

ENGINEERING EXHIBIT
APPLICATION FOR CONSTRUCTION PERMIT
TELEVISION STATION WNYT-DT
ALBANY, NEW YORK

March 21, 2001

CHANNEL 12 9.1 KW 436 M

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Engineering Statement

This Engineering Exhibit was prepared on behalf of digital television broadcast station WNYT-DT, Albany, New York, in support of an application for construction permit. WNYT-DT is paired with analog NTSC TV station WNYT(TV), Channel 13. Pursuant to the recent *Report and Order* in MM Docket No. 00-183^{*}, WNYT-DT was allotted Channel 12, with a maximum effective radiated power (ERP) of 10.0 kW and antenna height above average terrain (HAAT) of 421 m, as its transitional DTV allotment channel using an allotment reference site located near New Scotland, New York. The instant application proposes operation of the WNYT-DT facility using a new antenna supporting structure to be constructed close to the FCC allotment reference site. The proposal complies with the DTV application filing requirements and interference protection requirements previously outlined by the Commission.[†]

^{*} See *Report and Order*, MM Docket No. 00-183, RM-9959, In the Matter of Amendment of Section 73.622(b), Table of Allotments, Digital Television Broadcast Stations (Albany, New York), Adopted: January 31, 2001, Released: February 1, 2001, DA 01-218.

[†] See FCC *Public Notice*, "Commission Details Application Filing Procedures Digital Television (DTV)", Released: October 16, 1997; and, FCC *Public Notice*, "Additional Application Processing Guidelines for Digital Television (DTV)", Released: August 10, 1998.

Proposed Facilities

The proposed transmitting antenna will be mounted near the top of a proposed new 152-m (499-ft) antenna structure to be constructed on Camp Pinnacle Road approximately 8 km west of New Scotland, Albany County, New York. The transmitter site elevation is 542.8 m AMSL (1781 ft AMSL). The antenna center of radiation will be located at 149 m (490 ft) above ground level (692 m AMSL). The proposed WNYT-DT facility will operate on Channel 12 with a nominal ERP of 9.6 dBk (9.1 kW) and antenna radiation center HAAT of 436 m. The proposed WNYT-DT ERP was determined according to the provisions of Section 73.622(f)(7)(ii) of the FCC Rules, which concerns the maximum permissible ERP for DTV stations operating on Channels 7-13 in Zone I.

The proposed facility provides minimum 43 dBu, f(50,90), coverage of Albany in compliance with Section 73.625(a)(1) of the FCC Rules, as recently adopted by the FCC in MM Docket No. 00-39. Figure 1 herein is a tabulation of the calculated distances to the predicted WNYT-DT coverage contours. Figure 2 herein is a map depicting the predicted coverage contours of the proposed facility.

Tower Registration

The proposed antenna structure has not yet been registered with the FCC. The FAA has been notified of the proposal. Upon receipt of an FAA Determination of No Hazard to Air Navigation, the proposed antenna structure will be registered with the Commission; and the registration number will be provided to the Video Services Division.

Allocation Considerations

The proposed WNYT-DT Channel 12 facility meets the requirements of Section 73.623 of the FCC Rules concerning predicted interference to other existing U.S. NTSC facilities and U.S. DTV allotments and assignments. Longley-Rice interference analyses were conducted pursuant to the requirements of the FCC Rules; OET Bulletin No. 69; and published FCC guidelines for preparation of such interference analyses. The Longley-Rice interference analyses were conducted using the software developed by du Treil, Lundin & Rackley, Inc. based on the FCC published software routines.[‡] Stations selected for analysis were determined pursuant to the distance requirements outlined in the FCC DTV Processing Guidelines Public Notice. Accordingly, co-channel DTV and NTSC stations within 429 km and 420 km, respectively, were examined for potential interference; and first-adjacent DTV and NTSC stations within 229 km and 220 km, respectively, were examined for potential interference. The results of the interference analyses for the proposed WNYT-DT facility are summarized herein at Figure 3A. As indicated therein, the proposed facility will meet the 2%/10% criterion outlined in the FCC Rules and published guidelines with respect to all considered stations.[§]

With respect to Class A TV station protection, the proposal has been evaluated according to the requirements of Section 73.623(c)(5) of the FCC Rules. The analysis reveals one potentially affected Class A TV station as follows:

W12BZ, Rome-NY, Channel 12 (BLTVL-19930614IB)

[‡] The duTreil, Lundin & Rackley, Inc. DTV interference analysis program is a precise implementation of the procedures outlined by the FCC in the Sixth Report and Order; subsequent Memorandum Opinion and Order; and FCC OET Bulletin No. 69. A nominal grid size resolution of 2 km was employed.

