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@po.state.ct.us
Web Site: www.state.ct.us/csc/index.htm

November 4, 2003

Michael P. Murphy
T-Mobile, USA - CT Real Estate Manager
76 Progress Drive
Stamford, CT 06902

RE: **EM-T-MOBILE-158-031022** - Omnipoint Facilities Network 2, LLC notice of intent to modify an existing telecommunications facility located at 515 Boston Post Road East, Westport, Connecticut.

Dear Mr. Murphy:

At a public meeting held on October 29, 2003, the Connecticut Siting Council (Council) acknowledged your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice dated October 21, 2003. 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. 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. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

Thank you for your attention and cooperation.

Very truly yours,

PBK/laf

Pamela B. Katz, P.E.
Chairman

PBK/laf

c: Honorable Diane G. Farrell, First Selectman, Town of Westport
Katherine Barnard, Director, Planning & Zoning, Town of Westport
Thomas J. Regan, Esq., Brown Rudnick Berlack Israels LLP
Thomas F. Flynn III, Nextel Communications, Inc.
Michele G. Briggs, Southwestern Bell Mobile Systems

Lisa A. Fontaine

From: Fournier, Karina [Karina.Fournier@T-Mobile.com]
Sent: Wednesday, October 29, 2003 10:53 AM
To: 'Lisa.Fontaine@po.state.ct.us'
Subject: EM-T-MOBILE-158-031022 (item 42 on today's agenda)

Lisa, If this application is approved today could you fax or email the approval letter to me when it is ready . My fax # is 860-692-7159. I'll make sure Mike Murphy gets it (he's the one who signed the application for T-Mobile). Thank you.

Karina (Hansen) Fournier
T-Mobile
Zoning Dept.

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@po.state.ct.us
Web Site: www.ct.gov/csc

October 23, 2003

Honorable Diane G. Farrell
First Selectman
Town of Westport
Town Hall
110 Myrtle Avenue
Westport, CT 06881

RE: **EM-T-MOBILE-158-031022** - Omnipoint Facilities Network 2, LLC notice of intent to modify an existing telecommunications facility located at 515 Boston Post Road East, Westport, Connecticut.

Dear Ms. Farrell:

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.

The Council will consider this item at the next meeting scheduled for October 29, 2003, at 1:30 p.m. in Hearing Room Two, Ten Franklin Square, New Britain, Connecticut.

Please call me or inform the Council if you have any questions or comments regarding this proposal.

Thank you for your cooperation and consideration.

Very truly yours,

S. Derek Phelps
Executive Director

SDP/ld

Enclosure: Notice of Intent

c: Katherine Barnard, Director, Planning & Zoning, Town of Westport

EM-T-MOBILE-158-031022

T · ·Mobile·

October 21, 2003

Pamela Katz, Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

Re: Notice of Exempt Modification
515 Post Road East, Westport, Connecticut

Dear Chairman Katz and Members of the Council:

Please find enclosed and respectfully submitted, a request from Omnipoint Facilities Network 2, LLC ("T-Mobile") to modify an Exempt Tower and associated equipment at an existing telecommunications facility located at 515 Boston Post Road East, Westport, Connecticut. This facility is located on property owned by the Town of Westport and serves as the location of the Fire Department. The facility is owned and operated by Sprint PCS to provide a site for wireless telecommunications coverage and the Town's police, fire and emergency telecommunications.

T-Mobile wishes to share use of this facility in order to improve/expand its wireless system coverage and to avoid the possibility of constructing another telecommunications tower in the general area.

The attached information details how the addition of proposed antennas and associated equipment at the tower site meet the criteria set forth in Section 16-50j-72(b)(2) of the Regulations of the Connecticut State Agencies and therefore is an Exempt Modification pursuant to Section 16-50j-73 of the Regulation.

Thank you for your consideration in this matter.

Respectfully,

Michael P. Murphy
T-Mobile, USA -CT Real Estate Manager
76 Progress Drive
Stamford, CT 06902
203-328-8900

Enclosure

cc:
Town of Westport

Exempt Modification
515 Boston Post Road East
Westport, Connecticut

Pursuant to Section 16-50i(a)(5) of the Connecticut General Statues and Section 16-50j-72(b)(2), as amended, of the Regulations of Connecticut State Agencies, Omnipoint Facilities Network 2, LLC ("T-Mobile") hereby notifies the Connecticut Siting Council of its intent to modify an existing telecommunications facility located at 515 Boston Post Road East in Westport, Connecticut.

BACKGROUND

T-Mobile holds the "A block" "Wideband PCS" license for the 2-GHz PCS frequencies for the greater New York City area, including the entire State of Connecticut. T-Mobile is licensed by the Federal Communications Commission (FCC) to provide PCS wireless telecommunications service in the State of Connecticut, which includes the area to be served by the proposed installation.

This existing facility, located at 515 Boston Post Road East in Westport, Connecticut consists of a 150-foot tall monopole that is owned by Sprint PCS on property owned by the Town of Westport. T-Mobile has already undergone the local review required by the Town and has been approved. (See attached Exhibit 1) The tower is currently used by several wireless carriers and the Town of Westport to provide wireless and emergency service to this section of town. This site provides coverage along Routes 1 and I-95 and the vicinity of the downtown of Westport.

DISCUSSION

T-Mobile's proposal calls for the installation of 12 panel antennas center-lined at the 85-foot level of the tower (see Drawing LE 2 Exhibit 2) mounted on a low profile platform. The configuration is a cluster of three sectors with four antennas per sector. The model number for the antennas is EMS-RR90-17-02DPL2. Equipment specifications are attached as Exhibit 3. The coordinates for the site are **41-08-19 N and 73-20-31 W**. A structural analysis of the tower has been completed and is attached as Exhibit 4. The calculations conclude that the tower is structurally capable to support T-Mobile's proposed installation. Three Nortel equipment cabinets will be installed on the roof of the Fire Department adjacent to the tower (see Drawing LE 1 Exhibit 2).

The planned modifications to the Westport facility fall squarely within those activities explicitly provided for in R.C.S.A 16-50j-72(b)(2).

1. The enclosed tower drawings confirm that the planned changes will not increase the overall height of the tower.

2. The installation of T-Mobile's equipment, as reflected on the attached site plan, will not require an extension of the site boundaries.

3. The proposed modification to the facility will not increase the noise levels at the existing facility by six decibels or more. T-Mobile's equipment is self-contained and requires no additional heating, ventilation or cooling equipment.

4. The operation of the additional antennas will not increase the total radio frequency (RF) power density, measured at the site boundary, to a level at or above the applicable standard. The "worse-case" RF power density calculations, for a point at the site boundary, are attached hereto as Exhibit 5.

For the reasons discussed above, T-Mobile respectfully requests that the Council acknowledge that this Notice of Modification meets the Council's exemption criteria, and permit T-Mobile to share use of this facility.

Exhibit 1

Westport Approval

515 Boston Post Road East
Westport, Connecticut

TOWN OF WESTPORT, CONNECTICUT
Planning & Zoning Commission
110 Myrtle Avenue, Room 203
Westport, CT 06880 (203) 341-1030

ZONING PERMIT

32513

Address: 515 POST ROAD EAST

Tax Map # 53-18-1 Tax Lot # 6 Zoning District GBD

Lot Owner TOWN OF WESTPORT

Address 110 MYRTLE AVENUE Phone #

Applicant ERIC FINE

Address 515 POST ROAD EAST Phone # 341-5044

This permit is hereby applied for in accordance with the requirements of the Westport Zoning Regulations for:

Residential Projects:	Commercial Projects:	Signage:
☐ New Principal Building	☐ Interior Renovations	☐ Wall sign Allowed ..... sf
☐ Addition to Principal Building	☐ Building Addition	☐ Free Standing Proposed ..... sf
☐ Interior Renovations	☐ Restaurant Patio Permit	**Parking Spaces:**
☐ Accessory Structure	☐ Site Changes	Required ..... Provided .....
☐ Swimming Pool	☐ Temporary Zoning Permit	**Property Conditions:**
☐ Tennis Court	☐ Excavation & Fill Permit	# of Existing Structures .....
☐ Other	☑ Other TELECOMMUNICATION EQUIPMENT	Present Uses .....

Proposed Project & Dimensions of Structures:

INSTALL PLATFORM AND 12 PANEL ANTENNAS AND 3 EQUIPMENT CABINETS ON ROOF OF BUILDING

Lot Area Calculations:	Subtract 80% for...	Substantial Improvement? ☐ Yes ☐ No
Gross Lot Area ..... (sf)	☐ Steep Slopes	½ Market Value
Net Lot Area ..... (sf)	☐ Wetlands	of Building: .....

Building Coverage:	Total Coverage:	Average Existing Grade:
Allowed: ..... %	Allowed: ..... %	..... (ft)
Proposed: ..... %	Proposed: ..... %	

Setbacks: CORNER LOT (in ft)	Stories:	Height:
Setbacks allowed: front 30 side 15 rear	Allowed 2	25 (ft)
Setbacks Proposed: front >30 side >15 rear	Proposed 2	>25 (ft) PER VARIAN.

PRIOR APPROVALS:

☐ Health Department	☑ ZBA Variance # 6176 for BUILDING HEIGHT 6/10/03
☐ Conservation (WPLOWW)	☐ P&Z ☐ ARC Date
☐ Sewer Permit #	☐ Subdivision Date
☐ Driveway ☐ CT DOT Permit #	☑ Arch. Review Board 5/27/03
☐ Drainage ☐ Town Engineer	☐ DEP/ARMY COE Permit
☐ Aquifer Zone	☐ CAM Site Plan Date
☐ Flood Zone ☐ Floodway	☐ Flood & Erosion Board
☐ Sediment & Erosion Control Plan	☐ Historic District Commission
☐ Other	☐ Other

Page 2 of ZONING PERMIT: ADDRESS 515 POST ROAD EAST

Building Plans(Titled) ELEVATION AND DETAILS

(by) ON AIR ENVIRONMENT (dated) 2/28/03 (Revised) No. of Sheets 1

Survey or Site Plan Submitted:	
Titled SITE LAYOUT, PAVING AND GRADING	Dated 2/28/03
Prepared by ON AIR ENVIRONMENT	Revised 3/19/03 (SHEET 2-1)

This Zoning Permit is hereby issued ✓ **or denied** _____ **subject to the Zoning Regulations and the following conditions:**

☐ Foundation As-Built Survey is Required	☐ Final Health Dept. Inspection is Required
☐ Final As-Built Survey is Required	☐ Final Conservation Dept. Inspection is Required
☒ Final Zoning Dept. Inspection is Required	☐ Final Engineering Dept. (drainage) Approval
☒ Zoning Certificate of Compliance is Required	☐ Final Approval for Driveway Apron (Eng. Dept.)
☐ Sediment & Erosion Controls must be installed & maintained through construction until lot is stabilized	☐ Final Sewer Connection Required (Eng. Dept.)
	☐ Elevation Certificate from Surveyor Required
☐ Final Verification of Building Height is Required	☐ Construction must meet Flood Plain Regulations
☒ All Buildings, Structures, Patios, must meet setbacks	☒ All Mechanical Equipment including A/C Condensers, Pool Equipment & Generators must meet setbacks.
☐ All conditions of P&Z and/or ZBA must be adhered to	

Other Conditions of approval:

BLDG INSPECTOR TO VERIFY HEIGHT OF EQUIPMENT CABINETS

ALL CONDITIONS OF ZBA APPROVAL MUST BE ADHERED TO

RECOMMENDATIONS OF ARB MUST BE ADHERED TO

Permit void if: 1. Work or activity not commenced within 1 year of the date of issuance, or 2.Construction authorized not completed within 2 years of date of issuance.
Failure to comply with the conditions of approval of this permit shall constitute a violation of the Westport Zoning Regulations.

