



STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

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

November 10, 1999

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

RE: TS-AT&T-164-991014 - AT&T Wireless PCS request for an order to approve tower sharing at an existing telecommunications facility located at 440 Hayden Station Rd. in Windsor, Connecticut.

Dear Attorney Fisher:

At a public meeting held November 9, 1999, the Connecticut Siting Council (Council) ruled that the shared use of this existing tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures.

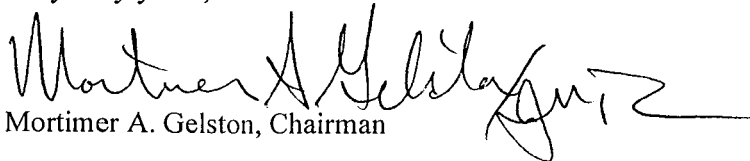
This facility has been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequency now used on this tower. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut 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 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.

This decision applies only to this request for tower sharing and is not applicable to any other request or construction.

The proposed shared use is to be implemented as specified in your letter dated October 13, 1999, and in additional information dated October 21, 1999, and November 4, 5, and 8, 1999. This shared use is conditioned on requirements that the AT&T pipe accommodate a Town of Windsor Police Department antenna; that this pipe and antennas not preclude future tower expansion; and that existing vegetation be replaced consistent with screening required by the Town.

Thank you for your attention and cooperation.

Very truly yours,


Mortimer A. Gelston, Chairman

MAG/SLL/sll

cc: Honorable Albert G. Ilg, Town Manager, Town of Windsor
Mario Zavarella, Town Planner, Town of Windsor
Kevin Searles, Chief of Police, Town of Windsor
Steve Kotfila, Site Development Manager, Sprint PCS
J. Brendan Sharkey, Esq., Omnipoint Communications, Inc.



AT&T Wireless Services
149 Water Street
Norwalk, CT 06854

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NOV - 8 1999

**CONNECTICUT
SITING COUNCIL**

November 8, 1999

VIA TELECOPIER

Stephen Levine, Esq.
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: TE-AT&T-164-991014, 440 Hayden Station Road, Windsor

Dear Steve:

This is to confirm that the antenna planned for use by the Town of Windsor at the above-referenced Sprint communications site will be used for receive only purposes. Therefore, there will be no effect on the power density calculations submitted previously in connection with AT&T Wireless Services' application.

Sincerely,

Jennifer Young Gaudet
for AT&T Wireless Services



CUDDY & FEDER & WORBY LLP

**90 MAPLE AVENUE
WHITE PLAINS, NEW YORK 10601-5196**

**CUDDY & FEDER
1971-1995**

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**CONNECTICUT
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November 5, 1999

BY OVERNIGHT MAIL

Mr. Joel M. Rinebold
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

Re: **AT&T Wireless PCS, LLC d/b/a AT&T Wireless Services
Tower Sharing @ Sprint Facility
440 Hayden Station Road, Windsor**

Dear Mr. Rinebold:

It is our understanding that at the time the Windsor Planning and Zoning Commission granted Sprint PCS ("Sprint") approval for the above referenced tower, it was contemplated that the Town would have the ability to install a Town antenna thereon. Just recently, we were advised that the Town of Windsor now wants to install an antenna on the tower. As such, AT&T Wireless Services ("AT&T") has begun working with Sprint and the Town to accommodate the installation of a Town antenna on the Sprint tower at 440 Hayden Station Road, Windsor.

Indeed, since the Council's site visit on November 3, 1999, AT&T has initiated an application to Sprint on the Town's behalf for installation of the Town's antenna. Sprint is processing that application and will work directly with Town representatives on a formal agreement.

CUDDY & FEDER & WORBY LLP

November 5, 1999

Page 2

Additionally, AT&T has informed Sprint that it is willing to design a pipe mount configuration that will accommodate both AT&T's proposed three-panel antenna configuration and the Town whip antenna. Moreover, AT&T has had an additional structural analysis of the tower performed. Enclosed is a letter from URS Greiner Woodward Clyde confirming that the tower is capable of supporting the additional Town antenna. Additionally, URS advises us that the pipe will not need to be any larger to accommodate the Town's whip antenna. AT&T also represents that it would be willing to reconfigure its antennas should the Town's installation, at a future date, require an expansion of the tower structure.

Thank you for your continued assistance on these matters.

Very Truly Yours,



Christopher B. Fisher

Encs.

cc: Steven Levine, Esq.
Carmen Chapman
Jennifer Gaudet

URS Greiner Woodward Clyde
A Division of URS Corporation

500 Enterprise Drive, Suite 38
Rocky Hill, CT 06067
Tel: 860 529 8882
Fax: 860 529 3991
Offices Worldwide

November 5, 1999

Mortimer A. Gelston
Chairman
Connecticut State Siting Council
10 Franklin Square
New Britain, CT 06051

Reference: Proposed Telecommunications Facility
AT&T Site No. CT-140
Sprint Site
440 Hayden Station Road
Windsor, Connecticut
F300001824.14

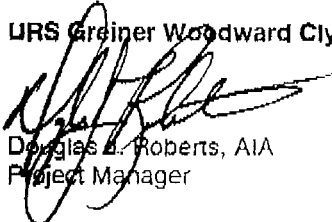
Dear Mr. Gelston:

URS Greiner Woodward Clyde (URSGWC) has prepared a Structural Analysis for the Sprint monopole located at 440 Hayden Station Road in Windsor, Connecticut. The Structural Analysis has concluded that the existing monopole with the pipe extension at the top will support the additional loads of the AT&T Wireless PCS antennas and a municipal antenna. This tower analysis was performed to the requirements of EIA/TIA-222-F.

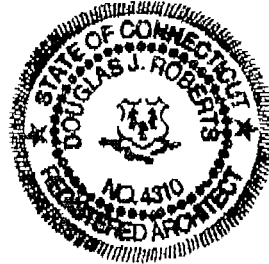
Please call if there are any questions.

Sincerely,

URS Greiner Woodward Clyde A.E.S.



Douglas J. Roberts, AIA
Project Manager



ICA/ms

cc: Carmen Chapman, AT&T
Jennifer Gaudet, Pinnacle
Christopher Fisher, Cuddy & Feder & Worby
I.Araiz, AIA - URSGWC
A.Abadjian, URSGWC

**Sprint Sites USA™****East Region**
330 Franklin Turnpike, 2nd Floor
Mahwah, NJ 07430
Mailstop NJMAHB0101

November 5, 1999

Kevin Searles
Chief of Police
Town of Windsor
275 Broad Street
Windsor, Connecticut 06095**RECEIVED**

NOV - 8 1999

**CONNECTICUT
SITING COUNCIL**Re: Co-Location on 440 Hayden Street Station, Windsor, CT
Sprint Site # CT03XC065

Dear Chief Searles:

Please accept this letter as notification of preliminary approval of the Town of Windsor's application to co-locate at the above-referenced tower site.

Preliminary ACL approved: Top of Tower on ATT mounting (structural analysis required)

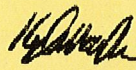
Preliminary ground space approved: No ground space was requested. Please let us know if the Town needs space for ground equipment.

Owner's consent required. (Sprint Sites USA is pursuing the owner's consent)

Should you have any questions, please feel free to contact us at (201) 684-2134.

Sincerely,

SPRINT SITES USA

 FOR KEN MACMASTERKen MacMaster
Co-Location Consultant



First in Connecticut. First for its citizens.

November 5, 1999

Mr. Joel M. Rinebold
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

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CONNECTICUT
SITING COUNCIL

SENT VIA FACSIMILE

Re: Sprint Telecommunications Facility
440 Hayden Station Road, Windsor

Dear Mr. Rinebold:

I am writing to update the Siting Council on the Town of Windsor's progress on an antenna installation at the Sprint tower site at 440 Hayden Station Road, Windsor. According to Windsor Town Planner Mario Zavarella and the minutes of the Planning and Zoning Commission, the ability to install a Town emergency services antenna was a condition of the approval for the tower.

The Council has asked that the Town and AT&T Wireless Services provide additional information about the ability of the tower to accommodate both the Town and AT&T Wireless Services. The Town and AT&T agree that there are no technical reasons to preclude the addition of a Town antenna above the height of the AT&T antennas. AT&T and the Town are committed to designing a mounting arrangement that will accommodate both the Town's and AT&T's antennas and meet with Sprint's approval. While the details of that mounting arrangement are not finalized, it is my understanding that the proposed AT&T mounting pipe design can be modified and that the tower is sufficiently strong to support the stronger pipe and additional antenna. AT&T has initiated an application to Sprint for the Town's antenna, and the Town and Sprint will bring the application process to completion.

The Town appreciates the efforts on the part of the Council, AT&T and Sprint to help advance the Town's public safety communications system, and asks that the Council move forward with the AT&T proposal so that the Town's planning may continue smoothly.

