

**TECHNICAL STATEMENT  
KTIV LICENSE, LLC  
KTIV 1,000 KW-ND 609.5 M HAAT CH. 14  
SIOUX CITY, IOWA**

**INTRODUCTION**

KTIV License, LLC, the licensee of digital television station KTIV, Facility ID No. 66170, proposes to modify its post-auction construction permit in the second filing window to expand the facilities specified in the *Closing and Channel Reassignment Public Notice*.<sup>1</sup> The aforementioned construction permit was granted in the initial 90-day filing window and as such it authorizes facilities that do not extend the noise-limited contour specified in the CCRPN by more than one percent in any direction. This second window filing seeks to expand the coverage contour through an increase in effective radiated power (ERP) pursuant to the largest station within the market rule.<sup>2</sup> More specifically, it is proposed that KTIV will operate with 1,000 kW ERP at an antenna radiation center height above average terrain (HAAT) of 609.5 meters.

**PROPOSED FACILITY**

This minor change application proposes a replacement antenna that is different than the one specified in the underlying construction permit for operation on KTIV's new assigned channel. The new antenna will be an elliptically polarized nondirectional Dielectric Model TFU-31ETT/VP-R O4. This new antenna will be designed to operate such that the horizontally polarized ERP will be 1,000 kW and the vertically polarized ERP will be 250 kW. The licensee also proposes to slightly lower the antenna height, which is necessary to enable the usage of a higher gain antenna that will not increase the overall structure height. The antenna height above mean sea level (AMSL) will be 1,000.3 meters, which was derived from

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<sup>1</sup> *Incentive Auction Closing and Channel Reassignment Public Notice* ("CCRPN"), 32 FCC Rcd 2786 (2017).

<sup>2</sup> 47 CFR § 73.622(f)(5) – A station may operate with up to the maximum permissible limits on DTV power and antenna height set forth in paragraph (f)(6), (f)(7), or (f)(8) of this section, or up to that needed to provide the same geographic coverage area as the largest station within their market, whichever would allow the largest service area.



the site elevation of the registered antenna-supporting structure and the proposed height of the new antenna radiation center of 594 meters above ground level (AGL).<sup>3</sup>

## INTERFERENCE PROTECTION AND OET-69 ANALYSIS SETTINGS

A copy of the *TVStudy* analysis summary is provided in [Figure 1](#). This summary indicates that no interference check failures were found and therefore the proposal is not predicted to cause new interference beyond the normal tolerance to any other post-auction full-service or Class A TV stations.<sup>4</sup> The summary further reflects that the following analysis settings were used:

Study cell size: 2.0 kilometer  
Profile point spacing: 1.0 kilometer

## LARGEST STATION IN THE MARKET

Although the *TVStudy* analysis results indicate that the ERP exceeds the maximum, the proposed power increase is needed to provide the same geographical coverage area as the largest station within the market. Such an exception is allowed where a station in the same market is serving a larger area than could be covered with the standard maximum power and antenna height.<sup>5</sup> The noise-limited 41 dBu service contour proposed for KTIV encompasses an area of 46,079.2 sq. km, which is not larger than the geographic coverage area of 51,581.5 sq. km that station KCAU-TV serves on Channel 9 in Sioux City, IA, FCC File

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<sup>3</sup> Antenna Structure Registration No. 1057963 specifies a site elevation of 406.3 meters AMSL.

<sup>4</sup> *TVStudy* Program, Version 2.2.3.

<sup>5</sup> *Report and Order and Further Notice of Proposed Rule Making* in MM Docket No. 00-39, 16 FCC Rcd 5946, (2001). "We take this opportunity to clarify this rule. First, the maximum ERP limits (1000 kW for UHF channels 14-69 in any zone; 30 kW for VHF channels 7-13 in Zone 1; 160 kW for VHF channels 7-13 in Zone 2 or 3; 10 kW for VHF channels 2-6 in Zone 1; and 45 kW for VHF channels 2-6 in Zone 2 or 3) may not be exceeded. The "largest station" provision applies only where the rules normally require a reduction in the maximum power because a specified antenna HAAT is exceeded. That is, it does not allow power higher than the maximum ERP to compensate for an antenna HAAT that is lower than the value specified in the rule. Second, the "largest station" provision is only triggered where a station in the same market is serving a larger area than could be covered with the standard maximum power and antenna height specified in Section 73.622(f) of the Rules. Otherwise, applicants must comply with the maximum power and antenna height in that rule section. Third, for the purpose of this rule, stations in the same DMA are considered to be in the same market. Fourth, the geographical coverage determination is based on the area within the DTV station's noise-limited contour, calculated using predicted F(50,90) field strengths as set forth in Section 73.622(e) of the Rules and the procedure specified in Section 73.625(b) of the Rules."



