



EM-POCKET-017-091112

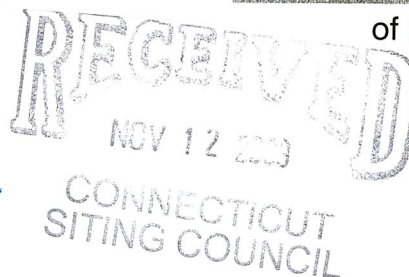
CONSTRUCTION SERVICES

of Branford, LLC

November 6, 2009

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

ORIGINAL



RE: **Notice of Exempt Modification to an existing 170' monopole tower located at 371 Terryville Avenue, Bristol, Connecticut**

Latitude: 41 40 47.66 / Longitude: 72 57 44.87

Dear Mr. Phelps:

Youghioghenny Communications-Northeast, LLC doing business as Pocket Communications ("Pocket") intends to install antennas and associated ground equipment at the existing 170'-foot monopole tower facility owned by AT&T Towers and located at 371 Terryville Avenue, Bristol, 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 Arthur J. Ward, Mayor of the Town of Bristol.

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 seventy foot (170') high monopole tower located at 371 Terryville Avenue, Bristol, Connecticut (See Location Map attached as Exhibit A). The Tower is owned by AT&T Towers. The tower currently supports AT&T antennas at the one hundred sixty nine foot (169') centerline AGL, Sprint at the one hundred sixty six foot (166') and seventy foot (70') centerline AGL, Verizon at the one hundred forty six foot (146') centerline AGL, and T-Mobile at the one hundred thirty

foot (130') centerline AGL. The antenna locations are set forth on Drawing A-2 of the attached drawings in Exhibit A.

Pocket proposes to install three (3) RFS APXV18-206517S-C flush mount antennas on the tower at the one hundred fifty six foot (156') 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 GPD Associates 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 Bristol. Pocket has a need for the facility and the proposed antennas installed at a centerline height of one hundred fifty six feet (156') 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 3.02 % 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 22.15% 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:

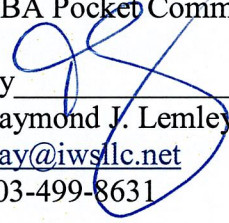
Pocket will not increase the height of the Tower;

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: Bristol Mayor, Honorable Arthur J. Ward
Bristol Building Official, Guy Morin

EXHIBIT A
SITE DRAWINGS



HFCT0128A
371 TERRYVILLE AVENUE
BRISTOL, CT 06010

FOR CONSTRUCTION

THE PROPOSED SCOPE OF WORK GENERALLY ENTAILS THE INSTALLATION OF:
1. TELECOMMUNICATIONS ANTENNAS, COAX, ICE BRIDGE OR CABLE TRAY, RACK & PFC 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:
TELECOMUNICATIONS NORTHWEST, LLC.
D/B/A POCKET COMMUNICATIONS
1 FEDERAL STREET, BUILDING #111
SPRINGFIELD, MA 01105

PROPERTY INFORMATION

SITE ADDRESS:
371 TERRYVILLE AVENUE
BRISTOL, CT 06010

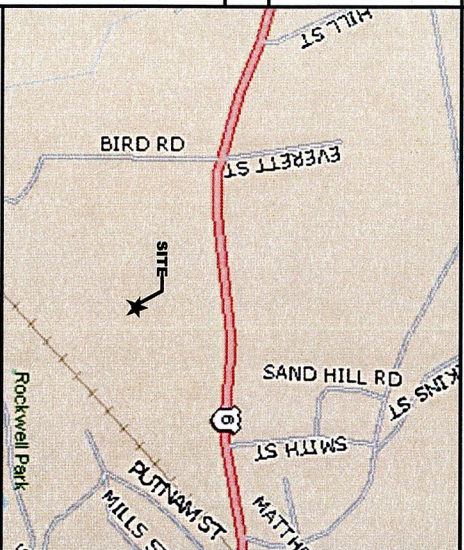
PROPERTY OWNER:
BRISTOL HOSPITAL, INC.
BREWSTER ROAD
BRISTOL, CT 06010

TOWER OWNER:
ATT TOWERS - LITE COMPANY
3140 GOLD CAMP DRIVE
MACHO CONDO, CA 95670
PH: (916) 286-7525

**POCKET COMMUNICATIONS
CONSTRUCTION MANAGER:**
BILL HINCKLEY

STRUCTURE TYPE:
MONOPOLE
COORDINATES:
LATITUDE: N 41° 40' 47.48"
LONGITUDE: W 72° 57' 44.67"

VICINITY MAP (NOT TO SCALE)



DRIVING DIRECTIONS

FROM POCKET OFFICE:
TURN RIGHT ONTO STATE STREET, FOLLOW STATE STREET TURN LEFT ONTO COLUMBUS AVENUE, TURN RIGHT ONTO TERRYVILLE AVENUE, TURN LEFT ONTO 371 TERRYVILLE AVENUE. THE SITE IS LOCATED ON THE RIGHT SIDE OF THE ROAD, APPROXIMATELY 1/4 MILE SOUTH OF THE INTERSECTION OF TERRYVILLE AVENUE AND COLUMBUS AVENUE. TURN RIGHT ONTO STATE STREET, FOLLOW STATE STREET TURN LEFT ONTO COLUMBUS AVENUE, TURN RIGHT ONTO TERRYVILLE AVENUE, TURN LEFT ONTO 371 TERRYVILLE AVENUE. THE SITE IS LOCATED ON THE RIGHT SIDE OF THE ROAD, APPROXIMATELY 1/4 MILE SOUTH OF THE INTERSECTION OF TERRYVILLE AVENUE AND COLUMBUS AVENUE.

CODE COMPLIANCE

1. BUILDING CODE:
INTERNATIONAL BUILDING CODE WITH CT SUPPLEMENT
2. ELECTRICAL CODE:
NEC 2005, 2009 NATIONAL ELECTRICAL CODE

SHEET INDEX

SHEET	DESCRIPTION
1-1	TITLE SHEET
0-1	GENERAL NOTES
A-1	COMPILING AND EQUIPMENT LAYOUT PLANS
A-2	EAST ELEVATION
A-3	CONSTRUCTION DETAILS
E-1	POWER & GROUNDING Riser DIAGRAMS AND DETAILS

PROJECT INFORMATION

1. THIS IS AN UNMANNED TELECOMMUNICATION FACILITY CONSISTING OF 371 EQUIPMENT AND PANEL ANTENNAS.
2. ALL ITEMS SHOWN HEREON ARE EXISTING UNLESS OTHERWISE NOTED.
3. THIS IS AN UNMANNED FACILITY. THE SITE WILL CREATE NO TRUCK, TRAILER, OR EQUIPMENT STORAGE.
4. DEVELOPMENT AND USE OF THE SITE WILL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES.
5. EMERGENCY POWER SUPPLY IS A CELL PHONE BATTERY SOURCE AND NOT A FLAMMABLE LIQUID SOURCE.
6. NO PORTABLE WATER SUPPLY IS TO BE PROVIDED AT THIS LOCATION.
7. THE POCKET COMMUNICATIONS MAINTENANCE CREW (TYPICALLY ONE PERSON) WILL MAKE AN AVERAGE OF ONE TRIP PER MONTH AT ONE HOUR PER VISIT.
8. 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

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 Communications
1 Federal Street
Building #111
Springfield, MA 01105



371 Terryville Avenue
Bristol, CT 06010
Telephone: 860-485-5381
Fax: 860-485-5381
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IF IT IS A VIOLATION OF LAW FOR ANY REASON, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER TO ALTER THIS DOCUMENT.

ENGINEER/LAND SURVEYOR DATE

REVISIONS	DATE	DESCRIPTION
1	10/29/09	PER REVISION
0	10/29/09	ISSUED FOR REVIEW
REV DATE	DESCRIPTION	
2009-1-10	ISSUED BY: [Signature]	AS NOTED

SITE NAME:
HFCT0128A
BRISTOL, CT

SITE ADDRESS:
371 TERRYVILLE AVENUE
BRISTOL, CT 06010

TITLE SHEET

T-1

ELECTRICAL NOTES:

1. UNITARY SYSTEM SHALL BE PROPOSED, THE EXISTING CONDUIT SHALL BE REUSED AND THE ELECTRICAL SERVICE CONNECTION POINTS, PULL BOXES, RIGGING AND ASSOCIATED RECORDS SHALL BE LOOK INTO COMMENTS.
2. ALL NEW TEST AND ISOLATION CONNECTIONS UNDER NEW WORK MUST BE PERFORMED. REPORT MUST BE SUBMITTED TO THE PROJECT ENGINEER FOR REVIEW AND APPROVAL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF EXISTING UTILITIES AND THE PROTECTION OF EXISTING CONDUIT AND CABLES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF EXISTING CONDUIT AND CABLES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF EXISTING CONDUIT AND CABLES.
3. ALL EXISTING UNDERGROUND LINES ON SITE SHALL BE LOCATED PRIOR TO CONSTRUCTION.
4. ONE WORKER, TWO PLANS, OTHER PLANS AND LECTURES, AND TESTS AND CHECK CHARGES, AND OTHER NECESSARY APPROVAL FROM AUTHORITY THAT HAVE JURISDICTION.
5. PERSONNEL MUST BE QUALIFIED BY NEC AND CURRENTLY HAVE JURISDICTION.
6. THE ELECTRICAL CONTRACTOR SHALL COMMITTEE ALL CHARGES PRIOR TO NEW WORK.
7. ALL EXISTING WALL, PERIMETER SHALL BE SLOTTED EXACTLY.
8. ALL ELECTRICAL EQUIPMENT SHALL BE UL, NEMA, AND IEEE, AND A CDM APPROVED FOR RATED SERVICE.
9. ALL ELECTRICAL EQUIPMENT SHALL HAVE AN INTERFERENCE ANALYSIS AND TEST FOR THE MAXIMUM SHORT CIRCUIT CURRENT TO WHICH THEY WILL BE SUBJECTED, AND AN ANALYSIS OF 10000 A.C. 10. NEW WORK SHALL BE THE SAME, UNLESS OTHERWISE NOTED, NEW WIRING PROTECTING POWER AND DATA CABLES, SHOWN CABLES IT WITHIN. MINIMUM BONDING CABLE SHALL BE #10.
11. ALL CABLES CONDUIT SHALL BE PROVIDED WITH MINIMUM BONDING.