Sincerely,

Kevin C. Searles
Chief of Police

CUDDY & FEDER & WORBY LLP

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BARRY E. LONG

November 4, 1999

BY FAX & OVERNIGHT MAIL

Steven Levine, Esq.
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

Re: AT&T Wireless PCS, LLC d/b/a AT&T Wireless Services
Tower Sharing @ Sprint Facilities
528 Wheelers Farm Road, Milford
440 Hayden Station Road, Windsor
945 East Center Street, Wallingford

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CONNECTICUT
SITING COUNCIL

Dear Mr. Levine:

On behalf of AT&T Wireless Services, enclosed please find additional information that you had requested with respect to its shared use filings at three Sprint facilities in Milford, Windsor and Wallingford. AT&T proposes shared use of the existing towers located at all three sites by installing three panel antennas on a single pipe above the tower.

The installations will be the same as those proposed by AT&T on two Crown facilities in Enfield and Orange. For your convenience, enclosed please find an October 22, 1999 letter and its enclosures that were previously forwarded to the Council by Attorney Baldwin from Robinson & Cole, LLP. This letter and the enclosed antenna specification sheets are equally applicable to the antenna installations proposed by AT&T on the Sprint facilities in Milford,

CUDDY & FEDER & WORBY LLP

November 4, 1999

Page 2

Windsor and Wallingford. Please also note that the plans submitted with the Wallingford shared use application correctly indicate the height of the tower as 142'-6" as opposed to 145'.

Thank you for your continued assistance on these matters.

Very Truly Yours,



Christopher B. Fisher

Encs

cc: Carmen Chapman
Jennifer Gaudet

ROBINSON & COLE LLP
HARTFORD • STAMFORD • GREENWICH • NEW YORK • BOSTON

LAW OFFICES

280 Trumbull Street
Hartford, CT 06103-3597
860-275-8200
Fax 860-275-8299

Kenneth C. Baldwin
860-275-8345
Internet: kbaldwin@rc.com

October 22, 1999

Via Facsimile

Steven Levine
Siting Analyst
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: Antenna Mounts at Enfield and Orange

Dear Mr. Levine:

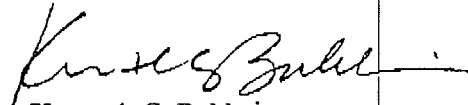
This letter will confirm our conversation and correct my letter of yesterday regarding the details of the AT&T three-antenna cluster proposed in Siting Council Petition Nos. 435 and 436.

The antenna which AT&T intends to use has dimensions of 56 inches in height, 8 inches in width and is 2.75 inches deep. (See attached specifications). According to Crown's construction manager, each of the three antennas will be mounted to a 2½ inch diameter conventional antenna mounting pipe. This pipe will be attached to a 4½ inch diameter heavy duty steel pipe which will be attached to the top of both the Enfield and Orange towers. The mounting brackets connecting the 2½ inch pipe to the 4½ inch pipe will result in a 6 inch gap between the two pipes. There will also be an approximately 4 inch gap between the 2½ inch pipe and the back of the panel antennas. The total diameter of the AT&T antenna clusters is approximately 35 inches.

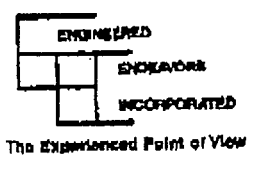
The total extension of antennas and mounting pipes above the height of the existing tower will be 12 feet 6 inches. The top of the panel antennas will be at the same height as the top of the 4½ inch mounting pipe, resulting in 7 feet 10 inches of pipe visible beneath the AT&T antennas.

Please contact me if you have any additional questions.

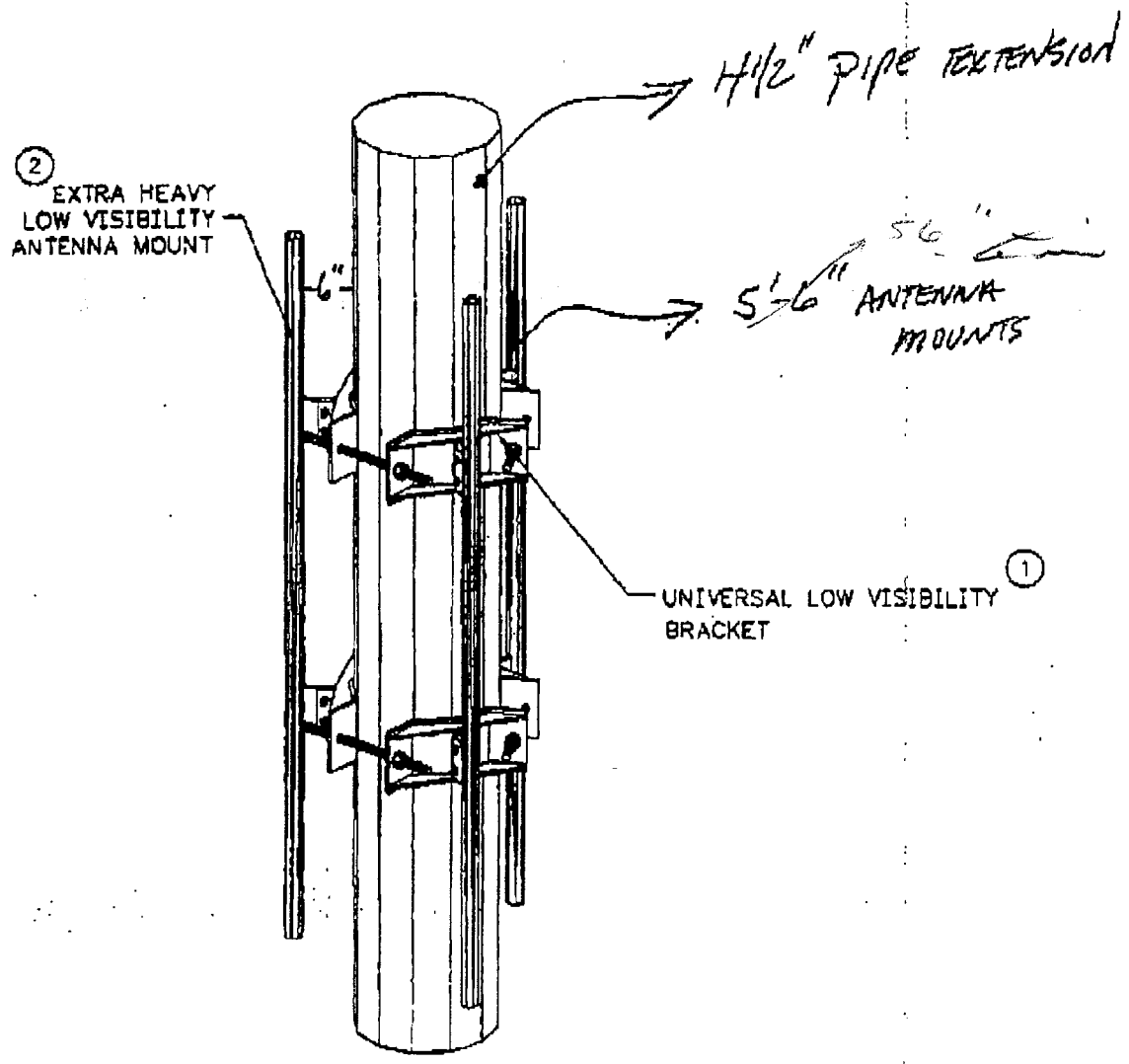
Sincerely,


Kenneth C. Baldwin

KCB/kmd
Attachments



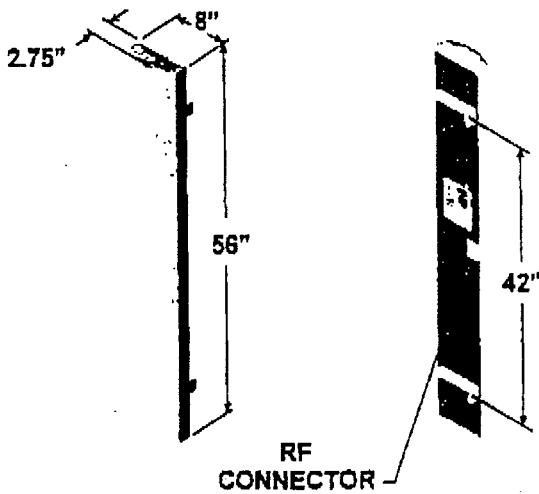
Extra Heavy Universal Low Visibility Mounts



Not To Scale

ITEM	PART #	DESCRIPTION
1	K10490	Universal Low Visibility Brackets (10" to 25" Diameter)
2	K10178	5 1/6" - 8" Extra Heavy Low Visibility Antenna Mount

1850 MHz - 1990 MHz (P)



- 90° beamwidth
- 16.5 dBi gain
- Vertical Polarization
- 56 inch

SPECIFICATIONS

Electrical

Azimuth Beamwidth	90°
Elevation Beamwidth	6°
Gain	16.5 dBi (14.4 dBd)
Polarization	Vertical
Front-to-Back Ratio	≥ 25 dB (≥ 30 dB Typ.)
Electrical Downtilt Options	0°, 2°, 4°, 6°
VSWR	1.35:1 Max
Connectors	1: Type N or 7-16 DIN (female)
Power Handling	250 Watts CW
Passive Intermodulation	<-147 dBc (2 tone @ +43 dBm (20W) ea.)
Lightning Protection	Chassis Ground

Mechanical

Dimensions (L x W x D)	56in x 8in x 2.75in (142 cm x 20.3 cm x 7.0 cm)
Rated Wind Velocity	150 mph (241 km/hr)
Equivalent Flat Plate Area	3.1ft ² (.29 m ²)
Front Wind Load @ 100 mph (161 kph)	90 lbs (400 N)
Side Wind Load @ 100 mph (161 kph)	31 lbs (139 N)
Weight	18 lbs (8.2 kg)

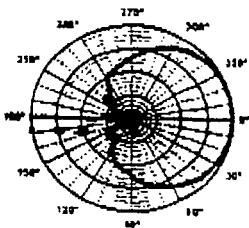
Note: Patent Pending and US Patent number 5,757,246.

