

## **ENGINEERING EXHIBIT**

### **Incentive Auction Channel Reassignment**

#### **Application for Modification of Digital Television Station Construction Permit**

prepared for

#### **Rochester TV License Company, LLC**

KIMT(DT) Mason City, IA

Facility ID 66402

Ch. 24 472 kW 466 m

*Rochester TV License Company, LLC ("RTV") is the licensee of digital television station KIMT, Channel 42, Facility ID 66402, Mason City, IA. Reassignment of KIMT from Channel 42 to Channel 24 was specified in the *Incentive Auction Closing and Channel Reassignment Public Notice ("CCRPN", DA 17-317, released April 13, 2017)*. A Construction Permit ("CP" file# 0000027610) authorizes KIMT to operate on Channel 24 at 610 kW effective radiated power ("ERP") with a horizontally polarized nondirectional antenna at 466 meters height above average terrain ("HAAT"). RTV herein proposes a minor modification of the reassignment CP to reduce the ERP to 472 kW and to utilize elliptical polarization. No other changes are sought.*

By way of background, a new, top-mounted antenna has been installed for the reassignment Channel 24 facility. The as-built antenna is elliptically-polarized and as such has a lower power gain than the originally planned horizontally-polarized antenna. It has been determined that, with the elliptically-polarized antenna, the transmitter's power output capacity is not sufficient to achieve the authorized ERP of 610 kW. Accordingly, RTV herein seeks to modify the KIMT CP to specify a lower ERP, 472 kW. KIMT has ceased operation on its pre-auction Channel 42 and is presently operating on its reassignment Channel 24 pursuant to Special Temporary Authority (LMS file# 0000063884) for operation with parameters at variance.

The as-built antenna is an elliptically-polarized directional ERI model ATW22H3-ETO-24H (30 percent vertical polarization), installed at the site location and height as authorized in the CP. Figure 1 supplies a map that demonstrates compliance with §73.625(a)(1) regarding coverage of the entire principal community.

The proposed 472 kW ERP / 466 m HAAT facility's noise limited service contour ("NLSC," 41 dBμ) does not extend beyond that of the *CCRPN* parameters of 553 kW ERP and 463 meters HAAT. Additionally, the proposed facility's terrain-limited population exceeds 95 percent of the *CCRPN* baseline facility's population, as summarized in the table below. Therefore, the proposed KIMT facility complies with the criteria of §§73.3700(b)(1)(v)(A) - (B) regarding expedited processing of reassignment CP applications.

**Terrain Limited Population - Match of Reassignment**

Population Summary (2010 Census) OET Bulletin 69: TVStudy	Reassignment Parameters	Proposed
Within Noise Limited Contour	702,307	654,083
Not affected by terrain losses	676,979	643,384
Match of Reassignment	---	<b>95.04%</b>

Since the proposed facility does not expand the KIMT service contour beyond that established by *CCRPN* values, interference analysis to other television facilities is not required. Additionally, the proposal complies with the FCC's NLSC expansion "freeze" Public Notice<sup>1</sup> of April 5, 2013 (DA 13-618) to the extent it may be applicable to reassigned stations such as KIMT.

### **Human Exposure to Radiofrequency Electromagnetic Field (Environmental)**

The proposed operation was evaluated for human exposure to RF energy using the procedures outlined in the FCC's OET Bulletin Number 65. Based on OET-65 equation (10), and considering 10 percent antenna relative field in downward elevations (pattern data shows less than 10 percent relative field at angles 20 to 90 degrees below the antenna), the calculated

---

<sup>1</sup>"Media Bureau Announces Limitations on the Filing and Processing of Full Power and Class A Television Station Modification Applications, Effective Immediately, and Reminds Stations of Spectrum Act Preservation Mandate," DA 13-618, Public Notice, released April 5, 2013.

signal density near the tower at two meters above ground level attributable to the proposed facility is  $1.0 \mu\text{W}/\text{cm}^2$ , which is 0.3 percent of the general population/uncontrolled maximum permitted exposure limit. This is well below the five percent threshold limit described in §1.1307(b) regarding sites with multiple emitters, categorically excluding the applicant from responsibility for taking any corrective action in the areas where the proposal's contribution is less than five percent.