Issued By: MARY YOUNG DATE 6/24/03
Zoning Enforcement Office

Ff in fine #44 Construction Cost $ _____
Signature of Agent or Owner 06/25/2003

Permit Fee $ N/A

ZCC Fee $ _____

State of CT Fee $ 10.00

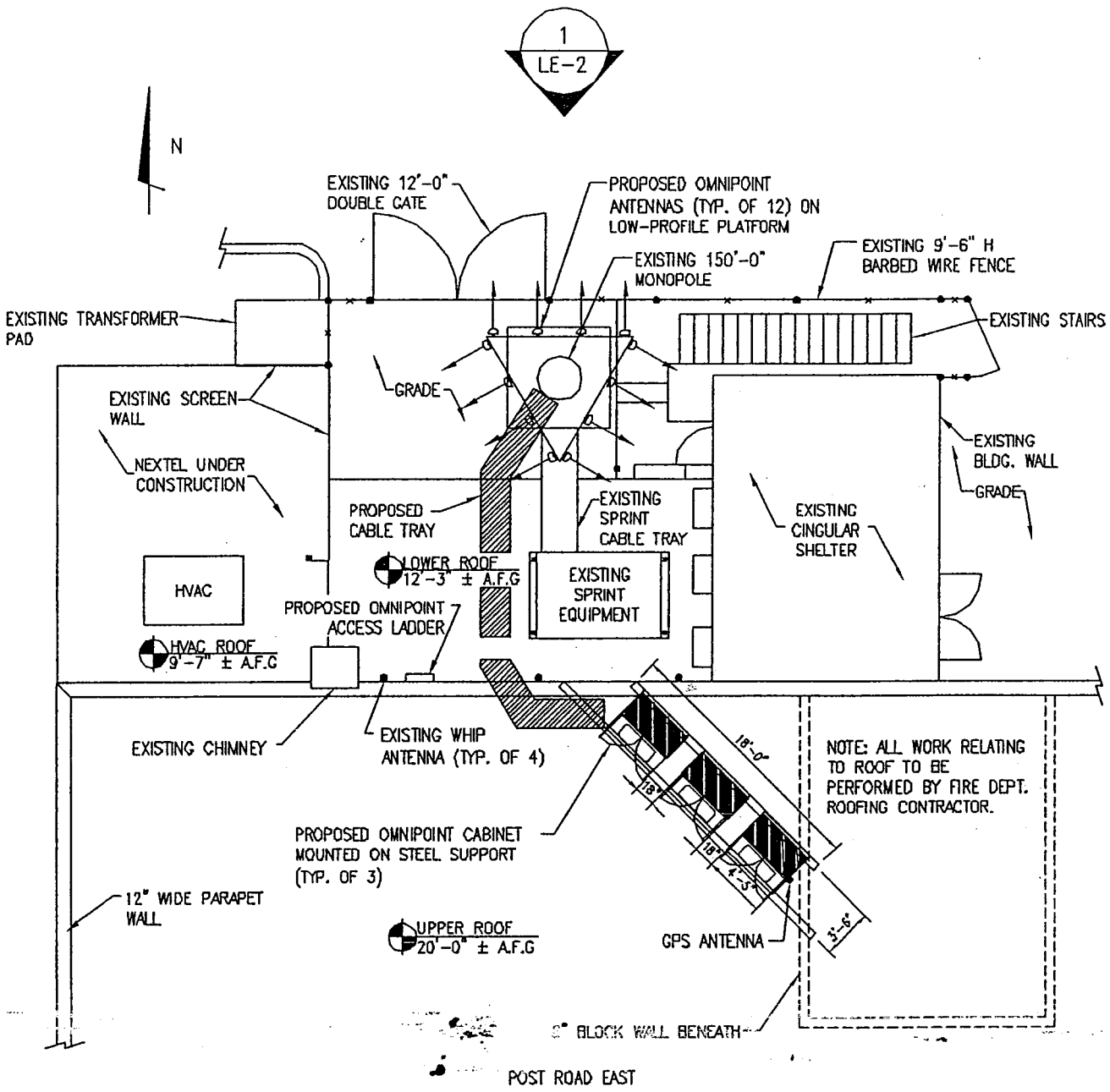
Paid Total $ _____

PERMIT # 32513

Exhibit 2

Design Drawings

515 Boston Post Road East
Westport, Connecticut



1 / LE-1 PARTIAL SITE LAYOUT
SCALE: 3/32"=1'-0"

NOTE: EXHIBITS SUBMITTED ARE A CONCEPTUAL REPRESENTATION OF THE LEASE AGREEMENT ONLY. ACTUAL CONSTRUCTION DOCUMENTATION MAY VARY TO COMPLY WITH ALL APPLICABLE CODES.

NOTE: PER FCC MANDATE, ENHANCED EMERGENCY (E911) POSITION LOCATION EQUIPMENT IS REQUIRED TO MEET NATIONWIDE STANDARDS FOR WIRELESS COMMUNICATIONS SYSTEMS. IMPLEMENTATION REQUIRES DEPLOYMENT OF APPROXIMATELY 2 MEASUREMENT FUNCTION RECEIVER (MFR) ANTENNAS AND 1 GLOBAL POSITIONING SYSTEM (GPS) ANTENNA. THIS PLAN DEPICTS A SCHEMATIC DESIGN AND LOCATION OF ANTENNAS AND MAY BE SUBJECT TO CHANGE. OFN2/OCI RESERVES THE RIGHT TO CHANGE THE LOCATION AND CONFIGURATION OF THE E911 EQUIPMENT AS REQUIRED.

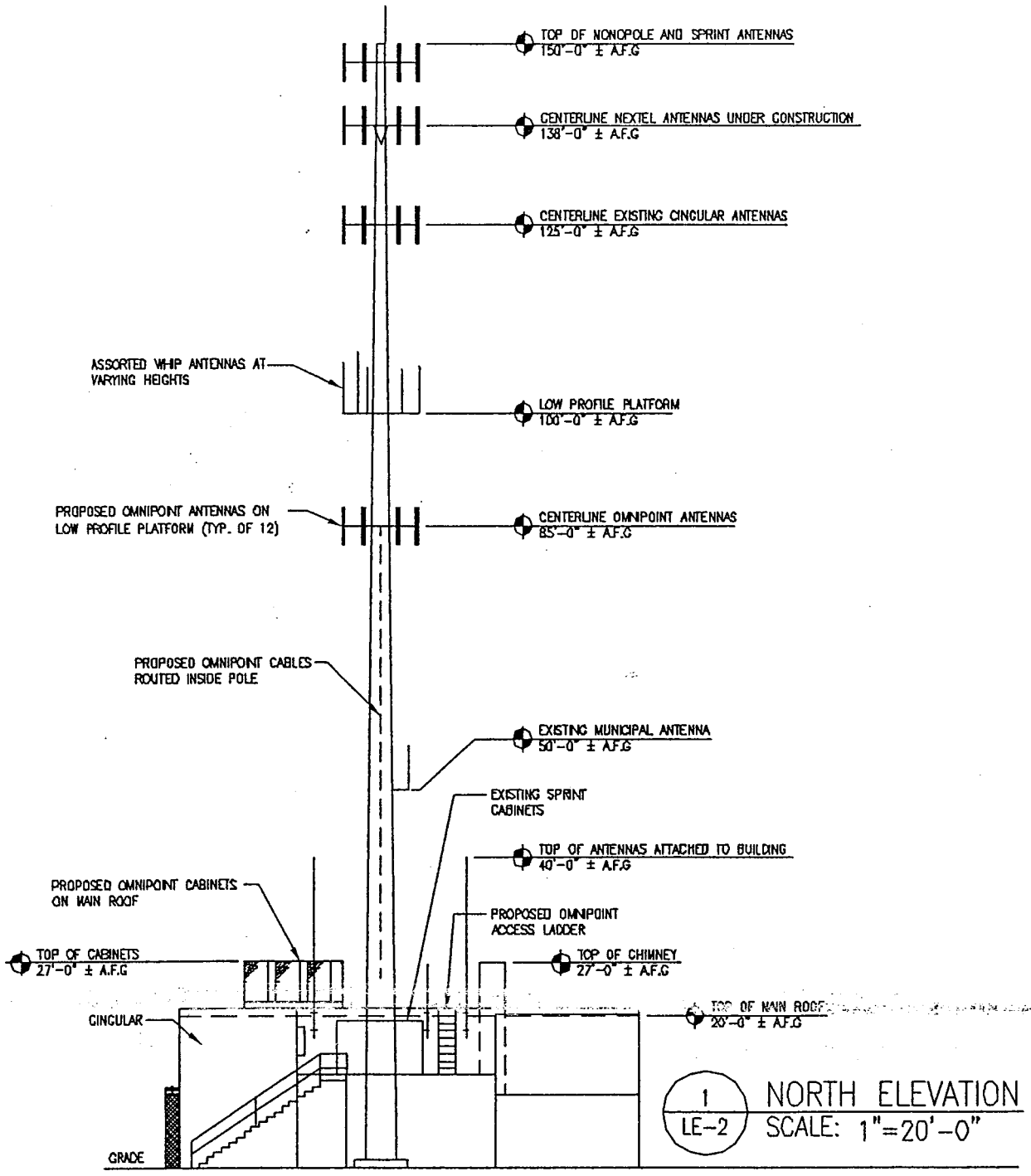
Approved By: RF ENGINEER:_____ DATE: _____
Approved By: CONST MNGR:_____ DATE: _____
Approved By: S.A.C. : _____ DATE: _____

Client: OMNIPOINT COMMUNICATIONS, INC. AS AGENT FOR OMNIPOINT FACILITIES NETWORK 2, LLC
76 PROGRESS DRIVE, 2ND FLOOR, STAMFORD, CT 06902

Project: WESTPORT FIRE DEPARTMENT
Address: 515 POST ROAD EAST WESTPORT, CT
Project No.: CT-11-295-A
Search Area:

On Air Engineering
201 WALNUT STREET, TYP. OF WASHINGTON, NJ 07676

P.M.:	Drawn:	Chkd. by:	Date:	Drawing Title:	Drawing No.
DW	MJ		REV. 1-31-03	SITE LAYOUT	LE-1



1 / LE-2 NORTH ELEVATION
SCALE: 1"=20'-0"

NOTE: EXHIBITS SUBMITTED ARE A CONCEPTUAL REPRESENTATION OF THE LEASE AGREEMENT ONLY. ACTUAL CONSTRUCTION DOCUMENTATION MAY VARY TO COMPLY WITH ALL APPLICABLE CODES.

NOTE: PER FCC MANDATE, ENHANCED EMERGENCY (E911) POSITION LOCATION EQUIPMENT IS REQUIRED TO MEET NATIONWIDE STANDARDS FOR WIRELESS COMMUNICATIONS SYSTEMS. IMPLEMENTATION REQUIRES DEPLOYMENT OF APPROXIMATELY 2 MEASUREMENT FUNCTION RECEIVER (MFR) ANTENNAS AND 1 GLOBAL POSITIONING SYSTEM (GPS) ANTENNA. THIS PLAN DEPICTS A SCHEMATIC DESIGN AND LOCATION OF ANTENNAS AND MAY BE SUBJECT TO CHANGE. OFN2/OCI RESERVES THE RIGHT TO CHANGE THE LOCATION AND CONFIGURATION OF THE E911 EQUIPMENT AS REQUIRED.

Approved By:
RF ENGINEER:_____ DATE: _____

Approved By:
CONST MNGR:_____ DATE: _____

Approved By:
S.A.C. : _____ DATE: _____

Client:
OMNIPOINT
COMMUNICATIONS, INC.
AS AGENT FOR OMNIPOINT FACILITIES NETWORK 2, LLC
78 PROGRESS DRIVE, 2ND FLOOR, STAMFORD, CT 06902

Project: WESTPORT FIRE DEPARTMENT
Address: 515 POST ROAD EAST
WESTPORT, CT
Project No: CT-11-295-A
Search Area:

On Air Engineering
201 WALNUT STREET, TWP. OF WASHINGTON, NJ 07676

P.M.:	Drawn:	Chkd. by:	Date:	Drawing Title:	Drawing No.:
DW	MJ		REV. 1-31-03	NORTH ELEVATION	LE-2

Exhibit 3

Equipment Specifications

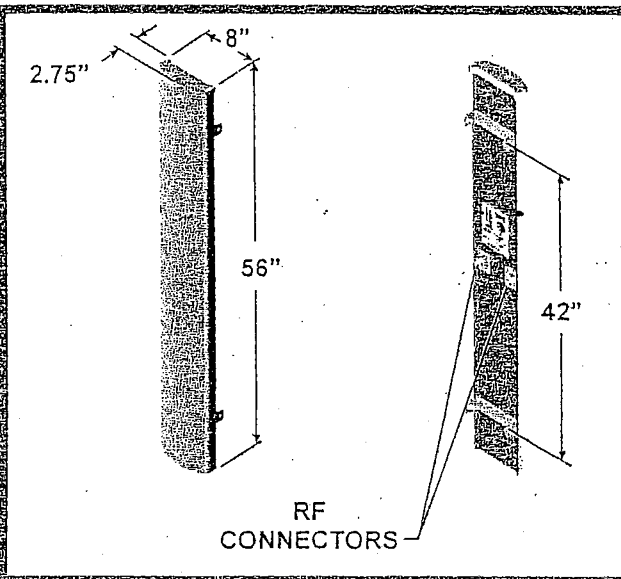
515 Boston Post Road East
Westport, Connecticut

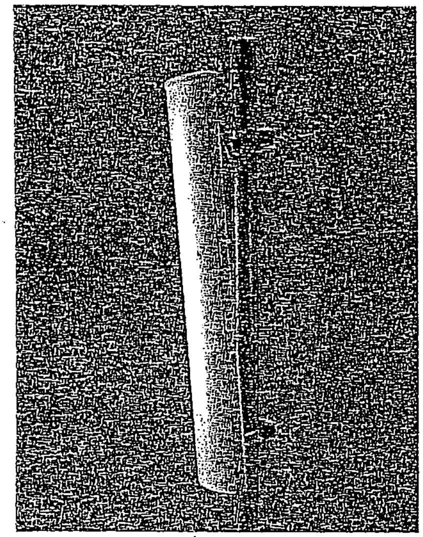
OptiRange™

RR90-17-XXXP

EMS WIRELESS

1850 MHz - 1990 MHz (P)





90° beamwidth

16.5 dBi gain

±45° DualPol™

56 inch

SPECIFICATIONS

Electrical

Azimuth Beamwidth	90°
Elevation Beamwidth	6°
Gain	16.5 dBi (14.4 dBd)
Polarization	Slant, ±45°
Port-to-Port Isolation	≥ 30 dB
Front-to-Back Ratio	≥ 25 dB (≥ 30 dB Typ.)
Electrical Downtilt Options	0°, 2°, 4°, 6°
VSWR	1.35:1 Max
Connectors	2;Type N or 7-16 DIN (female)
Power Handling	250 Watts CW
Passive Intermodulation	<-147 dBc (2 tone @ +43 dBm (20W) ea.)
Lightning Protection	Chassis Ground

Mechanical

Dimensions (L x W x D)	56in x 8in x 2.75in (142 cm x 20.3 cm x 7.0 cm)
Rated Wind Velocity	150 mph (241 km/hr)
Equivalent Flat Plate Area	3.1ft^2 (.29 m^2)
Front Wind Load @ 100 mph (161 kph)	90 lbs (400 N)
Side Wind Load @ 100 mph (161 kph)	31 lbs (139 N)
Weight	18 lbs (8.2 kg)

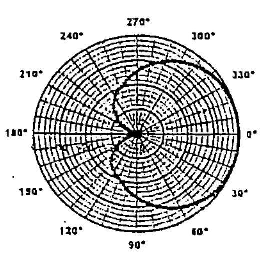
Note: Patent Pending and US Patent number 5, 757, 246.

