



Proposal #: **DCA-10297-2** Antenna Type: **TUA-O4-10/40H-1-S-R**  
 Call Letters: **WBUW-DT** Location: **Janesville, WI**

Channel: **32 DTV**  
**19 DTV**

Electrical Specifications		Value		Remarks	
		Ratio	dB		
RMS Gain at Main Lobe over Halfwave Dipole	Hpol	19.2	12.83	D32;	D19: 18.7 (12.72 dB)
	Vpol				
RMS Gain at Horizontal over Halfwave Dipole	Hpol	12.8	11.07	D32;	D19: 14.0 (11.46 dB)
	Vpol				
Peak Directional Gain over Halfwave Dipole	Hpol				
	Vpol				
Peak Directional Gain at Horizontal over Halfwave Dipole	Hpol				
	Vpol				
Circularity		+/- 2.0 dB		In free space	
Axial Ratio		dB			
Beam Tilt		0.75 deg		D32;	D19: 0.75 deg
Average Power	DTV	55 kW	17.40 dBk		
Antenna Input:	T/L	6-1/8 in	75.0 ohm	Type:	EIA/DCA
Maximum Antenna Input VSWR		Channel 1.10 : 1		Note:	
				5 psig dry air or nitrogen recommended	
				D19: Channel: 1.10 : 1	
Patterns	Azimuth	TUA-O4-5810		D19: TUA-O4-5030	
	Elevation	10U192075	10U192075-90	D32	
		10U187075	10U187075-90	D19	
Mechanical Specifications		Metric	English		1/2" Radial ice
Height with Lightning Protector	H4	m	ft	Side mounted	
Height Less Lightning Protector	H2	12.0 m	39.3 ft		
Height of Center of Radiation	H3	6.1 m	20.0 ft		
Basic Wind Speed	V	136.8 km/h	85 mi/h	TIA/EIA-222-F.	
Force Coeff. x Projected Area	CaAc	11.15 m²	120.0 ft²	Excludes Mounts	125 ft²
Moment Arm	D1	m	ft		
Force Coeff. x Projected Area	CaAc	m²	ft²		
Moment Arm	D3	m	ft		
Pole Bury Length	D2	m	ft		
Weight	W	2.3 t	5,000 lbs	Excludes Mounts	6,000 lbs
Radome				Overall cylindrical	
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  
 Original Date : 21-Aug-03

Approved By : AJS  
 Revision: 2 Rev. Date: 7-Oct-03



Proposal Number  
Date  
Call Letters  
Location  
Customer  
Antenna Type

**DCA-10297**      Revision:      **2**  
**7-Oct-03**  
**WBUW-DT**      Channel      **32**  
**Janesville, WI**  
**Acme Television**  
**TUA-O4-10/40H-1-S-R**

## SYSTEM SUMMARY

### Antenna:

Type:	<b>TUA-O4-10/40H-1-S-R</b>	ERP:	<b>200 kW</b>	H Pol	<b>( 23.01 dBk )</b>
Channel:	<b>32</b>	RMS Gain*:	<b>19.2</b>		<b>( 12.83 dB )</b>
Location:	<b>Janesville, WI</b>	Input Power:	<b>10.4 kW</b>		<b>( 10.18 dBk )</b>

### Transmission Line:

Type:	<b>DigiTLine</b>	Attenuation:		<b>1.47 dB</b>
Size:	<b>6 1/8 in</b>	Efficiency:	<b>71.3%</b>	
Impedance:	<b>75 ohm</b>			
Length:	<b>1,250 ft</b>		<b>381.0 m</b>	

