

Proposal #:**DCA-9495-1**Antenna Type:**TFU-18GBH-R O8**Channel:**33 DTV**

Call Letters:**WGRZ-DT**Location:**Buffalo, NY**

Electrical Specifications		Value		Remarks	
		Ratio	dB		
RMS Gain at Main Lobe over Halfwave Dipole	Hpol	16.0	12.04		
	Vpol				
RMS Gain at Horizontal over Halfwave Dipole	Hpol	14.3	11.55		
	Vpol				
Peak Directional Gain over Halfwave Dipole	Hpol				
	Vpol				
Peak Directional Gain at Horizontal over Halfwave Dipole	Hpol				
	Vpol				
Circularity		+/- 2.0 dB		Includes effect of T/L to top antenna	
Axial Ratio		dB			
Beam Tilt		0.75 deg			
Average Power	DTV	70 kW	18.45 dBk		
Antenna Input:	T/L	8-3/16 in	75.0 ohm	Type:	EIA/DCA
Maximum Antenna Input VSWR		Channel 1.08 : 1			
Patterns	Azimuth	TFU-O8-33			
	Elevation	18G160075	18G160075-90		
Mechanical Specifications		Metric	English	Preliminary	Full Stack
Height with Lightning Protector	H4	m	ft		104.2 ft
Height Less Lightning Protector	H2	10.2 m	33.5 ft		100.5 ft
Height of Center of Radiation	H3	5.0 m	16.5 ft	Above tower top	67.5 ft Ch: 2
Basic Wind Speed	V	112.7 km/h	70 mi/h	TIA/EIA-222-F.	
Force Coeff. x Projected Area	CaAc	6.37 m²	68.6 ft²	Above tower top	195.5 ft²
Moment Arm	D1	5.1 m	16.7 ft	Above tower top	48.6 ft
Force Coeff. x Projected Area	CaAc	m²	ft²		ft²
Moment Arm	D3	m	ft		ft
Pole Bury Length	D2	m	ft		ft
Weight	W	7.3 t	16,060 lbs		24,960 lbs
Radome					
Antenna designed in accordance with AISC specifications for design of structural steel for building as prescribed by TIA/EIA-222-F.					

NOTE:**Ch d33 supporting a Ch n2 TAB-4LE**

Prepared By :SWBApproved By :AJS

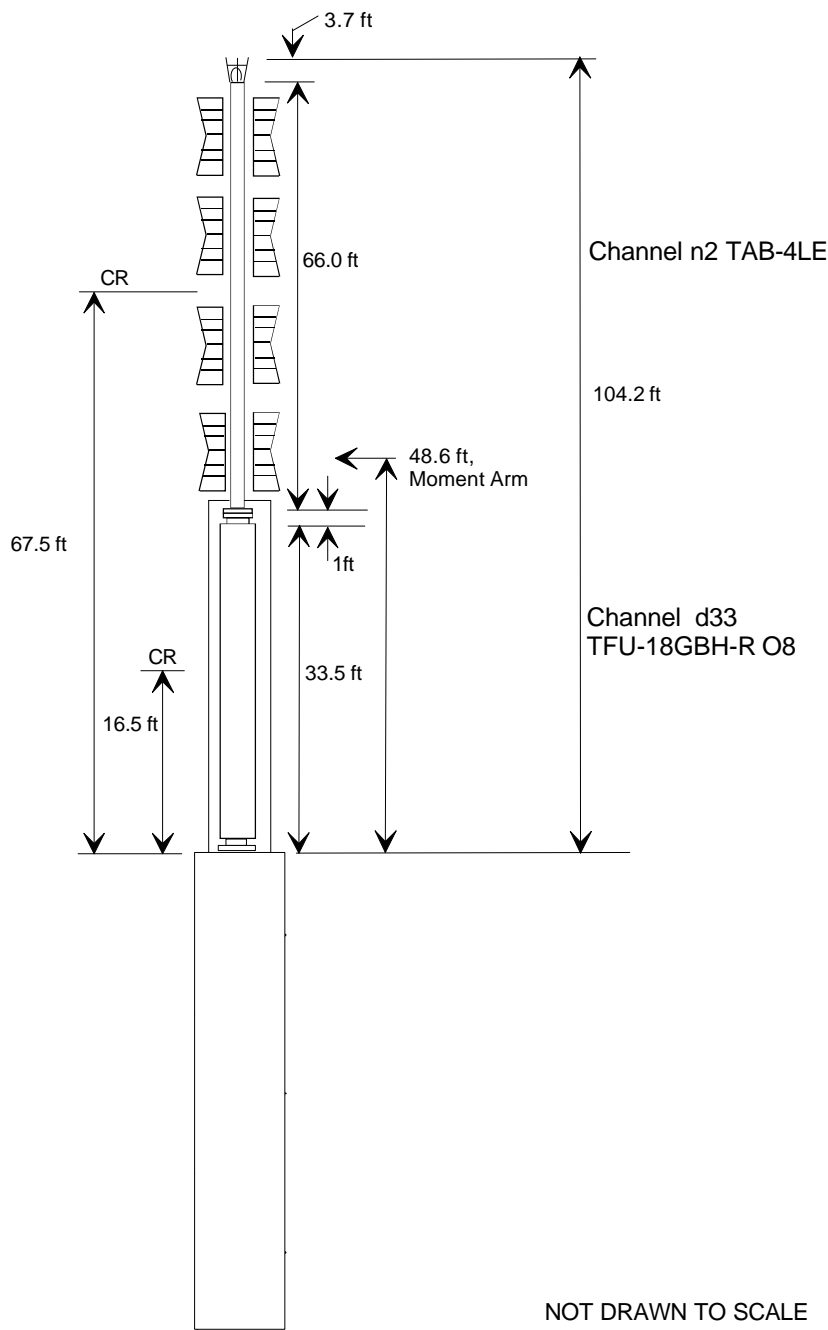
Original Date :25-Jul-01Revision: 1Rev. Date:26-Oct-01

