



Antenna Model: **TUA-O4-16/64H-R-1-T**

Proposal Number: **C-70492-2**
Date: **2-Aug-17**
Customer: **Nexstar**
Location: **Terre Haute**

Electrical Specifications

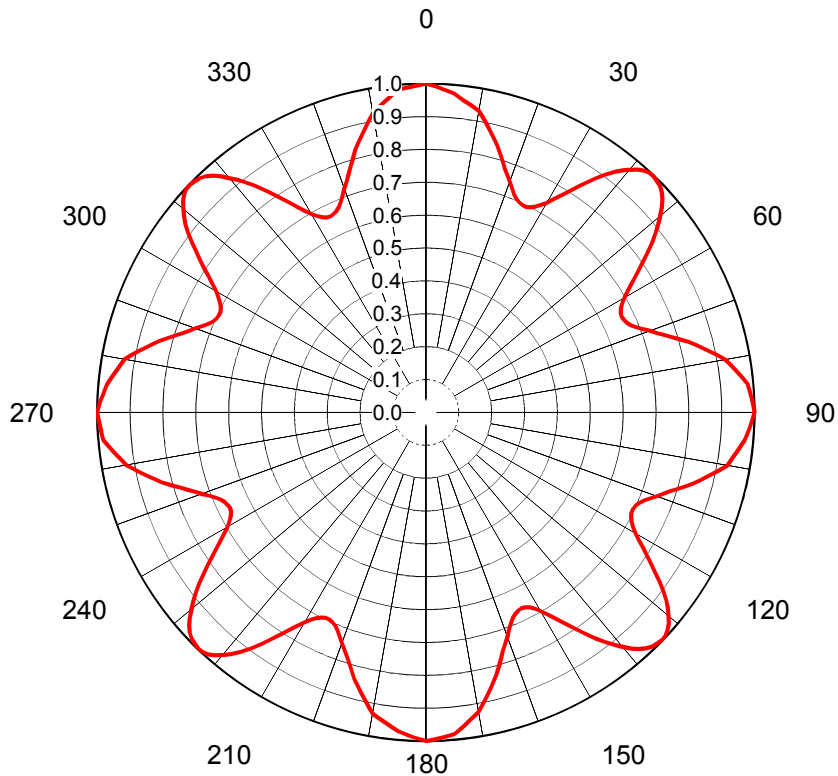
Polarization: **Horizontal**
Azimuth Pattern: **Omni**
Antenna Input: **7-3/16"** **75 Ohm** **EIA/DCA**
VSWR: **Channel** **1.10 : 1** **Band** **1.10 : 1**
Bandwidth: **470-860 MHz**
Rated Input Power: **73 kW** **(18.63 dBk)** **Maximum combined average power**

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: **12700 lb (5.8t)**
Effective Projected Area: **136.36 ft² (12.7m TIA-222-G)** Basic Wind Speed: **115 m/h (185.1 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)	22.0 kW (13.42 dBk)	31.47 (14.98dB)	18.32 (12.63dB)
2	WTWO	35	599 MHz	980.0 kW (29.91 dBk)	40.6 kW (16.09 dBk)	31.49 (14.98dB)	15.17 (11.81dB)



AZIMUTH PATTERN Horizontal Polarization

Proposal No. **C-70492-2**
 Date **2-Aug-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	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	324	0.837
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	325	0.810
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	326	0.785
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	327	0.760
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	328	0.737
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	329	0.716
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	330	0.697
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	331	0.683
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	332	0.672
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	333	0.665
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	334	0.663
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	335	0.665
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	336	0.670
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	337	0.679
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	338	0.691
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	339	0.707
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	340	0.726
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	341	0.743
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	342	0.761
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	343	0.782
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	344	0.804
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	345	0.828
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	346	0.847
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	347	0.866
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	348	0.886
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	349	0.905
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	350	0.925
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	351	0.937
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	352	0.948
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	353	0.960
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	354	0.972
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	355	0.984
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	356	0.987
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	357	0.991
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	358	0.994
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	359	0.997

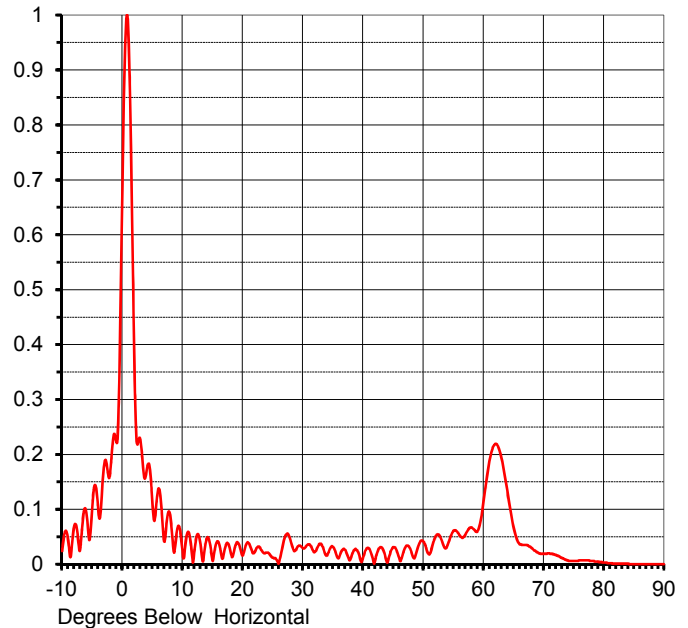
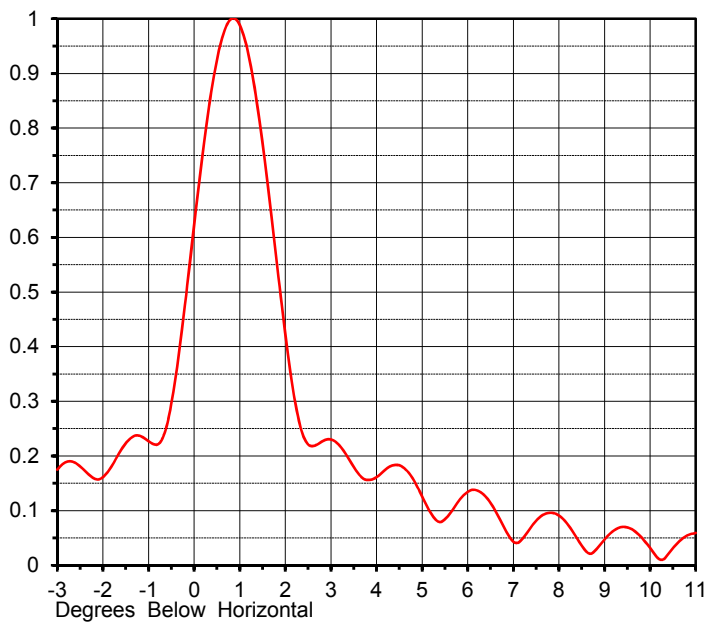
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ELEVATION PATTERN

Proposal No. **C-70492-2**
 Date **2-Aug-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

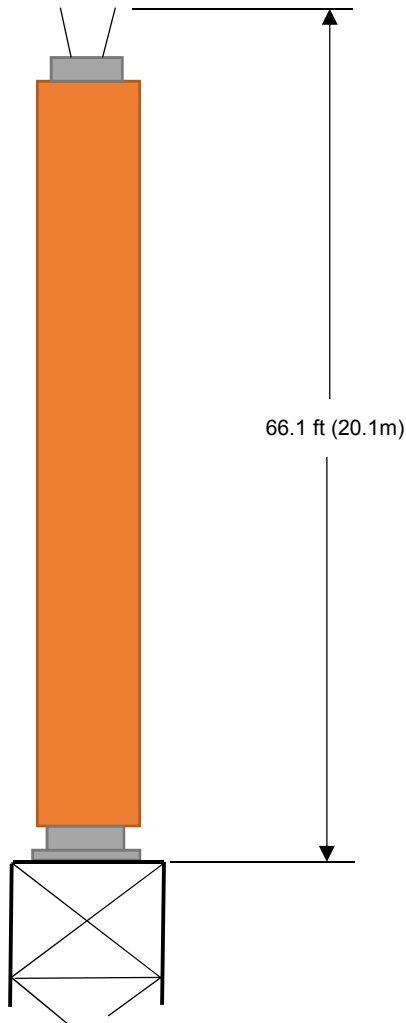
Beam Tilt **0.75 deg**
 Pattern Number **16U315075**



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

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MECHANICAL SPECIFICATIONS



Proposal No. **C-70492-2**
 Date **2-Aug-17**
 Call Letters **WAWV**
 Channel **18**
 Frequency **497 MHz**
 Antenna Type **TUA-O4-16/64H-R-1-T**

Preliminary Specifications

Top Mounted

With ice TIA-222-G

Height AGL(z) 810.4 ft (247 m)
 Basic Wind Speed 115 m/h (185.1 km/h)

Structure Class II
 Exposure Category C
 Topography Category 1

Design Ice 1 in $t_{iz} = 2.75$ in
 Wind Speed w/Ice 40 m/h (64.4 km/h)

Mechanical Specifications

		without ice	with ice
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)	
Effective Projected Area	(EPA) _S	136.36 ft ² (12.7m ²)	263.2 ft ² (24.5m ²)
Moment Arm	D1	33.9 ft (10.3m)	35.75 ft (10.9m)

Weight W 12700 lb (5.8t) 21300 lb (9.7t)

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

Prepared by: JBC Date: 5-Apr-17 ME: EE:
 Rev. No.1 by: SPJC Date: 2-Aug-17

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Summary

Proposal No.	C-70492-2
Date	2-Aug-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)
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Transmission Line

Type:	Rigid	Attenuation:	(0.91 dB)
Size:	7-3/16"	Efficiency:	81.2%
Impedance:	75 Ohm		
Length:	880 ft	268.2 m	

Combiner Losses

Attenuation	(0.25 dB)
Efficiency	94.4%

Combiner Input

40.6 kW	(16.09 dBk)
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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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