STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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

July 1, 2002

Christopher B. Fisher, Esq.
Cuddy & Feder & Worby LLP
90 Maple Avenue
White Plains, NY 10601-5196

RE: **EM-AT&T-142-020531** - AT&T Wireless notice of intent to modify an existing telecommunications facility located at 497 Old Post Road, Tolland, Connecticut.

Dear Attorney Fisher:

At a public meeting held on June 25, 2002, 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 May 31, 2002. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility 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,

Mortimer A. Gelston
Chairman

MAG/laf

c: Honorable Richard C. Knight, Chairman Town Council, Town of Tolland
Ronald Blake, Town Planner, Town of Tolland
Old Post Road Holdings
Julie M. Donaldson, Esq., Hurwitz & Sagarin LLC
Michele R. Briggs, SNET Mobility LLC
Sandy M. Carter, Verizon Wireless

CUDDY & FEDER & WORBY LLP

90 MAPLE AVENUE
WHITE PLAINS, NEW YORK 10601-5196

(914) 761-1300
TELECOPIER (914) 761-5372/6405
www.cfwlaw.com

500 FIFTH AVENUE
NEW YORK, NEW YORK 10110
(212) 944-2641
TELECOPIER (212) 944-2643

WESTAGE BUSINESS CENTER
300 SOUTH LAKE DRIVE
FISHKILL, NEW YORK 12524
(845) 896-2229
TELECOPIER (845) 896-3672

STAMFORD, CONNECTICUT
NORWALK, CONNECTICUT

CUDDY & FEDER
1971-1995

WILLIAM S. NULL
DAWN M. FORTUNY
ELISABETH R. BADOW
NEIL T. RIMSKY
RUTH E. ROTH
JENNIFER L. VAN TUYL
CHAUNCEY L. WALKER (Also CA)
ROBERT L. WOLFE
DAVID E. WORBY

Of Counsel
MICHAEL R. HOFFMAN
ANDREW A. CLICKMAN (Also CT)
ROBERT L. OGAN (Also TX)
MARYANN M. PALUMBO
ROBERT C. SCHINFELD
LOUIS R. TARTARA

June 11, 2002

VIA FACSMILIE (860) 827-2950)
AND FEDERAL EXPRESS
David Martin
Siting Analyst
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

Re: EM-AT&T-092-020530 New Hartford
EM-AT&T-070-020604 Killingworth
EM-AT&T-_____ Tolland

Dear Mr. Martin:

On behalf of AT&T Wireless, enclosed please find revised RF Exposure Reports for the above referenced facilities in New Hartford and Killingworth to address your correspondence. With respect to AT&T's recent filings, the worst case number of channels used in the analyses has been revised to 12 versus 16 based on information recently provided by Nokia which manufactures the equipment. With respect to the Tolland facility, it is our understanding that the MPE report accurately reflects existing transmission antennas on the tower and the drawings are being revised accordingly. We hope to submit those drawings shortly as either a supplement to our submission or a post-acknowledgment filing. Should you or the Council have any questions or require any additional information, please do not hesitate to contact us.

Very truly yours,

Christopher B. Fisher

RF Exposure Analysis for Proposed AT&T Wireless Antenna Facility

SITE ID: 913-008-673

June 04, 2002

Prepared by AT&T Wireless Services, Inc.
Prabhakar K. Rughoobur, **RF Engineer**

Table of Contents

1. Introduction

This report constitutes an RF exposure analysis for the proposed AT&T Wireless antenna facility to be located at *130 Industrial Park Access Rd, New Hartford CT*. This analysis uses site-specific engineering data to determine the predicted levels of radio frequency (RF) electromagnetic energy in the vicinity of the proposed facility and compares those levels with the Maximum Permissible Exposure (MPE) limits established by the Federal Communications Commission.

2. Site Data

Site Name: *New Hartford East*	
Number of simultaneously operating channels	12
Type of antenna	Allgon 7250.03
Power per channel (Watts ERP)	250.0 Watts
Height of antenna (feet AGL)	137.00 feet
Antenna Aperture Length	5 feet

3. RF Exposure Prediction

The following equations established by the FCC, in conjunction with the site data, were used to determine the levels of RF electromagnetic energy present in the vicinity of the proposed facility[1]:

$$PowerDensity = \frac{0.64 * N * EIRP(\theta)}{\pi * R^2} \ (mW/cm^2) \qquad \textit{Eq. 1-Far-field}$$

Where, N= Number of channels, R= distance in cm from the RC (Radiation Center) of antenna, and $EIRP(\theta)$ = The Isotropic power expressed in milliwatts in the direction of prediction point. This is the correct equation for antennas which have their gain expressed in dBi, which is the usual case for the PCS bands.

$$PowerDensity = \frac{P_{in}/ch * N * 10^3}{2 * \pi * R * h * \alpha / 360} \ (mW/cm^2) \qquad \textit{Eq. 2-Near-field}$$

Where P_{in}/ch = Input power to antenna terminals in watts/ch, R = distance to center of radiation, h = aperture height in meters, α = 3 dB beam-width of horizontal pattern.

[1] RF exposure is measured and predicted in terms of power density in units of milliwatts (mW), a thousandth of a watt, or microwatts (μ W), a millionth of a watt, per square centimeter (cm^2). Data comparing predictive analysis with on site measurements has demonstrated that power density can be effectively predicted at given locations in the vicinity of a wireless antenna facility.

4. FCC Guidelines for Evaluating the Environmental Effects of RF Radiation

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by a Second Memorandum Opinion and Order. These new rules represent a consensus of the federal agencies responsible for the protection of public health and the environment, including the Environmental Protection Agency (EPA), the Food and Drug Administration (FDA), the National Institute for Occupational Health and Safety (NIOSH), and the Occupational Safety and Health Administration (OSHA).

Under the laws that govern the delivery of wireless communications services in the United States, as amended by the Telecommunications Act of 1996, the FCC has exclusive jurisdiction over RF emissions from personal wireless antenna facilities, which include cellular, PCS, messaging and aviation sites.[2] Pursuant to its authority under federal law, the FCC has established rules to regulate the safety of emissions from these facilities.

5. Comparison with Standards

Exhibit A shows the levels of RF electromagnetic energy as one moves away from the antenna facility. As shown in Exhibit A, the maximum power density is 0.001503 mW/cm^2 which occurs at 260 feet from the antenna facility. The chart in exhibit A also shows that the power density is only 0.000200 mW/cm^2 at a distance of 4 feet. Table 1 below shows the Maximum Permissible Exposure (MPE) limits established by the FCC. There are different MPE limits for public/uncontrolled and occupational/controlled environments.

Table 1: Maximum Permissible Exposure limits for RF radiation

Frequency	*Public/Uncontrolled*	*Occupational/controlled*	*Maximum power density at Accessible location*
Cellular	.580 mW/cm^2	2.9 mW/cm^2	0.001503 mW/cm^2
PCS	1 mW/cm^2	5 mW/cm^2	

The maximum power density at the proposed facility represents only 0.24% of the public MPE limit for PCS frequencies.

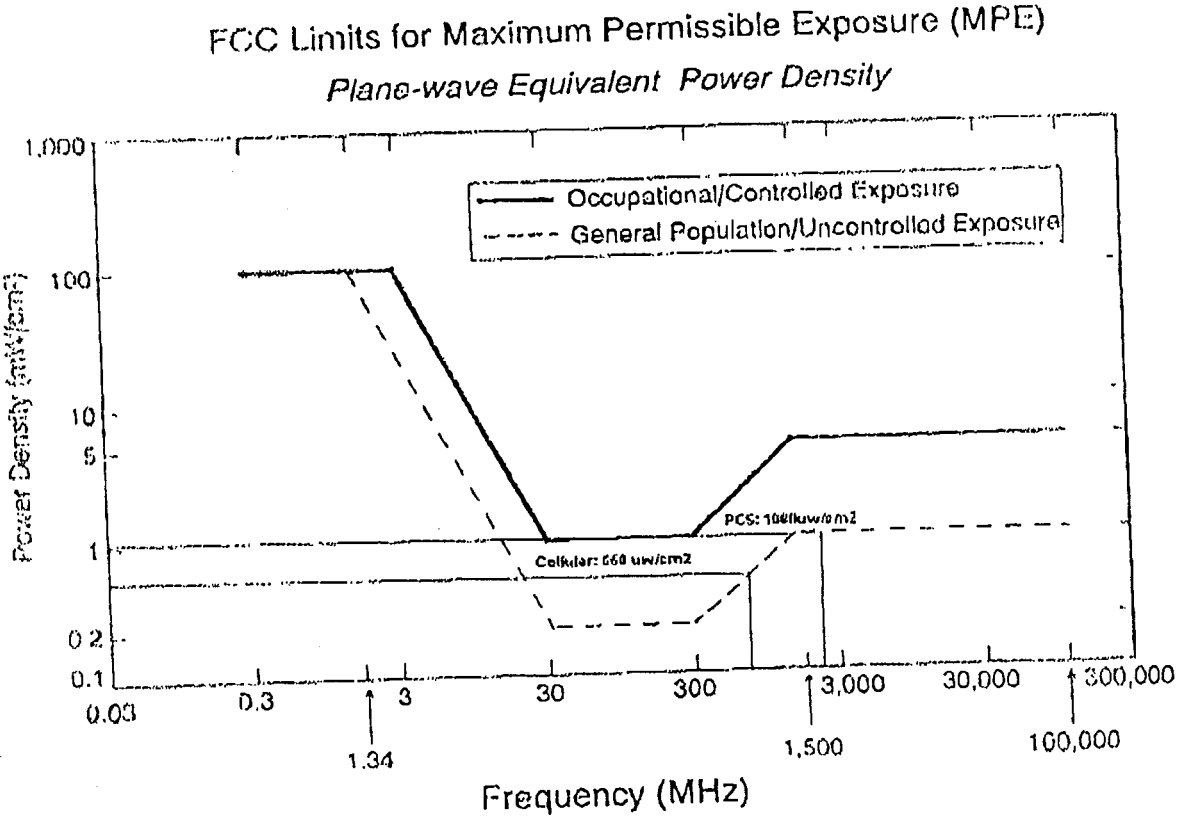
6. Conclusion

This analysis show that the maximum power density in accessible areas at this location is 0.001503 mW/cm^2, a level of RF energy that is well below the Maximum Permissible Exposure limit established by the FCC.

