



Proposal #: **DCA-9398**      Antenna Type: **TFU-30DSC-R S250**      Channel: **39 DTV**  
 Call Letters: **WADL-DT**      Location: **Mt. Clemens, MI**

Electrical Specifications		Value		Remarks
		Ratio	dB	
RMS Gain at Main Lobe over Halfwave Dipole	Hpol	25.5	14.07	
	Vpol			
RMS Gain at Horizontal over Halfwave Dipole	Hpol	21.0	13.22	
	Vpol			
Peak Directional Gain over Halfwave Dipole	Hpol	63.8	18.05	
	Vpol			
Peak Directional Gain at Horizontal over Halfwave Dipole	Hpol	52.6	17.21	
	Vpol			
Circularity		dB		
Axial Ratio		dB		
Beam Tilt		0.50 deg		
Average Power	DTV	25 kW	13.98 dBk	
Antenna Input:	T/L	6-1/8 in	75.0 ohm	Type: EIA/DCA
Maximum Antenna Input VSWR		Channel	1.08 : 1	
Patterns	Azimuth	TFU-S250-39		
	Elevation	30Q255050	30Q255050-90	
Mechanical Specifications		Metric	English	
Height with Lightning Protector	H4	m	ft	Side mounted
Height Less Lightning Protector	H2	16.0 m	52.5 ft	
Height of Center of Radiation	H3	8.0 m	26.3 ft	
Basic Wind Speed	V	120.7 km/h	75 mi/h	TIA/EIA-222-F.
Force Coeff. x Projected Area	CaAc	5.33 m <sup>2</sup>	57.4 ft <sup>2</sup>	Excludes Mounts
Moment Arm	D1	m	ft	
Force Coeff. x Projected Area	CaAc	m <sup>2</sup>	ft <sup>2</sup>	
Moment Arm	D3	m	ft	
Pole Bury Length	D2	m	ft	
Weight	W	0.7 t	1,450 lbs	Excludes Mounts
Radome				
Antenna designed in accordance with AISC specifications for design of structural steel for building as prescribed by TIA/EIA-222-F.				

NOTE:

Prepared By : **EHM**      Approved By : **AJS**  
 Original Date : **23-May-01**



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Call Letters	<b>WADL-DT</b>	Channel <b>39</b>
Location	<b>Mt. Clemens, MI</b>	
Customer	<b>Adell Broadcasting</b>	
Antenna Type	<b>TFU-30DSC-R S250</b>	

## SYSTEM SUMMARY

### Antenna:

Type:	<b>TFU-30DSC-R S250</b>	ERP:	<b>1000 kW</b>	<b>( 30.00 dBk )</b>
Channel:	<b>39</b>	Gain*:	<b>63.8</b>	<b>( 18.04 dB )</b>
Location:	<b>Mt. Clemens, MI</b>	Input Power:	<b>15.7 kW</b>	<b>( 11.96 dBk )</b>

### Transmission Line:

Type:	<b>EIA/DCA</b>	Attenuation:	<b>0.75 dB</b>
Size:	<b>6-1/8 in</b>	Efficiency:	<b>84.1%</b>
Impedance:	<b>75 ohm</b>		
Length:	<b>613 ft</b>		<b>186.8 m</b>

### Transmitter:

Power Required: **18.6 kW** ( 12.71 dBk )

