

ENGINEERING STATEMENT
APPLICATION FOR SPECIAL TEMPORARY AUTHORITY
FOR STATION LICENSED TO
ASHLAND, WISCONSIN
FROM CHANNEL 45 TO CHANNEL 15
CHANNEL 15 4.93 KW 285 METERS RC/AMSL

SEPTEMBER 2017

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

COHEN, DIPPELL AND EVERIST, P. C.

City of Washington)
) ss
District of Columbia)

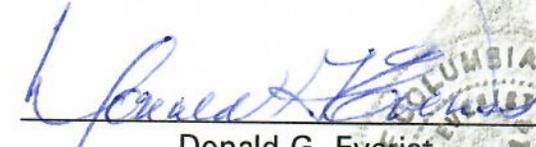
Donald G. Everist, being duly sworn upon his oath, deposes and states that:

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

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

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

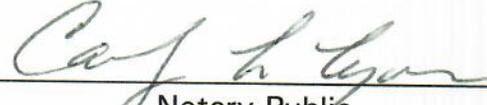
That the facts stated herein are true of his own knowledge, except such facts as are stated to be on information and belief, and as to such facts he believes them to be true.



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

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





Notary Public

My Commission Expires: 2/28/2018

Introduction

This engineering statement supports the displacement application for a construction permit filed on behalf of KQDS Acquisition Corp., licensee of television translator station W45CI, licensed to Ashland, Wisconsin (Facility ID: 130295). W45CI is displaced from its currently licensed Channel 45 to the proposed Channel 15 due to the Incentive Auction and the recent notification by T-Mobile. T-Mobile has advised that it requires the station to terminate its operation by November 27, 2017. This special temporary application ("STA") has a companion displacement application that accompanies this request.

W45CI's displacement channel due to the Incentive Auction requests a construction permit for digital translator television facilities for Channel 15 with an effective radiated power ("ERP") of 4.93 kW directional at a radiation center above mean sea level ("RCAMSL") of 285 meters.

The W45CI channel modification is located at the same transmitter site and specifying the same radiation center. No other changes are proposed.

Detailed Discussion

Tower Location

The geographic coordinates of the proposed transmitter site are as follows:

North Latitude: 46° 35' 24"

West Longitude: 90° 50' 06"

NAD-27

North Latitude: 46° 35' 23.3"

West Longitude: 90° 50' 13.3"

NAD-83

Equipment Data

Antenna: ERI, Model AL8OC-15-H (or equivalent) antenna with 1.75° electrical beam tilt. The vertical plane pattern and other exhibits required by the FCC Rules are herein included as Exhibit E-2.

Transmission Line: 86.9 meters (285 ft) of Andrew, Type HJ7-50A, 50 ohm or equivalent with loss of 0.466 dB/100 feet

Power Data

Transmitter output	0.48 kW	-3.22 dBk
Transmission line efficiency/loss	73.67%	1.33 dB
Input power to the antenna	0.354 kW	-4.55 dBk
Antenna power gain, Horizontal Main Lobe	14.06	11.48 dBd
Effective Radiated Power, Horizontal	4.93 kW	6.93 dBk

Note: Conversion to dB may result in slight difference.

Elevation Data

Antenna Location Site Elevation Above Mean Sea Level	213.4 meters (700 feet)
Height of Radiation Center Above Ground Level	71.6 meters (235 feet)
Overall Tower Height Above Ground Level	126.8 meters (416 feet)
Height of Radiation Center Above Mean Sea Level	285 meters (935 feet)
Out-of-Channel Emission Mask	Simple

As indicated above, the transmitter with a typical output power (simple emission mask) of 0.48 kW will deliver 0.354 kW to the input of the antenna. The antenna having a maximum gain of 11.48 dBd and an electrical beam tilt of 1.75 degrees will produce a maximum ERP of 4.93 kW. The antenna elevation pattern and associated information are provided in Exhibit E-2.

A coverage map (Exhibit E-3) provides the normally protected contour of the proposed Channel 15 facility. Exhibit E-4 provides the normally protected contour of the proposed and licensed operations.

Other Broadcast Facilities

A brief analysis was completed to determine the presence of stations in the vicinity of the W45CI tower using the data contained within the Commission's Consolidated Database System ("CDBS") dated September 25, 2017. Within 100 meters of the proposed site, there are no authorized LPFM radio stations, FM translator stations, no authorized DTV and NTSC television stations, and no other low-power analog television and television translator stations aside from the proposed Channel 15 operation. There is one AM facility¹ within 3.2 km of the existing tower. Although no adverse technical affects are expected due to the proposed changes, the licensee will take measures to resolve any problems proven to be related to the changes proposed in this application.

Interference Analysis

A study of predicted interference caused by the proposed W45CI operation on Channel 15 digital operation has been performed using the Longley-Rice program for which the source data has

¹Non-directional operation is located 297 km--only 0.8 km separation is required.

been posted by the Commission on its website at <http://www.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 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 W45CI operating on Channel 15 low-power digital facilities and all relevant stations listed in the FCC database as of September 13, 2017. The study results demonstrate that the proposed Channel 15 operation is in compliance with the FCC interference criteria and the included stations are listed in Table I.

Other Licensed and Broadcast Facilities

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

FCC Rule, Section 1.1307

Pursuant to OET Bulletin No. 65 dated August 1997, these non-broadcast stations are all exempt from RFF evaluations for the following reason:

<u>Station</u>	<u>Licensed Under Part No.</u>	<u>Reason for Exemption</u>
	Part 74, Subpart F	Subpart F Exempt
	Part 90	Antenna Height > 10 meters
	Part 90	ERP < 1000 watts
	Part 74, Subpart F	Subpart F Exempt

The RFF contribution of each 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 4.93 kW directional operation will utilize a ERI, Type AL80C-15-H antenna (or equivalent) described above with a center of radiation above ground of 71.6 meters. The proposed antenna is side-mounted on an existing tower with an overall height of 126.8 meters above ground. The proposed digital Channel 15 operation of W45CI will create a radiofrequency field level of less than one $\mu\text{W}/\text{cm}^2$ at the base of the tower². This level is less than one percent of the Maximum Permissible Exposure (“MPE”) limit for the general population and uncontrolled environment.

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.

