

**November 2021  
New FM Channel 219C3  
Bondurant, Wyoming  
Allocation Study**

**Background**

The instant amendment proposes to change the ERP and station class proposed in application 0000167844 for a new NCE FM station at Bondurant, Wyoming, on Channel 219C3, by adding a directional antenna pattern. As is demonstrated by the following allocation study, this amendment will remove the Bondurant application from the MX group #225, in which its only conflict is with application 0000167724 for Channel 220A at Alpine.

**Allocation Study**

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:

Cochannel	KSQS	219A	Ririe
	KRKM	219C2	Fort Washakie
First-adjacent	KUSU-FM	218C	Logan
	0000167724	220A	Alpine

**TV Channel 6**

Section 73.525 of the Commission's Rules specifies a threshold distance of 159 kilometers for FM stations operating on Channel 219. There is no TV Channel 6 station located within this threshold distance.

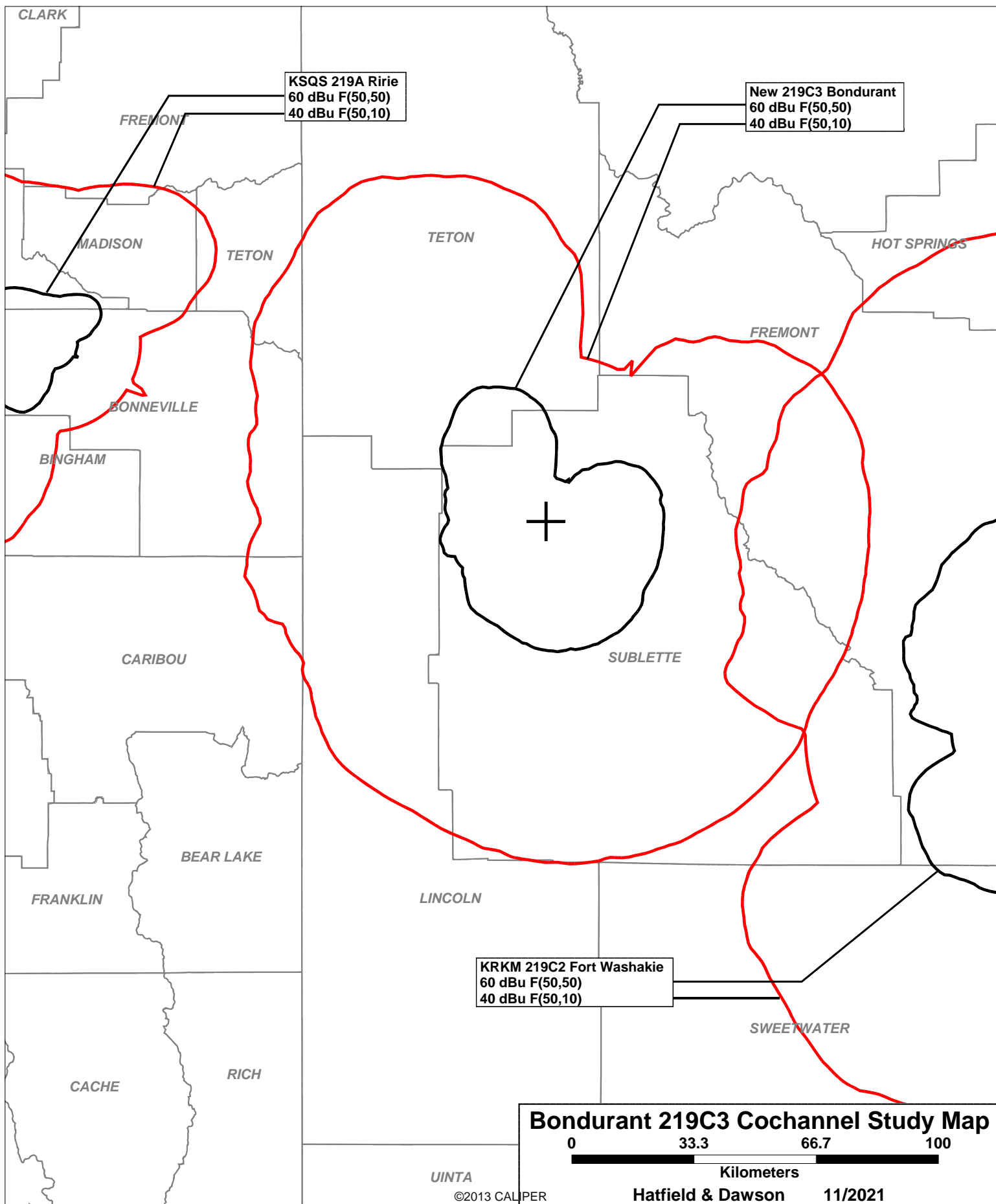
