



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

Web Site: www.state.ct.us/csc/index.htm

July 15, 2002

Peter W. van Wilgen
SNET Mobility, LLC
500 Enterprise Drive
Rocky Hill, CT 06067-3900

RE: **EM-CING-082-083-089-110-131-148-020702** - SNET Mobility, LLC notice of intent to modify existing telecommunications facilities located in Middlefield, Middletown, Plainville, New Britain, Southington, and Wallingford.

Dear Mr. van Wilgen:

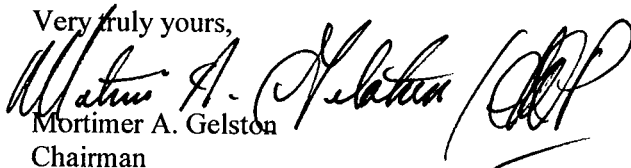
At a public meeting held on July 11, 2002, the Connecticut Siting Council (Council) acknowledged your notice to modify these existing telecommunications facilities, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice dated July 2, 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

Recipient List

Honorable Charles R. Augur, First Selectman, Town of Middlefield
Geoffrey Colegrove, Town Planner, Town of Middlefield
Honorable Dominique S. Thornton, Mayor, City of Middletown
Planning and Zoning Official, City of Middletown
Honorable Lucian J. Pawlak, Mayor, City of New Britain
Steven P. Schiller, Director of Planning, City of New Britain
Honorable William A. Petit, Chairman Town Council, Town of Plainville
Mary Hughes, Town Planner, Town of Plainville
Robert W. Jackson, Town Manager, Town of Plainville
John Weichsel, Town Manager, Town of Southington
Mary Hughes, Town Planner, Town of Southington
Honorable William W. Dickinson, Jr., Mayor, Town of Wallingford
Linda Bush, Town Planner, Town of Wallingford



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 2, 2002

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



Re: SNET Mobility, LLC notice of intent to modify existing telecommunications facilities located in Southington, Plainville, New Britain, Middletown, Middlefield and Wallingford

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).

Mr. Mortimer A. Gelston

July 2, 2002

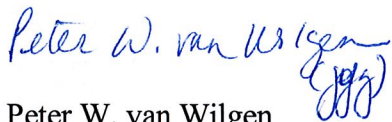
Page 2

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 5 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: Shuttle Meadow Road, Southington
Docket No. 40

Tower Owner/Manager: Springwich Cellular Limited Partnership;
managed by SpectraSite Communications, Inc.

Antenna configuration Antenna center line – 152'

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

Planned: 9 DUO4-8670 or comparable
6 tower mount amplifiers
1 LMU (at 38.5')

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 5.0% 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 7.1%, 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 ²)	Standard Limits (mW/cm ²)	Percent of Limit
SNET	152	880 - 894	19	100	0.0296	0.5867	5.0

Cingular Planned

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm ²)	Standard Limits (mW/cm ²)	Percent of Limit
SNET TDMA	152	880 - 894	16	100	0.0249	0.5867	4.2
SNET GSM	152	880 - 894	2	296	0.0092	0.5867	1.6
SNET GSM	152	1930 - 1935	2	427	0.0133	1.0000	1.3
Total							7.1%

Structural information: Please see attached.



RE: CT-0011 [Sttn-Southington]
Structural Evaluation of 150' ITT Meyer Monopole
Shuttle Meadow Road
Southington, CT 06489
Litchfield County

Date: *June 13, 2002*

SpectraSite Engineering has performed a *Level 1 evaluation*¹ for the above-noted tower. The evaluation was based on the requirements of the TIA/EIA-222-F Standard for a basic wind speed of **80 mph** without ice and 75% of the wind load with ½" radial ice.

Table 1. Existing and Proposed Antennas

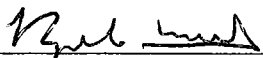
ELEVATION (Ft-AGL)	ANTENNA	CARRIER	COAX*	NOTES
156 152	(1) Decibel ASPB-915VE (9) Swedcom ALP-11011 on Platform Mount with Handrails	Cingular	(1) 1-5/8" (9) 7/8"	Remove Existing
156 152 152	(1) Decibel ASPB-915VE (9) CSS DUO4-8670 (6) CSS ADC Amplifiers on Platform Mount with Handrails	Cingular	(1) 1-5/8" (9) 7/8"	Proposed Replacement
38.5	(1) Nokia CS72187.01 on Standoff Mount	Cingular	(1) ½"	Proposed

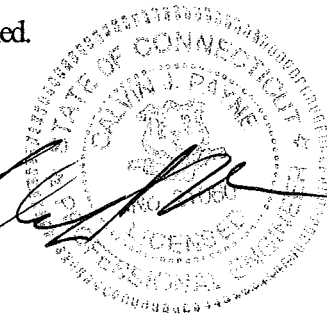
*Coax installed inside monopole.

The subject tower and foundation are now *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.

Should any questions arise concerning this report please contact the undersigned.


 Raphael Mohamed, P. Eng.
 Project Engineer


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

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: 10 Sparks Street, Plainville
tower share

Tower Owner/Manager: Sprint Sites USA

Antenna configuration Antenna center line – 115'

Current and/or approved: 9 Allgon 7120.16 or comparable

Planned: 6 CSS DUO4-8670 or comparable
6 tower mount amplifiers
2 GPS antennas (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 8.8% 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 12.5%, or an additional 3.7% of the standard.

Cingular Current

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm ²)	Standard Limits (mW/cm ²)	Percent of Limit
SNET	115	880 - 894	19	100	0.0517	0.5867	8.8

Cingular Planned

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm ²)	Standard Limits (mW/cm ²)	Percent of Limit
SNET TDMA	115	880 - 894	16	100	0.0435	0.5867	7.4
SNET GSM	115	880 - 894	2	296	0.0161	0.5867	2.7
SNET GSM	115	1930 - 1935	2	427	0.0232	1.0000	2.3
Total							12.5%

Structural information: Please see attached.

1. EXECUTIVE SUMMARY

This report summarizes the structural analysis of the existing 125' steel pole with a 10' pipe extension located on 10 Sparks Street in Plainville, Connecticut. The analysis was conducted in accordance with the TIA/EIA-222-F standard for wind velocity of 80 mph bare and 70 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:

(6) DUO4-8670 antennas and (6) Cingular @ 115' elevation
amplifiers with low profile platform
and (6) 7/8" coax cable within the
steel pole

(1) GPS antenna with stand-off Cingular @ 60' elevation
and (1) 1/2" coax cable

The results of the analysis indicate the structure to be in compliance with the loading conditions and the material and member sizes for the steel pole and foundation. The steel pole 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:

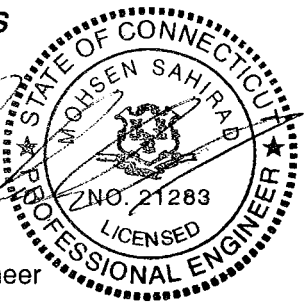
- 1) Tower and foundation design prepared by Pittsburgh Monopole Division dated January 28, 1997.
- 2) Antenna inventory as specified on the following page of this report.
- 3) TIA/EIA-222-F wind load classification.

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 125' communications steel pole with a 10' pipe extension was performed by URS Corporation AES (URS) for Cingular Wireless. The steel pole is located on 10 Sparks Street in Plainville, Connecticut.

The structure is self-supporting and was designed by Pittsburgh Monopole Division dated January 28, 1997.

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

The antenna inventory obtained:

Antenna Centerline Elevation

(3) DB932DG90E-M antennas flush mounted on the pipe extension and (6) 1 5/8" coax cable within or outside the steel pole	AT&T	@ 135' elevation
(9) DB980H90 antennas with platform w/ handrail and (9) 1-5/8" coax cable within the steel pole	Sprint	@ 125' elevation
(6) DUO4-8670 antennas and (6) amplifiers with low profile platform and (6) 7/8" coax cable within the steel pole	Cingular (proposed)	@ 115' elevation
(12) Allgon 7130.16 antennas with (3) T-Frame mounts and (12) 1-5/8" coax cable within the steel pole	Nextel	@ 105' elevation
(2) GPS antenna with stand-off and (1) 1/2" coax cable	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 steel pole 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 = 80 mph Wind Load (without ice) + Tower Dead Load
Load Condition 2 = 70 mph Wind Load (with ice) + Ice Load + Tower Dead Load

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

Evaluation of Steel Pole:

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

Analysis Results:

Our analysis determined that the steel pole and foundation will support the proposed new antenna arrangements under the analysis criteria outlined on the previous page.

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 or outside the steel pole, 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 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: 10 Loon Lake Road, a/k/a North Mountain Road, New Britain
tower share 2/16/00

Tower Owner/Manager: Sprint Sites USA

Antenna configuration Antenna center line – 100'

Current and/or approved: 12 Allgon 7120 or comparable

Planned: 9 DUO4-8670 or comparable
6 tower mount amplifiers
1 GPS antenna (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 11.6% 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 16.5%, or an additional 4.9% of the standard.

Cingular Current

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm ²)	Standard Limits (mW/cm ²)	Percent of Limit
SNET	100	880 - 894	19	100	0.0683	0.5867	11.6

Cingular Planned

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm ²)	Standard Limits (mW/cm ²)	Percent of Limit
SNET TDMA	100	880 - 894	16	100	0.0575	0.5867	9.8
SNET GSM	100	880 - 894	2	296	0.0213	0.5867	3.6
SNET GSM	100	1930 - 1935	2	427	0.0307	1.0000	3.1
Total							16.5%

Structural information: Please see attached.

1. EXECUTIVE SUMMARY

This report summarizes the structural analysis of the existing 118' steel pole located on 10 Loon Lake Road in New Britain, Connecticut. The analysis was conducted in accordance with the TIA/EIA-222-F standard for wind velocity of 80 mph bare and 70 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 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 5/8" coax cable within the steel pole | Cingular | @ 100' elevation |
| (1) GPS antenna with stand-off mount and (1) ½" coax cable | Cingular | @ 60' elevation |

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

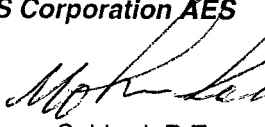
This analysis is based on:

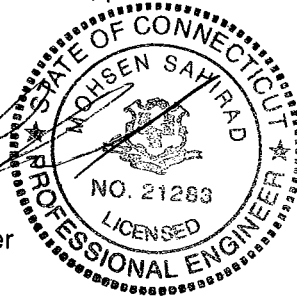
- 1) Tower and foundation design prepared by Rohn Industries, Inc. file no. 34738SW approved October 24, 1996.
- 2) Antenna inventory as specified on the following page of this report.
- 3) TIA/EIA-222-F wind load classification.

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


Mohsen Sahirad, P.E.
Senior Structural Engineer



MS/rmn

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

Introduction:

A structural analysis of this 118' communications steel pole was performed by URS Corporation AES (URS) for Cingular Wireless. The steel pole is located on 10 Loon Lake Road in New Britain, Connecticut.

The structure is self-supporting and was designed by Rohn Industries, Inc. file no. 34738SW dated October 24, 1996.

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

The antenna inventory obtained:

Antenna Centerline Elevation

(9) ALP 9212 antennas with low profile platform and (9) 1-5/8" coax cable within the steel pole	Sprint	@ 120' elevation
(9) DUO4-8670 antennas and (6) amplifiers with low profile platform and (9) 1 5/8" coax cable within the steel pole	Cingular (proposed)	@ 100' elevation
(1) SPA 1900/85/17/2/DS antenna with (2) 1 5/8" coax cable flush mounted on steel pole	Voicestream	@ 108' elevation
(1) GPS antenna with stand-off mount and (1) 1/2" coax cable	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 steel pole 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 = 80 mph Wind Load (without ice) + Tower Dead Load
- Load Condition 2 = 70 mph Wind Load (with ice) + Ice Load + Tower Dead Load

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

Evaluation of Steel Pole:

Combined axial and bending stresses on the steel pole 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 steel pole 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 or outside the steel pole, 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 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: 1967-1969 Saybrook Road, Middletown
tower share

Tower Owner/Manager: Sprint Sites USA

Antenna configuration Antenna center line – 132’

Current and/or approved: 9 Allgon 7120 or comparable

Planned: 9 CSS DUO4-8670 or comparable
6 tower mount amplifiers
1 LMU (at 112’)

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 6.7% 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 9.5%, or an additional 2.8% of the standard.

Cingular Current

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm ²)	Standard Limits (mW/cm ²)	Percent of Limit
SNET	132	880 - 894	19	100	0.0392	0.5867	6.7

Cingular Planned

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm ²)	Standard Limits (mW/cm ²)	Percent of Limit
SNET TDMA	132	880 - 894	16	100	0.0330	0.5867	5.6
SNET GSM	132	880 - 894	2	296	0.0122	0.5867	2.1
SNET GSM	132	1930 - 1935	2	427	0.0176	1.0000	1.8
Total							9.5%

Structural information: Please see attached.

1. EXECUTIVE SUMMARY

This report summarizes the structural analysis of the existing 150' monopole located on 1969 Saybrook Road in Middletown, 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 @ 132' elevation
amplifiers with low profile platform
and (9) 1 1/4" coax cable within the
monopole

(1) LMU GSM RX antenna with (1) Cingular @ 112' 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:

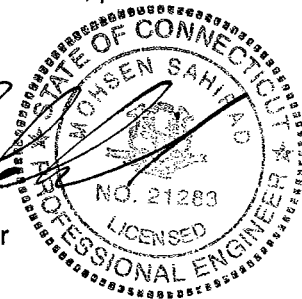
- 1) Tower and foundation design prepared by Paul J. Ford and Company file no. A29297-081 approved March 3, 1997.
- 2) Antenna inventory as specified on the following page of this report.
- 3) TIA/EIA-222-F wind load classification.

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


Mohsen Sahirad, P.E.
Senior Structural Engineer



MS/rmn

cc: Richard R. Johanson – 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 1969 Saybrook Road in Middletown, Connecticut.

The structure is self-supporting and was manufactured by Summit Manufacturing, Inc. job no. 2249. The tower design was prepared by Paul J. Ford and Company file no. A29297-081 approved March 3, 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 cables within the monopole	Sprint	@ 150' elevation
(12) ALP 9011 and (1) GPS antennas with low profile platform and (12) 1 1/4" and (1) 1/2" coax cables within the monopole	Verizon	@ 142' elevation
(9) DUO4-8670 antennas and (6) amplifiers with low profile platform and (9) 1 1/4" coax cable within the monopole	Cingular (proposed)	@ 132' elevation
(6) Allgon 7250.03 antennas with low profile platform and (12) 1 1/4" coax cables within the monopole	AT&T	@ 122' elevation
(3) DAPA 59212 antennas with low profile platform and (6) 1 5/8" coax cables within the monopole	Voicestream	@ 112' elevation
(1)LMU GSM RX antenna with (1) 1/2" coax cable within the monopole	Cingular (proposed)	@ 112' elevation
(12) DB844H90 antennas with low profile platform and (12) 1 5/8" coax cables within the monopole	Nextel	@ 102' 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: 80-90 Industrial Park Road, Middletown
tower share 9/10/98

Tower Owner/Manager: VoiceStream Wireless

Antenna configuration Antenna center line – 173’

Current and/or approved: 12 Allgon 7120.16 or comparable

Planned: 9 CSS DUO4-8670 or comparable
6 tower mount amplifiers
1 LMU (at 154’)

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 3.9% 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 5.5%, or an additional 1.6% of the standard.

Cingular Current

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm ²)	Standard Limits (mW/cm ²)	Percent of Limit
SNET	173	880 - 894	19	100	0.0228	0.5867	3.9

Cingular Planned

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm ²)	Standard Limits (mW/cm ²)	Percent of Limit
SNET TDMA	173	880 - 894	16	100	0.0192	0.5867	3.3
SNET GSM	173	880 - 894	2	296	0.0071	0.5867	1.2
SNET GSM	173	1930 - 1935	2	427	0.0103	1.0000	1.0
Total							5.5%

Structural information: Please see attached.

1. EXECUTIVE SUMMARY

This report summarizes the structural analysis of the existing 185' monopole located on 80 Industrial Park Road in Middletown, Connecticut. The analysis was conducted in accordance with the TIA/EIA-222-F standard for wind velocity of 80 mph bare and 70 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 @ 173' elevation
amplifiers with (3) T-Frame mounts
and (9) 1 5/8" coax cables within the
monopole

(1) LMU GSM RX antenna with stand Cingular @ 154' elevation
off mount and (1) 7/8" coax cable

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:

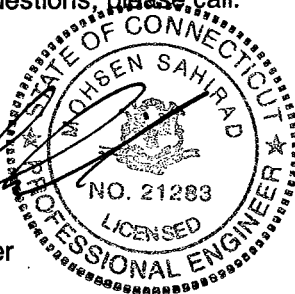
- 1) Tower and foundation design prepared by Fred A. Nudd Corporation project no. 5980 dated April 1998.
- 2) Antenna inventory as specified on the following page of this report.
- 3) TIA/EIA-222-F wind load classification.

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

Mohsen Sahirad
Mohsen Sahirad, P.E.
Senior Structural Engineer



MS/rmn

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

Introduction:

A structural analysis of this 185' communications monopole was performed by URS Corporation AES (URS) for Cingular Wireless. The monopole is located on 80 Industrial Park Road in Middletown, Connecticut.

The structure is self-supporting and was designed by Fred A. Nudd Corporation project no. 5980 dated April 1998.

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 inventory obtained:	<u>Antenna Centerline Elevation</u>	
(6) RR90-17-DP antennas and (6) amplifiers with (3) T-Frame mounts and (12) 1-5/8" coax cables within the monopole	Voicestream	@ 185' elevation
(9) DUO4-8670 antennas and (6) amplifiers with (3) T-Frame mounts and (9) 1 5/8" coax cables within the monopole	Cingular (proposed)	@ 173' elevation
(9) Dapa 58000 antennas with low profile platform and (9) 1 5/8" coax cables within the monopole	AT&T	@ 161' elevation
(1) LMU GSM RX antenna with stand off mount and (1) 7/8" coax cable	Cingular (proposed)	@ 154' 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 = 80 mph Wind Load (without ice) + Tower Dead Load
- Load Condition 2 = 70 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 and foundation will support the proposed new antenna arrangements under the analysis criteria outlined on the previous page.

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 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: 134 Kikapoo Road, Middlefield
Docket No. 40

Tower Owner/Manager: Springwich Cellular Limited Partnership;
managed by SpectraSite Communications, Inc.

Antenna configuration Antenna center line – 77'

Current and/or approved: 10 ALP 110 11 or comparable

Planned: 9 DUO4-8670 or comparable
6 tower mount amplifiers
1 LMU (at 19.75')

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 19.6% 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 27.8%, or an additional 8.2% of the standard.

Cingular Current

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm ²)	Standard Limits (mW/cm ²)	Percent of Limit
SNET	77	880 - 894	19	100	0.1152	0.5867	19.6

Cingular Planned

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm ²)	Standard Limits (mW/cm ²)	Percent of Limit
SNET TDMA	77	880 - 894	16	100	0.0970	0.5867	16.5
SNET GSM	77	880 - 894	2	296	0.0359	0.5867	6.1
SNET GSM	77	1930 - 1935	2	427	0.0518	1.0000	5.2
Total							27.8%

Structural information: Please see attached.



RE: CT-0021 [Mdfd-Middlefield]
 Structural Evaluation of 79' Monopole
 134 Kikapoo Road
 Middlefield, CT 06450
 Middlesex County

Date: May 22, 2002

SpectraSite Engineering has performed a *Level 1 evaluation*¹ for the above-noted tower. The evaluation was based on the requirements of the TIA/EIA-222-F Standard 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

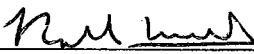
ELEVATION (Ft-AGL)	ANTENNA	CARRIER	COAX*	NOTES
84.0 82.5 77.0	(2) 10' Omni (2) 9' Omni (10) Swedcom ALP 11011 on Platform Mount with Handrails	Cingular	(2) 1-1/4" (2) 1-1/4" (10) 7/8"	Remove Existing
84.0 82.5 77.0 77.0	(2) 10' Omni (2) 9' Omni (9) CSS DUO4-8670 (6) CSS ADC Amplifiers on Platform Mount with Handrails	Cingular	(2) 1-1/4" (2) 1-1/4" (9) 7/8"	Proposed Replacement
19.75	(1) Nokia CS72187.01 On Standoff Mount	Cingular	(1) 1/2"	Proposed


*Coax installed inside monopole.

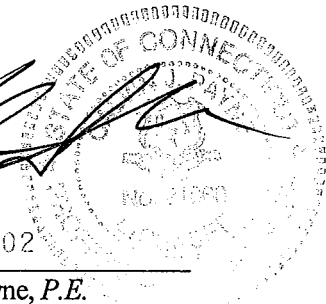
The subject tower and foundation are *adequate* to support the above stated loads and *in conformance* with the requirements of TIA/EIA-222-F Standard.

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

Should any questions arise concerning this report please contact the undersigned.


 Raphael Mohamed, P. Eng.
 Project Engineer


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



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: 100 Northrop Road, Wallingford
tower share

Tower Owner/Manager: SpectraSite Communications, Inc.

Antenna configuration Antenna center line – 127'

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

Planned:
9 CSS DUO4-8670 or comparable
6 tower mount amplifiers
1 LMU (at 37.75')

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 7.2% 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 10.2%, or an additional 3.0% of the standard.

Cingular Current

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm ²)	Standard Limits (mW/cm ²)	Percent of Limit
SNET	127	880 - 894	19	100	0.0424	0.5867	7.2

Cingular Planned

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm ²)	Standard Limits (mW/cm ²)	Percent of Limit
SNET TDMA	127	880 - 894	16	100	0.0357	0.5867	6.1
SNET GSM	127	880 - 894	2	296	0.0132	0.5867	2.2
SNET GSM	127	1930 - 1935	2	427	0.0190	1.0000	1.9
Total							10.2%

Structural information: Please see attached.



RE: CT-1019 [Parsonage Hill Aka Wallin]
 Structural Evaluation of 150' Valmont Monopole
 922 Northrop Road
 Wallingford, CT 06492
 New Haven County

Date: May 22, 2002

SpectraSite Engineering has performed a *Level 1 evaluation*¹ 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 ½" radial ice.

Table 1. Existing and Proposed Antennas

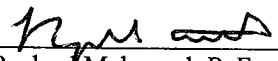
ELEVATION (Ft-AGL)	ANTENNA	CARRIER	COAX*	NOTES
154	(12) Swedcom ALP9212 on T-Arm Mounts	Nextel	(12) 1-5/8"	Existing
140	(2) EMS RR65-18-02DP (4) EMS RR90-17-02DP on Gate Boom Mounts	Voicestream	(6) 1-5/8"	Existing
127	(9) Swedcom ALP1101IN on Gate Boom Mounts	Cingular	(9) 7/8"	Remove Existing
127	(9) CSS DUO4-8670 (6) CSS ADC Amplifiers on Gate Boom Mounts	Cingular	(9) 7/8"	Proposed Replacement
115	(12) Allgon 7184 on T-Arm Mounts	AT&T	(12) 1-5/8"	Existing
100	(1) Til-Tek TA-2350-DAB on Standoff Mount	XM Radio	(1) 7/8"	Proposed
37.75	(1) Nokia CS72187.01 on Standoff Mount	Cingular	(1) ½"	Proposed
15	(1) 2' HP Dish on Pipe Mount	XM Radio	(1) 7/8"	Proposed


*Coax installed inside monopole.

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

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: 945 East Center Street, Wallingford
tower share

Tower Owner/Manager: Sprint Sites USA

Antenna configuration Antenna center line – 110'

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

Planned: 9 DUO4-8670 or comparable
6 tower mount amplifiers
1 GPS antenna (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 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 ²)	Standard Limits (mW/cm ²)	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 ²)	Standard Limits (mW/cm ²)	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
Total							13.6%

Structural information: Please see attached.

1. EXECUTIVE SUMMARY

This report summarizes the structural analysis of the existing 147' monopole located on 945 East Center Street in Wallingford, Connecticut. The analysis was conducted in accordance with the TIA/EIA-222-F standard for wind velocity of 90 mph bare and 78 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 that the structure is 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.

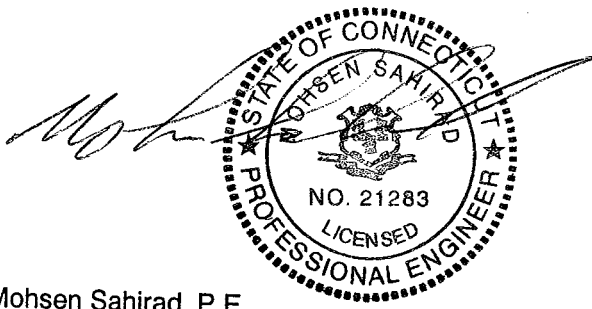
This analysis is based on:

- 1) Tower and foundation design prepared by Paul J. Ford and Company job no. 29297-529 approved August 27, 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. 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



Mohsen Sahirad, P.E.
Senior Structural Engineer

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 945 East Center Street in Wallingford, Connecticut.

The structure is self-supporting and was manufactured by Summit Manufacturing, Incorporated job no. 2706. The monopole and its foundation were designed by Paul J. Ford and Company job no. 29297-529 dated August 27, 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 inventory obtained:

Antenna Centerline Elevation

(3) RS90-17-XXDP antennas flush mounted with (6) 1 5/8" coax cable within the monopole	AT&T	@ 140' elevation
(9) DB980 antennas with low profile platform and (9) 1-1/4" coax cable within the monopole	Sprint	@ 130' elevation
(12) ALP 8013 antennas with low profile platform and (12) 1-5/8" coax cable within the monopole	Verizon	@ 120' elevation
(9) DUO4-8670 antennas and (6) amplifiers with low profile platform and (9) 7/8" coax cable within the monopole	Cingular (proposed)	@ 110' 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. The user of this report 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 = 90 mph Wind Load (without ice) + Tower Dead Load
Load Condition 2 = 78 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 structure 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 otherwise.

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 antennas
2. Adding antennas and amplifiers

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