L

TS-METROPCS-051-080523

ORIGINAL

In re:

Request of MetroPCS New York, LLC for the Approval of the Shared Use of an Existing Tower Located at 100 Reef Road in Fairfield, Connecticut. : May 22, 2008

RECEIVED
MAY 23 2008
CONNECTICUT SITING COUNCIL

TOWER SHARING APPLICATION

MetroPCS New York, LLC ("Metro") proposes herein to share an existing telecommunications tower (the "Tower") located at 100 Reef Road in Fairfield, Connecticut (the "Facility"). Pursuant to Connecticut General Statutes §16-50aa (the "Statute"), Metro requests a finding from the Connecticut Siting Council (the "Council") that the shared use of this Facility is technically, legally, environmentally, and economically feasible, will meet public safety concerns, will avoid the unnecessary proliferation of towers and is in the public interest. Metro further requests an order approving the shared use of this Facility.

The purpose of this request is to use an existing telecommunications tower to meet Metro's coverage needs in this area of Fairfield and therefore avoid the construction of an additional tower in Fairfield.

A. The Facility

The Facility is located at 100 Reef Road in Fairfield, Connecticut (Latitude 41° 08' 22.44" N, Longitude 73° 15' 26.49" W). The Tower is a 145-foot monopole owned by the Town of Fairfield (Police Department). The Tower currently has multiple carriers on it. A site plan is attached.

BROWN, RUDNICK, BERLACK, ISRAELS LLP
CITYPLACE I
185 ASYLUM STREET
HARTFORD, CT 06103
(860) 509-6500

B. Proposed Project

Metro will install six panel antennas on T-arms, two per sector, with an antenna centerline at 116 feet. Metro will install their equipment cabinets on a 10' x 20' steel platform on the roof of the Police Department building adjacent to the Tower. The equipment cabinets, utility center, service light, global positioning system (GPS) antenna, ladder and railings will all be installed on the platform. The power and telephone conduits will proceed over the rooftop to the side wall of the building to the Tower. No upgrades to the access road or parking area will be necessary.

C. Technical Feasibility

Consistent with the requirements of the Statute, it is technically feasible for Metro to collocate at this Facility. To analyze whether the Tower can support Metro's proposed modifications, Metro commissioned All-Points Technology Corporation, P.C. to perform a structural analysis of the Tower. According to the structural analysis, dated April 30, 2008, "the existing 145' monopole tower located at 100 Reef Road in Fairfield, Connecticut is capable of supporting MetroPCS's proposed antennas and associated equipment." The structural analysis for the Tower is attached.

In addition, Natcomm Consulting Engineers, Inc. performed an evaluation of the Police Department building to ensure that it is structurally capable of supporting Metro's equipment platform. The Natcomm analysis dated April 30, 2008, determined that "the proposed facility will not adversely affect the structural integrity of the existing building." The structural analysis for the building is also attached.

BROWN, RUDNICK,
BERLACK, ISRAELS LLP
CITYPLACE I
185 ASYLUM STREET
HARTFORD, CT 06103
(860) 509-6500

D. Legal Feasibility

The Council has the authority, pursuant to the Statute, to issue an order approving the shared use of this Tower. By issuing an order approving Metro's use of the Tower, Metro will be able to proceed with obtaining a building permit for its proposed installation on the Tower. Therefore, consistent with the Statute, Metro's proposal is legally feasible.

E. Economic Feasibility

Metro is a wireless telecommunications provider licensed by the Federal Communications Commission to provide service in the northeast United States, including the Fairfield area. Metro has entered into a lease with the Town of Fairfield for the purpose of locating its antennas and associated equipment at the Fairfield Police Department so that it may provide wireless telecommunications service to this area of Fairfield. A copy of the Letter of Agreement is attached. Therefore, the shared use of this Facility is economically feasible.

F. Environmental Feasibility

Pursuant to the Statute, the proposal will be environmentally feasible for the following reasons:

- The overall impact on the Town of Fairfield will be decreased with the sharing of a single tower versus the proliferation of towers.
- The proposal will not increase the height of the Tower.
- There will be an insignificant increase in the visibility of the Tower with the addition of Metro's six panel antennas amongst all of the existing antennas on the Tower.

BROWN, RUDNICK,
BERLACK, ISRAELS LLP
CITYPLACE I
185 ASYLUM STREET
HARTFORD, CT 06103
(860) 509-6500

- There will be no impact on any wetlands or water resources as a result of Metro's modifications.

- There will be no increased impact on air quality because no air pollutants will be generated during the normal operation of the Facility.

- There will only be a brief, slight increase in noise pollution while the antennas are attached and the equipment buildings are installed.

- During construction, the proposed project will generate a small amount of traffic as workers arrive and depart and materials are delivered. Upon completion, traffic will be limited to an average of one monthly maintenance/inspection visit.

G. Public Safety Concerns / Benefits

There will be no adverse impact to the health and safety of the surrounding community or the workers at the Facility due to the addition of Metro's antennas to the Tower. Metro performed an analysis of the radio frequency fields emanating from the transmitting antennas on the Tower to ensure compliance with the National Council on Radiation Protection and Measurements' ("NCRP") standard for maximum permissible exposure (MPE) adopted by the Federal Communications Commission ("FCC"). The analysis for the antennas on the Tower indicates that, cumulatively, the antennas will emit 0.4654 % of the NCRP's standard for maximum permissible exposure. The power density analysis is attached. Therefore, Metro's analysis clearly shows that the maximum level of radio-frequency energy emitted from the Tower will be well below the FCC's mandated radio frequency exposure limits.

BROWN, RUDNICK,
BERLACK, ISRAELS LLP
CITYPLACE I
185 ASYLUM STREET
HARTFORD, CT 06103
(860) 509-6500

Moreover, Metro expects to enhance safety in the Fairfield area by improving the wireless communications of local residents and travelers. Metro is currently in the process of building a new, unlimited voice and data wireless network. In order to provide reliable coverage to residents and travelers in this area of Fairfield and fulfill their coverage goals to comply with their FCC license, this site is a necessary part of Metro's initial network launch.

Specifically, this site is designed to cover within a 0.75 mile to 1.0 mile radius of the site. Metro seeks to provide a reliable signal level for the vehicular traffic on the streets and highways surrounding Reef Road as well as in the surrounding commercial and residential areas. The major transportation corridors that traverse the intended coverage area include Interstate 95 and Route 1. Metro intends to provide approximately 2 miles of coverage along both Interstate 95 and Route 1.

Conclusion

For the reasons stated above, the attachment of Metro's antennas to this Tower would meet all the requirements set forth in the Statute. This proposal is technically, legally, environmentally and economically feasible and meets all public safety concerns. Therefore, Metro respectfully requests that the Council approve this request for the shared use of the Tower located at 100 Reef Road in Fairfield, Connecticut.

MetroPCS New York, LLC

By: _____

Thomas J. Regan
Brown Rudnick Berlack Israels LLP
185 Asylum Street, CityPlace I
Hartford, CT 06103-3402
Phone - (860) 509-6522
Fax - (860) 509-6501
Email – tregan@brownrudnick.com

BROWN, RUDNICK,
BERLACK, ISRAELS LLP
CITYPLACE I
185 ASYLUM STREET
HARTFORD, CT 06103
(860) 509-6500

APPROVALS

LANDLORD: _____ **DATE:**_____

RF ENGINEER: _____ **DATE:**_____

CONSTRUCTION MGR: _____ **DATE:**_____

SITE DATA

*SITE INFORMATION:

-SITE NAME: FAIRFIELD POLICE DEPT.
-SITE ID NUMBER: NY-6090
-SITE ADDRESS: 100 REEF ROAD
FAIRFIELD, CT 06824

-LATITUDE: 41° 08' 22.44" N
-LONGITUDE: 73° 15' 26.49" W
-GROUND ELEVATION: 13'± AMSL

*OWNER INFORMATION:

-LANDLORD: TOWN OF FAIRFIELD
-CONTACT: EILEEN KENNELLY, ASSIST. TOWN ATTY
-CONTACT NUMBER: (203) 256-3189
-CONTACT ADDRESS: 611-725 OLD POST ROAD
FAIRFIELD, CT 06824

-SITE CONTACT: LT. LIDDY (FAIRFIELD PD)
-SITE CONTACT NUMBER: (203) 254-4816

*CONFIGURATION INFORMATION:

-AGL HEIGHT TO TOP OF ANTENNAS: (ALPHA): 118'-3"±
(BETA): 118'-3"±
(GAMMA): 118'-3"±
(GPS): 41'-2"±

-HEIGHT TO RAD CENTER: (ALPHA): 116'±
(BETA): 116'±
(GAMMA): 116'±

-ANTENNA AZIMUTH: (ALPHA): 30° ; (BETA): 150°
(GAMMA): 270°

GENERAL NOTES

1. THE INSTALLATION OF TELECOMMUNICATIONS EQUIPMENT THAT CONSISTS OF EQUIPMENT CABINETS ON A PROPOSED STEEL PLATFORM ON THE ROOF OF AN EXISTING BUILDING AND ANTENNAS ON THE EXISTING MONOPOLE TOWER @ 116' AGL±.
2. THE PROPOSED FACILITY IS NOT INTENDED FOR HUMAN OCCUPANCY AND WILL BE VISITED FOR ROUTINE MAINTENANCE APPROXIMATELY EVERY (4) FOUR WEEKS.
3. THE FACILITY IS MONITORED FROM A REMOTE MONITORING FACILITY. IN CASE OF AN EMERGENCY THE POLICE AND FIRE DEPARTMENTS ARE NOTIFIED.
4. CONNECTIONS FOR NEW ELECTRICAL AND TELEPHONE SERVICES SHALL BE DETERMINED BY A LOCAL UTILITY REPRESENTATIVE.
5. THIS FACILITY DOES NOT REQUIRE ANY PARKING SPACES AND NONE ARE PROPOSED. NO CHANGE OF USE IS PROPOSED.
6. THIS FACILITY DOES NOT REQUIRE ANY POTABLE WATER AND DOES NOT PRODUCE ANY SEWAGE. ADDITIONALLY THE SITE WILL NOT GENERATE ANY TRASH THUS WILL NOT REQUIRE A DUMPSTER.

