

# RUBENSTEIN & GREEN, L.L.C.

Attorneys and Counsellors at Law  
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DAVID I. BASS\*  
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*Of Counsel*  
ALEXANDER H. SCHWARTZ\*  
STEPHEN GLAZER\*

\*Also admitted in New York  
November 14,2000

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

**RE: Metricom, Inc.'s request for the Shared Use of an Existing Tower Facility at 741 Flanders Road, Groton, Connecticut**

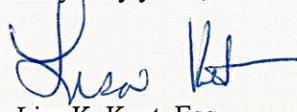
Dear Mr. Rinebold,

Enclosed please find one original and twenty (20) copies of the request for the shared use of the above mentioned facility along with 21 copies of the following supporting documents:

1. Owners Consent dated August 7, 2000.
2. Structural Report by Pirod, Inc. dated September 13, 2000.
3. Radio Frequency Emissions Report, prepared by Edwards and Kelcey, dated October 27, 2000 demonstrating that the radio emissions from the proposed Facility will be far below all FCC and State radio emission standards.
4. Site Plan Drawings prepared, signed and sealed by URS Corporation dated August 4, 2000 as revised through October 27, 2000. (Please note the request and all the supporting documents show 20 antenna, notwithstanding that the narrative on the T-1 says "no more than 16 antenna").
5. Application fee in the amount to \$500.00.

If you have any questions regarding the enclosed materials, please don't hesitate to contact me.

Very truly yours,



Lisa K. Kent, Esq.

Enclosures  
cc: Mr. Julian Pedini (w/out enclosures)

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*Of Counsel*  
ALEXANDER H. SCHWARTZ\*  
STEPHEN GLAZER\*

\*Also admitted in New York

November 13, 2000

Mr. Mortimer A. Gelston, Chairman,  
Connecticut Siting Council  
10 Franklin Street  
New Britain, Connecticut 06051

**RE: Request by Metricom, Inc. for the Shared Use of an Existing Tower at  
741 Flanders Road, Groton, Connecticut**

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

Pursuant to Connecticut General Statutes (C.G.S.) § 16-50aa Metricom, Inc. hereby requests an order from the Connecticut Siting Council (the "Council") to approve the shared use of an existing tower located at 741 Flanders Road, in the Town of Groton, owned by Omnipoint Communications (the "Omnipoint Facility"). The Applicant has entered into an agreement with the tower owner to permit the installation of a wireless communications facility at the Omnipoint Facility.

**The Omnipoint Facility**

The Omnipoint Facility consists of a 147' telecommunications tower ("Tower") and other equipment at grade level within a fenced compound. Omnipoint currently has antennas on the Tower at the 146' centerline.

**Metricom's Facility**

Metricom is licensed by the Federal Communications Commission to provide high-speed wireless access to the Internet throughout the State of Connecticut. As shown on the enclosed plans prepared by URS Corporation, which includes a site plan and elevation, Metricom will install sixteen (16) ISM Larsen panel antennas and four (4) four WCS antenna at the 133'8" centerline of the Tower and install necessary equipment on a 9' by 8'6" concrete pad within Omnipoint's existing compound.

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).) Further, upon approval of such shared use, it is exclusive and no

local zoning or land use approvals are required C.G.S. § 16-50x. Shared use of the Omnipoint Facility satisfies the approval criteria set forth in C.G.S. § 16-50aa as follows:

- A. Technical Feasibility: Metricom has confirmed that the tower is structurally capable of supporting the addition of Metricom, Inc.'s antennas as set forth in a Structural Report by Pirod, Inc. dated September 13, 2000, attached hereto as Exhibit A. 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 Omnipoint 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;
  - 2. The proposed installation by Metricom, Inc. would not increase the height of the tower itself and would not extend the boundaries of Omnipoint's lease parcel;
  - 3. The proposed installation would not increase the noise levels at the existing facility boundaries by six decibels or more;
  - 4. The operation of Metricom's antennas will not exceed the total radio frequency electromagnetic radiation power density level adopted by the FCC and Connecticut Department of Health. The maximum potential exposure level around the Tower induced by the Metricom system is  $0.0014 \text{ mW/cm}^2$ , which represents 0.147% of the FCC limit for continuous exposure of the general population. As the RF Exposure Report indicates, the "worst case" cumulative emissions from all existing and proposed antennas on the Tower equals 1.8109% of the FCC limit for continuous exposure of the general population. See "Analysis and Report of RF Exposure Levels and Compliance with FCC Regulations", prepared by Edwards and Kelcey, attached hereto as Exhibit B.

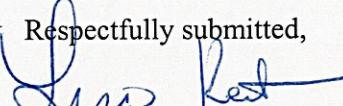
5. The proposed shared use of the Omnipoint Facility would not require any water or sanitary facilities, or generate air emissions or discharges to water bodies. Further, the installation will not generate any traffic other than for periodic maintenance visits.

D. Economic Feasibility . The Applicant and tower operators have entered into a mutual agreement to share use of the Metricom Facility on terms agreeable to both parties. See Owner's Consent dated August 8, 2000 attached hereto as Exhibit C. The proposed tower sharing is therefore economically feasible.

E. Public Safety: As stated above and evidenced in the Radio Frequency Report prepared by Edward's and Kelcey, the operation of Metricom, Inc.'s 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 Metricom, Inc.'s telecommunications service in the Groton area through shared use of the Omnipoint Facility is expected to enhance the welfare of local residents and meets public safety concerns.

#### Conclusion

As delineated above, the proposed shared use of the Omnipoint 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. Metricom, Inc. therefore requests the Siting Council issue an order approving the proposed shared use of the Omnipoint Facility.

Respectfully submitted,  
  
Lisa K. Kent, Esq.  
On behalf of Metricom, Inc.

cc: Mayor of Groton



# PIROD INC.

September 13, 2000

Mr. Dave Weinpahl  
VOICESTREAM WIRELESS  
100 Filley Street  
Bloomfield, CT 06002

201. 326. 3044

NYC 007 b  
Gwton

1545 PIDCO DRIVE  
P.O. BOX 128  
PLYMOUTH, INDIANA 46563-01  
(219) 936-4221  
SALES FAX (219) 936-6796  
ENG. FAX (219) 935-4873  
ACCOUNTING FAX: (219) 936-4:  
PURCHASING FAX: (219) 936-6:

RE: PiRod Engineering File Number: A-114999  
Reanalysis of existing pole

Dear Mr. Weindahl:

As requested, we have reviewed the above-mentioned Monopole to confirm that the pole is in compliance with the requirements of TIA/EIA-222-F 1996. The following loading condition was utilized:

147' - Six RR65-19-00DP antennas and Two 6' Whip Antennas (CaAc = 3.5 sq.ft. per antenna) on a 16'-6" Low Profile Platform with 1-5/8" lines.

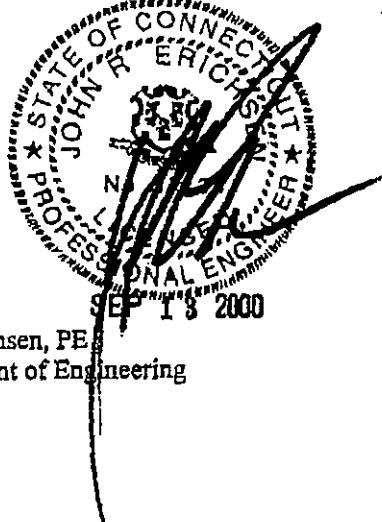
133' - Sixteen Larsen 108426-200 and Six DB977H70 antennas on a 15' Universal platform with 1-5/8" lines.

The basic windspeed considered is 85 mph with no ice and 85 mph with  $\frac{1}{2}$ " radial ice considered with the 25% load reduction factor.

It is our conclusion that the pole and the supporting foundations are in compliance with the requirements of TIA/EIA-222-F 1996. We have not confirmed the placement of the antennas. Similarly, we have not confirmed the condition of the pole. The conclusions stated above are a theoretical assessment of the structure and shall not constitute a condition assessment of the structure and the supporting foundations.

If you have any other questions, please feel free to contact me at the above-mentioned number, extension #5221 or via email at [jerichsen@pirod.com](mailto:jerichsen@pirod.com).

Sincerely,



John R. Erichsen, PE  
Vice President of Engineering



# PiRod Inc.

September 13, 2000

Mr. Dave Weinpahl  
VOICESTREAM WIRELESS  
100 Filley Street  
Bloombfield, CT 06002

RE: PiRod Engineering File Number: A-114999  
Reanalysis of existing pole

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Sincerely,



John R. Erichsen, PE  
Vice President of Engineering

201.326.3044

NYC 007 b  
6ntn

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P.O. BOX 128  
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(219) 936-4221  
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ENG. FAX (219) 935-4873  
ACCOUNTING FAX: (219) 936-4  
PURCHASING FAX: (219) 936-6

ATTACHMENT 4  
OWNER'S CONSENT

to the Tower Lease dated \_\_\_\_\_ 200\_\_\_\_, by and between Voicestream PCS Corporation, as Landlord, and Metricom, Inc. , as Tenant.

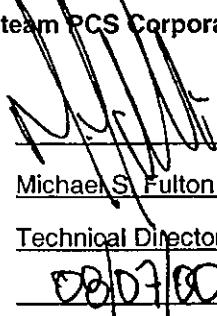
LETTER OF AUTHORIZATION

Municipality: Town of Groton, Connecticut

Tax Assessors Parcel Number: Map: 105, Lot: 31

**Voicestream PCS Corporation** ("Owner"), the Owner of the 150' Monopole located on **741 Flanders Road** in the Town of Groton, County of New London, State of Connecticut, (the "Property"), hereby appoints **Metricom, Inc.**, and its agents and representatives as Owner's Agent for the purpose of completing, executing, and/or filing any application, form, map, approval, variance, special permit, site plan or other land use approval ("Approvals"), required to provide Metricom, Inc. with lawful access to, and use of the Property for purposes of installing, maintaining and operating a wireless telecommunications facility.

**Voicestream PCS Corporation**

By: 

Name: Michael S. Fulton

Title: Technical Director

Date: 08/07/00

STATE OF CONNECTICUT

COUNTY OF Hartford

Signed and sworn to before me this 7<sup>th</sup> day of August, 2000

Karen M. Bartholomew

Notary Public or Commissioner of

the Superior Court

KAREN M. BARTHOLOMEW  
**NOTARY PUBLIC**  
MY COMMISSION EXPIRES APR. 30, 2003

My commission expires: \_\_\_\_\_



*Analysis and Report  
of RF Exposure Levels  
and Compliance with  
FCC Regulations*

*Groton, CT Site  
741 Flanders Road  
NYC0007*

*Prepared for*

*Metricom*

*October 27, 2000*

**EDWARDS AND KELCEY**  
299 Madison Avenue - PO Box 1936  
Morristown, NJ 07962-1936

Tel: 973-267-8830 Fax: 973-267-3555  
Email: sleader@ekmail.com  
Internet: <http://www.ekcorp.com>

**PROPRIETARY – METRICOM AND EDWARDS AND KELCEY**  
This document has been prepared for METRICOM for its use in demonstrating  
RF compliance, as necessary, to federal, state and/or local authorities, and/or site landlords.  
Distribution beyond that described is prohibited without the express written consent of Edwards and Kelcey.



## FCC RF COMPLIANCE ANALYSIS FOR

Metricom

Groton CT Monopole

This site compliance report is organized as follows:

- Site Technical Data (supplied by client)
- Analysis Method and Assumptions
- Applicable Formulas
- Analysis Results
- Conclusion

### **SITE TECHNICAL DATA**

Facility type	Monopole
Frequency bands	920 MHz / 2.4 GHz
Antenna type	Dual Band, WCS
Antenna major dimension (length)	3.5 ft
Maximum antenna gain (920 MHz / 2.4 GHz)	7dBi / 15dBi / 17dBi
Antenna mounting height	133 ft. above ground
Total number of antennas	16 Dual Band, 4 WCS
Total power input to each antenna	1 watt, 16 watt WCS
Maximum effective isotropic radiated power (EIRP) per antenna	36dBm @ 920 MHz 42dBm @ 2.4 GHz 60dBm @ 2.4 GHz WCS
Other facilities within 500 feet	Voicestream

### **ANALYSIS METHOD AND ASSUMPTIONS**

Type of analysis	Maximum / ground-level
Area analyzed	0' to 500' from monopole
Classification of area	Uncontrolled (gen. pop.)
FCC Maximum Permissible Exposure (MPE) limit	0.613 mW/ cm <sup>2</sup> (920 MHz) 1.000 mW/ cm <sup>2</sup> (2.4 GHz)
Mathematical model	Point source, far field
Assumed ground reflection factor	100%
Assumed human height	6'0"
Vertical antenna discrimination included	Yes (from Ant. Mfr. data)

## APPLICABLE FORMULAS

According to FCC Bulletin OET65, different mathematical models apply to different distances around an antenna. At the height of the antenna, the breakpoint is the "far-field distance", calculated as the ratio of the square of the major dimension of the antenna divided by the signal wavelength . Beyond the far-field distance at the height of the antenna, as well as at ground-level underneath the antenna, a "far-field point source" model applies; within that distance, a "near-field cylindrical model applies. The subsections below provide background on the two applicable models in the 920 MHz band.

### Far-Field Point Source Model

- (1)  $S \text{ [mW/cm}^2\text{]} = (4 * \text{EIRP}_{\text{max}} * \text{VertAntDisc}(\phi)) / (4 * \pi * R_{\text{cm}}^2)$
- (2) FCC MPE limit = (920 MHz / 1500 MHz) mW/cm<sup>2</sup>, or 0.613 mW/cm<sup>2</sup>
- (3) MPE% = 100 \* (S / 0.613)

where:

S	=	Calculated power density
4 (in numerator)	=	100% field ground reflection effect (has $[1 + 1]^2 = 4$ effect on power density )
EIRP <sub>max</sub>	=	Maximum effective isotropically radiated power (Note: EIRP is 64% higher than ERP, which is referenced to a half-wave dipole)
VertAntDisc( $\phi$ )	=	Numeric factor for antenna discrimination (EIRP reduction) in the vertical plane, applicable at downward angle $\phi$ to a 6' human standing on ground, calculated at distances from 0' to 500' away from the antenna
R	=	Straight-line distance from antenna to 6' human
MPE%	=	Calculated exposure level, as a percentage of the FCC MPE limit for continuous exposure of the general population

### Near-Field Cylindrical Model

- (1)  $S \text{ [mW/cm}^2\text{]} = (P_i * ACF / (2 \pi R h))$
- (2) FCC MPE limit = (920 MHz / 1500 MHz) mW/cm<sup>2</sup>, or 0.627 mW/cm<sup>2</sup>
- (3) MPE% = 100 \* (S / 0.613)

where:

S	= Calculated power density
P <sub>i</sub>	= Total power input to the antenna, in mW
ACF	= Antenna correction factor (adjustment to near-field power density calculation to compensate for the antenna mounting height above ground level and resulting partial-body exposure; see Richard Tell article listed in the References)
R	= Straight-line distance from antenna to 6' human
h	= Subtended height of the antenna, in cm
MPE%	= Calculated exposure level, as a percentage of the FCC MPE limit for continuous exposure of the general population

### ***ANALYSIS RESULTS – GROUND-LEVEL***

The Tables on the following pages, summarize the results of the calculations using the site data, method and far-field point source formula described above. Note that the information on the vertical antenna discrimination has been taken from the antenna manufacturer's specification sheets. In addition, note that while the tabular distances are listed in feet, the calculations translate these units into centimeters, to match the FCC specification of MPE units.

Our calculations included consideration of the antenna arrays and their deployment on the monopole. EK assumed that there will be significant overlap of the individual antenna patterns and used a multiplication factor of eight (8) to derive a "worst case" scenario.

Metricom 920 MHz Antenna Array					
G dist	R dist	V angle	V disc	mWcm <sup>2</sup>	GPMPE%
0	126.5	90.0	0.251	0.0002	0.028
20	128.1	81.0	0.251	0.0002	0.028
40	132.7	72.5	0.251	0.0002	0.026
60	140.0	64.6	0.251	0.0001	0.023
80	149.7	57.7	0.251	0.0001	0.020
100	161.3	51.7	0.251	0.0001	0.017
120	174.4	46.5	0.398	0.0001	0.024
140	188.7	42.1	0.398	0.0001	0.020
160	204.0	38.3	0.631	0.0002	0.027
180	220.0	35.1	0.631	0.0001	0.023
200	236.6	32.3	0.631	0.0001	0.020
220	253.8	29.9	0.794	0.0001	0.022
240	271.3	27.8	0.794	0.0001	0.019
260	289.1	25.9	0.794	0.0001	0.017
280	307.2	24.3	0.794	0.0001	0.015
300	325.6	22.9	0.794	0.0001	0.013
320	344.1	21.6	0.794	0.0001	0.012
340	362.8	20.4	0.794	0.0001	0.011
360	381.6	19.4	1.000	0.0001	0.012
380	400.5	18.4	1.000	0.0001	0.011
400	419.5	17.5	1.000	0.0001	0.010
420	438.6	16.8	1.000	0.0001	0.009
440	457.8	16.0	1.000	0.0001	0.009
460	477.1	15.4	1.000	0.0000	0.008
480	496.4	14.8	1.000	0.0000	0.007
500	515.8	14.2	1.000	0.0000	0.007

**Table 1.** 920 MHz Ground level RF power density and percent-of-MPE calculations

Metricom 2.4 GHz Antenna Array					
G dist	R dist	V angle	V disc	mWcm <sup>2</sup>	GPMPE%
0	126.5	90.0	0.005	0.0003	0.032
20	128.1	81.0	0.005	0.0003	0.031
40	132.7	72.5	0.005	0.0003	0.029
60	140.0	64.6	0.005	0.0002	0.026
80	149.7	57.7	0.005	0.0002	0.023
100	161.3	51.7	0.005	0.0002	0.020
120	174.4	46.5	0.016	0.0005	0.051
140	188.7	42.1	0.016	0.0004	0.044
160	204.0	38.3	0.020	0.0005	0.048
180	220.0	35.1	0.020	0.0004	0.041
200	236.6	32.3	0.020	0.0003	0.036
220	253.8	29.9	0.032	0.0005	0.049
240	271.3	27.8	0.032	0.0004	0.043
260	289.1	25.9	0.032	0.0004	0.038
280	307.2	24.3	0.032	0.0003	0.033
300	325.6	22.9	0.032	0.0003	0.030
320	344.1	21.6	0.032	0.0003	0.027
340	362.8	20.4	0.032	0.0002	0.024
360	381.6	19.4	0.200	0.0013	0.135
380	400.5	18.4	0.200	0.0012	0.123
400	419.5	17.5	0.200	0.0011	0.112
420	438.6	16.8	0.200	0.0010	0.102
440	457.8	16.0	0.200	0.0009	0.094
460	477.1	15.4	0.200	0.0008	0.086
480	496.4	14.8	0.200	0.0008	0.080
500	515.8	14.2	0.200	0.0007	0.074

**Table 2.** 2.4 GHz Ground level RF power density and percent-of-MPE calculations

Metricom Cumulative Radiated Power		
G dist	mWcm <sup>2</sup>	GPMPE%
0	0.0005	0.060
20	0.0005	0.059
40	0.0005	0.055
60	0.0003	0.049
80	0.0003	0.043
100	0.0003	0.037
120	0.0006	0.075
140	0.0005	0.064
160	0.0007	0.075
180	0.0005	0.065
200	0.0004	0.056
220	0.0006	0.071
240	0.0005	0.062
260	0.0005	0.055
280	0.0004	0.048
300	0.0004	0.043
320	0.0004	0.039
340	0.0003	0.035
360	0.0014	0.147
380	0.0013	0.134
400	0.0012	0.122
420	0.0011	0.112
440	0.0010	0.102
460	0.0008	0.094
480	0.0008	0.087
500	0.0007	0.081

**Table 3.** Cumulative Ground level RF power density and percent-of-MPE calculations

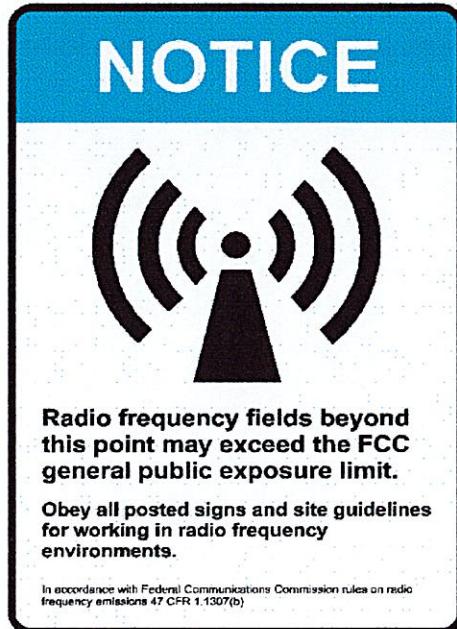
## CONCLUSION

The calculations presented above demonstrate that the maximum potential exposure level around the monopole induced by the Metricom system is  $0.0014 \text{ mW/cm}^2$ , which represents 0.147% of the FCC limit for continuous exposure of the general population.

The most recent power density study submitted to the Connecticut Siting Council, reported that the cumulative 'worst case' percentage of the FCC limit for exposure of the general population was 1.6639%, for the existing carrier (Voicestream) at this site. Adding the calculated Metricom level of only 0.147% results in a total of 1.8109%. Therefore the total ground level exposure around the monopole is still well below the FCC limit, even with the inclusion of the Metricom system.

Even with the low levels predicted on the ground, it's recommended that an FCC 'Notice' sign (shown below) be installed on the fence gate as a precautionary safety measure.

**Therefore, the ADDITION of the Metricom Radio system to this facility should not create a significant risk of exposure to RF emissions to the general population. And, according to the calculations, and based on the installation of signage described above, the Metricom wireless facility is in compliance with the FCC regulations concerning the control of potential RF exposure.**



*Example of RF Alert Sign*

**CERTIFICATION**

This report was prepared by Sheldon Leader, Associate Vice President and Director - RF Planning and Engineering. The undersigned has reviewed this report and certifies that the analysis provided herein is consistent with the applicable FCC Rules and Regulations and accepted industry practice.

  
\_\_\_\_\_  
Sheldon Leader  
Associate Vice President

October 27, 2000

Edwards and Kelcey, Inc.

## **REFERENCES**

47 CFR, FCC Rules and Regulations, Section 1.1301 *et seq.*

FCC Second Memorandum Opinion and Order and Notice of Proposed Rulemaking (FCC 97-303), *In the Matter of Procedures for Reviewing Requests for Relief From State and Local Regulations Pursuant to Section 332(c)(7)(B)(v) of the Communications Act of 1934 (WT Docket 97-192), Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation (ET Docket 93-62), and Petition for Rulemaking of the Cellular Telecommunications Industry Association Concerning Amendment of the Commission's Rules to Preempt State and Local Regulation of Commercial Mobile Radio Service Transmitting Facilities*, released August 25, 1997.

FCC First Memorandum Opinion and Order, ET Docket 93-62, *In the Matter of Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation*, released December 24, 1996.

FCC Report and Order, ET Docket 93-62, *In the Matter of Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation*, released August 1, 1996.

FCC Office of Engineering and Technology (OET) Bulletin 65, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields", Edition 97-01, August 1997.

FCC Office of Engineering and Technology (OET) Bulletin 56, "Questions and Answers About Biological Effects and Potential Hazards of RF Radiation", 1989.

