

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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Web Site: www.state.ct.us/csc/index.htm

January 10, 2003

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

RE: **EM-AT&T-078-021205** - AT&T Wireless PCS, LLC d/b/a AT&T Wireless notice of intent to modify an existing telecommunications facility located at North Eaglesville Road, Mansfield, Connecticut.

Dear Attorney Fisher:

At a public meeting held on January 8, 2003, 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 December 5, 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 Elizabeth Patterson, Mayor, Town of Mansfield
Martin H. Berliner, Town Manager, Town of Mansfield
Gregory Padick, Town Planner, Town of Mansfield
George L. Davis, Tower Manager, University of Connecticut
Julie Donaldson Kohler, Hurwitz & Sagarin LLC
Christopher B. Fisher, Esq., Cuddy & Feder & Worby LLP

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December 18, 2002

VIA FACSMILIE (860) 827-2950

David Martin
Siting Analyst
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

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DEC 19 2002

**CONNECTICUT
SITING COUNCIL**

Re: EM-AT&T-078-021205 Mansfield

Dear Mr. Martin:

In response to your correspondence dated December 6, 2002 for the above referenced site, enclosed please find a revised MPE analysis to clarify points identified in your letter. The analysis notes that all yagi antennas and the 4' dish antenna at 104'-2" were excluded from the MPE analysis because they are receive only antennas and do not add to the cumulative MPE for the site at grade. Other items included in the structural such as GPS antennas and light beacons were similarly excluded from the MPE analysis given the lack of any transmitting component.

In addition, the Structural Analysis prepared by Pirod Inc., has been clarified to include all antennas currently on the tower, 6 panel antennas at 160' proposed by AT&T and future antennas proposed by VoiceStream at 235', a copy of which is enclosed. Voicestream is currently on an adjacent tower and is negotiating with UCONN to possibly relocate their antennas to the subject tower in the future. As such, UCONN asked that the structural be run with Voicestream's potential antennas included in the event Voicestream later sought approval to relocate their antennas to the subject tower. As noted in the structural, the tower will be within acceptable structural limits as determined by the Professional Engineer at Pirod, Inc.,

CUDDY & FEDER & WORBY LLP

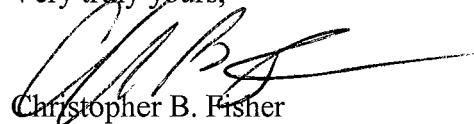
December 18, 2002

Page 2

manufacturer of the tower, with or without Voicestream included. As such, the tower has sufficient capacity for AT&T's proposed installation.

Should you or the Council have any questions or require any additional information, please do not hesitate to contact us.

Very truly yours,

A handwritten signature in black ink, appearing to read 'CBF', with a long horizontal flourish extending to the right.

Christopher B. Fisher



PIROD INC.

A Valmont Industries Company

Tower Reanalysis Report

Proposal PR-2002-12-015

December 13, 2002

U-24.0 x 245' Tower
Storrs #C214, CT
PiRod Engineering File A-113846

Prepared for
Clough, Harbour & Associates LLP
Attn: Jason Harden
III Winners Circle
Albany, NY 12205

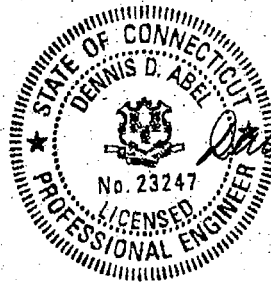
Authorization Provided by
George Davis
University of Connecticut
1814 Route 171
Woodstock Valley, CT 06282

J:\reanalysis\113\113846c.doc

Tower Reanalysis Report Proposal PR-2002-12-015

U-24.0 x 245' Tower
Storrs #C214, CT
PiRod Engineering File A-113846

Completed under the Supervision and Approval by
Dennis D. Abel, P.E.
Manager of Reanalysis Services
e-mail: dabel@pirod.com
telephone extension: 5257



Dennis D. Abel, CT Professional Engineer # 23247

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1.0 EXECUTIVE SUMMARY

This reanalysis was performed by PiRod to determine if the structure is capable of accommodating loading that is different than previous design specifications. This engineering report gives the tower history, details how the loading changes affect the tower, specifies feasible modifications, and proposes modification materials. PiRod's engineering study concludes that the tower has slight overstresses with six AT&T antennas, but the tower complies with three AT&T antennas. See section 6.0 for details.

2.0 ASSUMPTIONS

This engineering study is based on the theoretical capacity of the structure. It is not a condition assessment of the tower. This report is being provided by PiRod without the benefit of an inspection by PiRod personnel and is based on information supplied by the customer to PiRod. PiRod has made no independent determination, nor is required to, of the accuracy of the information provided. Therefore, unless specifically informed to the contrary by the customer in writing, PiRod assumes the following:

1. The subsoil characteristics exist as stated on the tower drawing or stated elsewhere in this report;
2. The tower is erected and maintained in accordance with the manufacturer's plans and specifications and is plumb;
3. There is no damage, natural or manmade, to the structure, either gradual or sudden;
4. All connections and guy cables are properly installed;
5. The information concerning the components, existing and proposed, is accurate; and
6. There are no modifications to the tower itself, except as may be disclosed elsewhere in this report.

PiRod recommends that qualified personnel assess the physical condition of the tower, preferably under the direction of a licensed professional engineer. Following is a list of the general areas that PiRod recommends to be inspected. Contact PiRod for a complete checklist.

<u>Tower Structure</u>	<u>Guyed Towers</u>	<u>Foundations</u>	<u>Appurtenances</u>
Tower Sections	Guy Cables	Cracking	Antennas
Bolted Connections	Turnbuckles	Drainage	Mounts
Welded Connections	Preforms	Spalling	Transmission Lines
Plumbness	Guy Lugs	Anchor Bolts	Line Brackets
Corrosion	Thimbles	Settling	Cable Hangers
Linearity	Torque Arms	Grounding	Lighting
Galvanization	Ice Clips	Grout	
Paint	Guy Tensions	Subsoil	
	Anchor Rods	Characteristics	
	Shackles	Erosion	
	Insulators		

3.0 TOWER HISTORY

Date of Origination: September 19, 1997
PiRod Model: U-24.0 x 245' Tower
Sold to: Bechtel National, Inc.

ORIGINAL DESIGN CRITERIA				
Code/Standard	Wind Loading	Radial Ice	Wind Load Reduction Used	Allowable Stress Increase Used
TIA/EIA-222-F	90 mph fastest mile	no	none	yes
TIA/EIA-222-F	90 mph fastest mile	½" solid	25%	yes

The original design is based on the following antenna loading. This may not truly represent the antennas that have actually been placed on the tower.

HEIGHT (FT)	ANTENNAS		ASSUMED CAAC (SQ.FT.)	MOUNTS		LINES	
	QTY.	MODEL		QTY.	MODEL	QTY.	SIZE
Top	1	Dual Light				1	1"
Top				1	15' Lightning Rod Extender		
245'	12	Decibel DB980		1	15' Rotatable Platform	12	1-5/8"
225'	12	Swedcom ALP9212		3	15' Universal T-Frame	12	1-5/8"
120'	1	Decibel DB201		1	3' Standoff	1	7/8"
115'	2	Decibel DB201		1	3' Standoff	1	7/8"
115'	1	4' Grid Dish				1	7/8"
103'	1	6' Solid Dish w/ Radome				1	7/8"
65'	1	Camera *	4.0				
50'	1	GPS *	14.0 including mount				

For the structural analysis, the tower and foundation are assumed to exist as shown on the enclosed tower drawing, which is PiRod's latest revision.

4.0 CURRENT WIND LOAD REQUIREMENT

The TIA/EIA Standard is currently at version F. Tolland County is designated as an 85 mph basic wind speed zone by the current TIA/EIA Standard. We have taken the opportunity to reanalyze this structure using the following wind speed and ice load conditions.

Code/Standard	Wind Loading	Radial Ice	Wind Load Reduction Used ⁽¹⁾	Allowable Stress Increase Used ⁽²⁾
TIA/EIA-222-F	90 mph fastest mile	no	none	yes
TIA/EIA-222-F	90 mph fastest mile	1/2" solid	25%	yes

(1) The wind load reduction is permitted by the TIA/EIA-222-F Standard section 2.3.16 and most other codes to account for the minimal chance that the maximum wind speed will occur simultaneously with the ice load.

(2) The allowable stress increase is permitted by the TIA/EIA-222-F Standard and most other codes in accordance with the AISC-ASD Manual of Steel Construction.

Note: Some localities stipulate wind load requirements that are different from that required by the TIA/EIA Standard. Please check with your local building department and verify the required wind load.

5.0 ANTENNA LOADING

The tower analysis uses the following antenna loading, which was provided on October 7, 2002. The existing loading is shown as reported in the antenna inventory by Clough, Harbour & Associates, dated September 24, 2002.

HEIGHT (FT.)	ANTENNAS		ASSUMED CAAC (SQ.FT.)	MOUNTS		LINES	
	QTY.	MODEL		QTY.	MODEL	QTY.	SIZE
Existing Loading							
Top	1	Dual Light				1	1"
Top				1	15' Lightning Rod Extender (806011)		
245'	6	Decibel DB980H		1 12	15' Rotatable Top 2" x 84" Antenna Pipe	6	1-5/8"
235'	8 6	EMS RR90-17 Amplifier, 5-3/8" x 5- 1/2" x 11-3/4" <i>VoiceStream</i>		3 8	12' Lightweight T-frame 2" x 84" Antenna Pipe	16	1-5/8"
74'-3"	1	13', 8-Element Yagi *	13.6			1	5/8"
62'-3"	1	8', 10-Element Yagi *	3.6			1	5/8"
51'-6"	1	4.5', 12-Element Yagi *	2.43			1	5/8"
42'-6"	1	3', 10-Element Yagi *	1.18			1	5/8"

38'-9"	1	4.5', 12-Element Yagi *	2.43			1	5/8"
37'-6"	1	4.5', 12-Element Yagi *	2.43			1	5/8"
32'-8"	1	4.5', 12-Element Yagi *	2.43			1	5/8"
135'	1	9' Whip *	3.00	1	3' Standoff	1	5/8"
111'	1	9' Whip *	3.00	1	3' Standoff	1	5/8"
74'	1	11'-5", 8-Element Yagi *	11.12			1	5/8"
61'	1	13', 8-Element Yagi *	13.00			1	5/8"
52'	1	4'-9", 12-Element Yagi *	2.60			1	5/8"
134'-6"	1	9' Whip *	3.00	1	3' Standoff	1	5/8"
122'-6"	1	22' Whip *	6.60	1	6' Standoff (assumed CaAc = 9.85 sq. ft.)	1	1-1/2"
112'	1	4' Grid Dish				1	3/8"
104'-2"	1	6' Solid Dish w/ Radome				1	EW63
69'	1	4.7', 12-Element Yagi *	2.54			1	1/2"
57'	1	Camera *	1.50			2	3/8"
50'	1	GPS *	1.00	1	3' Standoff	1	1/4"
Proposed Additional Loading – Review 1							
160'	6	Allgon 7250.03 AT&T		3 6	10' Lightweight T-frame 2" x 72" Antenna Pipe	12	1-5/8"
Proposed Additional Loading – Review 2							
160'	3	Allgon 7250.03 AT&T			leg mounted	6	1-5/8"

These antennas, mounts, and lines represent our understanding of the antenna loading required. Please contact us if any discrepancies are evident. If different antennas, mounts, or lines are installed on this structure, this analysis is invalid.

