



Antenna Model:

TUA-O4-16/64H-R-1-T

Proposal Number: **C-70492**
Date: **5-Apr-17**
Customer: **Nexstar**
Location: **Terre Haute, IN**

Electrical Specifications

Polarization: **Horizontal**
Azimuth Pattern: **Omni**
Antenna Input: **8-3/16"** **75 Ohm** **EIA/DCA**
VSWR: **Channel** **1.10 : 1** **Band** **1.10 : 1**
Bandwidth: **470-860 MHz**
Rated Input Power: **100 kW** **(20.00 dBk)** **Maximum combined average power**

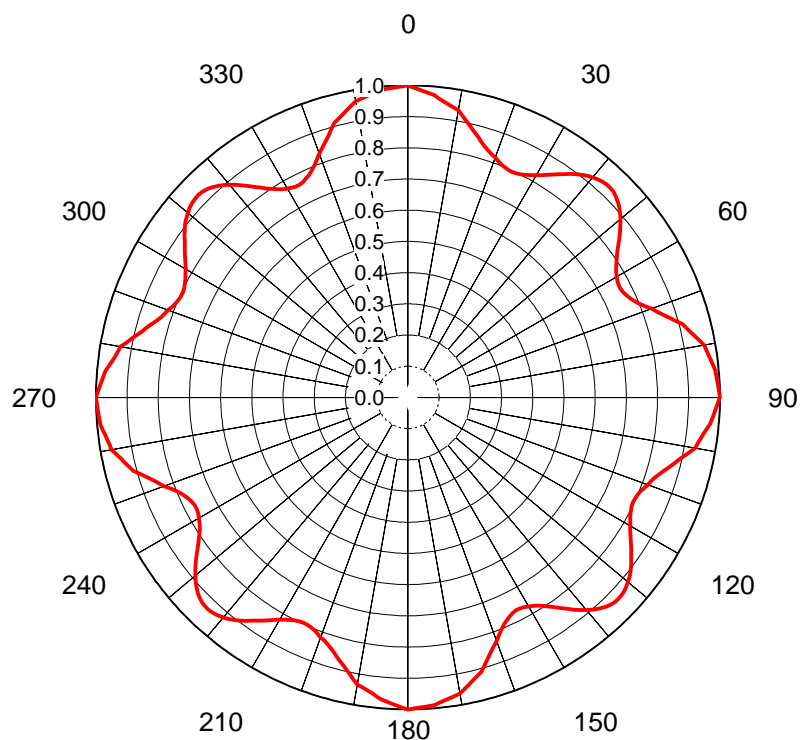
Mechanical Specifications

Mounting: **Top Mounted**
Environmental Protection: **Full Radome**
Height: **62.1 ft (18.9m)** less Lightning Protector **66.1 ft (20.1m)** with Lightning Protector
Weight: **10700 lb (4.9t)**
Effective Projected Area: **131 ft² (12.2m²)** **TIA/EIA-222-F** Basic Wind Speed: **70 m/h (112.7 km/h)**

Channel Specifications

	Call	CH	Freq	Hpol ERP	TPO	RMS Main Lobe Hpol Gain	RMS at Horizontal Hpol Gain
1	WAWV	18	497 MHz	541 kW (27.33 dBk)	21.5 kW (13.32 dBk)	31.47 (14.98dB)	18.32 (12.63dB)
2	WTWO	35	599 MHz	980.0 kW (29.91 dBk)	39.5 kW (15.96 dBk)	31.49 (14.98dB)	15.17 (11.81dB)