²Field ratio 0.103 from 60-90°.

Environmental Assessment

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

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

ABOVE MEAN SEA LEVEL

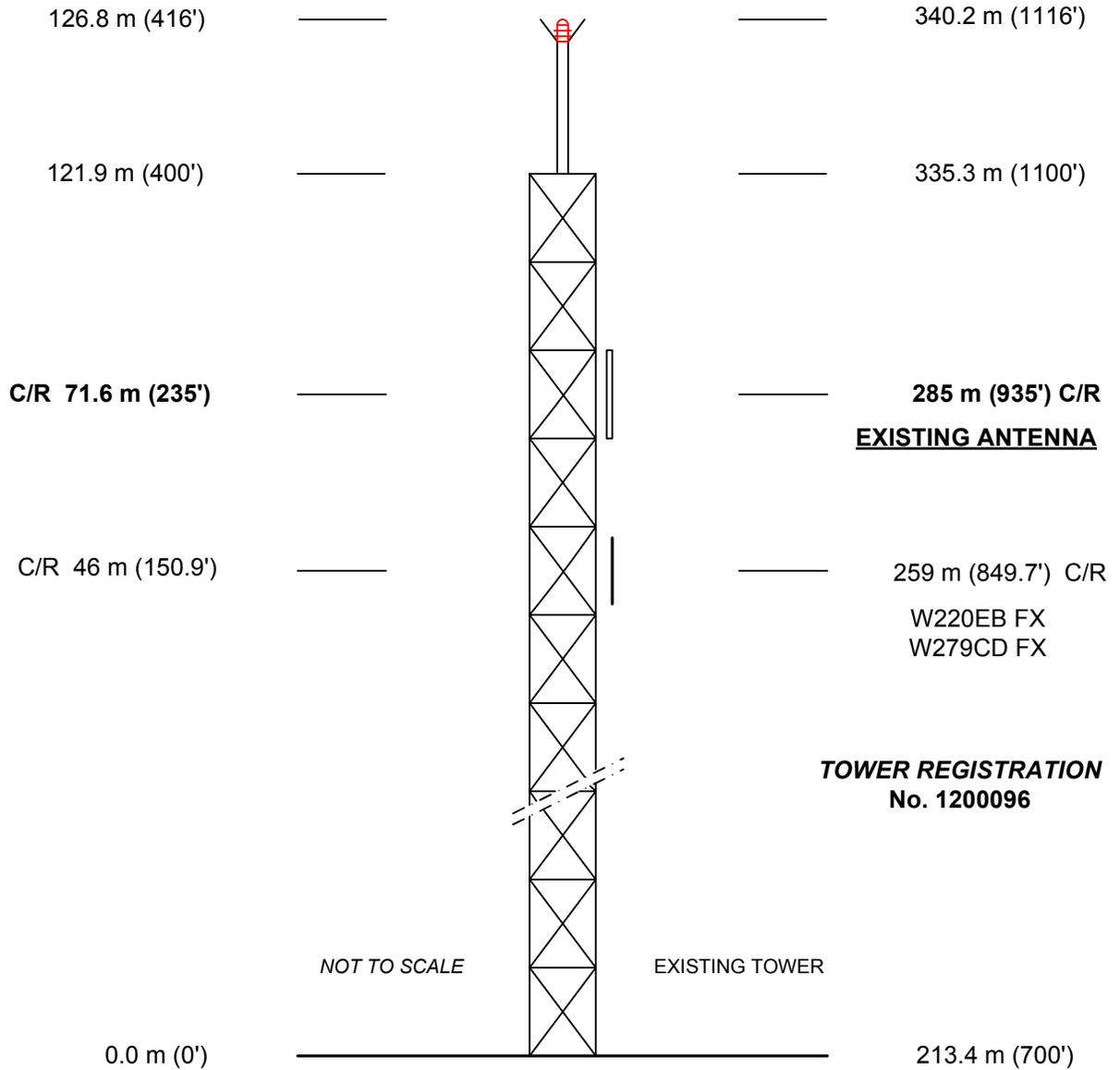


EXHIBIT E - 1
VERTICAL SKETCH
FOR THE DT SPECIAL TEMPORARY AUTHORITY REQUEST OF
CHANNEL 15 OPERATION
W45CI, ASHLAND, WISCONSIN
SEPTEMBER 2017

EXHIBIT E-2

ANTENNA MANUFACTURER DATA

**PRELIMINARY SPECIFICATION FOR
ERI AL HORIZONTALLY POLARIZED
COAXIAL SLOTTED ARRAY ANTENNA**

*Prepared For Channel 15
KQDS*

*Ashland, WI
September 18, 2017*

**ANTENNA TYPE:
AL80C-15-H**

**SPECIFICATION NO:
W45CI-D - AL8**



PRELIMINARY SPECIFICATION FOR ERIAL HORIZONTALLY POLARIZED COAXIAL SLOTTED ARRAY ANTENNA

ELECTRICAL CHARACTERISTICS:

CHANNEL:	DTV:	15
FREQUENCY RANGE:	DTV:	476.00 - 482.00 MHz
AZIMUTH PATTERN NUMBER:	Hor Pol:	AL-OC
ELEVATION PATTERN NUMBER:	Hor Pol:	AL8
AZIMUTH DIRECTIVITY:	Hor Pol:	1.62 (2.10 dB)
ELEVATION DIRECTIVITY:	Hor Pol:	8.68 (9.39 dBd)
PEAK POWER GAIN:	Hor Pol:	14.06 (11.48 dBd)
GAIN AT HORIZONTAL:	Hor Pol:	7.76 (8.90 dBd)
ELECTRICAL BEAM TILT:		-1.75 Degrees
INPUT POWER REQUIRED:		0.351 kW Average Power, 8VSB Digital
MAXIMUM INPUT POWER:		2.00 kW Average Power
INPUT TYPE:		7/8" EIA
ANTENNA VSWR (MAXIMUM):	DTV:	1.10 Over 6 MHz of Channel

Preliminary, subject to final design and review.