NOTES

BUILDING PERMIT NOTES:

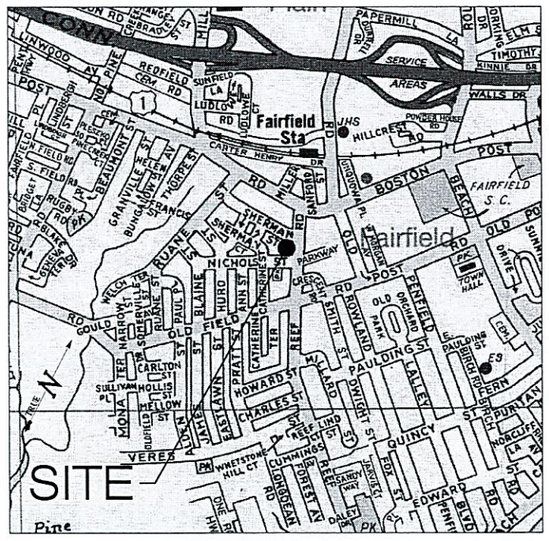
LOCATION OF EQUIPMENT: ROOFTOP
LOCATION OF PANEL ANTENNAs: MONOPOLE @ 116' ±AGL
SQUARE FOOTAGE OF BUILDING: 50,000 SQFT ±
NEW EQUIPMENT SPACE SQUARE FOOTAGE: 19 SQFT ±
NEW EQUIPMENT PLATFORM LEASE AREA: 206 SQFT ±

CELL TYPE:

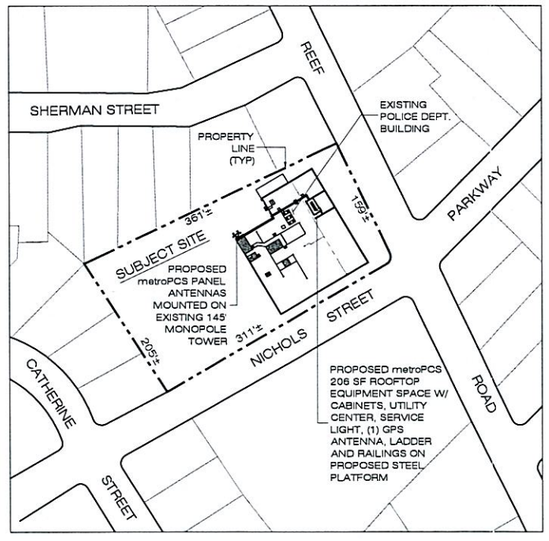
EQUIPMENT: (2) LUCENT MODULAR CELL 4.0B OUTDOOR CABINET (19 SQFT) W/ (2) EZBFO MODULAR BATTERY SYSTEM CABINETS
ANTENNAS: (6) PROPOSED SECTOR PANEL ANTENNAS MOUNTED TO EXISTING 145' MONOPOLE TOWER
(1) GPS ANTENNA MOUNTED TO PROPOSED EQUIPMENT CABINET PLATFORM

MetroPCS of NEW YORK, LLC

5 SKYLINE DRIVE
HAWTHORNE, NY. 10532
(914)-593-8500



LOCATION MAP



ORIENTATION MAP
SCALE : NTS

DRAWING INDEX

ALL-POINTS TECHNOLOGY CORPORATION, P.C.
3 SADDLEBROOK DRIVE
KILLINGWORTH, CT. 06419
PHONE: (860)-663-1697
FAX: (860)-663-0935
www.allpointstech.com

PROJECT DESCRIPTION

metroPCS IS PROPOSING TO INSTALL EXTERIOR ROOFTOP EQUIPMENT CABINETS ON NEW STEEL DUNNAGE ATOP THE ROOF OF THE EXISTING POLICE DEPARTMENT BUILDING. THE SUBJECT ROOFTOP IS CURRENTLY OCCUPIED BY OTHER COMMUNICATION EQUIPMENT SHELTERS, CABINETS AND PENTHOUSE MOUNTED ANTENNAS. metroPCS PROPOSES TO INSTALL (6) PANEL ANTENNAS ON NEW T-ARM ASSEMBLIES AFIXED TO THE EXISTING ONSITE 145' MONOPOLE TOWER AT 116' ABOVE GRADE LEVEL. COAXIAL CABLE SERVICING THE AFOREMENTIONED ANTENNAS IS PROPOSED TO BE BANDED TO THE EXTERIOR OF THE MONOPOLE AND TRAVERSE THE SIDE OF THE EXISTING BUILDING TO THE PROPOSED ROOFTOP EQUIPMENT. THE PROPOSED FACILITY WILL BE SERVICED BY NEARBY UTILITIES. NO SEWER OR WATER UTILITIES ARE PROPOSED, AS THE PROPOSED INSTALLATION IS FOR AN UNMANNED EQUIPMENT PLATFORM.

CONTACT PERSONNEL

APPLICANT:
metroPCS of NEW YORK, LLC
5 SKYLINE DRIVE HAWTHORNE, NY 10532

metroPCS PROJECT MANAGER:
JOSEPH LAQUIDARA (914) 593-8564

metroPCS PROJECT ATTORNEY:
BROWN RUDNICK BERLACK ISRAELS, LP
ATTN: SCOTT A. MUSKA
CITY PLACE 1 - 38th FLOOR
HARTFORD, CT 06103
860-509-6530

POWER PROVIDER:
UNITED ILLUMINATING COMPANY (800) 722-5584
CONTACT: CALL CENTER

TELCO PROVIDER:
SBC/AT&T: (800)-448-1008

CALL BEFORE YOU DIG:
(800) 922-4455

GOVERNING CODEs:
2005 CONNECTICUT BUILDING CODE (2003 IBC BASIS)
NATIONAL ELECTRIC CODE
EIA/TIA 222G

SITE INFORMATION

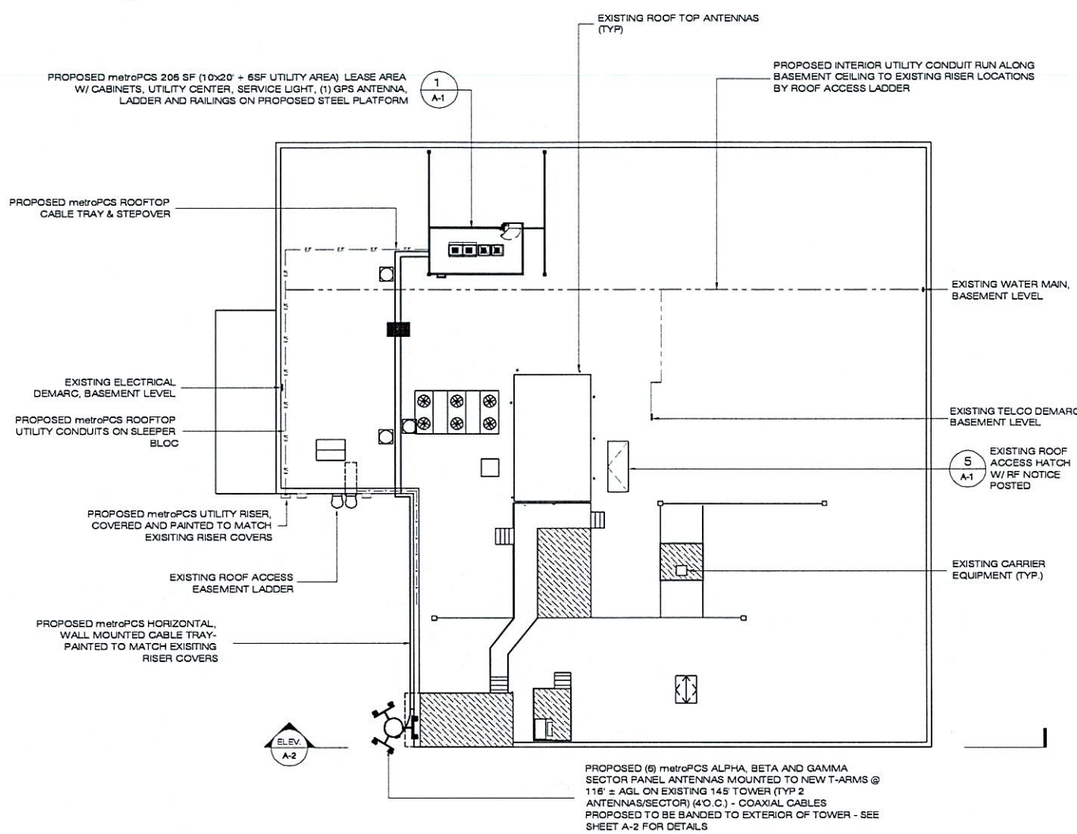
NY-6090
FAIRFIELD POLICE DEPT.
100 REEF ROAD
FAIRFIELD, CT 06824-5919

ZONING DOCUMENTS	TITLE SHEET AND INDEX
FAIRFIELD POLICE DEPT. 100 REEF ROAD FAIRFIELD, CT 06824-5919	
DESIGN TYPE: MACRO-CELL SITE w/ ROOFTOP EQUIPMENT CABINETS & MONOPOLE MOUNTED ANTENNAS	APT FILING NUMBER: CT-255-620 APT DRAWING NUMBER: NY-6090-T-1.DWG DRAWN BY: AAJ SCALE: AS NOTED CHECKED BY: SMC DATE: 05/12/08
REVISIONS: REV.0: 05/12/08: FOR REVIEW: SMC REV.1: 05/15/08: FOR PERMIT: SMC REV.2: REV.3: REV.4: REV.5:	SHEET NUMBER: T-1

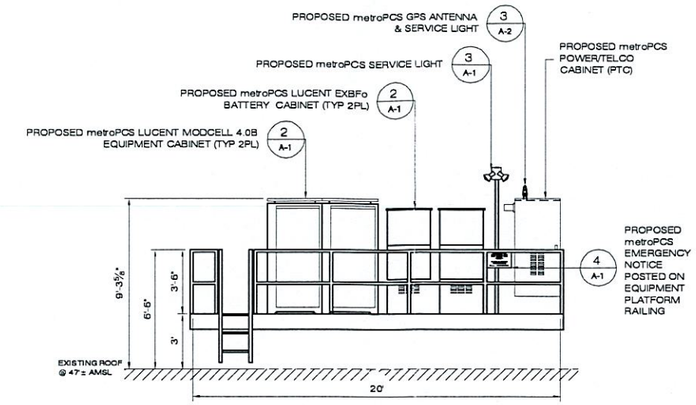
STATE OF CONNECTICUT
SCOTT M. CHASSE
No. 19726
LICENSED PROFESSIONAL ENGINEER

REEF ROAD

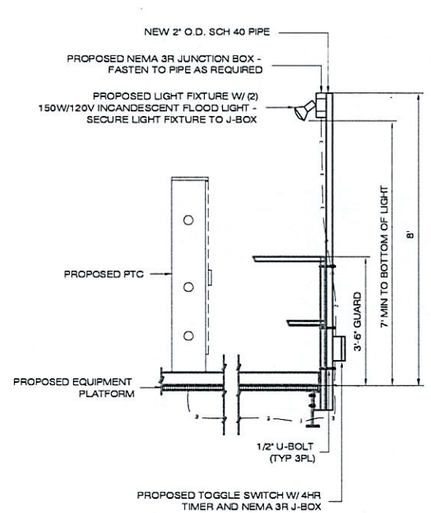
NICHOLS STREET



ROOF PLAN
SCALE : 1/16" = 1'-0"



4 A-1 PLATFORM ELEVATION
SCALE : 1/4" = 1'-0"

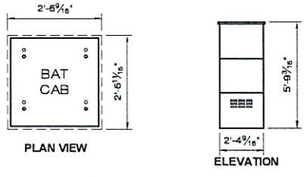


3 A-1 SERVICE LIGHT
SCALE : 1/2" = 1'-0"

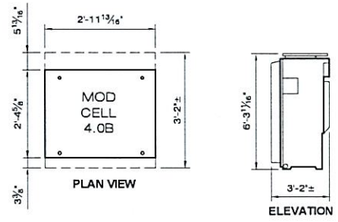
4 A-1 TYPICAL EMERGENCY NOTICE
SCALE : NTS