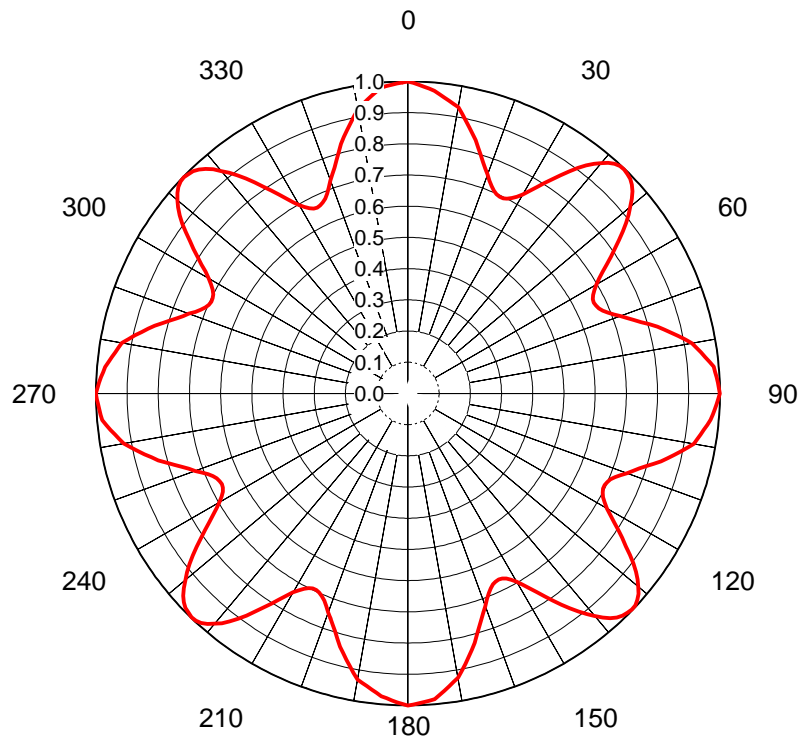
AZIMUTH PATTERN Horizontal Polarization



Proposal No. **C-70492**
 Date **5-Apr-17**
 Call Letters **WAWV**
 Channel **18**
 Frequency **497 MHz**
 Antenna Type **TUA-O4-16/64H-R-1-T**
 Gain **1.28 (1.07dB)**
 Calculated
 Circularity **+/- 2.0 dB**

