EVERSOURCE ENERGY

56 Prospect Street
P.O. Box 270
Hartford, CT 06141-0270

John R. Morissette
Project Manager - Transmission Siting - CT

August 6, 2015

Robert Stein, Chairman
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

Dear Chairman Stein:

The Connecticut Light and Power Company doing business as Eversource Energy ("Eversource") submits the attached original and fifteen (15) copies of a Request for Tower Sharing seeking the Council approval of the tower sharing of an existing telecommunications tower in Haddam, Connecticut pursuant to the exemption provided under Sections 16-50j-88 to 16-50j-90 of the Regulations of Connecticut State Agencies.

Also, attached is a check for the filing fee in the amount of $625.

The First Selectman of the Town of Haddam and the property owner has been informed of the requested approval of sharing this tower in Haddam.

If you have any questions or comments, please call me at (860) 728-4532.

Sincerely,

John R. Morissette
Project Manager - Transmission Siting - CT

Attachment: Request for Tower Sharing

cc: Melissa J. Schlag, First Selectman, Town of Haddam
Sean Murphy, American Tower

THE CONNECTICUT LIGHT AND POWER COMPANY DOING BUSINESS AS EVERSOURCE ENERGY

REQUEST FOR TOWER SHARING ON AN EXISTING TELECOMMUNICATIONS FACILITY IN THE TOWN OF HADDAM, CONNECTICUT

A. Introduction:

Pursuant to Regulations of Connecticut State Agencies ("RCSA") §§16-50j-88 to 16-50j-90, and Connecticut General Statutes ("CGS") §16-50k, The Connecticut Light and Power Company doing business as Eversource Energy ("Eversource"), hereby requests approval of the Connecticut Siting Council (the "Council") for tower sharing on an existing wireless telecommunications facility located at 373 Chamberlain Hill Road, Haddam, Connecticut (the "Property"). The latitude and longitude of the location of this telecommunications facility are 41° 29' 46.0" N and 72° 37' 05.3" W, respectively. Specifically, Eversource proposes to collocate on an existing telecommunications lattice tower (the "Tower") that is owned and maintained by American Tower, LLC ("American Tower"). The Tower is located in the village of Higganum, which is in the Town of Haddam. Eversource submits that no certificate of environmental compatibility and public need pursuant to CGS §16-50k ("Certificate") is required because the proposed tower sharing would satisfy the requirements set out in RCSA §§16-50j-88 to 16-50j-90 and therefore would qualify for exemption.

B. Background:

Eversource is in the process of expanding its 900 megahertz ("MHz") Distribution Supervisory Control and Data Acquisition ("DSCADA") system throughout Connecticut. This system enhances the reliability of the electrical distribution system and public safety by means of remotely operating line disconnect equipment where wireless operated power switching equipment has been installed. Furthermore, Eversource is currently adding base stations throughout its service territory to improve land mobile radio voice communications with electrical workers when performing maintenance work on or repairs to the electric system infrastructure. American Tower currently owns and operates a telecommunications tower, located on the Property. The total height of the existing lattice tower is 366 feet above ground level ("AGL").

C. Project Description:

Eversource proposes to attach the following equipment to the Tower:

- one (1) 21-foot omnidirectional antenna at a centerline height of 375 feet AGL;
- one (1) 14-foot omnidirectional antenna mounted at a centerline height of 372 feet AGL onto existing handrails at the top of the Tower;

- one (1) amplifier to the platform at the top of the Tower at a centerline height of 365 feet AGL;
- one (1) 4-foot parabolic microwave antenna that would provide a connection to Eversource's private communications network, at a mounting centerline height of 300 feet AGL;
- one (1) 16-foot folded dipole antenna mounted to a bracket attached to the Tower at a mounting centerline height of 180 feet AGL;
- one (1) 8-foot omnidirectional antenna mounted to a bracket attached to the Tower at a mounting centerline height of 179 feet AGL;
- one (1) 14-foot omnidirectional antenna mounted to a bracket attached to the tower at a mounting centerline height of 175 feet AGL.

Eversource also proposes to install radio equipment in the existing equipment shelter. Emergency back-up power will be supplied by a new telecommunications battery and a new 20 kilowatt ("kW") generator that will replace the existing 60 kW generator and be mounted on the existing 12 foot by 12 foot concrete pad. Eversource also proposes to install a new 1,000 gallon propane tank, mounted on a new 5 foot by 18 foot concrete pad, to supply fuel for the new generator. For elevation and location drawings of the proposed installations, please see Attachment 1: 14258.000 Project Plans.

American Tower has agreed to Eversource's proposed installations and has entered into a lease agreement with Eversource to allow for such installations and to provide necessary associated rights to permit Eversource to access the Property. Please see Attachment 2: Letter of Authorization from American Tower, stating its agreement with Eversource's applying for and obtaining permits needed for the proposed shared use of the Tower.

A structural loading analysis has been performed to determine if the Tower and foundation are capable of supporting the additional loading from the proposed Eversource installations. This analysis determined that the Tower and foundation can support the loading from the proposed installations pending the installation of modifications. A report of the structural analysis for the Tower is included as Attachment 3: Post Modification Structural Analysis Report. Eversource has been informed by American Tower that the installation of the structural modifications needed for the Tower to support the proposed Eversource equipment, as noted in the report, was completed on March 11, 2015.

D. The proposed installations would not have a substantial adverse environmental effect because:

1) Wetlands and Watercourses

There are no wetlands or watercourses located on or near the location of the proposed installations; therefore, the Project would not have an adverse effect on wetlands or watercourses.

2) Soil Erosion, Sediment Control, and Soil Remediation

To the extent needed during the Project, Eversource would apply soil erosion and sediment control practices pursuant to the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control.*

3) Wildlife and Vegetation

The Project would not have a significant adverse effect on wildlife or vegetation because its scope is limited to the area within the existing fenced compound.

4) Noise

The main source of noise at the facility would be from the outdoor generator located adjacent to the existing shelter. The existing 60 kW generator is being replaced with a smaller 20 kW unit. Sound emitted by the facility after completion of the proposed installations would continue to comply with State regulations. The addition of the Eversource equipment to the facility would have only a negligible impact on sound emissions.

5) Safety and Health

The proposed installations would not create any safety or health hazards to persons or property.

Radio-signal emissions from the proposed equipment, after the installations, would 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, Eversource commissioned C Squared Systems to perform a calculated power-density analysis for the proposed Eversource antenna installation using the methodology prescribed by the FCC's Office of Engineering and Technology ("OET") Bulletin No. 65, Edition 97-01 (August 1997). The analysis verifies that after completion of the proposed installations, composite emissions from the facility would be well below the maximum power density levels as outlined by the FCC in OET Bulletin 65 Ed. 97-01. The highest expected percentage of Maximum Permissible Exposure, at ground level, is 6.84% of the FCC limit. For details of the analysis please refer to Attachment 4: Calculated Radio Frequency Emissions Report.

Eversource does not anticipate the need for specific traffic control measures during construction on the Property or equipment and materials delivery. Subsequent to completion of construction, the proposed installations would

not generate any additional traffic to the area other than continued periodic maintenance visits.

The Project would have minimal impact on the air quality in the area of the telecommunications facility. Eversource plans to replace the existing outdoor emergency generator with a smaller unit to supply back-up power. As a result, the addition of the Eversource equipment to the facility would have only a negligible impact on emissions and those emissions would be consistent with present day levels.

6) Visual

The Project would have only minimal visual impact due to the dimensions and heights of the proposed antennas on the Tower. For a visual comparison of the existing and planned compound configuration, including the Tower with the proposed installations, please refer to Attachment 1: 14258.000 Project Plans.

7) Forests and Parks

The Property contains no areas of recreation or public interest administered by any federal, state, local, or private agencies.

E. Schedule:

The proposed installations would begin as soon as practical after issuance of the requested approval by the Council and would be less than four months in duration. Eversource anticipates that construction would be completed by the end of fourth quarter of 2015.

F. Conclusion:

RCSA §16-50j-88 provides that a Certificate is not required for a proposed sharing of a telecommunications facility that the Council determines satisfies the criteria set out in RCSA §§16-50j-88 to 16-50j-90. Based on the factors explained above, Eversource respectfully submits that the installations of the antenna and other equipment at this existing telecommunications facility would be technically, legally, environmentally and economically feasible and would satisfy the criteria of RCSA §§16-50j-88 to 16-50j-90 for exemption from the requirement for a Certificate. Accordingly, Eversource requests that the Council issue an order approving this proposed tower sharing pursuant to RCSA §16-50j-88.

G. Communications regarding this Request for Tower Sharing should be directed to:

Mr. John R. Morissette
Project Manager - Transmission Siting - CT
Eversource Energy
P.O. Box 270
Hartford, CT 06141-0270
Telephone: (860)728-4532

Eversource Energy

By: _____
John R. Morissette
Project Manager - Transmission Siting - CT

Attachments:

Attachment 1: 14258.000 Project Plans

Attachment 2: Letter of Authorization from American Tower

Attachment 3: Post Modification Structural Analysis Report

Attachment 4: Calculated Radio Frequency Emissions Report

Attachment 1: 14258.000 Project Plans

EVERSOURCE

HIGGANUM
373 CHAMBERLAIN HILL ROAD
HIGGANUM, CT 06441

SITE DIRECTIONS

FROM: 107 SELDEN STREET, BERLIN, CONNECTICUT TO: 373 CHAMBERLAIN HILL ROAD, HIGGANUM, CONNECTICUT

1. Head northwest	141 ft
2. Turn left toward Selden St	0.2 mi
3. Turn left toward Selden St	0.1 mi
4. Turn right onto Selden St	0.2 mi
5. Take the first left onto CT-15 S/US-5 S	1.8 mi
6. Take the ramp to Connecticut 9 S	0.5 mi
7. Merge onto CT-9 S	2.0 mi
8. Keep left to stay on CT-9 S	8.4 mi
9. Take exit 11 for CT-155/Randolph Rd toward CT-17/Durham	0.3 mi
10. Turn right onto CT-115 E/Randolph Rd	0.3 mi
11. Turn right onto Saybrook Rd	167 ft
12. Slight right onto Bartholomew Rd	1.4 mi
13. Keep right to stay on Bartholomew Rd	0.8 mi
14. Take the second right onto Chamberlain Hill Rd, destination will be on left	0.7 mi

GENERAL NOTES

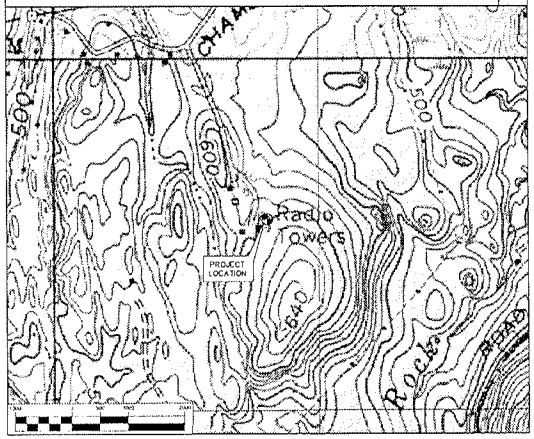
1. PROPOSED ANTENNA LOCATIONS AND HEIGHTS PROVIDED BY EVERSOURCE ENERGY SERVICE COMPANY.

PROJECT SCOPE

1. THE PROPOSED SCOPE OF WORK GENERALLY INCLUDES THE ACQUISITION OF AN EXISTING ABANDONED PREFABRICATED ±12' x ±20' EQUIPMENT SHELTER, 60KW EMERGENCY BACKUP POWER GENERATOR ON A CONCRETE PAD, AND THE INSTALLATION OF A 1000 GALLON VERTICAL PROPANE TANK ON CONCRETE PAD WITHIN THE EXISTING COMMUNICATION FACILITY LEASE AREA.
2. FIVE (5) OMNIDIRECTIONAL ANTENNAS, ONE (1) DISH ANTENNA AND ONE (1) TOWER TOP AMPLIFIER ARE PROPOSED TO BE INSTALLED ON TO THE EXISTING TOWER
3. NO CHANGES ARE PROPOSED TO THE EXISTING UTILITIES SERVICING THE COMPOUND AT THIS TIME.

VICINITY MAP

SCALE: 1" = 1000'



PROJECT SUMMARY

SITE NAME:	HIGGANUM
SITE ADDRESS:	373 CHAMBERLAIN HILL ROAD HIGGANUM, CT 06441
LESSEE / TENANT:	EVERSOURCE ENERGY SERVICE COMPANY 107 SELDEN STREET BERLIN, CT 06037
CONTACT PERSON	STEVE FLORIO EVERSOURCE ENERGY SERVICE COMPANY (860) 665-5611
TOWER COORDINATES:	LATITUDE 41°-29'-46.0" N LONGITUDE 72°-37'-5.3" W GROUND ELEVATION ±989.9' AMSL COORDINATES AND GROUND ELEVATION REFERENCED FROM FCC DATABASE, ASSOCIATED ANTENNA STRUCTURE REGISTRATION #1049519

SHEET INDEX

SHT. NO.	DESCRIPTION	REV. NO.
T-1	TITLE SHEET	3
C-1	COMPOUND PLAN AND ELEVATION	3

REV	DATE	DRAWN BY	CHKD BY	DESCRIPTION
3	06/09/15	DMD	CPC	ISSUED FOR CSC - REVISED PER EVERSOURCE COMMENTS
2	04/06/15	DMD	CPC	ISSUED FOR CSC
1	01/23/15	DMD	CPC	ISSUED FOR CSC
0	11/03/14	DMD	CPC	ISSUED FOR CLIENT REVIEW

PROFESSIONAL ENGINEER SEAL

EVERSOURCE ENERGY SERVICE COMPANY
WIRELESS COMMUNICATIONS FACILITY
HIGGANUM
373 CHAMBERLAIN HILL ROAD
HIGGANUM, CT 06441

EVERSOURCE

CENTEK engineering
Centered on Solutions
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road Branford, CT 06405

DATE 11/03/14
SCALE AS NOTED
JOB NO. 14256.000

TITLE SHEET

T-1

Sheet No. 1 of 2

℄ OF PROPOSED EVERSOURCE WHIP ANTENNA EL. ±372' A.G.L.

℄ OF PROPOSED EVERSOURCE WHIP ANTENNA EL. ±375' A.G.L.

Amplifier

℄ OF PROPOSED EVERSOURCE DISH ANTENNA EL. ±300' A.G.L.

℄ OF PROPOSED EVERSOURCE DIPOLE ANTENNA EL. ±180' A.G.L.

℄ OF PROPOSED EVERSOUCE WHIP ANTENNA EL. ±179' A.G.L.

℄ OF PROPOSED EVERSOURCE WHIP ANTENNA EL. ±175' A.G.L.