5 A-1 TYPICAL RF NOTICE
SCALE : NTS

LUCENT EZBFo BATTERY CABINET



TELECOMMUNICATIONS CABINET SQUARE FOOTAGE = 9.5 SF



2 A-1 EQUIPMENT DETAILS
SCALE : NTS

metroPCS SITE NUMBER: NY-6090

APT FILING NUMBER: CT-255-620

MetroPCS of NEW YORK, LLC

5 SKYLINE DRIVE
HAWTHORNE, NY. 10532
(914) 593-8500

ALL-POINTS TECHNOLOGY CORPORATION, PC.
3 SADDLEBROOK DRIVE
KILLINGWORTH, CT 06419
PHONE: (860)-663-1697
FAX: (860)-663-0935
WWW.ALLPOINTSTECH.COM

ZONING DOCUMENTS

FAIRFIELD POLICE DEPT.
100 REEF ROAD
FAIRFIELD, CT 06824-5919

DESIGN TYPE:
MACRO-CELL SITE W/ ROOFTOP EQUIPMENT CABINETS & MONOPOLE MOUNTED ANTENNAS

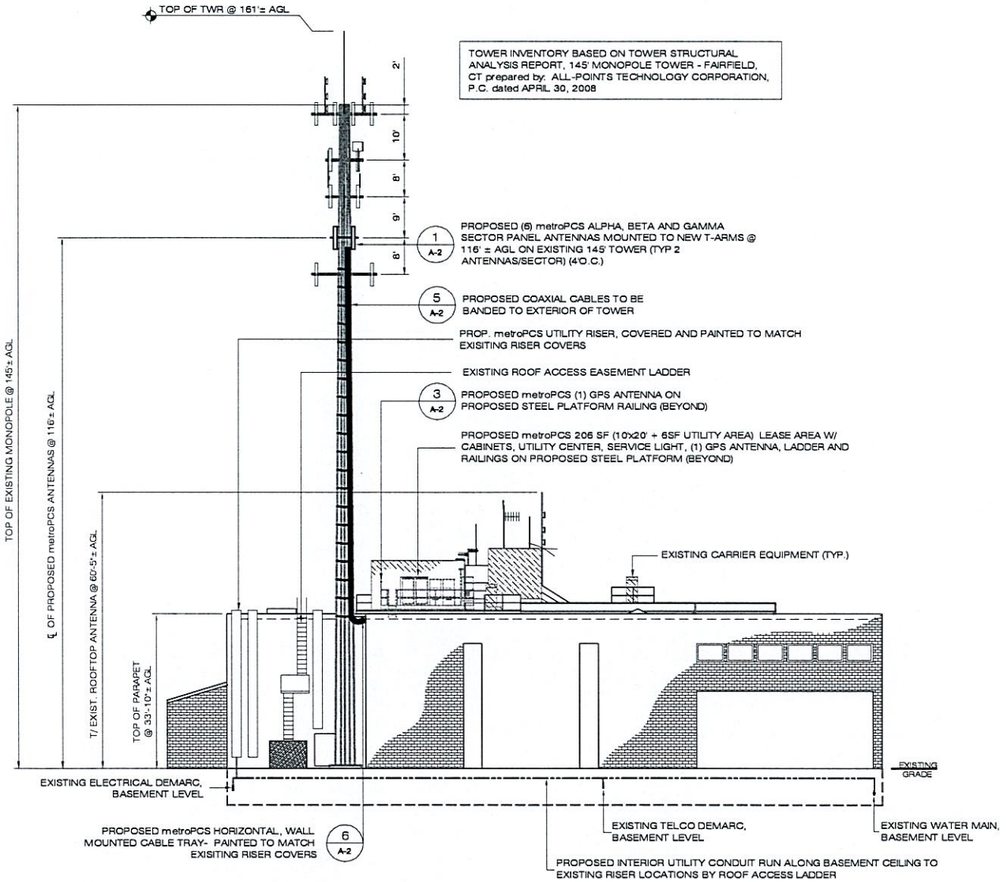
REVISIONS:
REV.0: 05/12/08: FOR REVIEW: SMC
REV.1: 05/15/08: FOR PERMIT: SMC
REV.2:
REV.3:
REV.4:
REV.5:

ROOF PLAN & DETAILS

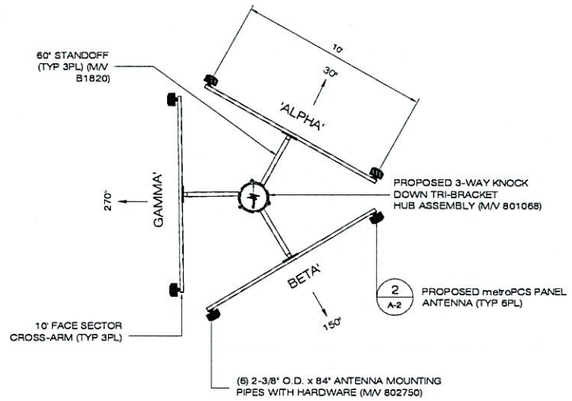
APT FILING NUMBER: CT-255-620
APT DRAWING NUMBER: NY6090 A-1.DWG
DRAWN BY: GWA
SCALE: AS NOTED
CHECKED BY: SMC
DATE: 05/15/08

SHEET NUMBER: A-1

STATE OF CONNECTICUT — SCOTT M. CASE — No.19728 — LICENSED PROFESSIONAL ENGINEER

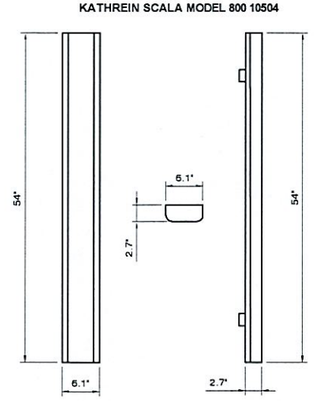


WESTERN TOWER ELEVATION
SCALE : 1/16" = 1'-0"

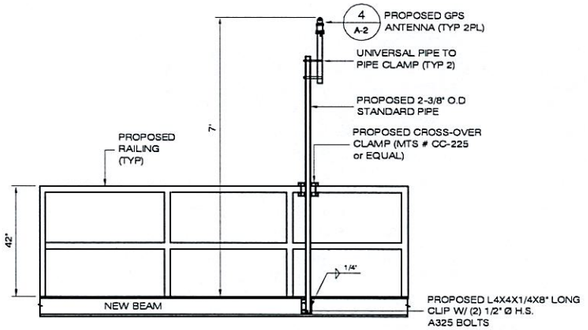


1 A-2 T-ARM SECTOR MOUNTS
SCALE : NTS

KATHREIN SCALA MODEL 800 10504

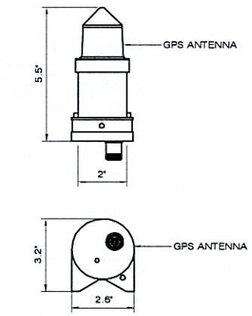


2 A-2 TYPICAL PANEL ANTENNA DETAIL
SCALE : NTS

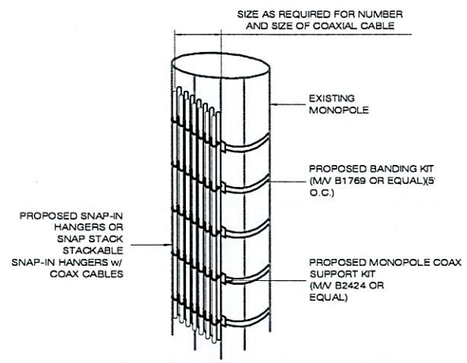


3 A-2 GPS RAILING MOUNT DETAIL
SCALE : NTS

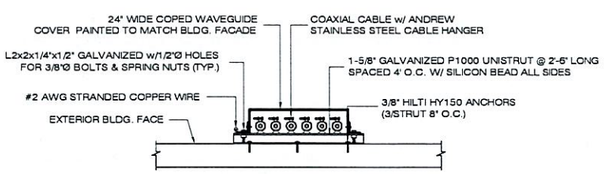
KATHREIN SCALA MODEL GPS-C



4 A-2 GPS DETAILS
SCALE : NTS



5 A-2 COAX BANDING DETAIL
SCALE : NTS



6 A-2 BLDG. FACE-MOUNTED COAX
SCALE : NTS

metroPCS SITE NUMBER: NY-6090

APT FILING NUMBER: CT-255-620

MetroPCS of NEW YORK, LLC

5 SKYLINE DRIVE
HAWTHORNE, NY. 10532
(914) 593-8500

ALL-POINTS TECHNOLOGY CORPORATION, PC.
3 SADDLEBROOK DRIVE
KILLINGWORTH, CT 06419
PHONE: (860)-663-1697
FAX: (860)-663-0935
WWW.ALLPOINTSTECH.COM

ZONING DOCUMENTS

FAIRFIELD POLICE DEPT.
100 REEF ROAD
FAIRFIELD, CT 06824-5919

DESIGN TYPE:
MACRO-CELL SITE W/ ROOFTOP EQUIPMENT CABINETS & MONOPOLE MOUNTED ANTENNAS

REVISIONS:
REV.0: 05/12/08: FOR REVIEW: SMC
REV.1: 05/15/08: FOR PERMIT: SMC
REV.2:
REV.3:
REV.4:
REV.5:

TOWER ELEVATION & DETAILS

APT FILING NUMBER: CT-255-620
APT DRAWING NUMBER: NY-6090_C02813
DRAWN BY: AAJ
SCALE: AS NOTED
CHECKED BY: SMC
DATE: 05/01/08

SHEET NUMBER:
A-2

STATE OF CONNECTICUT
SCOTT M. CHASE
No. 19728
LICENSED PROFESSIONAL ENGINEER

NATCOMM INC.
CONSULTING ENGINEERS

April 30, 2008

Mr. Scott Chasse
ALL-POINTS TECHNOLOGY CORPORATION, P.C.
3 Saddlebrook Drive
Killingworth, Connecticut 06419

Re: APT# CT-255-620 / metroPCS NY-6090
Fairfield Police Dept
100 Reef Road
Fairfield, CT 06824-5919

Dear Mr. Chasse:

This letter is to document the basis of structural design and our evaluation of the new facility at the referenced property.

Natcomm, Inc. prepared sealed design plans for the installation of an equipment platform at this facility. The equipment platform to be used is steel framed and noncombustible designed and constructed specifically for this facility.

The equipment platform is designed in accordance with the 2003 International Building Code (IBC) as modified by the 2005 Connecticut Supplement.

Natcomm designed the steel platform to be installed for support of outdoor radio equipment and for connection to existing structural components of the host building.

The design loads used for sizing new structural steel for the equipment platform and verification of the existing structure are as follows:

- Maximum Equipment..... 7,400 lbs.
- Live Load (30 psf) ..... 4,800 lbs
- Snow Load (30 psf) ..... 4,800 lbs

These loads along with applicable wind, snow and occupant loadings are transferred into the structural bearing of the host building. The structural bearing for this host building consists of steel columns utilized for transfer of both vertical and lateral loads imposed by the proposed facility. The host building's structural components have been located and analyzed for capacity to support the additional loads. Forces on the existing structure were calculated using existing loads in conjunction with the worst-case maximum dunnage reaction of 7.8 kips. The beam reactions are transferred to the existing columns by means of steel stub columns. In our analysis we have determined that the proposed facility will not adversely affect the structural integrity of the existing building.

