Dielectric®

Antenna Model: **THV-2A10/CP-R O4**

Proposal Number:	**C-71790**
Date:	**2-Dec-21**
Customer:	**Alabama ETV**
Location:	**Montgomery, AL**

Electrical Specifications

Polarization:	**Circular**		
Azimuth Pattern:	**Omni**		
Antenna Input:	**6-1/8"**	**75 Ohm**	**EIA/DCA**
VSWR:	Channel	**1.10 : 1**	
Bandwidth:	**MHz**		
Rated Input Power:	**20 kW**	**(13.01 dBk)**	**Maximum Average Power**

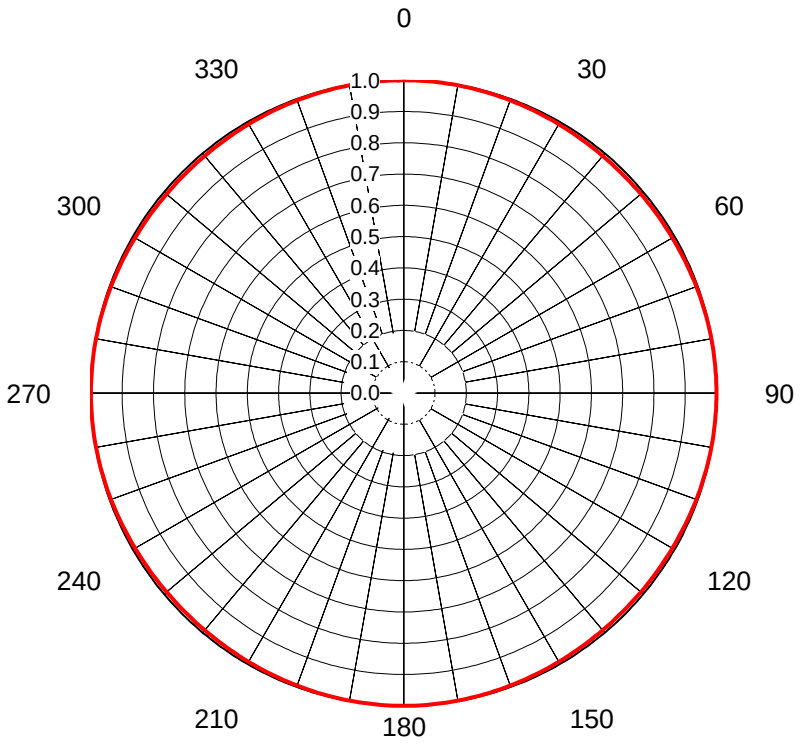
Mechanical Specifications

Mounting:	**Top Mounted**				
Environmental Protection:	**Full Radome**				
Height:	**19.9 ft (6.1m)**	less Lightning Protector	**23.9 ft (7.3m)**	with Lightning Protector	
Weight:	**2750 lb (1.2t)**				
Effective Projected Area:	**29.2 ft² (2.7m²)**	**TIA-222-G**	Basic Wind Speed:	**90 m/h (144.8 km/h)**	

Channel Specifications

Call	CH	Freq	Hpol ERP	Vpol ERP	TPO	RMS Main Lobe Hpol Gain	RMS Main Lobe Vpol Gain	RMS at Horizontal Hpol Gain	RMS at Horizontal Vpol Gain
WBIQ	10	195 MHz	3.00 kW (4.77 dBk)	3.00 kW (4.77 dBk)	3.42 kW (5.34 dBk)	1.05 (0.21dB)	1.05 (0.21dB)	1.04 (0.18dB)	1.04 (0.18dB)

