STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

June 27, 2011

Douglas L. Culp, Real Estate Consultant
New Cingular Wireless PCS, LLC
500 Enterprise Drive
Rocky Hill, CT 06067-3900

RE: **EM-CING-126-110609** - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 308 River Road, Shelton, Connecticut.

Dear Mr. Culp:

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

- Any deviation from the proposed modification as specified in this notice and supporting materials with Council shall render this acknowledgement invalid;
- Any material changes to this modification as proposed shall require the filing of a new notice with the Council;
- Not less than 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration;

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated June 9, 2011. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Very truly yours,

Linda Roberts
Executive Director

LR/CDM/laf

c: The Honorable Mark A. Lauretti, Mayor, City of Shelton
Richard Schultz, Planning Administrator, City of Shelton
Hans Fiedler, T-Mobile
Julie D. Kohler, Esq., Cohen and Wolf P.C.

CSC
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June 13, 2011

The Honorable Mark A. Lauretti
Mayor
City of Shelton
54 Hill Street
P. O. Box 364
Shelton, CT 06484

RE: **EM-CING-126-110609** - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 308 River Road, Shelton, Connecticut.

Dear Mayor Lauretti:

The Connecticut Siting Council (Council) received this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

If you have any questions or comments regarding this proposal, please call me or inform the Council by June 27, 2011.

Thank you for your cooperation and consideration.

Very truly yours,

LRoberts

Linda Roberts
Executive Director

LR/jbw

Enclosure: Notice of Intent

c: Richard Schultz, Planning Administrator, City of Shelton

CSC
CONNECTICUT SITING COUNCIL

EM-CING-126-110609

at&t Your world. Delivered.

cingular raising the bar

ORIGINAL

ır Wireless PCS, LLC
500 Enterprise Drive
Rocky Hill, Connecticut 06067-3900
Phone: (860) 463-5511
Fax: (860) 513-7190

Douglas L. Culp
Real Estate Consultant

HAND DELIVERED

RECEIVED
JUN - 9 2011
CONNECTICUT
SITING COUNCIL

June 9, 2011

Ms. Linda Roberts
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

Re: New Cingular Wireless PCS, LLC notice of intent to modify an existing tele-communications facility located at 308 River Road Shelton , CT (owner T-Mobile).

Dear Ms. Roberts:

In order to accommodate technological changes, implement Uniform Mobile Telecommunications System ("UMTS") and/or Long Term Evolution ("LTE") capabilities, and enhance system performance in the State of Connecticut, New Cingular Wireless PCS, LLC ("AT&T") plans to modify the equipment configurations at many of its existing cell sites. Please accept this letter and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter and attachments is being sent to the chief elected official of the municipality in which the affected cell site is located.

UMTS technology offers services to mobile computer and phone users anywhere in the world. Based on the Global System for Mobile ("GSM") communication standard, UMTS is the planned worldwide standard for mobile users. UMTS, fully implemented, gives computer and phone users high-speed access to the Internet as they travel. They have the same capabilities even when they roam, through both terrestrial wireless and satellite transmissions.

LTE is a new high-performance air interface for cellular mobile communications. It is designed to increase the capacity and speed of mobile telephone networks.

Attached is a summary of the planned modifications, including power density calculations reflecting the change in AT&T's operations at the site. Also included is documentation of the structural sufficiency of the tower to accommodate the revised antenna configuration.

The changes to the facility do not constitute modifications as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical characteristics of the facility will not be significantly changed or altered. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b)(2).

1. The height of the overall structure will be unaffected.

2. The proposed changes will not extend the site boundaries. There will be no effect on the site compound other than some enlarged equipment pads as may be noted in the attachments.

3. The proposed changes will not increase the noise level at the existing facility by six decibels or more.

4. Radio frequency power density may increase due to use of one or more GSM channel for UMTS transmissions. Moreover, LTE will utilize additional radio frequencies newly-licensed by the FCC for cellular mobile communications. However, the changes will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the applicable standard for uncontrolled environments as calculated for a mixed frequency site.

For the foregoing reasons, New Cingular Wireless respectfully submits that the proposed changes at the referenced site constitute exempt modifications under R.C.S.A. Section 16-50j-72(b)(2).

Please feel free to call me at (860) 463-5511 with questions concerning this matter. Thank you for your consideration.

Sincerely,

Douglas L. Culp
Real Estate Consultant

Attachments

NEW CINGULAR WIRELESS PCS, LLC
Equipment Modification

308 River Road Shelton, CT
Site Number CT5160
Exempt Mods: 08/02, 08/07

Tower Owner/Manager: T-Mobile

Equipment configuration: Stealth Flagpole

Current and/or approved: Three PowerWave P7770 antennas @ 98 ft
Six runs 1 1/4 inch coax to 98 ft
Equipment on Concrete Pad

Planned Modifications: Remove existing PowerWave P7770 Antenna's @ 98 ft
Retain all Coax Cabling
Install three PowerWave P65-15 antennas or equivalent @ 98 ft
Install six TRiasX Diplexers DBC2046F1V2 or equivalent @ 98 ft
Increase radome from 18" to 36" for AT&T's 6 foot section

Power Density:

Worst-case calculations for existing wireless operations at the site, using standard parameters for other carriers, indicate a radio frequency electromagnetic radiation power density, measured at ground level beside the Tower, of approximately 33.7% of the standard adopted by the FCC. As depicted in the second table below, the total radio frequency electromagnetic radiation power density following proposed modifications would be approximately 39.4% of the standard.

Existing

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm^2)	Standard Limits (mW/cm^2)	Percent of Limit
Other Users							20.94
AT&T UMTS	98	800 Band	1	500	0.0187	0.5867	3.19
AT&T GSM	98	1900 Band	6	427	0.0959	1.0000	9.59
Total							**33.7%**

* Data for other users are from Siting Council records.

Proposed

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm^2)	Standard Limits (mW/cm^2)	Percent of Limit
Other Users							20.94
AT&T UMTS	98	800 Band	1	500	0.0187	0.5867	3.19
AT&T UMTS	98	1900 Band	1	500	0.0187	1.0000	1.87
AT&T GSM	98	1900 Band	6	427	0.0959	1.0000	9.59
AT&T LTE	98	740 - 746	1	500	0.0187	0.4933	3.79
Total							**39.4%**

* Data for other users are from Siting Council records.

Structural information:

The attached structural analysis demonstrates that the monopole and foundation have adequate structural capacity to accommodate the proposed modifications. (Tower Engineering Prof. dated 4-1-11).

PROJECT INFORMATION

SCOPE OF WORK:	UNMANNED TELECOMMUNICATIONS FACILITY MODIFICATIONS
SITE ADDRESS:	308 RIVER ROAD SHELTON, CT 06484
LATITUDE:	41.2957° N 41° 17' 44.52" N
LONGITUDE:	-73.0726° W -73° 4' 21.36" W
JURISDICTION:	NATIONAL, STATE & LOCAL CODES OR ORDINANCES
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY
NOC#	866-915-5600

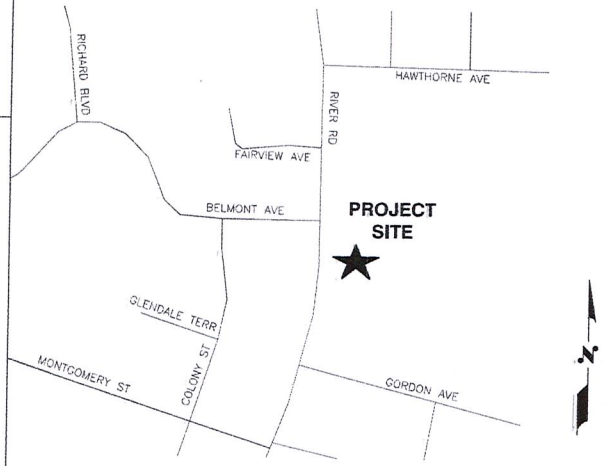
at&t

SITE NUMBER: CT5160
SITE NAME: MIDDLEFIELD SOUTH

DRAWING INDEX

VICINITY MAP

DIRECTIONS TO SITE:
START OUT GOING NORTHEAST ON ENTERPRISE DR TOWARD CAPITOL BLVD. 0.4 MI TURN LEFT ONTO CAPITOL BLVD. 0.3 MI TURN LEFT ONTO WEST ST. 0.3 MI MERGE ONTO I-91 S VIA THE RAMP ON THE LEFT TOWARD NEW HAVEN. 9.7 MI MERGE ONTO CT-15 S/WILBUR CROSS PKWY VIA EXIT 17. 21.8 MI MERGE ONTO CT-34 W VIA EXIT 58 TOWARD DERBY. 3.2 MI TURN LEFT ONTO MAIN ST/CT-34 W. 0.2 MI MERGE ONTO CT-8 S VIA THE RAMP ON THE LEFT TOWARD BRIDGEPORT. 0.4 MI TAKE THE CT-110/HOWE AVE EXIT, EXIT 14, TOWARD SHELTON. 0.2 MI TURN LEFT ONTO HOWE AVE/CT-110. CONTINUE TO FOLLOW CT-110. 1.5 MI END AT 308 RIVER RD.



GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

72 HOURS
BEFORE YOU DIG
CALL TOLL FREE 800-922-4455

UNDERGROUND SERVICE ALERT

Hudson Design Group LLC
1600 OSGOOD STREET
BUILDING 20 NORTH, SUITE 2-101
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

SAI communications
22 KEEWAYDIN DRIVE
SALEM, NH 03079

SITE NUMBER: CT5160
SITE NAME: MIDDLEFIELD SOUTH

308 RIVER ROAD
SHELTON, CT 06484
FAIRFIELD COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
3	05/31/11	CONSTRUCTION FINAL	HC	DC	DPH
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SCALE: AS SHOWN | DESIGNED BY: DC | DRAWN BY: DB

CHRISTOPHER P. HAMM No. 21178 LICENSED PROFESSIONAL ENGINEER STATE OF CONNECTICUT

AT&T
TITLE SHEET
(2ND CARRIER & LTE)

JOB NUMBER	DRAWING NUMBER	REV
5160.01	T-1	3

GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.

