

***COMPREHENSIVE TECHNICAL EXHIBIT
AMENDMENT TO APPLICATION
FOR CONSTRUCTION PERMIT***

**W47EI-CD - BIRMINGHAM, ALABAMA
FACILITY ID: 24257**

GLEN IRIS BAPTIST CHURCH

AUGUST 2017

AMENDMENT TO APPLICATION FOR CONSTRUCTION PERMIT

The following engineering statement and attached exhibits have been prepared for **Glen Iris Baptist School** ("Glen Iris"), licensee of class A digital television station W47EI-CD at Birmingham, Alabama, and are in support of their amendment to application for construction permit.¹ This application seeks to amend the pending application under File No. 0000027943, as the original application extended the service contour beyond what is permitted. Appropriate changes in the technical parameters are proposed under this amendment.

The original application for construction permit specified operation on the assigned repack channel of 16 with a maximum effective radiated power of 15 kilowatts horizontally polarized at a center of radiation of 400.8 meters above mean sea level utilizing a directional antenna. The proposed facility would operate on channel 16 with a maximum effective radiated power of 8.35 kilowatts at a center of radiation of 395.4 meters above mean sea level, also utilizing a directional antenna.

The service contour resulting from the proposed technical parameters is within 0.2 percent of the allocated service contour at all azimuths. This results in a situation where the proposed contour is essentially replicated, not extended further than permitted, and the resulting service area population is within the permitted range. The proposed facility would utilize elliptical polarization. The vertically polarized component of transmitted signal is wholly contained within the horizontally polarized envelope.

¹ The Facility ID for W47EI-CD at Birmingham, Alabama is 24257.

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The antenna utilized by the licensed facility is a Dielectric model DLP-12W (CUSTOM). This antenna is to be replaced with a Dielectric model DLP-12M/VP. The licensed facility is horizontally polarized, has 1.0 degree of electrical beamtilt, and no mechanical beamtilt. The proposed facility would be elliptically polarized, as previously stated, with 1.25 degrees of electrical beamtilt, and no mechanical beamtilt. The horizontal plane pattern for the horizontally polarized component of the proposed antenna is essentially identical to the licensed horizontal plane pattern, although the proposed pattern is specified with 0 degree rotation while the licensed pattern is specified with 305 degrees of rotation.

Exhibit E-1 provides a comparison between the licensed, allocated, and proposed service contours. The licensed service contour has a field strength value of 51.76 dBu F(50,90), and is indicated in red. The allocated and proposed contours have field strength values of 48.94 dBu F(50,90), and are respectively indicated in green and blue. Due to the near congruity of all three contours, only the proposed contour is apparently visible. These contours were created using a sample of the Commission's 30-meter terrain database.

Following Exhibit E-1 is the technical data for the proposed antenna. It should be noted that this technical data provided by Dielectric was based on the allocated maximum effective radiated power, rather than the maximum effective radiated power proposed here. The variation is due to the elevation change necessary to accomplish the installation of the antenna. This data also includes a vertical plane pattern tabulation based on the effective radiated power in dBk at the azimuths where the horizontal plane relative field has a value of 1.0.

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The closest FCC monitoring station to the proposed facility is the Powder Springs, Georgia facility. This monitoring station is located at 197.5 kilometers from the proposed facility, as calculated by *TV Study*. The predicted field strength at Powder Springs is less than the limit specified in Section 73.1030(c) of the Commission's Rules. W47EI is not located within the West Virginia quiet zone area, and is located 1793 kilometers from the Table Mountain receiving zone. There are no AM stations within 3.2 kilometers of the proposed facility.

The proposed facility would not constitute a significant environmental impact, and is excluded from environmental processing. Implementation of the resulting construction permit would not increase the existing environmental impact already present from the existing W47EI facility. The antenna for W47EI is located on the structure assigned 1052060 as its Antenna Structure Registration Number.

Additionally, the proposed facility would not constitute an RF exposure hazard for persons in the vicinity of the site. Using the equations in Supplement A of *OET Bulletin 65*, and assuming a relative field of 0.1 at downward vertical angles, the calculated power density at two meters above ground is $0.705 \mu\text{W}/\text{cm}^2$. This value is considerably less than the upper limit permissible under the uncontrolled environment condition of the Commission's safety standard.

Although other facilities are licensed at the site, the aggregate power density with W47EI would not exceed the uncontrolled environment condition of the Commission's safety standard at any location. Glen Iris certifies that it will coordinate with all other users of the site to ensure that workers and other persons are not exposed to levels of radiofrequency radiation in excess of the

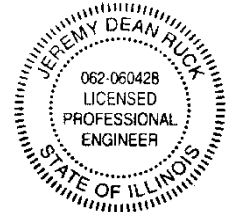
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applicable safety standards. Coordination activities will include, but are not necessarily limited to, a reduction in transmitter power or cessation of operation.

The preceding statement and attached exhibits have been prepared by me, or under my direction, and are true and accurate to the best of my belief and knowledge.