* An asterisk indicates that we were not provided with a value for the effective projected area (C_{AAC}), and that the area has been assumed based on any information that was made available. The actual effective projected area for each antenna must be confirmed to be equal to the assumed area listed above. If it is determined that the area is different than that stated for any of the above items, this analysis is invalid.

6.0 RESULTS

With the antennas listed in section 5.0, the following modifications are required for the tower to comply with the indicated code and TIA/EIA Standard listed in section 4.0.

6.1 Tower Modifications

Review 1 – 6 AT&T Antennas with 12 Lines

The tower is slightly overstressed by as much as 5% in the legs and bracing as shown below. We typically consider this small amount of overstress negligible and, therefore, acceptable.

Section Height	No Ice		½" Ice	
	Leg Compressive Stress	Bracing Stress	Leg Compressive Stress	Bracing Stress
230' - 245'	0.48	0.67	0.50	0.71
210' - 230'	0.67	0.58	0.74	0.70
190' - 210'	0.69	0.51	0.80	0.65
180' - 190'	0.62	0.26	0.74	0.42
160' - 180'	0.73	0.41	0.90	0.66
140' - 160'	0.62	0.69	0.78	1.05
120' - 140'	0.73	0.57	0.92	0.82
100' - 120'	0.64	0.51	0.81	0.71
80' - 100'	0.73	0.70	0.92	0.94
60' - 80'	0.66	0.60	0.82	0.78
40' - 60'	0.73	0.79	0.92	1.00
20' - 40'	0.81	0.81	1.01	1.02
0' - 20'	0.72	0.39	0.89	0.46

Review 2 – 3 AT&T Antennas with 6 Lines

The tower complies without modifications. All stress ratios are below 1.00 as shown in the table below.

Section Height	No Ice		½" Ice	
	Leg Compressive Stress	Bracing Stress	Leg Compressive Stress	Bracing Stress
230' - 245'	0.48	0.67	0.50	0.71
210' - 230'	0.67	0.58	0.74	0.70
190' - 210'	0.69	0.51	0.80	0.65
180' - 190'	0.62	0.26	0.74	0.42
160' - 180'	0.73	0.41	0.90	0.66
140' - 160'	0.61	0.61	0.77	0.93
120' - 140'	0.71	0.51	0.89	0.75
100' - 120'	0.61	0.47	0.78	0.66
80' - 100'	0.70	0.65	0.89	0.87
60' - 80'	0.63	0.55	0.79	0.72
40' - 60'	0.70	0.73	0.88	0.94
20' - 40'	0.77	0.76	0.96	0.95
0' - 20'	0.69	0.36	0.85	0.42

6.2 Foundation Modifications

The foundation analysis is based on the soil report by Clough, Harbour & Associates, LLP, dated June 6, 1997 (CHA project #5835.07.64).

Review 1 – 6 AT&T Antennas with 12 Lines

The foundation complies without modifications.

Review 2 – 3 AT&T Antennas with 6 Lines

The foundation complies without modifications.

7.0 LIST OF APPENDICES

Main Tower Drawing, latest revision

202932-B

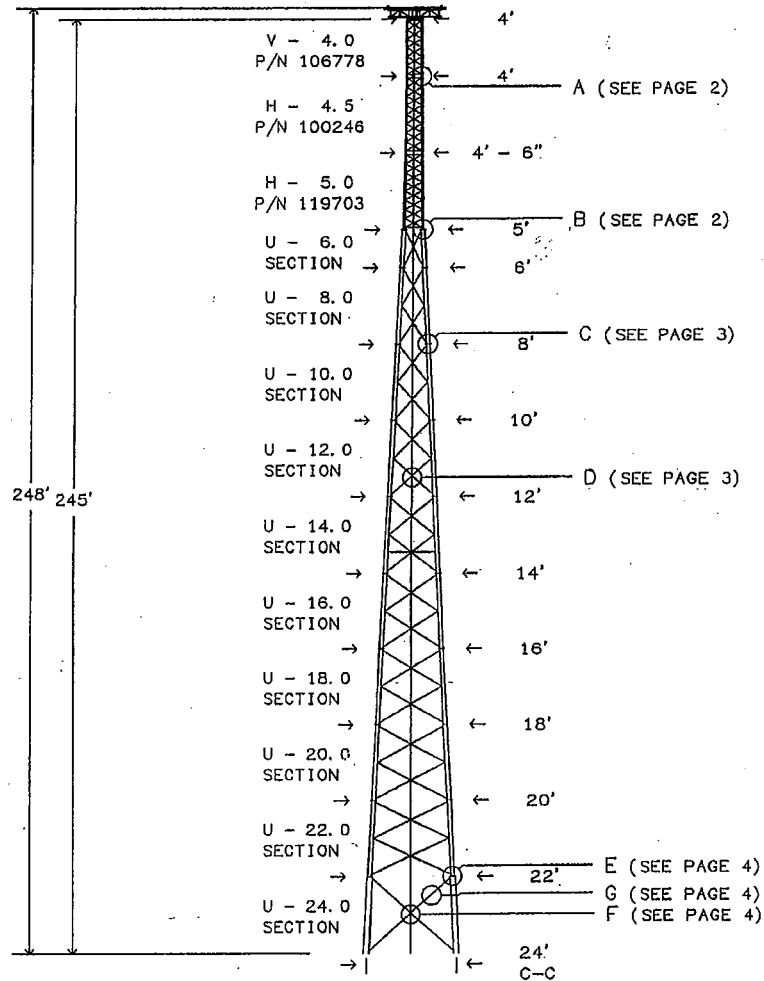
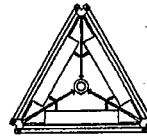
Note: The tower drawing included with this report is PiRod's latest revision and depicts the tower as we understand it to currently exist. It has not been updated to show the existing or proposed antenna loading or any modifications required as a result of this analysis.


TOP VIEW
(ENLARGED)

ROTATABLE TOP
(REF ASSEMBLY
DWG # 122379)

SIDE VIEW
(ENLARGED)

SHOP WELD TOP PLATE P/N
121018 AT TOP OF TOP SECTION.

