

TECHNICAL EXHIBIT  
AMENDMENT OF APPLICATION FOR  
CONSTRUCTION PERMIT  
TELEVISION STATION WEWB-DT  
SCHENECTADY, NEW YORK

February 6, 2002

CHANNEL 43 676 KW(MAX-DA) 413 M

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Technical Statement

This Technical Exhibit was prepared on behalf of digital television broadcast station WEWB-DT, Schenectady, New York, in support of an amendment to its pending application for construction permit (See FCC File No. BPEDT-19990830AAW). WEWB-DT is paired with analog NTSC TV station WEWB-TV, Channel 45. It is proposed that the WEWB-DT facility operate with a maximum directional average effective radiated power (ERP) of 28.3 dBk (676 kW) and an antenna radiation center height above average terrain (HAAT) of 413 m from the Capital Region Broadcasters joint tower ("CRB Tower") being constructed in the Helderberg Mountains. In addition to WEWB, the CRB Tower will support the TV/DTV transmissions for a number of broadcasters in the market including WNYT, WXXA, WTEN, WRGB and WMHT.

The instant amendment specifies the proposed operation of the WEWB-DT facility to conform with the specifications of the new CRB Tower; and to ensure compliance with the FCC DTV de minimis interference protection requirements.\*

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\* 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.

The transmitting antenna configuration is being changed in consideration of the use of a single shared directional antenna for both the analog and digital transmissions of WEWB.

### Proposed Facilities

The proposed transmitting antenna will be side-mounted on the CRB Tower. The CRB Tower will be a uniform cross-section guyed structure with an overall height above ground of 152.1 m (499 ft). The CRB Tower will be located near the end of Tower 3 Lane, Altamont, Albany County, New York. The transmitter site is located approximately 20 km south-southwest of Schenectady. The transmitter site elevation is 542.8 m AMSL (1781 ft AMSL). The antenna center of radiation will be located at 126 m above ground level and 669 m AMSL. Figure 1 is a sketch of the proposed antenna and supporting structure.

The proposed WEWB-DT facilities (676 kW-DA, 413 m) comply with Section 73.622(f)(8)(i) of the FCC rules concerning maximum allowable ERP and antenna height for DTV stations.

The proposed facility provides minimum 48 dBu, f(50,90), coverage of Schenectady 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 2 herein is a tabulation of the calculated distances to the predicted WEWB-DT coverage contours. Figure 3 herein is a map depicting the predicted coverage contours of the proposed facility.

### Tower Registration

The proposed antenna structure has been registered with the FCC. The FCC antenna structure registration number is 1231728. There will be no change in the overall height of the antenna structure as a result of the instant proposal.

### Domestic Allocation Considerations

The proposed WEWB-DT Channel 43 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.<sup>†</sup> 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 407 km, respectively, were examined for potential interference; and first-adjacent DTV and NTSC stations within 229 km and 207 km, respectively, were examined for potential interference. Analog taboo-related NTSC stations within 142 km were examined for potential interference. The results of the domestic interference analyses for the proposed WEWB-DT facility are summarized herein at Figure 4. 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.<sup>‡</sup>

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 no potentially affected Class A TV stations.

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<sup>†</sup> 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.

<sup>‡</sup> 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 WEWB-DT. This properly reflects the net interference change for determining compliance with the FCC DTV2%/10% *de minimis* standard.

Canadian Allocation Considerations

The proposed site is located 248 km from the closest point on the border with Canada and is located within the Canadian border area governed by the U.S.-Canada Letter of Understanding (LOU) concerning digital television.<sup>§</sup> The proposed WEWB-DT facility would exceed the largest class considered under the agreement, which is “Class VL.” The LOU does not specifically address this situation. For the purposes of the LOU, it is assumed that the facility does not meet the spacing requirements in the plan since it exceeds the maximum Class VL parameters.

For reference, a spacing analysis was conducted according to the spacing requirements of Appendix 2 of LOU with WEWB-DT assumed to be Class VL and using a “buffer” distance exceeding 125 km beyond the minimum spacing requirement. This study was employed to determine the stations to be studied under the contour analysis procedure. The following table summarizes the spacing analysis for the pertinent Canadian allotments identified:

Channel	Type	Location	Class	Required Spacing (km)	Actual Spacing (km)	Result
43	TV	Ottawa-ON	C	259.0	313.7	Contour Analysis
43	TV	Joliette-QU	B	197.0	379.5	Contour Analysis

A contour analysis was conducted pursuant to the principles outlined in Appendix 2 of the LOU with respect to both the Ottawa and Joliette allotments. Accordingly, the

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<sup>§</sup>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.

30.2 dBu,  $f(50,10)$ , interfering contour<sup>\*\*</sup> was predicted to determine the interference potential of WEWB-DT both TV allotments. The contour analysis is illustrated in Figure 5 herein. As indicated, there would be predicted WEWB-DT interfering contour overlap with the protected service areas of the Ottawa allotment.

Given the existence of WEWB-DT interfering contour overlap with the Ottawa allotment service area, an additional analysis was conducted using the Longley-Rice propagation model in accordance with the principles of the LOU. The Longley-Rice interference analyses were conducted using software developed by this firm based on the principles of the LOU.<sup>††</sup> The results of the analysis are summarized as follows:

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<sup>\*\*</sup> This is based on a protected contour of 64 dBu, with a co-channel D/U figure of 33.8 dBu for DTV into NTSC interference from Appendix 2 of the LOU.