Above signature is digitized copy of actual signature
License Expires November 30, 2017

Jeremy D. Ruck, PE
August 30, 2017

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8.30.2017

W47EI-D.X

0000027943
Latitude: 33-29-03 N
Longitude: 086-48-35 W
ERP: 8.35 kW
Channel: 16
Frequency: 485.0 MHz
AMSL Height: 395.4 m
Horiz. Pattern: Directional

W47EI-D.LIC

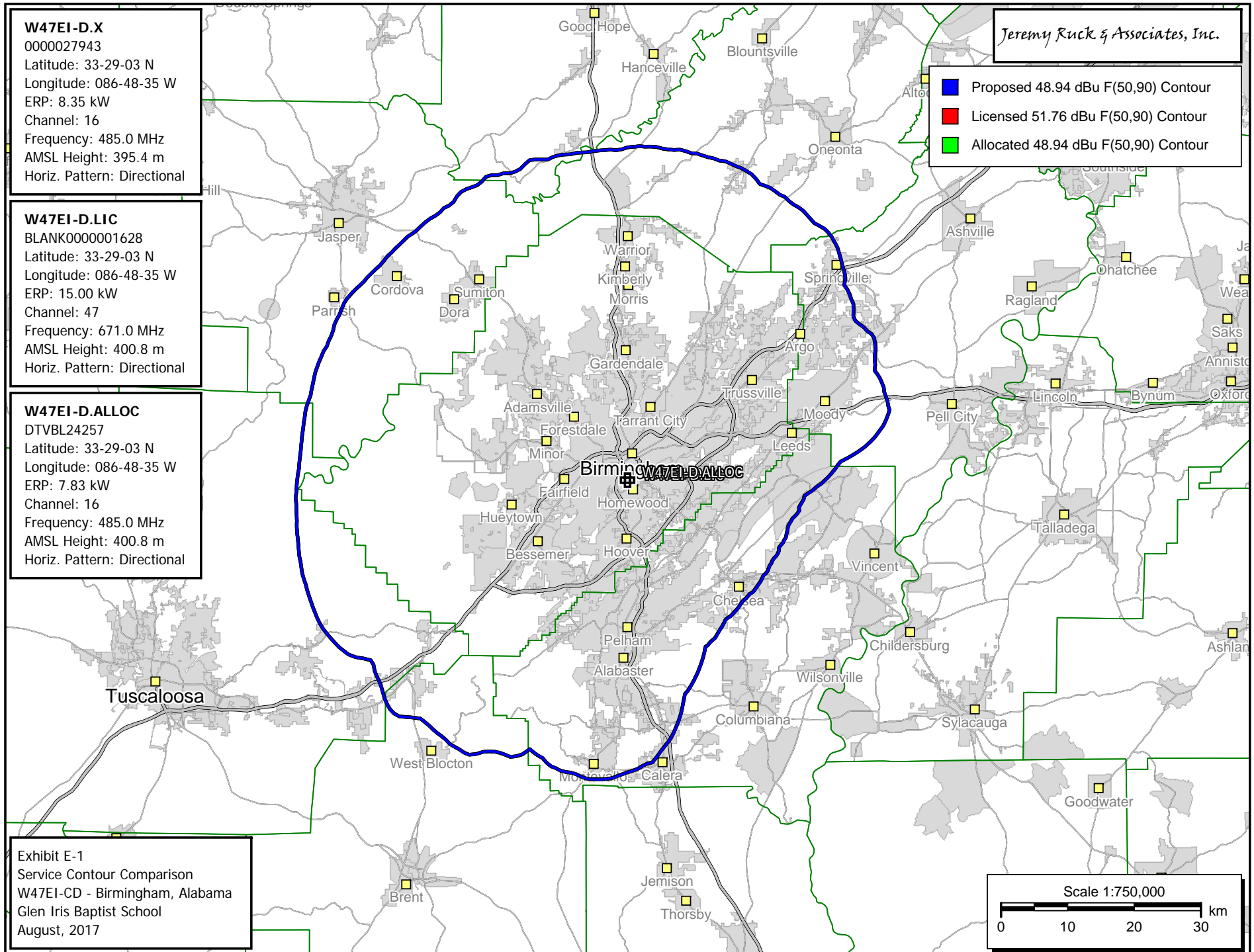
BLANK0000001628
Latitude: 33-29-03 N
Longitude: 086-48-35 W
ERP: 15.00 kW
Channel: 47
Frequency: 671.0 MHz
AMSL Height: 400.8 m
Horiz. Pattern: Directional

W47EI-D.ALLOC

DTVBL24257
Latitude: 33-29-03 N
Longitude: 086-48-35 W
ERP: 7.83 kW
Channel: 16
Frequency: 485.0 MHz
AMSL Height: 400.8 m
Horiz. Pattern: Directional

Jeremy Ruck & Associates, Inc.

- Proposed 48.94 dBu F(50,90) Contour
- Licensed 51.76 dBu F(50,90) Contour
- Allocated 48.94 dBu F(50,90) Contour

**Exhibit E-1**

Service Contour Comparison
W47EI-CD - Birmingham, Alabama
Glen Iris Baptist School
August, 2017

**Antenna Model:****DLP-12M/VP**

Proposal Number: **C-70935**
Date: **7-Jul-17**
Customer: **WAY-TV**
Location: **Birmingham, AL**

Electrical Specifications

Polarization: **Elliptical**
Azimuth Pattern: **Directional**
Antenna Input: **1-5/8"** **50 Ohm** **EIA/DCA**
VSWR: **Channel** **1.10 : 1** **Band** **1.10 : 1**
Bandwidth: **6 MHz**
Rated Input Power: **2 kW** **(3.01 dBk)** **Maximum Average Power**

