

ENGINEERING STATEMENT
APPLICATION TO MODIFY
OUTSTANDING CONSTRUCTION PERMIT
(FCC FILE NO. 0000072159
TELEVISION TRANSLATOR
W33EK-D, EFFINGHAM, ILLINOIS
CHANNEL 33 15 KW ERP 289 METERS RC/AMSL

SEPTEMBER 2019

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)

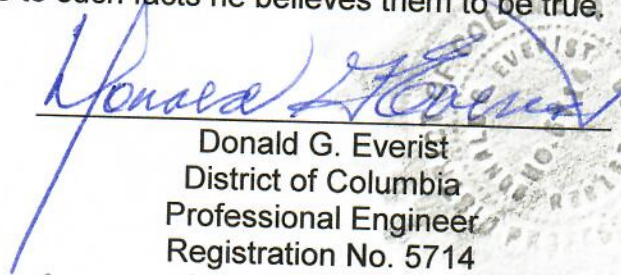
Donald G. Everist, being duly sworn upon his oath, deposes and states that:

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;

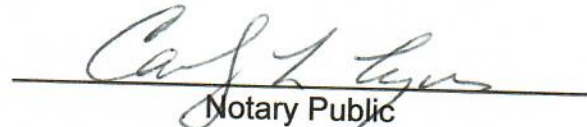
That his qualifications are a matter of record in the Federal Communications Commission;

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 10th day of September, 2019.


Notary Public

My Commission Expires: 2/28/2023



Introduction

This engineering statement has been prepared on behalf of WAND(TV) Partnership, licensee of low-power translator station W33EK-D, Effingham, Illinois. This statement supports the licensee's request to modify the current construction permit (FCC File No. 0000072159) DTV operation on the digital Channel 33 with a DTV effective radiated power ("ERP") of 15 kW at a slightly reduced radiation center above mean sea level ("RCAMSL") of 289 meters and a change in antenna model ATC-BCE48M-V3-33. No other changes are requested.

Transmitter Site

The proposed omniod¹ antenna will protect all domestic constraints. The existing tower is located at 2.4 km south of Seven Mile Curve on Rt. 121 and 2.3 km north of Roslyn in Cumberland County. The geographic coordinates of the site follow below.

North Latitude: 39° 15' 01.2"

West Longitude: 88° 22' 46.4"

NAD-27

North Latitude: 39° 15' 01.3"

West Longitude: 88° 22' 46.6"

NAD-83

The Antenna Structure Registration Number ("ASRN") for the existing tower is 1051455.

¹Allocation and coverage are computed in accordance with FCC policy as non-directional.

Equipment Data

Transmitter: Type-approved

Transmission Line: 1-5/8", 50 ohm Jacket Air Flex line, 106.7 meters (350 feet) or equivalent with a loss of 0.52 dB per 100 feet

Antenna: Alive Telecom, Model ATC-BCE48M-V3-33, 1.0° electrical beam tilt. Exhibit E-1 provides the antenna manufacturer antenna data

Filter Type: Full-Service

Power Data

Transmitter Power Output		2.07 kW	3.16 dBk
Transmission Line Efficiency/Loss		65.8%	1.82 dB
Input Power to Antenna		1.36 kW	1.34 dBk
Antenna Power Gain	H	11.02	10.42 dBd
	V	3.31	5.19 dBd
Effective Radiated Power	H	15 kW	11.76 dBk
	V	4.50 kW	6.53 dBk

Elevation Data

Elevation of site above mean sea level	189 meters (620 feet)
Center of radiation of antenna above ground level	100 meters (328 feet)
Center of radiation of antenna above mean sea level	289 meters (948 feet)
Overall antenna structure height above ground level including appurtenances	150 meters (492.1 feet)
Overall antenna structure height above mean sea level	339 meters (1112.2 feet)

Note: slight height differences may result due to conversion to/from metric.

Interference Analysis

A study of predicted interference caused by the proposed W33EK-D low-power digital operation on Channel 33 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 low power TV/translator 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 1 sq. km. Using one-second terrain data sampled approximately every 1.0 km at one-degree azimuth intervals with 2010 census centroids, all studies are based upon data in the current LMS database update of the FCC's engineering database. A Longley-Rice study was performed with the proposed

Channel 33 low-power digital facilities and all relevant stations listed in the FCC data base. The study results and the included stations are listed in Exhibit E-2.

Coverage

Table I provides the distances calculated to the 51 dBu contour by TVStudy 2.2 along each radial spaced every ten degrees in azimuth to the predicted F(50,90) contour, the effective radiated power and the effective antenna heights. The predicted 51 dBu contour determined from these distances is shown on the attached map (Exhibit E-3). The proposed 51 dBu contour is totally contained within that authorized by the construction permit.

Other Licensed and Broadcast Facilities

No adverse technical effect is anticipated by the proposed DTV operation to any other FCC licensed facility. There are three broadcast FM or FM translators and no TV or TV broadcast stations within 0.2 km. There are no AM broadcast stations within 5 km. If required, the licensee will install filters or take other measures as necessary to resolve the problem.

FCC Rule, Section 1.1307

The proposed 15 kW non-directional operation will utilize an Alive Telecom, Model ATC-BCE48M-V3-33 antenna (or equivalent) described above with a center of radiation above ground of 100 meters. The proposed antenna is side-mounted on a steel lattice tower with an overall height of 150 meters above ground. The FM stations are: WHQQ (Ch. 335A), W338CQ (Ch. 338D) and WMCI (Channel 267B1).

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

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

where:

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

F = relative field factor

Total ERP = ERP Horizontal Polarization + ERP Vertical Polarization

R = RCAGL - 2 meters

ERP = RMS ERP in watts for DTV Stations

The proposed operation based upon the current OET Bulletin No. 65, Edition 97-01 dated August 1997 and Supplement A meets the provisions of the FCC radiofrequency field ("RFF") guidelines, and thus, complies with Section 1.1307 of the FCC Rules. The elevation pattern for the Alive Telecom, Model ATC-BCE48M-V3-33 antenna, Exhibit E-1 shows a maximum relative field of less than 0.127 toward the ground (30° to 90° below the horizontal). Calculation according to OET Bulletin 65 predicts a maximum RFF power density of less than two $\mu\text{W}/\text{cm}^2$, 2 meters above ground or less than 1% of the $359 \mu\text{W}/\text{cm}^2$ uncontrolled Maximum Permissible Exposure ("MPE") guideline.

Authorized personnel and rigging contractors will be alerted to the potential zone of high field levels on the tower, and if necessary, the station will operate with reduced power or terminate the operation of the transmitter as appropriate when it is necessary for authorized personnel or contractors to perform work on or near the tower. Workers and the general public, therefore, will not be subjected to RFF levels in excess of the current FCC guidelines.