Sincerely,

Carlo F. Centore, PE
Natcomm, Inc.

STATE OF CONNECTICUT
CARLO F. CENTORE
No. 18884
LICENSED
PROFESSIONAL ENGINEER

p: 203.488.0580
f: 203.488.8587
w: nat-eng.com
63-2 N. Branford Rd.
Branford, CT 06405

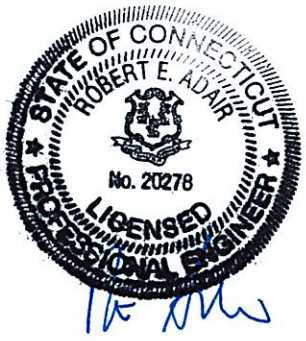
ALL-POINTS TECHNOLOGY CORPORATION, P.C.

STRUCTURAL ANALYSIS REPORT
145' MONOPOLE TOWER
FAIRFIELD, CONNECTICUT

MetroPCS Site #NY-6090

Prepared for
HPC Development, LLC

April 30, 2008



APT Project #CT255621

☐ 3 SADDLEBROOK DRIVE • KILLINGWORTH, CONNECTICUT 06419 • PHONE: 860-663-1697 • FAX: 860-663-0935
☒ 150 OLD WESTSIDE ROAD • NORTH CONWAY, NEW HAMPSHIRE 03860 • PHONE/FAX: 603-356-5214

STRUCTURAL ANALYSIS REPORT
145' MONOPOLE TOWER
FAIRFIELD, CONNECTICUT
prepared for
HPC Development, LLC

EXECUTIVE SUMMARY:

All-Points Technology Corporation, P.C. (APT) performed a mapping and structural analysis of this 145-foot monopole tower located at 100 Reef Road in Fairfield, Connecticut. The analysis was performed for MetroPCS's installation of six Kathrein 800-10504 panel antennas on three 10' T-arms at 116'. Waveguide cables will be twelve 1-5/8" cables, assumed to be banded to the outside of the pole.

Our analysis indicates the tower and foundation meet the requirements of the Connecticut State Building Code and TIA-222 with MetroPCS's proposed antennas and equipment.

INTRODUCTION:

A structural analysis of this communications tower was performed by APT for HPC Development, LLC The tower is located at the Fairfield Police Station at 100 Reef Road in Fairfield, Connecticut. APT visited the tower site on March 12, 2008. Robert O. Parrott climbed the tower in its entirety to compile data necessary to perform the structural analysis. The analysis also relied on Valmont tower drawings, Order #11635-94 dated May 19, 1994.

The structure is a 145-foot, galvanized steel, 12-sided tapered monopole manufactured by Valmont. The analysis was conducted using the following antenna inventory (proposed antenna changes shown in **bold** text):

Antenna	Elev.	Mount	Coax.
(9) DB844H90, (3) KMW 4' panels	143'	(3) 12' T-arms	(9) 7/8", (6) 1-5/8"
(2) 8' 4-bay dipole, 18' omni whip	143'	On above mounts	(2) 1-1/4", 7/8"
(3) RR90-1800DP, (2) 2' square panels[1]	133'	(3) 12' T-arms	(6) 1-1/4", 7/8"
8' omnidirectional whip, 3' omni whip	127'	On T-arms below	(2) 1/2"
(6) Powerwave 7770.00, (6) TMAs	125'	(3) 10' T-arms	(6) 1-1/4", (3) 1-5/8"
(6) Kathrein 800-10504 panels	**116'**	**(3) 10' T-arms**	**(12) 1-5/8"**
(6) DB980H90 panels	108'	16' low-profile platform	(6) 1-5/8"

[1] One square panel is inactive.

CONDITION ASSESSMENT:

- **General Observations:** The tower, a 12-sided tapered steel monopole, appeared to be in very good condition. No signs of movement or overstress of the tower were observed. Galvanizing appeared to be in good condition.

- **Antenna Connections:** Antenna mounting hardware was in good condition, with corrosion resistant hardware and galvanized members prevalent.

- **Base Plate:** Anchor bolts appeared to be in good condition. No loose or missing nuts were observed.

- **Foundation:** Visible concrete appeared to be in good condition..

STRUCTURAL ANALYSIS:

Methodology:

The structural analysis was done in accordance with TIA/EIA-222, Revisions F and G (TIA), Structural Standards for Steel Antenna Towers and Antenna Supporting Structures; the Connecticut State Building Code; and the American Institute of Steel Construction (AISC), Manual of Steel Construction, Allowable Stress Design, Ninth Edition. The more stringent of the two TIA revisions, Revision F, was used to compute the tower capacity values shown below.

The analysis was conducted using an 85 mph fastest mile wind speed (equivalent to 105 mph 3-second gust) and ¾" of radial ice over the structure and associated appurtenances. The TIA Standard requires a basic wind speed of 85 miles per hour for Fairfield County, Connecticut.

Two loading conditions were evaluated in accordance with TIA/EIA-222-F to determine tower capacity. The more demanding of the two cases is used to calculate tower capacity:

- Case 1 = Wind Load (without ice) + Tower Dead Load
- Case 2 = 0.75 Wind Load (with ice) + Ice Load + Tower Dead Load

The TIA/EIA standard permits a one-third increase in allowable stresses for towers less than 700-feet tall. Allowable stresses of tower members were increased by one-third when computing the tower capacity values shown below.

ANALYSIS RESULTS:

The following table summarizes the capacity of the tower based on combined axial and bending stresses:

Elevation	Capacity
91'-145'	57%
44'-91'	79%
0'-44'	91%
Base plate	84%

Evaluation of the existing foundation was performed by comparing reactions imposed by the proposed loads with original design reactions. Reactions were found to be less than design, indicating the foundation is adequate.

Base reactions imposed with the proposed antennas were calculated to be as follows:

Compression:	31.4 kips
Total Shear:	35.1 kips
Overturning Moment:	3030 ft-kips

CONCLUSIONS AND SUGGESTIONS:

As detailed above, our analysis indicates that the existing 145' monopole tower located at 100 Reef Road in Fairfield, Connecticut is capable of supporting MetroPCS's proposed antennas and associated equipment.

LIMITATIONS:

This report is based on the following:

1. Tower is properly installed and maintained.
2. All members are in new condition.
3. All bolts are in place and are properly tightened.
4. Tower is in plumb condition.

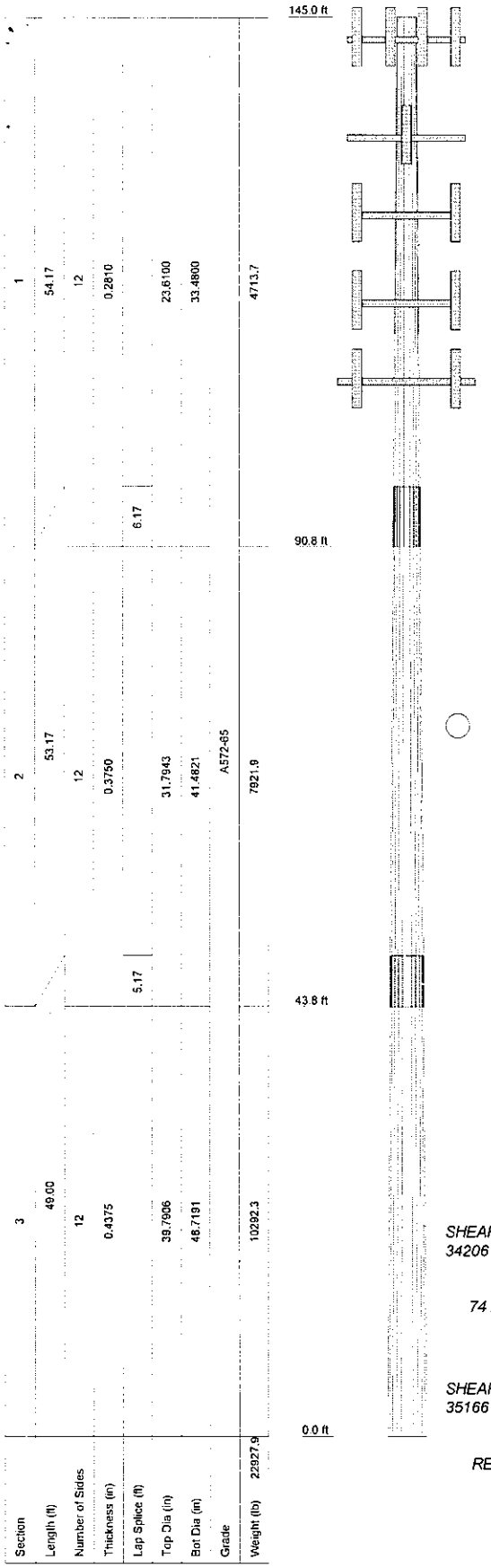
All-Points Technology Corporation, P.C. (APT) is not responsible for any modifications completed prior to or hereafter which APT is not or was not directly involved. Modifications include but are not limited to:

1. Adding or relocating antennas.
2. Installing antenna mounting gates or side arms.
3. Extending tower.

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

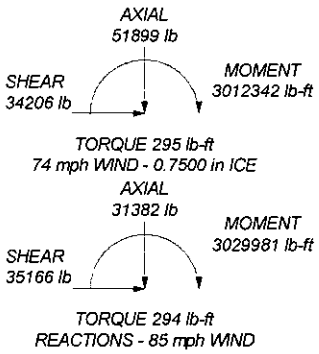
Appendix A

Tower Schematic



Section	1	2	3
Length (ft)	54.17	53.17	49.00
Number of Sides	12	12	12
Thickness (in)	0.2810	0.3750	0.4375
Lap Splice (ft)	6.17	6.17	
Top Dia (in)	23.6100	31.7943	39.7986
Bot Dia (in)	33.4800	41.4821	48.7191
Grade		A572-65	
Weight (lb)	4713.7	7821.9	10292.3

Section Weight (lb): 22927.9



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(3) DB844H90E-XY	143	3' x 2" omni whip	125
(3) DB844H90E-XY	143	(2) 7770.00	125
(3) DB844H90E-XY	143	(2) 7770.00	125
AM-X-WM-17-65	143	(2) 7770.00	125
AM-X-WM-17-65	143	(2) LGP2140X TMA	125
AM-X-WM-17-65	143	(2) LGP2140X TMA	125
8' 4-bay dipole	143	(2) LGP2140X TMA	125
8' 4-bay dipole	143	10' T-arm	125
18' x 2.5" omni whip	143	10' T-arm	125
12' T-arm	143	10' T-arm	125
12' T-arm	143	(2) 800-10504	116
12' T-arm	143	(2) 800-10504	116
RR90-18-00DP	133	(2) 800-10504	116
RR90-18-00DP	133	10' T-arm	116
RR90-18-00DP	133	10' T-arm	116
2' square panel	133	10' T-arm	116
2' square panel	133	(2) DB980H90E-M	108
12' T-arm	133	(2) DB980H90E-M	108
12' T-arm	133	(2) DB980H90E-M	108
12' T-arm	133	16' low-profile platform	108
8' x 1.5" omni whip	125		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