Mechanical Specifications

Mounting: **Side Mounted**
Environmental Protection: **Slot Cover**
Height: **26.5 ft (8.1m)**
Weight: **150 lb (0.1t)** **Excludes Mounts**
Effective Projected Area: **70 ft² (6.5m²)** **TIA-222-G** **Basic Wind Speed: 80 m/h (128.7 km/h)**

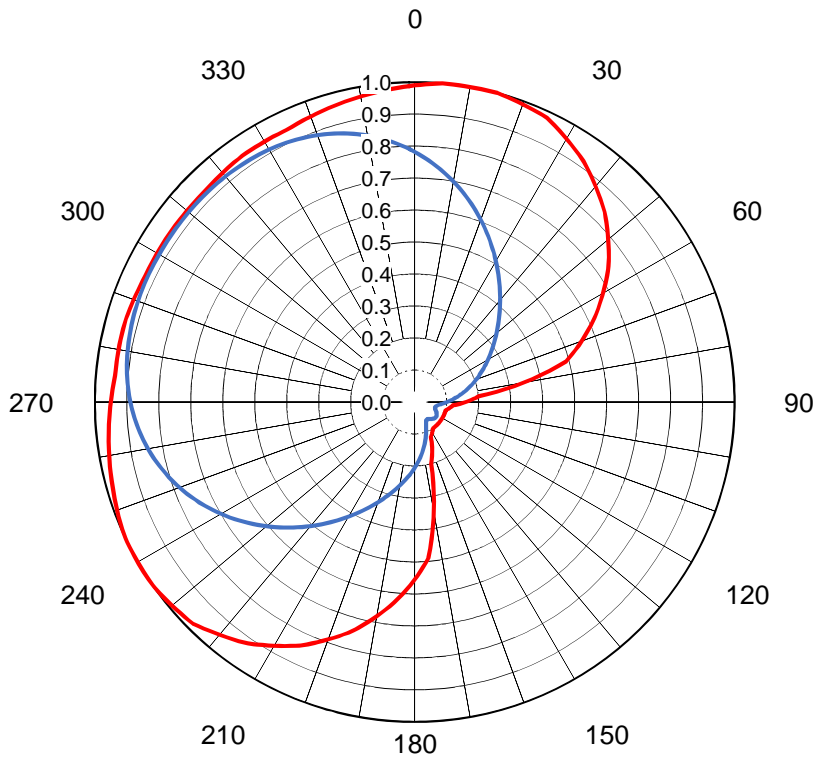
Channel Specifications

Call	CH	Freq	Hpol ERP	Vpol ERP	TPO	Peak Main Lobe Hpol Gain	Peak Main Lobe Vpol Gain	Peak at Horizontal Hpol Gain	Peak at Horizontal Vpol Gain
W47EI-D	16	485 MHz	7.83 kW (8.94 dBk)	6.67 kW (8.24 dBk)	0.880 kW -(0.56 dBk)	12.79 (11.07dB)	10.89 (10.37dB)	10.11 (10.05dB)	8.61 (9.35dB)

AZIMUTH OVERLAY

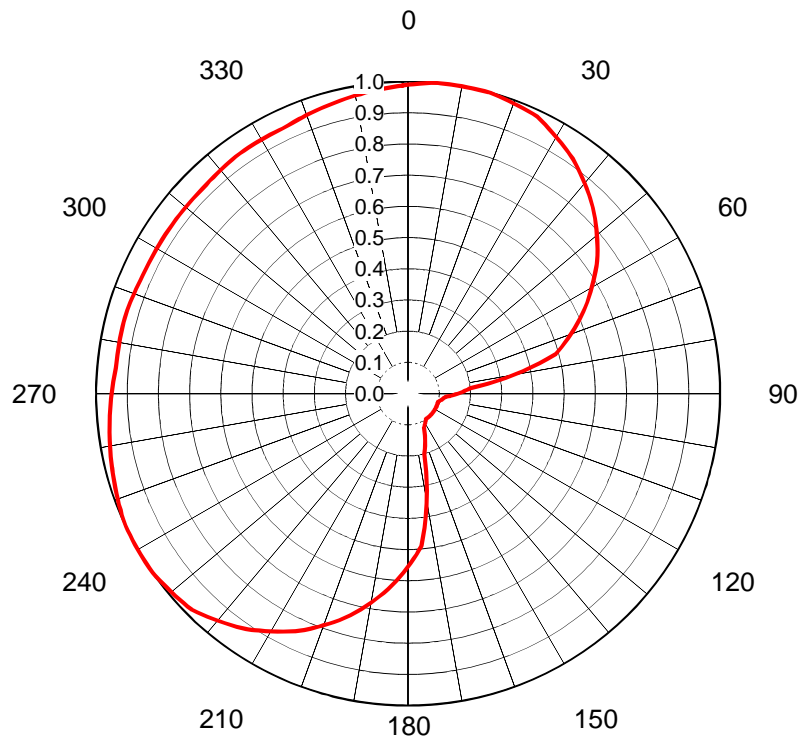
Proposal No. **C-70935**
 Date **7-Jul-17**
 Call Letters **W47EI-D**
 Channel **16**
 Frequency **485 MHz**
 Antenna Type **DLP-12M/VP**

