

RECEIVED

JUL 03 2002

**NOTICE OF INTENT TO MODIFY AN
EXISTING TELECOMMUNICATIONS FACILITY
69 WHEELER STREET, NEW HAVEN, 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 at 69 Wheeler Street, New Haven, Connecticut (the "Wheeler Street Facility"), owned by Elmer and William Laydon. AT&T Wireless and the tower owner have agreed to share the use of the Wheeler Street Facility, as detailed below.

The Wheeler Street Facility

The Wheeler Street Facility consists of an approximately ninety (90) foot monopole (the "Tower") and associated equipment currently being used and/or approved for wireless communications use by Nextel and Cingular. A chain link fence surrounds the Tower compound. The current surrounding land uses are predominantly industrial.

AT&T Wireless' Facility

As shown on the enclosed plans prepared by Tectonic/Keyes Associates, including a site plan and tower elevation of the Wheeler Street Facility, AT&T Wireless proposes shared use of the Facility by placing antennas on the Tower and equipment cabinets at grade needed to provide personal communications services ("PCS"). AT&T Wireless will install 9 panel antennas at approximately the 70 foot level of the Tower and associated equipment cabinets (6 proposed, 2 future, each 76"H x 30" W x 30" D) located on a concrete pad within an expanded fenced compound. As evidenced in the structural report prepared by Tectonic Engineering Consultants, 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

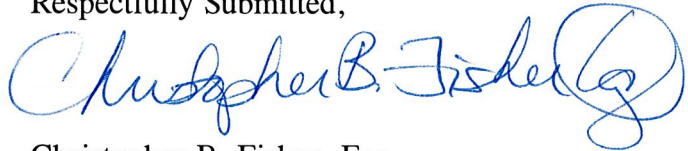
The proposed addition of AT&T Wireless' antennas and equipment to the Wheeler Street Facility constitutes an exempt "modification" of an existing facility as defined in Connecticut General Statutes Section 16-50i(d) and Council regulations promulgated pursuant thereto. Addition of AT&T Wireless' antennas 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 Bell Labs, 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 Wheeler Street Facility meets the Council's exemption criteria.

Respectfully Submitted,

A handwritten signature in blue ink, reading "Christopher B. Fisher" followed by a stylized circular flourish.

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

cc: Mayor, City of New Haven
RJ Wetzel, Bechtel

OWNER'S LETTER OF AUTHORIZATION

Municipality: New Haven

Tax Parcel Number: Map __, Block 200, Lot 975

RE: Land Use/Zoning Approvals and Building Permits

_Elmer F. Laydon and William M. Laydon d/b/a LAURA REALTY ("Owner"), the Owner(s) of real and/or personal property located at 69 Wheeler Street, New Haven, in the County of New Haven, State of Connecticut (the "Property"), does hereby appoint AT&T Wireless Services ("AT&T") and its agents and representatives as Owner's Agent for the purpose of completing, executing, and filing any application(s), form, map, variance, site plan, special permit, building permit or other land use application(s) with the Town, its Agencies, or the Connecticut Siting Council, and to obtain approvals necessary to permit AT&T's construction and operation of a wireless telecommunications facility on the Property. Owner shall fully cooperate with AT&T and its agents and representatives in obtaining any required approvals.

By: William M Laydon

Title: _____

Date: 6-25-02

By: Elmer F Laydon

Title: _____

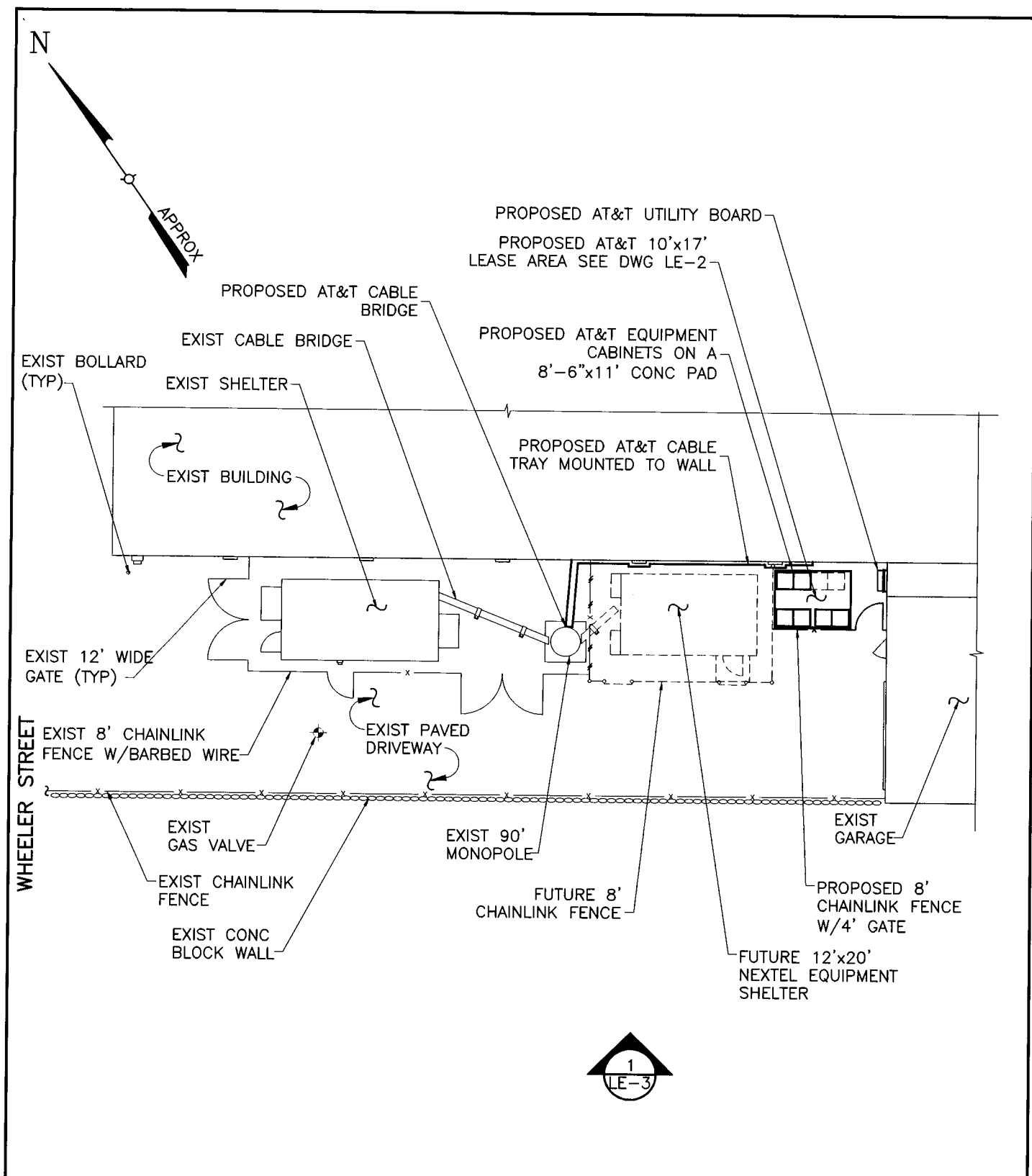
Date: 6-25-02

STATE OF CONNECTICUT
COUNTY OF

Signed and Sworn to before me this 25th day of June, 2002.

Charlene V. Price
NOTARY PUBLIC

My Commission expires: 7/31/04



TECTONIC/KEYES ASSOCIATES

1545 BELLE DEANE HIGHWAY, SUITE 800 OFFICE: (203) 863-3241
ROCKY HILL, CT 06067-1340 FAX: (203) 867-4688



AT&T

AT&T WIRELESS PCS, LLC.
12 Omega Drive, Second Floor
Stamford, CT 06902

DRAWING TITLE:
SITE DETAIL PLAN

PROJECT INFORMATION:
**NEW HAVEN
CT-195**

69 WHEELER STREET
NEW HAVEN, CT 06512
PROPERTY OWNER:
ELMER F. & WILLIAM M LAYDEN
69 WHEELER STREET
NEW HAVEN, CT 06512

DRAWING NO.

