



Northeast Site Solutions
Denise Sabo
199 Brickyard Rd Farmington, CT 06032
860-209-4690
denise@northeastsitesolutions.com

August 16, 2016

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Notice of Exempt Modification
148 Roberts Street, East Hartford CT 06108
Latitude: 41.77330
Longitude: -72.61350
T-Mobile Site#: CTHA505A_L1900

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 100-foot level of the existing 130-foot monopole at 148 Roberts Street, East Hartford CT 06108. The tower is owned by the American Tower Corporation. The property is owned by Greater Hartford Transit District. T-Mobile now intends to replace three (3) of its existing antennas with three (3) new 1900/2100 MHz antenna and add (1) hybrid cable. The new antennas would be installed at the 100-foot level of the tower.

Planned Modifications:

Remove: NONE

Remove and Replace:

(3)AIR21 B4A /B2P (REMOVE) - (3)AIR32 B66Aa/B2a (**REPLACE**)

Install New: (1) 1-5/8" Hybrid Cable

Existing to Remain:

(3)AIR21 B2A /B4P
(3) Twin TMA
(12) 7/8" Coax
(1) 1 5/8" Hybrid

This facility was approved by the Connecticut Siting Council. Docket No.228 – Approved to construct a monopole, no taller than necessary to provide the proposed telecommunication services. Please see attached.



Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies§ 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-SOj-73, a copy of this letter is being sent to Mayor Marcia A. Leclerc, Elected Official for the City of East Hartford, as well as the property owner and the tower owner.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, T-Mobile respectfully submits that the proposed modifications to the above referenced telecommunications facility constitute an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Denise Sabo
Mobile: 860-209-4690
Fax: 413-521-0558
Office: 199 Brickyard Rd, Farmington, CT 06032
Email: denise@northeastsitesolutions.com

Attachments

cc: Marcia A. Leclerc- Mayor - as elected official
American Tower Corporation - as tower owner
Greater Hartford Transit District - as property owner

Exhibit A



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Robert Stein,
Chairman

Melanie Bachman,
Acting Executive Director

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Decisions

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DOCKET NO. 228 – The Marcus Group, LLC application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a cellular telecommunications facility at 148 Roberts Street, East Hartford, Connecticut. } Connecticut
 } Siting
 } Council
 } November 7, 2002

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to The Marcus Group (Marcus) for the construction, maintenance and operation of a wireless telecommunications facility at the proposed prime site located at 148 Roberts Street, East Hartford, Connecticut.

The facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of AT&T Wireless LLC, Celco Partnership b/b/a Verizon Wireless, Nextel Communications of the Mid-Atlantic, and other entities, both public and private, but such tower shall not exceed a height of 120 feet above ground level. The access road to the facility shall be finished with gravel. The north edge of the facility compound shall be a minimum distance of 52 feet to the nearest wetland area.
2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be submitted to and approved by the Council prior to the commencement of facility construction and shall include: a final site plan(s) for site development to include the location and specifications for the tower, tower foundation, antennas, equipment buildings, security fence, access road, utility line, and landscaping plan. The D&M Plan shall also include construction plans to be submitted prior to construction for site clearing, water drainage, and erosion and sedimentation control consistent with the [Connecticut Guidelines for Soil Erosion and Sediment Control](#), as amended.
3. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case modeling of electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall provide a recalculated report of electromagnetic radio frequency power density if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.
4. Upon the establishment of any new state or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.
5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.
6. If the facility does not initially provide, or permanently ceases to provide wireless services following completion of construction, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.
7. Any antenna that becomes obsolete and ceases to function shall be removed within 60

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days after such antennas become obsolete and ceases to function.

8. Unless otherwise approved by the Council, this Decision and Order shall be void if the facility authorized herein is not operational within one year of the effective date of this Decision and Order or within one year after all appeals to this Decision and Order have been resolved.

Pursuant to General Statutes **§ 16-50p**, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in The Hartford Courant, and The East Hartford Gazette.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

The parties and intervenors to this proceeding are:

Applicant

The Marcus Group, LLC

Its Representative

Julie Donaldson Kohler, Esq.
Hurwitz & Sagarin, LLC
147 N. Broad Street
Milford, CT 06460
(203) 877-8000

Intervenor

Celco Partnership
d/b/a Verizon Wireless

Its Representative

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103-3597
(860) 275-8200

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Ten Franklin Square New Britain, CT 06051 / 860-827-2935

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Exhibit B

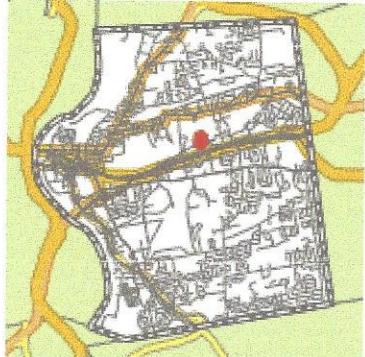
Town of East Hartford Property Summary Report

148 ROBERTS ST

MAP LOT:	35-18	CAMA PID:	12045
LOCATION:	148 ROBERTS ST		
OWNER NAME:	GREATER HARTFORD TRANSIT DISTRICT		



OWNER OF RECORD
GREATER HARTFORD TRANSIT DISTRICT
ONE UNION PLACE
HARTFORD, CT 06103



LIVING AREA:	null	ZONING:	I2	ACREAGE:	5.37
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SALES HISTORY

OWNER	BOOK / PAGE	SALE DATE	SALE PRICE
GREATER HARTFORD TRANSIT DISTRICT	3394/ 102	05-Jun-2013	\$1,000,000.00
DOUBLE E PROPERTIES OF EAST HARTFORD LLC C/O CARMINE	3205/ 125	07-Oct-2010	\$0.00
THE MASTERS CLUB L L C	2969/ 212	04-Dec-2007	\$1,200,000.00
ELKS BENEVOLENT	365/ 358	01-Jan-1900	\$0.00

CURRENT PARCEL ASSESSMENT

TOTAL:	\$303,730.00	IMPROVEMENTS:	\$66,020.00	LAND:	\$237,710.00
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ASSESSING HISTORY

FISCAL YEAR	TOTAL VALUE	IMPROVEMENT VALUE	LAND VALUE
2015	\$303,730.00	\$66,020.00	\$237,710.00
2014	\$833,390.00	\$595,680.00	\$237,710.00
2013	\$833,390.00	\$595,680.00	\$237,710.00
2012	\$878,290.00	\$598,460.00	\$279,830.00
2011	\$878,290.00	\$598,460.00	\$279,830.00

Exhibit C

ELECTRICAL NOTES:

WORK INCLUDED

- INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, PLANT SERVICES AND ADMINISTRATIVE TASKS REQUIRED TO COMPLETE AND MAKE OPERABLE THE ELECTRICAL WORK SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
 - PREPARE AND SUBMIT SHOP DRAWINGS, DIAGRAMS AND ILLUSTRATIONS.
 - PROCURE ALL NECESSARY PERMITS AND APPROVALS AND PAY ALL REQUIRED FEES AND CHARGES IN CONNECTION WITH THE WORK OF THIS CONTRACT.
 - SUBMIT AS-BUILT DRAWINGS, OPERATING AND MAINTENANCE INSTRUCTIONS AND MANUALS.
 - EXECUTE ALL CUTTING, DRILLING, ROUGH AND FINISH PATCHING OF EXISTING OR NEWLY INSTALLED CONSTRUCTION REQUIRED FOR THE WORK OF THIS CONTRACT, FOR SLAB PENETRATIONS THROUGH POST TENSION SLABS, X-RAY EXACT AREA OF PENETRATION PRIOR TO PERFORMING WORK.
 - COORDINATE ALL X-RAY WORK WITH BUILDING ENGINEER.
 - PROVIDE HANGERS, SUPPORTS, FOUNDATIONS, STRUCTURAL FRAMING SUPPORTS, AND BASES FOR CONDUIT AND EQUIPMENT PROVIDED OR INSTALLED UNDER THE WORK OF HIS CONTRACT. PROVIDE COUNTER FLASHING, SLEEVES AND SEALS FOR FLOOR AND WALL PENETRATIONS.
 - MAINTAIN ALL EXISTING ELECTRICAL SERVICES IN THE BUILDING AREAS NOT AFFECTED BY THE ALTERATION DURING THE PROGRESS OF THE WORK INCLUDING PROVIDING ALL TEMPORARY JUMPERS, CONDUITS, CAPS, PROTECTIVE DEVICES, CONNECTIONS AND EQUIPMENT REQUIRED. PROVIDE TEMPORARY LIGHT AND POWER FOR CONSTRUCTION PURPOSES.
- IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS TO CALL FOR AN INSTALLATION THAT IS COMPLETE IN EVERY RESPECT. IT IS NOT THE INTENT TO GIVE EVERY DETAIL ON THE DRAWINGS AND IN THE SPECIFICATIONS. IF AN ITEM OF WORK IS INDICATED IN THE DRAWINGS, IT IS CONSIDERED SUFFICIENT FOR INCLUSION IN THE CONTRACT. FURNISH AND INSTALL ALL MATERIAL AND EQUIPMENT USUALLY FURNISHED OR NEEDED TO MAKE A COMPLETE INSTALLATION WHETHER OR NOT SPECIFICALLY MENTIONED IN THE CONTRACT DOCUMENTS.

GENERAL REQUIREMENTS

- PROVIDE ALL WORK IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND LOCAL AND STATE ELECTRICAL CODES.
- THE ELECTRICAL PLANS ARE DIAGRAMMATIC ONLY. REFER TO THE ARCHITECTURAL PLANS FOR THE EXACT DIMENSIONS OF THE BUILDING.
- LOAD CALCULATIONS ARE BASED ON EXISTING BUILDING INFORMATION/DRAWINGS PROVIDED TO ENGINEERING. CONTRACTOR IS TO VERIFY ALL EXISTING RATINGS AND LOADS PRIOR TO PURCHASING OF SPECIFIED EQUIPMENT FOR COMPLIANCE TO NEC. CONTRACTOR TO NOTIFY ENGINEER OF ANY DISCREPANCIES AND REQUEST FURTHER DIRECTION BY ENGINEER.
- EXISTING BUILDING EQUIPMENT IS NOTED ON THE DRAWINGS. NEW OR RELOCATED EQUIPMENT IS SHOWN WITH SOLID LINES. FUTURE EQUIPMENT (NOT IN THIS CONTRACT) IS DEPICTED WITH SHADDED LINES. REQUEST CLARIFICATION OF DRAWINGS OR OF SPECIFICATIONS PRIOR TO PRICING OR INSTALLATION.
- GENERAL
 - AFTER CAREFULLY STUDYING THE DRAWINGS AND SPECIFICATIONS, AND BEFORE SUBMITTING THE PROPOSAL, MAKE A MANDATORY SITE VISIT TO ASCERTAIN CONDITIONS OF THE SITE, AND THE NATURE AND EXACT QUANTITY OF WORK TO BE PERFORMED. NO EXTRA COMPENSATION WILL BE ALLOWED FOR FAILURE TO NOTIFY THE OWNER, IN WRITING, OF ANY DISCREPANCIES THAT MAY HAVE BEEN NOTED BETWEEN THE EXISTING CONDITIONS AND THE DRAWINGS AND SPECIFICATIONS.
 - VERIFY ALL MEASUREMENTS AT THE SITE AND BE RESPONSIBLE FOR CORRECTNESS OF SAME.
 - QUALITY, WORKMANSHIP, MATERIALS AND SAFETY
 - PROVIDE NEW MATERIALS AND EQUIPMENT OF A DOMESTIC MANUFACTURER BY THOSE REGULARLY ENGAGED IN THE PRODUCTION AND MANUFACTURE OF SPECIFIED MATERIALS AND EQUIPMENT, WHERE UL, OR OTHER AGENCY, HAS ESTABLISHED STANDARDS FOR MATERIALS, PROVIDE MATERIALS WHICH ARE LISTED AND LABELED ACCORDINGLY. THE COMMERCIALLY STANDARD ITEMS OF EQUIPMENT AND THE SPECIFIC NAMES MENTIONED HEREIN ARE INTENDED FOR THE PROPER FUNCTIONING OF THE WORK.
 - WORK SHALL BE PERFORMED BY WORKMEN SKILLED IN THE TRADE REQUIRED FOR THE WORK. INSTALL MATERIALS AND EQUIPMENT TO PRESENT A NEAT APPEARANCE WHEN COMPLETED AND IN ACCORDANCE WITH THE APPROVED RECOMMENDATIONS OF THE MANUFACTURER AND IN ACCORDANCE WITH CONTRACT DOCUMENTS.
 - PROVIDE LABOR, MATERIALS, APPARATUS AND APPLIANCES ESSENTIAL TO THE FUNCTIONING OF THE SYSTEMS DESCRIBED OR INDICATED HEREIN, OR WHICH MAY BE REASONABLY IMPLIED AS ESSENTIAL WHENEVER MENTIONED IN THE CONTRACT DOCUMENT OR NOT.
 - MAKE WRITTEN REQUESTS FOR SUPPLEMENTARY INSTRUCTIONS TO ARCHITECT/ENGINEER IN CASE OF DOUBT AS TO WORK INTENDED OR IN EVENT OF NEED FOR EXPLANATION THEREOF.
 - PERFORMANCE AND MATERIAL REQUIREMENTS SCHEDULED OR SPECIFIED ARE MINIMUM STANDARD ACCEPTABLE. THE RIGHT TO JUDGE THE QUALITY OF EQUIPMENT THAT DEVIATES FROM THE CONTRACT DOCUMENT REMAINS SOLELY WITH ARCHITECT/ENGINEER. CONTRACT DOCUMENT OR NOT.
 - GUARANTEE MATERIALS, PARTS AND LABOR FOR WORK FOR ONE YEAR FROM THE DATE OF ISSUANCE OF OCCUPANCY PERMIT. DURING THAT PERIOD, MAKE GOOD FAULTS OR IMPERFECTIONS THAT MAY ARISE DUE TO DEFECTS OR OMISSIONS IN MATERIALS OR WORKMANSHIP WITH NO ADDITIONAL COMPENSATION AND AS DIRECTED BY ARCHITECT.

CLEANING

- REMOVE ALL CONSTRUCTION DEBRIS RESULTING FROM THE WORK.
- CLEAN EQUIPMENT AND SYSTEMS FOLLOWING THE COMPLETION OF THE PROJECT TO THE SATISFACTION OF THE ENGINEER.

COORDINATION AND SUPERVISION

- CAREFULLY LAY OUT ALL WORK IN ADVANCE TO AVOID UNNECESSARY CUTTING, CHANNELING, CHASING OR DRILLING OF FLOORS, WALLS, PARTITIONS, CEILINGS OR OTHER SURFACES. WHERE SUCH WORK IS NECESSARY, HOWEVER, PATCH AND REPAIR THE WORK IN AN APPROVED MANNER BY SKILLED MECHANICS AT NO ADDITIONAL COST TO THE OWNER. RENDER FULL COOPERATION TO OTHER TRADES WHERE WORK WILL BE INSTALLED IN CLOSE PROXIMITY TO WORK OF OTHER TRADES. ASSIST IN WORKING OUT SPACE CONDITIONS. IF WORK IS INSTALLED BEFORE COORDINATION WITH OTHER TRADES, OR CAUSES INTERFERENCE, MAKE CHANGES NECESSARY TO CORRECT CONDITIONS WITHOUT EXTRA CHARGE.

SUBMITTALS

- AS-BUILT DRAWINGS:
 - UPON COMPLETION OF THE WORK, FURNISH TO THE OWNER "AS-BUILT" DRAWINGS.
- SERVICE MANUALS:
 - UPON COMPLETION OF THE WORK, FULLY INSTRUCT T-MOBILE AS TO THE OPERATION AND MAINTENANCE OF ALL MATERIAL, EQUIPMENT AND SYSTEMS.
 - PROVIDE 3 COMPLETE BOUND SETS OF INSTRUCTIONS FOR OPERATING AND MAINTAINING ALL SYSTEMS AND EQUIPMENT.

CUTTING AND PATCHING

- PROVIDE ALL CUTTING, DRILLING, ROUGH AND FINISH PATCHING REQUIRED TO COMPLETE THE WORK.
- OBTAI OWNER APPROVAL PRIOR TO CUTTING THROUGH FLOORS OR WALLS FOR PIPING OR CONDUIT.

TESTS, INSPECTION AND APPROVAL

- BEFORE ENERGIZING ANY ELECTRICAL INSTALLATION, INSPECT EACH UNIT IN DETAIL. TIGHTEN ALL BOLTS AND CONNECTIONS (TORQUE-TIGHTEN WHERE REQUIRED) AND DETERMINE THAT ALL COMPONENTS ARE ALIGNED, AND THE EQUIPMENT IS IN SAFE, OPERATIONAL CONDITION.
- PROVIDE THE COMPLETE ELECTRICAL SYSTEM FREE OF GROUND FAULTS AND SHORT CIRCUITS SUCH THAT THE SYSTEM WILL OPERATE SATISFACTORILY UNDER FULL LOAD CONDITIONS, WITHOUT EXCESSIVE HEATING AT ANY POINT IN THE SYSTEM.

SPECIAL REQUIREMENTS

- DO NOT LEAVE ANY WORK INCOMPLETE NOR ANY HAZARDOUS SITUATIONS CREATED WHICH WILL AFFECT THE LIFE OR SAFETY OF THE PUBLIC AND/OR BUILDING OCCUPANTS. DO NOT INTERFERE WITH OR CUTOFF ANY OF THE EXISTING SERVICES WITHOUT THE OWNER'S WRITTEN PERMISSION.
- WHEN NECESSARY TO TEMPORARILY DISCONNECT ANY EXISTING BUILDING UTILITIES AND SERVICE SYSTEMS, INCLUDING FEEDER OR BRANCH CIRCUITING SUPPLYING EXISTING FACILITIES, CONFER WITH THE OWNER AND ARRANGE THE PERIOD OF INTERRUPTION FOR A TIME MUTUALLY AGREED UPON. SHUTDOWN NOTE: SCHEDULE AND NOTIFY OWNER 48 HOURS PRIOR TO SHUTDOWN. ALL SHUTDOWN WORK TO BE SCHEDULED AT A TIME CONVENIENT TO OWNER.

GROUNING

- ROUTE ALL GROUNDING CONDUCTORS AS SHOWN ON CONDUIT/GROUNDING RISER.
- ROUTE 500 KCMIL CU. THHN CONDUCTOR FROM THE MGB LOCATION TO BUILDING STEEL. VERIFY BUILDING STEEL IS EFFECTIVELY GROUNDED PER NEC TO THE MAIN SERVICE GROUNDING ELECTRODE CONDUCTOR (GEC).
- MAKE ALL GROUND CONNECTIONS FROM MGB TO ELECTRICAL EQUIPMENT WITH 2 HOLE, CRIMP TYPE, BURNDY COMPRESSION TERMINATIONS, SIZED AS REQUIRED.
- PROVIDE NEMA 1 DISCONNECT SWITCHES FOR INTERIOR INSTALLATION, NEMA 3R FOR EXTERIOR INSTALLATION.
- DISCONNECT SWITCHES TO BE MANUFACTURED BY:
 - GENERAL ELECTRIC COMPANY
 - SQUARE-D
- PROVIDE RK-1 TYPE FUSES, UNLESS NOTED OTHERWISE.

INSTALLATION

- INSTALL DISCONNECT SWITCHES WHERE INDICATED ON DRAWINGS.
- INSTALL FUSES IN FUSIBLE DISCONNECT SWITCHES. FUSES MUST MATCH IN TYPE AND RATING.
- FUSES TO BE MOUNTED SO THAT THE LABELS SHOWING THEIR RATINGS CAN BE READ WITHOUT REQUIRING FUSE REMOVAL.

- FURNISH AND DEPOSIT SPARE FUSES AT THE JOB SITE AS FOLLOWS:
 - THREE SPARES FOR EACH TYPE AND SIZE, IN EXCESS OF 60A, USED FOR INITIAL FUSING.
 - TEN PERCENT SPARES FOR EACH TYPE AND SIZE, UP TO AND INCLUDING 60A, USED FOR INITIAL FUSING. IN NO CASE WILL LESS THAN THREE FUSES OF ONE PARTICULAR TYPE AND SIZE BE FURNISHED.
- ALL WIRING TO BE INSTALLED IN CONDUIT SYSTEMS IN ACCORDANCE WITH THE FOLLOWING:
 - EXTERIOR FEEDERS AND CONTROL, WHERE UNDERGROUND, TO BE IN SCH 40 PVC.
 - EXTERIOR, ABOVE GROUND POWER CONDUITS TO BE GALVANIZED RIGID STEEL (RGS).
 - ALL TELECOMMUNICATION CONDUITS, INTERIOR/EXTERIOR, TO BE EMT.
 - INSTALL PULL ROPES IN ALL NEW EMPTY CONDUITS INSTALLED ON THIS PROJECT.
- ALL TELECOM CONDUITS AND PULL BOXES INSTALLED ON THIS PROJECT TO BE LABELED "T-MOBILE". OWNER WILL PROVIDE LABELS FOR CONTRACTOR TO INSTALL.
- INTERIOR FEEDERS TO BE INSTALLED IN E.M.T. WITH STEEL COMPRESSION FITTINGS.
- MINIMUM SIZE CONDUIT TO BE $\frac{3}{4}$ " TRADE SIZE UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
- FINAL CONNECTIONS TO MOTORS AND VIBRATING EQUIPMENT TO BE INSTALLED IN LIQUID-TIGHT FLEXIBLE METAL CONDUIT.
- CONDUIT TO BE RUN CONCEALED IN CEILINGS, FINISHED AREAS OR DRYWALL PARTITIONS, UNLESS OTHERWISE NOTED.
- THE ROUTING OF CONDUITS INDICATED ON THE DRAWINGS IS DIAGRAMMATIC. BEFORE INSTALLING ANY WORK, EXAMINE THE WORKING LAYOUTS AND SHOP DRAWINGS OF THE OTHER TRADES TO DETERMINE THE EXACT LOCATIONS AND CLEARANCES.
- ALL EXTERIOR MOUNTING HARDWARE TO BE GALVANIZED STEEL. COORDINATE WITH BUILDING ENGINEER PRIOR TO ATTACHING TO BUILDING STRUCTURE.

