



**AMERICAN TOWER®**  
CORPORATION

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## Structural Analysis Report

**Structure** : 150 ft Monopole  
**ATC Site Name** : Dublin OH, OH  
**ATC Site Number** : 307538  
**Engineering Number** : 64167621  
**Proposed Carrier** : AT&T Mobility  
**Carrier Site Name** : Dublin  
**Carrier Site Number** : SOH3059/FA#10011704  
**Site Location** : 5580 Shier Rings Rd  
Dublin, OH 43016-1277  
40.097000,-83.140200  
**County** : Franklin  
**Date** : December 1, 2015  
**Max Usage** : 105%  
**Result** : Pass

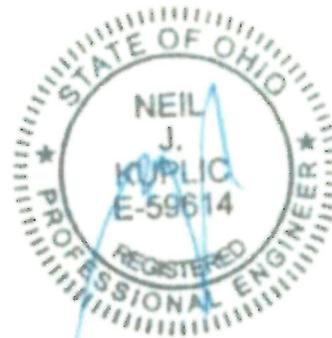
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## Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 150 ft monopole to reflect the change in loading by AT&T Mobility.

## Supporting Documents

<b>Tower Drawings</b>	Valmont #DC0720Z, dated January 2, 1991
<b>Foundation Drawing</b>	Popowych Project #9087, November 13, 1990
<b>Geotechnical Report</b>	ATEC File #22-03228, dated December 24, 1990

## Analysis

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

<b>Basic Wind Speed:</b>	90 mph (3-Second Gust)
<b>Basic Wind Speed w/ Ice:</b>	40 mph (3-Second Gust) w/ 3/4" radial ice concurrent
<b>Code:</b>	ANSI/TIA-222-G / 2009 IBC / 2011 Ohio Building Code
<b>Structure Class:</b>	II
<b>Exposure Category:</b>	B
<b>Topographic Category:</b>	1
<b>Crest Height:</b>	0 ft
<b>Spectral Response:</b>	$S_s = 0.12$ , $S_1 = 0.06$
<b>Site Class:</b>	D - Stiff Soil

## Conclusion

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

If you have any questions or require additional information, please contact American Tower via email at [Engineering@americantower.com](mailto:Engineering@americantower.com). Please include the American Tower site name, site number, and engineering number in the subject line for any questions.



**Existing and Reserved Equipment**

Elevation <sup>1</sup> (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
150.0	150.0	2	Raycap DC6-48-60-18-8F ("Squid")	Platform w/ Handrails	(12) 1 5/8" Coax (2) 0.78" 8 AWG 6 (1) 0.39" Fiber Trunk (1) 2" Conduit	AT&T Mobility
		6	Powerwave LGP17201			
142.0	142.0	1	Powerwave LGP186nn	Low Profile Platform	(6) 1 1/4" Coax	Cleveland Unlimited
		6	EMS RV65-18-04DP			

**Equipment to be Removed**

Elevation <sup>1</sup> (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
150.0	150.0	3	Alcatel-Lucent 3JR39282AAAA	-	-	AT&T Mobility
		3	Alcatel-Lucent 3JR52703AAAA			
		6	Kathrein 742-265 / AP15/18-880/1940/065D/ADT/XXP			
		6	Powerwave LGP13513			
		6	Lucent 9442 700MHz			

**Proposed Equipment**

Elevation <sup>1</sup> (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
150.0	150.0	3	Alcatel-Lucent RRH2X60-1900A-4R	Platform w/ Handrails	-	AT&T Mobility
		3	Alcatel-Lucent RRH2x40-700AT			
		3	Alcatel-Lucent RRH2X40-AWS+RDEM			
		3	Alcatel-Lucent RRH4x25-WCS (91lb)			
		3	Kathrein 742-265			
		9	Commscope SBNHH-1D65C (66.1 lb)			

<sup>1</sup>Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).



**Structure Usages**

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	95%	Pass
Shaft	105%	Pass
Base Plate	26%	Pass

**Foundations**

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	1,754.7	72%
Shear (Kips)	15.9	72%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

**Deflection and Sway\***

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
150.0	Alcatel-Lucent RRH2X60-1900A-4R	AT&T Mobility	4.735	3.727
	Alcatel-Lucent RRH2x40-700AT			
	Alcatel-Lucent RRH2X40-AWS+RDEM			
	Alcatel-Lucent RRH4x25-WCS (91lb)			
	Kathrein Scala 742-265			
	Commscope SBNHH-1D65C (66.1 lb)			

\*Deflection 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 are performed on the basis that the information used is current and correct. This information may consist of, but is not necessary limited, to:

- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.
- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

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. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

Unless explicitly agreed by both the client and American Tower Corporation, all services will be performed in accordance with the current revision of ANSI/TIA -222. The design basic wind speed will be determined based on the minimum basic wind speed as prescribed in ANSI/TIA-222. Although every effort is taken to ensure that the loading considered is adequate to meet the requirements of all applicable regulatory entities, we can provide no assurance to meet any other local and state codes or requirements. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement.

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 we supply.