SC-1

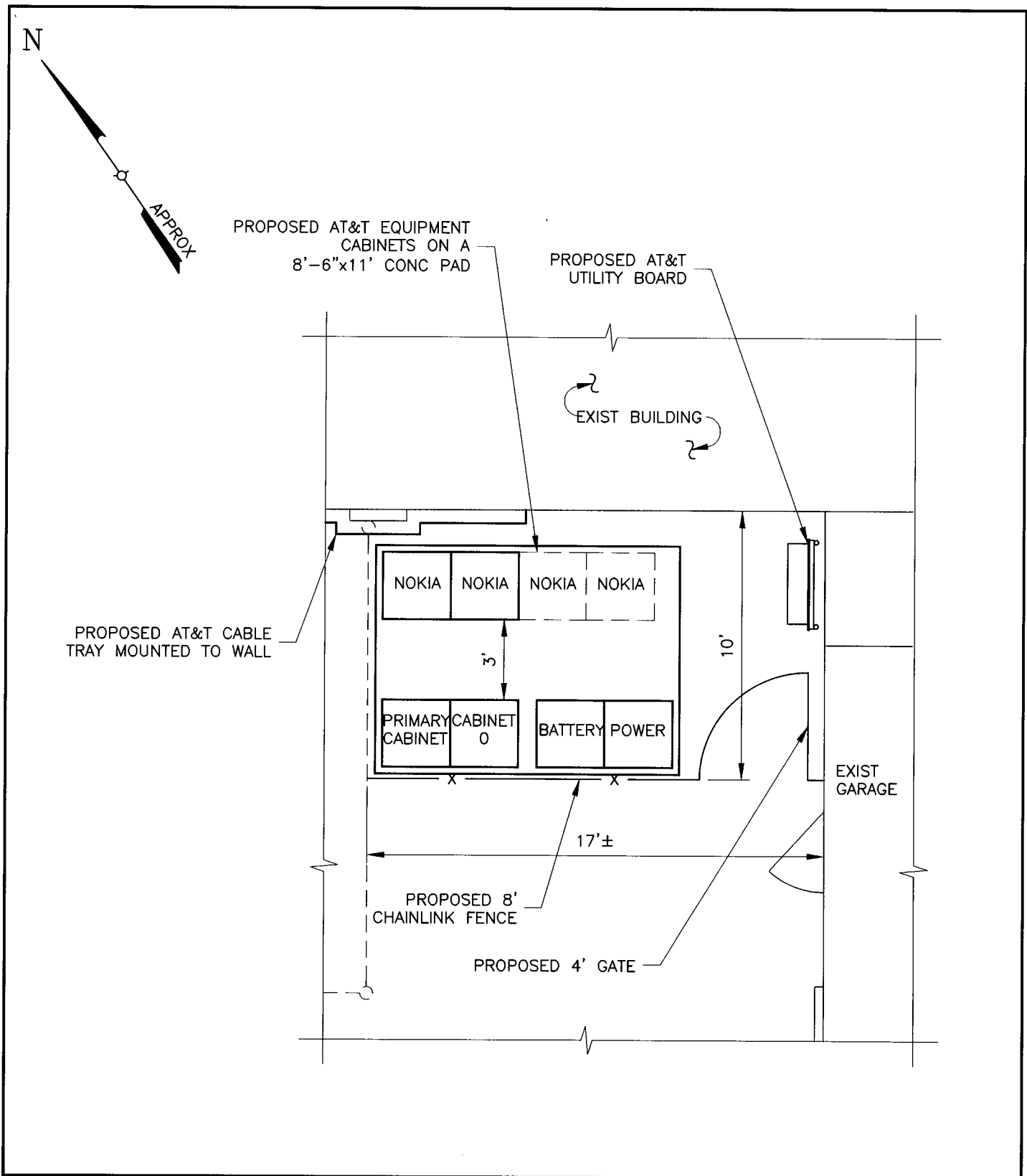
REVISION NO. 0 DRAWN BY: RPM

DATE: 6/3/02 CHECKED BY: PC

SCALE: 1" = 20' APPROVED BY: JDF

ISSUED FOR COMMENT SHEET NO. 1 of 3

WORK ORDER #: 2650.CT195



TECTONIC/KEYES ASSOCIATES
 1345 BLISS DELANE HIGHWAY, SUITE 800 OFFICE: (860)963-3344
 ROCKY HILL, CT 06067-1345 FAX: (860)967-4686