RACEWAYS CONT'D

- PENETRATIONS OF WALLS, FLOORS AND ROOFS, FOR THE PASSAGE OF ELECTRICAL RACEWAYS, TO BE PROPERLY SEALED AFTER INSTALLATION OF RACEWAYS SO AS TO MAINTAIN THE STRUCTURAL OR WATERPROOF INTEGRITY OF THE WALL, FLOOR OR ROOF SYSTEM TO BE PENETRATED. SEAL ALL CONDUIT PENETRATIONS THROUGH FIRE OR SMOKE RATED WALLS, CEILINGS OR SMOKE TIGHT CORRIDOR PARTITIONS TO MAINTAIN PROPER RATING OF WALL OR CEILING.
- PROVIDE ALL CONDUIT ENDS WITH INSULATED METALLIC GROUNDING BUSHINGS.
- CONDUIT TO BE SUPPORTED AT MAXIMUM DISTANCE OF 8'-0", OR AS REQUIRED BY NEC, IN HORIZONTAL AND VERTICAL DIRECTIONS.
- PROVIDE STAINLESS STEEL BLANK COVER PLATES FOR ALL JUNCTION BOXES AND/OR OUTLET BOXES NOT USED IN EXPOSED AREAS. PROVIDE ALL OTHER UNUSED BOXES WITH STANDARD STEEL COVER PLATES.
- WHERE APPLICABLE, PROVIDE ROOFTOP CONDUIT SUPPORT SYSTEM, CONFORMING TO ROOFTOP WARRANTY REQUIREMENTS, PER BUILDING.

WIRES AND CABLES

- CONTRACTOR TO COORDINATE WITH EQUIPMENT SUPPLIER AND VENDOR FOR EXACT EQUIPMENT OVER-CURRENT PROTECTION VOLTAGE, WIRE SIZE AND PLUG CONFIGURATION, IF APPLICABLE, PRIOR TO BID.
- ALL EQUIPMENT/DEVICES TO BE PROVIDED WITH INSULATED GROUND CONDUCTOR.
- ALL WIRE AND CABLE TO BE 600VOLT, COPPER, WITH THHN/THWN INSULATION, EXCEPT AS NOTED.
- WIRE FOR POWER AND LIGHTING WILL NOT BE LESS THAN NO. 12AWG. ALL WIRE NO. 8 AND LARGER TO BE STRANDED.
- CONTROL WIRING IS NOT TO BE LESS THAN NO. 14AWG, FLEXIBLE IN SINGLE CONDUCTORS OR MULTI-CONDUCTOR CABLES. CONTROL WIRING WILL CONSIST OF MULTI-CONDUCTOR CABLES WHEREVER POSSIBLE. CABLES TO BE PROVIDED WITH AN OVERALL FLAME-RETARDANT, EXTRUDED JACKET AND RATED FOR PLENUM USE. ALL CONTROL WIRE TO BE 600VOLT RATED.
- WIRE PREVIOUSLY PULLED INTO CONDUIT IS CONSIDERED USED AND IS NOT TO BE RE-PULLED.
- HOME RUNS AND BRANCH CIRCUIT WIRING FOR 20A, 120V CIRCUITS:

LENGTH (FT.)	HOME RUN WIRE SIZE
0 TO 50	NO. 12
51 TO 100	NO. 10
101 TO 150	NO. 8
- VOLTAGE DROP IS NOT TO EXCEED 3%.
- MAKE ALL CONNECTIONS WITH UL APPROVED, SOLDERLESS, PRESSURE TYPE INSULATED CONNECTORS: SCOTCHLOK OR AND APPROVED EQUAL.

WIRING DEVICES

- ALL RECEPTACLES INSTALLED IN THIS PROJECT TO BE GROUNDING TYPE, WITH GROUNDING PIN SLOT CONNECTED TO DEVICE GROUND SCREW FOR GROUND WIRE CONNECTION.
- DISCONNECT SWITCHES AND FUSES
 - DISCONNECT SWITCHES TO BE VOLTAGE-RATED TO SUIT THE CHARACTERISTICS OF THE SYSTEM FROM WHICH THEY ARE SUPPLIED.
 - PROVIDE HEAVY-DUTY, METAL-ENCLOSED, EXTERNALLY-OPERATED DISCONNECT SWITCHES, FUSED OR UNFUSED, OF SUCH TYPE AND SIZE AS REQUIRED TO PROPERLY PROTECT OR DISCONNECT THE LOAD FOR WHICH THEY ARE INTENDED.
 - PROVIDE NEMA 1 DISCONNECT SWITCHES FOR INTERIOR INSTALLATION, NEMA 3R FOR EXTERIOR INSTALLATION.
 - DISCONNECT SWITCHES TO BE MANUFACTURED BY:
 - GENERAL ELECTRIC COMPANY
 - SQUARE-D

DISCONNECT SWITCHES AND FUSES

- DISCONNECT SWITCHES TO BE VOLTAGE-RATED TO SUIT THE CHARACTERISTICS OF THE SYSTEM FROM WHICH THEY ARE SUPPLIED.
- PROVIDE HEAVY-DUTY, METAL-ENCLOSED, EXTERNALLY-OPERATED DISCONNECT SWITCHES, FUSED OR UNFUSED, OF SUCH TYPE AND SIZE AS REQUIRED TO PROPERLY PROTECT OR DISCONNECT THE LOAD FOR WHICH THEY ARE INTENDED.
- PROVIDE NEMA 1 DISCONNECT SWITCHES FOR INTERIOR INSTALLATION, NEMA 3R FOR EXTERIOR INSTALLATION.
- DISCONNECT SWITCHES TO BE MANUFACTURED BY:
 - GENERAL ELECTRIC COMPANY
 - SQUARE-D

CHANGE ORDER PROCEDURE:

- REFER TO SECTION 17 OF SIGNED MCSA: SEE PROFESSIONAL SERVICE AGREEMENT FOR MCSA

RELATED DOCUMENTS AND COORDINATION

- GENERAL CARPENTRY, ELECTRICAL AND ANTENNA DRAWINGS ARE INTERRELATED. IN PERFORMANCE OF THE WORK, THE CONTRACTOR MUST REFER TO ALL DRAWINGS. ALL COORDINATION TO BE THE RESPONSIBILITY OF THE CONTRACTOR.

SHOP DRAWINGS

- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AS REQUIRED AND LISTED IN THESE SPECIFICATIONS TO THE OWNER FOR APPROVAL.
- ALL SHOP DRAWINGS SHALL BE REVIEWED, CHECKED AND CORRECTED BY CONTRACTOR PRIOR TO SUBMITTAL TO THE OWNER.

PRODUCTS AND SUBSTITUTIONS

- SUBMIT 3 COPIES OF EACH REQUEST FOR SUBSTITUTION. IN EACH REQUEST, IDENTIFY THE PRODUCT OR FABRICATION OR INSTALLATION METHOD TO BE REPLACED BY THE SUBSTITUTION. INCLUDE RELATED SPECIFICATION SECTION AND DRAWING NUMBERS AND COMPLETE DOCUMENTATION SHOWING COMPLIANCE WITH THE REQUIREMENTS FOR SUBSTITUTIONS.
- SUBMIT ALL NECESSARY PRODUCT DATA AND CUT SHEETS WHICH PROPERLY INDICATE AND DESCRIBE THE ITEMS, PRODUCTS AND MATERIALS BEING INSTALLED. THE CONTRACTOR SHALL, IF DEEMED NECESSARY BY THE OWNER, SUBMIT ACTUAL SAMPLES TO THE OWNER FOR APPROVAL IN LIEU OF CUT SHEETS.

GENERAL NOTES:

INTENT

- THESE SPECIFICATIONS AND CONSTRUCTION DRAWINGS ACCOMPANYING THEM DESCRIBE THE WORK TO BE DONE AND THE MATERIALS TO BE FURNISHED FOR CONSTRUCTION.
- THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO BE FULLY EXPLANATORY AND SUPPLEMENTARY. HOWEVER, SHOULD ANYTHING BE SHOWN, INDICATED, OR SPECIFIED ON ONE AND NOT THE OTHER, IT SHALL BE DONE THE SAME AS IF SHOWN, INDICATED OR SPECIFIED IN BOTH.
- THE INTENTION OF THE DOCUMENTS IS TO INCLUDE ALL LABOR AND MATERIALS REASONABLY NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK AS STIPULATED IN THE CONTRACT.
- THE PURPOSE OF THE SPECIFICATIONS IS TO INTERPRET THE INTENT OF THE DRAWINGS AND TO DESIGNATE THE METHOD OF THE PROCEDURE, TYPE AND QUALITY OF MATERIALS REQUIRED TO COMPLETE THE WORK.
- MINOR DEVIATIONS FROM THE DESIGN LAYOUT ARE ANTICIPATED AND SHALL BE CONSIDERED AS PART OF THE WORK. NO CHANGES THAT ALTER THE CHARACTER OF THE WORK WILL BE MADE OR PERMITTED BY THE OWNER WITHOUT ISSUING A CHANGE ORDER.

CONFLICTS

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATIONS OF ALL MEASUREMENTS AT THE SITE BEFORE ORDERING ANY MATERIALS OR DOING ANY WORK. NO EXTRA CHARGE OR COMPENSATION SHALL BE ALLOWED DUE TO DIFFERENCE BETWEEN ACTUAL DIMENSIONS AND DIMENSIONS INDICATED ON THE CONSTRUCTION DRAWINGS. ANY SUCH DISCREPANCY IN DIMENSION WHICH MAY BE FOUND SHALL BE SUBMITTED TO THE OWNER FOR CONSIDERATION BEFORE THE CONTRACTOR PROCEEDS WITH THE WORK IN THE Affected AREAS.
- THE BIDDER, IF AWARDED THE CONTRACT, WILL NOT BE ALLOWED ANY EXTRA COMPENSATION BY REASON OF ANY MATTER OR THING CONCERNING SUCH BIDDER MIGHT HAVE FULLY INFORMED THEMSELVES PRIOR TO THE BIDDING.
- NO PLEA OF IGNORANCE OF CONDITIONS THAT EXIST, OR OF ANY OTHER RELEVANT MATTER CONCERNING THE WORK TO BE PERFORMED IN THE EXECUTION OF THE WORK WILL BE ACCEPTED AS AN EXCUSE FOR ANY FAILURE OR OMISSION ON THE PART OF THE CONTRACTOR TO FULFILL EVERY DETAIL OF ALL THE REQUIREMENTS OF THE CONTRACT DOCUMENTS GOVERNING THE WORK.

CONTRACTS AND WARRANTIES

- CONTRACTOR IS RESPONSIBLE FOR APPLICATION AND PAYMENT OF CONTRACTOR LICENSES AND BONDS.
- SEE MASTER CONTRACTION SERVICES AGREEMENT FOR ADDITIONAL DETAILS.

STORAGE

- ALL MATERIALS MUST BE STORED IN A LEVEL AND DRY FASHION AND IN A MANNER THAT DOES NOT NECESSARILY OBSTRUCT THE FLOW OF OTHER WORK. ANY STORAGE METHOD MUST MEET ALL RECOMMENDATIONS OF THE ASSOCIATED MANUFACTURER.

CLEANUP

- THE CONTRACTORS SHALL, AT ALL TIMES, KEEP THE SITE FREE FROM ACCUMULATION OF WASTE MATERIALS OR RUBBISH CAUSED BY THEIR EMPLOYEES AT WORK AND AT THE COMPLETION OF THE WORK, THEY SHALL REMOVE ALL RUBBISH FROM AND ABOUT THE BUILDING AREA, INCLUDING ALL THEIR TOOLS, SCAFFOLDING AND SURPLUS MATERIALS AND SHALL LEAVE THEIR WORK CLEAN AND READY TO USE.
- EXTERIOR
 - VISUALLY INSPECT EXTERIOR SURFACES AND REMOVE ALL TRACES OF SOIL, WASTE MATERIALS, SMUDGES AND OTHER FOREIGN MATTER.
 - REMOVE ALL TRACES OF SPLASHED MATERIALS FROM ADJACENT SURFACES.
 - IF NECESSARY, TO ACHIEVE A UNIFORM DEGREE OF CLEANLINESS, HOSE DOWN THE EXTERIOR OF THE STRUCTURE.

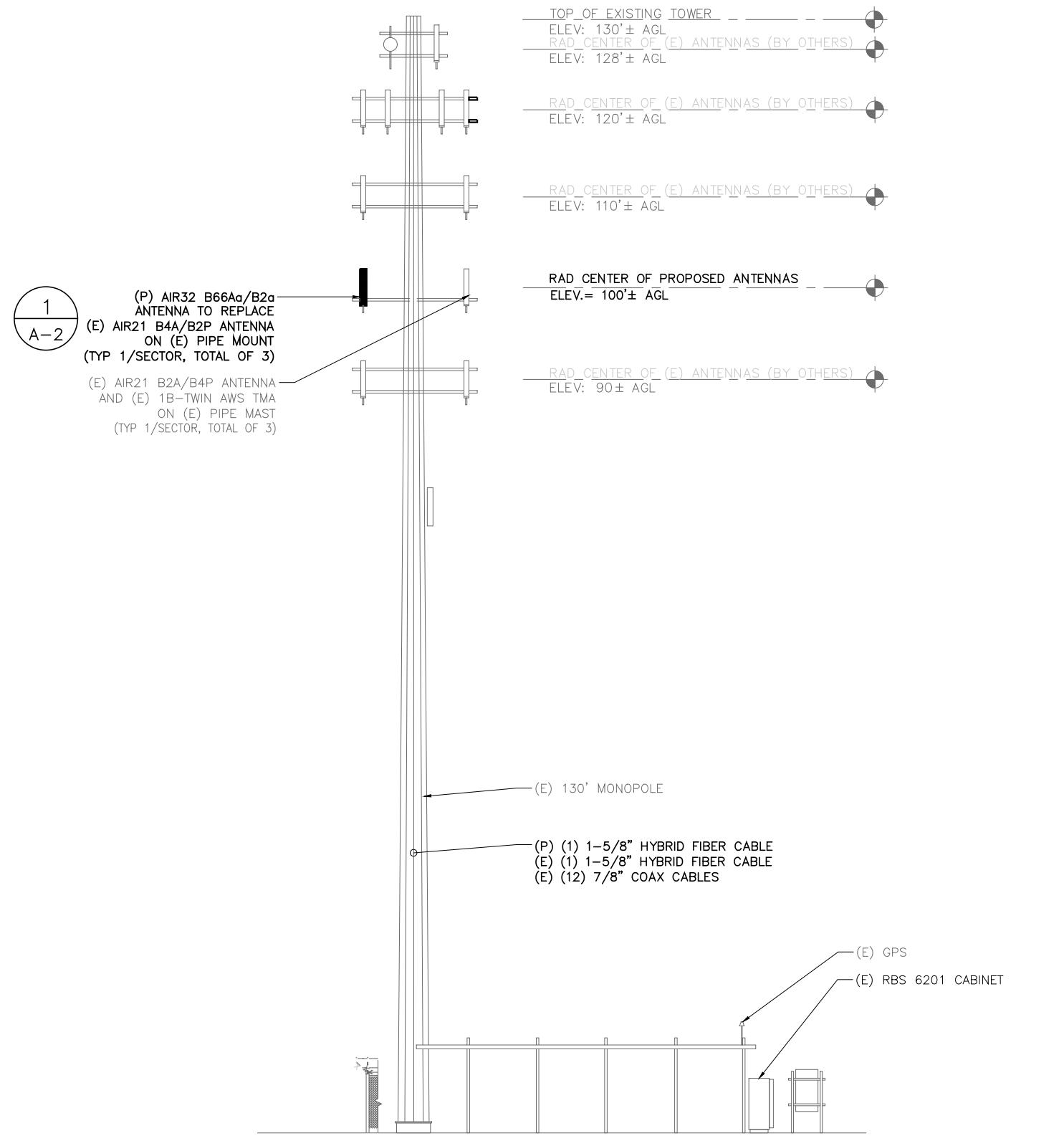
INSURANCE AND BONDS

- CONTRACTOR, AT THEIR OWN EXPENSE, SHALL CARRY AND MAINTAIN, FOR THE DURATION OF THE PROJECT, ALL INSURANCE, AS REQUIRED AND LISTED, AND SHALL NOT COMMENCE WITH THEIR WORK UNTIL THEY HAVE PRESENTED AN ORIGINAL CERTIFICATE OF INSURANCE STATING ALL COVERAGES TO THE OWNER. REFER TO THE MASTER AGREEMENT FOR REQUIRED INSURANCE LIMITS.
- THE OWNER SHALL BE NAMED AS AN ADDITIONAL INSURED ON ALL POLICIES.
- CONTRACTOR MUST PROVIDE PROOF OF INSURANCE.

QUALITY ASSURANCE

- ALL WORK SHALL BE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS. THESE SHALL INCLUDE, BUT NOT BE LIMITED TO THE APPLICABLE CODES SET FORTH BY THE LOCAL GOVERNING BODY. SEE "CODE COMPLIANCE" T-1.
- BEFORE THE COMMENCEMENT OF ANY WORK, THE CONTRACTOR WILL ASSIGN A PROJECT MANAGER WHO WILL ACT AS A SINGLE POINT OF CONTACT FOR ALL PERSONNEL INVOLVED IN THIS PROJECT. THIS PROJECT MANAGER WILL DEVELOP A MASTER SCHEDULE FOR THE PROJECT WHICH WILL BE SUBMITTED TO THE OWNER PRIOR TO THE COMMENCEMENT OF ANY WORK.
- SUBMIT A BAR TYPE PROGRESS CHART, NOT MORE THAN 3 DAYS AFTER THE DATE ESTABLISHED FOR COMMENCEMENT OF THE WORK ON THE SCHEDULE, INDICATING A TIME BAR FOR EACH MAJOR CATEGORY OR UNIT OF WORK TO BE PERFORMED AT THE SITE, PROPERLY SEQUENCED AND COORDINATED WITH OTHER ELEMENTS OF WORK AND SHOWING COMPLETION OF THE WORK SUFFICIENTLY IN ADVANCE OF THE DATE ESTABLISHED FOR SUBSTANTIAL COMPLETION OF THE WORK.
- PRIOR TO COMMENCING CONSTRUCTION, THE OWNER SHALL SCHEDULE AN ON-SITE MEETING WITH ALL MAJOR PARTIES. THIS WOULD INCLUDE, BUT NOT LIMITED TO, THE OWNER, PROJECT MANAGER, CONTRACTOR, LAND OWNER REPRESENTATIVE, LOCAL TELEPHONE COMPANY, TOWER ERECTION FOREMAN (IF SUBCON

REFER TO STRUCTURAL ANALYSIS DOCUMENT ENTITLED,
"STRUCTURAL ANALYSIS REPORT " PREPARED BY AMERICAN
TOWER CORPORATION, "T-MOBILE SITE ID CTHA505A",
DATED JULY 08, 2016.



ELEVATION

SCALE: 1/16" = 1'-0" (11x17)

1
A-2

A horizontal scale bar diagram for a room. The scale is marked at 0, 16, 32, and 48. The diagram shows a room outline with a width of 16 units and a depth of 11 units. The text "SCALE 1\" data-bbox="113 101 886 188" data-label="Text"/> $16'$ (11x17') is located below the room outline.

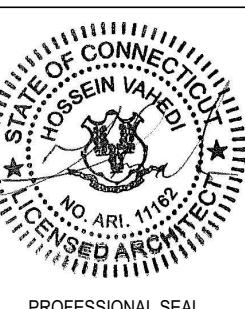
T-Mobile

MOBILE NORTHEAST, LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 692-7100
FAX: (860) 692-7159

The logo for TLANTIS DESIGN GROUP, INC. It features a stylized 'A' shape on the left, with the company name 'TLANTIS DESIGN GROUP, INC.' to its right. The 'A' is composed of a vertical line and a diagonal line extending from the top-left to the bottom-right. The company name is in a bold, sans-serif font, with 'TLANTIS DESIGN' on top and 'GROUP, INC.' on the line below.

PERT.	DATE	APP'D	REVISIONS
FE			
MAN.			
NING			
PS			
INSTR.			
AC.			

PROJECT NO:	CTHA505A
DRAWN BY:	FG
CHECKED BY:	KM



THIS DOCUMENT IS THE CREATION,
SIGN, PROPERTY AND COPYRIGHTED
WORK OF T-MOBILE. ANY DUPLICATION
OR USE WITHOUT EXPRESS WRITTEN
CONSENT IS STRICTLY PROHIBITED.

SITE NUMBER
CTHA505A

SITE NAME
CROWN E. HARTFORD
MONORAIL

SITE ADDRESS
148 ROBERTS STREET
WEST HARTFORD, CT 06108

SHEET TITLE
ELEVATION

SHEET NUMBER

A-2



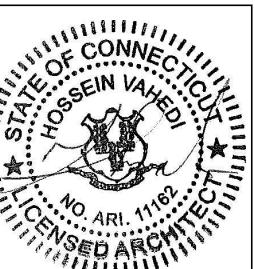
T-MOBILE NORTHEAST, LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 692-7100
FAX: (860) 692-7159



GROUP, INC.
3210 MAIN CAMPUS DRIVE
LEXINGTON, MA 02421
Phone number: 617-852-3611
Fax Number : 781-742-2247

DEPT.	DATE	APP'D	REVISIONS
RFE			
F. MAN.			
ZONING			
OPS			
ONSTR.			
ITE AC.			

