# STATE OF CONNECTICUT

***CONNECTICUT SITING COUNCIL***

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

Internet: ct.gov/csc

*Daniel F. Caruso*
*Chairman*


December 29, 2010

Thomas J. Regan, Esq.
Brown Rudnick LLP
CityPlace I, 185 Asylum Street
Hartford, CT 06103

RE: **EM-T-MOBILE-076-101208** – T-Mobile USA, Inc. notice of intent to modify an existing telecommunications facility located at 8 Old Route 79, Madison, Connecticut.

Dear Attorney Regan:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

- Any deviation from the proposed modification as specified in this notice and supporting materials with Council shall render this acknowledgement invalid;
- Any material changes to this modification as proposed shall require the filing of a new notice with the Council;
- Not less than 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration;

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated December 8, 2010. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require

explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Very truly yours,

Linda Roberts LAB

Linda Roberts
Executive Director

LR/CDM/laf

c: The Honorable Fillmore McPherson, First Selectman, Town of Madison
Marilyn M. Ozols, Planning & Zoning Administrator, Town of Madison
American Tower Corporation

# STATE OF CONNECTICUT

*CONNECTICUT SITING COUNCIL*
Ten Franklin Square, New Britain, CT 06051
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Internet: ct.gov/csc

*Daniel F. Caruso*
*Chairman*


December 15, 2010

The Honorable Fillmore McPherson
First Selectman
Town of Madison
Madison Town Campus
8 Campus Drive
Madison, CT 06443-2563

RE: **EM-T-MOBILE-076-101208** – T-Mobile Northeast LLC notice of intent to modify an existing telecommunications facility located at 8 Old Route 79, Madison, Connecticut.

Dear First Selectman McPherson:

The Connecticut Siting Council (Council) received this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

If you have any questions or comments regarding this proposal, please call me or inform the Council by December 30, 2010.

Thank you for your cooperation and consideration.

Very truly yours,

Linda Roberts
Executive Director

LR/jbw

Enclosure: Notice of Intent

c: Marilyn M. Ozols, Planning & Zoning Administrator, Town of Madison

BROWNRUDNICK

CityPlace I
185 Asylum
Street
Hartford
Connecticut
06103
*tel* 860.509.6500
*fax* 860.509.6501

**THOMAS J. REGAN**
Direct Dial: (860) 509-6522
tregan@brownrudnick.com

***Via Hand Delivery***

December 8, 2010



Daniel F. Caruso, Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

**RE: Notice of Exempt Modification /Madison @ 8 Old Route 79**

Dear Mr. Caruso:

On behalf of T-Mobile USA, Inc. ("T-Mobile"), enclosed for filing are an original and five (5) copies of T-Mobile's Notice of Exempt Modification for a Facility located at the above-referenced site.

I also enclose herewith a check in the amount of $625.00 representing the filing fee.

I would appreciate it if you would date-stamp the enclosed copy of this transmittal letter and return it to the courier delivering this package.

If you have any questions, please feel free to contact me.

Very truly yours,

**BROWN RUDNICK LLP**

By: Thomas J Regan
Thomas J. Regan

Enclosures

cc w/ encl. via 1st Class Mail – Fillmore McPherson, Chair-Board of Selectmen

# 40279545 v1 - REGANTJ - 025064/0016

ORIGINAL

**EM-T-MOBILE-076-101208** L

In re:
T-Mobile USA, Inc. Notice to Make an Exempt Modification to an Existing Facility at 8 Old Route 79, Madison, Connecticut. : **EXEMPT MODIFICATION NO. _____**
: December 8, 2010



## NOTICE OF EXEMPT MODIFICATION

Pursuant to Conn. Agencies Regs. §§ 16-50j-73 and 16-50j-72(b), T-Mobile USA, Inc. ("T-Mobile") hereby gives notice to the Connecticut Siting Council ("Council") and the Town of Madison of T-Mobile's intent to make an exempt modification to the existing monopole tower (the "Tower") located at 8 Old Route 79 in Madison, Connecticut. Specifically, T-Mobile plans to upgrade its wireless system in Connecticut by implementing its Universal Mobile Telecommunications System ("UMTS"). UMTS is a third-generation ("3G") technology that utilizes a code division multiple access ("CDMA") base to allow for fast and large data transfers. To accomplish this upgrade, T-Mobile must modify its antenna and equipment configurations at many of its existing sites.

Once the UMTS upgrade is complete, T-Mobile will operate on a more unified communication system, allowing international wireless telephones to function world-wide. Furthermore, UMTS will enhance global positioning system ("GPS") navigation capabilities and provide emergency responders with more advanced tracking capabilities. The proposed UMTS technology is compatible with the existing second-generation ("2G") Global System for Mobile Communication ("GSM") currently on the Tower and the proposed upgrade is expected to enhance the existing 2G system. In order to accomplish the upgrade at this site, T-Mobile plans to add UMTS technology and install associated equipment at the base of the Tower.

Under the Council's regulations (Conn. Agencies Regs. § 16-50j-72(b)), T-Mobile's plans do not constitute a modification subject to the Council's review because T-Mobile will not change the height of the Tower, will not extend the boundaries of the site, will not increase the

BROWN RUDNICK LLP
CITYPLACE I
185 ASYLUM STREET
HARTFORD, CT 06103
(860) 509-6500

noise levels at the site, and will not increase the total radio frequency electromagnetic radiation power density at the site to levels above applicable standards.

The Tower is a 148-foot monopole tower located at 8 Old Route 79 in Madison, Connecticut (latitude N 41° 17' 7.94", longitude W -73° 36' 4.85"). The Tower is owned by American Tower. Multiple carriers are currently located on the Tower. Currently, T-Mobile has 3 GSM panel antennas located on the Tower with a centerline of 120 feet. A site plan with Tower specifications is attached.

Specifically, T-Mobile plans to remove its 3 existing antennas and install 4 new panel antennas on the Tower. Additionally, T-Mobile plans to install 4 PCS Tower Mounted Amplifiers ("TMA") and 4 AWS TMA. The centerline of the new antennas and TMAs will remain at 120 feet. T-Mobile will continue to utilize its 6 existing coaxial cables and install 10 additional 1-5/8 inch coax cables.

To confirm the Tower can support these changes, T-Mobile commissioned American Tower Corporation to perform a structural analysis of the Tower (attached). According to the Structural Analysis Report, dated September 23, 2010: "The tower and foundation can support the existing and proposed antennas with TX line distribution ...". (Page 2, Structural Analysis Report).

In addition, T-Mobile proposes to install 1 new UMTS equipment cabinet on the existing 11-foot by 5-foot (approximately) concrete pad. Additionally, T-Mobile plans to remove and replace its existing BTS equipment cabinet. The new BTS equipment cabinet will be installed in the same location as the removed cabinet. Since T-Mobile's equipment cabinets will be located on the existing concrete pad, no increase in the boundaries of the site will be necessary.

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HARTFORD, CT 06103
(860) 509-6500

Excluding brief, minor, construction-related noise during the addition of the antennas and the installation of the equipment cabinet, T-Mobile's changes to the Tower will not increase noise levels at the site.

The proposed antennas will not adversely impact the health and safety of the surrounding community or the people working on the Tower. The total radio frequency exposure measured around the Tower will be well below the National Council on Radiation Protection and Measurements' ("NCRP") standard adopted by the Federal Communications Commission ("FCC"). The worst-case power density analysis for the antennas, measured at the base of the Tower, indicates that T-Mobile's proposed antennas will emit 8.31% of the NCRP's standard for maximum permissible exposure. A cumulative power density analysis indicates that together, all of the antennas on the Tower will emit 54.92% of the NCRP's standard for maximum permissible exposure. Therefore, the power density levels will be below the FCC mandated radio frequency exposure limits in all locations around the Tower, even with extremely conservative assumptions. The power density analysis is attached.

In conclusion, T-Mobile's proposed plan to remove and replace antennas, add TMA and add equipment at this site does not constitute a modification subject to the Council's jurisdiction because T-Mobile will not increase the height of the Tower, will not extend the boundaries of the site, will not increase the noise levels at the site, and the total radio frequency electromagnetic radiation power density will stay within all applicable standards. *See* Conn. Agencies Regs. § 16-50j-72.

T-Mobile USA, Inc.

By: _____

Thomas J. Regan
Brown Rudnick LLP
185 Asylum Street, CityPlace I
Hartford, CT 06103-3402
Email - tregan@brownrudnick.com
Phone - 860.509.6522 /Fax - 860.509.6501

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185 ASYLUM STREET
HARTFORD, CT 06103
(860) 509-6500

## Certificate of Service

This is to certify that on this 8th day of December, 2010, the foregoing Notice of Exempt Modification was sent, via first class mail, to the following:

Town of Madison
First Selectman Fillmore McPherson
8 Campus Drive
Madison, CT 06443

By: _____
Thomas J. Regan

# 40279529 v1 - 025064/0017

BROWN RUDNICK LLP
CITYPLACE I
185 ASYLUM STREET
HARTFORD, CT 06103
(860) 509-6500

## LEASE EXHIBIT

THIS LEASE PLAN IS DIAGRAMMATIC IN NATURE AND IS INTENDED TO PROVIDE GENERAL INFORMATION REGARDING THE LOCATION AND SIZE OF THE PROPOSED WIRELESS COMMUNICATION FACILITY. THE SITE LAYOUT WILL BE FINALIZED UPON COMPLETION OF SITE SURVEY AND FACILITY DESIGN.


1 / L-1 **SITE PLAN**
SCALE: 1" = 40'

APPROXIMATE NORTH

40 0 20 40 80 160
( IN FEET )
1 inch = 40 ft.

| | |
|---|---|
| DESIGNED BY: | CPC |
| DRAWN BY: | TJL |
| CHK'D BY: | CPC |

| REV | DATE | DRAWN BY | CHK'D BY | DESCRIPTION |
|---|---|---|---|---|
| 00 | 10/5/10 | RKB | CPC | FINAL LEASE EXHIBIT |
| A | 10/21/10 | TJL | CPC | LEASE EXHIBIT – CLIENT REVIEW |

PROFESSIONAL ENGINEER SEAL

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

T-Mobile

T-MOBILE
CT111167A
OLD ROUTE 79
WALLINGFORD, CT

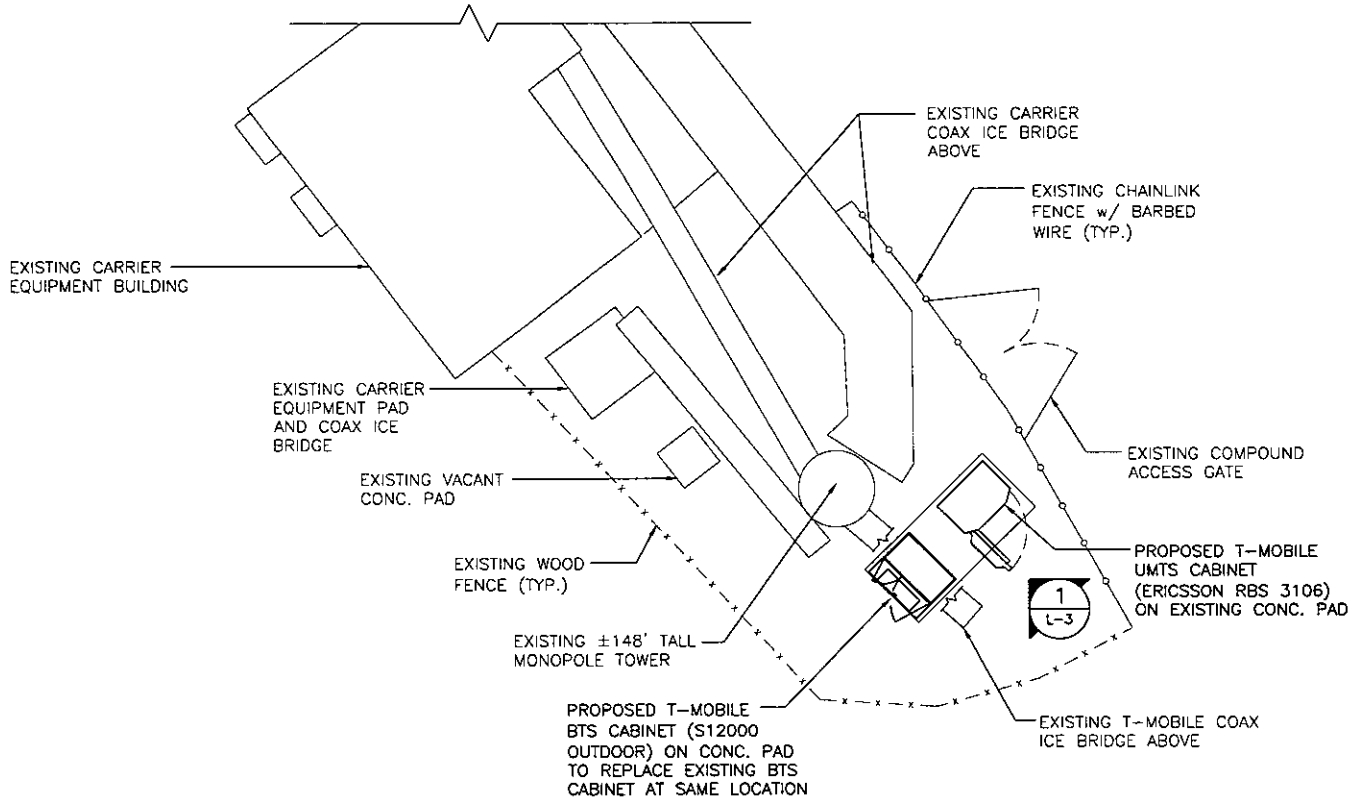
DATE: 9/29/10
SCALE: AS SHOWN
JOB NO. 10116.C012

LEASE EXHIBIT

SHEET NO.
L-1
Sheet No. 1 of 2

## LEASE EXHIBIT

THIS LEASE PLAN IS DIAGRAMMATIC IN NATURE AND IS INTENDED TO PROVIDE GENERAL INFORMATION REGARDING THE LOCATION AND SIZE OF THE PROPOSED WIRELESS COMMUNICATION FACILITY. THE SITE LAYOUT WILL BE FINALIZED UPON COMPLETION OF SITE SURVEY AND FACILITY DESIGN.




1 / L-2 **PARTIAL COMPOUND PLAN**

SCALE: 1/8" = 1'-0"

TRUE NORTH

8 0 4 8 16 32

( IN FEET )

1 inch = 8 ft.

| | | | |
|---|---|---|---|
| DESIGNED BY: | CFC | | |
| DRAWN BY: | TJL | | |
| CHK'D BY: | CFC | | |
| 08 | 10/5/10 | DEB | CFC FINAL LEASE EXHIBIT |
| A | 10/7/10 | TJL | CFC LEASE EXHIBIT - CLIENT REVIEW |
| NO. | DATE | DRAWN BY | CHK'D BY DESCRIPTION |

PROFESSIONAL ENGINEER SEAL

CENTEK engineering

T-Mobile

CT11167A

60 ROUTE 79
MADISON CT

DATE: 9/28/10
SCALE: AS SHOWN
JOB NO. 10116.0012

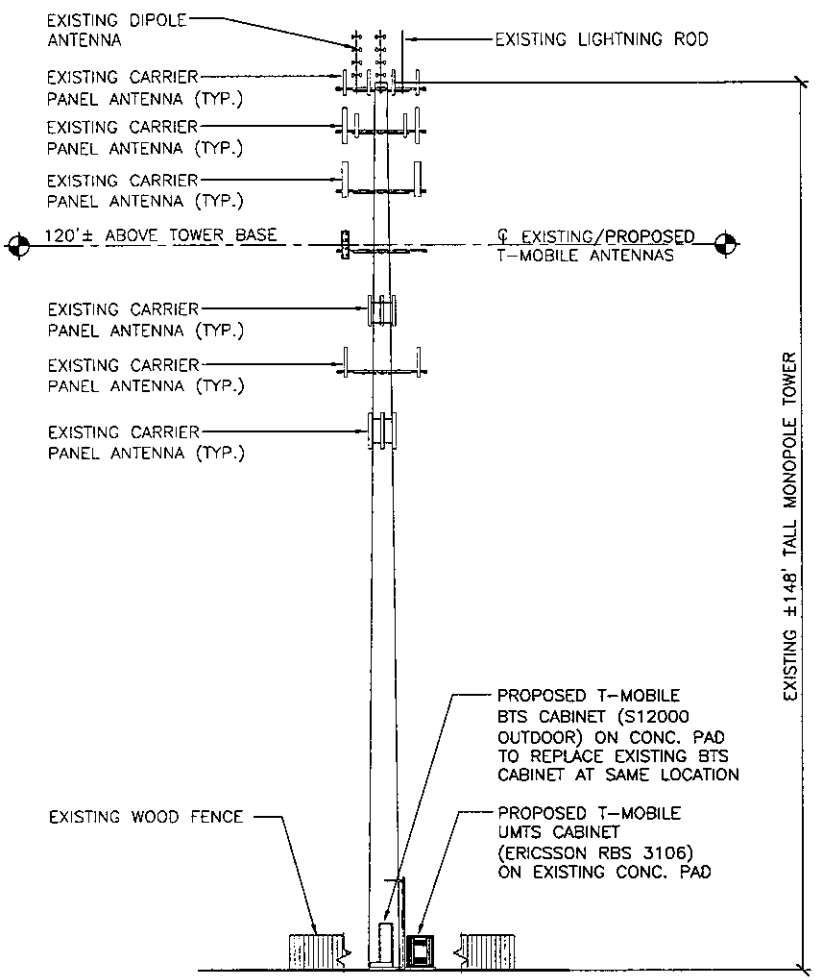
LEASE EXHIBIT

SHEET NO. L-2

## LEASE EXHIBIT

THIS LEASE PLAN IS DIAGRAMMATIC IN NATURE AND IS INTENDED TO PROVIDE GENERAL INFORMATION REGARDING THE LOCATION AND SIZE OF THE PROPOSED WIRELESS COMMUNICATION FACILITY. THE SITE LAYOUT WILL BE FINALIZED UPON COMPLETION OF SITE SURVEY AND FACILITY DESIGN.

