

Technical Certifications

This exhibit for the minor modification of KIMI demonstrates compliance with all engineering standards and requirements specified in the applicable FCC rules and regulations. This application proposes a change in the ERP, a minor change in the tower geographical coordinates, tower height, and site elevation to match the ASR information. These changes are indicated below:

	Licensed	Minor Mod
Channel / Class	299C3	299A
ASRN	NA	1326352
Geographical Coordinates	40 56 56.9 N 95 45 29.0 W	40 56 56.4 N 95 45 29.2
Tower AGL	46 m	60 m
Site AMSL	390.1m	391.7m
COR AGL	53 m	53 m
COR AMSL	443 m	444.7 m
HAAT	124 m	124.2 m
ERP	13 kW (H&V, non-DA)	1.2 kW (H&V, non-DA)

FCC30 terrain data

Educational Media Foundation (EMF) submits this minor modification of a licensed facility with the understanding that the most recent license grant for KIMI, file number BLH-20150312ABT, was granted and then rescinded. Due to the grant and now pending license app BLH-20150312ABT, the Community of License is recognized as Malvern, IA. The grant and subsequent rescinded action was due to FAA restrictions on the allowable frequency and power for operation on 107.7mhz. EMF has recently obtained a determination from the FAA for operation on 107.7mhz with the power limitation of 1.2kw effective radiated power. This determination is found in Aeronautical Study No 2023-ACE-3155-OE. A copy of this determination is included in this instant application. EMF has also obtained an Antenna Structure Registration Number reflecting the tower height as applied for per Aeronautical Study No 2023-ACE-3155-OE.

KIMI Site Spacing Table

REFERENCE				DISPLAY DATES			
40 56 56.4 N.				CLASS = A			
95 45 29.20 W.				DATA 10-21-23			
				SEARCH 10-31-23			
				Current Spacings to 3rd Adj.			
				Channel 299 - 107.7 MHz			
Call	Channel	Location		Azi	Dist	FCC	Margin
KIMI	CP -Z	299C2	Malvern	IA	15.1	0.01	165.5
AL6533%	RSV-A	299C2	Malvern	IA	45.5	3.37	165.5
KIMI	CP	299C3	Malvern	IA	161.9	0.01	141.5
KIMI	APP	299C3	Malvern	IA	161.9	0.01	141.5
KIMI	LIC-N	300C3	Humboldt	NE	192.8	81.63	88.5
KBBK	LIC	297C1	Lincoln	NE	251.4	76.29	74.5
KJTM-LP	LIC	300L1	Lincoln	NE	259.0	76.37	55.5
KMAJ-FM	LIC	299C1	Carbondale	KS	183.4	221.83	199.5
KKRF	LIC-N	300C3	Stuart	IA	61.4	120.61	88.5
KTIC-FM	LIC	300C2	West Point	NE	315.1	147.58	105.5

% = Station fails 73.215.							
RSV-R = reserved - needs protection, RSV-A = allocation.							
All separation margins include rounding							

Community of License Coverage

Introduction

Educational Media Foundation (“EMF”) desires to show coverage of its community of license Malvern, IA, with a supplemental showing since the standard model does not show adequate coverage of the community of license.

Discussion

Using the standard FCC model, the predicted 70dBu(F50-50) contour does not cover the community of license as required by 47 C.F.R. Section 73.315(a). However, use of an alternate propagation method is warranted since the contour distance of the radials over the community of license between the FCC calculated contours and the Longley/Rice Mean Occurrence calculated contours depart widely (more than 10%). Note also the 60dbu (F50-50) contour extends beyond the boundary of Malvern, IA. This allows the alternative coverage study to be eligible.

The following parameters were used in determining the Longley/Rice 70 dBu coverage for the community of license:

Conductivity:	0.005
Dielectric Constant:	15
Refractivity:	311
Climate Zone:	Continental Temperate
Receiver Height:	9.1m AGL
Receiver Gain:	0
Time Variability:	50
Situation Variability:	50
Terrain Database:	FCC 30 Second Terrain

Taking into account the radials that extend over the Community of License of Malvern, IA, (61 degrees through 70 degrees) the FCC standard F(50/50) 70dBu contour has an average distance of 11.119 km. Using the Longley/Rice model, the 70dbu Mean Occurrence contours (61 degrees through 70 degrees) have an average distance of 17.025 km. This is an increase in distance of 53.116% over the community of license (see Exhibit 3-A1 and 3-A2). Thus, the area covered by the supplemental method is more than 10% greater than the standard contour prediction method.

