

ENGINEERING EXHIBIT

Digital Television Station Application for Minor Modification of Licensed Facility

prepared for

Gray Television Licensee, LLC

WYMT-TV Hazard, KY

Facility ID 24915

Ch. 20 710 kW 478 m

Gray Television Licensee, LLC (“Gray”), is the licensee of digital television station WYMT-TV, Channel 12, Facility ID 24915, Hazard KY. The digital channel allotment for WYMT-TV was recently changed from Channel 12 to Channel 20 as described in the FCC Report and Order (“R&O”) in MB Docket 21-125¹. Pursuant to the R&O, *Gray* is submitting this minor change application (Form 2100 Schedule A) to obtain a Construction Permit to specify operation on Channel 20.

As described in MB Docket 21-125, *Gray* proposes to implement the Channel 20 substitution with a top-mounted transmitting antenna to be installed on the existing WYMT-TV tower structure that would replace existing top-mounted antenna formerly used for WYMT-TV’s analog Channel 57. The WYMT-TV tower structure is associated with FCC Antenna Structure Registration number 1043131. No increase to the overall structure height will result.

The proposed antenna is a nondirectional elliptically polarized Dielectric model TFU-28GTH/VP-R O4 (30 percent vertical polarization). The proposed effective radiated power (“ERP”) is 710 kW horizontally polarized, and the vertically polarized ERP is 213 kW.

Figure 1 supplies a map that demonstrates compliance with §73.625(a)(1) regarding coverage of the entire principal community.

¹*Amendment of Section 73.622(i), Post-Transition Table of DTV Allotments, Television Broadcast Stations (Hazard KY), MB Docket No. 21-125, RM 11892, DA 22-91, released January 27, 2022.*

The WYMT-TV facility proposed herein conforms exactly to the technical parameters adopted in MB Docket 21-125, therefore realizing a 100.0 percent match of the allotted service population. Since no change in technical parameters from those specified in the Channel 20 allotment will occur, interference analysis to other television facilities is not required.

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 10 to 90 degrees below the antenna), the calculated signal density near the tower at two meters above ground level attributable to the proposed facility is $3.4 \mu\text{W}/\text{cm}^2$, which is 1.0 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.

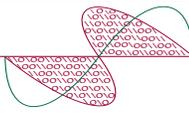
The general public will not be exposed to RF levels attributable to the proposal in excess of the FCC's guidelines. RF exposure warning signs will continue to be posted. With respect to worker safety, the applicant will coordinate exposure procedures with all pertinent stations and will reduce power 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 of FCC Form at Time of Upload

