

KFFF Engineering Narrative

January 2014

This application seeks correction of coordinates with specification of correct ASR for KFFF. It has been discovered that the support tower has several antenna registrations, this application seeks to “move on paper” to registration number 1026520. The station is and will continue to be 140 meters above ground with and adjusted power of 8,500 watts, non-directional.

As this location and height results in a Height Above Average Terrain 70 meters greater than the reference 100 meters for a class C3 facility, the FCC “FM Power” tool was utilized to determine equivalent ERP. This location does meet the spacing requirements of Section 73.207; a spacing study is presented below.

The proposed facilities were evaluated in terms of potential radio frequency radiation exposure at ground level in accordance with OET Bulletin No. 65, “Evaluating Compliance With FCC-Specified Guidelines for Human Exposure to Radio frequency Radiation.”

The facility will continue to utilize an ERI MPX-3 full wave 3 section antenna. This antenna has been modeled as proposed mounted 140 meters above ground has been analyzed using the program “FM Model” set to calculate values for a “Roto Tiller” antenna array with 3 element spaced 1 wavelength operated with an effective radiated power of 8.5 Kilowatts in both the horizontal and vertical planes. At 2 meters above the surface, at 69 meters from the base of the tower, this proposal will contribute worst case, 3.13 microwatts per square centimeter, or 0.31percent of the allowable ANSI limit for controlled exposure, and 1.55 percent of the allowable limit for uncontrolled exposure. This figure is less than 5% of the applicable FCC exposure limit at all locations extending out from the base of the tower. Section 1.1307(b)(3) excludes applications when the calculated level is predicted to be less than 5% of the applicable exposure limit. It is therefore believed that this proposal is in compliance with OET Bulletin Number 65 as required by the Federal Communications Commission.

Further, the applicant will see that signs are posted in the vicinity of the tower, warning of potential radio frequency hazards at the site. The site itself is restricted from public access. The applicant will cooperate with other users of the tower to reduce power of the facility, or discontinue operation, as necessary to limit human exposure to levels less than specified by the Federal Communications Commission should anyone be required to climb the tower for maintenance or inspection.

FM Power Results

Internet Explorer window showing the FCC's FMpower Results page.

Address bar: <http://transition.fcc.gov/fcc-bin/fmpower>

Navigation bar: FCC Home, Search, Updates, E-Filing, Initiatives, For Consumers, Find People

Audio Division (202) 418-2700

FMPower Results

Class C3 facilities for Equivalency Determination:

- Reference ERP = 25.000 kW
- Reference HAAT = 100.0 meters
- F(50,50) 60 dBu protected contour at 39.1 km distance

Equivalent ERP (rounded per 47 CFR 73.212) = 8.500 kW

at **170.0 meters HAAT**

Unrounded ERP = 8.456 kW for 170.0 meters HAAT

Class C3 stations are authorized in AK.

[Enter New Data in FMpower?](#)

Related items: [FM and TV Propagation Curves](#)
This document may be accessed at <http://www.fcc.gov/mb/audio/bickel/fmpower.html>

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If you would like more information pertaining to the Media Bureau, please call: (202) 418-7200.

Federal Communications Commission
445 12th Street SW
Washington, DC 20554
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TTY: 1-888-TELL-FCC (1-888-835-5322)
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Calculation of Antenna Height Above Average Terrain Calculations

Antenna Height Above Average Terrain (HAAT) Calculations (HAAT) Results Audio Division - Internet Explorer

http://transition.fcc.gov/fcc-bin/haat_calculat... transition.fcc.gov

RF BEST calculator National Weather Service F... cctm Home http://transition.fcc.gov-Dail... halkainen.com FCC Rules CDDBS Public Access FCCInfo Search Web Slice Gallery Suggested Sites

CDDBS Public Access
http://licensing.fcc.gov/prod/cdb/public/prod/cdb.pa.html

FCC Federal Communications Commission

Audio Division Antenna Height Above Average Terrain (HAAT) / Contour Calculations

(202) 418-2700 [FCC > MB > Audio Division > HAAT/Contour Calculations](#) [FCC site map](#)

Antenna Height Above Average Terrain Calculations -- Input

Latitude **41 15 26.0 North**
Longitude **95 57 50.9 West** (NAD 27)

Height of antenna radiation center above mean sea level [RCAMSL] = **500.0** meters

Number of Evenly Spaced Radials = 8 0° is referenced to True North

Results:

Calculated HAAT = 170. meters
(Antenna Height Above Average Terrain)
using the 30 second FCC/NGDC terrain data)

Antenna Radiation Center Heights Above Individual Radials:

0.0°	161.8 meters
45.0°	176.1 meters
90.0°	188.4 meters
135.0°	201.4 meters
180.0°	159.2 meters
225.0°	169.4 meters
270.0°	158.4 meters
315.0°	143.6 meters

[New Antenna Height Above Average Terrain \(HAAT\) calculation?](#)

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Spacing Study

KFFF Coord Correction Capstar Tx Llc

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REFERENCE                                     DISPLAY DATES
41 15 26.0 N.                                CLASS = C3      DATA 01-31-14
95 57 50.9 W.                                Current Spacings to 3rd Adj. SEARCH 01-31-14
----- Channel 227 - 93.3 MHz -----
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Call	Channel	Location	Azi	Dist	FCC	Margin
KFFF	LIC 227C3	Bennington	NE 90.0	0.04	153.0	-153.0
KIOA	LIC 227C1	Des Moines	IA 77.9	213.59	211.0	2.6
KKOT	LIC 228C1	Columbus	NE 283.0	146.84	144.0	2.8
KRSS	LIC 228C3	Tarkio	MO 141.1	105.01	99.0	6.0
KTGL	LIC 225C1	Beatrice	NE 219.7	106.44	76.0	30.4
KKRL	LIC 229C1	Carroll	IA 45.2	125.81	76.0	49.8
KNTK	LIC-N 229A	Firth	NE 216.6	93.12	42.0	51.1
KMXV	LIC 227C0	Kansas City	MO 153.1	278.14	226.0	52.1
AL1942	RSV-A 227C0	Kansas City	MO 153.1	278.14	226.0	52.1
Sub. 227C0 for 227C Pet. for Recon.						
KKYA	LIC 226C1	Yankton	SD 324.5	202.47	144.0	58.5
KIBZ	CP -N 281C2	Crete	NE 224.9	91.57	17.0	74.6

RSV-R = reserved - needs protection, RSV-A = allocation