- [illegible]

12. ALL BOLTS, WASHERS, AND NUTS USED ON CH
STEEL

14. GROUND ANTENNA BASES, PLUGS, CABLE RACKS AND OTHER METALLIC COMPONENTS WITH *f* CONNECTING CONDUCTORS AND CONNECT TO INSULATED SURFACE MOUNTED GROUND BASES. CONSTRUCTION DETAILS SHALL FOLLOW MANUFACTURER'S SPECIFICATIONS FOR GROUNDING.
15. GROUND CABLE SHIELD AT BOTH ENDS USING MANUFACTURER'S GUIDANCE.
16. GROUND STRIPS SHALL BE TESTED AND HAVE A RESISTANCE OF 5 OHMS OR LESS.

GROUNDING NOTES:

- [illegible]

pocket
SMART WIRELESS

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

GENERAL NOTES

HFC10128A
BRISTOL, CT



COMPOUND LAYOUT PLAN

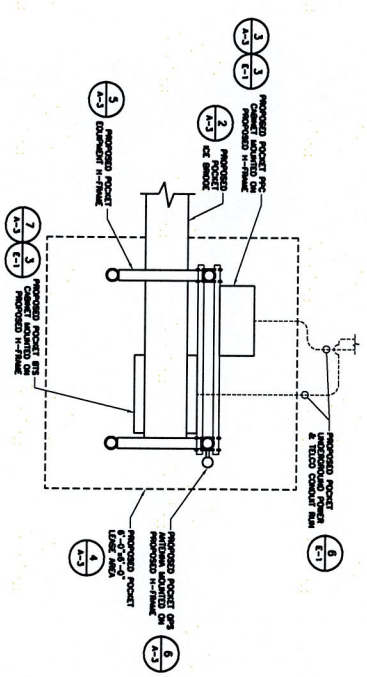
SCALE: 3/16"=1'-0"

1

SECTOR	ANTENNA	AZIMUTH	DOWNTILT	RAO CTR.	MAKE	MODEL	FEED	SPEC. GAIN	COAX WFR.	LENGTH
				FT. AGL				DBS		FT.
ALPHA	RE HP	60°	5°E	MORE	RFS	HPV1-B-2000(175-C-4C)	BOTTOM	1 9/16"	RFS (L27136-50A)	180"±
BETA	RE HP	30°	5°E	MORE	RFS	HPV1-B-2000(175-C-4C)	BOTTOM	1 9/16"	RFS (L27136-50A)	180"±
GAMMA	IC, MC	300°	5°E	MORE	RFS	HPV1-B-2000(175-C-4C)	BOTTOM	1 9/16"	RFS (L27136-50A)	180"±
DATA #1	RE HP	PRIMARY	-	N/A	RFS	HPV1-B-2000(175-C-4C)	BOTTOM	1 7/8"	RFS	10'±

NOTE: COAX CABLE LENGTHS ARE ESTIMATES. COMPENSATE SMALL VARIATION IN FIELD.

REMARKS: REPAIR ANTENNA, SHIELD FROM POND, RE-PAID ANTENNA.



EQUIPMENT LAYOUT PLAN

SCALE: 3/4"=1'-0"

2

FOR CONSTRUCTION

pocket.
SPEAK. WHEREVER.

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

MAXTON
ARCHITECT TECHNOLOGY, INC.
**RAY STATE
DESIGN**

RAY STATE DESIGN, INC.
Architects • Engineers

241 Sessue Pkwy., Ste. 200 Phone: 508-228-1100
Methuen, MA 01752 Fax: 508-463-5511

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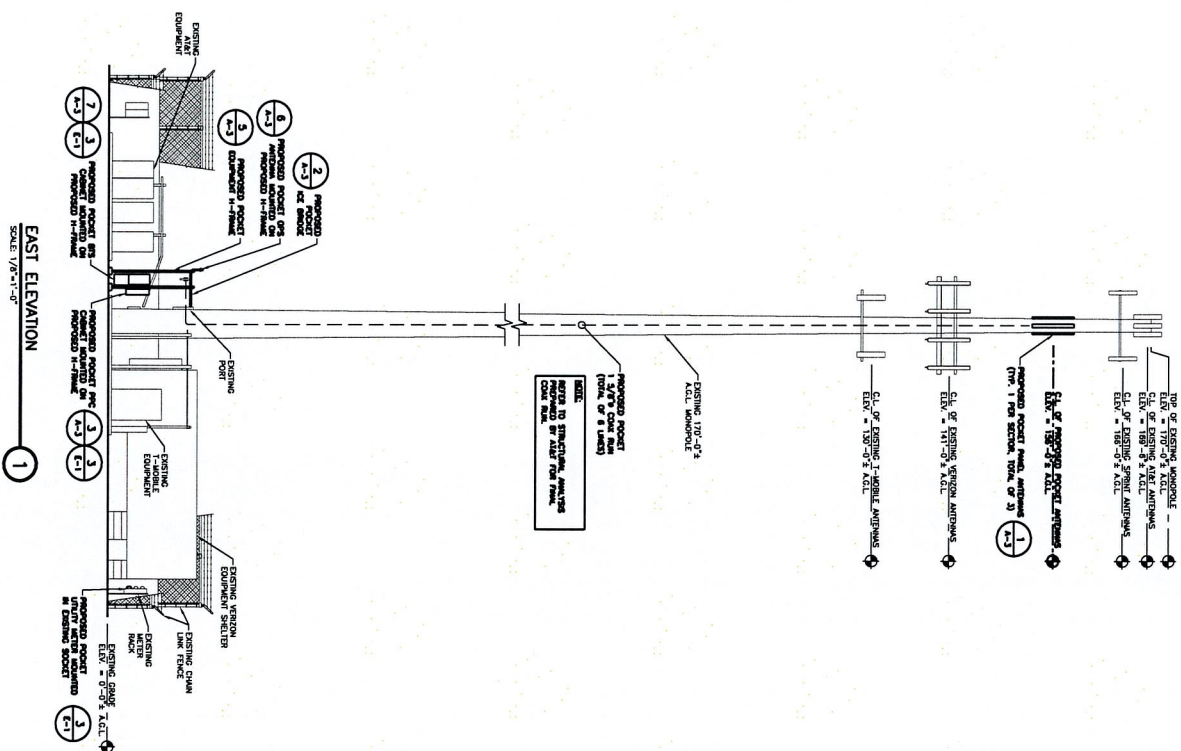
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0	10/02/99	ISSUED FOR REVIEW	
PROJECT #:			
2682.1-40		DESIGNED BY: KJ	SCALE: AS NOTED
		DRAWN BY: JAC	
		CHECKED BY: JH/JS	

HFCT0128A
BRISTOL, CT

SITE ADDRESS:
371 TERRYVILLE AVENUE
BRISTOL, CT 06010

DRAWING TITLE:
COMPOUND AND
EQUIPMENT
LAYOUT PLANS

A-1



FOR CONSTRUCTION



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



241 Boston Post Rd. West Phone: 508-229-4100
Marlborough, MA 01752 Fax: 508-465-5321
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REVISIONS					
1	10/09/09	PER REVISION			
0	10/02/09	ISSUED FOR REVIEW			
REV	DATE	DESCRIPTION			

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	CHECKED BY:MM/JB		

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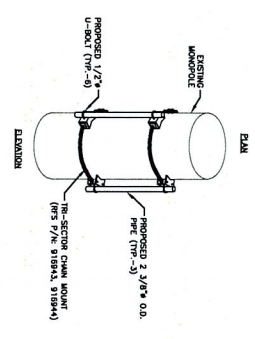
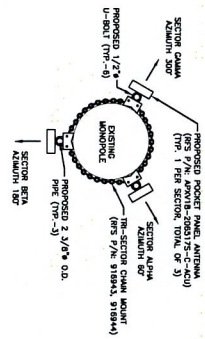
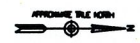
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BRISTOL, CT

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BRISTOL, CT 06010

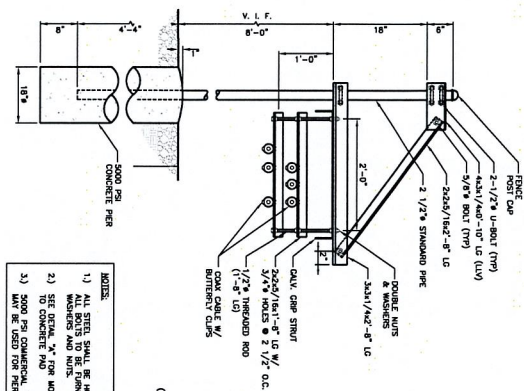
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DRAWING NO.

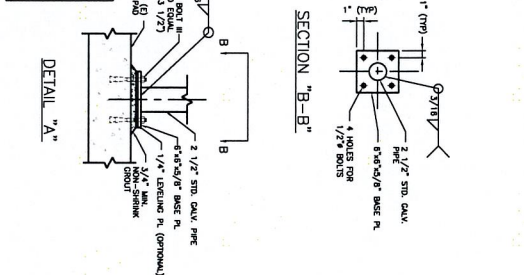
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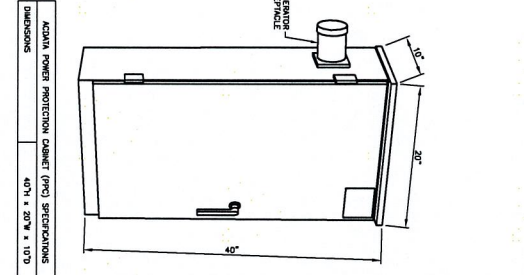
ANTENNA MOUNT DETAIL
SCALE: 1/4"=1'-0"



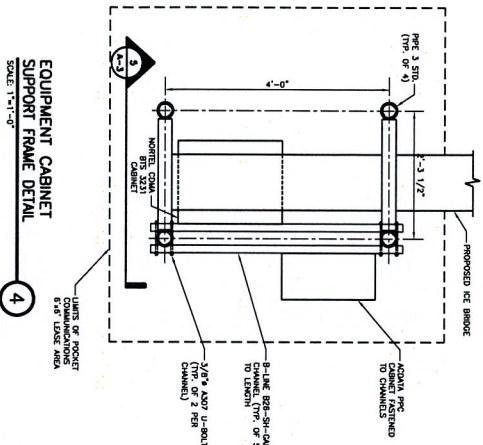
ICE BRIDGE DETAIL
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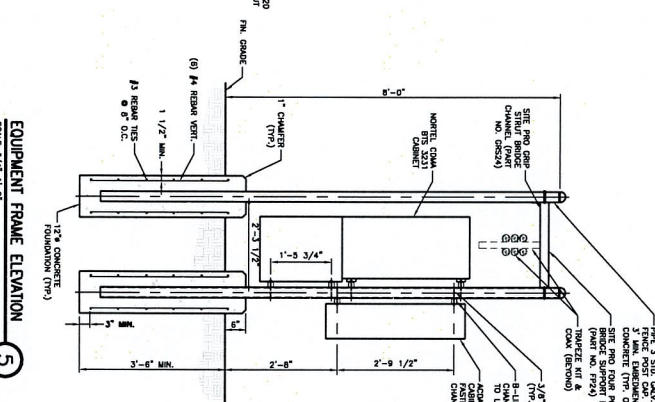
GPS ANTENNA DETAIL
SCALE: 1/4"=1'-0"