Values and patterns are representative and variations may occur. Specifications may change without notice due to continuous product enhancements. Digitized pattern data is available from the factory or via the web site www.emswireless.com and reflect all updates.

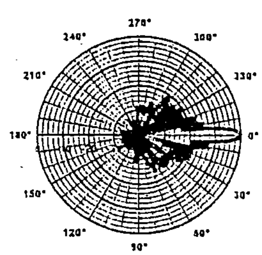
MOUNTING OPTIONS

Model Number	Description	Comments
MTG-P00-10	Standard Mount (Supplied with antenna)	Mounts to Wall or 1.5 inch to 5.0 inch O.D. Pole (3.8 cm to 12.7 cm)
MTG-S02-10	Swivel Mount	Mounting kit providing azimuth adjustment.
MTG-DXX-20*	Mechanical Downtilt Kits	0° - 10° or 0° - 15° Mechanical Downtilt
MTG-CXX-10*	Cluster Mount Kits	3 antennas 120° apart or 2 antennas 180° apart
MTG-C02-10	U-Bolt Cluster Mount Kit	3 antennas 120° apart , 4.5" O.D. pole.
MTG-TXX-10*	Steel Band Mount	Pole diameters 7.5" - 45"

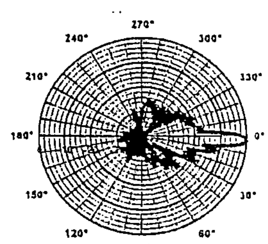
* Model number shown represents a series of products. See mounting options section for specific model number.



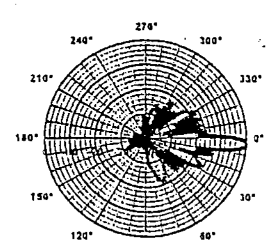
Azimuth



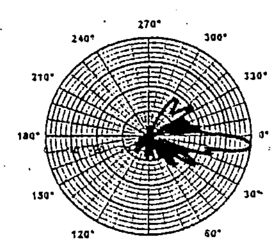
Elevation
0° Downtilt



Elevation
2° Downtilt



Elevation
4° Downtilt



Elevation
6° Downtilt

4.1.1 Dimensions and Weight

Table 1 – Dimensions of the S12000 BTS

	Populated cabinet		Depopulated cabinet	
	(cm)	(in)	(cm)	(in)
Height	191	75.2	172	67.7
Depth	65	25.6	65	25.6
Width	135	53.2	135	53.2

Table 2 – Weight of the S12000 BTS

	Populated cabinet (full configuration)		Depopulated cabinet	
	(kg)	(lb.)	(kg)	(lb.)
S12000	570	1257	200	441

Note: The pallet weights 19kg (42 lb.) and has a height of 13cm (5.1 in)

Note: The height of S12000 Outdoor with the hood open is 256 cm (100.8 in)

The BTS floor print can be found in section 10.2 Appendix B.

4.1.2 Key Cabled Cabinet Components

A low mass, mechanically strong external cabinet housing containing:

- All mechanical sub racks and mechanical support systems required for the installation, transport and operation of the GSM wireless equipment to be housed within.
- A forced ventilation, low acoustic Direct Ambient Cooling System (DACS)
- An AC/DC power system
- A fixed DC distribution system to power the enclosed electronic equipment
- A Power Amplifier Interconnection module (PA-ICO)
- DRX interconnection modules (DRX ICO) (A&B)
- Combiner interconnection modules (COMICO) (A&B)
- A batteries box

Refer to section 10.1 Appendix A for a general overview of the S12000.

4.1.3 Environmental Requirements

Table 3 – Operational Temperature and Humidity

Normal	Range
Optimized operating temperature	-20°C (-4°F) to 40°C (104°F)
Total operating temperature	-40°C (-40°F) to 50°C (122°F)
Normal Operating humidity	15% to 100% relative humidity (non-condensing)
Absolute humidity	0,26 g/m3 to 36 g/m3

- Storage requirements

The S12000 meets the requirements of reference document R10 class 1.2

- Transport requirements

The S12000 meets the requirements of reference document R11 class 2.2

- Ingress protection

The cabinet shall be weather resistant to prevent ingress of rain, snow, dust and other solid foreign objects to a minimum level of IP55 as specified by reference document R3. The maximum permitted water ingress under test conditions shall be 5ml.

- Noise

L_{WAd} < 63 dB (A) measured in accordance with reference document R8 if $Temp_{ext}$ < 40°C (104°F)

The maximum sound power level emitted from the S12000 Outdoor cabled cabinet, when fully populated and measured in accordance with the requirements of reference document R8, shall not exceed:

- Normal speed operation: 63 dB (A) (when temperature is < 40°C)
- Maximum speed operation: 70 dB (A) (when temperature is >40°C)

Note: The noise may be higher than the one previously indicated due to the real configuration of the site (proximity of walls or any reflecting surfaces). Specific protections against noise can be added to comply with the local recommendations.

- External air flow rate

Normal speed operation: 800 m^3 / hour

Exhibit 4

Structural Analysis

515 Boston Post Road East
Westport, Connecticut

1047 N. 204th Avenue
Elkhorn, NE 68022
Ph: 402-289-1888
Fax: 402-289-1861

SEMAAN ENGINEERING SOLUTIONS

148 ft SUMMIT Monopole
Structural Analysis

Prepared for:
Sprint Sites USA
535 East Crescent Ave
Ramsey, NJ 07446

Site: CT03XC355 - Nextel
Westport, CT

November 21, 2002

Ms. Kim Cordes
Sprint Sites USA
535 East Crescent Ave
Ramsey, NJ 07446

Re: Site Number CT03XC355 – Westport, CT.

Dear Ms. Cordes:

We have completed the structural analysis for the existing monopole, located at the above referenced site. The purpose of this analysis is to determine that the existing monopole design is in conformance with the EIA/TIA-222-F standard and local building codes for the proposed antennae loads installation. Refer to the Review and Recommendations section at the end of this report for the analysis results.

Description of Structure:

The structure is a 148 ft SUMMIT Monopole.

Refer to PJF # A29297-62 dated February 24, 1997 for a detailed description of the structure.

Method of analysis:

The tower was analyzed using Semaan Engineering Solutions' software suite for communication structures. The structural analysis is performed using the SAPS finite element engine. The method is 3D, non-linear, which accounts for the second order geometric effects due to the displacements. The analysis was performed in conformance with **EIA/TIA-222-F and local building codes for 85 mph with 1/2" radial ice**. Wind is applied to the structure, accessories and antennas.

Structure loading:

Per the loading sheet supplied, the analysis was performed using the following loading: (Proposed loading in bold)

Elev. (ft)	Qty.	Antennas and Mounts	Coax	Owner
148.0	9	DB980H90 Mounted On a Low Profile Platform	(9) 1-5/8	Sprint
148.0	2	DB420 Mounted On a Low Profile Platform	(2) 7/8	Municipality
138.0	**12**	**APL866513-42T4 Mounted On a Low Profile Platform**	**(12) 1-5/8**	**Nextel**
120.0	9	APL866513-42T4 Mounted On a Low Profile Platform	(9) 7/8	Cingular
100.0	1	PD1110 Mounted On a Low Profile Platform	(1) 7/8	Municipality
100.0	1	DB806 Mounted On a Low Profile Platform	(1) 7/8	Municipality
100.0	1	PD220 Mounted On a Low Profile Platform	(1) 1/2	Municipality
100.0	1	DB224 Mounted On a Low Profile Platform	(1) 7/8	Municipality
100.0	1	DB205 Mounted On a Low Profile Platform	(1) 1/2	Municipality
100.0	3	PD83 Mounted On a Low Profile Platform	(3) 1/2	Municipality
100.0	1	DB230 Mounted On a Low Profile Platform	(1) 1/2	Municipality
100.0	2	PD201 Mounted On a Low Profile Platform	(2) 7/8	Municipality
100.0	1	SC421 Mounted On a Low Profile Platform	(2) 7/8	Municipality
85.0	12	RR90-17 Mounted On a Low Profile Platform	(24) 1-5/8	VoiceStream
50.0	1	MON 64 Omni Antenna Mounted On a Standoff	(2) RG8	Municipality

All new access holes shall be reinforced with welded rims that are compatible with the pole and to be sized and supplied by pole manufacturer.

All transmission lines are assumed running inside of pole shaft.

Results of Analysis:

Refer to the attached Computer Summary sheets for detailed analysis results.

Structure:

The existing monopole is structurally capable of supporting the existing and proposed antennas.
The maximum structure usage is: 88.0%.

Foundation:

Pole Reactions	Original Design Reactions	Current Analysis Reactions	% Of Design
Moment (ft-kips)	3,300.00	3,343.06	101.3

The structure base reactions resulting from this slightly exceed the ones shown on the original structure drawings. The 1.3% overstress is within allowable engineering tolerances.

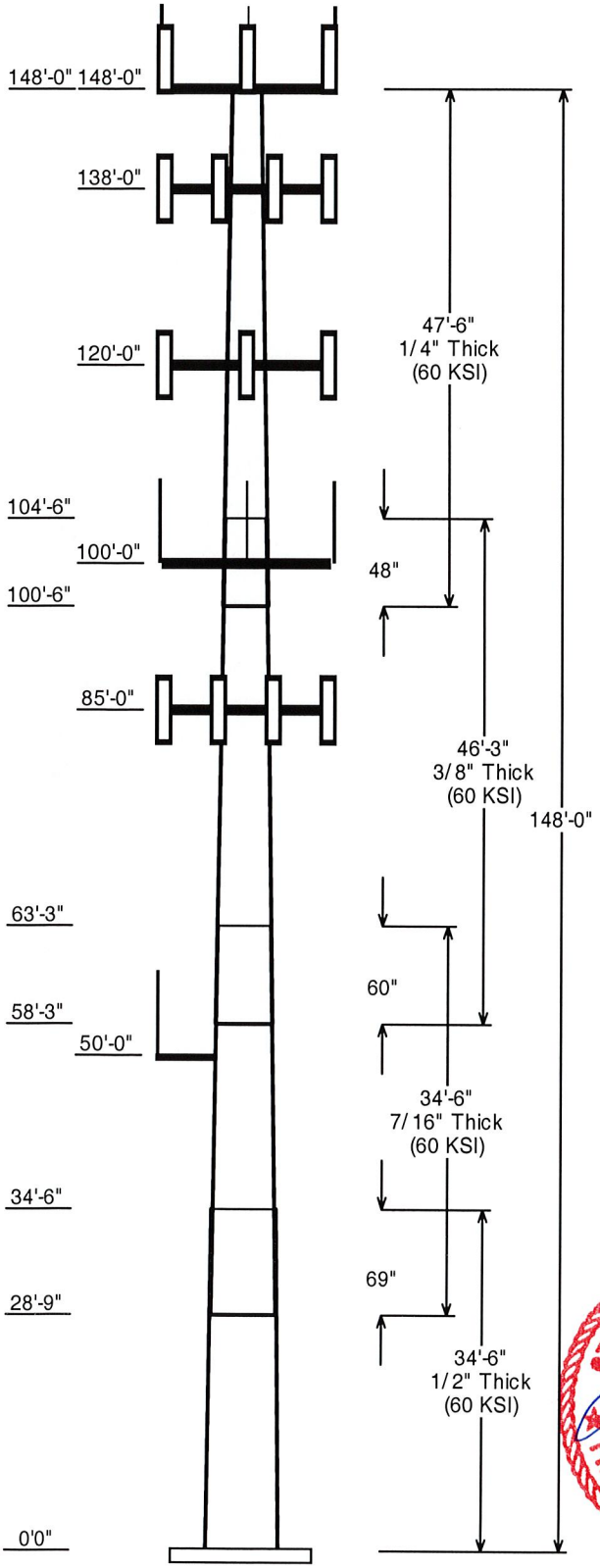
Review and Recommendations:

Based on the analysis results, the existing structure meets the requirements per the EIA/TIA-222-F standards for a basic wind speed of 85 mph with 1/2" radial ice.

