



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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June 5, 2002

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

RE: **EM-AT&T-142-020528** - AT&T Wireless notice of intent to modify an existing telecommunications facility located at 130 Bald Hill Road, Tolland, Connecticut.

Dear Attorney Fisher:

At a public meeting held on June 3, 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 notices dated May 28, 2002, and May 29, 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/DM/laf

c: Honorable Richard C. Knight, Chairman Town Council, Town of Tolland
Timothy J. Tieperman, Town Manager, Town of Tolland
Ronald Blake, Town Planner, Town of Tolland

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May 29, 2002

VIA FACSIMILE (860-827-2950)
AND FIRST CLASS MAIL

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

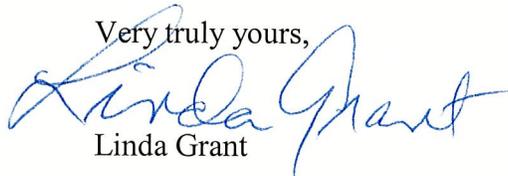
Re: EM-AT&T-142-020528
130 Bald Hill Road
Tolland, Connecticut

Dear Mr. Martin:

On behalf of AT&T Wireless, enclosed please find the additional information that you had requested with respect to the above referenced filing.

The latitude and longitude for the facility at 130 Bald Hill Road in the Town of Tolland is N 41-52-59.16, W 72-22-33.28. Should you or the Council require any additional information, please do not hesitate to contact us.

Very truly yours,


Linda Grant

cc: Christopher B. Fisher, Esq.

RECEIVED
MAY 31 2002
CONNECTICUT
SITING COUNCIL

**NOTICE OF INTENT TO MODIFY AN
EXISTING TELECOMMUNICATIONS FACILITY AT
130 BALD HILL 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 130 Bald Hill Road, Tolland, Connecticut (the “Bald Hill Road Facility”), owned by the Tolland County Mutual Aid Fire Service. AT&T Wireless and the tower owner have agreed to share the use of the Bald Hill Road Facility, as detailed below.

The Bald Hill Road Facility

The Bald Hill Road Facility consists of an approximately one hundred eighty (180) foot lattice tower (the “Tower”) and associated equipment currently being used for wireless communications by governmental agencies and the municipality. A chain link fence surrounds the Tower compound. The current surrounding land uses include residential uses and undeveloped property.

AT&T Wireless’ Facility

As shown on the enclosed plans prepared by Tectonic/Keyes Associates, including a site plan and tower elevation of the Bald Hill 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 90 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 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

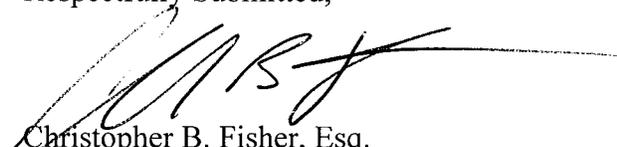
The proposed addition of AT&T Wireless’ antennas and equipment to the Bald Hill Road Facility constitutes an exempt “modification” of an existing facility as defined in Connecticut General Statutes Section 16-50i(d) and Council regulations promulgated pursuant thereto. Addition of AT&T Wireless’ antennas 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 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 Bald Hill Road Facility meets the Council's exemption criteria.

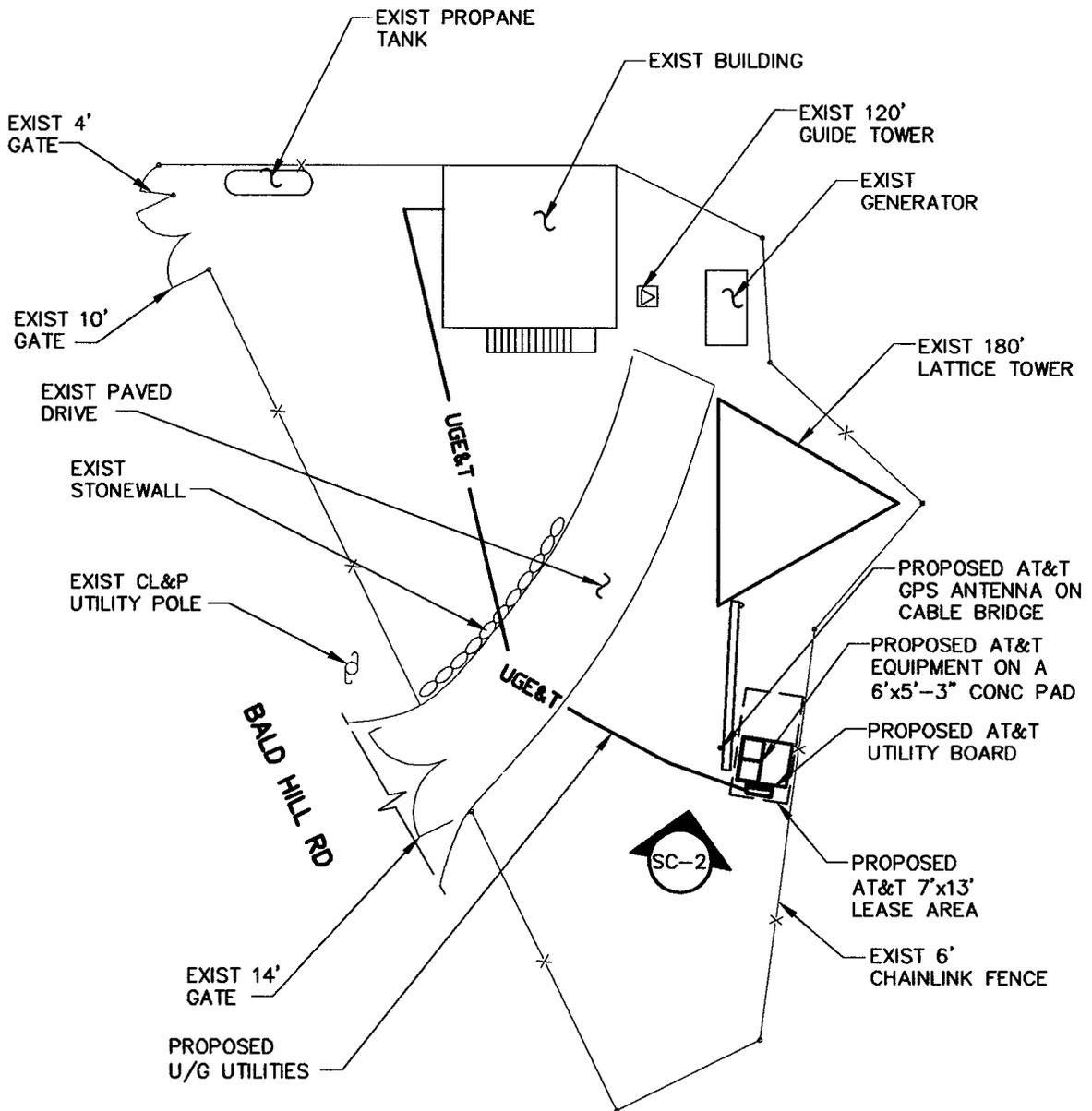
Respectfully Submitted,



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

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

N



TECTONIC/KEYES ASSOCIATES
 1241 BALD HILL RD, SUITE 200
 HARTFORD, CT 06107-1241



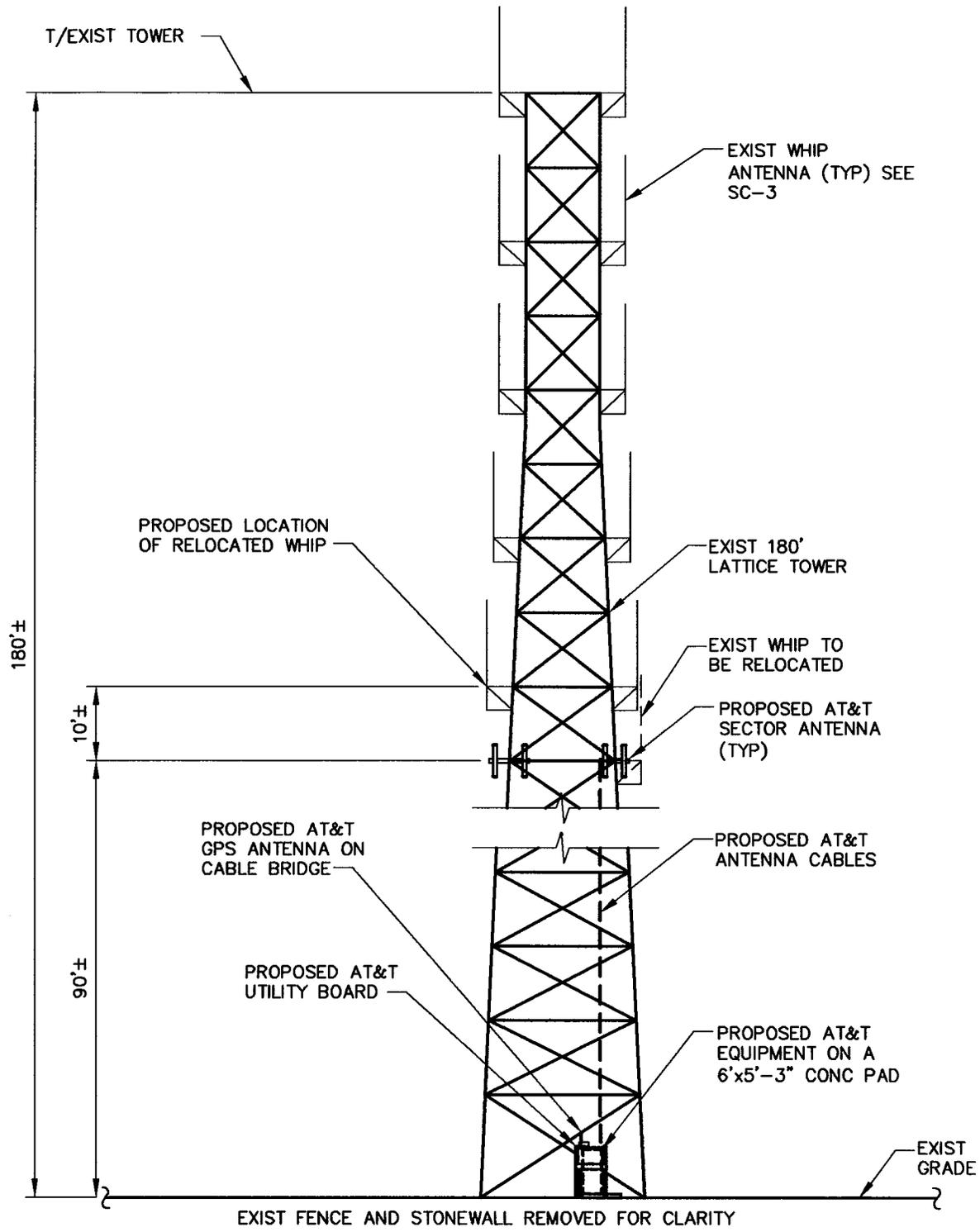
AT&T WIRELESS SERVICES, INC.
 12 Orange St., Second Floor
 Hartford, Connecticut 06182

