

ENGINEERING STATEMENT
APPLICATION FOR
RE MODIFICATION OF PENDING APPLICATION
FCC FILE NO. 0000035788
ON BEHALF OF
LIMA COMMUNICATIONS CORPORATION
WLIO, LIMA, OHIO
CHANNEL 8 40 KW MAX ERP 170 METERS HAAT

AUGUST 2018

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)

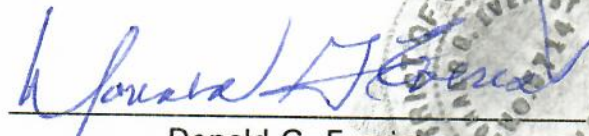
Donald G. Everist, being duly sworn upon his oath, deposes and states that:

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 23rd day of August, 2018.


Notary Public

My Commission Expires: 2/28/2023



Introduction

This engineering statement has been prepared on behalf of Lima Communications Corporation, licensee of WLIO(TV). The purpose of this engineering statement is to accompany its request for modification of the pending application (FCC File No. 0000035788). Included with this report are the exhibits referred in this text along with FCC Form 2100, Schedule A.

Lima Communications Corporation operates television station WLIO(TV) on DTV Channel 8 with a maximum effective radiated power (“ERP”) of 27.5 kW directional (horizontal polarization) and an antenna height above average terrain (“HAAT”) of 148 meters (485.6 feet). WLIO(TV) desires to relocate its transmitting facility to the proposed tower that will be located approximately 3.3 km at an azimuth angle of N 15.7° E. WLIO(TV) proposed in the pending application on file with the FCC (File No. 0000035788) 50 kW ERP (circular polarization) on Channel 8 at an HAAT of 170 meters. This filing seeks to amend the pending application to provide updated tower coordinates (on the same property)¹, ground elevation, center of radiation, reduce the maximum ERP from 50 kW to 40 kW and modify the directional pattern.

Waiver Request General

Lima Communications Corporation seeks waiver of Section 73.622(f)(5) by modifying its current pending application to operate with 40 kW directional (elliptical polarization) at a HAAT of 170 meters.

¹Minor adjustment to tower site location in order to better utilize property

The site move was necessitated by the information received from a registered structural professional engineer that indicated to WLIO(TV) staff that it would be prudent to reduce the physical load on that current WLIO(TV) tower.

Waiver Request
Detail

The proposed power exceeds the maximum allowed for Zone I DTV stations specified in Section 73.622(f)(5) of the Commission's Rules. A waiver of this rule is hereby requested as the proposed facilities meet established interference criteria based on TVStudy 2.2. It is believed that grant of this waiver request is in the public interest and consistent with the Commission's policy to improve reception for high-band VHF DTV stations. Further WTLW(TV) has a Channel 4 construction permit which is the largest in the market.

Proposed Tower

The DTV antenna will be top-mounted on the proposed tower having a total overall structure height above ground of 182.9 meters (600 feet). Exhibit E-1 provides a tower sketch. Exhibit E-1A provides the site plotted on the latest U.S.G.S. 7.5 minute quadrangle map.

The proposed tower will be registered. The request to FAA was filed in March 2018 and bears FAA File Number 2018-AGL-5945-OE. WLIO(TV) received an FAA Determination of No Hazard to Air Navigation issued August 13, 2018.

The geographic coordinates of the proposed tower are as follows:

North Latitude: 40° 46' 31.6"

West Longitude: 84° 07' 14.2"

NAD-83

North Latitude: 40° 46' 31.4"

West Longitude: 84° 07' 14.4"

NAD-27

Equipment Data

An ERI, Model ATW6V5-ETPX-8H (or equivalent) antenna, with 1.25° electrical beam tilt will be installed. The vertical plane pattern and other exhibits required by Section 73.625(c) are included in Exhibit E-2.

Power Data

Transmitter Output		8.85 kW	9.47 dBk
Transmission Line Efficiency/Loss		82.57%	0.832 dB
3-1/8" 50 ohm 640 feet			
Input Power to the Antenna		7.31 kW	8.64 dBk
Antenna Max. Power Gain	Horizontal	5.47	7.38 dBd
	Vertical	2.96	4.71 dBd
Effective Radiated Power	Horizontal	40 kW	16.02 dBk
	Vertical	21.6 kW	13.34 dBk

Elevation Data

Elevation of site above mean sea level	256.3 meters (840.9 feet)
Overall height above ground of the proposed antenna structure (including beacon)	182.9 meters (600 feet)
Overall height above mean sea level of proposed tower (including beacon)	439.2 meters (1440.9 feet)
Proposed center of radiation of Channel 8 antenna above ground	170 meters (557.8 feet)
Proposed center of radiation of Channel 8 antenna above mean sea level	426.3 meters (1398.7 feet)
Antenna height above average terrain	170 meters

Note: Slight height differences result due to conversion to metric.

Interference Analysis

A study of predicted interference caused by the proposed WLIO(TV) digital operation on Channel 8 has been performed using the Longley-Rice program for which the source data has been posted by the Commission on its website at fcc.gov/oet/tvstudy. Comparison of service/interference areas and population indicates this model closely matches the FCC's digital TVStudy 2.2 evaluation program. Best efforts have been made to use data and calculation identical to the FCC's program. The model employs the Longley-Rice propagation methodology and evaluates in grid cells of approximately 2 sq. km. Using one-second terrain data sampled approximately every 2.0 km at one-degree azimuth intervals with 2010 census centroids, all studies are based upon data in the Commission's current Licensing and Management System

("LMS") database update of the FCC's engineering database. Exhibit E-3 provides that detailed analysis.

Contour Data

Utilizing the formula in Section 73.625(b)(2) for the effective heights along each radial, the depression angle A_h , for each azimuth has been calculated. The maximum radiation value has been used to calculate the ERP where the vertical radiation pattern field value at these angles is greater than 90% of the maximum.

The proposed WLIO(TV) transmission facilities are located just outside the Lima city limits.

Coverage

Table I provides the distances calculated by TVStudy 2.2 along each radial spaced every ten degrees in azimuth to the predicted F(50,90) 43 dBu and 36 dBu contours, the effective radiated power and the effective antenna heights. The predicted 43 dBu and 36 dBu contours determined from these distances are shown on the attached map (Exhibit E-4). Table II provides the predicted 36 dBu contour of the existing WLIO operation. Exhibit E-5 is a plot of licensed predicted contour and that proposed.

Other Licensed and Broadcast Facilities

There are no AM stations within 3.22 km of the proposed WLIO(TV) tower site. There are no FM broadcast stations operating within 100 meters of the proposed site. The only other proposed TV broadcast station to operate within 100 meters of the proposed site is WOHL.

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

Radio Frequency Field Level

The DTV antenna will be mounted on the proposed tower with 170 meters radiation center above ground level. WLIO(TV) and WOHL are the only broadcast stations which currently are proposed to operate at the proposed site.

Pursuant to OET Bulletin No. 65, dated August 1997, the RFF study will consider the following proposed WLIO(TV) station.

The RFF radiation 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

WLIO DTV Facility

Channel 8 Freq: 180-186 MHz Range
 ERP = 61,600 watts (H&V)
 Polarization = circular
 RCAGL - 2 meters = 168 meters

WLIO(TV) proposes to utilize an ERI, Model ATW6V5-ETPX-8H antenna with 1.25° electrical beam tilt. The manufacturer's vertical plane pattern is included in Exhibit E-2. Based on this plot, the field factor will be less than 0.112 at any angle greater than 80 degrees below the horizon. A value of 0.112 will be used in the calculation.

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

Tot ERP =	61,600 watts (Elliptical)
R =	168 meters
F =	0.112 (field factor)

$$S = <1 \mu\text{W}/\text{cm}^2$$

Therefore WLIO(TV) contributes less than one $\mu\text{W}/\text{cm}^2$ at 2 meters above the ground. The limit for an uncontrolled environment is 200 $\mu\text{W}/\text{cm}^2$ for a station broadcasting in the 180-186 MHz frequency range.

Therefore:

WLIO(TV)'s proposed DTV facility will contribute less than 1% RFF for an uncontrolled environment two meters above the ground at the proposed tower site.

WOHL-CD Proposed Facility

Channel 15 Freq: 476-482 MHz Range
 ERP = 23,000 watts (H&V)
 Polarization = circular
 RCAGL - 2 meters = 177.3 meters

WOHL-CD proposes to utilize an ERI, Model ATW6H3-CTO-15H antenna with 0.75° electrical beam tilt. The manufacturer's vertical plane pattern is included in Exhibit E-2. Based on this plot, the field factor will be less than 0.099 at any angle greater than 80 degrees below the horizon. A value of 0.099 will be used in the calculation.

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

Tot ERP =	23,000 watts (Circular)
R =	177.3 meters
F =	0.099 (field factor)

$$S = <1 \mu\text{W}/\text{cm}^2$$

Therefore WOHL-CD contributes less than one $\mu\text{W}/\text{cm}^2$ at 2 meters above the ground. The limit for an uncontrolled environment is 319 $\mu\text{W}/\text{cm}^2$ for a station broadcasting in the 476-482 MHz frequency range.

Therefore:

WOHL-CD's proposed DTV facility will contribute less than 1% RFF for an uncontrolled environment two meters above the ground at the proposed tower site.

Therefore, the total radio frequency radiation level by the two proposed stations is calculated to be less than two percent of the FCC's limit for the general population.

FCC Rule, Section 1.1307

Authorized personnel and rigging contractors will be alerted to the potential zone of high radio frequency 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 or near the tower. Workers and the general public, therefore, will not be subjected to RFF levels in excess of the current FCC guidelines contained in OET Bulletin No. 65, Edition 97-01, dated August 1997 and Supplement A.

ABOVE MEAN SEA LEVEL

ABOVE GROUND

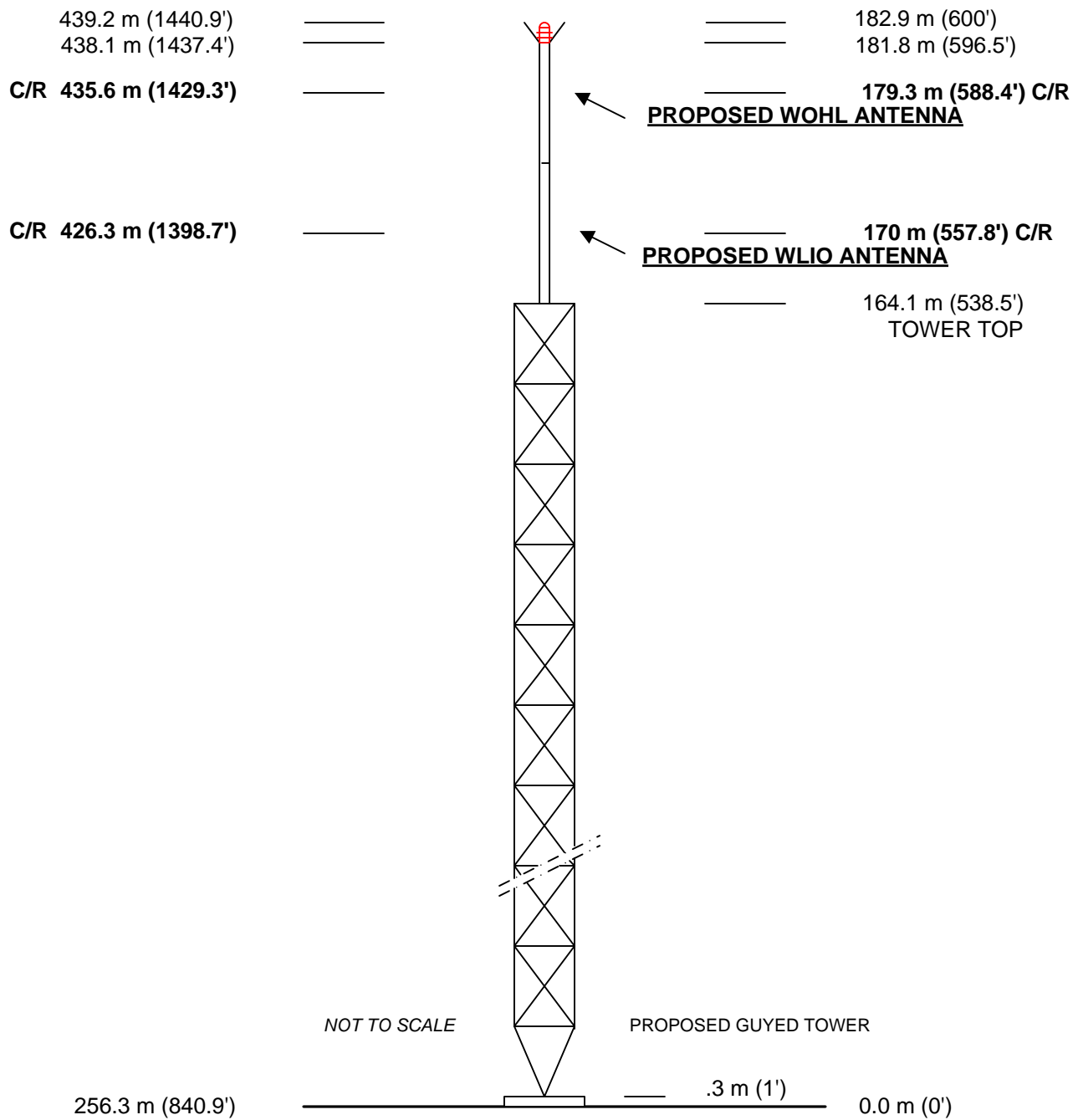
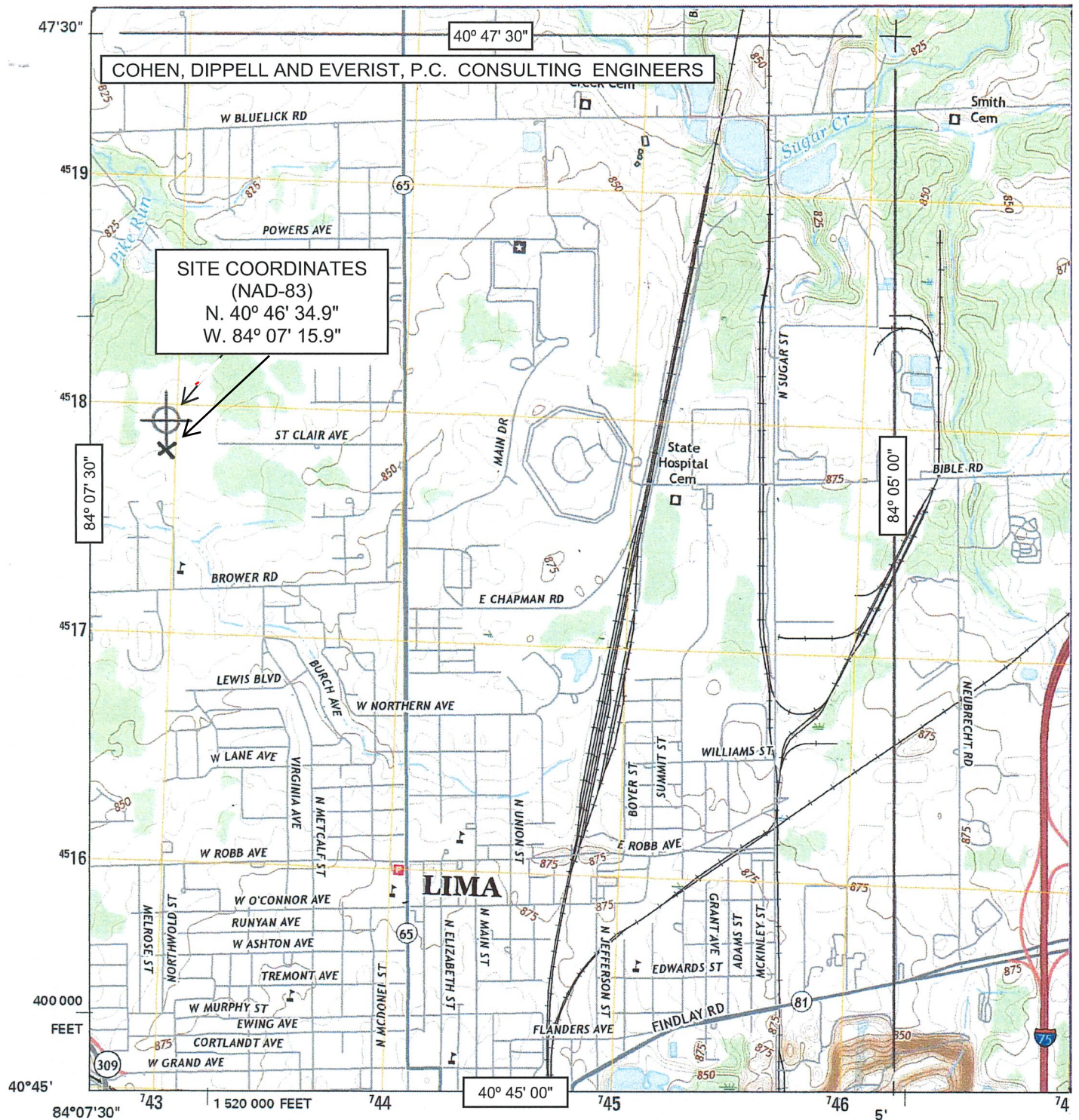


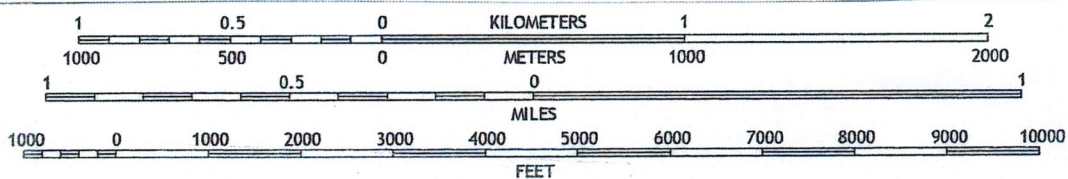
EXHIBIT E - 1
VERTICAL SKETCH
FOR THE PROPOSED OPERATION OF
WLIO, LIMA, OHIO
AUGUST 2018



USGS 2016

MAP SHOWING
PROJECT
WORK
SEPTEMBER 2017

EXHIBIT E-1A



CONTOUR INTERVAL 5 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

EXHIBIT E-2

ANTENNA MANUFACTURER DATA

**Preliminary Specification for
TRASAR® Top Mounted
High Band VHF Elliptically Polarized
Coaxial Slotted Array Television Antenna**

**WLIO, RF Channel 8
Block Communications, Lima, OH**

July 25, 2018

**Antenna Model:
ATW6V5-ETPX-8H**

**Specification Number
20171121-403 6Bay PXr1a**

Electronics Research, Inc. 7777 Gardner Road Chandler IN 47610-9219 USA
+1 812 925-6000 (tel) +1 812 925-4030 (fax)

Your Single Source for Broadcast Solutions™ Call Toll-free at 877 ERI-LINE Visit Online at www.eriinc.com

**Preliminary Specification for
TRASAR® Top Mounted
High Band VHF Elliptically Polarized
Coaxial Slotted Array Television Antenna**

Electrical Characteristics:

Channel:	8		
Frequency:	180 MHz to 186 MHz		
Service:	ATSC		
Azimuth Pattern Number:	Horizontal Polarization	ATW-PX	
	Vertical Polarization	ATW-PX-V	
Elevation Pattern Number:	Horizontal Polarization	ATW6V5H	
	Vertical Polarization	ATW6V5H	
Azimuth Directivity:	Horizontal Polarization	1.43	(1.55 dB)
	Vertical Polarization	1.36	(1.34 dB)
Elevation Directivity:	Horizontal Polarization	6.00	(7.78 dBd)
	Vertical Polarization	6.00	(7.78 dBd)
Peak Power Gain:	Horizontal Polarization	5.47	(7.38 dBd)
	Vertical Polarization	2.96	(4.71 dBd)
Gain at Horizontal:	Horizontal Polarization	5.18	(7.14 dBd)
	Vertical Polarization	2.80	(4.47 dBd)
Vertical/Horizontal Ratio:	0.54		
Electrical Beam Tilt:	1.25 Degrees		
Input Power Required:	7.31 kW	(8.64 dBk)	
RF Input:	3-1/8-inch EIA, 50 Ω, flanged male		
Input Power Rating (maximum):	33 kW Average Power, 8VSB		
Antenna VSWR (maximum):	1.10 Over 6 MHz Channel		

Preliminary Specification for TRASAR® Top Mounted

Coaxial Slotted Array Television Antenna

Antenna Mechanical Characteristics:

Mounting Configuration:	Top Mounted		
Height of Antenna (D):	38.7 feet	(11.8 meters)	
"Height of Center of Radiation (B):	19.3 feet	(5.9 meters)	
Deicing:	Fully enclosed pressurized radome		
Radome Diameter (C):	28.50 inches	(723.9 millimeters)	
Radome Color:	Aviation Orange		
Climbing Device:	Fiberglass Ladder		
Calculated Weight ¹ :	No Ice	8380.0 lb	3801.1 kg
	1/2" (13 mm) ice	9185.0 lb	4166.2 kg
Effective Projected Area (EPA-ft ²) ¹² :	No Ice	72.4 ft ²	(6.7 m ²)
	1/2" (13 mm) ice	135.6 ft ²	(12.6 m ²)

MOUNTING FLANGE BOLT CIRCLE³: Quantity (20), 1.38 inch holes for 1.25 inch bolts, equally spaced on a 24.00 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 (2.66-inches of factored ice at antenna, tiz) with a height above ground level (HAGL) of 540 feet per ANSI/TIA-222-G. Structure Class II, Exposure Category C and Topographic Category I.