All-Points Technology Corporation
150 Old Westside Road
North Conway, NH 03860
Phone: (603) 496-5853
FAX: (603) 356-5214

Job: *145' Monopole Tower*			
Project: *CT225621 Fairfield PD*			
Client: MetroPCS; NY-6090	Drawn by: Rob Adair	App'd:	
Code: TIA/EIA-222-F	Date: 04/30/08	Scale: NTS	
Path: C:\Documents and Settings\Rob Adair\My Documents\Jobs\CT225621 Fairfield\CT225621 Fairfield.eri		Dwg No. E-1	

Appendix B

Photographs

HPC DEVELOPMENT, LLC
145' MONOPOLE TOWER
FAIRFIELD, CONNECTICUT
METROPCS SITE #NY6090

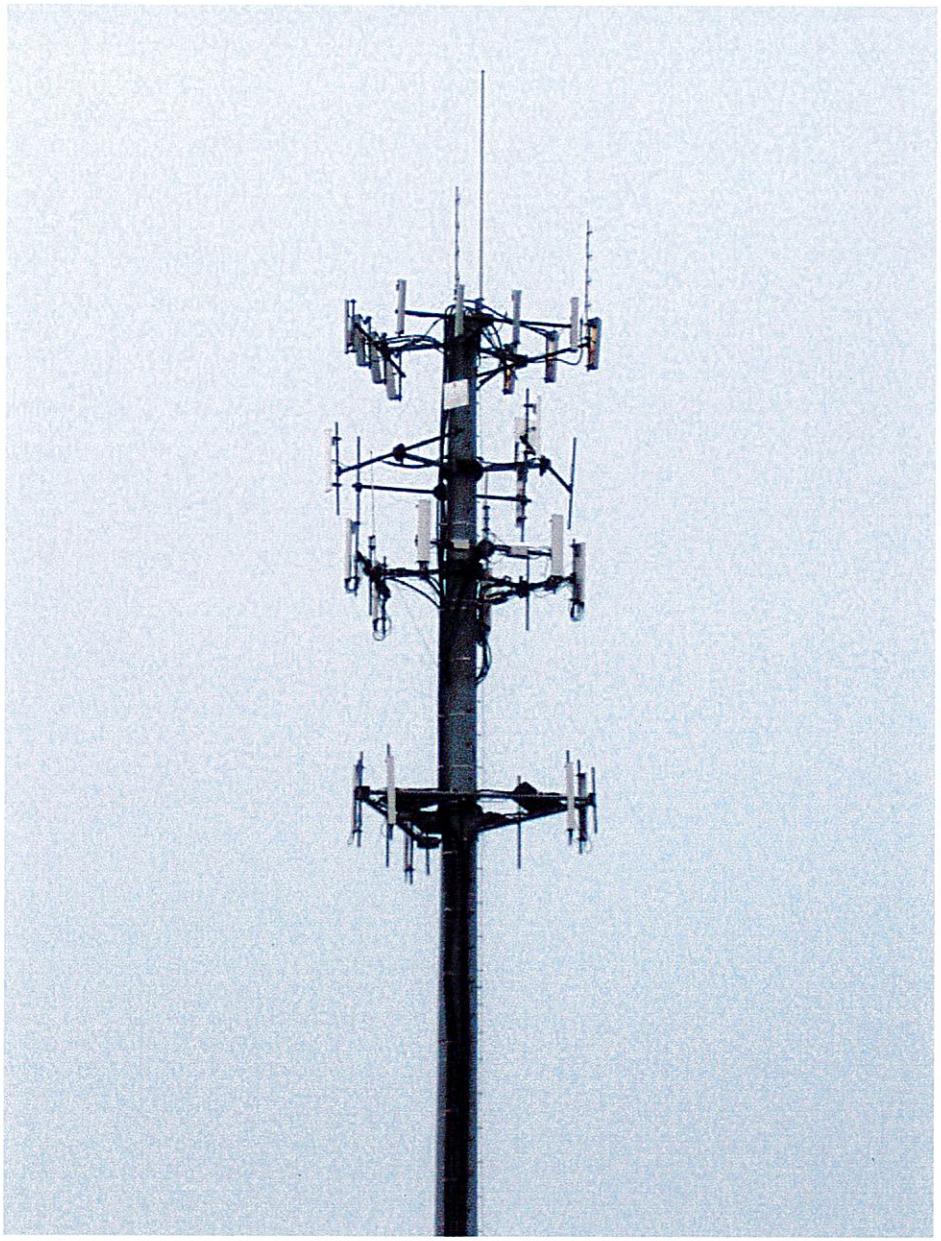


Photo showing existing antennas on 145' monopole tower.

Photos taken by All-Points Technology Corporation, P.C. on March 12, 2008.

Appendix C

Calculations

RISATower	Job	Page
	145' Monopole Tower	1 of 5
All-Points Technology Corporation 150 Old Westside Road North Conway, NH 03860 Phone: (603) 496-5853 FAX: (603) 356-5214	**Project** CT225621 Fairfield PD	**Date** 17:26:46 04/29/08
	Client MetroPCS; NY-6090	**Designed by** Rob Adair

Tower Input Data

This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in Fairfield County, Connecticut.
Basic wind speed of 85 mph.
Nominal ice thickness of 0.7500 in.
Ice density of 56 pcf.
A wind speed of 74 mph is used in combination with ice.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.333.
Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	145.00-90.83	54.17	6.17	12	23.6100	33.4800	0.2810	1.1240	A572-65 (65 ksi)
L2	90.83-43.83	53.17	5.17	12	31.7943	41.4821	0.3750	1.5000	A572-65 (65 ksi)
L3	43.83-0.00	49.00		12	39.7906	48.7191	0.4375	1.7500	A572-65 (65 ksi)

Monopole Base Plate Data

Base Plate Data	
Base plate is square	√
Base plate is grouted	
Anchor bolt grade	A615-75
Anchor bolt size	2.5000 in
Number of bolts	16
Embedment length	84.0000 in
f'_c	4 ksi
Grout space	2.0000 in
Base plate grade	A572-65
Base plate thickness	2.7500 in
Bolt circle diameter	56.9100 in
Outer diameter	62.9100 in
Inner diameter	24.0000 in
Corner clipped	12.0000 in
Base plate type	Plain Plate

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_f ft²/ft	Weight plf
7/8	C	No	Inside Pole	143.00 - 6.00	9	No Ice	0.00	0.54
						1/2" Ice	0.00	0.54
						1" Ice	0.00	0.54
7/8	C	No	Inside Pole	143.00 - 6.00	1	No Ice	0.00	0.54

All-Points Technology Corporation
150 Old Westside Road
North Conway, NH 03860
Phone: (603) 496-5853
FAX: (603) 356-5214

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_f ft²/ft	Weight plf
						1/2" Ice	0.00	0.54
						1" Ice	0.00	0.54
7/8	C	No	Inside Pole	133.00 - 6.00	1	No Ice	0.00	0.54
						1/2" Ice	0.00	0.54
						1" Ice	0.00	0.54
1 1/4	C	No	Inside Pole	125.00 - 6.00	6	No Ice	0.00	0.66
						1/2" Ice	0.00	0.66
						1" Ice	0.00	0.66
1 1/4	C	No	Inside Pole	143.00 - 6.00	2	No Ice	0.00	0.66
						1/2" Ice	0.00	0.66
						1" Ice	0.00	0.66
1 5/8	C	No	Inside Pole	143.00 - 6.00	4	No Ice	0.00	1.04
						1/2" Ice	0.00	1.04
						1" Ice	0.00	1.04
1/2	C	No	Inside Pole	125.00 - 6.00	2	No Ice	0.00	0.25
						1/2" Ice	0.00	0.25
						1" Ice	0.00	0.25
1 1/4	A	No	CaAa (Out Of Face)	133.00 - 6.00	6	No Ice	0.16	0.66
						1/2" Ice	0.25	1.91
						1" Ice	0.35	3.78
1 5/8	C	No	CaAa (Out Of Face)	108.00 - 6.00	6	No Ice	0.20	1.04
						1/2" Ice	0.30	2.55
						1" Ice	0.40	4.68
1 5/8	C	No	CaAa (Out Of Face)	125.00 - 6.00	3	No Ice	0.20	1.04
						1/2" Ice	0.30	2.55
						1" Ice	0.40	4.68
1 5/8	B	No	CaAa (Out Of Face)	116.00 - 6.00	12	No Ice	0.20	1.04
						1/2" Ice	0.30	2.55
						1" Ice	0.40	4.68