DRAWING TITLE:
SITE DETAIL PLAN
 PROJECT INFORMATION:
TOLLAND
 CT-331
 130 BALD HILL RD
 TOLLAND, CT

PROPERTY OWNER:
 TOLLAND COUNTY MUTUAL AID

DRAWING NO.
SC-1

REVISION NO. 0	DRAWN BY: RPM
DATE: 3/22/02	CHECKED BY: MC
SCALE: 1"=20'	APPROVED BY: JDF
ISSUED FOR COMMENT	SHEET NO. 1 of 2
WORK ORDER #: 2850.CT331	



TECTONIC/KEYES ASSOCIATES
 1244 BALD HILL ROAD, SUITE 200
 WEST HAVEN, CT 06611-1244



DRAWING TITLE:
ELEVATION
 PROJECT INFORMATION:
TOLLAND
 CT-331-2
 130 BALD HILL RD
 TOLLAND, CT
 PROPERTY OWNER:
 TOLLAND COUNTY MUTUAL AID

DRAWING NO. SC-2	
REVISION NO. 0	DRAWN BY: RPM
DATE: 3/22/02	CHECKED BY: MC
SCALE: 1"=20'	APPROVED BY: JDF
ISSUED FOR LEASE	SHEET NO. 2 of 2
WORK ORDER #: 2650.CT331	

**AT&T WIRELESS PCS: TOLLAND
W.O. 2650.CT331
EXISTING 180' SELF-SUPPORTING TOWER
TOLLAND, CT
STRUCTURAL ANALYSIS REPORT
MAY 1, 2002**

1.0 INTRODUCTION

The existing 180 foot self-supporting tower located at 130 Bald Hill Road in Tolland, CT is owned by Tolland County Mutual Aid, and currently serves the communication needs of several carriers. AT&T Wireless PCS (AT&T) anticipate installing their 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 Information Provided

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

- "Tolland – 48, Antenna Tower Elevation", by Motorola for Connecticut State Police, dated 12/12/00.

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 180'. The tower is comprised of nine (9) 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 24'-9" wide at the base, tapering uniformly to a width of approximately 6'-7" at the 180' level. Horizontal members are present at the 180' level. All member connections are bolted.

No drawings of the tower were made available to Tectonic.

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

2.2 Tower Foundation

The exposed portion of the tower foundation consists of three (3) 2'-6" diameter concrete piers, one per leg, extending to a maximum of approximately 12" above grade. The grade slopes steeply away near one of the tower legs.

Approximately 5" of grout is present under each leg base plate. Each tower leg is welded to a 1-1/4" thick base plate, which is anchored to the foundation by six (6) 1" diameter anchor bolts.

No original design drawings of the tower foundation, original design reactions or soil information were made available to Tectonic.

3.0 EXISTING CONDITION

3.1 Field Inspection

Tectonic Engineering & Surveying Consultants, P.C. performed a detailed inspection of the tower on April 15, 2002 to obtain member sizes and dimensions and verify the existing condition and antenna configuration. Photographs were taken to document the existing configuration and conditions.

For identification purposes, the main climbing leg of the tower is designated as leg A, while legs B and C are respectively designated in a clockwise direction.

Our inspections 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. A detailed inspection of welds and appurtenances was not performed.
3. 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 items listed in Table 1, attached.

A climbing ladder with a safety cable is present on leg A from the 20' level to the top. Additionally, step bolts are present on leg A from the base to the 100' level and from the 120' level to the top. Step bolts are present on leg B from the base to the 100' level, with an intermittent climbing ladder from the 100' level to the 120' level. Step bolts then continue from the 120' level to the top. Step bolts are present on leg C from the base to the top of the tower.

4.0 PROPOSED INSTALLATION

It is our understanding that all existing antennas will remain on the structure. The following items are proposed to be added to the tower by AT&T:

- 6 Allgon 7250 panel antennas, pipe mounted two (2) per sector on three (3) 4' wide frames at the 90' level (centerline)
- 12 1-1/4" diameter coaxial cables mounted on a new waveguide ladder to the 90' level on face B-C

We further understand that the omnidirectional antenna at the 85' level will be relocated to the 100' level (base) to allow for the proposed AT&T installation.

5.0 STRUCTURAL ANALYSIS

5.1 Loading Criteria

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 85 mph applies to Tolland 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 Tolland. Therefore, the 85 mph wind speed 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 74 mph is 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 in our field inspection. The analysis included the tower with the existing antennas (with relocated omni) and the proposed AT&T antennas and related cables, using current loading criteria with:

- a) a wind speed of 85 mph and no ice
- b) a wind speed of 74 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. Single angle bracing members are considered as pin-ended, and connections are not modeled.
3. The connection of the tower to its foundation is assumed to be pinned.
4. Wind loads are based on the full projected area of all antennas and mounts in all loading conditions.
5. The tower foundation was designed and constructed to resist the original design loads 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 following table shows the results of the calculations for critical members in each section:

Section	Elevation (ft)	Leg Capacity (kips)	Maximum Leg Force (kips)	% of Cap.	Brace Capacity (kips)	Maximum Brace Force (kips)	% of Cap.
1	0 – 20	264.2	167.2	63	12.5	8.5	68
2	20 – 40	177.7	142.2	80	14.4	7.7	54
3	40 – 60	177.7	117.7	66	9.1	7.0	76
4	60 – 80	126.4	93.7	74	6.7	6.2	92
5	80 – 100	110.5	70.1	63	6.2	5.4	87
6	100 – 120	110.6	50.7	46	5.1	3.7	73
7	120 – 140	62.8	32.6	52	3.3	3.0	91
8	140 – 160	53.0	17.6	33	3.0	1.8	58
9	160 – 180	50.2	6.6	13	2.0	0.9	45

In addition, the resulting envelope of tower foundation reactions are listed below:

Max. compression	173 kips
Max. uplift	156 kips
Total shear	39.8 kips
Overturning moment	3531 kip-ft

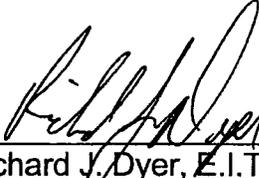
The anchor bolts are stressed to 60% of their allowable capacity.

6.0 CONCLUSIONS AND RECOMMENDATIONS

As a result of our analysis, we find that the existing tower and its foundation have 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.

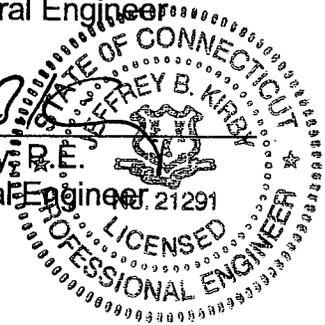
No specific information on the design or construction of the existing tower foundation was made available. However, we expect that the foundation reactions are less than the foundation capacities, based on standard design practice for similar installations and the relatively low stress in the anchor bolts.

