

ENGINEERING STATEMENT
RE APPLICATION IN SUPPORT OF MODIFICATION OF
CONSTRUCTION PERMIT (FCC FILE NO. 0000028607)
FOR REPACKED FACILITIES
ON BEHALF OF
WAND(TV) PARTNERSHIP
WAND-DT, DECATUR, ILLINOIS
CH 20 1000 KW ERP 300 KW (MAX V) 390.5 METERS HAAT
OCTOBER 2017

COHEN, DIPPELL AND EVERIST, P.C.
CONSULTING ENGINEERS
RADIO AND TELEVISION
WASHINGTON, D.C.

COHEN, DIPPELL AND EVERIST, P. C.

City of Washington)
) ss
District of Columbia)

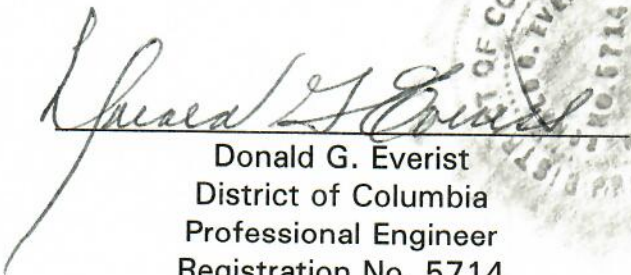
Donald G. Everist, being duly sworn upon his oath, deposes and states that:

He is a graduate electrical engineer, a Registered Professional Engineer in the District of Columbia, and is President, Secretary and Treasurer of Cohen, Dippell and Everist, P.C., Consulting Engineers, Radio - Television, with offices at 1420 N Street, N.W., Suite One, Washington, D.C. 20005;

That his qualifications are a matter of record in the Federal Communications Commission;


That the attached engineering report was prepared by him or under his supervision and direction and

That the facts stated herein are true of his own knowledge, except such facts as are stated to be on information and belief, and as to such facts he believes them to be true.


Donald G. Everist
District of Columbia
Professional Engineer
Registration No. 5714

Subscribed and sworn to before me this 25th day of October, 2017.




Notary Public

My Commission Expires: 2/28/2018

This engineering statement has been prepared on behalf of WAND(TV) Partnership, licensee of WAND-DT, Decatur, Illinois. The purpose of this engineering statement is to request modification of the outstanding construction permit (FCC File No. 0000028607)

WAND-DT has been assigned DTV Channel 20 with facilities of 1000 kW Max. at a HAAT of 390.5 meters. WAND-DT is licensed to operate on Channel 17 at 1000 kW directional ERP at a HAAT of 390.5 meters. WAND-DT requests to operate DTV facilities of 1000 kW non-directional horizontal and 300 kW vertical at a HAAT of 390.5 meters.

There are no AM stations located within 3.22 km of the existing WAND-DT tower site. There are no FM and no full-service DTV stations aside from WAND-DT, located and transmitting within 500 meters of this site.

The proposed DTV antenna will be top-mounted on an existing tower having a total overall structure height above ground of 400.5 meters (1314 feet). The proposed antenna will replace the existing digital antenna. The existing transmitter site is located approximately 2 miles south of Argenta, Illinois.

Since there is no change in overall height, FAA airspace approval is not required. Exhibit E-1 is a diagram of the tower and transmitting antenna.

The geographic coordinates of the existing site are:

North Latitude: 39° 57' 0.85"

West Longitude: 88° 49' 56.3"

NAD-27

North Latitude: 39° 57' 08.6"

West Longitude: 88° 49' 56.6"

NAD-83

Antenna Registration Number 1009651

Equipment Data

Antenna: ERI, Model ATW30H3-ETO-20H (or equivalent) elliptically polarized antenna with 0.75° electrical beam tilt. The vertical plane pattern and other exhibits required by Section 73.625(c) are herein included in Exhibit E-2.

Transmission Line: Dielectric, 75 ohm Type No. 561671-B or equivalent—length 411.5 meters (1350 ft) with a manufacturer stated total loss of 1.11 dB

Power Data

Transmitter output (“TPO”):	57.4 kW	17.59 dBk
At filter output		

Transmission Line Efficiency/(Loss):	77.5%	1.11 dB
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Input power to the antenna:	44.44 kW	16.48 dBk
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Antenna power gain	Horizontal	22.5	13.52 dB
	Vertical	6.75	8.29

Effective Radiated Power (ERP)

Maximum, Main Lobe:	Horizontal	1000 kW	30.0 dBk
	Vertical	300 kW	24.77 dBk

Elevation Data

Vertical dimension of Channel 20 top-mounted antenna with pedestal	21.1 meters 69.1 feet
Overall height above ground of the antenna structure (Including beacon and lightning protection)	400.5 meters 1314 feet
Center of radiation of Channel 20 antenna above ground	389.3 meters 1277.2 feet
Elevation of site above mean sea level	209.1 meters 686 feet
Center of radiation of Channel 20 antenna above mean sea level	589.4 meters 1963.3 feet
Overall height above mean sea level of the tower (including beacon)	609.6 meters 2000 feet
Antenna height above average terrain	390.5 meters

NOTE: Slight height differences result due to/from conversion to metric.

Coverage

The average elevation data for 3.2 to 16.1 km along each radial has previously been determined. The F(50,90) DTV coverage contour has been computed from reference to the propagation data for Channels 14-69, as published by the FCC in Figure 10b and Figure 10c, Section 73.699 of the FCC Rules and Regulations. Utilizing the formula in Section 73.625(b)(2) of the Rules for the effective heights, it is found that the depression angle, A_h , varies from 0.541 to 0.555 degrees. Since the relative vertical field is greater than 90% of the maximum at these

depression angles, the maximum power was used in determining the distance to the DTV contour.

Table I includes the distances to the 48 dBu and 39.357 dBu F(50,90) coverage contours, the average elevation 3.2 to 16.1 km, and the antenna height above average terrain for every ten degrees in azimuth. The predicted 48 dBu contour covers the city of license, Decatur.

Other Licensed and Broadcast Facilities

No adverse technical effect is anticipated by the proposed DTV operation to any other FCC licensed facility. If required, the license will install filters or take other measures as necessary to resolve the problem.

FCC Rule, Section 1.1307

The proposed 1000 kW horizontal maximum non-directional operation with 300 kW vertical maximum non-directional will utilize a ERI, Model ATW30H3-ETO-20H (or equivalent) antenna as described above with a center of radiation above ground of 389.3 meters. The proposed antenna will be top-mounted on a single guyed, uniform, cross-section, existing steel lattice tower with an overall height of 400.5 meters AGL.

As previously indicated, there are no AM stations located within 3.22 km of the existing tower site. According to the FCC data base, there are no other broadcast stations located within 500 meters. The property on which the existing tower is located is rural. Access to the tower is prevented by a six foot chain link fence with a locked gate.

The RFF contribution of the proposed station will be calculated using the following formula:

$$S = \frac{33.4(F^2) \text{ Total ERP}}{R^2}$$

where:

S = power density in $\mu\text{W}/\text{cm}^2$

F = relative field factor

Total ERP = ERP Horizontal Polarization + ERP Vertical Polarization

R = RCAGL - 2 meters

ERP = RMS ERP in watts for DTV Stations

The proposed operation based upon the current OET Bulletin No. 65, Edition No. 97-01, dated August 1997 and Supplement A meets the provisions of the FCC radio frequency field ("RFF") guidelines, and thus, complies with Section 1.1307 of the FCC Rules.

A relative field value (from 20° to 90° below the horizontal) of less than 0.040 towards the ground in the vicinity of the tower is determined. Using this relative field factor and the procedures prescribed in OET Bulletin No. 65, the maximum RFF resulting from the proposed DTV operation at two meters above the base of the tower is calculated to be less than $1 \mu\text{W}/\text{cm}^2$. This is less than one percent of the $339 \mu\text{W}/\text{cm}^2$ maximum uncontrolled exposure to RFF recommended by the current FCC guidelines for the general population.

The total contribution by the WAND-DT proposed DTV operations at 2 meters above ground level is less than one percent of the current FCC guidelines for occupational population exposure.

Authorized personnel and rigging contractors will be alerted to the potential zone of high field levels on the tower, and if necessary, the station will operate with reduced power or terminate the operation of the transmitter as appropriate when it is necessary for authorized

personnel or contractors to perform work on the tower. Workers and the general public, therefore, will not be subjected to RFF levels in excess of the current FCC guidelines.