NTSC/DTV ANTENNA STACK
TAB-4LE over TFU-18GBH-R O8
WGRZ: Buffalo, NY

PRELIMINARY MECHANICAL DATA

CaAc = 195.5 ft² Above tower top
Weight = 24,960 lbs

EIA-222-F Specification
(70 mph basic wind speed)



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SYSTEM SUMMARY

Antenna:

Type:	TFU-18GBH-R O8	ERP:	530 kW	(27.24 dBk)
Channel:	33	Gain*:	16.0	(12.04 dB)
Location:	Buffalo, NY	Input Power:	33.1 kW	(15.20 dBk)

Transmission Line:

Type:	EIA/DCA	Attenuation:	1.07 dB
Size:	6-1/8 in	Efficiency:	78.3%
Impedance:	75 ohm		
Length:	900 ft		274.3 m

Transmitter:

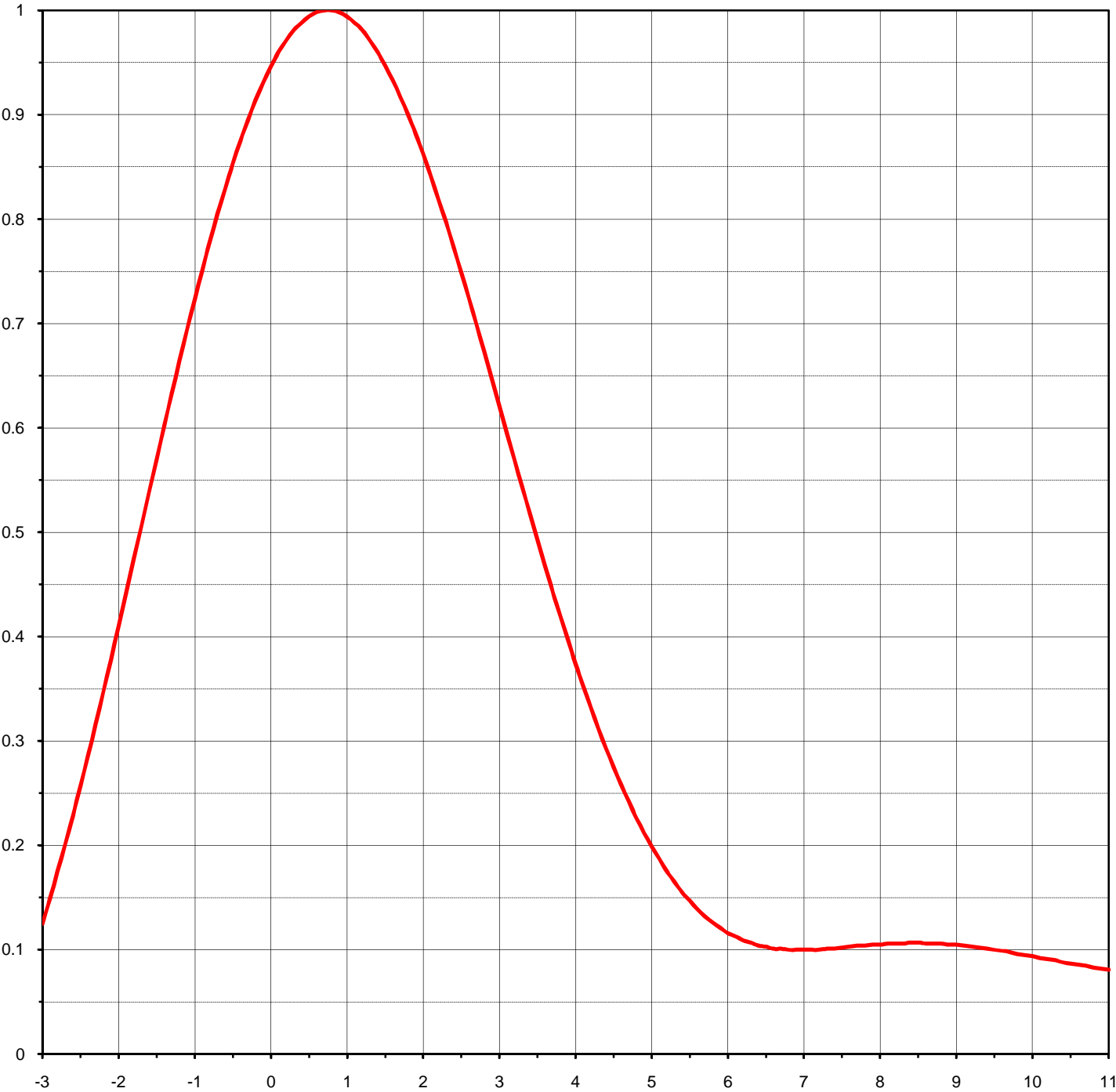
Power Required: **42.3 kW** (16.27 dBk)

* Gain is with respect to half wave dipole.

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ELEVATION PATTERN

RMS Gain at Main Lobe	16.00 (12.04 dB)	Beam Tilt	0.75 deg
RMS Gain at Horizontal	14.30 (11.55 dB)	Frequency	587.00 MHz
Calculated / Measured	Calculated	Drawing #	18G160075

