



EM-T-MOBILE-062-081210

December 09, 2008

Via Federal Express

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CONNECTICUT
SITING COUNCIL

S. Derek Phelps, Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

**Re: Notice of Exempt Modification
FNS Associates LLC Telecommunications Facility
1245 Dixwell Avenue, Hamden, Connecticut**

Dear Mr. Phelps:

Omnipoint Communications, a subsidiary of T-Mobile USA, Inc. ("T-Mobile"), intends to replace existing antennas, install additional antennas and replace existing ground equipment at the existing 100-foot flagpole facility owned by FNS Associates LLC and located at 1245 Dixwell Avenue, Hamden, Connecticut ("Facility"). T-Mobile is licensed by the Federal Communications Commission (FCC) to provide PCS wireless telecommunications service in the State of Connecticut, which includes the area to be served by the proposed installation. This installation constitutes an exempt modification pursuant to the Public Utility Environmental Standards Act, Connecticut General Statutes Section 16-50g *et. seq.* (PUESA), and Section 16-50j-72(b)(2) of the Regulations of the Connecticut State Agencies adopted pursuant to PUESA. In accordance with R.C.S.A. Section 16-50j-73, a copy of this notice has been sent to, Craig Henrici, Mayor, Town of Hamden.

The existing Facility consists of a 100-foot self-supporting flagpole tower capable of supporting multiple carriers within a fenced compound and was previously approved by the Town of Hamden. The coordinates for the Facility are approximately **Lat: 41°-20'-45"** and **Long: 72°-55'-58"**. The tower is located in the southern portion of Hamden, roughly 430 feet east of Dixwell Avenue (Route 10), and approximately 130 feet north of Putnam Avenue (see Site Map, attached as Exhibit A). The tower currently supports T-Mobile's antennas, internally mounted, at the ninety seven foot (97') level centerline AGL (above ground level) and additional T-Mobile antennas at the ninety foot (90') level centerline AGL. T-Mobile proposes to replace its existing six (6) antennas with six (6) GSM dual pole antennas. In addition, T-Mobile intends to install three APXV18-206516S-C-A20, internally flush mounted antennas on the tower at the ninety foot centerline (90') AGL underneath the proposed GSM dual pole antennas. T-Mobile also intends to replace its two existing equipment cabinets with a UMTS 3106 equipment cabinet and a S18000 equipment cabinet, both to be mounted on T-Mobile's existing equipment pad contained within T-Mobile's existing twelve foot by five and one half foot (12'-0" x 5'-6") lease area. T-Mobile intends to run new coaxial cable on its existing ice bridge from its equipment pad to the existing flagpole. Utilities will be run via a proposed underground conduit from existing utility sources at the Facility (See Design Drawings and Equipment Specifications, attached as Exhibits B and C respectively).

For the following reasons, the proposed modifications to the Dixwell Avenue Facility meet the exempt modification criteria set forth in R.C.S.A. Section 16-50j-72(b)(2):

1. The proposed modification will not increase the height of the tower as T-Mobile seeks to replace its existing antennas and install new antennas at a center line height of approximately 90 feet.
2. The installation and replacement of T-Mobile's antennas and ground equipment will not require an extension of the site boundaries.
3. The proposed modifications will not increase the noise levels at the existing Facility by six decibels or more.
4. The operation of the additional antennas will not increase the total radio frequency (RF) power density, measured at the site boundary, to a level at or above the standard adopted by the Connecticut Department of Environmental Protection as set forth in Section 22a-162 of the Connecticut General Statutes and MPE limits established by the Federal Communications Commission. The worst-case RF power density calculations for the proposed Pocket antennas would be 15.1334% of the FCC standard (see general power density calculations table, attached as Exhibit D).

Also attached, Exhibit E, is a structural assessment confirming that the tower can support the existing and proposed antennas and associated equipment. Of note, because all antennas are internally mounted in the flagpole, the additional three antennas will not increase the ice and winding loading for the tower.

For the foregoing reasons, T-Mobile respectfully submits that the proposed antenna installation and equipment at the Hamden Facility constitutes an exempt modification under R.C.S.A. Section 16-50j-72(b)(2).

Respectfully Submitted,



Mark R. Richard
UMTS Project Manager
Agent for T-Mobile

cc: Craig Henrici, Mayor
Putnam Place Improvements, LLC, underlying property owner

Hartford/TEMP.TEMP/CLARSON/339028v1

Exhibit A

Site Map

T-Mobile Site CT11400A

1245 Dixwell Avenue

Hamden, Connecticut

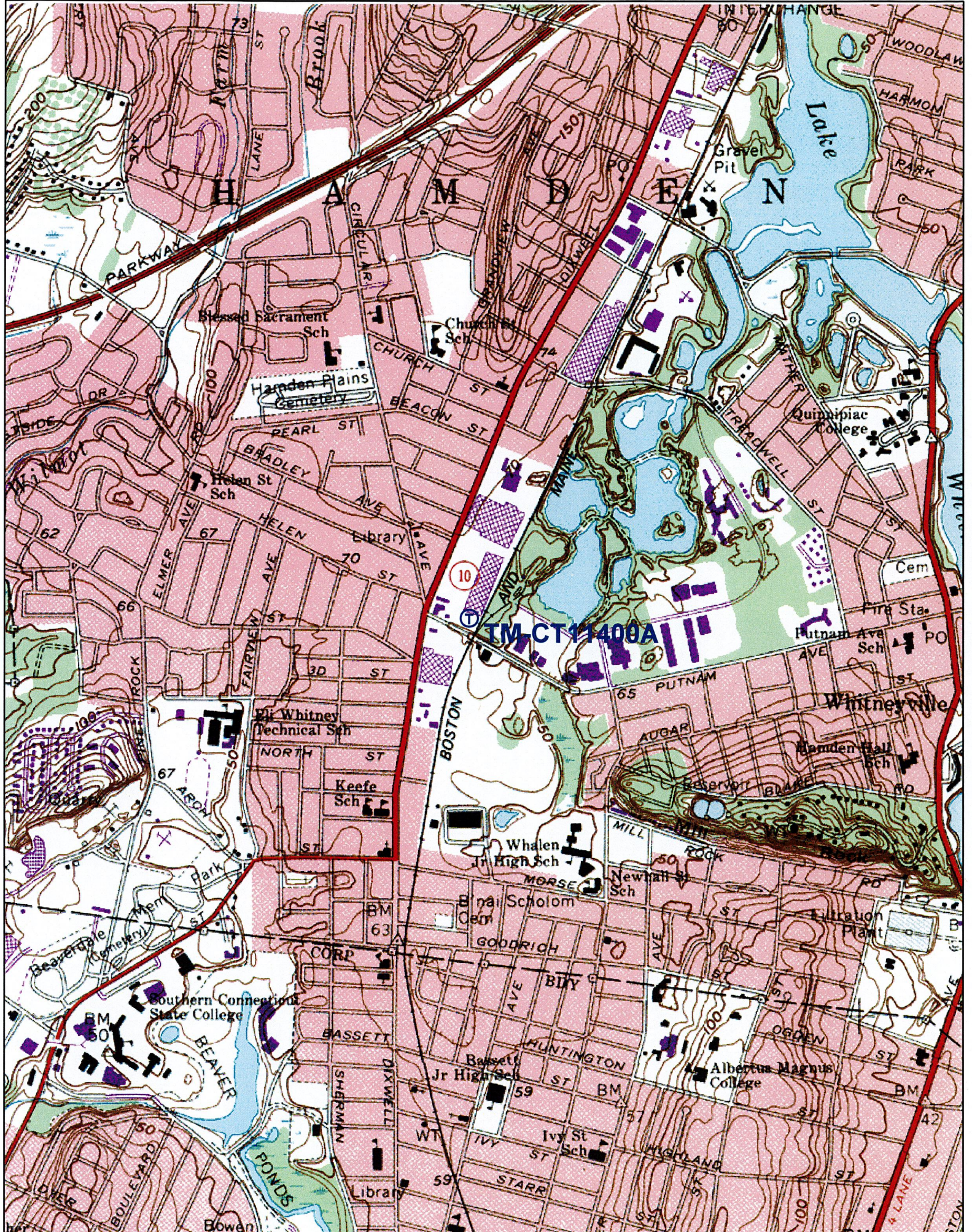


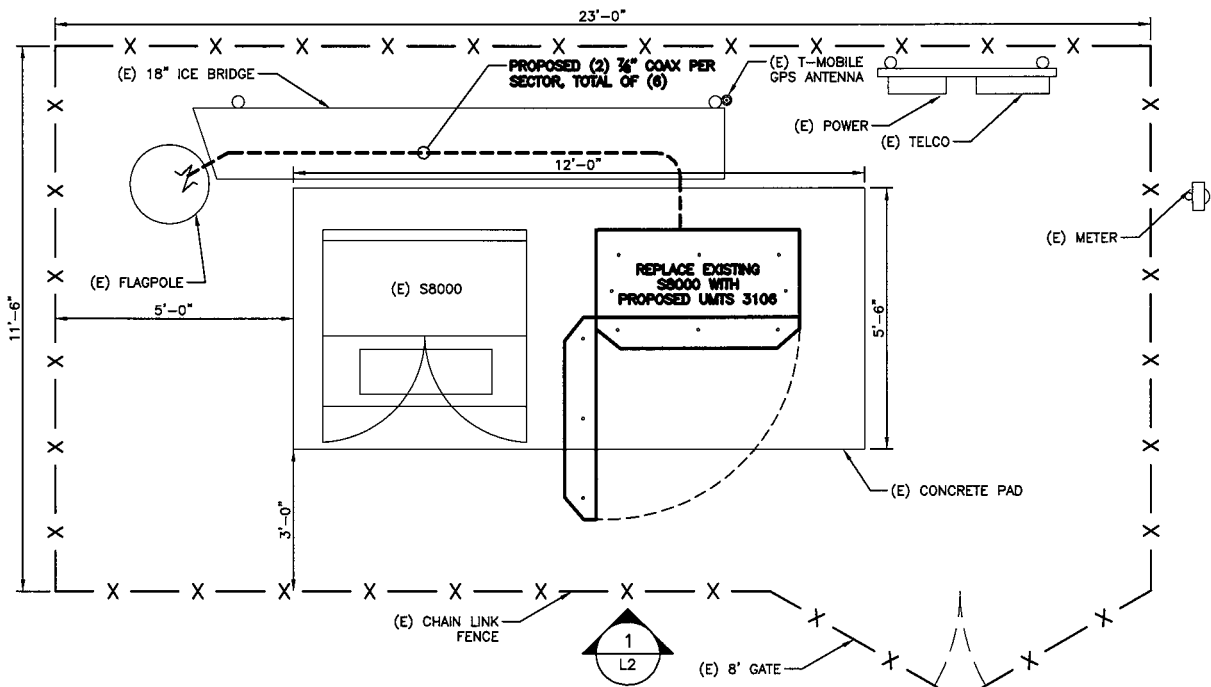
Exhibit B

Design Drawings

T-Mobile Site CT11400A

1245 Dixwell Avenue

Hamden, Connecticut



COMPOUND LAYOUT PLAN

SCALE: NTS

1

T-Mobile
15 COMMERCE WAY
NORTON, MA 02766



50 Eastman St.
South Easton, MA 02375
Phone: (508) 836-8303
Fax: (508) 836-8395

PROJECT LOCATION:

HAMDE
CT11400A
1245 DIXWELL AVE
HAMDE, CT 06514

APPROVED BY:

PROJECT MANAGER:

KB

DRAWN BY:

DM

BSDA PROJ. #:

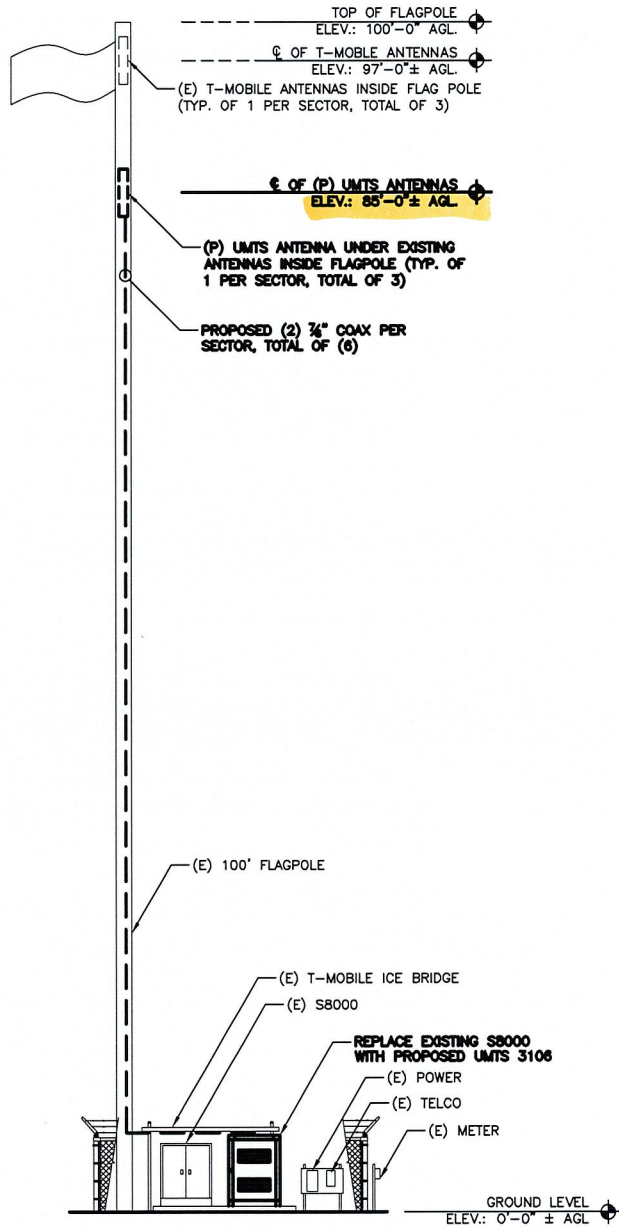
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SHEET:

**COMPOUND
LAYOUT
PLAN**

L1

12/05/08
10/09/08



ELEVATION

SCALE: N.T.S.

1

T-Mobile
 15 COMMERCE WAY
 NORTON, MA 02766



50 Eastman St.
 South Easton, MA 02375
 Phone: (508) 836-8393
 Fax: (508) 836-6395

PROJECT LOCATION:

HAMDE
CT11400A
 1245 DIXWELL AVE
 HAMDE, CT 06514

APPROVED BY:

PROJECT MANAGER:

KB

DRAWN BY:

DM

BSDA PROJ. #:

2889.xxx

SHEET:

ELEVATION

L2

12/05/08

10/09/08

Exhibit C

Equipment Specifications

T-Mobile Site CT11400A

1245 Dixwell Avenue

Hamden, Connecticut

Optimizer® Panel Dual Polarized Antenna equipped with AISG 2.0 ACU motor



Product Description

This X-Polarized variable tilt antenna provides exceptional suppression of all upper sidelobes at all downtilt angles. It also features a wide downtilt range. This antenna is optimized for performance across the entire AWS frequency band (1710-2155 MHz). The antenna comes pre-connected with one antenna control unit (ACU).

Features/Benefits

- **Variable electrical downtilt - provides enhanced precision in controlling intercell interference. The tilt is infield adjustable 0-10 deg.**
- **High Suppression of all Upper Sidelobes (Typically <-18dB).**
- **Gain tracking – difference between AWS UL (1710-1755 MHz) and DL (2110-2155 MHz) <1dB.**
- **Azimuth horizontal beamwidth difference <6deg between AWS UL (1710-1755 MHz) and DL (2110-2155 MHz)**
- **Low profile for low visual impact.**
- **Dual polarization; Broadband design.**
- **Includes AISG 2.0 Compatible ACU-A20-N antenna control unit**

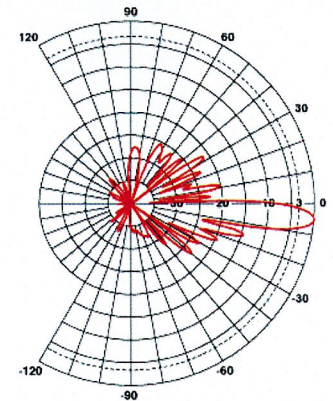
Technical Specifications

Electrical Specifications

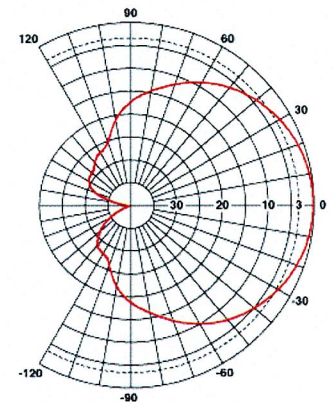
Frequency Range, MHz	1710-2170
Antenna Type	Panel Dual Polarized
Electrical Down Tilt Option	Variable
Gain, dBi (dBd)	18.4 (16.3)
Electrical Downtilt, deg	0-10, 0-10
Horizontal Beamwidth, deg	65
VSWR	< 1.5:1
Vertical Beamwidth, deg	5.9 to 7.7
1st Upper Sidelobe Suppression, dB	> 18
Upper Sidelobe Suppression, dB	> 18 all
Polarization	Dual pol +/-45°
Front-To-Back Ratio, dB	>26 (typically 28)
Maximum Power Input, W	300
Isolation between Ports, dB	> 30
Lightning Protection	Direct Ground
3rd Order IMP @ 2 x 43 dBm, dBc	> 150 (155 Typical)

Mechanical Specifications

Rated Wind Speed, km/h (mph)	160 (100)
Survival Wind Speed, km/h (mph)	200 (125)
Max Wind Loading Area, m² (ft²)	0.29 (2.9)
Maximum Thrust @ Rated Wind, N (lbf)	380 (185)
Front Thrust @ Rated Wind, N (lbf)	380 (185)
Reflector Material	Aluminum
Radiating Element Material	Brass
Radome Material	Fiberglass
Connector Type	(2) 7-16 DIN Female
Connector Location	Bottom
Mount Type	Downtilt
Mounting Hardware	APM40-2
Weight w/o Mtg Hardware, kg (lb)	8.5 (18.7)
Packing Dimensions, HxWxD, mm (in)	1439 x 237 x 260 (56.6 x 9.3 x 10.3)
Dimensions - HxWxD, mm (in)	1349 x 175 x 80 (53.1 x 6.9 x 3.15)
Shipping Weight, kg (lb)	14.5 (31.9)



Vertical Pattern



Horizontal Pattern

All information contained in the present datasheet is subject to confirmation at time of ordering.

The Outdoor Cabinet

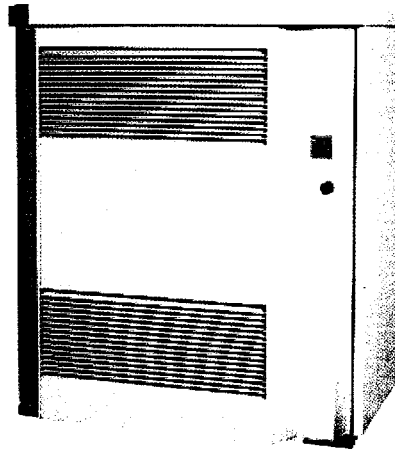


Figure 2 RBS 3106 Cabinet

- Specified for outdoor environment
- Can be configured for both 6 and 9 radio units.
- The cabinet fulfils seismic requirements
- Vandal protected
- Forced convection and heat exchanger (Eco-Cooling)

The RBS 3106 cabinet has the same footprint as the GSM RBS 2106 and the WCDMA RBS 3101.

The RBS 3106 cabinet is a weatherproof outdoor cabinet for outdoor sites with primarily high capacity and high coverage requirements. The RBS 3106 houses integrated power supply with optional backup batteries, space for transmission equipment and a climate package for ensuring an indoor climate for all units inside, including the batteries.

2 Descriptions

The RBS HW is modularly structured into several subsystems for easy expansion and evolution purposes. From a physical viewpoint the subsystem are located together on shelves in the cabinet. The shelves are basically identical between the cabinets.

3.3. GENERAL VIEW

3.3.1 BTS 18000 INDOOR SPECIFIC

The BTS 18000 indoor cabinet consists of the following specific elements:

- Indoor enclosure
- DC breaker panel
- BTS 18000 Integrated Cooling System (SICS)

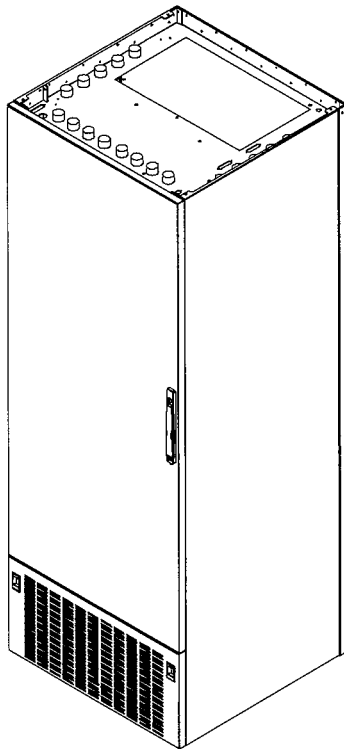


Figure 3.1: BTS 18000 indoor cabinet overview (door closed)

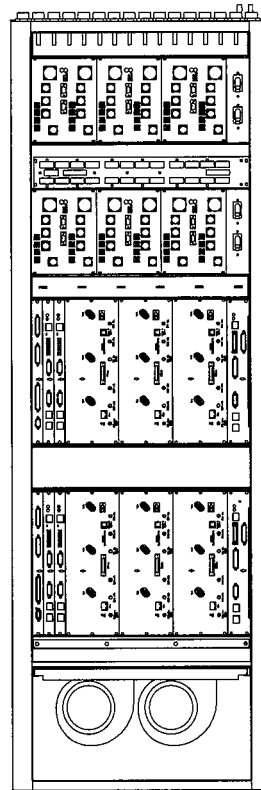


Figure 3.2: BTS 18000 indoor cabinet fully populated overview (door open)

3.3.2 BTS 18000 OUTDOOR SPECIFIC

The BTS 18000 outdoor cabinet consists of the following specific elements:

- Outdoor enclosure including AC Distribution Unit (ADU)
- AC/DC power supply: Universal Compact Power System (UCPS)
- Environmental Control Unit (ECU)
- Rack user and its associated User ICO

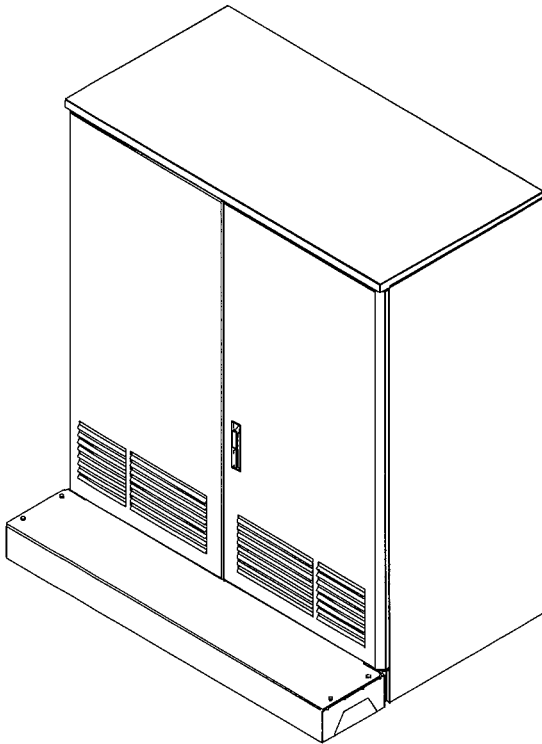


Figure 3.3 : BTS 18000 outdoor cabinet overview (door closed)

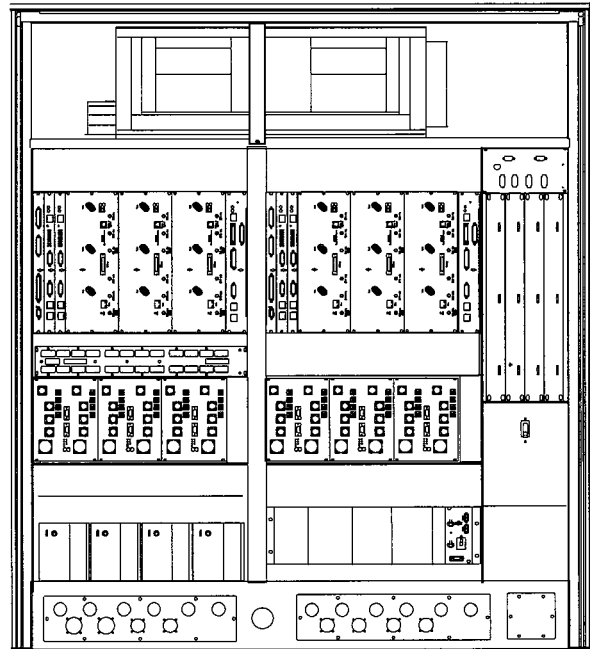


Figure 3.4 : BTS 18000 outdoor cabinet fully populated overview (door open)

3.3.3 BTS 18000 INDOOR/OUTDOOR SHARING ELEMENTS

The Indoor and Outdoor BTS 18000 variant share the following modules :

- Back-planes and ICO: Interface Back Plane (IBP), Digital Back-plane (DBP), Radio ICO (RICO)
- up to two Quad Interface module (IFM)
- One Interface Control Module (ICM) or two .
- Up to two spare module (SPM)
- Up to two Alarm collector and Bridge Module (ABM)
- Up to six Radio Module (RM)
- Up to six Dual diplexer module (DDM)

For the two variants, DDM are physically grouped into 2 combiner racks. The digital rack consists of the association of IFM, ICM, ABM, SPM and RM modules. There are two digital racks per cabinet. The association of one combiner rack and one digital rack will be further named "shelf"

Exhibit D

Power Density Calculations

T-Mobile Site CT11400A

1245 Dixwell Avenue

Hamden, Connecticut

Technical Memo

To: Maxton
From: Farid Marbough - Radio Frequency Engineer
cc: Jason Overbey
Subject: Power Density Report for CT11400A
Date: November 24, 2008

1. Introduction:

This report is the result of an Electromagnetic Field Intensities (EMF - Power Densities) study for the T-Mobile PCS antenna installation on a Flagpole at 1245 Dixwell Ave, Hamden, CT. This study incorporates the most conservative consideration for determining the practical combined worst case power density levels that would be theoretically encountered from locations surrounding the transmitting location.

2. Discussion:

The following assumptions were used in the calculations:

- 1) The emissions from T-Mobile transmitters are in the (1935-1944.8), (1980.2-1984.8), (2140-2145), (2110-2120)MHz frequency Band.
- 2) The antenna array consists of three sectors, with 3 antennas per sector.
- 3) The model number for GSM antenna is APXV18-206516.
- 3) The model number for UMTS antenna is APXV18-206516.
- 4) GSM antenna center line height is 90 ft.
- 4) UMTS antenna center line height is 85 ft.
- 5) The maximum transmit power from any GSM sector is 2083.63 Watts Effective Radiated Power (EiRP) assuming 8 channels per sector.
- 5) The maximum transmit power from any UMTS sector is 2462.01 Watts Effective Radiated Power (EiRP) assuming 2 channels per sector.
- 6) All the antennas are simultaneously transmitting and receiving, 24 hours a day.
- 7) Power levels emitting from the antennas are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 8) The average ground level of the studied area does not change significantly with respect to the transmitting location

Equations given in "FCC OET Bulletin 65, Edition 97-01" were then used with the above information to perform the calculations.

3. Conclusion:

Based on the above worst case assumptions, the power density calculation from the T-Mobile PCS antenna installation on a Flagpole at 1245 Dixwell Ave, Hamden, CT, is 0.15133 mW/cm². This value represents 15.133% of the Maximum Permissible Exposure (MPE) standard of 1 milliwatt per square centimeter (mW/cm²) set forth in the FCC/ANSI/IEEE C95.1-1991. Furthermore, the proposed antenna location for T-Mobile will not interfere with existing public safety communications, AM or FM radio broadcasts, TV, Police Communications, HAM Radio communications or any other signals in the area.

Connecticut Market



Worst Case Power Density

Site: CT11400A
Site Address: 1245 Dixwell Ave
Town: Hamden
Tower Height: 100 ft.
Tower Style: Flagpole

GSM Data		UMTS Data	
Base Station TX output	20 W	Base Station TX output	40 W
Number of channels	8	Number of channels	2
Antenna Model	APXV18-206516	Antenna Model	APXV18-206516
Cable Size	7/8 in.	Cable Size	7/8 in.
Cable Length	105 ft.	Cable Length	105 ft.
Antenna Height	90.0 ft.	Antenna Height	85.0 ft.
Ground Reflection	1.6	Ground Reflection	1.6
Frequency	1945.0 MHz	Frequency	2.1 GHz
Jumper & Connector loss	4.50 dB	Jumper & Connector loss	1.50 dB
Antenna Gain	17.6 dBi	Antenna Gain	17.6 dBi
Cable Loss per foot	0.0186 dB	Cable Loss per foot	0.0116 dB
Total Cable Loss	1.9530 dB	Total Cable Loss	1.2180 dB
Total Attenuation	6.4530 dB	Total Attenuation	2.7180 dB
Total EIRP per Channel (In Watts)	54.16 dBm 260.45 W	Total EIRP per Channel (In Watts)	60.90 dBm 1231.01 W
Total EIRP per Sector (In Watts)	63.19 dBm 2083.63 W	Total EIRP per Sector (In Watts)	63.91 dBm 2462.01 W
nsg	11.1470	nsg	14.8820
Power Density (S) = 0.064786 mW/cm ²		Power Density (S) = 0.086548 mW/cm ²	
T-Mobile Worst Case % MPE =		15.1334%	

Equation Used:

$$S = \frac{(1000)(grf)^2 (Power)^{nsg}}{4\pi (R)^2}$$

Office of Engineering and Technology (OET) Bulletin 65, Edition 97-01, August 1997

Co-Location Total

Carrier	% of Standard
Verizon	
Cingular	
Sprint	
AT&T Wireless	
Nextel	
Other Antenna Systems	
Total Excluding T-Mobile	0.0000 %
T-Mobile	15.1334
Total % MPE for Site	15.1334%

Exhibit E

Structural Analysis

T-Mobile Site CT11400A

1245 Dixwell Avenue

Hamden, Connecticut

BAY STATE
DESIGN



December 3, 2008

Mr. Hans Fiedler
UMTS Development Project Manager
T-Mobile, USA
35 Griffin Road South
Bloomfield, CT 06002

Ref: T-Mobile Site ID CT11400A
Hamden
1245 Dixwell Avenue, Hamden, CT 06514

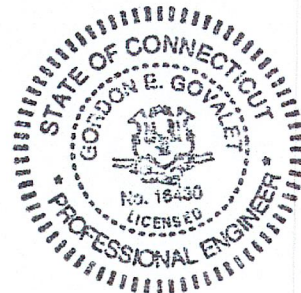
Dear Mr. Fiedler:

As requested, Bay State Design Inc. performed the structural assessment of the swapping six (6) existing GSM antennas with six (6) GSM dual pole antennas; adding three (3) proposed UMTS dual pole antennas; and replacing two (2) S8000 cabinets with one (1) S18000 cabinet and one (1) RBS 3106 cabinet. The monopole is designed for three carriers; T-Mobile is the only carrier with a total of nine (9) antennas. Since the antennas are shielded within the monopole, there is no additional wind and ice loads. The concrete pad is a slab on ground. Based on the field survey report and the site file review completed for this project, it is concluded that the structure is adequate to support the additional loads imposed by the proposed changes.

Sincerely yours,

Bay State Design, Inc.

Gordon Govalet, P.E.
Vice President
Bay State Design, Inc.



BAY STATE
DESIGN

November 12, 2008

Mr. Hans Fiedler
UMTS Development Project Manager
T-Mobile, USA
35 Griffin Road South
Bloomfield, CT 06002

Ref: T-Mobile Site ID CT11400A
Hamden
1245 Dixwell Avenue, Hamden, CT 06514

Dear Mr. Fiedler:

As requested, Bay State Design Inc. performed the structural assessment of the swapping six (6) existing GSM antennas with six (6) GSM dual pole antennas; adding three (3) proposed UMTS dual pole antennas; and replacing two (2) S8000 cabinets with one (1) S18000 cabinet and one (1) RBS 3106 cabinet. The concrete pad is a slab on ground. Based on the field survey report and the site file review completed for this project, it is concluded that the structure is adequate to support the additional loads imposed by the proposed changes.

Sincerely yours,

Bay State Design, Inc.



Gordon Govalet, P.E.
Vice President
Bay State Design, Inc.



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