[§] Interference analysis results reflect the net change in interference to a given station considering the interference predicted to occur from all other stations (i.e. “masking”) including the allotment facility for

The W12BZ facility protected contour is the 68 dBu f(50,50) contour. The co-channel desired-to-undesired (D/U) ratio is 34 dB. The interfering contour to W12BZ is thus the 34 dBu f(50,10) contour. The WNYT-DT allotment facility predicted 34 dBu f(50,10) interfering contour entirely overlaps the protected 68 dBu protected contour of W12BZ. The proposed WNYT-DT 34 dBu f(50,10) contour also fully encompasses the W12BZ protected contour. So the status quo with respect to W12BZ is maintained. (It is noted that the proposed WNYT-DT facility results in a 1 km reduction in the 34 dBu interfering contour in the direction of W12BZ.) Furthermore, an analysis conducted under the provisions of FCC OET Bulletin No. 69 indicates that the W12BZ facility will in fact receive no (0) interference within its protected 68 dBu contour from either the WNYT-DT allotment facility or the WNYT-DT proposed facility. Therefore, the proposed WNYT-DT facility complies with Section 73.623(c)(5) of the FCC Rules concerning Class A station protection.

Canadian Allocation Considerations

The proposed facility was evaluated in accordance with the principles outlined in the recently signed U.S.-Canada Letter of Understanding (LOU) concerning digital television.** According the LOU, the proposed WNYT-DT facility would exceed the maximum LOU “Class VL” facility. However, the WNYT-DT proposal was assumed to be Class VL for study purposes. A spacing analysis was conducted according to the spacing requirements of Appendix 2 of LOU. The following table summarizes the spacing analysis for the pertinent Canadian allotments identified:

WPEC-DT. This properly reflects the net interference change for determining compliance with the FCC DTV2%/10% *de minimis* standard.

**See Letter Of Understanding Between The Federal Communications Commission Of The United States Of America And Industry Canada Related To The Use Of The 54-72 MHz, 76-88 MHz, 174-216 MHz And 470-806 MHz Bands For The Digital Television Broadcasting Service Along The Common Border, September 22, 2000.

Channel	Type	Location	Class	Required Spacing (km)	Actual Spacing (km)	Result
12	TV	Montreal-QU	VU	283.0	321.6	38.6 km clear
12	DT	Ottawa-ON	VL	328.0	352.1	24.1 km clear
12	TV	Peterborough-ON	VU	283.0	395.4	112.4 km clear

The proposed WNYT-DT facility is fully-spaced with a significant spacing margin to all relevant Canadian allotment facilities. The WNYT-DT allotment facility is located 247.3 m from the closest point on the US/Canada border. The proposed WNYT-DT facility is located 247.6 km from the closest point on the US/Canada border. The WNYT-DT allotment was approved by Canada and the proposed WNYT-DT facility is essentially equivalent to the allotment facility, which has been previously approved by the Canadian Administration. Given the above factors, the proposed facility is believed to be compliant with the LOU and would be acceptable to the Canadian Administration.

Environmental Considerations

With respect to the potential for human exposure to radio frequency (RF) radiation, calculations prepared in accordance with FCC Bulletin OET-65 (Edition 97-01) indicate that the proposal will not result in human exposure to RF radiation at ground level in excess of FCC standards. Power density calculations were conducted at 2-m above ground^{††} based on the following conservative assumptions, with the following results:

^{††} The radiation center height above ground is 149 m.

Call Sign	Channel	Peak Visual ERP or Average ERP (kW)	Aural ERP (kW)	Relative Field Factor^{††}	FCC Limit^{§§} (mW/cm²)	Percentage of Limit
WNYT-DT	12	9.1	--	0.40	0.200	1.13%

As indicated above, the exposure to RF radiation at 2-m above ground level will not exceed 1.13% of the FCC limit for general population / uncontrolled exposure.

Therefore, the proposal complies with the FCC limits for human exposure to RF radiation and it is categorically excluded from environmental processing. The applicant, in coordination with any other users of the transmission facility, shall reduce power or cease operation as necessary to protect persons having access to the WNYT-DT tower or antenna from radio frequency radiation in excess of the FCC guidelines.

Louis Robert du Treil, Jr.

