

**ENGINEERING STATEMENT SUPPORTING A  
PETITION FOR RECONSIDERATION**

prepared for

**United Communications Corporation**

WWNY-DT Carthage, New York

Facility ID: 68851

Ch. 7 15.14 kW (MAX-DA) 219 m

United Communications Corporation (“United”) is the licensee of analog television station WWNY-TV Channel 7 and digital station WWNY-DT Channel 35, Facility ID: 68851, Carthage, New York. United elected (for WWNY’s post-transition facility) operation on its current analog Channel 7 in place of the 1998 allotted Channel 35. However, as a result of the channel election process, the actual coverage “foot-print” and population served by WWNY will be reduced from what it presently serves. Further, WWNY-TV Channel 7 currently operates using a non-directional antenna system. The final antenna pattern allotted by the Commission cannot be easily constructed with a real-world antenna. Using the existing non-directional antenna system as a practical alternative would force WWNY to operate with a further reduction in power resulting in serious loss of coverage.

Accordingly, the instant engineering statement has been prepared to support a request for a change in the station’s “certification” to permit replication of the authorized analog Grade B contour and to provide a practical implementation using station’s existing non-directional Channel 7 antenna.

**Background**

Appendix B of the Second Memorandum Opinion And Order On Reconsideration Of The Fifth And Sixth Report And Orders<sup>1</sup> (“MO&O”) clearly indicates that the WWNY Channel 35 allotment achieved the DTV/NTSC area match. However, the actual service contour from the Channel 35 facility never equaled that of the analog Grade B contour due to the Commission imposed 1000 kW power cap for UHF DTV facilities. WWNY operates in the mountainous areas of northern New York State. As such, the terrain causes coverage predicted using the Commission’s standard propagation method from a non-directional antenna into an odd shaped coverage contour. **Figure 1**, attached hereto, provides a graphical comparison of the analog

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<sup>1</sup> See “*Second Memorandum Opinion And Order On Reconsideration Of The Fifth And Sixth Report And Orders, Advanced Television Systems And Their Impact Upon The Existing Television Broadcast Service*”, MM Docket No. 87-268, FCC 98-315, Released December 18, 1998.

Grade B contour with the allotted Channel 35 facility. As shown, the coverage from the non-directional analog Channel 7 signal is far from uniform.

In November, 2004, television stations were asked to certify which DTV facility would be employed to “carry-over” to the final DTV channel. At this time in the process, United elected to specify the 1000 kW facility from the construction permit<sup>2</sup> facility as the coverage appeared to be somewhat larger than that of the Channel 35 replication allotment facility. Unfortunately, the directional antenna pattern specified in the certified construction permit limited digital coverage to the northern portions of the analog WWNY-TV service area. After the November 2004 certification date, corrections or changes to certifications were not permitted. Further, at no time in this process was United permitted to employ its authorized Grade B contour to “carry-over” to its elected final DTV channel.

With the release of the final table of allotments<sup>3</sup>, it became evident that the problems created by the odd shaped directional antenna patterns in the original 1998 table of allotments had now been translated to the final table of allotments. In the instant case, WWNY was allotted a directional antenna pattern that cannot be implemented using the existing Channel 7 antenna<sup>4</sup>. Further, a practical antenna cannot be fabricated to comply with the Commission’s allotment pattern. **Figure 2** provides a coverage comparison of the analog Channel 7 Grade B contour along with the allotted Channel 7 DTV service contour with its associated directional antenna pattern. As shown, coverage in certain areas is lost. Further, since the Commission has proposed to require stations to construct their final DTV facilities so as not to exceed the allotted coverage, a map showing the resulting non-directional 0.8 kW implementation of the final Channel 7 DTV facility is also provided. **Table I** provides a comparison of the population and area data. Population data for the 0.8 kW facility is not provided as it is not a practical option for this station.

### **Change in Certification**

As an alternative, United proposes herein to modify its original certification to specify the authorized analog Grade B contour as the “carry-over” coverage foot-print for its final Channel 7

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<sup>2</sup> See BPCDT - 19991028ADN

<sup>3</sup> See Appendix B, “*Seventh Report and Order And Eighth Further Notice of Proposed Rule Making*”, MB Docket No. 87-268, FCC 07-138, Released August 6, 2007.

<sup>4</sup> The existing Channel 7 antenna is a non-directional antenna.

DTV facility. In the same manner as has been previously employed, a Channel 7 digital facility was designed, with an associated directional antenna pattern, that replicates the coverage of the Grade B contour filling in coverage in those areas where the original Channel 35 allotment could not due to the power cap. The technical details of the proposed facility are provided in **Table II**.

**Figure 3** provides a coverage comparison of the authorized analog Grade B contour with the proposed and allotted digital facilities. Also shown, is the coverage from a practical non-directional antenna implementation of the proposed allotment. As demonstrated in **Figure 3** and in **Table I**, the proposed change in certification allows for replication of the currently authorized analog coverage foot-print. As shown, a non-directional implementation of the proposed certification easily achieves replication of the current analog Grade B coverage.

For completeness, a detailed interference study was conducted in accordance with the terrain dependent Longley-Rice point-to-point propagation model, per the Commission's Office of Engineering and Technology Bulletin number 69, *Longley-Rice Methodology for Evaluating TV Coverage and Interference*, July 2, 1997 ("OET-69")<sup>5</sup>. The interference study examined the net change in interference as experienced by other stations that would result from the proposed facility (in lieu of the reference WWNY-DT allotted facility). Only facilities listed in Appendix B of the Seventh Report and Order were studied. As shown in **Table III**, interference to pertinent affected stations is below the 0.1% "new" interference limit except for WNGS, Channel 7, Springville, New York.

WNGS is authorized in the construction permit, BPCDT-19991101AKN, which specifies digital operation on Channel 46. WNGS elected Channel 46 in "Round One", BFRECT-20050112AAK, which was approved by the Commission. However, the Commission's engineering database indicates that WNGS also participated in "Round 3", see BTRECT-20060523ADJ, in which they specified DTV operation on Channel 7. The "Round 3" process is still pending and has not yet been approved.

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<sup>5</sup> The implementation of OET-69 for this study followed the guidelines of OET-69 as specified therein. A standard cell size of 2 km was used. Comparisons of various results of this computer program to the Commission's implementation of OET-69 show good correlation.

Alternatively, the site specified in the WNGS Channel 46 construction permit (for which operation on Channel 7 is specified) is located in Zone I and is 276.46 km distant from the existing WWNY facility in Zone II. As such, if the WNGS proposal was for a *new* facility, the required co-channel DTV to DTV distance of 244.6 km specified in §73.623(d)(2) is greatly exceeded, thus both stations could operate with full facilities towards each other. Further, the Zone II to Zone II distance for co-channel DTV to DTV of 273.6 km is also exceeded. Therefore, since the WNGS election of Channel 7 has yet to be approved<sup>6</sup> and given the distance between the two facilities, it is believed that the 0.396% additional interference predicted to be caused by the WWNY-DT proposal should be considered acceptable so that persons currently receiving off air reception of WWNY-TV can continue to do so after the analog shutdown date of February 17, 2009.

### **Conclusion**

As demonstrated above, coverage for the WWNY-DT “post-transition” operation will be severely limited if the currently allotted DTV facility is employed. By changing the WWNY-DT certification to replicate the authorized Grade B contour, coverage by the Channel 7 DTV facility closely replicates current analog Channel 7 coverage and maintains service to the public. Further, the proposed DTV facility can be easily implemented with the existing installed Channel 7 antenna so that the analog shutdown deadline of February 17, 2009 can be met.

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<sup>6</sup> WWNY’s election of Channel 7 in the “Round One” has been approved by the Commission, see BFRECT-20050124AIS.

**Certification**

The undersigned hereby certifies that the foregoing statement was prepared by him or under his direction, and that it is true and correct to the best of his knowledge and belief. Mr. Mertz is a principal in the firm of *Cavell, Mertz & Associates, Inc.*, holds a Bachelor of Science degree from Oglethorpe University, and has submitted numerous engineering exhibits to the Federal Communications Commission. His qualifications are a matter of record with that agency.



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October 24, 2007

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**Attachments**

Table I	Population Comparison to 1998 Digital Table of Allotments
Table II	Proposed Allotment Parameters
Table III	Interference Study Summary
Figure 1	Coverage Contour Comparison – Ch. 7 Analog Grade B Contour Ch. 35 1998 Allotment Service Contour
Figure 2	Coverage Contour Comparison – Ch. 7 Analog Grade B Contour Ch 7 R&O Allotment Service Contour Non-directional Implementation within the 7 <sup>th</sup> R&O Service Contour
Figure 3	Coverage Contour Comparison – Ch. 7 Analog Grade B Contour Proposed Ch. 7 Allotment Service Contour Non-directional Implementation Within Proposed Allotment Service Contour 7 <sup>th</sup> R&O Allotment Service Contour

**Table I**  
**POPULATION COMPARISON TO 1998 DIGITAL TABLE OF ALLOTMENTS**

prepared for  
**United Communications Corporation**  
WWNY-DT Carthage, New York  
Ch. 7 15.14 kW (MAX-DA) 219 m

	( a ) DTV Ch. 35	( b ) NTSC Ch. 7	( c ) NTSC Ch. 7	( d ) NTSC Ch. 7	( e ) DTV Ch. 7	( f ) DTV Ch. 7	( g ) DTV Ch. 7
	1998 Table Facility (1990 Census)	1998 Table Facility (1990 Census)	1998 Table Facility Calculated (1990 Census)	1998 Table Facility Calculated (2000 Census)	7th R&O Table (2000 Census)	Replication of 1998 Table Analog Facility (2000 Census)	Non-directional Implementation of Proposed Facility (2000 Census)
<b>Population</b>	277,000	250,000	255,376	256,923	191,000	258,557	255,561
% difference from NTSC 1998 Table Facility	10.80%		2.15%				
difference from column "d" facility					-65,923	1,634	-1,362
% difference from column "d" facility					-25.66%	0.64%	-0.53%
<b>Area</b>	23,938.0	22,351.0	22,194.2	22,214.2	17,022.0	22,572.1	21,820.7
% difference from NTSC 1998 Table Facility	7.10%		-0.70%				
difference from column "d" facility					-5,192.2	357.9	-393.5
% difference from column "d" facility					-23.37%	1.61%	-1.77%

Check to show  
studied facility  
compares to 1998  
NTSC Table Facility of 2000 Census data.

Same study  
parameters as "c"  
only change is use  
of 2000 Census data.

Data from 7th R&O  
Table. (15.6 kW at  
203 m with FCC  
allotment antenna  
pattern)

15.14 kW at 219 m  
with odd shaped  
directional pattern

Non-directional  
antenna 11.09 kW at  
219 m

<b>Notes:</b>	<b>Column</b>	
	<b>a</b>	From 1998 Table
	<b>b</b>	From 1998 Table
	<b>c</b>	1998 Table NTSC facility study using tv_process software
	<b>d</b>	Facility study same as "c" except using 2000 Census data.
	<b>e</b>	7th R&O Table facility on Ch. 7 (Based on side mounted UHF antenna)
	<b>f</b>	Replication of 1998 analog facility on Ch. 7 - Causes 0.396% additional interference to WNGS, Less than 0.1% additional interference to other affected stations. WWNY-DT and WNGS-DT are located 276.46 km distance. 273.6 km required for new allotments per 73.623(d)(2) for stations in Zone II.
	<b>g</b>	Non-directional implementation of facility in column "f" using reduced power top mounted analog antenna

Table II  
**PROPOSED ALLOTMENT PARAMETERS**  
 prepared for  
**United Communications Corporation**  
 WWNY-DT Carthage, New York  
 Ch. 7 15.14 kW (MAX-DA) 219 m

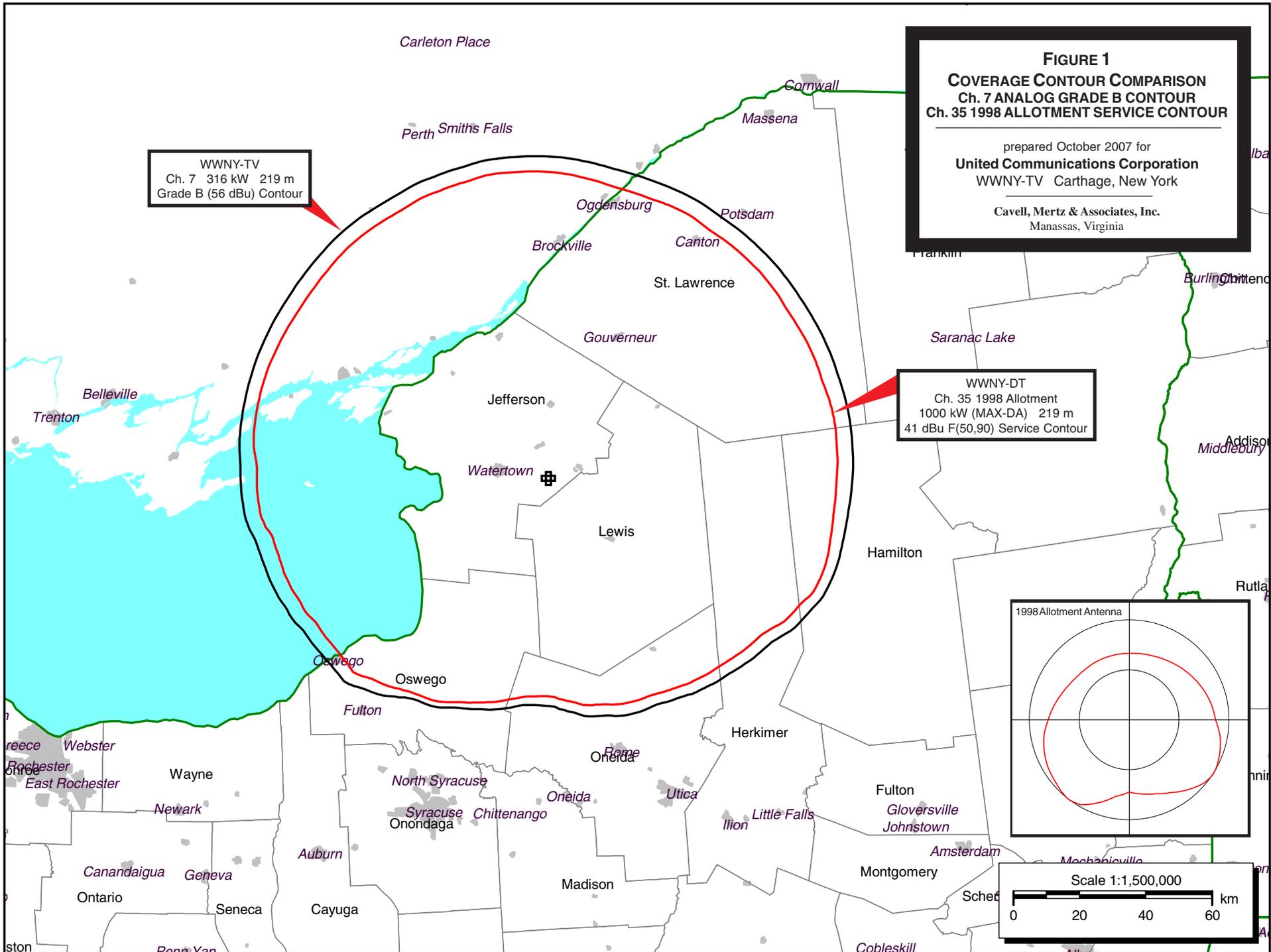
Channel	DTV Channel 7
Site Coordinates	43° 57' 15" N 75° 43' 45" W (NAD-27)
Radiation Center	506 meters above mean sea level 219 meters above average terrain
Effective Radiated Power	15.14 kilowatts

**Directional Antenna Relative Field Pattern**

<u>Azimuth</u> <u>(°T)</u>	<u>Relative</u> <u>Field</u>	<u>Azimuth</u> <u>(°T)</u>	<u>Relative</u> <u>Field</u>
0	0.996	180	0.947
10	0.986	190	0.944
20	0.978	200	0.921
30	0.974	210	0.882
40	0.963	220	0.860
50	0.950	230	0.878
60	0.937	240	0.886
70	0.925	250	0.894
80	0.922	260	0.907
90	0.910	270	0.927
100	0.903	280	0.958
110	0.901	290	0.976
120	0.883	300	0.983
130	0.856	310	0.988
140	0.862	320	0.995
150	0.891	330	0.995
160	0.906	340	0.998
170	0.930	350	1.000

Table III  
**INTERFERENCE STUDY SUMMARY**  
 prepared for  
**United Communications Corporation**  
 WWNY-DT Carthage, New York  
 Ch. 7 15.14 kW (MAX-DA) 219 m

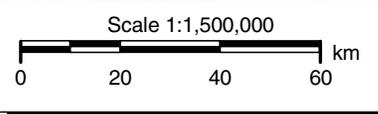
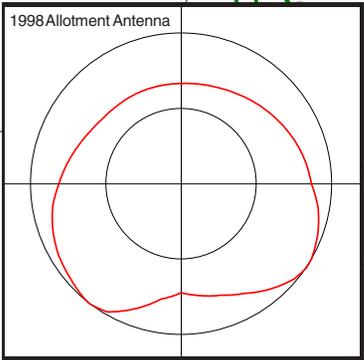
<u>Channel</u>	<u>Affected Station</u>	<u>City</u>	<u>State</u>	<u>7th R&amp;O Table Baseline (2000 Census)</u>	<u>Calculated Baseline (2000 Census)</u>	<u>Interference Population 7th R&amp;O facility (2000 Census)</u>	<u>Interference Population with Proposal (2000 Census)</u>	<u>Population Difference</u>	<u>New Interference</u>
7	WHDH-TV	Boston	MA	7,035,000				--No interference---	
7	WXXA-TV	Albany	NY	1,488,000	1,488,510	17,040	17,044	4	0.000%
7	WBNG-TV	Binghamton	NY	1,001,000	1,010,455	18,859	19,867	1,008	0.100%
7	WABC-TV	New York	NY	19,366,000				--No interference---	
7	WNGS	Springville	NY	1,369,000	1,369,786	8,945	14,372	5,427	0.396%
8	WICZ-TV	Binghamton	NY	750,000				--No interference---	

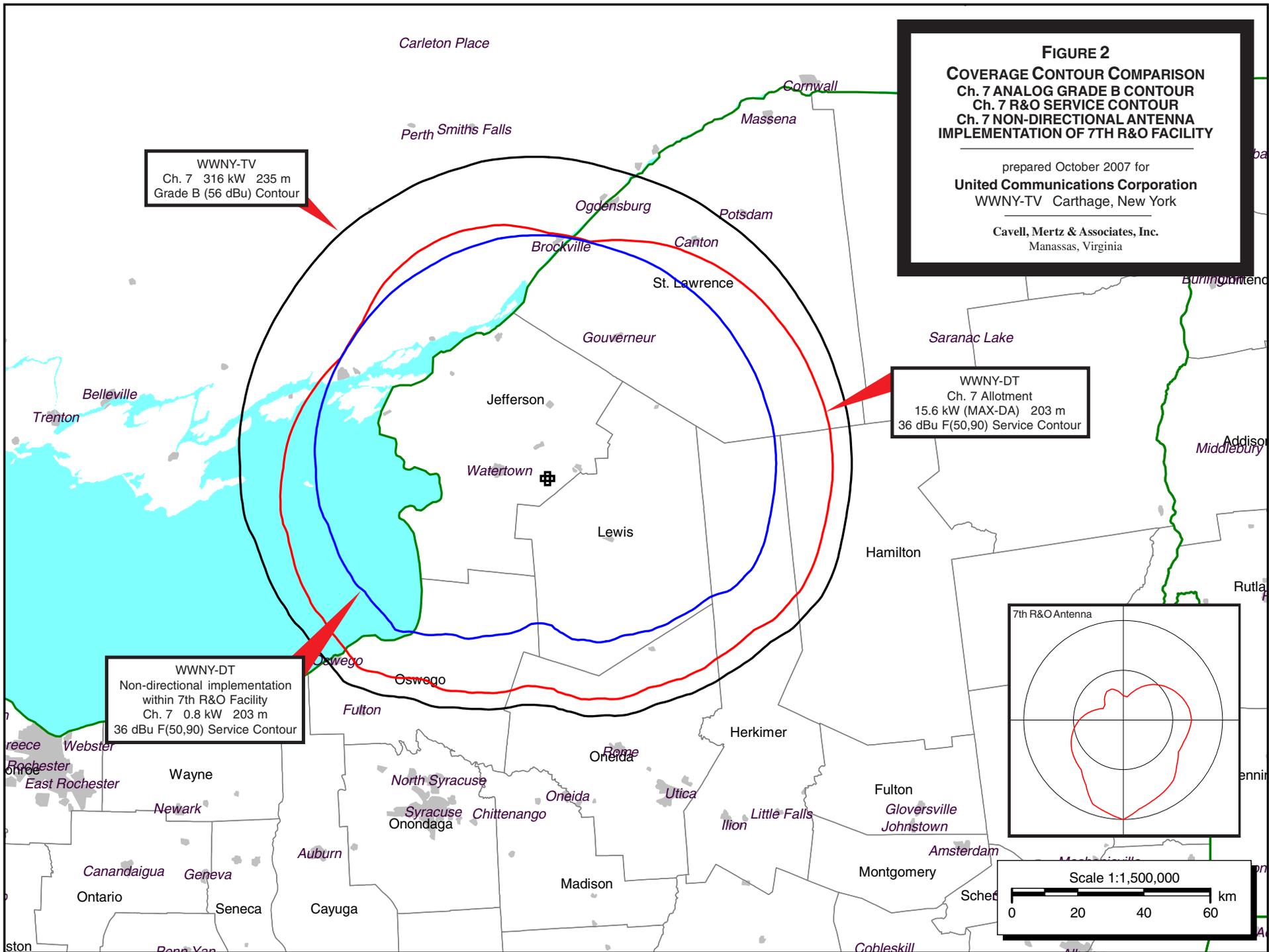


**WWNY-TV**  
 Ch. 7 316 kW 219 m  
 Grade B (56 dBu) Contour

**FIGURE 1**  
**COVERAGE CONTOUR COMPARISON**  
**Ch. 7 ANALOG GRADE B CONTOUR**  
**Ch. 35 1998 ALLOTMENT SERVICE CONTOUR**  
 prepared October 2007 for  
**United Communications Corporation**  
 WWNY-TV Carthage, New York  
 Cavell, Mertz & Associates, Inc.  
 Manassas, Virginia

**WWNY-DT**  
 Ch. 35 1998 Allotment  
 1000 kW (MAX-DA) 219 m  
 41 dBu F(50,90) Service Contour





**FIGURE 2**  
**COVERAGE CONTOUR COMPARISON**  
**Ch. 7 ANALOG GRADE B CONTOUR**  
**Ch. 7 R&O SERVICE CONTOUR**  
**Ch. 7 NON-DIRECTIONAL ANTENNA**  
**IMPLEMENTATION OF 7TH R&O FACILITY**

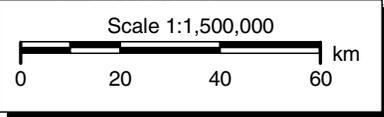
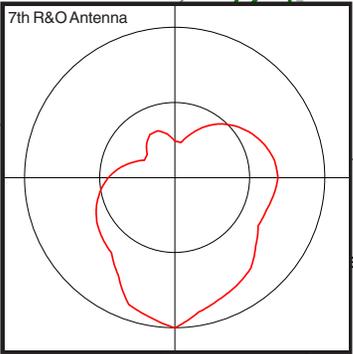
prepared October 2007 for  
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WWNY-TV  
 Ch. 7 316 kW 235 m  
 Grade B (56 dBu) Contour

WWNY-DT  
 Ch. 7 Allotment  
 15.6 kW (MAX-DA) 203 m  
 36 dBu F(50,90) Service Contour

WWNY-DT  
 Non-directional implementation  
 within 7th R&O Facility  
 Ch. 7 0.8 kW 203 m  
 36 dBu F(50,90) Service Contour



WWNY-TV  
 Ch. 7 316 kW 219 m  
 56 dBu F(50,50) Grade B Contour  
 Proposed Certification Change  
 Ch. 7 15.14 kW (MAX-DA) 219 m  
 Service Contour

WWNY-DT  
 Non-directional antenna implementation  
 of Proposed Certification Change  
 Ch. 7 11.09 kW 219 m  
 36 dBu F(50,90) Service Contour

**FIGURE 3**  
**COVERAGE CONTOUR COMPARISON**  
**Ch. 7 ANALOG GRADE B CONTOUR**  
**PROPOSED Ch. 7 CHANGE IN CERTIFICATION**  
**NON-DIRECTIONAL ANTENNA IMPLEMENTATION**  
**OF PROPOSED CHANGE IN CERTIFICATION**

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