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Also admitted in Massachusetts

October 22, 2013

Melanie A. Bachman
Acting Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Request of Cellco Partnership d/b/a Verizon Wireless for an Order to Approve the Shared Use of an Existing Tower at 202 North Wawecus Hill Road, Norwich, Connecticut**

Dear Ms. Bachman:

Pursuant to Connecticut General Statutes §16-50aa, as amended, Cellco Partnership d/b/a Verizon Wireless ("Cellco") hereby requests an order from the Connecticut Siting Council ("Council") to approve its shared use of an existing telecommunications tower at 202 North Wawecus Hill Road in Norwich, Connecticut. The tower is owned by American Tower Corporation ("ATC"). Cellco requests that the Council find that the proposed shared use of the ATC tower satisfies the criteria of Connecticut General Statutes § 16-50aa and issue an order approving the proposed shared use. A copy of this letter is being sent to Norwich Mayor, Peter Nystrom and the Maennerchor Club, the owner of the property on which the ATC tower is located.

Background

The existing ATC facility consists of a 140-foot monopole tower within a fenced compound. The tower was approved in 2004, in Council Docket No. 270. The tower is shared by T-Mobile, with antennas at the 137-foot level and Metro PCS, with antennas at the 127-foot level.

Cellco is licensed by the Federal Communications Commission ("FCC") to provide wireless services throughout the State of Connecticut. Cellco and ATC have agreed to the proposed shared use of the North Wawecus Hill Road tower pursuant to mutually acceptable terms and conditions and ATC has authorized Cellco to apply for all necessary permits and approvals that may be required for the shared use of the tower. (*See* Letter of Authorization attached behind Tab 1).

Cellco proposes to install twelve (12) panel-type antennas at the 116-foot level on the ATC tower. Cellco will also install six (6) remote radio heads (RRHs), two (2) per sector, behind its AWS and LTE antennas and one (1) main distribution box on its antenna platform. Cellco will also install two (2) HYBRIFLEX™ antenna cables inside the monopole tower. Equipment associated with Cellco's antennas and a diesel-fueled back-up generator will be located inside a 12' x 30' shelter located near the base of the tower. Included behind Tab 2 are Cellco's project plans showing the location of all site improvements as well as specifications for Cellco's antennas, RRHs and antenna cables.

C.G.S. § 16-50aa(c)(1) provides that, upon written request for approval of a proposed shared use, "if the council finds that the proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns, the council shall issue an order approving such shared use." Cellco respectfully submits that the shared use of the tower satisfies these criteria.

A. Technical Feasibility. The existing tower is structurally capable of supporting Cellco's antennas and related equipment. The proposed shared use of this tower, therefore, is technically feasible. A Structural Analysis confirming that the existing tower can accommodate Cellco's antennas and related equipment is attached to this filing behind Tab 3.

B. Legal Feasibility. Under C.G.S. § 16-50aa, the Council has been authorized to issue orders approving the proposed shared use of an existing tower facility such as the ATC tower in Norwich. This authority complements the Council's prior-existing authority under C.G.S. § 16-50p to issue orders approving the construction of new towers that are subject to the Council's jurisdiction. In addition, § 16-50x(a) directs the Council to "give such consideration to other state laws and municipal regulations as it shall deem appropriate" in ruling on requests for the shared use of existing tower facilities. Under the statutory authority vested in the Council, an order by the Council approving the requested shared use would permit the

Applicant to obtain a building permit for the proposed installations.

C. Environmental Feasibility. The proposed shared use of the ATC tower would have a minimal environmental effect, for the following reasons:

1. The proposed installations of antennas and RRHs on the tower would have an insignificant incremental visual impact and would not cause any significant change or alteration in the physical or environmental characteristics of the existing site. Cellco's shelter would be installed within the limits of the existing improved tower compound.

2. Noise levels associated with the Cellco equipment shelter air-conditioning units will comply with State and/or local noise standards. (*See* Noise Compliance Study included behind Tab 4). Noise associated with Cellco's emergency back-up generator is exempt from State and local noise standards.

3. Operation of the proposed Cellco antennas at this site would not exceed the RF emissions standards adopted by the Federal Communications Commission. The cumulative "worst-case" RF emissions for the operation of the AT&T, T-Mobile, Metro PCS and Cellco antennas would be 48.18% of the FCC standard. *See* the General Power Density table included behind Tab 5.

4. Under ordinary operating conditions, Cellco's proposed installation would not require the use of any water or sanitary facilities and would not generate air emissions or discharges to water bodies or sanitary facilities. After construction is complete, Cellco's proposed installations would not generate any increased traffic other than periodic (monthly) maintenance visits.

Cellco's proposed shared use of this North Wawecus Hill Road facility would, therefore, have a minimal environmental effect, and is, therefore, environmentally feasible.

D. Economic Feasibility. As previously mentioned, ATC and Cellco have entered into a lease to share the existing tower on mutually agreeable terms. The proposed tower sharing is therefore economically feasible.

E. Public Safety Concerns. As stated above, the tower is structurally capable of supporting all existing and Cellco's proposed antennas and related equipment. Cellco is not aware of any public safety concerns relative to the proposed sharing of the existing ATC tower. In fact, the provision of new and improved wireless service through shared use of the existing tower is expected to enhance the safety and welfare of area residents.

Conclusion

For the reasons discussed above, the proposed shared use of the existing ATC tower at 202 North Wawecus Hill Road in Norwich satisfies the criteria stated in C.G.S. § 16-50aa and advances the General Assembly's and the Siting Council's goal of preventing the unnecessary proliferation of towers in Connecticut. The Applicant, therefore, requests that the Council issue an order approving the proposed shared use of the ATC tower.

Thank you for your consideration of this matter.

Very truly yours,

Kenneth C. Baldwin

Enclosures
Copy to:
Peter Nystrom, Mayor
John J. Polaski, Jr.
Sandy M. Carter

TAB 1

LETTER OF AUTHORIZATION

SITE NO: 311014 **SITE NAME:** NORWICH CT, CT

ADDRESS: 202 N Wawecus Hill Rd.
Norwich, CT 06360-4071

I, Margaret Robinson, Senior Counsel of American Tower*, owner of the tower facility located at the address identified above (the "Tower Facility"), do hereby authorize VERIZON WIRELESS (VAW) LLC D/B/A VERIZON WIRELESS, its successors and assigns, ("Verizon Wireless") and/or its agent, to act as American Tower's non-exclusive agent for the sole purpose of filing and consummating any land-use or building permit application(s) necessary to obtain approval of the applicable jurisdiction for VERIZON WIRELESS's installation of its antennas and related telecommunications equipment on the existing tower and Tower Facility. This installation shall not affect adjoining lands and will occur only within the area leased by American Tower.

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

The above authorization does not permit VERIZON WIRELESS to modify or alter any existing permit(s) and/or zoning or land-use conditions or impose any additional conditions unrelated to VERIZON WIRELESS's installation of telecommunications equipment without the prior written approval of American Tower.

Signature: _____
Print Name: Margaret Robinson
Senior Counsel
American Tower*

NOTARY BLOCK

Commonwealth of MASSACHUSETTS
County of Middlesex

Margaret Robinson, Senior Counsel

This instrument was acknowledged before me by ~~Richard Rossi, Vice President~~, Contract Management of American Tower (Tower Facility owner), personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same.

WITNESS my hand and official seal, this 26 day of December 2013.

NOTARY SEAL

MICHAEL F. BETTENCOURT NOTARY PUBLIC COMMONWEALTH OF MASSACHUSETTS MY COMM. EXPIRES OCTOBER 10, 2019

Notary Public _____
My Commission Expires: 10/10/2019

* American Tower as used herein is defined as American Towers LLC and any of its affiliates or subsidiaries.

ATC Project # 534842

TAB 2

Cellco Partnership

d.b.a. verizon wireless

WIRELESS COMMUNICATIONS FACILITY

NORWICH WEST
202 NORTH WAWECUS HILL RD
NORWICH, CT 06360

SITE DIRECTIONS

FROM: 99 EAST RIVER DRIVE, EAST HARTFORD, CT **TO:** 202 NORTH WAWECUS HILL ROAD, NORWICH, CT

1. HEAD SOUTHWEST ON E RIVER DR TOWARD PITKIN ST	0.9 MI
2. TURN RIGHT TO MERGE ONTO CT-2 E TOWARD NORWICH	34.5 MI
3. TAKE EXIT 27 FOR CT-32 N TOWARD YANTIC/WILLIMANTIC	0.2 MI
4. SLIGHT LEFT ONTO W TOWN ST	0.2 MI
5. TAKE THE 2ND RIGHT ONTO OTROBANDO AVE	0.8 MI
6. TURN RIGHT ONTO BROWNING RD/WAWECUS ST, CONTINUE TO FOLLOW BROWNING RD	0.3 MI
7. SLIGHT LEFT ONTO ROGERS RD	0.4 MI
8. TAKE THE 1ST LEFT ONTO N WAWECUS HILL RD, DESTINATION WILL BE ON THE LEFT	0.8 MI

GENERAL NOTES

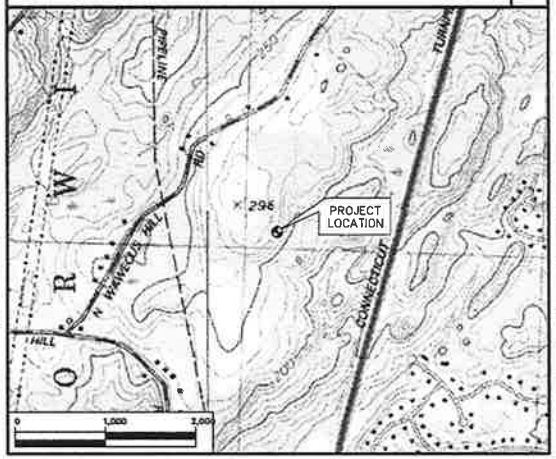
1. PROPOSED ANTENNA LOCATIONS AND HEIGHTS PROVIDED BY CELLCO PARTNERSHIP.

PROJECT SCOPE

1. THE SCOPE OF WORK GENERALLY INCLUDES THE INSTALLATION OF (12) PANEL ANTENNAS TO THE EXISTING MONOPOLE TOWER AND A EQUIPMENT SHELTER WITH DIESEL FUELED EMERGENCY POWER GENERATOR AT GRADE.

VICINITY MAP

SCALE: 1" = 2000'



PROJECT SUMMARY

SITE NAME:	NORWICH WEST
SITE ADDRESS:	202 NORTH WAWECUS HILL ROAD NORWICH, CT 06360
LESSEE/TENANT:	CELLCO PARTNERSHIP d.b.a. CELLCO PARTNERSHIP WIRELESS 99 EAST RIVER DRIVE EAST HARTFORD, CT 06108
CONTACT PERSON:	SANDY CARTER CELLCO PARTNERSHIP (860) 803-8219
ENGINEER:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD ROAD BRANFORD, CT 06405 (203) 488-0580
TOWER COORDINATES:	LATITUDE: 41°-31'-37.20" LONGITUDE: 72°-07'-21.40" GROUND ELEVATION: ±294' A.M.S.L. (REFERENCED FROM CSC DATABASE)

SHEET INDEX

SHT. NO.	DESCRIPTION	REV. NO.
T-1	TITLE SHEET	1
C-1	ELEVATION, PLAN AND ANTENNA CONFIG.	1

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
1	10/22/13	CLT	DMD	ISSUED FOR CSC
0	10/07/13	CLT	DMD	ISSUED FOR CSC - CLIENT REVIEW

Cellco Partnership d.b.a. verizon wireless

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

Cellco Partnership d/b/a Verizon Wireless

NORWICH WEST

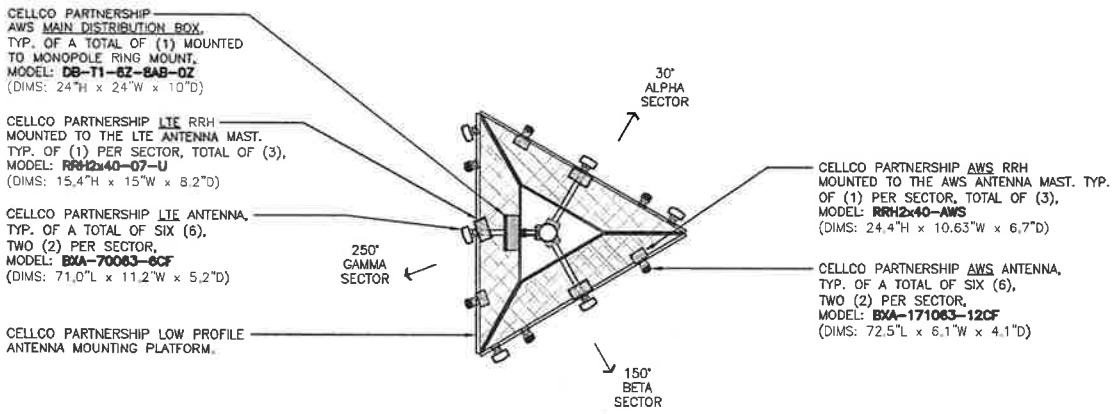
202 NORTH WAWECUS HILL RD
NORWICH, CT 06360

DATE: 10/07/13
SCALE: AS NOTED
JOB NO. 13158.000

TITLE SHEET

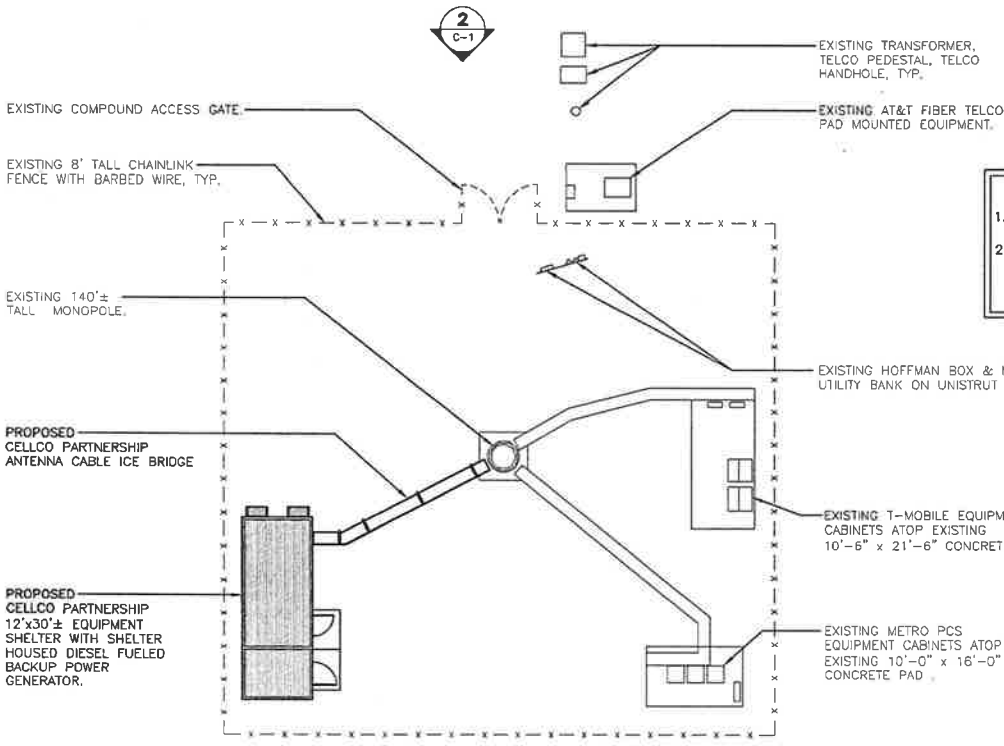
T-1

DWG. 1 OF 2



3 / C-1 ANTENNA CONFIGURATION - PLAN (PROPOSED)
SCALE: 3/32" = 1'-0"

TRUE NORTH

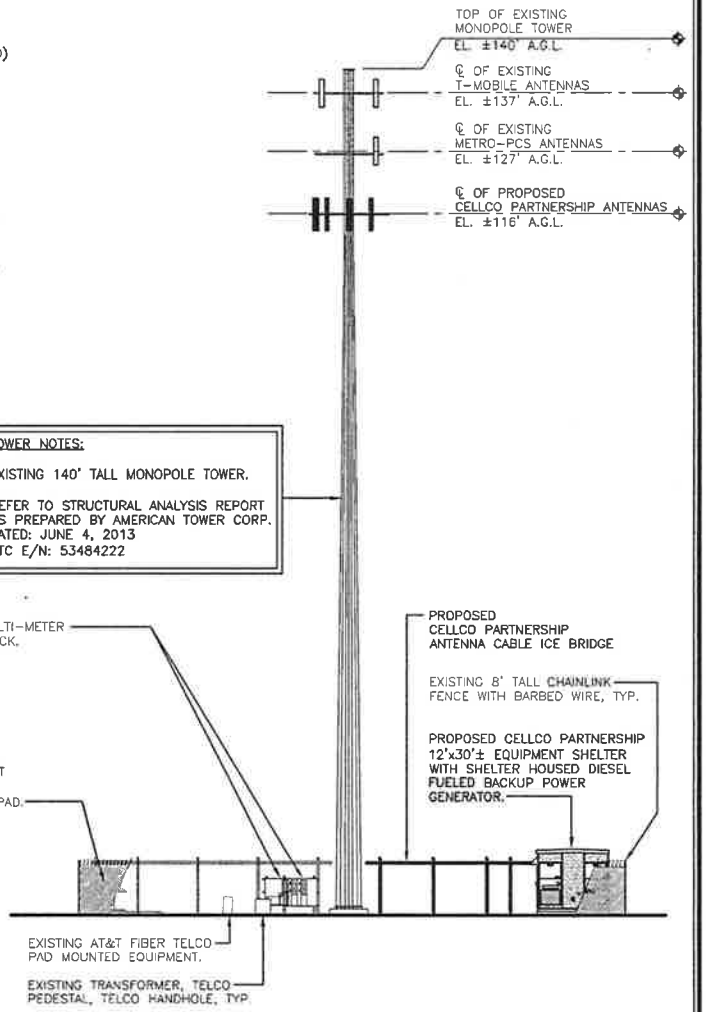


1 / C-1 COMPOUND PLAN - PROPOSED
SCALE: 1" = 30'-0"

TRUE NORTH

GRAPHIC SCALE
0 15 30
(IN FEET)
1 inch = 30 ft.

TOWER NOTES:
1. EXISTING 140' TALL MONOPOLE TOWER.
2. REFER TO STRUCTURAL ANALYSIS REPORT AS PREPARED BY AMERICAN TOWER CORP. DATED: JUNE 4, 2013 ATC E/N: 53484222



2 / C-1 NORTHWEST ELEVATION - PROPOSED
SCALE: 1" = 30'-0"

GRAPHIC SCALE
0 15 30
(IN FEET)
1 inch = 30 ft.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
1	10/22/13	CLT	DMD	ISSUED FOR CSC
0	10/07/13	CLT	DMD	ISSUED FOR CSC - CLIENT REVIEW

Cellco Partnership d.b.a. verizonwireless

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

Cellco Partnership d/b/a Verizon Wireless

NORWICH WEST

202 NORTH WAWECUS HILL RD
NORWICH, CT 06360

DATE: 10/07/13
SCALE: AS NOTED
JOB NO. 13158.000

ELEVATION, PLAN AND ANTENNA CONFIG.

C-1

DWG. 2 OF 2

Amphenol ANTENNA SOLUTIONS

BXA-171063-12CF-EDIN-X

X-Pol | FET Panel | 63° | 19.0 dBi

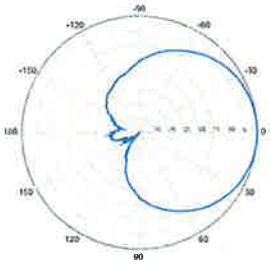
Replace "X" with desired electrical downtilt.

Antenna is also available with NE connector(s). Replace "EDIN" with "NE" in the model number when ordering.