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, E.I.T.
Staff Structural Engineer

Reviewed by: 
Colin G. Kelley, P.E.
Senior Structural Engineer

Approved by: 
Jeffrey B. Kirby, P.E.
Chief Structural Engineer



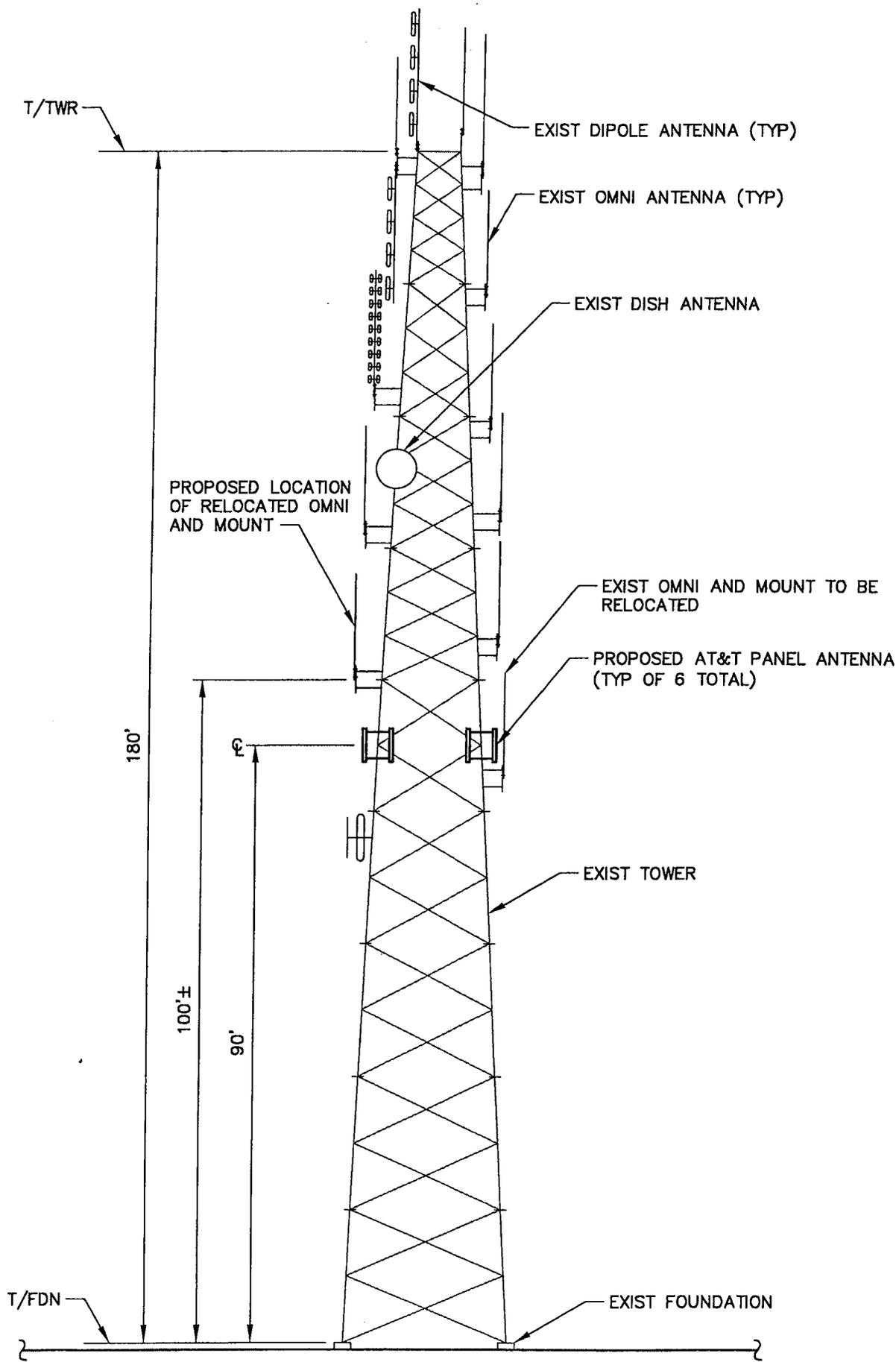


FIGURE 1

TABLE 1
 EXISTING ANTENNAS AND CABLES

Qty	Manufacturer and Model	Type	Mount	Level (Ft)	Leg	Coaxial Cables
1	Celwave PD1142 or Sim.	Omni	3' Leg Ext	183 (Base)	C	(1) 1/2" on Face AC WGL
1	Decibel DB201 or Sim.	Omni	3' Sidearm	180 (Base)	A	(1) 1-1/4" on Face AC WGL
1	Decibel DB224 or Sim.	Dipole	1'-6" Leg Ext	180 (Base)	B	(1) 7/8" on Face AC WGL
1	Celwave PD458 or Sim.	Omni	3' Sidearm	179 (Base)	B	(1) 7/8" on Face AC WGL
1	Decibel DB224 or Sim.	Dipole	3' Sidearm	179 (Base)	B	(1) 7/8" on Face AB WGL
1	Celwave PD455 or Sim.	Omni	3' Sidearm	176 (Base)	C	(1) 7/8" on Face AC WGL
1	Celwave PD220 or Sim.	Omni	3' Sidearm	161 (Base)	B	(1) 7/8" on Face AC WGL
1	16' Long	Omni	3' Sidearm	158 (Base)	C	(1) 7/8" on Face AC WGL
1	19' Long	Omni	3' Sidearm	155 (Base)	A	(1) 7/8" on Face AC WGL
1	Decibel DB420	Dipole	3' Sidearm	143 (Base)	B	(1) 7/8" on Face AB WGL
1	Celwave PD1142 or Sim.	Omni	3' Sidearm	138 (Base)	C	(1) 1/2" on Face AC WGL
1	Andrew 6' Dia.	Dish	Pipe	132 (CL)	B	(1) 1-5/8" EW on Face AB WGL
1	Celwave AO8410 or Sim.	Omni	4' Sidearm	124 (Base)	C	(1) 7/8" on Face AC WGL
1	Decibel DB806	Omni	4' Sidearm	123 (Base)	A	(2) 1-5/8" on Face AB WGL
1	Celwave PD220 or Sim.	Omni	4' Sidearm	122 (Base)	B	(1) 7/8" on Face AC WGL
1	Celwave PD1142 or Sim.	Omni	4' Sidearm	105 (Base)	C	(1) 1/2" on Leg C
1	16' Long	Omni	4' Sidearm	85 (Base)	C	(1) 1/2" on Leg C
1	Decibel DB225 or Sim.	Dipole	Direct	76 (CL)	B	(1) 1/2" on Face AB WGL



RF Exposure Analysis for Proposed AT&T Wireless Antenna Facility

SITE ID: 907-007-331

May 1, 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 130 Bald Hill Road, Tolland 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: Tolland	
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)	90.00 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 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.

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

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 0.009334 mW/cm² which occurs at 70 feet from the antenna facility. The chart in exhibit A also shows that the power density is only 0.000170 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 radiation

<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	0.009334 mW/cm ²
PCS	1 mW/cm ²	5 mW/cm ²	

The maximum power density at the proposed facility represents only 4.47% of the public MPE limit for PCS frequencies.

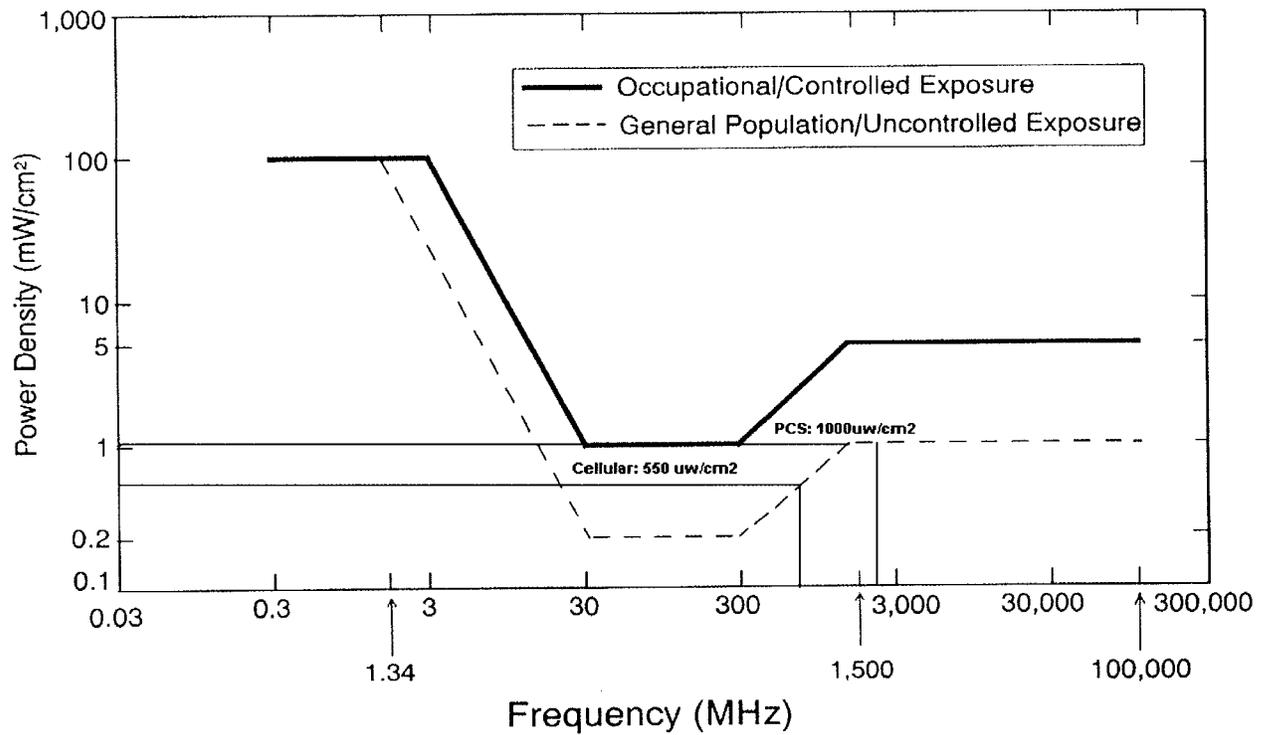
6. Conclusion

This analysis show that the maximum power density in accessible areas at this location is 0.009334 mW/cm², a level of RF energy that is well below the Maximum Permissible Exposure limit established by the FCC.