Blue **V-DLP-M**



Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.990	36	0.912	72	0.529	108	0.100	144	0.100	180	0.555	216	0.926	252	0.986	288	0.937
1	0.992	37	0.904	73	0.516	109	0.100	145	0.100	181	0.568	217	0.932	253	0.984	289	0.936
2	0.994	38	0.896	74	0.503	110	0.100	146	0.102	182	0.581	218	0.938	254	0.982	290	0.935
3	0.996	39	0.888	75	0.490	111	0.100	147	0.104	183	0.594	219	0.944	255	0.980	291	0.934
4	0.998	40	0.880	76	0.461	112	0.100	148	0.106	184	0.607	220	0.950	256	0.978	292	0.933
5	1.000	41	0.872	77	0.432	113	0.100	149	0.108	185	0.620	221	0.956	257	0.976	293	0.932
6	1.000	42	0.864	78	0.403	114	0.100	150	0.110	186	0.632	222	0.962	258	0.974	294	0.931
7	1.000	43	0.856	79	0.374	115	0.100	151	0.112	187	0.644	223	0.968	259	0.972	295	0.930
8	1.000	44	0.848	80	0.345	116	0.100	152	0.114	188	0.656	224	0.974	260	0.970	296	0.930
9	1.000	45	0.840	81	0.316	117	0.100	153	0.116	189	0.668	225	0.980	261	0.968	297	0.930
10	1.000	46	0.830	82	0.287	118	0.100	154	0.118	190	0.680	226	0.982	262	0.966	298	0.930
11	1.000	47	0.820	83	0.258	119	0.100	155	0.120	191	0.692	227	0.984	263	0.964	299	0.930
12	1.000	48	0.810	84	0.229	120	0.100	156	0.128	192	0.704	228	0.986	264	0.962	300	0.930
13	1.000	49	0.800	85	0.200	121	0.100	157	0.136	193	0.716	229	0.988	265	0.960	301	0.930
14	1.000	50	0.790	86	0.192	122	0.100	158	0.144	194	0.728	230	0.990	266	0.958	302	0.930
15	1.000	51	0.780	87	0.184	123	0.100	159	0.152	195	0.740	231	0.992	267	0.956	303	0.930
16	0.998	52	0.770	88	0.176	124	0.100	160	0.160	196	0.750	232	0.994	268	0.954	304	0.930
17	0.996	53	0.760	89	0.168	125	0.100	161	0.168	197	0.760	233	0.996	269	0.952	305	0.930
18	0.994	54	0.750	90	0.160	126	0.100	162	0.176	198	0.770	234	0.998	270	0.950	306	0.930
19	0.992	55	0.740	91	0.152	127	0.100	163	0.184	199	0.780	235	1.000	271	0.948	307	0.930
20	0.990	56	0.728	92	0.144	128	0.100	164	0.192	200	0.790	236	1.000	272	0.946	308	0.930
21	0.988	57	0.716	93	0.136	129	0.100	165	0.200	201	0.800	237	1.000	273	0.944	309	0.930
22	0.986	58	0.704	94	0.128	130	0.100	166	0.229	202	0.810	238	1.000	274	0.942	310	0.930
23	0.984	59	0.692	95	0.120	131	0.100	167	0.258	203	0.820	239	1.000	275	0.940	311	0.930
24	0.982	60	0.680	96	0.118	132	0.100	168	0.287	204	0.830	240	1.000	276	0.940	312	0.930
25	0.980	61	0.668	97	0.116	133	0.100	169	0.316	205	0.840	241	1.000	277	0.940	313	0.930
26	0.974	62	0.656	98	0.114	134	0.100	170	0.345	206	0.848	242	1.000	278	0.940	314	0.930
27	0.968	63	0.644	99	0.112	135	0.100	171	0.374	207	0.856	243	1.000	279	0.940	315	0.930
28	0.962	64	0.632	100	0.110	136	0.100	172	0.403	208	0.864	244	1.000	280	0.940	316	0.931
29	0.956	65	0.620	101	0.108	137	0.100	173	0.432	209	0.872	245	1.000	281	0.940	317	0.932
30	0.950	66	0.607	102	0.106	138	0.100	174	0.461	210	0.880	246	0.998	282	0.940	318	0.933
31	0.944	67	0.594	103	0.104	139	0.100	175	0.490	211	0.888	247	0.996	283	0.940	319	0.934
32	0.938	68	0.581	104	0.102	140	0.100	176	0.503	212	0.896	248	0.994	284	0.940	320	0.935
33	0.932	69	0.568	105	0.100	141	0.100	177	0.516	213	0.904	249	0.992	285	0.940	321	0.936
34	0.926	70	0.555	106	0.100	142	0.100	178	0.529	214	0.912	250	0.990	286	0.939	322	0.937
35	0.920	71	0.542	107	0.100	143	0.100	179	0.542	215	0.920	251	0.988	287	0.938	323	0.938

