June 2016
FM Translator K280ED
Juneau, Alaska   Channel 278D
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. There are no cochannel or first-adjacent channel stations close enough to require allocation study maps to demonstrate compliance with the Commission's Rules for protection of FM broadcast stations and FM translators as outlined in §74.1204. Contours were calculated using terrain elevations extracted from SRTM terrain data.

It should be noted that the 34 dBu F(50,10) contour does not overlap any Canadian land areas.

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.

K276AF Mendenhall Valley
The proposed translator transmitter site is located just outside the edge of the 60 dBu protected contour of second-adjacent channel K276AF Mendenhall Valley, and the 100 dBu interfering contour from the proposed facility partially overlaps the K276AF 60 dBu protected contour. As depicted on the attached transmitter site map, however, the 100 dBu F(50,10) contour will not overlap any populated area or occupied structures. The nearest occupied structure is located 970 meters south of the proposed transmitter site, whereas the 100 dBu F(50,10) contour will extend 966 meters from the tower site according to a Free Space calculation. The extent of development in this area has been double-checked against recent aerial photography.

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FMSTUDY.EXE     Copyright 2016, Hatfield & Dawson, LLC        Version 4.01
==============================================================================
SEARCH PARAMETERS                               FM Database Date: 160627
        Channel: 278A   103.5 MHz                              Page   1
       Latitude:  58 22 11
      Longitude: 134 33  8
    Safety Zone:  50 km
      Job Title: JUNEAU 278


Call    City              Channel ERP(kW)    Latitude Bearing    Dist   Req
Status  St  FCC File No.    Freq. HAAT(m)    Longitude deg-True   (km)  (km)
==============================================================================
K276AF  MENDENHALL VALLEY, E 276D   0.041 DA  58-21-57  264.8    4.75     0
 LIC    AK  BLFT-850524TC   103.1    0.0    134-37-59          0.00 TRANS

K278AC  KAKE                278D   0.050      56-58-36  166.6  159.34     0
 LIC    AK  BLFT-940804TC   103.5    0.0    133-56-38          0.00 TRANS

K279AF  HAINES & SKAGWAY    279D   0.250 DA  59-13-32  332.0  108.41     0
 LIC    AK  BLFT-990329TI   103.7    0.0    135-26-42          0.00 TRANS

K280ED  HOONAH              280D   0.046      58-06-55  240.9   57.72     0
 LIC    AK  BLFT-950509TG   103.9    0.0    135-24-30          0.00 TRANS

K280ED  JUNEAU              280D   0.190      58-22-11    0.0    0.00     0
 CP     AK  BPFT-40827ABA   103.9    0.0    134-33-08          0.00 TRANS
 NOTE:  LICENSE APPLICATION ON FILE AS OF 6/29/2016