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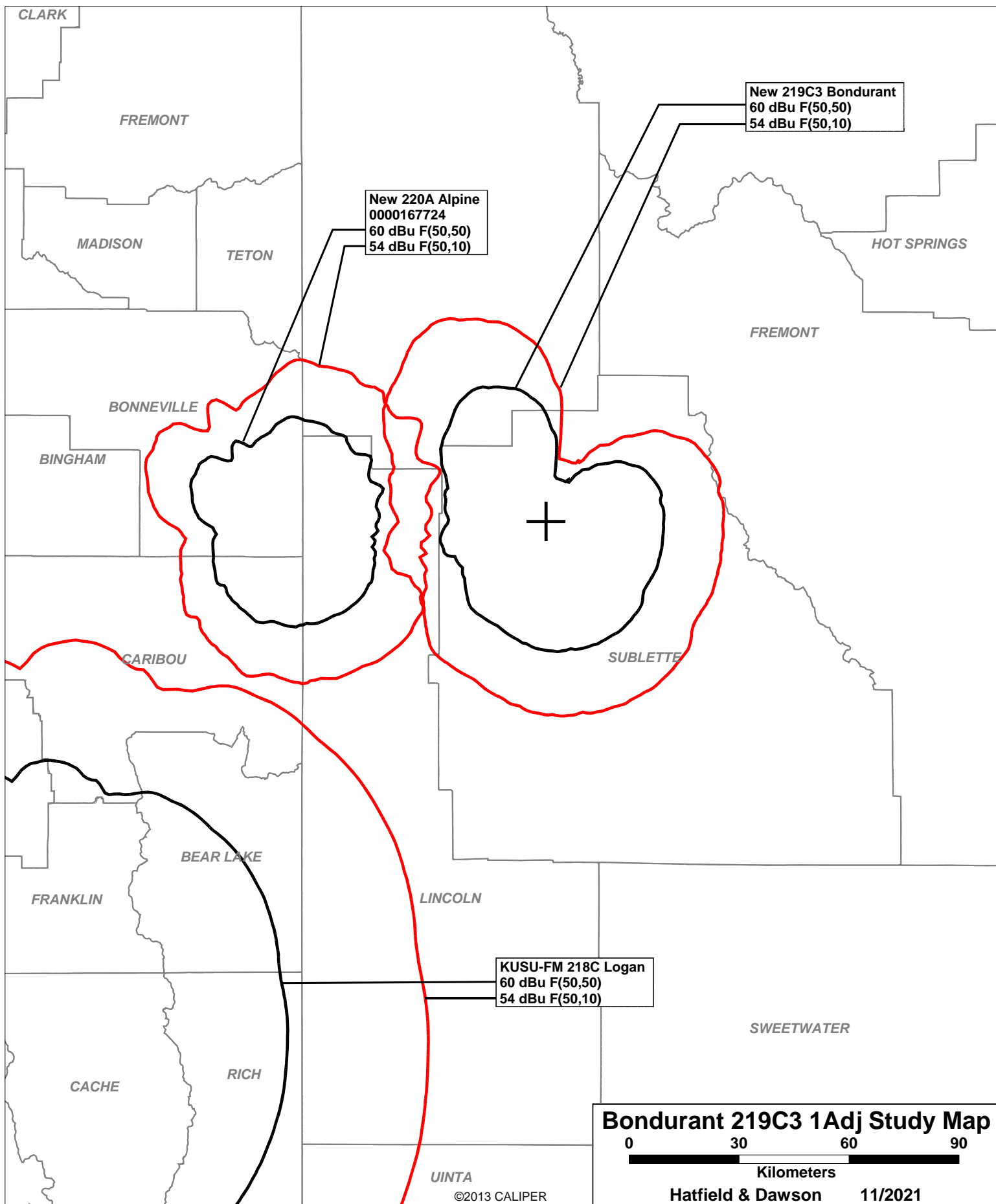
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SEARCH PARAMETERS                               FM Database Date: 20211122
Channel: 219C3    91.7 MHz                      Page 1
Latitude: 43 6 21.2 (NAD83)
Longitude: 110 13 50.9
Safety Zone: 50 km
Job Title: BONDURANT 219C3
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Call Status	City St	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
KMWY LIC	JACKSON WY	BLED-20100528AAB	216A 91.1	0.350 312.0	43 27 39.7 110 45 11.7	313.2	57.92 15.92	42 CLEAR
KUWA LIC	AFTON WY	BLED-19980710KB	217A 91.3	0.400 -95.0	42 51 1.7 110 58 48.7	245.3	67.39 25.39	42 CLEAR
K217BP LIC	DUBOIS WY	BLFT-19940718TD	217D 91.3	0.099 0.0	DA 43 29 58.8 109 41 19.5	44.9	62.04 0.00	0 TRANS
KUSU-FM LIC	LOGAN UT	BMLD-20081210AA	218C 91.5	90.000 347.0	41 53 10.7 112 4 19.8	228.7	203.14 27.14	176 CLEAR