Electrical Characteristics	1710-2170 MHz		
Frequency bands	1710-1880 MHz	1850-1990 MHz	1920-2170 MHz
Polarization	±45°	±45°	±45°
Horizontal beamwidth	68°	65°	60°
Vertical beamwidth	4.5°	4.5°	4.5°
Gain	16.1 dBd / 18.2 dBi	16.5 dBd / 18.6 dBi	16.9 dBd / 19.0 dBi
Electrical downtilt (X)	0, 2, 5		
Impedance	50Ω		
VSWR	≤1.5:1		
First upper sidelobe	< -17 dB		
Front-to-back ratio	> 30 dB		
In-band isolation	> 28 dB		
IM3 (20W carrier)	< -150 dBc		
Input power	300 W		
Lightning protection	Direct Ground		
Connector(s)	2 Ports / EDIN or NE / Female / Center (Back)		
Operating temperature	-40° to +60° C / -40° to +140° F		
Mechanical Characteristics			
Dimensions Length x Width x Depth	1842 x 154 x 105 mm		72.5 x 6.1 x 4.1 in
Depth with z-brackets	133 mm		5.2 in
Weight without mounting brackets	5.8 kg		12.8 lbs
Survival wind speed	> 201 km/hr		> 125 mph
Wind area	Front: 0.28 m² Side: 0.19 m²		Front: 3.1 ft² Side: 2.1 ft²
Wind load @ 161 km/hr (100 mph)	Front: 460 N Side: 304 N		Front: 103 lbf Side: 68 lbf

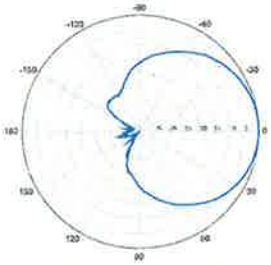
Mounting Options	Part Number	Fits Pipe Diameter	Weight
2-Point Mounting Bracket Kit	26799997	50-102 mm 2.0-4.0 in	2.3 kg 5 lbs
2-Point Mounting & Downtilt Bracket Kit	26799999	50-102 mm 2.0-4.0 in	3.6 kg 8 lbs
Concealment Configurations	For concealment configurations, order BXA-171063-12CF-EDIN-X-FP		

BXA-171063-12CF-EDIN-X



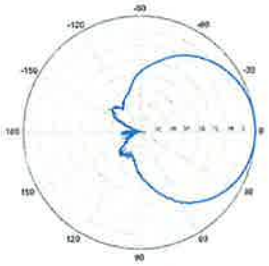
Horizontal | 1710-1880 MHz

BXA-171063-12CF-EDIN-X



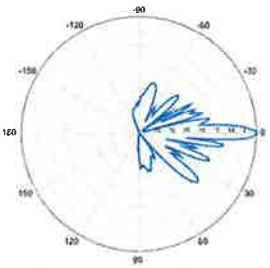
Horizontal | 1850-1990 MHz

BXA-171063-12CF-EDIN-X



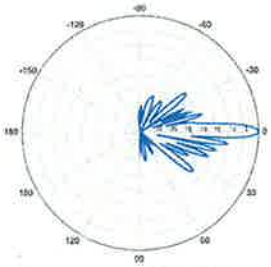
Horizontal | 1920-2170 MHz

BXA-171063-12CF-EDIN-0



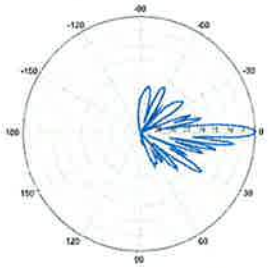
0° | Vertical | 1710-1880 MHz

BXA-171063-12CF-EDIN-0



0° | Vertical | 1850-1990 MHz

BXA-171063-12CF-EDIN-0

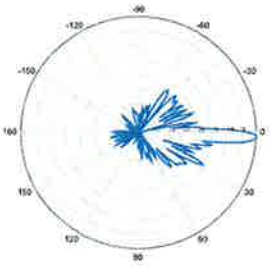


0° | Vertical | 1920-2170 MHz

BXA-171063-12CF-EDIN-X

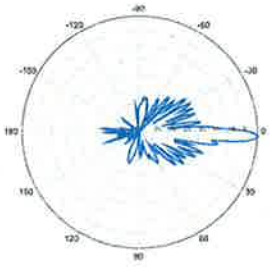
X-Pol | FET Panel | 63° | 19.0 dBi

BXA-171063-12CF-EDIN-2



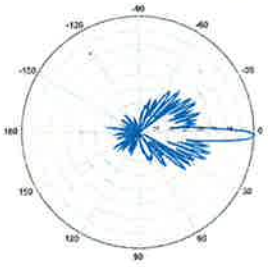
2° | Vertical | 1710-1880 MHz

BXA-171063-12CF-EDIN-2



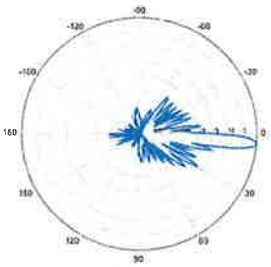
2° | Vertical | 1850-1990 MHz

BXA-171063-12CF-EDIN-2



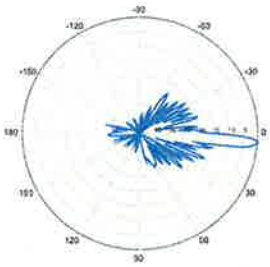
2° | Vertical | 1920-2170 MHz

BXA-171063-12CF-EDIN-5



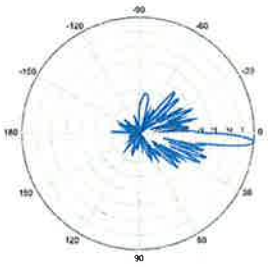
5° | Vertical | 1710-1880 MHz

BXA-171063-12CF-EDIN-5



5° | Vertical | 1850-1990 MHz

BXA-171063-12CF-EDIN-5



5° | Vertical | 1920-2170 MHz

Amphenol ANTENNA SOLUTIONS

BXA-70063-6CF-EDIN-X

X-Pol | FET Panel | 63° | 14.5 dBd

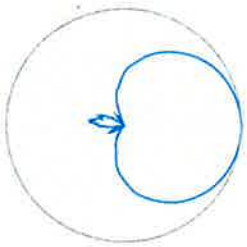
Replace "X" with desired electrical downtilt.

Antenna is also available with NE connector(s). Replace "EDIN" with "NE" in the model number when ordering.

Electrical Characteristics	696-900 MHz	
Frequency bands	696-806 MHz	806-900 MHz
Polarization	±45°	
Horizontal beamwidth	65°	63°
Vertical beamwidth	13°	11°
Gain	14.0 dBd (16.1 dBi)	14.5 dBd (16.6 dBi)
Electrical downtilt (X)	0, 2, 3, 4, 5, 6, 8, 10	
Impedance	50Ω	
VSWR	≤1.35:1	
Upper sidelobe suppression (0°)	-18.3 dB	-18.2 dB
Front-to-back ratio (+/-30°)	-33.4 dB	-36.3 dB
Null fill	5% (-26.02 dB)	
Isolation between ports	< -25 dB	
Input power with EDIN connectors	500 W	
Input power with NE connectors	300 W	
Lightning protection	Direct Ground	
Connector(s)	2 Ports / EDIN or NE / Female / Center (Back)	
Mechanical Characteristics		
Dimensions Length x Width x Depth	1804 x 285 x 132 mm	71.0 x 11.2 x 5.2 in
Depth with z-brackets	172 mm	6.8 in
Weight without mounting brackets	7.9 kg	17 lbs
Survival wind speed	> 201 km/hr	> 125 mph
Wind area	Front: 0.51 m² Side: 0.24 m²	Front: 5.5 ft² Side: 2.6 ft²
Wind load @ 161 km/hr (100 mph)	Front: 759 N Side: 391 N	Front: 169 lbf Side: 89 lbf

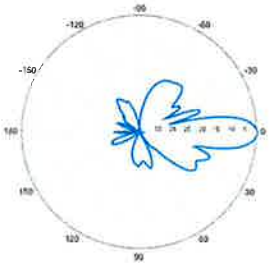
Mounting Options	Part Number	Fits Pipe Diameter	Weight
3-Point Mounting & Downtilt Bracket Kit	36210008	40-115 mm 1.57-4.5 in	6.9 kg 15.2 lbs
Concealment Configurations	For concealment configurations, order BXA-70063-6CF-EDIN-X-FP		

BXA-70063-6CF-EDIN-X



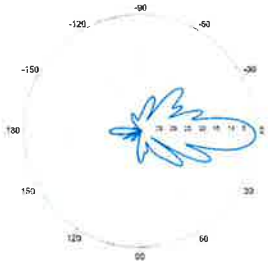
Horizontal | 750 MHz

BXA-70063-6CF-EDIN-0

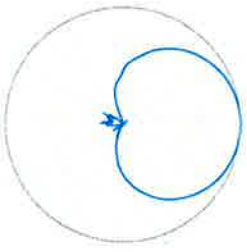


0° | Vertical | 750 MHz

BXA-70063-6CF-EDIN-2

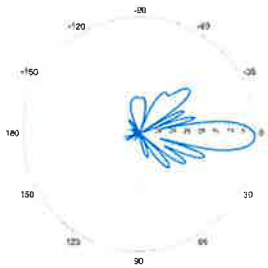


2° | Vertical | 750 MHz



Horizontal | 850 MHz

0° | Vertical | 850 MHz



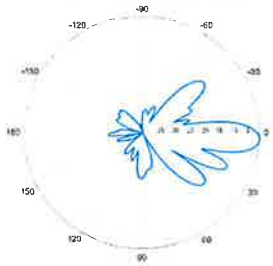
2° | Vertical | 850 MHz

Quoted performance parameters are provided to offer typical or range values only and may vary as a result of normal manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product. Improvements to product may be made without notice.

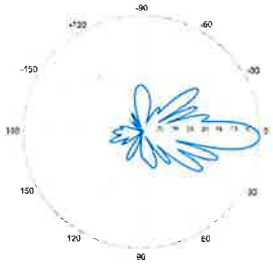
BXA-70063-6CF-EDIN-X

X-Pol | FET Panel | 63° | 14.5 dBd

BXA-70063-6CF-EDIN-3

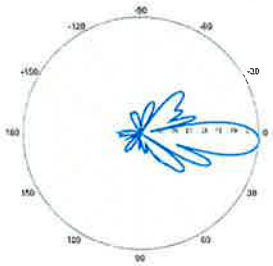


3° | Vertical | 750 MHz

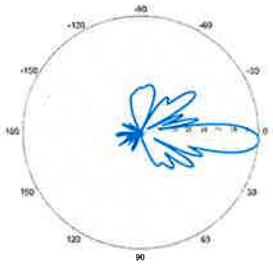


3° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-4

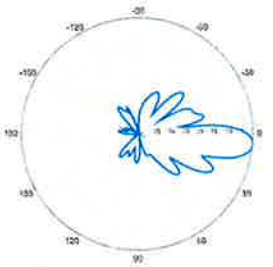


4° | Vertical | 750 MHz

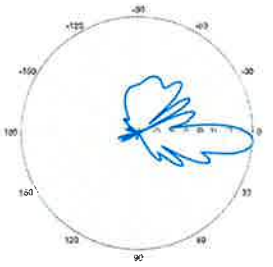


4° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-5

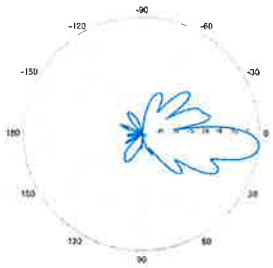


5° | Vertical | 750 MHz

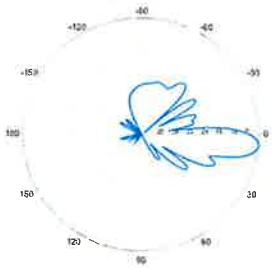


5° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-6

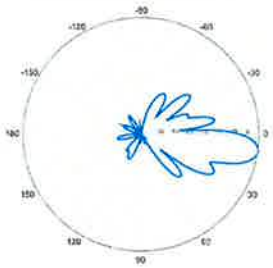


6° | Vertical | 750 MHz

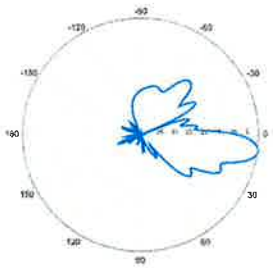


6° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-8

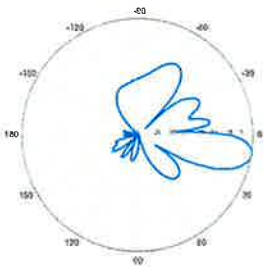


8° | Vertical | 750 MHz

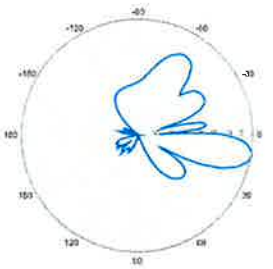


8° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-10



10° | Vertical | 750 MHz



10° | Vertical | 850 MHz

Alcatel-Lucent RRH2x40-07-U

REMOTE RADIO HEAD

The Alcatel-Lucent RRH2x40-07-U is a high-power, small form-factor Remote Radio Head (RRH) operating in the North American Digital Dividend / 700MHz frequency band (3GPP Band 13). The Alcatel-Lucent RRH2x40-07-U is designed with an eco-efficient approach, providing operators with the means to achieve high quality and capacity coverage with minimum site requirements.

A distributed eNodeB expands deployment options by using two components, a Base Band Unit (BBU) containing the digital assets and a separate RRH containing the radio-frequency (RF) elements. This modular design optimizes available space and allows the main components of an eNodeB to be installed separately, within the same site or several kilometres apart.

The Alcatel-Lucent RRH2x40-07-U is linked to the BBU by an optical-fiber connection carrying downlink and uplink digital radio signals along with operations, administration and maintenance (OA&M) information. The Alcatel-Lucent RRH2x40-07-U has two transmit RF paths, 40 W RF output power per transmit path, and is designed to manage up to two-way receive diversity. The device is ideally suited to support macro coverage, with multiple-input multiple-output (MIMO) 2x2 operation in up to 10 MHz of bandwidth.

The Alcatel-Lucent RRH2x40-07-U is designed to make available all the benefits of a distributed eNodeB, with excellent RF characteristics, with low capital expenditures (CAPEX) and low operating expenditures (OPEX). The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment or require costly cranes to be employed, leaving coverage holes. However, many of these sites can host an Alcatel-Lucent RRH2x40-07-U installation, providing more flexible site selection and improved network quality along with greatly reduced installation time and costs.

Fast, low-cost installation and deployment

The Alcatel-Lucent RRH2x40-07-U is a zero-footprint solution and operates noise-free, simplifying negotiations with site property owners and minimizing environmental impacts. Installation can easily be done by a single person because the Alcatel-Lucent RRH2x40-07-U is compact and weights less than 23 kg (50 lb), eliminating the need for a crane to hoist the BTS cabinet to the rooftop. A site can be in operation in less than one day — a fraction of the time required for a traditional BTS.

Excellent RF performance

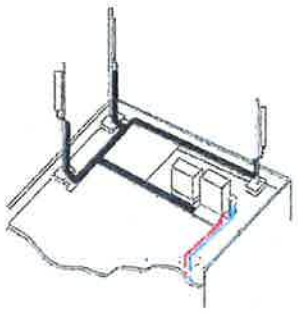
Because of its small size and weight, the Alcatel-Lucent RRH2x40-07-U can be installed close to the antenna. Operators can therefore locate the Alcatel-Lucent RRH2x40-07-U where RF engineering is deemed ideal, minimizing trade-offs between available sites and RF optimum sites. The RF feeder cost and installation costs are reduced or eliminated, and there is no need for a Tower Mounted Amplifier (TMA) because losses introduced by the RF feeder are greatly reduced. The Alcatel-Lucent RRH2x40-07-U provides more RF power while at the same time consuming less electricity.

Features

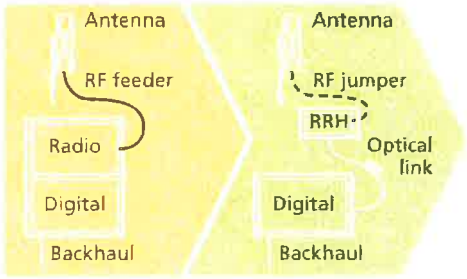
- Zero-footprint deployment
- Easy installation, with a lightweight unit can be carried and set up by one person
- Optimized RF power, with flexible site selection and elimination of a TMA
- Convection-cooled (fanless), noise-free, and heaterless unit
- Best-in-class power efficiency, with significantly reduced energy consumption

Benefits

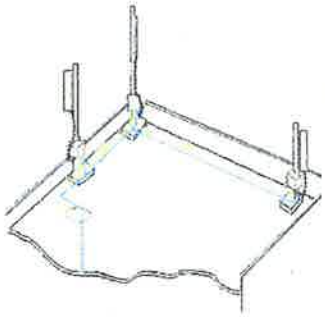
- Leverages existing real estate with lower site costs
- Reduces installation costs, with fewer installation materials and simplified logistics
- Decreases power costs and minimizes environmental impacts, with the potential for eco-sustainable power options
- Improves RF performance and adds flexibility to network planning



Macro



RRH for space-constrained cell sites



Distributed

Technical specifications

Physical dimensions

- Height: 390 mm (15.4 in.)
- Width: 380 mm (15 in.)
- Depth: 210 mm (8.2 in.)
- Weight (without mounting kit): less than 23 kg (50 lb)

Power

- Power supply: -48V

Operating environment

- Outdoor temperature range:
  - ¬ With solar load: -40°C to +50°C (-40°F to +122°F)
  - ¬ Without solar load: -40°C to +55°C (-40°F to +131°F)
- Passive convection cooling (no fans)
- Enclosure protection
  - ¬ IP65 (International Protection rating)

RF characteristics

- Frequency band: 700 MHz; 3GPP Band 13
- Bandwidth: up to 10 MHz
- RF output power at antenna port:
  - ¬ 40 W nominal RF power for each Tx port
- Rx diversity: 2-way or 4-way
- Noise figure: below 2.5 dB typical
- ALD features
  - ¬ TMA
  - ¬ Remote electrical tilt (RET) support (AISG v2.0)

Optical characteristics

Type/number of fibers

- Up to 3.12 Gb/s line bit rate
- Single-mode variant
  - ¬ One SM fiber (9/125 µm) per RRH2x, carrying UL and DL using CWDM (at 1550/1310 nm)
- Multi-mode variant
  - ¬ Two MM fibers (50/125 µm) per RRH2x: one carrying UL, the other carrying DL (at 850 nm)

Optical fiber length

- Up to 500 m (0.31 mi), using MM fiber
- Up to 20 km (12.43 mi), using SM fiber

Alarms and ports

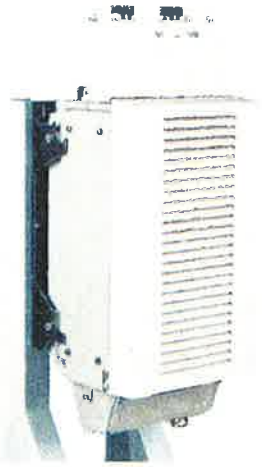
- Six external alarms
- Two optical ports to support daisy-chaining

Alcatel·Lucent

Alcatel-Lucent RRH2x40-AWS

REMOTE RADIO HEAD

The Alcatel-Lucent RRH2x40-AWS is a high-power, small form-factor Remote Radio Head (RRH) operating in the AWS frequency band (1700/2100MHz - 3GPP Band 4). The Alcatel-Lucent RRH2x40-AWS is designed with an eco-efficient approach, providing operators with the means to achieve high quality and capacity coverage with minimum site requirements.



A distributed eNodeB expands deployment options by using two components, a Base Band Unit (BBU) containing the digital assets and a separate RRH containing the radio-frequency (RF) elements. This modular design optimizes available space and allows the main components of an eNodeB to be installed separately, within the same site or several kilometres apart.

The Alcatel-Lucent RRH2x40-AWS is linked to the BBU by an optical-fiber connection carrying downlink and uplink digital radio signals along with operations, administration and maintenance (OA&M) information. The Alcatel-Lucent RRH2x40-AWS has two transmit RF paths, 40 W RF output power per transmit path, and is designed to manage up to four-way receive diversity. The device is ideally suited to support macro coverage, with multiple-input multiple-output (MIMO) 2x2 operation in up to 20 MHz of bandwidth.