| EQUIP. UPGRADE PROJECT SCOPE | |
|---|---|
| EQUIPMENT TYPE | PROPOSED CHANGES |
| RADIO CABINET | • (1) EXISTING BTS CABINET ON EXISTING CONC. PAD TO BE REMOVED.<br>• INSTALL (1) BTS S12000 OUTDOOR CABINET ON EXISTING CONC. PAD AT SAME LOCATION AS EXISTING.<br>• INSTALL (1) ERICSSON RBS 3106 CABINET ON EXISTING CONC. PAD AS SHOWN HEREIN. |
| ANTENNAS/ TMAs | • (1) EXISTING EMS RR65-18-02DP AND (2) EXISTING EMS RR90-17-02DP PANEL ANTENNAS TO BE REMOVED.<br>• (4) RFS APX16DWV-16DWV-S PANEL ANTENNAS ARE PROPOSED TO BE INSTALLED THE EXISTING PLATFORM.<br>• (4) PCS AND (4) AWS TMAs TO BE INSTALLED WITH PROPOSED ANTENNAS (BEHIND ANTENNAS ON EXISTING PIPES).<br>• ANTENNA PLACEMENT ON EXISTING PLATFORM TO BE MODIFIED AS REQUIRED TO ACCOMMODATE NEW AZIMUTHS AND ADDTIONAL DELTA SECTOR. |
| COAX CABLES | • NO CHANGE IS PROPOSED FOR THE (6) EXISTING 1 5/8"Ø COAX CABLES ROUTED WITHIN THE EXISTING MOOPOLE.<br>• (10) ADDITIONAL 1 5/8"Ø COAX CABLES ARE PROPOSED TO BE ROUTED WITHIN THE EXISTING MONOPOLE PENDING AVILABLE SPACE. COORDINATE W/ STRUCTURAL ANALYSIS TO BE PROVIDED. |
| COMPOUND LIMITS | • NO CHANGE TO THE LIMITS OF THE EXISTING FENCED COMPOUND IS PROPOSED. |




1 / L-3 **SOUTHEAST ELEVATION**

SCALE: 1" = 20'

20 0 10 20 40 80

( IN FEET )

1 inch = 20 ft.

| DESIGNED BY: | OFC |
|---|---|
| DRAWN BY: | TJL |
| CHK'D BY: | OFC |

| NO. | DATE | DRAWN BY | CHK'D BY | DESCRIPTION |
|---|---|---|---|---|
| 06 | 10/5/10 | DKB | OFC | FINAL LEASE EXHIBIT |
| A | 10/1/10 | TJL | OFC | LEASE EXHIBIT - CLIENT REVIEW |

PROFESSIONAL ENGINEER SEAL

T-Mobile

CENTEK engineering

T-MOBILE

CT11167A

OLD ROUTE 79
MADISON, CT

DATE: 9/29/10
SCALE: AS SHOWN
JOB NO. 10116.0012

LEASE EXHIBIT

SHEET NO. L-3

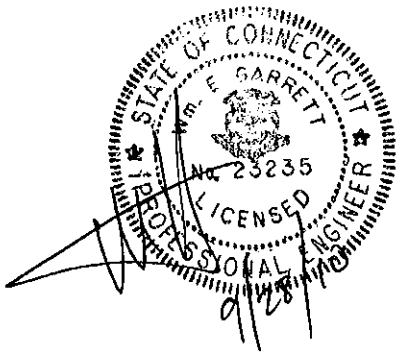
AMERICAN TOWER®
CORPORATION

# Structural Analysis Report

| | | |
|---|---|---|
| **Structure** | : | **148 ft Summit Monopole** |
| **ATC Site Name** | : | **Madison CT 6, CT** |
| **ATC Site Number** | : | **302540** |
| **Proposed Carrier** | : | **T-Mobile** |
| **Carrier Site Name** | : | **Madison** |
| **Carrier Site Number** | : | **CT11167A** |
| **County** | : | **New Haven** |
| **Engineering Number** | : | **45802221** |
| **Date** | : | **September 23, 2010 *** |
| **Usage** | : | **91%** |
| **Portholes Required** | : | **No** |

Submitted by:
Christopher L. Jolly, E.I.
Design Engineer

**American Tower Engineering Services**
400 Regency Forest Drive
Cary, NC 27518
Phone: 919-468-0112



AMERICAN TOWER®
CORPORATION

# Structural Analysis Report

| | | |
|---|---|---|
| **Structure** | : | **148 ft Summit Monopole** |
| **ATC Site Name** | : | **Madison CT 6, CT** |
| **ATC Site Number** | : | **302540** |
| **Proposed Carrier** | : | **T-Mobile** |
| **Carrier Site Name** | : | **Madison** |
| **Carrier Site Number** | : | **CT11167A** |
| **County** | : | **New Haven** |
| **Engineering Number** | : | **45802221** |
| **Date** | : | **September 23, 2010 *** |
| **Usage** | : | **91%** |
| **Portholes Required** | : | **No** |

Submitted by:
Christopher L. Jolly, E.I.
Design Engineer

**American Tower Engineering Services**
400 Regency Forest Drive
Cary, NC 27518
Phone: 919-468-0112

## Introduction

The purpose of this report is to summarize results of the structural analysis performed on the 148 ft Summit Monopole located at 8 Durham Road, Madison, Connecticut, 06443, New Haven County (ATC Site No. 302540). The tower was originally designed and manufactured by Summit (Paul J. Ford Job No. 29299-729, dated November 12, 1999).

## Analysis

The tower was analyzed using Semaan Engineering Solutions, Inc., Software. The analysis assumes that the tower is in good, undamaged, and non-corroded condition.

| | |
|---|---|
| Basic Wind Speed: | 95 mph (Fastest Mile) |
| Radial Ice: | 82 mph (Fastest Mile) w/ ½" ice |
| Code: | ANSI/TIA/EIA-222-F / 2003 IBC Criteria per Section 1609.1.1, Exception (5) and Section 3108.4 / 2005 and 2008 Connecticut Supplements |

## Antenna Loads

The following antenna loads were used in the tower analysis.

Existing Antennas

| Elev. (ft) | Qty | Antennas | Mount | Coax | Carrier |
|---|---|---|---|---|---|
| 150.0 | 1 | 6' Dipole | Low Profile Platform | (1) 7/8" | Town of Branford |
| | 1 | 11' Dipole | | (1) 7/8" | |
| | 1 | 6' Omni | | (1) 7/8" | |
| 149.0 | 3 | 72" x 12" Panel | | (3) 1 5/8" | Sprint Nextel |
| | 9 | 48" x 12" Panel | | (9) 1 5/8" | |
| 140.0 | 6 | Decibel 948F85T2E-M | Low Profile Platform | (6) 1 5/8" | Verizon |
| | 2 | Decibel DB844H90E-XY | | (2) 1 5/8" | |
| | 2 | Antel LPA-80063/6CF | | (2) 1 5/8" | |
| | 2 | Antel LPA-80080/6CF | | (2) 1 5/8" | |
| 132.0 | 6 | 14" x 9" TTA | Low Profile Platform | -- | AT&T Mobility |
| | 6 | 72" x 12" Panel | | (12) 1 5/8" | |
| | 6 | Diplexer / Coupler | | -- | |
| 106.0 | 3 | 52" x 8" Panel | Flush | (6) 1 1/4" | |
| 96.0 | 9 | Decibel DB980F65E-M | Low Profile Platform | (9) 1 1/4" | Sprint Nextel |
| 86.0 | 3 | RFS APXV18-206517S-C | Flush | (6) 1 5/8" | Youghiogheny |
| 35.0 | 1 | GPS | Standoff | (1) 1/2" | Sprint Nextel |

Proposed Antennas

| Elev. (ft) | Qty | Antennas | Mount | Coax | Carrier |
|---|---|---|---|---|---|
| 120.0 | 4 | RFS APX16DWV-16DWV-S-E-ACU | Low Profile Platform | (16) 1 5/8" | T-Mobile |
| | 4 | RFS ATMAA1412D-1A20 | | -- | |
| | 4 | RFS ATMPP1412D-1CWA | | -- | |

Install proposed coax inside monopole.

## Results

The maximum structure usage is: 91%

Additional exit and/or entry ports may be required to accommodate the running of the proposed lines to the proposed antennas. These additional ports **may not** be installed without installation drawings providing the location, size and welding requirements of each port.

To ensure compliance with all conditions of this structural analysis, port installation drawings shall be provided by American Tower's Engineering Department under a subsequent project.

| Pole Reactions | Original Design Reactions | Current Analysis Reactions | % Of Design |
|---|---|---|---|
| Moment (ft-kips) | 5,050.0 | 4,156.3 | 82 |
| Shear (kips) | 47.0 | 39.1 | 83 |

The structure base reactions resulting from this analysis are acceptable when compared to the reactions shown on the original structure drawings, therefore no modification or reinforcement of the foundation will be required.

The structures base plate and anchor bolts also have sufficient strength to resist the base reactions from the analysis. Factor of safety exceeding two was noted for the base plate and anchor bolts. Detailed calculation is shown at the end of the analysis.

## Conclusion

Based on the analysis results, the structure meets the requirements per ANSI/TIA/EIA-222-F and 2003 IBC standards with 2005 and 2008 CT Supplements. The tower and foundation can support the existing and proposed antennas with the TX line distribution as described in this report.

If you have any questions or require additional information, please call 919-466-5007.

**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:

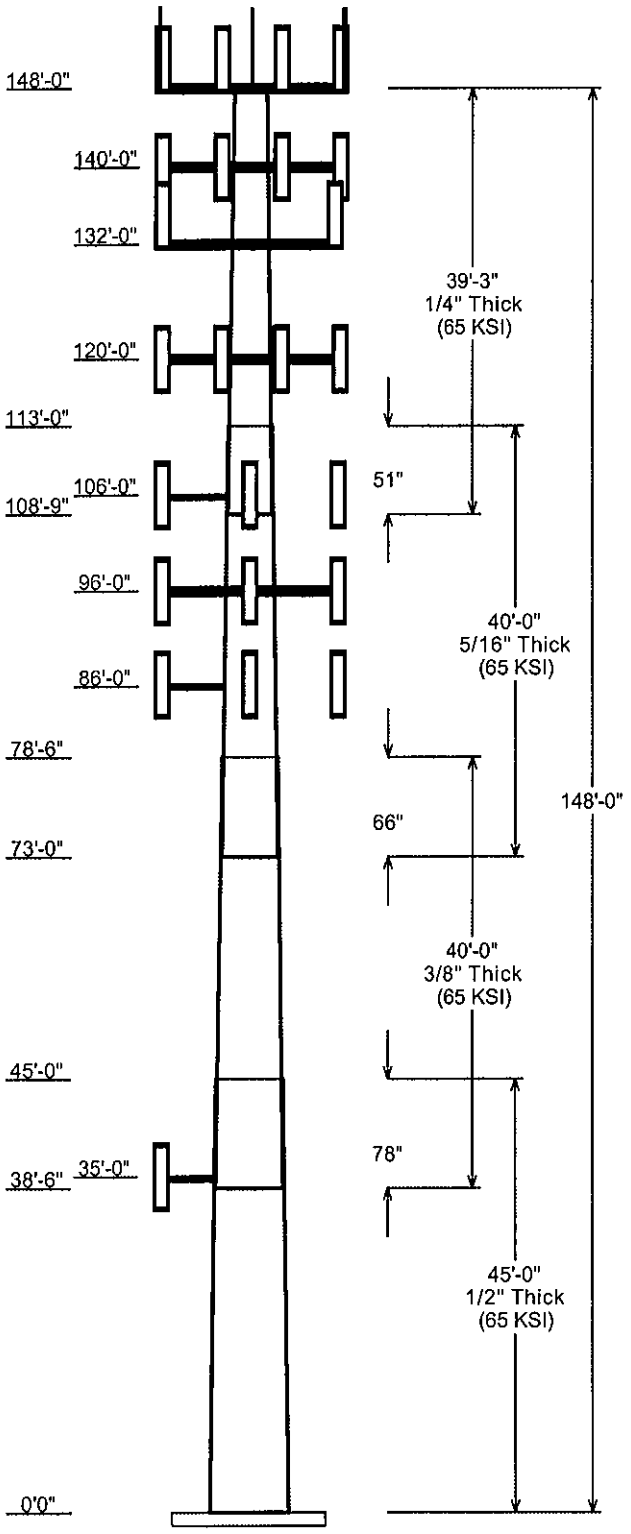
-- Information supplied by the client regarding the structure itself, the antenna and feed line loading on the structure and its components, or other relevant information.

-- 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 ATC Engineering Services 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 are in an un-corroded condition and have not deteriorated; and we, therefore, assume that their capacity has not significantly changed from the "as new" condition.

All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. 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. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/EIA-222.

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




## Job Information

| | |
|---|---|
| Pole : | 302540 Code: TIA/EIA-222 Rev F |
| Description : | 148 ft Summit Monopole |
| Client : | T-Mobile |
| Location : | Madison CT 6, CT |
| Shape : | 18 Sides Base Elev (ft): 0.00 |
| Height : | 148.00 (ft) Taper: 0.263006(in/ft) |

## Sections Properties

| Shaft Section | Length (ft) | Diameter (in) Across Flats Top | Bottom | Thick (in) | Joint Type | Overlap Length (in) | Taper (in/ft) | Steel Grade (ksi) |
|---|---|---|---|---|---|---|---|---|
| 1 | 45.000 | 49.21 | 61.05 | 0.500 | | 0.000 | 0.263006 | 65 |
| 2 | 40.000 | 41.15 | 51.67 | 0.375 | Slip Joint | 78.000 | 0.263006 | 65 |
| 3 | 40.000 | 32.70 | 43.22 | 0.313 | Slip Joint | 66.000 | 0.263006 | 65 |
| 4 | 39.250 | 24.00 | 34.32 | 0.250 | Slip Joint | 51.000 | 0.263006 | 65 |

## Discrete Appurtenance

| Attach Elev (ft) | Force Elev (ft) | Qty | Description |
|---|---|---|---|
| 148.000 | 153.000 | 1 | 6' Dipole |
| 148.000 | 148.000 | 1 | Flat Low Profile Platform |
| 148.000 | 149.000 | 3 | 72" x 12" Panel |
| 148.000 | 149.000 | 9 | 48" x 12" Panel |
| 148.000 | 155.500 | 1 | 11' Dipole |
| 148.000 | 153.000 | 1 | 6' Omni |
| 140.000 | 140.000 | 6 | Decibel 948F85T2E-M |
| 140.000 | 140.000 | 1 | Flat Low Profile Platform |
| 140.000 | 140.000 | 2 | Decibel DB844H90E-XY |
| 140.000 | 140.000 | 2 | Antel LPA-80063/6CF |
| 140.000 | 140.000 | 2 | Antel LPA-80080/6CF |
| 132.000 | 132.000 | 1 | Flat Low Profile Platform |
| 132.000 | 132.000 | 6 | 14" x 9" TTA |
| 132.000 | 133.000 | 6 | 72" x 12" Panel |
| 132.000 | 132.000 | 6 | Diplexer / Coupler |
| 120.000 | 120.000 | 4 | RFS APX16DWV-16DWV-S-E- |
| 120.000 | 120.000 | 4 | RFS ATMAA1412D-1A20 |
| 120.000 | 120.000 | 4 | RFS ATMPP1412D-1CWA |
| 120.000 | 120.000 | 1 | Flat Low Profile Platform |
| 106.000 | 106.000 | 1 | Flush |
| 106.000 | 106.000 | 3 | 52" x 8" Panel |
| 96.000 | 96.000 | 9 | Decibel DB980F65E-M |
| 96.000 | 96.000 | 1 | Flat Low Profile Platform |
| 86.000 | 86.000 | 1 | Flush |
| 86.000 | 86.000 | 3 | RFS APXV18-206517S-C |
| 35.000 | 35.000 | 1 | Standoff |
| 35.000 | 35.000 | 1 | GPS |