SEMAAN ENGINEERING SOLUTIONS
1047 N.204th Avenue
Elkhorn, NE 68022
Phone: 402-289-1888
Fax: 402-289-1861

Job Information

Pole :	CT03XC355
Description :	
Client :	Sprint Sites USA - NJ
Location :	Westport, CT
Type :	12 Sides Slip Joints
Height :(ft)	148.000 Taper: 0.2030 (in/ft)



Sections Properties

Shaft Section	Section Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Steel Grade (ksi)
1	34.500	42.91	49.92	0.500		0.000	60
2	34.500	37.95	44.95	0.438	Slip Joint	69.000	60
3	46.250	30.33	39.72	0.375	Slip Joint	60.000	60
4	47.500	22.00	31.64	0.250	Slip Joint	48.000	60

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Type	Qty	Description
148.000	159.040	Whip	2	DB420
148.000	151.500	Lightning	1	Lightning Rod, 7'
148.000	148.000	Platform	1	Low Profile Platform
148.000	150.000	Panel	9	DB980H90
138.000	138.000	Platform	1	Low Profile Platform
138.000	138.000	Panel	12	APL866513-42T4
120.000	120.000	Platform	1	Low Profile Platform
120.000	120.000	Panel	9	APL866513-42T4
100.000	105.335	Whip	1	SC421
100.000	103.875	Whip	2	PD201
100.000	100.000	Platform	1	Low Profile Platform
100.000	100.000	Yagi	1	DB230
100.000	108.050	Whip	3	PD83
100.000	109.040	Whip	1	DB205
100.000	110.625	Whip	1	DB224
100.000	111.000	Whip	1	PD220
100.000	107.760	Whip	1	DB806
100.000	106.585	Whip	1	PD1110
85.000	85.000	Platform	1	Low Profile Platform
85.000	85.000	Panel	12	RR90-17
50.000	50.000	Straight	1	Standoff
50.000	51.000	Whip	1	MON 64 Omni Antenna

Load Cases / Deflections

Load Case	Attach Elev (ft)	Translation (in)	Rotation (deg)
No Ice	No Ice Wind Speed = 85.00 mph w/ No Ice		
	148.000	87.51	-5.001
	138.000	77.10	-4.937
	120.000	59.07	-4.580
	100.000	41.27	-3.911
	85.000	29.78	-3.392
	50.000	10.08	-1.962
Ice	Ice Wind Speed = 73.61 mph w/ Ice 0.50 in Thick		
	148.000	75.05	-4.303
	138.000	66.09	-4.246
	120.000	50.60	-3.933
	100.000	35.32	-3.357
	85.000	25.45	-2.908
	50.000	8.59	-1.676

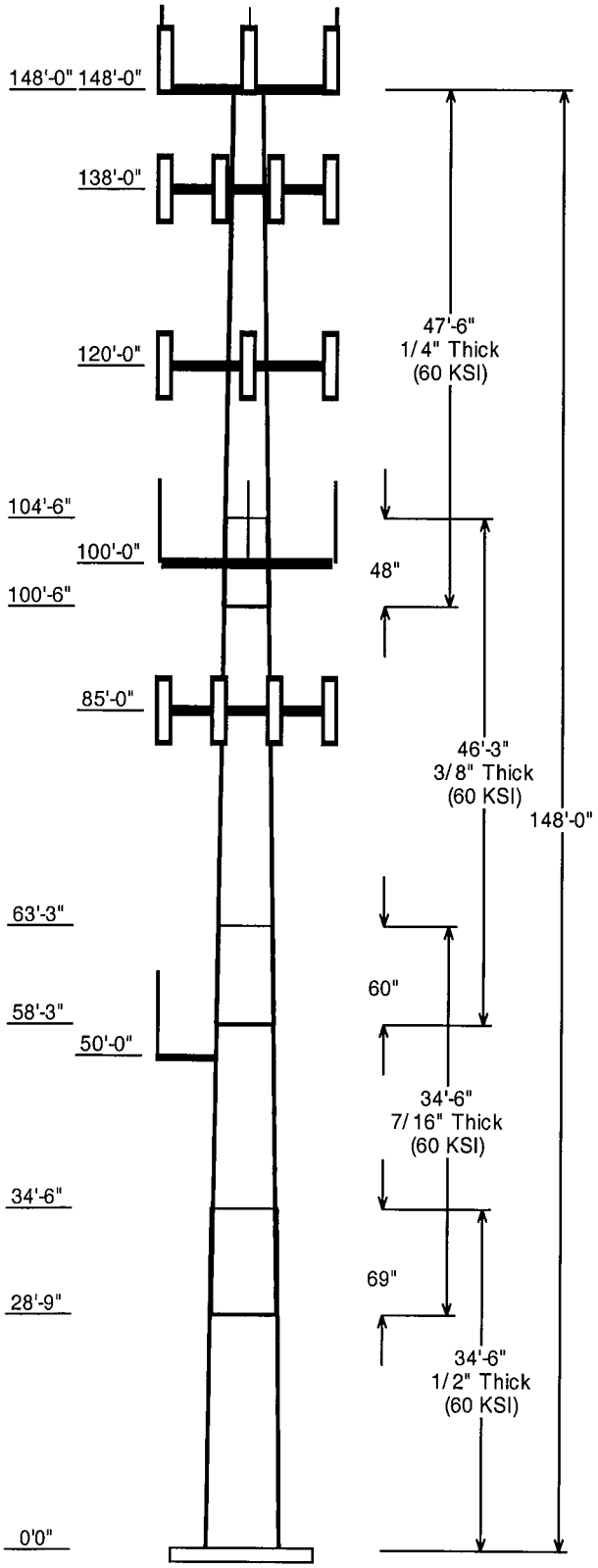
Reactions

Load Case	Moment (Kip-ft)	Shear (Kips)	Axial (Kips)

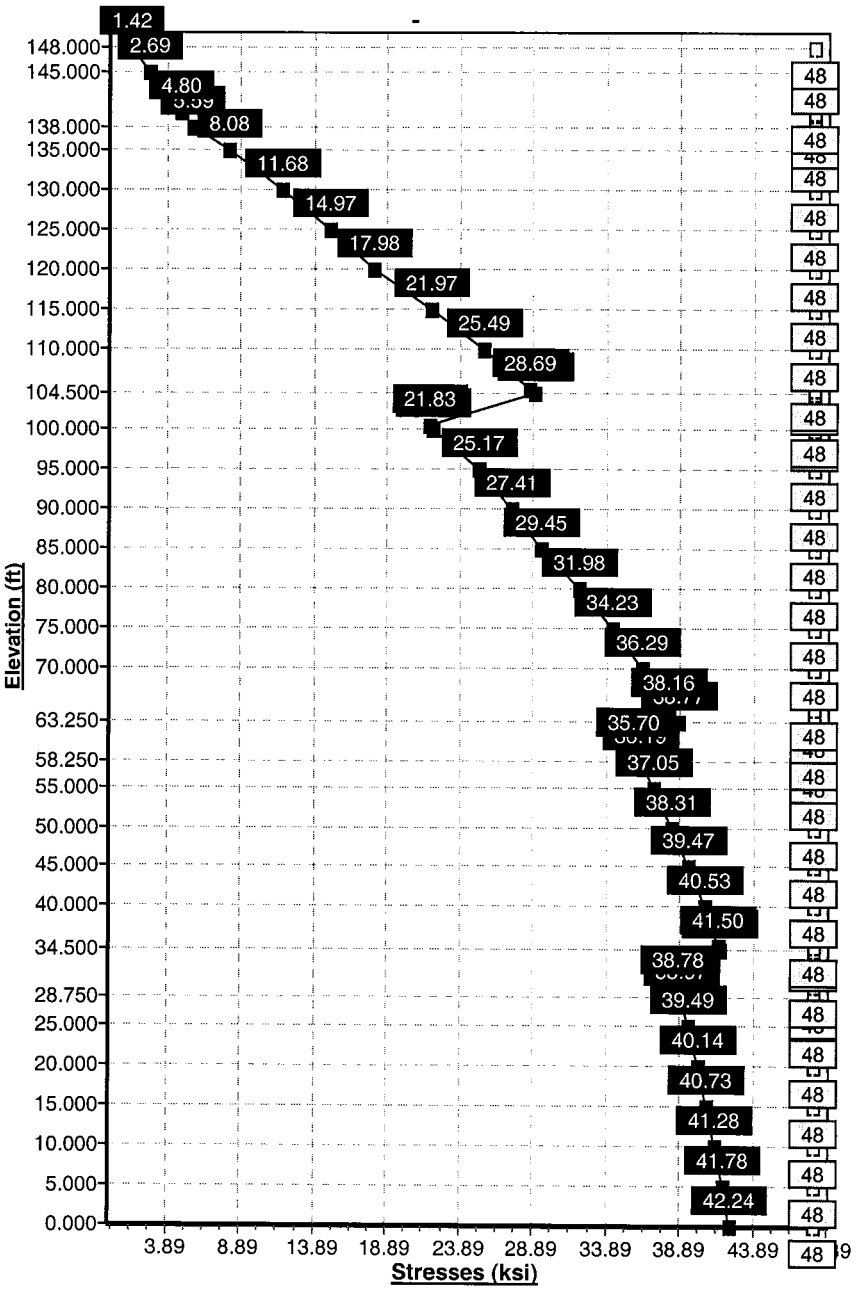
STATE OF CONNECTICUT ALVIN A. KRAFT No. 20797 LICENSED PROFESSIONAL ENGINEER

11-22-02

No Ice	3,343.062	34.247	-33.168
Ice	2,838.168	28.408	-42.216



Load Case : No Ice



Pole :	CT03XC355	Sprint Sites USA - NJ	
Location:	Westport, CT		
Height :	148.0 (ft)	Base Elev : 0.000 (ft)	
Shape :	12 Sides		
Base Dia :	49.92 (in)	Top Dia : 22.00 (in)	
Taper :	0.203 (in/ft)		

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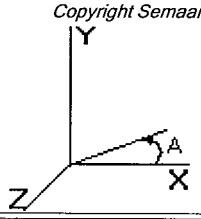


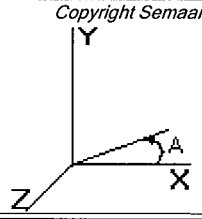
Shaft Section Properties

Sect Num	Length (ft)	Thick (in)	Fy (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	34.500	0.5000	60		0.00	8,679	49.92	0.000	79.57	24803.5	24.61	99.84	42.91	34.50	68.29	15682.2	20.86	85.83	0.203
2	34.500	0.4375	60	Slip Joint	69.00	6,784	44.95	28.75	62.72	15867.7	25.39	102.7	37.95	63.25	52.85	9495.5	21.10	86.75	0.203
3	46.250	0.3750	60	Slip Joint	60.00	6,585	39.72	58.25	47.51	9387.3	26.24	105.9	30.33	104.5	36.17	4143.2	19.53	80.88	0.203
4	47.500	0.2500	60	Slip Joint	48.00	3,457	31.64	100.5	25.27	3179.0	31.77	126.5	22.00	148.0	17.51	1057.3	21.44	88.00	0.203
				Shaft Weight		25,505													

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)	X Angle (deg)	Vert Ecc (ft)
148.0	DB420	2	34.00	6.000	1.00	77.00	7.810	1.00	0.000	0.00	11.040
148.0	Lightning Rod, 7'	1	35.00	1.050	1.00	44.00	1.730	1.00	0.000	0.00	3.500
148.0	Low Profile Platform	1	1300.00	25.550	1.00	2100.00	27.320	1.00	0.000	0.00	0.000
148.0	DB980H90	9	9.00	3.280	1.00	28.00	3.850	1.00	0.000	0.00	2.000
138.0	Low Profile Platform	1	1300.00	25.550	1.00	2100.00	27.320	1.00	0.000	0.00	0.000
138.0	APL866513-42T4	12	20.00	4.300	1.00	52.00	4.900	1.00	0.000	0.00	0.000
120.0	Low Profile Platform	1	1300.00	25.550	1.00	2100.00	27.320	1.00	0.000	0.00	0.000
120.0	APL866513-42T4	9	20.00	4.300	1.00	52.00	4.900	1.00	0.000	0.00	0.000
100.0	SC421	1	46.50	4.270	1.00	76.46	5.380	1.00	0.000	0.00	5.335
100.0	PD201	2	4.00	1.020	1.00	12.70	1.810	1.00	0.000	0.00	3.875
100.0	Low Profile Platform	1	1300.00	25.550	1.00	2100.00	27.320	1.00	0.000	0.00	0.000
100.0	DB230	1	57.00	7.380	1.00	103.00	12.390	1.00	0.000	0.00	0.000
100.0	PD83	3	40.00	5.640	1.00	80.00	7.280	1.00	0.000	0.00	8.050
100.0	DB205	1	38.00	1.950	1.00	55.00	3.770	1.00	0.000	0.00	9.040
100.0	DB224	1	32.00	4.920	1.00	74.00	9.080	1.00	0.000	0.00	10.625
100.0	PD220	1	23.00	3.560	1.00	83.00	6.860	1.00	0.000	0.00	11.000
100.0	DB806	1	38.00	4.450	1.00	71.00	6.010	1.00	0.000	0.00	7.760
100.0	PD1110	1	20.00	2.660	1.00	46.00	4.000	1.00	0.000	0.00	6.585
85.00	Low Profile Platform	1	1300.00	25.550	1.00	2100.00	27.320	1.00	0.000	0.00	0.000
85.00	RR90-17	12	12.00	5.230	1.00	35.00	5.800	1.00	0.000	0.00	0.000
50.00	Standoff	1	40.00	2.630	1.00	63.00	4.340	1.00	0.000	0.00	0.000
50.00	MON 64 Omni Antenna	1	50.00	1.000	1.00	93.00	8.030	1.00	0.000	0.00	1.000
	Totals	64	7720.50			13391.86			Number of Loadings :		22

Pole :	CT03XC355	Sprint Sites USA - NJ		11/21/2002 12:23:19 F
Location:	Westport, CT			
Height :	148.0 (ft)	Base Elev :	0.000 (ft)	Page: 2
Shape :	12 Sides			
Base Dia :	49.92 (in)	Top Dia :	22.00 (in)	
Taper :	0.203 (in/ft)			



Segment Properties (Max Len : 5 ft)

