Robinson+Cole

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Also admitted in Massachusetts

August 24, 2016

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

Re: **Notice of Exempt Modification – Facility Modification**
100 Old Redding Road, Redding, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains twelve (12) wireless telecommunications antennas at the 172-foot level of the existing 180-foot tower at 100 Old Redding Road in Redding, Connecticut (the "Property"). The tower is owned by American Tower Corporation ("ATC"). The Council approved Cellco's use of the existing tower in 2000. Cellco now intends to modify its facility by replacing all of its antennas with three (3) model SBNHH-1D65B, 700/1900 MHz antennas; four (4) model DB844G65ZAXY, 850 MHz antennas; two (2) model APL868013-42T0, 850 MHz antennas and three (3) model SBNHH-1D65A, 2100 MHz antennas, all at the same 172-foot level on the tower. Cellco also intends to replace three (3) remote radio heads ("RRHs") with three (3) newer model RRHs and install six (6) new RRHs and one (1) HYBRIFLEX™ antenna cable. Included in Attachment 1 are specifications for Cellco's replacement antennas, RRHs and HYBRIFLEX™ cable.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Julia Pemberton, Redding's First Selectman and Robert J. Kaufman, the owner of the Property and ATC, the tower owner.

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

1. The proposed modifications will not result in an increase in the height of the existing tower. Cellco's replacement antennas and RRHs will be installed on Cellco's existing antenna platform at a height of 172 feet on the existing tower.

2. The proposed modifications will not involve any change to ground-mounted equipment and, therefore, will not require the extension of the site boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative General Power Density table for Cellco's modified facility is included in Attachment 2.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The tower and its foundation can support Cellco's proposed modifications. (*See* Structural Analysis Report included in Attachment 3).

A copy of the Redding Assessor's Parcel Map and property owner information is included in Attachment 4.

For the foregoing reasons, Cellco respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Kenneth C. Baldwin

Enclosures
Copy to:
Julia Pemberton, Redding First Selectman
Robert J. Kaufman
ATC
Tim Parks

ATTACHMENT 1

Product Specifications

COMMSCOPE®

SBNHH-1D65B

Multiband Antenna, 698–896 and 2x 1695–2360 MHz, 65° horizontal beamwidth, internal RET. Both high bands share the same electrical tilt.

- Interleaved dipole technology providing for attractive, low wind load mechanical package

Electrical Specifications

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain, dBi	14.9	14.7	17.7	18.2	18.6	18.6
Beamwidth, Horizontal, degrees	68	66	69	66	63	58
Beamwidth, Vertical, degrees	12.1	10.7	5.6	5.2	5.0	4.5
Beam Tilt, degrees	0–14	0–14	0–7	0–7	0–7	0–7
USLS (First Lobe), dB	14	13	15	15	15	13
Front-to-Back Ratio at 180°, dB	27	29	28	28	28	27
Isolation, dB	25	25	25	25	25	25
Isolation, Intersystem, dB	30	30	30	30	30	30
VSWR | Return Loss, dB	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-153
Input Power per Port, maximum, watts	350	350	350	350	350	300
Polarization	±45°	±45°	±45°	±45°	±45°	±45°
Impedance	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm

Electrical Specifications, BASTA*

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain by all Beam Tilts, average, dBi	14.5	14.3	17.4	17.9	18.2	18.3
Gain by all Beam Tilts Tolerance, dB	±0.5	±0.8	±0.4	±0.3	±0.5	±0.3
Gain by Beam Tilt, average, dBi	0 ° | 14.6	0 ° | 14.5	0 ° | 17.4	0 ° | 17.8	0 ° | 18.1	0 ° | 18.2
	7 ° | 14.6	7 ° | 14.4	3 ° | 17.5	3 ° | 17.9	3 ° | 18.3	3 ° | 18.4
	14 ° | 14.2	14 ° | 13.6	7 ° | 17.4	7 ° | 17.9	7 ° | 18.2	7 ° | 18.4
Beamwidth, Horizontal Tolerance, degrees	±2.2	±3.4	±2	±4.6	±5.7	±4.3
Beamwidth, Vertical Tolerance, degrees	±0.8	±1	±0.3	±0.2	±0.3	±0.2
USLS, beampeak to 20° above beampeak, dB	16	14	16	16	16	15
Front-to-Back Total Power at 180° ± 30°, dB	25	26	27	26	26	26
CPR at Boresight, dB	22	23	21	20	20	22
CPR at Sector, dB	13	11	16	12	11	4

* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, download the whitepaper Time to Raise the Bar on BSAs.

General Specifications

Antenna Type	Sector with internal RET
Band	Multiband
Brand	DualPol®
Operating Frequency Band	1695 – 2360 MHz | 698 – 896 MHz
Performance Note	Outdoor usage

Mechanical Specifications

Color	Light gray
Lightning Protection	dc Ground

Product Specifications

SBNHH-1D65B

Radiator Material	Aluminum | Low loss circuit board
Radome Material	Fiberglass, UV resistant
Reflector Material	Aluminum
RF Connector Interface	7-16 DIN Female
RF Connector Location	Bottom
RF Connector Quantity, total	6
Wind Loading, frontal	618.0 N @ 150 km/h 138.9 lbf @ 150 km/h
Wind Loading, lateral	197.0 N @ 150 km/h 44.3 lbf @ 150 km/h
Wind Loading, rear	728.0 N @ 150 km/h 163.7 lbf @ 150 km/h
Wind Speed, maximum	241 km/h | 150 mph

Dimensions

Depth	180.0 mm | 7.1 in
Length	1851.0 mm | 72.9 in
Width	301.0 mm | 11.9 in
Net Weight, without mounting kit	18.4 kg | 40.6 lb

Remote Electrical Tilt (RET) Information

Input Voltage	10–30 Vdc
Internal RET	High band (1) | Low band (1)
Power Consumption, idle state, maximum	2.0 W
Power Consumption, normal conditions, maximum	13.0 W
Protocol	3GPP/AISG 2.0 (Multi-RET)
RET Interface	8-pin DIN Female | 8-pin DIN Male
RET Interface, quantity	1 female | 1 male

Packed Dimensions

Depth	296.0 mm | 11.7 in
Length	2025.0 mm | 79.7 in
Width	390.0 mm | 15.4 in
Shipping Weight	31.0 kg | 68.3 lb

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant by Exemption
China RoHS SJ/T 11364-2006	Above Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system

Product Specifications

SBNHH-1D65B

Included Products

BSAMNT-1 — Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.

* Footnotes

Performance Note	Severe environmental conditions may degrade optimum performance

Product Specifications

ANDREW®
A CommScope Company

DB844G65ZAXY

Directed Dipole™ Antenna, 806–960 MHz, 65° horizontal beamwidth, fixed electrical tilt

- Excellent azimuth roll-off, reducing sector-to-sector interference and soft hand-offs
- Air dielectric feed system with no screws, rivets, solder, or welding in dipole feed point
- Low profile for ease of zoning approval
- Excellent upper sidelobe suppression

CHARACTERISTICS

General Specifications

Antenna Type	Directed Dipole™
Brand	Directed Dipole™
Operating Frequency Band	806 – 960 MHz

Electrical Specifications

Frequency Band, MHz	**806–896**	**870–960**
Beamwidth, Horizontal, degrees	65	65
Gain, dBd	13.5	13.8
Gain, dBi	15.6	15.9
Beamwidth, Vertical, degrees	15.0	15.0
Beam Tilt, degrees	0	0
Upper Sidelobe Suppression (USLS), typical, dB	15	15
Null Fill, dB	20	20
Front-to-Back Ratio at 180°, dB	40	40
VSWR | Return Loss, db	1.33:1 | 17.0	1.33:1 | 17.0
Intermodulation Products, 3rd Order, 2 x 20 W, dBc	-150	-150
Input Power, maximum, watts	500	500
Polarization	Vertical	Vertical
Impedance, ohms	50	50
Lightning Protection	dc Ground	dc Ground

Product Specifications

DB844G65ZAXY

ANDREW®
A CommScope Company

Mechanical Specifications

Color	Light gray
Connector Interface	7-16 DIN Female
Connector Location	Back
Connector Quantity	1
Wind Loading, maximum	235.8 N @ 100 mph 53.0 lbf @ 100 mph
Wind Speed, maximum	241.4 km/h | 150.0 mph

Dimensions

Depth	203.2 mm | 8.0 in
Length	1219.2 mm | 48.0 in
Width	254.0 mm | 10.0 in
Net Weight	5.4 kg | 12.0 lb

Regulatory Compliance/Certifications

Agency
RoHS 2002/95/EC
China RoHS SJ/T 11364-2006

Classification
Compliant by Exemption
Above Maximum Concentration Value (MCV)

INCLUDED PRODUCTS

DB5083
Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members

DB380
Pipe Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members

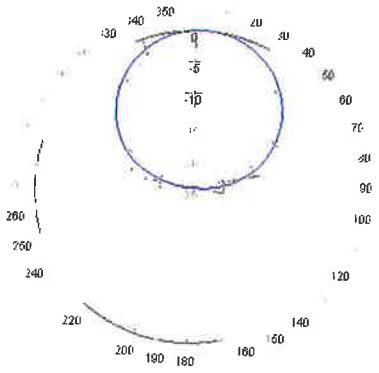
DB382NS
Side Offset Bracket for 4.5 in (114.3 mm) OD round members

Product Specifications

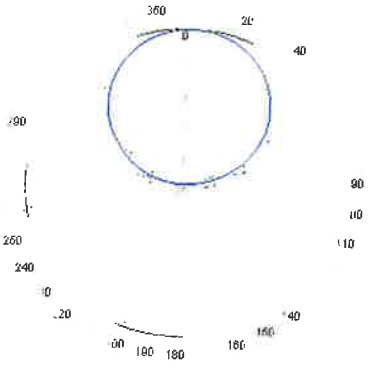
DB844G65ZAXY

ANDREW®
A CommScope Company

Horizontal Pattern

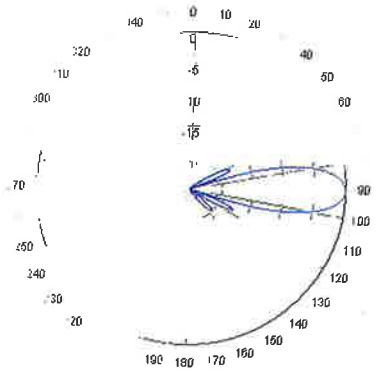


Freq: 860 MHz, Tilt: 0°

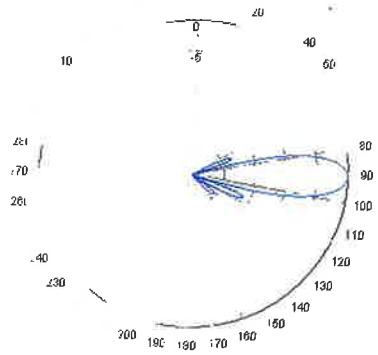


Freq: 935 MHz, Tilt: 0°

Vertical Pattern



Freq: 860 MHz, Tilt: 0°



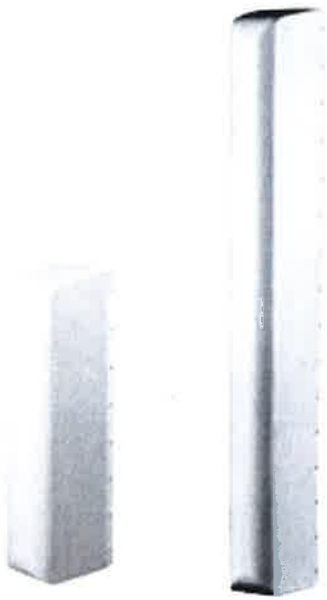
Freq: 935 MHz, Tilt: 0°

Product Data Sheet | **APL868013-42T0**

Maximizer® Directional Panel Antenna

Product Description

The Celwave® Maximizer series is a log periodic dipole array which uses a patented design to achieve a front-to-back ratio of 45 dB, the highest front-to-back ratio in the industry. Maximizers are available to cover ESMR, AMPS, PCS and DCS frequency ranges. They use RFS's patented monolithic CELlite® technology, which eliminates cable and soldered joints to reduce the possibility of inter-modulation products. The CELlite technology assures high reliability and excellent repeatability of electrical characteristics. The cellular Maximizers are available in 65°, 80° and 90° horizontal beamwidths and the PCS/DCS Maximizers are available in 65° and 90° horizontal beamwidths. Patent number 6,133,889.



Features/Benefits

- **45 dB front-to-back ratio reduces co-channel interference.• Monolithic construction reduces IM.• No solder joints, high reliability.• Surface treated components prevent galvanic corrosion.• UV stabilized radome assures long life without radome deterioration due to UV exposure.**

Technical Specifications

Electrical Specifications

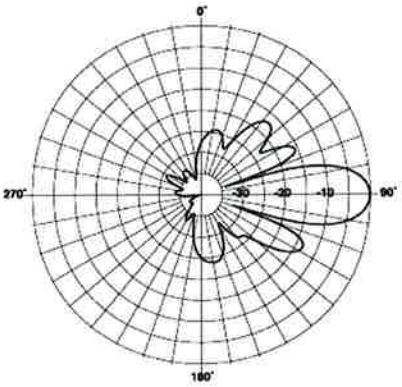
Frequency Range, MHz	806-894
Horizontal Beamwidth, deg	80
Vertical Beamwidth, deg	15
Electrical Downtilt, deg	0
Gain, dBi (dBd)	14.1 (12)
Front-To-Back Ratio, dB	45
Polarization	Vertical
VSWR	< 1.5:1
Impedance, Ohms	50
Maximum Power Input, W	500
Lightning Protection	Direct Ground
Connector Type	7-16 DIN Female

Mechanical Specifications

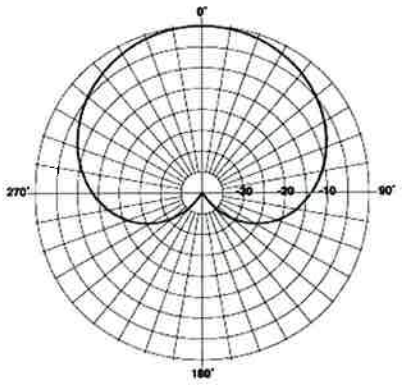
Dimensions - HxWxD, mm (in)	1219 x 152 x 203 (48 x 6 x 8)
Weight w/o Mtg Hardware, kg (lb)	2.8 (6.32)
Survival Wind Speed, km/h (mph)	200 (125)
Rated Wind Speed, km/h (mph)	200 (125)
Max Wind Loading Area, m² (ft²)	0.307 (3.3)
Maximum Thrust @ Rated Wind, N (lbf)	916 (206)
Wind Load - Side @ Rated Wind, N (lbf)	743 (167)
Radome Material	UV Stabilized High Impact ABS
Shipping Weight, kg (lb)	7.9 (17.5)
Packing Dimensions, HxWxD, mm (in)	1270 x 305 x 203 (50 x 12 x 8)

Ordering Information

Mounting Hardware	APM21-3



Vertical Pattern



Horizontal Pattern

ALCATEL-LUCENT B13 RRH4X30-4R

Alcatel-Lucent B13 Remote Radio Head 4x30-4R is the newest addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering.

Supporting 2Tx/4Tx MIMO and 4-way Rx diversity, Alcatel-Lucent B13 RRH4x30-4R allows operators to have a compact radio solution to deploy LTE in the 700U band (700 MHz, 3GPP band 13), providing them with the means to achieve high capacity, high quality and high coverage with minimum site requirements.

The Alcatel-Lucent B13 RRH4x30-4R product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x60 W or 4x30 W RF output power. It supports also 4-way Rx diversity and up to 10MHz instantaneous bandwidth.

The Alcatel-Lucent B13 RRH4x30-4R is a near zero-footprint solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

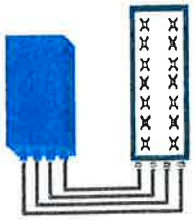
Its compactness and slim design makes the Alcatel-Lucent B13 RRH4x30-4R easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

FEATURES

- Supporting LTE in 700 MHz band (700U, 3GPP band 13)
- LTE 2Tx or 4Tx MIMO (SW switchable)
- Output power: Up to 2x60W or 4x30W
- 10MHz LTE carrier with 4Rx Diversity
- Convection-cooled (fan-less)
- Supports AISG 2.0 ALD devices (RET, TMA) through RS485 or RF ports

BENEFITS

- Compact to reduce additional footprint when adding LTE in 700U band
- MIMO scheme operation selection (2Tx or 4Tx) by software only
- Improves downlink spectral efficiency through MIMO4
- Increases LTE coverage thanks to 4Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options: Pole or Wall



4x30W with 4T4R
or
2x60W with 2T4R

Can be switched between modes via SW w/o site visit

Alcatel·Lucent

Features & performance	
Number of TX/RX paths	4 duplexed (either 4T4R or 2T4R by SW)
Frequency band	U700 (C) (3GPP bands 13): DL: 746 - 756 MHz / UL: 777 - 787 MHz
Instantaneous bandwidth - #carriers	10MHz – 1 LTE carrier (in 10MHz occupied bandwidth)
LTE carrier bandwidth	10 MHz
RF output power	2x60W or 4x30W (by SW)
Noise figure – RX Diversity scheme	2 dB typ. (<2.5 dB max) – 2 or 4 way Rx diversity
Sizes (HxWxD) in mm (in.) Volume in L Weight in kg (lb) (w/o mounting HW)	550 x 305 x 230 (21.6" x 12.0" x 9") (with solar shield) 38 (with solar shield) 26 (57.2) (with solar shield)
DC voltage range DC power consumption	-40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption 550W typical @100% RF load (in 2Tx or 4TX mode)
Environmental conditions Wind load (@150km/h or 93mph)	-40°C (-40°F) /+55°C (+131°F) IP65 Frontal:<200N / Lateral :<150N
Antenna ports	4 ports 7/16 DIN female (50 ohms) VSWR < 1.5
CPRI ports	2 CPRI ports (HW ready for Rate7, 9.8 Gbps) SFP single mode dual fiber
AISG interfaces	1 AISG2.0 output (RS485) Integrated Smart Bias Tees (x2)
Misc. Interfaces	4 external alarms (1 connector) – 4 RF Tx & 4 RF Rx monitor ports - 1 DC connector (2 pins)
Installation conditions	Pole and wall mounting
Regulatory compliance	3GPP 36.141 / 3GPP 36.113 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27

ALCATEL-LUCENT
WIRELESS PRODUCT DATASHEET
RRH2X60-1900A-4R FOR BAND 2/25 APPLICATIONS

The Alcatel-Lucent RRH2x60-1900A-4R is a high power, small form factor Remote Radio Head operating in the PCS 1900MHz frequency band for WCDMA and LTE technologies. It is designed with an eco-efficient approach, providing operators with the means to achieve high quality and high capacity coverage with minimum site requirements and efficient operation.

A distributed Node B expands the 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 a Node B to be installed separately, within the same site or several kilometers apart.

The Alcatel-Lucent RRH2x60-1900A-4R 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.

SUPERIOR RF PERFORMANCE

The Alcatel-Lucent RRH2x60-1900A-4R integrates all the latest technologies. This allows operators to offer best-in-class characteristics.

It delivers an outstanding 120 watts of total RF power thanks to its two transmit RF paths of 60 W each.

It is ideally suited to support multiple-input multiple-output (MIMO) 2x2 operation.

It includes four RF receivers to natively support 4-way uplink reception diversity. This improves the radio uplink coverage and this can be used to extend the cell radius commensurate with 2x2MIMO 2x60 W for the downlink.

The latest generation power amplifiers (PA) used in this product achieve high efficiency (>40%), resulting in improved power consumption figures.

OPTIMIZED TCO

The Alcatel-Lucent RRH2x60-1900A-4R is designed to make available all the benefits of a distributed Node B, with excellent RF characteristics, with low capital expenditures (CAPEX) and low operating expenditures (OPEX).

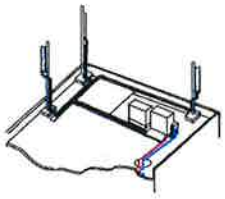
The Alcatel-Lucent RRH2x60-1900A-4R is a very cost-effective solution to deploy LTE MIMO.

EASY INSTALLATION

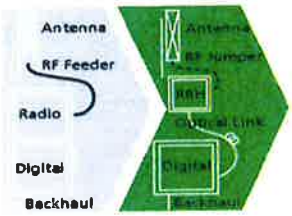
The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment. However, many of these sites can host an Alcatel-Lucent RRH2x60-1900A-4R installation, providing more flexible site selection and improved network quality along with greatly reduced installation time and costs.

The Alcatel-Lucent RRH2x60-1900A-4R is a zero-footprint solution and is convection cooled without fans for silent operation, simplifying negotiations with site property owners and minimizing environmental impacts.

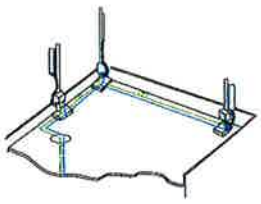
Installation can easily be done by a single person as the Alcatel–Lucent RRH2x60-190A-4R is compact and weighs about 21 kg, eliminating the need for a crane to hoist the BTS cabinet to the rooftop. A site can be in operation in less than one day.