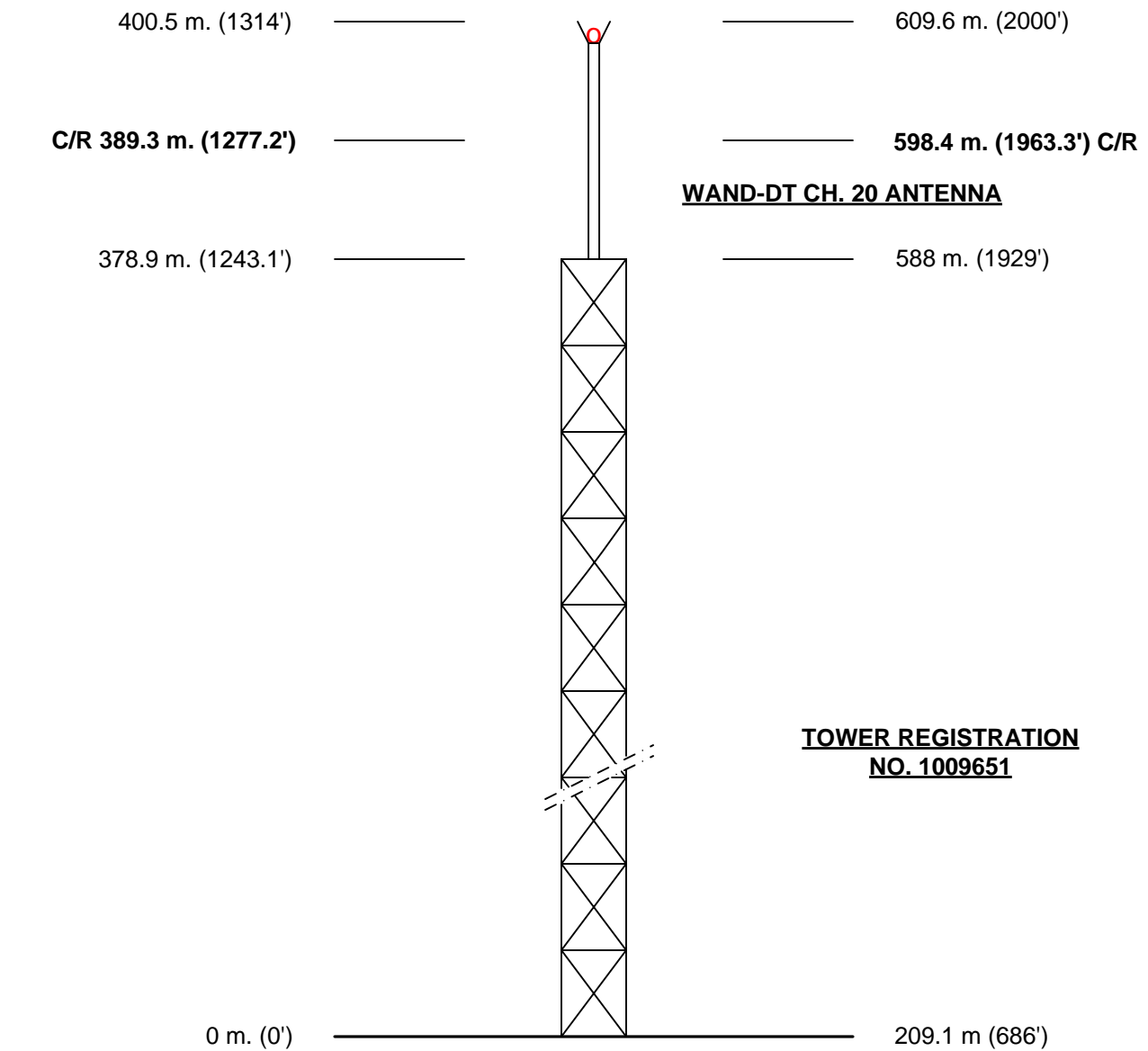
An environmental assessment (“EA”) is categorically excluded under Section 1.1306 of the FCC Rules and Regulations as the tower was constructed prior to the requirements specified in WT Docket No. 03-128 and the licensee indicates:

- (a)(1) The proposed facilities are not located in an officially designated wilderness area.
- (a)(2) The proposed facilities are not located in an officially designated wildlife preserve.
- (a)(3) The proposed facilities will not affect any listed threatened or endangered species or habitats.
- (a)(3)(ii) The proposed facilities will not jeopardize the continued existence of any proposed endangered or threatened species or likely to result in the destruction or adverse modification of proposed critical habitats.
- (a)(4) The proposed facilities located on a tower which was built prior to the adoption of WT Docket No. 03-128 and is grandfathered and has not affected any known districts, sites, buildings, structures, or objects significant in American history, architecture, archaeology, engineering, or culture.
- (a)(5) The proposed facilities are not located near any known Indian religious sites.
- (a)(6) The proposed facilities are not located in a flood plain.
- (a)(7) The installation of the DTV facilities on an existing tower at an existing site will not involve a significant change in surface features of the ground in the vicinity of the tower.
- (a)(8) The existing tower lighting will remain unchanged.

- (b) Workers and the general public will not be subjected to RFF levels in excess of the current FCC guidelines contained in OET Bulletin 65 (Edition 97-01) and Supplement A. Authorized personnel will be alerted to areas of the antennas where potential radiation levels are in excess of the FCC guidelines. A security fence with a locked gate precludes access to the tower site.

ABOVE GROUND

ABOVE MEAN SEA LEVEL



(NOT TO SCALE)

EXHIBIT E - 1
VERTICAL SKETCH
FOR
WAND-DT, DECATUR, ILLINOIS
CHANNEL 20 1000 KW ERP 390.5 METERS HAAT
OCTOBER 2017

EXHIBIT E-2

ANTENNA MANUFACTURER DATA

**Preliminary Specification for
TRASAR® Top Mounted
UHF Elliptically Polarized
Coaxial Slotted Array Television Antenna**

**WAND, RF Channel 20
Block Communications , Decatur, IL**

September 29, 2017

**Antenna Model:
ATW30H3-ETO-20H**

**Specification Number
20170925-764-1**

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**Preliminary Specification for
TRASAR® Top Mounted
UHF Elliptically Polarized
Coaxial Slotted Array Television Antenna**

Electrical Characteristics:

Channel:	20		
Frequency:	506 MHz to 512 MHz		
Service:	ATSC		
Azimuth Pattern Number:	Horizontal Polarization	ATW-O	
	Vertical Polarization	ATW-V1	
Elevation Pattern Number:	Horizontal Polarization	ATW30H3H	
	Vertical Polarization	ATW27H3V	
Azimuth Directivity:	Horizontal Polarization	1.00	(0.00 dB)
	Vertical Polarization	1.00	(0.00 dB)
Elevation Directivity:	Horizontal Polarization	30.00	(14.77 dBd)
	Vertical Polarization	27.00	(14.31 dBd)
Peak Power Gain:	Horizontal Polarization	22.50	(13.52 dBd)
	Vertical Polarization	6.75	(8.29 dBd)
Gain at Horizontal:	Horizontal Polarization	12.39	(10.93 dBd)
	Vertical Polarization	4.00	(6.02 dBd)
Vertical/Horizontal Ratio:	0.30		
Electrical Beam Tilt:	0.75 Degrees		
Input Power Required:	44.44 kW (16.48 dBk)		
RF Input:	8-3/16-inch EIA, 75 Ω , flanged male		
Input Power Rating (maximum):	100 kW Average Power, 8VSB		
Antenna VSWR (maximum):	1.10 Over 6 MHz Channel		

**Preliminary Specification for
TRASAR® Top Mounted
UHF Elliptically Polarized
Coaxial Slotted Array Television Antenna**

Mechanical Characteristics:

Mounting Configuration:	Top Mounted		
Height of Antenna (D):	66.8 feet	(20.4 meters)	
Height of Center of Radiation (B):	33.4 feet	(10.2 meters)	
Overall Height (Includes four 3.5 ft lightning spurs) (A):	70.3 feet	(21.4 meters)	
Deicing:	Fully enclosed pressurized radome		
Radome Diameter (C):	TBD		
Radome Color:	Aviation Orange		
Climbing Device:	Fiberglass Ladder		
Calculated Weight ¹ :	No Ice	10740.0 lb	4871.6 kg
	0.5inch (13 mm) ice	12085.0 lb	5481.7 kg
Windload Data ³	EPA No Ice	96.8 ft ²	(9.0 m ²)
	0.5inch (13 mm) ice	174.7 ft ²	(16.2 m ²)
Effective Moment Arm ³ :	EPA No Ice	35.30 feet	(10.76 meters)
	0.5inch (13 mm) ice	34.90 feet	(10.64 meters)

MOUNTING FLANGE BOLT CIRCLE²: Quantity (16), 1.38 inch holes for 1.25 inch bolts, equally spaced on a 21.50 inch bolt circle.

This antenna is designed to be supported by a structure that can resist the antenna base reactions and which provides a support that is rigid in the three translational and three rotational degrees of freedom.

1) Please note, the listed weights and effective wind areas are based on the PRELIMINARY design of the antenna. Final As-Built values for the antenna are typically within +/-10% of the Preliminary design values, and will be provided in the technical manual that accompanies the antenna. Specified loads include the antenna, lightning spurs, and beacon only. Custom mounting brackets/adapters and/or antenna input section are NOT included.

2) Preliminary antenna design based on a wind speed of 90 miles per hour (MPH) with no ice and 40 MPH with 1.0-inches of design radial ice (2.8-inches of factored ice at antenna, tiz) with a height above ground level (HAGL) of 1243 feet per ANSI/TIA-222-G. Structure Class II, Exposure Category C and Topographic Category I. Weight and wind area values include four lightning spurs and a standard beacon.

3) The mounting flange specified is the standard ERI mounting flange used for this antenna configuration. In those instances where an existing top mounted antenna is being replaced, the antenna supplied will be designed with a mounting flange to match that of the existing antenna bolt pattern unless electrical and/or mechanical requirements for the new antenna preclude the matching flange. Customer shall be responsible for supplying existing flange bolt pattern details when requesting a custom matching flange on the new antenna.

NOTE: The purchaser or their representative shall be required to contact the tower owner, state and/or local building officials for specific design requirements and suitable parameters for a particular structure. Any variation from the parameters shown above must be communicated to ERI for comprehensive assessment.

