

EM-CING-070-081203



raising the bar

New Cingular Wireless PCS, LLC  
100 Enterprise Drive  
Rocky Hill, Connecticut 06067-3900  
Phone: (860) 513-7636  
Fax: (860) 513-7190

ORIGINAL

Steven L. Levine  
Real Estate Consultant

RECEIVED  
DEC 3 - 2008

CONNECTICUT  
SITING COUNCIL

HAND DELIVERED

December 3, 2008

Honorable Daniel F. Caruso, Chairman,  
and Members of the Connecticut Siting Council  
Connecticut Siting Council  
10 Franklin Square  
New Britain, Connecticut 06051

Re: New Cingular Wireless PCS, LLC notice of intent to modify an existing tele-  
communications facility located at 323 Route 81, Killingworth (owner, Valley Shore  
Emergency Communications)

Dear Chairman Caruso and Members of the Council:

In order to accommodate technological changes, implement Uniform Mobile Telecommunications System ("UMTS") capability, and enhance system performance in the State of Connecticut, New Cingular Wireless PCS, LLC ("AT&T") plans to modify the equipment configurations at many of its existing cell sites. Please accept this letter and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter and attachments is being sent to the chief elected official of the municipality in which the affected cell site is located.

UMTS technology offers services to mobile computer and phone users anywhere in the world. Based on the Global System for Mobile (GSM) communication standard, UMTS is the planned worldwide standard for mobile users. UMTS, fully implemented, gives computer and phone users high-speed access to the Internet as they travel. They have the same capabilities even when they roam, through both terrestrial wireless and satellite transmissions.

Attached is a summary of the planned modifications, including power density calculations reflecting the change in AT&T's operations at the site. Also included is documentation of the structural sufficiency of the tower to accommodate the revised antenna configuration.

The changes to the facility do not constitute modifications as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical characteristics of the facility

will not be significantly changed or altered. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b)(2).

1. The height of the overall structure will be unaffected. Modifications to the existing site include all or some of the following as necessary to bring the site into conformance with the plan:

- Replacement of existing panel antennas with new antennas or, installation of additional antennas of a size required to accommodate UMTS.
- Installation of small tower mount amplifiers ("TMA's") and/or diplexers to the platform on which the panel antennas are mounted to enhance signal reception.
- Installation of additional or larger coaxial cables as required.
- Installation of an additional equipment cabinet in existing shelters, or on existing or enlarged concrete pads.
- Radome enlargement for flagpole and "stick" structures to accommodate larger antennas and additional associated equipment.

None of these modifications will extend the height of the tower.

2. The proposed changes will not extend the site boundaries. There will be no effect on the site compound other than some enlarged equipment pads as may be noted in the attachments.

3. The proposed changes will not increase the noise level at the existing facility by six decibels or more.

4. Radio frequency power density may increase due to use of one or more GSM channel for UMTS transmissions. However, the changes will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the applicable standard for uncontrolled environments as calculated for a mixed frequency site.

For the foregoing reasons, New Cingular Wireless respectfully submits that the proposed changes at the referenced site constitute exempt modifications under R.C.S.A. Section 16-50j-72(b)(2).

Please feel free to call me at (860) 513-7636 with questions concerning this matter. Thank you for your consideration.

Sincerely,



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Attachments

**NEW CINGULAR WIRELESS  
Equipment Modification**

323 Route 81, Killingworth  
Site Number 2045  
Docket 104 approved 5/89; EM approved 9/02

**Tower Owner/Manager:** Valley Shore Emergency Communications

**Equipment Configuration:** Self-Supporting Lattice

**Current and/or Approved:** Nine CSS DUO-1417-8686 panel antennas @ 133 ft AGL  
Six TMA's and three duplexers @ 133 ft  
Nine runs 1 5/8 inch coax cable  
Equipment Shelter

**Planned Modifications:** Remove all existing antennas, TMA's, and duplexers  
Install six Powerwave 7770 antennas (or equivalent) @ 133 ft  
Install six TMA's and six duplexers @ 133 ft  
Install three additional lines 1 5/8 inch coax

**Power Density:**

Worst-case calculations for existing wireless operations at the site indicate a radio frequency electromagnetic radiation power density, measured at ground level beside the tower, of approximately 49.3 % of the standard adopted by the FCC. As depicted in the second table below, the total radio frequency electromagnetic radiation power density following proposed modifications would be approximately 47.5 % of the standard.

