



Antenna Model:

**TLS-V12 BB**

Proposal Number: **C-71403-2**  
Date: **15-Nov-19**  
Customer: **Tegna**  
Location: **St. Petersburg, FL**

### Electrical Specifications

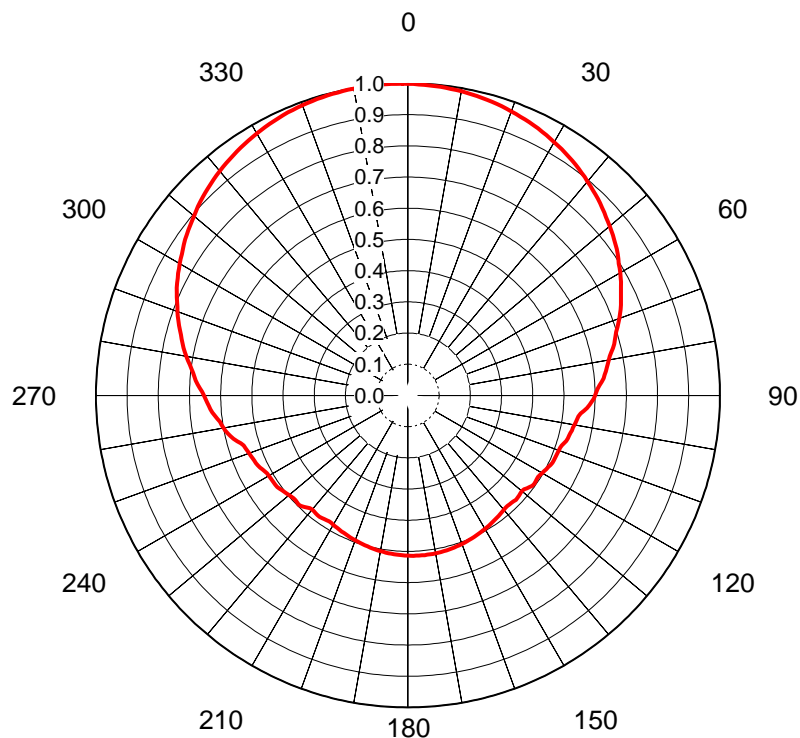
Polarization: **Horizontal**  
Azimuth Pattern: **Directional**  
Antenna Input: **3-1/8"** **50 Ohm** **EIA/DCA**  
VSWR: **Channel** **1.25 : 1** **Band** **1.25 : 1**  
Bandwidth: **36 MHz**  
Rated Input Power: **22.5 kW** **(13.52 dBk)** **Maximum Average Power**

### Mechanical Specifications

Mounting: **Side Mounted**  
Environmental Protection: **Slot Cover**  
Height: **66.4 ft (20.2m)**  
Weight: **1488 lb (0.7t)** **Excludes Mounts**  
Effective Projected Area: **54.11 ft² (5m²)** **TIA-222-G** **Basic Wind Speed: 110 m/h (177 km/h)**

### Channel Specifications

Call	CH	Freq	Hpol ERP	TPO	Peak Main Lobe Hpol Gain	Peak at Horizontal Hpol Gain
WTSP	10	195 MHz	104 kW (20.17 dBk)	5.89 kW (7.70 dBk)	20.34 (13.08dB)	12.89 (11.10dB)



## AZIMUTH PATTERN Horizontal Polarization

In Free Space

Proposal No. **C-71403-2**  
Date **15-Nov-19**  
Call Letters **WTSP**  
Channel **10**  
Frequency **195 MHz**  
Antenna Type **TLS-V12 BB**  
Gain **1.94 (2.88dB)**  
Calculated