Exhibit 3-B shows both the FCC standard 70dBu(F50-50) contour, the FCC standard 60dbu(F50-50) contour, and the Longley/Rice model 70dBu Mean Occurrence contour. The Longley/Rice signal coverage is also shown with gradient color shading.

As can be seen in Exhibit 3-B, the 70dBu calculated contour using the Longley/Rice propagation model, provides more than adequate coverage for the community of license. The 70dbu calculated contour extends to 98.8% of the population and 96.7% of the area of Malvern, IA.

Educational Media Foundation
5700 West Oaks Boulevard
Rocklin, CA 95765

Exhibit 3
Malvern, IA

Conclusion

Based on the above exhibits the residents of Malvern, IA will continue to be more than adequately served with a 70dBu signal strength contour. EMF respectfully requests that the Commission permit this supplemental showing and grant its application.

Exhibit 3-A1

Distance to Contour Report

Type of contour: FCC
Location Variability: 50.0 %
Time Variability: 50.0 %
of Radials Calculated: 360
FCC Matching HAAT Calculation Used
Field Strength: 70.00 dBuV/m

Primary Terrain: FCC 30 Second US Database

Transmitter Information:

Call Letters: KIMI.P
Latitude: 40-56-56.40 N
Longitude: 095-45-29.20 W
ERP: 1.20 kW
Channel: 299
Frequency: 107.7 MHz
AMSL Height: 444.7 m
Elevation: 391.7 m
Horiz. Antenna Pattern: Omni
Vert. Elevation Pattern: No

Azimuth (deg)	Distance (km)	HAAT (m)
-----	-----	-----
61.0	10.98	103.9
62.0	11.01	104.6
63.0	11.06	105.6
64.0	11.12	106.6
65.0	11.14	107.1
66.0	11.14	107.2
67.0	11.15	107.4
68.0	11.19	108.1
69.0	11.20	108.5
70.0	11.20	108.4

111.19/10 = 11.119km

Average Distance to Contour: 11.119km

Exhibit 3-A2

Distance to Contour Report

Type of contour: Signal Calculated
of Radials Calculated: 360
Mean Occurrence Method at 70.0 dBu

Transmitter Information:

Call Letters: KIMI.P
Latitude: 40-56-56.40 N
Longitude: 095-45-29.20 W
ERP: 1.20 kW
Channel: 299
Frequency: 107.7 MHz
AMSL Height: 444.7 m
Elevation: 391.7 m
Horiz. Antenna Pattern: Omni
Vert. Elevation Pattern: No

Azimuth (deg)	Distance (km)	HAAT (m)
-----	-----	-----
61.0	18.20	93.1
62.0	17.95	93.8
63.0	17.65	94.3
64.0	17.25	95.1
65.0	16.80	96.1
66.0	16.65	97.0
67.0	16.50	97.6
68.0	16.45	97.7
69.0	16.95	98.1
70.0	15.85	99.0

170.25/10 = 17.025km

Average Distance to Contour: 17.025km

Overlap Population Report
KIMI.P (299) / Malvern, IA

Overlap Area Type: Intersection

Areas Included:

KIMI.P (299): Signal (M): 70.0 dBu

PLST: Malvern, IA

LR Signal Strength Coverage
70dbu Mean Occurrence Contour

Population Database: 2020 US Census (PL)

Total Population: 913

Overlap Area: 2.98 sq. km (Area determined using 0.008 km cells)

Area Description	Total Population	Total Area [sq. km]	Percent Population	Percent Area
KIMI.P (299): Signal (M): 70.0	38,244	1,327	2.4 %	0.2 %
PLST: Malvern, IA	924	3.08	98.8 %	96.7 %