PRELIMINARY SPECIFICATION FOR ERI AL HORIZONTALLY POLARIZED COAXIAL SLOTTED ARRAY ANTENNA

MECHANICAL CHARACTERISTICS:

MOUNTING CONFIGURATION:

**(Tower Interface supplied and installed by others.)*

Side Mount

HEIGHT OF ANTENNA:

CONTACT ERI

HEIGHT OF CENTER OF RADIATION:

CONTACT ERI

OVERALL HEIGHT (A):

CONTACT ERI

DEICING:

Radomes or deicing heaters not normally required for radial ice less than 1/2-inch

RADOME DIAMETER (C):

CONTACT ERI

RADOME COLOR:

GRAY

CLIMBING DEVICE:

NOT APPLICABLE

CALCULATED WEIGHT¹:

CONTACT ERI

ANTENNA AREA:

CONTACT ERI

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 transitional and three rotational degrees of freedom.

¹ Calculated weight is based on the PRELIMINARY design of the antenna. The actual weight of the antenna will be within $\pm 10\%$ of the calculated weight. The actual weight will be given in the technical manual that accompanies the antenna. This figure is for the antenna only and does not include the antenna input section.

Note: Localized conditions may require higher wind speed specifications than TIA/EIA specifications. Check with local authorities to verify wind speed requirements.

Preliminary, subject to final design and review.

Broadcast Antenna System Power Analysis

**KQDS Channel 15
Ashland, WI
AL80C-15-H**

ANTENNA PARAMETERS

Azimuth Directivity:

Hor. Pol: 1.62
dBd: 2.10

Elevation Directivity:

Hor. Pol: 8.68
dBd: 9.39

TRANSMISSION LINE:

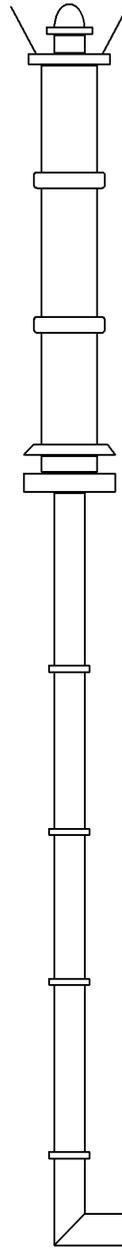
VERTICAL RUN:

Type: HJ7-50A
Length, ft: 235 ft.
Attenuation, dB/100 ft: 0.466 dB/100 ft.

HORIZONTAL RUN:

Type: HJ7-50A
Length, ft: 50 ft.
Attenuation, dB/100 ft: 0.466 dB/100 ft.

Line Efficiency: 73.67 %



ERP:

kW: 4.93
dBk: 6.93

POWER GAIN:

Ratio: 14.06
dBd: 11.48

ANTENNA INPUT:

kW: 0.35
dBk: -4.55

LINE LOSS:

kW: 0.13
dB: 1.33

TRANSMITTER POWER:

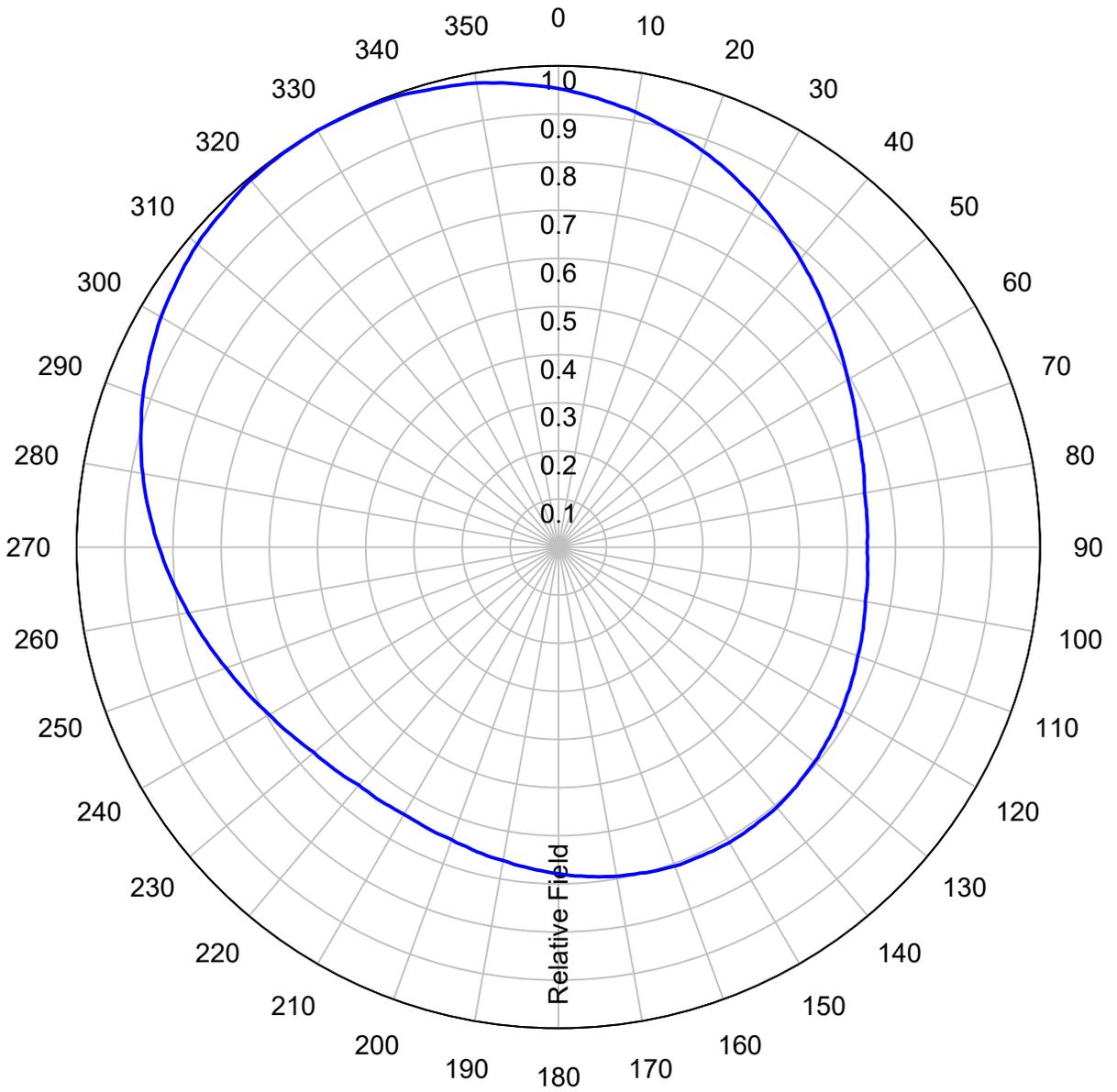
kW: 0.48
dBk: -3.22

Preliminary, subject to final design and review.