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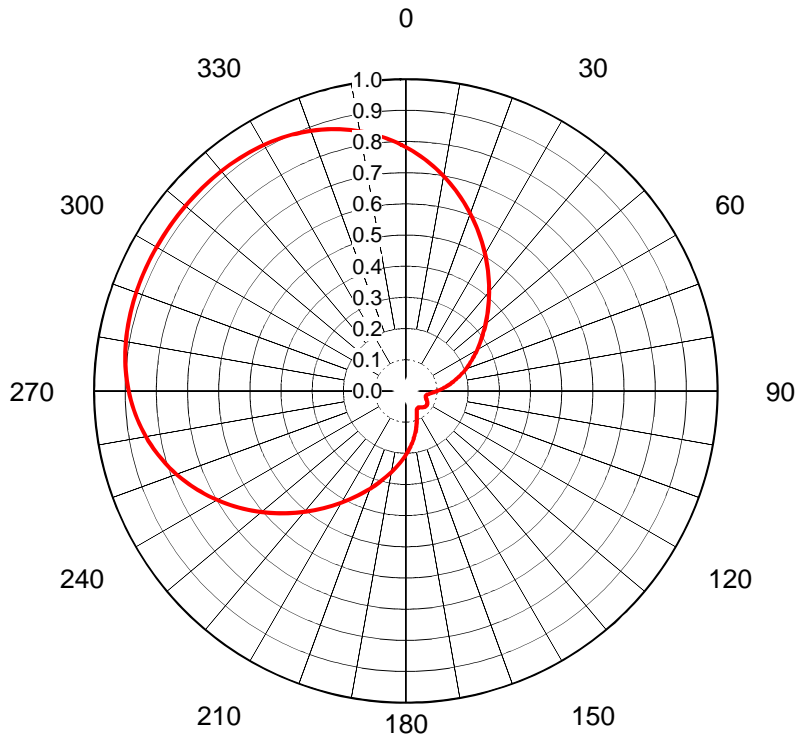
AZIMUTH PATTERN Horizontal Polarization

In Free Space

Proposal No. **C-70935**
 Date **7-Jul-17**
 Call Letters **W47EI-D**
 Channel **16**
 Frequency **485 MHz**
 Antenna Type **DLP-12M/VP**
 Gain **1.68 (2.26dB)**
 Calculated

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.990	36	0.912	72	0.529	108	0.100	144	0.100	180	0.555	216	0.926	252	0.986	288	0.937
1	0.992	37	0.904	73	0.516	109	0.100	145	0.100	181	0.568	217	0.932	253	0.984	289	0.936
2	0.994	38	0.896	74	0.503	110	0.100	146	0.102	182	0.581	218	0.938	254	0.982	290	0.935
3	0.996	39	0.888	75	0.490	111	0.100	147	0.104	183	0.594	219	0.944	255	0.980	291	0.934
4	0.998	40	0.880	76	0.461	112	0.100	148	0.106	184	0.607	220	0.950	256	0.978	292	0.933
5	1.000	41	0.872	77	0.432	113	0.100	149	0.108	185	0.620	221	0.956	257	0.976	293	0.932
6	1.000	42	0.864	78	0.403	114	0.100	150	0.110	186	0.632	222	0.962	258	0.974	294	0.931
7	1.000	43	0.856	79	0.374	115	0.100	151	0.112	187	0.644	223	0.968	259	0.972	295	0.930
8	1.000	44	0.848	80	0.345	116	0.100	152	0.114	188	0.656	224	0.974	260	0.970	296	0.930
9	1.000	45	0.840	81	0.316	117	0.100	153	0.116	189	0.668	225	0.980	261	0.968	297	0.930
10	1.000	46	0.830	82	0.287	118	0.100	154	0.118	190	0.680	226	0.982	262	0.966	298	0.930
11	1.000	47	0.820	83	0.258	119	0.100	155	0.120	191	0.692	227	0.984	263	0.964	299	0.930
12	1.000	48	0.810	84	0.229	120	0.100	156	0.128	192	0.704	228	0.986	264	0.962	300	0.930
13	1.000	49	0.800	85	0.200	121	0.100	157	0.136	193	0.716	229	0.988	265	0.960	301	0.930
14	1.000	50	0.790	86	0.192	122	0.100	158	0.144	194	0.728	230	0.990	266	0.958	302	0.930
15	1.000	51	0.780	87	0.184	123	0.100	159	0.152	195	0.740	231	0.992	267	0.956	303	0.930
16	0.998	52	0.770	88	0.176	124	0.100	160	0.160	196	0.750	232	0.994	268	0.954	304	0.930
17	0.996	53	0.760	89	0.168	125	0.100	161	0.168	197	0.760	233	0.996	269	0.952	305	0.930
18	0.994	54	0.750	90	0.160	126	0.100	162	0.176	198	0.770	234	0.998	270	0.950	306	0.930
19	0.992	55	0.740	91	0.152	127	0.100	163	0.184	199	0.780	235	1.000	271	0.948	307	0.930
20	0.990	56	0.728	92	0.144	128	0.100	164	0.192	200	0.790	236	1.000	272	0.946	308	0.930
21	0.988	57	0.716	93	0.136	129	0.100	165	0.200	201	0.800	237	1.000	273	0.944	309	0.930
22	0.986	58	0.704	94	0.128	130	0.100	166	0.229	202	0.810	238	1.000	274	0.942	310	0.930
23	0.984	59	0.692	95	0.120	131	0.100	167	0.258	203	0.820	239	1.000	275	0.940	311	0.930
24	0.982	60	0.680	96	0.118	132	0.100	168	0.287	204	0.830	240	1.000	276	0.940	312	0.930
25	0.980	61	0.668	97	0.116	133	0.100	169	0.316	205	0.840	241	1.000	277	0.940	313	0.930
26	0.974	62	0.656	98	0.114	134	0.100	170	0.345	206	0.848	242	1.000	278	0.940	314	0.930
27	0.968	63	0.644	99	0.112	135	0.100	171	0.374	207	0.856	243	1.000	279	0.940	315	0.930
28	0.962	64	0.632	100	0.110	136	0.100	172	0.403	208	0.864	244	1.000	280	0.940	316	0.931
29	0.956	65	0.620	101	0.108	137	0.100	173	0.432	209	0.872	245	1.000	281	0.940	317	0.932
30	0.950	66	0.607	102	0.106	138	0.100	174	0.461	210	0.880	246	0.998	282	0.940	318	0.933
31	0.944	67	0.594	103	0.104	139	0.100	175	0.490	211	0.888	247	0.996	283	0.940	319	0.934
32	0.938	68	0.581	104	0.102	140	0.100	176	0.503	212	0.896	248	0.994	284	0.940	320	0.935
33	0.932	69	0.568	105	0.100	141	0.100	177	0.516	213	0.904	249	0.992	285	0.940	321	0.936
34	0.926	70	0.555	106	0.100	142	0.100	178	0.529	214	0.912	250	0.990	286	0.939	322	0.937
35	0.920	71	0.542	107	0.100	143	0.100	179	0.542	215	0.920	251	0.988	287	0.938	323	0.938

