

#### STATE OF CONNECTICUT

#### CONNECTICUT SITING COUNCIL

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

September 6, 2002

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

RE: **EM-AT&T-165-020814** - AT&T Wireless PCS, LLC d/b/a AT&T Wireless notice of intent to modify an existing telecommunications facility located at 55 King Spring Road, Windsor Locks, Connecticut.

#### Dear Attorney Fisher:

At a public meeting held on September 5, 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 received in our office on August 14, 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.

Chairman

MAG/laf

 Honorable Edward A. Ferrari, First Selectman, Town of Windsor Locks Planning and Zoning Official, Town of Windsor Locks Cox Communications



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August 20, 2002

Honorable Edward A. Ferrari First Selectman Town of Windsor Locks Town Office Building 50 Church Street Windsor Locks, CT 06096

RE:

EM-AT&T-165-020814 - AT&T Wireless PCS, LLC d/b/a AT&T Wireless notice of intent to modify an existing telecommunications facility located at 55 King Spring Road, Windsor Locks, Connecticut.

Dear Mr. Ferrari:

The Connecticut Siting Council (Council) received this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

The Council will consider this item at the next meeting tentatively scheduled for September 5, 2002, at 1:30 p.m. in Hearing Room One, Ten Franklin Square, New Britain, Connecticut.

Please call me or inform the Council if you have any questions or comments regarding this proposal.

Thank you for your cooperation and consideration.

Very truly yours,

8. Derek Phelps / Executive Director

SDP/slm

Enclosure: Notice of Intent

c: Planning and Zoning Official, Town of Windsor Locks

## NOTICE OF INTENT TO MODIFY AN EXISTING TELECOMMUNICATIONS FACILITY AT AUG 14 2002 55 KING SPRING ROAD, WINDSOR LOCKS, CONNECTICUT SITING COUNCIL

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 55 King Spring Road, Windsor Locks, Connecticut (the "King Spring Road Facility"), owned by Cox Communications (the "tower owner"). AT&T Wireless and the tower owner have agreed to share the use of the King Spring Road Facility, as detailed below.

#### **The King Spring Road Facility**

The King Spring Road Facility consists of an approximately one hundred (100) foot lattice tower (the "Tower") and associated equipment currently being used for wireless communications by Arch Paging.

#### **AT&T Wireless' Facility**

As shown on the enclosed plans prepared by Tectonic/Keyes Associates, including a site plan and tower elevation of the King Spring Road Facility, AT&T Wireless proposes shared use of the Facility by placing antennas on the Tower and equipment cabinets at grade needed to provide personal communications services ("PCS"). AT&T Wireless will install 6 panel antennas at approximately the 100 foot level of the Tower and associated equipment cabinets (2 proposed, 2 future, each 76"H x 30" W x 30" D) located on a concrete pad within the existing fenced compound. As evidenced in the structural report prepared by Tectonic Engineering Consultants, PC, 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 King Spring 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, RF Engineer, annexed hereto as Exhibit B, the total radio frequency electromagnetic radiation power density at the Tower site's boundary will not be 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.

