



**ENGINEERING STATEMENT**  
**OF**  
**JOHN F.X. BROWNE, P.E.**  
**IN SUPPORT OF**  
**APPLICATION FOR MODIFICATION TO CONSTRUCTION PERMIT**  
**FOR**  
**TAMPA BAY TELEVISION, INC.**  
**WFTS-DT**  
**TAMPA, FL**

**Background**

Tampa Bay Television, Inc., the licensee of WFTS (located at Tampa, FL), has been authorized to operate its digital facility on Channel 29 (which is also its post-transition channel) with following parameters:

Pre/Post-transition Appendix B Facility (Ch. 29)

File #:	BPCDT-20040330ABZ
Coordinates:	27° 50' 32" N (NAD27)
	82° 15' 45" W
ERP:	987 kW (DA)
RCAMSL:	495.9m

WFTS is a tenant on a multi-user candelabra tower shared with WFLA-DT (post-transition Channel 7), WFTT-DT (post-transition Channel 47) and WTTA-DT (post-transition Channel 38). At the time that the WFTS application for construction permit was filed (nearly five years ago), the antenna configuration for the stations using the top-mounted candelabra platform had not been finalized. Subsequently, some significant changes in the requirements of the users resulted in the antenna for WFTS being mounted in a slightly lower position.



After completion of construction of the facility<sup>1/</sup>, a survey commissioned by WFTS to determine the exact height of the radiation center of the antenna revealed the height to be 489m AMSL, which is approximately 7m lower than the height specified on the WFTS construction permit. There is no practical way to change the antenna height to conform with the construction permit.

WFTS has filed a request for Special Temporary Authorized to operate with a reduced facility; however, WFTS now wishes to modify its existing construction permit to reflect the lower height and to increase its power from 987 kW to 1000 kW in order to compensate for the effect of the lower height. The noise-limited contour of this facility will not exceed the noise-limited contour of the authorized facility in any azimuth and the predicted reduction in population is only 0.16% of the Appendix B value.

### **Antenna System, Tower, and Operating Parameters**

WFTS proposes to continue using its as-built facility (only differs from the parameters of the authorized facility in radiation center height), which has a top-mounted directional Dielectric TFU-26GTH/VP 6T140 antenna on the tower (ASR#1028292). [For reference, antenna azimuth and elevation patterns and a dBk table are attached hereto.]

The tower has a height of 502.3m AMSL (including the higher appurtenances of the other users) and the WFTS antenna has a center-of-radiation of 489m AMSL with an HAAT of 468m. WFTS proposes to increase its digital ERP from 987 kW to 1000 kW. The proposed digital facility will have the following parameters:

#### **Digital CPM Facility (Ch. 29)**

Coordinates:	27° 50' 32" N (NAD27)
	82° 15' 45" W
ERP:	1000 kW (DA)
RCAMSL:	489m

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<sup>1/</sup> WFTS submitted notice of commencement of program tests on February 12, 2009, prior to discovering the height discrepancy.



The proposed WFTS facility will incorporate both horizontal (1000 kW) and vertical polarization (202 kW). (See attached VP pattern) The vertically polarized radiation component will not exceed the authorized horizontally polarized component in any azimuth.

### **Coverage**

The entire principal community of Tampa, FL will remain well within the predicted F(50,90) 48 dBu contour based on the proposed 1000 kW ERP.

As mentioned above, predicted population loss of the proposed facility vis-a-vis the authorized facility is 0.16%. The noise-limited contour of this facility will not exceed the noise-limited contour of the authorized facility in any azimuth. Table 1, attached hereto, compares the distances to the noise limited contour for the authorized WFTS-DT facility (Appendix B facility) vs. the proposed facility.

### **Interference**

WFTS is not seeking to expand its service contour beyond the contour of its Appendix B facility in any direction; therefore, no interference analysis is required to be submitted with this application.

### **Environmental/RFR**

The proposed construction does not require preparation of an Environmental Assessment as it does not involve any of the factors listed in Section 1.1306.

The additional ground level RFR contributed to the site by this proposal in public areas is calculated to be 0.001526 mW/cm<sup>2</sup> which is less than 5% of the MPE for public exposure

**B**

(0.38 mW/cm<sup>2</sup>) at the proposed frequency and, therefore, the proposal is excluded from further consideration.

