EM-POCKET-049-090728

CONSTRUCTION SERVICES

of Branford, LLC

July 21, 2009

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

RE: **Notice of Exempt Modification to an existing 147.5' monopole located at Bright Meadow Boulevard, Enfield, Connecticut**

Latitude: 42 1 14.83 / Longitude:72 35 6.93

Dear Mr. Phelps:

Youghiogheny Communications-Northeast, LLC doing business as Pocket Communications ("Pocket") intends to install antennas and associated ground equipment at the existing 147.5'-foot monopole facility owned by Crown Castle and located at Bright Meadow Boulevard, Enfield, Connecticut ("Facility"). Pocket provides prepaid, flat rate wireless voice and data services to more than a quarter of a million subscribers. Pocket is licensed by the Federal Communications Commission ("FCC") to provide PCS wireless telecommunications services in the State of Connecticut including the area to be served by the proposed installation. This proposed installation constitutes an exempt modification pursuant to the Public Utility Environmental Standards Act, Connecticut General Statutes Section 16-50g et seq. and Connecticut Agencies Regs § 16-50j-72(b)(2). Pursuant to R.C.S.A. 16-50j-73, Pocket is providing notice to, Matthew W. Coppler, Town Manager of the Town of Enfield.

Under the Council's regulations (Conn. Agencies Regs. Sec 16-50j-72(b)), Pocket's plans do not constitute a modification subject to the Council's review because Pocket will not change the height of the Tower, will not extend the boundaries of the compound, will not increase the noise levels at the site, and will not increase the total radio frequency electromagnetic radiation power density at the site to levels above applicable standards.

Tower

The Facility consists of a one hundred forty seven and one half foot (147.5') foot monopole located at Bright Meadow Boulevard, Enfield, Connecticut (See Location Map attached as Exhibit A). The Tower is owned by Crown Castle. The tower currently supports Sprint antennas at the one hundred forty seven foot (147') centerline AGL, Verizon at the one hundred thirty two foot (132') centerline AGL, Nextel at the one hundred twenty seven foot (127') centerline AGL, and AT&T at the one hundred seventeen foot (117') centerline AGL. The antenna locations are set forth on Drawing A-1 of the attached drawings in Exhibit A.

(203) 488-0712 • FAX (203) 481-1135 • 1-800-870-0106 63-3 North Branford Rd. Branford, CT 06405-2848
www.csofb.com

Pocket proposes to install three (3) RFS APXV18-206517S-C flush mount antennas on the tower at the one hundred seven foot (107') centerline AGL, and a Nortel CDMA Micro BTS 3231 cabinet which will be mounted on a frame and contained in a six foot by six foot (6'x 6') lease area. A small GPS antenna will be mounted on an ice bridge which will run from the lease area to the tower. Utilities will be run via a proposed underground conduit from an existing utility backboard within the compound (See Drawings T-1 through E-1 of Exhibit A attached hereto and Equipment Specifications attached as Exhibit B). To accommodate Pocket's equipment on a temporary basis, a mobile, EPA approved generator and small microwave dish antenna (approximately 14" x 14") will be used at the site to provide electricity until permanent power can be established by the utility provider. Pocket anticipates that the temporary generator will be in use for a maximum of eight weeks from the time of approval. The specifications for this proposed equipment are also included in Exhibit B. Due to the temporary use and low emissions from the generator, no permit is required from the Department of Environmental Protection. Pocket would propose to refuel the generator every 48 hours.

Structural Analysis

A structural analysis of the Tower was prepared by IETS Engineering Services and is attached hereto as Exhibit C. The report indicates that the Tower, at present, is adequate to support the proposed modifications.

Need for the Facility

Pocket's antennas will be used to fill existing gaps in coverage in parts of Enfield. Pocket has a need for the facility and the proposed antennas installed at a centerline height of one hundred seven feet (107') feet will satisfy the need for coverage in this area.

The addition of the proposed antennas will not adversely impact the health and safety of the surrounding community or the people working on the Tower. The total radio frequency exposure measured around the tower will be well below the National Council on Radiation Protection and Measurements' ("NCRP") standard adopted by the Federal Communications Commission ("FCC"). The "worst case" exposure calculated for the operation of this facility for the proposed antennas would be approximately 6.67 % of the NCRP's standard for maximum permissible exposure. A cumulative power density analysis indicates that together, all of the antennas on the tower will emit only 27.58% of the NCRP's standard for maximum possible exposure (See Exhibit D attached hereto). Therefore, the power density levels will be well below the FCC mandated radio frequency exposure limits in all locations around the Tower, even with extremely conservative assumptions.

Conclusion

Pocket respectfully submits that the project presents the opportunity to install antennas on the existing Tower, thereby avoiding the unnecessary proliferation of new towers in the area. Pocket's proposal does not constitute a modification subject to the Council's jurisdiction because:

Pocket will not increase the height of the Tower;

Will not extend the boundaries of the site;

Will not increase the noise levels at the existing facility by six decibels or more; and

The total radio frequency electromagnetic radiation power density will stay within all applicable standards.

Respectfully submitted,
Youghiogheny Communications-
Northeast, LLC
DBA Pocket Communications

By_____
Raymond J. Lemley, consultant
Ray@iwsllc.net
203-499-8631

cc: Enfield Town Manager, Matthew W. Coppler
Enfield Building Official, James D. Taylor

EXHIBIT A
SITE DRAWINGS

pocket
SMART WIRELESS

HFCT0333A
BRIGHT MEADOW BLVD.
ENFIELD, CT 06082

FOR CONSTRUCTION

PROJECT SCOPE

THE PROPOSED SCOPE OF WORK GENERALLY ENTAILS THE INSTALLATION OF:

1. TELECOMMUNICATIONS ANTENNAS, COAX, ICE BRIDGE OR CABLE TRAY, RADIO & PPC CABINET INCLUDING THE NECESSARY UTILITIES.

2. A TOTAL OF (3) PROPOSED PANEL ANTENNAS MOUNTED TO THE EXISTING STRUCTURE.

3. ELECTRIC & TELCO SHALL BE ROUTED ABOVE OR UNDERGROUND TO THE PROPOSED EQUIPMENT IN ACCORDANCE WITH LATEST NEC EDITION ADOPTED BY LOCAL AUTHORITIES.

PROJECT SUMMARY

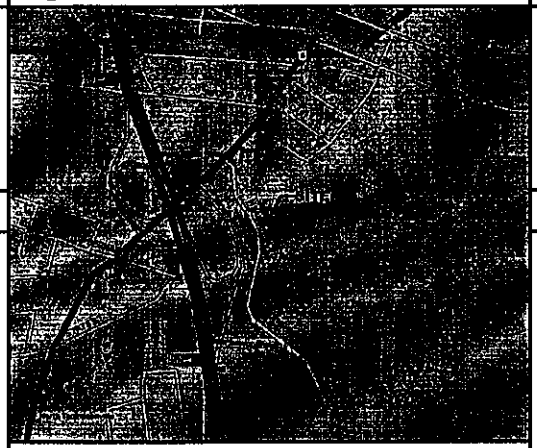
APPLICANT / LESSEE

YOUGHIOGHENY COMMUNICATIONS NORTHEAST, LLC.
D/B/A POCKET COMMUNICATIONS
1 FEDERAL STREET, BUILDING #111
SPRINGFIELD, MA 01105

PROPERTY INFORMATION

SITE ADDRESS:	BRIGHT MEADOW BLVD. ENFIELD, CT 06082
PROPERTY OWNER:	CROWN CASTLE USA 1200 MACARTHUR BOULEVARD, SUITE 200 MAHWAH, NJ 07430
TOWER OWNER:	CROWN CASTLE USA 1200 MACARTHUR BOULEVARD, SUITE 200 MAHWAH, NJ 07430
POCKET COMMUNICATIONS CONSTRUCTION MANAGER:	BILL HINCKLEY
STRUCTURE TYPE:	MONOPOLE
COORDINATES:	LATITUDE: N 42° 1' 14.83" LONGITUDE: W 72° 35' 5.93"

VICINITY MAP (NOT TO SCALE)



DRIVING DIRECTIONS

FROM POCKET OFFICE:

TURN RIGHT ONTO STATE STREET. FOLLOW STATE STREET TURN LEFT ONTO COLUMBUS AVENUE. MERGE ONTO I-91 S VIA THE RAMP ON THE LEFT TO HARTFORD CT. TAKE EXIT 49 FOR US-5/ENFIELD ST. TURN LEFT AT ENFIELD ST/US-5. TURN RIGHT AT BRIGHT MEADOW BLVD. MAKE A U-TURN AND ARRIVE AT SITE ON RIGHT HAND SIDE.

CODE COMPLIANCE

1. BUILDING CODE:
SBC-2005, 2003 INTERNATIONAL BUILDING CODE WITH CT SUPPLEMENT.

2. ELECTRICAL CODE:
NEC-2005, 2005 NATIONAL ELECTRICAL CODE

SHEET INDEX

SHEET	DESCRIPTION
T-1	TITLE SHEET
GN-1	GENERAL NOTES
A-1	COMPOUND/EQUIPMENT PLANS AND ELEVATION
A-2	CONSTRUCTION DETAILS
E-1	POWER & GROUNDING RISER DIAGRAMS
	AND DETAILS

PROJECT INFORMATION

1. THIS IS AN UNMANNED TELECOMMUNICATION FACILITY CONSISTING OF BTS EQUIPMENT AND PANEL ANTENNAS.
2. ALL ITEMS SHOWN HERE ON ARE EXISTING UNLESS OTHERWISE NOTED.
3. THIS IS AN UNMANNED FACILITY. THE SITE WILL CREATE NO TRASH, THUS REQUIRES NO DUMPSTER.
4. DEVELOPMENT AND USE OF THE SITE WILL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES.
5. EMERGENCY POWER SUPPLY IS A CELL PACK BATTERY SOURCE AND NOT A FLAMMABLE LIQUID SOURCE.
6. NO POTABLE WATER SUPPLY IS TO BE PROVIDED AT THIS LOCATION.
7. THE POCKET COMMUNICATION MAINTENANCE CREW (TYPICALLY ONE PERSON) WILL MAKE AN AVERAGE OF ONE TRIP PER MONTH AT ONE HOUR PER VISIT.
8. FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION, HANDICAPPED ACCESS NOT REQUIRED.

APPROVALS

LANDLORD: _____

CONSTRUCTION MANAGER: _____

RF ENGINEER: _____

SITE ACQUISITION AGENT: _____

GENERAL CONTRACTOR NOTES

UNDERGROUND SERVICE ALERT
CALL TOLL FREE
1-888-DIG-SAFE
THREE WORKING DAYS BEFORE YOU DIG

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.

pocket
Pocket Communications
1 Federal Street
Building #111
Springfield, MA 01105

MAXTON
BAY STATE DESIGN

STATE OF CONNECTICUT
TIRUMALA VENKATAMAN
No. 22948
LICENSED PROFESSIONAL ENGINEER

ENGINEER/LAND SURVEYOR 7/21/09

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

REVISIONS

REV	DATE	DESCRIPTION
1	07/21/09	FINAL CONSTRUCTION
0	07/20/09	ISSUED FOR REVIEW

PROJECT #:	DESIGN BY: MJC	SCALE:
2882.118	DRAWN BY: JPC	AS NOTED
	CHECKED BY: JP	

SITE NAME:
HFCT0333A
ENFIELD, CT

SITE ADDRESS:
BRIGHT MEADOW BLVD.
ENFIELD, CT 06082

DRAWING TITLE:
TITLE SHEET

DRAWING NO:
T-1

GENERAL NOTES:

1. CONSTRUCTION WORK SHALL ADHERE TO POCKET COMMUNICATIONS CELL SITE CONSTRUCTION SPECIFICATIONS MANUAL.
2. ALL DIMENSIONS SHOWN THUS ± ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS WHICH AFFECT THE CONTRACTORS WORK. CONTRACTOR TO VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.
3. NORTH ARROW SHOWN ON PLANS REFERS TO TRUE NORTH. CONTRACTOR SHALL VERIFY TRUE NORTH AND INFORM CONSTRUCTION MANAGER OF ANY DISCREPANCIES BEFORE STARTING CONSTRUCTION.
4. THE CONTRACTOR AND OR HIS SUB CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.
5. ANTENNA INSTALLATION SHALL BE CONDUCTED BY FIELD CREWS EXPERIENCED IN THE ASSEMBLY AND ERECTION OF RADIO ANTENNAS, TRANSMISSION LINES AND SUPPORT STRUCTURES.
6. COORDINATION, LAYOUT, AND FURNISHING OF CONDUIT, CABLE AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
7. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
8. PER FCC MANDATE, ENHANCED EMERGENCY (E911) SERVICE IS REQUIRED TO MEET NATIONWIDE STANDARDS FOR WIRELESS COMMUNICATIONS SYSTEMS. LESSEE/LICENSEE'S IMPLEMENTATION REQUIRES DEPLOYMENT OF EQUIPMENT AND ANTENNA GENERALLY DEPICTED ON THIS PLAN ATTACHED TO OR MOUNTED IN CLOSE PROXIMITY TO THE BTS RADIO CABINETS. LESSEE RESERVES THE RIGHT TO MAKE REASONABLE MODIFICATIONS TO E911 EQUIPMENT AND LOCATION AS TECHNOLOGY EVOLVES TO MEET REQUIRED SPECIFICATIONS.

SITE WORK GENERAL NOTES:

1. CONTRACTOR SHALL CONTACT "DIG SAFE" (1-888-DIG-SAFE) PRIOR TO COMMENCEMENT OF WORK.
2. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIPES AROUND OR NEAR UTILITIES. SUBCONTRACTORS SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING & EXCAVATION.
3. ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
4. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
5. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
6. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE.
7. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
8. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF ENGINEERING, OWNER AND/OR LOCAL UTILITIES.
9. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK SHALL BE GRADED TO A UNIFORM SLOPE AND STABILIZED TO PREVENT EROSION AS SPECIFIED IN THE PROJECT SPECIFICATIONS.
10. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
11. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE POCKET COMMUNICATIONS SPECIFICATIONS FOR SITE SIGNAGE.

SOIL COMPACTION NOTES FOR SLAB ON GRADE:

1. EXCAVATE AS REQUIRED TO REMOVE VEGETATION AND TOPSOIL TO EXPOSE NATURAL SUBGRADE AND PLACE CRUSHED STONE AS REQUIRED.
2. COMPACTED SUBBASE SHALL BE UNIFORM AND LEVELED 6" MINIMUM CRUSHED STONE OR GRAVEL COMPACTED IN 3" LIFTS.
3. HAND OPERATED DOUBLE DRUM, VIBRATORY ROLLER, VIBRATORY PLATE COMPACTOR OR JUMPING JACK COMPACTOR.
4. SOIL STABILIZATION FABRIC SHALL BE MIRAFI 600X OR EQUAL.

CONCRETE AND REINFORCING STEEL NOTES:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
2. ALL CONCRETE SHALL HAVE MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301 CODE REQUIREMENTS.
3. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, U.N.O.
4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST EARTH .....3 IN
   CONCRETE EXPOSED TO EARTH OR WEATHER.
   #6 AND LARGER .....2 IN.
   #5 AND SMALLER & WWF .....1 1/2 IN.
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
   SLAB AND WALL .....3/4 IN.
   BEAMS AND COLUMNS .....1 1/2 IN.
5. A CHAMFER 3/4" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE.
6. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S RECOMMENDATION.
7. NO REBAR SHALL BE CUT WITHOUT PRIOR ENGINEERING APPROVAL. CONCRETE CYLINDER TEST IS NOT REQUIRED FOR THIS PROJECT.
8. THE GENERAL CONTRACTOR SHALL PROVIDE CERTIFICATION FOR THE CONCRETE SUPPLIED.
9. EQUIPMENT SHALL NOT BE PLACED ON NEW PADS FOR SEVEN DAYS AFTER PAD IS POURED, UNLESS IT IS VERIFIED BY CYLINDER TEST THAT COMPRESSIVE STRENGTH HAS BEEN ATTAINED.