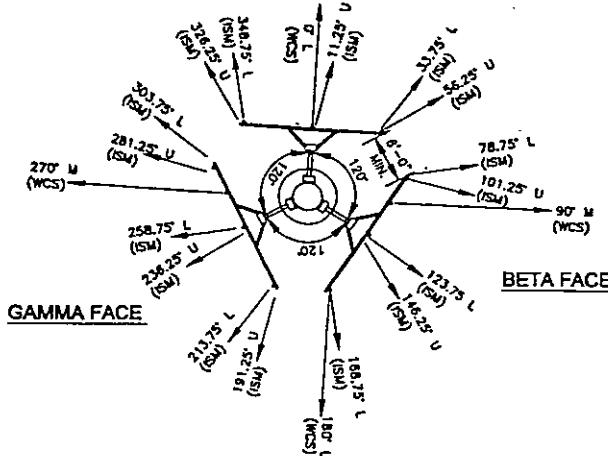
Richard Tell, "CTIA's EME Design and Operation Considerations for Wireless Antenna Sites", November 15, 1996.

**ATTACHMENT A**

***SITE DATA***

CARRIER		<b>Metricom, Inc.</b>	
CONTACT PERSON		Julian Pedini - WFI (201) 476-1078 (201) 326-3044 julian.pedini@wfinet.com	
LOCATION	Site Address Township, State Carrier Site Identification Number Date Report Required	741 Flanders Rd. Groton, CT NYC0007 10/30/00	ISM WCS
FREQUENCY	Transmit Frequency Range: Lower Transmit Frequency Range: Upper	902 - 928 MHz 2400 - 2483.5 MHz	2345 - 2350 MHz
TOWER	Existing or Proposed Monopole or Lattice or Building Height of Tower or Building (feet)	Existing Monopole 147' (Metricom @ 133')	
ANTENNAS	Model Gain (dBd)- lower band Gain (dBd)- upper band Height of Rad. Center (feet) Downtilt (degrees) Total Number Number per Sector	Larsen Antennas (108 426-200) 6 dBi 15 dBi 133' 0 16 2 sectors w/ 5 antennas per sector 1 sector with 6 antennas	DB 977 H70N-S 17 dBi 133' 0 4 1
	No.of Transmit Antennas per sector No. of channels/antenna Max ERP / antenna- lower band Max ERP / antenna- upper band	5 or 6 transmit/ receive antennas spread spectrum freq. hopping 34 dBm 40 dBm	1 transmit/ receive antennas spread spectrum freq. Hopping 60 dBm
RF ENGINEER	Name Phone Fax e-mail	Daniel Penesso (201) 476-0736 (201) 476-1111 daniel.penesso@wfinet.com	Stan Moreyno (201) 476-1981 (201) 476-1111 stan.moreyno@wfinet.com
COLLOCATORS	Carrier Names Heights of Carrier Installations (feet)	Omnipoint (Voicestream) @ 146' Metricom @ 133' (Proposed)	

ALPHA FACE



BETA FACE

EXISTING TOWN ANTENNA WHIPS (TYP. OF 2)

EXISTING OMNIPOINT ANTENNAS (TYP. OF 3) AND PLATFORM

PROPOSED METRICOM ISM/WCS ANTENNAS MOUNTED ON ANTENNA FRAME

EXISTING 150' MONOPOLE

2 ANTENNA ORIENTATION  
SC-1 SCALE: N.T.S.

PROPOSED METRICOM ETHERNET/COAXIAL/GROUND CABLES ROUTED UP ALONG EXISTING MONOPOLE. ETHERNET CABLE ENCASED IN 2" GRC CONDUIT.

146'-0" TOP OF EXISTING MONOPOLE

135'-8" PROPOSED METRICOM ISM/WCS ANTENAS CENTERLINE

PROPOSED METRICOM COAXIAL CABLES, GROUND WIRE, AND ETHERNET CABLES TO UTILIZE LOWER MONOPOLE CABLE PORT.

APPROXIMATE GRADE



2 MONOPOLE ELEVATION  
SC-1 SCALE: 1"=10'-0"