KSQS LIC	RIRIE ID	BLED-20060908AAG	219A 91.7	0.250 162.2	DA 43 32 36.6 111 53 9.8	290.5	142.79 0.79	142 CLOSE
KRKM LIC	FORT WASHAKIE WY	0000125139	219C2 91.7	3.000 426.0	42 34 58.8 108 42 38.4	114.6	137.17 -39.83	177 SHORT
K219LW LIC	DRIGGS ID	BLFT-20140206ADF	219D 91.7	0.250 0.0	43 43 22.7 111 6 37.7	314.3	98.88 0.00	0 TRANS
KRKM CP	FORT WASHAKIE WY	BPED-20190906AAS	219C2 91.7	3.000 426.0	42 34 58.8 108 42 38.4	114.6	137.17 -39.83	177 SHORT
APP	BONDURANT WY	0000167844	219C3 91.7	2.000 257.0	43 6 21.2 110 13 50.9	0.0	0.00 -153.00	153 SHORT
K220GP LIC	LANDER WY	BLFT-19990816UD	220D 91.9	0.083 0.0	DA 42 54 20.8 108 42 21.4	99.7	126.30 0.00	0 TRANS
APP	ALPINE WY	0000167724	220A 91.9	0.100 612.6	43 6 18.4 111 7 21.4	270.2	72.60 -16.40	89 SHORT
K221DT LIC	THAYNE, AFTON WY	BLFT-19990323TC	221D 92.1	0.010 0.0	DA 43 6 18.7 111 7 23.7	270.2	72.65 0.00	0 TRANS
KIXM LIC	VICTOR ID	BLH-20060811AWR	222C3 92.3	0.820 331.0	43 29 26.7 110 57 18.7	306.4	72.69 29.69	43 CLEAR