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.999	36	0.914	72	0.706	108	0.519	144	0.485	180	0.514	216	0.481	252	0.547	288	0.774
1	0.998	37	0.910	73	0.698	109	0.516	145	0.486	181	0.513	217	0.481	253	0.550	289	0.780
2	0.998	38	0.905	74	0.692	110	0.515	146	0.488	182	0.513	218	0.480	254	0.557	290	0.786
3	0.997	39	0.900	75	0.687	111	0.514	147	0.490	183	0.512	219	0.478	255	0.566	291	0.791
4	0.996	40	0.895	76	0.681	112	0.513	148	0.491	184	0.512	220	0.477	256	0.576	292	0.797
5	0.995	41	0.890	77	0.675	113	0.512	149	0.493	185	0.511	221	0.479	257	0.583	293	0.804
6	0.994	42	0.886	78	0.667	114	0.512	150	0.494	186	0.510	222	0.483	258	0.589	294	0.811
7	0.993	43	0.881	79	0.660	115	0.511	151	0.495	187	0.509	223	0.488	259	0.596	295	0.818
8	0.992	44	0.876	80	0.654	116	0.509	152	0.497	188	0.509	224	0.493	260	0.600	296	0.823
9	0.991	45	0.871	81	0.649	117	0.505	153	0.498	189	0.508	225	0.494	261	0.604	297	0.828
10	0.990	46	0.866	82	0.644	118	0.503	154	0.500	190	0.507	226	0.494	262	0.609	298	0.834
11	0.988	47	0.860	83	0.639	119	0.500	155	0.501	191	0.506	227	0.493	263	0.615	299	0.839
12	0.987	48	0.855	84	0.634	120	0.497	156	0.502	192	0.505	228	0.492	264	0.622	300	0.844
13	0.985	49	0.849	85	0.630	121	0.495	157	0.503	193	0.503	229	0.495	265	0.630	301	0.849
14	0.983	50	0.844	86	0.622	122	0.492	158	0.505	194	0.502	230	0.497	266	0.634	302	0.855
15	0.981	51	0.839	87	0.615	123	0.493	159	0.506	195	0.501	231	0.500	267	0.639	303	0.860
16	0.979	52	0.834	88	0.609	124	0.494	160	0.507	196	0.500	232	0.503	268	0.644	304	0.866
17	0.977	53	0.828	89	0.604	125	0.494	161	0.508	197	0.498	233	0.505	269	0.649	305	0.871
18	0.974	54	0.823	90	0.600	126	0.493	162	0.509	198	0.497	234	0.509	270	0.654	306	0.876
19	0.972	55	0.818	91	0.596	127	0.488	163	0.509	199	0.495	235	0.511	271	0.660	307	0.881
20	0.969	56	0.811	92	0.589	128	0.483	164	0.510	200	0.494	236	0.512	272	0.667	308	0.886
21	0.966	57	0.804	93	0.583	129	0.479	165	0.511	201	0.493	237	0.512	273	0.675	309	0.890
22	0.964	58	0.797	94	0.576	130	0.477	166	0.512	202	0.491	238	0.513	274	0.681	310	0.895
23	0.961	59	0.791	95	0.566	131	0.478	167	0.512	203	0.490	239	0.514	275	0.687	311	0.900
24	0.958	60	0.786	96	0.557	132	0.480	168	0.513	204	0.488	240	0.515	276	0.692	312	0.905
25	0.955	61	0.780	97	0.550	133	0.481	169	0.513	205	0.486	241	0.516	277	0.698	313	0.910
26	0.952	62	0.774	98	0.547	134	0.481	170	0.514	206	0.485	242	0.519	278	0.706	314	0.914
27	0.949	63	0.767	99	0.545	135	0.480	171	0.514	207	0.483	243	0.523	279	0.713	315	0.919
28	0.945	64	0.760	100	0.542	136	0.479	172	0.514	208	0.482	244	0.528	280	0.721	316	0.923
29	0.942	65	0.753	101	0.539	137	0.477	173	0.514	209	0.480	245	0.531	281	0.728	317	0.927
30	0.938	66	0.747	102	0.537	138	0.476	174	0.515	210	0.479	246	0.533	282	0.735	318	0.931
31	0.934	67	0.742	103	0.535	139	0.477	175	0.515	211	0.477	247	0.535	283	0.742	319	0.934
32	0.931	68	0.735	104	0.533	140	0.479	176	0.515	212	0.476	248	0.537	284	0.747	320	0.938
33	0.927	69	0.728	105	0.531	141	0.480	177	0.514	213	0.477	249	0.539	285	0.753	321	0.942
34	0.923	70	0.721	106	0.528	142	0.482	178	0.514	214	0.479	250	0.542	286	0.760	322	0.945
35	0.919	71	0.713	107	0.523	143	0.483	179	0.514	215	0.480	251	0.545	287	0.767	323	0.949