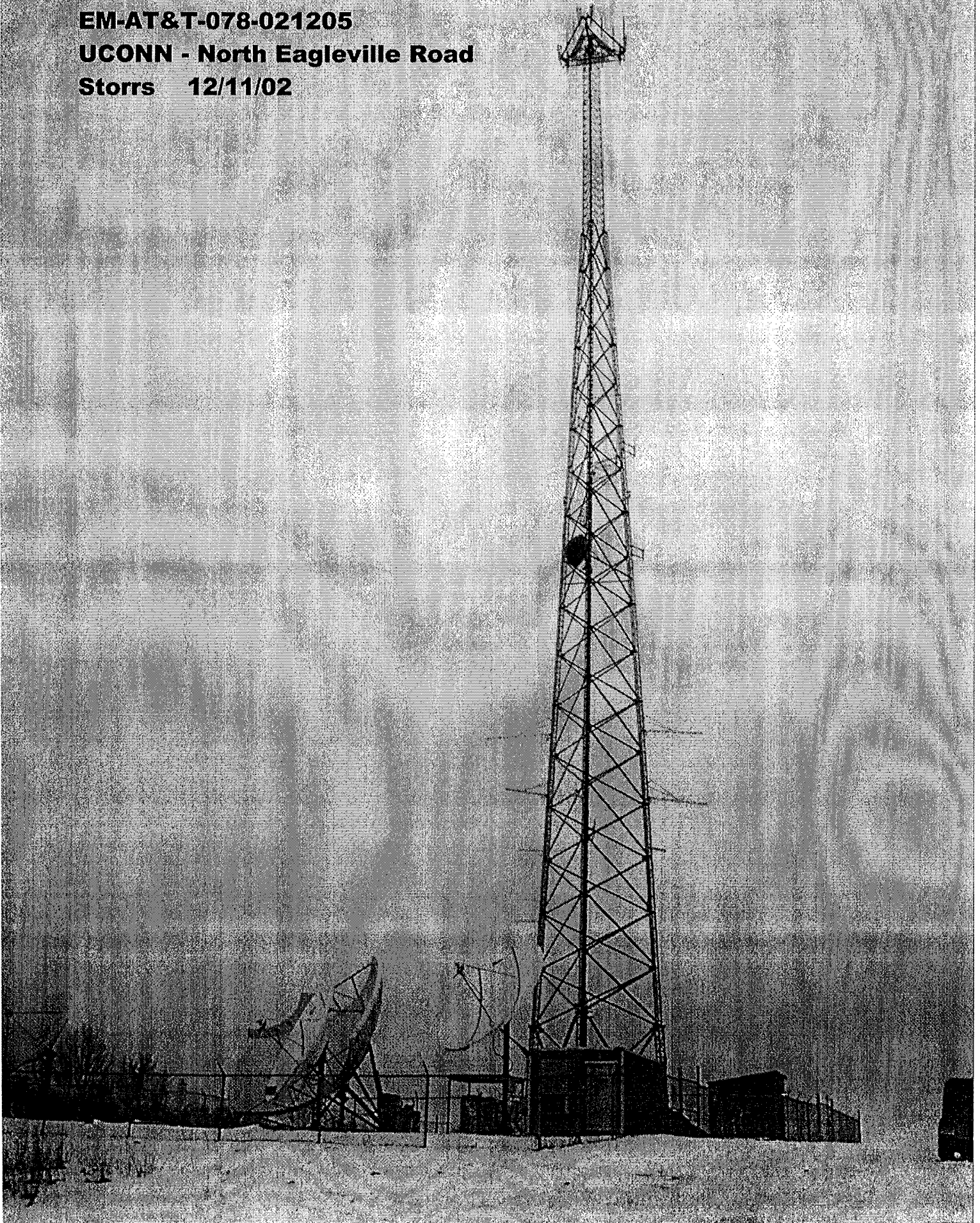


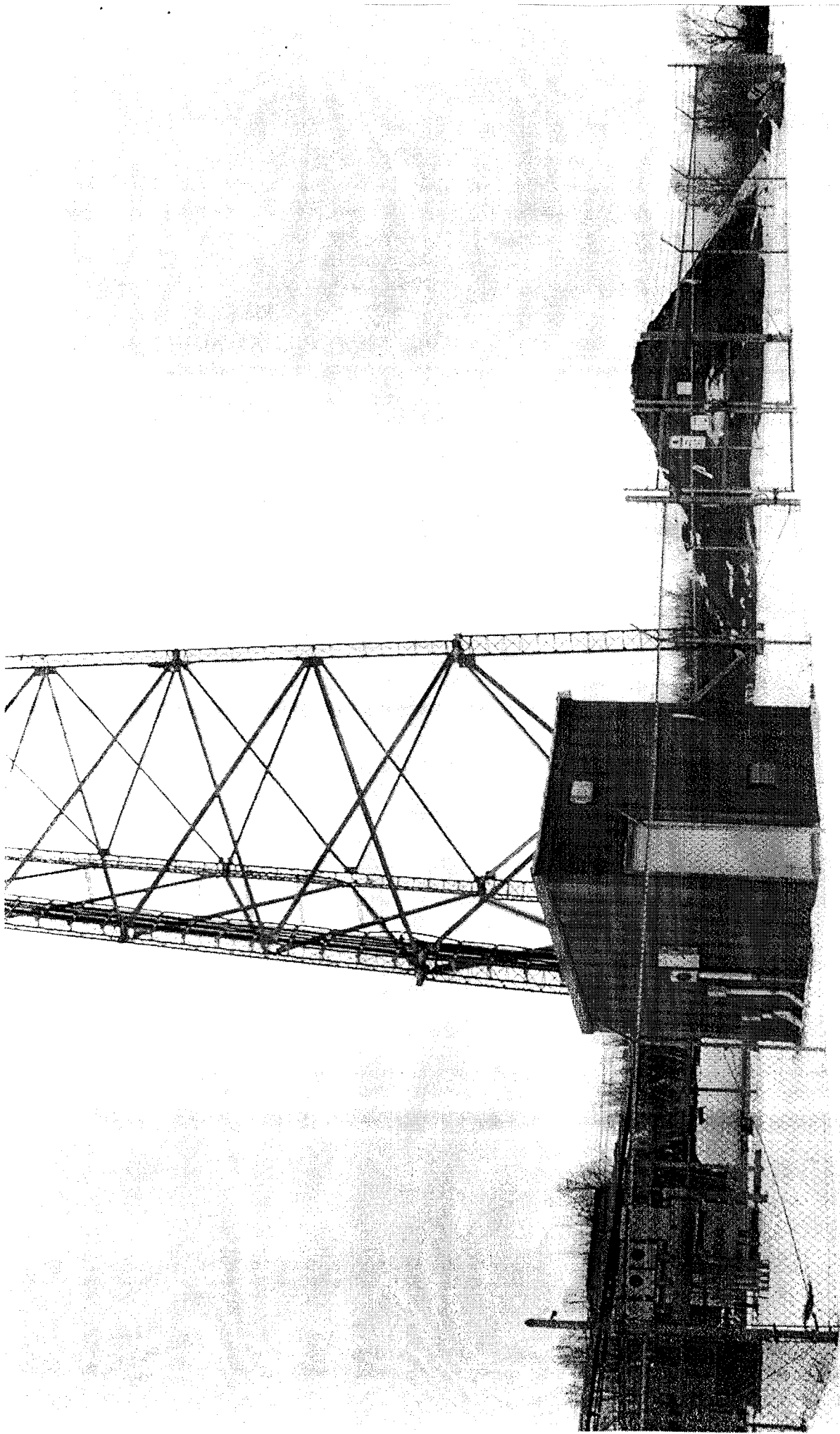
				BECHTEL NATIONAL, INC.	
				STORRS #C214, CT	
				U - 24.0 X 248' SELF-SUPPORTING TOWER	
				CONNECTICUT C. O. A. REC. 797	 PARD INC. 1545 Pldco Dr. Plymouth, IN 46563-0128 219-936-4221
				APPROVED/ENG. MLH 9/23/1997	
				APPROVED/FOUND. N/A	
				COPYRIGHT 2002	
A	ADDED FOUNDATIONS PER SOIL REPORT	MLH	09/23/1997	ENG. FILE NO. A-113846-	DRAWING NO. 202932-B
REV	DESCRIPTION OF REVISIONS	INI	DATE	DRAWN BY RCH	PAGE 1 OF 9
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Printed from: 2029321A.DWG - 09/23/1997 15:09 @ 12/16/2002 12:47					

EM-AT&T-078-021205

UConn - North Eagleville Road

Storrs 12/11/02





EM-AT&T-078-021205

UConn - North Eagleville Road

Storrs 12/11/02



RF Exposure Analysis for Proposed AT&T Wireless Antenna Facility

SITE ID: 907-007-823

December 17, 2002

**Prepared by AT&T Wireless Services, Inc.
Galen Belen 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 *Technology Parkway, Mansfield, CT 06250*. 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: <i>Mansfield Technology Parkway</i>	
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)	160.00 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 facility¹:

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

Where, N = Number of channels, R = distance in cm from the antenna centerline, 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.

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

Where P_{in}/ch = Input power to antenna terminals in watts/ch, R = distance from the antenna centerline, 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 Emissions

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 0.001028 mW/cm² which occurs at 900 feet from the antenna facility. The chart in exhibit A also shows that the power density is only 0.000131 mW/cm² 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 Emissions

<i>Frequency</i>	<i>Public/Uncontrolled</i>	<i>Occupational/controlled</i>	<i>Maximum power density at Accessible location</i>
Cellular	.580 mW/cm ²	2.9 mW/cm ²	0.001028 mW/cm ²
PCS	1 mW/cm ²	5 mW/cm ²	

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

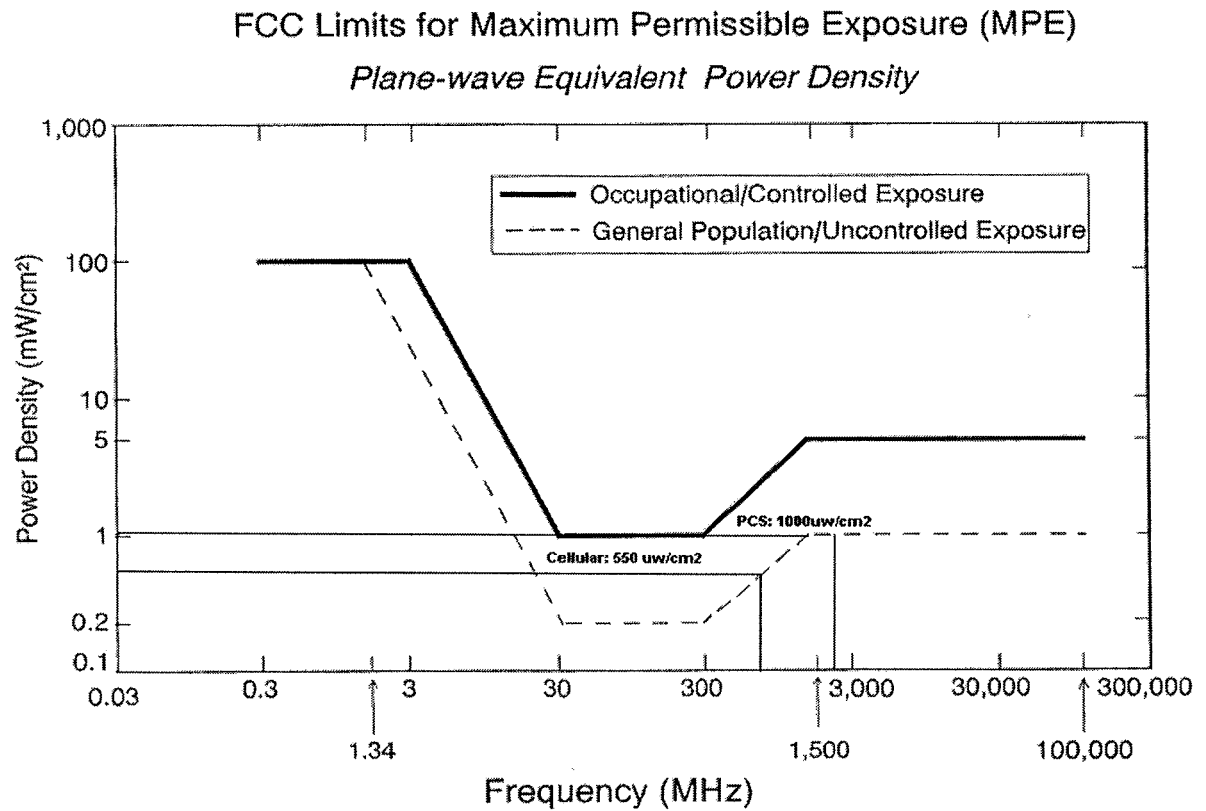
6. Conclusion

This analysis show that the maximum power density in accessible areas at this location is 0.001028 mW/cm², a level of RF energy that is well below the Maximum Permissible Exposure limit established by the FCC.

* All the yagi antennas including the 4 feet dish antenna on the tower are all receive antennas and are not included on the Maximum Permissible Exposure calculations.

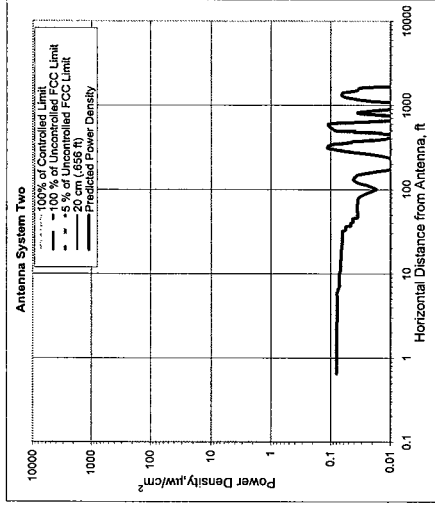
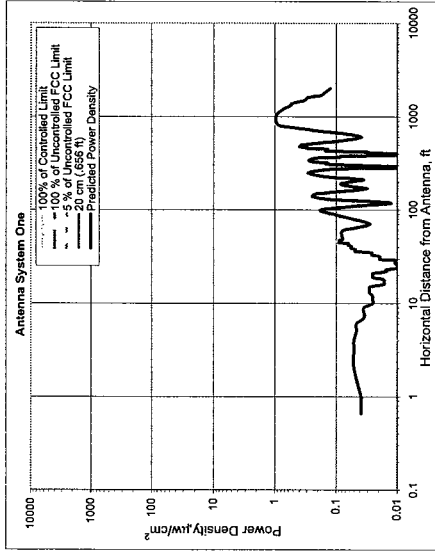
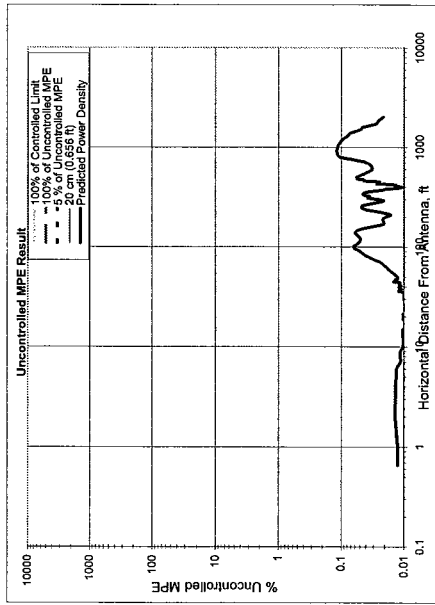
² 47 U.S. C. Section 332 (c) (7)(B)(iv) states that "[n]o State or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such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

7. FCC Limits for Maximum Permissible Exposure



AT&T Wireless Services, Inc.

8. Exhibit A



Number of Antenna Systems: 7
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.