**Existing**

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm <sup>2</sup> )	Standard Limits (mW/cm <sup>2</sup> )	Percent of Limit
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AT&T TDMA *	133	880 - 894	16	100	0.0325	0.5867	5.54
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AT&T GSM *	133	880 - 894	2	296	0.0120	0.5867	2.05
<b>Total</b>							<b>49.3%</b>

\* Per CSC records

### Proposed

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm <sup>2</sup> )	Standard Limits (mW/cm <sup>2</sup> )	Percent of Limit
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AT&T GSM	133	880 - 894	4	296	0.0241	0.5867	4.10
<b>Total</b>							<b>47.5%</b>

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### Structural information:

The attached structural analysis demonstrates that the tower and foundation have adequate structural capacity to accommodate the proposed equipment modifications. (GPD Associates, 11/13/08)



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500 Enterprise Drive  
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December 3, 2008

Honorable Richard J. Cabral  
1<sup>st</sup> Selectman, Town of Killingworth  
Town Office Bldg. 323 Route 81  
Killingworth, CT 06419

Re: Telecommunications Facility – 323 Route 81

Dear Mr. Cabral:

In order to accommodate technological changes, implement Uniform Mobile Telecommunications System (“UMTS”) capability, and enhance system performance in the State of Connecticut, New Cingular Wireless PCS, LLC (“AT&T”) will be changing its equipment configuration at certain cell sites.

As required by Regulations of Connecticut State Agencies (“R.C.S.A.”) Section 16-50j-73, the Connecticut Siting Council has been notified of the changes and will review AT&T’s proposal. Please accept this letter as notification under Section 16-50j-73 of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).

The accompanying letter to the Siting Council fully describes AT&T’s proposal for the referenced cell site. However, if you have any questions or require any further information on our plans or the Siting Council’s procedures, please call me at (860) 513-7636 or Mr. Derek Phelps, Executive Director, Connecticut Siting Council at (860) 827-2935.

Sincerely,

Steven L. Levine  
Real Estate Consultant

Enclosure



Derek Creaser  
Hudson Design Group, LLC  
1600 Osgood Street, Building 20 North, Suite 2-101  
North Andover, MA 01845  
(617) 306-3034



GPD ASSOCIATES

Brian Daugherty  
520 South Main St., Suite 2531  
Akron, Ohio 44311  
(330) 572-2225  
bdaugherty@gpdgroup.com

GPD# 2008147.19  
November 13, 2008

### STRUCTURAL ANALYSIS REPORT

HDG DESIGNATION: Site Number: CT2045

AT&T DESIGNATION: Site USID: 59409  
Site FA: 10034999  
Site Name: KILLINGWORTH-RTE 81

ANALYSIS CRITERIA: Codes: TIA/EIA-222-F & 2003 IBC  
85-mph with 0" ice  
74-mph with 1/2" ice

SITE DATA: Route 81, Killingworth, CT 06419, Middlesex County  
Latitude 41° 22' 10.055"N, Longitude 72° 33' 51.192" W  
140' Self Support Tower

Mr. Creaser,

GPD is pleased to submit this Structural Analysis Report to determine the structural integrity of the aforementioned tower. The purpose of the analysis is to determine the suitability of the tower with the addition of the following proposed loading configuration:

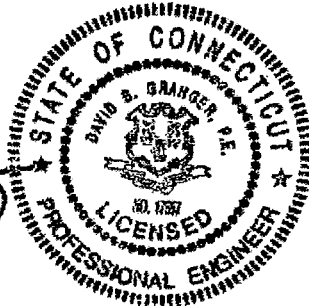
Elev. 133' (6) Powerwave 7770.00 Antennas on (3) 12' T-Frames, w/ (6) 1-5/8" coax  
(6) Powerwave LGP21401 TMA's mounted behind the antennas  
(6) Powerwave LGP21901 Diplexers mounted behind the antennas

Based on our analysis we have determined that the tower is sufficient for the proposed, existing, and reserved loadings as referenced in Appendix A. However, the foundation could not be verified based on the information provided.

We at GPD appreciate the opportunity of providing our continuing professional services to you and AT&T. If you have any questions please do not hesitate to call.

Respectfully submitted,

David B. Granger, P.E.  
Connecticut #: 17557



## SUMMARY & RESULTS

The purpose of this analysis was to verify whether the existing structure is capable of carrying the proposed loading configuration as specified by AT&T to Hudson Design Group, LLC. This report was commissioned by Mr. Derek Creaser of Hudson Design Group, LLC.

No geotechnical information or foundation design was available or provided for this report. Therefore, the in place capacity of the existing foundation could not be verified. It is recommended that the geotechnical report or foundation design be obtained or a new geotechnical study and foundation investigation at the site be performed in order to complete a foundation analysis.