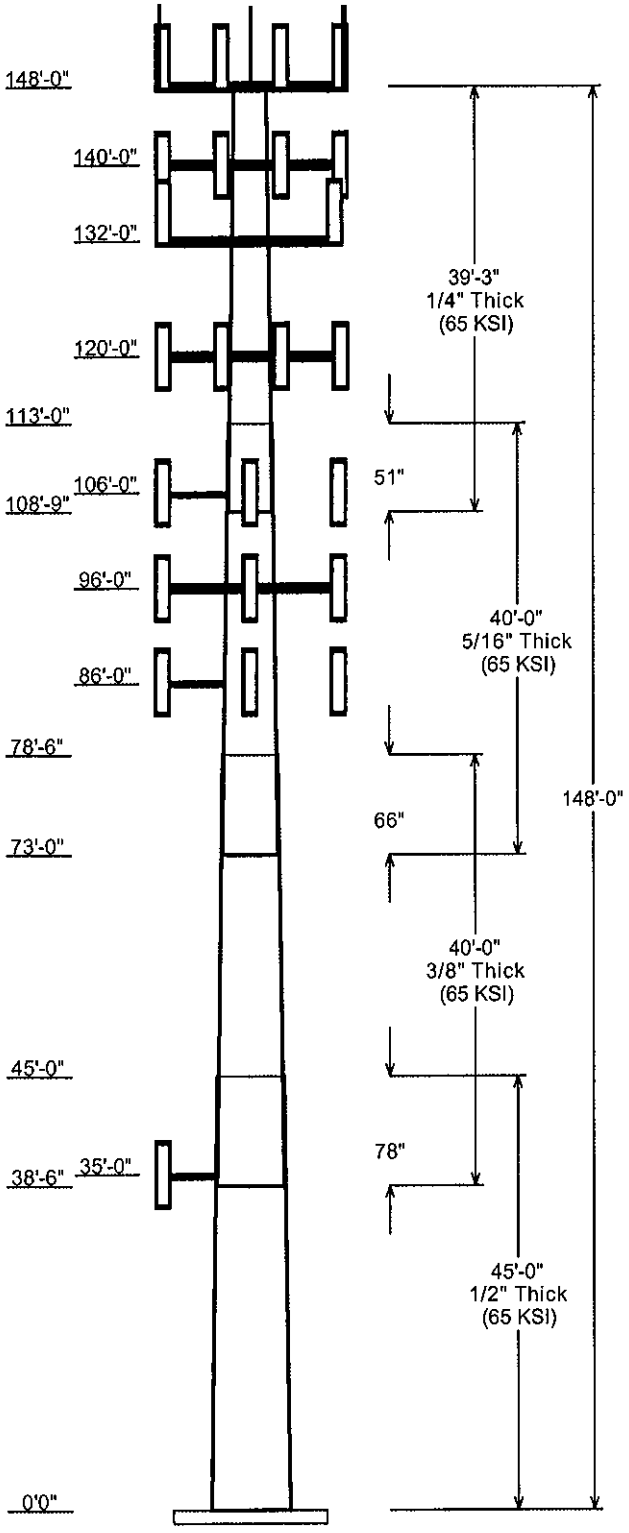
## Linear Appurtenance

| Elev (ft) From | To | Description | Exposed To Wind |
|---|---|---|---|
| 0.000 | 35.000 | 1/2" Coax | Yes |
| 0.000 | 86.000 | 1 5/8" Coax | No |
| 0.000 | 96.000 | 1 1/4" Coax | No |
| 0.000 | 106.0 | 1 1/4" Coax | No |
| 0.000 | 120.0 | 1 5/8" Coax | No |
| 0.000 | 132.0 | 1 5/8" Coax | No |
| 0.000 | 140.0 | 1 5/8" Coax | No |
| 0.000 | 148.0 | 1 5/8" Coax | No |
| 0.000 | 148.0 | 7/8" Coax | No |

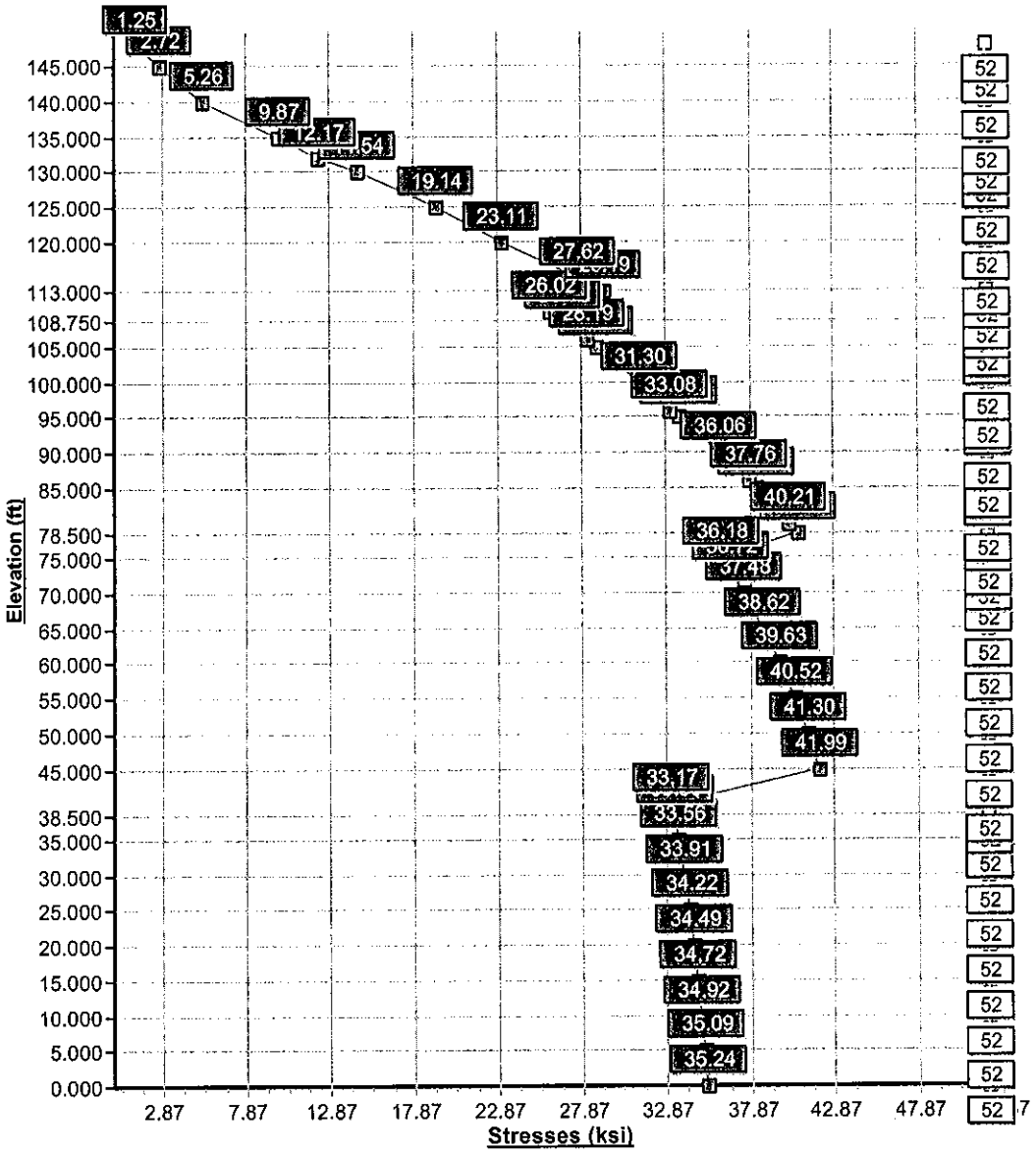
## Load Cases

| | |
|---|---|
| No Ice | 95.00 mph Wind with No Ice |
| Ice | 82.27 mph Wind with Ice |

| Reactions | | | |
|---|---|---|---|
| Load Case | Moment (Kip-ft) | Shear (Kips) | Axial (Kips) |
| No Ice | 4156.25 | 39.07 | 46.38 |
| Ice | 3514.83 | 32.44 | 53.30 |

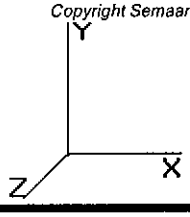


**Load Case : No Ice**
**Max Stress 80.8% at 45.0ft**



| | | | |
|---|---|---|---|
| Pole : | 302540 | Code: TIA/EIA-222 Rev F | |
| Location : | Madison CT 6, CT | | |
| Height : | 148.0 (ft) | | |
| Shape : | 18 Sides | | |
| Base Dia : | 61.05 (in) | | |
| Top Dia : | 24.00 (in) | | |
| Taper : | 0.263006 (in/ft) | Base Elev : 0.000 (ft) | |








## Shaft Section Properties

| Sect Num | Length (ft) | Thick (in) | Fv (ksi) | Joint Type | Slip Joint Len (in) | Weight (lb) | Bottom Dia (in) | Bottom Elev (ft) | Bottom Area (sqin) | Bottom Ix (in^4) | Bottom W/t Ratio | Bottom D/t Ratio | Top Dia (in) | Top Elev (ft) | Top Area (sqin) | Top Ix (in^4) | Top W/t Ratio | Top D/t Ratio | Taper (in/ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 45.000 | 0.5000 | 65 | | 0.00 | 13,276 | 61.05 | 0.000 | 96.09 | 44509.7 | 20.12 | 122.1 | 49.21 | 45.00 | 77.31 | 23178.9 | 15.95 | 98.43 | 0.26301 |
| 2 | 40.000 | 0.3750 | 65 | Slip Joint | 78.00 | 7,458 | 51.67 | 38.50 | 61.06 | 20300.5 | 22.89 | 137.8 | 41.15 | 78.50 | 48.54 | 10197.2 | 17.94 | 109.74 | 0.26301 |
| 3 | 40.000 | 0.3125 | 65 | Slip Joint | 66.00 | 5,083 | 43.22 | 73.00 | 42.56 | 9902.8 | 22.98 | 138.3 | 32.70 | 113.0 | 32.13 | 4259.3 | 17.04 | 104.66 | 0.26301 |
| 4 | 39.250 | 0.2500 | 65 | Slip Joint | 51.00 | 3,064 | 34.32 | 108.7 | 27.04 | 3965.7 | 22.80 | 137.2 | 24.00 | 148.0 | 18.84 | 1343.0 | 15.52 | 96.00 | 0.26301 |
| | | | | Shaft Weight | | 28,881 | | | | | | | | | | | | | |

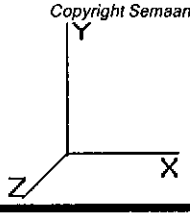
## Discrete Appurtenance Properties

| Attach Elev (ft) | Description | Qty | No Ice Weight (lb) | No Ice CaAa (sf) | No Ice CaAa Factor | Ice Weight (lb) | Ice CaAa (sf) | Ice CaAa Factor | Distance From Face (ft) | Vert Ecc (ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| 148.0 | 6' Dipole | 1 | 20.00 | 2.220 | 1.00 | 39.30 | 3.000 | 1.00 | 0.000 | 5.000 |
| 148.0 | Flat Low Profile Platform | 1 | 1500.00 | 26.100 | 1.00 | 1700.00 | 31.600 | 1.00 | 0.000 | 0.000 |
| 148.0 | 72" x 12" Panel | 3 | 45.00 | 8.400 | 0.75 | 92.28 | 9.230 | 0.75 | 0.000 | 1.000 |
| 148.0 | 48" x 12" Panel | 9 | 30.00 | 5.600 | 0.75 | 63.00 | 6.190 | 0.75 | 0.000 | 1.000 |
| 148.0 | 11' Dipole | 1 | 40.00 | 3.580 | 1.00 | 25.00 | 4.000 | 1.00 | 0.000 | 7.500 |
| 148.0 | 6' Omni | 1 | 25.00 | 1.760 | 1.00 | 38.24 | 2.130 | 1.00 | 0.000 | 5.000 |
| 140.0 | Decibel 948F85T2E-M | 6 | 8.50 | 1.894 | 1.36 | 28.00 | 2.342 | 1.36 | 0.000 | 0.000 |
| 140.0 | Flat Low Profile Platform | 1 | 1500.00 | 26.100 | 1.00 | 1700.00 | 31.600 | 1.00 | 0.000 | 0.000 |
| 140.0 | Decibel DB844H90E-XY | 2 | 14.00 | 3.061 | 1.17 | 40.30 | 3.573 | 1.17 | 0.000 | 0.000 |
| 140.0 | Antel LPA-80063/6CF | 2 | 27.00 | 10.340 | 1.00 | 101.00 | 11.180 | 1.00 | 0.000 | 0.000 |
| 140.0 | Antel LPA-80080/6CF | 2 | 21.00 | 4.323 | 1.83 | 50.00 | 4.983 | 1.83 | 0.000 | 0.000 |
| 132.0 | Flat Low Profile Platform | 1 | 1500.00 | 26.100 | 1.00 | 1700.00 | 31.600 | 1.00 | 0.000 | 0.000 |
| 132.0 | 14" x 9" TTA | 6 | 10.00 | 1.230 | 0.50 | 18.00 | 1.460 | 0.50 | 0.000 | 0.000 |
| 132.0 | 72" x 12" Panel | 6 | 45.00 | 8.400 | 0.75 | 92.28 | 9.230 | 0.75 | 0.000 | 1.000 |
| 132.0 | Diplexer / Coupler | 6 | 5.00 | 0.700 | 0.50 | 9.80 | 0.880 | 0.50 | 0.000 | 0.000 |
| 120.0 | RFS APX16DWV-16DWV-S-E- | 4 | 39.60 | 6.700 | 1.00 | 69.38 | 7.350 | 1.00 | 0.000 | 0.000 |
| 120.0 | RFS ATMAA1412D-1A20 | 4 | 13.00 | 1.170 | 0.50 | 20.60 | 1.390 | 0.50 | 0.000 | 0.000 |
| 120.0 | RFS ATMPP1412D-1CWA | 4 | 13.00 | 1.170 | 0.50 | 20.60 | 1.390 | 0.50 | 0.000 | 0.000 |
| 120.0 | Flat Low Profile Platform | 1 | 1500.00 | 26.100 | 1.00 | 1700.00 | 31.600 | 1.00 | 0.000 | 0.000 |
| 106.0 | Flush | 1 | 560.00 | 8.500 | 1.00 | 680.00 | 10.500 | 1.00 | 0.000 | 0.000 |
| 106.0 | 52" x 8" Panel | 3 | 30.00 | 4.040 | 0.75 | 60.00 | 4.500 | 0.75 | 0.000 | 0.000 |
| 96.00 | Decibel DB980F65E-M | 9 | 9.50 | 3.750 | 0.81 | 29.85 | 4.320 | 0.81 | 0.000 | 0.000 |
| 96.00 | Flat Low Profile Platform | 1 | 1500.00 | 26.100 | 1.00 | 1700.00 | 31.600 | 1.00 | 0.000 | 0.000 |
| 86.00 | Flush | 1 | 560.00 | 8.500 | 1.00 | 680.00 | 10.500 | 1.00 | 0.000 | 0.000 |
| 86.00 | RFS APXV18-206517S-C | 3 | 26.40 | 5.170 | 0.80 | 53.13 | 5.850 | 0.80 | 0.000 | 0.000 |
| 35.00 | Standoff | 1 | 150.00 | 5.200 | 1.00 | 175.00 | 5.900 | 1.00 | 0.000 | 0.000 |
| 35.00 | GPS | 1 | 7.00 | 1.000 | 1.00 | 15.00 | 1.300 | 1.00 | 0.000 | 0.000 |
| | Totals | 81 | 10319.10 | | | 13317.84 | | | Number of Loadings : | 27 |

## Linear Appurtenance Properties

| Elev From (ft) | Elev To (ft) | Description | No Ice Weight (lb/ft) | No Ice CaAa (sf/ft) | Ice Weight (lb/ft) | Ice CaAa (sf/ft) | Exposed To Wind |
|---|---|---|---|---|---|---|---|
| 0.00 | 148.00 | (12) 1 5/8" Coax | 9.84 | 0.00 | 0.00 | 0.00 | N |
| 0.00 | 148.00 | (3) 7/8" Coax | 0.99 | 0.00 | 0.00 | 0.00 | N |
| 0.00 | 140.00 | (12) 1 5/8" Coax | 9.84 | 0.00 | 0.00 | 0.00 | N |
| 0.00 | 132.00 | (12) 1 5/8" Coax | 9.84 | 0.00 | 0.00 | 0.00 | N |
| 0.00 | 120.00 | (16) 1 5/8" Coax | 13.12 | 0.00 | 0.00 | 0.00 | N |
| 0.00 | 106.00 | (6) 1 1/4" Coax | 3.78 | 0.00 | 0.00 | 0.00 | N |
| 0.00 | 96.00 | (9) 1 1/4" Coax | 5.67 | 0.00 | 0.00 | 0.00 | N |
| 0.00 | 86.00 | (6) 1 5/8" Coax | 4.92 | 0.00 | 0.00 | 0.00 | N |

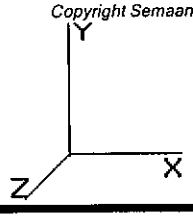
| | | | |
|---|---|---|---|
| Pole : | 302540 | Code: TIA/EIA-222 Rev F | |
| Location : | Madison CT 6, CT | | |
| Height : | 148.0 (ft) | | |
| Shape : | 18 Sides | | |
| Base Dia : | 61.05 (in) | | |
| Top Dia : | 24.00 (in) | | |
| Taper : | 0.263006 (in/ft) | Base Elev : 0.000 (ft) | |




| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 0.00 | 35.00 | (1) 1/2" Coax | | 0.15 | 0.06 | 0.84 | 0.16 | Y |
| | | Total Weight | 7,227.08 (lb) | | | 29.40 (lb) | | |

| | | | |
|---|---|---|---|
| Pole : | 302540 | Code: TIA/EIA-222 Rev F | |
| Location : | Madison CT 6, CT | | |
| Height : | 148.0 (ft) | | |
| Shape : | 18 Sides | | |
| Base Dia : | 61.05 (in) | | |
| Top Dia : | 24.00 (in) | | |
| Taper : | 0.263006 (in/ft) | Base Elev : 0.000 (ft) | |



