



STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
Web Site: portal.ct.gov/csc

VIA ELECTRONIC MAIL

July 19, 2022

Denise Sabo
Northeast Site Solutions
420 Main Street, Suite 1
Sturbridge, MA 01566-1359
denise@northeastitesolutions.com

RE: **TS-DISH-099-220523** - Dish Wireless, LLC request for an order to approve tower sharing at an existing telecommunications facility located at 26 Commerce Drive, North Branford, Connecticut.

Dear Ms. Sabo:

The Connecticut Siting Council (Council) is in receipt of your correspondence of July 18, 2022 submitted in response to the Council's June 17, 2022 notification of an incomplete request for tower sharing with regard to the above-referenced matter.

The submission renders the request for tower sharing complete and the Council will process the request in accordance with the Federal Communications Commission 60-day timeframe.

Thank you for your attention and cooperation.

Sincerely,

A handwritten signature in black ink, appearing to read "Melanie A. Bachman".

Melanie A. Bachman
Executive Director

MAB/IN/er

From: Deborah Chase <deborah@northeastsitesolutions.com>
Sent: Monday, July 18, 2022 12:23 PM
To: CSC-DL Siting Council <Siting.Council@ct.gov>; Bachman, Melanie <Melanie.Bachman@ct.gov>; Fontaine, Lisa <Lisa.Fontaine@ct.gov>; Robidoux, Evan <Evan.Robidoux@ct.gov>
Cc: Denise <denise@northeastsitesolutions.com>
Subject: FW: BOHVN00048A Updated SA - SBA DISH Incomplete-S-DISH-076-220523

EXTERNAL EMAIL: This email originated from outside of the organization. Do not click any links or open any attachments unless you trust the sender and know the content is safe.

Siting Council

Please see attached the updated Tower Share Application for the above referenced site. Per the attached incomplete letter, the new application includes the Structural Analysis for the facility that includes proposed equipment by Verizon and other entities that are located at this facility. We have also included the Structural Analysis as a separate attachment. Please let us know if this renders the application request complete for continued review. Thank you very much

Deborah Chase

Senior Project Coordinator & Analyst

Mobile: 860-490-8839

🌱 Save a tree. Refuse. Reduce. Reuse. Recycle.





Tower Engineering Solutions

Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Structural Analysis Report

Existing 155 ft PennSummit Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT13610-A

Customer Site Name: ARTEC

Carrier Name: Dish Wireless (App#: 169185-1)

Carrier Site ID / Name: BOHVN00047A / 0

Site Location: 26 Commerce Drive

N. Branford, Connecticut

New Haven County

Latitude: 41.322138

Longitude: -72.773277

Exp. 01/31/2024



Analysis Result:

Max Structural Usage: 69.3% [Pass]

Max Foundation Usage: 63.4% [Pass]

Additional Usage Caused by New Mount/Mount Modification: N/A

06/23/2022

Report Prepared By: Mohammed Al Rubaye



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Report Prepared By: Mohammed Al Rubaye

Introduction

The purpose of this report is to summarize the analysis results on the 155 ft PennSummit Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Paul J. Ford and Company, Job #29205-0112 Rev 1 dated March 3, 2005
Foundation Drawing	Paul J. Ford and Company, Job #29205-0112 dated May 31, 2005
Geotechnical Report	JGI Eastern, Inc., Project #05267G dated May 16, 2005
Modification Drawings	N/A

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the TIA-222-G-2. In accordance with this standard, the structure was analyzed using **TESPoles**, a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed $V_{ult} = 130.0$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 101.0$ mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 3/4" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	TIA-222-G-2 / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	$S_S = 0.32$, $S_1 = 0.1$

This structural analysis is based upon the tower being classified as a Structure Class II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	154.0	3	Ericsson Air 21 B2A/B4P	(3) T-Arm with (3) V-Bracing Kits [MetroSite MS-C1B-350P] (3) End Brace	(9) 1 5/8" (4) 1 5/8" Fiber	T-Mobile
2		3	Ericsson Air 21 B4A/B2P			
3		3	RFS APXVAARR24_43-U-NA20			
4		3	Ericsson KRY 112 144/1			
5		3	Ericsson Radio 4449 B71+B12			
6	143.0	6	Powerwave 7770 - Panel	(3) T-Arm	(12) 1 5/8" (2) 1/2" DC power (1) 3/8" Fiber	AT&T
7		3	Cci HPA-65R-BUU-H6 – Panel			
8		6	Powerwave LGP21401 TMA			
9		6	Powerwave LGP13519 Diplexer			
10		6	Ericsson RRUS 11			
11		3	Ericsson RRUS 32 B2			
12		1	Raycap DC6-48-60-18-8F			
13	133.0	3	Samsung - MT6407-77A - Panel	(3) T-Arm w/ (3) Commscope BSAMNT-SBS-1-2 mount brackets	(12) 1 5/8" (2) 1 5/8" Hybrid	Verizon
14		6	Andrew - SBNHH-1D65B - Panel			
15		6	Amphenol - LPA-80080-6CF - Panel			
16		3	Samsung - RF4439d-25A - RRU			
17		3	Samsung - RF4440d-13A - RRU			
18		2	Rfs Celwave - DB-T1-6Z-8AB-OZ - OVP			
23	89.75	1	Radio Waves - SP4-4.7NS RD4 - Dish	(1) T-Arm @ 85.0'	(6) 7/8"	Town of North Branfo
24		2	Sinclair - SD222 - Whip			
25	85.0	1	Andrew - DB408 - Whip			

Proposed Carrier’s Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier’s final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
19	100.0	3	JMA Wireless MX08FRO665-21 - Panel	Platform w/ Handrail [Commscope MC-PK8-DSH]	(1) 1.6" Hybrid	Dish Wireless
20		3	Fujitsu TA08025-B605 RRU			
21		3	Fujitsu TA08025-B604 RRU			
22		1	Raycap RDIDC-9181-PF-48-OVP			

See the attached coax layout for the line placement considered in the analysis.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	69.3%	51.5%	58.3%
Pass/Fail	Pass	Pass	Pass

Foundations

	Moment (Kip-Ft)
Original Design Reactions	5060.0
Analysis Reactions	4330.5
Factored Reactions*	6831.0
% of Design Reactions	63.4%

* Per section 15.5.1 of the TIA-222-G standard, factored reactions were obtained by multiplying a 1.35 factor to the original design reactions.

The foundation has been investigated using the supplied documents and soils report and was found adequate. Therefore, no modification to the foundation will be required.

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.7900 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the TIA-222 Standard under the design basic wind speed as specified in the Analysis Criteria.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC**. Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.
2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.
3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the ANSI/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.
4. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.
5. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.
6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

Usage Diagram - Max Ratio 69.33% at 95.8ft

Structure: CT13610-A-SBA
Site Name: ARTEC
Height: 155.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-G
Exposure: C
Gh: 1.1

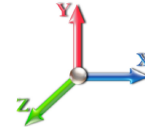
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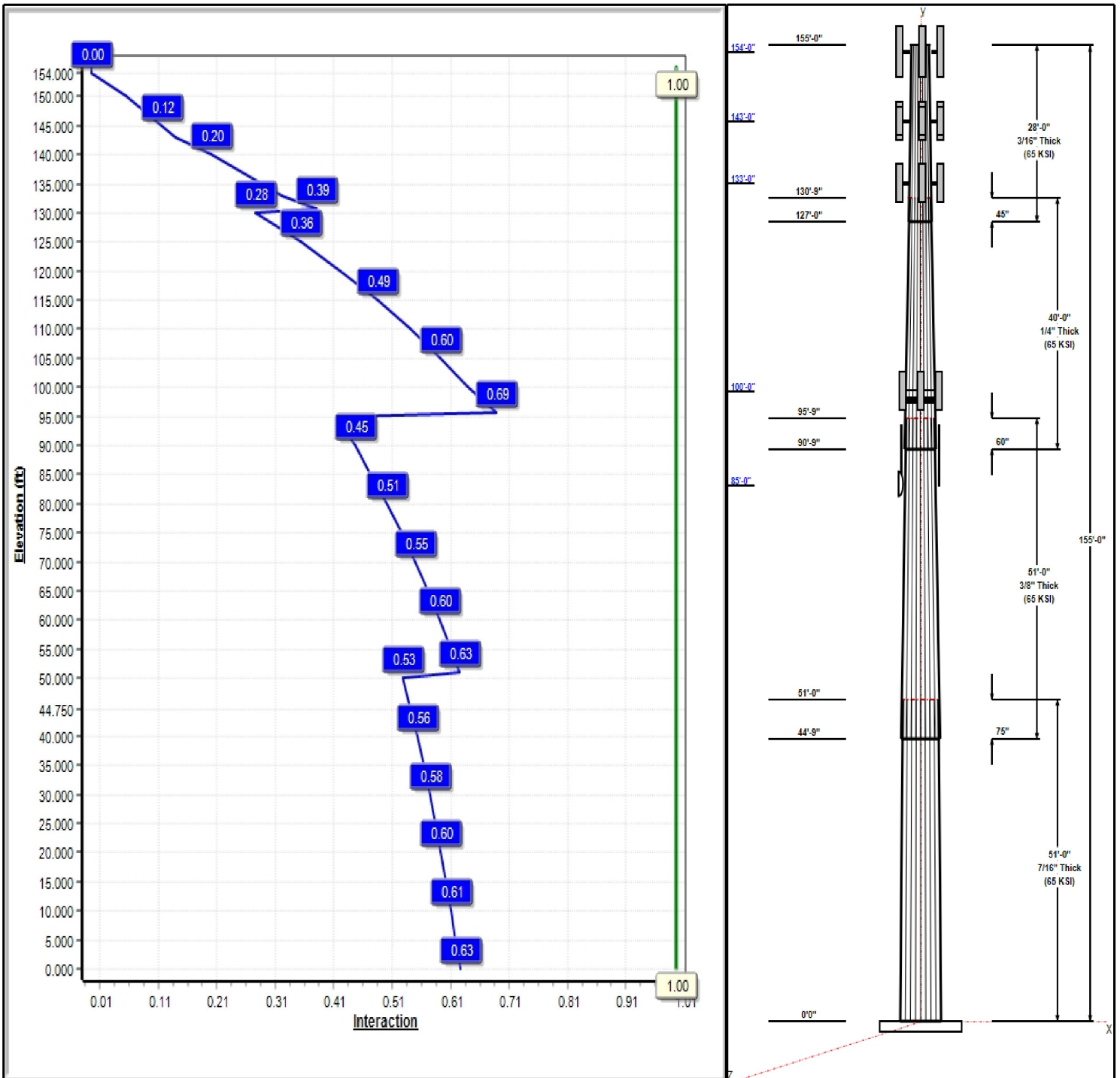
Dead Load Factor: 1.20
Wind Load Factor: 1.60

Load Case : 1.2D + 1.6W 101 mph Wind



Iterations: 23

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Structure: CT13610-A-SBA

Type: Tapered
Site Name: ARTEC
Height: 155.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.25803

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Shaft Properties

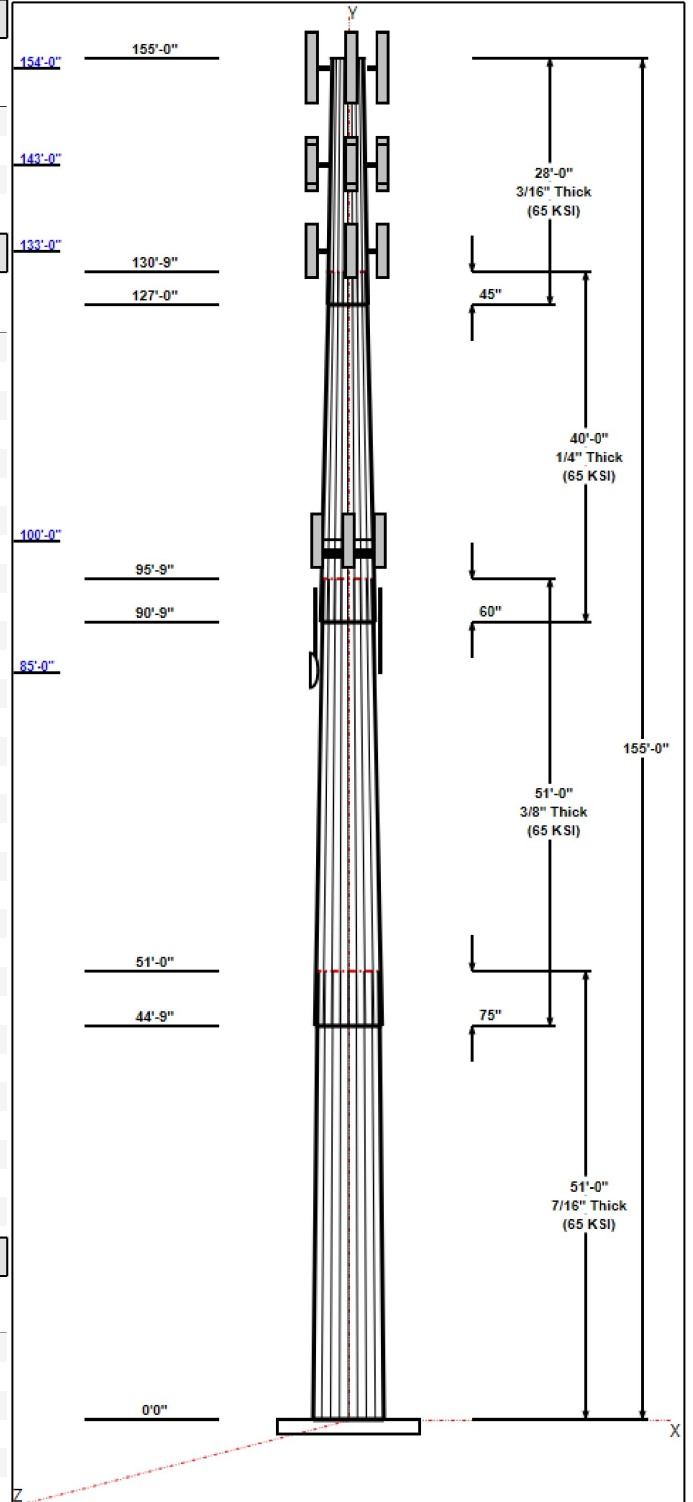
Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	51.00	47.71	60.87	0.438		0.25803	65
2	51.00	36.91	50.07	0.375	Slip	0.25803	65
3	40.00	28.38	38.70	0.250	Slip	0.25803	65
4	28.00	22.50	29.72	0.188	Slip	0.25803	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
154.00	154.00	3	AIR 21 B2A B4P	T-Mobile
154.00	154.00	3	AIR 21 B4A B2P	T-Mobile
154.00	154.00	3	KRY 112 144/1	T-Mobile
154.00	154.00	3	T-Arm	T-Mobile
154.00	154.00	3	APXVAARR24_43-U-NA20	T-Mobile
154.00	154.00	3	4449	T-Mobile
154.00	154.00	1	(3) T-Arm Kit	T-Mobile
143.00	143.00	3	T-Arm	AT&T
143.00	143.00	3	Cci HPA-65R-BUU-H6	AT&T
143.00	143.00	3	Ericsson RRUS 32 B2	AT&T
143.00	143.00	6	Ericsson RRUS 11	AT&T
143.00	143.00	1	Raycap DC6-48-60-18-8F	AT&T
143.00	143.00	6	Powerwave 7770	AT&T
143.00	143.00	6	Powerwave LGP21401	AT&T
143.00	143.00	6	Powerwave LGP13519	AT&T
133.00	133.00	3	T-Arm	Verizon
133.00	133.00	3	MT6407-77A	Verizon
133.00	133.00	6	SBNHH-1D65B	Verizon
133.00	133.00	6	LPA-80080-6CF	Verizon
133.00	133.00	3	Samsung - RF4439d-25A -	Verizon
133.00	133.00	3	Samsung - RF4440d-13A -	Verizon
133.00	133.00	2	Rfs Celwave -	Verizon
100.00	100.00	3	JMA Wireless	Dish Wireless
100.00	100.00	1	MC-PK8-DSH	Dish Wireless
100.00	100.00	3	Fujitsu TA08025-B605	Dish Wireless
100.00	100.00	3	Fujitsu TA08025-B604	Dish Wireless
100.00	100.00	1	Raycap	Dish Wireless
85.00	85.00	2	Pipe Mount	Town of North Branford
85.00	85.00	1	SP4-4.7NS RD4	Town of North Branford
85.00	89.75	2	SD222	Town of North Branford
85.00	89.71	1	DB408	Town of North Branford

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	154.00	Inside	1 5/8" Coax	T-Mobile
0.00	154.00	Inside	1 5/8" Fiber	T-Mobile
0.00	143.00	Inside	1 5/8" Coax	AT&T
0.00	143.00	Inside	1/2" DC power	AT&T
0.00	143.00	Inside	3" Innerduct	AT&T
0.00	143.00	Inside	3/8" Fiber	AT&T
0.00	133.00	Inside	1 5/8" Coax	Verizon
0.00	133.00	Inside	1 5/8" Hybrid	Verizon
0.00	100.00	Inside	1.6" Hybrid	Dish Wireless
0.00	85.00	Inside	7/8" Coax	Town of North Branford



Structure: CT13610-A-SBA

Type: Tapered
Site Name: ARTEC
Height: 155.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.25803

6/23/2022

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Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
24	2.25" 18J	75.0	Cluster

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
3.0000	70.0	50.0	Clipped

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 101 mph Wind	4330.5	39.9	52.1
0.9D + 1.6W 101 mph Wind	4296.7	39.9	39.0
1.2D + 1.0Di + 1.0Wi 50 mph Wind	1107.6	10.4	76.7
1.2D + 1.0E	295.6	2.5	52.1
0.9D + 1.0E	293.0	2.5	39.1
1.0D + 1.0W 60 mph Wind	951.1	8.8	43.4