Power Density		@ Horiz. Dist. feet
mW/cm ²	% of limit	
Maximum Power Density =	0.001028	0.12
855.00 times lower than the MPE limit for uncontrolled environment		900.00
Composite Power (ERP) =	9,900.00 Watts	

Site ID: 907-007-823
Site Name: Mansfield Technology Parkway
Site Location: Technology Parkway
Mansfield, CT 06250

Ant System ONE Owner: AT&T
Sector: 3
Azimuth: 01/30/240

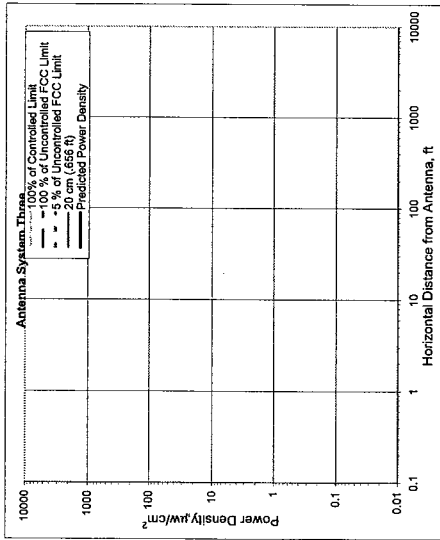
Ant System TWO Owner: Sprint PCS
Sector: 3
Azimuth: 01/20/240

Antenna System One

Frequency	units	Value
# of Channels	MHz	1945.00
Max ERP/Ch	Watts	12
Max Pwr/Ch Into Ant.	Watts	250.00
Antenna Centerline	feet	5.86
Calculation Point (above ground or roof surface)	feet	160.00
Calculation Point (above ground or roof surface)	feet	0.00
Antenna Model No.		0.00
Max Ant Gain	dBd	Align 7250 03
Down tilt	degrees	16.30
Miscellaneous Att.	dB	6.00
Height of aperture	feet	0.00
Ant HBW	degrees	5.11
Distance to Ant _{system}	feet	65.00
WOS?	Y/N?	157.45
		n

Antenna System Two

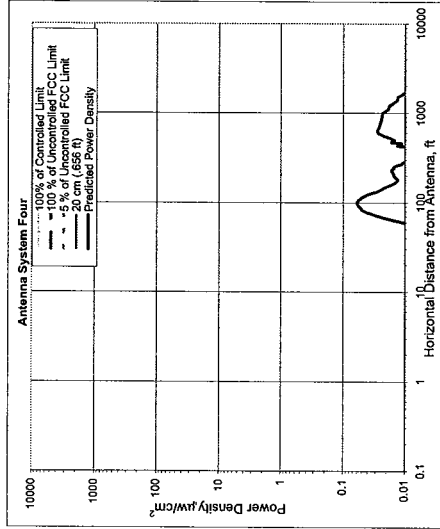
Frequency	units	Value
# of Channels	MHz	1955.00
Max ERP/Ch	Watts	24
Max Pwr/Ch Into Ant.	Watts	250.00
Antenna Centerline	feet	7.73
Calculation Point (above ground or roof surface)	feet	245.00
Calculation Point (above ground or roof surface)	feet	0.00
Antenna Model No.		0.00
Max Ant Gain	dBd	DB980G90E-M
Down tilt	degrees	15.10
Miscellaneous Att.	dB	2.00
Height of aperture	feet	0.00
Ant HBW	degrees	5.00
Distance to Ant _{system}	feet	90.00
WOS?	Y/N?	242.50
		n



Antenna System Three

Frequency	units	Value
8855.00	MHz	2
# of Channels	#	2
Max ERP/Ch	Watts	250.00
Max Pwr/Ch Into Ant.	Watts	0.05
Antenna Centerline	feet	104.10
Calculation Point	feet	0.00
(above ground or roof surface)	feet	0.00
Antenna Model No.		UHX6-59
Max Ant Gain	dBd	36.70
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	6.00
Ant HBW	degrees	1.80
Distance to Ant _{beam}	feet	101.10
WOS?	Y/N?	n

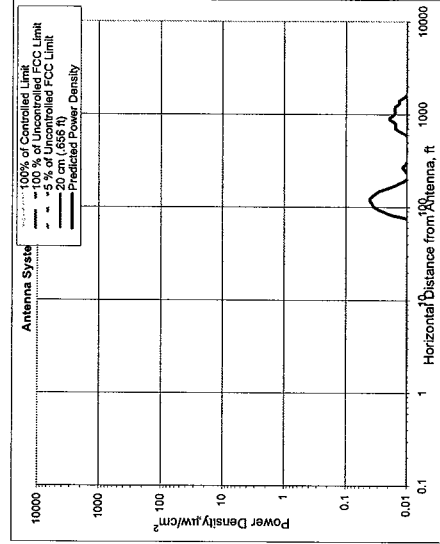
Ant System Three Owner: Connecticut Public Broadcasting
 Sector: 1
 Azimuth: 280



Antenna System Four

Frequency	units	Value
450.47	MHz	1
# of Channels	#	1
Max ERP/Ch	Watts	100.00
Max Pwr/Ch Into Ant.	Watts	25.12
Antenna Centerline	feet	111.00
Calculation Point	feet	0.00
(above ground or roof surface)	feet	0.00
Antenna Model No.		DB636NS
Max Ant Gain	dBd	6.00
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	9.00
Ant HBW	degrees	360.00
Distance to Ant _{beam}	feet	106.50
WOS?	Y/N?	n

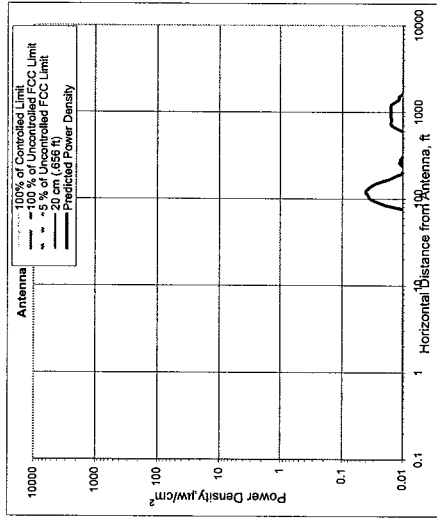
Ant System Four Owner: UCONN
 Sector: 1
 Azimuth: Omni



Antenna System Five

Frequency	units	Value
452.00	MHz	1
# of Channels	#	1
Max ERP/Ch	Watts	100.00
Max Pwr/Ch Into Ant.	Watts	25.12
Antenna Centerline	feet	134.50
Calculation Point	feet	0.00
(above ground or roof surface)	feet	0.00
Antenna Model No.		DB636NS
Max Ant Gain	dBd	6.00
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	9.00
Ant HBW	degrees	360.00
Distance to Ant _{beam}	feet	130.00
WOS?	Y/N?	n

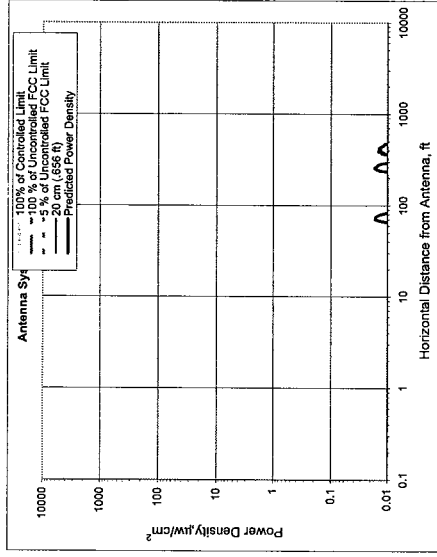
Ant System Five Owner: UCONN
 Sector: 1
 Azimuth: Omni



Antenna System Six

Frequency	units	Value
453.90	MHz	453.90
# of Channels	#	1
Max ERP/Ch	Watts	100.00
Max Pwr/Ch Into Ant.	Watts	25.12
Antenna Centerline	feet	135.00
Calculation Point	feet	0.00
(above ground or roof surface)		0.00
Antenna Model No.		DB636NS
Max Ant Gain	dBd	6.00
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	9.00
Ant HBW	degrees	360.00
Distance to Ant _{footprint}	feet	130.50
WOS?	Y/N?	n

Ant System SIX Owner: UCONN Fire
 Sector: 1
 Azimuth: Omni



Antenna System Seven

Frequency	units	Value
464.00	MHz	464.00
# of Channels	#	1
Max ERP/Ch	Watts	100.00
Max Pwr/Ch Into Ant.	Watts	10.00
Antenna Centerline	feet	122.50
Calculation Point	feet	0.00
(above ground or roof surface)		0.00
Antenna Model No.		DB640NS
Max Ant Gain	dBd	10.00
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	22.00
Ant HBW	degrees	360.00
Distance to Ant _{footprint}	feet	111.50
WOS?	Y/N?	n

Ant System SEVEN Owner: UCONN
 Sector: 1
 Azimuth: Omni

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.

RECEIVED

DEC 05 2002

**NOTICE OF INTENT TO MODIFY AN
EXISTING TELECOMMUNICATIONS FACILITY
NORTH EAGLEVILLE ROAD, MANSFIELD, CONNECTICUT**

**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 on the University of Connecticut Campus, North Eagleville Road, Mansfield, Connecticut (the "UCONN Facility"), owned by the University of Connecticut ("Tower Owner"). AT&T Wireless and the Tower Owner have agreed to share the use of the UCONN Facility, as detailed below.

The UCONN Facility

The UCONN Facility consists of an approximately two hundred forty five foot (245) lattice tower (the "Tower") and associated equipment currently being used for wireless communications by Sprint, the Tower Owner and others.¹

AT&T Wireless' Facility

As shown on the enclosed plans prepared by Clough, Harbour & Associates, LLP, including a site plan and tower elevation of the UCONN Facility, AT&T Wireless proposes shared use of the Facility by placing antennas on the Tower and equipment cabinets at grade to provide personal communications services ("PCS"). AT&T Wireless will install 6 panel antennas at approximately the 160 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 Pirod Inc. and letter from George L. Davis, University of Connecticut Tower Manager, annexed hereto as Exhibit A, AT&T has confirmed that the tower is structurally capable of supporting the addition of AT&T Wireless' antennas, meeting the current TIA/EIA industry standard.

AT&T Wireless' Facility Constitutes An Exempt Modification

The proposed addition of AT&T Wireless' antennas and equipment to the UCONN 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 Galen Belen, 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 See Emissions Report annexed hereto as Exhibit B.