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

WLIO
Block Communications
Lima, OH
ATW6V5-ETPX-8H

RF Channel: 8

Antenna Parameters

Azimuth Directivity:

Horizontal: 1.43 (1.55 dB)
Vertical: 1.36 (1.34 dB)

Elevation Directivity:

Horizontal: 6.00 (7.78 dB)
Vertical: 6.00 (7.78 dB)

Transmission Line

Vertical Run:

Type: 3-1/8-inch EIA, 50 Ω
Length: 540 feet 164.6 meters
Attenuation: 0.130 dB/100 feet 0.427 dB/100 mtrs

Horizontal Run:

Type: 3-1/8-inch EIA, 50 Ω
Length: 100 feet 30.5 meters
Attenuation: 0.130 dB/100 feet 0.427 dB/100 mtrs

Transmission Line Efficiency: 82.57%

RF System/Other Efficiency: 100.00%

Effective Radiated Power:

Horizontal: 40.00 kW (16.02 dBk)
Vertical: 21.60 kW (13.34 dBk)

Peak Power Gain:

Horizontal: 5.47 numeric (7.38 dBd)
Vertical: 2.96 numeric (4.71 dBd)

Antenna Input Power:

7.31 kW (8.64 dBk)

Transmission Line Losses:

-1.54 kW (0.832 dB)

RF System/Other Losses:

0.00 kW (0.000 dB)

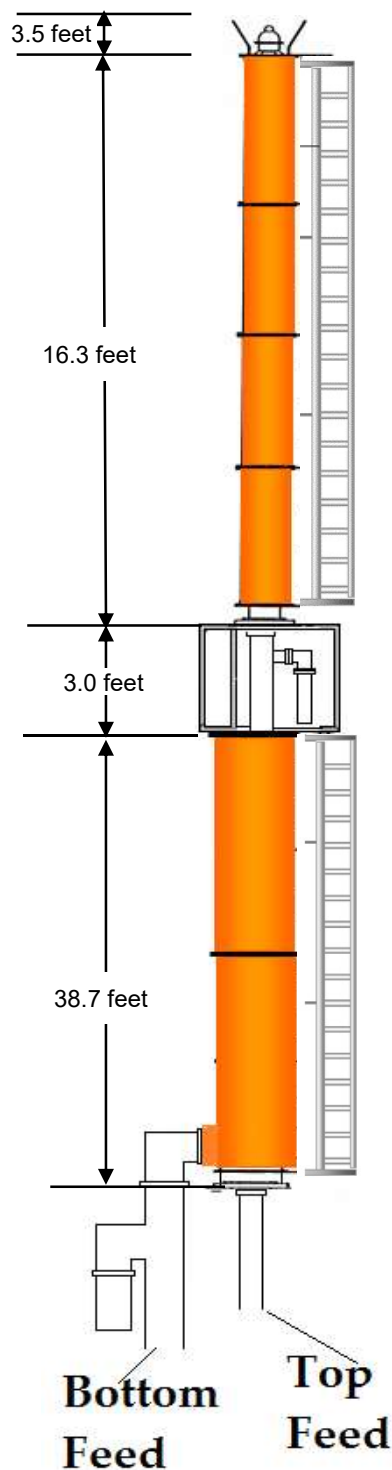
Total Losses:

-1.54 kW (0.832 dB)

Transmitter Power Output:

8.85 kW
(9.47 dBk)

Typical Mounting Configuration Shown. Actual Configuration May Vary.



PRELIMINARY LINEAR STACK MECHANICAL DATA

WOHL Atop WLIO:

Total Stack Length = 58 ft (61.5 ft with beacon/spurs)

Calculated Total Weight (No Ice) = 13,635 lbs

Calculated Total Weight (2.6" Ice) = 22,779 lbs

Calculated Effective Projected Area (No Ice) = 125.2 ft²

Calculated Effective Projected Area (2.6" Ice) = 282.4 ft²

Effective Moment Arm (No Ice) = 46.88 ft

Effective Moment Arm (2.6" Ice) = 45.73 ft

Note: Preliminary antenna stack 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 (2.6-inches of factored ice at antenna, tiz) with a height above ground level (HAGL) of 540 feet at the base of the stack per ANSI/TIA-222-G. Structure Class II, Exposure Category C and Topographic Category I. Weight and wind area values include both antenna arrays, a 3 foot wedding cake interface, four lightning spurs, and a standard beacon.

WOHL-CD ATW6H3-CTO-15H

Height of Antenna (D_T): 16.3 feet

Height of Center of Radiation (B_T): 8.2 feet

Overall Height (A_T): 19.8 feet

Radome Diameter (C_T): 18.40 inches

WLIO ATW6V5-CTPX-8H

Height of Antenna (D_B): 38.7 feet

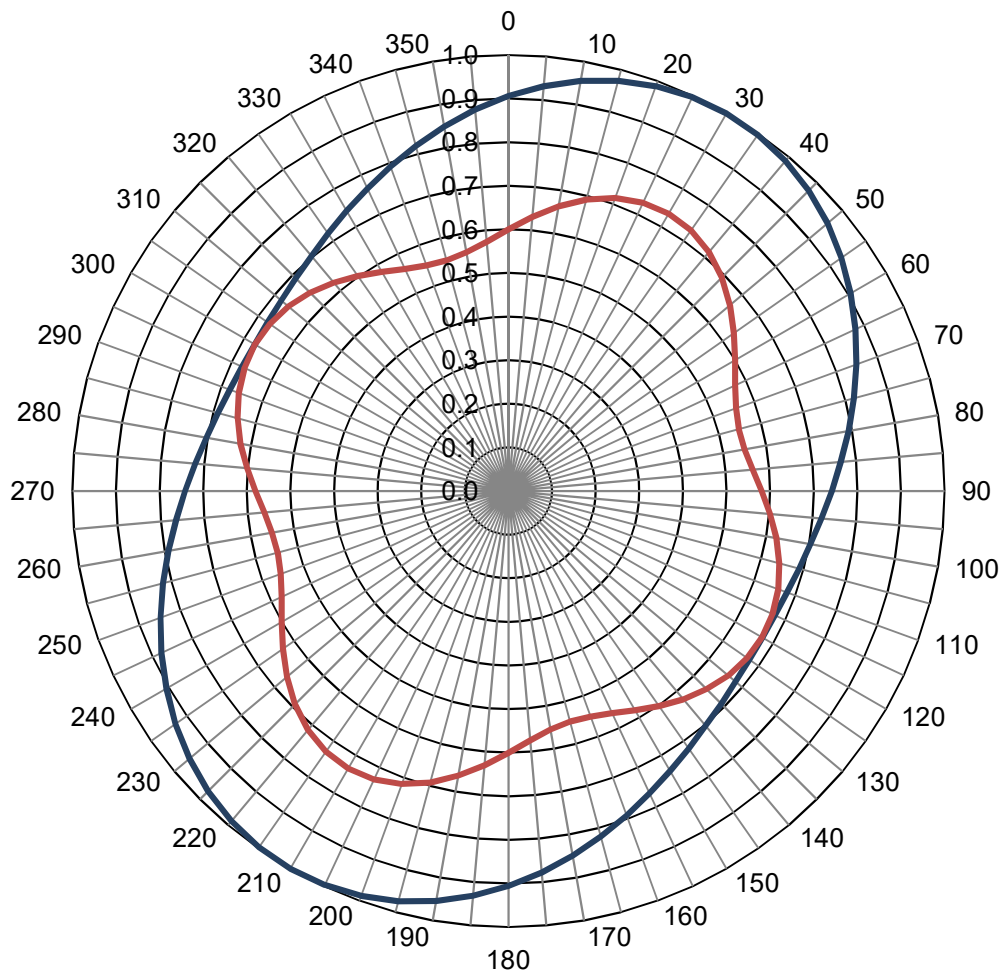
Height of Center of Radiation (B_B): 19.3 feet

Radome Diameter (C_B): 28.50 inches

Composite Azimuth Patterns

Type:	ATW-PX		Polarization:	Elliptical
Directivity (H-Pol):	1.43 numeric	(1.55 dB)	Frequency:	8 (ATSC)
Directivity (V-Pol):	1.36 numeric	(1.34 dB)	Location:	Lima, OH
Percent Horizontal:	63.78%		NOTE: Pattern shape and directivity may vary with channel and mounting	
Percent Vertical:	36.22%			
Power Ratio:	56.78%			
ERP V/H Ratio::	54.00%			

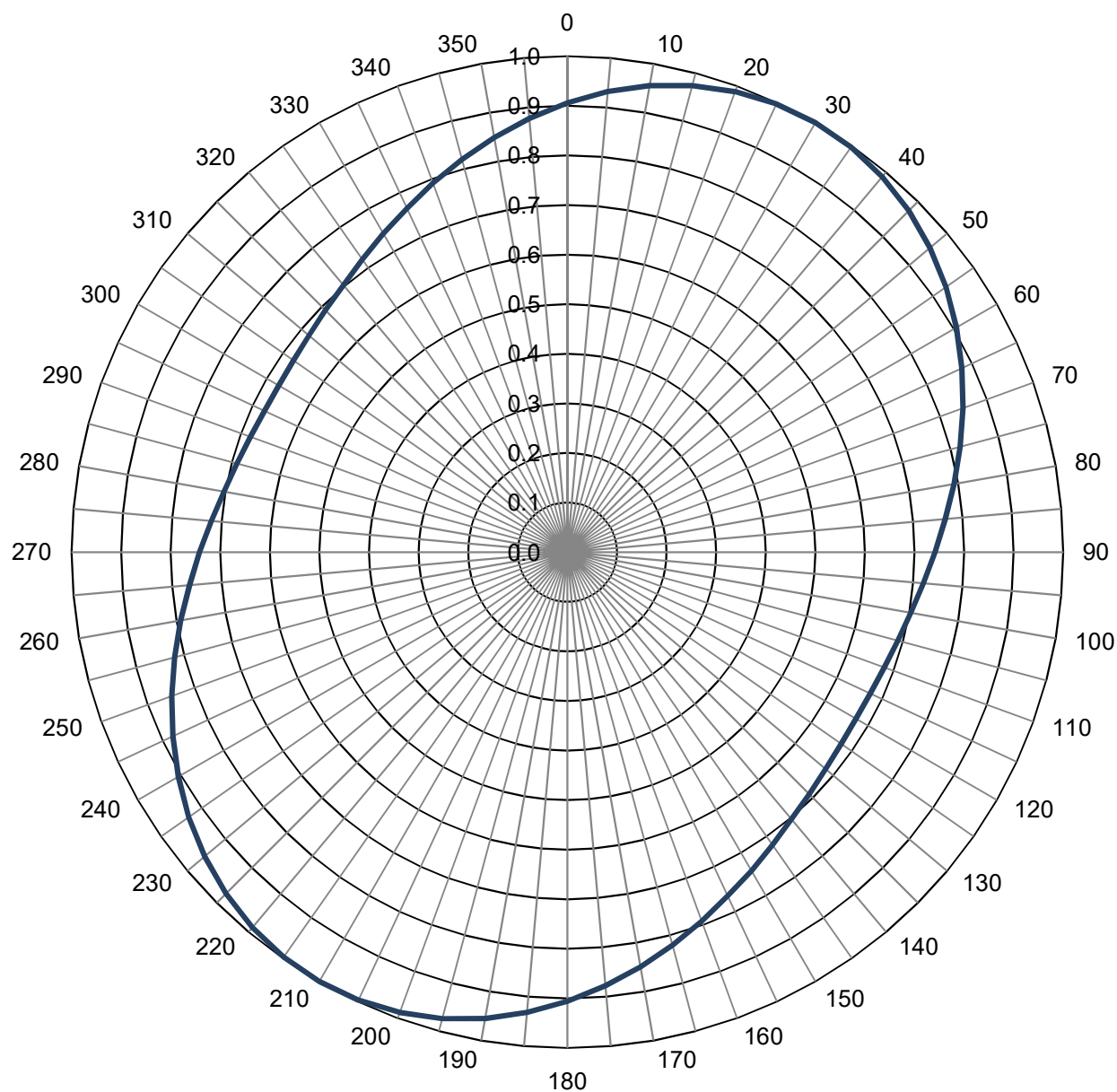
— Horizontal Relative Field — Vertical Relative Field (scaled)



Azimuth Pattern

Type:	ATW-PX	Polarization:	Horizontal
Directivity:	1.43 numeric (1.55 dB)	Frequency:	8 (ATSC)
Peak(s) at:		Location:	Lima, OH
		NOTE: Pattern shape and directivity may vary with channel and mounting configuration.	

Relative Field



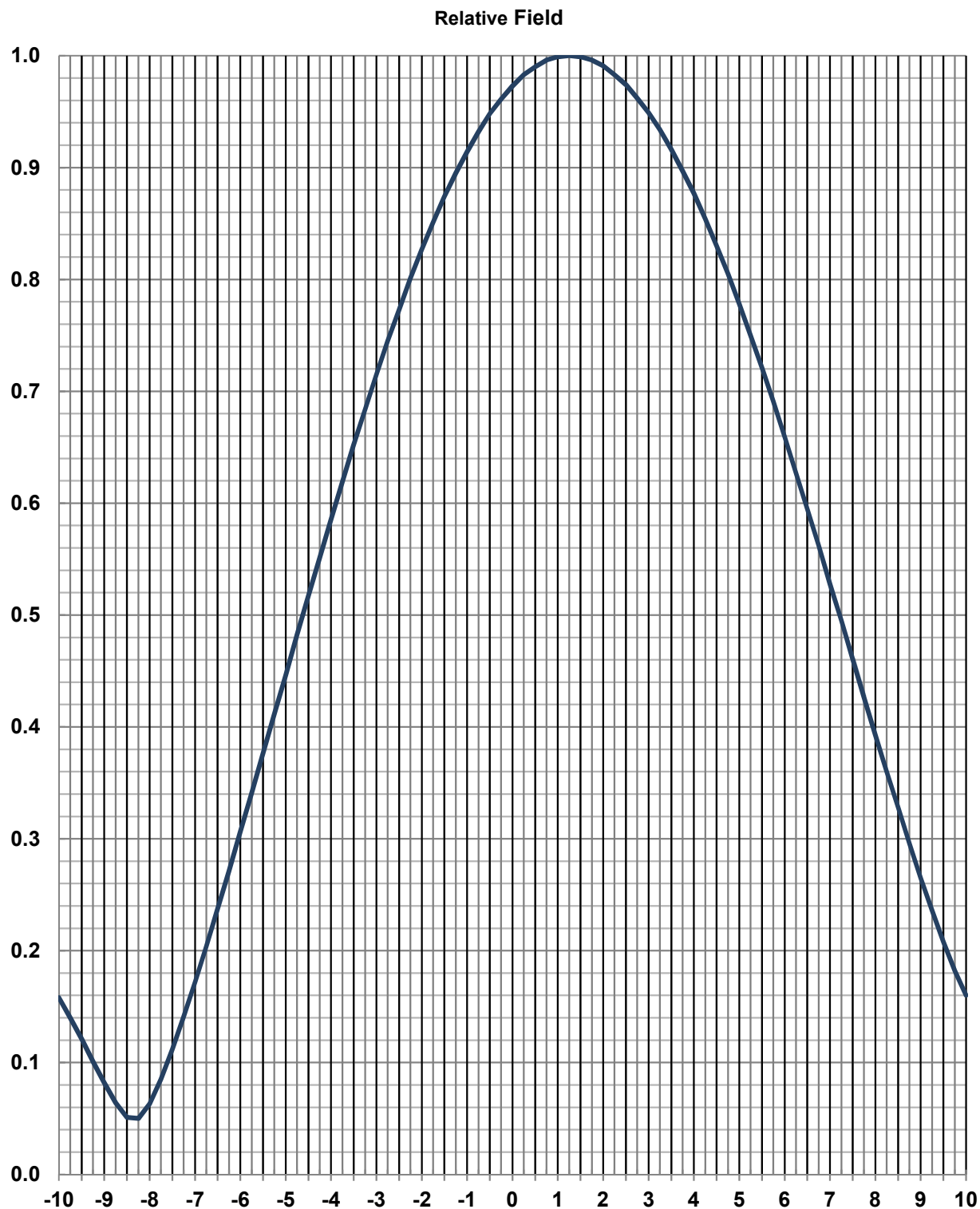
Tabulated Data for Azimuth Pattern

Type: ATW-PX

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
0	0.906	-0.86	100	0.703	-3.06	200	0.988	-0.10	300	0.672	-3.45
2	0.917	-0.75	102	0.697	-3.14	202	0.992	-0.07	302	0.672	-3.45
4	0.927	-0.66	104	0.692	-3.20	204	0.996	-0.03	304	0.673	-3.44
6	0.937	-0.57	106	0.687	-3.26	206	0.998	-0.02	306	0.675	-3.41
8	0.946	-0.48	108	0.683	-3.31	208	1.000	0.00	308	0.677	-3.39
10	0.955	-0.40	110	0.680	-3.35	210	1.000	0.00	310	0.680	-3.35
12	0.963	-0.33	112	0.677	-3.39	212	1.000	0.00	312	0.683	-3.31
14	0.971	-0.26	114	0.675	-3.41	214	0.998	-0.02	314	0.687	-3.26
16	0.977	-0.20	116	0.673	-3.44	216	0.996	-0.03	316	0.692	-3.20
18	0.983	-0.15	118	0.672	-3.45	218	0.992	-0.07	318	0.697	-3.14
20	0.988	-0.10	120	0.672	-3.45	220	0.988	-0.10	320	0.703	-3.06
22	0.992	-0.07	122	0.672	-3.45	222	0.983	-0.15	322	0.710	-2.97
24	0.996	-0.03	124	0.673	-3.44	224	0.977	-0.20	324	0.717	-2.89
26	0.998	-0.02	126	0.675	-3.41	226	0.971	-0.26	326	0.725	-2.79
28	1.000	0.00	128	0.677	-3.39	228	0.963	-0.33	328	0.733	-2.70
30	1.000	0.00	130	0.680	-3.35	230	0.955	-0.40	330	0.742	-2.59
32	1.000	0.00	132	0.683	-3.31	232	0.946	-0.48	332	0.751	-2.49
34	0.998	-0.02	134	0.687	-3.26	234	0.937	-0.57	334	0.760	-2.38
36	0.996	-0.03	136	0.692	-3.20	236	0.927	-0.66	336	0.770	-2.27
38	0.992	-0.07	138	0.697	-3.14	238	0.917	-0.75	338	0.781	-2.15
40	0.988	-0.10	140	0.703	-3.06	240	0.906	-0.86	340	0.792	-2.03
42	0.983	-0.15	142	0.710	-2.97	242	0.895	-0.96	342	0.803	-1.91
44	0.977	-0.20	144	0.717	-2.89	244	0.884	-1.07	344	0.814	-1.79
46	0.971	-0.26	146	0.725	-2.79	246	0.872	-1.19	346	0.825	-1.67
48	0.963	-0.33	148	0.733	-2.70	248	0.860	-1.31	348	0.837	-1.55
50	0.955	-0.40	150	0.742	-2.59	250	0.849	-1.42	350	0.849	-1.42
52	0.946	-0.48	152	0.751	-2.49	252	0.837	-1.55	352	0.860	-1.31
54	0.937	-0.57	154	0.760	-2.38	254	0.825	-1.67	354	0.872	-1.19
56	0.927	-0.66	156	0.770	-2.27	256	0.814	-1.79	356	0.884	-1.07
58	0.917	-0.75	158	0.781	-2.15	258	0.803	-1.91	358	0.895	-0.96
60	0.906	-0.86	160	0.792	-2.03	260	0.792	-2.03	360	0.906	-0.86
62	0.895	-0.96	162	0.803	-1.91	262	0.781	-2.15			
64	0.884	-1.07	164	0.814	-1.79	264	0.770	-2.27			
66	0.872	-1.19	166	0.825	-1.67	266	0.760	-2.38			
68	0.860	-1.31	168	0.837	-1.55	268	0.751	-2.49			
70	0.849	-1.42	170	0.849	-1.42	270	0.742	-2.59			
72	0.837	-1.55	172	0.860	-1.31	272	0.733	-2.70			
74	0.825	-1.67	174	0.872	-1.19	274	0.725	-2.79			
76	0.814	-1.79	176	0.884	-1.07	276	0.717	-2.89			
78	0.803	-1.91	178	0.895	-0.96	278	0.710	-2.97			
80	0.792	-2.03	180	0.906	-0.86	280	0.703	-3.06			
82	0.781	-2.15	182	0.917	-0.75	282	0.697	-3.14			
84	0.770	-2.27	184	0.927	-0.66	284	0.692	-3.20			
86	0.760	-2.38	186	0.937	-0.57	286	0.687	-3.26			
88	0.751	-2.49	188	0.946	-0.48	288	0.683	-3.31			
90	0.742	-2.59	190	0.955	-0.40	290	0.680	-3.35			
92	0.733	-2.70	192	0.963	-0.33	292	0.677	-3.39			
94	0.725	-2.79	194	0.971	-0.26	294	0.675	-3.41			
96	0.717	-2.89	196	0.977	-0.20	296	0.673	-3.44			
98	0.710	-2.97	198	0.983	-0.15	298	0.672	-3.45			

Elevation Pattern

Type:	ATW6V5H		Polarization:	Horizontal
Directivity:			Frequency:	8 (ATSC)
Main Lobe:	6.00 numeric	(7.78 dB)	Location:	Lima, OH
Horizontal:	5.68 numeric	(7.54 dB)	Beam Tilt:	1.25 degrees



Tabulated Data for Elevation PatternType: ATW6V5H

-10 to 10 degrees in 0.25 degree increments.