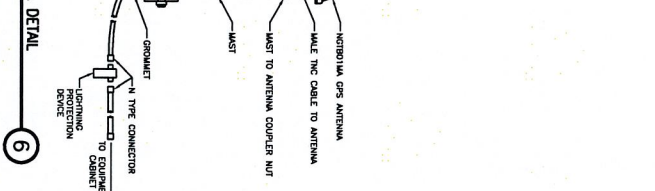
PRC CABINET DETAIL
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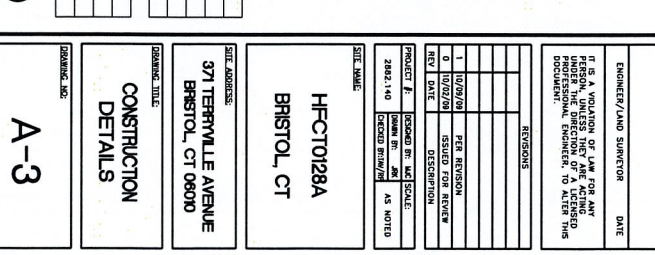
EQUIPMENT CABINET
SUPPORT FRAME DETAIL
SCALE: 1/4"=1'-0"



EQUIPMENT FRAME ELEVATION
SCALE: 3/4"=1'-0"

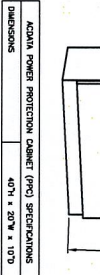
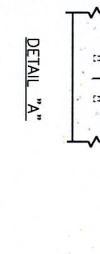


GPS ANTENNA DETAIL
SCALE: 1/4"=1'-0"



BITS CABINET DETAIL
SCALE: 1/4"=1'-0"

- NOTES:
- 1) ALL STEEL SHALL BE HOT DIPPED GALVANIZED.
 - 2) ALL BOLTS TO BE SUPPLIED WITH LOCK WASHERS AND NUTS.
 - 3) SEE DETAIL "A" FOR MOUNTING ICE BRIDGE TO CONCRETE PIER.
 - 4) SEE DETAIL "B" FOR MOUNTING GPS ANTENNA TO CONCRETE PIER.

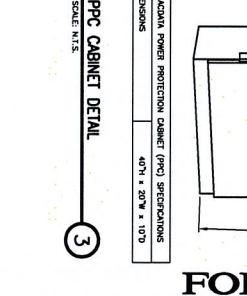
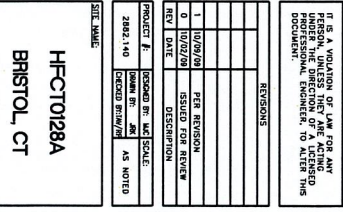
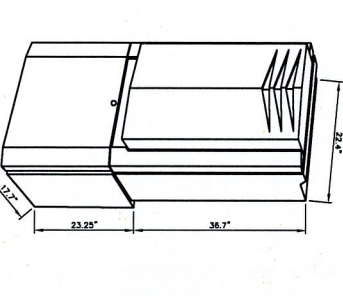


DIMENSIONS	ACQUA POWER PROTECTION CABINET (PPC) SPECIFICATIONS
40" x 20" x 10"	40" x 20" x 10"

DIMENSIONS	ACQUA POWER PROTECTION CABINET (PPC) SPECIFICATIONS
40" x 20" x 10"	40" x 20" x 10"

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40" x 20" x 10"	40" x 20" x 10"



POCKET COMMUNICATIONS

1111 Building
Springfield, MA 01105

M/XTON

MAINTENANCE
BAY STATE
DESIGN

POCKET COMMUNICATIONS

1111 Building
Springfield, MA 01105

POCKET COMMUNICATIONS

1111 Building
Springfield, MA 01105

M/XTON

MAINTENANCE
BAY STATE
DESIGN

POCKET COMMUNICATIONS

1111 Building
Springfield, MA 01105

FOR CONSTRUCTION

pocket
COMMUNICATIONS

Pocket Communications
1 Federal Street
Springfield, MA 01105

M/XTON
ARCHITECTURAL DESIGN
BAY STATE
DESIGN

341 Main Street, Suite 200
Springfield, MA 01105
Tel: 417-262-4127
Fax: 417-262-4128
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ENGINEER/LAND SURVEYOR DATE

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PROFESSIONAL ENGINEER, TO ALTER THIS
DOCUMENT.

REVISIONS

NO.	DATE	DESCRIPTION
1	10/09/99	PER REVISION
0	10/02/99	ISSUED FOR REVIEW

PROJECT # 2882-140
SHEET # 45
AS NOTED
EXCEED SHEET/IN

SITE NAME

HECTO128A
BRISTOL, CT

SITE ADDRESS

371 TERRYVILLE AVENUE
BRISTOL, CT 06030

POWER & GROUNDING
RISER DIAGRAMS AND
DETAILS

DATE: 10/09/99

E-1

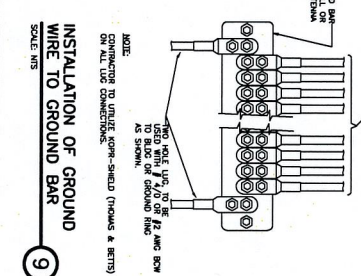
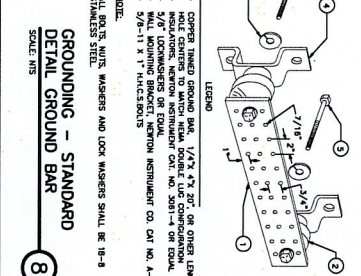
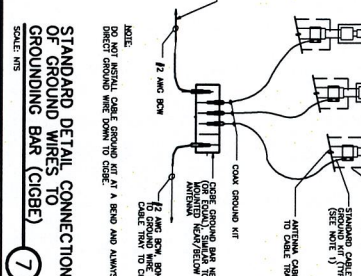
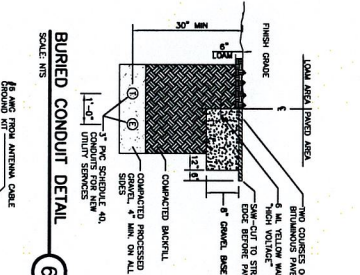
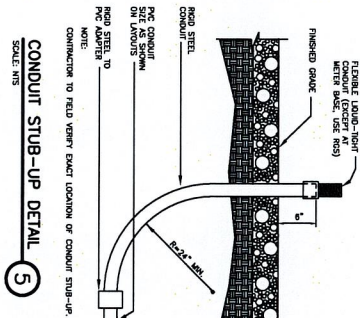
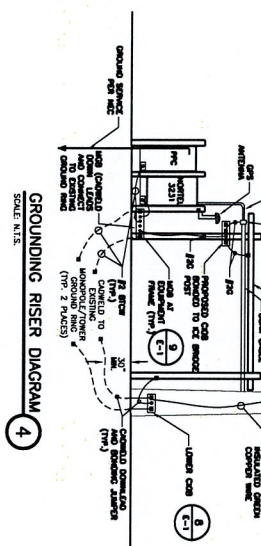
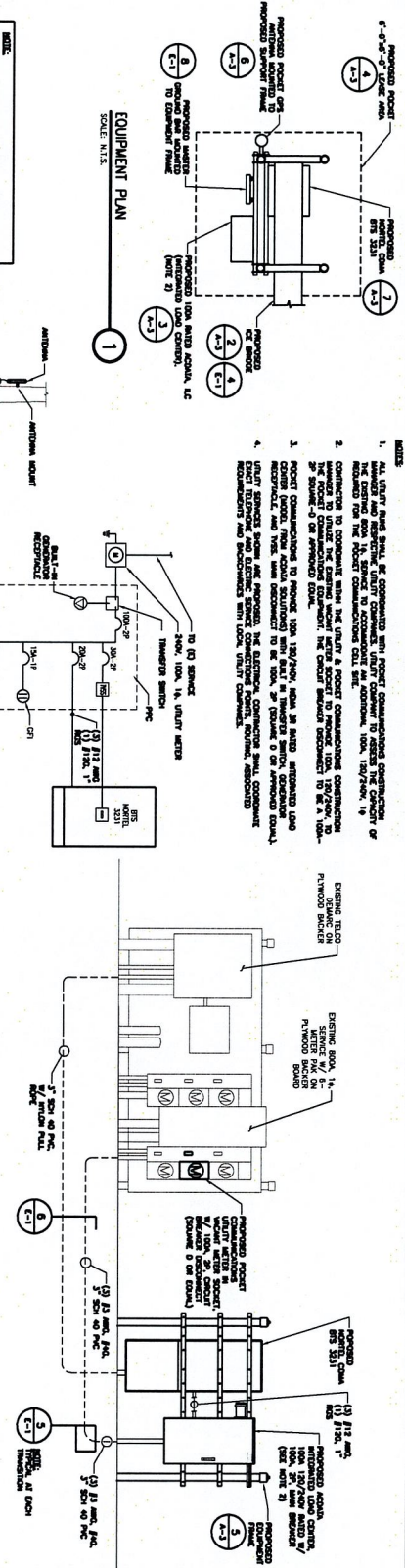
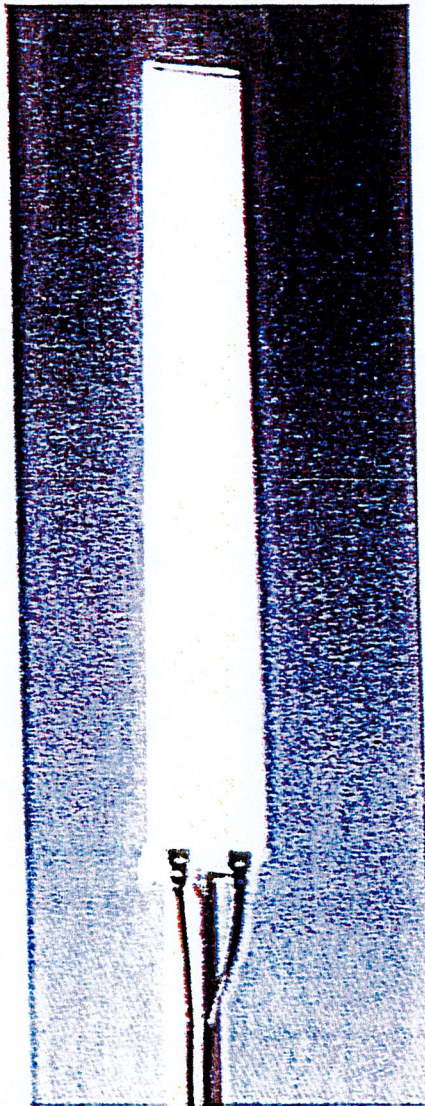


EXHIBIT B

EQUIPMENT SPECIFICATIONS


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 in-field 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.