Macro



RRH for space-constrained cell sites



Distributed

FEATURES

- RRH2x60-1900A-4R integrates two power amplifiers of 60W rating (at each antenna connector)
- RRH2x60-1900A-4R can operate WCDMA only, LTE only or a mix of WCDMA and LTE
- RRH2x60-1900A-4R offers the possibility for WCDMA (non MIMO) to operate the two radio chains independently (2 blocks of 20 MHz anywhere in the band)
- RRH2x60-1900A-4R is a very compact and lightweight product
- Advanced power management techniques are embedded to provide power savings, such as PA bias control

BENEFITS

- MIMO deployment and/or WCDMA and LTE simultaneous operation with only one single unit per sector
- Improved uplink coverage with built-in 4-way receive diversity capability
- RRH can be mounted close to the antenna, eliminating nearly all losses in RF cables and thus reducing power consumption by 50% compared to conventional solutions
- Distributed configurations provide easily deployable and cost-effective solutions, near zero footprint and silent solutions, with minimum impact on the neighborhood, which ease the deployment
- RETA and TMA support without additional hardware thanks to the AISG v2.0 port and the integrated Bias-Tees. Bias-Tees support AISG DC supply and signaling.

TECHNICAL SPECIFICATIONS

Specifications listed are hardware capabilities. Some capabilities depend on support in a specific software release or future release.

Dimensions and weights

- HxWxD : 500x285x208 mm (30l with solar shield)
- Weight : 21 kg (46 lbs) (with solar shield)

Electrical Data

- Power Supply : -48V DC (-40.5 to -57V)
- Power Consumption: 460W typ. @2x60W (100%RF)

RF Characteristics

- Supported spectrum: DL 1930-1990 / UL 1850-1910
- Frequency band: 3GPP band 2/25
- Output power: 2x60W at antenna connectors
- Technology supported: W-CDMA and LTE
- Instantaneous bandwidth: 20 MHz (MIMO) or 2x20 MHz (non MIMO)
- Rx diversity: 2-way and 4-way uplink reception
- Typical sensitivity without Rx diversity: -124.8dBm for WCDMA and -105 dBm for LTE

Connectivity

- Two CPRI optical ports for daisychaining and up to six RRHs per fiber
- Type of optical fiber: Single-Mode (SM) and Multi-Mode (MM) SFPs
- Optical fiber length: up to 500m using MM fiber, up to 15km using SM fiber
- TMA/RETA: AISG 2.0 (RS485 connector and internal Bias-Tee)
- Six external alarms
- Surge protection for all external ports (DC and RF)

Environmental specifications

- Operating temperature: -40°C to 55°C including solar load
- Operating relative humidity: 8% to 100%
- Environmental Conditions: ETS300-019-1-4 class4.1E
- Ingress Protection: IEC 60529 IP65
- Acoustic Noise : Noiseless (natural convection cooling)

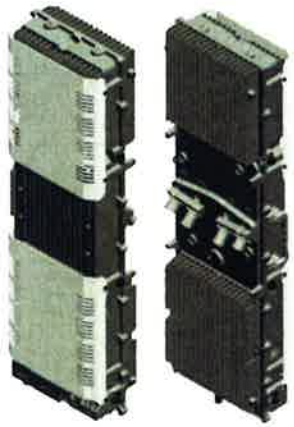
Safety and Regulatory Data

- EMC : 3GPP 25113, EN 301 489-1, EN 301 489-23, GR 1089
- Safety : IEC60950-1, EN 60825-1
- Regulatory: CE Mark-European Directive 2002/95/EC (RoHS), 2002/96/EC (WEEE), 1999/5/EC (R&TTE)
- Health : EN 50385

Alcatel·Lucent

ALCATEL-LUCENT
WIRELESS PRODUCT DATASHEET
B4 RRH2X60-4R FOR AWS BAND APPLICATIONS

The Alcatel-Lucent B4 RRH2x60-4R is a high power, small form factor Remote Radio Head operating in the AWS frequency band (3GPP Band 4) for LTE technology. It is designed with an eco-efficient approach, providing operators with the means to achieve high quality and high capacity coverage with minimum site requirements and efficient operation.



A distributed Node B expands the 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 a Node B to be installed separately, within the same site or several kilometers apart.

The Alcatel-Lucent B4 RRH2x60-4R 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.

SUPERIOR RF PERFORMANCE

The Alcatel-Lucent B4 RRH2x60-4R integrates all the latest technologies. This allows operators to offer best-in-class characteristics.

It delivers an outstanding 120 watts of total RF power thanks to its two transmit RF paths of 60 W each.

It is ideally suited to support multiple-input multiple-output (MIMO) 2x2 operation.

It includes four RF receivers to natively support 4-way uplink reception diversity. This improves the radio uplink coverage and this can be used to extend the cell radius commensurate with 2x2MIMO 2x60 W for the downlink.

It supports multiple discontinuous LTE carriers within an instantaneous bandwidth of 45 MHz corresponding to the entire AWS B4 spectrum.

The latest generation power amplifiers (PA) used in this product achieve high efficiency (>40%), resulting in improved power consumption figures.

OPTIMIZED TCO

The Alcatel-Lucent B4 RRH2x60-4R is designed to make available all the benefits of a distributed Node B, with excellent RF characteristics, with low capital expenditures (CAPEX) and low operating expenditures (OPEX).

The Alcatel-Lucent B4 RRH2x60-4R is a very cost-effective solution to deploy LTE MIMO.

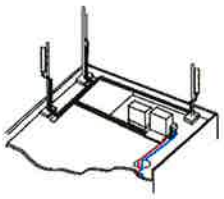
EASY INSTALLATION

The B4 RRH2x60-4R includes a reversible mounting bracket which allows for ease of installation behind an antenna, or on a rooftop knee wall while providing easy access to the mid body RF connectors.

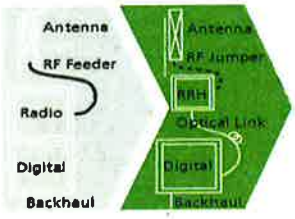
The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment. However, many of these sites can host an Alcatel-Lucent B4 RRH2x60-4R installation, providing more flexible site selection and improved network quality along with greatly reduced installation time and costs.

The Alcatel-Lucent B4 RRH2x60-4R is a zero-footprint solution and is convection cooled without fans for silent operation, simplifying negotiations with site property owners and minimizing environmental impacts.

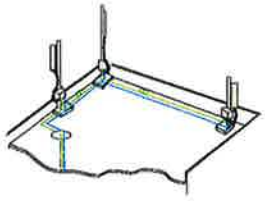
Installation can easily be done by a single person as the Alcatel–Lucent B4 RRH2x60-4R is compact and weighs about 25 kg, eliminating the need for a crane to hoist the BTS cabinet to the rooftop. A site can be in operation in less than one day.



Macro



RRH for space-constrained cell sites



Distributed

FEATURES

- B4 RRH2x60-4R integrates two power amplifiers of 60W rating (at each antenna connector)
- Support multiple carriers over the entire 3GPP band 4
- B4 RRH2x60-4R is optimized for LTE operation
- B4 RRH2x60-4R is a very compact and lightweight product
- Advanced power management techniques are embedded to provide power savings, such as PA bias control

BENEFITS

- MIMO LTE operation with only one single unit per sector
- Improved uplink coverage with built-in 4-way receive diversity capability
- RRH can be mounted close to the antenna, eliminating nearly all losses in RF cables and thus reducing power consumption by 50% compared to conventional solutions
- Distributed configurations provide easily deployable and cost-effective solutions, near zero footprint and silent solutions, with minimum impact on the neighborhood, which ease the deployment
- RETA and TMA support without additional hardware thanks to the AISG v2.0 port and the integrated Bias-Tees. Bias-Tees support AISG DC supply and signaling.

TECHNICAL SPECIFICATIONS

Specifications listed are hardware capabilities. Some capabilities depend on support in a specific software release or future release.

Dimensions and weights

- HxWxD : 930x270x146 mm (with solar shield)
- Weight : 25 kg (55 lbs) (with solar shield)

Electrical Data

- Power Supply : -48V DC (-38 to -57V)
- Power Consumption: 346W typ. @2x30W (100%RF), 560W typ. @2x60W (100%RF)

RF Characteristics

- Frequency band: 1710-1755, UL / 2110-2155 MHz, DL (3GPP band 4)
- Output power: 2x60W at antenna connectors
- Technology supported: LTE
- Instantaneous bandwidth: 45 MHz
- Rx diversity: 2-way and 4-way uplink reception
- Typical sensitivity without Rx diversity: -105 dBm for LTE

Connectivity

- Two CPRI (3-6) optical ports for daisychaining and up to six RRHs per fiber
- Type of optical fiber: Single-Mode (SM) and Multi-Mode (MM) SFPs
- Optical fiber length: up to 300m using MM fiber, up to 15km using SM fiber
- TMA/RETA : AISG 2.0 (RS485 connector and internal Bias-Tee)
- Four external alarms
- Surge protection for all external ports (DC and RF)

Environmental specifications

- Operating temperature: -40°C to 55°C including solar load
- Operating relative humidity: 8% to 100%
- Environmental Conditions : ETS 300 019-1-4 class 4.1E
- Ingress Protection : IEC 60529 IP65
- Acoustic Noise : Noiseless (natural convection cooling)

Safety and Regulatory Data

- EMC : 3GPP 25113, EN 301 489-1, EN 301 489-23, GR 1089, GR 3108, OET-65
- Safety : IEC60950-1, EN 60825-1, UL, ANSI/NFPA 70, CAN/CSA-C22.2
- Regulatory : FCC Part 15 Class B
- Health : EN 50385

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)

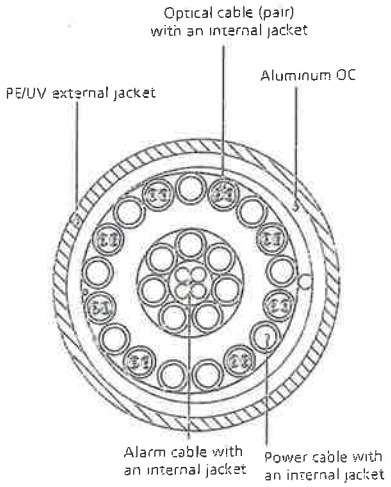


Figure 2: Construction Detail

* This data is provisional and subject to change

ATTACHMENT 2

	General	Power	Density					
Site Name: Topstone (Redding)								
Tower Height: 180ft								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*AT&T	1	500	180	880	0.0059	0.5867	0.10%	
*AT&T	1	500	180	1900	0.0059	1.0000	0.06%	
*AT&T	1	500	180	734	0.0059	0.4893	0.12%	
*AT&T	2	296	180	880	0.0070	0.5867	0.12%	
*T-Mobile	2	2334	140	2100	0.0935	1.0000	0.94%	
*T-Mobile	1	865	140	700	0.0173	0.4667	0.37%	
*T-Mobile	2	1167	140	1900	0.0468	1.0000	0.47%	
*T-Mobile	2	1167	140	2100	0.0468	1.0000	0.47%	
*Sprint	2	693	157	1900	0.0219	1.0000	0.22%	
*Sprint	1	390	157	850	0.0062	0.5667	0.11%	
*Sprint	2	693	157	1900	0.0219	1.0000	0.22%	
*Nextel			164	851	0.0131	0.5673	0.23%	
*State Police			127	866.0125	0.0000	0.5773	0.00%	
*State Police			127	823.2	0.0000	0.5488	0.00%	
*State Police			127	866.275	0.0000	0.5775	0.00%	
*DMV			100		0.0000	1.0000	0.00%	
*CMED			100		0.0000	0.3084	0.00%	
*FBI			65		0.0105	1.0000	0.11%	
Verizon	**1**	**1854**	**172**	**0.0225**	**1970**	**1.0000**	**2.25%**	
Verizon	**9**	**295**	**172**	**0.0323**	**869**	**0.5793**	**5.57%**	
Verizon	**1**	**1942**	**172**	**0.0236**	**2145**	**1.0000**	**2.36%**	
Verizon	**1**	**758**	**172**	**0.0092**	**746**	**0.4973**	**1.85%**	
								15.56%
* Source: Siting Council								

ATTACHMENT 3

AMERICAN TOWER®
CORPORATION

This report was prepared for American Tower Corporation by

CLSGroup

Structural Analysis Report

Structure	:	**180 ft Self Supported Tower**
ATC Site Name	:	**Redding, CT**
ATC Site Number	:	**302522**
Engineering Number	:	**64913521**
Proposed Carrier	:	**Verizon**
Carrier Site Name	:	**Topstone**
Carrier Site Number	:	**N/A**
Site Location	:	**Old Redding Road** **Redding, CT 06896-2721** **41.287083,-73.438200**
County	:	**Fairfield**
Date	:	**January 19, 2016**
Max Usage	:	**89%**
Result	:	**Pass**

Reviewed by:
William Garrett, PE
Chief Engineer

Jan 25 2016 2:47 PM

COA: PEC.0001553

Prepared By:
Zachary A. Medoff

Zachary Medoff

AMERICAN TOWER®
CORPORATION

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Calculations ..... Attached

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Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 180 ft self supported tower to reflect the change in loading by Verizon.

Supporting Documents

Tower Drawings	Rohn Drawing #C951762, dated December 26, 1995
Foundation Drawing	Rohn Drawing #A953313-1, dated January 12, 1996
Geotechnical Report	SoilTesting Job #591, dated December 26, 1995

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:	100 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
Spectral Response:	Ss = 0.22, S_1 = 0.07
Site Class:	D - Stiff Soil

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 American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Existing and Reserved Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
180.0	180.0	6	Ericsson RRUS 11 (Band 12)	Sector Frames	(12) 1 1/4" Coax (2) 0.74" 8 AWG 7 (1) 0.28" RG-6	AT&T Mobility
		1	Raycap DC6-48-60-18-8F			
	179.0	3	Powerwave P65-16-XLH-RR			
		3	Powerwave TT19-08BP111-001			
		6	Powerwave LGP21401			
		6	Powerwave 7770.00			
172.0	172.0	1	RFS DB-T1-6Z-8AB-0Z	Sector Frames	(12) 1 5/8" Coax (1) 1 5/8" Hybriflex	Verizon
		6	RFS FD9R6004/1C-3L			
164.0	164.0	12	Decibel DB844H90E-XY	Sector Frames	(12) 1 5/8" Coax	Sprint Nextel
154.0	157.0	3	Alcatel-Lucent TD-RRH8x20-25 w/ S.S.	Sector Frames	(4) 1 1/4" Hybriflex	
		3	RFS APXV9TM14-ALU-I20			
		3	Alcatel-Lucent 800MHz RRH			
		3	Alcatel-Lucent 1900MHz 4x45 RRH			
		3	RFS APXVSPP18-C-A20			
142.0	148.0	4	Scala OGT9-840	Side Arms	(4) 1 5/8" Coax (2) 3/8" Coax	CT State Police
	142.0	2	TX RX 422-86A-99575-18R1			
141.0	142.0	1	Morad VHF 156-Deluxe	Stand-Off	(1) 1/2" Coax	
140.0	140.0	3	Andrew LNX-6515DS-VTM	Sector Frames	(12) 1 5/8" Coax (1) 1 5/8" Hybriflex	Metro PCS
		3	Kathrein Smart Bias Tee			
		3	Ericsson AIR 21, 1.3M, B2A B4P			
		3	Ericsson AIR 21, 1.3M, B4A B2P			
136.0	136.0	-	-	Empty Side Arm	-	--
135.0	135.0	1	24" x 24" Ice Shield	Leg	-	CT State Police
134.0	134.0	1	24" x 24" Ice Shield	Leg	-	
131.0	137.0	2	Andrew DB810K-XT	Side Arms	(2) 1 5/8" Coax	
129.0	129.0	1	RFS PA6-65AC w/ Radome	Leg	(1) EW63	
128.0	127.0	1	RFS PA6-65AC w/ Radome	Leg	(1) EW63	
127.0	133.0	3	Sinclair SE419-SF3P4LDF	Side Arms	(2) 1 5/8" Coax (1) 3/8" Coax (1) WE65	
	127.0	1	Bird 432-83H-01-T			
126.0	-	-	-	Empty Side Arm	(1) EW52	CT State Police
119.5	119.5	-	-	Empty Side Arm	-	--
118.0	120.5	2	Decibel DB586	Side Arms	(2) 7/8" Coax	CT Light & Power
115.5	115.5	-	-	Empty Side Arm	-	--
107.0	115.0	1	Sinclair SD210D	Side Arms	(2) 7/8" Coax	CT Light & Power
90.0	90.0	1	PCTEL GPS-TMG-HR-26N	Stand-Off	(1) 1/2" Coax	Sprint Nextel
83.0	93.8	1	Andrew DB264-A	Stand-Off	(1) 7/8" Coax	CT State Police
82.0	90.0	1	12' Omni	Stand-Off	(1) 7/8" Coax	CT DMV
30.0	30.0	1	2" x 4" GPS	Leg	(1) 1/2" Coax	Verizon

Equipment to be Removed

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
172.0	172.0	3	Andrew HBX-6517DS-VTM	-	-	Verizon
		3	Andrew LNX-6514DS-VTM			
		1	Antel BXA-70063/6CF_			
		1	Swedcom SWCP 2x7014			
		3	Rymsa MGD3-800T0			
		1	RFS APX75-866512-CT2			
		3	Alcatel-Lucent RRH2x40-AWS			

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
172.0	172.0	6	Commscope SBNHH-1D65B	Sector Frames	(1) 1 5/8" Fiber	Verizon
		4	Andrew DB844G65ZAXY			
		2	RFS APL868013-42T0			
		3	Alcatel-Lucent RRH2x60 700			
		3	Alcatel-Lucent B25 RRH4x30			
		3	Alcatel-Lucent RRH2X60-1900			
		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 alongside existing Verizon coax.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Legs	89%	Pass
Diagonals	85%	Pass
Horizontals	29%	Pass
Anchor Bolts	52%	Pass
Leg Bolts	65%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Design
Moment (Ft-Kips)	6,766.7	65%
Total Axial (Kips)	58.0	18%
Total Shear (Kips)	65.0	33%

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

Deflection, Twist and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Twist (°)	Sway (Rotation) (°)
172.0	Commscope SBNHH-1D65B	Verizon	0.338	0.062	0.221
129.0	RFS PA6-65AC w/ Radome	CT State Police	0.183	0.023	0.160
128.0	RFS PA6-65AC w/ Radome				

***Deflection, Twist 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:

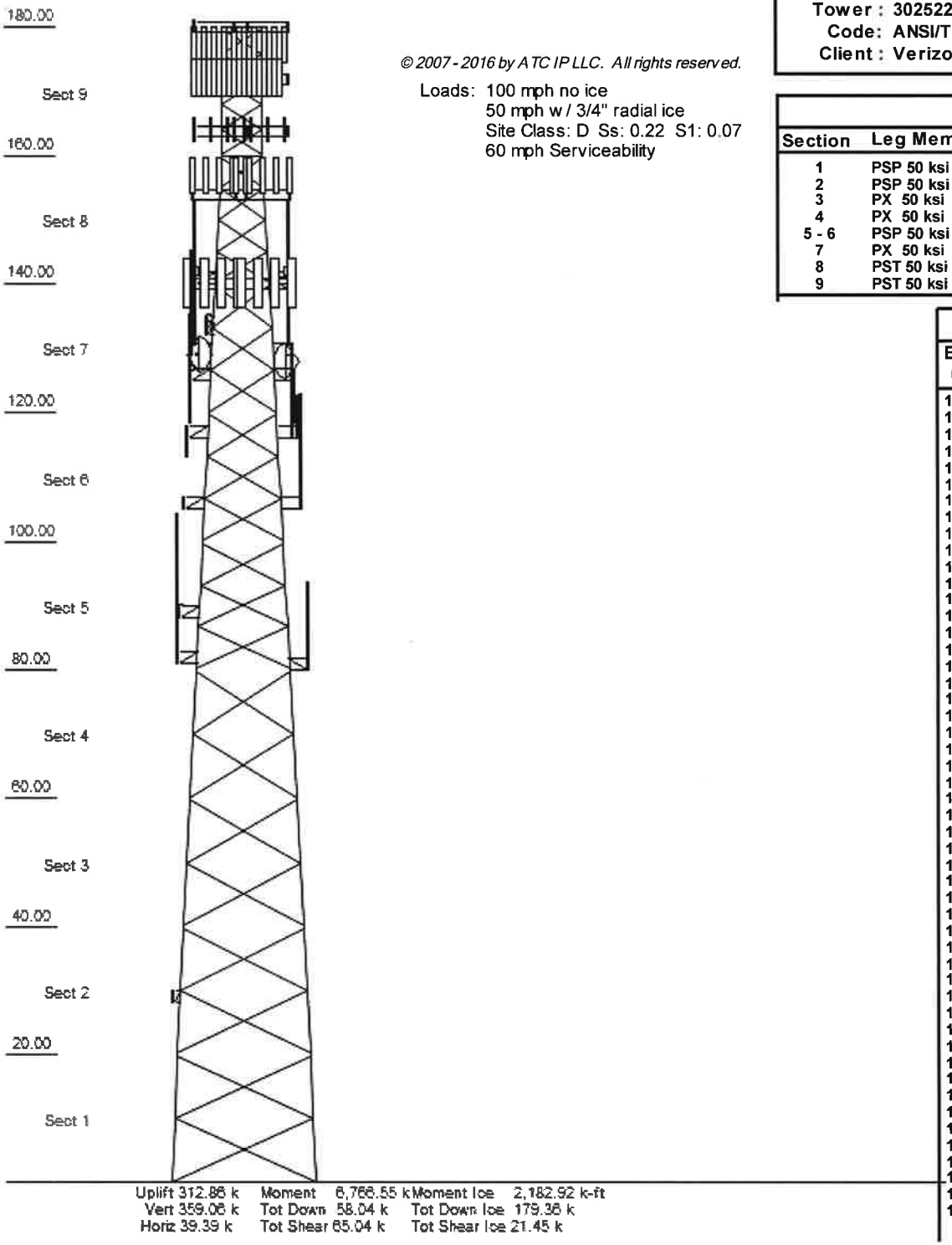
-- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.

