STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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

April 16, 2004

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

RE: **EM-VER-034-040402** - Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 24 Hospital Avenue, Danbury, Connecticut.

Dear Attorney Baldwin:

At a public meeting held on April 15, 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.

The proposed modifications are to be implemented as specified here and in your notice dated April 2, 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 Mark. D. Boughton, Mayor, City of Danbury
Dennis Elpern, City Planner, City of Danbury

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ROBINSON & COLE LLP

EM-VER-034-040402

Main (860)
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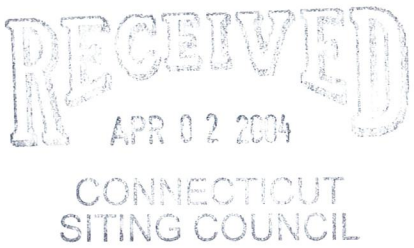
April 2, 2004

Via Hand Delivery



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

Re: **Notice of Exempt Modification – Antenna Swap**
Roof-top Wireless Telecommunications Facility
24 Hospital Avenue (Danbury Hospital) Danbury, CT

Dear Mr. Phelps:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains a wireless telecommunications facility at Danbury Hospital, 24 Hospital Avenue, in Danbury. This facility consists of twelve (12) panel-type cellular antennas mounted on the roof of the hospital building and associated equipment located in an existing roof-top mechanical penthouse.

The Connecticut Siting Council ("the Council") approved Cellco's Danbury Hospital facility in Docket No. 79 on September 10, 1987 and, as such, maintains continuing jurisdiction over the facility. Attached behind Tab 1 is a copy of the Council's Opinion and Decision and Order in Docket No. 79. Cellco now intends to modify its Danbury Hospital facility by replacing six (6) of the cellular antennas with six (6) PCS antennas. Attached behind Tab 2 are specifications for the existing cellular and proposed PCS antennas for the Danbury Hospital site.

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 Danbury Mayor, Mark D. Boughton.

As the Council knows, on May 23, 2003, Cellco acquired, from Northcoast Communications, a license to provide PCS service throughout Connecticut. The

proposed modifications to the Danbury Hospital facility will allow Cellco to provide its customers in the Danbury area with enhanced wireless voice and data services.

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

1. The proposed modifications will not result in any increase in the overall height of the existing structure. Cellco's replacement antennas will be mounted at the same level as its existing antennas.

2. The proposed modifications will not affect associated equipment areas and will not require the extension of the site boundaries.

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

4. The proposed modifications will not result in radio frequency (RF) power density levels at the facility that exceed the Federal Communications Commission (FCC) adopted safety standard. Attached behind Tab 3 is a Report on Site RF Compliance prepared by Pinnacle Telecom Group. This report includes actual RF measurements around the Danbury Hospital facility and estimated RF emissions levels anticipated from the proposed PCS antennas.

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

Sincerely,

Kenneth C. Baldwin

cc: Mark D. Boughton, Mayor, City of Danbury
Sandy M. Carter, Verizon Wireless

DOCKET NO. 79

AN APPLICATION OF METRO MOBILE CTS OF FAIRFIELD COUNTY, INC., FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR CELLULAR TELEPHONE ANTENNAS AND ASSOCIATED EQUIPMENT IN THE CITY OF DANBURY, CONNECTICUT.	: CONNECTICUT SITING : COUNCIL : SEPTEMBER 10, 1987

OPINION

Metro Mobile CTS of Fairfield County, Inc. (Metro Mobile), applied to the Connecticut Siting Council (Council) on June 5, 1987, for a Certificate of Environmental Compatibility and Public Need for the construction, operation, and maintenance of telecommunication antennas and associated equipment to provide cellular telephone service from a site in the City of Danbury, Connecticut. The City of Danbury is within the Bridgeport-Stamford-Norwalk-Danbury, Connecticut/New England County Metropolitan Area (Brideport NECMA).

When considering cellular telephone antennas, under Section 16-50p of the General Statutes of Connecticut, the Council must consider the need for such antennas as proposed and the nature of their probable environmental impact, "including a specification of every significant adverse effect, whether alone or cumulatively with other effects, on, and conflict with the policies of the state concerning, the natural environment, ecological balance, public health and safety, scenic, historic and recreational values, forests and parks, air and water purity, and fish and wildlife . . ." The Council may not grant a Certificate unless it finds that these adverse effects or conflicts with state policies are not sufficient to deny the application.

The proposed Danbury antenna site is atop the roof of the Danbury Hospital. Four receive antennas would be mounted on the penthouse of the hospital. Two receive antennas would be mounted on the solar panels on the roof of the hospital. Two transmit antennas would be attached to the solar panel upper support bracket. Each receive antenna would be approximately nine feet in length. The two transmit and two receive antennas would extend approximately 13 and nine feet above the solar panels, respectively. There are currently ten antennas mounted on the hospital.

The proposed antennas on the solar panels would be visible from those surrounding areas from which the existing antennas are now visible. The antennas proposed for the penthouse would be visible from those areas in the vicinity from which the penthouse is now visible.

The proposed site would provide cellular coverage to the City of Danbury and to Routes 7 and I-84 in the area. The proposed cell site would overlap with sites planned for Newtown and southerly along Route 7.

Metro Mobile considered and rejected 30 other potential cellular antenna sites in the Danbury area. These sites were rejected due to insufficient size, lack of interest in leasing by property owners, and inadequate coverage. The location of the 13-story Danbury Hospital on a hill made it a candidate for an antenna site. Metro Mobile found no similar buildings within its search area.

The proposed site would have no significant impact on rare or endangered species or areas of unique historical significance. The location of the proposed antennas on a building supporting ten other antennas minimizes their visibility. The Council considered the insignificant visual impact of the antennas and the minimal electromagnetic radiation levels it would produce. The Council has identified no adverse environmental impacts that would result from the antennas, and no instances of inconsistancies with policies of the State of Connecticut. The Council will therefore issue a Certificate of Environmental Compatibility and Public Need for the Danbury cellular antenna site.