General Features

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



Optimizer® Panel Dual Polarized Antenna

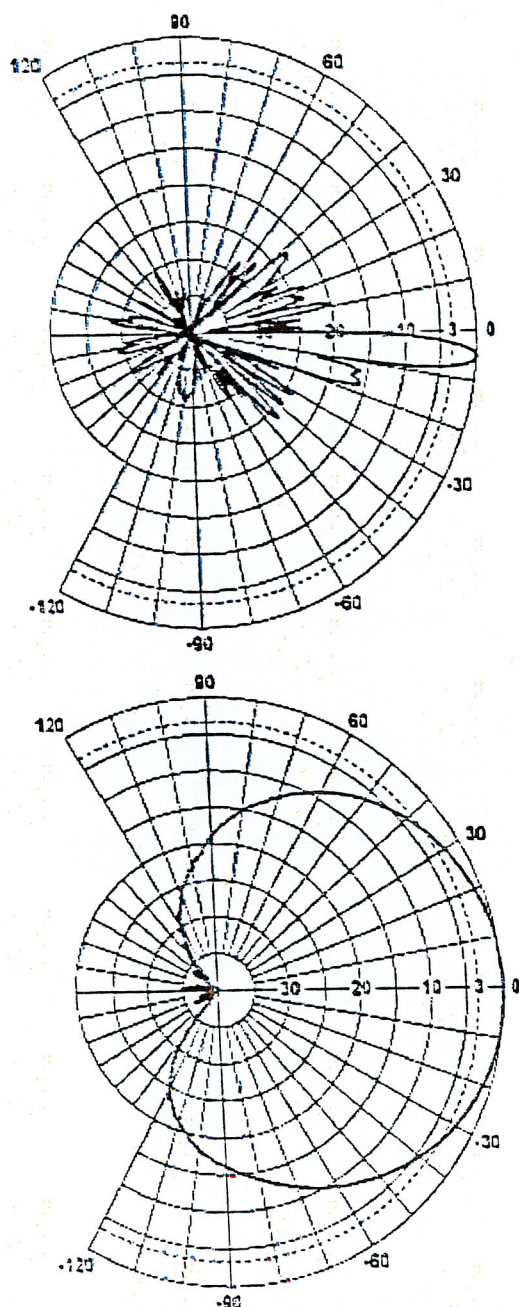
Gain, dBi (dBd)	13.8 (16.7) , 19.0 (16.9)
Frequency Range, MHz	1710-1900 , 1900-2170
Connector Type	(2) 7-16 DIN Female
Connector Location	Bottom
Mount Type	Downtilt
Electrical Downtilt, deg	0-10
Horizontal Beamwidth, deg	67 , 63
Mounting Hardware	APM40-2
Rated Wind Speed, km/h (mph)	160 (100)
VSWR	< 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)	13.3 (39.8)
Packing Dimensions, HxWxD, mm (in)	2021 x 250 x 200 (79.5 x 10.2 x 7.8)
Packing Dimensions - HxWxD, m (ft)	2.0 x 0.25 x 0.2 (6.6 x 0.85 x 0.65)

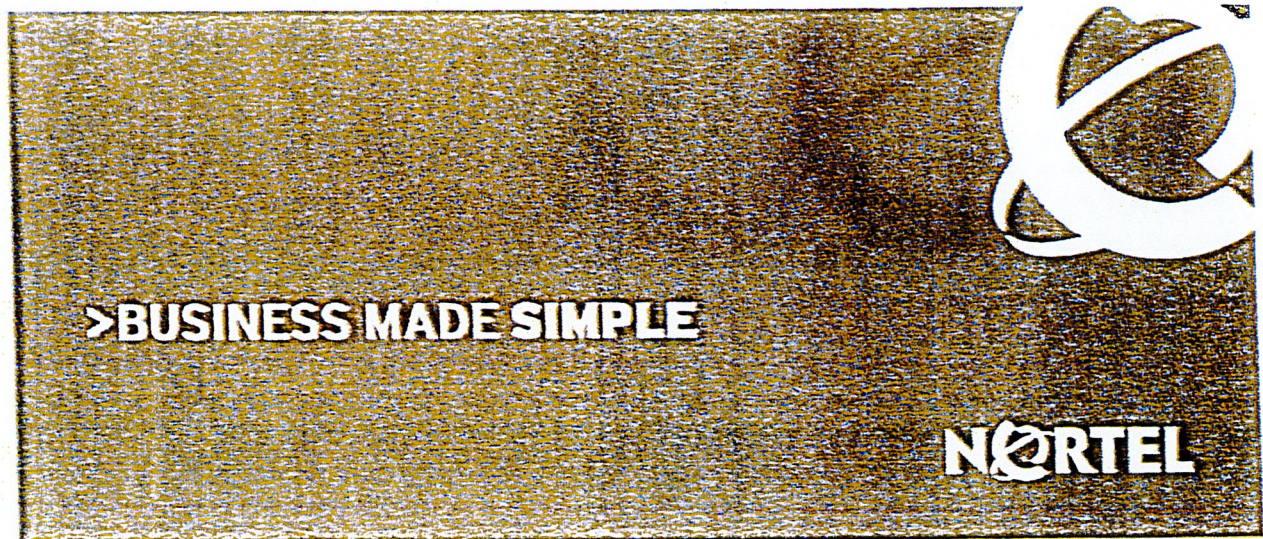
Notes

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



Optimizer® Panel Dual Polarized Antenna





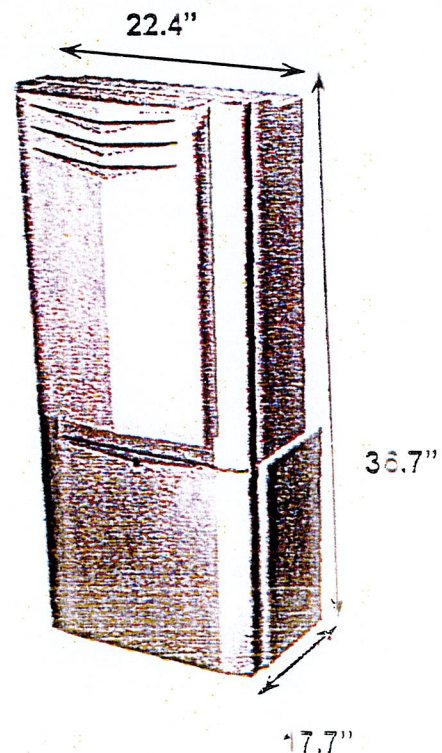
CDMA BTS 3231 AWS 1.7/2.1 GHz (Outdoor/Indoor)

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_{inom} to 0V to V_{inom} , 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

North America BTS 3231

Fundamentals

100000-000 16 0200 Preliminary
25 Jul 2003

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.

CH&E Power Zone

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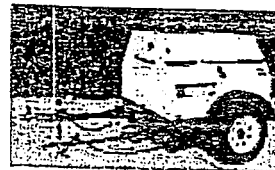
Products

- o Combination Units
- o Generators
 - Lite
 - Mobile
 - Portable
- o Light Towers
- o Pumps
- o Water Trailers
- **Support**
 - o Warranty
 - o Sales Literature
 - o Manuals
 - o Troubleshooting
 - o Training
 - o Ordering
 - o Forms
 - o OEM Links
- **Gov / Military**
 - o GSA
 - o Products
 - o Pictures
- **News**
 - o 20th Anniversary
 - o Trade Shows
 - o Newsletter
 - o Awards
 - o Press Releases
 - o Promotions
 - o Special Events
- **Employment**
 - o Current Openings
 - o Internships
- **Contact Us**
- **GLOSSARY**

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.

Affordable, Reliable, Mobile



More Information

Manuals

- [Operating & Parts](#)

Search Site

**ALWAYS
check for**

Power

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

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

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)

**updated
parts
information
before
placing a
parts
order.**

Tech. Specs.

- [MLG15](#)

Literature / Sales

- [Generator Lit.](#)
- [Service Kit Lit.](#)
- [Sales Support](#)



- [Warranty Overview](#)
- [Warranty Claim Policy](#)

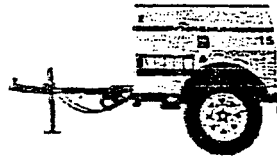
Operating Weight lbs (kg)	1823 (827)
Engine	
Type	Interim Tier IV
Brand	Mitsubishi
Aspiration	Natural
Power - Prime @ 1800 rpm hp (kWm)	22.3 (16.6)
Displacement cubic in (L)	107 (1.8)
Cylinders	4
Speed rpm	1800
Fuel Consumption - Prime gph (Lph)	1.30 (4.92)
Capacities	
Fuel Tank gal (L)	56 (212)
Approximate 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

Trailer

- Interior Cabinet Light
- Level Indicator
- 56 Gallon Fuel Tank
- Fuel Tank Cap - Vent w/ Lanyard
- Spare Tire & Carrier
- Lift Structure
- Liquid Containment/Quiet Pack
- 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

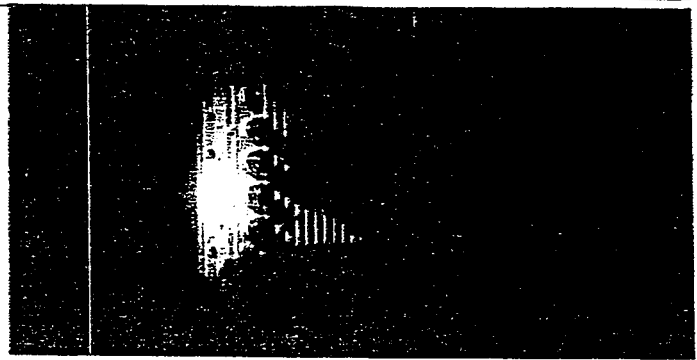
Product Images (click small image to pop-up larger version)



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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 TDM Capacity ¹	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 Exalt Throughput and Range Specification document for detailed capacity information.

