Dielectric®

Antenna Model: **TLP-8/VP S180**

Proposal Number:	**C-70714-1**
Date:	**11-May-17**
Customer:	**Virgin Islands PBS**
Location:	**Charlotte Amalie**

Electrical Specifications

Polarization:	**Elliptical**		
Azimuth Pattern:	**Directional**		
Antenna Input:	**1-5/8"**	**50 Ohm**	**EIA/DCA**
VSWR:	Channel	**1.08 : 1**	
Bandwidth:	**6 MHz**		
Rated Input Power:	**5 kW**	**(6.99 dBk)**	**Maximum Average Power**

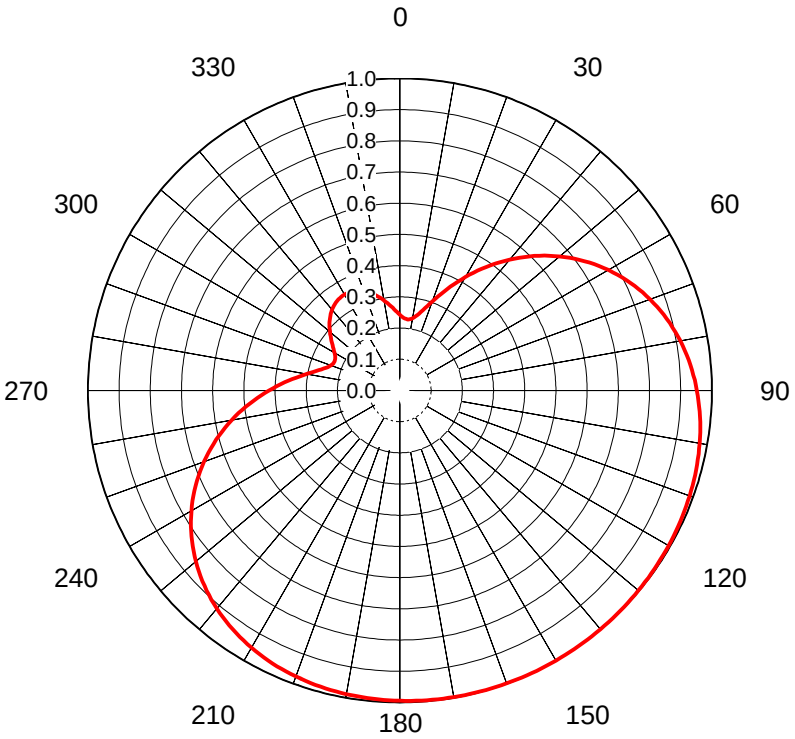
Mechanical Specifications

Mounting:	**Side Mounted**			
Environmental Protection:	**Slot Cover**			
Height:	**14.8 ft (4.5m)**			
Weight:	**200 lb (0.1t)**	Excludes Mounts		
Effective Projected Area:	**30.5 ft² (2.8m²)**	**TIA/EIA-222-F**	Basic Wind Speed:	**140 m/h (225.3 km/h)**

Channel Specifications

Call	CH	Freq	Hpol ERP	Vpol ERP	TPO	Peak Main Lobe Hpol Gain	Peak Main Lobe Vpol Gain	Peak at Horizontal Hpol Gain	Peak at Horizontal Vpol Gain
WTJX	36	605 MHz	42.9 kW (16.32 dBk)	14.2 kW (11.51 dBk)	4.8 kW (6.81 dBk)	11.69 (10.68dB)	3.86 (5.86dB)	11.48 (10.60dB)	3.79 (5.78dB)

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AZIMUTH PATTERN
Horizontal Polarization