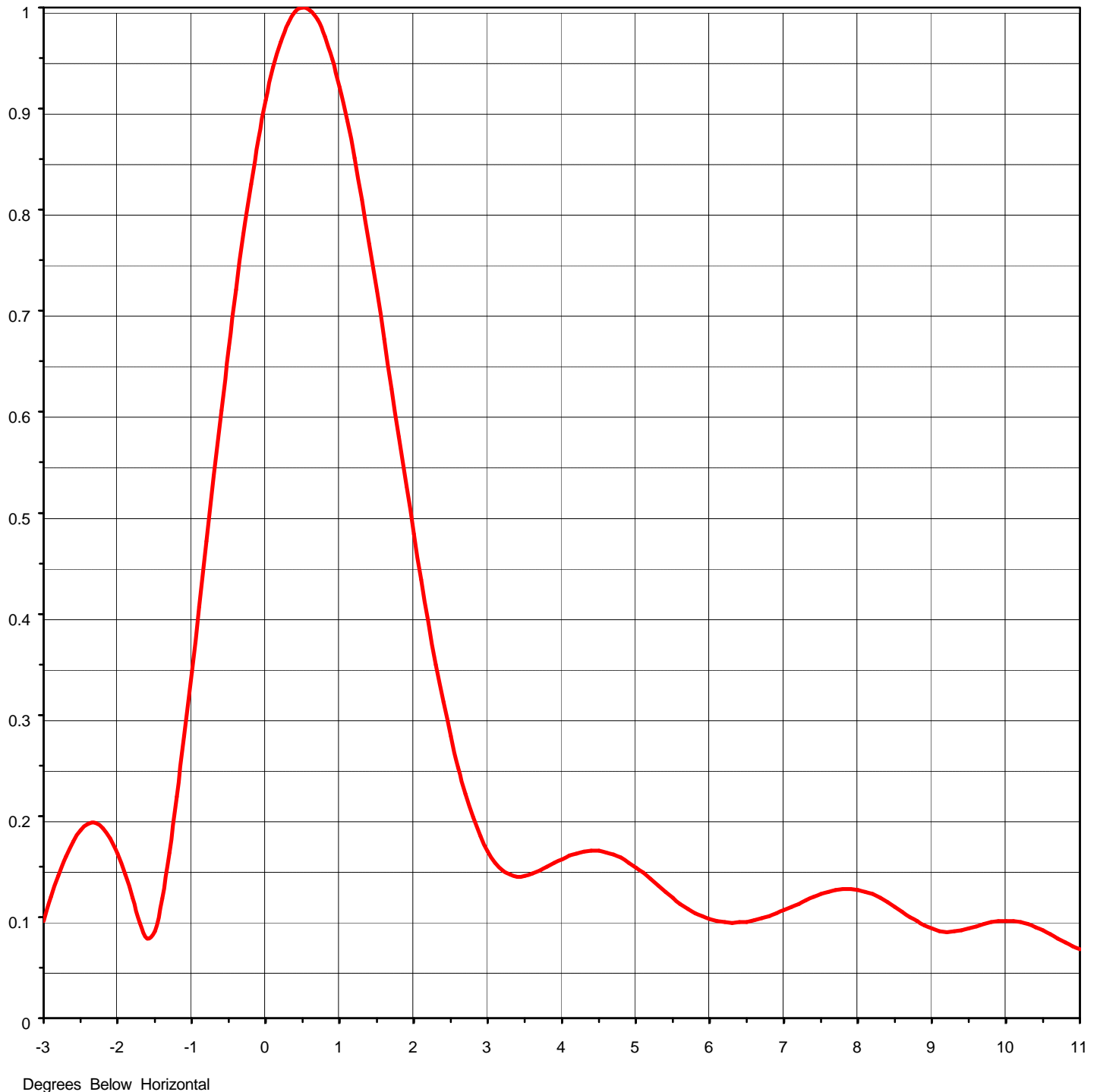
\* Gain is with respect to half wave dipole.