===== BEGINNING SEARCH OF SECONDARY DATABASE =====





**November 2021  
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Bondurant, Wyoming  
RF Exposure Study**

### **Facilities Proposed**

The proposed operation will be on Channel 219C3 (91.7 MHz) with a maximum lobe effective radiated power of 2 kilowatts. Operation is proposed with a 4-element circularly-polarized directional antenna. The antenna will be side-mounted on an existing tower located atop South Rim.

The proposed antenna support structure does 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	43-06-21.2 north
Longitude	110-13-50.9 west
Measurements (Meters)	
Overall Structure Height (AGL)	18.3
Support Structure Height (AGL)	18.3
Site Elevation (AMSL)	2597
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.

$$S(\mu W / cm^2) = \frac{33.40981 \times AdjERP(Watts)}{D^2}$$

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. The highest calculated ground level power density occurs at a distance of 4 meters from the base of the antenna support structure. At this point the power density is calculated to be 138.5  $\mu W/cm^2$ .

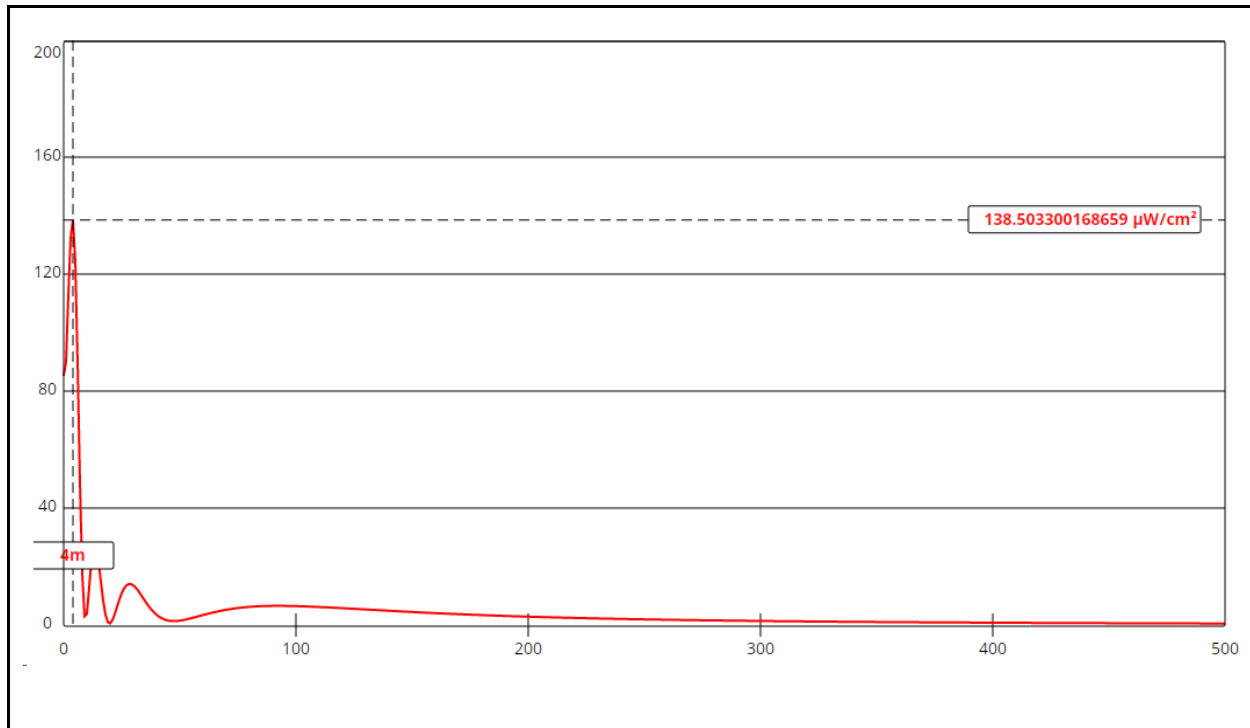
Calculations of the power density produced by Bondurant 219C3 and the other station at this transmitter site are summarized in the following table:

Call	Avg or Peak ERP Antenna Model	Relative Field	Height AGL	Calculated Exposure	Gen Pop FCC Limit	% of Limit
New 219C3 Bondurant	2 kW H 2 kW V 4-bay fullwave	FMModel Type 2	13.7 m	138.5 $\mu W/cm^2$	200 $\mu W/cm^2$	69.3%
K17JZ-D	0.491 kW H Scala 4DR-4S	0.257	15 m	6.4 $\mu W/cm^2$	325.3 $\mu W/cm^2$	2.0%

(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 Bondurant 219C3 and the present operation of K17JZ-D (were their maxima to coincide, which they do not) is 71.3% 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

### Bondurant 219C3

Antenna Type: Type 2  
 No. of Elements: 4  
 Element Spacing: 1 wavelength

Distance: 500 meters  
 Horizontal ERP: 2 kW  
 Vertical ERP: 2 kW

Antenna Height: 13.7 meters AGL

Maximum Calculated Power Density is 138.5  $\mu\text{W}/\text{cm}^2$  at 4 meters from the antenna structure.