Values and patterns are representative and variations may occur. Specifications may change without notice due to continuous product enhancements. Digitized pattern data is available from the factory or via the web site www.emswireless.com and reflect all updates.

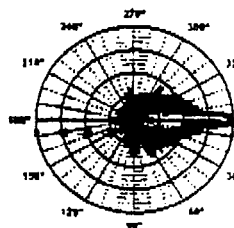
MOUNTING OPTIONS

Model Number	Description	Comments
MTG-P00-10	Standard Mount (Supplied with antenna)	Mounts to Wall or 1.5 inch to 5.0 inch O.D. Pole. (3.8 cm to 12.7 cm)
MTG-S02-10	Swivel Mount	Mounting kit providing azimuth adjustment.
MTG-DXX-20*	Mechanical Downtilt Kits	0° - 10° or 0° - 15° Mechanical Downtilt
MTG-CXX-10*	Cluster Mount Kits	3 antennas 120° apart or 2 antennas 180° apart
MTG-C02-10	U-Bolt Cluster Mount Kit	3 antennas 120° apart, 4.5" O.D. pole
MTG-TXX-10*	Steel Band Mount	Pole diameters 7.5" - 45"

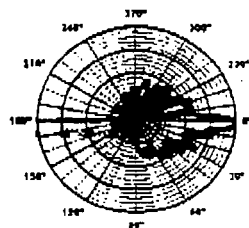
* Model number shown represents a series of products. See mounting options section for specific model number.



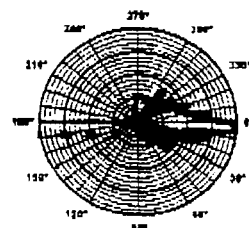
Azimuth



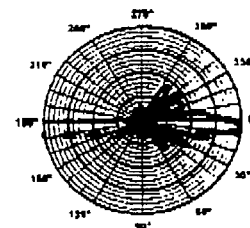
Elevation
0° Downtilt



Elevation
2° Downtilt



Elevation
4° Downtilt



Elevation
6° Downtilt

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TO: Steve Levine

FROM: Linda Grant

TELECOPIER NO. 860-827-2950

DATE: 11/4/99 PAGES: 6 CLIENT 1844 MATTER: 294
(Including Cover)

MESSAGE:

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OPERATOR: _____ (914) 761-1300 Ext. _____

IF THERE ARE ANY PROBLEMS, PLEASE NOTIFY OPERATOR IMMEDIATELY

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www.cfmaw.com

New York City Office
230 PARK AVENUE
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(212) 949-8260
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Connecticut Offices
733 SUMMER STREET
TAMFORD, CONNECTICUT 06901
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4 BERKELEY STREET
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November 4, 1999

BY FAX & OVERNIGHT MAIL

Steven Levine, Esq.
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10 Franklin Square
New Britain, Connecticut 06051

Re: **AT&T Wireless PCS, LLC d/b/a AT&T Wireless Services**
Tower Sharing @ Sprint Facilities
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440 Hayden Station Road, Windsor
945 East Center Street, Wallingford

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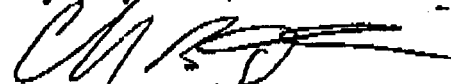
November 4, 1999

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Windsor and Wallingford. Please also note that the plans submitted with the Wallingford shared use application correctly indicate the height of the tower as 142'-6" as opposed to 145'.

Thank you for your continued assistance on these matters.

Very Truly Yours,



Christopher B. Fisher

Encs

**cc: Carmen Chapman
Jennifer Gaudet**

ROBINSON & COLE LLP
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LAW OFFICES

280 Trumbull Street
Hartford, CT 06103-3597
860-275-8200
Fax 860-275-8299Kenneth C. Baldwin
860-275-8345
Internet: kbaldwin@rc.com

October 22, 1999

*Via Facsimile*Steven Levine
Siting Analyst
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051Re: **Antenna Mounts at Enfield and Orange**

Dear Mr. Levine:

This letter will confirm our conversation and correct my letter of yesterday regarding the details of the AT&T three-antenna cluster proposed in Siting Council Petition Nos. 435 and 436.

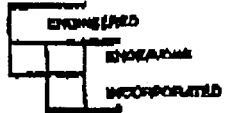
The antenna which AT&T intends to use has dimensions of 56 inches in height, 8 inches in width and is 2.75 inches deep. (See attached specifications). According to Crown's construction manager, each of the three antennas will be mounted to a 2½ inch diameter conventional antenna mounting pipe. This pipe will be attached to a 4½ inch diameter heavy duty steel pipe which will be attached to the top of both the Enfield and Orange towers. The mounting brackets connecting the 2½ inch pipe to the 4½ inch pipe will result in a 6 inch gap between the two pipes. There will also be an approximately 4 inch gap between the 2½ inch pipe and the back of the panel antennas. The total diameter of the AT&T antenna clusters is approximately 35 inches.

The total extension of antennas and mounting pipes above the height of the existing tower will be 12 feet 6 inches. The top of the panel antennas will be at the same height as the top of the 4½ inch mounting pipe, resulting in 7 feet 10 inches of pipe visible beneath the AT&T antennas.

Please contact me if you have any additional questions.