Broadcast Antenna System Power Analysis

WAND
Block Communications
Decatur, IL
ATW30H3-ETO-20H

RF Channel: 20

Antenna Parameters

Azimuth Directivity:

Horizontal:	1.00	(0.00 dB)
Vertical:	1.00	(0.00 dB)

Elevation Directivity:

Horizontal:	30.00	(14.77 dB)
Vertical:	27.00	(14.31 dB)

Transmission Line

Vertical Run:

Type:	8-3/16-inch EIA, 75 Ω	
Length:	1,230 feet	374.9 meters
Attenuation:	0.077 dB/100 feet	0.253 dB/100 mtrs

Horizontal Run:

Type:	8-3/16-inch EIA, 75 Ω	
Length:	120 feet	36.6 meters
Attenuation:	0.077 dB/100 feet	0.253 dB/100 mtrs

Effective Radiated Power:

Horizontal:	1000.00 kW	(30.00 dBk)
Vertical:	300.00 kW	(24.77 dBk)

Power Gain:

Horizontal:	22.50 numeric	(13.52 dBd)
Vertical:	6.75 numeric	(8.29 dBd)

Antenna Input Power:

44.44 kW	(16.48 dBk)
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Transmission Line Losses:

-12.02 kW	(1.040 dB)
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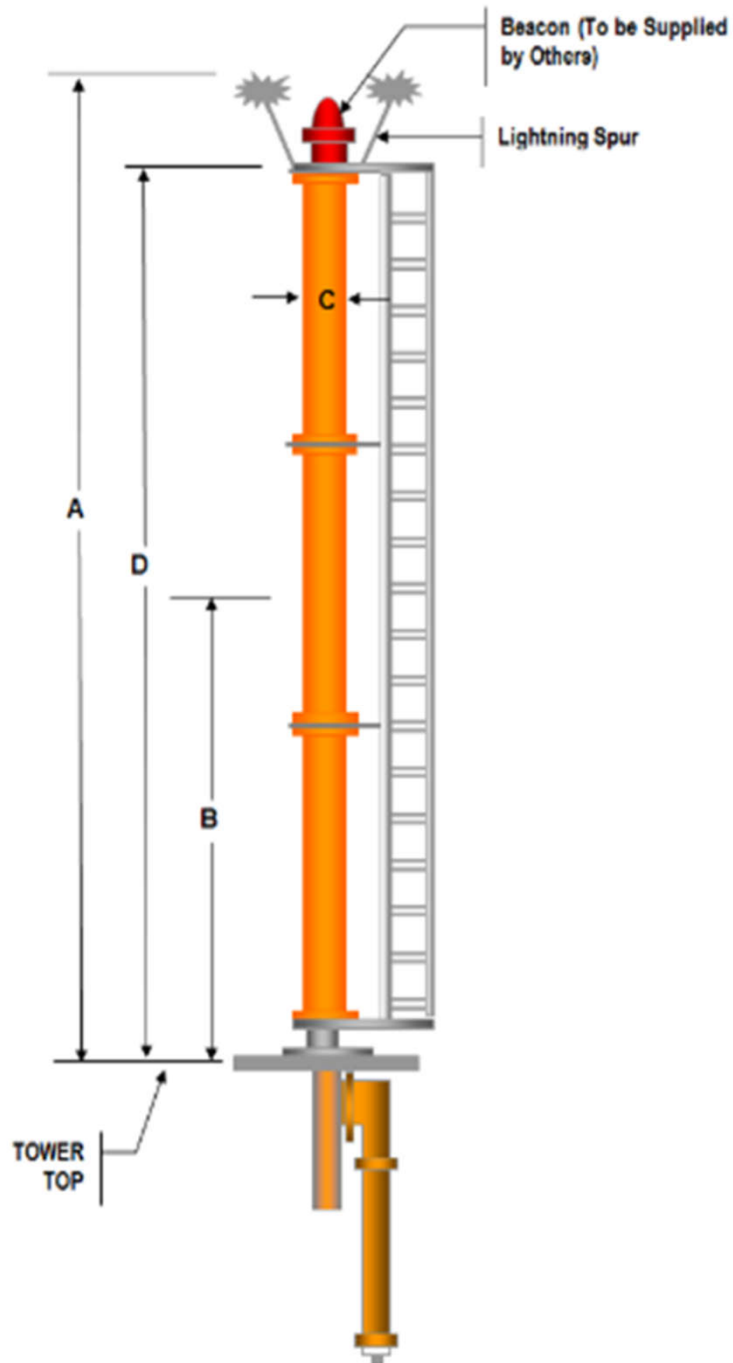
Total Losses:	1.040 dB
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Line Efficiency:	78.71%
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Transmitter Power Output:

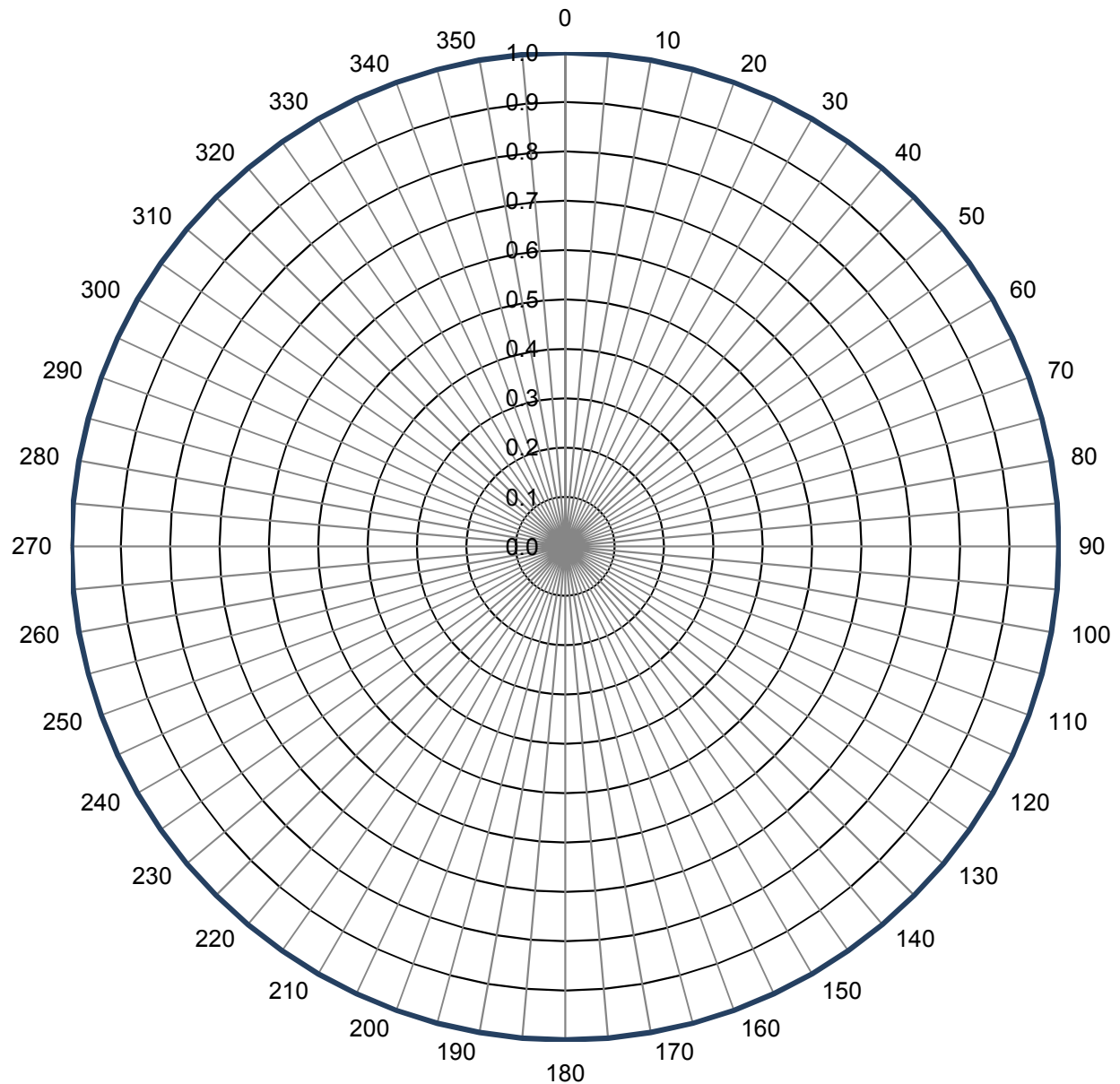
56.46 kW
(17.52 dBk)

Typical Mounting Configuration Shown. Actual Configuration May Vary.



Azimuth Pattern

Type:	ATW-O	Polarization:	Horizontal
Directivity:	1.00 numeric (0.00 dB)	Frequency:	20 (ATSC)
Peak(s) at:		Location:	Decatur, IL
		NOTE: Pattern shape and directivity may vary with channel and mounting configuration.	

