

**TECHNICAL STATEMENT
IN SUPPORT OF A REQUEST FOR
SPECIAL TEMPORARY AUTHORIZATION
KTIV 320 KW-DA 496.6 M HAAT CH. 41
SIOUX CITY, IOWA**

INTRODUCTION

KTIV License, LLC (the “Applicant”), the licensee of digital television station KTIV Channel 41, Facility ID No. 66170, requests special temporary authorization (STA) to operate KTIV on Channel 41 with parameters at variance from those specified on the current station license using an interim antenna. It is essential that KTIV employ a different antenna during the replacement of its licensed antenna system for post-auction operation on Channel 14. The interim antenna will be side mounted below the licensed antenna height and will operate with reduced effective radiated power (ERP). The technical operating parameters for the proposed STA facility are described in greater detail below.

INTERIM ANTENNA AND OPERATING PARAMETERS

An STA will enable KTIV to continue operations on Channel 41 during the construction phase of its transition to Channel 14. The antenna to be employed is a directional Dielectric Model TFU-24WB/VP-R C160 with 0.5 degrees electrical beam tilt. This antenna is configured for elliptical polarization such that the maximum horizontal ERP will be 320 kW and the maximum vertical ERP will be 103 kW. It is also designed so that the azimuth pattern of the vertical component will not exceed the horizontal in any direction. This interim antenna will be shared with two other reassigned television broadcast stations that are also licensed to Sioux City, namely KPTH Facility ID 77451 and KMEG Facility ID 39665.

The height of the antenna radiation center will be 481.1 meters above ground level (AGL) or 887.4 meters above mean sea level (AMSL). Because the proposed interim facility will operate with technical parameters that are significantly less than the licensed facility, no extension of the existing coverage area will result in any direction. The *TVStudy* summary report provided in [Figure 1](#) demonstrates that no interference beyond 0.5 percent will be caused to the technical parameters of any other station.



ENVIRONMENTAL IMPACT

The proposed STA facility for KTIV does not exceed the criteria outlined in 47 CFR § 1.1307(a) for certain types of facilities that may significantly affect the environment. More specifically, the collocation of KTIV's interim antenna on an existing FCC registered tower, which was constructed after March 16, 2001, is not expected to exceed the conditions outlined in 47 CFR Part 1, App. B, § IV.A.¹ With regard to the rules for limiting human exposure to radio-frequency (RF) energy in 47 CFR § 1.1307(b), this application seeks authority to operate an interim facility in full compliance with those guidelines. The technical parameters for the interim facility are listed below.

Frequency :	632 - 638 MHz (UHF Channel 41)
Antenna Type:	TFU-24WB/VP-R C160
Antenna Polarization:	Elliptical
Effective Radiated Power:	320 kW(H); 103 kW(V)
Location coordinates:	42-35-12.0 N, 96-13-19.0 W (NAD83)
Site elevation:	406.3 meters AMSL
Antenna Height:	481.1 meters AGL; 496.6 meters HAAT
Overall tower height:	605.9 meters AGL
FCC ASRN:	1057963; Constructed 02/22/2007

Using the methodology for predicting power density levels for television broadcast antennas outlined in *FCC OET Bulletin No. 65, Edition 97-01*, (OET-65), the proposed facility is calculated to produce a maximum power density of 2.46 $\mu\text{W}/\text{cm}^2$ at points 2 meters above ground (approximate human head height). This exposure level was determined using 20 percent antenna relative field, which is a conservative value for a UHF antenna. The maximum exposure limits applicable to Channel 41, as determined in accordance with 47 CFR

¹ 47 CFR Part 1, App. B, § IV.A. "An antenna may be mounted on an existing tower constructed after March 16, 2001 without such collocation being reviewed through the Section 106 process set forth in the NPA, unless: 1. The Section 106 review process for the existing tower set forth in 36 CFR part 800 (including any applicable program alternative approved by the Council pursuant to 36 CFR 800.14) and any associated environmental reviews required by the FCC have not been completed; or, 2. The mounting of the new antenna will result in a substantial increase in the size of the tower as defined in Stipulation I.E, above; or, 3. The tower as built or proposed has been determined by the FCC to have an adverse effect on one or more historic properties, where such effect has not been avoided or mitigated through a conditional no adverse effect determination, a Memorandum of Agreement, a Programmatic Agreement, or otherwise in compliance with Section 106 and the NPA; or, 4. The collocation licensee or the owner of the tower has received written or electronic notification that the FCC is in receipt of a complaint from a member of the public, an Indian Tribe, a SHPO or the Council, that the collocation has an adverse effect on one or more historic properties."