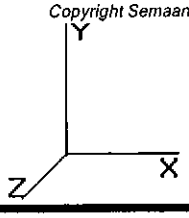





## Segment Properties

(Max Len : 5 ft)

| Seg Top Elev (ft) | Description | Thick (in) | Flat Dia (in) | Area (in^2) | Ix (in^4) | W/t Ratio | D/t Ratio | Fy (ksi) | Fb (ksi) | Weight (lb) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | | 0.5000 | 61.050 | 96.089 | 44,509.7 | 20.12 | 122.10 | 65 | 52 | 0.0 |
| 5.00 | | 0.5000 | 59.735 | 94.002 | 41,672.2 | 19.66 | 119.47 | 65 | 52 | 1,617.1 |
| 10.00 | | 0.5000 | 58.420 | 91.915 | 38,958.0 | 19.19 | 116.84 | 65 | 52 | 1,581.6 |
| 15.00 | | 0.5000 | 57.105 | 89.829 | 36,364.2 | 18.73 | 114.21 | 65 | 52 | 1,546.1 |
| 20.00 | | 0.5000 | 55.790 | 87.742 | 33,888.2 | 18.26 | 111.58 | 65 | 52 | 1,510.6 |
| 25.00 | | 0.5000 | 54.475 | 85.655 | 31,527.3 | 17.80 | 108.95 | 65 | 52 | 1,475.1 |
| 30.00 | | 0.5000 | 53.160 | 83.568 | 29,278.6 | 17.34 | 106.32 | 65 | 52 | 1,439.6 |
| 35.00 | | 0.5000 | 51.845 | 81.481 | 27,139.4 | 16.87 | 103.69 | 65 | 52 | 1,404.1 |
| 38.50 | Bot - Section 2 | 0.5000 | 50.924 | 80.020 | 25,705.8 | 16.55 | 101.85 | 65 | 52 | 961.7 |
| 40.00 | | 0.5000 | 50.530 | 79.394 | 25,107.1 | 16.41 | 101.06 | 65 | 52 | 717.3 |
| 45.00 | Top - Section 1 | 0.3750 | 49.965 | 59.022 | 18,337.8 | 22.08 | 133.24 | 65 | 52 | 2,350.6 |
| 50.00 | | 0.3750 | 48.650 | 57.457 | 16,917.3 | 21.46 | 129.73 | 65 | 52 | 990.9 |
| 55.00 | | 0.3750 | 47.335 | 55.892 | 15,572.1 | 20.85 | 126.23 | 65 | 52 | 964.2 |
| 60.00 | | 0.3750 | 46.020 | 54.326 | 14,300.2 | 20.23 | 122.72 | 65 | 52 | 937.6 |
| 65.00 | | 0.3750 | 44.705 | 52.761 | 13,099.5 | 19.61 | 119.21 | 65 | 52 | 911.0 |
| 70.00 | | 0.3750 | 43.389 | 51.196 | 11,967.9 | 18.99 | 115.71 | 65 | 52 | 884.4 |
| 73.00 | Bot - Section 3 | 0.3750 | 42.600 | 50.257 | 11,321.4 | 18.62 | 113.60 | 65 | 52 | 517.8 |
| 75.00 | | 0.3750 | 42.074 | 49.631 | 10,903.5 | 18.37 | 112.20 | 65 | 52 | 627.8 |
| 78.50 | Top - Section 2 | 0.3125 | 41.779 | 41.128 | 8,934.8 | 22.16 | 133.69 | 65 | 52 | 1,079.8 |
| 80.00 | | 0.3125 | 41.384 | 40.737 | 8,682.2 | 21.94 | 132.43 | 65 | 52 | 208.9 |
| 85.00 | | 0.3125 | 40.069 | 39.432 | 7,874.7 | 21.20 | 128.22 | 65 | 52 | 682.0 |
| 86.00 | | 0.3125 | 39.806 | 39.172 | 7,719.4 | 21.05 | 127.38 | 65 | 52 | 133.7 |
| 90.00 | | 0.3125 | 38.754 | 38.128 | 7,118.8 | 20.46 | 124.01 | 65 | 52 | 526.1 |
| 95.00 | | 0.3125 | 37.439 | 36.824 | 6,412.9 | 19.71 | 119.81 | 65 | 52 | 637.6 |
| 96.00 | | 0.3125 | 37.176 | 36.563 | 6,277.6 | 19.57 | 118.96 | 65 | 52 | 124.9 |
| 100.0 | | 0.3125 | 36.124 | 35.520 | 5,755.4 | 18.97 | 115.60 | 65 | 52 | 490.6 |
| 105.0 | | 0.3125 | 34.809 | 34.215 | 5,144.3 | 18.23 | 111.39 | 65 | 52 | 593.2 |
| 106.0 | | 0.3125 | 34.546 | 33.954 | 5,027.6 | 18.08 | 110.55 | 65 | 52 | 116.0 |
| 108.7 | Bot - Section 4 | 0.3125 | 33.823 | 33.237 | 4,715.6 | 17.67 | 108.23 | 65 | 52 | 314.4 |
| 110.0 | | 0.3125 | 33.494 | 32.911 | 4,578.2 | 17.49 | 107.18 | 65 | 52 | 255.1 |
| 113.0 | Top - Section 3 | 0.2500 | 33.205 | 26.149 | 3,588.0 | 22.01 | 132.82 | 65 | 52 | 602.1 |
| 115.0 | | 0.2500 | 32.679 | 25.732 | 3,419.0 | 21.64 | 130.72 | 65 | 52 | 176.5 |
| 120.0 | | 0.2500 | 31.364 | 24.688 | 3,019.7 | 20.71 | 125.46 | 65 | 52 | 428.9 |
| 125.0 | | 0.2500 | 30.049 | 23.645 | 2,652.7 | 19.78 | 120.20 | 65 | 52 | 411.2 |
| 130.0 | | 0.2500 | 28.734 | 22.601 | 2,316.8 | 18.86 | 114.94 | 65 | 52 | 393.4 |
| 132.0 | | 0.2500 | 28.208 | 22.184 | 2,190.8 | 18.48 | 112.83 | 65 | 52 | 152.4 |
| 135.0 | | 0.2500 | 27.419 | 21.558 | 2,010.5 | 17.93 | 109.68 | 65 | 52 | 223.3 |
| 140.0 | | 0.2500 | 26.104 | 20.514 | 1,732.5 | 17.00 | 104.42 | 65 | 52 | 357.9 |
| 145.0 | | 0.2500 | 24.789 | 19.471 | 1,481.3 | 16.07 | 99.16 | 65 | 52 | 340.2 |
| 148.0 | | 0.2500 | 24.000 | 18.845 | 1,343.0 | 15.52 | 96.00 | 65 | 52 | 195.6 |
| | | | | | | | | | | 28,881.1 |



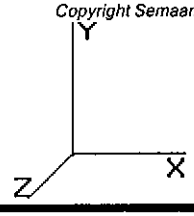



**Load Case:** No Ice — 95.00 mph Wind with No Ice — 21 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

## Shaft Segment Forces

| Seg Top Elev (ft) | Description | Kz | qz (psf) | qzGh (psf) | C (mph-ft) | Cf | Ice Thick (in) | Tributary (ft) | Aa (sf) | CfAa (sf) | Wind Force X (lb) | Dead Load Ice (lb) | Tot Dead Load (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | | 0.00 | 1.00 23.104 | 39.04 | 483.31 | 0.650 | 0.00 | 0.00 | 0.000 | 0.00 | 0.0 | 0.0 | 0.0 |
| 5.00 | | 0.00 | 1.00 23.104 | 39.04 | 472.90 | 0.650 | 0.00 | 5.00 | 25.163 | 16.36 | 638.6 | 0.0 | 1,617.1 |
| 10.00 | | 0.00 | 1.00 23.104 | 39.04 | 462.49 | 0.650 | 0.00 | 5.00 | 24.616 | 16.00 | 624.7 | 0.0 | 1,581.6 |
| 15.00 | | 0.00 | 1.00 23.104 | 39.04 | 452.08 | 0.650 | 0.00 | 5.00 | 24.068 | 15.64 | 610.8 | 0.0 | 1,546.1 |
| 20.00 | | 0.00 | 1.00 23.104 | 39.04 | 441.66 | 0.650 | 0.00 | 5.00 | 23.520 | 15.29 | 596.9 | 0.0 | 1,510.6 |
| 25.00 | | 0.00 | 1.00 23.104 | 39.04 | 431.25 | 0.650 | 0.00 | 5.00 | 22.972 | 14.93 | 583.0 | 0.0 | 1,475.1 |
| 30.00 | | 0.00 | 1.00 23.104 | 39.04 | 420.84 | 0.650 | 0.00 | 5.00 | 22.424 | 14.58 | 569.1 | 0.0 | 1,439.6 |
| 35.00 | Appertunance(s) | 0.00 | 1.01 23.496 | 39.70 | 413.90 | 0.650 | 0.00 | 5.00 | 21.876 | 14.22 | 564.6 | 0.0 | 1,404.1 |
| 38.50 | Bot - Section 2 | 0.00 | 1.04 24.144 | 40.80 | 412.12 | 0.650 | 0.00 | 3.50 | 14.987 | 9.74 | 397.5 | 0.0 | 961.7 |
| 40.00 | | 0.00 | 1.05 24.409 | 41.25 | 411.17 | 0.650 | 0.00 | 1.50 | 6.435 | 4.18 | 172.5 | 0.0 | 717.3 |
| 45.00 | Top - Section 1 | 0.00 | 1.09 25.245 | 42.66 | 407.26 | 0.650 | 0.00 | 5.00 | 21.093 | 13.71 | 584.9 | 0.0 | 2,350.6 |
| 50.00 | | 0.00 | 1.12 26.016 | 43.96 | 408.69 | 0.650 | 0.00 | 5.00 | 20.545 | 13.35 | 587.1 | 0.0 | 990.9 |
| 55.00 | | 0.00 | 1.15 26.735 | 45.18 | 403.10 | 0.650 | 0.00 | 5.00 | 19.997 | 13.00 | 587.3 | 0.0 | 964.2 |
| 60.00 | | 0.00 | 1.18 27.407 | 46.31 | 396.80 | 0.650 | 0.00 | 5.00 | 19.449 | 12.64 | 585.5 | 0.0 | 937.6 |
| 65.00 | | 0.00 | 1.21 28.042 | 47.39 | 389.89 | 0.650 | 0.00 | 5.00 | 18.901 | 12.29 | 582.2 | 0.0 | 911.0 |
| 70.00 | | 0.00 | 1.24 28.642 | 48.40 | 382.45 | 0.650 | 0.00 | 5.00 | 18.353 | 11.93 | 577.4 | 0.0 | 884.4 |
| 73.00 | Bot - Section 3 | 0.00 | 1.25 28.987 | 48.98 | 377.75 | 0.650 | 0.00 | 3.00 | 10.749 | 6.99 | 342.3 | 0.0 | 517.8 |
| 75.00 | | 0.00 | 1.26 29.212 | 49.36 | 374.53 | 0.650 | 0.00 | 2.00 | 7.160 | 4.65 | 229.8 | 0.0 | 627.8 |
| 78.50 | Top - Section 2 | 0.00 | 1.28 29.595 | 50.01 | 368.73 | 0.650 | 0.00 | 3.50 | 12.320 | 8.01 | 400.5 | 0.0 | 1,079.8 |
| 80.00 | | 0.00 | 1.28 29.755 | 50.28 | 371.80 | 0.650 | 0.00 | 1.50 | 5.198 | 3.38 | 169.9 | 0.0 | 208.9 |
| 85.00 | | 0.00 | 1.31 30.275 | 51.16 | 363.12 | 0.650 | 0.00 | 5.00 | 16.970 | 11.03 | 564.4 | 0.0 | 682.0 |
| 86.00 | Appertunance(s) | 0.00 | 1.31 30.377 | 51.33 | 361.34 | 0.650 | 0.00 | 1.00 | 3.328 | 2.16 | 111.1 | 0.0 | 133.7 |
| 90.00 | | 0.00 | 1.33 30.774 | 52.00 | 354.08 | 0.650 | 0.00 | 4.00 | 13.093 | 8.51 | 442.6 | 0.0 | 526.1 |
| 95.00 | | 0.00 | 1.35 31.253 | 52.81 | 344.72 | 0.650 | 0.00 | 5.00 | 15.874 | 10.32 | 545.0 | 0.0 | 637.6 |
| 96.00 | Appertunance(s) | 0.00 | 1.35 31.347 | 52.97 | 342.81 | 0.650 | 0.00 | 1.00 | 3.109 | 2.02 | 107.1 | 0.0 | 124.9 |
| 100.0 | | 0.00 | 1.37 31.714 | 53.59 | 335.06 | 0.650 | 0.00 | 4.00 | 12.217 | 7.94 | 425.6 | 0.0 | 490.6 |
| 105.0 | | 0.00 | 1.39 32.159 | 54.34 | 325.12 | 0.650 | 0.00 | 5.00 | 14.778 | 9.61 | 522.1 | 0.0 | 593.2 |
| 106.0 | Appertunance(s) | 0.00 | 1.39 32.247 | 54.49 | 323.10 | 0.650 | 0.00 | 1.00 | 2.890 | 1.88 | 102.4 | 0.0 | 116.0 |
| 108.7 | Bot - Section 4 | 0.00 | 1.40 32.484 | 54.89 | 317.49 | 0.650 | 0.00 | 2.75 | 7.834 | 5.09 | 279.5 | 0.0 | 314.4 |
| 110.0 | | 0.00 | 1.41 32.590 | 55.07 | 314.92 | 0.650 | 0.00 | 1.25 | 3.558 | 2.31 | 127.4 | 0.0 | 255.1 |
| 113.0 | Top - Section 3 | 0.00 | 1.42 32.841 | 55.50 | 308.69 | 0.650 | 0.00 | 3.00 | 8.400 | 5.46 | 303.0 | 0.0 | 602.1 |
| 115.0 | | 0.00 | 1.42 33.006 | 55.78 | 309.22 | 0.650 | 0.00 | 2.00 | 5.490 | 3.57 | 199.1 | 0.0 | 176.5 |
| 120.0 | Appertunance(s) | 0.00 | 1.44 33.410 | 56.46 | 298.58 | 0.650 | 0.00 | 5.00 | 13.342 | 8.67 | 489.7 | 0.0 | 428.9 |
| 125.0 | | 0.00 | 1.46 33.802 | 57.12 | 287.74 | 0.650 | 0.00 | 5.00 | 12.794 | 8.32 | 475.1 | 0.0 | 411.2 |
| 130.0 | | 0.00 | 1.48 34.183 | 57.76 | 276.69 | 0.650 | 0.00 | 5.00 | 12.247 | 7.96 | 459.9 | 0.0 | 393.4 |
| 132.0 | Appertunance(s) | 0.00 | 1.48 34.332 | 58.02 | 272.22 | 0.650 | 0.00 | 2.00 | 4.745 | 3.08 | 179.0 | 0.0 | 152.4 |
| 135.0 | | 0.00 | 1.49 34.554 | 58.39 | 265.45 | 0.650 | 0.00 | 3.00 | 6.953 | 4.52 | 263.9 | 0.0 | 223.3 |
| 140.0 | Appertunance(s) | 0.00 | 1.51 34.914 | 59.00 | 254.04 | 0.650 | 0.00 | 5.00 | 11.151 | 7.25 | 427.7 | 0.0 | 357.9 |
| 145.0 | | 0.00 | 1.52 35.266 | 59.60 | 242.45 | 0.650 | 0.00 | 5.00 | 10.603 | 6.89 | 410.7 | 0.0 | 340.2 |
| 148.0 | Appertunance(s) | 0.00 | 1.53 35.473 | 59.95 | 235.42 | 0.650 | 0.00 | 3.00 | 6.099 | 3.96 | 237.6 | 0.0 | 195.6 |
| | | | | | | Totals: | | 148.00 | | | 16,077.6 | 0.0 | 28,881.1 |