AZIMUTH PATTERN

Type: AL-OC
Directivity: Numeric 1.62 dBd 2.10
Peak(s) at: _____

Channel: 15
Location: Ashland, WI
Polarization: Horizontal
Note: Pattern shape and directivity may vary with channel and routing configuration.



Preliminary, subject to final design and review.

TABULATED DATA FOR AZIMUTH PATTERN

Type: AL-OC

Polarization:Horizontal

ANGLE	FIELD	dB									
0	0.953	-0.42	92	0.642	-3.85	184	0.672	-3.45	276	0.858	-1.33
2	0.946	-0.48	94	0.643	-3.84	186	0.668	-3.50	278	0.867	-1.24
4	0.939	-0.55	96	0.645	-3.81	188	0.665	-3.54	280	0.876	-1.15
6	0.932	-0.61	98	0.646	-3.80	190	0.661	-3.60	282	0.885	-1.06
8	0.925	-0.68	100	0.647	-3.78	192	0.659	-3.62	284	0.893	-0.98
10	0.918	-0.74	102	0.650	-3.74	194	0.656	-3.66	286	0.901	-0.91
12	0.910	-0.82	104	0.653	-3.70	196	0.653	-3.70	288	0.910	-0.82
14	0.901	-0.91	106	0.656	-3.66	198	0.650	-3.74	290	0.918	-0.74
16	0.893	-0.98	108	0.659	-3.62	200	0.647	-3.78	292	0.925	-0.68
18	0.885	-1.06	110	0.661	-3.60	202	0.646	-3.80	294	0.932	-0.61
20	0.876	-1.15	112	0.665	-3.54	204	0.645	-3.81	296	0.939	-0.55
22	0.867	-1.24	114	0.668	-3.50	206	0.643	-3.84	298	0.946	-0.48
24	0.858	-1.33	116	0.672	-3.45	208	0.642	-3.85	300	0.953	-0.42
26	0.848	-1.43	118	0.675	-3.41	210	0.641	-3.86	302	0.958	-0.37
28	0.839	-1.52	120	0.679	-3.36	212	0.642	-3.85	304	0.963	-0.33
30	0.829	-1.63	122	0.682	-3.32	214	0.643	-3.84	306	0.969	-0.27
32	0.820	-1.72	124	0.685	-3.29	216	0.644	-3.82	308	0.974	-0.23
34	0.810	-1.83	126	0.688	-3.25	218	0.644	-3.82	310	0.979	-0.18
36	0.800	-1.94	128	0.691	-3.21	220	0.645	-3.81	312	0.982	-0.16
38	0.790	-2.05	130	0.694	-3.17	222	0.649	-3.76	314	0.985	-0.13
40	0.781	-2.15	132	0.696	-3.15	224	0.653	-3.70	316	0.988	-0.10
42	0.771	-2.26	134	0.698	-3.12	226	0.656	-3.66	318	0.992	-0.07
44	0.762	-2.36	136	0.701	-3.09	228	0.660	-3.61	320	0.995	-0.04
46	0.753	-2.46	138	0.703	-3.06	230	0.663	-3.57	322	0.996	-0.03
48	0.743	-2.58	140	0.705	-3.04	232	0.669	-3.49	324	0.997	-0.03
50	0.734	-2.69	142	0.706	-3.02	234	0.675	-3.41	326	0.998	-0.02
52	0.726	-2.78	144	0.706	-3.02	236	0.682	-3.32	328	0.999	-0.01
54	0.718	-2.88	146	0.707	-3.01	238	0.688	-3.25	330	1.000	0.00
56	0.710	-2.97	148	0.708	-3.00	240	0.694	-3.17	332	0.999	-0.01
58	0.702	-3.07	150	0.709	-2.99	242	0.702	-3.07	334	0.998	-0.02
60	0.694	-3.17	152	0.708	-3.00	244	0.710	-2.97	336	0.997	-0.03
62	0.688	-3.25	154	0.707	-3.01	246	0.718	-2.88	338	0.996	-0.03
64	0.682	-3.32	156	0.706	-3.02	248	0.726	-2.78	340	0.995	-0.04
66	0.675	-3.41	158	0.706	-3.02	250	0.734	-2.69	342	0.992	-0.07
68	0.669	-3.49	160	0.705	-3.04	252	0.743	-2.58	344	0.988	-0.10
70	0.663	-3.57	162	0.703	-3.06	254	0.753	-2.46	346	0.985	-0.13
72	0.660	-3.61	164	0.701	-3.09	256	0.762	-2.36	348	0.982	-0.16
74	0.656	-3.66	166	0.698	-3.12	258	0.771	-2.26	350	0.979	-0.18
76	0.653	-3.70	168	0.696	-3.15	260	0.781	-2.15	352	0.974	-0.23
78	0.649	-3.76	170	0.694	-3.17	262	0.790	-2.05	354	0.969	-0.27
80	0.645	-3.81	172	0.691	-3.21	264	0.800	-1.94	356	0.963	-0.33
82	0.644	-3.82	174	0.688	-3.25	266	0.810	-1.83	358	0.958	-0.37
84	0.643	-3.84	176	0.685	-3.29	268	0.820	-1.72	360	0.953	-0.42
86	0.643	-3.84	178	0.682	-3.32	270	0.829	-1.63			
88	0.642	-3.85	180	0.678	-3.38	272	0.839	-1.52			
90	0.641	-3.86	182	0.675	-3.41	274	0.848	-1.43			

Preliminary, subject to final design and review.