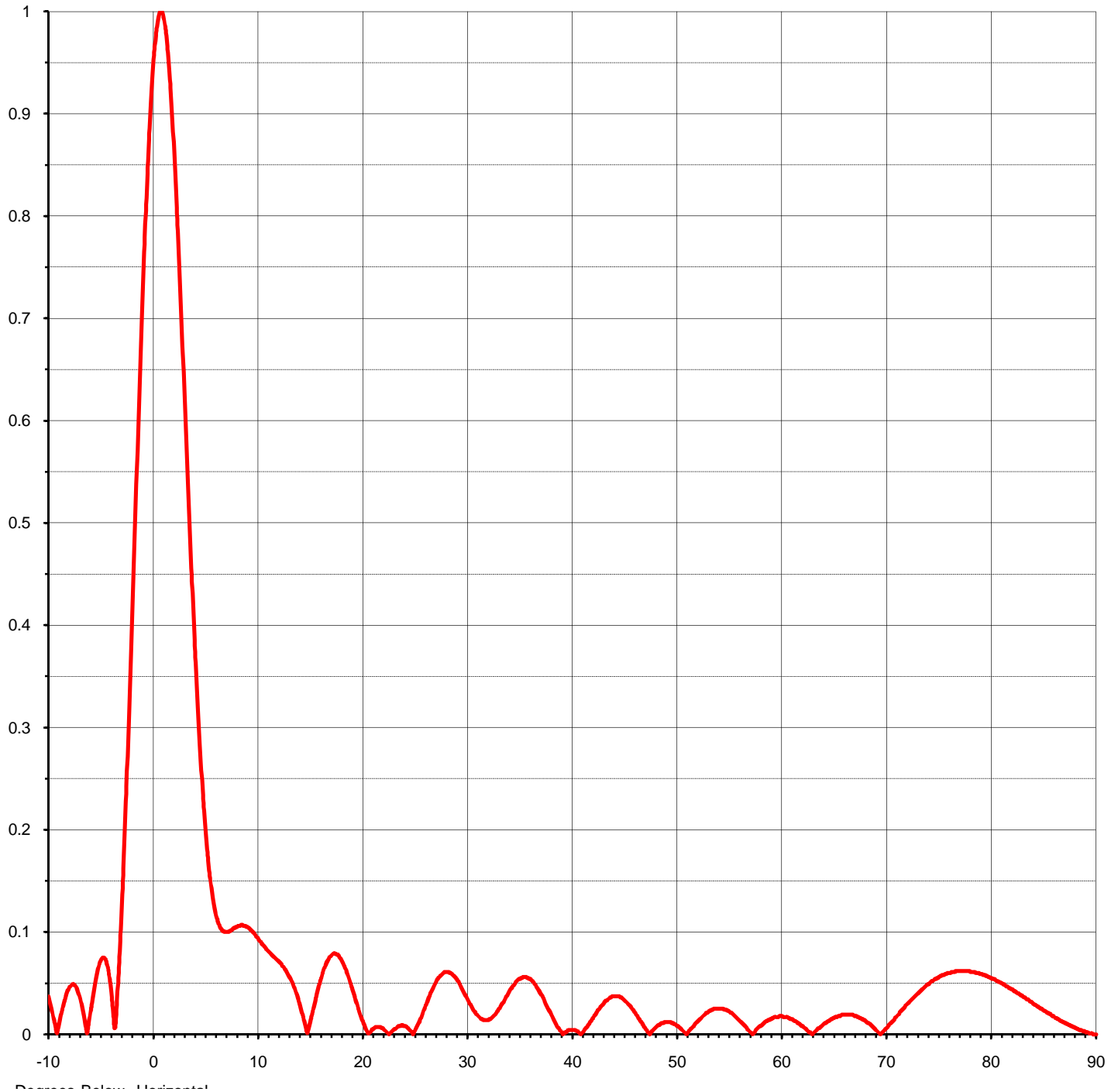


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Customer	WGRZ		
Antenna Type	TFU-18GBH-R 08		

ELEVATION PATTERN

RMS Gain at Main Lobe	16.00 (12.04 dB)
RMS Gain at Horizontal	14.30 (11.55 dB)
Calculated / Measured	Calculated

Beam Tilt	0.75 deg
Frequency	587.00 MHz
Drawing #	18G160075-90



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TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing #: **18G160075-90**