[2] 47 U.S.C. Section 332 (c)(7)(B)(iv) states that "[n]o State or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the Commission's regulations concerning such emissions."

AT&T Wireless Services, Inc.

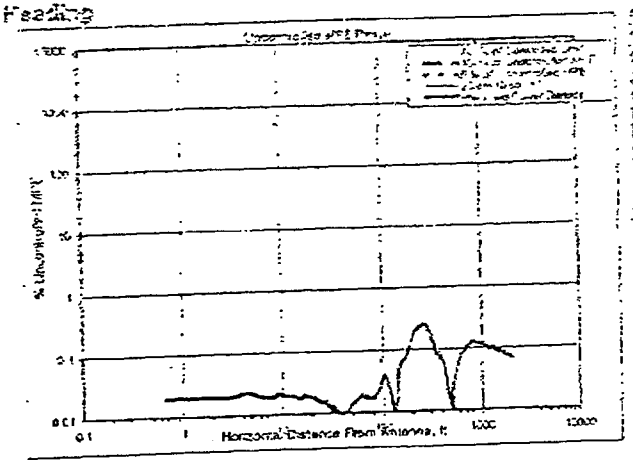
7. FCC Limits for Maximum Permissible Exposure

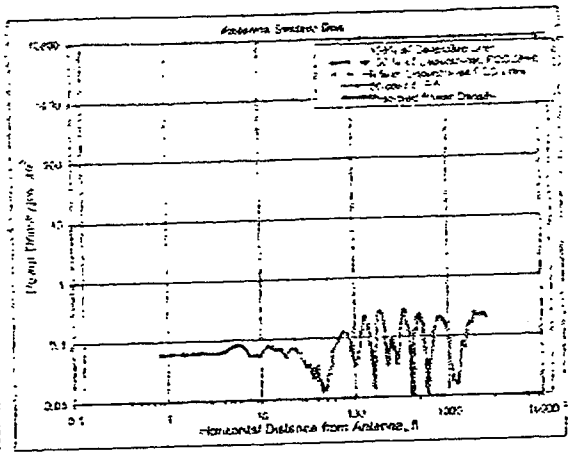


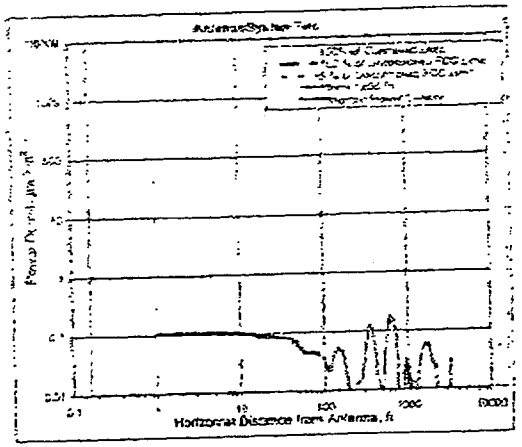
AT&T Wireless Services, Inc.

8. Exhibit A

Heading







Number of Antenna Systems: 3

Meets FCC Controlled Limits for The Antenna Systems

Meets FCC Uncontrolled Limits for The Antenna Systems

Meets 5% of FCC Uncontrolled Limits for The Antenna Systems.

No Further Maximum Permissible Exposure (MPE) Analysis Required.

	Power Density		Ground Dist.
	mW/cm²	% of mPE	feet
Maximum Power Density =	0.001560	0.24	250.00
417.49 times lower than the MPE limit for uncontrolled environment			
Composite Power (ERP) =	9,000.00	Watts	

Site ID: 913-035-673

Site Name: New Haven East

Site Location: 135 Industrial Park Access Rd
New Haven , CT

Performed By: Chakas K Raghavan

Date: 6/4/02

Antenna System One

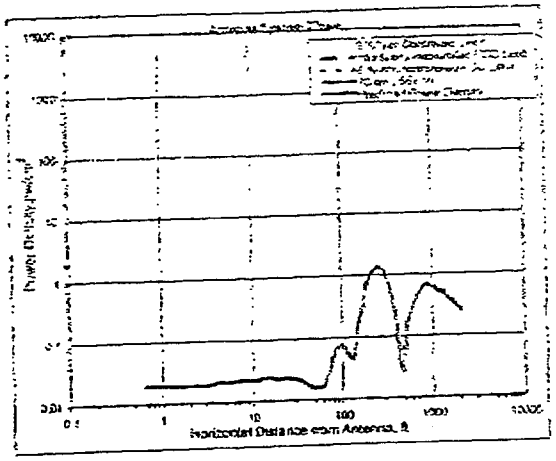
	units	Value
Frequency	MHz	1945.00
# of Channels	#	12
Max ERP/Ch	Watts	750.00
Max Per/Ch Inp Ant	Watts	5.95
(Center of Radiation)	feet	137.00
Calculation Point (above ground or roof surface)	feet	0.00
		0.00
		0.00
Antenna Model No		Allgon 7250.03
Max Ant Gain	dBd	16.30
Down Tilt	degrees	0.00
Miscellaneous Att	dB	0.00
Height of aperture	feet	5.11
Ant HBW	degrees	65.00
Distance to Ant	feet	134.45
WOS?	Y/N?	?

Ant System ONE Owner: AT&T
Sector: 3
Azimuth: 60/180/300

Antenna System Two

	units	Value
Frequency	MHz	1950.00
# of Channels	#	12
Max ERP/Ch	Watts	250.00
Max Per/Ch Inp Ant	Watts	7.73
(Center of Radiation)	feet	157.50
Calculation Point (above ground or roof surface)	feet	0.00
		0.00
		0.00
Antenna Model No		DB880G65
Max Ant Gain	dBd	15.10
Down Tilt	degrees	0.00
Miscellaneous Att	dB	0.00
Height of aperture	feet	5.00
Ant HBW	degrees	90.00
Distance to Ant	feet	154.50
WOS?	Y/N?	?

Ant System TWO Owner: Sprint
Sector: 3
Azimuth: 0/120/270



Antenna System Three

	units	Value
Frequency	MHz	880.00
# of Channels	#	12
Max ERP/Ch	Watts	250.00
Max Pwr/Ch into Ant	Watts	13.41
(Center of Radiation)	feet	147.00
Calculation Plan:	feet	0.00
(above ground or		0.00
roof surface)		0.00
Antenna Model No		D8844H90E-XY
Max Ant Gain	dBd	12.70
Downtilt	degrees	0.00
Miscellaneous Att	dB	0.00
Height of aperture	feet	4.00
Ant HBW	degrees	80.00
Distance to Antenna	feet	145.63
WOS?	Y/N?	n

Ant System Three Owner: Verizon
Sector: 3
Azimuth: 0/120/240

9. For Further Information

Additional information about the environmental impact of RF energy from personal wireless antenna facilities can be obtained from the Federal Communications Commission:

Dr. Robert Cleveland
Federal Communications Commission
Office of Engineering and Technology
Washington, DC 20554

RF Safety Program: 202-418-2464
Internet address: rfsafety@fcc.gov
RF Safety Web Site: www.fcc.gov/oet/rfsafety

10. References

[1] The Communications Act of 1934, as amended by the Telecommunications Act of 1996, 47 U.S.C. Section 332 (c)(7)(B)(iv).

[2] *Guidelines for Evaluating the Environmental Effects of Radio frequency Radiation*, Notice of Proposed Rulemaking, ET Docket 93-62, 8 FCC Rcd 2849 (1993).

[3] *Guidelines for Evaluating the Environmental Effects of Radio frequency Radiation*, Report and Order, ET Docket 93-62, FCC 96-326, adopted August 1, 1996, 61 Federal Register 41006 (1996).

[4] *Guidelines for Evaluating the Environmental Effects of Radio frequency Radiation*, Second Memorandum Opinion and Order, ET Docket 93-62, adopted August 25, 1997.

[5] *Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields*, OET Bulletin 65, August, 1997.

RF Exposure Analysis for Proposed AT&T Wireless Antenna Facility

SITE ID: 907-007-848

June 7, 2002

Prepared by AT&T Wireless Services, Inc.
Nader Soliman **RF Engineer**

Table of Contents

1. Introduction

This report constitutes an RF exposure analysis for the proposed AT&T Wireless antenna facility to be located at *131 Little City Road, Killingworth, CT.* This analysis uses site-specific engineering data to determine the predicted levels of radio frequency (RF) electromagnetic energy in the vicinity of the proposed facility and compares those levels with the Maximum Permissible Exposure (MPE) limits established by the Federal Communications Commission.

