Dielectric

Proposal #: **C-02707-1** Antenna Type: **TFU-21JTH-R 4C300** Channel: **36 DTV**

Call Letters: **WYTV-DT** Location: **Youngstown, OH**

Electrical Specifications		**Value** Ratio	**Value** dBd	**Remarks**
RMS Gain at Main Lobe over Halfwave Dipole	Hpol	19.0	12.79	
	Vpol			
RMS Gain at Horizontal over Halfwave Dipole	Hpol	17.0	12.30	
	Vpol			
Peak Directional Gain over Halfwave Dipole	Hpol	57.0	17.56	
	Vpol			
Peak Directional Gain at Horizontal over Halfwave Dipole	Hpol	51.0	17.08	
	Vpol			
Circularity Directional		dB		
Axial Ratio		dB		
Beam Tilt		0.50 deg		
Average Power DTV		19 kW	12.79 dBk	
Antenna Input: T/L		3-1/8 in	50.0 ohm	Type: EIA/DCA
Maximum Antenna Input VSWR		Channel	1.08 : 1	Notes: 5 psi dry air or Nitrogen required.
Patterns	Azimuth	TFU-4C300		
	Elevation	21J190050	21J190050-90	

Mechanical Specifications		**Metric**	**English**	**Preliminary**
Height with Lightning Protector	H4	12.5 m	41.0 ft	
Height Less Lightning Protector	H2	11.3 m	37.0 ft	TIA/EIA-222-F.
Height of Center of Radiation	H3	6.0 m	18.5 ft	
Basic Wind Speed	V	128.7 km/h	80 mi/h	
Force Coeff. x Projected Area	CaAc	3.2 m²	34.3 ft²	Above base flange
Moment Arm	D1	6.3 m	20.7 ft	Above base flange
Force Coeff. x Projected Area	CaAc	m²	ft²	
Moment Arm	D3	m	ft	
Pole Bury Length	D2	m	ft	
Weight	W	1.7 t	3,700 lbs	
Radome				

Antenna designed in accordance with AISC specifications for design of structural steel for building as prescribed by TIA/EIA-222-F.

Digitally signed by jls DN: CN = jls, C = US Date: 2008.06.16 11:43:40 -04'00'

NOTE:

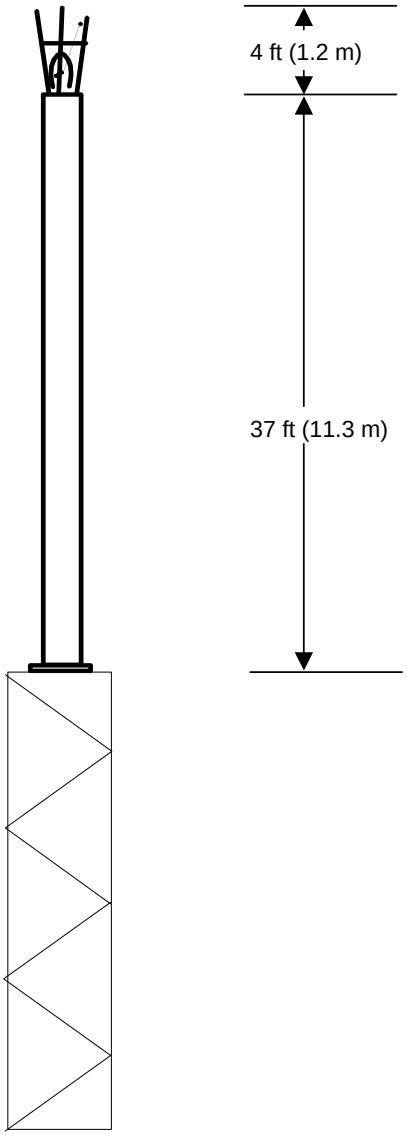
Prepared By : SWB Steve Brower Digitally signed by Steve Brower DN: CN = Steve Brower, C = US, OU = Dielectric Date: 2008.06.16 09:38:41 -04'00' Approved By : JLS

Original Date : 13-Jun-08 **Revision: 1** **Rev. Date: 16-Jun-08** SWB

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Proposal #:	C-02707-1	Antenna Type:	TFU-21JTH-R 4C300	Channel:	36 DTV
Call Letters:	WYTV-DT	Location:	Youngstown, OH		