Relative Field

Tabulated Data for Azimuth Pattern

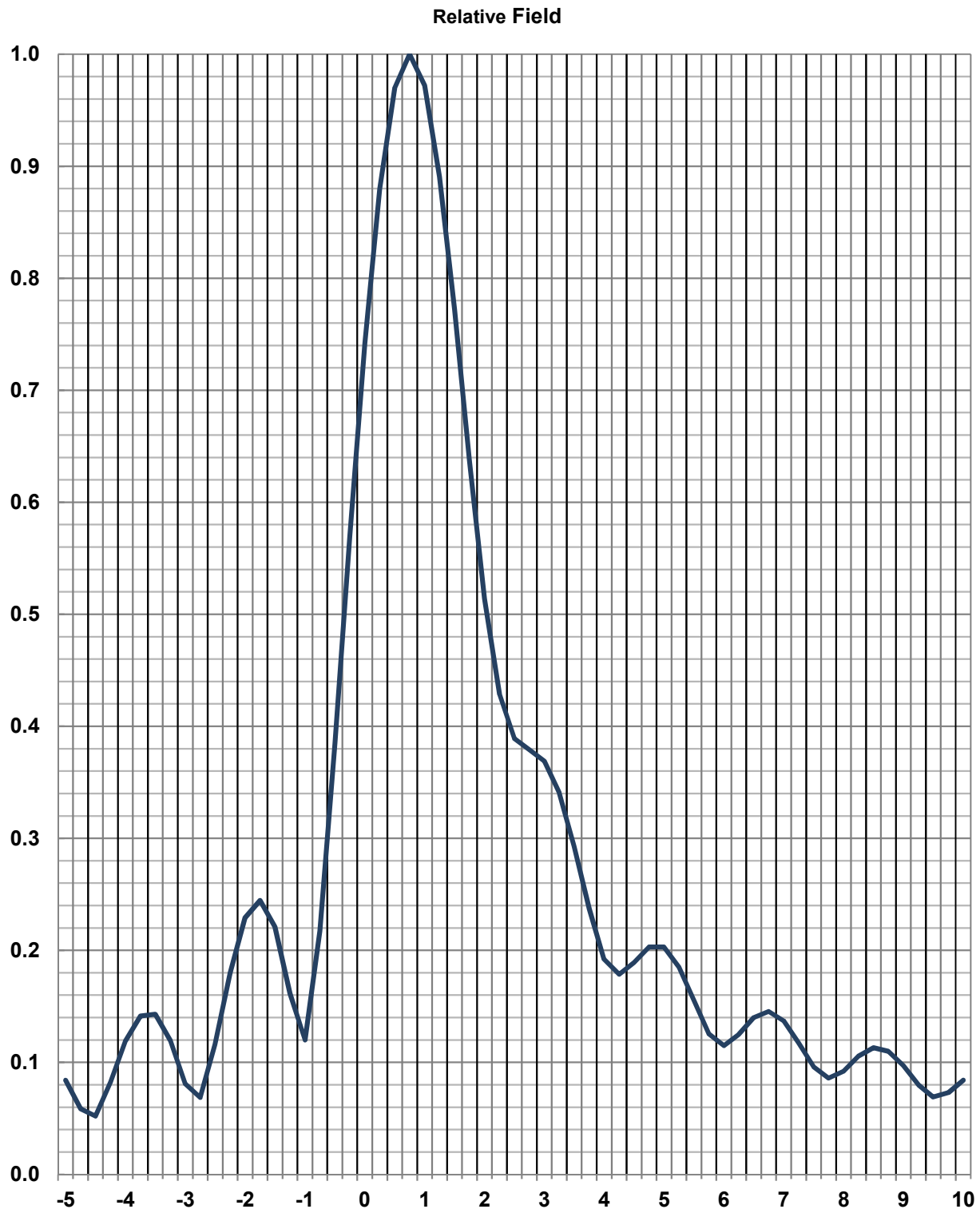
Type:

ATW-O

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
0	1.000	0.00	100	1.000	0.00	200	1.000	0.00	300	1.000	0.00
2	1.000	0.00	102	1.000	0.00	202	1.000	0.00	302	1.000	0.00
4	1.000	0.00	104	1.000	0.00	204	1.000	0.00	304	1.000	0.00
6	1.000	0.00	106	1.000	0.00	206	1.000	0.00	306	1.000	0.00
8	1.000	0.00	108	1.000	0.00	208	1.000	0.00	308	1.000	0.00
10	1.000	0.00	110	1.000	0.00	210	1.000	0.00	310	1.000	0.00
12	1.000	0.00	112	1.000	0.00	212	1.000	0.00	312	1.000	0.00
14	1.000	0.00	114	1.000	0.00	214	1.000	0.00	314	1.000	0.00
16	1.000	0.00	116	1.000	0.00	216	1.000	0.00	316	1.000	0.00
18	1.000	0.00	118	1.000	0.00	218	1.000	0.00	318	1.000	0.00
20	1.000	0.00	120	1.000	0.00	220	1.000	0.00	320	1.000	0.00
22	1.000	0.00	122	1.000	0.00	222	1.000	0.00	322	1.000	0.00
24	1.000	0.00	124	1.000	0.00	224	1.000	0.00	324	1.000	0.00
26	1.000	0.00	126	1.000	0.00	226	1.000	0.00	326	1.000	0.00
28	1.000	0.00	128	1.000	0.00	228	1.000	0.00	328	1.000	0.00
30	1.000	0.00	130	1.000	0.00	230	1.000	0.00	330	1.000	0.00
32	1.000	0.00	132	1.000	0.00	232	1.000	0.00	332	1.000	0.00
34	1.000	0.00	134	1.000	0.00	234	1.000	0.00	334	1.000	0.00
36	1.000	0.00	136	1.000	0.00	236	1.000	0.00	336	1.000	0.00
38	1.000	0.00	138	1.000	0.00	238	1.000	0.00	338	1.000	0.00
40	1.000	0.00	140	1.000	0.00	240	1.000	0.00	340	1.000	0.00
42	1.000	0.00	142	1.000	0.00	242	1.000	0.00	342	1.000	0.00
44	1.000	0.00	144	1.000	0.00	244	1.000	0.00	344	1.000	0.00
46	1.000	0.00	146	1.000	0.00	246	1.000	0.00	346	1.000	0.00
48	1.000	0.00	148	1.000	0.00	248	1.000	0.00	348	1.000	0.00
50	1.000	0.00	150	1.000	0.00	250	1.000	0.00	350	1.000	0.00
52	1.000	0.00	152	1.000	0.00	252	1.000	0.00	352	1.000	0.00
54	1.000	0.00	154	1.000	0.00	254	1.000	0.00	354	1.000	0.00
56	1.000	0.00	156	1.000	0.00	256	1.000	0.00	356	1.000	0.00
58	1.000	0.00	158	1.000	0.00	258	1.000	0.00	358	1.000	0.00
60	1.000	0.00	160	1.000	0.00	260	1.000	0.00	360	1.000	0.00
62	1.000	0.00	162	1.000	0.00	262	1.000	0.00			
64	1.000	0.00	164	1.000	0.00	264	1.000	0.00			
66	1.000	0.00	166	1.000	0.00	266	1.000	0.00			
68	1.000	0.00	168	1.000	0.00	268	1.000	0.00			
70	1.000	0.00	170	1.000	0.00	270	1.000	0.00			
72	1.000	0.00	172	1.000	0.00	272	1.000	0.00			
74	1.000	0.00	174	1.000	0.00	274	1.000	0.00			
76	1.000	0.00	176	1.000	0.00	276	1.000	0.00			
78	1.000	0.00	178	1.000	0.00	278	1.000	0.00			
80	1.000	0.00	180	1.000	0.00	280	1.000	0.00			
82	1.000	0.00	182	1.000	0.00	282	1.000	0.00			
84	1.000	0.00	184	1.000	0.00	284	1.000	0.00			
86	1.000	0.00	186	1.000	0.00	286	1.000	0.00			
88	1.000	0.00	188	1.000	0.00	288	1.000	0.00			
90	1.000	0.00	190	1.000	0.00	290	1.000	0.00			
92	1.000	0.00	192	1.000	0.00	292	1.000	0.00			
94	1.000	0.00	194	1.000	0.00	294	1.000	0.00			
96	1.000	0.00	196	1.000	0.00	296	1.000	0.00			
98	1.000	0.00	198	1.000	0.00	298	1.000	0.00			

Elevation Pattern

Type:	ATW30H3H	Polarization:	Horizontal
Directivity:		Frequency:	20 (ATSC)
Main Lobe:	30.00 numeric (14.77 dB)	Location:	Decatur, IL
Horizontal:	16.52 numeric (12.18 dB)	Beam Tilt:	0.75 degrees



Tabulated Data for Elevation PatternType: ATW30H3H

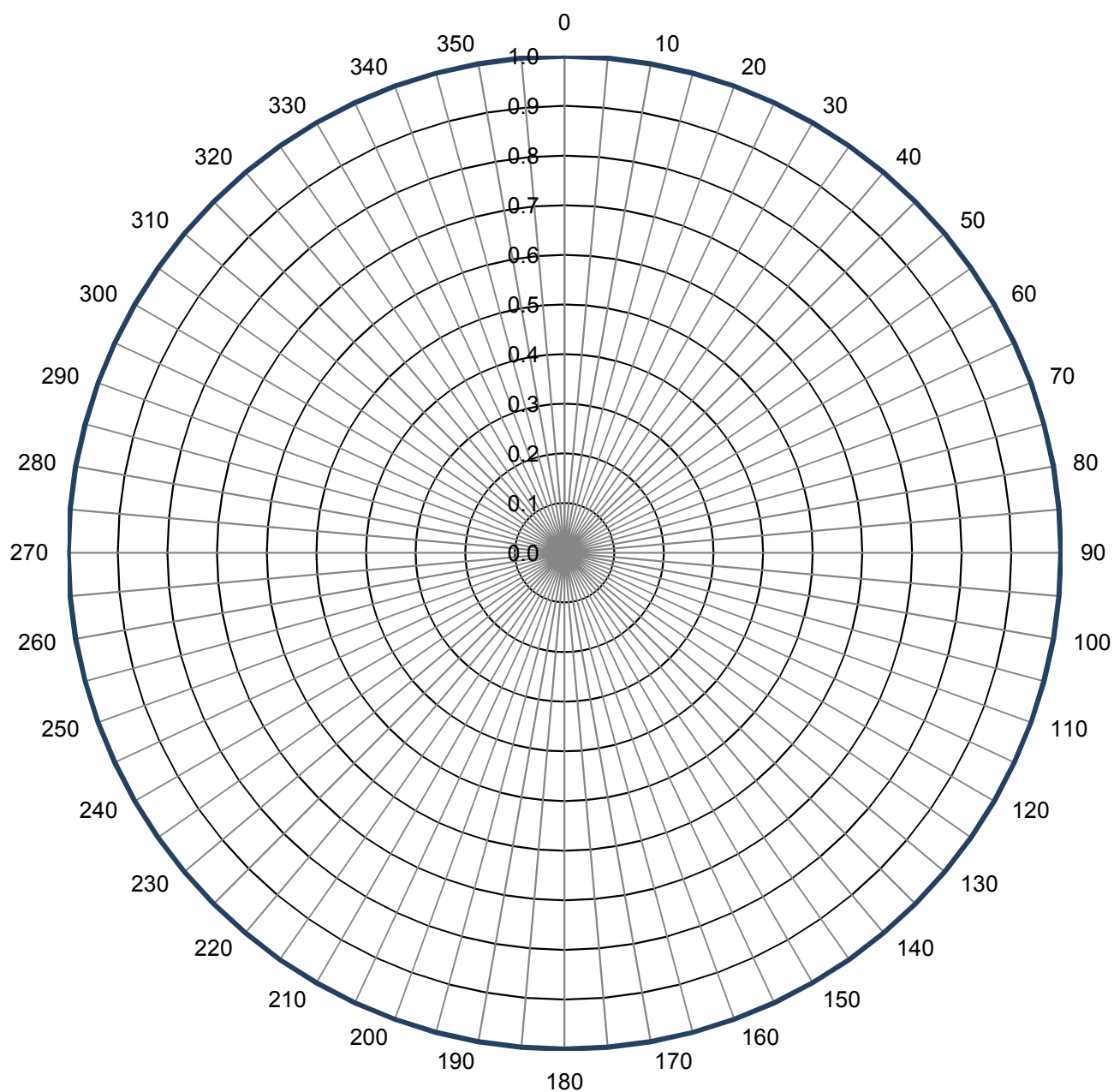
-5 to 10 degrees in 0.25 degree increments.