The Alcatel-Lucent RRH2x40-AWS is designed to make available all the benefits of a distributed eNodeB, with excellent RF characteristics, with low capital expenditures (CAPEX) and low operating expenditures (OPEX). The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment or require costly cranes to be employed, leaving coverage holes. However, many of these sites can host an Alcatel-Lucent RRH2x40-AWS installation, providing more flexible site selection and improved network quality along with greatly reduced installation time and costs.

Fast, low-cost installation and deployment

The Alcatel-Lucent RRH2x40-AWS is a zero-footprint solution and operates noise-free, simplifying negotiations with site property owners and minimizing environmental impacts. Installation can easily be done by a single person because the Alcatel-Lucent RRH2x40-AWS is compact and weighs less than 20 kg (44 lb), eliminating the need for a crane to hoist the BTS cabinet to the rooftop. A site can be in operation in less than one day — a fraction of the time required for a traditional BTS.

Excellent RF performance

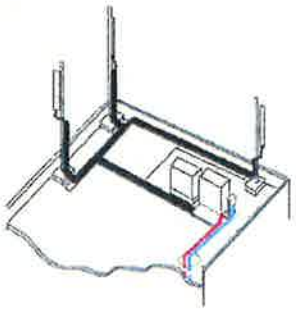
Because of its small size and weight, the Alcatel-Lucent RRH2x40-AWS can be installed close to the antenna. Operators can therefore locate the Alcatel-Lucent RRH2x40-AWS where RF engineering is deemed ideal, minimizing trade-offs between available sites and RF optimum sites. The RF feeder cost and installation costs are reduced or eliminated, and there is no need for a Tower Mounted Amplifier (TMA) because losses introduced by the RF feeder are greatly reduced. The Alcatel-Lucent RRH2x40-AWS provides more RF power while at the same time consuming less electricity.

Features

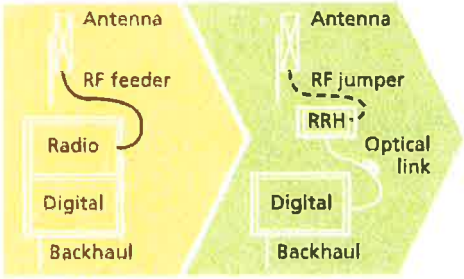
- Zero-footprint deployment
- Easy installation, with a lightweight unit can be carried and set up by one person
- Optimized RF power, with flexible site selection and elimination of a TMA
- Convection-cooled (fanless)
- Noise-free
- Best-in-class power efficiency, with significantly reduced energy consumption

Benefits

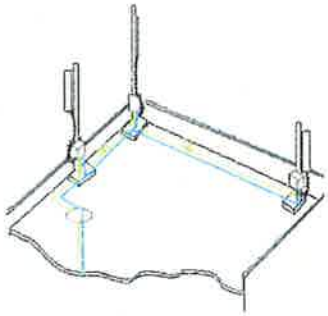
- Leverages existing real estate with lower site costs
- Reduces installation costs, with fewer installation materials and simplified logistics
- Decreases power costs and minimizes environmental impacts, with the potential for eco-sustainable power options
- Improves RF performance and adds flexibility to network planning



Macro



RRH for space-constrained cell sites



Distributed

Technical specifications

Physical dimensions

- Height: 620 mm (24.4 in.)
- Width: 270 mm (10.63 in.)
- Depth: 170m (6.7 in.)
- Weight (without mounting kit): less than 20 kg (44 lb)

Power

- Power supply: -48VDC

Operating environment

- Outdoor temperature range:
  - ¬ With solar load: -40°C to +50°C (-40°F to +122°F)
  - ¬ Without solar load: -40°C to +55°C (-40°F to +131°F)
- Passive convection cooling (no fans)
- Enclosure protection
  - ¬ IP65 (International Protection rating)

RF characteristics

- Frequency band: 1700/2100 MHz (AWS); 3GPP Band 4
- Bandwidth: up to 20 MHz
- RF output power at antenna port: 40 W nominal RF power for each Tx port
- Rx diversity: 2-way or 4-way with optional Rx Diversity module
- Noise figure: below 2.0 dB typical
- Antenna Line Device features
  - ¬ TMA and Remote electrical tilt (RET) support via AISG v2.0

Optical characteristics

Type/number of fibers

- Single-mode variant
  - ¬ One Single Mode Single Fiber per RRH2x, carrying UL and DL using CWDM
  - ¬ Single mode dual fiber (SM/DF)
- Multi-mode variant
  - ¬ Two Multi-mode fibers per RRH2x: one carrying UL, the other carrying DL

Optical fiber length

- Up to 500 m (0.31 mi), using MM fiber
- Up to 20 km (12.43 mi), using SM fiber

Digital Ports and Alarms

- Two optical ports to support daisy-chaining
- Six external alarms

CPG2809100912 (09)

Alcatel·Lucent

Product Data Sheet HB158-1-08U8-S8J18

HYBRIFLEX™ RRH Hybrid Feeder Cabling Solution, 1-5/8", Single-Mode Fiber

Product Description

RFS' HYBRIFLEX Remote Radio Head (RRH) hybrid feeder cabling solution combines optical fiber and DC power for RRHs in a single lightweight aluminum corrugated cable, making it the world's most innovative solution for RRH deployments.

It was developed to reduce installation complexity and costs at Cellular sites. HYBRIFLEX allows mobile operators deploying an RRH architecture to standardize the RRH installation process and eliminate the need for and cost of cable grounding. HYBRIFLEX combines optical fiber (multi-mode or single-mode) and power in a single corrugated cable. It eliminates the need for junction boxes and can connect multiple RRHs with a single feeder. Standard RFS CELLFLEX® accessories can be used with HYBRIFLEX cable. Both pre-connectorized and on-site options are available.

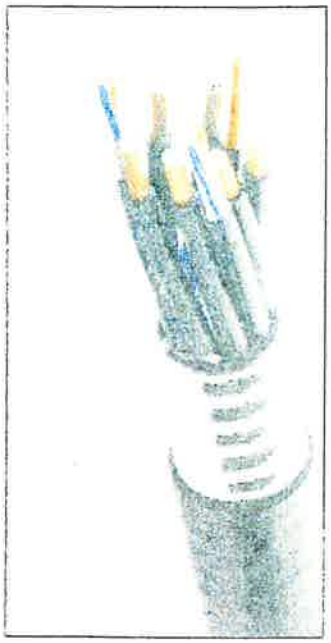


Figure 1: HYBRIFLEX Series

Features/Benefits

- Aluminum corrugated armor with outstanding bending characteristics – minimizes installation time and enables mechanical protection and shielding
- Same accessories as 1 5/8" coaxial cable
- Outer conductor grounding – Eliminates typical grounding requirements and saves on installation costs
- Lightweight solution and compact design – Decreases tower loading
- Robust cabling – Eliminates need for expensive cable trays and ducts
- Installation of tight bundled fiber optic cable pairs directly to the RRH – Reduces CAPEX and wind load by eliminating need for interconnection
- Optical fiber and power cables housed in single corrugated cable – Saves CAPEX by standardizing RRH cable installation and reducing installation requirements
- Outdoor polyethylene jacket – Ensures long-lasting cable protection

Technical Specifications

Outer Conductor Armor	Corrugated Aluminum	[mm (in)]	46.5 (1.83)
Jacket	Polyethylene, PE	[mm (in)]	50.3 (1.98)
UV-Protection	Individual and External Jacket		Yes
Weight, Approximate		[kg/m (lb/ft)]	1.9 (1.30)
Minimum Bending Radius, Single Bending		[mm (in)]	200 (8)
Minimum Bending Radius, Repeated Bending		[mm (in)]	500 (20)
Recommended/Maximum Clamp Spacing		[m (ft)]	1.0 / 1.2 (3.25 / 4.0)
DC-Resistance Outer Conductor Armor		[Ω/km (Ω/1000ft)]	068 (0.205)
DC-Resistance Power Cable 8.4mm²(8AWG)		[Ω/km (Ω/1000ft)]	2.1 (0.307)
Version			Single-mode OM3
Quantity, Fiber Count			16 (8 pairs)
Core/Clad		[µm]	50/125
Primary Coating (Acrylate)		[µm]	245
Buffer Diameter, Nominal		[µm]	900
Secondary Protection, Jacket, Nominal		[mm (in)]	2.0 (0.08)
Minimum Bending Radius		[mm (in)]	104 (4.1)
Insertion Loss @ wavelength 850nm		dB/km	3.0
Insertion Loss @ wavelength 1310nm		dB/km	1.0
Standards (Meets or exceeds)			UL94-V0, UL1666 RoHS Compliant
Size (Power)		[mm² (AWG)]	8.4 (8)
Quantity, Wire Count (Power)			16 (8 pairs)
Size (Alarm)		[mm² (AWG)]	0.8 (18)
Quantity, Wire Count (Alarm)			4 (2 pairs)
Type			UV protected
Strands			19
Primary Jacket Diameter, Nominal		[mm (in)]	6.8 (0.27)
Standards (Meets or exceeds)			NFPA 130, ICEA S-95-658 UL Type XHHW-2, UL 44 UL-LS Limited Smoke, UL VW-1 IEEE-383 (1974), IEEE1202/FT4 RoHS Compliant
Installation Temperature		[°C (°F)]	-40 to +65 (-40 to149)
Operation Temperature		[°C (°F)]	-40 to +65 (-40 to149)

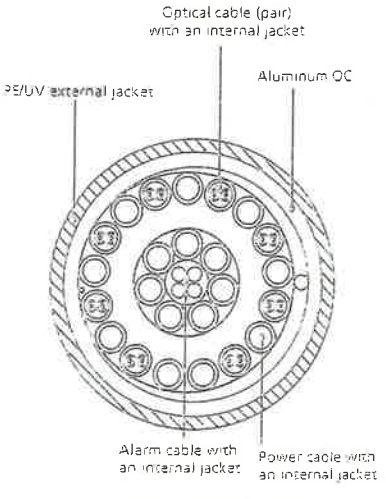


Figure 2: Construction Detail

* This data is provisional and subject to change

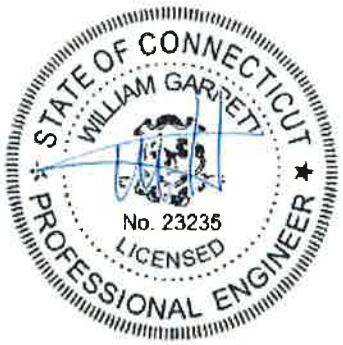
TAB 3

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**140 ft Monopole**
ATC Site Name	:	**Norwich CT, CT**
ATC Site Number	:	**311014**
Engineering Number	:	**53484222**
Proposed Carrier	:	**Verizon**
Carrier Site Name	:	**Norwich West CT**
Carrier Site Number	:	**161645**
Site Location	:	**202 N Wawecus Hill Rd.** **Norwich, CT 06360-4071** **41.527069,-72.122594**
County	:	**New London**
Date	:	**June 4, 2013**
Max Usage	:	**33%**
Result	:	**Pass**

Amir H. Tabarestani, E.I.
Design Engineer



Jun 6 2013 3:43 PM

AMERICAN TOWER®
CORPORATION

Eng. Number 53484222
June 4, 2013

Table of Contents

AMERICAN TOWER®
CORPORATION

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 140 ft monopole to reflect the change in loading by Verizon.

Supporting Documents

Tower Drawings	PennSummit, Paul J. Ford Job #29205-0119, dated June 1, 2005
Foundation Drawing	PennSummit, Paul J. Ford Job #29205-0119, dated June 1, 2005
Geotechnical Report	Clarence Welti Assoc. Geotechnical Study for Cell Tower 202 North Wawecus Hill Rd., dated October 3, 2005

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	110 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2003 IBC w/ 2005 CT Supplement & 2009 CT Amendment
Structure Class:	II
Exposure Category:	B
Topographic Category:	1

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact me via email at amir.tabarestani@americantower.com or call 919-466-5046.

Existing and Reserved Equipment

Mount Elev.[1] (ft)	Qty.	Antenna	Mount Type	Lines	Carrier
137.0	6	EMS RR90-17-02DP	Low Profile Platform	(12) 1 5/8" Coax	T-Mobile
	3	RFS ATMAA1412D-1A20			
	3	RFS ATMPP1412D-1CWA			
127.0	6	Kathrein 800 10504	Low Profile Platform	(6) 1 5/8" Coax	Metro PCS

Proposed Equipment

Elevation[1] (ft)		Qty.	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
116.0	116.0	3	Alcatel-Lucent RRH2x40-07-U	Low Profile Platform	(2) 1 5/8" Hybriflex	Verizon
		3	Alcatel-Lucent RRH2x40-AWS			
		6	Antel BXA-171063-12CF-EDIN			
		6	Antel BXA-70063-6CF-EDIN-X			
		1	RFS DB-T1-6Z-8AB-0Z			

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

Install proposed coax inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	27%	Pass
Shaft	33%	Pass
Base Plate	17%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	5,050.0	6,817.5	2,232.5	33%
Shear (Kips)	43.0	58.1	24.3	42%

*** The design reactions are factored by 1.35 per ANSI/TIA-222-G, Sec. 15.5.1**

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

Deflection and Sway*

Antenna Elevation (ft)	Deflection (ft)	Sway (Rotation) (°)
116.0	0.353	0.325

***Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-G**

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Standard Conditions

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

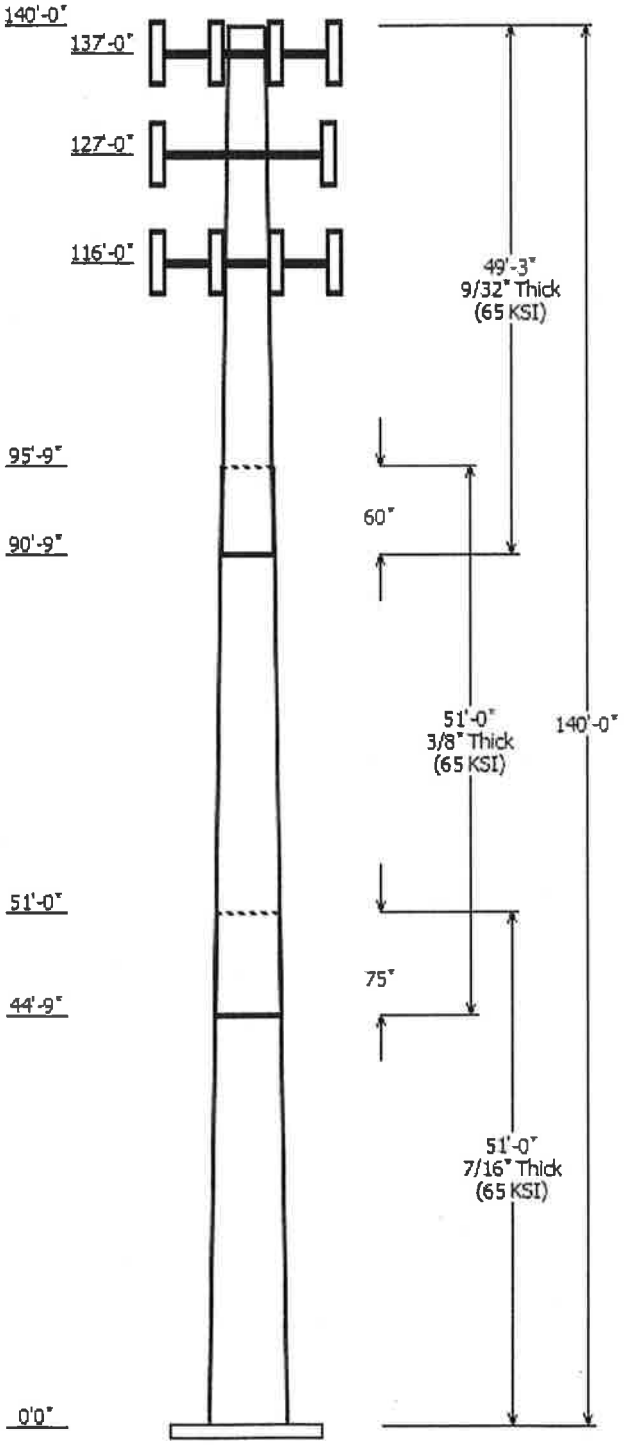
-- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.

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

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

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

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



Job Information

Pole :	311014	Code:	ANSI/TIA-222 Rev G
Description :	140 ft PennSummit Monopole		
Client :	Verizon	Struct Class :	II
Location :	Norwich CT, CT		
Shape :	18 Sides	Exposure :	B
Height :	140.00 (ft)	Topo :	1
Base Elev (ft):	0.00		
Taper:	0.23420 (in/ft)		

Sections Properties

Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Taper (in/ft)	Steel Grade (ksi)
1	51.000	48.21	60.16	0.438		0.000	0.234203	65
2	51.000	38.48	50.42	0.375	Slip Joint	75.000	0.234203	65
3	49.250	28.68	40.21	0.281	Slip Joint	60.000	0.234203	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
137.000	137.000	1	Flat Low Profile Platform
137.000	137.000	3	RFS ATMAA1412D-1A20
137.000	137.000	3	RFS ATMPP1412D-1CWA
137.000	137.000	6	EMS RR90-17-02DP
127.000	127.000	6	Kathrein 800 10504
127.000	127.000	1	Flat Low Profile Platform
116.000	116.000	3	Alcatel-Lucent RRH2x40-AWS
116.000	116.000	6	Antel BXA-70063-6CF-EDIN-X
116.000	116.000	3	Alcatel-Lucent RRH2x40-07-U
116.000	116.000	6	Antel BXA-171063-12CF-EDIN
116.000	116.000	1	RFS DB-T1-6Z-8AB-0Z
116.000	116.000	1	Flat Low Profile Platform

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
5.000	116.0	1 5/8" Hybriflex	No
5.000	127.0	1 5/8" Coax	No
5.000	137.0	1 5/8" Coax	No

Load Cases

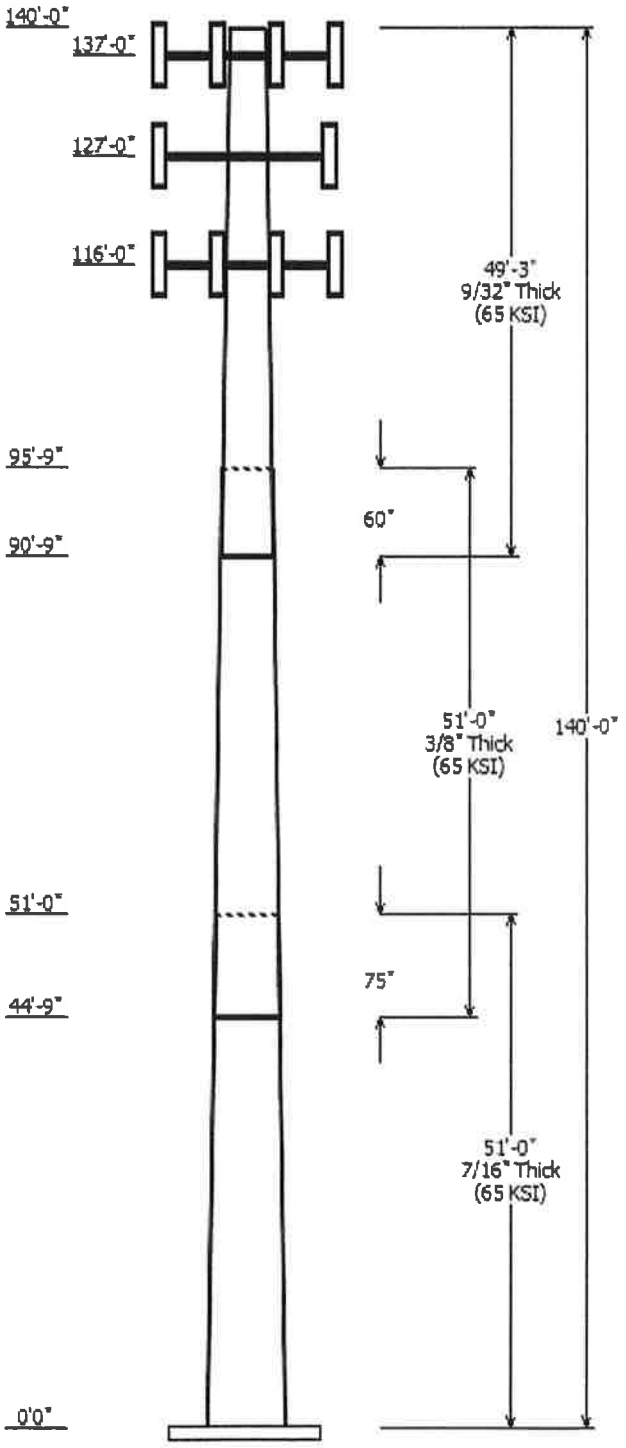
1.2D + 1.6W	110.00 mph with No Ice
0.9D + 1.6W	110.00 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50.00 mph with 0.75 in Radial Ice
1.0D + 1.0W	60.00 mph Serviceability

