Dielectric®

Antenna Model: **THV-5A7/CP-R O4**

Proposal Number:	**C-70477**
Date:	**16-Mar-17**
Customer:	**Nexstar**
Location:	**Providence, RI**

Electrical Specifications

Polarization:	**Elliptical**		
Azimuth Pattern:	**Omni**		
Antenna Input:	**3-1/8"**	**50 Ohm**	**EIA/DCA**
VSWR:	Channel	**1.10 : 1**	
Bandwidth:	**6 MHz**		
Rated Input Power:	**20 kW**	**(13.01 dBk)**	**Maximum Average Power**

Mechanical Specifications

Mounting:	**Top Mounted**				
Environmental Protection:	**Full Radome**				
Height:	**38.4 ft (11.7m)**	less Lightning Protector	**42.4 ft (12.9m)**	with Lightning Protector	
Weight:	**5400 lb (2.4t)**				
Effective Projected Area:	**53.6 ft² (5m²)**	**TIA/EIA-222-F**	Basic Wind Speed:	**90 m/h (144.8 km/h)**	

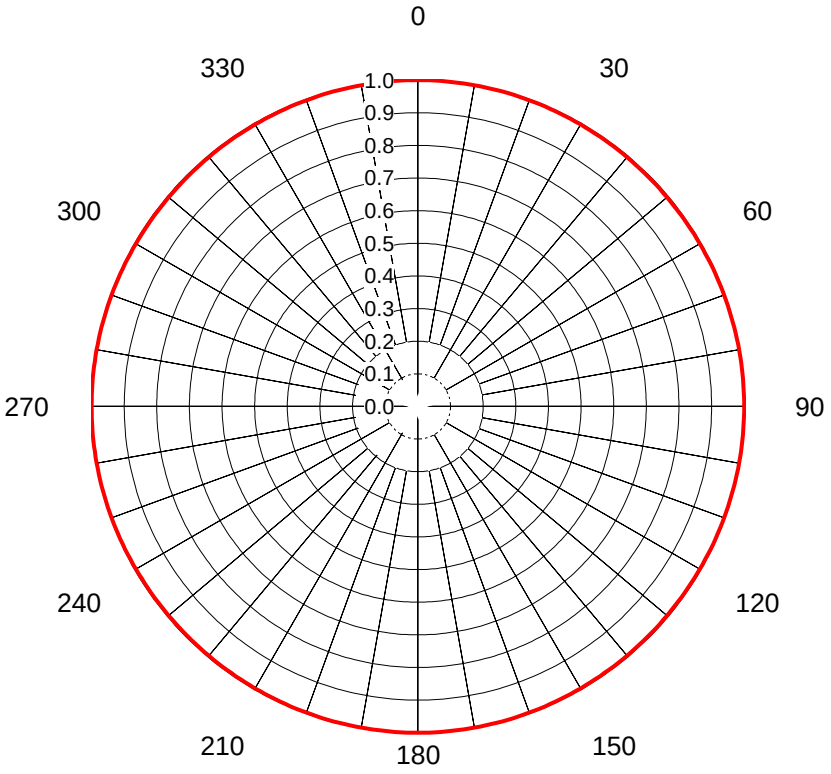
Channel Specifications

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
WPRI	7	177 MHz	30.0 kW (14.77 dBk)	30.0 kW (14.77 dBk)	16.3 kW (12.13 dBk)	2.50 (3.98dB)	2.50 (3.98dB)	2.47 (3.93dB)	2.47 (3.93dB)

