

# 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](mailto:siting.council@po.state.ct.us)

Web Site: [www.state.ct.us/csc/index.htm](http://www.state.ct.us/csc/index.htm)

September 16, 2002

Peter W. van Wilgen  
Southwestern Bell Mobile Systems, LLC  
500 Enterprise Drive  
Rocky Hill, CT 06067-3900

RE: **EM-CING-014-060-062-093-107-020731** - SNET Mobility, LLC notice of intent to modify existing telecommunications facilities located in Branford, Guilford, Hamden, New Haven, and Orange, Connecticut.

Dear Mr. van Wilgen:

At a public meeting held on September 5, 2002, the Connecticut Siting Council (Council) acknowledged your notice to modify the existing telecommunications facility located in Guilford, Connecticut, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies. The Branford, Hamden, New Haven, and Orange sites were previously approved on August 15, 2002.

The proposed modifications are to be implemented as specified here and in your notice dated July 30, 2002. 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 an existing facility sites that would not increase tower heights, extend the boundaries of the tower site, increase noise levels at the tower site boundaries by six decibels, and increase the total radio frequencies electromagnetic radiation power density 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 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,

  
Mortimer A. Gelston  
Chairman

MAG/DM/laf

c: Honorable Carl A. Balestracci, Jr., First Selectman, Town of Guilford  
M. William McAvoy, Jr., Zoning Enforcement Officer, Town of Guilford



# 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](mailto:siting.council@po.state.ct.us)

Web Site: [www.state.ct.us/csc/index.htm](http://www.state.ct.us/csc/index.htm)

August 16, 2002

Peter W. van Wilgen  
Southwestern Bell Mobile Systems, LLC  
500 Enterprise Drive  
Rocky Hill, CT 06067-3900

RE: **EM-CING-014-060-062-093-107-020731** - SNET Mobility, LLC notice of intent to modify existing telecommunications facilities located in Branford, Guilford, Hamden, New Haven, and Orange, Connecticut.

Dear Mr. van Wilgen:

At a public meeting held on August 15, 2002, the Connecticut Siting Council (Council) acknowledged your notice to modify seven of the existing telecommunications facilities located in Branford, Hamden, New Haven, and Orange, Connecticut, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies. The Guilford, 145 Manor Road, site will be presented at a future Council meeting after requested information is received.

The proposed modifications are to be implemented as specified here and in your notice dated July 30, 2002. 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 an existing facility sites that would not increase tower heights, extend the boundaries of the tower site, increase noise levels at the tower site boundaries by six decibels, and increase the total radio frequencies electromagnetic radiation power density 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 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,

  
Mortimer A. Gelston  
Chairman

MAG/DM/laf

c: See Attached List

List Attachment.

- c: Honorable Anthony J. DaRos, First Selectman, Town of Branford
- Diana Ross, Inland Wetland Enforcement Officer
- Justine K. Gillen, Zoning Enforcement Officer, Town of Branford
- Honorable Carl A. Balestracci, Jr., First Selectman, Town of Guilford
- M. William McAvoy, Jr., Zoning Enforcement Officer, Town of Guilford
- Honorable Carl J. Amento, Mayor, Town of Hamden
- Roger O'Brien, Town Planner, Town of Hamden
- Honorable John Destefano, Jr., Mayor, City of New Haven
- Frank Gargiulo, Zoning Administrator, City of New Haven
- Honorable Mitchell R. Goldblatt, First Selectman, Town of Orange
- Paul Dinice, Zoning Enforcement Officer, Town of Orange



**SNET Mobility, LLC**  
500 Enterprise Drive  
Rocky Hill, Connecticut 06067-3900  
Phone: (860) 513-7730  
Fax: (860) 513-7190

**Peter W. van Wilgen**  
*Senior Manager – Construction*

HAND DELIVERED

July 30, 2002

**RECEIVED**

JUL 31 2002

Mr. Mortimer A. Gelston, Chairman  
Connecticut Siting Council  
10 Franklin Square  
New Britain, Connecticut 06051

**CONNECTICUT  
SITING COUNCIL**

Re: SNET Mobility, LLC notice of intent to modify existing telecommunications facilities located in Orange, New Haven, Hamden, Branford and Guilford

Dear Mr. Gelston:

In order to accommodate technological changes, implement E-911 capability and enhance system performance, SNET Mobility, LLC ("SNET" or "Cingular Wireless") plans to modify the antenna configurations at 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 each of the municipalities in which an affected cell site is located.

Attached are summary sheets detailing the planned changes, including power density calculations reflecting the change in the effect of Cingular's operations at each site. Also included is documentation of the structural sufficiency of each tower to accommodate the revised antenna configuration.

The changes to the facilities do not constitute modifications as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical characteristics of the facilities will not be significantly changed or altered. Rather, the planned changes to the facilities 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. At almost all sites, new panel antennas approximately the same size will replace those previously installed. Tower mount amplifiers, approximately 5" x 9" x 13", will be added to the platform on which the panel antennas are mounted to enhance signal reception at the cell site. In addition, the mandated provision of E-911 capability will require installation of one LMU ("location measurement unit"), approximately nine inches high, on either the tower, the equipment shelter or the ice bridge. One GPS receive-only antenna will be attached to the equipment shelter at each site. None of the 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.
3. The proposed changes will not increase the noise level at the existing facility by six decibels or more.
4. Radio frequency power density will increase due to use of additional channels broadcasting at higher power. 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, Cingular Wireless respectfully submits that the proposed changes at the referenced sites constitute exempt modifications under R.C.S.A. Section 16-50j-72(b)(2).

Please feel free to call me at (860) 513-7730 with questions concerning this matter. Thank you for your consideration.

Sincerely,



Peter W. van Wilgen  
Senior Manager - Construction

Enclosures

**CINGULAR WIRELESS  
Antenna Modification**

**Site Address:** 525 Orange Center Road, Orange  
Docket No. 177A

**Tower Owner/Manager:** Town of Orange; Cingular licensor is  
Cellco Partnership, d/b/a Verizon Wireless

**Antenna configuration** Antenna center line – 150'

**Current and/or approved:** 12 ALP 110 11 or comparable

**Planned:** 9 CSS DUO4-8670 or comparable  
6 tower mount amplifiers  
3 diplexers

**Power Density:**

Calculations for Cingular's current operations at the site indicate a radio frequency electromagnetic radiation power density, measured at the tower base, of approximately 5.2% of the standard adopted by the FCC. As depicted in the second table below, the total radio frequency electromagnetic radiation power density for Cingular's planned operations would be approximately 7.3%, or an additional 2.1% of the standard.

Cingular Current

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
SNET	150	880 - 894	19	100	0.0304	0.5867	5.2

Cingular Planned

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
SNET TDMA	150	880 - 894	16	100	0.0256	0.5867	4.4
SNET GSM	150	880 - 894	2	296	0.0095	0.5867	1.6
SNET GSM	150	1930 - 1935	2	427	0.0136	1.0000	1.4
<b>Total</b>							<b>7.3%</b>

**Structural information:** Please see attached.

---

**GEM ENGINEERING COMPANY**

---

2500 Wilcrest, Suite 100  
Houston, Texas 77042

Phone 713-339-1550  
Fax 713-339-9922

---



A Subsidiary  
of Quanta  
Services, Inc.



# TOWER ANALYSIS REPORT

## Bechtel Telecommunications

**Site Name: Orange Central**

**Site Number: 2174**

**Orange, Connecticut**

**(160' Tapered Monopole)**



**GEM Engineering Company, Inc.**

**July 25, 2002**

---

**TOWER INFORMATION**

**Tower Height:** 160'

**Tower Type:** Tapered Monopole

**Tower Manufacturer:** Valmont

**Tower Model #:** -

**Location:** Orange, CT

**Report Prepared for:** Bechtel Telecommunications

**Report Prepared by:** David Gonzalez

**Report Checked by:** 

**Gem Project Number:** 460567

**Site Name:** Orange

**Site Number:** 2174

**Report Date:** July 25, 2002

## Section 1 Introduction

The purpose of this report is to analyze the structural adequacy of an existing tapered monopole for supporting new antennas, in addition to all the existing antennas. Nine (9) antennas at elevation 150' shall be removed.

The information on the 160' tapered monopole and the existing antennas was obtained from "Valmont Industries, Inc." drawing no. DC4389Z, dated 01/12/1998 and revised 02/23/1998. Information on the proposed antennas was provided by Bechtel Telecommunications.

Information for the existing and the new proposed antennas is listed in the "Tower Loading Information & Criteria" in Section 2. The main forces considered in the analysis of the tower are those resulting from wind. Per TIA/EIA-222-F, the basic wind speed for New Haven County, Connecticut is 85 mph with ½" ice. Wind load combination with ice includes reduction in the tower loading.

The tapered monopole was analyzed for the following load combinations:

- Dead Load + Wind Load
- Dead Load + Wind Load + Ice

Allowable stresses were increased by 1/3 for both load combinations. This is according to TIA/EIA code. Dead Load consists of the loads due to the weight of all existing and future antennas, coaxes, monopole members, and all related appurtenances.

**Section 2 Tower Loading Information and Criteria**

**Customer:** Bechtel Telecommunications

**Station:** Orange, CT

**TOWER ANALYSIS DATA:**

**Tower Analysis Criteria:** TIA/EIA-222-F

**Wind Load:** 85 mph

**Tower Height:** 160'

**Frequency:** N/A

**Ice Load:** 1/2"

**ANTENNAS:**

Model	Carrier	Level	Azimuth	Existing/ New***	Ice Shield	Coaxials **
(12) ALP-E-9011		162'		E		(12) 1-5/8"φ
(12) ALP 9212		157'		E		(12) 1-5/8"φ
(9) DU04-8670* (6) TMA (3) Diplexers	Cingular	150'		N		Use Existing
(12) ALP-E-9011		145'		E		(12) 1-5/8"φ
(12) ALP-E-9011		133'		E		(12) 1-5/8"φ
(12) ALP-E-9011		121'		E		(12) 1-5/8"φ

\* Nine (9) existing ALP 110 11 antennas shall be removed. Their coaxials shall be re-used for new antennas.