<sup>††</sup> The Canadian Interference Analysis Program was developed according to the principles outlined in the 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 ("LOU"), which specifies the permissible use of the Longley-Rice propagation model. The Canadian Digital Elevation Data (CDED) terrain database 1998 was employed for Canada and the United States Geological Survey 3 Arc Second Terrain Elevation Data was employed for the United States. Population calculations were based on the Statistics Canada, Census Population data, 1996, for Canada. The program defines a uniform grid approximately 2.0 km on a side within the entire protected coverage area of the station of interest. The Canadian population within each grid area is determined. Longley-Rice calculations are conducted at the center of each grid point for both the desired and undesired stations. The appropriate location and time variability statistical parameters are employed as follows: For Canadian DTV allotments operating on Channels 2-59, location variability of 90% and time variability of 90%,  $f(90,90)$ ; For Canadian DTV allotments operating on Channels 60-69,  $f(50,90)$ ; for Canadian NTSC allotments,  $f(50,50)$ ; for US DTV stations that would interfere with Canadian DTV allotments on Channels 2-59,  $f(10,10)$ ; for US DTV stations that would interfere with Canadian DTV allotments on Channels 60-69,  $f(50,10)$ ; for US DTV stations that would interfere with Canadian NTSC allotments,  $f(50,10)$ . For Canadian DTV allotments, the maximum permissible parameters outlined in Table 4.3.2 of the LOU were employed for the analysis according to the class of station involved. For Canadian NTSC stations, the maximum permissible parameters outlined in the Table 4.3.3 were employed for the analysis according to the class of station involved. The minimum required field strength outlined in Section 1 of Appendix 2 of the LOU was employed in determining if desired service is predicted in a grid area. The DTV/NTSC protection ratios outlined in Section 2 of Appendix 2 of the LOU were employed in determining the presence or absence of interference within a grid area. The receiving antenna front-to-back ratios outlined in Section 1 of Appendix 2 were employed using the receiving antenna pattern outlined in ITU Recommendation 419-3. Reasonable approximations of transmitting antenna vertical patterns were employed based on the frequency band of interest. The sum of the Canadian population within the service area for the class of station involved is considered to be the population "baseline" against which the additional predicted interference population is compared. The sum of the area over Canadian land is considered to be the area baseline against which additional predicted interference area is compared.

Channel	Type	Location	Class	Predicted Interference Population	Service Population	Percent Interference
43	TV	Ottawa-ON	C	0	1,237,356	0.0%

As indicated, the proposed WEWB-DT facility will cause no predicted interference to the Ottawa allotment based on the Longley-Rice analysis. Based on the foregoing we find that the WEWB-DT proposed facility meets the 2% interference criteria outlined in Section 5 of the LOU.

#### Environmental Considerations

The proposal is categorically excluded from environmental processing under Section 1.1306 as the proposal would not exceed 5% of the radio frequency maximum permissible exposure (MPE) limit of Section 1.1310 of the FCC Rules as applicable to the proposed facility. Calculations of RF energy from the proposed facility were made at horizontal distances from the base of the tower at 2-m above ground level (AGL) under the procedures of OET Bulletin No. 65. For Channel 43 the MPE for general population / uncontrolled environments is  $0.429 \text{ mW/cm}^2$ . As indicated in Figure 6, the calculated RF exposure at 2-m above ground will not exceed  $0.0215 \text{ mW/cm}^2$ , or 5.0% of the MPE.

The transmitter site is restricted from access. In the event that personnel are required to climb the tower, the WEWB-DT transmissions will be reduced or terminated as necessary to prevent RF exposure above the FCC recommended limits. Furthermore, the applicant certifies that the established RF radiation exposure

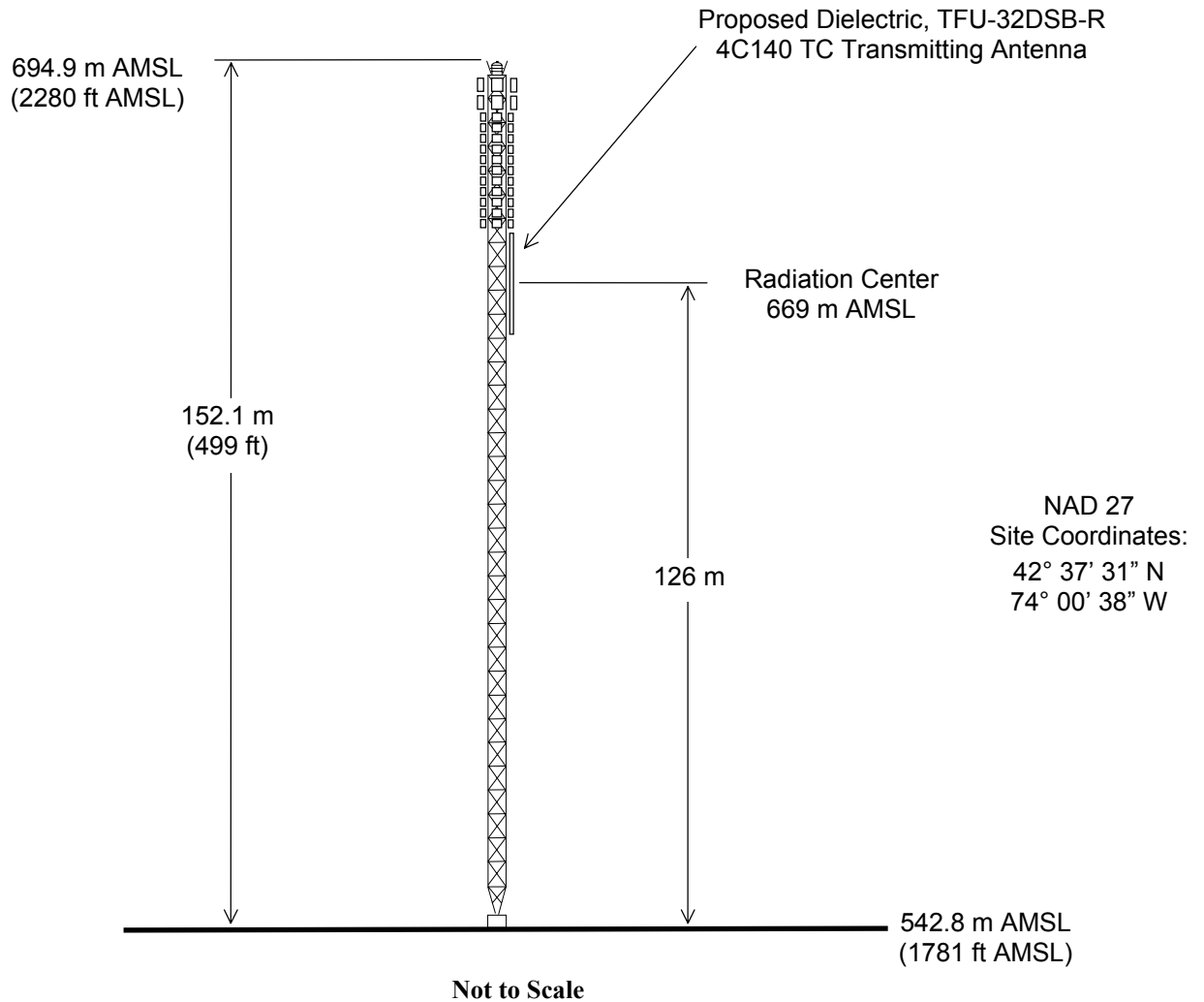
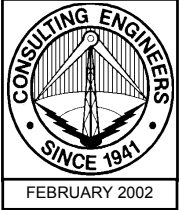


procedures will be coordinated with all other nearby stations such that no human exposure to RF radiation above the recommended levels shall occur.