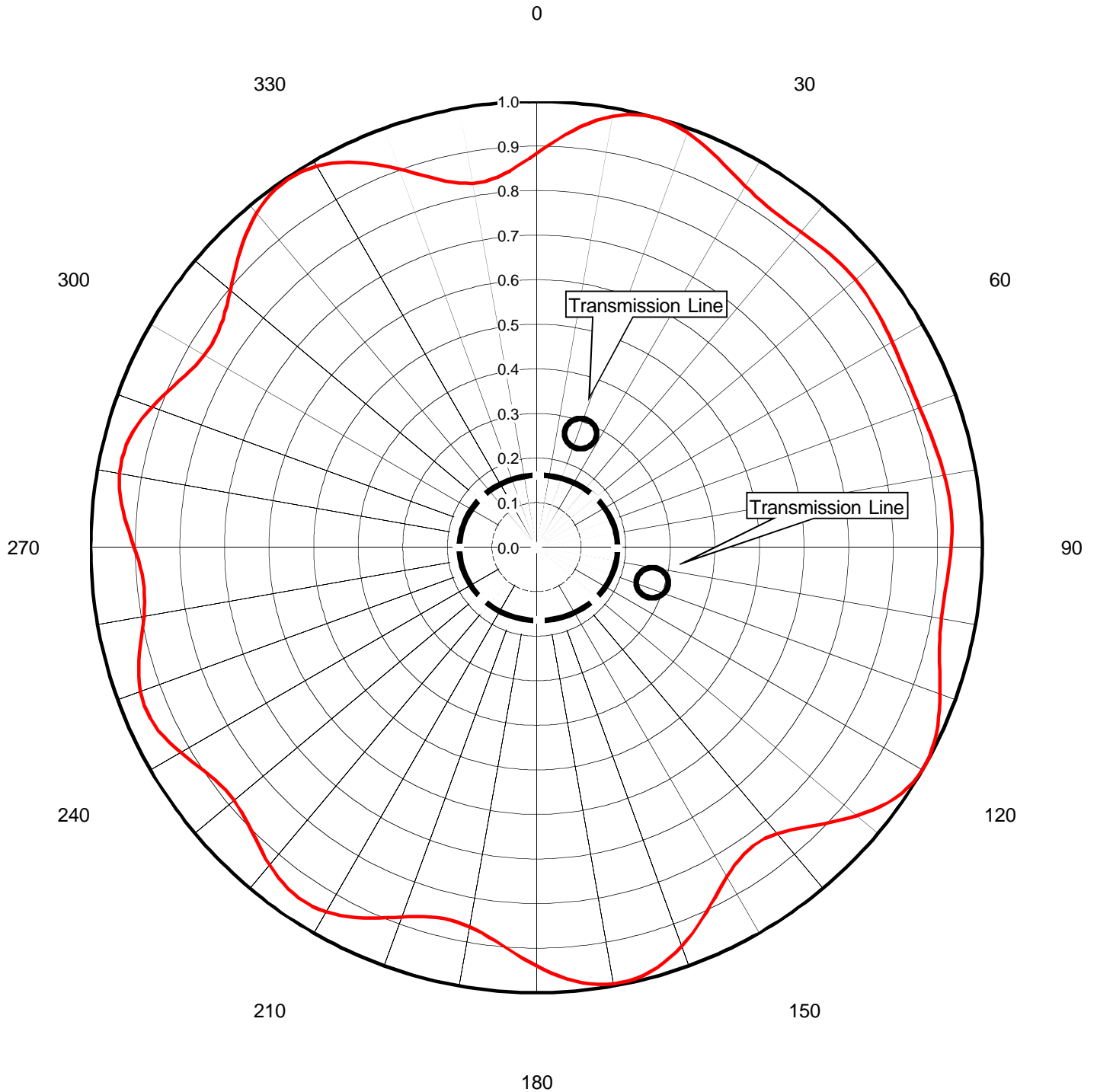
Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.037	2.4	0.773	10.6	0.087	30.5	0.027	51.0	0.000	71.5	0.024
-9.5	0.015	2.6	0.724	10.8	0.085	31.0	0.019	51.5	0.006	72.0	0.030
-9.0	0.009	2.8	0.673	11.0	0.082	31.5	0.015	52.0	0.012	72.5	0.035
-8.5	0.032	3.0	0.621	11.5	0.077	32.0	0.014	52.5	0.017	73.0	0.040
-8.0	0.046	3.2	0.569	12.0	0.072	32.5	0.017	53.0	0.021	73.5	0.045
-7.5	0.048	3.4	0.518	12.5	0.066	33.0	0.023	53.5	0.024	74.0	0.049
-7.0	0.036	3.6	0.468	13.0	0.058	33.5	0.031	54.0	0.025	74.5	0.053
-6.5	0.011	3.8	0.420	13.5	0.047	34.0	0.040	54.5	0.025	75.0	0.056
-6.0	0.021	4.0	0.374	14.0	0.032	34.5	0.048	55.0	0.023	75.5	0.058
-5.5	0.052	4.2	0.332	14.5	0.013	35.0	0.054	55.5	0.019	76.0	0.060
-5.0	0.072	4.4	0.293	15.0	0.008	35.5	0.056	56.0	0.014	76.5	0.061
-4.5	0.072	4.6	0.258	15.5	0.030	36.0	0.054	56.5	0.009	77.0	0.062
-4.0	0.041	4.8	0.226	16.0	0.050	36.5	0.049	57.0	0.003	77.5	0.062
-3.5	0.024	5.0	0.199	16.5	0.066	37.0	0.041	57.5	0.002	78.0	0.061
-3.0	0.125	5.2	0.175	17.0	0.076	37.5	0.031	58.0	0.008	78.5	0.060
-2.8	0.175	5.4	0.155	17.5	0.079	38.0	0.021	58.5	0.012	79.0	0.059
-2.6	0.228	5.6	0.139	18.0	0.074	38.5	0.011	59.0	0.015	79.5	0.057
-2.4	0.286	5.8	0.126	18.5	0.063	39.0	0.003	59.5	0.017	80.0	0.055
-2.2	0.347	6.0	0.116	19.0	0.048	39.5	0.002	60.0	0.018	80.5	0.052
-2.0	0.410	6.2	0.109	19.5	0.031	40.0	0.004	60.5	0.017	81.0	0.050