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AZIMUTH PATTERN Vertical Polarization

In Free Space

Proposal No. **C-70935**
 Date **7-Jul-17**
 Call Letters **W47EI-D**
 Channel **16**
 Frequency **485 MHz**
 Antenna Type **DLP-12M/VP**
 Gain **2.47 (3.93dB)**
 Calculated

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.782	36	0.452	72	0.193	108	0.067	144	0.067	180	0.206	216	0.468	252	0.797	288	0.920
1	0.774	37	0.442	73	0.188	109	0.068	145	0.066	181	0.211	217	0.478	253	0.804	289	0.920
2	0.767	38	0.433	74	0.182	110	0.069	146	0.067	182	0.217	218	0.487	254	0.811	290	0.921
3	0.759	39	0.425	75	0.177	111	0.070	147	0.067	183	0.223	219	0.497	255	0.817	291	0.921
4	0.751	40	0.416	76	0.171	112	0.071	148	0.068	184	0.228	220	0.507	256	0.823	292	0.921
5	0.743	41	0.407	77	0.166	113	0.073	149	0.069	185	0.234	221	0.516	257	0.830	293	0.922
6	0.734	42	0.398	78	0.160	114	0.074	150	0.071	186	0.240	222	0.526	258	0.835	294	0.922
7	0.726	43	0.390	79	0.155	115	0.075	151	0.073	187	0.246	223	0.536	259	0.841	295	0.922
8	0.717	44	0.382	80	0.150	116	0.076	152	0.075	188	0.252	224	0.545	260	0.846	296	0.922
9	0.708	45	0.373	81	0.145	117	0.077	153	0.078	189	0.258	225	0.555	261	0.852	297	0.923
10	0.700	46	0.365	82	0.139	118	0.078	154	0.081	190	0.265	226	0.565	262	0.857	298	0.923
11	0.691	47	0.357	83	0.134	119	0.079	155	0.084	191	0.271	227	0.575	263	0.861	299	0.923
12	0.681	48	0.349	84	0.129	120	0.080	156	0.087	192	0.277	228	0.585	264	0.866	300	0.923
13	0.672	49	0.342	85	0.124	121	0.080	157	0.091	193	0.284	229	0.595	265	0.870	301	0.923
14	0.663	50	0.334	86	0.119	122	0.081	158	0.095	194	0.291	230	0.604	266	0.874	302	0.923
15	0.653	51	0.327	87	0.115	123	0.081	159	0.099	195	0.297	231	0.614	267	0.878	303	0.923
16	0.644	52	0.319	88	0.110	124	0.081	160	0.103	196	0.304	232	0.624	268	0.882	304	0.923
17	0.634	53	0.312	89	0.105	125	0.081	161	0.108	197	0.311	233	0.634	269	0.886	305	0.923
18	0.625	54	0.305	90	0.101	126	0.081	162	0.112	198	0.318	234	0.643	270	0.889	306	0.923
19	0.615	55	0.298	91	0.097	127	0.081	163	0.117	199	0.326	235	0.653	271	0.892	307	0.923
20	0.605	56	0.291	92	0.093	128	0.081	164	0.122	200	0.333	236	0.662	272	0.895	308	0.923
21	0.596	57	0.284	93	0.089	129	0.080	165	0.127	201	0.341	237	0.672	273	0.898	309	0.923
22	0.586	58	0.278	94	0.085	130	0.080	166	0.132	202	0.348	238	0.681	274	0.900	310	0.923
23	0.576	59	0.271	95	0.082	131	0.079	167	0.137	203	0.356	239	0.690	275	0.902	311	0.923
24	0.566	60	0.265	96	0.079	132	0.078	168	0.142	204	0.364	240	0.699	276	0.905	312	0.923
25	0.557	61	0.258	97	0.076	133	0.077	169	0.147	205	0.372	241	0.708	277	0.907	313	0.922
26	0.547	62	0.252	98	0.074	134	0.076	170	0.152	206	0.380	242	0.717	278	0.908	314	0.922
27	0.537	63	0.246	99	0.071	135	0.075	171	0.157	207	0.388	243	0.726	279	0.910	315	0.922
28	0.527	64	0.240	100	0.070	136	0.074	172	0.162	208	0.397	244	0.735	280	0.912	316	0.922
29	0.518	65	0.234	101	0.068	137	0.072	173	0.168	209	0.405	245	0.743	281	0.913	317	0.921
30	0.508	66	0.228	102	0.067	138	0.071	174	0.173	210	0.414	246	0.751	282	0.914	318	0.921
31	0.498	67	0.222	103	0.066	139	0.070	175	0.178	211	0.423	247	0.759	283	0.915	319	0.921
32	0.489	68	0.216	104	0.066	140	0.069	176	0.184	212	0.432	248	0.767	284	0.916	320	0.920
33	0.479	69	0.210	105	0.066	141	0.068	177	0.189	213	0.441	249	0.775	285	0.917	321	0.920
34	0.470	70	0.204	106	0.066	142	0.067	178	0.195	214	0.450	250	0.782	286	0.918	322	0.919
35	0.461	71	0.199	107	0.067	143	0.067	179	0.200	215	0.459	251	0.790	287	0.919	323	0.919