March 21, 2001

^{††} This is a conservative estimate of the relative field factor in the downward direction.
^{§§} for general population/uncontrolled environments

Figure 1

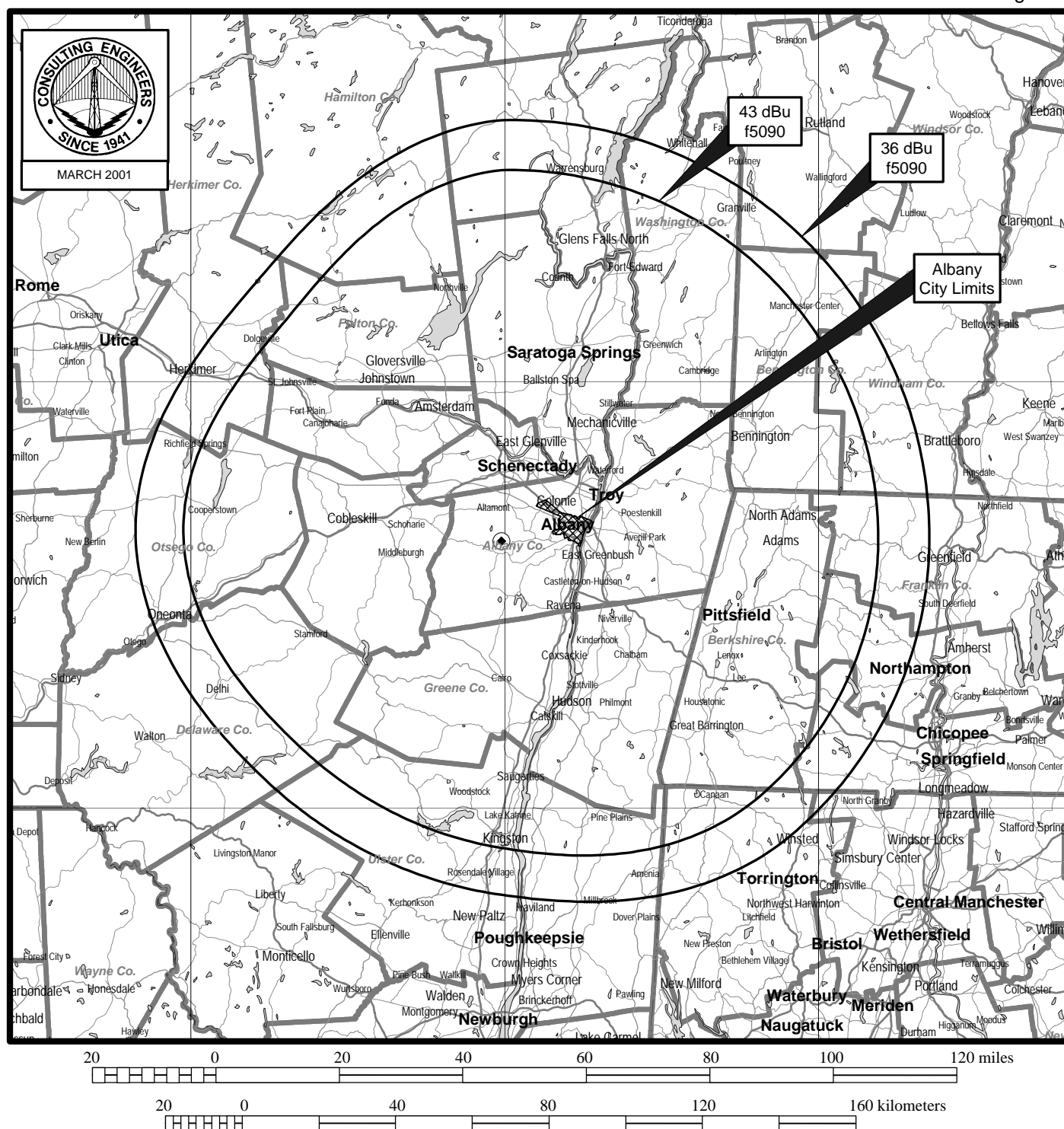
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Tabulation of Average Elevations and
Distances to Predicted Coverage Contours

Azimuth (deg.T)	3-16 km Average Terrain (m)	Antenna HAAT (m)	ERP (kW)	43 dBu f(50,90) Contour (km)	36 dBu f(50,90) Contour (km)
0	126	566	9.1	96.9	109.9
45	98	594	9.1	98.0	111.2
90	90	602	9.1	98.2	111.6
135	162	530	9.1	94.8	107.9
180	384	308	9.1	80.0	92.2
225	467	225	9.1	75.3	87.7
270	343	349	9.1	82.9	95.3
315	381	311	9.1	80.2	92.4

Note: The 3-16-km average terrain is 256 m based on the eight conventional radials (0°, 45°, 90°, etc.). The overall antenna radiation center height above average terrain is 436 m based on the eight conventional radials.