TABULATED DATA FOR AZIMUTH PATTERN FCC FILING FORMAT

Type: AL-OC

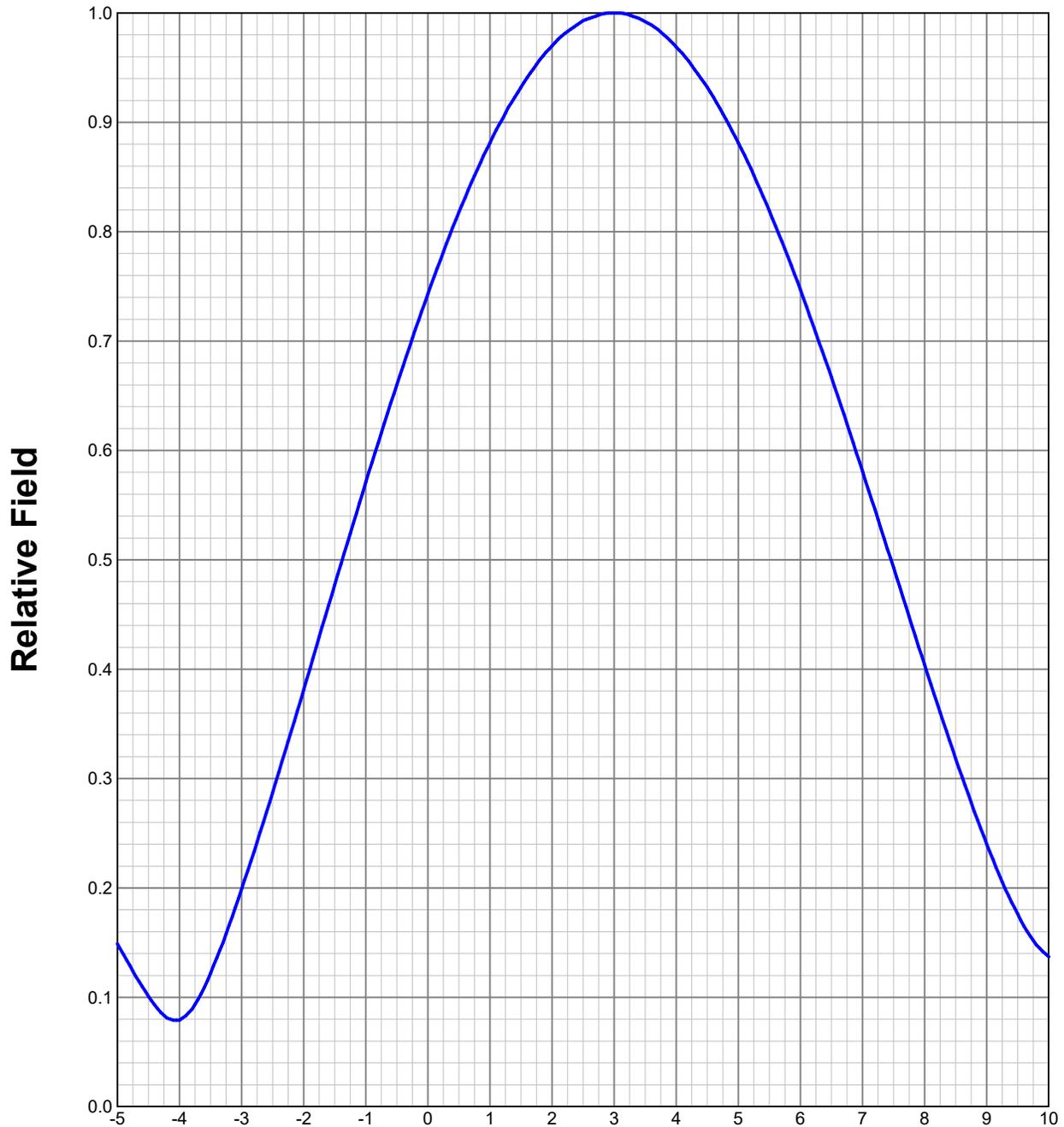
Polarization: Horizontal

ANGLE	FIELD	ERP (kW)	ERP (dBk)
0	0.953	4.477	6.510
10	0.918	4.155	6.185
20	0.876	3.783	5.779
30	0.829	3.388	5.300
40	0.781	3.007	4.781
50	0.734	2.656	4.242
60	0.694	2.374	3.756
70	0.663	2.167	3.359
80	0.645	2.051	3.120
90	0.641	2.026	3.066
100	0.647	2.064	3.147
110	0.661	2.154	3.332
120	0.679	2.273	3.566
130	0.694	2.374	3.756
140	0.705	2.450	3.892
150	0.709	2.478	3.941
160	0.705	2.450	3.892
170	0.694	2.374	3.756
180	0.678	2.266	3.553
190	0.661	2.154	3.332
200	0.647	2.064	3.147
210	0.641	2.026	3.066
220	0.645	2.051	3.120
230	0.663	2.167	3.359
240	0.694	2.374	3.756
250	0.734	2.656	4.242
260	0.781	3.007	4.781
270	0.829	3.388	5.300
280	0.876	3.783	5.779
290	0.918	4.155	6.185
300	0.953	4.477	6.510
310	0.979	4.725	6.744
320	0.995	4.881	6.885
330	1.000	4.930	6.928
340	0.995	4.881	6.885
350	0.979	4.725	6.744

Preliminary, subject to final design and review.

ELEVATION PATTERN

Type:	<u>AL8</u>		Channel:	<u>15</u>
Directivity:	<u>Numeric</u>	<u>dBd</u>	Location:	<u>Ashland, WI</u>
Main Lobe:	<u>8.68</u>	<u>9.39</u>	Beam Tilt:	<u>-1.75</u>
Horizontal:	<u>4.79</u>	<u>6.80</u>	Polarization:	<u>Horizontal</u>



Preliminary, subject to final design and review.