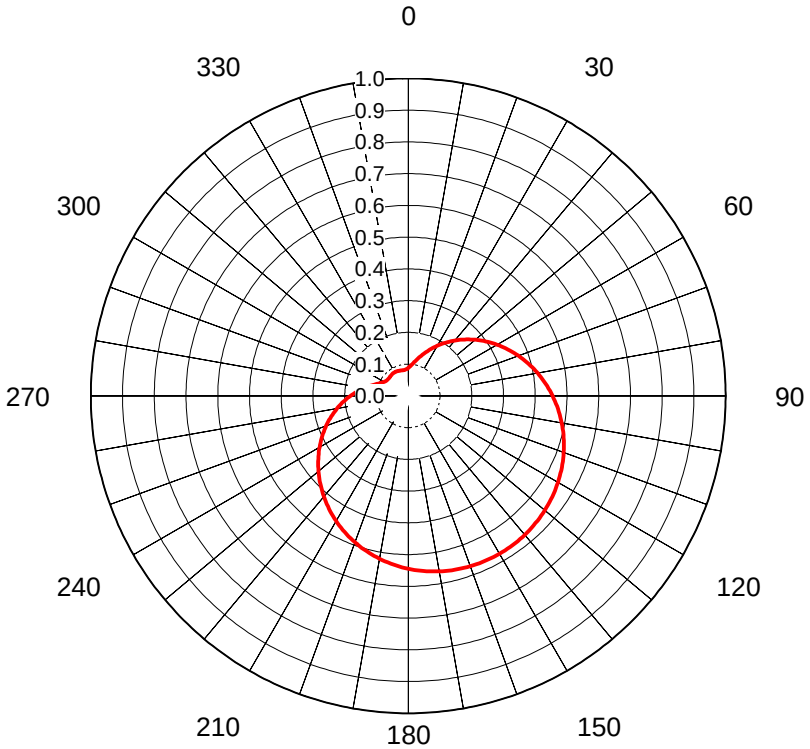
In Free Space

Proposal No.	**C-70714-1**
Date	**11-May-17**
Call Letters	**WTJX**
Channel	**36**
Frequency	**605 MHz**
Antenna Type	**TLP-8/VP S180**
Gain	**1.82 (2.61dB)**
	Calculated