Combiner:	<b>DCA</b>	Attenuation:		<b>0.25 dB</b>
		Efficiency:	<b>94.4%</b>	

### Combiner Input:

Power Required:      **15.5 kW**      **( 11.90 dBk )**

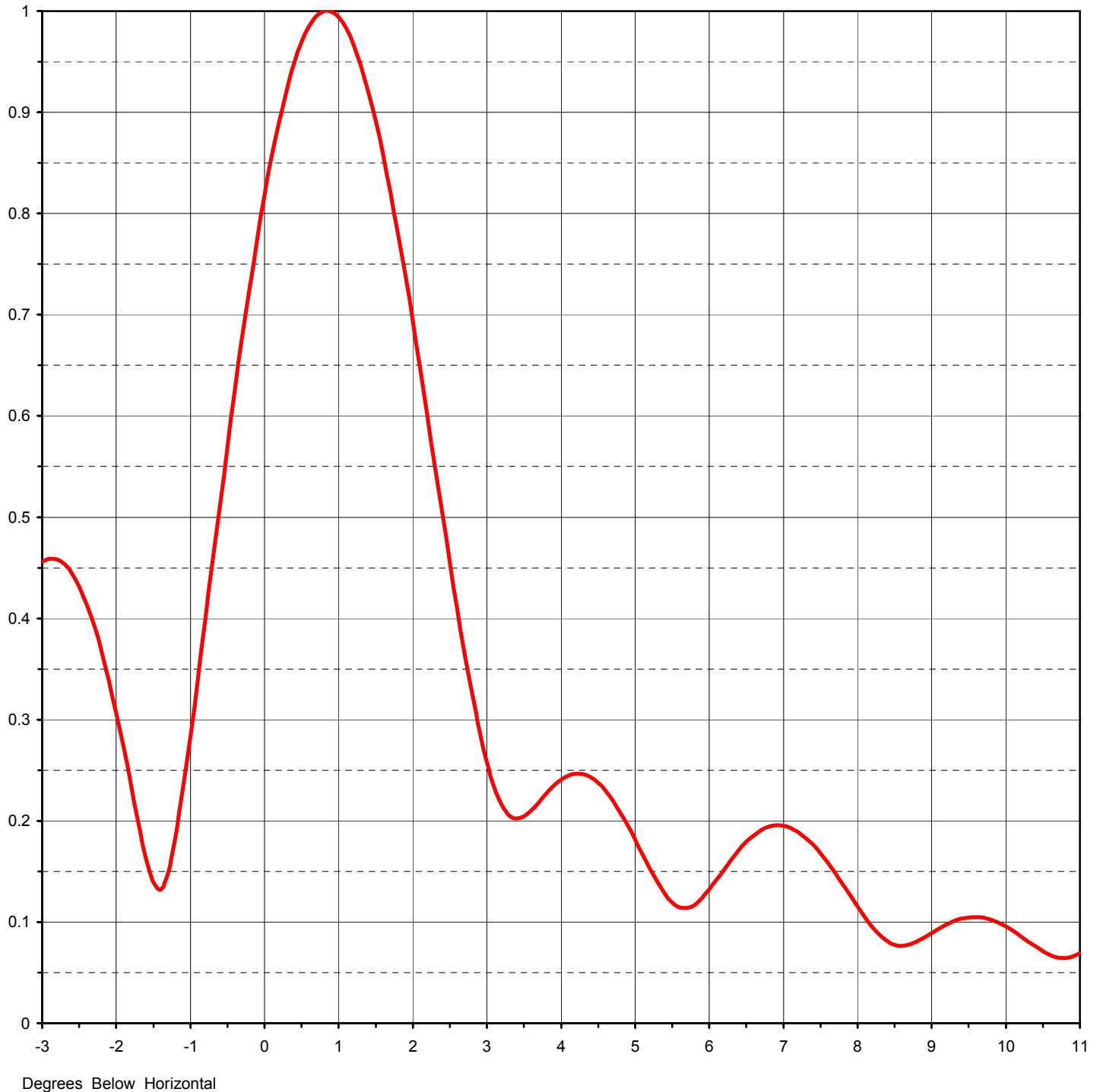
\* Gain is with respect to half wave dipole.



