM stations operating on Channel 218. There is no full-power TV Channel 6 station operating from a transmitter site within that radius.

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## SEARCH PARAMETERS

FM Database Date: 20231215

Channel: 218C 91.5 MHz

Page 1

Latitude: 43 45 20.8 (NAD83)

Longitude: 116 5 57.0

Safety Zone: 50 km

Job Title: KBSX 218C BOISE

Call Status	City St	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
KGCL LIC	JORDAN VALLEY OR	0000193666	215C1 90.9	8.000 675.0	43 0 25.0 116 42 16.0	210.6	96.58 -8.42	105 SHORT
K215BN LIC	CASCADE ID	BLFT-19911120TB	215D 90.9	0.010 0.0	44 30 55.6 116 2 42.4	2.9	84.52 0.00	0 TRANS
CP	HUNTINGTON OR	0000190288	216C1 91.1	4.600 500.0	DA 44 25 53.5 117 14 57.6	309.7	118.83 13.83	105 CLEAR
KBSS LIC	SUN VALLEY ID	0000219820	216C2 91.1	0.750 570.0	43 38 36.2 114 23 52.9	94.6	137.70 32.70	105 CLEAR
CP	CHALLIS ID	0000166765	217C3 91.3	0.100 807.4	44 33 8.9 114 5 24.8	60.4	183.48 7.48	176 CLOSE
K217BO LIC	HALFWAY OR	0000189751	217D 91.3	0.048 0.0	DA 44 52 46.5 117 1 49.6	329.7	145.31 0.00	0 TRANS
KBSJ LIC	JACKPOT NV	BLED-20020403AAQ	217C1 91.3	3.900 751.0	41 47 7.6 114 50 25.1	154.4	241.92 32.92	209 CLEAR
CP	BURNS OR	0000167795	218A 91.5	0.300 256.3	43 34 24.7 119 7 52.8	266.3	245.41 19.41	226 CLEAR
KBSX CP	BOISE ID	0000227777	218C 91.5	27.000 853.0	DA 43 45 20.8 116 5 57.0	0.0	0.00 -290.00	290 SHORT
K218BA LIC	JOHN DAY OR	BLFT-19881121TD	218D 91.5	0.053 0.0	DA 44 26 1.5 118 57 5.8	289.3	240.53 0.00	0 TRANS
K218FA LIC	SALMON ID	BLFT-20110617ADC	218D 91.5	0.080 0.0	45 11 0.7 113 52 17.2	47.3	237.89 0.00	0 TRANS
KBSX LIC	BOISE ID	BLED-20010917AAO	218C1 91.5	3.800 827.0	43 45 20.6 116 5 57.4	235.3	0.01 -269.99	270 SHORT
KBSM LIC	MCCALL ID	0000093141	219C3 91.7	0.220 602.0	45 0 29.6 116 8 3.4	358.9	139.20 -36.80	176 SHORT

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## SEARCH PARAMETERS

FM Database Date: 20231215

Channel: 218C 91.5 MHz

Page 2

Latitude: 43 45 20.8 (NAD83)

