ROBINSON & COLE LLP

KENNETH C. BALDWIN

280 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

May 11, 2005

S. Derek Phelps
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **EM-VER-011-043-050309 – Cellco Partnership d/b/a Verizon Wireless Notice of Intent to Modify Existing Telecommunications Facility Located at 1455 Forbes Street, East Hartford, Connecticut**

Dear Mr. Phelps:

On March 9, 2005, the Siting Council acknowledged the above-referenced exempt modification filing by Cellco Partnership related to its existing telecommunications facility at 1455 Forbes Street in East Hartford. Cellco recently learned that its antenna cables need to be installed on the outside of the tower. Apparently, due to the number of carriers sharing this location there is inadequate room inside the tower for the existing antenna cable and the new antenna cables Cellco needs to install. While I do not believe this change requires the filing of a new notice, I did want to make you aware of the change and have the change noted in the Council's records.

If you have any questions or concerns regarding this minor modification please contact me.

Sincerely,

Kenneth C. Baldwin

KCB/kmd
cc: Sandy M. Carter

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@po.state.ct.us
www.ct.gov/csc

April 21, 2005

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103-3597

RE: **EM-VER-011-043-050309** - Cellco Partnership d/b/a Verizon Wireless notice of intent to modify existing telecommunications facilities located at Talcott Mountain Science Center, Bloomfield, and 1455 Forbes Street, East Hartford, Connecticut.

Dear Attorney Baldwin:

At a public meeting held on April 19, 2005, the Connecticut Siting Council (Council) acknowledged your notice to modify these existing telecommunications facilities, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice dated March 9, 2005, and additional information dated March 15, 2005, including the placement of all necessary equipment and shelters within the tower compounds. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to existing facility sites that would not increase tower heights, extend the boundaries of the tower sites, increase noise levels at the tower site boundaries by six decibels, and increase the total radio frequencies electromagnetic radiation power densities measured at the tower site boundaries to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. These facilities have also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on these towers.

This decision is under the exclusive jurisdiction of the Council. Any additional change to any of these facilities will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

Thank you for your attention and cooperation.

Very truly yours,

Pamela B. Katz, P.E.
Chairman

PBK/laf

c: The Honorable Sydney Schulman, Mayor, Town of Bloomfield
Thomas B. Hooper, Director of Planning, Town of Bloomfield
The Honorable Timothy D. Larson, Mayor, Town of East Hartford
Michael J. Dayton, Town Planner, Town of East Hartford
Jeffrey W. Barbadora, Crown Atlantic Company LLC
Thomas J. Regan, Brown Rudnick Berlack Israels, LLP
Stephen J. Humes, Esq., McCarter & English LLP
Christopher B. Fisher, Esq., Cuddy & Feder, LLP

ROBINSON & COLE LLP

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March 15, 2005

Via Hand Delivery

Michael Perrone
Siting Analyst
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Notice of Exempt Modification – Antenna Swap**
1455 Forbes Street, East Hartford, Connecticut

Dear Mr. Perrone:

Attached please find an original and twenty-five copies of an updated antenna specification sheet for the proposed DB844G65ZAXY cellular antenna that Verizon Wireless intends to use at its East Hartford facility. An older version of the antenna specification was mistakenly attached to our original filing.

Please contact me or Rachel Mayo if you have any questions or need any additional information.

Sincerely,

Kenneth C. Baldwin

DECIBEL®
Base Station Antennas

DB844G65ZAXY

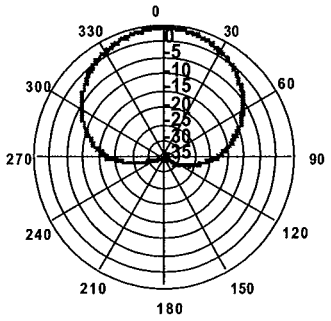
13.5 dBd, Directed Dipole, No Screen Antenna
806-896, 870-960 MHz

806-896 MHz
870-960 MHz

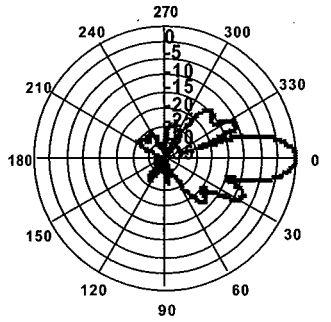
GEN3VPOL™
ZoneMaster™

65°

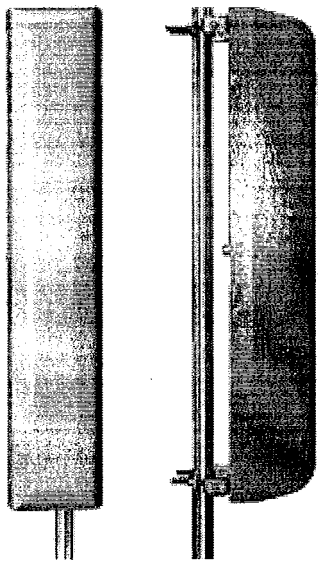
- Excellent azimuth roll-off, reducing sector to sector interference and reducing soft hand-offs
- Air dielectric feed system, no screws, rivets, welds or solder in RF element feed path
- Strong upper side lobe suppression
- Low profile appearance and low wind loading profile for easier zoning approvals



Horizontal 880 MHz (Tilt=0)



Vertical 880 MHz (Tilt=0)



ELECTRICAL		
Frequency (MHz):	806-896	870-960
Polarization:	Vertical	Vertical
Gain (dBd/dBi):	13.5/15.6	13.8/15.9
Azimuth BW:	65°	65°
Elevation BW:	15°	15°
Beam Tilt:	0°	0°
USLS* (dB):	>15	>15
Null Fill* (dB):	20-25	20-25
Front-to-Back Ratio* (dB):	40	40
VSWR:	<1.33:1	<1.33:1
Impedance:	50 Ohms	50 Ohms
Max Input Power:	500 Watts	500 Watts
Lightning Protection:	DC Ground	DC Ground
Opt Electrical Tilt:	6°	6°

MECHANICAL	
Weight:	12 lbs (5.4 kg)
Dimensions (LxWxD):	48 X 10 X 8.5 in (1219 X 254 X 216 mm)
Max. Wind Area:	0.97 ft² (0.09 m²)
Max. Wind Load (@ 100mph):	53 lbf (236 N)
Max. Wind Speed:	125 mph (201 km/h)
Radiator Material:	Aluminum
Reflector Material:	Aluminum
Radome Material:	ABS, UV Resistant
Mounting Hardware Material:	Galvanized Steel
Connector Type:	7-16 DIN-Female (Back)
Color:	Light Gray
Standard Mounting Hardware:	DB380 Pipe Mount Kit, included
Downtilt Mounting Hardware:	DB5083, optional
Opt. Mounting Hardware:	DB5084-AZ Azimuth Wall Mount

ANDREW®

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8635 Stemmons Freeway
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Fax: 214.631.4706
Toll Free Tel: 1.800.676.5342
Fax: 1.800.229.4706
www.andrew.com

dbtech@andrew.com

Warranty: Five years
Date: 4/23/2004
* - Indicates Typical Values

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EM-VER-011-043-050309

EM-VER-043-050309

March 9, 2005

Via Hand Delivery

S. Derek Phelps
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Notice of Exempt Modification – Antenna Swap**
Talcott Mountain Science Center, Bloomfield, Connecticut
1455 Forbes Street, East Hartford, Connecticut

Dear Mr. Phelps:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains wireless telecommunications facilities on a tower at the Talcott Mountain Science Center ("Talcott Facility") on the Bloomfield/Avon town line and on a tower at 1455 Forbes Street in East Hartford ("East Hartford Facility"). Cellco intends to modify each of these facilities as described below.

The Talcott Facility

The Talcott Facility consists of four (4) cellular antennas at the 56-foot level of the existing 60-foot tower (two (2) sectors; two (2) antennas per sector). Equipment associated with the antennas is located in a shelter near the base of the tower.

The Connecticut Siting Council ("the Council") approved Cellco's shared use of the Talcott Facility in Docket No. 107. Cellco now intends to modify this facility by adding two (2) PCS antennas at the same 56-foot level on the tower (one (1) antenna per sector). Attached behind Tab 1 are specifications for the proposed PCS antennas to be added to the Talcott Facility. No changes to the ground-mounted equipment are proposed. Because Cellco intends to add antennas to the existing Talcott Facility, attached behind Tab 2 is a structural evaluation confirming that the tower can accommodate Cellco's existing and proposed antennas. Also attached behind Tab 3 is an updated Power Density Calculation for the modified facility.

The East Hartford Facility

Cellco's East Hartford Facility consists of six (6) cellular antennas and six (6) PCS antennas at the 110-foot level on the existing 130-foot tower. Equipment associated with the antennas is located in a shelter near the base of the tower.

The Council approved Cellco's shared use of the East Hartford Facility in Docket No. 139. Cellco now intends to modify this facility by replacing the six cellular antennas with a different model cellular antenna. Attached behind Tab 4 are specifications for the existing and proposed replacement cellular antennas as well as a Power Density Calculation for the modified facility.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Bloomfield Town Manager, Louie Chapman, Avon Town Manager, Philip K. Schenck, Jr., and East Hartford Mayor, Timothy D. Larson.

The planned modifications to the Talcott and East Hartford Facilities fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modifications will not result in any increase in the overall height of either existing structure.

2. The proposed modifications will not affect ground-mounted equipment and will not require the extension of the site boundaries.

3. The proposed modifications will not increase noise levels at either facility by six decibels or more.

4. The proposed modifications will not result in radio frequency (RF) power density levels at either facility that exceed the Federal Communications Commission (FCC) adopted safety standard at either site.

For the foregoing reasons, Cellco respectfully submits that the proposed modifications to the above-referenced telecommunications facilities constitute an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Kenneth C. Baldwin

Enclosures

cc: Louie Chapman, Bloomfield Town Manager
Philip K. Schenck, Jr., Avon Town Manager
Timothy D. Larson, East Hartford Mayor
Sandy M. Carter

DECIBEL
Base Station Antennas

932LG65VTE-B

±45° Diversity Directed Dipole® Antenna

1710 - 1880 MHz
1850 - 1990 MHz
1920 - 2170 MHz

Directed Dipole®

- Unique directed dipole design provides rapid azimuth roll off and strong F/B ratio
- Enhanced control of out-of sector power improves C/I, reduces softer hand-offs, improves capacity
- Reliable field adjustable electrical downtilt 0-8°, 1° steps
- Compatible with TELETILT® Remote Control Variable Electrical Downtilt System

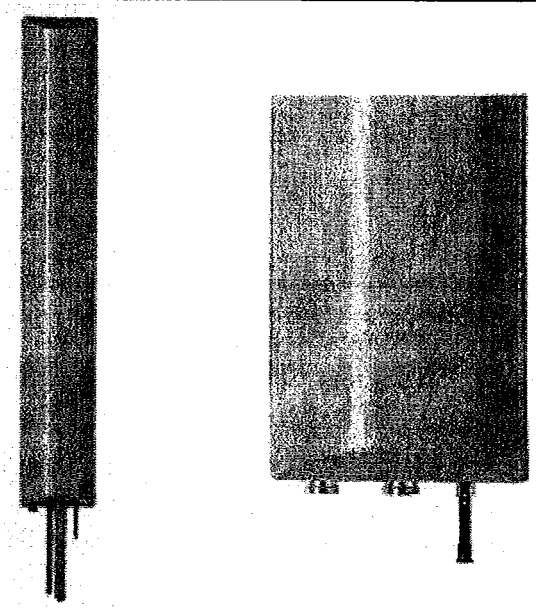
65°

ELECTRICAL

Frequency (MHz) :	1710 - 1880	1850 - 1990	1920 - 2170
Polarization :	±45°	±45°	±45°
Gain (dBd/dBi) :	15/17.1	15.1/17.2	15.4/17.5
Azimuth BW (Deg.):	65	65	65
Elevation BW (Deg.):	7	6.6	6.2
Beam Tilt (Deg.):	0-8	0-8	0-8
USLS* (dB) :	>17	>20	>20
Front-To-Back Ratio* (dB) :	40	40	40
Isolation (dB) :	>30	>30	>30
VSWR :	<1.5:1	<1.5:1	<1.5:1
IM Suppression - 20 (dBc) :	-150	-150	-150
Max. Input Power (Watts) :	250	250	250
Impedance (Ohms) :	50	50	50
Lightning Protection :	DC Ground	DC Ground	DC Ground

MECHANICAL

Weight :	9.0 kg (20 lb)
Dimensions (LxWxD) :	1,308 x 215 x 177 mm (51.5 x 8.5 x 7 in)
Max. Wind Area :	0.09 m² (1 ft²)
Max. Wind Load (@ 100 mph) :	244.6 N (55 lbf)
Max. Wind Speed :	201.1 km/h (125 mph)
Hardware Material :	Galvanized Steel
Connector Type :	7-16 DIN - Female (2, Bottom)
Color :	Light Gray
Standard Mounting Hardware :	DB390
Standard Downtilt Mounting Hardware :	DB5098
Opt. Mounting Hardware :	DB5094-AZ



ANDREW

Andrew Corporation
2601 Telecom Parkway
Richardson, Texas U.S.A 75082-3521
Tel: 214.631.0310

Fax: 214.631.4706
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* - Indicates Typical Values

11/15/2004

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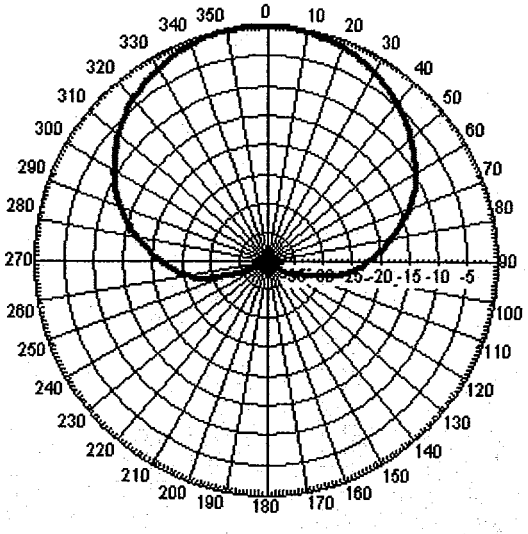
±45° Diversity Directed Dipole® Antenna

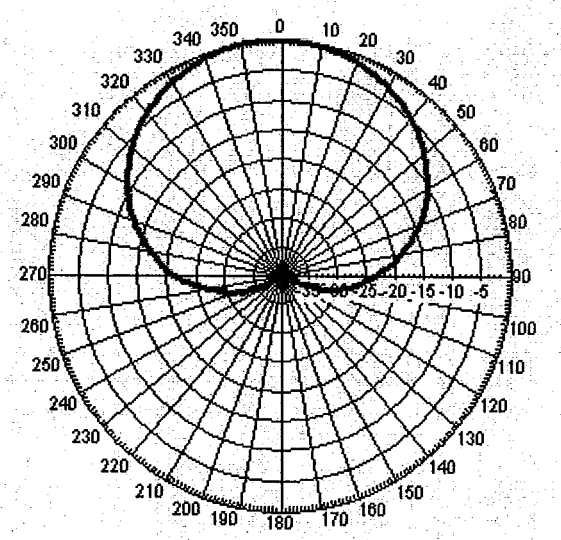
1710 - 1880 MHz
1850 - 1990 MHz
1920 - 2170 MHz