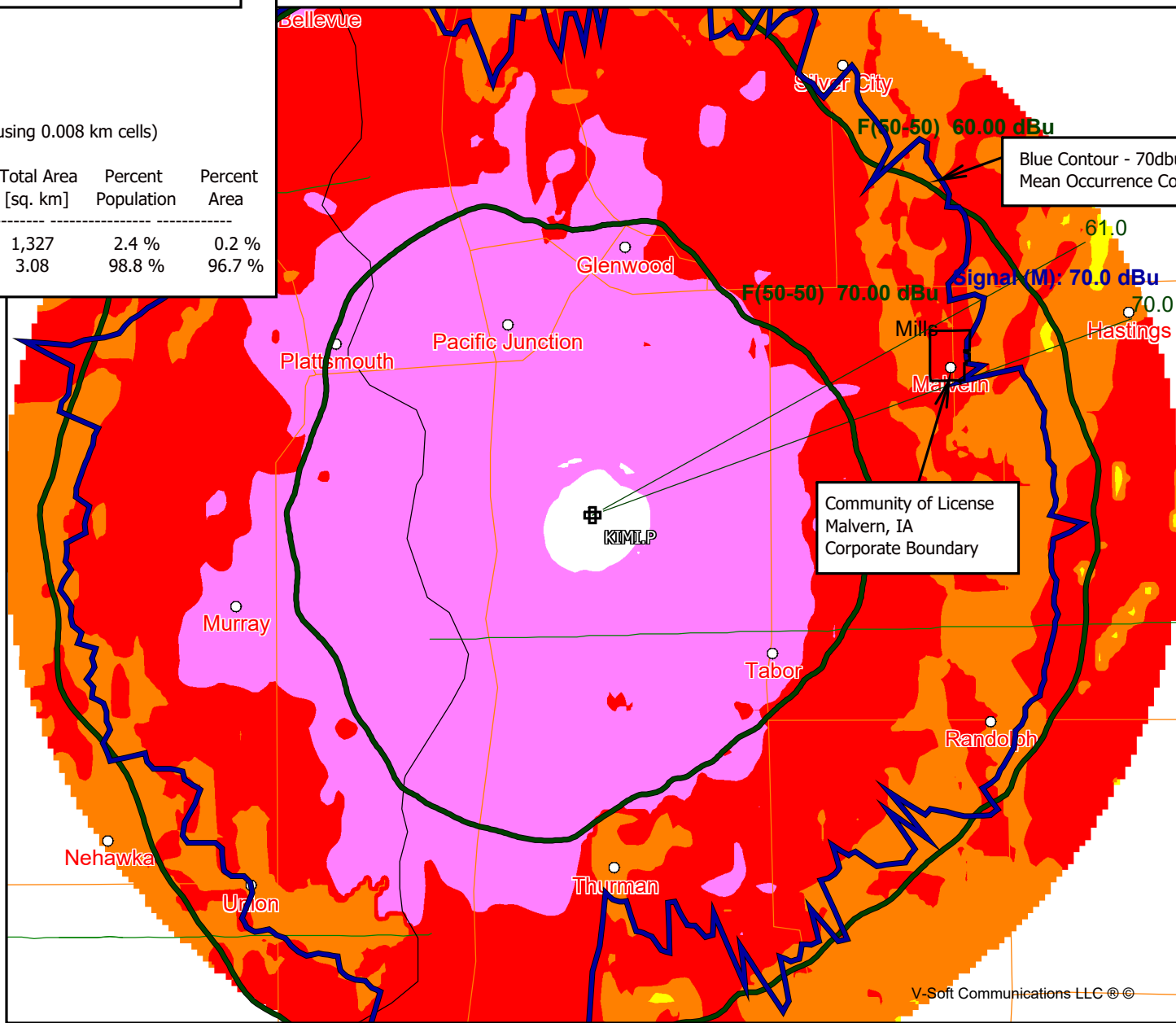
KIMI.P

Latitude: 40-56-56.40 N
Longitude: 095-45-29.20 W
ERP: 1.20 kW
Channel: 299
Frequency: 107.7 MHz
AMSL Height: 444.7 m
Elevation: 391.7 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: Longley-Rice
Climate: Cont temperate
Conductivity: 0.0050
Dielec Const: 15.0
Refractivity: 311.0
Receiver Ht AG: 9.1 m
Receiver Gain: 0 dB
Time Variability: 50.0%
Sit. Variability: 50.0%
ITM Mode: Broadcast

