Court Ams to Cart

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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

December 2, 2011

Karina Fournier Real Estate Consultant New Cingular Wireless PCS, LLC 960 Turnpike Street, Suite 28 Canton, MA 02021

RE: **EM-CING-118-111107** - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 845 Ethan Allen Highway, Ridgefield, Connecticut.

Dear Ms. Fournier:

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

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

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated November 3, 2011. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

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

Very truly yours,

Executive Director

LR/CDM/laf

c: The Honorable Rudolph P. Marconi, First Selectman, Town of Ridgefield Betty Brosius, Town Planner, Town of Ridgefield Hans Fiedler, T-Mobile Julie Kohler, Esq., Cohen and Wolf P.C.



Honorable Robert Stein, Chairman,

Connecticut Siting Council 10 Franklin Square

New Britain, Connecticut 06051

November 18, 2011



New Cingular Wireless PCS, LLC

960 Turnpike Street, Suite 28 Canton, MA 02021 Phone: (860) 796-3988

Fax: (617) 249-0819

H. Karina Fournier

Real Estate Consultant

Re: Request by New Cingular Wireless PCS, LLC for an Order Approving Shared Use of an Existing Tower located at 845 Ethan Allen Highway Ridgefield, CT

Dear Chairman Stein and Members of the Council:

and Members of the Connecticut Siting Council

Pursuant to Connecticut General Statutes Section 16-50aa, Cingular has requested an order approving shared use of the tower from the Connecticut Siting Council. The request should have been for an exempt modification pursuant to R.C.S.A 16-50j-73.

Please accept this letter as a request for the proper review. If you have any questions please contact me at 860-796-3988.

Sincerely,

H. Karina Fournier Real Estate Consultant



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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

November 10, 2011

The Honorable Rudolph P. Marconi First Selectman Town of Ridgefield Town Hall 400 Main Street Ridgefield, CT 06877

RE: **EM-CING-118-111107** - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 845 Ethan Allen Highway, Ridgefield, Connecticut.

Dear First Selectman Marconi:

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

If you have any questions or comments regarding this proposal, please call me or inform the Council by November 25, 2011.

Thank you for your cooperation and consideration.

Very truly yours,

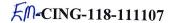
Linda Roberts
Executive Director

LR/jbw

Enclosure: Notice of Intent

c: Betty Brosius, Town Planner, Town of Ridgefield









New Cingular Wireless PCS, LLC

960 Turnpike Street, Suite 28 Canton, MA 02021

Phone: (860) 796-3988 Fax: (617) 249-0819

November 3, 2011

Honorable Robert Stein, Chairman, and Members of the Connecticut Siting Council Connecticut Siting Council 10 Franklin Square New Britain, Connecticut 06051



Re: Request by New Cingular Wireless PCS, LLC for an Order Approving Shared Use of an Existing tower at 845 Ethan Allen Highway Ridgefield, CT.

Dear Chairman Stein and Members of the Council:

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

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

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

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

- 1. The height of the overall structure will be unaffected.
- 2. The proposed changes will not extend the site boundaries. There will be no effect on the site compound other than some enlarged equipment pads as may be noted in the attachments
- 3. The proposed changes will not increase the noise level at the existing facility by six

decibels or more.

4. LTE will utilize additional radio frequencies newly licensed by the FCC for cellular mobile communications. However, the changes will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the applicable standard for uncontrolled environments as calculated for a mixed frequency site.

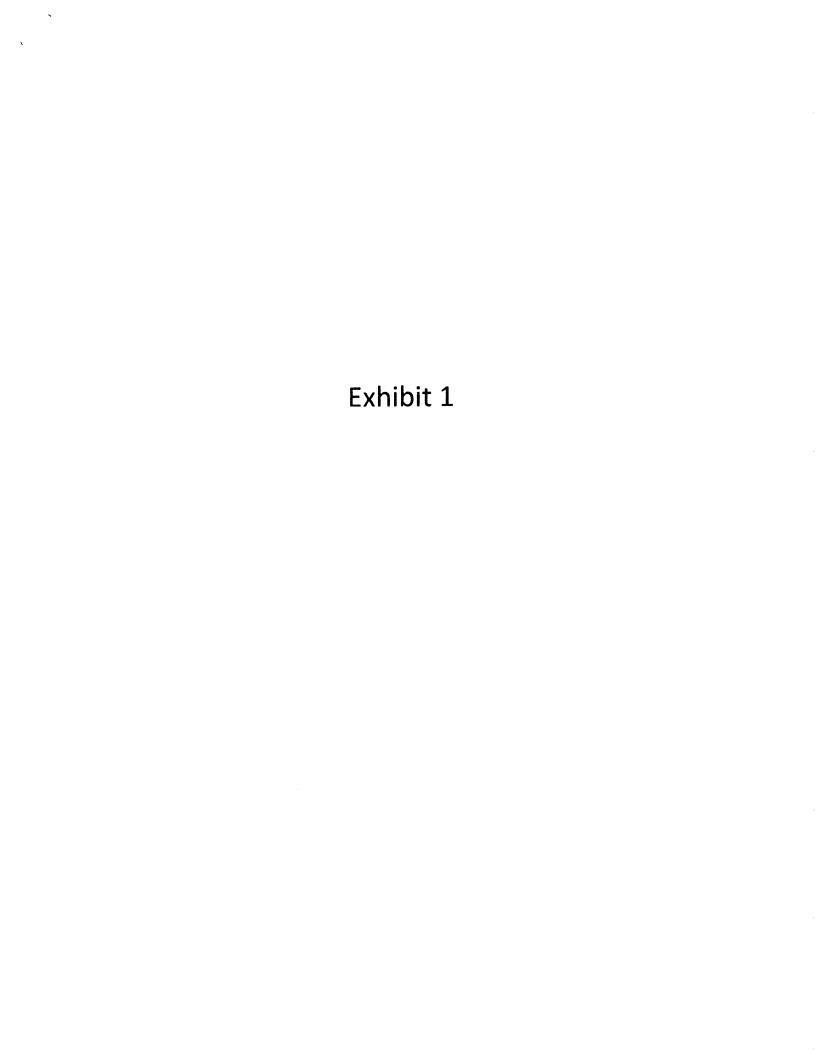
For the foregoing reasons, New Cingular Wireless respectfully submits that the proposed changes at the referenced site constitute exempt modifications under R.C.S.A Section 16-50j-72(b)(2).

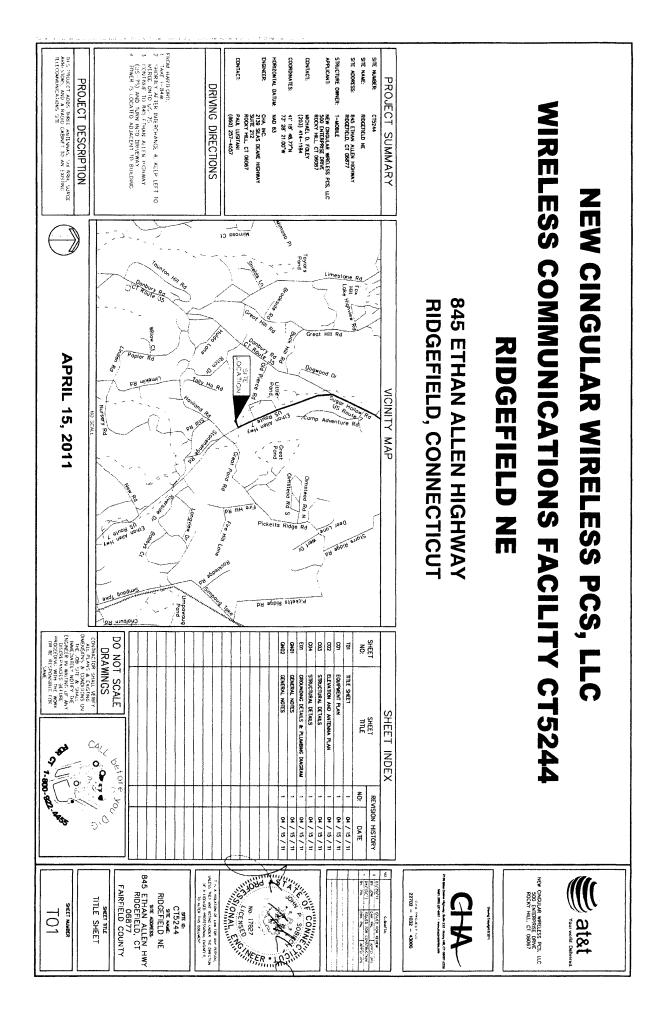
Please feel free to contact me at 860-796-3988 with questions concerning this matter. Thank you for your consideration.