        =====  END OF FM SPACING STUDY FOR CHANNEL 278  =====
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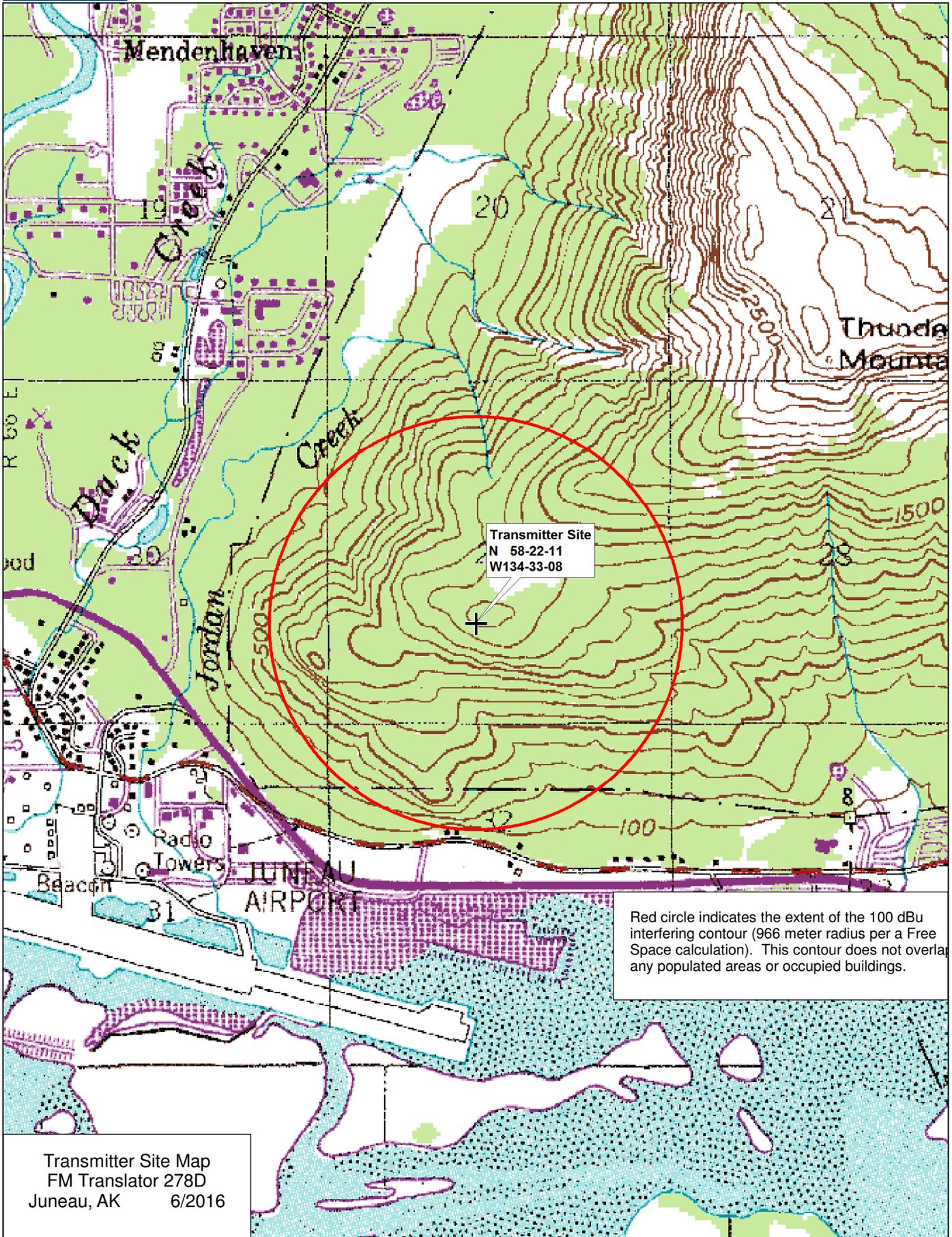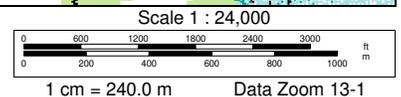
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Mendenhaven

Duck Creek

R 66 E

Thunder Mountain

Transmitter Site
N   58-22-11
W134-33-08

Jordan Creek

ood

Rado Towers

Beacon

JUNEAU AIRPORT

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Red circle indicates the extent of the 100 dBu interfering contour (966 meter radius per a Free Space calculation). This contour does not overlap any populated areas or occupied buildings.

Transmitter Site Map
FM Translator 278D
Juneau, AK   6/2016

TN

MN (19.6°E)

Scale 1 : 24,000

| 0 | 600 | 1200 | 1800 | 2400 | 3000 | ft |
| 0 | 200 | 400 | 600 | 800 | 1000 | m |

1 cm = 240.0 m   Data Zoom 13-1

Facilities Proposed

The proposed operation will be on Channel 278D (103.5 MHz) with an effective radiated power of 190 watts. Operation is proposed with an antenna to be mounted on an existing tower on Heintzelman Ridge, having FCC Antenna Structure Registration Number 1220012.