Because the hospital has a heli-pad and is close to the Danbury Airport, the City of Danbury has requested that the applicant be required to notify the Federal Aviation Administration of the proposed antenna installation, and provide it opportunity to comment. The Council will so order.

0194E

DOCKET NO. 79

AN APPLICATION OF METRO MOBILE CTS OF FAIRFIELD COUNTY, INC., FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR CELLULAR TELEPHONE ANTENNAS AND ASSOCIATED EQUIPMENT IN THE CITY OF DANBURY, CONNECTICUT.	:	CONNECTICUT SITING COUNCIL
	:	SEPTEMBER 10, 1987

DECISION AND ORDER

Pursuant to the foregoing opinion, the Connecticut Siting Council hereby directs that a Certificate of Environmental Compatibility and Public Need, as provided by Section 16-50k of the General Statutes of Connecticut (CGS), be issued to Metro Mobile CTS of Fairfield County, Inc., for the construction, operation, and maintenance of cellular mobile telephone antennas in the City of Danbury, Connecticut.

The facility shall be constructed, operated, and maintained substantially as specified in the Council's record on this matter, and subject to the following conditions.

1. The facility shall be constructed in accordance with all applicable federal, state, and municipal laws and regulations.
2. The Certificate holder shall notify the Federal Aviation Administration of its intention to mount antennas on the Danbury Hospital, and provide it the opportunity to comment prior to initiation of construction. A copy of the notification to the Federal Aviation Administration shall be sent to the City of Danbury's Airport Administrator.

3. The Certificate holder or its successor shall notify the Council if and when directional antennas or any equipment other than that listed in this application is added to this facility.
4. If this facility does not provide or permanently ceases to provide cellular service following completion of construction, this Decision and Order shall be void, and the antennas and all associated equipment in this application shall be dismantled and removed or reapplication for any new use shall be made to the Council before any such new use is made.
5. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within three years of the issuance of this Decision and Order, or within three years of the completion of any appeal taken in this Decision.
6. The certificate holder shall comply with any future radio frequency (RF) standards promulgated by state or federal regulatory agencies. Upon the establishment of any new governmental RF standards, the facility granted in this Decision shall be brought into compliance with such standards.

Pursuant to CGS Section 16-50p, we hereby direct that a copy of this Decision and Order be served on each person listed below. A notice of the issuance shall be published in the Danbury News-Times.

The parties to the proceeding are:

Metro Mobile CTS of Fairfield County, Inc. (applicant)
50 Rockland Road
South Norwalk, CT 06854
Attn: Peter Kelley, Vice President

Howard L. Slater, Esq. (its representatives)
Jennifer Young Gaudet, Esq.
Byrne, Slater, Sandler,
Shulman & Rouse, P.C.
330 Main Street
PO Box 3216
Hartford, CT 06103

Fleischman and Walsh, P.C.
1725 N Street, N.W.
Washington, DC 20036
Attn: Richard Rubin, Esq.
Jonathan Cohen, Esq.

SNET Cellular, Inc. (intervenor)
c/o Peter J. Tyrrell
Senior Attorney
227 Church Street
New Haven, CT 06506

0198E

CERTIFICATION

The undersigned members of the Connecticut Siting Council hereby certify that they have heard the case in Docket 79 or read the record thereof, and that we voted as follows:

Dated at New Britain, Connecticut the 10th day of September, 1987.

Council Members	Vote Cast
Gloria Dibble Pond Chairperson	Yes
Commissioner Peter Boucher Designee: Kathy A. Geppert	Yes
Commissioner Leslie Carothers Designee: Brian Emerick	Absent
Owen L. Clark	Yes
Fred J. Doocy	Yes
Mortimer A. Gelston	Yes
James G. Horsfall	Yes
William H. Smith	Yes
Colin C. Tait	Yes

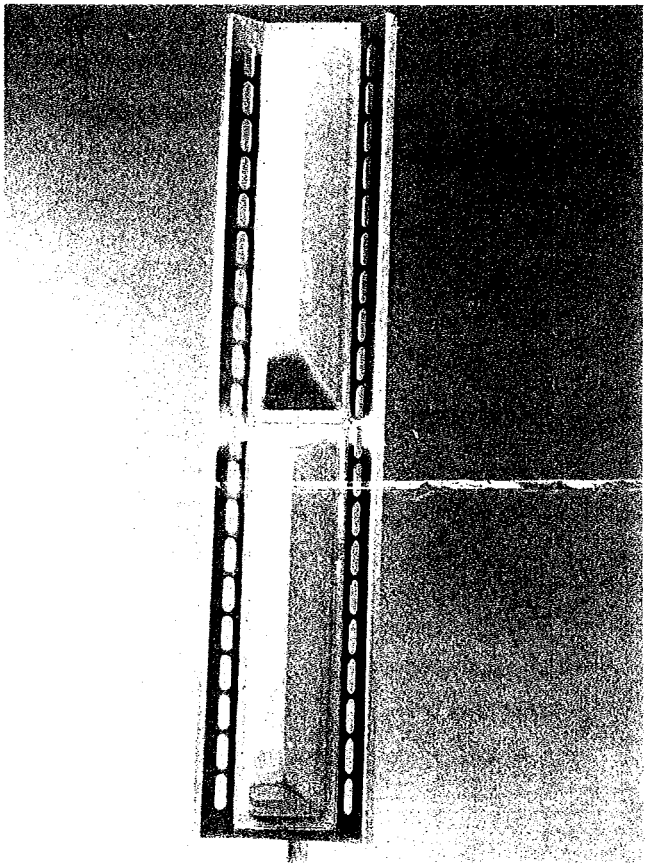
0217E

Swedcom Corporation

ALP 9212-N

Log-Periodic Reflector Antenna

92 Degrees 12 dBd



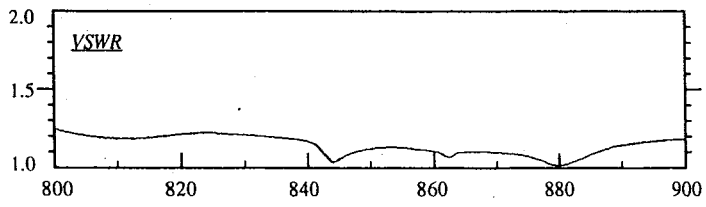
Features:

