AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**109 ft Monopole**
ATC Site Name	:	**Killington Center, VT (PCS) VT,VT**
ATC Site Number	:	**410015**
Engineering Number	:	**13714505_C3_04**
Proposed Carrier	:	**T-MOBILE**
Carrier Site Name	:	**4RV005**
Carrier Site Number	:	**4RV0059A**
Site Location	:	**281 Lumbar Hill Rd** **Killington, VT 05751-4408** **43.6009, -72.7527**
County	:	**Rutland**
Date	:	**August 30, 2021**
Max Usage	:	**70%**
Result	:	**Pass**

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Authorized by "EOR"
31 Aug 2021 08:37:16

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Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 109 ft Monopole to reflect the change in loading by T-MOBILE.

Supporting Documents

Tower Drawings	EEI Job #14957, dated June 29, 2007
Foundation Drawing	EEI Job #14957, dated July 6, 2007
Geotechnical Report	ATL Project #CD7046E-01-06-07, dated June 26, 2007

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	90 mph (3-second gust, Vasd)/115 mph (3-second gust, Vult)
Basic Wind Speed w/ Ice:	40 mph (3-second gust) w/ 0.75" radial ice concurrent
Code:	ANSI/TIA-222-G / 2015 IBC / 2015 Vermont Fire & Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss =0.22, S_1 = 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 contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Existing and Reserved Equipment

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
106.0	2	Raycap DC6-48-60-0-8C-EV	Low Profile Platform	(6) 0.39" (10mm) Fiber Trunk (5) 0.78" (19.7mm) 8 AWG 6 (3) 1 5/8" Coax (3) 2" conduit (6) 3/8" Coax (12) 5/8" Coax	AT&T MOBILITY
	3	Ericsson Radio 4449 - B13&B5			
	3	Ericsson RRUS 4415 B66			
	3	Ericsson 4478 Band 14 (15" Height)			
	1	Raycap DC6-48-60-0-1B-01			
	3	Ericsson Radio 8843			
	6	CCI HPA65R-BU8A			
	3	KMW EPBQ-654L8H8-L2			
96.0	3	Commscope SBNHH-1D65B	T-Arm	(16) 1 5/8" Coax (2) 1 5/8" Hybriflex	VERIZON WIRELESS
	3	Alcatel-Lucent B13 RRH4x30-4R			
	2	RFS DB-B1-6C-12AB-0Z (32 lbs.)			
	3	Alcatel-Lucent B66A RRH 4x45			
	3	Commscope SBNHH-1D65B			
	3	Amphenol Antel LPA-80063-6CF-EDIN-X			

Equipment to be Removed

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
No loading was considered as removed as part of this analysis.					

Proposed Equipment

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
117.0	3	Ericsson Radio 4460 B25+B66	Sector Frame	(2) 1.99" (50.7mm) Hybrid	T-MOBILE
	3	Ericsson Radio 4480 B71+B85A			
	3	Ericsson Air6449 B41			
	3	RFS APXVAALL24 43-U-NA20			

Install proposed coax inside pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	46%	Pass
Shaft	61%	Pass
Base Plate	25%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	3350.2	4522.8	3184.1	70%
Shear (Kips)	38.4	51.8	36.5	70%
* The design reactions are factored by 1.35 per ANSI/TIA-222-G, Sec. 15.5.1				

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

Deflection, Twist and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
117.0	Ericsson Radio 4460 B25+B66	T-MOBILE	0.000	0.000
	RFS APXVAALL24 43-U-NA20			
	Ericsson Air6449 B41			
	Ericsson Radio 4480 B71+B85A			

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

Standard Conditions

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

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

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

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

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

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