**Load Case:** No Ice — 95.00 mph Wind with No Ice — 21 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

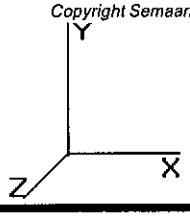
## Discrete Appurtenance Segment Forces

| Elev (ft) | Description | Qty | qz (psf) | qzGh (psf) | CaAa Factor | Total CaAa (sf) | Horiz Ecc (ft) | Vert Ecc (ft) | Wind FX (lb) | Mom Y (lb-ft) | Mom Z (lb-ft) | Dead Load (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 35.00 | Standoff | 1 | 23.496 | 39.708 | 1.00 | 5.20 | 0.000 | 0.000 | 206.48 | 0.00 | 0.00 | 150.00 |
| 35.00 | GPS | 1 | 23.496 | 39.708 | 1.00 | 1.00 | 0.000 | 0.000 | 39.71 | 0.00 | 0.00 | 7.00 |
| 86.00 | Flush | 1 | 30.377 | 51.337 | 1.00 | 8.50 | 0.000 | 0.000 | 436.36 | 0.00 | 0.00 | 560.00 |
| 86.00 | RFS APXV18-206517S- | 3 | 30.377 | 51.337 | 0.80 | 12.36 | 0.000 | 0.000 | 634.60 | 0.00 | 0.00 | 79.20 |
| 96.00 | Decibel DB980F65E-M | 9 | 31.347 | 52.976 | 0.81 | 27.20 | 0.000 | 0.000 | 1,441.07 | 0.00 | 0.00 | 85.50 |
| 96.00 | Flat Low Profile Pla | 1 | 31.347 | 52.976 | 1.00 | 26.10 | 0.000 | 0.000 | 1,382.66 | 0.00 | 0.00 | 1,500.00 |
| 106.0 | Flush | 1 | 32.247 | 54.497 | 1.00 | 8.50 | 0.000 | 0.000 | 463.22 | 0.00 | 0.00 | 560.00 |
| 106.0 | 52" x 8" Panel | 3 | 32.247 | 54.497 | 0.75 | 9.09 | 0.000 | 0.000 | 495.38 | 0.00 | 0.00 | 90.00 |
| 120.0 | RFS APX16DWV- | 4 | 33.410 | 56.463 | 1.00 | 26.80 | 0.000 | 0.000 | 1,513.21 | 0.00 | 0.00 | 158.40 |
| 120.0 | RFS ATMAA1412D- | 4 | 33.410 | 56.463 | 0.50 | 2.34 | 0.000 | 0.000 | 132.12 | 0.00 | 0.00 | 52.00 |
| 120.0 | RFS ATMPP1412D- | 4 | 33.410 | 56.463 | 0.50 | 2.34 | 0.000 | 0.000 | 132.12 | 0.00 | 0.00 | 52.00 |
| 120.0 | Flat Low Profile Pla | 1 | 33.410 | 56.463 | 1.00 | 26.10 | 0.000 | 0.000 | 1,473.69 | 0.00 | 0.00 | 1,500.00 |
| 132.0 | Flat Low Profile Pla | 1 | 34.332 | 58.022 | 1.00 | 26.10 | 0.000 | 0.000 | 1,514.37 | 0.00 | 0.00 | 1,500.00 |
| 132.0 | 14" x 9" TTA | 6 | 34.332 | 58.022 | 0.50 | 3.69 | 0.000 | 0.000 | 214.10 | 0.00 | 0.00 | 60.00 |
| 132.0 | 72" x 12" Panel | 6 | 34.407 | 58.147 | 0.75 | 37.80 | 0.000 | 1.000 | 2,197.93 | 0.00 | 2,197.93 | 270.00 |
| 132.0 | Diplexer / Coupler | 6 | 34.332 | 58.022 | 0.50 | 2.10 | 0.000 | 0.000 | 121.85 | 0.00 | 0.00 | 30.00 |
| 140.0 | Decibel 948F85T2E-M | 6 | 34.914 | 59.005 | 1.36 | 15.46 | 0.000 | 0.000 | 912.12 | 0.00 | 0.00 | 51.00 |
| 140.0 | Flat Low Profile Pla | 1 | 34.914 | 59.005 | 1.00 | 26.10 | 0.000 | 0.000 | 1,540.04 | 0.00 | 0.00 | 1,500.00 |
| 140.0 | Decibel DB844H90E- | 2 | 34.914 | 59.005 | 1.16 | 7.13 | 0.000 | 0.000 | 420.85 | 0.00 | 0.00 | 28.00 |
| 140.0 | Antel LPA-80063/6CF | 2 | 34.914 | 59.005 | 1.00 | 20.68 | 0.000 | 0.000 | 1,220.23 | 0.00 | 0.00 | 54.00 |
| 140.0 | Antel LPA-80080/6CF | 2 | 34.914 | 59.005 | 1.83 | 15.81 | 0.000 | 0.000 | 933.06 | 0.00 | 0.00 | 42.00 |
| 148.0 | 6' Dipole | 1 | 35.812 | 60.522 | 1.00 | 2.22 | 0.000 | 5.000 | 134.36 | 0.00 | 671.79 | 20.00 |
| 148.0 | Flat Low Profile Pla | 1 | 35.473 | 59.950 | 1.00 | 26.10 | 0.000 | 0.000 | 1,564.69 | 0.00 | 0.00 | 1,500.00 |
| 148.0 | 72" x 12" Panel | 3 | 35.542 | 60.065 | 0.75 | 18.90 | 0.000 | 1.000 | 1,135.23 | 0.00 | 1,135.23 | 135.00 |
| 148.0 | 48" x 12" Panel | 9 | 35.542 | 60.065 | 0.75 | 37.80 | 0.000 | 1.000 | 2,270.47 | 0.00 | 2,270.47 | 270.00 |
| 148.0 | 11' Dipole | 1 | 35.978 | 60.803 | 1.00 | 3.58 | 0.000 | 7.500 | 217.67 | 0.00 | 1,632.55 | 40.00 |
| 148.0 | 6' Omni | 1 | 35.812 | 60.522 | 1.00 | 1.76 | 0.000 | 5.000 | 106.52 | 0.00 | 532.59 | 25.00 |
| | | | | | | | | | 22,854.11 | | | 10,319.10 |

| | | | |
|---|---|---|---|
| Pole : | 302540 | Code: TIA/EIA-222 Rev F | |
| Location : | Madison CT 6, CT | | |
| Height : | 148.0 (ft) | | |
| Shape : | 18 Sides | | |
| Base Dia : | 61.05 (in) | | |
| Top Dia : | 24.00 (in) | | |
| Taper : | 0.263006 (in/ft) | Base Elev : 0.000 (ft) | |





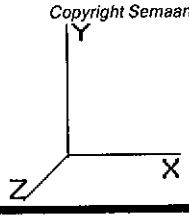



**Load Case:** No Ice — 95.00 mph Wind with No Ice — 21 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

## Linear Appurtenance Segment Forces

| Seg Top Elev (ft) | Description | Exposed To Wind | Length (ft) | Weight (lb/ft) | CaAa (sf/ft) | qz (psf) | F X (lb) | Dead Load (lb) |
|---|---|---|---|---|---|---|---|---|
| 5.00 | (1) 1/2" Coax | Yes | 5.00 | 0.15 | 0.06 | 23.104 | 11.71 | 0.75 |
| 10.00 | (1) 1/2" Coax | Yes | 5.00 | 0.15 | 0.06 | 23.104 | 11.71 | 0.75 |
| 15.00 | (1) 1/2" Coax | Yes | 5.00 | 0.15 | 0.06 | 23.104 | 11.71 | 0.75 |
| 20.00 | (1) 1/2" Coax | Yes | 5.00 | 0.15 | 0.06 | 23.104 | 11.71 | 0.75 |
| 25.00 | (1) 1/2" Coax | Yes | 5.00 | 0.15 | 0.06 | 23.104 | 11.71 | 0.75 |
| 30.00 | (1) 1/2" Coax | Yes | 5.00 | 0.15 | 0.06 | 23.104 | 11.71 | 0.75 |
| 35.00 | (1) 1/2" Coax | Yes | 5.00 | 0.15 | 0.06 | 23.496 | 11.91 | 0.75 |
| | | | | | | Totals: | 82.19 | 5.25 |






**Load Case:** No Ice — 95.00 mph Wind with No Ice — 21 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

## Applied Segment Forces Summary

| Seg Elev (ft) | Lateral FX (-) (lb) | Axial FY (-) (lb) | Torsion MY (lb-ft) | Moment MZ (lb-ft) |
|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5.00 | 650.36 | 1,907.85 | 0.00 | 0.00 |
| 10.00 | 636.45 | 1,872.34 | 0.00 | 0.00 |
| 15.00 | 622.54 | 1,836.84 | 0.00 | 0.00 |
| 20.00 | 608.64 | 1,801.33 | 0.00 | 0.00 |
| 25.00 | 594.73 | 1,765.82 | 0.00 | 0.00 |
| 30.00 | 580.83 | 1,730.32 | 0.00 | 0.00 |
| 35.00 | 822.72 | 1,851.81 | 0.00 | 0.00 |
| 38.50 | 397.50 | 1,164.72 | 0.00 | 0.00 |
| 40.00 | 172.54 | 804.28 | 0.00 | 0.00 |
| 45.00 | 584.93 | 2,640.56 | 0.00 | 0.00 |
| 50.00 | 587.14 | 1,280.88 | 0.00 | 0.00 |
| 55.00 | 587.26 | 1,254.25 | 0.00 | 0.00 |
| 60.00 | 585.55 | 1,227.62 | 0.00 | 0.00 |
| 65.00 | 582.21 | 1,200.99 | 0.00 | 0.00 |
| 70.00 | 577.43 | 1,174.36 | 0.00 | 0.00 |
| 73.00 | 342.26 | 691.83 | 0.00 | 0.00 |
| 75.00 | 229.77 | 743.78 | 0.00 | 0.00 |
| 78.50 | 400.52 | 1,282.83 | 0.00 | 0.00 |
| 80.00 | 169.89 | 295.93 | 0.00 | 0.00 |
| 85.00 | 564.36 | 971.99 | 0.00 | 0.00 |
| 86.00 | 1,182.01 | 830.94 | 0.00 | 0.00 |
| 90.00 | 442.62 | 738.39 | 0.00 | 0.00 |
| 95.00 | 544.96 | 903.01 | 0.00 | 0.00 |
| 96.00 | 2,930.79 | 1,763.44 | 0.00 | 0.00 |
| 100.0 | 425.61 | 680.20 | 0.00 | 0.00 |
| 105.0 | 522.06 | 830.28 | 0.00 | 0.00 |
| 106.0 | 1,060.97 | 813.39 | 0.00 | 0.00 |
| 108.7 | 279.54 | 434.36 | 0.00 | 0.00 |
| 110.0 | 127.38 | 309.66 | 0.00 | 0.00 |
| 113.0 | 303.04 | 732.99 | 0.00 | 0.00 |
| 115.0 | 199.07 | 263.80 | 0.00 | 0.00 |
| 120.0 | 3,740.82 | 2,409.47 | 0.00 | 0.00 |
| 125.0 | 475.08 | 563.72 | 0.00 | 0.00 |
| 130.0 | 459.86 | 545.96 | 0.00 | 0.00 |
| 132.0 | 4,227.21 | 2,073.41 | 0.00 | 2,197.93 |
| 135.0 | 263.93 | 285.28 | 0.00 | 0.00 |
| 140.0 | 5,453.98 | 2,136.26 | 0.00 | 0.00 |
| 145.0 | 410.75 | 394.30 | 0.00 | 0.00 |
| 148.0 | 5,666.58 | 2,218.06 | 0.00 | 6,242.63 |
| Totals: | 39,013.89 | 46,427.24 | 0.00 | 8,440.56 |

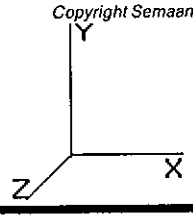
Pole : 302540
Location : Madison CT 6, CT
Height : 148.0 (ft)
Shape : 18 Sides
Base Dia : 61.05 (in)
Top Dia : 24.00 (in)
Taper : 0.263006 (in/ft)

Code: TIA/EIA-222 Rev F

Base Elev : 0.000 (ft)





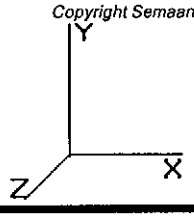



**Load Case:** No Ice — 95.00 mph Wind with No Ice — 21 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

## Calculated Shaft Forces and Deflections

| Seg Elev (ft) | Lateral FX (-) (kips) | Axial FY (-) (kips) | Lateral FZ (kips) | Moment MX (ft-kips) | Torsion MY (ft-kips) | Moment MZ (ft-kips) | X Deflect (in) | Z Deflect (in) | Total Deflect (in) | Rotation (deg) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | -39.067 | -46.382 | 0.000 | 0.000 | 0.000 | -4,156.255 | 0.000 | 0.000 | 0.000 | 0.000 |
| 5.00 | -38.516 | -44.387 | 0.000 | 0.000 | 0.000 | -3,960.922 | -0.070 | 0.000 | 0.070 | -0.130 |
| 10.00 | -37.972 | -42.428 | 0.000 | 0.000 | 0.000 | -3,768.344 | -0.277 | 0.000 | 0.277 | -0.262 |
| 15.00 | -37.434 | -40.507 | 0.000 | 0.000 | 0.000 | -3,578.488 | -0.624 | 0.000 | 0.624 | -0.396 |
| 20.00 | -36.904 | -38.622 | 0.000 | 0.000 | 0.000 | -3,391.319 | -1.112 | 0.000 | 1.112 | -0.532 |
| 25.00 | -36.380 | -36.774 | 0.000 | 0.000 | 0.000 | -3,206.802 | -1.744 | 0.000 | 1.744 | -0.671 |
| 30.00 | -35.864 | -34.963 | 0.000 | 0.000 | 0.000 | -3,024.903 | -2.522 | 0.000 | 2.522 | -0.811 |
| 35.00 | -35.083 | -33.050 | 0.000 | 0.000 | 0.000 | -2,845.587 | -3.449 | 0.000 | 3.449 | -0.954 |
| 38.50 | -34.706 | -31.848 | 0.000 | 0.000 | 0.000 | -2,722.798 | -4.187 | 0.000 | 4.187 | -1.056 |
| 40.00 | -34.570 | -30.989 | 0.000 | 0.000 | 0.000 | -2,670.741 | -4.526 | 0.000 | 4.526 | -1.101 |
| 45.00 | -34.004 | -28.273 | 0.000 | 0.000 | 0.000 | -2,497.892 | -5.758 | 0.000 | 5.758 | -1.247 |
| 50.00 | -33.467 | -26.908 | 0.000 | 0.000 | 0.000 | -2,327.874 | -7.144 | 0.000 | 7.144 | -1.395 |
| 55.00 | -32.932 | -25.560 | 0.000 | 0.000 | 0.000 | -2,160.541 | -8.708 | 0.000 | 8.708 | -1.584 |
| 60.00 | -32.391 | -24.243 | 0.000 | 0.000 | 0.000 | -1,995.884 | -10.469 | 0.000 | 10.469 | -1.774 |
| 65.00 | -31.847 | -22.956 | 0.000 | 0.000 | 0.000 | -1,833.929 | -12.430 | 0.000 | 12.430 | -1.964 |
| 70.00 | -31.285 | -21.720 | 0.000 | 0.000 | 0.000 | -1,674.698 | -14.590 | 0.000 | 14.590 | -2.155 |
| 73.00 | -30.952 | -20.990 | 0.000 | 0.000 | 0.000 | -1,580.843 | -15.982 | 0.000 | 15.982 | -2.271 |
| 75.00 | -30.730 | -20.199 | 0.000 | 0.000 | 0.000 | -1,518.940 | -16.950 | 0.000 | 16.950 | -2.349 |
| 78.50 | -30.307 | -18.884 | 0.000 | 0.000 | 0.000 | -1,411.386 | -18.723 | 0.000 | 18.723 | -2.483 |
| 80.00 | -30.169 | -18.523 | 0.000 | 0.000 | 0.000 | -1,365.926 | -19.512 | 0.000 | 19.512 | -2.541 |
| 85.00 | -29.599 | -17.514 | 0.000 | 0.000 | 0.000 | -1,215.083 | -22.288 | 0.000 | 22.288 | -2.752 |
| 86.00 | -28.409 | -16.688 | 0.000 | 0.000 | 0.000 | -1,185.485 | -22.869 | 0.000 | 22.869 | -2.795 |
| 90.00 | -27.981 | -15.883 | 0.000 | 0.000 | 0.000 | -1,071.851 | -25.283 | 0.000 | 25.283 | -2.962 |
| 95.00 | -27.419 | -14.954 | 0.000 | 0.000 | 0.000 | -931.949 | -28.494 | 0.000 | 28.494 | -3.162 |
| 96.00 | -24.418 | -13.314 | 0.000 | 0.000 | 0.000 | -904.530 | -29.161 | 0.000 | 29.161 | -3.203 |
| 100.0 | -23.992 | -12.588 | 0.000 | 0.000 | 0.000 | -806.859 | -31.911 | 0.000 | 31.911 | -3.358 |
| 105.0 | -23.443 | -11.746 | 0.000 | 0.000 | 0.000 | -686.901 | -35.527 | 0.000 | 35.527 | -3.543 |
| 106.0 | -22.347 | -10.974 | 0.000 | 0.000 | 0.000 | -663.458 | -36.273 | 0.000 | 36.273 | -3.580 |
| 108.7 | -22.053 | -10.531 | 0.000 | 0.000 | 0.000 | -602.005 | -38.363 | 0.000 | 38.363 | -3.678 |
| 110.0 | -21.919 | -10.202 | 0.000 | 0.000 | 0.000 | -574.438 | -39.332 | 0.000 | 39.332 | -3.723 |
| 113.0 | -21.582 | -9.459 | 0.000 | 0.000 | 0.000 | -508.681 | -41.704 | 0.000 | 41.704 | -3.824 |
| 115.0 | -21.386 | -9.164 | 0.000 | 0.000 | 0.000 | -465.516 | -43.319 | 0.000 | 43.319 | -3.889 |
| 120.0 | -17.506 | -6.971 | 0.000 | 0.000 | 0.000 | -358.589 | -47.485 | 0.000 | 47.485 | -4.060 |
| 125.0 | -17.007 | -6.403 | 0.000 | 0.000 | 0.000 | -271.060 | -51.817 | 0.000 | 51.817 | -4.208 |
| 130.0 | -16.516 | -5.870 | 0.000 | 0.000 | 0.000 | -186.027 | -56.291 | 0.000 | 56.291 | -4.331 |
| 132.0 | -12.147 | -4.114 | 0.000 | 0.000 | 0.000 | -150.798 | -58.114 | 0.000 | 58.114 | -4.373 |
| 135.0 | -11.865 | -3.838 | 0.000 | 0.000 | 0.000 | -114.359 | -60.877 | 0.000 | 60.877 | -4.424 |
| 140.0 | -6.264 | -2.127 | 0.000 | 0.000 | 0.000 | -55.032 | -65.542 | 0.000 | 65.542 | -4.484 |
| 145.0 | -5.824 | -1.764 | 0.000 | 0.000 | 0.000 | -23.714 | -70.254 | 0.000 | 70.254 | -4.517 |
| 148.0 | -5.667 | 0.000 | 0.000 | 0.000 | 0.000 | -6.243 | -73.093 | 0.000 | 73.093 | -4.525 |