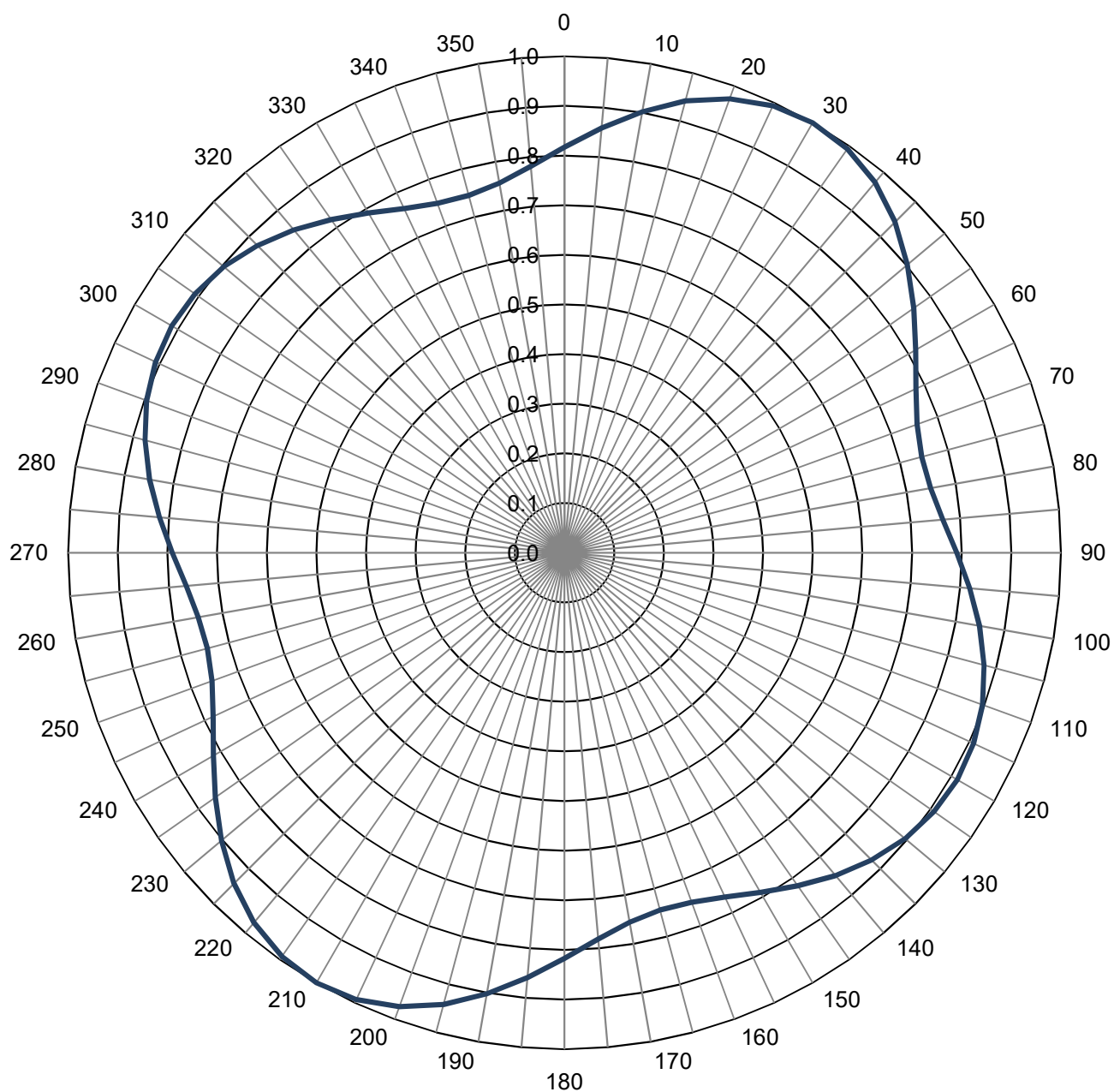
10 to 90 degrees in 0.50 degree increments.

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
-10.00	0.158	-16.03	2.25	0.983	-0.15	19.00	0.141	-17.02	43.50	0.050	-26.02	68.00	0.110	-19.17
-9.75	0.140	-17.08	2.50	0.974	-0.23	19.50	0.115	-18.79	44.00	0.038	-28.40	68.50	0.116	-18.71
-9.50	0.121	-18.34	2.75	0.962	-0.34	20.00	0.090	-20.92	44.50	0.028	-31.06	69.00	0.121	-18.34
-9.25	0.101	-19.91	3.00	0.949	-0.45	20.50	0.069	-23.22	45.00	0.024	-32.40	69.50	0.125	-18.06
-9.00	0.082	-21.72	3.25	0.934	-0.59	21.00	0.054	-25.35	45.50	0.029	-30.75	70.00	0.129	-17.79
-8.75	0.064	-23.88	3.50	0.916	-0.76	21.50	0.054	-25.35	46.00	0.039	-28.18	70.50	0.132	-17.59
-8.50	0.051	-25.85	3.75	0.897	-0.94	22.00	0.065	-23.74	46.50	0.050	-26.02	71.00	0.135	-17.39
-8.25	0.050	-26.02	4.00	0.877	-1.14	22.50	0.082	-21.72	47.00	0.062	-24.15	71.50	0.138	-17.20
-8.00	0.063	-24.01	4.25	0.854	-1.37	23.00	0.100	-20.00	47.50	0.074	-22.62	72.00	0.139	-17.14
-7.75	0.085	-21.41	4.50	0.830	-1.62	23.50	0.118	-18.56	48.00	0.085	-21.41	72.50	0.141	-17.02
-7.50	0.112	-19.02	4.75	0.805	-1.88	24.00	0.133	-17.52	48.50	0.096	-20.35	73.00	0.142	-16.95
-7.25	0.141	-17.02	5.00	0.778	-2.18	24.50	0.146	-16.71	49.00	0.105	-19.58	73.50	0.142	-16.95
-7.00	0.172	-15.29	5.25	0.750	-2.50	25.00	0.155	-16.19	49.50	0.113	-18.94	74.00	0.142	-16.95
-6.75	0.204	-13.81	5.50	0.721	-2.84	25.50	0.162	-15.81	50.00	0.121	-18.34	74.50	0.141	-17.02
-6.50	0.237	-12.51	5.75	0.691	-3.21	26.00	0.165	-15.65	50.50	0.126	-17.99	75.00	0.140	-17.08
-6.25	0.271	-11.34	6.00	0.659	-3.62	26.50	0.166	-15.60	51.00	0.131	-17.65	75.50	0.139	-17.14
-6.00	0.306	-10.29	6.25	0.627	-4.05	27.00	0.163	-15.76	51.50	0.135	-17.39	76.00	0.137	-17.27
-5.75	0.341	-9.34	6.50	0.595	-4.51	27.50	0.157	-16.08	52.00	0.137	-17.27	76.50	0.135	-17.39
-5.50	0.376	-8.50	6.75	0.562	-5.01	28.00	0.149	-16.54	52.50	0.138	-17.20	77.00	0.133	-17.52
-5.25	0.411	-7.72	7.00	0.528	-5.55	28.50	0.138	-17.20	53.00	0.137	-17.27	77.50	0.130	-17.72
-5.00	0.446	-7.01	7.25	0.495	-6.11	29.00	0.126	-17.99	53.50	0.136	-17.33	78.00	0.127	-17.92
-4.75	0.482	-6.34	7.50	0.461	-6.73	29.50	0.111	-19.09	54.00	0.133	-17.52	78.50	0.124	-18.13
-4.50	0.517	-5.73	7.75	0.427	-7.39	30.00	0.095	-20.45	54.50	0.129	-17.79	79.00	0.120	-18.42
-4.25	0.551	-5.18	8.00	0.393	-8.11	30.50	0.079	-22.05	55.00	0.124	-18.13	79.50	0.116	-18.71
-4.00	0.585	-4.66	8.25	0.360	-8.87	31.00	0.062	-24.15	55.50	0.119	-18.49	80.00	0.112	-19.02
-3.75	0.619	-4.17	8.50	0.328	-9.68	31.50	0.047	-26.56	56.00	0.112	-19.02	80.50	0.108	-19.33
-3.50	0.652	-3.72	8.75	0.296	-10.57	32.00	0.036	-28.87	56.50	0.105	-19.58	81.00	0.104	-19.66
-3.25	0.684	-3.30	9.00	0.265	-11.54	32.50	0.034	-29.37	57.00	0.097	-20.26	81.50	0.099	-20.09
-3.00	0.715	-2.91	9.25	0.236	-12.54	33.00	0.042	-27.54	57.50	0.088	-21.11	82.00	0.094	-20.54
-2.75	0.745	-2.56	9.50	0.208	-13.64	33.50	0.055	-25.19	58.00	0.079	-22.05	82.50	0.089	-21.01
-2.50	0.773	-2.24	9.75	0.182	-14.80	34.00	0.069	-23.22	58.50	0.069	-23.22	83.00	0.084	-21.51
-2.25	0.801	-1.93	10.00	0.160	-15.92	34.50	0.083	-21.62	59.00	0.059	-24.58	83.50	0.079	-22.05
-2.00	0.827	-1.65	10.50	0.127	-17.92	35.00	0.096	-20.35	59.50	0.048	-26.38	84.00	0.073	-22.73
-1.75	0.851	-1.40	11.00	0.116	-18.71	35.50	0.107	-19.41	60.00	0.038	-28.40	84.50	0.068	-23.35
-1.50	0.874	-1.17	11.50	0.128	-17.86	36.00	0.117	-18.64	60.50	0.028	-31.06	85.00	0.062	-24.15
-1.25	0.895	-0.96	12.00	0.151	-16.42	36.50	0.125	-18.06	61.00	0.018	-34.89	85.50	0.057	-24.88
-1.00	0.914	-0.78	12.50	0.178	-14.99	37.00	0.132	-17.59	61.50	0.010	-40.00	86.00	0.051	-25.85
-0.75	0.932	-0.61	13.00	0.203	-13.85	37.50	0.136	-17.33	62.00	0.011	-39.17	86.50	0.045	-26.94
-0.50	0.948	-0.46	13.50	0.224	-13.00	38.00	0.138	-17.20	62.50	0.019	-34.42	87.00	0.039	-28.18
-0.25	0.961	-0.35	14.00	0.240	-12.40	38.50	0.137	-17.27	63.00	0.029	-30.75	87.50	0.033	-29.63
0.00	0.973	-0.24	14.50	0.251	-12.01	39.00	0.135	-17.39	63.50	0.038	-28.40	88.00	0.027	-31.37
0.25	0.983	-0.15	15.00	0.257	-11.80	39.50	0.131	-17.65	64.00	0.048	-26.38	88.50	0.021	-33.56
0.50	0.990	-0.09	15.50	0.257	-11.80	40.00	0.126	-17.99	64.50	0.057	-24.88	89.00	0.015	-36.48
0.75	0.996	-0.03	16.00	0.252	-11.97	40.50	0.118	-18.56	65.00	0.066	-23.61	89.50	0.009	-40.92
1.00	0.999	-0.01	16.50	0.242	-12.32	41.00	0.109	-19.25	65.50	0.075	-22.50	90.00	0.003	-50.46
1.25	1.000	0.00	17.00	0.228	-12.84	41.50	0.099	-20.09	66.00	0.083	-21.62			
1.50	0.999	-0.01	17.50	0.210	-13.56	42.00	0.088	-21.11	66.50	0.090	-20.92			
1.75	0.996	-0.03	18.00	0.189	-14.47	42.50	0.075	-22.50	67.00	0.097	-20.26			
2.00	0.991	-0.08	18.50	0.166	-15.60	43.00	0.063	-24.01	67.50	0.104	-19.66			

Azimuth Pattern

Type:	ATW-PX-V		Polarization:	Vertical
Directivity:	1.36 numeric	(1.34 dB)	Frequency:	8 (ATSC)
Peak(s) at:			Location:	Lima, OH
		NOTE: Pattern shape and directivity may vary with channel and mounting configuration.		

Relative Field

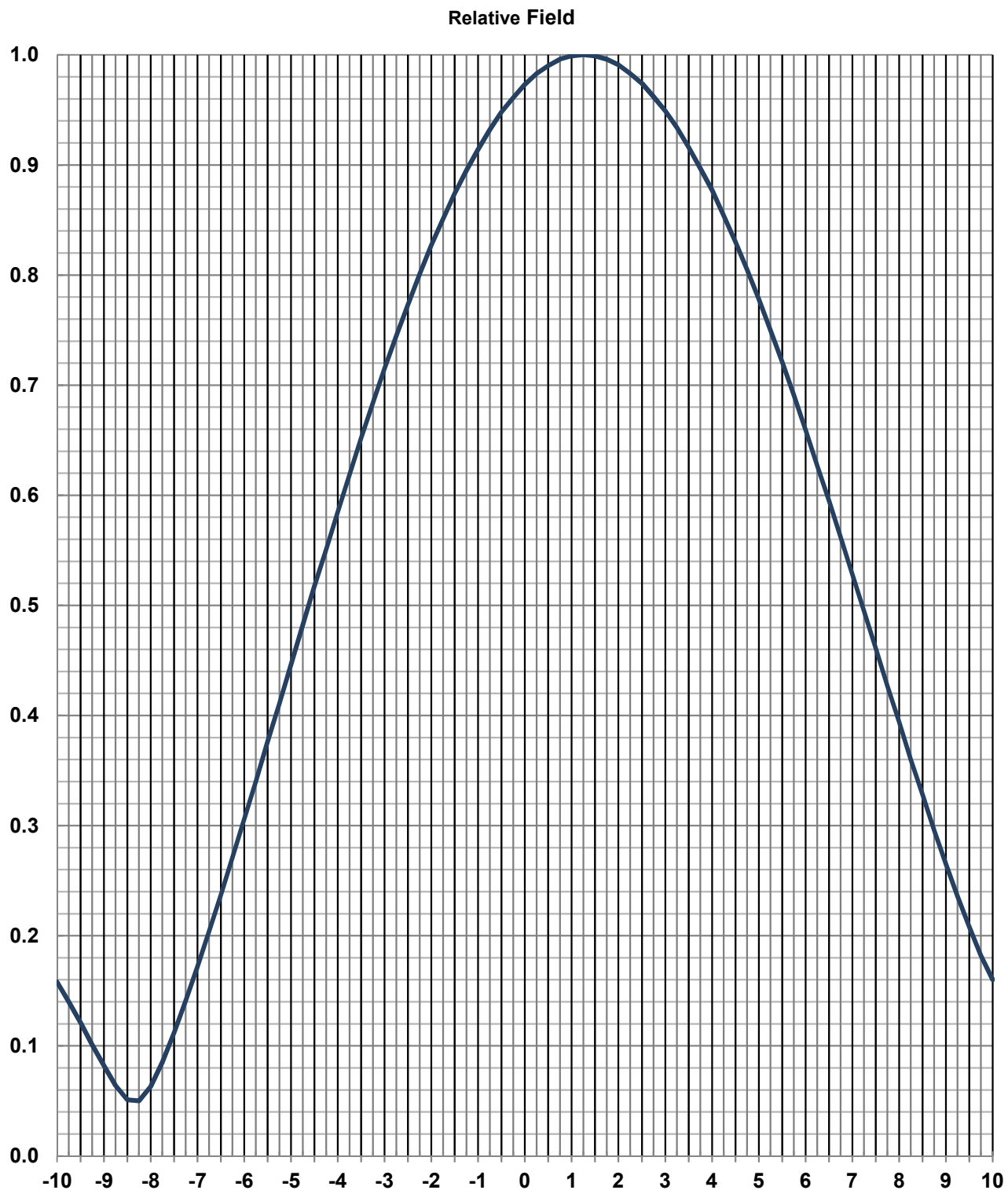


Tabulated Data for Azimuth PatternType: ATW-PX-V

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
0	0.817	-1.76	100	0.849	-1.42	200	0.973	-0.24	300	0.914	-0.78
2	0.833	-1.59	102	0.860	-1.31	202	0.982	-0.16	302	0.913	-0.79
4	0.850	-1.41	104	0.871	-1.20	204	0.990	-0.09	304	0.911	-0.81
6	0.867	-1.24	106	0.880	-1.11	206	0.996	-0.03	306	0.907	-0.85
8	0.885	-1.06	108	0.889	-1.02	208	0.999	-0.01	308	0.902	-0.90
10	0.902	-0.90	110	0.896	-0.95	210	1.000	0.00	310	0.896	-0.95
12	0.919	-0.73	112	0.902	-0.90	212	0.999	-0.01	312	0.889	-1.02
14	0.934	-0.59	114	0.907	-0.85	214	0.996	-0.03	314	0.880	-1.11
16	0.949	-0.45	116	0.911	-0.81	216	0.990	-0.09	316	0.871	-1.20
18	0.962	-0.34	118	0.913	-0.79	218	0.982	-0.16	318	0.860	-1.31
20	0.973	-0.24	120	0.914	-0.78	220	0.973	-0.24	320	0.849	-1.42
22	0.982	-0.16	122	0.913	-0.79	222	0.962	-0.34	322	0.837	-1.55
24	0.990	-0.09	124	0.911	-0.81	224	0.949	-0.45	324	0.825	-1.67
26	0.996	-0.03	126	0.907	-0.85	226	0.934	-0.59	326	0.813	-1.80
28	0.999	-0.01	128	0.902	-0.90	228	0.919	-0.73	328	0.801	-1.93
30	1.000	0.00	130	0.896	-0.95	230	0.902	-0.90	330	0.790	-2.05
32	0.999	-0.01	132	0.889	-1.02	232	0.885	-1.06	332	0.779	-2.17
34	0.996	-0.03	134	0.880	-1.11	234	0.867	-1.24	334	0.769	-2.28
36	0.990	-0.09	136	0.871	-1.20	236	0.850	-1.41	336	0.761	-2.37
38	0.982	-0.16	138	0.860	-1.31	238	0.833	-1.59	338	0.754	-2.45
40	0.973	-0.24	140	0.849	-1.42	240	0.817	-1.76	340	0.749	-2.51
42	0.962	-0.34	142	0.837	-1.55	242	0.801	-1.93	342	0.746	-2.55
44	0.949	-0.45	144	0.825	-1.67	244	0.787	-2.08	344	0.745	-2.56
46	0.934	-0.59	146	0.813	-1.80	246	0.775	-2.21	346	0.746	-2.55
48	0.919	-0.73	148	0.801	-1.93	248	0.764	-2.34	348	0.750	-2.50
50	0.902	-0.90	150	0.790	-2.05	250	0.756	-2.43	350	0.756	-2.43
52	0.885	-1.06	152	0.779	-2.17	252	0.750	-2.50	352	0.764	-2.34
54	0.867	-1.24	154	0.769	-2.28	254	0.746	-2.55	354	0.775	-2.21
56	0.850	-1.41	156	0.761	-2.37	256	0.745	-2.56	356	0.787	-2.08
58	0.833	-1.59	158	0.754	-2.45	258	0.746	-2.55	358	0.801	-1.93
60	0.817	-1.76	160	0.749	-2.51	260	0.749	-2.51	360	0.817	-1.76
62	0.801	-1.93	162	0.746	-2.55	262	0.754	-2.45			
64	0.787	-2.08	164	0.745	-2.56	264	0.761	-2.37			
66	0.775	-2.21	166	0.746	-2.55	266	0.769	-2.28			
68	0.764	-2.34	168	0.750	-2.50	268	0.779	-2.17			
70	0.756	-2.43	170	0.756	-2.43	270	0.790	-2.05			
72	0.750	-2.50	172	0.764	-2.34	272	0.801	-1.93			
74	0.746	-2.55	174	0.775	-2.21	274	0.813	-1.80			
76	0.745	-2.56	176	0.787	-2.08	276	0.825	-1.67			
78	0.746	-2.55	178	0.801	-1.93	278	0.837	-1.55			
80	0.749	-2.51	180	0.817	-1.76	280	0.849	-1.42			
82	0.754	-2.45	182	0.833	-1.59	282	0.860	-1.31			
84	0.761	-2.37	184	0.850	-1.41	284	0.871	-1.20			
86	0.769	-2.28	186	0.867	-1.24	286	0.880	-1.11			
88	0.779	-2.17	188	0.885	-1.06	288	0.889	-1.02			
90	0.790	-2.05	190	0.902	-0.90	290	0.896	-0.95			
92	0.801	-1.93	192	0.919	-0.73	292	0.902	-0.90			
94	0.813	-1.80	194	0.934	-0.59	294	0.907	-0.85			
96	0.825	-1.67	196	0.949	-0.45	296	0.911	-0.81			
98	0.837	-1.55	198	0.962	-0.34	298	0.913	-0.79			