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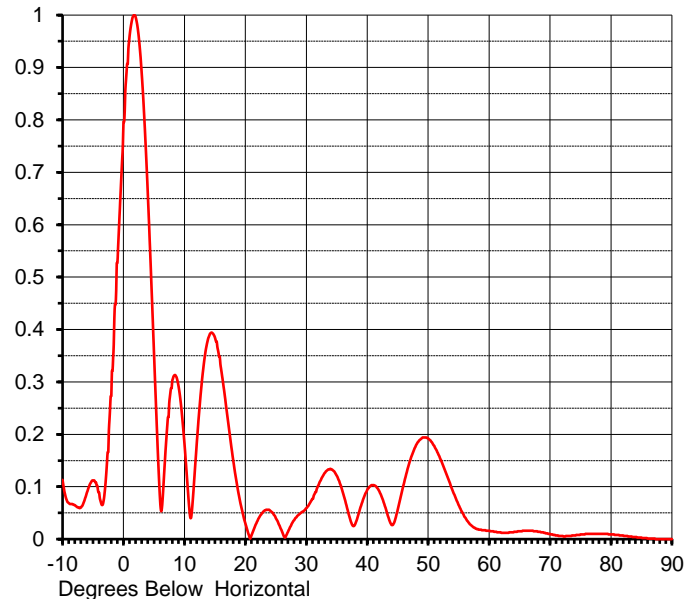
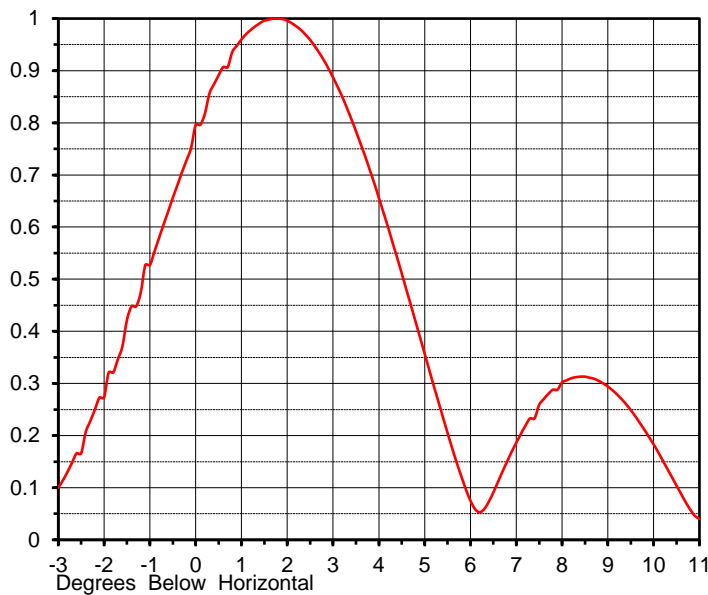
## ELEVATION PATTERN

Mechanical tilt included in elevation pattern

Proposal No. **C-71403-2**  
 Date **15-Nov-19**  
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 Channel **10**  
 Frequency **195 MHz**  
 Antenna Type **TLS-V12 BB**

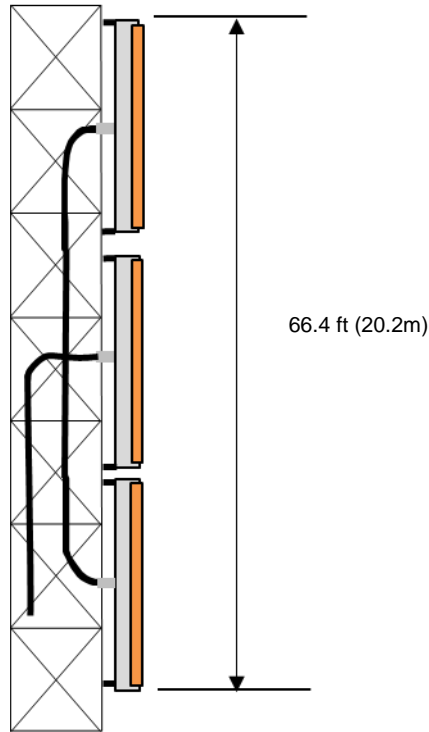
RMS Directivity at Main Lobe **10.5 ( 10.20 dB )**  
 RMS Directivity at Horizontal **6.6 ( 8.20 dB )**  
**Calculated**