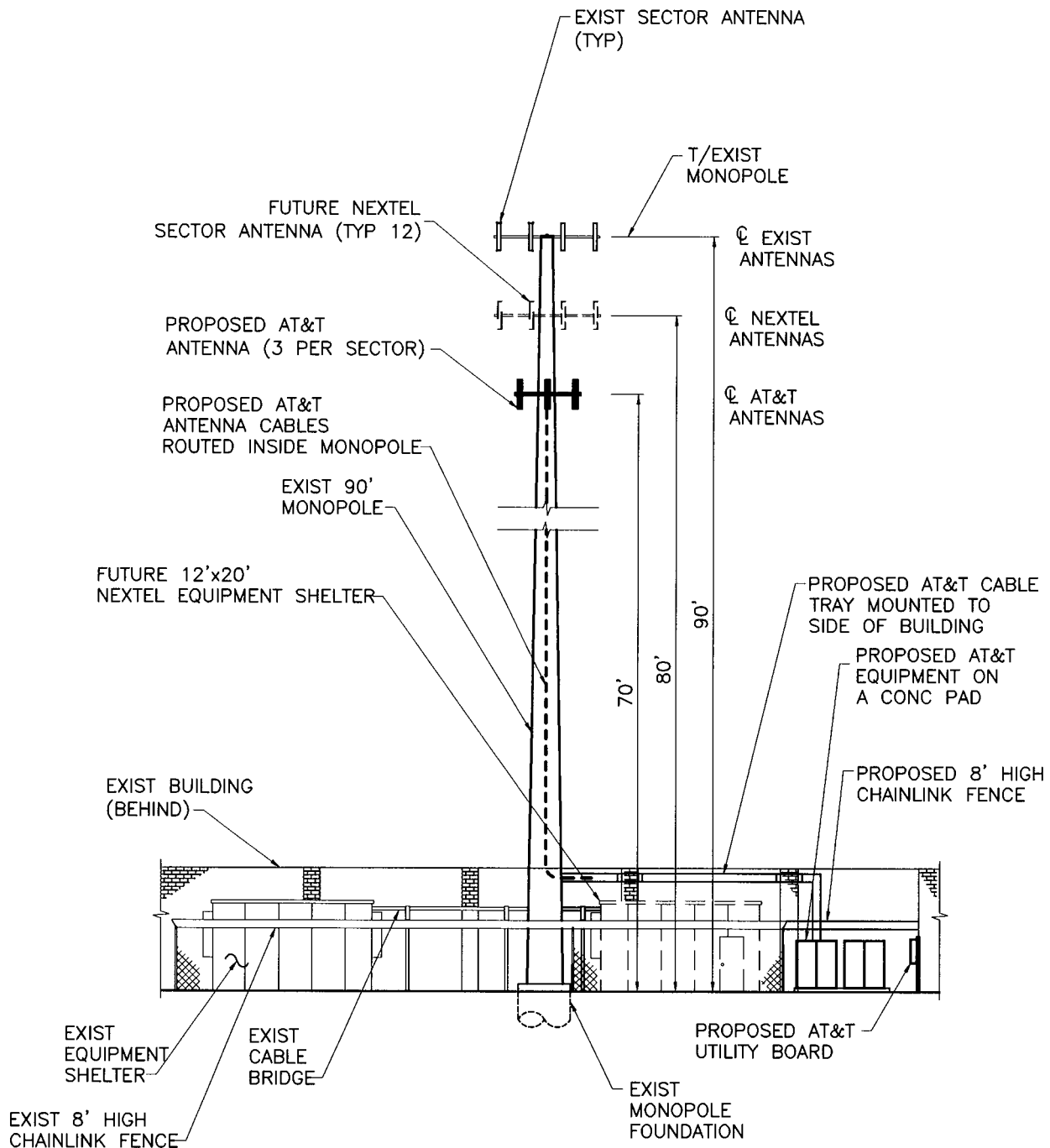


DRAWING TITLE:
EQUIPMENT PLAN
PROJECT INFORMATION:
NEW HAVEN
 CT-195
 69 WHEELER STREET
 NEW HAVEN, CT 06512

PROPERTY OWNER:
 ELMER F. & WILLIAM M LAYDEN
 69 WHEELER STREET
 NEW HAVEN, CT 06512

DRAWING NO.
SC-2

REVISION NO. 0	DRAWN BY: RPM
DATE: 6/3/02	CHECKED BY: PC
SCALE: 1" = 5'	APPROVED BY: JDF
ISSUED FOR COMMENT	SHEET NO. 2 of 3
WORK ORDER #: 2650.CT195	



TECTONIC/KEYES ASSOCIATES
 1344 BLAS DEANE HIGHWAY, SUITE 800
 ROCKY HILL, CT 06067-1349
 OFFICE: (860)963-2341
 FAX: (860)967-6886



AT&T

AT&T WIRELESS PCS, LLC.
 12 Omega Drive, Second Floor
 Stamford, CT 06902

DRAWING TITLE:
ELEVATION
 PROJECT INFORMATION:
NEW HAVEN
 CT-195
 69 WHEELER STREET
 NEW HAVEN, CT 06512
 PROPERTY OWNER:
 ELMER F. & WILLIAM M LAYDEN
 69 WHEELER STREET
 NEW HAVEN, CT 06512

DRAWING NO.
SC-3

REVISION NO. 0	DRAWN BY: RPM
DATE: 6/3/02	CHECKED BY: PC
SCALE: 1" = 20'	APPROVED BY: JDF
ISSUED FOR COMMENT	SHEET NO. 3 of 3
WORK ORDER #: 2650.CT195	

**AT&T WIRELESS: NEW HAVEN
W.O. 2650.CT195B
EXISTING MONOPOLE
NEW HAVEN, CT
STRUCTURAL ANALYSIS REPORT
MAY 3, 2002**

1.0 INTRODUCTION

The existing monopole located at 69 Wheeler Street in New Haven, CT currently serves the needs of SNET Mobility Inc. AT&T Wireless and Nextel anticipate installing their antennas and related cables on this monopole in the near future.

Tectonic Engineering and Surveying Consultants, P.C. has performed a structural analysis of the pole to verify its adequacy for supporting the proposed antennas in accordance with current code requirements.

1.1 Information Provided

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

1. Maguire Group Inc. interoffice memo, subject: Data/Boring Log, job no. 14777, dated 4/9/99 (5 pages).
2. Letter from SNET to Connecticut Siting Council, subject: "Request by Springwich Cellular Limited Partnership for an Order to Approve the Shared Use of a Tower Facility", dated 4/26/99 (4 pages).
3. "Lucent Technologies, Structure Design Calculations, 90' Monopole, Site: New Haven", by Engineered Endeavors, Inc. (EEI), Job no. 99-525, dated 5/5/99 (4 pages).
4. Letter from Connecticut Siting Council, response to item #2 (SNET proposal), dated 5/12/99 (1 page).
5. "Lucent Technologies, Structure Design Calculations, 90' Monopole, Site: New Haven", by Engineered Endeavors, Inc. (EEI), Job no. 5052, dated 5/25/99 (4 pages).
6. "90'-0" Monopole Lucent Technologies", by EEI, drawing no. GS51471 dated 5/26/99.
7. Letter from Daniel L. Gelinas, P.E. – Structural Engineering Services to Maguire Group Inc., confirmation of foundation design, dated 3/29/00 (1 page).
8. Letter from Maguire Group Inc. to New Haven Building Department, Re: Building Code Compliance, dated 3/31/00 (1 page).
9. "Monopole Foundation Details" drawing, by Maguire Group Inc., SNET Job No. 3C746, undated.

W.O. 2650.CT195B
AT&T / New Haven
Structural Analysis Report

Page 2

May 3, 2002

10. Letter from H.E. Bergeron Engineers to Maguire Group Inc., review of EEI's design calculations, dated 4/12/00.
11. Letter from Daniel L. Gelinas, P.E. – Structural Engineering Services to Maguire Group, Inc. subject: "SNET Cell Site No. 1097, Laydon Construction, New Haven, CT MGI Job No. 14777.1097", dated 4/12/00.
12. Tower Loading Form, Site # CT-195.4, by Bechtel, dated 4/2/02.
13. Email from WFI to Bechtel, subject: "CT-195B Rev A SC", dated 4/22/02.
14. Email from AT&T to Bechtel, subject: "CT-195B Rev A SC", dated 4/26/02.
15. Site Candidate Information Package by WFI, Search Area / Site # CT-195.4, dated 3/8/02.

2.0 STRUCTURE DESCRIPTION

2.1 General

The existing monopole was designed by Engineered Endeavors, Inc. (EEI) in 1999. It is 18-sided and consists of two (2) slip-jointed sections, with a total height of 88' above the foundation. The pole is 2'-10" wide at the base and is tapered to approximately 1'-4 1/2" wide at the top.

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

2.2 Monopole Foundation

The monopole foundation was designed by Maguire Group Inc., in 1999. According to the drawing provided, the foundation consists of a 26' x 18' x 3'-3" thick reinforced concrete spread footing, bearing on compacted natural soil at a depth of 4'-3" below grade. A 6'-0" square pier extends from the top of the footing to 1' above grade.

The monopole is anchored to its foundation by six (6) 2-1/4" diameter anchor bolts on a 3'-6" diameter bolt circle.

2.3 Loading Criteria

The original design was based on ANSI/EIA/TIA-222-E using a basic wind speed of 85 mph with no ice, and a reduced wind speed of 74 mph in conjunction with 0.5" radial ice. The monopole was designed to support the following items:

W.O. 2650.CT195B
AT&T / New Haven
Structural Analysis Report

Page 3

May 3, 2002

- 12 ALP 11011 directional antennas at the 90' level (centerline)
- 1 10'-8" Standard platform mounted to the monopole at the 90' level
- 1 15' Omni whip antenna at the 90' level (base)
- 12 ALP 11011 directional antennas at the 80' level (centerline)
- 1 10'-8" Standard platform mounted to the monopole at the 80' level

All cables were intended to be run inside the monopole.

3.0 EXISTING CONDITION

3.1 Field Inspection

Representatives of Tectonic visited the site on March 14, 2002. A detailed structural inspection of the monopole was not performed.

3.2 Existing Antennas and Equipment

According to the information provided by Bechtel, the monopole is currently supporting the following items:

- 12 Allgon 7120 panel antennas (SNET) at the 90' level (centerline) mounted four (4) per sector on a standard top-mounted platform

All coaxial cables are routed through the interior of the monopole.