TOWER STRUCTURAL NOTES:

1. TOWER STRUCTURE TO COMPLY WITH LOADING AND DESIGN REQUIREMENTS PRESCRIBED BY THE 2003 INTERNATIONAL BUILDING CODE PORTION OF THE 2005 CONNECTICUT STATE BUILDING CODE AS MODIFIED BY THE 2009 CONNECTICUT SUPPLEMENT.
2. PASSING TOWER STRUCTURAL AND MODIFICATION DESIGNS, IF NECESSARY, SIGNED AND SEALED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF CONNECTICUT TO BE PROVIDED PRIOR TO ANY TOWER WORK BEING PERFORMED.
3. REFER TO PASSING TOWER STRUCTURAL ANALYSIS REPORT FOR ALL EXISTING AND RESERVED ANTENNA AND CABLE LOADING INFORMATION.

EVERSOURCE TO ASSUME OWNERSHIP OF EXISTING ABANDONED ±12' x ±20' EQUIPMENT SHELTER ON CONC. FOUNDATION.

EVERSOURCE TO ASSUME OWNERSHIP OF EXISTING ABANDONED 60KW EMERGENCY POWER BACKUP GENERATOR AND ICE BRIDGE ATOP A ±12' x ±12' CONC. PAD.

EXISTING COMPOUND FENCE, TYP.

NOTE:
NOT ALL ANTENNAS SHOWN FOR CLARITY

2 C-1 NORTH ELEVATION
SCALE: 1" = 20'

GRAPHIC SCALE
0 5 10 20 40
(IN FEET)
1 inch = 20 ft

10' NO SPARK ZONE

PROPOSED EVERSOURCE 1000 GALLON PROPANE TANK ATOP A PROPOSED ±5' x ±15' CONC. PAD

±16'-6"

±18'

EVERSOURCE TO ASSUME OWNERSHIP OF EXISTING ABANDONED 60KW EMERGENCY POWER BACKUP GENERATOR AND ICE BRIDGE ATOP A ±12' x ±12' CONC. PAD.

EVERSOURCE TO ASSUME OWNERSHIP OF EXISTING ABANDONED ±12' x ±20' EQUIPMENT SHELTER ON CONC. FOUNDATION AND ASSOCIATED ICE BRIDGE.

2 C-1

NOTE:
COORDINATE POWER & TELCO SERVICE TO THE PROPOSED EVERSOURCE EQUIPMENT SHELTER WITH OWNER & LOCAL UTILITY COMPANIES.

1 C-1 PARTIAL COMPOUND PLAN
SCALE: 1" = 10'

NORTH

GRAPHIC SCALE
0 5 10 20 40
(IN FEET)
1 inch = 10 ft

REV	DATE	DRAWN BY	CHK'D	DESCRIPTION
C	11/04/14	DJP	DMG	ESC - ISSUED FOR CLIENT REVIEW
1	09/30/14	DJP	DMG	ISSUED FOR ESC
2	10/28/14	DJP	DMG	ISSUED FOR ESC
3	11/03/14	DJP	DMG	ESC - REVISED PER EVERSOURCE COMMENTS

PROFESSIONAL ENGINEER SEAL

EVERSOURCE

CENTEK engineering
Centered on Solutions
(203) 488-0580
www.centekeng.com
63-2 North Branford Road
Branford, CT 06405

EVERSOURCE ENERGY SERVICE COMPANY
WIRELESS COMMUNICATIONS FACILITY
HIGGANUM
373 CHAMBERLAIN HILL ROAD
HIGGANUM, CT 06441

DATE: 11/03/14
SCALE: AS NOTED
JOB NO: 14258.000

COMPOUND PLAN AND ELEVATION

C-1

Sheet No. 1 of 4

Attachment 2: Letter of Authorization from American Tower

AMERICAN TOWER®
CORPORATION

LETTER OF AUTHORIZATION

ATC SITE # / NAME: 88010 / DURHAM CT
SITE ADDRESS: 373 Chamberlain Hill Road, Higganum, CT
LICENSEE: Connecticut Light & Power Company

I, Margaret Robinson, Senior Counsel for American Tower*, owner of the tower facility located at the address identified above (the "Tower Facility"), do hereby authorize Connecticut Light & Power Company, its successors and assigns, and/or its agent, (collectively, the "Licensee") to act as American Tower's non-exclusive agent for the sole purpose of filing and consummating any land-use or building permit application(s) as may be required by the applicable permitting authorities for Licensee's telecommunications' installation.

We understand that this application may be denied, modified or approved with conditions. The above authorization is limited to the acceptance by Licensee only of conditions related to Licensee's installation and any such conditions of approval or modifications will be Licensee's sole responsibility.

Signature:

Print Name: Margaret Robinson
Senior Counsel
American Tower*

NOTARY BLOCK

Commonwealth of MASSACHUSETTS
County of Middlesex

This instrument was acknowledged before me by Margaret Robinson, Senior Counsel for American Tower*, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same.

WITNESS my hand and official seal, this 28th day of January, 2015.

NOTARY SEAL

GREGORY E. MERCIER
Notary Public
COMMONWEALTH OF MASSACHUSETTS
My Commission Expires
April 8, 2016

Notary Public Gregory Mercier
My Commission Expires: 4/8/2016

*American Tower includes all affiliates and subsidiaries of American Tower Corporation.

Attachment 3: Post Modification Structural Analysis Report

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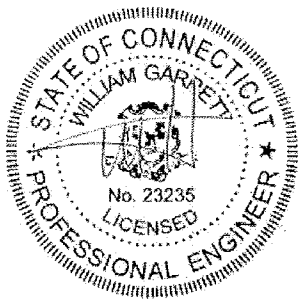
Post Modification Structural Analysis Report

Structure	:	366 ft Self Supported AT&T TAG Tower
ATC Site Name	:	Durham CT, CT
ATC Site Number	:	88010
Engineering Number	:	594455Z9
Proposed Carrier	:	Connecticut Light & Power Co.
Carrier Site Name	:	Higganum AT
Carrier Site Number	:	N/A
Site Location	:	373 Chamberlain Hill Rd Higganum, CT 06441-4062 41.496111,-72.618139
County	:	Middlesex
Date	:	June 10, 2015
Max Usage	:	98%
Result	:	Pass – Pending Modifications

Reviewed by:
William Garrett, PE
Chief Engineer



Jun 11 2015 9:24 AM

Prepared By:
Andrew D. Vargo, E.I.

Andrew Vargo

COA: PEC.0001553

Eng. Number 594455Z9
June 10, 2015

Table of Contents

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Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 366 ft self supported tower to reflect the change in loading by Connecticut Light & Power Co.

Supporting Documents

Tower Drawings	CSEI Analysis: ATC Eng. #41405921, dated January 22, 2008
Foundation Drawing	CSEI Analysis: ATC Eng. #41405921, dated January 22, 2008
Modifications	CSEI Project #06175, dated June 2006 ATC Project #59445536, dated November 6, 2014 [Pending]

Analysis

The tower was analyzed using Power Lines Systems tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/EIA-222.

Basic Wind Speed:	85 mph (Fastest Mile)
Basic Wind Speed w/ Ice:	74 mph (Fastest Mile)w/ 1/2" radial ice concurrent
Code:	ANSI/TIA/EIA-222-F / 2003 IBC , Sec. 1609.1.1, Exception (5) & Sec. 3108.4 w/ 2005 CT Supplement & 2009 CT Amendment

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report once the pending modifications have been installed. Failure to install the modifications listed will void the results of this analysis.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Existing and Reserved Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
365.0	373.0	3	TX RX Systems 101-68-10-X-03N	Platform w/ Handrails	(5) 1 1/4" Coax	Marcus Comm.
		1	20' Dipole		(1) 7/8" Coax	State Of CT
362.0	372.0	1	Rohde & Schwarz ADD090	Platform w/ Handrails	(2) 7/8" Coax	US Treasury
350.0	350.0	-	-	Platform w/ Handrails	-	-
340.0	342.0	2	Diamond X50A	Stand-Off	(2) 1/2" Coax	Enertrac
338.0	339.0	2	4' Dish w/ Radome	Stand-Off	(2) 1/2" Coax	Marcus Comm.
325.0	325.0	-	-	Catwalk	-	-
300.0	300.0	-	-	Rest Platform	-	-
290.0	290.0	2	Andrew DB844H90E-XY	Sector Frame	(2) 1 5/8" Coax	Sprint Nextel
284.0	294.0	1	Sinclair SC281-L	Side Arm	(2) 7/8" Coax	US Treasury
	289.0	1	Sinclair SC381-HL			
270.0	277.5	1	Dielectric TLP-16A	Leg	(1) 3 1/8" HL	Qualcomm
250.0	260.0	1	Sinclair SC281-L	Side Arm	(1) 7/8" Coax	US Treasury
	-	-	-	Platform w/ Handrails	-	-
234.5	236.0	2	Decibel DB844H90E-XY	Sector Frame	(4) 1 5/8" Coax	Sprint Nextel
		2	Andrew 844G65VTZASX			
200.0	-	-	-	Rest Platform	-	-
150.0	-	-	-	Rest Platform	-	-
125.0	-	-	-	Platform w/ Handrails	-	-
100.0	-	-	-	Rest Platform	-	-
28.0	30.0	1	24" x 24" Ice Shield	Leg	-	Qualcomm
22.0	25.0	1	Prodelin 1184	Leg	(1) 3/4" conduit	
12.0	15.0	1	Prodelin 1184	Leg	(1) 3/4" conduit	

Equipment to be Removed

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
No loading considered as to be removed						

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
365.0	375.0	1	dbSpectra DS9A09F36D-N	Platform w/ Handrails	(2) 1 5/8" Coax (1) 7/8" Coax (1) 1/2" Coax	Connecticut Light & Power Co.
	372.0	1	Kreco CO-41A			
	365.0	1	Bird 429-83H-01-T			
300.0	300.0	1	RFS SBX4-W60AC	Stand-Off	(2) E60	
180.0	180.0	1	Comprod 531-70HD	Side Arm	(1) 7/8" Coax	
175.0	179.0	1	Telewave ANT450F6	Side Arm	(1) 7/8" Coax	
168.0	175.0	1	Kreco CO-41A	Side Arm	(1) 7/8" Coax	

[1]Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Install proposed coax on any empty face.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Legs	78%	Pass
Diagonals	98%	Pass
Truss Diagonals	92%	Pass
Horizontals	78%	Pass
Truss Horizontals	95%	Pass
Anchor Bolts	75%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Uplift (Kips)	344.3	98%
Axial (Kips)	507.4	15%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Deflection, Twist and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Twist (°)	Sway (Rotation) (°)
300.0	RFS SBX4-W60AC	Connecticut Light & Power Co.	0.393	0.040	0.125

*Deflection, Twist and Sway was evaluated considering a design wind speed of 50 mph (Fastest Mile) per ANSI/TIA/EIA-222-F.

AMERICAN TOWER®
CORPORATION

Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessary limited, to:

-- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.

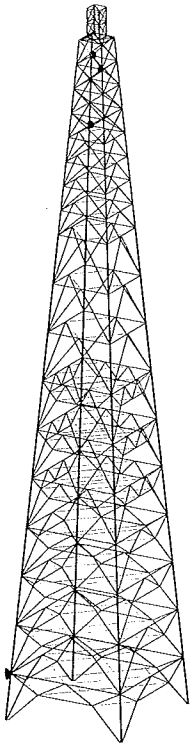
-- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

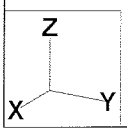
It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

Unless explicitly agreed by both the client and American Tower Corporation, all services will be performed in accordance with the current revision of ANSI/TIA -222. The design basic wind speed will be determined based on the minimum basic wind speed as prescribed in ANSI/TIA-222. Although every effort is taken to ensure that the loading considered is adequate to meet the requirements of all applicable regulatory entities, we can provide no assurance to meet any other local and state codes or requirements. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

American Tower Corp., Project: "2015.06.10 - CT Light & Power - 594455Z9"
Tower Version 12.50, 10:44:57 AM Wednesday, June 10, 2015
Undeformed geometry displayed





Summary of Joint Support Reactions For All Load Cases

Load Case	Joint Label	Long. Force (kips)	Tran. Force (kips)	Vert Force (kips)	Shear Force (kips)	Tran Moment (ft-k)	Long Moment (ft-k)	Bending Moment (ft-k)	Vert Moment (ft-k)	Found Usage

Summary of Joint Support Reactions For All Load Cases in Direction of Leg:

Load Case	Support Joint	Origin Joint	Leg Member	Force In Leg Dir (kips)	Residual Shear Perpendicular To Leg (kips)	Residual Shear Horizontal To Leg - Res. (kips)	Residual Shear Horizontal To Leg - Long. (kips)	Residual Shear Horizontal To Leg - Tran. (kips)	Total Long. Force (kips)	Total Tran. Force (kips)	Total Vert. Force (kips)

Overturning Moment Summary For All Load Cases:

Load Case	Transverse Moment (ft-k)	Longitudinal Moment (ft-k)	Resultant Moment (ft-k)

EIA Sections Information:

Section Label	Top Z (ft)	Bottom Z (ft)	Joint Count	Member Count	Top Width (ft)	Bottom Width (ft)	Gross Area (ft^2)	Face Af Adjust Factor	Face Ar Adjust Factor	Dead Load Factor
350.5-368.1	368.100	350.500	6	30	7.00	7.00	52.50	1.2000	1.0000	1.000
351.5-368.1	368.100	351.000	8	28	7.00	7.00	52.50	1.2000	1.0000	1.000
350.0-351.5	351.500	350.000	8	14	7.00	12.50	9.75	1.3500	1.2500	1.000
337.5-350.0	350.000	337.500	6	16	12.50	11.37	187.96	1.1500	1.1500	1.000

Group Summary (Compression Portion):

Group Label	Group Desc.	Angle Type	Angle Size	Steel Strength (ksi)	Max Usage %	Usage Cont-rol	Max Use In Comp. %	Comp. Control Member	Comp. Force (kips)	Comp Control Load Case	L/R Capacity (kips)	Comp. Connect. Shear Capacity (kips)	Comp. Connect Bearing Capacity (kips)	RLX	RLY	RLZ	L/R	KL/R	Length Comp. Member (ft)	Curve No.	No. Of Bolts Comp
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Group Summary (Tension Portion):