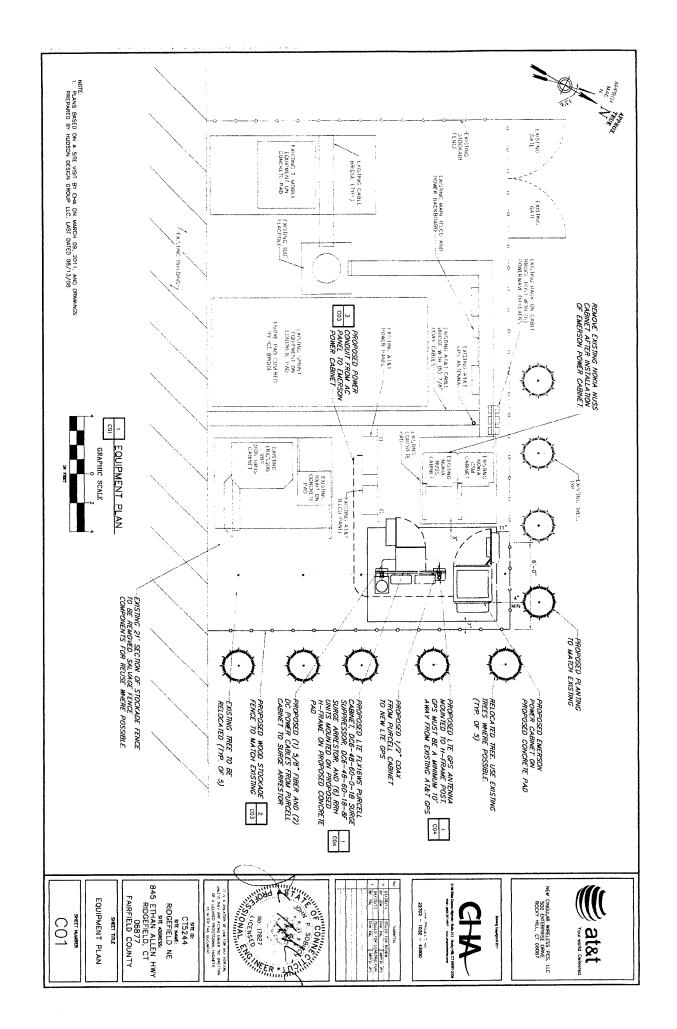
Sincerely,

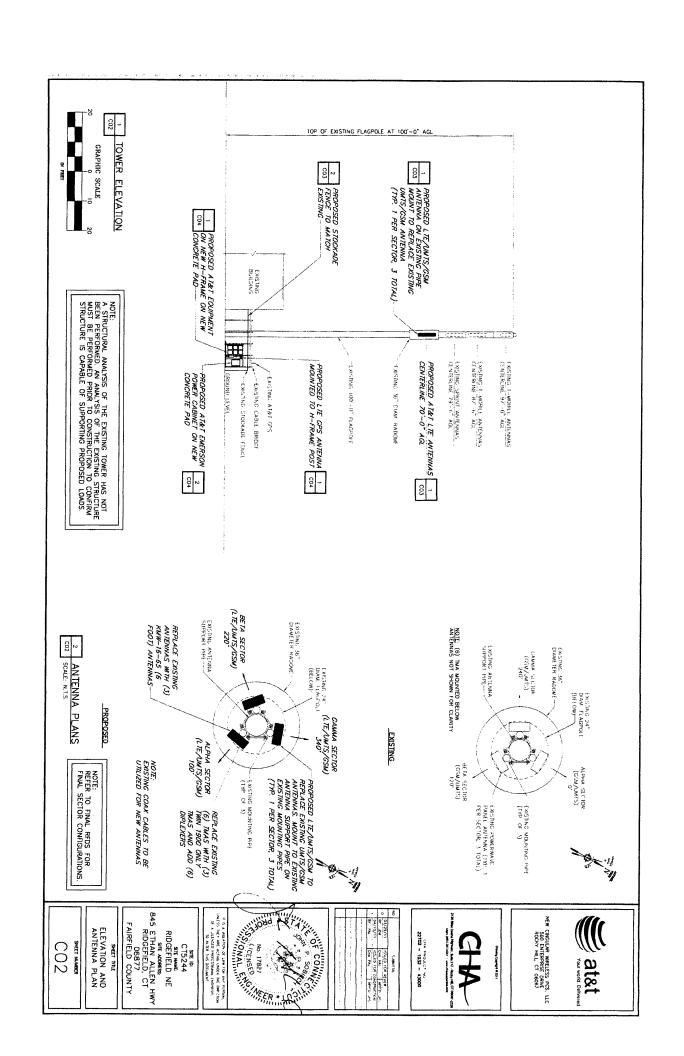
H. Karina Fournier Real Estate Consultant