Andre J Skalina
I have reviewed this document
'00'04- 10:44:07 2017.03.26

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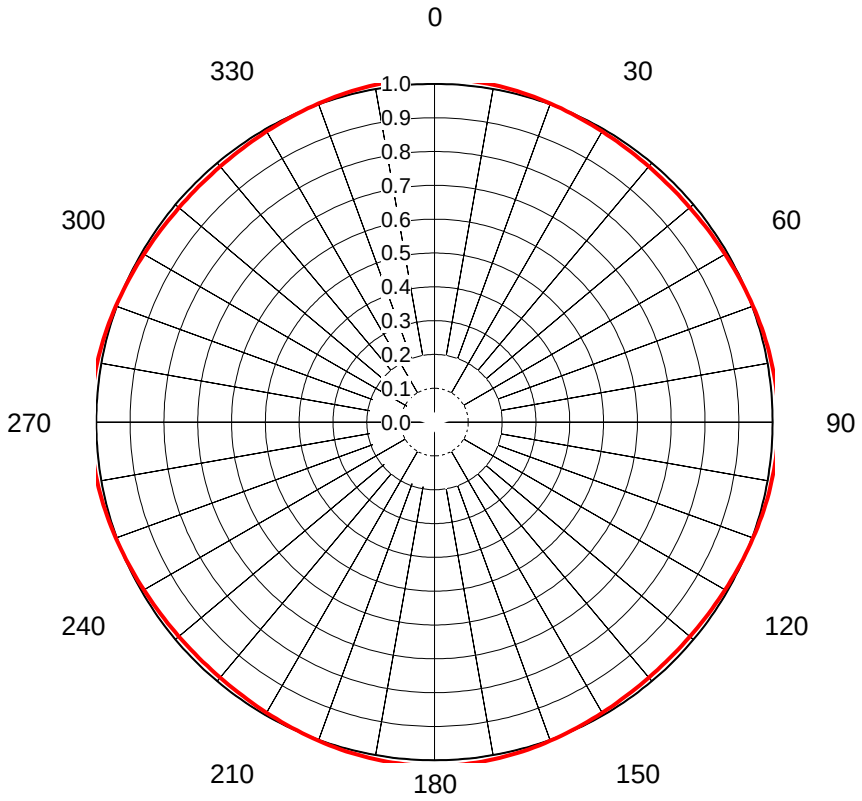
AZIMUTH PATTERN
Horizontal Polarization