TABULATED DATA FOR ELEVATION PATTERN

Type: AL8

Polarization: Horizontal

ANGLEFIELD	dB	ANGLEFIELD	dB	ANGLEFIELD	dB	ANGLEFIELD	dB	ANGLEFIELD	dB					
-5.00	0.149	-16.54	6.75	0.625	-4.09	27.00	0.060	-24.44	50.50	0.094	-20.54	74.00	0.009	-40.92
-4.75	0.124	-18.13	7.00	0.581	-4.72	27.50	0.075	-22.50	51.00	0.090	-20.92	74.50	0.006	-44.44
-4.50	0.101	-19.91	7.25	0.537	-5.40	28.00	0.089	-21.01	51.50	0.085	-21.41	75.00	0.006	-44.44
-4.25	0.083	-21.57	7.50	0.493	-6.14	28.50	0.101	-19.91	52.00	0.079	-22.05	75.50	0.008	-41.94
-4.00	0.079	-22.05	7.75	0.448	-6.97	29.00	0.109	-19.25	52.50	0.071	-22.97	76.00	0.012	-38.42
-3.75	0.093	-20.58	8.00	0.404	-7.87	29.50	0.114	-18.86	53.00	0.062	-24.15	76.50	0.015	-36.48
-3.50	0.122	-18.27	8.25	0.360	-8.86	30.00	0.116	-18.71	53.50	0.052	-25.68	77.00	0.017	-35.39
-3.25	0.158	-16.03	8.50	0.318	-9.95	30.50	0.114	-18.86	54.00	0.041	-27.74	77.50	0.020	-33.98
-3.00	0.199	-14.02	8.75	0.278	-11.12	31.00	0.108	-19.33	54.50	0.030	-30.46	78.00	0.022	-33.15
-2.75	0.242	-12.32	9.00	0.240	-12.40	31.50	0.099	-20.09	55.00	0.019	-34.42	78.50	0.024	-32.40
-2.50	0.287	-10.84	9.25	0.206	-13.74	32.00	0.088	-21.11	55.50	0.009	-40.92	79.00	0.026	-31.70
-2.25	0.334	-9.53	9.50	0.176	-15.09	32.50	0.074	-22.62	56.00	0.007	-43.10	79.50	0.027	-31.37
-2.00	0.381	-8.38	9.75	0.152	-16.36	33.00	0.059	-24.58	56.50	0.017	-35.39	80.00	0.028	-31.06
-1.75	0.429	-7.34	10.00	0.137	-17.27	33.50	0.044	-27.13	57.00	0.028	-31.06	80.50	0.028	-31.06
-1.50	0.477	-6.43	10.50	0.134	-17.46	34.00	0.033	-29.63	57.50	0.038	-28.40	81.00	0.029	-30.75
-1.25	0.524	-5.61	11.00	0.157	-16.08	34.50	0.030	-30.46	58.00	0.048	-26.38	81.50	0.029	-30.75
-1.00	0.571	-4.87	11.50	0.188	-14.52	35.00	0.037	-28.64	58.50	0.058	-24.73	82.00	0.029	-30.75
-0.75	0.616	-4.21	12.00	0.216	-13.31	35.50	0.050	-26.02	59.00	0.066	-23.61	82.50	0.028	-31.06
-0.50	0.660	-3.61	12.50	0.237	-12.51	36.00	0.065	-23.74	59.50	0.074	-22.62	83.00	0.027	-31.37
-0.25	0.702	-3.07	13.00	0.249	-12.08	36.50	0.078	-22.16	60.00	0.081	-21.83	83.50	0.026	-31.70
0.00	0.743	-2.58	13.50	0.252	-11.97	37.00	0.090	-20.92	60.50	0.087	-21.21	84.00	0.025	-32.04
0.25	0.782	-2.14	14.00	0.246	-12.18	37.50	0.099	-20.09	61.00	0.092	-20.72	84.50	0.024	-32.40
0.50	0.818	-1.74	14.50	0.231	-12.73	38.00	0.107	-19.41	61.50	0.096	-20.35	85.00	0.022	-33.15
0.75	0.851	-1.40	15.00	0.210	-13.56	38.50	0.111	-19.09	62.00	0.099	-20.09	85.50	0.021	-33.56
1.00	0.881	-1.10	15.50	0.183	-14.75	39.00	0.113	-18.94	62.50	0.101	-19.91	86.00	0.019	-34.42
1.25	0.909	-0.83	16.00	0.153	-16.31	39.50	0.113	-18.94	63.00	0.102	-19.83	86.50	0.017	-35.39
1.50	0.932	-0.61	16.50	0.122	-18.27	40.00	0.109	-19.25	63.50	0.103	-19.74	87.00	0.014	-37.08
1.75	0.953	-0.42	17.00	0.095	-20.45	40.50	0.104	-19.66	64.00	0.102	-19.83	87.50	0.012	-38.42
2.00	0.970	-0.26	17.50	0.078	-22.16	41.00	0.096	-20.35	64.50	0.101	-19.91	88.00	0.010	-40.00
2.25	0.983	-0.15	18.00	0.077	-22.27	41.50	0.086	-21.31	65.00	0.099	-20.09	88.50	0.007	-43.10
2.50	0.993	-0.06	18.50	0.092	-20.72	42.00	0.075	-22.50	65.50	0.096	-20.35	89.00	0.005	-46.02
2.75	0.998	-0.02	19.00	0.112	-19.02	42.50	0.063	-24.01	66.00	0.092	-20.72	89.50	0.003	-50.46
3.00	1.000	0.00	19.50	0.133	-17.52	43.00	0.050	-26.02	66.50	0.088	-21.11	90.00	0.000	-40.00
3.25	0.998	-0.02	20.00	0.151	-16.42	43.50	0.039	-28.18	67.00	0.084	-21.51			
3.50	0.992	-0.07	20.50	0.165	-15.65	44.00	0.030	-30.46	67.50	0.079	-22.05			
3.75	0.982	-0.15	21.00	0.173	-15.24	44.50	0.027	-31.37	68.00	0.074	-22.62			
4.00	0.969	-0.27	21.50	0.176	-15.09	45.00	0.032	-29.90	68.50	0.069	-23.22			
4.25	0.952	-0.43	22.00	0.173	-15.24	45.50	0.041	-27.74	69.00	0.063	-24.01			
4.50	0.932	-0.61	22.50	0.166	-15.60	46.00	0.052	-25.68	69.50	0.057	-24.88			
4.75	0.908	-0.84	23.00	0.153	-16.31	46.50	0.062	-24.15	70.00	0.051	-25.85			
5.00	0.881	-1.10	23.50	0.137	-17.27	47.00	0.072	-22.85	70.50	0.045	-26.94			
5.25	0.851	-1.40	24.00	0.118	-18.56	47.50	0.080	-21.94	71.00	0.039	-28.18			
5.50	0.819	-1.73	24.50	0.097	-20.26	48.00	0.087	-21.21	71.50	0.034	-29.37			
5.75	0.784	-2.11	25.00	0.076	-22.38	48.50	0.092	-20.72	72.00	0.028	-31.06			
6.00	0.747	-2.53	25.50	0.058	-24.73	49.00	0.095	-20.45	72.50	0.023	-32.77			
6.25	0.707	-3.01	26.00	0.047	-26.56	49.50	0.097	-20.26	73.00	0.017	-35.39			
6.50	0.667	-3.52	26.50	0.049	-26.20	50.00	0.096	-20.35	73.50	0.013	-37.72			

Preliminary, subject to final design and review.

