



**ENGINEERING STATEMENT**  
**OF**  
**JOHN F.X. BROWNE, P.E.**  
**IN SUPPORT OF AN APPLICATION FOR**  
**MINOR MODIFICATION OF A POST-TRANSITION CONSTRUCTION PERMIT**  
**AND**  
**REQUEST FOR WAIVER**  
**WMTJ-DT**  
**FAJARDO, PR**

**Background**

Sistema Universitario Ana G. Mendez, Inc. (Mendez) is the licensee of WMTJ-DT which has been authorized to operate its post-transition DTV facility on Channel 16 (BMPEDT-20070629AEN) at Fajardo, PR, with an ERP of 140 kW at an HAAT of 852m. The tower is located at the following coordinates:

(NAD27)  
18° 18' 35" N  
65° 47' 43" W

WMTJ now wishes to "maximize" the post-transition facility ERP to 178 kW; all other facility parameters will remain the same.



### **Site**

While the proposed site is 70km from the FCC monitoring station at Santa Isabella, PR, the mountainous terrain of central Puerto Rico completely prevents any line-of-sight propagation condition between the WMTJ transmitter and the FCC site.

The proposed WMTJ facility is located on the island of Puerto Rico, and, therefore, the Interference Office located at the Arecibo Observatory will be notified of its plans to change its facility parameters by forwarding a copy of this "maximization" application.

### **Antenna System and Tower**

WMTJ-DT proposes to use its existing digital Dielectric TFU-16DSC-R S300 directional antenna (specifications attached hereto as Exhibit 1a – Exhibit 1e). The antenna is installed on a tower that is less than 200 ft. tall above ground level and, therefore, the tower is unregistered (same tower / heights as authorized in BMPEDT-20070629AEN). The WMTJ antenna will have a center of radiation of 1058.2m AMSL (with a calculated HAAT of 852.1m).

### **Coverage**

The entire principal community of Fajardo, PR is well within the predicted F(50,90) 48 dBu contour based on the proposed 178 kW ERP.

### **Interference and Request for Waiver**

Studies were conducted with the proposed parameters using software that emulates the software used by the FCC (OET-69 analysis). The results of the study indicate that WMTJ would cause more than the 0.5% new interference to the Appendix B (allotment) facility of WVEO (Ch. 17 at Aguadilla, PR), but would not cause more than 0.5% new interference to the existing (and recently granted) WVEO construction permit facility (BMPCDT-20060705ABD);



therefore, Mendez has initiated discussions with the licensee of WVEO to determine whether its Appendix B facility needs to be protected (given that its recently granted CP differs from this facility and is not adversely affected) and, if so, whether it would agree to accept the calculated, theoretical interference. To the extent that it may be necessary, Mendez requests a waiver of the interference protection requirements. Upon completion of these discussions and negotiations, the Commission will be notified of the results.

### **Environmental/RFR**

The proposed construction is located within the Caribbean Nation Forest. Mendez has received permission to construct the facility from the US Forrest Service which conducted a complete environmental review in accordance with its standards and requirements under NEPA. Thus, the proposed construction does not require preparation of an Environmental Assessment.

The additional ground level RFR contributed to the site by this proposal in public areas is calculated to be  $0.005212 \text{ mW/cm}^2$  which is less than 5% of the MPE for public exposure ( $0.32 \text{ mW/cm}^2$ ) at the proposed frequency and, therefore, the proposal is excluded from further consideration.

WMTJ 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 will be encouraged to wear personal RFR monitors when on the structure. The tower base is enclosed by a locked security fence and appropriate signage warning of RFR hazards is 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,

**B**

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.

A handwritten signature in black ink, reading "John F. X. Browne". The signature is fluid and cursive, with the first name "John" and last name "Browne" clearly legible. The middle initial "F. X." is written in a smaller, more compact script between the first and last names.