WFTS agrees to comply with the Commission's requirements regarding power adjustments or cessation of operation as may be necessary to ensure a compliant environment for worker access. Workers are encouraged to wear personal RFR monitors when on the structure. The tower base is enclosed by a locked security fence and appropriate signage warnings of RFR hazards are posted.

### **Certification**

I hereby certify that the foregoing report or statement was prepared by me but may include work performed by others under my supervision or direction. The statements of fact contained therein are believed to be true and correct based on personal knowledge, information and belief unless otherwise stated; with respect to facts not known of my own personal knowledge, I believe them to be true and correct based on their origin from sources known to me to be generally reliable and accurate. I have prepared this document with due care and in accordance with applicable standards of professional practice.



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John F. X. Browne, P.E.  
February 23, 2009

**Table 1**  
**WFTS-DT**  
**Appendix B Facility vs. Proposed Facility Contour Distance Table**

<u>Degrees</u>	Appendix B Facility ERP - 987 kW (DA) HAAT 475m	Proposed Facility ERP - 1000 kW (DA) HAAT 468m	<u>Difference (miles)</u>
	<u>Distance (miles)</u>	<u>Distance (miles)</u>	
0	70.84	70.59	-0.25
10	69.85	69.53	-0.31
20	68.60	68.29	-0.31
30	67.48	67.24	-0.25
40	66.74	66.43	-0.31
50	66.55	66.30	-0.25
60	66.55	66.24	-0.31
70	67.36	67.11	-0.25
80	68.60	68.29	-0.31
90	69.41	69.16	-0.25
100	70.34	70.03	-0.31
110	70.72	70.47	-0.25
120	70.34	70.03	-0.31
130	69.41	69.16	-0.25
140	68.23	67.92	-0.31
150	66.99	66.74	-0.25
160	66.18	65.93	-0.25
170	65.87	65.62	-0.25
180	66.30	65.99	-0.31
190	67.24	66.92	-0.31
200	68.60	68.29	-0.31
210	69.97	69.66	-0.31
220	70.90	70.65	-0.25
230	71.21	70.96	-0.25
240	71.15	70.90	-0.25
250	70.53	70.28	-0.25
260	69.53	69.22	-0.31
270	68.35	68.11	-0.25
280	67.48	67.17	-0.31
290	67.11	66.86	-0.25
300	67.48	67.17	-0.31
310	68.42	68.17	-0.25
320	69.60	69.35	-0.25
330	70.59	70.34	-0.25
340	71.15	70.90	-0.25
350	71.21	70.96	-0.25

**DIRECTIONAL ANTENNA DATA**  
**WFTS-DT**  
**dBk TABLE**

Actual Bearing	Pattern Azimuth	Relative Field	ERP (dBk)	CONTOURS(km)	
				48 dBu	41 dBu
N000E	0.00	0.98	29.82	96.3	111.8
	10.00	0.92	29.29		
	20.00	0.84	28.51		
	30.00	0.77	27.67		
	40.00	0.71	27.00		
N045E	45.00	0.69	26.81	91.0	105.1
	50.00	0.69	26.75		
	60.00	0.71	27.00		
	70.00	0.77	27.67		
	80.00	0.84	28.51		
N090E	90.00	0.92	29.29	94.4	109.5
	100.00	0.98	29.82		
	110.00	1.00	30.00		
	120.00	0.98	29.82		
	130.00	0.92	29.29		
N135E	135.00	0.88	28.92	93.5	108.4
	140.00	0.84	28.51		
	150.00	0.77	27.67		
	160.00	0.71	27.00		
	170.00	0.69	26.75		
N180E	180.00	0.71	27.00	90.5	104.4
	190.00	0.77	27.67		
	200.00	0.84	28.51		
	210.00	0.92	29.29		
	220.00	0.98	29.82		
N225E	225.00	0.99	29.95	96.6	112.1
	230.00	1.00	30.00		
	240.00	0.98	29.82		
	250.00	0.92	29.29		
	260.00	0.84	28.51		
N270E	270.00	0.77	27.67	93.2	107.8
	280.00	0.71	27.00		
	290.00	0.69	26.75		
	300.00	0.71	27.00		
	310.00	0.77	27.67		
N315E	315.00	0.80	28.08	94.0	108.9
	320.00	0.84	28.51		
	330.00	0.92	29.29		
	340.00	0.98	29.82		
	350.00	1.00	30.00		