STRUCTURAL STEEL NOTES:

1. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "SPECIFICATION FOR THE DESIGN FABRICATION & ERECTION OF STRUCTURAL STEEL FOR BUILDING" NINTH EDITION.
2. ALL STEEL EXPOSED TO THE WEATHER SHALL BE HOT-DIP GALVANIZED. INTERIOR STEEL SHALL BE PAINTED.
3. ALL PROPOSED WIDE FLANGE BEAMS SHALL CONFORM TO ASTM A572, GR. 50. OTHER STRUCTURAL AND MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36.
4. STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE A, OR ASTM A53 PIPE, STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
5. CONNECTIONS SHALL BE DESIGNED BY THE FABRICATOR AND CONSTRUCTED IN ACCORDANCE WITH THE NINTH EDITION OF THE AISC MANUAL OF STEEL CONSTRUCTION. CONNECTIONS SHALL BE PROVIDED TO CONFORM TO THE REQUIREMENTS OF TYPE 2 CONSTRUCTION UNLESS OTHERWISE DETAIL.
6. CONNECTIONS SHALL BE MADE USING 3/4" DIAMETER ASTM A325 BOLTS (SNUG TIGHT OR SLIP CRITICAL) OR WELDS, UNLESS NOTED OTHERWISE. IF TENSION CONTROL BOLTS ARE USED, CONNECTIONS SHALL BE DESIGNED FOR SLIP CRITICAL BOLT ALLOWABLE LOAD VALUES.
7. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
8. USE MINIMUM SIZE WELDS PER AISC SPECIFICATIONS OR AS SHOWN ON DRAWINGS.
9. FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 80 PERCENT ZINC BY WEIGHT, ZRP BY DURA-GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT NOT LESS THAN 4 COATS (ALLOW FOR DRY TIME BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
10. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND OR WHERE FILLET WELD SIZES ARE NOT SHOWN. PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION", 8TH EDITION.
11. UNISTRUTS SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1-5/8" X 1-5/8" X 12 GA. UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
12. GROUT SHALL BE NON METALLIC, NON SHRINK PREPACKAGED GROUT WITH A MINIMUM COMPRESSIVE STRENGTH OF 5000 PSI AT 28 DAYS. GROUT SHALL BE FIVE STAR GROUT AS MANUFACTURED BY FIVE STAR PRODUCTS, FAIRFIELD, CT OR APPROVED EQUAL.
13. WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY.

ELECTRICAL NOTES:

1. UTILITY SERVICES SHOWN ARE PROPOSED. THE ELECTRIC CONTRACTOR SHALL COORDINATE EXACT TELEPHONE AND ELECTRIC SERVICE CONNECTION POINTS, PULL BOXES, ROUTING AND ASSOCIATED REQUIREMENTS WITH LOCAL UTILITY COMPANIES.
2. VISIT SITE AND EXAMINE CONDITIONS UNDER WHICH WORK MUST BE PERFORMED. REPORT ADVERSE CONDITIONS IN WRITING. COMMENCEMENT OF WORK SHALL BE CONSTRUED AS COMPLETE ACCEPTANCE OF EXISTING CONDITIONS INCLUDING PREPARATORY WORK DONE BY OTHERS.
3. ALL EXISTING UNDERGROUND LINES ON SITE SHALL BE LOCATED PRIOR TO CONSTRUCTION.
4. GIVE NOTICES, FILE PLANS, OBTAIN PERMITS AND LICENSES, PAY FEES AND BACK CHARGES, AND OBTAIN NECESSARY APPROVALS FROM AUTHORITIES THAT HAVE JURISDICTION.
5. PERFORM WORK AS REQUIRED BY NEC AND AUTHORITY HAVING JURISDICTION.
6. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL CONDUIT ROUTING WITH LOCAL UTILITY COMPANIES AND FIELD CONSTRUCTION MANAGER.
7. ALL EXTERIOR WALL PENETRATIONS SHALL BE SILICONE SEALED.
8. MATERIAL AND EQUIPMENT SHALL BE UL, NEMA, ANSI, IEEE, ADA & CSM APPROVED FOR INTENDED SERVICE.
9. ALL ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING RATING NOT LESS THEN THE MAXIMUM SHORT CIRCUIT CURRENT TO WHICH THEY MAY BE SUBJECTED, AND A MINIMUM OF 10,000 A.I.C.
10. NEW WIRING SHALL BE TYPE THWN, UNLESS OTHERWISE NOTED. NEW WIRING PROVIDING POWER TO BTS SHALL BE STRANDED CLASS B, THWN. MINIMUM BRANCH CIRCUIT WIRING SHALL BE #12 AWG SOLID COPPER.
11. ALL METALLIC CONDUITS SHALL BE PROVIDED WITH BONDING BUSHINGS.
12. ALL BROCHURES, OPERATING MANUALS, CATALOGS, SHOP DRAWINGS, ETC. SHALL BE TURNED OVER TO THE PROJECT MANAGER AT JOB COMPLETION.
13. PROVIDE THE OWNER WITH ONE SET OF COMPLETE ELECTRICAL "AS BUILT" DRAWINGS AT THE COMPLETION OF THE JOB.
14. GUARANTEE WORK IN WRITING FOR ONE YEAR FROM DATE OF FINAL ACCEPTANCE. REPAIR OR REPLACE DEFECTIVE MATERIALS OR INSTALLATION AT NO COST TO OWNER. CORRECT DAMAGE CAUSED IN MAKING NECESSARY REPAIRS AND REPLACEMENTS UNDER GUARANTEE AT NO COST TO OWNER.

GROUNDING NOTES:

1. ALL GROUND WIRE SHALL BE BARE COPPER #2 AWG UNLESS OTHERWISE NOTED.
2. ALL GROUND WIRES SHALL PROVIDE A STRAIGHT, DOWNWARD PATH TO GROUND WITH GRADUAL BENDS AS REQUIRED. GROUND WIRES SHALL NOT BE LOOPED OR SHARPLY BENT.
3. ELECTRICAL CONTRACTOR SHALL COORDINATE INSTALLATION OF GROUND RODS AND GROUND RING WITH FOUNDATION AND UNDERGROUND CONDUIT.
4. EACH EQUIPMENT CABINET SHALL BE CONNECTED TO THE MASTER ISOLATION GROUND BAR (MGB) WITH #2 AWG BTCW, UNLESS OTHERWISE NOTED. EQUIPMENT CABINETS SHALL EACH HAVE (3) CONNECTIONS.
5. PROVIDE DEDICATED #2 AWG BTCW FROM EACH ANTENNA MOUNTING PIPE TO ASSOCIATED DCDB (TYPICAL FOR FOUR MOUNTING PIPES PER SECTOR).
6. ANTENNA GROUND KITS SHALL BE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR.
7. COORDINATE NEW GROUND SYSTEM WITH EXISTING SITE GROUND SYSTEM.
8. EACH SECTION OF CABLE TRAY, ICE BRIDGE AND ICE SHIELD SHALL BE CONNECTED IN A FASHION TO PROVIDE A CONTINUOUS GROUND.
9. CONDUCTOR TERMINATIONS SHALL BE TWO-HOLE BOLTED, COMPRESSION TYPE, WITH STAINLESS STEEL, SELF-TAPING SCREWS AT ALL ENCLOSURES, PANELS, FRAMES, AND WHERE EXPOSED FOR GROUNDING.
10. DO NOT USE METAL BRACKETS OR SUPPORTS WHICH WOULD FORM A COMPLETE RING AROUND ANY GROUNDING CONDUCTOR. ALL CLAMPS AND SUPPORTS USED IN THE GROUNDING SYSTEM SHALL BE NON CONDUCTIVE.
11. ALL GROUNDING CONNECTIONS SHALL BE COATED WITH A COPPER SHIELD ANTI-CORROSIVE AGENT SUCH AS T&B NOPR SHIELD. VERIFY PRODUCT WITH PROJECT MANAGER.
12. ALL BOLTS, WASHERS, AND NUTS USED ON GROUNDING CONNECTIONS SHALL BE STAINLESS STEEL.
13. INSTALL GROUND BUSHINGS ON ALL METALLIC CONDUITS AND BOND TO THE EQUIPMENT GROUND BUS IN THE PANELBOARD.
14. GROUND ANTENNA BASES, FRAMES, CABLE RACKS AND OTHER METALLIC COMPONENTS WITH #2 GROUNDING CONDUCTORS AND CONNECT TO INSULATED SURFACE MOUNTED GROUND BARS. CONNECTION DETAILS SHALL FOLLOW MANUFACTURER'S SPECIFICATIONS FOR GROUNDING.
15. GROUND COAXIAL SHIELD AT BOTH ENDS USING MANUFACTURER'S GUIDELINES.
16. GROUND SYSTEM SHALL BE TESTED AND HAVE A RESISTANCE OF 5 OHMS OR LESS.

FOR CONSTRUCTION

pocket

Pocket Communications
1 Federal Street
Building #111
Springfield, MA 01105

MIXTON
BAY STATE DESIGN
BAY STATE DESIGN, INC.
Architects - Engineers
311 Boston Post Rd. West, Marlborough, MA. 01752
Phone: 508-229-4100
Fax: 508-480-3331

STATE OF CONNECTICUT
TRICIA A. VENKATAMAN
No. 22948
LICENSED PROFESSIONAL ENGINEER

ENGINEER/LAND SURVEYOR 7/2/09

REVISIONS		
1	07/21/09	FINAL CONSTRUCTION
0	07/20/09	ISSUED FOR REVIEW
REV	DATE	DESCRIPTION

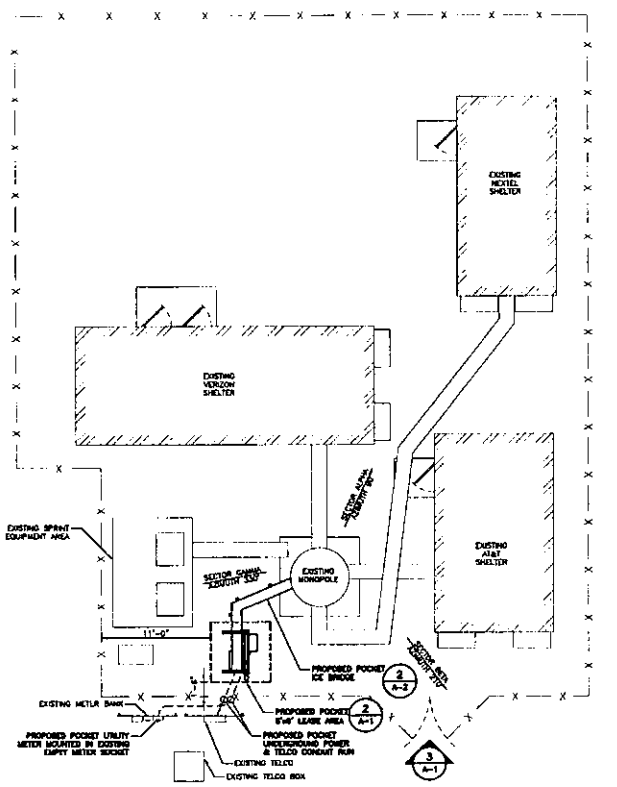
PROJECT #:	DESIGNED BY: BM	SCALE:
3882.11B	DRAWN BY: JM	AS NOTED
	CHECKED BY: JP	

SITE NAME:
HFCT0333A
ENFIELD, CT

SITE ADDRESS:
BRIGHT MEADOW BLVD.
ENFIELD, CT 06082

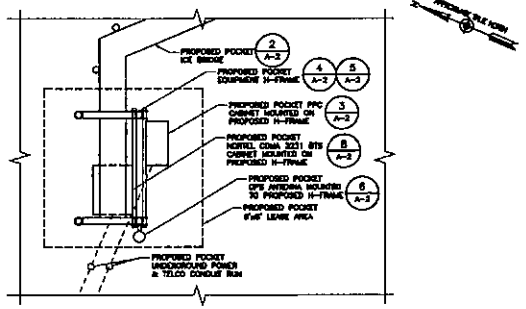
DRAWING TITLE:
GENERAL NOTES

DRAWING NO.
GN-1



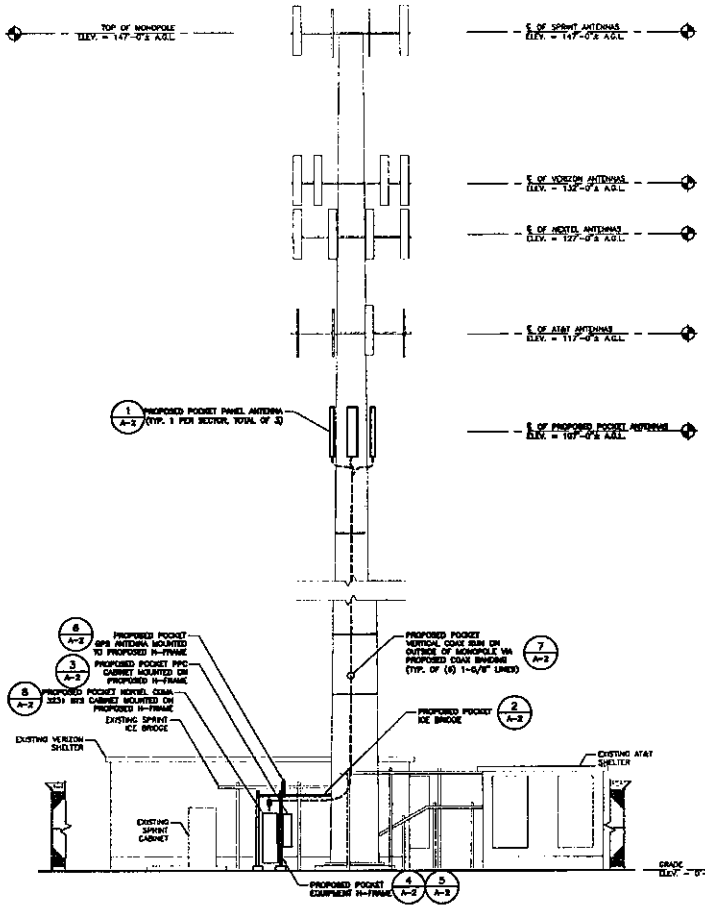
COMPOUND PLAN

SCALE: 3/16"=1'-0" (1)



EQUIPMENT LAYOUT PLAN

SCALE: 1/2"=1'-0" (2)



ELEVATION

SCALE: 3/16"=1'-0" (3)

FOR CONSTRUCTION

POCKET RF SYSTEM SCHEDULE

SECTOR	ANTENNA	AZIMUTH	DOWNTILT	RAD CTR. FT. AGL	MAKE	MODEL	FEED	PCS COAX SIZE, IN.	COAX MFR.	LENGTH, FT.*
ALPHA	#1, #4	90°	SEE NOTE	107'±	RFS	APXV18-206517S-C-ACU	BOTTOM	1 5/8"±	RFS (LDF1SB-50A)	120'±
BETA	#2, #5	210°	SEE NOTE	107'±	RFS	APXV18-206517S-C-ACU	BOTTOM	1 5/8"±	RFS (LDF1SB-50A)	120'±
GAMMA	#3, #6	330°	SEE NOTE	107'±	RFS	APXV18-206517S-C-ACU	BOTTOM	1 5/8"±	RFS (LDF1SB-50A)	120'±
GPS #1	11" x 11"	PRIMARY	-	N/A	RFS	ATGB01NA	BOTTOM	1/2"	RFS	10'±

* COAX CABLE LENGTHS ARE ESTIMATES, CONTRACTOR SHALL VERIFY IN FIELD.
NOTE: REFER TO RFDS SHEET FOR FINAL ANTENNA TILT AND AZIMUTHS.

Pocket Communications
1 Federal Street
Building #111
Springfield, MA 01105

MIXTON
BAY STATE DESIGN
911 Boston Post Rd. East, Suite 1 Marlborough, MA 01752 Phone: 508-229-4120 Fax: 508-485-8321

STATE OF CONNECTICUT
TRICHUR A. VENKATARAMAN
No. 22948
LICENSED PROFESSIONAL ENGINEER

ENGINEER/LAND SURVEYOR _____ DATE 7/27/09

REVISIONS		
1	07/21/09	FINAL CONSTRUCTION
0	07/20/09	ISSUED FOR REVIEW
REV	DATE	DESCRIPTION

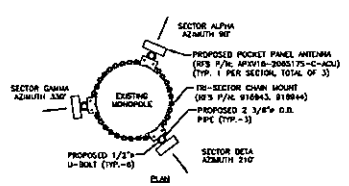
PROJECT #:	DESIGNED BY: MJC	SCALE:
2842.11B	DRAWN BY: JRK	AS NOTED
	CHECKED BY: JP	

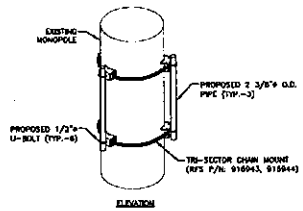
SITE NAME:
HFCT0333A
ENFIELD, CT

SITE ADDRESS:
BRIGHT MEADOW BLVD.
ENFIELD, CT 06082

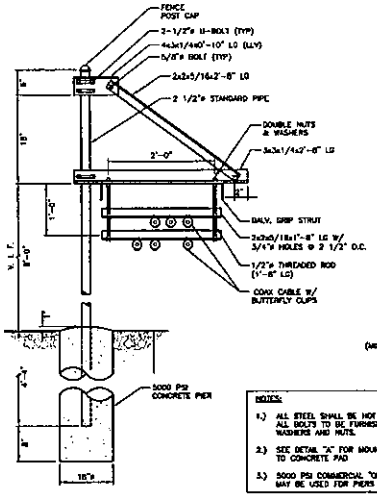
DRAWING TITLE:
COMPOUND/ EQUIPMENT PLANS AND ELEVATION

DRAWING NO:
A-1



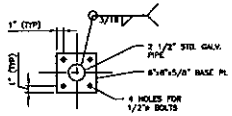


ANTENNA MOUNT DETAIL (1)
SCALE: N.T.S.

