

**August 2021
New FM Channel 215A
Homer, AK
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. There are no stations close enough to require detailed allocation study maps in this application.

TV Channel 6

Section 73.525 of the Commission's Rules specifies a threshold distance of 180 kilometers for FM stations operating on Channel 215. There is no domestic TV Channel 6 station located within this threshold distance.

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SEARCH PARAMETERS	FM Database Date: 20210806
Channel: 215A 90.9 MHz	Page 1
Latitude: 59 36 6.4 (NAD83)	
Longitude: 151 25 11.4	
Safety Zone: 50 km	
Job Title: HOMER 215A	

Call	City	Channel ERP(kW)	Latitude Bearing	Dist	Req
Status	St	FCC File No.	Freq. HAAT(m)	Longitude deg-True	(km) (km)
=====					
none					

===== END OF FM SPACING STUDY FOR CHANNEL 215 =====

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RF Exposure Study**

Facilities Proposed

The proposed operation will be on Channel 215A (90.9 MHz) with an effective radiated power of 0.550 kilowatts. Operation is proposed with a 2-element circularly-polarized omni-directional half-wave-spaced antenna which will be side-mounted on an existing tower located on the Homer Spit.

The 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							
PASS SLOPE(100:1)NO FAA REQ - 5819.0 Meters (19090.9 Feet)away & below slope by 50.0 Meters (164.039 Feet)							
Type	C/R	Latitude	Longitude	Name	Address	Lowest Elevation (m)	Runway Length (m)
AIRP	R	59-38-25.00N	151-29-29.00W	HOMER	KENAI PENINSULA HOMER, AK	5.5	2042.5
PASS SLOPE(100:1): NO FAA REQ-RWY MORE THAN 10499 MTRS & 6824.77 MTRS (6.82479 KM) AWAY							
Type	C/R	Latitude	Longitude	Name	Address	Lowest Elevation (m)	Runway Length (m)
AIRP	R	59-38-43.00N	151-30-18.00W	HOMER	KENAI PENINSULA HOMER, AK	5.5	2042.5
PASS SLOPE: No FAA REQ-Unmarked Seaplane base							
Type	C/R	Latitude	Longitude	Name	Address	Lowest Elevation (m)	Runway Length (m)
SEAP	C	59-38-30.00N	151-31-16.00W	HOMER-BELUGA LAKE	KENAI PENINSULA HOMER, AK	7.6	914.3999999999998
Your Specifications							
NAD83 Coordinates							
Latitude						59-36-06.4 north	
Longitude						151-25-11.4 west	
Measurements (Meters)							
Overall Structure Height (AGL)						12.2	
Support Structure Height (AGL)						12.2	
Site Elevation (AMSL)						1.5	
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.

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

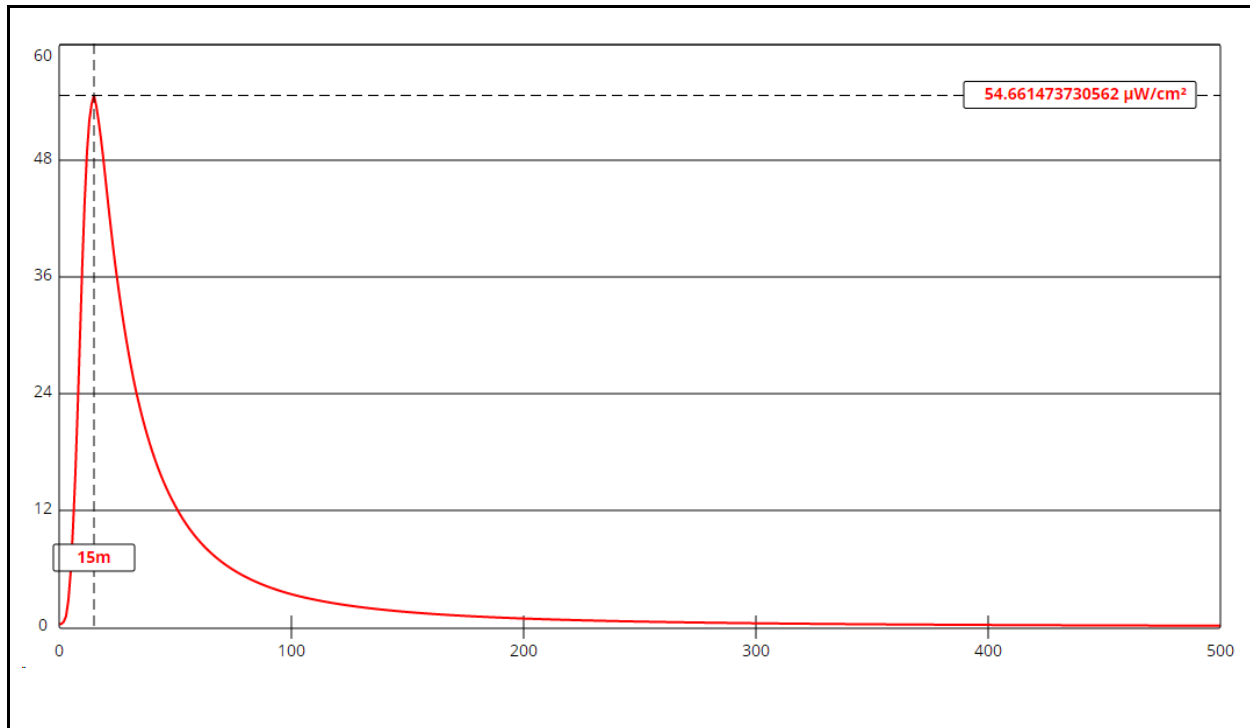
Where: *AdjERP(Watts)* is the maximum lobe effective radiated power times the element pattern factor times the array pattern factor.