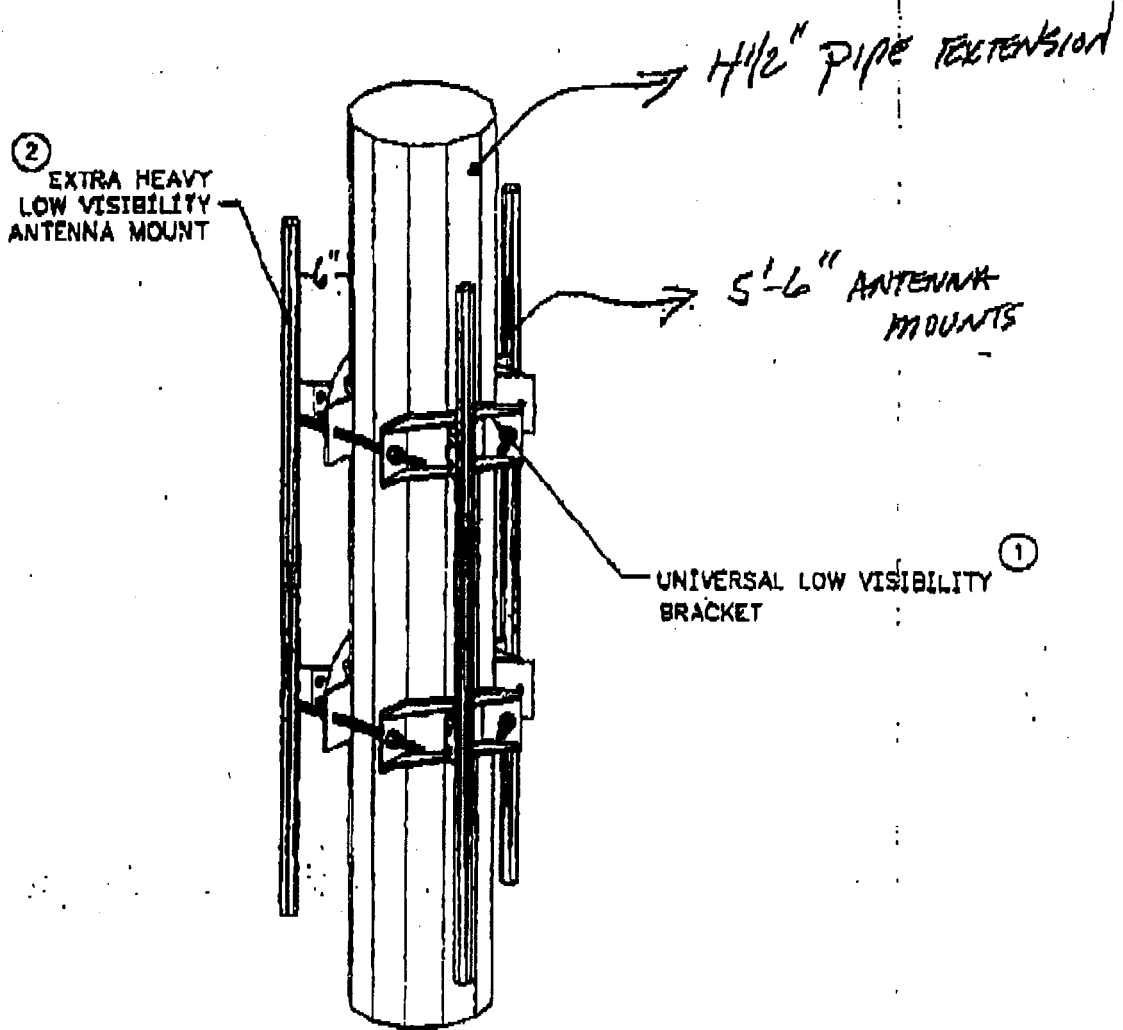
Sincerely,


Kenneth C. BaldwinKCB/kmd
Attachments



The Advanced Point of View

Extra Heavy Universal Low Visibility Mounts



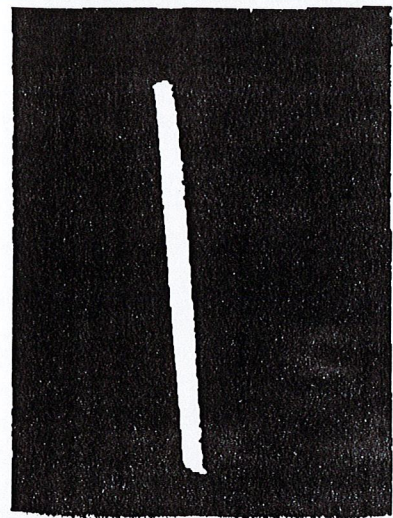
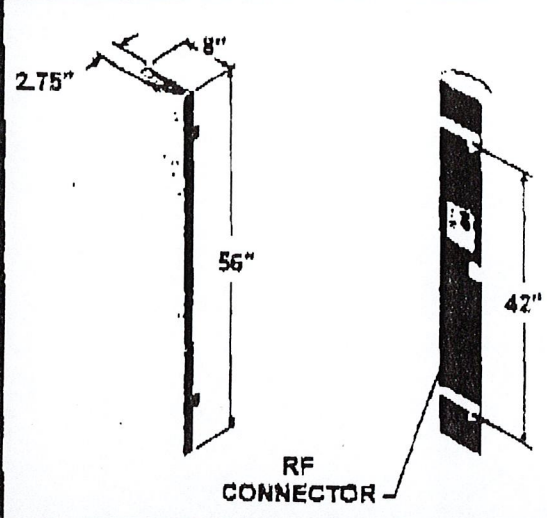
Not to Scale

ITEM	PART #	DESCRIPTION
1	K10490	Universal Low Visibility Brackets (10" to 25" Diameter)
2	K10178	5'-6" - 0-0 Extra Heavy Low Visibility Antenna Mount



RV90-17-XXXX

1850 MHz - 1990 MHz (P)



- 90° beamwidth
- 16.5 dBi gain
- Vertical Polarization
- 56 inch

SPECIFICATIONS

Electrical

Azimuth Beamwidth	90°
Elevation Beamwidth	6°
Gain	16.5 dBi (14.4 dBd)
Polarization	Vertical
Front-to-Back Ratio	≥ 25 dB (≥ 30 dB Typ.)
Electrical Downlift Options	0°, 2°, 4°, 6°
VSWR	1.35:1 Max
Connectors	1: Type N or 7-16 DIN (female)
Power Handling	250 Watts CW
Passive Intermodulation	< -147 dBc (2 tone @ +43 dBm (20W) ea.)
Lightning Protection	Chassis Ground

Mechanical

Dimensions (L x W x D)	56in x 5in x 2.75in (142 cm x 20.3 cm x 7.0 cm)
Rated Wind Velocity	150 mph (241 km/hr)
Equivalent Flat Plate Area	3.1ft ² (.29 m ²)
Front Wind Load @ 100 mph (161 kph)	90 lbs (400 N)
Side Wind Load @ 100 mph (161 kph)	31 lbs (139 N)
Weight	18 lbs (8.2 kg)

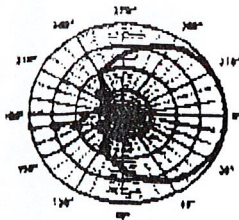
Note: Patent Pending and US Patent number 5,757,245.

Values and patterns are representative and variations may occur. Specifications may change without notice due to continuous product enhancements. Digitized pattern data is available from the factory or via the web site www.emswireless.com and reflect all updates.

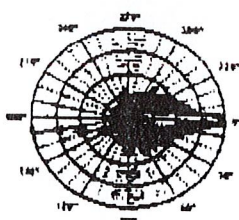
MOUNTING OPTIONS

Model Number	Description	Comments
MTG-P00-10	Standard Mount (Supplied w/ antenna)	Mounts to Wall or 1.5 inch to 5.0 inch O.D. Pole (3.8 cm to 12.7 cm)
MTG-S02-10	Swivel Mount	Mounting kit providing azimuth adjustment
MTG-DXX-20*	Mechanical Downlift Kits	0° - 10° or 0° - 15° Mechanical Downlift
MTG-CXX-10*	Cluster Mount Kits	3 antennas 120° apart or 2 antennas 180° apart
MTG-C02-10	U-bolt Cluster Mount Kit	3 antennas 120° apart, 4.5" O.D. pole
MTG-TXX-10*	Steel Band Mount	Pole diameters 7.5" - 45"

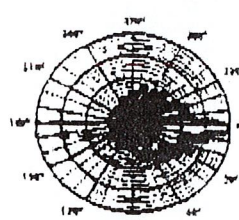
* Model number shown represents a series of products. See mounting options section for specific model number.



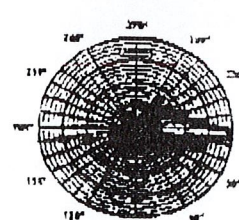
Azimuth



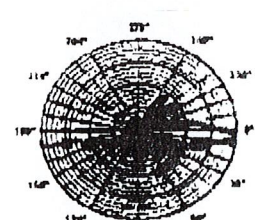
Elevation
0° Down tilt



Elevation
2° Down tilt



Elevation
4° Down tilt



Elevation
6° Down tilt



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OCT 26 1999

CONNECTICUT
SITING COUNCIL

October 21, 1999

Connecticut Siting Council
Joel Rinebold, Executive Director
10 Franklin Square
New Britain, CT 06051

Subject: AT&T Application for 440 Hayden Station Road

Dear Mr. ^{JOEL}~~Rinebold~~:

As per our recent discussion, attached is a copy of a letter from the Windsor Chief of Police describing the Town's emergency services need for radio communication improvements in the general area of the 440 Hayden Station Road tower site. Also attached is a copy of the minutes of the original Planning and Zoning Commission approval for this tower, outlining the requirement for Town emergency service communication accommodation.

It is requested that the Siting Council give consideration to the needs of the Town's emergency services in its evaluation of the current AT&T co-location application. Improvement of the emergency services, through better communication, will benefit all in the area including the applicant.

Should there be a requirement for Town zoning approval or should you require additional information, please contact me (860-285-1981). Thank you for your attention to this critical matter.

Very truly yours,

Mario D Zavarella

Mario D. Zavarella, PhD
Town Planner

cc. Town Planning and Zoning Commission
Kevin Searles, Police Chief
Leon Churchill, Town Manager





October 20, 1999

Mario Zavarella
Town Planner
Town of Windsor
275 Broad Street
Windsor, CT 06095

RE: 440 Hayden Station Road

Dear Mario,

As you are aware there is currently a monopole radio tower at the above referenced address. I understand through conversations that the tower is under consideration for an extension of the height. It would be very advantageous to the Town of Windsor Public Safety services if we could get an antenna placed at the top of the tower. We are having significant radio coverage problems in the northeast section of our town especially in the Hayden Station fire service area. If we were able to place an antenna on the tower at 440 Hayden Station Road this would allow us to install a satellite receiver to supplement our existing system.

Thank you for your consideration in this matter. If you need additional information, please feel free to contact me at 688-4545-X508.

Sincerely,

Kevin C. Searles
Chief of Police

It was then suggested that the non-use be changed to 6 months.

Commissioner Fitzgerald suggested that the Commission vote on the application. If denied, they would entertain a motion for the same tower, but at an 85 foot limit. He stated no neighbors have come and objected to the tower. He stated he was inclined to grant the application.

Commissioner Kelsey stated that he was not convinced that an 85 ft. tower would prohibit applicant from providing service. He questioned if other technologies would allow for smaller towers. He could support 85 ft. but not 98 ft.

Commissioner Finnerty commented that this first tower is not where many people are directly affected. His was most concerned with the fact that they could add on almost any time they wanted. If they approve at 98 ft., how tall will this end up? He was inclined to agree with Mario that an 85 ft. tower would work with the tree canopy.

Commissioner Profe agreed with Commissioner Fitzgerald. He didn't believe that there was that big of a difference between 85 and 98 ft. as long as this did not set a precedent for future towers. He does not believe it would impact airport development. Stipulates that the non-use should be at 6 months.

Commissioner Mips suggested that 85 ft. would be fare and equitable in place of a denial, and that removal should be after 6 months of disuse.

Motion: Commissioner Fitzgerald moved to approve subject to the following conditions: no higher than 98 ft., applicant shall build tower designed to support three carriers and Town emergency services, that this ruling is not construed to predetermine any future actions on PCS tower site applications, that the applicant allow co-location on the tower consistent with Federal law, that the applicant provide base equipment and transmission space for emergency services and that the applicant will remove the tower within six months after six months of disuse. Commissioner Profe seconded the motion and it failed 2-3.