COHEN, DIPPELL AND EVERIST, P.C.

TABLE I
ALLOCATION STUDY
W45CI, ASHLAND, WISCONSIN
SEPTEMBER 2017

tvstudy v2.2.3 (Dxtpx3)
Database: localhost, Study: W45CI-Ashland2 (on 15), Model: Longley-Rice
Start: 2017.09.14 18:11:06

Study created: 2017.09.14 18:07:38

Study build station data: LMS TV 2017-09-13 (13)

Proposal: W45CI-D D15 (D45-) LD LIC ASHLAND, WI
File number: BLANK0000016573
Facility ID: 130295
Station data: LMS TV 2017-09-13 (13)
Record ID: 25076ff358164b8b01581a5c099e0091
Country: U.S.

Build options:

Protect records not on baseline channel
Protect baseline records from LPTV

No protected stations found.

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D15-
Mask: Simple
Latitude: 46 35 23.30 N (NAD83)
Longitude: 90 50 13.30 W
Height AMSL: 285.0 m
HAAT: 0.0 m
Peak ERP: 4.93 kW
Antenna: (replication) 0.0 deg
Elev Pattn: Generic
Elec Tilt: 1.0

48.8 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	4.45 kW	102.0 m	39.4 km
45.0	2.77	99.4	36.8
90.0	1.66	86.7	32.6
135.0	2.02	70.5	31.3
180.0	1.89	59.9	29.4
225.0	1.74	30.0	21.7
270.0	3.31	71.1	33.8
315.0	4.73	47.8	31.2

Database HAAT does not agree with computed HAAT
Database HAAT: 0 m Computed HAAT: 71 m

Distance to Canadian border: 167.0 km

Distance to Mexican border: 2080.4 km

Conditions at FCC monitoring station: Allegan MI
Bearing: 137.2 degrees Distance: 587.4 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 243.5 degrees Distance: 1361.9 km

No land mobile station failures found

Proposal is not within the Offshore Radio Service protected area

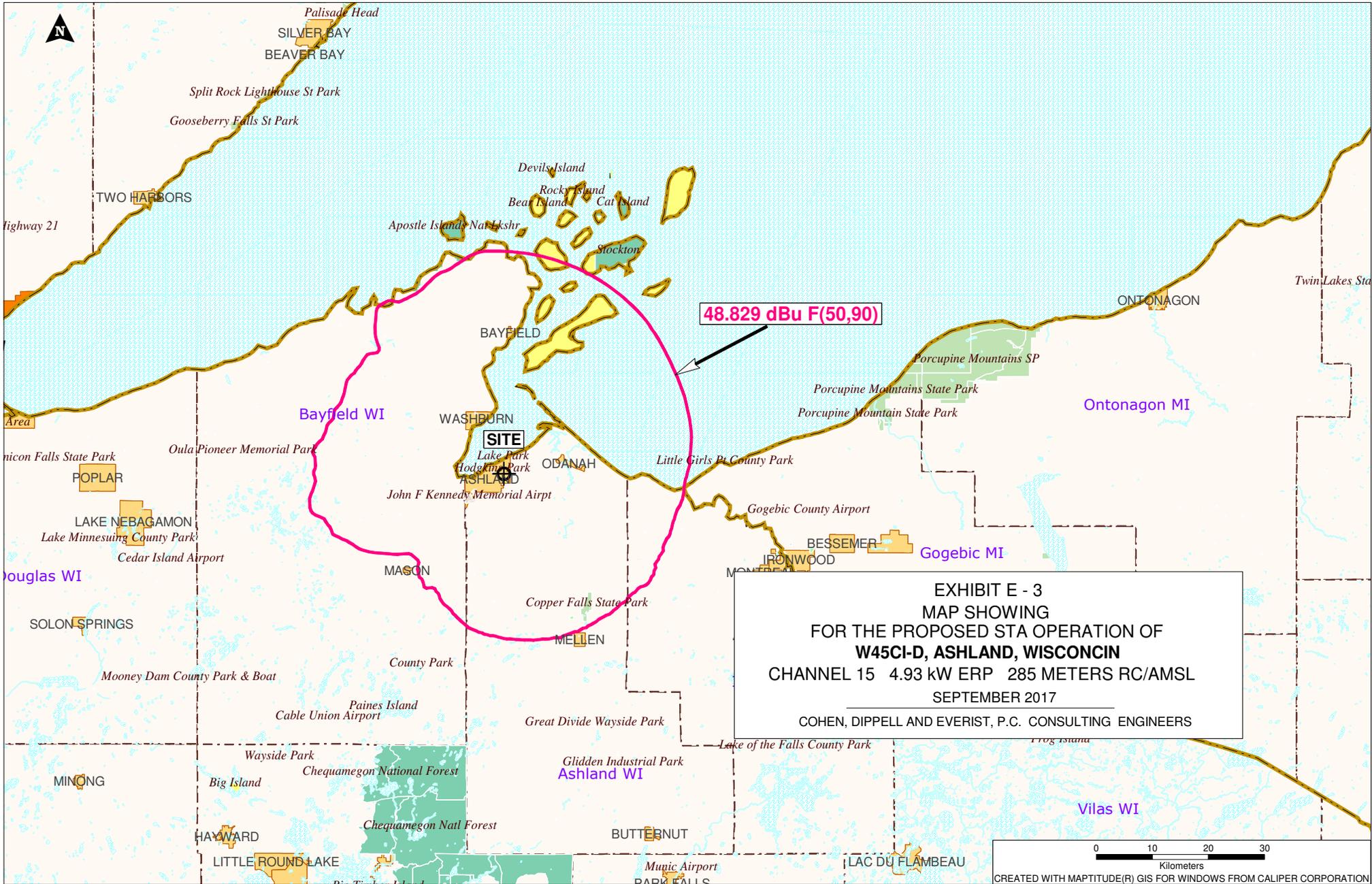
Study cell size: 1.00 km
Profile point spacing: 1.00 km