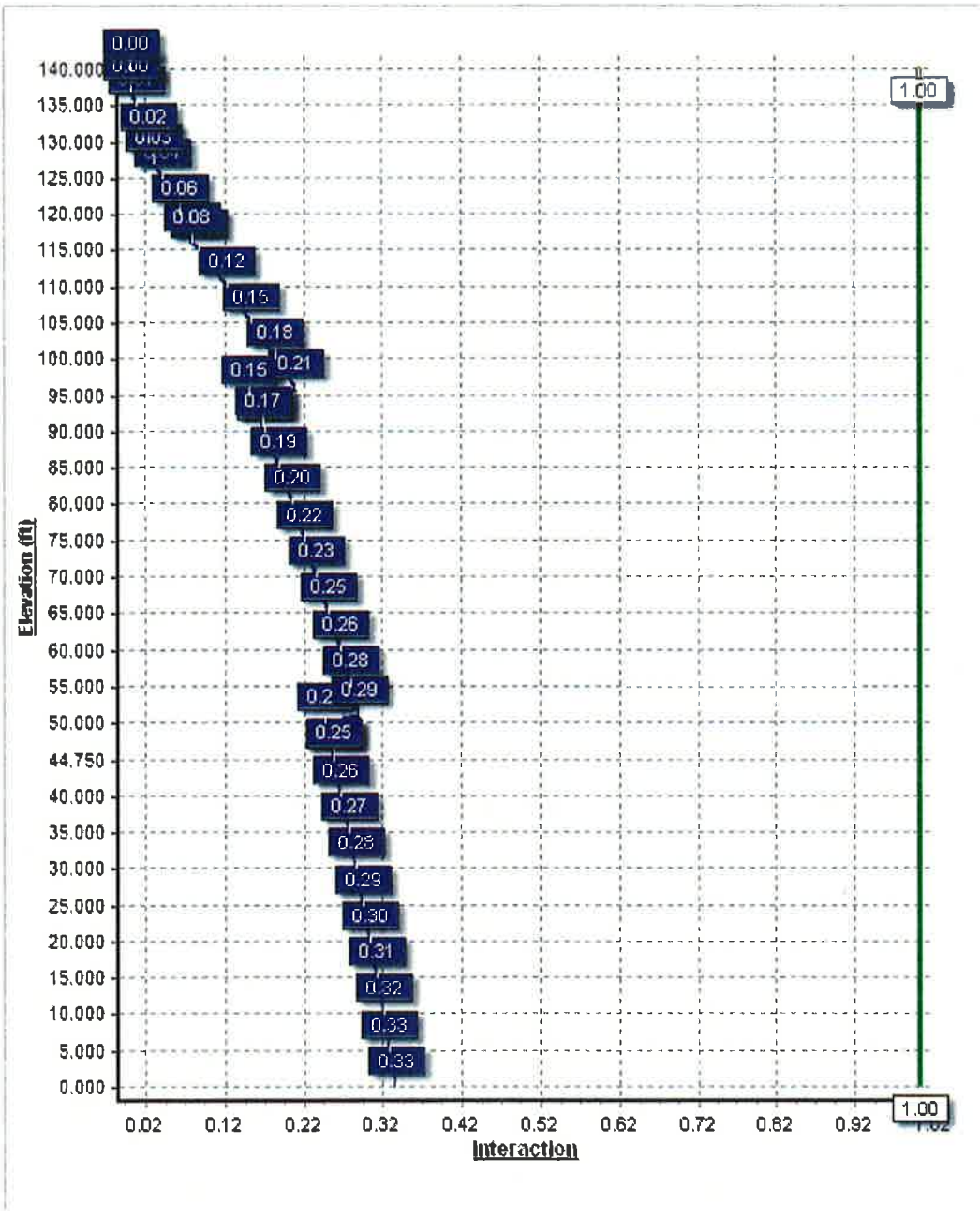
Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	2232.49	24.32	41.55
0.9D + 1.6W	2222.66	24.31	31.16
1.2D + 1.0Di + 1.0Wi	503.55	5.61	60.61
1.0D + 1.0W	413.94	4.52	34.64

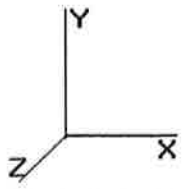
Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
	0.00	0.000	0.000


140'-0"
137'-0"
127'-0"
116'-0"
95'-9"
90'-9"
51'-0"
44'-9"
0'0"
49'-3"
9/32" Thick
(65 KSI)
60"
51'-0"
3/8" Thick
(65 KSI)
140'-0"
75"
51'-0"
7/16" Thick
(65 KSI)


Elevation (ft)
140.000
135.000
130.000
125.000
120.000
115.000
110.000
105.000
100.000
95.000
90.000
85.000
80.000
75.000
70.000
65.000
60.000
55.000
50.000
44.750
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
0.00
0.02
0.06
0.08
0.12
0.15
0.18
0.15
0.21
0.17
0.19
0.20
0.22
0.23
0.25
0.26
0.28
0.29
0.25
0.26
0.27
0.28
0.29
0.30
0.31
0.32
0.33
0.33
1.00
1.00
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction

Pole :	311014	Code:	ANSI/TIA-222 Rev G
Location :	Norwich CT, CT	Struct Class :	II
Height :	140.0 (ft)	Exposure Category :	B
Base Dia :	60.16 (in)	Topographic Category :	1
Top Dia :	28.68 (in)	Base Elev :	0.000 (ft)
Shape :	18 Sides		
Taper :	0.234203 (in/ft)		



Shaft Section Properties

Sect Info	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)
1-18	51.000	0.4375	65		0.00	12,952	60.16	0.00	82.93	37371.0	22.84	137.51	48.21	51.00	66.34	19134.1	18.02	110.21	0.234203
2-18	51.000	0.3750	65	Slip	75.00	9,105	50.42	44.75	59.58	18858.2	22.30	134.48	38.48	95.75	45.36	8323.2	16.69	102.63	0.234203
3-18	49.250	0.2813	65	Slip	60.00	5,112	40.21	90.75	35.65	7184.1	23.80	143.00	28.68	140.00	25.35	2584.2	16.57	101.99	0.234203
				Shaft Weight		27,169													

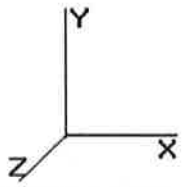
Discrete Appurtenance Properties

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)
137.00	EMS RR90-17-02DP	6	13.50	4.360	0.73	110.73	5.340	0.73	0.000	0.000
137.00	Flat Low Profile Platform	1	1500.00	26.100	1.00	2,143.36	45.058	1.00	0.000	0.000
137.00	RFS ATMAA1412D-1A20	3	13.00	1.000	0.50	47.74	1.428	0.50	0.000	0.000
137.00	RFS ATMPP1412D-1CWA	3	12.50	1.000	0.50	45.04	1.437	0.50	0.000	0.000
127.00	Flat Low Profile Platform	1	1500.00	26.100	1.00	2,138.50	44.915	1.00	0.000	0.000
127.00	Kathrein 800 10504	6	17.60	3.340	0.78	97.59	4.282	0.78	0.000	0.000
116.00	Alcatel-Lucent RRH2x40-07-U	3	50.70	1.930	0.50	119.28	2.478	0.50	0.000	0.000
116.00	Alcatel-Lucent RRH2x40-AWS	3	44.00	2.160	0.67	115.19	2.786	0.67	0.000	0.000
116.00	Antel BXA-171063-12CF-EDIN	6	15.00	4.790	0.88	131.55	5.991	0.88	0.000	0.000
116.00	Antel BXA-70063-6CF-EDIN-X	6	17.00	7.570	0.77	185.67	8.785	0.77	0.000	0.000
116.00	Flat Low Profile Platform	1	1500.00	26.100	1.00	2,132.74	44.746	1.00	0.000	0.000
116.00	RFS DB-T1-6Z-8AB-0Z	1	44.00	4.800	1.00	183.45	5.650	1.00	0.000	0.000
	Totals	40	5283.20			10,733.05			Number of Loadings :	12

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Description	Exposed Width (in)	Exposed To Wind
5.00	137.00	(12) 1 5/8" Coax	0.00	N
5.00	127.00	(6) 1 5/8" Coax	0.00	N
5.00	116.00	(2) 1 5/8" Hybriflex	0.00	N

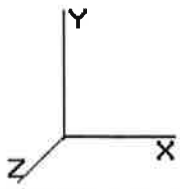
Pole :	311014	Code:	ANSI/TIA-222 Rev G
Location :	Norwich CT, CT	Struct Class :	II
Height :	140.0 (ft)	Exposure Category :	B
Base Dia :	60.16 (in)	Topographic Category :	1
Top Dia :	28.68 (in)	Base Elev :	0.000 (ft)
Shape :	18 Sides		
Taper :	0.234203 (in/ft)		



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)	S (in3)	Weight (lb)
0.00		0.4375	60.160	82.929	37,371.0	22.84	137.51	74.5	1223.	0.0
5.00		0.4375	58.989	81.303	35,215.5	22.36	134.83	75.1	1175.	1,397.1
10.00		0.4375	57.818	79.677	33,144.6	21.89	132.16	75.7	1129.	1,369.4
15.00		0.4375	56.647	78.051	31,156.5	21.42	129.48	76.2	1083.	1,341.8
20.00		0.4375	55.476	76.425	29,249.5	20.95	126.80	76.8	1038.	1,314.1
25.00		0.4375	54.305	74.799	27,422.0	20.48	124.13	77.3	994.6	1,286.5
30.00		0.4375	53.134	73.173	25,672.2	20.00	121.45	77.9	951.6	1,258.8
35.00		0.4375	51.963	71.547	23,998.5	19.53	118.77	78.4	909.6	1,231.1
40.00		0.4375	50.792	69.921	22,399.2	19.06	116.10	79.0	868.6	1,203.5
44.75	Bot - Section 2	0.4375	49.679	68.376	20,947.1	18.61	113.55	79.5	830.5	1,117.7
45.00		0.4375	49.621	68.295	20,872.5	18.59	113.42	79.5	828.5	108.8
50.00		0.4375	48.450	66.669	19,416.8	18.12	110.74	80.1	789.3	2,148.7
51.00	Top - Section 1	0.3750	48.966	57.833	17,251.7	21.61	130.57	76.0	693.9	423.6
55.00		0.3750	48.029	56.718	16,273.0	21.17	128.08	76.5	667.3	779.6
60.00		0.3750	46.858	55.324	15,102.6	20.62	124.95	77.1	634.8	953.1
65.00		0.3750	45.687	53.930	13,989.7	20.07	121.83	77.8	603.1	929.4
70.00		0.3750	44.516	52.537	12,932.8	19.52	118.71	78.4	572.2	905.7
75.00		0.3750	43.345	51.143	11,930.6	18.97	115.59	79.1	542.1	882.0
80.00		0.3750	42.174	49.749	10,981.5	18.42	112.46	79.7	512.9	858.3
85.00		0.3750	41.003	48.355	10,084.2	17.87	109.34	80.4	484.4	834.6
90.00		0.3750	39.832	46.962	9,237.1	17.32	106.22	81.0	456.8	810.9
90.75	Bot - Section 3	0.3750	39.656	46.753	9,114.3	17.24	105.75	81.1	452.7	119.6
95.00		0.3750	38.661	45.568	8,438.8	16.77	103.10	81.7	429.9	1,176.7
95.75	Top - Section 2	0.2813	39.047	34.605	6,570.5	23.07	138.84	74.3	331.4	204.5
100.0		0.2813	38.052	33.716	6,077.3	22.45	135.30	75.0	314.6	494.0
105.0		0.2813	36.881	32.671	5,529.4	21.71	131.13	75.9	295.3	564.8
110.0		0.2813	35.710	31.626	5,015.4	20.98	126.97	76.7	276.6	547.0
115.0		0.2813	34.539	30.580	4,534.4	20.24	122.81	77.6	258.6	529.2
116.0		0.2813	34.305	30.371	4,442.0	20.10	121.97	77.8	255.0	103.7
120.0		0.2813	33.368	29.535	4,085.1	19.51	118.64	78.5	241.1	407.7
125.0		0.2813	32.197	28.490	3,666.5	18.78	114.48	79.3	224.3	493.6
127.0		0.2813	31.729	28.072	3,507.4	18.48	112.81	79.7	217.7	192.5
130.0		0.2813	31.026	27.444	3,277.6	18.04	110.31	80.2	208.1	283.4
135.0		0.2813	29.855	26.399	2,917.1	17.31	106.15	81.0	192.5	458.0
137.0		0.2813	29.387	25.981	2,780.7	17.01	104.49	81.4	186.4	178.2
140.0		0.2813	28.684	25.354	2,584.2	16.57	101.99	81.9	177.4	262.0
										27,169.4

Pole :	311014	Code:	ANSI/TIA-222 Rev G		6/4/2013 10:20:55 AM
Location :	Norwich CT, CT	Struct Class :	II		Page: 3
Height :	140.0 (ft)	Exposure Category :	B		
Base Dia :	60.16 (in)	Topographic Category :	1		
Top Dia :	28.68 (in)	Base Elev :	0.000 (ft)		
Shape :	18 Sides				
Taper :	0.234203 (in/ft)				



Load Case: 1.2D + 1.6W — 110.00 mph with No Ice — 20 Iterations

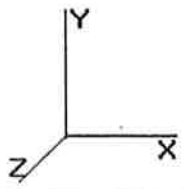
Gust Response Factor : 1.10
Dead Load Factor : 1.20
Wind Load Factor : 1.60

Wind Importance Factor : 1.00

Shaft Segment Forces (Factored)

Seg Top Elev (ft)	Description	Kzt	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		1.00	0.70	20.599	22.65	468.50	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	20.599	22.65	459.38	0.650	0.000	5.00	25.206	16.38	594.0	0.0	1,676.5
10.00		1.00	0.70	20.599	22.65	450.26	0.650	0.000	5.00	24.710	16.06	582.3	0.0	1,643.3
15.00		1.00	0.70	20.599	22.65	441.14	0.650	0.000	5.00	24.215	15.74	570.6	0.0	1,610.1
20.00		1.00	0.70	20.599	22.65	432.02	0.650	0.000	5.00	23.719	15.42	559.0	0.0	1,576.9
25.00		1.00	0.70	20.599	22.65	422.90	0.650	0.000	5.00	23.224	15.10	547.3	0.0	1,543.7
30.00		1.00	0.70	20.616	22.67	413.96	0.650	0.000	5.00	22.728	14.77	536.1	0.0	1,510.5
35.00		1.00	0.73	21.545	23.69	413.85	0.650	0.000	5.00	22.233	14.45	548.0	0.0	1,477.3
40.00		1.00	0.76	22.383	24.62	412.32	0.650	0.000	5.00	21.737	14.13	556.6	0.0	1,444.1
44.75	Bot - Section 2	1.00	0.78	23.112	25.42	409.80	0.650	0.000	4.75	20.192	13.12	533.9	0.0	1,341.2
45.00		1.00	0.78	23.149	25.46	409.64	0.650	0.000	0.25	1.066	0.69	28.2	0.0	130.5
50.00		1.00	0.81	23.856	26.24	406.04	0.650	0.000	5.00	21.064	13.69	574.9	0.0	2,578.4
51.00	Top - Section 1	1.00	0.81	23.991	26.39	405.22	0.650	0.000	1.00	4.153	2.70	114.0	0.0	508.3
55.00		1.00	0.83	24.515	26.96	408.03	0.650	0.000	4.00	16.415	10.67	460.4	0.0	935.5
60.00		1.00	0.85	25.132	27.64	403.06	0.650	0.000	5.00	20.073	13.05	577.1	0.0	1,143.8
65.00		1.00	0.87	25.713	28.28	397.51	0.650	0.000	5.00	19.578	12.73	575.9	0.0	1,115.3
70.00		1.00	0.89	26.263	28.89	391.44	0.650	0.000	5.00	19.082	12.40	573.3	0.0	1,086.8
75.00		1.00	0.91	26.786	29.46	384.92	0.650	0.000	5.00	18.587	12.08	569.6	0.0	1,058.4
80.00		1.00	0.92	27.285	30.01	377.99	0.650	0.000	5.00	18.091	11.76	564.7	0.0	1,029.9
85.00		1.00	0.94	27.761	30.53	370.69	0.650	0.000	5.00	17.596	11.44	558.8	0.0	1,001.5
90.00		1.00	0.95	28.219	31.04	363.06	0.650	0.000	5.00	17.100	11.12	552.0	0.0	973.0
90.75	Bot - Section 3	1.00	0.96	28.285	31.11	361.89	0.650	0.000	0.75	2.522	1.64	81.6	0.0	143.5
95.00		1.00	0.97	28.658	31.52	355.12	0.650	0.000	4.25	14.285	9.29	468.3	0.0	1,412.0
95.75	Top - Section 2	1.00	0.97	28.722	31.59	353.90	0.650	0.000	0.75	2.484	1.61	81.6	0.0	245.4
100.0		1.00	0.98	29.081	31.98	352.10	0.650	0.000	4.25	13.864	9.01	461.2	0.0	592.8
105.0		1.00	1.00	29.489	32.43	343.65	0.650	0.000	5.00	15.852	10.30	534.8	0.0	677.7
110.0		1.00	1.01	29.884	32.87	334.96	0.650	0.000	5.00	15.356	9.98	525.0	0.0	656.4
115.0		1.00	1.02	30.266	33.29	326.04	0.650	0.000	5.00	14.861	9.66	514.5	0.0	635.0
116.0	Appertunance(s)	1.00	1.03	30.341	33.37	324.23	0.650	0.000	1.00	2.913	1.89	101.1	0.0	124.4
120.0		1.00	1.04	30.636	33.69	316.90	0.650	0.000	4.00	11.453	7.44	401.4	0.0	489.2
125.0		1.00	1.05	30.995	34.09	307.57	0.650	0.000	5.00	13.870	9.02	491.8	0.0	592.3
127.0	Appertunance(s)	1.00	1.05	31.136	34.25	303.78	0.650	0.000	2.00	5.409	3.52	192.7	0.0	231.0
130.0		1.00	1.06	31.345	34.47	298.05	0.650	0.000	3.00	7.965	5.18	285.6	0.0	340.0
135.0		1.00	1.07	31.684	34.85	288.35	0.650	0.000	5.00	12.879	8.37	466.8	0.0	549.7
137.0	Appertunance(s)	1.00	1.08	31.818	35.00	284.42	0.650	0.000	2.00	5.013	3.26	182.5	0.0	213.9
140.0		1.00	1.08	32.015	35.21	278.48	0.650	0.000	3.00	7.371	4.79	270.0	0.0	314.4
							Totals:		140.00			15,235.5	0.0	32,603.3

Pole :	311014	Code: ANSI/TIA-222 Rev G	6/4/2013 10:20:55 AM
Location :	Norwich CT, CT	Struct Class : II	Page: 4
Height :	140.0 (ft)	Exposure Category : B	
Base Dia :	60.16 (in)	Topographic Category : 1	
Top Dia :	28.68 (in)	Base Elev : 0.000 (ft)	
Shape :	18 Sides		
Taper :	0.234203 (in/ft)		



Load Case: 1.2D + 1.6W — 110.00 mph with No Ice — 20 Iterations

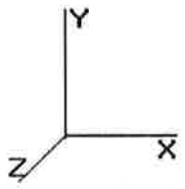
Gust Response Factor : 1.10
Dead Load Factor : 1.20
Wind Load Factor : 1.60

