



Northeast Site Solutions
Denise Sabo
199 Brickyard Rd Farmington, CT 06032
860-209-4690
denise@northeastsitesolutions.com

June 20, 2016

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Notice of Exempt Modification
120 Universal Drive, North Haven CT 06473
Latitude: 41.34444700
Longitude: -72.87085600
T-Mobile Site#: CTNH037A_L1900

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 84-foot level of the existing 120-foot monopole at 120 Universal Drive, North Haven CT 06473. The tower is owned by Crown Castle. The property is owned by 120 Universal Drive Associates LLC. T-Mobile now intends to replace three (3) of its existing antennas with three (3) new 1900/2100 MHz antenna and add (1) hybrid cable. The new antennas would be installed at the 84-foot level of the tower.

Planned Modifications:

Remove: NONE

Remove and Replace:

(3)AIR21 B4A /B2P (REMOVE) - (3)AIR32 B66Aa/B2a (**REPLACE**)

Install New: (1) 1-1/4" Hybrid Cable

Existing to Remain:

- (3)AIR21 B2A /B4P
- (3) Commscope LNX-6515 Antenna
- (3) RRUS11 B12
- (3) Twin TMA
- (12) 7/8" Coax
- (1) 1-1/4" Hybrid Cable

This facility was approved by the Town of North Haven PZC. File No.P2000-45 – The site plan relative to 120 Universal Drive approved a 120' Monopole – No special conditions are mentioned. Please see attached.



NSS **NORTHEAST**
SITE SOLUTIONS

Turnkey Wireless Development

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 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 First Selectman Michael J. Freda, Elected Official for the Town of North Haven, as well as the property owner and 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 structure.
2. The proposed modifications 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 emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

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

Sincerely,

Denise Sabo

Mobile: 860-209-4690

Fax: 413-521-0558

Office: 199 Brickyard Rd, Farmington, CT 06032

Email: denise@northeastsitesolutions.com

Attachments

cc: Michael J. Freda- First Selectman - as elected official
Crown Castle - as tower owner
120 Universal Drive Associates LLC - as property owner

Exhibit A



TOWN OF NORTH HAVEN

MEMORIAL TOWN HALL / 18 CHURCH STREET

NORTH HAVEN, CONNECTICUT 06473



REPLY TO:

PLANNING & ZONING COMMISSION

Tel. (203) 239-5321

Fax (203) 234-2130

November 20, 2000

Mr. Stephen Longobardi
Candid Communications of North Haven, II LLC
110 Washington Avenue
North Haven, CT 06473

Re: #P2000-44 Special Permit application, (as authorized by Section 3A.6.), of Candid Communications of North Haven, II LLC, relative to 120 Universal Drive South, (Map 11, Route 1). Plan Entitled: Candid Communications, LLC, Multi-User Wireless Communications Facility, North Haven Tower Site, Universal Drive, North Haven, Connecticut, Prepared By URS Greiner Woodward Clyde A-E-S, Dated 9-8-00, Rev. 11-1-00 Scale 1" = 30'. IL-30 Zoning District.

Dear Mr. Longobardi:

Please be advised that during the deliberation session of the Planning & Zoning Commission meeting held on Monday, November 13, 2000, the Commission unanimously voted to approve the above referenced application subject to the following conditions:

1. Submit three (3) revised plans which include:
 - a.) Revised plans must address/include all comments and conditions of this approval and the related Site Plan approval #P2000-45.
 - b.) Live certification.

In accordance with the Connecticut State Statutes, Section 8-3d, the Special Permit is not effective until a certified copy of the Commission's decision has been recorded on the Land Records, at the owner's expense. Accordingly, you must record this certified decision letter at the Town Clerk's Office, 18 Church Street, North Haven, CT. Immediately after filing with the Town Clerk, please submit a copy of the decision letter, stamped as recorded, to the Land Use Office, for our permanent record.

#P2000-44

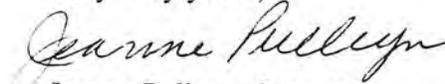
Page 2

Please note that one (1) set of revised drawings should be submitted for review after all outstanding issues (conditions of approval as set forth above), are adequately addressed. If there are any questions relative to the conditions of approval, please call the Town prior to submitting the revised plans. This will avoid costly and time consuming revisions and reviews, therefore expediting the process for you as the applicant.

This approval is subject to compliance with any and all Zoning Regulations of the Town of North Haven.

You may not proceed with this approval until you have received a signed plan from the Land Use Office.

Very truly yours,



Jeanne Pulleyn, Secretary
Planning & Zoning Commission

JP/ts

cc: First Selectman

Engineering Dept.

Building Dept.

CERTIFIED MAIL R/R

RECEIVED AND FILED
TOWN CLERKS OFFICE
NORTH HAVEN, CONN.

MAR 20 2001 @ 1:15 PM



TOWN CLERK



TOWN OF NORTH HAVEN

MEMORIAL TOWN HALL / 18 CHURCH STREET

NORTH HAVEN, CONNECTICUT 06473



REPLY TO: PLANNING & ZONING COMMISSION

Tel. (203) 239-5321
Fax (203) 234-2130

November 20, 2000

Mr. Stephen Longobardi
Candid Communications of North Haven, II LLC
110 Washington Avenue
North Haven, CT 06473

Re: #P2000-45 Site Plan application of Candid Communications of North Haven, II LLC, relative to 120 Universal Drive South, (Map 11, Route 1). Plan Entitled: Candid Communications, LLC, Multi-User Wireless Communications Facility, North Haven Tower Site, Universal Drive, North Haven, Connecticut, Prepared By URS Greiner Woodward Clyde A-E-S, Dated 9-8-00, Rev. 11-1-00 Scale 1" = 30'. IL-30 Zoning District.

Dear Mr. Longobardi:

Please be advised that during the deliberation session of the Planning & Zoning Commission meeting held on Monday, November 13, 2000, the Commission unanimously voted to approve the above referenced application subject to the following conditions:

1. Submit eight (8) revised plans which include:
 - a.) The zoning table must reference the following:

Minimum lot area (sq ft)	30,000 (req'd column),	130,929 (existing column)
Minimum lot width (ft.)	100 (req'd column)	
Building height	12' (proposed column)	
Minimum side yard setback	30' (existing column),	52' (proposed column)
Minimum rear yard setback	27' (existing column)	
Minimum side yard tower setback	90' (proposed column)	
 - b.) Plans must be numbered to indicate a submission set of 5 sheets (1 of 5 through 5 of 5).
 - c.) The boundary/survey plan must be referenced in the sheet index on Sheet T-1.
 - d.) Provide all the information required by Section 3A.6. (b) (1) (iii) and (xi).
 - e.) Siltation control must be provided along the rear property line.
 - f.) The remaining access drive off the rear of the existing building must be marked as a fire lane.

- g.) The proposed parking area must be permanently marked with signage and curbing/islands so that the area does not remain open for use as spillover storage of vehicles, etc.
 - h.) Limits of green (lawn or non-impervious) areas need to be more clearly indicated. Note, said areas must be protected by curbing.
 - i.) The relocated scrap metal recycle dumpster must include respective enclosure and island protection with landscaping.
 - j.) Curbing and grass/landscaped areas along the rear property line must be provided in order to discourage continuance of unapproved outside storage activities.
2. The property owner and/or applicant must remove all outside storage (several trailer bodies, steel hoist, debris) located at the west side of the property as well as on the railroad property. All outside storage must be removed from the site. No building permit will be issued until the cleanup of this area occurs.
 3. Proposed contours and/or spot elevations must be provided.
 4. Parking spaces must be line striped.
 5. Proposed fencing must be reviewed by the Zoning Enforcement Officer prior to installation to insure zoning compliance.
 6. Soil and erosion controls must be inspected by the Zoning Enforcement Officer before work may commence.
 7. The property owner must maintain (repair/replace when necessary) the siltation control until all development activity is completed and all disturbed areas are permanently stabilized.
 8. Submit an as-built prior to bond release.
 9. Submit a bond in the amount of \$15,000.00 (forms are enclosed). Note, two separate bonds (for \$10,000.00 and \$5,000.00) are recommended, considering that the \$5,000.00 amount covering the required site cleanup work can be released prior to issuance of a building permit, contingent on completion and acceptance of said cleanup.

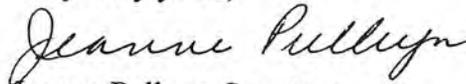
#P2000-45
Page 3

Please note that one (1) set of revised drawings should be submitted for review after all outstanding issues (conditions of approval as set forth above), are adequately addressed. If there are any questions relative to the conditions of approval, please call the Town prior to submitting the revised plans. This will avoid costly and time consuming revisions and reviews, therefore expediting the process for you as the applicant.

This approval is subject to compliance with any and all Zoning Regulations of the Town of North Haven.

You may not proceed with this approval until you have received a signed plan from the Land Use Office.

Very truly yours,



Jeanne Pulleyn, Secretary
Planning & Zoning Commission

JP/ts

cc: First Selectman
Engineering Dept.
Building Dept.

CERTIFIED MAIL R/R
Enclosures

Exhibit B

120 UNIVERSAL DR

Location 120 UNIVERSAL DR

Mblu 011/ / 001/ /

Acct# 027540

Owner 120 UNIVERSAL DRIVE
ASSOCIATES LLC

Assessment \$996,030

Appraisal \$1,422,900

PID 8457

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2014	\$1,025,400	\$397,500	\$1,422,900

Assessment			
Valuation Year	Improvements	Land	Total
2014	\$717,780	\$278,250	\$996,030

Owner of Record

Owner	120 UNIVERSAL DRIVE ASSOCIATES LLC	Sale Price	\$0
Co-Owner		Certificate	
Address	120 UNIVERSAL DR NORTH HAVEN, CT 06473	Book & Page	799/ 46
		Sale Date	10/28/2008

Ownership History

Ownership History				
Owner	Sale Price	Certificate	Book & Page	Sale Date
120 UNIVERSAL DRIVE ASSOCIATES LLC	\$0		799/ 46	10/28/2008
BERLUTI MARIO	\$0	1	482/ 458	07/18/1995
BERLUTI, MARIO & HELEN	\$0	3		09/01/1990
BERLUTI MARIO & HELEN & SURV	\$0	4	305/ 427	12/06/1978

Building Information

Building 1 : Section 1

Year Built: 1985
Living Area: 19,180
Replacement Cost: \$1,089,079
Building Percent 78
Good:
Replacement Cost

Less Depreciation: \$849,500

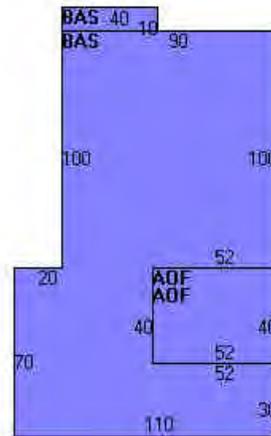
Building Attributes	
Field	Description
STYLE	Service Shop
MODEL	Comm/Ind
Grade	C +
Stories:	1
Occupancy	1
Exterior Wall 1	Metal
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Metal/Tin
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Average
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Hot Air-no Duc
AC Type	None
Bldg Use	AUTO REPAIR
Total Rooms	
Total Bedrms	
Total Baths	
1st Floor Use:	
Heat/AC	NONE
Frame Type	WOOD FRAME
Baths/Plumbing	AVERAGE
Ceiling/Wall	SUS-CEIL/MN WL
Rooms/Prtns	AVERAGE
Wall Height	20
% Comn Wall	