-1.8	0.474	6.4	0.104	20.0	0.015	40.5	0.003	61.0	0.015	81.5	0.047
-1.6	0.538	6.6	0.101	20.5	0.003	41.0	0.001	61.5	0.012	82.0	0.044
-1.4	0.602	6.8	0.100	21.0	0.005	41.5	0.007	62.0	0.008	82.5	0.040
-1.2	0.664	7.0	0.100	21.5	0.007	42.0	0.015	62.5	0.004	83.0	0.037
-1.0	0.723	7.2	0.100	22.0	0.006	42.5	0.023	63.0	0.000	83.5	0.034
-0.8	0.779	7.4	0.101	22.5	0.001	43.0	0.029	63.5	0.005	84.0	0.030
-0.6	0.829	7.6	0.103	23.0	0.004	43.5	0.034	64.0	0.009	84.5	0.027
-0.4	0.875	7.8	0.104	23.5	0.008	44.0	0.037	64.5	0.013	85.0	0.023
-0.2	0.914	8.0	0.105	24.0	0.008	44.5	0.037	65.0	0.016	85.5	0.020
0.0	0.946	8.2	0.106	24.5	0.005	45.0	0.034	65.5	0.018	86.0	0.017
0.2	0.971	8.4	0.107	25.0	0.002	45.5	0.029	66.0	0.019	86.5	0.014
0.4	0.988	8.6	0.106	25.5	0.012	46.0	0.022	66.5	0.019	87.0	0.011
0.6	0.998	8.8	0.106	26.0	0.025	46.5	0.015	67.0	0.018	87.5	0.009
0.8	1.000	9.0	0.105	26.5	0.038	47.0	0.007	67.5	0.016	88.0	0.006
1.0	0.994	9.2	0.103	27.0	0.049	47.5	0.000	68.0	0.013	88.5	0.004
1.2	0.981	9.4	0.101	27.5	0.057	48.0	0.006	68.5	0.009	89.0	0.002
1.4	0.960	9.6	0.099	28.0	0.061	48.5	0.010	69.0	0.004	89.5	0.001
1.6	0.933	9.8	0.098	28.5	0.060	49.0	0.012	69.5	0.001	90.0	0.000
1.8	0.900	10.0	0.095	29.0	0.055	49.5	0.012	70.0	0.006		
2.0	0.862	10.2	0.092	29.5	0.046	50.0	0.009	70.5	0.012		
2.2	0.819	10.4	0.090	30.0	0.036	50.5	0.005	71.0	0.018		