Elevation Pattern

Type:	ATW6V5H		Polarization:	Vertical
Directivity:			Frequency:	8 (ATSC)
Main Lobe:	6.00 numeric	(7.78 dB)	Location:	Lima, OH
Horizontal:	5.68 numeric	(7.54 dB)	Beam Tilt:	1.25 degrees



Tabulated Data for Elevation PatternType: ATW6V5H

-10 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
-10.00	0.158	-16.03	2.25	0.983	-0.15	19.00	0.141	-17.02	43.50	0.050	-26.02	68.00	0.110	-19.17
-9.75	0.140	-17.08	2.50	0.974	-0.23	19.50	0.115	-18.79	44.00	0.038	-28.40	68.50	0.116	-18.71
-9.50	0.121	-18.34	2.75	0.962	-0.34	20.00	0.090	-20.92	44.50	0.028	-31.06	69.00	0.121	-18.34
-9.25	0.101	-19.91	3.00	0.949	-0.45	20.50	0.069	-23.22	45.00	0.024	-32.40	69.50	0.125	-18.06
-9.00	0.082	-21.72	3.25	0.934	-0.59	21.00	0.054	-25.35	45.50	0.029	-30.75	70.00	0.129	-17.79
-8.75	0.064	-23.88	3.50	0.916	-0.76	21.50	0.054	-25.35	46.00	0.039	-28.18	70.50	0.132	-17.59
-8.50	0.051	-25.85	3.75	0.897	-0.94	22.00	0.065	-23.74	46.50	0.050	-26.02	71.00	0.135	-17.39
-8.25	0.050	-26.02	4.00	0.877	-1.14	22.50	0.082	-21.72	47.00	0.062	-24.15	71.50	0.138	-17.20
-8.00	0.063	-24.01	4.25	0.854	-1.37	23.00	0.100	-20.00	47.50	0.074	-22.62	72.00	0.139	-17.14
-7.75	0.085	-21.41	4.50	0.830	-1.62	23.50	0.118	-18.56	48.00	0.085	-21.41	72.50	0.141	-17.02
-7.50	0.112	-19.02	4.75	0.805	-1.88	24.00	0.133	-17.52	48.50	0.096	-20.35	73.00	0.142	-16.95
-7.25	0.141	-17.02	5.00	0.778	-2.18	24.50	0.146	-16.71	49.00	0.105	-19.58	73.50	0.142	-16.95
-7.00	0.172	-15.29	5.25	0.750	-2.50	25.00	0.155	-16.19	49.50	0.113	-18.94	74.00	0.142	-16.95
-6.75	0.204	-13.81	5.50	0.721	-2.84	25.50	0.162	-15.81	50.00	0.121	-18.34	74.50	0.141	-17.02
-6.50	0.237	-12.51	5.75	0.691	-3.21	26.00	0.165	-15.65	50.50	0.126	-17.99	75.00	0.140	-17.08
-6.25	0.271	-11.34	6.00	0.659	-3.62	26.50	0.166	-15.60	51.00	0.131	-17.65	75.50	0.139	-17.14
-6.00	0.306	-10.29	6.25	0.627	-4.05	27.00	0.163	-15.76	51.50	0.135	-17.39	76.00	0.137	-17.27
-5.75	0.340	-9.37	6.50	0.595	-4.51	27.50	0.157	-16.08	52.00	0.137	-17.27	76.50	0.135	-17.39
-5.50	0.376	-8.50	6.75	0.562	-5.01	28.00	0.149	-16.54	52.50	0.138	-17.20	77.00	0.133	-17.52
-5.25	0.411	-7.72	7.00	0.528	-5.55	28.50	0.138	-17.20	53.00	0.137	-17.27	77.50	0.130	-17.72
-5.00	0.446	-7.01	7.25	0.495	-6.11	29.00	0.126	-17.99	53.50	0.136	-17.33	78.00	0.127	-17.92
-4.75	0.482	-6.34	7.50	0.461	-6.73	29.50	0.111	-19.09	54.00	0.133	-17.52	78.50	0.124	-18.13
-4.50	0.517	-5.73	7.75	0.427	-7.39	30.00	0.095	-20.45	54.50	0.129	-17.79	79.00	0.120	-18.42
-4.25	0.551	-5.18	8.00	0.394	-8.09	30.50	0.079	-22.05	55.00	0.124	-18.13	79.50	0.116	-18.71
-4.00	0.585	-4.66	8.25	0.360	-8.87	31.00	0.062	-24.15	55.50	0.119	-18.49	80.00	0.112	-19.02
-3.75	0.619	-4.17	8.50	0.328	-9.68	31.50	0.047	-26.56	56.00	0.112	-19.02	80.50	0.108	-19.33
-3.50	0.652	-3.72	8.75	0.296	-10.57	32.00	0.036	-28.87	56.50	0.105	-19.58	81.00	0.104	-19.66
-3.25	0.684	-3.30	9.00	0.265	-11.54	32.50	0.034	-29.37	57.00	0.097	-20.26	81.50	0.099	-20.09
-3.00	0.715	-2.91	9.25	0.236	-12.54	33.00	0.042	-27.54	57.50	0.088	-21.11	82.00	0.094	-20.54
-2.75	0.745	-2.56	9.50	0.208	-13.64	33.50	0.055	-25.19	58.00	0.079	-22.05	82.50	0.089	-21.01
-2.50	0.773	-2.24	9.75	0.182	-14.80	34.00	0.069	-23.22	58.50	0.069	-23.22	83.00	0.084	-21.51
-2.25	0.801	-1.93	10.00	0.160	-15.92	34.50	0.083	-21.62	59.00	0.059	-24.58	83.50	0.079	-22.05
-2.00	0.827	-1.65	10.50	0.127	-17.92	35.00	0.096	-20.35	59.50	0.049	-26.20	84.00	0.073	-22.73
-1.75	0.851	-1.40	11.00	0.116	-18.71	35.50	0.107	-19.41	60.00	0.038	-28.40	84.50	0.068	-23.35
-1.50	0.874	-1.17	11.50	0.128	-17.86	36.00	0.117	-18.64	60.50	0.028	-31.06	85.00	0.062	-24.15
-1.25	0.895	-0.96	12.00	0.151	-16.42	36.50	0.125	-18.06	61.00	0.018	-34.89	85.50	0.057	-24.88
-1.00	0.914	-0.78	12.50	0.178	-14.99	37.00	0.132	-17.59	61.50	0.010	-40.00	86.00	0.051	-25.85
-0.75	0.932	-0.61	13.00	0.203	-13.85	37.50	0.136	-17.33	62.00	0.011	-39.17	86.50	0.045	-26.94
-0.50	0.948	-0.46	13.50	0.224	-13.00	38.00	0.138	-17.20	62.50	0.019	-34.42	87.00	0.039	-28.18
-0.25	0.961	-0.35	14.00	0.240	-12.40	38.50	0.137	-17.27	63.00	0.029	-30.75	87.50	0.033	-29.63
0.00	0.973	-0.24	14.50	0.251	-12.01	39.00	0.135	-17.39	63.50	0.038	-28.40	88.00	0.027	-31.37
0.25	0.983	-0.15	15.00	0.257	-11.80	39.50	0.131	-17.65	64.00	0.048	-26.38	88.50	0.021	-33.56
0.50	0.990	-0.09	15.50	0.257	-11.80	40.00	0.126	-17.99	64.50	0.057	-24.88	89.00	0.015	-36.48
0.75	0.996	-0.03	16.00	0.252	-11.97	40.50	0.118	-18.56	65.00	0.066	-23.61	89.50	0.009	-40.92
1.00	0.999	-0.01	16.50	0.242	-12.32	41.00	0.109	-19.25	65.50	0.075	-22.50	90.00	0.003	-50.46
1.25	1.000	0.00	17.00	0.228	-12.84	41.50	0.099	-20.09	66.00	0.083	-21.62			
1.50	0.999	-0.01	17.50	0.210	-13.56	42.00	0.088	-21.11	66.50	0.090	-20.92			
1.75	0.996	-0.03	18.00	0.189	-14.47	42.50	0.075	-22.50	67.00	0.097	-20.26			
2.00	0.991	-0.08	18.50	0.166	-15.60	43.00	0.063	-24.01	67.50	0.104	-19.66			

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

**WOHL-CD , RF Channel 15
Block Communications, Lima, OH**

September 13, 2017

**Antenna Model:
ATW6H3-CTO-15H**

**Specification Number
20170905-597-1r3**

Electronics Research, Inc. 7777 Gardner Road Chandler IN 47610-9219 USA
+1 812 925-6000 (tel) +1 812 925-4030 (fax)

Your Single Source for Broadcast Solutions™ Call Toll-free at 877 ERI-LINE Visit Online at www.eriinc.com

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

Electrical Characteristics:

Channel:		15	
Frequency:		476 MHz to 482 MHz	
Service:		ATSC	
Azimuth Pattern Number:	Horizontal Polarization	ATW-O	
	Vertical Polarization	ATW-V1	
Elevation Pattern Number:	Horizontal Polarization	ATW6H3H	
	Vertical Polarization	ATW4H3V	
Azimuth Directivity:	Horizontal Polarization	1.00	(0.00 dB)
	Vertical Polarization	1.00	(0.00 dB)
Elevation Directivity:	Horizontal Polarization	6.00	(7.78 dBd)
	Vertical Polarization	4.00	(6.02 dBd)
Peak Power Gain:	Horizontal Polarization	2.40	(3.80 dBd)
	Vertical Polarization	2.40	(3.80 dBd)
Gain at Horizontal:	Horizontal Polarization	2.35	(3.71 dBd)
	Vertical Polarization	2.38	(3.77 dBd)
Vertical/Horizontal Ratio:		1.00	
Electrical Beam Tilt:		0.75 Degrees	
Input Power Required:		6.25 kW	(7.96 dBk)
RF Input:		3-1/8-inch EIA, 50 Ω , flanged male	
Input Power Rating (maximum):		20 kW Average Power, 8VSB	
Antenna VSWR (maximum):		1.10 Over 6 MHz Channel	

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

Mechanical Characteristics:

Mounting Configuration:	Top Mounted		
Height of Antenna (D _T):	16.3 feet	(5.0 meters)	
Height of Center of Radiation (B _T):	8.2 feet	(2.5 meters)	
Overall Height (Includes four 3.5 ft lightning spurs) (A _T):	19.8 feet	(6.0 meters)	
Deicing:	Fully enclosed pressurized radome		
Radome Diameter (C _T):	18.40 inches	(467.4 millimeters)	
Radome Color:	Aviation Orange		
Climbing Device:	Fiberglass Ladder		
Calculated Weight ¹ :	No Ice	2385.0 lb	1081.8 kg
	0.5inch (13 mm) ice	2765.0 lb	1254.2 kg
Windload Data ³	EPA	No Ice	27.7 ft ² (2.6 m ²)
		0.5inch (13 mm) ice	48.6 ft ² (4.5 m ²)
Effective Moment Arm ³ :	EPA	No Ice	9.70 feet (2.96 meters)
		0.5inch (13 mm) ice	9.50 feet (2.90 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 .75-inches of design radial ice (2.00-inches of factored ice at antenna, tiz) with a height above ground level (HAGL) of 531 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

WOHL-CD
Block Communications
Lima, OH
ATW6H3-CTO-15H

RF Channel: 15

Antenna Parameters

Azimuth Directivity:

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

Elevation Directivity:

Horizontal:	6.00	(7.78 dB)
Vertical:	4.00	(6.02 dB)

Transmission Line

Vertical Run:

Type:	3-1/8-inch EIA, 50 Ω	
Length:	550 feet	167.6 meters
Attenuation:	0.212 dB/100 feet	0.696 dB/100 mtrs

Horizontal Run:

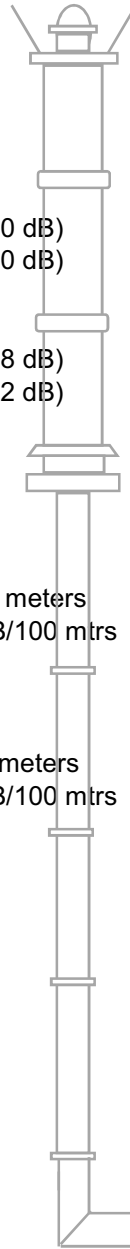
Type:	3-1/8-inch EIA, 50 Ω	
Length:	100 feet	30.5 meters
Attenuation:	0.212 dB/100 feet	0.696 dB/100 mtrs

Total Losses: 1.380 dB

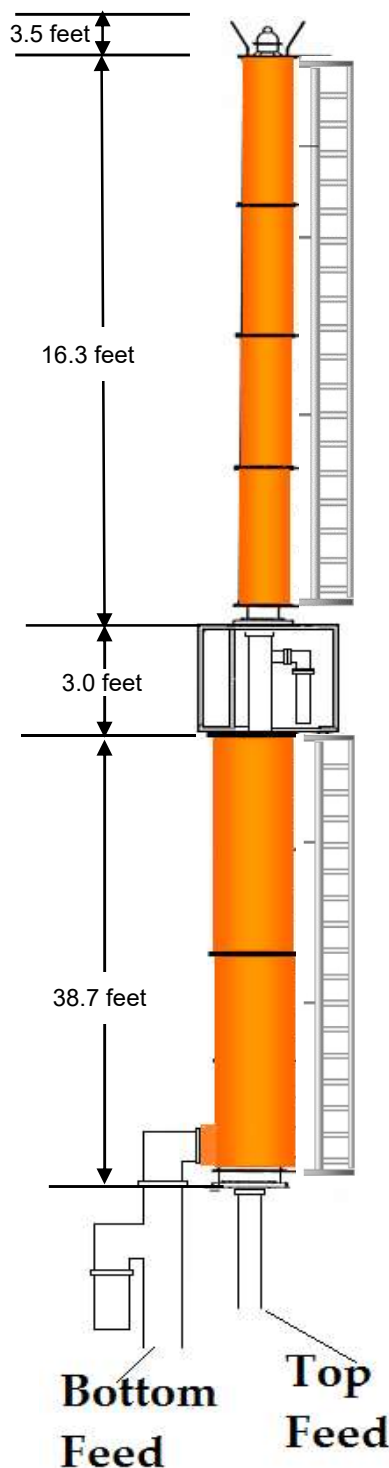
Line Efficiency: 72.78%

Power Gain:

Horizontal:	2.40 numeric	(3.80 dBd)
Vertical:	2.40 numeric	(3.80 dBd)



Typical Mounting Configuration Shown. Actual Configuration May Vary.



PRELIMINARY LINEAR STACK MECHANICAL DATA

WOHL Atop WLIO:

Total Stack Length = 58 ft (61.5 ft with beacon/spurs)

Calculated Total Weight (No Ice) = 13,635 lbs

Calculated Total Weight (2.6" Ice) = 22,779 lbs

Calculated Effective Projected Area (No Ice) = 125.2 ft²

Calculated Effective Projected Area (2.6" Ice) = 282.4 ft²

Effective Moment Arm (No Ice) = 46.88 ft

Effective Moment Arm (2.6" Ice) = 45.73 ft

Note: Preliminary antenna stack 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 (2.6-inches of factored ice at antenna, tiz) with a height above ground level (HAGL) of 540 feet at the base of the stack per ANSI/TIA-222-G. Structure Class II, Exposure Category C and Topographic Category I. Weight and wind area values include both antenna arrays, a 3 foot wedding cake interface, four lightning spurs, and a standard beacon.

WOHL-CD ATW6H3-CTO-15H

Height of Antenna (D_T): 16.3 feet

Height of Center of Radiation (B_T): 8.2 feet

Overall Height (A_T): 19.8 feet

Radome Diameter (C_T): 18.40 inches

WLIO ATW6V5-CTPX-8H

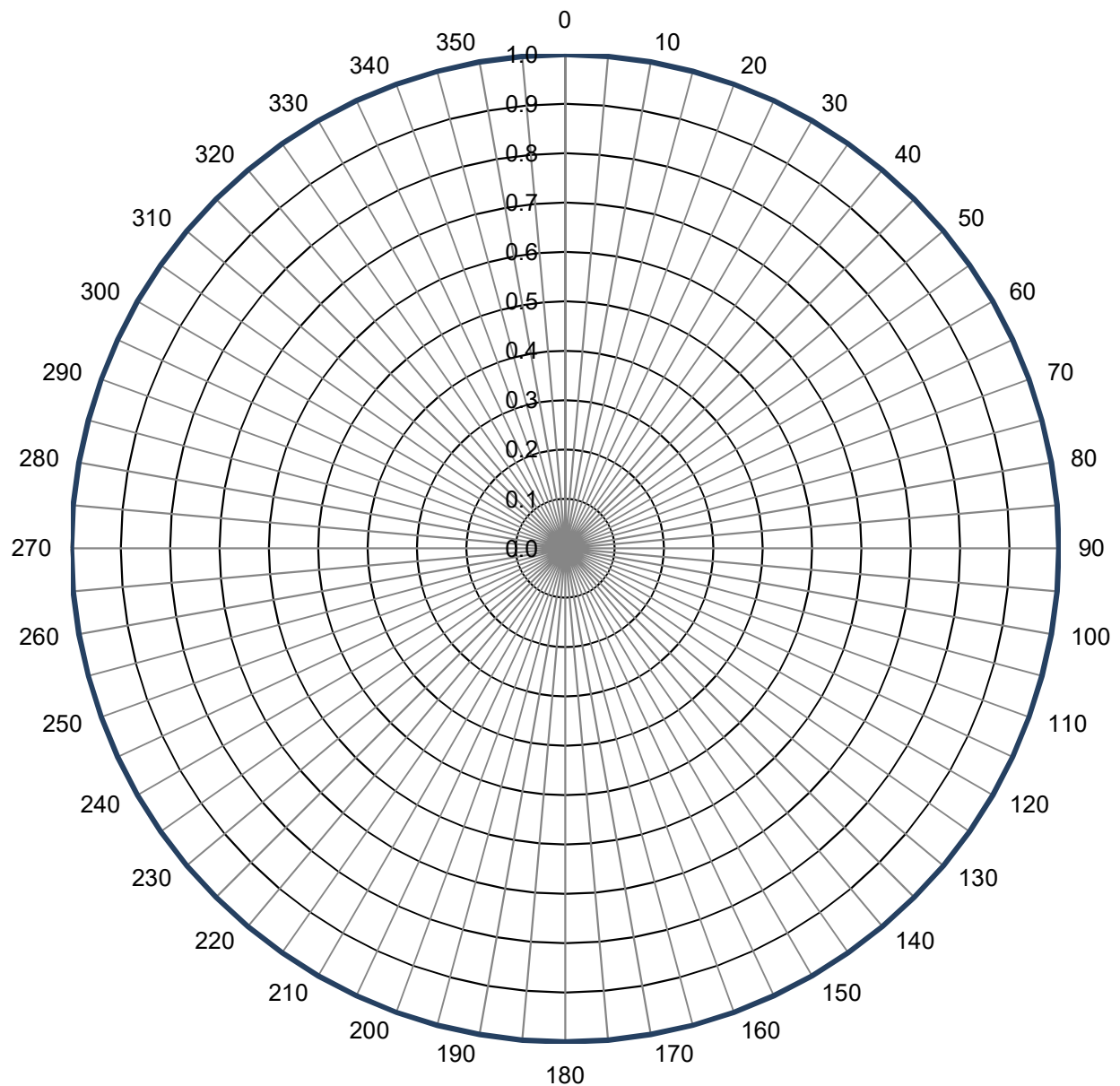
Height of Antenna (D_B): 38.7 feet

Height of Center of Radiation (B_B): 19.3 feet

Radome Diameter (C_B): 28.50 inches

Azimuth Pattern

Type:	ATW-O	Polarization:	Horizontal
Directivity:	1.00 numeric (0.00 dB)	Frequency:	15 (ATSC)
Peak(s) at:		Location:	Lima, OH
		NOTE: Pattern shape and directivity may vary with channel and mounting configuration.	