Wind Importance Factor : 1.00

Discrete Appurtenance Segment Forces (Factored)

Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Ka	Total CaAa (sf)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)	Dead Load (lb)
116.0	Alcatel-Lucent RRH2x	3	30.341	33.375	0.40	0.80	2.32	0.000	0.000	123.67	0.00	0.00	182.52
116.0	Alcatel-Lucent RRH2x	3	30.341	33.375	0.54	0.80	3.47	0.000	0.000	185.47	0.00	0.00	158.40
116.0	Antel BXA-171063-12C	6	30.341	33.375	0.70	0.80	20.23	0.000	0.000	1,080.43	0.00	0.00	108.00
116.0	Antel BXA-70063-6CF-	6	30.341	33.375	0.62	0.80	27.98	0.000	0.000	1,494.05	0.00	0.00	122.40
116.0	Flat Low Profile Pla	1	30.341	33.375	1.00	1.00	26.10	0.000	0.000	1,393.73	0.00	0.00	1,800.00
116.0	RFS DB-T1-6Z-8AB-0Z	1	30.341	33.375	0.80	0.80	3.84	0.000	0.000	205.05	0.00	0.00	52.80
127.0	Flat Low Profile Pla	1	31.136	34.250	1.00	1.00	26.10	0.000	0.000	1,430.27	0.00	0.00	1,800.00
127.0	Kathrein 800 10504	6	31.136	34.250	0.62	0.80	12.50	0.000	0.000	685.27	0.00	0.00	126.72
137.0	EMS RR90-17-02DP	6	31.818	35.000	0.58	0.80	15.28	0.000	0.000	855.53	0.00	0.00	97.20
137.0	Flat Low Profile Pla	1	31.818	35.000	1.00	1.00	26.10	0.000	0.000	1,461.58	0.00	0.00	1,800.00
137.0	RFS ATMAA1412D-	3	31.818	35.000	0.40	0.80	1.20	0.000	0.000	67.20	0.00	0.00	46.80
137.0	RFS ATMPP1412D-	3	31.818	35.000	0.40	0.80	1.20	0.000	0.000	67.20	0.00	0.00	45.00
										9,049.45			6,339.84

Pole :	311014	Code: ANSI/TIA-222 Rev G	6/4/2013 10:20:55 AM
Location :	Norwich CT, CT	Struct Class : II	Page: 5
Height :	140.0 (ft)	Exposure Category : B	
Base Dia :	60.16 (in)	Topographic Category : 1	
Top Dia :	28.68 (in)	Base Elev : 0.000 (ft)	
Shape :	18 Sides		
Taper :	0.234203 (in/ft)		



Load Case: 1.2D + 1.6W — 110.00 mph with No Ice — 20 Iterations

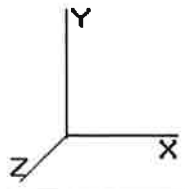
Gust Response Factor : 1.10
Dead Load Factor : 1.20
Wind Load Factor : 1.60

Wind Importance 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	593.98	1,676.54	0.00	0.00
10.00	582.30	1,747.49	0.00	0.00
15.00	570.63	1,714.29	0.00	0.00
20.00	558.95	1,681.09	0.00	0.00
25.00	547.28	1,647.89	0.00	0.00
30.00	536.05	1,614.70	0.00	0.00
35.00	547.98	1,581.50	0.00	0.00
40.00	556.60	1,548.30	0.00	0.00
44.75	533.87	1,440.13	0.00	0.00
45.00	28.24	135.75	0.00	0.00
50.00	574.86	2,682.58	0.00	0.00
51.00	113.99	529.12	0.00	0.00
55.00	460.36	1,018.82	0.00	0.00
60.00	577.11	1,247.91	0.00	0.00
65.00	575.89	1,219.46	0.00	0.00
70.00	573.33	1,191.00	0.00	0.00
75.00	569.56	1,162.55	0.00	0.00
80.00	564.69	1,134.09	0.00	0.00
85.00	558.82	1,105.64	0.00	0.00
90.00	552.03	1,077.18	0.00	0.00
90.75	81.62	159.12	0.00	0.00
95.00	468.32	1,500.57	0.00	0.00
95.75	81.61	261.07	0.00	0.00
100.0	461.22	681.36	0.00	0.00
105.0	534.77	781.86	0.00	0.00
110.0	524.99	760.52	0.00	0.00
115.0	514.55	739.17	0.00	0.00
116.0	4,583.50	2,569.39	0.00	0.00
120.0	401.39	560.08	0.00	0.00
125.0	491.82	680.89	0.00	0.00
127.0	2,308.22	2,193.10	0.00	0.00
130.0	285.62	375.46	0.00	0.00
135.0	466.83	608.69	0.00	0.00
137.0	2,633.98	2,226.50	0.00	0.00
140.0	269.96	314.43	0.00	0.00
Totals:	24,284.91	41,568.22	0.00	0.00

Pole :	311014	Code: ANSI/TIA-222 Rev G	6/4/2013 10:20:55 AM
Location :	Norwich CT, CT	Struct Class : II	Page: 6
Height :	140.0 (ft)	Exposure Category : B	
Base Dia :	60.16 (in)	Topographic Category : 1	
Top Dia :	28.68 (in)	Base Elev : 0.000 (ft)	
Shape :	18 Sides		
Taper :	0.234203 (in/ft)		



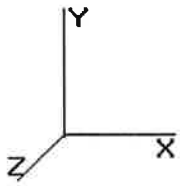
Load Case: 1.2D + 1.6W — 110.00 mph with No Ice — 20 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 1.20
Wind Load Factor : 1.60
Wind Importance Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-41.55	-24.32	0.00	-2,232.49	0.00	2,232.49	5,563.50	2,781.75	13,660.1	6,840.21	0.00	0.00	0.334
5.00	-39.84	-23.78	0.00	-2,110.91	0.00	2,110.91	5,495.04	2,747.52	13,225.5	6,622.59	0.04	-0.08	0.326
10.00	-38.06	-23.25	0.00	-1,992.02	0.00	1,992.02	5,424.94	2,712.47	12,793.7	6,406.38	0.18	-0.17	0.318
15.00	-36.31	-22.72	0.00	-1,875.79	0.00	1,875.79	5,353.22	2,676.61	12,365.0	6,191.70	0.39	-0.25	0.310
20.00	-34.60	-22.21	0.00	-1,762.18	0.00	1,762.18	5,279.88	2,639.94	11,939.5	5,978.66	0.70	-0.33	0.301
25.00	-32.93	-21.69	0.00	-1,651.16	0.00	1,651.16	5,204.91	2,602.46	11,517.6	5,767.39	1.09	-0.41	0.293
30.00	-31.29	-21.19	0.00	-1,542.68	0.00	1,542.68	5,128.32	2,564.16	11,099.4	5,557.99	1.57	-0.50	0.284
35.00	-29.68	-20.67	0.00	-1,436.73	0.00	1,436.73	5,050.10	2,525.05	10,685.3	5,350.59	2.14	-0.58	0.274
40.00	-28.11	-20.14	0.00	-1,333.38	0.00	1,333.38	4,970.26	2,485.13	10,275.3	5,145.31	2.79	-0.66	0.265
44.75	-26.66	-19.60	0.00	-1,237.73	0.00	1,237.73	4,892.90	2,446.45	9,890.02	4,952.36	3.49	-0.74	0.255
45.00	-26.51	-19.59	0.00	-1,232.83	0.00	1,232.83	4,888.79	2,444.40	9,869.86	4,942.27	3.53	-0.74	0.255
50.00	-23.82	-19.00	0.00	-1,134.86	0.00	1,134.86	4,805.70	2,402.85	9,469.07	4,741.57	4.35	-0.82	0.244
51.00	-23.28	-18.90	0.00	-1,115.86	0.00	1,115.86	3,954.70	1,977.35	7,897.06	3,954.40	4.53	-0.84	0.288
55.00	-22.25	-18.45	0.00	-1,040.27	0.00	1,040.27	3,904.91	1,952.45	7,646.13	3,828.75	5.26	-0.91	0.277
60.00	-20.98	-17.88	0.00	-948.01	0.00	948.01	3,841.19	1,920.60	7,335.11	3,673.01	6.25	-0.99	0.264
65.00	-19.75	-17.32	0.00	-858.59	0.00	858.59	3,775.86	1,887.93	7,027.24	3,518.84	7.34	-1.08	0.249
70.00	-18.54	-16.75	0.00	-772.01	0.00	772.01	3,708.90	1,854.45	6,722.77	3,366.38	8.51	-1.16	0.234
75.00	-17.37	-16.18	0.00	-688.29	0.00	688.29	3,640.31	1,820.16	6,421.93	3,215.74	9.77	-1.24	0.219
80.00	-16.23	-15.61	0.00	-607.41	0.00	607.41	3,570.10	1,785.05	6,124.95	3,067.03	11.11	-1.32	0.203
85.00	-15.12	-15.04	0.00	-529.37	0.00	529.37	3,498.27	1,749.13	5,832.07	2,920.37	12.53	-1.39	0.186
90.00	-14.05	-14.47	0.00	-454.17	0.00	454.17	3,424.81	1,712.40	5,543.53	2,775.89	14.03	-1.46	0.168
90.75	-13.88	-14.39	0.00	-443.31	0.00	443.31	3,413.65	1,706.82	5,500.64	2,754.41	14.26	-1.47	0.165
95.00	-12.39	-13.89	0.00	-382.13	0.00	382.13	3,349.72	1,674.86	5,259.57	2,633.69	15.59	-1.53	0.149
95.75	-12.12	-13.81	0.00	-371.71	0.00	371.71	2,312.98	1,156.49	3,686.59	1,846.04	15.83	-1.54	0.207
100.00	-11.44	-13.34	0.00	-313.01	0.00	313.01	2,275.87	1,137.93	3,533.62	1,769.44	17.22	-1.58	0.182
105.00	-10.66	-12.80	0.00	-246.29	0.00	246.29	2,230.70	1,115.35	3,355.32	1,680.15	18.92	-1.65	0.151
110.00	-9.90	-12.26	0.00	-182.30	0.00	182.30	2,183.90	1,091.95	3,179.03	1,591.88	20.68	-1.71	0.119
115.00	-9.17	-11.73	0.00	-121.00	0.00	121.00	2,135.49	1,067.74	3,004.99	1,504.73	22.49	-1.75	0.085
116.00	-6.74	-7.07	0.00	-109.27	0.00	109.27	2,125.61	1,062.80	2,970.48	1,487.45	22.86	-1.76	0.077
120.00	-6.19	-6.65	0.00	-81.00	0.00	81.00	2,085.44	1,042.72	2,833.45	1,418.83	24.34	-1.78	0.060
125.00	-5.53	-6.14	0.00	-47.73	0.00	47.73	2,033.77	1,016.89	2,664.63	1,334.29	26.22	-1.80	0.039
127.00	-3.41	-3.77	0.00	-35.45	0.00	35.45	2,012.65	1,006.33	2,597.91	1,300.89	26.98	-1.81	0.029
130.00	-3.04	-3.47	0.00	-24.15	0.00	24.15	1,980.48	990.24	2,498.77	1,251.24	28.11	-1.82	0.021
135.00	-2.45	-2.98	0.00	-6.81	0.00	6.81	1,925.56	962.78	2,336.10	1,169.79	30.02	-1.82	0.007
137.00	-0.31	-0.28	0.00	-0.84	0.00	0.84	1,903.14	951.57	2,271.99	1,137.68	30.78	-1.82	0.001
140.00	0.00	-0.27	0.00	0.00	0.00	0.00	1,869.02	934.51	2,176.88	1,090.06	31.93	-1.82	0.000

Pole :	311014	Code: ANSI/TIA-222 Rev G	6/4/2013 10:20:55 AM
Location :	Norwich CT, CT	Struct Class : II	Page: 7
Height :	140.0 (ft)	Exposure Category : B	
Base Dia :	60.16 (in)	Topographic Category : 1	
Top Dia :	28.68 (in)	Base Elev : 0.000 (ft)	
Shape :	18 Sides		
Taper :	0.234203 (in/ft)		



Load Case: 0.9D + 1.6W — 110.00 mph with No Ice (Reduced DL) — 20 Iterations

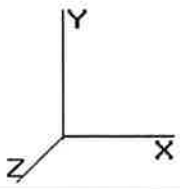
Gust Response Factor : 1.10
Dead Load Factor : 0.90
Wind Load Factor : 1.60

Wind Importance Factor : 1.00

Shaft Segment Forces (Factored)

Seg Top Elev (ft)	Description	Kzt	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		1.00	0.70	20.599	22.65	468.50	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	20.599	22.65	459.38	0.650	0.000	5.00	25.206	16.38	594.0	0.0	1,257.4
10.00		1.00	0.70	20.599	22.65	450.26	0.650	0.000	5.00	24.710	16.06	582.3	0.0	1,232.5
15.00		1.00	0.70	20.599	22.65	441.14	0.650	0.000	5.00	24.215	15.74	570.6	0.0	1,207.6
20.00		1.00	0.70	20.599	22.65	432.02	0.650	0.000	5.00	23.719	15.42	559.0	0.0	1,182.7
25.00		1.00	0.70	20.599	22.65	422.90	0.650	0.000	5.00	23.224	15.10	547.3	0.0	1,157.8
30.00		1.00	0.70	20.616	22.67	413.96	0.650	0.000	5.00	22.728	14.77	536.1	0.0	1,132.9
35.00		1.00	0.73	21.545	23.69	413.85	0.650	0.000	5.00	22.233	14.45	548.0	0.0	1,108.0
40.00		1.00	0.76	22.383	24.62	412.32	0.650	0.000	5.00	21.737	14.13	556.6	0.0	1,083.1
44.75	Bot - Section 2	1.00	0.78	23.112	25.42	409.80	0.650	0.000	4.75	20.192	13.12	533.9	0.0	1,005.9
45.00		1.00	0.78	23.149	25.46	409.64	0.650	0.000	0.25	1.066	0.69	28.2	0.0	97.9
50.00		1.00	0.81	23.856	26.24	406.04	0.650	0.000	5.00	21.064	13.69	574.9	0.0	1,933.8
51.00	Top - Section 1	1.00	0.81	23.991	26.39	405.22	0.650	0.000	1.00	4.153	2.70	114.0	0.0	381.2
55.00		1.00	0.83	24.515	26.96	408.03	0.650	0.000	4.00	16.415	10.67	460.4	0.0	701.6
60.00		1.00	0.85	25.132	27.64	403.06	0.650	0.000	5.00	20.073	13.05	577.1	0.0	857.8
65.00		1.00	0.87	25.713	28.28	397.51	0.650	0.000	5.00	19.578	12.73	575.9	0.0	836.5
70.00		1.00	0.89	26.263	28.89	391.44	0.650	0.000	5.00	19.082	12.40	573.3	0.0	815.1
75.00		1.00	0.91	26.786	29.46	384.92	0.650	0.000	5.00	18.587	12.08	569.6	0.0	793.8
80.00		1.00	0.92	27.285	30.01	377.99	0.650	0.000	5.00	18.091	11.76	564.7	0.0	772.5
85.00		1.00	0.94	27.761	30.53	370.69	0.650	0.000	5.00	17.596	11.44	558.8	0.0	751.1
90.00		1.00	0.95	28.219	31.04	363.06	0.650	0.000	5.00	17.100	11.12	552.0	0.0	729.8
90.75	Bot - Section 3	1.00	0.96	28.285	31.11	361.89	0.650	0.000	0.75	2.522	1.64	81.6	0.0	107.6
95.00		1.00	0.97	28.658	31.52	355.12	0.650	0.000	4.25	14.285	9.29	468.3	0.0	1,059.0
95.75	Top - Section 2	1.00	0.97	28.722	31.59	353.90	0.650	0.000	0.75	2.484	1.61	81.6	0.0	184.1
100.0		1.00	0.98	29.081	31.98	352.10	0.650	0.000	4.25	13.864	9.01	461.2	0.0	444.6
105.0		1.00	1.00	29.489	32.43	343.65	0.650	0.000	5.00	15.852	10.30	534.8	0.0	508.3
110.0		1.00	1.01	29.884	32.87	334.96	0.650	0.000	5.00	15.356	9.98	525.0	0.0	492.3
115.0		1.00	1.02	30.266	33.29	326.04	0.650	0.000	5.00	14.861	9.66	514.5	0.0	476.3
116.0	Appertunance(s)	1.00	1.03	30.341	33.37	324.23	0.650	0.000	1.00	2.913	1.89	101.1	0.0	93.3
120.0		1.00	1.04	30.636	33.69	316.90	0.650	0.000	4.00	11.453	7.44	401.4	0.0	366.9
125.0		1.00	1.05	30.995	34.09	307.57	0.650	0.000	5.00	13.870	9.02	491.8	0.0	444.3
127.0	Appertunance(s)	1.00	1.05	31.136	34.25	303.78	0.650	0.000	2.00	5.409	3.52	192.7	0.0	173.2
130.0		1.00	1.06	31.345	34.47	298.05	0.650	0.000	3.00	7.965	5.18	285.6	0.0	255.0
135.0		1.00	1.07	31.684	34.85	288.35	0.650	0.000	5.00	12.879	8.37	466.8	0.0	412.2
137.0	Appertunance(s)	1.00	1.08	31.818	35.00	284.42	0.650	0.000	2.00	5.013	3.26	182.5	0.0	160.4
140.0		1.00	1.08	32.015	35.21	278.48	0.650	0.000	3.00	7.371	4.79	270.0	0.0	235.8
							Totals:		140.00			15,235.5	0.0	24,452.5

Pole :	311014	Code:	ANSI/TIA-222 Rev G
Location :	Norwich CT, CT	Struct Class :	II
Height :	140.0 (ft)	Exposure Category :	B
Base Dia :	60.16 (in)	Topographic Category :	1
Top Dia :	28.68 (in)	Base Elev :	0.000 (ft)
Shape :	18 Sides		
Taper :	0.234203 (in/ft)		



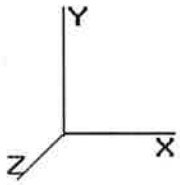
Load Case: 0.9D + 1.6W — 110.00 mph with No Ice (Reduced DL) — 20 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 0.90
Wind Load Factor : 1.60
Wind Importance Factor : 1.00

Discrete Appurtenance Segment Forces (Factored)

Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Ka	Total CaAa (sf)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)	Dead Load (lb)
116.0	Alcatel-Lucent RRH2x	3	30.341	33.375	0.40	0.80	2.32	0.000	0.000	123.67	0.00	0.00	136.89
116.0	Alcatel-Lucent RRH2x	3	30.341	33.375	0.54	0.80	3.47	0.000	0.000	185.47	0.00	0.00	118.80
116.0	Antel BXA-171063-12C	6	30.341	33.375	0.70	0.80	20.23	0.000	0.000	1,080.43	0.00	0.00	81.00
116.0	Antel BXA-70063-6CF-	6	30.341	33.375	0.62	0.80	27.98	0.000	0.000	1,494.05	0.00	0.00	91.80
116.0	Flat Low Profile Pla	1	30.341	33.375	1.00	1.00	26.10	0.000	0.000	1,393.73	0.00	0.00	1,350.00
116.0	RFS DB-T1-6Z-8AB-0Z	1	30.341	33.375	0.80	0.80	3.84	0.000	0.000	205.05	0.00	0.00	39.60
127.0	Flat Low Profile Pla	1	31.136	34.250	1.00	1.00	26.10	0.000	0.000	1,430.27	0.00	0.00	1,350.00
127.0	Kathrein 800 10504	6	31.136	34.250	0.62	0.80	12.50	0.000	0.000	685.27	0.00	0.00	95.04
137.0	EMS RR90-17-02DP	6	31.818	35.000	0.58	0.80	15.28	0.000	0.000	855.53	0.00	0.00	72.90
137.0	Flat Low Profile Pla	1	31.818	35.000	1.00	1.00	26.10	0.000	0.000	1,461.58	0.00	0.00	1,350.00
137.0	RFS ATMAA1412D-	3	31.818	35.000	0.40	0.80	1.20	0.000	0.000	67.20	0.00	0.00	35.10
137.0	RFS ATMPP1412D-	3	31.818	35.000	0.40	0.80	1.20	0.000	0.000	67.20	0.00	0.00	33.75
										9,049.45			4,754.88