\*\* Coaxials and waveguides located inside tapered monopole.

\*\*\* Existing antenna height & type based on "Valmont Industries, Inc." drawing no. DC4389Z, dated 01/12/1998, revised 02/23/1998.

### Section 3 Results

Structural Element	Stress	Stress Ratio	Notes
Monopole Shaft	O.K.	0.754	
Legs	N/A.	-	-
Leg Bolts	N/A	-	-
Diagonals	N/A	-	-
Diagonal Bolts	N/A	-	-
Girts	N/A	-	-
Girt Bolts	N/A	-	-
Guy Wires	N/A	-	-

N/A = Not Applicable, N.G. = Not Good (Structurally)      Acceptable Maximum Ratio is 1.05

BASE REACTIONS	Moment (k-ft)	Shear (k)	Axial (k)
Original Base Reactions *	5886	51	59
New Foundation Loads	4455	42	58

\* Per "Valmont Industries, Inc." tower analysis, order no. 16632-97, drawing no. DC4389Z, dated 01/12/1998 and revision A dated 02/23/1998.

**CINGULAR WIRELESS  
Antenna Modification**

**Site Address:** Ogg Meadow Road, Orange  
Docket No. 177

**Tower Owner/Manager:** Crown Atlantic Company LLC

**Antenna configuration** Antenna center line – 150’

**Current and/or approved:** 12 ALP 110 11 or comparable

**Planned:** 9 CSS DUO4-8670 or comparable  
6 tower mount amplifiers  
3 diplexers  
1 LMU (at 25’)

**Power Density:**

Calculations for Cingular’s current operations at the site indicate a radio frequency electromagnetic radiation power density, measured at the tower base, of approximately 5.2% of the standard adopted by the FCC. As depicted in the second table below, the total radio frequency electromagnetic radiation power density for Cingular’s planned operations would be approximately 7.3%, or an additional 2.1% of the standard.

Cingular Current

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
SNET	150	880 - 894	19	100	0.0304	0.5867	5.2

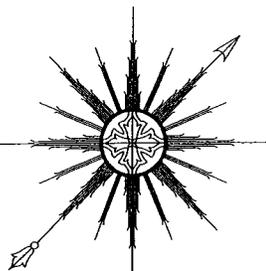
Cingular Planned

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
SNET TDMA	150	880 - 894	16	100	0.0256	0.5867	4.4
SNET GSM	150	880 - 894	2	296	0.0095	0.5867	1.6
SNET GSM	150	1930 - 1935	2	427	0.0136	1.0000	1.4
<b>Total</b>							<b>7.3%</b>

**Structural information:** Please see attached.

## Section 4 Conclusions

The existing 160' tapered monopole was analyzed for loadings from existing antennas, their coaxial cables, and their supporting platforms for 85 mph basic wind speed & ½" ice load. The analysis shows that **the existing tower and its foundation are structurally adequate** to support the nine (9) new antennas, six (6) TMA and three (3) diplexers at 150' above ground level, in addition to all existing antennas. Nine (9) existing antennas at elevation 150' shall be removed.



# ALL-POINTS TECHNOLOGY CORPORATION, P.C.

July 1, 2002

Crown Castle Atlantic  
500 West Cummings Park  
Suite 3400  
Woburn, MA 01801

Attn: Lincoln Erhard  
Re: Cingular Wireless Antenna Change  
160' Valmont Monopole Tower  
Orange, Connecticut  
BU #806939

Dear Lincoln,

I am writing with regard to Cingular Wireless' proposed antenna changes to be installed on the 160' Valmont tower located on Ogg Meadow Road in Orange, Connecticut. I evaluated the monopole tower (Valmont project #E621) in accordance with EIA/TIA-222-F, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the BOCA National Building Code, and the Connecticut State Building Code.

My evaluation consisted of a review of a structural analysis prepared by H.E. Bergeron Engineers, P.A. dated November 28, 2000 (HEB Job #98055A-002), and comparing design loads shown on Valmont drawings with existing and proposed antenna, waveguide, and mount loads for 90-mph wind speed and 1/2" of ice.

According to information provided by Crown Castle, loading will consist of the following:

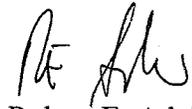
Antenna	Elev.	Mount	Coax.
(3) EMS RR90-17-02DP panels	168'	Pipe extension	(6) 1-5/8"
(12) ALP7130.16 panels	160'	13' platform w/rails	(12) 1-5/8"
<b>Cingular: (9) CSS DU04-8670 panels, (6) TMAs, (3) Diplexers</b>	150'	13' platform w/rails	(9) 1-1/4"
(9) DB980H90 panels	140'	13' platform w/rails	(9) 1-5/8"
(3) EMS RR90-17-02DP panels	130'	Low-profile platform	(9) 1-5/8"
(12) ALP9212 panels	120'	Pipe extensions from above platform	(12) 1-1/4"
Til-tek TA-2335-DABH panel	105'	4' standoff	(1) 1-5/8"
Til-tek TA-2324-LHCP dish	50'	4' standoff	(1) 7/8"
Kathrein 738449 omni	25'	4' standoff	(1) 1/2"

Cingular Wireless' antenna changes will utilize their existing platform and waveguide cables.

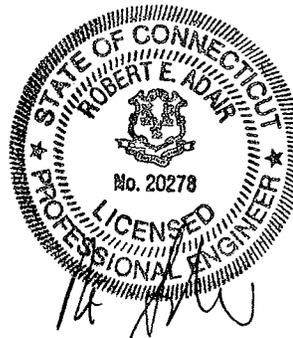
My evaluation indicates the tower and foundation are capable of supporting Cingular's proposed antenna changes.

We appreciate this opportunity to provide our services to you. Please call if you have any questions.

Sincerely,  
**All-Points Technology Corporation, P.C.**



Robert E. Adair, P.E.  
Principal



C:\Docs\Jobs\CT105590 Orange II 7-1-02 ltr.doc

**CINGULAR WIRELESS  
Antenna Modification**

**Site Address:** 69 Wheeler Street, New Haven  
tower share 5/11/99

**Tower Owner/Manager:** Laydon

**Antenna configuration** Antenna center line – 90°

**Current and/or approved:** 12 Allgon 7120.16 or comparable

**Planned:** 9 CSS DUO4-8670 or comparable  
6 tower mount amplifier

**Power Density:**

Calculations for Cingular's current operations at the site indicate a radio frequency electromagnetic radiation power density, measured at the tower base, of approximately 14.4% of the standard adopted by the FCC. As depicted in the second table below, the total radio frequency electromagnetic radiation power density for Cingular's planned operations would be approximately 20.4%, or an additional 6.0 % of the standard.

Cingular Current

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
SNET	90	880 - 894	19	100	0.0843	0.5867	14.4

Cingular Planned

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
SNET TDMA	90	880 - 894	16	100	0.0710	0.5867	12.1
SNET GSM	90	880 - 894	2	296	0.0263	0.5867	4.5
SNET GSM	90	1930 - 1935	2	427	0.0379	1.0000	3.8
<b>Total</b>							<b>20.4%</b>

**Structural information:** Please see attached.

## INTRODUCTION

This report summarizes the results of the structural analysis performed on the 90' Monopole at the New Haven-Wheeler site in New Haven County, Connecticut.

## ANALYSIS CRITERIA

The monopole was analyzed for the specified loads in accordance with the current EIA-222-F publication, "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures." This analysis derives its applied forces from EIA minimum 85 MPH basic wind speed with no ice accumulation and 74 MPH with 0.5" of ice.

## TOWER LOADING INFORMATION

Bechtel Corporation requested o2wireless, Inc. analyze the pole to verify its structural integrity under the following antennas and transmission line loading:

ELEVATION	STATUS	DESCRIPTION	LINE
90'	PROPOSED	9- CSS DU04-8670 *	9- 7/8" INTERIOR RUN COAX
80'	EXISTING	12- DB844H90E-XY	12- 1 5/8" INTERIOR RUN COAX

\* 6 DDD TMA 1900 to accompany CSS antennas at level 90'.

## AVAILABLE DOCUMENTS

The pole analysis was done based on the document sent to o2wireless. The document is:

- Tower design drawing from Engineered Endeavors Inc.
- RF data sheet.

## RESULTS

The spreadsheet enclosed summarizes the results of the pole study and itemizes the structural components, specifying member function, elevation, and size. Values for allowable and actual member loads are reported along with the corresponding allowable wind conditions. The spreadsheet summarizes the existing structural components and their corresponding applied loads.

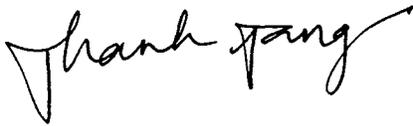
**CONCLUSIONS AND RECOMMENDATIONS:**

The New Haven-Wheeler. monopole will support the proposed loading and meet the requirements of the EIA Standard with no modification required.

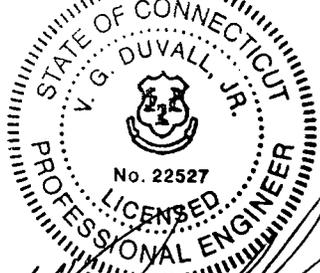
Information on the foundations and geotechnical was not available thus precluding any comment on their performance under this loading criteria.

Thank you for this opportunity to work with you and do not hesitate to call if you should have any questions.