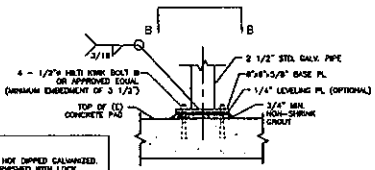


NOTES:
1.) ALL STEEL SHALL BE HOT DIPPED GALVANIZED. ALL BOLTS TO BE FURNISHED WITH LOCK WASHERS AND NUTS.
2.) SEE DETAIL "A" FOR MOUNTING ICE BRIDGE TO CONCRETE PAD
3.) 5000 PSI COMMERCIAL "QUIK-CRETE" MAY BE USED FOR PIERS

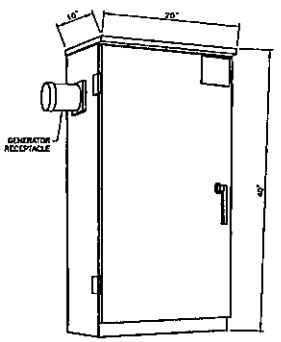
ICE BRIDGE DETAIL (2)
SCALE: N.T.S.



SECTION "B-B"

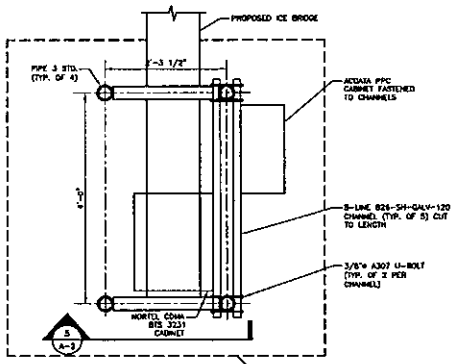


DETAIL "A"

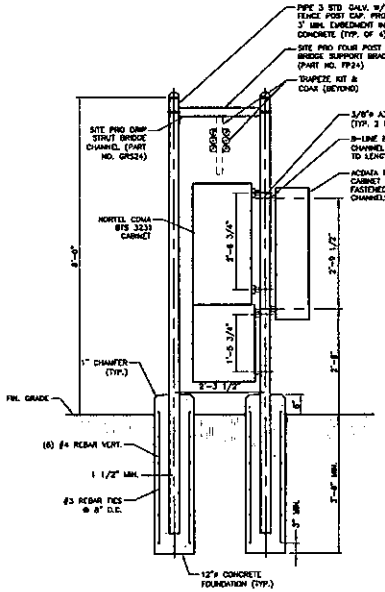


ACOATA POWER PROTECTION CABINET (PPC) SPECIFICATIONS	
DIMENSIONS	40"H x 20"W x 10"D

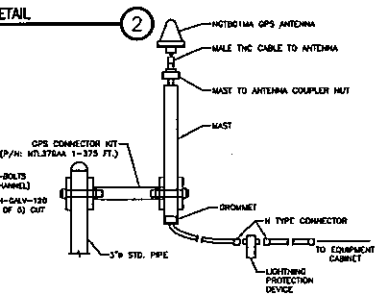
PPC CABINET DETAIL (3)
SCALE: N.T.S.



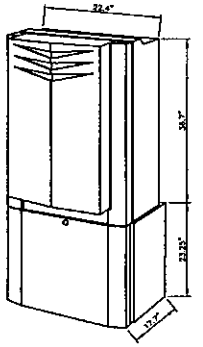
EQUIPMENT CABINET
SUPPORT FRAME DETAIL (4)
SCALE: 1"=1'-0"



EQUIPMENT FRAME
ELEVATION DETAIL (5)
SCALE: 3/4"=1'-0"



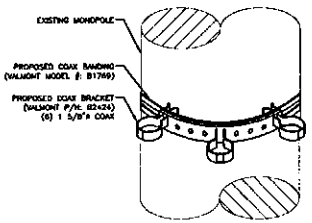
GPS ANTENNA DETAIL (6)
SCALE: N.T.S.



NORTEL BTS 3231 CABINET SPECIFICATIONS	
BTS DIMENSIONS	17.7"D x 22.4"W x 36.7"H
BATTERY ENCLOSURE DIMENSIONS	11.5"D x 23.25"W x 23.25"H
WEIGHT W/O BATTERY	240 LBS. MAX
WEIGHT W/ BATTERIES	730 LBS. MAX

NORTEL BTS 3231 CABINET MINIMUM CLEARANCES	
DIRECTION	MINIMUM CLEARANCE
CABINET BOTTOM	0"
CABINET FRONT	27.5"

BTS CABINET DETAIL (8)
SCALE: N.T.S.



COAX BANDING DETAIL (7)
SCALE: N.T.S.

FOR CONSTRUCTION

pocket

Pocket Communications
1 Federal Street
Building #111
Springfield, MA 01105

MAXTON
BAY STATE DESIGN

STATE OF CONNECTICUT
THIRUMAL VENKATARAMAN
No. 22948
LICENSED PROFESSIONAL ENGINEER

ENGINEER/LAND SURVEYOR

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

REVISIONS		
1	07/31/09	FINAL CONSTRUCTION
0	07/29/09	ISSUED FOR REVIEW
REV	DATE	DESCRIPTION

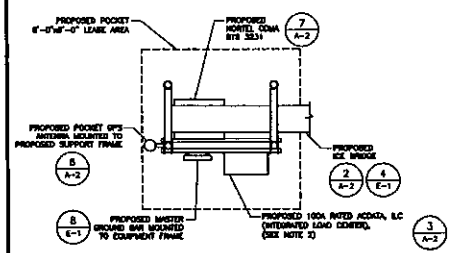
PROJECT #:	DESIGNED BY: MC	SCALE:
2582.116	DRAWN BY: JM	AS NOTED
	CHECKED BY: JP	

SITE NAME:
HFCT0333A
ENFIELD, CT

SITE ADDRESS:
BRIGHT MEADOW BLVD.
ENFIELD, CT 06082

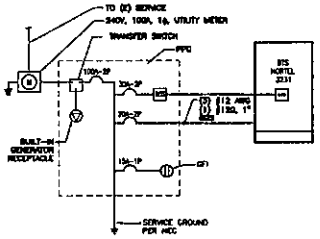
DRAWING TITLE:
CONSTRUCTION
DETAILS

DRAWING NO:
A-2

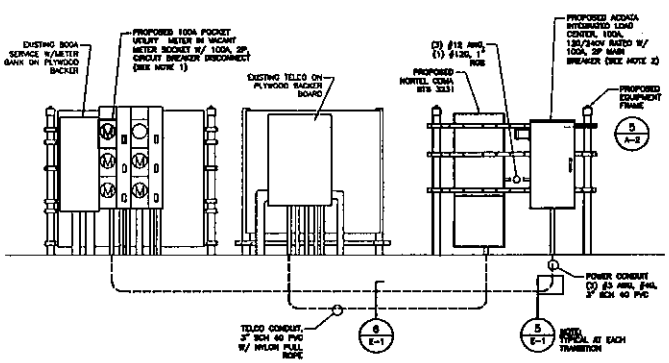


EQUIPMENT LAYOUT PLAN VIEW (1)
SCALE: N.T.S.

NOTES:
1. ALL UTILITY RUNS SHALL BE COORDINATED WITH POCKET COMMUNICATIONS CONSTRUCTION MANAGER AND RESPECTIVE UTILITY COMPANIES. UTILITY COMPANY TO ASSESS THE CAPACITY OF THE EXISTING 800A SERVICE TO ACCOMMODATE AN ADDITIONAL 100A, 120/240V,1Φ, REQUIRED FOR THE POCKET COMMUNICATIONS CELL SITE. CONTRACTOR TO UTILIZE THE EXISTING VACANT METER SOCKET FOR THE POCKET COMMUNICATIONS UTILITY METER.
2. POCKET COMMUNICATIONS TO PROVIDE 100A 120/240V, NEMA 3R RATED INTEGRATED LOAD CENTER (MODEL FROM ACOATA SOLUTIONS) WITH BUILT IN TRANSFER SWITCH, GENERATOR RECEPTACLE, AND TWIN MAIN DISCONNECT TO BE 100A, 2P, (SQUARE D OR APPROVED EQUAL).
3. UTILITY SERVICES SHOWN ARE PROPOSED. THE ELECTRICAL CONTRACTOR SHALL COORDINATE EXACT TELEPHONE AND ELECTRIC SERVICE CONNECTION POINTS, SOURCE, ASSOCIATED REQUIREMENTS AND EXCHANGES WITH LOCAL UTILITY COMPANIES.

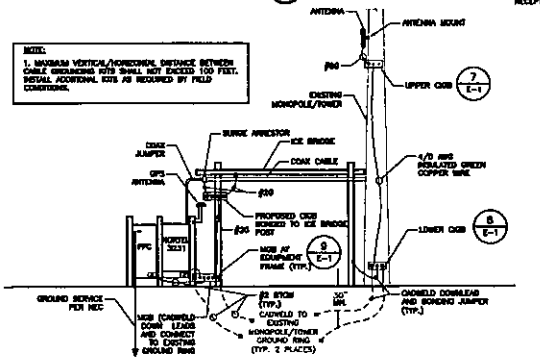


ONE LINE DIAGRAM (2)
SCALE: N.T.S.

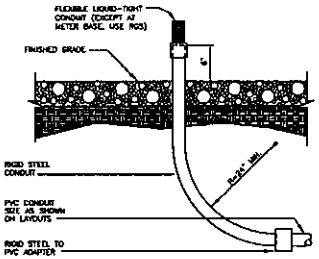


POWER & TELCO RISER DIAGRAM (3)
SCALE: N.T.S.

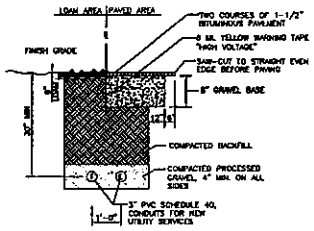
NOTE:
1. MAXIMUM VERTICAL/HORIZONTAL DISTANCE BETWEEN CABLE GROUNDING KITS SHALL NOT EXCEED 100 FEET. INSTALL ADDITIONAL KITS AS REQUIRED BY FIELD CONDITIONS.



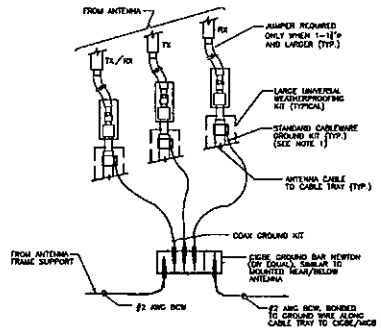
GROUNDING RISER DIAGRAM (4)
SCALE: N.T.S.



CONDUIT STUB-UP (5)
SCALE: NTS

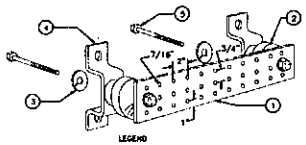


BURIED CONDUIT DETAIL (6)
SCALE: NTS



NOTE:
DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.

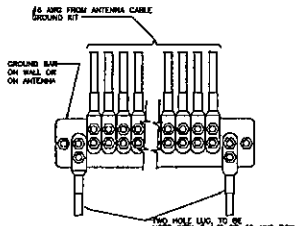
STANDARD DETAIL CONNECTION OF GROUND WIRES TO GROUNDING BAR (CIGBE) (7)
SCALE: NTS



LEGEND
1- COPPER TINNED GROUND BAR, 1/4"X 4"X 20", OR OTHER LENGTH AS REQUIRED, HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION
2- INSULATORS, NEWTON INSTRUMENT CAT. NO. 3041-4 OR EQUAL
3- 5/8" LOCKWASHERS OR EQUAL
4- WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-6056 OR EQUAL
5- 5/8-11 X 1" H.H.C.S.BOLTS

NOTE:
ALL BOLTS, NUTS, WASHERS AND LOCK WASHERS SHALL BE 18-8 STAINLESS STEEL.

GROUNDING - STANDARD DETAIL GROUND BAR (8)
SCALE: NTS



NOTE:
CONTRACTOR TO UTILIZE NOPR-SHIELD (THOMAS & BETTS) ON ALL LUG CONNECTIONS.

INSTALLATION OF GROUND WIRE TO GROUND BAR (9)
SCALE: NTS

FOR CONSTRUCTION

pocket
Pocket Communications
1 Federal Street
Building #111
Springfield, MA 01105

MIXTON
BAY STATE DESIGN
241 Boston Post Rd. West
Marlborough, MA. 01752
Phone: 508-229-4100
Fax: 508-460-8381

STATE OF CONNECTICUT
PRAVIN R. VENKATARAMAN
No. 22948
LICENSED PROFESSIONAL ENGINEER
ENGINEER/LAND SURVEYOR
DATE 7/21/09

REVISIONS		
1	07/21/09	FINAL CONSTRUCTION
0	07/29/08	ISSUED FOR REVIEW
REV	DATE	DESCRIPTION

PROJECT #:	DESIGNED BY: MS	SCALE:
2882.118	DRAWN BY: MS	AS NOTED
	CHECKED BY: JP	

SITE NAME:
HFCT0333A
ENFIELD, CT

SITE ADDRESS:
BRIGHT MEADOW BLVD.
ENFIELD, CT 06082

DRAWING TITLE:
POWER & GROUNDING RISER DIAGRAMS AND DETAILS

DRAWING NO:
E-1

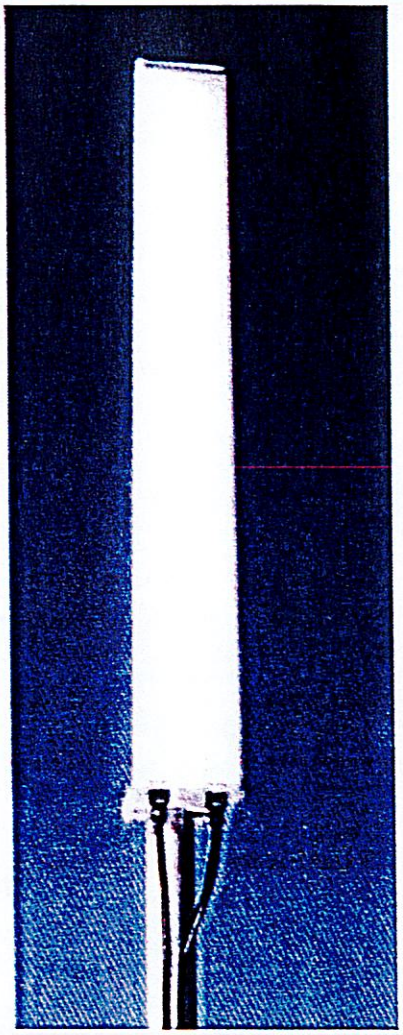
EXHIBIT B
EQUIPMENT SPECIFICATIONS

Technical Data Sheet | **APXV18-206517S-C**

Optimizer® Panel Dual Polarized Antenna

Product Description

This variable tilt antenna provides exceptional suppression of all upper sidelobes at all downtilt angles. It also features null fill and a wide downtilt range with optional remote tilt.



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 <-20dB).
- Optional remote tilt - can be retrofitted.
- Broadband design.
- Dual polarization.
- Low profile for low visual impact.