Relative Field

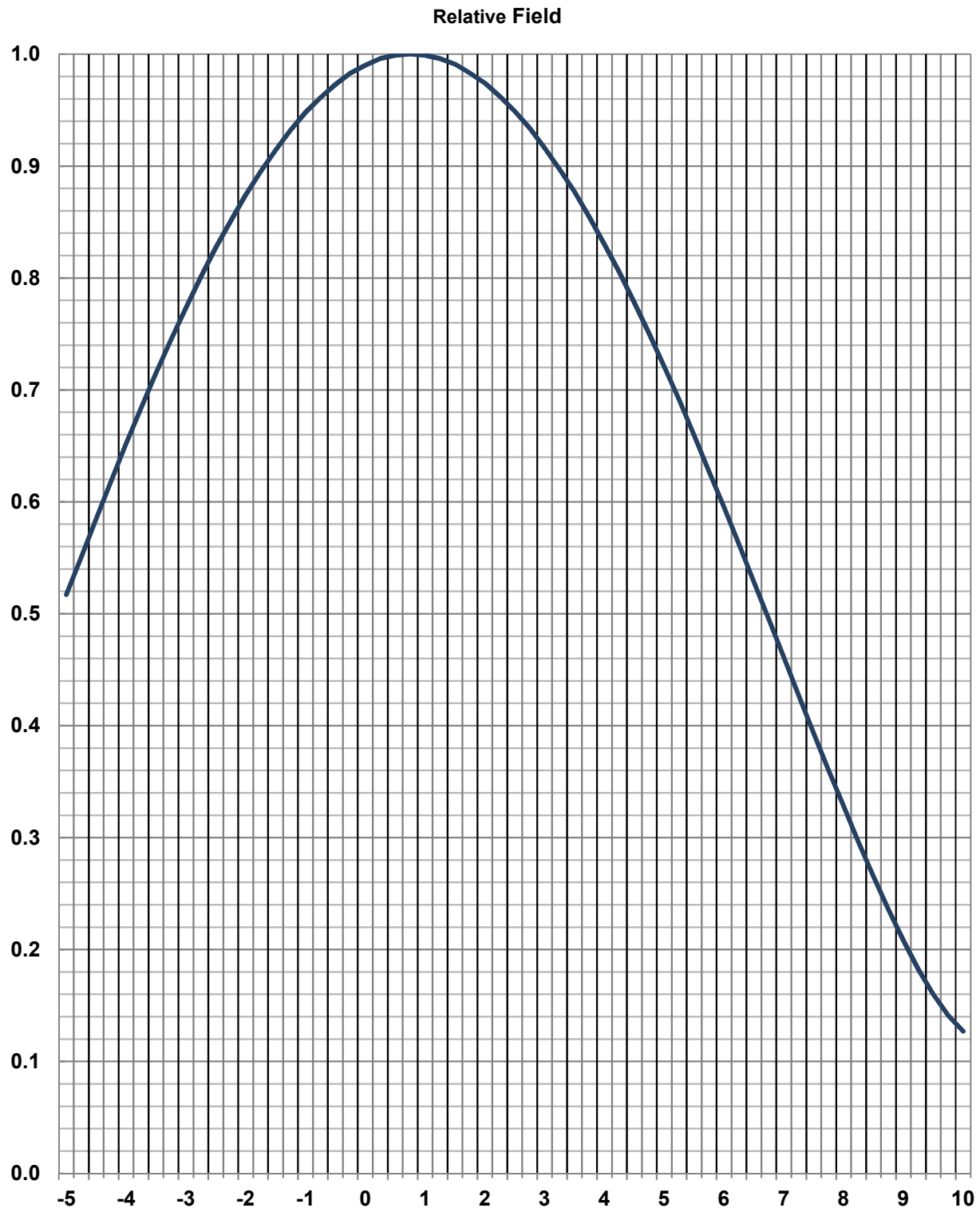
Tabulated Data for Azimuth Pattern

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:	ATW6H3H	Polarization:	Horizontal
Directivity:		Frequency:	15 (ATSC)
Main Lobe:	6.00 numeric (7.78 dB)	Location:	Lima, OH
Horizontal:	5.88 numeric (7.69 dB)	Beam Tilt:	0.75 degrees



Tabulated Data for Elevation PatternType: ATW6H3H

-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	0.517	-5.73	7.25	0.427	-7.39	29.00	0.111	-19.09	53.50	0.133	-17.52	78.00	0.124	-18.13
-4.75	0.551	-5.18	7.50	0.393	-8.11	29.50	0.095	-20.45	54.00	0.129	-17.79	78.50	0.120	-18.42
-4.50	0.585	-4.66	7.75	0.360	-8.87	30.00	0.079	-22.05	54.50	0.124	-18.13	79.00	0.116	-18.71
-4.25	0.619	-4.17	8.00	0.328	-9.68	30.50	0.062	-24.15	55.00	0.119	-18.49	79.50	0.112	-19.02
-4.00	0.652	-3.72	8.25	0.296	-10.57	31.00	0.047	-26.56	55.50	0.112	-19.02	80.00	0.108	-19.33
-3.75	0.684	-3.30	8.50	0.265	-11.54	31.50	0.036	-28.87	56.00	0.105	-19.58	80.50	0.104	-19.66
-3.50	0.715	-2.91	8.75	0.236	-12.54	32.00	0.034	-29.37	56.50	0.097	-20.26	81.00	0.099	-20.09
-3.25	0.745	-2.56	9.00	0.208	-13.64	32.50	0.042	-27.54	57.00	0.088	-21.11	81.50	0.094	-20.54
-3.00	0.773	-2.24	9.25	0.182	-14.80	33.00	0.055	-25.19	57.50	0.079	-22.05	82.00	0.089	-21.01
-2.75	0.801	-1.93	9.50	0.160	-15.92	33.50	0.069	-23.22	58.00	0.069	-23.22	82.50	0.084	-21.51
-2.50	0.827	-1.65	9.75	0.141	-17.02	34.00	0.083	-21.62	58.50	0.059	-24.58	83.00	0.079	-22.05
-2.25	0.851	-1.40	10.00	0.127	-17.92	34.50	0.096	-20.35	59.00	0.048	-26.38	83.50	0.073	-22.73
-2.00	0.874	-1.17	10.50	0.116	-18.71	35.00	0.107	-19.41	59.50	0.038	-28.40	84.00	0.068	-23.35
-1.75	0.895	-0.96	11.00	0.128	-17.86	35.50	0.117	-18.64	60.00	0.028	-31.06	84.50	0.062	-24.15
-1.50	0.914	-0.78	11.50	0.151	-16.42	36.00	0.125	-18.06	60.50	0.018	-34.89	85.00	0.057	-24.88
-1.25	0.932	-0.61	12.00	0.178	-14.99	36.50	0.132	-17.59	61.00	0.010	-40.00	85.50	0.051	-25.85
-1.00	0.948	-0.46	12.50	0.203	-13.85	37.00	0.136	-17.33	61.50	0.011	-39.17	86.00	0.045	-26.94
-0.75	0.961	-0.35	13.00	0.224	-13.00	37.50	0.138	-17.20	62.00	0.019	-34.42	86.50	0.039	-28.18
-0.50	0.973	-0.24	13.50	0.240	-12.40	38.00	0.137	-17.27	62.50	0.029	-30.75	87.00	0.033	-29.63
-0.25	0.983	-0.15	14.00	0.251	-12.01	38.50	0.135	-17.39	63.00	0.038	-28.40	87.50	0.027	-31.37
0.00	0.990	-0.09	14.50	0.257	-11.80	39.00	0.131	-17.65	63.50	0.048	-26.38	88.00	0.021	-33.56
0.25	0.996	-0.03	15.00	0.257	-11.80	39.50	0.126	-17.99	64.00	0.057	-24.88	88.50	0.015	-36.48
0.50	0.999	-0.01	15.50	0.252	-11.97	40.00	0.118	-18.56	64.50	0.066	-23.61	89.00	0.009	-40.92
0.75	1.000	0.00	16.00	0.242	-12.32	40.50	0.109	-19.25	65.00	0.075	-22.50	89.50	0.003	-50.46
1.00	0.999	-0.01	16.50	0.228	-12.84	41.00	0.099	-20.09	65.50	0.083	-21.62	90.00	0.000	---
1.25	0.996	-0.03	17.00	0.210	-13.56	41.50	0.088	-21.11	66.00	0.090	-20.92			
1.50	0.991	-0.08	17.50	0.189	-14.47	42.00	0.075	-22.50	66.50	0.097	-20.26			
1.75	0.983	-0.15	18.00	0.166	-15.60	42.50	0.063	-24.01	67.00	0.104	-19.66			
2.00	0.974	-0.23	18.50	0.141	-17.02	43.00	0.050	-26.02	67.50	0.110	-19.17			
2.25	0.962	-0.34	19.00	0.115	-18.79	43.50	0.038	-28.40	68.00	0.116	-18.71			
2.50	0.949	-0.45	19.50	0.090	-20.92	44.00	0.028	-31.06	68.50	0.121	-18.34			
2.75	0.934	-0.59	20.00	0.069	-23.22	44.50	0.024	-32.40	69.00	0.125	-18.06			
3.00	0.916	-0.76	20.50	0.054	-25.35	45.00	0.029	-30.75	69.50	0.129	-17.79			
3.25	0.897	-0.94	21.00	0.054	-25.35	45.50	0.039	-28.18	70.00	0.132	-17.59			
3.50	0.877	-1.14	21.50	0.065	-23.74	46.00	0.050	-26.02	70.50	0.135	-17.39			
3.75	0.854	-1.37	22.00	0.082	-21.72	46.50	0.062	-24.15	71.00	0.138	-17.20			
4.00	0.830	-1.62	22.50	0.100	-20.00	47.00	0.074	-22.62	71.50	0.139	-17.14			
4.25	0.805	-1.88	23.00	0.118	-18.56	47.50	0.085	-21.41	72.00	0.141	-17.02			
4.50	0.778	-2.18	23.50	0.133	-17.52	48.00	0.096	-20.35	72.50	0.142	-16.95			
4.75	0.750	-2.50	24.00	0.146	-16.71	48.50	0.105	-19.58	73.00	0.142	-16.95			
5.00	0.721	-2.84	24.50	0.155	-16.19	49.00	0.113	-18.94	73.50	0.142	-16.95			
5.25	0.691	-3.21	25.00	0.162	-15.81	49.50	0.121	-18.34	74.00	0.141	-17.02			
5.50	0.659	-3.62	25.50	0.165	-15.65	50.00	0.126	-17.99	74.50	0.140	-17.08			
5.75	0.627	-4.05	26.00	0.166	-15.60	50.50	0.131	-17.65	75.00	0.139	-17.14			
6.00	0.595	-4.51	26.50	0.163	-15.76	51.00	0.135	-17.39	75.50	0.137	-17.27			
6.25	0.562	-5.01	27.00	0.157	-16.08	51.50	0.137	-17.27	76.00	0.135	-17.39			
6.50	0.528	-5.55	27.50	0.149	-16.54	52.00	0.138	-17.20	76.50	0.133	-17.52			
6.75	0.495	-6.11	28.00	0.138	-17.20	52.50	0.137	-17.27	77.00	0.130	-17.72			
7.00	0.461	-6.73	28.50	0.126	-17.99	53.00	0.136	-17.33	77.50	0.127	-17.92			

Azimuth Pattern**Type:**

ATW-V1

Polarization:

Vertical

Directivity:

1.00 numeric

(0.00 dB)

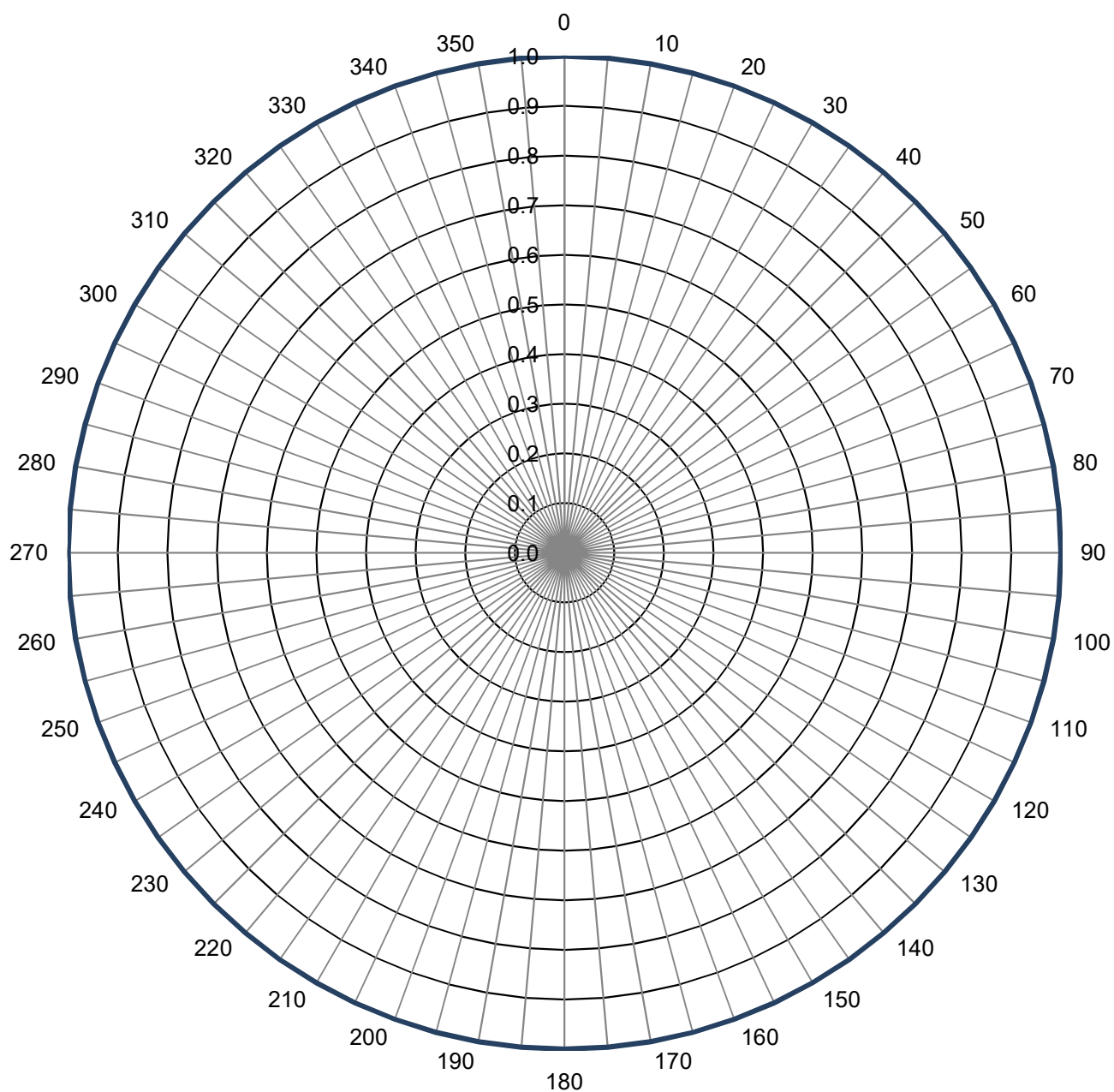
Frequency:

15 (ATSC)

Peak(s) at:**Location:**

Lima, OH

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

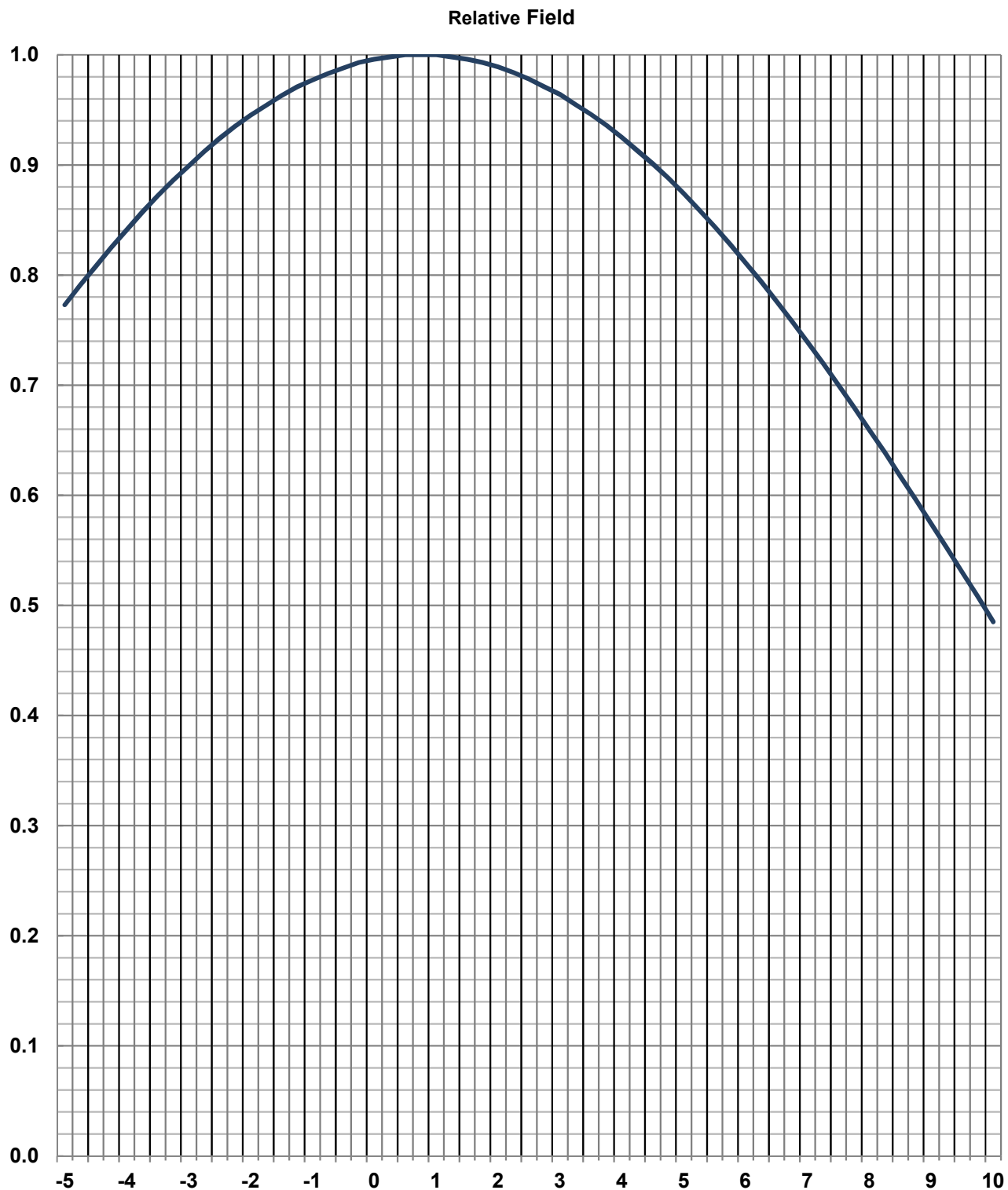
Angle	Field	dB
100	1.000	0.00
102	1.000	0.00
104	1.000	0.00
106	1.000	0.00
108	1.000	0.00
110	1.000	0.00
112	1.000	0.00
114	1.000	0.00
116	1.000	0.00
118	1.000	0.00
120	1.000	0.00
122	1.000	0.00
124	1.000	0.00
126	1.000	0.00
128	1.000	0.00
130	1.000	0.00
132	1.000	0.00
134	1.000	0.00
136	1.000	0.00
138	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:	ATW4H3V		Polarization:	Vertical
Directivity:			Frequency:	15 (ATSC)
Main Lobe:	4.00 numeric	(6.02 dB)	Location:	Lima, OH
Horizontal:	3.97 numeric	(5.99 dB)	Beam Tilt:	0.75 degrees