Respectfully submitted:



Thanh Tang, EIT  
Project Designer

  
  
V.G Duvall, Jr., P.E  
Connecticut Professional Engineer

**CINGULAR WIRELESS  
Antenna Modification**

**Site Address:** 2755 State Street, Hamden  
tower share 6/16/99, 8/3/99

**Tower Owner/Manager:** Sprint Sites USA

**Antenna configuration** Antenna center line – 110'

**Current and/or approved:** 12 Allgon 7120.16 or comparable

**Planned:** 9 CSS DUO4-8670 or comparable  
6 tower mount amplifiers  
1 LMU (at 60')

**Power Density:**

Calculations for Cingular's current operations at the site indicate a radio frequency electromagnetic radiation power density, measured at the tower base, of approximately 9.6% of the standard adopted by the FCC. As depicted in the second table below, the total radio frequency electromagnetic radiation power density for Cingular's planned operations would be approximately 13.6%, or an additional 4.0% of the standard.

Cingular Current

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
SNET	110	880 - 894	19	100	0.0565	0.5867	9.6

Cingular Planned

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
SNET TDMA	110	880 - 894	16	100	0.0475	0.5867	8.1
SNET GSM	110	880 - 894	2	296	0.0176	0.5867	3.0
SNET GSM	110	1930 - 1935	2	427	0.0254	1.0000	2.5
<b>Total</b>							<b>13.6%</b>

**Structural information:** Please see attached.

1. EXECUTIVE SUMMARY

This report summarizes the structural analysis of the 120' lattice tower located on 2755 State Street in Hamden, Connecticut. The analysis was conducted in accordance with the TIA/EIA-222-F standard for wind velocity of 85 mph bare and 74 mph concurrent with 1/2" ice design wind loads. The antenna loading considered in the analysis consists of all existing and proposed antennas, transmission lines, and ancillary items as outlined in the Analysis Methodology and Loading Condition Section of this report. The proposed Cingular Wireless modification is to replace the existing Cingular Wireless antennas with the antennas listed below:

(9) DUO4-8670 antennas and (6) ADC MHA amplifiers with (3) T-Frame mounts and (9) 1 5/8" coax cables Cingular @ 110' elevation

(1) (LMU) Catrain 738449 antenna with stand off mount and (1) 1/2" coax cable Cingular @ 60' elevation

The results of the analysis indicate the tower structure to be in compliance with the proposed loading conditions. The tower is considered feasible with the TIA/EIA-222-F wind load classification specified above and all the existing and proposed antenna loading. No further analysis was conducted on the tower foundation since the forces calculated were below the original design.

This analysis is based on:

- 1) Tower and Foundation reports prepared by Pirod Incorporated engineering file A-113604 approved November 4, 1997.
- 2) Antenna inventory as specified in section 2 and 6 of this report.
- 3) TIA/EIA-222-F wind load classification.

This report is only valid as per the assumptions and data utilized in this report for antenna inventory, mounts and associated cables. The user of this report shall field verify the assumption of the antenna and mount configuration. Notify the engineer immediately if any of the assumptions in this report are found to be other than specified.

If you should have any questions, please call.

Sincerely,  
URS Corporation AES




Mohsen Sahirad, P.E.  
Senior Structural Engineer

MS/rmn

- cc: Richard R. Johanson – Bechtel
- Doug Roberts – URS
- N.A. – URS
- A.A. – URS
- CF/Book

## 2. INTRODUCTION

The subject tower is located on 2755 State Street in Hamden, Connecticut. The structure is a self supporting 120' steel triangular tapered lattice tower manufactured by Pirod Incorporated.

The tower is constructed of truss legs, diagonal angle braces and horizontal braces. The tower sections are all bolted together. The width of the face is 3'-6" at the top and 10' at the bottom. The tower geometry and structural member sizes were taken from Pirod Incorporated engineering file A-113604 approved November 4, 1997.

The existing structure supports several communication antennas. The antenna and mount configuration as specified below:

<b>Antenna Type</b>	<b>Carrier</b>	<b>Mount</b>	<b>Elevation</b>	<b>Cable</b>
(9) Allgon 7184	Sprint	Low Profile Platform	120'	(9) 1 5/8" coax cable
(9) DUO4-8670 & (6) ADC MHA	Cingular	T-Frame	110'	(12) 1 5/8" coax cable
(1) DAPA 48212	Voicestream	Flush Mounted	100'	(1) 1 1/4" coax cable
(12) Allgon 7184	AT&T	T-Frame	90'	(12) 1 1/4" coax cable
(1) (LMU) Catrain 738449	Cingular	Stand off	60'	(1) 1/2" coax cable
Gabriel GHF4-18 Grid Dish	Voicestream	Stand off	50'	(1) 7/8" coax cable

This structural analysis of the communications tower was performed by URS Corporation, AES (URS) for Cingular Wireless. The purpose of this analysis was to investigate the structural integrity of the existing tower with its existing and proposed antenna loads. This analysis was conducted to evaluate twist (rotation), sway (deflection) and stress on the tower, and the effect of forces to the foundation of the tower resulting from existing and proposed antenna arrangements.

## 3. ANALYSIS METHODOLOGY AND LOADING CONDITIONS

### Methodology:

The structural analysis was done in accordance with TIA/EIA-222-F June 1996, Structural Standard for Steel Antenna Towers and Antenna Supporting Structures, the American Institute of Steel Construction (AISC) and the Manual of Steel Construction; Allowable Stress Design (ASD).

The analysis was conducted using ERI Tower 2.0. Two load conditions were evaluated as shown below which were compared to allowable stresses according to AISC and TIA/EIA. The two load combinations were investigated in ERI Tower 2.0 to determine the stress, sway and rotation.

Load Condition 1 = 85 mph Wind Load (without ice) + Tower Dead Load  
 Load Condition 2 = 74 mph Wind Load (with ice) + Ice Load + Tower Dead Load

The TIA/EIA standard permits one-third increase in allowable stresses for towers and monopoles less than 700 feet tall. For purposes of this analysis, allowable stresses of tower members were increased by one-third in computing the load capacity; in addition, the appropriate "k" factors were assigned to each member.

#### 4. FINDINGS AND EVALUATION

The combined axial and bending stresses on the tower structure were evaluated to compare with the allowable stress in accordance with AISC. The analysis indicates that the tower legs, diagonals and horizontal members have sufficient capacity to carry the loads applied.

The tower base reactions are as follows:

Original Design Tower Reactions	
Compression (kips)	166.3
Uplift (kips)	153.3
Total Shear (kips)	20.7
Moment (kips-ft)	1384.1

Proposed Tower Reactions	
Compression (kips)	166
Uplift (kips)	141
Total Shear (kips)	18
Moment (kips-ft)	1317

For detailed proposed tower reactions, see drawing no. E-1 in section 6 of this report.

The analysis indicates that the reactions of the tower base are below the Original Design prepared by Pirod Incorporated. No further analysis was conducted on the tower foundation since the forces calculated were below the original design.

#### 5. CONCLUSIONS

The results of the analysis indicate the structure to be in compliance with the loading conditions and the materials and member sizes for the tower. The tower is considered feasible with the TIA/EIA-222-F wind load classification specified above and all the existing and proposed antenna loading.

##### Limitations/Assumptions:

This report is based on the following:

- A. Tower is properly installed and maintained.
- B. All members were as specified in the original Construction Documents and are in good condition.
- C. All required members are in place.
- D. All bolts are in place and are properly tightened.
- E. Tower is in plumb condition.
- F. All members are galvanized.
- G. All tower members were properly designed, detailed, fabricated, installed, and have been properly maintained since erection.

URS is not responsible for any modifications completed prior to or hereafter in which URS is not or was not directly involved. Modifications include but are not limited to:

- A. Adding antennas
- B. Adding cables
- C. Adding mounts

URS hereby states that this document represents the entire report and that it assumes no liability for any factual changes that may occur after the date of this report. All representations, recommendations, and conclusions are based upon information contained and set forth herein. If you are aware of any information which conflicts with that which is contained herein, or you are aware of any defects arising from original design, material, fabrication, or erection deficiencies, you should disregard this report and immediately contact URS. URS disclaims all liability for any representation, recommendation, or conclusion not expressly stated herein.

**CINGULAR WIRELESS  
Antenna Modification**

**Site Address:** 890 Evergreen Avenue, Hamden  
Docket No. 195

**Tower Owner/Manager:** Crown Atlantic Company LLC

**Antenna configuration** Antenna center line – 85'

**Current and/or approved:** up to 12 Allgon 7120.16

**Planned:** 9 CSS DUO4-8670 or comparable  
6 tower mount amplifiers  
3 diplexers  
1 LMU (at 25' or on building)

**Power Density:**

Calculations for Cingular's current operations at the site indicate a radio frequency electromagnetic radiation power density, measured at the tower base, of approximately 16.1% of the standard adopted by the FCC. As depicted in the second table below, the total radio frequency electromagnetic radiation power density for Cingular's planned operations would be approximately 22.8%, or an additional 6.7% of the standard.

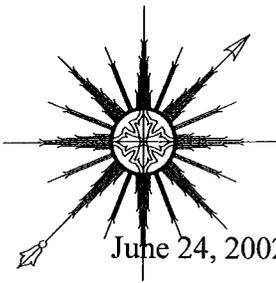
Cingular Current

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
SNET	85	880 - 894	19	100	0.0946	0.5867	16.1

Cingular Planned

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
SNET TDMA	85	880 - 894	16	100	0.0796	0.5867	13.6
SNET GSM	85	880 - 894	2	296	0.0295	0.5867	5.0
SNET GSM	85	1930 - 1935	2	427	0.0425	1.0000	4.3
<b>Total</b>							<b>22.8%</b>

**Structural information:** Please see attached.



# ALL-POINTS TECHNOLOGY CORPORATION, P.C.

June 24, 2002

Crown Castle Atlantic  
500 West Cummings Park  
Suite 3400  
Woburn, MA 01801

Attn: Lincoln Erhard  
Re: Cingular Wireless Antenna Change  
108' Silo Tower  
Hamden, Connecticut  
BU #800529

Dear Lincoln,

I am writing with regard to Cingular Wireless' proposed antenna changes to be installed on the 108' silo tower located at 890 Evergreen Avenue in Hamden, Connecticut. I evaluated the silo tower (Berenyi, Inc. Job #00-065) in accordance with EIA/TIA-222-F, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures. My evaluation consisted of comparing design loads shown on Berenyi Incorporated drawings with existing and proposed antenna and waveguide loads.