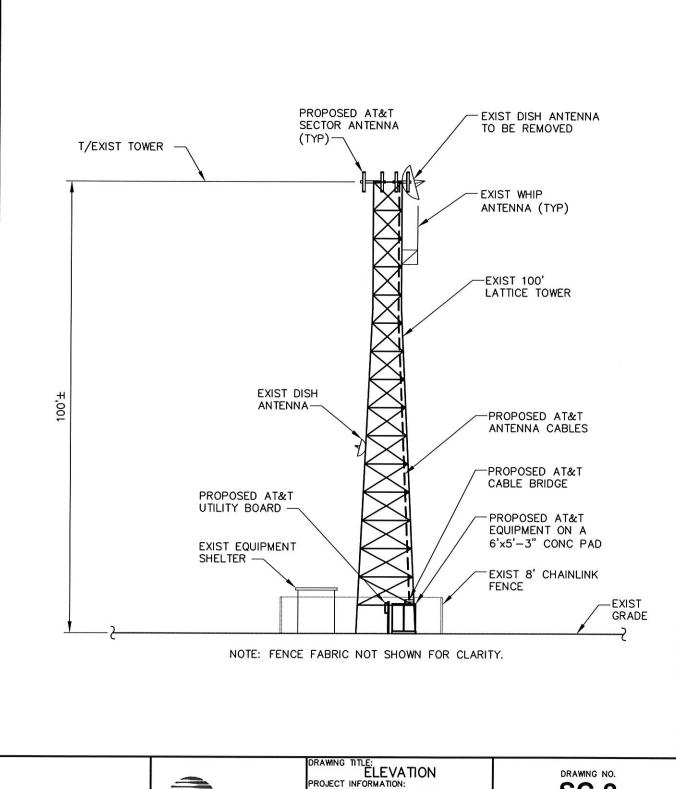
#### Conclusion

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

Respectfully Submitted,

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

cc: First Selectman, Town of Windsor Locks RJ Wetzel, Bechtel



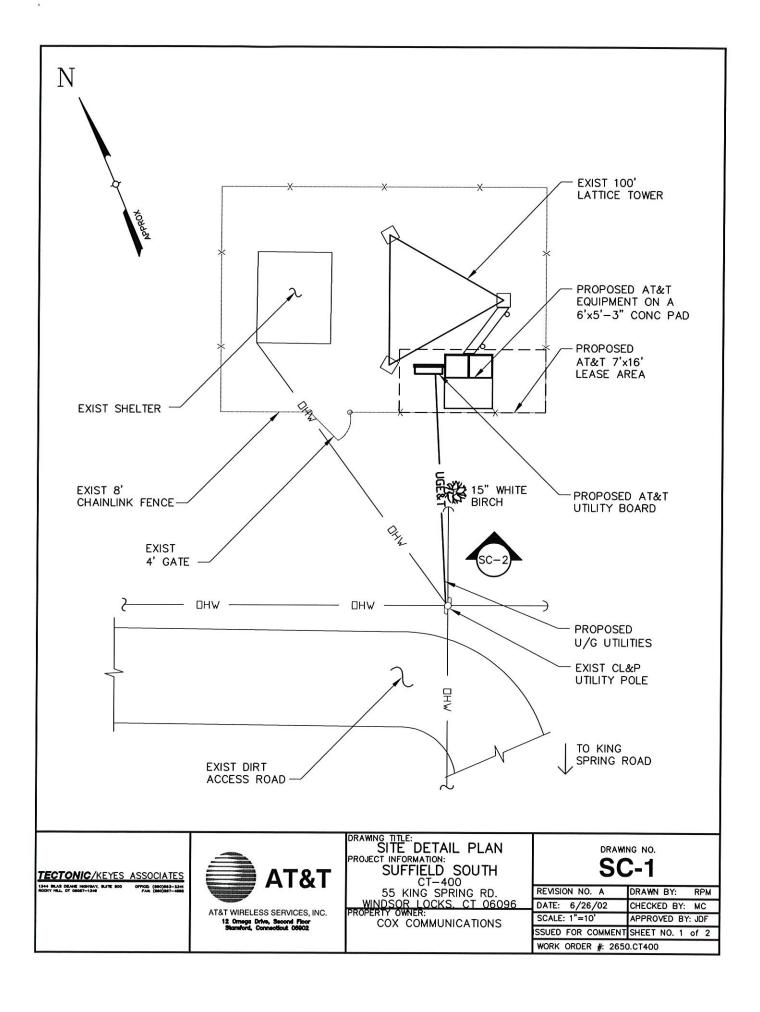
TECTONIC/KEYES ASSOCIATES



SUFFILED SOUTH
CT-400
55 KING SPRING RD
WINDSOR LOCKS. CT 06096
PROPERTY OWNER:

COX COMMUNICATIONS

DRAWN BY: REVISION NO. A RPM DATE: 6/26/02 CHECKED BY: MC SCALE: 1"=20' APPROVED BY: JDF SSUED FOR COMMENT SHEET NO. 2 of 2 WORK ORDER #: 2650.CT400



## AT&T WIRELESS PCS: SUFFIELD SOUTH W.O. 2650.CT400 EXISTING 100' SELF-SUPPORTING TOWER WINDSOR LOCKS, CT STRUCTURAL ANALYSIS REPORT JULY 12, 2002

#### 1.0 INTRODUCTION

The existing self-supporting tower, located at 55 King Spring Road in Windsor Locks, CT, is owned by Cox Communications, and currently serves their communication needs. AT&T Wireless PCS (AT&T) anticipates installing its antennas on this tower in the near future.

Tectonic Engineering & Surveying Consultants, P.C. has performed a structural inspection and analysis of the tower to verify its adequacy for supporting the proposed installation in addition to the existing equipment in accordance with current code requirements.

#### 1.1 <u>Information Provided</u>

For the purpose of the analysis, Tectonic was furnished with the following information:

 "Radio Link Candidate Form", by Pinnacle Site Development, site no. CT-400.1, site address: 55 King Spring Rd., Windsor Locks, CT 06096, dated 4/19/02.