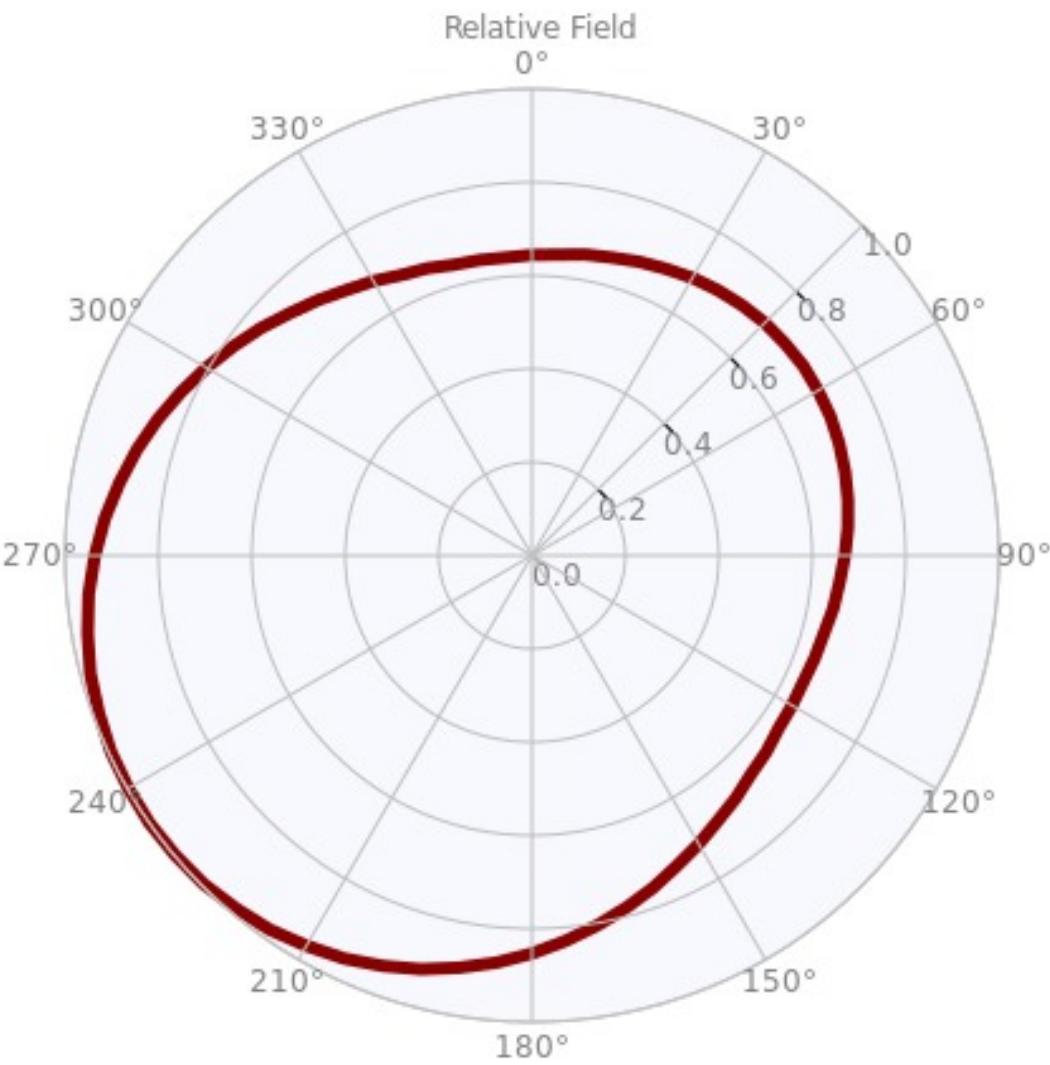
EXHIBIT E-1

ANTENNA MANUFACTURER DATA

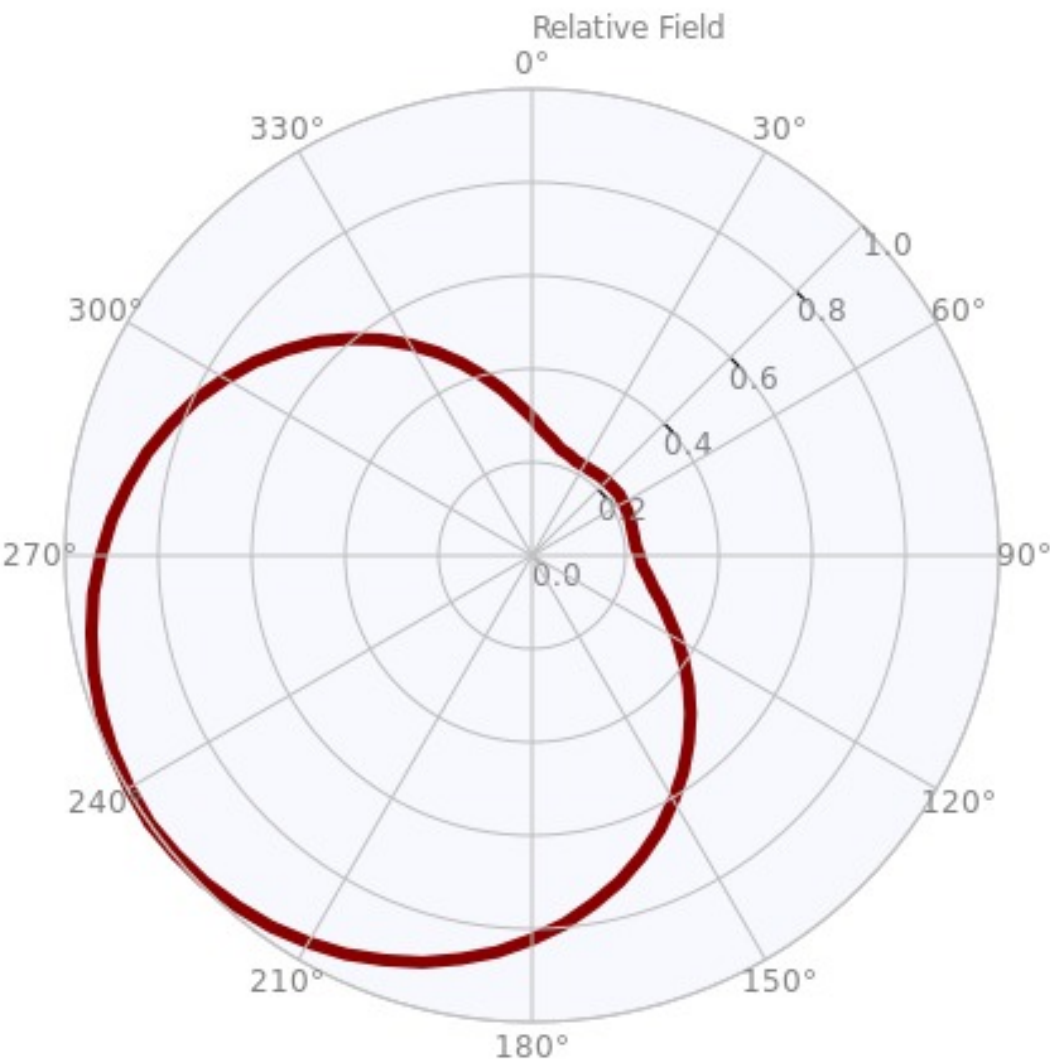
Summary

Antenna Specifications	
Antenna Type	Coaxial Slot
Antenna Model	ATC-BCE48M-V3-33
Electrical Specifications	
Channel(s)	33
Frequency Range (MHz)	584 - 590
Polarization	Elliptical
Horizontal Azimuth Pattern	Omnioid
Directivity	1.65
dB	2.17
Vertical Azimuth Pattern	V3-Medium Cardioid
Directivity	2.35
dB	3.71
Vertical Component	30 %
Azimuth Peak of Beam	235 °
Elevation Pattern	BC8
Directivity	8.68
dB	9.39
Electrical Beam Tilt	1.00 °
Antenna Peak Power Gain	
Horizontal Gain Power	11.02
Horizontal Gain Ratio	10.42 dBd
Vertical Gain Power	3.31
Vertical Gain Ratio	5.19 dBd
Line Type	1-5/8" 50 Ohm Air Flex Line
Line Length	350 ft
Total Line Loss	1.82 dB
Effective Radiated Power (ERP)	15 kW
ERP Vertical Power	4.50 kW
Transmitter Power Output (TPO)	
TPO Power	2.07 kW
TPO Ratio	3.16 dBk
Input Type	EIA 1-5/8"
Mechanical Specifications	
Mount Type	Side Mount
Length of Antenna	16.34 ft
Center of Radiation	8.17 ft
Radome Diameter	TBD
Color	White
Calculated Weight	Contact Alive Telecom 1 2
Windload (Shear)	Contact Alive Telecom 1 2