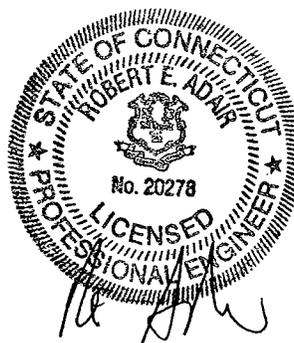
According to information provided by Crown Castle, antenna loading consists of the following:

- (12) ALP7129.16 panels at 95' with (12) 1-5/8" waveguide
- **Cingular Wireless:** (9) CSS DU04-8670 panels at 85' with six ADC 850/1900 TMAs and three ADC Diplexers and (9) existing 7/8" waveguide; and one Kathrein 738449 omnidirectional antenna at 25' with 1/2" waveguide.
- (12) Decibel DB844H90E at 75' with (12) 1-5/8" waveguide
- (6) ALP7250 panels at 65' with (12) 1-1/4" waveguide (proposed)

My evaluation indicates the tower and foundation are capable of supporting Cingular's proposed antenna changes. Please call if you have any questions.

Sincerely,  
All-Points Technology Corporation, P.C.

Robert E. Adair, P.E.  
Principal



C:\Docs\Jobs\CT105152 Hamden 6-24-02 ltr.doc

**CINGULAR WIRELESS  
Antenna Modification**

**Site Address:** 21 Acorn Road, Branford  
tower share 12/13/99

**Tower Owner/Manager:** Sprint Sites USA

**Antenna configuration** Antenna center line – 105'

**Current and/or approved:** 9 Allgon 7120.16

**Planned:** 9 CSS DUO4-8670 or comparable  
6 tower mount amplifiers  
1 LMU (at 80')

**Power Density:**

Calculations for Cingular's current operations at the site indicate a radio frequency electromagnetic radiation power density, measured at the tower base, of approximately 10.6% of the standard adopted by the FCC. As depicted in the second table below, the total radio frequency electromagnetic radiation power density for Cingular's planned operations would be approximately 15.0%, or an additional 4.4% of the standard.

Cingular Current

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
SNET	105	880 - 894	19	100	0.0620	0.5867	10.6

Cingular Planned

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
SNET TDMA	105	880 - 894	16	100	0.0522	0.5867	8.9
SNET GSM	105	880 - 894	2	296	0.0193	0.5867	3.3
SNET GSM	105	1930 - 1935	2	427	0.0279	1.0000	2.8
<b>Total</b>							<b>15.0%</b>

**Structural information:** Please see attached.

## 1. EXECUTIVE SUMMARY

This report summarizes the structural analysis of the existing 150' monopole located on 21 Acorn Road in Branford, Connecticut. The analysis was conducted in accordance with the TIA/EIA-222-F standard for wind velocity of 85 mph bare and 74 mph concurrent with ½" ice. The antenna loading considered in the analysis consists of all existing and proposed antennas, transmission lines, and ancillary items as outlined on the following page of this report.

The results of the analysis indicate the structure to be in compliance with the loading conditions and the material and member sizes for the monopole and foundation. The monopole is considered feasible with the TIA/EIA-222-F wind load classification specified above and all the existing and proposed antenna loading.

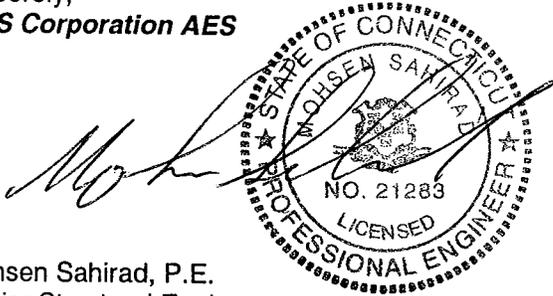
This analysis is based on:

- 1) Tower and foundation design prepared by Paul J. Ford and Company job no. 29297-566 approved September 29, 1997.
- 2) Antenna inventory as specified on the following page of this report.
- 3) TIA/EIA-222-F wind load classification.

This report is only valid as per the assumptions and data utilized in this report for antenna inventory, mounts and associated cables.

If you should have any questions, please call.

Sincerely,  
**URS Corporation AES**



Mohsen Sahirad, P.E.  
Senior Structural Engineer

MS/rmn

cc: Mark Burke – Bechtel  
Doug Roberts – URS  
I.A. – URS  
A.A. – URS  
CF/Book

**Introduction:**

A structural analysis of this 150' communications monopole was performed by URS Corporation AES (URS) for Cingular Wireless. The monopole is located on 21 Acorn Road in Branford, Connecticut.

The structure is self-supporting and was manufactured by Summit Manufacturing, LLC job no. 2737-97. The monopole and its foundation were designed by Paul J. Ford and Company job no. 29297-566 approved September 29, 1997.

This analysis was conducted to evaluate twist (rotation), sway (deflection), and stress on the monopole. The analysis was also used to find the effect of the forces to the foundation resulting from the antenna arrangement listed below.

The antenna and mount configuration		<u>Antenna Centerline Elevation</u>
(9) DB980H90 antennas with low profile platform and (9) 1 5/8" coax cable within the monopole	Sprint	@ 150' elevation
(12) ALP9212 antennas and with low profile platform and (12) 1-5/8" coax cable within the monopole	Nextel	@ 130' elevation
(12) DB844H90 antennas with low profile platform and (12) 1-5/8" coax cable within the monopole	Verizon	@ 116' elevation
(9) DUO4-8670 antennas and (6) amplifiers with low profile platform and (9) 1-5/8" coax cable within the monopole	Cingular (proposed)	@ 105' elevation
(6) Allgon 7250 antennas with (3) stand-off arms and (12) 7/8" coax cable within the monopole	AT&T	@ 95' elevation
(1) GPS antenna with stand-off and (1) 1/2" coax cable	Cingular (proposed)	@ 80' elevation

**Note: 1. Porthole may be required. Installation of porthole shall be done per manufacturer suggestion.**

**2. Physical verification may be required to ensure that adequate space is available inside the monopole.**

**Structural Analysis:**

Methodology:

The structural analysis was done in accordance with TIA/EIA-222-F June 1996, Structural Standard for Steel Antenna Towers and Antenna Supporting Structures, the American Institute of Steel Construction (AISC) and the Manual of Steel Construction; Allowable Stress Design (ASD).

The analysis was conducted using ERI Tower 2.0. Two load conditions were evaluated as shown below which were compared to allowable stresses according to AISC and TIA/EIA. The two load combinations were investigated in ERI Tower 2.0 to determine the stress, sway and rotation.

Load Condition 1 = 85 mph Wind Load (without ice) + Tower Dead Load  
Load Condition 2 = 74 mph Wind Load (with ice) + Ice Load + Tower Dead Load

The TIA/EIA standard permits one-third increase in allowable stresses for towers and monopoles less than 700 feet tall. For purposes of this analysis, allowable stresses of the monopole members were increased by one-third in computing the load capacity.

### **Evaluation of Monopole:**

Combined axial and bending stresses on the monopole structure were evaluated to compare with allowable stresses in accordance with AISC. The calculated stresses under the proposed loading were below the allowable stresses.

### **Analysis Results:**

Our analysis determined that the monopole will support the proposed new antenna arrangements under the analysis criteria outlined on the previous page. No further analysis was conducted on the tower foundation since the forces calculated were below the original design.

Our analysis for the proposed new antenna arrangement and load condition is provided in Appendix A.

### **Limitations/Assumptions:**

This report is based on the following:

1. Tower inventory for antennas and mounts as listed in this report.
2. Tower is properly installed and maintained.
3. All members were as specified in the original design Documents and are in good condition.
4. All required members are in place.
5. All bolts are in place and are properly tightened.
6. Tower is in plumb condition.
7. All members are galvanized.
8. All tower members were properly designed, detailed, fabricated, and installed and have been properly maintained since erection.
9. Foundations were properly constructed to support original design loads as specified in the original design documents.
10. All co-axial cable is installed within the monopole, except as noted.

URS is not responsible for any modifications completed prior to or hereafter, which URS is not or was not directly involved. Modifications include but are not limited to:

1. Adding antennas
2. Adding cables
3. Adding mount

URS hereby states that this document represents the entire report and that it assumes no liability for any factual changes that may occur after the date of this report. All representations, recommendations, and conclusions are based upon information contained and set forth herein. If you are aware of any information which conflicts with that which is contained herein, or you are aware of any defects arising from original design, material, fabrication, or erection deficiencies, you should disregard this report and immediately contact URS. URS disclaims all liability for any representation, recommendation, or conclusion not expressly stated herein.

**CINGULAR WIRELESS  
Antenna Modification**

**Site Address:** 4 Beaver Road, Branford  
tower share filed 1/22/97

**Tower Owner/Manager:** SpectraSite Communications, Inc.

**Antenna configuration** Antenna center line – 113’

**Current and/or approved:** 9 Swedcom ALP 110 11 or comparable

**Planned:** 9 CSS DUO4-8670 or comparable  
6 tower mount amplifiers  
1 LMU (at 31.25’)

**Power Density:**

Calculations for Cingular’s current operations at the site indicate a radio frequency electromagnetic radiation power density, measured at the tower base, of approximately 9.1% of the standard adopted by the FCC. As depicted in the second table below, the total radio frequency electromagnetic radiation power density for Cingular’s planned operations would be approximately 12.9%, or an additional 3.8% of the standard.

**Cingular Current**

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
SNET	113	880 - 894	19	100	0.0535	0.5867	9.1

**Cingular Planned**

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
SNET TDMA	113	880 - 894	16	100	0.0451	0.5867	7.7
SNET GSM	113	880 - 894	2	296	0.0167	0.5867	2.8
SNET GSM	113	1930 - 1935	2	427	0.0240	1.0000	2.4
<b>Total</b>							<b>12.9%</b>

**Structural information:** Please see attached.



RE: CT-1013 [Cherry Hill/Branford]  
 Structural Evaluation of 125' Rohn SSV Self-Support Tower  
 4 Beaver Road  
 Branford, CT 06405  
 New Haven County

Date: May 22, 2002

SpectraSite Engineering has performed a *Level 1 evaluation*<sup>1</sup> for the above-noted tower. The evaluation was based on the requirements of TIA/EIA-222-F Standards for a basic wind speed of 85 mph without ice and 75% of the wind load with 1/2" radial ice.

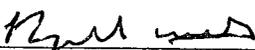
Table 1. Existing and Proposed Antennas

ELEVATION (Ft-AGL)	ANTENNA	CARRIER	COAX	NOTES
125	(12) Decibel DB844H90E-XY on Sector Frame Mounts	Nextel	(12) 7/8"	Existing
113.5	(9) Swedcom ALP H1011-N on Sector Frame Mounts	Cingular	(9) 7/8"	Remove Existing
113.5	(9) CSS DUO4-8670 (6) CSS ADC Amplifiers on Sector Frame Mounts	Cingular	(9) 7/8"	Proposed Replacement
100	(1) Antel BCD-87010 on Standoff Mount	Bellsouth	(1) 7/8"	Proposed
31.25	(1) Nokia CS72187-01 on Standoff Mount	Cingular	(1) 1/2"	Proposed

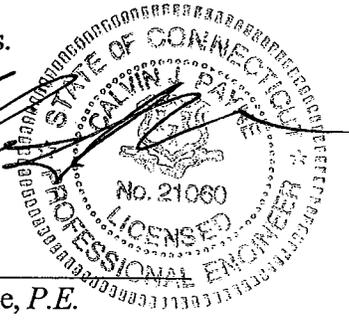
The subject tower, and it's foundation, are *adequate* to support the above stated loads and *in conformance* with the requirements of TIA/EIA-222-F Standard.

*The tower should be re-evaluated as future loads are added or if actual loads are found different from those mentioned in Table 1.*

Please do not hesitate to give me a call if you have any questions or concerns.

  
 Raphael Mohamed, P. Eng.  
 Project Engineer

  
 06-13-2002  
 Calvin J. Payne, P.E.  
 Chief Engineer



<sup>1</sup> *Level 1 evaluation* means:  
 • the applied (existing and proposed) loads (Table 1) on the tower are compared to the original design loads,  
 • the design wind criteria is compared to the recent code requirements.

**CINGULAR WIRELESS**  
**Antenna Modification**

**Site Address:** 150 North Main Street, Branford  
tower share 9/10/98

**Tower Owner/Manager:** Sprint Sites USA

**Antenna configuration** Antenna center line – 110'

**Current and/or approved:** 12 Allgon 7120.16 or comparable

**Planned:** 9 CSS DUO4-8670 or comparable  
6 tower mount amplifiers  
1 LMU (at 60')

**Power Density:**

Calculations for Cingular's current operations at the site indicate a radio frequency electromagnetic radiation power density, measured at the tower base, of approximately 9.6% of the standard adopted by the FCC. As depicted in the second table below, the total radio frequency electromagnetic radiation power density for Cingular's planned operations would be approximately 13.6%, or an additional 4.0% of the standard.

Cingular Current

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
SNET	110	880 - 894	19	100	0.0565	0.5867	9.6

Cingular Planned

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
SNET TDMA	110	880 - 894	16	100	0.0475	0.5867	8.1
SNET GSM	110	880 - 894	2	296	0.0176	0.5867	3.0
SNET GSM	110	1930 - 1935	2	427	0.0254	1.0000	2.5
<b>Total</b>							<b>13.6%</b>

**Structural information:** Please see attached.

1. EXECUTIVE SUMMARY

This report summarizes the structural analysis of the existing 147' monopole located on 150 North Main Street in Branford, Connecticut. The analysis was conducted in accordance with the TIA/EIA-222-F standard for wind velocity of 85 mph bare and 74 mph concurrent with 1/2" ice. The antenna loading considered in the analysis consists of all existing and proposed antennas, transmission lines, and ancillary items as outlined on the following page of this report. The proposed Cingular Wireless modification is to replace the existing Cingular Wireless antennas with the antennas listed below:

(9) DUO4-8670 antennas and (6) Cingular @ 110' elevation  
amplifiers with low profile platform  
and (9) 1 1/4" coax cable within the  
monopole

(1) LMU GSM RX antenna with (1) Cingular @ 60' elevation  
1/2" coax cable within the monopole

The results of the analysis indicate the structure to be in compliance with the proposed loading condition for the monopole. The monopole is considered feasible with the TIA/EIA-222-F wind load classification specified above and all the existing and proposed antenna loading. No further analysis was conducted on the tower foundation since the forces calculated were below the original design.

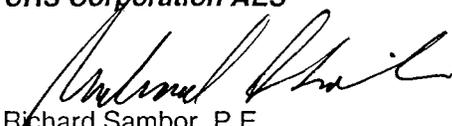
This analysis is based on:

- 1) Tower and foundation design prepared by Paul J. Ford and Company file no. 29299-111 approved March 15, 1999.
- 2) Antenna loading as specified on the following page of this report.
- 3) TIA/EIA-222-F wind load classification.

This report is only valid as per the assumptions and data utilized in this report for antenna loading, mounts and associated cables. The user of this report shall field verify the assumption of the antenna and mount configuration and that adequate space is available for routing the coaxial cable inside the monopole prior to installation. Notify the engineer immediately if any of the assumptions in this report are found to be other than specified.

If you should have any questions, please call.

Sincerely,  
**URS Corporation AES**

  
Richard Sambor, P.E.  
Facilities Group Manager



MS/rmn

cc: Richard R. Johanson – Bechtel  
Doug Roberts – URS  
I.A. – URS  
A.A. – URS  
CF/Book

**Introduction:**

A structural analysis of this 147' communications monopole was performed by URS Corporation AES (URS) for Cingular Wireless. The monopole is located on 150 North Main Street in Branford, Connecticut.

The structure is self-supporting and was manufactured by Summit Manufacturing, Inc. job no. 4516. The tower design was prepared by Paul J. Ford and Company file no. 29299-111 approved March 15, 1999.

This analysis was conducted to evaluate twist (rotation), sway (deflection), and stress on the monopole. The analysis was also used to find the effect of the forces to the foundation resulting from the antenna arrangement listed below.

The antenna and mount configuration:

Antenna Centerline Elevation

(9) DB980H90 antennas with low profile platform and (9) 1-5/8" coax cables within the monopole	Sprint	@ 147' elevation
(12) DB844H90 antennas with low profile platform and (12) 1 5/8" coax cables within the monopole	Nextel	@ 135' elevation
(6) Allgon 7250.03 antennas with (3) T-Frame mounts and (12) 1 1/4" coax cables within the monopole	AT&T	@ 120' elevation
(9) DUO4-8670 antennas and (6) amplifiers with low profile platform and (9) 1 1/4" coax cable within the monopole	Cingular (proposed)	@ 110' elevation
(1)LMU GSM RX antenna with (1) 1/2" coax cable within the monopole	Cingular (proposed)	@ 60' elevation

- Note:**
- 1. Porthole may be required. Installation of porthole shall be done per manufacturer suggestion.**
  - 2. Cingular Wireless shall conduct verification on the assumption of the antenna and mount configuration and that adequate space is available for routing the coaxial cable inside the monopole prior to installation. Notify the engineer immediately if any of the assumptions in this report are found to be other than specified.**

## **Structural Analysis:**

### Methodology:

The structural analysis was done in accordance with TIA/EIA-222-F June 1996, Structural Standard for Steel Antenna Towers and Antenna Supporting Structures, the American Institute of Steel Construction (AISC) and the Manual of Steel Construction; Allowable Stress Design (ASD).

The analysis was conducted using ERI Tower 2.0. Two load conditions were evaluated as shown below which were compared to allowable stresses according to AISC and TIA/EIA. The two load combinations were investigated in ERI Tower 2.0 to determine the stress, sway and rotation.

Load Condition 1 = 85 mph Wind Load (without ice) + Tower Dead Load  
Load Condition 2 = 74 mph Wind Load (with ice) + Ice Load + Tower Dead Load

The TIA/EIA standard permits one-third increase in allowable stresses for towers and monopoles less than 700 feet tall. For purposes of this analysis, allowable stresses of the monopole members were increased by one-third in computing the load capacity.

### **Evaluation of Monopole:**

Combined axial and bending stresses on the monopole structure were evaluated to compare with allowable stresses in accordance with AISC. The calculated stresses under the proposed loading were below the allowable stresses.

### Analysis Results:

Our analysis determined that the monopole will support the proposed new antenna arrangements under the analysis criteria outlined on the previous page. No further analysis was conducted on the tower foundation since the forces calculated were below the original design.

Our analysis for the proposed new antenna arrangement and load condition is provided in Appendix A.

### **Limitations/Assumptions:**

This report is based on the following:

1. Tower loading for antennas and mounts as listed in this report.
2. Tower is properly installed and maintained.
3. All members were as specified in the original design Documents and are in good condition.
4. All required members are in place.
5. All bolts are in place and are properly tightened.
6. Tower is in plumb condition.
7. All members are galvanized.
8. All tower members were properly designed, detailed, fabricated, and installed and have been properly maintained since erection.
9. Foundations were properly constructed to support original design loads as specified in the original design Documents.
10. All co-axial cable is installed within or outside the monopole, except as noted.

URS is not responsible for any modifications completed prior to or hereafter, which URS is not or was not directly involved. Modifications include but are not limited to:

1. Removing/Replacing antennas
2. Adding antennas and amplifiers

URS hereby states that this document represents the entire report and that it assumes no liability for any factual changes that may occur after the date of this report. All representations, recommendations, and conclusions are based upon information contained and set forth herein. If you are aware of any information which conflicts with that which is contained herein, or you are aware of any defects arising from original design, material, fabrication, or erection deficiencies, you should disregard this report and immediately contact URS. URS disclaims all liability for any representation, recommendation, or conclusion not expressly stated herein.

**CINGULAR WIRELESS  
Antenna Modification**

**Site Address:** 150 North Main Street, Branford  
tower share 9/10/98

**Tower Owner/Manager:** Sprint Sites USA

**Antenna configuration** Antenna center line – 110'

**Current and/or approved:** 12 Allgon 7120.16 or comparable

**Planned:** 9 CSS DUO4-8670 or comparable  
6 tower mount amplifiers  
1 LMU (at 60')

**Power Density:**

Calculations for Cingular's current operations at the site indicate a radio frequency electromagnetic radiation power density, measured at the tower base, of approximately 9.6% of the standard adopted by the FCC. As depicted in the second table below, the total radio frequency electromagnetic radiation power density for Cingular's planned operations would be approximately 13.6%, or an additional 4.0% of the standard.

**Cingular Current**

<b>Company</b>	<b>Centerline Ht (feet)</b>	<b>Frequency (MHz)</b>	<b>Number of Channels</b>	<b>Power Per Channel (Watts)</b>	<b>Power Density (mW/cm<sup>2</sup>)</b>	<b>Standard Limits (mW/cm<sup>2</sup>)</b>	<b>Percent of Limit</b>
SNET	110	880 - 894	19	100	0.0565	0.5867	9.6

**Cingular Planned**

<b>Company</b>	<b>Centerline Ht (feet)</b>	<b>Frequency (MHz)</b>	<b>Number of Channels</b>	<b>Power Per Channel (Watts)</b>	<b>Power Density (mW/cm<sup>2</sup>)</b>	<b>Standard Limits (mW/cm<sup>2</sup>)</b>	<b>Percent of Limit</b>
SNET TDMA	110	880 - 894	16	100	0.0475	0.5867	8.1
SNET GSM	110	880 - 894	2	296	0.0176	0.5867	3.0
SNET GSM	110	1930 - 1935	2	427	0.0254	1.0000	2.5
<b>Total</b>							<b>13.6%</b>

**Structural information:** Please see attached.

1. EXECUTIVE SUMMARY

This report summarizes the structural analysis of the existing 147' monopole located on 150 North Main Street in Branford, Connecticut. The analysis was conducted in accordance with the TIA/EIA-222-F standard for wind velocity of 85 mph bare and 74 mph concurrent with 1/2" ice. The antenna loading considered in the analysis consists of all existing and proposed antennas, transmission lines, and ancillary items as outlined on the following page of this report. The proposed Cingular Wireless modification is to replace the existing Cingular Wireless antennas with the antennas listed below:

(9) DUO4-8670 antennas and (6) amplifiers with low profile platform and (9) 1 1/4" coax cable within the monopole Cingular @ 110' elevation

(1) LMU GSM RX antenna with (1) 1/2" coax cable within the monopole Cingular @ 60' elevation

The results of the analysis indicate the structure to be in compliance with the proposed loading condition for the monopole. The monopole is considered feasible with the TIA/EIA-222-F wind load classification specified above and all the existing and proposed antenna loading. No further analysis was conducted on the tower foundation since the forces calculated were below the original design.

This analysis is based on:

- 1) Tower and foundation design prepared by Paul J. Ford and Company file no. 29299-111 approved March 15, 1999.
- 2) Antenna loading as specified on the following page of this report.
- 3) TIA/EIA-222-F wind load classification.

This report is only valid as per the assumptions and data utilized in this report for antenna loading, mounts and associated cables. The user of this report shall field verify the assumption of the antenna and mount configuration and that adequate space is available for routing the coaxial cable inside the monopole prior to installation. Notify the engineer immediately if any of the assumptions in this report are found to be other than specified.

If you should have any questions, please call.

Sincerely,  
URS Corporation AES

*Richard Sambor*  
Richard Sambor, P.E.  
Facilities Group Manager



MS/rmn

- cc: Richard R. Johanson – Bechtel
- Doug Roberts – URS
- I.A. – URS
- A.A. – URS
- CF/Book

**Introduction:**

A structural analysis of this 147' communications monopole was performed by URS Corporation AES (URS) for Cingular Wireless. The monopole is located on 150 North Main Street in Branford, Connecticut.

The structure is self-supporting and was manufactured by Summit Manufacturing, Inc. job no. 4516. The tower design was prepared by Paul J. Ford and Company file no. 29299-111 approved March 15, 1999.

This analysis was conducted to evaluate twist (rotation), sway (deflection), and stress on the monopole. The analysis was also used to find the effect of the forces to the foundation resulting from the antenna arrangement listed below.

The antenna and mount configuration:		<u>Antenna Centerline Elevation</u>
(9) DB980H90 antennas with low profile platform and (9) 1-5/8" coax cables within the monopole	Sprint	@ 147' elevation
(12) DB844H90 antennas with low profile platform and (12) 1 5/8" coax cables within the monopole	Nextel	@ 135' elevation
(6) Allgon 7250.03 antennas with (3) T-Frame mounts and (12) 1 1/4" coax cables within the monopole	AT&T	@ 120' elevation
(9) DUO4-8670 antennas and (6) amplifiers with low profile platform and (9) 1 1/4" coax cable within the monopole	Cingular (proposed)	@ 110' elevation
(1)LMU GSM RX antenna with (1) 1/2" coax cable within the monopole	Cingular (proposed)	@ 60' elevation

- Note:**
- 1. Porthole may be required. Installation of porthole shall be done per manufacturer suggestion.**
  - 2. Cingular Wireless shall conduct verification on the assumption of the antenna and mount configuration and that adequate space is available for routing the coaxial cable inside the monopole prior to installation. Notify the engineer immediately if any of the assumptions in this report are found to be other than specified.**

## **Structural Analysis:**

### Methodology:

The structural analysis was done in accordance with TIA/EIA-222-F June 1996, Structural Standard for Steel Antenna Towers and Antenna Supporting Structures, the American Institute of Steel Construction (AISC) and the Manual of Steel Construction; Allowable Stress Design (ASD).

The analysis was conducted using ERI Tower 2.0. Two load conditions were evaluated as shown below which were compared to allowable stresses according to AISC and TIA/EIA. The two load combinations were investigated in ERI Tower 2.0 to determine the stress, sway and rotation.

Load Condition 1 = 85 mph Wind Load (without ice) + Tower Dead Load  
Load Condition 2 = 74 mph Wind Load (with ice) + Ice Load + Tower Dead Load

The TIA/EIA standard permits one-third increase in allowable stresses for towers and monopoles less than 700 feet tall. For purposes of this analysis, allowable stresses of the monopole members were increased by one-third in computing the load capacity.

### **Evaluation of Monopole:**

Combined axial and bending stresses on the monopole structure were evaluated to compare with allowable stresses in accordance with AISC. The calculated stresses under the proposed loading were below the allowable stresses.

### Analysis Results:

Our analysis determined that the monopole will support the proposed new antenna arrangements under the analysis criteria outlined on the previous page. No further analysis was conducted on the tower foundation since the forces calculated were below the original design.

Our analysis for the proposed new antenna arrangement and load condition is provided in Appendix A.

### **Limitations/Assumptions:**

This report is based on the following:

1. Tower loading for antennas and mounts as listed in this report.
2. Tower is properly installed and maintained.
3. All members were as specified in the original design Documents and are in good condition.
4. All required members are in place.
5. All bolts are in place and are properly tightened.
6. Tower is in plumb condition.
7. All members are galvanized.
8. All tower members were properly designed, detailed, fabricated, and installed and have been properly maintained since erection.
9. Foundations were properly constructed to support original design loads as specified in the original design Documents.
10. All co-axial cable is installed within or outside the monopole, except as noted.

URS is not responsible for any modifications completed prior to or hereafter, which URS is not or was not directly involved. Modifications include but are not limited to:

1. Removing/Replacing antennas
2. Adding antennas and amplifiers

URS hereby states that this document represents the entire report and that it assumes no liability for any factual changes that may occur after the date of this report. All representations, recommendations, and conclusions are based upon information contained and set forth herein. If you are aware of any information which conflicts with that which is contained herein, or you are aware of any defects arising from original design, material, fabrication, or erection deficiencies, you should disregard this report and immediately contact URS. URS disclaims all liability for any representation, recommendation, or conclusion not expressly stated herein.

**Springwich Cellular Limited Partnership**

500 Enterprise Drive  
Rocky Hill, Connecticut 06067-3900  
Phone: (860) 513-7730  
Fax: (860) 513-7614

*Peter W. van Wilgen*  
*Director - Real Estate Operations*

September 1, 1998

The Honorable Anthony DaRos, First Selectman  
Branford Town Hall  
1019 Main Street  
Branford, CT

Dear First Selectman DaRos:

Springwich Cellular Limited Partnership (SCLP) plans to install antennas and associated equipment at the existing tower facility owned by Sprint Spectrum L.P. ("Sprint") located at 150 North Main Street in Branford. Please accept this letter dated September 1, 1998, and the attached letter to the Connecticut Siting Council dated September 1, 1998, as notice of intent of the placement of associated equipment on an existing non-facility tower pursuant to R.C.S.A. Section 16-50aa(c)(1).

The attached letter fully describes SCLP's proposal. 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)513-7730 or Mr. Joel Rinebold, Executive Director, Connecticut Siting Council at (860)827-2935.

Sincerely,



Enclosures

**CINGULAR WIRELESS  
Antenna Modification**

**Site Address:** 145 Manor Road, Guilford  
exempt modification

**Tower Owner/Manager:** Crown Atlantic Company LLC

**Antenna configuration** Antenna center line – 140’

**Current and/or approved:** 9 Swedcom ALP 110 11

**Planned:** 3 EMS MB96RR900200 or comparable

**Power Density:**

Calculations for Cingular’s current operations at the site indicate a radio frequency electromagnetic radiation power density, measured at the tower base, of approximately 5.9% of the standard adopted by the FCC. As depicted in the second table below, the total radio frequency electromagnetic radiation power density for Cingular’s planned operations would be approximately 8.4%, or an additional 2.5% of the standard.

Cingular Current

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
SNET	140	880 - 894	19	100	0.0349	0.5867	5.9

Cingular Planned

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
SNET TDMA	140	880 - 894	16	100	0.0294	0.5867	5.0
SNET GSM	140	880 - 894	2	296	0.0109	0.5867	1.9
SNET GSM	140	1930 - 1935	2	427	0.0157	1.0000	1.6
<b>Total</b>							<b>8.4%</b>

**Structural information:** Please see attached.



June 20, 2002

Mr. Lincoln Erhard  
 CROWN CASTLE ATLANTIC  
 500 W. Cummings Park, Suite 6500  
 WOBURN, MA 01801

**SUBJECT:** Tower Structural Re-Analysis Findings  
 Existing 150 ft. Monopole Tower  
**CCI : GUILFORD SITE #BU806361**  
**CINGULAR: GUILFORD CENTRAL SITE #2030**  
 Guilford, Connecticut  
**MEI Job # 02-0339A**

Dear Mr. Erhard:

As requested, the existing tower located at the **CCI : GUILFORD SITE #BU806361**, Guilford, Connecticut, was re-analyzed in conformance with the ANSI/TIA/EIA 222-F Standard for a basic wind speed of 85 Mph with 0" ice. The re-analysis mainly consisted of removing the existing Cingular antennas and replacing them with (3) EMS MB96RR900200 panel antennas flush mounted at elev. 140 ft. ± (please refer to MEI Project # MEI report # 02-0339 for additional information). The antenna configuration consisted of the following:

ELEVATION	ANTENNAS DESCRIPTION	TENANT	AZIMUTH	TRANSMISSION LINES
Ft	<b>PROPOSED</b>		Approx.	
140.	(3) EMS MB96RR900200 Antennas + 3-Way Ring Flush Mount	Cingular Wireless	21, 146, 262°	(6) 1-1/4 Dia. -- internal
	<b>Existing</b>			
150.	(12) Allgon 7130.16 Panel Antennas + Platform w/ Rails	Verizon Wireless		(12) 1-5/8" dia. - internal

The tower information used in this analysis is based on updated application data sheet as supplied on 06/18/02 via e-mail by Lincoln Erhard, Crown Castle, and other data as per previous information available in our records. This existing tower is assumed, for the purpose of this analysis, to have been properly maintained and to be in good condition with no structural defects. The transmission lines are considered located internal to the shaft.

With the revised antenna configuration condition as stated above, the structural analysis results indicated the following:

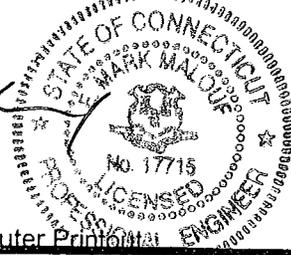
MEMBERS	RESULTS
POLE SHAFT	Elev. 97.50' - 100.50': Up to 4.5% Overstressed - <b>Acceptable</b> All Other Section of the tower/shaft Are Satisfactory Maximum Stress Ratio = 104.5%
FOUNDATION	Based on Data Supplied - <b>Satisfactory</b>
DEFLECTION	Max. Deflection at 85.0 mph is 122.26 inches

Based on the computer structural analysis results, the existing 150 ft. Monopole does marginally meet the requirements of TIA/EIA 222-F Standard for a basic wind speed of 85 Mph with 0" ice, for the revised antenna configuration considered. The installation of the proposed Cingular antennas is structurally acceptable.

If you have any questions or need further clarification, please call.

Sincerely,

E. Mark Malouf, PE  
 Connecticut #17715



Attachment: Computer Printout

**CINGULAR WIRELESS  
Antenna Modification**

**Site Address:** 4 Beaver Road, Branford  
tower share filed 1/22/97

**Tower Owner/Manager:** SpectraSite Communications, Inc.

**Antenna configuration** Antenna center line – 113'

**Current and/or approved:** 9 Swedcom ALP 110 11 or comparable

**Planned:** 9 CSS DUO4-8670 or comparable  
6 tower mount amplifiers  
1 LMU (at 31.25')

**Power Density:**

Calculations for Cingular's current operations at the site indicate a radio frequency electromagnetic radiation power density, measured at the tower base, of approximately 9.1% of the standard adopted by the FCC. As depicted in the second table below, the total radio frequency electromagnetic radiation power density for Cingular's planned operations would be approximately 12.9%, or an additional 3.8% of the standard.

Cingular Current

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
SNET	113	880 - 894	19	100	0.0535	0.5867	9.1

Cingular Planned

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
SNET TDMA	113	880 - 894	16	100	0.0451	0.5867	7.7
SNET GSM	113	880 - 894	2	296	0.0167	0.5867	2.8
SNET GSM	113	1930 - 1935	2	427	0.0240	1.0000	2.4
<b>Total</b>							<b>12.9%</b>

**Structural information:** Please see attached.



RE: CT-1013 [Cherry Hill/Branford]
Structural Evaluation of 125' Rohn SSV Self-Support Tower
4 Beaver Road
Branford, CT 06405
New Haven County

Date: May 22, 2002

SpectraSite Engineering has performed a Level 1 evaluation for the above-noted tower. The evaluation was based on the requirements of TIA/EIA-222-F Standards for a basic wind speed of 85 mph without ice and 75% of the wind load with 1/2" radial ice.

Table 1. Existing and Proposed Antennas

Table with 5 columns: ELEVATION (Ft-AGL), ANTENNA, CARRIER, COAX, NOTES. Rows include details for antennas at 125, 113.5, 113.5, 100, and 31.25 feet.

The subject tower, and it's foundation, are adequate to support the above stated loads and in conformance with the requirements of TIA/EIA-222-F Standard.

The tower should be re-evaluated as future loads are added or if actual loads are found different from those mentioned in Table 1.

Please do not hesitate to give me a call if you have any questions or concerns.

Raphael Mohamed, P. Eng.
Project Engineer

Calvin J. Payne, P.E.
Chief Engineer
Professional Engineer seal for Calvin J. Payne, No. 21060, State of Connecticut, dated 06-13-2002.

1 Level 1 evaluation means:
the applied (existing and proposed) loads (Table 1) on the tower are compared to the original design loads,
the design wind criteria is compared to the recent code requirements.

**CINGULAR WIRELESS  
Antenna Modification**

**Site Address:** 21 Acorn Road, Branford  
tower share 12/13/99

**Tower Owner/Manager:** Sprint Sites USA

**Antenna configuration** Antenna center line – 105'

**Current and/or approved:** 9 Allgon 7120.16

**Planned:** 9 CSS DUO4-8670 or comparable  
6 tower mount amplifiers  
1 LMU (at 80')

**Power Density:**

Calculations for Cingular's current operations at the site indicate a radio frequency electromagnetic radiation power density, measured at the tower base, of approximately 10.6% of the standard adopted by the FCC. As depicted in the second table below, the total radio frequency electromagnetic radiation power density for Cingular's planned operations would be approximately 15.0%, or an additional 4.4% of the standard.

Cingular Current

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
SNET	105	880 - 894	19	100	0.0620	0.5867	10.6

Cingular Planned

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
SNET TDMA	105	880 - 894	16	100	0.0522	0.5867	8.9
SNET GSM	105	880 - 894	2	296	0.0193	0.5867	3.3
SNET GSM	105	1930 - 1935	2	427	0.0279	1.0000	2.8
<b>Total</b>							<b>15.0%</b>

**Structural information:** Please see attached.

**Introduction:**

A structural analysis of this 150' communications monopole was performed by URS Corporation AES (URS) for Cingular Wireless. The monopole is located on 21 Acorn Road in Branford, Connecticut.

The structure is self-supporting and was manufactured by Summit Manufacturing, LLC job no. 2737-97. The monopole and its foundation were designed by Paul J. Ford and Company job no. 29297-566 approved September 29, 1997.

This analysis was conducted to evaluate twist (rotation), sway (deflection), and stress on the monopole. The analysis was also used to find the effect of the forces to the foundation resulting from the antenna arrangement listed below.

The antenna and mount configuration		<u>Antenna Centerline Elevation</u>
(9) DB980H90 antennas with low profile platform and (9) 1 5/8" coax cable within the monopole	Sprint	@ 150' elevation
(12) ALP9212 antennas and with low profile platform and (12) 1-5/8" coax cable within the monopole	Nextel	@ 130' elevation
(12) DB844H90 antennas with low profile platform and (12) 1-5/8" coax cable within the monopole	Verizon	@ 116' elevation
(9) DUO4-8670 antennas and (6) amplifiers with low profile platform and (9) 1-5/8" coax cable within the monopole	Cingular (proposed)	@ 105' elevation
(6) Allgon 7250 antennas with (3) stand-off arms and (12) 7/8" coax cable within the monopole	AT&T	@ 95' elevation
(1) GPS antenna with stand-off and (1) 1/2" coax cable	Cingular (proposed)	@ 80' elevation

- Note:**
- 1. Porthole may be required. Installation of porthole shall be done per manufacturer suggestion.**
  - 2. Physical verification may be required to ensure that adequate space is available inside the monopole.**

**Structural Analysis:**

Methodology:

The structural analysis was done in accordance with TIA/EIA-222-F June 1996, Structural Standard for Steel Antenna Towers and Antenna Supporting Structures, the American Institute of Steel Construction (AISC) and the Manual of Steel Construction; Allowable Stress Design (ASD).

The analysis was conducted using ERI Tower 2.0. Two load conditions were evaluated as shown below which were compared to allowable stresses according to AISC and TIA/EIA. The two load combinations were investigated in ERI Tower 2.0 to determine the stress, sway and rotation.

Load Condition 1 = 85 mph Wind Load (without ice) + Tower Dead Load  
Load Condition 2 = 74 mph Wind Load (with ice) + Ice Load + Tower Dead Load

The TIA/EIA standard permits one-third increase in allowable stresses for towers and monopoles less than 700 feet tall. For purposes of this analysis, allowable stresses of the monopole members were increased by one-third in computing the load capacity.

#### **Evaluation of Monopole:**

Combined axial and bending stresses on the monopole structure were evaluated to compare with allowable stresses in accordance with AISC. The calculated stresses under the proposed loading were below the allowable stresses.

#### **Analysis Results:**

Our analysis determined that the monopole will support the proposed new antenna arrangements under the analysis criteria outlined on the previous page. No further analysis was conducted on the tower foundation since the forces calculated were below the original design.

Our analysis for the proposed new antenna arrangement and load condition is provided in Appendix A.

#### **Limitations/Assumptions:**

This report is based on the following:

1. Tower inventory for antennas and mounts as listed in this report.
2. Tower is properly installed and maintained.
3. All members were as specified in the original design Documents and are in good condition.
4. All required members are in place.
5. All bolts are in place and are properly tightened.
6. Tower is in plumb condition.
7. All members are galvanized.
8. All tower members were properly designed, detailed, fabricated, and installed and have been properly maintained since erection.
9. Foundations were properly constructed to support original design loads as specified in the original design documents.
10. All co-axial cable is installed within the monopole, except as noted.

URS is not responsible for any modifications completed prior to or hereafter, which URS is not or was not directly involved. Modifications include but are not limited to:

1. Adding antennas
2. Adding cables
3. Adding mount

URS hereby states that this document represents the entire report and that it assumes no liability for any factual changes that may occur after the date of this report. All representations, recommendations, and conclusions are based upon information contained and set forth herein. If you are aware of any information which conflicts with that which is contained herein, or you are aware of any defects arising from original design, material, fabrication, or erection deficiencies, you should disregard this report and immediately contact URS. URS disclaims all liability for any representation, recommendation, or conclusion not expressly stated herein.



# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

Ten Franklin Square  
New Britain, Connecticut 06051  
Phone: (860) 827-2935  
Fax: (860) 827-2950

August 9, 2002

Honorable Carl A. Balestracci, Jr.  
First Selectman  
Town of Guilford  
Town Hall  
31 Park Street  
Guilford, CT 06437

RE: **EM-CING-014-060-062-093-107-020731** - SNET Mobility, LLC notice of intent to modify existing telecommunications facilities located in Branford, Guilford, Hamden, New Haven, and Orange, Connecticut.

Dear Mr. Balestracci:

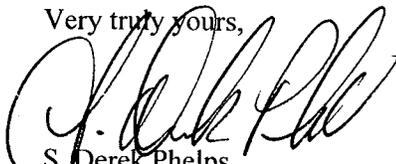
The Connecticut Siting Council (Council) received this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

The Council will consider this item at the next meeting scheduled for August 15, 2002, at 1:30 p.m. in Hearing Room One, Ten Franklin Square, New Britain, Connecticut.

Please call me or inform the Council if you have any questions or comments regarding this proposal.

Thank you for your cooperation and consideration.

Very truly yours,



S. Derek Phelps  
Executive Director

SDP/laf

Enclosure: Notice of Intent

c: M. William McAvoy, Jr., Zoning Enforcement Officer, Town of Guilford



STATE OF CONNECTICUT  
CONNECTICUT SITING COUNCIL

Ten Franklin Square  
New Britain, Connecticut 06051  
Phone: (860) 827-2935  
Fax: (860) 827-2950

August 9, 2002

Honorable Anthony J. DaRos  
First Selectman  
Town of Branford  
Town Hall  
1019 Main Street  
P. O. Box 150  
Branford, CT 06405-0150

RE: **EM-CING-014-060-062-093-107-020731** - SNET Mobility, LLC notice of intent to modify existing telecommunications facilities located in Branford, Guilford, Hamden, New Haven, and Orange, Connecticut.

Dear Mr. DaRos:

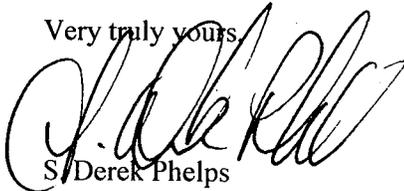
The Connecticut Siting Council (Council) received this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

The Council will consider this item at the next meeting scheduled for August 15, 2002, at 1:30 p.m. in Hearing Room One, Ten Franklin Square, New Britain, Connecticut.

Please call me or inform the Council if you have any questions or comments regarding this proposal.

Thank you for your cooperation and consideration.

Very truly yours,



S. Derek Phelps  
Executive Director

SDP/laf

Enclosure: Notice of Intent

c: Justine K. Gillen, Zoning Enforcement Officer, Town of Branford  
Diana Ross, Inland Wetland Enforcement Officer, Town of Branford



# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

Ten Franklin Square  
New Britain, Connecticut 06051  
Phone: (860) 827-2935  
Fax: (860) 827-2950

August 9, 2002

Honorable Mitchell R. Goldblatt  
First Selectman  
Town of Orange  
Town Hall  
617 Orange Center Road  
Orange, CT 06477-2423

RE: **EM-CING-014-060-062-093-107-020731** - SNET Mobility, LLC notice of intent to modify existing telecommunications facilities located in Branford, Guilford, Hamden, New Haven, and Orange, Connecticut.

Dear Mr. Goldblatt:

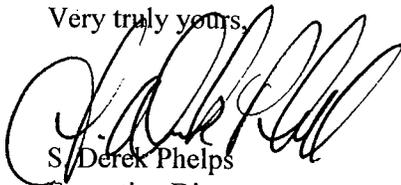
The Connecticut Siting Council (Council) received this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

The Council will consider this item at the next meeting scheduled for August 15, 2002, at 1:30 p.m. in Hearing Room One, Ten Franklin Square, New Britain, Connecticut.

Please call me or inform the Council if you have any questions or comments regarding this proposal.

Thank you for your cooperation and consideration.

Very truly yours,



S/Derek Phelps  
Executive Director

SDP/laf

Enclosure: Notice of Intent

c: Paul Dinice, Zoning Enforcement Officer, Town of Orange



# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

Ten Franklin Square  
New Britain, Connecticut 06051  
Phone: (860) 827-2935  
Fax: (860) 827-2950

August 9, 2002

Honorable Carl J. Amento  
Mayor  
Town of Hamden  
Town Hall  
2372 Whitney Avenue  
Hamden, CT 06518

RE: **EM-CING-014-060-062-093-107-020731** - SNET Mobility, LLC notice of intent to modify existing telecommunications facilities located in Branford, Guilford, Hamden, New Haven, and Orange, Connecticut.

Dear Mr. Amento:

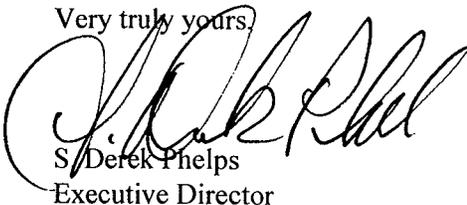
The Connecticut Siting Council (Council) received this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

The Council will consider this item at the next meeting scheduled for August 15, 2002, at 1:30 p.m. in Hearing Room One, Ten Franklin Square, New Britain, Connecticut.

Please call me or inform the Council if you have any questions or comments regarding this proposal.

Thank you for your cooperation and consideration.

Very truly yours,



S/Derek Phelps  
Executive Director

SDP/laf

Enclosure: Notice of Intent

c: Roger O'Brien, Town Planner, Town of Hamden



# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

Ten Franklin Square  
New Britain, Connecticut 06051  
Phone: (860) 827-2935  
Fax: (860) 827-2950

August 9, 2002

Honorable John Destefano, Jr  
Mayor  
City of New Haven  
165 Church Street  
New Haven, CT 06510

RE: **EM-CING-014-060-062-093-107-020731** - SNET Mobility, LLC notice of intent to modify existing telecommunications facilities located in Branford, Guilford, Hamden, New Haven, and Orange, Connecticut.

Dear Mayor Destefano:

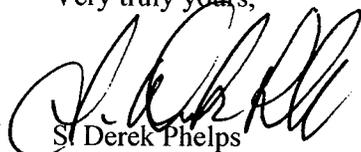
The Connecticut Siting Council (Council) received this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

The Council will consider this item at the next meeting scheduled for August 15, 2002, at 1:30 p.m. in Hearing Room One, Ten Franklin Square, New Britain, Connecticut.

Please call me or inform the Council if you have any questions or comments regarding this proposal.

Thank you for your cooperation and consideration.

Very truly yours,



St. Derek Phelps  
Executive Director

SDP/laf

Enclosure: Notice of Intent

c: Frank Gargiulo, Zoning Administrator, City of New Haven



STATE OF CONNECTICUT  
CONNECTICUT SITING COUNCIL

Ten Franklin Square  
New Britain, Connecticut 06051  
Phone: (860) 827-2935  
Fax: (860) 827-2950

August 9, 2002

Honorable Anthony J. DaRos  
First Selectman  
Town of Branford  
Town Hall  
1019 Main Street  
P. O. Box 150  
Branford, CT 06405-0150

RE: **EM-CING-014-060-062-093-107-020731** - SNET Mobility, LLC notice of intent to modify existing telecommunications facilities located in Branford, Guilford, Hamden, New Haven, and Orange, Connecticut.

Dear Mr. DaRos:

The Connecticut Siting Council (Council) received this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

The Council will consider this item at the next meeting scheduled for August 15, 2002, at 1:30 p.m. in Hearing Room One, Ten Franklin Square, New Britain, Connecticut.

Please call me or inform the Council if you have any questions or comments regarding this proposal.

Thank you for your cooperation and consideration.

Very truly yours,

S/Derek Phelps  
Executive Director

SDP/laf

Enclosure: Notice of Intent

c: Justine K. Gillen, Zoning Enforcement Officer, Town of Branford  
Diana Ross, Inland Wetland Enforcement Officer, Town of Branford