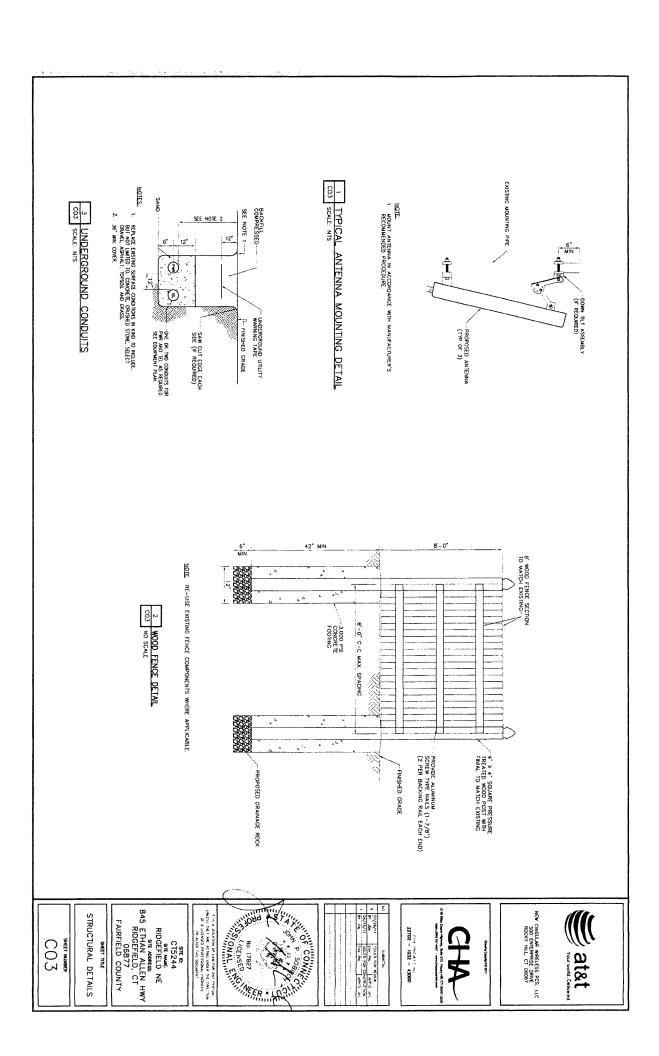
Attachments

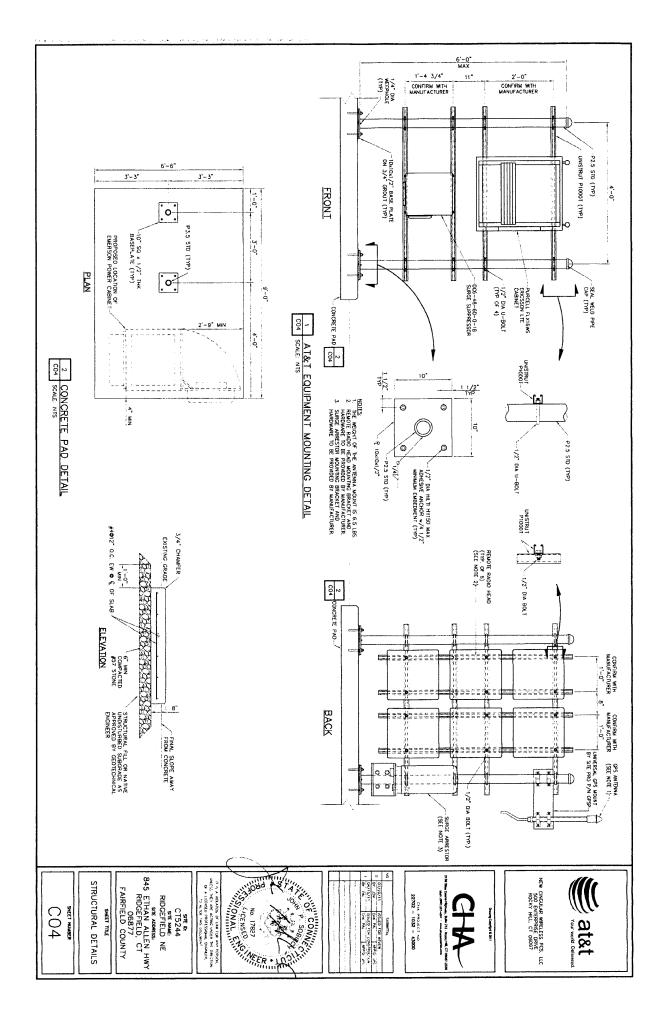


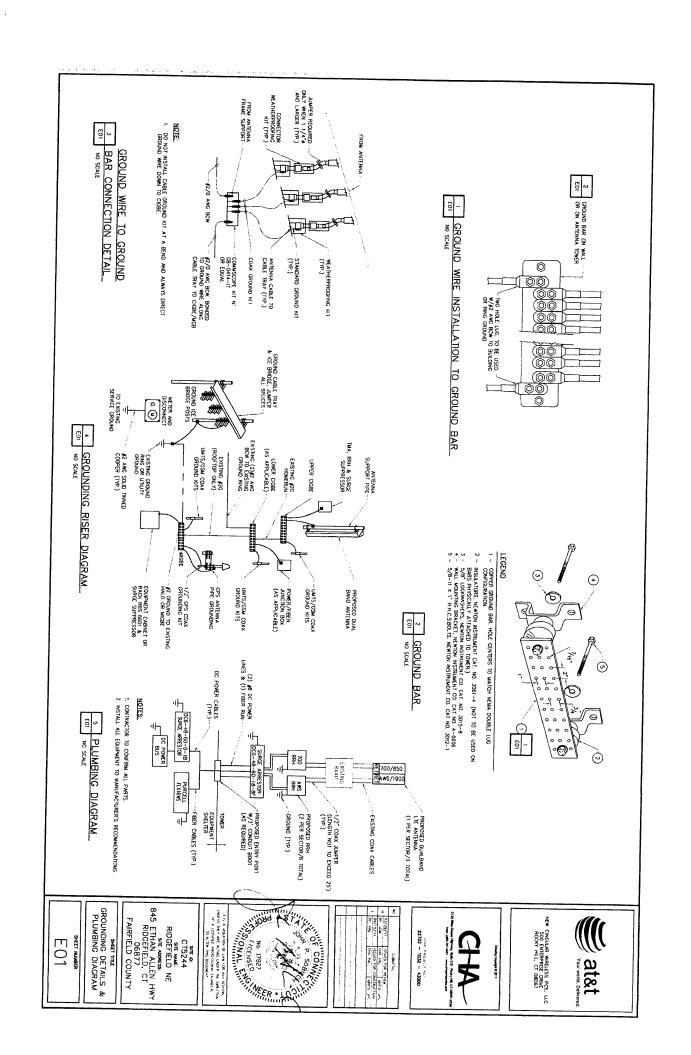












GROUNDING SYSTEM NOTES:

CONDUCTOR USED FOR CELLULAR GROUNDING SYSTEM EGR - #2 AWG ANNEALED SOLID TINNED BARE COPPER.
MUTER-BUS EXTENSION (FROM IGR TO ECR) - #2 AWG ANNEALED SOLID TINNED BARE CORDERS TOWER BOND CONNECTION TO EGR - #2 AWG SOLID COPPER.

MINIMUM BENDING RADIUS

ECR #2: 2"-0" NOMINAL AND 8" MINIMUM

CELLULAR GROUNDING CONDUCTOR SHALL BE AS STRAIGHT AS POSSIBLE MITH
MINIMUM 8" RADIUS.

CONNECTIONS LIFECHAULAL)
COMPRESSION LIFE CONNECTOR - 15 TON COMPRESSION, 2 HOLE, LONG BAFREL,
ELECTRO TIMMED PLATED, HIGH CONDUCTIVITY COPPER, 600V RAYED USE 1/4" DIA
BOLT, 3/4" SPACING LUGS TO BORND OBLECTS PROM HIGH
CONNECTOR SHALL BE BURNDY "HYLUO SERIES" OR EGVAL.

EKONTERMIC MELD LUG CONNECTOR – 2 HOLE OFFSET, ELECTRO TINNED PLATED. HIGH CONDUCTINTY COPPER. BODY USE 1/8" DIA. BOLT, 1–3/4" SPACING LUGS CONNECTOR SHALL BE CADMELD CONNECTOR STALE (CABLE TO SURFACE) TYPE "IA". EXOTHERMIC WELD TO LUG AS REQUIRED.

"C" TAP COMPRESSION CONNECTOR - HIGH CONDUCTIVITY COPPER FOR EQUAL

USE, MATCHING MANUFACTURER, TOOL AND DIE FOR COMPRESSION CONNECTION.
APPLY ANTI-MODIANT COMBUCTION'S LEWACES COMPOUND ON SUBFACES THAT ARE
COMPRESSED SUBFACES INTENDED TO BE COMMICTED WITH MECHANICAL
CONNECTORS SHALL BE BARE METAL TO BARE METAL. FRAME AND PAINT OVER
BONDED AREA TO PREVENT CORROSION

CONNECTIONS BELOW GRADE (EXOTHERMIC)
PROVIDE CADMELD CONNECTIONS - STYLE AND TYPE AS REQUIRED

WHEN BONDING #2 TO #2
EXTERIOR OF SHELTER - USE EXOTHERMIC WELD CONNECTION.

MELL BOOMME JO TO FEMEL DOST
USE EXOTHERMIC MELLO TOWNED PRE US" CONNECTION TO FENCE POST STEEL
SUPFACE, TEST MELD FOR POSSERE BURN PROMICTON TO FENCE POST STEEL
GALVANIZED COATING AS REQUIREDED FOR PROPER MELLED PERMANENT BOND.
REFER TO MANUFACTURER'S REQUIREMENTS FOR DETAILS.

SECTION 16050 GROUNDING

1.01 ALL NON-CURRENT CARRING PARTS OF THE ELECTRICAL SYSTEM AND TELEPHONE CONDUIT SYSTEMS SHALL BE MECHANICALLY AND ELECTRICALLY CONNECTED TO PROVIDE AN INDEPENDENT RETURN PATH TO THE EQUIPMENT GROUNDING SOURCES.

1.03 ELECTRICAL AC SERVICE GROUNDED SYSTEM — GROUNDING AT MAIN SERVICE. OVERCURRENT PROTECTION DEVICE. 1.02 GROUNDING SYSTEM WILL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND LOCAL INSPECTOR HAVING JURISDICTION.

A THE GROUNDED CONDUCTOR (NEUTRAL) OF THE INCOMING SERVICE FEEDERS (UNE SDE OF THE METER SCOKET) SHALL TERMINATE INTO THE MAIN OVERCURRENT DEVICE ENCLOSURE SOLID NEUTRAL BAR WHICH IS INSULATED FROM THE ENCLOSURE.

THE GROUNDING ELECTRODE CONDUCTOR SHALL EXTEND CONTINUOUSLY WITHOUT SPLICES OR JOINTS FROM THE MAIN OVERCURRENT DEVICES SOLID NEUTRAL BAR TO THE MAIN SWITCHBOARD GROUND TERMINAL

C. THE MAIN SERVICE OFFICURERY PROTECTION DEVICE ENCLOSURE'S SUPPREY TOROUGH BAR KIT SHALL BE LUGGED TO THE ENCLOSURE WITH THE SUPPREY TO THE MATERIAL PROVIDE BONDING LUMPER CONDUCTORS VERY SHALL BROWN DAR AND SOLD NEUTRAL BONDING CONDUCTORS VERY SHALL BROWN SHALL AND SOLD NEUTRAL BONDING CONDUCTORS VERY SHALL BAYE SHALL BE RECEITED E ENCLOSURE SHALL HAVE GROUNDING TOTE BUSHWA'S WITH BREWN DEVICE BONDED TORCHER WITH JOU AWE DARE COPPER WHICH IN TURN IS TERMINATED INTO THE EDUIRMENT GROUND BAR KIT.