Technical Features

Frequency Band	3G/UMTS (Single, Broad, Dual and Triple-Band)
Horizontal Pattern	Directional
Antenna Type	Panel Dual Polarized
Electrical Down Tilt Option	Variable

Technical Data Sheet **APXV18-206517S-C**

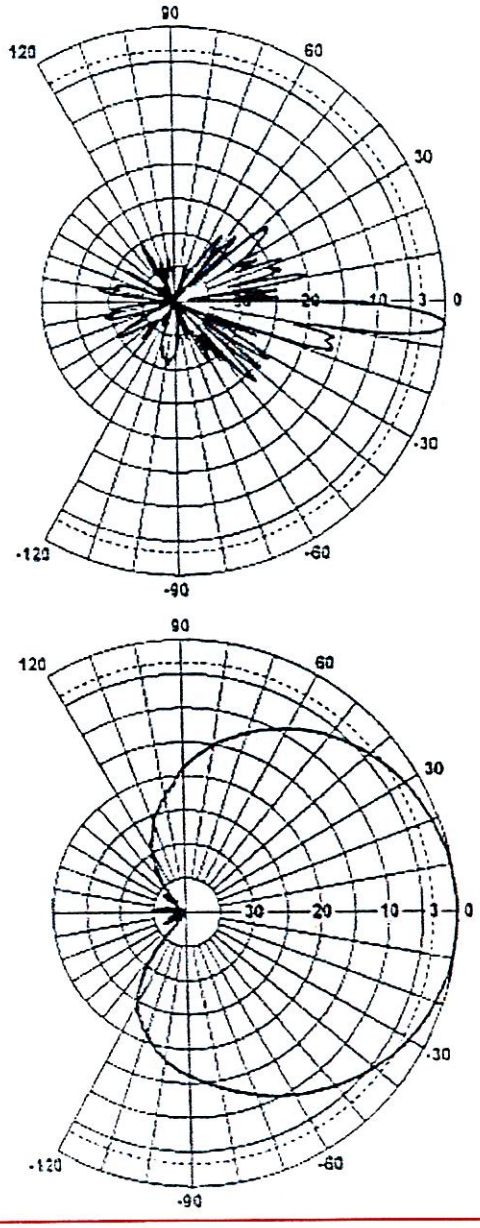
Optimizer® Panel Dual Polarized Antenna

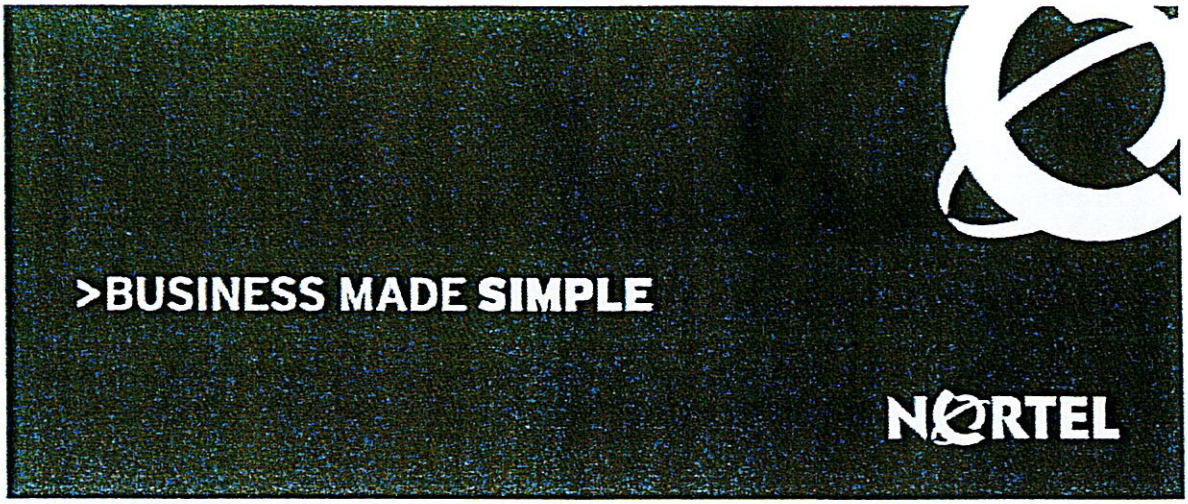
Gain, dBi (dBd)	18.8 (16.7) , 19.0 (16.9)
Frequency Range, MHz	1710-1900 , 1900-2170
Connector Type	(2) 7-16 DIN Female
Connector Location	Bottom
Mount Type	Downtilt
Electrical Downtilt, deg	0-10
Horizontal Beamwidth, deg	67 , 63
Mounting Hardware	APM40-2
Rated Wind Speed, km/h (mph)	160 (100)
VSWR	< 1.5:1
Vertical Beamwidth, deg	5.0 , 4.6
Upper Sidelobe Suppression, dB	>17 , >18 all (Typically >20)
Polarization	Dual pol +/-45°
Front-To-Back Ratio, dB	> 30
Maximum Power Input, W	300
Isolation between Ports, dB	> 30
Lightning Protection	Direct Ground
3rd Order IMP @ 2 x 43 dBm, dBc	> 150
7th Order IMP @ 2x46 dBm, dBc	> 170
Overall Length, m (ft)	1.85 (6.06)
Dimensions - HxWxD, mm (in)	1850 x 175 x 80 (72.0 x 6.8 x 3.15)
Weight w/o Mtg Hardware, kg (lb)	12 (26.4)
Weight w/ Mtg Hardware, kg (lb)	14.8 (32.5)
Radiating Element Material	Brass
Radome Material	Fiberglass
Reflector Material	Aluminum
Max Wind Loading Area, m² (ft²)	0.31 (3.3)
Survival Wind Speed, km/h (mph)	200 (125)
Maximum Thrust @ Rated Wind, N (lbf)	558 (125)
Front Thrust @ Rated Wind, N (lbf)	558 (125)
Shipping Weight, kg (lb)	18.3 (39.8)
Packing Dimensions, HxWxD, mm (in)	2021 x 260 x 200 (79.5 x 10.2 x 7.8)
Packing Dimensions - HxWxD, m (ft)	2.0 x 0.26 x 0.2 (6.6 x 0.85 x 0.65)

Notes

For additional mounting information please click "Additional Product Information" below.

Optimizer® Panel Dual Polarized Antenna



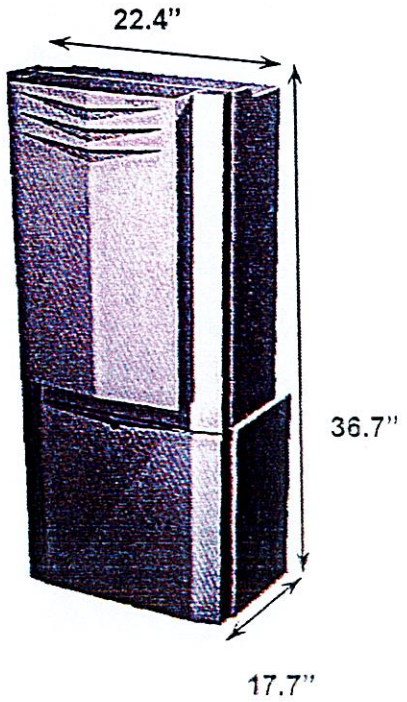


CDMA BTS 3231 AWS 1.7/2.1 GHz (Outdoor/Indoor)

CDMA BTS 3231

Industry's Highest Capacity AWS Micro BTS

The CDMA BTS 3231 is the latest extension to Nortel Networks BTS (Base Transceiver Station) portfolio providing the ideal solution for urban, sub-urban and rural deployments. The CDMA BTS 3231 is a 3-carrier, 3-sector outdoor/indoor BTS operating at the AWS band of 1.7/2.1 GHz supporting IS-95, 1XRTT and 1xEV-DO simultaneously. BTS 3231 provides flexible deployments solutions including floor, rack, and wall mount options. The power consumption of BTS3231 is industry leading consuming only 630W for 3C3S. The BTS 3231 is also very light at 240lbs making it easy to transport to hard to reach locations such as the top of a high rise building.



CDMA BTS 3231

The 3 sector functionality of the 3231 will provide a 4-6dB gain over an omni unit of comparable size in both the forward and reverse links as a result of the increased gain of the antennas. This increase in gain will translate directly into an increase in coverage allowing the customer to minimize the number of cell sites deployed.

Focused on reducing deployment expenses the BTS 3231 implements a simplified architecture that minimizes module count to 2 primary units, the radio module and the digital module. This simplification results in reduced time for deployment, reduced replacement time, and a lighter weight product collectively resulting in reduced operational expense. Small, light and feature rich the BTS3231 facilitates rapid network deployments allowing an operator to generate revenues from geographical areas that had no or very poor coverage. The BTS 3231 requires NBSS15.0 load.

KEY CUSTOMER BENEFITS

- High RF Coverage with ample Channel Element Support:
  - 3 sector product provides 4-6dB gain over an Omni equivalent
  - High forward link power of 18w/carrier-sector provides excellent coverage
  - Extended Coverage for Rural / Coastal areas with 54W PA power, 75W with Sector Power Pooling enabled offering better performance and capacity
  - Excellent reverse link RX Sensitivity of -127 dBm for balanced link
  - Reduces cell site count providing significant network savings
  - Up to 896 channel elements providing ample BTS-to-mobile links planning for capacity increases from SPP and EVRC-B
- Ease of Deployment and Reduced Operational Expenditure:
  - Light weight 240 lbs for easy shipment and installation
  - Reduced size and weight simplifies zoning issues, provides more deployment options, improves time to market
  - High power efficiency with 630W typical for reduced utility expenses
  - Simplified architecture enables easy deployment and reduced replacement time and cost
  - Reduced noise level equivalent to typical office environment
  - Enhanced VSWR feature reduces site visits for antenna tests
- Multiple Deployment Options:
  - Floor mounting
  - Pole mounting enables footprint savings with minimal loading of 240lbs
  - Supports overlay with PCS Metro Cell products, PCS BTS3031, and PCS BTS3030

TECHNICAL SPECIFICATIONS

Capacity:	1-3 Carriers, 1-3 Sectors (any combination of DO or 1X)
	High channel element capacity 896 max (integrated 128 CE's)
	4 digital expansion slots for XCEM's / DOMs
	Up to 3 DOM-A or Up to 4 XCEM192 (Mix of DOM-A/XCEM192)
Physical Parameters:	Physical dimensions W22.4"xH36.7"xD17.7"
	Weight 240 lbs max w/o battery
	785 lbs max w/ batteries
Enhanced Features:	Patented Sector Power Pooling
	Enhanced VSWR ±1 dB accuracy (0-10db return loss)
RF Performance:	Tx Power 18 Watt / Carrier-Sector, up to 25W with SPP enabled
	High Power Mode provides 54W/sector, up to 75W with SPP enabled
	Rx Sensitivity performance of -127 dBm (typical)
	Optional BAS IMF filters (target delivery 4Q08)
Backhaul:	IP Backhaul NBSS16.0
	4 T1/E1 Backhaul (1x) + 4 T1/E1 per DOM
	Supports Daisy Chaining
	2U of user space (example - microwave backhaul)
Power System	Input Voltage AC 180 to 240 VAC
	VLRA batteries, 12 hrs backup for 3C3S (typical conditions)
	Customer equipment AC outlet (120 VAC, 15A)
Deployment considerations:	6 customer configurable alarms
	Supports floor, pole and wall mounting
	Operating temperature: -40°C to −50°C

No battery enclosure, Radio Module and Digital Module installed, 4 CEM/DOM modules in door.

--End--

Electrical requirements

The BTS 3231 is available in a North American AC Powered outdoor enclosure. BTS 3231 supports integrated battery back-up through a single string of VRLA batteries.

AC power

The AC Power enters the BTS 3231 through a three conductor feed (L1, L2 & N) with an optional ACEG which terminates at the DU. The AC feed consists of closely coupled conductors with optional ACEG to minimize differential impedance and EMC effects. The AC connections are attached onto a terminal strip located in the GFI assembly. For power feed cable length constraints, refer to "AC Power Feed Gauge and Length" (page 26). The Protective Earth Ground (PEG) for the AC system is not the ACEG. The PEG terminates at the designated location on the back of the enclosure. Refer to "Grounding" (page 32).

Table 7
BTS 3231 AC Input Power Specifications

Specification		Min.	Nom.	Max.	Units
Input Operating Voltage, V_I	Normal continuous	175	200 - 240	275	Vrms
	Normal continuous conditional[b]			300	Vrms
	Normal continuous conditional[b] [c]	150			Vrms
	Abnormal, temporary, no damage[b] [d]			325	Vrms
	Dropout V_{Incm} to 0V to V_{Incm}, no operational upset[a]	20	70		ms
Input Operating frequency		45	50/60	66	Hz
BTS Input Current Rating	BTS 3231, North America			16	A

Table 7
BTS 3231 AC Input Power Specifications (cont'd.)

Recommended BTS Input Circuit Breaker Rating	BTS 3231, North America	20			A
Input Inrush Current	Magnitude, excluding EMC Capacitors			25	Apk
Input feed type	BTS 3231, North America	3 W + PE			
Input Power Factor	BTS transmitting RF	0.96			
Input Flicker	IEC 61000-3-3	Compliant			
Input Harmonic Distortion	IEC 61000-3-2	Compliant			

The hold-up duration will be longer for lower RF transmit levels and lower voltage magnitude dips.
In this extended region certain AC input specifications such as power factor may not be met.
In this extended region the BTS may shut-down or transfer to battery back-up when present when operating fully configured and at full capacity.
In this extended region the BTS may shutdown or transfer to battery back-up when present to self protect.
1.2/50 µs voltage transient combination waveform, 2 Ω generator output impedance.

AC Power Feed Gauge and Length

The minimum required cable gauge is determined by the larger of:

- the input overcurrent protection device (BTS power feed circuit breaker) rating and the resulting required minimum cable ampacity and therefore gauge, or
- the maximum allowable voltage drop and the resulting required minimum gauge.

Table 8 "BTS 3231 Minimum AC Power Feed Conductor Gauge" (page 26) presents the recommended minimum AC power feed conductor gauge according to generally accepted ampacity guidelines.

Table 8
BTS 3231 Minimum AC Power Feed Conductor Gauge

System	Feed Breaker	System Rating	Cable Gauge
BTS 3231	20 A	16 A	#12 AWG (3.3 mm^2)

The maximum distance at which BTS 3231 can be deployed from its power source is a function of both the feeder resistive voltage drop and inductance and is generally dictated by national and local building electrical codes. A general guideline for the maximum allowed voltage drop is 3% of the line voltage.

Table 9 "BTS 3231 Maximum AC Feed Cable Length, One Way" (page 27) presents the maximum one way cable lengths possible, given the accepted range of feed cable gauges and the assumptions indicated in the list.

Table 9
BTS 3231 Maximum AC Feed Cable Length, One Way

Wire Gauge	Cable Length, Meters	
	208 V AC	240 V AC
#6 AWG (13 mm^2)	123	162
#8 AWG (8.4 mm^2)	77	102
#10 AWG (5.3 mm^2)	48	63
#12 AWG (3.3 mm^2)	29	39

1. All lengths are one way straight distances in meters (i.e. the length of each of the supply and return conductor).
2. Worst case operation with full rectifier output capacity (i.e. full battery charging), full auxiliary AC outlet loading, and full continuous cabinet AC heater operation (i.e. cold start) is assumed.
3. A round trip feed cable voltage drop of 3% is assumed.
4. A worst case maximum external ambient temperature of 50 °C assumed.
5. A 90 °C cable rating is assumed.
6. BTS 3231 accepts #6 AWG solid conductor or #8 AWG multi-stranded conductor maximum.
7. BTS 3231 requires #12 AWG minimum to meet general code requirements.

Power Budget

Refer to section "Power Consumption Estimations" (page 29)and Table 12 "BTS 3231 AC Input Power Consumption" (page 29) to determine the overall BTS power consumption. Use the thermal load power values to determine expected longer term average power consumption for purposes such as determining battery back-up durations, or average thermal loading. Use the input operating power values to determine the limits of short term peak power for purposes such as rectifier, and feed breaker capacity sizing.

Power Provisioning

No additional power provisioning is required when an AC BTS 3231 is ordered.

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MLG15 Lite Generator

Interim Tier IV EPA Approved Engine

Magnum recognizes environmental responsibility and continues to meet emission regulations with the addition of their Interim Tier IV Generator line. The MLG15 generator is powered by a Mitsubishi diesel engine. Proven power you can trust, while maximizing fuel efficiency and high performance.

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Power

The MLG15 diesel generator provides just the right combination of output, flexibility, ruggedness, efficiency and affordability for on-the-go, smaller-to-midsize, single phase power needs.

updated parts information before placing a parts order.

Features

Tough

- Full tubular steel frame, with lockable enclosure
- Durable, fade resistant, white baked on powder coat finish
- Stainless steel hinges, exterior hardware and pad lockable door latches

Reliable

- Key switch to preheat (glow plug), start & stop
- Automatic low oil level / high temp shutdown alerts
- 70A Start limit main breaker
- 2 year - 2,000 hour warranty
- Marathon voltage regulation within +/- 1%

Ease for Your Users

- Self-priming 4 cylinder Mitsubishi engine
- External convenience outlets with individual breaker switches
- External emergency stop switch

Tech. Specs.