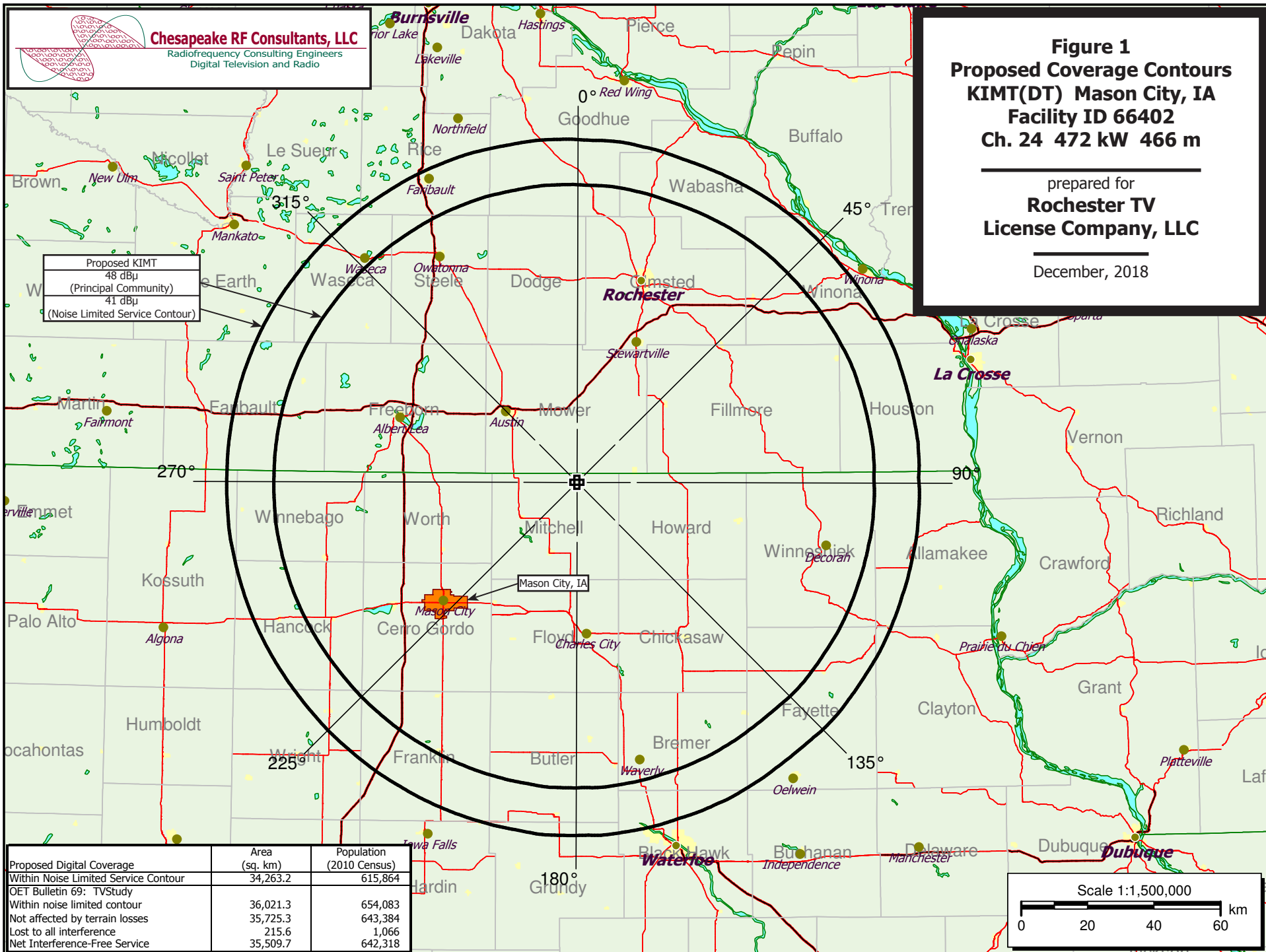
The general public will not be exposed to RF levels attributable to the proposal in excess of the FCC's guidelines. RF exposure warning signs will continue to be posted. With respect to worker safety, the applicant will coordinate exposure procedures with all pertinent stations and will reduce power or cease operation as necessary to protect persons having access to the site, tower, or antenna from RF electromagnetic field exposure in excess of FCC guidelines. This exhibit is limited to the evaluation of exposure to RF electromagnetic field. No increase in structure height is proposed.