² Distance based upon FCC regulations, average climate and terrain, 5' dish antennas, 1 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 Exalt's link budget and path planning tool to model your scenario.

EXHIBIT C

STRUCTURAL ANALYSIS



at&t

Glynn Walker
AT&T Mobility
5405 Windward Pkwy
Alpharetta GA. 30004
(770) 708-6114



GPD ASSOCIATES

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Akron, Ohio 44311
(330) 572-2195
kclements@gpdgroup.com

GPD# 2009273.96

October 22, 2009

STRUCTURAL ANALYSIS REPORT

AT&T DESIGNATION: Site USID: 27074
Site FA: 10070954
Site Name: BRISTOL CENTER

POCKET DESIGNATION: Site Name: Bristol West
Site Number: HFCT0128A

ANALYSIS CRITERIA: Codes: TIA/EIA-222-F & 2003 IBC
80-mph with 0" ice
69-mph with 1/2" ice

SITE DATA: 371 Terryville Ave., Bristol, CT 06010, Hartford County
Latitude 41° 40' 51.204"N, Longitude 72° 57' 56.519"W
168.5' Monopole

Mr. Walker,

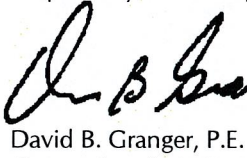
GPD is pleased to submit this Structural Analysis Report to determine the structural integrity of the aforementioned tower. The purpose of the analysis is to determine the suitability of the tower with the addition of the following proposed loading configuration:

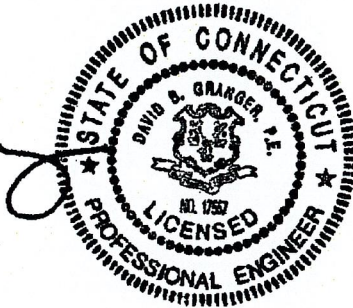
Elev. 156' (3) RFS APXV18-206517S-C Antennas on pipe mounts w/ (6) 1-5/8" internal coax

Based on our analysis we have determined the designs of the tower and its foundation are sufficient for the proposed, existing, and reserved loadings as referenced in Appendix A.

We at GPD appreciate the opportunity of providing our continuing professional services to you and AT&T. If you have any questions please do not hesitate to call.

Respectfully submitted,


David B. Granger, P.E.
Connecticut #: 17557



SUMMARY & RESULTS

The purpose of this analysis was to verify whether the existing structure is capable of carrying the proposed loading configuration as specified by Pocket Communications to AT&T. This report was commissioned by Mr. Glynn Walker of AT&T Mobility.

TOWER SUMMARY AND RESULTS

Member	Capacity	Results
Monopole	87.8%	Pass
Base Plate	90.6%	Pass
Anchor Rods	79.6%	Pass
Foundation	81.8%	Pass

ANALYSIS METHOD

RISA Tower (Version 5.3.1.0), a commercially available software program, was used to create a three-dimensional model of the tower and calculate primary member stresses for various dead, live, wind, and ice load cases. Selected output from the analysis is included in Appendix B. The following table details the information provided to complete this structural analysis. This analysis is solely based on this information and being provided without the benefit of a site visit.

DOCUMENTS PROVIDED

Document	Remarks	Source
Preliminary Tower Summary	Pocket Communications Co-location document	Siterra
Site Lease Application	Pocket Communications Application, dated 8/25/09	Siterra
Manufacturer Drawings	Engineered Endeavors, Inc., Project #: 12027, dated 12/2/03	Siterra
Geotechnical Report	VN Engineers, Project #: 23-124G, dated 11/11/03	Siterra
Previous Structural Analysis	Malouf Engineering Intl., Inc., Project #: CT00816M-07V0, dated 7/23/07	Siterra
Previous Structural Analysis	GPD Associates Project #: 2009263.89, dated 5/19/2009	Siterra

ASSUMPTIONS

This structural analysis is based on the theoretical capacity of the members and is not a condition assessment of the monopole. This analysis is from information supplied, and therefore, its results are based on and are as accurate as that supplied data. GPD has made no independent determination, nor is it required to, of its accuracy. The following assumptions were made for this structural analysis.

1. The monopole shaft sizes and shape are considered accurate as supplied. The material grade is as per data supplied and/or as assumed and as stated in the materials section.
2. The antenna configuration is as supplied and/or as modeled in the analysis. It is assumed to be complete and accurate. All antennas, mounts, coax and waveguides are assumed to be properly installed and supported as per manufacturer requirements
3. Some assumptions are made regarding antennas and mount sizes and their projected areas based on best interpretation of data supplied and of best knowledge of antenna type and industry practice.
4. All mounts, if applicable, are considered adequate to support the loading. No actual analysis of the mount(s) is performed. This analysis is limited to analyzing the tower only.
5. The soil parameters are as per data supplied or as assumed and stated in the calculations. If no data is available, the foundation system is not verified.
6. The tower and structures have been properly maintained in accordance with TIA Standards and/or with manufacturer's specifications.
7. All welds and connections are assumed to develop at least the member capacity, unless determined otherwise and explicitly stated in this report.
8. Tower Mounted Amplifiers are assumed to be installed behind antennas.
9. All existing loading was obtained from the most recent previous structural analysis by GPD Associates Project #: 2009263.89, dated 5/19/2009, site photos, and the provided preliminary tower summary and is assumed to be accurate.
10. All proposed coax is assumed to be internal to the monopole.

If any of these assumptions are not valid or have been made in error, this analysis may be affected, and GPD Associates should be allowed to review any new information to determine its effect on the structural integrity of the tower.

DISCLAIMER OF WARRANTIES

GPD ASSOCIATES has not performed a site visit to the tower to verify the member sizes or antenna/coax loading. If the existing conditions are not as represented on the tower elevation contained in this report, we should be contacted immediately to evaluate the significance of the discrepancy. This is not a condition assessment of the tower or foundation. This report does not replace a full tower inspection. The tower and foundations are assumed to have been properly fabricated, erected, maintained, in good condition, twist free, and plumb.

The engineering services rendered by GPD ASSOCIATES in connection with this Structural Analysis are limited to a computer analysis of the tower structure and theoretical capacity of its main structural members. All tower components have been assumed to only resist dead loads when no other loads are applied. No allowance was made for any damaged, bent, missing, loose, or rusted members (above and below ground). No allowance was made for loose bolts or cracked welds.

GPD ASSOCIATES does not analyze the fabrication of the structure (including welding). It is not possible to have all the very detailed information needed to perform a thorough analysis of every structural sub-component and connection of an existing tower. GPD ASSOCIATES provides a limited scope of service in that we cannot verify the adequacy of every weld, plate connection detail, etc. The purpose of this report is to assess the feasibility of adding appurtenances usually accompanied by transmission lines to the structure.

It is the owner's responsibility to determine the amount of ice accumulation, if any, that should be considered in the structural analysis.

The attached sketches are a schematic representation of the analyzed tower. If any material is fabricated from these sketches, the contractor shall be responsible for field verifying the existing conditions, proper fit, and clearance in the field. Any mentions of structural modifications are reasonable estimates and should not be used as a precise construction document. Precise modification drawings are obtainable from GPD ASSOCIATES, but are beyond the scope of this report.

Miscellaneous items such as antenna mounts, etc., have not been designed or detailed as a part of our work. We recommend that material of adequate size and strength be purchased from a reputable tower manufacturer.

GPD ASSOCIATES makes no warranties, expressed and/or implied, in connection with this report and disclaims any liability arising from material, fabrication, and erection of this tower. GPD ASSOCIATES will not be responsible whatsoever for, or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of GPD ASSOCIATES pursuant to this report will be limited to the total fee received for preparation of this report.

APPENDIX A

Tower Analysis Summary Form

Tower Analysis Summary Form

General Info

Site Name	BRISTOL CENTER
Site Number	27074
FA Number	10070954
Date of Analysis	10/22/2009
Company Performing Analysis	GPD

The information contained in this summary report is not to be used independently from the PE stamped tower analysis.

Tower Info

Description	Date
Tower Type (G, SST, MP)	MP
Tower Height (top of steel AGL)	166.5'
Tower Manufacturer	EEI
Tower Model	n/a
Manufacturer Drawings	EEI, Inc. Project #: 12027 12/2/2003
Foundation Design	EEI, Inc. Project #: 12027 12/2/2003
Geotech Report	VN Engineers Project #: 23-124G 11/4/2003
Tower Mapping	n/a
Previous Structural Analysis	GPD Project #: 2009263.89 5/19/2009
Modification Drawings	n/a

Design Parameters

Design Code Used	TIA/EIA-222-F
Location of Tower (County, State)	Hartford, Connecticut
Basic Wind Speed (mph)	80-fastest
Ice Thickness (in)	0.5
Structure Classification (I, II, III)	
Exposure Category (B, C, D)	
Topographic Category (1 to 5)	

Analysis Results (% Maximum Usage)

Existing/Reserved + Future + Proposed Condition	
Tower	87.8%
Foundation	81.8%
Guy Wire	n/a

Steel Yield Strength (ksi)

Pole	65
Base Plate	80
Anchor Rods	75

Existing / Reserved Loading

Antenna								Mount			Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Leg/Face
AT&T Mobility	169	169	3	Panel	Kathrein	800-10121		3		Pipe Mounts	8	Unknown	1-5/8"	Internal
AT&T Mobility	169	169	6	TMA	Powerwave	LGP 21401				on same mount	1	Unknown	3/8"	Internal
Sprint	166	166	6	Panel	Decibel	DB950F40T2E-M	200,280,355	3	Unknown	12' T-Arm	6	Unknown	1-5/8"	Internal
Verizon	148	148	6	Panel	Antel	LPD-6513	60,180,300	1	Unknown	13' LP Platform	8	Unknown	1-5/8"	Internal
Verizon	146	146	6	Panel	Antel	LPA-185063/BCF	60,180,300			on same mount	6	Unknown	1-5/8"	Internal
T-Mobile	130	130	3	Panel	RFS	APXV18-209014-C	30,150,270	1	Unknown	13' LP Platform	12	Unknown	1-5/8"	Internal
T-Mobile	130	130	3	Panel	RFS	APX16DWW-16DWW-S-E-ACU	30,150,270			on same mount				
T-Mobile	130	130	6	TMA	Andrew	OneBase™ Twin Dual Duplex	30,150,270			on same mount				
Sprint	70	70	1	GPS	Unknown	GPS Unit		1		Pipe Mounts	1	Unknown	1/2"	Internal

Proposed Loading

Antenna								Mount			Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Leg/Face
Peckett Communications	156	156	3	Panel	RFS	APXV18-206517S-C	25/130/250	3		Pipe Mounts	8	LDPT-50A	1-5/8"	Internal

APPENDIX B

RISA Tower Output File

RISATower GPD Associates 520 S. Main Street, Suite 2531 Akrón, OH 44311 Phone: (330) 572-2100 FAX: (330) 572-2101	Job	27074 BRISTOL CENTER	Page	1 of 4
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	Client	AT&T MOBILITY	Designed by	ddicesare

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 0.5000 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.