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AZIMUTH PATTERN

Gain	1.20	(0.79 dB)
Calculated / Measured	Calculated	

Frequency	587.00 MHz
Drawing #	TFU-O8-33



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Antenna Type	TFU-18GBH-R 08		

TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing #: **TFU-O8-33**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.883	45	0.930	90	0.930	135	0.883	180	0.940	225	0.903	270	0.903	315	0.940
1	0.894	46	0.932	91	0.929	136	0.873	181	0.931	226	0.898	271	0.908	316	0.949
2	0.905	47	0.932	92	0.928	137	0.864	182	0.922	227	0.894	272	0.914	317	0.957
3	0.916	48	0.933	93	0.926	138	0.854	183	0.914	228	0.890	273	0.920	318	0.964
4	0.927	49	0.933	94	0.925	139	0.847	184	0.905	229	0.887	274	0.926	319	0.971
5	0.938	50	0.934	95	0.923	140	0.840	185	0.897	230	0.885	275	0.931	320	0.978
6	0.949	51	0.933	96	0.922	141	0.835	186	0.889	231	0.886	276	0.937	321	0.983
7	0.958	52	0.933	97	0.922	142	0.831	187	0.882	232	0.886	277	0.941	322	0.988
8	0.967	53	0.932	98	0.921	143	0.829	188	0.875	233	0.888	278	0.945	323	0.991
9	0.975	54	0.931	99	0.922	144	0.828	189	0.870	234	0.890	279	0.947	324	0.994
10	0.982	55	0.929	100	0.922	145	0.830	190	0.865	235	0.895	280	0.950	325	0.995
11	0.987	56	0.928	101	0.924	146	0.831	191	0.862	236	0.899	281	0.951	326	0.996
12	0.993	57	0.926	102	0.926	147	0.836	192	0.860	237	0.904	282	0.951	327	0.995
13	0.996	58	0.924	103	0.929	148	0.840	193	0.859	238	0.910	283	0.950	328	0.994
14	0.999	59	0.923	104	0.932	149	0.847	194	0.859	239	0.916	284	0.948	329	0.990
15	0.999	60	0.921	105	0.936	150	0.854	195	0.861	240	0.922	285	0.945	330	0.987
16	1.000	61	0.919	106	0.940	151	0.863	196	0.863	241	0.928	286	0.941	331	0.981
17	0.998	62	0.918	107	0.946	152	0.872	197	0.868	242	0.933	287	0.936	332	0.976
18	0.997	63	0.917	108	0.951	153	0.882	198	0.872	243	0.938	288	0.931	333	0.969
19	0.993	64	0.915	109	0.957	154	0.892	199	0.878	244	0.942	289	0.925	334	0.961
20	0.990	65	0.915	110	0.963	155	0.903	200	0.883	245	0.945	290	0.918	335	0.953
21	0.985	66	0.914	111	0.969	156	0.913	201	0.890	246	0.948	291	0.911	336	0.944
22	0.980	67	0.914	112	0.975	157	0.924	202	0.897	247	0.948	292	0.904	337	0.934
23	0.975	68	0.914	113	0.980	158	0.934	203	0.904	248	0.949	293	0.897	338	0.924
24	0.969	69	0.914	114	0.985	159	0.943	204	0.912	249	0.947	294	0.890	339	0.913
25	0.963	70	0.915	115	0.990	160	0.953	205	0.918	250	0.946	295	0.884	340	0.903
26	0.957	71	0.916	116	0.994	161	0.961	206	0.925	251	0.942	296	0.877	341	0.893
27	0.951	72	0.917	117	0.996	162	0.969	207	0.931	252	0.938	297	0.872	342	0.882
28	0.946	73	0.918	118	0.999	163	0.976	208	0.937	253	0.933	298	0.867	343	0.873
29	0.941	74	0.919	119	0.999	164	0.982	209	0.941	254	0.928	299	0.864	344	0.863
30	0.936	75	0.921	120	1.000	165	0.986	210	0.945	255	0.922	300	0.861	345	0.855
31	0.932	76	0.923	121	0.998	166	0.991	211	0.948	256	0.916	301	0.860	346	0.847
32	0.928	77	0.924	122	0.996	167	0.993	212	0.950	257	0.910	302	0.859	347	0.841
33	0.926	78	0.926	123	0.992	168	0.995	213	0.951	258	0.904	303	0.860	348	0.835
34	0.924	79	0.928	124	0.988	169	0.996	214	0.951	259	0.899	304	0.862	349	0.832
35	0.922	80	0.929	125	0.982	170	0.996	215	0.950	260	0.894	305	0.866	350	0.829
36	0.921	81	0.931	126	0.975	171	0.994	216	0.948	261	0.891	306	0.870	351	0.829
37	0.921	82	0.932	127	0.967	172	0.991	217	0.945	262	0.887	307	0.875	352	0.829
38	0.922	83	0.933	128	0.958	173	0.987	218	0.941	263	0.886	308	0.881	353	0.832
39	0.922	84	0.933	129	0.948	174	0.983	219	0.936	264	0.885	309	0.889	354	0.835
40	0.923	85	0.934	130	0.938	175	0.977	220	0.931	265	0.886	310	0.896	355	0.841
41	0.925	86	0.934	131	0.927	176	0.971	221	0.926	266	0.887	311	0.905	356	0.846
42	0.926	87	0.933	132	0.916	177	0.964	222	0.920	267	0.890	312	0.913	357	0.855
43	0.928	88	0.933	133	0.905	178	0.957	223	0.914	268	0.893	313	0.922	358	0.863
44	0.929	89	0.932	134	0.894	179	0.948	224	0.908	269	0.898	314	0.931	359	0.873