Chesapeake RF Consultants, LLC

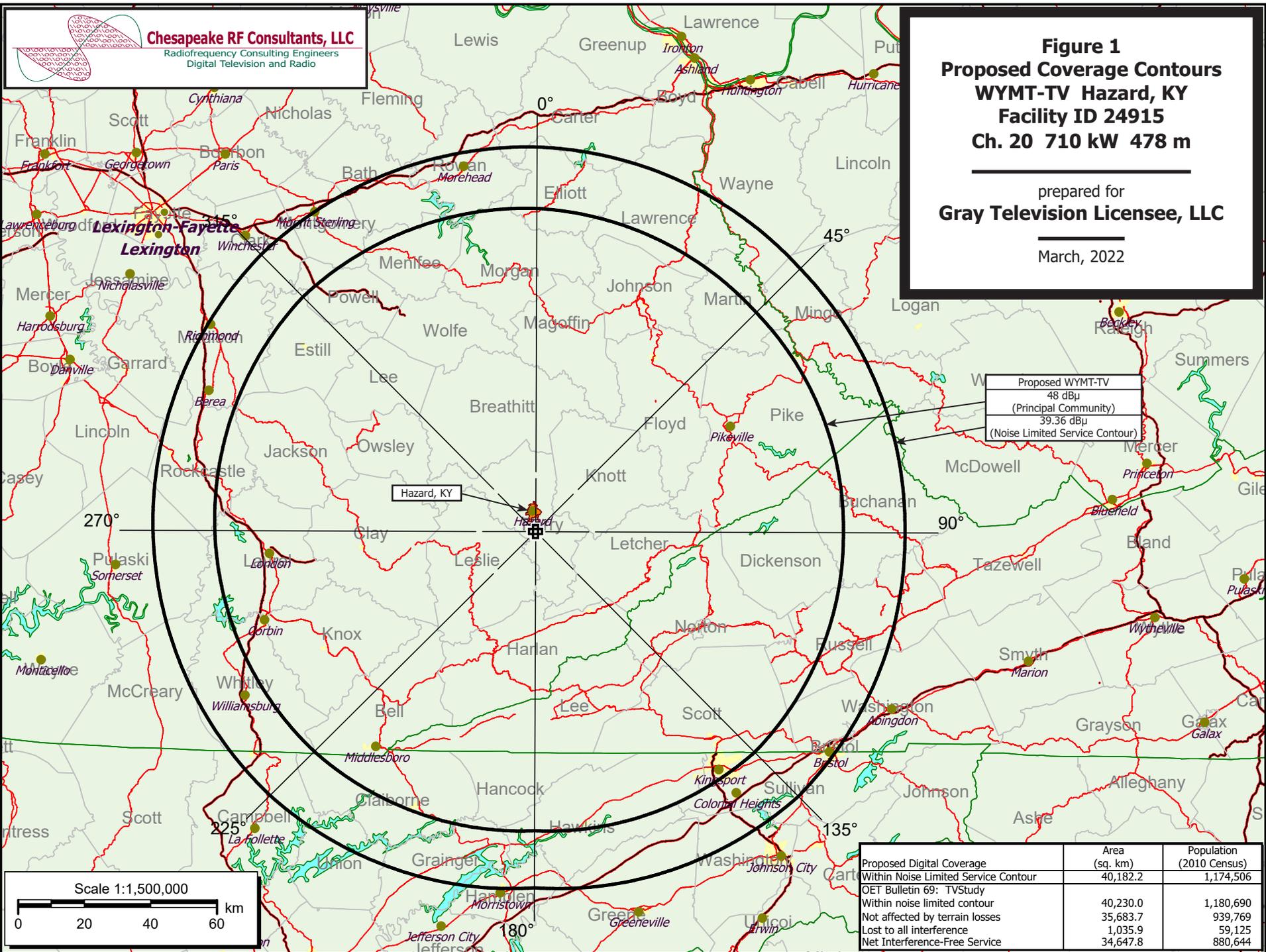
Joseph M. Davis, P.E. March 7, 2022
207 Old Dominion Road Yorktown, VA 23692 703-650-9600



Chesapeake RF Consultants, LLC
 Radiofrequency Consulting Engineers
 Digital Television and Radio

Figure 1
Proposed Coverage Contours
WYMT-TV Hazard, KY
Facility ID 24915
Ch. 20 710 kW 478 m

prepared for
Gray Television Licensee, LLC
 March, 2022



Proposed WYMT-TV
 48 dBu
 (Principal Community)
 39.36 dBu
 (Noise Limited Service Contour)

Proposed Digital Coverage	Area (sq. km)	Population (2010 Census)
Within Noise Limited Service Contour	40,182.2	1,174,506
OET Bulletin 69: TVStudy		
Within noise limited contour	40,230.0	1,180,690
Not affected by terrain losses	35,683.7	939,769
Lost to all interference	1,035.9	59,125
Net Interference-Free Service	34,647.8	880,644

Channel and Facility Information

Section	Question	Response
Proposed Community of License	Facility ID	24915
	State	Kentucky
	City	HAZARD
	DTV Channel	20
	Designated Market Area	Lexington
Facility Type	Facility Type	Commercial
	Station Type	Main
Zone	Zone	2

Primary station proposed to be rebroadcast:

Facility Id	Call Sign	City	State
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**Antenna Location
Data**

Section	Question	Response
Antenna Structure Registration	Do you have an FCC Antenna Structure Registration (ASR) Number?	Yes
	ASR Number	1043131
Coordinates (NAD83)	Latitude	37° 11' 38.0" N+
	Longitude	083° 10' 52.0" W-
	Structure Type	TOWER-A free standing or guyed struct
	Overall Structure Height	313.6 meters
	Support Structure Height	300.2 meters
	Ground Elevation (AMSL)	585.2 meters
Antenna Data	Height of Radiation Center Above Ground Level	304 meters
	Height of Radiation Center Above Average Terrain	478.0 meters
	Height of Radiation Center Above Mean Sea Level	889.2 meters
	Effective Radiated Power	710 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:	Dielectric
	Model	TFU-28GTH/VP-R O4
	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	