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John F. X. Browne, P.E.  
June 17, 2008

**WMTJ-DT Directional Antenna Data**  
**Table #1**

<u>Actual Bearing</u>	<u>Pattern Azimuth</u>	<u>Relative Field</u>	<u>ERP (dBk)</u>	<u>41 dBu</u>	<u>48 dBu</u>
N000E	0	0.458	15.72	104.2 km	89.8 km
	10	0.392	14.37		
	20	0.331	12.90		
	30	0.276	11.32		
	40	0.229	9.70		
N045E	45	0.212	9.03	89.7 km	76.5 km
	50	0.204	8.70		
	60	0.217	9.23		
	70	0.262	10.87		
	80	0.314	12.44		
N090E	90	0.353	13.46	95.1 km	80.9 km
	100	0.368	13.82		
	110	0.354	13.48		
	120	0.314	12.44		
	130	0.262	10.87		
N135E	135	0.237	10.00	84.2 km	71.9 km
	140	0.217	9.23		
	150	0.204	8.70		
	160	0.229	9.70		
	170	0.276	11.32		
N180E	180	0.332	12.93	94.4 km	80.3 km
	190	0.392	14.37		
	200	0.458	15.72		
	210	0.534	17.06		
	220	0.618	18.32		
N225E	225	0.663	18.93	99.8 km	86.2 km
	230	0.709	19.52		
	240	0.797	20.53		
	250	0.878	21.37		
	260	0.944	22.00		
N270E	270	0.986	22.38	111.1 km	96.5 km
	280	0.999	22.50		
	290	0.986	22.38		
	300	0.943	21.99		
	310	0.878	21.37		
N315E	315	0.839	20.98	115.8 km	100.3 km
	320	0.797	20.53		
	330	0.709	19.52		
	340	0.619	18.34		
	350	0.534	17.06		

**Maximum:**      N278.5E    22.50 dBk

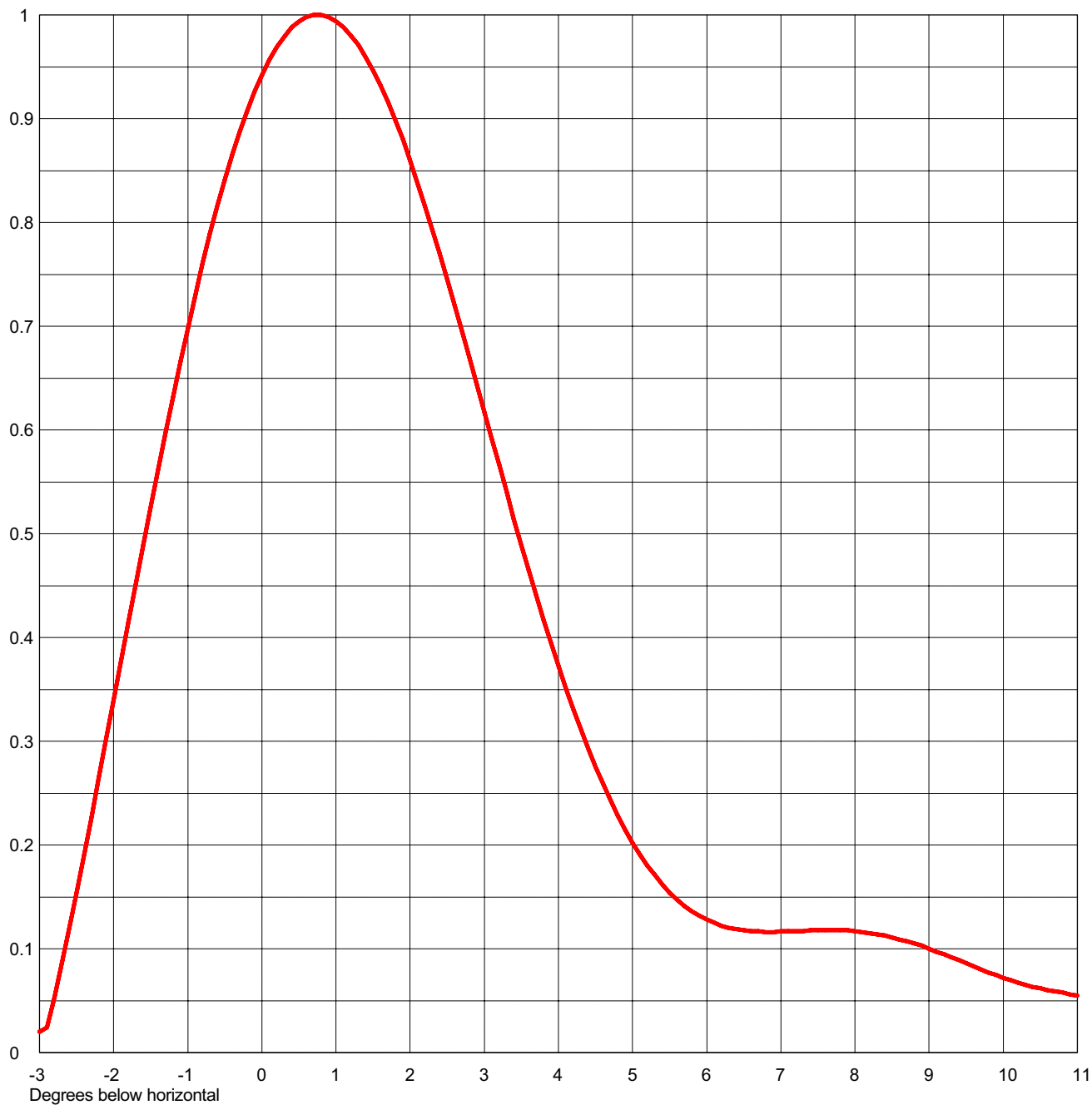
**Minima:**        N052E    08.65 dBk  
                         N148E    08.65 dBk