2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.

5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS 2 AWG STRANDED COPPER FOR OUTDOOR BTS.

6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWS COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR – SAI
SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
OWNER – AT&T MOBILITY

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.

7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.

10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

16. CONSTRUCTION SHALL COMPLY WITH UMTS SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."

17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

20. APPLICABLE BUILDING CODES:
SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.
BUILDING CODE: 2003 IBC WITH 2005 CT SUPPLEMENT & 2009 CT AMENDMENTS
ELECTRICAL CODE: REFER TO ELECTRICAL DRAWINGS
LIGHTENING CODE: REFER TO ELECTRICAL DRAWINGS

SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

MANUAL OF STEEL CONSTRUCTION, ASD, NINTH EDITION;

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-F, STRUCTURAL STANDARDS FOR STEEL

ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	G.C.	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
AWG	AMERICAN WIRE GAUGE	MGB	MASTER GROUND BUS		
BCW	BARE COPPER WIRE	MIN	MINIMUM	TBD	TO BE DETERMINED
BTS	BASE TRANSCEIVER STATION	PROPOSED	NEW	TBR	TO BE REMOVED
EXISTING	EXISTING	N.T.S.	NOT TO SCALE	TBRR	TO BE REMOVED AND REPLACED
EG	EQUIPMENT GROUND	REF	REFERENCE		
EGR	EQUIPMENT GROUND RING	REQ	REQUIRED	TYP	TYPICAL

Hudson Design Group LLC
1600 OSGOOD STREET BUILDING 20 NORTH, SUITE 2-101 N. ANDOVER, MA 01845
TEL: (978) 557-5553 FAX: (978) 336-5586

SAI communications
22 KEEWAYDIN DRIVE
SALEM, NH 03079

SITE NUMBER: CT5160
SITE NAME: MIDDLEFIELD SOUTH
308 RIVER ROAD
SHELTON, CT 06484
FAIRFIELD COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
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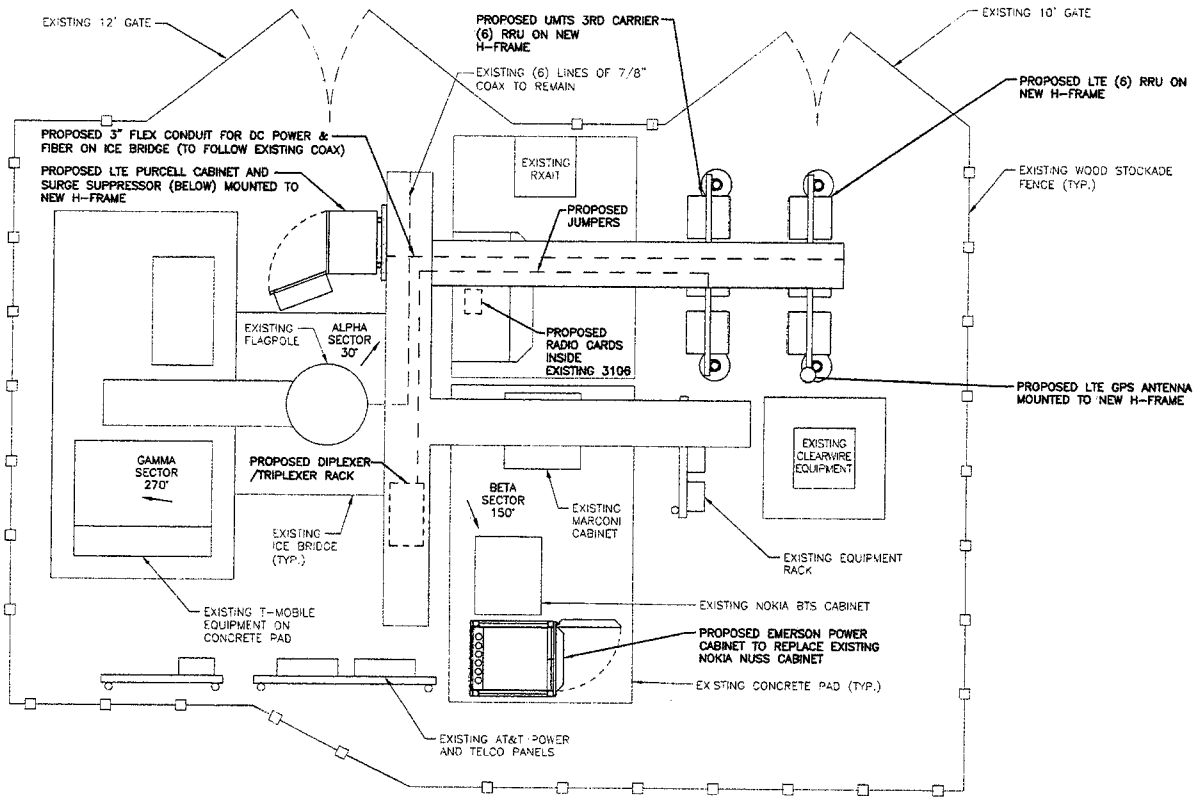
0	12/13/10	ISSUED FOR REVIEW	DB	DC	DPH

SCALE: AS SHOWN | DESIGNED BY: DC | DRAWN BY: DB

AT&T
GENERAL NOTES
(2ND CARRIER & LTE)

JOB NUMBER	DRAWING NUMBER	REV
5160.01	GN-1	3



COMPOUND PLAN

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

0 1'-0" 2'-0" 4'-0" 6'-0"

Hudson Design Group LLC
1600 OSGOOD STREET
BUILDING 20-NORTH, SUITE 2-101
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

SAI communications
22 KEEWAYDIN DRIVE
SALEM, NH 03079

SITE NUMBER: CT5160
SITE NAME: MIDDLEFIELD SOUTH

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0	12/13/10	ISSUED FOR REVIEW	DB	DC	DPH

SCALE: AS SHOWN | DESIGNED BY: DC | DRAWN BY: DB

AT&T

COMPOUND PLAN & EQUIPMENT PLAN (2ND CARRIER & LTE)

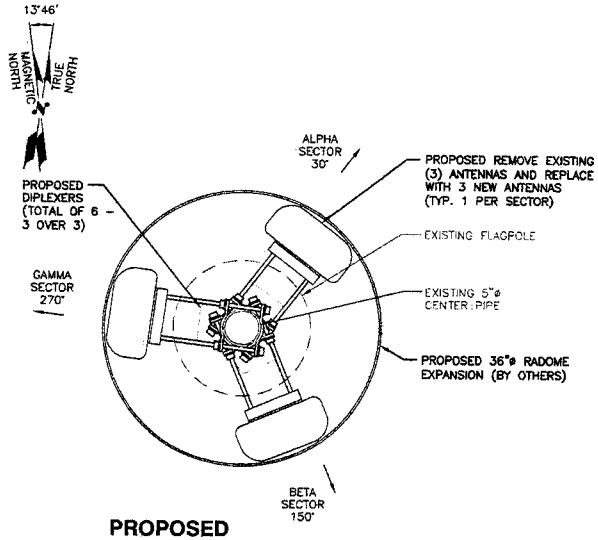
JOB NUMBER	DRAWING NUMBER	REV
5160.01	A-1	3

RF TABLE								
SECTOR	SECTOR NAME	ANTENNA MAKE & MODEL	ANTENNA COUNT	AZIMUTH	RAD CENTER	MECHANICAL DOWNTILT	TWIN TMA COUNT	DIPLEXER COUNT
1	ALPHA	POWERWAVE P65-15-XLH-RR	1	30°	98'-0"±	0*	0 EXIST. 0 PROP.	0 EXIST. 2 PROP.
2	BETA	POWERWAVE P65-15-XLH-RR	1	150°	98'-0"±	0*	0 EXIST. 0 PROP.	0 EXIST. 2 PROP.
3	GAMMA	POWERWAVE P65-15-XLH-RR	1	270°	98'-0"±	0*	0 EXIST. 0 PROP.	0 EXIST. 2 PROP.

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

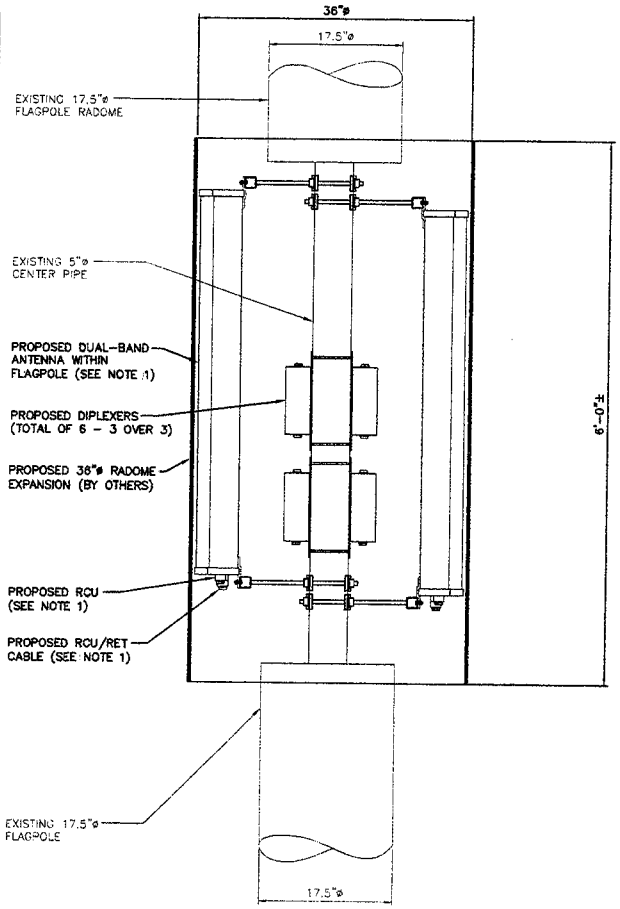
NOTE:*
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.