2. Site Data

Site Name: ***Partridge Hollow***	
Number of simultaneously operating channels	16
Type of antenna	Allgon 7250.03
Power per channel (Watts ERP)	250.0 Watts
Height of antenna (feet AGL)	140.00 feet
Antenna Aperture Length	5 feet

3. RF Exposure Prediction

The following equations established by the FCC, in conjunction with the site data, were used to determine the levels of RF electromagnetic energy present in the vicinity of the proposed facility[1]:

$$PowerDensity = \frac{0.64 * N * EIRP(\theta)}{\pi * R^2} \ (mW/cm^2) \qquad \textit{Eq. 1-Far-field}$$

Where, N= Number of channels, R= distance in cm from the RC (Radiation Center) of antenna, and $EIRP(\theta)$ = The isotropic power expressed in milliwatts in the direction of prediction point. This is the correct equation for antennas which have their gain expressed in dBi, which is the usual case for the PCS bands.

$$PowerDensity = \frac{P_{in} / ch * N * 10^3}{2 * \pi * R * h * \alpha / 360} \ (mW/cm^2) \qquad \textit{Eq. 2-Near-field}$$

Where P_{in}/ch = Input power to antenna terminals in watts/ch, R = distance to center of radiation, h = aperture height in meters, α = 3 dB beam-width of horizontal pattern.

[1] RF exposure is measured and predicted in terms of power density in units of milliwatts (mW), a thousandth of a watt, or microwatts (μW), a millionth of a watt, per square centimeter (cm^2). Data comparing predictive analysis with on site measurements has demonstrated that power density can be effectively predicted at given locations in the vicinity of a wireless antenna facility.

4. FCC Guidelines for Evaluating the Environmental Effects of RF Radiation

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by a Second Memorandum Opinion and Order. These new rules represent a consensus of the federal agencies responsible for the protection of public health and the environment, including the Environmental Protection Agency (EPA), the Food and Drug Administration (FDA), the National Institute for Occupational Health and Safety (NIOSH), and the Occupational Safety and Health Administration (OSHA).

Under the laws that govern the delivery of wireless communications services in the United States, as amended by the Telecommunications Act of 1996, the FCC has exclusive jurisdiction over RF emissions from personal wireless antenna facilities, which include cellular, PCS, messaging and aviation sites.[2] Pursuant to its authority under federal law, the FCC has established rules to regulate the safety of emissions from these facilities.

5. Comparison with Standards

Exhibit A shows the levels of RF electromagnetic energy as one moves away from the antenna facility. As shown in Exhibit A, the maximum power density is 0.000509 mW/cm^2 which occurs at 1800 feet from the antenna facility. The chart in exhibit A also shows that the power density is only 0.000100 mW/cm^2 at a distance of 4 feet. Table 1 below shows the Maximum Permissible Exposure (MPE) limits established by the FCC. There are different MPE limits for public/uncontrolled and occupational/controlled environments.

Table 1: Maximum Permissible Exposure limits for RF radiation

Frequency	*Public/Uncontrolled*	*Occupational/controlled*	*Maximum power density at Accessible location*
Cellular	.580 mW/cm^2	2.9 mW/cm^2	0.000509 mW/cm^2
PCS	1 mW/cm^2	5 mW/cm^2	

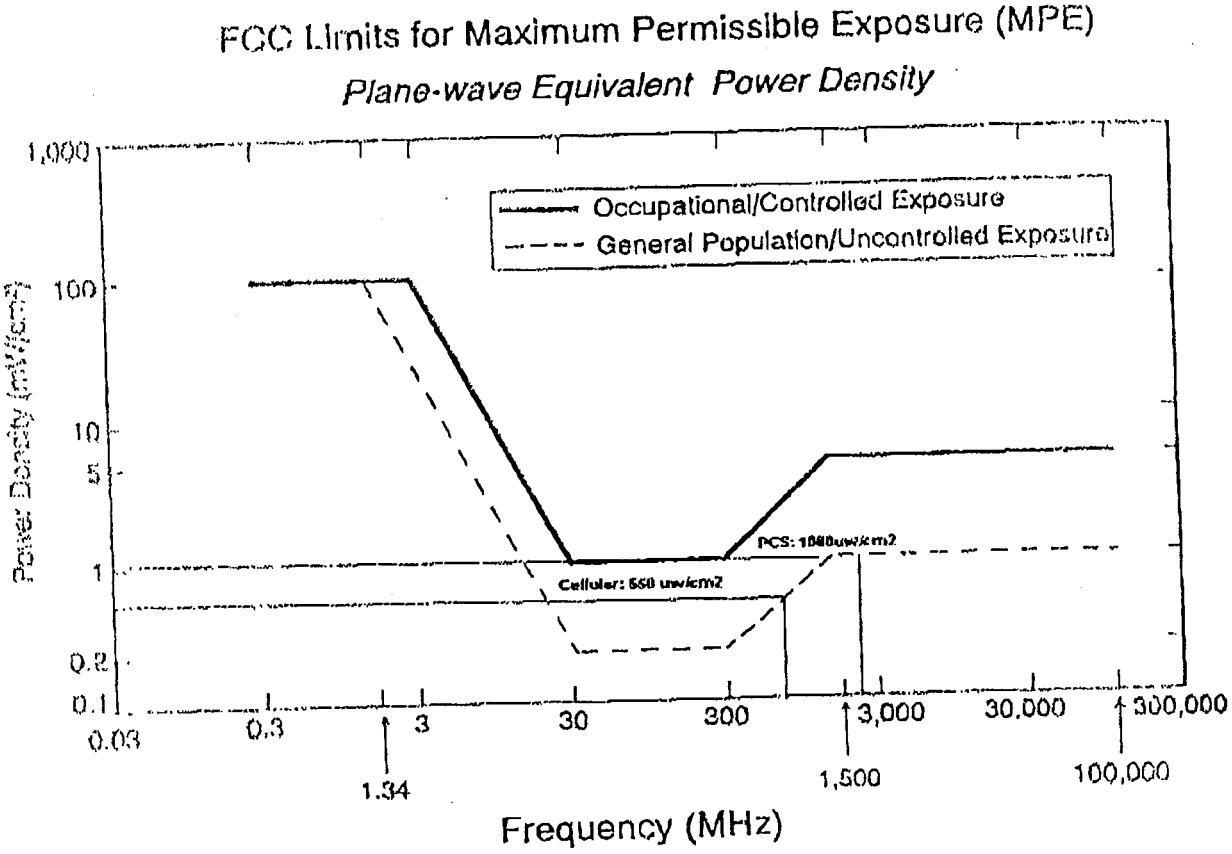
The maximum power density at the proposed facility represents only 0.06% of the public MPE limit for PCS frequencies.

6. Conclusion

This analysis show that the maximum power density in accessible areas at this location is 0.005090 mW/cm^2, a level of RF energy that is well below the Maximum Permissible Exposure limit established by the FCC.

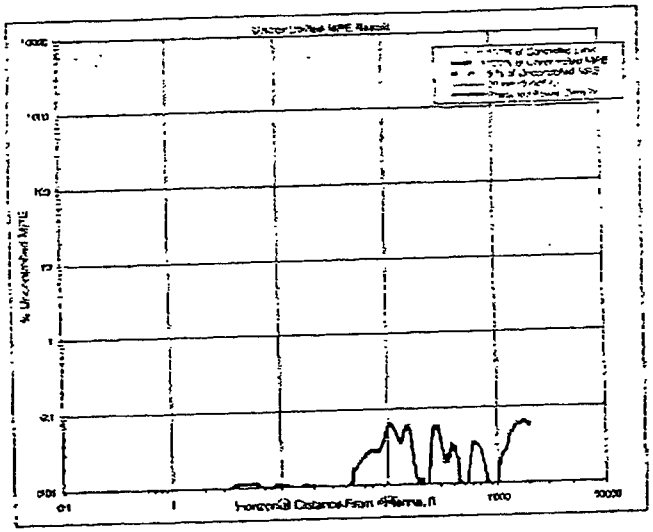
[2] 47 U.S. C. Section 332 (c) (7)(B)(iv) states that "[n]o State or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the Commission's regulations concerning such emissions."