Directed Dipole®

AZIMUTH PATTERN

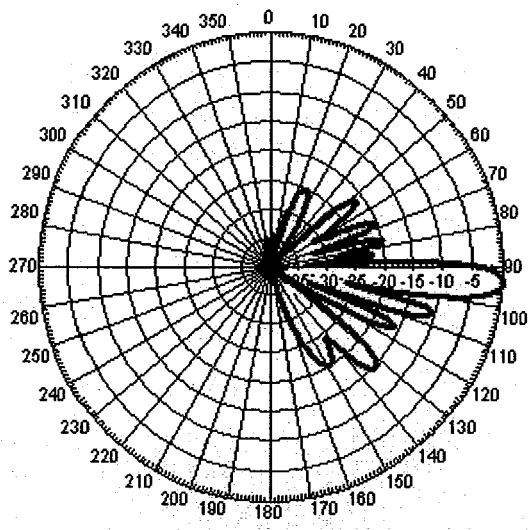


Freq: 1785 MHz, Tilt: 4

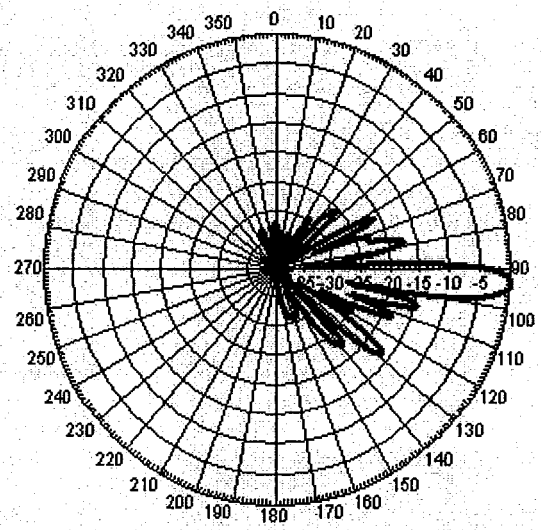


Freq: 1920 MHz, Tilt: 4

ELEVATION PATTERN



Freq: 1785 MHz, Tilt: 4



Freq: 1920 MHz, Tilt: 4

ANDREW

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1710 - 1880 MHz
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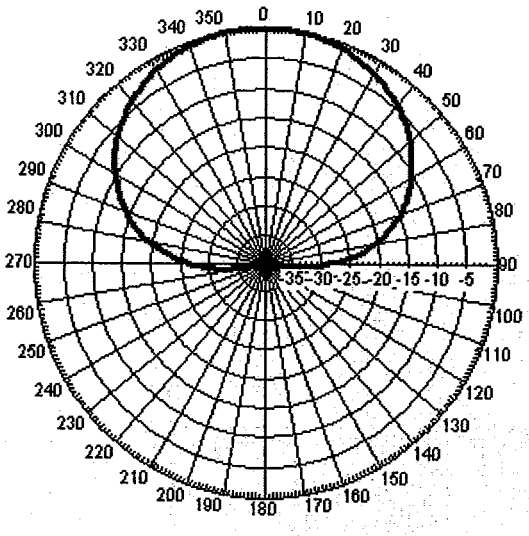
1920 - 2170 MHz

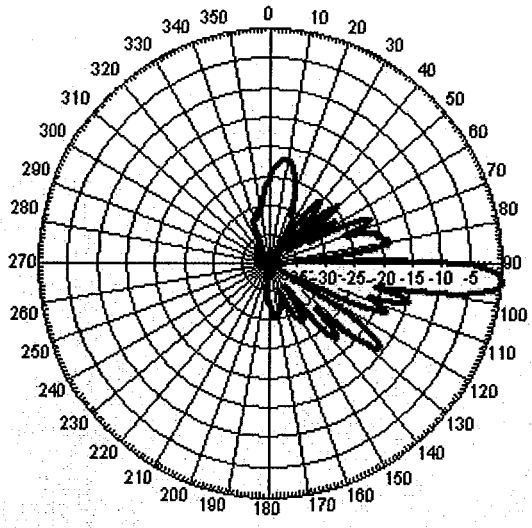
Directed Dipole®

AZIMUTH PATTERN



Freq: 2110 MHz, Tilt: 4

ELEVATION PATTERN



Freq: 2110 MHz, Tilt: 4

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* - Indicates Typical Values

11/15/2004

dbtech@andrew.com

NATCOMM, LLC

Consulting Engineers

March 1, 2005

Ms. Esther McNany
Verizon Wireless
99-101 East River Road
East Hartford, CT 06108

Re.: EVDO Upgrades @ Talcott Mountain
Structural Evaluation of 60 foot Self-Supporting Tower
Montevideo Road
Avon, Connecticut

Project No.: 05031.CO1

Dear Esther,

Natcomm, LLC has retained the services of Walker Engineering, Inc. of Dunwoody, Georgia for the purpose of analyzing the existing self-supporting tower at the above referenced site. Verizon is proposing to add two (2) Decibel DB932LG65VTE-B antennas at an elevation of 56 feet AGL to their existing antenna configuration. The review considered the effects of wind load, dead load and seismic forces in accordance with ITA/EIA-222-F and the Connecticut State Building Code. CSB Communications and Natcomm personnel on 2/01/05 prepared a detailed inventory of the existing structure.

The tower can accommodate Verizon's proposed loading. Please find attached is the analysis and findings prepared by Walker dated 3/01/05.

If there are any questions regarding this matter, please feel free to call.

Sincerely,

Carlo F. Centore, P.E.
Senior Project Manager

WALKER ENGINEERING, INC.

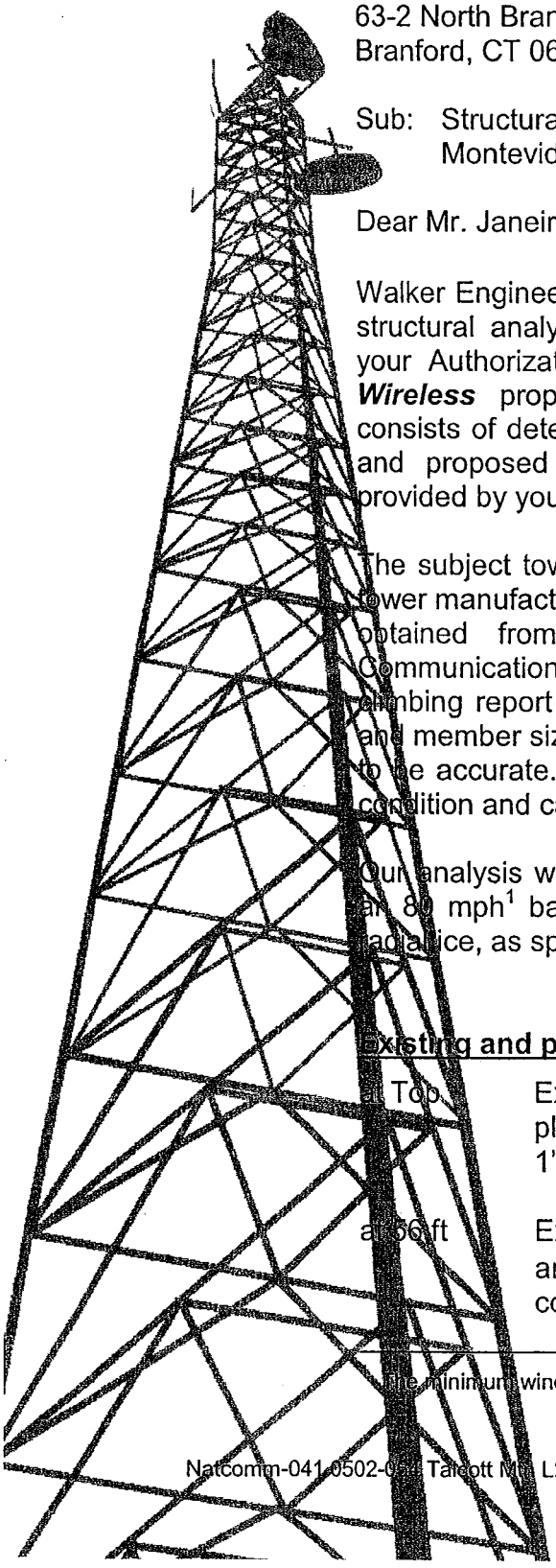
8451 DUNWOODY PLACE
NORTHRIDGE 400, BLDG. 8
DUNWOODY, GA 30350
(770) 641-7306 FAX (770) 587-2196

CIVIL • STRUCTURAL
N 33° 59' 13.6" W 84° 20' 26.8"

Mr. **Al Janeiro** 03/01/05

Natcomm, LLC
63-2 North Branford Road
Branford, CT 06405

Site Name: Talcott Mountain
Site ID: 05031.Co1



Sub: Structural Analysis of 60-ft Self-Supporting Tower SST
Montevideo Road, Avon, CT

Dear Mr. Janeiro:

Walker Engineering has performed a Level-Two finite element, P-Δ structural analysis of the above noted tower in accordance with your Authorization for Services for the addition of the ***Verizon Wireless*** proposed antennas outlined below. This analysis consists of determining the forces on the tower caused by existing and proposed loads. The existing and proposed loads were provided by your office.

The subject tower is a 60-ft, three face, self-supporting tower; the tower manufacturer's drawings are unavailable. The tower data was obtained from a mapping report of the tower, by CSB Communications, Site Name: Talcott Mtn., dated 02/15/05. The climbing report was provided by your office. The tower geometry and member sizes were obtained from these data and are assumed to be accurate. The tower has also been assumed to be in good condition and capable of supporting its original full design capacity.

Our analysis was performed in accordance with TIA/EIA-222-F for an 80 mph[1] base windload, and the ASCE-7 windload with 1.25" radial ice, as specified by Natcomm LLC.

Existing and proposed loads consist of the following:

at Top Existing: Doppler radar with an 18-ft dome on a platform mount, fed by one 1"x2" waveguide and one 1" control cable.

at 56 ft Existing: Two ALP-6014 and Two ALP-6088 panel antennas on two standoff mounts, fed by five 7/8"∅ coax cables.

[1] The minimum windspeed specified by EIA-222-F for Hartford County, CT is 80 mph.

at 56 ft ***Verizon (Proposed)***: Two Decibel DB932LG65VTE-B panel antennas on two proposed tower face mounts, fed by two 7/8"Ø coax cables.

at 37 ft Existing: One Radiation System PA6-12-7GHZ 8-ft dish with radome antenna on a tower leg mount, fed by one WE 130 waveguide.

at 29 ft Existing: One Radiation System P-9A72GN 8-ft grid dish antenna on a tower leg mount, fed by one 1/2"Ø coax cable.

Note: The analysis ***assumes*** that the coax cables (existing, future, and proposed) are installed on the tower per the *Cable Plan Drawing E-7, Walker Engineering Job No. 0412-422, dated 12/16/04.* Additional waveguide ladders may be required. *Please notify the undersigned prior to altering the cable routing configuration or if the coax configuration is different than the following chart.* Placement of small cables for beacons, ground rods, etc. are not critical.

	Existing:	**Proposed/Future**:
Face A:	None	None
Face B:	1ea 1"Ø to Top 1ea WE 130 to 37' 1ea 1/2"Ø to 29'	None
Face C:	5ea 7/8"Ø to 56'	2ea 7/8"Ø to 56' ***(Verizon)***
Inside:	1ea 1"x2" EW to Top	None

Tower Summary:

This analysis shows that the stresses in the subject tower are slightly greater than the allowable stresses with the existing, future, and proposed loads. This overage of 2% or less is within the accuracy of calculating the applied loads. Therefore; his analysis shows that the subject tower ***is adequate*** to support the existing, future, and proposed loads.

A copy of the full analysis is enclosed. A summary of the controlling load cases is provided below:

Tower Element	Elevation	CSI[2]
Tower Legs	0-ft to 60-ft	*1.02*
Diagonal Bracing	0-ft to 60-ft	0.57
Horizontal Bracing	0-ft to 60-ft	0.23

Foundation Summary:

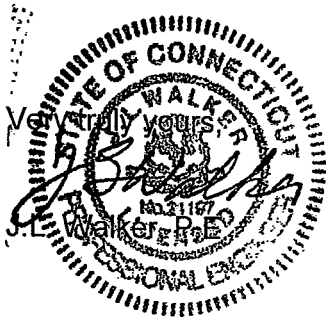
The original tower foundation design loads, original foundation design drawings, and site soil report are ***not available***. Therefore, it is ***not possible*** to determine the ***allowable capacities*** without ***further investigations***.

As future loads are installed, the tower should be re-evaluated on a case-by-case basis.

The analysis is based, in part, on information provided to this office by Natcomm LLC. If the existing conditions are different than the information in this report, Walker Engineering should be contacted for resolution of any issues.

Walker Engineering appreciates the opportunity to be of service in this matter. Please do not hesitate to give me a call if you have any questions or comments.

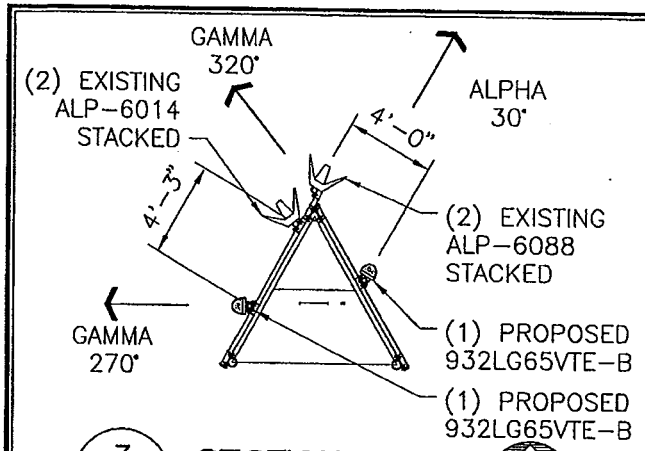
Very truly yours,



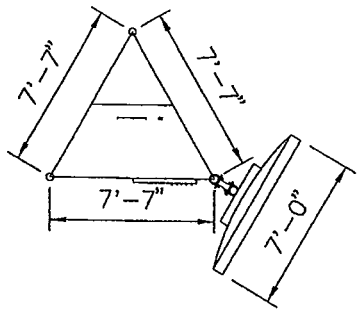
J. L. Walker, P.E.

encl

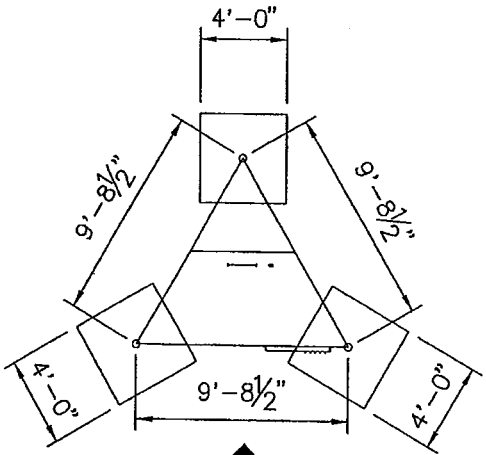
[2] **"Combined Stress Index"** Ratio of calculated loads verses total allowable loads; should be less than, or equal to, 1.00.