1.04 CELLULAR GROUNDING SYSTEM:

PROVIDE THE CELLULAR GROUNDING SYSTEM AS SPECIFIED ON DRAWINGS INCLUDING BUT NOT LIMITED TO:

-GROUND BARS
-EXTERIOR GROUNDING RING
-EXTERIOR GROUND CONNECTIONS AND PLATES

6 CONNECTOR, AFTER COMPLETION OF THE COMPLETE GROUNDING SYSTEM BUT PRICE TO CONCENHENT PRICE OF SMET, SHALL NOTIFY THE AFTER CONSTRUCTION REPRESENTATION AND THE GROUNDING GROT, AMESTICITION WHO MILL MAKE A VALUAL INSPECTION OF THE GROUNDING GROT, RODS AND CONNECTIONS OF THE EXTERIOR GROUNDING SYSTEMS

SECTION 16120 CONDUCTORS

<u>.</u> ALL COMUNICTORS SHALL BE THE TIPE THAN (INTERIOR) AND XHHW (EXTERNOR), TO GREEKS C. GOOGESTS C. GOOGES

120 / 240 VAC - 1 PHASE, 3 WRE SYSTEM
PHASE: COLOR:
A BLACK
B RED
N CONTINUOUS WHITE
CONTINUOUS GREEN

1.02 MINIMUM BENDING RADIUS FOR CONDUCTORS SHALL BE 12 TIMES THE LARGEST DIAMETER OF BRANCH CIRCUIT CONDUCTOR.

SECTION 16130 RACEWAY

1.01 CONDUIT MATERIAL SHALL BE AS FOLLOWS:

(1) GALVANIZED RIGID CONDUIT (GRC) — FEEDERS EXPOSED TO EXTERIOR & UNDERGROUND CONDUIT SWEEPS.

(2) PVC CONDUIT — SERVICE CONDUITS AND WHERE SHOWN ON GROUNDING DETAILS.

GENERAL NOTES:

- ALL DMENSIONS TO, OF, AND IN EXISTING STRUCTURES SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENDINEER
- DO NOT CHANGE THE SIZE NOR SPACING OF STRUCTURAL ELEMENTS WITHOUT THE APPROVAL OF THE ENGINEER.
- DETAILS SHOWN ARE TYPICAL AND APPLY TO SIMILAR CONDITIONS UNLESS NOTED OTHERWISE.
- THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY.
- BRACE STRUCTURES AS REQUIRED FOR CONSTRUCTION AND WIND LOADS UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS. (LATERAL BRACING MEMBERS, ANCHOR BOLTS, ETC.)
- THE DESIGN IS BASED ON THE 2005 CONNECTICUT STATE BUILDING CODE (IBC 2003), 2005 CONNECTICUT SUPPLEMENT AND THE 2009 AMENDMENT TO THE 2005 CONNECTICUT SUPPLEMENT AND TIA/EIA-222-G.
- CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAWAGES WHICH MIGHT BE COCKSIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE UNDERGROUND UTILITIES.
- ò INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISTITING OR ONOCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE OWNER PRIOR TO REMEMBL OR CORRECTIVE ACTION ANY SUCH ACTION SHALL REQUIRE ENGINEER'S APPROVAL.
- 9 EACH CONTRACTOR SHALL COOPERATE WITH THE OWNER'S REPRESENTATIVE AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
- VERIFY SIZE AND LOCATION OF OPENINGS PRIOR TO BEGINNING WORK, FOR DIMENSIONS NOT SHOWN, SEE CIVIL DRAWINGS.
- VERRY SIZE AND LOCATION OF EQUIPMENT PADS WITH MECHANICAL AND/OR ELECTRICAL CONTRACTOR AND EQUIPMENT MANUFACTURER.
- 12. CONTRACTOR TO FOLLOW ALL STATE, LOCAL AND NATIONAL CODES AS APPLICABLE.

APPURTENANCE SUPPORT BRACKET NOTES:

DESIGN RESPONSIBILITY OF APPARTMANCE MOUNTING BRACKETS AND POLES AND ALL COMPONENTS THERE OF MALL BE THE RESPONSIBILITY OF THE MANUFACTURACHMENT INFRRE TO SHALL BE THE ENGINEER FOR APPROVAL DRAWNIGS DETAINMEND FACTURES SHALL PROVIDE TO THE ASSEMBLY, INCLUDING CONNECTIONS, DESIGN LOADS, ASSEMBLY, INCLUDING CONNECTIONS, DESIGN LOADS, ASSEMBLY, INCLUDING CONNECTIONS, DESIGN LOADS, AND SHALL BE APPENDED THAT AND ALL SUBMISSIONS SHALL BEAR THE STAMP AND SOME MORE FACTORIST ASSEMBLY, INCLUDING CONNECTIONS.

BRACKETS SHALL BE DESIGNED TO SUPPORT CURRENT AND FUTURE PANEL ANTENNAS, REMOTE RADIO HEADS, SURGE ARRESTORS, AND COAMAL CABLES SHOWN.

STEEL NOTES:

- STRUCTURAL STEEL FABRICATION AND ERECTION SHALL CONFORM LATEST EDITION OF THE AISC STEEL CONSTRUCTION MANUAL. 5 掃
- STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING:

 A. WIDE, FLANGE AND CHANNEL SHAPES A992 GR 50 (50 KS) UNLESS OTHERWISE NOTED

 B. ANGLES AND PLATES ASTM A36 (35 KS)

 C. STEEL PIPE ASTM A53. GRADE B A500 GRADE B (35 KS)
- 3. ALL ENTRINOR STEEL WORK SHALL BE GALVANIZED IN ACCORDANCE WITH ASTIM SPECIFICATION AT23 VINLESS OFFERWES NOTED. GALVANIZING SHALL BE PERFORMED BATER SHOP PABRICATION OF THE GRALFIST EXTENT POSSIBLE ALL DINGS. SCRAPES, MARS AND WELDS IN THE GALVANIZED AREAS SHALL BE REPARED BY RELD TOUCHUP PRIOR TO COMPETION OF THE WORK USING ZRC COLD GALVANIZING COMPOUND OR APPROVED EQUAL.

CINCULAR WIRELESS PCS. 500 ENTERPRISE DRIVE ROCKY HILL, CT 06067

at&t

CONNECTIONS:
CONNECTIONS:
CONNECTIONS, NUTS AND WASHERS USED IN EXTERIOR APPLICATIONS SHALL
BE GALVANIZED

DESIGN LOADS:

THE FOLLOWING DESIGN LOADS WERE USED FOR THIS BUILDING BASED ON THE 2005 CONNECTICUT STATE BUILDING CODE (BIG 2003). 2005 CONNECTICUT SUPPLEMENT AND THE 2009 AMENDMENT TO THE 2005 CONNECTICUT SUPPLEMENT AND TIA/EIA-222-G.

ICE LOAD: 1/2" RADIAL ON ALL COMPONENTS AND CABLE

22702 - 1032 - 43000

WNO DESIGN DATA.

BASIC WNO SPEED (3 SECOND GUST): 105 MPH
WND IMPORTANCE FACTOR = 1.0
WND EXPOSURE CATEGORY: B

EARTHOLAKE DESON DATA.

EARTHOLAKE DESON DATA.

HAPED SPECIFIAL RESPONSE ACCELERATIONS: SS=0.300 S1=0.067

SIE CLASS: D

SEISMC DESIGN CATEGORY. B







IT IS A MOLATION OF LAW FOR ANY REGISTA,

UMLESS THEY ARE ACTING UNDER THE DIRECTION

OF A LICENSED PROFESSIONAL ENGINEER,

TO ALTER THIS DOCUMENT

STE ADDRESS.