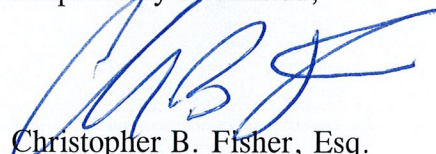
EM-AT&T-078-021205

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

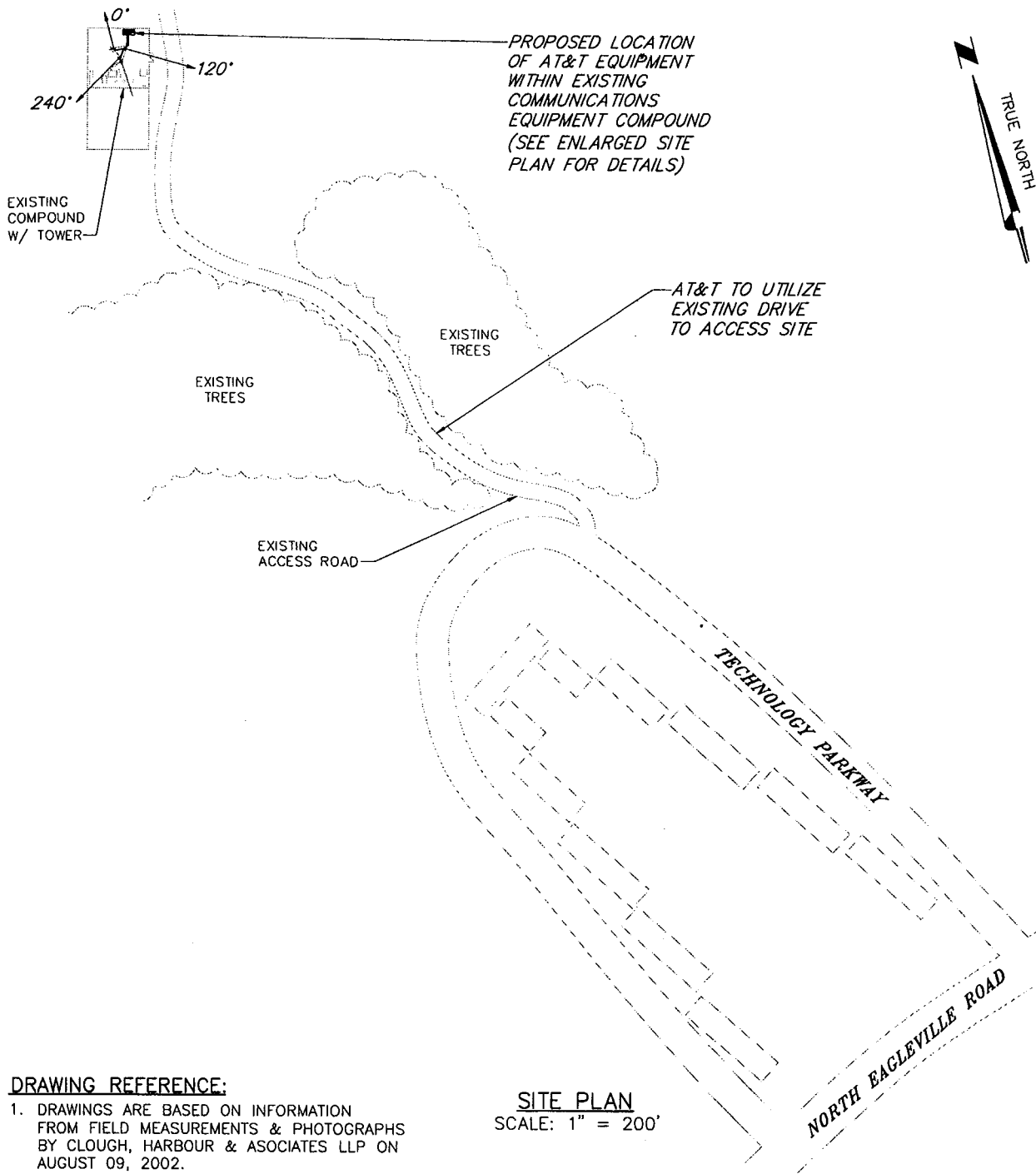
Accordingly, AT&T Wireless requests that the Connecticut Siting Council acknowledge that its proposed modification to the UCONN Facility meets the Council's exemption criteria.

Respectfully Submitted,

A handwritten signature in blue ink, appearing to read 'CBF', is written over the printed name of Christopher B. Fisher, Esq.

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

cc: Town Manager, Town of Mansfield
Greg Padick, Town Planner
RJ Wetzel, Bechtel



DRAWING REFERENCE:

1. DRAWINGS ARE BASED ON INFORMATION FROM FIELD MEASUREMENTS & PHOTOGRAPHS BY CLOUGH, HARBOUR & ASSOCIATES LLP ON AUGUST 09, 2002.

SITE PLAN
SCALE: 1" = 200'

REV	DATE	DRAWN	CHECKED	DESCRIPTION
0	10/02/02	PAL	JCD	ISSUED FOR REVIEW
1	11/11/02	PAL	REB	ISSUE FINAL LEASE EXHIBIT

THIS DRAWING IS FOR OPTION, LICENSE AND PERMITTING PURPOSES ONLY, AND IS NOT TO BE USED FOR CONSTRUCTION

EXHIBIT A

SHEET
1 OF 3

SCALE: 1" = 200'
DATE: NOVEMBER 11, 2002

REVISION
NUMBER 1



CLOUGH, HARBOUR & ASSOCIATES LLP
ENGINEERS, SURVEYORS, PLANNERS
& LANDSCAPE ARCHITECTS

2139 SILAS DEANE HIGHWAY - ROCKY HILL, CT - 06067
SUITE 212 860-257-4557

CHA Project Number: 11676-1004



AT&T

AT&T WIRELESS SERVICES, INC.
210 POMEROY AVENUE, SUITE 201
MERIDEN, CT 06450

SITE # CT-823A
UNIVERSITY OF
CONNECTICUT TOWERS
TECHNOLOGY PARKWAY @
NORTH EAGLEVILLE ROAD
STORRS MANSFIELD, CT 06268

PROPOSED (4) NOKIA ULTRASITE
OUTDOOR CABINETS ON A
CONCRETE PAD WITHIN A 7'-0"
X 16'-0" AT&T LEASE AREA

PROPOSED POWER
& TELCO PANELS

TRUE NORTH

PROPOSED
ICE BRIDGE

46'-6"

2'-0"

PROPOSED RUN
OF (12) 1-5/8"
COAXIAL CABLES

PROPOSED
ALPHA AZ=0°
(2 ANTENNAS
MOUNTED 4'-0"
ON CENTER)

120°

240°

EXISTING
TOWER

EXISTING 6'-0"
HIGH CHAINLINK
FENCE W/ 3
STRANDS OF
BARBED WIRE

PROPOSED
GAMMA AZ=240°
(2 ANTENNAS
MOUNTED 4'-0"
ON CENTER)

PROpane TANK

GENERATOR

SPRINT
EQUIPMENT

PPC

ELECTRIC
HANDHOLE

TRANSFORMER

SHELTER

ELECTRIC
HANDHOLE

EXISTING 12'-0"
WIDE DOUBLE
GATE

PROPOSED
BETA AZ=120°
(2 ANTENNAS
MOUNTED 4'-0"
ON CENTER)

CABLE
BRIDGE

SATELLITE DISHES

EXISTING 1'-0" WIDE
CABLE BRIDGE TO
SHELTER IN ADJACENT
COMPOUND

EXISTING DIRT ROAD

DRAWING REFERENCE:

1. DRAWINGS ARE BASED ON INFORMATION
FROM FIELD MEASUREMENTS & PHOTOGRAPHS
BY CLOUGH, HARBOUR & ASSOCIATES LLP ON
AUGUST 09, 2002.

ENLARGED SITE PLAN

SCALE: 1" = 20'

REV	DATE	DRAWN	CHECKED	DESCRIPTION
0	10/02/02	PAL	JCD	ISSUED FOR REVIEW
1	11/11/02	PAL	REB	ISSUE FINAL LEASE EXHIBIT

THIS DRAWING IS FOR OPTION, LICENSE AND
PERMITTING PURPOSES ONLY, AND IS NOT
TO BE USED FOR CONSTRUCTION

EXHIBIT A

SHEET
2 OF 3

SCALE: 1" = 20'
DATE: NOVEMBER 11, 2002

REVISION
NUMBER 1



**CLOUGH, HARBOUR
& ASSOCIATES LLP**
ENGINEERS, SURVEYORS, PLANNERS
& LANDSCAPE ARCHITECTS

2139 SILAS DEANE HIGHWAY - ROCKY HILL, CT - 06067
SUITE 212 860-257-4557

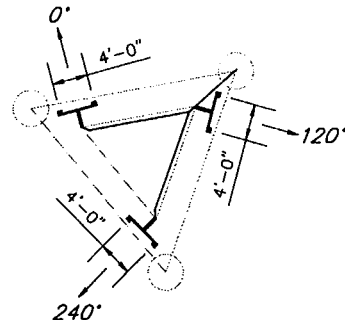
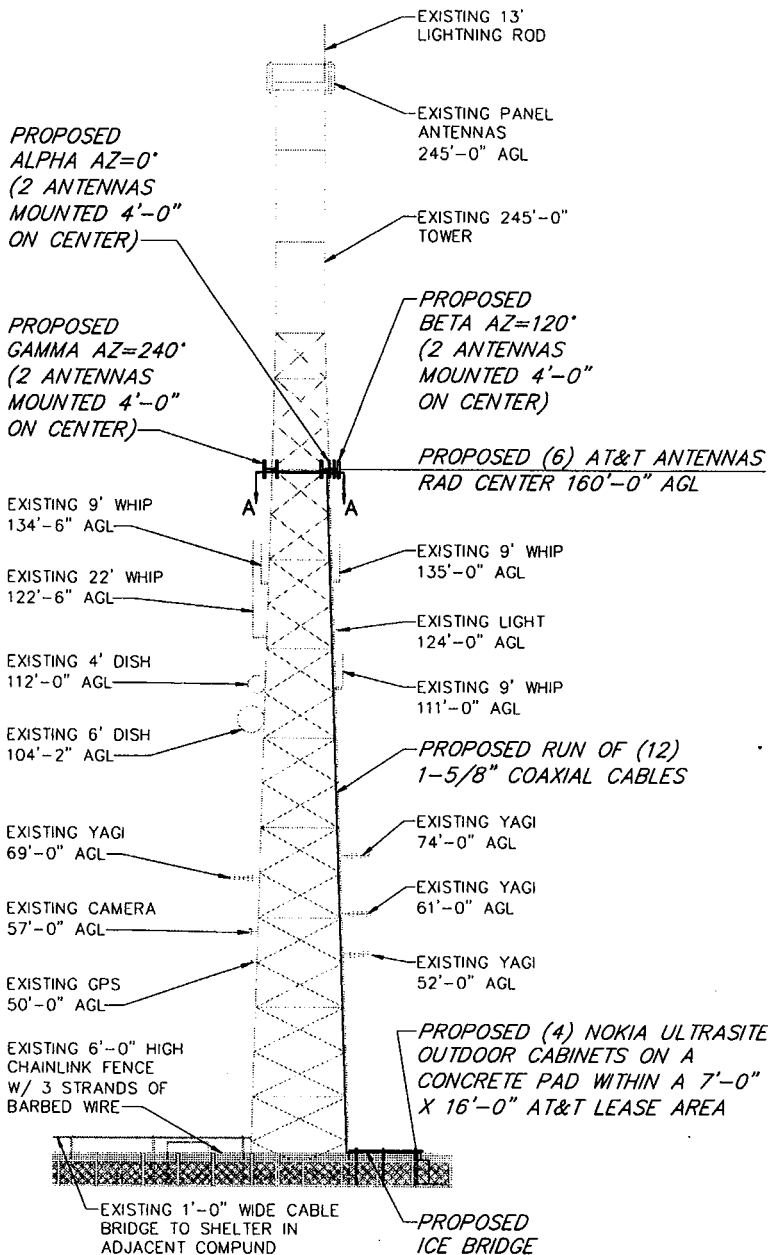
CHA Project Number: 11676-1004



AT&T

AT&T WIRELESS SERVICES, INC.
210 POMEROY AVENUE, SUITE 201
MERIDEN, CT 06450

SITE # CT-823A
UNIVERSITY OF
CONNECTICUT TOWERS
TECHNOLOGY PARKWAY @
NORTH EAGLEVILLE ROAD
STORRS MANSFIELD, CT 06288



SECTION A-A
SCALE: NONE

EXISTING ANTENNAS ON NORTH TOWER LEG (NOT IN VIEW):

- 12 ELEMENT YAGI 32'-8" AGL
- 12 ELEMENT YAGI 37'-6" AGL
- 12 ELEMENT YAGI 38'-9" AGL
- 10 ELEMENT YAGI 42'-6" AGL
- 12 ELEMENT YAGI 51'-6" AGL
- 10 ELEMENT YAGI 62'-3" AGL
- 8 ELEMENT YAGI 74'-3" AGL

DRAWING REFERENCE:

1. DRAWINGS ARE BASED ON INFORMATION FROM FIELD MEASUREMENTS & PHOTOGRAPHS BY CLOUGH, HARBOUR & ASSOCIATES LLP ON AUGUST 09, 2002.