4.0 PROPOSED INSTALLATION

It is our understanding that all existing antennas and equipment will remain on the structure, and that AT&T Wireless is proposing to install the following items on the monopole:

- 6 EMS RR90-17-02DPL2 panel antennas at the 70' level (centerline), mounted two (2) per sector on three (3) standard T-arm mounts
- 3 Allgon 7262.02 panel antennas at the 70' level (centerline) mounted one (1) per sector on the same T-arm mounts
- 15 1-1/4" diameter coaxial cables, routed up the interior of the monopole to the 70' level

In addition, we understand that Nextel intends to add the following items to the monopole in the future:

W.O. 2650.CT195B
AT&T / New Haven
Structural Analysis Report

Page 4

May 3, 2002

- 12 Decibel DB844H90 panel antennas at the 80' level (centerline), mounted four (4) per sector on a standard platform
- 12 1-1/4" diameter coaxial cables, routed up the interior of the monopole to the 80' level

5.0 STRUCTURAL ANALYSIS

5.1 Current Loading Criteria and Procedure

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 New Haven County, CT, where the pole is located. The 1999 Connecticut supplement to the BOCA National Building Code / 1996 also require a wind speed of 85 mph within New Haven. Therefore, this 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 ice.

A detailed analysis of the structure was performed using the geometry and physical properties as shown in the EEI calculations and drawings. The analysis included the monopole with the existing appurtenances, along with the proposed AT&T and future Nextel 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

5.2 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. The slip jointed splice was assembled in accordance with the manufacturer's specifications.
- 2. The monopole is modeled as a cantilever beam, with a fixed connection at its base.
- 3. The foundation was constructed in accordance with the approved drawings.

W.O. 2650.CT195B
AT&T / New Haven
Structural Analysis Report

Page 5

May 3, 2002

4. The monopole and foundation are in good condition, and are capable of supporting their original design loads.

5.3 Results

Member forces at various elevations have been calculated and the member capacities have been determined using current loading criteria. Under the proposed installation, the maximum stress occurs at the base of the monopole, and is 89% of its capacity. The results of our analysis are summarized in the following table:

Height Above Base (ft)	Maximum Combined Stress (ksi)	Percentage of Capacity (%)
88.00	2.19	4
80.24	8.51	16
72.48	18.63	36
64.72	28.46	55
56.96	36.80	71
49.20	43.19	83
39.36	37.10	71
29.52	40.50	78
19.68	43.04	83
9.84	44.97	86
0.00	46.45	89

The anchor bolts are found to be stressed to 85% of their capacity.

The foundation reactions are as follows:

	Original Design	Including Proposed Antennas	% Increase
Compression (kips)	11.7	12.5	6.8
Shear (kips)	12.1	12.7	5.0
Overturning Moment (kip-ft)	852	869	2.0

Based on the foundation drawings provided, the foundation capacity was checked and verified to be adequate for supporting the proposed loads.

W.O. 2650.CT195B
AT&T / New Haven
Structural Analysis Report

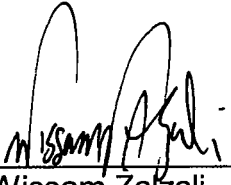
Page 6

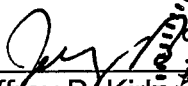
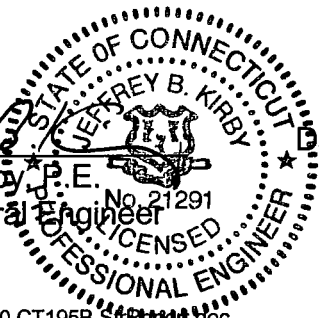
May 3, 2002

6.0 CONCLUSIONS AND RECOMMENDATIONS

As a result of our analysis, we conclude that the existing structure has sufficient capacity to support the proposed AT&T and future Nextel installations. No structural problems for the pole or its foundation are anticipated, and no modifications are necessary.

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

Prepared by: 
Wissam Zalzali
Staff Structural Engineer

Reviewed by:  Date: 5/3/02
Jeffrey B. Kirby, P.E. No. 21291
Chief Structural Engineer


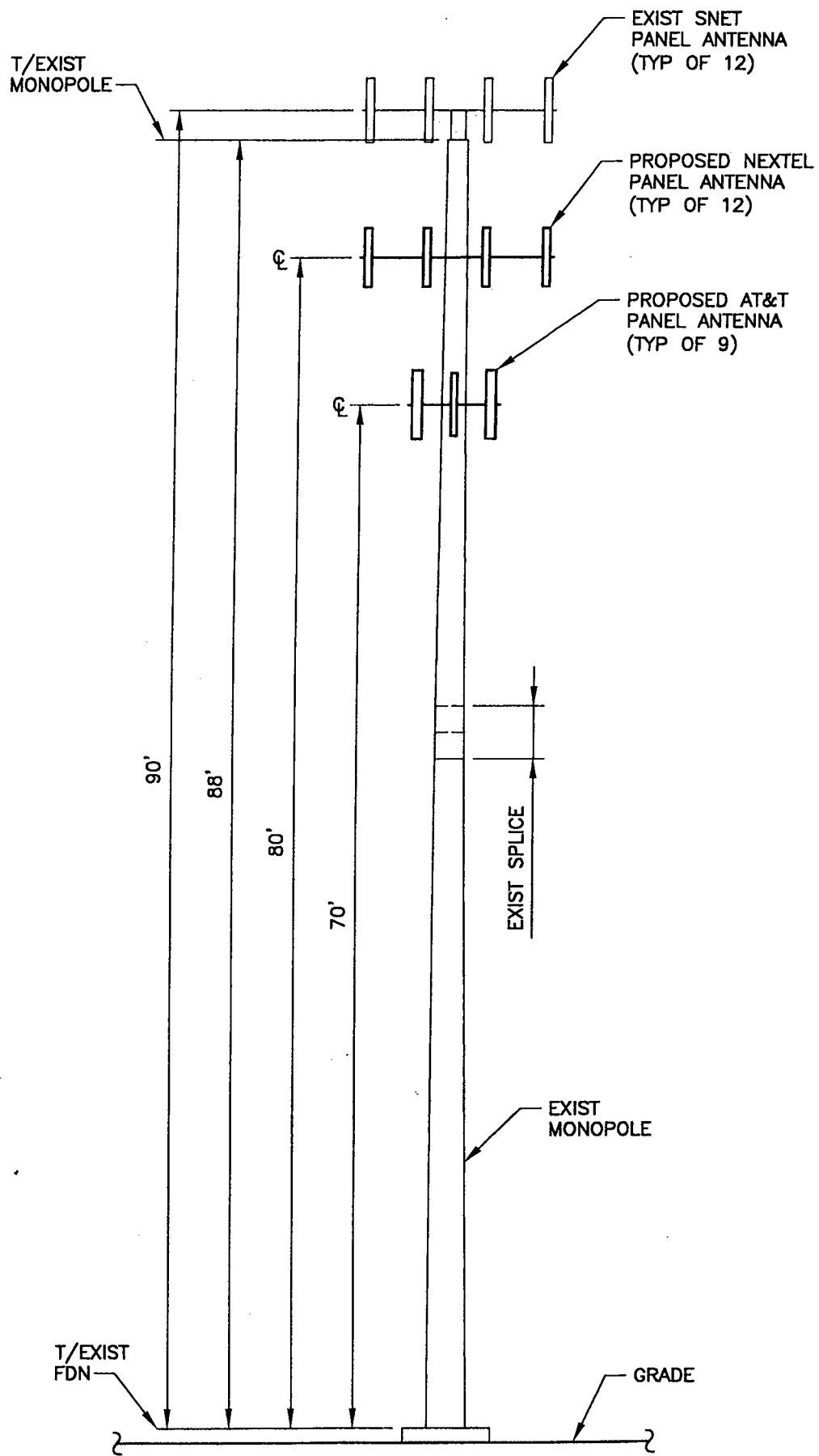


FIGURE 1

Bell Labs

Innovations for Lucent Technologies

Lucent Technologies



**An Analysis of the Radiofrequency Environment in the
Vicinity of a Proposed Personal Communications Services Installation
Site CT-195: 69 Wheeler Street, New Haven, Connecticut**

Prepared by

Wireless & Optical Technologies Safety Department
Bell Laboratories
Murray Hill, New Jersey 07974-0636