Proposal No.	**C-70477**
Date	**16-Mar-17**
Call Letters	**WPRI**
Channel	**7**
Frequency	**177 MHz**
Antenna Type	**THV-5A7/CP-R O4**
Gain	**1 (0.01dB)**
	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	0.997	72	0.999	108	0.999	144	0.997	180	1.000	216	0.997	252	0.999	288	0.999	324	0.997
1	1.000	37	0.997	73	0.999	109	0.999	145	0.997	181	1.000	217	0.997	253	0.999	289	0.999	325	0.997
2	1.000	38	0.997	74	0.999	110	0.999	146	0.997	182	1.000	218	0.997	254	0.999	290	0.999	326	0.997
3	1.000	39	0.997	75	0.999	111	0.999	147	0.997	183	1.000	219	0.997	255	0.999	291	0.999	327	0.997
4	1.000	40	0.997	76	0.999	112	0.999	148	0.998	184	1.000	220	0.997	256	0.999	292	0.999	328	0.998
5	1.000	41	0.997	77	0.999	113	0.998	149	0.998	185	1.000	221	0.997	257	0.999	293	0.998	329	0.998
6	1.000	42	0.997	78	0.999	114	0.998	150	0.998	186	1.000	222	0.997	258	0.999	294	0.998	330	0.998
7	1.000	43	0.997	79	1.000	115	0.998	151	0.998	187	1.000	223	0.997	259	1.000	295	0.998	331	0.998
8	1.000	44	0.997	80	1.000	116	0.998	152	0.998	188	1.000	224	0.997	260	1.000	296	0.998	332	0.998
9	1.000	45	0.997	81	1.000	117	0.998	153	0.998	189	1.000	225	0.997	261	1.000	297	0.998	333	0.998
10	1.000	46	0.997	82	1.000	118	0.998	154	0.998	190	1.000	226	0.997	262	1.000	298	0.998	334	0.998
11	1.000	47	0.997	83	1.000	119	0.998	155	0.998	191	1.000	227	0.997	263	1.000	299	0.998	335	0.998
12	0.999	48	0.997	84	1.000	120	0.998	156	0.998	192	0.999	228	0.997	264	1.000	300	0.998	336	0.998
13	0.999	49	0.997	85	1.000	121	0.998	157	0.998	193	0.999	229	0.997	265	1.000	301	0.998	337	0.998
14	0.999	50	0.997	86	1.000	122	0.998	158	0.999	194	0.999	230	0.997	266	1.000	302	0.998	338	0.999
15	0.999	51	0.997	87	1.000	123	0.997	159	0.999	195	0.999	231	0.997	267	1.000	303	0.997	339	0.999
16	0.999	52	0.997	88	1.000	124	0.997	160	0.999	196	0.999	232	0.997	268	1.000	304	0.997	340	0.999
17	0.999	53	0.997	89	1.000	125	0.997	161	0.999	197	0.999	233	0.997	269	1.000	305	0.997	341	0.999
18	0.999	54	0.997	90	1.000	126	0.997	162	0.999	198	0.999	234	0.997	270	1.000	306	0.997	342	0.999
19	0.999	55	0.997	91	1.000	127	0.997	163	0.999	199	0.999	235	0.997	271	1.000	307	0.997	343	0.999
20	0.999	56	0.997	92	1.000	128	0.997	164	0.999	200	0.999	236	0.997	272	1.000	308	0.997	344	0.999
21	0.999	57	0.997	93	1.000	129	0.997	165	0.999	201	0.999	237	0.997	273	1.000	309	0.997	345	0.999
22	0.999	58	0.998	94	1.000	130	0.997	166	0.999	202	0.999	238	0.998	274	1.000	310	0.997	346	0.999
23	0.998	59	0.998	95	1.000	131	0.997	167	0.999	203	0.998	239	0.998	275	1.000	311	0.997	347	0.999
24	0.998	60	0.998	96	1.000	132	0.997	168	0.999	204	0.998	240	0.998	276	1.000	312	0.997	348	0.999
25	0.998	61	0.998	97	1.000	133	0.997	169	1.000	205	0.998	241	0.998	277	1.000	313	0.997	349	1.000
26	0.998	62	0.998	98	1.000	134	0.997	170	1.000	206	0.998	242	0.998	278	1.000	314	0.997	350	1.000
27	0.998	63	0.998	99	1.000	135	0.997	171	1.000	207	0.998	243	0.998	279	1.000	315	0.997	351	1.000
28	0.998	64	0.998	100	1.000	136	0.997	172	1.000	208	0.998	244	0.998	280	1.000	316	0.997	352	1.000
29	0.998	65	0.998	101	1.000	137	0.997	173	1.000	209	0.998	245	0.998	281	1.000	317	0.997	353	1.000
30	0.998	66	0.998	102	0.999	138	0.997	174	1.000	210	0.998	246	0.998	282	0.999	318	0.997	354	1.000
31	0.998	67	0.998	103	0.999	139	0.997	175	1.000	211	0.998	247	0.998	283	0.999	319	0.997	355	1.000
32	0.998	68	0.999	104	0.999	140	0.997	176	1.000	212	0.998	248	0.999	284	0.999	320	0.997	356	1.000
33	0.997	69	0.999	105	0.999	141	0.997	177	1.000	213	0.997	249	0.999	285	0.999	321	0.997	357	1.000
34	0.997	70	0.999	106	0.999	142	0.997	178	1.000	214	0.997	250	0.999	286	0.999	322	0.997	358	1.000
35	0.997	71	0.999	107	0.999	143	0.997	179	1.000	215	0.997	251	0.999	287	0.999	323	0.997	359	1.000

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AZIMUTH PATTERN
Vertical Polarization