Mechanical Specifications
TIA/EIA-222-F. @ 80 mi/h (128.7 km/h)

CaAc = 34.3 ft²(3.2 m²)
D1 = 20.7 ft(6.31 m)
W = 3700 lbs(1.7 t)

TFU-21JTH-R 4C300
Channel: D36

SWB-080616-6

Not to Scale

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Proposal Number	**C-02707**	Revision:	**1**
Date	**16-Jun-08**		
Call Letters	**WYTV-DT**	Channel	**36**
Location	**Youngstown, OH**		
Customer			
Antenna Type	**TFU-21JTH-R 4C300**		

SYSTEM SUMMARY

Antenna:

			H Pol	
Type:	**TFU-21JTH-R 4C300**	ERP:	**1000 kW**	**(30.00 dBk)**
Channel:	**36**	Peak Gain*:	**57.0**	**(17.56 dB)**
Location:	**Youngstown, OH**	Input Power:	**17.5 kW**	**(12.44 dBk)**

Transmission Line:

Type:	**EIA/DCA**	Attenuation:		**1.08 dB**
Size:	**4-1/16 in**	Efficiency:	**78.0%**	
Impedance:	**50 ohm**			
Length:	**650 ft**	**198.1 m**		

Transmitter:

Power Required: **22.5 kW** **(13.52 dBk)**

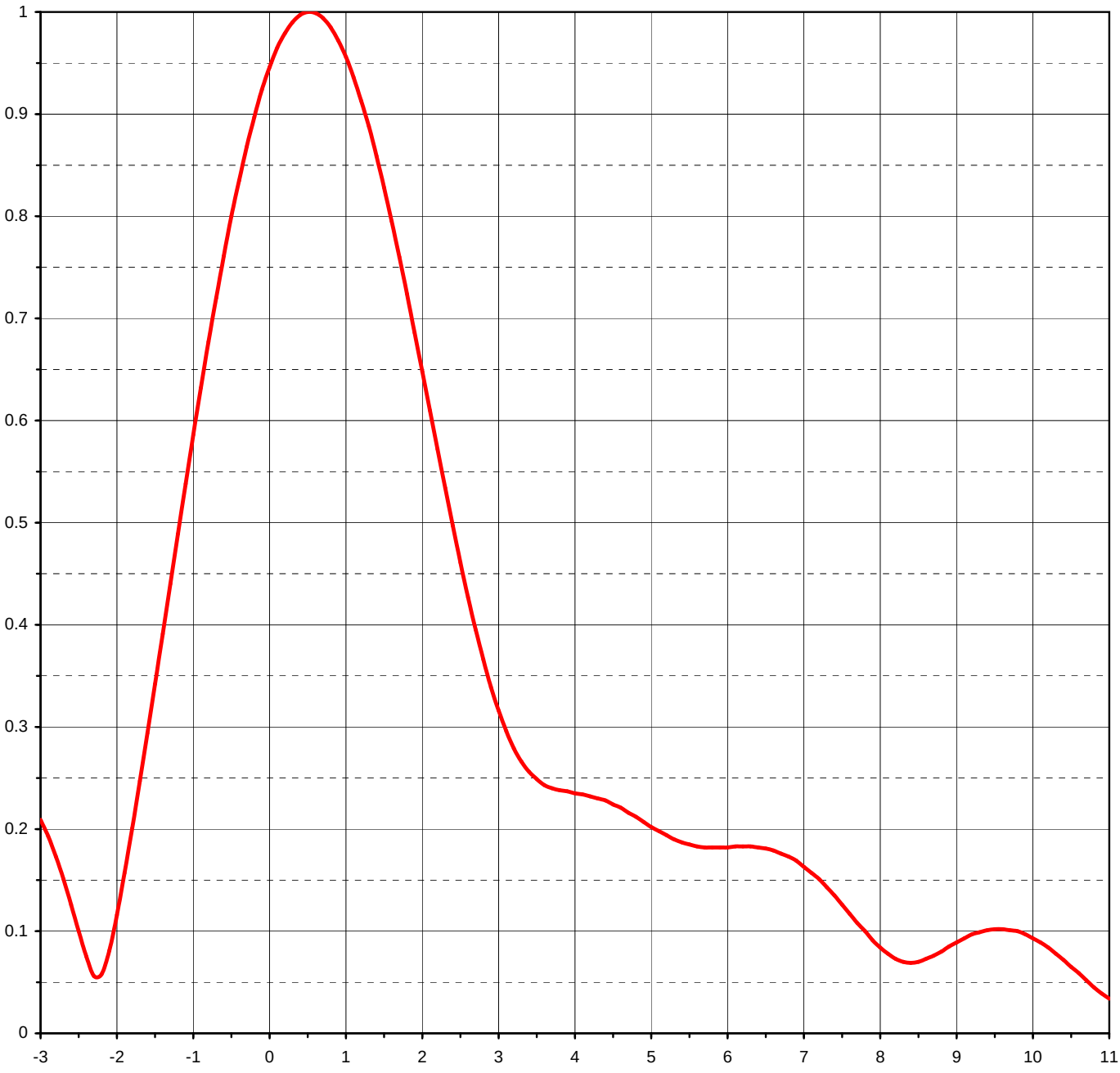
* Gain is with respect to half wave dipole.