#### 2.0 STRUCTURE DESCRIPTION

#### 2.1 General

The tower appears to be a Rohn model SSV. It is a three-legged, self-supporting tower, with a total height of 100'. The tower is comprised of five (5) 20' long sections, and is X-braced for its entire height.

All sections utilize steel pipe for leg members and single steel angles for bracing. The tower is approximately 14'-8" wide at the base, tapering uniformly to a width of approximately 6'-7" at the 80' level. The tower has a uniform width of approximately 6'-7" from the 80' level to the top. Horizontal members are present at the 100' level. All member connections are bolted.

A diagram of the structure is presented in Figure 1, attached.

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#### 2.2 Tower Foundation

The exposed portion of the tower foundation consists of three (3) 1'-6" square concrete piers, one per leg, extending approximately 12" above grade.

Each tower leg is welded to a 1" thick base plate, which is anchored to the foundation by four (4) 7/8" diameter anchor bolts. Approximately 3" of grout is present under each leg base plate.

#### 2.3 Loading Criteria

No drawings of the tower or its foudation were made available to Tectonic. Furthermore, no information regarding the original design criteria was made available.

#### 3.0 EXISTING CONDITION

#### 3.1, Field Inspection

Tectonic Engineering & Surveying Consultants, P.C. performed a detailed inspection of the tower on June 28, 2002 to obtain member sizes and dimensions and to verify the existing configuration and conditions. Photographs of the structure were also taken for documentation.

For identification purposes, the southeast (climbing) leg of the tower is designated as leg A, while the southwest and north legs are designated as B and C, respectively.

Our inspection revealed that the tower legs and bracing are in good condition. The galvanizing is intact. No damage or significant deformation of the tower was observed.

The exposed portion of the tower foundation is in good condition. The grout is intact. The base plates and anchor bolts are also in good condition.

The following items were beyond the scope of this inspection:

- 1. The tower was not measured for plumbness.
- 2. No investigation of the existing soil conditions or foundation system was performed.

#### 3.2 Existing Antennas and Equipment

At the time of our inspection, the tower was found to be supporting the

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#### following items:

- 1 10' diameter solid dish antenna at the 95' level (centerline), pipe mounted to leg A
- 1 EW127A elliptical waveguide to the 95' level on face A-C
- 1 Decibel DB809K or similar omnidirectional antenna at the 84' level (base of antenna), mounted on an approximately 1' long sidearm to leg B
- 1 7/8" diameter coaxial cable to the 84' level on leg B
- 1 Channel Master 1.2M or similar solid dish antenna at the 43' level (centerline), mounted on an approximately 2' long sidearm to leg B
- 1 1/4" diameter coaxial cable to the 43' level on leg B
- Step bolts from the 14' level to the top on leg A

#### 4.0 PROPOSED INSTALLATION

It is our understanding that the existing 10' diameter dish antenna will be removed, but the other existing antennas will remain. AT&T proposes to add the following items to the tower:

- 6 Allgon 7250 panel antennas, pipe mounted two (2) per sector to three (3) 4' wide frames at the 100' level (centerline)
- 12 7/8" diameter coaxial cables mounted on a new waveguide ladder to the 100' level on face A-B

#### 5.0 STRUCTURAL ANALYSIS

#### 5.1 <u>Current Loading Criteria</u>

In accordance with the provisions of ANSI/TIA/EIA-222-F-1996 "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures", a basic wind speed of 80 mph applies to Hartford County, CT, where the tower is located. This is the same wind speed required by the 1999 Connecticut Supplement to the BOCA National Building Code / 1996 for the Town of Windsor Locks. Therefore, a wind speed of 80 mph was used in our analysis.

Ice loads have been established based on a 0.5" radial ice thickness in accordance with industry standard practice. A reduced wind speed of 69 mph was used in conjunction with this ice load.

#### 5.2 Procedure

The tower has been analyzed with STAAD.Pro 2001, a general purpose, three-dimensional structural analysis program, using the geometry and member sizes measured during our field inspection. The analysis included the tower with the

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existing antennas (excluding the dish antenna to be removed) and the proposed AT&T antennas and related cables, using current loading criteria with:

- a) a wind speed of 80 mph and no ice
- b) a wind speed of 69 mph in conjunction with 0.5" ice

#### 5.3 Assumptions

Several assumptions were made in order to perform the analysis. Each of these is considered by Tectonic to be both reasonable and consistent with current standards of practice.