- MLG15

Literature / Sales

- Generator Lit.
- Service Kit Lit.
- Sales Supoort

- Warranty Overview
- Warranty Claim Policy

Specifications

Output

3 Phase - Standby **kW (kVA)**	N/A
Amps **480V (208V)**	N/A
3 Phase - Prime **kW (kVA)**	N/A
Amps **480V (208V)**	N/A
1 Phase - Standby **kW (kVA)**	14.0 (14.0)
Amps **240V**	58
1 Phase - Prime **kW (kVA)**	13.0 (13.0)
Amps **240V**	54
AC Voltage 1-phase	120, 240
AC Voltage 3-phase	N/A
Frequency **Hz**	60
Power Factor	1.0 (1 Phase)
Generator - Brand / Type / Insulation	Marathon / Brushless / F
Sound (dB(A) 23 ft @ prime)	68

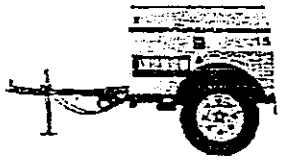
Size and Weight

Skid Mounted - L x W x H **in (m)**	N/A
Dry Weight **lbs (kg)**	N/A
Operating Weight **lbs (kg)**	N/A
Trailer Mounted - L x W x H **in (m)**	105 x 67 x 56 (2.67 x 1.70 x 1.42)
Dry Weight **lbs (kg)**	1425 (646)

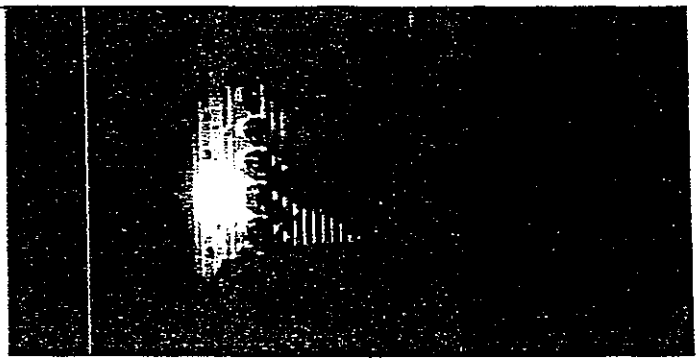
Operating Weight **lbs (kg)**	1823 (827)
Engine	
Type	Interim Tier IV
Brand	Mitsubishi
Aspiration	Natural
Power - Prime @ 1800 rpm **hp (kWm)**	22.3 (16.6)
Displacement **cubic in (L)**	107 (1.8)
Cylinders	4
Speed **rpm**	1800
Fuel Consumption - Prime **gph (Lph)**	1.30 (4.92)
Capacities	
Fuel Tank **gal (L)**	56 (212)
Approximate Run Time **hrs**	43
Coolant **qt (L)**	11.6 (11.0)
Electrical Distribution	
Battery - 12V	1 - 12V 440 CCA Wet Cell
Main Circuit Breaker Size **A**	70
Voltage Selection	N/A
Voltage Regulation	+/-1%
120V - 20A GFI Duplex Outlets - qty	2
240V - 30A Twist Lock Outlets - qty	2
240V - 50A Twist Lock Outlets - qty	2
Trailer	
Number of Axles	1
Capacity - Axle Rating **lbs (kg)**	2200 (998)
Tire Size **in**	15
Brakes	N/A
Hitch	2" Ball
Maximum Tire Pressure **psi**	50
Options	
Powertrain (Engine/Gen)	• 60/40 Coolant • Heated Fuel Filter • Engine Heater - Lower Radiator Hose • Oil Drain Valve Kit
Controls	• Battery, 720 CCA Gel Cell • Battery, 720 CCA Wet Cell • Battery, 685 CCA Gel Cell • No Battery • Battery Disconnect, Lockable • Battery Charger, 2 Amp • Alternative Outlet Panel Options (Consult factory for details)

Cabinet/Fuel Tank	• Interior Cabinet Light • Level Indicator • 56 Gallon Fuel Tank • Fuel Tank Cap - Vent w/ Lanyard • Spare Tire & Carrier • Lift Structure • Liquid Containment/Quiet Pack
Trailer	• Tube & Sleeve Jack • Combo Hitch - 2.5" Ring/2" Ball • 2.5" Ring • 3" Ring • 3" Ring (1.625 TH) • Plug Adapter, 4 Flat to 6 Round • Plug Adapter, 4 Flat to 7 Pin • Plug Adapter, 4 Flat to 7 Round Spade • Outrigger Package

Product Images (click small image to pop-up larger version)



EX-5r Series



All-Outdoor, Carrier-Class, Tri-Band 5 GHz TDD Radio System for Low, Medium and High Capacity Ethernet and TDM Applications

The EX-5r series of all-outdoor digital microwave radios is the first family of carrier-class, tri-band TDD radios available in the 5.2 – 5.8 GHz license-exempt bands. Radios in the EX-5r line support capacities ranging from 27 Mbps to an industry-leading 440 Mbps of aggregate user throughput, from zero to four T1/E1s and both 100BaseT and GbE interfaces. Featuring native TDM and native Ethernet transport and full software configurability and upgradeability, the EX-5r series was designed to meet demanding backhaul requirements of enterprise organizations and service providers seeking the performance benefits of an all-outdoor configuration.

Carrier-class TDD. The EX-5r series radios combine native TDM and native Ethernet transport with low, fixed latency to deliver guaranteed throughput and service quality. Capacity can be allocated variably between TDM and Ethernet via software, while the selectable throughput symmetry control feature enables radio capacity to efficiently match asymmetric traffic requirements.

Industry-leading Spectrum Management. The EX-5r radios include selectable channel bandwidth and 1 MHz tuning resolution, yielding up to 54 non-overlapping frequency channels and up to 415 center frequencies of operation. These capabilities, combined with selectable modulation and superior system gain, provide unparalleled interference avoidance and transmission resiliency. A built-in spectrum analyzer is even included to accelerate deployment and simplify troubleshooting.

ExaltSync Synchronization. The ExaltSync technology embedded in the EX-5r series radios allows multiple radio systems to be collocated in close proximity without self-interference, minimizing antenna separation and ensuring reuse of scarce spectrum across all collocated systems.

Security, Management and Data Networking. The EX-5r radios deliver the highest data and management security available with optional 128- and 256-bit AES encryption and secure SNMP v3 management, together with enhanced fault management and diagnostic features. The 802.1Q VLAN option provides built-in network administration and security flexibility.

EX-5r series radios are available in both integrated antenna and external antenna (connectorized) versions.

Primary Specifications		EX-5r Lite / EX-5r-c Lite	EX-5r v3 / EX-5r-c v2	EX-5r GigE / EX-5r-c GigE
Maximum Capacity[1]	TDM	4xT1/E1		
	Ethernet (Aggregate)	100 Mbps	200 Mbps	440 Mbps
Frequency (GHz)		Tri-band: 5.250-5.350, 5.470-5.725, 5.725-5.850		
Range[2]		> 30 miles at 99.999% throughput availability		

[1] Please refer to the ExaltThroughput and Range Specification document for detailed capacity information.

[2] Distance based upon FCC regulations, average climate and terrain, 3' flat antennas, 3 dB transmission system losses at each end. Longer or shorter distances will apply for alternative antennas, country regulations, transmission system losses, path topologies and radio configurations. See ExaltLink budget and path planning tool to model your scenario.

EXHIBIT C
STRUCTURAL ANANYSIS

Date: **June 30, 2009**

Mr. Michael McFadden
Crown Castle USA Inc.
3530 Toringdon Way Suite 300
Charlotte, NC 28277

IETS
129 Greenwich Road
Charlotte, NC 28211
(704) 552-1131
(704) 405 6612
towerdata@iets.com

Subject: **Structural Analysis Report**

Carrier Designation:	***Youghiogheny Communications-TX* Co-Locate**	
Crown Castle Designation:	**Crown Castle BU Number:**	876348
	Crown Castle Site Name:	ENFIELD
	Crown Castle JDE Job Number:	121569
	Crown Castle Work Order Number:	280021
Engineering Firm Designation:	**IETS Project Number:**	2009-70444
Site Data:	**Bright Meadow Blvd., ENFIELD, Hartford County, CT** **Latitude *42° 1' 14.83"*, Longitude *-72° 35' 6.93"*** **147.5 Foot - Monopole Tower**	

Dear Mr. McFadden,

IETS is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 336379, in accordance with application 84279, revision 1.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC1: Existing + Reserved + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

The analysis has been performed in accordance with the TIA/EIA-222-F standard and the 2006 IBC based upon a wind speed of 80 mph fastest mile.

All modifications and equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

We at *IETS* appreciate the opportunity of providing our continuing professional services to you and Crown Castle USA Inc.. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted by:

Ted Haile, P.E.
Senior Project Engineer

William A. Griswold, Jr., P.E.
Chief Engineer

STATE OF CONNECTICUT
WILLIAM A. GRISWOLD, JR.
No. 23736
LICENSED
PROFESSIONAL ENGINEER

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 147.5 ft Monopole tower designed by Summit in September of 1998. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-F.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 80 mph with no ice, 69.3 mph with 0.5 inch ice thickness and 50 mph under service loads.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
107	107	3	Mounts	Pipe Mount [PM 501-1]	6	1-5/8	
		3	RFS Celwave	APXV18-206517S-C			

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
147	147	9	MLA	MLA_ANTENNA	9	1-5/8	3
		1	Mounts	13' Low Profile Platform	6	1-5/8	1
		6	Decibel	DB980H90E-M			
		3	Decibel	DB980H90E-M	-	-	2
132	134	2	Decibel	DB948F85T2E-M	12	1-5/8	1
		4	Decibel	DB948F85T2E-M			
		6	Swedcom	ALP-E 9011-DIN			
	132	1	Mounts	13' Low Profile Platform			
127	129	12	Allgon	7130.16.33.00	12	7/8	1
	127	1	Mounts	13' Low Profile Platform			
117	119	12	MLA	MLA ANTENNA	12	1-5/8	3
		12	LGP Telecom	TMA-DDD 850/1900			
		6	Allgon	7184.14	-	-	2
	117	3	Powerwave	7770.00	9	1-5/8	1
		1	Mounts	13' Low Profile Platform			
		6	Powerwave	LGP21401			
49	50	1	Symmetricom	58532A	1	1/2	1
	49	1	Mounts	Chain Mount			

Notes:
1) Existing Equipment
2) Reserved Equipment
3) MLA Equipment Controlling

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model
148	148	12	-	DB980H PCS
		1	Mounts	14' Low Profile Platform
132	132	12	-	Panel Antenna (CaAa = 3.9 S.F. EA.)
		1	Mounts	14' Low Profile Platform (Clamp on)
117	117	12	-	Panel Antenna (CaAa = 3.9 S.F. EA.)
		1	Mounts	14' Low Profile Platform (Clamp on)
50	50	1	-	GPS Antenna w/ Mount

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Tower Manufacturer Drawings	Paul J. Ford	1613591	CCISITES
Tower Foundation Drawings	Paul J. Ford	1613614	CCISITES
Geotechnical Reports	Clarence Welti Assoc.	1532963	CCISITES

3.1) Analysis Method

RISATower (version 5.3.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
4) When applicable, transmission cables are considered as structural components for calculating wind loads as allowed by TIA/EIA-222-F.

This analysis may be affected if any assumptions are not valid or have been made in error. IETS should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	147.5 - 108.5	Pole	TP29.4x22x0.25	1	-8.55	1082.89	48.3	Pass
L2	108.5 - 72.25	Pole	TP35.7x28.188x0.25	2	-13.62	1427.51	93.5	Pass
L3	72.25 - 35.75	Pole	TP42.5x34.355x0.313	3	-20.65	2121.60	94.6	Pass
L4	35.75 - 0	Pole	TP48.4x40.832x0.375	4	-30.89	2971.67	90.7	Pass
							Summary	
						Pole (L3)	94.6	Pass
						Rating =	94.6	Pass

Table 6 - Tower Component Stresses vs. Capacity - LC1

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
	Anchor Rods		96.8	Pass
	Base Plate		87.1	Pass
	Base Foundation Soil Interaction		81.3	Pass
	Base Foundation Structural		63.8	Pass

Structure Rating (max from all components) =	96.8%

Notes:
1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

APPENDIX A

RISA TOWER OUTPUT

Tower Input Data

There is a pole section.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in Hartford County, Connecticut.
Basic wind speed of 80 mph.
Nominal ice thickness of 0.500 in.
Ice density of 56 pcf.
A wind speed of 69 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.333.
Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Treat Feedline Bundles As Cylinder
Consider Moments - Horizontals	Assume Legs Pinned	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Diagonals	√ Assume Rigid Index Plate	√ Calculate Redundant Bracing Forces
Use Moment Magnification	√ Use Clear Spans For Wind Area	Ignore Redundant Members in FEA
√ Use Code Stress Ratios	√ Use Clear Spans For KL/r	SR Leg Bolts Resist Compression
√ Use Code Safety Factors - Guys	√ Retension Guys To Initial Tension	√ All Leg Panels Have Same Allowable
Escalate Ice	√ Bypass Mast Stability Checks	Offset Girt At Foundation
Always Use Max Kz	√ Use Azimuth Dish Coefficients	Consider Feedline Torque
Use Special Wind Profile	√ Project Wind Area of Appurt.	Include Angle Block Shear Check
√ Include Bolts In Member Capacity	√ Autocalc Torque Arm Areas	Poles
Leg Bolts Are At Top Of Section	SR Members Have Cut Ends	Include Shear-Torsion Interaction
√ Secondary Horizontal Braces Leg	√ Sort Capacity Reports By Component	Always Use Sub-Critical Flow
Use Diamond Inner Bracing (4 Sided)	√ Triangulate Diamond Inner Bracing	Use Top Mounted Sockets
Add IBC .6D+W Combination		

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	147'6"-108'6"	39'	3'9"	18	22.000	29.400	0.250	1.000	A572-60 (60 ksi)
L2	108'6"-72'3"	40'	4'6"	18	28.188	35.700	0.250	1.000	A572-65 (65 ksi)
L3	72'3"-35'9"	41'	5'3"	18	34.355	42.500	0.313	1.250	A572-65 (65 ksi)
L4	35'9"-0'	41'		18	40.832	48.400	0.375	1.500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	22.339	17.259	1031.483	7.721	11.176	92.294	2064.324	8.631	3.432	13.728
	29.854	23.131	2483.133	10.348	14.935	166.260	4969.534	11.567	4.734	18.938
L2	29.338	22.169	2186.210	9.918	14.320	152.671	4375.296	11.087	4.521	18.085
	36.251	28.130	4466.148	12.585	18.136	246.264	8938.172	14.067	5.843	23.373
L3	35.793	33.766	4943.754	12.085	17.452	283.272	9894.014	16.886	5.496	17.589
	43.156	41.845	9409.050	14.977	21.590	435.806	18830.480	20.926	6.930	22.176
L4	42.446	48.154	9957.673	14.362	20.743	480.057	19928.448	24.082	6.526	17.404
	49.147	57.162	16656.270	17.049	24.587	677.437	33334.457	28.586	7.858	20.956

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
1 5/8 Cable (MLA)	C	No	Inside Pole	147' - 0'	9	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
1 5/8 Cable	B	No	Inside Pole	132' - 0'	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
7/8 Cable	A	No	Inside Pole	127' - 0'	12	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
1 5/8 Cable (MLA)	C	No	Inside Pole	117' - 0'	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
1/2 Cable	C	No	Inside Pole	49' - 0'	1	No Ice	0.00	0.14
						1/2" Ice	0.00	0.14
1 5/8 Cable	C	No	CaAa (Out Of Face)	107' - 0'	1	No Ice	0.20	0.82
						1/2" Ice	0.30	2.32
1 5/8 Cable (Shielded)	C	No	CaAa (Out Of Face)	107' - 0'	5	No Ice	0.00	0.82
						1/2" Ice	0.00	2.32

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Mount - 13' Low Profile Platform	C	None		0.0000	147'	No Ice	15.70	15.70	1.30
						1/2" Ice	20.10	20.10	1.77
(3) SPRINT MLA_ANTENNA (MLA)	A	From Leg	4.00 0' 0'	0.0000	147'	No Ice	8.40	5.28	0.04
						1/2" Ice	8.95	5.74	0.09
(3) SPRINT MLA_ANTENNA (MLA)	B	From Leg	4.00 0' 0'	0.0000	147'	No Ice	8.40	5.28	0.04
						1/2" Ice	8.95	5.74	0.09
(3) SPRINT MLA_ANTENNA (MLA)	C	From Leg	4.00 0' 0'	0.0000	147'	No Ice	8.40	5.28	0.04
						1/2" Ice	8.95	5.74	0.09
Mount - 13' Low Profile Platform	C	None		0.0000	132'	No Ice	15.70	15.70	1.30
						1/2" Ice	20.10	20.10	1.77
(2) ALP-E 9011-DIN w/ Mount Pipe	A	From Leg	6.00 0' 2'	0.0000	132'	No Ice	2.95	4.40	0.04
						1/2" Ice	3.33	5.01	0.07
(2) ALP-E 9011-DIN w/ Mount Pipe	B	From Leg	6.00 0' 2'	0.0000	132'	No Ice	2.95	4.40	0.04
						1/2" Ice	3.33	5.01	0.07
(2) ALP-E 9011-DIN w/ Mount Pipe	C	From Leg	6.00 0' 2'	0.0000	132'	No Ice	2.95	4.40	0.04
						1/2" Ice	3.33	5.01	0.07
(2) DB948F85T2E-M w/ Mount Pipe	A	From Leg	4.00 0' 2'	0.0000	132'	No Ice	2.13	4.45	0.03
						1/2" Ice	2.49	5.12	0.06
(2) DB948F85T2E-M w/ Mount Pipe	B	From Leg	4.00 0' 2'	0.0000	132'	No Ice	2.13	4.45	0.03
						1/2" Ice	2.49	5.12	0.06
(2) DB948F85T2E-M w/ Mount Pipe	C	From Leg	4.00 0' 2'	0.0000	132'	No Ice	2.13	4.45	0.03
						1/2" Ice	2.49	5.12	0.06
Mount - 13' Low Profile Platform	C	None		0.0000	127'	No Ice	15.70	15.70	1.30
						1/2" Ice	20.10	20.10	1.77
(4) 7130.16.33.00 w/ Mount Pipe	A	From Leg	6.00 0' 2'	0.0000	127'	No Ice	6.00	7.03	0.04
						1/2" Ice	6.48	7.81	0.09

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(4) 7130.16.33.00 w/ Mount Pipe	B	From Leg	6.00 0' 2'	0.0000	127'	No Ice 1/2" Ice	6.00 6.48	7.03 7.81	0.04 0.09
(4) 7130.16.33.00 w/ Mount Pipe	C	From Leg	6.00 0' 2'	0.0000	127'	No Ice 1/2" Ice	6.00 6.48	7.03 7.81	0.04 0.09
Mount - 13' Low Profile Platform	C	None		0.0000	117'	No Ice 1/2" Ice	15.70 20.10	15.70 20.10	1.30 1.77
(4) ATT GSL MLA ANTENNA (MLA)	A	From Leg	4.00 0' 2'	0.0000	117'	No Ice 1/2" Ice	10.48 11.07	2.14 2.88	0.05 0.09
(4) ATT GSL MLA ANTENNA (MLA)	B	From Leg	4.00 0' 2'	0.0000	117'	No Ice 1/2" Ice	10.48 11.07	2.14 2.88	0.05 0.09
(4) ATT GSL MLA ANTENNA (MLA)	C	From Leg	4.00 0' 2'	0.0000	117'	No Ice 1/2" Ice	10.48 11.07	2.14 2.88	0.05 0.09
Pipe Mount [PM 501-1]	A	From Leg	0.00 0' 0'	0.0000	107'	No Ice 1/2" Ice	3.47 4.45	1.67 2.10	0.05 0.06
Pipe Mount [PM 501-1]	B	From Leg	0.00 0' 0'	0.0000	107'	No Ice 1/2" Ice	3.47 4.45	1.67 2.10	0.05 0.06
Pipe Mount [PM 501-1]	C	From Leg	0.00 0' 0'	0.0000	107'	No Ice 1/2" Ice	3.47 4.45	1.67 2.10	0.05 0.06
APXV18-206517S-C w/ Mount Pipe (P)	A	From Leg	3.00 0' 0'	0.0000	107'	No Ice 1/2" Ice	5.40 5.96	4.70 5.86	0.05 0.09
APXV18-206517S-C w/ Mount Pipe (P)	B	From Leg	3.00 0' 0'	0.0000	107'	No Ice 1/2" Ice	5.40 5.96	4.70 5.86	0.05 0.09
APXV18-206517S-C w/ Mount Pipe (P)	C	From Leg	3.00 0' 0'	0.0000	107'	No Ice 1/2" Ice	5.40 5.96	4.70 5.86	0.05 0.09
Chain Mount	C	From Leg	0.00 0' 0'	0.0000	49'	No Ice 1/2" Ice	6.10 7.60	6.10 7.60	0.25 0.35
58532A	A	From Leg	2.00 0' 1'	0.0000	49'	No Ice 1/2" Ice	0.22 0.29	0.22 0.29	0.00 0.00

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice
4	Dead+Wind 60 deg - No Ice
5	Dead+Wind 90 deg - No Ice
6	Dead+Wind 120 deg - No Ice
7	Dead+Wind 150 deg - No Ice
8	Dead+Wind 180 deg - No Ice
9	Dead+Wind 210 deg - No Ice
10	Dead+Wind 240 deg - No Ice
11	Dead+Wind 270 deg - No Ice
12	Dead+Wind 300 deg - No Ice
13	Dead+Wind 330 deg - No Ice
14	Dead+Ice+Temp
15	Dead+Wind 0 deg+Ice+Temp
16	Dead+Wind 30 deg+Ice+Temp

Comb. No.	Description
17	Dead+Wind 60 deg+Ice+Temp
18	Dead+Wind 90 deg+Ice+Temp
19	Dead+Wind 120 deg+Ice+Temp
20	Dead+Wind 150 deg+Ice+Temp
21	Dead+Wind 180 deg+Ice+Temp
22	Dead+Wind 210 deg+Ice+Temp
23	Dead+Wind 240 deg+Ice+Temp
24	Dead+Wind 270 deg+Ice+Temp
25	Dead+Wind 300 deg+Ice+Temp
26	Dead+Wind 330 deg+Ice+Temp
27	Dead+Wind 0 deg - Service
28	Dead+Wind 30 deg - Service
29	Dead+Wind 60 deg - Service
30	Dead+Wind 90 deg - Service
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	14	39.19	0.00	-0.00
	Max. H_x	11	30.91	24.30	-0.00
	Max. H_z	2	30.91	0.00	24.30
	Max. M_x	2	2629.64	0.00	24.30
	Max. M_z	5	2629.48	-24.30	-0.00
	Max. Torsion	13	0.29	12.15	21.04
	Min. Vert	11	30.91	24.30	-0.00
	Min. H_x	5	30.91	-24.30	-0.00
	Min. H_z	8	30.91	0.00	-24.30
	Min. M_x	8	-2630.07	0.00	-24.30
	Min. M_z	11	-2630.22	24.30	-0.00
	Min. Torsion	7	-0.29	-12.15	-21.04

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	147.5 - 108.5	42.097	36	2.3857	0.0002
L2	112.25 - 72.25	24.991	35	2.1647	0.0002
L3	76.75 - 35.75	11.304	35	1.4328	0.0002
L4	41 - 0	3.158	35	0.7038	0.0001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
147'	Mount - 13' Low Profile Platform	36	41.845	2.3843	0.0002	27754
132'	Mount - 13' Low Profile Platform	35	34.351	2.3324	0.0002	8952
127'	Mount - 13' Low Profile Platform	35	31.905	2.3048	0.0002	6768
117'	Mount - 13' Low Profile Platform	35	27.158	2.2214	0.0002	4548
107'	Pipe Mount [PM 501-1]	35	22.675	2.0871	0.0002	3648
49'	Chain Mount	35	4.454	0.8159	0.0001	2513

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	147.5 - 108.5	107.365	11	6.0882	0.0005
L2	112.25 - 72.25	63.770	11	5.5250	0.0004
L3	76.75 - 35.75	28.860	11	3.6584	0.0004
L4	41 - 0	8.068	10	1.7978	0.0003

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
147'	Mount - 13' Low Profile Platform	11	106.724	6.0849	0.0004	11092
132'	Mount - 13' Low Profile Platform	11	87.625	5.9579	0.0004	3576
127'	Mount - 13' Low Profile Platform	11	81.393	5.8880	0.0004	2702
117'	Mount - 13' Low Profile Platform	11	69.295	5.6728	0.0004	1814
107'	Pipe Mount [PM 501-1]	11	57.865	5.3217	0.0004	1452
49'	Chain Mount	11	11.375	2.1435	0.0004	987

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
L1	147.5 - 108.5 (1)	TP29.4x22x0.25	39'	0'	0.0	36.000	22.566	-8.55	812.37	0.011
L2	108.5 - 72.25 (2)	TP35.7x28.188x0.25	40'	0'	0.0	39.000	27.459	-13.62	1070.90	0.013
L3	72.25 - 35.75 (3)	TP42.5x34.355x0.313	41'	0'	0.0	39.000	40.810	-20.65	1591.60	0.013
L4	35.75 - 0 (4)	TP48.4x40.832x0.375	41'	0'	0.0	39.000	57.162	-30.89	2229.31	0.014

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	147.5 - 108.5 (1)	TP29.4x22x0.25	300.79	-22.815	36.000	0.634	0.00	0.000	36.000	0.000
L2	108.5 - 72.25 (2)	TP35.7x28.188x0.25	941.11	-48.134	39.000	1.234	0.00	0.000	39.000	0.000
L3	72.25 - 35.75 (3)	TP42.5x34.355x0.313	1680.45	-48.656	39.000	1.248	0.00	0.000	39.000	0.000
L4	35.75 - 0 (4)	TP48.4x40.832x0.375	2630.54	-46.597	39.000	1.195	0.00	0.000	39.000	0.000

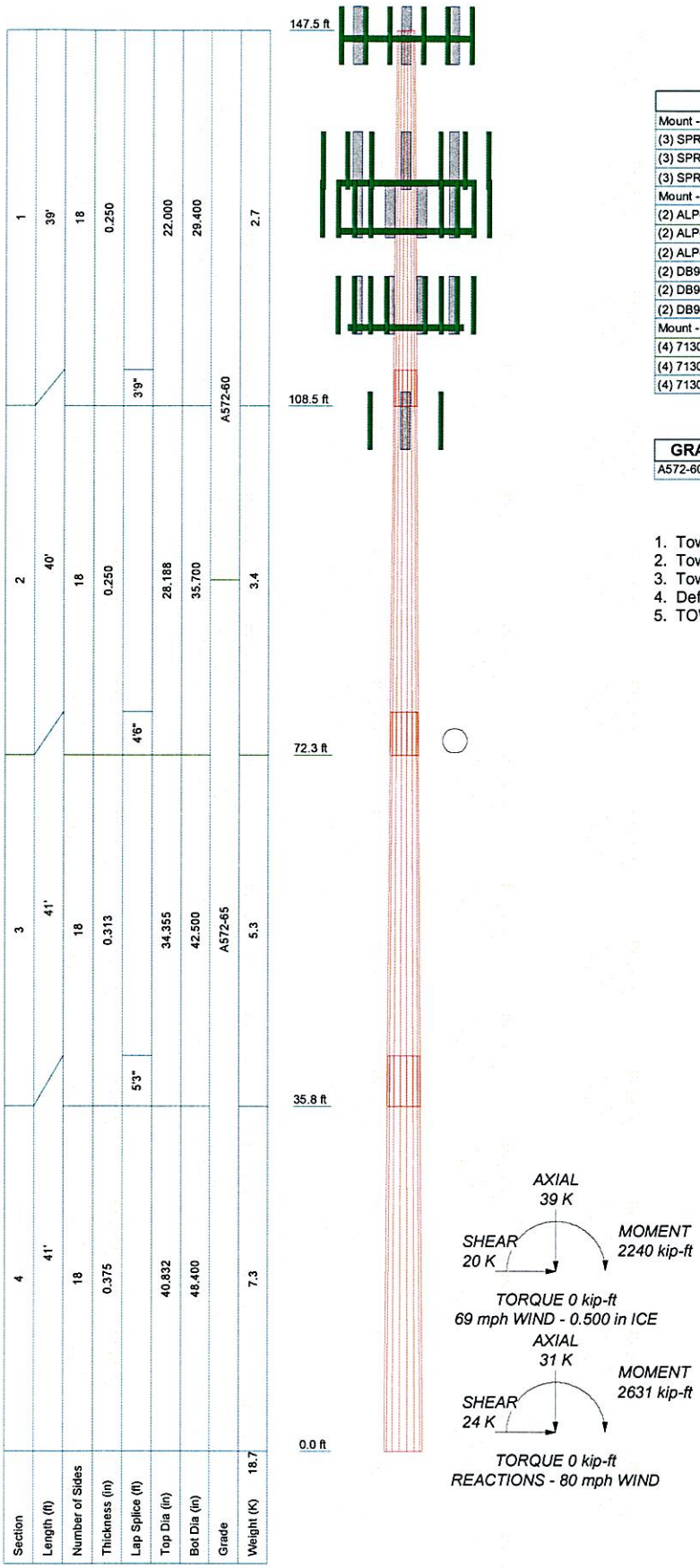
Pole Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	147.5 - 108.5 (1)	TP29.4x22x0.25	0.011	0.634	0.000	0.644	1.333	H1-3
L2	108.5 - 72.25 (2)	TP35.7x28.188x0.25	0.013	1.234	0.000	1.247	1.333	H1-3

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L3	72.25 - 35.75 (3)	TP42.5x34.355x0.313	0.013	1.248	0.000	1.261	1.333	H1-3
L4	35.75 - 0 (4)	TP48.4x40.832x0.375	0.014	1.195	0.000	1.209	1.333	H1-3

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	147.5 - 108.5	Pole	TP29.4x22x0.25	1	-8.55	1082.89	48.3	Pass
L2	108.5 - 72.25	Pole	TP35.7x28.188x0.25	2	-13.62	1427.51	93.5	Pass
L3	72.25 - 35.75	Pole	TP42.5x34.355x0.313	3	-20.65	2121.60	94.6	Pass
L4	35.75 - 0	Pole	TP48.4x40.832x0.375	4	-30.89	2971.67	90.7	Pass
							Summary	
						Pole (L3)	94.6	Pass
						RATING =	**94.6**	**Pass**



Section	1	2	3	4
Length (ft)	39'	40'	41'	41'
Number of Sides	18	18	18	18
Thickness (in)	0.250	0.250	0.313	0.375
Lap Splice (ft)	3'9"	4'6"	5'3"	
Top Dia (in)	22.000	28.188	34.355	40.832
Bot Dia (in)	29.400	35.700	42.500	48.400
Grade	A572-60		A572-65	
Weight (K)	2.7	3.4	5.3	7.3

18.7

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Mount - 13' Low Profile Platform	147	Mount - 13' Low Profile Platform	117
(3) SPRINT MLA_ANTENNA (MLA)	147	(4) ATT GSL MLA ANTENNA (MLA)	117
(3) SPRINT MLA_ANTENNA (MLA)	147	(4) ATT GSL MLA ANTENNA (MLA)	117
(3) SPRINT MLA_ANTENNA (MLA)	147	(4) ATT GSL MLA ANTENNA (MLA)	117
Mount - 13' Low Profile Platform	132	Pipe Mount [PM 501-1]	107
(2) ALP-E 9011-DIN w/ Mount Pipe	132	Pipe Mount [PM 501-1]	107
(2) ALP-E 9011-DIN w/ Mount Pipe	132	Pipe Mount [PM 501-1]	107
(2) ALP-E 9011-DIN w/ Mount Pipe	132	APXV18-206517S-C w/ Mount Pipe (P)	107
(2) DB948F85T2E-M w/ Mount Pipe	132		
(2) DB948F85T2E-M w/ Mount Pipe	132	APXV18-206517S-C w/ Mount Pipe (P)	107
(2) DB948F85T2E-M w/ Mount Pipe	132		
Mount - 13' Low Profile Platform	127	APXV18-206517S-C w/ Mount Pipe (P)	107
(4) 7130.16.33.00 w/ Mount Pipe	127	Chain Mount	49
(4) 7130.16.33.00 w/ Mount Pipe	127	58532A	49
(4) 7130.16.33.00 w/ Mount Pipe	127		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-60	60 ksi	75 ksi	A572-65	65 ksi	80 ksi

TOWER DESIGN NOTES

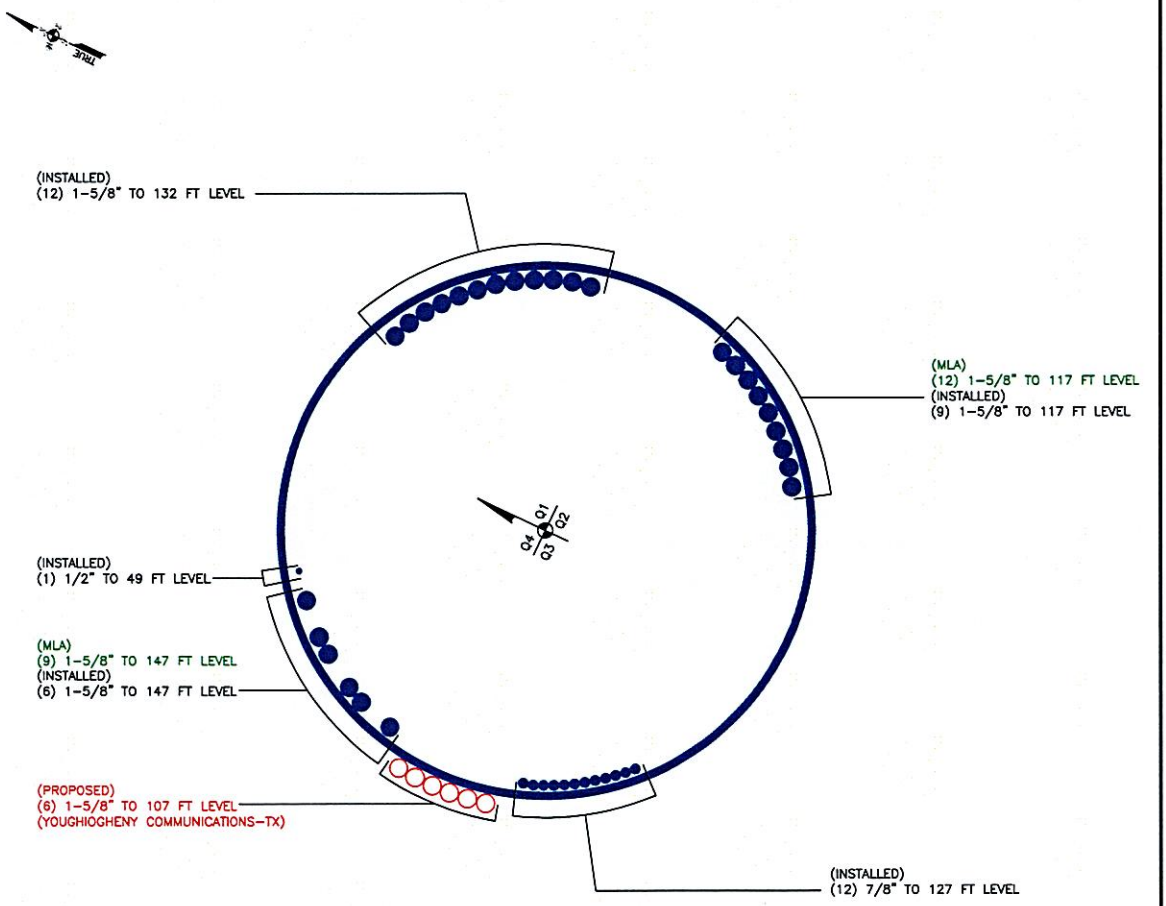
1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 69 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 94.6%