PROPOSED ANTENNA PLAN VIEW

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

0 0'-4" 0'-8" 1'-4" 2'-0"



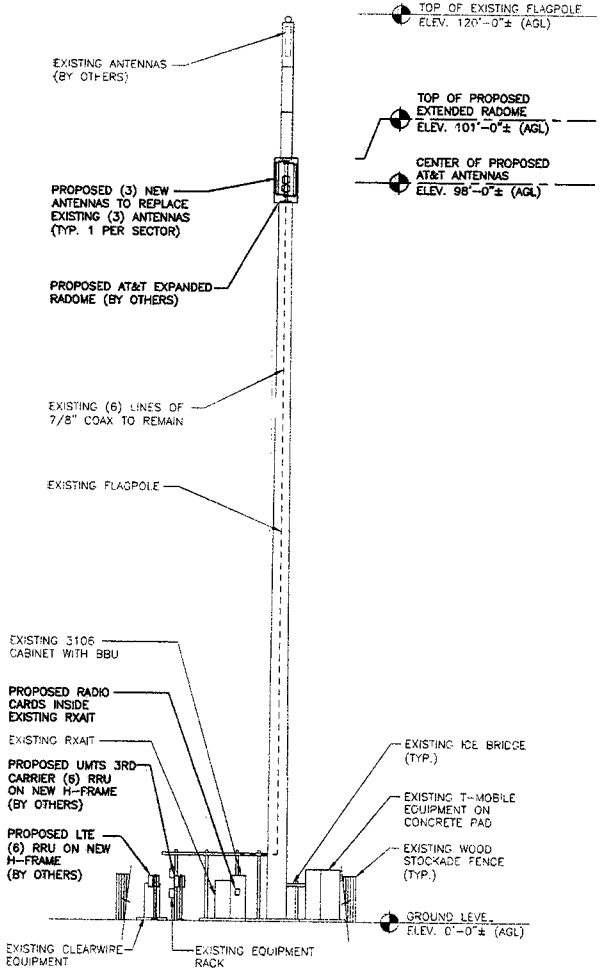
NOTES:

1. REFER TO RFDS & SECTOR SCHEMATICS FOR ANTENNA MODEL, TYPE & QUANTITY REQUIRED PER SECTOR

PROPOSED ANTENNA DETAIL

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

0 0'-4" 0'-8" 1'-4" 2'-0"



NORTH ELEVATION

SCALE: 1/8"=1'-0"

0 4'-0" 8'-0" 16'-0" 24'-0"

Hudson Design Group LLC
1600 OSGOOD STREET
BUILDING 20 NORTH, SUITE 2-101
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

SAI communications
22 KEEWAYDIN DRIVE
SALEM, NH 03079

SITE NUMBER: CT5160
SITE NAME: MIDDLEFIELD SOUTH

308 RIVER ROAD
SHELTON, CT 06484
FAIRFIELD COUNTY

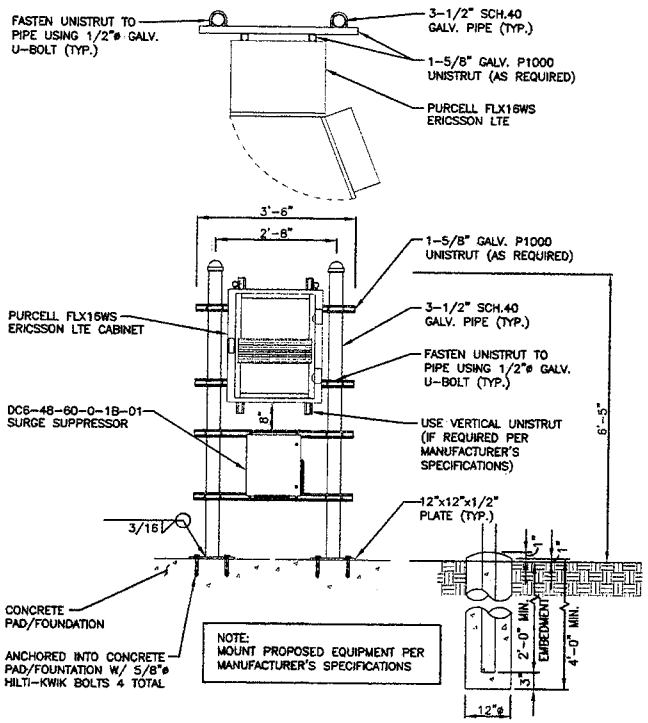
at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
3	05/31/11	CONSTRUCTION FINAL	DC	DC	DPH
2	04/12/11	CONSTRUCTION REVISED	DC	DC	DPH
1	12/16/10	ISSUED FOR CONSTRUCTION	DB	DC	DPH
0	12/13/10	ISSUED FOR REVIEW	DB	DC	DPH

SCALE: AS SHOWN | DESIGNED BY: DC | DRAWN BY: DB

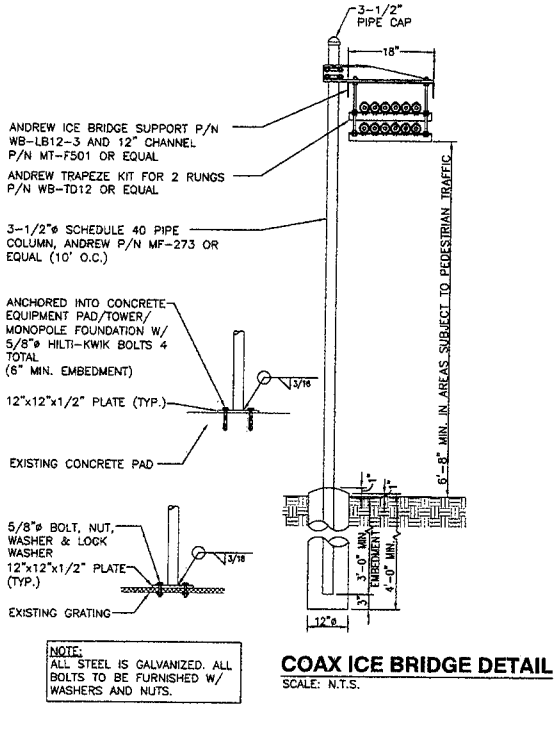
AT&T
ANTENNA LAYOUT & ELEVATION (2ND CARRIER & LTE)

JOB NUMBER:	DRAWING NUMBER	REV
5160.01	A-2	3



PROPOSED EQUIPMENT MOUNTING DETAIL

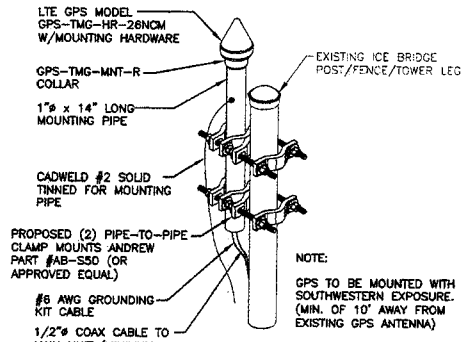
SCALE: N.T.S.



NOTE:
ALL STEEL IS GALVANIZED. ALL BOLTS TO BE FURNISHED W/ WASHERS AND NUTS.

COAX ICE BRIDGE DETAIL

SCALE: N.T.S.



GPS MOUNTING DETAIL

SCALE: N.T.S.

Hudson Design Group LLC
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TEL: (978) 557-5553
FAX: (978) 336-5586

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3	05/31/11	CONSTRUCTION FINAL	JC	DC	DPH
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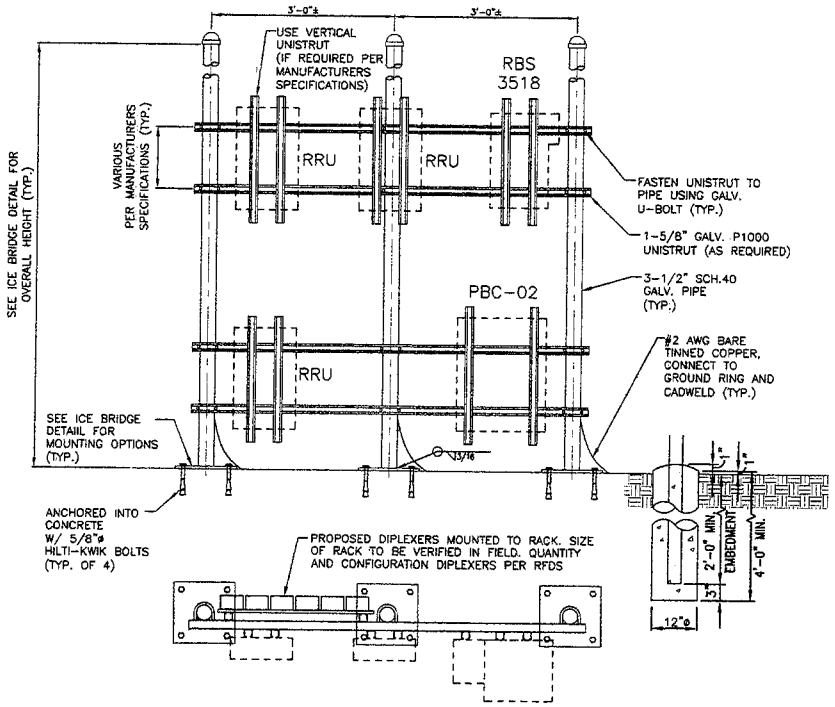
1	12/16/10	ISSUED FOR CONSTRUCTION	BB	DC	DPH
0	12/13/10	ISSUED FOR REVIEW	DB	DC	DPH

SCALE: AS SHOWN | DESIGNED BY: DC | DRAWN BY: DB

AT&T

DETAILS
(2ND CARRIER & LTE)

