N. Lat. = 43-03-21.0 W. Lng. = 89-32-06.0
HAAT and Distance to Contour,
FCC OET,TV 3.2 - 16.1, 130 pts - FCC 30 Meter

WHA-TV, Board Of Regents Of The University of Wisconsin, BLEDT-20091229AC

Azi.	AV EL	HAAT	ERP kW	dBk	Field	DAng	VFld	D-kW	%Max	D-dBk	36.26-F9
000	293.0	461.0	200.0000	23.01	1.000	0.595	0.994	197.7316	99.4	23.01	106.25
010	296.5	457.5	200.0000	23.01	1.000	0.592	0.994	197.6159	99.4	23.01	105.95
020	285.5	468.5	200.0000	23.01	1.000	0.600	0.995	197.9837	99.5	23.01	106.90
030	276.2	477.8	200.0000	23.01	1.000	0.606	0.995	198.0598	99.5	23.01	107.69
040	273.4	480.6	200.0000	23.01	1.000	0.607	0.995	198.0773	99.5	23.01	107.93
050	267.6	486.4	200.0000	23.01	1.000	0.611	0.995	198.1134	99.5	23.01	108.41
060	268.3	485.7	200.0000	23.01	1.000	0.610	0.995	198.1089	99.5	23.01	108.35
070	270.6	483.4	200.0000	23.01	1.000	0.609	0.995	198.0950	99.5	23.01	108.16
080	279.8	474.2	200.0000	23.01	1.000	0.603	0.995	198.0367	99.5	23.01	107.38
090	278.1	475.9	200.0000	23.01	1.000	0.604	0.995	198.0476	99.5	23.01	107.53
100	280.7	473.3	200.0000	23.01	1.000	0.603	0.995	198.0309	99.5	23.01	107.30
110	287.6	466.4	200.0000	23.01	1.000	0.598	0.995	197.9129	99.5	23.01	106.72
120	295.3	458.7	200.0000	23.01	1.000	0.593	0.994	197.6576	99.4	23.01	106.06
130	311.1	442.9	200.0000	23.01	1.000	0.583	0.993	197.1236	99.3	23.01	104.71
140	313.8	440.2	200.0000	23.01	1.000	0.581	0.993	197.0319	99.3	23.01	104.48
150	309.7	444.3	200.0000	23.01	1.000	0.584	0.993	197.1703	99.3	23.01	104.83
160	316.5	437.5	200.0000	23.01	1.000	0.579	0.992	196.9412	99.2	23.01	104.25
170	305.5	448.5	200.0000	23.01	1.000	0.587	0.993	197.3136	99.3	23.01	105.19
180	292.8	461.2	200.0000	23.01	1.000	0.595	0.994	197.7397	99.4	23.01	106.27
190	302.3	451.7	200.0000	23.01	1.000	0.589	0.994	197.4224	99.4	23.01	105.46
200	307.5	446.5	200.0000	23.01	1.000	0.585	0.993	197.2458	99.3	23.01	105.01
210	303.8	450.2	200.0000	23.01	1.000	0.588	0.993	197.3696	99.3	23.01	105.33
220	310.1	443.9	200.0000	23.01	1.000	0.584	0.993	197.1581	99.3	23.01	104.79
230	312.9	441.1	200.0000	23.01	1.000	0.582	0.993	197.0636	99.3	23.01	104.56
240	322.7	431.3	200.0000	23.01	1.000	0.575	0.992	196.7265	99.2	23.01	103.72
250	322.2	431.8	200.0000	23.01	1.000	0.576	0.992	196.7447	99.2	23.01	103.77
260	325.8	428.2	200.0000	23.01	1.000	0.573	0.992	196.6194	99.2	23.01	103.46
270	322.5	431.5	200.0000	23.01	1.000	0.575	0.992	196.7335	99.2	23.01	103.74
280	327.3	426.7	200.0000	23.01	1.000	0.572	0.991	196.5693	99.1	23.01	103.34
290	310.3	443.7	200.0000	23.01	1.000	0.583	0.993	197.1495	99.3	23.01	104.77
300	291.9	462.1	200.0000	23.01	1.000	0.595	0.994	197.7715	99.4	23.01	106.35
310	305.3	448.7	200.0000	23.01	1.000	0.587	0.993	197.3199	99.3	23.01	105.20
320	318.3	435.7	200.0000	23.01	1.000	0.578	0.992	196.8796	99.2	23.01	104.10
330	323.2	430.8	200.0000	23.01	1.000	0.575	0.992	196.7085	99.2	23.01	103.68
340	322.3	431.7	200.0000	23.01	1.000	0.576	0.992	196.7427	99.2	23.01	103.76
350	309.2	444.8	200.0000	23.01	1.000	0.584	0.993	197.1899	99.3	23.01	104.87