Group Label	Group Desc.	Angle Type	Angle Size	Steel Strength (ksi)	Max Usage %	Usage Cont-rol	Max Use In Tens. %	Tension Control Member	Tension Force (kips)	Tension Control Load Case	Net Section Capacity (kips)	Tension Connect. Shear Capacity (kips)	Tension Connect. Bearing Capacity (kips)	Tension Connect. Rupture Capacity (kips)	Length Tens. Member (ft)	No. Of Bolts Tens.	No. Of Holes	Hole Diameter (in)
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Leg S8	L 8" x 8" x 1"	SAE	8X8X1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Leg S19	L 6" x 6" x 0.5"	SAE	6X6X0.5	33.0	32.41	Comp	7.59	L 19XY	11.258	W 45	113.880	0.000	0.000	0.000	[illegible]	0	[illegible]	[illegible]
Leg S20	L 6" x 6" x 0.5"	SAE	6X6X0.5	33.0	10.97	Comp	5.43	L 20Y	6.239	W -45	113.880	0.000	0.000	0.000	7.200	0	0.000	[illegible]
Leg S21	L 6" x 6" x 0.5"	SAE	6X6X0.5	33.0	6.26	Comp	0.47	L 21XY	0.719	W 45	113.880	0.000	0.000	0.000	[illegible]	0	0.000	[illegible]
Diag S1	B/B L3.5"x5"x0.4375"	DAS	5X3.5X0.44	33.0	65.40	Comp	18.37	D 2X	35.292	W 30	133.291	0.000	0.000	0.000	18.368	0	0.000	[illegible]
Diag S2	B/B L3"x4"x0.3125"	DAS	4X3X0.31	33.0	66.80	Comp	31.30	D 4P	34.538	W -90	82.764	0.000	0.000	0.000	18.?13	0	0.000	[illegible]
Diag S3	B/B L3"x3.5"x0.3125"	DAS	3.5X3X0.31	33.0	97.94	Comp	33.80	D 6P	34.339	W -90	78.626	0.000	0.000	0.000	20.660	0	0.000	[illegible]
Diag S4	B/B L3"x3.5"x0.3125"	DAS	3.5X3X0.31	33.0	89.70	Comp	33.63	D 8P	34.360	W -90	78.626	0.000	0.000	0.000	22.398	0	0.000	[illegible]
Diag S5	B/B L3"x3"x0.375"	DAS	3X3X0.38	33.0	71.10	Comp	32.69	D 10P	36.415	W -90	93.454	0.000	0.000	0.000	20.299	0	0.000	[illegible]
Diag S6	B/B L3"x3"x0.25"	DAS	3X3X0.25	33.0	98.10	Comp	46.10	D 12P	35.355	W -90	77.024	0.000	0.000	0.000	18.939	0	0.000	[illegible]
Diag S7	B/B L3"x3"x0.25"	DAS	3X3X0.25	33.0	97.20	Comp	45.08	D 14P	34.283	W -90	77.024	0.000	0.000	0.000	18.419	0	0.000	[illegible]
Diag S8	B/B L3"x3.5"x0.25"	DAS	3.5X3X0.25	33.0	56.58	Comp	30.25	D 15P	24.999	W -90	81.974	0.000	0.000	0.000	31.677	0	0.000	[illegible]
Diag S9	B/B L3"x3.5"x0.25"	DAS	3.5X3X0.25	33.0	60.31	Comp	29.43	D 17P	24.314	W -90	81.974	0.000	0.000	0.000	30.648	0	0.000	[illegible]
Diag S10	B/B L3"x3.5"x0.25"	DAS	3.5X3X0.25	33.0	69.59	Comp	27.42	D 20P	22.659	W 180	81.974	0.000	0.000	0.000	29.838	0	0.000	[illegible]

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type

Site #:	88010
Name:	Durham CT, CT

Engineer:	AOV
Date:	09/22/14

Windspeed:	No Ice:	85 mph	Ice:	74 mph
Carrier:	Connecticut Light & Power			

Taper:	-0.149857		Taper Change:	350	ft
FW @ Base:	64.95	ft	FW @ Top:	12.5	ft

Spreadsheet Version Last Updated: 5/30/2014

Joint Label	Symmetry Code	X Coord. (ft)	Y Coord. (ft)	Z Coord. (ft)	X Disp. Rest.	Y Disp. Rest.	Z Disp. Rest.	X Rot. Rest.	Y Rot. Rest.	Z Rot. Rest.	Drop Sub-Brace (Y or Blank)	# Vert	Drop (ft)	Height (ft)	Type	Count	Z-Elev. (ft)	FW (ft)	# Sub-Brace
0	XY-Symmetry	32.475	32.475	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed		2	8.333	25	1	1	0	64.95	2
1	XY-Symmetry	30.60178571	30.60178571	25	Free	Free	Free	Free	Free	Free		2	8.333	25	1	2	25	61.20357143	2
2	XY-Symmetry	28.72857143	28.72857143	50	Free	Free	Free	Free	Free	Free		2	8.333	25	1	3	50	57.45714286	2
3	XY-Symmetry	26.85535714	26.85535714	75	Free	Free	Free	Free	Free	Free		2	8.333	25	1	4	75	53.71071429	2
4	XY-Symmetry	24.98214286	24.98214286	100	Free	Free	Free	Free	Free	Free	Y	3	8.333	25	2	5	100	49.96428571	4
5	XY-Symmetry	23.10892857	23.10892857	125	Free	Free	Free	Free	Free	Free			8.333	25	2	6	125	46.21785714	3
6	XY-Symmetry	21.23571429	21.23571429	150	Free	Free	Free	Free	Free	Free		3	8.333	25	2	7	150	42.47142857	3
7	XY-Symmetry	19.3625	19.3625	175	Free	Free	Free	Free	Free	Free				25	A	8	175	38.725	2
8	XY-Symmetry	17.48928571	17.48928571	200	Free	Free	Free	Free	Free	Free				25	A	9	200	34.97857143	2
9	XY-Symmetry	15.61607143	15.61607143	225	Free	Free	Free	Free	Free	Free				25	A	10	225	31.23214286	2
10	XY-Symmetry	13.74285714	13.74285714	250	Free	Free	Free	Free	Free	Free				12.5	A	11	250	27.48571429	1
11	XY-Symmetry	12.80625	12.80625	262.5	Free	Free	Free	Free	Free	Free				12.5	A	12	262.5	25.6125	1
12	XY-Symmetry	11.86964286	11.86964286	275	Free	Free	Free	Free	Free	Free				12.5	A	13	275	23.73928571	1
13	XY-Symmetry	10.93303571	10.93303571	287.5	Free	Free	Free	Free	Free	Free				12.5	A	14	287.5	21.86607143	1
14	XY-Symmetry	9.996428571	9.996428571	300	Free	Free	Free	Free	Free	Free		1		12.5	X	15	300	19.99285714	1
15	XY-Symmetry	9.059821429	9.059821429	312.5	Free	Free	Free	Free	Free	Free		1		12.5	X	16	312.5	18.11964286	1
16	XY-Symmetry	8.123214286	8.123214286	325	Free	Free	Free	Free	Free	Free		1		12.5	X	17	325	16.24642857	1
17	XY-Symmetry	7.186607143	7.186607143	337.5	Free	Free	Free	Free	Free	Free				12.5	X	18	337.5	14.37321429	1
18	XY-Symmetry	6.25	6.25	350	Free	Free	Free	Free	Free	Free				1	X	19	350	12.5	1
19	XY-Symmetry	3.5	3.5	351	Free	Free	Free	Free	Free	Free				7.5	X	20	351	7	
20	XY-Symmetry	3.5	3.5	358.5	Free	Free	Free	Free	Free	Free				7.5	X	21	358.5	7	
21	XY-Symmetry	3.5	3.5	366	Free	Free	Free	Free	Free	Free						22	366	7	
A1	Y-Symmetry	30.60178571	0	25	Free	Free	Free	Free	Free	Free									
A2	X-Symmetry	0	30.60178571	25	Free	Free	Free	Free	Free	Free									
A3	Y-Symmetry	28.72857143	0	50	Free	Free	Free	Free	Free	Free									
A4	X-Symmetry	0	28.72857143	50	Free	Free	Free	Free	Free	Free									
A5	Y-Symmetry	26.85535714	0	75	Free	Free	Free	Free	Free	Free									
A6	X-Symmetry	0	26.85535714	75	Free	Free	Free	Free	Free	Free									
A7	Y-Symmetry	24.98214286	0	100	Free	Free	Free	Free	Free	Free									
A8	X-Symmetry	0	24.98214286	100	Free	Free	Free	Free	Free	Free									
A9	XY-Symmetry	23.10892857	7.70297619	125	Free	Free	Free	Free	Free	Free									
A10	XY-Symmetry	7.70297619	23.10892857	125	Free	Free	Free	Free	Free	Free									
A11	XY-Symmetry	21.23571429	7.078571429	150	Free	Free	Free	Free	Free	Free									
A12	XY-Symmetry	7.078571429	21.23571429	150	Free	Free	Free	Free	Free	Free									
A13	XY-Symmetry	19.3625	6.454166667	175	Free	Free	Free	Free	Free	Free									
A14	XY-Symmetry	6.454166667	19.3625	175	Free	Free	Free	Free	Free	Free									
A15	Y-Symmetry	17.48928571	0	200	Free	Free	Free	Free	Free	Free									
A16	X-Symmetry	0	17.48928571	200	Free	Free	Free	Free	Free	Free									
A17	Y-Symmetry	15.61607143	0	225	Free	Free	Free	Free	Free	Free									
A18	X-Symmetry	0	15.61607143	225	Free	Free	Free	Free	Free	Free									
A19	Y-Symmetry	13.74285714	0	250	Free	Free	Free	Free	Free	Free									
A20	X-Symmetry	0	13.74285714	250	Free	Free	Free	Free	Free	Free									
A21	Y-Symmetry	12.80625	0	262.5	Free	Free	Free	Free	Free	Free									
A22	X-Symmetry	0	12.80625	262.5	Free	Free	Free	Free	Free	Free									
A23	Y-Symmetry	11.86964286	0	275	Free	Free	Free	Free	Free	Free									
A24	X-Symmetry	0	11.86964286	275	Free	Free	Free	Free	Free	Free									
A25	Y-Symmetry	10.93303571	0	287.5	Free	Free	Free	Free	Free	Free									
A26	X-Symmetry	0	10.93303571	287.5	Free	Free	Free	Free	Free	Free									
A27	Y-Symmetry	9.996428571	0	300	Free	Free	Free	Free	Free	Free									
A28	X-Symmetry	0	9.996428571	300	Free	Free	Free	Free	Free	Free									
H1	XY-Symmetry	31.2261655	15.30089286	16.667	Free	Free	Free	Free	Free	Free									
H2	XY-Symmetry	15.30089286	31.2261655	16.667	Free	Free	Free	Free	Free	Free									
H5	XY-Symmetry	29.35295121	14.36428571	41.667	Free	Free	Free	Free	Free	Free									
H6	XY-Symmetry	14.36428571	29.35295121	41.667	Free	Free	Free	Free	Free	Free									
H9	XY-Symmetry	27.47973693	13.42767857	66.667	Free	Free	Free	Free	Free	Free									
H10	XY-Symmetry	13.42767857	27.47973693	66.667	Free	Free	Free	Free	Free	Free									
H13	XY-Symmetry	25.60652264	12.49107143	91.667	Free	Free	Free	Free	Free	Free									
H14	XY-Symmetry	12.49107143	25.60652264	91.667	Free	Free	Free	Free	Free	Free									
H17	XY-Symmetry	23.73330836	13.46246802	116.667	Free	Free	Free	Free	Free	Free									
H18	XY-Symmetry	13.46246802	23.73330836	116.667	Free	Free	Free	Free	Free	Free									
H19	Y-Symmetry	23.73330836	0	116.667	Free	Free	Free	Free	Free	Free									
H20	X-Symmetry	0	23.73330836	116.667	Free	Free	Free	Free	Free	Free									
H21	XY-Symmetry	21.86009407	12.42181007	141.667	Free	Free	Free	Free	Free	Free									
H22	XY-Symmetry	12.42181007	21.86009407	141.667	Free	Free	Free	Free	Free	Free									
H23	Y-Symmetry	21.86009407	0	141.667	Free	Free	Free	Free	Free	Free									
H24	X-Symmetry	0	21.86009407	141.667	Free	Free	Free	Free	Free	Free									
H25	XY-Symmetry	19.98687979	11.38115212	166.667	Free	Free	Free	Free	Free	Free									
H26	XY-Symmetry	11.38115212	19.98687979	166.667	Free	Free	Free	Free	Free	Free									
H27	Y-Symmetry	19.98687979	0	166.667	Free	Free	Free	Free	Free	Free									
H28	X-Symmetry	0	19.98687979	166.667	Free	Free	Free	Free	Free	Free									

NOTES

Types:
- 1: Built up Horizs. w/ A
- 2: Built up Horizs. w/ M
- A: Typical A brace
- X: Typical X brace

Drop: Use only for types 1 & 2

# Sections:	21

Legs

Site No.:	88010
Engineer:	ADV
Date:	09/22/2014
Carrier:	Connecticut Light & Power

When inputting thickness values, include all decimal places.

Tower Section #	Section Elevations *(ft)*	Type of Shape [1]	Diameter or Length *(in)*	Thickness [2] *(in)*	F_y *(ksi)*
1	0.000-25.00	L	8	1.125	33
2	25.00-50.00	L	8	1.125	33
3	50.00-75.00	L	8	1.125	33
4	75.00-100.0	L	8	1.125	33
5	100.0-125.0	L	8	1.125	33
6	125.0-150.0	L	8	1.125	33
7	150.0-175.0	L	8	1.125	33
8	175.0-200.0	L	8	1	33
9	200.0-225.0	L	8	0.875	33
10	225.0-250.0	L	8	0.75	33
11	250.0-262.5	L	6	0.875	33
12	262.5-275.0	L	6	0.875	33
13	275.0-287.5	L	6	0.75	33
14	287.5-300.0	L	6	0.75	33
15	300.0-312.5	L	6	0.625	33
16	312.5-325.0	L	6	0.625	33
17	325.0-337.5	L	6	0.5	33
18	337.5-350.0	L	6	0.5	33
19	350.0-351.0	L	6	0.5	33
20	351.0-358.5	L	6	0.5	33
21	358.5-366.0	L	6	0.5	33

Notes:

[1] Type of Leg Shape: R = Round or P = Bent Plate or S = Schifflerized Angle. L = Even Leg

[2] For Solid Round Leg Shapes Thickness Equals Zero.

[3] Adjust for Bent Plate Leg Shapes.

Diagonals

Site No.:	88010
Engineer:	ADV
Date:	09/22/2014
Carrier:	Connecticut Light & Power

When inputting thickness values, include all decimal places.

Tower Section #	Section Elevations (ft)	Type of Shape [1]	Diameter [2] (in)	Web Length [3] (in)	Flange Length [3] (in)	Thickness (in)	F_y (ksi)	Is Diag. Tension Only? (Y/N)
1	0.000-25.00	2L		3.5	5	0.4375	33	
2	25.00-50.00	2L		3	4	0.3125	33	
3	50.00-75.00	2L		3	3.5	0.3125	33	
4	75.00-100.0	2L		3	3.5	0.3125	33	
5	100.0-125.0	2L		3	3	0.375	33	
6	125.0-150.0	2L		3	3	0.25	33	
7	150.0-175.0	2L		3	3	0.25	33	
8	175.0-200.0	2L		3	3.5	0.25	33	
9	200.0-225.0	2L		3	3.5	0.25	33	
10	225.0-250.0	2L		3	3.5	0.25	33	
11	250.0-262.5	2L		2.5	3	0.25	33	
12	262.5-275.0	2L		2.5	3	0.25	33	
13	275.0-287.5	2L		2.5	3	0.25	33	
14	287.5-300.0	2L		2.5	2.5	0.25	33	
15	300.0-312.5	L		3	4	0.25	33	Y
16	312.5-325.0	L		3	4	0.25	33	Y
17	325.0-337.5	L		3.5	3	0.25	33	Y
18	337.5-350.0	L		3.5	3.5	0.25	33	Y
19	350.0-351.0	2L		3.5	3.5	0.25	33	
20	351.0-358.5	L		3	2	0.25	33	Y
21	358.5-366.0	L		3	2	0.25	33	Y

Notes:

[1] Type of Diagonal Shape: R = Round, L = Single-Angle or 2L = Double-Angle.