845 ETHAN ALLEN HWY
RIDGEFIELD, CT
06877
FAIRFIELD COUNTY STE ID.
CT5244
STE NAME
RIDGEFIELD NE

SHEET TITLE GENERAL NOTES

GN01 SHEET NUMBER

FOUNDATION AND SOIL PREPARATION NOTES:

- BEAR ALL FODINGS ON COMPACTED STRUCTURAL, FILL OR MATINE UNDISTURGED SUL AS APPROVED BY THE GEOTECHNICAL KIROMERS SUL BEARING SURFACES, PREVIOUSLY ACCEPTED BY OMNER'S REPRESENTATIVE, MHICH ARE ALLOWED TO BECOME SATURATED, PROZEM OR DISTURBED SHALL BE REMORKED TO SATISFACTION OF OWNER'S REPRESENTATIVE.
- BEAR ALL CONCRETE PADS AND SLABS ON GRADE ON A 6" LAYER OF ASIN #57 STOKE. SUBGANE BLOW STOKE LAYER SHALL BE COMPACTED STRUCTURAL FLU OR NATIVE (MOSTURBED SOIL AS APPROVED BY THE GEOTECHNICAL ENGINEER. SOIL BEARNS SURFACES, PREMOUSY, ACCEPTED BY OWNER'S REPRESENTATIVE, WHICH ARE ALLOHED TO BECOME SATURATED, PROZEM OR DISTURBED SHALL BE REWINKED TO ALLOHED TO BECOME SATURATED, PROZEM OR DISTURBED SHALL BE REWINKED TO ALLOHED TO BECOME SATURATED, PROZEM OR DISTURBED SHALL BE REWINKED TO ALLOHED TO BECOME SATURATED.
- DO NOT PLACE CONCRETE IN WATER OR ON FROZEN GROUND.
- DO NOT ALLOW CONCRETE SUBBASE TO FREEZE DURING CONCRETE SETTING AND CURING PERIOD OR FOR A MINIMUM OF 14 DAYS AFTER PLACEMENT.
- STRUCTURAL FILL AND BACKFILL SOUND, DURABLE SAND, GRAVEL STONE, OR BLENDS OF THESE MATERIALS, FREE FROM ORGANIC, FROZEN OR OTHER DELETERIOUS MATERIALS, AND MEETING THE FOLLOWING GRADATION REQUIREMENTS:

- FINES PASSING NO. 200 SHALL BE NON-PLASTIC.
 PARTICLE SIZE ANALYSIS SHALL SHOWN <u>NO.</u> GAP GRADING
- THE SOU BENEATH STRUCTURES AND PADS AND 5 FEET AROUND THEIR PERIMETER SHALL BE TREATED AS FOLLOWS:

 A. STRUCTURE THE AREA OF ALL REGETATION AND REMOVE ALL ORGANICS.
- A THE THE AREA OF ALL RECEIVION AND REMOVE ALL ORGANICS.

 B. PERFORM ANY CUT GERANDAS.

 C. PROCE ROLL HE SITE WITH A TANDEM AXIE LOADED DUMP TRUCK IN TWO PROCESSIVELY SHALL BETWEEN ANY CUT GERANDAS.

 C. PROCE ROLL HE SITE WITH A TANDEM AXIE LOADED DUMP TRUCKSTVELY SHALL BETWEEN ANY CARE DESTRUCTIONAL FLIL CORRESPONDED TO THE COMMON RECURRENTS WANTED STRUCTURAL FLIL CORRESPONDED STRUCTURAL FLIL CROSS SHALL HAVE A PLASTICITY HOUSE ESTRUCTURAL FLIL CROSS SHALL HAVE A PLASTICITY HOUSE ESTRUCTURAL FLIL CROSS AND LANDED WHILL ESS THAN AND PLACE PLASTICITY HOUSE ESTRUCTURAL FLIL CROSS AND LANDED WHILL TESS THAN AND PLACE ALL FLIL (ON SITE OF SHEED) THE SHOULDEN ALL LIFTS AND COMPACT TO AT LICAST 195% OF THE SHANDARD PROCECTION DESIGNY AT A MOSTURE CONTENT WHICH AS A PACE CROSSITY AT A PAC
- CONTRACTOR SHALL FINISH GRADE SITE LEYEL WITH EXISTING, 5 FEET BEYOND PROPOSED PADS AND STRUCTURES, THEN TAPER TO EXISTING GRADE. IF REQUIRED, AT A MAXIMUM SLOPE OF 3T.

CAST-IN-PLACE CONCRETE NOTES:

- DESIGN AND CONSTRUCTION OF ALL CONCRETE ELEMENTS SHALL CONFORM TO THE FOLLOWING APPLICABLE CODES, SHALL CONFORM TO FREE OFFICE OFFICE OF STRUCTURAL CONCRETE FOR BUILDINGS; ACI 318. BUILDING CODE REQUIREMENTS FOR REPROPERCY CONCRETE.
- MIX DESIGN SHALL BE APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO PLACING CONCRETE. PREPAGE AND SHAMIN MIX DESIGNS IN ACCORDANCE MIT ACIZIT. PROPORTIONING CONCRETE MIXTURES; AND ACI 301, SPECIFICATIONS FOR STRUCTURAL CONCRETE.
- ALL CONCRETE SHALL HAME A 28 DAY DESIGN COMPRESSIVE STRENGTH OF 4 000 PS; A MINIMUM OF 564 POUNDS OF ASTIM C-150 THE FORTIAN COLEKT FER CUBIC YARD. 48 TO 58 AR CONTENT USING ASTIM C-250 ARE ENTRAUNICE ACENT AS REQUIRED. 6: "A-2" SQLUMP PROPRIO TO THE ADDITION OF ASTIM C-434 (TIPE F OR O) WATER REDUCING ACENT ZOX OF CLASS F FLYASH MAY BE USED WITH THE PRIOR APPROVAL OF THE BROWNERS AND THE CONCRETE FINSHERS/CONTRACTOR
- CONCRETE AGGREGATE SHALL MEET ASTM C 33 SPECIFICATIONS AND SHALL HAVE A MAXIMUM SIZE OF $3/4\,\%$
- CONCRETE SHALL HAVE A MAXIMUM WATER TO CEMENT RATIO OF 0.45. ADDITION OF WATER AT THE JOB SITE IS PROHIBITED WITHOUT PRIOR APPROVAL OF THE ENGINEER.
- IF THE AME TEMPERATURE IS ORGENTE THAM 90 DECREES WITHIN 2.4 MOINES AFTER
 PLACEMENT, HOT WANTHES CONCRETE PROPEDURES FER NO. JOSÉS SHAUL BE USED.
 THE CONTRACTOR SHAUL SUBBUT A PROCEDURE TO THE ENGNEER FOR APPROVAL.
 THESE PROCEDURES MAY INCLUDE THE FOLLOWING.
 A PLACING THE CONCRETE IN THE LEARLY MORNING HOURS
 B THE USE OF EMPLOYERS (FEE BELOW)
 C THE USE OF EMPLOYERS AS A CHRING METHOD
 C THE USE OF WITH BANKETS AS A CHRING METHOD
 C THE USE OF WITH BANKETS AS A CHRING METHOD
 C THE USE OF WITH BANKETS AS A CHRING METHOD
 C THE USE OF WITH BANKETS AS A CHRING METHOD

- FOUR 438 CONCRETE CYLINDERS SHALL BE MADE FOR EVERY 75 CLIBIC YARDS OR EACH DAYS POUR; TO BE TESTED AT 7, 28, 28 AND ONE TO HOLD THE CONCRETE SLUMP, TEMPERATURE, AND AN CONTENT SHALL BE MEASURED EVERY TIME A SET OF FOUR CYLINDERS IS MADE

COLD WEATHER CONCRETING SHALL BE PERFORMED PER ACI 306R REQUIRMENTS

- ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE AMERICAN CONCRETE INSTITUTE STANDARDS STUDINGS CODE REQUIREMENTS OR STRUCTURAL CONCRETE FOR BUILDINGS. (ACI. 31): SPICES IN REMFOREDWENT SHALL MEET CLASS B TENSION LAP REQUIREMENTS ONEESS NOTED OTHERWISE.
- CORER FOR ALL ERMORCHENT SHALL MEET THE CONERAGE REQUIREMENTS AS SHOWN IN THE LATEST AND JUST AS SHORDED BELOW PA AS SHOWN ON THE DETAILS CONTROL OVER THE ACT 318 OR THOSE NOTED BELOWS A NAMED SURFACES: 1:1/2"

 B. AGAINST EARTH: 3"

 C. BETWEEN REBAR: 1/2"

 D. TOP OF SLAB ON GRADE: 1:1/2"
- REMPORCING STEEL SHALL BE NEW COMESTIC DEFERMED BILLET STEEL CONFORMANG TO ASTM A-615. GRADE 60, 44 REMPORONG BASE AND SMALLER COLD BRIT WHENEVER BENDING IS REQUIRED IN THE FIELD REINFORCEMENT GREATER THAN A AS BERNIT METHE FIELD METHER THAN A FACHER STANDED THE FIELD BRITTEN BENDING IS REQUIRED IN THE FIELD METHER THAN SOR DIRECTED BY THE ENGINEER OTHERWISE.
- 12. REINFORCING DETAILS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF ACI 315.
- 13. REINFORCING SPLICES SHALL BE CLASS 'B' AND ALL HOOKS SHALL BE STANDARD, UND. DO NOT WELD REINFORCING.
- 14. PROVIDE 3/4" x 3/4" CHAMFER AT ALL EXPOSED CORNERS UNLESS NOTED OTHERWISE
- IS NO HOLES OR OPENIOS ARE PERMITTED THROUGH CONCRETE SLABS OR WALLS EXCEPT AS TOLLOWS.