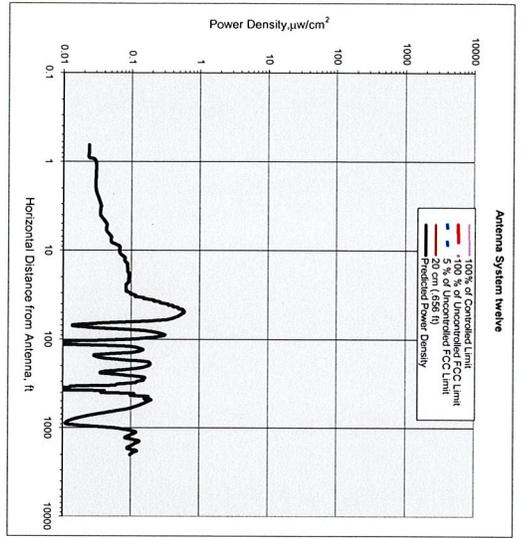
² 47 U.S. C. Section 332 (c) (7)(B)(iv) states that “[n]o State or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such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

7. FCC Limits for Maximum Permissible Exposure

FCC Limits for Maximum Permissible Exposure (MPE)
Plane-wave Equivalent Power Density

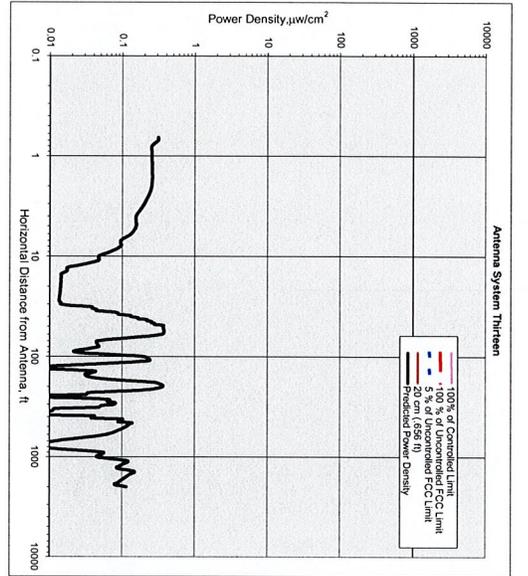


8. Exhibit A



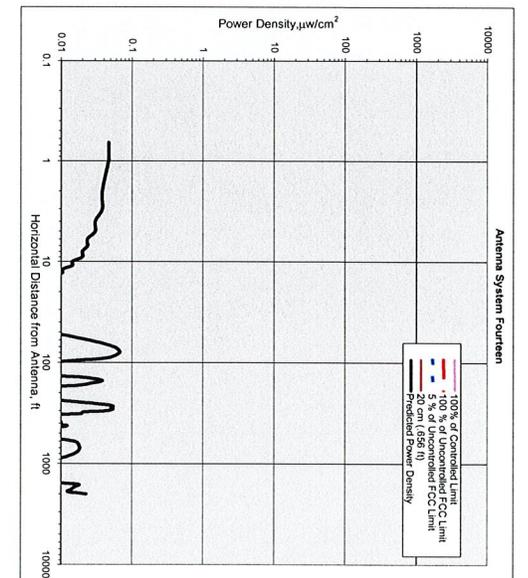
Antenna System Twelve

Parameter	units	Value
Frequency	MHz	155.00
# of Channels	#	4
Max ERP/Ch	Watts	400.00
Max Pwr/Ch into Ant.	Watts	59.16
(Center of Radiator)	feet	105.00
Calculation Point (above ground or roof surface)	feet	0.00
Antenna Model No.		DB411
Max Ant Gain	dBd	8.30
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	9.40
Ant HBW	degrees	360.00
Distance to Antenna	feet	100.30
WCS7	Y/N/P	n



Antenna System Thirteen

Parameter	units	Value
Frequency	MHz	45.00
# of Channels	#	4
Max ERP/Ch	Watts	400.00
Max Pwr/Ch into Ant.	Watts	40.00
(Center of Radiator)	feet	85.00
Calculation Point (above ground or roof surface)	feet	0.00
Antenna Model No.		DB810K-XC
Max Ant Gain	dBd	10.00
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	14.50
Ant HBW	degrees	360.00
Distance to Antenna	feet	77.75
WCS7	Y/N/P	n



Antenna System Fourteen

Parameter	units	Value
Frequency	MHz	453.81
# of Channels	#	2
Max ERP/Ch	Watts	250.00
Max Pwr/Ch into Ant.	Watts	25.00
(Center of Radiator)	feet	122.00
Calculation Point (above ground or roof surface)	feet	0.00
Antenna Model No.		DB810K-XC
Max Ant Gain	dBd	10.00
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	14.50
Ant HBW	degrees	360.00
Distance to Antenna	feet	114.75
WCS7	Y/N/P	n

o/c

Art System TWELVE Owner: Toland Police Department

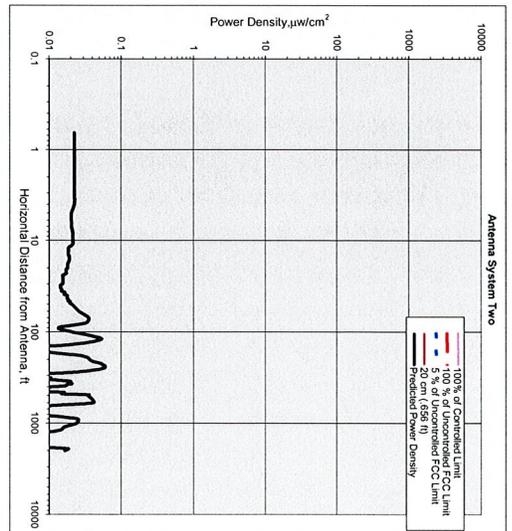
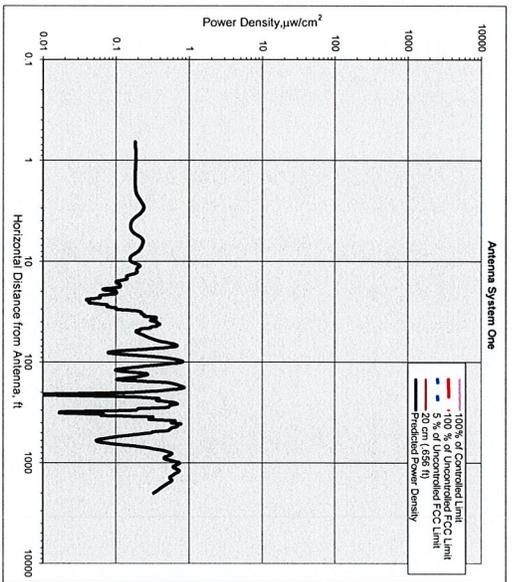
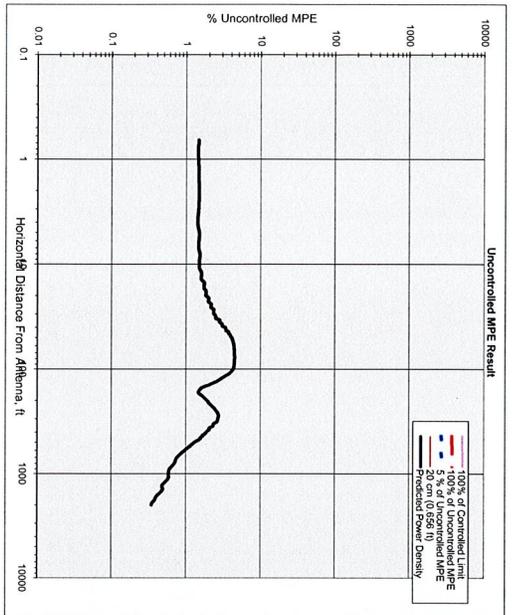
Sector: 1
Azimuth: 360

Art System THIRTEEN Owner: Toland Highway Patrol

Sector: 1
Azimuth: 15

Art System FOURTEEN Owner: Connecticut State Police

Sector: 1
Azimuth: 360



Number of Antenna Systems: 14
 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.

Maximum Power Density =	0.009334	4.47	70.00
Composite Power (ERP) =	17.050.00	Watts	
Power Density		% of limit	@Horn: Dist.
mW/cm ²			Feet
22.33 times lower than the MPE limit for uncontrolled environment.			

Site ID: 907-007-331
 Site Name: Toland
 Site Location: 130 Bald Hill Road
 Toland, CT

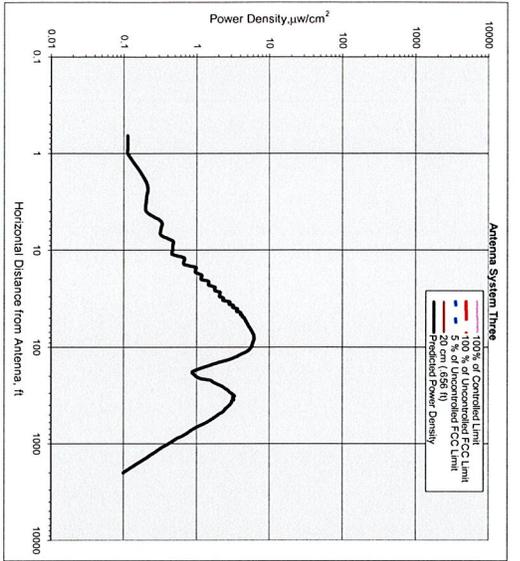
Performed By: Nader Suliman
 Date: 5/1/02

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	90.00
Calculation Point	feet	0.00
(above ground or roof surface)	feet	0.00
Antenna Model No.		Align 7250.03
Max Ant Gain	dBd	16.50
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	5.11
Ant. HBW	degrees	65.00
Distance to Antenna	feet	87.45
WOST?	Y/N?	n