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Customer	<b>Adell Broadcasting</b>		
Antenna Type	<b>TFU-30DSC-R S250</b>		

## ELEVATION PATTERN

RMS Gain at Main Lobe	<b>25.50 ( 14.07 dB )</b>	Beam Tilt	<b>0.50 deg</b>
RMS Gain at Horizontal	<b>21.00 ( 13.22 dB )</b>	Frequency	<b>623.00 MHz</b>
Calculated / Measured	<b>Calculated</b>	Drawing #	<b>30Q255050</b>



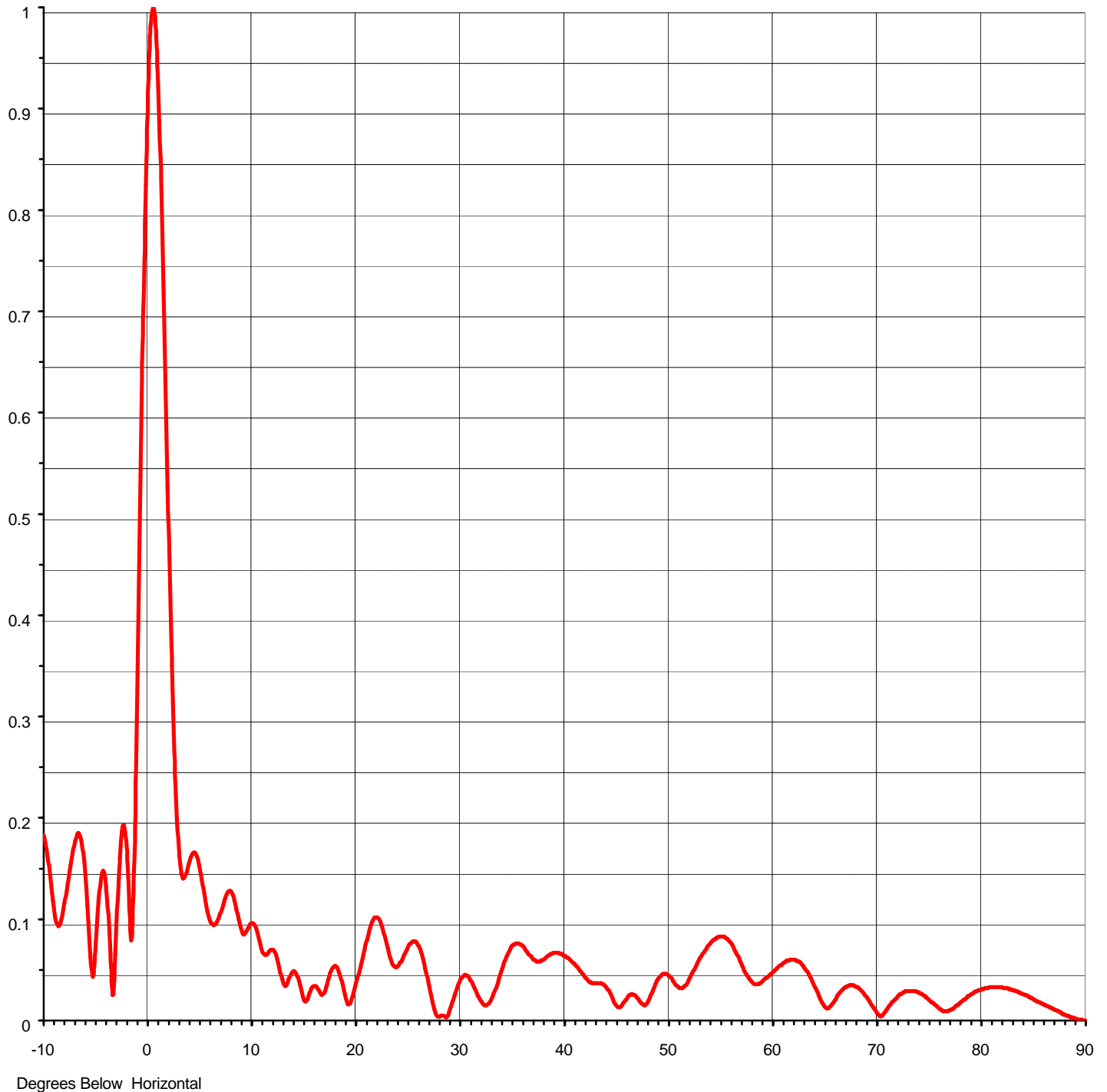


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Customer	<b>Adell Broadcasting</b>		
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## ELEVATION PATTERN