Pole :	311014	Code: ANSI/TIA-222 Rev G	
Location :	Norwich CT, CT	Struct Class : II	
Height :	140.0 (ft)	Exposure Category : B	
Base Dia :	60.16 (in)	Topographic Category : 1	
Top Dia :	28.68 (in)	Base Elev : 0.000 (ft)	
Shape :	18 Sides		
Taper :	0.234203 (in/ft)		



Load Case: 0.9D + 1.6W — 110.00 mph with No Ice (Reduced DL) — 20 Iterations

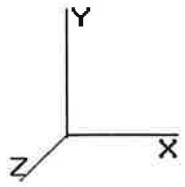
Gust Response Factor : 1.10
Dead Load Factor : 0.90
Wind Load Factor : 1.60

Wind Importance 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	593.98	1,257.40	0.00	0.00
10.00	582.30	1,310.62	0.00	0.00
15.00	570.63	1,285.72	0.00	0.00
20.00	558.95	1,260.82	0.00	0.00
25.00	547.28	1,235.92	0.00	0.00
30.00	536.05	1,211.02	0.00	0.00
35.00	547.98	1,186.12	0.00	0.00
40.00	556.60	1,161.22	0.00	0.00
44.75	533.87	1,080.10	0.00	0.00
45.00	28.24	101.81	0.00	0.00
50.00	574.86	2,011.93	0.00	0.00
51.00	113.99	396.84	0.00	0.00
55.00	460.36	764.11	0.00	0.00
60.00	577.11	935.94	0.00	0.00
65.00	575.89	914.59	0.00	0.00
70.00	573.33	893.25	0.00	0.00
75.00	569.56	871.91	0.00	0.00
80.00	564.69	850.57	0.00	0.00
85.00	558.82	829.23	0.00	0.00
90.00	552.03	807.88	0.00	0.00
90.75	81.62	119.34	0.00	0.00
95.00	468.32	1,125.43	0.00	0.00
95.75	81.61	195.80	0.00	0.00
100.0	461.22	511.02	0.00	0.00
105.0	534.77	586.39	0.00	0.00
110.0	524.99	570.39	0.00	0.00
115.0	514.55	554.38	0.00	0.00
116.0	4,583.50	1,927.05	0.00	0.00
120.0	401.39	420.06	0.00	0.00
125.0	491.82	510.67	0.00	0.00
127.0	2,308.22	1,644.83	0.00	0.00
130.0	285.62	281.59	0.00	0.00
135.0	466.83	456.52	0.00	0.00
137.0	2,633.98	1,669.87	0.00	0.00
140.0	269.96	235.82	0.00	0.00
Totals:	24,284.91	31,176.16	0.00	0.00

Pole :	311014	Code: ANSI/TIA-222 Rev G	6/4/2013 10:20:55 AM
Location :	Norwich CT, CT	Struct Class : II	Page: 10
Height :	140.0 (ft)	Exposure Category : B	
Base Dia :	60.16 (in)	Topographic Category : 1	
Top Dia :	28.68 (in)	Base Elev : 0.000 (ft)	
Shape :	18 Sides		
Taper :	0.234203 (in/ft)		



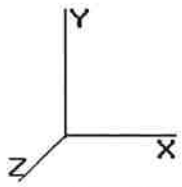
Load Case: 0.9D + 1.6W — 110.00 mph with No Ice (Reduced DL) — 20 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 0.90
Wind Load Factor : 1.60
Wind Importance Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-31.16	-24.31	0.00	-2,222.66	0.00	2,222.66	5,563.50	2,781.75	13,660.1	6,840.21	0.00	0.00	0.331
5.00	-29.87	-23.76	0.00	-2,101.12	0.00	2,101.12	5,495.04	2,747.52	13,225.5	6,622.59	0.04	-0.08	0.323
10.00	-28.52	-23.21	0.00	-1,982.35	0.00	1,982.35	5,424.94	2,712.47	12,793.7	6,406.38	0.18	-0.16	0.315
15.00	-27.21	-22.68	0.00	-1,866.29	0.00	1,866.29	5,353.22	2,676.61	12,365.0	6,191.70	0.39	-0.25	0.307
20.00	-25.92	-22.15	0.00	-1,752.91	0.00	1,752.91	5,279.88	2,639.94	11,939.5	5,978.66	0.70	-0.33	0.298
25.00	-24.65	-21.63	0.00	-1,642.18	0.00	1,642.18	5,204.91	2,602.46	11,517.6	5,767.39	1.09	-0.41	0.290
30.00	-23.42	-21.12	0.00	-1,534.04	0.00	1,534.04	5,128.32	2,564.16	11,099.4	5,557.99	1.56	-0.49	0.281
35.00	-22.21	-20.59	0.00	-1,428.46	0.00	1,428.46	5,050.10	2,525.05	10,685.3	5,350.59	2.13	-0.58	0.271
40.00	-21.02	-20.05	0.00	-1,325.52	0.00	1,325.52	4,970.26	2,485.13	10,275.3	5,145.31	2.78	-0.66	0.262
44.75	-19.94	-19.52	0.00	-1,230.29	0.00	1,230.29	4,892.90	2,446.45	9,890.02	4,952.36	3.47	-0.74	0.253
45.00	-19.82	-19.50	0.00	-1,225.41	0.00	1,225.41	4,888.79	2,444.40	9,869.86	4,942.27	3.51	-0.74	0.252
50.00	-17.80	-18.91	0.00	-1,127.91	0.00	1,127.91	4,805.70	2,402.85	9,469.07	4,741.57	4.33	-0.82	0.242
51.00	-17.39	-18.81	0.00	-1,109.00	0.00	1,109.00	3,954.70	1,977.35	7,897.06	3,954.40	4.50	-0.84	0.285
55.00	-16.61	-18.36	0.00	-1,033.77	0.00	1,033.77	3,904.91	1,952.45	7,646.13	3,828.75	5.23	-0.90	0.274
60.00	-15.66	-17.79	0.00	-941.99	0.00	941.99	3,841.19	1,920.60	7,335.11	3,673.01	6.22	-0.99	0.261
65.00	-14.73	-17.22	0.00	-853.06	0.00	853.06	3,775.86	1,887.93	7,027.24	3,518.84	7.30	-1.07	0.246
70.00	-13.82	-16.65	0.00	-766.98	0.00	766.98	3,708.90	1,854.45	6,722.77	3,366.38	8.47	-1.15	0.232
75.00	-12.94	-16.08	0.00	-683.76	0.00	683.76	3,640.31	1,820.16	6,421.93	3,215.74	9.72	-1.23	0.216
80.00	-12.08	-15.51	0.00	-603.38	0.00	603.38	3,570.10	1,785.05	6,124.95	3,067.03	11.05	-1.31	0.200
85.00	-11.25	-14.94	0.00	-525.85	0.00	525.85	3,498.27	1,749.13	5,832.07	2,920.37	12.46	-1.38	0.183
90.00	-10.45	-14.38	0.00	-451.13	0.00	451.13	3,424.81	1,712.40	5,543.53	2,775.89	13.95	-1.45	0.166
90.75	-10.32	-14.30	0.00	-440.35	0.00	440.35	3,413.65	1,706.82	5,500.64	2,754.41	14.18	-1.46	0.163
95.00	-9.20	-13.81	0.00	-379.57	0.00	379.57	3,349.72	1,674.86	5,259.57	2,633.69	15.51	-1.52	0.147
95.75	-9.00	-13.73	0.00	-369.22	0.00	369.22	2,312.98	1,156.49	3,686.59	1,846.04	15.75	-1.53	0.204
100.00	-8.49	-13.26	0.00	-310.88	0.00	310.88	2,275.87	1,137.93	3,533.62	1,769.44	17.13	-1.58	0.180
105.00	-7.90	-12.72	0.00	-244.59	0.00	244.59	2,230.70	1,115.35	3,355.32	1,680.15	18.81	-1.64	0.149
110.00	-7.34	-12.18	0.00	-181.01	0.00	181.01	2,183.90	1,091.95	3,179.03	1,591.88	20.56	-1.70	0.117
115.00	-6.80	-11.65	0.00	-120.10	0.00	120.10	2,135.49	1,067.74	3,004.99	1,504.73	22.36	-1.74	0.083
116.00	-5.01	-7.01	0.00	-108.45	0.00	108.45	2,125.61	1,062.80	2,970.48	1,487.45	22.73	-1.75	0.075
120.00	-4.60	-6.60	0.00	-80.39	0.00	80.39	2,085.44	1,042.72	2,833.45	1,418.83	24.20	-1.77	0.059
125.00	-4.10	-6.10	0.00	-47.38	0.00	47.38	2,033.77	1,016.89	2,664.63	1,334.29	26.07	-1.79	0.038
127.00	-2.53	-3.74	0.00	-35.19	0.00	35.19	2,012.65	1,006.33	2,597.91	1,300.89	26.82	-1.80	0.028
130.00	-2.25	-3.44	0.00	-23.97	0.00	23.97	1,980.48	990.24	2,498.77	1,251.24	27.95	-1.81	0.020
135.00	-1.81	-2.96	0.00	-6.76	0.00	6.76	1,925.56	962.78	2,336.10	1,169.79	29.85	-1.81	0.007
137.00	-0.23	-0.28	0.00	-0.83	0.00	0.83	1,903.14	951.57	2,271.99	1,137.68	30.61	-1.81	0.001
140.00	0.00	-0.27	0.00	0.00	0.00	0.00	1,869.02	934.51	2,176.88	1,090.06	31.75	-1.81	0.000

Pole :	311014	Code: ANSI/TIA-222 Rev G	6/4/2013 10:20:55 AM
Location :	Norwich CT, CT	Struct Class : II	Page: 11
Height :	140.0 (ft)	Exposure Category : B	
Base Dia :	60.16 (in)	Topographic Category : 1	
Top Dia :	28.68 (in)	Base Elev : 0.000 (ft)	
Shape :	18 Sides		
Taper :	0.234203 (in/ft)		



Load Case: 1.2D + 1.0Di + 1.0Wi — 50.00 mph with 0.75 in Radial Ice — 19 Iterations

Gust Response Factor : 1.10 — Ice Dead Load Factor : 1.00 — Wind Importance Factor : 1.00

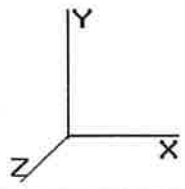
Dead Load Factor : 1.20 — Ice Importance Factor : 1.00

Wind Load Factor : 1.00

Shaft Segment Forces (Factored)

Seg Top Elev (ft)	Description	Kzt	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		1.00	0.70	4.256	4.682	0.000	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	4.256	4.682	0.000	1.200	1.242	5.00	26.241	31.49	147.4	468.7	2,145.2
10.00		1.00	0.70	4.256	4.682	0.000	1.200	1.331	5.00	25.819	30.98	145.1	493.3	2,136.6
15.00		1.00	0.70	4.256	4.682	0.000	1.200	1.386	5.00	25.370	30.44	142.5	504.0	2,114.1
20.00		1.00	0.70	4.256	4.682	0.000	1.200	1.427	5.00	24.908	29.89	139.9	508.6	2,085.5
25.00		1.00	0.70	4.256	4.682	0.000	1.200	1.459	5.00	24.440	29.33	137.3	509.6	2,053.4
30.00		1.00	0.70	4.260	4.686	0.000	1.200	1.486	5.00	23.966	28.76	134.8	508.3	2,018.9
35.00		1.00	0.73	4.451	4.897	0.000	1.200	1.509	5.00	23.490	28.19	138.0	505.4	1,982.7
40.00		1.00	0.76	4.625	5.087	0.000	1.200	1.529	5.00	23.012	27.61	140.5	501.1	1,945.3
44.75	Bot - Section 2	1.00	0.78	4.775	5.253	0.000	1.200	1.546	4.75	21.416	25.70	135.0	471.4	1,812.6
45.00		1.00	0.78	4.783	5.261	0.000	1.200	1.547	0.25	1.131	1.36	7.1	25.2	155.7
50.00		1.00	0.81	4.929	5.422	0.000	1.200	1.564	5.00	22.367	26.84	145.5	497.2	3,075.6
51.00	Top - Section 1	1.00	0.81	4.957	5.453	0.000	1.200	1.567	1.00	4.414	5.30	28.9	99.2	607.5
55.00		1.00	0.83	5.065	5.572	0.000	1.200	1.579	4.00	17.468	20.96	116.8	392.4	1,327.9
60.00		1.00	0.85	5.193	5.712	0.000	1.200	1.592	5.00	21.400	25.68	146.7	483.2	1,627.0
65.00		1.00	0.87	5.313	5.844	0.000	1.200	1.605	5.00	20.915	25.10	146.7	475.5	1,590.8
70.00		1.00	0.89	5.426	5.969	0.000	1.200	1.617	5.00	20.430	24.52	146.3	467.3	1,554.1
75.00		1.00	0.91	5.534	6.088	0.000	1.200	1.628	5.00	19.944	23.93	145.7	458.7	1,517.1
80.00		1.00	0.92	5.637	6.201	0.000	1.200	1.639	5.00	19.457	23.35	144.8	449.7	1,479.7
85.00		1.00	0.94	5.736	6.309	0.000	1.200	1.649	5.00	18.970	22.76	143.6	440.4	1,441.9
90.00		1.00	0.95	5.830	6.413	0.000	1.200	1.658	5.00	18.482	22.18	142.2	430.9	1,403.9
90.75	Bot - Section 3	1.00	0.96	5.844	6.429	0.000	1.200	1.660	0.75	2.730	3.28	21.1	64.4	207.9
95.00		1.00	0.97	5.921	6.513	0.000	1.200	1.667	4.25	15.466	18.56	120.9	362.9	1,775.0
95.75	Top - Section 2	1.00	0.97	5.934	6.528	0.000	1.200	1.669	0.75	2.692	3.23	21.1	63.8	309.3
100.0		1.00	0.98	6.008	6.609	0.000	1.200	1.676	4.25	15.051	18.06	119.4	354.4	947.2
105.0		1.00	1.00	6.093	6.702	0.000	1.200	1.684	5.00	17.255	20.71	138.8	406.7	1,084.4
110.0		1.00	1.01	6.174	6.792	0.000	1.200	1.692	5.00	16.766	20.12	136.6	396.3	1,052.7
115.0		1.00	1.02	6.253	6.879	0.000	1.200	1.699	5.00	16.277	19.53	134.4	385.7	1,020.7
116.0	Appertunance(s)	1.00	1.03	6.269	6.896	0.000	1.200	1.701	1.00	3.196	3.84	26.4	76.7	201.1
120.0		1.00	1.04	6.330	6.963	0.000	1.200	1.707	4.00	12.591	15.11	105.2	299.9	789.1
125.0		1.00	1.05	6.404	7.044	0.000	1.200	1.714	5.00	15.298	18.36	129.3	363.9	956.2
127.0	Appertunance(s)	1.00	1.05	6.433	7.076	0.000	1.200	1.716	2.00	5.981	7.18	50.8	143.8	374.7
130.0		1.00	1.06	6.476	7.124	0.000	1.200	1.720	3.00	8.826	10.59	75.4	211.7	551.7
135.0		1.00	1.07	6.546	7.201	0.000	1.200	1.727	5.00	14.318	17.18	123.7	341.5	891.2
137.0	Appertunance(s)	1.00	1.08	6.574	7.231	0.000	1.200	1.729	2.00	5.589	6.71	48.5	134.8	348.7
140.0		1.00	1.08	6.615	7.276	0.000	1.200	1.733	3.00	8.237	9.88	71.9	198.1	512.5
							Totals:		140.00			3,898.4	12,494.5	45,097.8

Pole :	311014	Code: ANSI/TIA-222 Rev G	6/4/2013 10:20:55 AM
Location :	Norwich CT, CT	Struct Class : II	Page: 12
Height :	140.0 (ft)	Exposure Category : B	
Base Dia :	60.16 (in)	Topographic Category : 1	
Top Dia :	28.68 (in)	Base Elev : 0.000 (ft)	
Shape :	18 Sides		
Taper :	0.234203 (in/ft)		



Load Case: 1.2D + 1.0Di + 1.0Wi — 50.00 mph with 0.75 in Radial Ice — 19 Iterations

Gust Response Factor : 1.10 — Ice Dead Load Factor : 1.00 — Wind Importance Factor : 1.00

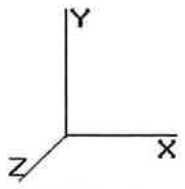
Dead Load Factor : 1.20 — Ice Importance Factor : 1.00

Wind Load Factor : 1.00

Discrete Appurtenance Segment Forces (Factored)

Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Ka	Total CaAa (sf)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)	Dead Load (lb)
116.0	Alcatel-Lucent RRH2x	3	6.269	6.896	0.40	0.80	2.97	0.000	0.000	20.51	0.00	0.00	388.27
116.0	Alcatel-Lucent RRH2x	3	6.269	6.896	0.54	0.80	4.48	0.000	0.000	30.89	0.00	0.00	371.97
116.0	Antel BXA-171063-12C	6	6.269	6.896	0.70	0.80	25.31	0.000	0.000	174.51	0.00	0.00	807.27
116.0	Antel BXA-70063-6CF-	6	6.269	6.896	0.62	0.80	32.47	0.000	0.000	223.89	0.00	0.00	1,134.41
116.0	Flat Low Profile Pla	1	6.269	6.896	1.00	1.00	44.75	0.000	0.000	308.55	0.00	0.00	3,932.75
116.0	RFS DB-T1-6Z-8AB-0Z	1	6.269	6.896	0.80	0.80	4.52	0.000	0.000	31.17	0.00	0.00	192.25
127.0	Flat Low Profile Pla	1	6.433	7.076	1.00	1.00	44.92	0.000	0.000	317.84	0.00	0.00	2,238.50
127.0	Kathrein 800 10504	6	6.433	7.076	0.62	0.80	16.03	0.000	0.000	113.45	0.00	0.00	606.67
137.0	EMS RR90-17-02DP	6	6.574	7.231	0.58	0.80	18.71	0.000	0.000	135.32	0.00	0.00	680.60
137.0	Flat Low Profile Pla	1	6.574	7.231	1.00	1.00	45.06	0.000	0.000	325.83	0.00	0.00	2,243.36
137.0	RFS ATMAA1412D-	3	6.574	7.231	0.40	0.80	1.71	0.000	0.000	12.39	0.00	0.00	151.01
137.0	RFS ATMPP1412D-	3	6.574	7.231	0.40	0.80	1.72	0.000	0.000	12.47	0.00	0.00	142.63
										1,706.81			12,889.69

Pole :	311014	Code: ANSI/TIA-222 Rev G	6/4/2013 10:20:55 AM
Location :	Norwich CT, CT	Struct Class : II	Page: 13
Height :	140.0 (ft)	Exposure Category : B	
Base Dia :	60.16 (in)	Topographic Category : 1	
Top Dia :	28.68 (in)	Base Elev : 0.000 (ft)	
Shape :	18 Sides		
Taper :	0.234203 (in/ft)		



Load Case: 1.2D + 1.0Di + 1.0Wi — 50.00 mph with 0.75 in Radial Ice — 19 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 1.20
Wind Load Factor : 1.00