Maximum new IX to full-service and Class A: 0.50%
Maximum new IX to LPTV: 2.00%

Interference to proposal, scenario 1

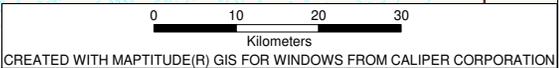
	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	W45CI-D	D15-	LD	LIC	ASHLAND, WI	BLANK0000016573	
Undesireds:	NEW	D15	LD	APP	DULUTH, MN	BNPDTL20090825AQV	100.1 km
	K15GT-D	D15-	LD	LIC	HIBBING, MN	BLANK0000016503	183.1
	KWJM-LD	D15	LD	LIC	Minneapolis, MN	BLANK0000004612	270.6

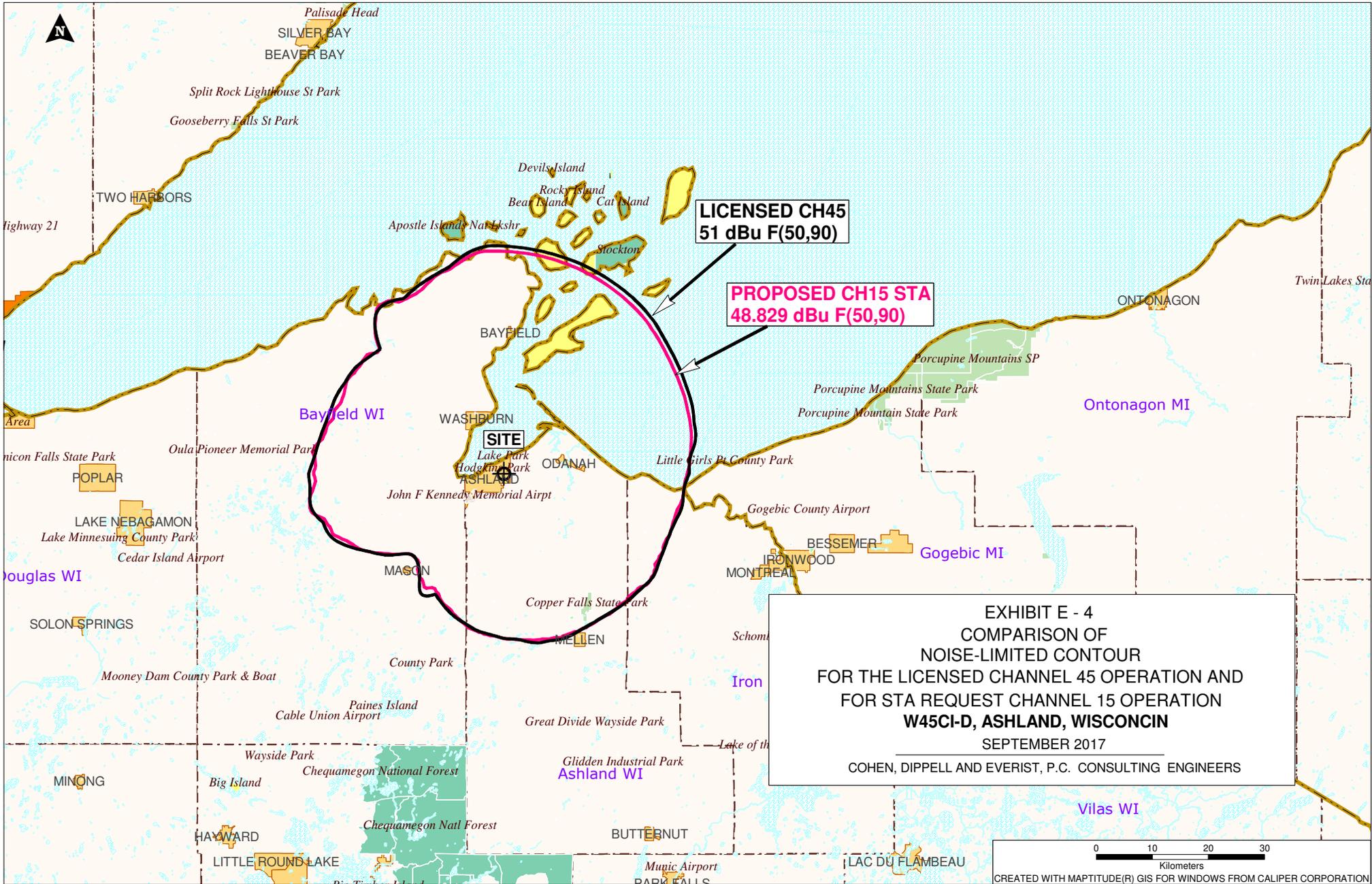
	Service area	Terrain-limited	IX-free	Percent IX
	3392.5	21,307	21,035	2.08 0.21
		3235.2	21,079	3168.0
Undesired				
NEW D15 LD APP		67.3	Total IX	44 67.3
			Unique IX	44 2.08 0.21



48.829 dBu F(50,90)

EXHIBIT E - 3
MAP SHOWING
FOR THE PROPOSED STA OPERATION OF
W45CI-D, ASHLAND, WISCONSIN
CHANNEL 15 4.93 kW ERP 285 METERS RC/AMSL
 SEPTEMBER 2017
 COHEN, DIPPELL AND EVERIST, P.C. CONSULTING ENGINEERS





LICENSED CH45
51 dBu F(50,90)

PROPOSED CH15 STA
48.829 dBu F(50,90)

EXHIBIT E - 4
COMPARISON OF
NOISE-LIMITED CONTOUR
FOR THE LICENSED CHANNEL 45 OPERATION AND
FOR STA REQUEST CHANNEL 15 OPERATION
W45CI-D, ASHLAND, WISCONSIN
 SEPTEMBER 2017
 COHEN, DIPPELL AND EVERIST, P.C. CONSULTING ENGINEERS

