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CORPORATION

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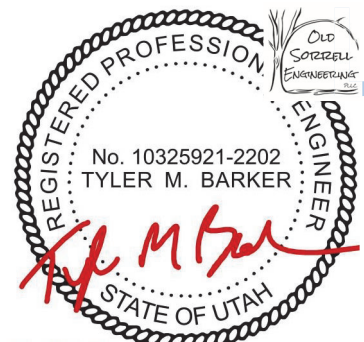
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## Structural Analysis Report

**Structure** : 119 ft Monopole  
**ATC Site Name** : Ogden UT SQA, UT  
**ATC Asset Number** : 418511  
**Engineering Number** : 13657844\_C3\_02  
**Proposed Carrier** : VERIZON WIRELESS  
**Carrier Site Name** : Warren  
**Carrier Site Number** : 205037  
**Site Location** : 6061 West 900 South  
Ogden, UT 84404-8501  
41.244500,-112.123000  
**County** : Weber  
**Date** : May 16, 2021  
**Max Usage** : 40%  
**Result** : Pass

Prepared By:  
Temitope Olaniyan  
CLS

Reviewed By:



Tyler M. Barker  
Old Sorrell Engineering PLLC 05/18/2021  
PE # 10325921-2202 Exp. 3/31/2023

Digitally signed by  
Tyler M. Barker PE  
Date: 2021.05.18  
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## Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 119 ft monopole to reflect the change in loading by VERIZON WIRELESS.

## Supporting Documents

<b>Tower Drawings</b>	Valmont Order #257013, dated July 30, 2014
<b>Foundation Drawing</b>	Valmont Order #257013, dated July 30, 2014
<b>Geotechnical Report</b>	Western Technologies Job #6124JT063, dated June 23, 2014

## 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.

<b>Basic Wind Speed:</b>	103 mph (3-Second Gust)
<b>Basic Wind Speed w/ Ice:</b>	40 mph (3-Second Gust) w/ 1/4" radial ice concurrent
<b>Code:</b>	ANSI/TIA-222-H / 2018 IBC
<b>Exposure Category:</b>	B
<b>Risk Category:</b>	II
<b>Topographic Factor Procedure:</b>	Method 1
<b>Topographic Category:</b>	1
<b>Crest Height (H):</b>	0 ft
<b>Spectral Response:</b>	$S_s = 1.04, S_1 = 0.37$
<b>Site Class:</b>	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](mailto: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**

Elev. <sup>1</sup> (ft)	Qty	Equipment	Mount Type	Lines	Carrier
116.0	1	VZW Unused Reserve (19038.48 sqin)	Triangular Platform with Handrails	(1) 1 5/8" (1.63"-41.3mm) Fiber	VERIZON WIRELESS
	3	Ericsson Radio 4449 - B13&B5			
	2	Commscope NHH-45C-R2B			
	1	RFS DB-B1-6C-12AB-0Z			
	4	Commscope NHH-65C-R2B			
	3	Ericsson 8843 Rev 2			

**Equipment to be Removed**

Elev. <sup>1</sup> (ft)	Qty	Equipment	Mount Type	Lines	Carrier
116.0	1	RFS DB-B1-6C-12AB-0Z	-	(1) 1 5/8" (1.63"-41.3mm) Fiber	VERIZON WIRELESS

**Proposed Equipment**

Elev. <sup>1</sup> (ft)	Qty	Equipment	Mount Type	Lines	Carrier
116.0	3	Ericsson AIR 6449 B77D/ C-Band	Triangular Platform with Handrails	-	VERIZON WIRELESS

<sup>1</sup> Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.



### Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	32%	Pass
Shaft	40%	Pass
Base Plate	8%	Pass

### Foundations

Reaction Component	Original Design Reactions	Analysis Reactions	% of Design
Moment (Kips-Ft)	2,310.9	786.2	34%
Shear (Kips)	25.6	8.8	34%

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

### Deflection and Sway\*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
116.0	Ericsson AIR 6449 B77D/ C-Band	VERIZON WIRELESS	0.979	1.112

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



## Standard Conditions

All engineering services performed by ATC Tower Services LLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

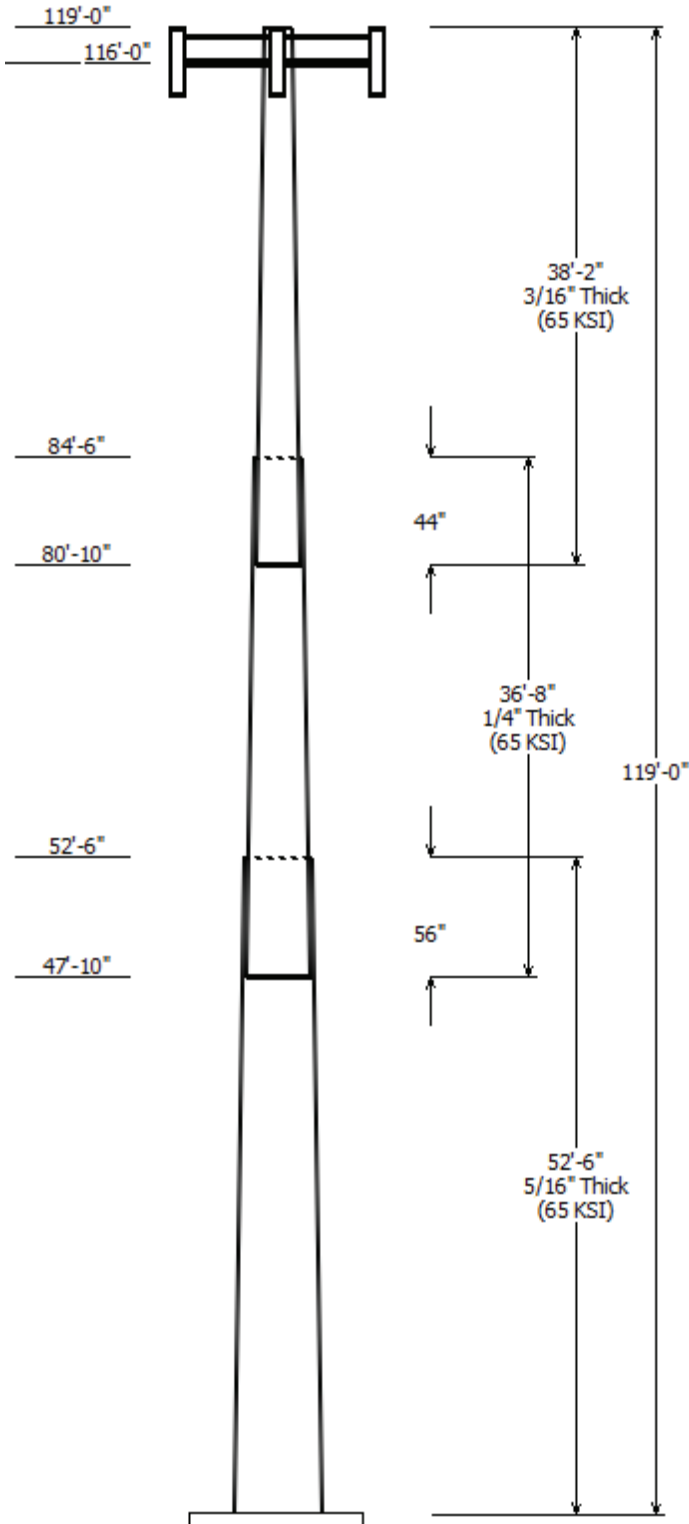
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of ATC Tower Services LLC

It is the responsibility of the client to ensure that the information provided to ATC Tower Services LLC and used in the performance of our engineering services is correct and complete.

All assets of American Tower Corporation, its affiliates and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and ATC Tower Services LLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

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



Job Information	
Client : VERIZON WIRELESS	Code: ANSI/TIA-222-H
Pole : 418511	
Location : Ogden UT SQA, UT	
Description : 119 ft Monopole	Risk Category : II
Shape : 18 Sides	Exposure : B
Height : 119.00 (ft)	Topo Method : Method 1
Base Elev (ft): 0.00	Topographic Category : 1
Taper: 0.280462in/ft)	

Sections Properties						
Shaft Section	Length (ft)	Diameter (in)		Thick Joint (in)	Overlap Length (in)	Steel Grade
		Accross Top	Flats Bottom			
1	52.500	30.77	45.50	0.313	0.000	18 Sides 65
2	36.667	22.30	32.58	0.250	56.000	18 Sides 65
3	38.167	13.00	23.70	0.188	44.000	18 Sides 65

Discrete Appurtenance			
Attach Elev (ft)	Force Elev (ft)	Qty	Description
116.000	116.000	1	Flat Platform w/ Handrails
116.000	116.000	2	Commscope NHH-45C-R2B
116.000	116.000	4	Commscope NHH-65C-R2B
116.000	116.000	3	Ericsson AIR 6449 B77D/ C-
116.000	116.000	1	RFS DB-B1-6C-12AB-0Z
116.000	116.000	3	Ericsson 8843 Rev 2
116.000	116.000	3	Ericsson Radio 4449 - B13&B5
116.000	116.000	1	VZW Unused Reserve