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

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

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



Loads: 100 mph no ice
50 mph w / 3/4" radial ice
Site Class: D Ss: 0.22 S1: 0.07
60 mph Serviceability

Uplift 312.88 k	Moment 6,766.55 k	Moment Ice 2,182.92 k-ft	
Vert 359.06 k	Tot Down 58.04 k	Tot Down Ice 179.36 k	
Horiz 39.39 k	Tot Shear 65.04 k	Tot Shear Ice 21.45 k	

Job Information

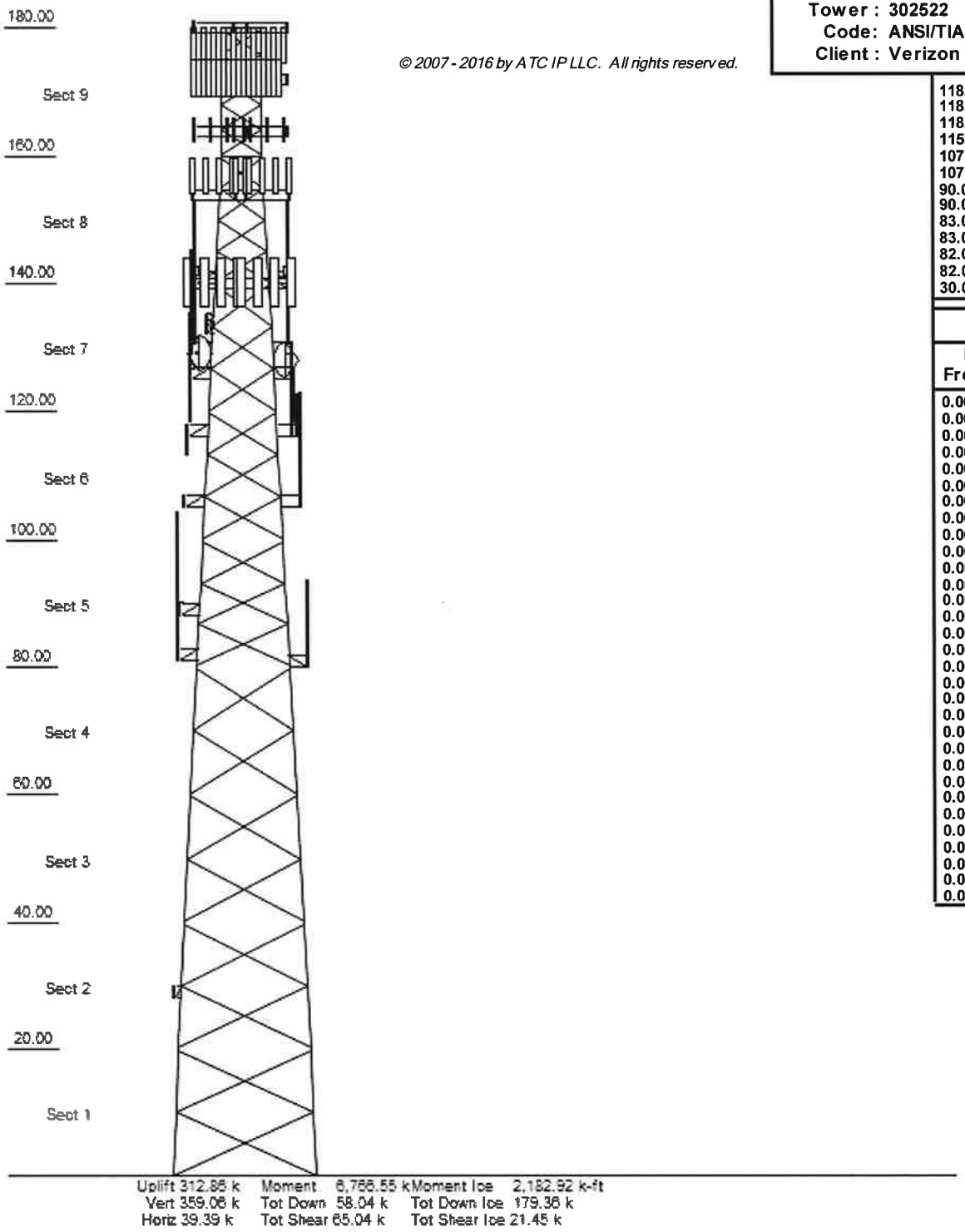
Tower : 302522	Location : Redding, CT	
Code: ANSI/TIA-222-G	Shape : Triangle	Base Width : 23.00 ft
Client : Verizon Wireless		Top Width : 6.65 ft

Sections Properties

Section	Leg Members		Diagonal Members	Horizontal Members
1	PSP 50 ksi	ROHN 8 EHS	SAE 50 ksi 4X4X0.3125	
2	PSP 50 ksi	ROHN 8 EHS	SAE 50 ksi 4X4X0.25	
3	PX 50 ksi	6" DIA PIPE	SAE 50 ksi 4X4X0.25	
4	PX 50 ksi	6" DIA PIPE	SAE 50 ksi 3.5X3.5X0.25	
5 - 6	PSP 50 ksi	ROHN 5 EH	SAE 50 ksi 3X3X0.25	
7	PX 50 ksi	4" DIA PIPE	SAE 50 ksi 2.5X2.5X0.25	
8	PST 50 ksi	3" DIA PIPE	SAE 50 ksi 2X2X0.25	SAE 36 ksi 1.75X1.75X0.1875
9	PST 50 ksi	2-1/2" DIA PIPE	SAE 50 ksi 1.75X1.75X0.1875	SAE 36 ksi 1.75X1.75X0.1875

Discrete Appurtenance

Elev (ft)	Type	Qty	Description
180.00	Panel	3	Powerwave P65-16-XLH-RR
180.00	Panel	6	Ericsson RRUS 11 (Band 12)
180.00	Whip	1	Raycap DC6-48-60-18-8F
180.00	Panel	3	Powerwave TT19-08BP111-001
180.00	Panel	6	Powerwave LGP21401
180.00	Panel	6	Powerwave 7770.00
180.00	Mounting Frame	3	Round Sector Frames
172.00	Panel	6	Commscope SBNHH-1D65B
172.00	Panel	4	Andrew DB844G65ZAXY
172.00	Panel	2	RFS APL868013-42T0
172.00	Panel	3	Alcatel-Lucent RRH2x60 700
172.00	Panel	3	Alcatel-Lucent B25 RRH4x30
172.00	Panel	3	Alcatel-Lucent RRH2X60-1900
172.00	Panel	1	RFS DB-T1-6Z-8AB-0Z
172.00	Panel	1	RFS DB-T1-6Z-8AB-0Z
172.00	Mounting Frame	3	Round Sector Frames
172.00	Panel	6	RFS FD9R6004/1C-3L
164.00	Panel	12	Decibel DB844H90E-XY
164.00	Mounting Frame	3	Round Sector Frame
154.00	Panel	3	Alcatel-Lucent TD-RRH8x20-25 w
154.00	Panel	3	RFS APXV9TM14-ALU-I20
154.00	Panel	3	Alcatel-Lucent 800 MHz RRH
154.00	Panel	3	Alcatel-Lucent 1900 MHz 4x45 R
154.00	Panel	3	RFS APXVSPP18-C-A20
154.00	Mounting Frame	3	Round Sector Frames
142.00	Whip	2	Scala OGT9-840
142.00	Straight Arm	2	Side Arms
142.00	Panel	2	TX RX 422-86A-99575-18R1
142.00	Whip	2	Scala OGT9-840
141.00	Straight Arm	1	Stand-Off
141.00	Whip	1	Morad VHF 156-Deluxe
140.00	Panel	3	Andrew LNX-6515DS-VTM
140.00	Panel	3	Kathrein Scala Smart Bias Tee
140.00	Panel	3	Ericsson AIR 21, 1.3M, B2A B4P
140.00	Panel	3	Ericsson AIR 21, 1.3M, B4A B2P
140.00	Mounting Frame	3	Round Sector Frames
136.00	Straight Arm	1	Empty Side Arm
135.00	Panel	1	24" x 24" Ice Shield
134.00	Panel	1	24" x 24" Ice Shield
131.00	Whip	1	Andrew DB810K-XT
131.00	Straight Arm	2	Round Side Arms
131.00	Whip	1	Andrew DB810K-XT
129.00	Dish	1	RFS PA6-65AC w/ Radome
128.00	Dish	1	RFS PA6-65AC w/ Radome
127.00	Whip	2	Sinclair SE419-SF3P4LDF
127.00	Panel	1	Bird 432-83H-01-T
127.00	Whip	1	Sinclair SE419-SF3P4LDF
127.00	Straight Arm	3	Round Side Arms
126.00	Straight Arm	1	Empty Side Arm
119.50	Straight Arm	1	Empty Side Arm



Job Information

Tower : 302522 Location : Redding, CT
Code: ANSI/TIA-222-G Shape : Triangle Base Width : 23.00 ft
Client : Verizon Wireless Top Width : 6.65 ft

118.00	Whip	1	Decibel DB586
118.00	Straight Arm	2	Round Side Arms
118.00	Whip	1	Decibel DB586
115.50	Straight Arm	1	Empty Side Arm
107.00	Whip	1	Sinclair SD210D
107.00	Straight Arm	2	Side Arms
90.00	Straight Arm	1	Stand-Off
90.00	Panel	1	PCTEL GPS-TMG-HR-26N
83.00	Whip	1	Andrew DB264-A
83.00	Straight Arm	1	Stand-Off
82.00	Whip	1	12' Omni
82.00	Straight Arm	1	Stand-Off
30.00	Whip	1	2" x 4" GPS

Linear Appurtenance

Elev (ft) From	To	Qty	Description
0.000	180.00	1	Wave Guide
0.000	180.00	12	1 1/4" Coax
0.000	180.00	2	0.74" 8 AWG 7
0.000	180.00	1	0.28" RG-6
0.000	172.00	1	Wave Guide
0.000	172.00	1	1 5/8" Hybriflex
0.000	172.00	1	1 5/8" Fiber
0.000	172.00	12	1 5/8" Coax
0.000	164.00	1	Wave Guide
0.000	164.00	12	1 5/8" Coax
0.000	154.00	4	1 1/4" Hybriflex
0.000	142.00	1	Wave Guide
0.000	142.00	2	3/8" Coax
0.000	142.00	4	1 5/8" Coax
0.000	141.00	1	1/2" Coax
0.000	140.00	1	Wave Guide
0.000	140.00	1	1 5/8" Hybriflex
0.000	140.00	12	1 5/8" Coax
0.000	131.00	2	1 5/8" Coax
0.000	129.00	1	EW63
0.000	128.00	1	EW63
0.000	127.00	1	WE65
0.000	127.00	1	3/8" Coax
0.000	127.00	2	1 5/8" Coax
0.000	126.00	1	EW52
0.000	118.00	2	7/8" Coax
0.000	107.00	2	7/8" Coax
0.000	90.000	1	1/2" Coax
0.000	83.000	1	7/8" Coax
0.000	82.000	1	7/8" Coax
0.000	30.000	1	1/2" Coax

Site Number:	302522	Code:	ANSI/TIA-222-G	
Site Name:	Redding, CT	Engineering Number:	64913521	1/21/2016 11:51:16 AM
Customer:	Verizon Wireless			

Analysis Parameters

Location:	Fairfield County, CT		
Code:	ANSI/TIA-222-G	Height (ft):	180
Shape:	Triangle	Base Elevation (ft):	0.00
Tower Manufacturer:	Rohn	Bottom Face Width (ft):	23.00
Tower Type:	Self Support	Top Face Width (ft):	6.65

Ice & Wind Parameters

Structure Class:	II	Design Windspeed Without Ice:	100 mph
Exposure Category:	B	Design Windspeed With Ice:	50 mph
Topographic Category:	1	Operational Windspeed:	60 mph
Crest Height:	0.0 ft	Design Ice Thickness:	0.75 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods				
Site Class:	D - Stiff Soil				
Period Based on Rayleigh Method (sec):	0.89				
T_L(sec):	16	p:	1.3	C_S:	0.040
S_S:	0.225	S_1:	0.067	C_S, Max:	0.040
F_a:	1.600	F_V:	2.400	C_S, Min:	0.030
S_{ds}:	0.240	S_{d1}:	0.107		

Load Cases

1.2D + 1.6W Normal	100 mph Normal to Face with No Ice
1.2D + 1.6W 60 deg	100 mph 60 degree with No Ice
1.2D + 1.6W 90 deg	100 mph 90 degree with No Ice
0.9D + 1.6W Normal	100 mph Normal to Face with No Ice (Reduced DL)
0.9D + 1.6W 60 deg	100 mph 60 deg with No Ice (Reduced DL)
0.9D + 1.6W 90 deg	100 mph 90 deg with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi Normal	50 mph Normal with 0.75 in Radial Ice
1.2D + 1.0Di + 1.0Wi 60 deg	50 mph 60 degree with 0.75 in Radial Ice
1.2D + 1.0Di + 1.0Wi 90 deg	50 mph 90 degree with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E Normal	Seismic Normal
(1.2 + 0.2Sds) * DL + E 60 deg	Seismic 60 degree
(1.2 + 0.2Sds) * DL + E 90 deg	Seismic 90 degree
(0.9 - 0.2Sds) * DL + E Normal	Seismic (Reduced DL) Normal
(0.9 - 0.2Sds) * DL + E 60 deg	Seismic (Reduced DL) 60 degree
(0.9 - 0.2Sds) * DL + E 90 deg	Seismic (Reduced DL) 90 degree
1.0D + 1.0W Service Normal	Serviceability - 60 mph Wind Normal
1.0D + 1.0W Service 60 deg	Serviceability - 60 mph Wind 60 degree
1.0D + 1.0W Service 90 deg	Serviceability - 60 mph Wind 90 degree

Site Number: 302522 Code: ANSI/TIA-222-G

Site Name: Redding, CT Engineering Number: 64913521 1/21/2016 11:51:16 AM

Customer: Verizon Wireless

Tower Loading

Discrete Appurtenance Properties 1.2D + 1.6W

Elevation (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K_a	Orient. Factor	Vert. Ecc.(ft)	M_u (lb-ft)	Q_z (psf)	F_a (WL) (lb)	P_a (DL) (lb)
180.0	Ericsson RRUS 11	6	55	2.5	1.5	17.0	7.2	0.80	0.50	0.0	0.0	25.44	209	475
180.0	Powerwave 7770.00	6	35	5.5	4.6	11.0	5.0	0.80	0.77	-1.0	703.4	25.40	703	302
180.0	Powerwave	6	14	1.1	1.2	9.2	2.6	0.80	0.50	-1.0	91.2	25.40	91	122
180.0	Powerwave P65-16-	3	53	8.1	6.0	12.0	6.0	0.80	0.79	-1.0	532.4	25.40	532	229
180.0	Powerwave TT19-	3	16	0.6	0.8	6.7	5.4	0.80	0.50	-1.0	26.5	25.40	27	69
180.0	Raycap DC6-48-60-	1	32	1.3	2.0	11.0	11.0	0.80	1.00	0.0	0.0	25.44	35	46
180.0	Round Sector	3	300	14.4	0.0	0.0	0.0	0.75	0.75	0.0	0.0	25.44	841	1296
172.0	Alcatel-Lucent B25	3	53	2.1	1.8	12.0	7.2	0.80	0.67	0.0	0.0	25.11	116	229
172.0	Alcatel-Lucent	3	57	2.2	1.8	12.0	9.0	0.80	0.67	0.0	0.0	25.11	118	245
172.0	Alcatel-Lucent	3	43	1.9	1.7	11.2	7.2	0.80	0.67	0.0	0.0	25.11	103	186
172.0	Andrew	4	12	4.3	4.0	10.0	8.5	0.80	0.94	0.0	0.0	25.11	446	69
172.0	Commscope SBNHH-	6	51	8.2	6.1	11.9	7.1	0.80	0.83	0.0	0.0	25.11	1111	438
172.0	RFS APL868013-	2	6	3.6	4.0	8.0	6.0	0.80	0.90	0.0	0.0	25.11	178	18
172.0	RFS DB-T1-6Z-8AB-	1	44	4.8	2.0	24.0	24.0	0.80	1.00	0.0	0.0	25.11	131	63
172.0	RFS DB-T1-6Z-8AB-	1	44	4.8	2.0	24.0	24.0	0.80	1.00	0.0	0.0	25.11	131	63
172.0	RFS FD9R6004/1C-3L	6	3	0.4	0.5	6.5	1.5	0.80	0.50	0.0	0.0	25.11	30	27
172.0	Round Sector	3	300	14.4	0.0	0.0	0.0	0.75	0.75	0.0	0.0	25.11	830	1296
164.0	Decibel DB844H90E-	12	14	3.6	4.0	6.5	8.0	0.80	0.92	0.0	0.0	24.77	1074	242
164.0	Round Sector Frame	3	300	14.4	0.0	0.0	0.0	0.75	0.75	0.0	0.0	24.77	819	1296
154.0	Alcatel-Lucent 1900	3	60	2.3	2.1	11.1	10.7	0.80	0.67	3.0	372.3	24.46	124	259
154.0	Alcatel-Lucent 800	3	53	2.1	1.6	13.0	10.8	0.80	0.67	3.0	341.8	24.46	114	229
154.0	Alcatel-Lucent TD-	3	70	4.1	2.2	18.6	6.7	0.80	0.67	3.0	650.0	24.46	217	302
154.0	RFS APXV9TM14-	3	55	6.3	4.7	12.6	6.3	0.80	0.78	3.0	1184.5	24.46	395	238
154.0	RFS APXVSPP18-C-	3	57	8.0	6.0	11.8	7.0	0.80	0.83	3.0	1594.5	24.46	531	246
154.0	Round Sector	3	300	14.4	0.0	0.0	0.0	0.75	0.75	0.0	0.0	24.33	804	1296
142.0	Scala OGT9-840	2	19	2.3	11.4	2.0	2.0	0.90	1.00	-6.0	782.8	23.48	130	53
142.0	Scala OGT9-840	2	19	2.3	11.4	2.0	2.0	0.90	1.00	6.0	802.0	24.05	134	53
142.0	Side Arms	2	150	6.3	0.0	0.0	0.0	1.00	0.90	0.0	0.0	23.77	367	432
142.0	TX RX 422-86A-	2	40	2.7	1.7	16.0	6.0	0.90	0.67	0.0	0.0	23.77	104	115
141.0	Morad VHF 156-	1	1	0.3	3.3	0.8	0.8	0.90	1.00	1.0	7.6	23.77	8	1
141.0	Stand-Off	1	50	3.0	0.0	0.0	0.0	1.00	1.00	0.0	0.0	23.72	97	72
140.0	Andrew LNX-	3	51	11.4	8.0	11.9	7.1	0.80	0.84	0.0	0.0	23.67	742	222
140.0	Ericsson AIR 21,	3	92	6.0	4.7	12.0	8.0	0.80	0.85	0.0	0.0	23.67	397	395
140.0	Ericsson AIR 21,	3	90	6.1	4.7	12.1	7.9	0.80	0.85	0.0	0.0	23.67	399	391
140.0	Kathrein Scala	3	3	0.1	0.3	3.1	1.7	0.80	0.50	0.0	0.0	23.67	3	14
140.0	Round Sector	3	300	14.4	0.0	0.0	0.0	0.75	0.75	0.0	0.0	23.67	782	1296
136.0	Empty Side Arm	1	150	6.3	0.0	0.0	0.0	1.00	1.00	0.0	0.0	23.48	201	216
135.0	24" x 24" Ice Shield	1	50	0.9	0.3	24.0	24.0	1.00	1.00	0.0	0.0	23.43	30	72
134.0	24" x 24" Ice Shield	1	50	0.9	0.3	24.0	24.0	1.00	1.00	0.0	0.0	23.38	30	72
131.0	Andrew DB810K-XT	1	35	4.3	14.5	3.0	3.0	0.90	1.00	6.0	751.6	23.53	125	50
131.0	Andrew DB810K-XT	1	35	4.3	14.5	3.0	3.0	0.90	1.00	-6.0	732.2	22.92	122	50
131.0	Round Side Arms	2	100	5.0	0.0	0.0	0.0	1.00	0.90	0.0	0.0	23.23	284	288
129.0	RFS PA6-65AC w/	1	278	24.4	6.0	0.0	0.0	1.00	1.00	0.0	0.0	23.13	768	400
128.0	RFS PA6-65AC w/	1	278	24.4	6.0	0.0	0.0	1.00	0.80	-1.0	611.5	23.02	611	400
127.0	Bird 432-83H-01-T	1	25	1.4	1.2	12.0	7.0	0.80	1.00	0.0	0.0	23.02	35	36
127.0	Round Side Arms	3	100	5.0	0.0	0.0	0.0	1.00	0.67	0.0	0.0	23.02	315	432
127.0	Sinclair SE419-	1	24	9.6	8.6	2.9	8.5	0.80	1.00	6.0	1454.4	23.33	242	35
127.0	Sinclair SE419-	2	24	9.6	8.6	2.9	8.5	0.80	1.00	-6.0	2831.3	22.71	472	69
126.0	Empty Side Arm	1	150	6.3	0.0	0.0	0.0	1.00	1.00	0.0	0.0	22.97	197	216
119.5	Empty Side Arm	1	150	6.3	0.0	0.0	0.0	1.00	1.00	0.0	0.0	22.63	194	216
118.0	Decibel DB586	1	8	0.7	4.9	1.5	1.5	0.90	1.00	2.5	51.4	22.68	21	12
118.0	Decibel DB586	1	8	0.7	4.9	1.5	1.5	0.90	1.00	-2.5	50.7	22.41	20	12
118.0	Round Side Arms	2	100	5.0	0.0	0.0	0.0	1.00	0.90	0.0	0.0	22.55	276	288
115.5	Empty Side Arm	1	150	6.3	0.0	0.0	0.0	1.00	1.00	0.0	0.0	22.41	192	216