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	1.000	36	0.885	72	0.859	108	0.832	144	0.834	180	1.000	216	0.885	252	0.859	288	0.832
1	0.994	37	0.896	73	0.875	109	0.824	145	0.820	181	0.994	217	0.896	253	0.875	289	0.824
2	0.988	38	0.906	74	0.892	110	0.819	146	0.808	182	0.988	218	0.906	254	0.892	290	0.819
3	0.983	39	0.914	75	0.911	111	0.810	147	0.797	183	0.983	219	0.914	255	0.911	291	0.810
4	0.978	40	0.920	76	0.920	112	0.804	148	0.787	184	0.978	220	0.920	256	0.920	292	0.804
5	0.973	41	0.927	77	0.930	113	0.799	149	0.779	185	0.973	221	0.927	257	0.930	293	0.799
6	0.963	42	0.931	78	0.941	114	0.797	150	0.773	186	0.963	222	0.931	258	0.941	294	0.797
7	0.955	43	0.934	79	0.952	115	0.796	151	0.768	187	0.955	223	0.934	259	0.952	295	0.796
8	0.947	44	0.934	80	0.964	116	0.798	152	0.766	188	0.947	224	0.934	260	0.964	296	0.798
9	0.941	45	0.932	81	0.968	117	0.802	153	0.765	189	0.941	225	0.932	261	0.968	297	0.802
10	0.935	46	0.927	82	0.973	118	0.808	154	0.768	190	0.935	226	0.927	262	0.973	298	0.808
11	0.920	47	0.920	83	0.978	119	0.815	155	0.774	191	0.920	227	0.920	263	0.978	299	0.815
12	0.905	48	0.912	84	0.984	120	0.823	156	0.780	192	0.905	228	0.912	264	0.984	300	0.823
13	0.891	49	0.901	85	0.990	121	0.832	157	0.790	193	0.891	229	0.901	265	0.990	301	0.832
14	0.878	50	0.890	86	0.991	122	0.842	158	0.801	194	0.878	230	0.890	266	0.991	302	0.842
15	0.866	51	0.877	87	0.993	123	0.852	159	0.815	195	0.866	231	0.877	267	0.993	303	0.852
16	0.853	52	0.863	88	0.995	124	0.863	160	0.832	196	0.853	232	0.863	268	0.995	304	0.863
17	0.842	53	0.849	89	0.998	125	0.873	161	0.844	197	0.842	233	0.849	269	0.998	305	0.873
18	0.832	54	0.834	90	1.000	126	0.885	162	0.859	198	0.832	234	0.834	270	1.000	306	0.885
19	0.824	55	0.820	91	0.994	127	0.896	163	0.875	199	0.824	235	0.820	271	0.994	307	0.896
20	0.819	56	0.808	92	0.988	128	0.906	164	0.892	200	0.819	236	0.808	272	0.988	308	0.906
21	0.810	57	0.797	93	0.983	129	0.914	165	0.911	201	0.810	237	0.797	273	0.983	309	0.914
22	0.804	58	0.787	94	0.978	130	0.920	166	0.920	202	0.804	238	0.787	274	0.978	310	0.920
23	0.799	59	0.779	95	0.973	131	0.927	167	0.930	203	0.799	239	0.779	275	0.973	311	0.927
24	0.797	60	0.773	96	0.963	132	0.931	168	0.941	204	0.797	240	0.773	276	0.963	312	0.931
25	0.796	61	0.768	97	0.955	133	0.934	169	0.952	205	0.796	241	0.768	277	0.955	313	0.934
26	0.798	62	0.766	98	0.947	134	0.934	170	0.964	206	0.798	242	0.766	278	0.947	314	0.934
27	0.802	63	0.765	99	0.941	135	0.932	171	0.968	207	0.802	243	0.765	279	0.941	315	0.932
28	0.808	64	0.768	100	0.935	136	0.927	172	0.973	208	0.808	244	0.768	280	0.935	316	0.927
29	0.815	65	0.774	101	0.920	137	0.920	173	0.978	209	0.815	245	0.774	281	0.920	317	0.920
30	0.823	66	0.780	102	0.905	138	0.912	174	0.984	210	0.823	246	0.780	282	0.905	318	0.912
31	0.832	67	0.790	103	0.891	139	0.901	175	0.990	211	0.832	247	0.790	283	0.891	319	0.901
32	0.842	68	0.801	104	0.878	140	0.890	176	0.991	212	0.842	248	0.801	284	0.878	320	0.890
33	0.852	69	0.815	105	0.866	141	0.877	177	0.993	213	0.852	249	0.815	285	0.866	321	0.877
34	0.863	70	0.832	106	0.853	142	0.863	178	0.995	214	0.863	250	0.832	286	0.853	322	0.863
35	0.873	71	0.844	107	0.842	143	0.849	179	0.998	215	0.873	251	0.844	287	0.842	323	0.849

This document contains proprietary and confidential information of Dielectric. It is to be used solely for the purpose for which it is provided. No disclosure, reproduction, or use of this document or any part of it may be made without the written permission of Dielectric.



AZIMUTH PATTERN Horizontal Polarization

Proposal No. **C-70492**
 Date **5-Apr-17**
 Call Letters **WTWO**
 Channel **35**
 Frequency **599 MHz**
 Antenna Type **TUA-O4-16/64H-R-1-T**
 Gain **1.36 (1.34dB)**
 Calculated
 Circularity **+/- 2.0 dB**