- ❑ **Broadbanded. (800-900 MHz)**
- ❑ **Low backlobe radiation. Front-to-back ratio better than 28 dB**
- ❑ **Low Intermodulation Products.**
- ❑ **Low Wind-load.**
- ❑ **Low weight.**
- ❑ **Small size.**
- ❑ **Rugged design.**

Please see the following pages including radiation patterns/tables for *ALP 9212-N.*

Electrical Specifications:

Frequency range:	806-896 MHz
Impedance:	50 ohm
Connector:	N-female or 7/8" EIA
VSWR:	Typ. 1.3:1 max 1.5:1
Polarization:	Vertical
Gain:	12 dBd
Front to back ratio:	>28 dB
Side-lobe supression:	>18 dB
Intermodulation: (2x25W):	IM3 >146 dB
	IM5 >153 dB
	IM7 & IM9 >163 dB
Power Rating:	500 W
H-Plane: -3 dB	95 °
E-Plane: -3 dB	15 °
Lightning Protection:	DC Grounded



Mechanical Specifications:

Overall Height:	52 in	(1320 mm)
Width:	11.4 in	(290 mm)
Depth:	11.4 in	(290 mm)
Weight including brackets:	26.7 lbs	(12 Kg)
Rated wind velocity:	113 mph	(180 Km/h)
Wind Area (CxA/Front):	3.9 sq.ft	(0.36 sq.m)
Lateral thrust at rated wind		
Worst case:	570 N	

Materials:

Radiating elements:	Aluminum
Element housing:	Grey PVC
Back-plate:	Aluminum
Mounting hardware	
clamps:	Hot dip galvanized steel
bolts:	Stainless steel

Manufactured by: ***Allgon System AB***

DECIBEL
Base Station Antennas

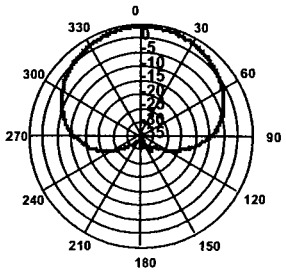
948F85T2E-M

16.1 dBi, Directed Dipole Antenna
1850-1990 MHz

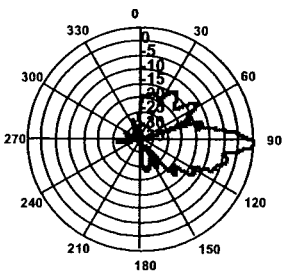
1850-1990 MHz

dB Director®
MaxFill™

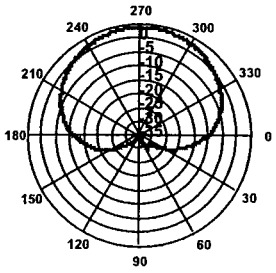
- Exceptional azimuth roll-off reducing soft hand-offs and improving capacity
- Excellent upper side lobe suppression
- Deep null filling below the horizon assures improved signal intensity
- Low profile appearance and low wind loading profile for easier zoning approvals



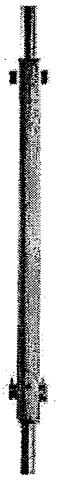
Azimuth 1850 MHz (Tilt=2)



Vertical 1850 MHz (Tilt=2)



Horizontal 1850 MHz (Tilt=2)



ELECTRICAL		MECHANICAL	
Frequency (MHz):	1850-1990	**Weight:**	8.5 lbs (3.9 kg)
Polarization:	Vertical	**Dimensions (LxWxD):**	48 X 3.5 X 7 in (1219 X 89 X 178 mm)
Gain (dBd/dBi):	14/16.1	**Max. Wind Area:**	2.3 ft² (0.21 m²)
Azimuth BW:	85°	**Max. Wind Load (@ 100mph):**	92 lbf (409 N)
Elevation BW:	8°	**Max. Wind Speed:**	125 mph (201 km/h)
Beam Tilt:	2°	**Radiator Material:**	Low Loss Circuit Board
USLS* (dB):	>18	**Reflector Material:**	Passivated Aluminum
Null Fill* (dB):	15	**Radome Material:**	ABS, UV Resistant
Front-to-Back Ratio* (dB):	40	**Mounting Hardware Material:**	Galvanized Steel
VSWR:	<1.33:1	**Connector Type:**	7-16 DIN - Female (Bottom)
IM Suppression - Two 20 Watt Carriers:	-150	**Color:**	Light Gray
Impedance:	50 Ohms	**Standard Mounting Hardware:**	DB390 Pipe Mount Kit, included
Max Input Power:	250 Watts	**Downtilt Mounting Hardware:**	DB5098, optional
Lightning Protection:	DC Ground	**Opt. Mounting Hardware:**	DB5094-AZ Azimuth Wall Mount
Opt Electrical Tilt:	0°,4°,6°		

Andrew Corporation
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Dallas, Texas U.S.A 75247-3701
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Fax: 214.631.4706
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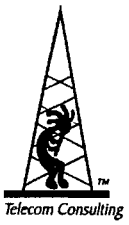
Fax: 1.800.229.4706
www.andrew.com

dbtech@andrew.com

Date: 1/23/2004
* - Indicates Typical Values



PINNACLE TELECOM GROUP
Consulting and Engineering Services

REPORT ON SITE RF COMPLIANCE

VERIZON WIRELESS

DANBURY HOSPITAL

MARCH 29, 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 building rooftop located at 24 Hospital Avenue in Danbury, CT. Verizon Wireless identified the site as Danbury Hospital. On-site measurements were previously performed by Pinnacle Telecom Group on August 15, 2003.

Verizon Wireless is licensed by the FCC to provide cellular radio service, using the 800 MHz frequency band and currently operates 12 panel antennas mounted on a guyed tower on the subject rooftop. Verizon is proposing to provide PCS service using the 1900 MHz frequency band.

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 street level around the site indicated the highest existing RF level is 0.5 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 0.3058 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 street level would be 0.8058 percent – still more than 124 times below the limit.