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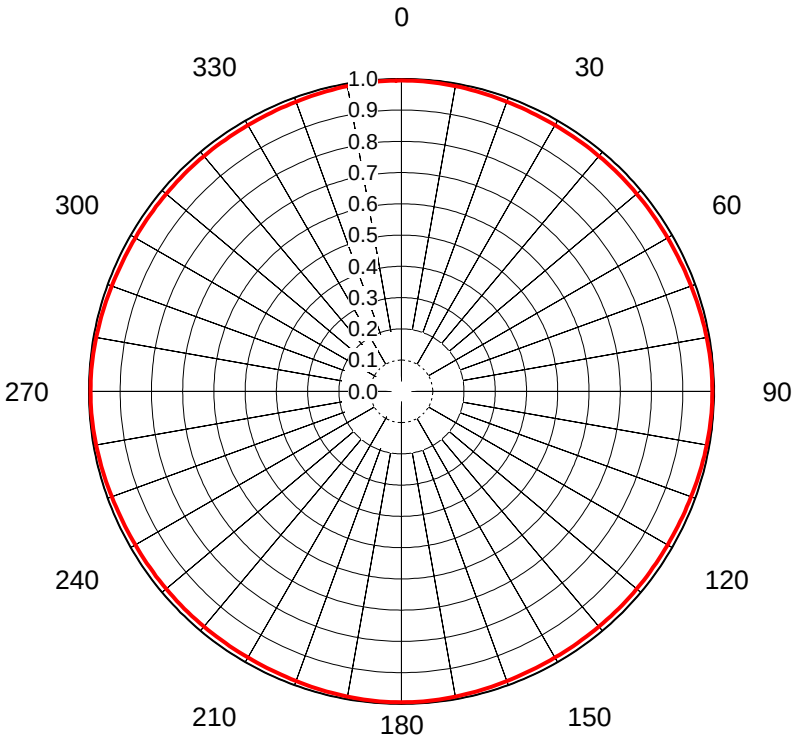
AZIMUTH PATTERN
Horizontal Polarization

Proposal No.	**C-71790**
Date	**2-Dec-21**
Call Letters	**WBIQ**
Channel	**10**
Frequency	**195 MHz**
Antenna Type	**THV-2A10/CP-R O4**
Gain	**1.01 (0.05dB)**
	Calculated
Circularity	**+/- 1.0 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	0.990	72	0.996	108	0.996	144	0.990	180	1.000	216	0.990	252	0.996	288	0.996	324	0.990
1	1.000	37	0.990	73	0.997	109	0.996	145	0.991	181	1.000	217	0.990	253	0.997	289	0.996	325	0.991
2	1.000	38	0.990	74	0.997	110	0.996	146	0.991	182	1.000	218	0.990	254	0.997	290	0.996	326	0.991
3	1.000	39	0.990	75	0.997	111	0.995	147	0.991	183	1.000	219	0.990	255	0.997	291	0.995	327	0.991
4	1.000	40	0.990	76	0.998	112	0.995	148	0.991	184	1.000	220	0.990	256	0.998	292	0.995	328	0.991
5	1.000	41	0.990	77	0.998	113	0.995	149	0.992	185	1.000	221	0.990	257	0.998	293	0.995	329	0.992
6	1.000	42	0.990	78	0.998	114	0.994	150	0.992	186	1.000	222	0.989	258	0.998	294	0.994	330	0.992
7	0.999	43	0.989	79	0.999	115	0.994	151	0.992	187	0.999	223	0.989	259	0.999	295	0.994	331	0.992
8	0.999	44	0.989	80	0.999	116	0.993	152	0.993	188	0.999	224	0.989	260	0.999	296	0.993	332	0.993
9	0.999	45	0.989	81	0.999	117	0.993	153	0.993	189	0.999	225	0.989	261	0.999	297	0.993	333	0.993
10	0.999	46	0.989	82	0.999	118	0.993	154	0.993	190	0.999	226	0.989	262	0.999	298	0.993	334	0.993
11	0.999	47	0.989	83	0.999	119	0.992	155	0.994	191	0.999	227	0.989	263	0.999	299	0.992	335	0.994
12	0.998	48	0.989	84	1.000	120	0.992	156	0.994	192	0.998	228	0.989	264	1.000	300	0.992	336	0.994
13	0.998	49	0.990	85	1.000	121	0.992	157	0.995	193	0.998	229	0.990	265	1.000	301	0.992	337	0.995
14	0.998	50	0.990	86	1.000	122	0.991	158	0.995	194	0.998	230	0.990	266	1.000	302	0.991	338	0.995
15	0.997	51	0.990	87	1.000	123	0.991	159	0.995	195	0.997	231	0.990	267	1.000	303	0.991	339	0.995
