



AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 289 ft Guyed Tower
ATC Asset Name : Angier
ATC Asset Number : 372926
Engineering Number : 14922080_C3_02
Proposed Carrier : T-MOBILE
Carrier Site Name : ATC 372926
Carrier Site Number : 5RA1119A
Site Location : 2135 Johnston County Road
Angier, NC 27501-8209
35.4664° N, 78.6456° W
County : Harnett
Date : November 14, 2024
Max Usage : 94%
Analysis Result : Pass

Created By:

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Structural Engineer II



Isaac
Dodson

Digitally signed
by Isaac Dodson
Date: 2024.11.15
18:24:40 -05'00'

COA: P-1177



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Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 289 ft Guyed tower to reflect the change in loading by T-MOBILE.

Supporting Documents

Tower:	CSEI Analysis, dated September 17, 2013
Foundation:	CSEI Analysis, dated September 17, 2013

Analysis

The tower was analyzed using the most recent version of Power Line Systems, Inc. analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	91 mph (3-second gust, V _{asd}) / 117 mph (3-second gust, V _{ult})
Basic Wind Speed w/ Ice:	30 mph (3-second gust) w/ 0.75" radial ice concurrent
Code(s):	ANSI/TIA-222-G / 2015 IBC / 2018 North Carolina Building Code
Structure Class:	II
Exposure Category:	C
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	S _s = 0.17, S _i = 0.08
Site Class:	D - Stiff Soil - Default

Conclusion

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

If you have any questions or require additional information, please reach out to your American Tower contact. If you do not have an American Tower contact and have an Engineering question, please contact Engineering@americantower.com. Please include the American Tower asset name, asset number, and engineering number in the subject line for any questions.

Structure Usages

Structural Component	Usage	Result
Legs	68%	Pass
Diagonals	87%	Pass
Lower Diagonals	94%	Pass
Horizontals	63%	Pass
Lower Horizontals	72%	Pass
Guy Wires	30%	Pass
Bolts	50%	Pass
Foundation	62%	Pass
Anchor Foundation	33%	Pass

Maximum Reactions

Foundation	Moment (k-ft)	Axial (k)	Uplift (k)	Shear (k)
Base	150.6	294.5	-	44.3
Guy Anchor	-	-	44.9	21.2

**Reactions shown are maximum overall and not limited by Load Case*

Structure base reactions were analyzed using available geotechnical and foundation information.



T-MOBILE Final Loading

Elev (ft)	Qty	Equipment	Lines
187.0	3	Amphenol Antel APXVAALL24M-U-J20	(2) 2.00" (50.8mm) Hybrid
	3	Ericsson Radio 4460 B25+B66	
	3	Ericsson Radio 4480 B71+B85	
	3	Sector Frame	

Install proposed lines on the tower face with the least amount of existing lines.

Other Existing/Reserved Loading

Elev (ft)	Qty	Equipment	Lines
300.0	-	-	(1) 7/8" Coax
299.5	1	3' Omni	-
294.0	-	-	(3) 0.26" (6.6mm) Cat 5e
293.4	1	15" x 15" Panel	-
287.0	3	Light Sector Frame	-
282.0	2	Raycap DC9-48-60-24-8C-EV (Enclosure)	(2) 0.39" (10mm) Fiber Trunk (5) 1.15" (29.2mm) Cable
	3	Ericsson 4478 B12A	
	3	Ericsson RRUS 4415 B25	
	3	Ericsson RRUS 4415 B30	
	3	Ericsson RRUS 4426 B66	
	3	Ericsson RRUS 4478 B14 (16.5" Height)	
	6	Ace Technology XXQLH-654L8H8-iVT-V2	
259.0	-	-	(2) 0.26" (6.6mm) Cat 5e
258.6	2	3' Grid Dish	-
256.0	1	15" x 15" Panel	(5) 0.26" (6.6mm) Cat 5e
255.5	2	36" x 18" Panel-Grid	-
255.0	2	24" x 24" Panel	-
231.2	1	3' Omni	-
231.0	-	-	(1) 0.26" (6.6mm) Cat 5e
230.0	1	15" x 15" Panel	-
229.1	1	TTA	-
228.0	1	2' FM Antenna	-
162.0	3	Light Sector Frame	-
158.0	1	Raycap RDIDC-9181-PF-48	(1) 1.75" (44.5mm) Hybrid
	3	Fujitsu TA08025-B604	
	3	Fujitsu TA08025-B605	
	3	JMA Wireless MX08FRO665-21	
35.0	-	-	(1) 0.405" (10.3mm) Coax

(If table breaks across pages, please see previous page for data in merged cells)



Standard Conditions

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

- Information supplied by the client regarding antenna, mounts, and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Services, PLLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Services, PLLC and used in the performance of our engineering services is correct and complete.

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

Unless explicitly agreed by both the client and A.T. Engineering Services, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

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