Prepared for

AT&T Wireless Services
15 East Midland Avenue
Paramus, NJ 07652

May 31, 2002

Table of Contents

Summary.....	3
1. Introduction	4
2. Technical Data	4
3. Environmental Levels of RF Energy	4
4. Comparison of Environmental Levels with RF Safety Criteria	5
5. Discussion of Safety Criteria	5
6. For Further Information	7
7. Conclusion	8
8. References	9

**An Analysis of the Radiofrequency Environment in the
Vicinity of a Proposed Personal Communications Services Installation
Site CT-195: 69 Wheeler Street, New Haven, Connecticut**

Summary

This report is an analysis of the radiofrequency (RF) environment surrounding the AT&T Wireless Services personal communications services (PCS) and global system for mobile communications (GSM) facility proposed for installation in New Haven, CT. The analysis, which includes contributions from the existing Cingular Wireless Cellular Radio and proposed Nextel Enhanced Specialized Mobile Radio (ESMR), utilizes engineering data provided by AT&T Wireless together with well-established analytical techniques utilized for calculating the RF fields associated with PCS, ESMR, and Cellular Radio transmitting antennas. Worst-case assumptions were used to ensure safe-side estimates, i.e., the actual values will be significantly lower than the corresponding analytical values. The maximum level of RF energy associated with each transmitting antenna was compared with the appropriate frequency-dependent exposure limit, and these individual comparisons were combined to ensure that the total RF environment is in compliance with safety guidelines.

The results of this analysis indicate that the total maximum level of RF energy in areas normally accessible to the public is below all applicable health and safety limits. Specifically, the maximum level of RF energy associated with *simultaneous and continuous operation of all proposed and existing transmitters* will be less than 1.1% of the safety criteria adopted by the Federal Communications Commission as mandated by the Telecommunications Act of 1996. The Telecommunications Act of 1996 is the applicable Federal law with respect to consideration of the environmental effects of RF emissions in the siting of personal wireless facilities.

The total maximum level of RF energy will also be less than 1.1% of the exposure limits of ANSI, IEEE, NCRP and the limits used by all states that regulate RF exposure.

1. Introduction

This report was prepared in response to a request from AT&T Wireless Services for an analysis of the radiofrequency (RF) environment in the vicinity of the proposed PCS/GSM facility, and an opinion regarding the concern for public health associated with long-term exposure in this environment. The analysis includes contributions to the RF environment from operation of the existing Cingular Wireless Cellular Radio and proposed Nextel ESMR antennas.

The Telecommunications Act of 1996[1] is the applicable *Federal law* with respect to consideration of environmental effects of RF emissions in the siting of wireless facilities. Regarding personal wireless services, e.g., PCS, Cellular Radio, and ESMR communications, Section 704 of the Telecommunications Act of 1996 states the following:

"No 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."

Therefore, the purpose of this report is to ensure that the total RF environment associated with the proposed and existing facilities complies with Federal Communications Commission (FCC) guidelines as required by the Telecommunications Act of 1996.

2. Technical Data

The proposed AT&T Wireless Services PCS/GSM antennas are to be mounted on the monopole located at 69 Wheeler Street in New Haven, CT. Co-located at the site will be Cingular Wireless Cellular Radio and Nextel ESMR antennas. The PCS/GSM antennas transmit between 1930 and 1990 million-hertz (MHz). The Cellular Radio and ESMR antennas transmit between 851 and 894 MHz. (These frequencies were previously allocated for UHF-TV channels 77-83)

The actual RF power propagated from PCS/GSM, Cellular Radio, and ESMR antennas is usually less than 10 watts per transmitter (channel) and the actual *total* RF power is usually less than 200 watts per sector (assuming the maximum number of transmitters are installed and operate *simultaneously and continuously*). These are extremely low power systems when compared with other familiar radio systems such as AM, FM, and television broadcast, which operate upwards of 50,000 watts. The attached figure, which depicts the electromagnetic spectrum, lists familiar uses of RF energy. Table 1 lists engineering specifications for the proposed and existing installations.

3. Environmental Levels of RF Energy

The antennas used for PCS/GSM, Cellular Radio, and ESMR propagate most of the RF energy in a relatively narrow beam (in the vertical plane) directed toward the horizon. The small amount of energy that is directed along radials below the horizon results in a RF environment directly under the antennas that is not remarkably different from the environment at points more distant.

The methodology used to calculate the exposure levels follows that outlined by the FCC in OET Bulletin No. 65¹ and is explained in detail in the Appendix. For the case at hand, the maximal

1. Federal Communications Commission Office of Engineering & Technology, *Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Radiation*, OET Bulletin No. 65, Edition 97-01 (August 1997).

potential exposure levels associated with *simultaneous and continuous operation* of all proposed and existing transmitters can be readily calculated at any point in a plane at any height above grade. Based on the information shown in Table 1, the maximum power densities associated with the proposed and existing antennas at 6 ft and 16 ft above grade are shown in Table 2A. The values shown for 16 ft above grade are representative of the maximum power density immediately outside the second floor of nearby buildings (assuming level terrain). These levels are also shown in Table 2A as a percentage of the FCC's maximum permissible exposure (MPE) values found in the Telecommunications Act of 1996 (specifically, in the FCC *Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation* [2]).

The power density values shown in Table 2A and 2B are the theoretical maxima that could occur and are not typical values. For example, the calculations include the effect of 100% field reinforcement from in-phase reflections. The assumption was also made that each transmitter operates continuously at maximum power. However, the intermittent nature of the transmission from cellular radio systems will result in time-weighted-average values that will be lower than those shown in Tables 2A and 2B. Experience has shown that the analytical technique used is extremely conservative. That is, actual (measured) power density levels have always been found to be smaller than the corresponding calculated levels [3]. Also, levels inside nearby homes and buildings will be lower than those immediately outside because of the high attenuation of common building materials at these frequencies and, hence, will not be significantly different from typical ambient levels.

4. Comparison of Environmental Levels with RF Safety Criteria

Tables 2A and 2B show the calculated RF power density levels in the vicinity of the proposed and existing installations; Table 3 shows federal, state and consensus exposure limits for human exposure to RF energy at the frequencies of interest. Because the MPEs vary with frequency, the calculated RF levels for each transmitting antenna must first be compared to the appropriate MPE (the individual percentages are shown in Tables 2A and 2B), and the results of these comparisons combined before compliance with safety guidelines can be shown. With respect to FCC limits for public exposure, comparisons of the weighted combined analytical results indicate that the total maximal level associated with these antennas in areas normally accessible to the public will be less than 1.1% of the MPE.

5. Discussion of Safety Criteria

Publicity given to speculation about possible associations between health effects and exposure to magnetic fields from electric-power distribution lines, electric shavers and from the use of hand-held cellular telephones has heightened concern among some members of the public about the possibility that health effects may be associated with any exposure to electromagnetic energy. Many people feel uneasy about new or unfamiliar technology and often want absolute proof that something is safe. Such absolute guarantees are not possible since it is virtually impossible to prove that something does not exist. However, sound judgments can be made as to the safety of a physical agent based on the weight of the pertinent scientific evidence. This is exactly how safety guidelines are developed.

The overwhelming weight of scientific evidence unequivocally indicates that biological effects associated with exposure to RF energy are threshold effects, i.e., unless the exposure level is sufficiently high the effect will not occur regardless of exposure duration. (Unlike ionizing radiation, e.g., X-rays and nuclear radiation, repeated exposures to low level RF radiation, or nonionizing radiation, are not cumulative.) Thus, it is relatively straightforward to derive safety

limits. By adding safety factors to the threshold level at which the most sensitive effect occurs, conservative exposure guidelines have been developed to ensure safety.