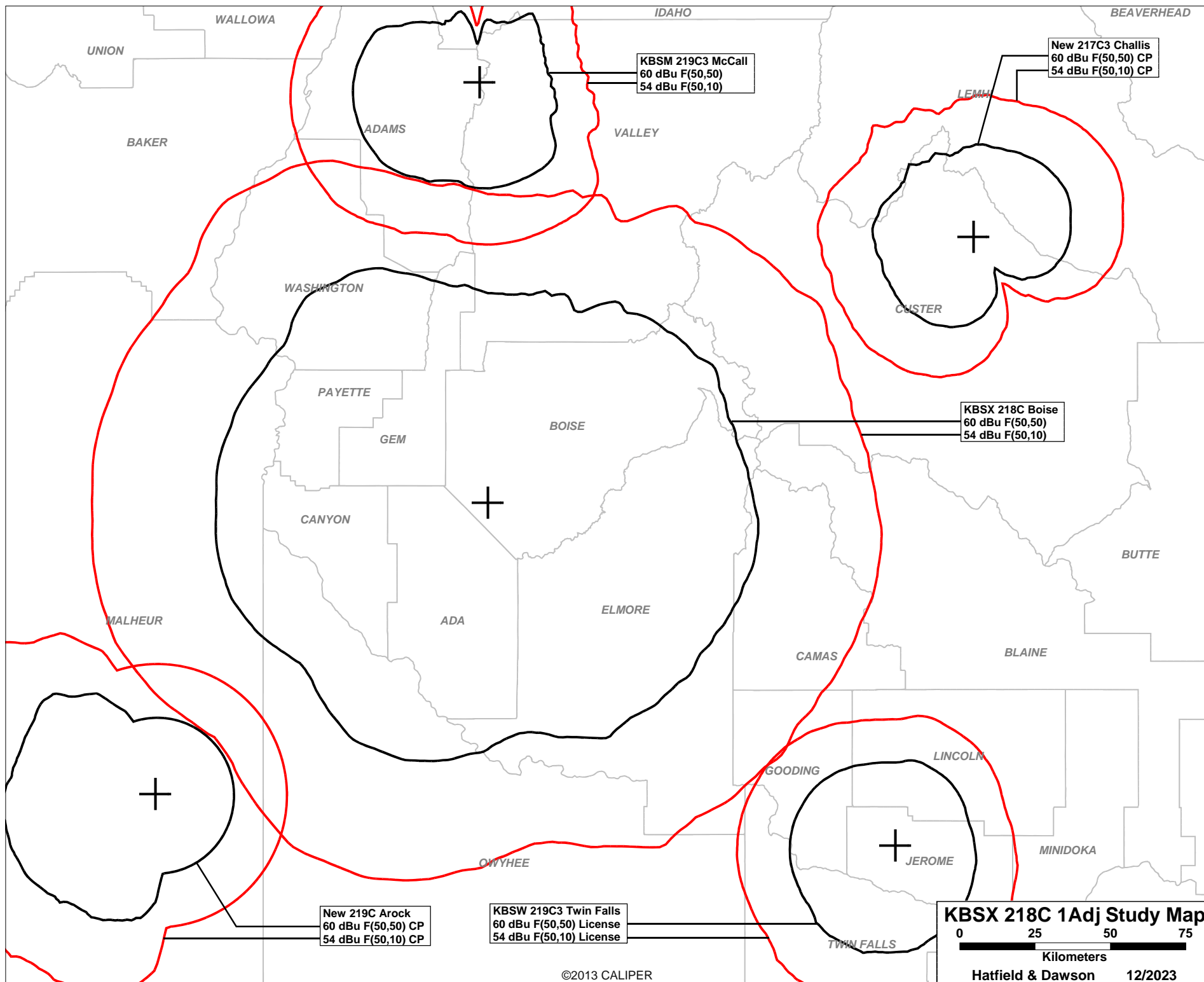
Longitude: 116 5 57.0

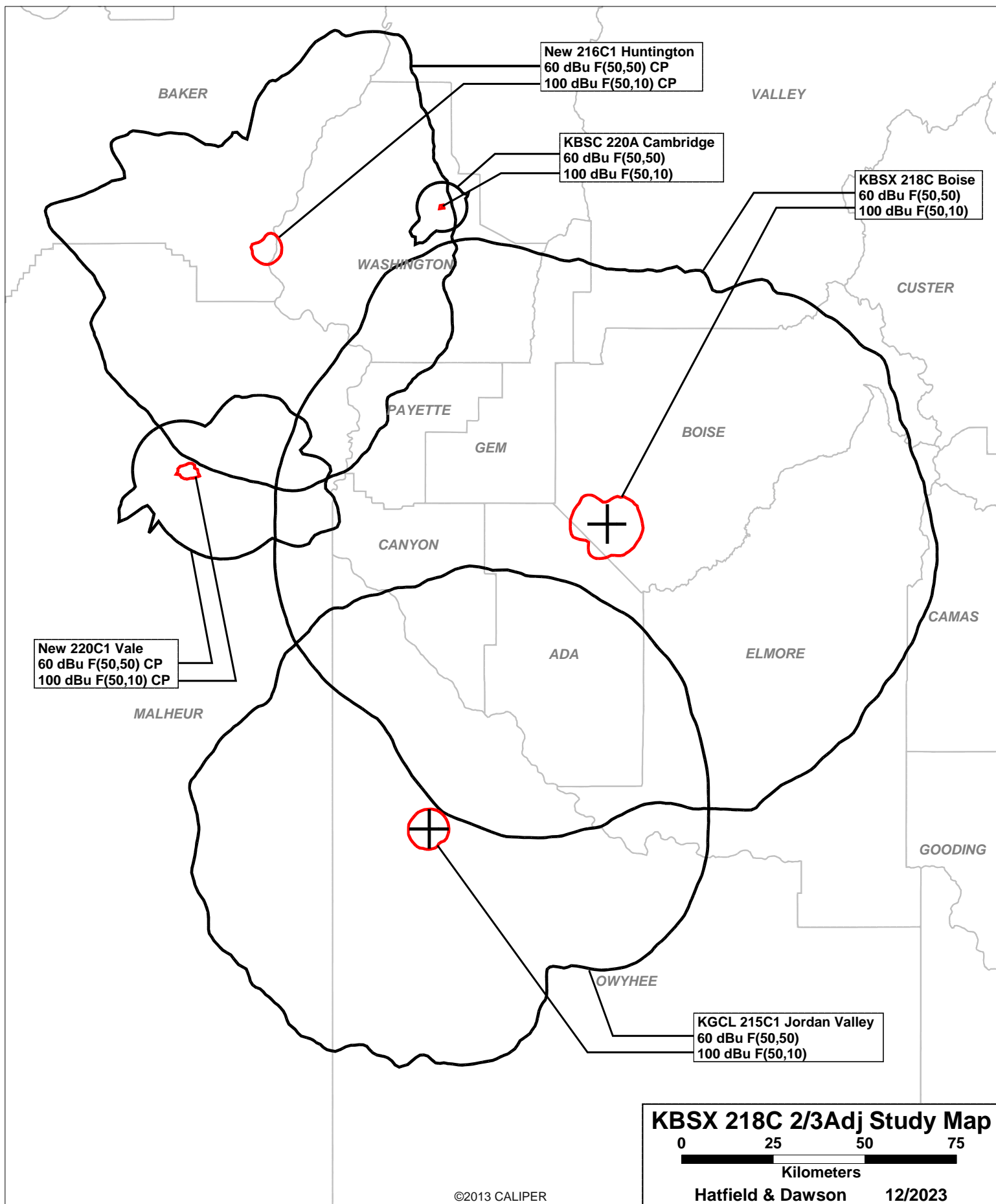
Safety Zone: 50 km

Job Title: KBSX 218C BOISE

Call Status	City St	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
KBSW LIC	TWIN FALLS ID	0000093352	219C3 91.7	4.500 150.0	42 43 48.1 114 25 9.3	129.4	177.77 1.77	176 CLOSE
CP	AROCK OR	0000166405	219C 91.7	43.000 676.0	42 53 1.0 117 27 49.0	229.2	147.10 -93.90	241 SHORT
K220JS LIC	ONTARIO OR	0000100490	220D 91.9	0.100 0.0	44 3 43.6 116 54 25.6	298.0	73.29 0.00	0 TRANS
CP	VALE OR	0000167152	220C1 91.9	100.000 -7.0	DA 43 53 14.0 117 32 2.0	277.7 SS	116.34 11.34	105 CLEAR
K220JU LIC	NAMPA ID	BLFT-20160907AAB	220D 91.9	0.010 0.0	43 45 17.6 116 5 56.4	172.3	0.10 0.00	0 TRANS
KBSC LIC	CAMBRIDGE ID	0000218480	220A 91.9	0.200 -38.0	44 32 0.5 116 39 23.3	333.0	97.24 2.24	95 CLOSE
KWRV LIC	SUN VALLEY ID	BLED-20090121ADD	220A 91.9	0.100 656.6	43 39 40.6 114 24 11.1	93.8	137.11 42.11	95 CLEAR
K272DV LIC	MOUNTAIN HOME ID	0000121003	272D 102.3	0.010 0.0	43 14 56.6 115 26 3.3	136.2	77.85 0.00	0 TRANS
K272FS LIC	BOISE ID	BLFT-20181214AAP	272D 102.3	0.099 0.0	DA 43 44 22.6 116 8 15.4	239.8	3.58 0.00	0 TRANS

===== END OF FM SPACING STUDY FOR CHANNEL 218 =====





**December 2023  
KBSX(FM) Channel 218C  
Boise, Idaho  
RF Exposure Study**

### **Facilities Proposed**

The proposed operation will be on Channel 218C (91.5 MHz) with a maximum lobe effective radiated power of 27 kilowatts. Operation is proposed with an 8-bay, circularly-polarized directional antenna. The antenna will be installed on an existing tower at the Deer Point communications site, with FCC Antenna Structure Registration Number 1209884.