Figure 2



PREDICTED COVERAGE CONTOURS

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du Treil, Lundin & Rackley, Inc. Sarasota, Florida

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Summary of Domestic Allocation Analysis

Stations Potentially Affected by Proposed Station							
Facility Number	Channel	Call	City State	Distance (km)	Status	Application Prefix	Application Reference Number
1	11	WWLP-DT	SPRINGFIELD MA	123	APP	BPCDT	19991029ADM
2	11	WWLP-DT	SPRINGFIELD MA	123	PLN	DTVPLN	DTVP0077
3	11	WPIX	NEW YORK NY	212.7	LIC	BLCT	19810826KH
4	11	WBRE-DT	WILKES-BARRE PA	222.4	APP	BMPCDT	20000501ACL
5	11	WBRE-DT	WILKES-BARRE PA	222	PLN	DTVPLN	DTVP0082
6	12	WTXX	HARTFORD CT	141.2	APP	BPCDT	19991101AKD
7	12	WTXX-DT	WATERBURY CT	147.8	PLN	DTVPLN	DTVP0090
8	12	WHYY-TV	WILMINGTON DE	304.9	LIC	BLET	19940707KE
9	12	WBNG-TV	BINGHAMTON NY	171.4	LIC	BLCT	19870821KE

Stations Potentially Affected by Proposed Station							
Facility Number	Channel	Call	City State	Distance (km)	Status	Application Prefix	Application Reference Number
10	12	WPRI-TV	PROVIDENCE RI	239.4	LIC	BLCT	1750
11	12	CHEXTV	PETERBOROUGH ON	394.4	LIC	CANADA	614
12	12	CFCFTV	MONTREAL QU	321.9	LIC	CANADA	625
13	13	WNET	NEWARK NJ	212.7	LIC	BLET	19811110KG
14	13	WNYT	ALBANY NY	35.9	LIC	BLCT	19800314KF
15	13	WYOU	SCRANTON PA	222.4	APP	BPCDT	19991103ABM
16	13	WYOU-DT	SCRANTON PA	222.4	PLN	DTVPLN	DTVP0109

Summary of Interference Analysis for Worst-Case Scenarios							
Facility Number	Interference Population Before Analysis	Interference Population After Analysis	Baseline Population	Net Change in Interference	Percent of Baseline	Permissible Percent of Baseline	Result
1	296800	297060	2128233	260	0.012	2.0	pass
2	308437	308772	2128233	335	0.016	2.0	pass
3	--	--	--	--	0.00	--	pass
4	--	--	--	--	0.00	--	pass
5	--	--	--	--	0.00	--	pass
6	349754	374707	4510037	24953	0.55	2.0	pass

Summary of Interference Analysis for Worst-Case Scenarios							
Facility Number	Interference Population Before Analysis	Interference Population After Analysis	Baseline Population	Net Change in Interference	Percent of Baseline	Permissible Percent of Baseline	Result
7	626626	664422	4510037	37796	0.84	2.0	pass
8	--	--	--	--	0.00	--	pass
9	29579	34292	1228001	4713	0.38	2.0	pass
10	755714	757430	6383916	1716	0.027	2.0	pass
11	--	--	--	--	0.00	--	pass
12	--	--	--	--	0.00	--	pass
13	--	--	--	--	0.00	--	pass
14	12973	16954	1362371	3981	0.29	2.0	pass
15	--	--	--	--	0.00	--	pass
16	--	--	--	--	0.00	--	pass

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Transmitting Antenna
Manufacturer's Vertical Plane Pattern Data

(two pages follow)



Date

21 Mar 2001

Call Letters

Channel 12

Location

ALBANY-NY

Customer

Antenna Type

THA-O4-2/8-1

ELEVATION PATTERN

RMS Gain at Main Lobe

2.1 (3.22 dB)

Beam Tilt

0.00 Degrees

RMS Gain at Horizontal

2.1 (3.22 dB)

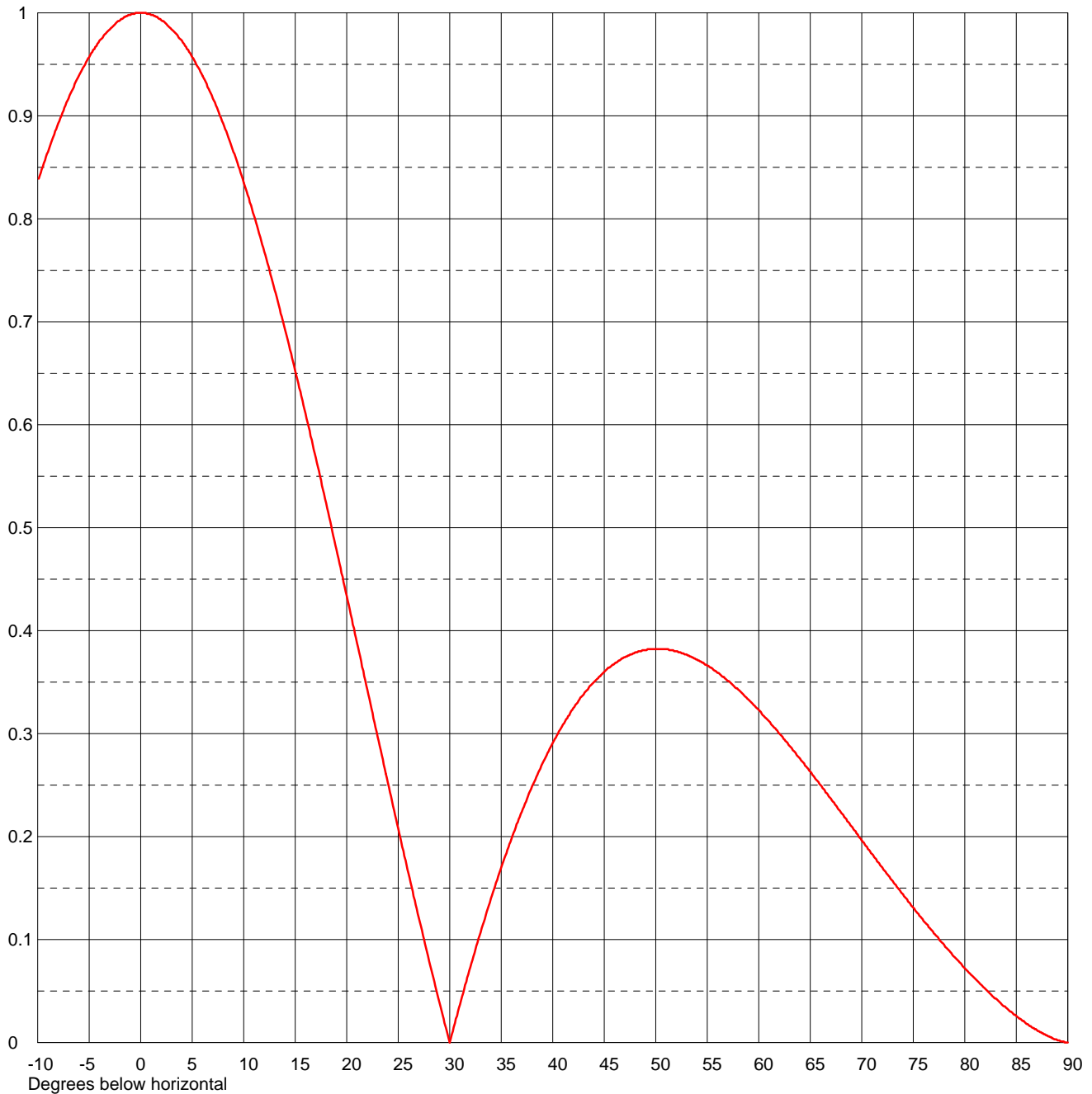
Frequency

207.00 MHz

Calculated / Measured

Calculated

Drawing #

02H021000-90

Remarks:



Date **21 Mar 2001**
 Call Letters
 Location **ALBANY-NY**
 Customer
 Antenna Type **THA-O4-2/8-1**

Channel **12**

TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing # **02H021000-90**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.835	2.4	0.990	10.6	0.816	30.5	0.019	51.0	0.382	71.5	0.176
-9.5	0.851	2.6	0.988	10.8	0.810	31.0	0.037	51.5	0.381	72.0	0.170
-9.0	0.865	2.8	0.986	11.0	0.803	31.5	0.056	52.0	0.380	72.5	0.163
-8.5	0.879	3.0	0.984	11.5	0.786	32.0	0.073	52.5	0.378	73.0	0.157
-8.0	0.893	3.2	0.982	12.0	0.768	32.5	0.091	53.0	0.377	73.5	0.150
-7.5	0.905	3.4	0.980	12.5	0.750	33.0	0.107	53.5	0.374	74.0	0.144
-7.0	0.917	3.6	0.978	13.0	0.731	33.5	0.124	54.0	0.372	74.5	0.137
-6.5	0.928	3.8	0.975	13.5	0.712	34.0	0.140	54.5	0.369	75.0	0.131
-6.0	0.939	4.0	0.973	14.0	0.693	34.5	0.155	55.0	0.366	75.5	0.125
-5.5	0.948	4.2	0.970	14.5	0.673	35.0	0.170	55.5	0.363	76.0	0.118
-5.0	0.957	4.4	0.967	15.0	0.652	35.5	0.184	56.0	0.359	76.5	0.112
-4.5	0.965	4.6	0.964	15.5	0.632	36.0	0.198	56.5	0.355	77.0	0.106
-4.0	0.973	4.8	0.961	16.0	0.611	36.5	0.212	57.0	0.351	77.5	0.100
-3.5	0.979	5.0	0.957	16.5	0.589	37.0	0.224	57.5	0.347	78.0	0.095
-3.0	0.984	5.2	0.954	17.0	0.568	37.5	0.237	58.0	0.343	78.5	0.089
-2.8	0.986	5.4	0.950	17.5	0.546	38.0	0.249	58.5	0.338	79.0	0.083
-2.6	0.988	5.6	0.947	18.0	0.524	38.5	0.260	59.0	0.333	79.5	0.078
-2.4	0.990	5.8	0.943	18.5	0.501	39.0	0.271	59.5	0.328	80.0	0.072
-2.2	0.992	6.0	0.939	19.0	0.479	39.5	0.281	60.0	0.323	80.5	0.067
-2.0	0.993	6.2	0.935	19.5	0.456	40.0	0.291	60.5	0.317	81.0	0.062
-1.8	0.994	6.4	0.931	20.0	0.434	40.5	0.300	61.0	0.312	81.5	0.057
-1.6	0.996	6.6	0.926	20.5	0.411	41.0	0.309	61.5	0.306	82.0	0.052
-1.4	0.997	6.8	0.922	21.0	0.388	41.5	0.317	62.0	0.300	82.5	0.047
-1.2	0.998	7.0	0.917	21.5	0.365	42.0	0.325	62.5	0.294	83.0	0.043
-1.0	0.998	7.2	0.913	22.0	0.343	42.5	0.332	63.0	0.288	83.5	0.038
-0.8	0.999	7.4	0.908	22.5	0.320	43.0	0.338	63.5	0.282	84.0	0.034
-0.6	0.999	7.6	0.903	23.0	0.297	43.5	0.345	64.0	0.276	84.5	0.030
-0.4	1.000	7.8	0.898	23.5	0.275	44.0	0.350	64.5	0.269	85.0	0.026
-0.2	1.000	8.0	0.893	24.0	0.252	44.5	0.355	65.0	0.263	85.5	0.022
0.0	1.000	8.2	0.887	24.5	0.230	45.0	0.360	65.5	0.256	86.0	0.018
0.2	1.000	8.4	0.882	25.0	0.208	45.5	0.364	66.0	0.250	86.5	0.015
0.4	1.000	8.6	0.877	25.5	0.186	46.0	0.368	66.5	0.243	87.0	0.012
0.6	0.999	8.8	0.871	26.0	0.164	46.5	0.371	67.0	0.237	87.5	0.009
0.8	0.999	9.0	0.865	26.5	0.142	47.0	0.374	67.5	0.230	88.0	0.007
1.0	0.998	9.2	0.860	27.0	0.121	47.5	0.377	68.0	0.223	88.5	0.004
1.2	0.998	9.4	0.854	27.5	0.100	48.0	0.379	68.5	0.217	89.0	0.002
1.4	0.997	9.6	0.848	28.0	0.079	48.5	0.380	69.0	0.210	89.5	0.001
1.6	0.996	9.8	0.842	28.5	0.059	49.0	0.381	69.5	0.203	90.0	0.000
1.8	0.994	10.0	0.835	29.0	0.039	49.5	0.382	70.0	0.196		
2.0	0.993	10.2	0.829	29.5	0.019	50.0	0.382	70.5	0.190		
2.2	0.992	10.4	0.823	30.0	0.000	50.5	0.382	71.0	0.183		

Remarks: