

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

Internet: ct.gov/csc

Daniel F. Caruso
Chairman

October 31, 2008

Steven L. Levine
Real Estate Consultant
New Cingular Wireless PCS, LLC
500 Enterprise Drive
Rocky Hill, CT 06067

RE: **EM-CING-155-080917** - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 1030 New Britain Avenue, West Hartford, Connecticut.

Dear Mr. Levine:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice dated September 19, 2008, including the placement of all necessary equipment and shelters within the tower compound. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

Thank you for your attention and cooperation.

Very truly yours,

S. Derek Phelps
Executive Director

SDP/MP/jb

- c: The Honorable Scott Slifka, Mayor, Town of West Hartford
- Barry M. Feldman, Town Manager, Town of West Hartford
- Mila Limson, Town Planner, Town of West Hartford
- Ten Thirty Tower Company



Affirmative Action / Equal Opportunity Employer



New Cingular Wireless PCS, LLC
500 Enterprise Drive
Rocky Hill, Connecticut 06067-3900
Phone: (860) 513-7636
Fax: (860) 513-7190

EM-CING-155-080917

Steven L. Levine
Real Estate Consultant

HAND DELIVERED

ORIGINAL



September 19, 2008

Honorable Daniel F. Caruso, Chairman,
and Members of the Connecticut Siting Council
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

CONNECTICUT
SITING COUNCIL

Re: New Cingular Wireless PCS, LLC Request for Re-Acknowledgment of a
Previously-Acknowledged Notice of Exempt Modification

EM-CING-155-080917 1030 New Britain Avenue, West Hartford

Dear Chairman Caruso and Members of the Council:

On September 17, 2008, New Cingular Wireless ("AT&T") submitted a letter and checks totaling \$8,000, requesting re-acknowledgment of 16 notices of exempt modification. These notices had been filed and approved in 2006 with a 1-year expiration date, but AT&T had not initiated or completed the approved site modifications within the year allowed by the Council. Accordingly, the acknowledgments expired and AT&T is now requesting re-acknowledgment so the site modifications may proceed.

Acting upon the 9/17/08 letter, Council staff assigned 16 new EM numbers and requested additional information from AT&T for each site. The request concerned the status of structural analysis records presently in the Council's files, i.e., did the latest structural in Council files for each site incorporate the modifications approved for AT&T in 2006?

We have assessed this matter and have found that the existing structural analysis in Council files for the referenced site *does* include AT&T's modifications approved by the Council in 2006. The 2006 approval for Cingular is the latest action for the site that affects tower loading.

AT&T, therefore, respectfully requests that the Council acknowledge the referenced Notice of Exempt Modification so that its planned site modifications may proceed.

Please feel free to call me at (860) 513-7636 with questions concerning this matter. Thank you for your consideration.

Sincerely,

Steven L. Levine
Real Estate Consultant

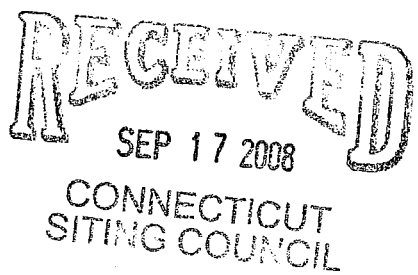


New Cingular Wireless PCS, LLC
500 Enterprise Drive
Rocky Hill, Connecticut 06067-3900
Phone: (860) 513-7636
Fax: (860) 513-7190

Steven L. Levine
Real Estate Consultant

HAND DELIVERED

September 17, 2008



Honorable Daniel F. Caruso, Chairman,
and Members of the Connecticut Siting Council
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

Re: New Cingular Wireless PCS, LLC Request for Re-Acknowledgment of Sixteen Previously-Acknowledged Notices of Exempt Modification

Dear Chairman Caruso and Members of the Council:

In order to accommodate technological changes, implement Uniform Mobile Telecommunications System ("UMTS") capability, and enhance system performance in the State of Connecticut, New Cingular Wireless PCS, LLC ("AT&T") plans to modify the equipment configurations at many of its existing cell sites. This program has been in progress since 2006.

In 2006, AT&T submitted a number of Notices of Exempt Modification and received the Council's acknowledgments, each carrying a 1-yr expiration provision. On-site installation was completed at most of the cell sites within the ensuing year. However, for a number of sites the work was either not begun or not completed before expiration of the Council's approval.

At this time AT&T intends to finish UMTS modifications at the affected sites and hereby requests the Council's re-acknowledgment for sixteen of the earlier Notices of Exempt Modification. For each site, we herewith submit a filing fee of \$500.

For each site, the materials required for a notice of exempt modification are already in the Council's files owing to the earlier filings, and the currently-proposed modifications are the same as those previously acknowledged by the Council. Therefore, we are submitting AT&T's request for re-acknowledgment in this form to avoid needless waste of paper.

The sites and the earlier Exempt Modification Notices are:

2 West Street, Rocky Hill	EM-CING-119-007-155-064-060623
260 Beckley Road, Berlin	EM-CING-119-007-155-064-060623
123 Costello Road, Newington	EM-CING-064-043-155-094-060609
179 Shunpike Road, Cromwell	EM-CING-033-017-060728
290 Preston Avenue, Middletown	EM-CING-033-080-083-060525
945 East Center Street, Wallingford	EM-CING-148-101-060-060609
992 Northrop Road, Wallingford	EM-CING-084-148-014-060623
10 Bona Street, Milford	EM-CING-014-084-060602
438 Bridgeport Avenue, Milford	EM-CING-084-060728
185 Research Drive, Milford	EM-CING-084-148-014-060623
4 Beaver Road, Branford	EM-CING-084-148-014-060623
150 North Main Street, Branford	EM-CING-014-148-060707
123 Meadow Street, Hartford	EM-CING-119-007-155-064-060623
92 Weston Street, Hartford	EM-CING-064-119-060707
1030 New Britain Avenue, West Hartford	EM-CING-119-007-155-064-060623
310 Orange Street, New Haven	EM-CING-093-084-060613

For the foregoing reasons, AT&T respectfully requests that the Council re-acknowledge the sixteen referenced Notices of Exempt Modification so that its planned site modifications may proceed.

Please feel free to call me at (860) 513-7636 with questions concerning this matter. Thank you for your consideration.

Sincerely,



Steven L. Levine
Real Estate Consultant

99 Meadow Street, Hartford, CT

**Summary Sheet
Project Location Map
Site Plan and Elevation
Structural Analysis
Elected Official Letter**

**CINGULAR WIRELESS
Proposed Modifications**

Site Address: 99 Meadow Street, Hartford, CT

Site Owner: American Tower

Type of Existing Facility: 150' high monopole and an 18'8" x 10'6" equipment shelter within a 48' x 49' compound; surrounded by chain link fence

Antenna Configuration: Center line – 137' above ground level; existing Allgon 7184 units to be replaced with six (6) Powerwave 7770 units; *specification attached*

TMA Configuration: Existing units to be replaced with twelve (12) LGP 214nn units; *specification attached*

Coaxial Cables: Nine (9) existing 1 5/8" diameter coaxial cables to remain and three (3) cables of the same dimension to be added

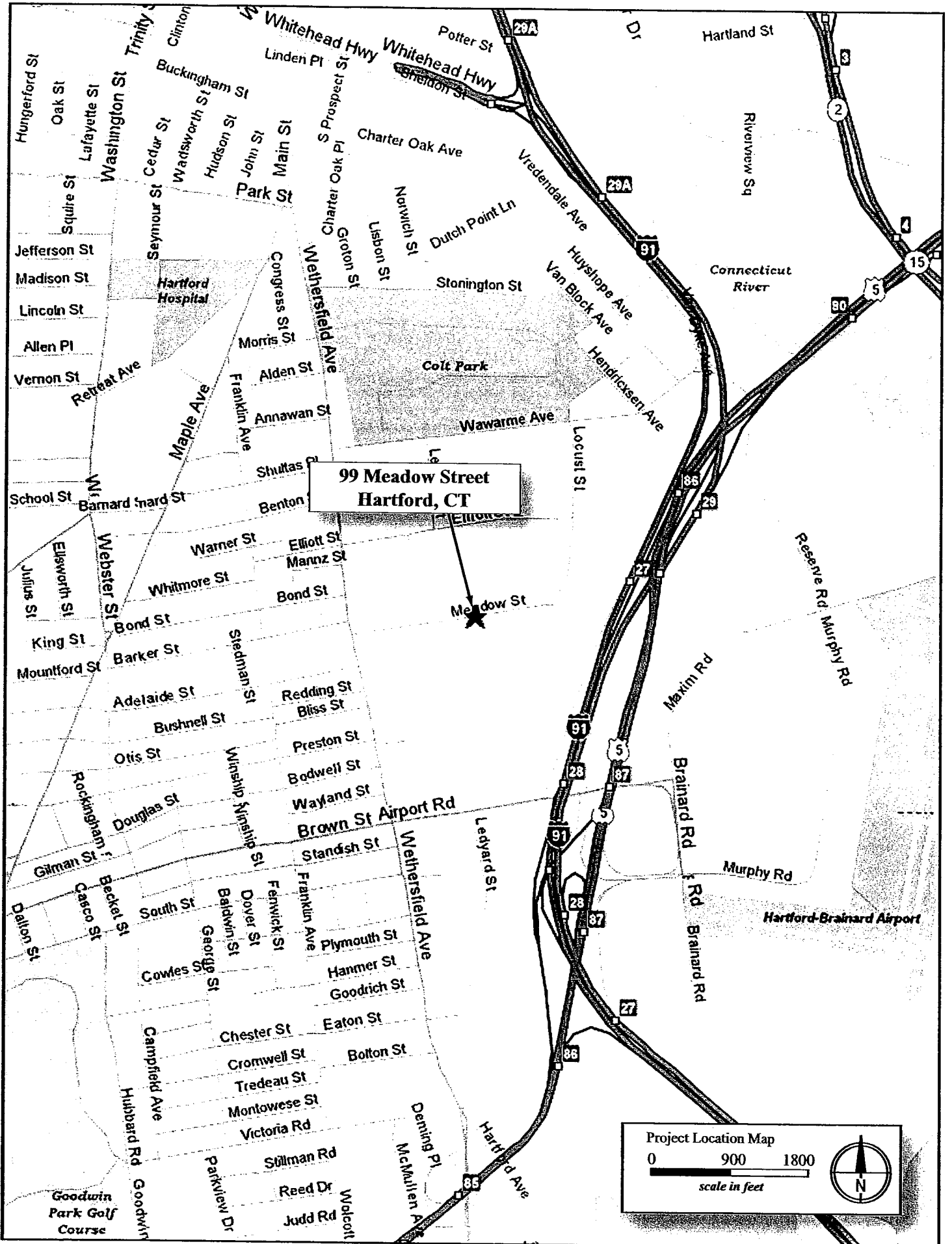
Other Work: Add one (1) Ericsson RBS 3206 equipment cabinet in the existing equipment shelter

Power Density:

As the table demonstrates, the cumulative worst-case exposure would be approximately 37.13% of the ANSI/IEEE standard, as calculated for mixed frequency sites. Total power density levels resulting from Cingular's use of the facility would be within applicable standards.

Site # 5127								
Carrier	Antenna Height (ft)	Freq. (MHz) For Limit	# of Channels	W ERP/Channel (ref 1/2-w dipole)	W EIRP/Sector	Power Density ($\mu\text{W}/\text{cm}^2$)	FCC Limit ($\mu\text{W}/\text{cm}^2$)	Percent of Limit (%)
Cingular UMTS	137	1935.0	1	500.0	820.0	9.6	1000	0.96%
Nextel	155	851.0	12	100.0	1968.0	18.0	567	3.17%
AT&T	137	1900.0	16	250.0	6560.0	76.6	1000	7.66%
T-Mobile	123	1900.0	4	301.8	1980.0	28.7	1000	2.87%
Sprint	98	1900.0	12	500.0	9840.0	224.7	1000	22.47%
TOTAL								37.13%

Structural Analysis: *Structural Analysis attached.*

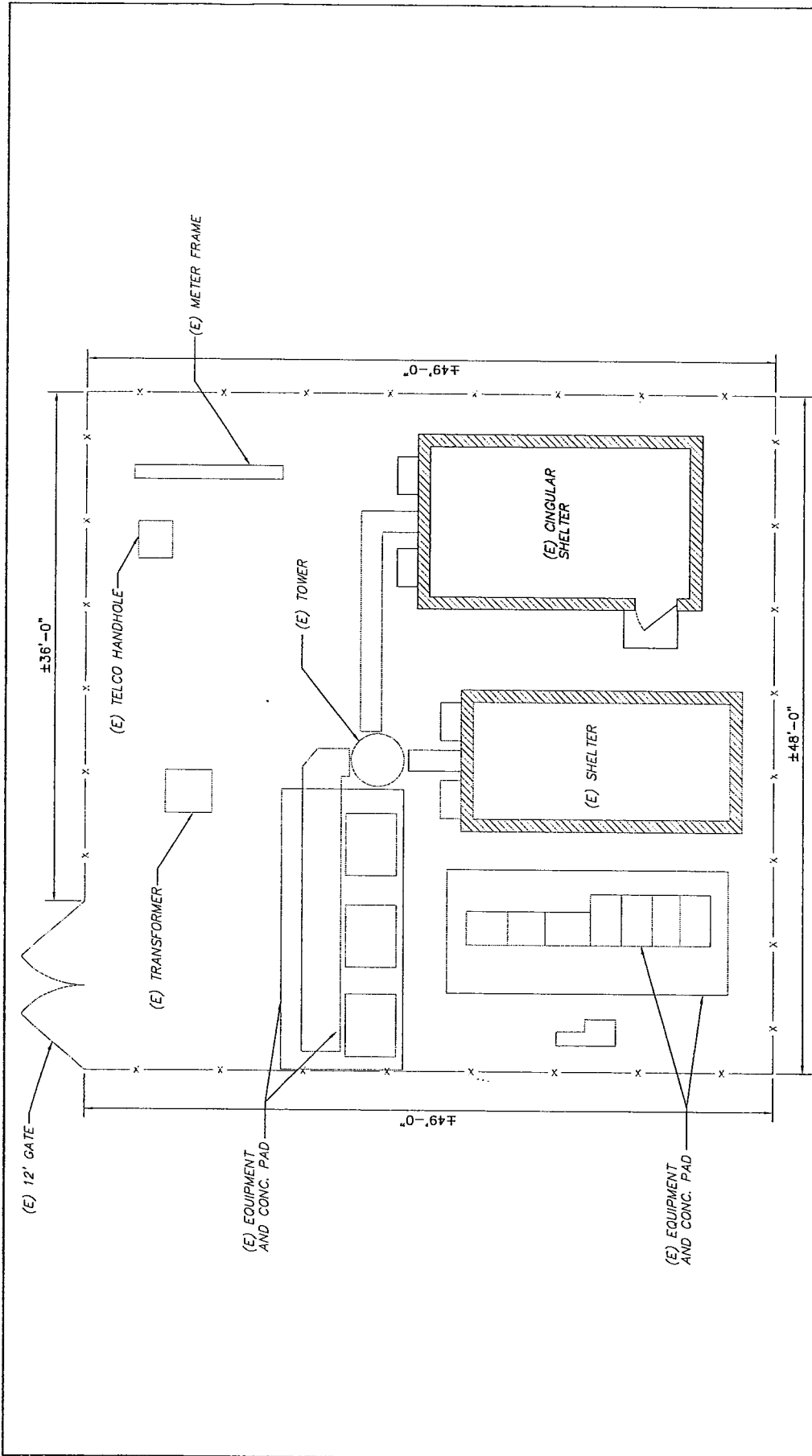


**99 Meadow Street
Hartford, CT**

Project Location Map

0 900 1800

scale in feet



COMPOUND LAYOUT
SCALE: 1" = 10'-0"

LATITUDE: 41° 44' 35.5"
LONGITUDE: 72° 40' 03.1"

cingular
CINGULAR WIRELESS
500 MAIN STREET
BOLTON, MA 01740

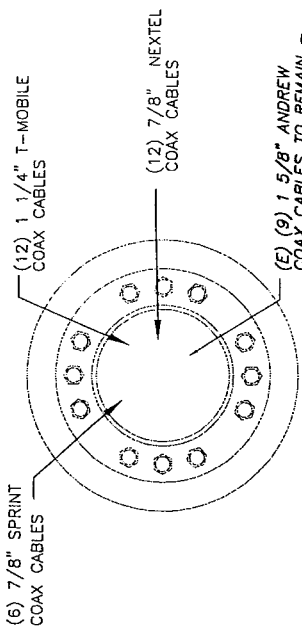
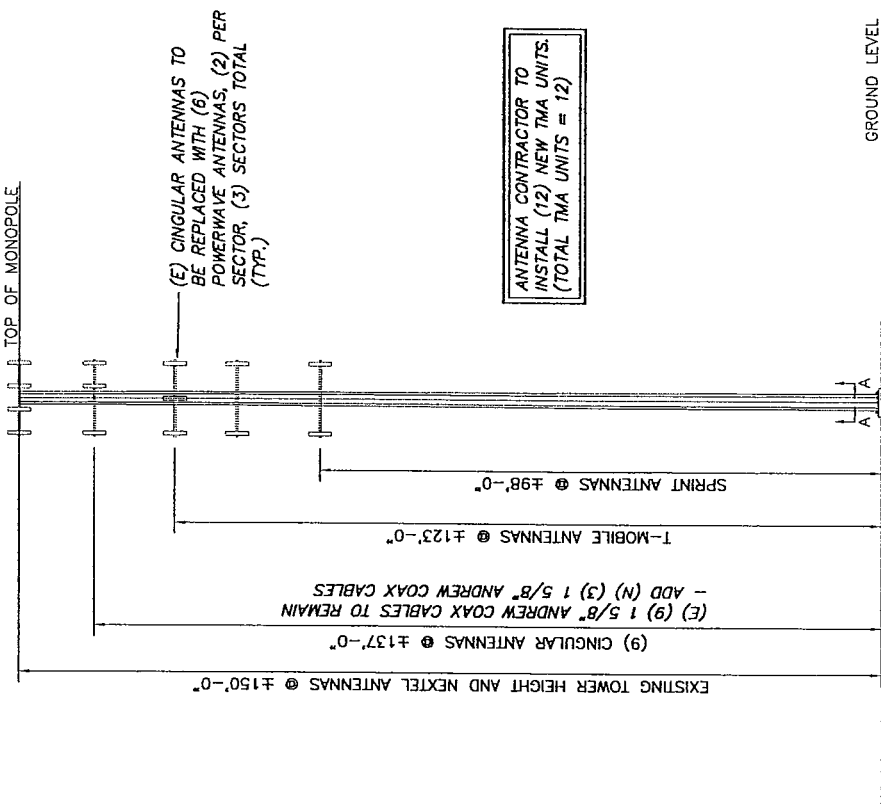
ERICSSON
6300 LEGACY DRIVE
PLANO, TX 75024

CH2MHILL
8619 WEST BRYN MAWR
CHICAGO, ILLINOIS 60631

infinigy
Engineering
300 GREAT OAKS BLVD.
SUITE 312
ALBANY, NY 12203
OFFICE: (518) 860-0790
FAX: (518) 860-0783
188-041

SITE NAME: I-91 -
ROUTE 5 SPLIT
SITE NUMBER: 5127
89 MEADOW STREET
HARTFORD, CT 06101

NO.	DATE	REVISION DESCRIPTION	BY	CHK APP'D
4	10/31/06	MISC. REVISIONS	PHR	CJM
3	10/18/06	MISC. REVISIONS	MAK	CJM
2	10/11/06	MISC. REVISIONS	PHR	CJM
1	10/4/06	MISC. REVISIONS	PHR	CJM
0	10/3/24/06	MISC. REVISIONS	DAD	CJM
SITE NUMBER			5127	



SECTION VIEW

ANTENNA CONTRACTOR TO INSTALL (12) NEW TMA UNITS. (TOTAL TMA UNITS = 12)

TOWER ELEVATION
SCALE: 1" = 30'-0"

LATITUDE: 41° 44' 35.5"
LONGITUDE: 72° 40' 03.1"

CINGULAR WIRELESS
500 MAIN STREET
BOLTON, MA 01740

ERISSON
6300 LEGACY DRIVE
PLANO, TX 75024

CH2MHILL
8619 WEST BRYN MAWR
CHICAGO, ILLINOIS 60631

infinigy
300 GREAT OAKS BLVD.
SUITE 312
ALBANY, NY 12203
OFFICE: (518) 860-0780
FAX: (518) 860-0785
185-041

SITE NAME: I-91 -
ROUTE 5 SPLIT
SITE NUMBER: 5127
99 MEADOW STREET
HARTFORD, CT 06101

NO.	DATE	REVISION DESCRIPTION	BY	CHK	APP'D
4	05/31/06	MISC. REVISIONS	PHR	CJW	CJW
3	04/18/06	MISC. REVISIONS	MAK	CJW	CJW
2	04/11/06	MISC. REVISIONS	PHR	CJW	CJW
1	04/10/06	MISC. REVISIONS	PHR	CJW	CJW
0	03/24/06	MISC. REVISIONS	DAD	CJW	CJW
SITE NUMBER			5127		



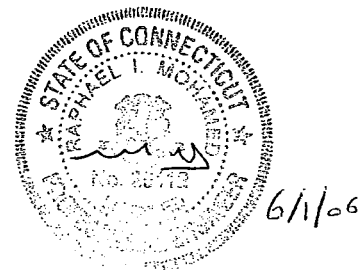
302468-PAT
6/01/2006

Level 1 Structural Evaluation ¹		
ATC Site Number & Name	302468, Petro Lock	Engineering ID: 26392011
Cingular Site Number & Name	CT 5127, I-91 Route 5 Split	
Site Address	99 Meadow Street Hartford, CT 06114 Hartford County	
Tower Description	148 ft FWT Monopole	
Standards & Codes ²	ANSI/TIA/EIA-222-F (1996) 80 mph w/ 0" radial ice 69.3 mph w/ 1/2" radial ice	2003 International Building Code 100 mph w/ 0" radial ice

Table 1: Existing and Proposed Antenna Configuration					
HEIGHT (ft)	ANTENNA	CARRIER	COAX	[I]/[O] ^a	STATUS
153	(12) 48" x 12" Panels on Platform w/ Handrails	Nextel	(12) 1-5/8"	I	Existing
135	(3) Allgon 7184.14 on Platform w/ Handrails	Cingular	--	--	Existing
135	(6) Powerwave 7770 (12) Powerwave LGP2140X on Platform w/ Handrails	Cingular	(12) 1-5/8"	I	Proposed
123	(9) EMS RR65-18-02DP on T-Arm Mounts	T-Mobile	(18) 1-5/8"	I	Existing
98	(9) Decibel 980F65T4E-M on Low Profile Platform	Sprint	(18) 1-1/4"	I	Existing
20	(1) Lucent 407517689 GPS on Side Arm	Sprint	(1) 1/2"	O	Existing

^a [I] / [O] denotes coax installed inside or outside of monopole respectively.

The subject tower and foundation *are adequate* to support the above stated loads in conformance with specified requirements. ³



Raphael I. Mohamed, P.E.
Engineering Manager

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Connecticut.

¹ The existing and proposed loads of *Table 1* are compared to the tower's current design capacity or previous analysis.

² The design wind criteria are compared to the current code requirements.

³ The tower should be re-evaluated as future loads are added or if actual loads are found different from those mentioned in *Table 1*.

Kise Straw & Kolodner

Architects Planners Historians Archaeologists

James Bennett Straw, AIA

Harvey D. Kolodner, MBA

22 June 2006

Honorable Eddie A. Perez
Mayor, City of Hartford
550 Main Street
Hartford, CT 06103

**RE: Notice of Exempt Modification – Existing Cingular
Telecommunications Tower Facility at 99 Meadow Street,
Hartford, Connecticut**

Dear Mr. Perez:

New Cingular Wireless PCS, LLC (“Cingular”) proposes to remove and replace telecommunications antennas and associated equipment located on an existing tower at the above-referenced location. The facility is now controlled and operated by Cingular whose corporate office is located at 500 Enterprise Drive, Rocky Hill, CT 06067.

Proposed Modifications

Cingular proposes to add one new equipment cabinet inside an existing equipment shelter. It plans to remove the existing antennas and replace them with a total of six (6) new antennas, located at an existing centerline height of approximately 137’ above ground level. Cingular will keep nine (9) existing 1 5/8” diameter coaxial cables and add three (3) more of the same dimension. The existing tower mounted amplifiers will be removed and replaced with twelve (12) new units, located at the same height as the antennas.

In summary, the final antenna configuration at 99 Meadow Street will include:

- 6 antennas,
- 12 coaxial cables, and
- 12 tower mounted amplifiers.

A structural evaluation has demonstrated that the tower will be structurally capable of supporting the proposed Cingular telecommunications equipment once the proposed modifications are complete.

James Nelson Kise, AIA/AICP/PP

James Bennett Straw, AIA

Harvey D. Kolodner, MBA

John R. Gibbons, AIA/AICP

Philip E. Scott, RA

Suzanna Barucco

LaVern Browne

Katherine E. Cowing, LEED

Johnette Davies

Petar D. Glumac, Ph.D.

Douglas S. Heckrotte, RA/LEED

Jody Holton, AICP

Marian Maxfield Hull, AICP/PP

Kise Straw & Kolodner Inc.
123 South Broad St.
Suite 1270
Philadelphia, PA 19109
(215) 790-1050 FAX (215) 790-0215
www.kski.com

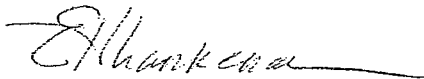
Statutory Considerations

The proposed work will not affect the height of the existing structure, nor will it alter the existing property boundaries. Furthermore, the proposed work will not increase noise levels at the facility's site boundary by six (6) decibels or more. Operation of additional antennas will not increase the radio frequency electromagnetic radiation power density, measured at the tower base, to or above the standard adopted by the State of Connecticut and the Federal Communications Commission.

A Notice of Exempt Modification has been filed with the Connecticut Siting Council (CSC) as required by the Regulations of Connecticut State Agencies (RCSA), Section 16-50j-73. Please accept this letter as notification to the City of Hartford under Section 16-50j-73 that the proposed work constitutes an exempt modification pursuant to RCSA Section 16-50j-72(b)(2).

Should you have any questions or require additional information about the plans or the CSC's procedures, please do not hesitate to contact me (215.790.1050 ext. 138) or Mr. Derek Phelps, Executive Director, Connecticut Siting Council (860.827.2935).

Sincerely,



Elizabeth H. Lankenau, AICP
Planner

Specifications for Proposed New Equipment

**Ericsson RBS Equipment Cabinet
Powerwave 7770 Antenna
Powerwave LGP 214nn Tower Mounted Amplifier**

3 Dimensions

This section describes the physical characteristics of the RBS: dimensions, weight, and color.

Table 1 The RBS Dimensions

Unit	Dimensions (mm)
Height	1626
Width	1300
Depth	710
Depth including door	926

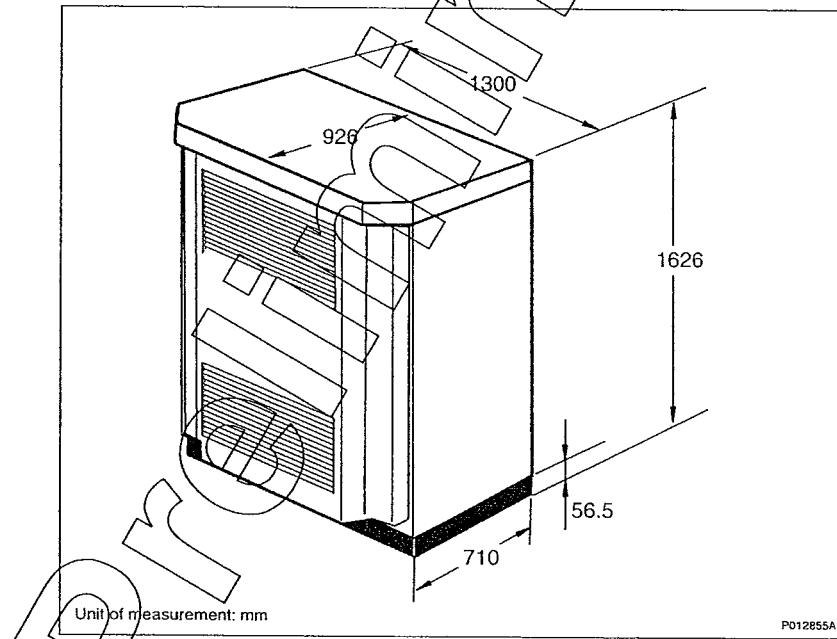


Figure 2 RBS 3106 Dimensions

The RBS weight is shown in the table below.

Table 2 The RBS Weight

Unit	Weight (kg)
RBS fully equipped excluding batteries	560
RBS fully equipped including batteries	850
RBS fully equipped including batteries and future expansion of hardware (not yet available)	875
Installation frame	12

The RBS color is shown in the table below.

Table 3 The RBS Color

Color	Color Standard
Grey	RAL 7035
Green	NCS 8010-G 10 Y

Preliminary

Dual Broadband Antenna

90° 1.4 m MET Antenna

806-960/1710-2170 MHz

Part Number:
7770.00

Horizontal Beamwidth: 90°
Gain: 13.5/16 dBi

Electrical Downtilt: Adjustable
Connector Type: 7/16 female

The Powerwave dual band dual polarized broadband antenna has individual adjustable electrical downtilt per band (upgradeable to Remote Electrical Tilt (RET)). Four connector ports allow separate tilts on each frequency band and ensure the use of diversity concepts. The phase shifter technology, based on a patented sliding dielectric, minimizes intermodulation distortion and maximizes efficiency. The slant +/- 45° dual polarization system provides the independent fading signals needed for achieving top-quality coverage via diversity concepts. The Powerwave Broadband antenna design is based on a patented stacked aperture-coupled patch technology, which provides high isolation performance and a wide VSWR bandwidth. The antennas have superior radiation patterns due to a unique reflector design which provides a very small variation of the -3dB horizontal beam width over the frequency band as well as a high front-to-back ratio.



Key Benefits

- Excellent broad- and multi-band capabilities
- Polarization purity makes good diversity gain
- Excellent pattern performance and high gain over frequency
- High passive intermodulation performance
- Light, slim and robust design

Preliminary

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

COVERAGE
SYSTEMS

THE POWER IN WIRELESS®

 **Powerwave**
technologies

806-960/1710-2170 MHz

Dual Broadband Antenna

Electrical Specifications (Preliminary)

Frequency band (MHz)	806-960	1710-2170
Gain, ± 0.5 dB (dBi)	13.5	16.0
Polarization	Dual linear $\pm 45^\circ$	
Nominal Impedance (Ohm)	50	
VSWR	1.5:1	
VSWR		1.5:1
Isolation between inputs (dB)	30	
Isolation between inputs (dB)		30
Inter band isolation (dB)	40	
Horizontal -3 dB beamwidth	$85 \pm 5^\circ$	$85 \pm 5^\circ$
Tracking, Horizontal plane, $\pm 60^\circ$ (dB)	<2.0	
Tracking, Horizontal plane, $\pm 60^\circ$ (dB)		<2.0
Electrical downtilt range (adjustable)	0° to 10°	0° to 8°
Vertical -3 dB beamwidth	$14.3 \pm 2.0^\circ$	$6.6 \pm 1^\circ$
Sidelobe suppression, Vertical 1 st upper (dB)	>17,16,15 x=0, 5, 10° MET	> 17, 16, 15 x=0, 4, 8° MET
Vertical beam squint	<0.8°	<0.5°
First null-fill (dB)	<-25	<-25
Front-to-back ratio (dB)	>25	>27
Front-to-back ratio, total power (dB)	>20	>23
IM3, 2Tx@43dBm (dBc)	<-153	
IM3, 2Tx@43dBm (dBc)		<-153
IM7, 2Tx@43dBm (dBc)		<-160
Power Handling, Average per input (W)	400	250
Power Handling, Average total (W)	800	500

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Connector Type	4 x 7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1408mm x 280mm x 125mm (55"x11"x5")
Weight Including Brackets	15.8 kg (35 lbs)
Wind Load, Frontal, 42m/s Cd=1	435N (98 lbf)
Survival Wind Speed (m/s)	70 (156mph)
Lightning Protection	DC grounded
Radome Material	GRP
Radome Color	Light Gray
Mounting	Pre-mounted Standard Brackets
Packing Size	1550mm x 355mm x 255mm (61"x14"x10")

Corporate Headquarters
Powerwave Technologies, Inc.
1801 East St. Andrew Place
Santa Ana, CA 92705 USA
Tel: 714-466-1000
Fax: 714-466-5800
www.powerwave.com

Main European Office
Antennvägen 6
SE-187 80 Täby
Sweden
Tel: +46 8 540 822 00
Fax: +46 8 540 823 40

Main Asia Pacific Office
23 F Tai Yau Building
181 Johnston Road
Wanchai, Hong Kong
Tel: +852 2512 6123
Fax: +852 2575 4860



©Copyright March 2005, Powerwave Technologies, Inc. All Rights reserved. Powerwave, Powerwave Technologies, The Power in Wireless and the Powerwave logo are registered trademarks of Powerwave Technologies, Inc.



Tower Mounted Amplifier

Dual Band 1900 MHz with 850 MHz Bypass

1900/850 MHz

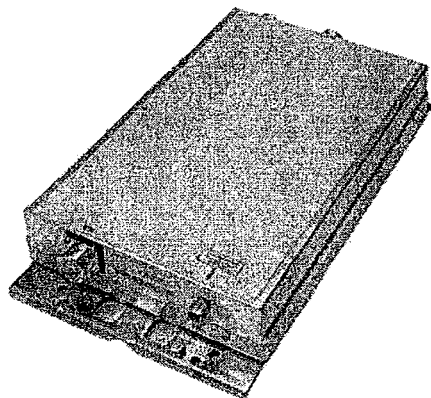
Part Number:
LGP 214nn

Up-link: 1850-1910 MHz
Down-link: 1930-1990 MHz
Bypass: 824-894 MHz

Gain: 12 dB
Noise Figure: < 1.7 dB

The Powerwave® TMA-DD 1900/850 is a dual band Tower Mounted Amplifier (TMA) to be installed near the antenna. Deployed in an AMPS, GSM, GPRS, EDGE and CDMA network it will increase capacity and coverage as well as extend the battery life time for the handsets. The TMA System will provide enhanced coverage and improved up-link signal quality. Appropriate for new rollouts by optimizing coverage with a reduced number of BTSs or as an upgrade to existing BTSs for enhancing the existing coverage.

Extended band TMA facilitates simplified logistics, especially when the frequency bands are scattered. The unit comprises of high Q band-pass filters, dual balanced low noise amplifiers with circuits for active bias, supervision, alarms and lightning protection circuit. The Powerwave patented design with all active components integrated within the filter body provides an extremely reliable, compact and lightweight TMA solution. The vented enclosure design is employed to prevent the effect of condensation, thereby guaranteeing long, reliable, maintenance-free service in all environmental conditions. These TMAs offer an easy to install, maintenance free, cost effective solution for coverage enhancement and increased quality in mobile communication networks.



Key Benefits:

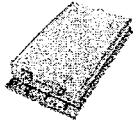
- 850 MHz Bypass
- Improved Network Quality
- Increased Coverage
- State of the Art Performance
- Excellent Power Handling
- Low Tx Loss
- Exceptional Reliability

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

COVERAGE
SYSTEMS

Tower Mounted Amplifier



1900/850 MHz

Technical Specifications

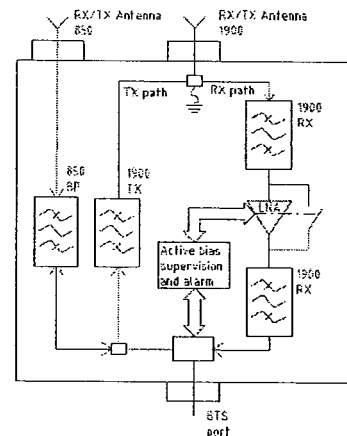
Product Number	LGP214nn	
850 MHz	Bypass (MHz)	824-894
	Return loss* (dB)	> 20
	Insertion loss* (dB)	< 0.3
1900 MHz	Frequency range, full band (60 MHz)	
Up-link	Nominal gain (dB)	12
	Return loss* (dB)	> 20
	Noise figure* (dB)	< 1.7
	Output 3rd order Intercept Point* (dBm)	> +23
Down-link	Frequency range, full band (60 MHz)	
	Insertion loss* (dB)	< 0.6
	Return loss* (dB)	> 20
Intermodulation	2-Tx@x43 dBm (dBc)	<-158
Alarm Functionality	Two levels, individually supervised LNAs	
Power Consumption	@12 VDC	1.2 W

* Typical

All specifications subject to change without notice. Please contact your Powerwave representative for complete performance data.

Mechanical Specifications

Size, W x H x D (without mounting plate)	235 x 366 x 66 mm (9.2 x 14.4 x 2.6 in)
Weight	6.4 kg (14.1 lbs)
Color	Off white (NCS 1502-R)
Housing	Aluminum
RF-connectors	DIN 7/16 female.
Mounting kit	Mounting kit for pole and wall is included
Temperature range	-40 °C to +65 °C (-40 °F to +149 °F)
MTBF	>1 million hours
Safety	UL 60 950
Ingress protection, IP 65	EN 60 529
Environmental	ETS 300 019
EMC	FCC Part 15



Corporate Headquarters
Powerwave Technologies, Inc.
1801 East St. Andrew Place
Santa Ana, CA 92705 USA
Tel: 714-466-1000
Fax: 714-466-5800
www.powerwave.com

Main European Office
Antennvägen 6
SE-187 80 Täby
Sweden
Tel: +46 8 540 822 00
Fax: +46 8 540 823 40

Main Asia-Pacific Office
23 F Tai Yau Building
181 Johnston Road
Wanchai, Hong Kong
Tel: +852 2512 6123
Fax: +852 2575 4860



©Copyright 2006, Powerwave Technologies, Inc. All Rights reserved. Powerwave, Powerwave Technologies, The Power in Wireless and the Powerwave logo are registered trademarks of Powerwave Technologies, Inc.



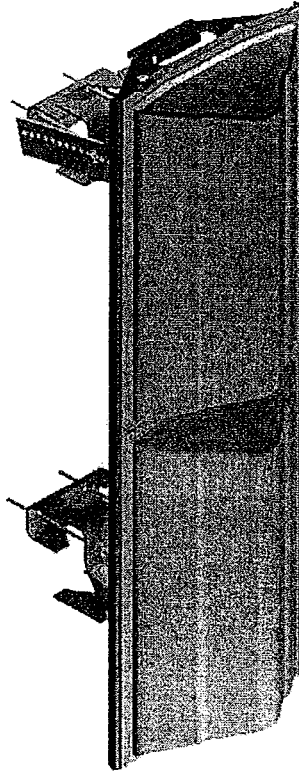
Specifications for Existing Antennas

DUO4-8670 / DUO 1417
Allgon 7250
Allgon 7184



Directing our energies for you.

Dual Band Antenna DUO1417-8686



86 & 86 Azimuth Beams
15 & 7 Elevation Beams
14.0 & 16.0 dBi Gain

- PCS & Cellular in One Package
- Independent Control of Electrical Beam Downtilt
- High Power Handling Capability
- Anti-Corrosion Design for Superb IM Performance
- Available With Optional Internal Dual Band Combiner



Directing our energies for you.

Dual Band Antenna DUO1417- 8686

Electrical Specifications

Cellular

PCS

Frequency Range	806-900 MHz	1850-1990 MHz
Gain	14.0 dBi	16.0 dBi
Electrical Downtilt Options	0, 2, 4 or 6 Degrees	0 or 4 Degrees
VSWR	1.35:1 Maximum	1.35:1 Maximum
VSWR (with -i option)	1.40:1 Maximum	1.40:1 Maximum
Front-to-Back at Horizon	> 25 dB	> 30 dB
Upper Side Lobe Suppression	< -17 dB	< -18 dB
Elevation Beam (3-dB Points)	15 Degrees	7 Degrees
Azimuth Beam (3-dB Points)	86 Degrees	86 Degrees
Polarization	Vertical	Vertical
Impedance	50 Ohms	50 Ohms
Power Input Rating	500 CW	200 CW
Intermodulation Specification	<-110dBm at 2x10W	<-110dBm at 2x10W

Mechanical Specifications

Input Connectors (female)	Two Back Mounted 7/16 DIN (Silver Finish)
Antenna Dimensions	48.4 x 14 x 9 Inches (10.7" deep with option 'i')
Antenna Weight	20.3 lbs
Antenna Weight (w/opt. 'i')	32.0 lbs
Bracket Weight	10.5 lbs
Lightning Protection	Direct Ground
RF Distribution	Cellular: Silver Plated Brass PCS: Printed Microstrip Substrate
Radome	Ultra High-Strength Luran
Weatherability	UV Stabilized, ASTM D1925
Radome Water Absorption	ASTM D570, 0.45%
Environmental	MIL-STD-810E
Wind Survival	150 mph
Front Wind Load at 100 mph	124 lbs
Front Flat Plate Equivalent	2.54 sq-ft. (c=2)
Mounting Brackets	Fits 2.5 to 3 Inch Schedule 40 Pipe
Mechanical Downtilt Range	0-12 Degrees in 1 Degree Increments
Clamps/Bolts	Hot Dip Galvanized Steel/Stainless Steel

Ordering Information

Model

DUO1417- 8686-xy

DUO1417-8686-xyi

Options

x=Electrical Downtilt at 800 MHz in Degrees (0, 2, 4 or 6)

y=Electrical Downtilt at 1900 MHz in Degrees (0 or 4)

i=Dual Band Combiner included as an internal device

CSS Antenna, Inc.