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

Antenna System Two	units	Value
Frequency	MHz	33.80
# of Channels	#	4
Max ERP/Ch	Watts	400.00
Max Pwr/Ch into Ant.	Watts	64.87
(Center of Radiator)	feet	180.00
Calculation Point	feet	0.00
(above ground or roof surface)	feet	0.00
Antenna Model No.		DB9105N-W
Max Ant Gain	dBd	7.90
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	3.50
Ant. HBW	degrees	360.00
Distance to Antenna	feet	178.25
WOST?	Y/N?	n

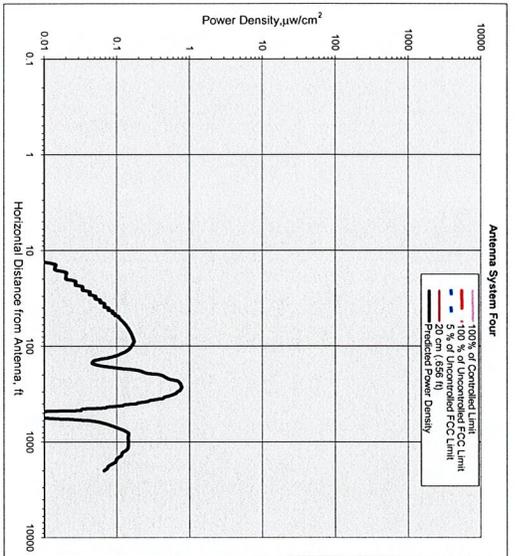
Ant System TWO Owner: Connecticut State Police
 Sector: 2
 Azimuth: 45/225



Antenna System Three

Parameter	units	Value
Frequency	MHz	406.00
# of Channels	#	4
Max ERP/Ch	Watts	400.00
Max Pwr/Ch Into Ant.	Watts	552.15
(Center of Radiator)	feet	180.00
Calculation Point	feet	0.00
(above ground or roof surface)	feet	0.00
Antenna Model No.		DB201
Max Ant Gain	dBd	-1.40
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	2.25
Ant. HBW	degrees	360.00
Distance to Antenna _{min}	feet	178.88
WOS?	Y/N?	n

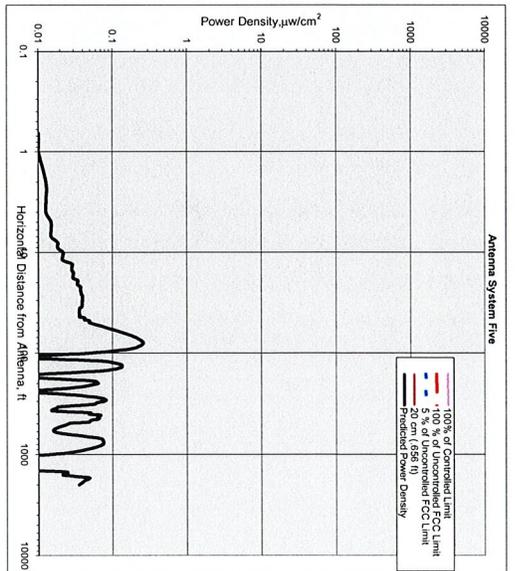
Ant System Three Owner: FBI
Sector: 1
Azimuth: 360



Antenna System Four

Parameter	units	Value
Frequency	MHz	155.00
# of Channels	#	2
Max ERP/Ch	Watts	400.00
Max Pwr/Ch Into Ant.	Watts	102.82
(Center of Radiator)	feet	176.00
Calculation Point	feet	0.00
(above ground or roof surface)	feet	0.00
Antenna Model No.		DB224-A
Max Ant Gain	dBd	5.90
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	21.25
Ant. HBW	degrees	360.00
Distance to Antenna _{min}	feet	165.38
WOS?	Y/N?	n

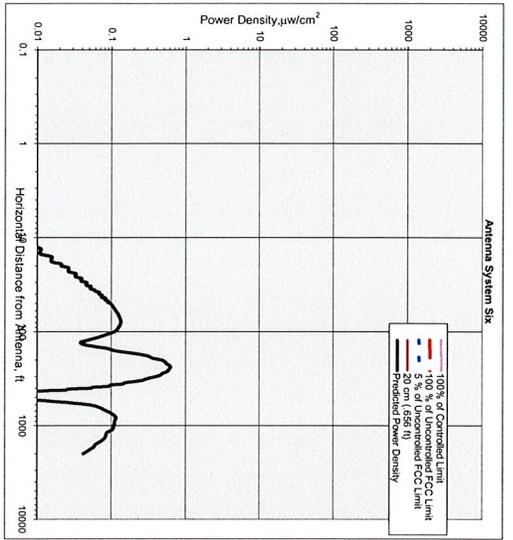
Ant System Four Owner: Sheriff
Sector: 1
Azimuth: 360



Antenna System Five

Parameter	units	Value
Frequency	MHz	33.00
# of Channels	#	4
Max ERP/Ch	Watts	400.00
Max Pwr/Ch Into Ant.	Watts	59.16
(Center of Radiator)	feet	161.00
Calculation Point	feet	0.00
(above ground or roof surface)	feet	0.00
Antenna Model No.		DB411
Max Ant Gain	dBd	8.30
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	9.40
Ant. HBW	degrees	360.00
Distance to Antenna _{min}	feet	156.30
WOS?	Y/N?	n

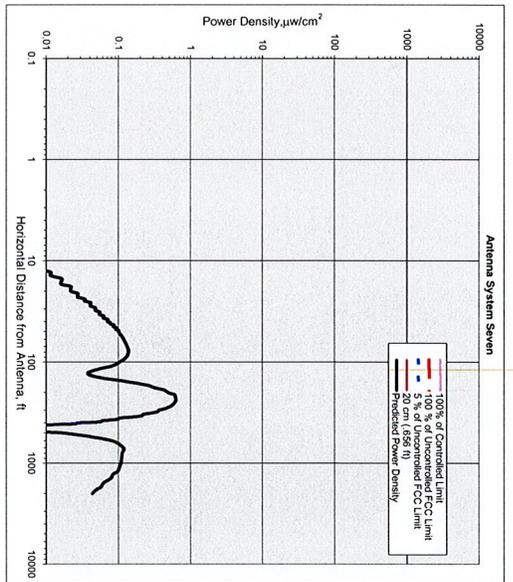
Ant System Five Owner: Connecticut State Police
Sector: 1
Azimuth: 360



Antenna System Six

units	Value
Frequency/ MHz	33.94
# of Channels	2
Max ERP/Ch Watts	250.00
Max Pwr/Ch into Ant. Watts	64.26
(Center of Radiator) feet	158.00
Calculation Point (above ground or roof surface) feet	0.00
Antenna Model No.	DB224-A
Max Ant. Gain dB	5.90
Down tilt degrees	0.00
Miscellaneous Att. dB	0.00
Height of aperture feet	21.25
Ant. HBW degrees	360.00
Distance to Antenna feet	147.38
WOST?	n

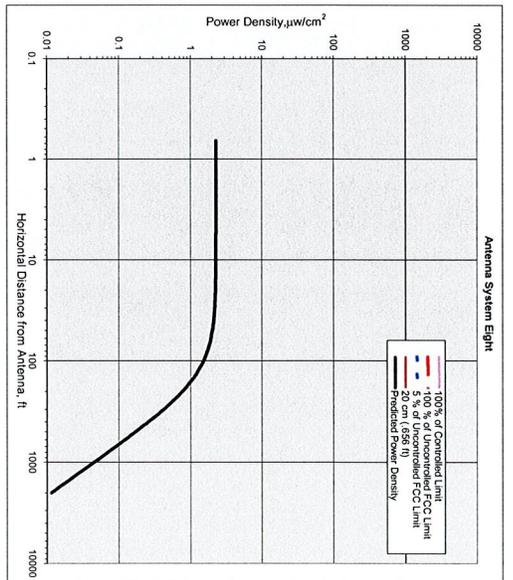
Ant System SIX Owner: Connecticut State Police
Sector: 1
Azimuth: 360



Antenna System Seven

units	Value
Frequency/ MHz	33.67
# of Channels	2
Max ERP/Ch Watts	250.00
Max Pwr/Ch into Ant. Watts	64.26
(Center of Radiator) feet	155.00
Calculation Point (above ground or roof surface) feet	0.00
Antenna Model No.	DB224-A
Max Ant. Gain dB	5.90
Down tilt degrees	0.00
Miscellaneous Att. dB	0.00
Height of aperture feet	21.25
Ant. HBW degrees	360.00
Distance to Antenna feet	144.38
WOST?	n

Ant System SEVEN Owner: Connecticut State Police
Sector: 1
Azimuth: 360



Antenna System Eight

units	Value
Frequency/ MHz	33.86
# of Channels	2
Max ERP/Ch Watts	250.00
Max Pwr/Ch into Ant. Watts	64.26
(Center of Radiator) feet	143.00
Calculation Point (above ground or roof surface) feet	0.00
Antenna Model No.	DB224-A
Max Ant. Gain dB	5.90
Down tilt degrees	0.00
Miscellaneous Att. dB	0.00
Height of aperture feet	21.25
Ant. HBW degrees	360.00
Distance to Antenna feet	132.38
WOST?	n

Ant System Eight Owner: Connecticut State Police
Sector: 1
Azimuth: 360

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.