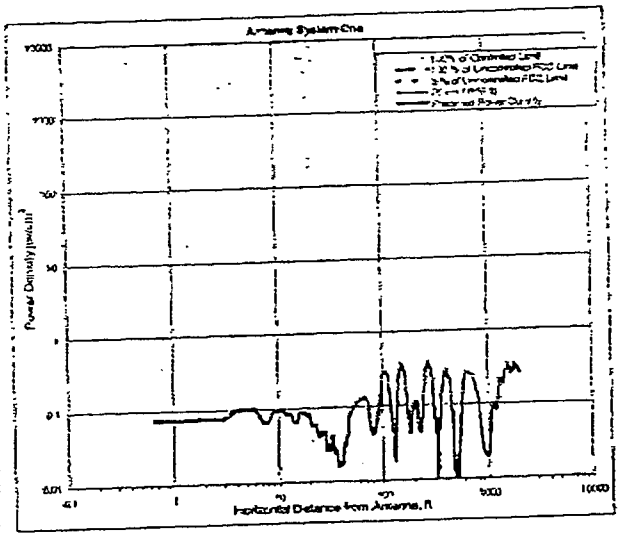
7. FCC Limits for Maximum Permissible Exposure

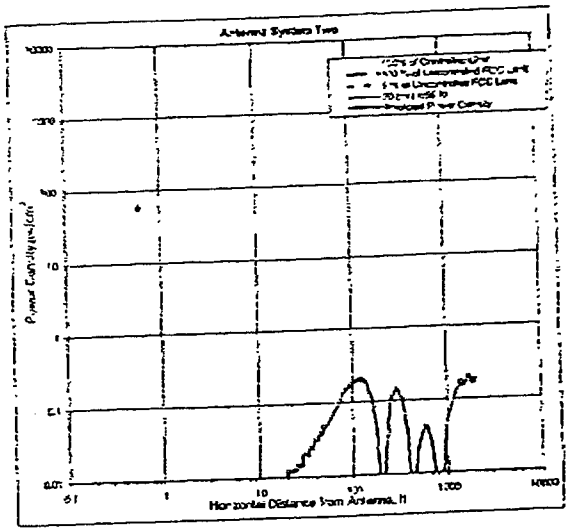


AT&T Wireless Services, Inc.

B. Exhibit A







Number of Antenna Systems: 2

Meets FCC Controlled Limits for The Antenna Systems

Meets FCC Uncontrolled Limits for The Antenna Systems.

Meets 5% of FCC Uncontrolled Limits for The Antenna Systems.

No Further Maximum Permissible Exposure (MPE) Analysis Required.

	Power Density		Horiz. Dist.
	mW/cm^2	% of limit	feet
Maximum Power Density =	0.002593	0.05	1468.00
5,543.47 Times more than the MPE limit for uncontrolled environment			
Composite Power Density =	5,249.00	Watts	

Site ID: 937-027-E-02

Site Name: Penbrook Hollow

Site Location: 133 Jonestown Road

Williamsport, PA

Performed By: Wade Solomon

Date: 6/7/2002

Antenna System One

	Units	Value
Frequency	MHz	1945.00
# of Channels	#	16
Max ERP/Ch	Watts	750.00
Max Pwr/Ch Into Ant.	Watts	5.96
(Center of Radiation)	feet	149.00
Calculation Point (above ground or roof surface)	feet	4.00
		0.00
		0.00
Antenna Model No.		Allgon 7250.33
Max Ant. Gain	dBd	16.30
Down tilt	degrees	0.00
Miscellaneous Att.	dB	3.00
Height of aperture:	feet	5.11
Ant. Bdwth	degrees	65.00
Distance to Ant. (horiz)	feet	137.25
MPE?	y/n	n

Ant. System One Owner: AT&T

Sector: B

Azimuth: 60/180/250

Antenna System Two

	Units	Value
Frequency	MHz	851.00
# of Channels	#	16
Max ERP/Ch	Watts	750.00
Max Pwr/Ch Into Ant.	Watts	18.53
(Center of Radiation)	feet	253.00
Calculation Point (above ground or roof surface)	feet	0.00
		0.00
		0.00
Antenna Model No.		ALP9011
Max Ant. Gain	dBd	11.70
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.90
Height of aperture:	feet	4.00
Ant. BDW	degrees	95.00
Distance to Ant.	feet	251.00
MPE?	y/n	n

Ant. System Two Owner: Nextel

Sector: B

Azimuth: 0/120/240

9. For Further Information

Additional information about the environmental impact of RF energy from personal wireless antenna facilities can be obtained from the Federal Communications Commission:

Dr. Robert Cleveland
Federal Communications Commission
Office of Engineering and Technology
Washington, DC 20554

RF Safety Program: 202-418-2464
Internet address: rfsafety@fcc.gov
RF Safety Web Site: www.fcc.gov/oet/rfsafety

10. References

[1] The Communications Act of 1934, as amended by the Telecommunications Act of 1996, 47 U.S.C. Section 332 (c)(7)(B)(iv).

[2] *Guidelines for Evaluating the Environmental Effects of Radio frequency Radiation*, Notice of Proposed Rulemaking, ET Docket 93-62, 8 FCC Red 2849 (1993).

[3] *Guidelines for Evaluating the Environmental Effects of Radio frequency Radiation*, Report and Order, ET Docket 93-62, FCC 96-326, adopted August 1, 1996. 61 Federal Register 41006 (1996).

[4] *Guidelines for Evaluating the Environmental Effects of Radio frequency Radiation*, Second Memorandum Opinion and Order, ET Docket 93-62, adopted August 25, 1997.

[5] *Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields*, OET Bulletin 65, August, 1997.

NOTICE OF INTENT TO MODIFY AN EXISTING TELECOMMUNICATIONS FACILITY AT 497 OLD POST ROAD, TOLLAND, CONNECTICUT

Pursuant to the Public Utility Environmental Standards Act, Connecticut General Statutes § 16-50g et. seq. ("PUESA"), and Sections 16-50j-72(b) of the Regulations of Connecticut State Agencies adopted pursuant to the PUESA, AT&T Wireless PCS, LLC d/b/a AT&T Wireless ("AT&T Wireless") hereby notifies the Connecticut Siting Council of its intent to modify an existing facility located at 497 Old Post Road, Tolland, Connecticut (the "Old Post Road Facility"), owned by the Old Post Road Holdings. AT&T Wireless and the tower owner have agreed to share the use of the Old Post Road Facility, as detailed below.

The Old Post Road Facility

The Old Post Road Facility consists of an approximately one hundred fifty (150) foot guyed lattice tower (the "Tower") and associated equipment currently being used for wireless communications by Sprint, Cingular, Verizon[1] and other paging dispatch companies, and the municipality. A chain link fence surrounds the Tower compound. The surrounding land uses are predominantly residential.

AT&T Wireless' Facility

As shown on the enclosed plans prepared by Tectonic/Keyes Associates, including a site plan and tower elevation of the Old Post Road Facility, AT&T Wireless proposes shared use of the Facility by placing antennas on the Tower and equipment cabinets needed to provide personal communications services ("PCS") within the existing fenced compound. AT&T Wireless will install 6 panel antennas at approximately the 115 foot level of the Tower and associated equipment cabinets (2 proposed, 2 future, each 76"H x 30" W x 30" D) on a concrete pad. As evidenced in the letter of structural integrity prepared by Tectonic/Keyes Associates, annexed hereto as Exhibit A, AT&T has confirmed that the tower is structurally capable of supporting the addition of AT&T Wireless' antennas.

AT&T Wireless' Facility Constitutes An Exempt Modification

The proposed addition of AT&T Wireless' antennas and equipment to the Old Post Road Facility constitutes an exempt "modification" of an existing facility as defined in Connecticut General Statutes Section 16-50i(d) and Council regulations promulgated pursuant thereto. Addition of AT&T Wireless' antennas and equipment to the Tower will not result in an increase of the Tower's height nor extend the site boundaries. Further, there will be no increase in noise levels by six (6) decibels or more at the Tower site's boundary. As set forth in an Emissions Report prepared by Nader Soliman, Radio Frequency Engineer, annexed hereto as Exhibit B, the total radio frequency electromagnetic radiation power density at the Tower site's boundary will not be

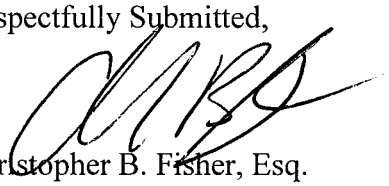
[1] Verizon paging antennas not shown on plans for this site.

increased to or above the standard adopted by the Connecticut Department of Environmental Protection as set forth in Section 22a-162 of the Connecticut General Statutes and MPE limits established by the Federal Communications Commission. For all the foregoing reasons, addition of AT&T Wireless' facility to the Tower constitutes an exempt modification which will not have a substantially adverse environmental effect.