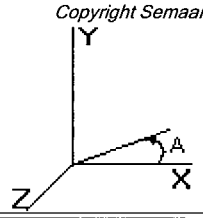
Seg Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Weight (lb)
0.00		0.5000	49.920	79.566	24,803.5	24.61	99.84	60	48	0.0
5.00		0.5000	48.905	77.932	23,306.4	24.06	97.81	60	48	1,339.8
10.00		0.5000	47.890	76.297	21,870.8	23.52	95.78	60	48	1,312.0
15.00		0.5000	46.875	74.663	20,495.3	22.98	93.75	60	48	1,284.2
20.00		0.5000	45.860	73.029	19,178.8	22.43	91.72	60	48	1,256.4
25.00		0.5000	44.845	71.395	17,920.0	21.89	89.69	60	48	1,228.6
28.75	Bot - Section 2	0.5000	44.083	70.169	17,012.8	21.48	88.17	60	48	903.2
30.00		0.5000	43.830	69.761	16,717.4	21.34	87.66	60	48	563.6
34.50	Top - Section 1	0.4375	43.791	61.075	14,652.1	24.68	100.09	60	48	2,002.0
35.00		0.4375	43.690	60.932	14,549.4	24.61	99.86	60	48	103.8
40.00		0.4375	42.675	59.502	13,548.9	23.99	97.54	60	48	1,024.5
45.00		0.4375	41.660	58.072	12,595.4	23.37	95.22	60	48	1,000.2
50.00		0.4375	40.645	56.642	11,687.8	22.75	92.90	60	48	975.9
55.00		0.4375	39.630	55.212	10,824.8	22.13	90.58	60	48	951.5
58.25	Bot - Section 3	0.4375	38.970	54.283	10,287.3	21.72	89.07	60	48	605.5
60.00		0.4375	38.615	53.782	10,005.3	21.51	88.26	60	48	603.4
63.25	Top - Section 2	0.3750	38.705	46.283	8,679.4	25.51	103.21	60	48	1,105.9
65.00		0.3750	38.350	45.854	8,440.3	25.26	102.27	60	48	274.3
70.00		0.3750	37.335	44.629	7,781.4	24.53	99.56	60	48	769.7
75.00		0.3750	36.320	43.403	7,157.8	23.81	96.85	60	48	748.9
80.00		0.3750	35.305	42.178	6,568.4	23.08	94.15	60	48	728.0
85.00		0.3750	34.290	40.952	6,012.3	22.36	91.44	60	48	707.2
90.00		0.3750	33.275	39.726	5,488.4	21.63	88.73	60	48	686.3
95.00		0.3750	32.260	38.501	4,996.0	20.91	86.03	60	48	665.5
100.00		0.3750	31.245	37.275	4,533.9	20.18	83.32	60	48	644.6
100.50	Bot - Section 4	0.3750	31.143	37.153	4,489.3	20.11	83.05	60	48	63.3
104.50	Top - Section 3	0.2500	30.831	24.618	2,938.6	30.90	123.32	60	48	838.5
105.00		0.2500	30.730	24.536	2,909.5	30.79	122.92	60	48	41.8
110.00		0.2500	29.715	23.719	2,628.4	29.70	118.86	60	48	410.5
115.00		0.2500	28.700	22.902	2,366.0	28.62	114.80	60	48	396.6
120.00		0.2500	27.685	22.085	2,121.7	27.53	110.74	60	48	382.7
125.00		0.2500	26.670	21.268	1,894.8	26.44	106.68	60	48	368.8
130.00		0.2500	25.655	20.451	1,684.7	25.35	102.62	60	48	354.9
135.00		0.2500	24.640	19.634	1,490.7	24.27	98.56	60	48	341.0
138.00		0.2500	24.031	19.143	1,381.8	23.61	96.12	60	48	197.9
140.00		0.2500	23.625	18.817	1,312.3	23.18	94.50	60	48	129.2
145.00		0.2500	22.610	18.000	1,148.6	22.09	90.44	60	48	313.2
148.00		0.2500	22.001	17.509	1,057.3	21.44	88.00	60	48	181.2
										25,504.8

Pole : CT03XC355
Location: Westport, CT
Height : 148.0 (ft)
Shape : 12 Sides
Base Dia : 49.92 (in)
Taper : 0.203 (in/ft)

Sprint Sites USA - NJ

Base Elev : 0.000 (ft)

Top Dia : 22.00 (in)



Load Case: No Ice — 85 mph - No Ice — 23 Iterations

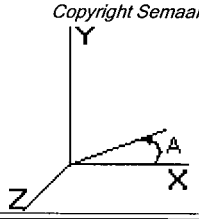
Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Effective Wind Speed : 85.00 (mph)

Shaft Forces

Seg Top Elev (ft)	Description	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Wind Force Z (lb)	Weight (lb)
0.00		1.00	18.49	31.25	353.60	1.030	0.00	0.000	0.000	0.00	0.00	0.0
5.00		1.00	18.49	31.25	346.41	1.030	5.00	20.588	21.206	662.86	0.00	1,339.8
10.00		1.00	18.49	31.25	339.22	1.030	5.00	20.166	20.770	649.25	0.00	1,312.0
15.00		1.00	18.49	31.25	332.03	1.030	5.00	19.743	20.335	635.63	0.00	1,284.2
20.00		1.00	18.49	31.25	324.84	1.030	5.00	19.320	19.899	622.02	0.00	1,256.4
25.00		1.00	18.49	31.25	317.65	1.030	5.00	18.897	19.464	608.40	0.00	1,228.6
28.75	Bot - Section 2	1.00	18.49	31.25	312.26	1.030	3.75	13.895	14.312	447.36	0.00	903.2
30.00		1.00	18.49	31.25	310.46	1.030	1.25	4.670	4.810	150.35	0.00	563.6
34.50	Top - Section 1	1.01	18.73	31.65	305.93	1.030	4.50	16.593	17.091	541.06	0.00	2,002.0
35.00		1.01	18.81	31.78	312.08	1.030	0.50	1.823	1.877	59.67	0.00	103.8
40.00		1.05	19.54	33.02	310.70	1.030	5.00	17.993	18.532	612.02	0.00	1,024.5
45.00		1.09	20.21	34.15	308.46	1.030	5.00	17.570	18.097	618.09	0.00	1,000.2
50.00	Appertunance(s)	1.12	20.82	35.19	305.51	1.030	5.00	17.147	17.661	621.65	0.00	975.9
55.00		1.15	21.40	36.17	301.96	1.030	5.00	16.724	17.226	623.05	0.00	951.5
58.25	Bot - Section 3	1.17	21.75	36.76	299.38	1.030	3.25	10.644	10.963	403.09	0.00	605.5
60.00		1.18	21.94	37.08	297.91	1.030	1.75	5.767	5.940	220.24	0.00	603.4
63.25	Top - Section 2	1.20	22.27	37.64	295.03	1.030	3.25	10.572	10.889	409.91	0.00	1,105.9
65.00		1.21	22.44	37.93	299.27	1.030	1.75	5.619	5.787	219.55	0.00	274.3
70.00		1.24	22.92	38.75	294.45	1.030	5.00	15.768	16.241	629.33	0.00	769.7
75.00		1.26	23.38	39.52	289.28	1.030	5.00	15.345	15.805	624.64	0.00	748.9
80.00		1.28	23.82	40.25	283.80	1.030	5.00	14.922	15.369	618.73	0.00	728.0
85.00	Appertunance(s)	1.31	24.23	40.96	278.04	1.030	5.00	14.499	14.934	611.70	0.00	707.2
90.00		1.33	24.63	41.63	272.02	1.030	5.00	14.076	14.498	603.63	0.00	686.3
95.00		1.35	25.02	42.28	265.77	1.030	5.00	13.653	14.063	594.61	0.00	665.5
100.00	Appertunance(s)	1.37	25.38	42.90	259.30	1.030	5.00	13.230	13.627	584.70	0.00	644.6
100.50	Bot - Section 4	1.37	25.42	42.96	258.64	1.030	0.50	1.300	1.339	57.52	0.00	63.3
104.50	Top - Section 3	1.39	25.71	43.45	253.30	1.030	4.00	10.412	10.725	466.00	0.00	838.5
105.00		1.39	25.74	43.51	256.81	1.030	0.50	1.283	1.321	57.48	0.00	41.8
110.00		1.41	26.09	44.09	249.98	1.030	5.00	12.593	12.970	571.89	0.00	410.5
115.00		1.42	26.42	44.65	242.98	1.030	5.00	12.170	12.535	559.74	0.00	396.6
120.00	Appertunance(s)	1.44	26.74	45.20	235.82	1.030	5.00	11.747	12.099	546.90	0.00	382.7
125.00		1.46	27.06	45.73	228.50	1.030	5.00	11.324	11.664	533.40	0.00	368.8
130.00		1.48	27.36	46.24	221.04	1.030	5.00	10.901	11.228	519.26	0.00	354.9
135.00		1.49	27.66	46.74	213.44	1.030	5.00	10.478	10.792	504.53	0.00	341.0
138.00	Appertunance(s)	1.50	27.83	47.04	208.82	1.030	3.00	6.084	6.266	294.79	0.00	197.9
140.00		1.51	27.95	47.23	205.71	1.030	2.00	3.971	4.090	193.22	0.00	129.2
145.00		1.52	28.23	47.71	197.86	1.030	5.00	9.632	9.921	473.37	0.00	313.2
148.00	Appertunance(s)	1.53	28.39	47.99	193.10	1.030	3.00	5.576	5.744	275.65	0.00	181.2
					Totals:		148.00			17,425.29	0.00	25,504.8

Pole :	CT03XC355	Sprint Sites USA - NJ	
Location:	Westport, CT		
Height :	148.0 (ft)	Base Elev : 0.000 (ft)	
Shape :	12 Sides		
Base Dia :	49.92 (in)	Top Dia : 22.00 (in)	
Taper :	0.203 (in/ft)		



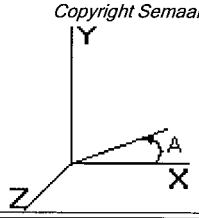
Load Case: No Ice — 85 mph - No Ice — 23 Iterations

Gust Response Factor : 1.69 — Effective Wind Speed : 85.00 (mph)
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Discrete Appurtenance Forces

Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Total CaAa (sf)	CaAa Factor	Horiz Ecc (ft)	Vert Ecc (ft)	X Angle (deg)	Wind Force X (lb)	Wind Force Z (lb)	Mom X (lb-ft)	Mom Y (lb-ft)	Mom Z (lb-ft)	Weight (lb)
50.00	Standoff	1	20.82	35.19	2.630	1.000	0.000	0.0	0.0	92.57	0.00	0.00	0.00	0.00	40.0
50.00	MON 64 Omni Antenna	1	20.94	35.39	1.000	1.000	0.000	1.0	0.0	35.40	0.00	0.00	0.00	35.40	50.0
85.00	Low Profile Platform	1	24.23	40.96	25.550	1.000	0.000	0.0	0.0	1046.54	0.00	0.00	0.00	0.00	1300.0
85.00	RR90-17	12	24.23	40.96	62.760	1.000	0.000	0.0	0.0	2570.69	0.00	0.00	0.00	0.00	144.0
100.00	SC421	1	25.76	43.54	4.270	1.000	0.000	5.3	0.0	185.96	0.00	0.00	0.00	992.07	46.5
100.00	PD201	2	25.66	43.37	2.040	1.000	0.000	3.9	0.0	88.49	0.00	0.00	0.00	342.89	8.0
100.00	Low Profile Platform	1	25.38	42.90	25.550	1.000	0.000	0.0	0.0	1096.28	0.00	0.00	0.00	0.00	1300.0
100.00	DB230	1	25.38	42.90	7.380	1.000	0.000	0.0	0.0	316.66	0.00	0.00	0.00	0.00	57.0
100.00	PD83	3	25.95	43.86	16.920	1.000	0.000	8.1	0.0	742.23	0.00	0.00	0.00	5974.96	120.0
100.00	DB205	1	26.02	43.98	1.950	1.000	0.000	9.0	0.0	85.76	0.00	0.00	0.00	775.30	38.0
100.00	DB224	1	26.13	44.16	4.920	1.000	0.000	10.6	0.0	217.28	0.00	0.00	0.00	2308.64	32.0
100.00	PD220	1	26.15	44.20	3.560	1.000	0.000	11.0	0.0	157.37	0.00	0.00	0.00	1731.11	23.0
100.00	DB806	1	25.93	43.83	4.450	1.000	0.000	7.8	0.0	195.06	0.00	0.00	0.00	1513.66	38.0
100.00	PD1110	1	25.85	43.69	2.660	1.000	0.000	6.6	0.0	116.23	0.00	0.00	0.00	765.39	20.0
120.00	Low Profile Platform	1	26.74	45.20	25.550	1.000	0.000	0.0	0.0	1154.90	0.00	0.00	0.00	0.00	1300.0
120.00	APL866513-42T4	9	26.74	45.20	38.700	1.000	0.000	0.0	0.0	1749.31	0.00	0.00	0.00	0.00	180.0
138.00	Low Profile Platform	1	27.83	47.04	25.550	1.000	0.000	0.0	0.0	1201.95	0.00	0.00	0.00	0.00	1300.0
138.00	APL866513-42T4	12	27.83	47.04	51.600	1.000	0.000	0.0	0.0	2427.43	0.00	0.00	0.00	0.00	240.0
148.00	DB420	2	28.98	48.99	12.000	1.000	0.000	11.0	0.0	587.88	0.00	0.00	0.00	6490.10	68.0
148.00	Lightning Rod, 7'	1	28.58	48.31	1.050	1.000	0.000	3.5	0.0	50.73	0.00	0.00	0.00	177.56	35.0
148.00	Low Profile Platform	1	28.39	47.99	25.550	1.000	0.000	0.0	0.0	1226.22	0.00	0.00	0.00	0.00	1300.0
148.00	DB980H90	9	28.50	48.17	29.520	1.000	0.000	2.0	0.0	1422.20	0.00	0.00	0.00	2844.40	81.0
										16,767.1	0.00				7,720.5

Pole :	CT03XC355	Sprint Sites USA - NJ	
Location:	Westport, CT		
Height :	148.0 (ft)	Base Elev : 0.000 (ft)	
Shape :	12 Sides		
Base Dia :	49.92 (in)	Top Dia : 22.00 (in)	
Taper :	0.203 (in/ft)		



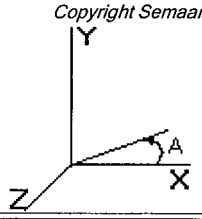
Load Case: No Ice — 85 mph - No Ice — 23 Iterations