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 4 element pattern, which is the element pattern for the ERI model 100A-2F-HW antenna proposed for use. The highest calculated ground level power density occurs at a distance of 15 meters from the base of the antenna support structure. At this point the power density is calculated to be 54.7 $\mu W/cm^2$, which is 27.4% of 200 $\mu W/cm^2$ (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

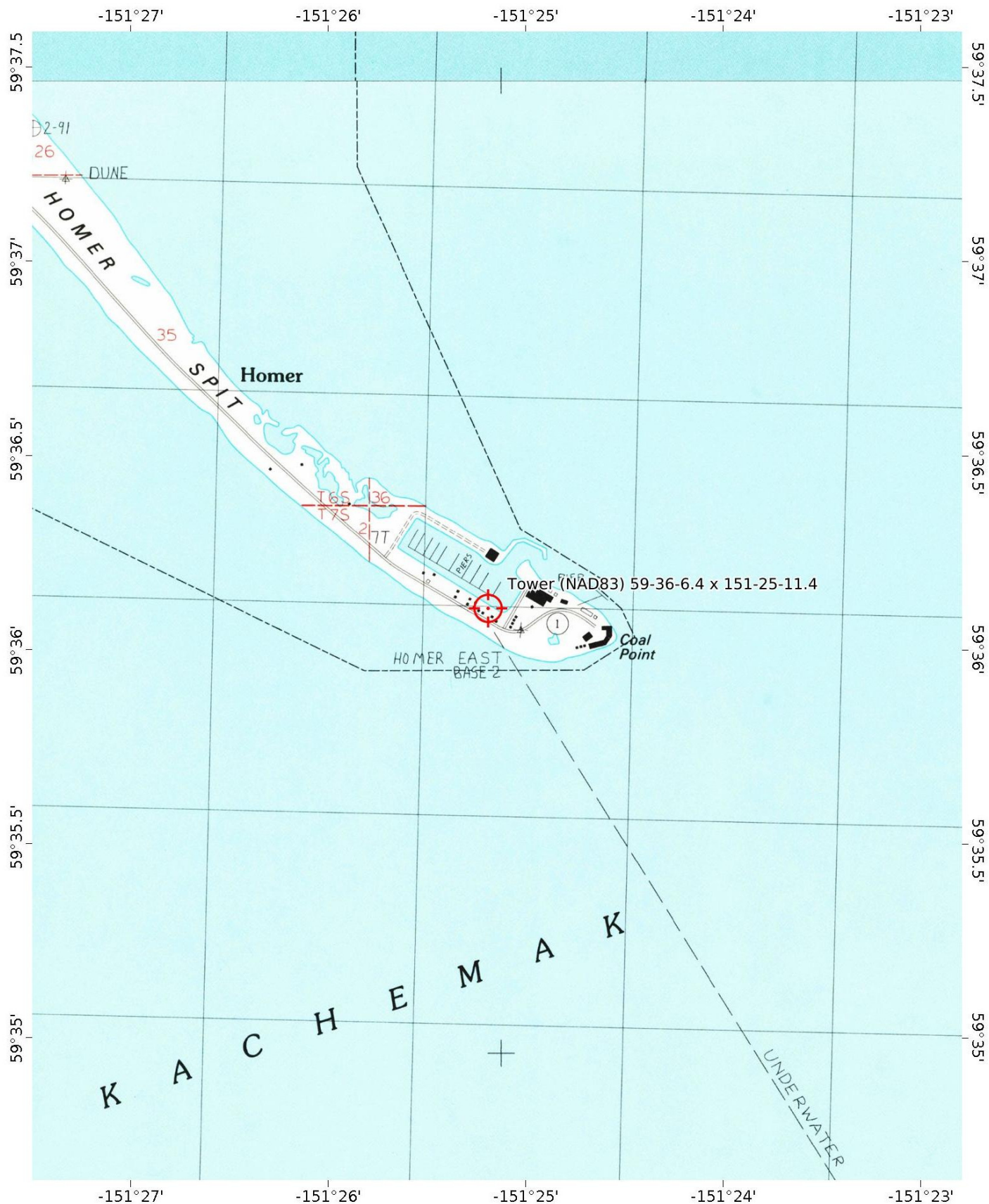
Homer 215A

Antenna Type: ERI 100A-2F-HW (Type 4)
No. of Elements: 2
Element Spacing: 0.5 wavelength

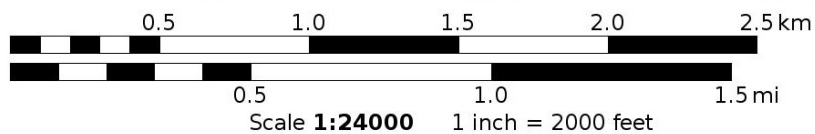
Distance: 500 meters
Horizontal ERP: 550 watts
Vertical ERP: 550 watts

Antenna Height: 10.7 meters AGL

Maximum Calculated Power Density is 54.7 $\mu\text{W}/\text{cm}^2$ at 15 meters from the antenna structure.



Mercator Projection
WGS84
USNG Zone 5VNG
CALTOPO



Hatfield & Dawson Consulting Engineers

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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:	238 sq km
Water area excluded:	198 sq km
Total land area inside 60 dBu contour:	40 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:	3,642
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