Motion: Commissioner Fitzgerald moved to approve tower no greater than 85 ft. with other conditions the same as the last motion. Commissioner Profe seconded the motion and it passed unanimously.

Motion: Commissioner Fitzgerald amended the denial motion subject to Commissioner Mips and Commissioner Kelsey's comments. Commissioner Kelsey seconded the motion and it passed unanimously.

Annual Election of Officers

Motion: Commissioner Fitzgerald nominated Commissioner Mips for Chairperson, Commissioner Profe seconded the motion and it passed unanimously.

CUDDY & FEDER & WORBY LLP

90 MAPLE AVENUE
WHITE PLAINS, NEW YORK 10601-5196

(914) 761-1300

TELECOPIER (914) 761-5372/6405

www.cfwlaw.com

New York City Office
230 PARK AVENUE
NEW YORK, NEW YORK 10169
(212) 949-6280
TELECOPIER (212) 949-6346

Connecticut Offices
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STAMFORD, CONNECTICUT 06901
(203) 348-4780

4 BERKELEY STREET
NORWALK, CONNECTICUT 06850
(203) 853-8001
TELECOPIER (203) 831-8250

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RHONDA S. POMERANTZ
NEIL T. RIMSKY
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DAVID E. WORBY

Of Counsel
MICHAEL R. EDELMAN
ANDREW A. GLICKSON (also CT)
ROBERT L. OSAR (also TX)
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NEIL J. ALEXANDER (also CT)
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MARYANN M. PALERMO

October 13, 1999

VIA FEDERAL EXPRESS

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OCT 14 1999

**CONNECTICUT
SITING COUNCIL**

Hon. Mortimer Gelston, Chairman and Members
of the Siting Council
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

Re: Request by AT&T Wireless PCS LLC, d/b/a AT&T Wireless Services for the Shared
Use of an Existing Tower at 440 Hayden Station Road, Windsor, Connecticut

Hon. Mortimer Gelston, Chairman and Members of the Siting Council:

Pursuant to Connecticut General Statutes (C.G.S.) § 16-50aa, AT&T Wireless PCS LLC by and through its agent AT&T Wireless Services, Inc., d/b/a AT&T Wireless Services ("AT&T Wireless") hereby requests an order from the Connecticut Siting Council (the "Council") to approve the proposed shared use of an existing communications tower located at 440 Hayden Station Road in the Town of Windsor owned by Sprint Spectrum L.P. (the "Sprint Facility").

The Sprint Facility

The Sprint Facility consists of an 85' monopole tower and other equipment at grade within a fenced compound. Currently on the tower are Sprint antennas and Omnipoint Communications, Inc. is in the process of installing its antennas and equipment at the site

October 13, 1999

Page 2

pursuant to a recent Council determination. The current land use of the parcel and surrounding area is industrial and unchanged since the monopole was constructed.

AT&T Wireless' Facility

As shown on the plans prepared by URS Greiner annexed hereto in Exhibit A, including a site plan and elevation, AT&T Wireless proposes shared use of the facility by attaching antennas to the tower and constructing a 12' x 20' equipment shelter within an expansion of the fenced compound for its equipment needed to provide personal communications services ("PCS"). AT&T Wireless will install three panel antennas on a single, small diameter pipe above the tower to a height of approximately 98 feet above grade.

Connecticut General Statutes § 16-50aa provides that, upon written request for shared use approval, an order approving such use shall be issued, "if the council finds that the proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns." (C.G.S. § 16-50aa(c)(1).) Shared use of the Sprint Facility satisfies the approval criteria set forth in C.G.S. § 16-50aa as follows:

- A. Technical Feasibility AT&T has confirmed that the tower is structurally capable of supporting the addition of AT&T Wireless' antennas as set forth in a letter from URS Greiner annexed hereto as Exhibit B. The proposed shared use of this Tower is therefore technically feasible.
- B. Legal Feasibility Pursuant to C.G.S. § 16-50aa, the Council has been authorized to issue an order approving shared use of the existing Sprint Facility. (C.G.S. § 16-50aa(c)(1)). Under the authority vested in the Council by C.G.S. § 16-50aa, an order by the Council approving the shared use of a tower would permit the Applicant to obtain a building permit for the proposed installation.
- C. Environmental Feasibility The proposed shared use would have a minimal environmental effect, for the following reasons:
 1. The proposed installation would have a de minimis visual impact, and would not cause any significant change or alteration in the physical or environmental characteristics of the existing facility;

October 13, 1999

Page 3

2. The proposed installation by AT&T Wireless would not increase the height of the tower itself and would not extend the boundaries of Sprint's lease parcel;
 3. The proposed installation would not increase the noise levels at the existing facility by six decibels or more;
 4. Operation of AT&T Wireless' antennas at this site would not exceed the total radio frequency electromagnetic radiation power density level adopted by the FCC and Connecticut Department of Health. The "worst case" exposure calculated for the operation of this facility (i.e., calculated at the base of the tower, which represents the closest publicly accessible point within the broadcast field of the antennas) for all carriers, would be approximately .02% of the standard. See Bell Labs Report dated October 11, 1999 annexed hereto as Exhibit C;
 5. The proposed shared use of the Sprint Facility would not require any water or sanitary facilities, or generate air emissions or discharges to water bodies. Further, the installation will not generate any traffic other than for periodic maintenance visits.
- D. Economic Feasibility As evidenced in Exhibit D annexed hereto, the Applicant and the tower owner have entered into a mutual agreement to share use of the Sprint Facility on terms agreeable to both parties. The proposed tower sharing is therefore economically feasible.
- E. Public Safety As stated above and evidenced in the Bell Labs Report annexed hereto as Exhibit C, the operation of AT&T Wireless' antennas at this site would not exceed the total radio frequency electromagnetic radiation power density level adopted by the FCC and Connecticut Department of Health. Additionally, the compound is completely fenced for security purposes. Further, the addition of AT&T Wireless' telecommunications service in the Windsor area through shared use of the Sprint Facility is expected to enhance the safety and welfare of local residents and travelers through the area resulting in an improvement to public safety in this area of Windsor.

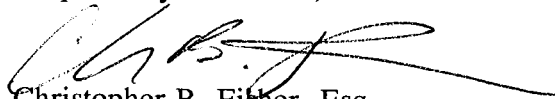
October 13, 1999

Page 4

Conclusion

As delineated above, the proposed shared use of the Sprint Facility satisfies the criteria set forth in C.G.S. § 16-50aa, and advances the General Assembly's and the Siting Council's goal of preventing the proliferation of towers in the State of Connecticut. AT&T Wireless therefore requests the Siting Council issue an order approving the proposed shared use of the Sprint Facility.

Respectfully submitted,



Christopher B. Fisher, Esq.

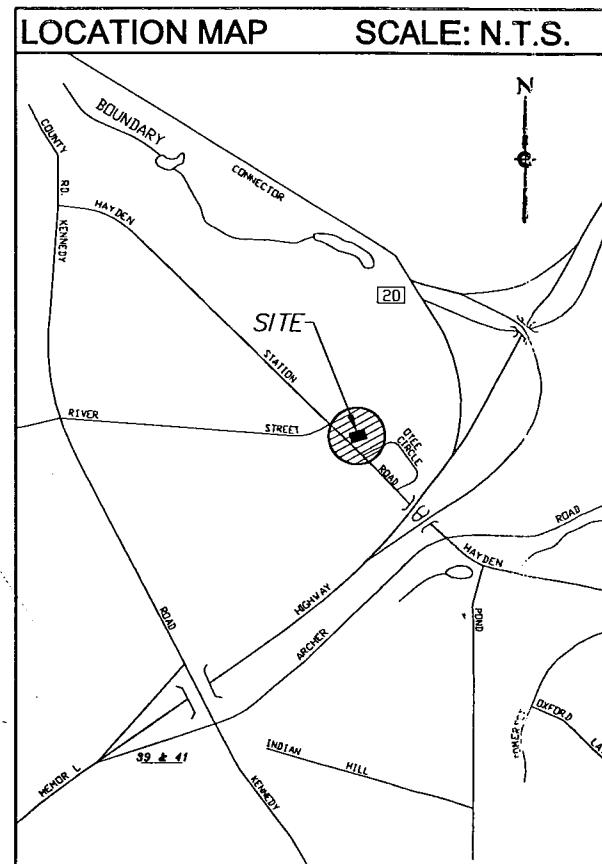
On behalf of AT&T Wireless

cc: Mayor, Town of Windsor
Michael Murphy
Jennifer Young Gaudet, Esq.

AT&T WIRELESS PCS, INC.

UNMANNED WIRELESS COMMUNICATIONS EQUIPMENT SITE

COAST DISTRIBUTION SYSTEMS
440 HAYDEN STATION ROAD
WINDSOR, CONNECTICUT
PROJECT SITE NO. CT-140



PROJECT SUMMARY

SITE NAME:	COAST DISTRIBUTION SYSTEMS
SITE ADDRESS:	440 HAYDEN STATION ROAD WINDSOR, CONNECTICUT
ASSESSOR'S PARCEL NO.:	MAP 49 BLOCK 471 LOT 109
CURRENT ZONING:	I-1
JURISDICTION:	TOWN OF WINDSOR
PROPERTY OWNER:	COAST DISTRIBUTION SYSTEMS
APPLICANT:	AT&T WIRELESS PCS, INC.
A/E:	URS GREINER WOODWARD CLYDE A.E.S. 500 ENTERPRISE DRIVE ROCKY HILL, CT 06067

SHEET INDEX

SHT. NO.	DESCRIPTION
T-1	TITLE SHEET
SC-1	COMPOUND PLAN, TOWER ELEVATION AND DETAILS



15 EAST MIDLAND AVENUE
PARAMUS, NEW JERSEY 07652

**URS Greiner Woodward Clyde
A-E-S**
500 ENTERPRISE DRIVE
ROCKY HILL, CONNECTICUT
1-(800)-529-8882

A&E SEAL

PROJECT NO: F301824.14/F03
DRAWN BY: WJK
CHECKED BY:
APPROVED BY:

ISSUED FOR

09-21-99	SITING COUNCIL

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IN THIS SET OF DOCUMENTS
IS PROPRIETARY BY NATURE.
ANY USE OR DISCLOSURE
OTHER THAN THAT WHICH
RELATES TO AT&T IS
STRICTLY PROHIBITED.

**COAST DISTRIBUTION
SYSTEMS**
CT-140
440 HAYDEN STATION ROAD
WINDSOR, CONNECTICUT

TITLE SHEET

T-1



AT&T

15 EAST MIDLAND AVENUE
PARAMUS, NEW JERSEY 07652

**SBS Greiner Woodward Clyde
A-E-S**

500 ENTERPRISE DRIVE
ROCKY HILL, CONNECTICUT
1-(800)-529-8882

A&E SEAL

PROJECT NO: F301824.14/F03

DRAWN BY: WJK

CHECKED BY:

APPROVED BY:

ISSUED FOR

09-21-99 SITING COUNCIL

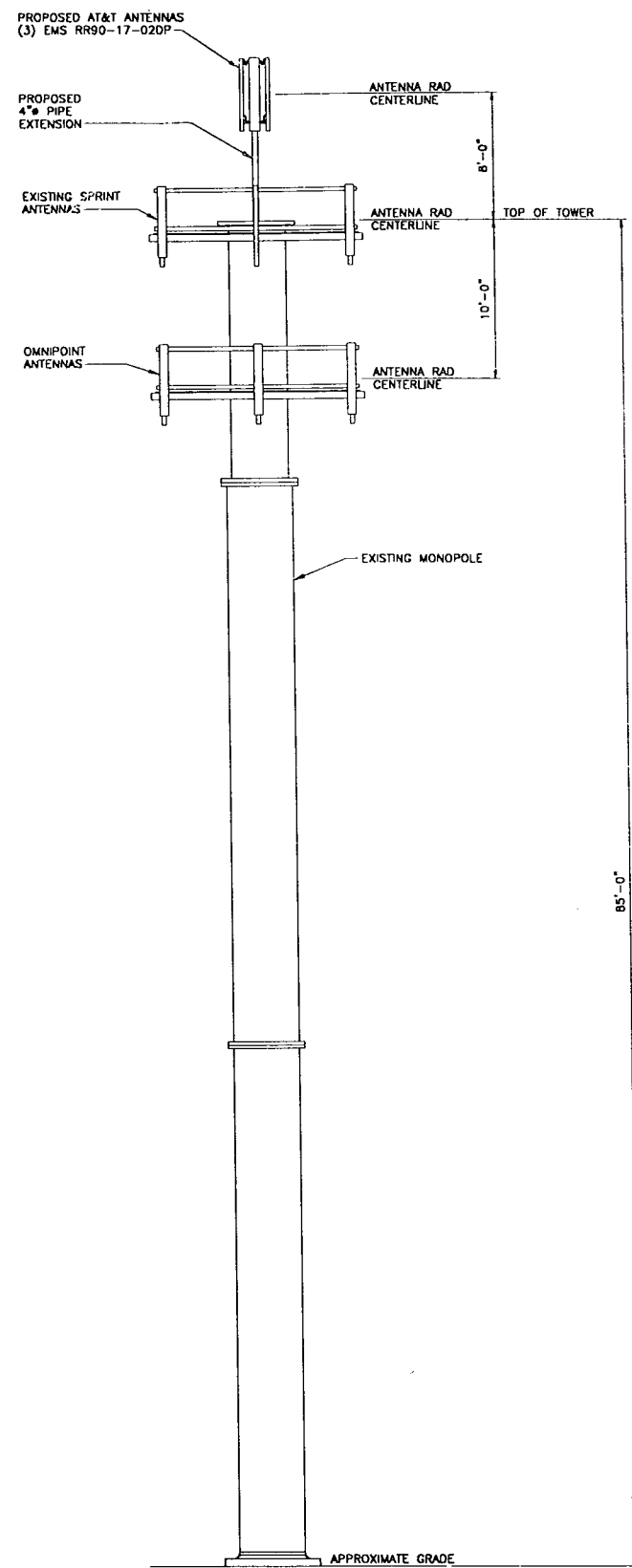
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**COAST DISTRIBUTION
SYSTEMS**

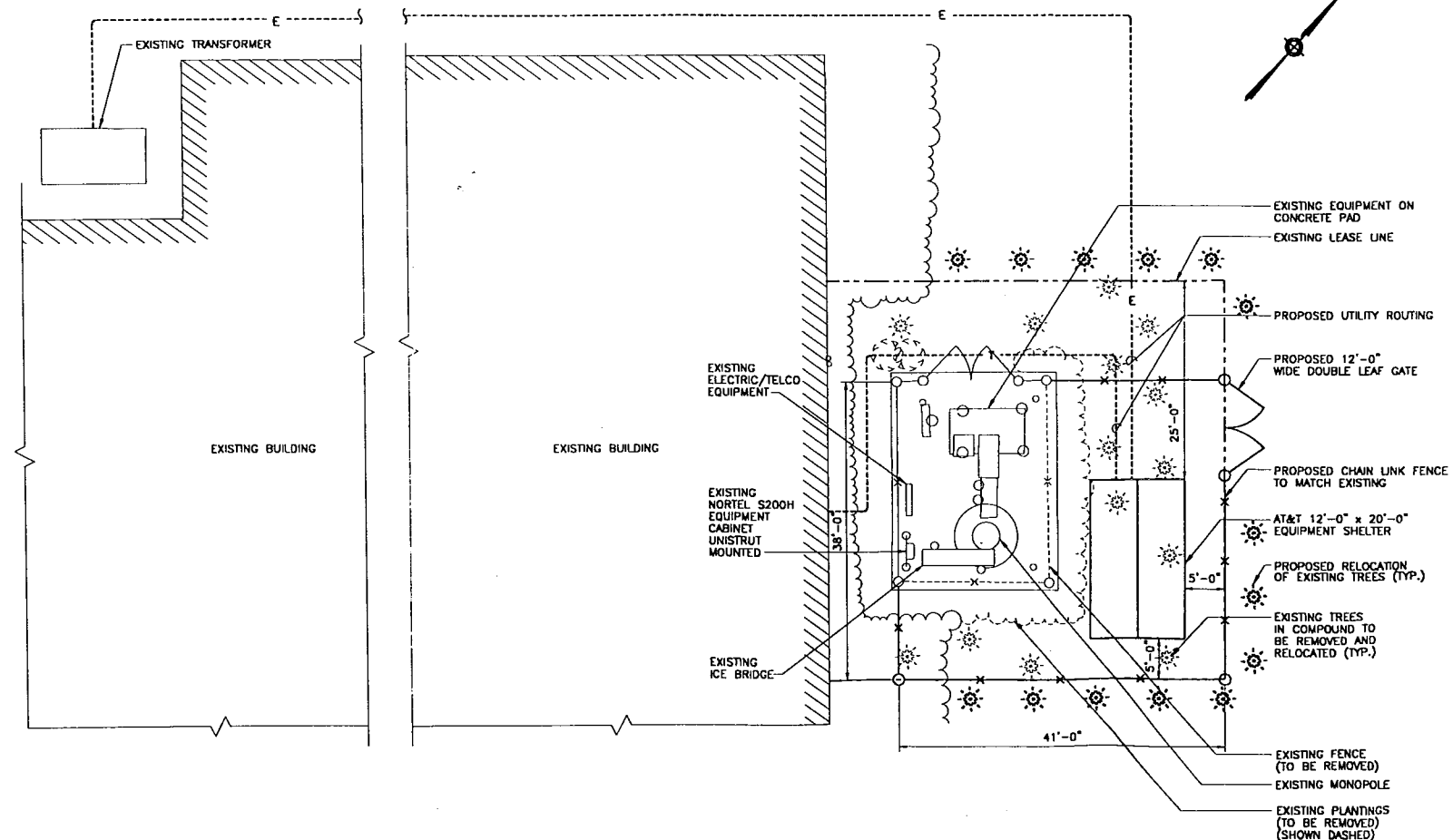
CT-140
440 HAYDEN STATION ROAD
WINDSOR, CONNECTICUT

**COMPOUND PLAN,
TOWER ELEVATION
AND DETAILS**

SC-1



2 TOWER ELEVATION
SCALE: 3/16"=1'-0"



1 COMPOUND PLAN
SCALE: 1" = 20'-0"

URS Greiner Woodward Clyde

A Division of URS Corporation

500 Enterprise Drive, Suite 3B
Rocky Hill, CT 06067
Tel: 860 529 8882
Fax: 860 529 3991
Offices Worldwide

October 13, 1999

Mortimer A. Gelston
Chairman
Connecticut State Siting Council
10 Franklin Square
New Britain, CT 06051

Reference: Proposed Telecommunications Facility
AT&T Site No. CT-140
Sprint Site
440 Hayden Station Road
Windsor, Connecticut
F300001824.14

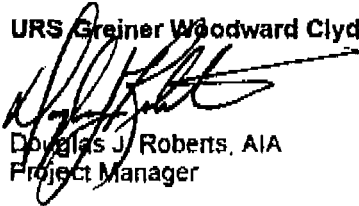
Dear Mr. Gelston:

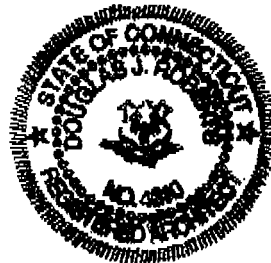
URS Greiner Woodward Clyde (URSGWC) has prepared a Structural Analysis for the Sprint monopole located at 440 Hayden Station Road in Windsor, Connecticut. The Structural Analysis has concluded that the existing monopole will support the additional loads of the AT&T Wireless PCS antennas. This tower analysis was performed to the requirements of EIA/TIA-222-F.

Please call if there are any questions.

Sincerely,

URS Greiner Woodward Clyde A.E.S.


Douglas J. Roberts, AIA
Project Manager



ICA/en

cc: Carmen Chapman, AT&T
Barry Walsh, Pinnacle
Christopher Fisher, Cuddy & Feder & Worby
J.Artaiz, AIA - URSGWC
A.Abadjian, URSGWC

1844.525

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-140: 440 Hayden Station Road, Windsor, Connecticut**

Prepared by

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

Prepared for

Carmen Chapman
AT&T Wireless Services
149 Water Street
Suite 2C & 2D
Norwalk, CT 06854

October 11, 1999

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7. Conclusion.....	7
8. References	8

**An Analysis of the Radiofrequency Environment in the
Vicinity of a Proposed Personal Communications Services Installation
Site CT-140: 440 Hayden Station Road, Windsor, Connecticut**

Summary

This report is an analysis of the radiofrequency (RF) environment surrounding the AT&T Wireless Services personal communications services (PCS) facility proposed for installation in Windsor, CT. The analysis, which includes contributions from existing Sprint Spectrum and Omnipoint Communications PCS antennas, utilizes engineering data provided by AT&T Wireless together with well-established analytical techniques utilized for calculating the RF fields associated with PCS 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 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 0.2% 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 0.2% 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 personal communications services (PCS) facility, and an opinion regarding the concern for public health associated with long-term exposure in this environment. The analysis includes contributions from existing Sprint Spectrum and Omnipoint Communications PCS 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, 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 this facility complies with Federal Communications Commission (FCC) guidelines as required by the Telecommunications Act of 1996.

2. Technical Data

The proposed PCS antennas are to be mounted to a monopole located at 440 Hayden Station Road in Windsor, CT. Existing at the facility are PCS antennas operated by Sprint Spectrum and Omnipoint Communications. The PCS antennas transmit at frequencies between 1930 and 1990 million-hertz (MHz).

The actual RF power propagated from a PCS antenna 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*). This is an extremely low power system 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 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 potential exposure levels associated with *simultaneous and continuous operation* of all proposed

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).

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 density associated with the co-located antennas will be less than those values shown in Table 2. The values shown in Table 2 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 2 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 in Table 2 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. Experience has shown that the analytical technique used is extremely conservative. That is, actual 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

Table 2 shows the calculated maximal 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 PCS frequencies. The FCC MPE limits for PCS range from 1 mW/cm² (public exposure) to 5 mW/cm² (occupational exposure), while the corresponding total maximal power density levels in the environment from operation of the proposed and existing antennas are 0.0016 mW/cm² (at 6 ft above grade) and 0.0020 mW/cm² (at 16 ft above grade).

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 will 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 Windsor, 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 communications from:

Dr. Robert Cleveland, Jr.
Federal Communications Commission
Office of Engineering and Technology
Room 7002
2000 M Street NW
Washington, DC 20554
(202) 418-2422

7. Conclusion

This report is an analysis of the radiofrequency (RF) environment surrounding the AT&T Wireless Services personal communications services (PCS) facility proposed for installation in Windsor, CT. The analysis, which includes contributions from existing Sprint Spectrum and Omnipoint Communications PCS antennas, utilizes engineering data provided by AT&T Wireless together with well-established analytical techniques utilized for calculating the RF fields associated with PCS 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 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 0.2% of the safety criteria adopted by the Federal Communications Commission as mandated by the Telecommunications Act of 1996. The

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.

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 0.2% 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.

**Table 1: Engineering Specifications for the Proposed and Existing PCS Systems
Windsor, CT**

Site Specifications	AT&T Wireless	Sprint Spectrum	Omnipoint
maximum ERP [†] per channel	100 watts	412 watts	300 watts
actual radiated power per channel	4 watts	13 watts	8 watts
actual <i>total</i> radiated power per sector	32 watts	39 watts	16 watts
number of transmit/receive antennas	N/A	2 per sector	1 per sector
number of transmit antennas	1 per sector	1 per sector	N/A
number of receive antennas	2 per sector	N/A	N/A
maximum number of transmitters	8 per sector	3 per sector	2 per sector
antenna centerline height above grade	93 ft	85 ft	75 ft
number of sectors configured	3	3	2
antenna manufacturer	EMS Wireless	DAPA	EMS Wireless
model number	RR90-17-02DP	58000*	RV65-18-02DP
gain	16.5 dBi	17.15 dBi	18 dBi
type	directional	directional	directional
downtilt	2° (electrical)	0°	2° (electrical)

† *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.

* or similar antenna.

**Table 2: Calculated Maximal Levels
and the Levels as a Percentage of 1996 FCC MPEs*
for the Proposed and Existing PCS Antennas, Windsor, CT**

Provider	Power Density (mW/cm ²)		% of MPEs*	
	6 ft AMGL†	16 ft AMGL†	6 ft AMGL†	16 ft AMGL†
AT&T Wireless	< 0.0006	< 0.0008	0.06%	0.08%
Sprint Spectrum	< 0.0006	< 0.0007	0.06%	0.07%
Omnipoint	< 0.0004	< 0.0005	0.04%	0.05%
TOTAL			0.16%	0.20%

* 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: Calculated Levels at Base of Structure
and the Levels as a Percentage of 1996 FCC MPEs*
for the Proposed and Existing PCS Antennas, Windsor, CT**

Provider	Power Density (mW/cm ²)		% of MPEs*	
	6 ft AMGL†	16 ft AMGL†	6 ft AMGL†	16 ft AMGL†
AT&T Wireless	< 0.00001	< 0.00001	0.001%	0.001%
Sprint Spectrum	< 0.00022	< 0.00028	0.022%	0.028%
Omnipoint	< 0.00001	< 0.00001	0.001%	0.001%
TOTAL			0.024%	0.030%

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

† AMGL: above mean grade level

Table 4: Summary of International, Federal, State and Consensus Safety Criteria for Exposure to Radiofrequency Energy at Frequencies Used for PCS Systems

Organization/Government Agency	Exposure Population	Power Density (mW/cm ²)
<i>International Safety Criteria/Recommendations</i>		
International Commission on Non-Ionizing Radiation Protection (1997) (<i>Health Physics</i> 74:4, 494-522. (1998) ¹)	Occupational	4.9
	Public	1.0
National Radiological Protection Board (United Kingdom) (NRPB, 1993)	Occupational	10.0
	Public	10.0
<i>Federal Requirements</i>		
Federal Communications Commission (47 CFR §1.1310)	Occupational	5.0
	Public	1.0
<i>Consensus Standards and Recommendations</i>		
American National Standards Institute (ANSI C95.1 - 1982)	Occupational	5.0
	Public	5.0
Institute of Electrical and Electronics Engineers (ANSI/IEEE C95.1-1999 Edition) ²	Occupational	6.5
	Public	1.3
National Council on Radiation Protection & Measurements (NCRP Report 86, 1986)	Occupational	5.0
	Public	1.0
<i>State Codes</i>		
New Jersey (NJAC 7:28-42)	Public	5.0
Massachusetts (Department of Health 105 CMR 122)	Public	1.0
New York State ³	Public	1.0

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 antennas and all co-located wireless communications 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 OST 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