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.242	36	0.496	72	0.867	108	0.986	144	1.000	180	0.995	216	0.931	252	0.645	288	0.243	324	0.349
1	0.239	37	0.509	73	0.874	109	0.987	145	1.000	181	0.994	217	0.926	253	0.633	289	0.239	325	0.350
2	0.235	38	0.522	74	0.880	110	0.988	146	1.000	182	0.994	218	0.922	254	0.622	290	0.235	326	0.352
3	0.233	39	0.535	75	0.886	111	0.989	147	1.000	183	0.993	219	0.917	255	0.609	291	0.232	327	0.353
4	0.231	40	0.547	76	0.892	112	0.990	148	1.000	184	0.993	220	0.913	256	0.597	292	0.230	328	0.354
5	0.230	41	0.560	77	0.897	113	0.991	149	1.000	185	0.992	221	0.908	257	0.585	293	0.229	329	0.355
6	0.229	42	0.573	78	0.903	114	0.991	150	1.000	186	0.991	222	0.903	258	0.573	294	0.229	330	0.355
7	0.229	43	0.585	79	0.908	115	0.992	151	1.000	187	0.991	223	0.897	259	0.560	295	0.230	331	0.355
8	0.230	44	0.597	80	0.913	116	0.993	152	1.000	188	0.990	224	0.892	260	0.547	296	0.231	332	0.354
9	0.232	45	0.609	81	0.917	117	0.993	153	1.000	189	0.989	225	0.886	261	0.535	297	0.233	333	0.353
10	0.235	46	0.622	82	0.922	118	0.994	154	1.000	190	0.988	226	0.880	262	0.522	298	0.235	334	0.352
11	0.239	47	0.633	83	0.926	119	0.994	155	1.000	191	0.987	227	0.873	263	0.509	299	0.239	335	0.350
12	0.243	48	0.645	84	0.931	120	0.995	156	1.000	192	0.986	228	0.867	264	0.496	300	0.242	336	0.349
13	0.248	49	0.657	85	0.935	121	0.995	157	1.000	193	0.985	229	0.860	265	0.483	301	0.246	337	0.346
14	0.254	50	0.668	86	0.939	122	0.996	158	1.000	194	0.984	230	0.854	266	0.471	302	0.251	338	0.344
15	0.261	51	0.679	87	0.942	123	0.996	159	1.000	195	0.983	231	0.846	267	0.458	303	0.256	339	0.341
16	0.268	52	0.691	88	0.946	124	0.996	160	1.000	196	0.982	232	0.839	268	0.445	304	0.261	340	0.338
17	0.276	53	0.701	89	0.949	125	0.997	161	0.999	197	0.980	233	0.831	269	0.432	305	0.266	341	0.334
18	0.285	54	0.712	90	0.952	126	0.997	162	0.999	198	0.979	234	0.824	270	0.419	306	0.271	342	0.331
19	0.294	55	0.722	91	0.955	127	0.997	163	0.999	199	0.977	235	0.815	271	0.407	307	0.276	343	0.327
20	0.303	56	0.733	92	0.958	128	0.997	164	0.999	200	0.976	236	0.807	272	0.394	308	0.282	344	0.322
21	0.314	57	0.743	93	0.960	129	0.998	165	0.999	201	0.974	237	0.799	273	0.382	309	0.287	345	0.318
22	0.324	58	0.753	94	0.963	130	0.998	166	0.999	202	0.972	238	0.790	274	0.370	310	0.293	346	0.313
23	0.335	59	0.762	95	0.965	131	0.998	167	0.999	203	0.970	239	0.781	275	0.358	311	0.298	347	0.308
24	0.347	60	0.772	96	0.968	132	0.998	168	0.998	204	0.968	240	0.772	276	0.347	312	0.303	348	0.303
25	0.358	61	0.781	97	0.970	133	0.999	169	0.998	205	0.965	241	0.762	277	0.335	313	0.308	349	0.298
26	0.370	62	0.790	98	0.972	134	0.999	170	0.998	206	0.963	242	0.753	278	0.324	314	0.313	350	0.293
27	0.382	63	0.799	99	0.974	135	0.999	171	0.998	207	0.960	243	0.743	279	0.314	315	0.318	351	0.287
28	0.394	64	0.807	100	0.976	136	0.999	172	0.997	208	0.958	244	0.733	280	0.303	316	0.322	352	0.282
29	0.407	65	0.815	101	0.977	137	0.999	173	0.997	209	0.955	245	0.722	281	0.294	317	0.327	353	0.276
30	0.419	66	0.824	102	0.979	138	0.999	174	0.997	210	0.952	246	0.712	282	0.285	318	0.331	354	0.271
31	0.432	67	0.831	103	0.980	139	0.999	175	0.997	211	0.949	247	0.701	283	0.276	319	0.334	355	0.266
32	0.445	68	0.839	104	0.982	140	1.000	176	0.996	212	0.946	248	0.691	284	0.268	320	0.338	356	0.261
33	0.458	69	0.846	105	0.983	141	1.000	177	0.996	213	0.942	249	0.679	285	0.261	321	0.341	357	0.256
34	0.471	70	0.854	106	0.984	142	1.000	178	0.996	214	0.939	250	0.668	286	0.254	322	0.344	358	0.251
35	0.483	71	0.860	107	0.985	143	1.000	179	0.995	215	0.935	251	0.657	287	0.248	323	0.346	359	0.246

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AZIMUTH PATTERN
Vertical Polarization

In Free Space

Proposal No.	**C-70714-1**
Date	**11-May-17**
Call Letters	**WTJX**
Channel	**36**
Frequency	**605 MHz**
Antenna Type	**TLP-8/VP S180**
Gain	**2.42 (3.84dB)**
	Calculated

