

**August 2023
FM Translator K209FH
Salmon, Idaho Channel 206D
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.

SEARCH PARAMETERS

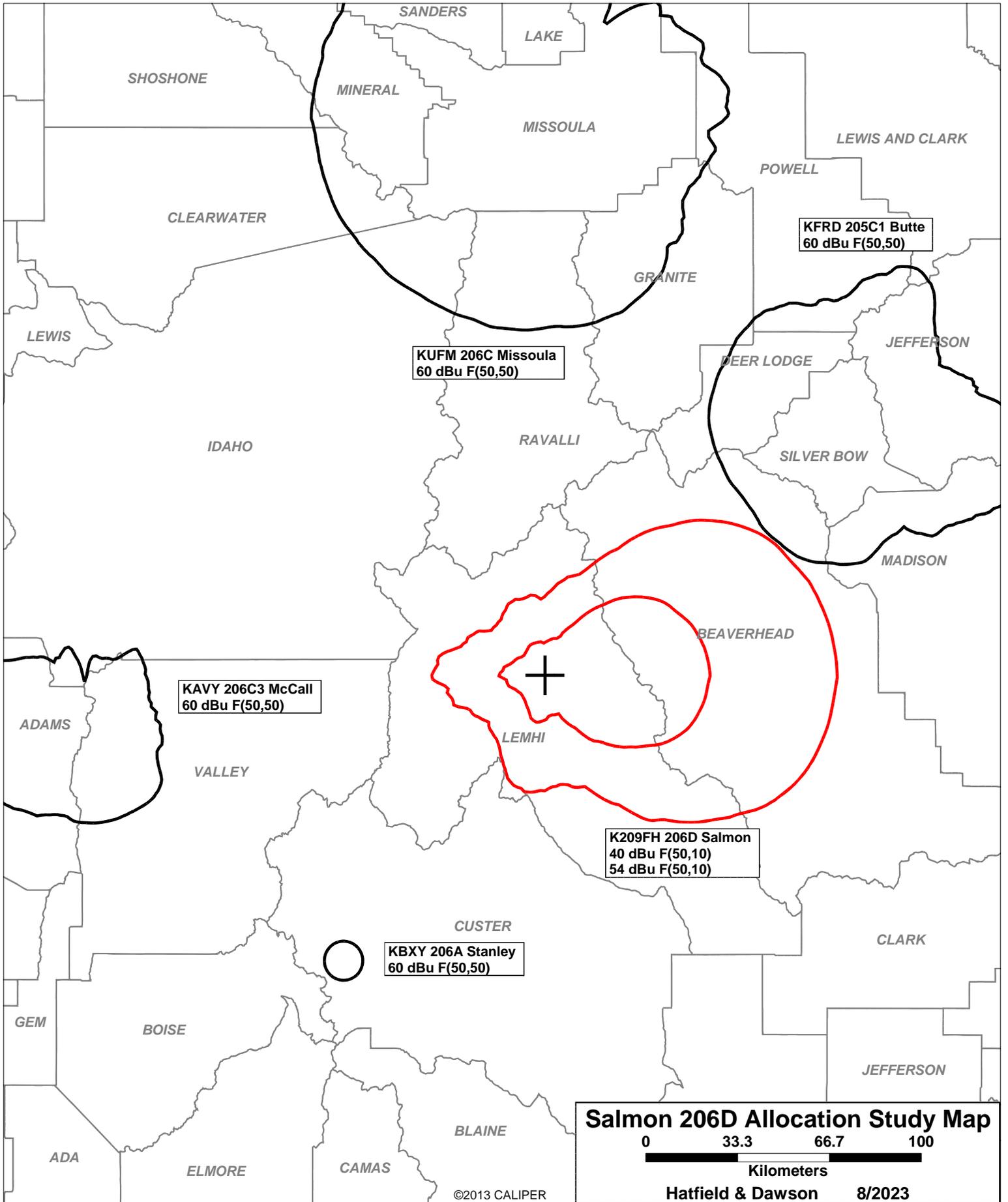
FM Database Date: 20230811

Channel: 206A 89.1 MHz
 Latitude: 45 8 44.1 (NAD83)
 Longitude: 114 0 18.8
 Safety Zone: 50 km
 Job Title: SALMON 206