### **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.

$$S(\mu W / cm^2) = \frac{33.4 \times AdjERP(Watts)}{D^2}$$

Where: *AdjERP(Watts)* is the maximum lobe effective radiated power times the element pattern factor times the array pattern factor.

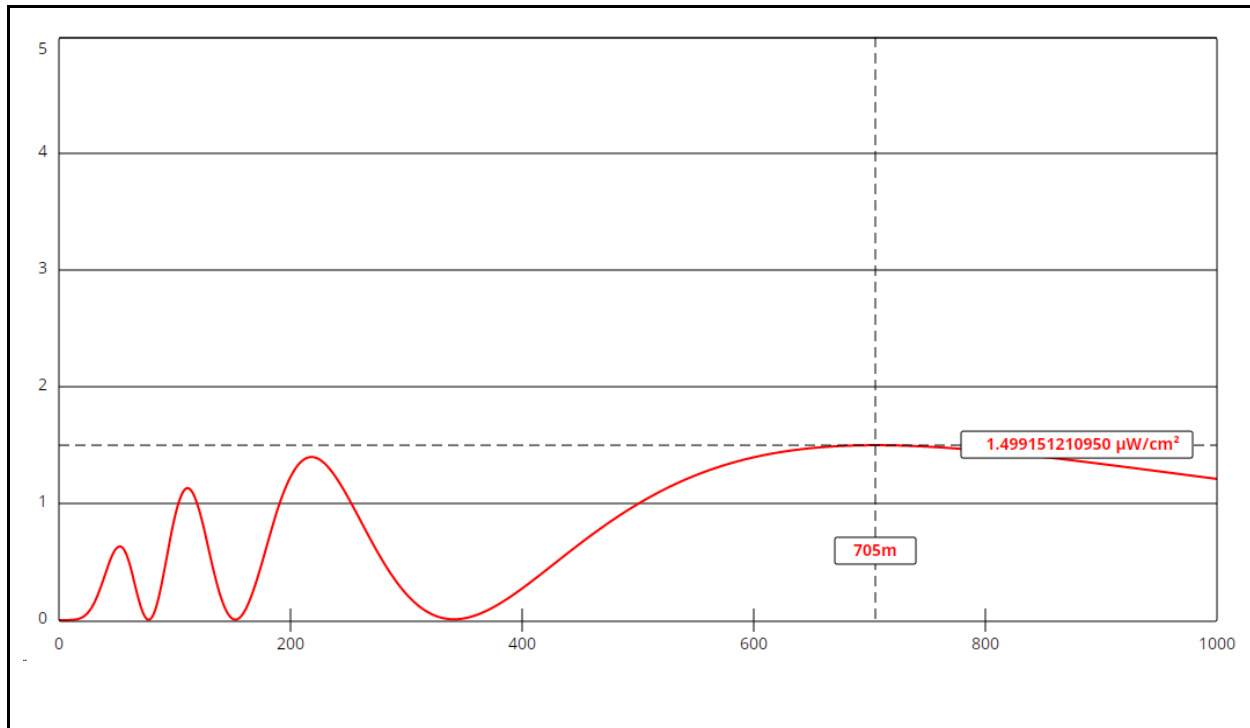
*D* is the distance in meters from the center of radiation to the calculation point.

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 KBSX antenna system assume a Type 3 element pattern, which is the appropriate element pattern for the ERI "rototiller" antenna to be used. Under this worst-case assumption, the highest calculated ground level power density occurs at a distance of 705 meters from the base of the antenna support structure. At this point the power density is calculated to be 1.5  $\mu W/cm^2$ , which is 0.75% of 200  $\mu W/cm^2$  (the FCC standard for uncontrolled environments).

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of KBSX 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 of the Commission's Rules exempts 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.