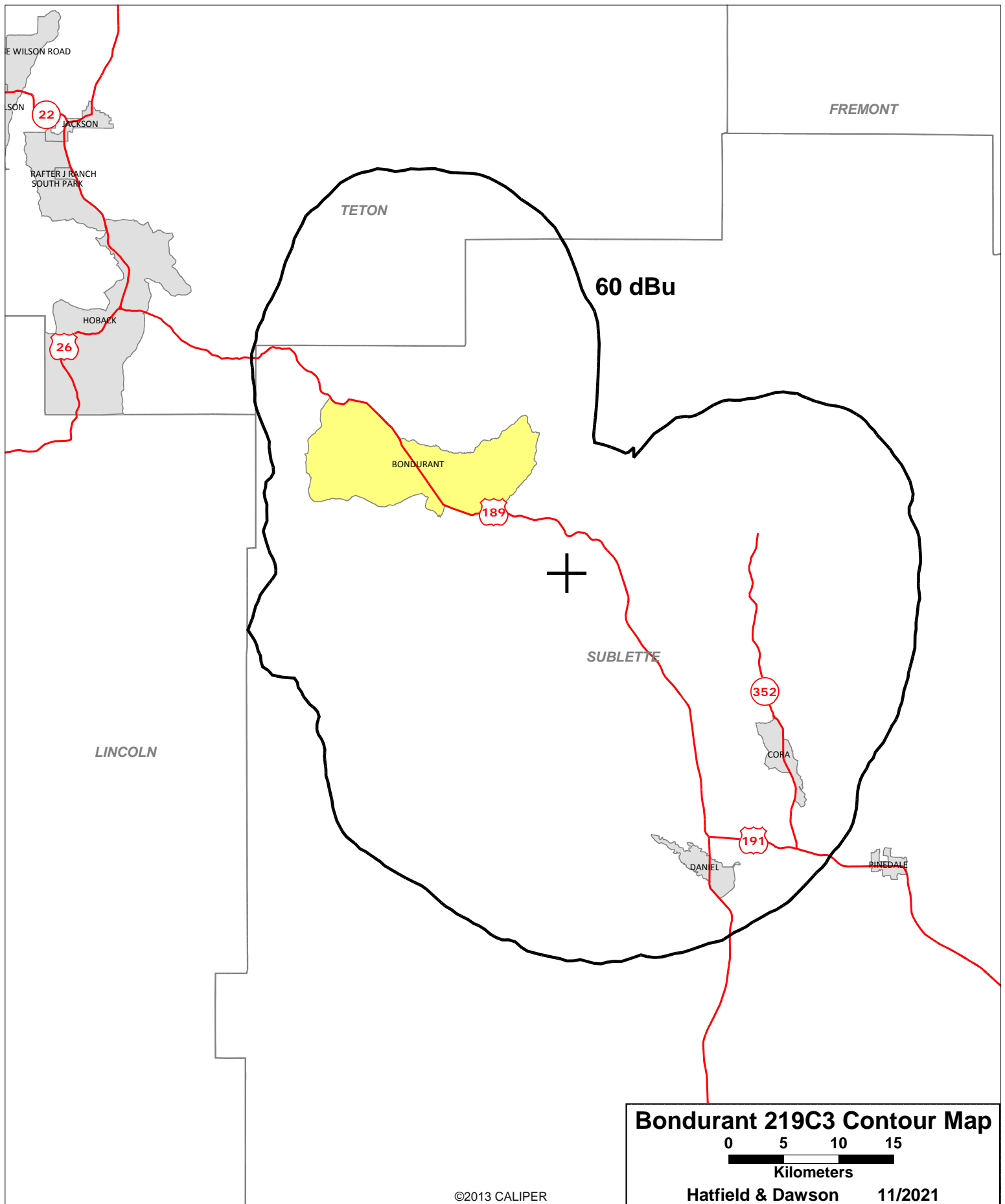
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**Area and Population Calculation Methodology**

Calculation of the area within the 60 dBu contour was performed by the mapping program Maptitude, which includes a function which automatically calculates the area within irregular polygons. In cases where the 60 dBu contour included any large water areas, those were excluded by using a related tool in the program which allows the user to “clip” to the land area within the contour. The software returns the area of the land area.