IETS
129 Greenwich Road
Charlotte, NC 28211
Phone: (704) 552-1131
FAX: (704) 552-1280

Job:	2009-70444 BU# 876348 "Enfield"		
Project:	Youghiogheny Co-Locate		
Client:	Crown Castle International	Drawn by: Ted Haile	App'd:
Code:	TIA/EIA-222-F	Date: 06/30/09	Scale: NTS
Path:	N:\2009-70400 Thru 70499\2009-70444 MP 876348 Enfield (SA)\Calc\2009-70444_876348.e4		Dwg No. E-1

APPENDIX B

BASE LEVEL DRAWING



All other lines routed
inside the pole structure

Youghiogheny
Co-Locate

www.iets.com
IETS
Engineering Services
129 Greenwich Road
Charlotte, NC 28211
Ph:(704)522-1131
Fax:(704)522-1280

NOTES
RELEASE: ORIGINAL

DRAWN BY: TH
CHECKED BY: W. A. Griswold
DRAWING DATE: 06-30-09

BUSINESS UNIT NUMBER
876348

SITE NAME
Enfield

SITE INFORMATION
148' Monopole
Bright Meadow Blvd.
Enfield, CT

DRAWING TITLE
Cable Routing Drawing

DRAWING NUMBER
2009-70444-01

APPENDIX C

ADDITIONAL CALCULATIONS

www.iets.com
IETS Engineering Services
Industrial Engineering & Testing Services, P.C.
129 Greenwich Road
Charlotte, North Carolina 28211
Phone: (704) 522-1131 / Fax: (704) 522-1280
Web: www.IETS.com email: towerdata@iets.com

Square, Unstiffened Base Plate, Any Rod Material - Rev. F

Project #	*2009-70444*
Client Name	*Crown Castle USA*
BU#:	*876348*
Site Name:	*Enfield*
App #:	*84279 Rev. 1*

Reactions		
Moment:	2631	ft-kips
Axial:	31	kips
Shear:	24	kips

Connection Type: *Butt*

Anchor Rod Data		
Qty:	12	
Diam:	2.25	in
Rod Material:	A615-J	
Grade(Fy):	75	ksi
Bolt Circle:	55	in
Anchor Spacing:	6	in

Plate Data		
W=Side:	52	in
Thick:	3	in
Grade:	50	ksi
B effective	25.14	in

Pole Data		
Diam:	48.4	in
Thick:	0.375	in
Grade:	65	ksi

Stress Increase Factor		
ASIF:	1.333	

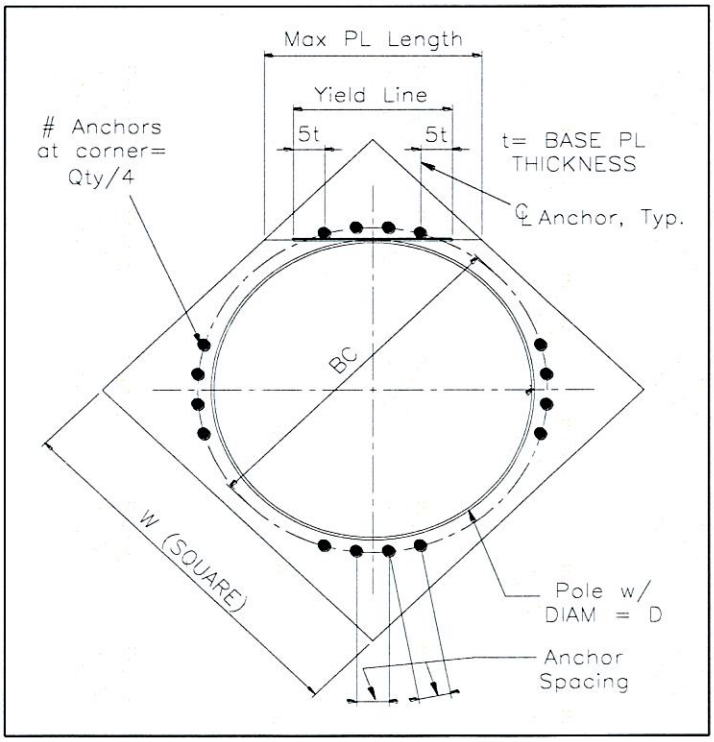
Anchor Rod Results

Maximum Rod Tension:	188.8 Kips	
Allowable Tension:	195.0 Kips	
Anchor Rod Stress Ratio:	96.8%	**Pass**

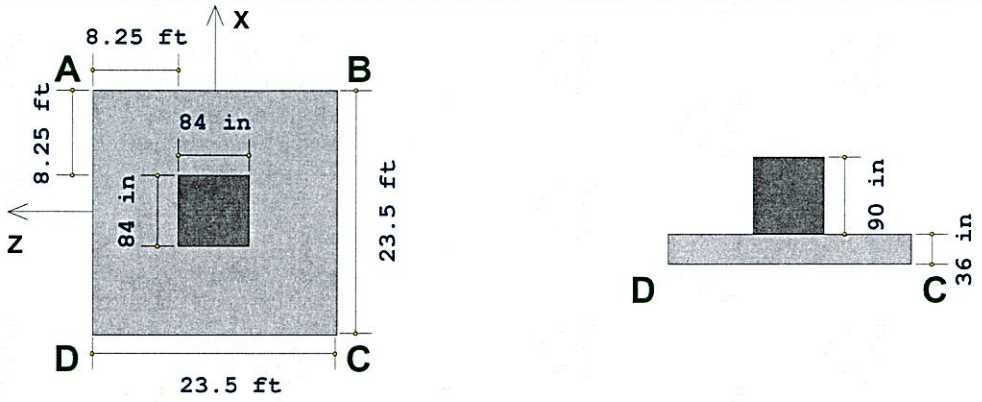
Base Plate Results

Base Plate Stress:	43.5 ksi	
Allowable Plate Stress:	50.0 ksi	
Base Plate Stress Ratio:	87.1%	**Pass**

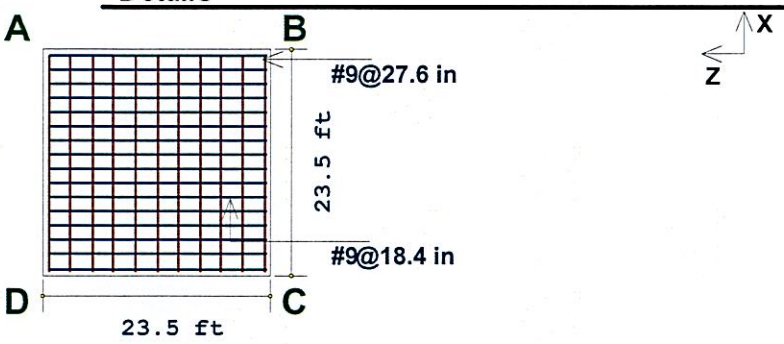
PL Ref. Data
Yield Line (in):
25.14
Max PL Length:
25.14



Sketch



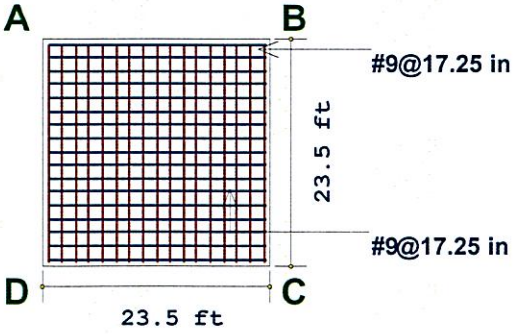
Details



X Dir. Steel: 10.84 in^2 (min)(11,#9)

Z Dir. Steel: 15.17 in^2 (16 #9)

Bottom Rebar Plan



X Dir. Steel: 16.99 in^2 (min)(17 #9)

Z Dir. Steel: 16.99 in^2 (17 #9)

Top Rebar Plan

Geometry, Materials and Criteria

Length	:**23.5 ft**	eX	:**0 in**	Net Allowable Bearing	:**2000 psf**	Steel fy	:**60 ksi**
Width	:**23.5 ft**	eZ	:**0 in**	Concrete Weight	:**145 pcf**	Minimum Steel	:**.0018**
Thickness	:**36 in**	pX	:**84 in**	Concrete f'c	:**3 ksi**	Maximum Steel	:**.0075**
Height	:**90 in**	pZ	:**84 in**	Design Code	:**ACI 318-02**		

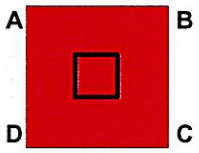
Footing Top Bar Cover	:**3 in**	Overturning Safety Factor	:**1.5**	Phi for Flexure	:**0.9**
Footing Bottom Bar Cover	:**3 in**	Coefficient of Friction	:**0.3**	Phi for Shear	:**0.75**
Pedestal Longitudinal Bar Cover	:**3 in**	Passive Resistance of Soil	:**0 k**	Phi for Bearing	:**0.65**

Loads

	P (k)	Vx (k)	Vz (k)	Mx (k-ft)	Mz (k-ft)	Overburden (psf)
DL	**31**					**805**
WL			**-24**	**2631**		

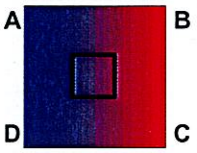
Soil Bearing

Description	Categories and Factors	Gross Allow.(psf)	Max Bearing (psf)	Max/Allowable Ratio
ASCE 2.4.1-1	1DL	3265.07	1321.2 (A)	.405
ASCE 2.4.1-2	1DL+1LL	3265.07	1321.2 (A)	.405
ASCE 2.4.1-3a	1DL+1WL	3265.07	2654.14 (B)	.813
ASCE 2.4.1-3b	1DL+.7EL	3265.07	1321.2 (A)	.405
ASCE 2.4.1-3c	1DL+.75LL+.75WL	3265.07	2320.86 (B)	.711
ASCE 2.4.1-3d	1DL+.75LL+.7EL	3265.07	1321.2 (A)	.405
ASCE 2.4.1-4	.6DL+1WL	3265.07	2404.74 (B)	.737
ASCE 2.4.1-5	.6DL+.7EL	3265.07	792.72 (A)	.243

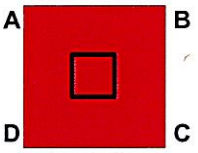


1DL
QA: 1321.2 psf
QB: 1321.2 psf
QC: 1321.2 psf
QD: 1321.2 psf
NAZ: -1 in
NAX: -1 in

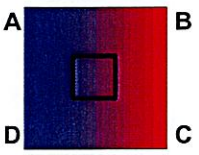
1DL+1LL
QA: 1321.2 psf
QB: 1321.2 psf
QC: 1321.2 psf
QD: 1321.2 psf
NAZ: -1 in
NAX: -1 in



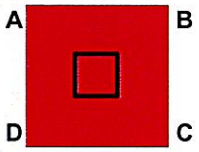
1DL+1WL
QA: 0 psf
QB: 2654.14 psf
QC: 2654.14 psf
QD: 0 psf
NAZ: 280.753 in
NAX: -1 in



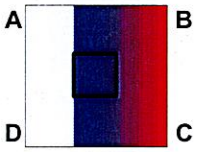
1DL+.7EL
QA: 1321.2 psf
QB: 1321.2 psf
QC: 1321.2 psf
QD: 1321.2 psf
NAZ: -1 in
NAX: -1 in



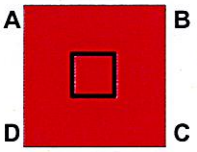
1DL+.75LL+.75WL
QA: 321.537 psf
QB: 2320.86 psf
QC: 2320.86 psf
QD: 321.537 psf
NAZ: 327.352 in
NAX: -1 in



1DL+.75LL+.7EL
QA: 1321.2 psf
QB: 1321.2 psf
QC: 1321.2 psf
QD: 1321.2 psf
NAZ: -1 in
NAX: -1 in



.6DL+1WL
QA: 0 psf
QB: 2404.74 psf
QC: 2404.74 psf
QD: 0 psf
NAZ: 185.922 in
NAX: -1 in



.6DL+.7EL
QA: 792.72 psf
QB: 792.72 psf
QC: 792.72 psf
QD: 792.72 psf
NAZ: -1 in
NAX: -1 in

Footing Flexure Design (Bottom Bars)

Description	Categories and Factors	Mu-XX (k-ft)	Z Dir As (in^2)	Mu-ZZ (k-ft)	X Dir As (in^2)
ACI 9-1	1.4DL+1.7LL	1479.25	10.27	1479.25	10.27
ACI 9-2	1.05DL+1.275LL+1.275WL	2170.51	15.166	1109.44	7.677
ACI 9-3	.9DL+1.3WL	2091.51	14.603	950.948	6.571
IBC 16-5	1.2DL+1LL+1EL	1267.93	8.786	1267.93	8.786
IBC 16-6	.9DL+1EL	950.948	6.571	950.948	6.571

Note: Overburden and footing self weight are included in the DL load case.

Note: Overburden and footing self weight are included in the DL load case.

Footing Flexure Design (Top Bars)

Description	Categories and Factors	Mu-XX (k-ft)	Z Dir As (in^2)	Mu-ZZ (k-ft)	X Dir As (in^2)
SW+OVER	1SW+1OVER	975.797	6.744	991.671	6.854

Footing Shear Check

Two Way (Punching) Vc: **3309.75 k** One Way (X Dir. Cut) Vc **1002 k** One Way (Z Dir. Cut) Vc: **1002 k**

Description	Categories and Factors	Punching Vu(k)	Punching Vu/⌀Vc	X Dir. Cut Vu(k)	X Dir. Cut Vu/⌀Vc	Z Dir. Cut Vu(k)	Z Dir. Cut Vu/⌀Vc
ACI 9-1	**1.4DL+1.7LL**	**847.341**	**.341**	**241.114**	**.321**	**241.114**	**.321**
ACI 9-2	**1.05DL+1.275LL+1.275WL**	**637.605**	**.257**	**353.329**	**.47**	**180.836**	**.241**
ACI 9-3	**.9DL+1.3WL**	**554.552**	**.223**	**340.39**	**.453**	**155.002**	**.206**
IBC 16-5	**1.2DL+1LL+1EL**	**726.293**	**.293**	**206.669**	**.275**	**206.669**	**.275**
IBC 16-6	**.9DL+1EL**	**544.72**	**.219**	**155.002**	**.206**	**155.002**	**.206**

Note: Overburden and footing self weight are included in the DL load case.

Concrete Bearing Check (Vertical Loads Only)

Bearing Bc : **35985.6 k**

Description	Categories and Factors	Bearing Bu (k)	Bearing Bu/⌀Bc
ACI 9-1	**1.4DL+1.7LL**	**1021.49**	**.044**
ACI 9-2	**1.05DL+1.275LL+1.275WL**	**766.114**	**.033**
ACI 9-3	**.9DL+1.3WL**	**656.669**	**.028**
IBC 16-5	**1.2DL+1LL+1EL**	**875.559**	**.037**
IBC 16-6	**.9DL+1EL**	**656.669**	**.028**

Note: Overburden and footing self weight are included in the DL load case.

Overturning Check (Service)

Description	Categories and Factors	Mo-XX (k-ft)	Ms-XX (k-ft)	Mo-ZZ (k-ft)	Ms-ZZ (k-ft)	OSF-XX	OSF-ZZ
ASCE 2.4.1-1	**1DL**	**0**	**8573.18**	**0**	**8573.18**	**NA**	**NA**
ASCE 2.4.1-2	**1DL+1LL**	**0**	**8573.18**	**0**	**8573.18**	**NA**	**NA**
ASCE 2.4.1-3a	**1DL+1WL**	**2883**	**8573.18**	**0**	**8573.18**	**2.974**	**NA**
ASCE 2.4.1-3b	**1DL+.7EL**	**0**	**8573.18**	**0**	**8573.18**	**NA**	**NA**
ASCE 2.4.1-3c	**1DL+.75LL+.75WL**	**2162.25**	**8573.18**	**0**	**8573.18**	**3.965**	**NA**
ASCE 2.4.1-3d	**1DL+.75LL+.7EL**	**0**	**8573.18**	**0**	**8573.18**	**NA**	**NA**
ASCE 2.4.1-4	**.6DL+1WL**	**2883**	**5143.91**	**0**	**5143.91**	**1.784**	**NA**
ASCE 2.4.1-5	**.6DL+.7EL**	**0**	**5143.91**	**0**	**5143.91**	**NA**	**NA**

Mo-XX: Governing Overturning Moment about AD or BC
Ms-XX: Governing Stablizing Moment about AD or BC
OSF-XX: Ratio of Ms-XX to Mo-XX

Sliding Check (Service)

Description	Categories and Factors	Va-XX (k)	Vr-XX (k)	Va-ZZ (k)	Vr-ZZ (k)	SR-XX	SR-ZZ
ASCE 2.4.1-1	**1DL**	**0**	**218.89**	**0**	**218.89**	**NA**	**NA**
ASCE 2.4.1-2	**1DL+1LL**	**0**	**218.89**	**0**	**218.89**	**NA**	**NA**
ASCE 2.4.1-3a	**1DL+1WL**	**0**	**218.89**	**24**	**218.89**	**NA**	**9.12**
ASCE 2.4.1-3b	**1DL+.7EL**	**0**	**218.89**	**0**	**218.89**	**NA**	**NA**
ASCE 2.4.1-3c	**1DL+.75LL+.75WL**	**0**	**218.89**	**18**	**218.89**	**NA**	**12.161**
ASCE 2.4.1-3d	**1DL+.75LL+.7EL**	**0**	**218.89**	**0**	**218.89**	**NA**	**NA**
ASCE 2.4.1-4	**.6DL+1WL**	**0**	**131.334**	**24**	**131.334**	**NA**	**5.472**
ASCE 2.4.1-5	**.6DL+.7EL**	**0**	**131.334**	**0**	**131.334**	**NA**	**NA**

Va-XX: Applied Lateral Force to Cause Sliding Along XX Axis
Vr-XX: Resisting Lateral Force Against Sliding Along XX Axis
SR-XX: Ratio of Vr-XX to Va-XX

EXHIBIT D
EMISSIONS STUDY

C Squared Systems, LLC
920 Candia Road
Manchester, NH 03109
Phone: (603) 657 9702
E-mail:
support@csquaredsystems.com

Calculated Radio Frequency Emissions

HFCT0333A

Bright Meadow Blvd, Enfield, CT 06082

Table of Contents

List of Tables

1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed Pocket antennas to be installed on the existing monopole tower located off Bright Meadow Blvd in Enfield, CT 06082.