Building Photo



(./CTNH037A-Property Card_files/42.jpg)

Building Layout



Building Sub-Areas (sq ft)		Legend	
Code	Description	Gross Area	Living Area
BAS	First Floor	15,020	15,020
AOF	Office	4,160	4,160
		19,180	19,180

Extra Features

Extra Features				Legend
Code	Description	Size	Value	Bldg #
A/C	AIR CONDITION	6612 S.F.	\$10,300	1
SPR1	SPRINKLERS-WET	19220 S.F.	\$13,500	1
MEZ1	MEZZANINE-UNF	2500 S.F.	\$17,600	1

Land

Land Use

Land Line Valuation

Use Code 3320
 Description AUTO REPAIR
 Zone IL30
 Neighborhood 305
 Alt Land Appr No
 Category

Size (Acres) 3
 Frontage
 Depth
 Assessed Value \$278,250
 Appraised Value \$397,500

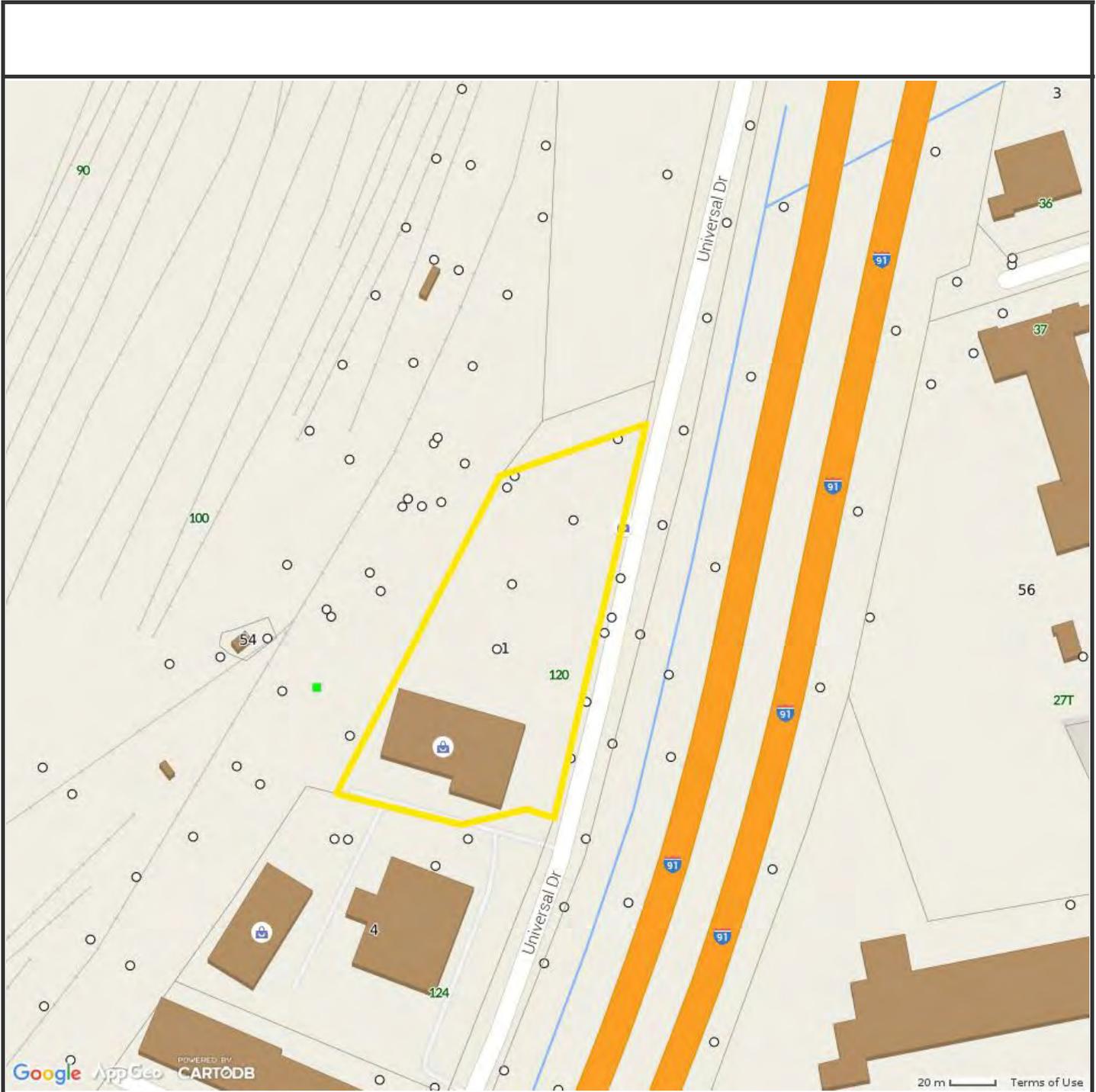
Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
FN3	FENCE-6' CHAIN			640 L.F.	\$2,900	1
PAV1	PAVING-ASPHALT			52000 S.F.	\$35,100	1
SHD7	COMM GOOD			240 S.F.	\$9,900	1
TWR1	COMMU-TOWER			1 UNITS	\$112,500	1
SHD7	COMM GOOD			240 S.F.	\$9,900	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2013	\$1,238,100	\$450,000	\$1,688,100
2008	\$733,900	\$450,000	\$1,183,900
2007		\$315,000	\$828,730

Assessment			
Valuation Year	Improvements	Land	Total
2013	\$866,670	\$315,000	\$1,181,670
2008	\$513,730	\$315,000	\$828,730
2007		\$315,000	\$828,730



Property Information

Property ID 11/1
Location 120 UNIVERSAL DR
Owner 120 UNIVERSAL DRIVE ASSOCIATES LLC



**MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT**

Town of North Haven, CT makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Exhibit C

Exhibit D



Date: May 05, 2016

Subject: Structural Analysis Report

Carrier Designation:

T-Mobile Co-Locate

Carrier Site Number:

CTNH037A

Carrier Site Name:

CTNH037/Candid N. Haven

Crown Castle Designation:

Crown Castle BU Number:

881536

Crown Castle Site Name:

NORTH HAVEN TOWER

Crown Castle JDE Job Number:

375214

Crown Castle Work Order Number:

1229954

Crown Castle Application Number:

343401 Rev. 0

Engineering Firm Designation:

Crown Castle Project Number:

1229954

Site Data:

120 Universal Drive, North Haven, New Haven County, CT

Latitude 41° 20' 40.01", Longitude -72° 52' 14.92"

120 Foot - Monopole Tower

Dear Sean Dempsey,

Crown Castle is pleased to submit this "Structural Analysis Report" to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 1229954, in accordance with application 343401, revision 0.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Existing + Reserved + Proposed Equipment

Sufficient Capacity

Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

This analysis has been performed in accordance with the TIA/EIA-222-F standard and 2005 CT State Building Code with 2009 amendment based upon a wind speed of 85 mph fastest mile.

All modifications and equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

We at Crown Castle appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects please give us a call.

Structural analysis prepared by: Ian E. Miller, E.I.T. / MD

Respectfully submitted by:

Maham Barimani, P.E.
Sr. Project Engineer

05-06-2016

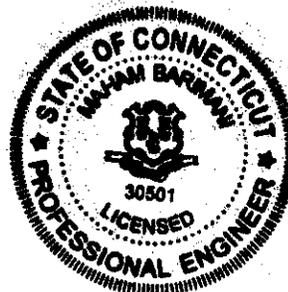


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1) INTRODUCTION

This tower is a 120 ft Monopole tower designed by ENGINEERED ENDEAVORS, INC. in February of 2001. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-F.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 85 mph with no ice, 37.6 mph with 0.75 inch ice thickness and 50 mph under service loads.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
83.0	84.0	3	ericsson	AIR -32 B2A/B66AA w/ Mount Pipe	1	1-1/4	-

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
118.0	121.0	2	powerwave technologies	LGP2140X	12 2 1	1-5/8 3/4 3/8	1
		3	powerwave technologies	7770.00 w/ Mount Pipe			
		3	kmw communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe			
		3	cci antennas	OPA-65R-LCUU-H6 w/ Mount Pipe	1 2	3/8 3/4	2
		6	powerwave technologies	LGP21401			
		3	ericsson	RRUS 32			
		2	raycap	DC2-48-60-0-9E			
118.0	1	tower mounts	Platform Mount [LP 712-1]	-	-	1	
116.0	117.0	3	ericsson	RRUS-12	-	-	2
		3	ericsson	TME-RRUS-11	-	-	1
	116.0	1	raycap	DC6-48-60-18-8F			
		1	tower mounts	Side Arm Mount [SO 102-3]			
108.0	110.0	12	decibel	844G65VTZASX w/ Mount Pipe	12	1-1/4	3
	108.0	1	tower mounts	Platform Mount [LP 303-1]			
100.0	100.0	3	alcatel lucent	1900MHz RRH (65MHz) w/Mount pipe	-	-	1
		1	tower mounts	Side Arm Mount [SO 102-3]			
	99.0	3	alcatel lucent	TME-800MHZ RRH			
97.0	98.0	3	alcatel lucent	800 EXTERNAL NOTCH FILTER	1 3	1-5/8 1-1/4	1

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
		3	alcatel lucent	TD-RRH8x20-25			
		2	powerwave technologies	P40-16-XLPP-RR-A w/ Mount Pipe			
		9	rfs celwave	ACU-A20-N			
		1	rfs celwave	APXVSP18-C-A20 w/ Mount Pipe			
		3	rfs celwave	APXVTM14-C-120 w/ Mount Pipe			
	97.0	1	tower mounts	Platform Mount [LP 601-1]			
83.0	84.0	3	ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	1	1-5/8	4
		3	commscope	LNX-6515DS-A1M w/ Mount Pipe	11 1	1-5/8 1-1/4	1
		3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe			
		3	ericsson	RRUS 11 B12			
		83.0	3	rfs celwave	ATMAA1412D-1A20		
	83.0	1	tower mounts	Platform Mount [LP 303-1]			
51.0	51.0	1	lucent	KS24019-L112A	1	1/2	1
		1	tower mounts	Side Arm Mount [SO 701-1]			

Notes:

- 1) Existing Equipment
- 2) Reserved Equipment
- 3) Abandoned Equipment
- 4) To be Removed Equipment ;Not Considered in this analysis

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
118.0	118.0	12	allgon	7120.16	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Dr. Clarence Welti, P.E., P.C.	1405753	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Engineering Endeavors, Inc.	1405795	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Engineering Endeavors, Inc.	1405788	CCISITES

3.1) Analysis Method

tnxTower (version 7.0.5.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

- 1) Tower and structures were built in accordance with the manufacturer's specifications.
- 2) The tower and structures have been maintained in accordance with the manufacturer's specification.
- 3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
- 4) When applicable, transmission cables are considered as structural components for calculating wind loads as allowed by TIA/EIA-222-F.
- 5) The existing base plate grout was not considered in this analysis.