3 / SK-1 **SECTION @ 56'-0"**
SCALE: 1/8" = 1'-0"

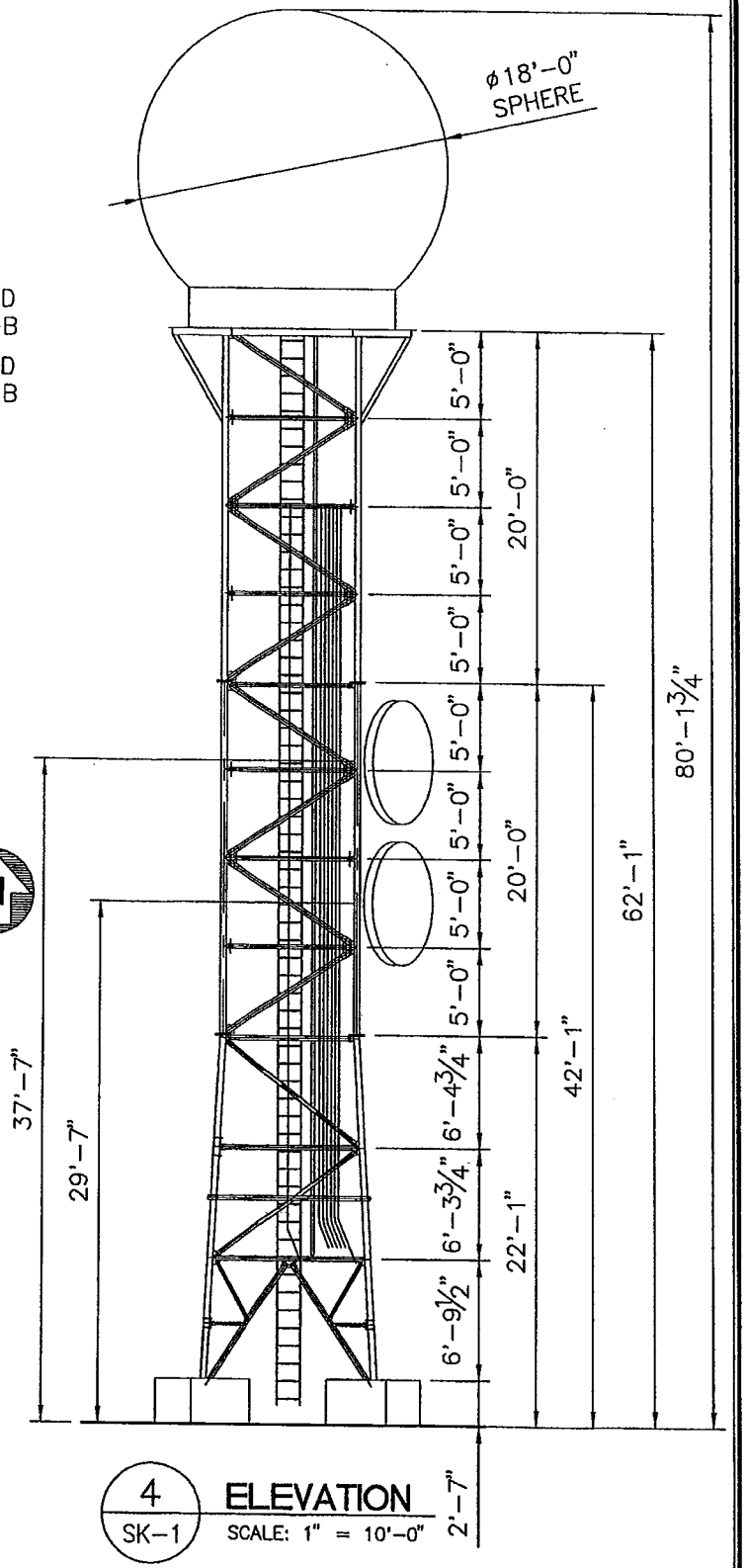


2 / SK-1 **SECTION @ 29'-7" + 37'-7"**
SCALE: 1/8" = 1'-0"



4 / SK-1

1 / SK-1 **SECTION @ 2'-7"**
SCALE: 1/8" = 1'-0"



4 / SK-1 **ELEVATION**
SCALE: 1" = 10'-0"

REVISIONS		
0	02/21/05	TOWER INVENTORY

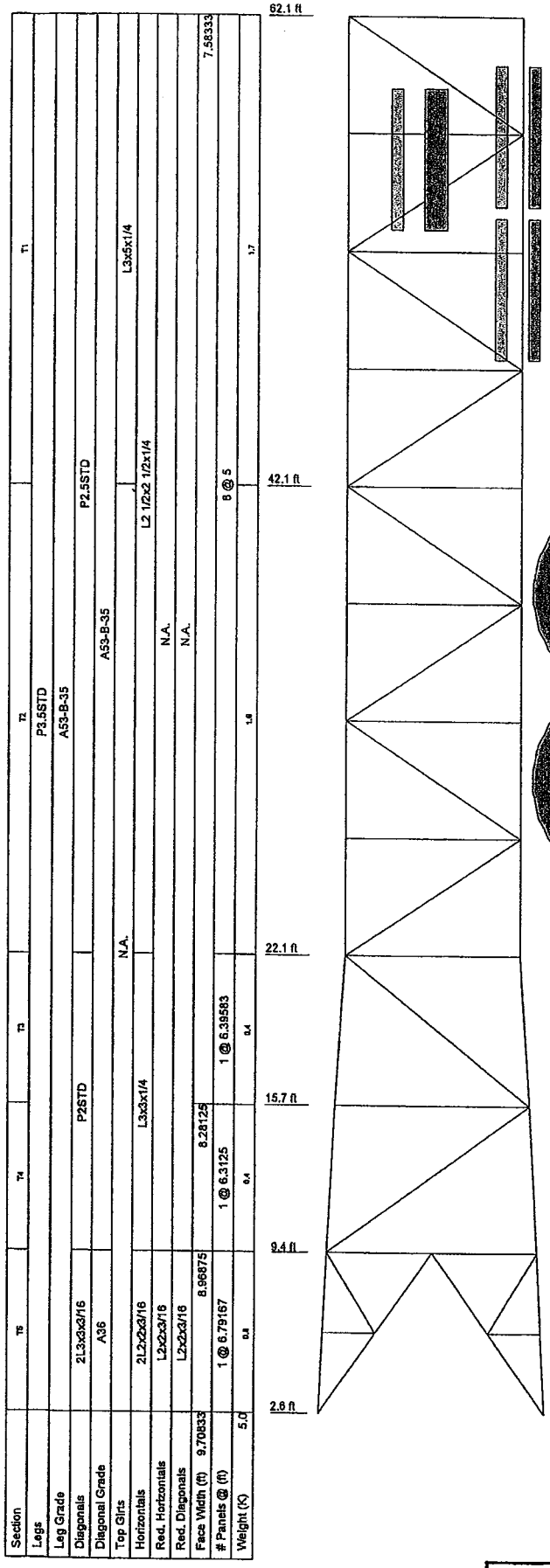
Natcomm, LLC
63-2 North Branford Road
Branford, Connecticut 06405
Tel. (203) 488-0580
Fax (203) 488-8587
Consulting Engineers - Project Management
Civil - Structural - Mechanical - Electrical

TALCOTT MOUNT
MONTEVIDEO RD
AVON, CT 06001

PROJECT NO:	05031.Co1
DRAWN BY:	AAJ
CHECKED BY:	CFC
SCALE:	AS SHOWN
DATE:	02/21/05

Cellco Partnership
d.b.a.
verizonwireless

TOWER INVENTORY
SK-1
DWG. 1 OF 1



APPURTENANCES

TYPE	ELEVATION	TYPE	ELEVATION
18-ft Doppler Dome	62.1	Proposed DB932LG65VTE-B panel antenna	56
Platform Support	62.1 - 57.1	Proposed DB932LG65VTE-B panel antenna	56
Platform Support	62.1 - 57.1	Swedcom ALP 6014 antennas w/Mount Pipe	56
Platform Support	62.1 - 57.1	Swedcom ALP 6014 antennas w/Mount Pipe	56
Doppler Platform	62.1	Celwave 8-ft Dish w/ Radome	37.6
Doppler Platform Support	62.1	Radiation Systems 8-ft Grid Dish	29.6
Doppler Platform Support	62.1		
Doppler Platform Support	62.1		
Swedcom ALP 6088 antennas w/Mount Pipe	56		
Swedcom ALP 6088 antennas w/Mount Pipe	56		

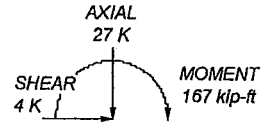
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-35	35 ksi	63 ksi	A36	36 ksi	58 ksi

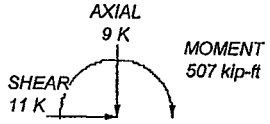
TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 39 mph basic wind with 1.25 in ice.
4. Original Tower Manufacturer unknown
5. Tower geometry information obtained from a mapping report by CSB Communications dated 02/15/05
6. Doppler radar dome not shown

MAX PIER FORCES:
DOWN: 63 K
UPLIFT: -56 K
SHEAR: 7 K



TORQUE 2 kip-ft
39 mph WIND - 1.2500 in ICE



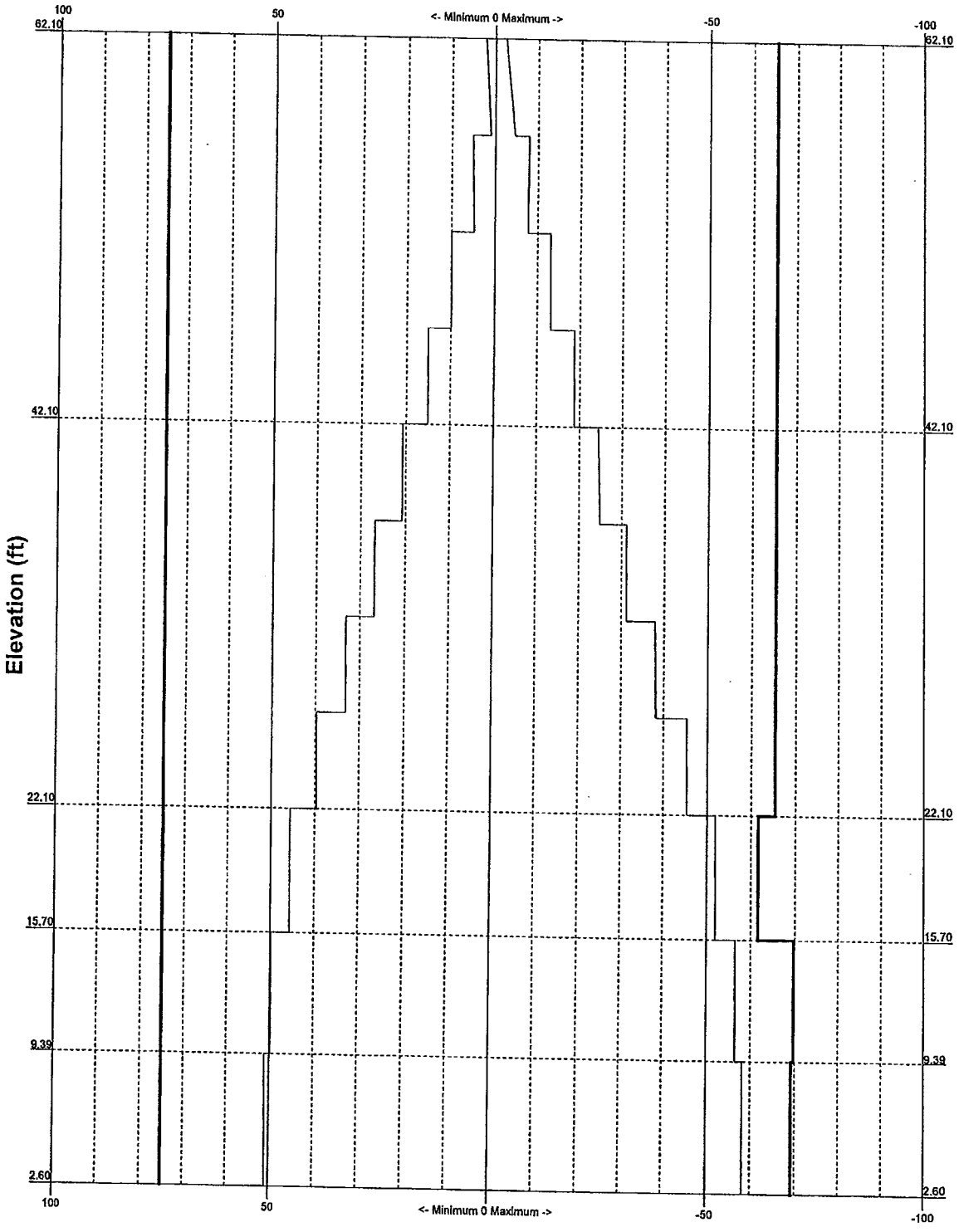
TORQUE 6 kip-ft
REACTIONS - 80 mph WIND

Walker Engineering Inc
8451 Dunwoody Place, Bldg 8
Dunwoody, Georgia 30350
Tower Engineers
Phone: (770) 641-7306
FAX: (770) 587-2196

Job: Natcomm-041; 0502-0054			
Project: Talcott Mountain; 05031.Co1			
Client: Natcomm, LLC.	Drawn by: bhe	App'd:	
Code: TIA/EIA-222-F	Date: 03/01/05	Scale: NTS	
Path: S:\Projects\Towers\NatComm\EAR\Tower\Natcomm-041 0502-0054 Talcott Mount 60-ft SST.ar		Dwg No. E-1	

TIA/EIA-222-F - 80 mph/39 mph 1.2500 in Ice

Leg Capacity ——— Leg Compression (K)