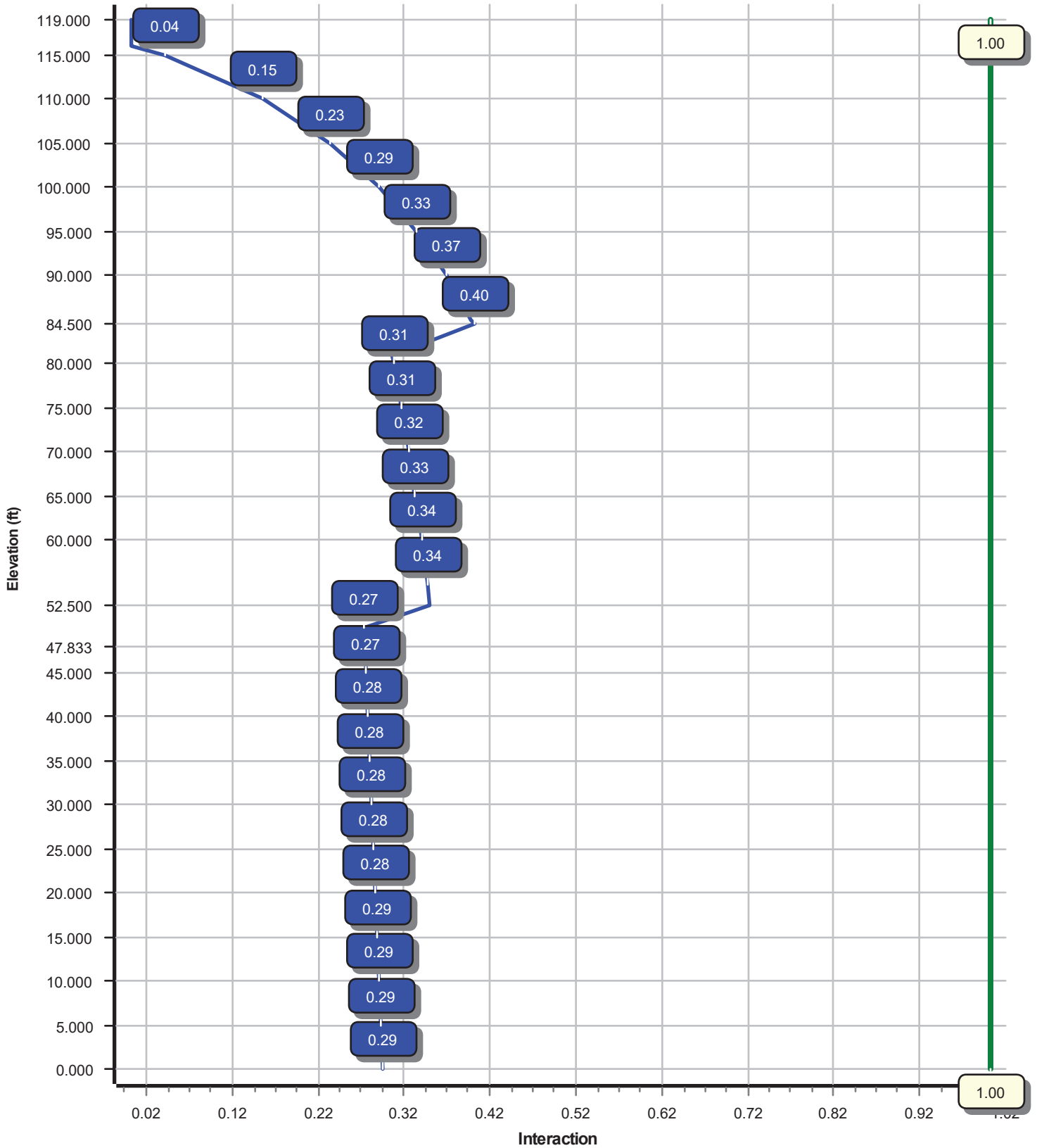
Linear Appurtenance			
Elev (ft) From	To	Description	Exposed To Wind
0.000	116.0	1 5/8" (1.63"-	No

Load Cases	
1.2D + 1.0W	103 mph with No Ice
0.9D + 1.0W	103 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	40 mph with 0.25 in Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	Serviceability 60 mph

Reactions			
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.0W	786.17	8.76	18.57
0.9D + 1.0W	779.45	8.75	13.93
1.2D + 1.0Di + 1.0Wi	149.79	1.80	19.76
1.2D + 1.0Ev + 1.0Eh	268.24	2.60	20.13
0.9D - 1.0Ev + 1.0Eh	263.51	2.60	10.79
1.0D + 1.0W	238.18	2.66	15.48

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

Load Case : 1.2D + 1.0W  
Max Ratio 39.86% at 84.5 ft





Site Number: 418511

Code: ANSI/TIA-222-H

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Site Name: Ogden UT SQA, UT

Engineering Number:13657844\_C3\_02

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Customer: VERIZON WIRELESS

**Analysis Parameters**

Location :	Weber County, UT	Height (ft) :	119
Code :	ANSI/TIA-222-H	Base Diameter (in) :	45.50
Shape :	18 Sides	Top Diameter (in) :	13.00
Pole Type :	Taper	Taper (in/ft) :	0.280
Pole Manufacturer :		Rotation (deg) :	0.00
Kd (non-service) :	0.95	Ke :	0.86

**Ice & Wind Parameters**

Exposure Category:	B	Design Wind Speed Without Ice:	103 mph
Risk Category:	II	Design Wind Speed With Ice:	40 mph
Topographic Factor Procedure:	Method 1	Operational Wind Speed:	60 mph
Topographic Category:	1	Design Ice Thickness:	0.25 in
Crest Height:	0 ft	HMSL:	4217.00 ft

**Seismic Parameters**

Analysis Method:	Equivalent Lateral Force Method		
Site Class:	D - Stiff Soil		
Period Based on Rayleigh Method (sec):	1.91		
T <sub>L</sub> (sec):	8	p:	1
S <sub>s</sub> :	1.045	S <sub>1</sub> :	0.374
F <sub>a</sub> :	1.200	F <sub>v</sub> :	1.926
S <sub>ds</sub> :	0.836	S <sub>d1</sub> :	0.480
		C <sub>s</sub> :	0.168
		C <sub>s</sub> Max:	0.168
		C <sub>s</sub> Min:	0.037

**Load Cases**

1.2D + 1.0W	103 mph with No Ice
0.9D + 1.0W	103 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	40 mph with 0.25 in Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	Serviceability 60 mph

Site Number: 418511

Code: ANSI/TIA-222-H

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Site Name: Ogden UT SQA, UT

Engineering Number:13657844\_C3\_02

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Customer: VERIZON WIRELESS

**Shaft Section Properties**

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom				Top				Taper (in/ft)				
							Dia (in)	Elev (ft)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)		Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio
1-18	52.500	0.3125	65		0.00	6,702	45.50	0.00	44.82	11562.4	23.91	145.60	30.77	52.50	30.21	3542.6	15.60	98.48	0.280462
2-18	36.667	0.2500	65	Slip	56.00	2,692	32.58	47.83	25.66	3389.1	21.22	130.34	22.30	84.50	17.50	1074.9	13.97	89.20	0.280462
3-18	38.167	0.1875	65	Slip	44.00	1,404	23.70	80.83	13.99	977.9	20.53	126.42	13.00	119.00	7.62	158.1	10.46	69.33	0.280462
Shaft Weight						10,798													

**Discrete Appurtenance Properties**

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	Weight (lb)	No Ice EPAa (sf)	Orientation Factor	Weight (lb)	Ice EPAa (sf)	Orientation Factor
116.00	Ericsson Radio 4449 - B13&B5	3	0.75	0.000	70.00	1.650	0.50	79.16	1.788	0.50
116.00	Ericsson 8843 Rev 2	3	0.75	0.000	75.00	1.650	0.50	85.10	1.788	0.50
116.00	RFS DB-B1-6C-12AB-0Z	1	0.75	0.000	21.40	2.512	0.67	34.39	2.681	0.67
116.00	Ericsson AIR 6449 B77D/ C-Band	3	0.75	0.000	81.60	4.028	0.70	100.55	4.251	0.70
116.00	Commscope NHH-65C-R2B	4	0.75	0.000	51.60	11.389	0.70	88.78	11.914	0.70
116.00	Commscope NHH-45C-R2B	2	0.75	0.000	81.60	15.892	0.73	130.19	16.492	0.73
116.00	Flat Platform w/ Handrails	1	1.00	0.000	2,000.00	42.400	1.00	2,231.23	45.812	1.00
116.00	VZW Unused Reserve (19038.48	1	0.75	0.000	1,429.20	132.212	0.90	1,591.19	147.198	0.90
Totals	Num Loadings:8	18			4,500.00			5,266.74		

**Linear Appurtenance Properties**

Load Case Azimuth (deg) :

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Max Coax / Flat Row	Dist Between Rows (in)	Dist Between Cols (in)	Dist Azimuth (deg)	Dist From Face (in)	Exposed To Wind Carrier
0.00	116.00	1	1 5/8" (1.63"-41.3mm)	1.63	1.61	N	0	0.00	0.00	0	N VERIZON WIRELESS