Beam Tilt **1.75 deg**  
 Pattern Number **12T105175**



Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.113	10.0	0.183	30.0	0.059	50.0	0.192	70.0	0.010
-9.0	0.069	11.0	0.040	31.0	0.077	51.0	0.178	71.0	0.007
-8.0	0.065	12.0	0.179	32.0	0.103	52.0	0.153	72.0	0.006
-7.0	0.060	13.0	0.316	33.0	0.126	53.0	0.124	73.0	0.006
-6.0	0.089	14.0	0.386	34.0	0.134	54.0	0.093	74.0	0.007
-5.0	0.112	15.0	0.385	35.0	0.121	55.0	0.065	75.0	0.009
-4.0	0.089	16.0	0.326	36.0	0.089	56.0	0.042	76.0	0.010
-3.0	0.100	17.0	0.239	37.0	0.046	57.0	0.027	77.0	0.010
-2.0	0.273	18.0	0.151	38.0	0.028	58.0	0.019	78.0	0.010
-1.0	0.527	19.0	0.080	39.0	0.064	59.0	0.017	79.0	0.010
0.0	0.796	20.0	0.030	40.0	0.094	60.0	0.016	80.0	0.009
1.0	0.960	21.0	0.007	41.0	0.103	61.0	0.014	81.0	0.008
2.0	0.996	22.0	0.035	42.0	0.091	62.0	0.012	82.0	0.007
3.0	0.887	23.0	0.053	43.0	0.060	63.0	0.012	83.0	0.005
4.0	0.656	24.0	0.055	44.0	0.027	64.0	0.013	84.0	0.004
5.0	0.357	25.0	0.040	45.0	0.056	65.0	0.015	85.0	0.003
6.0	0.075	26.0	0.015	46.0	0.105	66.0	0.016	86.0	0.001
7.0	0.186	27.0	0.014	47.0	0.149	67.0	0.016	87.0	0.001
8.0	0.302	28.0	0.036	48.0	0.179	68.0	0.014	88.0	0.000
9.0	0.294	29.0	0.049	49.0	0.193	69.0	0.012	89.0	0.000
								90.0	0.000

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Antenna has -1 degree mechanical tilt

## MECHANICAL SPECIFICATIONS

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 Date **15-Nov-19**  
 Call Letters **WTSP**  
 Channel **10**  
 Frequency **195 MHz**  
 Antenna Type **TLS-V12 BB**

### Preliminary Specifications

#### Side Mounted

#### Without ice TIA-222-G

Basic Wind Speed 110 m/h (177 km/h)

Structure Class II  
 Exposure Category C  
 Topography Category 1

#### Mechanical Specifications

Height	H2	66.4 ft (20.2m)	
Height of Center of Radiation	H3	33.2 ft (10.1m)	
Effective Projected Area	(EPA) <sub>A</sub>	54.11 ft <sup>2</sup> (5m <sup>2</sup> )	Mounts Excluded
Weight	W	1488 lb (0.7t)	Mounts Excluded

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

Prepared by: CAB Date: 15-Nov-19 ME: EE:  
 Rev. No.2 by: CAB Date: 15-Nov-19

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## Summary

Proposal No.	<b>C-71403-2</b>
Date	<b>15-Nov-19</b>
Call Letters	<b>WTSP</b>
Channel	<b>10</b>
Frequency	<b>195 MHz</b>
Antenna Type	<b>TLS-V12 BB</b>

## Antenna

		Hpol
ERP:	<b>104 kW</b>	<b>( 20.17 dBk )</b>
Peak Gain*	20.34	( 13.08 dB )

Antenna Input Power	<b>5.11 kW</b>	<b>( 7.09 dBk )</b>
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## Transmission Line

Type:	<b>Rigid</b>	Attenuation:	<b>( 0.62 dB )</b>
Size:	<b>6-1/8"</b>	Efficiency:	<b>86.8%</b>
Impedance:	<b>75 Ohm</b>		
Length:	<b>950 ft</b>	<b>289.6 m</b>	

## Transmitter Output

<b>5.89 kW</b>	<b>( 7.70 dBk )</b>
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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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