Maxima: N110E  
N230E  
N350E

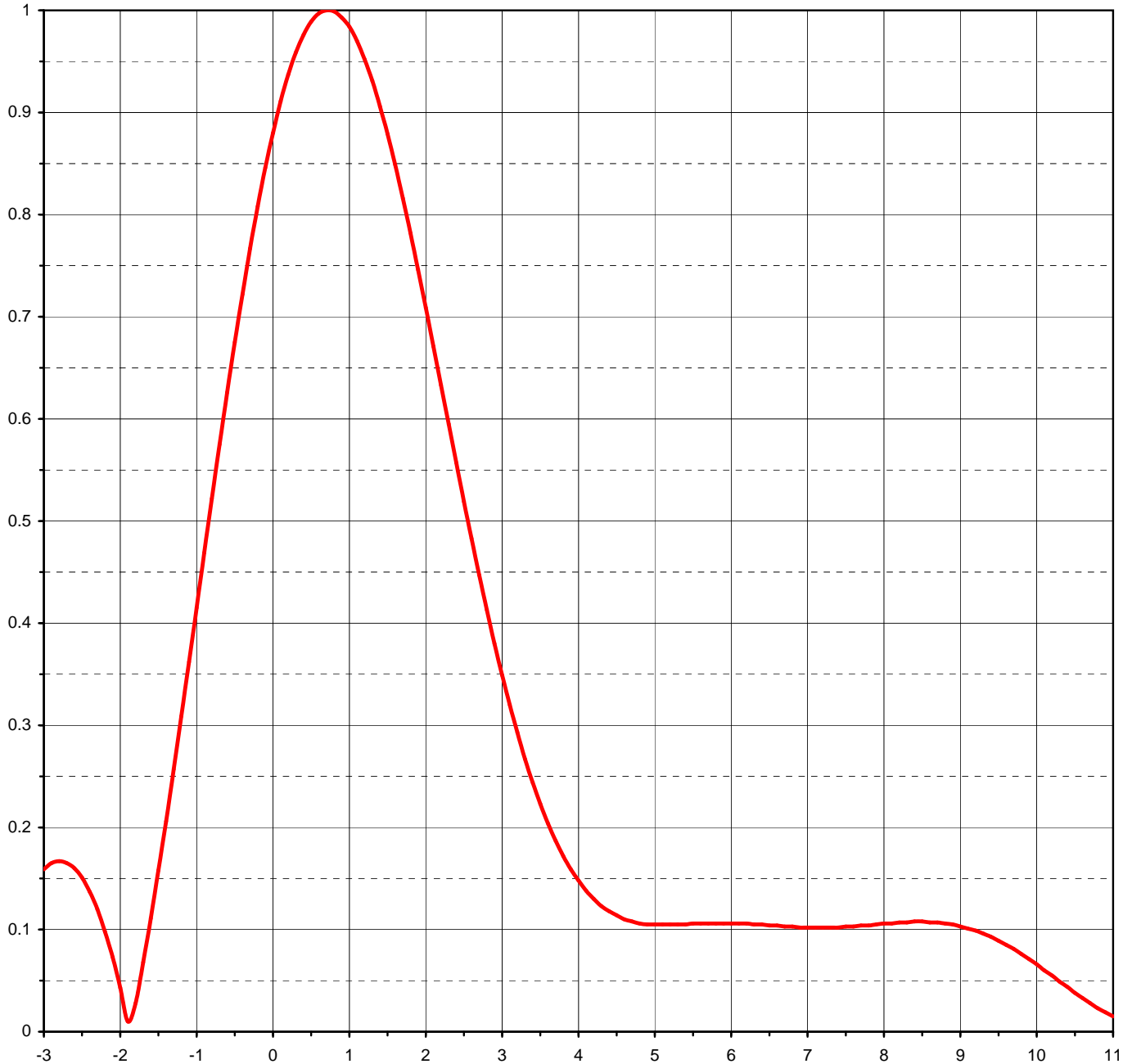
Minima: N50E  
N170E  
N290E



Proposal Number	<b>C-02090</b>	
Date	<b>1-Nov-07</b>	
Call Letters	<b>WFTS-DT</b>	Channel <b>29</b>
Location	<b>Tampa, FL</b>	
Customer		
Antenna Type	<b>TFU-26GTH/VP 6T140</b>	