Tabulated Data for Elevation PatternType: ATW4H3V

-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	0.773	-2.24	7.25	0.720	-2.85	29.00	0.123	-18.20	53.50	0.019	-34.42	78.00	0.141	-17.02
-4.75	0.791	-2.04	7.50	0.700	-3.10	29.50	0.105	-19.58	54.00	0.031	-30.17	78.50	0.136	-17.33
-4.50	0.808	-1.85	7.75	0.680	-3.35	30.00	0.087	-21.21	54.50	0.042	-27.54	79.00	0.130	-17.72
-4.25	0.825	-1.67	8.00	0.659	-3.62	30.50	0.069	-23.22	55.00	0.053	-25.51	79.50	0.125	-18.06
-4.00	0.841	-1.50	8.25	0.639	-3.89	31.00	0.052	-25.68	55.50	0.064	-23.88	80.00	0.120	-18.42
-3.75	0.857	-1.34	8.50	0.617	-4.19	31.50	0.037	-28.64	56.00	0.075	-22.50	80.50	0.114	-18.86
-3.50	0.872	-1.19	8.75	0.596	-4.50	32.00	0.028	-31.06	56.50	0.085	-21.41	81.00	0.108	-19.33
-3.25	0.886	-1.05	9.00	0.574	-4.82	32.50	0.030	-30.46	57.00	0.095	-20.45	81.50	0.102	-19.83
-3.00	0.899	-0.92	9.25	0.552	-5.16	33.00	0.041	-27.74	57.50	0.105	-19.58	82.00	0.097	-20.26
-2.75	0.912	-0.80	9.50	0.530	-5.51	33.50	0.055	-25.19	58.00	0.114	-18.86	82.50	0.091	-20.82
-2.50	0.924	-0.69	9.75	0.508	-5.88	34.00	0.070	-23.10	58.50	0.123	-18.20	83.00	0.085	-21.41
-2.25	0.935	-0.58	10.00	0.485	-6.29	34.50	0.085	-21.41	59.00	0.131	-17.65	83.50	0.079	-22.05
-2.00	0.945	-0.49	10.50	0.440	-7.13	35.00	0.099	-20.09	59.50	0.139	-17.14	84.00	0.072	-22.85
-1.75	0.954	-0.41	11.00	0.395	-8.07	35.50	0.113	-18.94	60.00	0.146	-16.71	84.50	0.066	-23.61
-1.50	0.963	-0.33	11.50	0.351	-9.09	36.00	0.126	-17.99	60.50	0.153	-16.31	85.00	0.060	-24.44
-1.25	0.971	-0.26	12.00	0.307	-10.26	36.50	0.138	-17.20	61.00	0.160	-15.92	85.50	0.054	-25.35
-1.00	0.977	-0.20	12.50	0.264	-11.57	37.00	0.148	-16.59	61.50	0.166	-15.60	86.00	0.048	-26.38
-0.75	0.983	-0.15	13.00	0.223	-13.03	37.50	0.158	-16.03	62.00	0.171	-15.34	86.50	0.041	-27.74
-0.50	0.988	-0.10	13.50	0.184	-14.70	38.00	0.167	-15.55	62.50	0.176	-15.09	87.00	0.035	-29.12
-0.25	0.993	-0.06	14.00	0.148	-16.59	38.50	0.174	-15.19	63.00	0.181	-14.85	87.50	0.029	-30.75
0.00	0.996	-0.03	14.50	0.117	-18.64	39.00	0.180	-14.89	63.50	0.185	-14.66	88.00	0.022	-33.15
0.25	0.998	-0.02	15.00	0.094	-20.54	39.50	0.185	-14.66	64.00	0.189	-14.47	88.50	0.016	-35.92
0.50	1.000	0.00	15.50	0.083	-21.62	40.00	0.189	-14.47	64.50	0.192	-14.33	89.00	0.010	-40.00
0.75	1.000	0.00	16.00	0.086	-21.31	40.50	0.191	-14.38	65.00	0.194	-14.24	89.50	0.003	-50.46
1.00	1.000	0.00	16.50	0.101	-19.91	41.00	0.193	-14.29	65.50	0.197	-14.11	90.00	0.000	---
1.25	0.998	-0.02	17.00	0.120	-18.42	41.50	0.193	-14.29	66.00	0.198	-14.07			
1.50	0.996	-0.03	17.50	0.142	-16.95	42.00	0.192	-14.33	66.50	0.200	-13.98			
1.75	0.993	-0.06	18.00	0.163	-15.76	42.50	0.190	-14.42	67.00	0.201	-13.94			
2.00	0.989	-0.10	18.50	0.182	-14.80	43.00	0.188	-14.52	67.50	0.201	-13.94			
2.25	0.984	-0.14	19.00	0.200	-13.98	43.50	0.184	-14.70	68.00	0.201	-13.94			
2.50	0.978	-0.19	19.50	0.216	-13.31	44.00	0.179	-14.94	68.50	0.201	-13.94			
2.75	0.971	-0.26	20.00	0.230	-12.77	44.50	0.173	-15.24	69.00	0.200	-13.98			
3.00	0.964	-0.32	20.50	0.241	-12.36	45.00	0.166	-15.60	69.50	0.199	-14.02			
3.25	0.955	-0.40	21.00	0.250	-12.04	45.50	0.159	-15.97	70.00	0.198	-14.07			
3.50	0.946	-0.48	21.50	0.256	-11.84	46.00	0.151	-16.42	70.50	0.196	-14.15			
3.75	0.936	-0.57	22.00	0.260	-11.70	46.50	0.142	-16.95	71.00	0.194	-14.24			
4.00	0.925	-0.68	22.50	0.262	-11.63	47.00	0.132	-17.59	71.50	0.192	-14.33			
4.25	0.913	-0.79	23.00	0.261	-11.67	47.50	0.122	-18.27	72.00	0.189	-14.47			
4.50	0.901	-0.91	23.50	0.259	-11.73	48.00	0.112	-19.02	72.50	0.187	-14.56			
4.75	0.888	-1.03	24.00	0.254	-11.90	48.50	0.101	-19.91	73.00	0.184	-14.70			
5.00	0.874	-1.17	24.50	0.247	-12.15	49.00	0.090	-20.92	73.50	0.180	-14.89			
5.25	0.859	-1.32	25.00	0.239	-12.43	49.50	0.078	-22.16	74.00	0.177	-15.04			
5.50	0.844	-1.47	25.50	0.229	-12.80	50.00	0.067	-23.48	74.50	0.173	-15.24			
5.75	0.828	-1.64	26.00	0.217	-13.27	50.50	0.055	-25.19	75.00	0.169	-15.44			
6.00	0.811	-1.82	26.50	0.204	-13.81	51.00	0.043	-27.33	75.50	0.165	-15.65			
6.25	0.794	-2.00	27.00	0.189	-14.47	51.50	0.031	-30.17	76.00	0.160	-15.92			
6.50	0.776	-2.20	27.50	0.174	-15.19	52.00	0.019	-34.42	76.50	0.156	-16.14			
6.75	0.758	-2.41	28.00	0.157	-16.08	52.50	0.008	-41.94	77.00	0.151	-16.42			
7.00	0.739	-2.63	28.50	0.140	-17.08	53.00	0.009	-40.92	77.50	0.146	-16.71			

EXHIBIT E-3

ALLOCATION STUDY

tvstudy v2.2.5 (4uoc83)
 Database: localhost, Study: WLIO-600ftPillFinal, Model: Longley-Rice
 Start: 2018.08.23 17:21:08

Study created: 2018.08.23 17:21:07

Study build station data: LMS TV 2018-08-21

Proposal: WLIO D8 DT APP LIMA, OH
 File number: 600ftPillFinal
 Facility ID: 37503
 Station data: User record
 Record ID: 80
 Country: U.S.
 Zone: I

Search options:
 Non-U.S. records included
 Baseline record excluded if station has CP

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	WHMB-TV	D7	DT	CP	INDIANAPOLIS, IN	BLANK0000029690	202.0 km
No	WJBK	D7	DT	LIC	DETROIT, MI	BLCDT20090813ABG	201.9
No	WOOD-TV	D7	DT	LIC	GRAND RAPIDS, MI	BLCDT20040625ABO	241.7
No	WIIH-CD	D8	DC	LIC	INDIANAPOLIS, IN	BLDVL20090902ACB	202.2
Yes	WBNA	D8	DT	APP	LOUISVILLE, KY	BLANK0000035747	335.6
Yes	WBNA	D8	DT	LIC	LOUISVILLE, KY	BLCDT20021024AAB	335.6
Yes	WWMT	D8	DT	APP	KALAMAZOO, MI	BLANK0000035795	237.5
Yes	WWMT	D8	DT	LIC	KALAMAZOO, MI	BLCDT20090616AAV	237.5
Yes	WJW	D8	DT	LIC	CLEVELAND, OH	BLCDT20090612AJC	211.8
Yes	WGCT-CD	D8	DC	CP	COLUMBUS, OH	BLANK0000035677	151.1
No	WGCT-CD	D8	DC	LIC	COLUMBUS, OH	BLDVA20131021AAM	127.5
No	WWCP-TV	D8	DT	LIC	JOHNSTOWN, PA	BLANK0000001637	425.2
No	WMVS	D8	DT	APP	MILWAUKEE, WI	BLANK0000035791	405.4
No	WMVS	D8	DT	LIC	MILWAUKEE, WI	BLANK0000040294	405.4
No	WSWP-TV	D8	DT	CP	GRANDVIEW, WV	BLANK0000034625	418.1
No	WISH-TV	D9	DT	LIC	INDIANAPOLIS, IN	BLANK0000055426	202.2
No	CBET-DT	D9	DT	LIC	WINDSOR, ON	BLANKCANADA242	181.4

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D8
Latitude: 40 46 31.60 N (NAD83)
Longitude: 84 7 14.20 W
Height AMSL: 426.3 m
HAAT: 0.0 m
Peak ERP: 40.0 kW
Antenna: ERI3 0.0 deg
Elev Pattn: Generic
Elec Tilt: 0.75

36.0 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	32.8 kW	188.3 m	94.0 km
45.0	37.8	173.7	93.6
90.0	22.0	153.0	88.1
135.0	19.1	146.6	86.4
180.0	32.8	156.3	91.1
225.0	37.8	167.8	93.1
270.0	22.0	181.8	90.5
315.0	19.1	189.4	90.2

Database HAAT does not agree with computed HAAT

Database HAAT: 0 m Computed HAAT: 170 m

ERP exceeds maximum

ERP: 40.0 kW ERP maximum: 30.0 kW

**Proposal is within coordination distance of Canadian border

Distance to Canadian border: 149.4 km

Distance to Mexican border: 1980.3 km

Conditions at FCC monitoring station: Allegan MI

Bearing: 323.8 degrees Distance: 254.1 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
 Bearing: 274.7 degrees Distance: 1781.7 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%

 Interference to BLANK0000035747 APP scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WBNA	D8	DT	APP	LOUISVILLE, KY	BLANK0000035747	
Undesireds:	WLIO	D8	DT	BL	LIMA, OH	DTVBL37503	332.4 km
	WLIO	D8	DT	APP	LIMA, OH	600ftPillFinal	335.6
	WSIU-TV	D8	DT	LIC	CARBONDALE, IL	BLEDT20090612ADB	305.5
	WIIH-CD	D8	DC	LIC	INDIANAPOLIS, IN	BLDVL20090902ACB	210.1
	WGCT-CD	D8	DC	CP	COLUMBUS, OH	BLANK0000035677	326.6
	WDEF-TV	D8	DT	CP	CHATTANOOGA, TN	BLANK0000026651	324.4
	WNIN	D9	DT	APP	EVANSVILLE, IN	BLANK0000035682	132.8
	Service area	Terrain-limited		IX-free, before		IX-free, after	
	30400.9	1,848,185	28121.0	1,797,082	27372.1	1,782,232	27348.0 1,781,743
							Percent New IX
							0.09 0.03
Undesired				Total IX	Unique IX, before	Unique IX, after	
WLIO D8 DT BL		28.0		265	28.0	265	
WLIO D8 DT APP		60.1		762			52.1 754
WSIU-TV D8 DT LIC		538.0		11,693	343.5	9,195	339.5 9,195
WIIH-CD D8 DC LIC		16.0		127	12.0	119	12.0 119
WDEF-TV D8 DT CP		87.8		1,181	83.9	1,181	83.9 1,181
WNIN D9 DT APP		273.5		4,082	87.0	1,592	87.0 1,592

 Interference to BLANK0000035747 APP scenario 2

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WBNA	D8	DT	APP	LOUISVILLE, KY	BLANK0000035747	

Undesireds:	WLIO	D8	DT	BL	LIMA, OH	DTVBL37503	332.4 km
	WLIO	D8	DT	APP	LIMA, OH	600ftPillFinal	335.6
	WSIU-TV	D8	DT	LIC	CARBONDALE, IL	BLEDT20090612ADB	305.5
	WIIH-CD	D8	DC	LIC	INDIANAPOLIS, IN	BLDVL20090902ACB	210.1
	WGCT-CD	D8	DC	CP	COLUMBUS, OH	BLANK0000035677	326.6
	WDEF-TV	D8	DT	CP	CHATTANOOGA, TN	BLANK0000026651	324.4
	WNIN	D9	DT	LIC	EVANSVILLE, IN	BLEDT20090612AGN	132.8

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
30400.9 1,848,185	28121.0 1,797,082	27399.7 1,782,790	27375.7 1,782,301	0.09 0.03

Undesired	Total IX	Unique IX, before	Unique IX, after
WLIO D8 DT BL	28.0 265	28.0 265	
WLIO D8 DT APP	60.1 762		52.1 754
WSIU-TV D8 DT LIC	538.0 11,693	363.3 9,392	359.3 9,392
WIIH-CD D8 DC LIC	16.0 127	12.0 119	12.0 119
WDEF-TV D8 DT CP	87.8 1,181	83.9 1,181	83.9 1,181
WNIN D9 DT LIC	226.1 3,327	59.4 1,034	59.4 1,034

Interference to BLANK0000035747 APP scenario 3

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WBNA	D8	DT	APP	LOUISVILLE, KY	BLANK0000035747	
Undesireds:	WLIO	D8	DT	BL	LIMA, OH	DTVBL37503	332.4 km
	WLIO	D8	DT	APP	LIMA, OH	600ftPillFinal	335.6
	WSIU-TV	D8	DT	APP	CARBONDALE, IL	BLANK0000035684	305.5
	WIIH-CD	D8	DC	LIC	INDIANAPOLIS, IN	BLDVL20090902ACB	210.1
	WGCT-CD	D8	DC	CP	COLUMBUS, OH	BLANK0000035677	326.6
	WDEF-TV	D8	DT	CP	CHATTANOOGA, TN	BLANK0000026651	324.4
	WNIN	D9	DT	APP	EVANSVILLE, IN	BLANK0000035682	132.8

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
30400.9 1,848,185	28121.0 1,797,082	27292.0 1,781,173	27271.9 1,780,685	0.07 0.03

Undesired	Total IX	Unique IX, before	Unique IX, after
WLIO D8 DT BL	28.0 265	28.0 265	
WLIO D8 DT APP	60.1 762		48.1 753
WSIU-TV D8 DT APP	629.9 12,940	423.6 10,254	415.6 10,253
WIIH-CD D8 DC LIC	16.0 127	12.0 119	12.0 119
WDEF-TV D8 DT CP	87.8 1,181	83.9 1,181	83.9 1,181

WNIN D9 DT APP	273.5	4,082	75.2	1,404	75.2	1,404
----------------	-------	-------	------	-------	------	-------

Interference to BLANK0000035747 APP scenario 4

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WBNA	D8	DT	APP	LOUISVILLE, KY	BLANK0000035747	
Undesireds:	WLIO	D8	DT	BL	LIMA, OH	DTVBL37503	332.4 km
	WLIO	D8	DT	APP	LIMA, OH	600ftPilllFinal	335.6
	WSIU-TV	D8	DT	APP	CARBONDALE, IL	BLANK0000035684	305.5
	WIIH-CD	D8	DC	LIC	INDIANAPOLIS, IN	BLDVL20090902ACB	210.1
	WGCT-CD	D8	DC	CP	COLUMBUS, OH	BLANK0000035677	326.6
	WDEF-TV	D8	DT	CP	CHATTANOOGA, TN	BLANK0000026651	324.4
	WNIN	D9	DT	LIC	EVANSVILLE, IN	BLEDT20090612AGN	132.8
	Service area	Terrain-limited		IX-free, before		IX-free, after	
	30400.9	1,848,185	28121.0	1,797,082	27315.7	1,781,572	27295.6 1,781,084
							Percent New IX 0.07 0.03

Undesired	Total IX	Unique IX, before	Unique IX, after
WLIO D8 DT BL	28.0	265	28.0 265
WLIO D8 DT APP	60.1	762	48.1 753
WSIU-TV D8 DT APP	629.9	12,940	447.3 10,610
WIIH-CD D8 DC LIC	16.0	127	12.0 119
WDEF-TV D8 DT CP	87.8	1,181	83.9 1,181
WNIN D9 DT LIC	226.1	3,327	51.5 1,005

Interference to BLCDT20021024AAB LIC scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WBNA	D8	DT	LIC	LOUISVILLE, KY	BLCDT20021024AAB	
Undesireds:	WLIO	D8	DT	BL	LIMA, OH	DTVBL37503	332.4 km
	WLIO	D8	DT	APP	LIMA, OH	600ftPilllFinal	335.6
	WSIU-TV	D8	DT	LIC	CARBONDALE, IL	BLEDT20090612ADB	305.5
	WIIH-CD	D8	DC	LIC	INDIANAPOLIS, IN	BLDVL20090902ACB	210.1
	WGCT-CD	D8	DC	CP	COLUMBUS, OH	BLANK0000035677	326.6
	WDEF-TV	D8	DT	CP	CHATTANOOGA, TN	BLANK0000026651	324.4
	WNIN	D9	DT	APP	EVANSVILLE, IN	BLANK0000035682	132.8
	Service area	Terrain-limited		IX-free, before		IX-free, after	
							Percent New IX

24877.7	1,699,683	22844.9	1,666,248	22374.7	1,657,764	22334.5	1,657,048	0.18	0.04
---------	-----------	---------	-----------	---------	-----------	---------	-----------	------	------

Undesired		Total IX	Unique IX, before	Unique IX, after
WLIO D8 DT BL	48.2	704	40.1	606
WLIO D8 DT APP	92.4	1,963		80.3
WSIU-TV D8 DT LIC	326.7	4,726	239.4	3,365
WIIH-CD D8 DC LIC	4.0	39	0.0	0
WDEF-TV D8 DT CP	71.8	2,408	59.9	2,325
WNIN D9 DT APP	106.8	1,968	43.5	827