16	0.997	52	0.990	88	1.000	124	0.991	160	0.996	196	0.997	232	0.990	268	1.000	304	0.991	340	0.996
17	0.997	53	0.990	89	1.000	125	0.991	161	0.996	197	0.997	233	0.990	269	1.000	305	0.991	341	0.996
18	0.996	54	0.990	90	1.000	126	0.990	162	0.996	198	0.996	234	0.990	270	1.000	306	0.990	342	0.996
19	0.996	55	0.991	91	1.000	127	0.990	163	0.997	199	0.996	235	0.991	271	1.000	307	0.990	343	0.997
20	0.996	56	0.991	92	1.000	128	0.990	164	0.997	200	0.996	236	0.991	272	1.000	308	0.990	344	0.997
21	0.995	57	0.991	93	1.000	129	0.990	165	0.997	201	0.995	237	0.991	273	1.000	309	0.990	345	0.997
22	0.995	58	0.991	94	1.000	130	0.990	166	0.998	202	0.995	238	0.991	274	1.000	310	0.990	346	0.998
23	0.995	59	0.992	95	1.000	131	0.990	167	0.998	203	0.995	239	0.992	275	1.000	311	0.990	347	0.998
24	0.994	60	0.992	96	1.000	132	0.989	168	0.998	204	0.994	240	0.992	276	1.000	312	0.990	348	0.998
25	0.994	61	0.992	97	0.999	133	0.989	169	0.999	205	0.994	241	0.992	277	0.999	313	0.989	349	0.999
26	0.993	62	0.993	98	0.999	134	0.989	170	0.999	206	0.993	242	0.993	278	0.999	314	0.989	350	0.999
27	0.993	63	0.993	99	0.999	135	0.989	171	0.999	207	0.993	243	0.993	279	0.999	315	0.989	351	0.999
28	0.993	64	0.993	100	0.999	136	0.989	172	0.999	208	0.993	244	0.993	280	0.999	316	0.989	352	0.999
29	0.992	65	0.994	101	0.999	137	0.989	173	0.999	209	0.992	245	0.994	281	0.999	317	0.989	353	0.999
30	0.992	66	0.994	102	0.998	138	0.989	174	1.000	210	0.992	246	0.994	282	0.998	318	0.990	354	1.000
31	0.992	67	0.995	103	0.998	139	0.990	175	1.000	211	0.992	247	0.995	283	0.998	319	0.990	355	1.000
32	0.991	68	0.995	104	0.998	140	0.990	176	1.000	212	0.991	248	0.995	284	0.998	320	0.990	356	1.000
33	0.991	69	0.995	105	0.997	141	0.990	177	1.000	213	0.991	249	0.995	285	0.997	321	0.990	357	1.000
34	0.991	70	0.996	106	0.997	142	0.990	178	1.000	214	0.991	250	0.996	286	0.997	322	0.990	358	1.000
35	0.991	71	0.996	107	0.997	143	0.990	179	1.000	215	0.991	251	0.996	287	0.997	323	0.990	359	1.000