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.088	36	0.209	72	0.378	108	0.516	144	0.573	180	0.545	216	0.431	252	0.265	288	0.113	324	0.085
1	0.089	37	0.214	73	0.383	109	0.518	145	0.574	181	0.543	217	0.426	253	0.261	289	0.111	325	0.085
2	0.091	38	0.218	74	0.387	110	0.521	146	0.574	182	0.541	218	0.422	254	0.256	290	0.108	326	0.086
3	0.092	39	0.223	75	0.392	111	0.524	147	0.574	183	0.538	219	0.418	255	0.251	291	0.105	327	0.086
4	0.094	40	0.228	76	0.396	112	0.526	148	0.574	184	0.536	220	0.414	256	0.246	292	0.103	328	0.086
5	0.096	41	0.232	77	0.401	113	0.529	149	0.574	185	0.534	221	0.409	257	0.242	293	0.100	329	0.086
6	0.098	42	0.237	78	0.405	114	0.531	150	0.574	186	0.531	222	0.405	258	0.237	294	0.098	330	0.086
7	0.100	43	0.242	79	0.409	115	0.534	151	0.574	187	0.529	223	0.401	259	0.232	295	0.096	331	0.086
8	0.103	44	0.246	80	0.414	116	0.536	152	0.574	188	0.526	224	0.396	260	0.228	296	0.094	332	0.086
9	0.105	45	0.251	81	0.418	117	0.538	153	0.574	189	0.524	225	0.392	261	0.223	297	0.092	333	0.086
10	0.108	46	0.256	82	0.422	118	0.541	154	0.574	190	0.521	226	0.387	262	0.218	298	0.091	334	0.086
11	0.111	47	0.261	83	0.426	119	0.543	155	0.574	191	0.518	227	0.383	263	0.214	299	0.089	335	0.085
12	0.114	48	0.265	84	0.431	120	0.545	156	0.573	192	0.516	228	0.378	264	0.209	300	0.088	336	0.085
13	0.117	49	0.270	85	0.435	121	0.547	157	0.573	193	0.513	229	0.374	265	0.204	301	0.087	337	0.085
14	0.120	50	0.275	86	0.439	122	0.549	158	0.572	194	0.510	230	0.369	266	0.200	302	0.086	338	0.085
15	0.123	51	0.280	87	0.443	123	0.550	159	0.572	195	0.507	231	0.365	267	0.195	303	0.085	339	0.084
16	0.126	52	0.284	88	0.447	124	0.552	160	0.571	196	0.504	232	0.360	268	0.191	304	0.084	340	0.084
17	0.130	53	0.289	89	0.451	125	0.554	161	0.571	197	0.501	233	0.355	269	0.186	305	0.084	341	0.084
18	0.133	54	0.294	90	0.455	126	0.555	162	0.570	198	0.497	234	0.351	270	0.182	306	0.083	342	0.084
19	0.137	55	0.299	91	0.459	127	0.557	163	0.569	199	0.494	235	0.346	271	0.178	307	0.083	343	0.083
20	0.141	56	0.303	92	0.462	128	0.559	164	0.568	200	0.491	236	0.341	272	0.173	308	0.083	344	0.083
21	0.145	57	0.308	93	0.466	129	0.560	165	0.567	201	0.488	237	0.337	273	0.169	309	0.082	345	0.083
22	0.149	58	0.313	94	0.470	130	0.561	166	0.566	202	0.484	238	0.332	274	0.165	310	0.082	346	0.083
23	0.152	59	0.318	95	0.473	131	0.563	167	0.565	203	0.481	239	0.327	275	0.161	311	0.082	347	0.083
24	0.157	60	0.322	96	0.477	132	0.564	168	0.564	204	0.477	240	0.322	276	0.157	312	0.082	348	0.082
25	0.161	61	0.327	97	0.481	133	0.565	169	0.563	205	0.473	241	0.318	277	0.152	313	0.083	349	0.082
26	0.165	62	0.332	98	0.484	134	0.566	170	0.561	206	0.470	242	0.313	278	0.149	314	0.083	350	0.082
27	0.169	63	0.337	99	0.488	135	0.567	171	0.560	207	0.466	243	0.308	279	0.145	315	0.083	351	0.082
28	0.173	64	0.341	100	0.491	136	0.568	172	0.559	208	0.462	244	0.303	280	0.141	316	0.083	352	0.083
29	0.178	65	0.346	101	0.494	137	0.569	173	0.557	209	0.459	245	0.299	281	0.137	317	0.083	353	0.083
30	0.182	66	0.351	102	0.497	138	0.570	174	0.555	210	0.455	246	0.294	282	0.133	318	0.084	354	0.083
31	0.186	67	0.355	103	0.501	139	0.571	175	0.554	211	0.451	247	0.289	283	0.130	319	0.084	355	0.084
32	0.191	68	0.360	104	0.504	140	0.571	176	0.552	212	0.447	248	0.284	284	0.126	320	0.084	356	0.084
33	0.195	69	0.365	105	0.507	141	0.572	177	0.550	213	0.443	249	0.280	285	0.123	321	0.084	357	0.085
34	0.200	70	0.369	106	0.510	142	0.572	178	0.549	214	0.439	250	0.275	286	0.120	322	0.085	358	0.086
35	0.204	71	0.374	107	0.513	143	0.573	179	0.547	215	0.435	251	0.270	287	0.117	323	0.085	359	0.087