 A WHERE SHOWN AND AS DETAILED ON DRAWNGS.

 B. MISCELLANEOUS HOLES THROUGH SLABS OR WALLS WHICH DO NOT DISPLACE MORE THAN ONE BAR. THESE DO NOT REQUIRE ADDITIONAL REINFORCEMENT.
- LOCATE ADDITIONAL CONSTRUCTION JOINTS REQUIRED TO FACILITATE CONSTRUCTION AS ACCEPTABLE TO ENGINEER COLOR MALE CONSTRUCTION JOINTS AT MASSIVE ADDITIONAL CONTROL OF THE PROSENEE PLACE REINFORCEMENT CONTROLOUSLY THROUGH JOINT, DEVELOUE ALL JOHN'S MEETE POSSIBLE. PLACE REINFORCEMENT CONTROLOUSLY THROUGH JOINT, DEVELOUE TAIL JOHN I AND SOME ON SHOOP DRAMMOSS.
- CAST CONCRETE ON SLOPED SUPFACES BEGINNING AT LOWEST ELEVATION AND CONTINUING MONOLITHICALLY TOWARD HIGHER ELEVATIONS UNTIL INTENDED POUR IS COMPLETED.
- IB PLACE CONCRETE IN A UNIFORM MANNER TO PREVENT THE FORMATION OF COLD JOINTS AND OTHER PLANES OF MEMANES. VIBBATE THE FORCERE TO PLALY EMBED MEMORENGE, DO NOT USE VIBRATIONS TO TRANSPORT CONCRETE THROUGH CHUTES OR FORMATION.
- REMPERCING BARS, BAR SIPPORTS, AND SPACETS SHALL BE DETAILD AND REPONDED IN ACCORDANCE WITH THE LATEST AND ETAILING MANUAL USE WRE-DAR SUPPORTS COMPTING WITH CHSU SPECIFICATIONS. SUPPORTS SHALL NOT BE PLACED FURTHER THAN 4 FEET APART DAYTON/ROMAND PRODUCTS (8007-457-2703) OR CDUAL UNLESS NOTED OTHERWISE IN THE SPECIFICATIONS.

 A A SLASS-ON-CRACE (SLAB HICKNESS MINUS 1 //2 MOJES) HIGH, TIPE R23, OR FIFE BBP USE SUPPORTS WITH SWOD PLATES ON HORIZONTAL RUNNERS WHERE AND STATE OF THE BEB USE SUPPORT OWN CESS. CONDETE: BLOCK OR CLASS 10 CONTACT WITH THE FORMES FROMOTE SUPPORTS WITH LECS OF SUPPORTS ARE DO FORMED TO MEM CONDUCT WITH CONTACT AND STANDERS WITH LECS WITH ARE PLASSED ON THE FORMES FROMOTE SUPPORTS WITH LECS WITH ARE PLASSED.
- 20. USE ONE OF THE FOLLOWING SEALERS ON ALL INTERIOR EXPOSED CONCRETE SURFACES:
- SEAL HARD BY L&M EUCO DIAMOND HARD BY EUCLID
- DECUSSA COMPILM OR EUCOBAR EVAPORATION REDUCERS SHALL BE USED AFTER EACH FINISHING OPERATION ON THE CAST IN PLACE COMPRETE FLOOR SLAB UNLESS PRIOR APPROVAL FROM THE ENGINEER HAS BEEN OBTAINED TO NOT USE THIS PRODUCT.
- 22 IS ANNOUTS IN CONCRETE SLABS SHALL BE MADE AS SOON AS THE CONCRETE IS OF SHEPICENT STREAM TO SAM WINDOUT RACELOR THE ACCESSORTE ANY THE LAPSE OREATER HAIN 8 HOURS AFTER PLACING THE CONCRETE SHALL BE PERMITTED DIVLY APPROPED BY THE ENOMERE RULL ALL INTERIOR DOINTS WITH ARDEX MATER AND STATE AND COMPOUND. FILL ALL EXTERIOR JOINTS WITH ARDEX ANDISSAIL RAPPO.

- 23. ADJESIVE, ANCHORS WITH REBAR OR THREADED RODS, SHALL BE AS NOTED BELOW INSTALL ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS, WHICH INCLUDES CLEANING THE INDEL WITH AR AND USING A MANUFACTURER APPROVED DISPENSING TOOL WITH MIXING NOZZLE.
- A INTO CONCRETE OR GROUTED CAU. HILT HIT 50 MAX OR SIMPSON SET HON. B. IF THIS PROJECT IS IN SEISMIC ZONE O (SEE THE DESIGN LOAD NOTE SECTION) USE ONLY HILT HIT—RE SOOSD.
- 24. NO PIPING OR CONDUITS SHALL BE INSTALLED IN ANY CONCRETE WITHOUT THE APPROVAL OF THE ENGINEER, IN GENERAL, IF APPROVED BY THE ENGINEER, ANY PIPING OR CONDUITS MUST BE LOCATED IN THE MODLE OF THE SLAB AND NOT BE OVER ONE MICH IN DIAMETER.
- ALL DOMELS, ANCHOR BOLTS, EMBEDDED STEEL, ELECTRICAL CONDUITS, PIPE SLEEVES, PHING, GROUNDS, AND ALL CHIER EMBEDDED ITEMS AND FORMED DETAILS SHALL BE IN PLACE BEFORE START OF CONCRETE PLACEMENT, VERIFY SIZE AND LOCATION OF ALL OPENINGS.
- 26. ALL PEPING AND DUCT PERHETRATIONS THROUGH NEW STRUCTURAL SLASE ARE TO BE EXERVED OR CHASED. NO CORNIC OF SLAB IS PERMITTED, ALL PHING THROUGH EXISTING STRUCTURAL SLABS MAY BE CORED IF APPROVED BY ENGINEER.

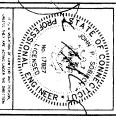


CINGULAR WIRELESS PCS, LLC 500 ENTERPRISE DRIVE ROCKY HILL, CT 06087



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B45 ETHAN ALLEN HWY
RIDGEFIELD, CT
06877
FAIRFIELD COUNTY SITE ID.

CT5244

SITE NAME

RIDGEFIELD NE

SHEET NUMBER

SHEET TITLE GENERAL NOTES

GN02



APPROVED

By Aaron T. Chandler at 2:21 pm, Oct 28, 2011

Date: August 4, 2011

Kenny Fann T-Mobile Towers 12920 SE 38th Street Bellevue, WA 98006 (425) 383-3978



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

Subject:

Structural Analysis Report

Carrier Designation:

AT&T Collocation

AT&T Site Number: AT&T Site Name:

CT5244 Ridgefield

T-Mobile Designation:

T-Mobile Site Number:

CT11112H

T-Mobile Site Name:

Redding/ Rt 7

Engineering Firm Designation:

TEP Project Number:

112828

Site Data:

845 Ethan Allen Highway

Ridgefield, Fairfield County, CT 06877

Latitude 41 ° 18' 47.13" Longitude -73 ° 28' 20.80"

100 ft - Stealth Flagpole

Dear Mr. Fann,

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

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

LC1: Existing + Proposed Equipment

Note: See Table 1 for the existing and proposed loading.

Sufficient Capacity

Structure Capacity	Controlling Component
96.2 %	Pole: 36" Canister (62 - 74 ft)

The analysis has been performed in accordance with ANSI/TIA-222-F-1996 <u>Structural Standard for Steel Antenna Supporting Towers and Antenna Supporting Structures</u> and the 2005 <u>Connecticut Building Code</u> with

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

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

Respectfully submitted by:

Andrew T. Haldane, P.E.

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6) APPENDIX B

Coax Configuration Plan

7) APPENDIX C

Additional Calculations

1) INTRODUCTION

This tower is a 100-ft stealth flagpole tower designed by Pirod in February of 2001. The tower was originally designed per ANSI/TIA/EIA-222-F <u>Structural Standards for Steel Antenna Towers and Antenna Supporting Structures</u> using a fastest mile wind speed of 85 mph without ice and 63.75 mph with 1/2 inch radial ice for the appurtenances listed in Table 2. TEP did not visit the site. All information provided to TEP was assumed accurate and complete.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of ANSI/TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 85 mph without ice, 37.6 mph with 0.75 inch ice increasing in thickness with height, and 60 mph under service loads for a rigorous Structural Analysis.