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AZIMUTH PATTERN
Vertical Polarization

Proposal No.	**C-71790**
Date	**2-Dec-21**
Call Letters	**WBIQ**
Channel	**10**
Frequency	**195 MHz**
Antenna Type	**THV-2A10/CP-R O4**
Gain	**1 (0dB)**
	Calculated
Circularity	**+/- 1.0 dB**

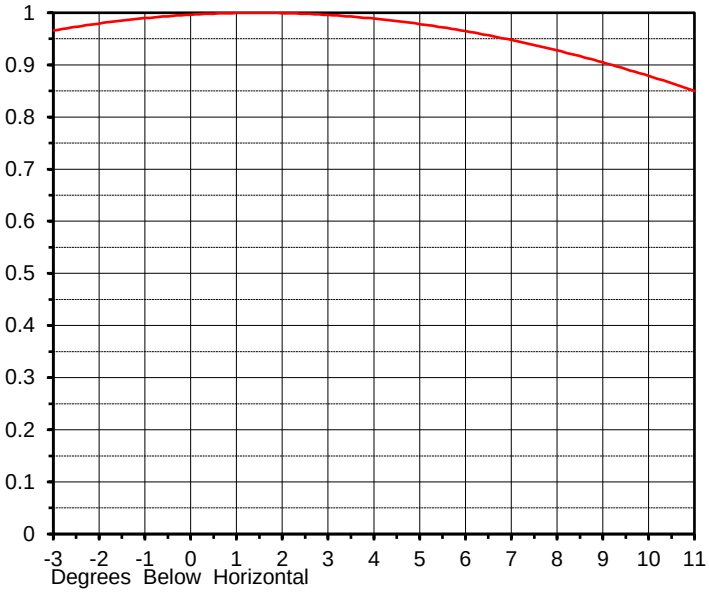
Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.995	36	0.983	72	0.987	108	0.987	144	0.983	180	0.995	216	0.983	252	0.987	288	0.987	324	0.983
1	0.995	37	0.983	73	0.988	109	0.987	145	0.983	181	0.995	217	0.983	253	0.988	289	0.987	325	0.983
2	0.995	38	0.983	74	0.988	110	0.986	146	0.983	182	0.995	218	0.983	254	0.988	290	0.986	326	0.983
3	0.994	39	0.983	75	0.989	111	0.986	147	0.983	183	0.994	219	0.983	255	0.989	291	0.986	327	0.983
4	0.994	40	0.983	76	0.990	112	0.985	148	0.983	184	0.994	220	0.983	256	0.990	292	0.985	328	0.983
5	0.994	41	0.983	77	0.990	113	0.985	149	0.983	185	0.994	221	0.983	257	0.990	293	0.985	329	0.983
6	0.994	42	0.983	78	0.991	114	0.985	150	0.983	186	0.994	222	0.983	258	0.991	294	0.985	330	0.983
7	0.993	43	0.983	79	0.991	115	0.984	151	0.983	187	0.993	223	0.983	259	0.991	295	0.984	331	0.983
8	0.993	44	0.983	80	0.992	116	0.984	152	0.983	188	0.993	224	0.983	260	0.992	296	0.984	332	0.983
9	0.992	45	0.983	81	0.992	117	0.984	153	0.984	189	0.992	225	0.983	261	0.992	297	0.984	333	0.984
10	0.992	46	0.983	82	0.993	118	0.983	154	0.984	190	0.992	226	0.983	262	0.993	298	0.983	334	0.984
11	0.991	47	0.983	83	0.993	119	0.983	155	0.984	191	0.991	227	0.983	263	0.993	299	0.983	335	0.984
12	0.991	48	0.983	84	0.994	120	0.983	156	0.985	192	0.991	228	0.983	264	0.994	300	0.983	336	0.985
13	0.990	49	0.983	85	0.994	121	0.983	157	0.985	193	0.990	229	0.983	265	0.994	301	0.983	337	0.985
14	0.990	50	0.983	86	0.994	122	0.983	158	0.985	194	0.990	230	0.983	266	0.994	302	0.983	338	0.985
15	0.989	51	0.983	87	0.994	123	0.983	159	0.986	195	0.989	231	0.983	267	0.994	303	0.983	339	0.986
16	0.988	52	0.983	88	0.995	124	0.983	160	0.986	196	0.988	232	0.983	268	0.995	304	0.983	340	0.986
17	0.988	53	0.983	89	0.995	125	0.983	161	0.987	197	0.988	233	0.983	269	0.995	305	0.983	341	0.987
18	0.987	54	0.983	90	0.995	126	0.983	162	0.987	198	0.987	234	0.983	270	0.995	306	0.983	342	0.987
19	0.987	55	0.983	91	0.995	127	0.983	163	0.988	199	0.987	235	0.983	271	0.995	307	0.983	343	0.988
20	0.986	56	0.983	92	0.995	128	0.983	164	0.988	200	0.986	236	0.983	272	0.995	308	0.983	344	0.988
21	0.986	57	0.983	93	0.994	129	0.983	165	0.989	201	0.986	237	0.983	273	0.994	309	0.983	345	0.989
22	0.985	58	0.983	94	0.994	130	0.983	166	0.990	202	0.985	238	0.983	274	0.994	310	0.983	346	0.990
23	0.985	59	0.983	95	0.994	131	0.983	167	0.990	203	0.985	239	0.983	275	0.994	311	0.983	347	0.990
24	0.985	60	0.983	96	0.994	132	0.983	168	0.991	204	0.985	240	0.983	276	0.994	312	0.983	348	0.991
25	0.984	61	0.983	97	0.993	133	0.983	169	0.991	205	0.984	241	0.983	277	0.993	313	0.983	349	0.991
26	0.984	62	0.983	98	0.993	134	0.983	170	0.992	206	0.984	242	0.983	278	0.993	314	0.983	350	0.992
27	0.984	63	0.984	99	0.992	135	0.983	171	0.992	207	0.984	243	0.984	279	0.992	315	0.983	351	0.992
28	0.983	64	0.984	100	0.992	136	0.983	172	0.993	208	0.983	244	0.984	280	0.992	316	0.983	352	0.993
29	0.983	65	0.984	101	0.991	137	0.983	173	0.993	209	0.983	245	0.984	281	0.991	317	0.983	353	0.993
30	0.983	66	0.985	102	0.991	138	0.983	174	0.994	210	0.983	246	0.985	282	0.991	318	0.983	354	0.994
31	0.983	67	0.985	103	0.990	139	0.983	175	0.994	211	0.983	247	0.985	283	0.990	319	0.983	355	0.994
32	0.983	68	0.985	104	0.990	140	0.983	176	0.994	212	0.983	248	0.985	284	0.990	320	0.983	356	0.994
33	0.983	69	0.986	105	0.989	141	0.983	177	0.994	213	0.983	249	0.986	285	0.989	321	0.983	357	0.994
34	0.983	70	0.986	106	0.988	142	0.983	178	0.995	214	0.983	250	0.986	286	0.988	322	0.983	358	0.995
35	0.983	71	0.987	107	0.988	143	0.983	179	0.995	215	0.983	251	0.987	287	0.988	323	0.983	359	0.995

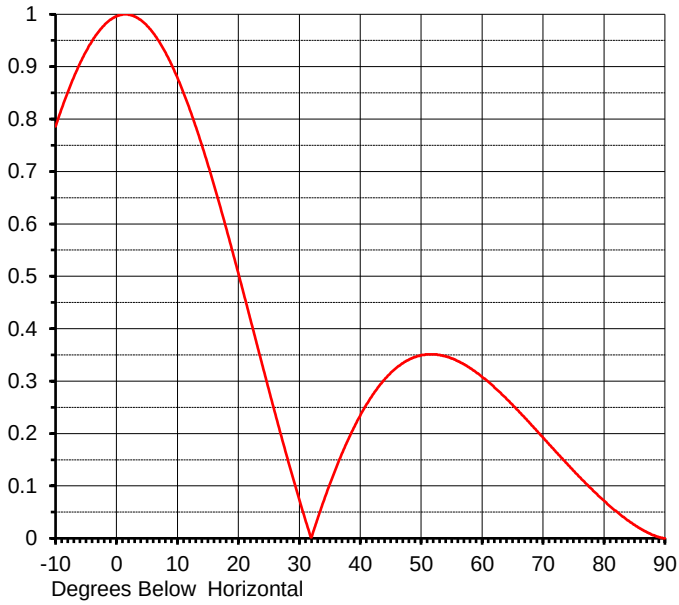
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ELEVATION PATTERN

Proposal No.	**C-71790**
Date	**2-Dec-21**
Call Letters	**WBIQ**
Channel	**10**
Frequency	**195 MHz**
Antenna Type	**THV-2A10/CP-R O4**

RMS Directivity at Main Lobe	**2.1 (3.22 dB)**	Beam Tilt	**1.50 deg**
RMS Directivity at Horizontal	**2.1 (3.22 dB)**	Pattern Number	**02H021150**
Calculated			