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	1.000	36	0.880	72	0.761	108	0.779	144	0.837	180	1.000	216	0.880	252	0.761	288	0.779
1	0.995	37	0.905	73	0.782	109	0.762	145	0.810	181	0.995	217	0.905	253	0.782	289	0.762
2	0.990	38	0.928	74	0.804	110	0.747	146	0.785	182	0.990	218	0.928	254	0.804	290	0.747
3	0.985	39	0.948	75	0.828	111	0.730	147	0.760	183	0.985	219	0.948	255	0.828	291	0.730
4	0.980	40	0.964	76	0.847	112	0.716	148	0.737	184	0.980	220	0.964	256	0.847	292	0.716
5	0.974	41	0.979	77	0.866	113	0.706	149	0.716	185	0.974	221	0.979	257	0.866	293	0.706
6	0.965	42	0.990	78	0.886	114	0.699	150	0.697	186	0.965	222	0.990	258	0.886	294	0.699
7	0.956	43	0.996	79	0.905	115	0.696	151	0.683	187	0.956	223	0.996	259	0.905	295	0.696
8	0.947	44	0.998	80	0.925	116	0.696	152	0.672	188	0.947	224	0.998	260	0.925	296	0.696
9	0.939	45	0.995	81	0.937	117	0.700	153	0.665	189	0.939	225	0.995	261	0.937	297	0.700
10	0.931	46	0.991	82	0.948	118	0.709	154	0.663	190	0.931	226	0.991	262	0.948	298	0.709
11	0.913	47	0.982	83	0.960	119	0.721	155	0.665	191	0.913	227	0.982	263	0.960	299	0.721
12	0.894	48	0.969	84	0.972	120	0.736	156	0.670	192	0.894	228	0.969	264	0.972	300	0.736
13	0.876	49	0.952	85	0.984	121	0.757	157	0.679	193	0.876	229	0.952	265	0.984	301	0.757
14	0.858	50	0.931	86	0.987	122	0.780	158	0.691	194	0.858	230	0.931	266	0.987	302	0.780
15	0.840	51	0.910	87	0.991	123	0.804	159	0.707	195	0.840	231	0.910	267	0.991	303	0.804
16	0.819	52	0.888	88	0.994	124	0.829	160	0.726	196	0.819	232	0.888	268	0.994	304	0.829
17	0.798	53	0.863	89	0.997	125	0.853	161	0.743	197	0.798	233	0.863	269	0.997	305	0.853
18	0.779	54	0.837	90	1.000	126	0.880	162	0.761	198	0.779	234	0.837	270	1.000	306	0.880
19	0.762	55	0.810	91	0.995	127	0.905	163	0.782	199	0.762	235	0.810	271	0.995	307	0.905
20	0.747	56	0.785	92	0.990	128	0.928	164	0.804	200	0.747	236	0.785	272	0.990	308	0.928
21	0.730	57	0.760	93	0.985	129	0.948	165	0.828	201	0.730	237	0.760	273	0.985	309	0.948
22	0.716	58	0.737	94	0.980	130	0.964	166	0.847	202	0.716	238	0.737	274	0.980	310	0.964
23	0.706	59	0.716	95	0.974	131	0.979	167	0.866	203	0.706	239	0.716	275	0.974	311	0.979
24	0.699	60	0.697	96	0.965	132	0.990	168	0.886	204	0.699	240	0.697	276	0.965	312	0.990
25	0.696	61	0.683	97	0.956	133	0.996	169	0.905	205	0.696	241	0.683	277	0.956	313	0.996
26	0.696	62	0.672	98	0.947	134	0.998	170	0.925	206	0.696	242	0.672	278	0.947	314	0.998
27	0.700	63	0.665	99	0.939	135	0.995	171	0.937	207	0.700	243	0.665	279	0.939	315	0.995
28	0.709	64	0.663	100	0.931	136	0.991	172	0.948	208	0.709	244	0.663	280	0.931	316	0.991
29	0.721	65	0.665	101	0.913	137	0.982	173	0.960	209	0.721	245	0.665	281	0.913	317	0.982
30	0.736	66	0.670	102	0.894	138	0.969	174	0.972	210	0.736	246	0.670	282	0.894	318	0.969
31	0.757	67	0.679	103	0.876	139	0.952	175	0.984	211	0.757	247	0.679	283	0.876	319	0.952
32	0.780	68	0.691	104	0.858	140	0.931	176	0.987	212	0.780	248	0.691	284	0.858	320	0.931
33	0.804	69	0.707	105	0.840	141	0.910	177	0.991	213	0.804	249	0.707	285	0.840	321	0.910
34	0.829	70	0.726	106	0.819	142	0.888	178	0.994	214	0.829	250	0.726	286	0.819	322	0.888
35	0.853	71	0.743	107	0.798	143	0.863	179	0.997	215	0.853	251	0.743	287	0.798	323	0.863