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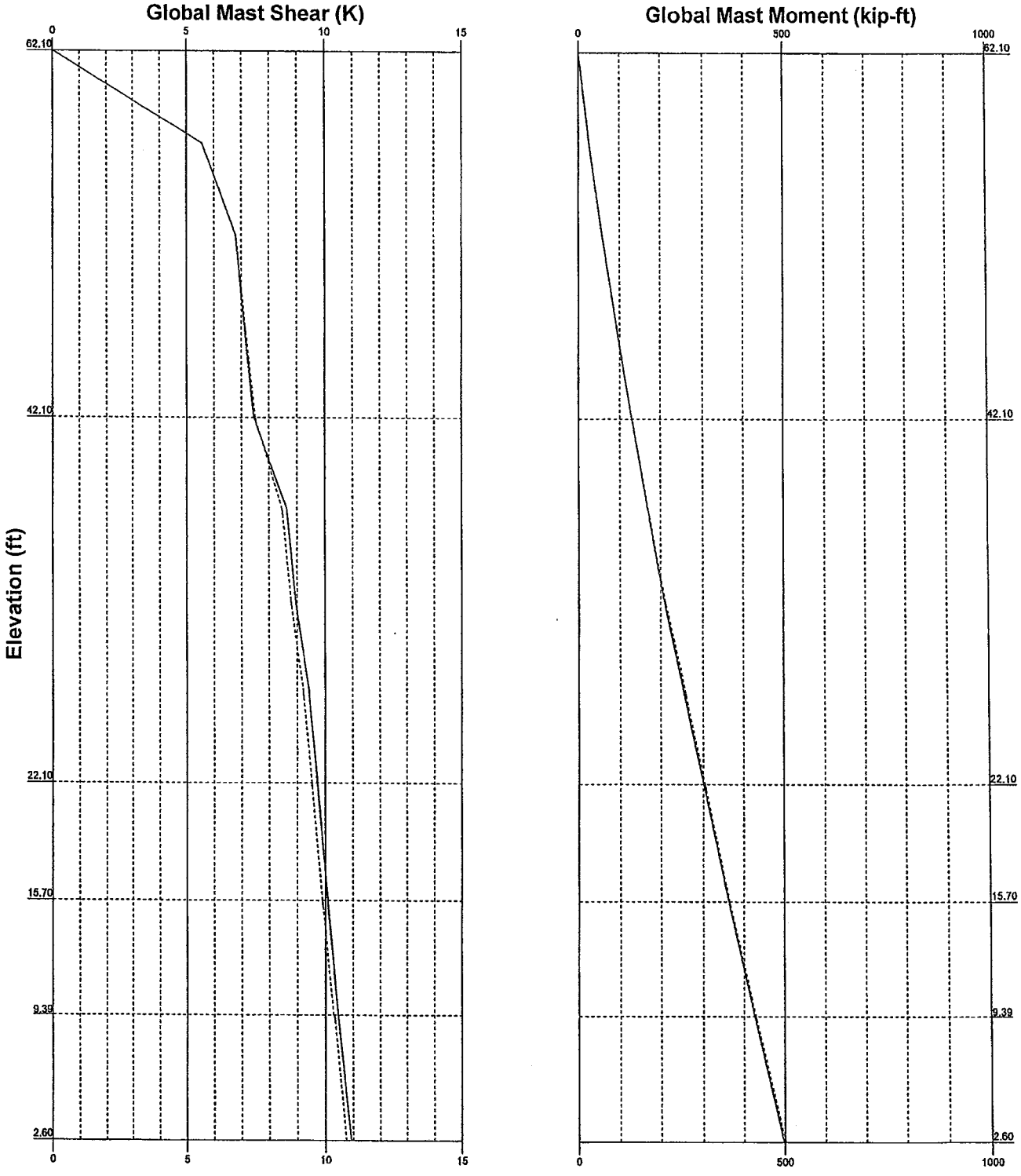
Project: Talcott Mountain; 05031.Co1			
Client: Natcomm, LLC.	Drawn by: bhe		App'd:
Code: TIA/EIA-222-F	Date: 03/01/05		Scale: NTS
Path: S:\Projects\Towers\NatComm\ER\Towers\Natcomm-041 0502-0054 Talcott Mount 60-0 SST.er			Dwg No. E-3

TIA/EIA-222-F - 80 mph/39 mph 1.2500 in Ice

Vx ---------- Vz

Maximum Values

Mx ---------- Mz



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Dunwoody, Georgia 30350
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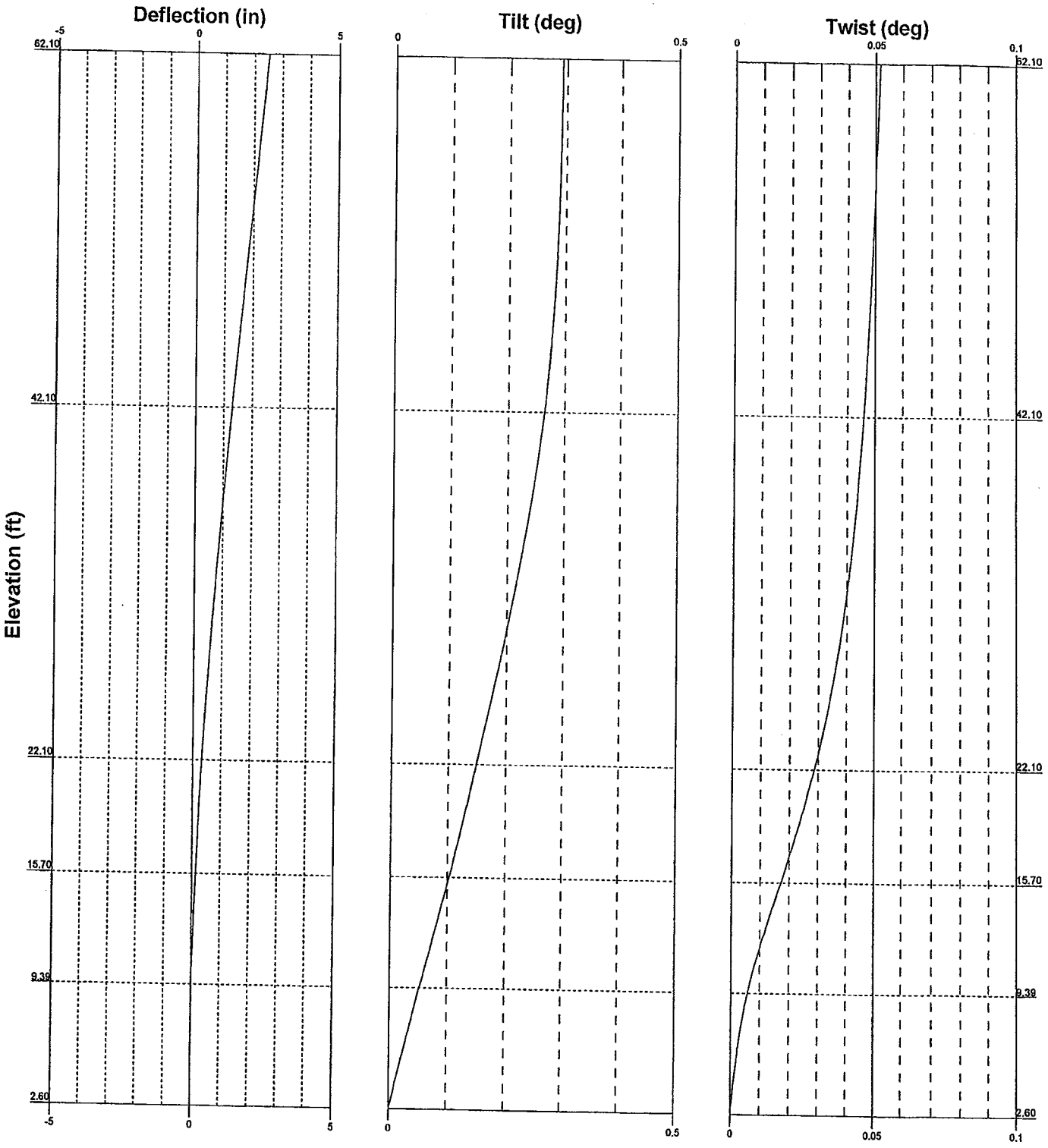
Job: Natcomm-041; 0502-0054			
Project: Talcott Mountain; 05031.Co1			
Client: Natcomm, LLC.	Drawn by: bhe	App'd:	
Code: TIA/EIA-222-F	Date: 03/01/05	Scale: NTS	
Path: S:\Projects\Towers\NatComm\ERITower\Natcomm-041 0502-0054 Talcott Mount 60-8 SST.eri		Dwg No. E-4	

TIA/EIA-222-F - 80 mph/39 mph 1.2500 in Ice

Maximum Values



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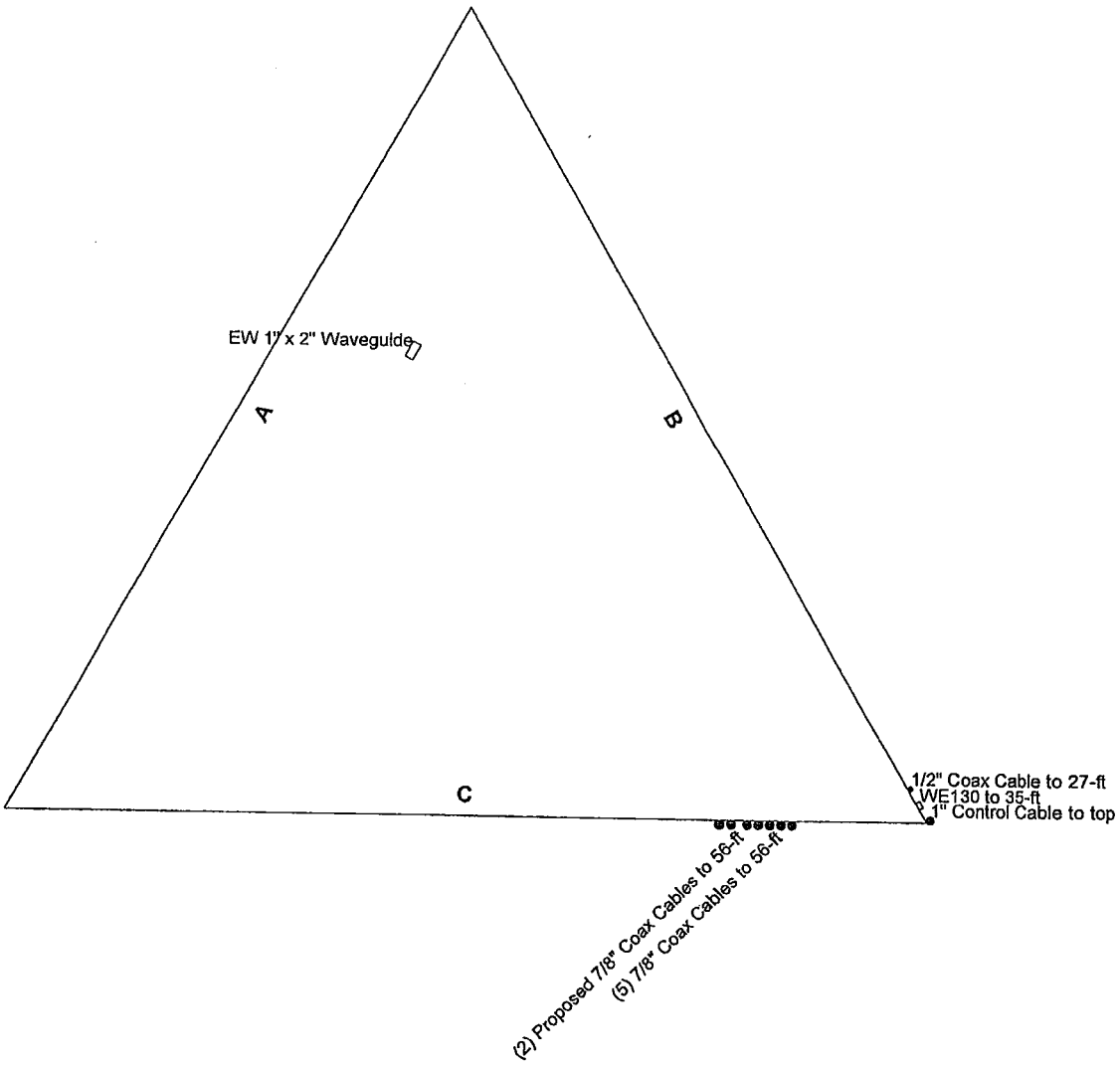
Project: Talcott Mountain; 05031.Co1			
Client: Natcomm, LLC.	Drawn by: bhe		App'd:
Code: TIA/EIA-222-F	Date: 03/01/05		Scale: NTS
Path: 8\Projects\Towers\NatComm\ERITower\Natcomm-041 0502-0054 Talcott Mount 60-ft SST.eri			Dwg No. E-5

Feedline Plan



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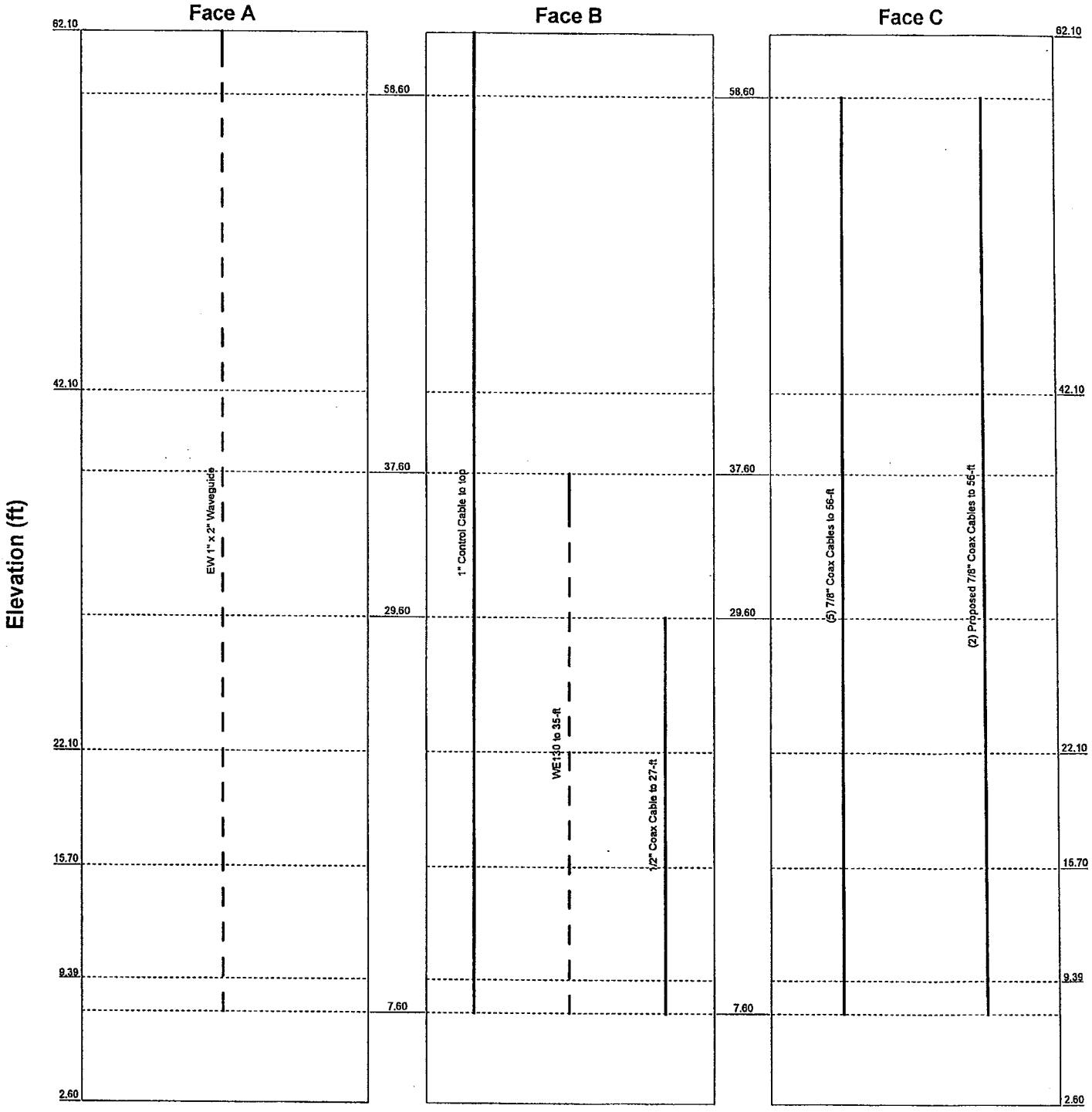
Job: Natcomm-041; 0502-0054		
Project: Talcott Mountain; 05031.Co1		
Client: Natcomm, LLC.	Drawn by: bhe	App'd:
Code: TIA/EIA-222-F	Date: 03/01/05	Scale: NTS
Path: S:\Projects\Towers\NatComm\ERI\Towers\Natcomm-041 0502-0054 Talcott Mount 60-S SST.ai		Dwg No. E-7

Feedline Distribution Chart
2'7-3/16" - 62'1-3/16"

Round Flat App In Face App Out Face Truss Leg



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Tower Engineers

Job: Natcomm-041; 0502-0054		
Project: Talcott Mountain; 05031.Co1		
Client: Natcomm, LLC.	Drawn by: bhe	App'd:
Code: TIA/EIA-222-F	Date: 03/01/05	Scale: NTS
Path: S:\Projects\Towers\NatComm\ERITower\Natcomm-041 0502-0054 Talcott Mount 60-ft SST.ai		Dwg No. E-7

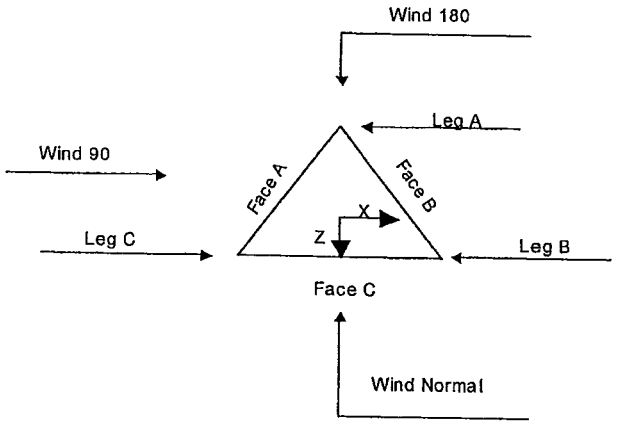
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 62.10 ft above the ground line.
The base of the tower is set at an elevation of 2.60 ft above the ground line.
The face width of the tower is 7.58 ft at the top and 9.71 ft at the base.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in Hartford County, Connecticut.
Basic wind speed of 80 mph.
Nominal ice thickness of 1.2500 in.
Ice density of 56 pcf.
A wind speed of 39 mph is used in combination with ice.
Original Tower Manufacturer unknown.
Tower geometry information obtained from a mapping report by CSB Communications dated 02/15/05.
Doppler radar dome not shown.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.333.
Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Options

√ Consider Moments - Legs	√ Distribute Leg Loads As Uniform	√ Treat Feedline Bundles As Cylinder
Consider Moments - Horizontals	Assume Legs Pinned	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Diagonals	Assume Rigid Index Plate	Calculate Redundant Bracing Forces
Use Moment Magnification	√ Use Clear Spans For Wind Area	Ignore Redundant Members in FEA
√ Use Code Stress Ratios	√ Use Clear Spans For KL/r	SR Leg Bolts Resist Compression
Use Code Safety Factors - Guys	Retension Guys To Initial Tension	All Leg Panels Have Same Allowable
Escalate Ice	Bypass Mast Stability Checks	Offset Girt At Foundation
Always Use Max Kz	√ Use Azimuth Dish Coefficients	√ Consider Feedline Torque
Use Special Wind Profile	√ Project Wind Area of Appurt.	Include Angle Block Shear Check
Include Bolts In Member Capacity	Autocalc Torque Arm Areas	Poles
Leg Bolts Are At Top Of Section	SR Members Have Cut Ends	Include Shear-Torsion Interaction
Secondary Horizontal Braces Leg	√ Sort Capacity Reports By Component	Always Use Sub-Critical Flow
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Use Top Mounted Sockets
Add IBC .6D+W Combination		



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	62.10-42.10			7.58	1	20.00
T2	42.10-22.10			7.58	1	20.00
T3	22.10-15.70			7.58	1	6.40
T4	15.70-9.39			8.28	1	6.31
T5	9.39-2.60			8.97	1	6.79

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	62.10-42.10	5.00	K Brace Left	No	Yes	0.0000	0.0000
T2	42.10-22.10	5.00	K Brace Left	No	Yes	0.0000	0.0000
T3	22.10-15.70	6.40	Diag Down	No	Yes	0.0000	0.0000
T4	15.70-9.39	6.31	Diag Up	No	Yes	0.0000	0.0000
T5	9.39-2.60	6.79	K1 Down	No	Yes	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 62.10-42.10	Pipe	P3.5STD	A53-B-35 (35 ksi)	Pipe	P2.5STD	A53-B-35 (35 ksi)
T2 42.10-22.10	Pipe	P3.5STD	A53-B-35 (35 ksi)	Pipe	P2.5STD	A53-B-35 (35 ksi)
T3 22.10-15.70	Pipe	P3.5STD	A53-B-35 (35 ksi)	Pipe	P2STD	A53-B-35 (35 ksi)
T4 15.70-9.39	Pipe	P3.5STD	A53-B-35 (35 ksi)	Pipe	P2STD	A53-B-35 (35 ksi)
T5 9.39-2.60	Pipe	P3.5STD	A53-B-35 (35 ksi)	Double Equal Angle	2L3x3x3/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 62.10-42.10	Single Angle	L3x5x1/4	A36 (36 ksi)	Single Angle		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 62.10-42.10	None	Flat Bar		A36 (36 ksi)	Single Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T2 42.10-22.10	None	Flat Bar		A36 (36 ksi)	Single Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T3 22.10-15.70	None	Flat Bar		A36 (36 ksi)	Single Angle	L3x3x1/4	A36 (36 ksi)
T4 15.70-9.39	None	Flat Bar		A36 (36 ksi)	Single Angle	L3x3x1/4	A36 (36 ksi)
T5 9.39-2.60	None	Flat Bar		A36 (36 ksi)	Double Equal Angle	2L2x2x3/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Redundant Bracing Grade		Redundant Type	Redundant Size	K Factor
T5 9.39-2.60	A36 (36 ksi)	Horizontal (1)	Single Angle	L2x2x3/16	1
		Diagonal (1)	Single Angle	L2x2x3/16	1

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
T1 62.10-42.10	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T2 42.10-22.10	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T3 22.10-15.70	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T4 15.70-9.39	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000
T5 9.39-2.60	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1 62.10-42.10	No	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T2 42.10-22.10	No	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T3 22.10-15.70	No	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T4 15.70-9.39	No	No	0.5	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T5 9.39-2.60	No	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 62.10-42.10	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T2 42.10-22.10	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T3 22.10-15.70	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T4 15.70-9.39	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T5 9.39-2.60	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1" Control Cable to top	B	Yes	Ar (CfAe)	62.10 - 7.60	0.0000	0.5	1	1	1.0000	1.0000		1.00
EW 1" x 2" Waveguide	A	Yes	Af (CfAe)	62.10 - 7.60	-14.0000	0.15	1	1	2.0000	2.0000	6.0000	1.00
WE130 to 35-ft	B	Yes	Af (CfAe)	37.60 - 7.60	0.0000	0.48	1	1	0.8601	0.8601	2.8549	0.25
1/2" Coax Cable to 27-ft	B	Yes	Ar (CfAe)	29.60 - 7.60	0.0000	0.46	1	1	0.6300	0.6300		0.15
7/8" Coax Cables to 56-ft	C	Yes	Ar (CfAe)	58.60 - 7.60	0.0000	-0.33	5	5	0.2500	1.0900		0.33
Proposed 7/8" Coax Cables to 56-ft	C	Yes	Ar (CfAe)	58.60 - 7.60	0.0000	-0.282	2	2	0.2500	1.0900		0.33

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	62.10-42.10	A	0.000	3.333	0.000	0.000	0.02
		B	1.667	0.000	0.000	0.000	0.02
		C	10.491	0.000	0.000	0.000	0.04
T2	42.10-22.10	A	0.000	3.333	0.000	0.000	0.02
		B	2.060	1.111	0.000	0.000	0.03
		C	12.717	0.000	0.000	0.000	0.05
T3	22.10-15.70	A	0.000	1.066	0.000	0.000	0.01
		B	0.869	0.458	0.000	0.000	0.01
		C	4.067	0.000	0.000	0.000	0.01
T4	15.70-9.39	A	0.000	1.052	0.000	0.000	0.01
		B	0.857	0.452	0.000	0.000	0.01
		C	4.014	0.000	0.000	0.000	0.01
T5	9.39-2.60	A	0.000	0.299	0.000	0.000	0.00
		B	0.243	0.128	0.000	0.000	0.00
		C	1.139	0.000	0.000	0.000	0.00

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	62.10-42.10	A	1.250	0.000	6.111	0.000	0.000	0.12
		B		5.833	0.000	0.000	0.000	0.09
		C		9.873	9.213	0.000	0.000	0.28
T2	42.10-22.10	A	1.250	0.000	6.111	0.000	0.000	0.12
		B		7.790	3.264	0.000	0.000	0.17
		C		11.967	11.167	0.000	0.000	0.34
T3	22.10-15.70	A	1.250	0.000	1.954	0.000	0.000	0.04

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B		3.534	1.347	0.000	0.000	0.07
		C		3.827	3.571	0.000	0.000	0.11
T4	15.70-9.39	A	1.250	0.000	1.929	0.000	0.000	0.04
		B		3.488	1.329	0.000	0.000	0.07
		C		3.777	3.524	0.000	0.000	0.11
T5	9.39-2.60	A	1.250	0.000	0.547	0.000	0.000	0.01
		B		0.990	0.377	0.000	0.000	0.02
		C		1.072	1.000	0.000	0.000	0.03

Feed Line Shielding

Section	Elevation ft	Face	A_R ft^2	A_R Ice ft^2	A_F ft^2	A_F Ice ft^2
T1	62.10-42.10	A	0.191	0.805	0.146	0.536
		B	0.096	0.626	0.073	0.417
		C	0.602	2.048	0.459	1.365
T2	42.10-22.10	A	0.191	0.805	0.139	0.521
		B	0.182	1.302	0.132	0.842
		C	0.730	2.482	0.530	1.606
T3	22.10-15.70	A	0.042	0.196	0.042	0.146
		B	0.053	0.434	0.052	0.324
		C	0.162	0.604	0.159	0.450
T4	15.70-9.39	A	0.041	0.189	0.042	0.146
		B	0.051	0.419	0.052	0.324
		C	0.156	0.582	0.159	0.450
T5	9.39-2.60	A	0.000	0.000	0.048	0.185
		B	0.000	0.000	0.059	0.410
		C	0.000	0.000	0.182	0.570

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	62.10-42.10	3.3714	2.4386	2.2340	1.1647
T2	42.10-22.10	4.4725	3.2450	3.4149	1.8799
T3	22.10-15.70	5.5446	3.9367	4.9695	2.7433
T4	15.70-9.39	5.8028	4.1203	5.2073	2.8749
T5	9.39-2.60	1.2912	0.9168	1.0370	0.5420

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Swedcom ALP 6014 antennas w/Mount Pipe	B	From Face	0.50 1.00 1.00	0.0000	56.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.50 8.24 8.85 10.10	6.47 7.56 8.36 10.00	0.05 0.11 0.18 0.35
Swedcom ALP 6014 antennas w/Mount Pipe	B	From Face	0.50 1.00 -5.50	0.0000	56.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.50 8.24 8.85 10.10	6.47 7.56 8.36 10.00	0.05 0.11 0.18 0.35
Swedcom ALP 6088 antennas w/Mount Pipe	B	From Leg	0.50 0.00 1.00	0.0000	56.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.50 8.24 8.85 10.10	6.47 7.56 8.36 10.00	0.05 0.11 0.18 0.35
Swedcom ALP 6088 antennas w/Mount Pipe	B	From Leg	0.50 0.00 -5.50	0.0000	56.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.50 8.24 8.85 10.10	6.47 7.56 8.36 10.00	0.05 0.11 0.18 0.35
Proposed DB932LG65VTE-B panel antenna	B	From Face	0.50 -8.00 0.00	0.0000	56.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.10 7.80 8.40 9.63	3.50 4.54 5.30 6.84	0.05 0.09 0.15 0.28
Proposed DB932LG65VTE-B panel antenna	C	From Face	0.50 0.00 0.00	0.0000	56.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.10 7.80 8.40 9.63	3.50 4.54 5.30 6.84	0.05 0.09 0.15 0.28
18-ft Doppler Dome	C	None		0.0000	62.10	No Ice 1/2" Ice 1" Ice 2" Ice	203.47 205.47 207.47 211.47	203.47 205.47 207.47 211.47	2.00 4.40 6.79 11.59
Platform Support	A	From Leg	0.00 0.00 0.00	0.0000	62.10 - 57.10	No Ice 1/2" Ice 1" Ice 2" Ice	2.84 3.47 4.10 5.36	2.84 3.47 4.10 5.36	0.03 0.04 0.06 0.08
Platform Support	B	From Leg	0.00 0.00 0.00	0.0000	62.10 - 57.10	No Ice 1/2" Ice 1" Ice 2" Ice	2.84 3.47 4.10 5.36	2.84 3.47 4.10 5.36	0.03 0.04 0.06 0.08
Platform Support	C	From Leg	0.00 0.00 0.00	0.0000	62.10 - 57.10	No Ice 1/2" Ice 1" Ice 2" Ice	2.84 3.47 4.10 5.36	2.84 3.47 4.10 5.36	0.03 0.04 0.06 0.08
Doppler Platform	C	None		0.0000	62.10	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	1.00 1.30 2.00 3.00
Doppler Platform Support	A	From Face	0.00 0.00 0.00	0.0000	62.10	No Ice 1/2" Ice 1" Ice 2" Ice	3.17 3.87 4.57 5.97	3.17 3.87 4.57 5.97	0.10 0.14 0.19 0.28
Doppler Platform Support	B	From Face	0.00 0.00 0.00	0.0000	62.10	No Ice 1/2" Ice 1" Ice 2" Ice	3.17 3.87 4.57 5.97	3.17 3.87 4.57 5.97	0.10 0.14 0.19 0.28
Doppler Platform Support	C	From Face	0.00 0.00 0.00	0.0000	62.10	No Ice 1/2" Ice 1" Ice 2" Ice	3.17 3.87 4.57 5.97	3.17 3.87 4.57 5.97	0.10 0.14 0.19 0.28

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter		Aperture Area	Weight
				ft ft ft	°	°	ft	ft		ft²	K
Radiation Systems 8-ft Grid Dish	B	Grid	From Leg	0.50 0.00 0.00	0.0000		29.60	8.00	No Ice 1/2" Ice 1" Ice 2" Ice	19.00 39.43 50.27 50.27	0.22 0.57 0.92 1.63
Celwave 8-ft Dish w/ Radome	B	Paraboloid w/Radome	From Leg	0.50 0.00 0.00	0.0000		37.60	8.00	No Ice 1/2" Ice 1" Ice 2" Ice	50.27 51.32 52.37 54.47	0.38 0.56 0.74 1.10

Tower Pressures - No Ice

$G_H = 1.202$

Section Elevation	z	K_z	q_z	A_G	Face	A_F	A_R	A_{leg}	Leg %	C_AA_A In Face	C_AA_A Out Face
ft	ft		psf	ft²		ft²	ft²	ft²		ft²	ft²
T1 62.10-42.10	52.10	1.139	19	158.333	A	9.531	21.464	13.333	43.02	0.000	0.000
					B	6.271	23.227		45.20		
					C	5.885	31.545		35.62		
T2 42.10-22.10	32.10	1	16	158.333	A	9.236	21.464	13.333	43.43	0.000	0.000
					B	7.020	23.534		43.64		
					C	5.512	33.642		34.05		
T3 22.10-15.70	18.90	1	16	52.869	A	2.837	6.162	4.272	47.48	0.000	0.000
					B	2.219	7.021		46.24		
					C	1.654	10.110		36.32		
T4 15.70-9.39	12.55	1	16	56.553	A	2.997	6.210	4.217	45.80	0.000	0.000
					B	2.388	7.057		44.65		
					C	1.828	10.108		35.33		
T5 9.39-2.60	6.00	1	16	65.692	A	7.631	4.537	4.537	37.28	0.000	0.000
					B	7.449	4.780		37.10		
					C	7.198	5.676		35.24		

Tower Pressure - With Ice

$G_H = 1.202$

Section Elevation	z	K_z	q_z	t_z	A_G	Face	A_F	A_R	A_{leg}	Leg %	C_AA_A In Face	C_AA_A Out Face
ft	ft		psf	in	ft²		ft²	ft²	ft²		ft²	ft²
T1 62.10-42.10	52.10	1.139	4	1.2500	162.500	A	15.946	36.421	21.667	41.37	0.000	0.000
						B	9.954	42.433		41.36		

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
						C	18.219	45.050		34.25		
T2 42.10-22.10	32.10	1	4	1.2500	162.500	A	15.660	36.421	21.667	41.60	0.000	0.000
						B	12.491	43.714		38.55		
						C	19.630	46.710		32.66		
T3 22.10-15.70	18.90	1	4	1.2500	54.203	A	4.628	10.713	6.943	45.25	0.000	0.000
						B	3.842	14.008		38.89		
						C	5.941	14.132		34.59		
T4 15.70-9.39	12.55	1	4	1.2500	57.870	A	4.874	10.838	6.852	43.61	0.000	0.000
						B	4.096	14.096		37.67		
						C	6.166	14.222		33.61		
T5 9.39-2.60	6.00	1	4	1.2500	67.109	A	12.773	7.372	7.372	36.60	0.000	0.000
						B	12.377	8.362		35.55		
						C	12.840	8.444		34.64		

Discrete Appurtenance Pressures - No Ice $G_H = 1.202$

Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z psf	C_AA_C Front ft²	C_AA_C Side ft²
Swedcom ALP 6014 antennas w/Mount Pipe	60.0000	0.05	2.83	-0.48	57.00	1.169	19	7.50	6.47
Swedcom ALP 6014 antennas w/Mount Pipe	60.0000	0.05	2.83	-0.48	50.50	1.129	19	7.50	6.47
Swedcom ALP 6088 antennas w/Mount Pipe	120.0000	0.05	4.22	2.44	57.00	1.169	19	7.50	6.47
Swedcom ALP 6088 antennas w/Mount Pipe	120.0000	0.05	4.22	2.44	50.50	1.129	19	7.50	6.47
Proposed DB932LG65VTE-B panel antenna	60.0000	0.05	-1.67	-8.27	56.00	1.163	19	7.10	3.50
Proposed DB932LG65VTE-B panel antenna	180.0000	0.05	0.00	2.69	56.00	1.163	19	7.10	3.50
18-ft Doppler Dome	0.0000	2.00	0.00	0.00	62.10	1.198	20	203.47	203.47
Platform Support	0.0000	0.03	0.00	-4.38	59.60	1.184	19	2.84	2.84
Platform Support	120.0000	0.03	3.79	2.19	59.60	1.184	19	2.84	2.84
Platform Support	240.0000	0.03	-3.79	2.19	59.60	1.184	19	2.84	2.84
Doppler Platform	0.0000	1.00	0.00	0.00	62.10	1.198	20	0.00	0.00
Doppler Platform Support	300.0000	0.10	-1.90	-1.09	62.10	1.198	20	3.17	3.17
Doppler Platform Support	60.0000	0.10	1.90	-1.09	62.10	1.198	20	3.17	3.17
Doppler Platform Support	180.0000	0.10	0.00	2.19	62.10	1.198	20	3.17	3.17
	Sum Weight:	3.68							

Discrete Appurtenance Pressures - With Ice $G_H = 1.202$

Description	Aiming Azimuth °	Weight K	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z psf	C_AA_C Front ft²	C_AA_C Side ft²	t_z in
Swedcom ALP 6014	60.0000	0.22	2.83	-0.48	57.00	1.169	5	9.16	8.77	1.2500

WEInc

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Job	Page
Natcomm-041; 0502-0054	10 of 21
Project	**Date**
Talcott Mountain; 05031.Co1	13:11:13 03/01/05
Client	**Designed by**
Natcomm, LLC.	bhe

Description	*Aiming Azimuth* °	*Weight* *K*	*Offset$_x$* *ft*	*Offset$_z$* *ft*	*z* *ft*	*K$_z$*	*q$_z$* *psf*	*C$_A$A$_C$ Front* *ft^2*	*C$_A$A$_C$ Side* *ft^2*	*t$_z$* *in*
antennas w/Mount Pipe Swedcom ALP 6014	60.0000	0.22	2.83	-0.48	50.50	1.129	4	9.16	8.77	1.2500
antennas w/Mount Pipe Swedcom ALP 6088	120.0000	0.22	4.22	2.44	57.00	1.169	5	9.16	8.77	1.2500
antennas w/Mount Pipe Swedcom ALP 6088	120.0000	0.22	4.22	2.44	50.50	1.129	4	9.16	8.77	1.2500
Proposed DB932LG65VTE-B panel antenna	60.0000	0.18	-1.67	-8.27	56.00	1.163	5	8.71	5.68	1.2500
Proposed DB932LG65VTE-B panel antenna	180.0000	0.18	0.00	2.69	56.00	1.163	5	8.71	5.68	1.2500
18-ft Doppler Dome	0.0000	7.99	0.00	0.00	62.10	1.198	5	208.47	208.47	1.2500
Platform Support	0.0000	0.06	0.00	-4.38	59.60	1.184	5	4.42	4.42	1.2500
Platform Support	120.0000	0.06	3.79	2.19	59.60	1.184	5	4.42	4.42	1.2500
Platform Support	240.0000	0.06	-3.79	2.19	59.60	1.184	5	4.42	4.42	1.2500
Doppler Platform	0.0000	2.25	0.00	0.00	62.10	1.198	5	0.00	0.00	1.2500
Doppler Platform Support	300.0000	0.21	-1.90	-1.09	62.10	1.198	5	4.92	4.92	1.2500
Doppler Platform Support	60.0000	0.21	1.90	-1.09	62.10	1.198	5	4.92	4.92	1.2500
Doppler Platform Support	180.0000	0.21	0.00	2.19	62.10	1.198	5	4.92	4.92	1.2500
	Sum Weight:	12.31								

Dish Pressures - No Ice

Elevation *ft*	*Dish Description*	*Aiming Azimuth* °	*Weight* *K*	*Offset$_x$* *ft*	*Offset$_z$* *ft*	*K$_z$*	*A$_A$* *ft^2*	*q$_z$* *psf*
29.60	Radiation Systems 8-ft Grid Dish	120.0000	0.22	4.22	2.44	1.000	19.00	16
37.60	Celwave 8-ft Dish w/ Radome	120.0000	0.38	4.22	2.44	1.038	50.27	17
		Sum Weight:	0.60					

Dish Pressures - With Ice

Elevation *ft*	*Dish Description*	*Aiming Azimuth* °	*Weight* *K*	*Offset$_x$* *ft*	*Offset$_z$* *ft*	*K$_z$*	*A$_A$* *ft^2*	*q$_z$* *psf*	*t$_z$* *in*
29.60	Radiation Systems 8-ft Grid Dish	120.0000	1.10	4.22	2.44	1.000	50.27	4	1.2500
37.60	Celwave 8-ft Dish w/ Radome	120.0000	0.83	4.22	2.44	1.038	52.90	4	1.2500
		Sum Weight:	1.93						

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice
4	Dead+Wind 60 deg - No Ice
5	Dead+Wind 90 deg - No Ice
6	Dead+Wind 120 deg - No Ice
7	Dead+Wind 150 deg - No Ice
8	Dead+Wind 180 deg - No Ice
9	Dead+Wind 210 deg - No Ice
10	Dead+Wind 240 deg - No Ice
11	Dead+Wind 270 deg - No Ice
12	Dead+Wind 300 deg - No Ice
13	Dead+Wind 330 deg - No Ice
14	Dead+Ice
15	Dead+Wind 0 deg+Ice
16	Dead+Wind 30 deg+Ice
17	Dead+Wind 60 deg+Ice
18	Dead+Wind 90 deg+Ice
19	Dead+Wind 120 deg+Ice
20	Dead+Wind 150 deg+Ice
21	Dead+Wind 180 deg+Ice
22	Dead+Wind 210 deg+Ice
23	Dead+Wind 240 deg+Ice
24	Dead+Wind 270 deg+Ice
25	Dead+Wind 300 deg+Ice
26	Dead+Wind 330 deg+Ice

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	62.1 - 42.1	Leg	Max Tension	8	15.18	0.03	-0.07
			Max. Compression	2	-18.71	0.14	0.12
			Max. Mx	5	-2.38	-0.20	-0.04
			Max. My	2	0.47	-0.05	-0.22
			Max. Vy	5	-1.74	0.00	-0.00
			Max. Vx	2	1.74	0.00	0.00
		Diagonal	Max Tension	13	6.06	0.00	0.00
			Max. Compression	7	-6.12	0.00	0.00
			Max. Mx	18	1.36	0.11	0.00
			Max. My	2	0.31	0.00	-0.00
			Max. Vy	18	0.05	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
		Horizontal	Max Tension	8	0.60	0.00	0.00
			Max. Compression	2	-0.58	0.00	0.00
			Max. Mx	14	0.07	-0.08	0.00
			Max. My	2	-0.58	0.00	-0.00
			Max. Vy	14	-0.04	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
		Top Girt	Max Tension	8	2.00	0.00	0.00
			Max. Compression	2	-2.00	0.00	0.00
			Max. Mx	14	0.01	-0.12	0.00
			Max. My	2	1.00	0.00	-0.00
			Max. Vy	14	0.06	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
T2	42.1 - 22.1	Leg	Max Tension	8	39.73	0.12	-0.15
			Max. Compression	6	-45.39	-0.32	0.14
			Max. Mx	13	-40.57	0.34	0.08

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	10	-44.22	0.04	-0.34
			Max. Vy	11	-0.40	0.19	0.07
			Max. Vx	13	-0.40	-0.02	0.15
		Diagonal	Max Tension	13	8.39	0.00	0.00
			Max. Compression	11	-8.15	0.00	0.00
			Max. Mx	20	1.80	0.11	0.00
			Max. My	10	0.31	0.00	0.00
			Max. Vy	20	-0.05	0.00	0.00
			Max. Vx	10	-0.00	0.00	0.00
		Horizontal	Max Tension	11	0.58	0.00	0.00
			Max. Compression	13	-0.53	0.00	0.00
			Max. Mx	14	0.07	-0.08	0.00
			Max. My	2	0.20	0.00	-0.00
			Max. Vy	14	-0.04	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
T3	22.1 - 15.7042	Leg	Max Tension	4	45.57	-0.21	0.17
			Max. Compression	6	-51.92	0.26	0.27
			Max. Mx	5	-43.91	0.31	0.18
			Max. My	5	-43.84	0.08	-0.35
			Max. Vy	11	0.09	-0.30	-0.09
			Max. Vx	4	-0.12	-0.07	-0.34
		Diagonal	Max Tension	11	5.09	0.00	0.00
			Max. Compression	13	-5.45	0.00	0.00
			Max. Mx	20	1.51	0.09	0.00
			Max. My	10	0.89	0.00	0.00
			Max. Vy	20	-0.04	0.00	0.00
			Max. Vx	10	-0.00	0.00	0.00
		Horizontal	Max Tension	4	1.33	0.00	0.00
			Max. Compression	6	-1.59	0.00	0.00
			Max. Mx	14	-0.15	-0.10	0.00
			Max. My	22	-0.50	0.00	0.00
			Max. Vy	14	-0.05	0.00	0.00
			Max. Vx	22	0.00	0.00	0.00
T4	15.7042 - 9.39167	Leg	Max Tension	12	49.78	-0.24	-0.18
			Max. Compression	6	-56.47	-0.10	-0.19
			Max. Mx	5	-49.61	0.31	0.18
			Max. My	4	-30.59	-0.17	-0.57
			Max. Vy	9	0.13	0.31	0.18
			Max. Vx	4	0.16	-0.17	-0.57
		Diagonal	Max Tension	13	5.08	0.00	0.00
			Max. Compression	11	-4.82	0.00	0.00
			Max. Mx	18	1.33	0.11	0.00
			Max. My	2	0.97	0.00	-0.00
			Max. Vy	18	-0.04	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
		Horizontal	Max Tension	10	0.22	0.00	0.00
			Max. Compression	4	-0.26	0.00	0.00
			Max. Mx	19	0.03	-0.11	0.00
			Max. My	16	0.12	0.00	0.00
			Max. Vy	19	0.06	0.00	0.00
			Max. Vx	16	0.00	0.00	0.00
T5	9.39167 - 2.6	Leg	Max Tension	12	51.08	0.03	0.13
			Max. Compression	6	-58.16	-0.00	0.00
			Max. Mx	6	-58.12	1.09	0.03
			Max. My	4	-29.89	-0.17	-0.57
			Max. Vy	6	-0.40	1.09	0.03
			Max. Vx	3	-0.25	-0.15	-0.57
		Diagonal	Max Tension	13	4.03	-0.20	-0.00
			Max. Compression	13	-4.04	0.00	0.00
			Max. Mx	6	-2.74	0.29	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	19	-1.27	0.11	-0.01
			Max. Vy	6	0.08	0.00	0.00
			Max. Vx	19	-0.00	0.00	0.00
		Horizontal	Max Tension	11	3.82	-0.02	-0.01
			Max. Compression	13	-4.24	-0.02	-0.01
			Max. Mx	17	-0.38	-0.06	-0.02
			Max. My	26	0.07	-0.05	-0.02
			Max. Vy	17	-0.04	-0.06	-0.02
			Max. Vx	26	-0.01	0.00	0.00
		Redund Horz 1 Bracing	Max Tension	13	0.49	0.00	0.00
			Max. Compression	7	-0.51	0.00	0.00
			Max. Mx	14	0.12	-0.01	0.00
			Max. My	17	0.23	0.00	0.00
			Max. Vy	14	0.01	0.00	0.00
			Max. Vx	17	-0.00	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	8	0.60	0.00	0.00
			Max. Compression	13	-0.53	0.00	0.00
			Max. Mx	19	-0.19	-0.01	0.00
			Max. My	15	0.10	0.00	-0.00
			Max. Vy	19	-0.01	0.00	0.00
			Max. Vx	15	0.00	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	10	62.56	5.91	-3.03
	Max. H_x	10	62.56	5.91	-3.03
	Max. H_z	4	-55.04	-5.21	2.71
	Min. Vert	4	-55.04	-5.21	2.71
	Min. H_x	4	-55.04	-5.21	2.71
	Min. H_z	10	62.56	5.91	-3.03
Leg B	Max. Vert	6	63.42	-5.75	-3.40
	Max. H_x	12	-56.13	5.28	3.13
	Max. H_z	13	-48.26	4.24	3.28
	Min. Vert	12	-56.13	5.28	3.13
	Min. H_x	6	63.42	-5.75	-3.40
	Min. H_z	7	54.54	-4.60	-3.42
Leg A	Max. Vert	2	62.42	0.36	6.61
	Max. H_x	12	32.75	0.79	3.43
	Max. H_z	2	62.42	0.36	6.61
	Min. Vert	8	-54.75	-0.29	-5.85
	Min. H_x	6	-26.82	-0.80	-2.94
	Min. H_z	8	-54.75	-0.29	-5.85

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead Only	9.50	-0.00	-0.00	1.71	-3.69	-0.00
Dead+Wind 0 deg - No Ice	9.50	-0.10	-10.82	-498.18	-0.96	5.94
Dead+Wind 30 deg - No Ice	9.50	5.11	-9.05	-422.32	-244.81	5.32
Dead+Wind 60 deg - No Ice	9.50	8.97	-5.19	-242.72	-424.91	4.20
Dead+Wind 90 deg - No Ice	9.50	10.65	0.01	1.26	-499.21	2.27
Dead+Wind 120 deg - No Ice	9.50	9.48	5.45	252.08	-439.41	-1.01
Dead+Wind 150 deg - No Ice	9.50	5.34	9.18	429.01	-251.07	-4.03
Dead+Wind 180 deg - No Ice	9.50	-0.03	10.33	486.92	-1.58	-5.22
Dead+Wind 210 deg - No Ice	9.50	-5.32	8.93	421.51	244.77	-5.32
Dead+Wind 240 deg - No Ice	9.50	-9.46	5.32	249.29	432.67	-4.94
Dead+Wind 270 deg - No Ice	9.50	-10.94	-0.00	2.38	501.84	-2.90
Dead+Wind 300 deg - No Ice	9.50	-9.41	-5.41	-248.70	432.11	1.01
Dead+Wind 330 deg - No Ice	9.50	-5.47	-9.43	-434.35	248.49	4.65
Dead+Ice	26.83	-0.00	-0.00	7.02	-14.79	0.00
Dead+Wind 0 deg+Ice	26.83	-0.33	-3.51	-143.94	-5.84	1.84
Dead+Wind 30 deg+Ice	26.83	1.57	-2.78	-116.51	-84.92	1.80
Dead+Wind 60 deg+Ice	26.83	2.80	-1.59	-63.87	-138.56	1.55
Dead+Wind 90 deg+Ice	26.83	3.35	0.01	7.15	-161.29	0.92
Dead+Wind 120 deg+Ice	26.83	3.04	1.75	82.45	-145.64	-0.37
Dead+Wind 150 deg+Ice	26.83	1.68	2.89	133.63	-88.16	-1.56
Dead+Wind 180 deg+Ice	26.83	0.02	3.21	149.48	-15.19	-1.92
Dead+Wind 210 deg+Ice	26.83	-1.62	2.75	129.42	57.29	-1.80
Dead+Wind 240 deg+Ice	26.83	-3.20	1.47	74.74	120.61	-1.46
Dead+Wind 270 deg+Ice	26.83	-3.53	-0.19	2.04	137.19	-0.56
Dead+Wind 300 deg+Ice	26.83	-3.07	-1.77	-69.01	117.07	0.37
Dead+Wind 330 deg+Ice	26.83	-1.93	-2.96	-121.93	65.51	1.20

Solution Summary

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
1	0.00	-9.50	0.00	0.00	9.50	0.00	0.000%
2	-0.10	-9.50	-10.82	0.10	9.50	10.82	0.017%
3	5.11	-9.50	-9.05	-5.11	9.50	9.05	0.015%
4	8.97	-9.50	-5.20	-8.97	9.50	5.19	0.014%
5	10.66	-9.50	0.01	-10.65	9.50	-0.01	0.016%
6	9.48	-9.50	5.45	-9.48	9.50	-5.45	0.017%
7	5.34	-9.50	9.18	-5.34	9.50	-9.18	0.015%
8	-0.03	-9.50	10.33	0.03	9.50	-10.33	0.013%
9	-5.32	-9.50	8.93	5.32	9.50	-8.93	0.015%
10	-9.46	-9.50	5.32	9.46	9.50	-5.32	0.017%
11	-10.94	-9.50	-0.00	10.94	9.50	0.00	0.015%
12	-9.41	-9.50	-5.41	9.41	9.50	5.41	0.013%
13	-5.47	-9.50	-9.43	5.47	9.50	9.43	0.015%
14	0.00	-26.83	0.00	0.00	26.83	0.00	0.001%
15	-0.33	-26.83	-3.51	0.33	26.83	3.51	0.007%
16	1.57	-26.83	-2.78	-1.57	26.83	2.78	0.007%
17	2.80	-26.83	-1.59	-2.80	26.83	1.59	0.007%
18	3.35	-26.83	0.01	-3.35	26.83	-0.01	0.008%
19	3.05	-26.83	1.76	-3.04	26.83	-1.75	0.008%
20	1.68	-26.83	2.89	-1.68	26.83	-2.89	0.008%
21	0.02	-26.83	3.21	-0.02	26.83	-3.21	0.007%
22	-1.62	-26.83	2.75	1.62	26.83	-2.75	0.007%
23	-3.21	-26.83	1.47	3.20	26.83	-1.47	0.007%
24	-3.53	-26.83	-0.19	3.53	26.83	0.19	0.006%
25	-3.07	-26.83	-1.77	3.07	26.83	1.77	0.006%
26	-1.93	-26.83	-2.96	1.93	26.83	2.96	0.006%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00033203
3	Yes	4	0.00000001	0.00029172
4	Yes	4	0.00000001	0.00025945
5	Yes	4	0.00000001	0.00030229
6	Yes	4	0.00000001	0.00033014
7	Yes	4	0.00000001	0.00028992
8	Yes	4	0.00000001	0.00025716
9	Yes	4	0.00000001	0.00030017
10	Yes	4	0.00000001	0.00032889
11	Yes	4	0.00000001	0.00028979
12	Yes	4	0.00000001	0.00025717
13	Yes	4	0.00000001	0.00030380
14	Yes	4	0.00000001	0.00014283
15	Yes	4	0.00000001	0.00066911
16	Yes	4	0.00000001	0.00066944
17	Yes	4	0.00000001	0.00068191
18	Yes	4	0.00000001	0.00070538
19	Yes	4	0.00000001	0.00071912
20	Yes	4	0.00000001	0.00069974
21	Yes	4	0.00000001	0.00067340
22	Yes	4	0.00000001	0.00066031
23	Yes	4	0.00000001	0.00065705
24	Yes	4	0.00000001	0.00063133
25	Yes	4	0.00000001	0.00062061
26	Yes	4	0.00000001	0.00064288

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	62.1 - 42.1	2.535	6	0.2919	0.0544
T2	42.1 - 22.1	1.297	6	0.2611	0.0481
T3	22.1 - 15.7042	0.327	6	0.1514	0.0267
T4	15.7042 - 9.39167	0.138	6	0.1019	0.0191
T5	9.39167 - 2.6	0.012	11	0.0529	0.0042

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
62.10	18-ft Doppler Dome	6	2.535	0.2919	0.0544	86980
59.60	Platform Support	6	2.376	0.2902	0.0542	86980
57.10	Platform Support	6	2.217	0.2882	0.0539	86980

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
56.00	Swedcom ALP 6014 antennas w/Mount Pipe	6	2.148	0.2872	0.0538	71295
37.60	Celwave 8-ft Dish w/ Radome	6	1.042	0.2440	0.0439	14334
29.60	Radiation Systems 8-ft Grid Dish	6	0.632	0.2022	0.0367	8824

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	62.1 - 42.1	P3.5STD	20.00	5.00	44.9 K=1.00	18.319	2.6795	-18.71	49.09	0.381
T2	42.1 - 22.1	P3.5STD	20.00	5.00	44.9 K=1.00	18.319	2.6795	-45.39	49.09	0.925
T3	22.1 - 15.7042	P3.5STD	6.41	6.41	57.5 K=1.00	17.247	2.6795	-51.92	46.21	1.123
T4	15.7042 - 9.39167	P3.5STD	6.32	6.32	28.4 K=0.50	19.523	2.6795	-56.43	52.31	1.079
T5	9.39167 - 2.6	P3.5STD	6.81	3.40	30.5 K=1.00	19.379	2.6795	-58.15	51.93	1.120
		H1-3 (1.36 CR) - 74								

Leg Bending Design Data (Compression)

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T1	62.1 - 42.1	P3.5STD	0.18	-0.907	23.100	0.039	0.00	0.000	23.100	0.000
T2	42.1 - 22.1	P3.5STD	0.35	-1.745	23.100	0.076	0.00	0.000	23.100	0.000
T3	22.1 - 15.7042	P3.5STD	0.37	-1.866	23.100	0.081	0.00	0.000	23.100	0.000
T4	15.7042 - 9.39167	P3.5STD	0.37	-1.866	23.100	0.081	0.00	0.000	23.100	0.000
T5	9.39167 - 2.6	P3.5STD	1.09	-5.473	23.100	0.237	0.00	0.000	23.100	0.000

Leg Interaction Design Data (Compression)

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	62.1 - 42.1	P3.5STD	0.381	0.039	0.000	0.420 ✓	1.333	H1-3 ✓
T2	42.1 - 22.1	P3.5STD	0.925	0.076	0.000	1.000 ✓	1.333	H1-3 ✓
T3	22.1 - 15.7042	P3.5STD	1.123	0.081	0.000	1.204 ✓	1.333	H1-3 ✓

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T4	15.7042 - 9.39167	P3.5STD	1.079	0.081	0.000	1.159 ✓	1.333	H1-3 ✓
T5	9.39167 - 2.6	P3.5STD	1.120	0.237	0.000	1.357 ✗	1.333	H1-3 ✗

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	62.1 - 42.1	P2.5STD	9.08	8.68	110.0 K=1.00	11.549	1.7040	-6.12	19.68	0.311 ✓
T2	42.1 - 22.1	P2.5STD	9.08	8.68	110.0 K=1.00	11.549	1.7040	-8.15	19.68	0.414 ✓
T3	22.1 - 15.7042	P2STD	10.19	9.76	148.8 K=1.00	6.740	1.0745	-5.45	7.24	0.752 ✓
T4	15.7042 - 9.39167	P2STD	10.69	10.28	156.7 K=1.00	6.083	1.0745	-4.82	6.54	0.738 ✓
T5	9.39167 - 2.6	2L3x3x3/16	8.35	8.06	77.4 K=1.00	15.250	2.1800	-4.04	33.24	0.122 ✓

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	62.1 - 42.1	L2 1/2x2 1/2x1/4	7.58	7.25	177.2 K=1.00	4.756	1.1900	-0.58	5.66	0.103 ✓
T2	42.1 - 22.1	L2 1/2x2 1/2x1/4	7.58	7.25	177.2 K=1.00	4.756	1.1900	-0.53	5.66	0.093 ✓
T3	22.1 - 15.7042	L3x3x1/4	7.58	7.25	147.0 K=1.00	6.914	1.4400	-1.59	9.96	0.160 ✓
T4	15.7042 - 9.39167	L3x3x1/4	8.28	7.95	161.1 K=1.00	5.753	1.4400	-0.26	8.28	0.031 ✓
T5	9.39167 - 2.6	2L2x2x3/16	8.97	8.64	123.4 K=1.00	9.795	1.4300	-4.24	14.01	0.302 ✓

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	62.1 - 42.1	L3x5x1/4	7.58	7.25	131.2 K=1.00	8.424	1.9400	-2.00	16.34	0.122 ✓

Redundant Horizontal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T5	9.39167 - 2.6	L2x2x3/16	2.24	2.08	63.2 K=1.00	17.117	0.7150	-0.51	12.24	0.042 ✓

Redundant Diagonal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T5	9.39167 - 2.6	L2x2x3/16	3.97	3.65	111.2 K=1.00	11.512	0.7150	-0.53	8.23	0.065 ✓

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	62.1 - 42.1	P3.5STD	20.00	5.00	44.9	21.000	2.6795	15.15	56.27	0.269
T2	42.1 - 22.1	P3.5STD	20.00	5.00	44.9	21.000	2.6795	39.70	56.27	0.706
T3	22.1 - 15.7042	P3.5STD	6.41	6.41	57.5	21.000	2.6795	45.55	56.27	0.809
T4	15.7042 - 9.39167	P3.5STD	6.32	6.32	56.8	21.000	2.6795	49.78	56.27	0.885
T5	9.39167 - 2.6	P3.5STD H1-3 (1.36 CR) - 74	6.81	3.40	30.5	21.000	2.6795	51.07	56.27	0.908

Leg Bending Design Data (Tension)

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T1	62.1 - 42.1	P3.5STD	0.13	0.638	23.100	0.028	0.00	0.000	23.100	0.000
T2	42.1 - 22.1	P3.5STD	0.27	1.357	23.100	0.059	0.00	0.000	23.100	0.000
T3	22.1 - 15.7042	P3.5STD	0.29	1.473	23.100	0.064	0.00	0.000	23.100	0.000
T4	15.7042 - 9.39167	P3.5STD	0.29	1.478	23.100	0.064	0.00	0.000	23.100	0.000
T5	9.39167 - 2.6	P3.5STD	0.92	4.629	23.100	0.200	0.00	0.000	23.100	0.000

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Leg Interaction Design Data (Tension)

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	62.1 - 42.1	P3.5STD	0.269	0.028	0.000	0.297 ✓	1.333	H2-1 ✓
T2	42.1 - 22.1	P3.5STD	0.706	0.059	0.000	0.764 ✓	1.333	H2-1 ✓
T3	22.1 - 15.7042	P3.5STD	0.809	0.064	0.000	0.873 ✓	1.333	H2-1 ✓
T4	15.7042 - 9.39167	P3.5STD	0.885	0.064	0.000	0.949 ✓	1.333	H2-1 ✓
T5	9.39167 - 2.6	P3.5STD	0.908	0.200	0.000	1.108 ✓	1.333	H2-1 ✓

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in²	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	62.1 - 42.1	P2.5STD	9.08	8.68	110.0	21.000	1.7040	6.06	35.79	0.169 ✓
T2	42.1 - 22.1	P2.5STD	9.08	8.68	110.0	21.000	1.7040	8.39	35.79	0.235 ✓
T3	22.1 - 15.7042	P2STD	10.19	9.76	148.8	21.000	1.0745	5.09	22.57	0.226 ✓
T4	15.7042 - 9.39167	P2STD	10.69	10.28	156.7	21.000	1.0745	5.08	22.57	0.225 ✓
T5	9.39167 - 2.6	2L3x3x3/16	8.35	8.06	77.4	21.600	2.1800	4.03	47.09	0.086 ✓

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in²	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	62.1 - 42.1	L2 1/2x2 1/2x1/4	7.58	7.25	113.1	21.600	1.1900	0.60	25.70	0.023 ✓
T2	42.1 - 22.1	L2 1/2x2 1/2x1/4	7.58	7.25	113.1	21.600	1.1900	0.58	25.70	0.022 ✓
T3	22.1 - 15.7042	L3x3x1/4	7.58	7.25	93.5	21.600	1.4400	1.33	31.10	0.043 ✓
T4	15.7042 - 9.39167	L3x3x1/4	8.28	7.95	102.6	21.600	1.4400	0.22	31.10	0.007 ✓
T5	9.39167 - 2.6	2L2x2x3/16	8.97	8.64	123.4	21.600	1.4300	3.82	30.89	0.124 ✓

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	62.1 - 42.1	L3x5x1/4	7.58	7.25	101.0	21.600	1.9400	2.00	41.90	0.048 ✓

Redundant Horizontal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T5	9.39167 - 2.6	L2x2x3/16	2.24	2.08	40.4	21.600	0.7150	0.49	15.44	0.032 ✓

Redundant Diagonal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T5	9.39167 - 2.6	L2x2x3/16	3.97	3.65	71.0	21.600	0.7150	0.60	15.44	0.039 ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
T1	62.1 - 42.1	Leg	P3.5STD	3	-18.71	65.43	31.5	Pass
T2	42.1 - 22.1	Leg	P3.5STD	29	-45.39	65.43	75.0	Pass
T3	22.1 - 15.7042	Leg	P3.5STD	56	-51.92	61.60	90.3	Pass
T4	15.7042 - 9.39167	Leg	P3.5STD	65	-56.43	69.73	87.0	Pass
T5	9.39167 - 2.6	Leg	P3.5STD	74	-58.15	69.22	101.8	Fail ✗
T1	62.1 - 42.1	Diagonal	P2.5STD	8	-6.12	26.23	23.3	Pass
T2	42.1 - 22.1	Diagonal	P2.5STD	34	-8.15	26.23	31.1	Pass
T3	22.1 - 15.7042	Diagonal	P2STD	62	-5.45	9.65	56.4	Pass
T4	15.7042 - 9.39167	Diagonal	P2STD	70	-4.82	8.71	55.4	Pass
T5	9.39167 - 2.6	Diagonal	2L3x3x3/16	87	-4.04	44.31	9.1	Pass
T1	62.1 - 42.1	Horizontal	L2 1/2x2 1/2x1/4	23	-0.58	7.54	7.7	Pass
T2	42.1 - 22.1	Horizontal	L2 1/2x2 1/2x1/4	50	-0.53	7.54	7.0	Pass
T3	22.1 - 15.7042	Horizontal	L3x3x1/4	58	-1.59	13.27	12.0	Pass
T4	15.7042 - 9.39167	Horizontal	L3x3x1/4	67	-0.26	11.04	2.4	Pass
T5	9.39167 - 2.6	Horizontal	2L2x2x3/16	83	-4.24	18.67	22.7	Pass
T1	62.1 - 42.1	Top Girt	L3x5x1/4	6	-2.00	21.78	9.2	Pass
T5	9.39167 - 2.6	Redund Horz 1 Bracing	L2x2x3/16	92	-0.51	16.31	3.1	Pass
T5	9.39167 - 2.6	Redund Diag 1 Bracing	L2x2x3/16	93	-0.53	10.97	4.9	Pass

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Walker Engineering Inc 8451 Dunwoody Place, Bldg 8 Dunwoody, Georgia 30350 Phone: (770) 641-7306 FAX: (770) 587-2196	**Project** Talcott Mountain; 05031.Co1	**Date** 13:11:13 03/01/05
	Client Natcomm, LLC.	**Designed by** bhe

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P_{allow} K	% Capacity	Pass Fail
						Summary		
						Leg (T5)	101.8	Fail X
						Diagonal (T3)	56.4	Pass
						Horizontal (T5)	22.7	Pass
						Top Girt (T1)	9.2	Pass
						Redund Horz 1 Bracing (T5)	3.1	Pass
						Redund Diag 1 Bracing (T5)	4.9	Pass
						RATING =	**101.8**	Fail X

Program Version 3.0.0.17 - 7/15/2004 File:S:/Projects/Towers/NatComm/ERITower/Natcomm-041 0502-0054 Talcott Mount 60-ft SST.eri

General Power Density

Site Name: Talcott Mountain , CT
Tower Height: 56 ft rad center

Operator	Operating Frequency	Number of Trans.	ERP Per Trans.	Total ERP	Distance to Target	Calculated Power Density	Maximum Permissable Exposure	Fraction of MPE	
	(MHz)		(watts)	(watts)	(feet)	(mW/cm^2)	(mW/cm^2)	(%)	
Verizon	869	9	200	1800	56	0.2064	0.5793	35.63%	
Verizon	1900	3	200	600	56	0.0688	1	6.88%	
Total Percentage of Maximum Permissible Exposure								42.51%	

*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Part 1 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992

MHz = Megahertz
mW/cm^2 = milliwatts per square centimeter
ERP = Effective Radiated Power

Absolute worst case scenario, maximum values used.

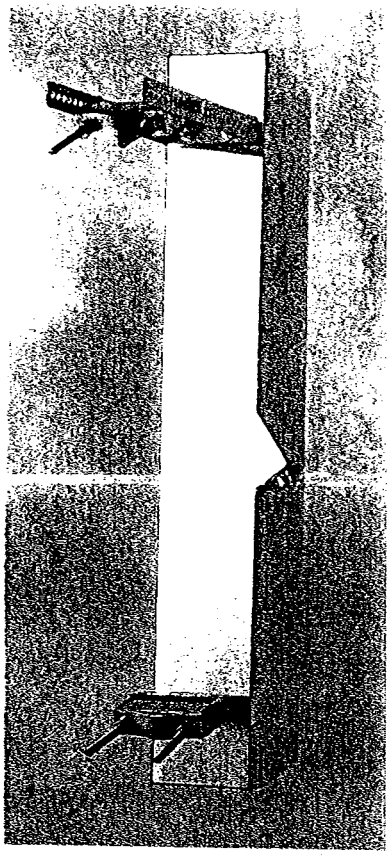
verizonwireless

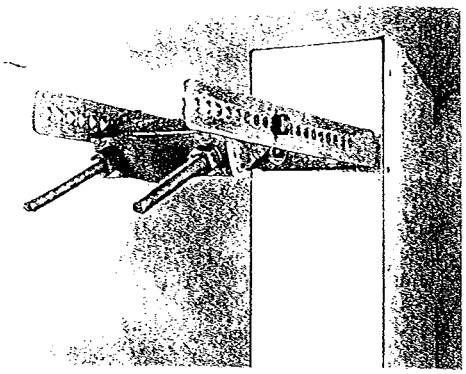
ALP-E 9011-Din

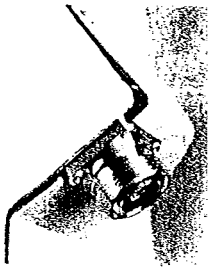
Enhanced Log Periodic Antenna

Features:

- Small Size
- Aesthetically Pleasing
- Suitable For TDMA/CDMA
- High Return Loss
- Low Intermodulation
- High FTB
- Broadbanded
- Side-lobe Suppression
- Sturdy Design
- Down-Tilt Brackets Incl.







The distance between the center of the bolts (on the back of the antenna) are shown in the drawing above.

Bolt diameter is: 3/8-16 [comes with lock nut].

Frequency Range:	800-900 MHz
Impedance:	50 ohm
Connector Type:	7/16 Din
Return Loss:	20 dB
Polarization:	Vertical
Gain:	> 11 dBd
Front To Back Ratio:	> 30 dB
Side-Lobe Suppression:	18 dB
Intermodulation (2x25W):	IM3 > 146 dB
	IM5 > 153 dB
	IM7/9 > 163 dB
Power Rating:	500 W
H-Plane (-3 dB point):	85 - 92°
V-Plane (-3 dB point):	16 - 18°
Lightning Protection:	DC Grounded

Overall Height:	43 in	[1092 mm]
Width:	6.5 in	[165 mm]
Depth:	8 in	[203 mm]
Weight Including Tilt-Brackets:	20 lbs	[9.1 Kg]
Rated Wind Velocity:	113 mph	[180 Km/h]
Wind Area (CxA/Side):	2.3 sq. ft.	[0.22 sq.m]
Lateral Thrust At Rated Wind Worst Case:	112 lbs	[500 N]

Radiating Elements:	Aluminum
Extrusion:	Aluminum
Radome:	Grey PVC
Tilt-Bracket:	Hot Dip Galvanized Steel
Antenna Bolts:	Stainless Steel

The ALP-E 9011-Din is made in U.S.A.

DECIBEL
Base Station Antennas

DB844G65ZAXY

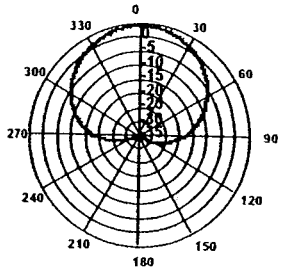
13.5 dBd, Log, No Screen Antenna
806-960, 870-960 MHz

806-960 MHz
870-960 MHz

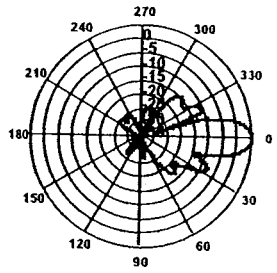
GEN3VPOL™
ZoneMaster™

65°

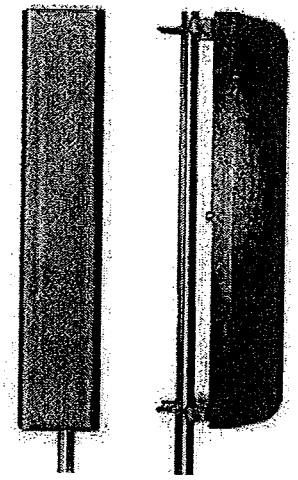
- Excellent azimuth roll-off, reducing sector to sector interference and reducing soft hand-offs
- Air dielectric feed system, no screws, rivets, welds or solder in RF element feed path
- Strong upper side lobe suppression
- Low profile appearance and low wind loading profile for easier zoning approvals



Horizontal 880 MHz (Tilt=0)



Vertical 880 MHz (Tilt=0)



ELECTRICAL

Frequency (MHz):	806-960	870-960
Polarization:	Vertical	Vertical
Gain (dBd/dBi):	13.5/15.6	13.8/15.9
Azimuth BW:	65°	65°
Elevation BW:	15°	15°
Beam Tilt:	0°	0°
USLS* (dB):	>15	>15
Null Fill* (dB):	20-25	20-25
Front-to-Back Ratio* (dB):	40	40
VSWR:	<1.33:1	<1.33:1
Impedance:	50 Ohms	50 Ohms
Max Input Power:	500 Watts	500 Watts
Lightning Protection:	DC Ground	DC Ground
Opt Electrical Tilt:	6°	6°

MECHANICAL

Weight:	12 lbs (5.4 kg)
Dimensions (LxWxD):	48 X 10 X 8 in (1219 X 254 X 203 mm)
Max. Wind Area:	3.4 ft² (0.32 m²)
Max. Wind Load (@ 100mph):	136 lbf (605 N)
Max. Wind Speed:	125 mph (201 km/h)
Radiator Material:	Aluminum
Reflector Material:	Passivated Aluminum
Radome Material:	ABS, UV Resistant
Mounting Hardware Material:	Galvanized Steel
Connector Type:	7-16 DIN-Female (Back)
Color:	Light Gray
Standard Mounting Hardware:	DB380 Pipe Mount Kit, included
Downtilt Mounting Hardware:	DB5083, optional
Opt. Mounting Hardware:	DB5084-AZ Azimuth Wall Mount

Andrew Corporation
8635 Stemmons Freeway
Dallas, Texas U.S.A 75247-3701
Tel: 214.631.0310

Fax: 214.631.4706
Toll Free Tel: 1.800.676.5342
Fax: 1.800.229.4706
www.andrew.com

dbtech@andrew.com

Warranty: Five years
Date: 11/17/2003
* - Indicates Typical Values

General Power Density

Site Name: Forbes St, CT
Tower Height: 108 ft rad center

Operator	Operating Frequency	Number of Trans	ERP Per Trans	Total ERP	Distance to Closest Person	Calculated Power Density	Maximum Permissable Exposure*	Fraction of MPE
	(MHz)		(watts)	(watts)	(feet)	(mW/cm^2)	(mW/cm^2)	(%)
Verizon	880	9	200	1800	108	0.0555	0.56733	9.78%
VZW PCS	1900	3	285	855	108	0.0264	1	2.64%
Total Percentage of Maximum Permissible Exposure								12.42%

*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Part 1 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992

MHz = Megahertz
mW/cm^2 = milliwatts per square centimeter
ERP = Effective Radiated Power

Absolute worst case scenario, maximum values used.