*List of Attachments*

Figure 1	Proposed Coverage Contours
Form 2100	Saved Version of Engineering Sections from FCC Form at Time of Upload

**Chesapeake RF Consultants, LLC**

Joseph M. Davis, P.E.	December 20, 2018	
207 Old Dominion Road	Yorktown, VA 23692	703-650-9600



**Channel and  
Facility  
Information**

Section	Question	Response
Proposed Community of License	Facility ID	66402
	State	Iowa
	City	MASON CITY
	DTV Channel	24
Facility Type	Facility Type	Commercial
	Station Type	Main
Zone	Zone	2

**Antenna Location  
Data**

Section	Question	Response
Antenna Structure Registration	Do you have an FCC Antenna Structure Registration (ASR) Number?	Yes
	ASR Number	1253749
Coordinates (NAD83)	Latitude	43° 28' 32.0" N+
	Longitude	092° 42' 30.0" W-
	Structure Type	GTOWER-Guyed Structure Used for Communication Purposes
	Overall Structure Height	473.4 meters
	Support Structure Height	457.2 meters
	Ground Elevation (AMSL)	388.6 meters
Antenna Data	Height of Radiation Center Above Ground Level	464.5 meters
	Height of Radiation Center Above Average Terrain	465.7 meters
	Height of Radiation Center Above Mean Sea Level	853.1 meters
	Effective Radiated Power	472 kW

## Antenna Technical Data

Section	Question	Response
Antenna Type	Antenna Type	Non-Directional
	Do you have an Antenna ID?	
	Antenna ID	
Antenna Manufacturer and Model	Manufacturer:	ERI
	Model	ATW22H3-ETO-24H
	Rotation	
	Electrical Beam Tilt	0.75
	Mechanical Beam Tilt	Not Applicable
	toward azimuth	
	Polarization	Elliptical
DTV and DTS: Elevation Pattern	Does the proposed antenna propose elevation radiation patterns that vary with azimuth for reasons other than the use of mechanical beam tilt?	No
	Uploaded file for elevation antenna (or radiation) pattern data	

**Construction  
Permit  
Certifications**

Section	Question	Response
<b>Post-Incentive Auction Expedited Processing</b>	It will operate on the DTV channel for this station as established in the post-incentive auction channel reassignment public notice.	Yes
	It will operate post-incentive auction facilities that do not expand the noise-limited service contour in any direction beyond that established by the post-incentive auction channel reassignment public notice.	Yes
	It will operate post-incentive auction facilities that match or reduce by no more than five percent with respect to predicted population from those defined in the post-incentive auction channel reassignment public notice.	Yes
	The antenna structure to be used by this facility has been registered by the Commission and will not require re-registration to support the proposed antenna, OR the FAA has previously determined that the proposed structure will not adversely affect safety in air navigation and this structure qualifies for later registration under the Commission's phased registration plan, OR the proposed installation on this structure does not require notification to the FAA pursuant to 47 C.F.R. Section 17.7.	Yes
<b>Environmental Effect</b>	Would a Commission grant of Authorization for this location be an action which may have a significant environmental effect? (See Section 1.1306 of 47 C.F.R.)	No
<b>Broadcast Facility</b>	The proposed facility complies with the applicable engineering standards and assignment requirements of 47 C. F.R. Sections 73.616, 73.622(i), 73.623(e), 73.625, 73.1030, and 73.1125.	Yes