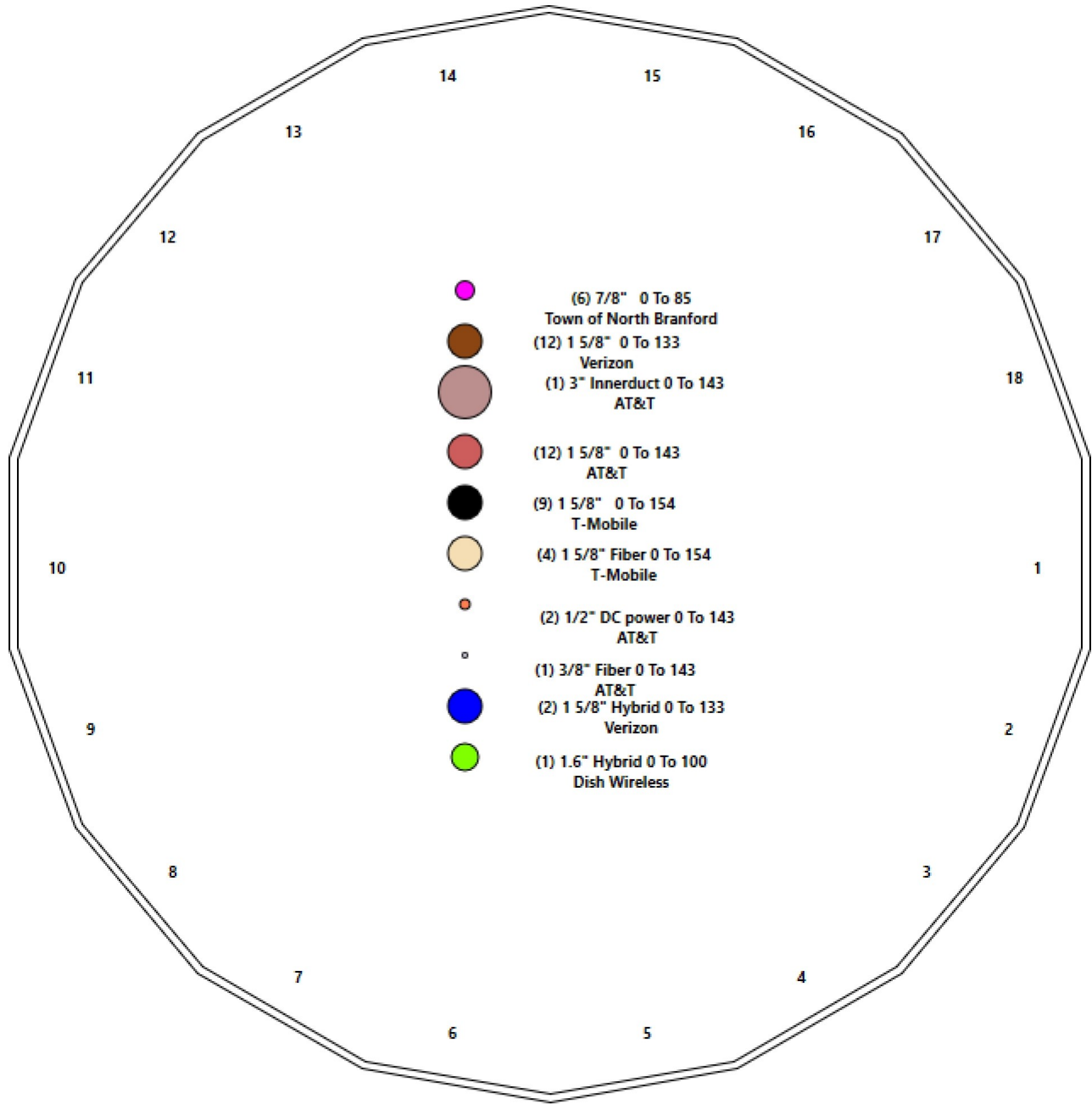
Structure: CT13610-A-SBA - Coax Line Placement

Type: Monopole
Site Name: ARTEC
Height: 155.00 (ft)

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Shaft Properties

Structure: CT13610-A-SBA	Code: TIA-222-G	6/23/2022
Site Name: ARTEC	Exposure: C	
Height: 155.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	51.000	0.4375	65		0.00	12,977
2	18	51.000	0.3750	65	Slip	75.00	8,906
3	18	40.000	0.2500	65	Slip	60.00	3,596
4	18	28.000	0.1875	65	Slip	45.00	1,470
Total Shaft Weight:							26,949

Bottom

Top

Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Taper
1	60.87	0.00	83.92	38719.89	23.12	139.13	47.71	51.00	65.64	18533.5	17.82	109.0	0.258032
2	50.07	44.75	59.15	18458.39	22.13	133.53	36.91	95.75	43.49	7335.41	15.95	98.44	0.258032
3	38.70	90.75	30.51	5700.26	25.89	154.81	28.38	130.75	22.32	2232.03	18.61	113.5	0.258032
4	29.72	127.0	17.58	1937.59	26.54	158.53	22.50	155.00	13.28	835.20	19.75	120.0	0.258032

Load Summary

Structure: CT13610-A-SBA	Code: TIA-222-G	6/23/2022
Site Name: ARTEC	Exposure: C	
Height: 155.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
1	154.00	AIR 21 B2A B4P	3	91.50	6.09	0.86	260.92	7.190	0.86	0.00	0.00
2	154.00	AIR 21 B4A B2P	3	90.40	6.09	0.86	259.82	7.190	0.86	0.00	0.00
3	154.00	KRY 112 144/1	3	11.00	0.41	0.67	21.81	0.886	0.70	0.00	0.00
4	154.00	T-Arm	3	400.00	11.90	0.75	679.97	22.311	0.75	0.00	0.00
5	154.00	APXVAARR24_43-U-NA20	3	128.00	20.24	0.70	547.17	22.145	0.70	0.00	0.00
6	154.00	4449	3	70.00	1.65	0.67	138.47	2.189	0.67	0.00	0.00
7	154.00	(3) T-Arm Kit	1	500.00	16.50	1.00	1094.94	32.668	1.00	0.00	0.00
8	143.00	T-Arm	3	400.00	10.70	0.75	677.90	19.992	0.75	0.00	0.00
9	143.00	Cci HPA-65R-BUU-H6	3	51.00	9.66	0.85	297.73	11.019	0.85	0.00	0.00
10	143.00	Ericsson RRUS 32 B2	3	77.00	1.65	0.67	125.18	2.227	0.67	0.00	0.00
11	143.00	Ericsson RRUS 11	6	50.70	2.52	0.71	139.37	3.168	0.71	0.00	0.00
12	143.00	Raycap DC6-48-60-18-8F	1	31.80	0.92	0.75	93.33	1.356	0.75	0.00	0.00
13	143.00	Powerwave 7770	6	35.00	5.50	0.73	169.38	6.560	0.73	0.00	0.00
14	143.00	Powerwave LGP21401 TMA	6	14.10	1.29	0.67	38.98	2.122	0.67	0.00	0.00
15	143.00	Powerwave LGP13519 Diplexer	6	5.30	0.34	0.67	14.75	0.792	0.67	0.00	0.00
16	133.00	T-Arm	3	350.00	9.70	0.75	591.41	18.063	0.75	0.00	0.00
17	133.00	MT6407-77A	3	79.40	4.69	0.70	197.21	5.625	0.70	0.00	0.00
18	133.00	SBNHH-1D65B	6	40.60	8.08	0.83	239.34	9.355	0.83	0.00	0.00
19	133.00	LPA-80080-6CF	6	21.00	4.33	1.70	187.41	5.689	1.70	0.00	0.00
20	133.00	Samsung - RF4439d-25A - RRU	3	84.40	1.88	0.67	135.05	2.425	0.67	0.00	0.00
21	133.00	Samsung - RF4440d-13A - RRU	3	70.30	1.88	0.67	118.35	2.425	0.67	0.00	0.00
22	133.00	Rfs Celwave - DB-T1-6Z-8AB-OZ	2	18.90	4.80	0.71	138.53	5.793	0.71	0.00	0.00
23	100.00	JMA Wireless MX08FRO665-21	3	64.50	12.49	0.74	343.81	13.897	0.74	0.00	0.00
24	100.00	MC-PK8-DSH	1	1727.00	37.59	1.00	3347.77	82.947	1.00	0.00	0.00
25	100.00	Fujitsu TA08025-B605 RRU	3	75.00	1.96	0.67	125.23	2.499	0.67	0.00	0.00
26	100.00	Fujitsu TA08025-B604 RRU	3	63.90	1.96	0.67	112.52	2.499	0.67	0.00	0.00
27	100.00	Raycap RDIDC-9181-PF-48-OVP	1	21.90	2.01	1.00	73.03	2.556	1.00	0.00	0.00
28	85.00	Pipe Mount	2	60.00	5.00	1.00	107.49	8.298	1.00	0.00	0.00
29	85.00	SP4-4.7NS RD4	1	60.00	23.14	1.00	282.63	26.192	1.00	0.00	0.00
30	85.00	SD222	2	17.00	5.30	1.00	151.21	13.043	1.00	0.00	4.75
31	85.00	DB408	1	17.00	2.90	1.00	134.44	11.633	1.00	0.00	4.71
Totals:			96	9,868.90			24,453.73				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	154.00	(9) 1 5/8" Coax	0.00	Inside
0.00	154.00	(4) 1 5/8" Fiber	0.00	Inside
0.00	143.00	(12) 1 5/8" Coax	0.00	Inside
0.00	143.00	(2) 1/2" DC power	0.00	Inside
0.00	143.00	(1) 3" Innerduct	0.00	Inside
0.00	143.00	(1) 3/8" Fiber	0.00	Inside
0.00	133.00	(12) 1 5/8" Coax	0.00	Inside
0.00	133.00	(2) 1 5/8" Hybrid	0.00	Inside
0.00	100.00	(1) 1.6" Hybrid	0.00	Inside
0.00	85.00	(6) 7/8" Coax	0.00	Inside

Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		

Shaft Section Properties

Structure: CT13610-A-SBA	Code: TIA-222-G	6/23/2022
Site Name: ARTEC	Exposure: C	
Height: 155.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Increment Length: 5 (ft)

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in ³)	Weight (lb)
0.00		0.4375	60.870	83.915	38719.9	23.12	139.13	74.2	1252.	0.0
5.00		0.4375	59.580	82.124	36292.6	22.60	136.18	74.8	1199.	1412.5
10.00		0.4375	58.290	80.332	33968.9	22.08	133.23	75.4	1147.	1382.0
15.00		0.4375	57.000	78.541	31746.6	21.56	130.28	76.0	1097.	1351.5
20.00		0.4375	55.709	76.749	29623.4	21.04	127.34	76.7	1047.	1321.0
25.00		0.4375	54.419	74.958	27597.0	20.52	124.39	77.3	998.8	1290.6
30.00		0.4375	53.129	73.166	25665.2	20.00	121.44	77.9	951.5	1260.1
35.00		0.4375	51.839	71.375	23825.7	19.48	118.49	78.5	905.3	1229.6
40.00		0.4375	50.549	69.583	22076.3	18.96	115.54	79.1	860.2	1199.1
44.75	Bot - Section 2	0.4375	49.323	67.881	20495.8	18.47	112.74	79.7	818.5	1110.9
45.00		0.4375	49.259	67.792	20414.7	18.44	112.59	79.7	816.3	108.0
50.00		0.4375	47.968	66.000	18838.7	17.92	109.64	80.3	773.5	2130.2
51.00	Top - Section 1	0.3750	48.460	57.232	16719.1	21.38	129.23	0.0	0.0	419.2
55.00		0.3750	47.428	56.003	15665.5	20.89	126.48	76.8	650.6	770.6
60.00		0.3750	46.138	54.468	14411.9	20.28	123.03	77.5	615.2	939.8
65.00		0.3750	44.848	52.932	13227.0	19.68	119.59	78.3	580.9	913.6
70.00		0.3750	43.558	51.396	12108.9	19.07	116.15	79.0	547.5	887.5
75.00		0.3750	42.268	49.861	11055.7	18.46	112.71	79.7	515.2	861.4
80.00		0.3750	40.977	48.325	10065.4	17.86	109.27	80.4	483.8	835.3
85.00		0.3750	39.687	46.790	9136.1	17.25	105.83	81.1	453.4	809.1
90.00		0.3750	38.397	45.254	8265.8	16.64	102.39	81.8	424.0	783.0
90.75	Bot - Section 3	0.3750	38.204	45.024	8140.2	16.55	101.88	81.9	419.7	115.2
95.00		0.3750	37.107	43.719	7452.6	16.04	98.95	82.5	395.6	1076.7
95.75	Top - Section 2	0.2500	37.413	29.488	5145.5	24.98	149.65	0.0	0.0	186.7
100.00		0.2500	36.317	28.618	4703.3	24.20	145.27	72.9	255.1	420.2
105.00		0.2500	35.027	27.594	4216.4	23.29	140.11	74.0	237.1	478.2
110.00		0.2500	33.736	26.571	3764.4	22.38	134.95	75.1	219.8	460.8
115.00		0.2500	32.446	25.547	3345.8	21.47	129.79	76.1	203.1	443.4
120.00		0.2500	31.156	24.523	2959.5	20.56	124.62	77.2	187.1	425.9
125.00		0.2500	29.866	23.499	2604.1	19.65	119.46	78.3	171.7	408.5
127.00	Bot - Section 4	0.2500	29.350	23.090	2470.4	19.29	117.40	78.7	165.8	158.5
130.00		0.2500	28.576	22.476	2278.4	18.74	114.30	79.4	157.0	409.7
130.75	Top - Section 3	0.1875	28.757	17.002	1753.3	25.63	153.37	0.0	0.0	100.7
133.00		0.1875	28.177	16.656	1648.6	25.09	150.28	71.9	115.2	128.8
135.00		0.1875	27.661	16.349	1559.1	24.60	147.52	72.5	111.0	112.3
140.00		0.1875	26.370	15.582	1349.6	23.39	140.64	73.9	100.8	271.6
143.00		0.1875	25.596	15.121	1233.4	22.66	136.51	74.7	94.9	156.7
145.00		0.1875	25.080	14.814	1159.8	22.18	133.76	75.3	91.1	101.9
150.00		0.1875	23.790	14.046	988.6	20.96	126.88	76.7	81.8	245.5
154.00		0.1875	22.758	13.432	864.5	19.99	121.38	77.9	74.8	187.0
155.00		0.1875	22.500	13.278	835.2	19.75	120.00	78.2	73.1	45.4

26948.9

Wind Loading - Shaft

Structure: CT13610-A-SBA	Code: TIA-222-G	6/23/2022
Site Name: ARTEC	Exposure: C	
Height: 155.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Page: 9
	Struct Class: II	



Load Case: 1.2D + 1.6W 101 mph Wind	Iterations 23
Dead Load Factor 1.20	
Wind Load Factor 1.60	

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	21.088	23.20	479.62	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	21.088	23.20	469.46	0.650	0.000	5.00	25.481	16.56	614.7	0.0	1695.0
10.00		1.00	0.85	21.088	23.20	459.29	0.650	0.000	5.00	24.935	16.21	601.5	0.0	1658.4
15.00		1.00	0.85	21.088	23.20	449.13	0.650	0.000	5.00	24.389	15.85	588.4	0.0	1621.8
20.00		1.00	0.90	22.375	24.61	452.16	0.650	0.000	5.00	23.843	15.50	610.3	0.0	1585.2
25.00		1.00	0.95	23.451	25.80	452.19	0.650	0.000	5.00	23.297	15.14	625.0	0.0	1548.7
30.00		1.00	0.98	24.369	26.81	450.02	0.650	0.000	5.00	22.752	14.79	634.3	0.0	1512.1
35.00		1.00	1.01	25.172	27.69	446.28	0.650	0.000	5.00	22.206	14.43	639.5	0.0	1475.5
40.00		1.00	1.04	25.890	28.48	441.33	0.650	0.000	5.00	21.660	14.08	641.5	0.0	1438.9
44.75	Bot - Section 2	1.00	1.07	26.509	29.16	435.74	0.650	0.000	4.75	20.071	13.05	608.7	0.0	1333.1
45.00		1.00	1.07	26.540	29.19	435.43	0.650	0.000	0.25	1.059	0.69	32.1	0.0	129.6
50.00		1.00	1.09	27.135	29.85	428.75	0.650	0.000	5.00	20.885	13.58	648.3	0.0	2556.2
51.00	Top - Section 1	1.00	1.10	27.249	29.97	427.34	0.650	0.000	1.00	4.112	2.67	128.2	0.0	503.1
55.00		1.00	1.12	27.685	30.45	428.20	0.650	0.000	4.00	16.228	10.55	514.0	0.0	924.7
60.00		1.00	1.14	28.197	31.02	420.38	0.650	0.000	5.00	19.794	12.87	638.5	0.0	1127.7
65.00		1.00	1.16	28.676	31.54	412.09	0.650	0.000	5.00	19.248	12.51	631.4	0.0	1096.4
70.00		1.00	1.17	29.127	32.04	403.37	0.650	0.000	5.00	18.702	12.16	623.2	0.0	1065.0
75.00		1.00	1.19	29.553	32.51	394.27	0.650	0.000	5.00	18.156	11.80	613.8	0.0	1033.7
80.00		1.00	1.21	29.958	32.95	384.84	0.650	0.000	5.00	17.610	11.45	603.5	0.0	1002.3
85.00	Appurtenance(s)	1.00	1.22	30.342	33.38	375.11	0.650	0.000	5.00	17.064	11.09	592.3	0.0	971.0
90.00		1.00	1.24	30.710	33.78	365.11	0.650	0.000	5.00	16.519	10.74	580.3	0.0	939.6
90.75	Bot - Section 3	1.00	1.24	30.763	33.84	363.59	0.650	0.000	0.75	2.431	1.58	85.5	0.0	138.2
95.00		1.00	1.25	31.061	34.17	354.85	0.650	0.000	4.25	13.722	8.92	487.6	0.0	1292.0
95.75	Top - Section 2	1.00	1.25	31.113	34.22	353.30	0.650	0.000	0.75	2.381	1.55	84.7	0.0	224.1
100.00	Appurtenance(s)	1.00	1.27	31.399	34.54	349.18	0.650	0.000	4.25	13.258	8.62	476.2	0.0	504.2
105.00		1.00	1.28	31.723	34.89	338.51	0.650	0.000	5.00	15.092	9.81	547.7	0.0	573.8
110.00		1.00	1.29	32.035	35.24	327.64	0.650	0.000	5.00	14.547	9.46	533.1	0.0	552.9
115.00		1.00	1.30	32.336	35.57	316.59	0.650	0.000	5.00	14.001	9.10	517.9	0.0	532.0
120.00		1.00	1.32	32.627	35.89	305.36	0.650	0.000	5.00	13.455	8.75	502.2	0.0	511.1
125.00		1.00	1.33	32.909	36.20	293.98	0.650	0.000	5.00	12.909	8.39	486.0	0.0	490.2
127.00	Bot - Section 4	1.00	1.33	33.019	36.32	289.38	0.650	0.000	2.00	5.011	3.26	189.3	0.0	190.2
130.00		1.00	1.34	33.182	36.50	282.44	0.650	0.000	3.00	7.448	4.84	282.7	0.0	491.6
130.75	Top - Section 3	1.00	1.34	33.222	36.54	280.70	0.650	0.000	0.75	1.831	1.19	69.6	0.0	120.8
133.00	Appurtenance(s)	1.00	1.34	33.341	36.68	279.17	0.650	0.000	2.25	5.420	3.52	206.7	0.0	154.6
135.00		1.00	1.35	33.446	36.79	274.49	0.650	0.000	2.00	4.725	3.07	180.8	0.0	134.8
140.00		1.00	1.36	33.703	37.07	262.69	0.650	0.000	5.00	11.430	7.43	440.7	0.0	326.0
143.00	Appurtenance(s)	1.00	1.36	33.854	37.24	255.55	0.650	0.000	3.00	6.596	4.29	255.5	0.0	188.1
145.00		1.00	1.37	33.953	37.35	250.76	0.650	0.000	2.00	4.288	2.79	166.6	0.0	122.2
150.00		1.00	1.38	34.196	37.62	238.71	0.650	0.000	5.00	10.338	6.72	404.4	0.0	294.6
154.00	Appurtenance(s)	1.00	1.39	34.386	37.83	228.99	0.650	0.000	4.00	7.878	5.12	309.9	0.0	224.4
155.00		1.00	1.39	34.433	37.88	226.55	0.650	0.000	1.00	1.915	1.24	75.4	0.0	54.5
Totals:								155.00			17,472.3	32,338.6		