< 48.0	> 100.0 dBuV/m
48.0 - 54.0	80.0 - 100.0
54.0 - 60.0	70.0 - 80.0
60.0 - 70.0	60.0 - 70.0
70.0 - 80.0	54.0 - 60.0
80.0 - 100.0	48.0 - 54.0

Community of License Coverage
Alternate Method
Study Distance: 24km

Exhibit 3-B



Blue Contour - 70dbu Field Strength
Mean Occurrence Contour

Community of License
Malvern, IA
Corporate Boundary

Scale 1:250,000



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Environmental Protection

There are two main factors that need to be addressed in order to make sure that the environment around a proposed facility is protected.

1) Significant affects to the environment.

EMF's proposed facility will be constructed on an existing tower (tower ID 1326352) and will cause no adverse effects to the surrounding environment at the site.

2) Human exposure to excess levels of radiofrequency radiation.

The proposed facility is to be built using a 10-bay half-waved EPA Type 2 "Double V" circularly polarized antenna with a center of radiation of 53 meters above ground level.

According to OET 65, "Applicants and licensees should be able to calculate, based on considerations of frequency, power and antenna characteristics the distance from their transmitter where their signal produces an RF field equal to, or greater than, the 5% threshold limit. The applicant or licensee then shares responsibility for compliance in any accessible area or areas within this 5% "contour" where the appropriate limits are found to be exceeded."

The proposed facility's maximum contribution to RF on the site is $0.126\text{uW}/\text{cm}^2$ at a distance of 168 meters from the tower, which is 0.063% of the uncontrolled (public) exposure limit.

Therefore, because the proposed facility will not cause an RF field that is equal to or greater than 5% of the $200\text{ uW}/\text{cm}^2$ limit for uncontrolled exposure at any point, the proposed facility complies with the requirements of OET 65.

EMF will fully cooperate with other site users to temporarily reduce power or cease broadcasting, as necessary, to protect workers and others having access to the site from excessive levels of RF Radiation.



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-ACE-3155-OE
Prior Study No.
2020-ACE-6325-OE

Issued Date: 07/26/2023

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**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Antenna Tower KIMI Antenna
Location:	Tabor, IA
Latitude:	40-56-56.35N NAD 83
Longitude:	95-45-29.20W
Heights:	1285 feet site elevation (SE) 197 feet above ground level (AGL) 1482 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

See attachment for additional condition(s) or information.

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination of No Hazard is granted provided the following conditional statement is included in the proponent's construction permit or license to radiate:

Upon receipt of notification from the Federal Communications Commission that harmful interference is being caused by the licensee's (permittee's) transmitter, the licensee (permittee) shall either immediately reduce the power to the point of no interference, cease operation, or take such immediate corrective action as is necessary to eliminate the harmful interference. This condition expires after 1 year of interference-free operation.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, will void this determination. Any future construction or alteration, including increase to heights,

power, or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

A copy of this determination will be forwarded to the Federal Communications Commission (FCC) because the structure is subject to their licensing authority.

If we can be of further assistance, please contact our office at (847) 294-7572, or william.e.wills@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-ACE-3155-OE.

Signature Control No: 589567093-594620750

(DNE)

William Wills

Specialist

Attachment(s)

Additional Information

Frequency Data

Map(s)

cc: FCC

Additional information for ASN 2023-ACE-3155-OE

No Objection provided that your ERP does not exceed 1.2 kW.

Frequency Data for ASN 2023-ACE-3155-OE

LOW FREQUENCY	HIGH FREQUENCY	FREQUENCY UNIT	ERP	ERP UNIT
107.7	107.7	MHz	1	kW
107.7	107.7	MHz	1.2	kW
107.7	107.7	MHz	1.1	kW