At present, there are more than 10,000 reports in the scientific literature which address the subject of RF bioeffects. These reports, most of which describe the results of epidemiology studies, animal and cell-culture studies, have been critically reviewed by leading researchers in the field and all new studies are continuously being reviewed by various groups and organizations whose interest is developing health standards. These include the U.S. Environmental Protection Agency, the National Institute for Occupational Safety and Health, the National Council on Radiation Protection and Measurements, the standards committees sponsored by the Institute of Electrical and Electronics Engineers, the International Radiation Protection Association under the sponsorship of the World Health Organization, and the National Radiological Protection Board of the UK. All of these groups have recently either reaffirmed existing health standards, developed and adopted new health standards, or proposed health standards for exposure to RF energy.

For example, in 1986, the National Council on Radiation Protection and Measurements (NCRP) published recommended limits for occupational and public exposure[4]. These recommendations were based on the results of an extensive critical review of the scientific literature by a committee of the leading researchers in the field of bioelectromagnetics. The literature selected included many controversial studies reporting effects at low levels. The results of all studies were weighed, analyzed and a consensus obtained establishing a conservative threshold upon which safety guidelines should be based. This threshold corresponds to the level at which the most sensitive, reproducible effects that could be related to human health were reported in the scientific literature. Safety factors were incorporated to ensure that the resulting guidelines would be at least ten to fifty times lower than the established threshold, even under worst-case exposure conditions. The NCRP recommended that continuous occupational exposure or exposure of the public should not exceed approximately those values indicated in Table 3. (See Table 3 for a summary of the corresponding safety criteria recommended by various organizations throughout the world.)

In July of 1986, the Environmental Protection Agency published a notice in the Federal Register, calling for public comment on recommended guidance for exposure of the public[5]. Three different limits were proposed. In 1987 the EPA abandoned its efforts and failed to adopt official federal exposure guidelines. However, in 1993 and 1996 the EPA, in its comments on the FCC's Notice of Proposed Rule Making to adopt safety guidelines[6], recommended adoption of the 1986 NCRP limits[4].

In September 1991, the RF safety standard developed by Subcommittee 4 of the Institute of Electrical and Electronics Engineers (IEEE) Standards Coordinating Committee SCC-28 was approved by the IEEE Standards Board[7]. (Until 1988 IEEE SCC-28 was known as the American National Standards Institute (ANSI) C95 Committee—established in 1959.) In November 1992, the ANSI Board of Standards Review approved the IEEE standard for use as an American National Standard. The limits of this standard are identical to the 1982 ANSI RFPGs[8] for occupational exposure and approximately one-fifth of these values for exposure of the general public at the frequencies of interest. Like those of the NCRP, these limits resulted from an extensive critical review of the scientific literature by a large committee of preeminently qualified scientists, most of whom were from academia and from research laboratories of federal public health agencies.

The panels of scientists from the World Health Organization's International Commission on Non-Ionizing Radiation Protection (ICNIRP)[9] and the National Radiological Protection Board in the United Kingdom[10] independently developed and in 1993 published guidelines similar to those of ANSI/IEEE. In 1997, after another critical review of the latest scientific evidence, ICNIRP reaffirmed the limits published in 1993[11]. Also, what was formerly the USSR, which traditionally had the lowest exposure guides, twice has revised upward its limits for public exposure. Thus, there is a converging consensus of the world's scientific community as to what constitutes safe levels of exposure.

Finally, in implementing the National Environmental Policy Act regarding potentially hazardous RF radiation from radio services regulated by the FCC, the Commission's Rules require that licensees filing applications after January 1, 1997² ensure that their facilities comply with the 1996 FCC MPE limits outlined in 47 CFR §1.1310[3]³. (Under the terms of the Telecommunications Act of 1996, no local government may regulate the placement of wireless facilities based on RF emissions to the extent that these emissions comply with the FCC regulations [1].)

With respect to the proposed and existing antennas, be assured that the actual exposure levels in the vicinity of the New Haven, CT installation will be below any health standard used anywhere in the world and literally thousands of times below any level reported to be associated with any verifiable functional change in humans or laboratory animals. This holds true even when all transmitters operate *simultaneously and continuously at their highest power*. Power density levels of this magnitude are not even a subject of speculation with regard to an association with adverse health effects.

6. For Further Information

Anyone interested can obtain additional information about the environmental impact of PCS/GSM, Cellular Radio, and ESMR communications from:

Dr. Robert Cleveland, Jr.
Federal Communications Commission,
Office of Engineering and Technology
445 12th Street, SW
Washington, DC 20554
(202) 418-2422

2. The FCC extended the transition period to October 15, 1997. Second Memorandum Opinion and Order and Notice of Proposed Rulemaking, ET Docket 93-62, FCC 97-303, adopted August 25, 1997. Prior to this date the FCC required most licensees to comply with 1982 ANSI C95.1 limits.

3. Although all FCC licensees will be required to comply with 47 CFR §1.1310 limits, the FCC will continue to exclude certain land mobile services from proving compliance with these limits 47 CFR §1.1307. Previously, although licensees had to comply with the 1982 ANSI C95.1 limits, the FCC categorically excluded land mobile services, including paging, cellular, ESMR and two-way radio, from hazard analyses because "individually or cumulatively they do not have a significant effect on the quality of the human environment"[12]. The FCC pointed out that there was no evidence of excessive exposure to RF radiation during routine normal operation of these radio services.

7. Conclusion

This report is an analysis of the radiofrequency (RF) environment surrounding the AT&T Wireless Services PCS/GSM facility proposed for installation in New Haven, CT. The analysis, which includes contributions from existing Cingular Wireless Cellular Radio and proposed Nextel ESMR radio antennas, utilizes engineering data provided by AT&T Wireless together with well-established analytical techniques utilized for calculating the RF fields associated with PCS/GSM, Cellular Radio, and ESMR transmitting antennas. Worst-case assumptions were used to ensure safe-side estimates, i.e., the actual values will be significantly lower than the corresponding analytical values. The maximum level of RF energy associated with each transmitting antenna was compared with the appropriate frequency-dependent exposure limit, and these individual comparisons were combined to ensure that the total RF environment is in compliance with safety guidelines.

The results of this analysis indicate that the total maximum level of RF energy in areas normally accessible to the public is below all applicable health and safety limits. Specifically, the maximum level of RF energy associated with *simultaneous and continuous operation of all proposed and existing transmitters* will be less than 1.1% of the safety criteria adopted by the Federal Communications Commission as mandated by the Telecommunications Act of 1996. The Telecommunications Act of 1996 is the applicable Federal law with respect to consideration of the environmental effects of RF emissions in the siting of personal wireless facilities.

The total maximum level of RF energy will also be less than 1.1% of the exposure limits of ANSI, IEEE, NCRP and the limits used by all states that regulate RF exposure.

8. References

- [1] Telecommunications Act of 1996, Title VII, Section 704, *Facilities Siting; Radio Frequency Emissions Standards*
- [2] Federal Communication Commission 47 CFR Parts 1, 2, 15, 24 and 97. "Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation." (August 6, 1996)
- [3] Petersen, R.C., and Testagrossa, P.A., "Radiofrequency Fields Associated with Cellular-Radio Cell-Site Antennas," *Bioelectromagnetics*, Vol. 13, No. 6. (1992)
- [4] *Biological Effects and Exposure Criteria for Radio Frequency Electromagnetic Fields*, NCRP Report No. 86, National Council on Radiation Protection and Measurements, Bethesda, MD. (1986)
- [5] Federal Register, Vol. 51, No. 146, Wednesday, July 30, 1986.
- [6] Notice of Proposed Rule Making *In the Matter of Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation*, August 13, 1993. ET Docket No. 93-62
- [7] *IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz*, ANSI/IEEE C95.1-1992, Institute of Electrical and Electronics Engineers, Piscataway, NJ. (1991)
- [8] American National Standard *Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 300 kHz to 100 GHz*, ANSI C95.1-1982, American National Standards Institute, New York, NY. (1982)
- [9] *Electromagnetic Fields (300 Hz to 300 GHz)*, Environmental Health Criteria 137, World Health Organization, Geneva, Switzerland. (1993)
- [10] *Board Statement on Restrictions on Human Exposure to Static and Time Varying Electromagnetic Fields and Radiation*, Documents of the NRPB, Vol. 4, No. 5, National Radiological Protection Board, Chilton, Didcot, Oxon, United Kingdom. (1993)
- [11] "Guidelines for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz) - ICNIRP Guidelines," *Health Physics*, Vol. 74, No. 4, pp. 494-522. (1998)
- [12] Action by the Commission February 12, 1987, by Second Report and Order (FCC 87-63), and Third Notice of Proposed Rulemaking (FCC 87-64). General Docket No. 79-144.

Enclosure: Figure. Electromagnetic Spectrum

**Table 1: Engineering Specifications for the Proposed and Existing Wireless Systems
New Haven, CT**

Site Specifications	AT&T Wireless PCS / GSM	Nextel ESMR	Cingular Cellular Radio
maximum ERP [†] per channel	100 watts	100 watts	100 watts
actual radiated power per channel	4.6 / 4 watts	5 watts	6 watts
actual <i>total</i> radiated power per sector	36.8 / 16 watts	120 watts	114 watts
number of transmit/receive antennas	1 per sector (GSM)	4 per sector	N/A
number of transmit antennas	1 per sector (PCS)	N/A	1 per sector
number of receive antennas	1 per sector (PCS)	N/A	1 per sector
maximum number of transmitters	8 / 4 per sector	24 per sector	19 per sector
number of sectors configured	3	3	3
antenna centerline height above grade	70 ft	80 ft	90 ft
antenna manufacturer	EMS Wireless / Allgon	Scala *	CSS *
model number	FV90-16-00DP / 7262.02	AP13-850-065 *	SA-13-86-0D *
gain	15.5 dBi / 16.15 dBi	15.15 dBi	14.35 dBi
type	directional	directional	directional
downtilt	0° / 2°	0°	0°

† *Effective Radiated Power* - ERP is a measure of how well an antenna concentrates RF energy; it is not the actual power radiated from the antenna. To illustrate the difference, compare the brightness of an ordinary 100 watt light bulb with that from a 100 watt spot-light. Even though both are 100 watts, the spot-light appears brighter because it concentrates the light in one direction. In this direction, the spot-light effectively appears to be emitting more than 100 watts. In other directions, there is almost no light emitted by the spot-light and it effectively appears to be much less than 100 watts.

* Typical antennas used by service providers in this region. Actual antennas were not specified.

**Table 2A: Calculated Maximum Levels and the Levels as a Percentage of 1996 FCC MPEs*
for the Proposed and Existing Antennas, New Haven, CT**

Provider – Service	Power Density (mW/cm ²)		% of MPEs*	
	6 ft AMGL†	16 ft AMGL†	6 ft AMGL†	16 ft AMGL†
AT&T Wireless – PCS/GSM	< 0.000787	< 0.001106	0.079%	0.111%
Nextel – ESMR	< 0.002669	< 0.003569	0.485%	0.649%
Cingular – Cellular Radio	< 0.001410	< 0.001817	0.256%	0.330%
TOTAL			0.820%	1.090%

* MPE: The FCC limits for maximum permissible exposure (same as 1986 NCRP limits at the frequencies of interest)

† AMGL: above mean grade level

**Table 2B: Calculated Levels at Base of Structure and the Levels as a Percentage of 1996 FCC
MPEs* for the Proposed and Existing Antennas, New Haven, CT**

Provider – Service	Power Density (mW/cm ²)		% of MPEs*	
	6 ft AMGL†	16 ft AMGL†	6 ft AMGL†	16 ft AMGL†
AT&T Wireless – PCS/GSM	< 0.000363	< 0.000509	0.036%	0.051%
Nextel - ESMR	< 0.001031	< 0.001379	0.188%	0.251%
Cingular – Cellular Radio	< 0.000371	< 0.000479	0.068%	0.087%
TOTAL			0.292%	0.389%

* MPE: The FCC limits for maximum permissible exposure (same as 1986 NCRP limits at the frequencies of interest)

† AMGL: above mean grade level

Table 3: Summary of International, Federal, State and Consensus Safety Criteria for Exposure to Radiofrequency Energy at Frequencies Used for PCS/GSM, ESMR, and Cellular Radio Systems

Organization/Government Agency	Exposure Population	Power Density (mW/cm ²)	
		ESMR/Cellular	PCS/GSM
International Safety Criteria/Recommendations			
International Commission on Non-Ionizing Radiation Protection (1997) (Health Physics 74:4, 494-522. 1998) ¹	Occupational	2.06	4.87
	Public	0.41	0.98
National Radiological Protection Board (NRPB, 1993)	Occupational	5.00	10.00
	Public	2.79	10.00
Federal Requirements			
Federal Communications Commission (47 CFR §1.1310)	Occupational	2.75	5.00
	Public	0.55	1.00
Consensus Standards and Recommendations			
American National Standards Institute (ANSI C95.1 - 1982)	Occupational	2.75	5.00
	Public	2.75	5.00
Institute of Electrical and Electronics Engineers (ANSI/IEEE C95.1-1999 Edition) ²	Occupational	2.75	6.50
	Public	0.55	1.30
National Council on Radiation Protection & Measurements (NCRP Report 86, 1986)	Occupational	2.75	5.00
	Public	0.55	1.00
State Codes			
New Jersey (NJAC 7:28-42)	Public	2.75	5.00
Massachusetts (Department of Health 105 CMR 122)	Public	0.55	1.00
New York State ³	Public	0.55	1.00

NOTES:

1. Reaffirmed in 1997 and published with modification in 1998.
2. Incorporating IEEE Standard C95.1-1991 and IEEE Standard C95.1a-1998.
3. State of New York Department of Health follows NCRP Report 86.

APPENDIX - Analytical Technique

This appendix describes the methodology used to predict the radiofrequency (RF) electromagnetic environment surrounding the proposed AT&T PCS/GSM antennas. As a conservative measure, the methodology applies "worst-case" conditions that result in an over-estimate of the RF environment, e.g., the calculations include the effect of field reinforcement from in-phase reflections. Therefore, the predicted values are the theoretical maxima that could occur and not typical values. The actual power density levels have always been found to be smaller than the corresponding predicted levels⁴. The methodology described follows that outlined by the Federal Communications Commission (FCC) in their OET Bulletin No. 65⁵.

For each transmitting antenna, the maximum RF power density at 6 ft above grade was estimated by performing a series of power density predictions for depression angles below the horizon from 5° to 90°. This was done using the vertical gain pattern of each antenna provided by the antenna manufacturer and by using the following equation:

$$S = \left(\frac{N \times P_N \times G_\theta \times 1.64}{4\pi R^2} \right)$$

and

$$S_{\max} = 4 \times S$$

where:

S = plane wave equivalent power density

S_{max} = factor of 4 assumes a 100% ground reflection (resulting in a doubling of the field strength and a four-fold increase in power density)

N = maximum number of transmitters (channels)