- A further analysis of potential exposure on the main roof indicates that the worst-case incremental RF level on the roof will be 4.8032 percent of the applicable FCC limit for occupational exposure, and thus is in compliance as well.
- Again taking the conservative approach, if the worst-case incremental contribution associated with the antenna modification is added to the worst-case measurement result on the rooftop, the new worst-case exposure level would be 5.1032 percent – still more than 19 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

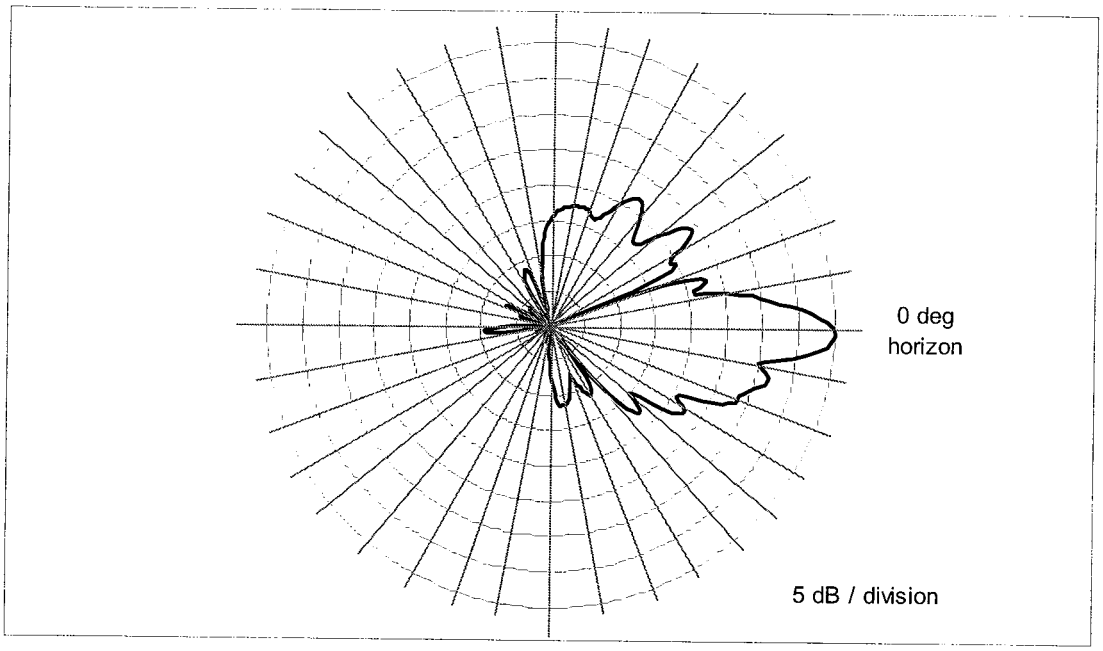
Relevant data for the proposed Verizon antenna operation at the site is summarized in the table on the next page.

Verizon Wireless – Technical Parameters	
Transmitting Frequency Band	1900 MHz
Antenna Height (AGL)	48 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	1.5 dB
Transmitter Power per RF Channel per Tx	16 watts
RF Channels per Tx	3
Antenna Mounting Height Above Upper Roof	32 ft.

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.

A diagram illustrating the vertical-plane radiation pattern of the antennas to be used by Verizon is 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.

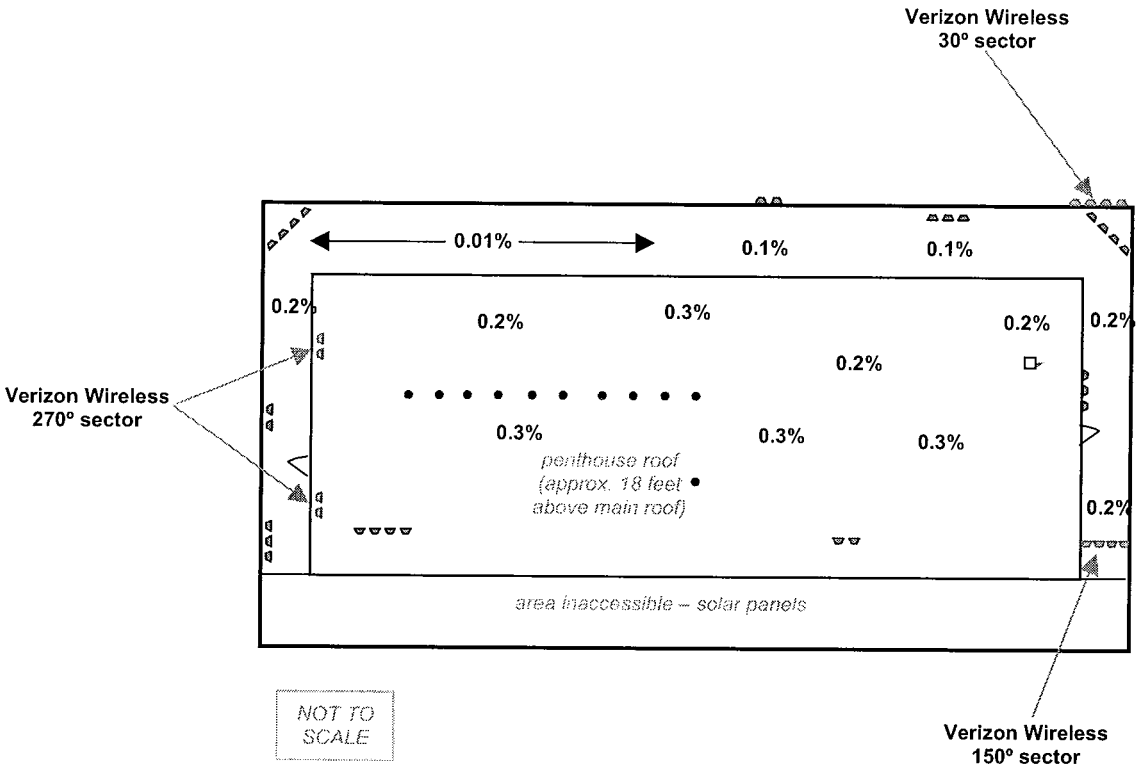
Decibel DB948F85T2E-M Antenna – Vertical-Plane Radiation Pattern



On-Site Measurements

RF measurements were performed on August 15, 2003, 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 occupational MPE limit, are overlaid on the plan view sketch on the next page.