PROJECT NO:	CTHA505A
DRAWN BY:	FG
CHECKED BY:	KM



PROFESSIONAL SEAL

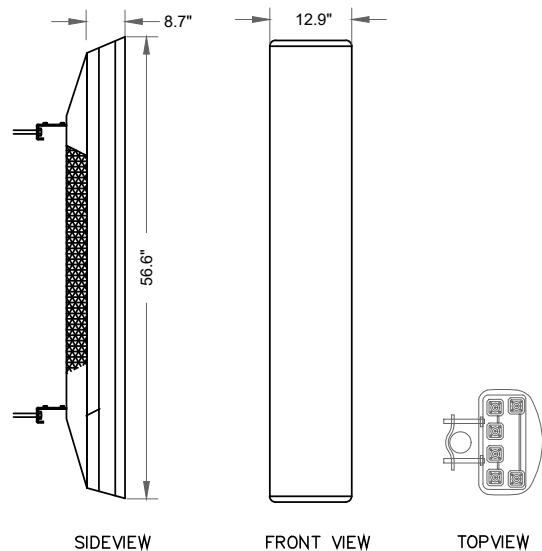
SITE NUMBER
CTHA505A

SITE NAME
CROWN E. HARTFORD

SITE ADDRESS
148 ROBERTS STREET
EAST HARTFORD, CT 06108

SHEET TITLE

SHEET NUMBER
A-3

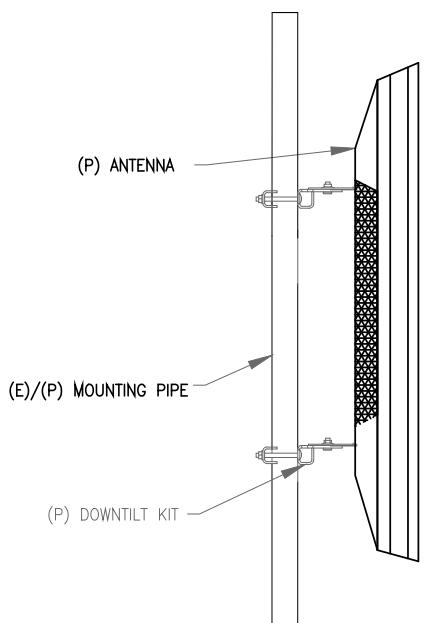


MANUFACTURER: ERICSSON
MODEL NO.: ERICSSON AIR32 AIR32 B66Aa/B2a
DIMENSIONS - HxWxD, (IN) 56.6" x 12.9" x 8.7"

ERICSSON AIR32 B66Aa/B2a ANTENNA DETAILS

SCALE: N.T.S.

1
A-3



ANTENNA MOUNT DETAILS

SCALE: N.T.S

2
A-3

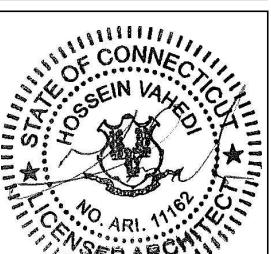


T-MOBILE NORTHEAST, LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 692-7100
FAX: (860) 692-7159



3210 MAIN CAMPUS DRIVE
LEXINGTON, MA 02421
Phone number: 617-852-3611
Fax Number : 781-742-2247

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC			



PROFESSIONAL SEAL

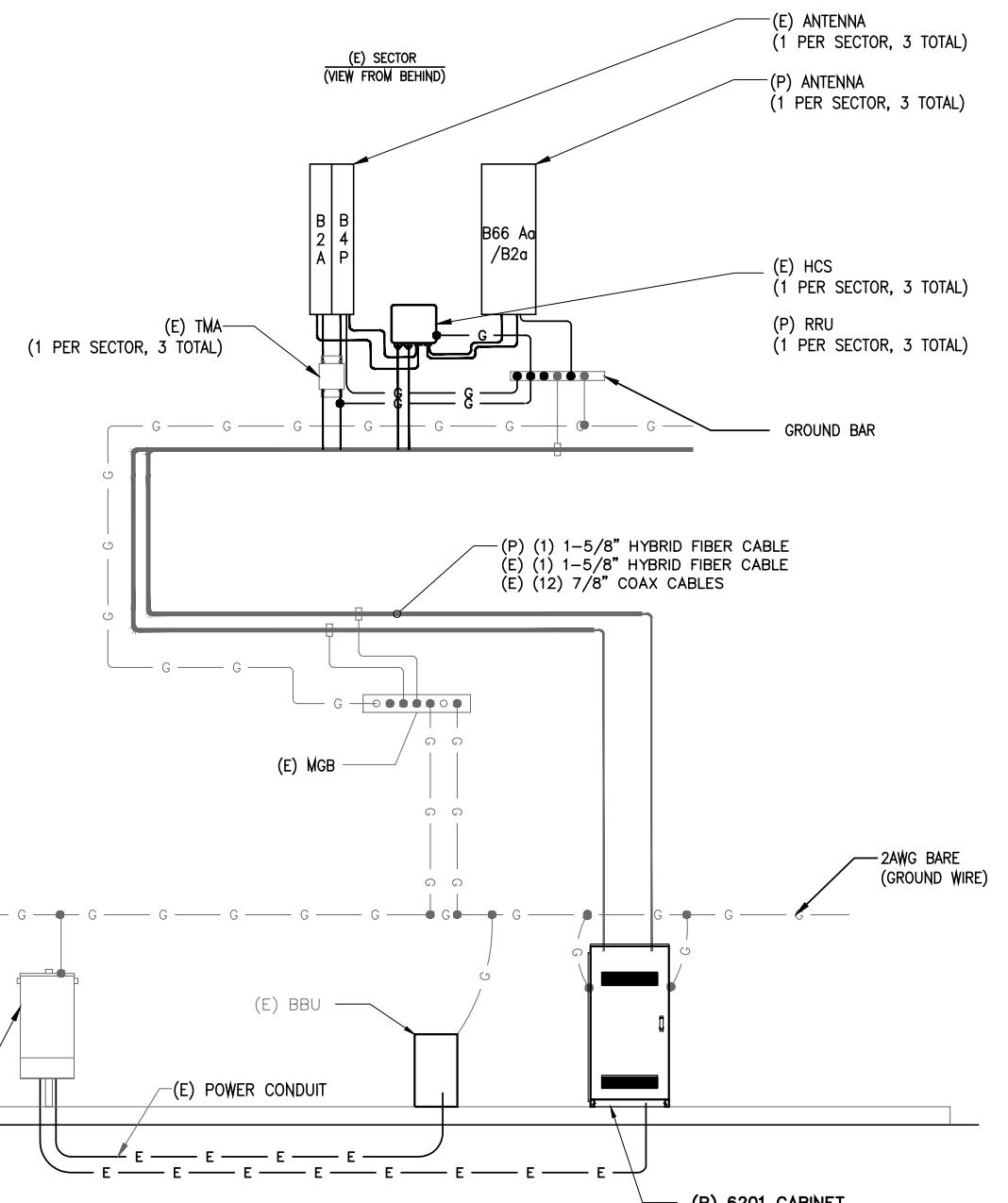
SITE NUMBER
07114565A

SITE NAME
CROWN E. HARTFORD
MONROVIA

SITE ADDRESS
148 ROBERTS STREET
EAST HARTFORD, CT 06108

SHEET TITLE
GROUNDING AND ONE
LINE DIAGRAM
COAX/FIBER DIAGRAM

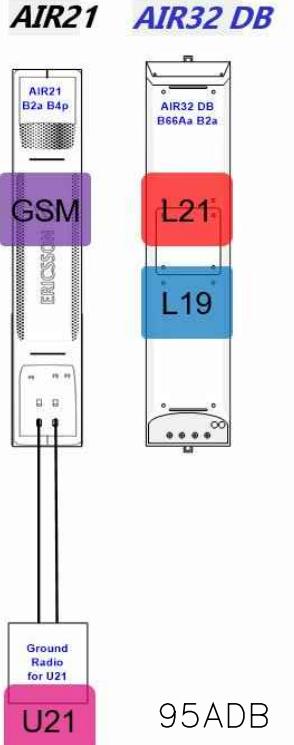
SHEET NUMBER
E-1



GROUNDING DIAGRAM

SCALE·NTS

1
E-1



95ADB CONFIGURATION COAX/FIBER PLUMBING DIAGRAM

SCALE: N.T.S.

2
-1

Exhibit D



Structural Analysis Report

Structure : 130 ft Monopole
ATC Site Name : East Hartford, CT
ATC Site Number : 370626
Engineering Number : OAA663740_C3_02
Proposed Carrier : Metro PCS
Carrier Site Name : Crown E Hartford Monopole
Carrier Site Number : CTHA505A
Site Location : 148 Roberts St.
East Hartford, CT 06108-0000
41.773306,-72.613417
County : Hartford
Date : July 8, 2016
Max Usage : 81%
Result : Pass

Reviewed by:
Scott Wrigau, PE
Structural Team Leader



Prepared By:
Vivian Chung, E.I.
Structural Engineer I

Jul 8 2016 4:07 PM

cosign

COA: PEC.0001553

**Table of Contents**

Introduction	1
Supporting Documents	1
Analysis	1
Conclusion.....	1
Existing and Reserved Equipment.....	2
Equipment to be Removed.....	2
Proposed Equipment	2
Structure Usages	3
Foundations	3
Deflection, Twist, and Sway.....	3
Standard Conditions	4
Calculations	Attached

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 130 ft monopole to reflect the change in loading by Metro PCS.

Supporting Documents

Tower Drawings	Glen Martin Engineering Drawing #MP1400800-0001, dated August 20, 2003
Foundation Drawing	Glen Martin Engineering Drawing #GME-03309, dated August 26, 2003
Geotechnical Report	Geotechnical Engineering Project Name: The Marcus Group, dated April 25, 2003

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	95 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1" radial ice concurrent
Code:	ANSI/TIA-222-G / 2003 IBC w/ 2005 CT Supplement & 2009 CT Amendment
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	$S_s = 0.18, S_1 = 0.06$
Site Class:	D - Stiff Soil

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Existing and Reserved Equipment

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
128.0	128.0	3	DragonWave Horizon Compact	Side Arms	(3) 1 5/8" Fiber (3) 1/2" Coax (3) 5/8" Coax (2) 2" Conduit	Clearwire
		3	BTS			
		3	Argus LLPX310R			
		3	DragonWave A-ANT-18G-2-C			
119.7	120.0	3	Alcatel-Lucent PCS B25 RRH2x60/4x30	Low Profile Platform	(6) 1 5/8" Coax (2) 1 5/8" Fiber	Verizon
		3	Alcatel-Lucent RRH4X45-B66 w/ Solar Shield			
		2	RFS DB-T1-6Z-8AB-0Z			
	119.7	6	Andrew DB844G65ZAXY			
		3	Antel BXA-70063-6CF-EDIN-X			
		6	Andrew SBNHH-1D65B			
	119.0	3	Alcatel-Lucent RRH2x60 700			
110.0	110.0	9	48" x 12" Panel	Low Profile Platform	(9) 1 5/8" Coax	Sprint Nextel
100.0	100.0	3	Ericsson AIR 21, 1.3M, B2A B4P	T-Arms	(12) 7/8" Coax (1) 1 5/8" Hybriflex	Metro PCS
90.0	90.0	6	14" x 9" TTA	Platform w/ Handrails	(5) 2" Conduit (3) 1/2" Coax (12) 1 5/8" Coax (8) 0.76" 8 AWG 6 (2) 0.35" Fiber	AT&T Mobility
		4	Raycap DC6-48-60-18-8F			
		6	Ericsson RRUS A2 Module (15.1" Height)			
		9	Ericsson RRUS 12 w/ Solar Shield			
		3	Ericsson RRUS-32 (77 lbs)			
		9	Ericsson RRUS-11			
		12	CCI HPA-65R-BUU-H8			
70.0	70.0	1	2' Std. Dish	Leg	(1) 1 5/8" Coax	Sprint Nextel
50.0	50.0	1	GPS	Side Arm	(1) 1/2" Coax	

Equipment to be Removed

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
100.0	100.0	3	Ericsson AIR 21, 1.3M, B4A B2P	-	-	Metro PCS

Proposed Equipment

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
100.0	100.0	3	Ericsson AIR-32 B2A/B66Aa	T-Arms	(1) 1 5/8" Hybriflex	Metro PCS

¹Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Install proposed coax outside the pole shaft alongside existing Metro PCS coax. Stacking coax is not allowed.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	51%	Pass
Shaft	69%	Pass
Base Plate	47%	Pass
Flanges	13%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	2,687.8	69%
Axial (Kips)	41.8	81%
Shear (Kips)	31.3	32%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

The foundation and anchorages for this tower have factors of safety exceeding 2.0 with respect to wind.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
100.0	Ericsson AIR-32 B2A/B66Aa	Metro PCS	0.938	1.027
70.0	2' Std. Dish	Sprint Nextel	0.462	0.769

*Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-G



Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessarily limited, to:

- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.
- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

Unless explicitly agreed by both the client and American Tower Corporation, all services will be performed in accordance with the current revision of ANSI/TIA -222. The design basic wind speed will be determined based on the minimum basic wind speed as prescribed in ANSI/TIA-222. Although every effort is taken to ensure that the loading considered is adequate to meet the requirements of all applicable regulatory entities, we can provide no assurance to meet any other local and state codes or requirements. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

Job Information

Pole : 370626 Code: ANSI/TIA-222-G

Description : 130 ft. Monopole

Client : METRO PCS INC

Struct Class : II

Location : East Hartford, CT

Shape : 16 Sides

Exposure : B

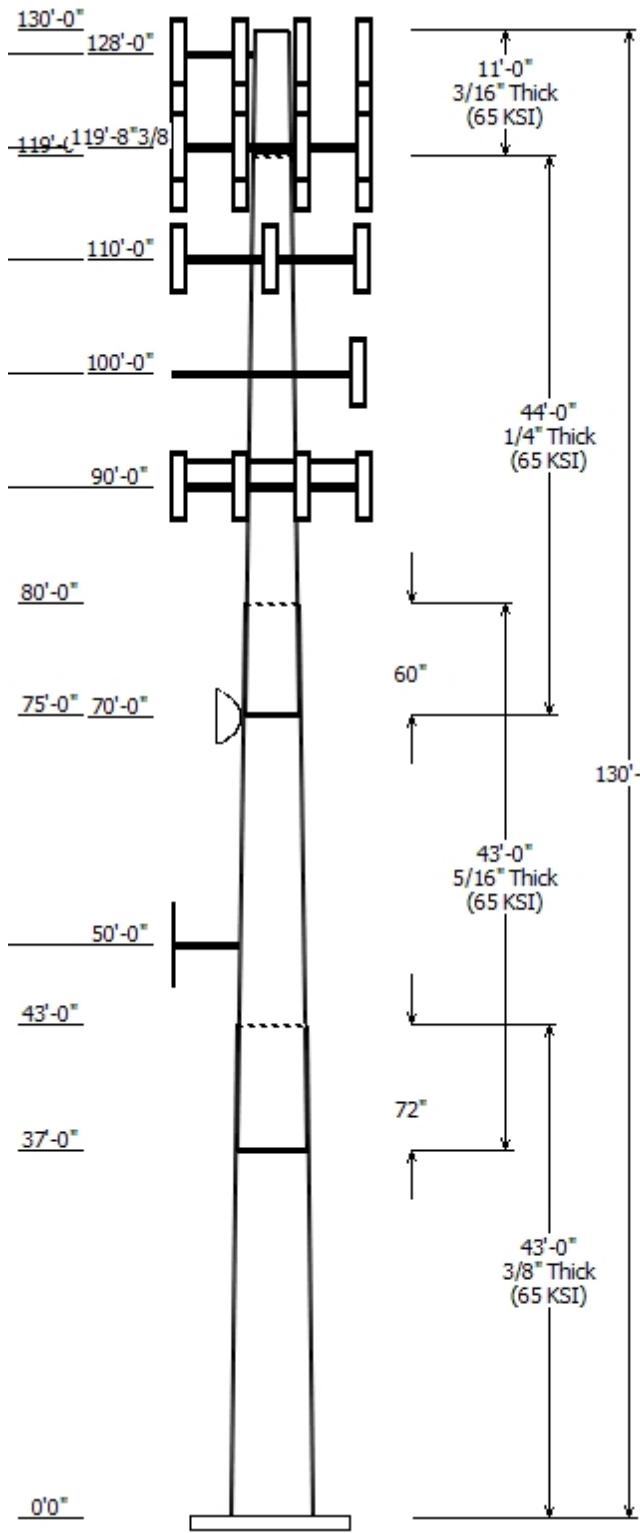
Height : 130.00 (ft)

Topo : 1

Base Elev (ft): 0.00

Taper: 0.23319/(in/ft)

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Sections Properties

Shaft Section	Length (ft)	Diameter (in) Across Flats	Overlap Length (in)	Steel Taper (in/ft)	Grade (ksi)
	Top	Top Bottom	Joint Type		
1	43.000	39.16 49.19	0.375	0.000	0.233200 65
2	43.000	31.16 41.18	0.313 Slip Joint	72.000	0.233200 65
3	44.000	22.56 32.82	0.250 Slip Joint	60.000	0.233200 65
4	11.000	20.00 22.56	0.188 Butt Joint	0.000	0.233200 65

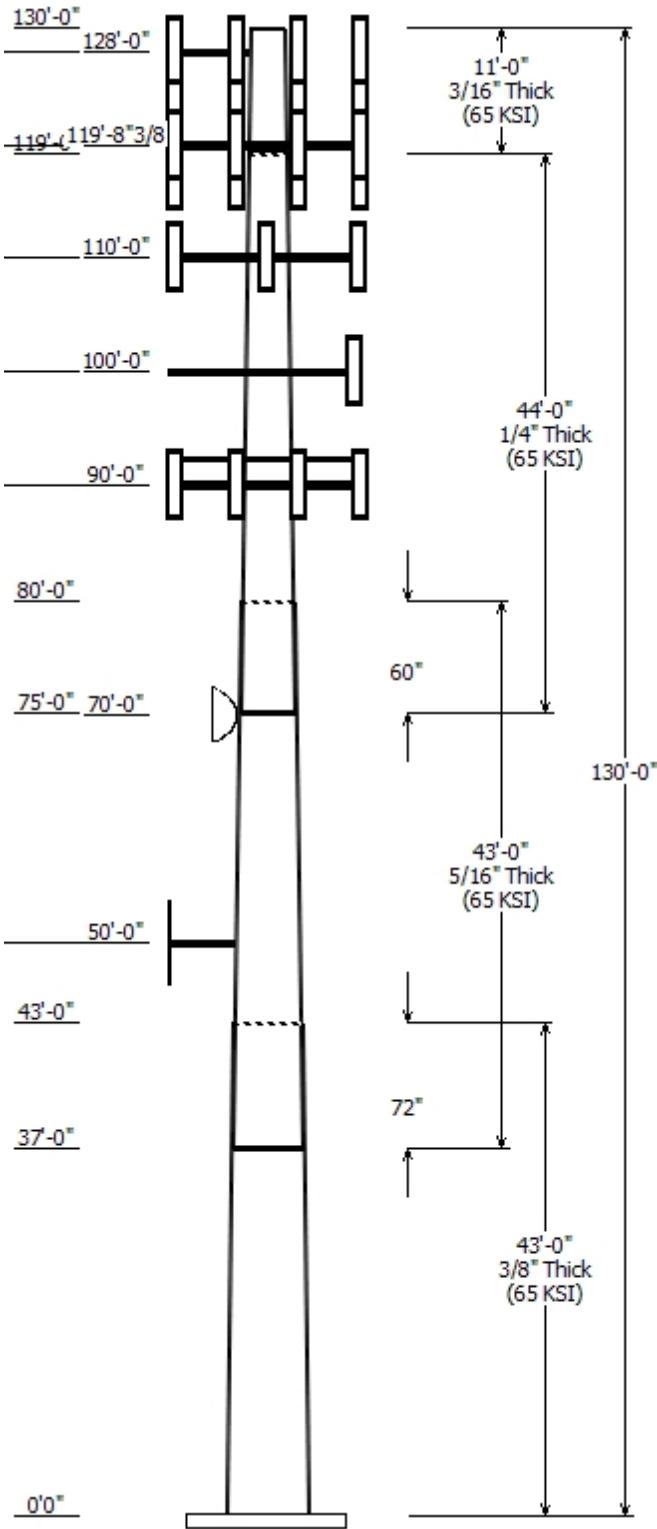
Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
128.000	128.000	3	Argus LLPX310R
128.000	128.000	3	DragonWave A-ANT-18G-2-C
128.000	128.000	3	BTS
128.000	128.000	3	DragonWave Horizon Compact
128.000	128.000	1	Side Arms
119.700	119.000	3	Alcatel-Lucent RRH2x60 700
119.700	119.700	6	Andrew SBNHH-1D65B
119.700	120.000	3	Alcatel-Lucent RRH4X45-B66
119.700	120.000	3	Alcatel-Lucent PCS B25
119.700	119.700	3	Antel BX4-70063-6CF-EDIN-X
119.700	120.000	2	RFS DB-T1-6Z-8AB-0Z
119.700	119.700	6	Andrew DB844G65ZAXY
119.700	119.700	1	Flat Low Profile Platform
110.000	110.000	9	48" x 12" Panel
110.000	110.000	1	Round Low Profile Platform
100.000	100.000	3	Ericsson AIR-32 B2A/B66Aa
100.000	100.000	3	Ericsson AIR 21, 1.3M, B2A B4P
100.000	100.000	3	Round T-Arm
90.000	90.000	1	Round Platform w/ Handrails
90.000	90.000	12	CCI HPA-65R-BUU-H8
90.000	90.000	9	Ericsson RRUS-11
90.000	90.000	3	Ericsson RRUS-32 (77 lbs)
90.000	90.000	9	Ericsson RRUS 12 w/ Solar Shie
90.000	90.000	6	Ericsson RRUS A2 Module
90.000	90.000	4	Raycap DC6-48-60-18-8F
90.000	90.000	6	14" x 9" TTA
70.000	70.000	1	2' Std. Dish
50.000	50.000	1	GPS
50.000	50.000	1	Flat Side Arm

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	50.000	1/2" Coax	No
0.000	70.000	1 5/8" Coax	No
0.000	90.000	0.35" Fiber	No
0.000	90.000	0.76" 8 AWG 6	No
0.000	90.000	1 5/8" Coax	No
0.000	90.000	1/2" Coax	No
0.000	90.000	2" Conduit	No
0.000	100.0	1 5/8" Hybriflex	Yes

0.000	100.0	1 5/8" Hybriflex	Yes
0.000	100.0	7/8" Coax	No
0.000	100.0	7/8" Coax	Yes
0.000	110.0	1 5/8" Coax	No
0.000	119.7	1 5/8" Coax	Yes
0.000	119.7	1 5/8" Fiber	Yes
0.000	128.0	1 5/8" Fiber	No
0.000	128.0	1/2" Coax	No
0.000	128.0	2" Conduit	No
0.000	128.0	5/8" Coax	No