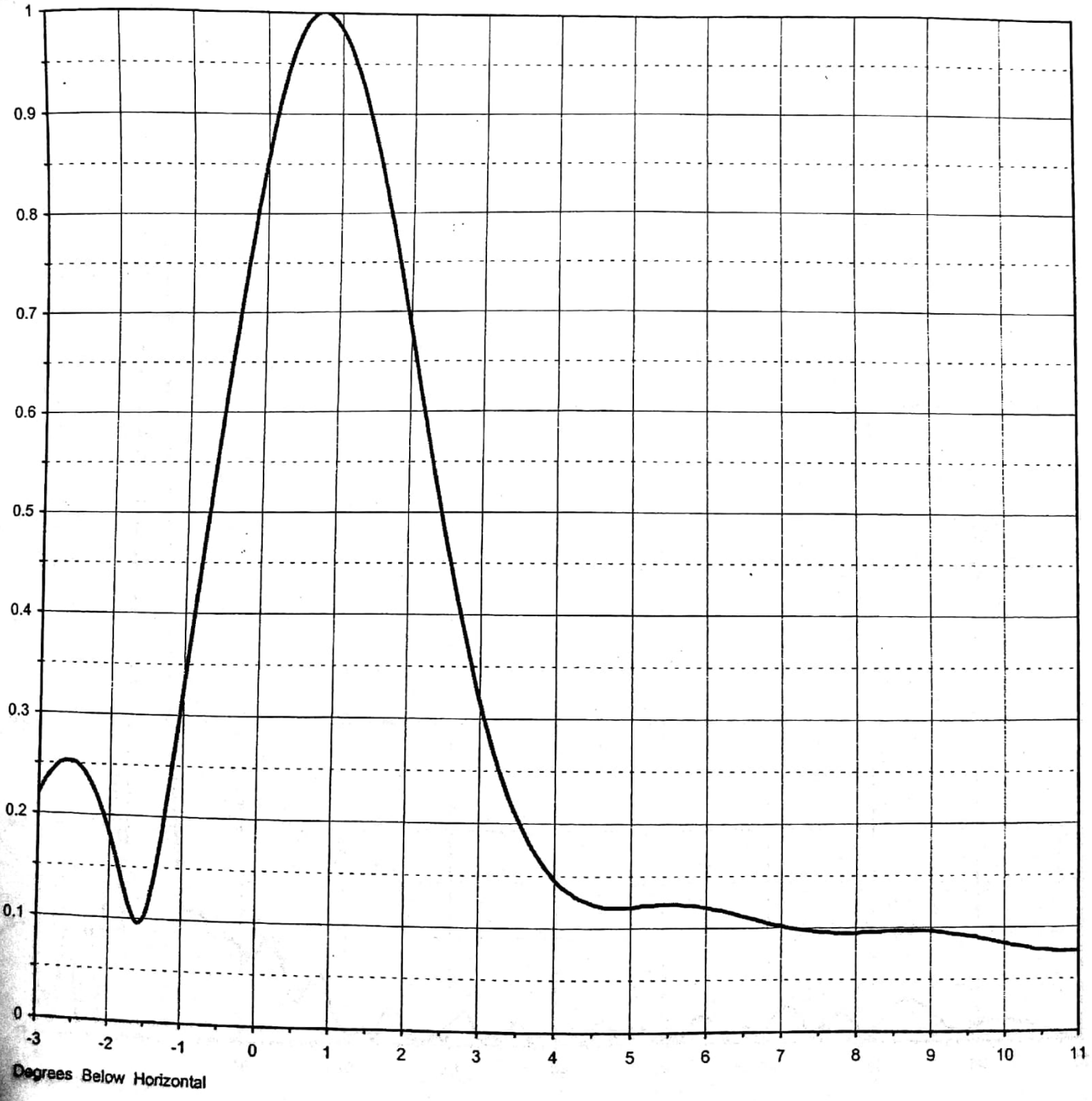
Ave El= 301.10 M HAAT= 452.90 M AMSL= 754 M

Dielectric

Proposal Number	DCA-8187		
Date	19-Feb-99		
Call Letters	WHA-DT	Channel	20
Location	Madison, WI		
Customer			
Antenna Type	TFU-28GBH-R O6 DC		

ELEVATION PATTERN

RMS Gain at Main Lobe	23.50 (13.71 dB)	Beam Tilt	0.75 deg
RMS Gain at Horizontal	17.20 (12.36 dB)	Frequency	509.00 MHz
Calculated / Measured	Calculated	Drawing #	28G235075