[2] Applies to Pipes and Solid Round Shapes only. For Solid Round Shapes Thickness Equals Zero.

[3] Applies to Single-Angle and Double-Angle Shapes only.

[4] Applies to Double-Angle Shapes only.

[5] Applies to Single-Angle Shapes only.

Horizontals

Site No.:	88010
Engineer:	ADV
Date:	09/22/2014
Carrier:	Connecticut Light & Power

When inputting thickness values, include all decimal places.

Tower Section #	Section Elevations (ft)	Type of Shape [1]	Diameter [2] (in)	Web Length [3] (in)	Flange Length [3] (in)	Thickness (in)	F_y (ksi)	
1	0.000-25.00	2L		5	3.5	0.375	33	
2	25.00-50.00	2L		4	3	0.3125	33	
3	50.00-75.00	2L		3.5	3	0.3125	33	
4	75.00-100.0	2L		3.5	3	0.3125	33	
5	100.0-125.0	2L		3.5	3	0.3125	33	
6	125.0-150.0	2L		3.5	3	0.3125	33	
7	150.0-175.0	2L		3	3	0.3125	33	
8	175.0-200.0	2L		3.5	2.5	0.3125	33	
9	200.0-225.0	2L		3	2.5	0.25	33	
10	225.0-250.0	2L		3	2.5	0.25	33	
11	250.0-262.5	2L		2.5	2.5	0.25	33	
12	262.5-275.0	2L		2.5	2.5	0.25	33	
13	275.0-287.5	2L		2.5	2.5	0.25	33	
14	287.5-300.0	2L		3	2.5	0.25	33	
15	300.0-312.5	2L		3	2.5	0.25	33	
16	312.5-325.0	2L		3	2.5	0.25	33	
17	325.0-337.5	2L		3.5	3	0.3125	33	
18	337.5-350.0	L		6	3.5	0.5	33	
19	350.0-351.0	2L		3.5	3.5	0.3125	33	
20	351.0-358.5	2L		2.5	2	0.25	33	
21	358.5-366.0	2L		2.5	2	0.25	33	

Notes:

[1] Type of Horizontal Shape: **R** = Round, **L** = Single-Angle, **2L** = Double-Angle, **C** = Channel, **W** = W Shape

[2] Applies to Pipes and Solid Round Shapes only. For Solid Round Shapes Thickness Equals Zero.

[3] Applies to Single-Angle and Double-Angle Shapes only.

[4] Applies to Double-Angle Shapes only.

[5] Applies to Single-Angle Shapes only.

Built-up Diagonals

Site No.:	88010
Engineer:	ADV
Date:	09/22/2014
Carrier:	Connecticut Light & Power

When inputting thickness values, include all decimal places.
Input diags. from left to center & from base section upward.

Tower Built-up Diag. #	Section Elevations (ft)	Type of Shape [1]	Diameter [2] (in)	Web Length [3] (in)	Flange Length [3] (in)	Thickness (in)	F_y (ksi)
1	0.000-25.00	2L		3.5	3	0.25	33
2	0.000-25.00	2L		5	3.5	0.4375	33
3	25.00-50.00	2L		3.5	3	0.25	33
4	25.00-50.00	2L		4	3	0.375	33
5	50.00-75.00	2L		3.5	2.5	0.25	33
6	50.00-75.00	2L		4	3	0.3125	33
7	75.00-100.0	2L		3.5	2.5	0.25	33
8	75.00-100.0	2L		4	3	0.3125	33
9	100.0-125.0	2L		2.5	2	0.25	33
10	100.0-125.0	2L		3.5	2.5	0.25	33
11	100.0-125.0	2L		3.5	3	0.3125	33
12	125.0-150.0	2L		2.5	2	0.25	33
13	125.0-150.0	2L		3	2.5	0.25	33
14	125.0-150.0	2L		3	3	0.3125	33
15	150.0-175.0	2L		2.5	2	0.25	33
16	150.0-175.0	2L		3	2	0.25	33
17	150.0-175.0	2L		3	3	0.25	33

Notes:

[1] Type of Diagonal Shape: **R** = Round, **L** = Single-Angle or **2L** = Double-Angle.

[2] Applies to Pipes and Solid Round Shapes only. For Solid Round Shapes Thickness Equals Zero.

[3] Applies to Single-Angle and Double-Angle Shapes only.

[4] Applies to Double-Angle Shapes only.

[5] Applies to Single-Angle Shapes only.

Built-up Horizontals

Site No.:	88010
Engineer:	ADV
Date:	09/22/2014
Carrier:	Connecticut Light & Power

When inputting thickness values, include all decimal places.

Tower Section #	Section Elevations (ft)	Type of Shape [1]	Diameter [2] (in)	Web Length [3] (in)	Flange Length [3] (in)	Thickness (in)	F_y (ksi)	Is Horiz. Tension Only? (Y/N)
1	0.000-25.00	2L		3	4	0.3125	33	Y
2	25.00-50.00	2L		3	4	0.3125	33	Y
3	50.00-75.00	2L		3	4	0.3125	33	Y
4	75.00-100.0	2L		3	4	0.3125	33	Y
5	100.0-125.0	2L		3	4	0.3125	33	
6	125.0-150.0	2L		3	3.5	0.3125	33	
7	150.0-175.0	2L		3	3	0.25	33	

Notes:

[1] Type of Horizontal Shape: R = Round, L = Single-Angle or 2L = Double-Angle.

[2] Applies to Pipes and Solid Round Shapes only. For Solid Round Shapes Thickness Equals Zero.

[3] Applies to Single-Angle and Double-Angle Shapes only.

[4] Applies to Double-Angle Shapes only.

[5] Applies to Single-Angle Shapes only.

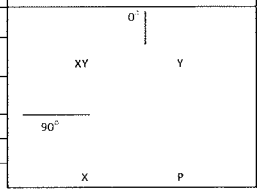
Coax and Dishes (p. 1 of 2)

Orig by MED, Improved by ABL Last update 6/25/13 MED

Site No.:	88010
Engineer:	ADV
Date:	09/22/14
Carrier:	Connecticut Light & Power

Dish Types	
S	Standard
R	Standard w/ Radome
H	High Performance
G	Grid

Joint Orientation



Dish Elevation (ft)	Dish Dia. (ft)	Dish Angle (deg)	Dish Type	Joint Orientation

Equipment Label	Attach Label	Equipment Property Set	EIA Antenna Orientation Angle

Description	From (ft)	To (ft)	Quantity	Shape	Width or Diameter (in)	Perimeter (in)	Unit Weight (lb/ft)	Part of Face Solidity Ratio (Yes/No)	Include in Wind Load (Yes/No)
LADDER	5	365	1	Flat	2	8.0	6	No	Yes
COAX CAGE1	8.3333	33.3333	3	Round	12	37.7	25	Yes	No
COAX CAGE2	8.3333	33.3333	3	Round	12	37.7	25	Yes	Yes
COAX CAGE3	8.3333	33.3333	1	Round	12	37.7	25	Yes	No
COAX CAGE4	8.3333	33.3333	1	Round	12	37.7	25	Yes	No
Marcus 1	5	365	5	Round	1.55	4.9	0.63	Yes	Yes
Wave Guide	5	365	1	Flat	2	8.0	6	Yes	Yes
State of CT	5	365	1	Round	1.09	3.4	0.33	No	No
CT Light&Power 1	5	365	1	Round	0.63	2.0	0.15	Yes	No
CT Light&Power 2	5	365	1	Round	1.09	3.4	0.33	Yes	No
CT Light&Power 3	5	365	2	Round	1.98	6.2	0.82	Yes	No
US Treasury 1	5	362	2	Round	1.09	3.4	0.33	Yes	No
Enertrac	5	340	2	Round	0.63	2.0	0.15	Yes	No
Marcus 2	5	338	2	Round	0.63	2.0	0.15	Yes	Yes
CT Light&Power 4	5	300	2	Round	2.2	6.9	0.68	Yes	No
Sprint Nextel 1	5	290	2	Round	1.98	6.2	0.82	Yes	No
US Treasury 2	5	284	2	Round	1.09	3.4	0.33	Yes	No
Qualcomm 1	5	270	1	Round	3.13	9.8	3.04	Yes	No
US Treasury 3	5	250	1	Round	1.09	3.4	0.33	Yes	No
Sprint Nextel 2	5	234.5	4	Round	1.98	6.2	0.82	Yes	No
CT Light&Power 5	5	180	1	Round	1.09	3.4	0.33	Yes	No
CT Light&Power 6	5	175	1	Round	1.09	3.4	0.33	Yes	No
CT Light&Power 7	5	168	1	Round	1.09	3.4	0.33	Yes	No
Qualcomm 2	5	22	1	Round	1.05	3.3	1.13	Yes	No
Qualcomm 3	5	15	1	Round	1.05	3.3	1.13	Yes	No

Coax and Dishes (p. 2 of 2) α 7 $k_{z\,max}$ 2.58

Tia Code: TIA-222-F z_R 33 $k_{z\,min}$ 1

e t

Description	From (ft)	To (ft)	Quantity	Face # (1-4, A-D)	Coax Width (in)	Considered Coax Shape (Block / Flat / Ind)	% Exposed	Spacing (in)	Shape (Round/Flat)	Block Width (# coax)	Block Depth (# coax)	Perimeter (in)	Unit Weight (lb/ft)	In Face Zone (Yes/No)	Include in Wind Load (Yes/No)
							100							No	No
LADDER	5	365	1	B	2	Flat	100		Flat	1	1	8.0	6	No	Yes
COAX CAGE1	8.3333	33.3333	3	1	12	Ind	100		Round	3	1	37.7	25	Yes	No
COAX CAGE2	8.3333	33.3333	3	3	12	Ind	100		Round	3	1	37.7	25	Yes	Yes
COAX CAGE3	8.3333	33.3333	1	2	12	Ind	100		Round	1	1	37.7	25	Yes	No
COAX CAGE4	8.3333	33.3333	1	4	12	Ind	100		Round	1	1	37.7	25	Yes	No
							100							No	No
Marcus 1	5	365	5	3	1.55	Ind	100		Round	5	1	4.9	0.63	Yes	Yes
Wave Guide	5	365	1	3	2	Flat	100		Flat	1	1	8.0	6	Yes	Yes
State of CT	5	365	1	A	1.09	Ind	100		Round	1	1	3.4	0.33	No	No
CT Light&Power 1	5	365	1	1	0.63	Ind	100		Round	1	1	2.0	0.15	Yes	No
CT Light&Power 2	5	365	1	1	1.09	Ind	100		Round	1	1	3.4	0.33	Yes	No
CT Light&Power 3	5	365	2	1	1.98	Ind	100		Round	2	1	6.2	0.82	Yes	No
US Treasury 1	5	362	2	4	1.09	Ind	100		Round	2	1	3.4	0.33	Yes	No
Enertrac	5	340	2	4	0.63	Ind	100		Round	2	1	2.0	0.15	Yes	No
Marcus 2	5	338	2	3	0.63	Ind	100		Round	2	1	2.0	0.15	Yes	Yes
CT Light&Power 4	5	300	2	1	2.20	Ind	100		Round	2	1	6.9	0.68	Yes	No
Sprint Nextel 1	5	290	2	2	1.98	Ind	100		Round	2	1	6.2	0.82	Yes	No
US Treasury 2	5	284	2	4	1.09	Ind	100		Round	2	1	3.4	0.33	Yes	No
Qualcomm 1	5	270	1	4	3.13	Ind	100		Round	1	1	9.8	3.04	Yes	No
US Treasury 3	5	250	1	4	1.09	Ind	100		Round	1	1	3.4	0.33	Yes	No
Sprint Nextel 2	5	234.5	4	2	1.98	Ind	100		Round	4	1	6.2	0.82	Yes	No
CT Light&Power 5	5	180	1	1	1.09	Ind	100		Round	1	1	3.4	0.33	Yes	No
CT Light&Power 6	5	175	1	1	1.09	Ind	100		Round	1	1	3.4	0.33	Yes	No
CT Light&Power 7	5	168	1	1	1.09	Ind	100		Round	1	1	3.4	0.33	Yes	No
Qualcomm 2	5	22	1	4	1.05	Ind	100		Round	1	1	3.3	1.13	Yes	No
Qualcomm 3	5	15	1	4	1.05	Ind	100		Round	1	1	3.3	1.13	Yes	No
							100							No	No
							100							No	No
							100							No	No
							100							No	No
							100							No	No
							100							No	No
							100							No	No
							100							No	No
							100							No	No
							100							No	No
							100							No	No
							100							No	No
							100							No	No

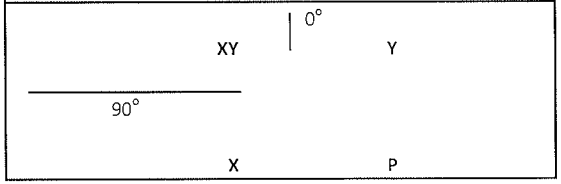
Coax & Dishes

Dish Types	
S	Standard
R	Standard w/ Radome
H	High Performance
G	Grid

Dish Elevation (ft)	Dish Dia. (ft)	Dish Angle (deg)	Dish Type	Joint Orientation
339	4	0	R	XY
339	4	90	R	P
25	6	135	S	X
15	6	135	S	X
300	4	0	S	XY

Equipment Label	Attach Label	Equipment Property Set	EIA Antenna Orientation Angle *(deg)*
4' RAD 1 @ 339'	17XY	4 ft RAD Dish	0
4' RAD 2 @ 339'	17P	4 ft RAD Dish	90
6' STD 3 @ 25'	1X	6 ft STD Dish	135
6' STD 4 @ 15'	1X	6 ft STD Dish	135
4' STD 5 @ 300'	14XY	4 ft STD Dish	0