Technical Analysis

Assessment of RF compliance involves an analysis of potential RF exposure levels in accessible areas, and comparison of those levels with the applicable FCC limits for maximum permissible exposure.

The FCC's regulations describe two tiers of MPE limits, one for "controlled" situations (i.e., where an individual with RF safety training can exercise control of the exposure), and a stricter one for the presumably "uncontrolled" exposure that involves the general public.

In addition, OSHA requires employers to provide appropriate RF safety training for individuals whose work brings them into frequent contact with wireless antenna sites. Access to antenna sites is often restricted to ensure only RF-safety-trained people can get close to antennas.

In this case, the rooftop itself is access-restricted and considered a "controlled" area, and the FCC's occupational MPE limit applies. At street level around the building, the stricter limit for the general population applies.

The subsections that follow will address both areas of interest.

Street-Level Analysis

In the far field, the RF levels are directly proportional to the total antenna input power and the relative antenna gain (focusing effect) in the downward direction of interest – and the levels are inversely proportional to the square of the straight-line distance to the antenna.

Conservative calculations also assume the potential RF exposure is enhanced by reflection of the RF energy from the ground. (Our calculations will assume a 100% "perfect" reflection, the absolute worst-case approach.)

According to the FCC, the applicable formula for far-field calculations is as follows:

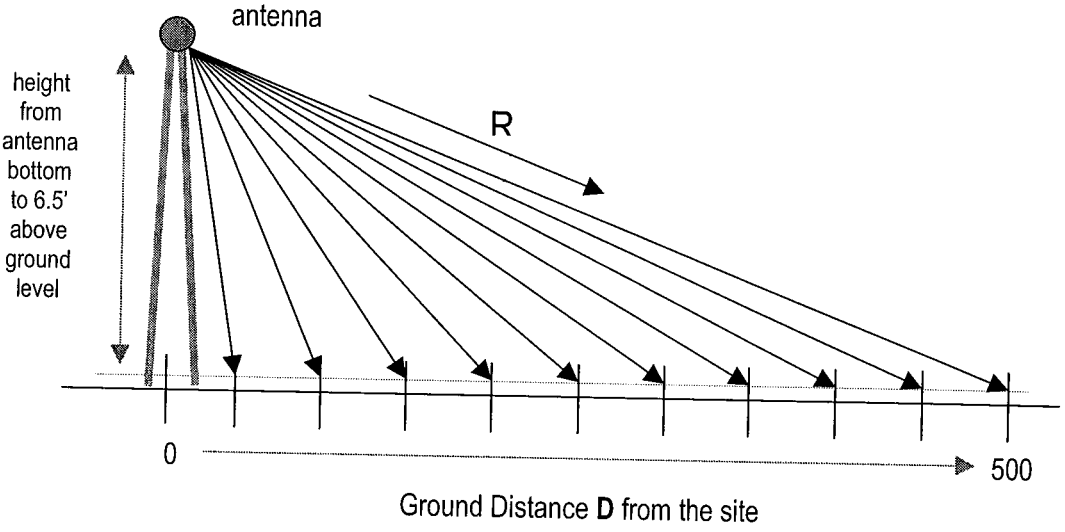
$$MPE\% = (100 * TxPower * 10^{(Gmax-Vdisc/10)} * 4) / (MPE * 4\pi * R2)$$

where

MPE%	=	RF level, expressed as a percentage of the FCC MPE limit
100	=	factor to convert to a percentage
TxPower	=	maximum power into antenna, watts
$10^{(Gmax-Vdisc/10)}$	=	numeric equivalent of the relative antenna gain in the downward direction of interest, with Gmax (maximum gain)and Vdisc (vertical-plane discrimination) values, in decibels, taken from the antenna manufacturer's specifications; the reference point for the angular calculations is either 0 degrees (the horizon), or the mechanical downtilt angle of the antennas

4	=	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	=	FCC general population MPE limit, 1.0mW/cm^2
R	=	lateral distance from the RF source to the point of interest, centimeters

Although the calculations are performed using centimeter units, the results are more clearly presented using feet as the distance unit. The far-field calculations of RF power density are typically performed out to a distance of 500 feet from the site (see diagram below), with recognition that beyond the first few hundred feet the RF levels always decrease with increasing distance. Within the first few hundred feet, the calculated RF levels reflect not just distance, but the relative antenna radiation pattern discrimination at different downward angles.



At each point along the ground, a calculation is made of the MPE% figure that results at an assumed human height of 6 feet, 6 inches. (That height is conservatively assumed to cover more than 99.9 percent of the population.)

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 hypothetically assumed to be pointed directly overhead any and all points of interest at ground level, ignoring 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 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 significantly overstate the calculated RF exposure levels relative to the levels that will actually occur – and the purpose of this conservatism is to allow very "safe-side" conclusions about compliance.

According to the FCC, when directional antennas are used for sectorized coverage of the horizon, as is the case here, the far field calculations employ the parameters of a single sector – because the contributions of the antennas facing in other directions (the other sectors) are insignificant. The calculations, however, assume the antennas in one sector are always hypothetically pointed directly overhead the point of interest on the ground; this conservatively ignores the signal-reducing effects of the horizontal-plane directionality of the antenna.

Applying technical data for the proposed Verizon Wireless 1900 MHz system to the far-field formula yields the MPE% results in the table on the following page, with the worst-case result highlighted in bold.

Ground Distance (ft)	Verizon MPE%
0	0.0120
20	0.0256
40	0.0853
60	0.1615
80	0.1445
100	0.2870
120	0.2617
140	**0.3058**
160	0.2494
180	0.1778
200	0.1208
220	0.0917
240	0.0931
260	0.1233
280	0.1067
300	0.1511
320	0.1331
340	0.1787
360	0.1596
380	0.2026
400	0.1831
420	0.1662
440	0.1515
460	0.1747
480	0.1605
500	0.1480

As indicated in the table, the worst-case calculated RF level is only 0.3058 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 0.5 percent, the new total is 0.8058 percent, which is more than 124 times below the limit for continuous human exposure. Therefore, far-field compliance is achieved.