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	Placement ft		C_AA_f Front ft²	C_AA_f Side ft²	Weight lb
(3) DB844H90E-XY	A	From Face	4.00	0.0000	143.00	No Ice	2.87	3.73	10.00
			0.00			1/2" Ice	3.18	4.10	35.38
			0.00			1" Ice	3.52	4.48	64.96
(3) DB844H90E-XY	B	From Face	4.00	0.0000	143.00	No Ice	2.87	3.73	10.00
			0.00			1/2" Ice	3.18	4.10	35.38
			0.00			1" Ice	3.52	4.48	64.96
(3) DB844H90E-XY	C	From Face	4.00	0.0000	143.00	No Ice	2.87	3.73	10.00
			0.00			1/2" Ice	3.18	4.10	35.38
			0.00			1" Ice	3.52	4.48	64.96
AM-X-WM-17-65	A	From Face	4.00	0.0000	143.00	No Ice	3.42	1.54	30.00
			0.00			1/2" Ice	3.78	1.84	47.96
			0.00			1" Ice	4.15	2.14	69.86
AM-X-WM-17-65	B	From Face	4.00	0.0000	143.00	No Ice	3.42	1.54	30.00
			0.00			1/2" Ice	3.78	1.84	47.96
			0.00			1" Ice	4.15	2.14	69.86
AM-X-WM-17-65	C	From Face	4.00	0.0000	143.00	No Ice	3.42	1.54	30.00
			0.00			1/2" Ice	3.78	1.84	47.96
			0.00			1" Ice	4.15	2.14	69.86
8' 4-bay dipole	A	From Face	4.00	0.0000	143.00	No Ice	1.60	1.60	50.00
			0.00			1/2" Ice	2.42	2.42	62.45
			0.00			1" Ice	3.24	3.24	80.14
8' 4-bay dipole	C	From Face	4.00	0.0000	143.00	No Ice	1.60	1.60	50.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement		C_AA_A Front	C_AA_A Side	Weight
			ft	°	ft		ft²	ft²	lb
			0.00			1/2" Ice	2.42	2.42	62.45
			0.00			1" Ice	3.24	3.24	80.14
18' x 2.5" omni whip	B	None		0.0000	143.00	No Ice	4.50	4.50	60.00
						1/2" Ice	6.33	6.33	93.30
						1" Ice	8.18	8.18	138.00
12' T-arm	A	None		0.0000	143.00	No Ice	3.20	3.20	250.00
						1/2" Ice	4.03	4.03	814.57
						1" Ice	4.87	4.87	1394.15
12' T-arm	B	None		0.0000	143.00	No Ice	3.20	3.20	250.00
						1/2" Ice	4.03	4.03	814.57
						1" Ice	4.87	4.87	1394.15
12' T-arm	C	None		0.0000	143.00	No Ice	3.20	3.20	250.00
						1/2" Ice	4.03	4.03	814.57
						1" Ice	4.87	4.87	1394.15
RR90-18-00DP	A	From Face	4.00	0.0000	133.00	No Ice	5.87	2.75	23.00
			0.00			1/2" Ice	6.32	3.23	51.51
			0.00			1" Ice	6.79	3.67	85.58
RR90-18-00DP	B	From Face	4.00	0.0000	133.00	No Ice	5.87	2.75	23.00
			0.00			1/2" Ice	6.32	3.23	51.51
			0.00			1" Ice	6.79	3.67	85.58
RR90-18-00DP	C	From Face	4.00	0.0000	133.00	No Ice	5.87	2.75	23.00
			0.00			1/2" Ice	6.32	3.23	51.51
			0.00			1" Ice	6.79	3.67	85.58
2' square panel	A	From Face	4.00	0.0000	133.00	No Ice	5.60	0.52	25.00
			0.00			1/2" Ice	5.92	0.67	48.43
			0.00			1" Ice	6.24	0.83	75.30
2' square panel	C	From Face	4.00	0.0000	133.00	No Ice	5.60	0.52	25.00
			0.00			1/2" Ice	5.92	0.67	48.43
			0.00			1" Ice	6.24	0.83	75.30
12' T-arm	A	None		0.0000	133.00	No Ice	3.20	3.20	250.00
						1/2" Ice	4.03	4.03	814.57
						1" Ice	4.87	4.87	1394.15
12' T-arm	B	None		0.0000	133.00	No Ice	3.20	3.20	250.00
						1/2" Ice	4.03	4.03	814.57
						1" Ice	4.87	4.87	1394.15
12' T-arm	C	None		0.0000	133.00	No Ice	3.20	3.20	250.00
						1/2" Ice	4.03	4.03	814.57
						1" Ice	4.87	4.87	1394.15
8' x 1.5" omni whip	B	From Face	4.00	0.0000	125.00	No Ice	1.20	1.20	25.00
			0.00			1/2" Ice	2.02	2.02	34.93
			2.00			1" Ice	2.86	2.86	50.06
3' x 2" omni whip	A	From Face	4.00	0.0000	125.00	No Ice	0.52	0.52	15.00
			0.00			1/2" Ice	0.71	0.71	19.81
			2.00			1" Ice	0.90	0.90	26.81
(2) 7770.00	A	From Face	4.00	0.0000	125.00	No Ice	5.88	2.93	35.00
			0.00			1/2" Ice	6.31	3.27	67.63
			0.00			1" Ice	6.75	3.63	105.06
(2) 7770.00	B	From Face	4.00	0.0000	125.00	No Ice	5.88	2.93	35.00
			0.00			1/2" Ice	6.31	3.27	67.63
			0.00			1" Ice	6.75	3.63	105.06
(2) 7770.00	C	From Face	4.00	0.0000	125.00	No Ice	5.88	2.93	35.00
			0.00			1/2" Ice	6.31	3.27	67.63
			0.00			1" Ice	6.75	3.63	105.06
(2) LGP2140X TMA	A	From Face	4.00	0.0000	125.00	No Ice	1.26	0.38	20.00
			0.00			1/2" Ice	1.42	0.49	27.13
			0.00			1" Ice	1.58	0.62	36.14
(2) LGP2140X TMA	B	From Face	4.00	0.0000	125.00	No Ice	1.26	0.38	20.00
			0.00			1/2" Ice	1.42	0.49	27.13
			0.00			1" Ice	1.58	0.62	36.14

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement		C_AA_A Front	C_AA_A Side	Weight
			ft	°	ft		ft²	ft²	lb
(2) LGP2140X TMA	C	From Face	4.00	0.0000	125.00	No Ice	1.26	0.38	20.00
			0.00			1/2" Ice	1.42	0.49	27.13
			0.00			1" Ice	1.58	0.62	36.14
10' T-arm	A	None		0.0000	125.00	No Ice	2.67	2.67	150.00
						1/2" Ice	3.36	3.36	547.19
						1" Ice	4.07	4.07	956.95
10' T-arm	B	None		0.0000	125.00	No Ice	2.67	2.67	150.00
						1/2" Ice	3.36	3.36	547.19
						1" Ice	4.07	4.07	956.95
10' T-arm	C	None		0.0000	125.00	No Ice	2.67	2.67	150.00
						1/2" Ice	3.36	3.36	547.19
						1" Ice	4.07	4.07	956.95
(2) 800-10504	A	From Face	4.00	0.0000	116.00	No Ice	5.46	3.29	50.00
			0.00			1/2" Ice	5.88	3.64	82.91
			0.00			1" Ice	6.31	3.99	120.59
(2) 800-10504	B	From Face	4.00	0.0000	116.00	No Ice	5.46	3.29	50.00
			0.00			1/2" Ice	5.88	3.64	82.91
			0.00			1" Ice	6.31	3.99	120.59
(2) 800-10504	C	From Face	4.00	0.0000	116.00	No Ice	5.46	3.29	50.00
			0.00			1/2" Ice	5.88	3.64	82.91
			0.00			1" Ice	6.31	3.99	120.59
10' T-arm	A	None		0.0000	116.00	No Ice	2.67	2.67	150.00
						1/2" Ice	3.36	3.36	547.19
						1" Ice	4.07	4.07	956.95
10' T-arm	B	None		0.0000	116.00	No Ice	2.67	2.67	150.00
						1/2" Ice	3.36	3.36	547.19
						1" Ice	4.07	4.07	956.95
10' T-arm	C	None		0.0000	116.00	No Ice	2.67	2.67	150.00
						1/2" Ice	3.36	3.36	547.19
						1" Ice	4.07	4.07	956.95
(2) DB980H90E-M	A	From Face	5.00	0.0000	108.00	No Ice	3.80	2.19	8.50
			0.00			1/2" Ice	4.18	2.56	28.62
			0.00			1" Ice	4.56	2.92	53.41
(2) DB980H90E-M	B	From Face	5.00	0.0000	108.00	No Ice	3.80	2.19	8.50
			0.00			1/2" Ice	4.18	2.56	28.62
			0.00			1" Ice	4.56	2.92	53.41
(2) DB980H90E-M	C	From Face	5.00	0.0000	108.00	No Ice	3.80	2.19	8.50
			0.00			1/2" Ice	4.18	2.56	28.62
			0.00			1" Ice	4.56	2.92	53.41
16' low-profile platform	C	None		0.0000	108.00	No Ice	11.20	9.70	1500.00
						1/2" Ice	12.49	10.82	2616.26
						1" Ice	13.78	11.95	3756.33

All-Points Technology Corporation
150 Old Westside Road
North Conway, NH 03860
Phone: (603) 496-5853
FAX: (603) 356-5214

Solution Summary

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	145 - 90.833	81.103	8	4.3910	0.0037
L2	97 - 43.833	39.356	8	3.6246	0.0011
L3	49 - 0	10.511	4	1.9342	0.0003

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
L1	145 - 90.833	Pole	TP33.48x23.61x0.281	1	-23227.20	251606.41	56.8	Pass
L2	90.833 - 43.833	Pole	TP41.4821x31.7943x0.375	2	-35319.90	659321.77	78.9	Pass
L3	43.833 - 0	Pole	TP48.7191x39.7906x0.4375	3	-51870.10	1336065.84	90.6	Pass
							Summary	
						Pole (L3)	90.6	Pass
						Base Plate	84.0	Pass
						RATING =	**90.6**	**Pass**

Site: NY-6090
Market: Westchester/Connecticut

LETTER OF AUTHORIZATION/ TOWN OF FAIRFIELD, CT

The Town of Fairfield Connecticut, the owner of the property at 100 Reef Road (APN: Map:182 Lot: 670), Fairfield, Connecticut (the "Property"), does hereby appoint MetroPCS of New York, Inc. and Brown, Rudnick, Berlack & Israels, LLP, and their representatives, as its agents for the purpose of consummating any application necessary, including any special permit and/or variance and/or building permit application, to insure its ability to use the Property for the purpose of installing a public utility communications facility and related equipment on the Property.

OWNER:
Town of Fairfield
725 Old Post Road
Fairfield, CT 06824

By: Kenneth A Flatto

Name: Kenneth A. Flatto

Title: First Selectman

Date: April 16, 2008

STATE OF Connecticut

COUNTY OF Fairfield

On April 16, 2008, before me, Suzanne Godleski, Notary Public, personally appeared Kenneth A. Flatto, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that they executed the same in their authorized capacity, and that by their signature on the instrument, the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

Suzanne Godleski (SEAL)
Notary Public

My commission expires: Nov 30, 2009

SUZANNE GODLESKI
NOTARY PUBLIC
My Commission Expires Nov. 30, 2009

Pinnacle Telecom Group

Consulting and Engineering Services

Antenna Site FCC RF Compliance Assessment and Report

MetroPCS

Site NY-6090
100 Reef Road
Fairfield, CT

May 14, 2008

14 Ridgedale Avenue - Suite 209 • Cedar Knolls, NJ 07927 • 973-451-1630

Contents

Introduction and Summary

At the request of MetroPCS, Pinnacle Telecom Group has performed an independent assessment of radiofrequency (RF) levels and related FCC compliance for a proposed wireless base station antenna operation to be added to an existing monopole at 100 Reef Road in Fairfield, CT. MetroPCS refers to the site by the code "NY-6090", and its proposed operation involves directional panel antennas arranged for sectorized service coverage and transmitting in the 2130-2140 MHz frequency band.

The FCC requires all wireless operators to perform an assessment of the RF fields emanating from all the transmitting antennas at a site whenever antenna operations are added or modified, and to ensure compliance with the Maximum Permissible Exposure (MPE) limit in the FCC regulations. In this case, the monopole supports a number of existing antennas, the RF effects of which will be incorporated into this assessment of overall site compliance.

The compliance analysis employs a standard FCC formula for calculating the effects of the antennas in a very conservative manner, in order to ensure "safe-side" results and great confidence in conclusions regarding compliance with the established limit for safe continuous exposure of the general public.

The results of a compliance assessment such as this can be described in layman's terms by expressing the calculated RF levels as simple percentages of the FCC MPE limit. If the reference for that limit is 100 percent, then calculated RF levels higher than 100 percent indicate the MPE limit is exceeded and there is a need to mitigate the potential exposure, while calculated RF levels lower than 100 percent indicate compliance with the limit. We can (and will) also describe the worst-case calculated result via the "plain-English" equivalent "times-below-the-limit" factor.

The result of the RF compliance assessment in this case is as follows:

- The conservatively calculated maximum RF level from the combination of proposed and existing antenna operations is 0.4654 percent (i.e., less

than one-half of one percent) of the FCC MPE limit. In other words, the worst-case calculated RF level is more than 200 times below the FCC limit for safe, continuous exposure to the RF emissions from antennas.

- The results of the calculations provide a clear demonstration that the RF levels from the proposed and existing antenna operations will satisfy the applicable criteria for controlling potential human exposure to RF fields, and the RF levels will be in clear compliance with the FCC regulations and limit concerning RF safety. Moreover, because of the conservative methodology and incorporated assumptions, RF levels actually caused by the antennas will be even less significant than the calculation results here indicate.