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Call Status	City St	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
K204CC LIC	CHALLIS, ETC. ID	BLFT-19940829TF	204D 88.7	0.010 0.0	DA 44 32 44.7 114 4 53.2	185.2	66.93 0.00	0 TRANS
KFRD LIC	BUTTE MT	BMLED-20130716AA	205C1 88.9	2.800 527.0	46 0 26.7 112 26 33.0	51.2	155.09 22.09	133 CLEAR
CP	STANLEY ID	0000166875	206A 89.1	0.250 -314.0	44 12 46.6 114 56 20.6	215.8	127.37 12.37	115 CLEAR
KAVY LIC	MCCALL ID	BMLED-20170817AA	206C3 89.1	0.320 590.0	45 0 17.6 116 8 4.4	265.4	168.40 26.40	142 CLEAR
KUFM LIC	MISSOULA MT	BLED-19920722KA	206C 89.1	14.500 754.0	47 1 57.7 113 59 32.3	0.3	209.76 -16.24	226 SHORT
CP	CHALLIS ID	0000166763	209C3 89.7	0.100 807.4	44 33 8.9 114 5 24.8	185.8	66.25 24.25	42 CLEAR
K209AQ LIC	CHALLIS, ETC. ID	BLFT-19900312TB	209D 89.7	0.190 0.0	DA 44 32 44.7 114 4 53.2	185.2	66.93 0.00	0 TRANS

==== END OF FM SPACING STUDY FOR CHANNEL 206 ====



**August 2023
FM Translator K209FH
Salmon, Idaho Channel 206D
RF Exposure Study**

Facilities Proposed

The proposed operation will be on Channel 206D (89.1 MHz) with a maximum lobe effective radiated power of 100 watts. Operation is proposed with an antenna to be mounted on an existing structure on Baldy Mountain.

The proposed antenna support structure will not exceed 60.96 meters (200 feet) above ground and does not require notification to the Federal Aviation Administration. Therefore, this structure does not require an Antenna Structure Registration Number.

DETERMINATION Results	
Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates you provided.	
Your Specifications	
NAD83 Coordinates	
Latitude	45-08-44.1 north
Longitude	114-00-18.8 west
Measurements (Meters)	
Overall Structure Height (AGL)	8.5
Support Structure Height (AGL)	8.5
Site Elevation (AMSL)	2758
Structure Type	
LTOWER - Lattice Tower	

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.