Interference to BLCDDT20021024AAB LIC scenario 2

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WBNA	D8	DT	LIC	LOUISVILLE, KY	BLCDDT20021024AAB	
Undesireds:	WLIO	D8	DT	BL	LIMA, OH	DTVBL37503	332.4 km
	WLIO	D8	DT	APP	LIMA, OH	600ftPillFinal	335.6
	WSIU-TV	D8	DT	LIC	CARBONDALE, IL	BLEDT20090612ADB	305.5
	WIIH-CD	D8	DC	LIC	INDIANAPOLIS, IN	BLDVL20090902ACB	210.1
	WGCT-CD	D8	DC	CP	COLUMBUS, OH	BLANK0000035677	326.6
	WDEF-TV	D8	DT	CP	CHATTANOOGA, TN	BLANK0000026651	324.4
	WNIN	D9	DT	LIC	EVANSVILLE, IN	BLEDT20090612AGN	132.8

	Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX
24877.7	1,699,683	22844.9	1,666,248	22378.7	1,657,808	22338.5	1,657,092	0.18	0.04

Undesired		Total IX	Unique IX, before	Unique IX, after
WLIO D8 DT BL	48.2	704	40.1	606
WLIO D8 DT APP	92.4	1,963		80.3
WSIU-TV D8 DT LIC	326.7	4,726	243.3	3,488
WIIH-CD D8 DC LIC	4.0	39	0.0	0
WDEF-TV D8 DT CP	71.8	2,408	59.9	2,325
WNIN D9 DT LIC	98.9	1,801	39.6	783

Interference to BLCDDT20021024AAB LIC scenario 3

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WBNA	D8	DT	LIC	LOUISVILLE, KY	BLCDDT20021024AAB	
Undesireds:	WLIO	D8	DT	BL	LIMA, OH	DTVBL37503	332.4 km

WLIO	D8	DT	APP	LIMA, OH	600ftPillFinal	335.6
WSIU-TV	D8	DT	APP	CARBONDALE, IL	BLANK0000035684	305.5
WIIH-CD	D8	DC	LIC	INDIANAPOLIS, IN	BLDVL20090902ACB	210.1
WGCT-CD	D8	DC	CP	COLUMBUS, OH	BLANK0000035677	326.6
WDEF-TV	D8	DT	CP	CHATTANOOGA, TN	BLANK0000026651	324.4
WNIN	D9	DT	APP	EVANSVILLE, IN	BLANK0000035682	132.8

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
24877.7 1,699,683	22844.9 1,666,248	22306.9 1,657,148	22266.7 1,656,432	0.18 0.04

Undesired	Total IX	Unique IX, before	Unique IX, after
WLIO D8 DT BL 48.2	704	40.1 606	
WLIO D8 DT APP 92.4	1,963		80.3 1,322
WSIU-TV D8 DT APP 398.5	5,411	307.2 3,981	303.2 3,438
WIIH-CD D8 DC LIC 4.0	39	0.0 0	0.0 0
WDEF-TV D8 DT CP 71.8	2,408	59.9 2,325	59.9 2,325
WNIN D9 DT APP 106.8	1,968	39.6 758	39.6 758

Interference to BLCDT20021024AAB LIC scenario 4

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WBNA	D8	DT	LIC	LOUISVILLE, KY	BLCDT20021024AAB	
Undesireds:	WLIO	D8	DT	BL	LIMA, OH	DTVBL37503	332.4 km
	WLIO	D8	DT	APP	LIMA, OH	600ftPillFinal	335.6
	WSIU-TV	D8	DT	APP	CARBONDALE, IL	BLANK0000035684	305.5
	WIIH-CD	D8	DC	LIC	INDIANAPOLIS, IN	BLDVL20090902ACB	210.1
	WGCT-CD	D8	DC	CP	COLUMBUS, OH	BLANK0000035677	326.6
	WDEF-TV	D8	DT	CP	CHATTANOOGA, TN	BLANK0000026651	324.4
	WNIN	D9	DT	LIC	EVANSVILLE, IN	BLEDT20090612AGN	132.8

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
24877.7 1,699,683	22844.9 1,666,248	22310.8 1,657,192	22270.6 1,656,476	0.18 0.04

Undesired	Total IX	Unique IX, before	Unique IX, after
WLIO D8 DT BL 48.2	704	40.1 606	
WLIO D8 DT APP 92.4	1,963		80.3 1,322
WSIU-TV D8 DT APP 398.5	5,411	311.2 4,104	307.1 3,561
WIIH-CD D8 DC LIC 4.0	39	0.0 0	0.0 0
WDEF-TV D8 DT CP 71.8	2,408	59.9 2,325	59.9 2,325
WNIN D9 DT LIC 98.9	1,801	35.6 714	35.6 714

Interference to BLANK0000035795 APP scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WWMT	D8	DT	APP	KALAMAZOO, MI	BLANK0000035795	
Undesireds:	WLIO	D8	DT	BL	LIMA, OH	DTVBL37503	239.8 km
	WLIO	D8	DT	APP	LIMA, OH	600ftPillFinal	237.5
	WGTQ	D8	DT	APP	SAULT STE. MARIE, MI	BLANK0000035691	396.7
	WGCT-CD	D8	DC	CP	COLUMBUS, OH	BLANK0000035677	383.5
	WMVS	D8	DT	APP	MILWAUKEE, WI	BLANK0000035791	199.6
	WWTV	D9	DT	LIC	CADILLAC, MI	BLCDT20091217ACZ	168.0
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
31840.9	2,538,485	31688.9	2,531,309	29997.0	2,491,708	29981.0 2,493,334	0.05 -0.07
Undesired			Total IX	Unique IX, before		Unique IX, after	
WLIO D8 DT BL			433.6	24,515	369.4	23,002	
WLIO D8 DT APP			445.6	23,061			385.4 21,376
WMVS D8 DT APP			1310.7	16,474	1242.5	14,910	1246.5 14,738
WWTV D9 DT LIC			15.8	176	11.9	125	11.9 125

Interference to BLANK0000035795 APP scenario 2

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WWMT	D8	DT	APP	KALAMAZOO, MI	BLANK0000035795	
Undesireds:	WLIO	D8	DT	BL	LIMA, OH	DTVBL37503	239.8 km
	WLIO	D8	DT	APP	LIMA, OH	600ftPillFinal	237.5
	WGTQ	D8	DT	APP	SAULT STE. MARIE, MI	BLANK0000035691	396.7
	WGCT-CD	D8	DC	CP	COLUMBUS, OH	BLANK0000035677	383.5
	WMVS	D8	DT	LIC	MILWAUKEE, WI	BLANK0000040294	199.6
	WWTV	D9	DT	LIC	CADILLAC, MI	BLCDT20091217ACZ	168.0
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
31840.9	2,538,485	31688.9	2,531,309	30348.6	2,502,367	30336.6 2,504,037	0.04 -0.07
Undesired			Total IX	Unique IX, before		Unique IX, after	
WLIO D8 DT BL			433.6	24,515	409.5	24,095	
WLIO D8 DT APP			445.6	23,061			421.5 22,425

WMVS D8 DT LIC	915.0	4,671	891.0	4,251	891.0	4,035
WWTW D9 DT LIC	15.8	176	15.8	176	15.8	176

Interference to BLANK0000035795 APP scenario 3

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WWMT	D8	DT	APP	KALAMAZOO, MI	BLANK0000035795	
Undesireds:	WLIO	D8	DT	BL	LIMA, OH	DTVBL37503	239.8 km
	WLIO	D8	DT	APP	LIMA, OH	600ftPillFinal	237.5
	WGTQ	D8	DT	APP	SAULT STE. MARIE, MI	BLANK0000035691	396.7
	WGCT-CD	D8	DC	CP	COLUMBUS, OH	BLANK0000035677	383.5
	WMVS	D8	DT	APP	MILWAUKEE, WI	BLANK0000035791	199.6
	WWTW	D9	DT	APP	CADILLAC, MI	BLANK0000035807	168.0
	Service area	Terrain-limited		IX-free, before		IX-free, after	
	31840.9	2,538,485	31688.9	2,531,309	29993.1	2,491,708	29977.0 2,493,334
							0.05 -0.07
Undesired				Total IX	Unique IX, before	Unique IX, after	
WLIO D8 DT BL		433.6		24,515	369.4	23,002	
WLIO D8 DT APP		445.6		23,061		385.4	21,376
WMVS D8 DT APP		1310.7		16,474	1242.5	14,910	1246.5 14,738
WWTW D9 DT APP		19.8		176	15.8	125	15.8 125

Interference to BLANK0000035795 APP scenario 4

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WWMT	D8	DT	APP	KALAMAZOO, MI	BLANK0000035795	
Undesireds:	WLIO	D8	DT	BL	LIMA, OH	DTVBL37503	239.8 km
	WLIO	D8	DT	APP	LIMA, OH	600ftPillFinal	237.5
	WGTQ	D8	DT	APP	SAULT STE. MARIE, MI	BLANK0000035691	396.7
	WGCT-CD	D8	DC	CP	COLUMBUS, OH	BLANK0000035677	383.5
	WMVS	D8	DT	LIC	MILWAUKEE, WI	BLANK0000040294	199.6
	WWTW	D9	DT	APP	CADILLAC, MI	BLANK0000035807	168.0
	Service area	Terrain-limited		IX-free, before		IX-free, after	
	31840.9	2,538,485	31688.9	2,531,309	30344.6	2,502,367	30332.6 2,504,037
							0.04 -0.07
Undesired				Total IX	Unique IX, before	Unique IX, after	

WLIO D8 DT BL	433.6	24,515	409.5	24,095		
WLIO D8 DT APP	445.6	23,061			421.5	22,425
WMVS D8 DT LIC	915.0	4,671	891.0	4,251	891.0	4,035
WWTW D9 DT APP	19.8	176	19.8	176	19.8	176

Interference to BLCDT20090616AAV LIC scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WWMT	D8	DT	LIC	KALAMAZOO, MI	BLCDT20090616AAV	
Undesireds:	WLIO	D8	DT	BL	LIMA, OH	DTVBL37503	239.8 km
	WLIO	D8	DT	APP	LIMA, OH	600ftPillFinal	237.5
	WGTQ	D8	DT	APP	SAULT STE. MARIE, MI	BLANK0000035691	396.7
	WJW	D8	DT	LIC	CLEVELAND, OH	BLCDT20090612AJC	345.7
	WGCT-CD	D8	DC	CP	COLUMBUS, OH	BLANK0000035677	383.5
	WMVS	D8	DT	APP	MILWAUKEE, WI	BLANK0000035791	199.6
	WWTW	D9	DT	LIC	CADILLAC, MI	BLCDT20091217ACZ	168.0

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
29880.4	2,460,942	29660.4	2,455,432	27367.5
		2,386,368	27347.8	2,381,788
				0.07
				0.19

Undesired	Total IX	Unique IX, before	Unique IX, after
WLIO D8 DT BL	694.1	32,518	541.7
WLIO D8 DT APP	705.8	36,999	561.5
WJW D8 DT LIC	4.0	131	0.0
WMVS D8 DT APP	1731.4	39,497	1579.0
WWTW D9 DT LIC	19.8	461	15.8

Interference to BLCDT20090616AAV LIC scenario 2

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WWMT	D8	DT	LIC	KALAMAZOO, MI	BLCDT20090616AAV	
Undesireds:	WLIO	D8	DT	BL	LIMA, OH	DTVBL37503	239.8 km
	WLIO	D8	DT	APP	LIMA, OH	600ftPillFinal	237.5
	WGTQ	D8	DT	APP	SAULT STE. MARIE, MI	BLANK0000035691	396.7
	WJW	D8	DT	LIC	CLEVELAND, OH	BLCDT20090612AJC	345.7
	WGCT-CD	D8	DC	CP	COLUMBUS, OH	BLANK0000035677	383.5
	WMVS	D8	DT	LIC	MILWAUKEE, WI	BLANK0000040294	199.6
	WWTW	D9	DT	LIC	CADILLAC, MI	BLCDT20091217ACZ	168.0

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
29880.4 2,460,942	29660.4 2,455,432	27962.9 2,402,945	27943.2 2,398,365	0.07 0.19
Undesired	Total IX	Unique IX, before	Unique IX, after	
WLIO D8 DT BL	694.1 32,518	609.9 30,750		
WLIO D8 DT APP	705.8 36,999		629.7 35,330	
WJW D8 DT LIC	4.0 131	0.0 0	0.0 0	
WMVS D8 DT LIC	1067.8 21,402	983.6 19,508	991.6 19,607	
WWTW D9 DT LIC	19.8 461	15.8 204	15.8 204	

Interference to BLCDT20090616AAV LIC scenario 3

Call	Chan	Svc	Status	City, State	File Number	Distance
Desired: WWMT	D8	DT	LIC	KALAMAZOO, MI	BLCDT20090616AAV	
Undesireds: WLIO	D8	DT	BL	LIMA, OH	DTVBL37503	239.8 km
WLIO	D8	DT	APP	LIMA, OH	600ftPillFinal	237.5
WGTQ	D8	DT	APP	SAULT STE. MARIE, MI	BLANK0000035691	396.7
WJW	D8	DT	LIC	CLEVELAND, OH	BLCDT20090612AJC	345.7
WGCT-CD	D8	DC	CP	COLUMBUS, OH	BLANK0000035677	383.5
WMVS	D8	DT	APP	MILWAUKEE, WI	BLANK0000035791	199.6
WWTW	D9	DT	APP	CADILLAC, MI	BLANK0000035807	168.0

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
29880.4 2,460,942	29660.4 2,455,432	27355.6 2,386,093	27335.9 2,381,513	0.07 0.19
Undesired	Total IX	Unique IX, before	Unique IX, after	
WLIO D8 DT BL	694.1 32,518	541.7 29,232		
WLIO D8 DT APP	705.8 36,999		561.5 33,812	
WJW D8 DT LIC	4.0 131	0.0 0	0.0 0	
WMVS D8 DT APP	1731.4 39,497	1579.0 36,085	1587.0 36,184	
WWTW D9 DT APP	31.7 736	27.7 479	27.7 479	

Interference to BLCDT20090616AAV LIC scenario 4

Call	Chan	Svc	Status	City, State	File Number	Distance
Desired: WWMT	D8	DT	LIC	KALAMAZOO, MI	BLCDT20090616AAV	
Undesireds: WLIO	D8	DT	BL	LIMA, OH	DTVBL37503	239.8 km

WLIO	D8	DT	APP	LIMA, OH	600ftPillFinal	237.5
WGTQ	D8	DT	APP	SAULT STE. MARIE, MI	BLANK0000035691	396.7
WJW	D8	DT	LIC	CLEVELAND, OH	BLCDT20090612AJC	345.7
WGCT-CD	D8	DC	CP	COLUMBUS, OH	BLANK0000035677	383.5
WMVS	D8	DT	LIC	MILWAUKEE, WI	BLANK0000040294	199.6
WWTV	D9	DT	APP	CADILLAC, MI	BLANK0000035807	168.0

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
29880.4 2,460,942	29660.4 2,455,432	27951.0 2,402,670	27931.3 2,398,090	0.07 0.19

Undesired	Total IX	Unique IX, before	Unique IX, after
WLIO D8 DT BL	694.1 32,518	609.9 30,750	
WLIO D8 DT APP	705.8 36,999		629.7 35,330
WJW D8 DT LIC	4.0 131	0.0 0	0.0 0
WMVS D8 DT LIC	1067.8 21,402	983.6 19,508	991.6 19,607
WWTV D9 DT APP	31.7 736	27.7 479	27.7 479

Interference to BLCDT20090612AJC LIC scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WJW	D8	DT	LIC	CLEVELAND, OH	BLCDT20090612AJC	
Undesireds:	WLIO	D8	DT	BL	LIMA, OH	DTVBL37503	213.7 km
	WLIO	D8	DT	APP	LIMA, OH	600ftPillFinal	211.8
	WWMT	D8	DT	APP	KALAMAZOO, MI	BLANK0000035795	345.7
	WGCT-CD	D8	DC	CP	COLUMBUS, OH	BLANK0000035677	190.1
	WWCP-TV	D8	DT	LIC	JOHNSTOWN, PA	BLANK0000001637	252.7
	WTOV-TV	D9	DT	LIC	STEUBENVILLE, OH	BLCDT20111206ACB	146.1
	CFTO-DT	D8	DT	LIC	TORONTO, ON	BLANKCANADA232	317.1

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
25033.1 3,977,148	24247.4 3,905,325	23602.9 3,858,037	23470.2 3,843,971	0.56 0.36
3827.1 171	3827.1 171	3827.1 171	3827.1 171	0.00 0.00

(in Canada)

Undesired	Total IX	Unique IX, before	Unique IX, after
WLIO D8 DT BL	428.0 23,437	351.8 14,986	
WLIO D8 DT APP	572.9 37,692		484.5 29,052
WGCT-CD D8 DC CP	12.0 542	4.0 83	4.0 83
WWCP-TV D8 DT LIC	240.5 20,515	172.3 13,111	160.1 12,959
WTOV-TV D9 DT LIC	4.0 344	4.0 344	4.0 344

CFTO-DT D8 DT LIC	64.3	11,963	24.1	10,108	20.1	9,872
-------------------	------	--------	------	--------	------	-------

Interference to BLCDT20090612AJC LIC scenario 2

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WJW	D8	DT	LIC	CLEVELAND, OH	BLCDT20090612AJC	
Undesireds:	WLIO	D8	DT	BL	LIMA, OH	DTVBL37503	213.7 km
	WLIO	D8	DT	APP	LIMA, OH	600ftPillFinal	211.8
	WWMT	D8	DT	APP	KALAMAZOO, MI	BLANK0000035795	345.7
	WWCP-TV	D8	DT	LIC	JOHNSTOWN, PA	BLANK0000001637	252.7
	WTOV-TV	D9	DT	LIC	STEUBENVILLE, OH	BLCDT20111206ACB	146.1
	CFTO-DT	D8	DT	LIC	TORONTO, ON	BLANKCANADA232	317.1

	Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX	
	25033.1	3,977,148	24247.4	3,905,325	23606.9	3,858,120	23474.2	3,844,054	0.56 0.36
	3827.1	171	3827.1	171	3827.1	171	3827.1	171	0.00 0.00

(in Canada)

Undesired		Total IX	Unique IX, before	Unique IX, after
WLIO D8 DT BL	428.0	23,437	359.8	15,445
WLIO D8 DT APP	572.9	37,692		492.5 29,511
WWCP-TV D8 DT LIC	240.5	20,515	172.3	13,111 160.1 12,959
WTOV-TV D9 DT LIC	4.0	344	4.0	344 4.0 344
CFTO-DT D8 DT LIC	64.3	11,963	24.1	10,108 20.1 9,872

Interference to BLANK0000035677 CP scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WGCT-CD	D8	DC	CP	COLUMBUS, OH	BLANK0000035677	
Undesireds:	WLIO	D8	DT	BL	LIMA, OH	DTVBL37503	149.7 km
	WLIO	D8	DT	APP	LIMA, OH	600ftPillFinal	151.1
	WBNA	D8	DT	APP	LOUISVILLE, KY	BLANK0000035747	326.6

	Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX	
	3631.7	1,397,384	3619.8	1,396,646	3611.8	1,396,421	3619.8	1,396,646	-0.22 -0.02

Undesired		Total IX	Unique IX, before	Unique IX, after
WLIO D8 DT BL	8.0	225	8.0	225

WLIO D8 DT APP 0.0 0 0.0 0

Interference to proposal scenario 1
**MX: 10.14% interference received

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WLIO	D8	DT	APP	LIMA, OH	600ftPillFinal	
Undesireds:	WIIH-CD	D8	DC	LIC	INDIANAPOLIS, IN	BLDVL20090902ACB	202.2 km
	WBNA	D8	DT	APP	LOUISVILLE, KY	BLANK0000035747	335.6
	WWMT	D8	DT	APP	KALAMAZOO, MI	BLANK0000035795	237.5
	WJW	D8	DT	LIC	CLEVELAND, OH	BLCDT20090612AJC	211.8
	WGCT-CD	D8	DC	CP	COLUMBUS, OH	BLANK0000035677	151.1

Service area	Terrain-limited	IX-free	Percent IX
25940.5 1,194,707	25445.4 1,177,549	23521.6 1,058,090	7.56 10.14

