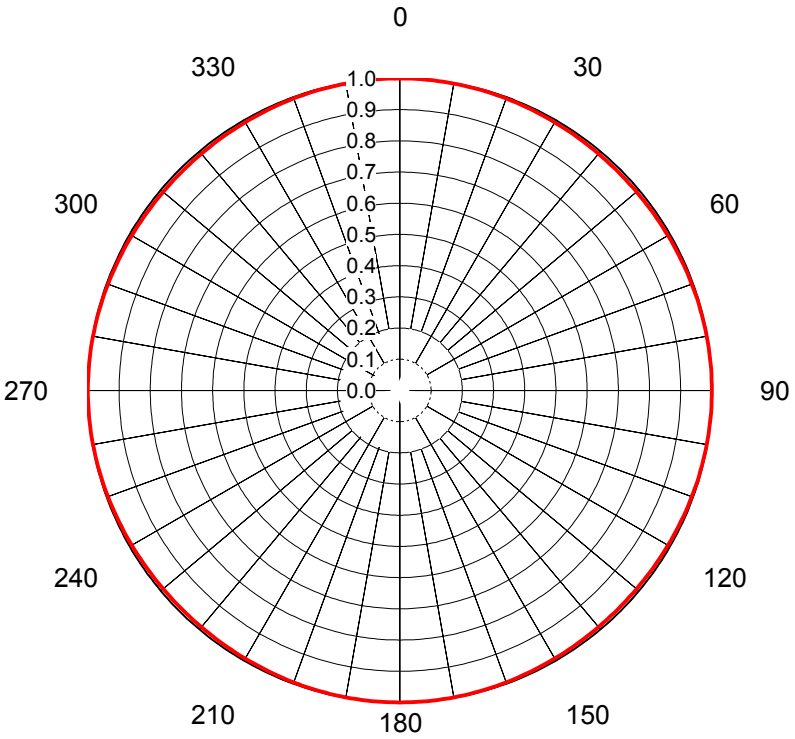


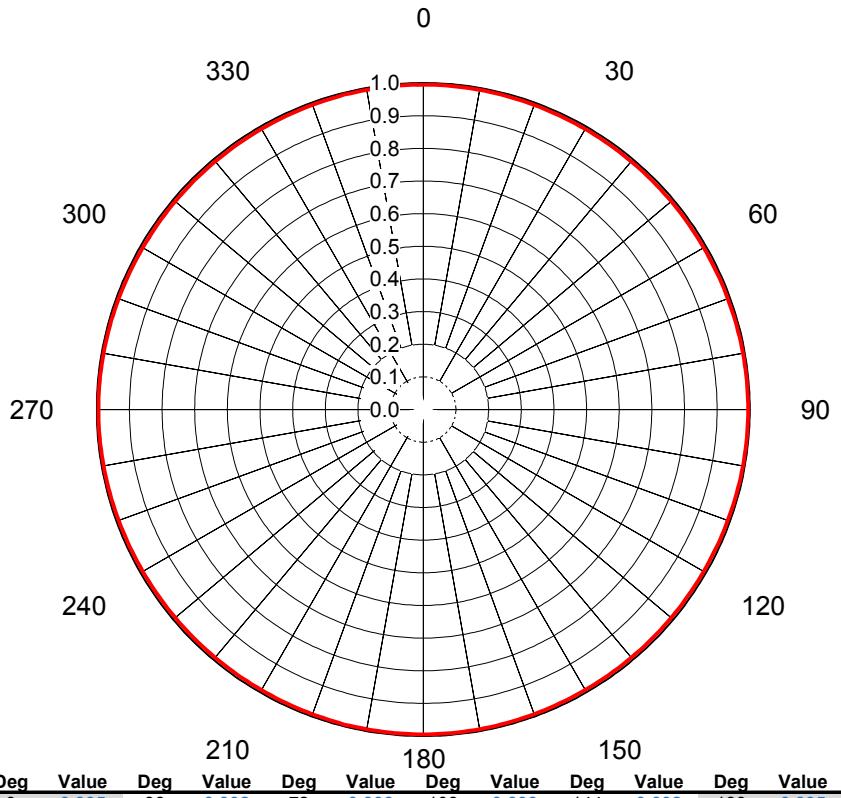
AZIMUTH PATTERN
Horizontal Polarization

Proposal No.	**C-70563**
Date	**29-Mar-17**
Call Letters	**WISC**
Channel	**11**
Frequency	**201 MHz**
Antenna Type	**THV-9A11/CP-R O4**
Gain	**1.01 (0.04dB)**
	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	0.991	72	0.996	108	0.996	144	0.991	180	1.000	216	0.991	252	0.996	288	0.996	324	0.991
1	1.000	37	0.991	73	0.997	109	0.996	145	0.991	181	1.000	217	0.991	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	0.992	184	1.000	220	0.990	256	0.998	292	0.995	328	0.992
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	0.990	258	0.998	294	0.994	330	0.992
7	0.999	43	0.990	79	0.999	115	0.994	151	0.993	187	0.999	223	0.990	259	0.999	295	0.994	331	0.993
8	0.999	44	0.990	80	0.999	116	0.994	152	0.993	188	0.999	224	0.990	260	0.999	296	0.994	332	0.993
9	0.999	45	0.990	81	0.999	117	0.993	153	0.993	189	0.999	225	0.990	261	0.999	297	0.993	333	0.993
10	0.999	46	0.990	82	0.999	118	0.993	154	0.994	190	0.999	226	0.990	262	0.999	298	0.993	334	0.994
11	0.999	47	0.990	83	0.999	119	0.993	155	0.994	191	0.999	227	0.990	263	0.999	299	0.993	335	0.994
12	0.998	48	0.990	84	1.000	120	0.992	156	0.994	192	0.998	228	0.990	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	0.992	158	0.995	194	0.998	230	0.990	266	1.000	302	0.992	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	0.991	89	1.000	125	0.991	161	0.996	197	0.997	233	0.991	269	1.000	305	0.991	341	0.996