The remainder of this report provides the following:

- relevant technical data on the proposed MetroPCS antenna operation at the site, as well as on the existing antenna operations;
- a description of the applicable FCC mathematical model for assessing MPE compliance, and application of the technical data to that model; and
- the results of the analysis, and the compliance conclusion for the site.

In addition, two Appendices are included. Appendix A provides background on the FCC MPE limit, along with a list of key FCC references on compliance. Appendix B provides a summary of the qualifications of the expert certifying RF compliance for this site.

Antenna and Transmission Data

The table below summarizes the relevant technical data for the proposed MetroPCS antenna operation.

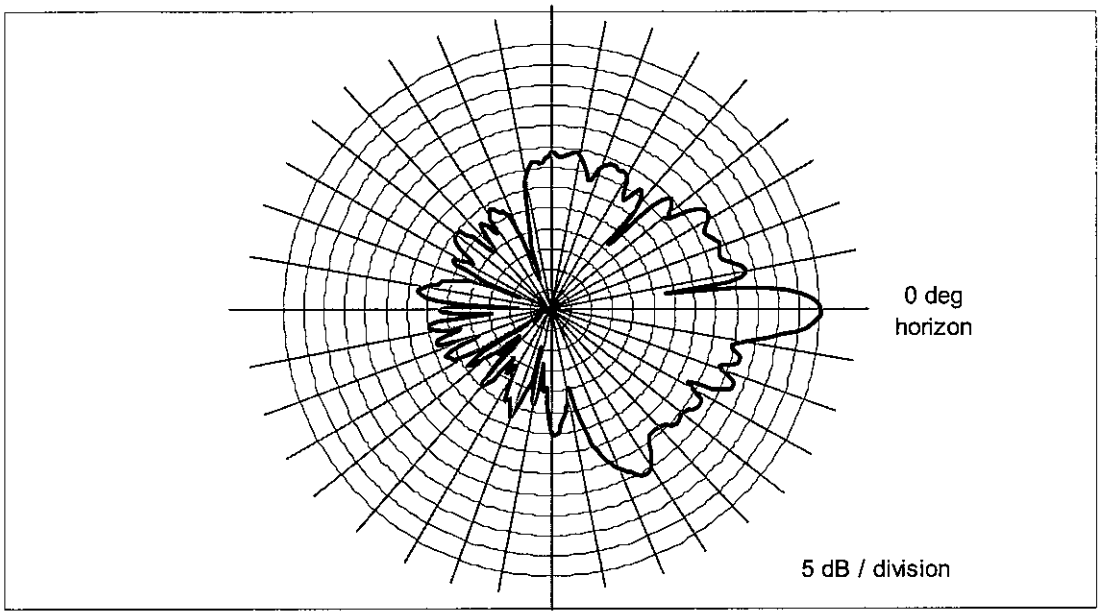
Technical Data - MetroPCS	
Frequency Band	2130 - 2140 MHz
Service Coverage Type	Sectorized – 3 sectors, with identical compliance-related parameters but different antenna mounting heights as noted below
Antenna Type	Directional Panel
Antenna Manufacturer & Model	Kathrein 800-10504 (or equiv.)
Maximum Antenna Gain	17.8 dBi
Antenna Centerline Height AGL	116 ft.
RF Channels per Sector	7
Transmitter Power / RF Channel	24 watts
Antenna Line Loss	Conservatively ignored (assumed 0 dB)

The antenna vertical-plane radiation pattern is used in the calculations of RF levels at ground level around a site. Figure 1 on the next page shows the vertical-plane radiation pattern of the antenna model proposed here by MetroPCS.

Note that in these types of antenna radiation pattern diagrams, the antenna is effectively pointed at the three o'clock position (the horizon) and the relative strength of the pattern at different angles is described using decibel units.

Note, too, that the use of a decibel scale to describe the relative pattern at different angles actually serves to significantly understate the actual focusing effects of the antenna. Where the antenna pattern reads 20 dB, for example, the relative RF energy emitted at the corresponding downward angle is 1/100th of the maximum that occurs in the main beam (at 0 degrees).

Figure 1. Kathrein 800-10504 Antenna – Vertical-plane Radiation Pattern



As mentioned at the outset, the compliance analysis needs to include the RF effects of the existing panel and whip antennas on the monopole. For the cellular panel operations, we will conservatively assume maximum-capacity operation. For the other antenna operations, we will rely on the transmission data in FCC licensing records.

T-Mobile (also known as Omnipoint) is licensed to operate in the 1900 MHz band, and uses a maximum of eight RF channels in each antenna sector, with a maximum transmitter power of 20 watts per channel.

Sprint is licensed to operate in the 1900 MHz band, and uses a maximum of six RF channels in each antenna sector, with a maximum transmitter power of 16 watts per channel.

Nextel is licensed to operate in the 851 MHz frequency band. There is a maximum of 12 RF channels in each sector, and each channel is set for maximum of 100 watts of effective radiated power (for which the equivalent antenna input power is less than six watts).

AT&T (also known as Cingular) is licensed to operate in both the 850 and 1900 MHz frequency bands. In the 850 MHz band, AT&T uses as many as nine RF channels per antenna sector and a maximum transmitter power of 20 watts. In the 1900 MHz band, AT&T uses as many as three RF channels per antenna sector, with a maximum of 16 watts of transmitter power per channel.

FCC licensing records show FCI 900, Inc. is licensed in the 935 MHz frequency band, and is authorized for a maximum effective radiated power (ERP) level of 1,000 watts.

FCC licensing records also show the Town of Fairfield holds licenses in several frequency bands, the details of which are provided in the table below.

Freq. Band	*Max. Transmitter Power*	*Max. Eff. Radiated Power*
159 MHz	70 watts	280 watts
460 MHz	50 watts	125 watts
470 MHz	25 watts	100 watts
853 MHz	25 watts	63 watts

Mathematical Compliance Analysis

FCC Office of Engineering and Technology Bulletin 65 ("OET Bulletin 65") provides guidelines for mathematical models to calculate the RF levels at various points around transmitting antennas.

At street-level around an antenna site (in what is called the "far field" of the antennas), the RF levels are directly proportional to the total antenna input power and the relative antenna gain in the downward direction of interest – and the levels are otherwise 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 worst-case approach.

The FCC's formula for street-level RF compliance calculations for any given wireless antenna operation is as follows:

$$MPE\% = (100 * TxPower * 10^{(Gmax-Vdisc/10)} * 4) / (MPE * 4\pi * R^2)$$

where

MPE%	=	RF level, expressed as a percentage of the MPE limit applicable to continuous exposure of the general public
100	=	factor to convert the raw result to a percentage
TxPower	=	maximum net power into antenna sector, in milliwatts, a function of the number of channels per sector, the transmitter power per channel, and line loss
$10^{(Gmax-Vdisc/10)}$	=	numeric equivalent of the relative antenna gain in the downward direction of interest
4	=	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
R	=	straight-line distance from the RF source to the point of interest, centimeters

The MPE% calculations are performed out to a distance of 500 feet from the facility to points 6.5 feet (approximately two meters, the FCC-recommended standing height) off the ground, as illustrated in Figure 2 on the next page.

It is popularly understood that the farther away one is from an antenna, the lower the RF level – which is generally but not universally correct. The results of MPE% calculations fairly close to the site will reflect the variations in the vertical-plane antenna pattern as well as the variation in straight-line distance to the antennas. Therefore, RF levels may actually increase slightly with increasing distance within the range of zero to 500 feet from the site. As the distance approaches 500 feet and beyond, though, the antenna pattern factor becomes less significant, the RF levels become primarily distance-controlled, and as a result the RF levels generally decrease with increasing distance, and are well understood to be in compliance.

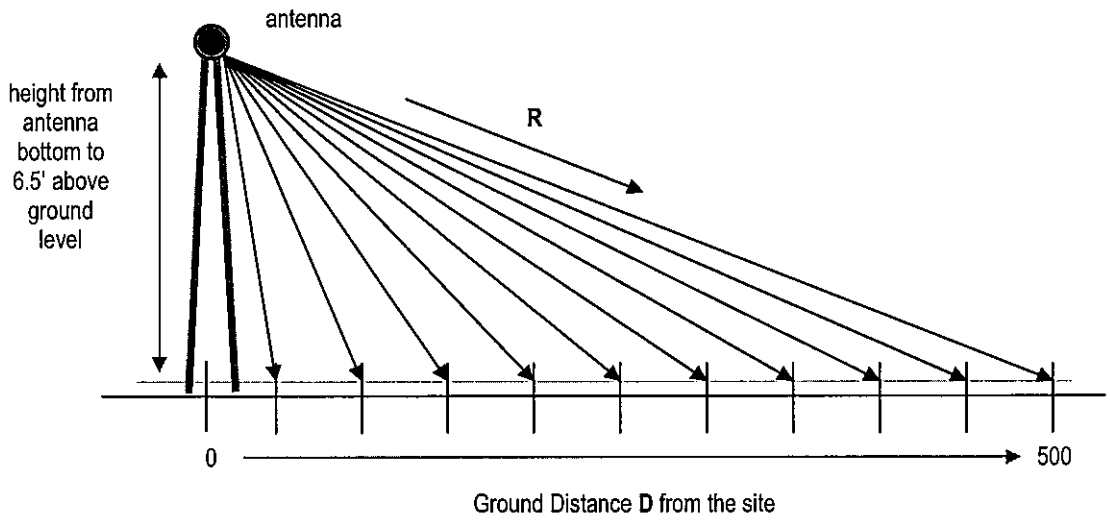


Figure 2. MPE% Calculation Geometry

FCC compliance for a collocated antenna site is assessed in the following manner. At each distance point along the ground, an MPE% calculation is made for each operation, and the sum of the individual MPE% contributions is compared to 100 percent, the normalized reference for compliance with the MPE limit.

We refer to the sum of the individual MPE% contributions as "total MPE%", and any calculated total MPE% result exceeding 100 percent is, by definition, higher than the FCC limit and represent non-compliance and a need to mitigate the potential exposure. If all results are consistently below 100 percent, on the other hand, that set of results serves as a clear and sufficient demonstration of compliance with the MPE limit.

Note that according to the FCC, when directional antennas and sectorized coverage arrangements are used, the compliance assessments are based on the RF effect of a single (facing) antenna sector, as the RF effects of directional antennas facing away from the point of interest are considered insignificant.

Based on FCC guidelines, the following conservative methodology and assumptions are incorporated into the MPE% calculations on a general basis:

1. The RF channels are assumed to be operating continuously at maximum channel capacity and at maximum transmitter 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 power-attenuation effects of shadowing or other obstructions to the line-of-sight path from the antenna to the point of interest are ignored.
4. 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 lowest-mounted antenna for each operator involved.
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.