10 to 90 degrees in 0.50 degree increments.

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
-5.00	0.084	-21.51	7.25	0.118	-18.60	29.00	0.031	-30.17	53.50	0.025	-32.04	78.00	0.029	-30.75
-4.75	0.059	-24.66	7.50	0.096	-20.35	29.50	0.033	-29.63	54.00	0.016	-35.92	78.50	0.031	-30.17
-4.50	0.052	-25.68	7.75	0.086	-21.31	30.00	0.023	-32.77	54.50	0.011	-39.17	79.00	0.032	-29.90
-4.25	0.083	-21.67	8.00	0.092	-20.72	30.50	0.020	-33.98	55.00	0.018	-34.89	79.50	0.032	-29.90
-4.00	0.119	-18.49	8.25	0.106	-19.53	31.00	0.030	-30.46	55.50	0.026	-31.70	80.00	0.032	-29.90
-3.75	0.142	-16.98	8.50	0.113	-18.94	31.50	0.032	-29.90	56.00	0.029	-30.75	80.50	0.030	-30.46
-3.50	0.143	-16.89	8.75	0.110	-19.17	32.00	0.023	-32.77	56.50	0.026	-31.70	81.00	0.028	-31.06
-3.25	0.120	-18.45	9.00	0.097	-20.26	32.50	0.018	-34.89	57.00	0.018	-34.89	81.50	0.026	-31.70
-3.00	0.081	-21.83	9.25	0.080	-21.94	33.00	0.027	-31.37	57.50	0.010	-40.00	82.00	0.023	-32.77
-2.75	0.069	-23.29	9.50	0.069	-23.22	33.50	0.031	-30.17	58.00	0.013	-37.72	82.50	0.021	-33.56
-2.50	0.116	-18.71	9.75	0.073	-22.73	34.00	0.024	-32.40	58.50	0.022	-33.15	83.00	0.018	-34.89
-2.25	0.180	-14.89	10.00	0.084	-21.51	34.50	0.016	-35.92	59.00	0.028	-31.06	83.50	0.015	-36.48
-2.00	0.229	-12.80	10.50	0.092	-20.72	35.00	0.023	-32.77	59.50	0.029	-30.75	84.00	0.012	-38.42
-1.75	0.245	-12.23	11.00	0.069	-23.22	35.50	0.030	-30.46	60.00	0.024	-32.40	84.50	0.010	-40.00
-1.50	0.221	-13.11	11.50	0.058	-24.73	36.00	0.026	-31.70	60.50	0.016	-35.92	85.00	0.008	-41.94
-1.25	0.162	-15.84	12.00	0.076	-22.38	36.50	0.017	-35.39	61.00	0.008	-41.94	85.50	0.006	-44.44
-1.00	0.120	-18.42	12.50	0.073	-22.73	37.00	0.018	-34.89	61.50	0.012	-38.42	86.00	0.005	-46.02
-0.75	0.218	-13.25	13.00	0.050	-26.02	37.50	0.027	-31.37	62.00	0.021	-33.56	86.50	0.003	-50.46
-0.50	0.385	-8.29	13.50	0.055	-25.19	38.00	0.028	-31.06	62.50	0.027	-31.37	87.00	0.002	-53.98
-0.25	0.570	-4.89	14.00	0.067	-23.48	38.50	0.020	-33.98	63.00	0.030	-30.46	87.50	0.002	-53.98
0.00	0.742	-2.59	14.50	0.055	-25.19	39.00	0.015	-36.48	63.50	0.027	-31.37	88.00	0.001	-60.00
0.25	0.880	-1.12	15.00	0.039	-28.18	39.50	0.023	-32.77	64.00	0.021	-33.56	88.50	0.001	-60.00
0.50	0.970	-0.26	15.50	0.052	-25.68	40.00	0.029	-30.75	64.50	0.012	-38.42	89.00	0.001	-60.00
0.75	1.000	0.00	16.00	0.057	-24.88	40.50	0.025	-32.04	65.00	0.005	-46.02	89.50	0.000	---
1.00	0.972	-0.25	16.50	0.042	-27.54	41.00	0.016	-35.92	65.50	0.012	-38.42	90.00	0.000	---
1.25	0.891	-1.01	17.00	0.036	-28.87	41.50	0.017	-35.39	66.00	0.021	-33.56			
1.50	0.772	-2.25	17.50	0.049	-26.20	42.00	0.026	-31.70	66.50	0.027	-31.37			
1.75	0.638	-3.91	18.00	0.048	-26.38	42.50	0.029	-30.75	67.00	0.030	-30.46			
2.00	0.514	-5.78	18.50	0.032	-29.90	43.00	0.023	-32.77	67.50	0.030	-30.46			
2.25	0.429	-7.36	19.00	0.035	-29.12	43.50	0.014	-37.08	68.00	0.026	-31.70			
2.50	0.389	-8.20	19.50	0.046	-26.74	44.00	0.018	-34.89	68.50	0.019	-34.42			
2.75	0.379	-8.43	20.00	0.040	-27.96	44.50	0.026	-31.70	69.00	0.011	-39.17			
3.00	0.369	-8.66	20.50	0.027	-31.37	45.00	0.028	-31.06	69.50	0.002	-53.98			
3.25	0.341	-9.36	21.00	0.035	-29.12	45.50	0.022	-33.15	70.00	0.009	-40.92			
3.50	0.293	-10.66	21.50	0.042	-27.54	46.00	0.013	-37.72	70.50	0.018	-34.89			
3.75	0.237	-12.51	22.00	0.033	-29.63	46.50	0.018	-34.89	71.00	0.025	-32.04			
4.00	0.192	-14.33	22.50	0.025	-32.04	47.00	0.026	-31.70	71.50	0.030	-30.46			
4.25	0.179	-14.97	23.00	0.035	-29.12	47.50	0.029	-30.75	72.00	0.032	-29.90			
4.50	0.189	-14.47	23.50	0.039	-28.18	48.00	0.024	-32.40	72.50	0.032	-29.90			
4.75	0.203	-13.85	24.00	0.029	-30.75	48.50	0.015	-36.48	73.00	0.030	-30.46			
5.00	0.203	-13.85	24.50	0.023	-32.77	49.00	0.015	-36.48	73.50	0.026	-31.70			
5.25	0.185	-14.66	25.00	0.034	-29.37	49.50	0.024	-32.40	74.00	0.021	-33.56			
5.50	0.155	-16.19	25.50	0.037	-28.64	50.00	0.029	-30.75	74.50	0.014	-37.08			
5.75	0.126	-18.03	26.00	0.026	-31.70	50.50	0.027	-31.37	75.00	0.007	-43.10			
6.00	0.115	-18.79	26.50	0.022	-33.15	51.00	0.019	-34.42	75.50	0.002	-53.98			
6.25	0.125	-18.06	27.00	0.033	-29.63	51.50	0.012	-38.42	76.00	0.008	-41.94			
6.50	0.140	-17.08	27.50	0.034	-29.37	52.00	0.018	-34.89	76.50	0.015	-36.48			
6.75	0.146	-16.74	28.00	0.024	-32.40	52.50	0.026	-31.70	77.00	0.020	-33.98			
7.00	0.137	-17.27	28.50	0.021	-33.56	53.00	0.029	-30.75	77.50	0.025	-32.04			

Azimuth Pattern

Type:	ATW-V1		Polarization:	Vertical
Directivity:	1.00 numeric	(0.00 dB)	Frequency:	20 (ATSC)
Peak(s) at:			Location:	Decatur, IL
			NOTE: Pattern shape and directivity may vary with channel and mounting configuration.	