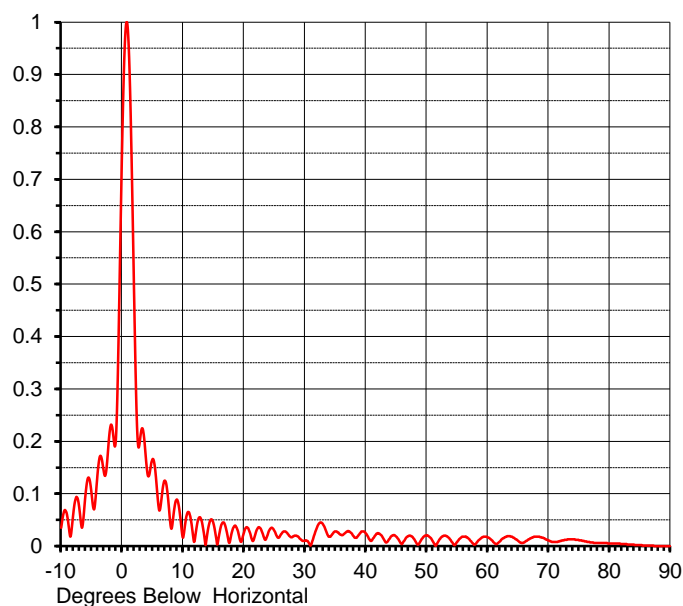
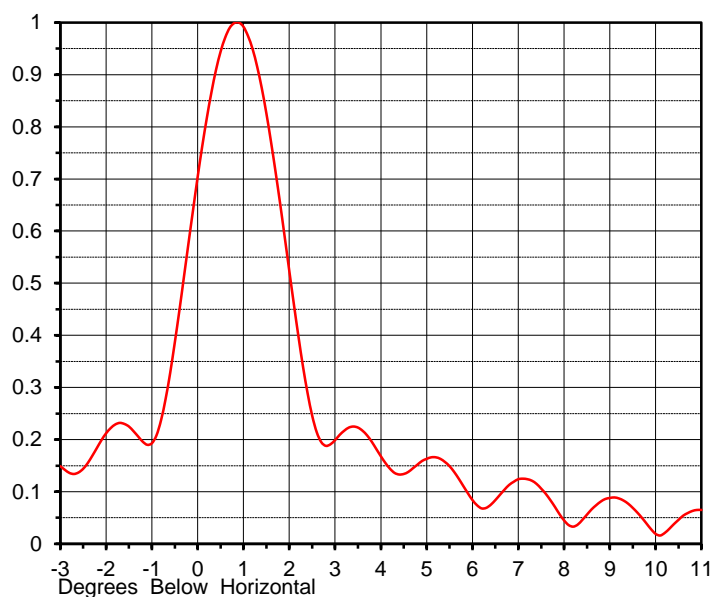
This document contains proprietary and confidential information of Dielectric. It is to be used solely for the purpose for which it is provided. No disclosure, reproduction, or use of this document or any part of it may be made without the written permission of Dielectric.

ELEVATION PATTERN

Proposal No. **C-70492**
 Date **5-Apr-17**
 Call Letters **WAWV**
 Channel **18**
 Frequency **497 MHz**
 Antenna Type **TUA-O4-16/64H-R-1-T**

RMS Directivity at Main Lobe **31.5 (14.98 dB)**
 RMS Directivity at Horizontal **18.3 (12.62 dB)**
Calculated