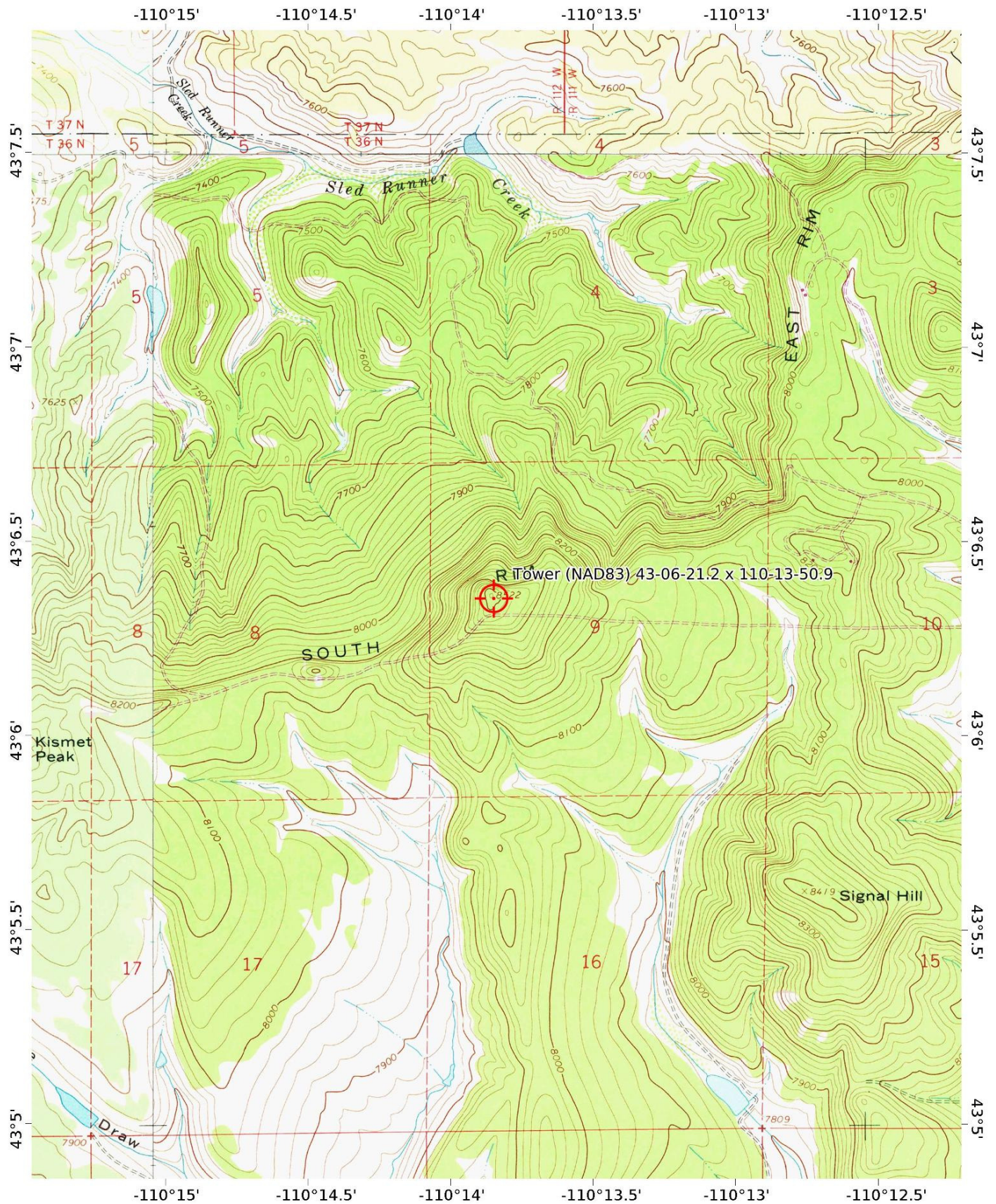
Total area inside 60 dBu contour:	3,046 sq km
Water area excluded:	0 sq km
Total land area inside 60 dBu contour:	3,046 sq km

Population was calculated by summing the individual populations of each of the census blocks from the 2010 Census whose centroids are encompassed by the proposed 60 dBu contour.

Population inside 60 dBu contour:	1,620
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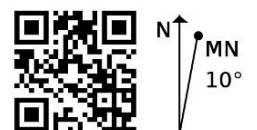






Mercator Projection  
WGS84  
UTM Zone 12T  
 CALTOPO

0.5 1.0 1.5 2.0 2.5 km  
0.5 1.0 1.5 mi  
Scale 1:24000 1 inch = 2000 feet



Hatfield & Dawson Consulting Engineers