Conclusion

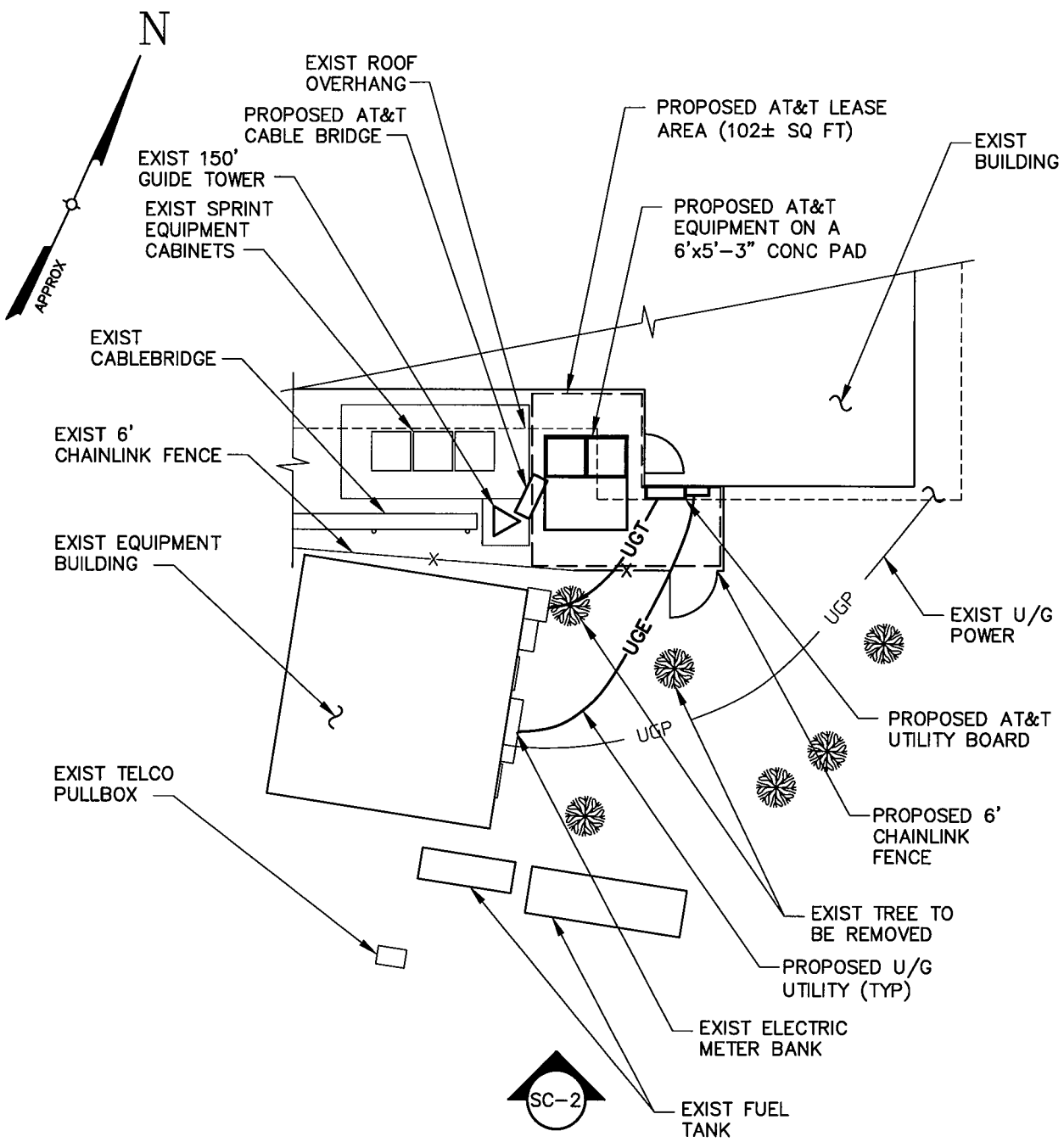
Accordingly, AT&T Wireless requests that the Connecticut Siting Council acknowledge that its proposed modification to the Old Post Road Facility meets the Council's exemption criteria.

Respectfully Submitted,



Christopher B. Fisher, Esq.
On behalf of AT&T Wireless

cc: Town Manager, Town of Tolland
Harold Hewett, Bechtel



TECTONIC/KEYES ASSOCIATES

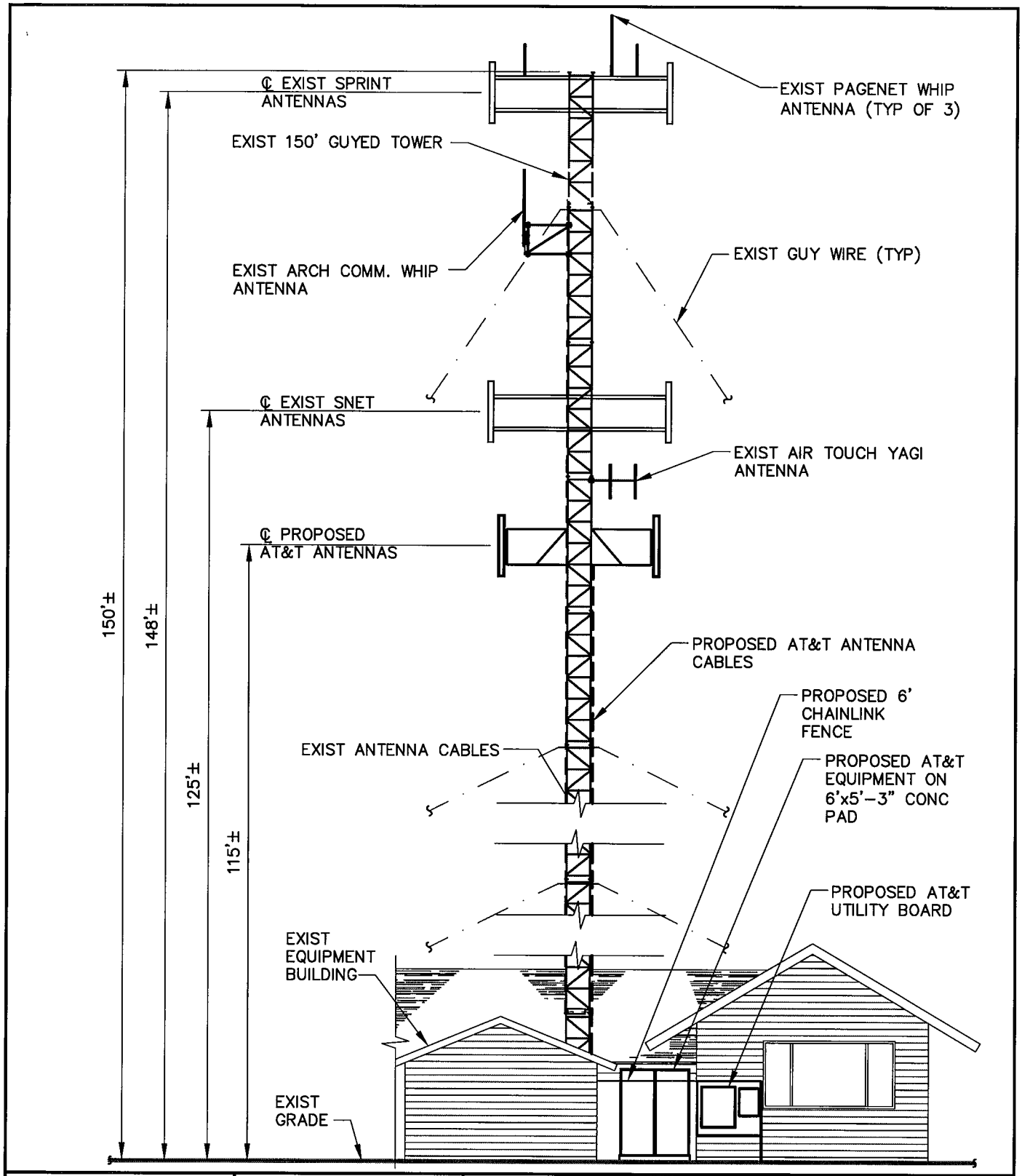
AT&T

AT&T WIRELESS SERVICES, INC.
12 Omega Drive, Second Floor
Stamford, Connecticut 06902

DRAWING TITLE:
SITE DETAIL PLAN
PROJECT INFORMATION:
TOLLAND SW
CT-330
497 OLD POST ROAD
TOLLAND, CT 06084
PROPERTY OWNER:
OLD POST ROAD HOLDINGS
9804 WINDER PALACE DR
LAS VEGAS, NV 89145

DRAWING NO.
SC-1

REVISION NO. 0	DRAWN BY: RPM
DATE: 3/15/02	CHECKED BY: MC
SCALE: 1"=10'	APPROVED BY: JDF
ISSUED FOR COMMENT	SHEET NO. 1 of 2
WORK ORDER #: 2650.CT330	



TECTONIC/KEYES ASSOCIATES

AT&T

AT&T WIRELESS SERVICES, INC.
12 Omega Drive, Second Floor
Stamford, Connecticut 06902

DRAWING TITLE:
ELEVATION

PROJECT INFORMATION:
TOLLAND SW
CT-330
497 OLD POST ROAD
TOLLAND, CT 06084

PROPERTY OWNER:
OLD POST ROAD HOLDINGS
9804 WINDER PALACE DR
LAS VEGAS, NV 89145

DRAWING NO.
SC-2

REVISION NO. 0	DRAWN BY: RPM
DATE: 3/15/02	CHECKED BY: MC
SCALE: 1"=10'	APPROVED BY: JDF
ISSUED FOR COMMENT	SHEET NO. 2 of 2
WORK ORDER #: 2650.CT330	

TECTONIC / KEYES ASSOCIATES
Division of TECTONIC Engineering Consultants P.C.

CORPORATE OFFICE:
Mountainville, NY (800)-829-6531

1344 Silas Deane Highway, Suite 500
Rocky Hill, Connecticut 06067

(860) 563-2341 Fax: (860) 257-4882
www.tectonicengineering.com

Mr. Donald Huntley
Bechtel Telecommunications
210 Pomeroy Avenue
Meriden, CT 06450

May 15, 2002

RE: W.O. 2650. CT330
AT&T WIRELESS SITE CT-330, TOLLAND SW
EXISTING 150' GUYED TOWER
497 OLD POST ROAD, TOLLAND, CT
STRUCTURAL CAPACITY

Dear Mr. Huntley:

At the request of AT&T Wireless, Tectonic Engineering has performed a structural analysis of the above referenced tower to evaluate its capacity to support AT&T's proposed antenna installation.

The analysis was performed in accordance with established guidelines and loading criteria, which includes the 1999 Connecticut supplement to the BOCA National Building Code, and the national standard ANSI/TIA/EIA-222-F-1996 "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures".