Beam Tilt **0.75 deg**
 Pattern Number **16U315075**



Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.035	10.0	0.016	30.0	0.010	50.0	0.021	70.0	0.011
-9.0	0.057	11.0	0.064	31.0	0.002	51.0	0.009	71.0	0.008
-8.0	0.063	12.0	0.018	32.0	0.036	52.0	0.011	72.0	0.010
-7.0	0.070	13.0	0.050	33.0	0.041	53.0	0.020	73.0	0.012
-6.0	0.099	14.0	0.025	34.0	0.018	54.0	0.010	74.0	0.013
-5.0	0.099	15.0	0.043	35.0	0.028	55.0	0.008	75.0	0.011
-4.0	0.142	16.0	0.026	36.0	0.021	56.0	0.018	76.0	0.009
-3.0	0.142	17.0	0.036	37.0	0.028	57.0	0.013	77.0	0.007
-2.0	0.222	18.0	0.026	38.0	0.019	58.0	0.004	78.0	0.006
-1.0	0.208	19.0	0.029	39.0	0.024	59.0	0.016	79.0	0.006
0.0	0.763	20.0	0.026	40.0	0.024	60.0	0.017	80.0	0.005
1.0	0.974	21.0	0.025	41.0	0.011	61.0	0.007	81.0	0.005
2.0	0.460	22.0	0.028	42.0	0.025	62.0	0.009	82.0	0.004
3.0	0.209	23.0	0.026	43.0	0.012	63.0	0.018	83.0	0.003
4.0	0.155	24.0	0.026	44.0	0.016	64.0	0.018	84.0	0.003
5.0	0.166	25.0	0.029	45.0	0.018	65.0	0.010	85.0	0.002
6.0	0.074	26.0	0.021	46.0	0.005	66.0	0.007	86.0	0.001
7.0	0.125	27.0	0.026	47.0	0.019	67.0	0.015	87.0	0.001
8.0	0.036	28.0	0.018	48.0	0.012	68.0	0.018	88.0	0.000
9.0	0.089	29.0	0.017	49.0	0.010	69.0	0.016	89.0	0.000
								90.0	0.000

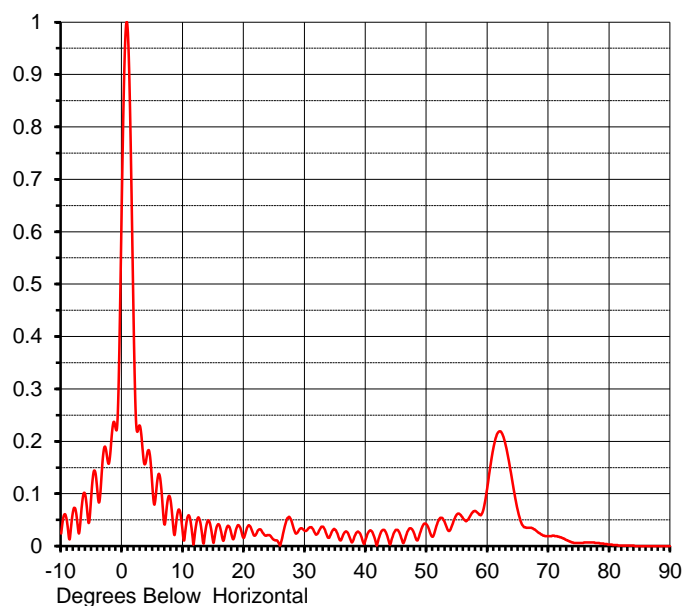
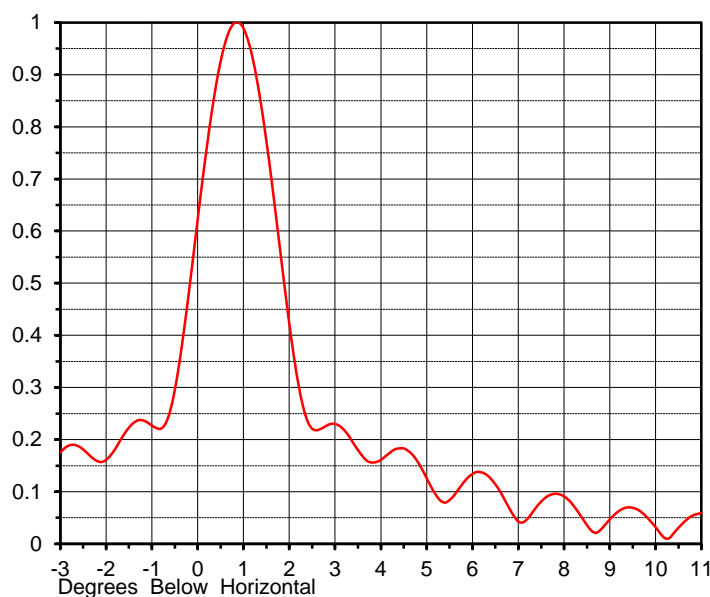
This document contains proprietary and confidential information of Dielectric. It is to be used solely for the purpose for which it is provided. No disclosure, reproduction, or use of this document or any part of it may be made without the written permission of Dielectric.