RMS Gain at Main Lobe	<b>25.50 ( 14.07 dB )</b>
RMS Gain at Horizontal	<b>21.00 ( 13.22 dB )</b>
Calculated / Measured	<b>Calculated</b>

Beam Tilt	<b>0.50 deg</b>
Frequency	<b>623.00 MHz</b>
Drawing #	<b>30Q255050-90</b>





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 Location **Mt. Clemens, MI**  
 Customer **Adell Broadcasting**  
 Antenna Type **TFU-30DSC-R S250**

## TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing #: **30Q255050-90**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.183	2.4	0.313	10.6	0.087	30.5	0.045	51.0	0.033	71.5	0.019
-9.5	0.153	2.6	0.248	10.8	0.079	31.0	0.041	51.5	0.033	72.0	0.024
-9.0	0.110	2.8	0.199	11.0	0.071	31.5	0.031	52.0	0.040	72.5	0.028
-8.5	0.094	3.0	0.165	11.5	0.065	32.0	0.020	52.5	0.050	73.0	0.029
-8.0	0.116	3.2	0.146	12.0	0.070	32.5	0.015	53.0	0.060	73.5	0.029
-7.5	0.148	3.4	0.140	12.5	0.061	33.0	0.020	53.5	0.068	74.0	0.027
-7.0	0.177	3.6	0.143	13.0	0.040	33.5	0.032	54.0	0.075	74.5	0.024
-6.5	0.182	3.8	0.150	13.5	0.037	34.0	0.048	54.5	0.080	75.0	0.020
-6.0	0.143	4.0	0.157	14.0	0.048	34.5	0.063	55.0	0.083	75.5	0.016
-5.5	0.063	4.2	0.163	14.5	0.042	35.0	0.073	55.5	0.082	76.0	0.011
-5.0	0.076	4.4	0.166	15.0	0.023	35.5	0.076	56.0	0.077	76.5	0.009
-4.5	0.140	4.6	0.164	15.5	0.024	36.0	0.074	56.5	0.068	77.0	0.010
-4.0	0.132	4.8	0.159	16.0	0.034	36.5	0.068	57.0	0.057	77.5	0.014
-3.5	0.043	5.0	0.149	16.5	0.030	37.0	0.061	57.5	0.046	78.0	0.018
-3.0	0.096	5.2	0.138	17.0	0.027	37.5	0.058	58.0	0.039	78.5	0.022
-2.8	0.141	5.4	0.125	17.5	0.043	38.0	0.060	58.5	0.036	79.0	0.026
-2.6	0.175	5.6	0.113	18.0	0.054	38.5	0.064	59.0	0.038	79.5	0.029
-2.4	0.192	5.8	0.104	18.5	0.046	39.0	0.067	59.5	0.042	80.0	0.031
-2.2	0.188	6.0	0.098	19.0	0.026	39.5	0.067	60.0	0.047	80.5	0.032
-2.0	0.163	6.2	0.095	19.5	0.017	40.0	0.064	60.5	0.052	81.0	0.033
-1.8	0.119	6.4	0.095	20.0	0.034	40.5	0.061	61.0	0.056	81.5	0.033
-1.6	0.079	6.6	0.097	20.5	0.053	41.0	0.056	61.5	0.059	82.0	0.033
-1.4	0.118	6.8	0.101	21.0	0.075	41.5	0.050	62.0	0.060	82.5	0.032
-1.2	0.219	7.0	0.107	21.5	0.094	42.0	0.043	62.5	0.058	83.0	0.030
-1.0	0.342	7.2	0.113	22.0	0.102	42.5	0.038	63.0	0.054	83.5	0.028
-0.8	0.472	7.4	0.120	22.5	0.095	43.0	0.037	63.5	0.046	84.0	0.026
-0.6	0.601	7.6	0.125	23.0	0.076	43.5	0.037	64.0	0.036	84.5	0.024
-0.4	0.721	7.8	0.128	23.5	0.058	44.0	0.034	64.5	0.022	85.0	0.021
-0.2	0.825	8.0	0.127	24.0	0.053	44.5	0.026	65.0	0.013	85.5	0.018
0.0	0.908	8.2	0.123	24.5	0.060	45.0	0.016	65.5	0.014	86.0	0.016
0.2	0.966	8.4	0.115	25.0	0.071	45.5	0.014	66.0	0.021	86.5	0.013
0.4	0.996	8.6	0.105	25.5	0.078	46.0	0.021	66.5	0.029	87.0	0.011
0.6	0.997	8.8	0.096	26.0	0.075	46.5	0.026	67.0	0.033	87.5	0.008
0.8	0.971	9.0	0.089	26.5	0.061	47.0	0.023	67.5	0.035	88.0	0.006
1.0	0.921	9.2	0.085	27.0	0.038	47.5	0.017	68.0	0.033	88.5	0.004
1.2	0.851	9.4	0.087	27.5	0.015	48.0	0.017	68.5	0.029	89.0	0.002
1.4	0.766	9.6	0.091	28.0	0.004	48.5	0.028	69.0	0.023	89.5	0.001
1.6	0.672	9.8	0.093	28.5	0.005	49.0	0.040	69.5	0.015	90.0	0.000
1.8	0.575	10.0	0.096	29.0	0.008	49.5	0.046	70.0	0.007		
2.0	0.479	10.2	0.096	29.5	0.024	50.0	0.045	70.5	0.005		
2.2	0.391	10.4	0.093	30.0	0.038	50.5	0.039	71.0	0.012		