Load Cases

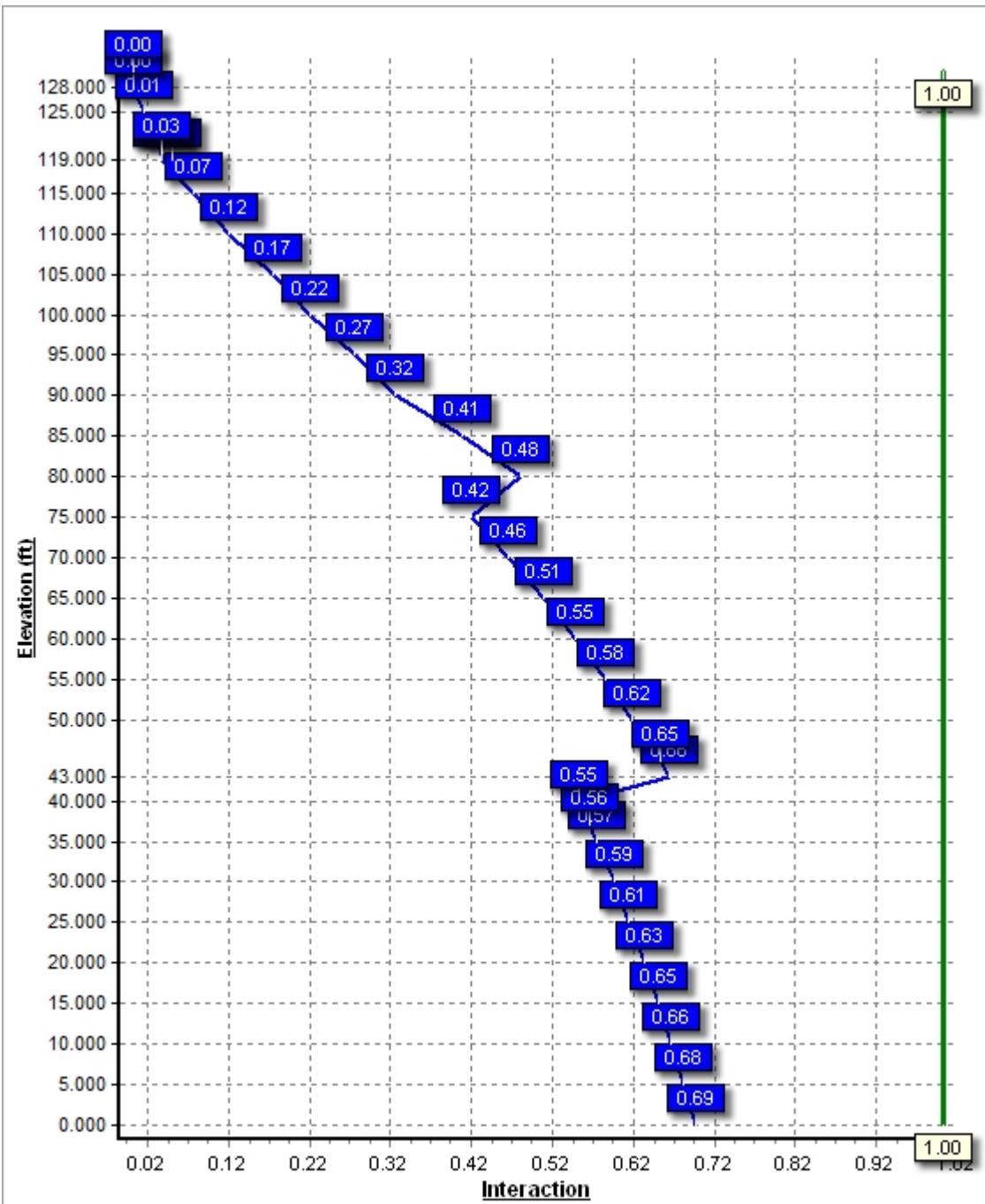
1.2D + 1.6W	95 mph with No Ice
0.9D + 1.6W	95 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	2687.79	31.33	41.75
0.9D + 1.6W	2634.46	30.73	31.30
1.2D + 1.0Di + 1.0Wi	734.92	8.01	83.24
(1.2 + 0.2Sds) * DL + E ELF M	155.92	1.58	41.51
(1.2 + 0.2Sds) * DL + E EMAM	137.63	1.45	41.51
(0.9 - 0.2Sds) * DL + E ELF M	154.01	1.58	28.88
(0.9 - 0.2Sds) * DL + E EMAM	135.81	1.45	28.88
1.0D + 1.0W	659.39	7.66	34.84

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	70.00	5.547	0.769



Site Number: 370626

Code: ANSI/TIA-222-G

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Site Name: East Hartford, CT

Engineering Number: OAA663740_C3_02

7/8/2016 3:56:44 PM

Customer: METRO PCS INC

Analysis Parameters

Location:	Hartford County, CT	Height (ft):	130
Code:	ANSI/TIA-222-G	Base Diameter (in):	49.19
Shape:	16 Sides	Top Diameter (in):	20.00
Pole Type:	Taper	Taper (in/ft) :	0.233
Pole Manufacturer:	Glen Martin		

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	95 mph
Exposure Category:	B	Design Wind Speed With Ice:	50 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0.0 ft	Design Ice Thickness:	1.00 in

Seismic Parameters

Analysis Method: Equivalent Modal Analysis & Equivalent Lateral Force Methods

Site Class: D - Stiff Soil

Period Based on Rayleigh Method (sec): 1.96

T _L (sec):	6	p:	1.3	C _s :	0.035
S _s :	0.180	S ₁ :	0.064	C _s Max:	0.035
F _a :	1.600	F _v :	2.400	C _s Min:	0.030
S _{ds} :	0.192	S _{d1} :	0.102		

Load Cases

1.2D + 1.6W

95 mph with No Ice

0.9D + 1.6W

95 mph with No Ice (Reduced DL)

1.2D + 1.0Di + 1.0Wi

50 mph with 1.00 in Radial Ice

(1.2 + 0.2Sds) * DL + E ELF M

Seismic Equivalent Lateral Forces Method

(1.2 + 0.2Sds) * DL + E EMAM

Seismic Equivalent Modal Analysis Method

(0.9 - 0.2Sds) * DL + E ELF M

Seismic (Reduced DL) Equivalent Lateral Forces Method

(0.9 - 0.2Sds) * DL + E EMAM

Seismic (Reduced DL) Equivalent Modal Analysis Method

1.0D + 1.0W

Serviceability 60 mph

Site Number: 370626

Code: ANSI/TIA-222-G

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Site Name: East Hartford, CT

Engineering Number: OAA663740_C3_02

7/8/2016 3:56:44 PM

Customer: METRO PCS INC

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Joint Len (in)	Weight (lb)	Bottom						Top						Taper (in/ft)
							Dia (in)	Elev (ft)	Area (in ²)	I _x (in ⁴)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in ²)	I _x (in ⁴)	W/t Ratio	D/t Ratio	
1-16	43.000	0.3750	65		0.00	7,667	49.19	0.00	58.39	17579.1	24.50	131.17	39.16	43.00	46.40	8819.0	19.18	104.43	0.233192
2-16	43.000	0.3125	65	Slip	72.00	5,231	41.18	37.00	40.75	8600.2	24.62	131.80	31.16	80.00	30.75	3696.6	18.24	99.71	0.233192
3-16	44.000	0.2500	65	Slip	60.00	3,277	32.82	75.00	25.98	3482.7	24.53	131.30	22.56	119.00	17.80	1119.5	16.36	90.26	0.233192
4-16	11.000	0.1875	65	Butt	0.00	472	22.56	119.00	13.38	846.7	22.35	120.35	20.00	130.00	11.85	587.7	19.63	106.67	0.233192
Shaft Weight						16,647													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	No Ice			Ice			Distance From Face (ft)	Vert Ecc (ft)
			Weight (lb)	EPAa (sf)	Orientation Factor	Weight (lb)	EPAa (sf)	Orientation Factor		
128.00	Argus LLPX310R	3	28.60	4.290	0.73	180.63	5.495	0.73	0.000	0.000
128.00	BTS	3	20.00	1.800	0.50	106.24	2.569	0.50	0.000	0.000
128.00	DragonWave A-ANT-18G-2-C	3	27.10	4.690	1.00	155.28	6.364	1.00	0.000	0.000
128.00	DragonWave Horizon	3	11.50	0.840	0.50	56.36	1.242	0.50	0.000	0.000
128.00	Side Arms	1	560.00	8.500	1.00	1,174.92	17.834	1.00	0.000	0.000
119.70	Alcatel-Lucent PCS B25	3	55.00	2.200	0.67	147.57	3.527	0.67	0.000	0.300
119.70	Alcatel-Lucent RRH2x60 700	3	56.70	2.150	0.67	170.65	2.989	0.67	0.000	-0.700
119.70	Alcatel-Lucent RRH4X45-B66	3	64.00	2.660	0.67	183.38	3.619	0.67	0.000	0.300
119.70	Andrew DB844G65ZAXY	6	12.00	4.340	0.94	198.46	5.597	0.94	0.000	0.000
119.70	Andrew SBNHH-1D65B	6	50.70	8.170	0.83	331.38	9.908	0.83	0.000	0.000
119.70	Antel BXA-70063-6CF-EDIN-X	3	17.00	7.570	0.77	259.01	9.254	0.77	0.000	0.000
119.70	Flat Low Profile Platform	1	1500.00	26.100	1.00	2,346.07	51.032	1.00	0.000	0.000
119.70	RFS DB-T1-6Z-8AB-0Z	2	44.00	4.800	0.67	241.61	5.962	0.67	0.000	0.300
110.00	48" x 12" Panel	9	30.00	5.070	0.78	212.84	6.363	0.78	0.000	0.000
110.00	Round Low Profile Platform	1	1500.00	21.700	1.00	2,337.26	46.511	1.00	0.000	0.000
100.00	Ericsson AIR 21, 1.3M, B2A	3	91.50	6.040	0.85	316.60	7.461	0.85	0.000	0.000
100.00	Ericsson AIR-32 B2A/B66Aa	3	132.20	6.510	0.86	378.86	7.992	0.86	0.000	0.000
100.00	Round T-Arm	3	250.00	9.700	0.67	517.46	20.250	0.67	0.000	0.000
90.00	14" x 9" TTA	6	10.00	1.050	0.50	60.95	1.638	0.50	0.000	0.000
90.00	CCI HPA-65R-BUU-H8	12	68.00	12.980	0.79	451.79	15.053	0.79	0.000	0.000
90.00	Ericsson RRUS 12 w/ Solar	9	57.90	3.150	0.67	184.93	4.073	0.67	0.000	0.000
90.00	Ericsson RRUS A2 Module	6	22.00	2.060	0.67	97.02	2.837	0.67	0.000	0.000
90.00	Ericsson RRUS-11	9	55.00	3.790	0.67	195.59	4.812	0.67	0.000	0.000
90.00	Ericsson RRUS-32 (77 lbs)	3	77.00	3.310	0.67	228.39	4.332	0.67	0.000	0.000
90.00	Raycap DC6-48-60-18-8F	4	20.00	1.110	1.00	128.40	2.705	1.00	0.000	0.000
90.00	Round Platform w/ Handrails	1	2000.00	27.200	1.00	3,640.41	58.145	1.00	0.000	0.000
70.00	2' Std. Dish	1	14.00	5.230	1.00	82.35	7.140	1.00	0.000	0.000
50.00	Flat Side Arm	1	150.00	6.300	1.00	237.12	9.227	1.00	0.000	0.000
50.00	GPS	1	10.00	1.000	1.00	58.83	1.032	1.00	0.000	0.000
Totals			112	11064.10		33,863.68			Number of Loadings : 29	

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Flat	Projected Width (in)	Exposed To Wind	Carrier
0.00	128.00	3	1 5/8" Fiber	1.63	1.61	N	0.00	N	Clearwire
0.00	128.00	3	1/2" Coax	0.63	0.15	N	0.00	N	Clearwire
0.00	128.00	2	2" Conduit	2.38	3.65	N	0.00	N	Clearwire
0.00	128.00	3	5/8" Coax	0.87	0.15	N	0.00	N	Clearwire
0.00	119.70	6	1 5/8" Coax	1.98	0.82	N	3.96	Y	Verizon
0.00	119.70	2	1 5/8" Fiber	1.63	1.61	N	0.00	Y	Verizon
0.00	110.00	9	1 5/8" Coax	1.98	0.82	N	0.00	N	Sprint Nextel

Site Number: 370626

Code: ANSI/TIA-222-G

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Site Name: East Hartford, CT

Engineering Number: OAA663740_C3_02

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Customer: METRO PCS INC

0.00	100.00	1 1 5/8" Hybriflex	1.98	1.30	N	1.98	Y	Metro PCS
0.00	100.00	1 1 5/8" Hybriflex	1.98	1.30	N	1.98	Y	Metro PCS
0.00	100.00	6 7/8" Coax	1.09	0.33	N	0.00	N	Metro PCS
0.00	100.00	6 7/8" Coax	1.09	0.33	N	1.09	Y	Metro PCS
0.00	90.00	2 0.35" Fiber	0.35	0.05	N	0.00	N	AT&T Mobility
0.00	90.00	8 0.76" 8 AWG 6	0.76	0.53	N	0.00	N	AT&T Mobility
0.00	90.00	12 1 5/8" Coax	1.98	0.82	N	0.00	N	AT&T Mobility
0.00	90.00	3 1/2" Coax	0.63	0.15	N	0.00	N	AT&T Mobility
0.00	90.00	5 2" Conduit	2.38	3.65	N	0.00	N	AT&T Mobility
0.00	70.00	1 1 5/8" Coax	1.98	0.82	N	0.00	N	Sprint Nextel
0.00	50.00	1 1/2" Coax	0.63	0.15	N	0.00	N	Sprint Nextel

Site Number: 370626

Code: ANSI/TIA-222-G

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Site Name: East Hartford, CT

Engineering Number: OAA663740_C3_02

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Customer: METRO PCS INC

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in ²)	I _x (in ⁴)	W/t Ratio	D/t Ratio	F _y (ksi)	S (in ³)	Z (in ³)	Weight (lb)
0.00		0.3750	49.190	58.395	17,579.1	24.50	131.17	74.8	701.0	0.0	0.0
5.00		0.3750	48.024	57.000	16,349.3	23.88	128.06	75.5	667.8	0.0	981.7
10.00		0.3750	46.858	55.605	15,178.2	23.26	124.95	76.2	635.4	0.0	957.9
15.00		0.3750	45.692	54.211	14,064.5	22.65	121.85	76.9	603.8	0.0	934.2
20.00		0.3750	44.526	52.816	13,006.6	22.03	118.74	77.6	573.0	0.0	910.5
25.00		0.3750	43.360	51.421	12,003.1	21.41	115.63	78.3	543.0	0.0	886.7
30.00		0.3750	42.194	50.026	11,052.6	20.79	112.52	79.0	513.8	0.0	863.0
35.00		0.3750	41.028	48.631	10,153.7	20.17	109.41	79.7	485.4	0.0	839.3
37.00	Bot - Section 2	0.3750	40.562	48.074	9,808.2	19.92	108.17	80.0	474.3	0.0	329.1
40.00		0.3750	39.862	47.237	9,304.8	19.55	106.30	80.4	457.9	0.0	898.9
43.00	Top - Section 1	0.3125	39.788	39.352	7,746.9	23.73	127.32	75.7	381.9	0.0	883.2
45.00		0.3125	39.321	38.887	7,475.6	23.44	125.83	76.1	372.9	0.0	266.2
50.00		0.3125	38.155	37.725	6,825.1	22.70	122.10	76.9	350.9	0.0	651.7
55.00		0.3125	36.989	36.562	6,213.5	21.95	118.37	77.7	329.5	0.0	632.0
60.00		0.3125	35.823	35.400	5,639.5	21.21	114.64	78.6	308.8	0.0	612.2
65.00		0.3125	34.657	34.238	5,102.1	20.47	110.90	79.4	288.8	0.0	592.4
70.00		0.3125	33.492	33.075	4,599.9	19.73	107.17	80.3	269.4	0.0	572.6
75.00	Bot - Section 3	0.3125	32.326	31.913	4,131.8	18.98	103.44	81.1	250.7	0.0	552.9
80.00	Top - Section 2	0.2500	31.660	25.049	3,122.0	23.60	126.64	75.9	193.4	0.0	967.2
85.00		0.2500	30.494	24.119	2,787.1	22.67	121.97	76.9	179.3	0.0	418.3
90.00		0.2500	29.328	23.189	2,477.0	21.74	117.31	78.0	165.7	0.0	402.5
95.00		0.2500	28.162	22.260	2,190.8	20.82	112.65	79.0	152.6	0.0	386.6
100.0		0.2500	26.996	21.330	1,927.6	19.89	107.98	80.1	140.1	0.0	370.8
105.0		0.2500	25.830	20.400	1,686.3	18.96	103.32	81.1	128.1	0.0	355.0
110.0		0.2500	24.664	19.470	1,466.1	18.03	98.66	82.2	116.6	0.0	339.2
115.0		0.2500	23.498	18.540	1,265.9	17.10	93.99	82.6	105.7	0.0	323.4
119.0	Top - Section 3	0.2500	22.565	17.796	1,119.5	16.36	90.26	82.6	97.3	0.0	247.3
119.0	Bot - Section 4	0.1875	22.565	13.385	846.7	22.35	120.35	77.3	73.6	0.0	
119.7		0.1875	22.402	13.287	828.3	22.17	119.48	77.5	72.5	0.0	31.8
120.0		0.1875	22.332	13.245	820.5	22.10	119.10	77.6	72.1	0.0	13.5
125.0		0.1875	21.166	12.548	697.6	20.86	112.89	79.0	64.7	0.0	219.4
128.0		0.1875	20.466	12.129	630.1	20.12	109.15	79.8	60.4	0.0	126.0
130.0		0.1875	20.000	11.850	587.7	19.63	106.67	80.4	57.6	0.0	81.6
											16,646.8

95 mph with No Ice

23 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 1.20

Wind Load Factor : 1.60

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces			
		Wind FX	Dead Load	Wind FX	Torsion	Moment	Dead Load	Wind FX	Dead Load	Wind FX	Dead Load	Torsion
					MY	MZ	(lb)				(lb)	Moment
0.00		260.8	0.0					0.0	0.0	260.8	0.0	0.0
5.00		518.0	1,178.0					0.0	413.8	518.0	1,591.8	0.0
10.00		511.0	1,149.5					0.0	413.8	511.0	1,563.3	0.0
15.00		504.0	1,121.0					0.0	413.8	504.0	1,534.8	0.0
20.00		553.1	1,092.6					0.0	413.8	553.1	1,506.3	0.0
25.00		597.7	1,064.1					121.8	413.8	719.6	1,477.8	0.0
30.00		588.5	1,035.6					121.8	413.8	710.4	1,449.4	0.0
35.00		412.3	1,007.1					124.7	413.8	537.0	1,420.9	0.0
37.00	Bot - Section 2	300.1	394.9					51.4	165.5	351.5	560.4	0.0
40.00		363.8	1,078.7					78.6	248.3	442.3	1,326.9	0.0
43.00	Top - Section 1	304.0	1,059.9					80.3	248.3	384.3	1,308.1	0.0
45.00		426.5	319.5					54.4	165.5	480.9	485.0	0.0
50.00	Appertunance(s)	608.9	782.1	228.6	0.0	0.0	192.0	139.0	413.8	976.5	1,387.8	0.0
55.00		606.6	758.3					143.1	412.9	749.6	1,171.2	0.0
60.00		602.3	734.6					146.8	412.9	749.1	1,147.5	0.0
65.00		596.2	710.9					150.4	412.9	746.5	1,123.7	0.0
70.00	Appertunance(s)	588.5	687.2	180.3	0.0	0.0	16.8	153.7	412.9	922.5	1,116.8	0.0
75.00	Bot - Section 3	583.8	663.4					156.9	407.9	740.7	1,071.4	0.0
80.00	Top - Section 2	577.9	1,160.6					159.9	407.9	737.8	1,568.5	0.0
85.00		566.4	501.9					162.8	407.9	729.2	909.9	0.0
90.00	Appertunance(s)	553.7	482.9	6,214.6	0.0	0.0	5,202.1	165.5	407.9	6,933.9	6,093.0	0.0
95.00		540.0	464.0					168.2	210.7	708.2	674.6	0.0
100.00	Appertunance(s)	451.0	445.0	1,541.5	0.0	0.0	1,705.3	170.7	210.7	2,163.3	2,361.0	0.0
105.00		366.7	426.0					0.0	171.3	366.7	597.3	0.0
110.00	Appertunance(s)	361.4	407.0	1,968.2	0.0	0.0	2,124.0	0.0	171.3	2,329.6	2,702.3	0.0
115.00		320.6	388.0					0.0	127.0	320.6	515.0	0.0
119.00	Top - Section 3	165.9	296.7					0.0	101.6	165.9	398.4	0.0
119.70		33.1	38.1					0.0	17.8	33.1	55.9	0.0
120.00		148.8	16.3					0.0	4.7	148.8	20.9	0.0
125.00		221.4	263.3					0.0	78.2	221.4	341.5	0.0
128.00	Appertunance(s)	134.2	151.1	1,247.0	0.0	0.0	985.9	0.0	46.9	1,381.2	1,184.0	0.0
130.00		52.9	97.9					0.0	0.0	52.9	97.9	0.0
								Totals:		27,150.4	38,763.2	0.00
										0.00	0.00	0.00