ELEVATION PATTERN

Proposal No. **C-70492**
 Date **5-Apr-17**
 Call Letters **WTWO**
 Channel **35**
 Frequency **599 MHz**
 Antenna Type **TUA-O4-16/64H-R-1-T**

RMS Directivity at Main Lobe **31.5 (14.98 dB)**
 RMS Directivity at Horizontal **15.2 (11.82 dB)**
Calculated

Beam Tilt **0.75 deg**
 Pattern Number **16U315075**



Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.024	10.0	0.020	30.0	0.029	50.0	0.041	70.0	0.019
-9.0	0.043	11.0	0.058	31.0	0.036	51.0	0.018	71.0	0.019
-8.0	0.069	12.0	0.029	32.0	0.023	52.0	0.051	72.0	0.017
-7.0	0.028	13.0	0.033	33.0	0.037	53.0	0.044	73.0	0.011
-6.0	0.095	14.0	0.047	34.0	0.016	54.0	0.035	74.0	0.007
-5.0	0.105	15.0	0.006	35.0	0.031	55.0	0.061	75.0	0.006
-4.0	0.098	16.0	0.039	36.0	0.013	56.0	0.052	76.0	0.007
-3.0	0.184	17.0	0.028	37.0	0.026	57.0	0.055	77.0	0.007
-2.0	0.170	18.0	0.020	38.0	0.013	58.0	0.067	78.0	0.006
-1.0	0.222	19.0	0.040	39.0	0.025	59.0	0.061	79.0	0.005
0.0	0.694	20.0	0.016	40.0	0.014	60.0	0.117	80.0	0.003
1.0	0.966	21.0	0.038	41.0	0.028	61.0	0.191	81.0	0.002
2.0	0.360	22.0	0.023	42.0	0.009	62.0	0.219	82.0	0.001
3.0	0.226	23.0	0.027	43.0	0.031	63.0	0.190	83.0	0.001
4.0	0.168	24.0	0.021	44.0	0.003	64.0	0.127	84.0	0.001
5.0	0.109	25.0	0.012	45.0	0.031	65.0	0.065	85.0	0.000
6.0	0.138	26.0	0.003	46.0	0.009	66.0	0.036	86.0	0.000
7.0	0.041	27.0	0.050	47.0	0.031	67.0	0.035	87.0	0.000
8.0	0.084	28.0	0.040	48.0	0.022	68.0	0.029	88.0	0.000
9.0	0.056	29.0	0.030	49.0	0.028	69.0	0.021	89.0	0.000
								90.0	0.000

This document contains proprietary and confidential information of Dielectric. It is to be used solely for the purpose for which it is provided. No disclosure, reproduction, or use of this document or any part of it may be made without the written permission of Dielectric.