Joint Orientation



Site #:	88010
Name:	Connecticut Light & Power

Engineer:	ADV
Date:	09/22/14

Section Label	Section Color	Joint Defining Bottom Section	Dead Load Adj. Factor					Adj. Factor Flat	Adj. Factor Round	Area Multiplier	Weight Multiplier
0.000-25.00		0P	1.447049411					1.205874509	1.205874509	1	1.2
25.00-50.00		1P	1.470956753					1.225797294	1.225797294	1	1.2
50.00-75.00		2P	1.475709984					1.22975832	1.22975832	1	1.2
75.00-100.0		3P	1.473062989					1.227552491	1.227552491	1	1.2
100.0-125.0		4P	1.640032797					1.366693998	1.366693998	1	1.2
125.0-150.0		5P	1.457018157					1.214181798	1.214181798	1	1.2
150.0-175.0		6P	1.55540324					1.296169366	1.296169366	1	1.2
175.0-200.0		7P	1.54609089					1.288409075	1.288409075	1	1.2
200.0-225.0		8P	1.536158721					1.280132267	1.280132267	1	1.2
225.0-250.0		9P	1.517045511					1.264204593	1.264204593	1	1.2
250.0-262.5		10P	1.493266015					1.244388346	1.244388346	1	1.2
262.5-275.0		11P	1.485480234					1.237900195	1.237900195	1	1.2
275.0-287.5		12P	1.477456268					1.231213557	1.231213557	1	1.2
287.5-300.0		13P	1.460036552					1.216697127	1.216697127	1	1.2
300.0-312.5		14P	1.455775444					1.213146203	1.213146203	1	1.2
312.5-325.0		15P	1.446773187					1.205644322	1.205644322	1	1.2
325.0-337.5		16P	1.417841048					1.181534207	1.181534207	1	1.2
337.5-350.0		17P	1.336688324					1.113906937	1.113906937	1	1.2
350.0-351.0		18P	1.505142392					1.254285327	1.254285327	1	1.2
351.0-358.5		19P	1.2					1	1	1	1.2
358.5-366.0		20P	1.2					1	1	1	1.2

Site #:	88010
Name:	Connecticut Light & Power

Engineer:	ADV
Date:	09/22/14

Group Label	Group Description	Angle Type	Angle Size	Material Type	Element Type	Group Type	Optimize Group
Leg S1	L 8" x 8" x 1.125"	SAE	8X8X1.13	A7	Beam	Leg	None
Leg S2	L 8" x 8" x 1.125"	SAE	8X8X1.13	A7	Beam	Leg	None
Leg S3	L 8" x 8" x 1.125"	SAE	8X8X1.13	A7	Beam	Leg	None
Leg S4	L 8" x 8" x 1.125"	SAE	8X8X1.13	A7	Beam	Leg	None
Leg S5	L 8" x 8" x 1.125"	SAE	8X8X1.13	A7	Beam	Leg	None
Leg S6	L 8" x 8" x 1.125"	SAE	8X8X1.13	A7	Beam	Leg	None
Leg S7	L 8" x 8" x 1.125"	SAE	8X8X1.13	A7	Beam	Leg	None
Leg S8	L 8" x 8" x 1"	SAE	8X8X1	A7	Beam	Leg	None
Leg S9	L 8" x 8" x 0.875"	SAE	8X8X0.88	A7	Beam	Leg	None
Leg S10	L 8" x 8" x 0.75"	SAE	8X8X0.75	A7	Beam	Leg	None
Leg S11	L 6" x 6" x 0.875"	SAE	6X6X0.88	A7	Beam	Leg	None
Leg S12	L 6" x 6" x 0.875"	SAE	6X6X0.88	A7	Beam	Leg	None
Leg S13	L 6" x 6" x 0.75"	SAE	6X6X0.75	A7	Beam	Leg	None
Leg S14	L 6" x 6" x 0.75"	SAE	6X6X0.75	A7	Beam	Leg	None
Leg S15	L 6" x 6" x 0.625"	SAE	6X6X0.63	A7	Beam	Leg	None
Leg S16	L 6" x 6" x 0.625"	SAE	6X6X0.63	A7	Beam	Leg	None
Leg S17	L 6" x 6" x 0.5"	SAE	6X6X0.5	A7	Beam	Leg	None
Leg S18	L 6" x 6" x 0.5"	SAE	6X6X0.5	A7	Beam	Leg	None
Leg S19	L 6" x 6" x 0.5"	SAE	6X6X0.5	A7	Beam	Leg	None
Leg S20	L 6" x 6" x 0.5"	SAE	6X6X0.5	A7	Beam	Leg	None
Leg S21	L 6" x 6" x 0.5"	SAE	6X6X0.5	A7	Beam	Leg	None
Diag S1	B/B L3.5"x5"x0.4375"	DAS	5X3.5X0.44	A7	Beam	Other	None
Diag S2	B/B L3"x4"x0.3125"	DAS	4X3X0.31	A7	Beam	Other	None
Diag S3	B/B L3"x3.5"x0.3125"	DAS	3.5X3X0.31	A7	Beam	Other	None
Diag S4	B/B L3"x3.5"x0.3125"	DAS	3.5X3X0.31	A7	Beam	Other	None
Diag S5	B/B L3"x3"x0.375"	DAE	3X3X0.38	A7	Beam	Other	None
Diag S6	B/B L3"x3"x0.25"	DAE	3X3X0.25	A7	Beam	Other	None
Diag S7	B/B L3"x3"x0.25"	DAE	3X3X0.25	A7	Beam	Other	None
Diag S8	B/B L3"x3.5"x0.25"	DAS	3.5X3X0.25	A7	Beam	Other	None
Diag S9	B/B L3"x3.5"x0.25"	DAS	3.5X3X0.25	A7	Beam	Other	None
Diag S10	B/B L3"x3.5"x0.25"	DAS	3.5X3X0.25	A7	Beam	Other	None
Diag S11	B/B L2.5"x3"x0.25"	DAS	3X2.5X0.25	A7	Beam	Other	None
Diag S12	B/B L2.5"x3"x0.25"	DAS	3X2.5X0.25	A7	Beam	Other	None
Diag S13	B/B L2.5"x3"x0.25"	DAS	3X2.5X0.25	A7	Beam	Other	None
Diag S14	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	A7	Beam	Other	None
Diag S15	L 3" x 4" x 0.25"	SAU	4X3X0.25	A7	T-Only	Other	None
Diag S16	L 3" x 4" x 0.25"	SAU	4X3X0.25	A7	T-Only	Other	None
Diag S17	L 3.5" x 3" x 0.25"	SAU	3.5X3X0.25	A7	T-Only	Other	None
Diag S18	L 3.5" x 3.5" x 0.25"	SAE	3.5X3.5X0.25	A7	T-Only	Other	None
Diag S19	B/B L3.5"x3.5"x0.25"	DAE	3.5X3.5X0.25	A7	Beam	Other	None
Diag S20	L 3" x 2" x 0.25"	SAU	3X2X0.25	A7	T-Only	Other	None
Diag S21	L 3" x 2" x 0.25"	SAU	3X2X0.25	A7	T-Only	Other	None
Horiz 1	B/B L5"x3.5"x0.375"	DAL	5X3.5X0.38	A7	Beam	Other	None
Horiz 2	B/B L4"x3"x0.3125"	DAL	4X3X0.31	A7	Beam	Other	None
Horiz 3	B/B L3.5"x3"x0.3125"	DAL	3.5X3X0.31	A7	Beam	Other	None
Horiz 4	B/B L3.5"x3"x0.3125"	DAL	3.5X3X0.31	A7	Beam	Other	None
Horiz 5	B/B L3.5"x3"x0.3125"	DAL	3.5X3X0.31	A7	Beam	Other	None
Horiz 6	B/B L3.5"x3"x0.3125"	DAL	3.5X3X0.31	A7	Beam	Other	None
Horiz 7	B/B L3"x3"x0.3125"	DAE	3X3X0.31	A7	Beam	Other	None
Horiz 8	B/B L3.5"x2.5"x0.3125"	DAL	3.5X2.5X0.31	A7	Beam	Other	None
Horiz 9	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	A7	Beam	Other	None
Horiz 10	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	A7	Beam	Other	None
Horiz 11	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	A7	Beam	Other	None
Horiz 12	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	A7	Beam	Other	None
Horiz 13	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	A7	Beam	Other	None
Horiz 14	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	A7	Beam	Other	None
Horiz 15	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	A7	Beam	Other	None
Horiz 16	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	A7	Beam	Other	None
Horiz 17	B/B L3.5"x3"x0.3125"	DAL	3.5X3X0.31	A7	Beam	Other	None
Horiz 18	L 6" x 3.5" x 0.5"	SAU	6X3.5X0.5	A7	Beam	Other	None
Horiz 19	B/B L3.5"x3.5"x0.3125"	DAE	3.5X3.5X0.31	A7	Beam	Other	None
Horiz 20	B/B L2.5"x2"x0.25"	DAL	2.5X2X0.25	A7	Beam	Other	None
Horiz 21	B/B L2.5"x2"x0.25"	DAL	2.5X2X0.25	A7	Beam	Other	None
LD 1	B/B L3.5"x3"x0.25"	DAL	3.5X3X0.25	A7	Beam	Other	None

Group Label	Group Description	Angle Type	Angle Size	Material Type	Element Type	Group Type	Optimize Group
LD 2	B/B L5"x3.5"x0.4375"	DAL	5X3.5X0.44	A7	Beam	Other	None
LD 4	B/B L3.5"x3"x0.25"	DAL	3.5X3X0.25	A7	Beam	Other	None
LD 5	B/B L4"x3"x0.375"	DAL	4X3X0.38	A7	Beam	Other	None
LD 7	B/B L3.5"x2.5"x0.25"	DAL	3.5X2.5X0.25	A7	Beam	Other	None
LD 8	B/B L4"x3"x0.3125"	DAL	4X3X0.31	A7	Beam	Other	None
LD 10	B/B L3.5"x2.5"x0.25"	DAL	3.5X2.5X0.25	A7	Beam	Other	None
LD 11	B/B L4"x3"x0.3125"	DAL	4X3X0.31	A7	Beam	Other	None
LD 13	B/B L2.5"x2"x0.25"	DAL	2.5X2X0.25	A7	Beam	Other	None
LD 14	B/B L3.5"x2.5"x0.25"	DAL	3.5X2.5X0.25	A7	Beam	Other	None
LD 15	B/B L3.5"x3"x0.3125"	DAL	3.5X3X0.31	A7	Beam	Other	None
LD 16	B/B L2.5"x2"x0.25"	DAL	2.5X2X0.25	A7	Beam	Other	None
LD 17	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	A7	Beam	Other	None
LD 18	B/B L3"x3"x0.3125"	DAE	3X3X0.31	A7	Beam	Other	None
LD 19	B/B L2.5"x2"x0.25"	DAL	2.5X2X0.25	A7	Beam	Other	None
LD 20	B/B L3"x2"x0.25"	DAL	3X2X0.25	A7	Beam	Other	None
LD 21	B/B L3"x3"x0.25"	DAE	3X3X0.25	A7	Beam	Other	None
LH 1	B/B L3"x4"x0.3125"	DAS	4X3X0.31	A7	T-Only	Other	None
LH 2	B/B L3"x4"x0.3125"	DAS	4X3X0.31	A7	T-Only	Other	None
LH 3	B/B L3"x4"x0.3125"	DAS	4X3X0.31	A7	T-Only	Other	None
LH 4	B/B L3"x4"x0.3125"	DAS	4X3X0.31	A7	T-Only	Other	None
LH 5	B/B L3"x4"x0.3125"	DAS	4X3X0.31	A7	Beam	Other	None
LH 6	B/B L3"x3.5"x0.3125"	DAS	3.5X3X0.31	A7	Beam	Other	None
LH 7	B/B L3"x3"x0.25"	DAE	3X3X0.25	A7	Beam	Other	None
DUM 1	Dummy Bracing Member	DUM	0.1X0.1X1	A 36	Beam	Fictitious	None

Site #:	88010
Name:	Connecticut Light & Power

Engineer:	ADV
Date:	09/22/14

Member Label	Group Label	Section Label	Symmetry Code	Origin Joint	End Joint	Ecc. Code	Rest. Code	Ratio RLX	Ratio RLY	Ratio RLZ
L 1	Leg S1		XY-Symmetry	0P	1P	1	4	0.33334	0.33334	0.33334
L 2	Leg S2		XY-Symmetry	1P	2P	1	4	0.33334	0.33334	0.33334
L 3	Leg S3		XY-Symmetry	2P	3P	1	4	0.33334	0.33334	0.33334
L 4	Leg S4		XY-Symmetry	3P	4P	1	4	0.33334	0.33334	0.33334
L 5	Leg S5		XY-Symmetry	4P	5P	1	4	0.222226667	0.222226667	0.222226667
L 6	Leg S6		XY-Symmetry	5P	6P	1	4	0.33332	0.33332	0.33332
L 7	Leg S7		XY-Symmetry	6P	7P	1	4	0.33332	0.33332	0.33332
L 8	Leg S8		XY-Symmetry	7P	8P	1	4	0.333333333	0.333333333	0.333333333
L 9	Leg S9		XY-Symmetry	8P	9P	1	4	0.333333333	0.333333333	0.333333333
L 10	Leg S10		XY-Symmetry	9P	10P	1	4	0.333333333	0.333333333	0.333333333
L 11	Leg S11		XY-Symmetry	10P	11P	1	4	0.5	0.5	0.5
L 12	Leg S12		XY-Symmetry	11P	12P	1	4	0.5	0.5	0.5
L 13	Leg S13		XY-Symmetry	12P	13P	1	4	0.5	0.5	0.5
L 14	Leg S14		XY-Symmetry	13P	14P	1	4	0.5	0.5	0.5
L 15	Leg S15		XY-Symmetry	14P	15P	1	4	0.5	0.5	0.5
L 16	Leg S16		XY-Symmetry	15P	16P	1	4	0.5	0.5	0.5
L 17	Leg S17		XY-Symmetry	16P	17P	1	4	0.5	0.5	0.5
L 18	Leg S18		XY-Symmetry	17P	18P	1	4	0.5	0.5	0.5
L 19	Leg S19		XY-Symmetry	18P	19P	1	4	0.5	0.5	0.5
L 20	Leg S20		XY-Symmetry	19P	20P	1	4	1	1	1
L 21	Leg S21		XY-Symmetry	20P	21P	1	4	1	1	1
D 1	Diag S1		XY-Symmetry	0P	H2P	1	6	0.5	1	0.5
D 2	Diag S1		XY-Symmetry	0P	H1P	1	6	0.5	1	0.5
D 3	Diag S2		XY-Symmetry	1P	H6P	1	6	0.45	0.9	0.45
D 4	Diag S2		XY-Symmetry	1P	H5P	1	6	0.45	0.9	0.45
D 5	Diag S3		XY-Symmetry	2P	H10P	1	6	0.45	0.9	0.45
D 6	Diag S3		XY-Symmetry	2P	H9P	1	6	0.45	0.9	0.45
D 7	Diag S4		XY-Symmetry	3P	H14P	1	6	0.45	0.88	0.45
D 8	Diag S4		XY-Symmetry	3P	H13P	1	6	0.45	0.88	0.45
D 9	Diag S5		XY-Symmetry	4P	H18P	1	6	0.31	0.64	0.31
D 10	Diag S5		XY-Symmetry	4P	H17P	1	6	0.31	0.64	0.31
D 11	Diag S6		XY-Symmetry	5P	H22P	1	6	0.31	0.65	0.31
D 12	Diag S6		XY-Symmetry	5P	H21P	1	6	0.31	0.65	0.31
D 13	Diag S7		XY-Symmetry	6P	H26P	1	6	0.31	0.67	0.31
D 14	Diag S7		XY-Symmetry	6P	H25P	1	6	0.31	0.67	0.31
D 15	Diag S8		XY-Symmetry	7P	A15P	1	6	0.333333333	0.666666667	0.333333333
D 16	Diag S8		XY-Symmetry	7P	A16P	1	6	0.333333333	0.666666667	0.333333333
D 17	Diag S9		XY-Symmetry	8P	A17P	1	6	0.333333333	0.666666667	0.333333333
D 18	Diag S9		XY-Symmetry	8P	A18P	1	6	0.333333333	0.666666667	0.333333333
D 19	Diag S10		XY-Symmetry	9P	A19P	1	6	0.333333333	0.666666667	0.333333333
D 20	Diag S10		XY-Symmetry	9P	A20P	1	6	0.333333333	0.666666667	0.333333333
D 21	Diag S11		XY-Symmetry	10P	A21P	1	6	0.5	1	0.5
D 22	Diag S11		XY-Symmetry	10P	A22P	1	6	0.5	1	0.5
D 23	Diag S12		XY-Symmetry	11P	A23P	1	6	0.5	1	0.5
D 24	Diag S12		XY-Symmetry	11P	A24P	1	6	0.5	1	0.5
D 25	Diag S13		XY-Symmetry	12P	A25P	1	6	0.5	1	0.5
D 26	Diag S13		XY-Symmetry	12P	A26P	1	6	0.5	1	0.5
D 27	Diag S14		XY-Symmetry	13P	A27P	1	6	0.5	1	0.5
D 28	Diag S14		XY-Symmetry	13P	A28P	1	6	0.5	1	0.5
D 29	Diag S15		XY-Symmetry	14P	15Y	2	5	0.52	0.75	0.52
D 30	Diag S15		XY-Symmetry	14P	15X	2	5	0.52	0.75	0.52
D 31	Diag S16		XY-Symmetry	15P	16Y	2	5	0.52	0.75	0.52
D 32	Diag S16		XY-Symmetry	15P	16X	2	5	0.52	0.75	0.52
D 33	Diag S17		XY-Symmetry	16P	17Y	2	5	0.52	0.75	0.52
D 34	Diag S17		XY-Symmetry	16P	17X	2	5	0.52	0.75	0.52
D 35	Diag S18		XY-Symmetry	17P	18Y	2	5	0.52	0.75	0.52
D 36	Diag S18		XY-Symmetry	17P	18X	2	5	0.52	0.75	0.52
D 37	Diag S19		XY-Symmetry	18P	19Y	1	6	0.52	0.75	0.52
D 38	Diag S19		XY-Symmetry	18P	19X	1	6	0.52	0.75	0.52
D 39	Diag S20		XY-Symmetry	19P	20Y	2	5	0.52	0.75	0.52
D 40	Diag S20		XY-Symmetry	19P	20X	2	5	0.52	0.75	0.52
D 41	Diag S21		XY-Symmetry	20P	21Y	2	5	0.52	0.75	0.52
D 42	Diag S21		XY-Symmetry	20P	21X	2	5	0.52	0.75	0.52