18	0.996	54	0.991	90	1.000	126	0.991	162	0.996	198	0.996	234	0.991	270	1.000	306	0.991	342	0.996
19	0.996	55	0.991	91	1.000	127	0.991	163	0.997	199	0.996	235	0.991	271	1.000	307	0.991	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	0.992	94	1.000	130	0.990	166	0.998	202	0.995	238	0.992	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	0.990	168	0.998	204	0.994	240	0.992	276	1.000	312	0.990	348	0.998
25	0.994	61	0.993	97	0.999	133	0.990	169	0.999	205	0.994	241	0.993	277	0.999	313	0.990	349	0.999
26	0.994	62	0.993	98	0.999	134	0.990	170	0.999	206	0.994	242	0.993	278	0.999	314	0.990	350	0.999
27	0.993	63	0.993	99	0.999	135	0.990	171	0.999	207	0.993	243	0.993	279	0.999	315	0.990	351	0.999
28	0.993	64	0.994	100	0.999	136	0.990	172	0.999	208	0.993	244	0.994	280	0.999	316	0.990	352	0.999
29	0.993	65	0.994	101	0.999	137	0.990	173	0.999	209	0.993	245	0.994	281	0.999	317	0.990	353	0.999
30	0.992	66	0.994	102	0.998	138	0.990	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	0.992	68	0.995	104	0.998	140	0.990	176	1.000	212	0.992	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	0.991	179	1.000	215	0.991	251	0.996	287	0.997	323	0.991	359	1.000

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AZIMUTH PATTERN
Vertical Polarization