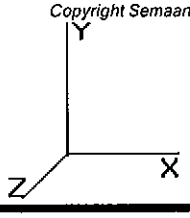

**Load Case:** No Ice — 95.00 mph Wind with No Ice — 21 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

## Calculated Stresses

| Seg Elev (ft) | Applied Stresses | | | | | | | Allowable Stress (Fb) (ksi) | | Stress Ratio |
|---|---|---|---|---|---|---|---|---|---|---|
| | Axial (Y) (ksi) | Shear (X) (ksi) | Shear (Z) (ksi) | Torsion (ksi) | Bending (X) (ksi) | Bending (Z) (ksi) | Combined (ksi) | | | |
| 0.00 | 0.48 | 0.82 | 0.00 | 0.00 | 0.00 | 34.73 | 35.24 | 52.0 | 0.0 | 0.678 |
| 5.00 | 0.47 | 0.83 | 0.00 | 0.00 | 0.00 | 34.59 | 35.09 | 52.0 | 0.0 | 0.675 |
| 10.00 | 0.46 | 0.83 | 0.00 | 0.00 | 0.00 | 34.43 | 34.92 | 52.0 | 0.0 | 0.672 |
| 15.00 | 0.45 | 0.84 | 0.00 | 0.00 | 0.00 | 34.24 | 34.72 | 52.0 | 0.0 | 0.668 |
| 20.00 | 0.44 | 0.85 | 0.00 | 0.00 | 0.00 | 34.02 | 34.49 | 52.0 | 0.0 | 0.664 |
| 25.00 | 0.43 | 0.86 | 0.00 | 0.00 | 0.00 | 33.76 | 34.22 | 52.0 | 0.0 | 0.658 |
| 30.00 | 0.42 | 0.86 | 0.00 | 0.00 | 0.00 | 33.46 | 33.91 | 52.0 | 0.0 | 0.652 |
| 35.00 | 0.41 | 0.87 | 0.00 | 0.00 | 0.00 | 33.12 | 33.56 | 52.0 | 0.0 | 0.646 |
| 38.50 | 0.40 | 0.87 | 0.00 | 0.00 | 0.00 | 32.86 | 33.30 | 52.0 | 0.0 | 0.641 |
| 40.00 | 0.39 | 0.88 | 0.00 | 0.00 | 0.00 | 32.75 | 33.17 | 52.0 | 0.0 | 0.638 |
| 45.00 | 0.48 | 1.16 | 0.00 | 0.00 | 0.00 | 41.47 | 41.99 | 52.0 | 0.0 | 0.808 |
| 50.00 | 0.47 | 1.17 | 0.00 | 0.00 | 0.00 | 40.79 | 41.30 | 52.0 | 0.0 | 0.795 |
| 55.00 | 0.46 | 1.19 | 0.00 | 0.00 | 0.00 | 40.01 | 40.52 | 52.0 | 0.0 | 0.780 |
| 60.00 | 0.45 | 1.20 | 0.00 | 0.00 | 0.00 | 39.13 | 39.63 | 52.0 | 0.0 | 0.763 |
| 65.00 | 0.44 | 1.22 | 0.00 | 0.00 | 0.00 | 38.13 | 38.62 | 52.0 | 0.0 | 0.743 |
| 70.00 | 0.42 | 1.23 | 0.00 | 0.00 | 0.00 | 36.99 | 37.48 | 52.0 | 0.0 | 0.721 |
| 73.00 | 0.42 | 1.24 | 0.00 | 0.00 | 0.00 | 36.24 | 36.72 | 52.0 | 0.0 | 0.707 |
| 75.00 | 0.41 | 1.25 | 0.00 | 0.00 | 0.00 | 35.71 | 36.18 | 52.0 | 0.0 | 0.696 |
| 78.50 | 0.46 | 1.49 | 0.00 | 0.00 | 0.00 | 40.21 | 40.75 | 52.0 | 0.0 | 0.784 |
| 80.00 | 0.45 | 1.49 | 0.00 | 0.00 | 0.00 | 39.67 | 40.21 | 52.0 | 0.0 | 0.774 |
| 85.00 | 0.44 | 1.51 | 0.00 | 0.00 | 0.00 | 37.67 | 38.20 | 52.0 | 0.0 | 0.735 |
| 86.00 | 0.43 | 1.46 | 0.00 | 0.00 | 0.00 | 37.24 | 37.76 | 52.0 | 0.0 | 0.726 |
| 90.00 | 0.42 | 1.48 | 0.00 | 0.00 | 0.00 | 35.55 | 36.06 | 52.0 | 0.0 | 0.694 |
| 95.00 | 0.41 | 1.50 | 0.00 | 0.00 | 0.00 | 33.15 | 33.65 | 52.0 | 0.0 | 0.648 |
| 96.00 | 0.36 | 1.35 | 0.00 | 0.00 | 0.00 | 32.64 | 33.08 | 52.0 | 0.0 | 0.636 |
| 100.00 | 0.35 | 1.36 | 0.00 | 0.00 | 0.00 | 30.85 | 31.30 | 52.0 | 0.0 | 0.602 |
| 105.00 | 0.34 | 1.38 | 0.00 | 0.00 | 0.00 | 28.32 | 28.76 | 52.0 | 0.0 | 0.553 |
| 106.00 | 0.32 | 1.33 | 0.00 | 0.00 | 0.00 | 27.78 | 28.19 | 52.0 | 0.0 | 0.542 |
| 108.75 | 0.32 | 1.34 | 0.00 | 0.00 | 0.00 | 26.31 | 26.72 | 52.0 | 0.0 | 0.514 |
| 110.00 | 0.31 | 1.34 | 0.00 | 0.00 | 0.00 | 25.60 | 26.02 | 52.0 | 0.0 | 0.501 |
| 113.00 | 0.36 | 1.66 | 0.00 | 0.00 | 0.00 | 28.68 | 29.19 | 52.0 | 0.0 | 0.562 |
| 115.00 | 0.36 | 1.68 | 0.00 | 0.00 | 0.00 | 27.11 | 27.62 | 52.0 | 0.0 | 0.531 |
| 120.00 | 0.28 | 1.43 | 0.00 | 0.00 | 0.00 | 22.69 | 23.11 | 52.0 | 0.0 | 0.445 |
| 125.00 | 0.27 | 1.45 | 0.00 | 0.00 | 0.00 | 18.71 | 19.14 | 52.0 | 0.0 | 0.368 |
| 130.00 | 0.26 | 1.47 | 0.00 | 0.00 | 0.00 | 14.06 | 14.54 | 52.0 | 0.0 | 0.280 |
| 132.00 | 0.19 | 1.10 | 0.00 | 0.00 | 0.00 | 11.83 | 12.17 | 52.0 | 0.0 | 0.234 |
| 135.00 | 0.18 | 1.11 | 0.00 | 0.00 | 0.00 | 9.50 | 9.87 | 52.0 | 0.0 | 0.190 |
| 140.00 | 0.10 | 0.62 | 0.00 | 0.00 | 0.00 | 5.05 | 5.26 | 52.0 | 0.0 | 0.101 |
| 145.00 | 0.09 | 0.60 | 0.00 | 0.00 | 0.00 | 2.42 | 2.72 | 52.0 | 0.0 | 0.052 |
| 148.00 | 0.00 | 0.61 | 0.00 | 0.00 | 0.00 | 0.68 | 1.25 | 52.0 | 0.0 | 0.024 |

| | | | |
|---|---|---|---|
| Pole : | 302540 | Code: TIA/EIA-222 Rev F |  |
| Location : | Madison CT 6, CT | | 9/23/2010 4:20:08 PM |
| Height : | 148.0 (ft) | |  |
| Shape : | 18 Sides | | |
| Base Dia : | 61.05 (in) | | |
| Top Dia : | 24.00 (in) | | |
| Taper : | 0.263006 (in/ft) | Base Elev : 0.000 (ft) | |




**Load Case:** Ice — 82.27 mph Wind with Ice — 21 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

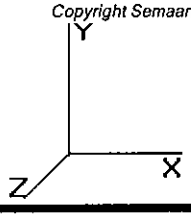
## Shaft Segment Forces

| Seg Top Elev (ft) | Description | | Kz | qz (psf) | qzGh (psf) | C (mph-ft) | Cf | Ice Thick (in) | Tributary (ft) | Aa (sf) | CfAa (sf) | Wind Force X (lb) | Dead Load Ice (lb) | Tot Dead Load (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | | 0.00 | 1.00 | 17.327 | 29.28 | 418.54 | 0.650 | 0.50 | 0.00 | 0.000 | 0.00 | 0.0 | 0.0 | 0.0 |
| 5.00 | | 0.00 | 1.00 | 17.327 | 29.28 | 409.53 | 0.650 | 0.50 | 5.00 | 25.580 | 16.63 | 486.9 | 185.9 | 1,803.0 |
| 10.00 | | 0.00 | 1.00 | 17.327 | 29.28 | 400.51 | 0.650 | 0.50 | 5.00 | 25.032 | 16.27 | 476.5 | 181.8 | 1,763.4 |
| 15.00 | | 0.00 | 1.00 | 17.327 | 29.28 | 391.50 | 0.650 | 0.50 | 5.00 | 24.484 | 15.91 | 466.0 | 177.8 | 1,723.8 |
| 20.00 | | 0.00 | 1.00 | 17.327 | 29.28 | 382.48 | 0.650 | 0.50 | 5.00 | 23.936 | 15.56 | 455.6 | 173.7 | 1,684.3 |
| 25.00 | | 0.00 | 1.00 | 17.327 | 29.28 | 373.46 | 0.650 | 0.50 | 5.00 | 23.388 | 15.20 | 445.2 | 169.6 | 1,644.7 |
| 30.00 | | 0.00 | 1.00 | 17.327 | 29.28 | 364.45 | 0.650 | 0.50 | 5.00 | 22.841 | 14.85 | 434.7 | 165.6 | 1,605.1 |
| 35.00 | Appertunance(s) | 0.00 | 1.01 | 17.621 | 29.77 | 358.43 | 0.650 | 0.50 | 5.00 | 22.293 | 14.49 | 431.5 | 161.5 | 1,565.6 |
| 38.50 | Bot - Section 2 | 0.00 | 1.04 | 18.107 | 30.60 | 356.90 | 0.650 | 0.50 | 3.50 | 15.279 | 9.93 | 303.9 | 111.1 | 1,072.8 |
| 40.00 | | 0.00 | 1.05 | 18.306 | 30.93 | 356.07 | 0.650 | 0.50 | 1.50 | 6.560 | 4.26 | 131.9 | 47.9 | 765.2 |
| 45.00 | Top - Section 1 | 0.00 | 1.09 | 18.932 | 31.99 | 352.69 | 0.650 | 0.50 | 5.00 | 21.509 | 13.98 | 447.3 | 155.7 | 2,506.3 |
| 50.00 | | 0.00 | 1.12 | 19.511 | 32.97 | 353.93 | 0.650 | 0.50 | 5.00 | 20.961 | 13.62 | 449.3 | 151.7 | 1,142.5 |
| 55.00 | | 0.00 | 1.15 | 20.050 | 33.88 | 349.08 | 0.650 | 0.50 | 5.00 | 20.413 | 13.27 | 449.6 | 147.6 | 1,111.9 |
| 60.00 | | 0.00 | 1.18 | 20.554 | 34.73 | 343.63 | 0.650 | 0.50 | 5.00 | 19.865 | 12.91 | 448.5 | 143.5 | 1,081.2 |
| 65.00 | | 0.00 | 1.21 | 21.030 | 35.54 | 337.65 | 0.650 | 0.50 | 5.00 | 19.318 | 12.56 | 446.3 | 139.5 | 1,050.5 |
| 70.00 | | 0.00 | 1.24 | 21.480 | 36.30 | 331.20 | 0.650 | 0.50 | 5.00 | 18.770 | 12.20 | 442.9 | 135.4 | 1,019.8 |
| 73.00 | Bot - Section 3 | 0.00 | 1.25 | 21.739 | 36.73 | 327.13 | 0.650 | 0.50 | 3.00 | 10.999 | 7.15 | 262.7 | 79.8 | 597.6 |
| 75.00 | | 0.00 | 1.26 | 21.907 | 37.02 | 324.35 | 0.650 | 0.50 | 2.00 | 7.327 | 4.76 | 176.3 | 53.3 | 681.1 |
| 78.50 | Top - Section 2 | 0.00 | 1.28 | 22.195 | 37.50 | 319.32 | 0.650 | 0.50 | 3.50 | 12.611 | 8.20 | 307.5 | 91.3 | 1,171.1 |
| 80.00 | | 0.00 | 1.28 | 22.315 | 37.71 | 321.98 | 0.650 | 0.50 | 1.50 | 5.323 | 3.46 | 130.5 | 38.8 | 247.7 |
| 85.00 | | 0.00 | 1.31 | 22.705 | 38.37 | 314.46 | 0.650 | 0.50 | 5.00 | 17.386 | 11.30 | 433.6 | 125.2 | 807.2 |
| 86.00 | Appertunance(s) | 0.00 | 1.31 | 22.781 | 38.50 | 312.92 | 0.650 | 0.50 | 1.00 | 3.411 | 2.22 | 85.4 | 24.9 | 158.6 |
| 90.00 | | 0.00 | 1.33 | 23.079 | 39.00 | 306.63 | 0.650 | 0.50 | 4.00 | 13.427 | 8.73 | 340.4 | 96.9 | 623.0 |
| 95.00 | | 0.00 | 1.35 | 23.438 | 39.61 | 298.53 | 0.650 | 0.50 | 5.00 | 16.290 | 10.59 | 419.4 | 117.1 | 754.7 |
| 96.00 | Appertunance(s) | 0.00 | 1.35 | 23.508 | 39.72 | 296.87 | 0.650 | 0.50 | 1.00 | 3.192 | 2.08 | 82.4 | 23.3 | 148.1 |
| 100.0 | | 0.00 | 1.37 | 23.784 | 40.19 | 290.16 | 0.650 | 0.50 | 4.00 | 12.550 | 8.16 | 327.9 | 90.4 | 581.0 |
| 105.0 | | 0.00 | 1.39 | 24.118 | 40.76 | 281.55 | 0.650 | 0.50 | 5.00 | 15.194 | 9.88 | 402.6 | 109.0 | 702.2 |
| 106.0 | Appertunance(s) | 0.00 | 1.39 | 24.184 | 40.87 | 279.80 | 0.650 | 0.50 | 1.00 | 2.973 | 1.93 | 79.0 | 21.6 | 137.6 |
| 108.7 | Bot - Section 4 | 0.00 | 1.40 | 24.361 | 41.17 | 274.95 | 0.650 | 0.50 | 2.75 | 8.063 | 5.24 | 215.8 | 58.3 | 372.6 |
| 110.0 | | 0.00 | 1.41 | 24.441 | 41.30 | 272.72 | 0.650 | 0.50 | 1.25 | 3.662 | 2.38 | 98.3 | 26.6 | 281.7 |
| 113.0 | Top - Section 3 | 0.00 | 1.42 | 24.629 | 41.62 | 267.32 | 0.650 | 0.50 | 3.00 | 8.650 | 5.62 | 234.0 | 62.4 | 664.5 |
| 115.0 | | 0.00 | 1.42 | 24.753 | 41.83 | 267.78 | 0.650 | 0.50 | 2.00 | 5.657 | 3.68 | 153.8 | 41.0 | 217.5 |
| 120.0 | Appertunance(s) | 0.00 | 1.44 | 25.056 | 42.34 | 258.57 | 0.650 | 0.50 | 5.00 | 13.759 | 8.94 | 378.7 | 98.3 | 527.2 |
| 125.0 | | 0.00 | 1.46 | 25.350 | 42.84 | 249.18 | 0.650 | 0.50 | 5.00 | 13.211 | 8.59 | 367.9 | 94.3 | 505.4 |
| 130.0 | | 0.00 | 1.48 | 25.636 | 43.32 | 239.61 | 0.650 | 0.50 | 5.00 | 12.663 | 8.23 | 356.6 | 90.2 | 483.6 |
| 132.0 | Appertunance(s) | 0.00 | 1.48 | 25.748 | 43.51 | 235.74 | 0.650 | 0.50 | 2.00 | 4.912 | 3.19 | 138.9 | 35.4 | 187.8 |
| 135.0 | | 0.00 | 1.49 | 25.914 | 43.79 | 229.88 | 0.650 | 0.50 | 3.00 | 7.203 | 4.68 | 205.1 | 51.7 | 275.0 |
| 140.0 | Appertunance(s) | 0.00 | 1.51 | 26.184 | 44.25 | 220.00 | 0.650 | 0.50 | 5.00 | 11.567 | 7.52 | 332.7 | 82.1 | 440.0 |
| 145.0 | | 0.00 | 1.52 | 26.448 | 44.69 | 209.96 | 0.650 | 0.50 | 5.00 | 11.019 | 7.16 | 320.1 | 78.0 | 418.2 |
| 148.0 | Appertunance(s) | 0.00 | 1.53 | 26.603 | 44.96 | 203.88 | 0.650 | 0.50 | 3.00 | 6.349 | 4.13 | 185.5 | 45.4 | 240.9 |
| | | | | | | | Totals: | | 148.00 | | | 12,351.2 | 3,883.4 | 32,764.5 |

| | | | |
|---|---|---|---|
| Pole : | 302540 | Code: TIA/EIA-222 Rev F | |
| Location : | Madison CT 6, CT | | |
| Height : | 148.0 (ft) | | |
| Shape : | 18 Sides | | |
| Base Dia : | 61.05 (in) | | |
| Top Dia : | 24.00 (in) | | |
| Taper : | 0.263006 (in/ft) | Base Elev : 0.000 (ft) | |