Undesired	Total IX	Unique IX	Prcnt Unique IX
WIIH-CD D8 DC LIC 4.0 68 0.0		0	0.00 0.00
WBNA D8 DT APP 205.6 15,290 129.0		13,081	0.51 1.11
WWMT D8 DT APP 442.6 35,543 273.3		25,458	1.07 2.16
WJW D8 DT LIC 1087.4 71,466 605.2		39,858	2.38 3.38
WGCT-CD D8 DC CP 747.0 31,204 369.6		7,188	1.45 0.61

Interference to proposal scenario 2
**MX: 10.03% interference received

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WLIO	D8	DT	APP	LIMA, OH	600ftPillFinal	
Undesireds:	WIIH-CD	D8	DC	LIC	INDIANAPOLIS, IN	BLDVL20090902ACB	202.2 km
	WBNA	D8	DT	APP	LOUISVILLE, KY	BLANK0000035747	335.6
	WWMT	D8	DT	LIC	KALAMAZOO, MI	BLCDT20090616AAV	237.5
	WJW	D8	DT	LIC	CLEVELAND, OH	BLCDT20090612AJC	211.8
	WGCT-CD	D8	DC	CP	COLUMBUS, OH	BLANK0000035677	151.1

Service area	Terrain-limited	IX-free	Percent IX
25940.5 1,194,707	25445.4 1,177,549	23533.6 1,059,416	7.51 10.03

Undesired	Total IX	Unique IX	Prcnt Unique IX
-----------	----------	-----------	-----------------

WIIH-CD D8 DC LIC	4.0	68	0.0	0	0.00	0.00
WBNA D8 DT APP	205.6	15,290	129.0	13,081	0.51	1.11
WWMT D8 DT LIC	402.3	31,773	261.4	24,132	1.03	2.05
WJW D8 DT LIC	1087.4	71,466	633.4	42,302	2.49	3.59
WGCT-CD D8 DC CP	747.0	31,204	369.6	7,188	1.45	0.61

Interference to proposal scenario 3

**MX: 9.04% interference received

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WLIO	D8	DT	APP	LIMA, OH	600ftPillFinal	
Undesireds:	WIIH-CD	D8	DC	LIC	INDIANAPOLIS, IN	BLDVL20090902ACB	202.2 km
	WBNA	D8	DT	LIC	LOUISVILLE, KY	BLCDT20021024AAB	335.6
	WWMT	D8	DT	APP	KALAMAZOO, MI	BLANK0000035795	237.5
	WJW	D8	DT	LIC	CLEVELAND, OH	BLCDT20090612AJC	211.8
	WGCT-CD	D8	DC	CP	COLUMBUS, OH	BLANK0000035677	151.1

Service area	Terrain-limited	IX-free	Percent IX
25940.5 1,194,707	25445.4 1,177,549	23646.6 1,071,083	7.07 9.04

Undesired	Total IX	Unique IX	Prcnt Unique IX
WIIH-CD D8 DC LIC 4.0 68 4.0	68	68	0.02 0.01
WBNA D8 DT LIC 16.1 334 4.0	334	88	0.02 0.01
WWMT D8 DT APP 442.6 35,543 281.4	35,543	25,507	1.11 2.17
WJW D8 DT LIC 1087.4 71,466 613.2	71,466	40,061	2.41 3.40
WGCT-CD D8 DC CP 747.0 31,204 405.9	31,204	8,725	1.60 0.74

Interference to proposal scenario 4

8.93% interference received

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WLIO	D8	DT	APP	LIMA, OH	600ftPillFinal	
Undesireds:	WIIH-CD	D8	DC	LIC	INDIANAPOLIS, IN	BLDVL20090902ACB	202.2 km
	WBNA	D8	DT	LIC	LOUISVILLE, KY	BLCDT20021024AAB	335.6
	WWMT	D8	DT	LIC	KALAMAZOO, MI	BLCDT20090616AAV	237.5
	WJW	D8	DT	LIC	CLEVELAND, OH	BLCDT20090612AJC	211.8
	WGCT-CD	D8	DC	CP	COLUMBUS, OH	BLANK0000035677	151.1

Service area		Terrain-limited		IX-free	Percent IX
25940.5	1,194,707	25445.4	1,177,549	23658.6	7.02 8.93

Undesired		Total IX		Unique IX	Prcnt Unique IX
WIIH-CD D8 DC LIC	4.0	68	4.0	68	0.02 0.01
WBNA D8 DT LIC	16.1	334	4.0	88	0.02 0.01
WWMT D8 DT LIC	402.3	31,773	269.4	24,181	1.06 2.05
WJW D8 DT LIC	1087.4	71,466	641.5	42,505	2.52 3.61
WGCT-CD D8 DC CP	747.0	31,204	405.9	8,725	1.60 0.74

Interference to proposal scenario 5

**MX: 9.81% interference received

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WLIO	D8	DT	APP	LIMA, OH	600ftPillFinal	

Undesireds:	WIIH-CD	D8	DC	LIC	INDIANAPOLIS, IN	BLDVL20090902ACB	202.2 km
	WBNA	D8	DT	APP	LOUISVILLE, KY	BLANK0000035747	335.6
	WWMT	D8	DT	APP	KALAMAZOO, MI	BLANK0000035795	237.5
	WJW	D8	DT	LIC	CLEVELAND, OH	BLCDT20090612AJC	211.8
	WGCT-CD	D8	DC	LIC	COLUMBUS, OH	BLDVA20131021AAM	127.5

Service area		Terrain-limited		IX-free	Percent IX
25940.5	1,194,707	25445.4	1,177,549	23778.6	6.55 9.81

Undesired		Total IX		Unique IX	Prcnt Unique IX
WIIH-CD D8 DC LIC	4.0	68	0.0	0	0.00 0.00
WBNA D8 DT APP	205.6	15,290	149.2	13,478	0.59 1.14
WWMT D8 DT APP	442.6	35,543	277.4	25,824	1.09 2.19
WJW D8 DT LIC	1087.4	71,466	653.2	46,710	2.57 3.97
WGCT-CD D8 DC LIC	417.8	19,640	112.6	3,266	0.44 0.28

Interference to proposal scenario 6

**MX: 9.70% interference received

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WLIO	D8	DT	APP	LIMA, OH	600ftPillFinal	

Undesireds:	WIIH-CD	D8	DC	LIC	INDIANAPOLIS, IN	BLDVL20090902ACB	202.2 km
	WBNA	D8	DT	APP	LOUISVILLE, KY	BLANK0000035747	335.6

WWMT	D8	DT	LIC	KALAMAZOO, MI	BLCDT20090616AAV	237.5
WJW	D8	DT	LIC	CLEVELAND, OH	BLCDT20090612AJC	211.8
WGCT-CD	D8	DC	LIC	COLUMBUS, OH	BLDVA20131021AAM	127.5

Service area		Terrain-limited		IX-free	Percent IX
25940.5	1,194,707	25445.4	1,177,549	23790.5	1,063,338
				6.50	9.70

Undesired		Total IX		Unique IX	Prcnt Unique IX
WIIH-CD D8 DC LIC	4.0	68	0.0	0	0.00
WBNA D8 DT APP	205.6	15,290	149.2	13,478	0.59
WWMT D8 DT LIC	402.3	31,773	265.4	24,498	1.04
WJW D8 DT LIC	1087.4	71,466	681.5	49,154	2.68
WGCT-CD D8 DC LIC	417.8	19,640	112.6	3,266	0.44

Interference to proposal scenario 7

**MX: 8.69% interference received

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WLIO	D8	DT	APP	LIMA, OH	600ftPillFinal	
Undesireds:	WIIH-CD	D8	DC	LIC	INDIANAPOLIS, IN	BLDVL20090902ACB	202.2 km
	WBNA	D8	DT	LIC	LOUISVILLE, KY	BLCDT20021024AAB	335.6
	WWMT	D8	DT	APP	KALAMAZOO, MI	BLANK0000035795	237.5
	WJW	D8	DT	LIC	CLEVELAND, OH	BLCDT20090612AJC	211.8
	WGCT-CD	D8	DC	LIC	COLUMBUS, OH	BLDVA20131021AAM	127.5

Service area		Terrain-limited		IX-free	Percent IX
25940.5	1,194,707	25445.4	1,177,549	23915.7	1,075,258
				6.01	8.69

Undesired		Total IX		Unique IX	Prcnt Unique IX
WIIH-CD D8 DC LIC	4.0	68	4.0	68	0.02
WBNA D8 DT LIC	16.1	334	12.1	232	0.05
WWMT D8 DT APP	442.6	35,543	285.4	25,873	1.12
WJW D8 DT LIC	1087.4	71,466	657.3	46,890	2.58
WGCT-CD D8 DC LIC	417.8	19,640	136.8	4,550	0.54

Interference to proposal scenario 8

8.57% interference received

Call	Chan	Svc	Status	City, State	File Number	Distance
------	------	-----	--------	-------------	-------------	----------

Desired:	WLIO	D8	DT	APP	LIMA, OH	600ftPillFinal	
Undesireds:	WIIH-CD	D8	DC	LIC	INDIANAPOLIS, IN	BLDVL20090902ACB	202.2 km
	WBNA	D8	DT	LIC	LOUISVILLE, KY	BLCDT20021024AAB	335.6
	WWMT	D8	DT	LIC	KALAMAZOO, MI	BLCDT20090616AAV	237.5
	WJW	D8	DT	LIC	CLEVELAND, OH	BLCDT20090612AJC	211.8
	WGCT-CD	D8	DC	LIC	COLUMBUS, OH	BLDVA20131021AAM	127.5
Service area		Terrain-limited		IX-free		Percent IX	
25940.5	1,194,707	25445.4	1,177,549	23927.6	1,076,584	5.97	8.57
Undesired		Total IX		Unique IX		Prcnt Unique IX	
WIIH-CD	D8 DC LIC	4.0	68	4.0	68	0.02	0.01
WBNA	D8 DT LIC	16.1	334	12.1	232	0.05	0.02
WWMT	D8 DT LIC	402.3	31,773	273.5	24,547	1.07	2.08
WJW	D8 DT LIC	1087.4	71,466	685.5	49,334	2.69	4.19
WGCT-CD	D8 DC LIC	417.8	19,640	136.8	4,550	0.54	0.39

COHEN, DIPPELL AND EVERIST, P.C.

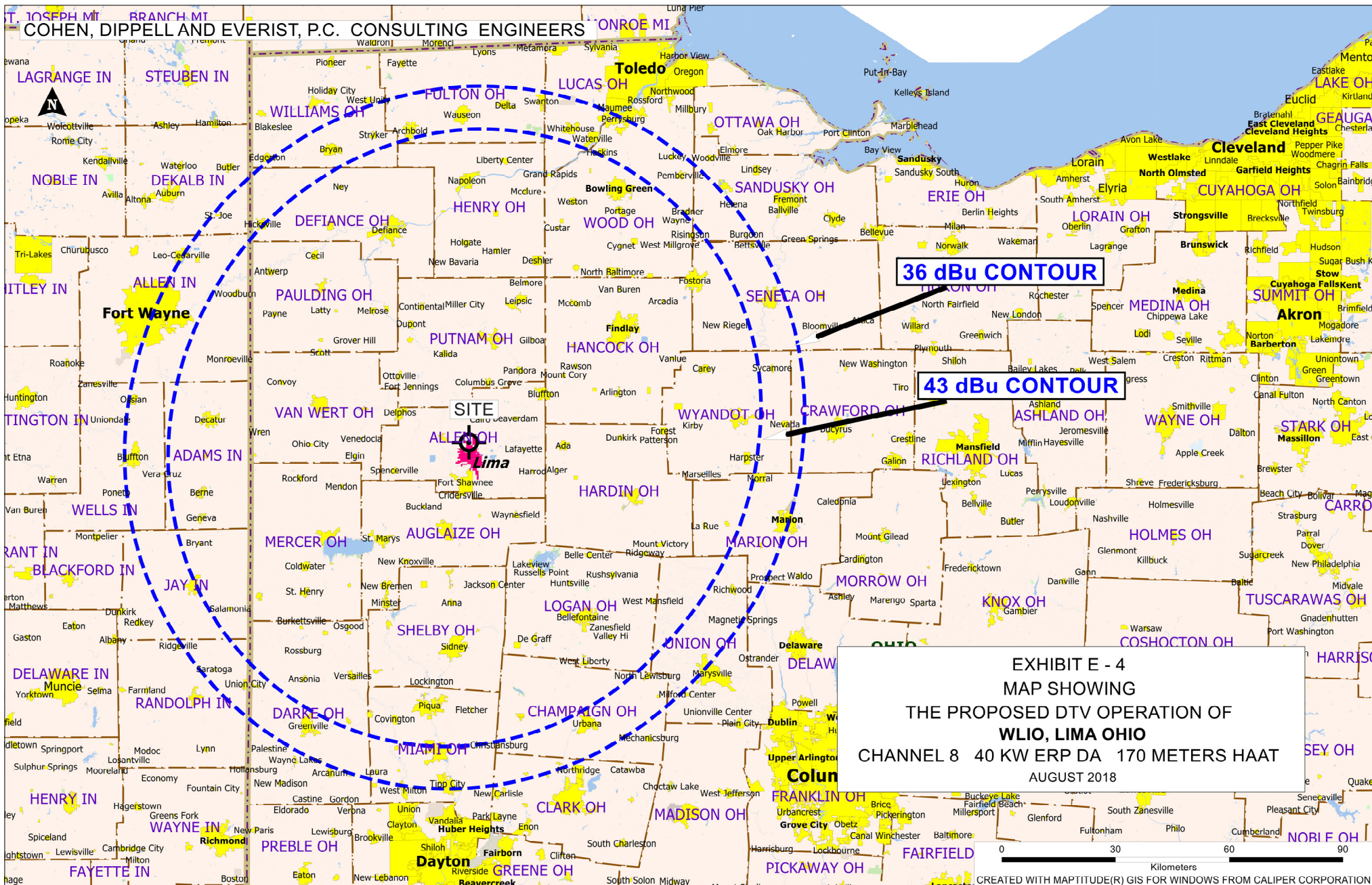
TABLE I
COMPUTED COVERAGE DATA
FOR PROPOSED OPERATION OF
WLIO, LIMA, OHIO
CHANNEL 8 40 KW (MAX) ERP 170 METERS HAAT
AUGUST 2018

<u>Radial</u>	<u>Average</u>	<u>Effective</u>	<u>Depression</u>	<u>Effective</u>	<u>Distance to Contour</u>	
<u>N ° E, T</u>	<u>Elevation</u>	<u>Height</u>	<u>Angle</u>	<u>Radiated</u>	<u>43 dBu</u>	<u>36 dBu</u>
	<u>meters</u>	<u>meters</u>	<u>degrees</u>	<u>kW</u>	<u>km</u>	<u>km</u>
0	238.0	188.3	0.380	32.8	82.5	94.0
10	241.3	185.0	0.377	36.5	83.0	94.4
20	244.5	181.8	0.373	39.0	83.3	94.6
30	247.8	178.5	0.370	40.0	83.2	94.5
40	251.0	175.3	0.367	39.0	82.8	94.0
50	254.9	171.4	0.363	36.5	82.0	93.2
60	259.5	166.8	0.358	32.8	80.9	92.0
70	264.1	162.2	0.353	28.8	79.5	90.7
80	268.7	157.6	0.348	25.1	77.9	89.4
90	273.3	153.0	0.343	22.0	76.3	88.1
100	274.7	151.6	0.341	19.8	75.3	87.2
110	276.2	150.1	0.339	18.5	74.5	86.6
120	277.6	148.7	0.338	18.1	74.1	86.3
130	279.0	147.3	0.336	18.5	74.1	86.3
140	278.6	147.7	0.337	19.8	74.7	86.8
150	276.5	149.8	0.339	22.0	75.9	87.7
160	274.3	152.0	0.341	25.1	77.3	88.8
170	272.2	154.1	0.344	28.8	78.6	90.0
180	270.0	156.3	0.346	32.8	79.9	91.1
190	267.5	158.8	0.349	36.5	80.9	92.0
200	264.9	161.4	0.352	39.0	81.7	92.7
210	262.3	164.0	0.355	40.0	82.1	93.1
220	259.8	166.5	0.357	39.0	82.1	93.2
230	256.9	169.4	0.360	36.5	81.8	93.0
240	253.8	172.5	0.364	32.8	81.3	92.5
250	250.7	175.6	0.367	28.8	80.6	91.9
260	247.6	178.7	0.370	25.1	79.8	91.2
270	244.5	181.8	0.374	22.0	79.0	90.5
280	242.8	183.5	0.375	19.8	78.3	89.9

COHEN, DIPPELL AND EVERIST, P.C.

TABLE I
COMPUTED COVERAGE DATA
FOR PROPOSED OPERATION OF
WLIO, LIMA, OHIO
CHANNEL 8 40 KW (MAX) ERP 170 METERS HAAT
AUGUST 2018

<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>43 dBu</u> km	<u>36 dBu</u> km
290	241.1	185.2	0.377	18.5	77.9	89.6
300	239.4	186.9	0.379	18.1	77.9	89.6
310	237.8	188.5	0.380	18.5	78.2	89.9
320	237.0	189.3	0.381	19.8	78.8	90.4
330	237.3	189.0	0.381	22.0	79.6	91.2
340	237.5	188.8	0.381	25.1	80.6	92.1
350	237.8	188.5	0.380	28.8	81.6	93.0



COHEN, DIPPELL AND EVERIST, P.C.

TABLE II
COMPUTED COVERAGE DATA
FOR LICENSED OPERATION OF
WLIO, LIMA, OHIO
CHANNEL 8 27.5 KW (MAX) ERP 148 METERS HAAT
AUGUST 2018

<u>Radial</u>	<u>Average</u>	<u>Effective</u>	<u>Depression</u>	<u>Effective</u>	<u>Distance to Contour</u>
<u>N ° E, T</u>	<u>Elevation</u>	<u>Height</u>	<u>Angle</u>	<u>Radiated</u>	<u>36 dBu</u>
	<u>meters</u>	<u>meters</u>	<u>degrees</u>	<u>Power</u>	<u>km</u>
0	241.8	161.6	0.352	24.8	89.7
10	245.5	157.9	0.348	27.0	89.9
20	249.3	154.1	0.344	27.5	89.7
30	253.0	150.4	0.340	26.4	89.0
40	256.8	146.7	0.335	24.3	88.1
50	260.4	143.0	0.331	22.3	87.1
60	264.0	139.4	0.327	21.3	86.3
70	267.6	135.8	0.323	21.3	85.8
80	271.1	132.3	0.319	22.3	85.6
90	274.7	128.7	0.314	24.8	85.7
100	276.1	127.3	0.313	27.0	86.1
110	277.4	126.0	0.311	27.5	86.0
120	278.8	124.6	0.309	26.4	85.4
130	280.1	123.3	0.308	24.3	84.5
140	279.8	123.6	0.308	22.3	83.9
150	277.7	125.7	0.311	21.3	84.0
160	275.6	127.8	0.313	21.3	84.4
170	273.5	129.9	0.316	22.3	85.1
180	271.4	132.0	0.318	24.8	86.3
190	268.7	134.7	0.321	27.0	87.3
200	266.0	137.4	0.325	27.5	87.8
210	263.3	140.1	0.328	26.4	87.9
220	260.6	142.8	0.331	24.3	87.6
230	258.0	145.4	0.334	22.3	87.3
240	255.4	148.0	0.337	21.3	87.3
250	252.8	150.6	0.340	21.3	87.6
260	250.2	153.2	0.343	22.3	88.2
270	247.6	155.8	0.346	24.8	89.1
280	246.1	157.3	0.347	27.0	89.8

COHEN, DIPPELL AND EVERIST, P.C.

TABLE II
COMPUTED COVERAGE DATA
FOR LICENSED OPERATION OF
WLIO, LIMA, OHIO
CHANNEL 8 27.5 KW (MAX) ERP 148 METERS HAAT
AUGUST 2018

<u>Radial</u>	<u>Average</u>	<u>Effective</u>	<u>Depression</u>	<u>Effective</u>	<u>Distance to Contour</u>
<u>N ° E, T</u>	<u>Elevation</u>	<u>Height</u>	<u>Angle</u>	<u>Radiated</u>	<u>36 dBu</u>
	meters	meters	degrees	kW	km
290	244.5	158.9	0.349	27.5	90.1
300	242.9	160.5	0.351	26.4	90.0
310	241.3	162.1	0.353	24.3	89.6
320	240.7	162.8	0.353	22.3	89.0
330	240.9	162.5	0.353	21.3	88.7
340	241.2	162.2	0.353	21.3	88.7
350	241.5	161.9	0.352	22.3	89.0