Louis Robert du Treil, Jr.

February 7, 2002

FCC Registration No. 1231728



## ANTENNA AND SUPPORTING STRUCTURE

STATION WEWB-DT

SCHENECTADY, NEW YORK

CH 45 2950 KW(MAX-DA) 413 M

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

Figure 2

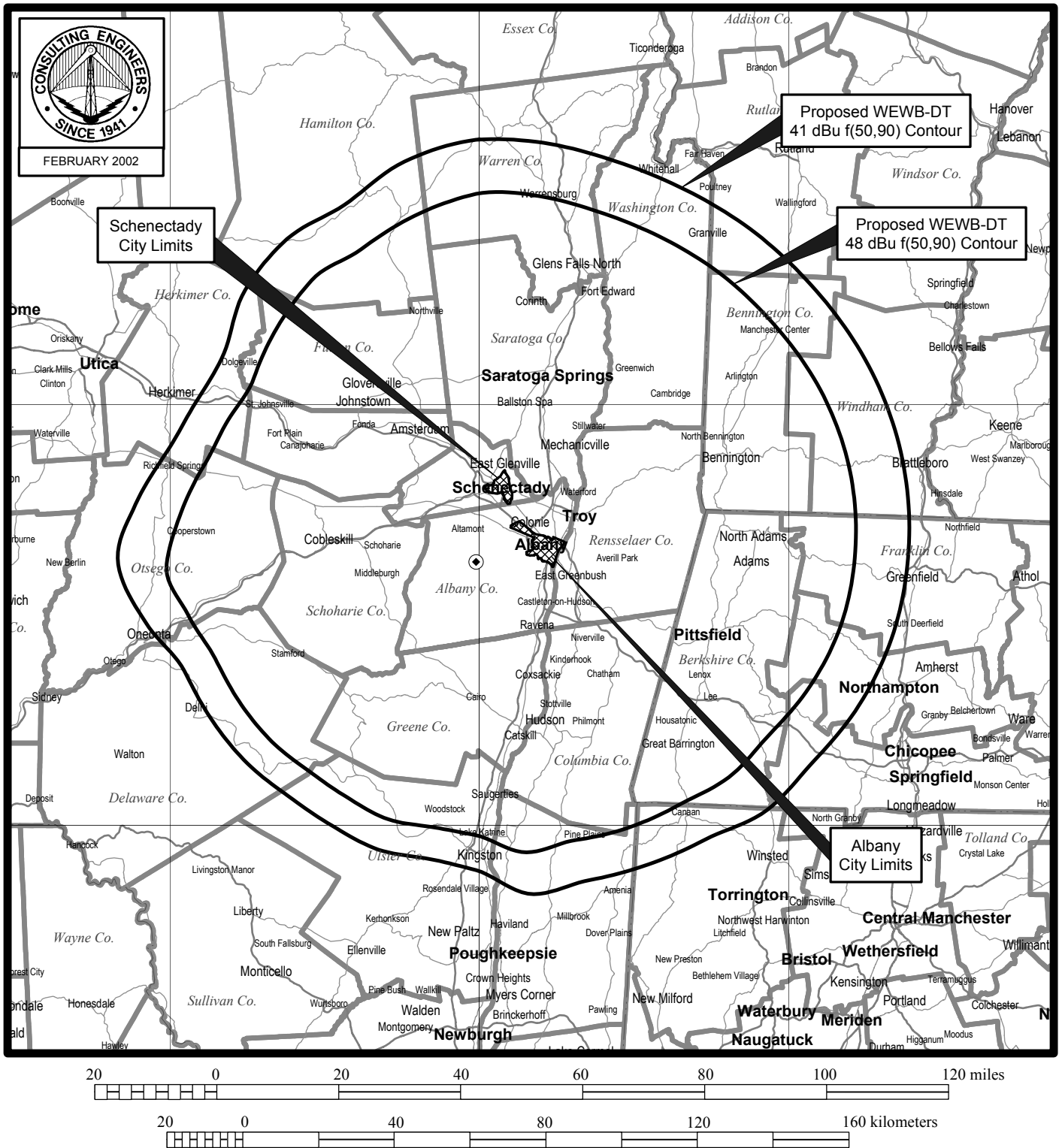
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 SCHENECTADY, NEW YORK  
 CHANNEL 43 676 KW (MAX-DA) 413 M

Tabulation of Average Elevations and  
 Distances to Predicted Coverage Contours

Azimuth (deg.T)	3-16 km Average Terrain (m)	Antenna HAAT (m)	ERP (kW)	48 dBu f(50,90) Contour (km)	41 dBu f(50,90) Contour (km)
0	126	543	531.9	97.2	111.5
15	103	566	483.8	97.9	112.0
30	103	566	523.5	98.6	112.7
45	98	571	603.7	100.1	114.3
60	93	576	667.9	101.3	115.5
75	82	587	662.5	101.8	116.0
90	90	579	563.5	100.0	114.1
105	103	566	400.8	96.3	110.3
120	137	532	252.4	90.2	103.9
135	162	507	188.5	86.4	99.4
150	266	403	189.2	81.0	92.1
165	341	328	186.3	74.9	85.6
180	384	285	206	72.2	81.4
195	417	252	313.5	72.0	80.4
210	462	207	480.4	70.9	79.4
225	467	202	620.4	71.8	80.5
240	460	209	676	72.8	81.6
255	414	255	642.6	75.9	85.6
270	343	326	564.7	81.8	94.6
285	382	287	496.5	77.2	88.4
300	403	266	494.2	75.4	85.0
315	381	288	579.7	78.2	90.1
330	313	356	663.9	86.0	98.7
345	244	425	634.7	90.3	103.8

Note: The 3-16-km average terrain is 256 m based on the eight conventional radials (0°, 45°, 90°, etc.). The N.G.D.C. linearly interpolated 3-second terrain database was employed in determining the average terrain elevations. The overall antenna radiation center height above average terrain is 413 m based on the eight conventional radials.