Discrete Appurtenance Forces

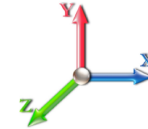
Structure: CT13610-A-SBA	Code: TIA-222-G	6/23/2022
Site Name: ARTEC	Exposure: C	
Height: 155.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 23

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	154.00	4449	3	34.386	37.825	0.54	0.80	2.65	252.00	0.000	0.000	160.57	0.00	0.00
2	154.00	APXVAARR24_43-U-NA2	3	34.386	37.825	0.56	0.80	34.00	460.80	0.000	0.000	2057.88	0.00	0.00
3	154.00	T-Arm	3	34.386	37.825	0.56	0.75	20.08	1440.00	0.000	0.000	1215.32	0.00	0.00
4	154.00	KRY 112 144/1	3	34.386	37.825	0.54	0.80	0.66	39.60	0.000	0.000	39.90	0.00	0.00
5	154.00	AIR 21 B4A B2P	3	34.386	37.825	0.69	0.80	12.57	325.44	0.000	0.000	760.72	0.00	0.00
6	154.00	AIR 21 B2A B4P	3	34.386	37.825	0.69	0.80	12.57	329.40	0.000	0.000	760.72	0.00	0.00
7	154.00	(3) T-Arm Kit	1	34.386	37.825	0.75	0.75	12.38	600.00	0.000	0.000	748.94	0.00	0.00
8	143.00	Ericsson RRUS 11	6	33.854	37.240	0.57	0.80	8.59	365.04	0.000	0.000	511.71	0.00	0.00
9	143.00	Raycap DC6-48-60-18-8F	1	33.854	37.240	0.60	0.80	0.55	38.16	0.000	0.000	32.89	0.00	0.00
10	143.00	Powerwave 7770	6	33.854	37.240	0.58	0.80	19.27	252.00	0.000	0.000	1148.29	0.00	0.00
11	143.00	T-Arm	3	33.854	37.240	0.56	0.75	18.06	1440.00	0.000	0.000	1075.85	0.00	0.00
12	143.00	Ericsson RRUS 32 B2	3	33.854	37.240	0.54	0.80	2.65	277.20	0.000	0.000	158.09	0.00	0.00
13	143.00	Powerwave LGP21401	6	33.854	37.240	0.54	0.80	4.15	101.52	0.000	0.000	247.19	0.00	0.00
14	143.00	Powerwave LGP13519	6	33.854	37.240	0.54	0.80	1.09	38.16	0.000	0.000	65.15	0.00	0.00
15	143.00	Cci HPA-65R-BUU-H6	3	33.854	37.240	0.68	0.80	19.71	183.60	0.000	0.000	1174.17	0.00	0.00
16	133.00	T-Arm	3	33.341	36.675	0.56	0.75	16.37	1260.00	0.000	0.000	960.53	0.00	0.00
17	133.00	Samsung - RF4440d-13A -	3	33.341	36.675	0.54	0.80	3.02	253.08	0.000	0.000	177.39	0.00	0.00
18	133.00	Samsung - RF4439d-25A -	3	33.341	36.675	0.54	0.80	3.02	303.84	0.000	0.000	177.39	0.00	0.00
19	133.00	LPA-80080-6CF	6	33.341	36.675	1.36	0.80	35.33	151.20	0.000	0.000	2073.36	0.00	0.00
20	133.00	SBNHH-1D65B	6	33.341	36.675	0.66	0.80	32.19	292.32	0.000	0.000	1888.98	0.00	0.00
21	133.00	MT6407-77A	3	33.341	36.675	0.56	0.80	7.88	285.84	0.000	0.000	462.36	0.00	0.00
22	133.00	Rfs Celwave -	2	33.341	36.675	0.57	0.80	5.45	45.36	0.000	0.000	319.97	0.00	0.00
23	100.00	MC-PK8-DSH	1	31.399	34.538	1.00	1.00	37.59	2072.40	0.000	0.000	2077.28	0.00	0.00
24	100.00	JMA Wireless	3	31.399	34.538	0.55	0.75	20.80	232.20	0.000	0.000	1149.21	0.00	0.00
25	100.00	Fujitsu TA08025-B604	3	31.399	34.538	0.50	0.75	2.95	230.04	0.000	0.000	163.28	0.00	0.00
26	100.00	Fujitsu TA08025-B605	3	31.399	34.538	0.50	0.75	2.95	270.00	0.000	0.000	163.28	0.00	0.00
27	100.00	Raycap	1	31.399	34.538	1.00	1.00	2.01	26.28	0.000	0.000	111.08	0.00	0.00
28	85.00	DB408	1	30.689	33.758	1.00	1.00	2.90	20.40	0.000	4.708	156.64	0.00	737.49
29	85.00	SD222	2	30.692	33.761	1.00	1.00	10.60	40.80	0.000	4.750	572.59	0.00	2719.78
30	85.00	SP4-4.7NS RD4	1	30.342	33.377	1.00	1.00	23.14	72.00	0.000	0.000	1235.74	0.00	0.00
31	85.00	Pipe Mount	2	30.342	33.377	1.00	1.00	10.00	144.00	0.000	0.000	534.03	0.00	0.00

Totals: 11,842.68 22,380.48

Total Applied Force Summary

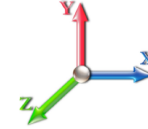
Structure: CT13610-A-SBA	Code: TIA-222-G	6/23/2022
Site Name: ARTEC	Exposure: C	
Height: 155.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 23

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		614.70	1983.10	0.00	0.00
10.00		601.53	1946.52	0.00	0.00
15.00		588.37	1909.95	0.00	0.00
20.00		610.31	1873.37	0.00	0.00
25.00		625.02	1836.79	0.00	0.00
30.00		634.26	1800.22	0.00	0.00
35.00		639.46	1763.64	0.00	0.00
40.00		641.52	1727.06	0.00	0.00
44.75		608.68	1606.83	0.00	0.00
45.00		32.14	144.00	0.00	0.00
50.00		648.34	2844.33	0.00	0.00
51.00		128.17	560.72	0.00	0.00
55.00		513.97	1155.25	0.00	0.00
60.00		638.49	1415.84	0.00	0.00
65.00		631.44	1384.49	0.00	0.00
70.00		623.18	1353.14	0.00	0.00
75.00		613.84	1321.79	0.00	0.00
80.00		603.53	1290.44	0.00	0.00
85.00	(6) attachments	3091.32	1536.29	0.00	3457.27
90.00		580.33	1209.01	0.00	0.00
90.75		85.54	178.65	0.00	0.00
95.00		487.59	1520.97	0.00	0.00
95.75		84.73	264.49	0.00	0.00
100.00	(11) attachments	4140.34	3564.10	0.00	0.00
105.00		547.72	832.31	0.00	0.00
110.00		533.10	811.41	0.00	0.00
115.00		517.92	790.51	0.00	0.00
120.00		502.21	769.61	0.00	0.00
125.00		485.99	748.71	0.00	0.00
127.00		189.28	293.63	0.00	0.00
130.00		282.71	646.68	0.00	0.00
130.75		69.60	159.61	0.00	0.00
133.00	(26) attachments	6266.71	2862.57	0.00	0.00
135.00		180.79	202.93	0.00	0.00
140.00		440.71	496.36	0.00	0.00
143.00	(34) attachments	4668.80	2985.97	0.00	0.00
145.00		166.56	155.26	0.00	0.00
150.00		404.45	377.17	0.00	0.00
154.00	(19) attachments	6053.95	3737.69	0.00	0.00
155.00		75.43	54.53	0.00	0.00
Totals:		39,852.73	52,115.96	0.00	3,457.27

Calculated Forces

Structure: CT13610-A-SBA
Site Name: ARTEC
Height: 155.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Code: TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: C - Very Dense Soil
Struct Class: II

6/23/2022
 Page: 12



Load Case: 1.2D + 1.6W 101 mph Wind	Iterations 23
Dead Load Factor 1.20	
Wind Load Factor 1.60	

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 Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-52.06	-39.92	0.00	-4330.5	0.00	4330.55	5604.23	2802.12	13924.9	6972.80	0.00	0.000	0.000	0.631
5.00	-49.97	-39.44	0.00	-4130.9	0.00	4130.93	5529.79	2764.90	13444.5	6732.24	0.08	-0.155	0.000	0.623
10.00	-47.92	-38.97	0.00	-3933.7	0.00	3933.71	5453.38	2726.69	12967.3	6493.32	0.33	-0.313	0.000	0.615
15.00	-45.90	-38.50	0.00	-3738.8	0.00	3738.88	5374.99	2687.50	12493.8	6256.19	0.75	-0.474	0.000	0.606
20.00	-43.93	-37.99	0.00	-3546.4	0.00	3546.40	5294.63	2647.32	12024.1	6021.01	1.33	-0.637	0.000	0.598
25.00	-41.99	-37.47	0.00	-3356.4	0.00	3356.43	5212.30	2606.15	11558.7	5787.94	2.09	-0.803	0.000	0.588
30.00	-40.09	-36.93	0.00	-3169.0	0.00	3169.09	5128.00	2564.00	11097.7	5557.14	3.02	-0.971	0.000	0.578
35.00	-38.23	-36.37	0.00	-2984.4	0.00	2984.47	5041.73	2520.86	10641.7	5328.76	4.13	-1.142	0.000	0.568
40.00	-36.41	-35.80	0.00	-2802.6	0.00	2802.63	4953.48	2476.74	10190.8	5102.98	5.42	-1.315	0.000	0.557
44.75	-34.77	-35.20	0.00	-2632.5	0.00	2632.59	4867.82	2433.91	9767.51	4891.01	6.81	-1.481	0.000	0.546
45.00	-34.57	-35.22	0.00	-2623.7	0.00	2623.79	4863.26	2431.63	9745.37	4879.93	6.89	-1.490	0.000	0.545
50.00	-31.68	-34.56	0.00	-2447.6	0.00	2447.68	4771.07	2385.54	9305.74	4659.79	8.55	-1.667	0.000	0.532
51.00	-31.07	-34.46	0.00	-2413.1	0.00	2413.13	3927.98	1963.99	7761.51	3886.53	8.90	-1.703	0.000	0.629
55.00	-29.82	-34.00	0.00	-2275.2	0.00	2275.29	3872.44	1936.22	7486.25	3748.69	10.39	-1.847	0.000	0.615
60.00	-28.31	-33.41	0.00	-2105.2	0.00	2105.29	3801.23	1900.62	7145.52	3578.07	12.43	-2.046	0.000	0.596
65.00	-26.84	-32.82	0.00	-1938.2	0.00	1938.23	3728.06	1864.03	6808.79	3409.45	14.68	-2.246	0.000	0.576
70.00	-25.40	-32.23	0.00	-1774.1	0.00	1774.11	3652.91	1826.46	6476.38	3243.00	17.14	-2.445	0.000	0.554
75.00	-24.00	-31.65	0.00	-1612.9	0.00	1612.95	3575.79	1787.90	6148.62	3078.88	19.81	-2.644	0.000	0.531
80.00	-22.63	-31.06	0.00	-1454.7	0.00	1454.72	3496.70	1748.35	5825.81	2917.23	22.69	-2.842	0.000	0.505
85.00	-21.16	-27.96	0.00	-1295.9	0.00	1295.98	3415.64	1707.82	5508.27	2758.23	25.77	-3.036	0.000	0.476
90.00	-19.94	-27.36	0.00	-1156.1	0.00	1156.16	3332.60	1666.30	5196.32	2602.02	29.05	-3.227	0.000	0.451
90.75	-19.72	-27.29	0.00	-1135.6	0.00	1135.65	3319.98	1659.99	5150.02	2578.84	29.56	-3.257	0.000	0.447
95.00	-18.18	-26.75	0.00	-1019.6	0.00	1019.65	3247.59	1623.80	4890.27	2448.77	32.53	-3.417	0.000	0.422
95.75	-17.88	-26.68	0.00	-999.59	0.00	999.59	1911.44	955.72	2922.15	1463.25	33.07	-3.446	0.000	0.693
100.00	-14.50	-22.38	0.00	-886.22	0.00	886.22	1878.47	939.23	2786.43	1395.29	36.21	-3.601	0.000	0.643
105.00	-13.61	-21.83	0.00	-774.34	0.00	774.34	1837.85	918.92	2627.99	1315.95	40.11	-3.852	0.000	0.596
110.00	-12.75	-21.30	0.00	-665.16	0.00	665.16	1795.26	897.63	2471.18	1237.43	44.28	-4.095	0.000	0.545
115.00	-11.92	-20.77	0.00	-558.67	0.00	558.67	1750.70	875.35	2316.31	1159.88	48.69	-4.326	0.000	0.489
120.00	-11.12	-20.25	0.00	-454.81	0.00	454.81	1704.17	852.08	2163.70	1083.46	53.34	-4.542	0.000	0.427
125.00	-10.37	-19.73	0.00	-353.55	0.00	353.55	1655.66	827.83	2013.66	1008.33	58.20	-4.736	0.000	0.357
127.00	-10.06	-19.53	0.00	-314.09	0.00	314.09	1635.71	817.85	1954.43	978.67	60.19	-4.809	0.000	0.328
130.00	-9.42	-19.21	0.00	-255.50	0.00	255.50	1605.19	802.59	1866.51	934.64	63.25	-4.908	0.000	0.280
130.75	-9.25	-19.13	0.00	-241.09	0.00	241.09	1090.28	545.14	1281.57	641.74	64.02	-4.931	0.000	0.385
133.00	-6.93	-12.65	0.00	-198.05	0.00	198.05	1077.75	538.87	1240.93	621.39	66.36	-4.994	0.000	0.326
135.00	-6.72	-12.46	0.00	-172.76	0.00	172.76	1066.28	533.14	1204.93	603.36	68.46	-5.058	0.000	0.293
140.00	-6.25	-11.99	0.00	-110.46	0.00	110.46	1036.22	518.11	1115.60	558.63	73.83	-5.187	0.000	0.204
143.00	-3.69	-7.07	0.00	-74.50	0.00	74.50	1017.23	508.62	1062.55	532.07	77.10	-5.245	0.000	0.144
145.00	-3.55	-6.89	0.00	-60.36	0.00	60.36	1004.18	502.09	1027.46	514.49	79.30	-5.277	0.000	0.121
150.00	-3.21	-6.46	0.00	-25.90	0.00	25.90	970.18	485.09	940.83	471.12	84.85	-5.329	0.000	0.058
154.00	-0.05	-0.08	0.00	-0.08	0.00	0.08	941.55	470.78	872.83	437.06	89.32	-5.344	0.000	0.000
155.00	0.00	-0.08	0.00	0.00	0.00	0.00	934.20	467.10	856.03	428.65	90.44	-5.344	0.000	0.000

Wind Loading - Shaft

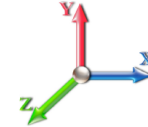
Structure: CT13610-A-SBA	Code: TIA-222-G	6/23/2022
Site Name: ARTEC	Exposure: C	
Height: 155.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 23

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	21.088	23.20	479.62	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	21.088	23.20	469.46	0.650	0.000	5.00	25.481	16.56	614.7	0.0	1271.2
10.00		1.00	0.85	21.088	23.20	459.29	0.650	0.000	5.00	24.935	16.21	601.5	0.0	1243.8
15.00		1.00	0.85	21.088	23.20	449.13	0.650	0.000	5.00	24.389	15.85	588.4	0.0	1216.4
20.00		1.00	0.90	22.375	24.61	452.16	0.650	0.000	5.00	23.843	15.50	610.3	0.0	1188.9
25.00		1.00	0.95	23.451	25.80	452.19	0.650	0.000	5.00	23.297	15.14	625.0	0.0	1161.5
30.00		1.00	0.98	24.369	26.81	450.02	0.650	0.000	5.00	22.752	14.79	634.3	0.0	1134.1
35.00		1.00	1.01	25.172	27.69	446.28	0.650	0.000	5.00	22.206	14.43	639.5	0.0	1106.6
40.00		1.00	1.04	25.890	28.48	441.33	0.650	0.000	5.00	21.660	14.08	641.5	0.0	1079.2
44.75	Bot - Section 2	1.00	1.07	26.509	29.16	435.74	0.650	0.000	4.75	20.071	13.05	608.7	0.0	999.8
45.00		1.00	1.07	26.540	29.19	435.43	0.650	0.000	0.25	1.059	0.69	32.1	0.0	97.2
50.00		1.00	1.09	27.135	29.85	428.75	0.650	0.000	5.00	20.885	13.58	648.3	0.0	1917.2
51.00	Top - Section 1	1.00	1.10	27.249	29.97	427.34	0.650	0.000	1.00	4.112	2.67	128.2	0.0	377.3
55.00		1.00	1.12	27.685	30.45	428.20	0.650	0.000	4.00	16.228	10.55	514.0	0.0	693.6
60.00		1.00	1.14	28.197	31.02	420.38	0.650	0.000	5.00	19.794	12.87	638.5	0.0	845.8
65.00		1.00	1.16	28.676	31.54	412.09	0.650	0.000	5.00	19.248	12.51	631.4	0.0	822.3
70.00		1.00	1.17	29.127	32.04	403.37	0.650	0.000	5.00	18.702	12.16	623.2	0.0	798.8
75.00		1.00	1.19	29.553	32.51	394.27	0.650	0.000	5.00	18.156	11.80	613.8	0.0	775.3
80.00		1.00	1.21	29.958	32.95	384.84	0.650	0.000	5.00	17.610	11.45	603.5	0.0	751.7
85.00	Appurtenance(s)	1.00	1.22	30.342	33.38	375.11	0.650	0.000	5.00	17.064	11.09	592.3	0.0	728.2
90.00		1.00	1.24	30.710	33.78	365.11	0.650	0.000	5.00	16.519	10.74	580.3	0.0	704.7
90.75	Bot - Section 3	1.00	1.24	30.763	33.84	363.59	0.650	0.000	0.75	2.431	1.58	85.5	0.0	103.7
95.00		1.00	1.25	31.061	34.17	354.85	0.650	0.000	4.25	13.722	8.92	487.6	0.0	969.0
95.75	Top - Section 2	1.00	1.25	31.113	34.22	353.30	0.650	0.000	0.75	2.381	1.55	84.7	0.0	168.1
100.00	Appurtenance(s)	1.00	1.27	31.399	34.54	349.18	0.650	0.000	4.25	13.258	8.62	476.2	0.0	378.1
105.00		1.00	1.28	31.723	34.89	338.51	0.650	0.000	5.00	15.092	9.81	547.7	0.0	430.4
110.00		1.00	1.29	32.035	35.24	327.64	0.650	0.000	5.00	14.547	9.46	533.1	0.0	414.7
115.00		1.00	1.30	32.336	35.57	316.59	0.650	0.000	5.00	14.001	9.10	517.9	0.0	399.0
120.00		1.00	1.32	32.627	35.89	305.36	0.650	0.000	5.00	13.455	8.75	502.2	0.0	383.3
125.00		1.00	1.33	32.909	36.20	293.98	0.650	0.000	5.00	12.909	8.39	486.0	0.0	367.7
127.00	Bot - Section 4	1.00	1.33	33.019	36.32	289.38	0.650	0.000	2.00	5.011	3.26	189.3	0.0	142.7
130.00		1.00	1.34	33.182	36.50	282.44	0.650	0.000	3.00	7.448	4.84	282.7	0.0	368.7
130.75	Top - Section 3	1.00	1.34	33.222	36.54	280.70	0.650	0.000	0.75	1.831	1.19	69.6	0.0	90.6
133.00	Appurtenance(s)	1.00	1.34	33.341	36.68	279.17	0.650	0.000	2.25	5.420	3.52	206.7	0.0	116.0
135.00		1.00	1.35	33.446	36.79	274.49	0.650	0.000	2.00	4.725	3.07	180.8	0.0	101.1
140.00		1.00	1.36	33.703	37.07	262.69	0.650	0.000	5.00	11.430	7.43	440.7	0.0	244.5
143.00	Appurtenance(s)	1.00	1.36	33.854	37.24	255.55	0.650	0.000	3.00	6.596	4.29	255.5	0.0	141.0
145.00		1.00	1.37	33.953	37.35	250.76	0.650	0.000	2.00	4.288	2.79	166.6	0.0	91.7
150.00		1.00	1.38	34.196	37.62	238.71	0.650	0.000	5.00	10.338	6.72	404.4	0.0	221.0
154.00	Appurtenance(s)	1.00	1.39	34.386	37.83	228.99	0.650	0.000	4.00	7.878	5.12	309.9	0.0	168.3
155.00		1.00	1.39	34.433	37.88	226.55	0.650	0.000	1.00	1.915	1.24	75.4	0.0	40.9
Totals:									155.00			17,472.3		24,254.0

Discrete Appurtenance Forces

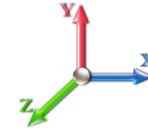
Structure: CT13610-A-SBA	Code: TIA-222-G	6/23/2022
Site Name: ARTEC	Exposure: C	
Height: 155.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 23

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	154.00	4449	3	34.386	37.825	0.54	0.80	2.65	189.00	0.000	0.000	160.57	0.00	0.00
2	154.00	APXVAARR24_43-U-NA2	3	34.386	37.825	0.56	0.80	34.00	345.60	0.000	0.000	2057.88	0.00	0.00
3	154.00	T-Arm	3	34.386	37.825	0.56	0.75	20.08	1080.00	0.000	0.000	1215.32	0.00	0.00
4	154.00	KRY 112 144/1	3	34.386	37.825	0.54	0.80	0.66	29.70	0.000	0.000	39.90	0.00	0.00
5	154.00	AIR 21 B4A B2P	3	34.386	37.825	0.69	0.80	12.57	244.08	0.000	0.000	760.72	0.00	0.00
6	154.00	AIR 21 B2A B4P	3	34.386	37.825	0.69	0.80	12.57	247.05	0.000	0.000	760.72	0.00	0.00
7	154.00	(3) T-Arm Kit	1	34.386	37.825	0.75	0.75	12.38	450.00	0.000	0.000	748.94	0.00	0.00
8	143.00	Ericsson RRUS 11	6	33.854	37.240	0.57	0.80	8.59	273.78	0.000	0.000	511.71	0.00	0.00
9	143.00	Raycap DC6-48-60-18-8F	1	33.854	37.240	0.60	0.80	0.55	28.62	0.000	0.000	32.89	0.00	0.00
10	143.00	Powerwave 7770	6	33.854	37.240	0.58	0.80	19.27	189.00	0.000	0.000	1148.29	0.00	0.00
11	143.00	T-Arm	3	33.854	37.240	0.56	0.75	18.06	1080.00	0.000	0.000	1075.85	0.00	0.00
12	143.00	Ericsson RRUS 32 B2	3	33.854	37.240	0.54	0.80	2.65	207.90	0.000	0.000	158.09	0.00	0.00
13	143.00	Powerwave LGP21401	6	33.854	37.240	0.54	0.80	4.15	76.14	0.000	0.000	247.19	0.00	0.00
14	143.00	Powerwave LGP13519	6	33.854	37.240	0.54	0.80	1.09	28.62	0.000	0.000	65.15	0.00	0.00
15	143.00	Cci HPA-65R-BUU-H6	3	33.854	37.240	0.68	0.80	19.71	137.70	0.000	0.000	1174.17	0.00	0.00
16	133.00	T-Arm	3	33.341	36.675	0.56	0.75	16.37	945.00	0.000	0.000	960.53	0.00	0.00
17	133.00	Samsung - RF4440d-13A -	3	33.341	36.675	0.54	0.80	3.02	189.81	0.000	0.000	177.39	0.00	0.00
18	133.00	Samsung - RF4439d-25A -	3	33.341	36.675	0.54	0.80	3.02	227.88	0.000	0.000	177.39	0.00	0.00
19	133.00	LPA-80080-6CF	6	33.341	36.675	1.36	0.80	35.33	113.40	0.000	0.000	2073.36	0.00	0.00
20	133.00	SBNHH-1D65B	6	33.341	36.675	0.66	0.80	32.19	219.24	0.000	0.000	1888.98	0.00	0.00
21	133.00	MT6407-77A	3	33.341	36.675	0.56	0.80	7.88	214.38	0.000	0.000	462.36	0.00	0.00
22	133.00	Rfs Celwave -	2	33.341	36.675	0.57	0.80	5.45	34.02	0.000	0.000	319.97	0.00	0.00
23	100.00	MC-PK8-DSH	1	31.399	34.538	1.00	1.00	37.59	1554.30	0.000	0.000	2077.28	0.00	0.00
24	100.00	JMA Wireless	3	31.399	34.538	0.55	0.75	20.80	174.15	0.000	0.000	1149.21	0.00	0.00
25	100.00	Fujitsu TA08025-B604	3	31.399	34.538	0.50	0.75	2.95	172.53	0.000	0.000	163.28	0.00	0.00
26	100.00	Fujitsu TA08025-B605	3	31.399	34.538	0.50	0.75	2.95	202.50	0.000	0.000	163.28	0.00	0.00
27	100.00	Raycap	1	31.399	34.538	1.00	1.00	2.01	19.71	0.000	0.000	111.08	0.00	0.00
28	85.00	DB408	1	30.689	33.758	1.00	1.00	2.90	15.30	0.000	4.708	156.64	0.00	737.49
29	85.00	SD222	2	30.692	33.761	1.00	1.00	10.60	30.60	0.000	4.750	572.59	0.00	2719.78
30	85.00	SP4-4.7NS RD4	1	30.342	33.377	1.00	1.00	23.14	54.00	0.000	0.000	1235.74	0.00	0.00
31	85.00	Pipe Mount	2	30.342	33.377	1.00	1.00	10.00	108.00	0.000	0.000	534.03	0.00	0.00

Totals: 8,882.01 22,380.48

Total Applied Force Summary

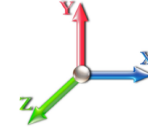
Structure: CT13610-A-SBA	Code: TIA-222-G	6/23/2022
Site Name: ARTEC	Exposure: C	
Height: 155.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 23

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		614.70	1487.32	0.00	0.00
10.00		601.53	1459.89	0.00	0.00
15.00		588.37	1432.46	0.00	0.00
20.00		610.31	1405.03	0.00	0.00
25.00		625.02	1377.59	0.00	0.00
30.00		634.26	1350.16	0.00	0.00
35.00		639.46	1322.73	0.00	0.00
40.00		641.52	1295.30	0.00	0.00
44.75		608.68	1205.12	0.00	0.00
45.00		32.14	108.00	0.00	0.00
50.00		648.34	2133.25	0.00	0.00
51.00		128.17	420.54	0.00	0.00
55.00		513.97	866.43	0.00	0.00
60.00		638.49	1061.88	0.00	0.00
65.00		631.44	1038.37	0.00	0.00
70.00		623.18	1014.85	0.00	0.00
75.00		613.84	991.34	0.00	0.00
80.00		603.53	967.83	0.00	0.00
85.00	(6) attachments	3091.32	1152.21	0.00	3457.27
90.00		580.33	906.76	0.00	0.00
90.75		85.54	133.99	0.00	0.00
95.00		487.59	1140.73	0.00	0.00
95.75		84.73	198.37	0.00	0.00
100.00	(11) attachments	4140.34	2673.08	0.00	0.00
105.00		547.72	624.23	0.00	0.00
110.00		533.10	608.56	0.00	0.00
115.00		517.92	592.88	0.00	0.00
120.00		502.21	577.21	0.00	0.00
125.00		485.99	561.53	0.00	0.00
127.00		189.28	220.22	0.00	0.00
130.00		282.71	485.01	0.00	0.00
130.75		69.60	119.71	0.00	0.00
133.00	(26) attachments	6266.71	2146.93	0.00	0.00
135.00		180.79	152.20	0.00	0.00
140.00		440.71	372.27	0.00	0.00
143.00	(34) attachments	4668.80	2239.48	0.00	0.00
145.00		166.56	116.44	0.00	0.00
150.00		404.45	282.88	0.00	0.00
154.00	(19) attachments	6053.95	2803.27	0.00	0.00
155.00		75.43	40.90	0.00	0.00
	Totals:	39,852.73	39,086.97	0.00	3,457.27

Calculated Forces

Structure: CT13610-A-SBA	Code: TIA-222-G	6/23/2022
Site Name: ARTEC	Exposure: C	
Height: 155.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 101 mph Wind

Iterations 23

Dead Load Factor 0.90

Wind Load Factor 1.60



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 Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-39.03	-39.91	0.00	-4296.6	0.00	4296.68	5604.23	2802.12	13924.9	6972.80	0.00	0.000	0.000	0.623
5.00	-37.44	-39.39	0.00	-4097.1	0.00	4097.15	5529.79	2764.90	13444.5	6732.24	0.08	-0.154	0.000	0.616
10.00	-35.87	-38.88	0.00	-3900.2	0.00	3900.20	5453.38	2726.69	12967.3	6493.32	0.33	-0.311	0.000	0.607
15.00	-34.34	-38.38	0.00	-3705.7	0.00	3705.79	5374.99	2687.50	12493.8	6256.19	0.74	-0.470	0.000	0.599
20.00	-32.83	-37.85	0.00	-3513.8	0.00	3513.89	5294.63	2647.32	12024.1	6021.01	1.32	-0.632	0.000	0.590
25.00	-31.35	-37.30	0.00	-3324.6	0.00	3324.64	5212.30	2606.15	11558.7	5787.94	2.07	-0.796	0.000	0.581
30.00	-29.91	-36.73	0.00	-3138.1	0.00	3138.14	5128.00	2564.00	11097.7	5557.14	3.00	-0.963	0.000	0.571
35.00	-28.49	-36.15	0.00	-2954.4	0.00	2954.49	5041.73	2520.86	10641.7	5328.76	4.09	-1.132	0.000	0.560
40.00	-27.10	-35.56	0.00	-2773.7	0.00	2773.72	4953.48	2476.74	10190.8	5102.98	5.37	-1.303	0.000	0.549
44.75	-25.86	-34.96	0.00	-2604.8	0.00	2604.80	4867.82	2433.91	9767.51	4891.01	6.75	-1.467	0.000	0.538
45.00	-25.70	-34.97	0.00	-2596.0	0.00	2596.06	4863.26	2431.63	9745.37	4879.93	6.83	-1.476	0.000	0.537
50.00	-23.52	-34.31	0.00	-2421.2	0.00	2421.20	4771.07	2385.54	9305.74	4659.79	8.47	-1.651	0.000	0.525
51.00	-23.05	-34.20	0.00	-2386.8	0.00	2386.89	3927.98	1963.99	7761.51	3886.53	8.82	-1.687	0.000	0.620
55.00	-22.10	-33.73	0.00	-2250.0	0.00	2250.08	3872.44	1936.22	7486.25	3748.69	10.30	-1.830	0.000	0.606
60.00	-20.95	-33.13	0.00	-2081.4	0.00	2081.43	3801.23	1900.62	7145.52	3578.07	12.32	-2.026	0.000	0.588
65.00	-19.82	-32.53	0.00	-1915.8	0.00	1915.80	3728.06	1864.03	6808.79	3409.45	14.55	-2.224	0.000	0.568
70.00	-18.72	-31.93	0.00	-1753.1	0.00	1753.16	3652.91	1826.46	6476.38	3243.00	16.98	-2.421	0.000	0.546
75.00	-17.65	-31.33	0.00	-1593.5	0.00	1593.53	3575.79	1787.90	6148.62	3078.88	19.62	-2.617	0.000	0.523
80.00	-16.61	-30.74	0.00	-1436.8	0.00	1436.87	3496.70	1748.35	5825.81	2917.23	22.47	-2.812	0.000	0.498
85.00	-15.52	-27.64	0.00	-1279.7	0.00	1279.72	3415.64	1707.82	5508.27	2758.23	25.52	-3.005	0.000	0.469
90.00	-14.60	-27.04	0.00	-1141.5	0.00	1141.50	3332.60	1666.30	5196.32	2602.02	28.77	-3.193	0.000	0.443
90.75	-14.42	-26.97	0.00	-1121.2	0.00	1121.22	3319.98	1659.99	5150.02	2578.84	29.27	-3.222	0.000	0.439
95.00	-13.27	-26.44	0.00	-1006.5	0.00	1006.58	3247.59	1623.80	4890.27	2448.77	32.21	-3.380	0.000	0.415
95.75	-13.04	-26.37	0.00	-986.75	0.00	986.75	1911.44	955.72	2922.15	1463.25	32.74	-3.409	0.000	0.682
100.00	-10.54	-22.11	0.00	-874.69	0.00	874.69	1878.47	939.23	2786.43	1395.29	35.85	-3.562	0.000	0.633
105.00	-9.86	-21.57	0.00	-764.14	0.00	764.14	1837.85	918.92	2627.99	1315.95	39.71	-3.810	0.000	0.587
110.00	-9.21	-21.03	0.00	-656.31	0.00	656.31	1795.26	897.63	2471.18	1237.43	43.83	-4.050	0.000	0.536
115.00	-8.57	-20.50	0.00	-551.16	0.00	551.16	1750.70	875.35	2316.31	1159.88	48.19	-4.278	0.000	0.481
120.00	-7.97	-19.99	0.00	-448.65	0.00	448.65	1704.17	852.08	2163.70	1083.46	52.79	-4.490	0.000	0.419
125.00	-7.40	-19.47	0.00	-348.72	0.00	348.72	1655.66	827.83	2013.66	1008.33	57.59	-4.682	0.000	0.351
127.00	-7.17	-19.28	0.00	-309.77	0.00	309.77	1635.71	817.85	1954.43	978.67	59.57	-4.754	0.000	0.321
130.00	-6.69	-18.96	0.00	-251.93	0.00	251.93	1605.19	802.59	1866.51	934.64	62.58	-4.851	0.000	0.274
130.75	-6.56	-18.89	0.00	-237.71	0.00	237.71	1090.28	545.14	1281.57	641.74	63.35	-4.874	0.000	0.378
133.00	-4.95	-12.47	0.00	-195.22	0.00	195.22	1077.75	538.87	1240.93	621.39	65.66	-4.936	0.000	0.319
135.00	-4.79	-12.28	0.00	-170.28	0.00	170.28	1066.28	533.14	1204.93	603.36	67.74	-4.999	0.000	0.287
140.00	-4.44	-11.82	0.00	-108.88	0.00	108.88	1036.22	518.11	1115.60	558.63	73.04	-5.126	0.000	0.200
143.00	-2.62	-6.97	0.00	-73.43	0.00	73.43	1017.23	508.62	1062.55	532.07	76.28	-5.184	0.000	0.141
145.00	-2.52	-6.79	0.00	-59.50	0.00	59.50	1004.18	502.09	1027.46	514.49	78.45	-5.215	0.000	0.118
150.00	-2.27	-6.36	0.00	-25.54	0.00	25.54	970.18	485.09	940.83	471.12	83.94	-5.267	0.000	0.057
154.00	-0.03	-0.08	0.00	-0.08	0.00	0.08	941.55	470.78	872.83	437.06	88.36	-5.282	0.000	0.000
155.00	0.00	-0.08	0.00	0.00	0.00	0.00	934.20	467.10	856.03	428.65	89.46	-5.282	0.000	0.000

Wind Loading - Shaft

Structure: CT13610-A-SBA

Code: TIA-222-G

6/23/2022

Site Name: ARTEC

Exposure: C

Height: 155.00 (ft)

Crest Height: 0.00

Base Elev: 0.000 (ft)

Site Class: C - Very Dense Soil

Gh: 1.1

Topography: 1

Struct Class: II

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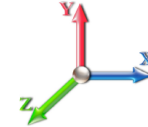


Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 22

Dead Load Factor 1.20

Wind Load Factor 1.00



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	5.168	5.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	5.168	5.68	0.00	1.200	1.242	5.00	26.516	31.82	180.9	473.3	2168.2
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.331	5.00	26.044	31.25	177.7	497.2	2155.6
15.00		1.00	0.85	5.168	5.68	0.00	1.200	1.386	5.00	25.544	30.65	174.3	507.0	2128.9
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.427	5.00	25.032	30.04	181.2	510.7	2095.9
25.00		1.00	0.95	5.747	6.32	0.00	1.200	1.459	5.00	24.513	29.42	186.0	510.7	2059.3
30.00		1.00	0.98	5.972	6.57	0.00	1.200	1.486	5.00	23.990	28.79	189.1	508.3	2020.4
35.00		1.00	1.01	6.169	6.79	0.00	1.200	1.509	5.00	23.463	28.16	191.1	504.2	1979.7
40.00		1.00	1.04	6.345	6.98	0.00	1.200	1.529	5.00	22.934	27.52	192.1	498.8	1937.8
44.75	Bot - Section 2	1.00	1.07	6.497	7.15	0.00	1.200	1.546	4.75	21.295	25.55	182.6	468.1	1801.2
45.00		1.00	1.07	6.504	7.15	0.00	1.200	1.547	0.25	1.123	1.35	9.6	25.0	154.6
50.00		1.00	1.09	6.650	7.32	0.00	1.200	1.564	5.00	22.188	26.63	194.8	492.5	3048.7
51.00	Top - Section 1	1.00	1.10	6.678	7.35	0.00	1.200	1.567	1.00	4.373	5.25	38.5	98.2	601.3
55.00		1.00	1.12	6.785	7.46	0.00	1.200	1.579	4.00	17.280	20.74	154.8	387.7	1312.4
60.00		1.00	1.14	6.910	7.60	0.00	1.200	1.592	5.00	21.121	25.34	192.7	476.1	1603.8
65.00		1.00	1.16	7.028	7.73	0.00	1.200	1.605	5.00	20.586	24.70	191.0	467.0	1563.4
70.00		1.00	1.17	7.138	7.85	0.00	1.200	1.617	5.00	20.050	24.06	188.9	457.6	1522.6
75.00		1.00	1.19	7.243	7.97	0.00	1.200	1.628	5.00	19.513	23.42	186.6	447.7	1481.3
80.00		1.00	1.21	7.342	8.08	0.00	1.200	1.639	5.00	18.976	22.77	183.9	437.4	1439.7
85.00	Appurtenance(s)	1.00	1.22	7.436	8.18	0.00	1.200	1.649	5.00	18.438	22.13	181.0	426.9	1397.8
90.00		1.00	1.24	7.526	8.28	0.00	1.200	1.658	5.00	17.900	21.48	177.8	416.0	1355.6
90.75	Bot - Section 3	1.00	1.24	7.539	8.29	0.00	1.200	1.660	0.75	2.638	3.17	26.3	62.2	200.4
95.00		1.00	1.25	7.612	8.37	0.00	1.200	1.667	4.25	14.903	17.88	149.7	348.6	1640.6
95.75	Top - Section 2	1.00	1.25	7.625	8.39	0.00	1.200	1.669	0.75	2.589	3.11	26.1	61.3	285.3
100.00	Appurtenance(s)	1.00	1.27	7.695	8.46	0.00	1.200	1.676	4.25	14.445	17.33	146.7	338.9	843.1
105.00		1.00	1.28	7.774	8.55	0.00	1.200	1.684	5.00	16.496	19.80	169.3	387.2	961.0
110.00		1.00	1.29	7.851	8.64	0.00	1.200	1.692	5.00	15.957	19.15	165.4	375.4	928.3
115.00		1.00	1.30	7.925	8.72	0.00	1.200	1.699	5.00	15.417	18.50	161.3	363.4	895.4
120.00		1.00	1.32	7.996	8.80	0.00	1.200	1.707	5.00	14.877	17.85	157.0	351.2	862.3
125.00		1.00	1.33	8.065	8.87	0.00	1.200	1.714	5.00	14.337	17.20	152.6	338.9	829.1
127.00	Bot - Section 4	1.00	1.33	8.092	8.90	0.00	1.200	1.716	2.00	5.583	6.70	59.6	133.5	323.8
130.00		1.00	1.34	8.132	8.95	0.00	1.200	1.720	3.00	8.308	9.97	89.2	198.2	689.8
130.75	Top - Section 3	1.00	1.34	8.142	8.96	0.00	1.200	1.721	0.75	2.046	2.46	22.0	49.3	170.1
133.00	Appurtenance(s)	1.00	1.34	8.171	8.99	0.00	1.200	1.724	2.25	6.067	7.28	65.4	145.3	299.9
135.00		1.00	1.35	8.197	9.02	0.00	1.200	1.727	2.00	5.301	6.36	57.4	127.1	261.9
140.00		1.00	1.36	8.260	9.09	0.00	1.200	1.733	5.00	12.874	15.45	140.4	305.0	630.9
143.00	Appurtenance(s)	1.00	1.36	8.297	9.13	0.00	1.200	1.737	3.00	7.465	8.96	81.7	178.3	366.4
145.00		1.00	1.37	8.321	9.15	0.00	1.200	1.739	2.00	4.868	5.84	53.5	116.8	239.0
150.00		1.00	1.38	8.381	9.22	0.00	1.200	1.745	5.00	11.793	14.15	130.5	279.0	573.6
154.00	Appurtenance(s)	1.00	1.39	8.427	9.27	0.00	1.200	1.750	4.00	9.044	10.85	100.6	214.8	439.2
155.00		1.00	1.39	8.439	9.28	0.00	1.200	1.751	1.00	2.207	2.65	24.6	53.2	107.7
Totals:									155.00			5,333.6		45,376.1

Discrete Appurtenance Forces

Structure: CT13610-A-SBA	Code: TIA-222-G	6/23/2022
Site Name: ARTEC	Exposure: C	
Height: 155.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



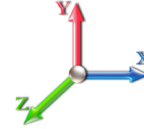
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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 22

Dead Load Factor 1.20

Wind Load Factor 1.00



No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	154.00	4449	3	8.427	9.270	0.54	0.80	3.52	457.42	0.000	0.000	32.63	0.00	0.00
2	154.00	APXVAARR24_43-U-NA2	3	8.427	9.270	0.56	0.80	37.20	1718.32	0.000	0.000	344.88	0.00	0.00
3	154.00	T-Arm	3	8.427	9.270	0.56	0.75	37.65	2039.91	0.000	0.000	349.02	0.00	0.00
4	154.00	KRY 112 144/1	3	8.427	9.270	0.56	0.80	1.49	62.73	0.000	0.000	13.80	0.00	0.00
5	154.00	AIR 21 B4A B2P	3	8.427	9.270	0.69	0.80	14.84	833.70	0.000	0.000	137.57	0.00	0.00
6	154.00	AIR 21 B2A B4P	3	8.427	9.270	0.69	0.80	14.84	837.66	0.000	0.000	137.57	0.00	0.00
7	154.00	(3) T-Arm Kit	1	8.427	9.270	0.75	0.75	24.50	1044.94	0.000	0.000	227.12	0.00	0.00
8	143.00	Ericsson RRUS 11	6	8.297	9.126	0.57	0.80	10.80	897.08	0.000	0.000	98.53	0.00	0.00
9	143.00	Raycap DC6-48-60-18-8F	1	8.297	9.126	0.60	0.80	0.81	81.99	0.000	0.000	7.42	0.00	0.00
10	143.00	Powerwave 7770	6	8.297	9.126	0.58	0.80	22.99	1058.30	0.000	0.000	209.77	0.00	0.00
11	143.00	T-Arm	3	8.297	9.126	0.56	0.75	33.74	2033.71	0.000	0.000	307.90	0.00	0.00
12	143.00	Ericsson RRUS 32 B2	3	8.297	9.126	0.54	0.80	3.58	421.75	0.000	0.000	32.68	0.00	0.00
13	143.00	Powerwave LGP21401	6	8.297	9.126	0.54	0.80	6.82	208.21	0.000	0.000	62.27	0.00	0.00
14	143.00	Powerwave LGP13519	6	8.297	9.126	0.54	0.80	2.55	78.67	0.000	0.000	23.24	0.00	0.00
15	143.00	Cci HPA-65R-BUU-H6	3	8.297	9.126	0.68	0.80	22.48	923.79	0.000	0.000	205.16	0.00	0.00
16	133.00	T-Arm	3	8.171	8.988	0.56	0.75	30.48	1774.23	0.000	0.000	273.97	0.00	0.00
17	133.00	Samsung - RF4440d-13A -	3	8.171	8.988	0.54	0.80	3.90	362.44	0.000	0.000	35.04	0.00	0.00
18	133.00	Samsung - RF4439d-25A -	3	8.171	8.988	0.54	0.80	3.90	350.18	0.000	0.000	35.04	0.00	0.00
19	133.00	LPA-80080-6CF	6	8.171	8.988	1.36	0.80	46.42	859.88	0.000	0.000	417.24	0.00	0.00
20	133.00	SBNHH-1D65B	6	8.171	8.988	0.66	0.80	37.27	1484.76	0.000	0.000	335.01	0.00	0.00
21	133.00	MT6407-77A	3	8.171	8.988	0.56	0.80	9.45	639.28	0.000	0.000	84.94	0.00	0.00
22	133.00	Rfs Celwave -	2	8.171	8.988	0.57	0.80	6.58	230.42	0.000	0.000	59.15	0.00	0.00
23	100.00	MC-PK8-DSH	1	7.695	8.464	1.00	1.00	82.95	3320.17	0.000	0.000	702.10	0.00	0.00
24	100.00	JMA Wireless	3	7.695	8.464	0.55	0.75	23.14	868.54	0.000	0.000	195.85	0.00	0.00
25	100.00	Fujitsu TA08025-B604	3	7.695	8.464	0.50	0.75	3.77	339.59	0.000	0.000	31.88	0.00	0.00
26	100.00	Fujitsu TA08025-B605	3	7.695	8.464	0.50	0.75	3.77	382.88	0.000	0.000	31.88	0.00	0.00
27	100.00	Raycap	1	7.695	8.464	1.00	1.00	2.56	64.71	0.000	0.000	21.63	0.00	0.00
28	85.00	DB408	1	7.521	8.273	1.00	1.00	11.63	111.54	0.000	4.708	96.24	0.00	453.15
29	85.00	SD222	2	7.522	8.274	1.00	1.00	26.09	227.82	0.000	4.750	215.83	0.00	1025.18
30	85.00	SP4-4.7NS RD4	1	7.436	8.180	1.00	1.00	26.19	227.13	0.000	0.000	214.25	0.00	0.00
31	85.00	Pipe Mount	2	7.436	8.180	1.00	1.00	16.60	-541.03	0.000	0.000	135.75	0.00	0.00

Totals: 23,400.71

5,075.42

Total Applied Force Summary

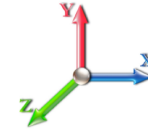
Structure: CT13610-A-SBA	Code: TIA-222-G	6/23/2022
Site Name: ARTEC	Exposure: C	
Height: 155.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 22

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		180.88	2456.35	0.00	0.00
10.00		177.67	2443.72	0.00	0.00
15.00		174.26	2416.98	0.00	0.00
20.00		181.19	2384.02	0.00	0.00
25.00		185.96	2347.46	0.00	0.00
30.00		189.11	2308.51	0.00	0.00
35.00		191.06	2267.85	0.00	0.00
40.00		192.08	2225.88	0.00	0.00
44.75		182.62	2074.93	0.00	0.00
45.00		9.64	168.98	0.00	0.00
50.00		194.77	3336.80	0.00	0.00
51.00		38.54	658.90	0.00	0.00
55.00		154.77	1542.90	0.00	0.00
60.00		192.66	1891.91	0.00	0.00
65.00		190.97	1851.53	0.00	0.00
70.00		188.92	1810.70	0.00	0.00
75.00		186.55	1769.46	0.00	0.00
80.00		183.90	1727.86	0.00	0.00
85.00	(6) attachments	843.05	1711.41	0.00	1478.33
90.00		177.83	1625.01	0.00	0.00
90.75		26.25	240.80	0.00	0.00
95.00		149.75	1869.55	0.00	0.00
95.75		26.06	325.75	0.00	0.00
100.00	(11) attachments	1130.07	6048.00	0.00	0.00
105.00		169.28	1219.47	0.00	0.00
110.00		165.36	1186.77	0.00	0.00
115.00		161.27	1153.88	0.00	0.00
120.00		157.03	1120.81	0.00	0.00
125.00		152.63	1087.57	0.00	0.00
127.00		59.63	427.18	0.00	0.00
130.00		89.18	844.92	0.00	0.00
130.75		21.99	208.89	0.00	0.00
133.00	(26) attachments	1305.84	6117.39	0.00	0.00
135.00		57.35	330.03	0.00	0.00
140.00		140.37	801.32	0.00	0.00
143.00	(34) attachments	1028.73	6172.13	0.00	0.00
145.00		53.47	272.07	0.00	0.00
150.00		130.46	656.15	0.00	0.00
154.00	(19) attachments	1343.22	7499.88	0.00	0.00
155.00		24.58	107.69	0.00	0.00
Totals:		10,408.98	76,711.42	0.00	1,478.33

Calculated Forces

Structure: CT13610-A-SBA
Site Name: ARTEC
Height: 155.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Topography: 1

Code: TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: C - Very Dense Soil
Struct Class: II

6/23/2022

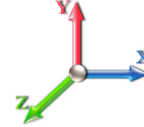
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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 22

Dead Load Factor 1.20
Wind Load Factor 1.00



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 Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-76.71	-10.44	0.00	-1107.6	0.00	1107.64	5604.23	2802.12	13924.9	6972.80	0.00	0.000	0.000	0.173
5.00	-74.24	-10.31	0.00	-1055.4	0.00	1055.46	5529.79	2764.90	13444.5	6732.24	0.02	-0.040	0.000	0.170
10.00	-71.79	-10.18	0.00	-1003.9	0.00	1003.94	5453.38	2726.69	12967.3	6493.32	0.08	-0.080	0.000	0.168
15.00	-69.37	-10.05	0.00	-953.06	0.00	953.06	5374.99	2687.50	12493.8	6256.19	0.19	-0.121	0.000	0.165
20.00	-66.98	-9.91	0.00	-902.82	0.00	902.82	5294.63	2647.32	12024.1	6021.01	0.34	-0.163	0.000	0.163
25.00	-64.62	-9.76	0.00	-853.27	0.00	853.27	5212.30	2606.15	11558.7	5787.94	0.53	-0.205	0.000	0.160
30.00	-62.31	-9.61	0.00	-804.45	0.00	804.45	5128.00	2564.00	11097.7	5557.14	0.77	-0.248	0.000	0.157
35.00	-60.04	-9.46	0.00	-756.39	0.00	756.39	5041.73	2520.86	10641.7	5328.76	1.05	-0.291	0.000	0.154
40.00	-57.80	-9.30	0.00	-709.11	0.00	709.11	4953.48	2476.74	10190.8	5102.98	1.38	-0.335	0.000	0.151
44.75	-55.73	-9.12	0.00	-664.96	0.00	664.96	4867.82	2433.91	9767.51	4891.01	1.74	-0.377	0.000	0.147
45.00	-55.55	-9.13	0.00	-662.68	0.00	662.68	4863.26	2431.63	9745.37	4879.93	1.76	-0.379	0.000	0.147
50.00	-52.21	-8.94	0.00	-617.01	0.00	617.01	4771.07	2385.54	9305.74	4659.79	2.18	-0.423	0.000	0.143
51.00	-51.55	-8.92	0.00	-608.07	0.00	608.07	3927.98	1963.99	7761.51	3886.53	2.27	-0.433	0.000	0.170
55.00	-50.00	-8.79	0.00	-572.40	0.00	572.40	3872.44	1936.22	7486.25	3748.69	2.65	-0.469	0.000	0.166
60.00	-48.11	-8.62	0.00	-528.47	0.00	528.47	3801.23	1900.62	7145.52	3578.07	3.16	-0.519	0.000	0.160
65.00	-46.25	-8.45	0.00	-485.36	0.00	485.36	3728.06	1864.03	6808.79	3409.45	3.73	-0.569	0.000	0.155
70.00	-44.43	-8.28	0.00	-443.10	0.00	443.10	3652.91	1826.46	6476.38	3243.00	4.36	-0.619	0.000	0.149
75.00	-42.66	-8.11	0.00	-401.68	0.00	401.68	3575.79	1787.90	6148.62	3078.88	5.03	-0.669	0.000	0.142
80.00	-40.93	-7.94	0.00	-361.12	0.00	361.12	3496.70	1748.35	5825.81	2917.23	5.76	-0.718	0.000	0.136
85.00	-39.22	-7.77	0.00	-319.92	0.00	319.92	3415.64	1707.82	5508.27	2758.23	6.54	-0.766	0.000	0.127
90.00	-37.60	-6.93	0.00	-284.36	0.00	284.36	3332.60	1666.30	5196.32	2602.02	7.36	-0.813	0.000	0.121
90.75	-37.35	-6.91	0.00	-279.17	0.00	279.17	3319.98	1659.99	5150.02	2578.84	7.49	-0.820	0.000	0.120
95.00	-35.48	-6.75	0.00	-249.78	0.00	249.78	3247.59	1623.80	4890.27	2448.77	8.24	-0.859	0.000	0.113
95.75	-35.15	-6.73	0.00	-244.72	0.00	244.72	1911.44	955.72	2922.15	1463.25	8.38	-0.867	0.000	0.186
100.00	-29.12	-5.54	0.00	-216.10	0.00	216.10	1878.47	939.23	2786.43	1395.29	9.17	-0.905	0.000	0.170
105.00	-27.90	-5.38	0.00	-188.42	0.00	188.42	1837.85	918.92	2627.99	1315.95	10.15	-0.966	0.000	0.158
110.00	-26.71	-5.22	0.00	-161.54	0.00	161.54	1795.26	897.63	2471.18	1237.43	11.19	-1.025	0.000	0.145
115.00	-25.55	-5.06	0.00	-135.45	0.00	135.45	1750.70	875.35	2316.31	1159.88	12.29	-1.081	0.000	0.131
120.00	-24.43	-4.90	0.00	-110.15	0.00	110.15	1704.17	852.08	2163.70	1083.46	13.46	-1.133	0.000	0.116
125.00	-23.34	-4.74	0.00	-85.65	0.00	85.65	1655.66	827.83	2013.66	1008.33	14.67	-1.180	0.000	0.099
127.00	-22.92	-4.68	0.00	-76.17	0.00	76.17	1635.71	817.85	1954.43	978.67	15.17	-1.198	0.000	0.092
130.00	-22.07	-4.58	0.00	-62.13	0.00	62.13	1605.19	802.59	1866.51	934.64	15.93	-1.222	0.000	0.080
130.75	-21.86	-4.56	0.00	-58.69	0.00	58.69	1090.28	545.14	1281.57	641.74	16.12	-1.227	0.000	0.112
133.00	-15.77	-3.12	0.00	-48.44	0.00	48.44	1077.75	538.87	1240.93	621.39	16.70	-1.243	0.000	0.093
135.00	-15.44	-3.07	0.00	-42.20	0.00	42.20	1066.28	533.14	1204.93	603.36	17.23	-1.258	0.000	0.084
140.00	-14.65	-2.91	0.00	-26.87	0.00	26.87	1036.22	518.11	1115.60	558.63	18.56	-1.290	0.000	0.062
143.00	-8.50	-1.75	0.00	-18.13	0.00	18.13	1017.23	508.62	1062.55	532.07	19.38	-1.304	0.000	0.042
145.00	-8.23	-1.69	0.00	-14.64	0.00	14.64	1004.18	502.09	1027.46	514.49	19.93	-1.312	0.000	0.037
150.00	-7.57	-1.54	0.00	-6.20	0.00	6.20	970.18	485.09	940.83	471.12	21.31	-1.324	0.000	0.021
154.00	-0.11	-0.03	0.00	-0.03	0.00	0.03	941.55	470.78	872.83	437.06	22.42	-1.328	0.000	0.000
155.00	0.00	-0.02	0.00	0.00	0.00	0.00	934.20	467.10	856.03	428.65	22.70	-1.328	0.000	0.000

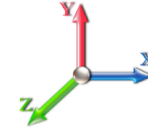
Seismic Segment Forces (Factored)

Structure: CT13610-A-SBA	Code: TIA-222-G	6/23/2022
Site Name: ARTEC	Exposure: C	
Height: 155.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0E				Iterations 21
Gust Response Factor	1.10	Sds	0.26	Ss 0.32
Dead Load Factor	1.20	Seismic Load Factor	1.00	S1 0.10
Wind Load Factor	0.00	Structure Frequency (f1)	0.43	SA 0.05
				Seismic Importance Factor 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1412.4	0.00	0.03	0.02	33.23	
10.00		1382.0	0.01	0.05	0.03	47.67	
15.00		1351.5	0.02	0.06	0.04	54.12	
20.00		1321.0	0.03	0.07	0.04	56.75	
25.00		1290.5	0.05	0.07	0.04	57.62	
30.00		1260.0	0.07	0.07	0.04	57.78	
35.00		1229.6	0.10	0.07	0.04	57.74	
40.00		1199.1	0.13	0.07	0.03	57.60	
44.75	Bot - Section 2	1110.9	0.16	0.07	0.03	54.29	
45.00		107.99	0.16	0.07	0.03	5.28	
50.00		2130.1	0.20	0.06	0.02	104.75	
51.00	Top - Section 1	419.24	0.20	0.06	0.02	20.59	
55.00		770.62	0.24	0.06	0.02	37.18	
60.00		939.77	0.28	0.05	0.01	42.58	
65.00		913.64	0.33	0.04	0.01	36.07	
70.00		887.52	0.39	0.02	0.01	26.63	
75.00		861.39	0.44	0.00	0.01	14.40	
80.00		835.26	0.50	-0.02	0.01	0.42	
85.00	Appurtenance(s)	1040.1	0.57	-0.04	0.01	-17.18	
90.00		783.01	0.64	-0.07	0.02	-24.74	
90.75	Bot - Section 3	115.20	0.65	-0.07	0.02	-3.86	
95.00		1076.6	0.71	-0.09	0.03	-45.57	
95.75	Top - Section 2	186.73	0.72	-0.09	0.03	-8.12	
100.00	Appurtenance(s)	2779.2	0.79	-0.11	0.05	-131.41	
105.00		478.19	0.87	-0.12	0.08	-21.94	
110.00		460.78	0.95	-0.12	0.11	-17.51	
115.00		443.36	1.04	-0.10	0.15	-10.52	
120.00		425.94	1.13	-0.05	0.21	-1.33	
125.00		408.53	1.23	0.03	0.28	9.72	
127.00	Bot - Section 4	158.53	1.27	0.08	0.31	5.76	
130.00		409.66	1.33	0.16	0.36	23.37	
130.75	Top - Section 3	100.70	1.34	0.19	0.38	6.30	
133.00	Appurtenance(s)	2288.5	1.39	0.27	0.42	183.26	
135.00		112.31	1.43	0.35	0.47	10.86	
140.00		271.63	1.54	0.61	0.59	38.83	
143.00	Appurtenance(s)	2403.1	1.61	0.81	0.68	417.88	
145.00		101.86	1.65	0.96	0.75	19.95	
150.00		245.51	1.77	1.41	0.93	62.75	
154.00	Appurtenance(s)	3059.7	1.87	1.85	1.09	943.54	
155.00		45.44	1.89	1.98	1.14	14.65	
Totals:		36,817.8				2,219.4	Total Wind: 39,852.7

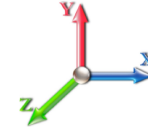
Calculated Forces

Structure: CT13610-A-SBA	Code: TIA-222-G	6/23/2022
Site Name: ARTEC	Exposure: C	
Height: 155.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 22

Load Case: 1.2D + 1.0E										Iterations 21
Gust Response Factor 1.10					Sds 0.26					Ss 0.32
Dead Load Factor 1.20			Seismic Load Factor 1.00			Sd1 0.11			S1 0.10	
Wind Load Factor 0.00		Structure Frequency (f1) 0.43		SA 0.05		Seismic Importance Factor 1.00				



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 Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-52.12	-2.51	0.00	-295.59	0.00	295.59	5604.23	2802.12	13924.9	6972.80	0.00	0.00	0.00	0.052
5.00	-50.13	-2.48	0.00	-283.06	0.00	283.06	5529.79	2764.90	13444.5	6732.24	0.01	-0.01	0.051	
10.00	-48.19	-2.44	0.00	-270.65	0.00	270.65	5453.38	2726.69	12967.3	6493.32	0.02	-0.02	0.051	
15.00	-46.27	-2.40	0.00	-258.44	0.00	258.44	5374.99	2687.50	12493.8	6256.19	0.05	-0.03	0.050	
20.00	-44.40	-2.35	0.00	-246.45	0.00	246.45	5294.63	2647.32	12024.1	6021.01	0.09	-0.04	0.049	
25.00	-42.56	-2.30	0.00	-234.72	0.00	234.72	5212.30	2606.15	11558.7	5787.94	0.14	-0.06	0.049	
30.00	-40.76	-2.25	0.00	-223.23	0.00	223.23	5128.00	2564.00	11097.7	5557.14	0.21	-0.07	0.048	
35.00	-39.00	-2.19	0.00	-212.00	0.00	212.00	5041.73	2520.86	10641.7	5328.76	0.28	-0.08	0.048	
40.00	-37.27	-2.14	0.00	-201.03	0.00	201.03	4953.48	2476.74	10190.8	5102.98	0.37	-0.09	0.047	
44.75	-35.66	-2.09	0.00	-190.86	0.00	190.86	4867.82	2433.91	9767.51	4891.01	0.47	-0.10	0.046	
45.00	-35.52	-2.09	0.00	-190.34	0.00	190.34	4863.26	2431.63	9745.37	4879.93	0.48	-0.10	0.046	
50.00	-32.68	-1.98	0.00	-179.90	0.00	179.90	4771.07	2385.54	9305.74	4659.79	0.59	-0.12	0.045	
51.00	-32.12	-1.96	0.00	-177.92	0.00	177.92	3927.98	1963.99	7761.51	3886.53	0.62	-0.12	0.054	
55.00	-30.96	-1.93	0.00	-170.06	0.00	170.06	3872.44	1936.22	7486.25	3748.69	0.72	-0.13	0.053	
60.00	-29.54	-1.89	0.00	-160.41	0.00	160.41	3801.23	1900.62	7145.52	3578.07	0.87	-0.15	0.053	
65.00	-28.16	-1.86	0.00	-150.94	0.00	150.94	3728.06	1864.03	6808.79	3409.45	1.03	-0.16	0.052	
70.00	-26.80	-1.84	0.00	-141.64	0.00	141.64	3652.91	1826.46	6476.38	3243.00	1.21	-0.18	0.051	
75.00	-25.48	-1.83	0.00	-132.45	0.00	132.45	3575.79	1787.90	6148.62	3078.88	1.40	-0.19	0.050	
80.00	-24.19	-1.83	0.00	-123.32	0.00	123.32	3496.70	1748.35	5825.81	2917.23	1.61	-0.21	0.049	
85.00	-22.65	-1.83	0.00	-114.18	0.00	114.18	3415.64	1707.82	5508.27	2758.23	1.84	-0.23	0.048	
90.00	-21.45	-1.83	0.00	-105.04	0.00	105.04	3332.60	1666.30	5196.32	2602.02	2.08	-0.24	0.047	
90.75	-21.27	-1.83	0.00	-103.67	0.00	103.67	3319.98	1659.99	5150.02	2578.84	2.12	-0.25	0.047	
95.00	-19.75	-1.83	0.00	-95.89	0.00	95.89	3247.59	1623.80	4890.27	2448.77	2.35	-0.26	0.045	
95.75	-19.48	-1.83	0.00	-94.52	0.00	94.52	1911.44	955.72	2922.15	1463.25	2.39	-0.26	0.075	
100.00	-15.92	-1.82	0.00	-86.75	0.00	86.75	1878.47	939.23	2786.43	1395.29	2.63	-0.28	0.071	
105.00	-15.08	-1.82	0.00	-77.66	0.00	77.66	1837.85	918.92	2627.99	1315.95	2.94	-0.30	0.067	
110.00	-14.27	-1.82	0.00	-68.57	0.00	68.57	1795.26	897.63	2471.18	1237.43	3.27	-0.33	0.063	
115.00	-13.48	-1.82	0.00	-59.46	0.00	59.46	1750.70	875.35	2316.31	1159.88	3.62	-0.35	0.059	
120.00	-12.71	-1.82	0.00	-50.35	0.00	50.35	1704.17	852.08	2163.70	1083.46	4.00	-0.38	0.054	
125.00	-11.96	-1.81	0.00	-41.24	0.00	41.24	1655.66	827.83	2013.66	1008.33	4.41	-0.40	0.048	
127.00	-11.67	-1.80	0.00	-37.62	0.00	37.62	1635.71	817.85	1954.43	978.67	4.58	-0.41	0.046	
130.00	-11.02	-1.78	0.00	-32.20	0.00	32.20	1605.19	802.59	1866.51	934.64	4.84	-0.42	0.041	
130.75	-10.86	-1.77	0.00	-30.87	0.00	30.87	1090.28	545.14	1281.57	641.74	4.90	-0.42	0.058	
133.00	-8.00	-1.57	0.00	-26.88	0.00	26.88	1077.75	538.87	1240.93	621.39	5.10	-0.43	0.051	
135.00	-7.80	-1.56	0.00	-23.75	0.00	23.75	1066.28	533.14	1204.93	603.36	5.29	-0.44	0.047	
140.00	-7.30	-1.52	0.00	-15.95	0.00	15.95	1036.22	518.11	1115.60	558.63	5.75	-0.46	0.036	
143.00	-4.32	-1.08	0.00	-11.40	0.00	11.40	1017.23	508.62	1062.55	532.07	6.04	-0.46	0.026	
145.00	-4.16	-1.06	0.00	-9.25	0.00	9.25	1004.18	502.09	1027.46	514.49	6.24	-0.47	0.022	
150.00	-3.78	-0.99	0.00	-3.97	0.00	3.97	970.18	485.09	940.83	471.12	6.74	-0.48	0.012	
154.00	-0.05	-0.02	0.00	-0.02	0.00	0.02	941.55	470.78	872.83	437.06	7.14	-0.48	0.000	
155.00	0.00	-0.01	0.00	0.00	0.00	0.00	934.20	467.10	856.03	428.65	7.24	-0.48	0.000	

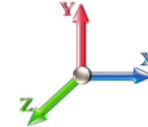
Seismic Segment Forces (Factored)

Structure: CT13610-A-SBA	Code: TIA-222-G	6/23/2022
Site Name: ARTEC	Exposure: C	
Height: 155.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0E				Iterations 21
Gust Response Factor	1.10	Sds	0.26	Ss 0.32
Dead Load Factor	0.90	Seismic Load Factor	1.00	S1 0.10
Wind Load Factor	0.00	Structure Frequency (f1)	0.43	SA 0.05
				Seismic Importance Factor 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1412.4	0.00	0.03	0.02	33.23	
10.00		1382.0	0.01	0.05	0.03	47.67	
15.00		1351.5	0.02	0.06	0.04	54.12	
20.00		1321.0	0.03	0.07	0.04	56.75	
25.00		1290.5	0.05	0.07	0.04	57.62	
30.00		1260.0	0.07	0.07	0.04	57.78	
35.00		1229.6	0.10	0.07	0.04	57.74	
40.00		1199.1	0.13	0.07	0.03	57.60	
44.75	Bot - Section 2	1110.9	0.16	0.07	0.03	54.29	
45.00		107.99	0.16	0.07	0.03	5.28	
50.00		2130.1	0.20	0.06	0.02	104.75	
51.00	Top - Section 1	419.24	0.20	0.06	0.02	20.59	
55.00		770.62	0.24	0.06	0.02	37.18	
60.00		939.77	0.28	0.05	0.01	42.58	
65.00		913.64	0.33	0.04	0.01	36.07	
70.00		887.52	0.39	0.02	0.01	26.63	
75.00		861.39	0.44	0.00	0.01	14.40	
80.00		835.26	0.50	-0.02	0.01	0.42	
85.00	Appurtenance(s)	1040.1	0.57	-0.04	0.01	-17.18	
90.00		783.01	0.64	-0.07	0.02	-24.74	
90.75	Bot - Section 3	115.20	0.65	-0.07	0.02	-3.86	
95.00		1076.6	0.71	-0.09	0.03	-45.57	
95.75	Top - Section 2	186.73	0.72	-0.09	0.03	-8.12	
100.00	Appurtenance(s)	2779.2	0.79	-0.11	0.05	-131.41	
105.00		478.19	0.87	-0.12	0.08	-21.94	
110.00		460.78	0.95	-0.12	0.11	-17.51	
115.00		443.36	1.04	-0.10	0.15	-10.52	
120.00		425.94	1.13	-0.05	0.21	-1.33	
125.00		408.53	1.23	0.03	0.28	9.72	
127.00	Bot - Section 4	158.53	1.27	0.08	0.31	5.76	
130.00		409.66	1.33	0.16	0.36	23.37	
130.75	Top - Section 3	100.70	1.34	0.19	0.38	6.30	
133.00	Appurtenance(s)	2288.5	1.39	0.27	0.42	183.26	
135.00		112.31	1.43	0.35	0.47	10.86	
140.00		271.63	1.54	0.61	0.59	38.83	
143.00	Appurtenance(s)	2403.1	1.61	0.81	0.68	417.88	
145.00		101.86	1.65	0.96	0.75	19.95	
150.00		245.51	1.77	1.41	0.93	62.75	
154.00	Appurtenance(s)	3059.7	1.87	1.85	1.09	943.54	
155.00		45.44	1.89	1.98	1.14	14.65	
Totals:		36,817.8				2,219.4	Total Wind: 39,852.7

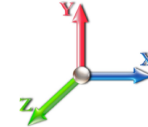
Calculated Forces

Structure: CT13610-A-SBA	Code: TIA-222-G	6/23/2022
Site Name: ARTEC	Exposure: C	
Height: 155.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0E										Iterations 21
Gust Response Factor 1.10					Sds 0.26					Ss 0.32
Dead Load Factor 0.90			Seismic Load Factor 1.00			Sd1 0.11			S1 0.10	
Wind Load Factor 0.00		Structure Frequency (f1) 0.43		SA 0.05		Seismic Importance Factor 1.00				



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 Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-39.09	-2.50	0.00	-293.01	0.00	293.01	5604.23	2802.12	13924.9	6972.80	0.00	0.00	0.00	0.049
5.00	-37.60	-2.48	0.00	-280.49	0.00	280.49	5529.79	2764.90	13444.5	6732.24	0.01	-0.01	0.048	
10.00	-36.14	-2.44	0.00	-268.10	0.00	268.10	5453.38	2726.69	12967.3	6493.32	0.02	-0.02	0.048	
15.00	-34.71	-2.39	0.00	-255.92	0.00	255.92	5374.99	2687.50	12493.8	6256.19	0.05	-0.03	0.047	
20.00	-33.30	-2.34	0.00	-243.97	0.00	243.97	5294.63	2647.32	12024.1	6021.01	0.09	-0.04	0.047	
25.00	-31.92	-2.29	0.00	-232.28	0.00	232.28	5212.30	2606.15	11558.7	5787.94	0.14	-0.05	0.046	
30.00	-30.57	-2.23	0.00	-220.86	0.00	220.86	5128.00	2564.00	11097.7	5557.14	0.21	-0.07	0.046	
35.00	-29.25	-2.18	0.00	-209.69	0.00	209.69	5041.73	2520.86	10641.7	5328.76	0.28	-0.08	0.045	
40.00	-27.95	-2.13	0.00	-198.80	0.00	198.80	4953.48	2476.74	10190.8	5102.98	0.37	-0.09	0.045	
44.75	-26.75	-2.07	0.00	-188.70	0.00	188.70	4867.82	2433.91	9767.51	4891.01	0.47	-0.10	0.044	
45.00	-26.64	-2.07	0.00	-188.18	0.00	188.18	4863.26	2431.63	9745.37	4879.93	0.47	-0.10	0.044	
50.00	-24.51	-1.96	0.00	-177.84	0.00	177.84	4771.07	2385.54	9305.74	4659.79	0.59	-0.12	0.043	
51.00	-24.09	-1.95	0.00	-175.87	0.00	175.87	3927.98	1963.99	7761.51	3886.53	0.61	-0.12	0.051	
55.00	-23.22	-1.91	0.00	-168.09	0.00	168.09	3872.44	1936.22	7486.25	3748.69	0.72	-0.13	0.051	
60.00	-22.16	-1.87	0.00	-158.53	0.00	158.53	3801.23	1900.62	7145.52	3578.07	0.86	-0.14	0.050	
65.00	-21.12	-1.84	0.00	-149.17	0.00	149.17	3728.06	1864.03	6808.79	3409.45	1.02	-0.16	0.049	
70.00	-20.10	-1.82	0.00	-139.97	0.00	139.97	3652.91	1826.46	6476.38	3243.00	1.19	-0.17	0.049	
75.00	-19.11	-1.80	0.00	-130.90	0.00	130.90	3575.79	1787.90	6148.62	3078.88	1.39	-0.19	0.048	
80.00	-18.14	-1.80	0.00	-121.88	0.00	121.88	3496.70	1748.35	5825.81	2917.23	1.59	-0.21	0.047	
85.00	-16.99	-1.81	0.00	-112.86	0.00	112.86	3415.64	1707.82	5508.27	2758.23	1.82	-0.22	0.046	
90.00	-16.08	-1.80	0.00	-103.84	0.00	103.84	3332.60	1666.30	5196.32	2602.02	2.06	-0.24	0.045	
90.75	-15.95	-1.81	0.00	-102.48	0.00	102.48	3319.98	1659.99	5150.02	2578.84	2.10	-0.24	0.045	
95.00	-14.81	-1.80	0.00	-94.81	0.00	94.81	3247.59	1623.80	4890.27	2448.77	2.32	-0.26	0.043	
95.75	-14.61	-1.80	0.00	-93.45	0.00	93.45	1911.44	955.72	2922.15	1463.25	2.36	-0.26	0.072	
100.00	-11.93	-1.80	0.00	-85.79	0.00	85.79	1878.47	939.23	2786.43	1395.29	2.60	-0.28	0.068	
105.00	-11.31	-1.80	0.00	-76.80	0.00	76.80	1837.85	918.92	2627.99	1315.95	2.90	-0.30	0.065	
110.00	-10.70	-1.80	0.00	-67.81	0.00	67.81	1795.26	897.63	2471.18	1237.43	3.23	-0.32	0.061	
115.00	-10.11	-1.80	0.00	-58.82	0.00	58.82	1750.70	875.35	2316.31	1159.88	3.58	-0.35	0.056	
120.00	-9.53	-1.80	0.00	-49.82	0.00	49.82	1704.17	852.08	2163.70	1083.46	3.96	-0.37	0.052	
125.00	-8.97	-1.79	0.00	-40.82	0.00	40.82	1655.66	827.83	2013.66	1008.33	4.36	-0.39	0.046	
127.00	-8.75	-1.78	0.00	-37.24	0.00	37.24	1635.71	817.85	1954.43	978.67	4.53	-0.40	0.043	
130.00	-8.26	-1.76	0.00	-31.89	0.00	31.89	1605.19	802.59	1866.51	934.64	4.78	-0.41	0.039	
130.75	-8.14	-1.75	0.00	-30.57	0.00	30.57	1090.28	545.14	1281.57	641.74	4.85	-0.42	0.055	
133.00	-6.00	-1.55	0.00	-26.63	0.00	26.63	1077.75	538.87	1240.93	621.39	5.05	-0.42	0.048	
135.00	-5.84	-1.54	0.00	-23.53	0.00	23.53	1066.28	533.14	1204.93	603.36	5.23	-0.43	0.044	
140.00	-5.47	-1.50	0.00	-15.81	0.00	15.81	1036.22	518.11	1115.60	558.63	5.69	-0.45	0.034	
143.00	-3.23	-1.07	0.00	-11.31	0.00	11.31	1017.23	508.62	1062.55	532.07	5.98	-0.46	0.024	
145.00	-3.12	-1.05	0.00	-9.17	0.00	9.17	1004.18	502.09	1027.46	514.49	6.17	-0.46	0.021	
150.00	-2.84	-0.98	0.00	-3.94	0.00	3.94	970.18	485.09	940.83	471.12	6.66	-0.47	0.011	
154.00	-0.04	-0.01	0.00	-0.01	0.00	0.01	941.55	470.78	872.83	437.06	7.06	-0.47	0.000	
155.00	0.00	-0.01	0.00	0.00	0.00	0.00	934.20	467.10	856.03	428.65	7.16	-0.47	0.000	

Wind Loading - Shaft

Structure: CT13610-A-SBA	Code: TIA-222-G	6/23/2022
Site Name: ARTEC	Exposure: C	
Height: 155.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 22

Dead Load Factor 1.00

Wind Load Factor 1.00



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	7.442	8.19	284.93	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	278.89	0.650	0.000	5.00	25.481	16.56	135.6	0.0	1412.5
10.00		1.00	0.85	7.442	8.19	272.85	0.650	0.000	5.00	24.935	16.21	132.7	0.0	1382.0
15.00		1.00	0.85	7.442	8.19	266.81	0.650	0.000	5.00	24.389	15.85	129.8	0.0	1351.5
20.00		1.00	0.90	7.896	8.69	268.61	0.650	0.000	5.00	23.843	15.50	134.6	0.0	1321.0
25.00		1.00	0.95	8.276	9.10	268.63	0.650	0.000	5.00	23.297	15.14	137.9	0.0	1290.6
30.00		1.00	0.98	8.600	9.46	267.34	0.650	0.000	5.00	22.752	14.79	139.9	0.0	1260.1
35.00		1.00	1.01	8.883	9.77	265.11	0.650	0.000	5.00	22.206	14.43	141.0	0.0	1229.6
40.00		1.00	1.04	9.137	10.05	262.18	0.650	0.000	5.00	21.660	14.08	141.5	0.0	1199.1
44.75	Bot - Section 2	1.00	1.07	9.355	10.29	258.86	0.650	0.000	4.75	20.071	13.05	134.3	0.0	1110.9
45.00		1.00	1.07	9.366	10.30	258.67	0.650	0.000	0.25	1.059	0.69	7.1	0.0	108.0
50.00		1.00	1.09	9.576	10.53	254.71	0.650	0.000	5.00	20.885	13.58	143.0	0.0	2130.2
51.00	Top - Section 1	1.00	1.10	9.616	10.58	253.86	0.650	0.000	1.00	4.112	2.67	28.3	0.0	419.2
55.00		1.00	1.12	9.770	10.75	254.38	0.650	0.000	4.00	16.228	10.55	113.4	0.0	770.6
60.00		1.00	1.14	9.951	10.95	249.73	0.650	0.000	5.00	19.794	12.87	140.8	0.0	939.8
65.00		1.00	1.16	10.120	11.13	244.80	0.650	0.000	5.00	19.248	12.51	139.3	0.0	913.6
70.00		1.00	1.17	10.279	11.31	239.62	0.650	0.000	5.00	18.702	12.16	137.5	0.0	887.5
75.00		1.00	1.19	10.430	11.47	234.22	0.650	0.000	5.00	18.156	11.80	135.4	0.0	861.4
80.00		1.00	1.21	10.572	11.63	228.62	0.650	0.000	5.00	17.610	11.45	133.1	0.0	835.3
85.00	Appurtenance(s)	1.00	1.22	10.708	11.78	222.84	0.650	0.000	5.00	17.064	11.09	130.6	0.0	809.1
90.00		1.00	1.24	10.838	11.92	216.90	0.650	0.000	5.00	16.519	10.74	128.0	0.0	783.0
90.75	Bot - Section 3	1.00	1.24	10.857	11.94	215.99	0.650	0.000	0.75	2.431	1.58	18.9	0.0	115.2
95.00		1.00	1.25	10.962	12.06	210.80	0.650	0.000	4.25	13.722	8.92	107.5	0.0	1076.7
95.75	Top - Section 2	1.00	1.25	10.980	12.08	209.88	0.650	0.000	0.75	2.381	1.55	18.7	0.0	186.7
100.00	Appurtenance(s)	1.00	1.27	11.081	12.19	207.43	0.650	0.000	4.25	13.258	8.62	105.0	0.0	420.2
105.00		1.00	1.28	11.195	12.31	201.09	0.650	0.000	5.00	15.092	9.81	120.8	0.0	478.2
110.00		1.00	1.29	11.305	12.44	194.64	0.650	0.000	5.00	14.547	9.46	117.6	0.0	460.8
115.00		1.00	1.30	11.412	12.55	188.07	0.650	0.000	5.00	14.001	9.10	114.2	0.0	443.4
120.00		1.00	1.32	11.514	12.67	181.40	0.650	0.000	5.00	13.455	8.75	110.8	0.0	425.9
125.00		1.00	1.33	11.614	12.78	174.64	0.650	0.000	5.00	12.909	8.39	107.2	0.0	408.5
127.00	Bot - Section 4	1.00	1.33	11.653	12.82	171.91	0.650	0.000	2.00	5.011	3.26	41.7	0.0	158.5
130.00		1.00	1.34	11.710	12.88	167.79	0.650	0.000	3.00	7.448	4.84	62.4	0.0	409.7
130.75	Top - Section 3	1.00	1.34	11.724	12.90	166.75	0.650	0.000	0.75	1.831	1.19	15.4	0.0	100.7
133.00	Appurtenance(s)	1.00	1.34	11.766	12.94	165.84	0.650	0.000	2.25	5.420	3.52	45.6	0.0	128.8
135.00		1.00	1.35	11.803	12.98	163.06	0.650	0.000	2.00	4.725	3.07	39.9	0.0	112.3
140.00		1.00	1.36	11.894	13.08	156.05	0.650	0.000	5.00	11.430	7.43	97.2	0.0	271.6
143.00	Appurtenance(s)	1.00	1.36	11.947	13.14	151.81	0.650	0.000	3.00	6.596	4.29	56.3	0.0	156.7
145.00		1.00	1.37	11.982	13.18	148.97	0.650	0.000	2.00	4.288	2.79	36.7	0.0	101.9
150.00		1.00	1.38	12.068	13.27	141.81	0.650	0.000	5.00	10.338	6.72	89.2	0.0	245.5
154.00	Appurtenance(s)	1.00	1.39	12.135	13.35	136.03	0.650	0.000	4.00	7.878	5.12	68.4	0.0	187.0
155.00		1.00	1.39	12.152	13.37	134.58	0.650	0.000	1.00	1.915	1.24	16.6	0.0	45.4
Totals:								155.00			3,853.8	26,948.9		

Discrete Appurtenance Forces

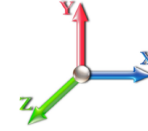
Structure: CT13610-A-SBA	Code: TIA-222-G	6/23/2022
Site Name: ARTEC	Exposure: C	
Height: 155.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 22

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	154.00	4449	3	12.135	13.349	0.54	0.80	2.65	210.00	0.000	0.000	35.42	0.00	0.00
2	154.00	APXVAARR24_43-U-NA2	3	12.135	13.349	0.56	0.80	34.00	384.00	0.000	0.000	453.90	0.00	0.00
3	154.00	T-Arm	3	12.135	13.349	0.56	0.75	20.08	1200.00	0.000	0.000	268.06	0.00	0.00
4	154.00	KRY 112 144/1	3	12.135	13.349	0.54	0.80	0.66	33.00	0.000	0.000	8.80	0.00	0.00
5	154.00	AIR 21 B4A B2P	3	12.135	13.349	0.69	0.80	12.57	271.20	0.000	0.000	167.79	0.00	0.00
6	154.00	AIR 21 B2A B4P	3	12.135	13.349	0.69	0.80	12.57	274.50	0.000	0.000	167.79	0.00	0.00
7	154.00	(3) T-Arm Kit	1	12.135	13.349	0.75	0.75	12.38	500.00	0.000	0.000	165.19	0.00	0.00
8	143.00	Ericsson RRUS 11	6	11.947	13.142	0.57	0.80	8.59	304.20	0.000	0.000	112.87	0.00	0.00
9	143.00	Raycap DC6-48-60-18-8F	1	11.947	13.142	0.60	0.80	0.55	31.80	0.000	0.000	7.25	0.00	0.00
10	143.00	Powerwave 7770	6	11.947	13.142	0.58	0.80	19.27	210.00	0.000	0.000	253.27	0.00	0.00
11	143.00	T-Arm	3	11.947	13.142	0.56	0.75	18.06	1200.00	0.000	0.000	237.30	0.00	0.00
12	143.00	Ericsson RRUS 32 B2	3	11.947	13.142	0.54	0.80	2.65	231.00	0.000	0.000	34.87	0.00	0.00
13	143.00	Powerwave LGP21401	6	11.947	13.142	0.54	0.80	4.15	84.60	0.000	0.000	54.52	0.00	0.00
14	143.00	Powerwave LGP13519	6	11.947	13.142	0.54	0.80	1.09	31.80	0.000	0.000	14.37	0.00	0.00
15	143.00	Cci HPA-65R-BUU-H6	3	11.947	13.142	0.68	0.80	19.71	153.00	0.000	0.000	258.98	0.00	0.00
16	133.00	T-Arm	3	11.766	12.943	0.56	0.75	16.37	1050.00	0.000	0.000	211.86	0.00	0.00
17	133.00	Samsung - RF4440d-13A -	3	11.766	12.943	0.54	0.80	3.02	210.90	0.000	0.000	39.13	0.00	0.00
18	133.00	Samsung - RF4439d-25A -	3	11.766	12.943	0.54	0.80	3.02	253.20	0.000	0.000	39.13	0.00	0.00
19	133.00	LPA-80080-6CF	6	11.766	12.943	1.36	0.80	35.33	126.00	0.000	0.000	457.31	0.00	0.00
20	133.00	SBNHH-1D65B	6	11.766	12.943	0.66	0.80	32.19	243.60	0.000	0.000	416.65	0.00	0.00
21	133.00	MT6407-77A	3	11.766	12.943	0.56	0.80	7.88	238.20	0.000	0.000	101.98	0.00	0.00
22	133.00	Rfs Celwave -	2	11.766	12.943	0.57	0.80	5.45	37.80	0.000	0.000	70.58	0.00	0.00
23	100.00	MC-PK8-DSH	1	11.081	12.189	1.00	1.00	37.59	1727.00	0.000	0.000	458.18	0.00	0.00
24	100.00	JMA Wireless	3	11.081	12.189	0.55	0.75	20.80	193.50	0.000	0.000	253.48	0.00	0.00
25	100.00	Fujitsu TA08025-B604	3	11.081	12.189	0.50	0.75	2.95	191.70	0.000	0.000	36.01	0.00	0.00
26	100.00	Fujitsu TA08025-B605	3	11.081	12.189	0.50	0.75	2.95	225.00	0.000	0.000	36.01	0.00	0.00
27	100.00	Raycap	1	11.081	12.189	1.00	1.00	2.01	21.90	0.000	0.000	24.50	0.00	0.00
28	85.00	DB408	1	10.830	11.913	1.00	1.00	2.90	17.00	0.000	4.708	34.55	0.00	162.67
29	85.00	SD222	2	10.831	11.914	1.00	1.00	10.60	34.00	0.000	4.750	126.29	0.00	599.89
30	85.00	SP4-4.7NS RD4	1	10.708	11.779	1.00	1.00	23.14	60.00	0.000	0.000	272.56	0.00	0.00
31	85.00	Pipe Mount	2	10.708	11.779	1.00	1.00	10.00	120.00	0.000	0.000	117.79	0.00	0.00

Totals: 9,868.90 4,936.39

Total Applied Force Summary

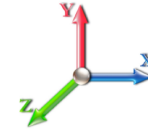
Structure: CT13610-A-SBA	Code: TIA-222-G	6/23/2022
Site Name: ARTEC	Exposure: C	
Height: 155.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 22

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		135.58	1652.58	0.00	0.00
10.00		132.68	1622.10	0.00	0.00
15.00		129.77	1591.62	0.00	0.00
20.00		134.61	1561.14	0.00	0.00
25.00		137.86	1530.66	0.00	0.00
30.00		139.90	1500.18	0.00	0.00
35.00		141.04	1469.70	0.00	0.00
40.00		141.50	1439.22	0.00	0.00
44.75		134.26	1339.03	0.00	0.00
45.00		7.09	120.00	0.00	0.00
50.00		143.00	2370.28	0.00	0.00
51.00		28.27	467.26	0.00	0.00
55.00		113.36	962.70	0.00	0.00
60.00		140.83	1179.87	0.00	0.00
65.00		139.27	1153.74	0.00	0.00
70.00		137.45	1127.62	0.00	0.00
75.00		135.39	1101.49	0.00	0.00
80.00		133.12	1075.36	0.00	0.00
85.00	(6) attachments	681.84	1280.24	0.00	762.56
90.00		128.00	1007.51	0.00	0.00
90.75		18.87	148.87	0.00	0.00
95.00		107.55	1267.48	0.00	0.00
95.75		18.69	220.41	0.00	0.00
100.00	(11) attachments	913.22	2970.08	0.00	0.00
105.00		120.81	693.59	0.00	0.00
110.00		117.58	676.18	0.00	0.00
115.00		114.24	658.76	0.00	0.00
120.00		110.77	641.34	0.00	0.00
125.00		107.19	623.93	0.00	0.00
127.00		41.75	244.69	0.00	0.00
130.00		62.36	538.90	0.00	0.00
130.75		15.35	133.01	0.00	0.00
133.00	(26) attachments	1382.23	2385.48	0.00	0.00
135.00		39.88	169.11	0.00	0.00
140.00		97.21	413.63	0.00	0.00
143.00	(34) attachments	1029.78	2488.31	0.00	0.00
145.00		36.74	129.38	0.00	0.00
150.00		89.21	314.31	0.00	0.00
154.00	(19) attachments	1335.30	3114.74	0.00	0.00
155.00		16.64	45.44	0.00	0.00
Totals:		8,790.18	43,429.97	0.00	762.56

Calculated Forces

Structure: CT13610-A-SBA
Site Name: ARTEC
Height: 155.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Code: TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: C - Very Dense Soil
Struct Class: II

6/23/2022



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Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 22

Dead Load Factor 1.00
Wind Load Factor 1.00



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 Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-43.43	-8.80	0.00	-951.11	0.00	951.11	5604.23	2802.12	13924.9	6972.80	0.00	0.000	0.000	0.144
5.00	-41.77	-8.69	0.00	-907.10	0.00	907.10	5529.79	2764.90	13444.5	6732.24	0.02	-0.034	0.000	0.142
10.00	-40.14	-8.58	0.00	-863.64	0.00	863.64	5453.38	2726.69	12967.3	6493.32	0.07	-0.069	0.000	0.140
15.00	-38.55	-8.47	0.00	-820.73	0.00	820.73	5374.99	2687.50	12493.8	6256.19	0.16	-0.104	0.000	0.138
20.00	-36.98	-8.36	0.00	-778.36	0.00	778.36	5294.63	2647.32	12024.1	6021.01	0.29	-0.140	0.000	0.136
25.00	-35.44	-8.24	0.00	-736.56	0.00	736.56	5212.30	2606.15	11558.7	5787.94	0.46	-0.176	0.000	0.134
30.00	-33.94	-8.12	0.00	-695.36	0.00	695.36	5128.00	2564.00	11097.7	5557.14	0.66	-0.213	0.000	0.132
35.00	-32.46	-7.99	0.00	-654.78	0.00	654.78	5041.73	2520.86	10641.7	5328.76	0.91	-0.251	0.000	0.129
40.00	-31.02	-7.86	0.00	-614.82	0.00	614.82	4953.48	2476.74	10190.8	5102.98	1.19	-0.289	0.000	0.127
44.75	-29.68	-7.73	0.00	-577.47	0.00	577.47	4867.82	2433.91	9767.51	4891.01	1.50	-0.325	0.000	0.124
45.00	-29.56	-7.73	0.00	-575.54	0.00	575.54	4863.26	2431.63	9745.37	4879.93	1.51	-0.327	0.000	0.124
50.00	-27.18	-7.59	0.00	-536.87	0.00	536.87	4771.07	2385.54	9305.74	4659.79	1.88	-0.366	0.000	0.121
51.00	-26.72	-7.57	0.00	-529.28	0.00	529.28	3927.98	1963.99	7761.51	3886.53	1.95	-0.374	0.000	0.143
55.00	-25.75	-7.46	0.00	-499.02	0.00	499.02	3872.44	1936.22	7486.25	3748.69	2.28	-0.405	0.000	0.140
60.00	-24.56	-7.33	0.00	-461.70	0.00	461.70	3801.23	1900.62	7145.52	3578.07	2.73	-0.449	0.000	0.136
65.00	-23.41	-7.20	0.00	-425.04	0.00	425.04	3728.06	1864.03	6808.79	3409.45	3.22	-0.493	0.000	0.131
70.00	-22.27	-7.07	0.00	-389.03	0.00	389.03	3652.91	1826.46	6476.38	3243.00	3.76	-0.537	0.000	0.126
75.00	-21.17	-6.94	0.00	-353.68	0.00	353.68	3575.79	1787.90	6148.62	3078.88	4.35	-0.580	0.000	0.121
80.00	-20.09	-6.81	0.00	-318.98	0.00	318.98	3496.70	1748.35	5825.81	2917.23	4.98	-0.623	0.000	0.115
85.00	-18.81	-6.13	0.00	-284.16	0.00	284.16	3415.64	1707.82	5508.27	2758.23	5.66	-0.666	0.000	0.109
90.00	-17.80	-6.00	0.00	-253.51	0.00	253.51	3332.60	1666.30	5196.32	2602.02	6.38	-0.708	0.000	0.103
90.75	-17.65	-5.98	0.00	-249.01	0.00	249.01	3319.98	1659.99	5150.02	2578.84	6.49	-0.714	0.000	0.102
95.00	-16.39	-5.86	0.00	-223.59	0.00	223.59	3247.59	1623.80	4890.27	2448.77	7.14	-0.750	0.000	0.096
95.75	-16.16	-5.85	0.00	-219.19	0.00	219.19	1911.44	955.72	2922.15	1463.25	7.26	-0.756	0.000	0.158
100.00	-13.20	-4.91	0.00	-194.33	0.00	194.33	1878.47	939.23	2786.43	1395.29	7.95	-0.790	0.000	0.146
105.00	-12.51	-4.79	0.00	-169.81	0.00	169.81	1837.85	918.92	2627.99	1315.95	8.80	-0.845	0.000	0.136
110.00	-11.83	-4.67	0.00	-145.87	0.00	145.87	1795.26	897.63	2471.18	1237.43	9.72	-0.898	0.000	0.124
115.00	-11.17	-4.55	0.00	-122.52	0.00	122.52	1750.70	875.35	2316.31	1159.88	10.69	-0.949	0.000	0.112
120.00	-10.52	-4.44	0.00	-99.75	0.00	99.75	1704.17	852.08	2163.70	1083.46	11.71	-0.996	0.000	0.098
125.00	-9.90	-4.33	0.00	-77.55	0.00	77.55	1655.66	827.83	2013.66	1008.33	12.77	-1.039	0.000	0.083
127.00	-9.65	-4.28	0.00	-68.89	0.00	68.89	1635.71	817.85	1954.43	978.67	13.21	-1.055	0.000	0.076
130.00	-9.12	-4.21	0.00	-56.04	0.00	56.04	1605.19	802.59	1866.51	934.64	13.88	-1.076	0.000	0.066
130.75	-8.98	-4.20	0.00	-52.88	0.00	52.88	1090.28	545.14	1281.57	641.74	14.05	-1.082	0.000	0.091
133.00	-6.62	-2.77	0.00	-43.43	0.00	43.43	1077.75	538.87	1240.93	621.39	14.57	-1.095	0.000	0.076
135.00	-6.45	-2.73	0.00	-37.88	0.00	37.88	1066.28	533.14	1204.93	603.36	15.03	-1.109	0.000	0.069
140.00	-6.04	-2.63	0.00	-24.23	0.00	24.23	1036.22	518.11	1115.60	558.63	16.21	-1.138	0.000	0.049
143.00	-3.57	-1.55	0.00	-16.34	0.00	16.34	1017.23	508.62	1062.55	532.07	16.93	-1.151	0.000	0.034
145.00	-3.44	-1.51	0.00	-13.24	0.00	13.24	1004.18	502.09	1027.46	514.49	17.41	-1.157	0.000	0.029
150.00	-3.13	-1.42	0.00	-5.68	0.00	5.68	970.18	485.09	940.83	471.12	18.63	-1.169	0.000	0.015
154.00	-0.05	-0.02	0.00	-0.02	0.00	0.02	941.55	470.78	872.83	437.06	19.61	-1.172	0.000	0.000
155.00	0.00	-0.02	0.00	0.00	0.00	0.00	934.20	467.10	856.03	428.65	19.86	-1.172	0.000	0.000

Final Analysis Summary

Structure: CT13610-A-SBA	Code: TIA-222-G	6/23/2022
Site Name: ARTEC	Exposure: C	
Height: 155.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 101 mph Wind	39.9	0.00	52.06	0.00	0.00	4330.55
0.9D + 1.6W 101 mph Wind	39.9	0.00	39.03	0.00	0.00	4296.68
1.2D + 1.0Di + 1.0Wi 50 mph Wind	10.4	0.00	76.71	0.00	0.00	1107.64
1.2D + 1.0E	2.5	0.00	52.12	0.00	0.00	295.59
0.9D + 1.0E	2.5	0.00	39.09	0.00	0.00	293.01
1.0D + 1.0W 60 mph Wind	8.8	0.00	43.43	0.00	0.00	951.11

Max Stresses

Load Case	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)	Elev (ft)	Stress Ratio
1.2D + 1.6W 101 mph Wind	-17.88	-26.68	0.00	-999.59	0.00	-999.59	1911.44	955.72	2922.15	1463.25	95.75	0.693
0.9D + 1.6W 101 mph Wind	-13.04	-26.37	0.00	-986.75	0.00	-986.75	1911.44	955.72	2922.15	1463.25	95.75	0.682
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-35.15	-6.73	0.00	-244.72	0.00	-244.72	1911.44	955.72	2922.15	1463.25	95.75	0.186
1.2D + 1.0E	-19.48	-1.83	0.00	-94.52	0.00	-94.52	1911.44	955.72	2922.15	1463.25	95.75	0.075
0.9D + 1.0E	-14.61	-1.80	0.00	-93.45	0.00	-93.45	1911.44	955.72	2922.15	1463.25	95.75	0.072
1.0D + 1.0W 60 mph Wind	-16.16	-5.85	0.00	-219.19	0.00	-219.19	1911.44	955.72	2922.15	1463.25	95.75	0.158

Base Plate Summary

Structure: CT13610-A-SB	Code: TIA-222-G	6/23/2022
Site Name: ARTEC	Exposure: C	
Height: 155.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II
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Reactions	Base Plate	Anchor Bolts
Original Design	Yield (ksi): 50.00	Bolt Circle: 68.00
Moment (kip-ft): 5060.00	Width (in): 70.00	Number Bolts: 24.00
Axial (kip): 30.00	Style: Clipped	Bolt Type: 2.25" 18J
Shear (kip): 45.00	Polygon Sides: 0.00	Bolt Diameter (in): 2.25
Analysis (1.2D + 1.6W)	Clip Length (in): 15.00	Yield (ksi): 75.00
Moment (kip-ft): 4330.55	Effective Len (in): 7.89	Ultimate (ksi): 100.00
Axial (kip): 52.06	Moment (kip-in): 465.47	Arrangement: Clustered
Shear (kip): 39.92	Allow Stress (ksi): 67.50	Cluster Dist (in): 6.00
	Applied Stress (ksi): 39.15	Start Angle (deg): 45.00
	Stress Ratio: 0.58	Compression
		Force (kip): 130.57
		Allowable (kip): 260.00
		Ratio: 0.51
		Tension
		Force (kip): 124.17
		Allowable (kip): 260.00
		Ratio: 0.49



Monopole Mat Foundation Design

Date
6/23/2022

Customer Name:	Dish Wireless	TIA Standard:	TIA-222-G
Site Name:		Structure Height (Ft.):	155
Site Number:	CT13610-A-SBA	Engineer Name:	M. Al Rubayee
Engr. Number:	130852	Engineer Login ID:	

Foundation Info Obtained from:

Drawings/Calculations
Monopole
Analysis

Structure Type:

Analysis or Design?

Base Reactions (Factored):

Axial Load (Kips):	52.1	Shear Force (Kips):	39.9
Uplift Force (Kips):	0.0	Moment (Kips-ft):	4330.5

Allowable overstress %: 5.0%

Foundation Geometries:

Diameter of Pier (ft.):	8.0	Depth of Base BG (ft.):	6.0	Mods required -Yes/No ?:	No
Pier Height A. G. (ft.):	0.50	Thickness of Pad (ft.):	4.00		
Length of Pad (ft.):	33.5	Width of Pad (ft.):	33.5		
Final Length of pad (ft)	33.5	Final width of pad (ft):	33.5		

Material Properties and Rebar Info:

Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	11	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	40	Tie Spacing (in):	8.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	11	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf

Rebar at the bottom of the concrete pad:

Qty. of Rebar in Pad (L):	33	Qty. of Rebar in Pad (W):	33
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Rebar at the top of the concrete pad:

Qty. of Rebar in Pad (L):	33	Qty. of Rebar in Pad (W):	33
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Apply 1.35 factor for e/w Per G: 1.35

Soil Design Parameters:

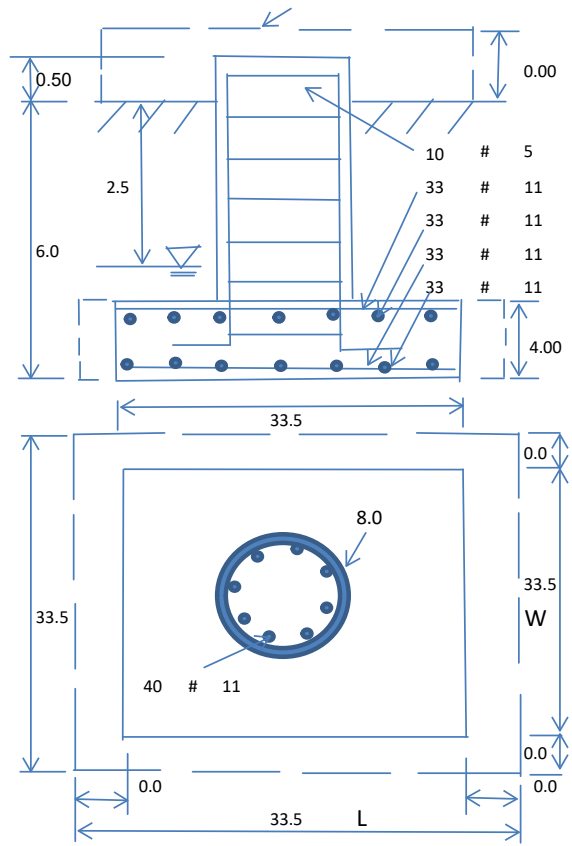
Soil Unit Weight (pcf):	115.0	Soil Buoyant Weight:	50.0	Pcf	Angle from Top of Pad:	30
Water Table B.G.S. (ft):	2.5	Unit Weight of Water:	62.4	pcf	Angle from Bottm of Pad:	25
Ultimate Bearing Pressure (psf):	21333	Ultimate Skin Friction:	0	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No		Reduction factor on the maximum soil bearing pressure:	1.00
Consider soil hor. resist. for OTM.:	NO					

Foundation Analysis and Design:

Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.75
Total Dry Soil Volume (cu. Ft.):	2143.97	Total Dry Soil Weight (Kips):	246.56
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	246.56	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	686.79	Total Dry Concrete Weight (Kips):	103.02
Total Buoyant Concrete Volume (cu. Ft.):	3927.88	Total Buoyant Concrete Weight (Kips):	344.08
Total Effective Concrete Weight (Kips):	447.10	Total Vertical Load on Base (Kips):	745.76

Check Soil Capacities:

Calculated Maxium Net Soil Pressure under the base (psf):	1400	<	Allowable Factored Soil Bearing (psf):	16000	0.09	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	11329.5	>	Design Factored Momont (kips-ft):	4590	0.41	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	2.47					OK!



Check the capacities of Reinforcing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75
Strength reduction factor (Axial compression):	0.65	Wind Load Factor on Concrete Design:	1.00

Load/
Capacity
Ratio

(1) Concrete Pier:

Vertical Steel Rebar Area (sq. in./each):	1.56	Tie / Stirrup Area (sq. in./each):	0.31		
Calculated Moment Capacity (Mn,Kips-Ft):	11470.4	> Design Factored Moment (Mu, Kips-F	4430.3	0.39	OK!
Calculated Shear Capacity (Kips):	951.8	> Design Factored Shear (Kips):	39.9	0.04	OK!
Calculated Tension Capacity (Tn, Kips):	3369.6	> Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	9515.1	> Design Factored Axial Load (Pu Kips):	52.1	0.01	OK!
Moment & Axial Strength Combination:	0.39	OK! Check Tie Spacing (Design/Required):		0.6667	OK!
Pier Reinforcement Ratio:	0.009	Reinforcement Ratio is satisfied per ACI			

(2).Concrete Pad:

One-Way Design Shear Capacity (L-Direction, Kips):	1463.5	> One-Way Factored Shear (L-D. Kips):	251.3	0.17	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	1463.5	> One-Way Factored Shear (W-D., Kips)	251.3	0.17	OK!
One-Way Design Shear Capacity (Corner-Corner, Kips):	1397.6	> One-Way Factored Shear (C-C, Kips):	240.0	0.17	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0029	OK! Lower Steel Pad Reinf. Ratio (W-Direc	0.0029		
Lower Steel Pad Moment Capacity (L-Direction, Kips-ft):	9916.4	> Moment at Bottom (L-Dir. K-Ft):	1957.1	0.20	OK!
Lower Steel Pad Moment Capacity (W-Direction, Kips-ft):	9916.4	> Moment at Bottom (W-Dir. K-Ft):	1957.1	0.20	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	13923.7	> Moment at Bottom (C-C Dir. K-Ft):	2767.7	0.20	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0029	OK! Upper Steel Reinf. Ratio (W-Dir.):	0.0029		
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	9916.4	> Moment at the top (L-Dir K-Ft):	635.4	0.06	OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	9916.4	> Moment at the top (W-Dir K-Ft):	635.4	0.06	OK!
Upper Steel Pad Moment Capacity (Corner-Corner, K-ft):	13923.7	> Moment at the top (C-C Dir. K-Ft):	593.6	0.04	OK!

(3).Check Punching Shear Capacity due to Moment in the Pier:

Moment transferred by punching shear:	1732.2	k-ft.	Max. factored shear stress $v_{u,CD}$:	2.7	Psi
Max. factored shear stress $v_{u,AB}$:	6.8	Psi	Factored shear Strength ϕv_n :	164.3	Psi
Max. factored shear stress v_u :	6.8	Psi	Check Usage of Punching Shear Capacity:	0.04	OK!