Table 1 - Existing and Proposed Antenna and Cable Information

Existing/ Proposed	Elevation (ft)	Qty	Antenna Model	Mount Type	Qty Coax	Coax Size	Coax Location	Owner/ Tenant
	100	1	12.0' x 20' Flag/ Ball Carrier	-	-	_	-	-
	97.5	3 6	Andrew TMBXX-6516-R2M Andrew ETW190VS12UB TMA	Inside Stealth	6	7/8		
Existing	87.5	3	Andrew TMBXX-6516-R2M Andrew ETW190VS12UB TMA	Inside Stealth	6	7/8		T-Mobile
	79.5	3	EMS FR65-17-00DP	Inside Stealth	6	1-1/4	Inside	Sprint
Proposed	70	3 3 6	KMW AM-X-CD-16-65-00T-RET CCI DTMABP7819VG12A Kaelus TBC0020FxVx	Inside 36" x 12' Shroud	6	1-1/4		AT&T

Table 2 - Design Antenna and Cable Information

Mounting Level (ft)	Elevation (ft)	Number of Antennas	Antenna Model	Mount Type	Coax Size (in)	Coax Location
100	100	1	12' x 20' Flag	-	-	-
62 – 100	62 – 100	1	38' Concealment Section	-	-	-

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
Design Drawings	Pirod dated February 14, 2001 Job No. A-118156	-	T-Mobile
Geotechnical Investigation	Dr. Clarence Welti dated May 1, 2000	-	T-Mobile
Correspondence	Correspondence with T-Mobile with regard to the existing and proposed loadings. SAW dated 6/20/11.	-	T-Mobile

3.1) Analysis Method

RISATower (version 5.4.2.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

- 1) Tower and structures were built in accordance with the manufacturer's specifications.
- 2) The tower and structures have been maintained in accordance with the manufacturer's specification.
- The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Table 1.
- 4) Serviceability with respect to antenna twist, tilt, roll, or lateral translation is not checked and is left to the carrier or tower owner to ensure conformance.
- 5) This report is not a construction document.
- 6) Interior shroud pipe assumed to be 6" Double-Extra Strong pipes of A53-B-42 steel.

Table 4 - Section Capacity Summary

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (lb)	SF*P_allow (lb)	% Capacity	Pass . Fail
L1	100 - 74	Pole	TEP#112828 24" Canister	1	-1862.530	525281.958	48.5	Pass
L2	74 - 62	Pole	TEP#112828 36" Canister	2	-2981.660	525281.958	96.2	Pass
L3	62 - 30	Pole	P24x3/8	3	-6401.820	934939.501	32.8	Pass
L4	30 - 0	Pole	P24x3/8	4	-9672.360	934939.501	60.4	Pass
							Summary	
						Pole (L2)	96.2	Pass
						RATING =	96.2	Pass

Table 5 - Component Stresses vs. Capacity - Foundation

Note	Component	Elevation (ft)	% Capacity	Pass / Fail
-	Anchor Rods	-	37.5	Pass
-	Foundation - Soil Interaction	-	15.4	Pass
•	Foundation - Structural	-	73.2	Pass
	Structure Rating (max from all	components) =		96.2 %

4.1) Recommendations - TEP recommends the following:

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

APPENDIX A RISA TOWER OUTPUT

TEP#112828 24" Canister	26.000		1383.5	
TEP#112828 36" Canister	12.000	A53-B-42	638.5	74.0 ft

30.0 ft

0.0 ft

7893.9

DESIGNED APPURTENANCE LOADING

ELEVATION	TYPE	ELEVATION
100	24" Canister	87
97.5	FR65-17-DP (Sprint)	79.5
97.5	FR65-17-DP (Sprint)	79.5
97.5	FR65-17-DP (Sprint)	79.5
97.5	AM-X-CD-16-65-00T-RET (ATT)	70
97.5	AM-X-CD-16-65-00T-RET (ATI)	70
97.5	DTMABP7819VG12A	70
94	DTMABP7819VG12A	70
87.5	DTMABP7819VG12A	70
87.5	TMA0002FxV1	70
87.5	TMA0002FxV1	70
87.5	TMA0002FxV1	70
87.5		70
87.5	36" Canister	68
	ELEVATION 100 97.5	100 24" Canister 97.5 FR65-17-DP (Sprint) 97.5 FR65-17-DP (Sprint) 97.5 FR65-17-DP (Sprint) 97.5 FR65-17-DP (Sprint) 97.5 AM-X-CD-16-65-00T-RET (ATI) 97.5 AM-X-CD-16-65-00T-RET (ATI) 97.5 DTMABP7819VG12A 94 DTMABP7819VG12A 87.5 DTMABP7819VG12A 87.5 TMA0002FxV1 87.5 TMA0002FxV1 87.5 TMA0002FxV1 87.5 AM-X-CD-16-65-00T-RET (ATI)

MATERIAL STRENGTH GRADE Fu GRADE Fy Fu A53-B-42

TOWER DESIGN NOTES

Tower is located in Fairfield County, Connecticut.
 Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
 Tower is also designed for a 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.

Deflections are based upon a 60 mph wind.
 TOWER RATING: 96.2%

AXIAL 14279 lb

SHEAR 1083 lb

MOMENT ₹ 62589 lb-ft

TORQUE 40 lb-ft 38 mph WIND - 0.750 in ICE AXIAL 9675 lb

SHEAR 5011 lb

MOMENT v 295547 lb-ft

TORQUE 597 lb-ft REACTIONS - 85 mph WIND

ower Engineering Professionals

Tower Engineering Professional 3703 Junction Boulevard Raleigh, NC 26603 Phone: (919) 661-6351

CT11112H roject: **TEP#112828** Client: T-Mobile Towers

Code: TIA/EIA-222-F

Drawn by: jcox App'd: Scale: NTS Date: 08/04/11 Dwg No E-

FAX: (919) 661-6350

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KISAIOWer	CT11112H	1 019
Tower Emineering Professional	Project	Date
3703 Junction Boulevard	TEP#112828	10:43:01 08/04/11
Raleigh, NC 206ft3	Client	Designed by
Florre: (919) 661-6351 FAX: (919) 661-6350	T-Mobile Towers	COX

Tower Input Data

There is a pole section.

This tower is designed using the TTA/E1A-222-F standard.

This tower is designed using the printing of the following design criteria apply:

Tower is located in Fairfield County, Connecticut.

Basic wind speed of 85 mph.

Nominal fee thickness of 0.780 in.

The thickness is considered to mercase with height.

The density of 56 pcf.

A wind speed of 38 mph is used in combination with ice.

Temperature drop of 50 Pcf.

A wind speed of 60 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated using a wind speed of 60 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated are canch section.

Stress ratio used in pole design is 1.333.

Local bending stresses due to climbing loads. feedline supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs. Consider Moments - Legs. Consider Moments - Harmonds, Consider Moments - Dispiration - Leg - Moment Magnification - Leg - Che Single For Wind Area - Use Use Che Single Radio - Use Che Spans For Wind Area - Igan Use Cote Single Radio - Leg - Che Spans For Wind Area - Igan Use Cote Single Radio - Leg - Che Spans For Wind Area - Igan Use Cote Single Radio - Leg - Che Spans For Wind Area - Igan Fecalactic - Che Single Radio - Check - All Area - Chapter - All Area - Alphan - All Area - Alphan - Leg - Check - All Area - Alphan - Leg - Check - All Area - Alphan - Leg - Check - All Area - Alphan - Leg - Check - All Area - Alphan - Leg - Check - All Area - Alphan - Leg - Check - All Area - Alphan - Leg - Check - All Area - Alphan - Leg - Check - All Area - Alphan - Leg - Check - All Area - Alphan - Leg - Check - All Area - Alphan - Leg - Check - All Area - Alphan - Leg - Check - All Area - Alphan - Leg - Check - All Area - Alphan - Leg - Check - All Area - Alphan - Leg - Check - All Area - Alphan - Albhan -	Trent Freedine Bundles As Cytholer Lak ANE II NY Brace 1, 8 Rules Cadatular Redundant Bracing Frorces For Part State Redundant Members in First Reg Part Seeks (Compression AII Leg Panels Huee Same Allwards Oldes Ciff at Paradalation Conseker Feedines Tropine Inches Angle Brace Same Allwards Canseker Feedines Tropine Inches Register Tropine Tropine Allwards Profits State Cheek Angle Register Cheek Shert Cheek Sh
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Pole Section Geometry