Site Number: 418511

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Customer: VERIZON WIRELESS

**Segment Properties** (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	F'y (ksi)	S (in <sup>3</sup> )	Z (in <sup>3</sup> )	Weight (lb)
0.00		0.3125	45.500	44.819	11,562.4	23.91	145.60	73.3	500.5	0.0	0.0
5.00		0.3125	44.098	43.428	10,519.0	23.12	141.11	74.2	469.8	0.0	750.7
10.00		0.3125	42.695	42.037	9,540.4	22.33	136.63	75.1	440.1	0.0	727.0
15.00		0.3125	41.293	40.646	8,624.4	21.54	132.14	76.1	411.4	0.0	703.4
20.00		0.3125	39.891	39.255	7,769.0	20.74	127.65	77.0	383.6	0.0	679.7
25.00		0.3125	38.488	37.864	6,972.1	19.95	123.16	77.9	356.8	0.0	656.1
30.00		0.3125	37.086	36.474	6,231.7	19.16	118.68	78.9	331.0	0.0	632.4
35.00		0.3125	35.684	35.083	5,545.6	18.37	114.19	79.8	306.1	0.0	608.7
40.00		0.3125	34.282	33.692	4,911.8	17.58	109.70	80.7	282.2	0.0	585.1
45.00		0.3125	32.879	32.301	4,328.3	16.79	105.21	81.7	259.3	0.0	561.4
47.83	Bot - Section 2	0.3125	32.085	31.513	4,019.1	16.34	102.67	82.2	246.7	0.0	307.6
50.00		0.3125	31.477	30.910	3,792.9	16.00	100.73	82.6	237.3	0.0	417.5
52.50	Top - Section 1	0.2500	31.276	24.618	2,994.0	20.30	125.10	77.5	188.5	0.0	471.8
55.00		0.2500	30.575	24.062	2,795.6	19.80	122.30	78.1	180.1	0.0	207.1
60.00		0.2500	29.172	22.949	2,425.4	18.81	116.69	79.3	163.8	0.0	399.9
65.00		0.2500	27.770	21.836	2,089.4	17.82	111.08	80.4	148.2	0.0	381.0
70.00		0.2500	26.368	20.724	1,786.0	16.83	105.47	81.6	133.4	0.0	362.1
75.00		0.2500	24.965	19.611	1,513.5	15.84	99.86	82.6	119.4	0.0	343.1
80.00		0.2500	23.563	18.498	1,270.2	14.86	94.25	82.6	106.2	0.0	324.2
80.83	Bot - Section 3	0.2500	23.329	18.313	1,232.4	14.69	93.32	82.6	104.0	0.0	52.2
84.50	Top - Section 2	0.1875	22.676	13.383	855.1	19.56	120.94	78.4	74.3	0.0	394.2
85.00		0.1875	22.536	13.300	839.2	19.43	120.19	78.5	73.3	0.0	22.7
90.00		0.1875	21.133	12.465	690.9	18.11	112.71	80.1	64.4	0.0	219.2
95.00		0.1875	19.731	11.630	561.3	16.79	105.23	81.7	56.0	0.0	205.0
100.0		0.1875	18.329	10.796	448.9	15.47	97.75	82.6	48.2	0.0	190.8
105.0		0.1875	16.926	9.961	352.6	14.15	90.27	82.6	41.0	0.0	176.6
110.0		0.1875	15.524	9.127	271.2	12.84	82.80	82.6	34.4	0.0	162.4
115.0		0.1875	14.122	8.292	203.4	11.52	75.32	82.6	28.4	0.0	148.2
116.0		0.1875	13.841	8.125	191.4	11.25	73.82	82.6	27.2	0.0	27.9
119.0		0.1875	13.000	7.625	158.1	10.46	69.33	82.6	24.0	0.0	80.4
											10,798.2

Site Number: 418511

Code: ANSI/TIA-222-H

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Customer: VERIZON WIRELESS

<b>Load Case: 1.2D + 1.0W</b>	<b>103 mph with No Ice</b>	<b>23 Iterations</b>
Gust Response Factor :1.10		
Dead Load Factor :1.20		
Wind Load Factor :1.00		

**Applied Segment Forces Summary**

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		118.0	0.0					0.0	0.0	118.0	0.0	0.0	0.0
5.00		232.3	900.9					0.0	9.7	232.3	910.5	0.0	0.0
10.00		224.9	872.5					0.0	9.7	224.9	882.1	0.0	0.0
15.00		217.5	844.1					0.0	9.7	217.5	853.7	0.0	0.0
20.00		210.1	815.7					0.0	9.7	210.1	825.3	0.0	0.0
25.00		202.7	787.3					0.0	9.7	202.7	796.9	0.0	0.0
30.00		197.6	758.9					0.0	9.7	197.6	768.5	0.0	0.0
35.00		196.4	730.5					0.0	9.7	196.4	740.1	0.0	0.0
40.00		196.1	702.1					0.0	9.7	196.1	711.7	0.0	0.0
45.00		152.7	673.7					0.0	9.7	152.7	683.3	0.0	0.0
47.83	Bot - Section 2	97.4	369.1					0.0	5.5	97.4	374.6	0.0	0.0
50.00		91.0	501.0					0.0	4.2	91.0	505.2	0.0	0.0
52.50	Top - Section 1	96.7	566.1					0.0	4.8	96.7	571.0	0.0	0.0
55.00		143.0	248.5					0.0	4.8	143.0	253.3	0.0	0.0
60.00		187.4	479.9					0.0	9.7	187.4	489.6	0.0	0.0
65.00		182.5	457.2					0.0	9.7	182.5	466.8	0.0	0.0
70.00		177.0	434.5					0.0	9.7	177.0	444.1	0.0	0.0
75.00		170.9	411.7					0.0	9.7	170.9	421.4	0.0	0.0
80.00		97.5	389.0					0.0	9.7	97.5	398.7	0.0	0.0
80.83	Bot - Section 3	73.5	62.6					0.0	1.6	73.5	64.2	0.0	0.0
84.50	Top - Section 2	67.9	473.0					0.0	7.1	67.9	480.1	0.0	0.0
85.00		86.2	27.2					0.0	1.0	86.2	28.2	0.0	0.0
90.00		152.4	263.0					0.0	9.7	152.4	272.7	0.0	0.0
95.00		144.5	246.0					0.0	9.7	144.5	255.6	0.0	0.0
100.00		136.3	228.9					0.0	9.7	136.3	238.6	0.0	0.0
105.00		127.6	211.9					0.0	9.7	127.6	221.6	0.0	0.0
110.00		118.6	194.9					0.0	9.7	118.6	204.5	0.0	0.0
115.00		67.8	177.8					0.0	9.7	67.8	187.5	0.0	0.0
116.00	Appurtenance(s)	37.9	33.5	4,629.0	0.0	0.0	5,400.0	0.0	1.9	4,666.9	5,435.5	0.0	0.0
119.00		27.1	96.5					0.0	0.0	27.1	96.5	0.0	0.0
<b>Totals:</b>										<b>8,860.55</b>	<b>18,581.9</b>	<b>0.00</b>	<b>0.00</b>

Site Number: 418511

Code: ANSI/TIA-222-H

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Customer: VERIZON WIRELESS

Load Case: 1.2D + 1.0W

103 mph with No Ice

23 Iterations

Gust Response Factor :1.10

Dead Load Factor :1.20

Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-18.57	-8.76	0.00	-786.17	0.00	786.17	2,955.82	786.57	3,210.25	2,750.78	0.00	0.00	0.292
5.00	-17.65	-8.55	0.00	-742.38	0.00	742.38	2,900.47	762.16	3,014.12	2,614.93	0.05	-0.09	0.290
10.00	-16.75	-8.36	0.00	-699.61	0.00	699.61	2,842.78	737.75	2,824.16	2,480.26	0.20	-0.19	0.288
15.00	-15.89	-8.16	0.00	-657.83	0.00	657.83	2,782.77	713.34	2,640.39	2,346.98	0.46	-0.29	0.286
20.00	-15.05	-7.98	0.00	-617.01	0.00	617.01	2,720.42	688.93	2,462.80	2,215.29	0.82	-0.40	0.284
25.00	-14.24	-7.80	0.00	-577.13	0.00	577.13	2,655.75	664.52	2,291.39	2,085.40	1.29	-0.51	0.282
30.00	-13.46	-7.62	0.00	-538.15	0.00	538.15	2,588.74	640.11	2,126.16	1,957.51	1.89	-0.62	0.280
35.00	-12.70	-7.44	0.00	-500.06	0.00	500.06	2,519.41	615.70	1,967.12	1,831.82	2.60	-0.74	0.278
40.00	-11.98	-7.26	0.00	-462.86	0.00	462.86	2,447.74	591.29	1,814.26	1,708.54	3.44	-0.86	0.276
45.00	-11.28	-7.12	0.00	-426.57	0.00	426.57	2,373.75	566.88	1,667.57	1,587.87	4.41	-0.99	0.274
47.83	-10.90	-7.03	0.00	-406.40	0.00	406.40	2,330.79	553.05	1,587.20	1,520.72	5.03	-1.07	0.272
50.00	-10.39	-6.94	0.00	-391.18	0.00	391.18	2,296.46	542.47	1,527.08	1,469.39	5.53	-1.13	0.271
52.50	-9.81	-6.84	0.00	-373.84	0.00	373.84	1,717.75	432.05	1,210.74	1,096.35	6.14	-1.20	0.347
55.00	-9.55	-6.71	0.00	-356.74	0.00	356.74	1,691.53	422.28	1,156.64	1,055.02	6.79	-1.28	0.344
60.00	-9.04	-6.54	0.00	-323.18	0.00	323.18	1,637.34	402.75	1,052.16	973.61	8.22	-1.45	0.338
65.00	-8.56	-6.37	0.00	-290.47	0.00	290.47	1,580.81	383.23	952.61	894.03	9.83	-1.63	0.331
70.00	-8.10	-6.21	0.00	-258.59	0.00	258.59	1,521.95	363.70	858.02	816.49	11.64	-1.82	0.322
75.00	-7.67	-6.05	0.00	-227.54	0.00	227.54	1,456.99	344.17	768.36	739.28	13.64	-2.01	0.313
80.00	-7.26	-5.96	0.00	-197.28	0.00	197.28	1,374.33	324.64	683.66	657.37	15.85	-2.21	0.306
80.83	-7.19	-5.89	0.00	-192.31	0.00	192.31	1,360.55	321.39	670.02	644.18	16.24	-2.24	0.304
84.50	-6.70	-5.81	0.00	-170.71	0.00	170.71	944.22	234.87	477.08	436.69	18.03	-2.40	0.399
85.00	-6.66	-5.74	0.00	-167.80	0.00	167.80	940.18	233.41	471.15	432.10	18.28	-2.42	0.396
90.00	-6.37	-5.61	0.00	-139.09	0.00	139.09	898.59	218.76	413.88	386.85	20.95	-2.68	0.367
95.00	-6.10	-5.48	0.00	-111.04	0.00	111.04	854.67	204.11	360.33	343.09	23.90	-2.94	0.332
100.00	-5.85	-5.35	0.00	-83.65	0.00	83.65	802.08	189.47	310.48	298.66	27.12	-3.19	0.288
105.00	-5.61	-5.23	0.00	-56.88	0.00	56.88	740.08	174.82	264.34	254.05	30.58	-3.41	0.232
110.00	-5.41	-5.12	0.00	-30.72	0.00	30.72	678.08	160.18	221.91	213.05	34.25	-3.58	0.153
115.00	-5.22	-5.04	0.00	-5.14	0.00	5.14	616.08	145.53	183.19	175.66	38.06	-3.68	0.039
116.00	-0.09	-0.03	0.00	-0.10	0.00	0.10	603.68	142.60	175.90	168.61	38.83	-3.68	0.001
119.00	0.00	-0.03	0.00	0.00	0.00	0.00	566.48	133.81	154.89	148.34	41.14	-3.68	0.000

Site Number: 418511

Code: ANSI/TIA-222-H

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Site Name: Ogden UT SQA, UT

Engineering Number:13657844\_C3\_02

5/16/2021 11:08:18 PM

Customer: VERIZON WIRELESS

**Load Case: 0.9D + 1.0W** **103 mph with No Ice (Reduced DL)** **23 Iterations**

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

**Applied Segment Forces Summary**

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		118.0	0.0					0.0	0.0	118.0	0.0	0.0	0.0
5.00		232.3	675.6					0.0	7.2	232.3	682.9	0.0	0.0
10.00		224.9	654.3					0.0	7.2	224.9	661.6	0.0	0.0
15.00		217.5	633.0					0.0	7.2	217.5	640.3	0.0	0.0
20.00		210.1	611.7					0.0	7.2	210.1	619.0	0.0	0.0
25.00		202.7	590.4					0.0	7.2	202.7	597.7	0.0	0.0
30.00		197.6	569.1					0.0	7.2	197.6	576.4	0.0	0.0
35.00		196.4	547.9					0.0	7.2	196.4	555.1	0.0	0.0
40.00		196.1	526.6					0.0	7.2	196.1	533.8	0.0	0.0
45.00		152.7	505.3					0.0	7.2	152.7	512.5	0.0	0.0
47.83	Bot - Section 2	97.4	276.9					0.0	4.1	97.4	281.0	0.0	0.0
50.00		91.0	375.7					0.0	3.1	91.0	378.9	0.0	0.0
52.50	Top - Section 1	96.7	424.6					0.0	3.6	96.7	428.2	0.0	0.0
55.00		143.0	186.4					0.0	3.6	143.0	190.0	0.0	0.0
60.00		187.4	359.9					0.0	7.2	187.4	367.2	0.0	0.0
65.00		182.5	342.9					0.0	7.2	182.5	350.1	0.0	0.0
70.00		177.0	325.8					0.0	7.2	177.0	333.1	0.0	0.0
75.00		170.9	308.8					0.0	7.2	170.9	316.1	0.0	0.0
80.00		97.5	291.8					0.0	7.2	97.5	299.0	0.0	0.0
80.83	Bot - Section 3	73.5	47.0					0.0	1.2	73.5	48.2	0.0	0.0
84.50	Top - Section 2	67.9	354.8					0.0	5.3	67.9	360.1	0.0	0.0
85.00		86.2	20.4					0.0	0.7	86.2	21.2	0.0	0.0
90.00		152.4	197.3					0.0	7.2	152.4	204.5	0.0	0.0
95.00		144.5	184.5					0.0	7.2	144.5	191.7	0.0	0.0
100.00		136.3	171.7					0.0	7.2	136.3	178.9	0.0	0.0
105.00		127.6	158.9					0.0	7.2	127.6	166.2	0.0	0.0
110.00		118.6	146.1					0.0	7.2	118.6	153.4	0.0	0.0
115.00		67.8	133.4					0.0	7.2	67.8	140.6	0.0	0.0
116.00	Appurtenance(s)	37.9	25.1	4,629.0	0.0	0.0	4,050.0	0.0	1.4	4,666.9	4,076.6	0.0	0.0
119.00		27.1	72.4					0.0	0.0	27.1	72.4	0.0	0.0
<b>Totals:</b>										<b>8,860.55</b>	<b>13,936.4</b>	<b>0.00</b>	<b>0.00</b>

Site Number: 418511

Code: ANSI/TIA-222-H

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Site Name: Ogden UT SQA, UT

Engineering Number:13657844\_C3\_02

5/16/2021 11:08:19 PM

Customer: VERIZON WIRELESS

**Load Case: 0.9D + 1.0W**

103 mph with No Ice (Reduced DL)

23 Iterations

Gust Response Factor :1.10

Dead Load Factor :0.90

Wind Load Factor :1.00

**Calculated Forces**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-13.93	-8.75	0.00	-779.45	0.00	779.45	2,955.82	786.57	3,210.25	2,750.78	0.00	0.00	0.288
5.00	-13.23	-8.54	0.00	-735.69	0.00	735.69	2,900.47	762.16	3,014.12	2,614.93	0.05	-0.09	0.286
10.00	-12.56	-8.34	0.00	-692.97	0.00	692.97	2,842.78	737.75	2,824.16	2,480.26	0.20	-0.19	0.284
15.00	-11.90	-8.14	0.00	-651.28	0.00	651.28	2,782.77	713.34	2,640.39	2,346.98	0.45	-0.29	0.282
20.00	-11.27	-7.95	0.00	-610.59	0.00	610.59	2,720.42	688.93	2,462.80	2,215.29	0.81	-0.39	0.280
25.00	-10.66	-7.76	0.00	-570.86	0.00	570.86	2,655.75	664.52	2,291.39	2,085.40	1.28	-0.50	0.278
30.00	-10.07	-7.58	0.00	-532.06	0.00	532.06	2,588.74	640.11	2,126.16	1,957.51	1.87	-0.61	0.276
35.00	-9.50	-7.39	0.00	-494.18	0.00	494.18	2,519.41	615.70	1,967.12	1,831.82	2.58	-0.73	0.274
40.00	-8.96	-7.21	0.00	-457.22	0.00	457.22	2,447.74	591.29	1,814.26	1,708.54	3.41	-0.85	0.271
45.00	-8.43	-7.06	0.00	-421.17	0.00	421.17	2,373.75	566.88	1,667.57	1,587.87	4.37	-0.98	0.269
47.83	-8.15	-6.97	0.00	-401.16	0.00	401.16	2,330.79	553.05	1,587.20	1,520.72	4.98	-1.06	0.267
50.00	-7.76	-6.88	0.00	-386.06	0.00	386.06	2,296.46	542.47	1,527.08	1,469.39	5.47	-1.12	0.266
52.50	-7.33	-6.79	0.00	-368.85	0.00	368.85	1,717.75	432.05	1,210.74	1,096.35	6.07	-1.19	0.341
55.00	-7.12	-6.65	0.00	-351.89	0.00	351.89	1,691.53	422.28	1,156.64	1,055.02	6.72	-1.26	0.338
60.00	-6.74	-6.48	0.00	-318.62	0.00	318.62	1,637.34	402.75	1,052.16	973.61	8.13	-1.43	0.332
65.00	-6.38	-6.31	0.00	-286.23	0.00	286.23	1,580.81	383.23	952.61	894.03	9.72	-1.61	0.324
70.00	-6.03	-6.14	0.00	-254.70	0.00	254.70	1,521.95	363.70	858.02	816.49	11.51	-1.79	0.316
75.00	-5.70	-5.98	0.00	-224.01	0.00	224.01	1,456.99	344.17	768.36	739.28	13.49	-1.98	0.307
80.00	-5.39	-5.88	0.00	-194.12	0.00	194.12	1,374.33	324.64	683.66	657.37	15.67	-2.18	0.300
80.83	-5.34	-5.81	0.00	-189.22	0.00	189.22	1,360.55	321.39	670.02	644.18	16.06	-2.22	0.298
84.50	-4.97	-5.74	0.00	-167.90	0.00	167.90	944.22	234.87	477.08	436.69	17.82	-2.37	0.390
85.00	-4.94	-5.66	0.00	-165.04	0.00	165.04	940.18	233.41	471.15	432.10	18.07	-2.39	0.388
90.00	-4.72	-5.52	0.00	-136.72	0.00	136.72	898.59	218.76	413.88	386.85	20.71	-2.65	0.359
95.00	-4.51	-5.39	0.00	-109.10	0.00	109.10	854.67	204.11	360.33	343.09	23.62	-2.90	0.324
100.00	-4.32	-5.26	0.00	-82.15	0.00	82.15	802.08	189.47	310.48	298.66	26.78	-3.14	0.281
105.00	-4.14	-5.14	0.00	-55.84	0.00	55.84	740.08	174.82	264.34	254.05	30.20	-3.36	0.226
110.00	-3.98	-5.02	0.00	-30.15	0.00	30.15	678.08	160.18	221.91	213.05	33.81	-3.53	0.148
115.00	-3.84	-4.95	0.00	-5.04	0.00	5.04	616.08	145.53	183.19	175.66	37.57	-3.62	0.036
116.00	-0.07	-0.03	0.00	-0.09	0.00	0.09	603.68	142.60	175.90	168.61	38.33	-3.63	0.001
119.00	0.00	-0.03	0.00	0.00	0.00	0.00	566.48	133.81	154.89	148.34	40.61	-3.63	0.000

Site Number: 418511

Code: ANSI/TIA-222-H

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Site Name: Ogden UT SQA, UT

Engineering Number:13657844\_C3\_02

5/16/2021 11:08:19 PM

Customer: VERIZON WIRELESS

<b>Load Case:</b> 1.2D + 1.0Di + 1.0Wi	40 mph with 0.25 in Radial Ice	22 Iterations
Gust Response Factor :1.10	Ice Dead Load Factor :1.00	
Dead Load Factor :1.20		Ice Importance Factor :1.00
Wind Load Factor :1.00		

**Applied Segment Forces Summary**

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		29.5	0.0					0.0	0.0	29.5	0.0	0.0	0.0
5.00		58.1	954.5					0.0	9.7	58.1	964.1	0.0	0.0
10.00		56.3	930.4					0.0	9.7	56.3	940.1	0.0	0.0
15.00		54.5	903.1					0.0	9.7	54.5	912.7	0.0	0.0
20.00		52.7	874.7					0.0	9.7	52.7	884.3	0.0	0.0
25.00		50.9	845.7					0.0	9.7	50.9	855.3	0.0	0.0
30.00		49.6	816.3					0.0	9.7	49.6	826.0	0.0	0.0
35.00		49.4	786.7					0.0	9.7	49.4	796.3	0.0	0.0
40.00		49.3	756.9					0.0	9.7	49.3	766.5	0.0	0.0
45.00		38.4	726.9					0.0	9.7	38.4	736.6	0.0	0.0
47.83	Bot - Section 2	24.5	398.9					0.0	5.5	24.5	404.3	0.0	0.0
50.00		22.9	523.8					0.0	4.2	22.9	527.9	0.0	0.0
52.50	Top - Section 1	24.4	592.0					0.0	4.8	24.4	596.8	0.0	0.0
55.00		36.1	273.8					0.0	4.8	36.1	278.7	0.0	0.0
60.00		47.3	528.6					0.0	9.7	47.3	538.3	0.0	0.0
65.00		46.1	504.0					0.0	9.7	46.1	513.7	0.0	0.0
70.00		44.8	479.3					0.0	9.7	44.8	488.9	0.0	0.0
75.00		43.3	454.5					0.0	9.7	43.3	464.2	0.0	0.0
80.00		24.7	429.7					0.0	9.7	24.7	439.4	0.0	0.0
80.83	Bot - Section 3	18.7	69.4					0.0	1.6	18.7	71.0	0.0	0.0
84.50	Top - Section 2	17.2	501.9					0.0	7.1	17.2	509.0	0.0	0.0
85.00		21.9	31.2					0.0	1.0	21.9	32.1	0.0	0.0
90.00		38.8	300.0					0.0	9.7	38.8	309.6	0.0	0.0
95.00		36.8	280.7					0.0	9.7	36.8	290.4	0.0	0.0
100.00		34.8	261.4					0.0	9.7	34.8	271.1	0.0	0.0
105.00		32.7	242.1					0.0	9.7	32.7	251.7	0.0	0.0
110.00		30.5	222.7					0.0	9.7	30.5	232.4	0.0	0.0
115.00		17.5	203.3					0.0	9.7	17.5	213.0	0.0	0.0
116.00	Appurtenance(s)	10.2	38.5	758.9	0.0	0.0	5,490.3	0.0	1.9	769.1	5,530.7	0.0	0.0
119.00		7.4	110.6					0.0	0.0	7.4	110.6	0.0	0.0
<b>Totals:</b>										<b>1,828.08</b>	<b>19,755.7</b>	<b>0.00</b>	<b>0.00</b>



Site Number: 418511

Code: ANSI/TIA-222-H

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Site Name: Ogden UT SQA, UT

Engineering Number:13657844\_C3\_02

5/16/2021 11:08:19 PM

Customer: VERIZON WIRELESS

Load Case: 1.2D + 1.0Di + 1.0Wi

40 mph with 0.25 in Radial Ice

22 Iterations

Gust Response Factor :1.10

Ice Dead Load Factor :1.00

Dead Load Factor :1.20

Ice Importance Factor :1.00

Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-19.76	-1.80	0.00	-149.79	0.00	149.79	2,955.82	786.57	3,210.25	2,750.78	0.00	0.00	0.061
5.00	-18.79	-1.75	0.00	-140.78	0.00	140.78	2,900.47	762.16	3,014.12	2,614.93	0.01	-0.02	0.060
10.00	-17.85	-1.70	0.00	-132.04	0.00	132.04	2,842.78	737.75	2,824.16	2,480.26	0.04	-0.04	0.060
15.00	-16.94	-1.65	0.00	-123.54	0.00	123.54	2,782.77	713.34	2,640.39	2,346.98	0.09	-0.06	0.059
20.00	-16.05	-1.60	0.00	-115.30	0.00	115.30	2,720.42	688.93	2,462.80	2,215.29	0.16	-0.08	0.058
25.00	-15.20	-1.55	0.00	-107.30	0.00	107.30	2,655.75	664.52	2,291.39	2,085.40	0.24	-0.10	0.057
30.00	-14.37	-1.51	0.00	-99.53	0.00	99.53	2,588.74	640.11	2,126.16	1,957.51	0.36	-0.12	0.056
35.00	-13.57	-1.46	0.00	-91.99	0.00	91.99	2,519.41	615.70	1,967.12	1,831.82	0.49	-0.14	0.056
40.00	-12.81	-1.42	0.00	-84.68	0.00	84.68	2,447.74	591.29	1,814.26	1,708.54	0.65	-0.16	0.055
45.00	-12.07	-1.38	0.00	-77.59	0.00	77.59	2,373.75	566.88	1,667.57	1,587.87	0.83	-0.18	0.054
47.83	-11.66	-1.36	0.00	-73.69	0.00	73.69	2,330.79	553.05	1,587.20	1,520.72	0.94	-0.20	0.053
50.00	-11.14	-1.33	0.00	-70.75	0.00	70.75	2,296.46	542.47	1,527.08	1,469.39	1.03	-0.21	0.053
52.50	-10.54	-1.31	0.00	-67.41	0.00	67.41	1,717.75	432.05	1,210.74	1,096.35	1.15	-0.22	0.068
55.00	-10.26	-1.28	0.00	-64.14	0.00	64.14	1,691.53	422.28	1,156.64	1,055.02	1.27	-0.24	0.067
60.00	-9.72	-1.23	0.00	-57.76	0.00	57.76	1,637.34	402.75	1,052.16	973.61	1.53	-0.27	0.065
65.00	-9.21	-1.19	0.00	-51.60	0.00	51.60	1,580.81	383.23	952.61	894.03	1.83	-0.30	0.064
70.00	-8.72	-1.15	0.00	-45.66	0.00	45.66	1,521.95	363.70	858.02	816.49	2.16	-0.33	0.062
75.00	-8.25	-1.11	0.00	-39.93	0.00	39.93	1,456.99	344.17	768.36	739.28	2.53	-0.37	0.060
80.00	-7.81	-1.08	0.00	-34.40	0.00	34.40	1,374.33	324.64	683.66	657.37	2.93	-0.40	0.058
80.83	-7.74	-1.06	0.00	-33.50	0.00	33.50	1,360.55	321.39	670.02	644.18	3.00	-0.41	0.058
84.50	-7.23	-1.04	0.00	-29.60	0.00	29.60	944.22	234.87	477.08	436.69	3.32	-0.43	0.075
85.00	-7.20	-1.03	0.00	-29.08	0.00	29.08	940.18	233.41	471.15	432.10	3.37	-0.44	0.075
90.00	-6.89	-0.99	0.00	-23.95	0.00	23.95	898.59	218.76	413.88	386.85	3.85	-0.48	0.070
95.00	-6.60	-0.96	0.00	-19.00	0.00	19.00	854.67	204.11	360.33	343.09	4.38	-0.53	0.063
100.00	-6.33	-0.92	0.00	-14.23	0.00	14.23	802.08	189.47	310.48	298.66	4.96	-0.57	0.056
105.00	-6.08	-0.89	0.00	-9.62	0.00	9.62	740.08	174.82	264.34	254.05	5.57	-0.61	0.046
110.00	-5.85	-0.86	0.00	-5.17	0.00	5.17	678.08	160.18	221.91	213.05	6.23	-0.64	0.033
115.00	-5.63	-0.84	0.00	-0.87	0.00	0.87	616.08	145.53	183.19	175.66	6.91	-0.65	0.014
116.00	-0.11	-0.01	0.00	-0.03	0.00	0.03	603.68	142.60	175.90	168.61	7.04	-0.65	0.000
119.00	0.00	-0.01	0.00	0.00	0.00	0.00	566.48	133.81	154.89	148.34	7.45	-0.65	0.000

Site Number: 418511

Code: ANSI/TIA-222-H

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Site Name: Ogden UT SQA, UT

Engineering Number:13657844\_C3\_02

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Customer: VERIZON WIRELESS

**Load Case: 1.0D + 1.0W** **Serviceability 60 mph** **22 Iterations**

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

**Applied Segment Forces Summary**

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		35.8	0.0					0.0	0.0	35.8	0.0	0.0	0.0
5.00		70.5	750.7					0.0	8.1	70.5	758.8	0.0	0.0
10.00		68.3	727.0					0.0	8.1	68.3	735.1	0.0	0.0
15.00		66.0	703.4					0.0	8.1	66.0	711.4	0.0	0.0
20.00		63.8	679.7					0.0	8.1	63.8	687.8	0.0	0.0
25.00		61.6	656.1					0.0	8.1	61.6	664.1	0.0	0.0
30.00		60.0	632.4					0.0	8.1	60.0	640.4	0.0	0.0
35.00		59.6	608.7					0.0	8.1	59.6	616.8	0.0	0.0
40.00		59.5	585.1					0.0	8.1	59.5	593.1	0.0	0.0
45.00		46.4	561.4					0.0	8.1	46.4	569.4	0.0	0.0
47.83	Bot - Section 2	29.6	307.6					0.0	4.6	29.6	312.2	0.0	0.0
50.00		27.6	417.5					0.0	3.5	27.6	421.0	0.0	0.0
52.50	Top - Section 1	29.4	471.8					0.0	4.0	29.4	475.8	0.0	0.0
55.00		43.4	207.1					0.0	4.0	43.4	211.1	0.0	0.0
60.00		56.9	399.9					0.0	8.1	56.9	408.0	0.0	0.0
65.00		55.4	381.0					0.0	8.1	55.4	389.0	0.0	0.0
70.00		53.7	362.1					0.0	8.1	53.7	370.1	0.0	0.0
75.00		51.9	343.1					0.0	8.1	51.9	351.2	0.0	0.0
80.00		29.6	324.2					0.0	8.1	29.6	332.2	0.0	0.0
80.83	Bot - Section 3	22.3	52.2					0.0	1.3	22.3	53.5	0.0	0.0
84.50	Top - Section 2	20.6	394.2					0.0	5.9	20.6	400.1	0.0	0.0
85.00		26.2	22.7					0.0	0.8	26.2	23.5	0.0	0.0
90.00		46.3	219.2					0.0	8.1	46.3	227.2	0.0	0.0
95.00		43.9	205.0					0.0	8.1	43.9	213.0	0.0	0.0
100.00		41.4	190.8					0.0	8.1	41.4	198.8	0.0	0.0
105.00		39.0	176.6					0.0	8.1	39.0	184.6	0.0	0.0
110.00		37.6	162.4					0.0	8.1	37.6	170.4	0.0	0.0
115.00		22.3	148.2					0.0	8.1	22.3	156.2	0.0	0.0
116.00	Appurtenance(s)	13.3	27.9	1,405.4	0.0	0.0	4,500.0	0.0	1.6	1,418.7	4,529.5	0.0	0.0
119.00		9.6	80.4					0.0	0.0	9.6	80.4	0.0	0.0
<b>Totals:</b>										<b>2,696.84</b>	<b>15,484.9</b>	<b>0.00</b>	<b>0.00</b>

Site Number: 418511

Code: ANSI/TIA-222-H

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Site Name: Ogden UT SQA, UT

Engineering Number: 13657844\_C3\_02

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Customer: VERIZON WIRELESS

**Load Case: 1.0D + 1.0W**

Serviceability 60 mph

22 Iterations

Gust Response Factor :1.10

Dead Load Factor :1.00

Wind Load Factor :1.00

**Calculated Forces**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-15.48	-2.66	0.00	-238.18	0.00	238.18	2,955.82	786.57	3,210.25	2,750.78	0.00	0.00	0.092
5.00	-14.72	-2.60	0.00	-224.86	0.00	224.86	2,900.47	762.16	3,014.12	2,614.93	0.02	-0.03	0.091
10.00	-13.99	-2.54	0.00	-211.86	0.00	211.86	2,842.78	737.75	2,824.16	2,480.26	0.06	-0.06	0.090
15.00	-13.28	-2.48	0.00	-199.16	0.00	199.16	2,782.77	713.34	2,640.39	2,346.98	0.14	-0.09	0.090
20.00	-12.59	-2.42	0.00	-186.76	0.00	186.76	2,720.42	688.93	2,462.80	2,215.29	0.25	-0.12	0.089
25.00	-11.92	-2.37	0.00	-174.65	0.00	174.65	2,655.75	664.52	2,291.39	2,085.40	0.39	-0.15	0.088
30.00	-11.28	-2.31	0.00	-162.82	0.00	162.82	2,588.74	640.11	2,126.16	1,957.51	0.57	-0.19	0.088
35.00	-10.66	-2.26	0.00	-151.26	0.00	151.26	2,519.41	615.70	1,967.12	1,831.82	0.79	-0.22	0.087
40.00	-10.07	-2.20	0.00	-139.98	0.00	139.98	2,447.74	591.29	1,814.26	1,708.54	1.04	-0.26	0.086
45.00	-9.50	-2.16	0.00	-128.98	0.00	128.98	2,373.75	566.88	1,667.57	1,587.87	1.34	-0.30	0.085
47.83	-9.18	-2.13	0.00	-122.87	0.00	122.87	2,330.79	553.05	1,587.20	1,520.72	1.52	-0.32	0.085
50.00	-8.76	-2.10	0.00	-118.26	0.00	118.26	2,296.46	542.47	1,527.08	1,469.39	1.67	-0.34	0.084
52.50	-8.29	-2.07	0.00	-113.00	0.00	113.00	1,717.75	432.05	1,210.74	1,096.35	1.86	-0.36	0.108
55.00	-8.07	-2.03	0.00	-107.82	0.00	107.82	1,691.53	422.28	1,156.64	1,055.02	2.05	-0.39	0.107
60.00	-7.66	-1.98	0.00	-97.66	0.00	97.66	1,637.34	402.75	1,052.16	973.61	2.49	-0.44	0.105
65.00	-7.27	-1.93	0.00	-87.75	0.00	87.75	1,580.81	383.23	952.61	894.03	2.97	-0.49	0.103
70.00	-6.90	-1.88	0.00	-78.11	0.00	78.11	1,521.95	363.70	858.02	816.49	3.52	-0.55	0.100
75.00	-6.55	-1.83	0.00	-68.72	0.00	68.72	1,456.99	344.17	768.36	739.28	4.13	-0.61	0.097
80.00	-6.22	-1.80	0.00	-59.56	0.00	59.56	1,374.33	324.64	683.66	657.37	4.80	-0.67	0.095
80.83	-6.16	-1.78	0.00	-58.06	0.00	58.06	1,360.55	321.39	670.02	644.18	4.91	-0.68	0.095
84.50	-5.76	-1.76	0.00	-51.53	0.00	51.53	944.22	234.87	477.08	436.69	5.45	-0.73	0.124
85.00	-5.74	-1.74	0.00	-50.66	0.00	50.66	940.18	233.41	471.15	432.10	5.53	-0.73	0.123
90.00	-5.51	-1.69	0.00	-41.98	0.00	41.98	898.59	218.76	413.88	386.85	6.34	-0.81	0.115
95.00	-5.29	-1.65	0.00	-33.51	0.00	33.51	854.67	204.11	360.33	343.09	7.23	-0.89	0.104
100.00	-5.09	-1.62	0.00	-25.23	0.00	25.23	802.08	189.47	310.48	298.66	8.20	-0.96	0.091
105.00	-4.91	-1.58	0.00	-17.15	0.00	17.15	740.08	174.82	264.34	254.05	9.25	-1.03	0.074
110.00	-4.74	-1.54	0.00	-9.26	0.00	9.26	678.08	160.18	221.91	213.05	10.36	-1.08	0.051
115.00	-4.58	-1.52	0.00	-1.55	0.00	1.55	616.08	145.53	183.19	175.66	11.51	-1.11	0.016
116.00	-0.08	-0.01	0.00	-0.03	0.00	0.03	603.68	142.60	175.90	168.61	11.74	-1.11	0.000
119.00	0.00	-0.01	0.00	0.00	0.00	0.00	566.48	133.81	154.89	148.34	12.44	-1.11	0.000

Site Number: 418511

Code: ANSI/TIA-222-H

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Site Name: Ogden UT SQA, UT

Engineering Number: 13657844\_C3\_02

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Customer: VERIZON WIRELESS

**Equivalent Lateral Forces Method Analysis**

Spectral Response Acceleration for Short Period ( $S_s$ ):	1.04
Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.37
Long-Period Transition Period ( $T_L$ ):	8
Importance Factor ( $I_E$ ):	1.00
Site Coefficient $F_a$ :	1.20
Site Coefficient $F_v$ :	1.93
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period ( $S_{ds}$ ):	0.84
Design Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.48
Seismic Response Coefficient ( $C_s$ ):	0.17
Upper Limit $C_s$	0.17
Lower Limit $C_s$	0.04
Period based on Rayleigh Method (sec):	1.91
Redundancy Factor (p):	1.00
Seismic Force Distribution Exponent (k):	1.70
Total Unfactored Dead Load:	15.48 k
Seismic Base Shear (E):	2.60 k

**Load Case 1.2D + 1.0Ev + 1.0Eh**

**Seismic**

Segment	Height Above Base (ft)	Weight (lb)	$W_z$ (lb-ft)	$C_{vx}$	Horizontal Force (lb)	Vertical Force (lb)
29	117.50	80	270	0.011	30	110
28	115.50	30	96	0.004	11	40
27	112.50	156	488	0.020	53	214
26	107.50	170	492	0.021	54	233
25	102.50	185	492	0.021	54	252
24	97.50	199	486	0.020	53	272
23	92.50	213	476	0.020	52	291
22	87.50	227	462	0.019	50	311
21	84.75	24	45	0.002	5	32
20	82.67	400	739	0.031	81	547
19	80.42	54	94	0.004	10	73
18	77.50	332	549	0.023	60	454
17	72.50	351	518	0.022	57	480
16	67.50	370	484	0.020	53	506
15	62.50	389	446	0.019	49	532
14	57.50	408	406	0.017	44	558
13	53.75	211	187	0.008	20	289
12	51.25	476	389	0.016	43	651
11	48.92	421	318	0.013	35	576
10	46.42	312	216	0.009	24	427
9	42.50	569	338	0.014	37	779
8	37.50	593	285	0.012	31	811
7	32.50	617	232	0.010	25	843
6	27.50	640	181	0.008	20	876
5	22.50	664	134	0.006	15	908

Site Number: 418511

Code: ANSI/TIA-222-H

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Site Name: Ogden UT SQA, UT

Engineering Number: 13657844\_C3\_02

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Customer: VERIZON WIRELESS

4	17.50	688	90	0.004	10	940
3	12.50	711	53	0.002	6	973
2	7.50	735	23	0.001	2	1,005
1	2.50	759	4	0.000	0	1,037
Ericsson Radio 4449	116.00	210	690	0.029	75	287
Ericsson 8843 Rev 2	116.00	225	740	0.031	81	308
RFS DB-B1-6C-12AB-0Z	116.00	21	70	0.003	8	29
Ericsson AIR 6449 B7	116.00	245	805	0.034	88	335
Commscope NHH-65C-R2	116.00	206	679	0.029	74	282
Commscope NHH-45C-R2	116.00	163	537	0.023	59	223
Flat Platform w/ Han	116.00	2,000	6,575	0.276	719	2,734
VZW Unused Reserve (	116.00	1,429	4,699	0.198	513	1,954
		15,485	23,787	1.000	2,599	21,171

**Load Case 0.9D - 1.0Ev + 1.0Eh**

**Seismic (Reduced DL)**

Segment	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vx</sub>	Horizontal Force (lb)	Vertical Force (lb)
29	117.50	80	270	0.011	30	59
28	115.50	30	96	0.004	11	22
27	112.50	156	488	0.020	53	114
26	107.50	170	492	0.021	54	125
25	102.50	185	492	0.021	54	135
24	97.50	199	486	0.020	53	146
23	92.50	213	476	0.020	52	156
22	87.50	227	462	0.019	50	167
21	84.75	24	45	0.002	5	17
20	82.67	400	739	0.031	81	293
19	80.42	54	94	0.004	10	39
18	77.50	332	549	0.023	60	243
17	72.50	351	518	0.022	57	257
16	67.50	370	484	0.020	53	271
15	62.50	389	446	0.019	49	285
14	57.50	408	406	0.017	44	299
13	53.75	211	187	0.008	20	155
12	51.25	476	389	0.016	43	349
11	48.92	421	318	0.013	35	308
10	46.42	312	216	0.009	24	229
9	42.50	569	338	0.014	37	417
8	37.50	593	285	0.012	31	435
7	32.50	617	232	0.010	25	452
6	27.50	640	181	0.008	20	469
5	22.50	664	134	0.006	15	487
4	17.50	688	90	0.004	10	504
3	12.50	711	53	0.002	6	521
2	7.50	735	23	0.001	2	539
1	2.50	759	4	0.000	0	556
Ericsson Radio 4449	116.00	210	690	0.029	75	154
Ericsson 8843 Rev 2	116.00	225	740	0.031	81	165
RFS DB-B1-6C-12AB-0Z	116.00	21	70	0.003	8	16
Ericsson AIR 6449 B7	116.00	245	805	0.034	88	179
Commscope NHH-65C-R2	116.00	206	679	0.029	74	151
Commscope NHH-45C-R2	116.00	163	537	0.023	59	120
Flat Platform w/ Han	116.00	2,000	6,575	0.276	719	1,466
VZW Unused Reserve (	116.00	1,429	4,699	0.198	513	1,047
		15,485	23,787	1.000	2,599	11,347

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**Site Number: 418511**

**Code: ANSI/TIA-222-H**

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**Site Name: Ogden UT SQA, UT**

**Engineering Number:13657844\_C3\_02**

**5/16/2021 11:08:20 PM**

**Customer: VERIZON WIRELESS**

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Site Number: 418511

Code: ANSI/TIA-222-H

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Site Name: Ogden UT SQA, UT

Engineering Number:13657844\_C3\_02

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Customer: VERIZON WIRELESS

Load Case 1.2D + 1.0Ev + 1.0Eh

Seismic

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-20.13	-2.60	0.00	-268.24	0.00	268.24	2,955.82	786.57	3,210.25	2,750.78	0.00	0.00	0.104
5.00	-19.13	-2.61	0.00	-255.22	0.00	255.22	2,900.47	762.16	3,014.12	2,614.93	0.02	-0.03	0.104
10.00	-18.15	-2.62	0.00	-242.16	0.00	242.16	2,842.78	737.75	2,824.16	2,480.26	0.07	-0.07	0.104
15.00	-17.21	-2.62	0.00	-229.08	0.00	229.08	2,782.77	713.34	2,640.39	2,346.98	0.16	-0.10	0.104
20.00	-16.30	-2.61	0.00	-215.99	0.00	215.99	2,720.42	688.93	2,462.80	2,215.29	0.28	-0.14	0.104
25.00	-15.42	-2.60	0.00	-202.94	0.00	202.94	2,655.75	664.52	2,291.39	2,085.40	0.45	-0.18	0.103
30.00	-14.58	-2.58	0.00	-189.95	0.00	189.95	2,588.74	640.11	2,126.16	1,957.51	0.65	-0.22	0.103
35.00	-13.77	-2.56	0.00	-177.04	0.00	177.04	2,519.41	615.70	1,967.12	1,831.82	0.90	-0.26	0.102
40.00	-12.99	-2.53	0.00	-164.26	0.00	164.26	2,447.74	591.29	1,814.26	1,708.54	1.20	-0.30	0.101
45.00	-12.56	-2.51	0.00	-151.62	0.00	151.62	2,373.75	566.88	1,667.57	1,587.87	1.54	-0.35	0.101
47.83	-11.98	-2.48	0.00	-144.52	0.00	144.52	2,330.79	553.05	1,587.20	1,520.72	1.75	-0.38	0.100
50.00	-11.33	-2.43	0.00	-139.15	0.00	139.15	2,296.46	542.47	1,527.08	1,469.39	1.93	-0.40	0.100
52.50	-11.04	-2.42	0.00	-133.07	0.00	133.07	1,717.75	432.05	1,210.74	1,096.35	2.14	-0.42	0.128
55.00	-10.48	-2.37	0.00	-127.03	0.00	127.03	1,691.53	422.28	1,156.64	1,055.02	2.37	-0.45	0.127
60.00	-9.95	-2.33	0.00	-115.16	0.00	115.16	1,637.34	402.75	1,052.16	973.61	2.87	-0.51	0.124
65.00	-9.44	-2.29	0.00	-103.50	0.00	103.50	1,580.81	383.23	952.61	894.03	3.44	-0.57	0.122
70.00	-8.96	-2.23	0.00	-92.07	0.00	92.07	1,521.95	363.70	858.02	816.49	4.08	-0.64	0.119
75.00	-8.50	-2.18	0.00	-80.89	0.00	80.89	1,456.99	344.17	768.36	739.28	4.79	-0.71	0.115
80.00	-8.43	-2.17	0.00	-70.00	0.00	70.00	1,374.33	324.64	683.66	657.37	5.57	-0.78	0.113
80.83	-7.88	-2.09	0.00	-68.18	0.00	68.18	1,360.55	321.39	670.02	644.18	5.70	-0.79	0.112
84.50	-7.85	-2.09	0.00	-60.52	0.00	60.52	944.22	234.87	477.08	436.69	6.34	-0.85	0.147
85.00	-7.53	-2.04	0.00	-59.47	0.00	59.47	940.18	233.41	471.15	432.10	6.42	-0.86	0.146
90.00	-7.24	-2.00	0.00	-49.26	0.00	49.26	898.59	218.76	413.88	386.85	7.37	-0.95	0.135
95.00	-6.97	-1.95	0.00	-39.28	0.00	39.28	854.67	204.11	360.33	343.09	8.41	-1.04	0.123
100.00	-6.71	-1.90	0.00	-29.53	0.00	29.53	802.08	189.47	310.48	298.66	9.55	-1.13	0.107
105.00	-6.48	-1.85	0.00	-20.03	0.00	20.03	740.08	174.82	264.34	254.05	10.77	-1.20	0.088
110.00	-6.26	-1.80	0.00	-10.78	0.00	10.78	678.08	160.18	221.91	213.05	12.07	-1.27	0.060
115.00	-6.22	-1.79	0.00	-1.79	0.00	1.79	616.08	145.53	183.19	175.66	13.42	-1.30	0.020
116.00	0.00	0.00	0.00	0.00	0.00	0.00	603.68	142.60	175.90	168.61	13.69	-1.30	0.000
119.00	0.00	0.00	0.00	0.00	0.00	0.00	566.48	133.81	154.89	148.34	14.51	-1.30	0.000

Site Number: 418511

Code: ANSI/TIA-222-H

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Site Name: Ogden UT SQA, UT

Engineering Number: 13657844\_C3\_02

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Customer: VERIZON WIRELESS

**Load Case 0.9D - 1.0Ev + 1.0Eh**

**Seismic (Reduced DL)**

**Calculated Forces**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-10.79	-2.60	0.00	-263.51	0.00	263.51	2,955.82	786.57	3,210.25	2,750.78	0.00	0.00	0.099
5.00	-10.25	-2.60	0.00	-250.50	0.00	250.50	2,900.47	762.16	3,014.12	2,614.93	0.02	-0.03	0.099
10.00	-9.73	-2.60	0.00	-237.47	0.00	237.47	2,842.78	737.75	2,824.16	2,480.26	0.07	-0.06	0.099
15.00	-9.22	-2.60	0.00	-224.45	0.00	224.45	2,782.77	713.34	2,640.39	2,346.98	0.15	-0.10	0.099
20.00	-8.73	-2.59	0.00	-211.46	0.00	211.46	2,720.42	688.93	2,462.80	2,215.29	0.28	-0.14	0.099
25.00	-8.26	-2.57	0.00	-198.51	0.00	198.51	2,655.75	664.52	2,291.39	2,085.40	0.44	-0.17	0.098
30.00	-7.81	-2.55	0.00	-185.64	0.00	185.64	2,588.74	640.11	2,126.16	1,957.51	0.64	-0.21	0.098
35.00	-7.37	-2.52	0.00	-172.88	0.00	172.88	2,519.41	615.70	1,967.12	1,831.82	0.88	-0.25	0.097
40.00	-6.95	-2.49	0.00	-160.25	0.00	160.25	2,447.74	591.29	1,814.26	1,708.54	1.17	-0.30	0.097
45.00	-6.72	-2.47	0.00	-147.80	0.00	147.80	2,373.75	566.88	1,667.57	1,587.87	1.50	-0.34	0.096
47.83	-6.41	-2.44	0.00	-140.80	0.00	140.80	2,330.79	553.05	1,587.20	1,520.72	1.71	-0.37	0.095
50.00	-6.06	-2.39	0.00	-135.52	0.00	135.52	2,296.46	542.47	1,527.08	1,469.39	1.89	-0.39	0.095
52.50	-5.91	-2.38	0.00	-129.53	0.00	129.53	1,717.75	432.05	1,210.74	1,096.35	2.10	-0.41	0.122
55.00	-5.61	-2.33	0.00	-123.59	0.00	123.59	1,691.53	422.28	1,156.64	1,055.02	2.32	-0.44	0.120
60.00	-5.32	-2.29	0.00	-111.93	0.00	111.93	1,637.34	402.75	1,052.16	973.61	2.81	-0.50	0.118
65.00	-5.05	-2.24	0.00	-100.49	0.00	100.49	1,580.81	383.23	952.61	894.03	3.37	-0.56	0.116
70.00	-4.79	-2.18	0.00	-89.30	0.00	89.30	1,521.95	363.70	858.02	816.49	3.99	-0.63	0.113
75.00	-4.54	-2.13	0.00	-78.38	0.00	78.38	1,456.99	344.17	768.36	739.28	4.68	-0.69	0.109
80.00	-4.50	-2.12	0.00	-67.74	0.00	67.74	1,374.33	324.64	683.66	657.37	5.44	-0.76	0.106
80.83	-4.21	-2.04	0.00	-65.98	0.00	65.98	1,360.55	321.39	670.02	644.18	5.57	-0.77	0.106
84.50	-4.19	-2.03	0.00	-58.51	0.00	58.51	944.22	234.87	477.08	436.69	6.19	-0.83	0.138
85.00	-4.02	-1.98	0.00	-57.49	0.00	57.49	940.18	233.41	471.15	432.10	6.28	-0.83	0.137
90.00	-3.87	-1.94	0.00	-47.57	0.00	47.57	898.59	218.76	413.88	386.85	7.20	-0.92	0.127
95.00	-3.72	-1.89	0.00	-37.89	0.00	37.89	854.67	204.11	360.33	343.09	8.21	-1.01	0.115
100.00	-3.58	-1.83	0.00	-28.46	0.00	28.46	802.08	189.47	310.48	298.66	9.32	-1.09	0.100
105.00	-3.46	-1.78	0.00	-19.28	0.00	19.28	740.08	174.82	264.34	254.05	10.50	-1.17	0.081
110.00	-3.34	-1.73	0.00	-10.37	0.00	10.37	678.08	160.18	221.91	213.05	11.77	-1.23	0.054
115.00	-3.32	-1.72	0.00	-1.72	0.00	1.72	616.08	145.53	183.19	175.66	13.07	-1.26	0.015
116.00	0.00	0.00	0.00	0.00	0.00	0.00	603.68	142.60	175.90	168.61	13.34	-1.26	0.000
119.00	0.00	0.00	0.00	0.00	0.00	0.00	566.48	133.81	154.89	148.34	14.13	-1.26	0.000



Site Number: 418511

Code: ANSI/TIA-222-H

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Site Name: Ogden UT SQA, UT

Engineering Number: 13657844\_C3\_02

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Customer: VERIZON WIRELESS

### Analysis Summary

Load Case	Reactions						Max Usage	
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.0W	8.76	0.00	18.57	0.00	0.00	786.17	84.50	0.40
0.9D + 1.0W	8.75	0.00	13.93	0.00	0.00	779.45	84.50	0.39
1.2D + 1.0Di + 1.0Wi	1.80	0.00	19.76	0.00	0.00	149.79	84.50	0.08
1.2D + 1.0Ev + 1.0Eh	2.60	0.00	20.13	0.00	0.00	268.24	84.50	0.15
0.9D - 1.0Ev + 1.0Eh	2.60	0.00	10.79	0.00	0.00	263.51	84.50	0.14
1.0D + 1.0W	2.66	0.00	15.48	0.00	0.00	238.18	84.50	0.12

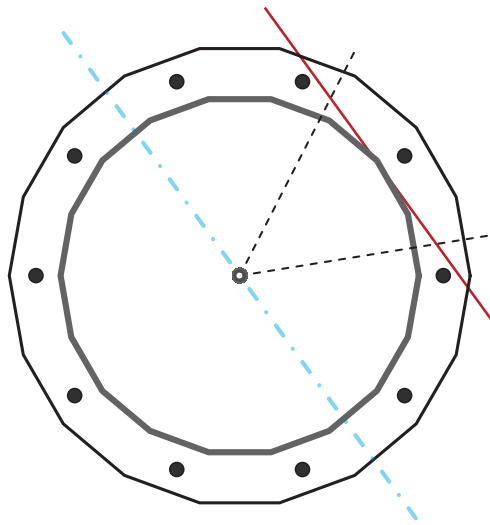
## Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	18	-
Diameter	45.5	in
Thickness	5/16	in
Orientation Offset		°

Base Reactions		
Moment, Mu	786.2	k-ft
Axial, Pu	18.6	k
Shear, Vu	8.8	k
Neutral Axis	306	°

Report Capacities		
Component	Capacity	Result
Base Plate	8%	Pass
Anchor Rods	32%	Pass
Dwyidag	-	-

Base Plate		
Number of Sides	18	-
Diameter, $\phi$	58.7	in
Thickness	2 3/4	in
Grade	A572-50	
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Clip	N/A	in
Orientation Offset		°
Anchor Rod Detail	d	$\eta=0.5$
Clear Distance	3	in
Applied Moment, Mu	180.4	k
Bending Stress, $\phi Mn$	2271.4	k



Original Anchor Rods		
Arrangement	Radial	-
Quantity	10	-
Diameter, $\phi$	2 1/4	in
Bolt Circle	52.7	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	16.6	in
Orientation Offset		°
Applied Force, Pu	76.8	k
Anchor Rods, $\phi Pn$	243.6	k

# Calculations for Monopole Base Plate & Anchor Rod Analysis

## Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	8.8	786.2	1.00
Anchor Rod Forces	8.8	786.2	1.00
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	0.0	0.00
Stiffener Forces	0.0	0.0	0.00

## Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in <sup>2</sup>	in <sup>2</sup>	in <sup>4</sup>	#	in <sup>4</sup>
Pole	44.1378	2.4521	0.0801		11267.13
Bolt	3.9761	3.2477	0.8393	4.5	10289.79
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	0.0000	0.0000	0.0000		0.00
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate		
Shape	18	-
Width, W	58.7	in
Thickness, t	2.75	in
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Base Plate Chord	37.087	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	3	-

Anchor Rods		
Anchor Rod Quantity, N	10	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	52.7	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	76.8	k
Applied Shear, Vu	0.4	k
Compressive Capacity, φPn	243.6	k
Tensile Capacity, φRnt	0.315	OK
Interaction Capacity	0.319	OK

External Base Plate		
Chord Length AA	37.389	in
Additional AA	5.500	in
Section Modulus, Z	81.088	in <sup>3</sup>
Applied Moment, Mu	180.4	k-ft
Bending Capacity, φMn	3648.9	k-ft
Capacity, Mu/φMn	0.049	OK
Chord Length AB	36.685	in
Additional AB	5.500	in
Section Modulus, Z	79.757	in <sup>3</sup>
Applied Moment, Mu	153.4	k-ft
Bending Capacity, φMn	3589.1	k-ft
Capacity, Mu/φMn	0.043	OK
Bend Line Length	26.698	in
Additional Bend Line	0.000	in
Section Modulus, Z	50.476	in <sup>3</sup>
Applied Moment, Mu	180.4	k-ft
Bending Capacity, φMn	2271.4	k-ft
Capacity, Mu/φMn	0.079	OK

Internal Base Plate		
Arc Length	0.000	in
Section Modulus, Z	0.000	in <sup>3</sup>
Moment Arm	0.000	in
Applied Moment, Mu	0.0	k-ft
Bending Capacity, φMn	0.0	k-ft
Capacity, Mu/φMn		