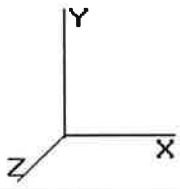
Ice Dead Load Factor : 1.00

Wind Importance Factor : 1.00
Ice Importance 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	147.42	2,145.19	0.00	0.00
10.00	145.05	2,240.75	0.00	0.00
15.00	142.53	2,218.26	0.00	0.00
20.00	139.93	2,189.66	0.00	0.00
25.00	137.30	2,157.52	0.00	0.00
30.00	134.76	2,123.04	0.00	0.00
35.00	138.03	2,086.88	0.00	0.00
40.00	140.47	2,049.45	0.00	0.00
44.75	134.99	1,911.51	0.00	0.00
45.00	7.14	160.91	0.00	0.00
50.00	145.52	3,179.76	0.00	0.00
51.00	28.88	628.30	0.00	0.00
55.00	116.78	1,411.23	0.00	0.00
60.00	146.68	1,731.16	0.00	0.00
65.00	146.67	1,694.94	0.00	0.00
70.00	146.33	1,658.27	0.00	0.00
75.00	145.69	1,621.21	0.00	0.00
80.00	144.78	1,583.80	0.00	0.00
85.00	143.63	1,546.08	0.00	0.00
90.00	142.24	1,508.08	0.00	0.00
90.75	21.06	223.54	0.00	0.00
95.00	120.88	1,863.50	0.00	0.00
95.75	21.09	324.89	0.00	0.00
100.0	119.37	1,035.77	0.00	0.00
105.0	138.78	1,188.58	0.00	0.00
110.0	136.65	1,156.80	0.00	0.00
115.0	134.36	1,124.84	0.00	0.00
116.0	815.95	7,048.89	0.00	0.00
120.0	105.20	859.96	0.00	0.00
125.0	129.32	1,044.78	0.00	0.00
127.0	482.08	3,255.34	0.00	0.00
130.0	75.45	587.12	0.00	0.00
135.0	123.73	950.18	0.00	0.00
137.0	534.52	3,589.88	0.00	0.00
140.0	71.92	512.48	0.00	0.00
Totals:	5,605.17	60,612.55	0.00	0.00

Pole :	311014	Code:	ANSI/TIA-222 Rev G
Location :	Norwich CT, CT	Struct Class :	II
Height :	140.0 (ft)	Exposure Category :	B
Base Dia :	60.16 (in)	Topographic Category :	1
Top Dia :	28.68 (in)	Base Elev :	0.000 (ft)
Shape :	18 Sides		
Taper :	0.234203 (in/ft)		



Load Case: 1.2D + 1.0Di + 1.0Wi — 50.00 mph with 0.75 in Radial Ice — 19 Iterations

Gust Response Factor : 1.10 — Ice Dead Load Factor : 1.00 — Wind Importance Factor : 1.00

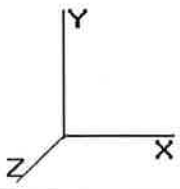
Dead Load Factor : 1.20 — Ice Importance Factor : 1.00

Wind Load Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-60.61	-5.61	0.00	-503.55	0.00	503.55	5,563.50	2,781.75	13,660.1	6,840.21	0.00	0.00	0.085
5.00	-58.46	-5.49	0.00	-475.47	0.00	475.47	5,495.04	2,747.52	13,225.5	6,622.59	0.01	-0.02	0.082
10.00	-56.22	-5.36	0.00	-448.04	0.00	448.04	5,424.94	2,712.47	12,793.7	6,406.38	0.04	-0.04	0.080
15.00	-54.00	-5.23	0.00	-421.25	0.00	421.25	5,353.22	2,676.61	12,365.0	6,191.70	0.09	-0.06	0.078
20.00	-51.81	-5.11	0.00	-395.10	0.00	395.10	5,279.88	2,639.94	11,939.5	5,978.66	0.16	-0.07	0.076
25.00	-49.65	-4.98	0.00	-369.57	0.00	369.57	5,204.91	2,602.46	11,517.6	5,767.39	0.25	-0.09	0.074
30.00	-47.53	-4.86	0.00	-344.66	0.00	344.66	5,128.32	2,564.16	11,099.4	5,557.99	0.35	-0.11	0.071
35.00	-45.44	-4.73	0.00	-320.37	0.00	320.37	5,050.10	2,525.05	10,685.3	5,350.59	0.48	-0.13	0.069
40.00	-43.39	-4.60	0.00	-296.72	0.00	296.72	4,970.26	2,485.13	10,275.3	5,145.31	0.63	-0.15	0.066
44.75	-41.48	-4.46	0.00	-274.88	0.00	274.88	4,892.90	2,446.45	9,890.02	4,952.36	0.78	-0.17	0.064
45.00	-41.32	-4.46	0.00	-273.76	0.00	273.76	4,888.79	2,444.40	9,869.86	4,942.27	0.79	-0.17	0.064
50.00	-38.14	-4.32	0.00	-251.44	0.00	251.44	4,805.70	2,402.85	9,469.07	4,741.57	0.98	-0.18	0.061
51.00	-37.51	-4.29	0.00	-247.13	0.00	247.13	3,954.70	1,977.35	7,897.06	3,954.40	1.02	-0.19	0.072
55.00	-36.09	-4.18	0.00	-229.96	0.00	229.96	3,904.91	1,952.45	7,646.13	3,828.75	1.18	-0.20	0.069
60.00	-34.36	-4.04	0.00	-209.07	0.00	209.07	3,841.19	1,920.60	7,335.11	3,673.01	1.40	-0.22	0.066
65.00	-32.67	-3.89	0.00	-188.88	0.00	188.88	3,775.86	1,887.93	7,027.24	3,518.84	1.64	-0.24	0.062
70.00	-31.01	-3.75	0.00	-169.40	0.00	169.40	3,708.90	1,854.45	6,722.77	3,366.38	1.91	-0.26	0.059
75.00	-29.39	-3.61	0.00	-150.65	0.00	150.65	3,640.31	1,820.16	6,421.93	3,215.74	2.19	-0.28	0.055
80.00	-27.80	-3.46	0.00	-132.62	0.00	132.62	3,570.10	1,785.05	6,124.95	3,067.03	2.48	-0.29	0.051
85.00	-26.26	-3.32	0.00	-115.31	0.00	115.31	3,498.27	1,749.13	5,832.07	2,920.37	2.80	-0.31	0.047
90.00	-24.75	-3.17	0.00	-98.72	0.00	98.72	3,424.81	1,712.40	5,543.53	2,775.89	3.13	-0.32	0.043
90.75	-24.53	-3.15	0.00	-96.34	0.00	96.34	3,413.65	1,706.82	5,500.64	2,754.41	3.18	-0.33	0.042
95.00	-22.66	-3.02	0.00	-82.95	0.00	82.95	3,349.72	1,674.86	5,259.57	2,633.69	3.48	-0.34	0.038
95.75	-22.34	-3.00	0.00	-80.68	0.00	80.68	2,312.98	1,156.49	3,686.59	1,846.04	3.53	-0.34	0.053
100.00	-21.30	-2.88	0.00	-67.92	0.00	67.92	2,275.87	1,137.93	3,533.62	1,769.44	3.84	-0.35	0.048
105.00	-20.11	-2.74	0.00	-53.52	0.00	53.52	2,230.70	1,115.35	3,355.32	1,680.15	4.22	-0.37	0.041
110.00	-18.96	-2.60	0.00	-39.82	0.00	39.82	2,183.90	1,091.95	3,179.03	1,591.88	4.61	-0.38	0.034
115.00	-17.83	-2.46	0.00	-26.83	0.00	26.83	2,135.49	1,067.74	3,004.99	1,504.73	5.01	-0.39	0.026
116.00	-10.79	-1.60	0.00	-24.37	0.00	24.37	2,125.61	1,062.80	2,970.48	1,487.45	5.09	-0.39	0.021
120.00	-9.93	-1.49	0.00	-17.99	0.00	17.99	2,085.44	1,042.72	2,833.45	1,418.83	5.42	-0.39	0.017
125.00	-8.89	-1.35	0.00	-10.56	0.00	10.56	2,033.77	1,016.89	2,664.63	1,334.29	5.83	-0.40	0.012
127.00	-5.63	-0.84	0.00	-7.86	0.00	7.86	2,012.65	1,006.33	2,597.91	1,300.89	6.00	-0.40	0.009
130.00	-5.05	-0.77	0.00	-5.32	0.00	5.32	1,980.48	990.24	2,498.77	1,251.24	6.25	-0.40	0.007
135.00	-4.10	-0.64	0.00	-1.50	0.00	1.50	1,925.56	962.78	2,336.10	1,169.79	6.67	-0.40	0.003
137.00	-0.51	-0.08	0.00	-0.23	0.00	0.23	1,903.14	951.57	2,271.99	1,137.68	6.84	-0.40	0.000
140.00	0.00	-0.07	0.00	0.00	0.00	0.00	1,869.02	934.51	2,176.88	1,090.06	7.10	-0.40	0.000

Pole :	311014	Code: ANSI/TIA-222 Rev G	6/4/2013 10:20:55 AM
Location :	Norwich CT, CT	Struct Class : II	Page: 15
Height :	140.0 (ft)	Exposure Category : B	
Base Dia :	60.16 (in)	Topographic Category : 1	
Top Dia :	28.68 (in)	Base Elev : 0.000 (ft)	
Shape :	18 Sides		
Taper :	0.234203 (in/ft)		



Load Case: 1.0D + 1.0W — 60.00 mph Serviceability — 19 Iterations

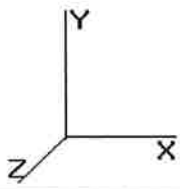
Gust Response Factor : 1.10
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Wind Importance Factor : 1.00

Shaft Segment Forces (Factored)

Seg Top Elev (ft)	Description	Kzt	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		1.00	0.70	6.129	6.742	255.54	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	6.129	6.742	250.57	0.650	0.000	5.00	25.206	16.38	110.5	0.0	1,397.1
10.00		1.00	0.70	6.129	6.742	245.60	0.650	0.000	5.00	24.710	16.06	108.3	0.0	1,369.4
15.00		1.00	0.70	6.129	6.742	240.62	0.650	0.000	5.00	24.215	15.74	106.1	0.0	1,341.8
20.00		1.00	0.70	6.129	6.742	235.65	0.650	0.000	5.00	23.719	15.42	103.9	0.0	1,314.1
25.00		1.00	0.70	6.129	6.742	230.67	0.650	0.000	5.00	23.224	15.10	101.8	0.0	1,286.5
30.00		1.00	0.70	6.134	6.747	225.79	0.650	0.000	5.00	22.728	14.77	99.7	0.0	1,258.8
35.00		1.00	0.73	6.410	7.051	225.73	0.650	0.000	5.00	22.233	14.45	101.9	0.0	1,231.1
40.00		1.00	0.76	6.659	7.325	224.90	0.650	0.000	5.00	21.737	14.13	103.5	0.0	1,203.5
44.75	Bot - Section 2	1.00	0.78	6.876	7.564	223.53	0.650	0.000	4.75	20.192	13.12	99.3	0.0	1,117.7
45.00		1.00	0.78	6.887	7.576	223.44	0.650	0.000	0.25	1.066	0.69	5.3	0.0	108.8
50.00		1.00	0.81	7.098	7.807	221.48	0.650	0.000	5.00	21.064	13.69	106.9	0.0	2,148.7
51.00	Top - Section 1	1.00	0.81	7.138	7.852	221.03	0.650	0.000	1.00	4.153	2.70	21.2	0.0	423.6
55.00		1.00	0.83	7.294	8.023	222.56	0.650	0.000	4.00	16.415	10.67	85.6	0.0	779.6
60.00		1.00	0.85	7.477	8.225	219.85	0.650	0.000	5.00	20.073	13.05	107.3	0.0	953.1
65.00		1.00	0.87	7.650	8.415	216.82	0.650	0.000	5.00	19.578	12.73	107.1	0.0	929.4
70.00		1.00	0.89	7.814	8.595	213.51	0.650	0.000	5.00	19.082	12.40	106.6	0.0	905.7
75.00		1.00	0.91	7.969	8.766	209.95	0.650	0.000	5.00	18.587	12.08	105.9	0.0	882.0
80.00		1.00	0.92	8.118	8.930	206.17	0.650	0.000	5.00	18.091	11.76	105.0	0.0	858.3
85.00		1.00	0.94	8.260	9.086	202.19	0.650	0.000	5.00	17.596	11.44	103.9	0.0	834.6
90.00		1.00	0.95	8.396	9.235	198.03	0.650	0.000	5.00	17.100	11.12	102.7	0.0	810.9
90.75	Bot - Section 3	1.00	0.96	8.416	9.257	197.39	0.650	0.000	0.75	2.522	1.64	15.2	0.0	119.6
95.00		1.00	0.97	8.526	9.379	193.70	0.650	0.000	4.25	14.285	9.29	87.1	0.0	1,176.7
95.75	Top - Section 2	1.00	0.97	8.545	9.400	193.03	0.650	0.000	0.75	2.484	1.61	15.2	0.0	204.5
100.0		1.00	0.98	8.652	9.517	192.05	0.650	0.000	4.25	13.864	9.01	85.8	0.0	494.0
105.0		1.00	1.00	8.774	9.651	187.44	0.650	0.000	5.00	15.852	10.30	99.4	0.0	564.8
110.0		1.00	1.01	8.891	9.780	182.70	0.650	0.000	5.00	15.356	9.98	97.6	0.0	547.0
115.0		1.00	1.02	9.005	9.905	177.84	0.650	0.000	5.00	14.861	9.66	95.7	0.0	529.2
116.0	Appertunance(s)	1.00	1.03	9.027	9.930	176.85	0.650	0.000	1.00	2.913	1.89	18.8	0.0	103.7
120.0		1.00	1.04	9.115	10.02	172.85	0.650	0.000	4.00	11.453	7.44	74.6	0.0	407.7
125.0		1.00	1.05	9.222	10.14	167.76	0.650	0.000	5.00	13.870	9.02	91.5	0.0	493.6
127.0	Appertunance(s)	1.00	1.05	9.264	10.19	165.70	0.650	0.000	2.00	5.409	3.52	35.8	0.0	192.5
130.0		1.00	1.06	9.326	10.25	162.57	0.650	0.000	3.00	7.965	5.18	53.1	0.0	283.4
135.0		1.00	1.07	9.427	10.36	157.28	0.650	0.000	5.00	12.879	8.37	86.8	0.0	458.0
137.0	Appertunance(s)	1.00	1.08	9.466	10.41	155.14	0.650	0.000	2.00	5.013	3.26	33.9	0.0	178.2
140.0		1.00	1.08	9.525	10.47	151.90	0.650	0.000	3.00	7.371	4.79	50.2	0.0	262.0
							Totals:		140.00			2,833.0	0.0	27,169.4

Pole :	311014	Code: ANSI/TIA-222 Rev G	6/4/2013 10:20:55 AM
Location :	Norwich CT, CT	Struct Class : II	Page: 16
Height :	140.0 (ft)	Exposure Category : B	
Base Dia :	60.16 (in)	Topographic Category : 1	
Top Dia :	28.68 (in)	Base Elev : 0.000 (ft)	
Shape :	18 Sides		
Taper :	0.234203 (in/ft)		



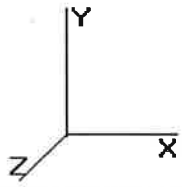
Load Case: 1.0D + 1.0W — 60.00 mph Serviceability — 19 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 1.00
Wind Load Factor : 1.00
Wind Importance Factor : 1.00

Discrete Appurtenance Segment Forces (Factored)

Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Ka	Total CaAa (sf)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)	Dead Load (lb)
116.0	Alcatel-Lucent RRH2x	3	9.027	9.930	0.40	0.80	2.32	0.000	0.000	23.00	0.00	0.00	152.10
116.0	Alcatel-Lucent RRH2x	3	9.027	9.930	0.54	0.80	3.47	0.000	0.000	34.49	0.00	0.00	132.00
116.0	Antel BXA-171063-12C	6	9.027	9.930	0.70	0.80	20.23	0.000	0.000	200.91	0.00	0.00	90.00
116.0	Antel BXA-70063-6CF-	6	9.027	9.930	0.62	0.80	27.98	0.000	0.000	277.82	0.00	0.00	102.00
116.0	Flat Low Profile Pla	1	9.027	9.930	1.00	1.00	26.10	0.000	0.000	259.16	0.00	0.00	1,500.00
116.0	RFS DB-T1-6Z-8AB-0Z	1	9.027	9.930	0.80	0.80	3.84	0.000	0.000	38.13	0.00	0.00	44.00
127.0	Flat Low Profile Pla	1	9.264	10.190	1.00	1.00	26.10	0.000	0.000	265.96	0.00	0.00	1,500.00
127.0	Kathrein 800 10504	6	9.264	10.190	0.62	0.80	12.50	0.000	0.000	127.43	0.00	0.00	105.60
137.0	EMS RR90-17-02DP	6	9.466	10.413	0.58	0.80	15.28	0.000	0.000	159.09	0.00	0.00	81.00
137.0	Flat Low Profile Pla	1	9.466	10.413	1.00	1.00	26.10	0.000	0.000	271.78	0.00	0.00	1,500.00
137.0	RFS ATMAA1412D-	3	9.466	10.413	0.40	0.80	1.20	0.000	0.000	12.50	0.00	0.00	39.00
137.0	RFS ATMPP1412D-	3	9.466	10.413	0.40	0.80	1.20	0.000	0.000	12.50	0.00	0.00	37.50
										1,682.75			5,283.20

Pole :	311014	Code: ANSI/TIA-222 Rev G	
Location :	Norwich CT, CT	Struct Class : II	6/4/2013 10:20:55 AM
Height :	140.0 (ft)	Exposure Category : B	Page: 17
Base Dia :	60.16 (in)	Topographic Category : 1	
Top Dia :	28.68 (in)	Base Elev : 0.000 (ft)	
Shape :	18 Sides		
Taper :	0.234203 (in/ft)		



Load Case: 1.0D + 1.0W — 60.00 mph Serviceability — 19 Iterations

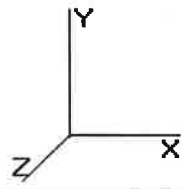
Gust Response Factor : 1.10
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Wind Importance 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	110.45	1,397.11	0.00	0.00
10.00	108.28	1,456.24	0.00	0.00
15.00	106.11	1,428.58	0.00	0.00
20.00	103.94	1,400.91	0.00	0.00
25.00	101.77	1,373.25	0.00	0.00
30.00	99.68	1,345.58	0.00	0.00
35.00	101.90	1,317.91	0.00	0.00
40.00	103.50	1,290.25	0.00	0.00
44.75	99.27	1,200.11	0.00	0.00
45.00	5.25	113.12	0.00	0.00
50.00	106.90	2,235.48	0.00	0.00
51.00	21.20	440.93	0.00	0.00
55.00	85.60	849.02	0.00	0.00
60.00	107.31	1,039.93	0.00	0.00
65.00	107.09	1,016.22	0.00	0.00
70.00	106.61	992.50	0.00	0.00
75.00	105.91	968.79	0.00	0.00
80.00	105.00	945.08	0.00	0.00
85.00	103.91	921.36	0.00	0.00
90.00	102.65	897.65	0.00	0.00
90.75	15.18	132.60	0.00	0.00
95.00	87.08	1,250.48	0.00	0.00
95.75	15.18	217.56	0.00	0.00
100.0	85.76	567.80	0.00	0.00
105.0	99.44	651.55	0.00	0.00
110.0	97.62	633.76	0.00	0.00
115.0	95.68	615.98	0.00	0.00
116.0	852.30	2,141.16	0.00	0.00
120.0	74.64	466.73	0.00	0.00
125.0	91.45	567.41	0.00	0.00
127.0	429.21	1,827.58	0.00	0.00
130.0	53.11	312.88	0.00	0.00
135.0	86.81	507.24	0.00	0.00
137.0	489.79	1,855.42	0.00	0.00
140.0	50.20	262.02	0.00	0.00
Totals:	4,515.79	34,640.18	0.00	0.00

Pole :	311014	Code: ANSI/TIA-222 Rev G	6/4/2013 10:20:55 AM
Location :	Norwich CT, CT	Struct Class : II	Page: 18
Height :	140.0 (ft)	Exposure Category : B	
Base Dia :	60.16 (in)	Topographic Category : 1	
Top Dia :	28.68 (in)	Base Elev : 0.000 (ft)	
Shape :	18 Sides		
Taper :	0.234203 (in/ft)		