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C _A A _A ft ² /ft	Weight plf
LDF2-50A (3/8 FOAM)	C	No	Inside Pole	168.50 - 8.00	1	No Ice	0.00	0.08
						1/2" Ice	0.00	0.08
LDF7-50A (1-5/8 FOAM)	C	No	Inside Pole	168.50 - 8.00	6	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
LDF7-50A (1-5/8 FOAM)	B	No	Inside Pole	166.00 - 8.00	6	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
LDF7-50A (1-5/8 FOAM)	A	No	Inside Pole	146.00 - 8.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
LDF7-50A (1-5/8 FOAM)	C	No	Inside Pole	130.00 - 8.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
LDF4-50A (1/2 FOAM)	B	No	Inside Pole	70.00 - 8.00	1	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
LDF7-50A (1-5/8 FOAM)	B	No	Inside Pole	156.00 - 8.00	6	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
800 10121 w/ mount pipe	A	From Leg	0.50 0.00 0.00	0.0000	169.00	No Ice	5.80	4.72	0.07
						1/2" Ice	6.35	5.56	0.11
800 10121 w/ mount pipe	B	From Leg	0.50 0.00 0.00	0.0000	169.00	No Ice	5.80	4.72	0.07
						1/2" Ice	6.35	5.56	0.11
800 10121 w/ mount pipe	C	From Leg	0.50 0.00 0.00	0.0000	169.00	No Ice	5.80	4.72	0.07
						1/2" Ice	6.35	5.56	0.11

RISATower GPD Associates 520 S. Main Street, Suite 2531 Akron, OH 44311 Phone: (330) 572-2100 FAX: (330) 572-2101	Job	27074 BRISTOL CENTER	Page 2 of 4
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	Client	AT&T MOBILITY	Designed by ddicesare

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
(2) LGP21401	A	From Leg	0.50 0.00 0.00	0.0000	169.00	No Ice 1/2" Ice	0.00 0.00	0.23 0.31	0.01 0.02
(2) LGP21401	B	From Leg	0.50 0.00 0.00	0.0000	169.00	No Ice 1/2" Ice	0.00 0.00	0.23 0.31	0.01 0.02
(2) LGP21401	C	From Leg	0.50 0.00 0.00	0.0000	169.00	No Ice 1/2" Ice	0.00 0.00	0.23 0.31	0.01 0.02
12' T-arms (3)	C	None		0.0000	166.00	No Ice 1/2" Ice	14.10 16.00	14.10 16.00	1.00 1.20
(2) DB950F40T2E-M	A	From Leg	3.98 -0.35 0.00	-5.0000	166.00	No Ice 1/2" Ice	6.42 6.88	4.63 5.01	0.02 0.06
(2) DB950F40T2E-M	B	From Leg	0.69 3.94 0.00	80.0000	166.00	No Ice 1/2" Ice	6.42 6.88	4.63 5.01	0.02 0.06
(2) DB950F40T2E-M	C	From Leg	3.06 2.57 0.00	40.0000	166.00	No Ice 1/2" Ice	6.42 6.88	4.63 5.01	0.02 0.06
PiROD 13' Low Profile Platform	C	None		0.0000	146.00	No Ice 1/2" Ice	15.70 20.10	15.70 20.10	1.30 1.76
(2) LPA-185063/8CF	A	From Centroid-Fa ce	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice	2.97 3.30	2.75 3.05	0.01 0.03
(2) LPA-185063/8CF	B	From Centroid-Fa ce	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice	2.97 3.30	2.75 3.05	0.01 0.03
(2) LPA-185063/8CF	C	From Centroid-Fa ce	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice	2.97 3.30	2.75 3.05	0.01 0.03
(2) LPD-6513	A	From Centroid-Fa ce	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice	6.42 6.82	5.15 5.53	0.03 0.05
(2) LPD-6513	B	From Centroid-Fa ce	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice	6.42 6.82	5.15 5.53	0.03 0.05
(2) LPD-6513	C	From Centroid-Fa ce	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice	6.42 6.82	5.15 5.53	0.03 0.05
PiROD 13' Low Profile Platform (Monopole)	C	None		0.0000	130.00	No Ice 1/2" Ice	15.70 20.10	15.70 20.10	1.30 1.76
APX16DWV-16DWV-S-E-A CU	A	From Centroid-Le g	3.46 2.00 0.00	30.0000	130.00	No Ice 1/2" Ice	6.70 7.13	2.00 2.33	0.04 0.07
APX16DWV-16DWV-S-E-A CU	B	From Centroid-Le g	3.46 2.00 0.00	30.0000	130.00	No Ice 1/2" Ice	6.70 7.13	2.00 2.33	0.04 0.07
APX16DWV-16DWV-S-E-A CU	C	From Centroid-Le g	3.46 2.00 0.00	30.0000	130.00	No Ice 1/2" Ice	6.70 7.13	2.00 2.33	0.04 0.07
(2) Onebase Twin Dual Duplex TMA	A	From Centroid-Le g	3.46 2.00 0.00	30.0000	130.00	No Ice 1/2" Ice	0.00 0.00	0.31 0.39	0.01 0.02
(2) Onebase Twin Dual Duplex TMA	B	From Centroid-Le g	3.46 2.00 0.00	30.0000	130.00	No Ice 1/2" Ice	0.00 0.00	0.31 0.39	0.01 0.02

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	Client	AT&T MOBILITY	Designed by	ddicesare

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
(2) Onebase Twin Dual Duplex TMA	C	From Centroid-Le g	3.46 2.00 0.00	30.0000	130.00	No Ice 1/2" Ice	0.00 0.00	0.31 0.39	0.01 0.02
APXV18-209014-C w/Mount Pipe	A	From Centroid-Le g	3.46 2.00 0.00	30.0000	130.00	No Ice 1/2" Ice	4.12 4.73	3.67 4.72	0.04 0.08
APXV18-209014-C w/Mount Pipe	B	From Centroid-Le g	3.46 2.00 0.00	30.0000	130.00	No Ice 1/2" Ice	4.12 4.73	3.67 4.72	0.04 0.08
APXV18-209014-C w/Mount Pipe	C	From Centroid-Le g	3.46 2.00 0.00	30.0000	130.00	No Ice 1/2" Ice	4.12 4.73	3.67 4.72	0.04 0.08
GPS	C	From Leg	0.50 0.00 0.00	0.0000	70.00	No Ice 1/2" Ice	0.17 0.24	0.17 0.24	0.00 0.00
APXV18-206517S-C w/Mount Pipe	A	From Leg	0.50 0.00 0.00	25.0000	156.00	No Ice 1/2" Ice	5.40 5.96	4.70 5.86	0.05 0.09
APXV18-206517S-C w/Mount Pipe	B	From Leg	0.50 0.00 0.00	10.0000	156.00	No Ice 1/2" Ice	5.40 5.96	4.70 5.86	0.05 0.09
APXV18-206517S-C w/Mount Pipe	C	From Leg	0.50 0.00 0.00	10.0000	156.00	No Ice 1/2" Ice	5.40 5.96	4.70 5.86	0.05 0.09

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 P P _a
L1	168.5 - 130.67 (1)	TP25.31x19x0.1875	37.83	0.00	0.0	39.000	14.5867	-4.16	568.88	0.007
L2	130.67 - 84.71 (2)	TP32.49x24.3228x0.25	49.63	0.00	0.0	39.000	24.9844	-10.81	974.39	0.011
L3	84.71 - 43.79 (3)	TP38.69x31.2363x0.3125	45.50	0.00	0.0	39.000	37.1850	-17.60	1450.22	0.012
L4	43.79 - 0 (4)	TP45.25x37.1771x0.375	49.21	0.00	0.0	39.000	53.4125	-28.45	2083.09	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 f _{bx} F _{bx}	Actual M _y kip-ft	Actual f _{by} ksi	Allow. F _{by} ksi	Ratio f _{by} F _{by}
L1	168.5 - 130.67 (1)	TP25.31x19x0.1875	179.89	24.463	39.000	0.627	0.00	0.000	39.000	0.000
L2	130.67 - 84.71 (2)	TP32.49x24.3228x0.25	709.43	43.859	39.000	1.125	0.00	0.000	39.000	0.000

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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 $\frac{f_{by}}{F_{by}}$
L3	84.71 - 43.79 (3)	TP38.69x31.2363x0.3125	1293.46	45.143	39.000	1.158	0.00	0.000	39.000	0.000
L4	43.79 - 0 (4)	TP45.25x37.1771x0.375	2128.66	43.210	39.000	1.108	0.00	0.000	39.000	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	168.5 - 130.67 (1)	TP25.31x19x0.1875	8.65	0.593	26.000	0.046	2.16	0.143	26.000	0.006
L2	130.67 - 84.71 (2)	TP32.49x24.3228x0.25	13.34	0.534	26.000	0.041	2.15	0.065	26.000	0.002
L3	84.71 - 43.79 (3)	TP38.69x31.2363x0.3125	15.73	0.423	26.000	0.033	2.15	0.037	26.000	0.001
L4	43.79 - 0 (4)	TP45.25x37.1771x0.375	18.14	0.340	26.000	0.026	2.14	0.021	26.000	0.001

Pole Interaction Design Data

Section No.	Elevation ft	Ratio P P_a	Ratio f_{bx} F_{bx}	Ratio f_{by} F_{by}	Ratio f_v F_v	Ratio f_{vt} F_{vt}	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	168.5 - 130.67 (1)	0.007	0.627	0.000	0.046	0.006	0.635	1.333	H1-3+VT ✓
L2	130.67 - 84.71 (2)	0.011	1.125	0.000	0.041	0.002	1.136	1.333	H1-3+VT ✓
L3	84.71 - 43.79 (3)	0.012	1.158	0.000	0.033	0.001	1.170	1.333	H1-3+VT ✓
L4	43.79 - 0 (4)	0.014	1.108	0.000	0.026	0.001	1.122	1.333	H1-3+VT ✓