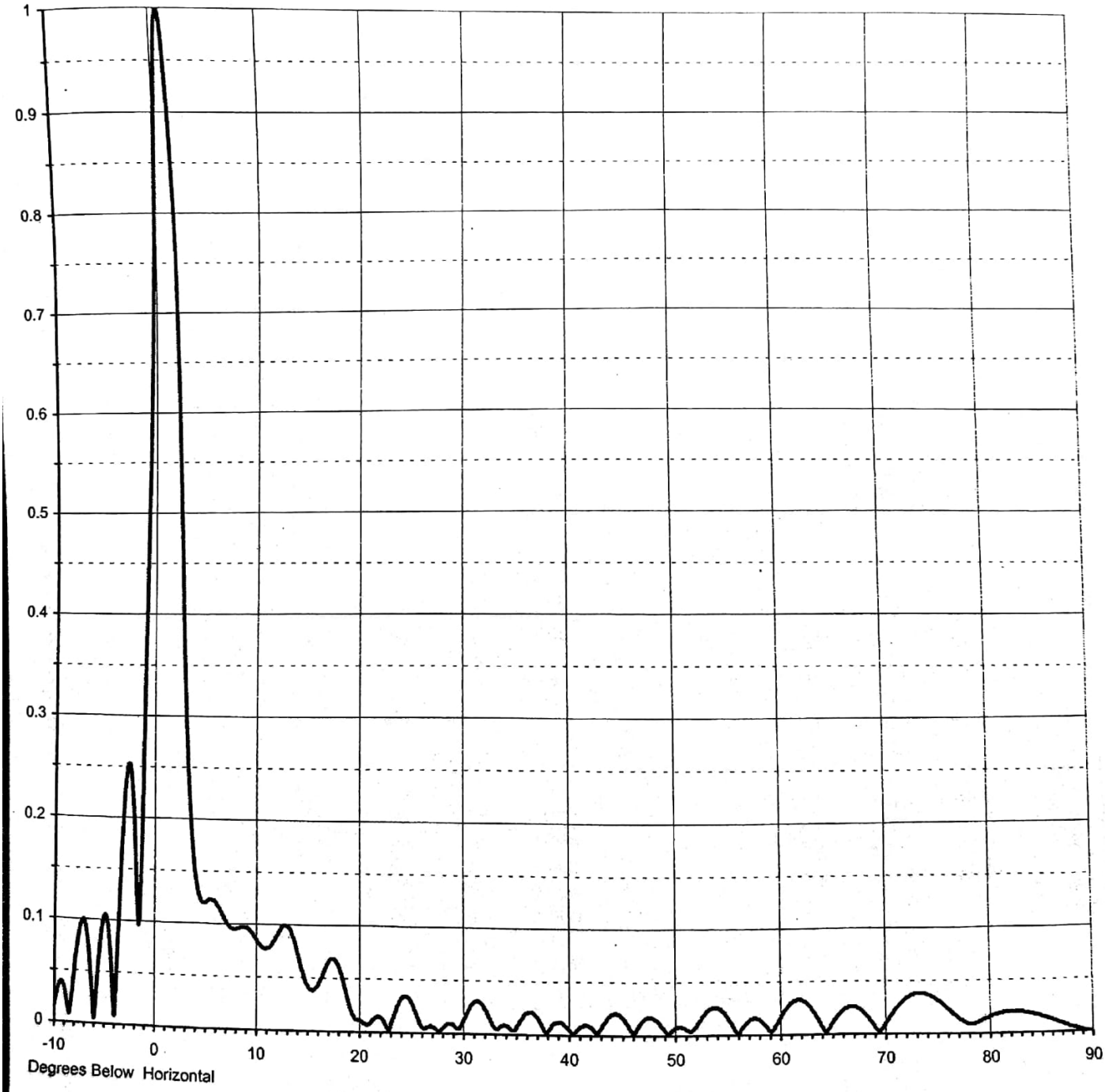
Scanned by CamScanner

Dielectric

Proposal Number	DCA-8187		
Date	19-Feb-99		
Call Letters	WHA-DT	Channel	20
Location	Madison, WI		
Customer			
Antenna Type	TFU-28GBH-R O6 DC		

ELEVATION PATTERN

RMS Gain at Main Lobe	23.50 (13.71 dB)	Beam Tilt	0.75 deg
RMS Gain at Horizontal	17.20 (12.36 dB)	Frequency	509.00 MHz
Calculated / Measured	Calculated	Drawing #	28G235075-90



Scanned by CamScanner

Dielectric

Proposal Number **DCA-8187**
Date **19-Feb-99**
Call Letters **WHA-DT** Channel **20**
Location **Madison, WI**
Customer
Antenna Type **TFU-28GBH-R O6 DC**

TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing #: **28G235075-90**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.016	2.4	0.520	10.6	0.079	30.5	0.021	51.0	0.006	71.5	0.029
-9.5	0.037	2.6	0.445	10.8	0.077	31.0	0.029	51.5	0.004	72.0	0.034
-9.0	0.033	2.8	0.376	11.0	0.077	31.5	0.030	52.0	0.008	72.5	0.037
-8.5	0.008	3.0	0.315	11.5	0.080	32.0	0.025	52.5	0.015	73.0	0.038
-8.0	0.049	3.2	0.264	12.0	0.088	32.5	0.015	53.0	0.022	73.5	0.038
-7.5	0.089	3.4	0.222	12.5	0.097	33.0	0.006	53.5	0.025	74.0	0.037
-7.0	0.098	3.6	0.190	13.0	0.099	33.5	0.007	54.0	0.026	74.5	0.034
-6.5	0.066	3.8	0.165	13.5	0.091	34.0	0.008	54.5	0.023	75.0	0.031
-6.0	0.005	4.0	0.146	14.0	0.075	34.5	0.005	55.0	0.017	75.5	0.027
-5.5	0.068	4.2	0.134	14.5	0.057	35.0	0.005	55.5	0.009	76.0	0.023
-5.0	0.104	4.4	0.126	15.0	0.043	35.5	0.013	56.0	0.001	76.5	0.018
-4.5	0.082	4.6	0.121	15.5	0.038	36.0	0.020	56.5	0.008	77.0	0.014
-4.0	0.008	4.8	0.120	16.0	0.042	36.5	0.021	57.0	0.013	77.5	0.011
-3.5	0.118	5.0	0.120	16.5	0.052	37.0	0.017	57.5	0.016	78.0	0.009
-3.0	0.220	5.2	0.122	17.0	0.064	37.5	0.009	58.0	0.015	78.5	0.009
-2.8	0.244	5.4	0.123	17.5	0.068	38.0	0.002	58.5	0.010	79.0	0.011
-2.6	0.253	5.6	0.123	18.0	0.062	38.5	0.009	59.0	0.004	79.5	0.014
-2.4	0.246	5.8	0.122	18.5	0.047	39.0	0.012	59.5	0.006	80.0	0.016
-2.2	0.222	6.0	0.120	19.0	0.028	39.5	0.011	60.0	0.015	80.5	0.018
-2.0	0.182	6.2	0.117	19.5	0.015	40.0	0.006	60.5	0.023	81.0	0.019
-1.8	0.131	6.4	0.113	20.0	0.011	40.5	0.001	61.0	0.029	81.5	0.020
-1.6	0.096	6.6	0.109	20.5	0.008	41.0	0.007	61.5	0.032	82.0	0.020
-1.4	0.132	6.8	0.105	21.0	0.008	41.5	0.010	62.0	0.033	82.5	0.020
-1.2	0.221	7.0	0.102	21.5	0.013	42.0	0.008	62.5	0.030	83.0	0.020
-1.0	0.330	7.2	0.099	22.0	0.014	42.5	0.003	63.0	0.025	83.5	0.019
-0.8	0.446	7.4	0.097	22.5	0.008	43.0	0.006	63.5	0.017	84.0	0.018
-0.6	0.561	7.6	0.096	23.0	0.005	43.5	0.013	64.0	0.008	84.5	0.017
-0.4	0.671	7.8	0.095	23.5	0.019	44.0	0.019	64.5	0.003	85.0	0.015
-0.2	0.770	8.0	0.095	24.0	0.031	44.5	0.020	65.0	0.011	85.5	0.013
0.0	0.855	8.2	0.096	24.5	0.034	45.0	0.017	65.5	0.018	86.0	0.012
0.2	0.922	8.4	0.097	25.0	0.029	45.5	0.011	66.0	0.023	86.5	0.010
0.4	0.969	8.6	0.097	25.5	0.018	46.0	0.002	66.5	0.026	87.0	0.008
0.6	0.995	8.8	0.097	26.0	0.006	46.5	0.007	67.0	0.026	87.5	0.006
0.8	1.000	9.0	0.097	26.5	0.005	47.0	0.014	67.5	0.024	88.0	0.004
1.0	0.984	9.2	0.095	27.0	0.006	47.5	0.017	68.0	0.019	88.5	0.003
1.2	0.949	9.4	0.093	27.5	0.003	48.0	0.016	68.5	0.013	89.0	0.002
1.4	0.898	9.6	0.091	28.0	0.004	48.5	0.012	69.0	0.006	89.5	0.001
1.6	0.834	9.8	0.089	28.5	0.009	49.0	0.006	69.5	0.002	90.0	0.000
1.8	0.761	10.0	0.086	29.0	0.009	49.5	0.002	70.0	0.010		
2.0	0.682	10.2	0.083	29.5	0.005	50.0	0.006	70.5	0.017		
2.2	0.600	10.4	0.081	30.0	0.011	50.5	0.008	71.0	0.024		

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