Rooftop Analysis

The Verizon Wireless 1900 MHz antennas will be mounted on a guyed tower on the roof, approximately 32 feet above the roof. Therefore, the rooftop is also considered in the far-field and the formulas described above will be applied.

The table below provides the results of the MPE% calculations at distance points out to 50 feet from the antennas, with the overall worst-case overall result highlighted in bold.

Ground Distance (ft)	Verizon MPE%
0	0.0057
2	0.0056
4	0.2502
6	0.8044
8	1.3430
10	1.8481
12	1.2647
14	1.0825
16	1.2153
18	1.7509
20	2.6342
22	3.6917
24	3.4147
26	4.4597
28	4.1239
30	**4.8032**
32	4.4475
34	4.1225
36	3.8259
38	4.1774
40	3.8878
42	3.6237
44	3.3827
46	3.1626
48	2.9613
50	3.0450

As indicated in the table, the worst-case calculated RF level is 4.8032 percent of the FCC occupational MPE limit. When this worst-case incremental contribution is directly added to the earlier worst-case measured result of 0.3 percent, the new total is 5.1032 percent, which is more than 19 times below the limit for continuous human exposure. Therefore, far-field compliance is achieved.

Compliance Conclusion

As described, even under the most conservative analytical approach, the potential RF exposure levels from all antennas at the site, with the addition of the Verizon 1900 MHz antenna operation, are lower than the applicable FCC limits. Therefore, the site will remain in compliance with the applicable FCC RF exposure 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 — 3/8/04

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

Date

Daniel J. Collins — 3/8/04

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

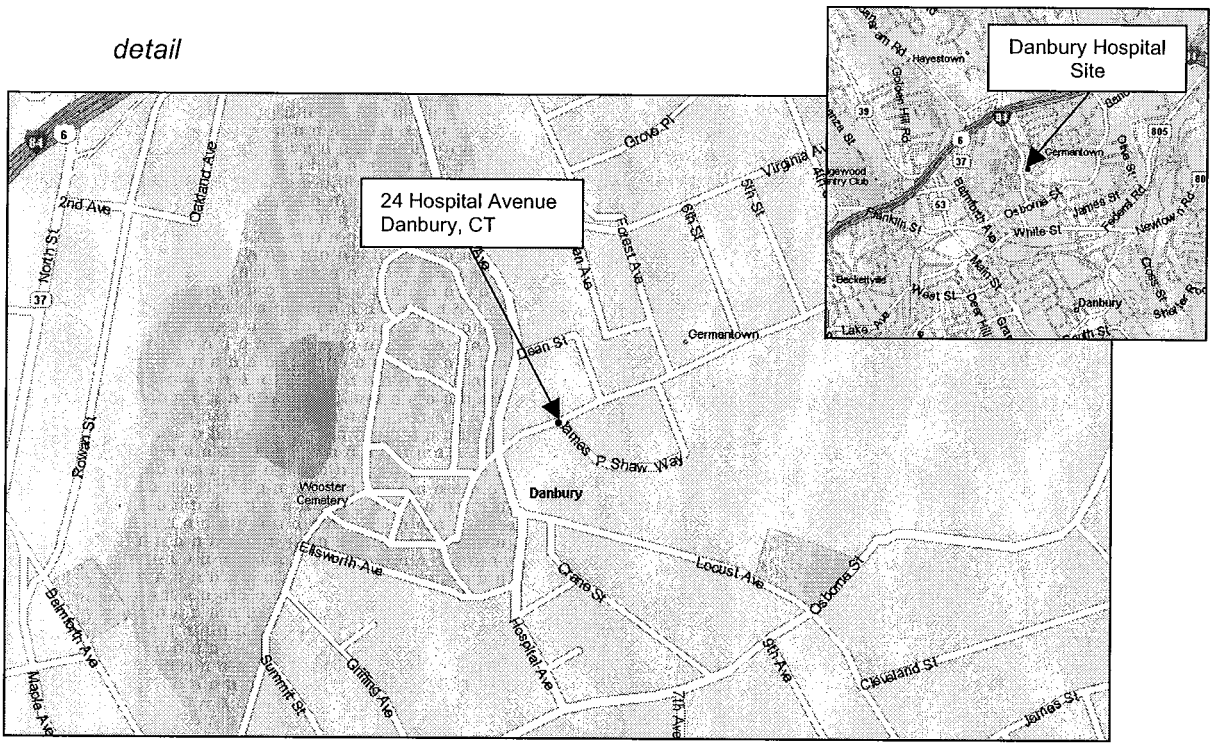
Date

Appendix A: Site Map, Photographs and Antenna Data

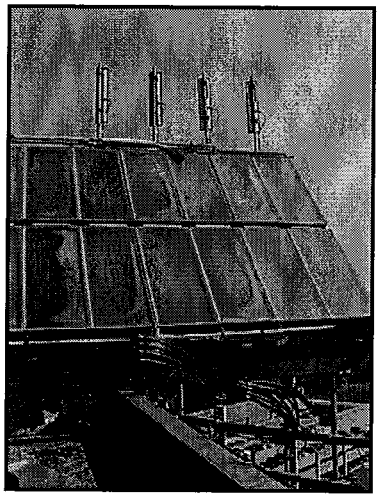
The Verizon Wireless Danbury Hospital site is located at 24 Hospital Avenue in Danbury, CT, as illustrated in the maps below.