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Date

**23-May-01**

Call Letters

**WADL-DT**

Channel

**39**

Location

**Mt. Clemens, MI**

Customer

**Adell Broadcasting**

Antenna Type

**TFU-30DSC-R S250**

## AZIMUTH PATTERN

Gain

**2.50**

**( 3.98 dB)**

Calculated / Measured

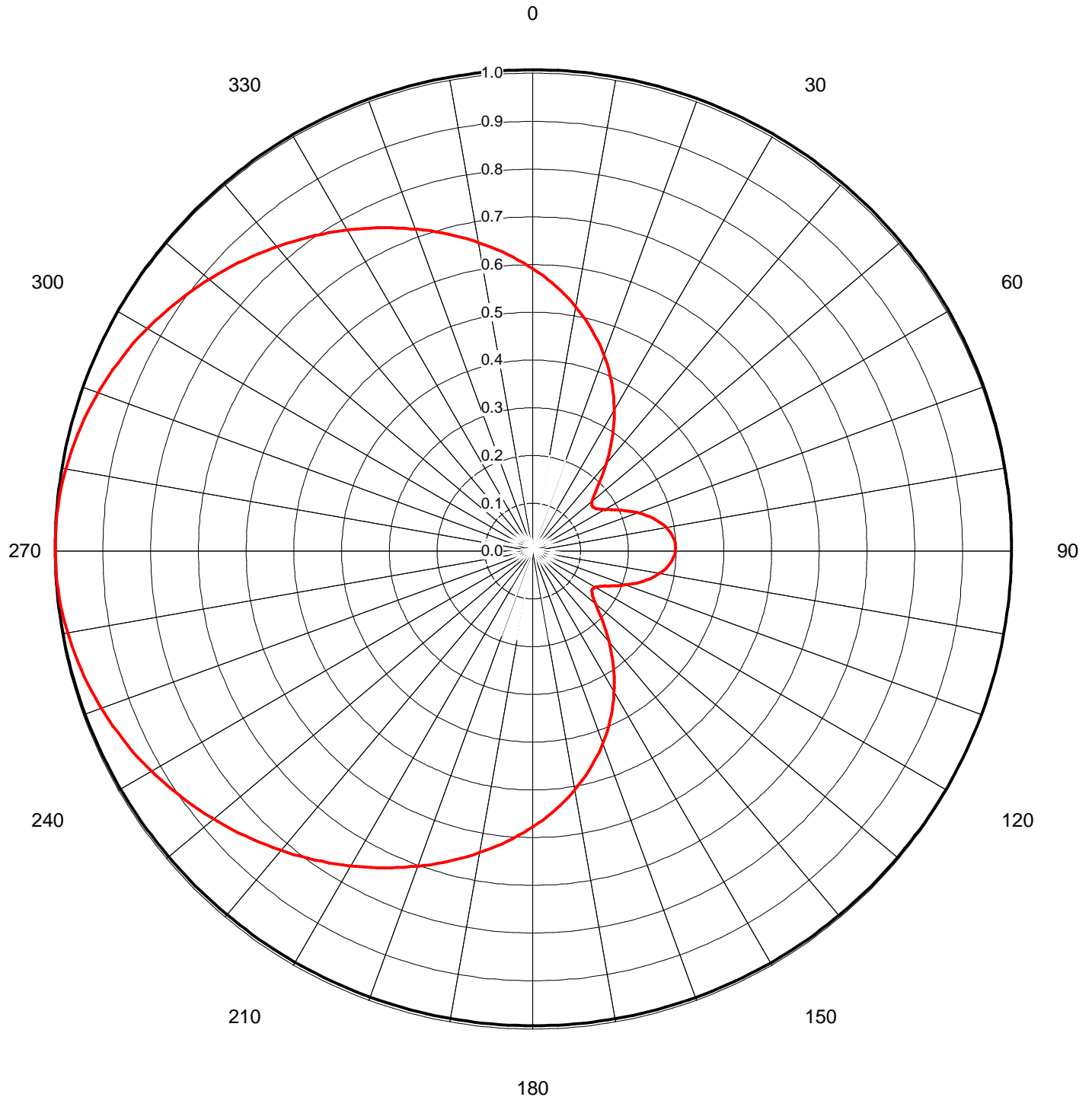
**Calculated**

Frequency

**623.00 MHz**

Drawing #

**TFU-S250-39**





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## TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing #: **TFU-S250-39**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.583	45	0.197	90	0.297	135	0.197	180	0.583	225	0.852	270	1.000	315	0.852
1	0.576	46	0.189	91	0.297	136	0.205	181	0.590	226	0.858	271	1.000	316	0.847
2	0.569	47	0.182	92	0.296	137	0.213	182	0.596	227	0.863	272	1.000	317	0.842
3	0.562	48	0.175	93	0.295	138	0.222	183	0.603	228	0.868	273	0.999	318	0.836
4	0.555	49	0.169	94	0.294	139	0.231	184	0.609	229	0.874	274	0.999	319	0.831
5	0.548	50	0.164	95	0.292	140	0.241	185	0.616	230	0.879	275	0.998	320	0.825
6	0.541	51	0.159	96	0.290	141	0.250	186	0.622	231	0.884	276	0.997	321	0.820
7	0.534	52	0.155	97	0.287	142	0.260	187	0.629	232	0.889	277	0.995	322	0.814
8	0.527	53	0.153	98	0.284	143	0.270	188	0.635	233	0.894	278	0.994	323	0.808
9	0.519	54	0.151	99	0.280	144	0.279	189	0.641	234	0.899	279	0.993	324	0.803