EAST TOWER ELEVATION

SCALE: 1" = 40'

REV	DATE	DRAWN	CHECKED	DESCRIPTION
0	10/02/02	PAL	JCD	ISSUED FOR REVIEW
1	11/11/02	PAL	REB	ISSUE FINAL LEASE EXHIBIT

THIS DRAWING IS FOR OPTION, LICENSE AND PERMITTING PURPOSES ONLY, AND IS NOT TO BE USED FOR CONSTRUCTION

EXHIBIT A

SHEET
3 OF 3

SCALE: 1" = 40'
DATE: NOVEMBER 11, 2002

REVISION
NUMBER 1



CLOUGH, HARBOUR & ASSOCIATES LLP
ENGINEERS, SURVEYORS, PLANNERS
& LANDSCAPE ARCHITECTS

2139 SILAS DEANE HIGHWAY - ROCKY HILL, CT - 06067
SUITE 212 860-257-4557

CHA Project Number: 11676-1004



AT&T

AT&T WIRELESS SERVICES, INC.
210 POMEROY AVENUE, SUITE 201
MERIDEN, CT 06450

SITE # CT-823A
UNIVERSITY OF
CONNECTICUT TOWERS
TECHNOLOGY PARKWAY @
NORTH EAGLEVILLE ROAD
STORRS MANSFIELD, CT 06268

FROM : DAVIS VOICE 974-1856

FAX NO. : 860 974-2757

Dec. 02 2002 04:29PM P1

University of Connecticut

George L. Davis

Tower Manager

1814 Route 171

Woodstock Valley, Connecticut 06282

Phone: 860 974-1856

Fax: 860 974-2757

Email: davisgl@earthlink.net

November 26, 2002

Charisma King
Site Acquisition & Zoning Specialist
Pinnacle Site Development
41 Sequin Drive, P.O. Box 956
Glastonbury, CT 06033

Re: AT&T Wireless

Dear Ms. King:

I have reviewed the structural analysis submitted on behalf of AT&T Wireless for use of the former Sprint tower now controlled by the University of Connecticut. I requested the analysis be conducted for 90 MPH wind speed with simultaneous 1/2" radial ice with no reduction as well as 90 MPH wind speed with a 25% reduction for the same ice load. The analysis failed under the first set of criteria; however, is well within design limits for the second criteria. The current industry standard, EIA/TIA 222-F calls for 85 MPH wind speed with an allowable reduction of 25% under ice load. The analysis included loading for proposed VoiceStream antennas.

The analysis results are acceptable and you are advised to proceed with your application process.

Yours truly,


George L. Davis
Tower Manager

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OCT 23 2002

Clough, Harbour & Associates LLP



PIROD INC.

A Valmont Industries Company

Tower Reanalysis Report

Proposal PR-2002-10-012

October 22, 2002

U-24.0 x 245' Tower
Storrs #C214, CT
PiRod Engineering File A-113846

Prepared for
Clough, Harbour & Associates LLP
Attn: Bill McReavy
III Winners Circle
Albany, NY 12205

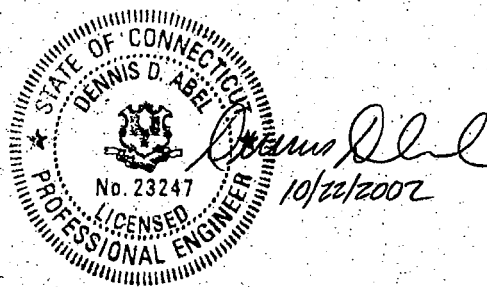
Authorization Provided by
George Davis
University of Connecticut
1814 Route 171
Woodstock Valley, CT 06282

J:\REANALYS\113\113846.doc

Tower Reanalysis Report Proposal PR-2002-10-012

U-24.0 x 245' Tower
Storrs #C214, CT
PiRod Engineering File A-113846

Completed under the Supervision and Approval by
Dennis D. Abel, P.E.
Manager of Reanalysis Services
e-mail: dabel@pirod.com
telephone extension: 5257



Dennis D. Abel, CT Professional Engineer # 23247

TABLE OF CONTENTS

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2.0 ASSUMPTIONS	1
3.0 TOWER HISTORY	2
4.0 CURRENT WIND LOAD REQUIREMENT	3
5.0 ANTENNA LOADING	4
6.0 RESULTS	5
6.1 Tower Modifications	5
6.2 Foundation Modifications	6
7.0 LIST OF APPENDICES	6

1.0 EXECUTIVE SUMMARY

This reanalysis was performed by PiRod to determine if the structure is capable of accommodating loading that is different than previous design specifications. This engineering report gives the tower history, details how the loading changes affect the tower, specifies feasible modifications, and proposes modification materials. PiRod's engineering study concludes that the tower complies without modifications when the wind load is reduced when considered with ice. See section 6.0 for details.

2.0 ASSUMPTIONS

This engineering study is based on the theoretical capacity of the structure. It is not a condition assessment of the tower. This report is being provided by PiRod without the benefit of an inspection by PiRod personnel and is based on information supplied by the customer to PiRod. PiRod has made no independent determination, nor is required to, of the accuracy of the information provided. Therefore, unless specifically informed to the contrary by the customer in writing, PiRod assumes the following:

1. The subsoil characteristics exist as stated on the tower drawing or stated elsewhere in this report;
2. The tower is erected and maintained in accordance with the manufacturer's plans and specifications and is plumb;
3. There is no damage, natural or manmade, to the structure, either gradual or sudden;
4. All connections and guy cables are properly installed;
5. The information concerning the components, existing and proposed, is accurate; and
6. There are no modifications to the tower itself, except as may be disclosed elsewhere in this report.

PiRod recommends that qualified personnel assess the physical condition of the tower, preferably under the direction of a licensed professional engineer. Following is a list of the general areas that PiRod recommends to be inspected. Contact PiRod for a complete checklist.

<u>Tower Structure</u>	<u>Guyed Towers</u>	<u>Foundations</u>	<u>Appurtenances</u>
Tower Sections	Guy Cables	Cracking	Antennas
Bolted Connections	Turnbuckles	Drainage	Mounts
Welded Connections	Preforms	Spalling	Transmission Lines
Plumbness	Guy Lugs	Anchor Bolts	Line Brackets
Corrosion	Thimbles	Settling	Cable Hangers
Linearity	Torque Arms	Grounding	Lighting
Galvanization	Ice Clips	Grout	
Paint	Guy Tensions	Subsoil	
	Anchor Rods	Characteristics	
	Shackles	Erosion	
	Insulators		

3.0 TOWER HISTORY

Date of Origination: September 19, 1997
PiRod Model: U-24.0 x 245' Tower
Sold to: Bechtel National, Inc.

ORIGINAL DESIGN CRITERIA				
Code/Standard	Wind Loading	Radial Ice	Wind Load Reduction Used	Allowable Stress Increase Used
TIA/EIA-222-F	90 mph fastest mile	no	none	yes
TIA/EIA-222-F	90 mph fastest mile	½" solid	25%	yes

The original design is based on the following antenna loading. This may not truly represent the antennas that have actually been placed on the tower.

HEIGHT (FT)	ANTENNAS		ASSUMED CAAC (SQ.FT.)	MOUNTS		LINES	
	QTY.	MODEL		QTY.	MODEL	QTY.	SIZE
Top	1	Dual Light				1	1"
Top				1	15' Lightning Rod Extender		
245'	12	Decibel DB980		1	15' Rotatable Platform	12	1-5/8"
225'	12	Swedcom ALP9212		3	15' Universal T-Frame	12	1-5/8"
120'	1	Decibel DB201		1	3' Standoff	1	7/8"
115'	2	Decibel DB201		1	3' Standoff	1	7/8"
115'	1	4' Grid Dish				1	7/8"
103'	1	6' Solid Dish w/ Radome				1	7/8"
65'	1	Camera *	4.0				
50'	1	GPS *	14.0 including mount				

For the structural analysis, the tower and foundation are assumed to exist as shown on the enclosed tower drawing, which is PiRod's latest revision.

4.0 CURRENT WIND LOAD REQUIREMENT

The TIA/EIA Standard is currently at version F. Tolland County is designated as an 85 mph basic wind speed zone by the current TIA/EIA Standard. We have taken the opportunity to reanalyze this structure using the following wind speed and ice load conditions.

Code/Standard	Wind Loading	Radial Ice	Wind Load Reduction Used ⁽¹⁾	Allowable Stress Increase Used ⁽²⁾
Review 1				
TIA/EIA-222-F	90 mph fastest mile	½" solid	none	yes
Review 2				
TIA/EIA-222-F	90 mph fastest mile	no	none	yes
TIA/EIA-222-F	90 mph fastest mile	½" solid	25%	yes

(1) The wind load reduction is permitted by the TIA/EIA-222-F Standard section 2.3.16 and most other codes to account for the minimal chance that the maximum wind speed will occur simultaneously with the ice load.

(2) The allowable stress increase is permitted by the TIA/EIA-222-F Standard and most other codes in accordance with the AISC-ASD Manual of Steel Construction.

Note: Some localities stipulate wind load requirements that are different from that required by the TIA/EIA Standard. Please check with your local building department and verify the required wind load.

5.0 ANTENNA LOADING

The tower analysis uses the following antenna loading, which was provided on October 7, 2002. The existing loading is shown as reported in the antenna inventory by Clough, Harbour & Associates, dated September 24, 2002.