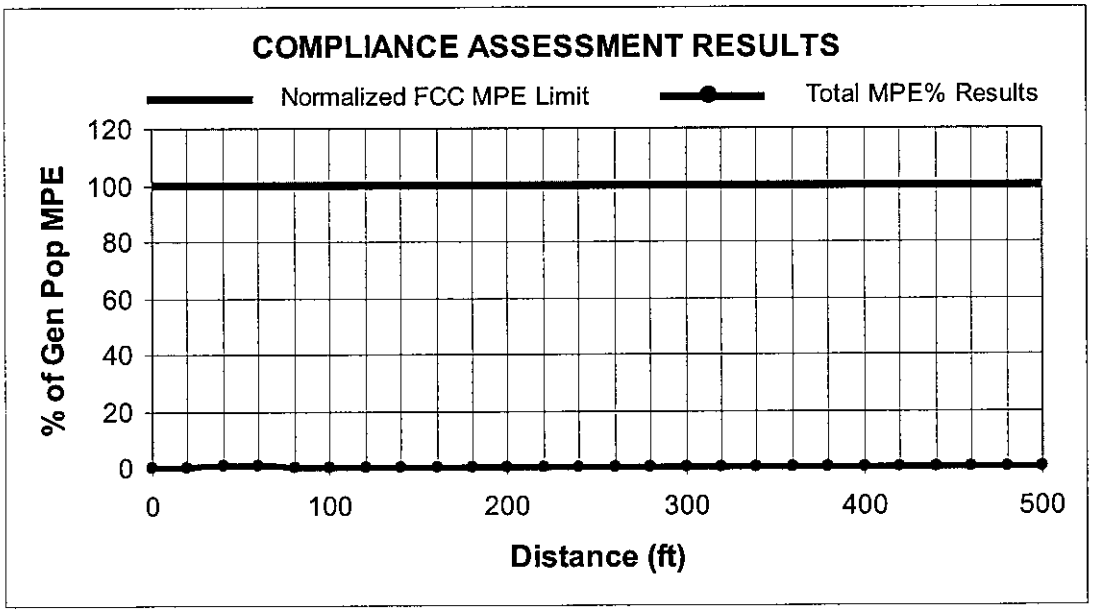
The net result of these assumptions is to significantly overstate the calculated RF exposure levels relative to the levels that will actually occur – and the purpose of this conservatism is to allow very "safe-side" conclusions about compliance.

The table on the following page provides the results of the MPE% calculations for each antenna operator, with the worst-case (maximum) result highlighted in bold in the last column.

Ground Dist (ft)	MetroPCS MPE%	T-Mobile MPE%	Sprint MPE	Nextel MPE%	AT&T MPE%	FCI 900 MPE%	Fairfield MPE%	Total MPE%
0	0.0119	0.0004	0.0095	0.0007	0.0058	0.0139	0.0074	0.0496
20	0.0045	0.0003	0.0154	0.0007	0.0088	0.1456	0.0879	0.2632
40	0.0460	0.0152	0.0391	0.0007	0.0169	0.1223	0.0991	0.3393
60	0.2710	0.0157	0.0054	0.0006	0.0080	0.0754	0.0893	**0.4654**
80	0.0537	0.0086	0.0137	0.0029	0.0149	0.0509	0.0636	0.2083
100	0.0649	0.0178	0.0008	0.0068	0.0184	0.0562	0.0425	0.2074
120	0.0736	0.0212	0.0357	0.0056	0.0217	0.0445	0.0241	0.2264
140	0.0536	0.0541	0.0166	0.0021	0.0186	0.0053	0.0193	0.1696
160	0.0400	0.0494	0.0074	0.0214	0.0505	0.0156	0.0523	0.2366
180	0.0416	0.0022	0.0166	0.0442	0.1087	0.0391	0.0811	0.3335
200	0.0286	0.0194	0.0028	0.0553	0.1335	0.0149	0.0744	0.3289
220	0.0332	0.0209	0.0094	0.0410	0.0825	0.0060	0.0628	0.2558
240	0.0439	0.0026	0.0183	0.0232	0.0408	0.0245	0.0565	0.2098
260	0.0565	0.0008	0.0099	0.0059	0.0108	0.0207	0.0445	0.1491
280	0.0305	0.0246	0.0018	0.0010	0.0066	0.0072	0.0231	0.0948
300	0.0172	0.0353	0.0074	0.0044	0.0272	0.0001	0.0085	0.1001
320	0.0160	0.0360	0.0178	0.0199	0.0493	0.0007	0.0051	0.1448
340	0.0254	0.0288	0.0285	0.0272	0.0705	0.0020	0.0042	0.1866
360	0.0380	0.0187	0.0323	0.0324	0.0872	0.0028	0.0050	0.2164
380	0.0454	0.0151	0.0274	0.0330	0.0904	0.0028	0.0073	0.2214
400	0.0413	0.0137	0.0165	0.0322	0.0865	0.0026	0.0114	0.2042
420	0.0399	0.0198	0.0059	0.0295	0.0708	0.0017	0.0169	0.1845
440	0.0320	0.0316	0.0054	0.0253	0.0650	0.0005	0.0236	0.1834
460	0.0294	0.0290	0.0004	0.0181	0.0440	0.0001	0.0326	0.1536
480	0.0206	0.0378	0.0044	0.0108	0.0250	0.0001	0.0301	0.1288
500	0.0191	0.0349	0.0040	0.0100	0.0232	0.0017	0.0403	0.1332

As indicated, even with the significant conservatism built into the calculations, the worst-case calculated RF level is still only 0.4654 percent (i.e., less than one-half of one percent) of the FCC MPE limit.

A graph of the calculation results, provided below, probably provides a clearer *visual* illustration of the relative insignificance of the calculated RF levels. As might be expected with such low calculated RF levels, the line representing the overall results barely rises above the graph's zero baseline, and shows an obviously clear and consistent margin to the FCC MPE limit.



Compliance Conclusion

The conservative calculations in this case show that the maximum RF level from the proposed and existing antenna operations at the site is 0.4654 percent (i.e., less than one-half of one percent) of the FCC MPE limit. In other words, the worst-case calculated RF level is more than 200 times below the limit established as safe for continuous human exposure to the RF emissions from antennas.

The results of the calculations provide a clear demonstration of compliance. Moreover, because of the extremely conservative assumptions and calculation

methodology, RF levels actually caused by the antennas will be even less significant than the calculation results here indicate.

Certification

It is the policy of Pinnacle Telecom Group that all FCC RF compliance assessments are reviewed, approved, and signed by the firm's Chief Technical Officer, who certifies as follows:

1. I 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. To the best of my knowledge, the statements and information disclosed in this report are true, complete and accurate.
3. The analysis of site RF compliance provided herein is consistent with the applicable FCC regulations, additional guidelines issued by the FCC, and industry practice.
4. The results of the analysis indicate that the subject antenna emissions will be in compliance with the FCC regulations and limit concerning RF exposure.

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

5/14/08
Date

Appendix A: Background on the FCC MPE Limit

FCC Rules and Regulations

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 Safety and Health 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.

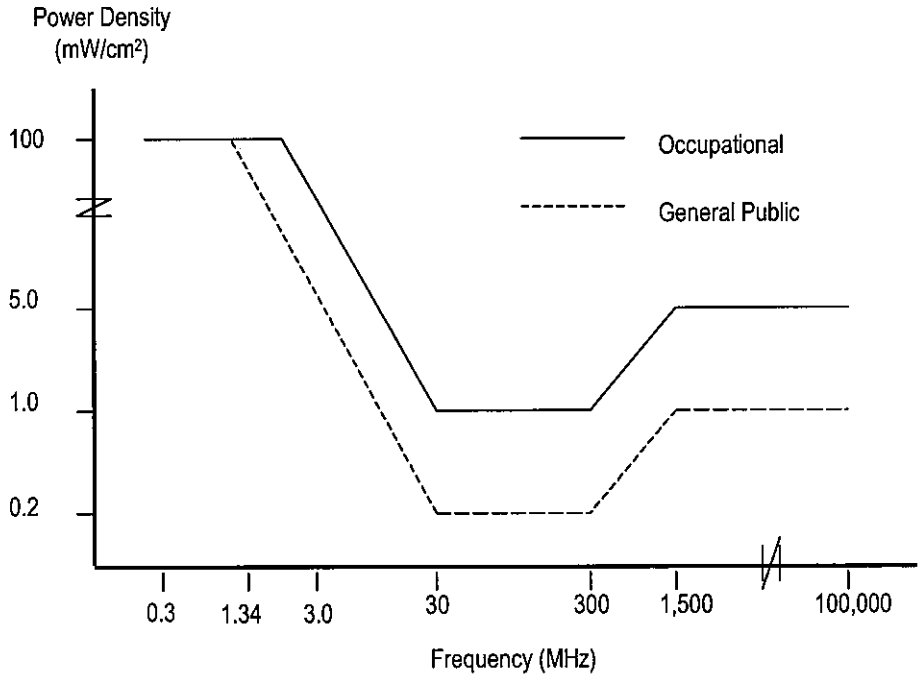
The specified continuous exposure MPE limits are based on known variation of human body susceptibility in different frequency ranges, and a Specific Absorption Rate (SAR) of 4 watts per kilogram, which is universally considered to accurately represent human capacity to dissipate incident RF energy (in 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. The limits were constructed to appropriately protect humans of both sexes and all ages and sizes and under all conditions – and continuous exposure at levels equal to or below the applicable MPE limits is considered to result in no adverse health effects or even health risk.

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.

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.

Appendix B: Summary of Expert Qualifications

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

Synopsis:	• 35 years of experience in all aspects of wireless system engineering, related regulation, and RF exposure • Has performed or led RF exposure compliance assessments on more than 10,000 antenna sites since the new FCC rules went into effect in 1997 • Has provided testimony as an RF compliance expert more than 1,000 times since 1997 • Accepted as an expert in New Jersey, Connecticut, New York, Pennsylvania and more than 40 other states, as well as by the FCC
Education:	• B.E.E., City College of New York (Sch. Of Eng.), 1971 • M.B.A., 1982, Fairleigh Dickinson University, 1982 • Bronx High School of Science, 1966
Current Responsibilities:	• Leads all PTG staff work involving RF safety and FCC compliance, microwave and satellite system engineering, and consulting on wireless technology and regulation
Prior Experience:	• Edwards & Kelcey, VP – RF Engineering and Chief Information Technology Officer, 1996-99 • Bellcore, Executive Director – Regulation and Public Policy, 1983-96 • AT&T (Corp. HQ), Director – Spectrum Management Policy and Practice, 1977-83 • AT&T Long Lines, Group Supervisor – Microwave Radio System Design, 1972-77
Specific RF Safety / Compliance Experience:	• Involved in RF exposure matters since 1972 • Have had lead corporate responsibility for RF safety and compliance at AT&T, Bellcore, Edwards & Kelcey, and PTG • While at AT&T, helped develop the mathematical models later adopted by the FCC for predicting RF exposure • Have been relied on for compliance by all major wireless carriers, as well as by the federal government, several state and local governments, equipment manufacturers, system integrators, and other consulting / engineering firms
Other Background:	• Author, *Microwave System Engineering* (AT&T, 1974) • Co-author and executive editor, *A Guide to New Technologies and Services* (Bellcore, 1993) • National Spectrum Managers Association (NSMA) – former three-term President and Chairman of the Board of Directors; was founding member, twice-elected Vice President, a long-time member of the Board of Directors, and was named an NSMA Fellow in 1991 • Listed in *Who's Who in the Media and Communication* and *International Who's Who in Information Technology* • Published more than 35 articles in industry magazines