P_N = actual power per channel input to the antenna

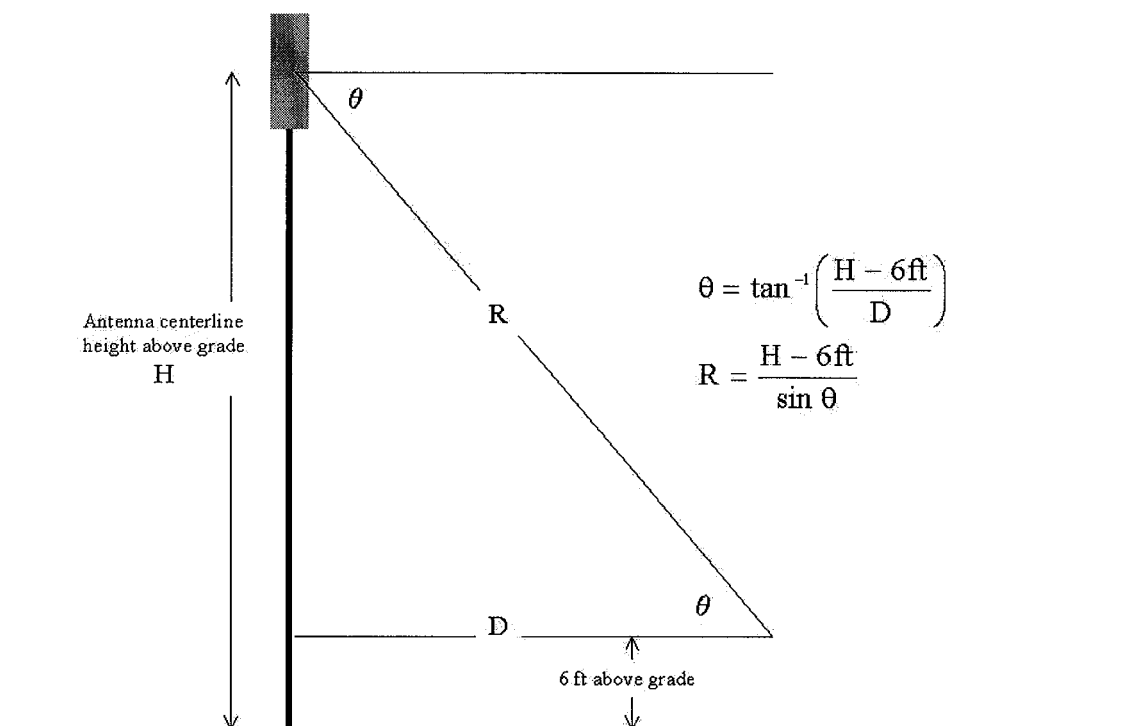
G_θ = far-field gain (numeric) of the antenna relative to a half-wave dipole in the direction of point of interest

R = distance (radial or slant) from the antenna center to point of interest

1.64 = gain of a half-wave dipole (2.15 dB) over an isotropic radiator

4. Petersen, R.C., and Testagrossa, P.A., Radiofrequency Fields Associated with Cellular-Radio Cell-Site Antennas, *Bioelectromagnetics*, Vol. 13, No. 6 (1992).

5. Federal Communications Commission Office of Engineering & Technology, *Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Radiation*, OET Bulletin No. 65, Edition 97-01 (August 1997).



Based on the technical specifications for the site outlined in Table 1, the maximum RF power density (S_{\max}) associated with the AT&T PCS/GSM antennas occurs at a depression angle of 80° below the horizon and is calculated as follows:

$$R = (H-6)/\sin \theta = (70-6)/\sin (80^\circ) = 64.9 \text{ ft}$$

$$G_{80^\circ} = -4.3 \text{ dBd (from antenna elevation gain pattern)}$$

$$P_N = \text{ERP}/G_{\max} = \frac{100}{10^{(14\text{dBd}/10)}} = 3.98 \text{ watts per channel}$$

$$S_{\max} = 4 \times \frac{N \times P_N \times 10^{(G_\theta/10)} \times 1.64}{4\pi R^2}$$

$$= 4 \times \frac{4 \times 3.98 \text{ W} \times 10^{(-4.3\text{dBd}/10)} \times 1.64}{4 \times 3.14 \times (64.9 \text{ ft} \times 12 \text{ in} / \text{ft} \times 2.54 \text{ cm} / \text{in})^2}$$

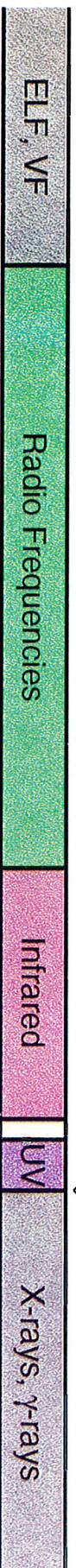
$$S_{\max} = 7.87 \times 10^{-7} \text{ W/cm}^2 = 0.000787 \text{ mW/cm}^2$$

$$\text{AND \% of MPE} = \frac{0.000787 \text{ mW/cm}^2}{1 \text{ mW/cm}^2} \times 100\% = 0.079\%$$

ELECTROMAGNETIC SPECTRUM

Non-Ionizing Radiation

Ionizing Radiation



AM Radio: 535 - 1605 kHz

CB Radio: 27 MHz

Cordless Phones: 49 MHz

TV Ch 2-6: 54 - 88 MHz

FM Radio: 88 - 108 MHz

Marine Radio: 160 MHz

TV Ch 7-13: 174 - 216 MHz

TV UHF Ch 14-69: 470 - 800 MHz

Cellular Radio, Specialized Mobile Radio, Paging:

806 - 946 MHz

Antitheft devices: 10-20 kHz and/or 915 MHz

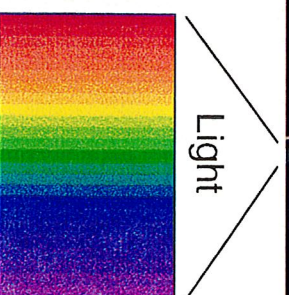
Microwave oven: 915 and 2450 MHz

Personal Communication Services: 1800 - 2200 MHz

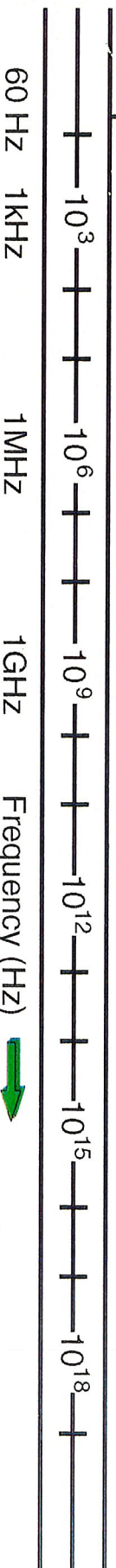
Intrusion alarms / door openers: 10.5 GHz

Microwave radio: 1 - 40 GHz

Satellite Communications: 100 MHz - 275 GHz



Power
Frequency



Lisa A. Fontaine

From: LGrant@cfwlaw.com
Sent: Monday, August 12, 2002 3:19 PM
To: Lisa.Fontaine@po.state.ct.us
Subject: RE: Addresses

No problem. EM-AT&T-093-020703 is Elmer and William Laydon, 69 Wheeler Street, New Haven, CT 06512. EM-AT&T-142-020531 is Old Post Holdings, 9804 Winder Palace Drive, Las Vegas, NV 89145.

-----Original Message-----

From: Lisa A. Fontaine [mailto:Lisa.Fontaine@po.state.ct.us]
Sent: Monday, August 12, 2002 2:29 PM
To: Grant, Linda
Subject: Addresses

Sorry to keep bothering you, but could you please provide me with Elmer and William Laydon's address from EM-AT&T-093-020703, 69 Wheeler St., New Haven and Old Post Road Holdings address from EM-AT&T-142-020531 497 Old Post Road, Tolland?

Thanks.

Lisa

.....
NOTE: The information in this e-mail message and any attachments thereto have been sent by an attorney or his/her agent, and is or are intended to be confidential and for the use of only the individual or entity named above. The information may be protected by attorney/client privilege, work product immunity or other legal rules. If the reader of this message and any attachments thereto is not the intended recipient, you are notified that retention, dissemination, distribution or copying of this e-mail message and any attachments is strictly prohibited. Although this e-mail message (and any attachments) is believed to be free of any virus or other defect that might affect any computer system into which it is received and opened, the intended recipient is responsible to ensure that it is virus free. The sender and Cuddy & Feder & Worby LLP shall not have any responsibility for any loss occasioned in any manner by the receipt and use of this e-mail message and any attachments.
.....