The results of this analysis indicate that the existing tower has sufficient capacity to support the proposed AT&T antenna installation. The analysis further concluded that the existing tower foundation also has adequate capacity for the proposed loads. The details of our analysis of this tower are presented in our Structural Analysis Report, dated May 15, 2002.

Should require any additional information regarding our analysis, please feel free to contact us.

Sincerely,
TECTONIC/KEYES ASSOCIATES

John D. Fuller, P.E.
Telecommunications Manager

Cc: File

RF Exposure Analysis for Proposed AT&T Wireless Antenna Facility

SITE ID: 907-007-330

May 21, 2002

Prepared by AT&T Wireless Services, Inc.
Nader Soliman **RF Engineer**

Table of Contents

1. Introduction

This report constitutes an RF exposure analysis for the proposed AT&T Wireless antenna facility to be located at *497 Old Post Road.* This analysis uses site-specific engineering data to determine the predicted levels of radio frequency (RF) electromagnetic energy in the vicinity of the proposed facility and compares those levels with the Maximum Permissible Exposure (MPE) limits established by the Federal Communications Commission.

2. Site Data

Site Name: ***Tolland SW***	
Number of simultaneously operating channels	16
Type of antenna	Allgon 7250.03
Power per channel (Watts ERP)	250.0 Watts
Height of antenna (feet AGL)	115.00 feet
Antenna Aperture Length	5 feet

3. RF Exposure Prediction

The following equations established by the FCC, in conjunction with the site data, were used to determine the levels of RF electromagnetic energy present in the vicinity of the proposed facility[1]:

$$PowerDensity = \frac{0.64 * N * EIRP(\theta)}{\pi * R^2} \ (mW/cm^2) \qquad \textit{Eq. 1-Far-field}$$

Where, ***N***= Number of channels, ***R***= distance in cm from the RC (Radiation Center) of antenna, and ***EIRP(θ)*** = The isotropic power expressed in milliwatts in the direction of prediction point. This is the correct equation for antennas which have their gain expressed in dBi, which is the usual case for the PCS bands.

$$PowerDensity = \frac{P_{in} / ch * N * 10^3}{2 * \pi * R * h * \alpha / 360} \ (mW/cm^2) \qquad \textit{Eq. 2-Near-field}$$

Where P_{in}/ch = Input power to antenna terminals in watts/ch, ***R*** = distance to center of radiation, ***h*** = aperture height in meters, α = 3 dB beam-width of horizontal pattern.

[1] RF exposure is measured and predicted in terms of power density in units of milliwatts (mW), a thousandth of a watt, or microwatts (μ W), a millionth of a watt, per square centimeter (cm^2). Data comparing predictive analysis with on site measurements has demonstrated that power density can be effectively predicted at given locations in the vicinity of a wireless antenna facility.

4. FCC Guidelines for Evaluating the Environmental Effects of RF Radiation

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by a Second Memorandum Opinion and Order. These new rules represent a consensus of the federal agencies responsible for the protection of public health and the environment, including the Environmental Protection Agency (EPA), the Food and Drug Administration (FDA), the National Institute for Occupational Health and Safety (NIOSH), and the Occupational Safety and Health Administration (OSHA).

Under the laws that govern the delivery of wireless communications services in the United States, as amended by the Telecommunications Act of 1996, the FCC has exclusive jurisdiction over RF emissions from personal wireless antenna facilities, which include cellular, PCS, messaging and aviation sites. [2] Pursuant to its authority under federal law, the FCC has established rules to regulate the safety of emissions from these facilities.

5. Comparison with Standards

Exhibit A shows the levels of RF electromagnetic energy as one moves away from the antenna facility. As shown in Exhibit A, the maximum power density is 0.032110 mW/cm^2 which occurs at 44 feet from the antenna facility. The chart in exhibit A also shows that the power density is only 0.000150 mW/cm^2 at a distance of 4 feet. Table 1 below shows the Maximum Permissible Exposure (MPE) limits established by the FCC. There are different MPE limits for public/uncontrolled and occupational/controlled environments.

Table 1: Maximum Permissible Exposure limits for RF radiation

Frequency	***Public/Uncontrolled***	***Occupational/controlled***	***Maximum power density at Accessible location***
Cellular	.580 mW/cm^2	2.9 mW/cm^2	0.032110 mW/cm^2
PCS	1 mW/cm^2	5 mW/cm^2	

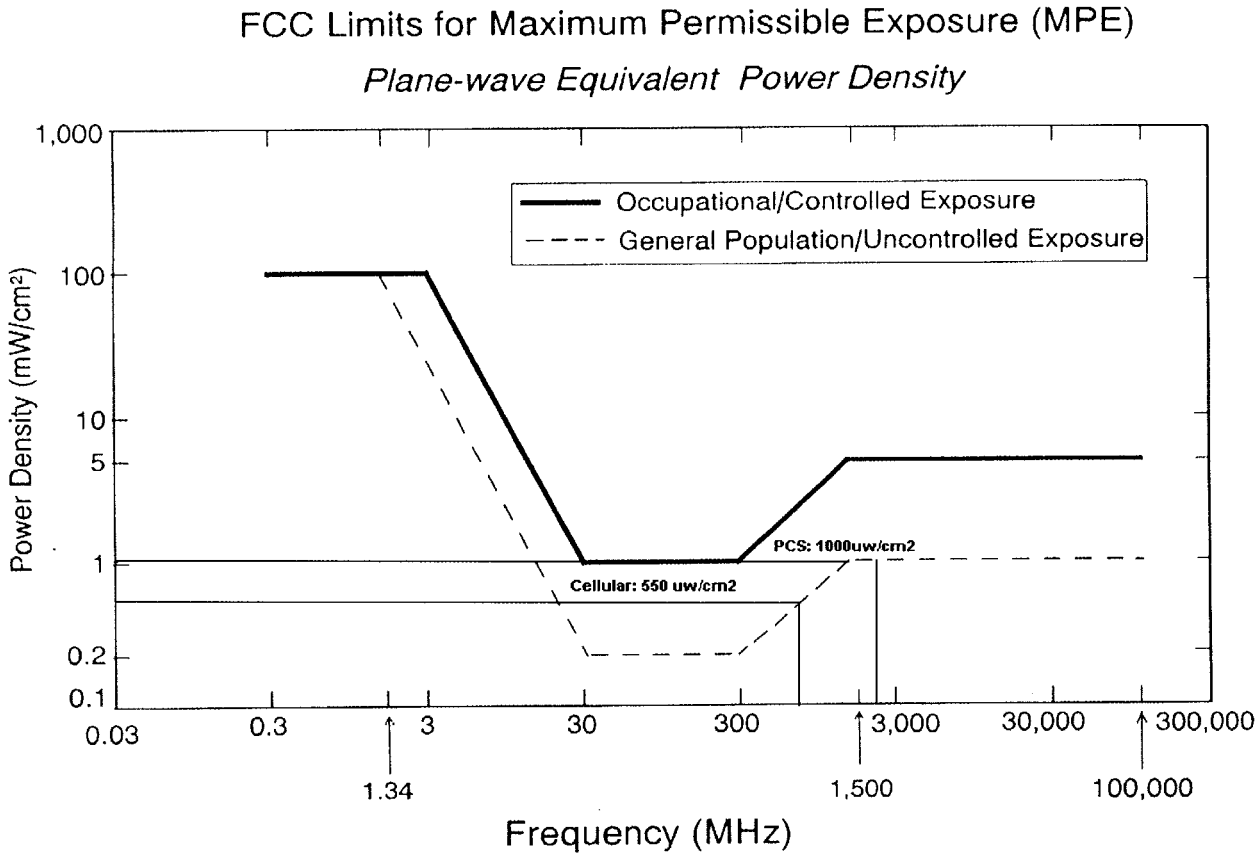
The maximum power density at the proposed facility represents only 14.83% of the public MPE limit for PCS frequencies.

6. Conclusion

This analysis show that the maximum power density in accessible areas at this location is 0.032110 mW/cm^2, a level of RF energy that is well below the Maximum Permissible Exposure limit established by the FCC.

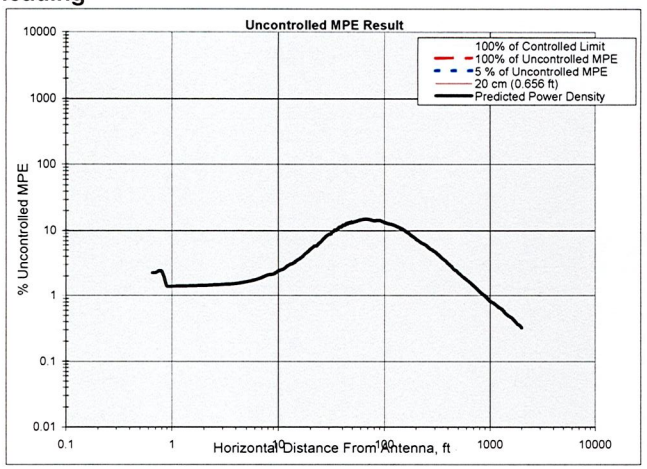
[2] 47 U.S. C. Section 332 (c) (7)(B)(iv) states that "[n]o State or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the Commission's regulations concerning such emissions."

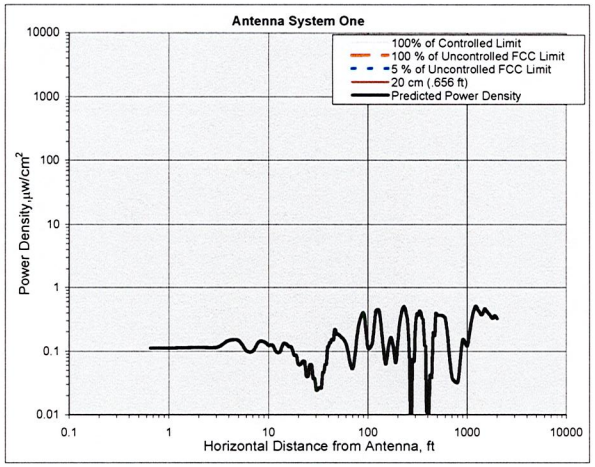
7. FCC Limits for Maximum Permissible Exposure

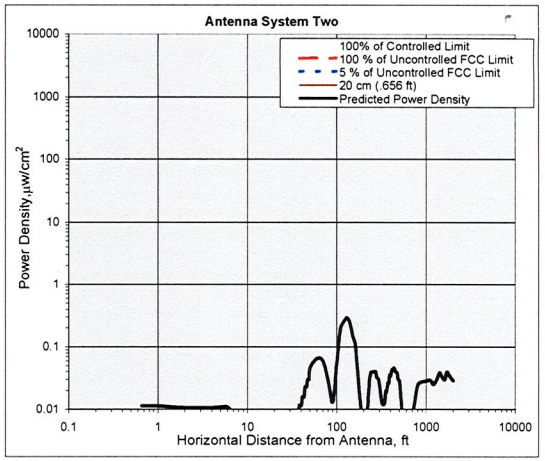


8. Exhibit A

Heading







Number of Antenna Systems: 10

Meets FCC Controlled Limits for The Antennas Systems.

Meets FCC Uncontrolled Limits for The Antenna Systems.

Meets 5% of the FCC Uncontrolled Limits beyond
290 feet from the Antenna Systems.

No Further Maximum Permissible Exposure (MPE) Analysis Required.

	Power Density		@Horiz. Dist.
	mW/cm^2	% of limit	feet
Maximum Power Density =	0.032110	14.83	44.00
6.74 times lower than the MPE limit for uncontrolled environment			
Composite Power (ERP) =	23,250.00 Watts		

Site ID: 907-007-330
Site Name: Tolland SW
Site Location: 497 Old Post Road
Tolland, CT 06084

Performed By: Nader Soliman

Date: 5/29/02

Antenna System One

	units	Value
Frequency	MHz	1945.00
# of Channels	#	16
Max ERP/Ch	Watts	250.00
Max Pwr/Ch Into Ant.	Watts	5.86
(Center of Radiator)	feet	115.00
Calculation Point	feet	0.00
(above ground or		0.00
roof surface)		0.00
Antenna Model No.		Allgon 7250.03
Max Ant Gain	dBd	16.30
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	5.11
Ant HBW	degrees	65.00
Distance to Ant_{bottom}	feet	112.45
WOS?	Y/N?	n

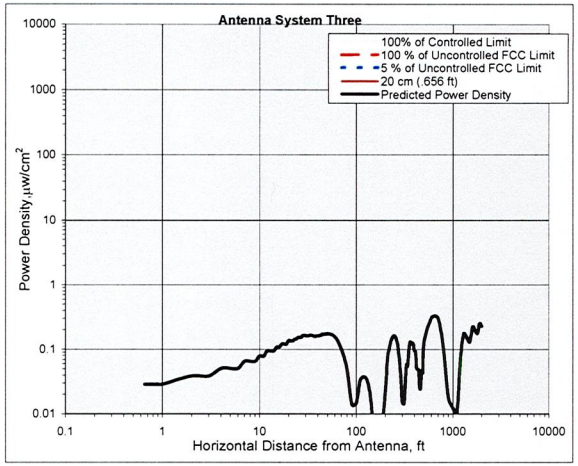
Ant System ONE Owner: AT&T
Sector: 3
Azimuth: 0/120/240

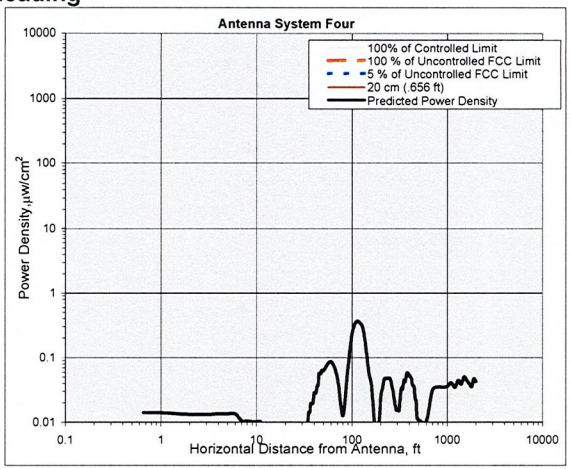
Antenna System Two

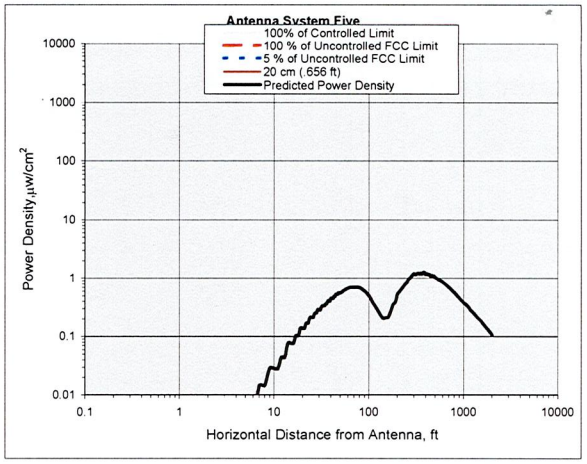
	units	Value
Frequency	MHz	152.60
# of Channels	#	5
Max ERP/Ch	Watts	250.00
Max Pwr/Ch Into Ant.	Watts	30.06
(Center of Radiator)	feet	158.00
Calculation Point	feet	0.00
(above ground or		0.00
roof surface)		0.00
Antenna Model No.		DB 420
Max Ant Gain	dBd	9.20
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	18.00
Ant HBW	degrees	360.00
Distance to Ant_{bottom}	feet	149.00
WOS?	Y/N?	n

Ant System TWO Owner: NE Paging
Sector: 1
Azimuth 360

Heading







Antenna System Three

	units	Value
Frequency	MHz	1950.00
# of Channels	#	16
Max ERP/Ch	Watts	250.00
Max Pwr/Ch Into Ant.	Watts	9.08
(Center of Radiator)	feet	148.00
Calculation Point	feet	0.00
(above ground or		0.00
roof surface)		0.00
Antenna Model No.		DB 978
Max Ant Gain	dBd	14.40
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	5.00
Ant HBW	degrees	90.00
Distance to Ant_{bottom}	feet	145.50
WOS?	Y/N?	n

Ant System Three Owner: Sprint
Sector: 3
Azimuth 0/120/240

Antenna System Four

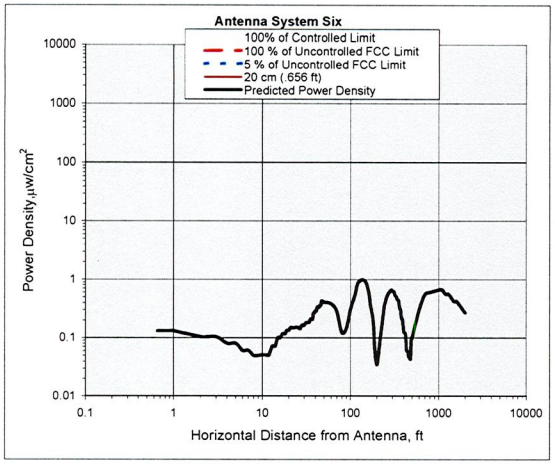
	units	Value
Frequency	MHz	461.00
# of Channels	#	5
Max ERP/Ch	Watts	250.00
Max Pwr/Ch Into Ant.	Watts	30.06
(Center of Radiator)	feet	142.00
Calculation Point	feet	0.00
(above ground or		0.00
roof surface)		0.00
Antenna Model No.		DB 420
Max Ant Gain	dBd	9.20
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	18.00
Ant HBW	degrees	360.00
Distance to Ant_{bottom}	feet	133.00
WOS?	Y/N?	n

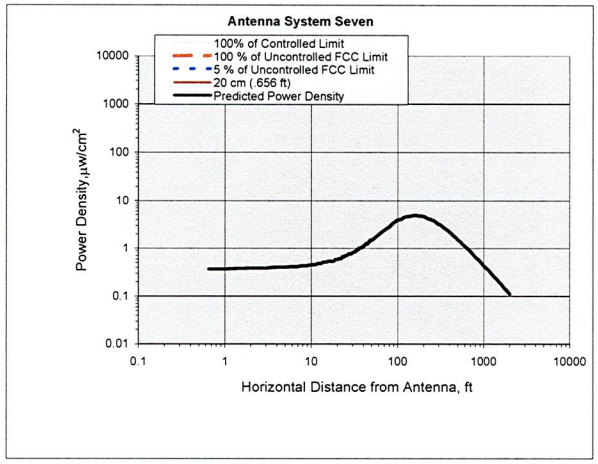
Ant System Four Owner: Hamden Comm
Sector: 1
Azimuth: 360