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

### KBSX 218C Boise

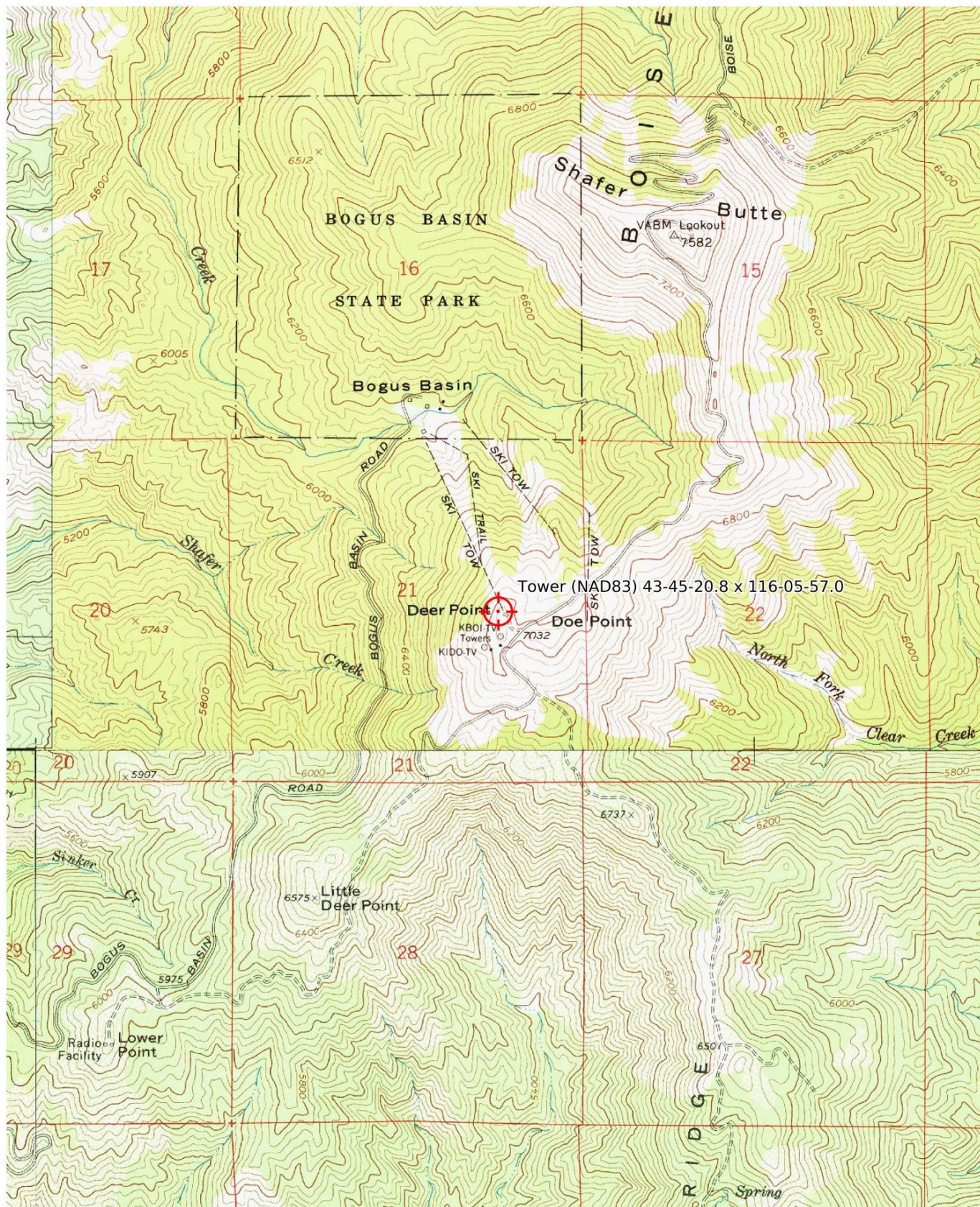
Antenna Type: ERI "rototiller" (Type 3)  
 No. of Elements: 8  
 Element Spacing: 0.5 wavelength

Distance: 1000 meters  
 Horizontal ERP: 27 kW  
 Vertical ERP: 27 kW

Antenna Height: 90 meters AGL

Maximum Calculated Power Density is 1.5  $\mu\text{W}/\text{cm}^2$  at 705 meters from the antenna structure.





Mercator Projection  
WGS84  
UTM Zone 11T



MN 12.9°

Hatfield & Dawson Consulting Engineers