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Internet address: rfsafety@fcc.gov
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10. References

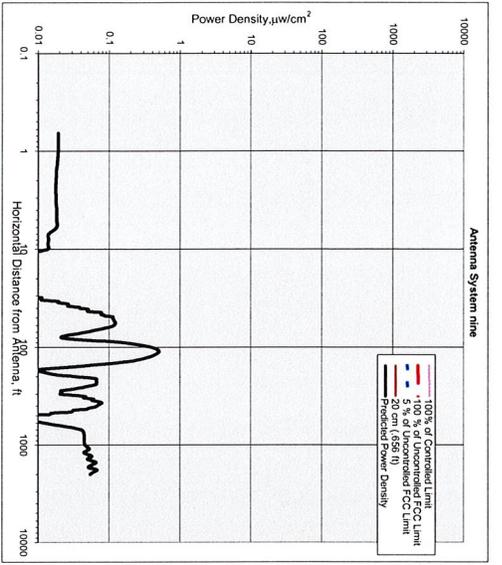
[1] The Communications Act of 1934, as amended by the Telecommunications Act of 1996, 47 U.S.C. Section 332 (c)(7)(B)(iv).

[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.

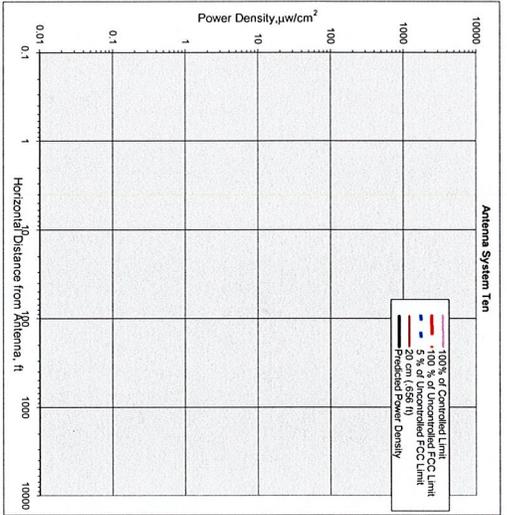


Antenna System Nine

units	Value
Frequency/ MHz	155.00
# of Channels	4
Max ERP/Ch Watts	400.00
Max Pwr/Ch Into Ant. Watts	48.09
(Center of Radiator) Feet	138.00
Calculation Point (above ground or roof surface) Feet	0.00
Antenna Model No.	DB420-8
Max Ant Gain dBd	9.20
Down tilt degrees	0.00
Miscellaneous Att. dB	0.00
Height of aperture feet	19.24
Ant HBW degrees	360.00
Distance to Ant. System feet	128.38
WOST? Y/N?	n

Ant System NINE Owner: Toland Police Department

Sector: 1
Azimuth: 360

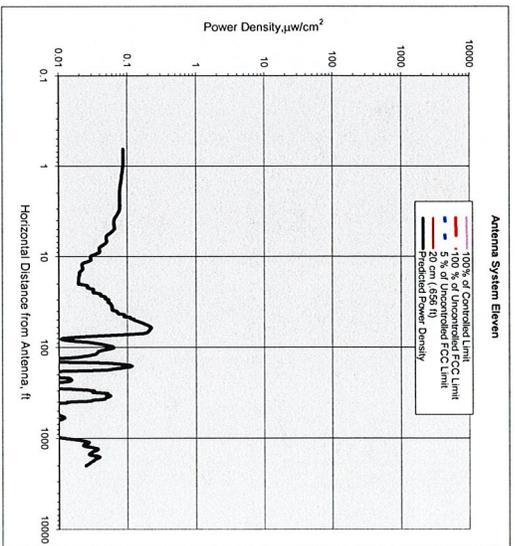


Antenna System Ten

units	Value
Frequency/ MHz	152.01
# of Channels	1
Max ERP/Ch Watts	150.00
Max Pwr/Ch Into Ant. Watts	0.02
(Center of Radiator) Feet	132.00
Calculation Point (above ground or roof surface) Feet	0.00
Antenna Model No.	Channel Master
Max Ant Gain dBd	40.00
Down tilt degrees	0.00
Miscellaneous Att. dB	0.00
Height of aperture feet	2.00
Ant HBW degrees	1.90
Distance to Ant. System feet	131.00
WOST? Y/N?	n

Ant System TEN Owner: Toland Police Department

Sector: 1
Azimuth: 45

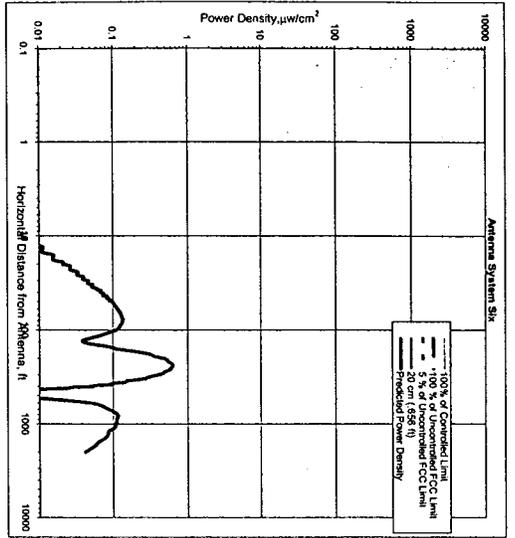


Antenna System Eleven

units	Value
Frequency/ MHz	33.00
# of Channels	2
Max ERP/Ch Watts	250.00
Max Pwr/Ch Into Ant. Watts	31.47
(Center of Radiator) Feet	124.00
Calculation Point (above ground or roof surface) Feet	0.00
Antenna Model No.	0863-900
Max Ant Gain dBd	9.00
Down tilt degrees	0.00
Miscellaneous Att. dB	0.00
Height of aperture feet	10.00
Ant HBW degrees	360.00
Distance to Ant. System feet	119.00
WOST? Y/N?	n

Ant System ELEVEN Owner: Connecticut State P

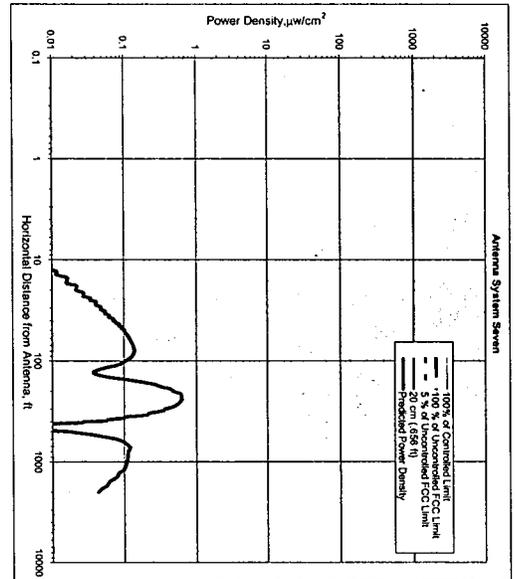
Sector: 1
Azimuth: 360



Antenna System Six

Parameter	units	Value
Frequency	MHz	33.94
# of Channels	#	2
Max ERP/Ch	Watts	250.00
Max Pwr/Ch Into Ant.	Watts	64.26
(Center of Radiator)	feet	158.00
Calculation Point	feet	0.00
(above ground or roof surface)	feet	0.00
Antenna Model No.		DB224-A
Max Ant Gain	dBd	5.90
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	21.25
Ant HBW	degrees	360.00
Distance to Antenna	feet	147.38
WOST?	Y/N/?	n

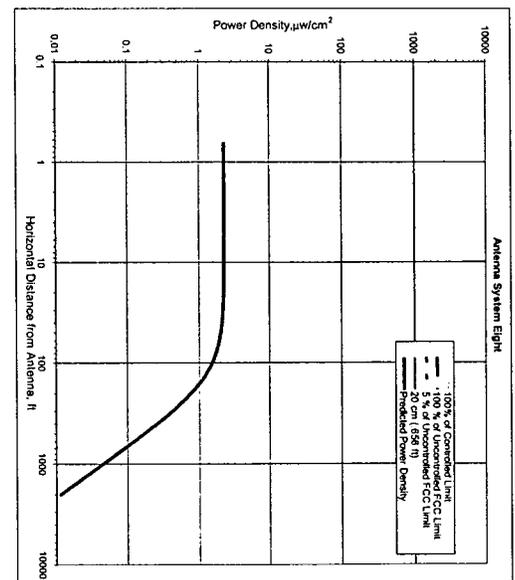
Ant System Six Owner: Connecticut State Police
Sector: 1
Azimuth: 360



Antenna System Seven

Parameter	units	Value
Frequency	MHz	33.67
# of Channels	#	2
Max ERP/Ch	Watts	250.00
Max Pwr/Ch Into Ant.	Watts	64.26
(Center of Radiator)	feet	155.00
Calculation Point	feet	0.00
(above ground or roof surface)	feet	0.00
Antenna Model No.		DB224-A
Max Ant Gain	dBd	5.90
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	21.25
Ant HBW	degrees	360.00
Distance to Antenna	feet	144.38
WOST?	Y/N/?	n

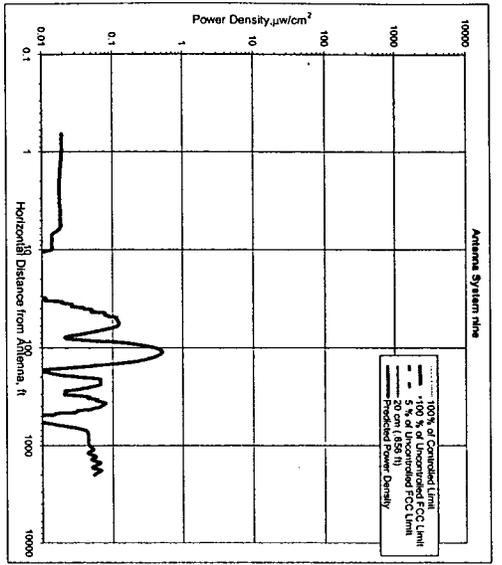
Ant System SEVEN Owner: Connecticut State Police
Sector: 1
Azimuth: 360



