

TECHNICAL EXHIBIT  
MINOR MODIFICATION OF CONSTRUCTION PERMIT  
STATION WSTM-DT (FACILITY ID 21252)  
SYRACUSE, NEW YORK

JULY 24, 2002

CH 54    376 KW    405 M

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Technical Narrative

This Technical Exhibit was prepared on behalf of digital television broadcast station WSTM-DT at Syracuse, New York. Station WSTM-DT is authorized to operation on channel 54 with a non-directional antenna effective radiated power (ERP) of 618 kW and an antenna height above average terrain (HAAT) of 231 meters (BPCDT-19991025ADK). This minor modification application proposes to change transmitter site to an adjacent multi-user tower (co-locating with the WSTM-TV analog operation), increase antenna HAAT and reduce ERP. There is no proposed change in channel (54) or city of license (Syracuse).

A waiver request of the FCC's Freeze for applications on channels 52-59<sup>1</sup> is respectfully requested as attached elsewhere to this application. WSTM-DT proposes to co-locate on the same structure as the proposed WSTM-TV operation (*see BPCT-20020625AAD*), and also multiple other broadcast stations.

Proposed Facilities

The proposed site is located less than 0.1 kilometer north-northeast of the current tower with the following site coordinates (NAD27): 42-56-42 N, 76-07-07 W. A non-directional antenna ERP of 376 kW and antenna HAAT of 405 meters are proposed. The FCC antenna structure registration number is 1233154.

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<sup>1</sup> See FCC Public Notice, DA 02-1440, released June 18, 2002.

The proposed WSTM-DT ERP has been reduced in order to minimize the increase in coverage that would result from the greater antenna HAAT achieved at the new multi-use broadcast tower. The proposed 2.2 dB ERP reduction will result in a slight increase in coverage over that of the allotted WSTM-DT facility, but less than at least two other authorized/proposed stations in the market. Station WSYT-DT (CP), Channel 19, Syracuse, NY is authorized for operation with 621 kilowatts and an antenna HAAT of 445 meters (BPCDT-19991029ADL). Station WNYT-DT, Channel 44, Syracuse, NY has an application pending for operation with 1000 kilowatts and an antenna HAAT of 445 meters (BPCDT-19991027ADD). The table below lists the coverage areas and populations for each station.

	Within Noise-Limited Contour	
	Land Area (km <sup>2</sup> )	Population (2000)
WSTM-DT Allotment	24,400	1,427,000
WSTM-DT Proposal	26,900	1,511,000
WSYT-DT (CP)	28,500	1,742,000
WNYT-DT (App)	30,800	1,789,000

From the above table it is apparent that the proposed WSTM-DT operation will serve less people and provide a smaller coverage area than at least two other stations in the market. The map in Figure 5 shows the pertinent Noise-Limited contours for each above listed station. For comparison purposes, 36 radials were used to generate all contours in Figure 5.

#### Canadian Allocation Analysis

As the proposal is located within the U.S./Canada border zone (400 km), a Canadian allocation study was conducted to confirm compliance with the Canadian Letter of Understanding (LOU). A separation study indicates that the proposed operation meets all of the minimum separation requirements to Canadian stations except to NTSC station CFTO-TV-54 at Peterborough, Ontario, on channel 54 and DTV station CFTU-TV at Montreal, Quebec, on channel 54. The proposed WSTM-DT operation is 2.7 kilometers “short” of the minimum required separation distance of 259 kilometers for CFTO-TV-54. The proposed

WSTM-DT operation is 19.5 kilometers “short” of the minimum required separation distance of 367 kilometers for CFTU-TV.

#### CFTO-TV-54

The FCC’s allotment for WSTM-DT currently causes contour overlap to the CFTO-TV-54 operation. The predicted interfering contour for the proposed WSTM-DT operation (30.2 dBu, F(50,10)) is completely within the currently allotted interfering contour. Therefore, the proposed WSTM-DT operation will ***reduce contour overlap*** with CFTO-TV-54 (see map on Sheet 1 of Figure 4).

Furthermore, Longley-Rice studies (using a 2 km grid spacing) indicate that the proposed WSTM-DT operation will not cause any new interference to station CFTO-TV-54. The proposed ERP reduction for WSTM-DT (376 kW, 405 meters) will actually cause ***0.5% less interference*** than the allotment for WSTM-DT (1000 kW, 305 meters). The study summary on Sheet 2 of Figure 4 shows that the proposed WSTM-DT operation will reduce the interference caused to CFTO-TV-54 from 1.9 % to 1.4 %.

#### CFTU-TV

The FCC’s allotment for WSTM-DT also causes contour overlap to the CFTU-TV operation. The predicted interfering contour for the proposed WSTM-DT operation (19.5 dBu, F(50,10)) is completely within the currently allotted interfering contour. Therefore, the proposed WSTM-DT operation will ***reduce contour overlap*** with CFTU-TV (see map on Sheet 3 of Figure 4).

Furthermore, Longley-Rice studies (using a 2 km grid spacing) indicate that the proposed WSTM-DT operation will not cause any new interference to station CFTU-TV. The proposed ERP reduction for WSTM-DT (376 kW, 405 meters) will actually cause ***less interference*** than the allotment for WSTM-DT (1000 kW, 305 meters). The study summary on Sheet 4 of Figure 4 shows that the proposed WSTM-DT operation will slightly reduce the interference caused to CFTU-TV. If coordination with Canada is required, it is respectfully requested.

The site is more than 2,600 kilometers from the closest point of the Mexican border. The closest FCC monitoring station is at Canadaigua, New York, approximately 94 kilometers to the west. The closest point of the National Radio Quiet Zone (VA/WV) is more than 400 kilometers to the south-southwest. The closest point of the Table Mountain Radio Quiet Zone (CO) is more than 2,400 kilometers to the west. The closest radio astronomy site operating on TV channel 37 is at Hancock, New Hampshire, approximately 336 kilometers to the east. These separations are sufficient to not be a concern for coordination purposes.

AM station WVOA is the only AM station located within the assumed potential impact distance (1 kilometer for non-directional stations, 3.2 kilometers for directional stations). The applicant recognizes its responsibility to correct problems that may result with respect to AM station WVOA from its proposed NTSC operation.

The proposed site is a multi-user tower where various other FM and TV broadcasters operate. Although no adverse electromagnetic impact is expected, the applicant recognizes its responsibility to correct problems that result from its proposed operation.

#### Domestic Allocation Considerations

Interference calculations have been made using the procedures outlined in the FCC's OET-69 bulletin, using a 2 kilometer grid spacing. The proposed WSTM-DT operation does not cause excessive (greater than 2%, up to 10% total) calculated interference to any analog or DTV assignment. Below is the list of stations considered in the OET-69 analysis.

Stations Potentially Affected by Proposed WSTM-DT						
Chan	Call	City/State	Bear (°T)	Dist (km)	Status	App. Ref. No.
40	WICZ-TV	BINGHAMTON NY	172	99.8	LIC	BLCT-19900206KG
46	WSKG-TV	BINGHAMTON NY	172	99.8	LIC	BLET-19830315KJ
50	WWTI	WATERTOWN NY	17	108.8	LIC	BLCT-19880224KG
52	950320KH	ITHACA NY	212	75.9	CP	BPCT-19950320KH
52	950320KH	ITHACA NY	217	24.1	APP	BMPCT-20011212AAT
53	WPXJ-DT	BATAVIA NY	269	154.5	APP	BPCDT-19990326KE
53	WAQF-DT	BATAVIA NY	269	154.5	PLN	DTVPLN-DTVP1463
54	WTBY	POUGHKEEPSIE NY	127	221.3	LIC	BLCT-19921016KF
54	WQLN	ERIE PA	254	338.7	LIC	BLET-19790827KG
54	WPHL-DT	PHILADELPHIA PA	167	331.0	CP	BPCDT-19991025ADR
54	WPHL-DT	PHILADELPHIA PA	167	330.9	PLN	DTVPLN-DTVP1482
54	WNAC-DT	PROVIDENCE RI	105	413.4	APP	BPCDT-19991029ABE
54	WNAC-DT	PROVIDENCE RI	105	413.4	PLN	DTVPLN-DTVP1483
55	WYPX	AMSTERDAM NY	88	157.7	LIC	BLCT-19871221KG
55	WENY-DT	ELMIRA NY	214	111.8	PLN	DTVPLN-DTVP1501
56	WSPX-TV	SYRACUSE NY	8	40.4	LIC	BLCT-19981207KE
57	961213KF	WAVERLY NY	198	104.0	APP	BPET-19961213KF
57	961213KE	WAVERLY NY	202	107.5	APP	BPET-19961213KE
61	960228KF	ROCHESTER NY	281	120.9	APP	BPET-19960228KF

From the above list of stations considered, the table below shows the calculated interference caused to each station. Only stations that are predicted to receive interference from the proposed WSTM-DT operation are shown in the interference table.

Study Station		Baseline	Net Population Change/Interference
53	WPXJ-DT BATAVIA NY (APP)	954,097	3,306 (0.3%) New Interference
54	WTBY POUGHKEEPSIE NY (LIC)	4,703,984	15 (0.0%) New Interference
55	WENY-DT ELMIRA NY (PLN)	381,323	553 (0.1%) New Interference

The proposed WSTM-DT operation does not cause calculated interference to any other analog or DTV station. Therefore, it is believed the proposal complies with the FCC's "de minimis" interference policy.

#### Class A Consideration

The FCC's list of low power television (LPTV) assignments eligible for Class A status and the FCC CDBS system have been reviewed for potential Class A impact. The proposed WSTM-DT operation will not cause any prohibited contour overlap to any Class A station.

Radiofrequency Electromagnetic Field Exposure

The proposed WSTM-DT facilities were evaluated in terms of potential radio frequency (RF) energy exposure at ground level to workers and the general public. The radiation center for the proposed antenna is located 270.1 meters above ground level with an ERP of 376 kW. A conservative relative field value of 0.1 was assumed for the antenna's downward radiation (see Figure 2B). The calculated power density at a point 2 meters (6.6 feet) above ground level is  $0.0017 \text{ mW/cm}^2$ . This is less than 0.4% of the FCC's recommended limit of  $0.48 \text{ mW/cm}^2$  for channel 54 for an "uncontrolled" environment.

Access to the transmitting site will be restricted and appropriately marked with warning signs. As this will be a multi-user site, an agreement will control access to the site. In the event that workers or other authorized personnel enter restricted areas or climb the tower, appropriate measures will be taken to assure worker safety with respect to radio frequency radiation exposure. Such measures include reducing the average exposure by spreading out the work over a longer period of time, wearing "accepted" RFR protective clothing and/or RFR exposure monitors or scheduling work when the stations are at reduced power or shut down. The proposed WSTM-DT operation appears to be otherwise categorically excluded from environmental processing.



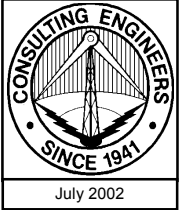
Jonathan N. Edwards

du Treil, Lundin & Rackley, Inc.  
201 Fletcher Avenue  
Sarasota, Florida 34237  
(941) 329-6000

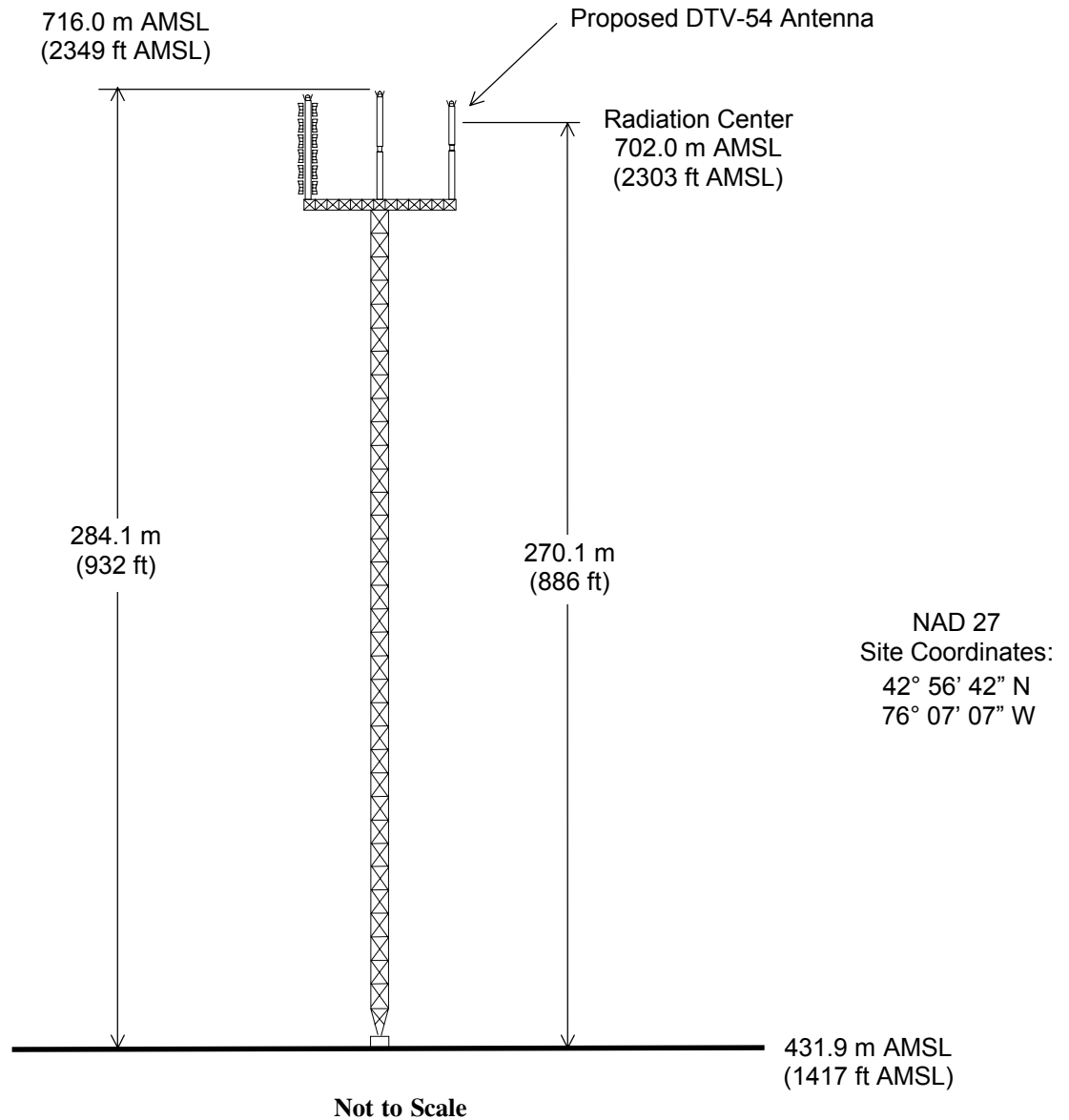
July 24, 2002



Figure 1



Registration No. 1233154



## ANTENNA AND SUPPORTING STRUCTURE

STATION WSTM-DT

SYRACUSE, NEW YORK

CH 54 376 KW 405 M

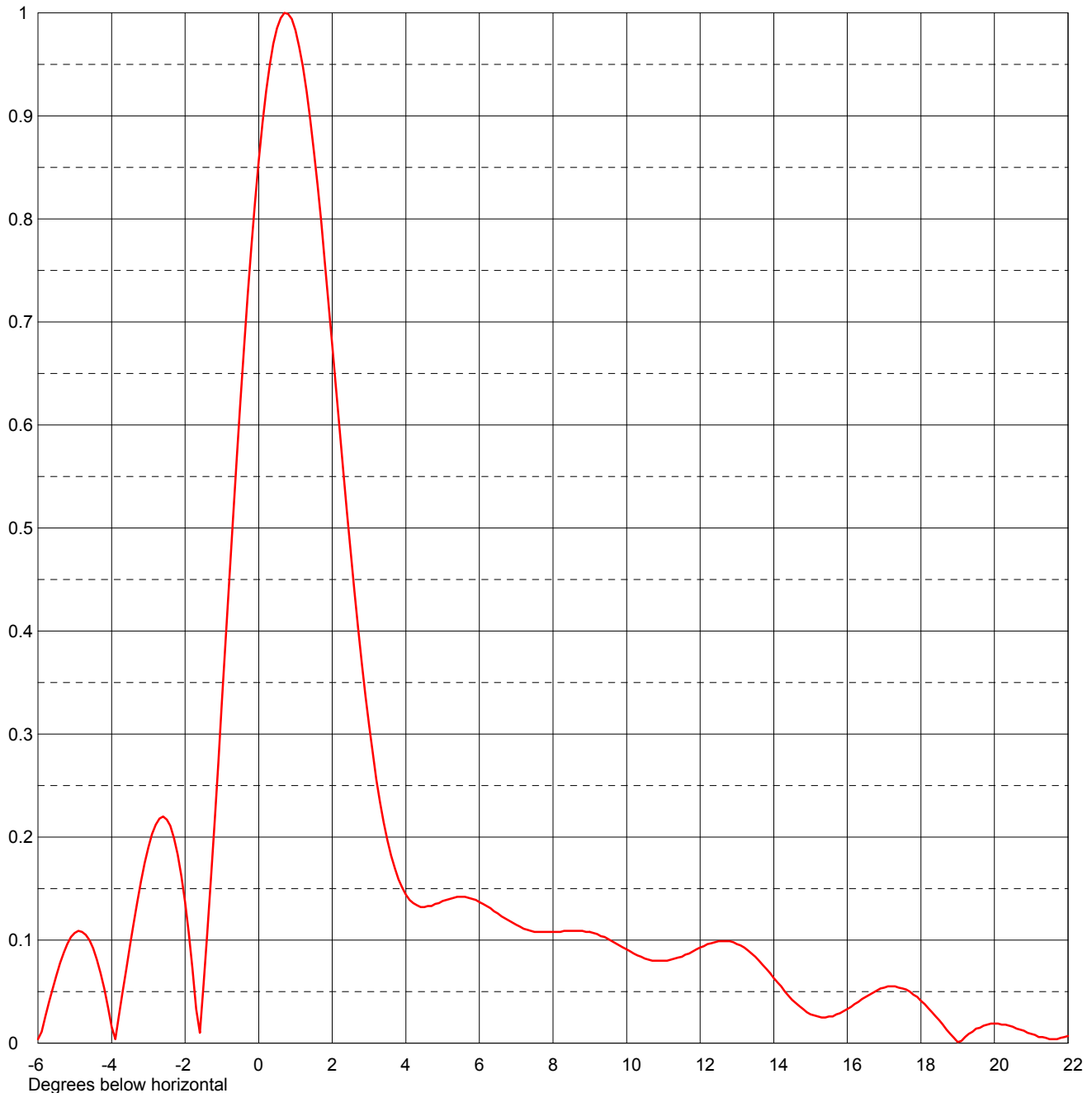
du Treil, Lundin & Rackley, Inc. Sarasota, Florida



Date	18 Jul 2002		
Call Letters	WSTM-DT	Channel	54
Location	Syracuse, NY		
Customer			
Antenna Type	TFU-28GTH-R O4		

### ELEVATION PATTERN

RMS Gain at Main Lobe	24.5 (13.89 dB)	Beam Tilt	0.75 Degrees
RMS Gain at Horizontal	18.0 (12.55 dB)	Frequency	713.00 MHz
Calculated / Measured	Calculated	Drawing #	28G245075



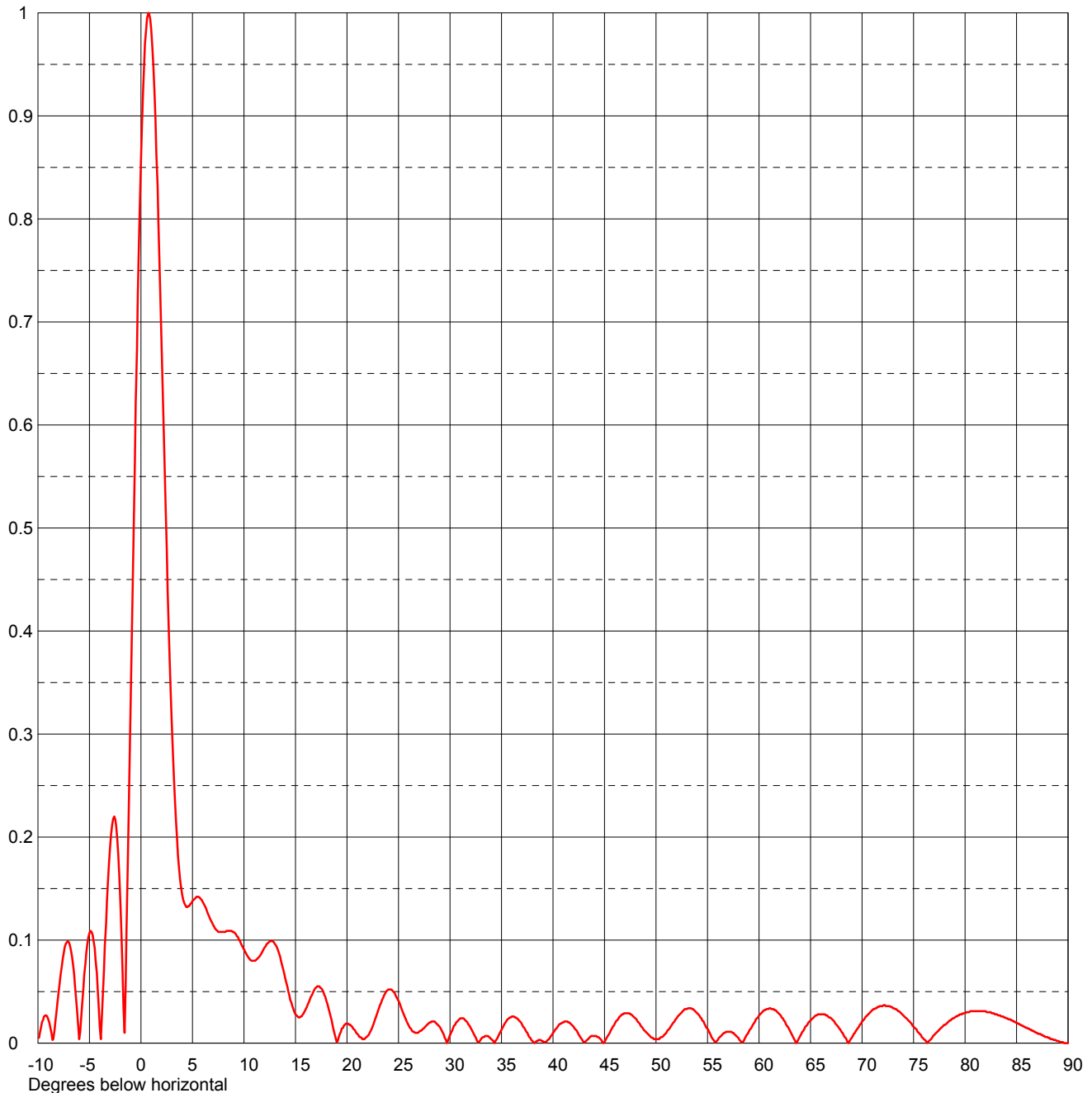
Remarks:



Date	18 Jul 2002		
Call Letters	WSTM-DT	Channel	54
Location	Syracuse, NY		
Customer			
Antenna Type	TFU-28GTH-R O4		

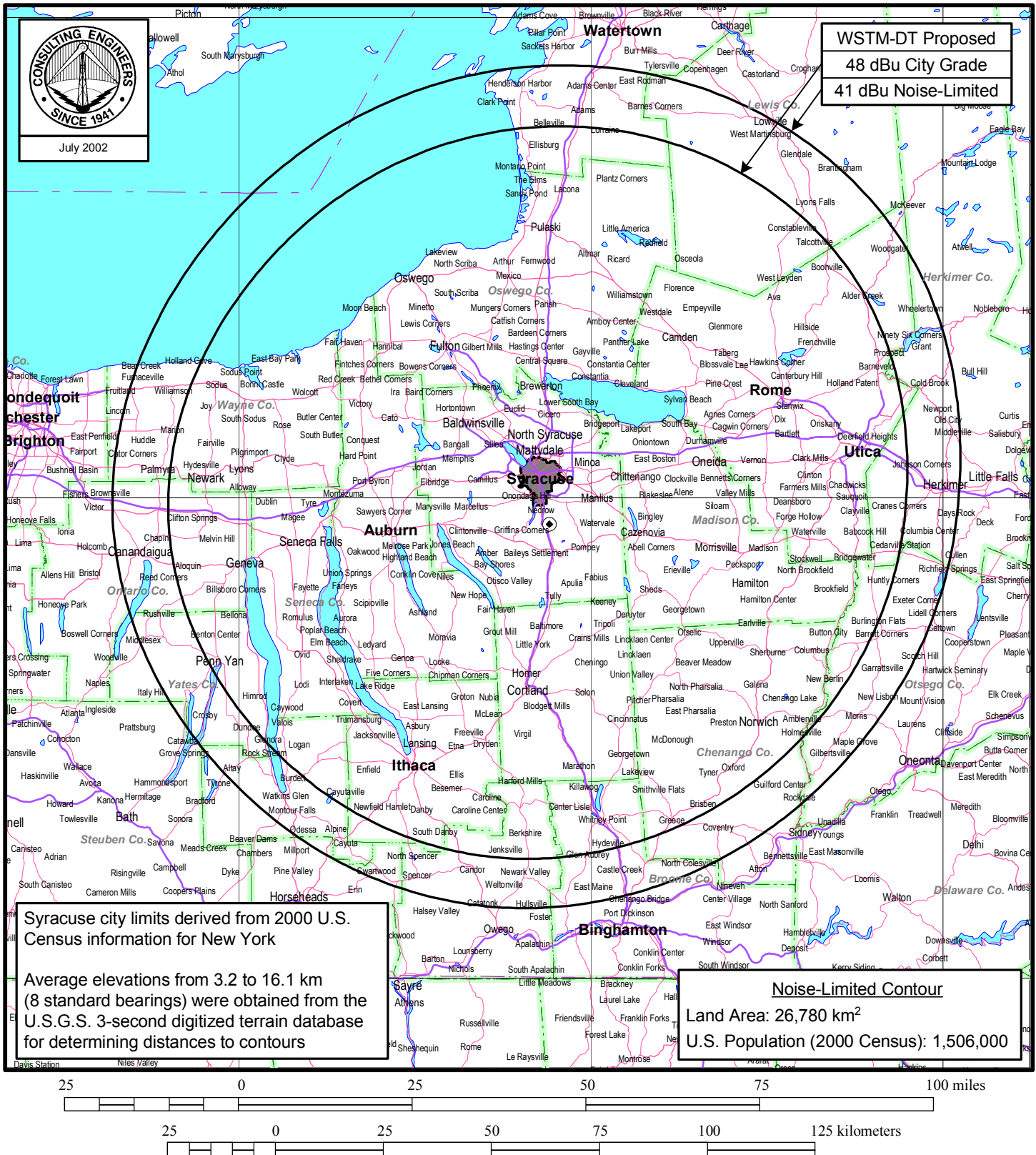
### ELEVATION PATTERN

RMS Gain at Main Lobe	24.5 (13.89 dB)	Beam Tilt	0.75 Degrees
RMS Gain at Horizontal	18.0 (12.55 dB)	Frequency	713.00 MHz
Calculated / Measured	Calculated	Drawing #	28G245075-90



Remarks:

**Figure 3**



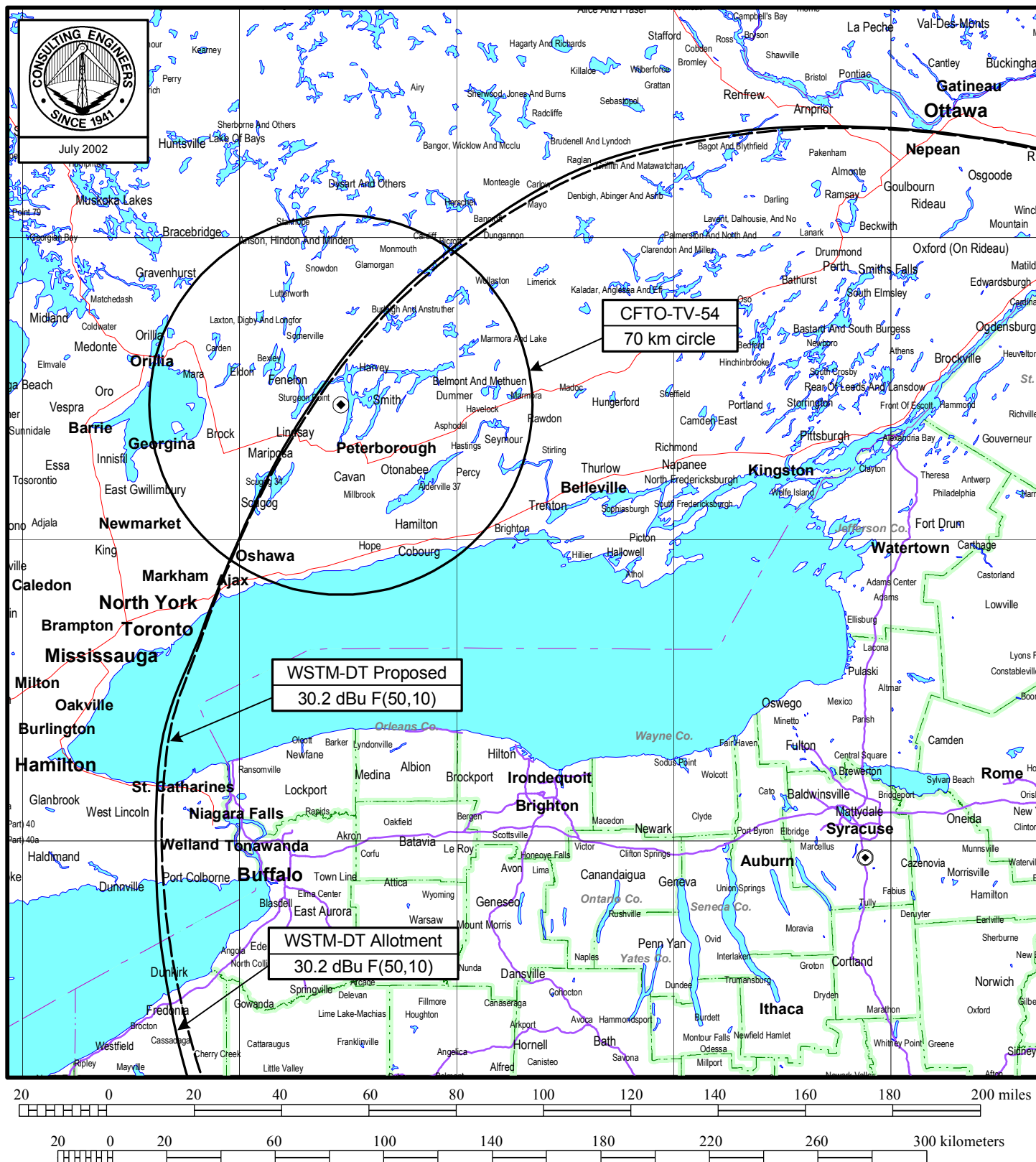
## **PREDICTED F(50,90) COVERAGE CONTOURS**

STATION WSTM-DT

SYRACUSE, NEW YORK

CH 54 376 KW 405 M

du Treil, Lundin & Rackley, Inc Sarasota, Florida



## CANADIAN INTERFERENCE STUDY

STATION WSTM-DT  
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CH 54 376 KW 405 M

du Treil, Lundin & Rackley, Inc Sarasota, Florida

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**CFTO-TV-54 INTERFERENCE RECEIVED BY WSTM-DT**

CELL SIZE : 2.00

Using DTV->DTV service parameters

Using circles for service area

\*\*\*\*\*

CFTO-TV-54 44-26-44 078-32-00 54(N) 1000.0 kW 565.8 m AMSL 50.0 % 64.0 dBu  
PETERBOROUGH ON  
CLASS C  
Calculated RCAMSL with HAAT of 300  
%loc = 50.00 %time = 50.00

	Area	Pop
within Noise Limited Contour	15457.78	578180
not affected by terrain losses	13573.86	310705

\*\*\*\*\*

WSTM-DT 42-56-40 076-07-08 54(0) 1000.0 kW-DA 596 m AMSL 50.0 % 39.0 dBu  
SYRACUSE NY 29245 1469 DTVSERVICE: 1469000 NTSCSERVICE: 1295000  
DTVALT DTV ALLOTMENT CLASS C  
0.74 0.74 0.74 0.74 0.74 0.75 0.78 0.82 0.86 0.91 0.92 0.94  
0.96 0.99 1.00 0.99 0.99 0.98 0.98 0.96 0.94 0.93 0.91 0.90  
0.87 0.83 0.81 0.78 0.77 0.77 0.77 0.76 0.76 0.75 0.74 0.74  
(136.0 1.00) (137.0 1.00)  
Ref Az: 0.0

D/U Baseline: 33.80  
%loc = 50.00%time = 10

	Area	Pop
<b>Interference</b>	<b>205.30</b>	<b>10938 (1.9%)</b>

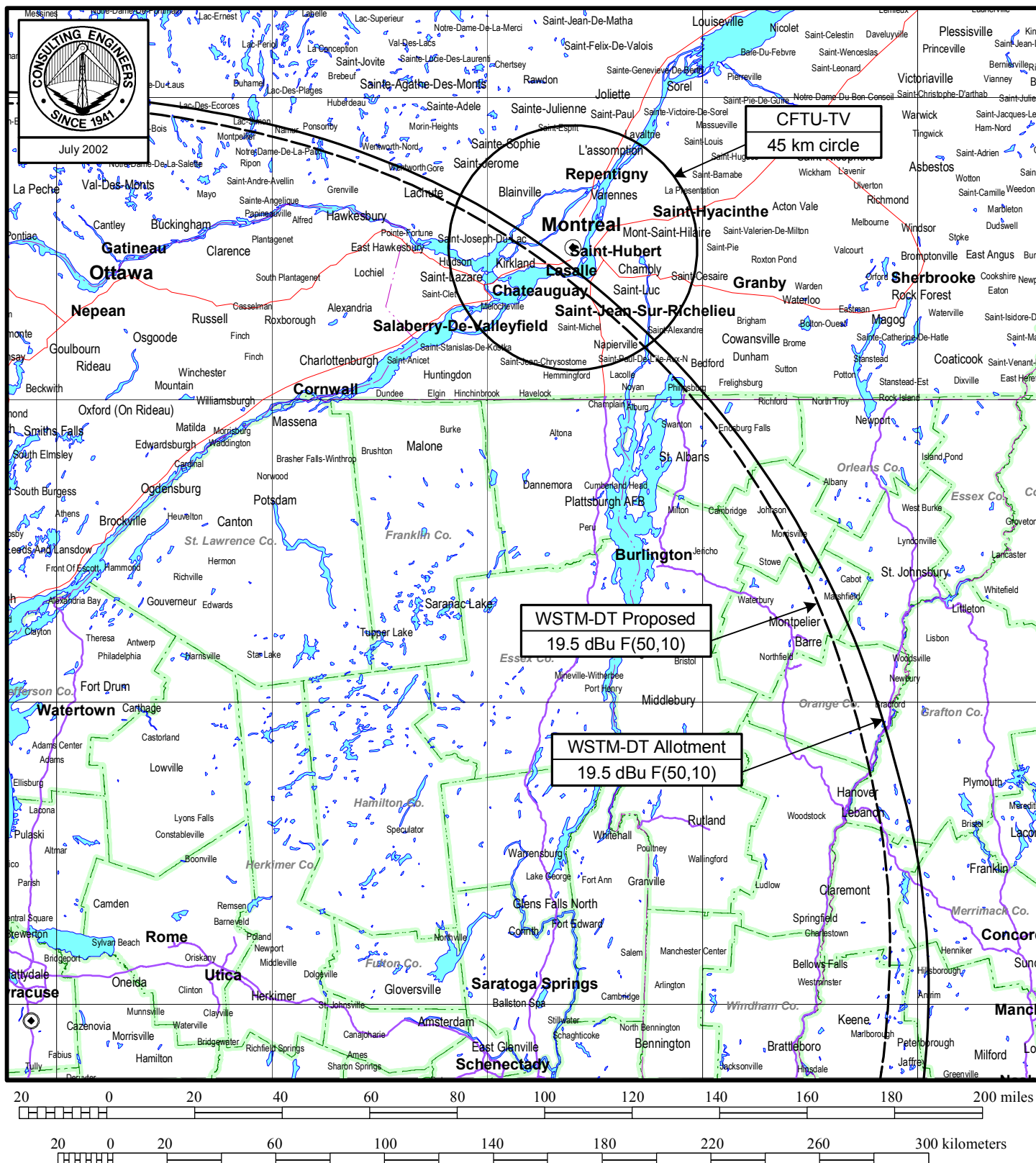
\*\*\*\*\*

WSTM-DT 42-56-42 076-07-07 54(N) 376.000 kW 702.0 m AMSL 50.0 % 39.0 dBu  
SYRACUSE NY 29245 1469 DTVSERVICE: 1469000 NTSCSERVICE: 1295000  
CLASS A

D/U Baseline: 33.80  
%loc = 50.00%time = 10

	Area	Pop
<b>Interference</b>	<b>161.02</b>	<b>8285 (1.4%)</b>





## CANADIAN INTERFERENCE STUDY

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du Treil, Lundin & Rackley, Inc Sarasota, Florida

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**CFTU-TV INTERFERENCE RECEIVED BY WSTM-DT**

CELL SIZE : 2.00

Using DTV->DTV service parameters

Using circles for service area

\*\*\*\*\*

CFTU-TV 45-30-10 073-36-55 54(N) 4.0 kW 181.6 m AMSL 90.0 % 39.0 dBu

MONTREAL QU

CLASS B

Calculated RCAMSL with HAAT of 150

%loc = 90.00 %time = 90.00

	Area	Pop
within Noise Limited Contour	6320.653	3454913
not affected by terrain losses	4818.399	2941861

\*\*\*\*\*

WSTM-DT 42-56-40 076-07-08 54(0) 1000.0 kW-DA 596 m AMSL 90.0 % 39.0 dBu

SYRACUSE NY 29245 1469 DTVSERVICE: 1469000 NTSCSERVICE: 1295000

DTVALT DTV ALLOTMENT CLASS VL

0.74 0.74 0.74 0.74 0.74 0.75 0.78 0.82 0.86 0.91 0.92 0.94

0.96 0.99 1.00 0.99 0.99 0.98 0.98 0.96 0.94 0.93 0.91 0.90

0.87 0.83 0.81 0.78 0.77 0.77 0.77 0.76 0.76 0.75 0.74 0.74

(136.0 1.00) (137.0 1.00)

Ref Az: 0.0

D/U Baseline: 19.50

%loc = 10.00%time = 10

	Area	Pop
<b>Interference</b>	<b>211.75</b>	<b>48327 (1.4%)</b>

\*\*\*\*\*

WSTM-DT 42-56-42 076-07-07 54(N) 376.0 kW 702.0 m AMSL 90.0 % 39.0 dBu

SYRACUSE NY 29245 1469 DTVSERVICE: 1469000 NTSCSERVICE: 1295000

CLASS VL

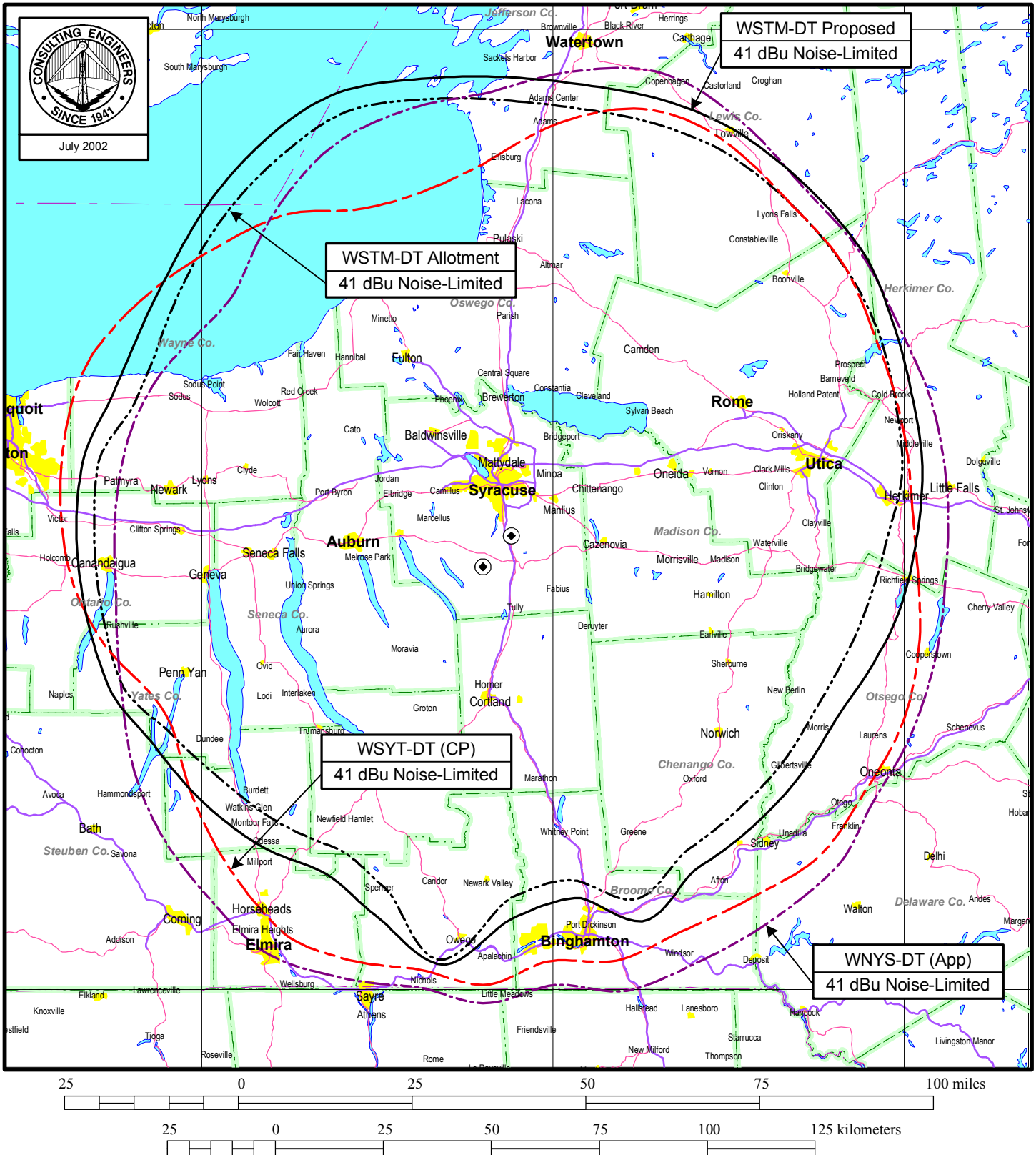
D/U Baseline: 19.50

%loc = 10.00%time = 10

	Area	Pop
<b>Interference</b>	<b>163.81</b>	<b>47689 (1.4%)</b>



Figure 5



## PREDICTED F(50,90) COVERAGE CONTOURS

STATION WSTM-DT

SYRACUSE, NEW YORK

CH 54 376 KW 405 M

du Treil, Lundin & Rackley, Inc Sarasota, Florida