Proposal No.	**C-70563**
Date	**29-Mar-17**
Call Letters	**WISC**
Channel	**11**
Frequency	**201 MHz**
Antenna Type	**THV-9A11/CP-R O4**
Gain	**1 (0.02dB)**
	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	0.992	72	0.993	108	0.993	144	0.992	180	0.995	216	0.992	252	0.993	288	0.993	324	0.992
1	0.995	37	0.992	73	0.993	109	0.993	145	0.992	181	0.995	217	0.992	253	0.993	289	0.993	325	0.992
2	0.995	38	0.992	74	0.993	110	0.993	146	0.992	182	0.995	218	0.992	254	0.993	290	0.993	326	0.992
3	0.995	39	0.992	75	0.993	111	0.993	147	0.992	183	0.995	219	0.992	255	0.993	291	0.993	327	0.992
4	0.995	40	0.992	76	0.994	112	0.992	148	0.992	184	0.995	220	0.992	256	0.994	292	0.992	328	0.992
5	0.995	41	0.992	77	0.994	113	0.992	149	0.992	185	0.995	221	0.992	257	0.994	293	0.992	329	0.992
6	0.995	42	0.992	78	0.994	114	0.992	150	0.992	186	0.995	222	0.992	258	0.994	294	0.992	330	0.992
7	0.995	43	0.992	79	0.994	115	0.992	151	0.992	187	0.995	223	0.992	259	0.994	295	0.992	331	0.992
8	0.994	44	0.992	80	0.994	116	0.992	152	0.992	188	0.994	224	0.992	260	0.994	296	0.992	332	0.992
9	0.994	45	0.992	81	0.994	117	0.992	153	0.992	189	0.994	225	0.992	261	0.994	297	0.992	333	0.992
10	0.994	46	0.992	82	0.994	118	0.992	154	0.992	190	0.994	226	0.992	262	0.994	298	0.992	334	0.992
11	0.994	47	0.992	83	0.995	119	0.992	155	0.992	191	0.994	227	0.992	263	0.995	299	0.992	335	0.992
12	0.994	48	0.992	84	0.995	120	0.992	156	0.992	192	0.994	228	0.992	264	0.995	300	0.992	336	0.992
13	0.994	49	0.992	85	0.995	121	0.992	157	0.992	193	0.994	229	0.992	265	0.995	301	0.992	337	0.992
14	0.994	50	0.992	86	0.995	122	0.992	158	0.992	194	0.995	230	0.992	266	0.995	302	0.992	338	0.992
15	0.993	51	0.992	87	0.995	123	0.992	159	0.993	195	0.993	231	0.992	267	0.995	303	0.992	339	0.993
16	0.993	52	0.992	88	0.995	124	0.992	160	0.993	196	0.993	232	0.992	268	0.995	304	0.992	340	0.993
17	0.993	53	0.992	89	0.995	125	0.992	161	0.993	197	0.993	233	0.992	269	0.995	305	0.992	341	0.993
18	0.993	54	0.992	90	0.995	126	0.992	162	0.993	198	0.993	234	0.992	270	0.995	306	0.992	342	0.993
19	0.993	55	0.992	91	0.995	127	0.992	163	0.993	199	0.993	235	0.992	271	0.995	307	0.992	343	0.993
20	0.993	56	0.992	92	0.995	128	0.992	164	0.993	200	0.993	236	0.992	272	0.995	308	0.992	344	0.993
21	0.993	57	0.992	93	0.995	129	0.992	165	0.993	201	0.993	237	0.992	273	0.995	309	0.992	345	0.993
22	0.992	58	0.992	94	0.995	130	0.992	166	0.994	202	0.992	238	0.992	274	0.995	310	0.992	346	0.995
23	0.992	59	0.992	95	0.995	131	0.992	167	0.994	203	0.992	239	0.992	275	0.995	311	0.992	347	0.994
24	0.992	60	0.992	96	0.995	132	0.992	168	0.994	204	0.992	240	0.992	276	0.995	312	0.992	348	0.994
25	0.992	61	0.992	97	0.995	133	0.992	169	0.994	205	0.992	241	0.992	277	0.995	313	0.992	349	0.994
26	0.992	62	0.992	98	0.994	134	0.992	170	0.994	206	0.992	242	0.992	278	0.994	314	0.992	350	0.994
27	0.992	63	0.992	99	0.994	135	0.992	171	0.994	207	0.992	243	0.992	279	0.994	315	0.992	351	0.994
28	0.992	64	0.992	100	0.994	136	0.992	172	0.994	208	0.992	244	0.992	280	0.994	316	0.992	352	0.994
29	0.992	65	0.992	101	0.994	137	0.992	173	0.995	209	0.992	245	0.992	281	0.994	317	0.992	353	0.995
30	0.992	66	0.992	102	0.994	138	0.992	174	0.995	210	0.992	246	0.992	282	0.994	318	0.992	354	0.995
31	0.992	67	0.992	103	0.994	139	0.992	175	0.995	211	0.992	247	0.992	283	0.994	319	0.992	355	0.995
32	0.992	68	0.992	104	0.994	140	0.992	176	0.995	212	0.992	248	0.992	284	0.994	320	0.992	356	0.995
33	0.992	69	0.993	105	0.993	141	0.992	177	0.995	213	0.992	249	0.993	285	0.993	321	0.992	357	0.995
34	0.992	70	0.993	106	0.993	142	0.992	178	0.995	214	0.992	250	0.993	286	0.993	322	0.992	358	0.995
35	0.992	71	0.993	107	0.993	143	0.992	179	0.995	215	0.992	251	0.993	287	0.993	323	0.992	359	0.995