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Date	**16-Jun-08**		
Call Letters	**WYTV-DT**	Channel	**36**
Location	**Youngstown, OH**		
Customer			
Antenna Type	**TFU-21JTH-R 4C300**		

ELEVATION PATTERN

RMS Gain at Main Lobe	**19.00 (12.79 dB)**	Beam Tilt	**0.50 deg**
RMS Gain at Horizontal	**17.00 (12.30 dB)**	Frequency	**605.00 MHz**
Calculated / Measured	**Calculated**	Drawing #	**21J190050**



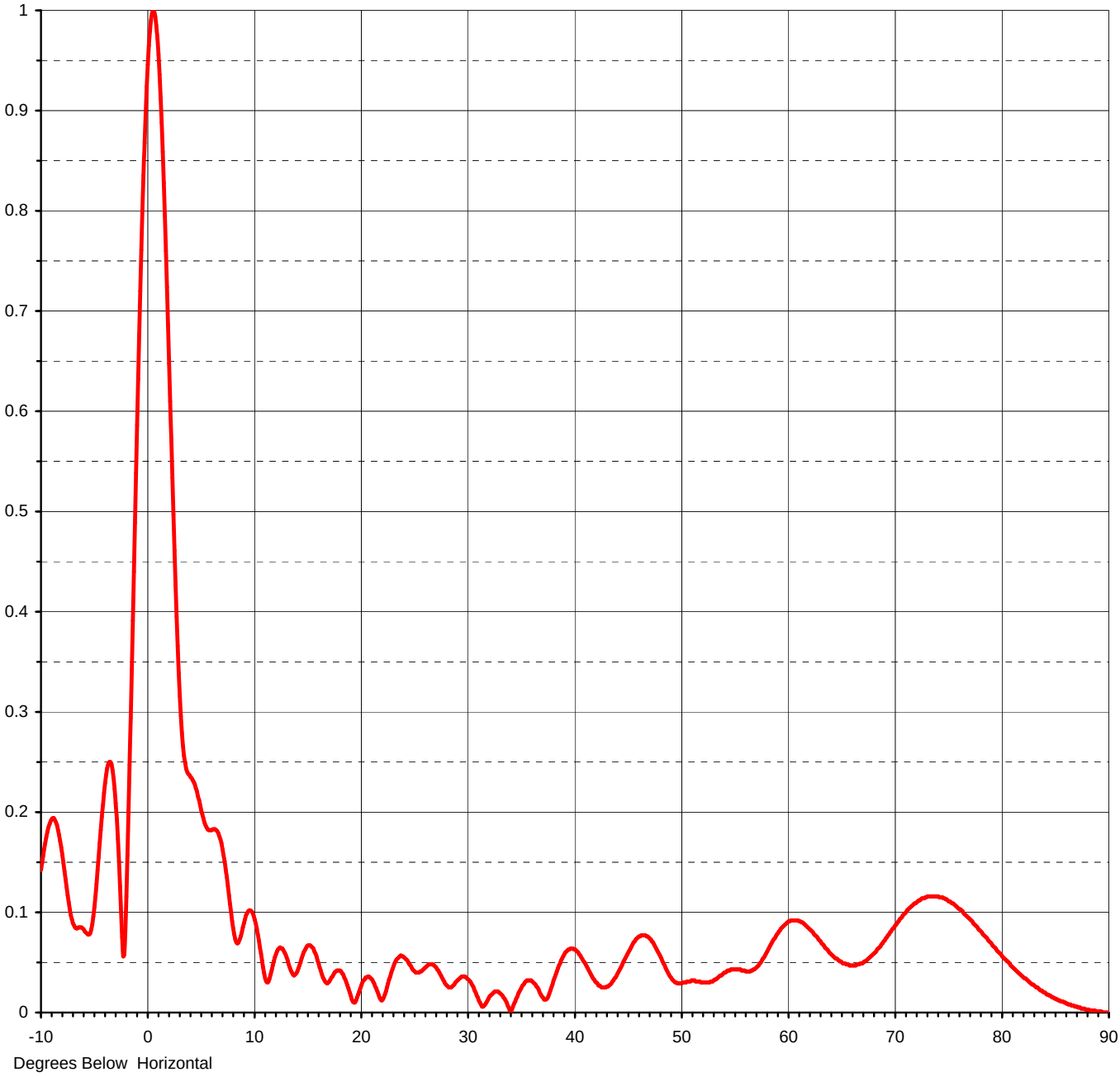
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Date	**16-Jun-08**		
Call Letters	**WYTV-DT**	Channel	**36**
Location	**Youngstown, OH**		
Customer			
Antenna Type	**TFU-21JTH-R 4C300**		

ELEVATION PATTERN

RMS Gain at Main Lobe	**19.00 (12.79 dB)**	Beam Tilt	**0.50 deg**
RMS Gain at Horizontal	**17.00 (12.30 dB)**	Frequency	**605.00 MHz**
Calculated / Measured	**Calculated**	Drawing #	**21J190050-90**



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Proposal Number	**C-02707**	Revision:	**1**
Date	**16-Jun-08**		
Call Letters	**WYTV-DT**	Channel	**36**
Location	**Youngstown, OH**		
Customer			
Antenna Type	**TFU-21JTH-R 4C300**		

TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing #: **21J190050-90**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.142	2.4	0.497	10.6	0.065	30.5	0.027	51.0	0.032	71.5	0.106
-9.5	0.175	2.6	0.427	10.8	0.052	31.0	0.015	51.5	0.031	72.0	0.110
-9.0	0.193	2.8	0.366	11.0	0.039	31.5	0.006	52.0	0.030	72.5	0.114
-8.5	0.187	3.0	0.316	11.5	0.034	32.0	0.014	52.5	0.030	73.0	0.116
-8.0	0.157	3.2	0.279	12.0	0.055	32.5	0.020	53.0	0.031	73.5	0.116
-7.5	0.117	3.4	0.256	12.5	0.065	33.0	0.020	53.5	0.035	74.0	0.116
-7.0	0.089	3.6	0.243	13.0	0.058	33.5	0.014	54.0	0.039	74.5	0.114
-6.5	0.085	3.8	0.238	13.5	0.042	34.0	0.002	54.5	0.042	75.0	0.111
-6.0	0.083	4.0	0.235	14.0	0.039	34.5	0.011	55.0	0.043	75.5	0.108
-5.5	0.078	4.2	0.232	14.5	0.054	35.0	0.023	55.5	0.043	76.0	0.103
-5.0	0.105	4.4	0.228	15.0	0.066	35.5	0.031	56.0	0.042	76.5	0.098
-4.5	0.169	4.6	0.221	15.5	0.065	36.0	0.032	56.5	0.041	77.0	0.093
-4.0	0.229	4.8	0.212	16.0	0.052	36.5	0.026	57.0	0.044	77.5	0.087
-3.5	0.250	5.0	0.202	16.5	0.035	37.0	0.016	57.5	0.050	78.0	0.081
-3.0	0.209	5.2	0.194	17.0	0.030	37.5	0.014	58.0	0.059	78.5	0.075
-2.8	0.173	5.4	0.187	17.5	0.038	38.0	0.028	58.5	0.069	79.0	0.069
-2.6	0.126	5.6	0.183	18.0	0.042	38.5	0.044	59.0	0.078	79.5	0.062
-2.4	0.075	5.8	0.182	18.5	0.035	39.0	0.056	59.5	0.085	80.0	0.056
-2.2	0.058	6.0	0.182	19.0	0.020	39.5	0.063	60.0	0.090	80.5	0.051
-2.0	0.116	6.2	0.183	19.5	0.010	40.0	0.063	60.5	0.092	81.0	0.045
-1.8	0.201	6.4	0.182	20.0	0.024	40.5	0.058	61.0	0.092	81.5	0.040
-1.6	0.294	6.6	0.179	20.5	0.035	41.0	0.050	61.5	0.089	82.0	0.035
-1.4	0.391	6.8	0.173	21.0	0.034	41.5	0.040	62.0	0.084	82.5	0.031
-1.2	0.489	7.0	0.163	21.5	0.024	42.0	0.031	62.5	0.078	83.0	0.027
-1.0	0.586	7.2	0.151	22.0	0.012	42.5	0.026	63.0	0.072	83.5	0.023
-0.8	0.677	7.4	0.135	22.5	0.025	43.0	0.025	63.5	0.065	84.0	0.020
-0.6	0.761	7.6	0.117	23.0	0.043	43.5	0.029	64.0	0.059	84.5	0.017
-0.4	0.835	7.8	0.100	23.5	0.054	44.0	0.037	64.5	0.054	85.0	0.014
-0.2	0.897	8.0	0.084	24.0	0.056	44.5	0.047	65.0	0.050	85.5	0.011
0.0	0.946	8.2	0.073	24.5	0.050	45.0	0.058	65.5	0.048	86.0	0.009
0.2	0.979	8.4	0.069	25.0	0.042	45.5	0.068	66.0	0.047	86.5	0.007
0.4	0.997	8.6	0.073	25.5	0.040	46.0	0.075	66.5	0.048	87.0	0.006
0.6	0.999	8.8	0.080	26.0	0.044	46.5	0.077	67.0	0.050	87.5	0.004
0.8	0.985	9.0	0.089	26.5	0.048	47.0	0.075	67.5	0.054	88.0	0.003
1.0	0.956	9.2	0.097	27.0	0.046	47.5	0.068	68.0	0.059	88.5	0.002
1.2	0.913	9.4	0.101	27.5	0.038	48.0	0.058	68.5	0.065	89.0	0.001
1.4	0.859	9.6	0.102	28.0	0.028	48.5	0.047	69.0	0.072	89.5	0.000
1.6	0.795	9.8	0.101	28.5	0.025	49.0	0.036	69.5	0.080	90.0	0.000
1.8	0.724	10.0	0.097	29.0	0.031	49.5	0.030	70.0	0.087		
2.0	0.648	10.2	0.089	29.5	0.036	50.0	0.029	70.5	0.094		
2.2	0.572	10.4	0.078	30.0	0.034	50.5	0.030	71.0	0.100		

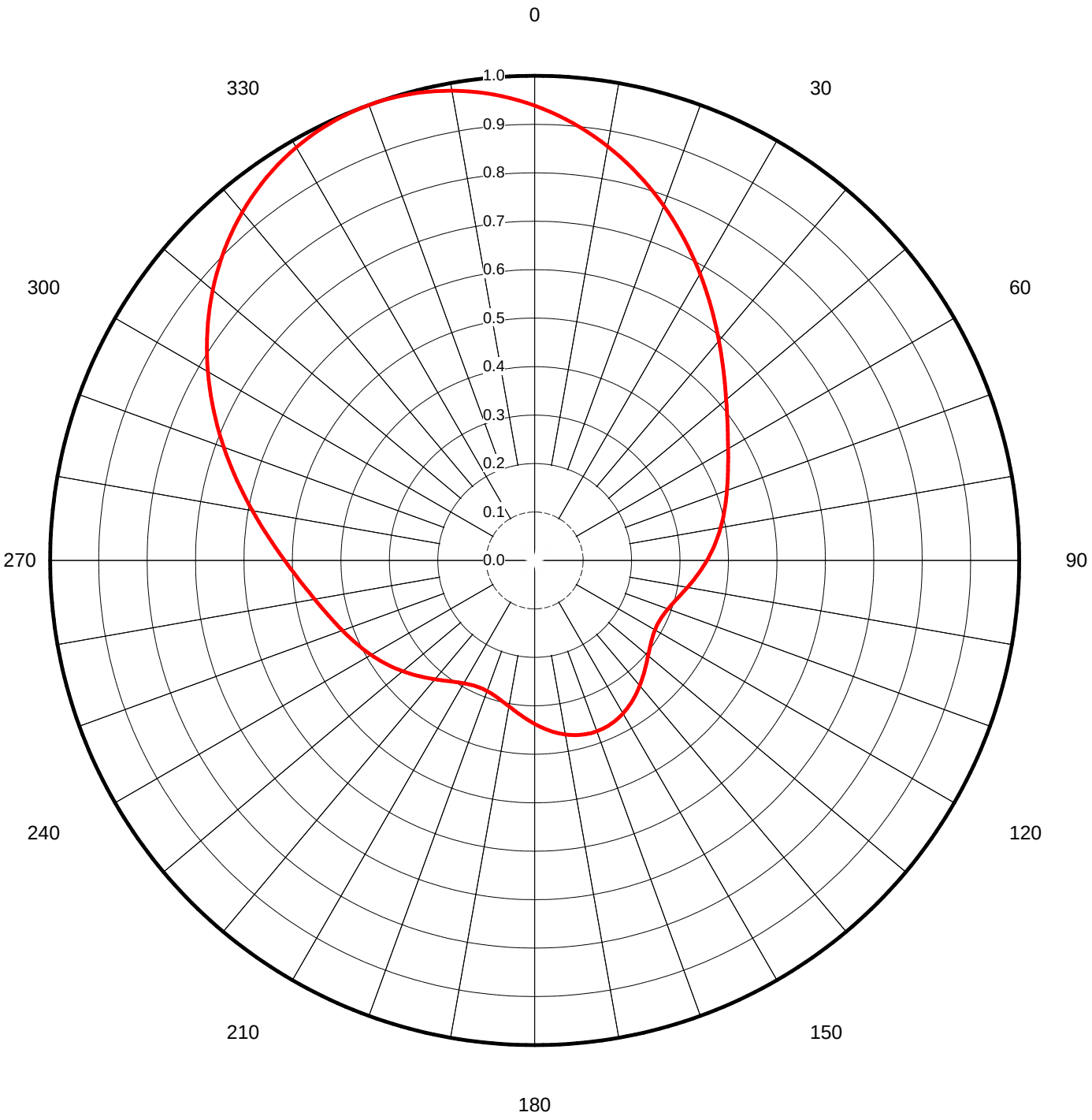
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Date	**16-Jun-08**		
Call Letters	**WYTV-DT**	Channel	**36**
Location	**Youngstown, OH**		
Customer			
Antenna Type	**TFU-21JTH-R 4C300**		

AZIMUTH PATTERN

Gain	**3.00**	**(4.77 dB)**	Frequency	**605.00 MHz**	
Calculated / Measured		**Calculated**	Drawing #	**TFU-4C300**	



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Location	**Youngstown, OH**		
Customer			
Antenna Type	**TFU-21JTH-R 4C300**		

TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing #: **TFU-4C300**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.939	45	0.551	90	0.356	135	0.321	180	0.337	225	0.338	270	0.516	315	0.906
1	0.932	46	0.544	91	0.352	136	0.324	181	0.334	226	0.341	271	0.523	316	0.913
2	0.926	47	0.537	92	0.348	137	0.328	182	0.331	227	0.345	272	0.529	317	0.919
3	0.919	48	0.529	93	0.345	138	0.331	183	0.328	228	0.348	273	0.537	318	0.926
4	0.913	49	0.523	94	0.341	139	0.334	184	0.324	229	0.352	274	0.544	319	0.932
5	0.906	50	0.516	95	0.338	140	0.337	185	0.321	230	0.356	275	0.551	320	0.939
6	0.899	51	0.510	96	0.334	141	0.340	186	0.318	231	0.359	276	0.559	321	0.944
7	0.891	52	0.503	97	0.330	142	0.344	187	0.315	232	0.363	277	0.567	322	0.950
8	0.883	53	0.497	98	0.327	143	0.347	188	0.311	233	0.366	278	0.575	323	0.955
9	0.875	54	0.492	99	0.323	144	0.350	189	0.309	234	0.370	279	0.583	324	0.960
10	0.868	55	0.486	100	0.320	145	0.352	190	0.306	235	0.373	280	0.592	325	0.965
11	0.859	56	0.481	101	0.317	146	0.355	191	0.303	236	0.376	281	0.600	326	0.969
12	0.851	57	0.476	102	0.313	147	0.358	192	0.300	237	0.380	282	0.609	327	0.973
13	0.842	58	0.470	103	0.310	148	0.360	193	0.298	238	0.383	283	0.618	328	0.977
14	0.834	59	0.466	104	0.307	149	0.362	194	0.296	239	0.386	284	0.627	329	0.981
15	0.825	60	0.461	105	0.305	150	0.365	195	0.294	240	0.390	285	0.636	330	0.984
16	0.816	61	0.457	106	0.302	151	0.366	196	0.292	241	0.393	286	0.645	331	0.987
17	0.807	62	0.452	107	0.299	152	0.368	197	0.290	242	0.396	287	0.654	332	0.990
18	0.797	63	0.448	108	0.297	153	0.370	198	0.289	243	0.399	288	0.664	333	0.992
19	0.788	64	0.444	109	0.295	154	0.371	199	0.288	244	0.403	289	0.673	334	0.994
20	0.779	65	0.440	110	0.293	155	0.372	200	0.287	245	0.406	290	0.683	335	0.996
21	0.769	66	0.436	111	0.291	156	0.373	201	0.286	246	0.409	291	0.692	336	0.997
22	0.760	67	0.433	112	0.289	157	0.374	202	0.286	247	0.412	292	0.702	337	0.998
23	0.750	68	0.429	113	0.288	158	0.375	203	0.286	248	0.416	293	0.712	338	0.999
24	0.741	69	0.426	114	0.287	159	0.375	204	0.286	249	0.419	294	0.721	339	1.000
25	0.731	70	0.422	115	0.287	160	0.375	205	0.287	250	0.422	295	0.731	340	1.000
26	0.721	71	0.419	116	0.286	161	0.375	206	0.287	251	0.426	296	0.741	341	1.000
27	0.712	72	0.416	117	0.286	162	0.375	207	0.288	252	0.429	297	0.750	342	0.999
28	0.702	73	0.412	118	0.286	163	0.374	208	0.289	253	0.433	298	0.760	343	0.998
29	0.692	74	0.409	119	0.286	164	0.373	209	0.291	254	0.436	299	0.769	344	0.997
30	0.683	75	0.406	120	0.287	165	0.372	210	0.293	255	0.440	300	0.779	345	0.996
31	0.673	76	0.403	121	0.288	166	0.371	211	0.295	256	0.444	301	0.788	346	0.994
32	0.664	77	0.399	122	0.289	167	0.370	212	0.297	257	0.448	302	0.797	347	0.992
33	0.654	78	0.396	123	0.290	168	0.368	213	0.299	258	0.452	303	0.807	348	0.990
34	0.645	79	0.393	124	0.292	169	0.366	214	0.302	259	0.457	304	0.816	349	0.987
35	0.636	80	0.390	125	0.294	170	0.365	215	0.305	260	0.461	305	0.825	350	0.984
36	0.627	81	0.386	126	0.296	171	0.362	216	0.307	261	0.466	306	0.834	351	0.981
37	0.618	82	0.383	127	0.298	172	0.360	217	0.310	262	0.470	307	0.842	352	0.977
38	0.609	83	0.380	128	0.300	173	0.358	218	0.313	263	0.476	308	0.851	353	0.973
39	0.600	84	0.376	129	0.303	174	0.355	219	0.317	264	0.481	309	0.859	354	0.969
40	0.592	85	0.373	130	0.306	175	0.352	220	0.320	265	0.486	310	0.868	355	0.965
41	0.583	86	0.370	131	0.309	176	0.350	221	0.323	266	0.492	311	0.875	356	0.960
42	0.575	87	0.366	132	0.311	177	0.347	222	0.327	267	0.497	312	0.883	357	0.955
43	0.567	88	0.363	133	0.315	178	0.344	223	0.330	268	0.503	313	0.891	358	0.950
44	0.559	89	0.359	134	0.318	179	0.340	224	0.334	269	0.510	314	0.899	359	0.944

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