10	0.512	55	0.151	100	0.276	145	0.289	190	0.648	235	0.904	280	0.991	325	0.797
11	0.504	56	0.151	101	0.272	146	0.299	191	0.654	236	0.908	281	0.989	326	0.791
12	0.496	57	0.152	102	0.267	147	0.309	192	0.660	237	0.913	282	0.987	327	0.785
13	0.488	58	0.154	103	0.262	148	0.319	193	0.666	238	0.918	283	0.985	328	0.780
14	0.480	59	0.158	104	0.257	149	0.328	194	0.673	239	0.922	284	0.983	329	0.774
15	0.472	60	0.161	105	0.251	150	0.338	195	0.679	240	0.927	285	0.980	330	0.768
16	0.464	61	0.166	106	0.246	151	0.348	196	0.685	241	0.931	286	0.978	331	0.762
17	0.456	62	0.170	107	0.239	152	0.357	197	0.691	242	0.935	287	0.975	332	0.756
18	0.448	63	0.176	108	0.233	153	0.367	198	0.697	243	0.939	288	0.972	333	0.751
19	0.439	64	0.182	109	0.227	154	0.376	199	0.703	244	0.944	289	0.969	334	0.745
20	0.430	65	0.188	110	0.220	155	0.385	200	0.709	245	0.947	290	0.966	335	0.739
21	0.422	66	0.194	111	0.214	156	0.395	201	0.715	246	0.951	291	0.962	336	0.733
22	0.413	67	0.201	112	0.207	157	0.404	202	0.721	247	0.955	292	0.959	337	0.727
23	0.404	68	0.207	113	0.201	158	0.413	203	0.727	248	0.959	293	0.955	338	0.721
24	0.395	69	0.214	114	0.194	159	0.422	204	0.733	249	0.962	294	0.951	339	0.715
25	0.385	70	0.220	115	0.188	160	0.430	205	0.739	250	0.966	295	0.947	340	0.709
26	0.376	71	0.227	116	0.182	161	0.439	206	0.745	251	0.969	296	0.944	341	0.703
27	0.367	72	0.233	117	0.176	162	0.448	207	0.751	252	0.972	297	0.939	342	0.697