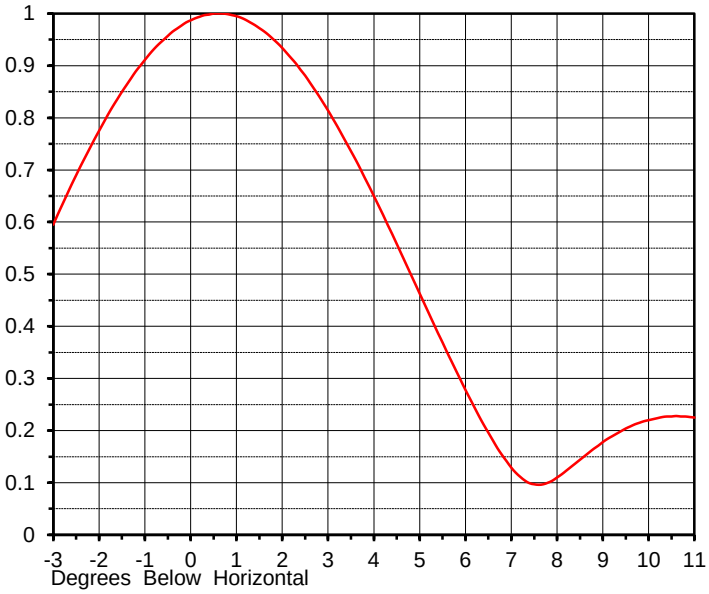
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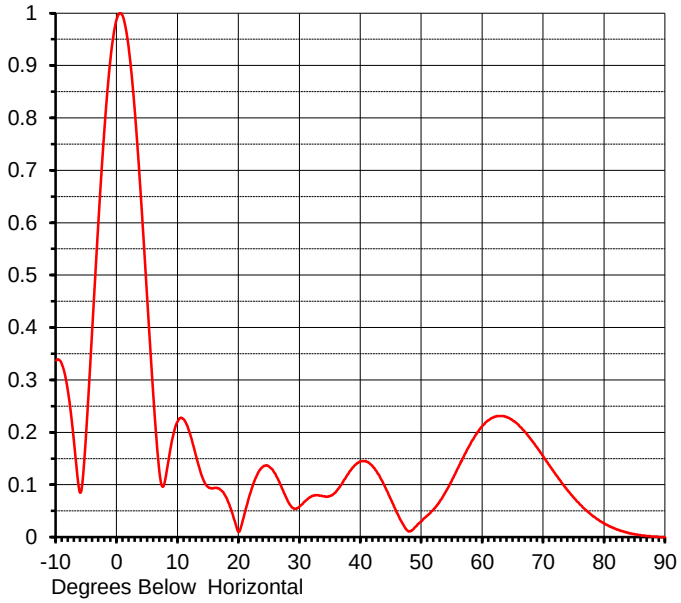
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ELEVATION PATTERN

Proposal No.	**C-70714-1**
Date	**11-May-17**
Call Letters	**WTJX**
Channel	**36**
Frequency	**605 MHz**
Antenna Type	**TLP-8/VP S180**