Site Number: 302522 Code: ANSI/TIA-222-G

Site Name: Redding, CT Engineering Number: 64913521 1/21/2016 11:51:16 AM

Customer: Verizon Wireless

Tower Loading

107.0	Side Arms	2	150	6.3	0.0	0.0	0.0	1.00	0.90	0.0	0.0	21.92	338	432
107.0	Sinclair SD210D	1	40	4.4	16.0	41.0	4.0	0.90	1.00	8.0	975.2	22.38	122	58
90.00	PCTEL GPS-TMG-HR-	1	1	0.1	0.4	3.2	3.2	0.90	1.00	0.0	0.0	20.87	2	1
90.00	Stand-Off	1	50	3.0	0.0	0.0	0.0	1.00	1.00	0.0	0.0	20.87	85	72
83.00	Andrew DB264-A	1	36	5.9	21.5	0.0	0.0	0.90	1.00	10.8	1638.9	21.11	152	52
83.00	Stand-Off	1	50	3.0	0.0	0.0	0.0	1.00	1.00	0.0	0.0	20.39	83	72
82.00	12' Omni	1	40	3.6	12.0	3.0	3.0	0.90	1.00	8.0	735.6	20.87	92	58
82.00	Stand-Off	1	50	3.0	0.0	0.0	0.0	1.00	1.00	0.0	0.0	20.32	83	72
30.00	2" x 4" GPS	1	5	0.0	0.2	4.0	2.0	0.60	1.00	0.0	0.0	15.24	0	7
	Totals	151	11272	802.1										

Discrete Appurtenance Properties 0.9D + 1.6W

Elevation (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K_a	Orient. Factor	Vert. Ecc.(ft)	M_u (lb-ft)	Q_z (psf)	F_a (WL) (lb)	P_a (DL) (lb)
180.0	Ericsson RRUS 11	6	55	2.5	1.5	17.0	7.2	0.80	0.50	0.0	0.0	25.44	209	267
180.0	Powerwave 7770.00	6	35	5.5	4.6	11.0	5.0	0.80	0.77	-1.0	703.4	25.40	703	170
180.0	Powerwave	6	14	1.1	1.2	9.2	2.6	0.80	0.50	-1.0	91.2	25.40	91	69
180.0	Powerwave P65-16-	3	53	8.1	6.0	12.0	6.0	0.80	0.79	-1.0	532.4	25.40	532	129
180.0	Powerwave TT19-	3	16	0.6	0.8	6.7	5.4	0.80	0.50	-1.0	26.5	25.40	27	39
180.0	Raycap DC6-48-60-	1	32	1.3	2.0	11.0	11.0	0.80	1.00	0.0	0.0	25.44	35	26
180.0	Round Sector	3	300	14.4	0.0	0.0	0.0	0.75	0.75	0.0	0.0	25.44	841	729
172.0	Alcatel-Lucent B25	3	53	2.1	1.8	12.0	7.2	0.80	0.67	0.0	0.0	25.11	116	129
172.0	Alcatel-Lucent	3	57	2.2	1.8	12.0	9.0	0.80	0.67	0.0	0.0	25.11	118	138
172.0	Alcatel-Lucent	3	43	1.9	1.7	11.2	7.2	0.80	0.67	0.0	0.0	25.11	103	104
172.0	Andrew	4	12	4.3	4.0	10.0	8.5	0.80	0.94	0.0	0.0	25.11	446	39
172.0	Commscope SBNHH-	6	51	8.2	6.1	11.9	7.1	0.80	0.83	0.0	0.0	25.11	1111	246
172.0	RFS APL868013-	2	6	3.6	4.0	8.0	6.0	0.80	0.90	0.0	0.0	25.11	178	10
172.0	RFS DB-T1-6Z-8AB-	1	44	4.8	2.0	24.0	24.0	0.80	1.00	0.0	0.0	25.11	131	36
172.0	RFS DB-T1-6Z-8AB-	1	44	4.8	2.0	24.0	24.0	0.80	1.00	0.0	0.0	25.11	131	36
172.0	RFS FD9R6004/1C-3L	6	3	0.4	0.5	6.5	1.5	0.80	0.50	0.0	0.0	25.11	30	15
172.0	Round Sector	3	300	14.4	0.0	0.0	0.0	0.75	0.75	0.0	0.0	25.11	830	729
164.0	Decibel DB844H90E-	12	14	3.6	4.0	6.5	8.0	0.80	0.92	0.0	0.0	24.77	1074	136
164.0	Round Sector Frame	3	300	14.4	0.0	0.0	0.0	0.75	0.75	0.0	0.0	24.77	819	729
154.0	Alcatel-Lucent 1900	3	60	2.3	2.1	11.1	10.7	0.80	0.67	3.0	372.3	24.46	124	146
154.0	Alcatel-Lucent 800	3	53	2.1	1.6	13.0	10.8	0.80	0.67	3.0	341.8	24.46	114	129
154.0	Alcatel-Lucent TD-	3	70	4.1	2.2	18.6	6.7	0.80	0.67	3.0	650.0	24.46	217	170
154.0	RFS APXV9TM14-	3	55	6.3	4.7	12.6	6.3	0.80	0.78	3.0	1184.5	24.46	395	134
154.0	RFS APXVSPP18-C-	3	57	8.0	6.0	11.8	7.0	0.80	0.83	3.0	1594.5	24.46	531	139
154.0	Round Sector	3	300	14.4	0.0	0.0	0.0	0.75	0.75	0.0	0.0	24.33	804	729
142.0	Scala OGT9-840	2	19	2.3	11.4	2.0	2.0	0.90	1.00	-6.0	782.8	23.48	130	30
142.0	Scala OGT9-840	2	19	2.3	11.4	2.0	2.0	0.90	1.00	6.0	802.0	24.05	134	30
142.0	Side Arms	2	150	6.3	0.0	0.0	0.0	1.00	0.90	0.0	0.0	23.77	367	243
142.0	TX RX 422-86A-	2	40	2.7	1.7	16.0	6.0	0.90	0.67	0.0	0.0	23.77	104	65
141.0	Morad VHF 156-	1	1	0.3	3.3	0.8	0.8	0.90	1.00	1.0	7.6	23.77	8	1
141.0	Stand-Off	1	50	3.0	0.0	0.0	0.0	1.00	1.00	0.0	0.0	23.72	97	41
140.0	Andrew LNX-	3	51	11.4	8.0	11.9	7.1	0.80	0.84	0.0	0.0	23.67	742	125
140.0	Ericsson AIR 21,	3	92	6.0	4.7	12.0	8.0	0.80	0.85	0.0	0.0	23.67	397	222
140.0	Ericsson AIR 21,	3	90	6.1	4.7	12.1	7.9	0.80	0.85	0.0	0.0	23.67	399	220
140.0	Kathrein Scala	3	3	0.1	0.3	3.1	1.7	0.80	0.50	0.0	0.0	23.67	3	8
140.0	Round Sector	3	300	14.4	0.0	0.0	0.0	0.75	0.75	0.0	0.0	23.67	782	729
136.0	Empty Side Arm	1	150	6.3	0.0	0.0	0.0	1.00	1.00	0.0	0.0	23.48	201	122
135.0	24" x 24" Ice Shield	1	50	0.9	0.3	24.0	24.0	1.00	1.00	0.0	0.0	23.43	30	41
134.0	24" x 24" Ice Shield	1	50	0.9	0.3	24.0	24.0	1.00	1.00	0.0	0.0	23.38	30	41
131.0	Andrew DB810K-XT	1	35	4.3	14.5	3.0	3.0	0.90	1.00	6.0	751.6	23.53	125	28
131.0	Andrew DB810K-XT	1	35	4.3	14.5	3.0	3.0	0.90	1.00	-6.0	732.2	22.92	122	28

Site Number: 302522 Code: ANSI/TIA-222-G

Site Name: Redding, CT Engineering Number: 64913521 1/21/2016 11:51:16 AM

Customer: Verizon Wireless

Tower Loading

131.0	Round Side Arms	2	100	5.0	0.0	0.0	0.0	1.00	0.90	0.0	0.0	23.23	284	162
129.0	RFS PA6-65AC w/	1	278	24.4	6.0	0.0	0.0	1.00	1.00	0.0	0.0	23.13	768	225
128.0	RFS PA6-65AC w/	1	278	24.4	6.0	0.0	0.0	1.00	0.80	-1.0	611.5	23.02	611	225
127.0	Bird 432-83H-01-T	1	25	1.4	1.2	12.0	7.0	0.80	1.00	0.0	0.0	23.02	35	20
127.0	Round Side Arms	3	100	5.0	0.0	0.0	0.0	1.00	0.67	0.0	0.0	23.02	315	243
127.0	Sinclair SE419-	1	24	9.6	8.6	2.9	8.5	0.80	1.00	6.0	1454.4	23.33	242	19
127.0	Sinclair SE419-	2	24	9.6	8.6	2.9	8.5	0.80	1.00	-6.0	2831.3	22.71	472	39
126.0	Empty Side Arm	1	150	6.3	0.0	0.0	0.0	1.00	1.00	0.0	0.0	22.97	197	122
119.5	Empty Side Arm	1	150	6.3	0.0	0.0	0.0	1.00	1.00	0.0	0.0	22.63	194	122
118.0	Decibel DB586	1	8	0.7	4.9	1.5	1.5	0.90	1.00	2.5	51.4	22.68	21	7
118.0	Decibel DB586	1	8	0.7	4.9	1.5	1.5	0.90	1.00	-2.5	50.7	22.41	20	7
118.0	Round Side Arms	2	100	5.0	0.0	0.0	0.0	1.00	0.90	0.0	0.0	22.55	276	162
115.5	Empty Side Arm	1	150	6.3	0.0	0.0	0.0	1.00	1.00	0.0	0.0	22.41	192	122
107.0	Side Arms	2	150	6.3	0.0	0.0	0.0	1.00	0.90	0.0	0.0	21.92	338	243
107.0	Sinclair SD210D	1	40	4.4	16.0	41.0	4.0	0.90	1.00	8.0	975.2	22.38	122	32
90.00	PCTEL GPS-TMG-HR-	1	1	0.1	0.4	3.2	3.2	0.90	1.00	0.0	0.0	20.87	2	0
90.00	Stand-Off	1	50	3.0	0.0	0.0	0.0	1.00	1.00	0.0	0.0	20.87	85	41
83.00	Andrew DB264-A	1	36	5.9	21.5	0.0	0.0	0.90	1.00	10.8	1638.9	21.11	152	29
83.00	Stand-Off	1	50	3.0	0.0	0.0	0.0	1.00	1.00	0.0	0.0	20.39	83	41
82.00	12' Omni	1	40	3.6	12.0	3.0	3.0	0.90	1.00	8.0	735.6	20.87	92	32
82.00	Stand-Off	1	50	3.0	0.0	0.0	0.0	1.00	1.00	0.0	0.0	20.32	83	41
30.00	2" x 4" GPS	1	5	0.0	0.2	4.0	2.0	0.60	1.00	0.0	0.0	15.24	0	4
	Totals	151	11272	802.1										

Discrete Appurtenance Properties 1.2D + 1.0Di + 1.0Wi

Elevation (ft)	Description	Qty	Ice Wt (lb)	Ice EPA (sf)	Length (ft)	Width (in)	Depth (in)	K_a	Orient. Factor	Vert. Ecc.(ft)	M_u (lb-ft)	Q_z (psf)	F_a (WL) (lb)	P_a (DL) (lb)
180.0	Ericsson RRUS 11	6	137	3.2	1.5	17.0	7.2	0.80	0.50	0.0	0.0	6.36	41	1063
180.0	Powerwave 7770.00	6	172	6.6	4.6	11.0	5.0	0.80	0.77	-1.0	131.2	6.35	131	1291
180.0	Powerwave	6	48	1.6	1.2	9.2	2.6	0.80	0.50	-1.0	20.3	6.35	20	368
180.0	Powerwave P65-16-	3	248	9.4	6.0	12.0	6.0	0.80	0.79	-1.0	96.7	6.35	97	929
180.0	Powerwave TT19-	3	44	0.9	0.8	6.7	5.4	0.80	0.50	-1.0	5.8	6.35	6	171
180.0	Raycap DC6-48-60-	1	126	1.9	2.0	11.0	11.0	0.80	1.00	0.0	0.0	6.36	8	159
180.0	Round Sector	3	673	31.2	0.0	0.0	0.0	0.75	0.75	0.0	0.0	6.36	285	2640
172.0	Alcatel-Lucent B25	3	127	2.8	1.8	12.0	7.2	0.80	0.67	0.0	0.0	6.28	24	497
172.0	Alcatel-Lucent	3	139	2.8	1.8	12.0	9.0	0.80	0.67	0.0	0.0	6.28	24	543
172.0	Alcatel-Lucent	3	112	2.5	1.7	11.2	7.2	0.80	0.67	0.0	0.0	6.28	21	433
172.0	Andrew	4	152	5.3	4.0	10.0	8.5	0.80	0.94	0.0	0.0	6.28	85	740
172.0	Commscope SBNHH-	6	257	9.5	6.1	11.9	7.1	0.80	0.83	0.0	0.0	6.28	202	1925
172.0	RFS APL868013-	2	115	4.5	4.0	8.0	6.0	0.80	0.90	0.0	0.0	6.28	35	280
172.0	RFS DB-T1-6Z-8AB-	1	273	5.7	2.0	24.0	24.0	0.80	1.00	0.0	0.0	6.28	24	338
172.0	RFS DB-T1-6Z-8AB-	1	273	5.7	2.0	24.0	24.0	0.80	1.00	0.0	0.0	6.28	24	338
172.0	RFS FD9R6004/1C-3L	6	17	0.6	0.5	6.5	1.5	0.80	0.50	0.0	0.0	6.28	8	124
172.0	Round Sector	3	673	31.2	0.0	0.0	0.0	0.75	0.75	0.0	0.0	6.28	281	2640
164.0	Decibel DB844H90E-	12	126	3.9	4.0	6.5	8.0	0.80	0.92	0.0	0.0	6.19	183	1861
164.0	Round Sector Frame	3	673	31.2	0.0	0.0	0.0	0.75	0.75	0.0	0.0	6.19	277	2640
154.0	Alcatel-Lucent 1900	3	155	3.0	2.1	11.1	10.7	0.80	0.67	3.0	75.1	6.12	25	602
154.0	Alcatel-Lucent 800	3	140	2.7	1.6	13.0	10.8	0.80	0.67	3.0	68.9	6.12	23	544
154.0	Alcatel-Lucent TD-	3	162	5.7	2.2	18.6	6.7	0.80	0.67	3.0	143.3	6.12	48	632
154.0	RFS APXV9TM14-	3	215	7.5	4.7	12.6	6.3	0.80	0.78	3.0	217.5	6.12	73	815
154.0	RFS APXVSPP18-C-	3	257	9.3	6.0	11.8	7.0	0.80	0.83	3.0	289.4	6.12	96	965
154.0	Round Sector	3	669	31.0	0.0	0.0	0.0	0.75	0.75	0.0	0.0	6.08	270	2623
142.0	Scala OGT9-840	2	137	6.4	11.4	2.0	2.0	0.90	1.00	-6.0	344.9	5.87	57	339
142.0	Scala OGT9-840	2	137	6.4	11.4	2.0	2.0	0.90	1.00	6.0	353.3	6.01	59	339
142.0	Side Arms	2	223	8.8	0.0	0.0	0.0	1.00	0.90	0.0	0.0	5.94	80	608

Tower Loading

142.0	TX RX 422-86A-	2	119	3.3	1.7	16.0	6.0	0.90	0.67	0.0	0.0	5.94	20	304
141.0	Morad VHF 156-	1	25	1.1	3.3	0.8	0.8	0.90	1.00	1.0	5.0	5.94	5	31
141.0	Stand-Off	1	74	4.2	0.0	0.0	0.0	1.00	1.00	0.0	0.0	5.93	21	101
140.0	Andrew LNX-	3	310	13.1	8.0	11.9	7.1	0.80	0.84	0.0	0.0	5.92	133	1154
140.0	Ericsson AIR 21,	3	258	7.1	4.7	12.0	8.0	0.80	0.85	0.0	0.0	5.92	73	994
140.0	Ericsson AIR 21,	3	257	7.2	4.7	12.1	7.9	0.80	0.85	0.0	0.0	5.92	74	989
140.0	Kathrein Scala	3	10	0.2	0.3	3.1	1.7	0.80	0.50	0.0	0.0	5.92	1	38
140.0	Round Sector	3	663	30.8	0.0	0.0	0.0	0.75	0.75	0.0	0.0	5.92	261	2604
136.0	Empty Side Arm	1	222	8.7	0.0	0.0	0.0	1.00	1.00	0.0	0.0	5.87	44	303
135.0	24" x 24" Ice Shield	1	157	1.3	0.3	24.0	24.0	1.00	1.00	0.0	0.0	5.86	7	200
134.0	24" x 24" Ice Shield	1	157	1.3	0.3	24.0	24.0	1.00	1.00	0.0	0.0	5.84	7	200
131.0	Andrew DB810K-XT	1	223	9.5	14.5	3.0	3.0	0.90	1.00	6.0	257.1	5.88	43	276
131.0	Andrew DB810K-XT	1	223	9.5	14.5	3.0	3.0	0.90	1.00	-6.0	250.5	5.73	42	276
131.0	Round Side Arms	2	148	7.6	0.0	0.0	0.0	1.00	0.90	0.0	0.0	5.81	67	404
129.0	RFS PA6-65AC w/	1	1217	26.9	6.0	0.0	0.0	1.00	1.00	0.0	0.0	5.78	132	1528
128.0	RFS PA6-65AC w/	1	1217	26.9	6.0	0.0	0.0	1.00	0.80	-1.0	105.4	5.76	105	1528
127.0	Bird 432-83H-01-T	1	78	1.9	1.2	12.0	7.0	0.80	1.00	0.0	0.0	5.76	7	100
127.0	Round Side Arms	3	148	7.6	0.0	0.0	0.0	1.00	0.67	0.0	0.0	5.76	75	605
127.0	Sinclair SE419-	1	248	30.2	8.6	2.9	8.5	0.80	1.00	6.0	719.6	5.83	120	303
127.0	Sinclair SE419-	2	248	30.2	8.6	2.9	8.5	0.80	1.00	-6.0	1400.8	5.68	233	606
126.0	Empty Side Arm	1	222	8.7	0.0	0.0	0.0	1.00	1.00	0.0	0.0	5.74	43	303
119.5	Empty Side Arm	1	221	8.7	0.0	0.0	0.0	1.00	1.00	0.0	0.0	5.66	42	301
118.0	Decibel DB586	1	52	2.0	4.9	1.5	1.5	0.90	1.00	2.5	21.3	5.67	9	65
118.0	Decibel DB586	1	52	2.0	4.9	1.5	1.5	0.90	1.00	-2.5	21.1	5.60	8	65
118.0	Round Side Arms	2	147	7.5	0.0	0.0	0.0	1.00	0.90	0.0	0.0	5.64	65	402
115.5	Empty Side Arm	1	221	8.7	0.0	0.0	0.0	1.00	1.00	0.0	0.0	5.60	41	301
107.0	Side Arms	2	221	8.7	0.0	0.0	0.0	1.00	0.90	0.0	0.0	5.48	73	603
107.0	Sinclair SD210D	1	1095	44.7	16.0	41.0	4.0	0.90	1.00	8.0	1530.6	5.59	191	1323
90.00	PCTEL GPS-TMG-HR-	1	10	0.3	0.4	3.2	3.2	0.90	1.00	0.0	0.0	5.22	1	13
90.00	Stand-Off	1	106	5.0	0.0	0.0	0.0	1.00	1.00	0.0	0.0	5.22	22	139
83.00	Andrew DB264-A	1	212	24.1	21.5	0.0	0.0	0.90	1.00	10.8	1044.2	5.28	97	263
83.00	Stand-Off	1	73	4.1	0.0	0.0	0.0	1.00	1.00	0.0	0.0	5.10	18	100
82.00	12' Omni	1	188	7.5	12.0	3.0	3.0	0.90	1.00	8.0	239.9	5.22	30	236
82.00	Stand-Off	1	73	4.1	0.0	0.0	0.0	1.00	1.00	0.0	0.0	5.08	18	100
30.00	2" x 4" GPS	1	10	0.2	0.2	4.0	2.0	0.60	1.00	0.0	0.0	3.81	0	13
	Totals	151	33754	1330.1										