## ELEVATION PATTERN

RMS Gain at Main Lobe	<b>23.50 ( 13.71 dB )</b>	Beam Tilt	<b>0.75 deg</b>
RMS Gain at Horizontal	<b>18.20 ( 12.60 dB )</b>	Frequency	<b>563.00 MHz</b>
Calculated / Measured	<b>Calculated</b>	Drawing #	<b>26G235075</b>



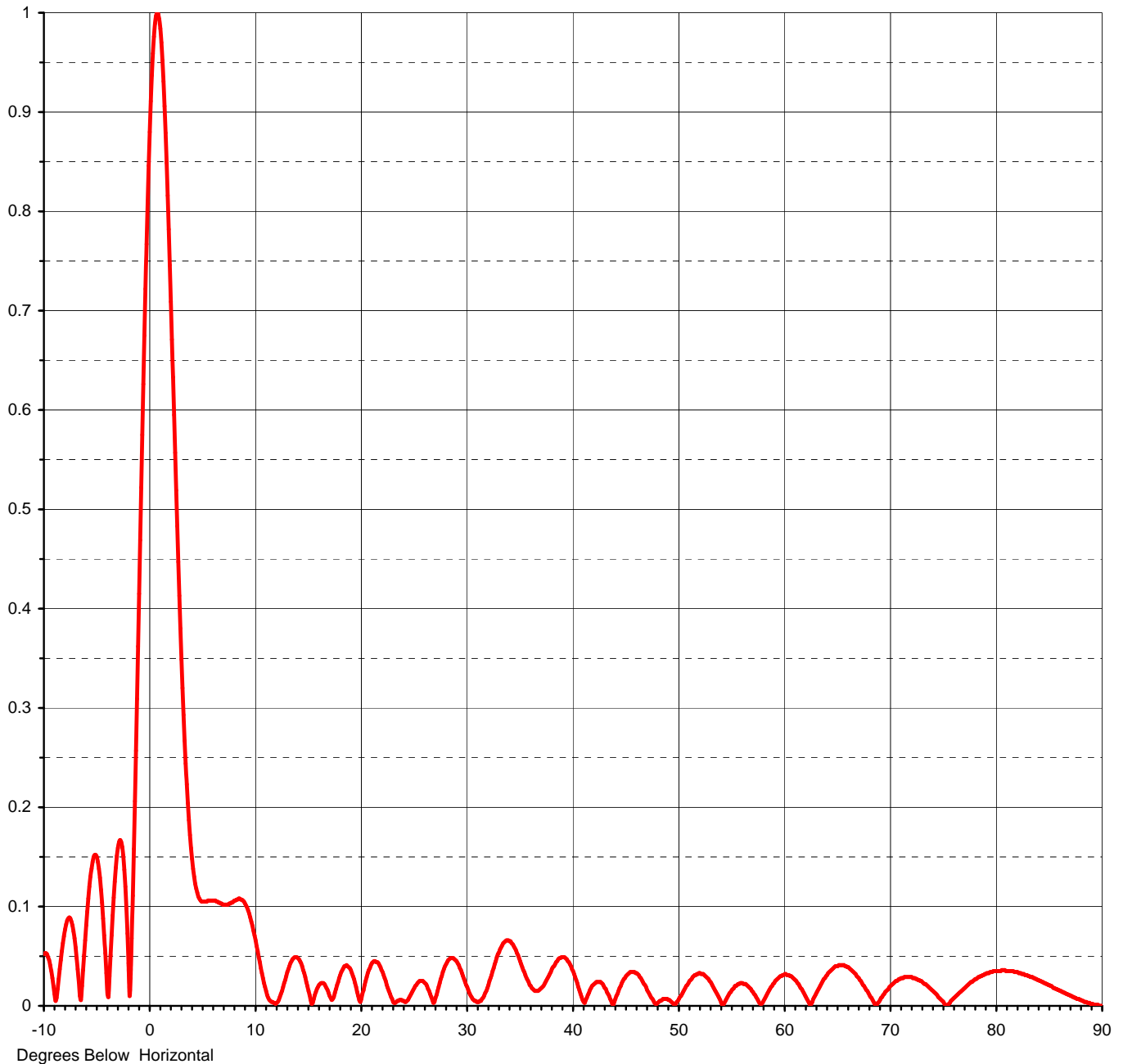
Degrees Below Horizontal



Proposal Number	<b>C-02090</b>	
Date	<b>1-Nov-07</b>	
Call Letters	<b>WFTS-DT</b>	Channel <b>29</b>
Location	<b>Tampa, FL</b>	
Customer		
Antenna Type	<b>TFU-26GTH/VP 6T140</b>	