Gust Response Factor : 1.69 — Effective Wind Speed : 85.00 (mph)
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Applied Forces Summary

Seg Elev (ft)	X Coord (ft)	Z Coord (ft)	Lateral FX (-) (lb)	Axial FY (-) (lb)	Lateral FZ (lb)	Moment MX (lb-ft)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5.00	0.00	0.00	662.86	1,339.82	0.00	0.00	0.00	0.00
10.00	0.00	0.00	649.25	1,312.02	0.00	0.00	0.00	0.00
15.00	0.00	0.00	635.63	1,284.21	0.00	0.00	0.00	0.00
20.00	0.00	0.00	622.02	1,256.41	0.00	0.00	0.00	0.00
25.00	0.00	0.00	608.40	1,228.61	0.00	0.00	0.00	0.00
28.75	0.00	0.00	447.36	903.21	0.00	0.00	0.00	0.00
30.00	0.00	0.00	150.35	563.61	0.00	0.00	0.00	0.00
34.50	0.00	0.00	541.06	2,002.01	0.00	0.00	0.00	0.00
35.00	0.00	0.00	59.67	103.79	0.00	0.00	0.00	0.00
40.00	0.00	0.00	612.02	1,024.52	0.00	0.00	0.00	0.00
45.00	0.00	0.00	618.09	1,000.19	0.00	0.00	0.00	0.00
50.00	0.00	0.00	749.62	1,065.86	0.00	0.00	0.00	35.40
55.00	0.00	0.00	623.05	951.54	0.00	0.00	0.00	0.00
58.25	0.00	0.00	403.09	605.45	0.00	0.00	0.00	0.00
60.00	0.00	0.00	220.24	603.39	0.00	0.00	0.00	0.00
63.25	0.00	0.00	409.91	1,105.89	0.00	0.00	0.00	0.00
65.00	0.00	0.00	219.55	274.33	0.00	0.00	0.00	0.00
70.00	0.00	0.00	629.33	769.74	0.00	0.00	0.00	0.00
75.00	0.00	0.00	624.64	748.88	0.00	0.00	0.00	0.00
80.00	0.00	0.00	618.73	728.03	0.00	0.00	0.00	0.00
85.00	0.00	0.00	4,228.92	2,151.18	0.00	0.00	0.00	0.00
90.00	0.00	0.00	603.63	686.33	0.00	0.00	0.00	0.00
95.00	0.00	0.00	594.61	665.47	0.00	0.00	0.00	0.00
100.00	0.00	0.00	3,786.02	2,327.12	0.00	0.00	0.00	14,404.01
100.50	0.00	0.00	57.52	63.32	0.00	0.00	0.00	0.00
104.50	0.00	0.00	466.00	838.54	0.00	0.00	0.00	0.00
105.00	0.00	0.00	57.48	41.82	0.00	0.00	0.00	0.00
110.00	0.00	0.00	571.89	410.50	0.00	0.00	0.00	0.00
115.00	0.00	0.00	559.74	396.60	0.00	0.00	0.00	0.00
120.00	0.00	0.00	3,451.11	1,862.70	0.00	0.00	0.00	0.00
125.00	0.00	0.00	533.40	368.80	0.00	0.00	0.00	0.00
130.00	0.00	0.00	519.26	354.90	0.00	0.00	0.00	0.00
135.00	0.00	0.00	504.53	341.00	0.00	0.00	0.00	0.00
138.00	0.00	0.00	3,924.17	1,737.93	0.00	0.00	0.00	0.00
140.00	0.00	0.00	193.22	129.17	0.00	0.00	0.00	0.00
145.00	0.00	0.00	473.37	313.19	0.00	0.00	0.00	0.00
148.00	0.00	0.00	3,562.68	1,665.24	0.00	0.00	0.00	9,512.05
	Totals:		34,192.43	33,225.32	0.00	0.00	0.00	23,951.47

Pole :	CT03XC355	Sprint Sites USA - NJ	
Location:	Westport, CT		
Height :	148.0 (ft)	Base Elev : 0.000 (ft)	
Shape :	12 Sides		
Base Dia :	49.92 (in)	Top Dia : 22.00 (in)	
Taper :	0.203 (in/ft)		



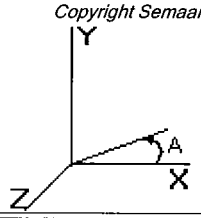
Load Case: No Ice — 85 mph - No Ice — 23 Iterations

Gust Response Factor : 1.69 — Effective Wind Speed : 85.00 (mph)
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Calculated 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	34.247	33.168	0.000	0.000	0.000	3,343.062	0.000	0.000	0.000	0.000
5.00	33.686	31.719	0.000	0.000	0.000	3,171.828	-0.100	0.000	0.100	-0.187
10.00	33.131	30.301	0.000	0.000	0.000	3,003.399	-0.397	0.000	0.397	-0.375
15.00	32.581	28.914	0.000	0.000	0.000	2,837.747	-0.893	0.000	0.893	-0.565
20.00	32.037	27.558	0.000	0.000	0.000	2,674.845	-1.587	0.000	1.587	-0.757
25.00	31.488	26.245	0.000	0.000	0.000	2,514.662	-2.483	0.000	2.483	-0.949
28.75	31.067	25.298	0.000	0.000	0.000	2,396.584	-3.288	0.000	3.288	-1.095
30.00	30.955	24.676	0.000	0.000	0.000	2,357.750	-3.581	0.000	3.581	-1.145
34.50	30.409	22.635	0.000	0.000	0.000	2,218.454	-4.745	0.000	4.745	-1.320
35.00	30.392	22.471	0.000	0.000	0.000	2,203.250	-4.885	0.000	4.885	-1.340
40.00	29.832	21.354	0.000	0.000	0.000	2,051.290	-6.400	0.000	6.400	-1.548
45.00	29.259	20.267	0.000	0.000	0.000	1,902.130	-8.134	0.000	8.134	-1.756
50.00	28.544	19.123	0.000	0.000	0.000	1,755.801	-10.083	0.000	10.083	-1.962
55.00	27.941	18.113	0.000	0.000	0.000	1,613.081	-12.249	0.000	12.249	-2.167
58.25	27.546	17.474	0.000	0.000	0.000	1,522.275	-13.771	0.000	13.771	-2.301
60.00	27.331	16.831	0.000	0.000	0.000	1,474.071	-14.628	0.000	14.628	-2.374
63.25	26.902	15.696	0.000	0.000	0.000	1,385.246	-16.290	0.000	16.290	-2.506
65.00	26.710	15.365	0.000	0.000	0.000	1,338.167	-17.222	0.000	17.222	-2.577
70.00	26.099	14.529	0.000	0.000	0.000	1,204.620	-20.037	0.000	20.037	-2.791
75.00	25.486	13.722	0.000	0.000	0.000	1,074.128	-23.072	0.000	23.072	-3.000
80.00	24.874	12.943	0.000	0.000	0.000	946.698	-26.321	0.000	26.321	-3.201
85.00	20.564	10.972	0.000	0.000	0.000	822.332	-29.776	0.000	29.776	-3.392
90.00	19.951	10.262	0.000	0.000	0.000	719.515	-33.426	0.000	33.426	-3.575
95.00	19.344	9.579	0.000	0.000	0.000	619.759	-37.262	0.000	37.262	-3.748
100.00	15.422	7.487	0.000	0.000	0.000	508.638	-41.273	0.000	41.273	-3.911
100.50	15.369	7.409	0.000	0.000	0.000	500.927	-41.684	0.000	41.684	-3.927
104.50	14.853	6.588	0.000	0.000	0.000	439.452	-45.023	0.000	45.023	-4.046
105.00	14.805	6.523	0.000	0.000	0.000	432.025	-45.447	0.000	45.447	-4.061
110.00	14.225	6.109	0.000	0.000	0.000	357.998	-49.802	0.000	49.802	-4.254
115.00	13.653	5.717	0.000	0.000	0.000	286.874	-54.350	0.000	54.350	-4.428
120.00	10.076	4.107	0.000	0.000	0.000	218.608	-59.068	0.000	59.068	-4.580
125.00	9.523	3.763	0.000	0.000	0.000	168.227	-63.932	0.000	63.932	-4.710
130.00	8.982	3.437	0.000	0.000	0.000	120.613	-68.920	0.000	68.920	-4.818
135.00	8.453	3.132	0.000	0.000	0.000	75.706	-74.009	0.000	74.009	-4.901
138.00	4.395	1.735	0.000	0.000	0.000	50.346	-77.098	0.000	77.098	-4.937
140.00	4.192	1.621	0.000	0.000	0.000	41.556	-79.168	0.000	79.168	-4.956
145.00	3.694	1.349	0.000	0.000	0.000	20.594	-84.372	0.000	84.372	-4.990
148.00	3.563	0.000	0.000	0.000	0.000	9.512	-87.508	0.000	87.508	-5.001

Pole :	CT03XC355	Sprint Sites USA - NJ	
Location:	Westport, CT		
Height :	148.0 (ft)	Base Elev : 0.000 (ft)	
Shape :	12 Sides		
Base Dia :	49.92 (in)	Top Dia : 22.00 (in)	
Taper :	0.203 (in/ft)		

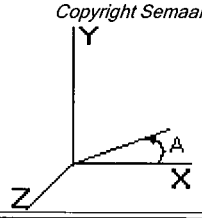


Load Case: No Ice — 85 mph - No Ice — 23 Iterations

Gust Response Factor : 1.69 — Effective Wind Speed : 85.00 (mph)
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Calculated Stresses

Seg Elev (ft)	Applied Stresses Axial (Y) (ksi)	Shear (X) (ksi)	Shear (Z) (ksi)	Torsion (ksi)	Bending (X) (ksi)	Bending (Z) (ksi)	Combined (ksi)	Allowable Stress (Fb) (ksi)	Stress Ratio
0.00	0.417	0.875	0.000	0.000	0.000	41.794	42.238	48.0	0.880
5.00	0.407	0.878	0.000	0.000	0.000	41.342	41.777	48.0	0.870
10.00	0.397	0.882	0.000	0.000	0.000	40.851	41.276	48.0	0.860
15.00	0.387	0.887	0.000	0.000	0.000	40.315	40.731	48.0	0.849
20.00	0.377	0.891	0.000	0.000	0.000	39.730	40.137	48.0	0.836
25.00	0.368	0.896	0.000	0.000	0.000	39.090	39.488	48.0	0.823
28.75	0.361	0.900	0.000	0.000	0.000	38.574	38.966	48.0	0.812
30.00	0.354	0.902	0.000	0.000	0.000	38.398	38.783	48.0	0.808
34.50	0.371	1.012	0.000	0.000	0.000	41.186	41.593	48.0	0.867
35.00	0.369	1.013	0.000	0.000	0.000	41.097	41.503	48.0	0.865
40.00	0.359	1.019	0.000	0.000	0.000	40.133	40.530	48.0	0.844
45.00	0.349	1.024	0.000	0.000	0.000	39.080	39.468	48.0	0.822
50.00	0.338	1.024	0.000	0.000	0.000	37.928	38.306	48.0	0.798
55.00	0.328	1.028	0.000	0.000	0.000	36.683	37.054	48.0	0.772
58.25	0.322	1.031	0.000	0.000	0.000	35.820	36.186	48.0	0.754
60.00	0.313	1.033	0.000	0.000	0.000	35.338	35.696	48.0	0.744
63.25	0.339	1.181	0.000	0.000	0.000	38.372	38.765	48.0	0.808
65.00	0.335	1.184	0.000	0.000	0.000	37.768	38.158	48.0	0.795
70.00	0.326	1.188	0.000	0.000	0.000	35.901	36.285	48.0	0.756
75.00	0.316	1.193	0.000	0.000	0.000	33.855	34.234	48.0	0.713
80.00	0.307	1.198	0.000	0.000	0.000	31.608	31.982	48.0	0.666
85.00	0.268	1.020	0.000	0.000	0.000	29.133	29.454	48.0	0.614
90.00	0.258	1.020	0.000	0.000	0.000	27.096	27.412	48.0	0.571
95.00	0.249	1.021	0.000	0.000	0.000	24.858	25.169	48.0	0.524
100.00	0.201	0.841	0.000	0.000	0.000	21.773	22.022	48.0	0.459
100.50	0.199	0.841	0.000	0.000	0.000	21.586	21.834	48.0	0.455
104.50	0.268	1.226	0.000	0.000	0.000	28.639	28.985	48.0	0.604
105.00	0.266	1.226	0.000	0.000	0.000	28.344	28.688	48.0	0.598
110.00	0.258	1.219	0.000	0.000	0.000	25.140	25.485	48.0	0.531
115.00	0.250	1.211	0.000	0.000	0.000	21.615	21.965	48.0	0.458
120.00	0.186	0.927	0.000	0.000	0.000	17.719	17.976	48.0	0.375
125.00	0.177	0.910	0.000	0.000	0.000	14.708	14.968	48.0	0.312
130.00	0.168	0.892	0.000	0.000	0.000	11.409	11.680	48.0	0.243
135.00	0.160	0.875	0.000	0.000	0.000	7.773	8.076	48.0	0.168
138.00	0.091	0.466	0.000	0.000	0.000	5.439	5.588	48.0	0.116
140.00	0.086	0.453	0.000	0.000	0.000	4.647	4.798	48.0	0.100
145.00	0.075	0.417	0.000	0.000	0.000	2.518	2.692	48.0	0.056
148.00	0.000	0.413	0.000	0.000	0.000	1.229	1.423	48.0	0.030



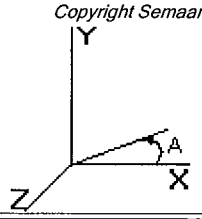
Load Case: Ice — 85 mph - With Ice - Ice Thickness = 0.5 in — 23 Iterations