### TOWER SUMMARY AND RESULTS

Member	Capacity	Results
Legs	94.9%	Pass
Diagonals	76.8%	Pass
Foundation	Not Verified	N/A

## ANALYSIS METHOD

RISA Tower (Version 5.3.1.0), a commercially available software program, was used to create a three-dimensional model of the tower and calculate primary member stresses for various dead, live, wind, and ice load cases. Selected output from the analysis is included in Appendix B. The following table details the information provided to complete this structural analysis. This analysis is solely based on this information and is being provided without the benefit of a site visit.

### DOCUMENTS PROVIDED

Document	Remarks	Source
Previous Structural Analysis	O2 Wireless Solutions, Job #: 103-3637-05, dated 9/12/02	D. Creaser
AT&T Proposed Loading	RF Data Sheet, dated 10/22/08	D. Creaser

## ASSUMPTIONS

This structural analysis is based on the theoretical capacity of the members and is not a condition assessment of the guyed tower. This analysis is from information supplied, and therefore, its results are based on and are as accurate as that supplied data. GPD has made no independent determination, nor is it required to, of its accuracy. The following assumptions were made for this structural analysis.

1. The tower's member sizes and shape are considered accurate as supplied. The material grade is as per data supplied and/or as assumed and as stated in the materials section.
2. The antenna configuration is as supplied and/or as modeled in the analysis. It is assumed to be complete and accurate. All antennas, mounts, coax and waveguides are assumed to be properly installed and supported as per manufacturer requirements
3. Some assumptions are made regarding antennas and mount sizes and their projected areas based on best interpretation of data supplied and of best knowledge of antenna type and industry practice.
4. All mounts, if applicable, are considered adequate to support the loading. No actual analysis of the mount(s) is performed. This analysis is limited to analyzing the tower only.
5. The soil parameters are as per data supplied or as assumed and stated in the calculations. If no data is available, the foundation system is not verified.
6. The tower and structures have been properly maintained in accordance with TIA Standards and/or with manufacturer's specifications.
7. All welds and connections are assumed to develop at least the member capacity, unless determined otherwise and explicitly stated in this report.
8. All tower mounted amplifiers are assumed to be mounted behind the antennas.
9. All existing and proposed loading was obtained from the previous structural analysis performed by O2 Wireless Solutions Job # 103-3637-05, dated 9/12/02, tower photos, and the RF data sheet supplied by Mr. Derek Creaser of Hudson Design Group.
10. The locations of the coax are assumed. If the coax layout differs in the field, contact the engineer immediately. See Appendix C for the coax layout.

If any of these assumptions are not valid or have been made in error, this analysis may be affected, and GPD Associates should be allowed to review any new information to determine its effect on the structural integrity of the tower.



## DISCLAIMER OF WARRANTIES

GPD ASSOCIATES has not performed a site visit to the tower to verify the member sizes or antenna/coax loading. If the existing conditions are not as represented on the tower elevation contained in this report, we should be contacted immediately to evaluate the significance of the discrepancy. This is not a condition assessment of the tower or foundation. This report does not replace a full tower inspection. The tower and foundations are assumed to have been properly fabricated, erected, maintained, in good condition, twist free, and plumb.

The engineering services rendered by GPD ASSOCIATES in connection with this Structural Analysis are limited to a computer analysis of the tower structure and theoretical capacity of its main structural members. All tower components have been assumed to only resist dead loads when no other loads are applied. No allowance was made for any damaged, bent, missing, loose, or rusted members (above and below ground). No allowance was made for loose bolts or cracked welds.

GPD ASSOCIATES does not analyze the fabrication of the structure (including welding). It is not possible to have all the very detailed information needed to perform a thorough analysis of every structural sub-component and connection of an existing tower. GPD ASSOCIATES provides a limited scope of service in that we cannot verify the adequacy of every weld, plate connection detail, etc. The purpose of this report is to assess the feasibility of adding appurtenances usually accompanied by transmission lines to the structure.

It is the owner's responsibility to determine the amount of ice accumulation, if any, that should be considered in the structural analysis.

The attached sketches are a schematic representation of the analyzed tower. If any material is fabricated from these sketches, the contractor shall be responsible for field verifying the existing conditions, proper fit, and clearance in the field. Any mentions of structural modifications are reasonable estimates and should not be used as a precise construction document. Precise modification drawings are obtainable from GPD ASSOCIATES, but are beyond the scope of this report.

Miscellaneous items such as antenna mounts, etc., have not been designed or detailed as a part of our work. We recommend that material of adequate size and strength be purchased from a reputable tower manufacturer.

GPD ASSOCIATES makes no warranties, expressed and/or implied, in connection with this report and disclaims any liability arising from material, fabrication, and erection of this tower. GPD ASSOCIATES will not be responsible whatsoever for, or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of GPD ASSOCIATES pursuant to this report will be limited to the total fee received for preparation of this report.

## APPENDIX A

### Tower Analysis Summary Form

<b>General Info</b>	
Site Name	45 LINDGORTH RD SE, ST
Site Number	35493
Date of Analysis	11/15/2008
Company Performing Analysis	GPD

The information contained in this summary report is not to be used independently from the PE stamped tower analysis.

Tower Info	
Tower Type (G, SST, MP)	Date
Tower Height (top of steel AGL)	140
Tower Manufacturer	N/A
Tower Model	N/A
Manufacturer Drawings	N/A
Foundation Design	N/A
Geotech Report	N/A
Tower Mapping	N/A
Previous Structural Analysis	9/12/2002

Steel Yield Strength (ksi)	50
Legs	50
Diagonals	36

Note: Steel grades were taken from previous analysis.

Design Parameters	
Design Code Used	EB-11A-222-F
Location of Tower (County, State)	El Dorado, CT
Basic Wind Speed (mph)	85-fastest
Ice Thickness (in)	0.5"
Structure Classification (I, II, III)	
Exposure Category (B, C, D)	
Topographic Category (1 to 5)	

Analysis Results	
Existing & reserved Condition	
Tower	94.9%
Foundation	N/A

Note: Foundation could not be verified based on the information provided.

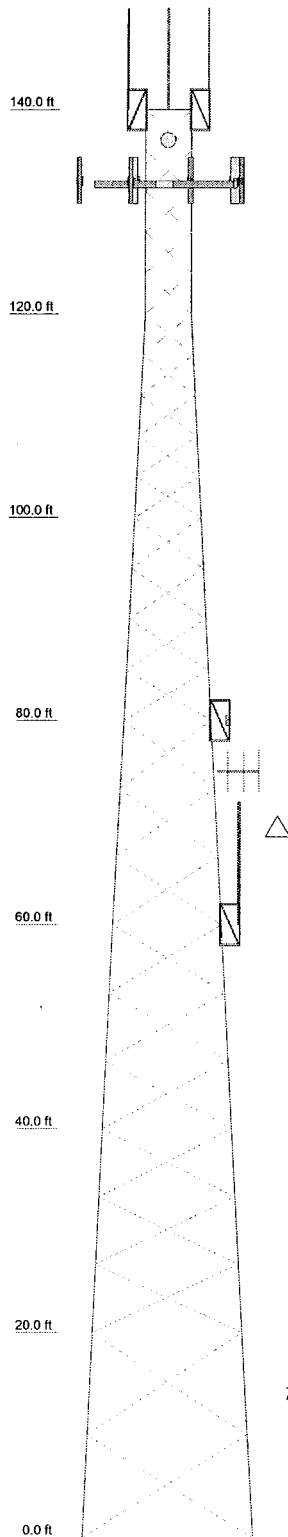
Proposed Condition	
Tower	94.9%
Foundation	N/A

Note: Foundation could not be verified based on the information provided.

## Existing/Reserved

Existing/Reserved													
Antenna				Mount			Transmission Line						
Antenna Owner	Attachment Height (ft)	Quantity	Type	Model	EPA (ft²) each	Azimuth	Quantity	Type	Model	EPA (ft²) total	Quantity	Size	Attachment Leg/Face
Unknown	140	3	Omni	DB B10	3.63		3	2' Standoff		3.98	3	1.58"	Leg C
Unknown	140	1	Omni	76 Dipole	1.5		1	Pipe Mount		Shielded	1	1.58"	Leg C
Unknown	140	1	Dish	1.5' Dish	1.77		1	Pipe Mount		Shielded	1	7/8"	Leg C
AT&T Mobility	133	6	Panel	DUC1417-5666-4.0	Shielded	23, 143, 253	6	12' T-Frames		36.6	6	1.58"	Face B
AT&T Mobility	133	6	TMA	TMA-BD 1900	Shielded	23, 143, 253		On Same Mount					
Unknown	133	1	Panel	3' Dipole	3.21		1	On Same Mount				7/8"	Leg C
Unknown	80	1	Panel	1.5' F. Panel	1.4		1	2' Standoff		1.35	1	7/8"	Face A
Unknown	78	1	Dipole	3' Dipole	3.21		1	Pipe Mount		Shielded	3	7/8"	Face A
Unknown	60	1	Omni	12 Dipole	7.07		1	2' Standoff		11.36	3	7/8"	Face A

Section	T1	T2	T3	T4	T5	T6	T7	
Legs	ROHN 3.5 STD			ROHN 3.5 X-STR		ROHN 4 X-STR	ROHN 5 X-STR	
Leg Grade	L1 1/2x1 1/2x1/8			A572-50			L3x3/16	
Diagonals			L2x2x1/8					
Diagonal Grade	L3x3/14			A36				
Top Girts				N.A.				
Face Width (ft)	4.5		6.55	8.58	10.61	12.64	14.67	16.7
# Panels @ (ft)	10 @ 4		4 @ 5		9 @ 5.66667		2 @ 10	
Weight (K)	0.8		1.1	1.4	1.5	1.7	2.1	9.5



### DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
2'-0" - STANDOFF	140	PIROD 12' T-Frame (GPD)	133
2'-0" - STANDOFF	140	PIROD 12' T-Frame (GPD)	133
2'-0" - STANDOFF	140	(2) 7770.00 w/ Mount Pipe	133
Decibel DB 810 Omni	140	(2) 7770.00 w/ Mount Pipe	133
Decibel DB 810 Omni	140	(2) 7770.00 w/ Mount Pipe	133
Decibel DB 810 Omni	140	(2) LGP21401	133
DB411-A	140	DB225-A	133
1.5' Dish	137	(2) LGP21401	133
(2) LGP21401	133	2'-0" - STANDOFF	80
(2) LGP21901	133	1 s.f. Panel	80
(2) LGP21901	133	DB225-A	75
(2) LGP21901	133	12' Omni	60
PIROD 12' T-Frame (GPD)	133	2'-0" - STANDOFF	60

### MATERIAL STRENGTH

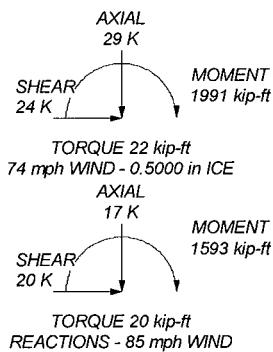
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

### TOWER DESIGN NOTES

1. Tower is located in Middlesex County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 74 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 60 mph wind.
5. TOWER RATING: 94.9%

#### MAX. CORNER REACTIONS AT BASE:

DOWN: 147 K  
UPLIFT: -113 K  
SHEAR: 14 K

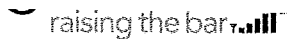


**GPD Associates**

520 South Main Street, Suite 2531  
Akron, OH 44311  
Phone: (330) 572-2100  
FAX: (330) 572 2101

Job: <b>CT2045- KILLINGWORTH</b>	Project: <b>2008147.19</b>	Client: <b>HDG</b>	Drawn by: <b>bdaugherty</b>	App'd:
Code: <b>TIA/EIA-222-F</b>	Date: <b>11/13/08</b>	Scale: <b>NTS</b>	Path: <b>G:\Telecom\2008147\19\TIA\CT2045.dwg</b>	Dwg No. <b>E-1</b>

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Town Office Bldg. 323 Route 81  
Killingworth, CT 06419

Re: Telecommunications Facility – 323 Route 81

Dear Mr. Cabral:

In order to accommodate technological changes, implement Uniform Mobile Telecommunications System (“UMTS”) capability, and enhance system performance in the State of Connecticut, New Cingular Wireless PCS, LLC (“AT&T”) will be changing its equipment configuration at certain cell sites.

As required by Regulations of Connecticut State Agencies (“R.C.S.A.”) Section 16-50j-73, the Connecticut Siting Council has been notified of the changes and will review AT&T’s proposal. Please accept this letter as notification under Section 16-50j-73 of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).

The accompanying letter to the Siting Council fully describes AT&T’s proposal for the referenced cell site. However, if you have any questions or require any further information on our plans or the Siting Council’s procedures, please call me at (860) 513-7636 or Mr. Derek Phelps, Executive Director, Connecticut Siting Council at (860) 827-2935.

Sincerely,

Steven L. Levine  
Real Estate Consultant

Enclosure



Derek Creaser  
Hudson Design Group, LLC  
1600 Osgood Street, Building 20 North, Suite 2-101  
North Andover, MA 01845  
(617) 306-3034



GPD ASSOCIATES

Brian Daugherty  
520 South Main St., Suite 2531  
Akron, Ohio 44311  
(330) 572-2225  
bdaugherty@gpdgroup.com

GPD# 2008147.19  
November 13, 2008

### STRUCTURAL ANALYSIS REPORT

HDG DESIGNATION: Site Number: CT2045  
AT&T DESIGNATION: Site USID: 59409  
Site FA: 10034999  
Site Name: KILLINGWORTH-RTE 81

ANALYSIS CRITERIA: Codes: TIA/EIA-222-F & 2003 IBC  
85-mph with 0" ice  
74-mph with 1/2" ice

SITE DATA: Route 81, Killingworth, CT 06419, Middlesex County  
Latitude 41° 22' 10.055"N, Longitude 72° 33' 51.192" W  
140' Self Support Tower

Mr. Creaser,


GPD is pleased to submit this Structural Analysis Report to determine the structural integrity of the aforementioned tower. The purpose of the analysis is to determine the suitability of the tower with the addition of the following proposed loading configuration:

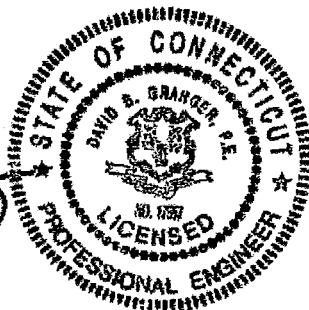
Elev. 133' (6) Powerwave 7770.00 Antennas on (3) 12' T-Frames, w/ (6) 1-5/8" coax  
(6) Powerwave LGP21401 TMA's mounted behind the antennas  
(6) Powerwave LGP21901 Diplexers mounted behind the antennas

Based on our analysis we have determined that the tower is sufficient for the proposed, existing, and reserved loadings as referenced in Appendix A. However, the foundation could not be verified based on the information provided.

We at GPD appreciate the opportunity of providing our continuing professional services to you and AT&T. If you have any questions please do not hesitate to call.

Respectfully submitted,

  
David B. Granger, P.E.  
Connecticut #: 17557



## SUMMARY & RESULTS

The purpose of this analysis was to verify whether the existing structure is capable of carrying the proposed loading configuration as specified by AT&T to Hudson Design Group, LLC. This report was commissioned by Mr. Derek Creaser of Hudson Design Group, LLC.

No geotechnical information or foundation design was available or provided for this report. Therefore, the in place capacity of the existing foundation could not be verified. It is recommended that the geotechnical report or foundation design be obtained or a new geotechnical study and foundation investigation at the site be performed in order to complete a foundation analysis.

### TOWER SUMMARY AND RESULTS

Member	Capacity	Results
Legs	94.9%	Pass
Diagonals	76.8%	Pass
Foundation	Not Verified	N/A

## ANALYSIS METHOD

RISA Tower (Version 5.3.1.0), a commercially available software program, was used to create a three-dimensional model of the tower and calculate primary member stresses for various dead, live, wind, and ice load cases. Selected output from the analysis is included in Appendix B. The following table details the information provided to complete this structural analysis. This analysis is solely based on this information and is being provided without the benefit of a site visit.

### DOCUMENTS PROVIDED

Document	Remarks	Source
Previous Structural Analysis	O2 Wireless Solutions, Job #: 103-3637-05, dated 9/12/02	D. Creaser
AT&T Proposed Loading	RF Data Sheet, dated 10/22/08	D. Creaser

## ASSUMPTIONS

This structural analysis is based on the theoretical capacity of the members and is not a condition assessment of the guyed tower. This analysis is from information supplied, and therefore, its results are based on and are as accurate as that supplied data. GPD has made no independent determination, nor is it required to, of its accuracy. The following assumptions were made for this structural analysis.

1. The tower's member sizes and shape are considered accurate as supplied. The material grade is as per data supplied and/or as assumed and as stated in the materials section.
2. The antenna configuration is as supplied and/or as modeled in the analysis. It is assumed to be complete and accurate. All antennas, mounts, coax and waveguides are assumed to be properly installed and supported as per manufacturer requirements
3. Some assumptions are made regarding antennas and mount sizes and their projected areas based on best interpretation of data supplied and of best knowledge of antenna type and industry practice.
4. All mounts, if applicable, are considered adequate to support the loading. No actual analysis of the mount(s) is performed. This analysis is limited to analyzing the tower only.
5. The soil parameters are as per data supplied or as assumed and stated in the calculations. If no data is available, the foundation system is not verified.
6. The tower and structures have been properly maintained in accordance with TIA Standards and/or with manufacturer's specifications.
7. All welds and connections are assumed to develop at least the member capacity, unless determined otherwise and explicitly stated in this report.
8. All tower mounted amplifiers are assumed to be mounted behind the antennas.
9. All existing and proposed loading was obtained from the previous structural analysis performed by O2 Wireless Solutions Job # 103-3637-05, dated 9/12/02, tower photos, and the RF data sheet supplied by Mr. Derek Creaser of Hudson Design Group.
10. The locations of the coax are assumed. If the coax layout differs in the field, contact the engineer immediately. See Appendix C for the coax layout.

If any of these assumptions are not valid or have been made in error, this analysis may be affected, and GPD Associates should be allowed to review any new information to determine its effect on the structural integrity of the tower.

## DISCLAIMER OF WARRANTIES

GPD ASSOCIATES has not performed a site visit to the tower to verify the member sizes or antenna/coax loading. If the existing conditions are not as represented on the tower elevation contained in this report, we should be contacted immediately to evaluate the significance of the discrepancy. This is not a condition assessment of the tower or foundation. This report does not replace a full tower inspection. The tower and foundations are assumed to have been properly fabricated, erected, maintained, in good condition, twist free, and plumb.

The engineering services rendered by GPD ASSOCIATES in connection with this Structural Analysis are limited to a computer analysis of the tower structure and theoretical capacity of its main structural members. All tower components have been assumed to only resist dead loads when no other loads are applied. No allowance was made for any damaged, bent, missing, loose, or rusted members (above and below ground). No allowance was made for loose bolts or cracked welds.

GPD ASSOCIATES does not analyze the fabrication of the structure (including welding). It is not possible to have all the very detailed information needed to perform a thorough analysis of every structural sub-component and connection of an existing tower. GPD ASSOCIATES provides a limited scope of service in that we cannot verify the adequacy of every weld, plate connection detail, etc. The purpose of this report is to assess the feasibility of adding appurtenances usually accompanied by transmission lines to the structure.

It is the owner's responsibility to determine the amount of ice accumulation, if any, that should be considered in the structural analysis.

The attached sketches are a schematic representation of the analyzed tower. If any material is fabricated from these sketches, the contractor shall be responsible for field verifying the existing conditions, proper fit, and clearance in the field. Any mentions of structural modifications are reasonable estimates and should not be used as a precise construction document. Precise modification drawings are obtainable from GPD ASSOCIATES, but are beyond the scope of this report.

Miscellaneous items such as antenna mounts, etc., have not been designed or detailed as a part of our work. We recommend that material of adequate size and strength be purchased from a reputable tower manufacturer.

GPD ASSOCIATES makes no warranties, expressed and/or implied, in connection with this report and disclaims any liability arising from material, fabrication, and erection of this tower. GPD ASSOCIATES will not be responsible whatsoever for, or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of GPD ASSOCIATES pursuant to this report will be limited to the total fee received for preparation of this report.

## APPENDIX A

### Tower Analysis Summary Form

## General Info

Site Name	KELLYNORTH-RTE 51
Site Number	09409
Date of Analysis	1/15/2008
Company Performing Analysis	GPD

The information contained in this summary report is not to be used independently from the PE stamped tower analysis.

Tower Info	Description	Date
Tower Type (G, SST, MP)	SST	
Tower Height (top of steel AGL)	140	
Tower Manufacturer	N/A	
Tower Model	N/A	
Manufacturer Drawings	N/A	
Foundation Design	N/A	
Geotech Report	N/A	
Tower Mapping	N/A	
Previous Structural Analysis	D2 L06 E - 180-367-JS	9/12/2002

Design Parameters	Design Code Used
Location of Tower (County, State)	EA/JTA-222-F
Basic Wind Speed (mph)	Address CT
Ice Thickness (in)	95-fastest
Structure Classification (I, II, III)	6.5"
Exposure Category (B, C, D)	
Topographic Category (1 to 5)	

Analysis Results	Existing & reserved Condition
Tower	98.9%
Foundation	N/A

Note: Foundation could not be verified based on the information provided.

Proposed Condition	
Tower	94.5%
Foundation	N/A

Note: Foundation could not be verified based on the information provided.

Steel Yield Strength (ksi)	
Legs	50
Diagonals	36

Note: Steel grades were taken from previous analysis.

Existing/Reserved				Antenna			Mount			Transmission Line			
Antenna Owner	Attachment Height (ft)	Quantity	Type	Model	EPA (ft²) each	Azimuth	Quantity	Type	Model	EPA (ft²) total	Quantity	Size	Attachment Leg/Face
Unknown	140	3	Omni	DB 810	3.63		3	2 Standoff		3.66	3	1.58" Leg C	
Unknown	140	1	Omni	10 Dipole	1.5		1	Pipe Mount		Shielded	1	1.58" Leg C	
Unknown	140	1	Dipole	1.5" Dish	1.77		1	Pipe Mount		Shielded	1	7/8" Leg C	
AT&T Mobility	133	6	Panel	DUO1417-866-4-0	Shielded	23, 143, 253	3	12 T-Frames On Same Mount		36.8	3	1.58" Face B	
AT&T Mobility	133	6	TMA	TMA-DD 1900	Shielded	23, 143, 253	3	On Same Mount					
Unknown	133	1		3 Dipole	3.21		1	On Same Mount			1	7/8" Leg C	
Unknown	80	1	Panel	1 S.F. Panel	1.4		1	2 Standoff		1.26	2	7/8" Face A	
Unknown	75	1		3 Dipole	3.21		1	Pipe Mount		Shielded	3	7/8" Face A	
Unknown	80	1	Omni	12 Dipole	7.07		1	2 Standoff		1.36	3	7/8" Face A	

Proposed													
Antenna													
Antenna Owner		Attachment Height (ft)	Quantity	Type	Model	EPA (ft) each	Azimuth	Quantity	Type	Model	EPA (ft) total	Quantity	Attachment Leg/Face
AT&T Mobility		133	6	Panel	7770	8.46	23, 143, 253	3	On Existing Mount			3	1.58" Face B
AT&T Mobility		133	6	TMA	LSG21401	Shielded	23, 143, 253	3	On Existing Mount			3	1.58" Face B
AT&T Mobility		133	6	Diplexers	LSG21403	Shielded	23, 143, 253	3	On Existing Mount			3	1.58" Face B

Note: Proposed AT&T loading to replace Existing AT&T loading at 133.

Revision: 1.2  
Date: 12/15/06

Section	T7	T6	T5	T4	T3	T2	T1
Legs	ROHN 5 X-STR	ROHN 4 X-STR	ROHN 4 X-STR	ROHN 3.5 X-STR			ROHN 3.5 STD
Leg Grade	L3x3x3/16			A572-50			L1 1/2x1 1/2x1/8
Diagonals					L2 1/2x2 1/2x3/16		
Diagonal Grade				A36			
Top Girts				N.A.			L3x3x1/4
Face Width (ft)	14.67	12.64	9 @ 6.66667	10.61	8.58	6.55	4.5
# Panels @ (ft)	2 @ 10				4 @ 5		10 @ 4
Weight (K)	9.5	2.1	1.7		1.4	1.1	0.8

140.0 ft

120.0 ft

100.0 ft

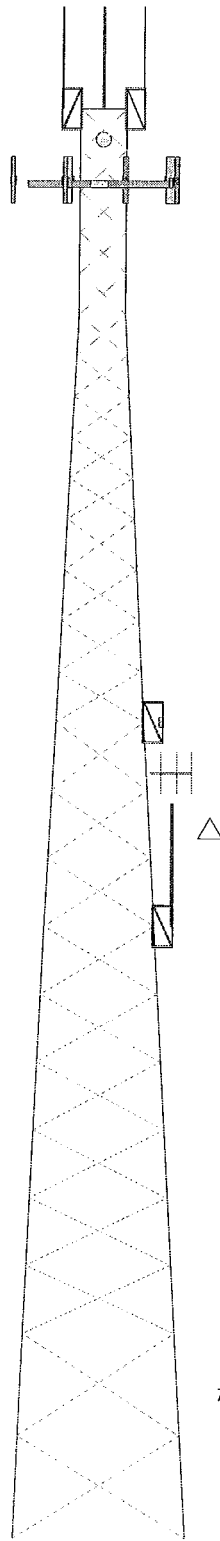
80.0 ft

60.0 ft

40.0 ft

20.0 ft

0.0 ft



## DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
2'-0" - STANDOFF	140	PIROD 12' T-Frame (GPD)	133
2'-0" - STANDOFF	140	PIROD 12' T-Frame (GPD)	133
2'-0" - STANDOFF	140	(2) 7770.00 w/ Mount Pipe	133
Decibel DB 810 Omni	140	(2) 7770.00 w/ Mount Pipe	133
Decibel DB 810 Omni	140	(2) 7770.00 w/ Mount Pipe	133
Decibel DB 810 Omni	140	(2) LGP21401	133
DB411-A	140	DB225-A	133
1.5' Dish	137	(2) LGP21401	133
(2) LGP21401	133	2'-0" - STANDOFF	80
(2) LGP21901	133	1 s.f. Panel	80
(2) LGP21901	133	DB225-A	75
(2) LGP21901	133	12' Omni	60
PIROD 12' T-Frame (GPD)	133	2'-0" - STANDOFF	60

## MATERIAL STRENGTH

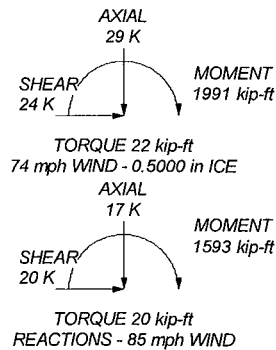
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

## TOWER DESIGN NOTES

1. Tower is located in Middlesex County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 74 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 60 mph wind.
5. TOWER RATING: 94.9%

## MAX. CORNER REACTIONS AT BASE:

DOWN: 147 K  
UPLIFT: -113 K  
SHEAR: 14 K



**GPD Associates**  
520 South Main Street, Suite 2531  
Akron, OH 44311  
Phone: (330) 572-2100  
FAX: (330) 572 2101

Job: **CT2045- KILLINGWORTH**  
Project: **2008147.19**  
Client: HDG  
Code: TIA/EIA-222-F  
Path: G:\Telecom\2008147\19\RI\SAICT\2045.en  
Drawn by: bdaugherty  
Date: 11/13/08  
Scale: NTS  
App'd:  
Dwg No. E-1