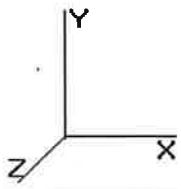
Load Case: 1.0D + 1.0W — 60.00 mph Serviceability — 19 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 1.00
Wind Load Factor : 1.00
Wind Importance Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-34.64	-4.52	0.00	-413.94	0.00	413.94	5,563.50	2,781.75	13,660.1	6,840.21	0.00	0.00	0.067
5.00	-33.24	-4.42	0.00	-391.34	0.00	391.34	5,495.04	2,747.52	13,225.5	6,622.59	0.01	-0.02	0.065
10.00	-31.78	-4.32	0.00	-369.24	0.00	369.24	5,424.94	2,712.47	12,793.7	6,406.38	0.03	-0.03	0.063
15.00	-30.35	-4.22	0.00	-347.65	0.00	347.65	5,353.22	2,676.61	12,365.0	6,191.70	0.07	-0.05	0.062
20.00	-28.95	-4.12	0.00	-326.56	0.00	326.56	5,279.88	2,639.94	11,939.5	5,978.66	0.13	-0.06	0.060
25.00	-27.58	-4.03	0.00	-305.95	0.00	305.95	5,204.91	2,602.46	11,517.6	5,767.39	0.20	-0.08	0.058
30.00	-26.23	-3.93	0.00	-285.82	0.00	285.82	5,128.32	2,564.16	11,099.4	5,557.99	0.29	-0.09	0.057
35.00	-24.91	-3.83	0.00	-266.17	0.00	266.17	5,050.10	2,525.05	10,685.3	5,350.59	0.40	-0.11	0.055
40.00	-23.62	-3.73	0.00	-247.00	0.00	247.00	4,970.26	2,485.13	10,275.3	5,145.31	0.52	-0.12	0.053
44.75	-22.42	-3.63	0.00	-229.27	0.00	229.27	4,892.90	2,446.45	9,890.02	4,952.36	0.65	-0.14	0.051
45.00	-22.31	-3.63	0.00	-228.36	0.00	228.36	4,888.79	2,444.40	9,869.86	4,942.27	0.65	-0.14	0.051
50.00	-20.07	-3.52	0.00	-210.20	0.00	210.20	4,805.70	2,402.85	9,469.07	4,741.57	0.81	-0.15	0.049
51.00	-19.63	-3.50	0.00	-206.68	0.00	206.68	3,954.70	1,977.35	7,897.06	3,954.40	0.84	-0.16	0.057
55.00	-18.78	-3.42	0.00	-192.67	0.00	192.67	3,904.91	1,952.45	7,646.13	3,828.75	0.97	-0.17	0.055
60.00	-17.74	-3.31	0.00	-175.57	0.00	175.57	3,841.19	1,920.60	7,335.11	3,673.01	1.16	-0.18	0.052
65.00	-16.72	-3.21	0.00	-159.00	0.00	159.00	3,775.86	1,887.93	7,027.24	3,518.84	1.36	-0.20	0.050
70.00	-15.73	-3.10	0.00	-142.96	0.00	142.96	3,708.90	1,854.45	6,722.77	3,366.38	1.58	-0.21	0.047
75.00	-14.76	-3.00	0.00	-127.46	0.00	127.46	3,640.31	1,820.16	6,421.93	3,215.74	1.81	-0.23	0.044
80.00	-13.82	-2.89	0.00	-112.48	0.00	112.48	3,570.10	1,785.05	6,124.95	3,067.03	2.06	-0.24	0.041
85.00	-12.90	-2.79	0.00	-98.03	0.00	98.03	3,498.27	1,749.13	5,832.07	2,920.37	2.32	-0.26	0.037
90.00	-12.00	-2.68	0.00	-84.10	0.00	84.10	3,424.81	1,712.40	5,543.53	2,775.89	2.60	-0.27	0.034
90.75	-11.86	-2.67	0.00	-82.09	0.00	82.09	3,413.65	1,706.82	5,500.64	2,754.41	2.64	-0.27	0.033
95.00	-10.61	-2.57	0.00	-70.76	0.00	70.76	3,349.72	1,674.86	5,259.57	2,633.69	2.89	-0.28	0.030
95.75	-10.40	-2.56	0.00	-68.83	0.00	68.83	2,312.98	1,156.49	3,686.59	1,846.04	2.93	-0.28	0.042
100.00	-9.83	-2.47	0.00	-57.96	0.00	57.96	2,275.87	1,137.93	3,533.62	1,769.44	3.19	-0.29	0.037
105.00	-9.18	-2.37	0.00	-45.60	0.00	45.60	2,230.70	1,115.35	3,355.32	1,680.15	3.51	-0.31	0.031
110.00	-8.54	-2.27	0.00	-33.75	0.00	33.75	2,183.90	1,091.95	3,179.03	1,591.88	3.83	-0.32	0.025
115.00	-7.93	-2.17	0.00	-22.40	0.00	22.40	2,135.49	1,067.74	3,004.99	1,504.73	4.17	-0.32	0.019
116.00	-5.79	-1.31	0.00	-20.22	0.00	20.22	2,125.61	1,062.80	2,970.48	1,487.45	4.24	-0.33	0.016
120.00	-5.33	-1.23	0.00	-14.99	0.00	14.99	2,085.44	1,042.72	2,833.45	1,418.83	4.51	-0.33	0.013
125.00	-4.76	-1.14	0.00	-8.84	0.00	8.84	2,033.77	1,016.89	2,664.63	1,334.29	4.86	-0.33	0.009
127.00	-2.93	-0.70	0.00	-6.56	0.00	6.56	2,012.65	1,006.33	2,597.91	1,300.89	5.00	-0.34	0.007
130.00	-2.62	-0.64	0.00	-4.47	0.00	4.47	1,980.48	990.24	2,498.77	1,251.24	5.21	-0.34	0.005
135.00	-2.11	-0.55	0.00	-1.26	0.00	1.26	1,925.56	962.78	2,336.10	1,169.79	5.56	-0.34	0.002
137.00	-0.26	-0.05	0.00	-0.16	0.00	0.16	1,903.14	951.57	2,271.99	1,137.68	5.70	-0.34	0.000
140.00	0.00	-0.05	0.00	0.00	0.00	0.00	1,869.02	934.51	2,176.88	1,090.06	5.92	-0.34	0.000

Pole :	311014	Code: ANSI/TIA-222 Rev G	
Location :	Norwich CT, CT	Struct Class : II	
Height :	140.0 (ft)	Exposure Category : B	
Base Dia :	60.16 (in)	Topographic Category : 1	
Top Dia :	28.68 (in)	Base Elev : 0.000 (ft)	
Shape :	18 Sides		
Taper :	0.234203 (in/ft)		



Analysis Summary

	Reactions						Max Usage	
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	24.32	0.00	41.55	0.00	0.00	2232.49	0.00	0.33
0.9D + 1.6W	24.31	0.00	31.16	0.00	0.00	2222.66	0.00	0.33
1.2D + 1.0Di + 1.0Wi	5.61	0.00	60.61	0.00	0.00	503.55	0.00	0.08
1.0D + 1.0W	4.52	0.00	34.64	0.00	0.00	413.94	0.00	0.07

Pole :	311014	Code:	ANSI/TIA-222 Rev G
Location :	Norwich CT, CT	Struct Class :	II
Height :	140.0 (ft)	Exposure Category :	B
Base Dia :	60.16 (in)	Topographic Category :	1
Top Dia :	28.68 (in)	Base Elev :	0.000 (ft)
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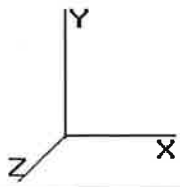


Base Summary

Reactions

Original Design			Analysis			
Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment Design %
5,050.00	42.00	43.00	2,232.49	60.61	24.32	44.21

Base Plate

Yield (ksi)	Thick (in)	Width (in)	Style	Poly Sides	Clip Len (in)	Effective Len (in)	Mu (kip-in)	Phi Mn (kip-in)	Ratio
50.0	3.000	69.000	Clipped	0	16.00	7.956	139.57	805.53	0.17

Anchor Bolts

Bolt Circle	Num Bolts	Bolt Type	Bolt Dia (in)	Yield (ksi)	Ultimate (ksi)	Arrange	Cluster Dist (in)	Start Angle (deg)	Compression			Tension		
									Force (kip)	Allow (kip)	Ratio	Force (kip)	Allow (kip)	Ratio
67.00	24	2.25" 18J	2.25	75.00	100.00	Clustered	6.00	45.0	69.17	260.00	0.27	64.12	260.00	0.25

TAB 4

HMB

HMB Acoustics LLC 3 Cherry Tree Lane, Avon, Ct. 06001 860-677-5955

October 18, 2013

Doug Drost
Project Engineer, Wireless
Centek Engineering, Inc.
63-2 North Branford Road
Branford, Ct. 06405

Subject: Norwich West - Noise Compliance Study

Dear Mr. Drost:

The noise levels for the V1 and V2 wall mounted HVAC units were calculated while they were running simultaneously. The combined noise level was then projected to each property line. The resultant noise level was compared to the State of Ct. Noise Regulation. The Regulation allows a noise level of 55 dBA (daytime), and 45 dBA (nighttime), when measured at a Residential Receptor's property line. I found that the two (2) units met the conditions for compliance as set forth in the Regulation at all property lines.

Allan Smardin
HMB Acoustics LLC

PROJECT INFORMATION:	Centek Job #: 13158.000
Applicant:	Cellco Partnership d.b.a. Verizon Wireless
Applicant Site ID:	Norwich West
Site Owner:	Florida Towers Company
Site Address:	202 North Wewacus Hill Road, Norwich, CT
Subject Zoning District:	Residential
Abutting Zoning District(s):	Residential

APPLICANT EQUIPMENT:

ID	Noise Emitter	Make/Model	Prop. Line. Dist. (FT)			
			North	South	East	West
V-1	Wall Mounted HVAC	Bard / W61A1-105EPXXXJ	275	-	154	226
V-2	Wall Mounted HVAC	Bard / W61A1-105EPXXXJ	269	-	147	235

EXISTING COLOCATORS:

☐	AT&T	☒	Metro PCS	☐	Other:
☐	Sprint	☒	T Mobile	☐	Other:
☐	Nextel	☐	None	☐	Other:

EXISTING COLOCATOR EQUIPMENT OWNER:

ID	Noise Emitter	Make/Model	Prop. Line. Dist. (FT)			
			North	South	East	West

EXISTING COLOCATOR EQUIPMENT OWNER:

ID	Noise Emitter	Make/Model	Prop. Line. Dist. (FT)			
			North	South	East	West

EXISTING COLOCATOR EQUIPMENT OWNER:						
ID	Noise Emitter	Make/Model	Prop. Line. Dist. (FT)			
			North	South	East	West

EXISTING COLOCATOR EQUIPMENT OWNER:						
ID	Noise Emitter	Make/Model	Prop. Line. Dist. (FT)			
			North	South	East	West

EXISTING COLOCATOR EQUIPMENT OWNER:						
ID	Noise Emitter	Make/Model	Prop. Line. Dist. (FT)			
			North	South	East	West

CONCLUSION:			
Daytime Regulation:	55dBA	**Nighttime Regulation:**	45 dBA
Compliance:	☒ Yes ☐ No	**Compliance:**	☒ Yes ☐ No

BASIS OF FINDINGS:

The Combined Noise Level From V1 & V2:

West Property Line = 39 dBA

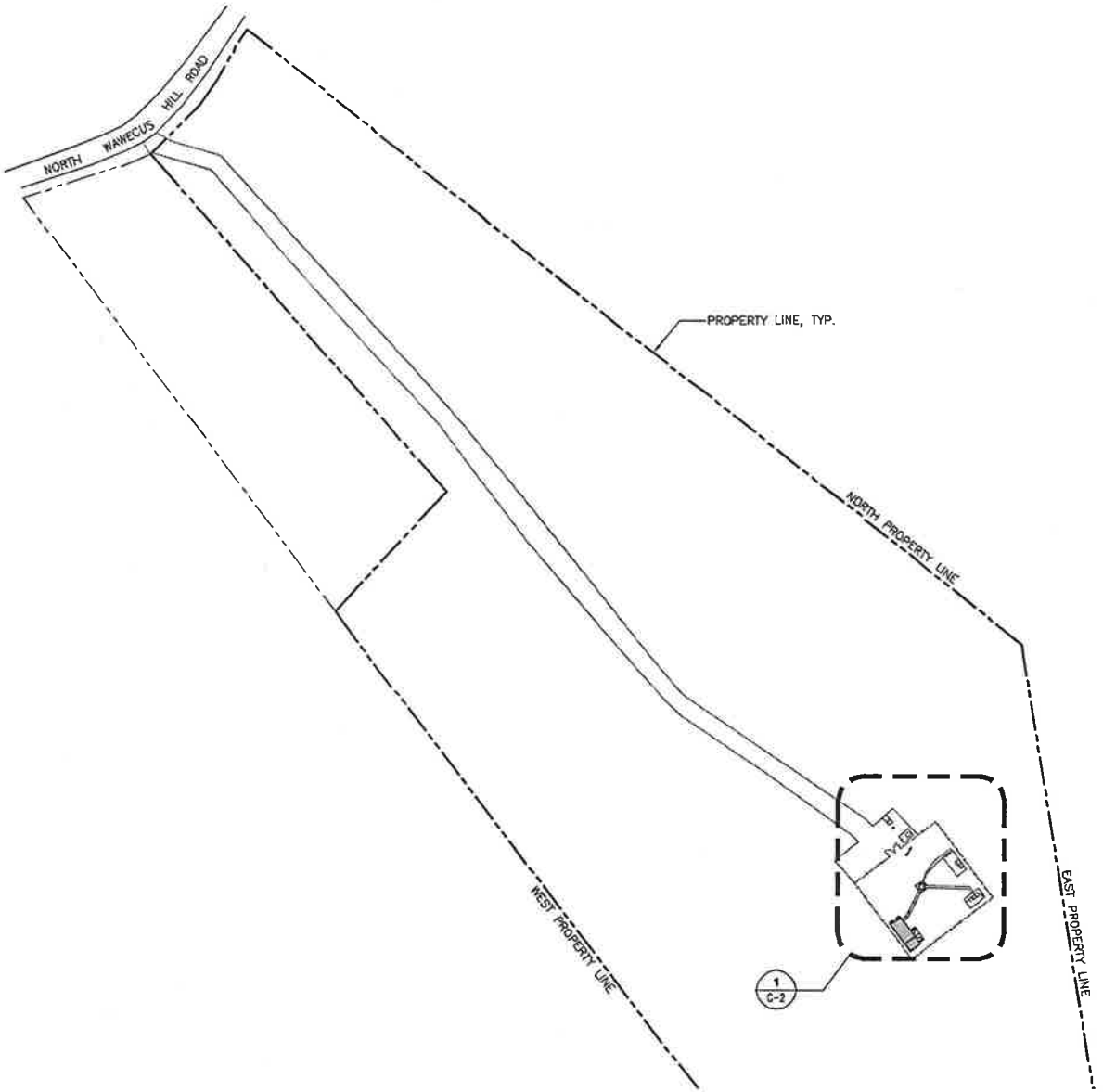
North Property Line = 34 dBA

East Property Line = 38 dBA

The dBA level at the East Property line takes into account the acoustical shielding effect provided by the equipment shelter that has the V1 and V2 units mounted to them.

The projected noise levels from T-Mobile and Metro PCS pad mounted equipment will be inaudible at the distance of 10 feet or greater. This equipment will have no adverse acoustical effect on the V1 and V2 noise projections.

Prepared By: Alan Smardin, HMB ACOUSTICS LLC   Date: 10/21/13



1 / C-1 PARTIAL SITE PLAN
SCALE: 1" = 150'

TRUE NORTH

GRAPHIC SCALE
0 75 150
(IN FEET)
1 inch = 150 ft.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	10/17/13	DMD	CFC	NOISE EMMITTER INFORMATION

Cellco Partnership d.b.a. verizon wireless

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

Cellco Partnership d/b/a Verizon Wireless
NORWICH WEST
202 NORTH WAWECUS HILL RD
NORWICH, CT 06360

DATE: 10/17/13
SCALE: AS NOTED
JOB NO. 13158.000

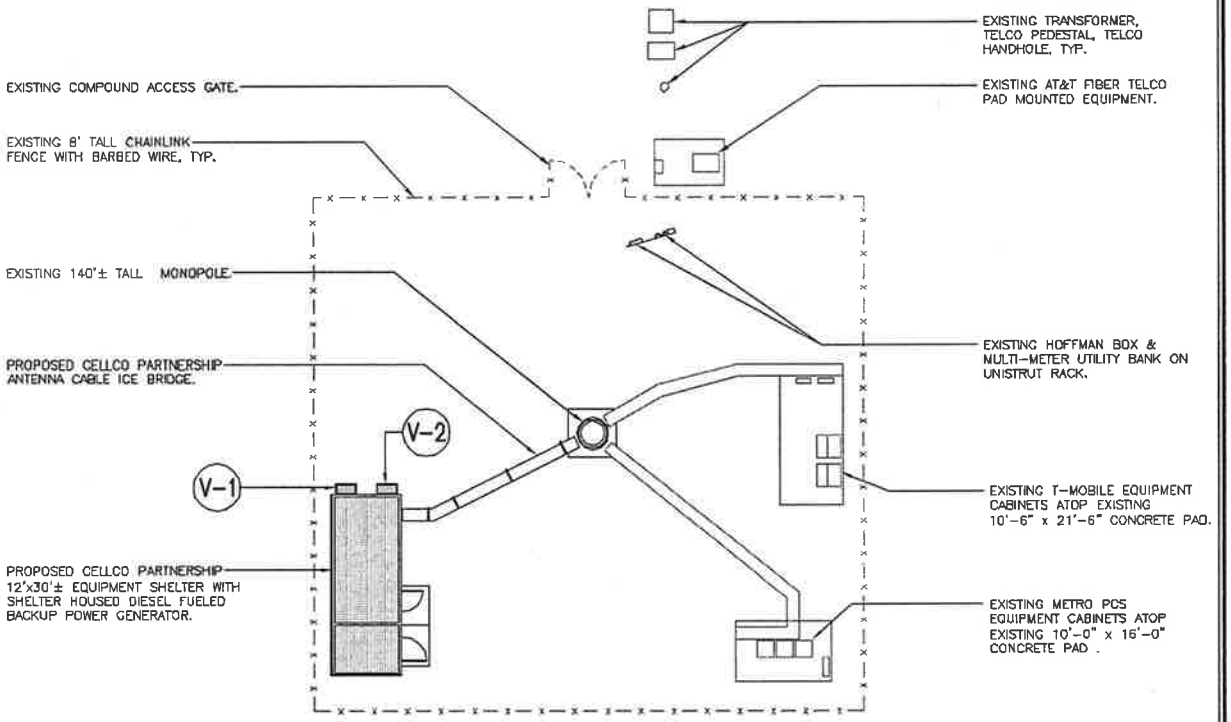
PARTIAL SITE PLAN

C-1
DWG. 1 OF 2

NOISE EMMITTER INFORMATION

(V-1) WALL MOUNTED HVAC UNIT, MAKE: BARD, MODEL: W61A1-A05EPXXXJ

(V-2) WALL MOUNTED HVAC UNIT, MAKE: BARD, MODEL: W61A1-A05EPXXXJ



1 / C-2 COMPOUND PLAN - PROPOSED
SCALE: 1" = 30'-0"

TRUE NORTH

GRAPHIC SCALE
0 15 30
(IN FEET)
1 inch = 30 ft.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	10/17/13	DMD	CFC	NOISE EMMITTER INFORMATION

Cellco Partnership d.b.a. verizon wireless

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

Cellco Partnership d/b/a Verizon Wireless

NORWICH WEST

202 NORTH WAWECUS HILL RD
NORWICH, CT 06360

DATE: 10/17/13
SCALE: AS NOTED
JOB NO. 13158.000

COMPOUND PLAN

C-2

DWG. 2 OF 2

TAB 5

	General	Power	Density					
Site Name: Norwich W								
Tower Height: Verizon @ 116ft								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*T-Mobile GSM	8	126	137	0.0193	1945	1.0000	1.93%	
*T-Mobile UMTS	2	711	137	0.0272	2100	1.0000	2.72%	
*MetroPCS	3	443.61	127	0.0297	2140	1.0000	2.97%	
Verizon PCS	**11**	**442**	**116**	**0.1299**	**1970**	**1.0000**	**12.99%**	
Verizon Cellular	**9**	**406**	**116**	**0.0976**	**869**	**0.5793**	**16.85%**	
Verizon AWS	**1**	**1750**	**116**	**0.0468**	**2145**	**1.0000**	**4.68%**	
Verizon 700	**1**	**1050**	**116**	**0.0281**	**698**	**0.4653**	**6.03%**	
								48.18%
* Source: Siting Council								