## ELEVATION PATTERN

RMS Gain at Main Lobe	<b>23.50 ( 13.71 dB )</b>	Beam Tilt	<b>0.75 deg</b>
RMS Gain at Horizontal	<b>18.20 ( 12.60 dB )</b>	Frequency	<b>563.00 MHz</b>
Calculated / Measured	<b>Calculated</b>	Drawing #	<b>26G235075-90</b>



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Proposal Number **C-02090**  
Date **1-Nov-07**  
Call Letters **WFTS-DT** Channel **29**  
Location **Tampa, FL**  
Customer  
Antenna Type **TFU-26GTH/VP 6T140**

## TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing #: **26G235075-90**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.052	2.4	0.557	10.6	0.038	30.5	0.009	51.0	0.023	71.5	0.029
-9.5	0.046	2.6	0.483	10.8	0.028	31.0	0.004	51.5	0.030	72.0	0.029
-9.0	0.012	2.8	0.413	11.0	0.019	31.5	0.007	52.0	0.033	72.5	0.027
-8.5	0.037	3.0	0.349	11.5	0.005	32.0	0.018	52.5	0.031	73.0	0.024
-8.0	0.077	3.2	0.293	12.0	0.002	32.5	0.035	53.0	0.025	73.5	0.020
-7.5	0.088	3.4	0.244	12.5	0.012	33.0	0.052	53.5	0.016	74.0	0.015
-7.0	0.059	3.6	0.204	13.0	0.030	33.5	0.063	54.0	0.006	74.5	0.009
-6.5	0.006	3.8	0.172	13.5	0.045	34.0	0.066	54.5	0.005	75.0	0.004
-6.0	0.081	4.0	0.148	14.0	0.049	34.5	0.060	55.0	0.014	75.5	0.002
-5.5	0.138	4.2	0.130	14.5	0.040	35.0	0.048	55.5	0.020	76.0	0.008
-5.0	0.150	4.4	0.118	15.0	0.020	35.5	0.034	56.0	0.023	76.5	0.013
-4.5	0.104	4.6	0.110	15.5	0.003	36.0	0.021	56.5	0.021	77.0	0.018
-4.0	0.012	4.8	0.106	16.0	0.019	36.5	0.015	57.0	0.015	77.5	0.023
-3.5	0.091	5.0	0.105	16.5	0.023	37.0	0.017	57.5	0.007	78.0	0.027
-3.0	0.159	5.2	0.105	17.0	0.013	37.5	0.024	58.0	0.003	78.5	0.030
-2.8	0.167	5.4	0.105	17.5	0.009	38.0	0.034	58.5	0.013	79.0	0.032
-2.6	0.160	5.6	0.106	18.0	0.028	38.5	0.044	59.0	0.022	79.5	0.034
-2.4	0.137	5.8	0.106	18.5	0.040	39.0	0.049	59.5	0.028	80.0	0.035
-2.2	0.098	6.0	0.106	19.0	0.038	39.5	0.047	60.0	0.031	80.5	0.036
-2.0	0.043	6.2	0.106	19.5	0.023	40.0	0.037	60.5	0.031	81.0	0.035
-1.8	0.028	6.4	0.105	20.0	0.004	40.5	0.023	61.0	0.027	81.5	0.035
-1.6	0.111	6.6	0.104	20.5	0.025	41.0	0.006	61.5	0.020	82.0	0.034
-1.4	0.206	6.8	0.103	21.0	0.041	41.5	0.011	62.0	0.011	82.5	0.032
-1.2	0.309	7.0	0.102	21.5	0.044	42.0	0.021	62.5	0.001	83.0	0.030
-1.0	0.415	7.2	0.102	22.0	0.036	42.5	0.024	63.0	0.011	83.5	0.028
-0.8	0.522	7.4	0.102	22.5	0.021	43.0	0.020	63.5	0.021	84.0	0.026
-0.6	0.626	7.6	0.103	23.0	0.007	43.5	0.010	64.0	0.030	84.5	0.023
-0.4	0.722	7.8	0.104	23.5	0.005	44.0	0.004	64.5	0.037	85.0	0.021
-0.2	0.808	8.0	0.106	24.0	0.005	44.5	0.018	65.0	0.040	85.5	0.018
0.0	0.880	8.2	0.107	24.5	0.006	45.0	0.028	65.5	0.041	86.0	0.015
0.2	0.937	8.4	0.108	25.0	0.016	45.5	0.034	66.0	0.039	86.5	0.013
0.4	0.976	8.6	0.107	25.5	0.024	46.0	0.033	66.5	0.034	87.0	0.010
0.6	0.997	8.8	0.106	26.0	0.024	46.5	0.028	67.0	0.028	87.5	0.008
0.8	0.999	9.0	0.103	26.5	0.015	47.0	0.019	67.5	0.020	88.0	0.006
1.0	0.984	9.2	0.099	27.0	0.004	47.5	0.008	68.0	0.011	88.5	0.004
1.2	0.952	9.4	0.093	27.5	0.023	48.0	0.002	68.5	0.002	89.0	0.002
1.4	0.906	9.6	0.085	28.0	0.040	48.5	0.006	69.0	0.006	89.5	0.001
1.6	0.849	9.8	0.081	28.5	0.048	49.0	0.007	69.5	0.014	90.0	0.000
1.8	0.782	10.0	0.071	29.0	0.046	49.5	0.003	70.0	0.020		
2.0	0.709	10.2	0.060	29.5	0.036	50.0	0.005	70.5	0.025		
2.2	0.633	10.4	0.049	30.0	0.021	50.5	0.014	71.0	0.028		