HEIGHT (FT)	ANTENNAS		ASSUMED CAAC (SQ.FT.)	MOUNTS		LINES	
	QTY.	MODEL		QTY.	MODEL	QTY.	SIZE
Existing Loading							
Top	1	Dual Light				1	1"
Top				1	15' Lightning Rod Extender (806011)		
245'	6	Decibel DB980H		1 12	15' Rotatable Top 2" x 84" Antenna Pipe	6	1-5/8"
74'-3"	1	13', 8-Element Yagi *	13.6			1	5/8"
62'-3"	1	8', 10-Element Yagi *	3.6			1	5/8"
51'-6"	1	4.5', 12-Element Yagi *	2.43			1	5/8"
42'-6"	1	3', 10-Element Yagi *	1.18			1	5/8"
38'-9"	1	4.5', 12-Element Yagi *	2.43			1	5/8"
37'-6"	1	4.5', 12-Element Yagi *	2.43			1	5/8"
32'-8"	1	4.5', 12-Element Yagi *	2.43			1	5/8"
135'	1	9' Whip *	3.00	1	3' Standoff	1	5/8"
111'	1	9' Whip *	3.00	1	3' Standoff	1	5/8"
74'	1	11'-5", 8-Element Yagi *	11.12			1	5/8"
61'	1	13', 8-Element Yagi *	13.00			1	5/8"
52'	1	4'-9", 12-Element Yagi *	2.60			1	5/8"
134'-6"	1	9' Whip *	3.00	1	3' Standoff	1	5/8"
122'-6"	1	22' Whip *	6.60	1	6' Standoff (assumed CaAc = 9.85 sq. ft.)	1	1-1/2"
112'	1	4' Grid Dish				1	3/8"
104'-2"	1	6' Solid Dish w/ Radome				1	EW63
69'	1	4.7', 12-Element Yagi *	2.54			1	1/2"
57'	1	Camera *	1.50			2 1	3/8" 1/4"
50'	1	GPS *	1.00	1	3' Standoff	1	3/4"
Proposed Additional Loading							
270'	8 6	EMS RR90-17 Amplifier, 5-3/8" x 5- 1/2" x 11-3/4" VoiceStream		3 8	12' Lightweight T-frame 2" x 84" Antenna Pipe	16	1-5/8"
160'	3	Allgon 7250.03 AT&T			leg mounted	3	1-5/8"

These antennas, mounts, and lines represent our understanding of the antenna loading required. Please contact us if any discrepancies are evident. If different antennas, mounts, or lines are installed on this structure, this analysis is invalid.

* An asterisk indicates that we were not provided with a value for the effective projected area (C_{AAc}), and that the area has been assumed based on any information that was made available. The actual effective projected area for each antenna must be confirmed to be equal to the assumed area listed above. If it is determined that the area is different than that stated for any of the above items, this analysis is invalid.

6.0 RESULTS

With the antennas listed in section 5.0, the following modifications are required for the tower to comply with the indicated code and TIA/EIA Standard listed in section 4.0.

6.1 Tower Modifications

Review 1 – no wind load reduction when considered with ice

When analyzed with ½" radial ice with no reduction in the wind load, the tower is overstressed and cannot be modified to reduce the stresses to acceptable levels. The stress ratios of the legs and bracing are shown in the table below. The table lists the stresses before any modifications are applied to the tower and after tie-rod bracing is applied to five sections of the tower and diagonal angle bracing is replaced in two sections.

Section Height	Before Modifications		After Modifications	
	Leg Compressive Stress	Bracing Stress	Leg Compressive Stress	Bracing Stress
230' - 245'	0.64	0.91	0.64	0.91
210' - 230'	0.93	0.85	0.93	0.85
190' - 210'	0.98	0.76	0.98	0.76
180' - 190'	0.89	0.43	0.89	0.43
160' - 180'	1.06	0.65	0.78	0.71
140' - 160'	0.90	0.93	0.91	0.99
120' - 140'	1.04	0.77	0.87	0.84
100' - 120'	0.90	0.69	0.93	0.74
80' - 100'	1.03	0.94	0.82	1.02
60' - 80'	0.91	0.79	0.95	0.84
40' - 60'	1.02	1.04	0.87	0.90
20' - 40'	1.12	1.06	0.96	0.94
0' - 20'	0.99	0.50	1.03	0.53

We have no method of modifying the #18 breakdown legs from 0' to 20'. Even if it could be modified, the foundation is unable to support the increased tower loading.

Review 2 – 25% wind load reduction when considered with ice

When analyzed with ½" radial ice with a 25% reduction in the wind load, the tower is acceptable without any modifications to the tower. The stress ratios of the legs and bracing are shown in the table below.

Section Height	No Ice		½" Ice	
	Leg Compressive Stress	Bracing Stress	Leg Compressive Stress	Bracing Stress
230' - 245'	0.48	0.67	0.50	0.71
210' - 230'	0.67	0.58	0.74	0.70
190' - 210'	0.69	0.51	0.80	0.65
180' - 190'	0.62	0.26	0.74	0.42
160' - 180'	0.73	0.41	0.90	0.66
140' - 160'	0.61	0.61	0.77	0.93
120' - 140'	0.71	0.51	0.89	0.74
100' - 120'	0.61	0.47	0.78	0.65
80' - 100'	0.70	0.65	0.89	0.87
60' - 80'	0.63	0.55	0.79	0.72
40' - 60'	0.70	0.73	0.87	0.93
20' - 40'	0.77	0.76	0.96	0.94
0' - 20'	0.69	0.36	0.85	0.42

The proposed materials, associated hardware, and updated engineering documentation are priced on the appended Reanalysis Parts Pricing Proposal.

6.2 Foundation Modifications

The foundation analysis is based on the soil report by Clough, Harbour & Associates, LLP, dated June 6, 1997 (CHA project #5835.07.64).

Review 1 – no wind load reduction when considered with ice

The foundation does not have the compressive or uplift capacity to accommodate the increased tower loads. We know of no feasible method to increase the compressive capacity of this type of caisson foundation.

Review 2 – 25% wind load reduction when considered with ice

The foundation complies without modifications.

7.0 LIST OF APPENDICES

Reanalysis Parts Pricing Proposal

Main Tower Drawing, latest revision

202932-B

Note: The tower drawing included with this report is PiRod's latest revision and depicts the tower as we understand it to currently exist. It has not been updated to show the existing or proposed antenna loading or any modifications required as a result of this analysis.



RF Exposure Analysis for Proposed AT&T Wireless Antenna Facility

SITE ID: 907-007-823

November 13, 2002

Prepared by AT&T Wireless Services, Inc.
Galen Belen 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 *Technology Parkway, Mansfield, CT 06250*. 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: <i>Mansfield Technology Parkway</i>	
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)	160.00 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 facility¹:

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

Where, N = Number of channels, R = distance in cm from the antenna centerline, 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.

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

Where P_{in}/ch = Input power to antenna terminals in watts/ch, R = distance from the antenna centerline, 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 Emissions

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 0.000976 mW/cm² which occurs at 900 feet from the antenna facility. The chart in exhibit A also shows that the power density is only 0.000131 mW/cm² 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 Emissions

<i>Frequency</i>	<i>Public/Uncontrolled</i>	<i>Occupational/controlled</i>	<i>Maximum power density at Accessible location</i>
Cellular	.580 mW/cm ²	2.9 mW/cm ²	0.000976 mW/cm ²
PCS	1 mW/cm ²	5 mW/cm ²	

The maximum power density at the proposed facility represents only 0.10% of the public MPE limit for all frequencies in use.

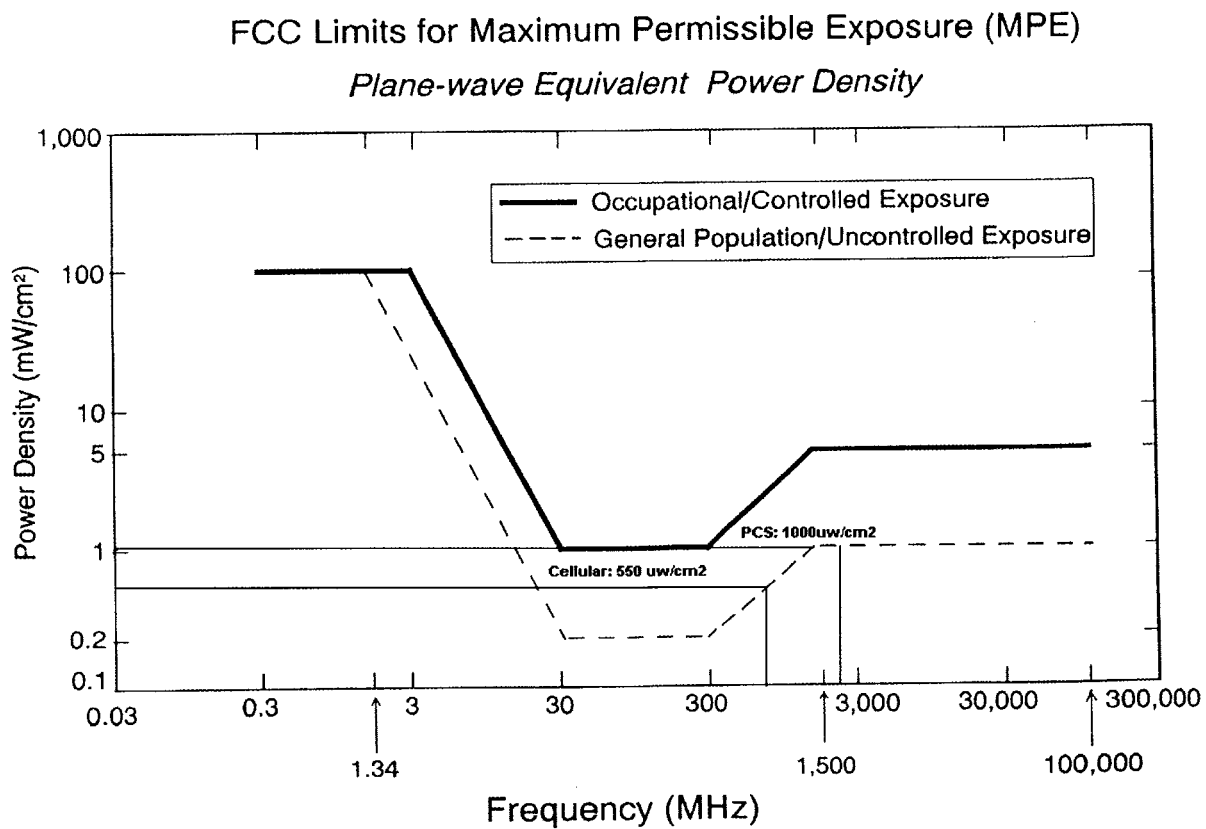
6. Conclusion


This analysis show that the maximum power density in accessible areas at this location is 0.000976 mW/cm², a level of RF energy that is well below the Maximum Permissible Exposure limit established by the FCC.

* The yagi antennas on the tower are all receive antenna and are not included on the Maximum Permissible Exposure calculations.

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."