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Date	<b>7-Oct-03</b>		
Call Letters	<b>WBUW-DT</b>	Channel	<b>32</b>
Location	<b>Janesville, WI</b>		
Customer	<b>Acme Television</b>		
Antenna Type	<b>TUA-O4-10/40H-1-S-R</b>		

## ELEVATION PATTERN

RMS Gain at Main Lobe	<b>19.20 ( 12.83 dB )</b>	Beam Tilt	<b>0.75 deg</b>
RMS Gain at Horizontal	<b>12.80 ( 11.07 dB )</b>	Frequency	<b>581.00 MHz</b>
Calculated / Measured	<b>Calculated</b>	Drawing #	<b>10U192075</b>



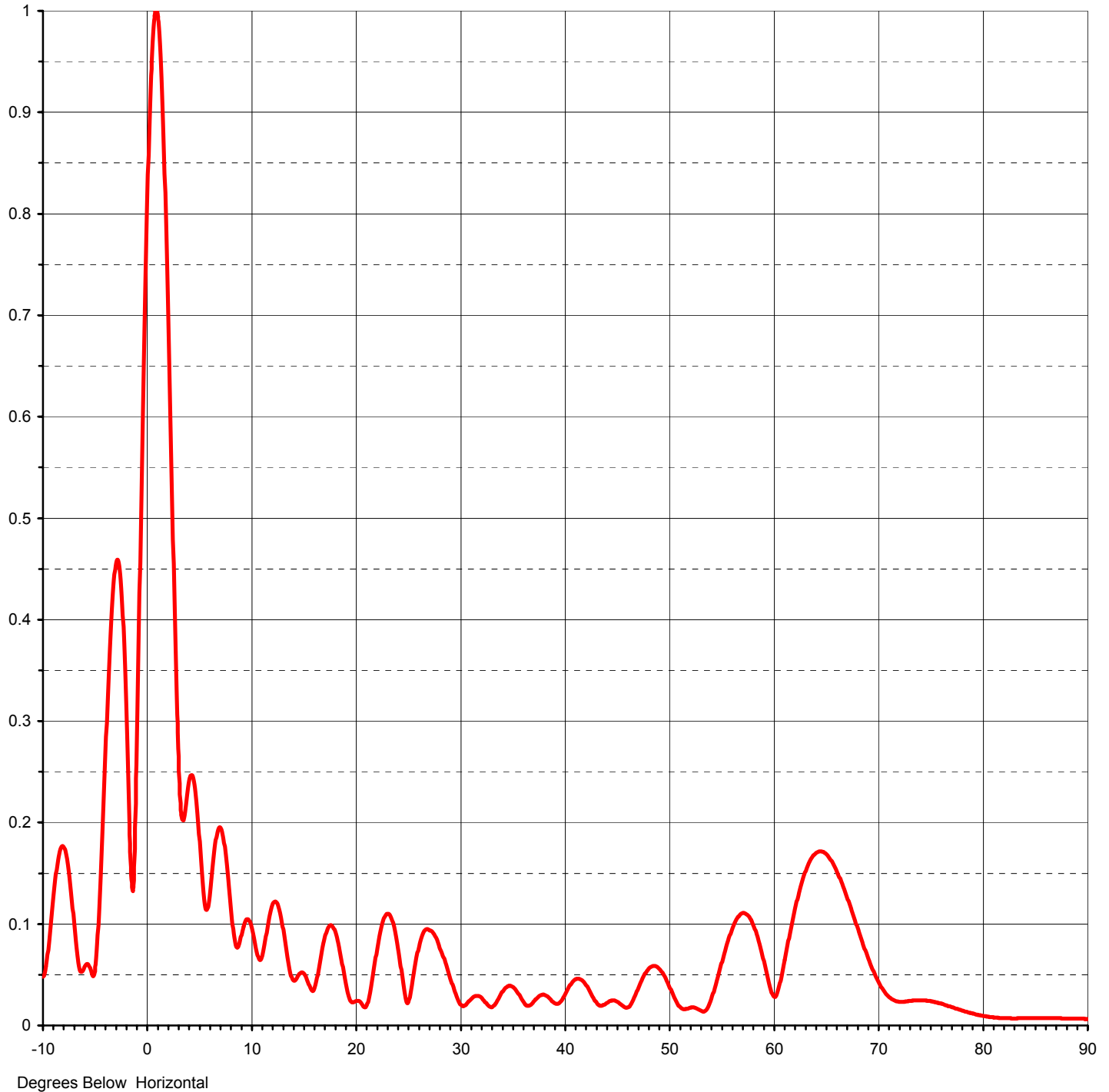


Proposal Number	<b>DCA-10297</b>	Revision:	<b>2</b>
Date	<b>7-Oct-03</b>		
Call Letters	<b>WBUW-DT</b>	Channel	<b>32</b>
Location	<b>Janesville, WI</b>		
Customer	<b>Acme Television</b>		
Antenna Type	<b>TUA-O4-10/40H-1-S-R</b>		