JOB NUMBER:	DRAWING NUMBER	REV.
5160.01	A-3	3



EQUIPMENT 3RD CARRIER H-FRAME DETAIL

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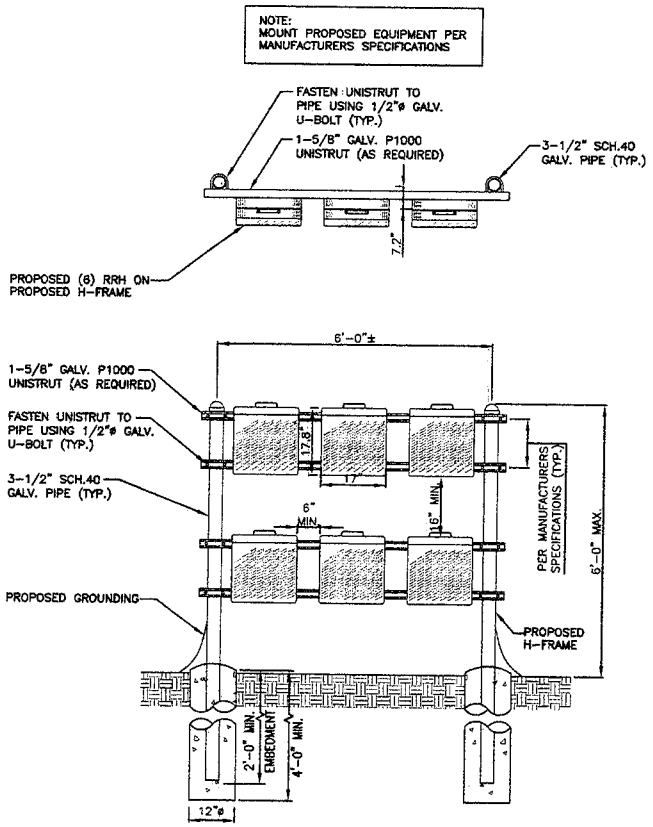

PROPOSED EQUIPMENT MOUNTING DETAIL

SCALE: N.T.S.

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NO.	DATE	REVISIONS	BY	CHK	APP'D
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1	12/16/10	ISSUED FOR CONSTRUCTION	DB	DC	DPH
0	12/13/10	ISSUED FOR REVIEW	DB	DC	DPH

SCALE: AS SHOWN | DESIGNED BY: DC | DRAWN BY: DB

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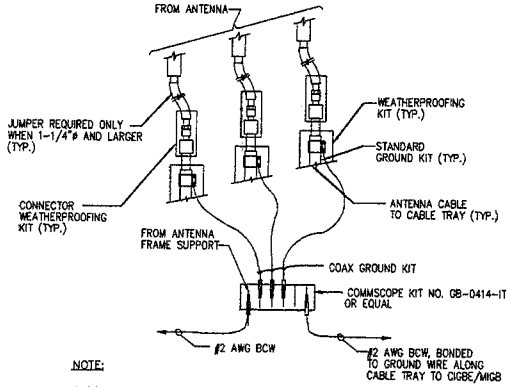
DETAILS
(2ND CARRIER & LTE)

JOB NUMBER	DRAWING NUMBER	REV
5160.01	A-4	3

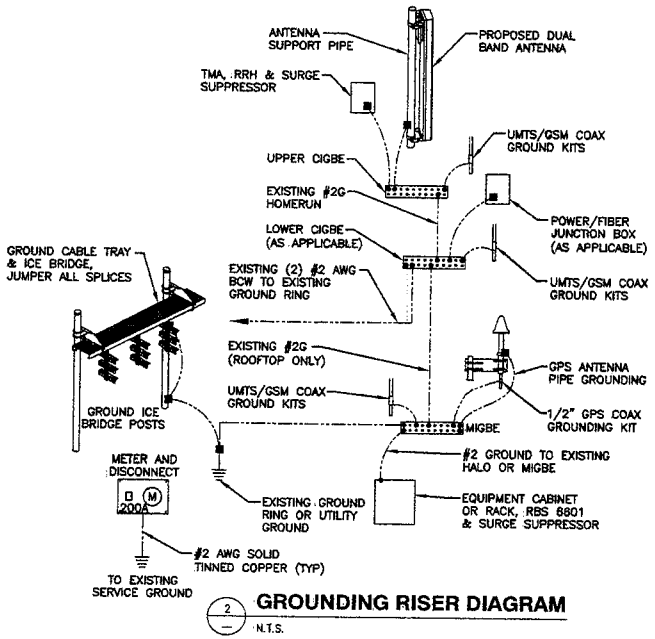


NOTE:

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

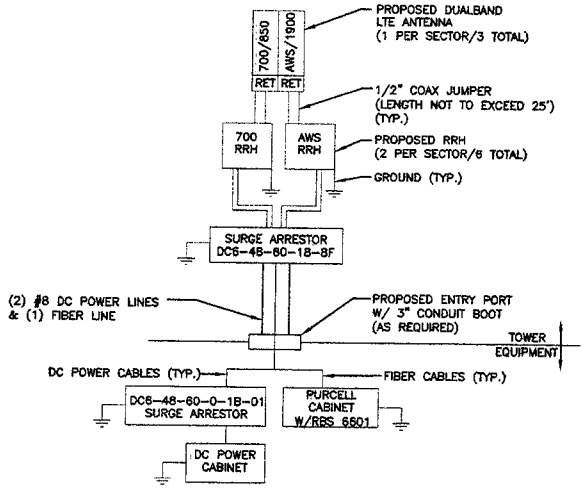
1 GROUND WIRE TO GROUND BAR CONNECTION DETAIL

N.T.S.



2 GROUNDING RISER DIAGRAM

N.T.S.

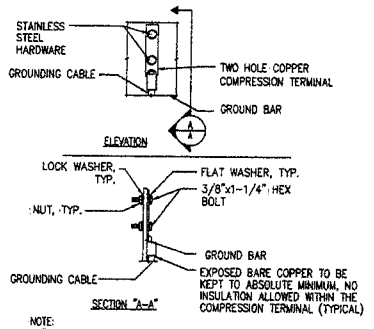


NOTES:

1. CONTRACTOR TO CONFIRM ALL PARTS.
2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS.

3 PLUMBING DIAGRAM

N.T.S.



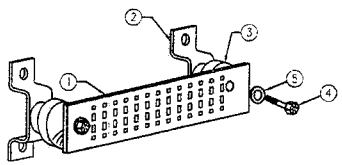
NOTE:

1. "DOUBLING UP" OR "STACKING " OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB.

4 TYPICAL GROUND BAR CONNECTION DETAIL

N.T.S.

WIRELESS SOLUTIONS INC.			
NO.	REQ.	PART NO.	DESCRIPTION
1	1	HLGB-0420-IS	SOLID GND. BAR (20"x4"x1/4")
2	2	———	WALL MTG. BRKT.
3	2	———	INSULATORS
4	4	———	5/8"-11x1" H.H.C.S.
5	4	———	5/8 LOCKWASHER



5 GROUND BAR - DETAIL

N.T.S.

EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

CABLE ENTRY PORTS (HATCH PLATES) (#2)
GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
TELCO GROUND BAR
COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
+24V POWER SUPPLY RETURN BAR (#2)
-48V POWER SUPPLY RETURN BAR (#2)
RECTIFIER FRAMES.

SECTION "A" – SURGE ABSORBERS

INTERIOR GROUND RING (#2)
EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
BUILDING STEEL (IF AVAILABLE) (#2)

Hudson Design Group LLC
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NO.	DATE	REVISIONS	BY	CHK	APP'D
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SCALE: AS SHOWN | DESIGNED BY: DC | DRAWN BY: DB

AT&T

PLUMBING DIAGRAM & DETAILS (2ND CARRIER & LTE)

JOB NUMBER	DRAWING NUMBER	REV.
5160.01	G-1	3

APPROVED
By Aaron T. Chandler at 8:00 am, Apr 05, 2011

Date: **April 1, 2011**

Maurine Irvine-Trujillo
T-Mobile Towers
12920 SE 38th Street
Bellevue, WA 98006
Office: (425) 383-7177

Tower Engineering Professionals
3703 Junction Blvd
Raleigh, NC 27603
(919) 661-6351
arucker@tepgroup.net

Subject: **Structural Analysis Report – Revision 1**

Carrier Designation:	***AT&T* Co-Locate** **Carrier Site Number:** **Carrier Site Name:**	 CT5160 CT5160
T-Mobile Designation:	**T-Mobile Site Number:** **T-Mobile Site Name:**	CT11206A Shelton-2/Rt. 110
Engineering Firm Designation:	**TEP Project Number:**	102223
Site Data:	**308 River Road, Shelton, Fairfield County, CT 06484** **Latitude *41° 17' 44.0"*, Longitude -73 *° 04' 21.3"*** **120 Foot – Flagpole**	

Dear Ms. Irvine-Trujillo,

Tower Engineering Professionals is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower.

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

LC1: Existing + Proposed Equipment
Note: See Table 1 for the existing and proposed loading. **Sufficient Capacity**

Structure Capacity	Controlling Component
82.9%	Pole L1 (91-117.75 ft)

The analysis has been performed in accordance with ANSI TIA/EIA-222-F Structural Standard for Steel Antenna Towers and Antenna Supporting Structures standard, the 2005 Connecticut State Building Code with 2009 Amendments, and the 2003 International Building Code.

All modifications and equipment proposed in this report shall be installed in accordance with the appurtenances listed in Table 1 for the determined available structural capacity to be effective.

We at *Tower Engineering Professionals* appreciate the opportunity of providing our continuing professional services to you and T-Mobile Towers. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted by:

Andrew T. Haldane, P.E.

STATE OF CONNECTICUT
ANDREW T. HALDANE
No. 26583
LICENSED
PROFESSIONAL ENGINEER
4/01/2011

Revision #	Date Issued	Description
0	June 18, 2010	Original structural analysis report
1	April 1, 2011	Revised structural analysis to include updated loading

RISA Tower Report - version 5.4.2.0

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 120-ft flagpole designed by Stealth Network Technologies and Paul J. Ford and Company in September of 2000 for a wind speed of 85 mph per the ANSI TIA/EIA-222-F for the appurtenances listed in Table 2. TEP visited the site on June 14, 2010 and verified that the structure is in good condition. Minor areas of chipped galvanization were observed on the pole but will not be detrimental to the structural capacity of the tower.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of ANSI TIA/EIA-222-F Structural Standard for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 90 mph with no ice, 37.6 mph with 0.75 inch ice thickness per ASCE 7-05 and 50 under service loads.

Table 1 - Existing/Proposed Antenna and Cable Information

Existing/ Proposed	Elevation (Ft)	Quantity	Antenna Model	Mount Type	Coax Quantity	Coax Size	Coax Location	Owner/ Tenant
Existing	117	3	EMS RR65-19-00DP	Inside Stealth	6	1 5/8	Inside	T-Mobile
		3	LNA					
	111	3	EMS RR65-19-00DP	Inside Stealth	6	1 5/8	Inside	T-Mobile
		3	LNA					
Existing	113	1	12' x 18' Flag	-	-	-	-	-
Existing	105	3	Argus LLPX310R	Inside Stealth	9	(6)5/16" (3) ½"	Inside	Clearwire
		3	Redline AN-80i					
		3	RRH BTS					
Proposed	98	3	Powerwave P65-15-XLH-RR	Inside Stealth	6	1 1/4	Inside	AT&T
		3	Powerwave TT19-08BP111-01					

Table 2 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Coax Quantity	Coax Size
113	113	1	Unknown	12-ft x 18-ft flag	-	-
95-117	107	1	Unknown	18"Ø x 24-ft tall concealment cylinder	-	-

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
Structural Design Calculations	Stealth Network Technologies dated September 19, 2000, Job Number 31900-0082	-	T-Mobile
Previous Structural Analysis	Semaan Engineering Solutions dated November 13, 2009	-	T-Mobile
Geotechnical Report	Dr. Clarence Welti, P.E., P.C. dated May 1, 2000	-	T-Mobile
Correspondence	Correspondence from T-Mobile with regards to the existing, future, and proposed loading, SAW dated December 10, 2010	-	T-Mobile
Tower Mapping/Inspection	TEP dated June 14, 2010, Project No. 102223	-	TEP
Concealment Cylinder Design	Pond and Company dated October 26, 2001 Project No. 22014-7A	-	T-Mobile

3.1) Analysis Method

RISATower (version 5.4.2.0), 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 Table 1.
4) When applicable, transmission cables are considered as structural components for calculating wind loads as allowed by TIA/EIA-222-F.
5) Serviceability with respect to antenna twist, tilt, roll, or lateral translation, is not checked and is left to the carrier or tower owner to ensure conformance.
6) This report is not a construction document.

4) ANALYSIS RESULTS

Table 4 - Component Stresses vs. Capacity

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (lb)	SF*P_allow (lb)	% Capacity	Pass / Fail
L1	117.75 - 91.5	Pole	TP5x5x0.875	1	-2057.72	634835.89	82.9	Pass
L2	91.5 - 91	Pole	TP18x5x0.875	2	-2069.87	634835.89	82.9	Pass
L3	91 - 43.25	Pole	TP25.163x18x0.195	3	-4741.42	787691.00	48.9	Pass
L4	43.25 - 0	Pole	TP31.8x24.2855x0.195	4	-8467.69	981890.43	71.7	Pass
							Summary	
						Pole (L2)	82.9	Pass
						Rating =	82.9	Pass

Table 5 - Component Stresses vs. Capacity - Foundation

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
-	Anchor Rods	-	70.4	Pass
-	Base Plate	-	68.2	Pass
-	Base Foundation	-	69.3	Pass

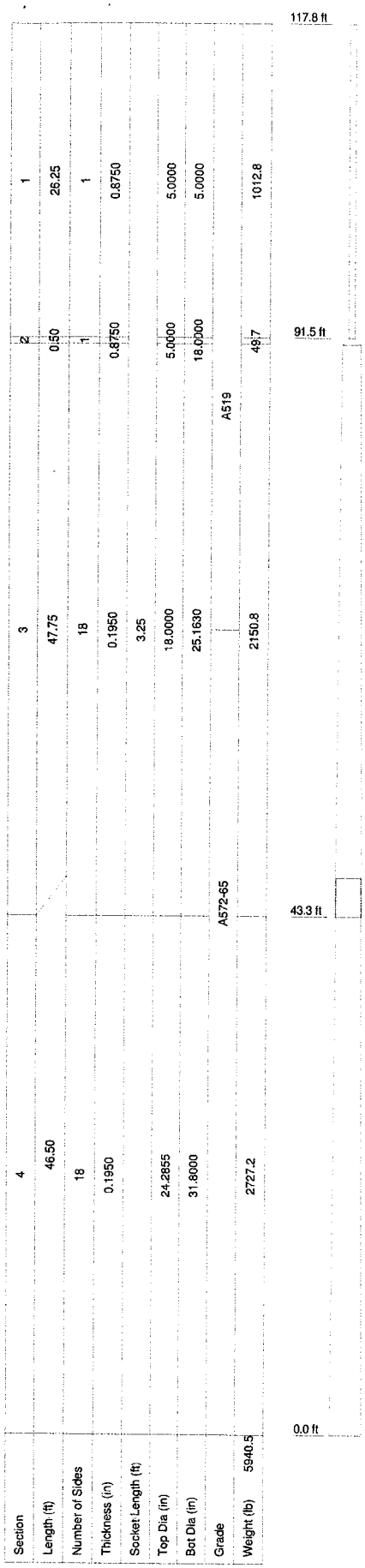
Structure Rating (max from all components) =	82.9%

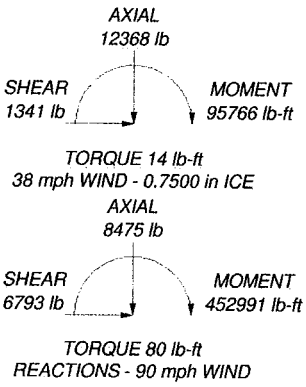
4.1) Recommendations

1) If the load differs from that described in Table 1 of this report, or the provisions of this analysis are found to be invalid, another structural analysis should be performed.

APPENDIX A

RISA TOWER OUTPUT





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
16.125" Dia x 6' Concealment Cylinder (102223)	117	(3) LNA	111
(3) RR65-19-00DP	117	(3) LLPX310R	105
(3) LNA	117	(3) AN-80i	105
12'x18' Flag (102223)	113	(3) BTS	105
17.375" Dia x 6' Concealment Cylinder (102223)	113	18" Dia x 6' Concealment Cylinder (102223)	99
(3) RR65-19-00DP	111	(3) P65-15-XLH-RR w/Mount Pipe	98
16.75" Dia x 6' Concealment Cylinder (102223)	111	(3) TT19-08BP111-001	98

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A519	70 ksi	90 ksi	A572-65	65 ksi	80 ksi

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for a 90 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.

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Raleigh, NC 27603
Phone: (919) 661-6351
FAX: (919) 661-6350

Job: *CT11206A_Shelton*			
Project: *TEP# 102223*			
Client: T-Mobile	Drawn by: Aaron Rucker	App'd:	
Code: TIA/EIA-222-F	Date: 04/01/11	Scale: NTS	
Path: N:\2010\2223_CT11206A\Structural\Rev 1\RISA\TEP#102223_CT11206A_Shelton.eri		Dwg No. E-1	

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 Fairfield County, Connecticut.
Basic wind speed of 90 mph.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 38 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	117.75-91.50	26.25	0.00	Round	5.0000	5.0000	0.8750		A519 (70 ksi)
L2	91.50-91.00	0.50	0.00	Round	5.0000	18.0000	0.8750		A519 (70 ksi)
L3	91.00-43.25	47.75	3.25	18	18.0000	25.1630	0.1950	0.7800	A572-65 (65 ksi)
L4	43.25-0.00	46.50		18	24.2855	31.8000	0.1950	0.7800	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in²	I in⁴	r in	C in	I/C in³	J in⁴	It/Q in²	w in	w/t
L1	5.0000	11.3392	24.1364	1.4603	2.5000	9.6546	48.2070	5.6662	0.0000	0
	5.0000	11.3392	24.1364	1.4603	2.5000	9.6546	48.2070	5.6662	0.0000	0
L2	5.0000	11.3392	24.1364	1.4603	2.5000	9.6546	48.2070	5.6662	0.0000	0
	18.0000	47.0748	1727.0000	6.0622	9.0000	191.8889	3449.2952	23.5234	0.0000	0
L3	18.2777	11.0200	441.3721	6.3208	9.1440	48.2690	883.3251	5.5111	2.8248	14.486
	25.5512	15.4534	1217.1112	8.8636	12.7828	95.2147	2435.8239	7.7282	4.0855	20.951
L4	25.1934	14.9103	1093.2377	8.5521	12.3370	88.6144	2187.9138	7.4566	3.9310	20.159
	32.2906	19.5613	2468.5752	11.2198	16.1544	152.8113	4940.3987	9.7825	5.2536	26.942

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
L1 117.75-91.50				1	1	1		
L2 91.50-91.00								
L3 91.00-43.25				1	1	1		
L4 43.25-0.00				1	1	1		
				1	1	1		