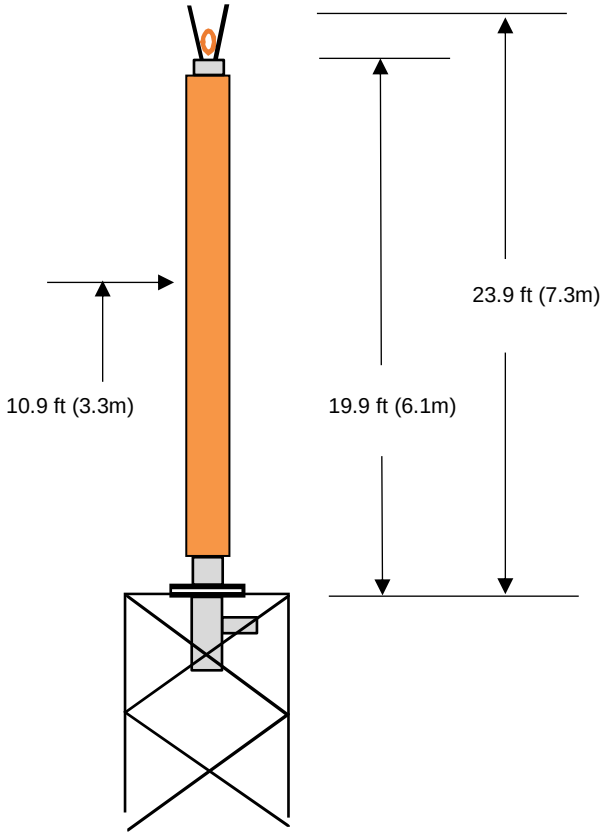




Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.786	10.0	0.879	30.0	0.074	50.0	0.349	70.0	0.192
-9.0	0.820	11.0	0.850	31.0	0.035	51.0	0.351	71.0	0.179
-8.0	0.851	12.0	0.819	32.0	0.002	52.0	0.351	72.0	0.167
-7.0	0.880	13.0	0.786	33.0	0.037	53.0	0.350	73.0	0.154
-6.0	0.906	14.0	0.751	34.0	0.071	54.0	0.347	74.0	0.142
-5.0	0.929	15.0	0.713	35.0	0.103	55.0	0.343	75.0	0.129
-4.0	0.949	16.0	0.674	36.0	0.133	56.0	0.338	76.0	0.117
-3.0	0.966	17.0	0.634	37.0	0.162	57.0	0.332	77.0	0.105
-2.0	0.979	18.0	0.592	38.0	0.188	58.0	0.325	78.0	0.094
-1.0	0.990	19.0	0.549	39.0	0.212	59.0	0.317	79.0	0.082
0.0	0.996	20.0	0.506	40.0	0.234	60.0	0.308	80.0	0.072
1.0	1.000	21.0	0.461	41.0	0.255	61.0	0.299	81.0	0.061
2.0	0.999	22.0	0.417	42.0	0.273	62.0	0.288	82.0	0.052
3.0	0.996	23.0	0.372	43.0	0.289	63.0	0.278	83.0	0.042
4.0	0.989	24.0	0.328	44.0	0.303	64.0	0.266	84.0	0.034
5.0	0.978	25.0	0.284	45.0	0.316	65.0	0.255	85.0	0.026
6.0	0.965	26.0	0.240	46.0	0.326	66.0	0.243	86.0	0.018
7.0	0.948	27.0	0.197	47.0	0.334	67.0	0.230	87.0	0.012
8.0	0.928	28.0	0.155	48.0	0.341	68.0	0.218	88.0	0.006
9.0	0.905	29.0	0.114	49.0	0.346	69.0	0.205	89.0	0.002
								90.0	0.000

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MECHANICAL SPECIFICATIONS



Proposal No.	**C-71790**
Date	**2-Dec-21**
Call Letters	**WBIQ**
Channel	**10**
Frequency	**195 MHz**
Antenna Type	**THV-2A10/CP-R O4**

Preliminary Specifications

Top Mounted

With ice TIA-222-G

Height AGL(z)	1030 ft (313.9 m)
Basic Wind Speed	90 m/h (144.8 km/h)
Structure Class	II
Exposure Category	C
Topography Category	1
Design Ice	0.5 in t_{iz} = 1.40 in
Wind Speed w/Ice	40 m/h (64.4 km/h)

Mechanical Specifications		**without ice**	**with ice**
Height with Lightning Protector	H4	23.9 ft (7.3m)	
Height less Lightning Protector	H2	19.9 ft (6.1m)	
Height of Center of Radiation	H3	9.95 ft (3m)	
Effective Projected Area	$(EPA)_S$	29.2 ft² (2.7m²)	68.4 ft² (6.4m²)
Moment Arm	D1	10.9 ft (3.3m)	11.5 ft (3.5m)
Weight	W	2750 lb (1.2t)	3900 lb (1.8t)

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

Prepared by: CAB **Date:** 2-Dec-21 **ME:** **EE:**

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Summary

Proposal No.	**C-71790**
Date	**2-Dec-21**
Call Letters	**WBIQ**
Channel	**10**
Frequency	**195 MHz**
Antenna Type	**THV-2A10/CP-R O4**

Antenna

	Hpol		Vpol	
ERP:	**3.00 kW**	**(4.77 dBk)**	**3.00 kW**	**(4.77 dBk)**
RMS Gain*	1.05	(0.21 dB)	1.05	(0.21 dB)

Antenna Input Power

2.86 kW (4.56 dBk)

Transmission Line

Type:	**Rigid**	Attenuation:	**(0.78 dB)**
Size:	**6-1/8"**	Efficiency:	**83.6%**
Impedance:	**75 Ohm**		
Length:	**1200 ft**	**365.8 m**	

Transmitter Output

3.42 kW (5.34 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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