Member Label	Group Label	Section Label	Symmetry Code	Origin Joint	End Joint	Ecc. Code	Rest. Code	Ratio RLX	Ratio RLY	Ratio RLZ
H 1	Horiz 1		XY-Symmetry	1P	A1P	1	6	0.5	0.5	0.5
H 2	Horiz 1		XY-Symmetry	1P	A2P	1	6	0.5	0.5	0.5
H 3	Horiz 2		XY-Symmetry	2P	A3P	1	6	0.5	0.5	0.5
H 4	Horiz 2		XY-Symmetry	2P	A4P	1	6	0.5	0.5	0.5
H 5	Horiz 3		XY-Symmetry	3P	A5P	1	6	0.5	0.5	0.5
H 6	Horiz 3		XY-Symmetry	3P	A6P	1	6	0.5	0.5	0.5
H 7	Horiz 4		XY-Symmetry	4P	A7P	1	6	0.5	0.5	0.5
H 8	Horiz 4		XY-Symmetry	4P	A8P	1	6	0.5	0.5	0.5
H 9	Horiz 5		XY-Symmetry	5P	A9P	1	6	0.5	1	0.5
H 10	Horiz 5		XY-Symmetry	5P	A10P	1	6	0.5	1	0.5
H 11	Horiz 6		XY-Symmetry	6P	A11P	1	6	1	1	1
H 12	Horiz 6		XY-Symmetry	6P	A12P	1	6	1	1	1
H 13	Horiz 7		XY-Symmetry	7P	A13P	1	6	0.5	1	0.5
H 14	Horiz 7		XY-Symmetry	7P	A14P	1	6	0.5	1	0.5
H 15	Horiz 8		XY-Symmetry	8P	A15P	1	6	1	1	1
H 16	Horiz 8		XY-Symmetry	8P	A16P	1	6	1	1	1
H 17	Horiz 9		XY-Symmetry	9P	A17P	1	6	0.5	1	0.5
H 18	Horiz 9		XY-Symmetry	9P	A18P	1	6	0.5	1	0.5
H 19	Horiz 10		XY-Symmetry	10P	A19P	1	6	1	1	1
H 20	Horiz 10		XY-Symmetry	10P	A20P	1	6	1	1	1
H 21	Horiz 11		XY-Symmetry	11P	A21P	1	6	0.5	1	0.5
H 22	Horiz 11		XY-Symmetry	11P	A22P	1	6	0.5	1	0.5
H 23	Horiz 12		XY-Symmetry	12P	A23P	1	6	1	1	1
H 24	Horiz 12		XY-Symmetry	12P	A24P	1	6	1	1	1
H 25	Horiz 13		XY-Symmetry	13P	A25P	1	6	1	1	1
H 26	Horiz 13		XY-Symmetry	13P	A26P	1	6	1	1	1
H 27	Horiz 14		XY-Symmetry	14P	A27P	1	6	1	1	1
H 28	Horiz 14		XY-Symmetry	14P	A28P	1	6	1	1	1
H 29	Horiz 15		Y-Symmetry	15P	15X	1	6	0.5	1	0.5
H 30	Horiz 15		X-Symmetry	15P	15Y	1	6	0.5	1	0.5
H 31	Horiz 16		Y-Symmetry	16P	16X	1	6	0.5	0.5	0.5
H 32	Horiz 16		X-Symmetry	16P	16Y	1	6	0.5	0.5	0.5
H 33	Horiz 17		Y-Symmetry	17P	17X	1	6	0.5	1	0.5
H 34	Horiz 17		X-Symmetry	17P	17Y	1	6	0.5	1	0.5
H 35	Horiz 18		Y-Symmetry	18P	18X	1	6	1	1	1
H 36	Horiz 18		X-Symmetry	18P	18Y	1	6	1	1	1
H 37	Horiz 19		Y-Symmetry	19P	19X	1	6	1	1	1
H 38	Horiz 19		X-Symmetry	19P	19Y	1	6	1	1	1
H 39	Horiz 20		Y-Symmetry	20P	20X	1	6	1	1	1
H 40	Horiz 20		X-Symmetry	20P	20Y	1	6	1	1	1
H 41	Horiz 21		Y-Symmetry	21P	21X	1	6	1	1	1
H 42	Horiz 21		X-Symmetry	21P	21Y	1	6	1	1	1
H 51	Horiz 5		Y-Symmetry	A9P	A9X	1	6	0.5	1	0.5
H 52	Horiz 5		X-Symmetry	A10P	A10Y	1	6	0.5	1	0.5
H 53	Horiz 6		Y-Symmetry	A11P	A11X	1	6	1	1	1
H 54	Horiz 6		X-Symmetry	A12P	A12Y	1	6	1	1	1
H 55	Horiz 7		Y-Symmetry	A13P	A13X	1	6	0.5	1	0.5
H 56	Horiz 7		X-Symmetry	A14P	A14Y	1	6	0.5	1	0.5
LH 1	LH 1		Y-Symmetry	H1P	H1X	1	6	100	100	100
LH 2	LH 1		X-Symmetry	H2P	H2Y	1	6	100	100	100
LH 3	LH 2		Y-Symmetry	H5P	H5X	1	6	100	100	100
LH 4	LH 2		X-Symmetry	H6P	H6Y	1	6	100	100	100
LH 5	LH 3		Y-Symmetry	H9P	H9X	1	6	100	100	100
LH 6	LH 3		X-Symmetry	H10P	H10Y	1	6	100	100	100
LH 7	LH 4		Y-Symmetry	H13P	H13X	1	6	100	100	100
LH 8	LH 4		X-Symmetry	H14P	H14Y	1	6	100	100	100
LH 9	LH 5		XY-Symmetry	H17P	H19P	1	6	1	2	1
LH 10	LH 5		XY-Symmetry	H18P	H20P	1	6	1	2	1
LH 11	LH 6		XY-Symmetry	H21P	H23P	1	6	1	2	1
LH 12	LH 6		XY-Symmetry	H22P	H24P	1	6	1	2	1
LH 13	LH 7		XY-Symmetry	H25P	H27P	1	6	1	2	1
LH 14	LH 7		XY-Symmetry	H26P	H28P	1	6	1	2	1
LD 1	LD 1		XY-Symmetry	H1P	1P	1	6	1	1	1

Member Label	Group Label	Section Label	Symmetry Code	Origin Joint	End Joint	Ecc. Code	Rest. Code	Ratio RLX	Ratio RLY	Ratio RLZ
LD 2	LD 1		XY-Symmetry	H2P	1P	1	6	1	1	1
LD 3	LD 2		XY-Symmetry	H1P	A1P	1	6	0.996	0.996	0.996
LD 4	LD 2		XY-Symmetry	H2P	A2P	1	6	0.996	0.996	0.996
LD 7	LD 4		XY-Symmetry	H5P	2P	1	6	1	1	1
LD 8	LD 4		XY-Symmetry	H6P	2P	1	6	1	1	1
LD 9	LD 5		XY-Symmetry	H5P	A3P	1	6	1	1	1
LD 10	LD 5		XY-Symmetry	H6P	A4P	1	6	1	1	1
LD 13	LD 7		XY-Symmetry	H9P	3P	1	6	1	1	1
LD 14	LD 7		XY-Symmetry	H10P	3P	1	6	1	1	1
LD 15	LD 8		XY-Symmetry	H9P	A5P	1	6	0.9	0.9	0.9
LD 16	LD 8		XY-Symmetry	H10P	A6P	1	6	0.9	0.9	0.9
LD 19	LD 10		XY-Symmetry	H13P	4P	1	6	0.967	0.967	0.967
LD 20	LD 10		XY-Symmetry	H14P	4P	1	6	0.967	0.967	0.967
LD 21	LD 11		XY-Symmetry	H13P	A7P	1	6	1	1	1
LD 22	LD 11		XY-Symmetry	H14P	A8P	1	6	1	1	1
LD 25	LD 13		XY-Symmetry	H17P	5P	1	6	0.46	0.88	0.46
LD 26	LD 13		XY-Symmetry	H18P	5P	1	6	0.46	0.88	0.46
LD 27	LD 14		XY-Symmetry	H17P	A9P	1	6	1	1	1
LD 28	LD 14		XY-Symmetry	H18P	A10P	1	6	1	1	1
LD 29	LD 15		XY-Symmetry	A9P	H19P	1	6	1	1	1
LD 30	LD 15		XY-Symmetry	A10P	H20P	1	6	1	1	1
LD 31	LD 16		XY-Symmetry	H21P	6P	1	6	0.87	0.87	0.87
LD 32	LD 16		XY-Symmetry	H22P	6P	1	6	0.87	0.87	0.87
LD 33	LD 17		XY-Symmetry	H21P	A11P	1	6	1	1	1
LD 34	LD 17		XY-Symmetry	H22P	A12P	1	6	1	1	1
LD 35	LD 18		XY-Symmetry	A11P	H23P	1	6	1	1	1
LD 36	LD 18		XY-Symmetry	A12P	H24P	1	6	1	1	1
LD 37	LD 19		XY-Symmetry	H25P	7P	1	6	0.93	0.93	0.93
LD 38	LD 19		XY-Symmetry	H26P	7P	1	6	0.93	0.93	0.93
LD 39	LD 20		XY-Symmetry	H25P	A13P	1	6	1	1	1
LD 40	LD 20		XY-Symmetry	H26P	A14P	1	6	1	1	1
LD 41	LD 21		XY-Symmetry	A13P	H27P	1	6	1	1	1
LD 42	LD 21		XY-Symmetry	A14P	H28P	1	6	1	1	1
BR 1	DUM 1		XY-Symmetry	A1P	A2P	1	4	1	1	1
BR 3	DUM 1		XY-Symmetry	A3P	A4P	1	4	1	1	1
BR 5	DUM 1		XY-Symmetry	A5P	A6P	1	4	1	1	1
BR 7	DUM 1		XY-Symmetry	A7P	A8P	1	4	1	1	1
BR 9	DUM 1		XY-Symmetry	A9P	A10P	1	4	1	1	1
BR 10	DUM 1		XY-Symmetry	A9P	A10XY	1	4	1	1	1
BR 11	DUM 1		XY-Symmetry	A11P	A12P	1	4	1	1	1
BR 12	DUM 1		XY-Symmetry	A11P	A12XY	1	4	1	1	1
BR 13	DUM 1		XY-Symmetry	A13P	A14P	1	4	1	1	1
BR 14	DUM 1		XY-Symmetry	A13P	A14XY	1	4	1	1	1
BR 15	DUM 1		XY-Symmetry	A15P	A16P	1	4	1	1	1
BR 17	DUM 1		XY-Symmetry	A17P	A18P	1	4	1	1	1
BR 19	DUM 1		XY-Symmetry	A19P	A20P	1	4	1	1	1
BR 21	DUM 1		XY-Symmetry	A21P	A22P	1	4	1	1	1
BR 23	DUM 1		XY-Symmetry	A23P	A24P	1	4	1	1	1
BR 25	DUM 1		XY-Symmetry	A25P	A26P	1	4	1	1	1

Member Label	Group Label	Section Label	Symmetry Code	Origin Joint	End Joint	Ecc. Code	Rest. Code	Ratio RLX	Ratio RLY	Ratio RLZ
BR 27	DUM 1		XY-Symmetry	A27P	A28P	1	4	1	1	1
BR 61	DUM 1		XY-Symmetry	H1P	H2P	1	4	1	1	1
BR 62	DUM 1		XY-Symmetry	H1P	H2XY	1	4	1	1	1
BR 64	DUM 1		XY-Symmetry	H5P	H6P	1	4	1	1	1
BR 65	DUM 1		XY-Symmetry	H5P	H6XY	1	4	1	1	1
BR 67	DUM 1		XY-Symmetry	H9P	H10P	1	4	1	1	1
BR 68	DUM 1		XY-Symmetry	H9P	H10XY	1	4	1	1	1
BR 70	DUM 1		XY-Symmetry	H13P	H14P	1	4	1	1	1
BR 71	DUM 1		XY-Symmetry	H13P	H14XY	1	4	1	1	1
BR 73	DUM 1		XY-Symmetry	H17P	H18P	1	4	1	1	1
BR 74	DUM 1		XY-Symmetry	H17P	H18XY	1	4	1	1	1
BR 75	DUM 1		XY-Symmetry	H19P	H20P	1	4	1	1	1
BR 76	DUM 1		XY-Symmetry	H21P	H22P	1	4	1	1	1
BR 77	DUM 1		XY-Symmetry	H21P	H22XY	1	4	1	1	1
BR 78	DUM 1		XY-Symmetry	H23P	H24P	1	4	1	1	1
BR 79	DUM 1		XY-Symmetry	H25P	H26P	1	4	1	1	1
BR 80	DUM 1		XY-Symmetry	H25P	H26XY	1	4	1	1	1
BR 81	DUM 1		XY-Symmetry	H27P	H28P	1	4	1	1	1