§ 1.1310 for uncontrolled and controlled situations, are 421 $\mu\text{W}/\text{cm}^2$ and 2,107 $\mu\text{W}/\text{cm}^2$ respectively. Because the worst-case exposure level determined for the proposed facility is not more than 5% of those guidelines and considering that the existing tower location is fenced and suitable warning signs are posted, no further showing of compliance is necessary. Accordingly, this application complies with the RF exposure limits and is categorically excluded from environmental processing by 47 CFR § 1.1306.

Steps to limit exposure to persons authorized to access the transmitter site will be consistent with the appropriate recommendations in OET-65. All maintenance and other related work to be performed at elevations higher than 2 meters above ground will be coordinated to prevent exposure to RF fields in excess of the controlled limit. Such preventative steps shall include reducing power or shutting down the facility.

Respectfully submitted,

Scott Turpie
Technical Consultant
Lohnes & Culver LLC
P.O. Box 881
Silver Spring, MD 20918-0881
Ph. 301-776-4488

August 16, 2017

Attachments:
Figure 1 – Summary of TV Study Results

FIGURE 1

Analysis Summary

TVSTUDY, VERSION 2.2.5.

Study created: 2018.08.16 15:45:50

Study build station data: LMS TV 2018-08-10

Proposal: KTIV D41 DT STA SIOUX CITY, IA
File number: 201808-STA-41
Facility ID: 66170
Station data: User record
Record ID: 237
Country: U. S.
Zone: II

Build options:
Protect pre-transition records not on baseline channel

Search options:
Non-U. S. records included

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	KCPQ-LP	N26+	TX	LIC	SIOUX FALLS, SD	BLTTL20011029AAL	112.6 km
No	KCWS-LP	N27	TX	APP	SIOUX FALLS, SD	BLANK0000054526	113.6
No	K40LA-D	D40	LD	LIC	JACKSON, MN	BLDTL20100428ABB	150.7
No	K40NS-D	D40	LD	CP	SPENCER, SD	BNPDTL20100510AII	164.2
No	KGCW	D41	DT	LIC	BURLINGTON, IA	BLCDT20081120ABD	476.2
Yes	K41DD-D	D41	LD	LIC	DES MOINES, IA	BLDTL20101209AJO	227.6
No	KMCI-TV	D41	DT	LIC	LAWRENCE, KS	BLCDT20110421AAR	425.5
No	K41NC-D	D41	LD	CP	ALEXANDRIA, MN	BNPDTL20100505AKQ	370.5
No	K41MF-D	D41	LD	LIC	GRANITE FALLS, MN	BLDTT20110824ACN	251.9
No	K41EG-D	D41	LD	LIC	JACKSON, MN	BLDTL20091204ADA	150.7
No	K41MP-D	D41	LD	CP	ROCHESTER, MN	BNPDTL20100604ACV	342.6
No	K41IZ-D	D41	LD	LIC	ST. JAMES, MN	BLDTT20090813AAK	214.1
Yes	KQLP-LD	D41	LD	LIC	LINCOLN, NE	BLANK0000004411	190.8
No	K42LR-D	D42	LD	CP	RUSHMORE, MN	BNPDTL20100510AIA	122.0
No	KAUN-LP	N42	TX	LIC	SIOUX FALLS, SD	BLTTL1988052711	113.6
No	KCWS-LP	N44	TX	LIC	SIOUX FALLS, SD	BLTTL19901218JK	113.6

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D41
Latitude: 42 35 12.00 N (NAD83)
Longitude: 96 13 19.00 W
Height AMSL: 887.4 m

HAAT: 496.6 m
Peak ERP: 320 kW
Antenna: DIE TFU-245WB/VP-R C160 176.0 deg
Elev Pattnr: Generic
Elec Tilt: 0.50

41.3 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	126 kW	501.6 m	94.6 km
45.0	78.7	472.4	89.0
90.0	235	482.4	98.4
135.0	318	504.7	103.0
180.0	303	511.2	103.1
225.0	311	495.4	102.0
270.0	215	510.1	99.9
315.0	62.5	494.7	88.7

Distance to Canadian border: 685.6 km

Distance to Mexican border: 1497.1 km

Conditions at FCC monitoring station: Grand Island NE
Bearing: 225.4 degrees Distance: 260.2 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 253.2 degrees Distance: 797.7 km

Study cell size: 2.00 km
Profile point spacing: 1.00 km

Maximum new IX to full-service and Class A: 0.50%
Maximum new IX to LPTV: 2.00%

No IX check failures found.