Discrete Appurtenance Properties

1.0D + 1.0W Service

Elevation (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K_a	Orient. Factor	Vert. Ecc.(ft)	M_u (lb-ft)	Q_z (psf)	F_a (WL) (lb)	P_a (DL) (lb)
180.0	Ericsson RRUS 11	6	55	2.5	1.5	17.0	7.2	0.80	0.50	0.0	0.0	9.16	47	330
180.0	Powerwave 7770.00	6	35	5.5	4.6	11.0	5.0	0.80	0.77	-1.0	158.3	9.14	158	210
180.0	Powerwave	6	14	1.1	1.2	9.2	2.6	0.80	0.50	-1.0	20.5	9.14	21	85
180.0	Powerwave P65-16-	3	53	8.1	6.0	12.0	6.0	0.80	0.79	-1.0	119.8	9.14	120	159
180.0	Powerwave TT19-	3	16	0.6	0.8	6.7	5.4	0.80	0.50	-1.0	6.0	9.14	6	48
180.0	Raycap DC6-48-60-	1	32	1.3	2.0	11.0	11.0	0.80	1.00	0.0	0.0	9.16	8	32
180.0	Round Sector	3	300	14.4	0.0	0.0	0.0	0.75	0.75	0.0	0.0	9.16	189	900
172.0	Alcatel-Lucent B25	3	53	2.1	1.8	12.0	7.2	0.80	0.67	0.0	0.0	9.04	26	159
172.0	Alcatel-Lucent	3	57	2.2	1.8	12.0	9.0	0.80	0.67	0.0	0.0	9.04	27	170
172.0	Alcatel-Lucent	3	43	1.9	1.7	11.2	7.2	0.80	0.67	0.0	0.0	9.04	23	129
172.0	Andrew	4	12	4.3	4.0	10.0	8.5	0.80	0.94	0.0	0.0	9.04	100	48
172.0	Commscope SBNHH-	6	51	8.2	6.1	11.9	7.1	0.80	0.83	0.0	0.0	9.04	250	304
172.0	RFS APL868013-	2	6	3.6	4.0	8.0	6.0	0.80	0.90	0.0	0.0	9.04	40	13
172.0	RFS DB-T1-6Z-8AB-	1	44	4.8	2.0	24.0	24.0	0.80	1.00	0.0	0.0	9.04	30	44
172.0	RFS DB-T1-6Z-8AB-	1	44	4.8	2.0	24.0	24.0	0.80	1.00	0.0	0.0	9.04	30	44

Site Number: 302522 Code: ANSI/TIA-222-G

Site Name: Redding, CT Engineering Number: 64913521

Customer: Verizon Wireless

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Tower Loading

172.0	RFS FD9R6004/1C-3L	6	3	0.4	0.5	6.5	1.5	0.80	0.50	0.0	0.0	9.04	7	19
172.0	Round Sector	3	300	14.4	0.0	0.0	0.0	0.75	0.75	0.0	0.0	9.04	187	900
164.0	Decibel DB844H90E-	12	14	3.6	4.0	6.5	8.0	0.80	0.92	0.0	0.0	8.92	242	168
164.0	Round Sector Frame	3	300	14.4	0.0	0.0	0.0	0.75	0.75	0.0	0.0	8.92	184	900
154.0	Alcatel-Lucent 1900	3	60	2.3	2.1	11.1	10.7	0.80	0.67	3.0	83.8	8.81	28	180
154.0	Alcatel-Lucent 800	3	53	2.1	1.6	13.0	10.8	0.80	0.67	3.0	76.9	8.81	26	159
154.0	Alcatel-Lucent TD-	3	70	4.1	2.2	18.6	6.7	0.80	0.67	3.0	146.2	8.81	49	210
154.0	RFS APXV9TM14-	3	55	6.3	4.7	12.6	6.3	0.80	0.78	3.0	266.5	8.81	89	165
154.0	RFS APXVSPP18-C-	3	57	8.0	6.0	11.8	7.0	0.80	0.83	3.0	358.8	8.81	120	171
154.0	Round Sector	3	300	14.4	0.0	0.0	0.0	0.75	0.75	0.0	0.0	8.76	181	900
142.0	Scala OGT9-840	2	19	2.3	11.4	2.0	2.0	0.90	1.00	-6.0	176.1	8.45	29	37
142.0	Scala OGT9-840	2	19	2.3	11.4	2.0	2.0	0.90	1.00	6.0	180.4	8.66	30	37
142.0	Side Arms	2	150	6.3	0.0	0.0	0.0	1.00	0.90	0.0	0.0	8.56	82	300
142.0	TX RX 422-86A-	2	40	2.7	1.7	16.0	6.0	0.90	0.67	0.0	0.0	8.56	23	80
141.0	Morad VHF 156-	1	1	0.3	3.3	0.8	0.8	0.90	1.00	1.0	1.7	8.56	2	1
141.0	Stand-Off	1	50	3.0	0.0	0.0	0.0	1.00	1.00	0.0	0.0	8.54	22	50
140.0	Andrew LNX-	3	51	11.4	8.0	11.9	7.1	0.80	0.84	0.0	0.0	8.52	167	154
140.0	Ericsson AIR 21,	3	92	6.0	4.7	12.0	8.0	0.80	0.85	0.0	0.0	8.52	89	275
140.0	Ericsson AIR 21,	3	90	6.1	4.7	12.1	7.9	0.80	0.85	0.0	0.0	8.52	90	271
140.0	Kathrein Scala	3	3	0.1	0.3	3.1	1.7	0.80	0.50	0.0	0.0	8.52	1	10
140.0	Round Sector	3	300	14.4	0.0	0.0	0.0	0.75	0.75	0.0	0.0	8.52	176	900
136.0	Empty Side Arm	1	150	6.3	0.0	0.0	0.0	1.00	1.00	0.0	0.0	8.45	45	150
135.0	24" x 24" Ice Shield	1	50	0.9	0.3	24.0	24.0	1.00	1.00	0.0	0.0	8.43	7	50
134.0	24" x 24" Ice Shield	1	50	0.9	0.3	24.0	24.0	1.00	1.00	0.0	0.0	8.42	7	50
131.0	Andrew DB810K-XT	1	35	4.3	14.5	3.0	3.0	0.90	1.00	6.0	169.1	8.47	28	35
131.0	Andrew DB810K-XT	1	35	4.3	14.5	3.0	3.0	0.90	1.00	-6.0	164.7	8.25	27	35
131.0	Round Side Arms	2	100	5.0	0.0	0.0	0.0	1.00	0.90	0.0	0.0	8.36	64	200
129.0	RFS PA6-65AC w/	1	278	24.4	6.0	0.0	0.0	1.00	1.00	0.0	0.0	8.33	173	278
128.0	RFS PA6-65AC w/	1	278	24.4	6.0	0.0	0.0	1.00	0.80	-1.0	137.6	8.29	138	278
127.0	Bird 432-83H-01-T	1	25	1.4	1.2	12.0	7.0	0.80	1.00	0.0	0.0	8.29	8	25
127.0	Round Side Arms	3	100	5.0	0.0	0.0	0.0	1.00	0.67	0.0	0.0	8.29	71	300
127.0	Sinclair SE419-	1	24	9.6	8.6	2.9	8.5	0.80	1.00	6.0	327.2	8.40	55	24
127.0	Sinclair SE419-	2	24	9.6	8.6	2.9	8.5	0.80	1.00	-6.0	637.0	8.17	106	48
126.0	Empty Side Arm	1	150	6.3	0.0	0.0	0.0	1.00	1.00	0.0	0.0	8.27	44	150
119.5	Empty Side Arm	1	150	6.3	0.0	0.0	0.0	1.00	1.00	0.0	0.0	8.15	44	150
118.0	Decibel DB586	1	8	0.7	4.9	1.5	1.5	0.90	1.00	2.5	11.6	8.17	5	8
118.0	Decibel DB586	1	8	0.7	4.9	1.5	1.5	0.90	1.00	-2.5	11.4	8.07	5	8
118.0	Round Side Arms	2	100	5.0	0.0	0.0	0.0	1.00	0.90	0.0	0.0	8.12	62	200
115.5	Empty Side Arm	1	150	6.3	0.0	0.0	0.0	1.00	1.00	0.0	0.0	8.07	43	150
107.0	Side Arms	2	150	6.3	0.0	0.0	0.0	1.00	0.90	0.0	0.0	7.89	76	300
107.0	Sinclair SD210D	1	40	4.4	16.0	41.0	4.0	0.90	1.00	8.0	219.4	8.06	27	40
90.00	PCTEL GPS-TMG-HR-	1	1	0.1	0.4	3.2	3.2	0.90	1.00	0.0	0.0	7.51	1	1
90.00	Stand-Off	1	50	3.0	0.0	0.0	0.0	1.00	1.00	0.0	0.0	7.51	19	50
83.00	Andrew DB264-A	1	36	5.9	21.5	0.0	0.0	0.90	1.00	10.8	368.8	7.60	34	36
83.00	Stand-Off	1	50	3.0	0.0	0.0	0.0	1.00	1.00	0.0	0.0	7.34	19	50
82.00	12' Omni	1	40	3.6	12.0	3.0	3.0	0.90	1.00	8.0	165.5	7.51	21	40
82.00	Stand-Off	1	50	3.0	0.0	0.0	0.0	1.00	1.00	0.0	0.0	7.31	19	50
30.00	2" x 4" GPS	1	5	0.0	0.2	4.0	2.0	0.60	1.00	0.0	0.0	5.49	0	5
	Totals	151	11272	802.1										

Site Number: 302522
Site Name: Redding, CT
Customer: Verizon Wireless

Code: ANSI/TIA-222-G
Engineering Number: 64913521

1/21/2016 11:51:16 AM

Tower Loading

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Block	Spread On Faces	Bundling Arrangement	Cluster Dia (in)	Out Of Zone	Spacing (in)	Orientation Factor	Ka Override
0.00	180.0	0.28" RG-6	1	0.28	0.03	0	2	Individual	0.00	N	0.00	1.00	0.00
0.00	180.0	0.74" 8 AWG 7	2	0.74	0.49	0	2	Individual	0.00	N	0.00	1.00	0.00
0.00	180.0	1 1/4" Coax	12	1.55	0.63	0	2	Individual	0.00	N	0.00	1.00	0.00
0.00	180.0	Wave Guide	1	1.50	6.00	0	2	Individual	0.00	N	0.00	1.00	0.00
0.00	172.0	1 5/8" Coax	12	1.98	0.82	100	1	Block	0.00	N	0.00	1.00	0.00
0.00	172.0	1 5/8" Fiber	1	1.63	1.61	0	Lin App	Individual	0.00	N	0.00	1.00	0.00
0.00	172.0	1 5/8" Hybriflex	1	1.98	1.30	0	1	Individual	0.00	N	0.00	1.00	0.01
0.00	172.0	Wave Guide	1	1.50	6.00	0	1	Individual	0.00	N	0.00	1.00	0.00
0.00	164.0	1 5/8" Coax	12	1.98	0.82	0	1	Individual	0.00	N	0.00	1.00	0.01
0.00	164.0	Wave Guide	1	1.50	6.00	0	1	Individual	0.00	N	0.00	1.00	0.00
0.00	154.0	1 1/4" Hybriflex	4	1.54	1.00	0	1	Individual	0.00	N	0.00	1.00	0.01
0.00	142.0	1 5/8" Coax	4	1.98	0.82	0	3	Individual	0.00	N	0.00	1.00	0.00
0.00	142.0	3/8" Coax	2	0.44	0.08	0	3	Individual	0.00	N	0.00	1.00	0.00
0.00	142.0	Wave Guide	1	1.50	6.00	0	3	Individual	0.00	N	0.00	1.00	0.00
0.00	141.0	1/2" Coax	1	0.63	0.15	0	3	Individual	0.00	N	0.00	1.00	0.00
0.00	140.0	1 5/8" Coax	12	1.98	0.82	50	3	Block	0.00	N	0.00	1.00	0.00
0.00	140.0	1 5/8" Hybriflex	1	1.98	1.30	0	3	Individual	0.00	N	0.00	1.00	0.00
0.00	140.0	Wave Guide	1	1.50	6.00	0	3	Individual	0.00	N	0.00	1.00	0.00
0.00	131.0	1 5/8" Coax	2	1.98	0.82	0	3	Individual	0.00	N	0.00	1.00	0.00
0.00	129.0	EW63	1	2.01	0.51	0	3	Individual	0.00	N	0.00	1.00	0.00
0.00	128.0	EW63	1	2.01	0.51	0	3	Individual	0.00	N	0.00	1.00	0.00
0.00	127.0	1 5/8" Coax	2	1.98	0.82	0	3	Individual	0.00	N	0.00	1.00	0.00
0.00	127.0	3/8" Coax	1	0.44	0.08	0	3	Individual	0.00	N	0.00	1.00	0.00
0.00	127.0	WE65	1	2.01	0.57	0	3	Individual	0.00	N	0.00	1.00	0.00
0.00	126.0	EW52	1	2.25	0.59	0	3	Individual	0.00	N	0.00	1.00	0.00
0.00	118.0	7/8" Coax	2	1.09	0.33	0	2	Individual	0.00	N	0.00	1.00	0.00
0.00	107.0	7/8" Coax	2	1.09	0.33	0	2	Individual	0.00	N	0.00	1.00	0.00
0.00	90.00	1/2" Coax	1	0.63	0.15	0	1	Individual	0.00	N	0.00	1.00	0.00
0.00	83.00	7/8" Coax	1	1.09	0.33	0	2	Individual	0.00	N	0.00	1.00	0.00
0.00	82.00	7/8" Coax	1	1.09	0.33	0	2	Individual	0.00	N	0.00	1.00	0.00
0.00	30.00	1/2" Coax	1	0.63	0.15	0	1	Individual	0.00	N	0.00	1.00	0.00

Site Number: 302522 Code: ANSI/TIA-222-G

Site Name: Redding, CT Engineering Number: 64913521 1/21/2016 11:51:16 AM

Customer: Verizon Wireless

Equivalent Lateral Force Method

(Based on ASCE7-10 Chapters 11, 12 & 15)

Spectral Response Acceleration for Short Period (S_s):	0.22
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.07
Long-Period Transition Period (T_L - Seconds):	16
Importance Factor (I_e):	1.00
Site Coefficient F_a:	1.60
Site Coefficient F_v:	2.40
Response Modification Coefficient (R):	3.00
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.24
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.11
Seismic Response Coefficient (C_s):	0.04
Upper Limit C_s:	0.04
Lower Limit C_s:	0.03
Period based on Rayleigh Method (sec):	0.89
Redundancy Factor (p):	1.30
Seismic Force Distribution Exponent (k):	1.19
Total Unfactored Dead Load:	48.36 k
Seismic Base Shear (E):	2.53 k

LoadCase (1.2 + 0.2Sds) * DL + E **Seismic**

Section	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
9	170.00	1,461	670,328	0.061	154	1,823
8	150.00	2,256	891,731	0.081	205	2,816
7	130.00	3,412	1,137,06	0.103	262	4,259
6	110.00	4,165	1,136,98	0.103	262	5,198
5	90.00	4,336	931,619	0.085	215	5,411
4	70.00	4,764	758,304	0.069	175	5,945
3	50.00	5,085	541,755	0.049	125	6,346
2	30.00	5,502	318,652	0.029	73	6,867
1	10.00	6,110	95,366	0.009	22	7,625
Ericsson RRUS 11 (Band 12)	180.00	330	162,143	0.015	37	412
Powerwave 7770.00	180.00	210	103,182	0.009	24	262
Powerwave LGP21401	180.00	85	41,568	0.004	10	106
Powerwave P65-16-XLH-RR	180.00	159	78,124	0.007	18	198
Powerwave TT19-08BP111-001	180.00	48	23,585	0.002	5	60
Raycap DC6-48-60-18-8F	180.00	32	15,625	0.001	4	40
Round Sector Frames	180.00	900	442,209	0.040	102	1,123
Alcatel-Lucent B25 RRH4x30	172.00	159	73,998	0.007	17	198
Alcatel-Lucent RRH2x60 700	172.00	170	79,164	0.007	18	212
Alcatel-Lucent RRH2X60-1900	172.00	129	60,036	0.005	14	161
Andrew DB844G65ZAXY	172.00	48	22,339	0.002	5	60
Commscope SBNHH-1D65B	172.00	304	141,574	0.013	33	380
RFS APL868013-42T0	172.00	13	5,864	0.001	1	16
RFS DB-T1-6Z-8AB-0Z	172.00	44	20,477	0.002	5	55
RFS DB-T1-6Z-8AB-0Z	172.00	44	20,477	0.002	5	55
RFS FD9R6004/1C-3L	172.00	19	8,656	0.001	2	23

Equivalent Lateral Force Method

Round Sector Frames	172.00	900	418,857	0.038	97	1,123
Decibel DB844H90E-XY	164.00	168	73,867	0.007	17	210
Round Sector Frame	164.00	900	395,714	0.036	91	1,123
Alcatel-Lucent 1900 MHz 4x45 RRH	154.00	180	73,418	0.007	17	225
Alcatel-Lucent 800 MHz RRH	154.00	159	64,853	0.006	15	198
Alcatel-Lucent TD-RRH8x20-25 w/ S.S.	154.00	210	85,655	0.008	20	262
RFS APXV9TM14-ALU-I20	154.00	165	67,423	0.006	16	206
RFS APXVSPP18-C-A20	154.00	171	69,747	0.006	16	213
Round Sector Frames	154.00	900	367,092	0.033	85	1,123
Scala OGT9-840	142.00	37	13,699	0.001	3	46
Scala OGT9-840	142.00	37	13,699	0.001	3	46
Side Arms	142.00	300	111,073	0.010	26	374
TX RX 422-86A-99575-18R1	142.00	80	29,619	0.003	7	100
Morad VHF 156-Deluxe	141.00	1	330	0.000	0	1
Stand-Off	141.00	50	18,357	0.002	4	62
Andrew LNX-6515DS-VTM	140.00	154	56,024	0.005	13	192
Ericsson AIR 21, 1.3M, B2A B4P	140.00	275	99,926	0.009	23	343
Ericsson AIR 21, 1.3M, B4A B2P	140.00	271	98,725	0.009	23	338
Kathrein Scala Smart Bias Tee	140.00	10	3,615	0.000	1	12
Round Sector Frames	140.00	900	327,626	0.030	75	1,123
Empty Side Arm	136.00	150	52,748	0.005	12	187
24" x 24" Ice Shield	135.00	50	17,428	0.002	4	62
24" x 24" Ice Shield	134.00	50	17,274	0.002	4	62
Andrew DB810K-XT	131.00	35	11,770	0.001	3	44
Andrew DB810K-XT	131.00	35	11,770	0.001	3	44
Round Side Arms	131.00	200	67,256	0.006	15	250
RFS PA6-65AC w/ Radome	129.00	278	91,785	0.008	21	347
RFS PA6-65AC w/ Radome	128.00	278	90,936	0.008	21	347
Bird 432-83H-01-T	127.00	25	8,102	0.001	2	31
Round Side Arms	127.00	300	97,218	0.009	22	374
Sinclair SE419-SF3P4LDF	127.00	24	7,777	0.001	2	30
Sinclair SE419-SF3P4LDF	127.00	48	15,555	0.001	4	60
Empty Side Arm	126.00	150	48,153	0.004	11	187
Empty Side Arm	119.50	150	45,203	0.004	10	187
Decibel DB586	118.00	8	2,464	0.000	1	10
Decibel DB586	118.00	8	2,464	0.000	1	10
Round Side Arms	118.00	200	59,369	0.005	14	250
Empty Side Arm	115.50	150	43,404	0.004	10	187
Side Arms	107.00	300	79,239	0.007	18	374
Sinclair SD210D	107.00	40	10,565	0.001	2	50
PCTEL GPS-TMG-HR-26N	90.00	1	129	0.000	0	1
Stand-Off	90.00	50	10,743	0.001	2	62
Andrew DB264-A	83.00	36	7,022	0.001	2	45
Stand-Off	83.00	50	9,753	0.001	2	62
12' Omni	82.00	40	7,691	0.001	2	50
Stand-Off	82.00	50	9,613	0.001	2	62
2" x 4" GPS	30.00	5	290	0.000	0	6
		48,363	10,995,864	1.000	2,534	60,357

LoadCase (0.9 - 0.2Sds) * DL + E

Seismic (Reduced DL)

Section	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
9	170.00	1,461	670,328	0.061	154	1,244