Load Case: 1.2D + 1.6W**95 mph with No Ice****23 Iterations**

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 1.20

Wind Load Factor : 1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-41.75	-31.33	0.00	-2,687.79	0.00	2,687.79	3,933.71	1,966.86	7,926.85	3,935.22	0.00	0.00	0.694
5.00	-40.05	-30.96	0.00	-2,531.12	0.00	2,531.12	3,875.65	1,937.83	7,621.89	3,783.83	0.11	-0.21	0.680
10.00	-38.37	-30.59	0.00	-2,376.31	0.00	2,376.31	3,815.83	1,907.92	7,319.19	3,633.55	0.45	-0.42	0.664
15.00	-36.73	-30.21	0.00	-2,223.39	0.00	2,223.39	3,754.26	1,877.13	7,019.01	3,484.53	1.01	-0.64	0.648
20.00	-35.12	-29.77	0.00	-2,072.35	0.00	2,072.35	3,690.93	1,845.46	6,721.61	3,336.89	1.80	-0.86	0.631
25.00	-33.54	-29.15	0.00	-1,923.52	0.00	1,923.52	3,625.84	1,812.92	6,427.23	3,190.75	2.82	-1.08	0.612
30.00	-32.00	-28.53	0.00	-1,777.76	0.00	1,777.76	3,559.00	1,779.50	6,136.14	3,046.24	4.06	-1.30	0.593
35.00	-30.52	-28.04	0.00	-1,635.09	0.00	1,635.09	3,490.40	1,745.20	5,848.59	2,903.48	5.54	-1.51	0.572
37.00	-29.91	-27.74	0.00	-1,579.00	0.00	1,579.00	3,462.46	1,731.23	5,734.61	2,846.90	6.19	-1.60	0.564
40.00	-28.53	-27.32	0.00	-1,495.79	0.00	1,495.79	3,420.04	1,710.02	5,564.83	2,762.62	7.24	-1.74	0.550
43.00	-27.19	-26.95	0.00	-1,413.83	0.00	1,413.83	2,681.60	1,340.80	4,368.81	2,168.86	8.38	-1.87	0.662
45.00	-26.64	-26.53	0.00	-1,359.93	0.00	1,359.93	2,661.68	1,330.84	4,284.71	2,127.11	9.18	-1.96	0.650
50.00	-25.18	-25.61	0.00	-1,227.27	0.00	1,227.27	2,610.63	1,305.32	4,075.93	2,023.46	11.37	-2.21	0.617
55.00	-23.94	-24.92	0.00	-1,099.21	0.00	1,099.21	2,557.83	1,278.91	3,869.44	1,920.95	13.81	-2.45	0.582
60.00	-22.72	-24.21	0.00	-974.62	0.00	974.62	2,503.27	1,251.63	3,665.50	1,819.71	16.51	-2.69	0.545
65.00	-21.55	-23.49	0.00	-853.57	0.00	853.57	2,446.95	1,223.47	3,464.36	1,719.85	19.45	-2.92	0.505
70.00	-20.39	-22.59	0.00	-736.10	0.00	736.10	2,388.88	1,194.44	3,266.29	1,621.52	22.62	-3.14	0.463
75.00	-19.29	-21.86	0.00	-623.15	0.00	623.15	2,329.04	1,164.52	3,071.53	1,524.84	26.03	-3.35	0.417
80.00	-17.70	-21.09	0.00	-513.85	0.00	513.85	1,710.42	855.21	2,217.13	1,100.67	29.64	-3.55	0.478
85.00	-16.77	-20.35	0.00	-408.42	0.00	408.42	1,669.71	834.86	2,083.38	1,034.28	33.45	-3.72	0.406
90.00	-11.12	-13.06	0.00	-306.65	0.00	306.65	1,627.25	813.62	1,951.48	968.80	37.45	-3.91	0.324
95.00	-10.46	-12.34	0.00	-241.33	0.00	241.33	1,583.02	791.51	1,821.67	904.36	41.62	-4.06	0.274
100.00	-8.24	-10.03	0.00	-179.65	0.00	179.65	1,537.05	768.52	1,694.22	841.08	45.95	-4.20	0.219
105.00	-7.66	-9.63	0.00	-129.52	0.00	129.52	1,489.31	744.66	1,569.38	779.10	50.41	-4.31	0.172
110.00	-5.13	-7.11	0.00	-81.38	0.00	81.38	1,439.82	719.91	1,447.40	718.55	54.98	-4.40	0.117
115.00	-4.64	-6.75	0.00	-45.84	0.00	45.84	1,377.44	688.72	1,317.89	654.26	59.62	-4.46	0.074
119.00	-4.25	-6.56	0.00	-18.83	0.00	18.83	1,322.18	661.09	1,213.72	602.54	63.37	-4.49	0.035
119.00	-4.25	-6.56	0.00	-18.83	0.00	18.83	930.99	465.49	859.42	426.65	63.37	-4.49	0.049
119.70	-1.50	-1.93	0.00	-14.18	0.00	14.18	926.54	463.27	849.02	421.49	64.03	-4.50	0.035
120.00	-1.49	-1.78	0.00	-13.60	0.00	13.60	924.62	462.31	844.57	419.28	64.31	-4.50	0.034
125.00	-1.16	-1.53	0.00	-4.71	0.00	4.71	891.75	445.87	771.29	382.90	69.03	-4.51	0.014
128.00	-0.09	-0.06	0.00	-0.12	0.00	0.12	871.17	435.59	728.15	361.48	71.86	-4.52	0.000
130.00	0.00	-0.05	0.00	0.00	0.00	0.00	857.11	428.55	699.77	347.39	73.75	-4.52	0.000

Site Number: 370626

Code: ANSI/TIA-222-G

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Site Name: East Hartford, CT

Engineering Number: OAA663740_C3_02

7/8/2016 3:56:46 PM

Customer: METRO PCS INC

Load Case: 0.9D + 1.6W**95 mph with No Ice (Reduced DL)****23 Iterations**

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 0.90

Wind Load Factor : 1.60

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Torsion Wind FX (lb)	Moment MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	
0.00		209.4	0.0					0.0	0.0	209.4	0.0	0.0	
5.00		413.8	883.5					0.0	310.3	413.8	1,193.8	0.0	
10.00		403.7	862.1					0.0	310.3	403.7	1,172.5	0.0	
15.00		393.7	840.8					0.0	310.3	393.7	1,151.1	0.0	
20.00		497.2	819.4					0.0	310.3	497.2	1,129.7	0.0	
25.00		597.7	798.1					121.8	310.3	719.6	1,108.4	0.0	
30.00		588.5	776.7					121.8	310.3	710.4	1,087.0	0.0	
35.00		412.3	755.3					124.7	310.3	537.0	1,065.7	0.0	
37.00	Bot - Section 2	300.1	296.2					51.4	124.1	351.5	420.3	0.0	
40.00		363.8	809.0					78.6	186.2	442.3	995.2	0.0	
43.00	Top - Section 1	304.0	794.9					80.3	186.2	384.3	981.1	0.0	
45.00		426.5	239.6					54.4	124.1	480.9	363.7	0.0	
50.00	Appertunance(s)	608.9	586.6	228.6	0.0	0.0	144.0	139.0	310.3	976.5	1,040.9	0.0	
55.00		606.6	568.8					143.1	309.6	749.6	878.4	0.0	
60.00		602.3	551.0					146.8	309.6	749.1	860.6	0.0	
65.00		596.2	533.2					150.4	309.6	746.5	842.8	0.0	
70.00	Appertunance(s)	588.5	515.4	180.3	0.0	0.0	12.6	153.7	309.6	922.5	837.6	0.0	
75.00	Bot - Section 3	583.8	497.6					156.9	306.0	740.7	803.5	0.0	
80.00	Top - Section 2	577.9	870.5					159.9	306.0	737.8	1,176.4	0.0	
85.00		566.4	376.4					162.8	306.0	729.2	682.4	0.0	
90.00	Appertunance(s)	553.7	362.2	6,214.6	0.0	0.0	3,901.6	165.5	306.0	6,933.9	4,569.8	0.0	
95.00		540.0	348.0					168.2	158.0	708.2	506.0	0.0	
100.00	Appertunance(s)	428.2	333.7	1,541.5	0.0	0.0	1,279.0	170.7	158.0	2,140.5	1,770.7	0.0	
105.00		318.5	319.5					0.0	128.5	318.5	448.0	0.0	
110.00	Appertunance(s)	308.2	305.3	1,968.2	0.0	0.0	1,593.0	0.0	128.5	2,276.5	2,026.7	0.0	
115.00		268.7	291.0					0.0	95.3	268.7	386.3	0.0	
119.00	Top - Section 3	137.3	222.6					0.0	76.2	137.3	298.8	0.0	
119.70		28.7	28.6					0.0	13.3	28.7	41.9	0.0	
120.00		148.8	12.2					0.0	3.5	148.8	15.7	0.0	
125.00		221.4	197.5					0.0	58.6	221.4	256.1	0.0	
128.00	Appertunance(s)	134.2	113.4	1,247.0	0.0	0.0	739.4	0.0	35.2	1,381.2	888.0	0.0	
130.00		52.9	73.4					0.0	0.0	52.9	73.4	0.0	
Totals:											26,512.2	29,072.4	0.00
													0.00

Load Case: 0.9D + 1.6W**95 mph with No Ice (Reduced DL)****23 Iterations**

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 0.90

Wind Load Factor : 1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-31.30	-30.73	0.00	-2,634.46	0.00	2,634.46	3,933.71	1,966.86	7,926.85	3,935.22	0.00	0.00	0.678
5.00	-30.00	-30.42	0.00	-2,480.83	0.00	2,480.83	3,875.65	1,937.83	7,621.89	3,783.83	0.11	-0.21	0.664
10.00	-28.72	-30.12	0.00	-2,328.74	0.00	2,328.74	3,815.83	1,907.92	7,319.19	3,633.55	0.44	-0.42	0.649
15.00	-27.46	-29.81	0.00	-2,178.16	0.00	2,178.16	3,754.26	1,877.13	7,019.01	3,484.53	0.99	-0.63	0.633
20.00	-26.23	-29.40	0.00	-2,029.10	0.00	2,029.10	3,690.93	1,845.46	6,721.61	3,336.89	1.76	-0.84	0.615
25.00	-25.03	-28.76	0.00	-1,882.10	0.00	1,882.10	3,625.84	1,812.92	6,427.23	3,190.75	2.76	-1.05	0.597
30.00	-23.85	-28.11	0.00	-1,738.33	0.00	1,738.33	3,559.00	1,779.50	6,136.14	3,046.24	3.98	-1.27	0.578
35.00	-22.72	-27.61	0.00	-1,597.77	0.00	1,597.77	3,490.40	1,745.20	5,848.59	2,903.48	5.42	-1.48	0.557
37.00	-22.26	-27.29	0.00	-1,542.55	0.00	1,542.55	3,462.46	1,731.23	5,734.61	2,846.90	6.06	-1.57	0.549
40.00	-21.22	-26.87	0.00	-1,460.68	0.00	1,460.68	3,420.04	1,710.02	5,564.83	2,762.62	7.09	-1.70	0.535
43.00	-20.20	-26.49	0.00	-1,380.08	0.00	1,380.08	2,681.60	1,340.80	4,368.81	2,168.86	8.21	-1.83	0.644
45.00	-19.78	-26.06	0.00	-1,327.10	0.00	1,327.10	2,661.68	1,330.84	4,284.71	2,127.11	8.99	-1.92	0.632
50.00	-18.67	-25.12	0.00	-1,196.82	0.00	1,196.82	2,610.63	1,305.32	4,075.93	2,023.46	11.13	-2.16	0.599
55.00	-17.72	-24.41	0.00	-1,071.22	0.00	1,071.22	2,557.83	1,278.91	3,869.44	1,920.95	13.52	-2.40	0.565
60.00	-16.80	-23.69	0.00	-949.17	0.00	949.17	2,503.27	1,251.63	3,665.50	1,819.71	16.16	-2.63	0.529
65.00	-15.90	-22.97	0.00	-830.72	0.00	830.72	2,446.95	1,223.47	3,464.36	1,719.85	19.03	-2.85	0.490
70.00	-15.03	-22.06	0.00	-715.89	0.00	715.89	2,388.88	1,194.44	3,266.29	1,621.52	22.13	-3.07	0.448
75.00	-14.20	-21.32	0.00	-605.61	0.00	605.61	2,329.04	1,164.52	3,071.53	1,524.84	25.46	-3.27	0.404
80.00	-13.00	-20.56	0.00	-499.01	0.00	499.01	1,710.42	855.21	2,217.13	1,100.67	28.99	-3.46	0.462
85.00	-12.31	-19.82	0.00	-396.23	0.00	396.23	1,669.71	834.86	2,083.38	1,034.28	32.71	-3.63	0.391
90.00	-8.16	-12.63	0.00	-297.10	0.00	297.10	1,627.25	813.62	1,951.48	968.80	36.61	-3.81	0.312
95.00	-7.67	-11.91	0.00	-233.95	0.00	233.95	1,583.02	791.51	1,821.67	904.36	40.68	-3.96	0.264
100.00	-6.04	-9.66	0.00	-174.40	0.00	174.40	1,537.05	768.52	1,694.22	841.08	44.90	-4.10	0.211
105.00	-5.60	-9.32	0.00	-126.08	0.00	126.08	1,489.31	744.66	1,569.38	779.10	49.25	-4.21	0.166
110.00	-3.74	-6.91	0.00	-79.47	0.00	79.47	1,439.82	719.91	1,447.40	718.55	53.70	-4.29	0.113
115.00	-3.37	-6.61	0.00	-44.94	0.00	44.94	1,377.44	688.72	1,317.89	654.26	58.23	-4.35	0.071
119.00	-3.08	-6.45	0.00	-18.49	0.00	18.49	1,322.18	661.09	1,213.72	602.54	61.89	-4.38	0.033
119.00	-3.08	-6.45	0.00	-18.49	0.00	18.49	930.99	465.49	859.42	426.65	61.89	-4.38	0.047
119.70	-1.09	-1.89	0.00	-13.91	0.00	13.91	926.54	463.27	849.02	421.49	62.53	-4.39	0.034
120.00	-1.09	-1.74	0.00	-13.35	0.00	13.35	924.62	462.31	844.57	419.28	62.81	-4.39	0.033
125.00	-0.85	-1.50	0.00	-4.63	0.00	4.63	891.75	445.87	771.29	382.90	67.41	-4.40	0.013
128.00	-0.07	-0.06	0.00	-0.12	0.00	0.12	871.17	435.59	728.15	361.48	70.17	-4.41	0.000
130.00	0.00	-0.05	0.00	0.00	0.00	0.00	857.11	428.55	699.77	347.39	72.02	-4.41	0.000

Site Number: 370626

Code: ANSI/TIA-222-G

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Site Name: East Hartford, CT

Engineering Number: OAA663740_C3_02

7/8/2016 3:56:49 PM

Customer: METRO PCS INC

Load Case: 1.2D + 1.0Di + 1.0Wi**50 mph with 1.00 in Radial Ice****22 Iterations**

Gust Response Factor : 1.10

Ice Dead Load Factor : 1.00

Wind Importance Factor : 1.00

Dead Load Factor : 1.20

Ice Importance Factor : 1.00

Wind Load Factor : 1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces			
		Wind FX (lb)	Dead Load (lb)	Torsion Wind FX (lb)	Moment MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)
0.00		61.6	0.0					0.0	0.0	61.6	0.0	0.0
5.00		122.3	1,662.1					0.0	659.0	122.3	2,321.1	0.0
10.00		120.1	1,679.0					0.0	694.8	120.1	2,373.9	0.0
15.00		117.7	1,665.9					0.0	713.6	117.7	2,379.6	0.0
20.00		115.2	1,643.0					0.0	726.8	115.2	2,369.8	0.0
25.00		112.6	1,614.9					57.1	737.1	169.7	2,352.0	0.0
30.00		111.3	1,583.6					57.9	745.7	169.1	2,329.2	0.0
35.00		78.2	1,550.0					59.9	753.0	138.0	2,303.0	0.0
37.00	Bot - Section 2	57.0	612.0					24.8	303.0	81.8	915.0	0.0
40.00		69.2	1,406.0					38.1	456.3	107.3	1,862.4	0.0
43.00	Top - Section 1	57.9	1,384.4					39.1	458.4	97.1	1,842.8	0.0
45.00		81.5	534.7					26.6	306.7	108.2	841.4	0.0
50.00	Appertunance(s)	116.7	1,309.3	55.6	0.0	0.0	247.9	68.4	770.3	240.7	2,327.5	0.0
55.00		116.7	1,275.7					70.8	774.1	187.6	2,049.8	0.0
60.00		116.4	1,241.3					73.1	778.5	189.5	2,019.8	0.0
65.00		115.7	1,206.4					75.3	782.5	191.0	1,988.9	0.0
70.00	Appertunance(s)	114.7	1,170.8	42.6	0.0	0.0	69.2	77.4	786.3	234.7	2,026.4	0.0
75.00	Bot - Section 3	114.3	1,134.8					79.3	785.0	193.6	1,919.8	0.0
80.00	Top - Section 2	113.6	1,626.2					81.2	788.3	194.8	2,414.5	0.0
85.00		111.9	954.4					83.0	791.5	195.0	1,746.0	0.0
90.00	Appertunance(s)	110.0	922.0	1,489.4	0.0	0.0	15,100.2	84.8	794.5	1,684.2	16,816.8	0.0
95.00		108.0	889.3					86.4	600.2	194.4	1,489.5	0.0
100.00	Appertunance(s)	105.7	856.3	411.4	0.0	0.0	3,731.0	88.1	602.9	605.1	5,190.2	0.0
105.00		103.3	823.0					0.0	376.5	103.3	1,199.6	0.0
110.00	Appertunance(s)	100.7	789.5	558.6	0.0	0.0	4,406.8	0.0	377.7	659.3	5,574.0	0.0
115.00		88.4	755.7					0.0	334.6	88.4	1,090.4	0.0
119.00	Top - Section 3	45.4	581.5					0.0	268.5	45.4	850.0	0.0
119.70		9.5	87.7					0.0	47.1	9.5	134.8	0.0
120.00		49.7	37.5					0.0	4.7	49.7	42.1	0.0
125.00		74.2	600.8					0.0	78.2	74.2	679.0	0.0
128.00	Appertunance(s)	45.3	348.3	335.5	0.0	0.0	2,630.8	0.0	46.9	380.8	3,026.0	0.0
130.00		17.9	226.9					0.0	0.0	17.9	226.9	0.0
												Totals: 6,947.59 74,702.0 0.00 0.00

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 1.00 in Radial Ice

22 Iterations

Gust Response Factor : 1.10

Ice Dead Load Factor : 1.00

Wind Importance Factor : 1.00

Dead Load Factor : 1.20

Ice Importance Factor : 1.00

Wind Load Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-83.24	-8.01	0.00	-734.92	0.00	734.92	3,933.71	1,966.86	7,926.85	3,935.22	0.00	0.00	0.208
5.00	-80.91	-7.97	0.00	-694.87	0.00	694.87	3,875.65	1,937.83	7,621.89	3,783.83	0.03	-0.06	0.205
10.00	-78.52	-7.93	0.00	-655.02	0.00	655.02	3,815.83	1,907.92	7,319.19	3,633.55	0.12	-0.12	0.201
15.00	-76.14	-7.88	0.00	-615.39	0.00	615.39	3,754.26	1,877.13	7,019.01	3,484.53	0.28	-0.18	0.197
20.00	-73.76	-7.84	0.00	-575.98	0.00	575.98	3,690.93	1,845.46	6,721.61	3,336.89	0.49	-0.24	0.193
25.00	-71.40	-7.73	0.00	-536.79	0.00	536.79	3,625.84	1,812.92	6,427.23	3,190.75	0.77	-0.30	0.188
30.00	-69.06	-7.62	0.00	-498.13	0.00	498.13	3,559.00	1,779.50	6,136.14	3,046.24	1.12	-0.36	0.183
35.00	-66.76	-7.52	0.00	-460.01	0.00	460.01	3,490.40	1,745.20	5,848.59	2,903.48	1.53	-0.42	0.178
37.00	-65.84	-7.47	0.00	-444.97	0.00	444.97	3,462.46	1,731.23	5,734.61	2,846.90	1.71	-0.45	0.175
40.00	-63.97	-7.39	0.00	-422.57	0.00	422.57	3,420.04	1,710.02	5,564.83	2,762.62	2.00	-0.48	0.172
43.00	-62.13	-7.31	0.00	-400.41	0.00	400.41	2,681.60	1,340.80	4,368.81	2,168.86	2.32	-0.52	0.208
45.00	-61.28	-7.24	0.00	-385.79	0.00	385.79	2,661.68	1,330.84	4,284.71	2,127.11	2.54	-0.55	0.204
50.00	-58.95	-7.05	0.00	-349.57	0.00	349.57	2,610.63	1,305.32	4,075.93	2,023.46	3.15	-0.62	0.195
55.00	-56.89	-6.91	0.00	-314.31	0.00	314.31	2,557.83	1,278.91	3,869.44	1,920.95	3.83	-0.69	0.186
60.00	-54.86	-6.76	0.00	-279.77	0.00	279.77	2,503.27	1,251.63	3,665.50	1,819.71	4.59	-0.75	0.176
65.00	-52.87	-6.60	0.00	-245.98	0.00	245.98	2,446.95	1,223.47	3,464.36	1,719.85	5.42	-0.82	0.165
70.00	-50.84	-6.39	0.00	-212.98	0.00	212.98	2,388.88	1,194.44	3,266.29	1,621.52	6.31	-0.88	0.153
75.00	-48.92	-6.22	0.00	-181.03	0.00	181.03	2,329.04	1,164.52	3,071.53	1,524.84	7.27	-0.94	0.140
80.00	-46.50	-6.03	0.00	-149.94	0.00	149.94	1,710.42	855.21	2,217.13	1,100.67	8.29	-1.00	0.163
85.00	-44.75	-5.84	0.00	-119.82	0.00	119.82	1,669.71	834.86	2,083.38	1,034.28	9.37	-1.05	0.143
90.00	-27.97	-3.86	0.00	-90.61	0.00	90.61	1,627.25	813.62	1,951.48	968.80	10.50	-1.11	0.111
95.00	-26.48	-3.66	0.00	-71.30	0.00	71.30	1,583.02	791.51	1,821.67	904.36	11.69	-1.15	0.096
100.00	-21.30	-2.96	0.00	-53.00	0.00	53.00	1,537.05	768.52	1,694.22	841.08	12.92	-1.19	0.077
105.00	-20.10	-2.84	0.00	-38.19	0.00	38.19	1,489.31	744.66	1,569.38	779.10	14.19	-1.23	0.063
110.00	-14.54	-2.07	0.00	-23.98	0.00	23.98	1,439.82	719.91	1,447.40	718.55	15.49	-1.25	0.043
115.00	-13.46	-1.96	0.00	-13.63	0.00	13.63	1,377.44	688.72	1,317.89	654.26	16.81	-1.27	0.031
119.00	-12.61	-1.90	0.00	-5.79	0.00	5.79	1,322.18	661.09	1,213.72	602.54	17.88	-1.28	0.019
119.00	-12.61	-1.90	0.00	-5.79	0.00	5.79	930.99	465.49	859.42	426.65	17.88	-1.28	0.027
119.70	-3.96	-0.61	0.00	-4.45	0.00	4.45	926.54	463.27	849.02	421.49	18.07	-1.28	0.015
120.00	-3.92	-0.56	0.00	-4.26	0.00	4.26	924.62	462.31	844.57	419.28	18.15	-1.28	0.014
125.00	-3.24	-0.47	0.00	-1.46	0.00	1.46	891.75	445.87	771.29	382.90	19.50	-1.29	0.007
128.00	-0.23	-0.02	0.00	-0.05	0.00	0.05	871.17	435.59	728.15	361.48	20.31	-1.29	0.000
130.00	0.00	-0.02	0.00	0.00	0.00	0.00	857.11	428.55	699.77	347.39	20.84	-1.29	0.000