MECHANICAL SPECIFICATIONS

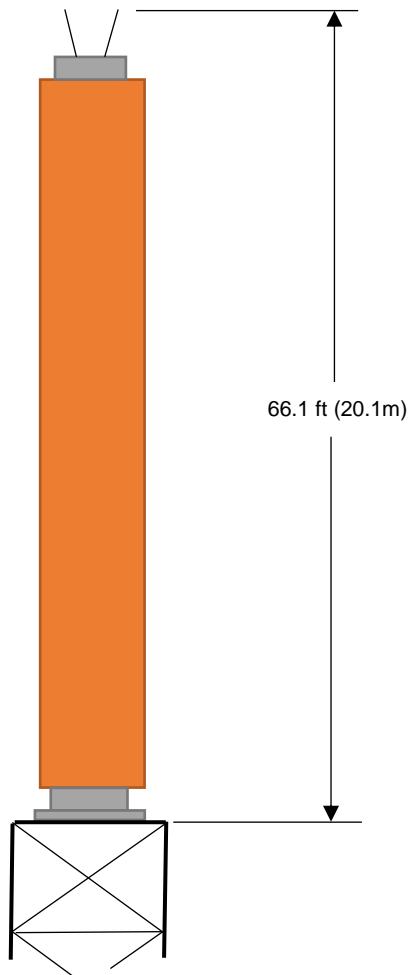
Proposal No. **C-70492**
 Date **5-Apr-17**
 Call Letters **WAWV**
 Channel **18**
 Frequency **497 MHz**
 Antenna Type **TUA-O4-16/64H-R-1-T**

Preliminary Specifications

Top Mounted

Without ice TIA/EIA-222-F

Height AGL 810.4 ft (247 m)
 Basic Wind Speed 70 m/h (112.7 km/h)



Mechanical Specifications

Height with Lightning Protector	H4	66.1 ft (20.1m)
Height less Lightning Protector	H2	62.1 ft (18.9m)
Height of Center of Radiation	H3	31.05 ft (9.5m)
Force Coeff. x Projected Area	CaAc	131 ft² (12.2m²)
Moment Arm	D1	31.4 ft (9.6m)

Weight	W	10700 lb (4.9t)
--------	---	-----------------

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

Prepared by: JBC

Date: 5-Apr-17

ME:

RS

EE:

This document contains proprietary and confidential information of Dielectric. It is to be used solely for the purpose for which it is provided. No disclosure, reproduction, or use of this document or any part of it may be made without the written permission of Dielectric. Mechanical data is based on listed criteria and should be verified by the tower engineer.

Summary

Proposal No.	C-70492
Date	5-Apr-17
Call Letters	WAWV
Channel	18
Frequency	497 MHz
Antenna Type	TUA-O4-16/64H-R-1-T

Antenna

		Hpol
ERP:	541 kW	(27.33 dBk)
RMS Gain*	31.47	(14.98 dB)

Antenna Input Power	17.2 kW	(12.35 dBk)
----------------------------	----------------	----------------------

Transmission Line

Type:	Rigid Digiline	Attenuation:	(0.71 dB)
Size:	8-3/16"	Efficiency:	84.9%
Impedance:	75 Ohm		
Length:	880 ft	268.2 m	

Combiner Losses

Attenuation	(0.25 dB)
Efficiency	94.4%

Combiner Input

21.5 kW	(13.32 dBk)
----------------	----------------------

Transmitter filter losses not included

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

This document contains proprietary and confidential information of Dielectric. It is to be used solely for the purpose for which it is provided. No disclosure, reproduction, or use of this document or any part of it may be made without the written permission of Dielectric.

Summary

Proposal No.	C-70492
Date	5-Apr-17
Call Letters	WTWO
Channel	35
Frequency	599 MHz
Antenna Type	TUA-O4-16/64H-R-1-T

Antenna

		Hpol
ERP:	980 kW	(29.91 dBk)
RMS Gain*	31.49	(14.98 dB)

Antenna Input Power	31.1 kW	(14.93 dBk)
----------------------------	----------------	----------------------

Transmission Line

Type:	Rigid Digiline	Attenuation:	(0.78 dB)
Size:	8-3/16"	Efficiency:	83.5%
Impedance:	75 Ohm		
Length:	880 ft	268.2 m	

Combiner Losses

Attenuation	(0.25 dB)
Efficiency	94.4%

Combiner Input

39.5 kW	(15.96 dBk)
----------------	----------------------

Transmitter filter losses not included

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

This document contains proprietary and confidential information of Dielectric. It is to be used solely for the purpose for which it is provided. No disclosure, reproduction, or use of this document or any part of it may be made without the written permission of Dielectric.