This analysis may be affected if any assumptions are not valid or have been made in error. Crown Castle should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	120 - 84.7161	Pole	TP32.5458x24.09x0.375	1	-10.56	1922.92	29.0	Pass
L2	84.7161 - 41.6224	Pole	TP42.0347x30.7011x0.4375	2	-22.33	2904.13	55.7	Pass
L3	41.6224 - 0	Pole	TP51x39.7912x0.5	3	-37.25	4166.42	61.6	Pass
							Summary	
						Pole (L3)	61.6	Pass
						Rating =	61.6	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	52.8	Pass
1	Base Plate	0	69.1	Pass
1	Base Foundation	0	55.1	Pass
1	Base Foundation Soil Interaction	0	19.7	Pass

Structure Rating (max from all components) =	69.1%
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Notes:

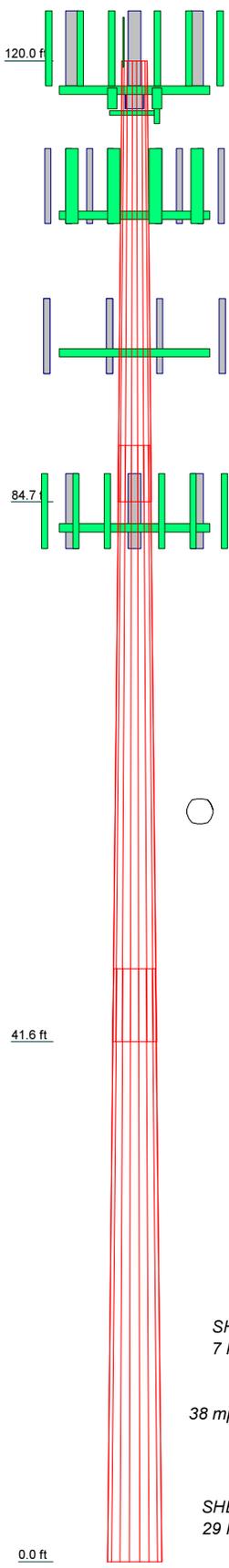
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the existing and proposed loads. No modifications are required at this time.

APPENDIX A
TNXTOWER OUTPUT

Section	1	2	3
Length (ft)	35.28	47.66	47.38
Number of Sides	18	18	18
Thickness (in)	0.3750	0.4375	0.5000
Socket Length (ft)	4.57	5.76	39.7912
Top Dia (in)	24.0900	30.7011	51.0000
Bot Dia (in)	32.5458	42.0347	51.0000
Grade	A572-65	A572-65	A572-65
Weight (K)	4.0	8.1	11.5



DESIGNED APPURTENANCE LOADING

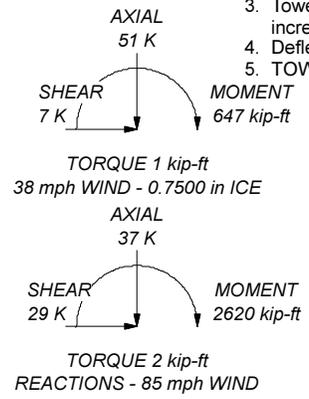
TYPE	ELEVATION	TYPE	ELEVATION
Lighting Rod 3/4" x 3'	120	1900MHz RRH (65MHz) w/Mount pipe	100
7770.00 w/ Mount Pipe	118	Side Arm Mount [SO 102-3]	100
7770.00 w/ Mount Pipe	118	P40-16-XLPP-RR-A w/ Mount Pipe	97
7770.00 w/ Mount Pipe	118	APXVTM14-C-120 w/ Mount Pipe	97
AM-X-CD-16-65-00T-RET w/ Mount Pipe	118	APXVSP18-C-A20 w/ Mount Pipe	97
AM-X-CD-16-65-00T-RET w/ Mount Pipe	118	APXVTM14-C-120 w/ Mount Pipe	97
AM-X-CD-16-65-00T-RET w/ Mount Pipe	118	P40-16-XLPP-RR-A w/ Mount Pipe	97
AM-X-CD-16-65-00T-RET w/ Mount Pipe	118	APXVTM14-C-120 w/ Mount Pipe	97
(2) LGP2140X	118	(3) ACU-A20-N	97
OPA-65R-LCUU-H6 w/ Mount Pipe	118	(3) ACU-A20-N	97
OPA-65R-LCUU-H6 w/ Mount Pipe	118	(3) ACU-A20-N	97
OPA-65R-LCUU-H6 w/ Mount Pipe	118	800 EXTERNAL NOTCH FILTER	97
RRUS 32	118	800 EXTERNAL NOTCH FILTER	97
RRUS 32	118	800 EXTERNAL NOTCH FILTER	97
RRUS 32	118	TD-RRH8x20-25	97
RRUS 32	118	TD-RRH8x20-25	97
(2) LGP21401	118	TD-RRH8x20-25	97
(2) LGP21401	118	Transition Ladder	97
(2) LGP21401	118	6' x 2" Mount Pipe	97
DC2-48-60-0-9E	118	6' x 2" Mount Pipe	97
DC2-48-60-0-9E	118	6' x 2" Mount Pipe	97
8'x2" Antenna Mount Pipe	118	Platform Mount [LP 601-1]	97
8'x2" Antenna Mount Pipe	118	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	83
8'x2" Antenna Mount Pipe	118	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	83
Transition Ladder	118	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	83
Platform Mount [LP 712-1]	118	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	83
TME-RRUS-11	116	LNX-6515DS-A1M w/ Mount Pipe	83
TME-RRUS-11	116	LNX-6515DS-A1M w/ Mount Pipe	83
TME-RRUS-11	116	LNX-6515DS-A1M w/ Mount Pipe	83
RRUS-12	116	ATMAA1412D-1A20	83
RRUS-12	116	ATMAA1412D-1A20	83
RRUS-12	116	ATMAA1412D-1A20	83
DC6-48-60-18-8F	116	ATMAA1412D-1A20	83
(2) 4' x 2" Pipe Mount	116	RRUS 11 B12	83
(2) 4' x 2" Pipe Mount	116	RRUS 11 B12	83
(2) 4' x 2" Pipe Mount	116	RRUS 11 B12	83
Side Arm Mount [SO 102-3]	116	AIR -32 B2A/B66AA w/ Mount Pipe	83
(4) 844G65VTZASX w/ Mount Pipe	108	AIR -32 B2A/B66AA w/ Mount Pipe	83
(4) 844G65VTZASX w/ Mount Pipe	108	AIR -32 B2A/B66AA w/ Mount Pipe	83
(4) 844G65VTZASX w/ Mount Pipe	108	8'x2" Antenna Mount Pipe	83
Platform Mount [LP 303-1]	108	8'x2" Antenna Mount Pipe	83
TME-800MHZ RRH	100	8'x2" Antenna Mount Pipe	83
TME-800MHZ RRH	100	Platform Mount [LP 303-1]	83
TME-800MHZ RRH	100	KS24019-L112A	51
1900MHz RRH (65MHz) w/Mount pipe	100	Side Arm Mount [SO 701-1]	51
1900MHz RRH (65MHz) w/Mount pipe	100		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 61.6%



Crown Castle
 2000 Corporate Drive
 Canonsburg, PA 15317
 Phone: (724) 416-2000
 FAX: (724) 416-4623

Job: **BU# 881536**
 Project:
 Client: Crown Castle Drawn by: MDentinger App'd:
 Code: TIA/EIA-222-F Date: 05/05/16 Scale: NTS
 Path: X:\ENG Work Area\Miller2_OA\881536_WD_1229954\QA_MD\881536.dwg
 Dwg No. E-1

Tower Input Data

There is a pole section.

This tower is designed using the TIA/EIA-222-F standard.

The following design criteria apply:

- 1) Tower is located in New Haven County, Connecticut.
- 2) Basic wind speed of 85 mph.
- 3) Nominal ice thickness of 0.7500 in.
- 4) Ice thickness is considered to increase with height.
- 5) Ice density of 56 pcf.
- 6) A wind speed of 38 mph is used in combination with ice.
- 7) Temperature drop of 50 °F.
- 8) Deflections calculated using a wind speed of 50 mph.
- 9) A non-linear (P-delta) analysis was used.
- 10) Pressures are calculated at each section.
- 11) Stress ratio used in pole design is 1.333.
- 12) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification ✓ Use Code Stress Ratios ✓ Use Code Safety Factors - Guys ✓ Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric	Distribute Leg Loads As Uniform Assume Legs Pinned ✓ Assume Rigid Index Plate ✓ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retension Guys To Initial Tension ✓ Bypass Mast Stability Checks ✓ Use Azimuth Dish Coefficients ✓ Project Wind Area of Appurt. Autocalc Torque Arm Areas Add IBC .6D+W Combination ✓ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder	Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation ✓ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-G Bracing Resist. Exemption Use TIA-222-G Tension Splice Exemption <div style="text-align: center; background-color: #e0e0e0; padding: 2px;">Poles</div> ✓ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets
--	--	---

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	120.00-84.72	35.28	4.57	18	24.0900	32.5458	0.3750	1.5000	A572-65 (65 ksi)
L2	84.72-41.62	47.66	5.76	18	30.7011	42.0347	0.4375	1.7500	A572-65 (65 ksi)
L3	41.62-0.00	47.38		18	39.7912	51.0000	0.5000	2.0000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
---------	----------------	-------------------------	----------------------	---------	---------	------------------------	----------------------	-------------------------	---------	-----

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	I/Q in ²	w in	w/t
L1	24.4616	28.2268	2005.6033	8.4188	12.2377	163.8870	4013.8455	14.1161	3.5798	9.546
	33.0479	38.2913	5006.8113	11.4206	16.5333	302.8326	10020.210	19.1493	5.0681	13.515
L2	32.2777	42.0249	4862.7974	10.7436	15.5962	311.7941	9731.9934	21.0164	4.6334	10.591
	42.6832	57.7629	12627.422	14.7670	21.3536	591.3479	25271.461	28.8869	6.6281	15.15
L3	41.7876	62.3551	12161.823	13.9484	20.2139	601.6563	24339.649	31.1835	6.1232	12.246
	51.7868	80.1435	25821.918	17.9275	25.9080	996.6774	51677.814	40.0794	8.0960	16.192

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A _r	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontal	Double Angle Stitch Bolt Spacing Redundants
ft	ft ²	in					in	in	in
L1 120.00-84.72				1	1	1			
L2 84.72-41.62				1	1	1			
L3 41.62-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement	Total Number	Number Per Row	Clear Spacing	Width or Diameter	Perimeter	Weight
				ft			in	r in	r in	plf

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement	Total Number	C _A A _A	Weight
				ft		ft ² /ft	plf
LDF7-50A(1-5/8")	C	No	Inside Pole	118.00 - 0.00	12	No Ice	0.82
						1/2" Ice	0.82
						1" Ice	0.82
						2" Ice	0.82
						4" Ice	0.82
2" Rigid Conduit	C	No	Inside Pole	118.00 - 0.00	1	No Ice	2.80
						1/2" Ice	2.80
						1" Ice	2.80
						2" Ice	2.80
						4" Ice	2.80
FB-L98B-002-75000(3/8")	C	No	Inside Pole	118.00 - 0.00	1	No Ice	0.06
						1/2" Ice	0.06
						1" Ice	0.06
						2" Ice	0.06
						4" Ice	0.06
WR-VG86ST-BRD(3/4)	C	No	Inside Pole	118.00 - 0.00	2	No Ice	0.59
						1/2" Ice	0.59
						1" Ice	0.59
						2" Ice	0.59
						4" Ice	0.59
FB-L98B-002-75000(3/8")	C	No	Inside Pole	118.00 - 0.00	1	No Ice	0.06
						1/2" Ice	0.06
						1" Ice	0.06
						2" Ice	0.06
						4" Ice	0.06
WR-VG86ST-BRD(3/4")	C	No	Inside Pole	118.00 - 0.00	2	No Ice	0.58
						1/2" Ice	0.58
						1" Ice	0.58
						2" Ice	0.58