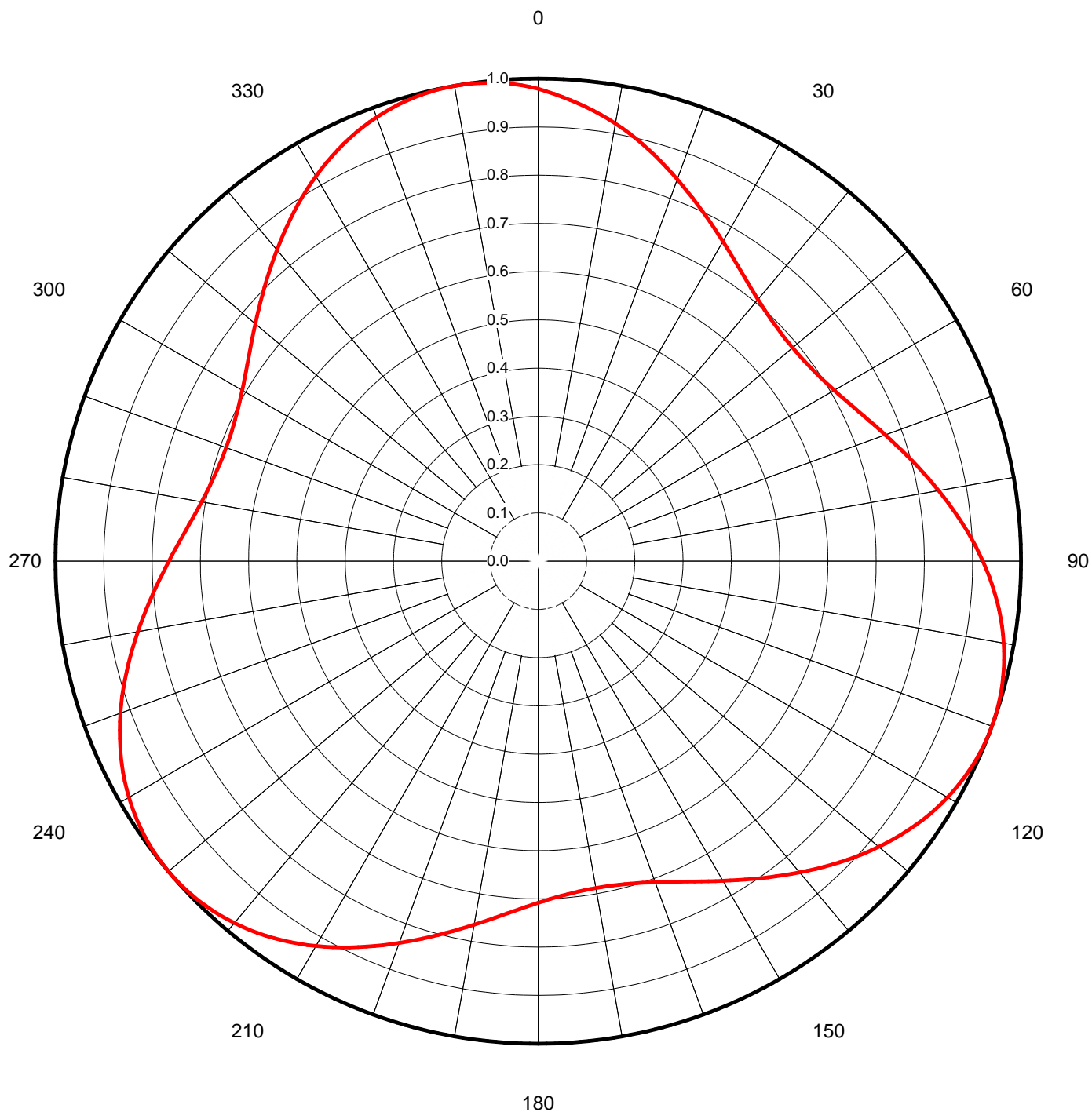
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Proposal Number	<b>C-02090</b>		
Date	<b>1-Nov-07</b>		
Call Letters	<b>WFTS-DT</b>	Channel	<b>29</b>
Location	<b>Tampa, FL</b>		
Customer			
Antenna Type	<b>TFU-26GTH/VP 6T140</b>		