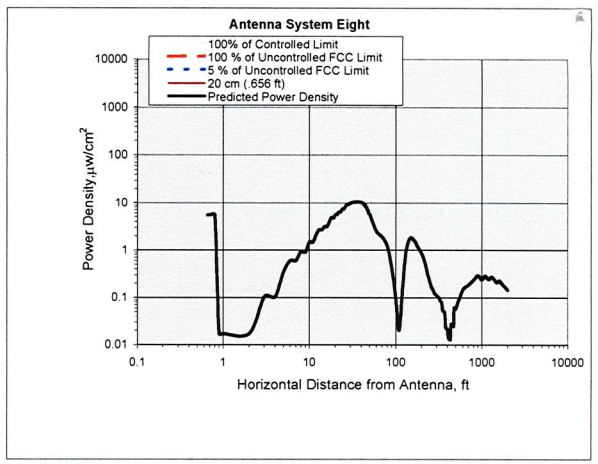
Antenna System Five

	units	Value
Frequency	MHz	222.00
# of Channels	#	5
Max ERP/Ch	Watts	250.00
Max Pwr/Ch Into Ant.	Watts	147.21
(Center of Radiator)	feet	142.00
Calculation Point	feet	0.00
(above ground or		0.00
roof surface)		0.00
Antenna Model No.		DB 222
Max Ant Gain	dBd	2.30
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	10.50
Ant HBW	degrees	360.00
Distance to Ant_{bottom}	feet	136.75
WOS?	Y/N?	n

Ant System Five Owner: Conn Radio Rocky Hill
Sector: 1
Azimuth: 360







Antenna System Six

	units	Value
Frequency	MHz	880.00
# of Channels	#	16
Max ERP/Ch	Watts	250.00
Max Pwr/Ch Into Ant.	Watts	13.12
(Center of Radiator)	feet	125.00
Calculation Point	feet	0.00
(above ground or		0.00
roof surface)		0.00
Antenna Model No.		RS65-13-00_A2
Max Ant Gain	dBd	12.80
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	8.00
Ant HBW	degrees	65.00
Distance to Ant_{bottom}	feet	121.00
WOS?	Y/N?	n

Ant System SIX Owner: Cingular/SNET
Sector: 3
Azimuth: 0/120/240

Antenna System Seven

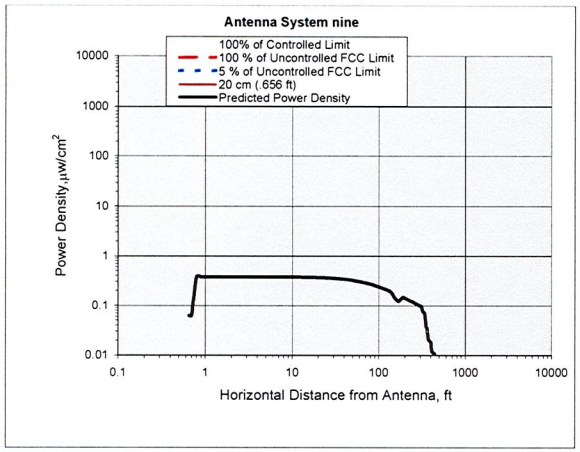
	units	Value
Frequency	MHz	160.00
# of Channels	#	5
Max ERP/Ch	Watts	250.00
Max Pwr/Ch Into Ant.	Watts	79.06
(Center of Radiator)	feet	121.00
Calculation Point	feet	0.00
(above ground or		0.00
roof surface)		0.00
Antenna Model No.		DB225; 160MHz
Max Ant Gain	dBd	5.00
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	3.00
Ant HBW	degrees	120.00
Distance to Ant_{bottom}	feet	119.50
WOS?	Y/N?	n

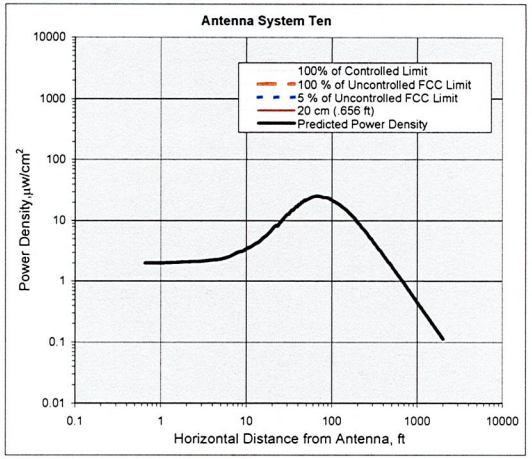
Ant System SEVEN Owner: Airtouch
Sector: 1
Azimuth: 360

Antenna System Eight

	units	Value
Frequency	MHz	835.00
# of Channels	#	10
Max ERP/Ch	Watts	250.00
Max Pwr/Ch Into Ant.	Watts	250.00
(Center of Radiator)	feet	97.00
Calculation Point	feet	0.00
(above ground or		0.00
roof surface)		0.00
Antenna Model No.		PD 1108
Max Ant Gain	dBd	0.00
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	4.00
Ant HBW	degrees	360.00
Distance to Ant_{bottom}	feet	95.00
WOS?	Y/N?	n

Ant System Eight Owner: Verizon
Sector: 1
Azimuth: 360





Antenna System Nine

	units	Value
Frequency	MHz	406.00
# of Channels	#	10
Max ERP/Ch	Watts	250.00
Max Pwr/Ch Into Ant.	Watts	0.12
(Center of Radiator)	feet	82.00
Calculation Point	feet	0.00
(above ground or		0.00
roof surface)		0.00
Antenna Model No.		PD 201
Max Ant Gain	dBd	33.30
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	4.00
Ant HBW	degrees	360.00
Distance to Ant_{bottom}	feet	80.00
WOS?	Y/N?	n

Ant System NINE Owner: Verizon
Sector: 1
Azimuth: 360

Antenna System Ten

	units	Value
Frequency	MHz	74.00
# of Channels	#	5
Max ERP/Ch	Watts	250.00
Max Pwr/Ch Into Ant.	Watts	79.06
(Center of Radiator)	feet	53.00
Calculation Point	feet	0.00
(above ground or		0.00
roof surface)		0.00
Antenna Model No.		DB225; 160MHz
Max Ant Gain	dBd	5.00
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	3.00
Ant HBW	degrees	120.00
Distance to Ant_{bottom}	feet	51.50
WOS?	Y/N?	n

Ant System TEN Owner: Verizon
Sector: 3
Azimuth: 0/120/240

9. For Further Information

Additional information about the environmental impact of RF energy from personal wireless antenna facilities can be obtained from the Federal Communications Commission:

Dr. Robert Cleveland
Federal Communications Commission
Office of Engineering and Technology
Washington, DC 20554

RF Safety Program: 202-418-2464
Internet address: rfsafety@fcc.gov
RF Safety Web Site: www.fcc.gov/oet/rfsafety

10. References

[1] The Communications Act of 1934, as amended by the Telecommunications Act of 1996, 47 U.S.C. Section 332 (c)(7)(B)(iv).

[2] *Guidelines for Evaluating the Environmental Effects of Radio frequency Radiation*, Notice of Proposed Rulemaking, ET Docket 93-62, 8 FCC Rcd 2849 (1993).

[3] *Guidelines for Evaluating the Environmental Effects of Radio frequency Radiation*, Report and Order, ET Docket 93-62, FCC 96-326, adopted August 1, 1996. 61 Federal Register 41006 (1996).

[4] *Guidelines for Evaluating the Environmental Effects of Radio frequency Radiation*, Second Memorandum Opinion and Order, ET Docket 93-62, adopted August 25, 1997.

[5] *Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields*, OET Bulletin 65, August, 1997.

TECTONIC / KEYES ASSOCIATES
Division of TECTONIC Engineering Consultants P.C.

CORPORATE OFFICE:
Mountainville, NY (800)-829-6531

1344 Silas Deane Highway, Suite 500
Rocky Hill, Connecticut 06067

(860) 563-2341 Fax: (860) 257-4882
www.tectonicengineering.com

Mr. Donald Huntley
Bechtel Telecommunications
210 Pomeroy Avenue
Meriden, CT 06450

May 15, 2002

RE: W.O. 2650. CT330
AT&T WIRELESS SITE CT-330, TOLLAND SW
EXISTING 150' GUYED TOWER
497 OLD POST ROAD, TOLLAND, CT
STRUCTURAL CAPACITY

Dear Mr. Huntley:

At the request of AT&T Wireless, Tectonic Engineering has performed a structural analysis of the above referenced tower to evaluate its capacity to support AT&T's proposed antenna installation.

The analysis was performed in accordance with established guidelines and loading criteria, which includes the 1999 Connecticut supplement to the BOCA National Building Code, and the national standard ANSI/TIA/EIA-222-F-1996 "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures".

The results of this analysis indicate that the existing tower has sufficient capacity to support the proposed AT&T antenna installation. The analysis further concluded that the existing tower foundation also has adequate capacity for the proposed loads. The details of our analysis of this tower are presented in our Structural Analysis Report, dated May 15, 2002.

Should require any additional information regarding our analysis, please feel free to contact us.

Sincerely,
TECTONIC/KEYES ASSOCIATES

John D. Fuller, P.E.
Telecommunications Manager

Cc: File