Antenna System Eight

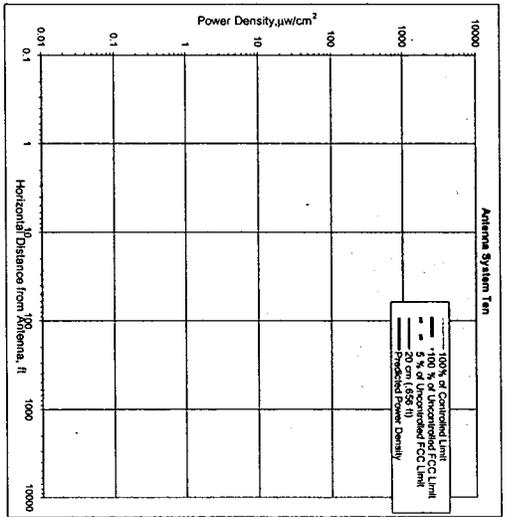
Parameter	units	Value
Frequency	MHz	33.86
# of Channels	#	2
Max ERP/Ch	Watts	250.00
Max Pwr/Ch Into Ant.	Watts	64.26
(Center of Radiator)	feet	143.00
Calculation Point	feet	0.00
(above ground or roof surface)	feet	0.00
Antenna Model No.		DB224-A
Max Ant Gain	dBd	5.90
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	21.25
Ant HBW	degrees	360.00
Distance to Antenna	feet	132.38
WOST?	Y/N/?	0.00

Ant System Eight Owner: Connecticut State Police
Sector: 1
Azimuth: 360



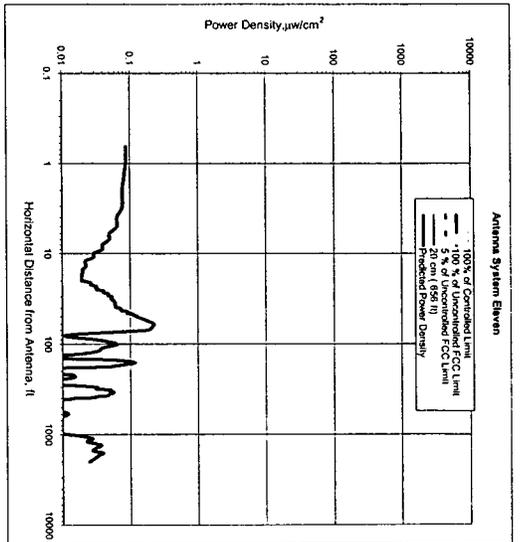
units	Value
Frequency	155.00
MHz	
# of Channels	4
Max ERP/Ch	400.00
Watts	
Max Pwr/Ch into Ant.	48.09
Watts	
(Center of Radiator)	138.00
feet	
Calculation Point	0.00
(above ground or	
roof surface)	0.00
Antenna Model No.	DB420-B
Max Ant Gain	9.20
dBd	
Down tilt	0.00
degrees	
Miscellaneous Att.	0.00
dB	
Height of aperture	19.24
feet	
Ant HBW	360.00
degrees	
Distance to Ant. system	128.38
feet	
WOST?	N

Ant System NINE Owner: Toland Police Department
 Sector: 1
 Admuth: 360



units	Value
Frequency	152.01
MHz	
# of Channels	1
Max ERP/Ch	150.00
Watts	
Max Pwr/Ch into Ant.	0.02
Watts	
(Center of Radiator)	132.00
feet	
Calculation Point	0.00
(above ground or	
roof surface)	0.00
Antenna Model No.	Channel Master
Max Ant Gain	40.00
dBd	
Down tilt	0.00
degrees	
Miscellaneous Att.	0.00
dB	
Height of aperture	2.00
feet	
Ant HBW	1.90
degrees	
Distance to Ant. system	131.00
feet	
WOST?	N

Ant System TEN Owner: Toland Police Department
 Sector: 1
 Admuth: 45



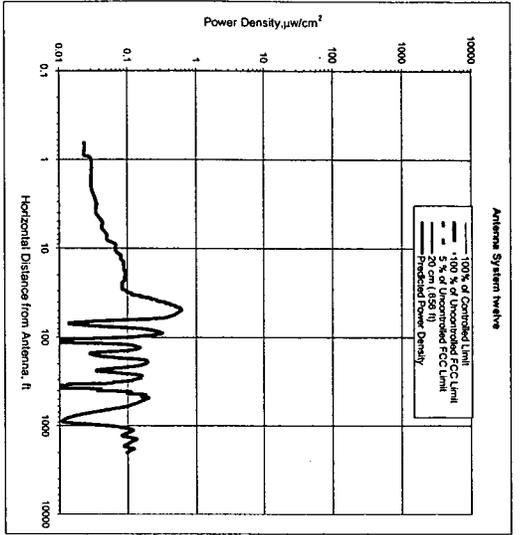
units	Value
Frequency	33.00
MHz	
# of Channels	2
Max ERP/Ch	250.00
Watts	
Max Pwr/Ch into Ant.	31.47
Watts	
(Center of Radiator)	124.00
feet	
Calculation Point	0.00
(above ground or	
roof surface)	0.00
Antenna Model No.	OBG9-300
Max Ant Gain	9.00
dBd	
Down tilt	0.00
degrees	
Miscellaneous Att.	0.00
dB	
Height of aperture	10.00
feet	
Ant HBW	360.00
degrees	
Distance to Ant. system	119.00
feet	
WOST?	N

Ant System ELEVEN Owner: Connecticut State P
 Sector: 1
 Admuth: 360

Antenna System Nine

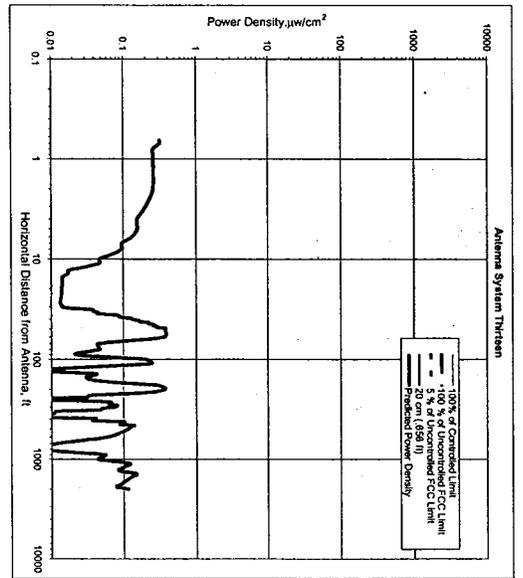
Antenna System Ten

Antenna System Eleven



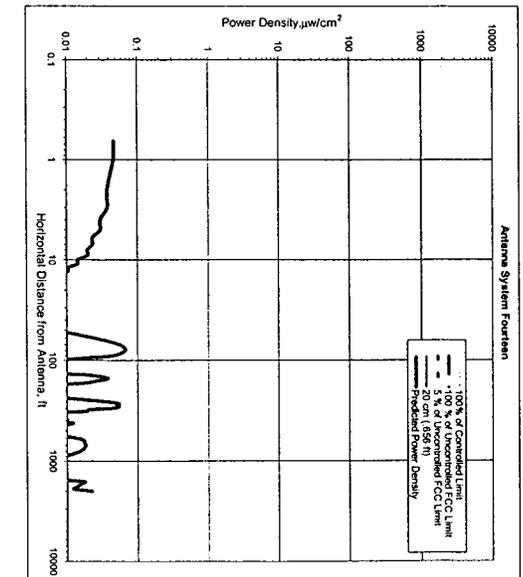
Parameter	Units	Value
Frequency	MHz	155.00
# of Channels	#	4
Max ERP/Ch	Watts	400.00
Max Pwr/Ch Into Ant.	Watts	59.16
(Center of Radiator)	feet	105.00
Calculation Point	feet	0.00
(above ground or roof surface)	feet	0.00
Antenna Model No.		DB411
Max Ant Gain	dBd	8.30
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	9.40
Ant HBW	degrees	360.00
Distance to Antenna	feet	100.30
WQS?	Y/N?	n

office
 Ant System TWELVE Owner: Toland Police Department
 Sector: 1
 Azimuth: 360