Tel: 410-612-0080 Fax: 410-612-0336

www.cssantenna.com

1900 & 800 MHz Dual Polarized Antenna

Electrical Specifications

7250
(XM-1900-65-18.5i)

Gain	16.5 dBd (18.5 dBi)
Polarization	linear, dual slant 45
VSWR, 50Ω	<1.3:1 (1850 MHz to 1990 MHz)
Horizontal 3dB beamwidth	65°
Vertical 3dB beamwidth	5.5°
Custom electrical downtilts	0°, 2°, & 4°
40 degree cone Front-to-back ratio	>25 dB co-polar, >20 dB total power
Cross-polar discrimination, boresite	>20 dB
Polarization Quality Ratio	20 dB (3dB beamwidth)/10 dB (forward sector)
Suppression of first upper side lobe	>20 dB
First lower null fill	N/A
Maximum CW input power	500W total at 250W per input
Two tone intermodulation 3rd order	<-110 dBm for 2x10W (150 dBc at 2x40 dBm)
Isolation between ports	>30 dB

Mechanical Specifications

Connector	7/16 DIN bottom mount
Height	61.3" (1560 mm)
Width	6.3" (160 mm)
Depth	2.2" (55 mm)
Weight	15.4 lbs (7 kg)
Survival wind speed	156 mph (70 m/s)
Maximum wind area	2.74 sq.ft (0.25 sq.m)
Frontal wind load @100mph (C=1)	71.9 lbf (320 N)

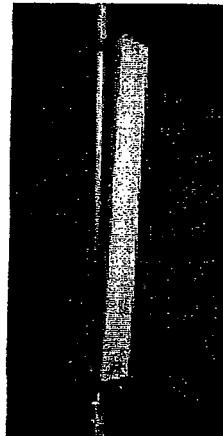
*All feed network components DC grounded for Lightning Protection

Mounting Hardware Options for Installation

- 1) Pole mount 2165.10
- 2) Combined pole mount/downtilt bracket 7254.10 (-0.6° to +13°)

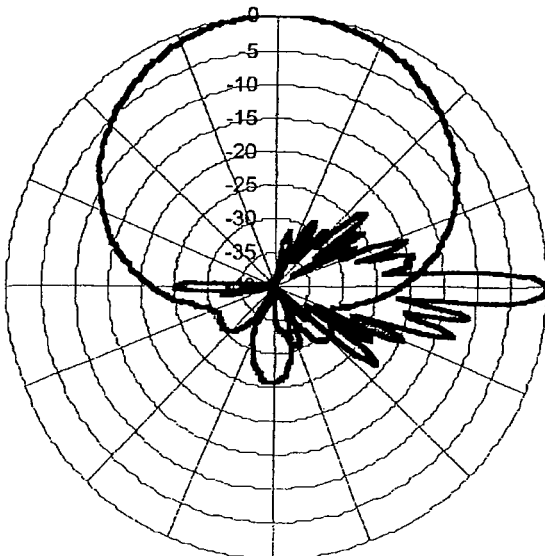
Comments

Gain is typical within frequency band.
 Beamwidths are defined using total power.
 Cross-polar discrimination is defined within -3 dB beamwidth.
 Front-to-back ratio is defined within 20° from the backwards direction in any plane.
 Sidelobe suppression and null fill is relative to peak of main beam.
 Maximum input power is total input power, divided arbitrarily between inputs.
 Radome color is NCS 2502-B (RAL 7035)(gray).



1900 & 800 MHz Dual Polarized

XM-1900-65-18.5i



Typical Horizontal and Vertical 7250.02 Patterns

For a complete list of released models pertaining to gain, electrical downtilt and connector placement, please see the quick reference guide on page 14.

A poster displaying a comparison of antenna patterns has been included at the back of the catalog.



Single Band Metro Antenna

90° 1.3 m vertical polarized FET Antenna

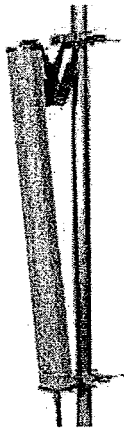
1850-1990 MHz

Part Number:
7184.42

Horizontal Beamwidth: 90°
Gain: 16.5 dBi / 14.4 dBd

Electrical Downtilt: 2°
Connector Type: 7/16 DIN female

The Powerwave single band Metro antenna has a slim design and sophisticated electrical performance, typical of Powerwave antennas. This ensures maximum efficiency as well as stable pattern over the entire frequency range. The design relies on a micro-strip PCB network. Special attention has been paid to ensure antenna pattern peak performance, making the Metro an excellent choice for optimal cell planning.



Key Benefits

- High gain performance
- Light and slim design
- Robust and reliable
- Pre-mounted brackets
- Guaranteed passive intermodulation performance

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

COVERAGE
SYSTEMS

THE POWER IN WIRELESS®

 **Powerwave**
technologies

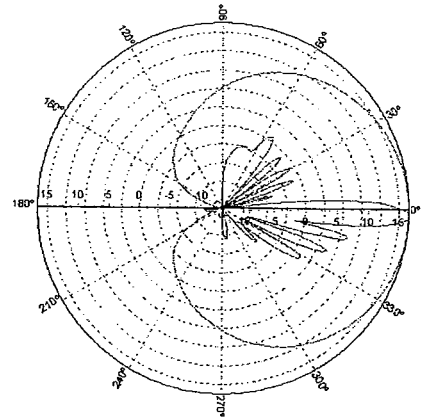
1850-1990 MHz

Single Band Metro Antenna

Electrical Specifications

Frequency Band (MHz)	1850 – 1990
Gain (dBi / dBd)	16.5 / 14.4
Polarization	Linear vertical
Nominal Impedance (Ohm)	50
VSWR (1850-1990 MHz)	< 1.3:1
Horizontal -3 dB beamwidth	90°
Electrical downtilt	2°
Vertical -3 dB beamwidth	6.5°
First upper sidelobe suppression (dB)	> 18
Front-to-back ratio, co-polar (dB)	> 27
Power Handling, Average total (W)	400
IM3, @2x43dBm (dBc)	<-146

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7184.42 Patterns

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1300x126x80mm (4' 3"x5"x3")
Weight Including Bracket	8.7 kg (19 lbs)
Wind Load, Frontal, 42 m/s, Cd=1	181N (41 lbf)
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	1410x190x140mm (4' 7"x7"x6")
Shipping Weight	9.7 kg (21.1lbs)

Corporate Headquarters
Powerwave Technologies, Inc.
1801 East St. Andrew Place
Santa Ana, CA 92705 USA
Tel: 714-466-1000
Fax: 714-466-5800
www.powerwave.com

Main European Office
Antennvägen 6
SE-187 80 Täby
Sweden
Tel: +46 8 540 822 00
Fax: +46 8 540 823 40

Main Asia Pacific Office
23 F Tai Yau Building
181 Johnston Road
Wanchai, Hong Kong
Tel: +852 2512 6123
Fax: +852 2575 4860



©Copyright February 2003, Powerwave Technologies, Inc. All Rights reserved. Powerwave, Powerwave Technologies, The Power in Wireless and the Powerwave logo are registered trademarks of Powerwave Technologies, Inc.