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft²/ft	Weight plf
LDF7-50A (1-5/8 FOAM)	C	No	Inside Pole	117.00 - 2.50	6	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82
LDF7-50A (1-5/8 FOAM)	C	No	Inside Pole	111.00 - 2.50	6	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82
****								
LDF4-50A (1/2 FOAM)	C	No	Inside Pole	105.00 - 2.50	3	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
						2" Ice	0.00	0.15
						4" Ice	0.00	0.15
5/16" Coax	C	No	Inside Pole	105.00 - 2.50	6	No Ice	0.00	0.09
						1/2" Ice	0.00	0.09
						1" Ice	0.00	0.09
						2" Ice	0.00	0.09
						4" Ice	0.00	0.09
****								
LDF6-50A (1-1/4 FOAM)	C	No	Inside Pole	98.00 - 2.50	6	No Ice	0.00	0.66
						1/2" Ice	0.00	0.66
						1" Ice	0.00	0.66
						2" Ice	0.00	0.66
						4" Ice	0.00	0.66

Description	Face or Leg	Allow Shield	Component Type	Placement	Total Number		C_AA_A	Weight
				ft			ft^2/ft	plf
1/4 Coax	C	No	Inside Pole	117.00 - 2.50	1	No Ice	0.00	0.10
						1/2" Ice	0.00	0.10
						1" Ice	0.00	0.10
						2" Ice	0.00	0.10
						4" Ice	0.00	0.10

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L1	117.75-91.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	262.88
L2	91.50-91.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	7.44
L3	91.00-43.25	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	710.40
L4	43.25-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	606.25

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L1	117.75-91.50	A	0.861	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	262.88
L2	91.50-91.00	A	0.847	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	7.44
L3	91.00-43.25	A	0.816	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	710.40
L4	43.25-0.00	A	0.750	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	606.25

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	117.75-91.50	0.0000	0.0000	0.0000	0.0000
L2	91.50-91.00	0.0000	0.0000	0.0000	0.0000
L3	91.00-43.25	0.0000	0.0000	0.0000	0.0000
L4	43.25-0.00	0.0000	0.0000	0.0000	0.0000

Discrete Tower Loads

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 lb
18" Dia x 6' Concealment Cylinder (102223)	C	None		0.0000	99.00	No Ice	5.55	5.55	46.50
						1/2" Ice	6.17	6.17	115.60
						1" Ice	6.79	6.79	184.70
						2" Ice	8.03	8.03	322.90
						4" Ice	10.51	10.51	599.30
17.375" Dia x 6' Concealment Cylinder (102223)	C	None		0.0000	113.00	No Ice	5.75	5.75	44.80
						1/2" Ice	6.35	6.35	111.60
						1" Ice	6.95	6.95	178.40
						2" Ice	8.15	8.15	312.00
						4" Ice	10.55	10.55	579.20
16.75" Dia x 6' Concealment Cylinder (102223)	C	None		0.0000	111.00	No Ice	6.05	6.05	43.20
						1/2" Ice	6.65	6.65	107.70
						1" Ice	7.25	7.25	172.20
						2" Ice	8.45	8.45	301.20
						4" Ice	10.85	10.85	559.20
16.125" Dia x 6' Concealment Cylinder (102223)	C	None		0.0000	117.00	No Ice	6.47	6.47	41.60
						1/2" Ice	7.09	7.09	103.70
						1" Ice	7.71	7.71	165.80
						2" Ice	8.95	8.95	290.00
						4" Ice	11.43	11.43	538.40
12'x18' Flag (102223)	C	From Leg	0.00 0.00 0.00	0.0000	113.00	No Ice	8.04	8.04	50.00
						1/2" Ice	8.04	8.04	50.00
						1" Ice	8.04	8.04	50.00
						2" Ice	8.04	8.04	50.00
						4" Ice	8.04	8.04	50.00
(3) RR65-19-00DP	C	None		0.0000	117.00	No Ice	0.00	0.00	23.00
						1/2" Ice	0.00	0.00	51.51
						1" Ice	0.00	0.00	85.58
						2" Ice	0.00	0.00	171.17
						4" Ice	0.00	0.00	417.59
(3) RR65-19-00DP	C	None		0.0000	111.00	No Ice	0.00	0.00	23.00
						1/2" Ice	0.00	0.00	51.51
						1" Ice	0.00	0.00	85.58
						2" Ice	0.00	0.00	171.17
						4" Ice	0.00	0.00	417.59
(3) LNA	C	None		0.0000	117.00	No Ice	0.00	0.00	15.00
						1/2" Ice	0.00	0.00	19.50
						1" Ice	0.00	0.00	24.00
						2" Ice	0.00	0.00	33.00
						4" Ice	0.00	0.00	51.00
(3) LNA	C	None		0.0000	111.00	No Ice	0.00	0.00	15.00
						1/2" Ice	0.00	0.00	19.50
						1" Ice	0.00	0.00	24.00
						2" Ice	0.00	0.00	33.00
						4" Ice	0.00	0.00	51.00
**** (3) LLPX310R	C	None		0.0000	105.00	No Ice	0.00	0.00	28.66
						1/2" Ice	0.00	0.00	54.63
						1" Ice	0.00	0.00	84.59
						2" Ice	0.00	0.00	157.22

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 lb
(3) AN-80i	C	None			0.0000	105.00	4" Ice	0.00	0.00	358.87
							No Ice	0.00	0.00	11.00
							1/2" Ice	0.00	0.00	19.90
							1" Ice	0.00	0.00	30.95
							2" Ice	0.00	0.00	60.26
							4" Ice	0.00	0.00	153.18
(3) BTS	C	None			0.0000	105.00	No Ice	0.00	0.00	33.00
							1/2" Ice	0.00	0.00	44.91
							1" Ice	0.00	0.00	59.16
							2" Ice	0.00	0.00	95.43
							4" Ice	0.00	0.00	204.52
****										
(3) P65-15-XLH-RR w/Mount Pipe	C	None			0.0000	98.00	No Ice	0.00	0.00	75.74
							1/2" Ice	0.00	0.00	126.90
							1" Ice	0.00	0.00	186.45
							2" Ice	0.00	0.00	329.23
							4" Ice	0.00	0.00	728.80
(3) TT19-08BP111-001	C	None			0.0000	98.00	No Ice	0.00	0.00	16.00
							1/2" Ice	0.00	0.00	21.74
							1" Ice	0.00	0.00	29.10
							2" Ice	0.00	0.00	49.42
							4" Ice	0.00	0.00	117.98

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
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

Comb. No.	Description
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 Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	117.75 - 91.5	27.360	36	2.9251	0.0089
L2	91.5 - 91	13.721	36	1.3138	0.0008
L3	91 - 43.25	13.583	36	1.3127	0.0008
L4	46.5 - 0	3.772	35	0.7455	0.0003

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
117.00	16.125" Dia x 6' Concealment Cylinder (102223)	36	26.880	2.8572	0.0085	2307
113.00	17.375" Dia x 6' Concealment Cylinder (102223)	36	24.341	2.5000	0.0067	2307
111.00	16.75" Dia x 6' Concealment Cylinder (102223)	36	23.096	2.3276	0.0059	1709
105.00	(3) LLPX310R	36	19.567	1.8594	0.0035	904
99.00	18" Dia x 6' Concealment Cylinder (102223)	36	16.516	1.5073	0.0018	614
98.00	(3) P65-15-XLH-RR w/Mount Pipe	36	16.070	1.4638	0.0016	583

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	117.75 - 91.5	84.613	11	9.0322	0.0282
L2	91.5 - 91	42.618	11	4.0678	0.0027
L3	91 - 43.25	42.193	11	4.0644	0.0027
L4	46.5 - 0	11.763	11	2.3209	0.0008

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
117.00	16.125" Dia x 6' Concealment Cylinder (102223)	11	83.138	8.8233	0.0271	779
113.00	17.375" Dia x 6' Concealment Cylinder (102223)	11	75.327	7.7225	0.0214	779
111.00	16.75" Dia x 6' Concealment Cylinder (102223)	11	71.499	7.1912	0.0187	576
105.00	(3) LLPX310R	11	60.638	5.7487	0.0112	303
99.00	18" Dia x 6' Concealment Cylinder (102223)	11	51.244	4.6639	0.0057	204
98.00	(3) P65-15-XLH-RR w/Mount Pipe	11	49.869	4.5298	0.0050	194

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 lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
L1	117.75 - 91.5 (1)	TP5x5x0.875	26.25	0.00	0.0	42.000	11.3392	-2057.72	476246.00	0.004
L2	91.5 - 91 (2)	TP18x5x0.875	0.50	0.00	0.0	42.000	11.3392	-2069.87	476246.00	0.004
L3	91 - 43.25 (3)	TP25.163x18x0.195	47.75	0.00	0.0	39.000	15.1517	-4741.42	590916.00	0.008
L4	43.25 - 0 (4)	TP31.8x24.2855x0.195	46.50	0.00	0.0	37.656	19.5613	-8467.69	736602.00	0.011

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	117.75 - 91.5 (1)	TP5x5x0.875	40.93	50.871	46.200	1.101	0.00	0.000	46.200	0.000
L2	91.5 - 91 (2)	TP18x5x0.875	40.93	50.871	46.200	1.101	0.00	0.000	46.200	0.000
L3	91 - 43.25 (3)	TP25.163x18x0.195	191.31	25.085	39.000	0.643	0.00	0.000	39.000	0.000
L4	43.25 - 0 (4)	TP31.8x24.2855x0.195	452.99	35.573	37.656	0.945	0.00	0.000	37.656	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V lb	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	117.75 - 91.5 (1)	TP5x5x0.875	2244.81	0.198	28.000	0.014	0.00	0.000	28.000	0.000
L2	91.5 - 91 (2)	TP18x5x0.875	2251.93	0.199	28.000	0.003	0.00	0.000	28.000	0.000
L3	91 - 43.25 (3)	TP25.163x18x0.195	4494.57	0.297	26.000	0.023	0.00	0.000	26.000	0.000
L4	43.25 - 0 (4)	TP31.8x24.2855x0.195	6801.76	0.348	26.000	0.027	0.00	0.000	26.000	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	117.75 - 91.5 (1)	0.004	1.101	0.000	0.014	0.000	1.105 ✓	1.333	H1-3+VT ✓
L2	91.5 - 91 (2)	0.004	1.101	0.000	0.003	0.000	1.105 ✓	1.333	H1-3+VT ✓
L3	91 - 43.25 (3)	0.008	0.643	0.000	0.023	0.000	0.651 ✓	1.333	H1-3+VT ✓
L4	43.25 - 0 (4)	0.011	0.945	0.000	0.027	0.000	0.956 ✓	1.333	H1-3+VT ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
L1	117.75 - 91.5	Pole	TP5x5x0.875	1	-2057.72	634835.89	82.9	Pass
L2	91.5 - 91	Pole	TP18x5x0.875	2	-2069.87	634835.89	82.9	Pass
L3	91 - 43.25	Pole	TP25.163x18x0.195	3	-4741.42	787691.00	48.9	Pass
L4	43.25 - 0	Pole	TP31.8x24.2855x0.195	4	-8467.69	981890.43	71.7	Pass
							Summary	
						Pole (L2)	82.9	Pass
						RATING =	**82.9**	**Pass**