Serviceability 60 mph

22 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 1.00

Wind Load Factor : 1.00

Applied Segment Forces Summary

Load Case: 1.0D + 1.0W**Serviceability 60 mph****22 Iterations**

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 1.00

Wind Load Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-34.84	-7.66	0.00	-659.39	0.00	659.39	3,933.71	1,966.86	7,926.85	3,935.22	0.00	0.00	0.176
5.00	-33.51	-7.59	0.00	-621.08	0.00	621.08	3,875.65	1,937.83	7,621.89	3,783.83	0.03	-0.05	0.173
10.00	-32.20	-7.52	0.00	-583.14	0.00	583.14	3,815.83	1,907.92	7,319.19	3,633.55	0.11	-0.10	0.169
15.00	-30.91	-7.44	0.00	-545.56	0.00	545.56	3,754.26	1,877.13	7,019.01	3,484.53	0.25	-0.16	0.165
20.00	-29.65	-7.34	0.00	-508.34	0.00	508.34	3,690.93	1,845.46	6,721.61	3,336.89	0.44	-0.21	0.160
25.00	-28.41	-7.19	0.00	-471.63	0.00	471.63	3,625.84	1,812.92	6,427.23	3,190.75	0.69	-0.26	0.156
30.00	-27.20	-7.03	0.00	-435.70	0.00	435.70	3,559.00	1,779.50	6,136.14	3,046.24	1.00	-0.32	0.151
35.00	-26.01	-6.90	0.00	-400.57	0.00	400.57	3,490.40	1,745.20	5,848.59	2,903.48	1.36	-0.37	0.145
37.00	-25.54	-6.82	0.00	-386.76	0.00	386.76	3,462.46	1,731.23	5,734.61	2,846.90	1.52	-0.39	0.143
40.00	-24.43	-6.72	0.00	-366.29	0.00	366.29	3,420.04	1,710.02	5,564.83	2,762.62	1.78	-0.43	0.140
43.00	-23.34	-6.63	0.00	-346.12	0.00	346.12	2,681.60	1,340.80	4,368.81	2,168.86	2.06	-0.46	0.168
45.00	-22.93	-6.52	0.00	-332.87	0.00	332.87	2,661.68	1,330.84	4,284.71	2,127.11	2.25	-0.48	0.165
50.00	-21.77	-6.29	0.00	-300.27	0.00	300.27	2,610.63	1,305.32	4,075.93	2,023.46	2.79	-0.54	0.157
55.00	-20.79	-6.11	0.00	-268.82	0.00	268.82	2,557.83	1,278.91	3,869.44	1,920.95	3.39	-0.60	0.148
60.00	-19.83	-5.94	0.00	-238.24	0.00	238.24	2,503.27	1,251.63	3,665.50	1,819.71	4.05	-0.66	0.139
65.00	-18.89	-5.76	0.00	-208.56	0.00	208.56	2,446.95	1,223.47	3,464.36	1,719.85	4.77	-0.71	0.129
70.00	-17.96	-5.53	0.00	-179.77	0.00	179.77	2,388.88	1,194.44	3,266.29	1,621.52	5.55	-0.77	0.118
75.00	-17.07	-5.35	0.00	-152.11	0.00	152.11	2,329.04	1,164.52	3,071.53	1,524.84	6.38	-0.82	0.107
80.00	-15.76	-5.16	0.00	-125.35	0.00	125.35	1,710.42	855.21	2,217.13	1,100.67	7.27	-0.87	0.123
85.00	-15.00	-4.98	0.00	-99.56	0.00	99.56	1,669.71	834.86	2,083.38	1,034.28	8.20	-0.91	0.105
90.00	-9.95	-3.17	0.00	-74.67	0.00	74.67	1,627.25	813.62	1,951.48	968.80	9.18	-0.96	0.083
95.00	-9.39	-2.99	0.00	-58.80	0.00	58.80	1,583.02	791.51	1,821.67	904.36	10.20	-0.99	0.071
100.00	-7.43	-2.43	0.00	-43.83	0.00	43.83	1,537.05	768.52	1,694.22	841.08	11.26	-1.03	0.057
105.00	-6.93	-2.34	0.00	-31.69	0.00	31.69	1,489.31	744.66	1,569.38	779.10	12.35	-1.06	0.045
110.00	-4.69	-1.74	0.00	-19.97	0.00	19.97	1,439.82	719.91	1,447.40	718.55	13.47	-1.08	0.031
115.00	-4.26	-1.66	0.00	-11.29	0.00	11.29	1,377.44	688.72	1,317.89	654.26	14.61	-1.09	0.020
119.00	-3.93	-1.62	0.00	-4.65	0.00	4.65	1,322.18	661.09	1,213.72	602.54	15.53	-1.10	0.011
119.00	-3.93	-1.62	0.00	-4.65	0.00	4.65	930.99	465.49	859.42	426.65	15.53	-1.10	0.015
119.70	-1.36	-0.48	0.00	-3.50	0.00	3.50	926.54	463.27	849.02	421.49	15.69	-1.10	0.010
120.00	-1.34	-0.44	0.00	-3.36	0.00	3.36	924.62	462.31	844.57	419.28	15.76	-1.10	0.009
125.00	-1.06	-0.38	0.00	-1.16	0.00	1.16	891.75	445.87	771.29	382.90	16.91	-1.10	0.004
128.00	-0.08	-0.01	0.00	-0.03	0.00	0.03	871.17	435.59	728.15	361.48	17.61	-1.11	0.000
130.00	0.00	-0.01	0.00	0.00	0.00	0.00	857.11	428.55	699.77	347.39	18.07	-1.11	0.000

Equivalent Lateral Forces Method Analysis

(Based on ASCE7-10 Chapters 11, 12, 15)

Spectral Response Acceleration for Short Period (S_s):	0.18
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Long-Period Transition Period (T_L):	6
Importance Factor (I_E):	1.00
Site Coefficient F_a :	1.60
Site Coeffiecient F_v :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.19
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Seismic Response Coefficient (C_s):	0.03
Upper Limit C_s	0.03
Lower Limit C_s	0.03
Period based on Rayleigh Method (sec):	1.96
Redundancy Factor (p):	1.30
Seismic Force Distribution Exponent (k):	1.73
Total Unfactored Dead Load:	34.85 k
Seismic Base Shear (E):	1.58 k

Load Case (1.2 + 0.2Sds) * DL + E ELF**Seismic Equivalent Lateral Forces Method**

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
31	129.00	82	364	0.006	9	101
30	126.50	165	712	0.012	18	204
29	122.50	285	1,162	0.019	30	352
28	119.85	17	69	0.001	2	22
27	119.35	47	182	0.003	5	58
26	117.00	332	1,252	0.020	32	411
25	112.50	429	1,512	0.025	39	532
24	107.50	482	1,570	0.026	41	597
23	102.50	498	1,493	0.024	39	616
22	97.50	546	1,503	0.025	39	677
21	92.50	562	1,412	0.023	36	696
20	87.50	742	1,694	0.028	44	919
19	82.50	758	1,562	0.026	40	939
18	77.50	1,307	2,418	0.040	62	1,619
17	72.50	893	1,471	0.024	38	1,106
16	67.50	917	1,335	0.022	34	1,135
15	62.50	936	1,194	0.020	31	1,160
14	57.50	956	1,056	0.017	27	1,184
13	52.50	976	921	0.015	24	1,209
12	47.50	997	791	0.013	20	1,234
11	44.00	404	281	0.005	7	500
10	41.50	1,090	685	0.011	18	1,350
9	38.50	1,106	610	0.010	16	1,369

Site Number: 370626

Code: ANSI/TIA-222-G

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Site Name: East Hartford, CT

Engineering Number: OAA663740_C3_02

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Customer: METRO PCS INC

8	36.00	467	229	0.004	6	578
7	32.50	1,184	487	0.008	13	1,466
6	27.50	1,208	372	0.006	10	1,496
5	22.50	1,232	268	0.004	7	1,525
4	17.50	1,255	177	0.003	5	1,555
3	12.50	1,279	101	0.002	3	1,584
2	7.50	1,303	42	0.001	1	1,613
1	2.50	1,326	6	0.000	0	1,643
DragonWave Horizon C	128.00	34	152	0.002	4	43
BTS	128.00	60	264	0.004	7	74
Argus LLPX310R	128.00	86	378	0.006	10	106
DragonWave A-ANT-18G	128.00	81	358	0.006	9	101
Side Arms	128.00	560	2,466	0.040	64	694
Alcatel-Lucent RRH2x	119.70	170	667	0.011	17	211
Alcatel-Lucent PCS B	119.70	165	647	0.011	17	204
Alcatel-Lucent RRH4X	119.70	192	753	0.012	19	238
Andrew DB844G65ZAXY	119.70	72	282	0.005	7	89
RFS DB-T1-6Z-8AB-0Z	119.70	88	345	0.006	9	109
Antel BXA-70063-6CF-	119.70	51	200	0.003	5	63
Andrew SBNHH-1D65B	119.70	304	1,193	0.020	31	377
Flat Low Profile Pla	119.70	1,500	5,883	0.096	152	1,858
48" x 12" Panel	110.00	270	915	0.015	24	334
Round Low Profile Pl	110.00	1,500	5,084	0.083	131	1,858
Ericsson AIR 21, 1.3	100.00	275	789	0.013	20	340
Ericsson AIR-32 B2A/	100.00	397	1,140	0.019	29	491
Round T-Arm	100.00	750	2,156	0.035	56	929
14" x 9" TTA	90.00	60	144	0.002	4	74
Raycap DC6-48-60-18-	90.00	80	192	0.003	5	99
Ericsson RRUS A2 Mod	90.00	132	316	0.005	8	163
Ericsson RRUS 12 w/	90.00	521	1,248	0.020	32	645
Ericsson RRUS-32 (77	90.00	231	553	0.009	14	286
Ericsson RRUS-11	90.00	495	1,186	0.019	31	613
CCI HPA-65R-BUU-H8	90.00	816	1,955	0.032	50	1,011
Round Platform w/ Ha	90.00	2,000	4,791	0.078	124	2,477
2' Std. Dish	70.00	14	22	0.000	1	17
GPS	50.00	10	9	0.000	0	12
Flat Side Arm	50.00	150	130	0.002	3	186
		34,845	61,148	1.000	1,579	43,152

Load Case (0.9 - 0.2Sds) * DL + E ELFMSeismic (Reduced DL) Equivalent Lateral Forces Method

Segment	Height Above Base	Weight (lb)	W _z (lb-ft)	Horizontal Force (lb)		Vertical Force (lb)
	Segment			C _{vx}	(lb)	
31	129.00	82	364	0.006	9	70
30	126.50	165	712	0.012	18	142
29	122.50	285	1,162	0.019	30	245
28	119.85	17	69	0.001	2	15
27	119.35	47	182	0.003	5	40
26	117.00	332	1,252	0.020	32	286
25	112.50	429	1,512	0.025	39	370
24	107.50	482	1,570	0.026	41	415
23	102.50	498	1,493	0.024	39	429
22	97.50	546	1,503	0.025	39	471
21	92.50	562	1,412	0.023	36	484
20	87.50	742	1,694	0.028	44	640
19	82.50	758	1,562	0.026	40	653
18	77.50	1,307	2,418	0.040	62	1,126
17	72.50	893	1,471	0.024	38	769
16	67.50	917	1,335	0.022	34	790
15	62.50	936	1,194	0.020	31	807

Site Number: 370626

Code: ANSI/TIA-222-G

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Site Name: East Hartford, CT

Engineering Number: OAA663740_C3_02

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Customer: METRO PCS INC

14	57.50	956	1,056	0.017	27	824
13	52.50	976	921	0.015	24	841
12	47.50	997	791	0.013	20	859
11	44.00	404	281	0.005	7	348
10	41.50	1,090	685	0.011	18	939
9	38.50	1,106	610	0.010	16	953
8	36.00	467	229	0.004	6	402
7	32.50	1,184	487	0.008	13	1,020
6	27.50	1,208	372	0.006	10	1,041
5	22.50	1,232	268	0.004	7	1,061
4	17.50	1,255	177	0.003	5	1,082
3	12.50	1,279	101	0.002	3	1,102
2	7.50	1,303	42	0.001	1	1,122
1	2.50	1,326	6	0.000	0	1,143
DragonWave Horizon C	128.00	34	152	0.002	4	30
BTS	128.00	60	264	0.004	7	52
Argus LLPX310R	128.00	86	378	0.006	10	74
DragonWave A-ANT-18G	128.00	81	358	0.006	9	70
Side Arms	128.00	560	2,466	0.040	64	482
Alcatel-Lucent RRH2x	119.70	170	667	0.011	17	147
Alcatel-Lucent PCS B	119.70	165	647	0.011	17	142
Alcatel-Lucent RRH4X	119.70	192	753	0.012	19	165
Andrew DB844G65ZAXY	119.70	72	282	0.005	7	62
RFS DB-T1-6Z-8AB-0Z	119.70	88	345	0.006	9	76
Antel BXA-70063-6CF-	119.70	51	200	0.003	5	44
Andrew SBNHH-1D65B	119.70	304	1,193	0.020	31	262
Flat Low Profile Pla	119.70	1,500	5,883	0.096	152	1,292
48" x 12" Panel	110.00	270	915	0.015	24	233
Round Low Profile Pl	110.00	1,500	5,084	0.083	131	1,292
Ericsson AIR 21, 1.3	100.00	275	789	0.013	20	237
Ericsson AIR-32 B2A/	100.00	397	1,140	0.019	29	342
Round T-Arm	100.00	750	2,156	0.035	56	646
14" x 9" TTA	90.00	60	144	0.002	4	52
Raycap DC6-48-60-18-	90.00	80	192	0.003	5	69
Ericsson RRUS A2 Mod	90.00	132	316	0.005	8	114
Ericsson RRUS 12 w/	90.00	521	1,248	0.020	32	449
Ericsson RRUS-32 (77	90.00	231	553	0.009	14	199
Ericsson RRUS-11	90.00	495	1,186	0.019	31	426
CCI HPA-65R-BUU-H8	90.00	816	1,955	0.032	50	703
Round Platform w/ Ha	90.00	2,000	4,791	0.078	124	1,723
2' Std. Dish	70.00	14	22	0.000	1	12
GPS	50.00	10	9	0.000	0	9
Flat Side Arm	50.00	150	130	0.002	3	129
		34,845	61,148	1.000	1,579	30,022

Load Case (1.2 + 0.2Sds) * DL + E ELFM**Seismic Equivalent Lateral Forces Method****Calculated Forces**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-41.51	-1.58	0.00	-155.92	0.00	155.92	3,933.71	1,966.86	7,926.85	3,935.22	0.00	0.00	0.050
5.00	-39.90	-1.59	0.00	-148.00	0.00	148.00	3,875.65	1,937.83	7,621.89	3,783.83	0.01	-0.01	0.049
10.00	-38.31	-1.60	0.00	-140.05	0.00	140.05	3,815.83	1,907.92	7,319.19	3,633.55	0.03	-0.02	0.049
15.00	-36.76	-1.60	0.00	-132.07	0.00	132.07	3,754.26	1,877.13	7,019.01	3,484.53	0.06	-0.04	0.048
20.00	-35.23	-1.60	0.00	-124.08	0.00	124.08	3,690.93	1,845.46	6,721.61	3,336.89	0.11	-0.05	0.047
25.00	-33.73	-1.60	0.00	-116.09	0.00	116.09	3,625.84	1,812.92	6,427.23	3,190.75	0.17	-0.06	0.046
30.00	-32.27	-1.59	0.00	-108.11	0.00	108.11	3,559.00	1,779.50	6,136.14	3,046.24	0.24	-0.08	0.045
35.00	-31.69	-1.59	0.00	-100.17	0.00	100.17	3,490.40	1,745.20	5,848.59	2,903.48	0.33	-0.09	0.044
37.00	-30.32	-1.57	0.00	-97.00	0.00	97.00	3,462.46	1,731.23	5,734.61	2,846.90	0.37	-0.10	0.043
40.00	-28.97	-1.56	0.00	-92.28	0.00	92.28	3,420.04	1,710.02	5,564.83	2,762.62	0.43	-0.10	0.042
43.00	-28.47	-1.55	0.00	-87.61	0.00	87.61	2,681.60	1,340.80	4,368.81	2,168.86	0.50	-0.11	0.051
45.00	-27.23	-1.53	0.00	-84.51	0.00	84.51	2,661.68	1,330.84	4,284.71	2,127.11	0.55	-0.12	0.050
50.00	-25.83	-1.51	0.00	-76.84	0.00	76.84	2,610.63	1,305.32	4,075.93	2,023.46	0.68	-0.13	0.048
55.00	-24.64	-1.49	0.00	-69.29	0.00	69.29	2,557.83	1,278.91	3,869.44	1,920.95	0.83	-0.15	0.046
60.00	-23.48	-1.46	0.00	-61.86	0.00	61.86	2,503.27	1,251.63	3,665.50	1,819.71	0.99	-0.16	0.043
65.00	-22.35	-1.43	0.00	-54.56	0.00	54.56	2,446.95	1,223.47	3,464.36	1,719.85	1.17	-0.18	0.041
70.00	-21.22	-1.39	0.00	-47.43	0.00	47.43	2,388.88	1,194.44	3,266.29	1,621.52	1.36	-0.19	0.038
75.00	-19.61	-1.33	0.00	-40.48	0.00	40.48	2,329.04	1,164.52	3,071.53	1,524.84	1.57	-0.21	0.035
80.00	-18.67	-1.29	0.00	-33.85	0.00	33.85	1,710.42	855.21	2,217.13	1,100.67	1.79	-0.22	0.042
85.00	-17.75	-1.24	0.00	-27.42	0.00	27.42	1,669.71	834.86	2,083.38	1,034.28	2.03	-0.23	0.037
90.00	-11.68	-0.92	0.00	-21.21	0.00	21.21	1,627.25	813.62	1,951.48	968.80	2.28	-0.24	0.029
95.00	-11.01	-0.88	0.00	-16.63	0.00	16.63	1,583.02	791.51	1,821.67	904.36	2.54	-0.25	0.025
100.00	-8.63	-0.72	0.00	-12.26	0.00	12.26	1,537.05	768.52	1,694.22	841.08	2.81	-0.26	0.020
105.00	-8.03	-0.68	0.00	-8.64	0.00	8.64	1,489.31	744.66	1,569.38	779.10	3.09	-0.27	0.016
110.00	-5.31	-0.47	0.00	-5.25	0.00	5.25	1,439.82	719.91	1,447.40	718.55	3.38	-0.28	0.011
115.00	-4.90	-0.44	0.00	-2.88	0.00	2.88	1,377.44	688.72	1,317.89	654.26	3.67	-0.28	0.008
119.00	-1.70	-0.16	0.00	-1.12	0.00	1.12	1,322.18	661.09	1,213.72	602.54	3.91	-0.28	0.003
119.00	-1.70	-0.16	0.00	-1.12	0.00	1.12	930.99	465.49	859.42	426.65	3.91	-0.28	0.004
119.70	-1.67	-0.16	0.00	-1.01	0.00	1.01	926.54	463.27	849.02	421.49	3.95	-0.28	0.004
120.00	-1.32	-0.13	0.00	-0.96	0.00	0.96	924.62	462.31	844.57	419.28	3.96	-0.28	0.004
125.00	-1.12	-0.11	0.00	-0.32	0.00	0.32	891.75	445.87	771.29	382.90	4.26	-0.28	0.002
128.00	0.00	0.00	0.00	0.00	0.00	0.00	871.17	435.59	728.15	361.48	4.44	-0.28	0.000
130.00	0.00	0.00	0.00	0.00	0.00	0.00	857.11	428.55	699.77	347.39	4.56	-0.28	0.000

Site Number: 370626

Code: ANSI/TIA-222-G

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Site Name: East Hartford, CT