## AZIMUTH PATTERN

Gain	<b>1.40</b>	<b>( 1.46 dB)</b>
Calculated / Measured	<b>Calculated</b>	

Frequency	<b>563.00 MHz</b>
Drawing #	<b>6T140SP</b>





Proposal Number

**C-02090**

Date

**1-Nov-07**

Call Letters

**WFTS-DT**

Channel

**29**

Location

**Tampa, FL**

Customer

Antenna Type

**TFU-26GTH/VP 6T140****TABULATION OF AZIMUTH PATTERN**Azimuth Pattern Drawing #: **6T140SP**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.979	45	0.693	90	0.921	135	0.883	180	0.708	225	0.995	270	0.765	315	0.802
1	0.974	46	0.691	91	0.928	136	0.875	181	0.712	226	0.997	271	0.758	316	0.810
2	0.969	47	0.690	92	0.935	137	0.867	182	0.717	227	0.998	272	0.751	317	0.818
3	0.963	48	0.689	93	0.942	138	0.858	183	0.722	228	0.999	273	0.745	318	0.826
4	0.958	49	0.688	94	0.948	139	0.850	184	0.727	229	1.000	274	0.739	319	0.834
5	0.952	50	0.688	95	0.954	140	0.842	185	0.733	230	1.000	275	0.733	320	0.842
6	0.946	51	0.688	96	0.960	141	0.834	186	0.739	231	1.000	276	0.727	321	0.850
7	0.940	52	0.689	97	0.965	142	0.826	187	0.745	232	0.999	277	0.722	322	0.858
8	0.934	53	0.690	98	0.970	143	0.818	188	0.751	233	0.998	278	0.717	323	0.867
9	0.928	54	0.691	99	0.975	144	0.810	189	0.758	234	0.997	279	0.712	324	0.875
10	0.921	55	0.693	100	0.979	145	0.802	190	0.765	235	0.995	280	0.708	325	0.883
11	0.914	56	0.695	101	0.983	146	0.794	191	0.772	236	0.992	281	0.704	326	0.891
12	0.907	57	0.698	102	0.987	147	0.787	192	0.779	237	0.990	282	0.701	327	0.899
13	0.899	58	0.701	103	0.990	148	0.779	193	0.787	238	0.987	283	0.698	328	0.906
14	0.891	59	0.704	104	0.992	149	0.772	194	0.794	239	0.983	284	0.695	329	0.914
15	0.883	60	0.708	105	0.995	150	0.765	195	0.802	240	0.979	285	0.693	330	0.921
16	0.875	61	0.712	106	0.997	151	0.758	196	0.810	241	0.975	286	0.691	331	0.928
17	0.867	62	0.717	107	0.998	152	0.751	197	0.818	242	0.970	287	0.690	332	0.935
18	0.859	63	0.722	108	0.999	153	0.745	198	0.826	243	0.965	288	0.689	333	0.942
19	0.850	64	0.727	109	1.000	154	0.739	199	0.834	244	0.960	289	0.688	334	0.948
20	0.842	65	0.733	110	1.000	155	0.733	200	0.842	245	0.954	290	0.688	335	0.954
21	0.834	66	0.739	111	1.000	156	0.727	201	0.850	246	0.948	291	0.688	336	0.960