APPENDIX B

ADDITIONAL CALCULATIONS

JOB:	102223		
SHEET NUMBER:	1	OF	2
CALCULATED BY:	ATR	DATE	3/31/2011
CHECKED BY:	MLG	DATE	4/1/2011

Pad and Pier Foundation for Monopole - TIA-222-F

Q_a, ALLOWABLE SOIL PRESS. (ksf)	6
NET or GROSS	NET
SOIL DENSITY (pcf)	100

F'c (ksi)	3
F'y (ksi)	60

Base Reactions LC1: Maximum Wind

M, MOMENT (k-ft)	453.0
P_t, TOTAL DOWNLOAD (k)	8.5
H, HORIZONTAL SHEAR (k)	6.8

Base Reaction LC 2: Ice Wind + Ice

M (k-ft)	95.8
P_t (k)	12.4
H (k)	1.3

Try:

L (ft.)	B (ft.)	t (ft.)	Soil depth to TOP of mat (ft.)	Soil depth to BOT. of mat (ft.)	Pier dia./width (ft.)	Pier Height, h (cu.ft.)	Pier Shape
13.5	13.5	3	3.5	6.5	5.00	4.00	Square

W_m, Weight of Mat (k) =	82.0
W_p, Weight of Pier (k) =	15.0
W_s, WEIGHT OF SOIL (k) =	55.0

Concrete Vol. (cu ft) 23.95

CHECK DESIGN CRITERIA

CHECK STABILITY:

	LC1	LC2	
Mst= P * (L/2) + (Vf+s * L/2) =	1083.5 k-ft	1109.8 k-ft	
Mot = M+H*(t+h) =	500.5 k-ft	105 k-ft	
SF =Mot/Mst =	2.16 > 1.5	10.55 > 1.5	**Capacity:** 69.3%

CHECK BEARING PRESSURE

	LC1	LC2	
$P = P_t + W_f + W_s$ =	160.5 k	164.4 k	
e = M / P =	3.12 ft	0.64 ft	
L/6 =	2.25 ft	2.25 ft	
Width of Wedge, L' =	10.90 ft	13.50 ft	
0 Deg Wind: Qmax =	1.53 ksf	0.51 ksf	
45 Deg Wind: Qmax =	2.22 ksf	0.61 ksf	**Capacity:** 37.0%

JOB:	102223		
SHEET NUMBER:	2	OF	2
CALCULATED BY:	ATR	DATE	3/31/2011
CHECKED BY:	MLG	DATE	4/1/2011

CHECK ONE WAY SHEAR

Vu = 129.2 k
Vc = 424.2 k

Capacity: 30.46%

CHECK TWO WAY SHEAR: PUNCHING + UNBALANCED MOMENT

V_u = 4.5 psi
φV_c = 164.3 psi

Capacity: 2.77%

CALCULATE REINFORCING REQUIRED

F'c = 3.0 ksi F'y = 60.0 ksi

Temp & Shrinkage reinforcing, $A_{s,\,temp}$ = 0.39 in^2/ft (ACI 318 Sec. 10.5.4)

BOTTOM REINFORCING

Bar Size = 9
Bar Spacing, c-c: 12.0
d = 31.3 in.
Mu= 77.7 in-k/ft

φMn=0.9*As*Fy*d(1-0.59*As*Fy/(b*d*F'c))

Solution: As,req = 0.05 in^2/ft

Check, As = 1.00 in^2/ft

Capacity: 38.88%
As,temp controls

TOP REINFORCING

Bar Size = 9
Bar Spacing, c-c: 12.0
d= 31.3 in.
Mu= 101.7 in-k/ft

φMn=0.9*As*Fy*d(1-0.59*As*Fy/(b*d*F'c))

Solution: As,req = 0.06 in^2/ft **As,req < As,t, Use As,t**
Bar Spacing, c-c:

Check, As = 1.00 in^2/ft **Top Reinforcing O.K.**

Capacity: 38.88%
As,temp controls

P65-15-XLH-RR | Dual Broadband Antennas

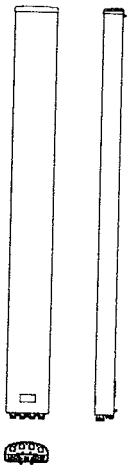
POLARIZATION: Dual linear ±45°
FREQUENCY (MHz): 698-894, 1710-2170
HORIZONTAL BEAM WIDTH (°): 65, 65
GAIN (dBi/dBd): 14.7/12.6, 17.0/14.9
TILT: 0-13, 0-9
LENGTH: 51"

ELECTRICAL SPECIFICATIONS*

Frequency range (MHz)	698-894			1710-2170		
Frequency band (MHz)	698-806		806-894	1710-1880	1850-1990	1900-2170
Gain (dBi/dBd)	14/11.9		14.7/12.6	16.4/14.3	16.7/14.6	17.0/14,9
Polarization	Dual Linear +/- 45				Dual Linear +/- 45	
Nominal Impedance (Ω)	50				50	
VSWR	< 1.5:1				< 1.5:1	
Horizontal beam width, -3 dB (°)	73		63	65	61	60
Vertical beam width, -3 dB (°)	17				7.5	
Electrical down tilt (°)	0-13				0-9	
Side lobe suppression, vertical 1st upper (dB)	> 14				>20	
Isolation between inputs (dB)	>30				> 30	
Inter band Isolation (dB)	> 40				> 40	
Tracking, horizontal plane ±60° (dB)	< 2				< 2	
Vertical beam squint (°)	<1.25				< 0.5	
Front to back ratio (dB) 180°±30° copolar	> 25				> 28	
Front to back ratio (dB) 180°±30° total power	> 25				> 25	
Cross polar discrimination (XPD) 0° (dB)	> 15				> 15	
Cross polar discrimination (XPD) ±60° (dB)	> 10				> 10	
IM3, 2xTx@43dBm (dBc)	<-153				<-153	
Power handling, average per input (W)	500				300	
Power handling, average total (W)	1000				600	

MECHANICAL SPECIFICATIONS*

Connector	4 X 7/16 DIN Female, IP67
Connector position	Bottom
Dimensions, HxWxD, in (mm)	51"x12"x6" (1290x312.5x147.5)
Mounting	Pre-mounted Tilt Brackets
Weight, with brackets, lbs (kg)	41 (19)
Weight, without brackets, lbs (kg)	30 (14)
Wind load, frontal/lateral/rear side 42 m/s Cd=1.0 (N)	404 / 75 / 511
Maximum operational wind speed, mph (m/s)	100 (45)
Survival wind speed, mph (m/s)	150 (67)
Lightning protection	DC Ground
Operating Temperature	-40°C to +60°C
Radome material	PVC, IP55
Package size, HxWxD, in (mm)	60" x 16" x 10" (1524 x 400 x 255)
Radome colour	Light Grey
Shipping weight, lbs (kg)	52 (24)
RET	iRET AISGv1.1, MET and AISGv2.0
Brackets	7256.00, 7454.00A



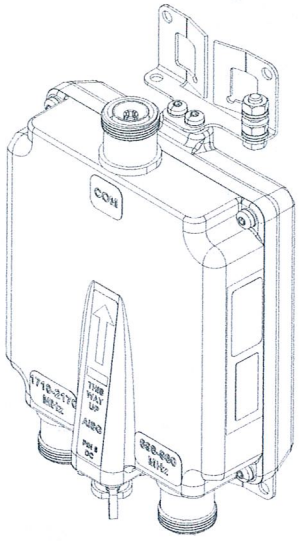
*All specifications subject to change without notice. Please contact your Powerwave representative for complete performance data.

ANTENNA PATTERNS*

For detailed patterns visit http://www.powerwave.com/rpa/.

DBC2046F1V2-x

Cross Band Splitter, 700/850 and AWS/PCS with AISG modem



The DBC2046F1V2 Cross Band Splitter provides 700/850 MHz and AWS/PCS cellular bands at separate ports. It is suited for use at the tower-top end of a feeder.