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

Effective Wind Speed : 73.61 (mph)

Shaft Forces

Seg Top Elev (ft)	Description	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Wind Force Z (lb)	Weight (lb)
0.00		1.00	13.87	23.44	306.22	1.030	0.00	0.000	0.000	0.00	0.00	0.0
5.00		1.00	13.87	23.44	299.99	1.030	5.00	21.005	21.635	507.18	0.00	1,494.5
10.00		1.00	13.87	23.44	293.76	1.030	5.00	20.582	21.200	496.97	0.00	1,463.5
15.00		1.00	13.87	23.44	287.54	1.030	5.00	20.159	20.764	486.76	0.00	1,432.5
20.00		1.00	13.87	23.44	281.31	1.030	5.00	19.736	20.328	476.54	0.00	1,401.5
25.00		1.00	13.87	23.44	275.08	1.030	5.00	19.313	19.893	466.33	0.00	1,370.6
28.75	Bot - Section 2	1.00	13.87	23.44	270.41	1.030	3.75	14.208	14.634	343.05	0.00	1,007.9
30.00		1.00	13.87	23.44	268.86	1.030	1.25	4.774	4.917	115.27	0.00	599.0
34.50	Top - Section 1	1.01	14.04	23.74	264.93	1.030	4.50	16.968	17.477	414.94	0.00	2,126.8
35.00		1.01	14.10	23.84	270.26	1.030	0.50	1.864	1.920	45.77	0.00	117.6
40.00		1.05	14.65	24.76	269.07	1.030	5.00	18.409	18.962	469.62	0.00	1,159.7
45.00		1.09	15.15	25.61	267.12	1.030	5.00	17.986	18.526	474.53	0.00	1,132.2
50.00	Appertunance(s)	1.12	15.62	26.39	264.57	1.030	5.00	17.563	18.090	477.53	0.00	1,104.7
55.00		1.15	16.05	27.12	261.50	1.030	5.00	17.141	17.655	478.90	0.00	1,077.2
58.25	Bot - Section 3	1.17	16.31	27.57	259.26	1.030	3.25	10.915	11.242	309.99	0.00	685.8
60.00		1.18	16.45	27.80	257.99	1.030	1.75	5.912	6.090	169.35	0.00	647.1
63.25	Top - Section 2	1.20	16.70	28.23	255.50	1.030	3.25	10.843	11.168	315.29	0.00	1,185.7
65.00		1.21	16.83	28.45	259.16	1.030	1.75	5.764	5.937	168.93	0.00	316.9
70.00		1.24	17.19	29.06	254.99	1.030	5.00	16.184	16.670	484.44	0.00	888.2
75.00		1.26	17.53	29.63	250.51	1.030	5.00	15.761	16.234	481.17	0.00	864.2
80.00		1.28	17.86	30.19	245.77	1.030	5.00	15.338	15.799	476.98	0.00	840.1
85.00	Appertunance(s)	1.31	18.17	30.71	240.78	1.030	5.00	14.916	15.363	471.93	0.00	816.1
90.00		1.33	18.47	31.22	235.57	1.030	5.00	14.493	14.927	466.10	0.00	792.1
95.00		1.35	18.76	31.71	230.15	1.030	5.00	14.070	14.492	459.54	0.00	768.0
100.00	Appertunance(s)	1.37	19.04	32.17	224.55	1.030	5.00	13.647	14.056	452.31	0.00	744.0
100.50	Bot - Section 4	1.37	19.06	32.22	223.98	1.030	0.50	1.341	1.382	44.52	0.00	73.2
104.50	Top - Section 3	1.39	19.28	32.58	219.36	1.030	4.00	10.746	11.068	360.66	0.00	917.0
105.00		1.39	19.30	32.63	222.39	1.030	0.50	1.324	1.364	44.50	0.00	51.6
110.00		1.41	19.56	33.06	216.48	1.030	5.00	13.009	13.400	443.08	0.00	505.1
115.00		1.42	19.81	33.49	210.42	1.030	5.00	12.586	12.964	434.16	0.00	488.0
120.00	Appertunance(s)	1.44	20.05	33.89	204.22	1.030	5.00	12.163	12.528	424.70	0.00	470.9
125.00		1.46	20.29	34.29	197.88	1.030	5.00	11.741	12.093	414.74	0.00	453.9
130.00		1.48	20.52	34.68	191.42	1.030	5.00	11.318	11.657	404.31	0.00	436.8
135.00		1.49	20.74	35.05	184.84	1.030	5.00	10.895	11.222	393.42	0.00	419.7
138.00	Appertunance(s)	1.50	20.87	35.28	180.84	1.030	3.00	6.334	6.524	230.16	0.00	244.0
140.00		1.51	20.96	35.42	178.15	1.030	2.00	4.138	4.262	150.99	0.00	159.4
145.00		1.52	21.17	35.78	171.35	1.030	5.00	10.049	10.350	370.36	0.00	385.5
148.00	Appertunance(s)	1.53	21.29	35.99	167.22	1.030	3.00	5.826	6.001	215.99	0.00	223.5
					Totals:		148.00			13,441.01	0.00	28,864.3



Load Case: Ice — 85 mph - With Ice - Ice Thickness = 0.5 in — 23 Iterations

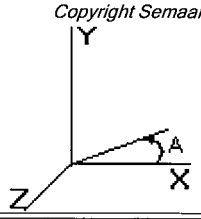
Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Effective Wind Speed : 73.61 (mph)

Discrete Appurtenance Forces

Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Total CaAa (sf)	CaAa Factor	Horiz Ecc (ft)	Vert Ecc (ft)	X Angle (deg)	Wind Force X (lb)	Wind Force Z (lb)	Mom X (lb-ft)	Mom Y (lb-ft)	Mom Z (lb-ft)	Weight (lb)
50.00	Standoff	1	15.62	26.39	4.340	1.000	0.000	0.0	0.0	114.56	0.00	0.00	0.00	0.00	63.0
50.00	MON 64 Omni Antenna	1	15.70	26.54	8.030	1.000	0.000	1.0	0.0	213.17	0.00	0.00	0.00	213.17	93.0
85.00	Low Profile Platform	1	18.17	30.71	27.320	1.000	0.000	0.0	0.0	839.23	0.00	0.00	0.00	0.00	2100.0
85.00	RR90-17	12	18.17	30.71	69.600	1.000	0.000	0.0	0.0	2138.01	0.00	0.00	0.00	0.00	420.0
100.00	SC421	1	19.32	32.66	5.380	1.000	0.000	5.3	0.0	175.71	0.00	0.00	0.00	937.42	76.5
100.00	PD201	2	19.24	32.53	3.620	1.000	0.000	3.9	0.0	117.76	0.00	0.00	0.00	456.31	25.4
100.00	Low Profile Platform	1	19.04	32.17	27.320	1.000	0.000	0.0	0.0	879.12	0.00	0.00	0.00	0.00	2100.0
100.00	DB230	1	19.04	32.17	12.390	1.000	0.000	0.0	0.0	398.69	0.00	0.00	0.00	0.00	103.0
100.00	PD83	3	19.46	32.89	21.840	1.000	0.000	8.1	0.0	718.50	0.00	0.00	0.00	5783.92	240.0
100.00	DB205	1	19.51	32.98	3.770	1.000	0.000	9.0	0.0	124.35	0.00	0.00	0.00	1124.11	55.0
100.00	DB224	1	19.59	33.12	9.080	1.000	0.000	10.6	0.0	300.73	0.00	0.00	0.00	3195.29	74.0
100.00	PD220	1	19.61	33.15	6.860	1.000	0.000	11.0	0.0	227.43	0.00	0.00	0.00	2501.69	83.0
100.00	DB806	1	19.45	32.87	6.010	1.000	0.000	7.8	0.0	197.57	0.00	0.00	0.00	1533.12	71.0
100.00	PD1110	1	19.39	32.77	4.000	1.000	0.000	6.6	0.0	131.08	0.00	0.00	0.00	863.17	46.0
120.00	Low Profile Platform	1	20.05	33.89	27.320	1.000	0.000	0.0	0.0	926.12	0.00	0.00	0.00	0.00	2100.0
120.00	APL866513-42T4	9	20.05	33.89	44.100	1.000	0.000	0.0	0.0	1494.96	0.00	0.00	0.00	0.00	468.0
138.00	Low Profile Platform	1	20.87	35.28	27.320	1.000	0.000	0.0	0.0	963.85	0.00	0.00	0.00	0.00	2100.0
138.00	APL866513-42T4	12	20.87	35.28	58.800	1.000	0.000	0.0	0.0	2074.48	0.00	0.00	0.00	0.00	624.0
148.00	DB420	2	21.74	36.74	15.620	1.000	0.000	11.0	0.0	573.88	0.00	0.00	0.00	6335.57	154.0
148.00	Lightning Rod, 7'	1	21.44	36.23	1.730	1.000	0.000	3.5	0.0	62.68	0.00	0.00	0.00	219.40	44.0
148.00	Low Profile Platform	1	21.29	35.99	27.320	1.000	0.000	0.0	0.0	983.32	0.00	0.00	0.00	0.00	2100.0
148.00	DB980H90	9	21.37	36.13	34.650	1.000	0.000	2.0	0.0	1251.93	0.00	0.00	0.00	2503.87	252.0
										14,907.1	0.00				13,391.9

Pole :	CT03XC355	Sprint Sites USA - NJ	
Location:	Westport, CT		
Height :	148.0 (ft)	Base Elev : 0.000 (ft)	
Shape :	12 Sides		
Base Dia :	49.92 (in)	Top Dia : 22.00 (in)	
Taper :	0.203 (in/ft)		



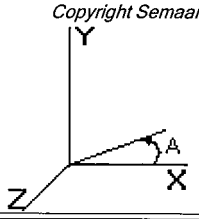
Load Case: Ice — 85 mph - With Ice - Ice Thickness = 0.5 in — 23 Iterations

Gust Response Factor : 1.69 — Effective Wind Speed : 73.61 (mph)
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Applied Forces Summary

Seg Elev (ft)	X Coord (ft)	Z Coord (ft)	Lateral FX (-) (lb)	Axial FY (-) (lb)	Lateral FZ (lb)	Moment MX (lb-ft)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5.00	0.00	0.00	507.18	1,494.48	0.00	0.00	0.00	0.00
10.00	0.00	0.00	496.97	1,463.50	0.00	0.00	0.00	0.00
15.00	0.00	0.00	486.76	1,432.52	0.00	0.00	0.00	0.00
20.00	0.00	0.00	476.54	1,401.54	0.00	0.00	0.00	0.00
25.00	0.00	0.00	466.33	1,370.56	0.00	0.00	0.00	0.00
28.75	0.00	0.00	343.05	1,007.89	0.00	0.00	0.00	0.00
30.00	0.00	0.00	115.27	598.99	0.00	0.00	0.00	0.00
34.50	0.00	0.00	414.94	2,126.80	0.00	0.00	0.00	0.00
35.00	0.00	0.00	45.77	117.62	0.00	0.00	0.00	0.00
40.00	0.00	0.00	469.62	1,159.68	0.00	0.00	0.00	0.00
45.00	0.00	0.00	474.53	1,132.17	0.00	0.00	0.00	0.00
50.00	0.00	0.00	805.27	1,260.67	0.00	0.00	0.00	213.17
55.00	0.00	0.00	478.90	1,077.16	0.00	0.00	0.00	0.00
58.25	0.00	0.00	309.99	685.77	0.00	0.00	0.00	0.00
60.00	0.00	0.00	169.35	647.07	0.00	0.00	0.00	0.00
63.25	0.00	0.00	315.29	1,185.67	0.00	0.00	0.00	0.00
65.00	0.00	0.00	168.93	316.90	0.00	0.00	0.00	0.00
70.00	0.00	0.00	484.44	888.18	0.00	0.00	0.00	0.00
75.00	0.00	0.00	481.17	864.15	0.00	0.00	0.00	0.00
80.00	0.00	0.00	476.98	840.12	0.00	0.00	0.00	0.00
85.00	0.00	0.00	3,449.17	3,336.09	0.00	0.00	0.00	0.00
90.00	0.00	0.00	466.10	792.06	0.00	0.00	0.00	0.00
95.00	0.00	0.00	459.54	768.03	0.00	0.00	0.00	0.00
100.00	0.00	0.00	3,723.24	3,617.86	0.00	0.00	0.00	16,395.03
100.50	0.00	0.00	44.52	73.22	0.00	0.00	0.00	0.00
104.50	0.00	0.00	360.66	917.01	0.00	0.00	0.00	0.00
105.00	0.00	0.00	44.50	51.59	0.00	0.00	0.00	0.00
110.00	0.00	0.00	443.08	505.09	0.00	0.00	0.00	0.00
115.00	0.00	0.00	434.16	488.01	0.00	0.00	0.00	0.00
120.00	0.00	0.00	2,845.78	3,038.94	0.00	0.00	0.00	0.00
125.00	0.00	0.00	414.74	453.86	0.00	0.00	0.00	0.00
130.00	0.00	0.00	404.31	436.78	0.00	0.00	0.00	0.00
135.00	0.00	0.00	393.42	419.70	0.00	0.00	0.00	0.00
138.00	0.00	0.00	3,268.50	2,968.00	0.00	0.00	0.00	0.00
140.00	0.00	0.00	150.99	159.38	0.00	0.00	0.00	0.00
145.00	0.00	0.00	370.36	385.54	0.00	0.00	0.00	0.00
148.00	0.00	0.00	3,087.81	2,773.51	0.00	0.00	0.00	9,058.84
		Totals:	28,348.15	42,256.12	0.00	0.00	0.00	25,667.04