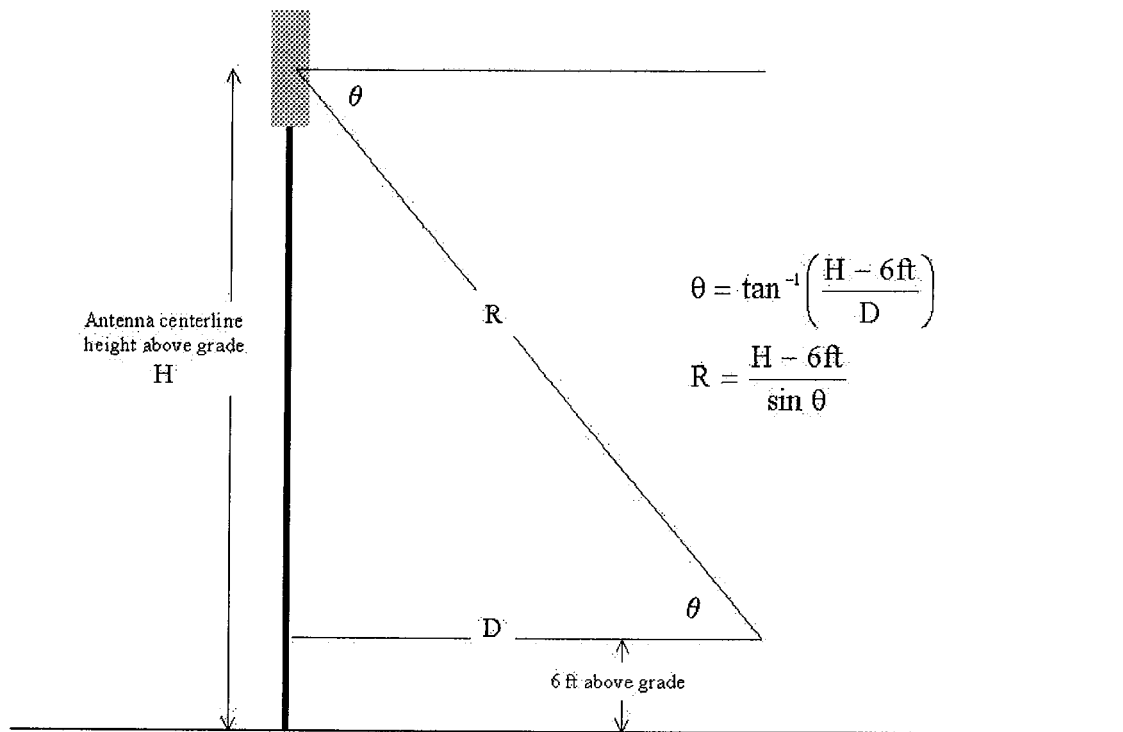
$$S_{\max} = 4 \times S$$

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 antennas occurs at a depression angle of 55° below the horizon and is calculated as follows:

$$R = (H-6)/\sin \theta = (93-6)/\sin (55^\circ) = 106.2 \text{ ft}$$

$$G_{55^\circ} = -4.25 \text{ dBd (from antenna elevation gain pattern)}$$

$$P_N = \text{ERP}/G_{\max} = \frac{100}{10^{(14.35\text{dBd}/10)}} = 3.7 \text{ watts per channel}$$

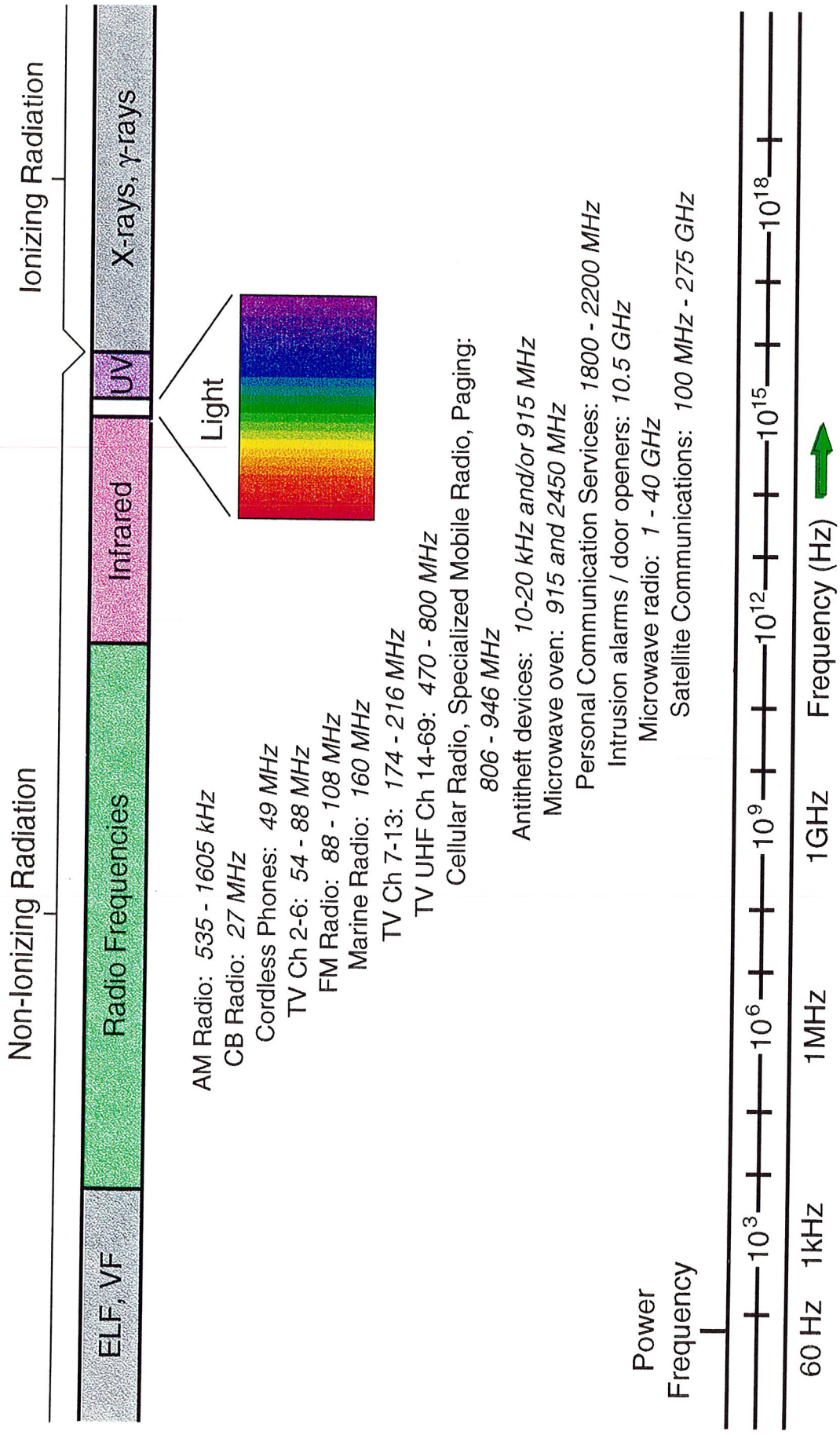
$$S_{\max} = 4 \times \frac{N \times P_N \times 10^{(G_n/10)} \times 1.64}{4\pi R^2}$$

$$= 4 \times \frac{8 \text{ ch} \times 3.7 \text{ W} / \text{ch} \times 10^{(-4.25\text{dBd}/10)} \times 1.64}{4 \times 3.14 \times (106.2 \text{ ft} \times 12 \times 2.54)^2}$$

$$S_{\max} = 5.6 \times 10^{-7} \text{ W/cm}^2 = 0.00056 \text{ mW/cm}^2$$

$$\text{AND \% of MPE} = \frac{0.00056 \text{ mW/cm}^2}{1 \text{ mW/cm}^2} \times 100\% = 0.06\%$$

ELECTROMAGNETIC SPECTRUM





North East Site Development

Sprint PCS1 International Boulevard
Suite 800
Mahwah, NJ 07495

VIA FEDERAL EXPRESS

September 2, 1999

AT & T Wireless PCS, Inc. by and through its agent AT & T Wireless Services, Inc. (AT&T)
Jennifer Young Gaudet, Pinnacle Site Development
7 Sycamore Street
Glastonbury, CT 06033

Re: License Agreement with AT & T for North Windsor, CT - CT03XC065-02

Dear Ms. Gaudet,

Enclosed please find two (2) fully executed Site Licenses for the above referenced site.

[REDACTED]

Prior to Sprint Spectrum L.P. (SSLP) issuing a Notice to Proceed (NTP) for construction on the referenced site, Sprint must be provided with the following:

1. Tower Structural Analysis or Approval Letter, wet-stamped by a PE
2. Two sets of Construction Drawings for approval by SSLP, wet-stamped by a PE or RA
3. Applicable Governmental Approvals (Zoning), or proof that that same is not required
4. Copy of Building Permit*
5. Certificate of Insurance, naming SSLP and the Landlord as Additional Insured
6. Contractors Information and Construction Schedule*
7. A completed Preconstruction Meeting Request Form*

Please submit the above items in a single transmittal, except those items with an asterisk (*) which must be submitted prior to our delivery of an NTP. Sprint must be provided with a complete set of As-Built drawings upon completion of construction.

Prior to you or your consultants entry onto the subject site, you must contact John Long at (203) 294 5641.

If you have any questions, please do not hesitate to contact me at (201) 512 4822.

Sincerely,


Ker MacMaster
Collocation Consultantcc: John Long
Robert Greenwell