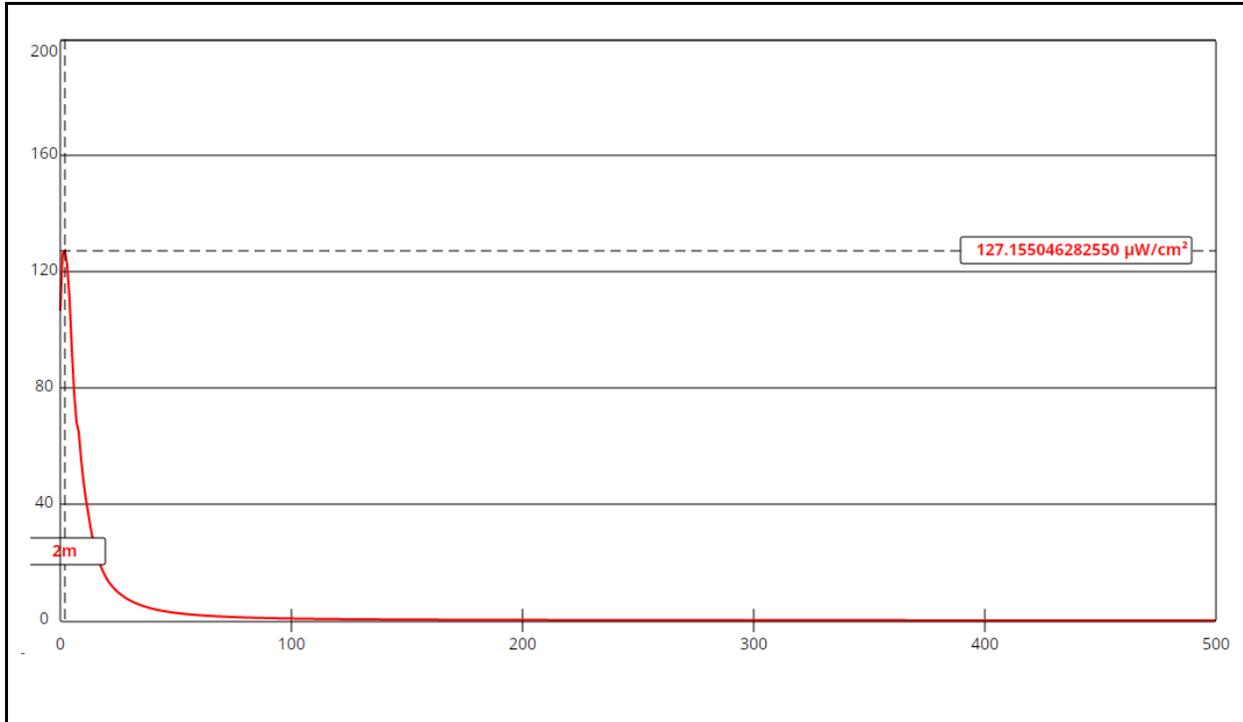
Calculations of the power density produced by the proposed antenna system assume a Type 1 element pattern, which is the element pattern adopted in the Commission's FMModel software for the antenna proposed for use, and also the "worst case" element type. The highest calculated ground level power density occurs at a distance of 2 meters from the base of the antenna support structure. At this point the power density is calculated to be 127.2 $\mu W/cm^2$.

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

Call	ERP Antenna Model	Relative Field	Height AGL	Calculated Exposure	Gen Pop FCC Limit	% of Limit
K209FH 206D	0.100 kW H 0.100 kW V SCA CA5CP	FMModel Type 1	7.6 m	127.1 $\mu W/cm^2$	200 $\mu W/cm^2$	63.6%
KBXM 202C3 CP	0.250 kW H 0.250 kW V NIC BKG77-2 1.0 wavelength	FMModel Type 2	12 m	32.0 $\mu W/cm^2$	200 $\mu W/cm^2$	16.0%
KBXS 211C3 CP	0.250 kW H 0.250 kW V NIC BKG77-2 1.0 wavelength	FMModel Type 2	12 m	32.0 $\mu W/cm^2$	200 $\mu W/cm^2$	16.0%
K29LY-D	0.110 kW H SCA 1x2 75010210	Manf Pattern	8 m	4.7 $\mu W/cm^2$	373 $\mu W/cm^2$	1.3%

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of K209FH and the present operation of the other broadcast stations authorized at this site (were their maxima to coincide, which they do not) is 97% 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

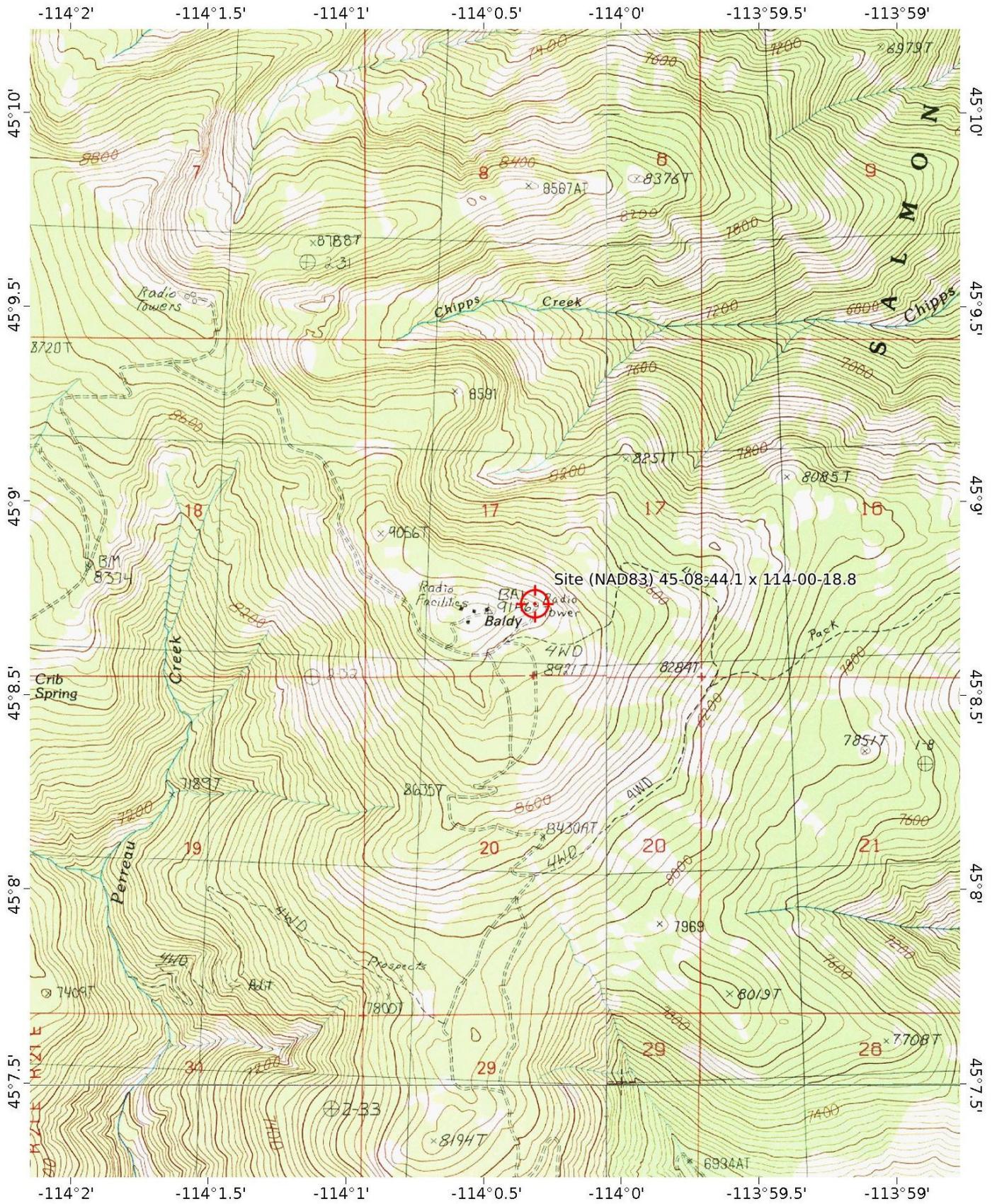
Salmon 206D

Antenna Type: Scala CA5-FM/CP/RM
 No. of Elements: 1
 Element Spacing: 1.0 wavelength

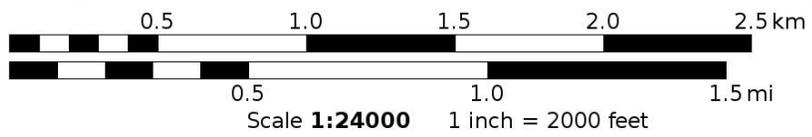
Distance: 500 meters
 Horizontal ERP: 100 W
 Vertical ERP: 100 W

Antenna Height: 7.6 meters AGL

Maximum Calculated Power Density is 127.2 μW/cm² at 2 meters from the antenna structure.



Mercator Projection
 WGS84
 UTM Zones 11T-12T
 CALTOPO



Hatfield & Dawson Consulting Engineers