Pole :	CT03XC355	Sprint Sites USA - NJ	
Location:	Westport, CT		
Height :	148.0 (ft)	Base Elev : 0.000 (ft)	
Shape :	12 Sides		
Base Dia :	49.92 (in)	Top Dia : 22.00 (in)	
Taper :	0.203 (in/ft)		



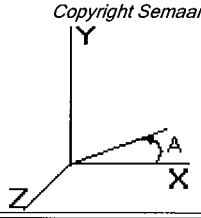
Load Case: Ice — 85 mph - With Ice - Ice Thickness = 0.5 in — 23 Iterations

Gust Response Factor : 1.69 — Effective Wind Speed : 73.61 (mph)
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Calculated 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	28.408	42.216	0.000	0.000	0.000	2,838.168	0.000	0.000	0.000	0.000
5.00	28.012	40.644	0.000	0.000	0.000	2,696.133	-0.085	0.000	0.085	-0.159
10.00	27.618	39.105	0.000	0.000	0.000	2,556.078	-0.338	0.000	0.338	-0.319
15.00	27.228	37.599	0.000	0.000	0.000	2,417.988	-0.759	0.000	0.759	-0.481
20.00	26.841	36.126	0.000	0.000	0.000	2,281.849	-1.350	0.000	1.350	-0.644
25.00	26.445	34.695	0.000	0.000	0.000	2,147.644	-2.112	0.000	2.112	-0.808
28.75	26.136	33.654	0.000	0.000	0.000	2,048.476	-2.798	0.000	2.798	-0.933
30.00	26.066	33.013	0.000	0.000	0.000	2,015.807	-3.048	0.000	3.048	-0.976
34.50	25.657	30.857	0.000	0.000	0.000	1,898.511	-4.040	0.000	4.040	-1.125
35.00	25.662	30.697	0.000	0.000	0.000	1,885.682	-4.159	0.000	4.159	-1.143
40.00	25.259	29.469	0.000	0.000	0.000	1,757.375	-5.451	0.000	5.451	-1.321
45.00	24.845	28.272	0.000	0.000	0.000	1,631.082	-6.930	0.000	6.930	-1.499
50.00	24.088	26.960	0.000	0.000	0.000	1,506.648	-8.595	0.000	8.595	-1.676
55.00	23.641	25.838	0.000	0.000	0.000	1,386.210	-10.445	0.000	10.445	-1.852
58.25	23.348	25.127	0.000	0.000	0.000	1,309.376	-11.745	0.000	11.745	-1.967
60.00	23.194	24.451	0.000	0.000	0.000	1,268.519	-12.478	0.000	12.478	-2.029
63.25	22.871	23.243	0.000	0.000	0.000	1,193.141	-13.900	0.000	13.900	-2.143
65.00	22.740	22.883	0.000	0.000	0.000	1,153.118	-14.697	0.000	14.697	-2.205
70.00	22.290	21.944	0.000	0.000	0.000	1,039.421	-17.105	0.000	17.105	-2.389
75.00	21.837	21.034	0.000	0.000	0.000	927.973	-19.704	0.000	19.704	-2.569
80.00	21.381	20.154	0.000	0.000	0.000	818.790	-22.489	0.000	22.489	-2.743
85.00	17.819	16.942	0.000	0.000	0.000	711.886	-25.450	0.000	25.450	-2.908
90.00	17.356	16.129	0.000	0.000	0.000	622.790	-28.581	0.000	28.581	-3.066
95.00	16.894	15.344	0.000	0.000	0.000	536.010	-31.873	0.000	31.873	-3.217
100.00	12.985	11.929	0.000	0.000	0.000	435.146	-35.317	0.000	35.317	-3.357
100.50	12.948	11.845	0.000	0.000	0.000	428.653	-35.669	0.000	35.669	-3.371
104.50	12.545	10.939	0.000	0.000	0.000	376.860	-38.536	0.000	38.536	-3.473
105.00	12.515	10.870	0.000	0.000	0.000	370.588	-38.900	0.000	38.900	-3.486
110.00	12.070	10.360	0.000	0.000	0.000	308.016	-42.639	0.000	42.639	-3.651
115.00	11.629	9.873	0.000	0.000	0.000	247.669	-46.544	0.000	46.544	-3.802
120.00	8.599	7.015	0.000	0.000	0.000	189.526	-50.596	0.000	50.596	-3.933
125.00	8.166	6.576	0.000	0.000	0.000	146.530	-54.775	0.000	54.775	-4.046
130.00	7.740	6.158	0.000	0.000	0.000	105.701	-59.062	0.000	59.062	-4.141
135.00	7.323	5.762	0.000	0.000	0.000	66.999	-63.436	0.000	63.436	-4.214
138.00	3.845	3.042	0.000	0.000	0.000	45.031	-66.093	0.000	66.093	-4.246
140.00	3.684	2.892	0.000	0.000	0.000	37.341	-67.874	0.000	67.874	-4.263
145.00	3.287	2.534	0.000	0.000	0.000	18.920	-72.352	0.000	72.352	-4.293
148.00	3.088	0.000	0.000	0.000	0.000	9.059	-75.051	0.000	75.051	-4.303

Pole :	CT03XC355	Sprint Sites USA - NJ	
Location:	Westport, CT		
Height :	148.0 (ft)	Base Elev : 0.000 (ft)	
Shape :	12 Sides		
Base Dia :	49.92 (in)	Top Dia : 22.00 (in)	
Taper :	0.203 (in/ft)		



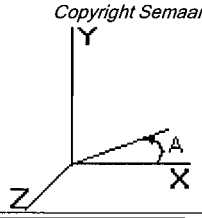
Load Case: Ice — 85 mph - With Ice - Ice Thickness = 0.5 in — 23 Iterations

Gust Response Factor : 1.69 — Effective Wind Speed : 73.61 (mph)
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Calculated Stresses

Seg Elev (ft)	Applied Stresses Axial (Y) (ksi)	Shear (X) (ksi)	Shear (Z) (ksi)	Torsion (ksi)	Bending (X) (ksi)	Bending (Z) (ksi)	Combined (ksi)	Allowable Stress (Fb) (ksi)	Stress Ratio
0.00	0.531	0.725	0.000	0.000	0.000	35.482	36.034	48.0	0.751
5.00	0.522	0.730	0.000	0.000	0.000	35.142	35.686	48.0	0.744
10.00	0.513	0.735	0.000	0.000	0.000	34.766	35.302	48.0	0.736
15.00	0.504	0.741	0.000	0.000	0.000	34.351	34.879	48.0	0.727
20.00	0.495	0.747	0.000	0.000	0.000	33.892	34.411	48.0	0.717
25.00	0.486	0.753	0.000	0.000	0.000	33.384	33.895	48.0	0.706
28.75	0.480	0.757	0.000	0.000	0.000	32.971	33.477	48.0	0.698
30.00	0.473	0.759	0.000	0.000	0.000	32.829	33.328	48.0	0.694
34.50	0.505	0.854	0.000	0.000	0.000	35.246	35.782	48.0	0.746
35.00	0.504	0.856	0.000	0.000	0.000	35.173	35.708	48.0	0.744
40.00	0.495	0.863	0.000	0.000	0.000	34.382	34.910	48.0	0.727
45.00	0.487	0.869	0.000	0.000	0.000	33.511	34.031	48.0	0.709
50.00	0.476	0.864	0.000	0.000	0.000	32.546	33.055	48.0	0.689
55.00	0.468	0.870	0.000	0.000	0.000	31.524	32.027	48.0	0.667
58.25	0.463	0.874	0.000	0.000	0.000	30.811	31.310	48.0	0.652
60.00	0.455	0.876	0.000	0.000	0.000	30.411	30.903	48.0	0.644
63.25	0.502	1.004	0.000	0.000	0.000	33.050	33.598	48.0	0.700
65.00	0.499	1.008	0.000	0.000	0.000	32.545	33.090	48.0	0.689
70.00	0.492	1.015	0.000	0.000	0.000	30.978	31.519	48.0	0.657
75.00	0.485	1.022	0.000	0.000	0.000	29.249	29.786	48.0	0.621
80.00	0.478	1.030	0.000	0.000	0.000	27.337	27.872	48.0	0.581
85.00	0.414	0.884	0.000	0.000	0.000	25.220	25.679	48.0	0.535
90.00	0.406	0.888	0.000	0.000	0.000	23.454	23.909	48.0	0.498
95.00	0.399	0.892	0.000	0.000	0.000	21.499	21.952	48.0	0.457
100.00	0.320	0.708	0.000	0.000	0.000	18.627	18.987	48.0	0.396
100.50	0.319	0.708	0.000	0.000	0.000	18.471	18.830	48.0	0.392
104.50	0.444	1.035	0.000	0.000	0.000	24.560	25.069	48.0	0.522
105.00	0.443	1.036	0.000	0.000	0.000	24.313	24.821	48.0	0.517
110.00	0.437	1.034	0.000	0.000	0.000	21.630	22.140	48.0	0.461
115.00	0.431	1.032	0.000	0.000	0.000	18.661	19.176	48.0	0.400
120.00	0.318	0.791	0.000	0.000	0.000	15.361	15.739	48.0	0.328
125.00	0.309	0.780	0.000	0.000	0.000	12.811	13.190	48.0	0.275
130.00	0.301	0.769	0.000	0.000	0.000	9.998	10.385	48.0	0.216
135.00	0.293	0.758	0.000	0.000	0.000	6.879	7.291	48.0	0.152
138.00	0.159	0.408	0.000	0.000	0.000	4.864	5.073	48.0	0.106
140.00	0.154	0.398	0.000	0.000	0.000	4.176	4.384	48.0	0.091
145.00	0.141	0.371	0.000	0.000	0.000	2.313	2.537	48.0	0.053
148.00	0.000	0.358	0.000	0.000	0.000	1.171	1.325	48.0	0.028

Pole :	CT03XC355	Sprint Sites USA - NJ	
Location:	Westport, CT		
Height :	148.0 (ft)	Base Elev : 0.000 (ft)	
Shape :	12 Sides		
Base Dia :	49.92 (in)	Top Dia : 22.00 (in)	
Taper :	0.203 (in/ft)		



Load Case: No Ice — 85 mph - No Ice — 23 Iterations

Gust Response Factor : 1.69 — Effective Wind Speed : 85.00 (mph)
Dead Load Factor : 1.00
Wind Load Factor : 1.00

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	34.247	0.000	33.168	0.000	0.000	3,343.062	42.238	48.0	0.000	0.880
Ice	28.408	0.000	42.216	0.000	0.000	2,838.168	36.034	48.0	0.000	0.751

Exhibit 5

Power Density Calculations

515 Boston Post Road East
Westport, Connecticut

T-Mobile USA, Inc.
76 Progress Drive, Stamford, CT 06902-3600
Phone: (203) 328-8900
Fax: (203) 328-8953

Technical Memo

To: Mark Taylor; Dennis Brown
From: Mihai Zamfir - Radio Frequency Engineer
cc: Roni Zola; Mike Murphy; Jonathan Link
Subject: Power Density Report for CT11295A
Date: October 17, 2003

1. Introduction:

This report is the result of an Electromagnetic Field Intensities (EMF - Power Densities) study for the T-Mobile USA, Inc. PCS antenna installation on a Monopole at 515 Post Road East, Westport, CT, 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 Wireless transmitters are in the 1930-1950 MHz frequency band.
2) The antenna array consists of three sectors, with 4 antennas per sector.
3) The model number for each antenna is EMS-RR90-17-02DPL2.
4) The antenna center line height is 85 ft.
5) The maximum transmit power from any sector is 3912.19 Watts Effective Radiated Power (EiRP) assuming 8 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 USA, Inc. PCS antenna installation on a Monopole at 515 Post Road East, Westport, CT, CT, is 0.13753 mW/cm^2. This value represents 13.753% of the Maximum Permissible Emission (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 USA 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 29.0567%. The combined Power Density for the site is 42.809% of the M.P.E. standard.

New York Market

Connecticut

Worst Case Power Density

T-Mobile

Site:	**CT11295A**
Site Address:	**515 Post Road East**
Town:	**Westport, CT**
Tower Height:	**150 ft.**
Tower Style:	**Monopole**
Base Station TX output	20 W
Number of channels	8
Antenna Model	EMS-RR90-17-02DPL2
Cable Size	1 1/4 in.
Cable Length	105 ft.
Antenna Height	85.0 ft.
Ground Reflection	1.6
Frequency	1935.0 MHz
Jumper & Connector loss	1.00 dB
Antenna Gain	16.5 dBi
Cable Loss per foot	0.0154 dB
Total Cable Loss	1.6170 dB
Total Attenuation	2.6170 dB
Total EIRP per Channel	56.89 dBm
(In Watts)	489.02 W
Total EIRP per Sector	65.92 dBm
(In Watts)	3912.19 W
nsg	13.8830
Power Density (S) =	**0.137526 mW/cm^2**
T-Mobile Worst Case % MPE =	**13.7526%**

Equation Used :

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

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

Co-Location Total

Carrier	% of Standard
Verizon	
Cingular	8.0831 %
Sprint PCS	2.1436 %
AT&T Wireless	
Nextel	7.8900 %
Town of Westport (Fire, EMS, Police, Hwy)	10.9400 %
Total Excluding T-Mobile	**29.0567 %**
T-Mobile	13.7526
Total % MPE for Site	**42.8093%**

Relative Gain Power Density

Antenna Relative Gain Factor	0.0 dBi
Total Attenuation	2.6170 dB
Total EIRP per Channel	56.89 dBm
(In Watts)	489.02 W
Total EIRP per Sector	65.92 dBm
(In Watts)	3912.19 W
nsg	13.8830
Power Density (S) =	**0.137526 mW/cm^2**
T-Mobile Relative Gain % MPE =	**13.7526%**