Engineering Number: OAA663740_C3_02

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Customer: METRO PCS INC

Load Case (0.9 - 0.2Sds) * DL + E ELFM**Seismic (Reduced DL) Equivalent Lateral Forces Method****Calculated Forces**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Deflect Rotation (deg)	Ratio
0.00	-28.88	-1.58	0.00	-154.01	0.00	154.01	3,933.71	1,966.86	7,926.85	3,935.22	0.00	0.00	0.046
5.00	-27.76	-1.59	0.00	-146.10	0.00	146.10	3,875.65	1,937.83	7,621.89	3,783.83	0.01	-0.01	0.046
10.00	-26.65	-1.59	0.00	-138.18	0.00	138.18	3,815.83	1,907.92	7,319.19	3,633.55	0.03	-0.02	0.045
15.00	-25.57	-1.59	0.00	-130.24	0.00	130.24	3,754.26	1,877.13	7,019.01	3,484.53	0.06	-0.04	0.044
20.00	-24.51	-1.59	0.00	-122.29	0.00	122.29	3,690.93	1,845.46	6,721.61	3,336.89	0.10	-0.05	0.043
25.00	-23.47	-1.58	0.00	-114.36	0.00	114.36	3,625.84	1,812.92	6,427.23	3,190.75	0.16	-0.06	0.042
30.00	-22.45	-1.57	0.00	-106.45	0.00	106.45	3,559.00	1,779.50	6,136.14	3,046.24	0.24	-0.08	0.041
35.00	-22.05	-1.57	0.00	-98.59	0.00	98.59	3,490.40	1,745.20	5,848.59	2,903.48	0.32	-0.09	0.040
37.00	-21.09	-1.55	0.00	-95.45	0.00	95.45	3,462.46	1,731.23	5,734.61	2,846.90	0.36	-0.09	0.040
40.00	-20.15	-1.54	0.00	-90.78	0.00	90.78	3,420.04	1,710.02	5,564.83	2,762.62	0.42	-0.10	0.039
43.00	-19.81	-1.53	0.00	-86.17	0.00	86.17	2,681.60	1,340.80	4,368.81	2,168.86	0.49	-0.11	0.047
45.00	-18.95	-1.51	0.00	-83.10	0.00	83.10	2,661.68	1,330.84	4,284.71	2,127.11	0.54	-0.12	0.046
50.00	-17.97	-1.49	0.00	-75.53	0.00	75.53	2,610.63	1,305.32	4,075.93	2,023.46	0.67	-0.13	0.044
55.00	-17.14	-1.46	0.00	-68.08	0.00	68.08	2,557.83	1,278.91	3,869.44	1,920.95	0.81	-0.15	0.042
60.00	-16.34	-1.44	0.00	-60.76	0.00	60.76	2,503.27	1,251.63	3,665.50	1,819.71	0.97	-0.16	0.040
65.00	-15.55	-1.40	0.00	-53.58	0.00	53.58	2,446.95	1,223.47	3,464.36	1,719.85	1.15	-0.18	0.038
70.00	-14.77	-1.37	0.00	-46.57	0.00	46.57	2,388.88	1,194.44	3,266.29	1,621.52	1.34	-0.19	0.035
75.00	-13.64	-1.30	0.00	-39.74	0.00	39.74	2,329.04	1,164.52	3,071.53	1,524.84	1.55	-0.20	0.032
80.00	-12.99	-1.26	0.00	-33.23	0.00	33.23	1,710.42	855.21	2,217.13	1,100.67	1.77	-0.22	0.038
85.00	-12.35	-1.22	0.00	-26.91	0.00	26.91	1,669.71	834.86	2,083.38	1,034.28	2.00	-0.23	0.033
90.00	-8.13	-0.90	0.00	-20.82	0.00	20.82	1,627.25	813.62	1,951.48	968.80	2.24	-0.24	0.026
95.00	-7.66	-0.86	0.00	-16.33	0.00	16.33	1,583.02	791.51	1,821.67	904.36	2.50	-0.25	0.023
100.00	-6.00	-0.71	0.00	-12.03	0.00	12.03	1,537.05	768.52	1,694.22	841.08	2.77	-0.26	0.018
105.00	-5.59	-0.67	0.00	-8.49	0.00	8.49	1,489.31	744.66	1,569.38	779.10	3.04	-0.27	0.015
110.00	-3.70	-0.46	0.00	-5.15	0.00	5.15	1,439.82	719.91	1,447.40	718.55	3.32	-0.27	0.010
115.00	-3.41	-0.43	0.00	-2.83	0.00	2.83	1,377.44	688.72	1,317.89	654.26	3.61	-0.28	0.007
119.00	-1.18	-0.16	0.00	-1.10	0.00	1.10	1,322.18	661.09	1,213.72	602.54	3.84	-0.28	0.003
119.00	-1.18	-0.16	0.00	-1.10	0.00	1.10	930.99	465.49	859.42	426.65	3.84	-0.28	0.004
119.70	-1.16	-0.16	0.00	-0.99	0.00	0.99	926.54	463.27	849.02	421.49	3.88	-0.28	0.004
120.00	-0.92	-0.13	0.00	-0.95	0.00	0.95	924.62	462.31	844.57	419.28	3.90	-0.28	0.003
125.00	-0.78	-0.11	0.00	-0.32	0.00	0.32	891.75	445.87	771.29	382.90	4.19	-0.28	0.002
128.00	0.00	0.00	0.00	0.00	0.00	0.00	871.17	435.59	728.15	361.48	4.37	-0.28	0.000
130.00	0.00	0.00	0.00	0.00	0.00	0.00	857.11	428.55	699.77	347.39	4.49	-0.28	0.000

Site Number: 370626

Code: ANSI/TIA-222-G

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Site Name: East Hartford, CT

Engineering Number: OAA663740_C3_02

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Customer: METRO PCS INC

Equivalent Modal Forces Analysis

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period (S_s):	0.18
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Importance Factor (I_E):	1.00
Site Coefficient F_a :	1.60
Site Coefficient F_v	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.19
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	1.96
Redundancy Factor (p):	1.30

Load Case (1.2 + 0.2Sds) * DL + E EMAM

Seismic Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
31	129.00	82	1.861	1.831	1.086	0.351	25	101
30	126.50	165	1.790	1.492	0.959	0.307	44	204
29	122.50	285	1.678	1.041	0.782	0.242	60	352
28	119.85	17	1.606	0.798	0.679	0.203	3	22
27	119.35	47	1.593	0.757	0.661	0.196	8	58
26	117.00	332	1.531	0.580	0.580	0.165	47	411
25	112.50	429	1.415	0.314	0.448	0.111	41	532
24	107.50	482	1.292	0.110	0.329	0.062	26	597
23	102.50	498	1.175	-0.018	0.237	0.024	10	616
22	97.50	546	1.063	-0.088	0.165	-0.004	-2	677
21	92.50	562	0.957	-0.118	0.111	-0.021	-10	696
20	87.50	742	0.856	-0.120	0.071	-0.028	-18	919
19	82.50	758	0.761	-0.104	0.043	-0.026	-17	939
18	77.50	1,307	0.672	-0.078	0.025	-0.017	-19	1,619
17	72.50	893	0.588	-0.049	0.013	-0.003	-2	1,106
16	67.50	917	0.510	-0.020	0.007	0.012	10	1,135
15	62.50	936	0.437	0.006	0.006	0.026	21	1,160
14	57.50	956	0.370	0.027	0.008	0.037	30	1,184
13	52.50	976	0.308	0.043	0.012	0.043	37	1,209
12	47.50	997	0.252	0.055	0.017	0.047	40	1,234
11	44.00	404	0.217	0.061	0.021	0.048	17	500
10	41.50	1,090	0.193	0.064	0.024	0.048	45	1,350
9	38.50	1,106	0.166	0.067	0.028	0.047	45	1,369
8	36.00	467	0.145	0.068	0.031	0.047	19	578
7	32.50	1,184	0.118	0.070	0.035	0.046	47	1,466
6	27.50	1,208	0.085	0.071	0.039	0.044	46	1,496
5	22.50	1,232	0.057	0.071	0.042	0.043	46	1,525
4	17.50	1,255	0.034	0.069	0.041	0.041	44	1,555
3	12.50	1,279	0.017	0.062	0.037	0.037	41	1,584
2	7.50	1,303	0.006	0.048	0.027	0.029	33	1,613
1	2.50	1,326	0.001	0.021	0.011	0.014	16	1,643
DragonWave Horizon C	128.00	34	1.832	1.689	1.034	0.333	10	43
BTS	128.00	60	1.832	1.689	1.034	0.333	17	74
Argus LLPX310R	128.00	86	1.832	1.689	1.034	0.333	25	106

Site Number: 370626

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Customer: METRO PCS INC

DragonWave A-ANT-18G	128.00	81	1.832	1.689	1.034	0.333	23	101
Side Arms	128.00	560	1.832	1.689	1.034	0.333	162	694
Alcatel-Lucent RRH2x	119.70	170	1.602	0.786	0.673	0.201	30	211
Alcatel-Lucent PCS B	119.70	165	1.602	0.786	0.673	0.201	29	204
Alcatel-Lucent RRH4X	119.70	192	1.602	0.786	0.673	0.201	33	238
Andrew DB844G65ZAXY	119.70	72	1.602	0.786	0.673	0.201	13	89
RFS DB-T1-6Z-8AB-0Z	119.70	88	1.602	0.786	0.673	0.201	15	109
Antel BXA-70063-6CF-	119.70	51	1.602	0.786	0.673	0.201	9	63
Andrew SBNHH-1D65B	119.70	304	1.602	0.786	0.673	0.201	53	377
Flat Low Profile Pla	119.70	1,500	1.602	0.786	0.673	0.201	261	1,858
48" x 12" Panel	110.00	270	1.353	0.201	0.385	0.085	20	334
Round Low Profile Pl	110.00	1,500	1.353	0.201	0.385	0.085	111	1,858
Ericsson AIR 21, 1.3	100.00	275	1.118	-0.059	0.198	0.009	2	340
Ericsson AIR-32 B2A/	100.00	397	1.118	-0.059	0.198	0.009	3	491
Round T-Arm	100.00	750	1.118	-0.059	0.198	0.009	6	929
14" x 9" TTA	90.00	60	0.906	-0.122	0.090	-0.026	-1	74
Raycap DC6-48-60-18-	90.00	80	0.906	-0.122	0.090	-0.026	-2	99
Ericsson RRUS A2 Mod	90.00	132	0.906	-0.122	0.090	-0.026	-3	163
Ericsson RRUS 12 w/	90.00	521	0.906	-0.122	0.090	-0.026	-12	645
Ericsson RRUS-32 (77	90.00	231	0.906	-0.122	0.090	-0.026	-5	286
Ericsson RRUS-11	90.00	495	0.906	-0.122	0.090	-0.026	-11	613
CCI HPA-65R-BUU-H8	90.00	816	0.906	-0.122	0.090	-0.026	-18	1,011
Round Platform w/ Ha	90.00	2,000	0.906	-0.122	0.090	-0.026	-45	2,477
2' Std. Dish	70.00	14	0.548	-0.034	0.010	0.005	0	17
GPS	50.00	10	0.280	0.050	0.014	0.046	0	12
Flat Side Arm	50.00	150	0.280	0.050	0.014	0.046	6	186
		34,845	58,149	21.184	19.250	5.527	1,463	43,152

Load Case (0.9 - 0.2Sds) * DL + E EMAMSeismic (Reduced DL) Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	Horizontal Force (lb)				Vertical Force (lb)
			a	b	c	Saz	
31	129.00	82	1.861	1.831	1.086	0.351	25
30	126.50	165	1.790	1.492	0.959	0.307	44
29	122.50	285	1.678	1.041	0.782	0.242	60
28	119.85	17	1.606	0.798	0.679	0.203	3
27	119.35	47	1.593	0.757	0.661	0.196	8
26	117.00	332	1.531	0.580	0.580	0.165	47
25	112.50	429	1.415	0.314	0.448	0.111	41
24	107.50	482	1.292	0.110	0.329	0.062	26
23	102.50	498	1.175	-0.018	0.237	0.024	10
22	97.50	546	1.063	-0.088	0.165	-0.004	-2
21	92.50	562	0.957	-0.118	0.111	-0.021	-10
20	87.50	742	0.856	-0.120	0.071	-0.028	-18
19	82.50	758	0.761	-0.104	0.043	-0.026	-17
18	77.50	1,307	0.672	-0.078	0.025	-0.017	-19
17	72.50	893	0.588	-0.049	0.013	-0.003	-2
16	67.50	917	0.510	-0.020	0.007	0.012	10
15	62.50	936	0.437	0.006	0.006	0.026	21
14	57.50	956	0.370	0.027	0.008	0.037	30
13	52.50	976	0.308	0.043	0.012	0.043	37
12	47.50	997	0.252	0.055	0.017	0.047	40
11	44.00	404	0.217	0.061	0.021	0.048	17
10	41.50	1,090	0.193	0.064	0.024	0.048	45
9	38.50	1,106	0.166	0.067	0.028	0.047	45
8	36.00	467	0.145	0.068	0.031	0.047	19
7	32.50	1,184	0.118	0.070	0.035	0.046	47
6	27.50	1,208	0.085	0.071	0.039	0.044	46
5	22.50	1,232	0.057	0.071	0.042	0.043	46

Site Number: 370626

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4	17.50	1,255	0.034	0.069	0.041	0.041	44	1,082
3	12.50	1,279	0.017	0.062	0.037	0.037	41	1,102
2	7.50	1,303	0.006	0.048	0.027	0.029	33	1,122
1	2.50	1,326	0.001	0.021	0.011	0.014	16	1,143
DragonWave Horizon C	128.00	34	1.832	1.689	1.034	0.333	10	30
BTS	128.00	60	1.832	1.689	1.034	0.333	17	52
Argus LLPX310R	128.00	86	1.832	1.689	1.034	0.333	25	74
DragonWave A-ANT-18G	128.00	81	1.832	1.689	1.034	0.333	23	70
Side Arms	128.00	560	1.832	1.689	1.034	0.333	162	482
Alcatel-Lucent RRH2x	119.70	170	1.602	0.786	0.673	0.201	30	147
Alcatel-Lucent PCS B	119.70	165	1.602	0.786	0.673	0.201	29	142
Alcatel-Lucent RRH4X	119.70	192	1.602	0.786	0.673	0.201	33	165
Andrew DB844G65ZAXY	119.70	72	1.602	0.786	0.673	0.201	13	62
RFS DB-T1-6Z-8AB-0Z	119.70	88	1.602	0.786	0.673	0.201	15	76
Antel BXA-70063-6CF-	119.70	51	1.602	0.786	0.673	0.201	9	44
Andrew SBNHH-1D65B	119.70	304	1.602	0.786	0.673	0.201	53	262
Flat Low Profile Pla	119.70	1,500	1.602	0.786	0.673	0.201	261	1,292
48" x 12" Panel	110.00	270	1.353	0.201	0.385	0.085	20	233
Round Low Profile Pl	110.00	1,500	1.353	0.201	0.385	0.085	111	1,292
Ericsson AIR 21, 1.3	100.00	275	1.118	-0.059	0.198	0.009	2	237
Ericsson AIR-32 B2A/	100.00	397	1.118	-0.059	0.198	0.009	3	342
Round T-Arm	100.00	750	1.118	-0.059	0.198	0.009	6	646
14" x 9" TTA	90.00	60	0.906	-0.122	0.090	-0.026	-1	52
Raycap DC6-48-60-18-	90.00	80	0.906	-0.122	0.090	-0.026	-2	69
Ericsson RRUS A2 Mod	90.00	132	0.906	-0.122	0.090	-0.026	-3	114
Ericsson RRUS 12 w/	90.00	521	0.906	-0.122	0.090	-0.026	-12	449
Ericsson RRUS-32 (77	90.00	231	0.906	-0.122	0.090	-0.026	-5	199
Ericsson RRUS-11	90.00	495	0.906	-0.122	0.090	-0.026	-11	426
CCI HPA-65R-BUU-H8	90.00	816	0.906	-0.122	0.090	-0.026	-18	703
Round Platform w/ Ha	90.00	2,000	0.906	-0.122	0.090	-0.026	-45	1,723
2' Std. Dish	70.00	14	0.548	-0.034	0.010	0.005	0	12
GPS	50.00	10	0.280	0.050	0.014	0.046	0	9
Flat Side Arm	50.00	150	0.280	0.050	0.014	0.046	6	129
	34,845	58.149	21.184	19.250	5.527		1,463	30,022

Load Case (1.2 + 0.2Sds) * DL + E EMAM**Seismic Equivalent Modal Analysis Method****Calculated Forces**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Deflect Rotation (deg)	Ratio
0.00	-41.51	-1.45	0.00	-137.63	0.00	137.63	3,933.71	1,966.86	7,926.85	3,935.22	0.00	0.00	0.046
5.00	-39.90	-1.43	0.00	-130.37	0.00	130.37	3,875.65	1,937.83	7,621.89	3,783.83	0.01	-0.01	0.045
10.00	-38.31	-1.39	0.00	-123.25	0.00	123.25	3,815.83	1,907.92	7,319.19	3,633.55	0.02	-0.02	0.044
15.00	-36.76	-1.35	0.00	-116.29	0.00	116.29	3,754.26	1,877.13	7,019.01	3,484.53	0.05	-0.03	0.043
20.00	-35.23	-1.31	0.00	-109.52	0.00	109.52	3,690.93	1,845.46	6,721.61	3,336.89	0.09	-0.04	0.042
25.00	-33.74	-1.27	0.00	-102.95	0.00	102.95	3,625.84	1,812.92	6,427.23	3,190.75	0.15	-0.06	0.042
30.00	-32.27	-1.23	0.00	-96.58	0.00	96.58	3,559.00	1,779.50	6,136.14	3,046.24	0.21	-0.07	0.041
35.00	-31.69	-1.22	0.00	-90.42	0.00	90.42	3,490.40	1,745.20	5,848.59	2,903.48	0.29	-0.08	0.040
37.00	-30.32	-1.17	0.00	-87.99	0.00	87.99	3,462.46	1,731.23	5,734.61	2,846.90	0.32	-0.08	0.040
40.00	-28.97	-1.13	0.00	-84.47	0.00	84.47	3,420.04	1,710.02	5,564.83	2,762.62	0.38	-0.09	0.039
43.00	-28.47	-1.11	0.00	-81.08	0.00	81.08	2,681.60	1,340.80	4,368.81	2,168.86	0.44	-0.10	0.048
45.00	-27.24	-1.08	0.00	-78.85	0.00	78.85	2,661.68	1,330.84	4,284.71	2,127.11	0.48	-0.11	0.047
50.00	-25.83	-1.04	0.00	-73.47	0.00	73.47	2,610.63	1,305.32	4,075.93	2,023.46	0.60	-0.12	0.046
55.00	-24.64	-1.01	0.00	-68.28	0.00	68.28	2,557.83	1,278.91	3,869.44	1,920.95	0.73	-0.13	0.045
60.00	-23.48	-0.99	0.00	-63.22	0.00	63.22	2,503.27	1,251.63	3,665.50	1,819.71	0.88	-0.15	0.044
65.00	-22.35	-0.99	0.00	-58.26	0.00	58.26	2,446.95	1,223.47	3,464.36	1,719.85	1.05	-0.16	0.043
70.00	-21.23	-0.99	0.00	-53.32	0.00	53.32	2,388.88	1,194.44	3,266.29	1,621.52	1.23	-0.18	0.042
75.00	-19.61	-1.01	0.00	-48.37	0.00	48.37	2,329.04	1,164.52	3,071.53	1,524.84	1.43	-0.20	0.040
80.00	-18.67	-1.03	0.00	-43.31	0.00	43.31	1,710.42	855.21	2,217.13	1,100.67	1.64	-0.21	0.050
85.00	-17.75	-1.05	0.00	-38.16	0.00	38.16	1,669.71	834.86	2,083.38	1,034.28	1.87	-0.23	0.048
90.00	-11.68	-1.14	0.00	-32.91	0.00	32.91	1,627.25	813.62	1,951.48	968.80	2.12	-0.25	0.041
95.00	-11.01	-1.14	0.00	-27.23	0.00	27.23	1,583.02	791.51	1,821.67	904.36	2.39	-0.26	0.037
100.00	-8.63	-1.11	0.00	-21.54	0.00	21.54	1,537.05	768.52	1,694.22	841.08	2.67	-0.28	0.031
105.00	-8.03	-1.08	0.00	-16.01	0.00	16.01	1,489.31	744.66	1,569.38	779.10	2.97	-0.29	0.026
110.00	-5.31	-0.89	0.00	-10.60	0.00	10.60	1,439.82	719.91	1,447.40	718.55	3.28	-0.30	0.018
115.00	-4.90	-0.85	0.00	-6.13	0.00	6.13	1,377.44	688.72	1,317.89	654.26	3.61	-0.31	0.013
119.00	-1.69	-0.38	0.00	-2.75	0.00	2.75	1,322.18	661.09	1,213.72	602.54	3.87	-0.32	0.006
119.00	-1.69	-0.38	0.00	-2.75	0.00	2.75	930.99	465.49	859.42	426.65	3.87	-0.32	0.008
119.70	-1.67	-0.37	0.00	-2.48	0.00	2.48	926.54	463.27	849.02	421.49	3.92	-0.32	0.008
120.00	-1.32	-0.31	0.00	-2.37	0.00	2.37	924.62	462.31	844.57	419.28	3.94	-0.32	0.007
125.00	-1.12	-0.27	0.00	-0.80	0.00	0.80	891.75	445.87	771.29	382.90	4.27	-0.32	0.003
128.00	0.00	0.00	0.00	0.00	0.00	0.00	871.17	435.59	728.15	361.48	4.47	-0.32	0.000
130.00	0.00	0.00	0.00	0.00	0.00	0.00	857.11	428.55	699.77	347.39	4.60	-0.32	0.000

Site Number: 370626

Code: ANSI/TIA-222-G

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Site Name: East Hartford, CT