The DBC2046F1V2 provides the following features and benefits:

- LTE ready
- Suitable for indoor and outdoor use
- Lightning protected on all ports
- Supports DC and AISG at HI port or the AISG port

TECHNICAL CHARACTERISTICS

700/850 Channel (LO)	
Pass-band	698 to 960MHz
Insertion Loss	0.15dB max, 0.11dB typical
Return Loss all ports	20dB min
Isolation 700MHz Port to AWS/PCS Port	60dB min
Phase Linearity Variation	0.1deg max over any 180kHz within the pass-band
Group Delay Variation	0.1ns max over any 180kHz within the pass-band
Maximum Average Input Power	500W
Maximum PEP input power	5000W
AWS/PCS Channel (HI)	
Pass-band	1710 to 2170MHz
Insertion Loss	0.15dB max, 0.12dB typical
Return Loss all ports	20dB min
Isolation 700MHz Port to AWS/PCS Port	60dB min
Phase Linearity Variation	1deg max over any 180kHz within the pass-band
Group Delay Variation	0.1ns max over any 180kHz within the pass-band
Maximum Average Input Power	500W
Maximum PEP input power	5000W
General Specifications	
Intermodulation Products	<-155dBc all ports
Compatibility	AISG 1.1, 2.0 and 3GPP TS25.461
DC Voltage Range	7 – 31V DC
DC standby current (COM)	50 mA typical
DC Breakdown	1000 V (COM, 700/850, AWS/PCS & AISG ports).
DC Current rating	4A peak, 2 A continuous (COM – RET. COM - HI)
Voltage drop in DC path	1.8V max at 2A
Port sensing	AISG modem is activated if TMA is not Found. See Block Diagram and table
Mechanical	
Connectors	RF: 3x 7-16 DIN (F) long neck AISG: IEC60130-9, 8-pin female
Dimensions H x D x W	170 X 62 X 150 mm, 6.7 X 2.4 X 5.9 inches excluding brackets and connectors
Weight	3.2 kg / 7 lb
Mounting	Wall or Pole mount
Finish	Painted, light grey (RAL7035)
Orientation	COM port downwards
Environmental	
Ingress Protection	IP67
Environmental Rating	ETSI EN 300 019 class 4.1
Temperature Range	-40° to +65°C
Lightning Protection	5kA (8/20us) on RF Ports, 2kA (8/20us) on AISG port

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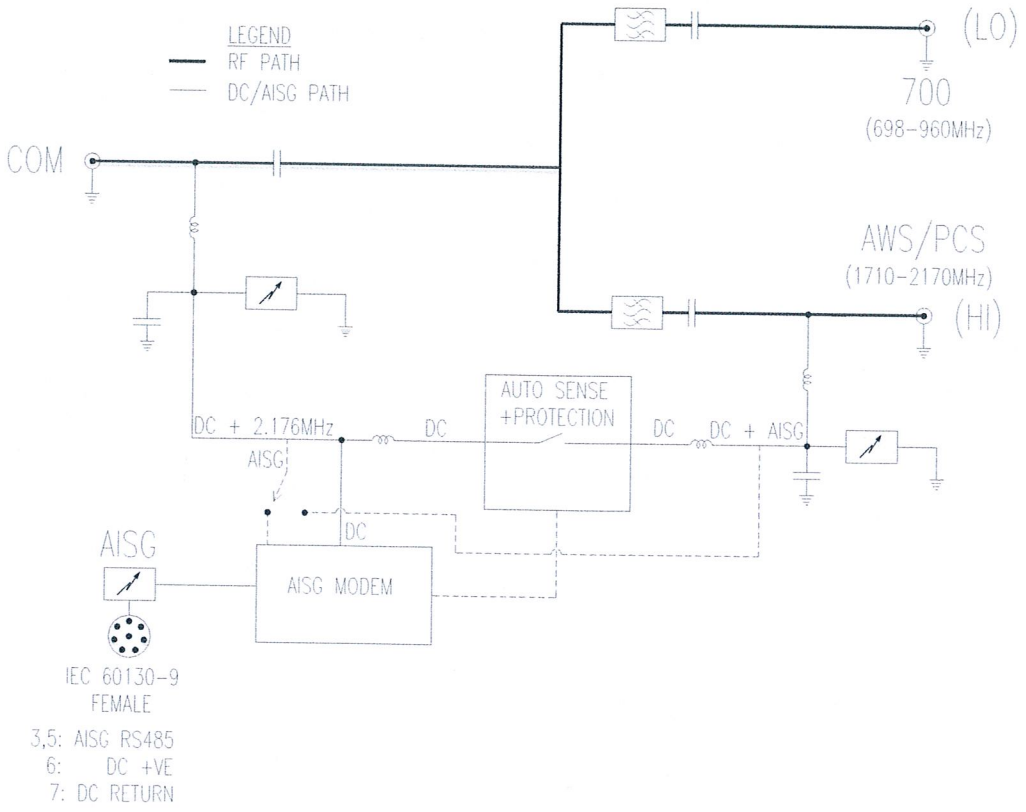
Document Rev: DDF2046F1V2 rev a

ELECTRICAL BLOCK DIAGRAM

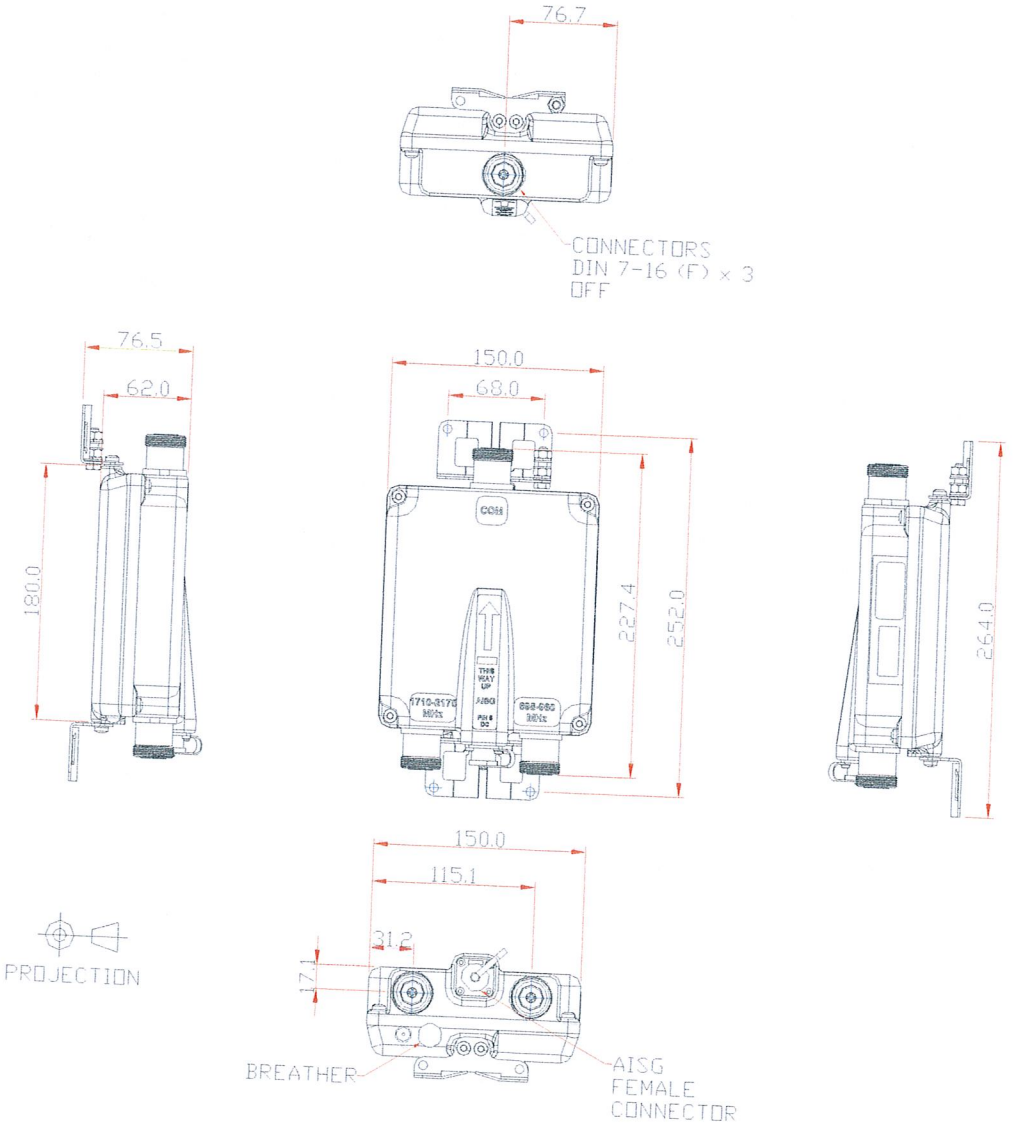


Current Draw on Hi port	Assumption	AISG Modem Status	"Autosense + protection" Switch Status	Comment
Current<30 mA	No TMA	Active	Open	Enables AISG Modem
30mA<Current<2A	TMA present	Disabled	Close	Disables AISG Modem
2A<Current	DC short circuit or low DC resistance present on Hi Port	Active	Open	A number or attempts to establish a normal current level is tried before a final decision is made. Every 10 min, if in AISG mode, the Hi port current is checked again if current is OK, the Hi port is re-selected and the AISG Modem is disabled.

ORDERING INFORMATION

Triasx Part No.	Description
DBC2046F1V2-1	Cross Band Splitter, 700/850 and AWS/PCS, with AISG modem, single unit

MECHANICAL DIAGRAM



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New Cingular Wireless PCS, LLC
500 Enterprise Drive
Rocky Hill, Connecticut 06067-3900
Phone: (860) 463-5511
Fax: (860) 513-7190

Douglas L. Culp
Real Estate Consultant

June 9, 2011

Mark A. Lauretti, Mayor
City Hall, Room 202
54 Hill Street
Shelton CT, 06484

Re: Telecommunications Facility – 308 River Road Shelton, CT

Dear Mayor Mark A. Lauretti,

In order to accommodate technological changes, implement Uniform Mobile Telecommunications System ("UMTS") and Long Term Evolution ("LTE") capabilities, and enhance system performance in the State of Connecticut, New Cingular Wireless PCS, LLC ("AT&T") will be changing its equipment configuration at certain cell sites.

As required by Regulations of Connecticut State Agencies ("R.C.S.A.") Section 16-50j-73, the Connecticut Siting Council has been notified of the changes and will review AT&T's proposal. Please accept this letter as notification under Section 16-50j-73 of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).

The accompanying letter to the Siting Council fully describes Cingular's proposal for the referenced cell site. However, if you have any questions or require any further information on our plans or the Siting Council's procedures; please call me at (860) 463-5511 or Ms. Linda Roberts, Executive Director, Connecticut Siting Council at (860) 827-2935.

Sincerely,

Douglas L. Culp
Real Estate Consultant

Enclosure