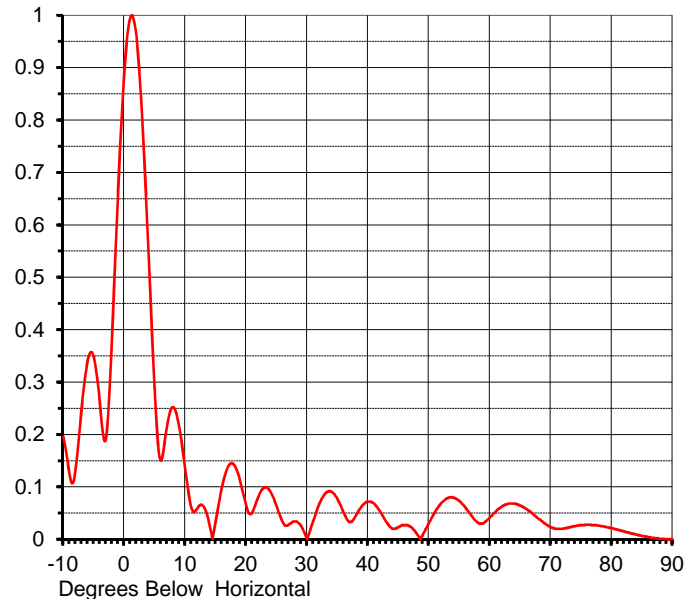
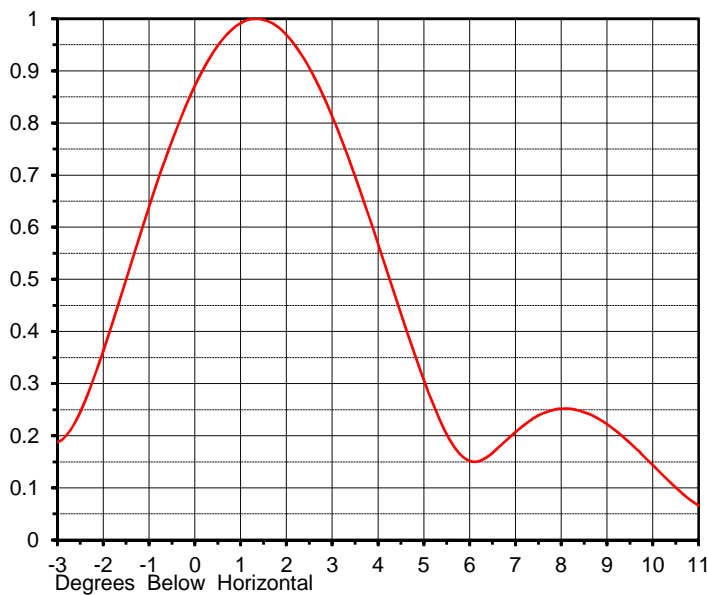
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ELEVATION PATTERN

Proposal No. **C-70935**
 Date **7-Jul-17**
 Call Letters **W47EI-D**
 Channel **16**
 Frequency **485 MHz**
 Antenna Type **DLP-12M/VP**

RMS Directivity at Main Lobe **12.0 (10.79 dB)**
 RMS Directivity at Horizontal **9.5 (9.78 dB)**
Calculated

Beam Tilt **1.25 deg**
 Pattern Number **12D120125**



Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.196	10.0	0.135	30.0	0.000	50.0	0.031	70.0	0.023
-9.0	0.126	11.0	0.061	31.0	0.034	51.0	0.052	71.0	0.020
-8.0	0.132	12.0	0.059	32.0	0.067	52.0	0.069	72.0	0.020
-7.0	0.249	13.0	0.063	33.0	0.087	53.0	0.078	73.0	0.023
-6.0	0.341	14.0	0.028	34.0	0.091	54.0	0.079	74.0	0.025
-5.0	0.348	15.0	0.034	35.0	0.077	55.0	0.073	75.0	0.027
-4.0	0.259	16.0	0.097	36.0	0.051	56.0	0.060	76.0	0.028
-3.0	0.192	17.0	0.138	37.0	0.033	57.0	0.045	77.0	0.027
-2.0	0.389	18.0	0.142	38.0	0.045	58.0	0.032	78.0	0.026
-1.0	0.666	19.0	0.112	39.0	0.063	59.0	0.031	79.0	0.024
0.0	0.889	20.0	0.065	40.0	0.072	60.0	0.042	80.0	0.021
1.0	0.996	21.0	0.051	41.0	0.068	61.0	0.053	81.0	0.018
2.0	0.959	22.0	0.081	42.0	0.053	62.0	0.063	82.0	0.015
3.0	0.791	23.0	0.099	43.0	0.033	63.0	0.068	83.0	0.012
4.0	0.541	24.0	0.091	44.0	0.020	64.0	0.068	84.0	0.009
5.0	0.283	25.0	0.063	45.0	0.023	65.0	0.064	85.0	0.006
6.0	0.150	26.0	0.033	46.0	0.027	66.0	0.058	86.0	0.004
7.0	0.214	27.0	0.028	47.0	0.024	67.0	0.049	87.0	0.002
8.0	0.252	28.0	0.034	48.0	0.011	68.0	0.039	88.0	0.001
9.0	0.216	29.0	0.026	49.0	0.009	69.0	0.030	89.0	0.000
								90.0	0.000