Proposal No.	**C-70477**
Date	**16-Mar-17**
Call Letters	**WPRI**
Channel	**7**
Frequency	**177 MHz**
Antenna Type	**THV-5A7/CP-R O4**
Gain	**1.03 (0.14dB)**
	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	1.016	36	0.988	72	1.005	108	1.005	144	0.988	180	1.016	216	0.988	252	1.005	288	1.005	324	0.988
1	1.016	37	0.987	73	1.006	109	1.004	145	0.989	181	1.016	217	0.987	253	1.006	289	1.004	325	0.989
2	1.016	38	0.987	74	1.007	110	1.003	146	0.989	182	1.016	218	0.987	254	1.007	290	1.003	326	0.989
3	1.016	39	0.987	75	1.008	111	1.001	147	0.990	183	1.016	219	0.987	255	1.008	291	1.001	327	0.990
4	1.016	40	0.986	76	1.009	112	1.000	148	0.991	184	1.016	220	0.986	256	1.009	292	1.000	328	0.991
5	1.015	41	0.986	77	1.010	113	0.999	149	0.992	185	1.015	221	0.986	257	1.010	293	0.999	329	0.992
6	1.015	42	0.986	78	1.011	114	0.998	150	0.992	186	1.015	222	0.986	258	1.011	294	0.998	330	0.992
7	1.014	43	0.986	79	1.012	115	0.997	151	0.993	187	1.014	223	0.986	259	1.012	295	0.997	331	0.993
8	1.014	44	0.985	80	1.012	116	0.996	152	0.994	188	1.014	224	0.985	260	1.012	296	0.996	332	0.994
9	1.013	45	0.985	81	1.013	117	0.995	153	0.995	189	1.013	225	0.985	261	1.013	297	0.995	333	0.995
10	1.012	46	0.985	82	1.014	118	0.994	154	0.996	190	1.012	226	0.985	262	1.014	298	0.994	334	0.996
11	1.012	47	0.986	83	1.014	119	0.993	155	0.997	191	1.012	227	0.986	263	1.014	299	0.993	335	0.997
12	1.011	48	0.986	84	1.015	120	0.992	156	0.998	192	1.011	228	0.986	264	1.015	300	0.992	336	0.998
13	1.010	49	0.986	85	1.015	121	0.992	157	0.999	193	1.010	229	0.986	265	1.015	301	0.992	337	0.999
14	1.009	50	0.986	86	1.016	122	0.991	158	1.000	194	1.009	230	0.986	266	1.016	302	0.991	338	1.000
15	1.008	51	0.987	87	1.016	123	0.990	159	1.001	195	1.008	231	0.987	267	1.016	303	0.990	339	1.001
16	1.007	52	0.987	88	1.016	124	0.989	160	1.003	196	1.007	232	0.987	268	1.016	304	0.989	340	1.003
17	1.006	53	0.987	89	1.016	125	0.989	161	1.004	197	1.006	233	0.987	269	1.016	305	0.989	341	1.004
18	1.005	54	0.988	90	1.016	126	0.988	162	1.005	198	1.005	234	0.988	270	1.016	306	0.988	342	1.005
19	1.004	55	0.989	91	1.016	127	0.987	163	1.006	199	1.004	235	0.989	271	1.016	307	0.987	343	1.006
20	1.003	56	0.989	92	1.016	128	0.987	164	1.007	200	1.003	236	0.989	272	1.016	308	0.987	344	1.007
21	1.001	57	0.990	93	1.016	129	0.987	165	1.008	201	1.001	237	0.990	273	1.016	309	0.987	345	1.008
22	1.000	58	0.991	94	1.016	130	0.986	166	1.009	202	1.000	238	0.991	274	1.016	310	0.986	346	1.009
23	0.999	59	0.992	95	1.015	131	0.986	167	1.010	203	0.999	239	0.992	275	1.015	311	0.986	347	1.010
24	0.998	60	0.992	96	1.015	132	0.986	168	1.011	204	0.998	240	0.992	276	1.015	312	0.986	348	1.011
25	0.997	61	0.993	97	1.014	133	0.986	169	1.012	205	0.997	241	0.993	277	1.014	313	0.986	349	1.012
26	0.996	62	0.994	98	1.014	134	0.985	170	1.012	206	0.996	242	0.994	278	1.014	314	0.985	350	1.012
27	0.995	63	0.995	99	1.013	135	0.985	171	1.013	207	0.995	243	0.995	279	1.013	315	0.985	351	1.013
28	0.994	64	0.996	100	1.012	136	0.985	172	1.014	208	0.994	244	0.996	280	1.012	316	0.985	352	1.014
29	0.993	65	0.997	101	1.012	137	0.986	173	1.014	209	0.993	245	0.997	281	1.012	317	0.986	353	1.014
30	0.992	66	0.998	102	1.011	138	0.986	174	1.015	210	0.992	246	0.998	282	1.011	318	0.986	354	1.015
31	0.992	67	0.999	103	1.010	139	0.986	175	1.015	211	0.992	247	0.999	283	1.010	319	0.986	355	1.015
32	0.991	68	1.000	104	1.009	140	0.986	176	1.016	212	0.991	248	1.000	284	1.009	320	0.986	356	1.016
33	0.990	69	1.001	105	1.008	141	0.987	177	1.016	213	0.990	249	1.001	285	1.008	321	0.987	357	1.016
34	0.989	70	1.003	106	1.007	142	0.987	178	1.016	214	0.989	250	1.003	286	1.007	322	0.987	358	1.016
35	0.989	71	1.004	107	1.006	143	0.987	179	1.016	215	0.989	251	1.004	287	1.006	323	0.987	359	1.016

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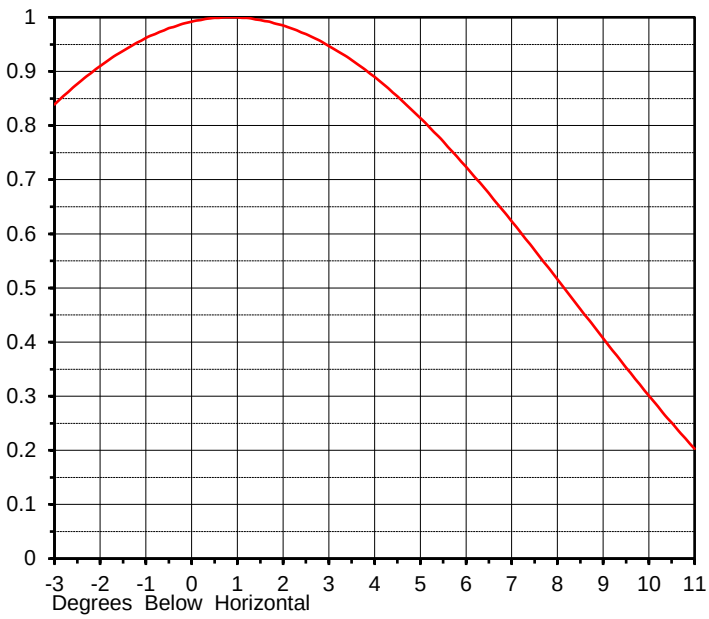
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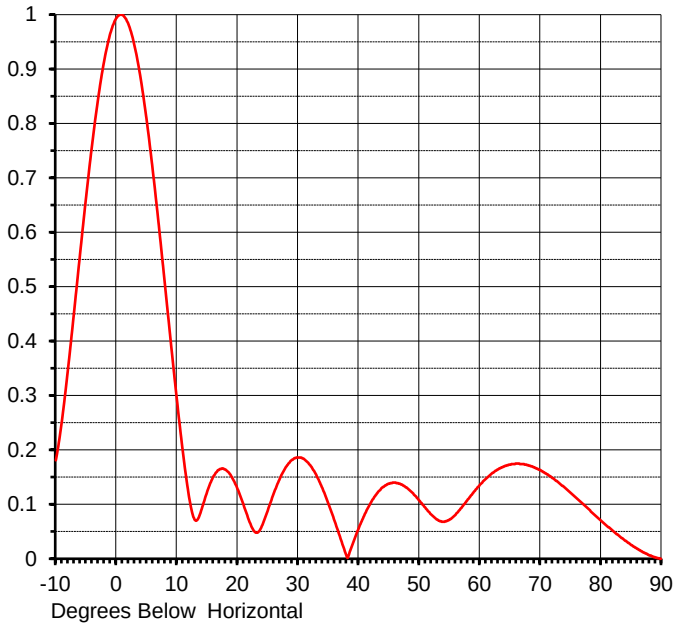
ELEVATION PATTERN

Proposal No.	**C-70477**
Date	**16-Mar-17**
Call Letters	**WPRI**
Channel	**7**
Frequency	**177 MHz**
Antenna Type	**THV-5A7/CP-R O4**

RMS Directivity at Main Lobe	**5.0 (6.99 dB)**	Beam Tilt	**0.75 deg**
RMS Directivity at Horizontal	**4.9 (6.90 dB)**	Pattern Number	**5V050075**

Calculated





Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.181	10.0	0.291	30.0	0.186	50.0	0.107	70.0	0.163
-9.0	0.253	11.0	0.194	31.0	0.183	51.0	0.094	71.0	0.156
-8.0	0.348	12.0	0.113	32.0	0.172	52.0	0.081	72.0	0.148
-7.0	0.452	13.0	0.071	33.0	0.154	53.0	0.072	73.0	0.140
-6.0	0.560	14.0	0.089	34.0	0.130	54.0	0.068	74.0	0.131
-5.0	0.665	15.0	0.124	35.0	0.101	55.0	0.072	75.0	0.121
-4.0	0.762	16.0	0.151	36.0	0.070	56.0	0.081	76.0	0.111
-3.0	0.847	17.0	0.164	37.0	0.037	57.0	0.094	77.0	0.101
-2.0	0.916	18.0	0.164	38.0	0.005	58.0	0.109	78.0	0.091
-1.0	0.966	19.0	0.151	39.0	0.027	59.0	0.123	79.0	0.080
0.0	0.994	20.0	0.128	40.0	0.056	60.0	0.136	80.0	0.070
1.0	0.999	21.0	0.099	41.0	0.082	61.0	0.147	81.0	0.060
2.0	0.982	22.0	0.067	42.0	0.103	62.0	0.157	82.0	0.051
3.0	0.942	23.0	0.048	43.0	0.120	63.0	0.164	83.0	0.042
4.0	0.883	24.0	0.060	44.0	0.132	64.0	0.170	84.0	0.033
5.0	0.806	25.0	0.089	45.0	0.138	65.0	0.173	85.0	0.025
6.0	0.714	26.0	0.121	46.0	0.140	66.0	0.175	86.0	0.018
7.0	0.613	27.0	0.148	47.0	0.137	67.0	0.174	87.0	0.012
8.0	0.505	28.0	0.169	48.0	0.130	68.0	0.172	88.0	0.006
9.0	0.396	29.0	0.182	49.0	0.120	69.0	0.168	89.0	0.002
								90.0	0.000

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MECHANICAL SPECIFICATIONS

Proposal No.	**C-70477**
Date	**16-Mar-17**
Call Letters	**WPRI**
Channel	**7**
Frequency	**177 MHz**
Antenna Type	**THV-5A7/CP-R O4**

Preliminary Specifications

Top Mounted

Without ice TIA/EIA-222-F

Height AGL	958 ft (292 m)
Basic Wind Speed	90 m/h (144.8 km/h)

Mechanical Specifications

Height with Lightning Protector	H4	42.4 ft (12.9m)
Height less Lightning Protector	H2	38.4 ft (11.7m)
Height of Center of Radiation	H3	19.2 ft (5.9m)
Force Coeff. x Projected Area	CaAc	53.6 ft² (5m²)
Moment Arm	D1	20.7 ft (6.3m)
Weight	W	5400 lb (2.4t)

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

Prepared by: DLS **Date:** 16-Mar-17 **ME:** **EE:**

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Summary

Proposal No.	**C-70477**
Date	**16-Mar-17**
Call Letters	**WPRI**
Channel	**7**
Frequency	**177 MHz**
Antenna Type	**THV-5A7/CP-R O4**

Antenna

	Hpol		Vpol	
ERP:	**30.0 kW**	**(14.77 dBk)**	**30.0 kW**	**(14.77 dBk)**
RMS Gain*	2.50	(3.98 dB)	2.50	(3.98 dB)

Antenna Input Power **12.0 kW (10.79 dBk)**

Transmission Line

Type:	**Rigid**	Attenuation:	**(1.34 dB)**
Size:	**3-1/8"**	Efficiency:	**73.5%**
Impedance:	**50 Ohm**		
Length:	**1020 ft**	**310.9 m**	

Transmitter Output

16.3 kW (12.13 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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