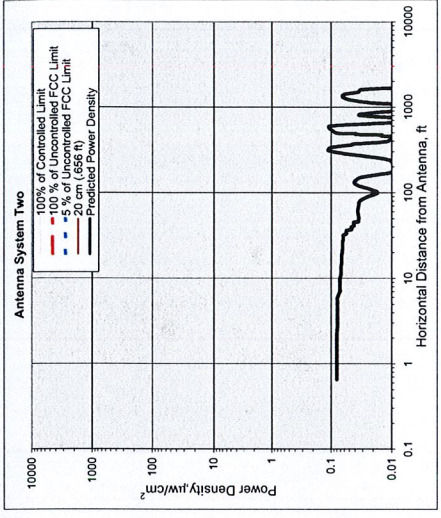
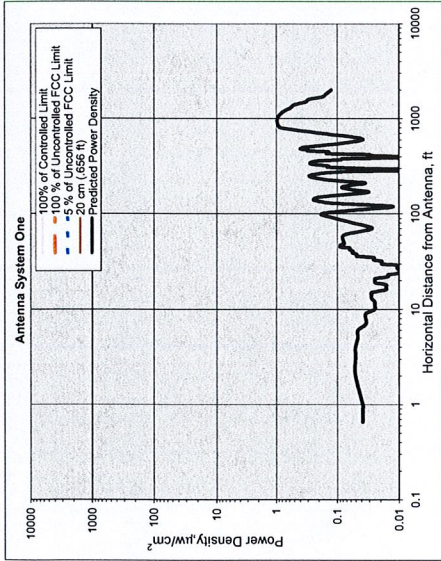
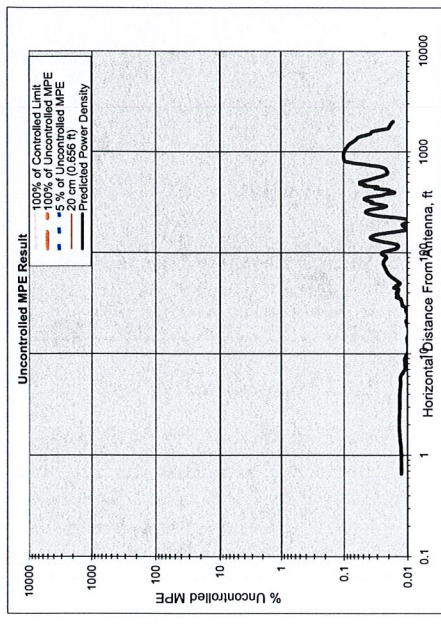
7. FCC Limits for Maximum Permissible Exposure





AT&T Wireless Services, Inc.

8. Exhibit A



Number of Antenna Systems: 7

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.

Power Density		@ Horiz. Dist. feet
mW/cm²	% of limit	
Maximum Power Density =	0.000976	0.10
1,000.58 times lower than the MPE limit for uncontrolled environment		900.00
Composite Power (ERP) =	9,900.00	Watts

Site ID: 907-007-823

Site Name: Mansfield Technology Parkway

Site Location: Technology Parkway
Mansfield, CT 06250

Performed By: Galen Belen

Date: 11/13/02

Antenna System One

	units	Value
Frequency	MHz	1945.00
# of Channels	#	12
Max ERP/Ch	Watts	250.00
Max Pwr/Ch into Ant.	Watts	5.86
Antenna Centerline	feet	160.00
Calculation Point (above ground or roof surface)	feet	0.00
Antenna Model No.		Alison 7250.03
Max Ant Gain	dBd	16.30
Down tilt	degrees	6.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	5.11
Ant HBW	degrees	65.00
Distance to Ant _{bottom}	feet	157.45
WOS?	Y/N?	n

Ant System ONE Owner: AT&T

Sector: 3

Azimuth: 0/130/240

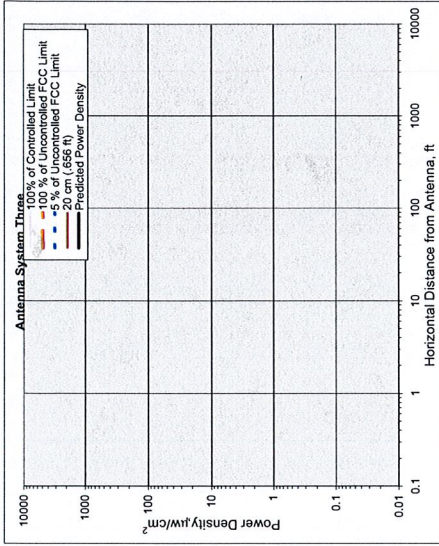
Antenna System Two

	units	Value
Frequency	MHz	1955.00
# of Channels	#	24
Max ERP/Ch	Watts	250.00
Max Pwr/Ch into Ant.	Watts	7.73
Antenna Centerline	feet	245.00
Calculation Point (above ground or roof surface)	feet	0.00
Antenna Model No.		DB900G90E-M
Max Ant Gain	dBd	15.10
Down tilt	degrees	2.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	5.00
Ant HBW	degrees	90.00
Distance to Ant _{bottom}	feet	242.50
WOS?	Y/N?	n

Ant System TWO Owner: Sprint PCS

Sector: 3

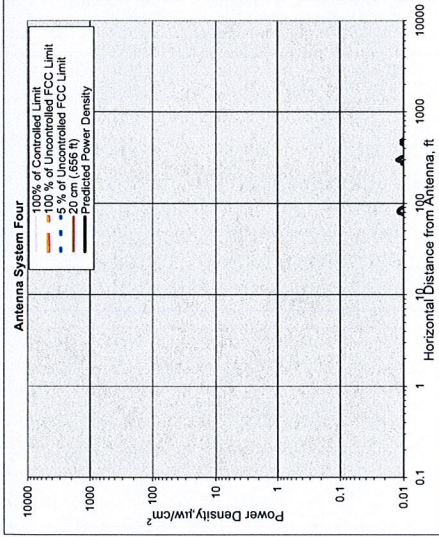
Azimuth: 0/120/240



Antenna System Three

	units	Value
Frequency	MHz	6855.00
# of Channels	#	2
Max ERP/Ch	Watts	250.00
Max Pwr/Ch Into Ant.	Watts	0.05
Antenna Centerline	feet	104.00
Calculation Point (above ground or roof surface)	feet	0.00
Antenna Model No.		UHXS-59
Max Ant Gain	dBd	36.70
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	6.00
Ant HBW	degrees	1.80
Distance to Ant _{bottom}	feet	101.00
WOS?	Y/N?	n

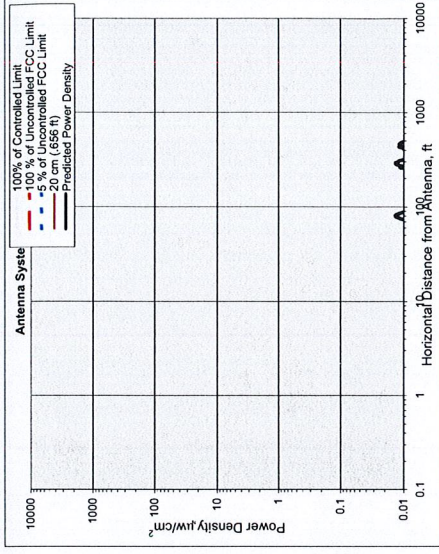
Ant System Three Owner: Connecticut Public Broadcasting
Sector: 1
Azimuth: 280



Antenna System Four

	units	Value
Frequency	MHz	450.47
# of Channels	#	1
Max ERP/Ch	Watts	100.00
Max Pwr/Ch Into Ant.	Watts	10.00
Antenna Centerline	feet	140.00
Calculation Point (above ground or roof surface)	feet	0.00
Antenna Model No.		DB640NS
Max Ant Gain	dBd	10.00
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	24.00
Ant HBW	degrees	360.00
Distance to Ant _{bottom}	feet	128.00
WOS?	Y/N?	n

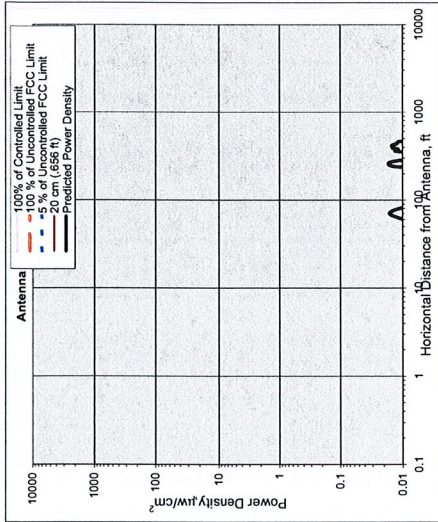
Ant System Four Owner: UCONN
Sector: 1
Azimuth: Omni



Antenna System Five

	units	Value
Frequency	MHz	452.00
# of Channels	#	1
Max ERP/Ch	Watts	100.00
Max Pwr/Ch Into Ant.	Watts	10.00
Antenna Centerline	feet	135.00
Calculation Point (above ground or roof surface)	feet	0.00
Antenna Model No.		DB640NS
Max Ant Gain	dBd	10.00
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	24.00
Ant HBW	degrees	360.00
Distance to Ant _{bottom}	feet	123.00
WOS?	Y/N?	n

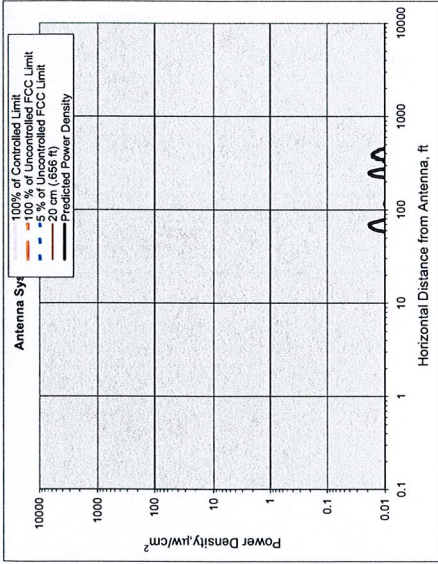
Ant System Five Owner: UCONN
Sector: 1
Azimuth: Omni



Antenna System Six

	units	Value
Frequency	MHz	453.90
# of Channels	#	1
Max ERP/Ch	Watts	100.00
Max Pwr/Ch Into Ant.	Watts	10.00
Antenna Centerline	feet	120.00
Calculation Point (above ground or roof surface)	feet	0.00
Antenna Model No.		DB640NS
Max Ant Gain	dBd	10.00
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	24.00
Ant HBW	degrees	360.00
Distance to Ant _{max}	feet	108.00
WOS?	Y/N?	n

Ant System SIX Owner: UCONN Fire
Sector: 1
Azimuth: Omni



Antenna System Seven

	units	Value
Frequency	MHz	464.00
# of Channels	#	1
Max ERP/Ch	Watts	100.00
Max Pwr/Ch Into Ant.	Watts	10.00
Antenna Centerline	feet	115.00
Calculation Point (above ground or roof surface)	feet	0.00
Antenna Model No.		DB640NS
Max Ant Gain	dBd	10.00
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	24.00
Ant HBW	degrees	360.00
Distance to Ant _{max}	feet	103.00
WOS?	Y/N?	n

Ant System SEVEN Owner: UCONN
Sector: 1
Azimuth: Omni

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.