Figure 3



## PREDICTED COVERAGE CONTOURS

TELEVISION STATION WEWB-DT  
SCHENECTADY, NEW YORK  
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du Treil, Lundin & Rackley, Inc. Sarasota, Florida

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Summary of Domestic Allocation Analysis

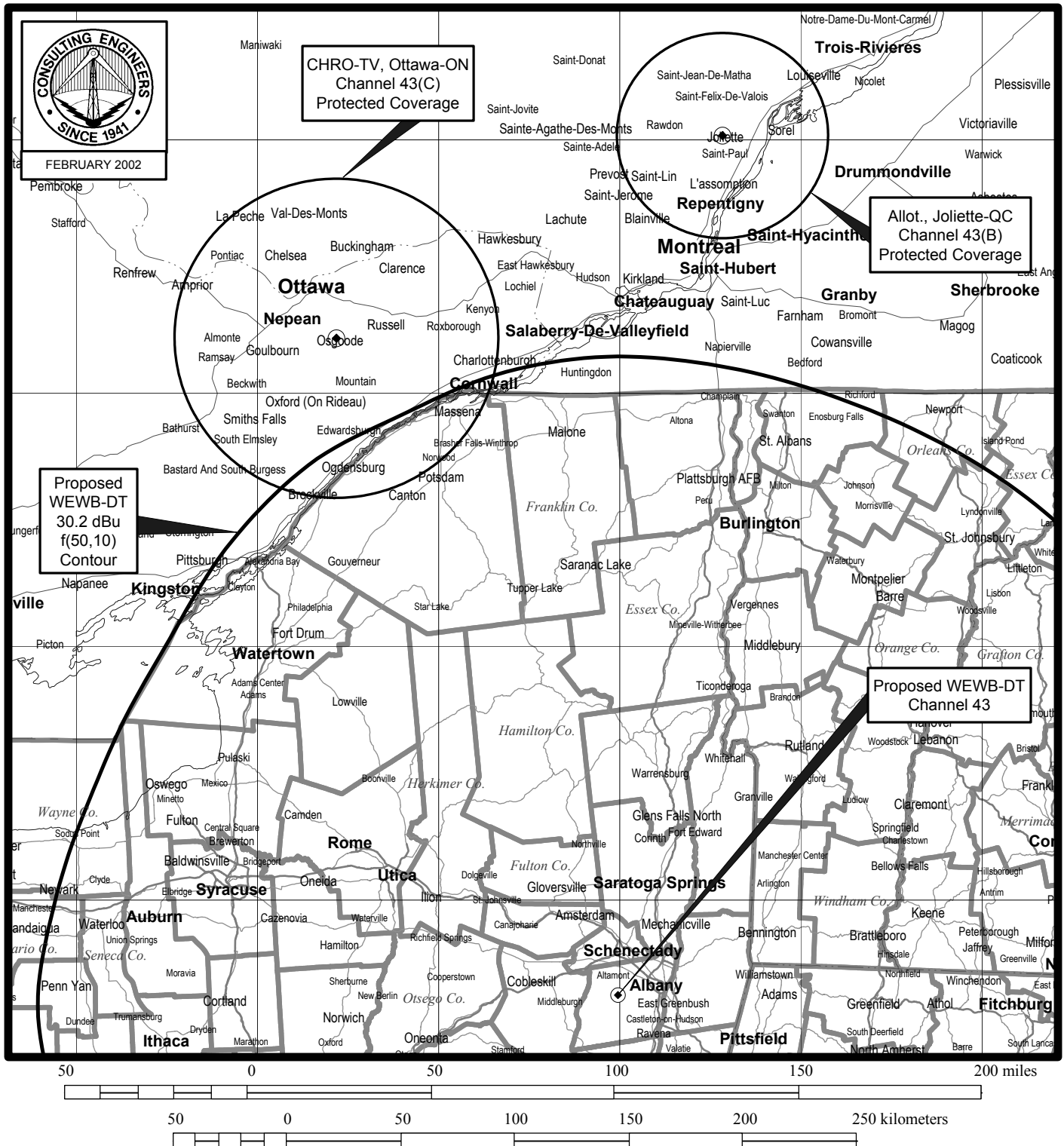
Stations Potentially Affected by Proposed Station							
Facility Number	Channel	Call	City State	Distance (km)	Status	Application Prefix	Application Reference Number
1	28	WVER	RUTLAND VT	136.3	LIC	BLET	19930715KJ
2	29	960724KU	SCHENECTADY NY	35.9	APP	BPET	19960724KU
3	40	WGGB-TV	SPRINGFIELD MA	119.5	LIC	BLCT	19990429KH
4	42	WSAH-DT	BRIDGEPORT CT	158.8	APP	BPCDT	19991101AFE
5	42	WHAI-DT	BRIDGEPORT CT	158.8	PLN	DTVPLN	DTVP1123
6	42	WSKG-DT	BINGHAMTON NY	171	CP	BPEDT	20000307AAB
7	42	WSKG-DT	BINGHAMTON NY	171	PLN	DTVPLN	DTVP1140
8	43	WSAH	BRIDGEPORT CT	158.8	LIC	BLCT	19871009KE
9	43	WGBX-DT	BOSTON MA	230.1	CP	BPEDT	19980827KE

Stations Potentially Affected by Proposed Station							
Facility Number	Channel	Call	City State	Distance (km)	Status	Application Prefix	Application Reference Number
10	43	WGBX-DT	BOSTON MA	230.1	PLN	DTVPLN	DTVP1165
11	43	WPXT	PORTLAND ME	327.8	APP	BPRM	20000413AAB
12	43	WNJT-DT	TRENTON NJ	266.4	PLN	DTVPLN	DTVP1172
13	43	WNED-DT	BUFFALO NY	402.7	PLN	DTVPLN	DTVP1173
14	43	WNYS-TV	SYRACUSE NY	180.9	LIC	BLCT	19961202LO
15	43	WPMT	YORK PA	360.7	LIC	BLCT	19840905KI
16	43	WPMT	YORK PA	360.7	CP	BPCT	19960724KK
17	43	WFFF-DT	BURLINGTON VT	232.1	APP	BPCDT	19991029ABX
18	43	WFFF-DT	BURLINGTON VT	232.1	PLN	DTVPLN	DTVP1186
19	44	WNYW	NEW YORK NY	208.6	STA	BDSTA	20011102ABO
20	44	WNYW-DT	NEW YORK NY	212.7	PLN	DTVPLN	DTVP1214
21	44	WNYW	NEW YORK NY	208.6	APP	BMPCDT	19990402KI
22	44	WNYS-DT	SYRACUSE NY	180.9	APP	BPCDT	19991027ADD
23	44	WNYS-DT	SYRACUSE NY	180.9	PLN	DTVPLN	DTVP1215
24	45	WMHQ	SCHENECTADY NY	0.2	LIC	BLCT	19850114KJ
43	51	960724LI	PITTSFIELD MA	60	APP	BPCT	19960724LI