Section Capacity Table

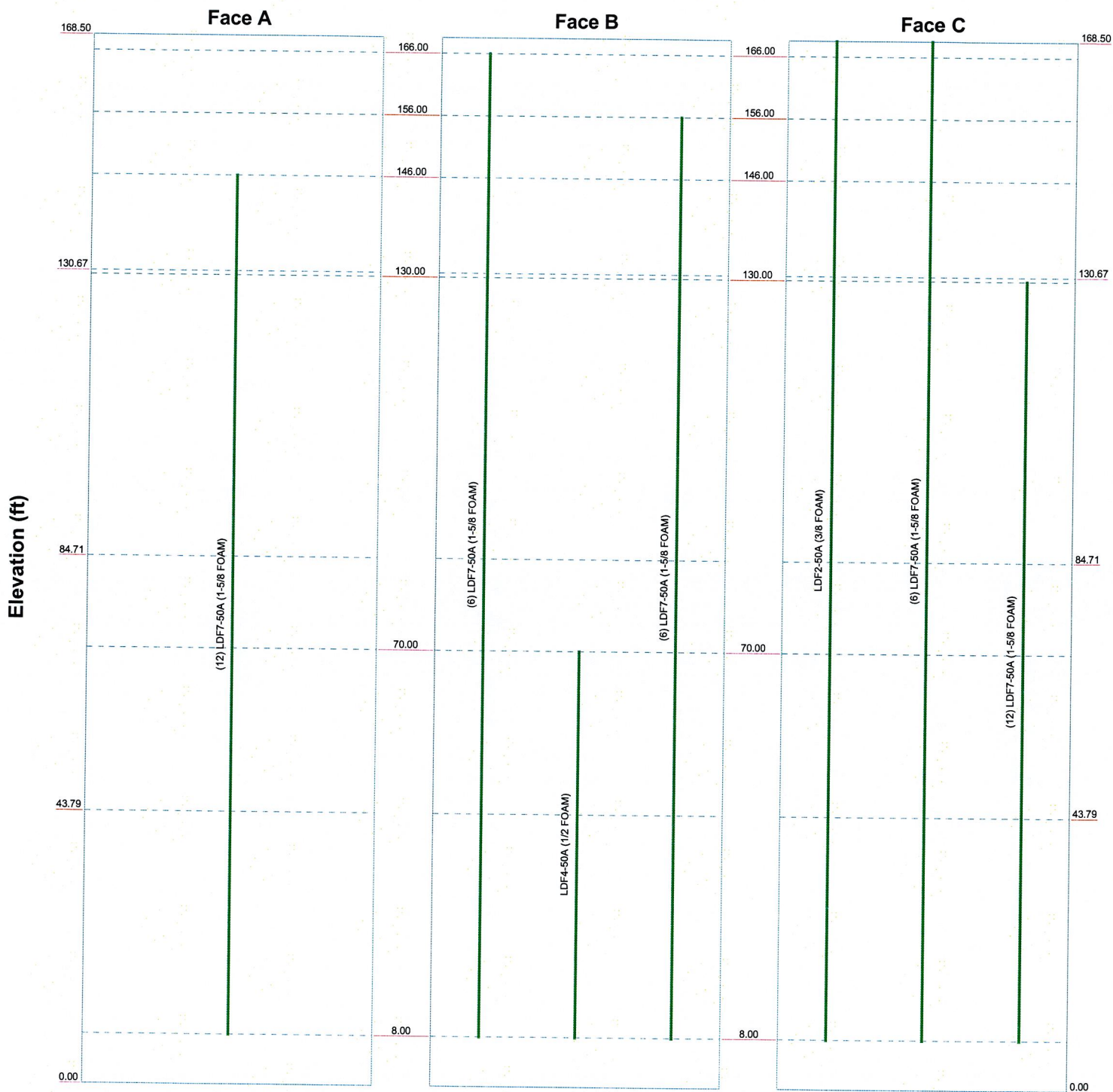
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF* P_{allow} K	% Capacity	Pass Fail
L1	168.5 - 130.67	Pole	TP25.31x19x0.1875	1	-4.16	758.32	47.7	Pass
L2	130.67 - 84.71	Pole	TP32.49x24.3228x0.25	2	-10.81	1298.86	85.2	Pass
L3	84.71 - 43.79	Pole	TP38.69x31.2363x0.3125	3	-17.60	1933.14	87.8	Pass
L4	43.79 - 0	Pole	TP45.25x37.1771x0.375	4	-28.45	2776.76	84.2	Pass
							Summary	
							Pole (L3)	87.8 Pass
							RATING =	87.8 Pass

APPENDIX C

Tower Elevation Drawings

Feedline Distribution Chart 0' - 168'6"

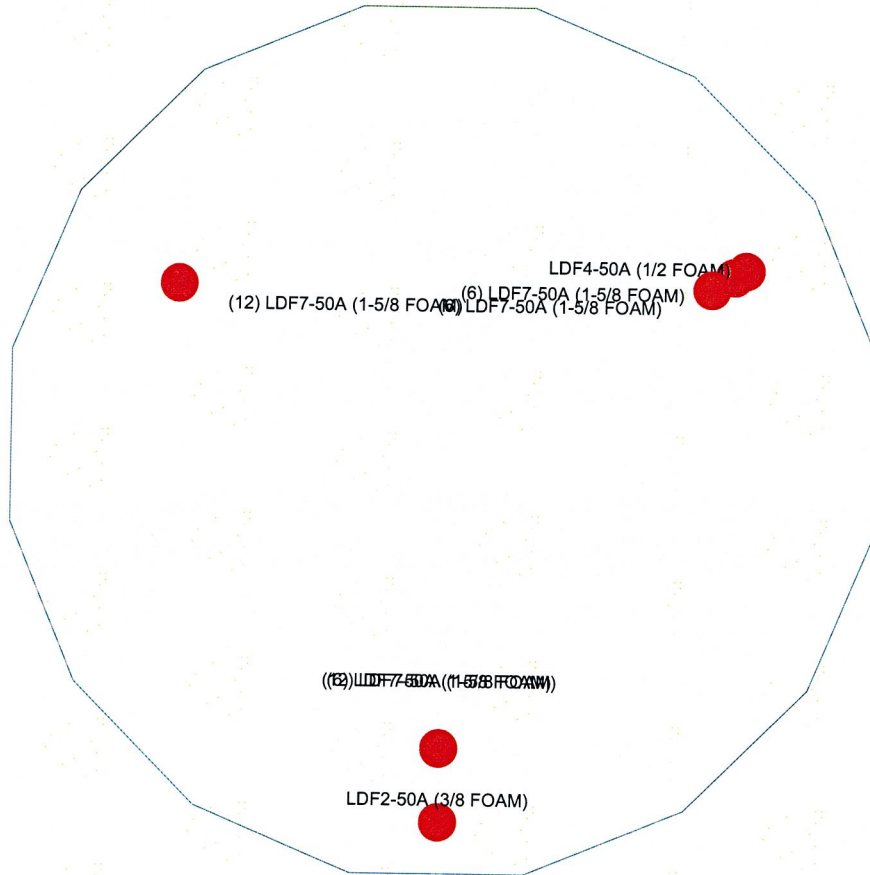
Round Flat App In Face App Out Face Truss Leg



 GPD GROUP Consulting Engineers	GPD Associates 520 S. Main Street, Suite 2531 Akron, OH 44311 Phone: (330) 572-2100 FAX: (330) 572-2101		Job: 27074 BRISTOL CENTER Project: 2009273.96 Client: AT&T MOBILITY Code: TIA/EIA-222-F Path: N:\2009\2009273\96\Bristol Center.eri	
	Drawn by: ddicesare Date: 10/22/09 Scale: NTS		App'd: Dwg No. E-7	

Feedline Plan

Round Flat App In Face App Out Face



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			Project: 2009273.96		
			Client: AT&T MOBILITY	Drawn by: ddicesare	App'd:
			Code: TIA/EIA-222-F	Date: 10/22/09	Scale: NTS
			Path: N:\2009\2009273\96\RISA\27074 Bristol Center.eri		Dwg No. E-7

APPENDIX D

Anchor Rod & Base Plate Analysis



Anchor Rod and Base Plate Stresses
27074 BRISTOL CENTER
2009273.96

Overturning Moment =	2129.00	k*ft
Axial Force =	28.00	k
Shear Force =	18.00	k

Anchor Rods		
Number of Rods =	12	
Type =	Upset Rod	
Rod Yield Strength (F _y) =	75	ksi
ASIF =	1.333	
Rod Circle =	54	in
Rod Diameter =	2.25	in
Net Tensile Area =	3.25	in ²
Max Tension on Rod =	155.23	kips
Max Compression on Rod =	159.90	kips
Allow. Rod Force =	195.00	kips
Anchor Rod Capacity =	79.6%	OK

Stiffeners		
Configuration =	None	

Base Plate		
Location =	External	
Plate Strength (F _y) =	60	ksi
Outside Diameter =	60	in
Plate Thickness =	2	in
wcalc =	29.47	in
wmax =	33.98	in
w =	29.47	in
S =	19.65	in ³
fb =	54.35	ksi
Fb =	60	ksi
Base Plate Capacity =	90.6%	OK

Pole		
Pole Diameter =	45.25	in
Number of Sides =	18	
Thickness =	0.375	in
Pole Yield Strength =	65	ksi

APPENDIX E

Foundation Analysis

CAISSON Version 4.46 Thu Oct 22 10:34:19 2009
 U.W. Short Course - 1998

 * PIER FOUNDATIONS ANALYSIS AND DESIGN - (C) 1995, POWER LINE SYSTEMS, INC.*
 *

*** ANALYSIS IDENTIFICATION : 27074 BRISTOL CENTER
 NOTES : 2009273.96 (INPUT LOADS FACTORED FOR STRUCTURAL ANALYSIS OF PIER)

*** PIER PROPERTIES CONCRETE STRENGTH (ksi) = 4.00 STEEL STRENGTH (ksi) = 60.00
 DIAMETER (ft) = 6.500 DISTANCE FROM TOP OF PIER TO GROUND LEVEL (ft) = 1.00

*** SOIL PROPERTIES	LAYER	TYPE	THICKNESS (ft)	DEPTH AT TOP OF LAYER (ft)	DENSITY (pcf)	CU (psf)	KP	PHI (degrees)
	1	C	3.00	0.00	120.0	0.0		
	2	S	25.00	3.00	120.0		3.000	30.00