22	0.826	67	0.745	112	0.999	157	0.722	202	0.858	247	0.942	292	0.689	337	0.965
23	0.818	68	0.751	113	0.998	158	0.717	203	0.867	248	0.935	293	0.690	338	0.970
24	0.810	69	0.758	114	0.997	159	0.712	204	0.875	249	0.928	294	0.691	339	0.975
25	0.802	70	0.765	115	0.995	160	0.708	205	0.883	250	0.921	295	0.693	340	0.979
26	0.794	71	0.772	116	0.992	161	0.704	206	0.891	251	0.914	296	0.695	341	0.983
27	0.787	72	0.779	117	0.990	162	0.701	207	0.899	252	0.906	297	0.698	342	0.986
28	0.779	73	0.787	118	0.987	163	0.698	208	0.906	253	0.899	298	0.701	343	0.990
29	0.772	74	0.794	119	0.983	164	0.695	209	0.914	254	0.891	299	0.704	344	0.992
30	0.765	75	0.802	120	0.979	165	0.693	210	0.921	255	0.883	300	0.708	345	0.995
31	0.758	76	0.810	121	0.975	166	0.691	211	0.928	256	0.875	301	0.712	346	0.997
32	0.751	77	0.818	122	0.970	167	0.690	212	0.935	257	0.867	302	0.717	347	0.998
33	0.745	78	0.826	123	0.965	168	0.689	213	0.942	258	0.858	303	0.722	348	0.999
34	0.739	79	0.834	124	0.960	169	0.688	214	0.948	259	0.850	304	0.727	349	1.000
35	0.733	80	0.842	125	0.954	170	0.688	215	0.954	260	0.842	305	0.733	350	1.000
36	0.727	81	0.850	126	0.948	171	0.688	216	0.960	261	0.834	306	0.739	351	1.000
37	0.722	82	0.858	127	0.942	172	0.689	217	0.965	262	0.826	307	0.745	352	0.999
38	0.717	83	0.867	128	0.935	173	0.690	218	0.970	263	0.818	308	0.751	353	0.998
39	0.712	84	0.875	129	0.928	174	0.691	219	0.975	264	0.810	309	0.758	354	0.997
40	0.708	85	0.883	130	0.921	175	0.693	220	0.979	265	0.802	310	0.765	355	0.995
41	0.704	86	0.891	131	0.914	176	0.695	221	0.983	266	0.794	311	0.772	356	0.993
42	0.701	87	0.899	132	0.906	177	0.698	222	0.987	267	0.787	312	0.779	357	0.990
43	0.698	88	0.906	133	0.899	178	0.701	223	0.990	268	0.779	313	0.787	358	0.987
44	0.695	89	0.914	134	0.891	179	0.704	224	0.992	269	0.772	314	0.794	359	0.983

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Proposal Number	<b>C-02090</b>	
Date	<b>1-Nov-07</b>	
Call Letters	<b>WFTS-DT</b>	Channel <b>29</b>
Location	<b>Tampa, FL</b>	
Customer		
Antenna Type	<b>TFU-26GTH/VP 6T140</b>	

## AZIMUTH PATTERN/VERTICAL POLARIZATION

Gain	<b>1.10</b>	<b>( 0.41 dB)</b>
Calculated / Measured		<b>Calculated</b>

Frequency	<b>563.00 MHz</b>
Drawing #	<b>TFU-6T110-VP</b>