Point Loads

Tower Height:	366	ft
Gh:	1.08	
Wind Speed:	85.00	mph
Wind Speed (Ice):	74.00	mph
Radial Ice Diameter:	0.5	in

Site No.:	88010
Engineer:	ADV
Date:	09/22/2014
Carrier:	Connecticut Light & Power

KS-15676 Horn Antennas: ~128 ft²

No.	Carrier	Elevation (ft)	Quantity	Number of Azimuths	Model	Height (in)	Width (in)	Depth (in)	Weight (lbs/ea)	Flat/Round (F|R)	Reduction Factor	C_AA_C (ft²/ea)	Weight (k/ea)	H/W	C_A	q_z (psf)	q_z (ice) (psf)
1		373	1	2	Dipole	240	4	4	50	R	1.000			60.00	1.20	36.98	28.03
			1	4	-						1.000	0.00	0.00	-	-		
2		365	1	1	-	1	1	1	1	R	1.000			1.00	0.80	36.75	27.86
			1	4	Platform w/ Handrails						1.000	65.00	5.50	-	-		
3	Marcus Comm	365	3	3	TX RX 101-68-10-X-03N	189.6	3.5	3.5	70	R	1.000			54.17	1.20	36.75	27.86
	Marcus Comm		3	3	Rigid Side Arm						1.000	8.00	0.50	-	-		
4		350	1	1	-	1	1	1	1	F	0.000			1.00	1.40	36.32	27.52
			1	4	Platform w/ Handrails						1.000	70.00	6.00	-	-		
5		325	1	1	-	1	1	1	1	F	0.000			1.00	1.40	35.55	26.95
			1	4	Catwalk Platform						1.000	60.00	5.00	-	-		
6		300	1	1	-	1	1	1	1	R	0.000			1.00	0.80	34.75	26.34
			1	1	Working Platform						1.000	15.00	0.50	-	-		
7	Sprint Nextel	290	2	2	Andrew DB844H90E-XY	48	8	6.5	14	F	0.900			6.00	1.40	34.42	26.08
	Sprint Nextel		1	1	Sector Frame						1.000	17.20	0.40	-	-		
8	US Treasury	250	1	1	Sinclair SC281-L	251	5	5	79	R	1.000			50.20	1.20	32.99	25.00
			1	4	Platform w/ Handrails						1.000	50.00	4.75	-	-		
9	Sprint Nextel	234.5	4	2	844G65VTZASX/DB844H90E-XY	48.5	12.5	8.5	16	F	0.900			3.88	1.40	32.39	24.55
	Sprint Nextel		2	2	Sector Frame						0.900	17.90	0.50	-	-		
10		200	1	1	-	1	1	1	1	F	0.000			1.00	1.40	30.95	23.46
			1	1	Working Platform						0.900	15.00	0.50	-	-		
11		150	1	1	-	1	1	1	1	F	0.000			1.00	1.40	28.51	21.61
			1	1	Working Platform						0.900	15.00	0.50	-	-		
12		125	1	1	-	1	1	1	1	F	0.000			1.00	1.40	27.06	20.51
			1	4	Platform w/ Handrails						1.000	60.00	5.00	-	-		
13		100	1	1	-	1	1	1	1	F	0.000			1.00	1.40	25.39	19.24
			1	1	Working Platform						0.900	15.00	0.50	-	-		
14	Qualcomm	28	1	1	-	1	1	1	1	F	1.000			1.00	1.40	18.50	14.02
	Qualcomm		1	1	Ice Shield						0.000	5.00	0.10	-	-		
15	Qualcomm	295	1	1	-	1	1	1	1	R	0.000			1.00	0.80	34.58	26.21
	Qualcomm		1	1	Dielectric TLP-16A						1.000	35.50	0.34	-	-		
16	US Treasury	284	1	1	-	1	1	1	1	R	0.000			1.00	0.80	34.21	25.93
	US Treasury		1	1	Sinclair SC381-HL						1.000	5.56	0.05	-	-		
17	State of CT	366	1	1	20' Dipole	240	4	4	60	R	0.000			60.00	1.20	36.78	27.88
	US Treasury		1	1	Rohde & Schwarz ADD090						1.000	20.76	1.24	-	-		
18	US Treasury	284	1	1	-	1	1	1	1	R	0.000			1.00	0.80	34.21	25.93
	US Treasury		1	1	Sinclair SC281-L						1.000	10.46	0.08	-	-		
19	CT Light & Power	365	1	1	Kreco CO-41A	168	3	3	14	R	1.000			56.00	1.20	36.75	27.86
	CT Light & Power		1	1	dbSpectra DS9A09F36D-N						1.000	6.19	0.05	-	-		
20	Enertrac	340	2	2	Diamond X50A	67.2	2	2	2.3	R	1.000			33.60	1.20	36.02	27.30
	Enertrac		2	2	Side Arms						0.900	5.20	0.10	-	-		
21		315	1	1	-	1	1	1	1	R	0.000			1.00	0.80	35.24	26.71
			1	1	Empty Horn Mount						1.000	10.00	0.50	-	-		
22	CT Light & Power	365	1	1	Bird 429-83H-01-T	18	6	6	20	R	1.000			3.00	0.80	36.75	27.86
	CT Light & Power		2	2	Side Arms						0.900	5.20	0.10	-	-		
23	CT Light & Power	188	1	1	-	1	1	1	1	R	1.000			1.00	0.80	30.41	23.05
	CT Light & Power		1	1	Comprod 531-70HD						1.000	5.98	0.04	-	-		
24	CT Light & Power	188	1	1	-	1	1	1	1	R	1.000			1.00	0.80	30.41	23.05
	CT Light & Power		1	1	Side Arm						1.000	5.20	0.10	-	-		
25	CT Light & Power	179	1	1	Telewave ANT450F6	94	2.3	2.3	21	R	1.000			40.87	1.20	29.98	22.73
	CT Light & Power		1	1	Side Arm						1.000	5.20	0.10	-	-		
26	CT Light & Power	175	1	1	Kreco CO-41A	168	3	3	14	R	1.000			56.00	1.20	29.79	22.58
	CT Light & Power		1	1	Side Arm						1.000	5.20	0.10	-	-		
27																	
28																	
29																	
30																	

No.	Elevation (ft)	C_AA_c (ft^2)	C_AA_c (Ice) (ft^2)	Force (k)	Force (Ice) (k)	Weight (k)	Weight (Ice) (k)	Σ Force (k)	Σ Force (Ice) (k)	Σ Weight (k)	Σ Weight (Ice) (k)
1	373	8.00	10.04	0.318	0.303	0.050	0.121	0.32	0.30	0.05	0.12
		0.00	0.00	0.000	0.000	0.000	0.000				
2	365	0.01	0.02	0.000	0.001	0.001	0.001	2.57	2.63	5.50	7.15
		65.00	87.75	2.569	2.629	5.500	7.150				
3	365	16.59	21.44	0.656	0.642	0.210	0.359	1.60	1.61	1.71	2.31
		24.00	32.40	0.949	0.971	1.500	1.950				
4	350	0.00	0.00	0.000	0.000	0.001	0.001	2.73	2.80	6.00	7.80
		70.00	94.50	2.734	2.797	6.000	7.800				
5	325	0.00	0.00	0.000	0.000	0.001	0.001	2.29	2.35	5.00	6.50
		60.00	81.00	2.294	2.348	5.000	6.500				
6	300	0.00	0.00	0.000	0.000	0.001	0.001	0.56	0.57	0.50	0.65
		15.00	20.25	0.561	0.574	0.500	0.650				
7	290	6.72	7.72	0.249	0.217	0.028	0.081	0.89	0.87	0.43	0.60
		17.20	23.22	0.637	0.651	0.400	0.520				
8	250	10.46	12.60	0.371	0.339	0.079	0.170	2.14	2.15	4.83	6.34
		50.00	67.50	1.774	1.815	4.750	6.175				
9	234.5	21.22	23.39	0.739	0.617	0.064	0.219	1.86	1.77	1.06	1.52
		32.22	43.50	1.122	1.148	1.000	1.300				
10	200	0.00	0.00	0.000	0.000	0.001	0.001	0.45	0.46	0.50	0.65
		13.50	18.23	0.449	0.460	0.500	0.650				
11	150	0.00	0.00	0.000	0.000	0.001	0.001	0.41	0.42	0.50	0.65
		13.50	18.23	0.414	0.423	0.500	0.650				
12	125	0.00	0.00	0.000	0.000	0.001	0.001	1.75	1.79	5.00	6.50
		60.00	81.00	1.746	1.787	5.000	6.500				
13	100	0.00	0.00	0.000	0.000	0.001	0.001	0.37	0.38	0.50	0.65
		13.50	18.23	0.369	0.377	0.500	0.650				
14	28	0.01	0.04	0.000	0.001	0.001	0.001	0.00	0.00	0.10	0.13
		0.00	0.00	0.000	0.000	0.100	0.130				
15	295	0.00	0.00	0.000	0.000	0.001	0.001	1.32	1.35	0.34	0.44
		35.50	47.93	1.320	1.351	0.340	0.442				
16	284	0.00	0.00	0.000	0.000	0.001	0.001	0.20	0.21	0.05	0.06
		5.56	7.51	0.205	0.209	0.047	0.061				
17	366	0.00	0.00	0.000	0.000	0.060	0.131	0.82	0.84	1.30	1.74
		20.76	28.03	0.821	0.840	1.240	1.612				
18	284	0.00	0.00	0.000	0.000	0.001	0.001	0.38	0.39	0.08	0.10
		10.46	14.12	0.385	0.394	0.079	0.103				
19	365	4.20	5.63	0.166	0.169	0.014	0.053	0.41	0.42	0.06	0.11
		6.19	8.36	0.245	0.250	0.047	0.061				
20	340	2.24	3.41	0.087	0.100	0.005	0.027	0.45	0.47	0.20	0.29
		9.36	12.64	0.363	0.371	0.200	0.260				
21	315	0.00	0.00	0.000	0.000	0.001	0.001	0.38	0.39	0.50	0.65
		10.00	13.50	0.379	0.388	0.500	0.650				
22	365	0.60	0.74	0.024	0.022	0.020	0.029	0.39	0.40	0.22	0.29
		9.36	12.64	0.370	0.379	0.200	0.260				
23	188	0.01	0.02	0.000	0.001	0.001	0.001	0.20	0.20	0.04	0.06
		5.98	8.07	0.196	0.200	0.043	0.056				
24	188	0.01	0.02	0.000	0.001	0.001	0.001	0.17	0.17	0.10	0.13
		5.20	7.02	0.170	0.174	0.100	0.130				
25	179	1.80	2.61	0.058	0.064	0.021	0.038	0.23	0.24	0.12	0.17
		5.20	7.02	0.168	0.172	0.100	0.130				
26	175	4.20	5.63	0.135	0.137	0.014	0.053	0.30	0.31	0.11	0.18
		5.20	7.02	0.167	0.170	0.100	0.130				
27											
28											
29											
30											

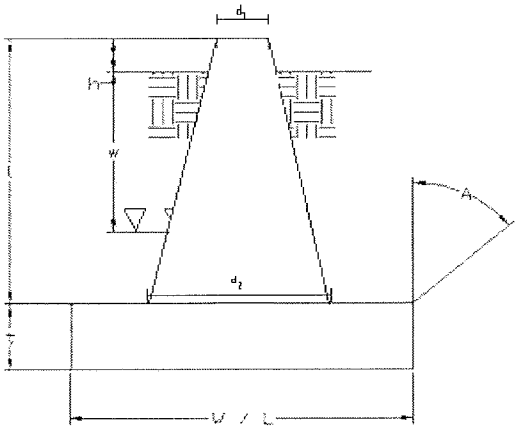
Foundation

Site No.:	88010
Engineer:	ADV
Date:	09/22/14
Carrier:	Connecticut Light & Power

Design Loads (Unfactored)

Compression/Leg:	507.35	k
Uplift/Leg:	344.33	k

Face Width @ Top of Pier (d_1):	4.00	ft
Face Width @ Bottom of Pier (d_2):	8.00	ft
Total Length of Pier (l):	8.50	ft
Height of Pedestal Above Ground (h):	0.50	ft
Width of Pad (W):	18.50	ft
Length of Pad (L):	18.50	ft
Thickness of Pad (t):	4.08	ft
Water Table Depth (w):	4	ft
Unit Weight of Concrete:	150.0	pcf
Unit Weight of Soil (Above Water Table):	130.0	pcf
Unit Weight of Soil (Below Water Table):	75.0	pcf
Friction Angle of Uplift (A):	32	°
Allowable Compressive Bearing Pressure:	10000	psf



Volume Pier (Total):	317.33	ft³
Volume Pad (Total):	1396.38	ft³
Volume Soil (Total):	4118.19	ft³
Volume Pier (Buoyant):	200.49	ft³
Volume Pad (Buoyant):	1396.38	ft³
Volume Soil (Buoyant):	1564.60	ft³
Weight Pier:	35.09	k
Weight Pad:	122.32	k
Weight Soil:	449.31	k

Uplift Check

TIA Case 1: $\frac{\text{Wt. Soil} + \text{Wt. Concrete}}{1.5}$

TIA Case 2: $\frac{\text{Wt. Soil}}{2.0} + \frac{\text{Wt. Concrete}}{1.25}$

	Allowable Uplift (k)	Ratio	Result
TIA Case 1:	404.48	0.85	OK
TIA Case 2:	350.59	0.98	OK