- 1. Material properties are in accordance with Rohn standard fabrication practice (50 ksi legs, 36 ksi bracing).
- 2. The anchor bolts are ASTM A354 Grade BC in accordance with Rohn standard fabrication practice.
- 3. Bracing members are considered as pin-ended.
- 4. The connection of the tower to its foundation is assumed to be pinned.
- 5. Wind loads are based on the full projected area of all antennas and mounts in each loading condition.
- 6. The tower foundation has adequate capacity to resist the loads resulting from the existing antenna configuration, and was designed based on site-specific geotechnical information.

#### 5.4 Results

The results of our analysis indicate that the calculated stresses in all of the tower members are less than the allowable values established by applicable codes. The "no ice" loading condition governs. The table below shows the results of the calculations for critical members in each section.

		LEGS			BRACING	
Height (ft)	Capacity (kips)	Max Force (kips)	Stress Ratio (%)	Capacity (kips)	Max Force (kips)	Stress Ratio (%)
0 – 20	84.2	53.3	63	4.7	2.3	49
20 – 40	62.8	41.1	65	3.0	1.9	64
40 – 60	53.0	29.1	55	2.7	1.6	60
60 - 80	50.2	18.5	. 37	4.3	1.2	27
80 – 100	32.2	8.0	25	2.8	1.0	35

The maximum foundation reactions are summarized as follows:

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Max. compression 55.3 kips Max. uplift 51.0 kips Total shear 12.2 kips Overturning moment 674 kip-ft

The anchor bolts are stressed to 50% of their allowable capacity.

For comparison, we have calculated the overturning moment with the existing installation only to be approximately 731 kip-ft. We note that this overturning moment is greater than that from the proposed condition.

#### 6.0 CONCLUSIONS AND RECOMMENDATIONS

As a result of our analysis, we find that the existing tower has sufficient capacity to permit the installation of the proposed AT&T antennas and cables. No structural problems for the tower are anticipated, and no modifications are necessary.

No specific information on the design or construction of the existing tower foundation was made available. However, since the foundation reactions are less than those from the existing condition and the anchor bolt stress is quite low, we expect that the foundation also has adequate capacity for the proposed installation.

Any further changes to the proposed antenna configuration should be reviewed with respect to their effect on structural loads prior to implementation.

Prepared by:

Richard J. Dyer, Æ.I.T.

Staff Structural Engineer

Reviewed by:

Colin G. Kelley, P.E.

Senior Structural Engineer

Approved by:

Jeffrey B. Kifby, 凡歷

Chief Structural Endineer

Date: 7/12/02





### RF Exposure Analysis for Proposed AT&T Wireless Antenna Facility

SITE ID: 907-007-400

July 19, 2002

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

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#### 1. Introduction

This report constitutes an RF exposure analysis for the proposed AT&T Wireless antenna facility to be located at 55 King Spring Road, Windsor Locks, CT 06096. 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: Suffield South	
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)	100.00 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<sup>1</sup>:

$$PowerDensity = \frac{0.64*1.64*N*ERP(\theta)}{\pi*R^2} (mW/cm^2)$$
 Eq. 1-Far-field

Where, N= Number of channels, R= distance in cm from the RC (Radiation Center) of antenna, and  $ERP(\theta)$  = The power of a half wave dipole expressed in milliwatts in the direction of prediction point. This is the correct equation for antennas which have their gain expressed in dBd.

$$PowerDensity = \frac{P_{in} / ch * N * 10^{3}}{2 * \pi * R * h * \alpha / 360} (mW/cm^{2})$$
 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,  $\alpha$  = 3 dB beam-width of horizontal pattern.

<sup>&</sup>lt;sup>1</sup> RF exposure is measured and predicted in terms of power density in units of milliwatts (mW), a thousandth of a watt, or microwatts ( $\mu$ W), a millionth of a watt, per square centimeter (cm<sup>2</sup>). 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. <sup>2</sup> 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 0.000955 mW/cm<sup>2</sup> which occurs at 200 feet from the antenna facility. The chart in exhibit A also shows that the power density is only 0.000339 mW/cm<sup>2</sup> 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 <sup>2</sup>	2.9 mW/cm <sup>2</sup>	0.000955 mW/cm <sup>2</sup>
PCS	1 mW/cm <sup>2</sup>	5 mW/cm <sup>2</sup>	

The maximum power density at the proposed facility represents only 0.12% of the public MPE limit for PCS frequencies.