Engineering Number: OAA663740_C3_02

7/8/2016 3:56:54 PM

Customer: METRO PCS INC

Load Case (0.9 - 0.2Sds) * DL + E EMAM

Seismic (Reduced DL) Equivalent Modal Analysis Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Deflect Rotation (deg)	Ratio
0.00	-28.88	-1.45	0.00	-135.81	0.00	135.81	3,933.71	1,966.86	7,926.85	3,935.22	0.00	0.00	0.042
5.00	-27.76	-1.42	0.00	-128.56	0.00	128.56	3,875.65	1,937.83	7,621.89	3,783.83	0.01	-0.01	0.041
10.00	-26.65	-1.39	0.00	-121.46	0.00	121.46	3,815.83	1,907.92	7,319.19	3,633.55	0.02	-0.02	0.040
15.00	-25.57	-1.35	0.00	-114.53	0.00	114.53	3,754.26	1,877.13	7,019.01	3,484.53	0.05	-0.03	0.040
20.00	-24.51	-1.30	0.00	-107.80	0.00	107.80	3,690.93	1,845.46	6,721.61	3,336.89	0.09	-0.04	0.039
25.00	-23.47	-1.26	0.00	-101.28	0.00	101.28	3,625.84	1,812.92	6,427.23	3,190.75	0.14	-0.06	0.038
30.00	-22.45	-1.22	0.00	-94.98	0.00	94.98	3,559.00	1,779.50	6,136.14	3,046.24	0.21	-0.07	0.037
35.00	-22.05	-1.20	0.00	-88.89	0.00	88.89	3,490.40	1,745.20	5,848.59	2,903.48	0.28	-0.08	0.037
37.00	-21.09	-1.16	0.00	-86.49	0.00	86.49	3,462.46	1,731.23	5,734.61	2,846.90	0.32	-0.08	0.036
40.00	-20.16	-1.11	0.00	-83.01	0.00	83.01	3,420.04	1,710.02	5,564.83	2,762.62	0.37	-0.09	0.036
43.00	-19.81	-1.10	0.00	-79.67	0.00	79.67	2,681.60	1,340.80	4,368.81	2,168.86	0.43	-0.10	0.044
45.00	-18.95	-1.06	0.00	-77.48	0.00	77.48	2,661.68	1,330.84	4,284.71	2,127.11	0.48	-0.10	0.044
50.00	-17.97	-1.02	0.00	-72.18	0.00	72.18	2,610.63	1,305.32	4,075.93	2,023.46	0.59	-0.12	0.043
55.00	-17.15	-0.99	0.00	-67.09	0.00	67.09	2,557.83	1,278.91	3,869.44	1,920.95	0.72	-0.13	0.042
60.00	-16.34	-0.97	0.00	-62.13	0.00	62.13	2,503.27	1,251.63	3,665.50	1,819.71	0.87	-0.15	0.041
65.00	-15.55	-0.96	0.00	-57.27	0.00	57.27	2,446.95	1,223.47	3,464.36	1,719.85	1.03	-0.16	0.040
70.00	-14.77	-0.97	0.00	-52.45	0.00	52.45	2,388.88	1,194.44	3,266.29	1,621.52	1.21	-0.18	0.039
75.00	-13.64	-0.99	0.00	-47.61	0.00	47.61	2,329.04	1,164.52	3,071.53	1,524.84	1.40	-0.19	0.037
80.00	-12.99	-1.01	0.00	-42.67	0.00	42.67	1,710.42	855.21	2,217.13	1,100.67	1.61	-0.21	0.046
85.00	-12.35	-1.03	0.00	-37.63	0.00	37.63	1,669.71	834.86	2,083.38	1,034.28	1.84	-0.22	0.044
90.00	-8.13	-1.12	0.00	-32.50	0.00	32.50	1,627.25	813.62	1,951.48	968.80	2.09	-0.24	0.039
95.00	-7.66	-1.12	0.00	-26.91	0.00	26.91	1,583.02	791.51	1,821.67	904.36	2.35	-0.26	0.035
100.00	-6.00	-1.09	0.00	-21.30	0.00	21.30	1,537.05	768.52	1,694.22	841.08	2.63	-0.27	0.029
105.00	-5.59	-1.07	0.00	-15.83	0.00	15.83	1,489.31	744.66	1,569.38	779.10	2.92	-0.29	0.024
110.00	-3.69	-0.89	0.00	-10.50	0.00	10.50	1,439.82	719.91	1,447.40	718.55	3.23	-0.30	0.017
115.00	-3.41	-0.84	0.00	-6.07	0.00	6.07	1,377.44	688.72	1,317.89	654.26	3.55	-0.31	0.012
119.00	-1.18	-0.37	0.00	-2.72	0.00	2.72	1,322.18	661.09	1,213.72	602.54	3.81	-0.31	0.005
119.00	-1.18	-0.37	0.00	-2.72	0.00	2.72	930.99	465.49	859.42	426.65	3.81	-0.31	0.008
119.70	-1.16	-0.37	0.00	-2.46	0.00	2.46	926.54	463.27	849.02	421.49	3.85	-0.31	0.007
120.00	-0.92	-0.31	0.00	-2.35	0.00	2.35	924.62	462.31	844.57	419.28	3.87	-0.31	0.007
125.00	-0.78	-0.27	0.00	-0.80	0.00	0.80	891.75	445.87	771.29	382.90	4.20	-0.31	0.003
128.00	0.00	0.00	0.00	0.00	0.00	0.00	871.17	435.59	728.15	361.48	4.40	-0.32	0.000
130.00	0.00	0.00	0.00	0.00	0.00	0.00	857.11	428.55	699.77	347.39	4.53	-0.32	0.000

Site Number: 370626

Code: ANSI/TIA-222-G

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Site Name: East Hartford, CT

Engineering Number: OAA663740_C3_02

7/8/2016 3:56:54 PM

Customer: METRO PCS INC

Analysis Summary

Load Case	Reactions						Max Usage	
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	31.33	0.00	41.75	0.00	0.00	2687.79	0.00	0.69
0.9D + 1.6W	30.73	0.00	31.30	0.00	0.00	2634.46	0.00	0.68
1.2D + 1.0Di + 1.0Wi	8.01	0.00	83.24	0.00	0.00	734.92	0.00	0.21
(1.2 + 0.2Sds) * DL + E ELF M	1.58	0.00	41.51	0.00	0.00	155.92	43.00	0.05
(1.2 + 0.2Sds) * DL + E EMAM	1.45	0.00	41.51	0.00	0.00	137.63	80.00	0.05
(0.9 - 0.2Sds) * DL + E ELF M	1.58	0.00	28.88	0.00	0.00	154.01	43.00	0.05
(0.9 - 0.2Sds) * DL + E EMAM	1.45	0.00	28.88	0.00	0.00	135.81	80.00	0.05
1.0D + 1.0W	7.66	0.00	34.84	0.00	0.00	659.39	0.00	0.18

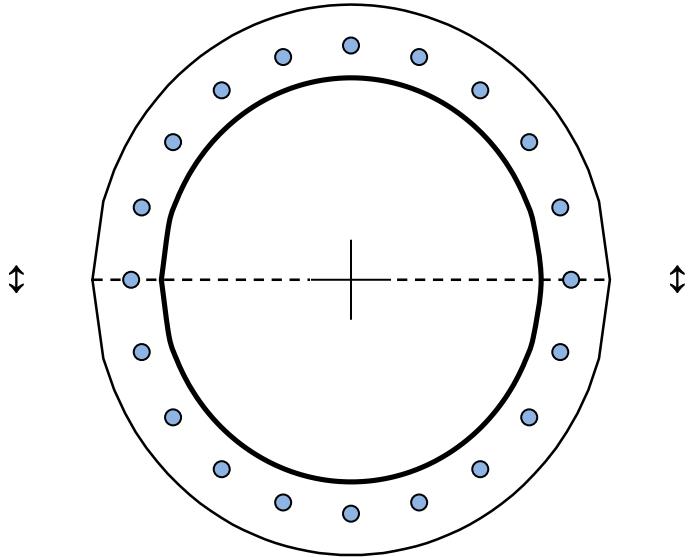
Base/Flange Plate	Plate Type	Baseplate
	Pole Diameter	49.19 in
	Pole Thickness	0.375 in
	Plate Diameter	67 in
	Plate Thickness	2.5 in
	Plate Fy	50 ksi
	Weld Length	0.3125 in
	ϕ_s Resistance	543.29 k-in
Applied	Applied	255.39 k-in
	#	0

Code Rev. **G**

Date 7/8/2016
 Engineer V. Chung
 Site # 370626
 Carrier Metro PCS

Moment 2687.8 k-ft
 Axial 41.8 k

Bolts	#	20
	Bolt Circle (R)adial / (S)quare	57 in
	R	
	Diameter	2.5 in
	Hole Diameter	2.75 in
	Type	A572-55
	Fy	55 ksi
	Fu	70 ksi
Applied	ϕ_s Resistance	223.93 k
	Applied	115.17 k
#	0	



Reinforcement ●	#	0
	#	0
Extra Bolts ○	#	0
	#	0

Plate Stress Ratio:

0.47 (Pass)

Bolt Stress Ratio:

0.51 (Pass)

Base/Flange Plate	Plate Type	Flange @ 119.0 ft
	Pole Diameter	20.73435 in
	Pole Thickness	0.25 in
	Plate Diameter	31 in
	Plate Thickness	1 in
	Plate Fy	36 ksi
	Weld Length	0.25 in
	ϕ_s Resistance	65.95 k-in
Stiffeners	Applied	8.47 k-in
	#	0

Code Rev. **G**

Date **7/8/2016**
 Engineer **V. Chung**
 Site # **370626**
 Carrier **Metro PCS**

Moment **18.8 k-ft**
 Axial **4.3 k**

Required Flange Thickness:

0.36 in OK

Bolts	#	8
	Bolt Circle	27 in
	(R)adial / (S)square	R
	Diameter	1 in
	Hole Diameter	1.125 in
	Type	A325
	Fy	92 ksi
	Fu	120 ksi
Reinforcement ●	ϕ_s Resistance	54.52 k
	Applied	3.65 k
Extra Bolts ○	#	0
	#	0

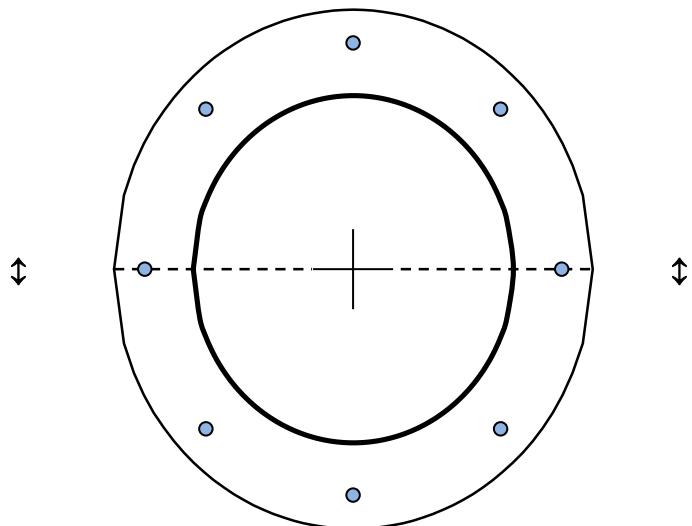


Plate Stress Ratio:

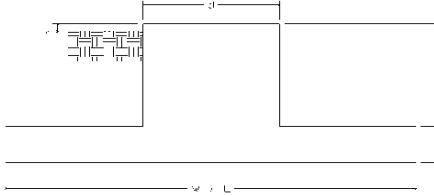
0.13 (Pass)

Bolt Stress Ratio:

0.07 (Pass)

Site Name: East Hartford, CT
 Site Number: 370626
 Engineering Number: OAA663740_C3_02
 Engineer: V. Chung
 Date: 07/08/16
 Tower Type: MP

Program Last Updated: 5/13/2014



Design Loads (Factored) - Analysis per TIA-222-G Standards

Design / Analysis / Mapping:	Analysis	
Compression/Leg:	41.8 k	Concrete Strength (f'_c): 5000 psi
Uplift/Leg:	0.0 k	Pad Tension Steel Depth: 20.00 in
Total Shear:	31.3 k	ϕ_{Shear} : 0.75
Moment:	2687.8 k-ft	$\phi_{Flexure / Tension}$: 0.90
Tower + Appurtenance Weight:	41.8 k	$\phi_{Compression}$: 0.65
Depth to Base of Foundation (l + t - h):	6.00 ft	β : 0.80
Diameter of Pier (d):	7.00 ft	Bottom Pad Rebar Size #: 9
Height of Pier above Ground (h):	1.00	# of Bottom Pad Rebar: 34
Width of Pad (W):	23.00 ft	Pad Bottom Steel Area: 34.00 in ²
Length of Pad (L):	23.00 ft	Pad Steel F_y : 60000 psi
Thickness of Pad (t):	2.00 ft	Top Pad Rebar Size #: 9
Tower Leg Center to Center:	0.00 ft	# of Top Pad Rebar: 34
Number of Tower Legs:	1.0 (1 if MP or GT)	Pad Top Steel Area: 34.00 in ²
Tower Center from Mat Center:	0.00 ft	Pier Rebar Size #: 11
Depth Below Ground Surface to Water Table:	3.50 ft	Pier Steel Area (Single Bar): 1.56 in ²
Unit Weight of Concrete:	150.0 pcf	# of Pier Rebar: 24
Unit Weight of Soil Above Water Table:	125.0 pcf	Pier Steel F_y : 60000 psi
Unit Weight of Water:	62.4 pcf	Pier Cage Diameter: 76.0 in
Unit Weight of Soil Below Water Table:	55.0 pcf	Rebar Strain Limit: 0.008
Friction Angle of Uplift:	15.0 Degrees	Steel Elastic Modulus: 29000 ksi
Ultimate Coefficient of Shear Friction:	0.35	Tie Rebar Size #: 4
Ultimate Compressive Bearing Pressure:	4000.0 psf	Tie Steel Area (Single Bar): 0.20 in ²
Ultimate Passive Pressure on Pad Face:	0.0 psf	Tie Spacing: 6 in
$\phi_{Soil and Concrete Weight}$:	0.9	Tie Steel F_y : 60000 psi
ϕ_{Soil} :	0.75	

Overturning Moment Usage

Design OTM:	2907.1 k-ft
OTM Resistance:	4234.6 k-ft
Design OTM / OTM Resistance:	0.69 Result: OK

Soil Bearing Pressure Usage

Net Bearing Pressure:	2424 psf
Factored Nominal Bearing Pressure:	3000 psf
Net Bearing Pressure/Factored Nominal Bearing Pressure:	0.81 Result: OK
Load Direction Controlling Design Bearing Pressure:	Diagonal to Pad Edge

Sliding Factor of Safety

Total Factored Sliding Resistance:	100.6 k
Sliding Design / Sliding Resistance:	0.31 Result: OK

One Way Shear, Flexual Capacity, and Punching Shear

Factored One Way Shear (V_u):	188.5 k
One Way Shear Capacity (ϕV_c):	585.5 k - ACI11.3.1.1
$V_u / \phi V_c$:	0.32 Result: OK
Load Direction Controlling Shear Capacity:	Parallel to Pad Edge
Lower Steel Pad Factored Moment (M_u):	999.8 k-ft
Lower Steel Pad Moment Capacity (ϕM_n):	2946.9 k-ft - ACI10.3
$M_u / \phi M_n$:	0.34 Result: OK
Load Direction Controlling Flexural Capacity:	Parallel to Pad Edge
Upper Steel Pad Factored Moment (M_u):	678.9 k-ft
Upper Steel Pad Moment Capacity (ϕM_n):	2946.9 k-ft
$M_u / \phi M_n$:	0.23 Result: OK
Lower Pad Flexural Reinforcement Ratio:	0.0062 OK - Minimum Reinforcement Ratio Met - ACI10.5.1
Upper Pad Flexural Reinforcement Ratio:	0.0062 OK - Minimum Reinforcement Ratio Met - ACI10.5.1
Lower Pad Reinforcement Spacing:	8 in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
Upper Pad Reinforcement Spacing:	8 in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
Factored Punching Shear (V_u):	0.0 k
Nominal Punching Shear Capacity ($\phi_c V_n$):	1386.2 k - ACI11.12.2.1
$V_u / \phi V_c$:	0.00 Result: OK
Factored Moment in Pier (M_u):	2844.4 k-ft
Pier Moment Capacity (ϕM_n):	6269.8 k-ft
$M_u / \phi M_n$:	0.45 Result: OK
Factored Shear in Pier (V_u):	31.3 k
Pier Shear Capacity (ϕV_n):	590.0 k
$V_u / \phi V_c$:	0.05 Result: OK
Pier Shear Reinforcement Ratio:	0.0004 No Ties Necessary for Shear - ACI11.5.6.1
Factored Tension in Pier (T_u):	0.0 k
Pier Tension Capacity (ϕT_n):	2021.8 k
$T_u / \phi T_n$:	0.00 Result: OK
Factored Compression in Pier (P_u):	41.8 k
Pier Compression Capacity (ϕP_n):	12164.6 k - ACI10.3.6.2
$P_u / \phi P_n$:	0.00 Result: OK
Pier Compression Reinforcement Ratio:	0.007 OK - Reinforcement Ratio Met - ACI10.9.1 & 10.8.4
$M_u / \phi B M_n + T_u / \phi T_n$:	0.45 Result: OK

Nominal and Design Moment Capacity and Factored Design Loads

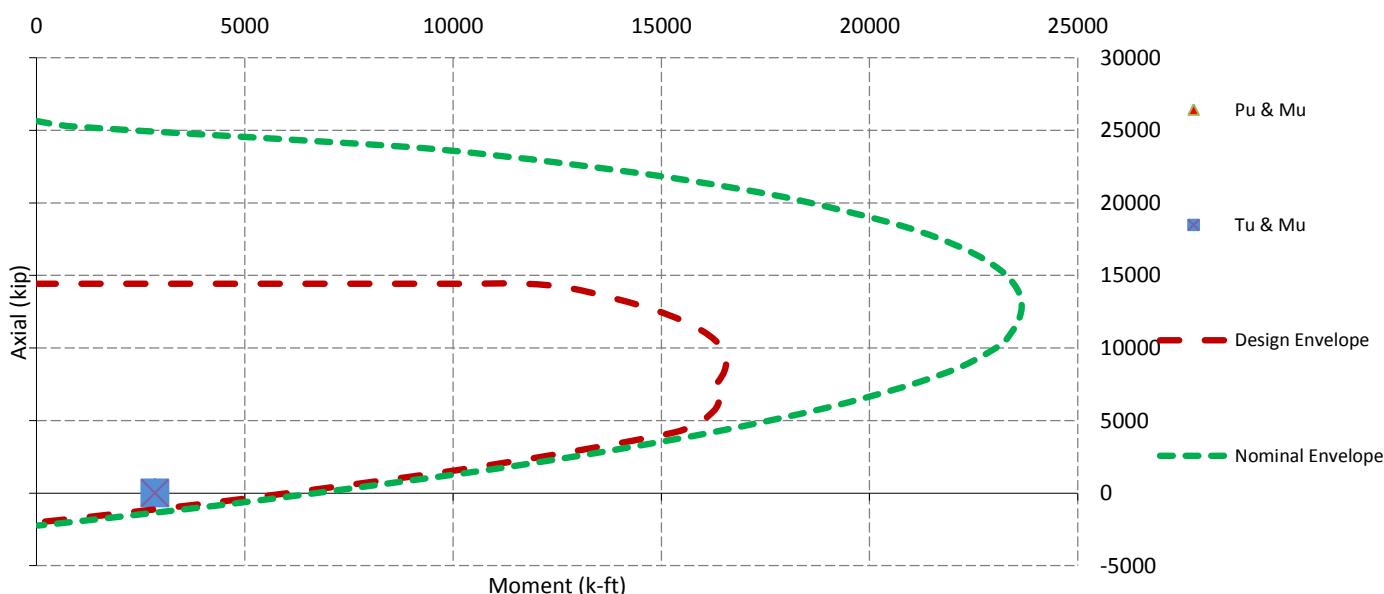


Exhibit E



RADIO FREQUENCY EMISSIONS ANALYSIS REPORT EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

T-Mobile Existing Facility

Site ID: CTHA505A

Crown E. Hartford Monopole
148 Roberts Street
East Hartford, CT 06108

August 10, 2016

EBI Project Number: 6216003540

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	13.19 %

August 10, 2016

T-Mobile USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Emissions Analysis for Site: **CTHA505A – Crown E. Hartford Monopole**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **148 Roberts Street, East Hartford, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limit for the 700 MHz Band is approximately 467 $\mu\text{W}/\text{cm}^2$, and the general population exposure limit for the 1900 MHz (PCS) and 2100 MHz (AWS) bands is 1000 $\mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.



Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **148 Roberts Street, East Hartford, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

- 1) 2 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 2 UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 3) 2 UMTS channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 4) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 5) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel

- 6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 7) For the following calculations the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 8) The antennas used in this modeling are the **Ericsson AIR32 B66Aa/B2A & Ericsson AIR21 B2A/B4P** for 1900 MHz (PCS) and 2100 MHz (AWS) channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **Ericsson AIR32 B66Aa/B2A** has a maximum gain of **15.9 dBd** at its main lobe at 1900 MHz and 2100 MHz. The **Ericsson AIR21 B2A/B4P** has a maximum gain of **15.9 dBd** at its main lobe at 1900 MHz and 2100 MHz. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 9) The antenna mounting height centerline of the proposed antennas is **100 feet** above ground level (AGL).
- 10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 11) All calculations were done with respect to uncontrolled / general public threshold limits.



T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR32 B66Aa/B2A	Make / Model:	Ericsson AIR32 B66Aa/B2A	Make / Model:	Ericsson AIR32 B66Aa/B2A
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	100	Height (AGL):	100	Height (AGL):	100
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	240	Total TX Power(W):	240	Total TX Power(W):	240
ERP (W):	9,337.08	ERP (W):	9,337.08	ERP (W):	9,337.08
Antenna A1 MPE%	3.80	Antenna B1 MPE%	3.80	Antenna C1 MPE%	3.80
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	100	Height (AGL):	100	Height (AGL):	100
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	6	Channel Count	6	Channel Count	6
Total TX Power(W):	180	Total TX Power(W):	180	Total TX Power(W):	180
ERP (W):	7,002.81	ERP (W):	7,002.81	ERP (W):	7,002.81
Antenna A2 MPE%	2.85	Antenna B2 MPE%	2.85	Antenna C2 MPE%	2.85

Site Composite MPE%	
Carrier	MPE%
T-Mobile (Per Sector Max)	6.65 %
Verizon Wireless	3.11 %
Clearwire	0.12 %
Sprint	1.13 %
AT&T	2.18 %
Site Total MPE %:	13.19 %

T-Mobile Sector A Total:	6.65 %
T-Mobile Sector B Total:	6.65 %
T-Mobile Sector C Total:	6.65 %
Site Total:	13.19 %

T-Mobile _per sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm ²)	Frequency (MHz)	Allowable MPE (μW/cm ²)	Calculated % MPE
T-Mobile AWS - 2100 MHz LTE	2	2,334.27	100	18.99	AWS - 2100 MHz	1000	1.90%
T-Mobile PCS - 1900 MHz LTE	2	2,334.27	100	18.99	PCS - 1900 MHz	1000	1.90%
T-Mobile AWS - 2100 MHz UMTS	2	1,167.14	100	9.50	AWS - 2100 MHz	1000	0.95%
T-Mobile PCS - 1950 MHz UMTS	2	1,167.14	100	9.50	PCS - 1950 MHz	1000	0.95%
T-Mobile PCS - 1950 MHz GSM	2	1,167.14	100	9.50	PCS - 1950 MHz	1000	0.95%
						Total:	6.65%

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general public exposure to RF Emissions.

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	6.65 %
Sector B:	6.65 %
Sector C:	6.65 %
T-Mobile Per Sector Maximum:	6.65 %
Site Total:	13.19 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **13.19%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.