Relative Field

Tabulated Data for Azimuth PatternType: ATW-V1

Angle	Field	dB
0	1.000	0.00
2	1.000	0.00
4	1.000	0.00
6	1.000	0.00
8	1.000	0.00
10	1.000	0.00
12	1.000	0.00
14	1.000	0.00
16	1.000	0.00
18	1.000	0.00
20	1.000	0.00
22	1.000	0.00
24	1.000	0.00
26	1.000	0.00
28	1.000	0.00
30	1.000	0.00
32	1.000	0.00
34	1.000	0.00
36	1.000	0.00
38	1.000	0.00
40	1.000	0.00
42	1.000	0.00
44	1.000	0.00
46	1.000	0.00
48	1.000	0.00
50	1.000	0.00
52	1.000	0.00
54	1.000	0.00
56	1.000	0.00
58	1.000	0.00
60	1.000	0.00
62	1.000	0.00
64	1.000	0.00
66	1.000	0.00
68	1.000	0.00
70	1.000	0.00
72	1.000	0.00
74	1.000	0.00
76	1.000	0.00
78	1.000	0.00
80	1.000	0.00
82	1.000	0.00
84	1.000	0.00
86	1.000	0.00
88	1.000	0.00
90	1.000	0.00
92	1.000	0.00
94	1.000	0.00
96	1.000	0.00
98	1.000	0.00

Angle	Field	dB
100	1.000	0.00
102	1.000	0.00
104	1.000	0.00
106	1.000	0.00
108	1.000	0.00
110	1.000	0.00
112	1.000	0.00
114	1.000	0.00
116	1.000	0.00
118	1.000	0.00
120	1.000	0.00
122	1.000	0.00
124	1.000	0.00
126	1.000	0.00
128	1.000	0.00
130	1.000	0.00
132	1.000	0.00
134	1.000	0.00
136	1.000	0.00
138	1.000	0.00
140	1.000	0.00
142	1.000	0.00
144	1.000	0.00
146	1.000	0.00
148	1.000	0.00
150	1.000	0.00
152	1.000	0.00
154	1.000	0.00
156	1.000	0.00
158	1.000	0.00
160	1.000	0.00
162	1.000	0.00
164	1.000	0.00
166	1.000	0.00
168	1.000	0.00
170	1.000	0.00
172	1.000	0.00
174	1.000	0.00
176	1.000	0.00
178	1.000	0.00
180	1.000	0.00
182	1.000	0.00
184	1.000	0.00
186	1.000	0.00
188	1.000	0.00
190	1.000	0.00
192	1.000	0.00
194	1.000	0.00
196	1.000	0.00
198	1.000	0.00

Angle	Field	dB
200	1.000	0.00
202	1.000	0.00
204	1.000	0.00
206	1.000	0.00
208	1.000	0.00
210	1.000	0.00
212	1.000	0.00
214	1.000	0.00
216	1.000	0.00
218	1.000	0.00
220	1.000	0.00
222	1.000	0.00
224	1.000	0.00
226	1.000	0.00
228	1.000	0.00
230	1.000	0.00
232	1.000	0.00
234	1.000	0.00
236	1.000	0.00
238	1.000	0.00
240	1.000	0.00
242	1.000	0.00
244	1.000	0.00
246	1.000	0.00
248	1.000	0.00
250	1.000	0.00
252	1.000	0.00
254	1.000	0.00
256	1.000	0.00
258	1.000	0.00
260	1.000	0.00
262	1.000	0.00
264	1.000	0.00
266	1.000	0.00
268	1.000	0.00
270	1.000	0.00
272	1.000	0.00
274	1.000	0.00
276	1.000	0.00
278	1.000	0.00
280	1.000	0.00
282	1.000	0.00
284	1.000	0.00
286	1.000	0.00
288	1.000	0.00
290	1.000	0.00
292	1.000	0.00
294	1.000	0.00
296	1.000	0.00
298	1.000	0.00

Angle	Field	dB
300	1.000	0.00
302	1.000	0.00
304	1.000	0.00
306	1.000	0.00
308	1.000	0.00
310	1.000	0.00
312	1.000	0.00
314	1.000	0.00
316	1.000	0.00
318	1.000	0.00
320	1.000	0.00
322	1.000	0.00
324	1.000	0.00
326	1.000	0.00
328	1.000	0.00
330	1.000	0.00
332	1.000	0.00
334	1.000	0.00
336	1.000	0.00
338	1.000	0.00
340	1.000	0.00
342	1.000	0.00
344	1.000	0.00
346	1.000	0.00
348	1.000	0.00
350	1.000	0.00
352	1.000	0.00
354	1.000	0.00
356	1.000	0.00
358	1.000	0.00
360	1.000	0.00

Elevation Pattern

Type: ATW27H3V

Polarization: Vertical

Directivity:

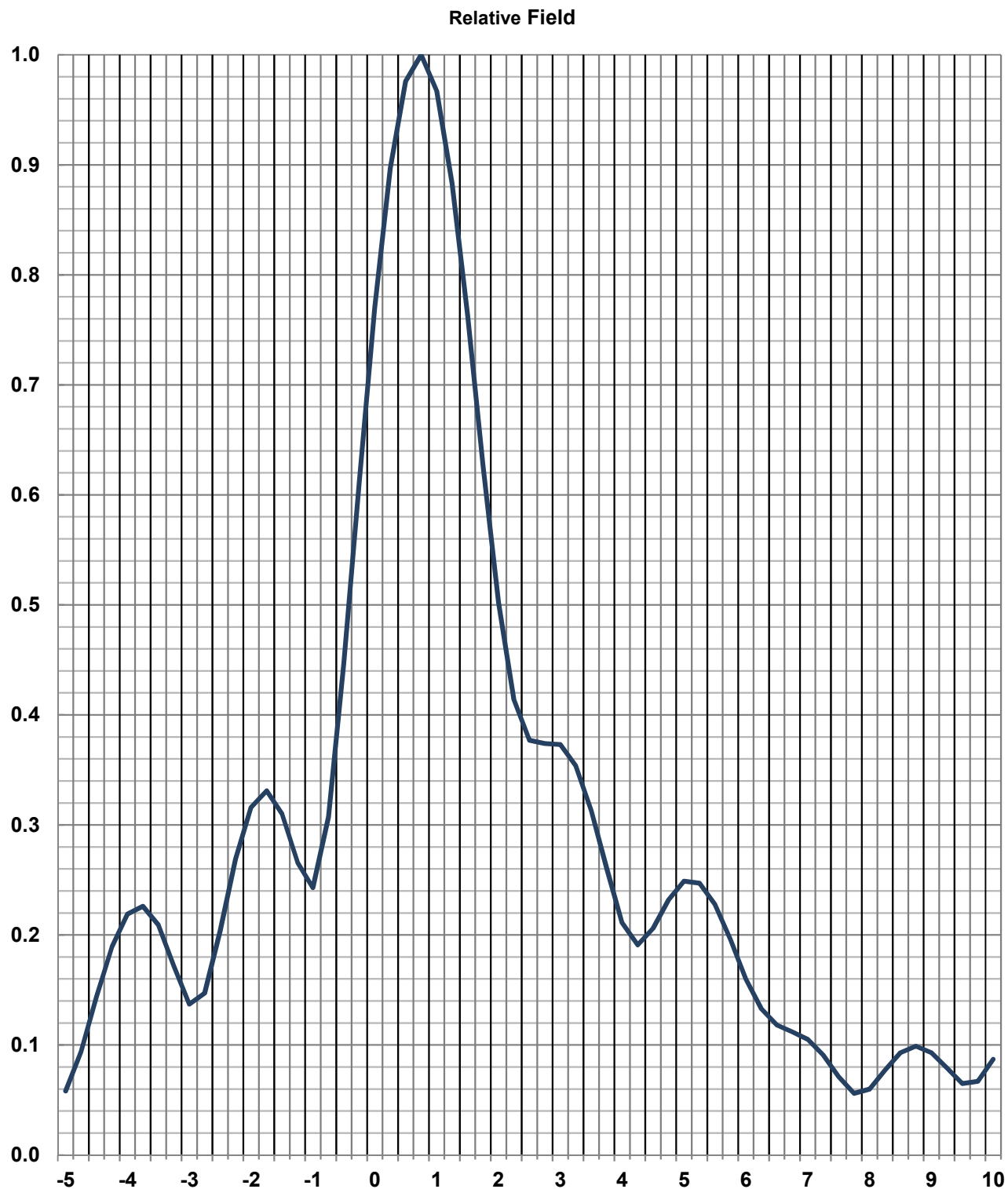
Frequency: 20 (ATSC)

Main Lobe: 27.00 numeric (14.31 dB)

Location: Decatur, IL

Horizontal: 16.01 numeric (12.04 dB)

Beam Tilt: 0.75 degrees



Tabulated Data for Elevation PatternType: ATW27H3V

-5 to 10 degrees in 0.25 degree increments.

10 to 90 degrees in 0.50 degree increments.