overview

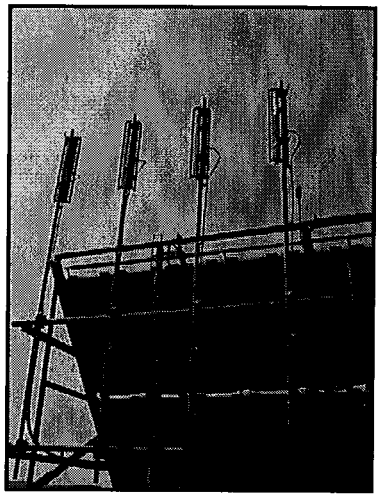
detail



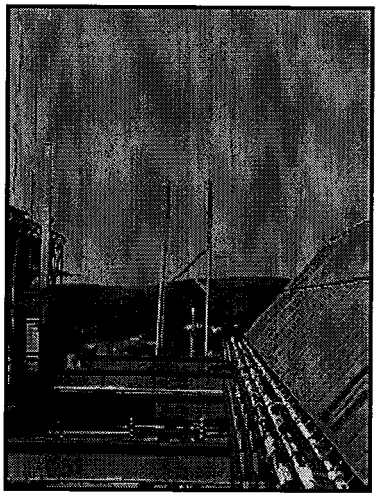
The following page provides copies of photographs taken of the site on the day the measurements were performed.



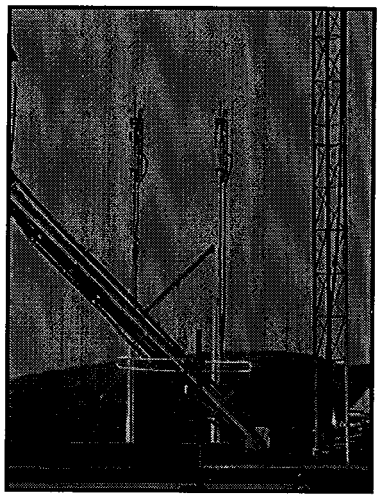
Verizon Wireless 30° sector



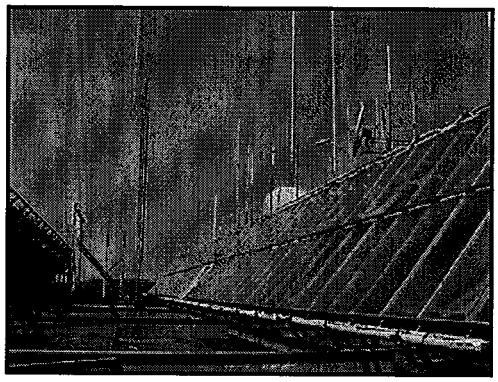
Verizon Wireless 150° sector

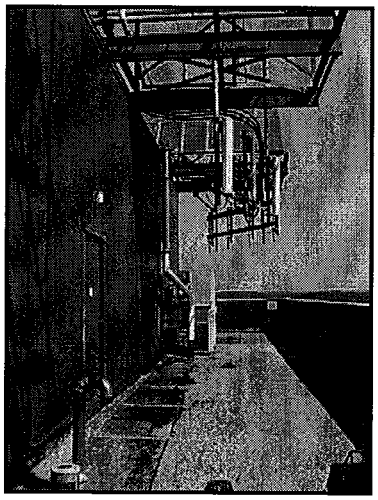


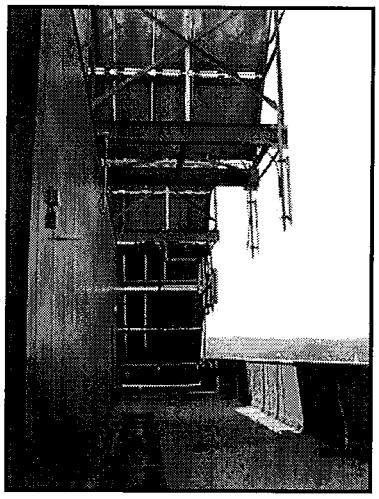
Verizon Wireless 270° sector

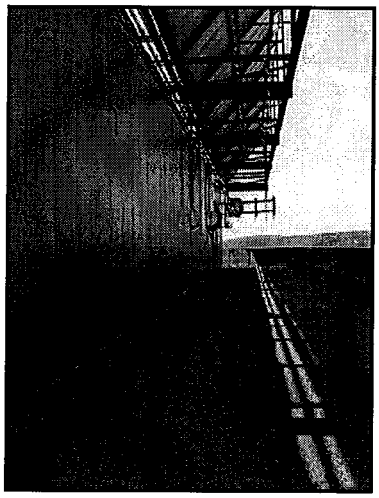


Verizon Wireless 270° sector









The following table provides antenna detail for the Danbury Hospital site.

Ant #	Z (ft)	Type	Dim. (ft)	Mfr	Model	Freq	Tilt	Azimuth	Licensee
1	36	panel	4	Allgon	Unidentified	806-896	0°	30°	Verizon
2	36	panel	4	Allgon	Unidentified	806-896	0°	30°	Verizon
3	36	panel	4	Allgon	Unidentified	806-896	0°	30°	Verizon
4	36	panel	4	Allgon	Unidentified	806-896	0°	30°	Verizon
5	36	panel	4	Allgon	Unidentified	806-896	0°	150°	Verizon
6	36	panel	4	Allgon	Unidentified	806-896	0°	150°	Verizon
7	36	panel	4	Allgon	Unidentified	806-896	0°	150°	Verizon
8	36	panel	4	Allgon	Unidentified	806-896	0°	150°	Verizon
9	36	panel	4	Allgon	Unidentified	806-896	0°	270°	Verizon
10	36	panel	4	Allgon	Unidentified	806-896	0°	270°	Verizon
11	36	panel	4	Allgon	Unidentified	806-896	0°	270°	Verizon
12	36	panel	4	Allgon	Unidentified	806-896	0°	270°	Verizon
13	12	panel	5	EMS Wireless	Unidentified	Unknown	0°	---	Unidentified
14	12	panel	5	EMS Wireless	Unidentified	Unknown	0°	---	Unidentified
15	12	panel	5	EMS Wireless	Unidentified	Unknown	0°	---	Unidentified
16	12	panel	5	EMS Wireless	Unidentified	Unknown	0°	---	Unidentified
17	12	panel	5	EMS Wireless	Unidentified	Unknown	0°	---	Unidentified
18	12	panel	5	EMS Wireless	Unidentified	Unknown	0°	---	Unidentified
19	12	panel	5	EMS Wireless	Unidentified	Unknown	0°	---	Unidentified
20	12	panel	5	EMS Wireless	Unidentified	Unknown	0°	---	Unidentified
21	38	panel	5	EMS Wireless	Unidentified	Unknown	0°	---	Unidentified
22	38	panel	5	EMS Wireless	Unidentified	Unknown	0°	---	Unidentified
23	38	panel	5	EMS Wireless	Unidentified	Unknown	0°	---	Unidentified
24	38	panel	5	EMS Wireless	Unidentified	Unknown	0°	---	Unidentified
25	36	panel	4	Unidentified	Unidentified	Unknown	0°	---	Unidentified