Equivalent Lateral Force Method

8	150.00	2,256	891,732	0.081	205	1,922
7	130.00	3,412	1,137,06	0.103	262	2,907
6	110.00	4,165	1,136,98	0.103	262	3,549
5	90.00	4,336	931,619	0.085	215	3,694
4	70.00	4,764	758,304	0.069	175	4,059
3	50.00	5,085	541,755	0.049	125	4,332
2	30.00	5,502	318,652	0.029	73	4,688
1	10.00	6,110	95,366	0.009	22	5,205
Ericsson RRUS 11 (Band 12)	180.00	330	162,143	0.015	37	281
Powerwave 7770.00	180.00	210	103,182	0.009	24	179
Powerwave LGP21401	180.00	85	41,568	0.004	10	72
Powerwave P65-16-XLH-RR	180.00	159	78,124	0.007	18	135
Powerwave TT19-08BP111-001	180.00	48	23,585	0.002	5	41
Raycap DC6-48-60-18-8F	180.00	32	15,625	0.001	4	27
Round Sector Frames	180.00	900	442,209	0.040	102	767
Alcatel-Lucent B25 RRH4x30	172.00	159	73,998	0.007	17	135
Alcatel-Lucent RRH2x60 700	172.00	170	79,164	0.007	18	145
Alcatel-Lucent RRH2X60-1900	172.00	129	60,036	0.005	14	110
Andrew DB844G65ZAXY	172.00	48	22,339	0.002	5	41
Commscope SBNHH-1D65B	172.00	304	141,574	0.013	33	259
RFS APL868013-42T0	172.00	13	5,864	0.001	1	11
RFS DB-T1-6Z-8AB-0Z	172.00	44	20,477	0.002	5	37
RFS DB-T1-6Z-8AB-0Z	172.00	44	20,477	0.002	5	37
RFS FD9R6004/1C-3L	172.00	19	8,656	0.001	2	16
Round Sector Frames	172.00	900	418,857	0.038	97	767
Decibel DB844H90E-XY	164.00	168	73,867	0.007	17	143
Round Sector Frame	164.00	900	395,714	0.036	91	767
Alcatel-Lucent 1900 MHz 4x45 RRH	154.00	180	73,418	0.007	17	153
Alcatel-Lucent 800 MHz RRH	154.00	159	64,853	0.006	15	135
Alcatel-Lucent TD-RRH8x20-25 w/ S.S.	154.00	210	85,655	0.008	20	179
RFS APXV9TM14-ALU-I20	154.00	165	67,423	0.006	16	141
RFS APXVSPP18-C-A20	154.00	171	69,747	0.006	16	146
Round Sector Frames	154.00	900	367,092	0.033	85	767
Scala OGT9-840	142.00	37	13,699	0.001	3	32
Scala OGT9-840	142.00	37	13,699	0.001	3	32
Side Arms	142.00	300	111,073	0.010	26	256
TX RX 422-86A-99575-18R1	142.00	80	29,619	0.003	7	68
Morad VHF 156-Deluxe	141.00	1	330	0.000	0	1
Stand-Off	141.00	50	18,357	0.002	4	43
Andrew LNX-6515DS-VTM	140.00	154	56,024	0.005	13	131
Ericsson AIR 21, 1.3M, B2A B4P	140.00	275	99,926	0.009	23	234
Ericsson AIR 21, 1.3M, B4A B2P	140.00	271	98,725	0.009	23	231
Kathrein Scala Smart Bias Tee	140.00	10	3,615	0.000	1	8
Round Sector Frames	140.00	900	327,626	0.030	75	767
Empty Side Arm	136.00	150	52,748	0.005	12	128
24" x 24" Ice Shield	135.00	50	17,428	0.002	4	43
24" x 24" Ice Shield	134.00	50	17,274	0.002	4	43
Andrew DB810K-XT	131.00	35	11,770	0.001	3	30
Andrew DB810K-XT	131.00	35	11,770	0.001	3	30
Round Side Arms	131.00	200	67,256	0.006	15	170
RFS PA6-65AC w/ Radome	129.00	278	91,785	0.008	21	237
RFS PA6-65AC w/ Radome	128.00	278	90,936	0.008	21	237
Bird 432-83H-01-T	127.00	25	8,102	0.001	2	21
Round Side Arms	127.00	300	97,218	0.009	22	256
Sinclair SE419-SF3P4LDF	127.00	24	7,777	0.001	2	20

Equivalent Lateral Force Method

Sinclair SE419-SF3P4LDF	127.00	48	15,555	0.001	4	41
Empty Side Arm	126.00	150	48,153	0.004	11	128
Empty Side Arm	119.50	150	45,203	0.004	10	128
Decibel DB586	118.00	8	2,464	0.000	1	7
Decibel DB586	118.00	8	2,464	0.000	1	7
Round Side Arms	118.00	200	59,369	0.005	14	170
Empty Side Arm	115.50	150	43,404	0.004	10	128
Side Arms	107.00	300	79,239	0.007	18	256
Sinclair SD210D	107.00	40	10,565	0.001	2	34
PCTEL GPS-TMG-HR-26N	90.00	1	129	0.000	0	1
Stand-Off	90.00	50	10,743	0.001	2	43
Andrew DB264-A	83.00	36	7,022	0.001	2	31
Stand-Off	83.00	50	9,753	0.001	2	43
12' Omni	82.00	40	7,691	0.001	2	34
Stand-Off	82.00	50	9,613	0.001	2	43
2" x 4" GPS	30.00	5	290	0.000	0	4
		48,363	10,995,864	1.000	2,534	41,205

Equivalent Modal Analysis Method

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period (S_s):	0.22
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.07
Importance Factor (I_e):	1.00
Site Coefficient F_a:	1.60
Site Coefficient F_v:	2.40
Response Modification Coefficient (R):	3.00
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.24
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.11
Period Based on Rayleigh Method (sec):	0.89
Redundancy Factor (p):	1.30

LoadCase (1.2 + 0.2Sds) * DL + E — Seismic

Section	Height Above Base (ft)	Weight (lb)	a	b	c	S_{az}	Horizontal Force (lb)	Vertical Force (lb)
9	170.00	1,461	1.686	1.069	0.793	0.351	222	1,823
8	150.00	2,256	1.312	0.138	0.347	0.146	143	2,816
7	130.00	3,412	0.986	-0.113	0.124	0.053	79	4,259
6	110.00	4,165	0.706	-0.089	0.031	0.041	73	5,198
5	90.00	4,336	0.472	-0.006	0.006	0.053	101	5,411
4	70.00	4,764	0.286	0.048	0.013	0.056	116	5,945
3	50.00	5,085	0.146	0.068	0.031	0.047	104	6,346
2	30.00	5,502	0.053	0.071	0.042	0.037	89	6,867
1	10.00	6,110	0.006	0.047	0.027	0.022	58	7,625
Ericsson RRUS 11 (Band 12)	180.00	330	1.890	1.980	1.140	0.500	72	412
Powerwave 7770.00	180.00	210	1.890	1.980	1.140	0.500	46	262
Powerwave LGP21401	180.00	85	1.890	1.980	1.140	0.500	18	106
Powerwave P65-16-XLH-RR	180.00	159	1.890	1.980	1.140	0.500	34	198
Powerwave TT19-08BP111-001	180.00	48	1.890	1.980	1.140	0.500	10	60
Raycap DC6-48-60-18-8F	180.00	32	1.890	1.980	1.140	0.500	7	40
Round Sector Frames	180.00	900	1.890	1.980	1.140	0.500	195	1,123
Alcatel-Lucent B25 RRH4x30	172.00	159	1.726	1.222	0.855	0.378	26	198
Alcatel-Lucent RRH2x60 700	172.00	170	1.726	1.222	0.855	0.378	28	212
Alcatel-Lucent RRH2X60-1900	172.00	129	1.726	1.222	0.855	0.378	21	161
Andrew DB844G65ZAXY	172.00	48	1.726	1.222	0.855	0.378	8	60
Commscope SBNHH-1D65B	172.00	304	1.726	1.222	0.855	0.378	50	380
RFS APL868013-42T0	172.00	13	1.726	1.222	0.855	0.378	2	16
RFS DB-T1-6Z-8AB-0Z	172.00	44	1.726	1.222	0.855	0.378	7	55
RFS DB-T1-6Z-8AB-0Z	172.00	44	1.726	1.222	0.855	0.378	7	55
RFS FD9R6004/1C-3L	172.00	19	1.726	1.222	0.855	0.378	3	23
Round Sector Frames	172.00	900	1.726	1.222	0.855	0.378	148	1,123
Decibel DB844H90E-XY	164.00	168	1.569	0.685	0.629	0.277	20	210
Round Sector Frame	164.00	900	1.569	0.685	0.629	0.277	108	1,123
Alcatel-Lucent 1900 MHz 4x45	154.00	180	1.383	0.253	0.415	0.177	14	225
Alcatel-Lucent 800 MHz RRH	154.00	159	1.383	0.253	0.415	0.177	12	198
Alcatel-Lucent TD-RRH8x20-25	154.00	210	1.383	0.253	0.415	0.177	16	262
RFS APXV9TM14-ALU-I20	154.00	165	1.383	0.253	0.415	0.177	13	206
RFS APXVSPP18-C-A20	154.00	171	1.383	0.253	0.415	0.177	13	213
Round Sector Frames	154.00	900	1.383	0.253	0.415	0.177	69	1,123
Scala OGT9-840	142.00	37	1.176	-0.017	0.237	0.097	2	46
Scala OGT9-840	142.00	37	1.176	-0.017	0.237	0.097	2	46
Side Arms	142.00	300	1.176	-0.017	0.237	0.097	13	374
TX RX 422-86A-99575-18R1	142.00	80	1.176	-0.017	0.237	0.097	3	100
Morad VHF 156-Deluxe	141.00	1	1.160	-0.030	0.226	0.092	0	1
Stand-Off	141.00	50	1.160	-0.030	0.226	0.092	2	62

Equivalent Modal Analysis Method

Andrew LNX-6515DS-VTM	140.00	154	1.143	-0.042	0.215	0.087	6	192
Ericsson AIR 21, 1.3M, B2A B4P	140.00	275	1.143	-0.042	0.215	0.087	10	343
Ericsson AIR 21, 1.3M, B4A B2P	140.00	271	1.143	-0.042	0.215	0.087	10	338
Kathrein Scala Smart Bias Tee	140.00	10	1.143	-0.042	0.215	0.087	0	12
Round Sector Frames	140.00	900	1.143	-0.042	0.215	0.087	34	1,123
Empty Side Arm	136.00	150	1.079	-0.081	0.174	0.071	5	187
24" x 24" Ice Shield	135.00	50	1.063	-0.088	0.165	0.067	1	62
24" x 24" Ice Shield	134.00	50	1.047	-0.095	0.156	0.064	1	62
Andrew DB810K-XT	131.00	35	1.001	-0.110	0.132	0.056	1	44
Andrew DB810K-XT	131.00	35	1.001	-0.110	0.132	0.056	1	44
Round Side Arms	131.00	200	1.001	-0.110	0.132	0.056	5	250
RFS PA6-65AC w/ Radome	129.00	278	0.971	-0.116	0.117	0.051	6	347
RFS PA6-65AC w/ Radome	128.00	278	0.956	-0.118	0.111	0.049	6	347
Bird 432-83H-01-T	127.00	25	0.941	-0.120	0.104	0.048	1	31
Round Side Arms	127.00	300	0.941	-0.120	0.104	0.048	6	374
Sinclair SE419-SF3P4LDF	127.00	24	0.941	-0.120	0.104	0.048	0	30
Sinclair SE419-SF3P4LDF	127.00	48	0.941	-0.120	0.104	0.048	1	60
Empty Side Arm	126.00	150	0.926	-0.121	0.098	0.046	3	187
Empty Side Arm	119.50	150	0.833	-0.117	0.064	0.040	3	187
Decibel DB586	118.00	8	0.812	-0.114	0.057	0.040	0	10
Decibel DB586	118.00	8	0.812	-0.114	0.057	0.040	0	10
Round Side Arms	118.00	200	0.812	-0.114	0.057	0.040	3	250
Empty Side Arm	115.50	150	0.778	-0.108	0.048	0.039	3	187
Side Arms	107.00	300	0.668	-0.077	0.024	0.042	5	374
Sinclair SD210D	107.00	40	0.668	-0.077	0.024	0.042	1	50
PCTEL GPS-TMG-HR-26N	90.00	1	0.472	-0.006	0.006	0.053	0	1
Stand-Off	90.00	50	0.472	-0.006	0.006	0.053	1	62
Andrew DB264-A	83.00	36	0.402	0.018	0.006	0.056	1	45
Stand-Off	83.00	50	0.402	0.018	0.006	0.056	1	62
12' Omni	82.00	40	0.392	0.021	0.007	0.056	1	50
Stand-Off	82.00	50	0.392	0.021	0.007	0.056	1	62
2" x 4" GPS	30.00	5	0.053	0.071	0.042	0.037	0	6
		48,363	81.097	27.856	26.208	12.073	2,072	60,357

LoadCase (0.9 - 0.2Sds) * DL + E — **Seismic (Reduced DL)**

Section	Height Above Base (ft)	Weight (lb)	a	b	c	S_{az}	Horizontal Force (lb)	Vertical Force (lb)
9	170.00	1,461	1.686	1.069	0.793	0.351	222	1,244
8	150.00	2,256	1.312	0.138	0.347	0.146	143	1,922
7	130.00	3,412	0.986	-0.113	0.124	0.053	79	2,907
6	110.00	4,165	0.706	-0.089	0.031	0.041	73	3,549
5	90.00	4,336	0.472	-0.006	0.006	0.053	101	3,694
4	70.00	4,764	0.286	0.048	0.013	0.056	116	4,059
3	50.00	5,085	0.146	0.068	0.031	0.047	104	4,332
2	30.00	5,502	0.053	0.071	0.042	0.037	89	4,688
1	10.00	6,110	0.006	0.047	0.027	0.022	58	5,205
Ericsson RRUS 11 (Band 12)	180.00	330	1.890	1.980	1.140	0.500	72	281
Powerwave 7770.00	180.00	210	1.890	1.980	1.140	0.500	46	179
Powerwave LGP21401	180.00	85	1.890	1.980	1.140	0.500	18	72
Powerwave P65-16-XLH-RR	180.00	159	1.890	1.980	1.140	0.500	34	135
Powerwave TT19-08BP111-001	180.00	48	1.890	1.980	1.140	0.500	10	41
Raycap DC6-48-60-18-8F	180.00	32	1.890	1.980	1.140	0.500	7	27
Round Sector Frames	180.00	900	1.890	1.980	1.140	0.500	195	767
Alcatel-Lucent B25 RRH4x30	172.00	159	1.726	1.222	0.855	0.378	26	135
Alcatel-Lucent RRH2x60 700	172.00	170	1.726	1.222	0.855	0.378	28	145
Alcatel-Lucent RRH2X60-1900	172.00	129	1.726	1.222	0.855	0.378	21	110
Andrew DB844G65ZAXY	172.00	48	1.726	1.222	0.855	0.378	8	41
Commscope SBNHH-1D65B	172.00	304	1.726	1.222	0.855	0.378	50	259
RFS APL868013-42T0	172.00	13	1.726	1.222	0.855	0.378	2	11
RFS DB-T1-6Z-8AB-0Z	172.00	44	1.726	1.222	0.855	0.378	7	37
RFS DB-T1-6Z-8AB-0Z	172.00	44	1.726	1.222	0.855	0.378	7	37
RFS FD9R6004/1C-3L	172.00	19	1.726	1.222	0.855	0.378	3	16

Equivalent Modal Analysis Method

Round Sector Frames	172.00	900	1.726	1.222	0.855	0.378	148	767
Decibel DB844H90E-XY	164.00	168	1.569	0.685	0.629	0.277	20	143
Round Sector Frame	164.00	900	1.569	0.685	0.629	0.277	108	767
Alcatel-Lucent 1900 MHz 4x45	154.00	180	1.383	0.253	0.415	0.177	14	153
Alcatel-Lucent 800 MHz RRH	154.00	159	1.383	0.253	0.415	0.177	12	135
Alcatel-Lucent TD-RRH8x20-25	154.00	210	1.383	0.253	0.415	0.177	16	179
RFS APXV9TM14-ALU-I20	154.00	165	1.383	0.253	0.415	0.177	13	141
RFS APXVSPP18-C-A20	154.00	171	1.383	0.253	0.415	0.177	13	146
Round Sector Frames	154.00	900	1.383	0.253	0.415	0.177	69	767
Scala OGT9-840	142.00	37	1.176	-0.017	0.237	0.097	2	32
Scala OGT9-840	142.00	37	1.176	-0.017	0.237	0.097	2	32
Side Arms	142.00	300	1.176	-0.017	0.237	0.097	13	256
TX RX 422-86A-99575-18R1	142.00	80	1.176	-0.017	0.237	0.097	3	68
Morad VHF 156-Deluxe	141.00	1	1.160	-0.030	0.226	0.092	0	1
Stand-Off	141.00	50	1.160	-0.030	0.226	0.092	2	43
Andrew LNX-6515DS-VTM	140.00	154	1.143	-0.042	0.215	0.087	6	131
Ericsson AIR 21, 1.3M, B2A B4P	140.00	275	1.143	-0.042	0.215	0.087	10	234
Ericsson AIR 21, 1.3M, B4A B2P	140.00	271	1.143	-0.042	0.215	0.087	10	231
Kathrein Scala Smart Bias Tee	140.00	10	1.143	-0.042	0.215	0.087	0	8
Round Sector Frames	140.00	900	1.143	-0.042	0.215	0.087	34	767
Empty Side Arm	136.00	150	1.079	-0.081	0.174	0.071	5	128
24" x 24" Ice Shield	135.00	50	1.063	-0.088	0.165	0.067	1	43
24" x 24" Ice Shield	134.00	50	1.047	-0.095	0.156	0.064	1	43
Andrew DB810K-XT	131.00	35	1.001	-0.110	0.132	0.056	1	30
Andrew DB810K-XT	131.00	35	1.001	-0.110	0.132	0.056	1	30
Round Side Arms	131.00	200	1.001	-0.110	0.132	0.056	5	170
RFS PA6-65AC w/ Radome	129.00	278	0.971	-0.116	0.117	0.051	6	237
RFS PA6-65AC w/ Radome	128.00	278	0.956	-0.118	0.111	0.049	6	237
Bird 432-83H-01-T	127.00	25	0.941	-0.120	0.104	0.048	1	21
Round Side Arms	127.00	300	0.941	-0.120	0.104	0.048	6	256
Sinclair SE419-SF3P4LDF	127.00	24	0.941	-0.120	0.104	0.048	0	20
Sinclair SE419-SF3P4LDF	127.00	48	0.941	-0.120	0.104	0.048	1	41
Empty Side Arm	126.00	150	0.926	-0.121	0.098	0.046	3	128
Empty Side Arm	119.50	150	0.833	-0.117	0.064	0.040	3	128
Decibel DB586	118.00	8	0.812	-0.114	0.057	0.040	0	7
Decibel DB586	118.00	8	0.812	-0.114	0.057	0.040	0	7
Round Side Arms	118.00	200	0.812	-0.114	0.057	0.040	3	170
Empty Side Arm	115.50	150	0.778	-0.108	0.048	0.039	3	128
Side Arms	107.00	300	0.668	-0.077	0.024	0.042	5	256
Sinclair SD210D	107.00	40	0.668	-0.077	0.024	0.042	1	34
PCTEL GPS-TMG-HR-26N	90.00	1	0.472	-0.006	0.006	0.053	0	1
Stand-Off	90.00	50	0.472	-0.006	0.006	0.053	1	43
Andrew DB264-A	83.00	36	0.402	0.018	0.006	0.056	1	31
Stand-Off	83.00	50	0.402	0.018	0.006	0.056	1	43
12' Omni	82.00	40	0.392	0.021	0.007	0.056	1	34
Stand-Off	82.00	50	0.392	0.021	0.007	0.056	1	43
2" x 4" GPS	30.00	5	0.053	0.071	0.042	0.037	0	4
		48,363	81.097	27.856	26.208	12.073	2,072	41,205

Force/Stress Summary

Section: 1 SSV — Bot Elev (ft): 0.00 — Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PSP - ROHN 8 EHS	-349.63	1.2D + 1.6W	9.77	100	100	100	40.1	50.0	388.80	0	0	0.00	0.00	89	Member X
HORIZ	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 4X4X0.3125	-11.97	1.2D + 1.6W 90	24.51	50	50	50	188.3	50.0	15.29	1	1	17.89	29.25	78	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PSP - ROHN 8 EHS	314.76	0.9D + 1.6W 60	50	65	437.40	0	0	0.00	0.00	71	Member
HORIZ	0.00		0	0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 4X4X0.3125	12.50	1.2D + 1.6W 90	50	65	77.75	1	1	17.89	17.67	70	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	282.00	0.9D + 1.6W 60	0.00	0	0	
Top Compression	323.07	1.2D + 1.6W	0.00	0		
Bot Tension	314.76	0.9D + 1.6W 60	605.70	52	10	1" A354-BC
Bot Compression	360.23	1.2D + 1.6W	0.00	0		

Section: 2 SSV — Bot Elev (ft): 20.00 — Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PSP - ROHN 8 EHS	-311.45	1.2D + 1.6W	9.77	100	100	100	40.1	50.0	388.80	0	0	0.00	0.00	80	Member X
HORIZ	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 4X4X0.25	-12.19	1.2D + 1.6W 90	22.69	50	50	50	171.3	43.5	14.94	1	1	17.89	23.40	81	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PSP - ROHN 8 EHS	282.35	0.9D + 1.6W 60	50	65	437.40	0	0	0.00	0.00	64	Member
HORIZ	0.00		0	0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 4X4X0.25	12.14	1.2D + 1.6W 90	50	65	62.93	1	1	17.89	14.14	85	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	247.06	0.9D + 1.6W 60	0.00	0	0	
Top Compression	282.63	1.2D + 1.6W	0.00	0		
Bot Tension	282.00	0.9D + 1.6W 60	436.16	65	8	1 A325
Bot Compression	323.07	1.2D + 1.6W	0.00	0		

Force/Stress Summary

Section: 3 SSV — Bot Elev (ft): 40.00 — Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PX - 6" DIA PIPE	-271.68	1.2D + 1.6W	9.77	100	100	100	53.4	50.0	306.85	0	0	0.00	0.00	88	Member X
HORIZ	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 4X4X0.25	-11.37	1.2D + 1.6W 90	19.95	50	50	50	150.6	43.5	19.33	1	1	17.89	23.40	63	Bolt Shear

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PX - 6" DIA PIPE	247.51	0.9D + 1.6W 60	50	65	378.00	0	0	0.00	0.00	65	Member
HORIZ	0.00		0	0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 4X4X0.25	11.00	1.2D + 1.6W 90	50	65	62.93	1	1	17.89	14.14	77	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	212.50	0.9D + 1.6W 60	0.00	0	0	
Top Compression	242.82	1.2D + 1.6W	0.00	0		
Bot Tension	247.06	0.9D + 1.6W 60	436.16	57	8	1 A325
Bot Compression	282.63	1.2D + 1.6W	0.00	0		