**Load Case:** Ice — 82.27 mph Wind with Ice — 21 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

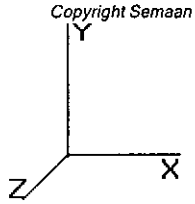
## Discrete Appurtenance Segment Forces

| Elev (ft) | Description | Qty | qz (psf) | qzGh (psf) | CaAa Factor | Total CaAa (sf) | Horiz Ecc (ft) | Vert Ecc (ft) | Wind FX (lb) | Mom Y (lb-ft) | Mom Z (lb-ft) | Dead Load (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 35.00 | Standoff | 1 | 17.621 | 29.779 | 1.00 | 5.90 | 0.000 | 0.000 | 175.70 | 0.00 | 0.00 | 175.00 |
| 35.00 | GPS | 1 | 17.621 | 29.779 | 1.00 | 1.30 | 0.000 | 0.000 | 38.71 | 0.00 | 0.00 | 15.00 |
| 86.00 | Flush | 1 | 22.781 | 38.500 | 1.00 | 10.50 | 0.000 | 0.000 | 404.25 | 0.00 | 0.00 | 680.00 |
| 86.00 | RFS APXV18-206517S- | 3 | 22.781 | 38.500 | 0.80 | 13.99 | 0.000 | 0.000 | 538.51 | 0.00 | 0.00 | 159.39 |
| 96.00 | Decibel DB980F65E-M | 9 | 23.508 | 39.729 | 0.81 | 31.34 | 0.000 | 0.000 | 1,245.01 | 0.00 | 0.00 | 268.67 |
| 96.00 | Flat Low Profile Pla | 1 | 23.508 | 39.729 | 1.00 | 31.60 | 0.000 | 0.000 | 1,255.45 | 0.00 | 0.00 | 1,700.00 |
| 106.0 | Flush | 1 | 24.184 | 40.870 | 1.00 | 10.50 | 0.000 | 0.000 | 429.14 | 0.00 | 0.00 | 680.00 |
| 106.0 | 52" x 8" Panel | 3 | 24.184 | 40.870 | 0.75 | 10.13 | 0.000 | 0.000 | 413.81 | 0.00 | 0.00 | 180.00 |
| 120.0 | RFS APX16DWV- | 4 | 25.056 | 42.345 | 1.00 | 29.40 | 0.000 | 0.000 | 1,244.93 | 0.00 | 0.00 | 277.52 |
| 120.0 | RFS ATMAA1412D- | 4 | 25.056 | 42.345 | 0.50 | 2.78 | 0.000 | 0.000 | 117.72 | 0.00 | 0.00 | 82.40 |
| 120.0 | RFS ATMPP1412D- | 4 | 25.056 | 42.345 | 0.50 | 2.78 | 0.000 | 0.000 | 117.72 | 0.00 | 0.00 | 82.40 |
| 120.0 | Flat Low Profile Pla | 1 | 25.056 | 42.345 | 1.00 | 31.60 | 0.000 | 0.000 | 1,338.09 | 0.00 | 0.00 | 1,700.00 |
| 132.0 | Flat Low Profile Pla | 1 | 25.748 | 43.514 | 1.00 | 31.60 | 0.000 | 0.000 | 1,375.03 | 0.00 | 0.00 | 1,700.00 |
| 132.0 | 14" x 9" TTA | 6 | 25.748 | 43.514 | 0.50 | 4.38 | 0.000 | 0.000 | 190.59 | 0.00 | 0.00 | 108.00 |
| 132.0 | 72" x 12" Panel | 6 | 25.803 | 43.608 | 0.75 | 41.53 | 0.000 | 1.000 | 1,811.22 | 0.00 | 1,811.22 | 553.68 |
| 132.0 | Diplexer / Coupler | 6 | 25.748 | 43.514 | 0.50 | 2.64 | 0.000 | 0.000 | 114.88 | 0.00 | 0.00 | 58.80 |
| 140.0 | Decibel 948F85T2E-M | 6 | 26.184 | 44.251 | 1.36 | 19.11 | 0.000 | 0.000 | 845.75 | 0.00 | 0.00 | 168.00 |
| 140.0 | Flat Low Profile Pla | 1 | 26.184 | 44.251 | 1.00 | 31.60 | 0.000 | 0.000 | 1,398.34 | 0.00 | 0.00 | 1,700.00 |
| 140.0 | Decibel DB844H90E- | 2 | 26.184 | 44.251 | 1.16 | 8.32 | 0.000 | 0.000 | 368.39 | 0.00 | 0.00 | 80.60 |
| 140.0 | Antel LPA-80063/6CF | 2 | 26.184 | 44.251 | 1.00 | 22.36 | 0.000 | 0.000 | 989.46 | 0.00 | 0.00 | 202.00 |
| 140.0 | Antel LPA-80080/6CF | 2 | 26.184 | 44.251 | 1.83 | 18.23 | 0.000 | 0.000 | 806.62 | 0.00 | 0.00 | 100.00 |
| 148.0 | 6' Dipole | 1 | 26.857 | 45.388 | 1.00 | 3.00 | 0.000 | 5.000 | 136.17 | 0.00 | 680.83 | 39.30 |
| 148.0 | Flat Low Profile Pla | 1 | 26.603 | 44.960 | 1.00 | 31.60 | 0.000 | 0.000 | 1,420.72 | 0.00 | 0.00 | 1,700.00 |
| 148.0 | 72" x 12" Panel | 3 | 26.655 | 45.046 | 0.75 | 20.77 | 0.000 | 1.000 | 935.50 | 0.00 | 935.50 | 276.84 |
| 148.0 | 48" x 12" Panel | 9 | 26.655 | 45.046 | 0.75 | 41.78 | 0.000 | 1.000 | 1,882.14 | 0.00 | 1,882.14 | 567.00 |
| 148.0 | 11' Dipole | 1 | 26.982 | 45.599 | 1.00 | 4.00 | 0.000 | 7.500 | 182.40 | 0.00 | 1,367.97 | 25.00 |
| 148.0 | 6' Omni | 1 | 26.857 | 45.388 | 1.00 | 2.13 | 0.000 | 5.000 | 96.68 | 0.00 | 483.39 | 38.24 |
| | | | | | | | | | 19,872.92 | | | 13,317.84 |

| | | | |
|---|---|---|---|
| Pole : | 302540 | Code: TIA/EIA-222 Rev F | |
| Location : | Madison CT 6, CT | | |
| Height : | 148.0 (ft) | | |
| Shape : | 18 Sides | | |
| Base Dia : | 61.05 (in) | | |
| Top Dia : | 24.00 (in) | | |
| Taper : | 0.263006 (in/ft) | Base Elev : 0.000 (ft) | |





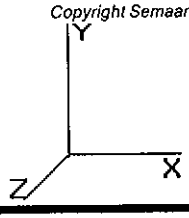



**Load Case:** Ice — 82.27 mph Wind with Ice — 21 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

## Linear Appurtenance Segment Forces

| Seg Top Elev (ft) | Description | Exposed To Wind | Length (ft) | Weight (lb/ft) | CaAa (sf/ft) | qz (psf) | F X (lb) | Dead Load (lb) |
|---|---|---|---|---|---|---|---|---|
| 5.00 | (1) 1/2" Coax | Yes | 5.00 | 0.84 | 0.16 | 17.327 | 23.43 | 4.20 |
| 10.00 | (1) 1/2" Coax | Yes | 5.00 | 0.84 | 0.16 | 17.327 | 23.43 | 4.20 |
| 15.00 | (1) 1/2" Coax | Yes | 5.00 | 0.84 | 0.16 | 17.327 | 23.43 | 4.20 |
| 20.00 | (1) 1/2" Coax | Yes | 5.00 | 0.84 | 0.16 | 17.327 | 23.43 | 4.20 |
| 25.00 | (1) 1/2" Coax | Yes | 5.00 | 0.84 | 0.16 | 17.327 | 23.43 | 4.20 |
| 30.00 | (1) 1/2" Coax | Yes | 5.00 | 0.84 | 0.16 | 17.327 | 23.43 | 4.20 |
| 35.00 | (1) 1/2" Coax | Yes | 5.00 | 0.84 | 0.16 | 17.621 | 23.82 | 4.20 |
| | | | | | | Totals: | 164.38 | 29.40 |



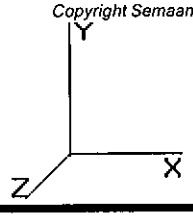



**Load Case:** Ice — 82.27 mph Wind with Ice — 21 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

## Applied Segment Forces Summary

| Seg Elev (ft) | Lateral FX (-) (lb) | Axial FY (-) (lb) | Torsion MY (lb-ft) | Moment MZ (lb-ft) |
|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5.00 | 510.31 | 2,097.17 | 0.00 | 0.00 |
| 10.00 | 499.88 | 2,057.60 | 0.00 | 0.00 |
| 15.00 | 489.45 | 2,018.04 | 0.00 | 0.00 |
| 20.00 | 479.02 | 1,978.47 | 0.00 | 0.00 |
| 25.00 | 468.59 | 1,938.91 | 0.00 | 0.00 |
| 30.00 | 458.16 | 1,899.35 | 0.00 | 0.00 |
| 35.00 | 669.73 | 2,049.78 | 0.00 | 0.00 |
| 38.50 | 303.91 | 1,275.79 | 0.00 | 0.00 |
| 40.00 | 131.91 | 852.22 | 0.00 | 0.00 |
| 45.00 | 447.33 | 2,796.28 | 0.00 | 0.00 |
| 50.00 | 449.26 | 1,432.54 | 0.00 | 0.00 |
| 55.00 | 449.60 | 1,401.85 | 0.00 | 0.00 |
| 60.00 | 448.54 | 1,371.16 | 0.00 | 0.00 |
| 65.00 | 446.26 | 1,340.48 | 0.00 | 0.00 |
| 70.00 | 442.88 | 1,309.79 | 0.00 | 0.00 |
| 73.00 | 262.65 | 771.63 | 0.00 | 0.00 |
| 75.00 | 176.33 | 797.11 | 0.00 | 0.00 |
| 78.50 | 307.48 | 1,374.15 | 0.00 | 0.00 |
| 80.00 | 130.48 | 334.70 | 0.00 | 0.00 |
| 85.00 | 433.64 | 1,097.18 | 0.00 | 0.00 |
| 86.00 | 1,028.14 | 1,056.00 | 0.00 | 0.00 |
| 90.00 | 340.40 | 835.29 | 0.00 | 0.00 |
| 95.00 | 419.43 | 1,020.08 | 0.00 | 0.00 |
| 96.00 | 2,582.89 | 2,169.86 | 0.00 | 0.00 |
| 100.0 | 327.90 | 770.61 | 0.00 | 0.00 |
| 105.0 | 402.56 | 939.23 | 0.00 | 0.00 |
| 106.0 | 921.93 | 1,045.02 | 0.00 | 0.00 |
| 108.7 | 215.78 | 492.61 | 0.00 | 0.00 |
| 110.0 | 98.33 | 336.27 | 0.00 | 0.00 |
| 113.0 | 234.03 | 795.40 | 0.00 | 0.00 |
| 115.0 | 153.82 | 304.75 | 0.00 | 0.00 |
| 120.0 | 3,197.17 | 2,887.71 | 0.00 | 0.00 |
| 125.0 | 367.89 | 657.98 | 0.00 | 0.00 |
| 130.0 | 356.60 | 636.17 | 0.00 | 0.00 |
| 132.0 | 3,630.65 | 2,669.33 | 0.00 | 1,811.22 |
| 135.0 | 205.05 | 336.97 | 0.00 | 0.00 |
| 140.0 | 4,741.28 | 2,793.95 | 0.00 | 0.00 |
| 145.0 | 320.15 | 472.34 | 0.00 | 0.00 |
| 148.0 | 4,839.13 | 2,919.80 | 0.00 | 5,349.82 |
| Totals: | 32,388.53 | 53,333.57 | 0.00 | 7,161.05 |






**Load Case:** Ice — 82.27 mph Wind with Ice — 21 Iterations

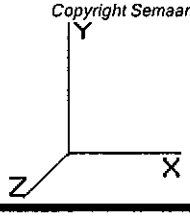
Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

## Calculated Shaft Forces and Deflections

| Seg Elev (ft) | Lateral FX (-) (kips) | Axial FY (-) (kips) | Lateral FZ (kips) | Moment MX (ft-kips) | Torsion MY (ft-kips) | Moment MZ (ft-kips) | X Deflect (in) | Z Deflect (in) | Total Deflect (in) | Rotation (deg) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | -32.440 | -53.301 | 0.000 | 0.000 | 0.000 | -3,514.826 | 0.000 | 0.000 | 0.000 | 0.000 |
| 5.00 | -32.027 | -51.143 | 0.000 | 0.000 | 0.000 | -3,352.627 | -0.059 | 0.000 | 0.059 | -0.110 |
| 10.00 | -31.618 | -49.025 | 0.000 | 0.000 | 0.000 | -3,192.495 | -0.235 | 0.000 | 0.235 | -0.221 |
| 15.00 | -31.212 | -46.947 | 0.000 | 0.000 | 0.000 | -3,034.410 | -0.528 | 0.000 | 0.528 | -0.335 |
| 20.00 | -30.811 | -44.909 | 0.000 | 0.000 | 0.000 | -2,878.351 | -0.941 | 0.000 | 0.941 | -0.451 |
| 25.00 | -30.414 | -42.911 | 0.000 | 0.000 | 0.000 | -2,724.298 | -1.477 | 0.000 | 1.477 | -0.568 |
| 30.00 | -30.021 | -40.954 | 0.000 | 0.000 | 0.000 | -2,572.229 | -2.137 | 0.000 | 2.137 | -0.688 |
| 35.00 | -29.395 | -38.860 | 0.000 | 0.000 | 0.000 | -2,422.125 | -2.923 | 0.000 | 2.923 | -0.809 |
| 38.50 | -29.113 | -37.557 | 0.000 | 0.000 | 0.000 | -2,319.242 | -3.549 | 0.000 | 3.549 | -0.896 |
| 40.00 | -29.020 | -36.666 | 0.000 | 0.000 | 0.000 | -2,275.573 | -3.837 | 0.000 | 3.837 | -0.934 |
| 45.00 | -28.599 | -33.815 | 0.000 | 0.000 | 0.000 | -2,130.474 | -4.883 | 0.000 | 4.883 | -1.059 |
| 50.00 | -28.203 | -32.321 | 0.000 | 0.000 | 0.000 | -1,987.483 | -6.061 | 0.000 | 6.061 | -1.185 |
| 55.00 | -27.810 | -30.851 | 0.000 | 0.000 | 0.000 | -1,846.471 | -7.389 | 0.000 | 7.389 | -1.347 |
| 60.00 | -27.411 | -29.413 | 0.000 | 0.000 | 0.000 | -1,707.425 | -8.888 | 0.000 | 8.888 | -1.509 |
| 65.00 | -27.007 | -28.009 | 0.000 | 0.000 | 0.000 | -1,570.374 | -10.556 | 0.000 | 10.556 | -1.672 |
| 70.00 | -26.585 | -26.653 | 0.000 | 0.000 | 0.000 | -1,435.340 | -12.396 | 0.000 | 12.396 | -1.835 |
| 73.00 | -26.335 | -25.852 | 0.000 | 0.000 | 0.000 | -1,355.586 | -13.581 | 0.000 | 13.581 | -1.935 |
| 75.00 | -26.171 | -25.020 | 0.000 | 0.000 | 0.000 | -1,302.917 | -14.407 | 0.000 | 14.407 | -2.002 |
| 78.50 | -25.848 | -23.621 | 0.000 | 0.000 | 0.000 | -1,211.320 | -15.918 | 0.000 | 15.918 | -2.116 |
| 80.00 | -25.753 | -23.239 | 0.000 | 0.000 | 0.000 | -1,172.548 | -16.591 | 0.000 | 16.591 | -2.166 |
| 85.00 | -25.318 | -22.112 | 0.000 | 0.000 | 0.000 | -1,043.785 | -18.958 | 0.000 | 18.958 | -2.348 |
| 86.00 | -24.281 | -21.061 | 0.000 | 0.000 | 0.000 | -1,018.468 | -19.454 | 0.000 | 19.454 | -2.385 |
| 90.00 | -23.961 | -20.174 | 0.000 | 0.000 | 0.000 | -921.346 | -21.515 | 0.000 | 21.515 | -2.528 |
| 95.00 | -23.529 | -19.133 | 0.000 | 0.000 | 0.000 | -801.545 | -24.256 | 0.000 | 24.256 | -2.700 |
| 96.00 | -20.872 | -17.057 | 0.000 | 0.000 | 0.000 | -778.016 | -24.825 | 0.000 | 24.825 | -2.735 |
| 100.0 | -20.548 | -16.251 | 0.000 | 0.000 | 0.000 | -694.532 | -27.175 | 0.000 | 27.175 | -2.869 |
| 105.0 | -20.123 | -15.301 | 0.000 | 0.000 | 0.000 | -591.792 | -30.265 | 0.000 | 30.265 | -3.028 |
| 106.0 | -19.161 | -14.286 | 0.000 | 0.000 | 0.000 | -571.670 | -30.903 | 0.000 | 30.903 | -3.060 |
| 108.7 | -18.934 | -13.786 | 0.000 | 0.000 | 0.000 | -518.977 | -32.690 | 0.000 | 32.690 | -3.145 |
| 110.0 | -18.832 | -13.435 | 0.000 | 0.000 | 0.000 | -495.310 | -33.519 | 0.000 | 33.519 | -3.183 |
| 113.0 | -18.569 | -12.631 | 0.000 | 0.000 | 0.000 | -438.814 | -35.547 | 0.000 | 35.547 | -3.270 |
| 115.0 | -18.421 | -12.302 | 0.000 | 0.000 | 0.000 | -401.676 | -36.929 | 0.000 | 36.929 | -3.326 |
| 120.0 | -15.081 | -9.573 | 0.000 | 0.000 | 0.000 | -309.572 | -40.494 | 0.000 | 40.494 | -3.474 |
| 125.0 | -14.691 | -8.909 | 0.000 | 0.000 | 0.000 | -234.169 | -44.202 | 0.000 | 44.202 | -3.602 |
| 130.0 | -14.305 | -8.280 | 0.000 | 0.000 | 0.000 | -160.713 | -48.033 | 0.000 | 48.033 | -3.708 |
| 132.0 | -10.512 | -5.845 | 0.000 | 0.000 | 0.000 | -130.292 | -49.594 | 0.000 | 49.594 | -3.744 |
| 135.0 | -10.290 | -5.513 | 0.000 | 0.000 | 0.000 | -98.756 | -51.961 | 0.000 | 51.961 | -3.789 |
| 140.0 | -5.376 | -3.037 | 0.000 | 0.000 | 0.000 | -47.304 | -55.957 | 0.000 | 55.957 | -3.840 |
| 145.0 | -5.025 | -2.586 | 0.000 | 0.000 | 0.000 | -20.426 | -59.993 | 0.000 | 59.993 | -3.868 |
| 148.0 | -4.839 | 0.000 | 0.000 | 0.000 | 0.000 | -5.350 | -62.425 | 0.000 | 62.425 | -3.876 |

| | | | |
|---|---|---|---|
| Pole : | 302540 | Code: TIA/EIA-222 Rev F | |
| Location : | Madison CT 6, CT | | |
| Height : | 148.0 (ft) | | |
| Shape : | 18 Sides | | |
| Base Dia : | 61.05 (in) | | |
| Top Dia : | 24.00 (in) | | |
| Taper : | 0.263006 (in/ft) | Base Elev : 0.000 (ft) | |