*** DESIGN (FACTORED) LOADS AT TOP OF PIER MOMENT (ft-k) = 3385.0 VERTICAL (k) = 36.4 SHEAR (k) = 28.6
 ADDITIONAL SAFETY FACTOR AGAINST SOIL FAILURE = 1.54

*** CALCULATED PIER LENGTH (ft) = 22.000

*** CHECK OF SOILS PROPERTIES AND ULTIMATE RESISTING FORCES ALONG PIER

TYPE	TOP OF LAYER BELOW TOP OF PIER (ft)	THICKNESS (ft)	DENSITY (pcf)	CU (psf)	KP	FORCE (k)	ARM (ft)
C	1.00	3.00	120.0	0.0		0.00	2.50
S	4.00	12.21	120.0		3.000	780.65	11.47
S	16.21	5.79	120.0		3.000	-735.67	19.26

*** SHEAR AND MOMENTS ALONG PIER

DISTANCE BELOW TOP OF PIER (ft)	WITH THE ADDITIONAL SAFETY FACTOR		WITHOUT ADDITIONAL SAFETY FACTOR	
	SHEAR (k)	MOMENT (ft-k)	SHEAR (k)	MOMENT (ft-k)
0.00	45.0	5214.4	29.2	3385.9
2.20	45.0	5313.3	29.2	3450.2
4.40	36.0	5410.5	23.4	3513.3
6.60	-33.5	5419.5	-21.8	3519.2
8.80	-137.0	5238.2	-88.9	3401.5
11.00	-274.4	4791.9	-178.2	3111.6
13.20	-445.9	4005.9	-289.5	2601.2
15.40	-651.3	2805.3	-422.9	1821.6
17.60	-580.7	1327.4	-377.1	861.9
19.80	-307.3	344.3	-199.6	223.6
22.00	0.0	0.0	0.0	0.0

*** TOTAL REINFORCEMENT PCT = 0.52 REINFORCEMENT AREA (in^2) = 24.85
 *** USABLE AXIAL CAP. (k) = 36.4 USABLE MOMENT CAP. (ft-k) = 3573.6

*** US Standard Re-Bars (Select one of the following):

125	BARS #4	(AREA = 0.20 in ²	DIA = 0.500 in)	AT SPACING (in) =	1.71
81	BARS #5	(AREA = 0.31 in ²	DIA = 0.625 in)	AT SPACING (in) =	2.64
57	BARS #6	(AREA = 0.44 in ²	DIA = 0.750 in)	AT SPACING (in) =	3.75
42	BARS #7	(AREA = 0.60 in ²	DIA = 0.875 in)	AT SPACING (in) =	5.09
32	BARS #8	(AREA = 0.79 in ²	DIA = 1.000 in)	AT SPACING (in) =	6.68
25	BARS #9	(AREA = 1.00 in ²	DIA = 1.128 in)	AT SPACING (in) =	8.55
20	BARS #10	(AREA = 1.27 in ²	DIA = 1.270 in)	AT SPACING (in) =	10.68
16	BARS #11	(AREA = 1.56 in ²	DIA = 1.410 in)	AT SPACING (in) =	13.35
12	BARS #14	(AREA = 2.25 in ²	DIA = 1.693 in)	AT SPACING (in) =	17.80

*** PRESSURE UNDER CAISSON DUE TO DESIGN AXIAL LOAD (psf) = 1096.9

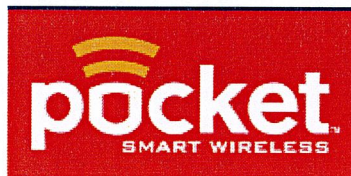
EXHIBIT D
EMISSIONS STUDY



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

support@csquaredsystems.com

Calculated Radio Frequency Emissions



HFCT0128A

371 Terryville Avenue, Bristol, CT 06010

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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 located at 371 Terryville Avenue, Bristol, CT 06010.

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.

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).

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.

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment B of this report. 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.

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, 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. Attachment B contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit.

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.

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:

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

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 noted¹.

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	166	1962.5	11	239	0.0343	1.0000	3.43%
AT&T GSM	169	1900	4	490	0.0247	1.0000	2.47%
AT&T UMTS	169	880	1	500	0.0063	0.5867	1.07%
Verizon	146	1900	3	256	0.0130	1.0000	1.30%
Verizon	146	800	9	200	0.0304	0.5333	5.69%
T-Mobile GSM	130	1945	8	126	0.0214	1.0000	2.14%
T-Mobile UMTS	130	2.1 GHz	2	711	0.0303	1.0000	3.03%
Pocket	156	2130-2133.75	3	631	0.0302	1.0000	3.02%
Total							22.15%

Table 1: Carrier Information

5. Conclusion

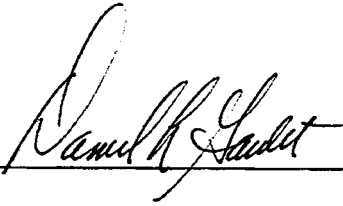
The above analysis verifies that emissions from the proposed site configuration will be well below the maximum power density levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Even when using conservative methods, the cumulative power density from the proposed and existing transmit antennas at the existing facility is well below the limits for the general public. The highest expected percent of Maximum Permissible Exposure at the base of the monopole is 22.15% 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 According to the structural analysis report submitted on October 22, 2009 by GPD Associates, Sprint's centerline is 166' (CSC database shows 150') and Verizon's centerline is 146' (CSC database shows 140'). The total %MPE value was calculated based on the updates in Table 1 above for the purpose of the composite analysis. (Gray type indicates recommended updates to the CSC database.)

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.



Daniel I. Goulet
C Squared Systems, LLC

November 3, 2009
Date

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

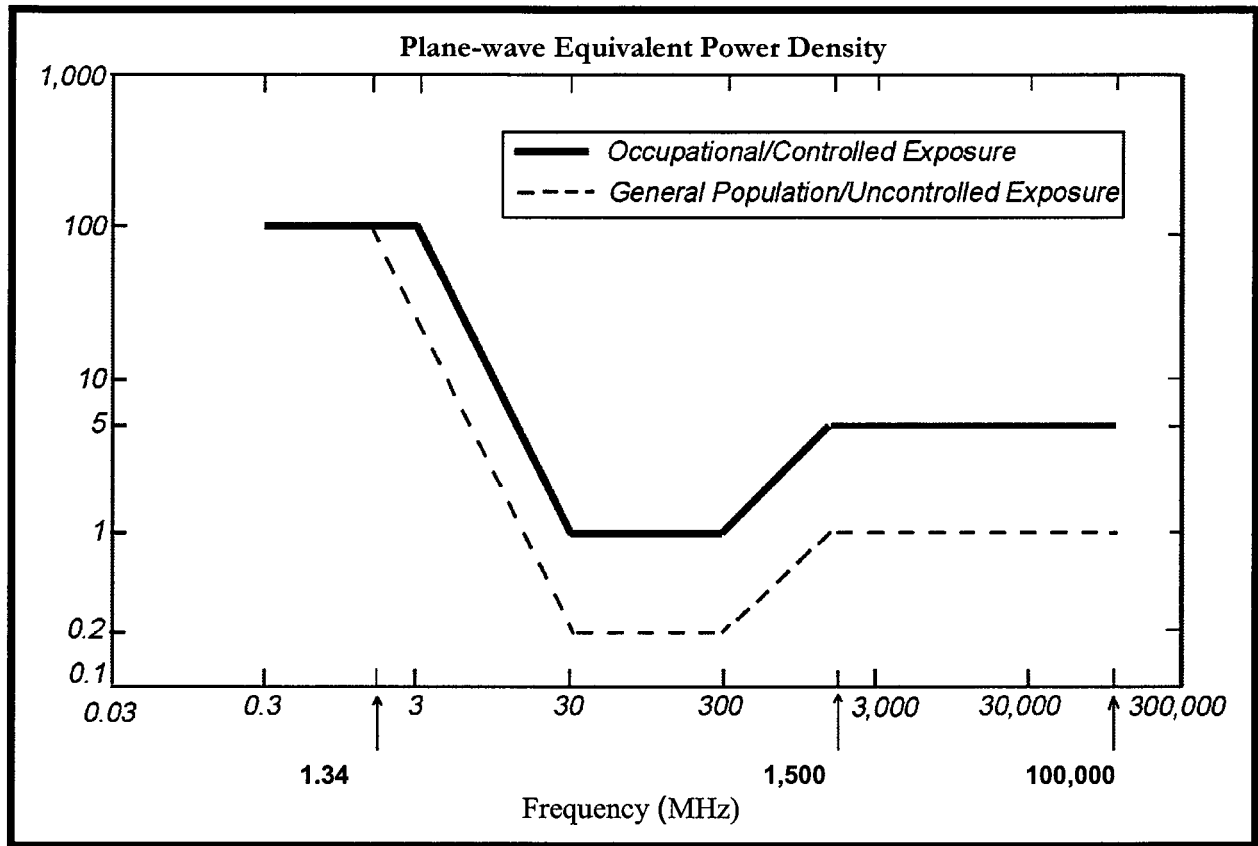
(B) Limits for General Population/Uncontrolled Exposure

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)



CONSTRUCTION SERVICES

of Branford, LLC

November 9, 2009

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

ORIGINAL

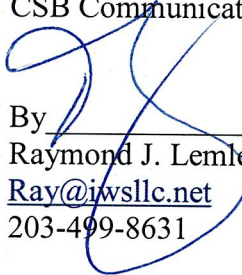
RECEIVED
NOV 12 2009
CONNECTICUT
SITING COUNCIL

RE: Pocket Communications/371 Terryville Road, Bristol, CT

Dear Mr. Phelps:

Enclosed please find seven (7) Notices of Exempt Modification for the above-referenced facility along with the filing fee. Please return a stamped copy in the enclosed return envelope. If you require any additional information, please do not hesitate to contact me. Thank you for your continued assistance with this project.

CSB Communications

By 
Raymond J. Lemley, consultant
Ray@jwsllc.net
203-499-8631

**PULLMAN
& COMLEY**
ATTORNEYS

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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

RECEIVED
OCT 22 2010
CONNECTICUT
SITING COUNCIL

Re: Exempt Modifications, Pocket Wireless

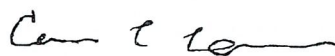
Dear Ms. Roberts:

Please be advised that this office represents Youghiogeny 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