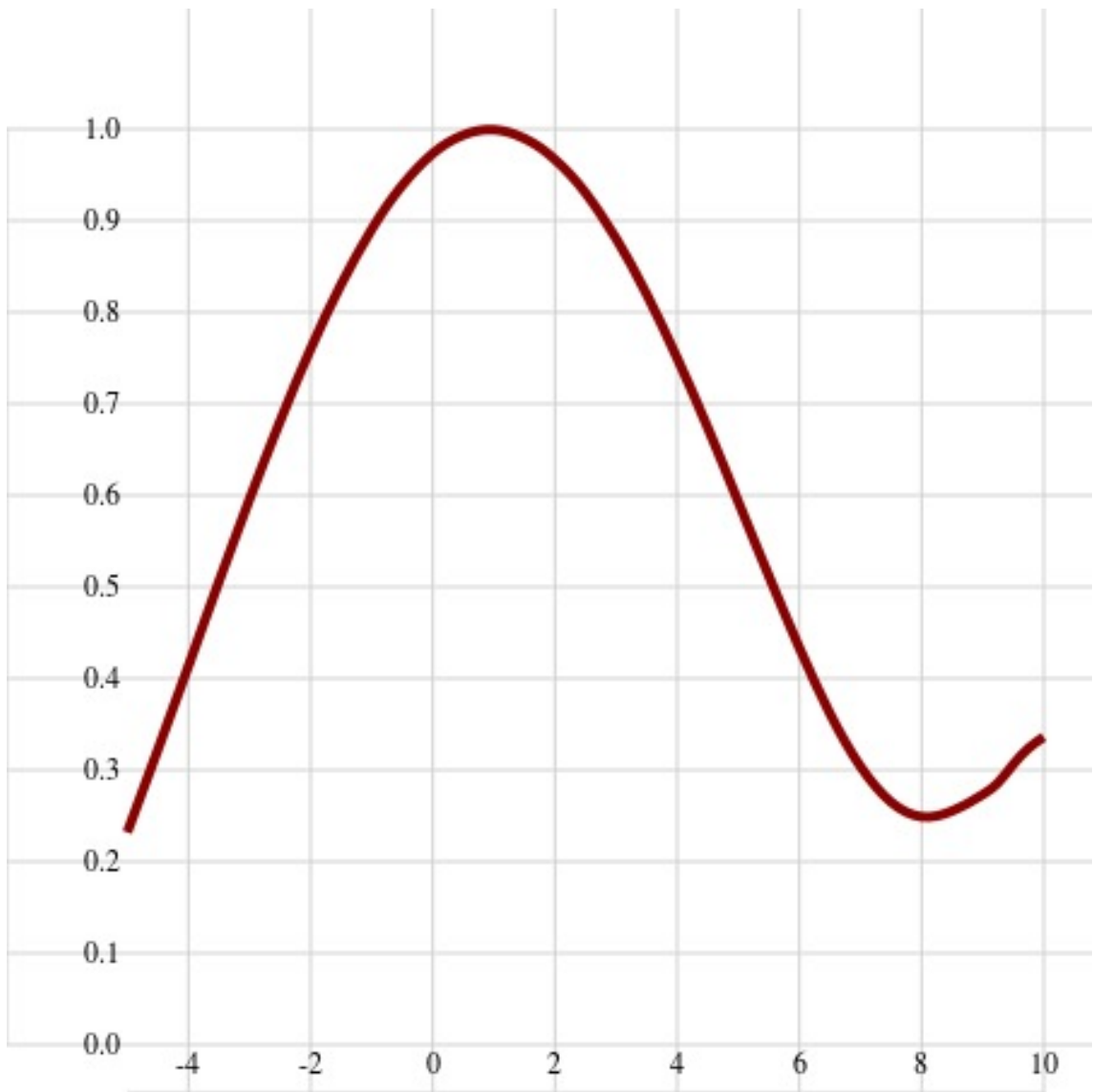
Horizontal Azimuth Pattern



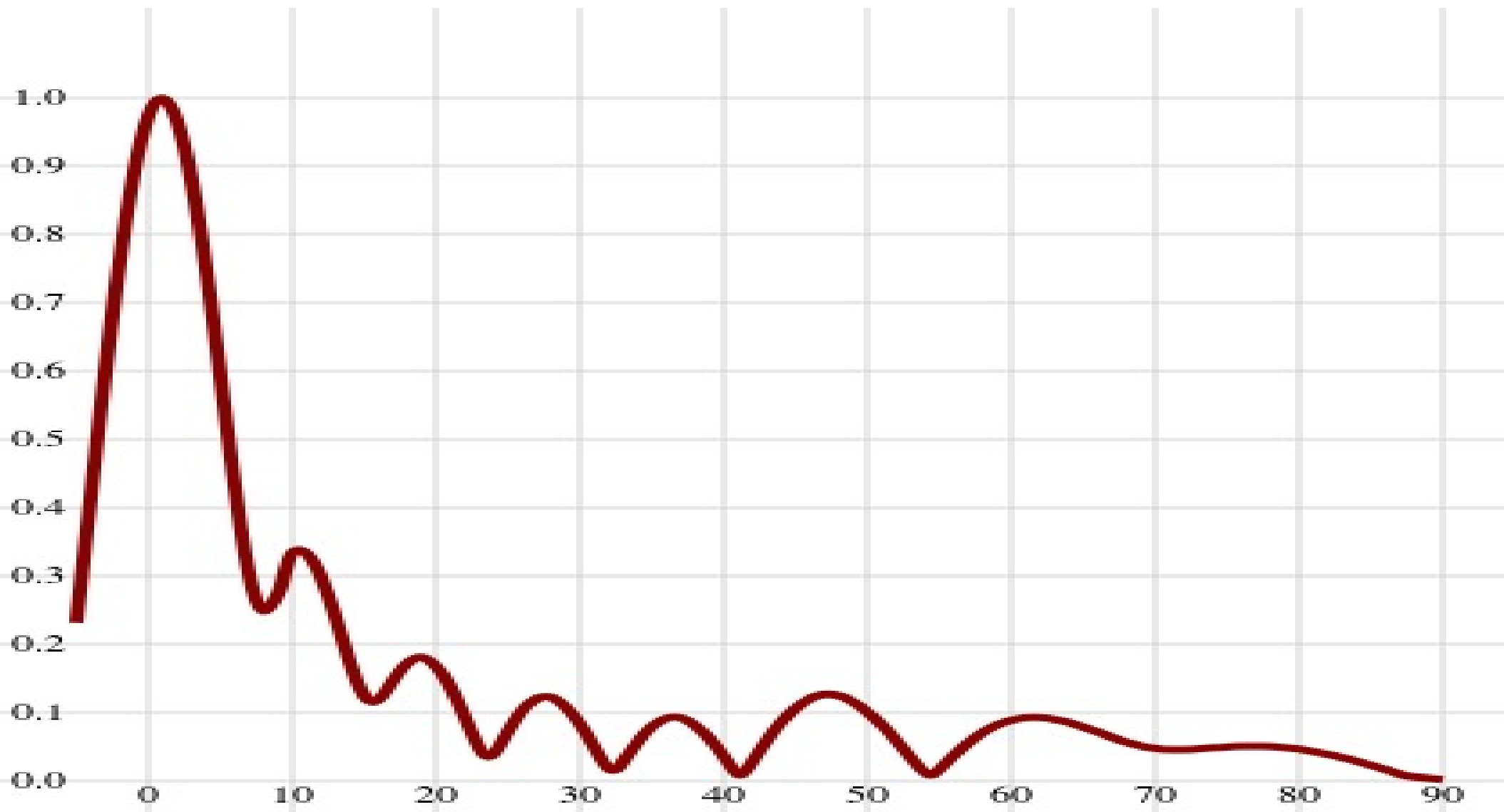
Vertical Azimuth Pattern



Elevation pattern -5 to 10



Elevation pattern -5 to 90



Azimuth Horizontal Pattern Tabulation

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
0°	0.644	-3.82	90°	0.670	-3.48	180°	0.853	-1.38	270°	0.936	-0.57
2°	0.646	-3.80	92°	0.667	-3.52	182°	0.863	-1.28	272°	0.929	-0.64
4°	0.646	-3.80	94°	0.663	-3.57	184°	0.872	-1.19	274°	0.922	-0.71
6°	0.649	-3.76	96°	0.660	-3.61	186°	0.881	-1.10	276°	0.914	-0.78
8°	0.651	-3.73	98°	0.658	-3.64	188°	0.889	-1.02	278°	0.905	-0.87
10°	0.655	-3.68	100°	0.655	-3.68	190°	0.897	-0.94	280°	0.897	-0.94
12°	0.658	-3.64	102°	0.651	-3.73	192°	0.905	-0.87	282°	0.889	-1.02
14°	0.660	-3.61	104°	0.649	-3.76	194°	0.914	-0.78	284°	0.881	-1.10
16°	0.663	-3.57	106°	0.646	-3.80	196°	0.922	-0.71	286°	0.872	-1.19
18°	0.667	-3.52	108°	0.646	-3.80	198°	0.928	-0.65	288°	0.863	-1.28
20°	0.670	-3.48	110°	0.644	-3.82	200°	0.936	-0.57	290°	0.853	-1.38
22°	0.673	-3.44	112°	0.642	-3.85	202°	0.943	-0.51	292°	0.843	-1.48
24°	0.677	-3.39	114°	0.641	-3.86	204°	0.950	-0.45	294°	0.834	-1.58
26°	0.681	-3.34	116°	0.641	-3.86	206°	0.956	-0.39	296°	0.824	-1.68
28°	0.684	-3.30	118°	0.642	-3.85	208°	0.961	-0.35	298°	0.815	-1.78
30°	0.687	-3.26	120°	0.644	-3.82	210°	0.966	-0.30	300°	0.805	-1.88
32°	0.690	-3.22	122°	0.644	-3.82	212°	0.972	-0.25	302°	0.795	-1.99
34°	0.693	-3.19	124°	0.645	-3.81	214°	0.977	-0.20	304°	0.786	-2.09
36°	0.695	-3.16	126°	0.647	-3.78	216°	0.981	-0.17	306°	0.776	-2.20
38°	0.697	-3.14	128°	0.651	-3.73	218°	0.984	-0.14	308°	0.767	-2.30
40°	0.700	-3.10	130°	0.655	-3.68	220°	0.986	-0.12	310°	0.758	-2.41
42°	0.702	-3.07	132°	0.658	-3.64	222°	0.990	-0.09	312°	0.748	-2.52
44°	0.704	-3.05	134°	0.662	-3.58	224°	0.994	-0.05	314°	0.739	-2.63
46°	0.706	-3.02	136°	0.666	-3.53	226°	0.995	-0.04	316°	0.730	-2.73
48°	0.706	-3.02	138°	0.672	-3.45	228°	0.997	-0.03	318°	0.722	-2.83
50°	0.707	-3.01	140°	0.678	-3.38	230°	0.998	-0.02	320°	0.714	-2.93
52°	0.708	-3.00	142°	0.685	-3.29	232°	0.998	-0.02	322°	0.706	-3.02
54°	0.708	-3.00	144°	0.691	-3.21	234°	0.999	-0.01	324°	0.698	-3.12
56°	0.708	-3.00	146°	0.698	-3.12	236°	0.999	-0.01	326°	0.691	-3.21
58°	0.708	-3.00	148°	0.706	-3.02	238°	0.998	-0.02	328°	0.685	-3.29
60°	0.707	-3.01	150°	0.714	-2.93	240°	0.998	-0.02	330°	0.679	-3.36
62°	0.706	-3.02	152°	0.722	-2.83	242°	0.997	-0.03	332°	0.672	-3.45
64°	0.706	-3.02	154°	0.730	-2.73	244°	0.996	-0.03	334°	0.666	-3.53
66°	0.704	-3.05	156°	0.739	-2.63	246°	0.994	-0.05	336°	0.662	-3.58
68°	0.702	-3.07	158°	0.748	-2.52	248°	0.990	-0.09	338°	0.658	-3.64
70°	0.700	-3.10	160°	0.757	-2.42	250°	0.987	-0.11	340°	0.655	-3.68
72°	0.697	-3.14	162°	0.766	-2.32	252°	0.984	-0.14	342°	0.651	-3.73
74°	0.695	-3.16	164°	0.776	-2.20	254°	0.981	-0.17	344°	0.647	-3.78
76°	0.693	-3.19	166°	0.785	-2.10	256°	0.977	-0.20	346°	0.645	-3.81
78°	0.690	-3.22	168°	0.795	-1.99	258°	0.972	-0.25	348°	0.644	-3.82
80°	0.687	-3.26	170°	0.805	-1.88	260°	0.966	-0.30	350°	0.643	-3.84
82°	0.684	-3.30	172°	0.815	-1.78	262°	0.961	-0.35	352°	0.642	-3.85
84°	0.680	-3.35	174°	0.824	-1.68	264°	0.956	-0.39	354°	0.641	-3.86
86°	0.677	-3.39	176°	0.834	-1.58	266°	0.950	-0.45	356°	0.641	-3.86
88°	0.673	-3.44	178°	0.843	-1.48	268°	0.943	-0.51	358°	0.642	-3.85



Azimuth Pattern Tabulation, FCC

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
0°	0.644	-3.82	90°	0.670	-3.48	180°	0.853	-1.38	270°	0.936	-0.57
10°	0.655	-3.68	100°	0.655	-3.68	190°	0.897	-0.94	280°	0.897	-0.94
20°	0.670	-3.48	110°	0.644	-3.82	200°	0.936	-0.57	290°	0.853	-1.38
30°	0.687	-3.26	120°	0.644	-3.82	210°	0.966	-0.30	300°	0.805	-1.88
40°	0.700	-3.10	130°	0.655	-3.68	220°	0.986	-0.12	310°	0.758	-2.41
50°	0.707	-3.01	140°	0.678	-3.38	230°	0.998	-0.02	320°	0.714	-2.93
60°	0.707	-3.01	150°	0.714	-2.93	240°	0.998	-0.02	330°	0.679	-3.36
70°	0.700	-3.10	160°	0.757	-2.42	250°	0.987	-0.11	340°	0.655	-3.68
80°	0.687	-3.26	170°	0.805	-1.88	260°	0.966	-0.30	350°	0.643	-3.84

Elevation Pattern Tabulation

-5 to 10 in 0.25 increments, 10 to 90 in 0.50 increments

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
-5.00	0.232	-12.69	8.75	0.263	-11.60	35.00	0.080	-21.94	62.50	0.092	-20.72
-4.75	0.277	-11.15	9.00	0.273	-11.28	35.50	0.087	-21.21	63.00	0.090	-20.92
-4.50	0.322	-9.84	9.25	0.284	-10.93	36.00	0.092	-20.72	63.50	0.088	-21.11
-4.25	0.368	-8.68	9.50	0.307	-10.26	36.50	0.094	-20.54	64.00	0.086	-21.31
-4.00	0.413	-7.68	9.75	0.325	-9.76	37.00	0.093	-20.63	64.50	0.082	-21.72
-3.75	0.460	-6.74	10.00	0.336	-9.47	37.50	0.089	-21.01	65.00	0.079	-22.05
-3.50	0.506	-5.92	10.50	0.340	-9.37	38.00	0.082	-21.72	65.50	0.075	-22.50
-3.25	0.551	-5.18	11.00	0.334	-9.53	38.50	0.073	-22.73	66.00	0.072	-22.85
-3.00	0.596	-4.50	11.50	0.321	-9.87	39.00	0.063	-24.01	66.50	0.068	-23.35
-2.75	0.639	-3.89	12.00	0.300	-10.46	39.50	0.050	-26.02	67.00	0.064	-23.88
-2.50	0.681	-3.34	12.50	0.273	-11.28	40.00	0.036	-28.87	67.50	0.060	-24.44
-2.25	0.722	-2.83	13.00	0.242	-12.32	40.50	0.021	-33.56	68.00	0.057	-24.88
-2.00	0.760	-2.38	13.50	0.208	-13.64	41.00	0.006	-44.44	68.50	0.054	-25.35
-1.75	0.797	-1.97	14.00	0.175	-15.14	41.50	0.012	-38.42	69.00	0.051	-25.85
-1.50	0.831	-1.61	14.50	0.145	-16.77	42.00	0.028	-31.06	69.50	0.049	-26.20
-1.25	0.862	-1.29	15.00	0.123	-18.20	42.50	0.044	-27.13	70.00	0.048	-26.38
-1.00	0.891	-1.00	15.50	0.114	-18.86	43.00	0.059	-24.58	70.50	0.046	-26.74
-0.75	0.917	-0.75	16.00	0.118	-18.56	43.50	0.073	-22.73	71.00	0.046	-26.74
-0.50	0.939	-0.55	16.50	0.130	-17.72	44.00	0.086	-21.31	71.50	0.046	-26.74
-0.25	0.958	-0.37	17.00	0.147	-16.65	44.50	0.097	-20.26	72.00	0.046	-26.74
0.00	0.974	-0.23	17.50	0.162	-15.81	45.00	0.107	-19.41	72.50	0.046	-26.74
0.25	0.986	-0.12	18.00	0.173	-15.24	45.50	0.115	-18.79	73.00	0.047	-26.56
0.50	0.994	-0.05	18.50	0.180	-14.89	46.00	0.121	-18.34	73.50	0.048	-26.38
0.75	0.999	-0.01	19.00	0.182	-14.80	46.50	0.125	-18.06	74.00	0.049	-26.20
1.00	1.000	0.00	19.50	0.178	-14.99	47.00	0.127	-17.92	74.50	0.049	-26.20
1.25	0.997	-0.03	20.00	0.169	-15.44	47.50	0.127	-17.92	75.00	0.050	-26.02
1.50	0.990	-0.09	20.50	0.156	-16.14	48.00	0.125	-18.06	75.50	0.051	-25.85
1.75	0.981	-0.17	21.00	0.138	-17.20	48.50	0.122	-18.27	76.00	0.051	-25.85
2.00	0.967	-0.29	21.50	0.117	-18.64	49.00	0.116	-18.71	76.50	0.051	-25.85
2.25	0.951	-0.44	22.00	0.093	-20.63	49.50	0.110	-19.17	77.00	0.051	-25.85
2.50	0.931	-0.62	22.50	0.069	-23.22	50.00	0.101	-19.91	77.50	0.051	-25.85
2.75	0.907	-0.85	23.00	0.047	-26.56	50.50	0.092	-20.72	78.00	0.051	-25.85
3.00	0.881	-1.10	23.50	0.033	-29.63	51.00	0.082	-21.72	78.50	0.050	-26.02
3.25	0.852	-1.39	24.00	0.037	-28.64	51.50	0.071	-22.97	79.00	0.049	-26.20
3.50	0.820	-1.72	24.50	0.054	-25.35	52.00	0.059	-24.58	79.50	0.048	-26.38
3.75	0.786	-2.09	25.00	0.072	-22.85	52.50	0.047	-26.56	80.00	0.047	-26.56
4.00	0.750	-2.50	25.50	0.089	-21.01	53.00	0.034	-29.37	80.50	0.045	-26.94
4.25	0.713	-2.94	26.00	0.104	-19.66	53.50	0.022	-33.15	81.00	0.043	-27.33
4.50	0.674	-3.43	26.50	0.114	-18.86	54.00	0.011	-39.17	81.50	0.041	-27.74
4.75	0.634	-3.96	27.00	0.121	-18.34	54.50	0.007	-43.10	82.00	0.039	-28.18
5.00	0.593	-4.54	27.50	0.124	-18.13	55.00	0.016	-35.92	82.50	0.037	-28.64
5.25	0.552	-5.16	28.00	0.123	-18.20	55.50	0.027	-31.37	83.00	0.034	-29.37
5.50	0.512	-5.81	28.50	0.118	-18.56	56.00	0.037	-28.64	83.50	0.032	-29.90
5.75	0.472	-6.52	29.00	0.109	-19.25	56.50	0.047	-26.56	84.00	0.029	-30.75
6.00	0.433	-7.27	29.50	0.098	-20.18	57.00	0.056	-25.04	84.50	0.026	-31.70
6.25	0.396	-8.05	30.00	0.084	-21.51	57.50	0.064	-23.88	85.00	0.023	-32.77
6.50	0.361	-8.85	30.50	0.068	-23.35	58.00	0.071	-22.97	85.50	0.020	-33.98
6.75	0.330	-9.63	31.00	0.050	-26.02	58.50	0.077	-22.27	86.00	0.017	-35.39
7.00	0.303	-10.37	31.50	0.032	-29.90	59.00	0.082	-21.72	86.50	0.013	-37.72
7.25	0.281	-11.03	32.00	0.016	-35.92	59.50	0.086	-21.31	87.00	0.010	-40.00
7.50	0.264	-11.57	32.50	0.013	-37.72	60.00	0.089	-21.01	87.50	0.007	-43.10
7.75	0.253	-11.94	33.00	0.028	-31.06	60.50	0.091	-20.82	88.00	0.006	-44.44
8.00	0.248	-12.11	33.50	0.043	-27.33	61.00	0.093	-20.63	88.50	0.005	-46.02
8.25	0.249	-12.08	34.00	0.057	-24.88	61.50	0.093	-20.63	89.00	0.004	-47.96
8.50	0.255	-11.87	34.50	0.070	-23.10	62.00	0.093	-20.63	89.50	0.003	-50.46
8.75	0.263	-11.60	35.00	0.080	-21.94	62.50	0.092	-20.72	90.00	0.002	-53.98

Azimuth Vertical Pattern Tabulation

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
0°	0.296	-10.57	90°	0.230	-12.77	180°	0.823	-1.69	270°	0.923	-0.70
2°	0.283	-10.96	92°	0.233	-12.65	182°	0.838	-1.54	272°	0.913	-0.79
4°	0.272	-11.31	94°	0.235	-12.58	184°	0.849	-1.42	274°	0.906	-0.86
6°	0.268	-11.44	96°	0.236	-12.54	186°	0.853	-1.38	276°	0.903	-0.89
8°	0.261	-11.67	98°	0.244	-12.25	188°	0.866	-1.25	278°	0.890	-1.01
10°	0.252	-11.97	100°	0.252	-11.97	190°	0.878	-1.13	280°	0.878	-1.13
12°	0.244	-12.25	102°	0.261	-11.67	192°	0.890	-1.01	282°	0.866	-1.25
14°	0.240	-12.40	104°	0.267	-11.47	194°	0.900	-0.92	284°	0.856	-1.35
16°	0.236	-12.54	106°	0.269	-11.40	196°	0.903	-0.89	286°	0.853	-1.38
18°	0.233	-12.65	108°	0.283	-10.96	198°	0.913	-0.79	288°	0.838	-1.54
20°	0.230	-12.77	110°	0.296	-10.57	200°	0.923	-0.70	290°	0.823	-1.69
22°	0.226	-12.92	112°	0.310	-10.17	202°	0.933	-0.60	292°	0.808	-1.85
24°	0.224	-13.00	114°	0.321	-9.87	204°	0.940	-0.54	294°	0.797	-1.97
26°	0.223	-13.03	116°	0.324	-9.79	206°	0.943	-0.51	296°	0.793	-2.01
28°	0.223	-13.03	118°	0.342	-9.32	208°	0.950	-0.45	298°	0.776	-2.20
30°	0.222	-13.07	120°	0.360	-8.87	210°	0.958	-0.37	300°	0.758	-2.41
32°	0.222	-13.07	122°	0.379	-8.43	212°	0.965	-0.31	302°	0.741	-2.60
34°	0.222	-13.07	124°	0.392	-8.13	214°	0.970	-0.26	304°	0.728	-2.76
36°	0.222	-13.07	126°	0.397	-8.02	216°	0.972	-0.25	306°	0.724	-2.81
38°	0.223	-13.03	128°	0.418	-7.58	218°	0.977	-0.20	308°	0.705	-3.04
40°	0.224	-13.00	130°	0.438	-7.17	220°	0.982	-0.16	310°	0.686	-3.27
42°	0.224	-13.00	132°	0.459	-6.76	222°	0.986	-0.12	312°	0.667	-3.52
44°	0.225	-12.96	134°	0.475	-6.47	224°	0.990	-0.09	314°	0.653	-3.70
46°	0.225	-12.96	136°	0.480	-6.38	226°	0.991	-0.08	316°	0.648	-3.77
48°	0.226	-12.92	138°	0.501	-6.00	228°	0.993	-0.06	318°	0.627	-4.05
50°	0.226	-12.92	140°	0.522	-5.65	230°	0.996	-0.03	320°	0.606	-4.35
52°	0.227	-12.88	142°	0.544	-5.29	232°	0.998	-0.02	322°	0.586	-4.64
54°	0.228	-12.84	144°	0.560	-5.04	234°	0.999	-0.01	324°	0.570	-4.88
56°	0.228	-12.84	146°	0.565	-4.96	236°	1.000	0.00	326°	0.565	-4.96
58°	0.227	-12.88	148°	0.586	-4.64	238°	0.998	-0.02	328°	0.544	-5.29
60°	0.226	-12.92	150°	0.606	-4.35	240°	0.996	-0.03	330°	0.522	-5.65
62°	0.226	-12.92	152°	0.627	-4.05	242°	0.993	-0.06	332°	0.501	-6.00
64°	0.225	-12.96	154°	0.643	-3.84	244°	0.992	-0.07	334°	0.485	-6.29
66°	0.225	-12.96	156°	0.648	-3.77	246°	0.991	-0.08	336°	0.480	-6.38
68°	0.224	-13.00	158°	0.667	-3.52	248°	0.986	-0.12	338°	0.459	-6.76
70°	0.224	-13.00	160°	0.686	-3.27	250°	0.982	-0.16	340°	0.438	-7.17
72°	0.223	-13.03	162°	0.705	-3.04	252°	0.977	-0.20	342°	0.418	-7.58
74°	0.222	-13.07	164°	0.719	-2.87	254°	0.973	-0.24	344°	0.402	-7.92
76°	0.222	-13.07	166°	0.724	-2.81	256°	0.972	-0.25	346°	0.397	-8.02
78°	0.222	-13.07	168°	0.741	-2.60	258°	0.965	-0.31	348°	0.379	-8.43
80°	0.222	-13.07	170°	0.758	-2.41	260°	0.958	-0.37	350°	0.360	-8.87
82°	0.223	-13.03	172°	0.776	-2.20	262°	0.950	-0.45	352°	0.342	-9.32
84°	0.223	-13.03	174°	0.789	-2.06	264°	0.945	-0.49	354°	0.329	-9.66
86°	0.223	-13.03	176°	0.793	-2.01	266°	0.943	-0.51	356°	0.324	-9.79
88°	0.226	-12.92	178°	0.808	-1.85	268°	0.933	-0.60	358°	0.310	-10.17



E-POL Coax Slot Side Mount

Antenna Model

Number of Antenna Sections

Size

Area

Aspect ratio

$C = [(I)(kzt)(kz)]^{0.5} * (V)(D)$

NO ICE

90 MPH

= ATC-BCE48M-V3-33

= 1

= 4.8768 m 0.12 m

= 0.585 m²

= 40.64

= 6.68

Ca (With respect to aspect ratio),

Consider Flat Surface. In order for a structural component to be considered as a round structure component the component must have a round profile on the windward and leeward sides of the component (TIA 222g - 2.6.9.1.1 Notes). Linear interpolation has been made for Ca value.

0.60

Total Effective Projected Area of Appurtenances

$\Sigma EPA (CaAa)$

= 0.351 Sq.m 3.78 SqFT

Structure Height H

= 121 m

Structure Base Elevation @ AGL

= 190 m

Antenna Elevation z

= 308.5616 m

Velocity Pressure qz

= 1614.61 Pa

where $qz = 0.613 (kz) (kzt) (kd) (V2)(I)$

Exposure Coefficient Kz

= 1.914 Table 2.4 (TIA 222G)

Topographic Factor Kzt

= 1 TIA 222G, Cl 2.6.6.4

Wind Direction Probability Factor Kd

= 0.85 Table 2.2 (TIA 222G)

Gust Response Factor Gh

= 1.35 TIA 222G, Cl 2.6.7.1

Velocity V, Kph

= 144.8406 kph

Velocity V, m/s

= 40.23 m/s

Importance Factor I

= 1

Wind load Factor

= 1

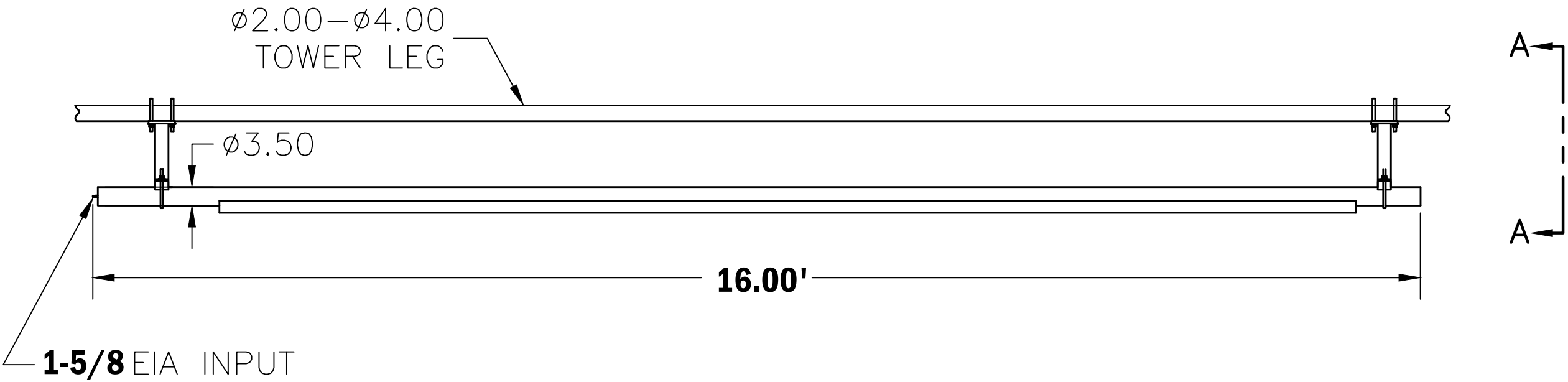
where antenna wind force,

$F = qz(Gh)(\Sigma EPA)(\text{wind load factor})$

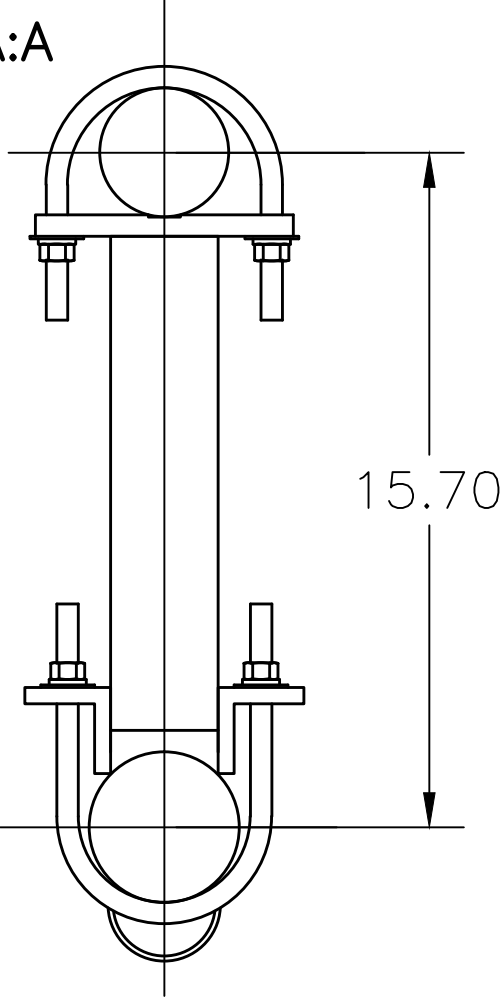
Antenna Wind Force

=		
=	765	N
	171.9925578	lb-f

REV	DESCRIPTION	DATE	APPROVED
-	----	--	--



VIEW A:A

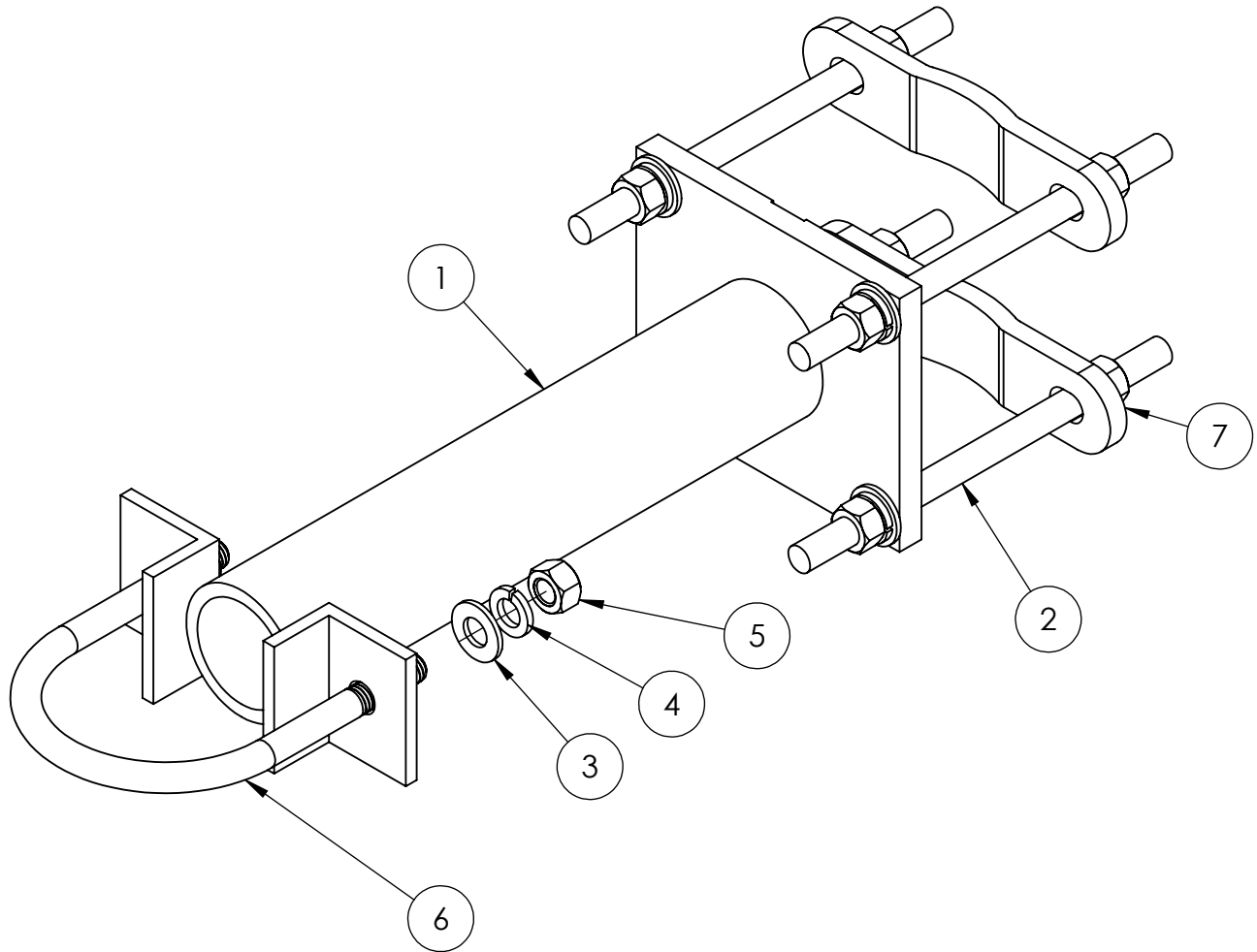


9850 W. 190TH ST. SUITE F MOKENA, IL 60448
Office: (708) 478-6886 Fax: (708) 478-6892

DESCRIPTION:	ATC-BCD - MECHANICAL PARAMETERS	MATERIAL:	N/A	REV:
DRAWN BY:	SM	APPROVED BY:		
DRAWING #	- 1905	DATE:	04/18/4	SCALE:



REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	UPDATED TO NEW ALIVE FORMAT	5/3/2018	
B	T-ROD LENGTH WAS 7.75"	9/10/2018	



***KIT SUPPORTS ϕ 2.00- ϕ 4.00 SUPPORT LEG**

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.	Length (IN)
1	1033	ATCBC8 - MOUNT - WELDMENT	1	
2	45-0037	.50-13 GALV. THREADED ROD	4	12.00
3	10-0037	.50 GALV. FLAT WASHER	10	
4	15-0031	.50 GALV. LOCK WASHER	10	
5	20-0117	.50-13 GALV. HEX HEAD NUT	10	
6	40-0073	.50-13 GALV. 4" I.D. U-BOLT	1	
7	LPMT-CLAMP	5.00" SADDLE CLAMP	2	

***2 KITS: 20 LBS**
***3 KITS: 28 LBS**

TITLE: LPMTKIT - ASSEMBLY

DRAWN BY: SM DWG#: LPMTKIT SHEET 1 OF 1

COHEN, DIPPELL AND EVERIST, P.C.

EXHIBIT E-2

ALLOCATION STUDY

tvstudy v2.2.5 (4uoc83)
 Database: localhost, Study: W33EK-SEPTFINAL, Model: Longley-Rice
 Start: 2019.09.11 16:01:26

Study created: 2019.09.11 16:01:26

Study build station data: LMS TV 2019-09-10

Proposal: W33EK-D D33 LD APP EFFINGHAM, IL
 File number: SEPTFINAL
 Facility ID: 182814
 Station data: User record
 Record ID: 22
 Country: U.S.

Build options:
 Protect pre-transition records not on baseline channel

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
Yes	WICD	D32	DT	LIC	CHAMPAIGN, IL	BLANK0000059351	99.4 km
No	W32EF-D	D32	LD	LIC	PEORIA, IL	BLANK0000010565	177.2
No	WTJR	D32	DT	LIC	QUINCY, IL	BLCDDT20091110ADL	264.9
No	NEW	D32	LD	APP	EVANSVILLE, IN	BNPDTL20090825AZT	180.3
No	WDRB	D32	DT	CP	LOUISVILLE, KY	BLANK0000060325	240.9
No	WPSD-TV	D32	DT	LIC	PADUCAH, KY	BLCDDT20040227ABD	234.7
No	KUMO-LD	D32	LD	CP	ST LOUIS, MO	BLANK0000030456	184.3
No	K20KF-D	D33	LD	CP	DAVENPORT, IA	BLANK0000051752	342.7
No	WMAQ-TV	D33	DT	CP	CHICAGO, IL	BLANK0000080396	298.8
No	WCHU-LD	D33	LD	LIC	CHICAGO, IL	BLDTL20110928ALC	301.2
No	W33DV-D	D33	LD	CP	PEORIA, IL	BDCCDTT20120713ADV	177.1
No	WIDN-LD	D33	LD	CP	ROCKFORD, IL	BLANK0000051604	345.6
No	W33AY-D	D33	LD	LIC	SPRINGFIELD, IL	BLDTL20101122ABA	120.5
Yes	WTIU	D33	DT	CP	BLOOMINGTON, IN	BLANK0000034852	162.8
No	WUCU-LD	D33	LD	LIC	EVANSVILLE, IN	BLANK0000010568	150.7
No	WUCU-LD	D33	LD	CP	EVANSVILLE, IN	BLANK0000036384	158.6
No	W33DC-D	D33	LD	CP	FORT WAYNE, IN	BNPDTL20091228AAX	343.8
Yes	WHFE-LD	D33	LD	CP	SULLIVAN, IN	BDCCDTL20061027ABH	79.1

No	WQDE-LD	D33	LD	LIC	WOLCOTT, IN	BLANK0000001378	186.1
No	K33MN-D	D33	LD	CP	JEFFERSON CITY, MO	BLANK0000001282	342.0
No	KTVO	D33	DT	APP	KIRKSVILLE, MO	BLANK0000035797	374.4
No	KTVO	D33	DT	LIC	KIRKSVILLE, MO	BLCDT20030604AAC	374.4
No	KBGU-LP	D33	LD	LIC	ST. LOUIS, MO	BLANK0000001766	184.3
Yes	KTVI	D33	DT	CP	ST. LOUIS, MO	BLANK0000034468	189.9
No	WSTR-TV	D33	DT	LIC	CINCINNATI, OH	BLCDT20091117ACS	332.1
No	WHIO-TV	D33	DT	CP	DAYTON, OH	BLANK0000025295	358.4
No	WPGD-TV	D33	DT	LIC	HENDERSONVILLE, TN	BMLCDT20131125BGF	359.5
No	WPXX-TV	D33	DT	LIC	MEMPHIS, TN	BLANK0000063435	466.5
No	WITI	D33	DT	LIC	MILWAUKEE, WI	BLANK0000040653	428.7
No	W34EH-D	D34	LD	LIC	CHAMPAIGN, IL	BLANK0000014112	31.3
Yes	WCIA	D34	DT	CP	CHAMPAIGN, IL	BLANK0000072063	95.3
No	WSIL-TV	D34	DT	LIC	HARRISBURG, IL	BLCDT20080718AAR	186.9
No	W42EM-D	D34	LD	CP	MOUNT VERNON, IL	BLANK0000051636	169.6
No	WQEC	D34	DT	APP	QUINCY, IL	BLANK0000035763	263.5
No	WQEC	D34	DT	LIC	QUINCY, IL	BLEDT20040715ADL	263.5
No	W34ET-D	D34	LD	CP	BRAZIL, IN	BNPDTL20100510AFJ	85.4
No	WKMJ-TV	D34	DT	CP	LOUISVILLE, KY	BLANK0000034636	241.5

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D33
 Mask: Full Service
 Latitude: 39 15 1.30 N (NAD83)
 Longitude: 88 22 46.60 W
 Height AMSL: 289.0 m
 HAAT: 101.5 m
 Peak ERP: 15.0 kW
 Antenna: Omnidirectional
 Elev Pattn: Generic
 Elec Tilt: 1.00

50.6 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	15.0 kW	89.8 m	41.9 km
45.0	15.0	103.3	43.6
90.0	15.0	111.4	44.4
135.0	15.0	112.2	44.5

180.0	15.0	106.6	43.9
225.0	15.0	100.3	43.2
270.0	15.0	97.0	42.8
315.0	15.0	91.8	42.2

Distance to Canadian border: 534.1 km

Distance to Mexican border: 1588.3 km

Conditions at FCC monitoring station: Allegan MI
 Bearing: 27.8 degrees Distance: 424.8 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
 Bearing: 279.4 degrees Distance: 1441.9 km

Study cell size: 1.00 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 BLANK0000059351 LIC scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WICD	D32	DT	LIC	CHAMPAIGN, IL	BLANK0000059351	
Undesireds:	W33EK-D	D33	LD	APP	EFFINGHAM, IL	SEPTFINAL	99.4 km
	WLPD-CD	D32	DC	CP	PLANO, IL	BLANK0000034861	197.1
	WTJR	D32	DT	LIC	QUINCY, IL	BLCDDT20091110ADL	290.9
	WANE-TV	D32	DT	CP	FORT WAYNE, IN	BLANK0000034806	257.2
	WDRB	D32	DT	CP	LOUISVILLE, KY	BLANK0000060325	260.9
	Service area	Terrain-limited		IX-free, before		IX-free, after	Percent New IX
	35952.4	1,238,207	35923.5	1,237,780	35001.5	1,222,519	34728.6 1,219,744 0.78 0.23
Undesired				Total IX	Unique IX, before		Unique IX, after
W33EK-D	D33	LD	APP	278.8	2,799	41.7	132
WLPD-CD	D32	DC	CP	41.7	132	41.7	132

WTJR D32 DT LIC	275.2	7,400	270.2	7,386	270.2	7,386
WANE-TV D32 DT CP	122.3	2,441	117.3	2,393	117.3	2,393
WDRB D32 DT CP	492.8	5,350	482.8	5,288	478.9	5,264

Interference to BLANK0000034852 CP scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WTIU	D33	DT	CP	BLOOMINGTON, IN	BLANK0000034852	
Undesireds:	W33EK-D	D33	LD	APP	EFFINGHAM, IL	SEPTFINAL	162.8 km
	WICD	D32	DT	LIC	CHAMPAIGN, IL	BLANK0000059351	159.3
	WDRB	D32	DT	CP	LOUISVILLE, KY	BLANK0000060325	104.3
	WMAQ-TV	D33	DT	CP	CHICAGO, IL	BLANK0000080396	319.1
	KTVI	D33	DT	CP	ST. LOUIS, MO	BLANK0000034468	342.4
	WHIO-TV	D33	DT	CP	DAYTON, OH	BLANK0000025295	203.8
	WPGD-TV	D33	DT	LIC	HENDERSONVILLE, TN	BMLCDT20131125BGF	320.5
	WKMJ-TV	D34	DT	CP	LOUISVILLE, KY	BLANK0000034636	103.6
	Service area		Terrain-limited		IX-free, before	IX-free, after	Percent New IX
	20270.2	1,575,591	20175.9	1,573,952	19451.4	1,555,600	19432.5 1,553,272 0.10 0.15

Undesired		Total IX	Unique IX, before	Unique IX, after
W33EK-D D33 LD APP	34.8	2,815	18.9	2,328
WICD D32 DT LIC	16.8	749	10.9	483
WDRB D32 DT CP	496.9	12,766	388.8	9,800
WMAQ-TV D33 DT CP	4.0	71	0.0	0
KTVI D33 DT CP	4.0	64	0.0	0
WHIO-TV D33 DT CP	287.8	6,751	158.7	4,357
WPGD-TV D33 DT LIC	69.2	1,077	10.0	64
WKMJ-TV D34 DT CP	53.1	1,863	1.0	3

Interference to BDCCDTL20061027ABH CP scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WHFE-LD	D33	LD	CP	SULLIVAN, IN	BDCCDTL20061027ABH	
Undesireds:	W33EK-D	D33	LD	APP	EFFINGHAM, IL	SEPTFINAL	79.1 km
	WICD	D32	DT	LIC	CHAMPAIGN, IL	BLANK0000059351	89.9
	WTIU	D33	DT	CP	BLOOMINGTON, IN	BLANK0000034852	86.4
	WUCU-LD	D33	LD	LIC	EVANSVILLE, IN	BLANK0000010568	158.3
	W34ET-D	D34	LD	CP	BRAZIL, IN	BNPDTL20100510AFJ	17.6

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
4284.0 176,592	4284.0 176,592	2581.7 136,021	2573.7 135,925	0.31 0.07

Undesired	Total IX	Unique IX, before	Unique IX, after
W33EK-D D33 LD APP	114.1 506		7.9 96
WICD D32 DT LIC	2.0 25	0.0 0	0.0 0
WTIU D33 DT CP	1507.5 31,923	1383.1 30,144	1277.9 29,759
W34ET-D D34 LD CP	317.3 10,402	194.9 8,648	194.9 8,648

Interference to BLANK0000034468 CP scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	KTVI	D33	DT	CP	ST. LOUIS, MO	BLANK0000034468	

Undesireds:	W33EK-D	D33	LD	APP	EFFINGHAM, IL	SEPTFINAL	189.9 km
	KNWA-TV	D33	DT	CP	ROGERS, AR	BLANK0000027617	394.2
	WAOE	D33	DT	BL	PEORIA, IL	DTVBL52280	243.3
	KTVO	D33	DT	APP	KIRKSVILLE, MO	BLANK0000035797	283.9
	WPXX-TV	D33	DT	LIC	MEMPHIS, TN	BLANK0000063435	372.8
	WSIL-TV	D34	DT	LIC	HARRISBURG, IL	BLCDT20080718AAR	166.5
	WQEC	D34	DT	APP	QUINCY, IL	BLANK0000035763	179.5

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
32260.9 2,996,454	31673.9 2,990,074	31508.4 2,985,688	31504.4 2,985,679	0.01 0.00

Undesired	Total IX	Unique IX, before	Unique IX, after
W33EK-D D33 LD APP	4.0 9		4.0 9
KNWA-TV D33 DT CP	5.0 61	5.0 61	5.0 61
WAOE D33 DT BL	4.0 59	0.0 0	0.0 0
KTVO D33 DT APP	71.7 301	67.7 242	67.7 242
WPXX-TV D33 DT LIC	8.1 112	8.1 112	8.1 112
WSIL-TV D34 DT LIC	80.7 3,912	80.7 3,912	80.7 3,912

Interference to BLANK0000034468 CP scenario 2

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	KTVI	D33	DT	CP	ST. LOUIS, MO	BLANK0000034468	

Undesireds:	W33EK-D	D33	LD	APP	EFFINGHAM, IL	SEPTFINAL	189.9 km
	KNWA-TV	D33	DT	CP	ROGERS, AR	BLANK0000027617	394.2

WAOE	D33	DT	BL	PEORIA, IL	DTVBL52280	243.3
WPXX-TV	D33	DT	LIC	MEMPHIS, TN	BLANK0000063435	372.8
WSIL-TV	D34	DT	LIC	HARRISBURG, IL	BLC DT20080718AAR	166.5
WQEC	D34	DT	APP	QUINCY, IL	BLANK0000035763	179.5