**Load Case:** Ice — 82.27 mph Wind with Ice — 21 Iterations

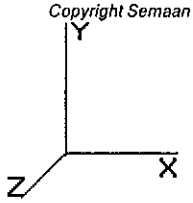
Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

## Calculated Stresses

| Seg Elev (ft) | Applied Stresses | | | | | | | Allowable Stress (Fb) (ksi) | | Stress Ratio |
|---|---|---|---|---|---|---|---|---|---|---|
| | Axial (Y) (ksi) | Shear (X) (ksi) | Shear (Z) (ksi) | Torsion (ksi) | Bending (X) (ksi) | Bending (Z) (ksi) | Combined (ksi) | | | |
| 0.00 | 0.55 | 0.68 | 0.00 | 0.00 | 0.00 | 29.37 | 29.95 | 52.0 | 0.0 | 0.576 |
| 5.00 | 0.54 | 0.69 | 0.00 | 0.00 | 0.00 | 29.28 | 29.85 | 52.0 | 0.0 | 0.574 |
| 10.00 | 0.53 | 0.69 | 0.00 | 0.00 | 0.00 | 29.17 | 29.72 | 52.0 | 0.0 | 0.572 |
| 15.00 | 0.52 | 0.70 | 0.00 | 0.00 | 0.00 | 29.03 | 29.58 | 52.0 | 0.0 | 0.569 |
| 20.00 | 0.51 | 0.71 | 0.00 | 0.00 | 0.00 | 28.87 | 29.41 | 52.0 | 0.0 | 0.566 |
| 25.00 | 0.50 | 0.72 | 0.00 | 0.00 | 0.00 | 28.68 | 29.21 | 52.0 | 0.0 | 0.562 |
| 30.00 | 0.49 | 0.72 | 0.00 | 0.00 | 0.00 | 28.45 | 28.97 | 52.0 | 0.0 | 0.557 |
| 35.00 | 0.48 | 0.73 | 0.00 | 0.00 | 0.00 | 28.19 | 28.69 | 52.0 | 0.0 | 0.552 |
| 38.50 | 0.47 | 0.73 | 0.00 | 0.00 | 0.00 | 27.99 | 28.49 | 52.0 | 0.0 | 0.548 |
| 40.00 | 0.46 | 0.74 | 0.00 | 0.00 | 0.00 | 27.90 | 28.39 | 52.0 | 0.0 | 0.546 |
| 45.00 | 0.57 | 0.98 | 0.00 | 0.00 | 0.00 | 35.37 | 35.98 | 52.0 | 0.0 | 0.692 |
| 50.00 | 0.56 | 0.99 | 0.00 | 0.00 | 0.00 | 34.82 | 35.43 | 52.0 | 0.0 | 0.682 |
| 55.00 | 0.55 | 1.00 | 0.00 | 0.00 | 0.00 | 34.20 | 34.79 | 52.0 | 0.0 | 0.669 |
| 60.00 | 0.54 | 1.02 | 0.00 | 0.00 | 0.00 | 33.48 | 34.06 | 52.0 | 0.0 | 0.655 |
| 65.00 | 0.53 | 1.03 | 0.00 | 0.00 | 0.00 | 32.65 | 33.23 | 52.0 | 0.0 | 0.639 |
| 70.00 | 0.52 | 1.05 | 0.00 | 0.00 | 0.00 | 31.70 | 32.28 | 52.0 | 0.0 | 0.621 |
| 73.00 | 0.51 | 1.06 | 0.00 | 0.00 | 0.00 | 31.08 | 31.64 | 52.0 | 0.0 | 0.609 |
| 75.00 | 0.50 | 1.06 | 0.00 | 0.00 | 0.00 | 30.63 | 31.19 | 52.0 | 0.0 | 0.600 |
| 78.50 | 0.57 | 1.27 | 0.00 | 0.00 | 0.00 | 34.51 | 35.15 | 52.0 | 0.0 | 0.676 |
| 80.00 | 0.57 | 1.27 | 0.00 | 0.00 | 0.00 | 34.05 | 34.69 | 52.0 | 0.0 | 0.667 |
| 85.00 | 0.56 | 1.29 | 0.00 | 0.00 | 0.00 | 32.36 | 33.00 | 52.0 | 0.0 | 0.635 |
| 86.00 | 0.54 | 1.25 | 0.00 | 0.00 | 0.00 | 32.00 | 32.61 | 52.0 | 0.0 | 0.627 |
| 90.00 | 0.53 | 1.27 | 0.00 | 0.00 | 0.00 | 30.56 | 31.17 | 52.0 | 0.0 | 0.600 |
| 95.00 | 0.52 | 1.29 | 0.00 | 0.00 | 0.00 | 28.51 | 29.12 | 52.0 | 0.0 | 0.560 |
| 96.00 | 0.47 | 1.15 | 0.00 | 0.00 | 0.00 | 28.07 | 28.61 | 52.0 | 0.0 | 0.550 |
| 100.00 | 0.46 | 1.17 | 0.00 | 0.00 | 0.00 | 26.56 | 27.09 | 52.0 | 0.0 | 0.521 |
| 105.00 | 0.45 | 1.19 | 0.00 | 0.00 | 0.00 | 24.40 | 24.93 | 52.0 | 0.0 | 0.480 |
| 106.00 | 0.42 | 1.14 | 0.00 | 0.00 | 0.00 | 23.93 | 24.43 | 52.0 | 0.0 | 0.470 |
| 108.75 | 0.41 | 1.15 | 0.00 | 0.00 | 0.00 | 22.68 | 23.18 | 52.0 | 0.0 | 0.446 |
| 110.00 | 0.41 | 1.15 | 0.00 | 0.00 | 0.00 | 22.08 | 22.57 | 52.0 | 0.0 | 0.434 |
| 113.00 | 0.48 | 1.43 | 0.00 | 0.00 | 0.00 | 24.74 | 25.35 | 52.0 | 0.0 | 0.488 |
| 115.00 | 0.48 | 1.44 | 0.00 | 0.00 | 0.00 | 23.39 | 24.00 | 52.0 | 0.0 | 0.462 |
| 120.00 | 0.39 | 1.23 | 0.00 | 0.00 | 0.00 | 19.59 | 20.09 | 52.0 | 0.0 | 0.387 |
| 125.00 | 0.38 | 1.25 | 0.00 | 0.00 | 0.00 | 16.16 | 16.68 | 52.0 | 0.0 | 0.321 |
| 130.00 | 0.37 | 1.28 | 0.00 | 0.00 | 0.00 | 12.14 | 12.70 | 52.0 | 0.0 | 0.244 |
| 132.00 | 0.26 | 0.96 | 0.00 | 0.00 | 0.00 | 10.22 | 10.61 | 52.0 | 0.0 | 0.204 |
| 135.00 | 0.26 | 0.96 | 0.00 | 0.00 | 0.00 | 8.21 | 8.62 | 52.0 | 0.0 | 0.166 |
| 140.00 | 0.15 | 0.53 | 0.00 | 0.00 | 0.00 | 4.34 | 4.58 | 52.0 | 0.0 | 0.088 |
| 145.00 | 0.13 | 0.52 | 0.00 | 0.00 | 0.00 | 2.08 | 2.39 | 52.0 | 0.0 | 0.046 |
| 148.00 | 0.00 | 0.52 | 0.00 | 0.00 | 0.00 | 0.58 | 1.07 | 52.0 | 0.0 | 0.021 |

| | | | |
|---|---|---|---|
| Pole : | 302540 | Code: TIA/EIA-222 Rev F | |
| Location : | Madison CT 6, CT | | |
| Height : | 148.0 (ft) | | |
| Shape : | 18 Sides | | |
| Base Dia : | 61.05 (in) | | |
| Top Dia : | 24.00 (in) | | |
| Taper : | 0.263006 (in/ft) | Base Elev : 0.000 (ft) | |

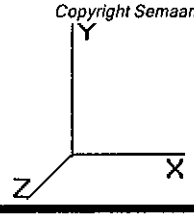







## Analysis Summary

| | Reactions | | | | | | Max Stresses | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Load Case | Shear FX (kips) | Shear FZ (kips) | Axial FY (kips) | Moment MX (ft-kips) | Moment MY (ft-kips) | Moment MZ (ft-kips) | Combined Stress (ksi) | Allowable Stress (ksi) | Elev (ft) | Stress Ratio |
| No Ice | 39.1 | 0.00 | 46.38 | 0.00 | 0.00 | 4156.25 | 41.99 | 52.0 | 45.00 | 0.808 |
| Ice | 32.4 | 0.00 | 53.30 | 0.00 | 0.00 | 3514.83 | 35.98 | 52.0 | 45.00 | 0.692 |




## Base Summary

### Reactions

| Original Design | | | Analysis | | | |
|---|---|---|---|---|---|---|
| Moment (kip-ft) | Axial (kip) | Shear (kip) | Moment (kip-ft) | Axial (kip) | Shear (kip) | Moment Design % |
| 5,050.00 | 35.00 | 47.00 | 4,156.25 | 53.30 | 39.07 | 82.30 |

### Base Plate

| Yield (ksi) | Thick (in) | Width (in) | Style | Poly Sides | Clip Len (in) | Effective Len (in) | Moment (kip-in) | Allow Stress (ksi) | Applied Stress (ksi) | Stress Ratio |
|---|---|---|---|---|---|---|---|---|---|---|
| 50.0 | 3.250 | 68.000 | Clipped | 0 | 15.00 | 4.844 | 382.75 | 49.99 | 44.88 | 0.90 |

### Anchor Bolts

| | | | | | | | | Start | Compression | | | Tension | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bolt Circle | Num Bolts | Bolt Type | Bolt Dia (in) | Yield (ksi) | Ultimate (ksi) | Arrange | Cluster Dist (in) | Angle (deg) | Force (kip) | Allow (kip) | Ratio | Force (kip) | Allow (kip) | Ratio |
| 69.00 | 20 | 2.25" 18J | 2.25 | 62.50 | 83.30 | Clustered | 6.00 | 45.0 | 147.23 | 162.48 | 0.91 | 141.90 | 162.48 | 0.87 |

T · ·Mobile·

T-Mobile USA Inc.
35 Griffin Rd South, Bloomfield, CT 06002-1853
Phone: (860) 692-7100
Fax: (860) 692-7159

# Technical Memo

To: Transcend
From: Amir Uzzaman - Radio Frequency Engineer
cc: Jason Overbey
Subject: Power Density Report for CT11167A
Date: November 23, 2010

**1. Introduction:**

This report is the result of an Electromagnetic Field Intensities (EMF - Power Densities) study for the T-Mobile antenna installation on a Self Support Tower at 8 Old Route 79, Madison, CT. This study incorporates the most conservative consideration for determining the practical combined worst case power density levels that would be theoretically encountered from locations surrounding the transmitting location.

**2. Discussion:**

The following assumptions were used in the calculations:

1) The emissions from T-Mobile transmitters are in the (1935-1944.8), (1983-1984), (2140-2145)MHz frequency Band.
2) The antenna array consists of three sectors, with 1 antenna per sector.
3) The model number for GSM antenna is APX16DWV-16DWV.
3) The model number for UMTS antenna is APX16DWV-16DWV.
4) GSM antenna center line height is 120 ft.
4) UMTS antenna center line height is 120 ft.
5) The maximum transmit power from any GSM sector is 2464.45 Watts Effective Radiated Power (EiRP) assuming 8 channels per sector.
5) The maximum transmit power from any UMTS sector is 2458.61 Watts Effective Radiated Power (EiRP) assuming 2 channels per sector.
6) All the antennas are simultaneously transmitting and receiving, 24 hours a day.
7) Power levels emitting from the antennas are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
8) The average ground level of the studied area does not change significantly with respect to the transmitting location.

Equations given in "FCC OET Bulletin 65, Edition 97-01" were then used with the above information to perform the calculations.

**3. Conclusion:**

Based on the above worst case assumptions, the power density calculation from the T-Mobile antenna installation on a Self Support Tower at 8 Old Route 79, Madison, CT, is 0.08311 mW/cm^2. This value represents 8.311% of the Maximum Permissible Exposure (MPE) standard of 1 milliwatt per square centimeter (mW/cm^2) set forth in the FCC/ANSI/IEEE C95.1-1991. Furthermore, the proposed antenna location for T-Mobile will not interfere with existing public safety communications, AM or FM radio broadcasts, TV, Police Communications, HAM Radio communications or any other signals in the area.
The combined Power Density from other carriers is 46.6077%. The combined Power Density for the site is 54.919% of the M.P.E. standard.

## Connecticut Market

T-Mobile

**Worst Case Power Density**

| | |
|---|---|
| **Site:** | **CT11167A** |
| **Site Address:** | **8 Old Route 79** |
| **Town:** | **Madison** |
| **Tower Height:** | **148 ft.** |
| **Tower Style:** | **Self Support Tower** |

| GSM Data | | UMTS Data | |
|---|---|---|---|
| **Base Station TX output** | 20 W | **Base Station TX output** | 40 W |
| **Number of channels** | 8 | **Number of channels** | 2 |
| **Antenna Model** | APX16DWV-16DWV | **Antenna Model** | APX16DWV-16DWV |
| **Cable Size** | 1 5/8 in. | **Cable Size** | 1 5/8 in. |
| **Cable Length** | 140 ft. | **Cable Length** | 140 ft. |
| **Antenna Height** | 120.0 ft. | **Antenna Height** | 120.0 ft. |
| **Ground Reflection** | 1.6 | **Ground Reflection** | 1.6 |
| **Frequency** | 1945.0 MHz | **Frequency** | 2.1 GHz |
| **Jumper & Connector loss** | 4.50 dB | **Jumper & Connector loss** | 1.50 dB |
| **Antenna Gain** | 18.0 dBi | **Antenna Gain** | 18.0 dBi |
| **Cable Loss per foot** | 0.0116 dB | **Cable Loss per foot** | 0.0116 dB |
| **Total Cable Loss** | 1.6240 dB | **Total Cable Loss** | 1.6240 dB |
| **Total Attenuation** | 6.1240 dB | **Total Attenuation** | 3.1240 dB |
| **Total EIRP per Channel** | 54.89 dBm | **Total EIRP per Channel** | 60.90 dBm |
| **(In Watts)** | 308.06 W | **(In Watts)** | 1229.31 W |
| **Total EIRP per Sector** | 63.92 dBm | **Total EIRP per Sector** | 63.91 dBm |
| **(In Watts)** | 2464.45 W | **(In Watts)** | 2458.61 W |
| **nsg** | 11.8760 | **nsg** | 14.8760 |
| **Power Density (S) =** | **0.041604 mW/cm^2** | **Power Density (S) =** | **0.041505 mW/cm^2** |

**T-Mobile Worst Case % MPE = 8.3109%**

*Equation Used :*

$$S = \frac{(1000)(grf)^2 (Power)(10^{(ng/10)})}{4\pi (R)^2}$$

*Office of Engineering and Technology (OET) Bulletin 65, Edition 97-01, August 1997*

## Co-Location Total

| Carrier | % of Standard |
|---|---|
| Cingular UMTS | 1.7588 % |
| Cingular GSM | 2.0824 % |
| Cingular GSM | 1.7623 % |
| Pocket | 9.2031 % |
| Nextel | 3.0985 % |
| Verizon | 9.3154 % |
| Verizon | 1.1723 % |
| Town | 1.8000 % |
| Town Fire Dept | 1.0412 % |
| Sprint | 15.3737 % |
| Other Antenna Systems | |
| **Total Excluding T-Mobile** | **46.6077 %** |
| T-Mobile | 8.3109 |
| **Total % MPE for Site** | **54.9186%** |