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
-5.00	0.058	-24.73	7.25	0.091	-20.82	29.00	0.076	-22.38	53.50	0.031	-30.17	78.00	0.020	-33.98
-4.75	0.094	-20.54	7.50	0.071	-22.97	29.50	0.060	-24.44	54.00	0.024	-32.40	78.50	0.022	-33.15
-4.50	0.144	-16.83	7.75	0.056	-25.04	30.00	0.045	-26.94	54.50	0.019	-34.42	79.00	0.025	-32.04
-4.25	0.189	-14.47	8.00	0.060	-24.44	30.50	0.034	-29.37	55.00	0.020	-33.98	79.50	0.028	-31.06
-4.00	0.219	-13.19	8.25	0.077	-22.27	31.00	0.022	-33.15	55.50	0.021	-33.56	80.00	0.029	-30.75
-3.75	0.226	-12.92	8.50	0.093	-20.63	31.50	0.011	-39.17	56.00	0.018	-34.89	80.50	0.031	-30.17
-3.50	0.209	-13.60	8.75	0.099	-20.09	32.00	0.013	-37.72	56.50	0.011	-39.17	81.00	0.031	-30.17
-3.25	0.172	-15.29	9.00	0.093	-20.63	32.50	0.013	-37.72	57.00	0.002	-53.98	81.50	0.031	-30.17
-3.00	0.137	-17.27	9.25	0.079	-22.05	33.00	0.003	-50.46	57.50	0.017	-35.39	82.00	0.031	-30.17
-2.75	0.147	-16.65	9.50	0.065	-23.74	33.50	0.023	-32.77	58.00	0.031	-30.17	82.50	0.029	-30.75
-2.50	0.204	-13.81	9.75	0.067	-23.48	34.00	0.049	-26.20	58.50	0.044	-27.13	83.00	0.028	-31.06
-2.25	0.269	-11.40	10.00	0.087	-21.21	34.50	0.069	-23.22	59.00	0.051	-25.85	83.50	0.026	-31.70
-2.00	0.316	-10.01	10.50	0.131	-17.65	35.00	0.075	-22.50	59.50	0.054	-25.35	84.00	0.024	-32.40
-1.75	0.331	-9.60	11.00	0.138	-17.20	35.50	0.068	-23.35	60.00	0.051	-25.85	84.50	0.022	-33.15
-1.50	0.310	-10.17	11.50	0.110	-19.17	36.00	0.054	-25.35	60.50	0.045	-26.94	85.00	0.020	-33.98
-1.25	0.266	-11.50	12.00	0.076	-22.38	36.50	0.043	-27.33	61.00	0.038	-28.40	85.50	0.018	-34.89
-1.00	0.243	-12.29	12.50	0.057	-24.88	37.00	0.036	-28.87	61.50	0.034	-29.37	86.00	0.015	-36.48
-0.75	0.307	-10.26	13.00	0.035	-29.12	37.50	0.029	-30.75	62.00	0.034	-29.37	86.50	0.013	-37.72
-0.50	0.447	-6.99	13.50	0.019	-34.42	38.00	0.019	-34.42	62.50	0.037	-28.64	87.00	0.011	-39.17
-0.25	0.613	-4.25	14.00	0.043	-27.33	38.50	0.013	-37.72	63.00	0.039	-28.18	87.50	0.009	-40.92
0.00	0.770	-2.27	14.50	0.049	-26.20	39.00	0.014	-37.08	63.50	0.039	-28.18	88.00	0.007	-43.10
0.25	0.897	-0.94	15.00	0.035	-29.12	39.50	0.010	-40.00	64.00	0.036	-28.87	88.50	0.005	-46.02
0.50	0.976	-0.21	15.50	0.052	-25.68	40.00	0.004	-47.96	64.50	0.030	-30.46	89.00	0.003	-50.46
0.75	1.000	0.00	16.00	0.091	-20.82	40.50	0.024	-32.40	65.00	0.024	-32.40	89.50	0.001	-60.00
1.00	0.967	-0.29	16.50	0.109	-19.25	41.00	0.046	-26.74	65.50	0.021	-33.56	90.00	0.000	---
1.25	0.883	-1.08	17.00	0.099	-20.09	41.50	0.061	-24.29	66.00	0.022	-33.15			
1.50	0.763	-2.35	17.50	0.074	-22.62	42.00	0.067	-23.48	66.50	0.025	-32.04			
1.75	0.627	-4.05	18.00	0.053	-25.51	42.50	0.062	-24.15	67.00	0.028	-31.06			
2.00	0.502	-5.99	18.50	0.036	-28.87	43.00	0.052	-25.68	67.50	0.029	-30.75			
2.25	0.414	-7.66	19.00	0.014	-37.08	43.50	0.042	-27.54	68.00	0.027	-31.37			
2.50	0.377	-8.47	19.50	0.016	-35.92	44.00	0.037	-28.64	68.50	0.022	-33.15			
2.75	0.374	-8.54	20.00	0.029	-30.75	44.50	0.034	-29.37	69.00	0.015	-36.48			
3.00	0.373	-8.57	20.50	0.023	-32.77	45.00	0.028	-31.06	69.50	0.007	-43.10			
3.25	0.354	-9.02	21.00	0.025	-32.04	45.50	0.020	-33.98	70.00	0.008	-41.94			
3.50	0.313	-10.09	21.50	0.059	-24.58	46.00	0.016	-35.92	70.50	0.017	-35.39			
3.75	0.260	-11.70	22.00	0.086	-21.31	46.50	0.016	-35.92	71.00	0.026	-31.70			
4.00	0.211	-13.51	22.50	0.093	-20.63	47.00	0.014	-37.08	71.50	0.034	-29.37			
4.25	0.191	-14.38	23.00	0.081	-21.83	47.50	0.004	-47.96	72.00	0.040	-27.96			
4.50	0.206	-13.72	23.50	0.060	-24.44	48.00	0.012	-38.42	72.50	0.044	-27.13			
4.75	0.232	-12.69	24.00	0.044	-27.13	48.50	0.030	-30.46	73.00	0.046	-26.74			
5.00	0.249	-12.08	24.50	0.031	-30.17	49.00	0.047	-26.56	73.50	0.046	-26.74			
5.25	0.247	-12.15	25.00	0.013	-37.72	49.50	0.057	-24.88	74.00	0.044	-27.13			
5.50	0.228	-12.84	25.50	0.011	-39.17	50.00	0.060	-24.44	74.50	0.041	-27.74			
5.75	0.196	-14.15	26.00	0.019	-34.42	50.50	0.055	-25.19	75.00	0.036	-28.87			
6.00	0.160	-15.92	26.50	0.013	-37.72	51.00	0.047	-26.56	75.50	0.031	-30.17			
6.25	0.133	-17.52	27.00	0.019	-34.42	51.50	0.039	-28.18	76.00	0.026	-31.70			
6.50	0.118	-18.56	27.50	0.049	-26.20	52.00	0.037	-28.64	76.50	0.021	-33.56			
6.75	0.112	-19.02	28.00	0.074	-22.62	52.50	0.037	-28.64	77.00	0.018	-34.89			
7.00	0.105	-19.58	28.50	0.084	-21.51	53.00	0.036	-28.87	77.50	0.018	-34.89			

EXHIBIT E-3

ALLOCATION STUDY

tvstudy v2.2.3 (Dxtpx3)
Database: localhost, Study: WAND-Increase, Model: Longley-Rice
Start: 2017.10.23 16:13:49

Study created: 2017.10.23 16:09:14

Study build station data: LMS TV 2017-10-22 (23)

Proposal: WAND D20 DT CP DECATUR, IL
File number: NonDirectional
Facility ID: 70852
Station data: User record
Record ID: 67
Country: U.S.
Zone: I

Stations affected by proposal:

Call	Chan	Svc	Status	City, State	File Number	Distance
WWME-CD	D20	DC	CP	CHICAGO, IL	BLANK0000028191	236.5 km
KNLJ	D20	DT	LIC	JEFFERSON CITY, MO	BLCDT20110121ACA	312.5
WLWT	D20	DT	CP	CINCINNATI, OH	BLANK0000024626	380.8
WHA-TV	D20	DT	LIC	MADISON, WI	BLEDT20091229ACK	349.9

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D20
Latitude: 39 57 8.60 N (NAD83)
Longitude: 88 49 56.60 W
Height AMSL: 598.4 m
HAAT: 390.5 m
Peak ERP: 1000 kW
Antenna: Omnidirectional
Elev Pattn: Generic
Elec Tilt: 0.8

39.4 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	1000 kW	387.2 m	108.8 km
45.0	1000	390.7	109.2
90.0	1000	395.8	109.7
135.0	1000	388.0	108.9
180.0	1000	391.6	109.3
225.0	1000	392.5	109.4
270.0	1000	390.2	109.1
315.0	1000	384.6	108.6

ERP exceeds maximum

ERP: 1000 kW ERP maximum: 916 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: 528.5 km

Distance to Mexican border: 1607.6 km

Conditions at FCC monitoring station: Allegan MI

Bearing: 38.2 degrees Distance: 380.4 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:

Bearing: 276.2 degrees Distance: 1392.9 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%

Interference to BLANK0000028191 CP, scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WWME-CD	D20	DC	CP	CHICAGO, IL	BLANK0000028191	
Undesireds:	WAND	D20	DT	BL	DECATUR, IL	DTVBL70852	236.5 km
	WAND	D20	DT	CP	DECATUR, IL	NonDirectional	236.5
	WGN-TV	D19	DT	LIC	CHICAGO, IL	BMLCDT20080201APP	0.0
	WFFT-TV	D20	DT	CP	FORT WAYNE, IN	BLANK0000027652	220.5
	WHA-TV	D20	DT	LIC	MADISON, WI	BLEDT20091229ACK	203.3
	WJYS	D21	DT	CP	HAMMOND, IN	BLANK0000028644	0.1
	Service area	Terrain-limited		IX-free, before		IX-free, after	Percent New IX
	9873.1 8,084,701	9873.1	8,084,701	9414.7	8,051,039	9414.7 8,051,039	0.00 0.00
Undesired			Total IX	Unique IX, before		Unique IX, after	
WAND D20 DT BL	4.0		42	0.0		0	
WAND D20 DT CP	8.1		2,453			0.0 0	
WGN-TV D19 DT LIC	386.1		6,017	374.1 628		374.1 628	
WFFT-TV D20 DT CP	4.0		2,608	4.0 2,608		4.0 2,608	
WHA-TV D20 DT LIC	8.0		1,562	4.0 1,469		4.0 1,469	
WJYS D21 DT CP	76.3		28,957	60.2 23,526		56.2 21,115	

Interference to BLCDT20110121ACA LIC, scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	KNLJ	D20	DT	LIC	JEFFERSON CITY, MO	BLCDT20110121ACA	
Undesireds:	WAND	D20	DT	BL	DECATUR, IL	DTVBL70852	312.5 km
	WAND	D20	DT	CP	DECATUR, IL	NonDirectional	312.5
	KYTV	D19	DT	CP	SPRINGFIELD, MO	BLANK0000025226	185.8
	KTEJ	D20	DT	LIC	JONESBORO, AR	BLEDT20110818AAQ	332.4
	Service area	Terrain-limited		IX-free, before		IX-free, after	Percent New IX
	28685.0 655,000	28295.9	642,705	28164.2	641,634	28156.2 641,418	0.03 0.03
Undesired			Total IX	Unique IX, before		Unique IX, after	
WAND D20 DT BL	88.2		569	88.2 569			
WAND D20 DT CP	96.2		785			96.2 785	