Ant #	Z (ft)	Type	Dim. (ft)	Mfr	Model	Freq	Tilt	Azimuth	Licensee
26	36	panel	4	Unidentified	Unidentified	Unknown	0°	---	Unidentified
27	36	panel	4	Unidentified	Unidentified	Unknown	0°	---	Unidentified
28	36	panel	4	Unidentified	Unidentified	Unknown	0°	---	Unidentified
29	15	panel	4	Unidentified	Unidentified	Unknown	0°	---	Unidentified
30	15	panel	4	Unidentified	Unidentified	Unknown	0°	---	Unidentified
31	12.5	panel	4	Unidentified	Unidentified	Unknown	0°	---	Unidentified
32	12.5	panel	4	Unidentified	Unidentified	Unknown	0°	---	Unidentified
33	12.5	panel	4	Unidentified	Unidentified	Unknown	0°	---	Unidentified
34	19	panel	4	Unidentified	Unidentified	Unknown	0°	---	Unidentified
35	19	panel	4	Unidentified	Unidentified	Unknown	0°	---	Unidentified
36	19	panel	4	Unidentified	Unidentified	Unknown	0°	---	Unidentified
37	12.5	panel	4	Unidentified	Unidentified	Unknown	0°	---	Unidentified
38	12.5	panel	4	Unidentified	Unidentified	Unknown	0°	---	Unidentified
39	12.5	panel	4	Unidentified	Unidentified	Unknown	0°	---	Unidentified
40	13	dish	4	Unidentified	Unidentified	Unknown	---	---	Unidentified
41	13	enc. yagi	1.5	Unidentified	Unidentified	Unknown	---	---	Unidentified
42	36	whip	---	Unidentified	Unidentified	Unknown	---	---	Unidentified
43	36	whip	---	Unidentified	Unidentified	Unknown	---	---	Unidentified
44	36	whip	---	Unidentified	Unidentified	Unknown	---	---	Unidentified
45	36	whip	---	Unidentified	Unidentified	Unknown	---	---	Unidentified
46	36	whip	---	Unidentified	Unidentified	Unknown	---	---	Unidentified
47	36	whip	---	Unidentified	Unidentified	Unknown	---	---	Unidentified
48	36	whip	---	Unidentified	Unidentified	Unknown	---	---	Unidentified
49	36	whip	---	Unidentified	Unidentified	Unknown	---	---	Unidentified
50	36	whip	---	Unidentified	Unidentified	Unknown	---	---	Unidentified
51	36	whip	---	Unidentified	Unidentified	Unknown	---	---	Unidentified
52	36	whip	---	Unidentified	Unidentified	Unknown	---	---	Unidentified
53	36	dipole	---	Unidentified	Unidentified	Unknown	---	---	Unidentified
54	36	dipole	---	Unidentified	Unidentified	Unknown	---	---	Unidentified
55	36	dipole	---	Unidentified	Unidentified	Unknown	---	---	Unidentified
56	36	yagi	---	Unidentified	Unidentified	Unknown	---	---	Unidentified

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.

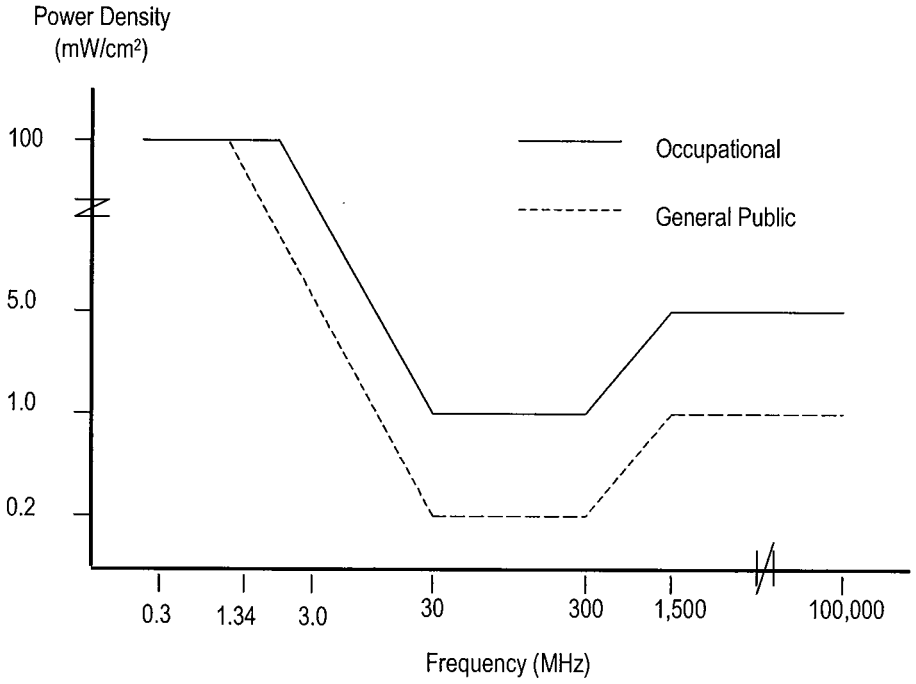
The specified continuous exposure MPE limits are based on known variation of human body susceptibility in different frequency ranges, and a Specific Absorption Rate (SAR) of 4 watts per kilogram, which is universally considered to accurately represent human capacity to dissipate incident RF energy (in 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.