No. BLCDDT-20100702BMT.<sup>6</sup> Therefore, this application is eligible for processing under the largest station rule in 47 CFR § 73.622(f)(5).

## ENVIRONMENTAL IMPACT

This construction permit modification application specifies an existing FCC registered tower that was constructed after March 16, 2001.<sup>7</sup> Given that the new replacement antenna does not result in a substantial increase in the size of the existing antenna-supporting structure,<sup>8</sup> the criteria outlined in 47 CFR § 1.1307(a) for certain types of facilities that may significantly affect the environment do not apply. 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 a television broadcast antenna in full compliance with those guidelines as described in greater detail below. The following technical specifications are proposed:

Frequency :	470 - 476 MHz (UHF Channel 14)
Effective Radiated Power:	1,000 kW(H); 250 kW(V)
Antenna Type:	DIE TFU-31ETT/VP-R O4
Antenna Polarization:	Elliptical

<sup>6</sup> The noise-limited service contour for Channel 9 is 36 dBu.

<sup>7</sup> 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. Any such complaint must be in writing and supported by substantial evidence describing how the effect from the collocation is adverse to the attributes that qualify any affected historic property for eligibility or potential eligibility for the National Register."

<sup>8</sup> 47 CFR Part 1, App. B, § I.C. A substantial increase in size means: "(1) The mounting of the proposed antenna on the tower would increase the existing height of the tower by more than 10%, or by the height of one additional antenna array with separation from the nearest existing antenna not to exceed twenty feet, whichever is greater, except that the mounting of the proposed antenna may exceed the size limits set forth in this paragraph if necessary to avoid interference with existing antennas; or (2) The mounting of the proposed antenna would involve the installation of more than the standard number of new equipment cabinets for the technology involved, not to exceed four, or more than one new equipment shelter; or (3) The mounting of the proposed antenna would involve adding an appurtenance to the body of the tower that would protrude from the edge of the tower more than twenty feet, or more than the width of the tower structure at the level of the appurtenance, whichever is greater, except that the mounting of the proposed antenna may exceed the size limits set forth in this paragraph if necessary to shelter the antenna from inclement weather or to connect the antenna to the tower via cable; or (4) The mounting of the proposed antenna would involve excavation outside the current tower site, defined as the current boundaries of the leased or owned property surrounding the tower and any access or utility easements currently related to the site."



Antenna Height:	594.0 meters AGL
Location coordinates:	42-35-12.0 N, 96-13-19.0 W (NAD83)
Site elevation:	406.3 meters AMSL
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  $1.19 \mu\text{W}/\text{cm}^2$  at points 2 meters above ground (approximate human head height). This exposure level was determined using 10 percent antenna relative field, which is generally considered to be a typical value for UHF antennas. The maximum exposure limits applicable to Channel 14, as determined in accordance with 47 CFR § 1.1310 for uncontrolled and controlled situations, are  $313 \mu\text{W}/\text{cm}^2$  and  $1,567 \mu\text{W}/\text{cm}^2$  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,

A handwritten signature in black ink that reads "Scott Turpie".

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## FIGURE 1 Analysis Summary TVSTUDY, VERSION 2.2.3.

Study created: 2017.10.23 18:07:24

Study build station data: LMS TV 2017-10-22 (44)

Proposal: KTIV D14 DT APP SIOUX CITY, IA  
Facility ID: 66170  
Station data: User record  
Record ID: 339  
Country: U.S.  
Zone: 11

Stations affected by proposal:

Call	Chan	Svc	Status	City, State	File Number	Distance
KSMN	D15	DT	LIC	WORTHINGTON, MN	BLEDT20051219AGX	147.4 km

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D14  
Latitude: 42 35 12.00 N (NAD83)  
Longitude: 96 13 19.00 W  
Height AMSL: 1000.3 m  
HAAT: 609.5 m  
Peak ERP: 1000 kW  
Antenna: Omnidirectional  
Elev Patrn: Generic  
Elec Tilt: 1.00

38.7 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	1000 kW	614.5 m	126.9 km
45.0	1000	585.3	125.0
90.0	1000	595.3	125.7
135.0	1000	617.6	127.1
180.0	1000	624.1	127.5
225.0	1000	608.3	126.5
270.0	1000	623.0	127.5
315.0	1000	607.6	126.5

ERP exceeds maximum

ERP: 1000 kW ERP maximum: 317 kW

\*\*Proposal service area extends beyond baseline plus 1.0%  
Proposal service area population is more than 95.0% of baseline

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

No land mobile station failures found

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%

Proposal receives 1.07% interference from scenario 1  
No IX check failures found.