These calculations assume that the antennas are operating at 100 percent capacity, that all antenna channels are transmitting simultaneously, and that the radio transmitters are operating at full power. Obstructions (trees, buildings etc.) that would normally attenuate the signal are not taken into account. As a result, the predicted signal levels are much more conservative (higher) than the actual signal levels will be from the finished installation.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter (mW/cm^2). The number of mW/cm^2 emitted is called the power density. The general population exposure limit for the cellular band is 0.567-0.593 mW/cm^2, and the general population exposure limit for the PCS/AWS band is 1.0 mW/cm^2. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

The FCC general population / uncontrolled limits set the maximum exposure to which most people may be subjected. General population / uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Higher exposure limits are permitted under the occupational / controlled exposure category, but only for persons who are exposed as a consequence of their employment and who have been made fully aware of the potential for exposure (through training), and they must be able to exercise control over their exposure. General population / uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals.

The FCC describes exposure to radio frequency (RF) energy in terms of percentage of maximum permissible exposure (MPE) with 100% being the maximum allowed. Rather than the FCC presenting the user specification in terms of complex power density figures over a specified surface area, this MPE measure is particularly useful, and even more so when considering that power density limits actually vary by frequency because of the different absorptive properties of the human body at different frequencies.

MPE limits are specified as time-averaged exposure limits. This means that exposure can be averaged over 30 minutes for general population / uncontrolled exposure (or 6 minutes for occupational / controlled exposure). However, for the case of exposure of the general public, time averaging is usually not applied because of uncertainties over exact exposure conditions and difficulty in controlling time of exposure. Therefore, the typical conservative approach is to assume that any RF exposure to the general public will be continuous.

Finally, it should be noted that the MPE limits adopted by the FCC for both general population / uncontrolled exposure and for occupational / controlled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by OET Bulletin 65 Edition 97-01. These new rules include limits for Maximum Permissible Exposure (MPE) for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based on exposure limits recommended by the National Council on Radiation Protection and Measurements (NCRP), the exposure limits developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

Attachment B contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit. As shown in these excerpts, each frequency band has different exposure limits, requiring power density to be reported as a percent of Maximum Permissible Exposure (MPE) when dealing with carriers transmitting in different frequency bands.

3. RF Exposure Prediction Methods

The emission field calculation results displayed in the following figures were generated using the following formula as outlined in FCC bulletin OET 65:

$$\text{Power Density} = \left(\frac{1.6^2 \times EIRP}{4\pi \times R^2} \right)$$

Where:

EIRP = Effective Isotropic Radiated Power

R = Radial Distance = $\sqrt{(H^2 + V^2)}$

H = Horizontal Distance from antenna

V = Vertical Distance from bottom of antenna

1.6 = Ground Reflection Factor

4. Calculation Results

Table 1 below outlines the power density information for the site. All information for carriers other than Pocket is based on the current CSC database, except where otherwise noted.[1]

Carrier	Antenna Height (Feet)	Operating Frequency (MHz)	Number of Trans.	Effective Radiated Power (ERP) Per Transmitter (Watts)	Power Density (mw/cm^2)	Limit	%MPE
Sprint	147	1957.5	11	122	0.0223	1.0000	2.23%
XM Radio	142	2340	2	307	0.0109	1.0000	1.09%
Verizon	134	869	9	200	0.0395	0.5793	6.82%
Verizon	134	1900	3	200	0.0132	1.0000	1.32%
Nextel	127	851	9	100	0.0201	0.5673	3.54%
AT&T GSM	117	1900	3	467	0.0368	1.0000	3.68%
AT&T UMTS	117	880	1	500	0.0131	0.5867	2.24%
Pocket	107	2130-2133.75	3	631	0.0667	1.0000	6.67%
						Total	**27.58%**

Table 1: Proposed Carrier Information

5. Conclusion

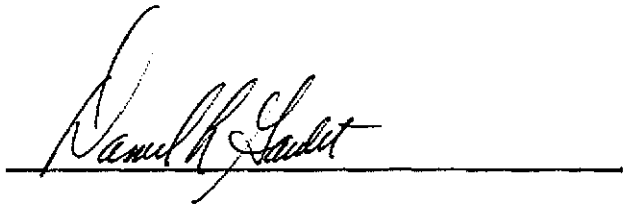
The above analysis verifies that emissions from the proposed site will be below the maximum power density levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Even when using conservative methods, the cumulative power density from the proposed transmit antennas at the existing facility is below the limits for the general public. The highest expected percent of Maximum Permissible Exposure at the base of the tower is 27.58% of the FCC limit.

As noted in the introduction, obstructions (trees, buildings etc.) that would normally attenuate the signal are not taken into account. As a result, the predicted signal levels are more conservative (higher) than the actual signal levels will be from the finished installation.

[1] Grey type in Table 1 denotes recommended changes to the CSC database. These recommended changes are based on an antenna inventory and structural analysis done by IETS Engineering Services in June 2009, showing Verizon Wireless antennas at the 134' centerline (See Attachment C: Tower Inventory taken from the aforementioned structural analysis).

6. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate. The calculations follow guidelines set forth in ANSI/IEEE Std. C95.3, ANSI/IEE Std. C95.1 and FCC OET Bulletin 65 Edition 97-01.



July 21, 2009
Date

Daniel l. Goulet
C Squared Systems, LLC

Attachment A: References

OET Bulletin 65 - Edition 97-01 - August 1997 Federal Communications Commission Office of Engineering & Technology

ANSI C95.1-1982, American National Standard Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 300 kHz to 100 GHz. IEEE-SA Standards Board

IEEE Std C95.3-1991 (Reaff 1997), IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave. IEEE-SA Standards Board

Attachment B: FCC Limits For Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	-	-	f/300	6
1500-100,000	-	-	5	6

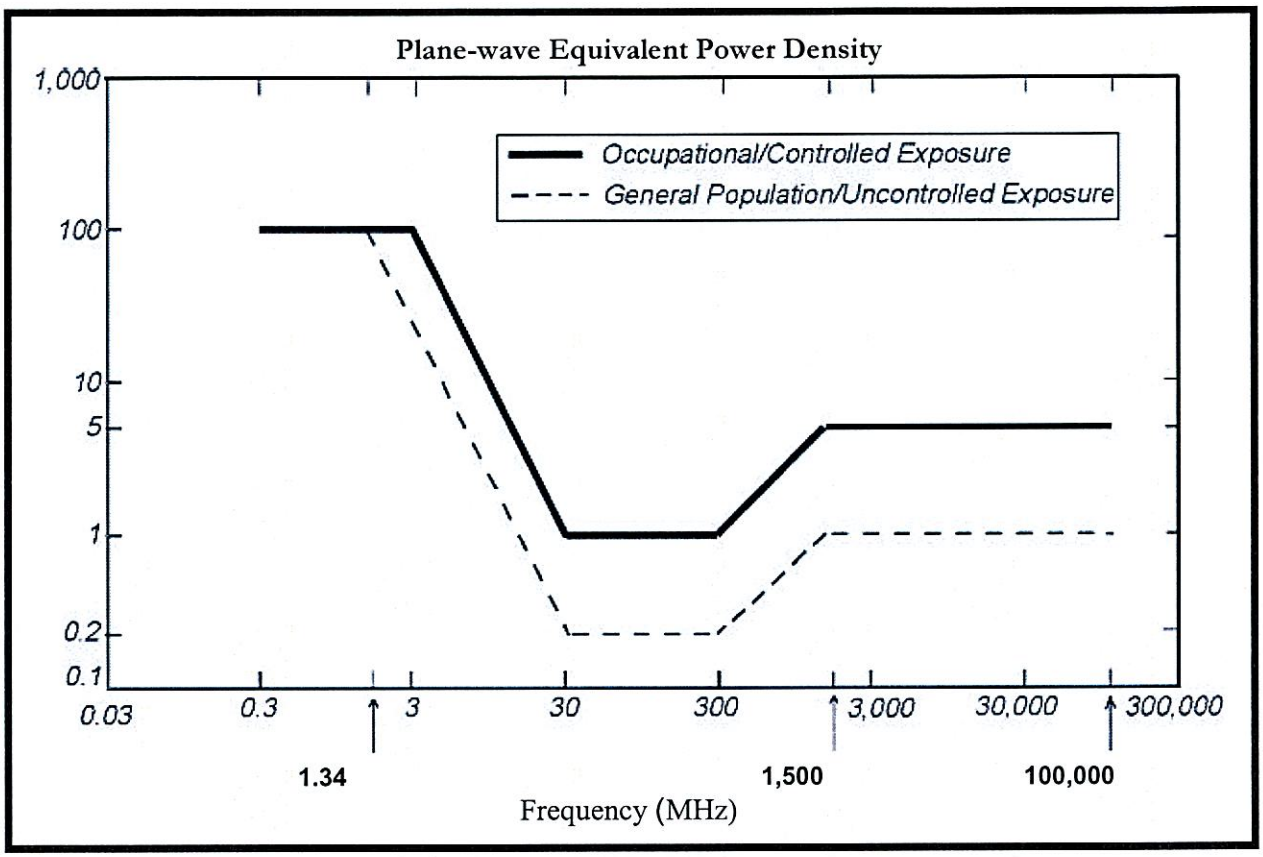
(B) Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	-	-	f/1500	30
1500-100,000	-	-	1.0	30

f = frequency in MHz * Plane-wave equivalent power density

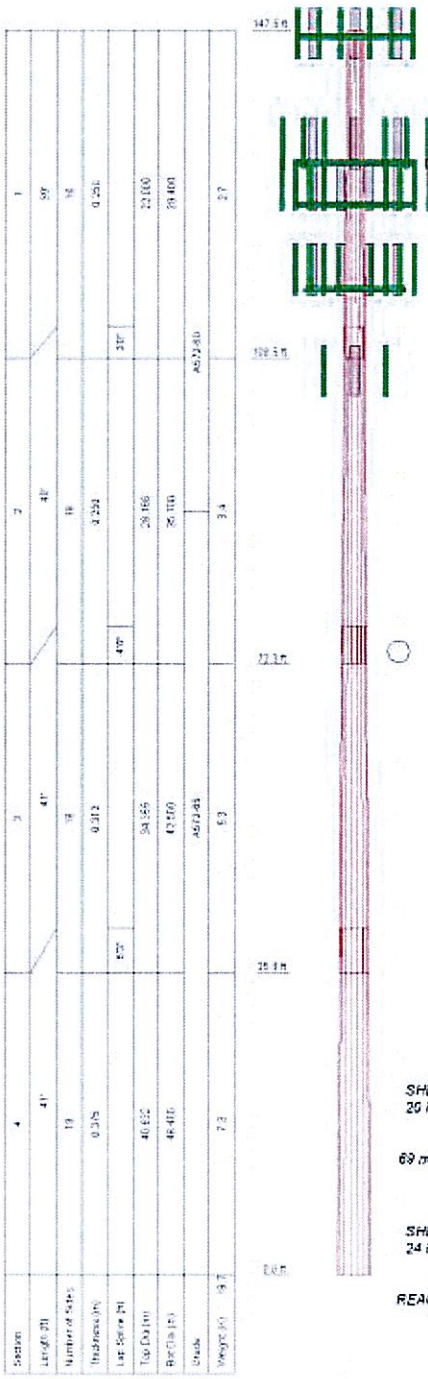
NOTE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.



• FCC Limits for Maximum Permissible Exposure (MPE)

Attachment C: Tower Inventory



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Mount - 12' Low Profile Platform	147	Mount - 12' Low Profile Platform	117
(3) SPRINT MLA_ANTENNA (MLA)	147	(4) ATT GSL ML4 ANTENNA (MLA)	117
(3) SPRINT MLA_ANTENNA (MLA)	147	(4) ATT GSL ML4 ANTENNA (MLA)	117
(3) SPRINT MLA_ANTENNA (MLA)	147	(4) ATT GSL ML4 ANTENNA (MLA)	117
Mount - 12' Low Profile Platform	132	Pipe Mount [PM 601-1]	107
(2) ALP-E 901-1-C(H) w/ Mount Pipe	132	Pipe Mount [PM 601-1]	107
(2) ALP-E 901-1-C(H) w/ Mount Pipe	132	Pipe Mount [PM 601-1]	107
(2) ALP-E 901-1-C(H) w/ Mount Pipe	132	APXV18-206517S-C w/ Mount Pipe (F)	107
(2) CBX4F65T2E-M w/ Mount Pipe	132	APXV18-206517S-C w/ Mount Pipe (F)	107
(2) CBX4F65T2E-M w/ Mount Pipe	132	APXV18-206517S-C w/ Mount Pipe (F)	107
(2) CBX4F65T2E-M w/ Mount Pipe	132	APXV18-206517S-C w/ Mount Pipe (F)	107
Mount - 12' Low Profile Platform	127	Chain Mount	49
(4) 7132.16.33.00 w/ Mount Pipe	127	365332A	49
(4) 7132.16.33.00 w/ Mount Pipe	127		
(4) 7132.16.33.00 w/ Mount Pipe	127		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	75 ksi	A572-65	65 ksi	80 ksi

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 69 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 94.6%

AXIAL 39 K
SHEAR 20 K
MOMENT 2240 kip-ft
TORQUE 0 kip-ft
69 mph WIND - 0.500 in ICE

AXIAL 31 K
SHEAR 24 K
MOMENT 2631 kip-ft
TORQUE 0 kip-ft
REACTIONS - 80 mph WIND

TETS 129 Greenwich Road Charlotte, NC 28211 Phone: (704) 552-1131 FAX: (704) 552-1260	Job: 2009-70444 BU# 876348 "Enfield"		
	Project: Youghiogheny Co-Locate		
	Client: Crown Castle International	Drawn By: Ted Hails	Appd:
	Code: TIA/EIA-222-F	Date: 06/30/09	Scale: NTS
	File:		Dwg No: E-1

PULLMAN
&COMLEY LLC
ATTORNEYS

CARRIE L. LARSON
90 State House Square
Hartford, CT 06103-3702
p (860) 424-4312
f (860) 424-4370
clarson@pullcom.com
www.pullcom.com

October 22, 2010

VIA FACSIMILE (860-827-2950) and ELECTRONIC MAIL

Linda Roberts, Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

Re: Exempt Modifications, Pocket Wireless

Dear Ms. Roberts:

Please be advised that this office represents Youghiogheny Communications-Northeast, LLC, doing business as Pocket Communications ("Pocket"). As you may be aware, Pocket has filed numerous exempt modifications with the Siting Council over the course of the last two years. As part of those exempt modification filings, Pocket had indicated that they may temporarily use microwave dishes and/or generators. The approval letters related to these exempt modifications requested additional information or follow up concerning the use of microwave dishes and/or generators. Please be advised that Pocket is no longer utilizing any microwave dishes or generators at any of the sites listed below and therefore Pocket believes that this additional information is unnecessary. This is applicable to list of sites below:

2577 Main Street, Glastonbury – EM 054-090710
605 Willard Avenue, Newington – EM 094-090727
99 Cedarwood Lane, Newington – EM 094-080922
Turnpike Road, Willington – EM 160-090804
1055 Wintergreen Avenue, Hamden – EM 062-090512
310 Prestige Park, East Hartford – EM 043-090723
371 Terryville Avenue, Bristol – EM 017-091112
Bright Meadow Blvd, Enfield – EM 049-090728
111 Trask Road, Willington – EM 160-090727

Please let me know if you have any questions.

Respectfully Submitted,

Carrie L. Larson

ACTIVE/72572.371/CLARSON/2278047v1