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	--	--	--	--	0.00	--	pass
2	90263	90351	1156021	88	0.008	2.0	pass
3	--	--	--	--	0.00	--	pass
4	175464	175464	2734071	0	0	2.0	pass
5	--	--	--	--	0.00	--	pass
6	--	--	--	--	0.00	--	pass
7	--	--	--	--	0.00	--	pass
8	143971	170973	3018157	27002	0.895	2.0	pass
9	22324	30148	5738446	7824	0.136	2.0	pass
10	111786	113689	5738446	1903	0.033	2.0	pass
11	84355	84363	665628	8	0.001	2.0	pass
12	961886	961886	7781477	0	0	--	pass
13	--	--	--	--	0.00	--	pass
14	6709	11927	1074157	5218	0.486	2.0	pass
15	--	--	--	--	0.00	--	pass
16	--	--	--	--	0.00	--	pass
17	3089	5103	453292	2014	0.444	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
18	2967	4559	453292	1592	0.351	2.0	pass
19	--	--	--	--	0.00	--	pass
20	--	--	--	--	0.00	--	pass
21	--	--	--	--	0.00	--	pass
22	16860	16979	1010931	119	0.012	2.0	pass
23	--	--	--	--	0.00	--	pass
24	4204	4330	1435680	126	0.01	2.0	pass
43	68498	82349	1332082	13851	1.04	2.0	pass



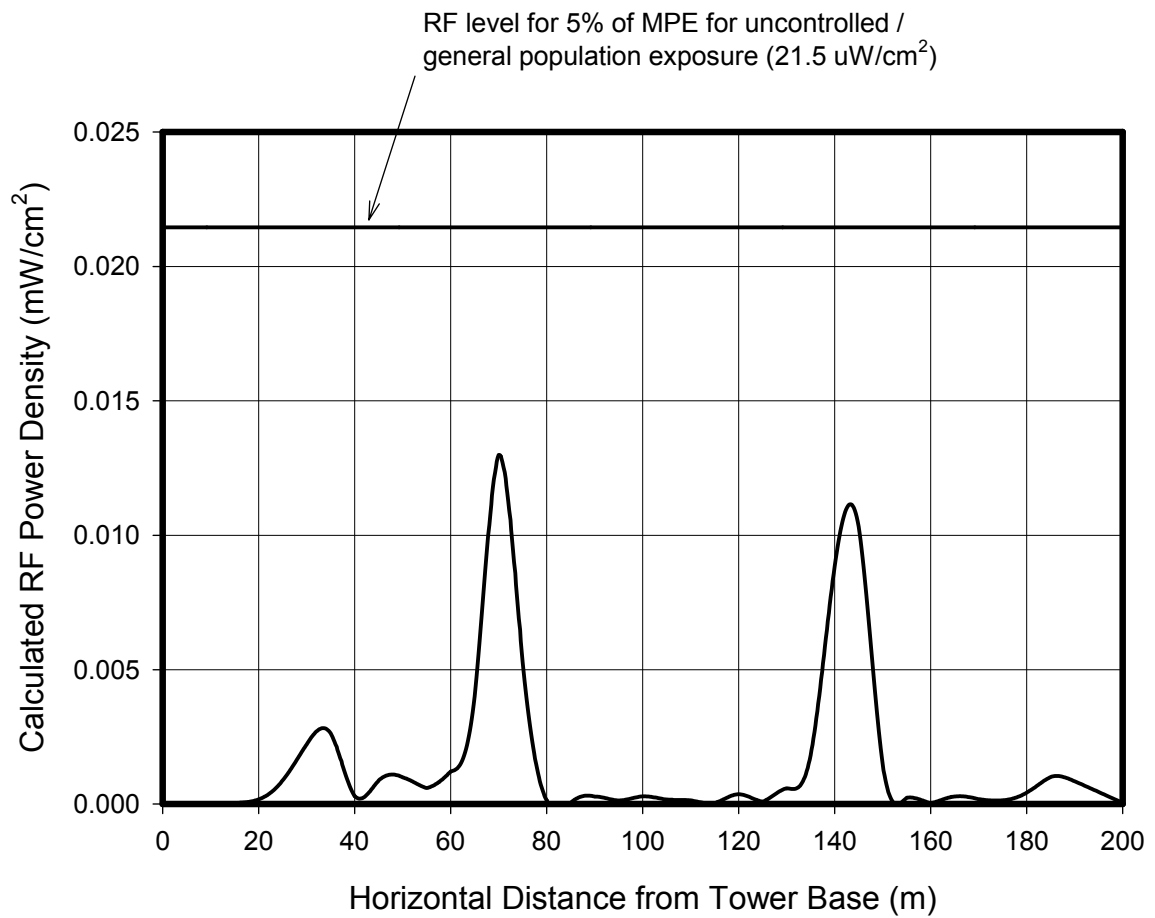


## CANADIAN ALLOCATION ANALYSIS MAP

TELEVISION STATION WEWB-DT  
SCHENECTADY, NEW YORK  
CHANNEL 43 676 KW (MAX-DA) 413 M

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

Figure 6



Based on maximum horizontally polarized average ERP of 676 kW.

## **CALCULATED RF POWER DENSITY AT 2-M AGL**

TELEVISION STATION WEWB-DT  
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du Treil, Lundin & Rackley, Inc. Sarasota, Florida

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Transmitting Antenna  
Manufacturer's Pattern Data

(four pages follow)



Exhibit No.

Date  
Call Letters  
Location  
Customer  
Antenna Type

06 Feb 2002

Channel

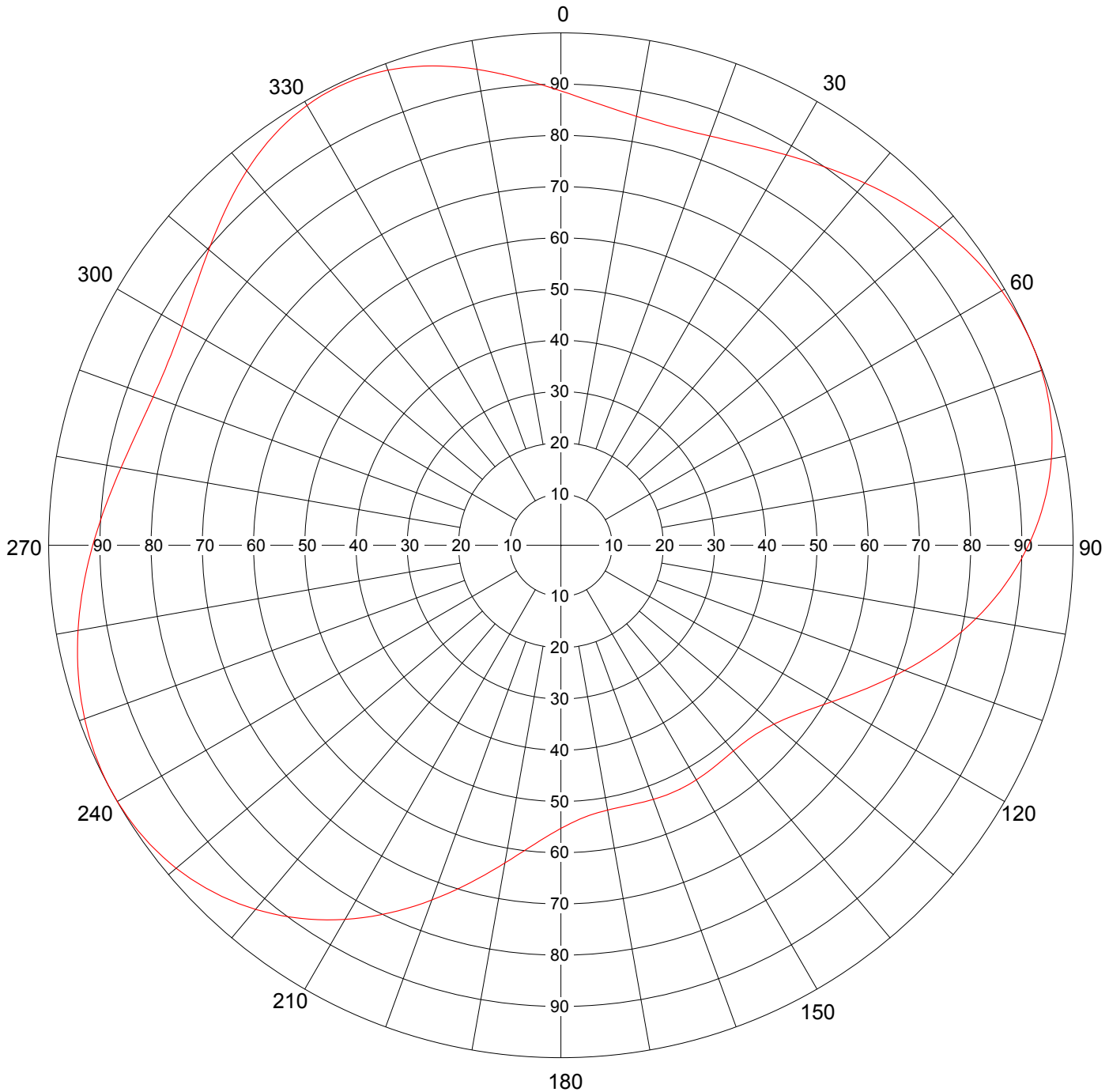
### AZIMUTH PATTERN

RMS Gain at Main Lobe  
Calculated / Measured

**1.40 (1.46 dB)**  
**Calculated**

Frequency  
Drawing #

**MHz**  
**TFU-4C140-TC**



Remarks:



Date

06 Feb 2002

Call Letters

Channel

Location

Customer

Antenna Type

## TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing #

TFU-4C140-TC

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.887	45	0.945	90	0.913	135	0.528	180	0.552	225	0.958	270	0.914	315	0.926
1	0.882	46	0.949	91	0.905	136	0.527	181	0.558	226	0.963	271	0.910	316	0.932
2	0.877	47	0.953	92	0.897	137	0.526	182	0.564	227	0.968	272	0.905	317	0.938
3	0.872	48	0.957	93	0.889	138	0.525	183	0.571	228	0.972	273	0.901	318	0.943
4	0.868	49	0.961	94	0.880	139	0.524	184	0.578	229	0.976	274	0.896	319	0.949
5	0.864	50	0.965	95	0.871	140	0.524	185	0.585	230	0.980	275	0.892	320	0.954
6	0.861	51	0.969	96	0.862	141	0.524	186	0.593	231	0.984	276	0.888	321	0.959
7	0.858	52	0.972	97	0.853	142	0.524	187	0.602	232	0.987	277	0.884	322	0.964
8	0.855	53	0.975	98	0.843	143	0.525	188	0.611	233	0.990	278	0.880	323	0.969
9	0.852	54	0.979	99	0.833	144	0.525	189	0.620	234	0.992	279	0.876	324	0.973
10	0.850	55	0.982	100	0.823	145	0.526	190	0.629	235	0.994	280	0.872	325	0.977
11	0.849	56	0.984	101	0.813	146	0.526	191	0.639	236	0.996	281	0.869	326	0.981
12	0.847	57	0.987	102	0.802	147	0.527	192	0.649	237	0.997	282	0.865	327	0.984
13	0.846	58	0.990	103	0.791	148	0.528	193	0.660	238	0.999	283	0.862	328	0.987
14	0.846	59	0.992	104	0.781	149	0.528	194	0.671	239	0.999	284	0.859	329	0.989
15	0.846	60	0.994	105	0.770	150	0.529	195	0.681	240	1.000	285	0.857	330	0.991
16	0.846	61	0.995	106	0.759	151	0.529	196	0.692	241	1.000	286	0.854	331	0.993
17	0.846	62	0.997	107	0.748	152	0.529	197	0.703	242	1.000	287	0.852	332	0.994
18	0.847	63	0.998	108	0.737	153	0.530	198	0.714	243	0.999	288	0.850	333	0.995
19	0.849	64	0.999	109	0.726	154	0.530	199	0.726	244	0.999	289	0.849	334	0.995
20	0.850	65	0.999	110	0.714	155	0.530	200	0.737	245	0.998	290	0.847	335	0.995
21	0.852	66	1.000	111	0.703	156	0.529	201	0.748	246	0.997	291	0.846	336	0.994
22	0.854	67	1.000	112	0.692	157	0.529	202	0.759	247	0.995	292	0.846	337	0.993
23	0.857	68	1.000	113	0.681	158	0.529	203	0.770	248	0.994	293	0.846	338	0.991
24	0.859	69	0.999	114	0.671	159	0.528	204	0.781	249	0.992	294	0.846	339	0.989
25	0.862	70	0.999	115	0.660	160	0.528	205	0.792	250	0.990	295	0.846	340	0.987
26	0.865	71	0.997	116	0.649	161	0.527	206	0.802	251	0.987	296	0.847	341	0.984
27	0.869	72	0.996	117	0.639	162	0.526	207	0.813	252	0.984	297	0.849	342	0.981
28	0.872	73	0.994	118	0.629	163	0.526	208	0.823	253	0.982	298	0.850	343	0.977
29	0.876	74	0.992	119	0.620	164	0.525	209	0.833	254	0.979	299	0.852	344	0.973
30	0.880	75	0.990	120	0.611	165	0.525	210	0.843	255	0.975	300	0.855	345	0.969
31	0.884	76	0.987	121	0.602	166	0.524	211	0.853	256	0.972	301	0.858	346	0.964
32	0.888	77	0.984	122	0.593	167	0.524	212	0.862	257	0.969	302	0.861	347	0.959
33	0.892	78	0.980	123	0.585	168	0.524	213	0.871	258	0.965	303	0.864	348	0.954
34	0.896	79	0.976	124	0.578	169	0.524	214	0.880	259	0.961	304	0.868	349	0.949
35	0.901	80	0.972	125	0.571	170	0.525	215	0.889	260	0.957	305	0.872	350	0.943
36	0.905	81	0.968	126	0.564	171	0.526	216	0.897	261	0.953	306	0.877	351	0.938
37	0.910	82	0.963	127	0.558	172	0.527	217	0.905	262	0.949	307	0.882	352	0.932
38	0.914	83	0.958	128	0.552	173	0.528	218	0.913	263	0.945	308	0.887	353	0.926
39	0.919	84	0.953	129	0.548	174	0.530	219	0.920	264	0.941	309	0.892	354	0.920
40	0.923	85	0.947	130	0.543	175	0.533	220	0.927	265	0.936	310	0.897	355	0.914
41	0.927	86	0.941	131	0.539	176	0.535	221	0.934	266	0.932	311	0.903	356	0.909
42	0.932	87	0.934	132	0.535	177	0.539	222	0.941	267	0.927	312	0.909	357	0.903
43	0.936	88	0.927	133	0.533	178	0.543	223	0.947	268	0.923	313	0.914	358	0.897
44	0.941	89	0.920	134	0.530	179	0.548	224	0.953	269	0.919	314	0.920	359	0.892

Remarks:



Exhibit No.

Date

06 Feb 2002

Call Letters

Channel

Location

Customer

Antenna Type

**ELEVATION PATTERN**

RMS Gain at Main Lobe

**29.0 (14.62 dB)**

Beam Tilt

**1.00 Degrees**

RMS Gain at Horizontal

**5.9 (7.71 dB)**

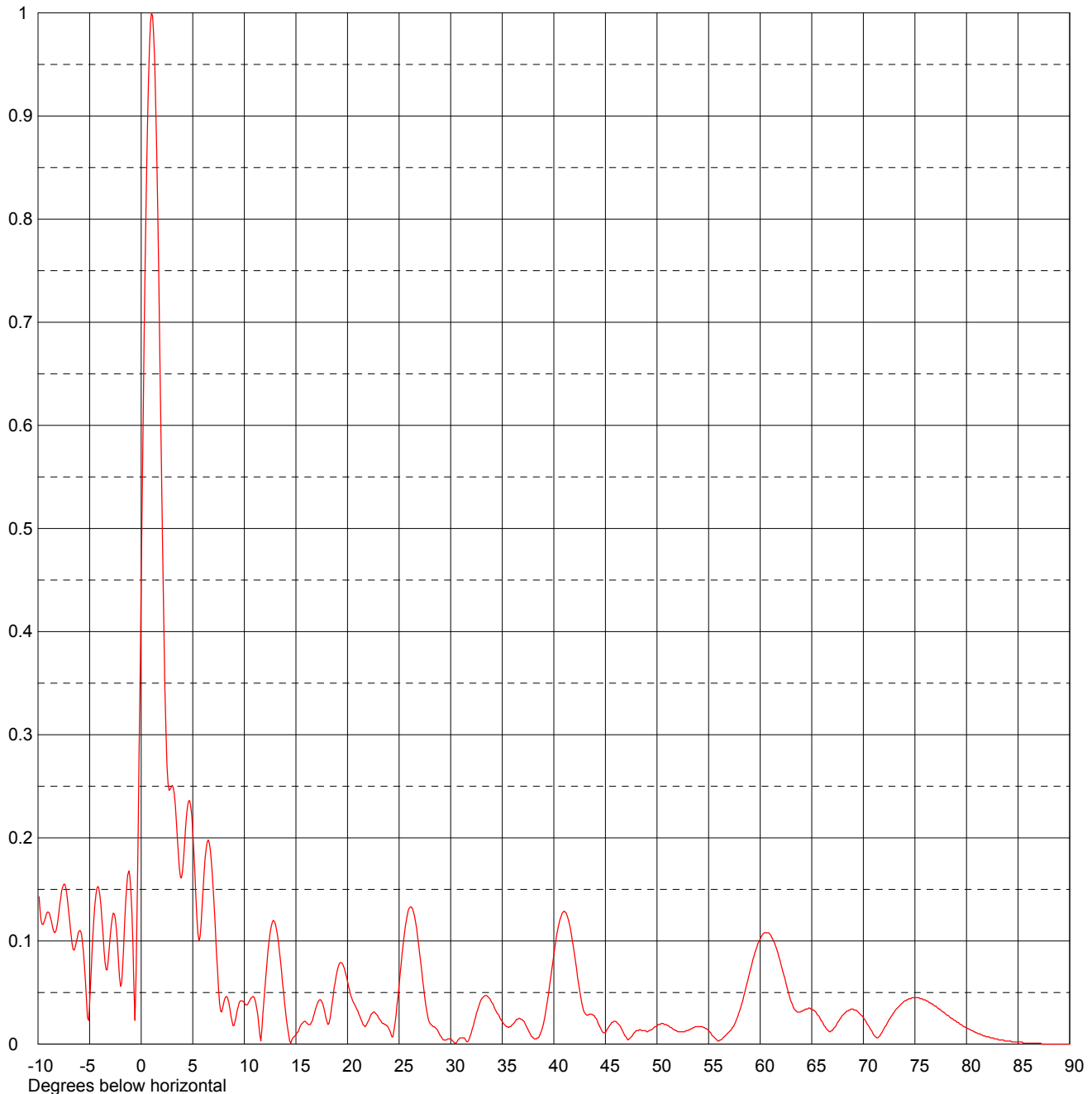
Frequency

**MHz**

Calculated / Measured

**Calculated**

Drawing #

**32B290100-90**

Remarks:



Date

06 Feb 2002

Call Letters

Channel

Location

Customer

Antenna Type

## TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing #

32B290100-90

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.160	2.4	0.301	10.6	0.044	30.5	0.001	51.0	0.018	71.5	0.007
-9.5	0.116	2.6	0.253	10.8	0.046	31.0	0.006	51.5	0.015	72.0	0.015
-9.0	0.128	2.8	0.247	11.0	0.044	31.5	0.003	52.0	0.012	72.5	0.024
-8.5	0.110	3.0	0.251	11.5	0.009	32.0	0.011	52.5	0.012	73.0	0.031
-8.0	0.126	3.2	0.243	12.0	0.055	32.5	0.030	53.0	0.013	73.5	0.037
-7.5	0.155	3.4	0.218	12.5	0.108	33.0	0.044	53.5	0.016	74.0	0.042
-7.0	0.126	3.6	0.185	13.0	0.117	33.5	0.047	54.0	0.017	74.5	0.044
-6.5	0.091	3.8	0.162	13.5	0.081	34.0	0.040	54.5	0.016	75.0	0.045
-6.0	0.110	4.0	0.167	14.0	0.031	34.5	0.030	55.0	0.013	75.5	0.044
-5.5	0.076	4.2	0.194	14.5	0.001	35.0	0.022	55.5	0.007	76.0	0.043
-5.0	0.039	4.4	0.222	15.0	0.009	35.5	0.017	56.0	0.003	76.5	0.040
-4.5	0.134	4.6	0.236	15.5	0.019	36.0	0.019	56.5	0.007	77.0	0.037
-4.0	0.144	4.8	0.231	16.0	0.021	36.5	0.024	57.0	0.012	77.5	0.033
-3.5	0.079	5.0	0.206	16.5	0.021	37.0	0.023	57.5	0.019	78.0	0.029
-3.0	0.105	5.2	0.166	17.0	0.037	37.5	0.014	58.0	0.032	78.5	0.025
-2.8	0.123	5.4	0.123	17.5	0.041	38.0	0.006	58.5	0.050	79.0	0.022
-2.6	0.126	5.6	0.100	18.0	0.022	38.5	0.006	59.0	0.070	79.5	0.019
-2.4	0.111	5.8	0.116	18.5	0.039	39.0	0.020	59.5	0.089	80.0	0.016
-2.2	0.081	6.0	0.150	19.0	0.071	39.5	0.050	60.0	0.102	80.5	0.013
-2.0	0.056	6.2	0.180	19.5	0.078	40.0	0.087	60.5	0.108	81.0	0.011
-1.8	0.075	6.4	0.196	20.0	0.061	40.5	0.117	61.0	0.106	81.5	0.009
-1.6	0.118	6.6	0.195	20.5	0.042	41.0	0.129	61.5	0.095	82.0	0.007
-1.4	0.154	6.8	0.178	21.0	0.032	41.5	0.117	62.0	0.078	82.5	0.006
-1.2	0.168	7.0	0.147	21.5	0.019	42.0	0.087	62.5	0.059	83.0	0.005
-1.0	0.149	7.2	0.109	22.0	0.022	42.5	0.052	63.0	0.041	83.5	0.004
-0.8	0.095	7.4	0.070	22.5	0.031	43.0	0.030	63.5	0.032	84.0	0.003
-0.6	0.023	7.6	0.039	23.0	0.026	43.5	0.029	64.0	0.032	84.5	0.002
-0.4	0.131	7.8	0.031	23.5	0.020	44.0	0.026	64.5	0.034	85.0	0.002
-0.2	0.283	8.0	0.040	24.0	0.015	44.5	0.016	65.0	0.034	85.5	0.001
0.0	0.450	8.2	0.046	24.5	0.013	45.0	0.011	65.5	0.029	86.0	0.001
0.2	0.616	8.4	0.044	25.0	0.058	45.5	0.019	66.0	0.022	86.5	0.001
0.4	0.766	8.6	0.034	25.5	0.106	46.0	0.022	66.5	0.014	87.0	0.001
0.6	0.887	8.8	0.022	26.0	0.132	46.5	0.016	67.0	0.013	87.5	0.000
0.8	0.968	9.0	0.018	26.5	0.124	47.0	0.007	67.5	0.021	88.0	0.000
1.0	1.000	9.2	0.027	27.0	0.087	47.5	0.007	68.0	0.028	88.5	0.000
1.2	0.982	9.4	0.036	27.5	0.044	48.0	0.013	68.5	0.032	89.0	0.000
1.4	0.915	9.6	0.042	28.0	0.020	48.5	0.013	69.0	0.034	89.5	0.000
1.6	0.810	9.8	0.042	28.5	0.016	49.0	0.012	69.5	0.031	90.0	0.000
1.8	0.677	10.0	0.040	29.0	0.008	49.5	0.014	70.0	0.026		
2.0	0.534	10.2	0.038	29.5	0.004	50.0	0.018	70.5	0.018		
2.2	0.401	10.4	0.040	30.0	0.005	50.5	0.020	71.0	0.009		

Remarks: