STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@po.state.ct.us
www.ct.gov/csc

May 21, 2004

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

RE: **EM-VER-051-040427** - Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 3965 Congress Street, Fairfield, Connecticut

Dear Attorney Baldwin:

At a public meeting held on May 19, 2004, the Connecticut Siting Council (Council) acknowledged your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the condition that the recommendations on pages three and four of the structural analysis report sealed by Jim Walker, P.E. be implemented prior to the antenna installation.

The proposed modifications are to be implemented as specified here and in your notice dated April 27, 2004. 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 site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

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

Thank you for your attention and cooperation.

Very truly yours,

Pamela B. Katz, P.E.
Chairman

PBK/laf

c: Honorable Kenneth A. Flatto, First Selectman, Town of Fairfield
Joseph E. Devonshuk, Town Planner, Town of Fairfield
Thomas F. Flynn III, Nextel Communications, Inc.
Thomas J. Regan, Esq., Brown Rudnick Berlack Israels LLP
Michele G. Briggs, Southwestern Bell Mobile Systems, LLC
Stephen J. Humes, Esq., LeBoeuf Lamb Greene & MacRae LLP
Christopher B. Fisher, Esq., Cuddy & Feder LLP

FAX

TO: DAVID MARTIN 860-827-2950

FROM: DAVE MALKO

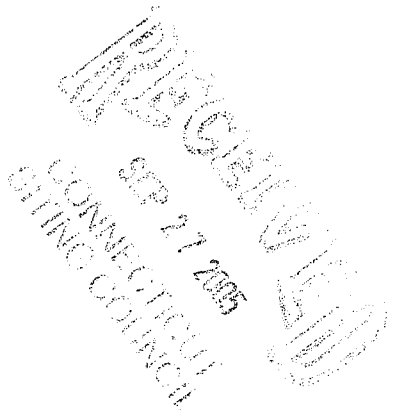
DATE: 9/27/05

2 pages inc. cover

SUBJ: CINGULAR PD DETAIL

Attached is the detail of the power density for the 5 reconfigured Cingular sites when fully implemented. Call me at 802-875-4514 (home/office) or 860-301-6378 (cell) if you have any questions.

Cingular SiteID	Site	Carrier	#Channels	ERP/Ch	Ant Ht	Density (mW	MHz	S	%MPE	Cing Total
2104	Darien - 55 Ledge Road	SNET/Cingular	11	40	86	0.0214	850	0.5667	3.77%	
2104		CINGULAR GSM	5	296	89	0.0672	880	0.5867	11.45%	
2104		CINGULAR GSM	1	427	89	0.0194	1930	1.0000	1.94%	17.16%
2105	Fairfield - 281 Woodhouse Rd	Cingular	11	40	144	0.0076	850	0.5667	1.35%	
2105		CINGULAR GSM	4	296	152	0.0184	880	0.5867	3.14%	
2105		CINGULAR GSM	1	427	152	0.0066	1930	1.0000	0.66%	5.15%
2128	Fairfield - 395 Congress Street	Cingular	13	40	125	0.0120	850	0.5667	2.11%	
2128		CINGULAR GSM	3	296	128	0.0195	880	0.5867	3.32%	
2128		CINGULAR GSM	1	427	128	0.0094	1930	1.0000	0.94%	6.37%
2108		CINGULAR GSM	4	296	153	0.0182	880	0.5867	3.10%	
2108		CINGULAR GSM	2	427	153	0.0131	1930	1.0000	1.31%	
2108	Norwalk - 613 Connecticut Avenue	SNET/Cingular	11	40	150	0.0070	850	0.5667	1.24%	5.65%
2109	Stamford - 1590 Newfield Street	Cingular	9	100	152	0.0140	880	0.5867	2.39%	
2109		Cingular GSM	4	296	150	0.0189	880	0.5867	3.23%	
2109		Cingular GSM	1	427	150	0.0068	1930	1.0000	0.68%	6.30%



Town of Fairfield

Office of the First Selectman
Fairfield, Connecticut 06824

Kenneth A. Flatto
First Selectman

Sullivan Independence Hall
725 Old Post Road

May 11, 2004

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

RE: EM-VER-051-040427-Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 3965 Congress Street, Fairfield, Connecticut

Dear Mr. Phelps:

I have received your letter of April 27, 2004 with regard to the above–captioned application. The Town of Fairfield is the owner of the Tower on which the modification is to be made and has leased the space to Verizon for its telecommunications antennae and ancillary equipment. The Town of Fairfield strongly supports Verizon's installation of this equipment and requests that the Connecticut Siting Council grant Verizon's application to consider this an exempt modification under R.C.S.A.§ 16-50j-72 (b)(2).

Thank you for your consideration.

Sincerely,

Kenneth Flatto
First Selectman

(203) 256-3030 • FAX (203) 256-3008 • firstselectmanffld@town.fairfield.ct.us

ROBINSON & COLE

EM-VER-051-040427

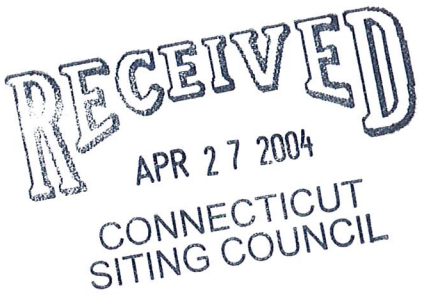
KENNETH C. BALDWIN

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

April 27, 2004

Via Hand Delivery

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



Re: **Notice of Exempt Modification**
Fairfield Fire Department
3965 Congress Street
Fairfield, Connecticut

Dear Mr. Phelps:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") intends to install antennas on an existing tower at the Fairfield Fire Department, 3965 Congress Street, Fairfield, Connecticut. Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the Fairfield First Selectman, Kenneth A. Flatto.

The facility consists of a 150-foot self-supporting monopole tower, capable of supporting multiple carriers within a fenced site compound. The tower is owned by the Town of Fairfield ("The Town"). The tower is currently shared by the Town at the 149-foot and 105-foot levels; Nextel at the 148-foot level; Sprint PCS at the 138-foot level; Cingular at the 125-foot level; VoiceStream at the 113-foot level and AT&T at the 90-foot level. Cellco proposes to install twelve (12) panel-type antennas at the 80-foot level on the tower and a 12' x 30' single-story equipment shelter near the base of the tower. (See Tab 1- Project Plans).

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

1. The proposed modification will not increase the overall height of the existing tower. Cellco's antennas will be mounted with their centerline at the 80-foot level on the 150-foot tower.

2. The proposed installation of twelve (12) panel-type antennas and a 12' x 30' equipment shelter will not require an extension of the site boundaries.

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

4. The operation of the antennas will not increase radio frequency (RF) power density levels at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard. Pursuant to the Report on Site RF Compliance, prepared by Pinnacle Telecom Group, the worst-case power density calculation for existing and Cellco antennas would be 2.5520% of the applicable FCC standard. (See Tab 2 – Report on Site RF Compliance).

Also included behind Tab 3 is a Structural Analysis, prepared by Walker Engineering, Inc., verifying that the tower, with structural modifications, can accommodate the existing and proposed antennas and related equipment.

For the foregoing reasons, Cellco respectfully submits that the proposed antenna installation at the Fairfield facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Kenneth C. Baldwin

Attachments
cc: Kenneth A. Flatto, Fairfield First Selectman
James R. Wendt, Asst. Director of Planning
Sandy M. Carter

Cellco Partnership

d.b.a. verizon wireless

WIRELESS COMMUNICATIONS FACILITY

FAIRFIELD II

3965 CONGRESS STREET

FAIRFIELD, CONNECTICUT 06880

PROJECT SUMMARY

SITE NAME:	FAIRFIELD II
SITE ADDRESS:	3965 CONGRESS STREET FAIRFIELD, CONNECTICUT
PROPERTY OWNER:	TOWN OF FAIRFIELD FAIRFIELD, CONNECTICUT
LEASOR:	TOWN OF FAIRFIELD FAIRFIELD, CONNECTICUT
LESSEE:	CELLCO PARTNERSHIP 99-101 EAST RIVER DR. EAST HARTFORD, CT 06108
APPLICANT:	CELLCO PARTNERSHIP 99-101 EAST RIVER DR. EAST HARTFORD, CT 06108
CONTACT PERSON:	SANDY CARTER CELLCO PARTNERSHIP (860) 803-8219
CENTER OF TOWER:	LATITUDE 41° 11' 18.14" LONGITUDE 73° 17' 58.55" GROUND ELEV. 270.5± AMSL COORDINATES ARE TAKEN FROM SPRINT SPECTRUM LP, FAIRFIELD FIRE DEPARTMENT, DRAWING YFA385A1 DATED 01/20/98 BY GOODKIND & O'DEA, INC

GENERAL NOTES

1. PROPOSED AND EXISTING ANTENNA LOCATIONS AND HEIGHTS PROVIDED BY CELLCO PARTNERSHIP.

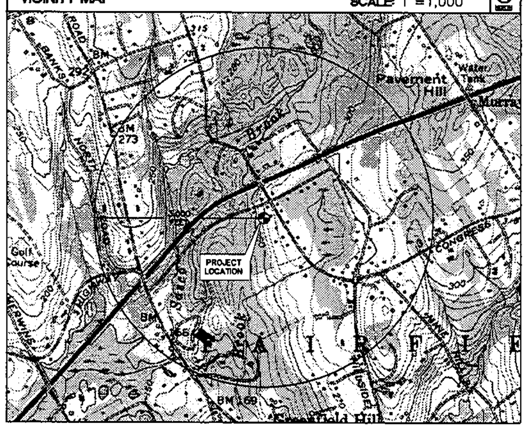
SITE DIRECTIONS

FROM: 99-101 EAST RIVER DR.,EAST HARTFORD, CT.
TO: 3965 CONGRESS STREET FAIRFIELD, CONNECTICUT

1: START OUT GOING WEST ON US-44 W/ CONNECTICUT BLVD.
2: STAY STRAIGHT TO GO ONTO US-6 W/ I-84 W/ US-44 W.
3: TAKE THE US-44 W EXIT- EXIT NUMBER 50- TOWARD I-91 S/ MAIN ST.
4: TURN LEFT ONTO MARKET ST.
5: TURN LEFT ONTO RAMP.
6: KEEP RIGHT AT THE FORK IN THE RAMP.
7: MERGE ONTO I-91 S.
8: MERGE ONTO CT-15 S VIA EXIT NUMBER 17.
9: TAKE THE EXIT- EXIT NUMBER 44- TOWARD CT-58/ FAIRFIELD/ REDDING.
10: TURN LEFT ONTO CONGRESS ST.
11: TURN LEFT ONTO BLACK ROCK TURNPIKE/ CT-58.
12: TURN RIGHT ONTO CONGRESS ST.

VICINITY MAP

SCALE: 1"=1,000'



LEGEND

SYMBOL	DESCRIPTION
	SECTION OR DETAIL NUMBER
	SHEET WHERE DETAIL/SECTION OCCURS
	ELEVATION NUMBER
	SHEET WHERE ELEVATION OCCURS

SHEET INDEX

SHT. NO.	DESCRIPTION	REV. NO.
T-1	TITLE SHEET	01
C-1	COMPOUND PLAN AND ELEVATION	01

REVISIONS

00	12/09/03	SITING COUNCIL REVIEW
01	04/20/04	SITING COUNCIL FINAL

Cellco Partnership
d.b.a. verizon wireless

Natcomm, LLC • Engineering Consultants

NATCOMM

Natcomm, L.L.C.
83-2 North Branford Road
Branford, Connecticut 06405
Tel. (203) 488-0580
Fax (203) 488-8587
Consulting Engineers • Project Management
Civil • Structural • Mechanical • Electrical

PROFESSIONAL ENGINEER SEAL

FAIRFIELD II

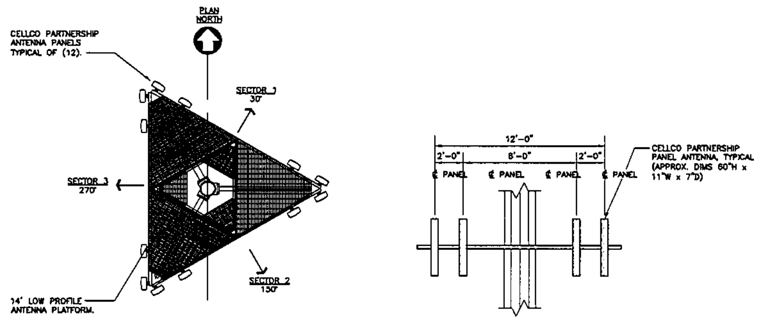
3965 CONGRESS STREET
FAIRFIELD, CT

PROJECT NO:	496A
DRAWN BY:	JBA
CHECKED BY:	AAJ
SCALE:	AS NOTED
DATE:	12/09/03

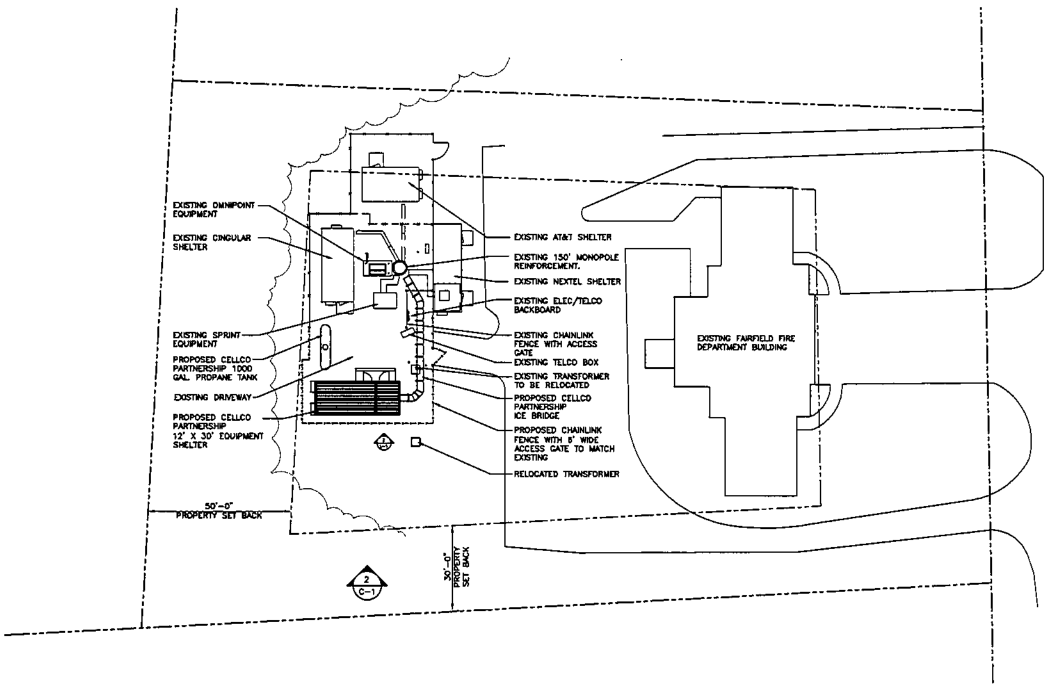
TITLE SHEET

T-1

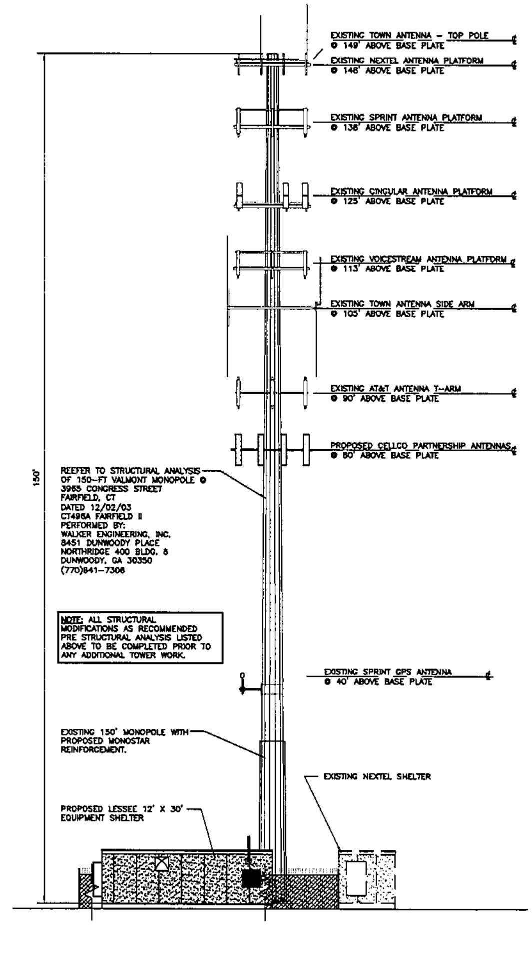
DWG. 1 OF 2



3 C-1 ANTENNA MOUNTING CONFIGURATION
NOT TO SCALE



1 C-1 COMPOUND
SCALE: 1"=20'-0"
PLAN NORTH



2 C-1 ELEVATION
SCALE: 1"=10'-0"

REVISIONS		
00	12/09/03	SITING COUNCIL REVIEW
01	04/20/04	SITING COUNCIL FINAL

Cellco Partnership
d.b.a. verizon wireless

NATCOMM
Natcomm, L.L.C.
Consulting Engineers · Project Management
Civil · Structural · Mechanical · Electrical

PROFESSIONAL ENGINEER SEAL

FAIRFIELD II

3965 CONGRESS STREET
FAIRFIELD, CT

PROJECT NO:	496A
DRAWN BY:	JBA
CHECKED BY:	AAJ
SCALE:	AS NOTED
DATE:	12/09/03

COMPOUND PLAN AND ELEVATION

C-1

DWG. 2 OF 2

PINNACLE TELECOM GROUP
Consulting and Engineering Services

REPORT ON SITE RF COMPLIANCE

VERIZON WIRELESS

FAIRFIELD 2

APRIL 10, 2004

14 RIDGEDALE AVENUE, SUITE 262 • CEDAR KNOLLS, NJ 07927 • 973-451-1630

Contents

Introduction and Summary

At the request of Verizon Wireless, Pinnacle Telecom Group has prepared an independent assessment of potential radiofrequency (RF) exposure and FCC compliance related to an existing wireless base station antenna facility on a monopole located at 3965 Congress Street in Fairfield, CT. Verizon Wireless identified the site as Fairfield 2.

Verizon Wireless is licensed by the FCC to provide cellular radio service, using both the 800 MHz and 1900 MHz frequency bands.

FCC regulations require an assessment and assurance of compliance with specified maximum permissible exposure (MPE) limits whenever technical modifications are made to a site, which includes the addition or modification of antennas. The assessment of compliance may involve on-site measurements, an office-based mathematical analysis, or a combination of the two. The latter was used in this case.

The results of the analysis of RF compliance for Verizon's proposed antenna operation are as follows:

- RF measurements performed at ground level around the site indicated the highest existing RF level is 2.0 percent of the FCC limit for continuous exposure of the general population. A mathematical analysis of the effects of Verizon's proposed antenna operation indicates a worst-case incremental contribution of approximately 0.5520 percent of the same exposure limit.
- Taking the most conservative approach, if the worst-case incremental contribution associated with the antenna modification is added to the worst-case measurement result (even if they do not occur at the same point), the new worst-case exposure level at ground level would be 2.5520 percent – still more than 39 times below the limit.

Therefore, with the modification to the Verizon antenna operation, the site will remain in full compliance with the FCC's regulations concerning potential human

exposure to RF fields. In addition, Appendix A provides a site map, photographs taken the day of the measurements and antenna data, Appendix B provides a description of the measurement equipment and procedures, Appendix C provides background on the FCC limits for RF exposure and Appendix D provides a list of key FCC references on RF exposure and site compliance.

The remainder of this report provides technical data on the proposed antenna operation, a brief description of the measurements performed, a mathematical analysis of Verizon's proposed operation using standard engineering formulas provided by the FCC, an analysis of those results with respect to RF compliance, and a certification of site compliance.

Technical Data

Relevant data for the proposed Verizon antenna operation at the site is summarized in the tables below and on the following page.

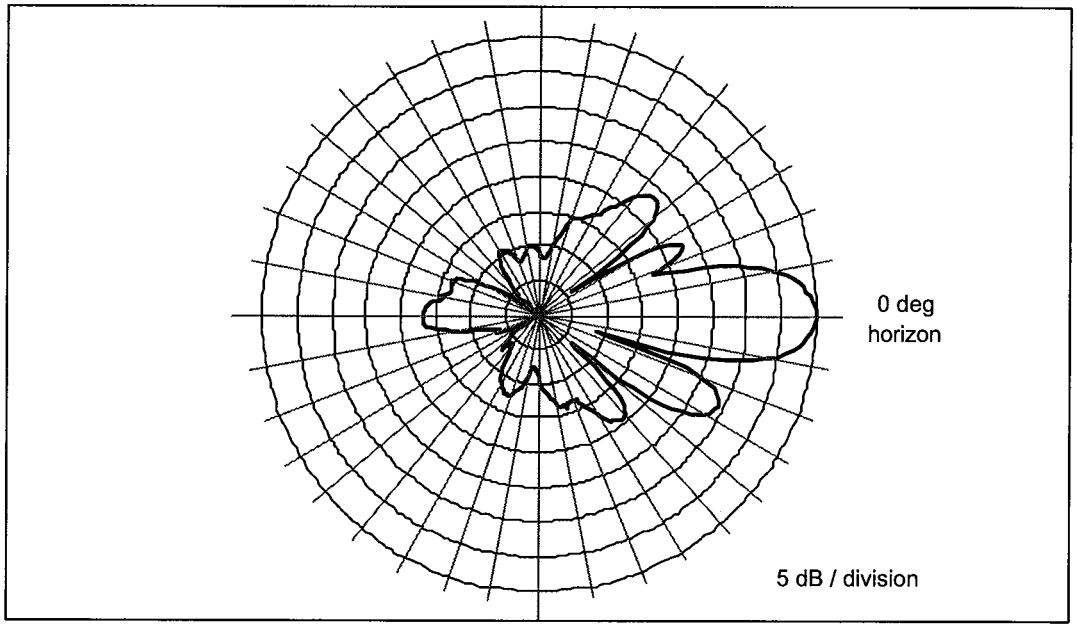
Verizon Wireless – 800 MHz system	
Transmitting Frequency Band	800 MHz
Antenna Height (AGL)	80 ft.
Antenna Type	panel
Antenna Manufacturer	Decibel
Antenna Model	DB844H90E-XY
Antenna Major Dimension	48 in.
Antenna Gain (max.)	14 dBd
Beam Tilt	0°
Antenna Line Loss	1.5 dB
Transmitter Power per RF Channel per Tx	20 watts
RF Channels per Tx	6

Verizon Wireless – 1900 MHz system	
Transmitting Frequency Band	1900 MHz
Antenna Height (AGL)	80 ft.
Antenna Type	panel
Antenna Manufacturer	Decibel
Antenna Model	DB948F85T2E-M
Antenna Major Dimension	48 in.
Antenna Gain (max.)	14 dBd
Beam Tilt	0°
Antenna Line Loss	2 dB
Transmitter Power per RF Channel per Tx	16 watts
RF Channels per Tx	3

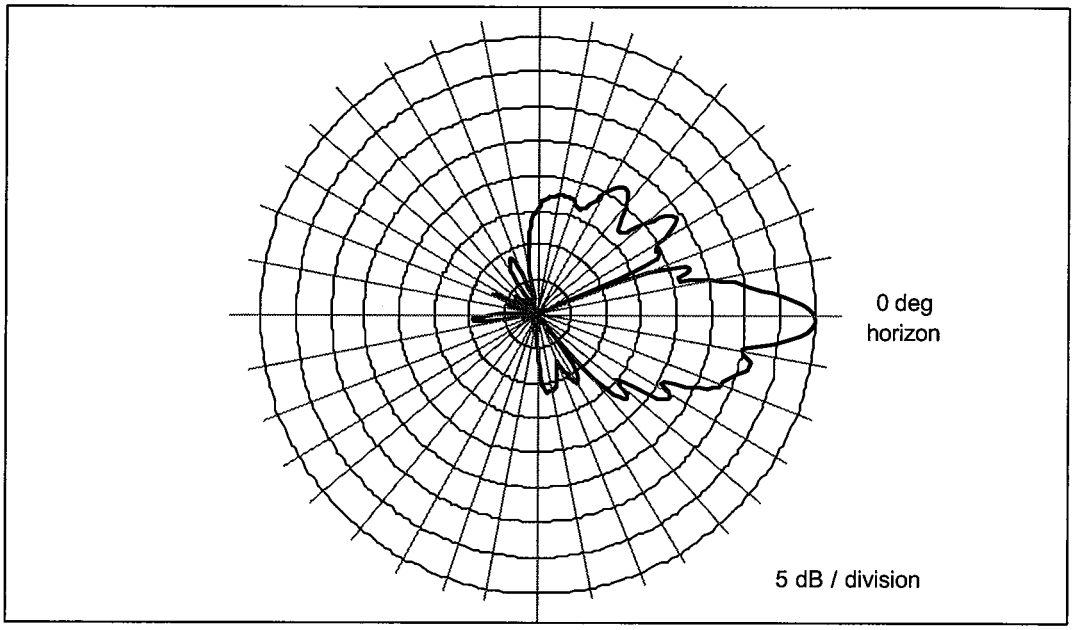
Directional panel antennas, such as are proposed here, are designed to radiate RF energy primarily in one sector of the horizon, and most of the RF energy is emitted in the horizontal plane. A small fraction of the RF energy is radiated below that plane and toward the ground around the facility in question, and the particulars of that characteristic are used in calculating the relative strength of potential exposure levels at street level around an antenna operation.

Diagrams illustrating the vertical-plane radiation patterns of the antennas to be used by Verizon are shown on the next page. Note that in these types of antenna radiation pattern diagrams, the antenna is effectively pointed at the three o'clock position, and where the antenna pattern reads 20 dB the relative RF energy emitted at the corresponding downward angle is 1/100th of the maximum that occurs at 0 degrees; at the 30 dB point, it is 1/1000th of the maximum.

Decibel DB844H90E-XY Antenna – Vertical-Plane Radiation Pattern



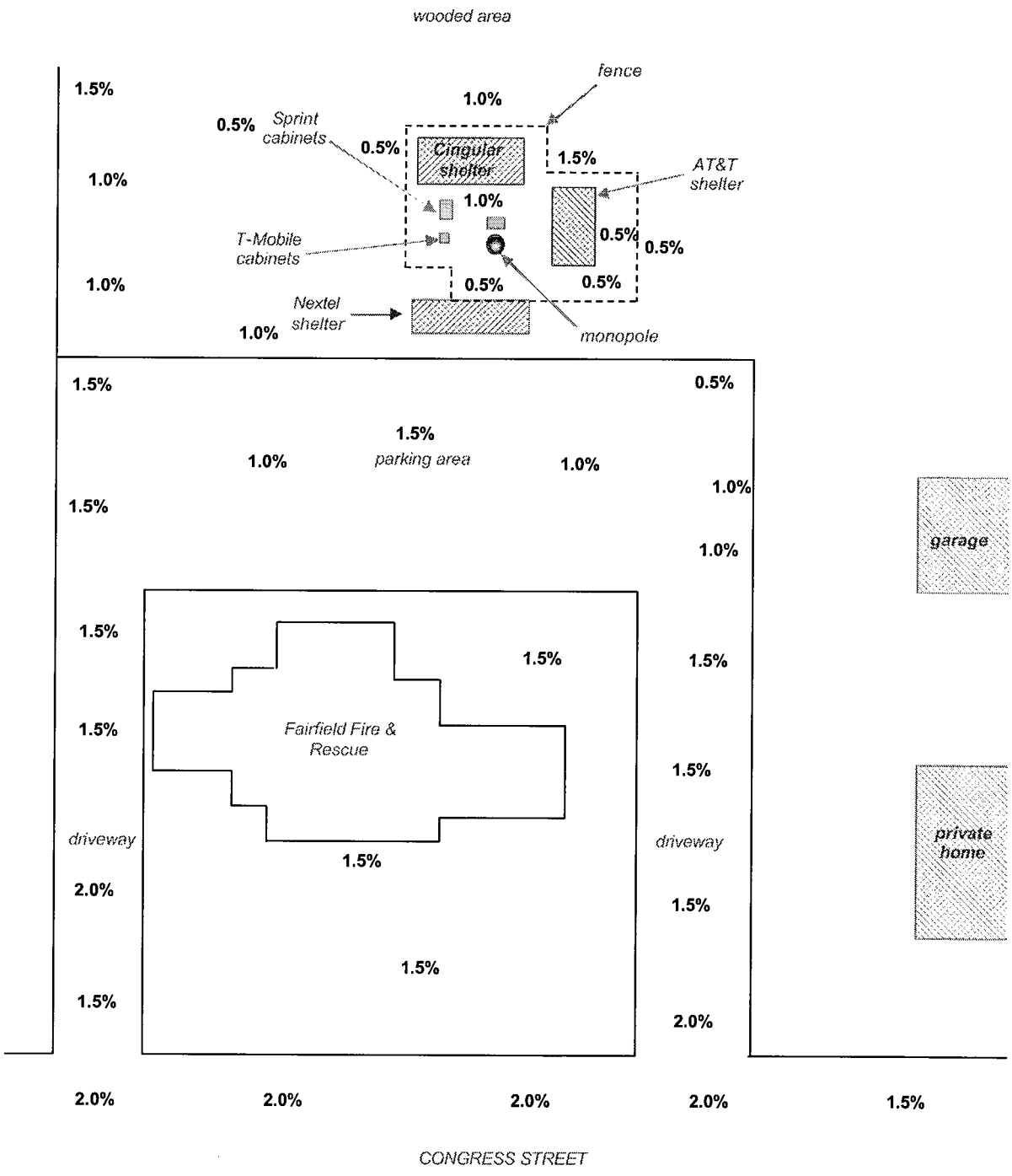
Decibel DB948F85T2E-M Antenna – Vertical-Plane Radiation Pattern



On-Site Measurements

RF measurements were performed on April 5, 2004 in order to determine the pre-existing RF effects on the rooftop and at street level around the building, and to certify site compliance with the FCC regulations concerning human exposure to RF fields.

The results of the on-site measurements, expressed as a percentage of the FCC general population MPE limit, are overlaid on the plan view sketch on the next page.


wooded area
fence
Sprint cabinets
Cingular shelter
AT&T shelter
T-Mobile cabinets
Nextel shelter
monopole
parking area
garage
Fairfield Fire & Rescue
driveway
driveway
private home
CONGRESS STREET

Technical Analysis

FCC Office of Engineering and Technology Bulletin 65 ("OET Bulletin 65"; see list of references in Appendix B) provides guidelines for computational models and their application to calculating potential exposure levels at various points around a wireless transmitting antenna. The computational models are intentionally very conservative, and significantly overestimate the potential exposure levels, and additional assumptions can be incorporated to make the calculations even more conservative. Thus, if the calculations demonstrate the MPE limits are still not exceeded even under extreme worst-case assumptions, there can be great confidence that RF compliance is achieved.

The area of interest in connection with potential RF exposure related to the subject site is at ground level around the site. This area is sufficiently distant from the antennas to be considered in the "far field", and FCC Bulletin OET65 provides appropriate mathematical models for far-field calculations.

Potential exposure levels in the far field have a direct relationship to input power to the antenna (which we will assume is constant and at its maximum), effective antenna gain in the direction of interest, and an assumed ground reflection factor (assumed to be a conservative 100 percent). The levels are inversely proportional to the square of the distance from the antenna. Calculations will be performed from the bottom of the antennas and will assume a human height of 6 feet, 6 inches – conservatively minimizing the distance to the RF source. Note that the FCC recognizes that with sectorized antenna coverage, the radiated power of interest is the maximum per antenna sector. According to the FCC, the applicable formula for far-field calculations is as follows:

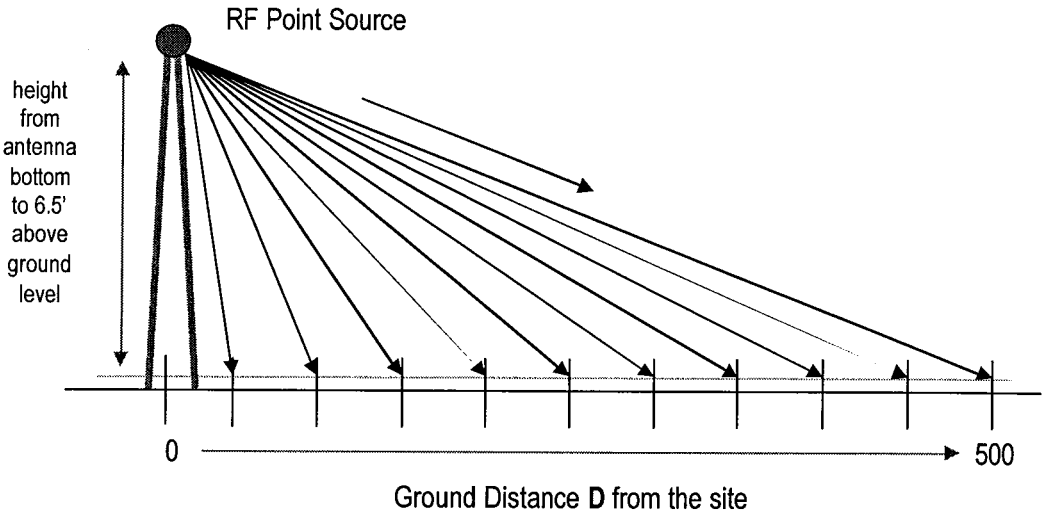
$$MPE\% = (100 * EIRP * 1000 * 10^{-AntDisc(a)} * 4) / (MPE * 4\pi * R^2 * 30.48^2)$$

where:

MPE%	=	percent of the MPE limit
100	=	factor to convert to a percentage

EIRP	=	Max. effective radiated power per sector, in watts, a function of transmitter power per RF channel, channels per sector, line loss, and maximum effective antenna gain
1000	=	factor to convert watts into milliwatts
AntDisc(a)	=	numeric factor representing the offset to the maximum gain of the transmitting antenna at the downward angle ("a", referenced to the mechanical tilt angle) to the point of interest at ground level; the AntDisc, in dB units, is taken from the manufacturer's specifications (the graph of the antenna vertical-plane pattern).
4 (in numerator)	=	the factor to account for a 100-percent-efficient energy reflection from the ground, and the squared relationship between RF field strength and power density ($2^2 = 4$)
MPE	=	MPE limit applicable to general public exposure at the frequency of interest, in this case, 1.0 mW/cm^2
R	=	straight-line distance from the RF source to the point of interest, feet
30.48^2	=	factor to convert R from feet to centimeters (twice)

The MPE% calculations are performed out to a street-level distance of 500 feet from the facility, as illustrated in the diagram on the next page. Note that at distances less than 500 feet, the MPE% calculations at different ground distances from the site reflect the variations in the vertical-plane antenna pattern, as well as the straight-line distance to the antennas; therefore, at some intermediate distances, the calculated RF level may increase slightly. Beyond a few hundred feet, though, the RF levels always decrease with increasing distance, as that alone becomes the controlling factor in the calculation.



At each point along the ground, an MPE% calculation is made for each antenna operation, and compliance with the FCC regulations is then determined by comparing the sum of the individual results (which we call "total MPE%") with 100 percent. Any calculated total MPE% result exceeding 100 percent is, by definition, higher than the limit and represent non-compliance. Results below 100 percent indicate compliance.

Note that the following conservative methodology and assumptions are incorporated into the MPE% calculations:

1. The antennas are assumed to be operating continuously at maximum power.
2. The directional antennas are all hypothetically assumed to be pointed directly overhead the point of interest (ignoring the fact that the sectors point in different directions, and thus discounting the effects of antenna discrimination in the horizontal plane).
3. The calculations intentionally minimize the distance factor (R) by assuming a 6'6" human and performing the calculations from the bottom (rather than the centerline) of the antenna.
4. The antenna vertical-plane discrimination value is taken as the worst-case (minimum) value in every 10-degree increment.
5. The potential RF exposure at ground level is assumed to be 100-percent enhanced (increased) via a "perfect" field reflection from the ground itself.

The net result of these assumptions is to overstate the actual exposure levels by a factor ranging from 10 to 100, depending on the situation, and the purpose of this conservatism is to allow very "safe-side" conclusions about compliance.

The table below summarizes the MPE% calculations. As indicated in the table, the worst-case calculated RF level is 0.5520 of the FCC limit for continuous RF exposure of the general public.

Ground Distance (ft)	Verizon 800 MHz MPE%	Verizon 800 MHz MPE%	Total MPE%
0	0.0194	0.0016	0.0209
20	0.0568	0.0026	0.0594
40	0.0869	0.0024	0.0893
60	0.1164	0.0447	0.1611
80	0.0048	0.0933	0.0981
100	0.1935	0.0042	0.1976
120	0.4422	0.1098	**0.5520**
140	0.4198	0.0643	0.4840
160	0.2875	0.0461	0.3336
180	0.1101	0.0788	0.1889
200	0.0230	0.0558	0.0788
220	0.0028	0.0333	0.0361
240	0.0173	0.0183	0.0357
260	0.0462	0.0234	0.0696
280	0.0859	0.0330	0.1190
300	0.1342	0.0401	0.1742
320	0.1838	0.0416	0.2255
340	0.2367	0.0388	0.2755
360	0.2121	0.0348	0.2469
380	0.2638	0.0313	0.2951
400	0.2389	0.0284	0.2672
420	0.2799	0.0290	0.3089
440	0.2557	0.0265	0.2821
460	0.2951	0.0335	0.3286
480	0.2716	0.0308	0.3024
500	0.2507	0.0285	0.2792

As indicated in the table, the worst-case calculated RF level is only 0.5520 percent of the FCC MPE limit for continuous RF exposure of the general public. When this worst-case incremental contribution is directly added to the earlier worst-case measured result of 2.0 percent, the new total is 2.5520 percent, which

is more than 39 times below the limit for continuous human exposure. Therefore, far-field compliance is achieved.

Compliance Conclusion

As described, the conservatively calculated RF exposure levels are below the FCC limits for safe, continuous human exposure to RF fields.

At ground level around the site, the worst-case potential exposure level – calculated in an extremely conservative manner – is more than 39 times below the FCC limit for the general public.

Therefore, the antenna operations at the site will be in compliance with the FCC RF safety regulations.

Certification of Site Compliance

The undersigned, under pain and penalty of perjury, hereby certify as follows:

1. We have read and fully understand the FCC regulations concerning RF safety and the control of human exposure to RF fields (47 CFR 1.1301 *et seq*).
2. The equipment used to perform the RF measurements described herein is appropriate to the task, and calibration of its accuracy has been performed within the past 12 months as recommended by the manufacturer.
3. The on-site RF measurements described herein were performed in a manner consistent with industry standards.
4. To the best of our knowledge, the statements and information disclosed in this report are true, complete and accurate.
5. The analysis of site RF compliance provided herein is consistent with the applicable FCC regulations, additional guidelines issued by the FCC, and industry practice.
6. The results of the analysis indicate that the subject site is in full compliance with the FCC regulations concerning RF exposure.

Patricia A. Stankovich

Patricia A. Stankovich
Manager-RF Compliance
Pinnacle Telecom Group, LLC

4/10/04
Date

Daniel J. Collins

Daniel J. Collins
Chief Technical Officer
Pinnacle Telecom Group, LLC

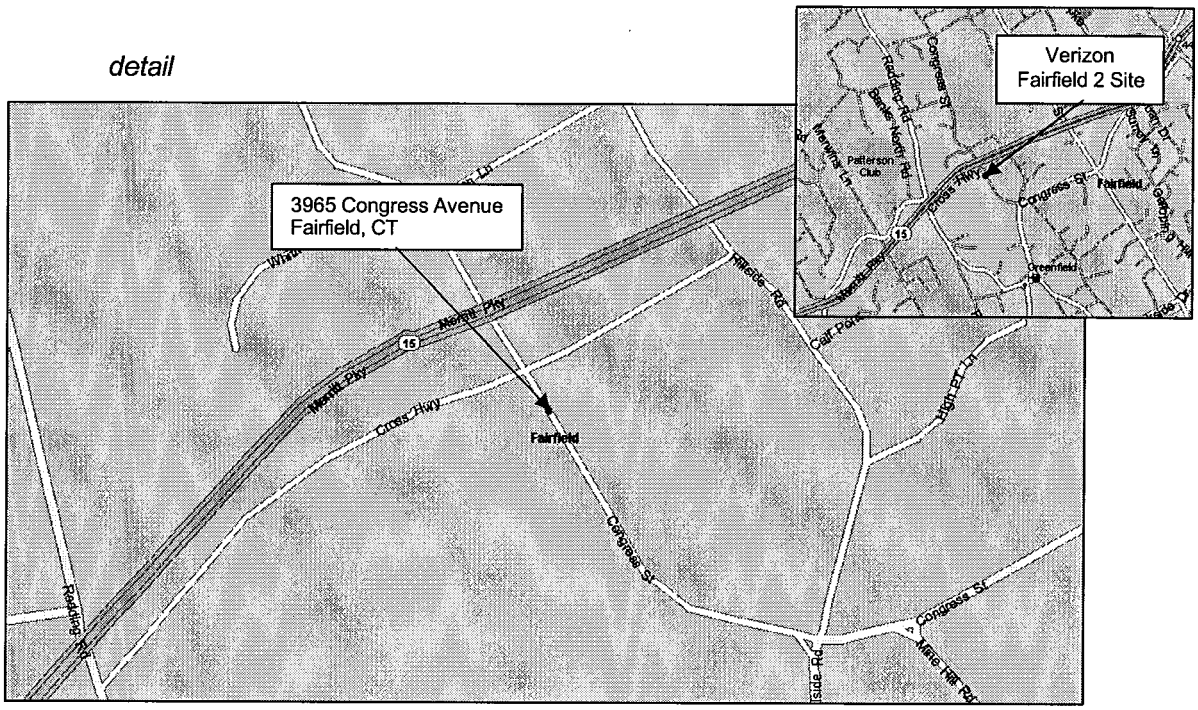
4/10/04
Date

Appendix A: Site Map, Photographs and Antenna Data

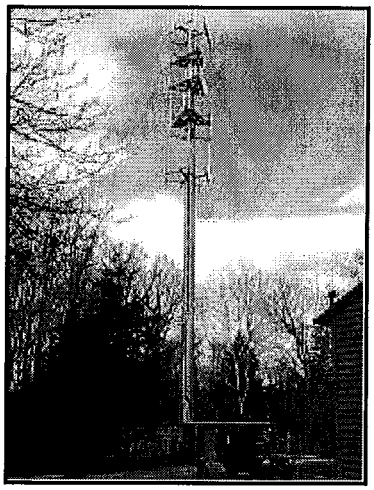
The Verizon Wireless Fairfield 2 site is located at 3965 Congress Street in Fairfield, CT, as illustrated in the maps below.

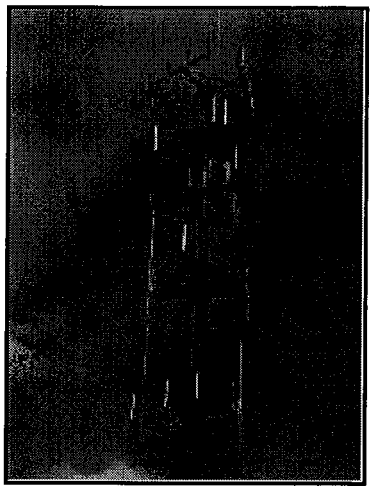
overview

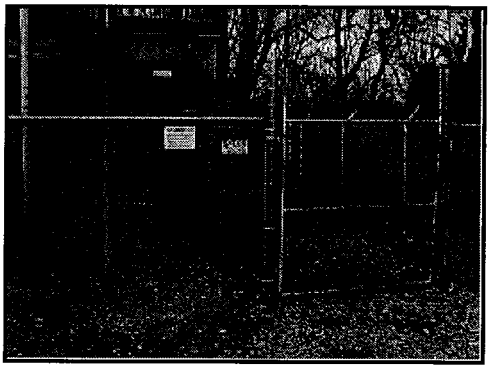
detail



The following page provides copies of photographs taken of the site on the day the measurements were performed.







The following table provides antenna detail for the Fairfield 2 site.

Ant #	Z (ft)	Type	Dim. (ft)	Mfr	Model	Freq	Tilt	Licensee
1	90	panel	4	Unidentified	Unidentified	Unknown	0°	AT&T
2	90	panel	4	Unidentified	Unidentified	Unknown	0°	AT&T
3	90	panel	4	Unidentified	Unidentified	Unknown	0°	AT&T
4	90	panel	4	Unidentified	Unidentified	Unknown	0°	AT&T
5	90	panel	4	Unidentified	Unidentified	Unknown	0°	AT&T
6	90	panel	4	Unidentified	Unidentified	Unknown	0°	AT&T
7	90	panel	4	Unidentified	Unidentified	Unknown	0°	AT&T
8	90	panel	4	Unidentified	Unidentified	Unknown	0°	AT&T
9	90	panel	4	Unidentified	Unidentified	Unknown	0°	AT&T

Ant #	Z (ft)	Type	Dim. (ft)	Mfr	Model	Freq	Tilt	Licensee
10	113	panel	4	EMS Wireless	Unidentified	Unknown	0°	T-Mobile
11	113	panel	4	EMS Wireless	Unidentified	Unknown	0°	T-Mobile
12	113	panel	4	EMS Wireless	Unidentified	Unknown	0°	T-Mobile
13	125	panel	4	Unidentified	Unidentified	Unknown	0°	Cingular
14	125	panel	4	Unidentified	Unidentified	Unknown	0°	Cingular
15	125	panel	4	Unidentified	Unidentified	Unknown	0°	Cingular
16	125	panel	4	Unidentified	Unidentified	Unknown	0°	Cingular
17	125	panel	4	Unidentified	Unidentified	Unknown	0°	Cingular
18	125	panel	4	Unidentified	Unidentified	Unknown	0°	Cingular
19	125	panel	4	Unidentified	Unidentified	Unknown	0°	Cingular
20	125	panel	4	Unidentified	Unidentified	Unknown	0°	Cingular
21	125	panel	4	Unidentified	Unidentified	Unknown	0°	Cingular
22	138	panel	4	Unidentified	Unidentified	1900	6°	Sprint
23	138	panel	4	Unidentified	Unidentified	1900	6°	Sprint
24	138	panel	4	Unidentified	Unidentified	1900	6°	Sprint
25	138	panel	4	Unidentified	Unidentified	1900	6°	Sprint
26	138	panel	4	Unidentified	Unidentified	1900	6°	Sprint
27	138	panel	4	Unidentified	Unidentified	1900	6°	Sprint
28	148	panel	4	Unidentified	Unidentified	851	6°	Nextel
29	148	panel	4	Unidentified	Unidentified	851	6°	Nextel
30	148	panel	4	Unidentified	Unidentified	851	6°	Nextel
31	148	panel	4	Unidentified	Unidentified	851	6°	Nextel
32	148	panel	4	Unidentified	Unidentified	851	6°	Nextel
33	148	panel	4	Unidentified	Unidentified	851	6°	Nextel
34	148	panel	4	Unidentified	Unidentified	851	6°	Nextel
35	148	panel	4	Unidentified	Unidentified	851	6°	Nextel
36	148	panel	4	Unidentified	Unidentified	851	6°	Nextel
37	148	panel	4	Unidentified	Unidentified	851	6°	Nextel
38	148	panel	4	Unidentified	Unidentified	851	6°	Nextel
39	148	panel	4	Unidentified	Unidentified	851	6°	Nextel
40	105	whip	12	Unidentified	Unidentified	Unknown	---	City of Fairfield
41	105	whip	12	Unidentified	Unidentified	Unknown	---	City of Fairfield
42	105	whip	12	Unidentified	Unidentified	Unknown	---	City of Fairfield
43	105	whip	8	Unidentified	Unidentified	Unknown	---	City of Fairfield
44	149	whip	10	Unidentified	Unidentified	Unknown	---	City of Fairfield
45	149	folded dipole array	6	Unidentified	Unidentified	Unknown	---	City of Fairfield
46	149	folded dipole array	6	Unidentified	Unidentified	Unknown	---	City of Fairfield

Appendix B: Measurement Equipment and Procedure

The RF exposure measurements were performed using a Narda model 8722 RF probe and Narda model 8715 RF meter. Both the probe and meter are capable of broadband RF measurements, covering a range of 300 kHz to 50 GHz. The measuring equipment is designed to automatically register all RF levels within the frequency range and report them as percentages of the FCC's overall occupational MPE limit.

Measurements of RF exposure levels were performed on the rooftop and at ground level around the site. In order to ensure "safe-side" results, maximum RF spot-levels were measured and reported in all areas.

Appendix C: Background on the FCC RF Exposure Limits

As directed by the Telecommunications Act of 1996, the FCC has established limits for maximum continuous human exposure to RF fields.

The FCC maximum permissible exposure (MPE) limits represent the consensus of federal agencies and independent experts responsible for RF safety matters. Those agencies include the National Council on Radiation Protection and Measurements (NCRP), the Occupational Health and Safety Administration (OSHA), the National Institute for Occupational Safety and Health (NIOSH), the American National Standards Institute (ANSI), the Environmental Protection Agency (EPA), and the Food and Drug Administration (FDA). In formulating its guidelines, the FCC also considered input from the public and technical community – notably the Institute of Electrical and Electronics Engineers (IEEE).

The FCC's RF exposure guidelines are incorporated in Section 1.301 *et seq* of its Rules and Regulations (47 CFR 1.1301-1.1310). Those guidelines specify MPE limits for both occupational and general population exposure.

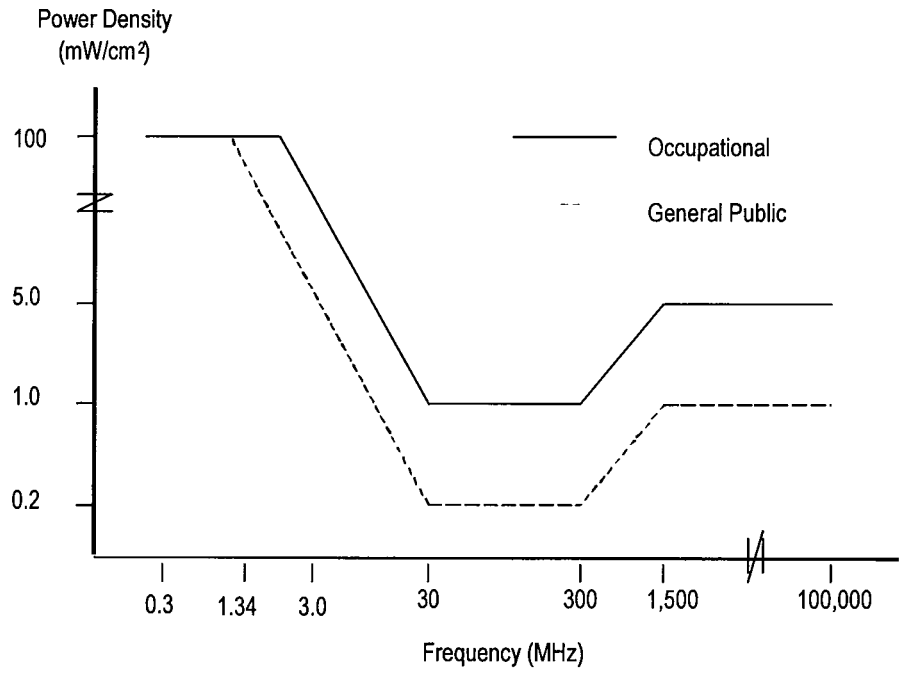
The specified continuous exposure MPE limits are based on known variation of human body susceptibility in different frequency ranges, and a Specific Absorption Rate (SAR) of 4 watts per kilogram, which is universally considered to accurately represent human capacity to dissipate incident RF energy (in the form of heat). The occupational MPE guidelines incorporate a safety factor of 10 or greater with respect to RF levels known to represent a health hazard, and an additional safety factor of five is applied to the MPE limits for general population exposure. Thus, the general population MPE limit has a built-in safety factor of more than 50. Continuous exposure at levels equal to or below the applicable MPE limits is considered to result in no adverse health effects on humans.

The reason for *two* tiers of MPE limits is based on an understanding and assumption that members of the general public are unlikely to have had appropriate RF safety training and may not be aware of the exposures they receive; occupational exposure in controlled environments, on the other hand, is assumed to involve individuals who have had such training, are aware of the exposures, and know how to maintain a safe personal work environment.

The FCC's RF exposure limits are expressed in two equivalent forms, using alternative units of field strength (expressed in volts per meter, or V/m), and power density (expressed in milliwatts per square centimeter, or mW/cm^2). The table on the next page lists the FCC limits for both occupational and general population exposures, using the mW/cm^2 reference, for the different radio frequency ranges.

Frequency Range (F) (MHz)	Occupational Exposure (mW/cm^2)	General Public Exposure (mW/cm^2)
0.3 - 1.34	100	100
1.34 - 3.0	100	$180 / F^2$
3.0 - 30	$900 / F^2$	$180 / F^2$
30 - 300	1.0	0.2
300 - 1,500	F / 300	F / 1500
1,500 - 100,000	5.0	1.0

The diagram below provides a graphical illustration of both the FCC's occupational and general population MPE limits.



Because the FCC's RF exposure limits are frequency-shaped, the exact MPE limits applicable to the instant situation depend on the frequency range used by the systems of interest.

The most appropriate method of determining RF compliance is to calculate the RF power density attributable to a particular system and compare that to the MPE limit applicable to the operating frequency in question. The result is usually expressed as a percentage of the MPE limit.

For potential exposure from multiple systems, the respective percentages of the MPE limits are added, and the total percentage compared to 100 (percent of the limit). If the result is less than 100, the total exposure is in compliance; if it is more than 100, exposure mitigation measures are necessary to achieve compliance.

Appendix D: FCC References

47 CFR, FCC Rules and Regulations, Part 1 (Practice and Procedure), Section 1.1310 (Radiofrequency radiation exposure limits).

47 CFR, FCC Rules and Regulations, Part 22 (Public Mobile Services).

47 CFR, FCC Rules and Regulations, Part 24 (Personal Communications Services).

FCC Second Memorandum Opinion and Order and Notice of Proposed Rulemaking (FCC 97-303), *In the Matter of Procedures for Reviewing Requests for Relief From State and Local Regulations Pursuant to Section 332(c)(7)(B)(v) of the Communications Act of 1934 (WT Docket 97-192), Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation (ET Docket 93-62), and Petition for Rulemaking of the Cellular Telecommunications Industry Association Concerning Amendment of the Commission's Rules to Preempt State and Local Regulation of Commercial Mobile Radio Service Transmitting Facilities*, released August 25, 1997.

FCC First Memorandum Opinion and Order, ET Docket 93-62, *In the Matter of Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation*, released December 24, 1996.

FCC Report and Order, ET Docket 93-62, *In the Matter of Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation*, released August 1, 1996.

FCC Office of Engineering and Technology (OET) Bulletin 65, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields", Edition 97-01, August 1997.

FCC Office of Engineering and Technology (OET) Bulletin 56, "Questions and Answers About Biological Effects and Potential Hazards of RF Radiation", edition 4, August 1999.

"RF Field Measurements for Antenna Sites", (video), Richard Tell Associates Inc., 1997.

"EME Awareness for Antenna Site Safety", (video), Motorola (produced in association with Richard Tell Associates Inc.), 1997.

WALKER ENGINEERING, INC.

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

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

Mr. **Al Janeiro** 12/02/03
Natcomm, LLC **CT496A**
63-2 North Branford Road **Fairfield II**
Branford, CT 06405

Sub: Structural Analysis of 150-ft Valmont Monopole
3965 Congress Road, Fairfield, CT

Dear Mr. Janeiro:

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

The subject monopole is a 150-foot, three-section, twelve sided, tapered monopole, designed and manufactured by Valmont Industries. The manufacturer's drawings are unavailable. The monopole geometry and section sizes were obtained from previous analysis reports by Tectonic Engineering Consultants, P.C. Work Order No.: 2323.083, dated 09/22/99 and Paul J Ford and Company Design No.: Arcnet 506-254B, 12/03/98. These data and are assumed to be accurate. The monopole has also been assumed to be in good condition and capable of supporting its full original design capacity. The existing monopole was reinforced from the base to an elevation of 30-ft AGL. This reinforcement has been considered in this analysis.

Our analysis was performed in accordance with TIA/EIA-222-**F** for an 85 mph[1] base windload, and 75% of the base windload with ½" radial ice, as specified by Natcomm LLC.

Existing, future, and proposed loads consist of the following:

at 149 ft Nextel: Twelve existing Decibel DB844H90E-XY panel antennas on three T-arm mounts, fed by twelve 1-5/8"∅ coax cables routed inside the monopole.

[1] The minimum wind speed specified by EIA-222-F for Fairfield County, GA is 85 mph.

at 149 ft — Town: One existing Decibel DB810K omni antenna on one of the above T-arm mounts, fed by one 1-5/8"∅ coax cable routed inside the monopole.

at 138 ft — Sprint: Six existing Decibel DB980H90E-M panel antennas on a platform mount, fed by six 1-5/8"∅ coax cables routed inside the monopole.

at 125 ft — Cingular: Nine existing Celwave ALP868013-42T4 panel antennas on a platform mount, fed by nine 1-5/8"∅ coax cables routed outside the monopole.

at 113 ft — T-Mobile: Three existing EMS RR65-18-02-DP2 panel antennas on a platform mount, fed by six 1-1/4"∅ coax cables routed inside the monopole.

at 104 ft — Town: Three existing Decibel ASP-685 omni antennas (two inverted and one upright) and one Celwave PD1142 omni antennas on three standoff mounts, fed by four 7/8"∅ coax cables routed outside the monopole.

at 90 ft — AT&T: Nine existing Allgon 7262.01 panel antennas with nine Nokia MHA's on three T-arm mounts, fed by nine 1-1/4"∅ coax cables routed inside the monopole.

at 80 ft — ***Verizon (Proposed):*** Twelve CSS SA15-86 panel antennas on a platform mount, fed by twelve 1-5/8"∅ coax cables routed on the outside face of the monopole.

at 40 ft — Existing: One GPS antenna on a pipe arm mount, fed by six 1/2"∅ coax cable routed outside the monopole.

Note: The analysis ***assumes*** that the coax cables (existing, future, and proposed) are installed inside the monopole (unless otherwise noted) per *Walker Engineering Job No. 0311-428, dated 11/24/03. Please notify the undersigned prior to altering the cable routing configuration or if the coax configuration is different than the above assumptions.* Placement of small cables for beacons, ground rods, etc. are not critical.

Monopole Summary:

This analysis shows that the existing reinforcement connections at about 15-ft AGL are overstressed. The subject monopole **is not adequate** to support the existing, future, and proposed loads.

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

Monopole Section	Elevation	CSI[2]
Section 5 (Top)	101 ft to 150 ft	0.48
Section 4	54 ft to 101 ft	0.82
Section 3	30 ft to 54 ft	0.87
Section 2	15 ft to 30 ft	0.84
Section 1 (Bottom)	0 ft to 15 ft	0.78
Reinforcement Connections	15-ft AGL	**1.35**

Foundation Summary:

The existing + proposed foundation reactions at the base of the monopole are greater than the original foundation design loads. The original monopole foundation design drawings and site soil report are ***not available***. Therefore, it is ***not possible*** to determine the ***allowable capacities*** without ***further investigations***.

Foundation Loads	Design[3] Reactions	Existing/ Proposed	% of Reactions
O.T. Moment (OTM)	3,556 k-ft	3,676 k-ft	***103 %***
Base Shear (horiz.)	29.8 k	40.5 k	***136 %***
Axial Load (vert.)	39.1 k	39.7 k	***102 %***

Monopole Recommendations:

Monopole:

1) Reinforce the overstressed monopole reinforcing connections at elevation 30-ft to support the proposed and existing loads.

Foundation:

1) Provide the original Geotechnical Site Soils Report and the original foundation design file in order to calculate the capacity of the existing foundation.

2) Reinforce the foundation by installing helical anchors with mechanical connections to the existing foundation to account for the added loads. *This option requires excavating a portion of the foundation or mapping the foundation to determine the existing dimensions.*

---

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

[3] Foundation reactions from Paul J Ford and Company Design No.: Arcnet 506-254B, 12/03/98.

3) Reinforce the foundation by installing a concrete reinforcing ring with mechanical connections to the existing foundation to account for the added loads. *This option requires excavating a portion of the foundation or mapping the foundation to determine the existing dimensions.*

4) Provide a new Geotechnical Site Soils Report and perform foundation mapping in order to calculate the capacity of the existing foundation. The foundation may require reinforcing, depending on the foundation analysis results.

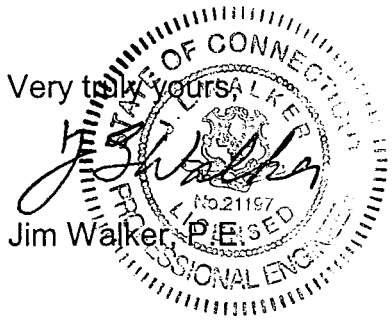
Note: *Contractor **shall** provide the existing monopole foundation dimensions and a Geotechnical Site Soils Report, for the above options, to the undersigned for verifying assumptions prior to installation of the proposed equipment.*

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

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

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

Very truly yours,



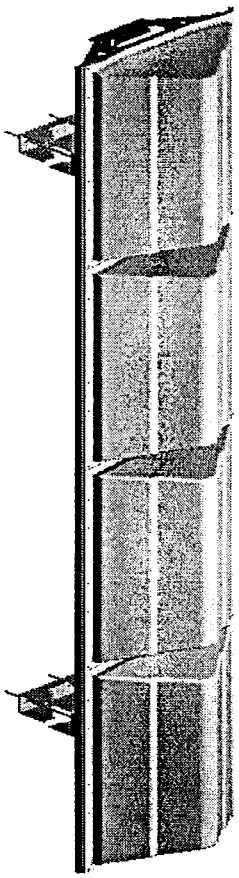
Jim Walker, P.E.

encl

CSS Antenna

Directing our energies for you.

Stripline Array
SA15-86
806-900 MHz



86° Azimuth Beam
8° Elevation Beam
15.0 dBd Gain
96"x14"x9"

- Stripline Feed Eliminates Internal Cabling Network
- Anti-Corrosion Design for Superb IM Performance
- Equalized Aerodynamic Design
- 10 Year Warranty

CSS Antenna, Inc. 10552 Philadelphia Road, White Marsh, MD 21162, Tel: 410-344-1010 Fax: 410-344-1007 www.cssantenna.com

Directing our energies for you.

Stripline Array
SA15-86

Electrical Specifications

Frequency Range	806-900 MHz
Gain	15.0 dBd ±0.5 dB
Electrical Downtilt Options	0, 2 or 4 Degrees
VSWR	1.40:1 Maximum
Front-to-Back at Horizon	> 27 dB
Upper Side Lobe Suppression	< -13 dB
Elevation Beam (3-dB Points)	8 Degrees (±1 Degree)
Azimuth Beam (3-dB Points)	86 Degrees (±4 Degrees)
Polarization	Vertical
Impedance	50 Ohms
Power Input Rating	500 CW
Intermodulation Specification	<153dBc (<-110dBm at 2x20W)

Mechanical Specifications

Input Connector (female)	7/16 DIN or N-Type (Silver Finish)
Antenna Dimensions	96 x 14 x 9 Inches (LxWxD)
Antenna Weight	42.5 lbs (bracket weight 10.5 lbs)
Lightning Protection	Direct Ground
RF Distribution	Silver Plated Brass
Radome	Ultra High-Strength Luran
Weatherability	UV Stabilized, ASTM D1925
Radome Water Absorption	ASTM D570, 0.45%
Environmental	MIL-STD-810E
Wind Survival	120 mph
Front Wind Load at 100 mph	248 lbs (tested)
Front Flat Plate Equivalent	5.08 sq-ft. (c=2)
Mounting Brackets	Fits 2.5 to 3 Inch Schedule 40 Pipe
Mechanical Downtilt Range	0-6 Degrees in 1 Degree Increments
Clamps/Bolts	Hot Dip Galvanized Steel/Stainless Steel

Ordering Information

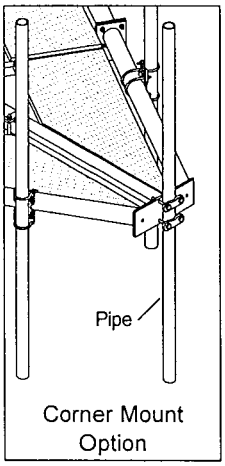
Model	Options
SA15-86-xD	7/16 DIN Connector, x=Electrical Downtilt in Degrees (0, 2 or 4)
SA15-86-xN	N-Type Connector, x=Electrical Downtilt in Degrees (0, 2 or 4)

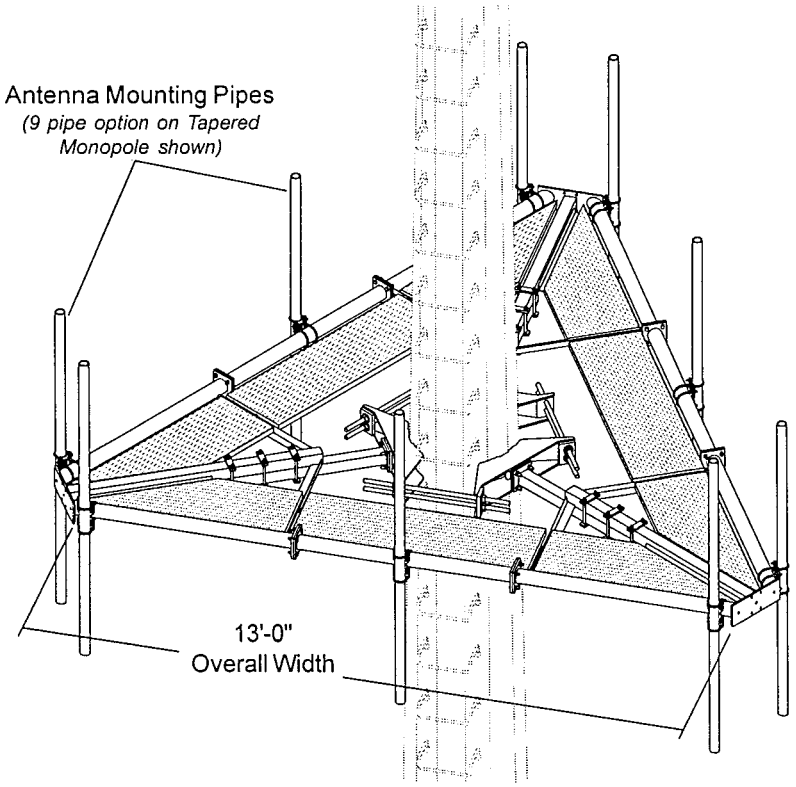
CSS Antenna, Inc.
Tel:410-344-1010 Fax: 410-344-1007
www.cssantenna.com

13' LOW PROFILE PLATFORM

(Dwg. # 140575 Rev. E / 08/08/2001)

Add antenna mounting to new or existing monopoles





13' Low Profile Platform mounts are ideal for co-locate applications fiting a wide variety of monopoles and tapered poles. Approximate mount capacity would be 240 sq. ft. distributed around the mount considering 90 mph basic windspeed with ½" radial ice at 150' elevation[1].

[1] Capacity of mount is provided for comparison purposes only and is valid for conditions specified. **Call PiRod for capacity on your specific installation.** Actual load capacity is dependent on basic windspeed, ice load, height of mount and other factors specific to individual installations. All PiRod antenna mounts are designed and manufactured in accordance with ANSI/EIA-222-F standards.

Low Profile Platforms fit on a wide range of Monopole/Tapered Pole diameters

Description	Part Number	Price
13' Low Profile Platform to fit 12" to 54" **monopoles** (no antenna mounting pipes)	852206	3,200.00
13' Low Profile Platform to fit 12" to 54" **monopoles** (includes 9-84" antenna mounting pipes)	852207	3,800.00
13' Low Profile Platform to fit 12" to 54" **monopoles** (includes 12-84" antenna mounting pipes)	852208	4,000.00
Corner Mount Option - Lightweight	852215	150.00
Corner Mount Option - Heavy Duty	852216	200.00

Weight and Areas[2]	Weight, No Ice (lbs.)	Weight, ½" Ice (lbs.)	Area, No Ice (C_AA_C)	Area, ½" Ice (C_AA_C)
13' Low Profile Platform	1,300	1,765	15.7 sq. ft.	20.1 sq. ft.

[2]All areas presented are computed in accordance with ANSI/TIA/EIA-222-F 1996. All areas do not include cross arms, pipemounts or antenna mounting pipes.

All of the above information, including but not limited to: prices, areas, dimensions, is subject to change without notice.

PiROD INC.

1545 Pidco Drive, P.O. Box 128, Plymouth, IN 46563 • Phone (877) GO PIROD • Fax (219) 936-8925 • www.pirod.com