Axial Check

Allowable Axial: $\text{Allowable Bearing Pressure} * W * L$

Allowable Axial (k)	Ratio	Result
3422.50	0.15	OK

Anchor Bolt Check

Bolt Description	Allowable Uplift (k)	Ratio	Result
(6) 2 1/4" A36	456.61	0.75	OK

Row #	Member Label	Group Label	Design Comp.	Comp. Control	Design Tensior	Tension Contrc	L/r	Length (ft)	L/r Comp. Cap	Connection Sh	Connection Be	Net Section Te	Rupture Tensic	RTE End Dist. T	RTE Edge Dist.	Override Comp. Capacity (kips)
1	L 1P	Leg S1	264.761 L/r		331.253	Net Sect	64	25.14	264.761	0	0	331.253	0	0	0	496.31
2	L 1X	Leg S1	264.761 L/r		331.253	Net Sect	64	25.14	264.761	0	0	331.253	0	0	0	496.31
3	L 1XY	Leg S1	264.761 L/r		331.253	Net Sect	64	25.14	264.761	0	0	331.253	0	0	0	496.31
4	L 1Y	Leg S1	264.761 L/r		331.253	Net Sect	64	25.14	264.761	0	0	331.253	0	0	0	496.31
5	L 2P	Leg S2	264.761 L/r		331.253	Net Sect	64	25.14	264.761	0	0	331.253	0	0	0	403.65
6	L 2X	Leg S2	264.761 L/r		331.253	Net Sect	64	25.14	264.761	0	0	331.253	0	0	0	403.65
7	L 2XY	Leg S2	264.761 L/r		331.253	Net Sect	64	25.14	264.761	0	0	331.253	0	0	0	403.65
8	L 2Y	Leg S2	264.761 L/r		331.253	Net Sect	64	25.14	264.761	0	0	331.253	0	0	0	403.65
9	L 3P	Leg S3	264.761 L/r		331.253	Net Sect	64	25.14	264.761	0	0	331.253	0	0	0	370.48
10	L 3X	Leg S3	264.761 L/r		331.253	Net Sect	64	25.14	264.761	0	0	331.253	0	0	0	370.48
11	L 3XY	Leg S3	264.761 L/r		331.253	Net Sect	64	25.14	264.761	0	0	331.253	0	0	0	370.48
12	L 3Y	Leg S3	264.761 L/r		331.253	Net Sect	64	25.14	264.761	0	0	331.253	0	0	0	370.48
13	L 4P	Leg S4	264.761 L/r		331.253	Net Sect	64	25.14	264.761	0	0	331.253	0	0	0	337.84
14	L 4X	Leg S4	264.761 L/r		331.253	Net Sect	64	25.14	264.761	0	0	331.253	0	0	0	337.84
15	L 4XY	Leg S4	264.761 L/r		331.253	Net Sect	64	25.14	264.761	0	0	331.253	0	0	0	337.84
16	L 4Y	Leg S4	264.761 L/r		331.253	Net Sect	64	25.14	264.761	0	0	331.253	0	0	0	337.84

Attachment 4: Calculated Radio Frequency Emissions Report

C Squared Systems, LLC
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Auburn, NH 03032
(603) 644-2800
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Calculated Radio Frequency Emissions Report

EVERSOURCE ENERGY

Higganum

373 Chamberlain Hill Road, Haddam, CT 06441

September 5, 2014

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1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for Eversource Energy's (formerly Northeast Utilities) proposed additions to the existing lattice tower located at 373 Chamberlain Hill Road in Haddam, CT. The coordinates of the tower are 41° 29' 46.03" N, 72° 37' 05.19" W.

Eversource is proposing the following:

1) Install one 6 GHz microwave dish;
2) Install one 900 MHz omnidirectional antenna;
3) Install two 49 MHz omnidirectional antennas;
4) Install one 450 MHz omnidirectional antenna.

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

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 Maximum Permissible Exposure (MPE) limits for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based upon those recommended by the National Council on Radiation Protection and Measurements (NCRP), developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

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 milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment B of this report.

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 Limit.

Finally, it should be noted that the MPE limits adopted by the FCC for both general population/uncontrolled exposure and for occupational/controlled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.

3. RF Exposure Prediction Methods

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

$$\text{Power Density} = \left(\frac{1.6^2 \times EIRP}{4\pi \times R^2} \right) \text{x Off Beam Loss}$$

Where:

EIRP = Effective Isotropic Radiated Power

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

H = Horizontal Distance from antenna in meters

V = Vertical Distance from radiation center of antenna in meters

Ground reflection factor of 1.6

Off Beam Loss is determined by the selected antenna pattern

These calculations assume that the antennas are operating at 100 percent capacity and power, and that all channels are transmitting simultaneously. Obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. The calculations assume even terrain in the area of study and do not take into account actual terrain elevations which could attenuate the signal. As a result, the predicted signal levels reported below are much higher than the actual signal levels will be from the final site configuration.

4. Calculation Results

Table 1 below outlines the power density information for the site. The radiation patterns of the proposed Eversource antennas cause the majority of the RF power to be focused out towards the horizon, with respect to the vertical plane. As a result, there will be less RF power directed below the antenna relative to the horizon, and consequently lower power density levels around the base of the tower. Please refer to Attachment C for the vertical patterns of the proposed Eversource antennas. The calculated results for Eversource in Table 1 include a nominal 10 dB off-beam pattern loss to account for the lower relative gain below the antennas.

Carrier	Antenna Height (Feet)	Operating Frequency (MHz)	Number of Trans.	ERP Per Transmitter (Watts)	Power Density (mw/cm^2)	Limit	%MPE
Nextel	225	851	N/A	N/A	0.0038	0.5673	0.67%
Nextel	290	851	N/A	N/A	0.0064	0.5673	1.13%
AT&T Microwave	350	3950	N/A	N/A	0.0011	1.0000	0.11%
AT&T Repeater System	380	451	N/A	N/A	0.0002	0.3007	0.08%
MediaFLO	283	N/A	N/A	N/A	N/A	N/A	0.89%
Marcus	321	450	5	100	0.0017	0.3000	0.58%
Marcus	321	450	5	100	0.0017	0.3000	0.58%
Marcus	355	5800	1	0.1	0.0000	1.0000	0.00%
Marcus	355	5800	1	0.1	0.0000	1.0000	0.00%
Rescue 21	255	165.313	5	158.5	0.0044	0.2000	2.19%
Rescue 21	300	412.975	1	158.5	0.0006	0.2753	0.23%
Northeast Utilities	375	935.3875	2	255	0.0001	0.6236	0.02%
Northeast Utilities	300	6375.14	1	2928	0.0012	1.0000	0.12%
Northeast Utilities	180	47.9	1	200	0.0002	0.2000	0.11%
Northeast Utilities	179	451.375	1	200	0.0002	0.3009	0.07%
Northeast Utilities	175	49.28	1	100	0.0001	0.2000	0.06%
						Total	6.84%

Table 1: Carrier Information[1] [2]

[1] The power density information for carriers other than Eversource was taken directly from the CSC database dated 9/5/2014. Please note that %MPE values listed are rounded to two decimal points. The total %MPE listed is a summation of each unrounded contribution. Therefore, summing each rounded value may not reflect the total value listed in the table.

[2] The antenna height listed for the proposed microwave dish is in reference to documents provided by Eversource received on August 21, 2014.

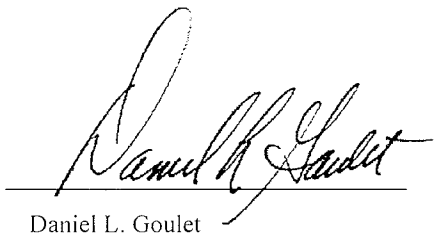
5. Conclusion

The above analysis verifies that RF emissions from the site, after the proposed installation has been completed, will be below the maximum power density levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Even when using conservative methods, the cumulative power density from the proposed and existing transmit antennas is well below the limits for the general public. The highest expected percent of Maximum Permissible Exposure at ground level is **6.84% of the FCC General Population/Uncontrolled limit**.

As noted previously, 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 final site configuration.

6. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate. The calculations follow guidelines set forth in ANSI/IEEE Std. C95.3, ANSI/IEEE Std. C95.1 and FCC OET Bulletin 65 Edition 97-01.



Daniel L. Goulet
C Squared Systems, LLC

September 5, 2014
Date

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[3]

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[4]

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

Table 2: FCC Limits for Maximum Permissible Exposure (MPE)

[3] 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.

[4] 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.

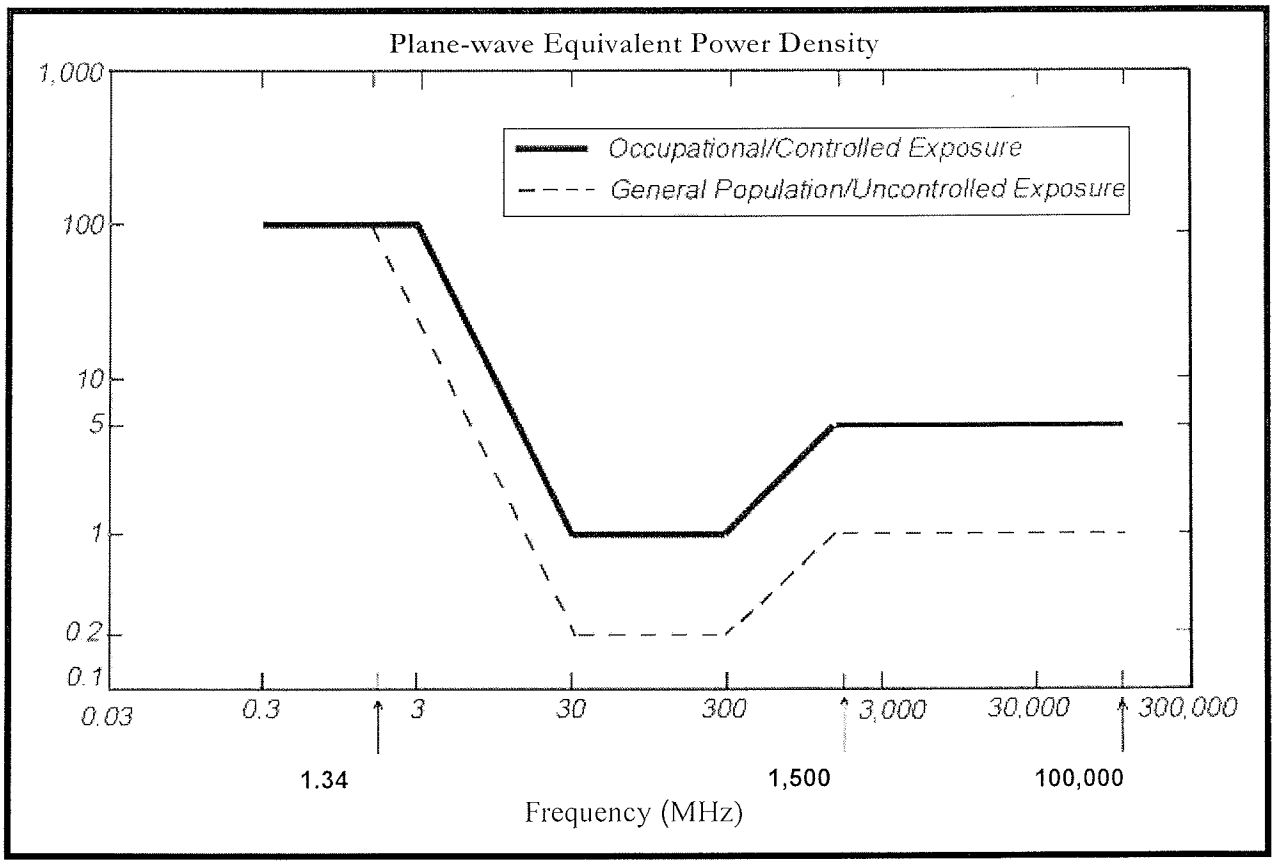
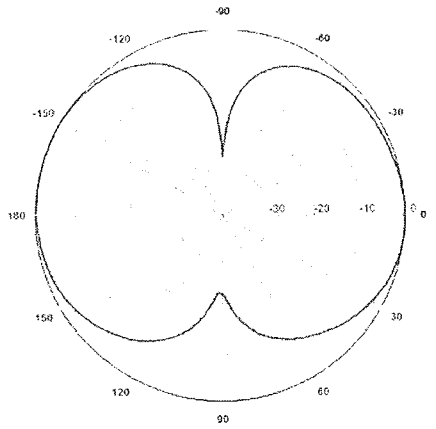


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

Attachment C: Antenna Data Sheets and Electrical Patterns[5]

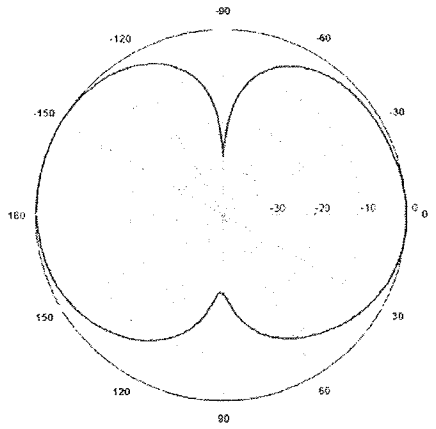
47 MHz

Manufacturer:	Comprod
Model #:	531-70HD
Frequency Band:	30-76 MHz
Gain:	2.5 dBd
Vertical Beamwidth:	N/A
Horizontal Beamwidth:	360°
Polarization:	Vertical
Length:	15.75'



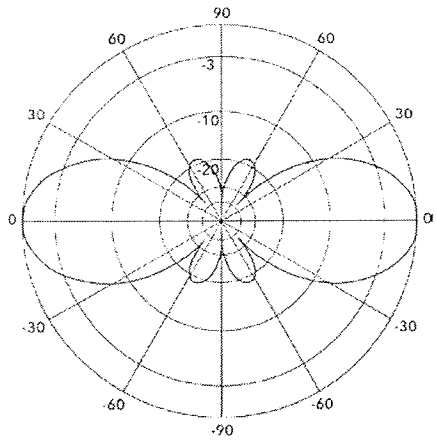
49 MHz

Manufacturer:	Kreco
Model #:	CO-41A
Frequency Band:	30-50 MHz
Gain:	0.0 dBd
Vertical Beamwidth:	N/A
Horizontal Beamwidth:	360°
Polarization:	Vertical
Length:	N/A



451 MHz

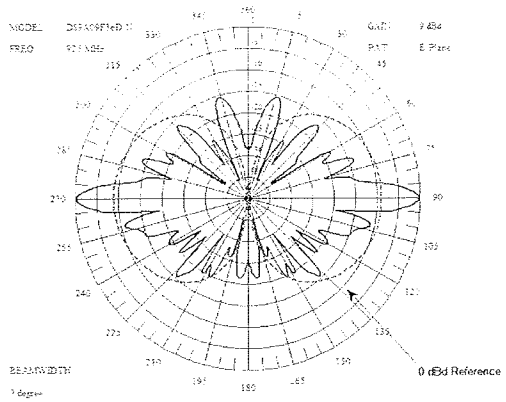
Manufacturer:	Telewave
Model #:	ANT450F6
Frequency Band:	445-480 MHz
Gain:	6.0 dBd
Vertical Beamwidth:	18°
Horizontal Beamwidth:	360°
Polarization:	Vertical
Length:	7.8'



[5] In the case where pattern data was unavailable from the manufacturer, vertical patterns shown are for antennas with similar specifications.

935 MHz

Manufacturer:	DBSpectra
Model #:	DS9A09F36D-N
Frequency Band:	896-960 MHz
Gain:	9.0 dBd
Vertical Beamwidth:	8°
Horizontal Beamwidth:	360°
Polarization:	Vertical
Length:	21’



6 GHz

Manufacturer:	RFS
Model #:	SBX4-W60C
Frequency Band:	5725-7125 MHz
Gain:	33.6 dBd
Vertical Beamwidth:	2.8°
Horizontal Beamwidth:	2.8°
Polarization:	Dual
Diameter:	4’