RMS Directivity at Main Lobe	**8.0 (9.03 dB)**	Beam Tilt	**0.50 deg**
RMS Directivity at Horizontal	**7.9 (8.98 dB)**	Pattern Number	**08L080050**
	Calculated		





Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.337	10.0	0.222	30.0	0.059	50.0	0.031	70.0	0.153
-9.0	0.328	11.0	0.224	31.0	0.070	51.0	0.042	71.0	0.136
-8.0	0.273	12.0	0.196	32.0	0.078	52.0	0.054	72.0	0.119
-7.0	0.173	13.0	0.153	33.0	0.080	53.0	0.069	73.0	0.103
-6.0	0.085	14.0	0.114	34.0	0.078	54.0	0.088	74.0	0.088
-5.0	0.214	15.0	0.095	35.0	0.079	55.0	0.110	75.0	0.075
-4.0	0.413	16.0	0.094	36.0	0.088	56.0	0.133	76.0	0.062
-3.0	0.615	17.0	0.090	37.0	0.104	57.0	0.157	77.0	0.051
-2.0	0.791	18.0	0.074	38.0	0.122	58.0	0.178	78.0	0.041
-1.0	0.922	19.0	0.042	39.0	0.137	59.0	0.197	79.0	0.033
0.0	0.991	20.0	0.010	40.0	0.145	60.0	0.213	80.0	0.026
1.0	0.992	21.0	0.048	41.0	0.144	61.0	0.223	81.0	0.020
2.0	0.924	22.0	0.089	42.0	0.134	62.0	0.230	82.0	0.015
3.0	0.799	23.0	0.119	43.0	0.118	63.0	0.231	83.0	0.011
4.0	0.632	24.0	0.135	44.0	0.095	64.0	0.229	84.0	0.008
5.0	0.444	25.0	0.134	45.0	0.070	65.0	0.222	85.0	0.005
6.0	0.261	26.0	0.120	46.0	0.045	66.0	0.212	86.0	0.003
7.0	0.119	27.0	0.095	47.0	0.023	67.0	0.200	87.0	0.002
8.0	0.116	28.0	0.069	48.0	0.011	68.0	0.185	88.0	0.001
9.0	0.184	29.0	0.055	49.0	0.020	69.0	0.170	89.0	0.000
								90.0	0.000

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MECHANICAL SPECIFICATIONS

Proposal No.	**C-70714-1**
Date	**11-May-17**
Call Letters	**WTJX**
Channel	**36**
Frequency	**605 MHz**
Antenna Type	**TLP-8/VP S180**

Preliminary Specifications

Side Mounted

Without ice TIA/EIA-222-F

Basic Wind Speed 140 m/h (225.3 km/h)

Mechanical Specifications

Height	H2	14.8 ft (4.5m)	
Height of Center of Radiation	H3	7.4 ft (2.3m)	
Force Coeff. x Projected Area	CaAc	30.5 ft² (2.8m²)	Mounts Excluded
Weight	W	200 lb (0.1t)	Mounts Excluded

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

Prepared by: cab **Date:** 11-May-17 **ME:** **EE:**

Rev. No.1 by: cab **Date:** 11-May-17

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Summary

Proposal No.	**C-70714-1**
Date	**11-May-17**
Call Letters	**WTJX**
Channel	**36**
Frequency	**605 MHz**
Antenna Type	**TLP-8/VP S180**

Antenna

	Hpol		Vpol	
ERP:	**42.9 kW**	**(16.32 dBk)**	**14.2 kW**	**(11.51 dBk)**
Peak Gain*	11.69	(10.68 dB)	3.86	(5.86 dB)

Antenna Input Power

3.7 kW **(5.65 dBk)**

Transmission Line

Type:	**Flexline Air**	Attenuation:	**(1.16 dB)**
Size:	**3"**	Efficiency:	**76.5%**
Impedance:	**50 Ohm**		
Length:	**285 ft**	**86.9 m**	

Transmitter Output

4.8 kW **(6.81 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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