KYTV D19 DT CP	19.8	318	15.9	294	15.9	294
KTEJ D20 DT LIC	27.7	208	23.8	184	23.8	184

Interference to BLCDT20110121ACA LIC, scenario 2

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance		
	KNLJ	D20	DT	LIC	JEFFERSON CITY, MO	BLCDT20110121ACA			
Undesireds:	WAND	D20	DT	BL	DECATUR, IL	DTVBL70852	312.5 km		
	WAND	D20	DT	CP	DECATUR, IL	NonDirectional	312.5		
	KYTV	D19	DT	APP	SPRINGFIELD, MO	BLANK0000033931	185.8		
	KTEJ	D20	DT	LIC	JONESBORO, AR	BLEDT20110818AAQ	332.4		
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX		
28685.0 655,000		28295.9 642,705		28156.3 641,525		28148.3 641,309	0.03 0.03		
Undesired				Total IX	Unique IX, before	Unique IX, after			
WAND D20 DT BL				88.2 569	88.2 569				
WAND D20 DT CP				96.2 785		96.2 785			
KYTV D19 DT APP				27.8 427	23.8 403	23.8 403			
KTEJ D20 DT LIC				27.7 208	23.8 184	23.8 184			

Interference to BLANK0000024626 CP, scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WLWT	D20	DT	CP	CINCINNATI, OH	BLANK0000024626	
Undesireds:	WAND	D20	DT	BL	DECATUR, IL	DTVBL70852	380.8 km
	WAND	D20	DT	CP	DECATUR, IL	NonDirectional	380.8
	WIPB	D19	DT	CP	MUNCIE, IN	BLANK0000027189	131.0
	WDKY-TV	D19	DT	CP	DANVILLE, KY	BLANK0000027289	139.3
	WFFT-TV	D20	DT	CP	FORT WAYNE, IN	BLANK0000027652	227.9
	WTVS	D20	DT	CP	DETROIT, MI	BLANK0000027886	386.5
	WZTV	D20	DT	CP	NASHVILLE, TN	BLANK0000028847	375.5
	WVPB-TV	D20	DT	CP	HUNTINGTON, WV	BLANK0000026241	212.8
	WKYT-TV	D21	DT	CP	LEXINGTON, KY	BLANK0000024945	121.0
	WBNS-TV	D21	DT	LIC	COLUMBUS, OH	BLCDT20021025ABK	158.9

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
30852.1 3,348,284	30503.3 3,336,775	29452.7 3,303,299	29452.7 3,303,299	0.00 0.00

Undesired	Total IX	Unique IX, before	Unique IX, after
WAND D20 DT BL	8.0 93	0.0 0	
WAND D20 DT CP	8.0 93		0.0 0
WIPB D19 DT CP	23.8 137	0.0 0	0.0 0
WDKY-TV D19 DT CP	240.8 11,415	7.9 37	7.9 37
WFFT-TV D20 DT CP	339.4 14,038	303.6 13,431	303.6 13,431
WTVS D20 DT CP	4.0 377	0.0 0	0.0 0
WZTV D20 DT CP	7.9 2,187	0.0 0	0.0 0
WVPB-TV D20 DT CP	15.9 2,313	12.0 183	12.0 183
WKYT-TV D21 DT CP	608.0 18,161	375.1 6,783	375.1 6,783
WBNS-TV D21 DT LIC	83.3 1,057	83.3 1,057	83.3 1,057

Interference to BLEDT20091229ACK LIC, scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WHA-TV	D20	DT	LIC	MADISON, WI	BLEDT20091229ACK	

Undesireds:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WAND	D20	DT	BL	DECATUR, IL	DTVBL70852	349.9 km
	WAND	D20	DT	CP	DECATUR, IL	NonDirectional	349.9
	WMTV	D19	DT	LIC	MADISON, WI	BLC DT20100413AAW	3.9
	WWME-CD	D20	DC	CP	CHICAGO, IL	BLANK00000028191	203.3
	KSMQ-TV	D20	DT	LIC	AUSTIN, MN	BLEDT20081223AAK	250.4
	WIFS	D21	DT	CP	JANESVILLE, WI	BLANK00000026425	3.9

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
28878.3 1,497,856	28626.6 1,492,117	28194.5 1,481,692	28194.5 1,481,692	0.00 0.00

Undesired	Total IX	Unique IX, before	Unique IX, after
WAND D20 DT BL	24.0 137	12.0 123	
WAND D20 DT CP	24.0 137		12.0 123
WMTV D19 DT LIC	55.8 1,246	12.0 310	12.0 310
WWME-CD D20 DC CP	19.9 497	12.0 474	12.0 474
KSMQ-TV D20 DT LIC	348.3 8,582	328.5 8,545	328.5 8,545
WIFS D21 DT CP	47.8 936	4.0 0	4.0 0

Interference to proposal, scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WAND	D20	DT	CP	DECATUR, IL	NonDirectional	
Undesireds:	WWME-CD	D20	DC	CP	CHICAGO, IL	BLANK00000028191	236.5 km
	KNLJ	D20	DT	LIC	JEFFERSON CITY, MO	BLCDT20110121ACA	312.5
	WHA-TV	D20	DT	LIC	MADISON, WI	BLEDT20091229ACK	349.9

Service area		Terrain-limited		IX-free		Percent IX	
37414.0	1,388,118	37362.0	1,386,074	37262.3	1,383,337	0.27	0.20

Undesired	Total IX	Unique IX	Prcnt Unique IX
WWME-CD D20 DC CP	87.8 2,148	87.8 2,148	0.23 0.15
KNLJ D20 DT LIC	4.0 12	4.0 12	0.01 0.00
WHA-TV D20 DT LIC	8.0 577	8.0 577	0.02 0.04

TABLE I
COMPUTED COVERAGE DATA
FOR THE PROPOSED DTV OPERATION OF
WAND-TV, DECATUR, ILLINOIS
CHANNEL 20 1000 KW ERP ND 390.5 METERS HAAT
OCTOBER 2017

<u>Radial</u> N ° E, T	<u>Average</u> <u>Elevation</u> meters	<u>Effective</u> <u>Height</u> meters	<u>Depression</u> <u>Angle</u> degrees	<u>Effective</u> <u>Radiated</u> <u>Power</u> kW	<u>Distance to Contour</u>	
					<u>48 dBu</u> km	<u>39.357 dBu</u> km
0	211.2	387.2	0.545	1000.0	108.8	108.8
10	210.4	388.0	0.546	1000.0	108.9	108.9
20	209.6	388.8	0.546	1000.0	109.0	109.0
30	208.9	389.5	0.547	1000.0	109.1	109.1
40	208.1	390.3	0.547	1000.0	109.1	109.1
50	207.1	391.3	0.548	1000.0	109.2	109.2
60	206.0	392.4	0.549	1000.0	109.3	109.3
70	204.9	393.5	0.549	1000.0	109.5	109.5
80	203.8	394.6	0.550	1000.0	109.6	109.6
90	202.6	395.8	0.551	1000.0	109.7	109.7
100	204.4	394.0	0.550	1000.0	109.5	109.5
110	206.1	392.3	0.549	1000.0	109.3	109.3
120	207.8	390.6	0.547	1000.0	109.2	109.2
130	209.6	388.8	0.546	1000.0	109.0	109.0
140	210.0	388.4	0.546	1000.0	108.9	108.9
150	209.2	389.2	0.546	1000.0	109.0	109.0
160	208.4	390.0	0.547	1000.0	109.1	109.1
170	207.6	390.8	0.548	1000.0	109.2	109.2
180	206.8	391.6	0.548	1000.0	109.3	109.3
190	206.6	391.8	0.548	1000.0	109.3	109.3
200	206.4	392.0	0.548	1000.0	109.3	109.3
210	206.2	392.2	0.549	1000.0	109.3	109.3
220	206.0	392.4	0.549	1000.0	109.3	109.3
230	206.1	392.3	0.549	1000.0	109.3	109.3
240	206.7	391.7	0.548	1000.0	109.3	109.3
250	207.2	391.2	0.548	1000.0	109.2	109.2
260	207.7	390.7	0.548	1000.0	109.2	109.2
270	208.2	390.2	0.547	1000.0	109.1	109.1

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COMPUTED COVERAGE DATA
FOR THE PROPOSED DTV OPERATION OF
WAND-TV, DECATUR, ILLINOIS
CHANNEL 20 1000 KW ERP ND 390.5 METERS HAAT
OCTOBER 2017

<u>Radial</u> N ° E, T	<u>Average</u> <u>Elevation</u> meters	<u>Effective</u> <u>Height</u> meters	<u>Depression</u> <u>Angle</u> degrees	<u>Effective</u> <u>Radiated</u> <u>Power</u> kW	<u>Distance to Contour</u>	
					<u>48 dBu</u> km	<u>39.357 dBu</u> km
280	209.4	389.0	0.546	1000.0	109.0	109.0
290	210.7	387.7	0.545	1000.0	108.9	108.9
300	211.9	386.5	0.545	1000.0	108.8	108.8
310	213.2	385.2	0.544	1000.0	108.6	108.6
320	213.5	384.9	0.543	1000.0	108.6	108.6
330	212.9	385.5	0.544	1000.0	108.7	108.7
340	212.4	386.0	0.544	1000.0	108.7	108.7
350	211.8	386.6	0.545	1000.0	108.8	108.8