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MECHANICAL SPECIFICATIONS

Proposal No. **C-70935**
 Date **7-Jul-17**
 Call Letters **W47EI-D**
 Channel **16**
 Frequency **485 MHz**
 Antenna Type **DLP-12M/VP**

Preliminary Specifications

Side Mounted

With ice TIA-222-G

Height AGL(z) 270 ft (82.3 m)
 Basic Wind Speed 80 m/h (128.7 km/h)

Structure Class I
 Exposure Category C
 Topography Category 3
 Height of Crest 300 ft (91.4 m)

Design Ice 0.5 in $t_{iz} = 1.14$ in
 Wind Speed w/Ice 70 m/h (112.7 km/h)

Mechanical Specifications

		without ice	with ice	
Height	H2	26.5 ft (8.1m)		
Height of Center of Radiation	H3	13.25 ft (4m)		
Effective Projected Area	(EPA) _A	70 ft ² (6.5m ²)	83 ft ² (7.7m ²)	Mounts Excluded
Weight	W	150 lb (0.1t)	700 lb (0.3t)	Mounts Excluded

Antenna designed in accordance with AISC specifications for design of structural steel as prescribed by TIA-222-G

Prepared by: DLS
 jls
 Date: 30-Jun-17
 Date: 7-Jul-17
 ME:
 EE:

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Summary

Proposal No.	C-70935
Date	7-Jul-17
Call Letters	W47EI-D
Channel	16
Frequency	485 MHz
Antenna Type	DLP-12M/VP

Antenna

	Hpol		Vpol	
ERP:	7.83 kW	(8.94 dBk)	6.67 kW	(8.24 dBk)
Peak Gain*	12.79	(11.07 dB)	10.89	(10.37 dB)

Antenna Input Power **0.612 kW -(2.13 dBk)**

Transmission Line

Type:	Flexline Foam	Attenuation:	(1.57 dB)
Size:	1-5/8"	Efficiency:	69.6%
Impedance:	50 Ohm		
Length:	315 ft	96.0 m	

Transmitter Output

0.880 kW -(0.56 dBk)

Transmitter filter losses not included

* Directivity and Gain are with respect to half wave dipole. The gain includes feed system losses

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W47EI Proposed Maximum Vertical Pattern ERP in dBk

Angle	EREL	dBk ERP
-4.00	0.2590	-2.52
-3.00	0.1920	-5.12
-2.00	0.3890	1.02
-1.00	0.6660	5.69
0.00	0.8890	8.19
1.00	0.9960	9.18
2.00	0.9590	8.85
3.00	0.7910	7.18
4.00	0.5410	3.88
5.00	0.2830	-1.75
6.00	0.1500	-7.26
7.00	0.2140	-4.17
8.00	0.2520	-2.76
9.00	0.2160	-4.09
10.00	0.1350	-8.18
11.00	0.0610	-15.08
12.00	0.0590	-15.37
13.00	0.0630	-14.80
14.00	0.0280	-21.84
15.00	0.0340	-20.15
16.00	0.0970	-11.05
17.00	0.1380	-7.99
18.00	0.1420	-7.74
19.00	0.1120	-9.80
20.00	0.0650	-14.52
21.00	0.0510	-16.63
22.00	0.0810	-12.61
23.00	0.0990	-10.87
24.00	0.0910	-11.60
25.00	0.0630	-14.80
26.00	0.0330	-20.41
27.00	0.0280	-21.84
28.00	0.0340	-20.15
29.00	0.0260	-22.48
31.00	0.0340	-20.15
32.00	0.0670	-14.26
33.00	0.0870	-11.99
34.00	0.0910	-11.60
36.00	0.0510	-16.63
38.00	0.0450	-17.72
40.00	0.0720	-13.64
42.00	0.0530	-16.30
44.00	0.0200	-24.76
46.00	0.0270	-22.16
48.00	0.0110	-29.96
50.00	0.0310	-20.96
52.00	0.0690	-14.01
54.00	0.0790	-12.83
56.00	0.0600	-15.22
58.00	0.0320	-20.68
60.00	0.0420	-18.32
62.00	0.0630	-14.80
64.00	0.0680	-14.13
66.00	0.0580	-15.51
68.00	0.0390	-18.96
70.00	0.0230	-23.55
72.00	0.0200	-24.76
74.00	0.0250	-22.82
76.00	0.0280	-21.84
78.00	0.0260	-22.48
80.00	0.0210	-24.34
82.00	0.0150	-27.26
84.00	0.0090	-31.70
86.00	0.0040	-38.74
88.00	0.0010	-50.78

Effective Radiated Power in dBk.