Proposal Number		Revision	
Date	<b>19 Feb 2003</b>		
Call Letters	<b>WMTJ-DT</b>	Channel	<b>16</b>
Location	<b>Fajardo, PR</b>		
Customer			
Antenna Type	<b>TFU-16DSC-R S300</b>		

### ELEVATION PATTERN

RMS Gain at Main Lobe	<b>13.0 (11.14 dB)</b>	Beam Tilt	<b>0.75 Degrees</b>
RMS Gain at Horizontal	<b>11.5 (10.61 dB)</b>	Frequency	<b>485.00 MHz</b>
Calculated / Measured	<b>Calculated</b>	Drawing #	<b>16Q130075</b>



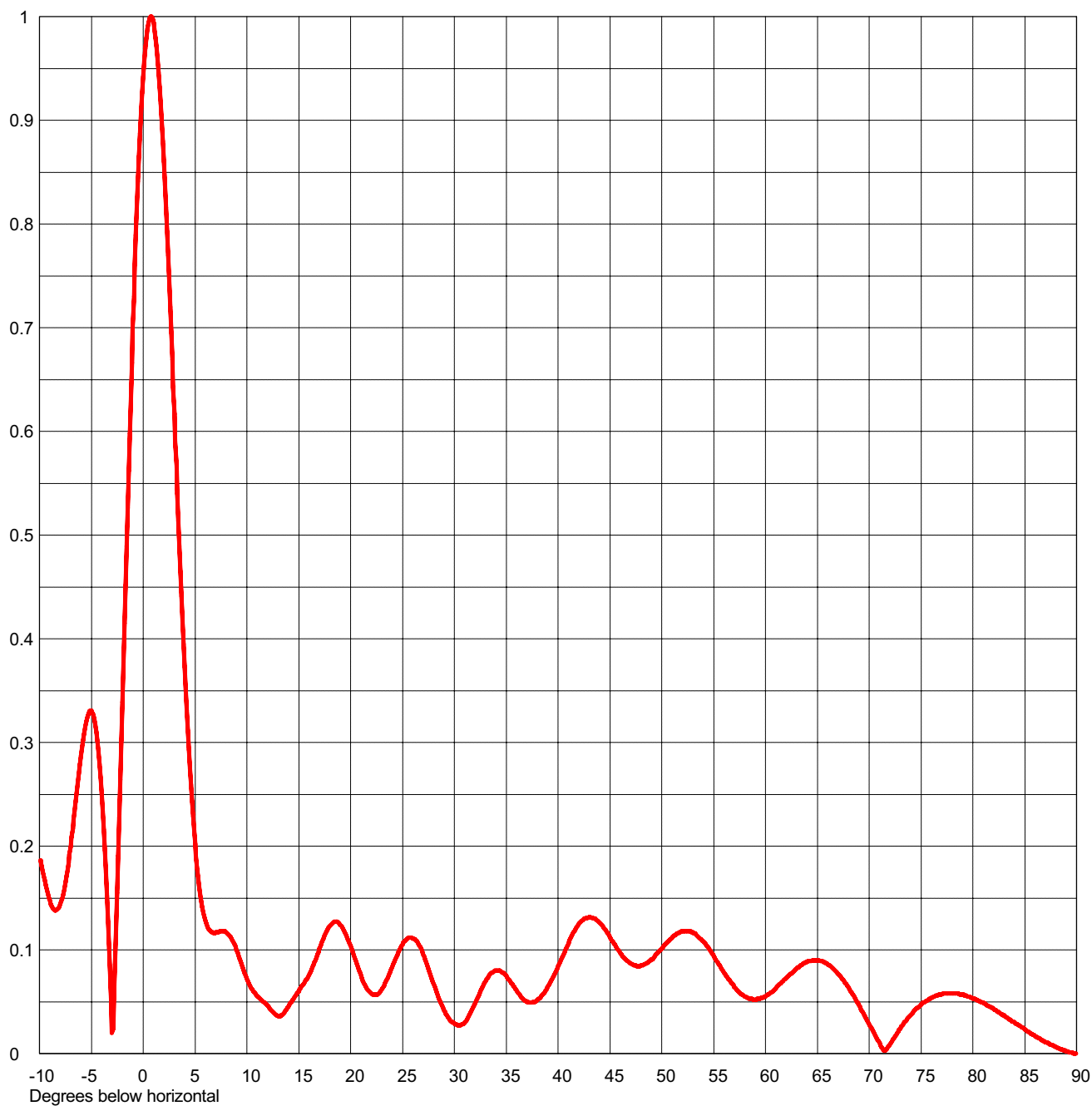
Remarks:



Proposal Number		Revision	
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Location	<b>Fajardo, PR</b>		
Customer			
Antenna Type	<b>TFU-16DSC-R S300</b>		

### ELEVATION PATTERN

RMS Gain at Main Lobe	<b>13.0 (11.14 dB)</b>	Beam Tilt	<b>0.75 Degrees</b>
RMS Gain at Horizontal	<b>11.5 (10.61 dB)</b>	Frequency	<b>485.00 MHz</b>
Calculated / Measured	<b>Calculated</b>	Drawing #	<b>16Q130075-90</b>



Remarks:



Proposal Number  
 Date **19 Feb 2003**  
 Call Letters **WMTJ-DT** Channel **16**  
 Location **Fajardo, PR**  
 Customer  
 Antenna Type **TFU-16DSC-R S300**

## TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing # **16Q130075**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.191	2.4	0.770	10.6	0.060	30.5	0.027	51.0	0.112	71.5	0.003
-9.5	0.167	2.6	0.720	10.8	0.058	31.0	0.030	51.5	0.116	72.0	0.009
-9.0	0.147	2.8	0.669	11.0	0.055	31.5	0.038	52.0	0.118	72.5	0.017
-8.5	0.138	3.0	0.617	11.5	0.051	32.0	0.048	52.5	0.118	73.0	0.024
-8.0	0.144	3.2	0.566	12.0	0.046	32.5	0.060	53.0	0.117	73.5	0.031
-7.5	0.165	3.4	0.514	12.5	0.040	33.0	0.070	53.5	0.113	74.0	0.037
-7.0	0.200	3.6	0.465	13.0	0.036	33.5	0.077	54.0	0.108	74.5	0.043
-6.5	0.243	3.8	0.417	13.5	0.038	34.0	0.080	54.5	0.102	75.0	0.047
-6.0	0.287	4.0	0.373	14.0	0.045	34.5	0.079	55.0	0.094	75.5	0.051
-5.5	0.320	4.2	0.331	14.5	0.053	35.0	0.075	55.5	0.086	76.0	0.054
-5.0	0.331	4.4	0.293	15.0	0.060	35.5	0.068	56.0	0.078	76.5	0.056
-4.5	0.310	4.6	0.259	15.5	0.067	36.0	0.061	56.5	0.071	77.0	0.057
-4.0	0.251	4.8	0.229	16.0	0.076	36.5	0.054	57.0	0.064	77.5	0.058
-3.5	0.152	5.0	0.202	16.5	0.088	37.0	0.050	57.5	0.059	78.0	0.058
-3.0	0.020	5.2	0.180	17.0	0.101	37.5	0.049	58.0	0.055	78.5	0.058
-2.8	0.053	5.4	0.162	17.5	0.114	38.0	0.052	58.5	0.053	79.0	0.057
-2.6	0.120	5.6	0.147	18.0	0.123	38.5	0.057	59.0	0.052	79.5	0.055
-2.4	0.191	5.8	0.136	18.5	0.127	39.0	0.064	59.5	0.053	80.0	0.053
-2.2	0.264	6.0	0.128	19.0	0.124	39.5	0.073	60.0	0.055	80.5	0.051
-2.0	0.339	6.2	0.122	19.5	0.116	40.0	0.084	60.5	0.059	81.0	0.049
-1.8	0.415	6.4	0.119	20.0	0.104	40.5	0.095	61.0	0.063	81.5	0.046
-1.6	0.489	6.6	0.117	20.5	0.089	41.0	0.106	61.5	0.068	82.0	0.043
-1.4	0.562	6.8	0.116	21.0	0.075	41.5	0.117	62.0	0.073	82.5	0.040
-1.2	0.632	7.0	0.117	21.5	0.064	42.0	0.125	62.5	0.077	83.0	0.037
-1.0	0.698	7.2	0.117	22.0	0.058	42.5	0.130	63.0	0.082	83.5	0.033
-0.8	0.760	7.4	0.118	22.5	0.057	43.0	0.132	63.5	0.085	84.0	0.030
-0.6	0.816	7.6	0.118	23.0	0.062	43.5	0.130	64.0	0.088	84.5	0.027
-0.4	0.865	7.8	0.118	23.5	0.071	44.0	0.126	64.5	0.090	85.0	0.023
-0.2	0.907	8.0	0.117	24.0	0.083	44.5	0.120	65.0	0.090	85.5	0.020
0.0	0.942	8.2	0.115	24.5	0.095	45.0	0.112	65.5	0.089	86.0	0.017
0.2	0.969	8.4	0.113	25.0	0.105	45.5	0.105	66.0	0.086	86.5	0.014
0.4	0.988	8.6	0.109	25.5	0.111	46.0	0.097	66.5	0.082	87.0	0.011
0.6	0.998	8.8	0.105	26.0	0.111	46.5	0.091	67.0	0.077	87.5	0.009
0.8	1.000	9.0	0.100	26.5	0.106	47.0	0.087	67.5	0.071	88.0	0.006
1.0	0.994	9.2	0.095	27.0	0.096	47.5	0.085	68.0	0.064	88.5	0.004
1.2	0.980	9.4	0.089	27.5	0.082	48.0	0.085	68.5	0.056	89.0	0.002
1.4	0.959	9.6	0.083	28.0	0.067	48.5	0.087	69.0	0.047	89.5	0.001
1.6	0.932	9.8	0.077	28.5	0.053	49.0	0.091	69.5	0.038	90.0	0.000
1.8	0.898	10.0	0.072	29.0	0.042	49.5	0.096	70.0	0.028		
2.0	0.860	10.2	0.067	29.5	0.034	50.0	0.101	70.5	0.019		
2.2	0.816	10.4	0.063	30.0	0.029	50.5	0.107	71.0	0.010		

Remarks:





Proposal Number		Revision	
Date	<b>19 Feb 2003</b>		
Call Letters	<b>WMTJ-DT</b>	Channel	<b>16</b>
Location	<b>Fajardo, PR</b>		
Customer			
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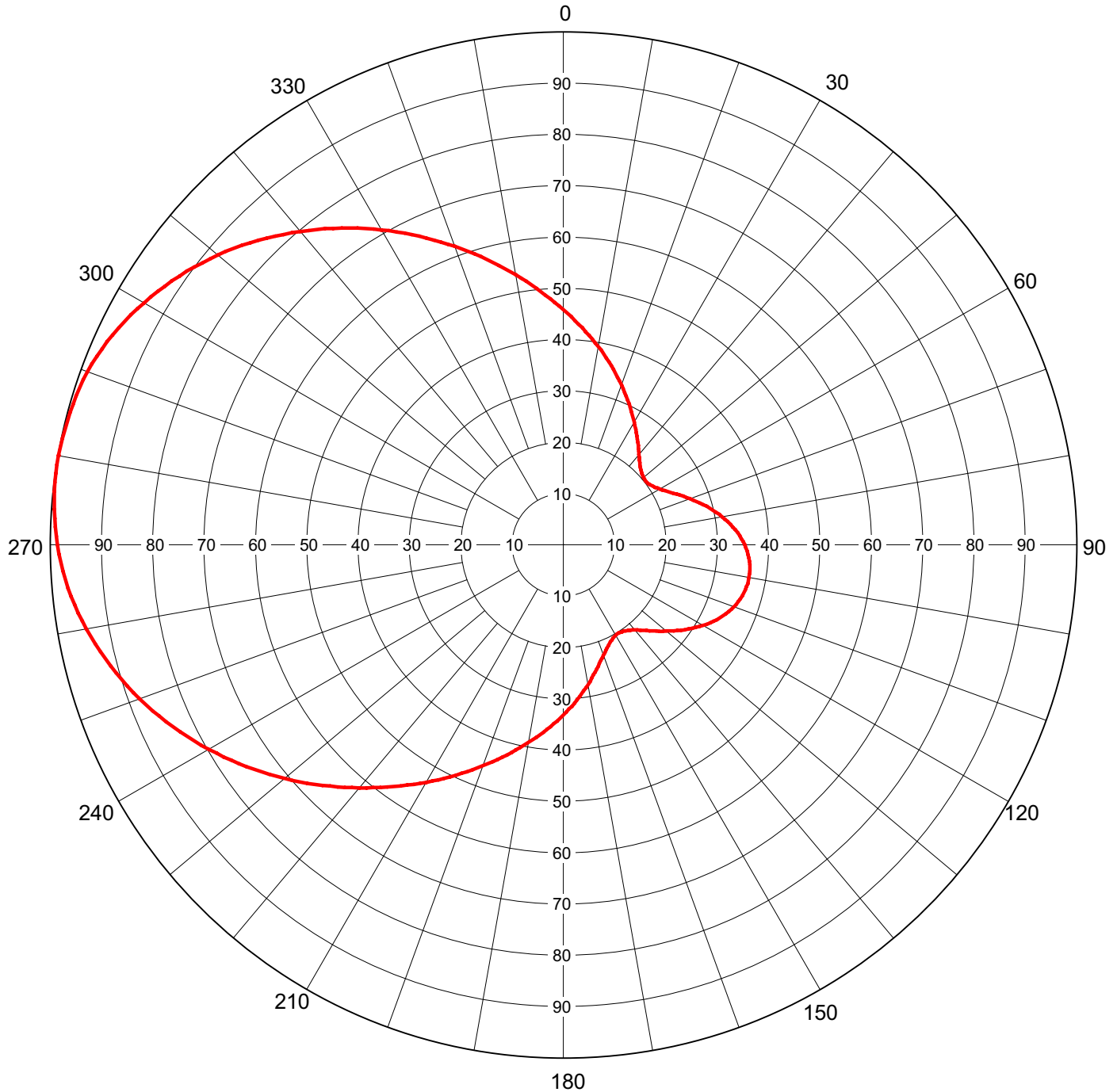
### AZIMUTH PATTERN

Gain  
Calculated / Measured

**3.00 (4.77 dB)**  
**Calculated**

Frequency  
Drawing #

**485 MHz**  
**TFU-S300**



Remarks:



Proposal Number  
 Date **19 Feb 2003**  
 Call Letters **WMTJ-DT** Channel **16**  
 Location **Fajardo, PR**  
 Customer  
 Antenna Type **TFU-16DSC-R S300**

## TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing # **TFU-S300**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.458	45	0.212	90	0.353	135	0.237	180	0.332	225	0.663	270	0.986	315	0.839
1	0.451	46	0.210	91	0.356	136	0.233	181	0.338	226	0.672	271	0.988	316	0.831
2	0.444	47	0.208	92	0.358	137	0.228	182	0.344	227	0.681	272	0.990	317	0.823
3	0.438	48	0.207	93	0.360	138	0.224	183	0.349	228	0.690	273	0.992	318	0.814
4	0.431	49	0.205	94	0.362	139	0.220	184	0.355	229	0.700	274	0.994	319	0.806
5	0.424	50	0.204	95	0.364	140	0.217	185	0.361	230	0.709	275	0.995	320	0.797
6	0.418	51	0.203	96	0.365	141	0.214	186	0.367	231	0.718	276	0.997	321	0.788
7	0.411	52	0.203	97	0.366	142	0.211	187	0.373	232	0.727	277	0.998	322	0.780
8	0.405	53	0.203	98	0.367	143	0.209	188	0.379	233	0.736	278	0.999	323	0.771
9	0.398	54	0.204	99	0.367	144	0.207	189	0.385	234	0.745	279	0.999	324	0.762
10	0.392	55	0.205	100	0.368	145	0.206	190	0.392	235	0.754	280	0.999	325	0.753
11	0.386	56	0.207	101	0.367	146	0.204	191	0.398	236	0.762	281	0.998	326	0.744
12	0.380	57	0.209	102	0.367	147	0.204	192	0.404	237	0.771	282	0.997	327	0.736
13	0.373	58	0.211	103	0.366	148	0.203	193	0.411	238	0.780	283	0.997	328	0.727
14	0.367	59	0.214	104	0.365	149	0.203	194	0.417	239	0.789	284	0.996	329	0.718
15	0.361	60	0.217	105	0.364	150	0.204	195	0.424	240	0.797	285	0.995	330	0.709
16	0.355	61	0.221	106	0.363	151	0.205	196	0.431	241	0.806	286	0.994	331	0.700
17	0.349	62	0.224	107	0.361	152	0.206	197	0.438	242	0.814	287	0.992	332	0.690
18	0.343	63	0.228	108	0.359	153	0.208	198	0.444	243	0.823	288	0.991	333	0.681
19	0.337	64	0.232	109	0.356	154	0.210	199	0.451	244	0.831	289	0.989	334	0.672
20	0.331	65	0.237	110	0.354	155	0.213	200	0.458	245	0.839	290	0.986	335	0.663
21	0.326	66	0.242	111	0.351	156	0.216	201	0.466	246	0.847	291	0.984	336	0.654
22	0.320	67	0.247	112	0.348	157	0.218	202	0.473	247	0.855	292	0.980	337	0.645
23	0.314	68	0.252	113	0.344	158	0.222	203	0.480	248	0.863	293	0.977	338	0.636
24	0.308	69	0.257	114	0.341	159	0.225	204	0.488	249	0.871	294	0.973	339	0.628
25	0.303	70	0.262	115	0.337	160	0.229	205	0.495	250	0.878	295	0.968	340	0.619
26	0.297	71	0.268	116	0.333	161	0.233	206	0.503	251	0.886	296	0.964	341	0.610
27	0.292	72	0.273	117	0.328	162	0.237	207	0.511	252	0.893	297	0.959	342	0.601
28	0.286	73	0.278	118	0.324	163	0.242	208	0.519	253	0.900	298	0.954	343	0.593
29	0.281	74	0.284	119	0.319	164	0.246	209	0.526	254	0.906	299	0.949	344	0.584
30	0.276	75	0.289	120	0.314	165	0.251	210	0.534	255	0.913	300	0.943	345	0.576
31	0.271	76	0.294	121	0.310	166	0.256	211	0.542	256	0.920	301	0.938	346	0.567
32	0.266	77	0.299	122	0.304	167	0.261	212	0.550	257	0.926	302	0.932	347	0.559
33	0.261	78	0.304	123	0.299	168	0.266	213	0.559	258	0.932	303	0.926	348	0.551
34	0.256	79	0.309	124	0.294	169	0.271	214	0.567	259	0.938	304	0.920	349	0.542
35	0.251	80	0.314	125	0.289	170	0.276	215	0.575	260	0.944	305	0.913	350	0.534
36	0.246	81	0.319	126	0.283	171	0.282	216	0.584	261	0.949	306	0.907	351	0.526
37	0.242	82	0.323	127	0.278	172	0.287	217	0.592	262	0.954	307	0.900	352	0.518
38	0.238	83	0.328	128	0.272	173	0.293	218	0.601	263	0.959	308	0.893	353	0.510
39	0.233	84	0.332	129	0.267	174	0.298	219	0.610	264	0.964	309	0.886	354	0.503
40	0.229	85	0.336	130	0.262	175	0.304	220	0.618	265	0.968	310	0.878	355	0.495
41	0.225	86	0.340	131	0.257	176	0.309	221	0.627	266	0.972	311	0.871	356	0.488
42	0.222	87	0.344	132	0.252	177	0.315	222	0.636	267	0.976	312	0.863	357	0.480
43	0.218	88	0.347	133	0.247	178	0.321	223	0.645	268	0.980	313	0.855	358	0.473
44	0.215	89	0.350	134	0.242	179	0.326	224	0.654	269	0.983	314	0.847	359	0.465

Remarks: