

THE CONNECTICUT LIGHT AND POWER COMPANY

NOTICE OF EXEMPT MODIFICATION OF A TELECOMMUNICATIONS FACILITY IN THE TOWN OF SHARON, CONNECTICUT

I. Introduction

Pursuant to the Regulations of Connecticut State Agencies section 16-50j-72(b), Northeast Utilities Service Company ("NUSCo") as agent for its corporate affiliate, The Connecticut Light and Power Company ("CL&P"), hereby gives notice to the Connecticut Siting Council (the "Council") and the town of Sharon of its intent to make an exempt modification to an existing wireless communications facility located at Surdan Mountain Road in Sharon, CT. Specifically CL&P plans to install five new antennas on the existing tower at this location. Under the Council's regulations (RCSA Sec. 16-50j-72(b)), CL&P's planned modification does not constitute a modification that is subject to Council review because CL&P will not change the height of the tower, will not extend the boundaries of the compound, will not increase the noise levels at the site boundaries and will not increase the total radio frequency electromagnetic radiation power density at the site boundaries to levels above applicable standards.

II. Background

Litchfield County Dispatch currently owns a 195-foot tall self supporting steel lattice tower on Surdan Mountain Road in Sharon, CT (latitude: 41° 51'42", longitude: -73° 23' 58"). CL&P has reached an agreement with Litchfield County Dispatch to add the following 5 antennas to this structure: one (1) Sinclair SD210 dipole at approximately 133 feet above ground level ("AGL"), one (1) Sinclair SD210 dipole at approximately 113 feet AGL, one (1) Decibel Products DB-586 whip antenna at approximately 113 feet AGL, one (1) Decibel Products DB-586 whip antenna at approximately 93 feet AGL, and one (1) Sinclair SD110 dipole antenna at approximately 79 feet AGL.

CL&P is adding the two Decibel Products DB-586 omni whip antennas to improve the DSCADA radio system, by filling in gaps in the radio coverage to better cover the DSCADA devices located in Sharon and the surrounding area.

CL&P is currently using a low band voice communication system as the primary means of communication between its field crews and the local dispatch. This is a statewide system that is used for daily operations as well as during storm events. This system provides the means for crews to respond quickly and efficiently to any event.

Due to the frequencies that are employed by the low band system, the equipment is susceptible to interference from a wide-range of devices. As more interfering devices are deployed and the level of interference on the low band frequencies rises, the number of sites that CL&P requires to provide radio coverage will continue to increase. To overcome this deficiency in the current system, CL&P is planning an upgrade to a more

modern and robust radio system that uses different frequencies. As part of this upgrade effort, CL&P has identified specific locations to begin including additional antenna systems in preparation for the replacement of the current low band radio system. Consequently, the proposed modification includes an antenna for the existing low band system, one Sinclair SD110 dipole, and antennas for the planned replacement system, two Sinclair SD210 dipoles.

III. Proposed Installation

Please refer to Attachment 1 for details of the existing and proposed facility. CL&P proposes the installation of the five antennas identified in Section II above at their respective locations on this facility. The tower's visibility will not materially change due to the installation of these antennas.

It will not be necessary to expand the existing equipment compound to perform the proposed installation. The existing chain link fence surrounding the compound will not be modified. New base radio equipment will be added in a vacant portion of the Litchfield County Dispatch's existing multi-carrier telecommunications shelter at this site. No external modifications will be made to the equipment shelters at the site.

CL&P employed URS Corporation to conduct an analysis of this radio tower to determine its physical condition and structural loading capabilities. The results of this analysis indicate that the tower can safely support its existing and proposed load without exceeding the stress levels prescribed by TIA/EIA-222-F. Please refer to Attachment 2 for a summary of the results of the structural analysis completed by URS Corporation.

The proposed installation would not require any water or sanitary facilities and will not generate any discharges to bodies of water or sanitary facilities. After construction is complete, the proposed installation would not generate any traffic other than periodic maintenance visits.

The nearest residence is approximately 190 feet northwest of the existing tower.

Radio-signal emissions from the existing and proposed equipment at this site do not exceed the total radio-frequency ("RF") electromagnetic power-density level permitted by the Federal Communications Commission ("FCC"). To ensure compliance with the applicable standard, CL&P commissioned C² Systems to conduct a power density analysis for the proposed installation using the methodology prescribed by the FCC's Office of Engineering and Technology Bulletin No. 65W, Edition 97-01 (August 1997) ("OET Bulletin 65"). The analysis includes measurements from the antennas currently mounted on the tower and a calculation for the new antennas that will be added to the tower. The analysis indicates that the cumulative power density level for the proposed installation at its highest level would be 3.58% of the FCC Standard for public exposure to RF emissions. Please refer to Attachment 3 for a copy of the report produced by C² Systems.

In accordance with the Regulations of Connecticut State Agencies section 16-50j-72(b), CL&P's planned modification does not constitute a modification that may have a substantial adverse environment effect because: (i) this modification will not increase the height of the tower, will not extend the boundaries of the site, and will not increase the noise levels at the site boundaries and (ii) the total radio frequency electromagnetic radiation power density will stay within applicable standards. Therefore, NUSCo respectfully submits that CL&P's planned modification to the existing Litchfield County Dispatch tower does not constitute a modification subject to the Council's jurisdiction. NUSCo requests that the Council confirm that CL&P's planned modification as described above is within the RCSA section 16-50j-72 (b) exemption.

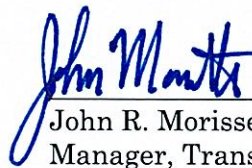
Work to implement this modification would begin as soon as practical after issuance of the requested ruling by the Council and be less than 30-days in duration.

Communications regarding this Notice of Exempt Modification should be directed to:

Mr. John R. Morissette
Manager, Transmission Siting and Permitting
Northeast Utilities Service Company
P.O. Box 270
Hartford, CT 06141-0270
Telephone: (860) 665-2036

NORTHEAST UTILITIES SERVICE COMPANY

By:



John R. Morissette
Manager, Transmission Siting and
Permitting

Attachments:

- Attachment 1: Project Plans
- Attachment 2: Structural Analysis Letter
- Attachment 3: Power Density Report

ATTACHMENT 1

ATTACHMENT 2



August 14, 2009

Mr. Brian Rockwood
Northeast Utilities
107 Selden Street
Berlin, CT 06037

**Reference: Northeast Utilities Antenna Modification
195' Self Supporting Lattice Tower
off Surdan Mountain Road, Sharon, Connecticut
URS Project No: NU1032 / 36924349**

Dear Mr. Rockwood:

URS Corporation AES (URS) has prepared this letter to confirm that the existing 195' Self Supporting tower located off Surdan Mountain Road in Sharon, Connecticut will support the proposed equipment as outlined in "Structural Analysis Report prepared for Northeast Utilities by URS Corporation, entitled "Detailed Structural Analysis and Reinforcement of an Existing 195' Self Supporting Lattice Tower and its Foundation for New Antenna Arrangement", dated July 24, 2008. As noted in the analysis, the tower is passing with a 97.5% rating. For your reference, we have attached copies of the signed and sealed Executive Summary of this analysis, a letter dated May 11, 2009 prepared for Northeast Utilities by URS Corporation that confirms that all modifications and reinforcements to the existing 195' self supporting tower were verified and completed as specified and a copy of the Daily Summary Report and Tower Observation Report as prepared by Terracon confirming that all modifications and reinforcements were completed.

Please call if there are any questions.

Sincerely,

URS Corporation AES

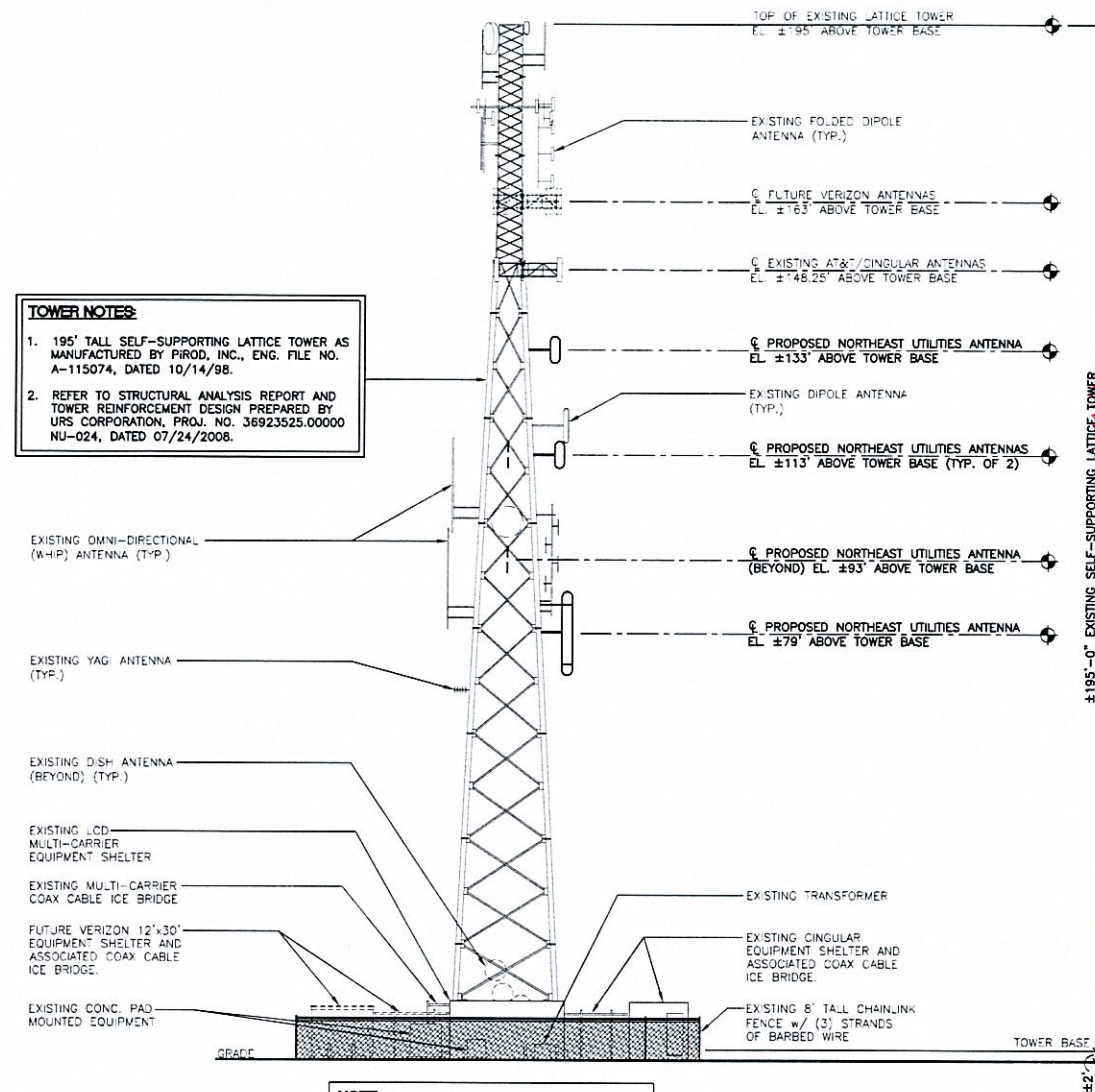
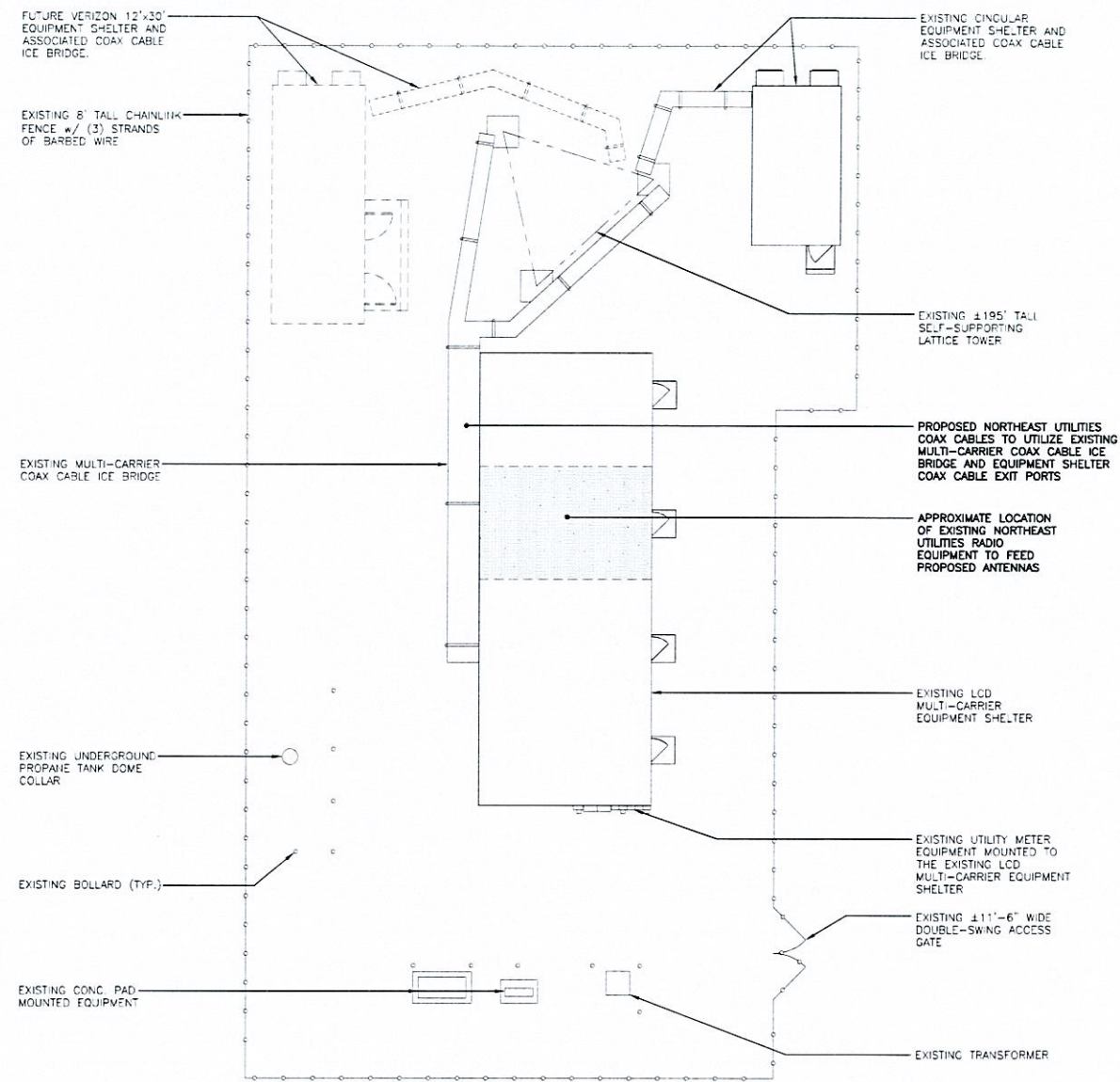

Richard Sambor, P.E.
Senior Structural Engineer



MS/mks

cc: CF/Book

URS Corporation
500 Enterprise Drive, Suite 3B
Rocky Hill, CT 06067
Tel: 860.529.8882
Fax: 860.529.3991

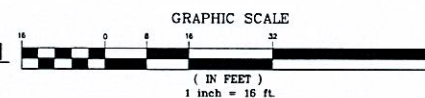
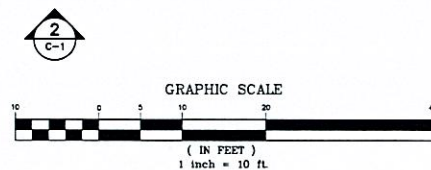


TOWER NOTES:

1. 195' TALL SELF-SUPPORTING LATTICE TOWER AS MANUFACTURED BY PIROD, INC., ENG. FILE NO. A-115074, DATED 10/14/98.
2. REFER TO STRUCTURAL ANALYSIS REPORT AND TOWER REINFORCEMENT DESIGN PREPARED BY URS CORPORATION, PROJ. NO. 36923525.00000 NU-024, DATED 07/24/2008.

NOTE:

REFER TO STRUCTURAL ANALYSIS REPORT AND
TOWER REINFORCEMENT DESIGN PREPARED BY
URS CORPORATION, PROJ. NO. 36923525.00000
NU-024, DATED 07/24/2008 FOR ANTENNA,
APPURTENANCE AND COAX CABLE ROUTING
LOCATIONS NOT SHOWN ABOVE FOR CLARITY.

[illegible]

ATTACHMENT 3

Radio Frequency Field Survey

Sharon Tower
Surdan Mountain Road
Sharon, CT 06069



C Squared Systems
920 Candia Road
Manchester, NH 03109
Phone 603-657-9702
Email support@csquaredsystems.com

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1.0 Overview

At the request of Northeast Utilities radio frequency measurements were made in the vicinity of the wireless tower on Surdan Mountain Road, Sharon, CT 06069 on September 3, 2008. The coordinates of the tower are 41° 51' 43.34" N, 73° 23' 58.54" W. The results of the measurements as well as the calculated values for the proposed Northeast Utilities radio antennas are presented in this report.

Survey measurements are expressed as a percentage of the Maximum Permissible Exposure (MPE) limits as listed in the FCC OET Bulletin 65. OET Bulletin 65 was prepared to provide assistance in determining whether proposed or existing transmitting facilities, operations or devices comply with limits for human exposure to radio frequency fields adopted by the Federal Communications Commission. Measurement results expressed in this report are for uncontrolled public access. The FCC's guidelines establish separate exposure limits for "general population/uncontrolled exposure," and for "occupational/controlled exposure."

2.0 FCC Guidelines for Evaluating RF Radiation Exposure Limits

The FCC describes exposure to radio frequency (RF) energy in terms of percentage of maximum permissible exposure (MPE) with 100% being the maximum allowed. Rather than the FCC presenting the user specification in terms of complex power density figures over a specified surface area, this MPE measure is particularly useful, and even more so when considering that power density limits actually vary by frequency because of the different absorptive properties of the human body at different frequencies.

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by OET Bulletin 65 Edition 97-01. These new rules include limits for Maximum Permissible Exposure (MPE) for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based on exposure limits recommended by the National Council on Radiation Protection and Measurements (NCRP), the exposure limits developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

Survey measurements are expressed as a percentage of the Maximum Permissible Exposure (MPE) limits as listed in the FCC OET Bulletin 65. OET Bulletin 65 was prepared to provide assistance in determining whether proposed or existing transmitting facilities, operations or devices comply with limits for human exposure to radio frequency fields adopted by the Federal Communications Commission. Measurement results expressed in this report are for uncontrolled public access. The FCC's guidelines establish separate exposure limits for "general population/uncontrolled exposure," and for "occupational/controlled exposure."

The FCC general population/uncontrolled limits set the maximum exposure to which most people may be subjected. General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Public exposure to radio frequencies is regulated and enforced in units of power per square centimeter. Because each frequency band has different exposure limits, in a mixed signal environment it is necessary to report percent of MPE rather than power density.

Higher exposure limits are permitted under the occupational/controlled exposure category, but only for persons who are exposed as a consequence of their employment and who have been made fully aware of the potential for exposure, and they must be able to exercise control over their exposure. General population/uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals. Attachment B contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limits.

3.0 Measurements and Results

Frequencies from 300 KHz to 50 GHz were measured using the Narda A8722D probe in conjunction with the 8718B survey meter. The A8722D probe is "shaped" such that in a mixed signal environment (i.e.: more than one frequency band is used in a particular location) it accurately measures the percent of MPE.

3.1. Measurement Procedures

From FCC OET Bulletin No. 65 - Edition 97-01 – "A useful characteristic of broadband probes used in multiple-frequency RF environments is a frequency-dependent response that corresponds to the variation in MPE limits with frequency. Broadband probes having such a "shaped" response permit direct assessment of compliance at sites where RF fields result from antennas transmitting over a wide range of frequencies. Such probes can express the composite RF field as a percentage of the applicable MPEs".

Probe Description: As suggested in FCC OET Bulletin No. 65 - Edition 97-01, the response of the measurement instrument should be essentially isotropic, (i.e., independent of orientation or rotation angle of the probe). For this reason, the Narda A8722 Isotropic probe was used for these measurements.

Sampling Description: At each measurement location, a spatially averaged measurement is collected over the height of an average human body. The 8718B survey meter performs a time average measurement while the user slowly moves the probe over a distance range of 0 cm to 200 cm (about 6 feet) above ground level. The results recorded at each measurement location include both average and peak values over the spatial distance.

Instrumentation Information: A summary of specifications for the equipment used is provided in the table below.

Manufacturer	Narda Microwave			
Probe	A8722D, Serial Number 07030			
Calibration Date	11/26/2007			
Calibration Interval	12 Months			
Meter	8718B, Serial Number 06028			
Calibration Date	11/26/2007			
Calibration Interval	24 Months			
Probe Specifications	Freq Range	Field Measured	Standard	Measurement Range
	300 KHz-50 GHz	E	FCC 1997	0.3 – 300 % of Controlled

Table 1: Instrumentation Information

Instrument Measurement Uncertainty: The total measurement uncertainty of the NARDA measurement probe and meter is no greater than ± 3 dB. The factors which contribute to this include the probe's frequency response deviation, calibration uncertainty, ellipse ratio, and isotropic response. Every effort is taken to reduce the overall uncertainty during measurement collection including rotating the probe about the axis of the handle and pointing the probe directly at the likely highest source of emissions.

3.2. Calculations

All calculations are based on the following assumptions.

Power Assumptions					
Antenna Model	Height (Ft.)	Frequency (MHz)	Channels	Power / Channel	Total Power
Sinclair SD210-SF3P4LDF	113	217	4	20W ERP/Channel	80W ERP Total
Andrew DB587-Y	93	900	1	300W ERP/Channel	300W ERP Total
SD110-SFXPANSNM	79	48	1	100W ERP/Channel	100W ERP Total

Table 2: Proposed Northeast Utilities Antenna Information

The emission field calculation results displayed in the following figures were generated using the following formula as outlined in FCC bulletin OET 65:

$$\text{Power Density} = \left(\frac{\text{EIRP}}{\pi \times R^2} \right) \times \text{Off Beam Loss}$$

Where:

EIRP = Effective Isotropic Radiated Power

R = Radial Distance = $\sqrt{H^2 + V^2}$

H = Horizontal Distance from antenna

V = Vertical Distance to rad center of antenna

Off Beam Loss is determined by the selected antenna patterns

These calculations assume that the antennas are operating at 100 percent capacity, that all antenna channels are transmitting simultaneously, and that the radio transmitters are operating at full power. Obstructions (trees, buildings etc.) that would normally attenuate the signal are not taken into account. As a result, the predicted signal levels are more conservative (higher) than the actual signal levels will be from the finished installation.

3.3. Results

Results, both measured and predicted, and a description of each survey location are detailed in the table presented below. Measurements were performed on September 3, 2008 between the hours of 11:00 AM and 1:00 PM.

Predicted results were estimated by calculating the %MPE of the proposed Northeast Utilities antennas. This predicted %MPE value was then added to each measured value to estimate a total %MPE value at the given distance from the base of the tower. An analysis of the antenna patterns was conducted to determine whether each individual measurement point would fall within the main beam of the transmitting antenna given the mounting heights of the antenna, antenna pattern and the distance between tower and measurement point. The results are detailed in Table 3 below.

Measurement Point	Latitude	Longitude	Distance from Tower (ft)	Measured %MPE	Predicted %MPE	Total %MPE
1	N 41°51' 43.92"	W 73° 23' 59.27"	81	0.38%	0.52%	0.90%
2	N 41°51' 44.07"	W 73° 23' 58.76"	76	0.88%	0.55%	1.42%
3	N 41°51' 43.88"	W 73° 23' 58.96"	64	0.38%	0.63%	1.00%
4	N 41°51' 43.74"	W 73° 23' 58.95"	52	0.66%	0.71%	1.36%
5	N 41°51' 43.59"	W 73° 23' 58.98"	42	0.94%	0.78%	1.71%
6	N 41°51' 43.53"	W 73° 23' 59.11"	48	1.53%	0.73%	2.27%
7	N 41°51' 43.31"	W 73° 23' 58.88"	26	1.13%	0.87%	2.00%
8	N 41°51' 43.34"	W 73° 23' 58.54"	0	1.53%	0.95%	2.48%
9	N 41°51' 43.20"	W 73° 23' 58.35"	21	0.66%	0.90%	1.56%
10	N 41°51' 43.67"	W 73° 23' 58.36"	37	0.66%	0.81%	1.46%
11	N 41°51' 44.09"	W 73° 23' 58.33"	78	1.63%	0.54%	2.16%
12	N 41°51' 43.87"	W 73° 23' 58.09"	64	1.69%	0.63%	2.31%
13	N 41°51' 43.44"	W 73° 23' 58.17"	30	1.31%	0.85%	2.16%
14	N 41°51' 44.17"	W 73° 23' 58.64"	85	2.00%	0.50%	2.50%
15	N 41°51' 44.50"	W 73° 24' 0.04"	164	0.50%	0.22%	0.72%
16	N 41°51' 46.32"	W 73° 23' 59.10"	306	2.81%	0.77%	3.58%
17	N 41°51' 47.16"	W 73° 23' 55.50"	451	0.09%	0.37%	0.46%
18	N 41°51' 43.50"	W 73° 23' 49.32"	697	0.28%	0.16%	0.44%
19	N 41°51' 44.82"	W 73° 23' 51.60"	546	0.41%	0.26%	0.66%
20	N 41°51' 46.02"	W 73° 23' 54.30"	421	0.59%	0.42%	1.02%
21	N 41°51' 46.50"	W 73° 24' 9.180"	866	1.16%	0.10%	1.26%

Table 3: Measured and Calculated Results

4.0 Photos of Selected Measurement Locations



Figure 1: Aerial View with Measurement Locations



Figure 2: Aerial View with Measurement Locations within Compound

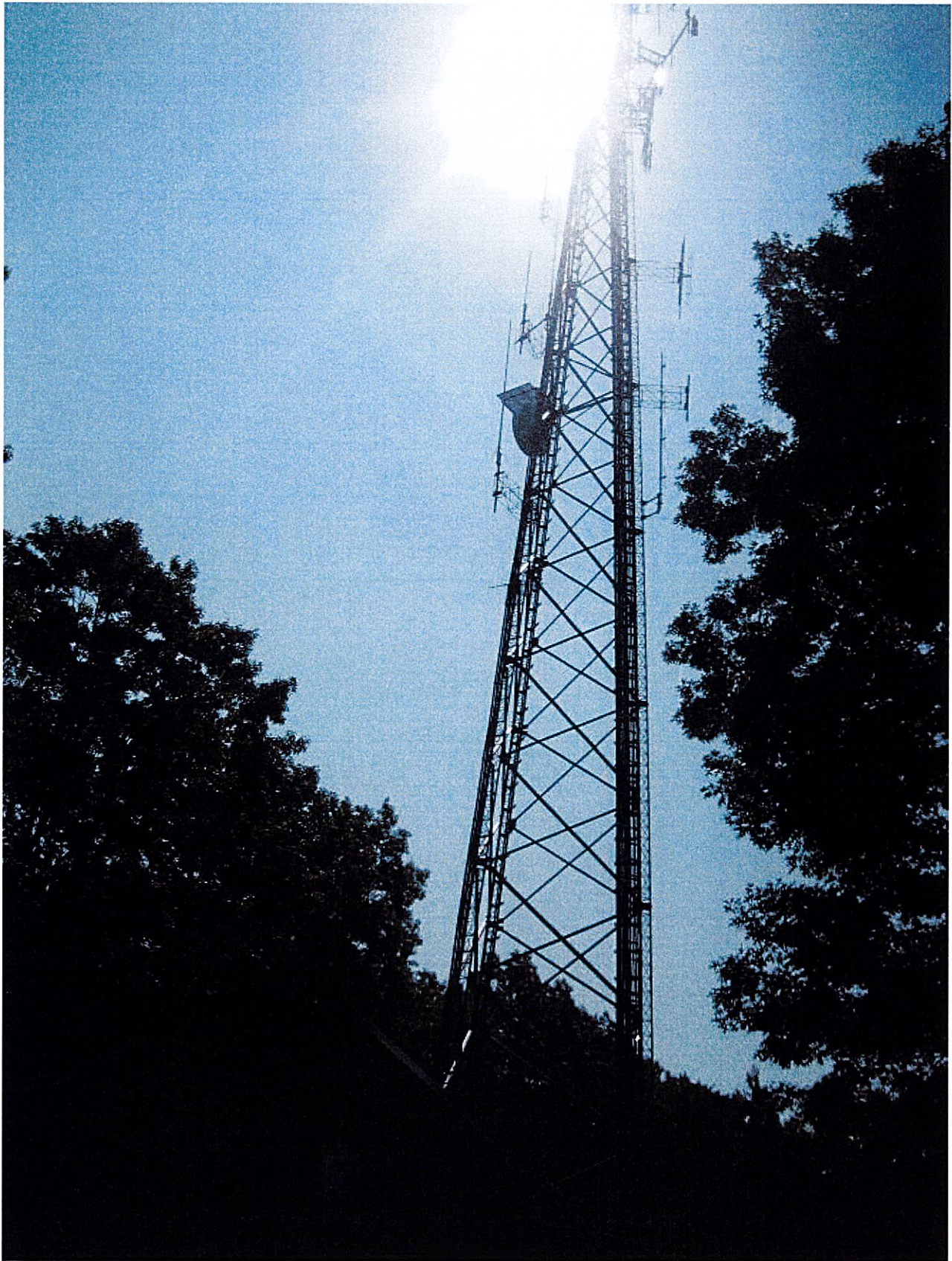


Figure 3: Lattice Tower

5.0 Conclusion

Areas in the vicinity of wireless tower located on Surdan Mountain Road, Sharon, CT were surveyed and found to be within the mandated General Population/Uncontrolled limits for Maximum Permissible Exposure, as delineated in the Federal Communications Commission's Radio Frequency exposure rules published in 47 CFR 1.1307(b)(1)-(b)(3).

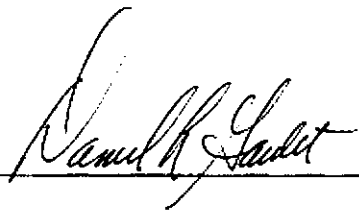
The maximum power density at the locations measured was predicted to be 3.58% MPE after the addition of the Northeast Utilities antennas.

The above analysis shows that the proposed configuration will not substantially increase power density in the vicinity and that the site will be well within FCC limits.

Photographs of all measurement locations are on file with Northeast Utilities and can be made available upon request.

6.0 Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate. The measurements were obtained with properly calibrated equipment using techniques in compliance with ANSI/IEEE Std. C95.3, ANSI/IEEE Std. C95.1 and FCC OET Bulletin 65 Edition 97-01.

A handwritten signature in black ink, appearing to read "Daniel L. Goulet", is written over a horizontal line.

September 15, 2008

Date

Daniel L. Goulet
C Squared Systems, LLC

Attachment A: References

OET Bulletin 65 - Edition 97-01 - August 1997 Federal Communications Commission Office of Engineering & Technology

ANSI C95.1-1982, American National Standard Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 300 kHz to 100 GHz. IEEE-SA Standards Board

IEEE Std C95.3-1991 (Reaff 1997), IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave. IEEE-SA Standards Board

Attachment B: FCC Limits For Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f ²)*	6
30-300	61.4	0.163	1.0	6
300-1500	-	-	f/300	6
1500-100,000	-	-	5	6

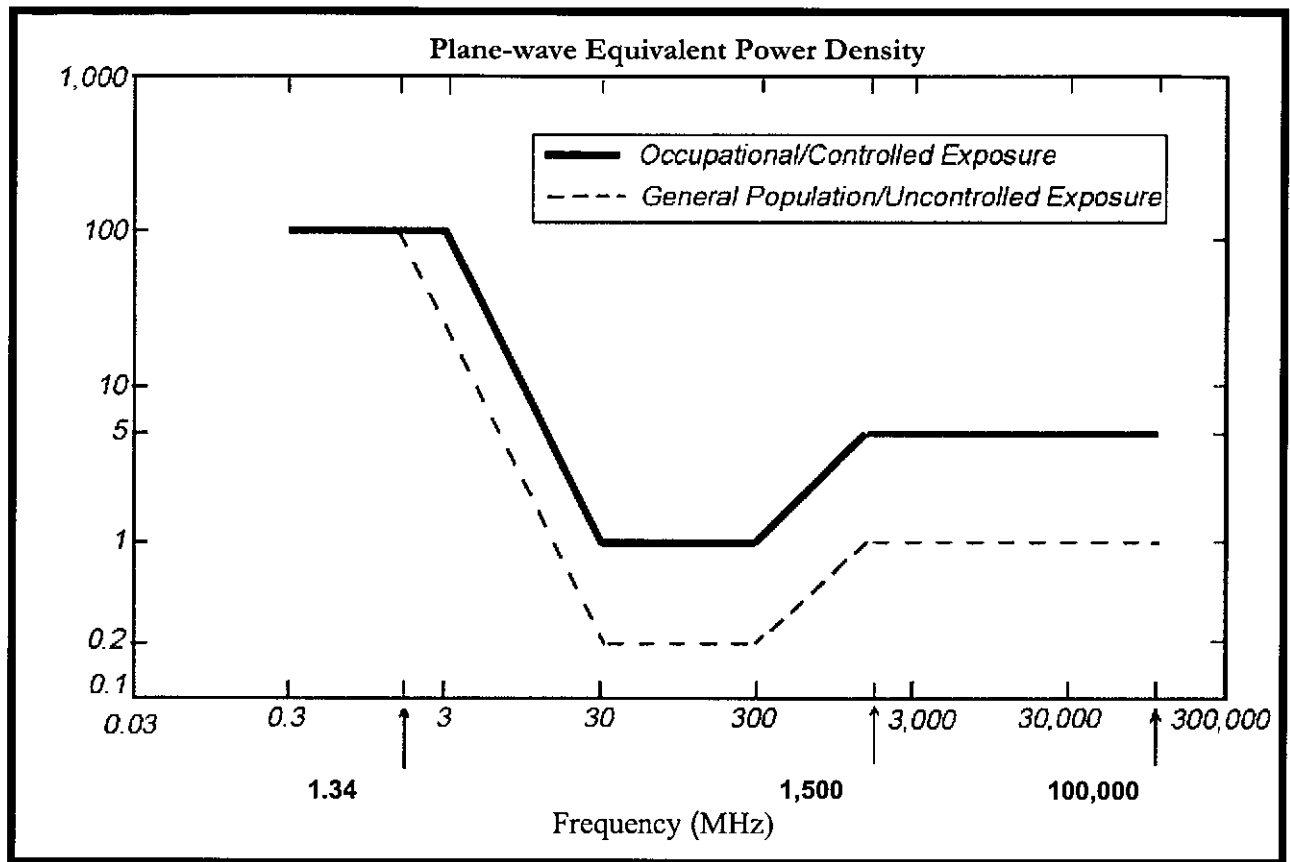
(B) Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1500	-	-	f/1500	30
1500-100,000	-	-	1.0	30

f = frequency in MHz * Plane-wave equivalent power density

NOTE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.



FCC Limits for Maximum Permissible Exposure (MPE)