## ELEVATION PATTERN

RMS Gain at Main Lobe	<b>19.20 ( 12.83 dB )</b>
RMS Gain at Horizontal	<b>12.80 ( 11.07 dB )</b>
Calculated / Measured	<b>Calculated</b>

Beam Tilt	<b>0.75 deg</b>
Frequency	<b>581.00 MHz</b>
Drawing #	<b>10U192075-90</b>





Proposal Number **DCA-10297**      Revision: **2**  
 Date **7-Oct-03**  
 Call Letters **WBUW-DT**      Channel **32**  
 Location **Janesville, WI**  
 Customer **Acme Television**  
 Antenna Type **TUA-O4-10/40H-1-S-R**

## TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing #: **10U192075-90**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.048	2.4	0.503	10.6	0.071	30.5	0.020	51.0	0.019	71.5	0.024
-9.5	0.074	2.6	0.409	10.8	0.065	31.0	0.025	51.5	0.016	72.0	0.023
-9.0	0.126	2.8	0.325	11.0	0.066	31.5	0.029	52.0	0.017	72.5	0.023
-8.5	0.166	3.0	0.258	11.5	0.091	32.0	0.028	52.5	0.018	73.0	0.024
-8.0	0.176	3.2	0.215	12.0	0.117	32.5	0.022	53.0	0.015	73.5	0.025
-7.5	0.150	3.4	0.202	12.5	0.120	33.0	0.018	53.5	0.014	74.0	0.025
-7.0	0.099	3.6	0.210	13.0	0.101	33.5	0.023	54.0	0.024	74.5	0.024
-6.5	0.056	3.8	0.227	13.5	0.068	34.0	0.032	54.5	0.040	75.0	0.024
-6.0	0.058	4.0	0.241	14.0	0.045	34.5	0.038	55.0	0.059	75.5	0.023
-5.5	0.057	4.2	0.247	14.5	0.048	35.0	0.038	55.5	0.077	76.0	0.021
-5.0	0.056	4.4	0.243	15.0	0.052	35.5	0.033	56.0	0.093	76.5	0.020
-4.5	0.142	4.6	0.230	15.5	0.042	36.0	0.025	56.5	0.105	77.0	0.018
-4.0	0.271	4.8	0.208	16.0	0.035	36.5	0.019	57.0	0.110	77.5	0.016
-3.5	0.391	5.0	0.181	16.5	0.056	37.0	0.022	57.5	0.109	78.0	0.015
-3.0	0.456	5.2	0.153	17.0	0.083	37.5	0.028	58.0	0.101	78.5	0.013
-2.8	0.458	5.4	0.128	17.5	0.098	38.0	0.030	58.5	0.087	79.0	0.012
-2.6	0.444	5.6	0.115	18.0	0.094	38.5	0.027	59.0	0.068	79.5	0.010
-2.4	0.414	5.8	0.117	18.5	0.074	39.0	0.022	59.5	0.046	80.0	0.009
-2.2	0.368	6.0	0.132	19.0	0.046	39.5	0.022	60.0	0.029	80.5	0.009
-2.0	0.306	6.2	0.152	19.5	0.025	40.0	0.029	60.5	0.036	81.0	0.008
-1.8	0.234	6.4	0.171	20.0	0.024	40.5	0.039	61.0	0.059	81.5	0.007
-1.6	0.163	6.6	0.186	20.5	0.023	41.0	0.045	61.5	0.086	82.0	0.007
-1.4	0.132	6.8	0.194	21.0	0.018	41.5	0.046	62.0	0.111	82.5	0.007
-1.2	0.184	7.0	0.195	21.5	0.038	42.0	0.041	62.5	0.132	83.0	0.007
-1.0	0.284	7.2	0.189	22.0	0.070	42.5	0.033	63.0	0.149	83.5	0.007
-0.8	0.398	7.4	0.176	22.5	0.097	43.0	0.024	63.5	0.162	84.0	0.007
-0.6	0.513	7.6	0.159	23.0	0.110	43.5	0.019	64.0	0.169	84.5	0.007
-0.4	0.625	7.8	0.137	23.5	0.105	44.0	0.022	64.5	0.172	85.0	0.007
-0.2	0.728	8.0	0.115	24.0	0.081	44.5	0.024	65.0	0.169	85.5	0.007
0.0	0.818	8.2	0.095	24.5	0.047	45.0	0.024	65.5	0.162	86.0	0.007
0.2	0.892	8.4	0.081	25.0	0.022	45.5	0.020	66.0	0.152	86.5	0.007
0.4	0.948	8.6	0.076	25.5	0.046	46.0	0.017	66.5	0.140	87.0	0.007
0.6	0.985	8.8	0.081	26.0	0.074	46.5	0.023	67.0	0.125	87.5	0.007
0.8	1.000	9.0	0.089	26.5	0.091	47.0	0.035	67.5	0.111	88.0	0.007
1.0	0.994	9.2	0.097	27.0	0.095	47.5	0.046	68.0	0.095	88.5	0.007
1.2	0.967	9.4	0.103	27.5	0.091	48.0	0.055	68.5	0.080	89.0	0.007
1.4	0.921	9.6	0.105	28.0	0.079	48.5	0.059	69.0	0.066	89.5	0.007
1.6	0.858	9.8	0.104	28.5	0.066	49.0	0.057	69.5	0.053	90.0	0.006
1.8	0.781	10.0	0.099	29.0	0.049	49.5	0.050	70.0	0.043		
2.0	0.693	10.2	0.091	29.5	0.034	50.0	0.040	70.5	0.034		
2.2	0.599	10.4	0.081	30.0	0.022	50.5	0.028	71.0	0.028		

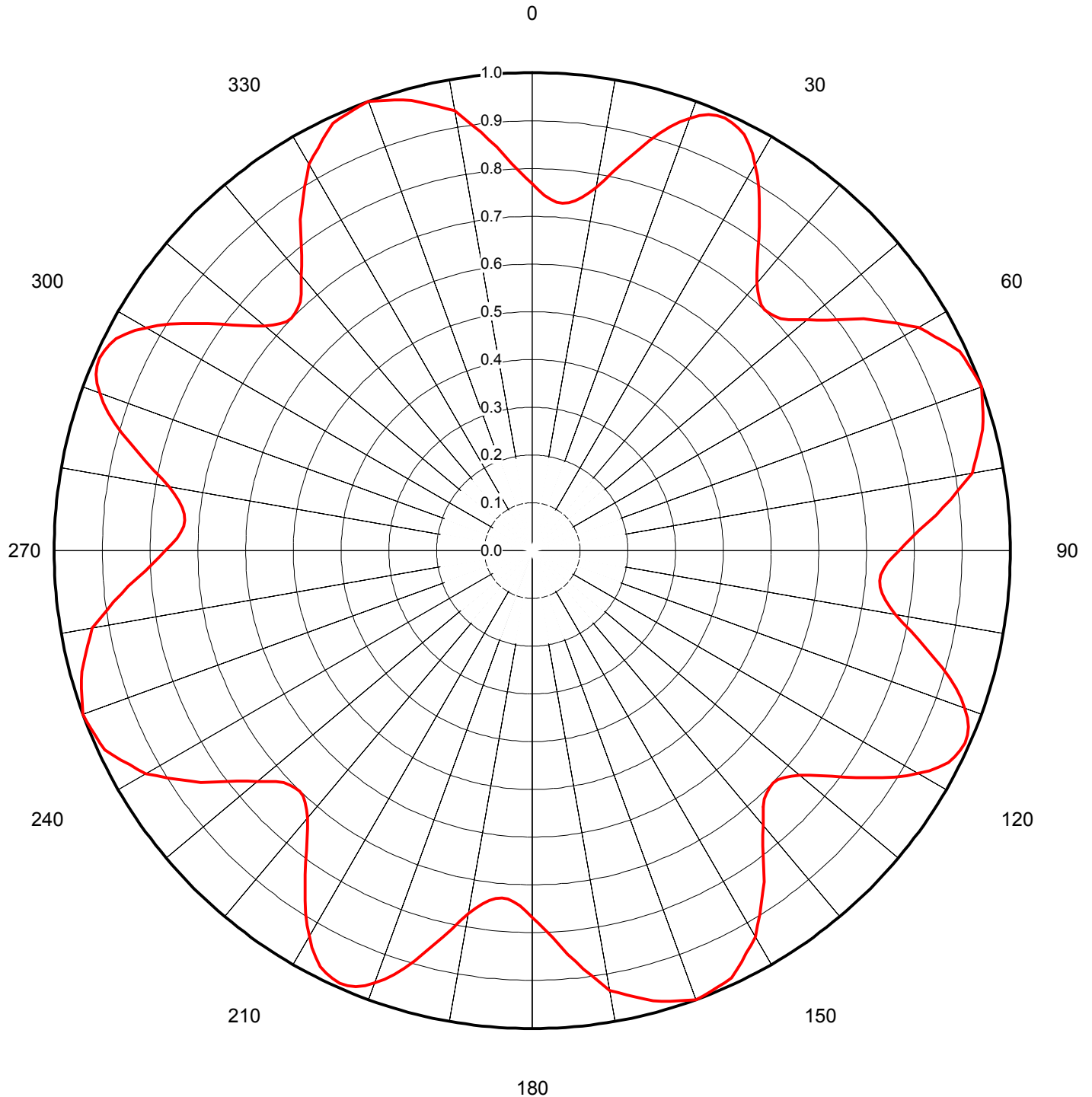


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Date	<b>7-Oct-03</b>		
Call Letters	<b>WBUW-DT</b>	Channel	<b>32</b>
Location	<b>Janesville, WI</b>		
Customer	<b>Acme Television</b>		
Antenna Type	<b>TUA-O4-10/40H-1-S-R</b>		

### AZIMUTH PATTERN

Gain **1.30** **(1.14 dB)**  
Calculated / Measured **Calculated**

Frequency **581.00 MHz**  
Drawing # **TUA-O4-5810**





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Location	<b>Janesville, WI</b>		
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## TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing #: **TUA-O4-5810**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.768	45	0.702	90	0.768	135	0.702	180	0.768	225	0.702	270	0.768	315	0.702
1	0.754	46	0.705	91	0.754	136	0.705	181	0.754	226	0.705	271	0.754	316	0.705
2	0.743	47	0.712	92	0.743	137	0.712	182	0.743	227	0.712	272	0.743	317	0.712
3	0.736	48	0.722	93	0.736	138	0.722	183	0.736	228	0.722	273	0.736	318	0.722
4	0.731	49	0.736	94	0.731	139	0.736	184	0.731	229	0.736	274	0.731	319	0.736
5	0.730	50	0.753	95	0.730	140	0.753	185	0.730	230	0.753	275	0.730	320	0.753
6	0.732	51	0.767	96	0.732	141	0.767	186	0.732	231	0.767	276	0.732	321	0.767
7	0.737	52	0.784	97	0.737	142	0.784	187	0.737	232	0.784	277	0.737	322	0.784
8	0.746	53	0.803	98	0.746	143	0.803	188	0.746	233	0.803	278	0.746	323	0.803
9	0.758	54	0.824	99	0.758	144	0.824	189	0.758	234	0.824	279	0.758	324	0.824
10	0.771	55	0.846	100	0.771	145	0.846	190	0.771	235	0.846	280	0.771	325	0.846
11	0.789	56	0.863	101	0.789	146	0.863	191	0.789	236	0.863	281	0.789	326	0.863
12	0.809	57	0.880	102	0.809	147	0.880	192	0.809	237	0.880	282	0.809	327	0.880
13	0.829	58	0.898	103	0.829	148	0.898	193	0.829	238	0.898	283	0.829	328	0.898
14	0.850	59	0.916	104	0.850	149	0.916	194	0.850	239	0.916	284	0.850	329	0.916
15	0.870	60	0.934	105	0.870	150	0.934	195	0.870	240	0.934	285	0.870	330	0.934
16	0.893	61	0.944	106	0.893	151	0.944	196	0.893	241	0.944	286	0.893	331	0.944
17	0.914	62	0.955	107	0.914	152	0.955	197	0.914	242	0.955	287	0.914	332	0.955
18	0.933	63	0.965	108	0.933	153	0.965	198	0.933	243	0.965	288	0.933	333	0.965
19	0.949	64	0.976	109	0.949	154	0.976	199	0.949	244	0.976	289	0.949	334	0.976
20	0.962	65	0.987	110	0.962	155	0.987	200	0.962	245	0.987	290	0.962	335	0.987
21	0.975	66	0.990	111	0.975	156	0.990	201	0.975	246	0.990	291	0.975	336	0.990
22	0.984	67	0.992	112	0.984	157	0.992	202	0.984	247	0.992	292	0.984	337	0.992
23	0.989	68	0.995	113	0.989	158	0.995	203	0.989	248	0.995	293	0.989	338	0.995
24	0.990	69	0.997	114	0.990	159	0.997	204	0.990	249	0.997	294	0.990	339	0.997
25	0.988	70	1.000	115	0.988	160	1.000	205	0.988	250	1.000	295	0.988	340	1.000
26	0.984	71	0.995	116	0.984	161	0.995	206	0.984	251	0.995	296	0.984	341	0.995
27	0.976	72	0.990	117	0.976	162	0.990	207	0.976	252	0.990	297	0.976	342	0.990
28	0.965	73	0.986	118	0.965	163	0.986	208	0.965	253	0.986	298	0.965	343	0.986
29	0.950	74	0.981	119	0.950	164	0.981	209	0.950	254	0.981	299	0.950	344	0.981
30	0.932	75	0.976	120	0.932	165	0.976	210	0.932	255	0.976	300	0.932	345	0.976
31	0.914	76	0.967	121	0.914	166	0.967	211	0.914	256	0.967	301	0.914	346	0.967
32	0.894	77	0.958	122	0.894	167	0.958	212	0.894	257	0.958	302	0.894	347	0.958
33	0.873	78	0.950	123	0.873	168	0.950	213	0.873	258	0.950	303	0.873	348	0.950
34	0.850	79	0.942	124	0.850	169	0.942	214	0.850	259	0.942	304	0.850	349	0.942
35	0.827	80	0.935	125	0.827	170	0.935	215	0.827	260	0.935	305	0.827	350	0.935
36	0.806	81	0.917	126	0.806	171	0.917	216	0.806	261	0.917	306	0.806	351	0.917
37	0.785	82	0.899	127	0.785	172	0.899	217	0.785	262	0.899	307	0.785	352	0.899
38	0.765	83	0.881	128	0.765	173	0.881	218	0.765	263	0.881	308	0.765	353	0.881
39	0.747	84	0.864	129	0.747	174	0.864	219	0.747	264	0.864	309	0.747	354	0.864
40	0.731	85	0.848	130	0.731	175	0.848	220	0.731	265	0.848	310	0.731	355	0.848
41	0.719	86	0.829	131	0.719	176	0.829	221	0.719	266	0.829	311	0.719	356	0.829
42	0.709	87	0.810	132	0.709	177	0.810	222	0.709	267	0.810	312	0.709	357	0.810
43	0.703	88	0.794	133	0.703	178	0.794	223	0.703	268	0.794	313	0.703	358	0.794
44	0.700	89	0.780	134	0.700	179	0.780	224	0.700	269	0.780	314	0.700	359	0.780