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 1000 meters. Values past this point are increasingly negligible.

Calculations of the power density produced by the proposed antenna system have been made using the appropriate element pattern for the Nicom BKG77-2 (0.85 wavelength) antenna to be used. The highest calculated ground level power density from this proposal occurs at a distance of 6 meters from the base of the antenna support structure. At this point the power density is calculated to be 17.3 µW/cm², which is 1.7% of 1000 µW/cm² (the FCC standard for controlled environments) and 8.7% of 200 µW/cm² (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 radiation in excess of FCC guidelines.

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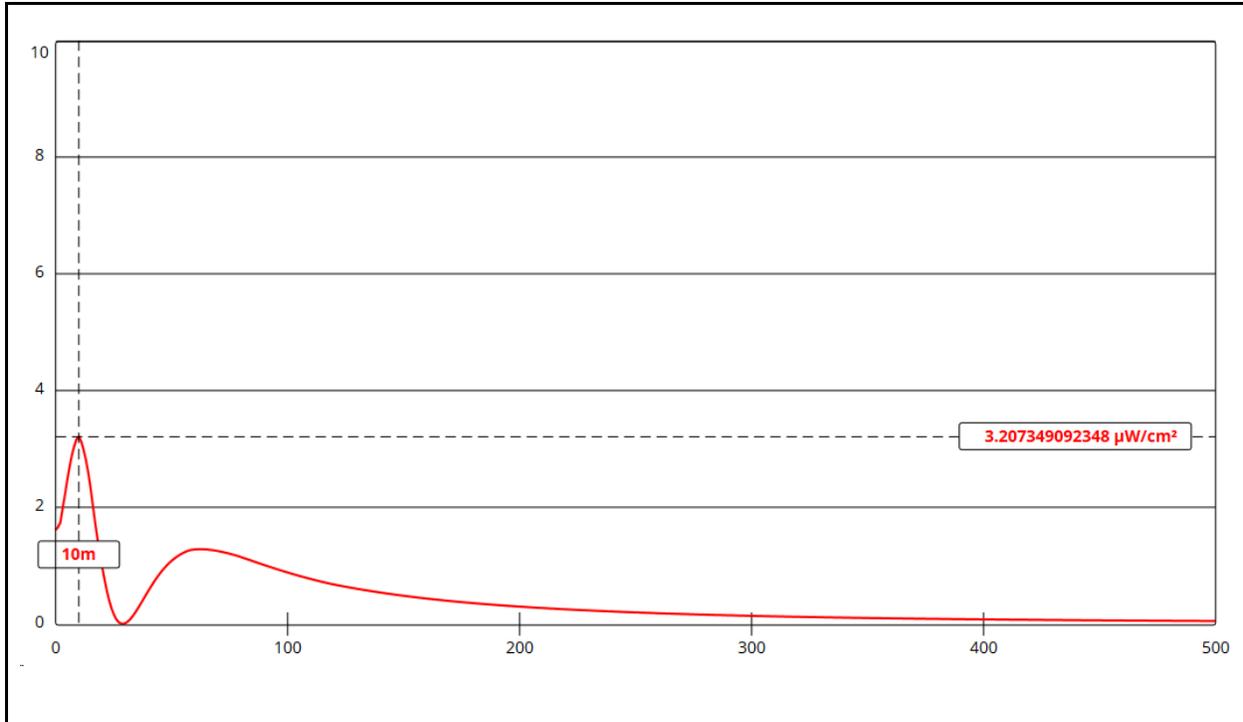
Ground-Level RF Exposure   **OET FMModel**

Juneau 278D
Antenna Type: Nicom BKG77-2 (Type 2)
No. of Elements: 2
Element Spacing: 0.85 wavelength

Distance: 1000 meters
Horizontal ERP: 0.190 kW
Vertical ERP: 0.190 kW

Antenna Height: 23 meters AGL

Maximum Calculated Power Density is 3.2 µW/cm² at 10 meters from the antenna structure.

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