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
32260.9 2,996,454	31673.9 2,990,074	31576.1 2,985,930	31572.1 2,985,921	0.01 0.00

Undesired	Total IX	Unique IX, before	Unique IX, after
W33EK-D D33 LD APP	4.0 9	4.0 9	4.0 9
KNWA-TV D33 DT CP	5.0 61	5.0 61	5.0 61
WAOE D33 DT BL	4.0 59	4.0 59	4.0 59
WPXX-TV D33 DT LIC	8.1 112	8.1 112	8.1 112
WSIL-TV D34 DT LIC	80.7 3,912	80.7 3,912	80.7 3,912

Interference to BLANK0000072063 CP scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WCIA	D34	DT	CP	CHAMPAIGN, IL	BLANK0000072063	
Undesireds:	W33EK-D	D33	LD	APP	EFFINGHAM, IL	SEPTFINAL	95.3 km
	WAOE	D33	DT	BL	PEORIA, IL	DTVBL52280	109.7
	KQIN	D34	DT	LIC	DAVENPORT, IA	BLED T20120921ADS	210.7
	WCPX-TV	D34	DT	CP	CHICAGO, IL	BLANK0000034347	208.6
	WSIL-TV	D34	DT	LIC	HARRISBURG, IL	BLC DT20080718AAR	279.4
	WQEC	D34	DT	APP	QUINCY, IL	BLANK0000035763	243.7
	WISE-TV	D34	DT	LIC	FORT WAYNE, IN	BLANK0000064330	297.0
	WK MJ-TV	D34	DT	CP	LOUISVILLE, KY	BLANK0000034636	296.9
	WKEF	D34	DT	CP	DAYTON, OH	BLANK0000034522	360.1
	WTV P	D35	DT	CP	PEORIA, IL	BLANK0000028050	111.2
	WTWO	D35	DT	CP	TERRE HAUTE, IN	BLANK0000028193	131.9

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
28091.7 870,490	28031.8 868,778	25949.0 838,690	25826.1 837,501	0.47 0.14

Undesired	Total IX	Unique IX, before	Unique IX, after
W33EK-D D33 LD APP	130.9 1,270	123.0 1,189	123.0 1,189
WAOE D33 DT BL	52.8 2,452	2.0 0	2.0 0
KQIN D34 DT LIC	6.0 86	0.0 0	0.0 0
WCPX-TV D34 DT CP	1395.6 19,232	1335.7 18,574	1335.7 18,574
WSIL-TV D34 DT LIC	63.5 609	31.7 380	23.8 299
WQEC D34 DT APP	143.3 2,154	82.4 1,548	82.4 1,548

WISE-TV D34 DT LIC	8.0	135	0.0	0	0.0	0
WKMJ-TV D34 DT CP	1.0	22	0.0	0	0.0	0
WKEF D34 DT CP	11.0	133	0.0	0	0.0	0
WTVP D35 DT CP	288.2	7,338	197.4	4,671	197.4	4,671
WTWO D35 DT CP	321.8	2,039	292.0	1,862	292.0	1,862

Interference to BLANK0000072063 CP scenario 2

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WCIA	D34	DT	CP	CHAMPAIGN, IL	BLANK0000072063	
Undesireds:	W33EK-D	D33	LD	APP	EFFINGHAM, IL	SEPTFINAL	95.3 km
	WAOE	D33	DT	BL	PEORIA, IL	DTVBL52280	109.7
	KQIN	D34	DT	LIC	DAVENPORT, IA	BLEDT20120921ADS	210.7
	WCPX-TV	D34	DT	CP	CHICAGO, IL	BLANK0000034347	208.6
	WSIL-TV	D34	DT	LIC	HARRISBURG, IL	BLCDT20080718AAR	279.4
	WQEC	D34	DT	LIC	QUINCY, IL	BLEDT20040715ADL	243.7
	WISE-TV	D34	DT	LIC	FORT WAYNE, IN	BLANK0000064330	297.0
	WKMJ-TV	D34	DT	CP	LOUISVILLE, KY	BLANK0000034636	296.9
	WKEF	D34	DT	CP	DAYTON, OH	BLANK0000034522	360.1
	WTVP	D35	DT	CP	PEORIA, IL	BLANK0000028050	111.2
	WTWO	D35	DT	CP	TERRE HAUTE, IN	BLANK0000028193	131.9

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
28091.7	870,490	28031.8	868,778	26027.4
				840,217
				25904.5
				839,028
				0.47
				0.14

Undesired	Total IX	Unique IX, before	Unique IX, after
W33EK-D D33 LD APP	130.9	1,270	123.0
WAOE D33 DT BL	52.8	2,452	2.0
KQIN D34 DT LIC	6.0	86	0.0
WCPX-TV D34 DT CP	1395.6	19,232	1340.6
WSIL-TV D34 DT LIC	63.5	609	31.7
WQEC D34 DT LIC	10.0	260	4.0
WISE-TV D34 DT LIC	8.0	135	0.0
WKMJ-TV D34 DT CP	1.0	22	0.0
WKEF D34 DT CP	11.0	133	0.0
WTVP D35 DT CP	288.2	7,338	225.4
WTWO D35 DT CP	321.8	2,039	292.0

Interference to proposal scenario 1

Desired:	Call W33EK-D	Chan D33	Svc LD	Status APP	City, State EFFINGHAM, IL	File Number SEPTFINAL	Distance
Undesireds:	WICD	D32	DT	LIC	CHAMPAIGN, IL	BLANK0000059351	99.4 km
	WTIU	D33	DT	CP	BLOOMINGTON, IN	BLANK0000034852	162.8
	WUCU-LD	D33	LD	LIC	EVANSVILLE, IN	BLANK0000010568	150.7
	WHFE-LD	D33	LD	CP	SULLIVAN, IN	BDCCDTL20061027ABH	79.1
	KTVI	D33	DT	CP	ST. LOUIS, MO	BLANK0000034468	189.9
	W34EH-D	D34	LD	LIC	CHAMPAIGN, IL	BLANK0000014112	31.3
	WCIA	D34	DT	CP	CHAMPAIGN, IL	BLANK0000072063	95.3

Service area	Terrain-limited	IX-free	Percent IX
5916.2 128,993	5916.2 128,993	5764.5 126,718	2.56 1.76

Undesired	Total IX	Unique IX	Prcnt Unique IX
WICD D32 DT LIC 8.9 32 5.9 3 0.10 0.00			
WTIU D33 DT CP 21.8 279 13.9 32 0.23 0.02			
WHFE-LD D33 LD CP 114.1 1,637 104.2 1,362 1.76 1.06			
KTVI D33 DT CP 17.8 833 4.9 352 0.08 0.27			
W34EH-D D34 LD LIC 3.0 4 3.0 4 0.05 0.00			
WCIA D34 DT CP 3.9 9 3.0 9 0.05 0.01			

COHEN, DIPPELL AND EVERIST, P.C.

TABLE I
COMPUTED COVERAGE DATA
FOR THE DTV OPERATION OF
W33EK-D, EFFINGHAM, ILLINOIS
CHANNEL 33 15 KW MAX ERP 289 METERS R/C AMSL
SEPTEMBER 2019

<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>51 dBu</u> km
0	199.2	89.8	0.262	15	41.5
10	196.4	92.6	0.267	15	41.8
20	194.4	94.6	0.269	15	42.1
30	190.4	98.6	0.275	15	42.6
40	187.5	101.5	0.279	15	42.9
50	186.0	103.0	0.281	15	43.1
60	182.9	106.1	0.285	15	43.4
70	180.8	108.2	0.288	15	43.6
80	178.8	110.2	0.291	15	43.8
90	177.6	111.4	0.292	15	43.9
100	174.7	114.3	0.296	15	44.2
110	172.5	116.5	0.299	15	44.4
120	167.8	121.2	0.305	15	44.7
130	174.1	114.9	0.297	15	44.2
140	176.9	112.1	0.293	15	44.0
150	177.6	111.4	0.292	15	43.9
160	178.9	110.1	0.291	15	43.8
170	181.3	107.7	0.287	15	43.6
180	182.4	106.6	0.286	15	43.5
190	182.7	106.3	0.286	15	43.4
200	183.4	105.6	0.285	15	43.4
210	184.7	104.3	0.283	15	43.2
220	184.9	104.1	0.283	15	43.2
230	190.2	98.8	0.275	15	42.6
240	188.3	100.7	0.278	15	42.8
250	190.9	98.1	0.274	15	42.5
260	193.0	96.0	0.271	15	42.3
270	192.0	97.0	0.273	15	42.4

COHEN, DIPPELL AND EVERIST, P.C.

TABLE I
COMPUTED COVERAGE DATA
FOR THE DTV OPERATION OF
W33EK-D, EFFINGHAM, ILLINOIS
CHANNEL 33 15 KW MAX ERP 289 METERS R/C AMSL
SEPTEMBER 2019

<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>51 dBu</u> km
280	193.8	95.3	0.270	15	42.2
290	195.2	93.8	0.268	15	42.0
300	196.3	92.7	0.267	15	41.8
310	197.2	91.8	0.265	15	41.7
320	198.0	91.0	0.264	15	41.6
330	198.4	90.6	0.264	15	41.6
340	199.9	89.1	0.262	15	41.4
350	200.8	88.2	0.260	15	41.3