Section: 4 SSV — Bot Elev (ft): 60.00 — Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PX - 6" DIA PIPE	-230.73	1.2D + 1.6W	9.77	100	100	100	53.4	50.0	306.88	0	0	0.00	0.00	75	Member X
HORIZ	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3.5X3.5X0.25	-11.16	1.2D + 1.6W 90	19.03	50	50	50	164.5	42.0	14.10	1	1	17.89	23.40	79	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PX - 6" DIA PIPE	212.80	0.9D + 1.6W 60	50	65	378.00	0	0	0.00	0.00	56	Member
HORIZ	0.00		0	0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3.5X3.5X0.25	11.12	1.2D + 1.6W 90	50	65	53.79	1	1	17.89	14.14	78	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	173.68	0.9D + 1.6W 60	0.00	0	0	
Top Compression	198.88	1.2D + 1.6W	0.00	0		
Bot Tension	212.50	0.9D + 1.6W 60	327.12	65	6	1 A325
Bot Compression	242.82	1.2D + 1.6W	0.00	0		

Force/Stress Summary

Section: 5 SSV Bot Elev (ft): 80.00 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PSP - ROHN 5 EH	-190.02	1.2D + 1.6W	6.51	100	100	100	42.5	50.0	240.99	0	0	0.00	0.00	78	Member X
HORIZ	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3X3X0.25	-9.53	1.2D + 1.6W 90	15.89	50	50	50	161.1	50.0	12.54	1	1	17.89	23.40	75	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PSP - ROHN 5 EH	174.01	0.9D + 1.6W 60	50	65	274.95	0	0	0.00	0.00	63	Member
HORIZ	0.00		0	0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3X3X0.25	9.59	1.2D + 1.6W 90	50	65	44.65	1	1	17.89	14.14	67	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	133.94	0.9D + 1.6W 60	0.00	0	0	
Top Compression	154.11	1.2D + 1.6W	0.00	0		
Bot Tension	173.68	0.9D + 1.6W 60	327.12	53	6	1 A325
Bot Compression	198.88	1.2D + 1.6W	0.00	0		

Section: 6 SSV Bot Elev (ft): 100.0 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PSP - ROHN 5 EH	-145.13	1.2D + 1.6W	6.51	100	100	100	42.5	50.0	240.99	0	0	0.00	0.00	60	Member X
HORIZ	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3X3X0.25	-9.05	1.2D + 1.6W 90	14.07	50	50	50	142.7	50.0	15.99	1	1	17.89	23.40	56	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PSP - ROHN 5 EH	132.25	1.2D + 1.6W 60	50	65	274.95	0	0	0.00	0.00	48	Member
HORIZ	0.00		0	0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3X3X0.25	9.07	1.2D + 1.6W 90	50	65	44.65	1	1	17.89	14.14	64	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	91.60	0.9D + 1.6W 60	0.00	0	0	
Top Compression	106.72	1.2D + 1.6W	0.00	0		
Bot Tension	133.94	0.9D + 1.6W 60	327.12	41	6	1 A325
Bot Compression	154.11	1.2D + 1.6W	0.00	0		

Force/Stress Summary

Section: 7 SSV — Bot Elev (ft): 120.0 — Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PX - 4" DIA PIPE	-97.77	1.2D + 1.6W	6.51	100	100	100	52.8	50.0	161.86	0	0	0.00	0.00	60	Member X
HORIZ	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 2.5X2.5X0.25	-8.00	1.2D + 1.6W 90	12.32	50	50	50	150.6	50.0	11.85	1	1	17.89	23.40	67	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PX - 4" DIA PIPE	91.84	0.9D + 1.6W 60	50	65	198.45	0	0	0.00	0.00	46	Member
HORIZ	0.00		0	0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 2.5X2.5X0.25	7.89	1.2D + 1.6W 90	50	65	35.51	1	1	17.89	14.14	55	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	51.80	0.9D + 1.6W 60	0.00	0	0	
Top Compression	62.65	1.2D + 1.6W	0.00	0		
Bot Tension	91.60	0.9D + 1.6W 60	218.08	42	4	1 A325
Bot Compression	106.72	1.2D + 1.6W	0.00	0		

Section: 8 SSV — Bot Elev (ft): 140.0 — Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PST - 3" DIA PIPE	-56.66	1.2D + 1.6W	4.88	100	100	100	50.5	50.0	83.27	0	0	0.00	0.00	68	Member X
HORIZ SAE - 1.75X1.75X0.18	-0.29	1.2D + 1.6W 90	6.688	100	100	100	234.0	36.0	2.56	1	1	12.43	13.05	11	Member Z
DIAG SAE - 2X2X0.25	-4.65	1.2D + 1.6W 90	9.784	50	50	50	150.1	50.0	9.42	1	1	12.43	19.50	49	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PST - 3" DIA PIPE	52.40	0.9D + 1.6W 60	50	65	100.35	0	0	0.00	0.00	52	Member
HORIZ SAE - 1.75X1.75X0.18	0.27	1.2D + 1.6W 60	36	58	15.67	1	1	12.43	7.83	3	Bolt Bear
DIAG SAE - 2X2X0.25	4.63	1.2D + 1.6W 90	50	65	27.51	1	1	12.43	11.70	39	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	20.96	0.9D + 1.6W 60	0.00	0	0	
Top Compression	25.44	1.2D + 1.6W	0.00	0		
Bot Tension	51.80	0.9D + 1.6W 60	166.24	31	4	7/8 A325
Bot Compression	62.65	1.2D + 1.6W	0.00	0		

Force/Stress Summary

Section: 9 SSV **Bot Elev (ft): 160.0** **Height (ft): 20.000**

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PST - 2-1/2" DIA PIP	-25.01	1.2D + 1.6W	0.25	100	100	100	3.2	50.0	76.62	0	0	0.00	0.00	32	Member X
HORIZ SAE - 1.75X1.75X0.18	-0.77	1.2D + 1.6W 60	6.646	100	100	100	232.5	36.0	2.60	1	1	12.43	13.05	29	Member Z
DIAG SAE - 1.75X1.75X0.18	-4.24	1.2D + 1.6W 90	7.738	50	50	50	135.4	50.0	7.66	1	1	12.43	14.63	55	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PST - 2-1/2" DIA PIP	20.80	0.9D + 1.6W 60	50	65	76.68	0	0	0.00	0.00	27	Member
HORIZ SAE - 1.75X1.75X0.18	0.76	1.2D + 1.6W 90	36	58	15.67	1	1	12.43	7.83	9	Bolt Bear
DIAG SAE - 1.75X1.75X0.18	4.18	1.2D + 1.6W 90	50	65	17.56	1	1	12.43	8.77	47	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	0.00		0.00	0	0	
Top Compression	2.20	1.2D + 1.0Di +	0.00	0		
Bot Tension	20.96	0.9D + 1.6W 60	120.40	17	4	3/4 A325
Bot Compression	25.44	1.2D + 1.6W	0.00	0		

Support Forces Summary

Load Case	Node	FX (kip)	FY (kip)	FZ (kip)	(-) = Uplift (+) = Down
(0.9 - 0.2Sds) * DL + E 60 deg M1	1b	-0.56	-2.58	-0.33	
	1a	-1.49	21.37	0.74	
	1	-0.10	21.37	-1.66	
(0.9 - 0.2Sds) * DL + E 60 deg M2	1b	-0.33	-0.58	-0.19	
	1a	-1.35	20.37	0.70	
	1	-0.07	20.37	-1.52	
(0.9 - 0.2Sds) * DL + E 90 deg M1	1b	-0.42	-0.44	-0.17	
	1a	-1.95	27.21	1.06	
	1	-0.12	13.39	-0.89	
(0.9 - 0.2Sds) * DL + E 90 deg M2	1b	-0.20	1.29	-0.07	
	1a	-1.74	25.49	0.96	
	1	-0.08	13.39	-0.89	
(0.9 - 0.2Sds) * DL + E Normal M1	1b	0.15	5.41	-0.03	
	1a	-0.15	5.41	-0.03	
	1	0.00	29.35	-2.43	
(0.9 - 0.2Sds) * DL + E Normal M2	1b	0.25	6.40	0.07	
	1a	-0.25	6.40	0.07	
	1	0.00	27.36	-2.16	
(1.2 + 0.2Sds) * DL + E 60 deg M1	1b	-0.21	3.62	-0.12	
	1a	-1.85	27.61	0.95	
	1	-0.10	27.61	-2.07	
(1.2 + 0.2Sds) * DL + E 60 deg M2	1b	0.03	5.61	0.02	
	1a	-1.71	26.61	0.91	
	1	-0.07	26.61	-1.94	
(1.2 + 0.2Sds) * DL + E 90 deg M1	1b	-0.06	5.76	0.04	
	1a	-2.31	33.46	1.27	
	1	-0.12	19.61	-1.30	
(1.2 + 0.2Sds) * DL + E 90 deg M2	1b	0.15	7.49	0.13	
	1a	-2.10	31.73	1.17	
	1	-0.08	19.61	-1.30	
(1.2 + 0.2Sds) * DL + E Normal M1	1b	0.51	11.62	0.17	
	1a	-0.51	11.62	0.17	
	1	0.00	35.60	-2.84	
(1.2 + 0.2Sds) * DL + E Normal M2	1b	0.61	12.61	0.27	
	1a	-0.61	12.61	0.27	
	1	0.00	33.61	-2.57	
0.9D + 1.6W 60 deg	1b	-31.15	-312.86	-17.98	
	1a	-18.67	178.03	6.03	
	1	-4.11	178.35	-19.20	
0.9D + 1.6W 90 deg	1b	-28.39	-271.42	-13.56	
	1a	-29.73	300.43	14.39	
	1	-4.85	14.51	-0.84	
0.9D + 1.6W Normal	1b	-13.68	-155.14	-12.98	
	1a	13.68	-155.14	-12.98	

	1	0.00	353.80	-39.07
1.0D + 1.0W Service 60 deg	1b	-6.30	-58.15	-3.64
	1a	-4.96	53.22	1.79
	1	-0.92	53.29	-5.19
1.0D + 1.0W Service 90 deg	1b	-5.67	-48.74	-2.65
	1a	-7.46	80.99	3.68
	1	-1.09	16.12	-1.04
1.0D + 1.0W Service Normal	1b	-2.36	-22.36	-2.50
	1a	2.36	-22.36	-2.50
	1	0.00	93.08	-9.69
1.2D + 1.0Di + 1.0Wi 60 deg	1b	-10.30	-48.08	-5.94
	1a	-6.52	113.62	2.11
	1	-1.44	113.82	-6.70
1.2D + 1.0Di + 1.0Wi 90 deg	1b	-9.32	-33.90	-4.41
	1a	-10.18	153.47	4.92
	1	-1.67	59.79	-0.51
1.2D + 1.0Di + 1.0Wi Normal	1b	-4.29	4.99	-4.17
	1a	4.29	4.99	-4.17
	1	0.00	169.38	-13.11
1.2D + 1.6W 60 deg	1b	-30.88	-308.43	-17.82
	1a	-18.94	183.07	6.20
	1	-4.11	183.39	-19.51
1.2D + 1.6W 90 deg	1b	-28.12	-266.94	-13.41
	1a	-30.00	305.62	14.55
	1	-4.85	19.35	-1.15
1.2D + 1.6W Normal	1b	-13.41	-150.51	-12.82
	1a	13.41	-150.51	-12.82
	1	0.00	359.06	-39.39

Max Uplift:	312.86 (kip)	Moment:	6,766.55 (kip-ft)	1.2D + 1.6W Normal
Max Down:	359.06 (kip)	Total Down:	58.04 (kip)	
Max Shear:	39.39 (kip)	Total Shear:	65.04 (kip)	

Deflections and Rotations

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)
100 mph 60 deg with No Ice (Reduced DL)	30.00	0.0538	0.0143	0.1626
	80.25	0.3180	0.0584	0.4939
	86.75	0.3695	0.0664	0.4640
	106.75	0.5569	0.0884	0.5770
	113.25	0.6256	0.0938	0.6145
	119.75	0.6984	0.0985	0.7382
	126.75	0.7821	0.1113	0.6956
	133.25	0.8636	0.1309	0.7153
	140.00	0.9522	0.1531	0.9012
	140.25	0.9562	0.1556	0.8999
	154.88	1.1680	0.3009	0.8055
	164.15	1.3170	0.2990	0.9049
	171.95	1.4461	0.2846	0.9592
	180.00	1.5805	0.2713	1.1055
100 mph 60 degree with No Ice	30.00	0.0538	0.0143	0.1628
	80.25	0.3184	0.0584	0.4949
	86.75	0.3700	0.0664	0.4648
	106.75	0.5577	0.0884	0.5781
	113.25	0.6266	0.0938	0.6156
	119.75	0.6995	0.0986	0.7396
	126.75	0.7833	0.1113	0.6969
	133.25	0.8650	0.1309	0.7167
	140.00	0.9538	0.1531	0.9035
	140.25	0.9578	0.1556	0.9021
	154.88	1.1700	0.3010	0.8073
	164.15	1.3194	0.2991	0.9069
	171.95	1.4488	0.2846	0.9614
	180.00	1.5835	0.2712	1.1084
100 mph 90 deg with No Ice (Reduced DL)	30.00	0.0537	0.0119	0.1670
	80.25	0.3200	0.0427	0.4840
	86.75	0.3720	0.0464	0.4664
	106.75	0.5605	0.0605	0.5760
	113.25	0.6298	0.0641	0.6177
	119.75	0.7030	0.0687	0.7287
	126.75	0.7874	0.0746	0.7058
	133.25	0.8691	0.0849	0.7150
	140.00	0.9587	0.0995	0.8904
	140.25	0.9627	0.1005	0.8882
	154.88	1.1754	0.1698	0.7446
	164.15	1.3257	0.1772	0.9133
	171.95	1.4560	0.1769	0.9669
	180.00	1.5910	0.1771	1.1567
100 mph 90 degree with No Ice	30.00	0.0538	0.0119	0.1672
	80.25	0.3204	0.0428	0.4846
	86.75	0.3725	0.0465	0.4672
	106.75	0.5614	0.0605	0.5771
	113.25	0.6308	0.0642	0.6189
	119.75	0.7042	0.0688	0.7303
	126.75	0.7886	0.0746	0.7072
	133.25	0.8705	0.0849	0.7164
	140.00	0.9604	0.0995	0.8921

	140.25	0.9643	0.1006	0.8899
	154.88	1.1774	0.1699	0.7465
	164.15	1.3281	0.1772	0.9153
	171.95	1.4587	0.1769	0.9691
	180.00	1.5940	0.1771	1.1596
100 mph Normal to Face with No Ice (Reduced DL)	30.00	0.0560	0.0045	0.1693
	80.25	0.3288	0.0300	0.5277
	86.75	0.3820	0.0376	0.4783
	106.75	0.5750	0.0528	0.6062
	113.25	0.6458	0.0564	0.6355
	119.75	0.7207	0.0582	0.7673
	126.75	0.8068	0.0708	0.6937
	133.25	0.8907	0.0873	0.7517
	140.00	0.9824	0.1033	0.9278
	140.25	0.9863	0.1060	0.9266
	154.88	1.2042	0.2414	0.9897
	164.15	1.3581	0.2455	0.9392
	171.95	1.4913	0.2443	0.9774
	180.00	1.6282	0.2434	0.9413
100 mph Normal to Face with No Ice	30.00	0.0561	0.0045	0.1695
	80.25	0.3293	0.0300	0.5283
	86.75	0.3826	0.0375	0.4791
	106.75	0.5759	0.0528	0.6073
	113.25	0.6468	0.0563	0.6368
	119.75	0.7219	0.0581	0.7689
	126.75	0.8082	0.0707	0.6951
	133.25	0.8923	0.0873	0.7532
	140.00	0.9841	0.1032	0.9295
	140.25	0.9879	0.1060	0.9284
	154.88	1.2064	0.2413	0.9916
	164.15	1.3606	0.2454	0.9412
	171.95	1.4940	0.2442	0.9796
	180.00	1.6313	0.2433	0.9434
50 mph 60 degree with 0.75 in Radial Ice	30.00	0.0200	0.0066	0.0538
	80.25	0.1055	0.0268	0.1638
	86.75	0.1222	0.0303	0.1495
	106.75	0.1817	0.0396	0.1804
	113.25	0.2036	0.0401	0.1950
	119.75	0.2263	0.0400	0.2312
	126.75	0.2527	0.0406	0.2189
	133.25	0.2780	0.0437	0.2240
	140.00	0.3058	0.0477	0.2837
	140.25	0.3071	0.0481	0.2821
	154.88	0.3723	0.0732	0.2537
	164.15	0.4181	0.0740	0.2793
	171.95	0.4578	0.0729	0.2935
	180.00	0.4991	0.0719	0.3328
50 mph 90 degree with 0.75 in Radial Ice	30.00	0.0196	0.0052	0.0550
	80.25	0.1054	0.0190	0.1575
	86.75	0.1221	0.0208	0.1492
	106.75	0.1819	0.0267	0.1756
	113.25	0.2038	0.0273	0.1955
	119.75	0.2266	0.0278	0.2291
	126.75	0.2530	0.0279	0.2225
	133.25	0.2783	0.0298	0.2224
	140.00	0.3064	0.0328	0.2782
	140.25	0.3076	0.0329	0.2763

	154.88	0.3728	0.0456	0.2415
	164.15	0.4189	0.0472	0.2804
	171.95	0.4587	0.0471	0.2945
	180.00	0.5001	0.0469	0.3407
50 mph Normal with 0.75 in Radial Ice	30.00	0.0186	0.0036	0.0570
	80.25	0.1062	0.0184	0.1686
	86.75	0.1232	0.0220	0.1510
	106.75	0.1838	0.0295	0.1959
	113.25	0.2060	0.0296	0.1977
	119.75	0.2292	0.0285	0.2402
	126.75	0.2560	0.0296	0.2133
	133.25	0.2814	0.0324	0.2328
	140.00	0.3101	0.0350	0.2797
	140.25	0.3113	0.0355	0.2806
	154.88	0.3774	0.0617	0.2900
	164.15	0.4242	0.0618	0.2832
	171.95	0.4644	0.0614	0.2954
	180.00	0.5059	0.0612	0.2914
Seismic (Reduced DL) 60 degree M1	30.00	0.0025	0.0004	0.0080
	80.25	0.0158	0.0011	0.0262
	86.75	0.0185	0.0011	0.0244
	106.75	0.0284	0.0013	0.0309
	113.25	0.0321	0.0014	0.0329
	119.75	0.0360	0.0016	0.0397
	126.75	0.0405	0.0015	0.0372
	133.25	0.0449	0.0016	0.0392
	140.00	0.0498	0.0018	0.0506
	140.25	0.0500	0.0018	0.0503
	154.88	0.0617	0.0013	0.0470
	164.15	0.0701	0.0015	0.0505
	171.95	0.0772	0.0014	0.0530
	180.00	0.0846	0.0013	0.0565
Seismic (Reduced DL) 60 degree M2	30.00	0.0021	0.0003	0.0069
	80.25	0.0139	0.0009	0.0229
	86.75	0.0164	0.0009	0.0225
	106.75	0.0256	0.0011	0.0297
	113.25	0.0292	0.0012	0.0319
	119.75	0.0330	0.0013	0.0382
	126.75	0.0375	0.0013	0.0377
	133.25	0.0420	0.0013	0.0400
	140.00	0.0470	0.0016	0.0535
	140.25	0.0473	0.0016	0.0533
	154.88	0.0599	0.0009	0.0519
	164.15	0.0694	0.0013	0.0573
	171.95	0.0777	0.0012	0.0613
	180.00	0.0863	0.0012	0.0663
Seismic (Reduced DL) 90 degree M1	30.00	0.0026	0.0002	0.0081
	80.25	0.0159	0.0006	0.0258
	86.75	0.0186	0.0006	0.0245
	106.75	0.0285	0.0008	0.0310
	113.25	0.0322	0.0008	0.0331
	119.75	0.0361	0.0009	0.0393
	126.75	0.0406	0.0009	0.0372
	133.25	0.0450	0.0009	0.0396
	140.00	0.0499	0.0010	0.0494
	140.25	0.0501	0.0010	0.0491
	154.88	0.0618	0.0007	0.0476

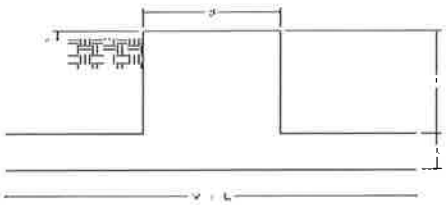
	164.15	0.0701	0.0009	0.0508
	171.95	0.0772	0.0008	0.0531
	180.00	0.0846	0.0007	0.0560
Seismic (Reduced DL) 90 degree M2	30.00	0.0022	0.0002	0.0070
	80.25	0.0140	0.0005	0.0226
	86.75	0.0164	0.0005	0.0225
	106.75	0.0257	0.0006	0.0298
	113.25	0.0292	0.0007	0.0321
	119.75	0.0331	0.0008	0.0379
	126.75	0.0376	0.0007	0.0378
	133.25	0.0421	0.0007	0.0404
	140.00	0.0471	0.0009	0.0522
	140.25	0.0473	0.0009	0.0520
	154.88	0.0601	0.0005	0.0528
	164.15	0.0695	0.0007	0.0579
	171.95	0.0777	0.0007	0.0613
	180.00	0.0863	0.0006	0.0655
Seismic (Reduced DL) Normal M1	30.00	0.0026	0.0004	0.0079
	80.25	0.0159	0.0011	0.0249
	86.75	0.0186	0.0011	0.0243
	106.75	0.0285	0.0014	0.0309
	113.25	0.0322	0.0014	0.0330
	119.75	0.0361	0.0016	0.0400
	126.75	0.0406	0.0015	0.0372
	133.25	0.0451	0.0016	0.0393
	140.00	0.0499	0.0018	0.0491
	140.25	0.0501	0.0018	0.0494
	154.88	0.0619	0.0013	0.0471
	164.15	0.0701	0.0015	0.0502
	171.95	0.0772	0.0014	0.0532
	180.00	0.0846	0.0014	0.0548
Seismic (Reduced DL) Normal M2	30.00	0.0023	0.0003	0.0069
	80.25	0.0140	0.0009	0.0220
	86.75	0.0165	0.0009	0.0224
	106.75	0.0257	0.0011	0.0298
	113.25	0.0293	0.0012	0.0320
	119.75	0.0331	0.0014	0.0385
	126.75	0.0376	0.0013	0.0377
	133.25	0.0421	0.0014	0.0401
	140.00	0.0471	0.0016	0.0521
	140.25	0.0473	0.0016	0.0524
	154.88	0.0601	0.0009	0.0520
	164.15	0.0695	0.0013	0.0570
	171.95	0.0777	0.0013	0.0614
	180.00	0.0863	0.0012	0.0646
Seismic 60 degree M1	30.00	0.0025	0.0004	0.0080
	80.25	0.0159	0.0011	0.0266
	86.75	0.0186	0.0011	0.0245
	106.75	0.0285	0.0013	0.0309
	113.25	0.0322	0.0014	0.0329
	119.75	0.0361	0.0016	0.0397
	126.75	0.0406	0.0015	0.0373
	133.25	0.0451	0.0016	0.0392
	140.00	0.0499	0.0018	0.0511
	140.25	0.0502	0.0018	0.0507
	154.88	0.0619	0.0013	0.0471
	164.15	0.0702	0.0015	0.0507

	171.95	0.0774	0.0014	0.0532
	180.00	0.0848	0.0013	0.0571
Seismic 60 degree M2	30.00	0.0021	0.0003	0.0070
	80.25	0.0140	0.0009	0.0233
	86.75	0.0164	0.0009	0.0226
	106.75	0.0257	0.0011	0.0298
	113.25	0.0292	0.0012	0.0319
	119.75	0.0331	0.0013	0.0382
	126.75	0.0376	0.0013	0.0378
	133.25	0.0421	0.0013	0.0400
	140.00	0.0471	0.0016	0.0540
	140.25	0.0473	0.0016	0.0537
	154.88	0.0601	0.0009	0.0520
	164.15	0.0696	0.0013	0.0576
	171.95	0.0779	0.0012	0.0615
	180.00	0.0865	0.0012	0.0669
Seismic 90 degree M1	30.00	0.0026	0.0002	0.0081
	80.25	0.0159	0.0006	0.0261
	86.75	0.0186	0.0006	0.0245
	106.75	0.0286	0.0008	0.0311
	113.25	0.0322	0.0008	0.0332
	119.75	0.0362	0.0009	0.0394
	126.75	0.0407	0.0009	0.0373
	133.25	0.0452	0.0009	0.0397
	140.00	0.0500	0.0010	0.0499
	140.25	0.0502	0.0010	0.0495
	154.88	0.0620	0.0007	0.0477
	164.15	0.0703	0.0009	0.0509
	171.95	0.0774	0.0008	0.0534
	180.00	0.0848	0.0008	0.0565
Seismic 90 degree M2	30.00	0.0023	0.0002	0.0070
	80.25	0.0140	0.0005	0.0230
	86.75	0.0165	0.0005	0.0226
	106.75	0.0258	0.0006	0.0299
	113.25	0.0293	0.0007	0.0322
	119.75	0.0332	0.0008	0.0380
	126.75	0.0377	0.0007	0.0379
	133.25	0.0422	0.0008	0.0405
	140.00	0.0472	0.0009	0.0527
	140.25	0.0474	0.0009	0.0523
	154.88	0.0602	0.0005	0.0529
	164.15	0.0697	0.0007	0.0580
	171.95	0.0779	0.0007	0.0616
	180.00	0.0865	0.0006	0.0660
Seismic Normal M1	30.00	0.0027	0.0004	0.0079
	80.25	0.0160	0.0011	0.0250
	86.75	0.0187	0.0011	0.0244
	106.75	0.0286	0.0014	0.0310
	113.25	0.0323	0.0014	0.0332
	119.75	0.0362	0.0016	0.0401
	126.75	0.0407	0.0015	0.0373
	133.25	0.0452	0.0016	0.0395
	140.00	0.0500	0.0018	0.0489
	140.25	0.0502	0.0018	0.0493
	154.88	0.0620	0.0013	0.0473
	164.15	0.0703	0.0015	0.0502
	171.95	0.0774	0.0014	0.0534

	180.00	0.0848	0.0014	0.0551
Seismic Normal M2	30.00	0.0023	0.0003	0.0069
	80.25	0.0141	0.0009	0.0222
	86.75	0.0165	0.0009	0.0224
	106.75	0.0258	0.0011	0.0298
	113.25	0.0294	0.0012	0.0322
	119.75	0.0332	0.0014	0.0387
	126.75	0.0377	0.0013	0.0378
	133.25	0.0422	0.0014	0.0403
	140.00	0.0472	0.0016	0.0519
	140.25	0.0474	0.0016	0.0523
	154.88	0.0603	0.0009	0.0521
	164.15	0.0697	0.0013	0.0571
	171.95	0.0779	0.0013	0.0616
	180.00	0.0865	0.0012	0.0644
Serviceability - 60 mph Wind 60 degree	30.00	0.0120	0.0029	0.0370
	80.25	0.0721	0.0119	0.1130
	86.75	0.0838	0.0136	0.1054
	106.75	0.1262	0.0181	0.1308
	113.25	0.1418	0.0192	0.1393
	119.75	0.1582	0.0202	0.1671
	126.75	0.1772	0.0229	0.1576
	133.25	0.1956	0.0269	0.1621
	140.00	0.2158	0.0314	0.2050
	140.25	0.2167	0.0319	0.2045
	154.88	0.2645	0.0615	0.1826
	164.15	0.2984	0.0627	0.2048
	171.95	0.3276	0.0616	0.2169
	180.00	0.3579	0.0607	0.2511
Serviceability - 60 mph Wind 90 degree	30.00	0.0123	0.0027	0.0379
	80.25	0.0727	0.0096	0.1105
	86.75	0.0844	0.0104	0.1058
	106.75	0.1272	0.0135	0.1306
	113.25	0.1429	0.0143	0.1400
	119.75	0.1595	0.0153	0.1653
	126.75	0.1786	0.0167	0.1599
	133.25	0.1971	0.0190	0.1620
	140.00	0.2173	0.0221	0.2020
	140.25	0.2182	0.0223	0.2013
	154.88	0.2664	0.0379	0.1686
	164.15	0.3004	0.0395	0.2066
	171.95	0.3299	0.0393	0.2187
	180.00	0.3604	0.0392	0.2625
Serviceability - 60 mph Wind Normal	30.00	0.0129	0.0010	0.0384
	80.25	0.0747	0.0066	0.1189
	86.75	0.0868	0.0083	0.1084
	106.75	0.1306	0.0117	0.1374
	113.25	0.1466	0.0125	0.1441
	119.75	0.1637	0.0128	0.1740
	126.75	0.1832	0.0157	0.1572
	133.25	0.2022	0.0195	0.1703
	140.00	0.2228	0.0229	0.2087
	140.25	0.2237	0.0236	0.2087
	154.88	0.2732	0.0541	0.2239
	164.15	0.3078	0.0548	0.2123
	171.95	0.3379	0.0545	0.2210
	180.00	0.3688	0.0542	0.2117

Site Name:	Redding, CT
Site Number:	302522
Engineering Number:	64913521
Engineer:	Z. Medoff
Date:	01/19/16
Tower Type:	SST w/3 Legs

Program Last Updated: *11/15/2012*



Design Loads (Factored) - Analysis per TIA-222-G Standards

Design / Analysis / Mapping:	Analysis				
Compression/Leg:	359.1	k	Concrete Strength (f'_c):	3000	psi
Uplift/Leg:	312.9	k	Pad Tension Steel Depth:	50.00	in
Total Shear:	65.0	k	ϕ_{Shear}:	0.75	
Moment:	6766.7	k-ft	$\phi_{Flexure\ /\ Tension}$:	0.90	
Tower + Appurtenance Weight:	48.4	k	$\phi_{Compression}$:	0.65	
Depth to Base of Foundation (l + t - h):	4.00	ft	β:	0.85	
Diameter of Pier (d):	0.75	ft	Bottom Pad Rebar Size #:	7	
Height of Pier above Ground (h):	0.00		# of Bottom Pad Rebar:	39	
Width of Pad (W):	32.25	ft	Pad Bottom Steel Area:	23.40	in^2
Length of Pad (L):	32.25	ft	Pad Steel F_y:	60000	psi
Thickness of Pad (t):	4.50	ft	Top Pad Rebar Size #:	7	
Tower Leg Center to Center:	23.00	ft	# of Top Pad Rebar:	39	
Number of Tower Legs:	3.0	(1 if MP or GT)	Pad Top Steel Area:	23.40	in^2
Tower Center from Mat Center:	0.00	ft			
Depth Below Ground Surface to Water Table:	16.00	ft			
Unit Weight of Concrete:	150.0	pcf			
Unit Weight of Soil Above Water Table:	100.0	pcf			
Unit Weight of Water:	62.4	pcf			
Unit Weight of Soil Below Water Table:	50.0	pcf			
Friction Angle of Uplift:	0.0	Degrees			
Ultimate Coefficient of Shear Friction:	0.35				
Ultimate Compressive Bearing Pressure:	16000.0	psf			
Ultimate Passive Pressure on Pad Face:	0.0	psf			
$\phi_{Soil\ and\ Concrete\ Weight}$:	0.9				
ϕ_{Soil}:	0.75				

Overturning Moment Usage

Design OTM:	7026.7	k-ft
OTM Resistance:	10773.7	k-ft
Design OTM / OTM Resistance:	0.65	Result: OK

Soil Bearing Pressure Usage

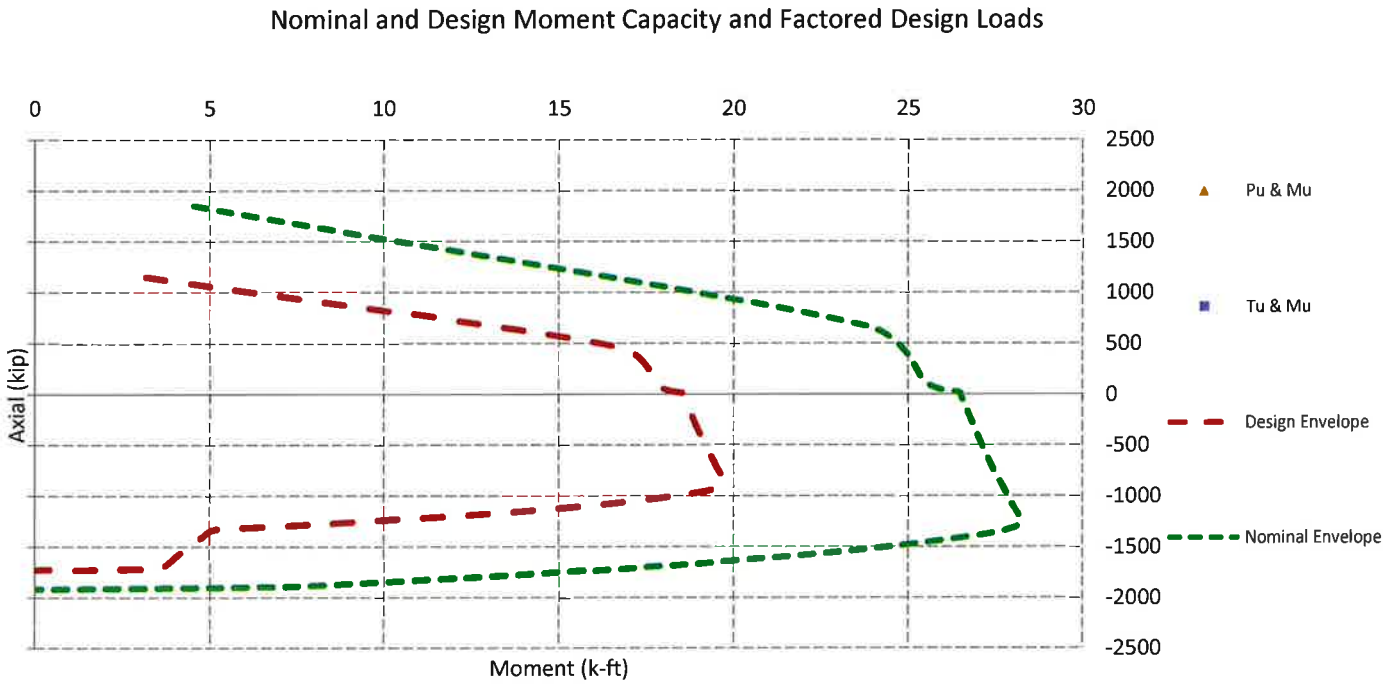
Net Bearing Pressure:	2198	psf
Factored Nominal Bearing Pressure:	12000	psf
Net Bearing Pressure/Factored Nominal Bearing Pressure:	0.18	Result: OK
Load Direction Controling Design Bearing Pressure:	Diagonal to Pad Edge	

Sliding Factor of Safety

Total Factored Sliding Resistance:	194.9	k
Sliding Design / Sliding Resistance:	0.33	Result: OK

One Way Shear, Flexual Capacity, and Punching Shear

Factored One Way Shear (V_u):	221.8	k
One Way Shear Capacity (ϕV_c):	1169.5	k - ACI11.3.1.1
V_u / ϕV_c:	0.19	Result: OK
Load Direction Controling Shear Capacity:	Diagonal to Pad Edge	
Lower Steel Pad Factored Moment (M_u):	2152.4	k-ft
Lower Steel Pad Moment Capacity (ϕM_n):	5082.6	k-ft - ACI10.3
M_u / ϕM_n:	0.42	Result: OK
Load Direction Controling Flexural Capacity:	Diagonal to Pad Edge	
Upper Steel Pad Factored Moment (M_u):	1249.6	k-ft
Upper Steel Pad Moment Capacity (ϕM_n):	5201.3	k-ft
M_u / ϕM_n:	0.24	Result: OK
Lower Pad Flexural Reinforcement Ratio:	0.0012	OK - Minimum Reinforcement Ratio Met - ACI10.5.1
Upper Pad Flexural Reinforcement Ratio:	0.0012	OK - Minimum Reinforcement Ratio Met - ACI10.5.1
Lower Pad Reinforcement Spacing:	10	in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
Upper Pad Reinforcement Spacing:	10	in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
Factored Punching Shear (V_u):	334.8	k
Nominal Punching Shear Capacity ($\phi_c V_n$):	1522.8	k - ACI11.12.2.1
V_u / ϕV_c:	0.22	Result: OK



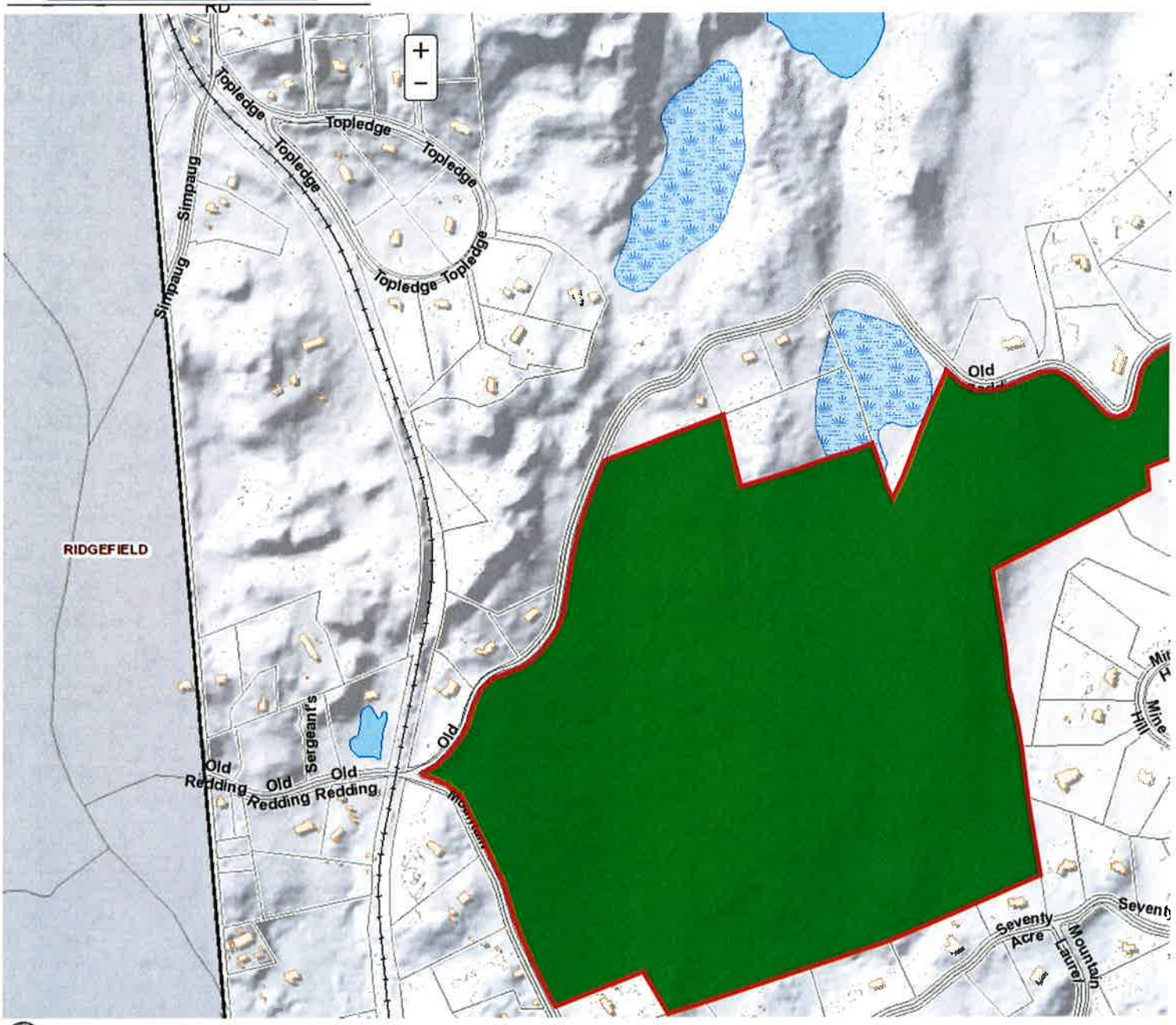
ATTACHMENT 4

-73.440417, 41.286504

100 OLD REDDING RD

REM_ACCT_NUM:	00300300
LOCATION:	100 OLD REDDING RD
SLH_OWN_NAME:	KAUFMAN ROBERT J
SLH_CO_OWN_NAME:	N/A

Owner | Assessment | Sales



0 200 400ft

100 OLD REDDING RD

Location	100 OLD REDDING RD	**Assessment**	$268,400
Mblu	35/ / 46/ C/	**Appraisal**	$383,500
Acct#	3546C	**PID**	100605
Owner	KAUFMAN ROBERT J	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$23,500	$360,000	$383,500
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$16,400	$252,000	$268,400

Owner of Record

Owner	KAUFMAN ROBERT J
Co-Owner	
Address	100 OLD REDDING RD REDDING, CT 06896

Sale Price	$0
Certificate	
Book & Page	117/ 510
Sale Date	06/15/1983
Instrument	XX

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
KAUFMAN ROBERT J	$0		117/ 510	XX	06/15/1983

Building Information

Building 1 : Section 1

Year Built:	
Living Area:	0
Replacement Cost:	$0
Building Percent Good:	
Replacement Cost Less Depreciation:	$0

Building Attributes	
Field	**Description**
Style	Colonial

Model	
Grade:	
Stories	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms	
Full Bathrooms	
Half Bathrooms	
Total Xtra Fixtrs	
Total Rooms	
Bath Style:	
Kitchen Style:	
Fireplaces	
Whirlpool Tubs	
Fin Bsmt Area	
Fin Bsmt Qual	
Bsmt Garages	

Building Photo

(http://images.vgsi.com/photos/ReddingCTPhotos//default.jpg)

Building Layout

Building Layout

Building Sub-Areas	Legend
No Data for Building Sub-Areas	

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	435
Description	Cell Site Vac Lnd
Zone	R-2
Neighborhood	
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	0
Frontage	
Depth	
Assessed Value	$252,000
Appraised Value	$360,000

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
SHD1	Shed	BR	Brick/Frame	1080 S.F.	$15,700	1
SHD1	Shed	FR	Frame	600 S.F.	$4,900	1
SHD1	Shed	BR	Brick/Frame	200 S.F.	$2,900	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2013	$23,500	$360,000	$383,500
2012	$23,500	$360,000	$383,500

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2013	$16,400	$252,000	$268,400
2012	$16,400	$252,000	$268,400