28	0.357	73	0.239	118	0.170	163	0.456	208	0.756	253	0.975	298	0.935	343	0.691
29	0.348	74	0.246	119	0.166	164	0.464	209	0.762	254	0.978	299	0.931	344	0.685
30	0.338	75	0.251	120	0.161	165	0.472	210	0.768	255	0.980	300	0.927	345	0.679
31	0.328	76	0.257	121	0.158	166	0.480	211	0.774	256	0.983	301	0.922	346	0.673
32	0.319	77	0.262	122	0.154	167	0.488	212	0.780	257	0.985	302	0.918	347	0.666
33	0.309	78	0.267	123	0.152	168	0.496	213	0.786	258	0.987	303	0.913	348	0.660
34	0.299	79	0.272	124	0.151	169	0.504	214	0.791	259	0.989	304	0.908	349	0.654
35	0.289	80	0.276	125	0.151	170	0.512	215	0.797	260	0.991	305	0.904	350	0.648
36	0.279	81	0.280	126	0.151	171	0.519	216	0.803	261	0.993	306	0.899	351	0.641
37	0.270	82	0.284	127	0.153	172	0.527	217	0.808	262	0.994	307	0.894	352	0.635
38	0.260	83	0.287	128	0.155	173	0.534	218	0.814	263	0.995	308	0.889	353	0.629
39	0.250	84	0.290	129	0.159	174	0.541	219	0.820	264	0.997	309	0.884	354	0.622
40	0.241	85	0.292	130	0.164	175	0.548	220	0.825	265	0.998	310	0.879	355	0.616
41	0.231	86	0.294	131	0.169	176	0.555	221	0.831	266	0.999	311	0.874	356	0.609
42	0.222	87	0.295	132	0.175	177	0.562	222	0.836	267	0.999	312	0.868	357	0.603
43	0.213	88	0.296	133	0.182	178	0.569	223	0.842	268	1.000	313	0.863	358	0.596
44	0.205	89	0.297	134	0.189	179	0.576	224	0.847	269	1.000	314	0.858	359	0.590