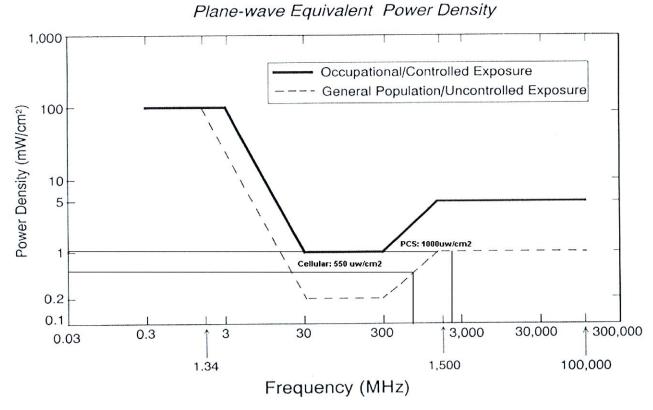
#### 6. Conclusion

This analysis show that the maximum power density in accessible areas at this location is 0.000955 mW/cm<sup>2</sup>, a level of RF energy that is well below the Maximum Permissible Exposure limit established by the FCC.

<sup>&</sup>lt;sup>2</sup> 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

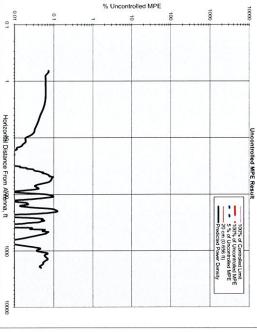
FCC Limits for Maximum Permissible Exposure (MPE)

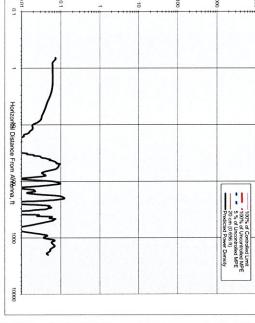


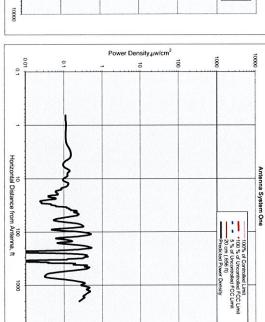
AT&T Wireless Services, Inc.

8. Exhibit A









Power Density µw/cm²

100

10000

Antenna System Two

100% of Controlled Limit
100% of Uncontrolled FCC Limit
5% of Uncontrolled FCC Limit
20 cm (656 ft)
Predicted Power Density

1000

# Number of Antenna Systems:

Antenna System One

10000

0.1

10 Horizontal Distance from Antenna, ft

1000

10000

0.1

Meets FCC Controlled Limits for The Antennas Systems.

Meets FCC Uncontrolled Limits for The Antenna Systems

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

No Further Analysis Required.

Composite Power (ERP) = 5,200.00 Watts	813.45 times lower than the MPE limit for uncontrolled environment	Maximum Power Density =		
5,200.00	uncontrolled e	0.000955	mW/cm <sup>2</sup>	Pov
Watts	nvironment	0.12	% of limit	Power Density
		200.00	feet	@Horiz. Dist.

Performed By: Nader Soliman

Site Location: 55 King Spring Road Site Name: Suffield South Site ID: 907-007-400

Windsor Locks, CT 06096

Date: July 19, 2002

Ant HBW Distance to Ant<sub>bottom</sub> (above ground or roof surface) Antenna Model No. Max Ant Gain (Center of Radiator)
Calculation Point Max Pwr/Ch Into Ant. Miscellaneous Att. Height of aperture # of Channels Max ERP/Ch Frequency Down tilt degrees feet degrees Watts Watts feet feet Y/N? dB feet # MHz units dBd 0.00 0.00 5.11 5.86

Ant System ONE Owner: AT&T Sector: 3

Azimuth: 10/130/240

Value 1945.00

Ant System TWO Owner: Arch Paging Y/N? Azimuth 360

Distance to Ant<sub>botte</sub>

degrees

Height of aperture Miscellaneous Att.

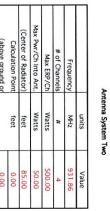
feet

14.50 0.00 Down tilt

degrees

0.00

dВ





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WOS? Y/N? n
Ant System Three Owner: Arch Paging Sector: 1
Azimuth 270

	units	Value
Frequency	MHz	28000.00
# of Channels	#	2
Max ERP/Ch	Watts	100.00
Max Pwr/Ch Into Ant.	Watts	0.01
(Center of Radiator)	feet	41.00
Calculation Point	feet	0.00
(above ground or		0.00
roof surface)		0.00
Antenna Model No.		Dish
Max Ant Gain	dBd	40.00
Down tilt	degrees	0.00
Miscellaneous Att.	dВ	0.00
Height of aperture	feet	2.00
Ant HBW	degrees	1.90
Distance to Ant <sub>bottom</sub>	feet	40.00
WOS?	Y/N?	n

Antenna System Three

#### 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.