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C _A A _A ft ² /ft	Weight plf
						2" Ice	0.00	0.58
						4" Ice	0.00	0.58

LDF6-50A(1-1/4")	B	No	Inside Pole	108.00 - 0.00	12	No Ice	0.00	0.66
						1/2" Ice	0.00	0.66
						1" Ice	0.00	0.66
						2" Ice	0.00	0.66
						4" Ice	0.00	0.66
HB114-13U3M12-XXXF(1-1/4")	A	No	CaAa (Out Of Face)	97.00 - 0.00	3	No Ice	0.15	0.99
						1/2" Ice	0.25	2.24
						1" Ice	0.35	4.10
						2" Ice	0.55	9.64
						4" Ice	0.95	28.07
HYBRIFLEX RRH 1-SECTOR(1/2")	A	No	CaAa (Out Of Face)	97.00 - 0.00	1	No Ice	0.00	0.15
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
						2" Ice	0.00	0.00
						4" Ice	0.00	0.00
MLE Hybrid 3Power/6Fiber RL 2 10AWG(1-1/4")	A	No	Inside Pole	83.00 - 0.00	1	No Ice	0.00	0.46
						1/2" Ice	0.00	0.46
						1" Ice	0.00	0.46
						2" Ice	0.00	0.46
						4" Ice	0.00	0.46
MLE Hybrid 3Power/6Fiber RL 2 10AWG(1-1/4")	A	No	Inside Pole	83.00 - 0.00	1	No Ice	0.00	0.46
						1/2" Ice	0.00	0.46
						1" Ice	0.00	0.46
						2" Ice	0.00	0.46
						4" Ice	0.00	0.46
HCC 158-50J(1-5/8")	A	No	Inside Pole	83.00 - 0.00	11	No Ice	0.00	0.86
						1/2" Ice	0.00	0.86
						1" Ice	0.00	0.86
						2" Ice	0.00	0.86
						4" Ice	0.00	0.86
*								
LDF4-50A(1/2")	A	No	CaAa (Out Of Face)	51.00 - 0.00	1	No Ice	0.00	0.15
						1/2" Ice	0.00	0.84
						1" Ice	0.00	2.14
						2" Ice	0.00	6.58
						4" Ice	0.00	22.78

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L1	120.00-84.72	A	0.000	0.000	0.000	5.675	0.04
		B	0.000	0.000	0.000	0.000	0.18
		C	0.000	0.000	0.000	0.000	0.50
L2	84.72-41.62	A	0.000	0.000	0.000	19.909	0.57
		B	0.000	0.000	0.000	0.000	0.34
		C	0.000	0.000	0.000	0.000	0.65
L3	41.62-0.00	A	0.000	0.000	0.000	19.229	0.57
		B	0.000	0.000	0.000	0.000	0.33
		C	0.000	0.000	0.000	0.000	0.63

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L1	120.00-84.72	A	0.858	0.000	0.000	0.000	12.002	0.13
		B		0.000	0.000	0.000	0.000	0.18

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L2	84.72-41.62	C	0.810	0.000	0.000	0.000	0.000	0.50
		A		0.000	0.000	0.000	42.106	0.91
		B		0.000	0.000	0.000	0.000	0.34
L3	41.62-0.00	C	0.750	0.000	0.000	0.000	0.000	0.65
		A		0.000	0.000	0.000	39.460	0.92
		B		0.000	0.000	0.000	0.000	0.33
		C		0.000	0.000	0.000	0.000	0.63

Feed Line Center of Pressure

Section	Elevation ft	CP _X in	CP _Z in	CP _X Ice in	CP _Z Ice in
L1	120.00-84.72	0.0000	-0.2478	0.0000	-0.4647
L2	84.72-41.62	0.0000	-0.6025	0.0000	-1.0744
L3	41.62-0.00	0.0000	-0.6186	0.0000	-1.1092

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
Lighting Rod 3/4" x 3'	C	From Leg	0.00 0.00 1.50	0.0000	120.00	No Ice	0.23	0.23	0.03
						1/2" Ice	0.50	0.50	0.03
						1" Ice	0.69	0.69	0.04
						2" Ice	1.10	1.10	0.05
						4" Ice	2.14	2.14	0.12

7770.00 w/ Mount Pipe	A	From Leg	4.00 0.00 3.00	0.0000	118.00	No Ice	6.12	4.25	0.06
						1/2" Ice	6.63	5.01	0.10
						1" Ice	7.13	5.71	0.16
						2" Ice	8.16	7.16	0.29
						4" Ice	10.36	10.41	0.66
7770.00 w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.0000	118.00	No Ice	6.12	4.25	0.06
						1/2" Ice	6.63	5.01	0.10
						1" Ice	7.13	5.71	0.16
						2" Ice	8.16	7.16	0.29
						4" Ice	10.36	10.41	0.66
7770.00 w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.0000	118.00	No Ice	6.12	4.25	0.06
						1/2" Ice	6.63	5.01	0.10
						1" Ice	7.13	5.71	0.16
						2" Ice	8.16	7.16	0.29
						4" Ice	10.36	10.41	0.66
AM-X-CD-16-65-00T-RET w/ Mount Pipe	A	From Leg	4.00 0.00 3.00	0.0000	118.00	No Ice	8.50	6.30	0.07
						1/2" Ice	9.15	7.48	0.14
						1" Ice	9.77	8.37	0.21
						2" Ice	11.03	10.18	0.38
						4" Ice	13.68	14.02	0.87
AM-X-CD-16-65-00T-RET w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.0000	118.00	No Ice	8.50	6.30	0.07
						1/2" Ice	9.15	7.48	0.14
						1" Ice	9.77	8.37	0.21
						2" Ice	11.03	10.18	0.38
						4" Ice	13.68	14.02	0.87

Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _{AA} _{Front}	C _{AA} _{Side}	Weight
			Horz	Lateral	Vert					
			ft	ft	ft	°	ft	ft ²	ft ²	K
AM-X-CD-16-65-00T-RET w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.0000	118.00	2" Ice	13.68	14.02	0.87	
						4" Ice	8.50	6.30	0.07	
						No Ice	9.15	7.48	0.14	
						1/2" Ice	9.77	8.37	0.21	
						1" Ice	11.03	10.18	0.38	
(2) LGP2140X	B	From Leg	4.00 0.00 3.00	0.0000	118.00	2" Ice	13.68	14.02	0.87	
						4" Ice	1.26	0.38	0.02	
						No Ice	1.42	0.49	0.03	
						1/2" Ice	1.58	0.62	0.04	
						1" Ice	1.94	0.89	0.06	
OPA-65R-LCUU-H6 w/ Mount Pipe	A	From Leg	4.00 0.00 3.00	0.0000	118.00	2" Ice	2.75	1.54	0.14	
						4" Ice	10.60	7.18	0.10	
						No Ice	11.27	8.36	0.18	
						1/2" Ice	11.91	9.26	0.26	
						1" Ice	13.21	11.09	0.46	
OPA-65R-LCUU-H6 w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.0000	118.00	2" Ice	15.93	15.15	1.00	
						4" Ice	10.60	7.18	0.10	
						No Ice	11.27	8.36	0.18	
						1/2" Ice	11.91	9.26	0.26	
						1" Ice	13.21	11.09	0.46	
OPA-65R-LCUU-H6 w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.0000	118.00	2" Ice	15.93	15.15	1.00	
						4" Ice	10.60	7.18	0.10	
						No Ice	11.27	8.36	0.18	
						1/2" Ice	11.91	9.26	0.26	
						1" Ice	13.21	11.09	0.46	
RRUS 32	A	From Leg	4.00 0.00 3.00	0.0000	118.00	2" Ice	5.68	4.07	0.34	
						4" Ice	3.33	1.98	0.06	
						No Ice	3.60	2.21	0.08	
						1/2" Ice	3.87	2.45	0.10	
						1" Ice	4.44	2.96	0.16	
RRUS 32	B	From Leg	4.00 0.00 3.00	0.0000	118.00	2" Ice	5.68	4.07	0.34	
						4" Ice	3.33	1.98	0.06	
						No Ice	3.60	2.21	0.08	
						1/2" Ice	3.87	2.45	0.10	
						1" Ice	4.44	2.96	0.16	
RRUS 32	C	From Leg	4.00 0.00 3.00	0.0000	118.00	2" Ice	5.68	4.07	0.34	
						4" Ice	3.33	1.98	0.06	
						No Ice	3.60	2.21	0.08	
						1/2" Ice	3.87	2.45	0.10	
						1" Ice	4.44	2.96	0.16	
(2) LGP21401	A	From Leg	4.00 0.00 3.00	0.0000	118.00	2" Ice	2.79	1.12	0.14	
						4" Ice	1.29	0.23	0.01	
						No Ice	1.45	0.31	0.02	
						1/2" Ice	1.61	0.40	0.03	
						1" Ice	1.97	0.61	0.05	
(2) LGP21401	B	From Leg	4.00 0.00 3.00	0.0000	118.00	2" Ice	2.79	1.12	0.14	
						4" Ice	1.29	0.23	0.01	
						No Ice	1.45	0.31	0.02	
						1/2" Ice	1.61	0.40	0.03	
						1" Ice	1.97	0.61	0.05	
(2) LGP21401	C	From Leg	4.00 0.00 3.00	0.0000	118.00	2" Ice	2.79	1.12	0.14	
						4" Ice	1.29	0.23	0.01	
						No Ice	1.45	0.31	0.02	

Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _{AA} _{Front}	C _{AA} _{Side}	Weight	
			Horz	Lateral	Vert						ft
			ft	ft	ft	°	ft	ft ²	ft ²	K	
DC2-48-60-0-9E	A	From Leg	4.00	0.00	3.00	0.0000	118.00	1" Ice	1.97	0.61	0.05
								2" Ice	2.79	1.12	0.14
								4" Ice			
								No Ice	1.08	0.66	0.02
								1/2" Ice	1.23	0.77	0.02
								1" Ice	1.38	0.90	0.04
								2" Ice	1.70	1.17	0.06
DC2-48-60-0-9E	A	From Leg	4.00	0.00	3.00	0.0000	118.00	2" Ice	2.46	1.82	0.15
								4" Ice			
								No Ice	1.08	0.66	0.02
								1/2" Ice	1.23	0.77	0.02
								Ice	1.38	0.90	0.04
								1" Ice	1.70	1.17	0.06
								2" Ice	2.46	1.82	0.15
8'x2" Antenna Mount Pipe	A	From Leg	4.00	0.00	0.00	0.0000	118.00	4" Ice			
								No Ice	1.90	1.90	0.03
								1/2" Ice	2.73	2.73	0.04
								Ice	3.40	3.40	0.06
								1" Ice	4.40	4.40	0.12
								2" Ice	6.50	6.50	0.30
								4" Ice			
8'x2" Antenna Mount Pipe	B	From Leg	4.00	0.00	0.00	0.0000	118.00	No Ice	1.90	1.90	0.03
								1/2" Ice	2.73	2.73	0.04
								Ice	3.40	3.40	0.06
								1" Ice	4.40	4.40	0.12
								2" Ice	6.50	6.50	0.30
								4" Ice			
								No Ice	1.90	1.90	0.03
8'x2" Antenna Mount Pipe	C	From Leg	4.00	0.00	0.00	0.0000	118.00	1/2" Ice	2.73	2.73	0.04
								Ice	3.40	3.40	0.06
								1" Ice	4.40	4.40	0.12
								2" Ice	6.50	6.50	0.30
								4" Ice			
								No Ice	1.90	1.90	0.03
								1/2" Ice	2.73	2.73	0.04
Transition Ladder	B	From Leg	4.00	0.00	-6.00	0.0000	118.00	Ice	10.00	10.00	0.32
								1" Ice	14.00	14.00	0.48
								2" Ice	22.00	22.00	0.80
								4" Ice			
								No Ice	6.00	6.00	0.16
								1/2" Ice	8.00	8.00	0.24
								Ice	10.00	10.00	0.32
Platform Mount [LP 712-1]	A	None				0.0000	118.00	4" Ice			
								No Ice	24.53	24.53	1.34
								1/2" Ice	29.94	29.94	1.65
								Ice	35.35	35.35	1.96
								1" Ice	46.17	46.17	2.58
								2" Ice	67.81	67.81	3.82
								4" Ice			
*** TME-RRUS-11	A	From Leg	1.00	0.00	1.00	0.0000	116.00	No Ice	3.42	1.85	0.06
								1/2" Ice	3.72	2.19	0.08
								Ice	4.04	2.55	0.12
								1" Ice	4.72	3.38	0.19
								2" Ice	6.25	5.29	0.43
								4" Ice			
								No Ice	3.42	1.85	0.06
TME-RRUS-11	B	From Leg	1.00	0.00	1.00	0.0000	116.00	1/2" Ice	3.72	2.19	0.08
								Ice	4.04	2.55	0.12
								1" Ice	4.72	3.38	0.19
								2" Ice	6.25	5.29	0.43
								4" Ice			
								No Ice	3.42	1.85	0.06
								1/2" Ice	3.72	2.19	0.08
TME-RRUS-11	C	From Leg	1.00	0.00	1.00	0.0000	116.00	Ice	4.04	2.55	0.12
								1" Ice	4.72	3.38	0.19
								2" Ice	6.25	5.29	0.43
								4" Ice			
								No Ice	3.42	1.85	0.06
								1/2" Ice	3.72	2.19	0.08
								Ice	4.04	2.55	0.12
RRUS-12	A	From Leg	1.00			0.0000	116.00	1" Ice	4.72	3.38	0.19
								2" Ice	6.25	5.29	0.43
								4" Ice			
								No Ice	3.67	1.49	0.05

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment °	Placement ft	C _{AA} _{Front}	C _{AA} _{Side}	Weight K	
			Horz ft	Lateral ft			ft ²	ft ²		
				0.00			1/2"	3.93	1.67	0.07
				1.00			Ice	4.19	1.87	0.10
							1" Ice	4.75	2.28	0.16
							2" Ice	5.96	3.21	0.34
							4" Ice			
RRUS-12	B	From Leg	1.00	0.0000	116.00	No Ice	3.67	1.49	0.05	
			0.00			1/2"	3.93	1.67	0.07	
			1.00			Ice	4.19	1.87	0.10	
						1" Ice	4.75	2.28	0.16	
						2" Ice	5.96	3.21	0.34	
						4" Ice				
RRUS-12	C	From Leg	1.00	0.0000	116.00	No Ice	3.67	1.49	0.05	
			0.00			1/2"	3.93	1.67	0.07	
			1.00			Ice	4.19	1.87	0.10	
						1" Ice	4.75	2.28	0.16	
						2" Ice	5.96	3.21	0.34	
						4" Ice				
DC6-48-60-18-8F	B	From Leg	1.00	0.0000	116.00	No Ice	1.27	1.27	0.02	
			0.00			1/2"	1.46	1.46	0.04	
			0.00			Ice	1.66	1.66	0.05	
						1" Ice	2.09	2.09	0.10	
						2" Ice	3.10	3.10	0.21	
						4" Ice				
(2) 4' x 2" Pipe Mount	A	From Leg	1.00	0.0000	116.00	No Ice	0.79	0.79	0.03	
			0.00			1/2"	1.03	1.03	0.04	
			0.00			Ice	1.28	1.28	0.04	
						1" Ice	1.81	1.81	0.07	
						2" Ice	3.11	3.11	0.17	
						4" Ice				
(2) 4' x 2" Pipe Mount	B	From Leg	1.00	0.0000	116.00	No Ice	0.79	0.79	0.03	
			0.00			1/2"	1.03	1.03	0.04	
			0.00			Ice	1.28	1.28	0.04	
						1" Ice	1.81	1.81	0.07	
						2" Ice	3.11	3.11	0.17	
						4" Ice				
(2) 4' x 2" Pipe Mount	C	From Leg	1.00	0.0000	116.00	No Ice	0.79	0.79	0.03	
			0.00			1/2"	1.03	1.03	0.04	
			0.00			Ice	1.28	1.28	0.04	
						1" Ice	1.81	1.81	0.07	
						2" Ice	3.11	3.11	0.17	
						4" Ice				
Side Arm Mount [SO 102-3]	A	None		0.0000	116.00	No Ice	3.00	3.00	0.08	
						1/2"	3.48	3.48	0.11	
						Ice	3.96	3.96	0.14	
						1" Ice	4.92	4.92	0.20	
						2" Ice	6.84	6.84	0.32	
						4" Ice				

(4) 844G65VTZASX w/ Mount Pipe	A	From Face	4.00	20.0000	108.00	No Ice	6.13	5.21	0.03	
			0.00			1/2"	6.59	5.89	0.09	
			2.00			Ice	7.06	6.59	0.14	
						1" Ice	8.04	8.04	0.28	
						2" Ice	10.12	11.19	0.67	
						4" Ice				
(4) 844G65VTZASX w/ Mount Pipe	B	From Face	4.00	20.0000	108.00	No Ice	6.13	5.21	0.03	
			0.00			1/2"	6.59	5.89	0.09	
			2.00			Ice	7.06	6.59	0.14	
						1" Ice	8.04	8.04	0.28	
						2" Ice	10.12	11.19	0.67	
						4" Ice				
(4) 844G65VTZASX w/ Mount Pipe	C	From Face	4.00	20.0000	108.00	No Ice	6.13	5.21	0.03	
			0.00			1/2"	6.59	5.89	0.09	
			2.00			Ice	7.06	6.59	0.14	
						1" Ice	8.04	8.04	0.28	
						2" Ice	10.12	11.19	0.67	
						4" Ice				

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _A A _A Front	C _A A _A Side	Weight	
			Horz	Lateral						Vert
			ft	ft	°	ft	ft ²	ft ²	K	
Platform Mount [LP 303-1]	A	None			0.0000	108.00	4" Ice			
							No Ice	14.66	14.66	1.25
							1/2"	18.87	18.87	1.48
							Ice	23.08	23.08	1.71
							1" Ice	31.50	31.50	2.18
2" Ice	48.34	48.34	3.10							
4" Ice										

TME-800MHZ RRH	A	From Leg	1.00	0.00	0.0000	100.00	No Ice	2.49	2.07	0.05
							1/2"	2.71	2.27	0.07
							Ice	2.93	2.48	0.10
							1" Ice	3.41	2.93	0.16
							2" Ice	4.46	3.93	0.32
4" Ice										
TME-800MHZ RRH	B	From Leg	1.00	0.00	0.0000	100.00	No Ice	2.49	2.07	0.05
							1/2"	2.71	2.27	0.07
							Ice	2.93	2.48	0.10
							1" Ice	3.41	2.93	0.16
							2" Ice	4.46	3.93	0.32
4" Ice										
TME-800MHZ RRH	C	From Leg	1.00	0.00	0.0000	100.00	No Ice	2.49	2.07	0.05
							1/2"	2.71	2.27	0.07
							Ice	2.93	2.48	0.10
							1" Ice	3.41	2.93	0.16
							2" Ice	4.46	3.93	0.32
4" Ice										
1900MHz RRH (65MHz) w/Mount pipe	A	From Leg	1.00	0.00	0.0000	100.00	No Ice	2.70	2.93	0.06
							1/2"	2.94	3.25	0.09
							Ice	3.18	3.60	0.12
							1" Ice	3.70	4.35	0.20
							2" Ice	4.85	6.09	0.41
4" Ice										
1900MHz RRH (65MHz) w/Mount pipe	B	From Leg	1.00	0.00	0.0000	100.00	No Ice	2.70	2.93	0.06
							1/2"	2.94	3.25	0.09
							Ice	3.18	3.60	0.12
							1" Ice	3.70	4.35	0.20
							2" Ice	4.85	6.09	0.41
4" Ice										
1900MHz RRH (65MHz) w/Mount pipe	C	From Leg	1.00	0.00	0.0000	100.00	No Ice	2.70	2.93	0.06
							1/2"	2.94	3.25	0.09
							Ice	3.18	3.60	0.12
							1" Ice	3.70	4.35	0.20
							2" Ice	4.85	6.09	0.41
4" Ice										
Side Arm Mount [SO 102-3]	A	None			0.0000	100.00	No Ice	3.00	3.00	0.08
							1/2"	3.48	3.48	0.11
							Ice	3.96	3.96	0.14
							1" Ice	4.92	4.92	0.20
							2" Ice	6.84	6.84	0.32
4" Ice										

P40-16-XLPP-RR-A w/ Mount Pipe	A	From Face	4.00	0.00	0.0000	97.00	No Ice	10.74	4.83	0.07
							1/2"	11.29	5.57	0.14
							Ice	11.85	6.27	0.22
							1" Ice	12.99	7.80	0.39
							2" Ice	15.39	11.11	0.86
4" Ice										
APXVTM14-C-120 w/ Mount Pipe	A	From Face	4.00	0.00	0.0000	97.00	No Ice	7.13	4.96	0.07
							1/2"	7.66	5.75	0.13
							Ice	8.18	6.47	0.19
							1" Ice	9.26	8.01	0.34
							2" Ice	11.53	11.41	0.75
4" Ice										
APXVSP18-C-A20 w/ Mount Pipe	B	From Face	4.00	0.00	0.0000	97.00	No Ice	8.50	6.95	0.08
							1/2"	9.15	8.13	0.15

Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _{AA} _{Front}	C _{AA} _{Side}	Weight
			Horz	Lateral	Vert					
			1.00				Ice	9.77	9.02	0.23
							1" Ice	11.03	10.84	0.41
							2" Ice	13.68	14.85	0.91
							4" Ice			
APXVTM14-C-120 w/ Mount Pipe	B	From Face	4.00	0.0000	97.00	No Ice	7.13	4.96	0.07	
			0.00			1/2"	7.66	5.75	0.13	
			1.00			Ice	8.18	6.47	0.19	
						1" Ice	9.26	8.01	0.34	
						2" Ice	11.53	11.41	0.75	
						4" Ice				
P40-16-XLPP-RR-A w/ Mount Pipe	C	From Face	4.00	0.0000	97.00	No Ice	10.74	4.83	0.07	
			0.00			1/2"	11.29	5.57	0.14	
			1.00			Ice	11.85	6.27	0.22	
						1" Ice	12.99	7.80	0.39	
						2" Ice	15.39	11.11	0.86	
						4" Ice				
APXVTM14-C-120 w/ Mount Pipe	C	From Face	4.00	0.0000	97.00	No Ice	7.13	4.96	0.07	
			0.00			1/2"	7.66	5.75	0.13	
			1.00			Ice	8.18	6.47	0.19	
						1" Ice	9.26	8.01	0.34	
						2" Ice	11.53	11.41	0.75	
						4" Ice				
(3) ACU-A20-N	A	From Face	4.00	0.0000	97.00	No Ice	0.08	0.14	0.00	
			0.00			1/2"	0.12	0.19	0.00	
			1.00			Ice	0.17	0.25	0.00	
						1" Ice	0.30	0.40	0.01	
						2" Ice	0.67	0.80	0.04	
						4" Ice				
(3) ACU-A20-N	B	From Face	4.00	0.0000	97.00	No Ice	0.08	0.14	0.00	
			0.00			1/2"	0.12	0.19	0.00	
			1.00			Ice	0.17	0.25	0.00	
						1" Ice	0.30	0.40	0.01	
						2" Ice	0.67	0.80	0.04	
						4" Ice				
(3) ACU-A20-N	C	From Face	4.00	0.0000	97.00	No Ice	0.08	0.14	0.00	
			0.00			1/2"	0.12	0.19	0.00	
			1.00			Ice	0.17	0.25	0.00	
						1" Ice	0.30	0.40	0.01	
						2" Ice	0.67	0.80	0.04	
						4" Ice				
800 EXTERNAL NOTCH FILTER	A	From Face	4.00	0.0000	97.00	No Ice	0.77	0.37	0.01	
			0.00			1/2"	0.89	0.46	0.02	
			1.00			Ice	1.02	0.56	0.02	
						1" Ice	1.30	0.79	0.04	
						2" Ice	1.97	1.34	0.11	
						4" Ice				
800 EXTERNAL NOTCH FILTER	B	From Face	4.00	0.0000	97.00	No Ice	0.77	0.37	0.01	
			0.00			1/2"	0.89	0.46	0.02	
			1.00			Ice	1.02	0.56	0.02	
						1" Ice	1.30	0.79	0.04	
						2" Ice	1.97	1.34	0.11	
						4" Ice				
800 EXTERNAL NOTCH FILTER	C	From Face	4.00	0.0000	97.00	No Ice	0.77	0.37	0.01	
			0.00			1/2"	0.89	0.46	0.02	
			1.00			Ice	1.02	0.56	0.02	
						1" Ice	1.30	0.79	0.04	
						2" Ice	1.97	1.34	0.11	
						4" Ice				
TD-RRH8x20-25	A	From Face	4.00	0.0000	97.00	No Ice	4.72	1.70	0.07	
			0.00			1/2"	5.01	1.92	0.10	
			1.00			Ice	5.32	2.15	0.13	
						1" Ice	5.95	2.62	0.20	
						2" Ice	7.31	3.68	0.40	
						4" Ice				
TD-RRH8x20-25	B	From Face	4.00	0.0000	97.00	No Ice	4.72	1.70	0.07	

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
LNX-6515DS-A1M w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	83.00	4" Ice			
						No Ice	11.68	9.84	0.08
						1/2" Ice	12.40	11.37	0.17
						1" Ice	13.14	12.91	0.27
						2" Ice	14.60	15.27	0.51
						4" Ice	17.87	20.14	1.15
LNX-6515DS-A1M w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	83.00	No Ice	11.68	9.84	0.08
						1/2" Ice	12.40	11.37	0.17
						1" Ice	13.14	12.91	0.27
						2" Ice	14.60	15.27	0.51
						4" Ice	17.87	20.14	1.15
ATMAA1412D-1A20	A	From Leg	4.00 0.00 1.00	0.0000	83.00	No Ice	0.47	1.17	0.01
						1/2" Ice	0.57	1.31	0.02
						1" Ice	0.69	1.47	0.03
						2" Ice	0.95	1.81	0.06
						4" Ice	1.57	2.58	0.14
ATMAA1412D-1A20	B	From Leg	4.00 0.00 1.00	0.0000	83.00	No Ice	0.47	1.17	0.01
						1/2" Ice	0.57	1.31	0.02
						1" Ice	0.69	1.47	0.03
						2" Ice	0.95	1.81	0.06
						4" Ice	1.57	2.58	0.14
ATMAA1412D-1A20	C	From Leg	4.00 0.00 1.00	0.0000	83.00	No Ice	0.47	1.17	0.01
						1/2" Ice	0.57	1.31	0.02
						1" Ice	0.69	1.47	0.03
						2" Ice	0.95	1.81	0.06
						4" Ice	1.57	2.58	0.14
RRUS 11 B12	A	From Leg	4.00 0.00 1.00	0.0000	83.00	No Ice	3.31	1.36	0.05
						1/2" Ice	3.55	1.54	0.07
						1" Ice	3.80	1.73	0.10
						2" Ice	4.33	2.13	0.15
						4" Ice	5.50	3.04	0.31
RRUS 11 B12	B	From Leg	4.00 0.00 1.00	0.0000	83.00	No Ice	3.31	1.36	0.05
						1/2" Ice	3.55	1.54	0.07
						1" Ice	3.80	1.73	0.10
						2" Ice	4.33	2.13	0.15
						4" Ice	5.50	3.04	0.31
RRUS 11 B12	C	From Leg	4.00 0.00 1.00	0.0000	83.00	No Ice	3.31	1.36	0.05
						1/2" Ice	3.55	1.54	0.07
						1" Ice	3.80	1.73	0.10
						2" Ice	4.33	2.13	0.15
						4" Ice	5.50	3.04	0.31
AIR -32 B2A/B66AA w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	83.00	No Ice	7.34	6.15	0.15
						1/2" Ice	7.87	7.01	0.21
						1" Ice	8.39	7.80	0.28
						2" Ice	9.47	9.43	0.44
						4" Ice	11.76	12.91	0.89
AIR -32 B2A/B66AA w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	83.00	No Ice	7.34	6.15	0.15
						1/2" Ice	7.87	7.01	0.21
						1" Ice	8.39	7.80	0.28
						2" Ice	9.47	9.43	0.44
						4" Ice	11.76	12.91	0.89
AIR -32 B2A/B66AA w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	83.00	No Ice	7.34	6.15	0.15
						1/2" Ice	7.87	7.01	0.21
						1" Ice	8.39	7.80	0.28
						2" Ice	9.47	9.43	0.44
						4" Ice	11.76	12.91	0.89

Comb. No.	Description
18	Dead+Wind 90 deg+Ice+Temp
19	Dead+Wind 120 deg+Ice+Temp
20	Dead+Wind 150 deg+Ice+Temp
21	Dead+Wind 180 deg+Ice+Temp
22	Dead+Wind 210 deg+Ice+Temp
23	Dead+Wind 240 deg+Ice+Temp
24	Dead+Wind 270 deg+Ice+Temp
25	Dead+Wind 300 deg+Ice+Temp
26	Dead+Wind 330 deg+Ice+Temp
27	Dead+Wind 0 deg - Service
28	Dead+Wind 30 deg - Service
29	Dead+Wind 60 deg - Service
30	Dead+Wind 90 deg - Service
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	120 - 84.7161	Pole	Max Tension	21	0.00	0.00	0.00
			Max. Compression	14	-18.54	-0.65	1.05
			Max. Mx	5	-10.57	-346.25	-1.30
			Max. My	2	-10.56	1.51	347.26
			Max. Vy	5	17.38	-346.25	-1.30
			Max. Vx	2	-17.48	1.51	347.26
			Max. Torque	9			1.46
L2	84.7161 - 41.6224	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-33.96	-0.79	1.80
			Max. Mx	5	-22.33	-1306.55	-6.01
			Max. My	2	-22.33	6.37	1311.70
			Max. Vy	5	25.38	-1306.55	-6.01
			Max. Vx	2	-25.49	6.37	1311.70
			Max. Torque	6			1.57
L3	41.6224 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-50.97	-0.79	2.84
			Max. Mx	5	-37.25	-2601.38	-11.85
			Max. My	2	-37.25	12.50	2611.91
			Max. Vy	5	29.26	-2601.38	-11.85
			Max. Vx	2	-29.37	12.50	2611.91
			Max. Torque	6			1.77

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	50.97	3.57	6.18
	Max. H _x	11	37.27	29.24	0.13
	Max. H _z	2	37.27	0.13	29.35
	Max. M _x	2	2611.91	0.13	29.35
	Max. M _z	5	2601.38	-29.24	-0.13
	Max. Torsion	6	1.77	-25.39	-14.78
	Min. Vert	1	37.27	0.00	0.00

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Min. H _x	5	37.27	-29.24	-0.13
	Min. H _z	8	37.27	-0.13	-29.35
	Min. M _x	8	-2609.64	-0.13	-29.35
	Min. M _z	11	-2600.41	29.24	0.13
	Min. Torsion	12	-1.77	25.39	14.78

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	37.27	0.00	0.00	-1.11	-0.47	0.00
Dead+Wind 0 deg - No Ice	37.27	-0.13	-29.35	-2611.91	12.50	1.01
Dead+Wind 30 deg - No Ice	37.27	14.51	-25.35	-2255.66	-1289.69	0.15
Dead+Wind 60 deg - No Ice	37.27	25.26	-14.56	-1295.29	-2246.44	-0.76
Dead+Wind 90 deg - No Ice	37.27	29.24	0.13	11.85	-2601.38	-1.46
Dead+Wind 120 deg - No Ice	37.27	25.39	14.78	1315.49	-2259.40	-1.77
Dead+Wind 150 deg - No Ice	37.27	14.73	25.48	2266.35	-1312.16	-1.60
Dead+Wind 180 deg - No Ice	37.27	0.13	29.35	2609.64	-13.46	-1.01
Dead+Wind 210 deg - No Ice	37.27	-14.51	25.35	2253.39	1288.73	-0.15
Dead+Wind 240 deg - No Ice	37.27	-25.26	14.56	1293.02	2245.47	0.76
Dead+Wind 270 deg - No Ice	37.27	-29.24	-0.13	-14.12	2600.41	1.46
Dead+Wind 300 deg - No Ice	37.27	-25.39	-14.78	-1317.76	2258.44	1.77
Dead+Wind 330 deg - No Ice	37.27	-14.73	-25.48	-2268.62	1311.20	1.60
Dead+Ice+Temp	50.97	0.00	0.00	-2.84	-0.79	-0.00
Dead+Wind 0 deg+Ice+Temp	50.97	-0.03	-7.11	-645.48	2.05	0.28
Dead+Wind 30 deg+Ice+Temp	50.97	3.52	-6.15	-557.95	-318.47	0.01
Dead+Wind 60 deg+Ice+Temp	50.97	6.13	-3.53	-321.71	-553.88	-0.26
Dead+Wind 90 deg+Ice+Temp	50.97	7.09	0.03	-0.05	-641.11	-0.47
Dead+Wind 120 deg+Ice+Temp	50.97	6.15	3.58	320.83	-556.77	-0.55
Dead+Wind 150 deg+Ice+Temp	50.97	3.57	6.18	554.96	-323.48	-0.48
Dead+Wind 180 deg+Ice+Temp	50.97	0.03	7.11	639.60	-3.73	-0.28
Dead+Wind 210 deg+Ice+Temp	50.97	-3.52	6.15	552.07	316.79	-0.01
Dead+Wind 240 deg+Ice+Temp	50.97	-6.13	3.53	315.82	552.21	0.26
Dead+Wind 270 deg+Ice+Temp	50.97	-7.09	-0.03	-5.83	639.43	0.47
Dead+Wind 300 deg+Ice+Temp	50.97	-6.15	-3.58	-326.72	555.10	0.55
Dead+Wind 330 deg+Ice+Temp	50.97	-3.57	-6.18	-560.84	321.80	0.48
Dead+Wind 0 deg - Service	37.27	-0.04	-10.16	-904.86	4.01	0.35
Dead+Wind 30 deg - Service	37.27	5.02	-8.77	-781.54	-446.74	0.05
Dead+Wind 60 deg - Service	37.27	8.74	-5.04	-449.11	-777.92	-0.26
Dead+Wind 90 deg - Service	37.27	10.12	0.04	3.36	-900.78	-0.50
Dead+Wind 120 deg - Service	37.27	8.78	5.12	454.61	-782.41	-0.61
Dead+Wind 150 deg - Service	37.27	5.10	8.82	783.75	-454.52	-0.56
Dead+Wind 180 deg - Service	37.27	0.04	10.16	902.58	-4.98	-0.35
Dead+Wind 210 deg - Service	37.27	-5.02	8.77	779.26	445.77	-0.05
Dead+Wind 240 deg - Service	37.27	-8.74	5.04	446.83	776.95	0.26
Dead+Wind 270 deg - Service	37.27	-10.12	-0.04	-5.63	899.81	0.50

Load Combination	Vertical	Shear _x	Shear _z	Overturning Moment, M _x	Overturning Moment, M _z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 300 deg - Service	37.27	-8.78	-5.12	-456.89	781.44	0.61
Dead+Wind 330 deg - Service	37.27	-5.10	-8.82	-786.03	453.55	0.56

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-37.27	0.00	0.00	37.27	0.00	0.000%
2	-0.13	-37.27	-29.35	0.13	37.27	29.35	0.000%
3	14.51	-37.27	-25.35	-14.51	37.27	25.35	0.000%
4	25.26	-37.27	-14.56	-25.26	37.27	14.56	0.000%
5	29.24	-37.27	0.13	-29.24	37.27	-0.13	0.000%
6	25.39	-37.27	14.78	-25.39	37.27	-14.78	0.000%
7	14.73	-37.27	25.48	-14.73	37.27	-25.48	0.000%
8	0.13	-37.27	29.35	-0.13	37.27	-29.35	0.000%
9	-14.51	-37.27	25.35	14.51	37.27	-25.35	0.000%
10	-25.26	-37.27	14.56	25.26	37.27	-14.56	0.000%
11	-29.24	-37.27	-0.13	29.24	37.27	0.13	0.000%
12	-25.39	-37.27	-14.78	25.39	37.27	14.78	0.000%
13	-14.73	-37.27	-25.48	14.73	37.27	25.48	0.000%
14	0.00	-50.97	0.00	0.00	50.97	0.00	0.000%
15	-0.03	-50.97	-7.11	0.03	50.97	7.11	0.000%
16	3.52	-50.97	-6.15	-3.52	50.97	6.15	0.000%
17	6.13	-50.97	-3.53	-6.13	50.97	3.53	0.000%
18	7.09	-50.97	0.03	-7.09	50.97	-0.03	0.000%
19	6.15	-50.97	3.58	-6.15	50.97	-3.58	0.000%
20	3.57	-50.97	6.18	-3.57	50.97	-6.18	0.000%
21	0.03	-50.97	7.11	-0.03	50.97	-7.11	0.000%
22	-3.52	-50.97	6.15	3.52	50.97	-6.15	0.000%
23	-6.13	-50.97	3.53	6.13	50.97	-3.53	0.000%
24	-7.09	-50.97	-0.03	7.09	50.97	0.03	0.000%
25	-6.15	-50.97	-3.58	6.15	50.97	3.58	0.000%
26	-3.57	-50.97	-6.18	3.57	50.97	6.18	0.000%
27	-0.04	-37.27	-10.16	0.04	37.27	10.16	0.000%
28	5.02	-37.27	-8.77	-5.02	37.27	8.77	0.000%
29	8.74	-37.27	-5.04	-8.74	37.27	5.04	0.000%
30	10.12	-37.27	0.04	-10.12	37.27	-0.04	0.000%
31	8.78	-37.27	5.12	-8.78	37.27	-5.12	0.000%
32	5.10	-37.27	8.82	-5.10	37.27	-8.82	0.000%
33	0.04	-37.27	10.16	-0.04	37.27	-10.16	0.000%
34	-5.02	-37.27	8.77	5.02	37.27	-8.77	0.000%
35	-8.74	-37.27	5.04	8.74	37.27	-5.04	0.000%
36	-10.12	-37.27	-0.04	10.12	37.27	0.04	0.000%
37	-8.78	-37.27	-5.12	8.78	37.27	5.12	0.000%
38	-5.10	-37.27	-8.82	5.10	37.27	8.82	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00010504
3	Yes	5	0.00000001	0.00003546
4	Yes	5	0.00000001	0.00003525
5	Yes	4	0.00000001	0.00009177
6	Yes	5	0.00000001	0.00003393
7	Yes	5	0.00000001	0.00003765
8	Yes	4	0.00000001	0.00014128
9	Yes	5	0.00000001	0.00003412

10	Yes	5	0.0000001	0.00003429
11	Yes	4	0.0000001	0.00012847
12	Yes	5	0.0000001	0.00003759
13	Yes	5	0.0000001	0.00003391
14	Yes	4	0.0000001	0.0000001
15	Yes	4	0.0000001	0.00046471
16	Yes	4	0.0000001	0.00050905
17	Yes	4	0.0000001	0.00050796
18	Yes	4	0.0000001	0.00046184
19	Yes	4	0.0000001	0.00050754
20	Yes	4	0.0000001	0.00051060
21	Yes	4	0.0000001	0.00045968
22	Yes	4	0.0000001	0.00050070
23	Yes	4	0.0000001	0.00050035
24	Yes	4	0.0000001	0.00045947
25	Yes	4	0.0000001	0.00051223
26	Yes	4	0.0000001	0.00051056
27	Yes	4	0.0000001	0.00002163
28	Yes	4	0.0000001	0.00010224
29	Yes	4	0.0000001	0.00010068
30	Yes	4	0.0000001	0.00001952
31	Yes	4	0.0000001	0.00009093
32	Yes	4	0.0000001	0.00011493
33	Yes	4	0.0000001	0.00002353
34	Yes	4	0.0000001	0.00009315
35	Yes	4	0.0000001	0.00009408
36	Yes	4	0.0000001	0.00002145
37	Yes	4	0.0000001	0.00011439
38	Yes	4	0.0000001	0.00009097

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	120 - 84.7161	14.531	38	0.9811	0.0026
L2	89.2839 - 41.6224	8.464	38	0.8653	0.0015
L3	47.3776 - 0	2.420	38	0.4673	0.0005

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
120.00	Lighting Rod 3/4" x 3'	38	14.531	0.9811	0.0026	52643
118.00	7770.00 w/ Mount Pipe	38	14.122	0.9759	0.0025	52643
116.00	TME-RRUS-11	38	13.713	0.9707	0.0024	52643
108.00	(4) 844G65VTZASX w/ Mount Pipe	38	12.088	0.9485	0.0021	21934
100.00	TME-800MHZ RRH	38	10.498	0.9203	0.0018	13160
97.00	P40-16-XLPP-RR-A w/ Mount Pipe	38	9.916	0.9072	0.0016	11443
83.00	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	38	7.341	0.8210	0.0013	7458
51.00	KS24019-L112A	38	2.784	0.5059	0.0006	4480

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	120 - 84.7161	41.929	13	2.8328	0.0074
L2	89.2839 - 41.6224	24.425	13	2.4973	0.0042
L3	47.3776 - 0	6.987	13	1.3490	0.0015

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
120.00	Lighting Rod 3/4" x 3'	13	41.929	2.8328	0.0074	18386
118.00	7770.00 w/ Mount Pipe	13	40.749	2.8181	0.0072	18386
116.00	TME-RRUS-11	13	39.569	2.8032	0.0069	18386
108.00	(4) 844G65VTZASX w/ Mount Pipe	13	34.882	2.7388	0.0060	7660
100.00	TME-800MHZ RRH	13	30.295	2.6566	0.0051	4595
97.00	P40-16-XLPP-RR-A w/ Mount Pipe	13	28.615	2.6187	0.0047	3995
83.00	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	13	21.186	2.3691	0.0038	2598
51.00	KS24019-L112A	13	8.036	1.4604	0.0017	1554

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
L1	120 - 84.7161 (1)	TP32.5458x24.09x0.375	35.28	0.00	0.0	39.000	36.9884	-10.56	1442.55	0.007
L2	84.7161 - 41.6224 (2)	TP42.0347x30.7011x0.4375	47.66	0.00	0.0	39.000	55.8625	-22.33	2178.64	0.010
L3	41.6224 - 0 (3)	TP51x39.7912x0.5	47.38	0.00	0.0	39.000	80.1435	-37.25	3125.60	0.012

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M _x kip-ft	Actual f _{bx} ksi	Allow. F _{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M _y kip-ft	Actual f _{by} ksi	Allow. F _{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	120 - 84.7161 (1)	TP32.5458x24.09x0.375	348.40	14.802	39.000	0.380	0.00	0.000	39.000	0.000
L2	84.7161 - 41.6224 (2)	TP42.0347x30.7011x0.4375	1316.08	28.565	39.000	0.732	0.00	0.000	39.000	0.000
L3	41.6224 - 0 (3)	TP51x39.7912x0.5	2620.28	31.548	39.000	0.809	0.00	0.000	39.000	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	120 - 84.7161 (1)	TP32.5458x24.09x0.375	17.55	0.475	26.000	0.036	1.29	0.027	26.000	0.001
L2	84.7161 - 41.6224 (2)	TP42.0347x30.7011x0.43 75	25.57	0.458	26.000	0.035	1.49	0.016	26.000	0.001
L3	41.6224 - 0 (3)	TP51x39.7912x0.5	29.45	0.368	26.000	0.028	1.60	0.009	26.000	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio P $\frac{P}{P_a}$	Ratio f_{bx} $\frac{f_{bx}}{F_{bx}}$	Ratio f_{by} $\frac{f_{by}}{F_{by}}$	Ratio f_v $\frac{f_v}{F_v}$	Ratio f_{vt} $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	120 - 84.7161 (1)	0.007	0.380	0.000	0.036	0.001	0.387	1.333	H1-3+VT ✓
L2	84.7161 - 41.6224 (2)	0.010	0.732	0.000	0.035	0.001	0.743	1.333	H1-3+VT ✓
L3	41.6224 - 0 (3)	0.012	0.809	0.000	0.028	0.000	0.821	1.333	H1-3+VT ✓

Section Capacity Table

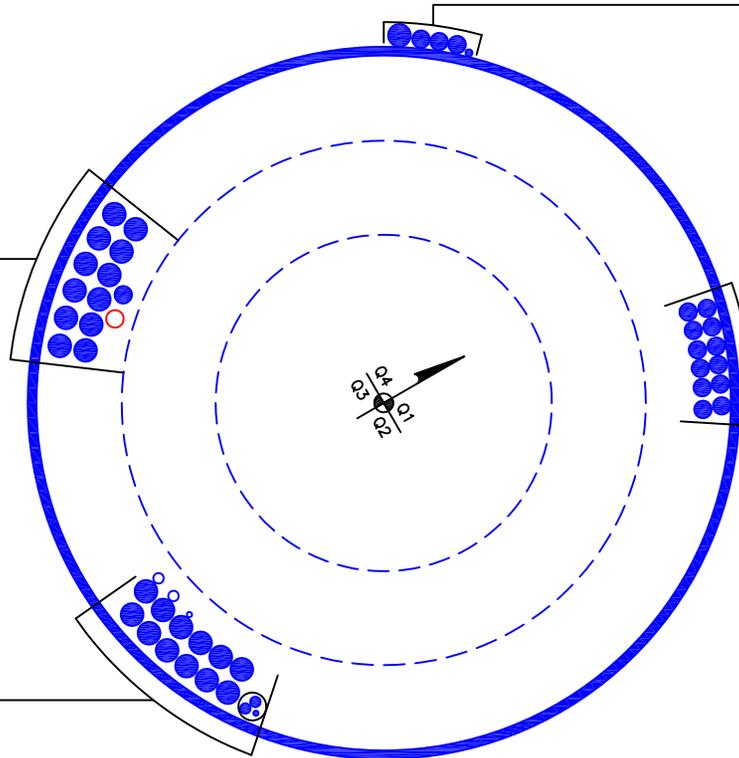
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF* P_{allow} K	% Capacity	Pass Fail	
L1	120 - 84.7161	Pole	TP32.5458x24.09x0.375	1	-10.56	1922.92	29.0	Pass	
L2	84.7161 - 41.6224	Pole	TP42.0347x30.7011x0.4375	2	-22.33	2904.13	55.7	Pass	
L3	41.6224 - 0	Pole	TP51x39.7912x0.5	3	-37.25	4166.42	61.6	Pass	
							Summary		
							Pole (L3)	61.6	Pass
							RATING =	61.6	Pass

APPENDIX B
BASE LEVEL DRAWING



(PROPOSED)
(1) 1-1/4" TO 83 FT LEVEL
(INSTALLED—TO BE REMOVED)
(1) 1-5/8" TO 83 FT LEVEL
(INSTALLED)
(1) 1-1/4" TO 83 FT LEVEL
(11) 1-5/8" TO 83 FT LEVEL

(RESERVED)
(1) 3/8" TO 118 FT LEVEL
(2) 3/4" TO 118 FT LEVEL
(INSTALLED—IN 2" CONDUIT)
(1) 3/8" TO 118 FT LEVEL
(2) 3/4" TO 118 FT LEVEL
(INSTALLED)
(12) 1-5/8" TO 118 FT LEVEL



(INSTALLED)
(1) 1/2" TO 51 FT LEVEL
(3) 1-1/4" TO 97 FT LEVEL
(1) 1-5/8" TO 97 FT LEVEL

(ABANDONED)
(12) 1-1/4" TO 108 FT LEVEL

APPENDIX C
ADDITIONAL CALCULATIONS

Stiffened or Unstiffened, UngROUTED, Circular Base Plate - Any Rod Material

TIA Rev F

Site Data

BU#: 881536	
Site Name: NORTH HAVEN TOWER	
App #: 343401 Rev. 0	
Pole Manufacturer:	Other

Reactions

Moment:	2620	ft-kips
Axial:	37	kips
Shear:	29	kips

Anchor Rod Data

Qty:	20	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	60	in

If No stiffeners, Criteria:

AISC ASD

<-Only Applicable to Unstiffened Cases

Anchor Rod Results

Maximum Rod Tension:	102.9 Kips
Allowable Tension:	195.0 Kips
Anchor Rod Stress Ratio:	52.8% Pass

Rigid
Service, ASD
Fty*ASIF

Plate Data

Diam:	66	in
Thick:	2.25	in
Grade:	60	ksi
Single-Rod B-eff:	8.09	in

Base Plate Results

Base Plate Stress:	41.4 ksi
Allowable Plate Stress:	60.0 ksi
Base Plate Stress Ratio:	69.1% Pass

Flexural Check

Rigid
Service ASD
0.75*Fy*ASIF
Y.L. Length:
31.61

Stiffener Data (Welding at both sides)

Config:	0	*
Weld Type:		
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:		in
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

n/a

Stiffener Results

Horizontal Weld :	n/a
Vertical Weld:	n/a
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	n/a
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	n/a
Plate Comp. (AISC Bracket):	n/a

Pole Results

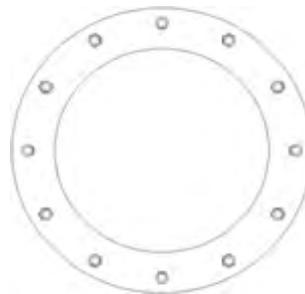
Pole Punching Shear Check:	n/a
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Pole Data

Diam:	51	in
Thick:	0.5	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor

ASIF:	1.333	
-------	-------	--



* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes



[ASCE 7 Windspeed](#)
[ASCE 7 Ground Snow Load](#)
[Related Resources](#)
[Sponsors](#)
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[Contact](#)

Search Results

Query Date: Wed May 04 2016

Latitude: 41.3444

Longitude: -72.8708

**ASCE 7-10 Windspeeds
(3-sec peak gust in mph*):**

Risk Category I: 115

Risk Category II: 125

Risk Category III-IV: 135

MRI 10-Year:** 77

MRI 25-Year:** 87

MRI 50-Year:** 94

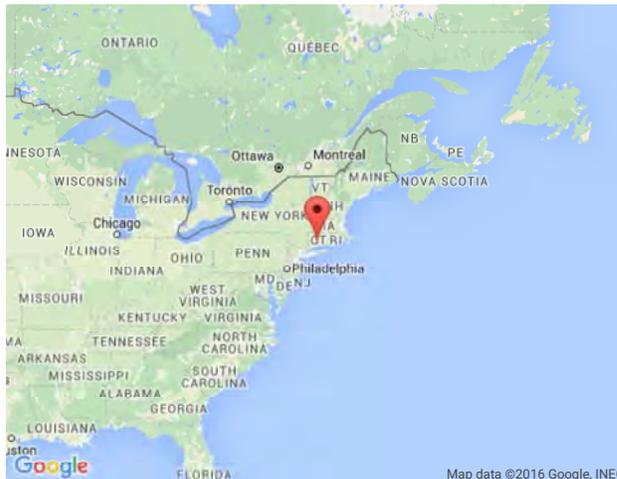
MRI 100-Year:** 101

ASCE 7-05 Windspeed:

111 (3-sec peak gust in mph)

ASCE 7-93 Windspeed:

82 (fastest mile in mph)



*Miles per hour
**Mean Recurrence Interval

Users should consult with local building officials to determine if there are community-specific wind speed requirements that govern.



[Print your results](#)

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Exhibit E

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL
TO NON-IONIZING EMISSIONS

T-Mobile Existing Facility

Site ID: CTNH037A

CTNH037/Candid N. Haven
120 Universal Drive
North Haven, CT 06473

June 8, 2016

EBI Project Number: 6216002746

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	78.36 %

June 8, 2016

T-Mobile USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Emissions Analysis for Site: **CTNH037A – CTNH037/Candid N. Haven**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **120 Universal Drive, North Haven, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limit for the 700 MHz Band is approximately 467 $\mu\text{W}/\text{cm}^2$, and the general population exposure limit for the PCS and AWS bands is 1000 $\mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **120 Universal Drive, North Haven, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

- 1) 2 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 2 UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 3) 2 UMTS channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 4) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 5) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 6) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 30 Watts.

- 7) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 8) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 9) The antennas used in this modeling are the **Ericsson AIR32 B2A/B66Aa & Ericsson AIR21B2A/B4P** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **Commscope LNX-6515DS-VTM** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **Ericsson AIR32 B2A/B66Aa & Ericsson AIR21B2A/B4P** have a maximum gain of **15.9 dBd** at their main lobe at 1900 MHz and 2100 MHz. The **Commscope LNX-6515DS-VTM** has a maximum gain of **14.6 dBd** at its main lobe at 700 MHz. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 10) The antenna mounting height centerline of the proposed antennas is **83 feet** above ground level (AGL).
- 11) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculations were done with respect to uncontrolled / general public threshold limits.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR32 B2A/B66Aa	Make / Model:	Ericsson AIR32 B2A/B66Aa	Make / Model:	Ericsson AIR32 B2A/B66Aa
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	83	Height (AGL):	83	Height (AGL):	83
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	240	Total TX Power(W):	240	Total TX Power(W):	240
ERP (W):	9,337.08	ERP (W):	9,337.08	ERP (W):	9,337.08
Antenna A1 MPE%	5.66	Antenna B1 MPE%	5.66	Antenna C1 MPE%	5.66
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	83	Height (AGL):	83	Height (AGL):	83
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	6	Channel Count	6	Channel Count	6
Total TX Power(W):	180	Total TX Power(W):	180	Total TX Power(W):	180
ERP (W):	7,002.81	ERP (W):	7,002.81	ERP (W):	7,002.81
Antenna A2 MPE%	4.25	Antenna B2 MPE%	4.25	Antenna C2 MPE%	4.25
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM
Gain:	14.6 dBd	Gain:	14.6 dBd	Gain:	14.6 dBd
Height (AGL):	83	Height (AGL):	83	Height (AGL):	83
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power(W):	30	Total TX Power(W):	30	Total TX Power(W):	30
ERP (W):	865.21	ERP (W):	865.21	ERP (W):	865.21
Antenna A3 MPE%	1.12	Antenna B3 MPE%	1.12	Antenna C3 MPE%	1.12

Site Composite MPE%	
Carrier	MPE%
T-Mobile (Per Sector Max)	11.03 %
MetroPCS	24.20 %
Sprint	12.96 %
Nextel	6.29 %
AT&T	23.88 %
Site Total MPE %:	78.36 %

T-Mobile Sector 1 Total:	11.03 %
T-Mobile Sector 2 Total:	11.03 %
T-Mobile Sector 3 Total:	11.03 %
Site Total:	78.36 %

T-Mobile _per sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile 2100 MHz (AWS) LTE	2	2334.27	83	28.31	2100	1000	2.83 %
T-Mobile 2100 MHz (AWS) LTE	2	2334.27	83	28.31	2100	1000	2.83 %
T-Mobile 1900 MHz (PCS) GSM	2	1167.14	83	14.15	1900	1000	1.42 %
T-Mobile 1900 MHz (PCS) UMTS	2	1167.14	83	14.15	1900	1000	1.42 %
T-Mobile 2100 MHz (AWS) UMTS	2	1167.14	83	14.15	2100	1000	1.42 %
T-Mobile 700 MHz LTE	1	865.21	83	5.25	700	467	1.12 %
						Total: *	11.03 %

*NOTE: Totals may vary by .01% due to summing of remainders

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general public exposure to RF Emissions.

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector 1:	11.03 %
Sector 2:	11.03 %
Sector 3:	11.03 %
T-Mobile Per Sector Maximum:	11.03 %
Site Total:	78.36 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **78.36%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.