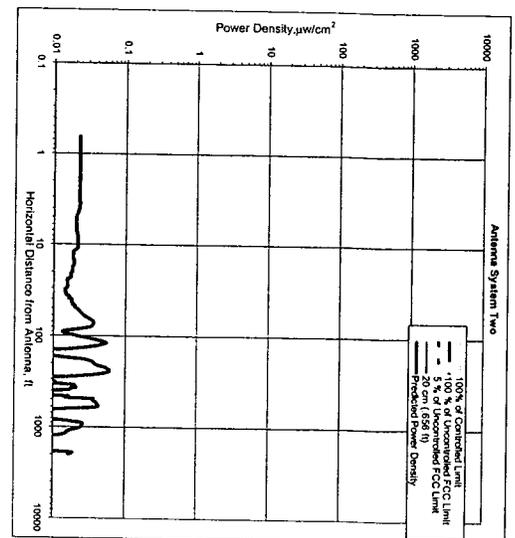
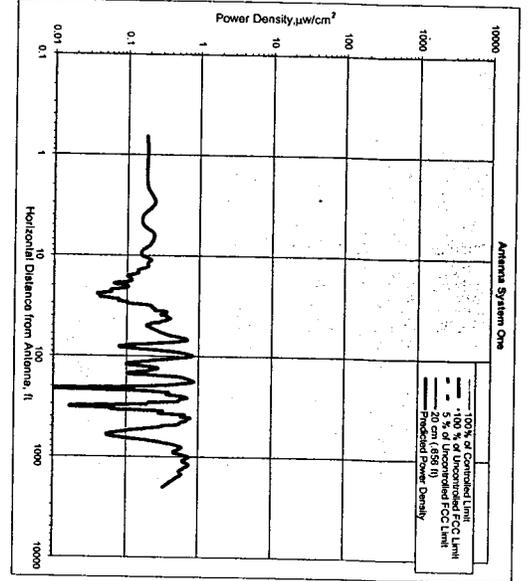
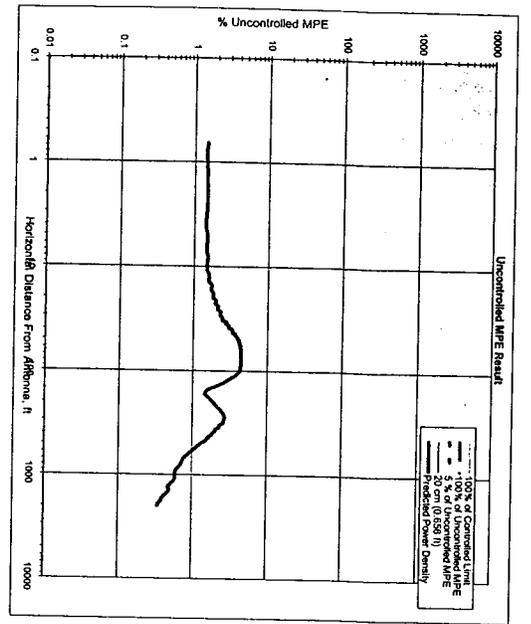
Parameter	Units	Value
Frequency	MHz	45.00
# of Channels	#	4
Max ERP/Ch	Watts	400.00
Max Pwr/Ch Into Ant.	Watts	40.00
(Center of Radiator)	feet	85.00
Calculation Point	feet	0.00
(above ground or roof surface)	feet	0.00
Antenna Model No.		DB810K-XC
Max Ant Gain	dBd	10.00
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	14.50
Ant HBW	degrees	360.00
Distance to Antenna	feet	77.75
WQS?	Y/N?	n

Ant System THIRTEEN Owner: Toland Highway Patrol
 Sector: 1
 Azimuth: 15



Parameter	Units	Value
Frequency	MHz	453.81
# of Channels	#	2
Max ERP/Ch	Watts	250.00
Max Pwr/Ch Into Ant.	Watts	25.00
(Center of Radiator)	feet	122.00
Calculation Point	feet	0.00
(above ground or roof surface)	feet	0.00
Antenna Model No.		DB810K-XC
Max Ant Gain	dBd	10.00
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	14.50
Ant HBW	degrees	360.00
Distance to Antenna	feet	114.75
WQS?	Y/N?	n

Ant System FOURTEEN Owner: Connecticut State Police
 Sector: 1
 Azimuth: 360



Number of Antenna Systems: 14
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	mW/cm ²	% of Limit	@Horiz. Dist.
Maximum Power Density =	0.0009334	4.47	feet
22.39 times lower than the MPE limit for uncontrolled environment			70.00
Composite Power (ERP) =	17,050.00	Watts	

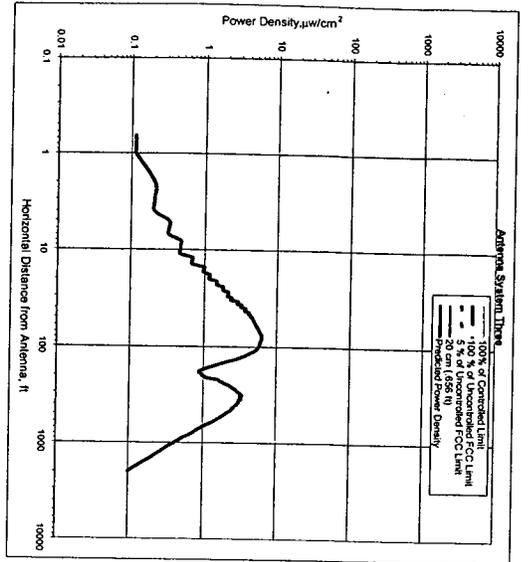
Site ID: 907-007-331
Site Name: Tolland
Site Location: 130 Bald Hill Road
Tolland, CT
Performed By: Nader Soliman
Date: 5/1/02

units	Value
Frequency	1945.00
MHz	
# of Channels	16
Max ERP/Ch	250.00
Watts	5.86
Max Pwr/Ch into Ant.	90.00
(Center of Radiator)	
Calculation Point	0.00
(above ground or	
roof surface)	0.00
Antenna Model No.	Aligon 725.0.03
Max Ant Gain	16.30
dBd	
Down tilt	0.00
degrees	
Miscellaneous Att.	0.00
dB	
Height of aperture	5.11
feet	
Ant HBW	65.00
degrees	
Distance to Antenna	87.45
feet	
WOS7	n

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

units	Value
Frequency	33.80
MHz	
# of Channels	4
Max ERP/Ch	400.00
Watts	64.87
Max Pwr/Ch into Ant.	180.00
(Center of Radiator)	
Calculation Point	0.00
(above ground or	
roof surface)	0.00
Antenna Model No.	DB9105N-W
Max Ant Gain	7.90
dBd	
Down tilt	0.00
degrees	
Miscellaneous Att.	0.00
dB	
Height of aperture	3.50
feet	
Ant HBW	360.00
degrees	
Distance to Antenna	178.25
feet	
WOS7	n

Ant System TWO Owner: Connecticut State Police
Sector: 2
Azimuth: 45/225

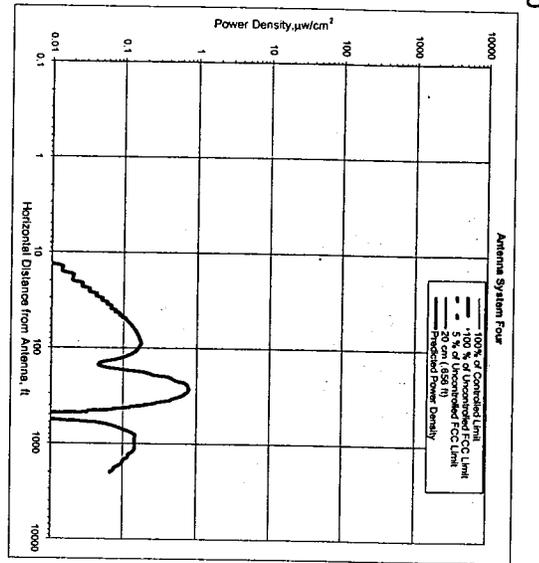


Antenna System Three

	units	Value
Frequency	MHz	406.00
# of Channels	#	4
Max ERP/Ch	Watts	400.00
Max Pwr/Ch into Ant.	Watts	352.15
(Center of Radiator)	feet	180.00
Calculation Point (above ground or roof surface)	feet	0.00
Antenna Model No.		DB201
Max Ant Gain	dBd	-1.40
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	2.25
Ant HBW	degrees	360.00
Distance to Antenna	feet	178.88
WOST?	Y/N?	n

Ant System Three Owner: FBI

Sector: 1
Azimuth: 360

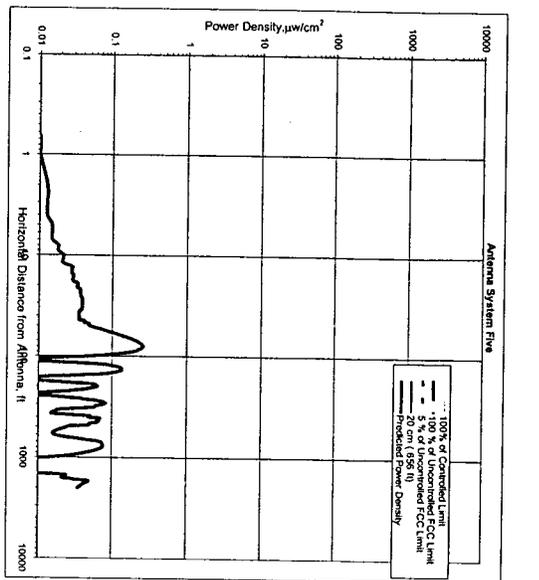


Antenna System Four

	units	Value
Frequency	MHz	155.00
# of Channels	#	2
Max ERP/Ch	Watts	400.00
Max Pwr/Ch into Ant.	Watts	102.82
(Center of Radiator)	feet	176.00
Calculation Point (above ground or roof surface)	feet	0.00
Antenna Model No.		DB224-A
Max Ant Gain	dBd	5.90
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	21.25
Ant HBW	degrees	360.00
Distance to Antenna	feet	165.38
WOST?	Y/N?	n

Ant System Four Owner: Sheriff

Sector: 1
Azimuth: 360



Antenna System Five

	units	Value
Frequency	MHz	33.00
# of Channels	#	4
Max ERP/Ch	Watts	400.00
Max Pwr/Ch into Ant.	Watts	59.16
(Center of Radiator)	feet	161.00
Calculation Point (above ground or roof surface)	feet	0.00
Antenna Model No.		DB411
Max Ant Gain	dBd	8.30
Down tilt	degrees	0.00
Miscellaneous Att.	dB	0.00
Height of aperture	feet	9.40
Ant HBW	degrees	360.00
Distance to Antenna	feet	156.30
WOST?	Y/N?	n

Ant System Five Owner: Connecticut State Police

Sector: 1
Azimuth: 360