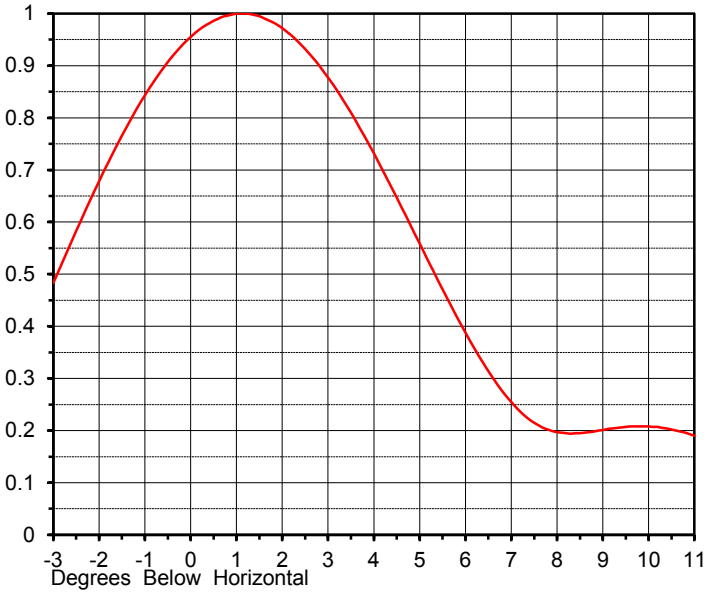
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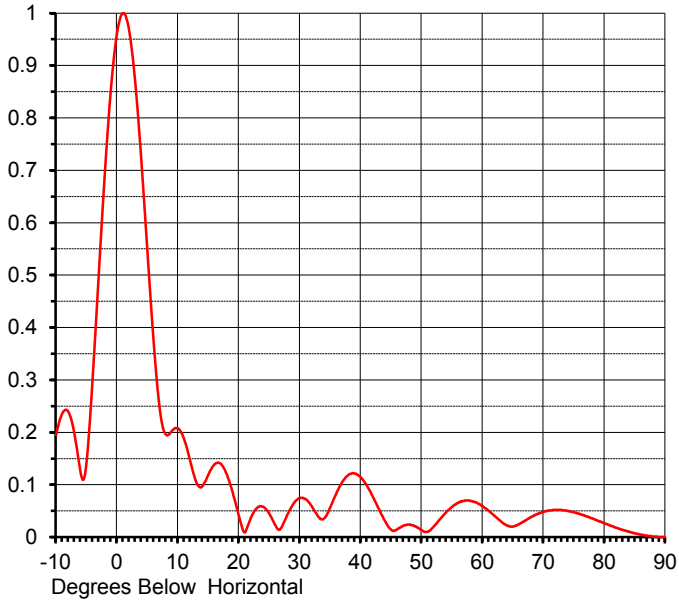
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ELEVATION PATTERN

Proposal No.	**C-70563**
Date	**29-Mar-17**
Call Letters	**WISC**
Channel	**11**
Frequency	**201 MHz**
Antenna Type	**THV-9A11/CP-R O4**

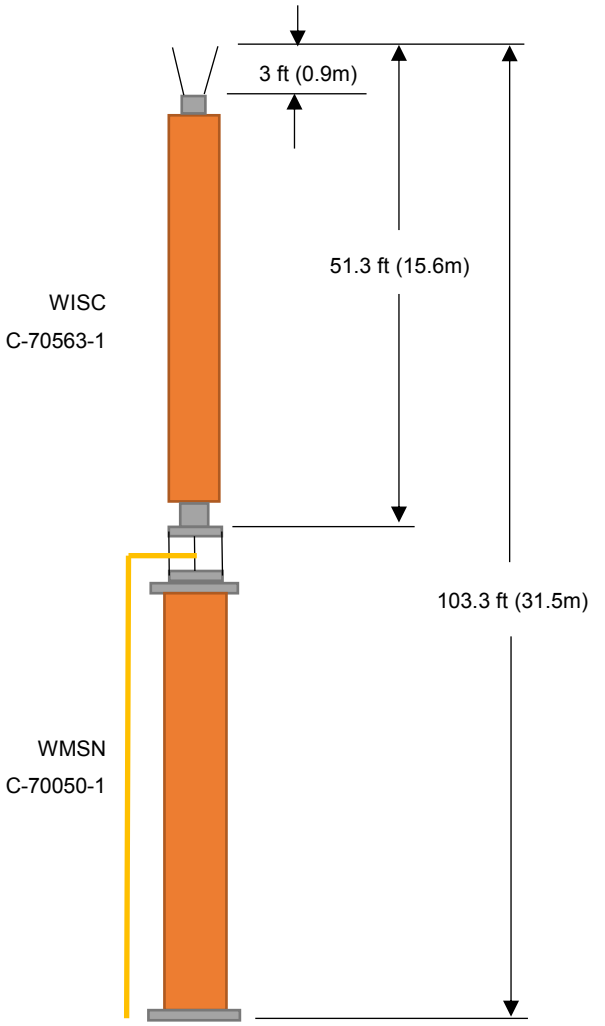
RMS Directivity at Main Lobe	**9.0 (9.54 dB)**	Beam Tilt	**1.00 deg**
RMS Directivity at Horizontal	**8.3 (9.19 dB)**	Pattern Number	**09V090100**
	Calculated		





Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.195	10.0	0.207	30.0	0.074	50.0	0.013	70.0	0.048
-9.0	0.236	11.0	0.187	31.0	0.072	51.0	0.010	71.0	0.051
-8.0	0.239	12.0	0.145	32.0	0.058	52.0	0.021	72.0	0.052
-7.0	0.197	13.0	0.105	33.0	0.039	53.0	0.034	73.0	0.052
-6.0	0.124	14.0	0.097	34.0	0.036	54.0	0.047	74.0	0.050
-5.0	0.145	15.0	0.120	35.0	0.057	55.0	0.058	75.0	0.047
-4.0	0.306	16.0	0.139	36.0	0.084	56.0	0.066	76.0	0.044
-3.0	0.503	17.0	0.140	37.0	0.106	57.0	0.069	77.0	0.040
-2.0	0.697	18.0	0.120	38.0	0.119	58.0	0.069	78.0	0.036
-1.0	0.857	19.0	0.084	39.0	0.121	59.0	0.066	79.0	0.031
0.0	0.963	20.0	0.040	40.0	0.114	60.0	0.059	80.0	0.026
1.0	1.000	21.0	0.009	41.0	0.098	61.0	0.050	81.0	0.022
2.0	0.965	22.0	0.038	42.0	0.076	62.0	0.040	82.0	0.018
3.0	0.865	23.0	0.056	43.0	0.053	63.0	0.030	83.0	0.014
4.0	0.715	24.0	0.058	44.0	0.030	64.0	0.022	84.0	0.010
5.0	0.541	25.0	0.044	45.0	0.014	65.0	0.020	85.0	0.007
6.0	0.372	26.0	0.022	46.0	0.015	66.0	0.025	86.0	0.005
7.0	0.245	27.0	0.019	47.0	0.022	67.0	0.032	87.0	0.003
8.0	0.196	28.0	0.044	48.0	0.024	68.0	0.039	88.0	0.001
9.0	0.203	29.0	0.065	49.0	0.020	69.0	0.044	89.0	0.000
								90.0	0.000

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MECHANICAL SPECIFICATIONS

Proposal No.	**C-70563**
Date	**29-Mar-17**
Call Letters	**WISC**
Channel	**11**
Frequency	**201 MHz**
Antenna Type	**THV-9A11/CP-R O4**

Preliminary Specifications

Top of Stack

With ice TIA-222-G

Height AGL(z)	1335.3 ft (407 m)
Basic Wind Speed	90 m/h (144.8 km/h)
Structure Class	II
Exposure Category	C
Topography Category	1

See C-70050-1 for Full Stack Loads

Design Ice	0.75 in	t_{iz} = 2.10 in
Wind Speed w/Ice	40 m/h (64.4 km/h)	

Mechanical Specifications		**without ice**	**with ice**
Height with Lightning Protector	H4	51.3 ft (15.6m)	
Height less Lightning Protector	H2	48.3 ft (14.7m)	
Height of Center of Radiation	H3	24.15 ft (7.4m)	
Effective Projected Area	$(EPA)_S$	63.5 ft² (5.9m²)	154.8 ft² (14.4m²)
Moment Arm	D1	25.5 ft (7.8m)	26.5 ft (8.1m)
Weight	W	6650 lb (3t)	10800 lb (4.9t)

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

Prepared by: **Date:** 29-Mar-17 **ME:** **EE:**

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