Elevation: ft 100,000-74,000 74,000-52,000 62,000-30,000 30,000-000	Sertion Pole Pole Socket Length Length Size Grade fi	TEP#112828 24" Canister	12.000 TEP#112828.36" ASS-B-42 Canister (42.ks)		30,000 P24x3/8 A53-B-42
5 7 6 6	Elevation ft	100,000-74,000	74,000-62,000	62,000-30,000	30,000-0,000

RISA Tower		Page
THE COURT OF THE	СТ11112Н	2.01.9
Tower Francesing Professional	Project	Date
3703 Junction Boulevard	TEP#112828	10:43:01 08/04/11
Raleigh, NC 26603	Client	Designed by
Phone: (919) 661-6351 FAX: (919) 661-6350	T-Mobile Towers	jcox

Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Gusser Grade Adjust, Factor A _t	Adjust. Factor A,	Weight Mult.	Double Angle 1 Stitch Bolt Spacing Diagonals	Double Angle Saich Bolt Spacing Horizontals
U	Jr.	u)					in	in
7				1	-	-		
00.000-74.00								
0								
1.2					_	_		
4.000-62.000								
13				-	-	_		
62,000-30,000								
17					_	-		
20 000.0 000								

Feed Line/Linear Appurtenances - Entered As Area

Description	Fare	Shield	Component	Placement	Total Number		C.A.	Weight	
	Lex			11			11/11	thd	
LDF5-50A (7/8 FOAM)	U	No	Inside Pole	97.500 - 0.000	9	No Ice	0.000	0.330	
(T-Mobile)						112" Icc	0.000	0.330	
						l" Ice	0.000	0.330	
						2" Ice	0.000	0.330	
						4" Ice	0.000	0.330	
LDF5-50A (7/8 FOAM)	U	Ŷ.	Inside Pole	87.500 - 0.000	9	No Ice	0.000	0.330	
(T-Mobile)						1/2" Fcc	0.000	0.330	
						1" 1cc	0.000	0.330	
						2" Ice	0.000	0.330	
						4" Ice	0.000	0.330	
LDF6-50A (1-1/4	U	Š	Inside Pole	79.500 - 0.000	9	No Ice	0.000	0.660	
FOAM						1/2" Ice	0.000	0.660	
(T-Mobile)						l" lee	0.000	0.660	
						2" Ice	0.000	0.660	
						4" Ice	0.000	0.660	
LDF6-50A (1-1/4	C	Š	Inside Pole	70,000 - 0,000	9	No Ice	0.000	0.660	
FOAM)						1/2" Ice	0.000	0.660	
(T-Mobile)						l" Ice	0.000	0.660	
						2" Ice	0.000	0.660	
						4" Ice	0.000	0.660	
Safety Line 378	U	Ž	CaAa (Out Of	100.000 - 0.000	-	No Ice	0.037	0.220	
			Face)			1/2" Ice	0.137	0.750	
						l" Ice	0.238	1.280	
						2" Ice	0.437	2.340	
						A" Ice	0.836	1.160	

Feed Line/Linear Appurtenances Section Areas

Fower	Tower Elevation	Face	A	₹ %	CAAA. In Face	CsAs Our Face	Weight
17	100:000-74:000	٧	0.000	0.000	0.000	0.000	0.000
		m U	0.000	0000	0.000	0.000	0.000
1.2	74,000-62,000	<	0.000	0.000	0.000	0.000	0.000
		m	0.000	0.000	0.000	0.000	0.000

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3703 Junction Boulevard	TEP#112828	10:43:01 08/04/11
Raleigh, NC 26603	Client	Designed by
FAX: (919) 661-6350	I-Mobile Lowers	jcox

C,As	In Face Out Face	ft. ft.	0.000 0.450 129.360	0.000	0.000	0.000	0.000 0.000	0.000	
AR A			0000 0000						
Face			Ü	~	æ	U	K	В	ţ
Tower	Flevation	ji,		62,000-30,000			30.000-0.000		
Tower	Section			1.3			4		

Feed Line/Linear Appurtenances Section Areas - With Ice

	33		0	מאלע	terialises.	2551101	Aicas	י ככת בוווכן בוווכמן שלאחו (פוומוורפס ספרווסון אופסס - אזונון ורפ
Tower	Tower	Face	for Thickness	AR	A,	CAAA In Face	CAAs Out Face	Weight
	Ü	Leg	in	jt.	, ii.	fi.	ft.	4)
	100.000-74,000	K	0.843	0.000	0.000	0.000	0.000	0.000
		20		0.000	0.000	0.000	0.000	0000
		U		0.000	0.000	0.000	5.356	123.980
	74.000-62.000	<	0.818	0.000	0.000	0.000	0.000	0.000
		3		0000	0.000	0.000	0.000	0.000
		S		0000	0.000	0.000	2,413	139.765
	62,000-30,000	V	0.781	0.000	0.000	0.000	0.000	0.000
		æ		0.000	0.000	0.000	0.000	0.000
		U		0000	0.000	0.000	6.200	413.702
	30,000-0,000	*	0.750	0.000	0.000	0.000	0.000	0000
		В		0.000	0.000	0.000	0.000	0.000
		U		0.000	0.000	0000	5.625	386.850

Feed Line Center of Pressure

Section	Elevation	CPx	CP_Z	Chr	CP,	
				lee	lee	
	ıf.	u u	in	in	in	
-17	100.000-74,000	-0.048	0.028	40.228	0.132	
1.2	74,000-62,000	-0.048	0.028	-0.235	0.136	
F3	62,000-30,000	-0.048	0.028	-0.217	0.125	
7	30.000-0.000	-0.048	0.028	40.211	0.122	

Discrete Tower Loads

Face or Leg	Offset	Offsets: Hor: Lateral	Azimuth Adjustment	Placement		C,A, Front	C _o A _s Side	Weight
		444		u.		#	#	114
U	From Leg	0.500	0000	94,000	No lee 1/2" lee 1" lee	8.120 0.000 0.000	8.120 0.000 0.000	0.000 0.000
					J. Ice	0.00.0	0000	0000

RISATower	Job GT11112H	Page 4 of 9
Tower Engineering Professional	Project TEP#112828	Date 10:43:01 08/04/11
Raleigh, NC 20603 Phone: (919) 661-6351 FAX: (919) 661-6350	Client T-Mobile Towers	Designed by jcox

Page 5 of 0	Date	10:43:01 08/04/11	Designed by
OT11112H	roject TEP#11.9990	Client	T-Mobile Towers
RISATower	Tower Engineering Professional	Raleigh, NC 26603	EAX; (919) 661-6350

	or Leg		Type	Offsets: Horz Lateral Vert R R R	Aciment	Placement	10	C.A. Front Jr	C.A. Süle Ji	Weight B	
ETW190VS12UB (T-Mobile)	æ.	ž	None		0.000	87.500	4" lee No lee 1/2" lee 1" lee	0.000 c 0.000 0.000			
ETW190VS12UB (T-Mobile)	٠ ,	None	ē		0.000	87.500	1" lee 1/2" lee 2" lee 4" lee		0.000 0.000 0.000 0.000 0.000 0.000	44,320 107,848 19,541 26,012 44,320 107,848	
(Sprint)	¢ .	None	9		0000	79,500	No lee 1/2" lee 1" lee 2" lee	0.000	0.000	18.000 40.418 67.356 135.574	
(Sprint)	n	None	9		0.000	79.500	No lee 1/2" lee 1" lee 2" lee		0.000	334.815 18.000 40.418 67.356 135.574	
FR65-17-Dp (Sprint)	Ü	None	u		0.000	79.500	No lee	0.000	0.000	334.815 18.000 40.418 67.356 135.574	
AM-X-CD-16-65-00T-RET (AT&T)	<	None			0.000	70.000	No lee 1/2" lee 1" lee	0.000	0.000	48.500 94.996 147.499	
AM-X-CD-16-65-40T-RET (AT&T) AM-X-CD-16-65-40T-RET	m U	None			0000	70.000	4" Ice No Ice 1/2" Ice 1" Ice 4" Ice	0.000 0.000 0.000 0.000 0.000	0.000 0.000 0.000 0.000 0.000	271.310 599.587 48.500 94.996 147.499 271.310 599.587	
(AT&T) DFMABP7819VG12A	<	None			0.000	70,000	No lee 172" lee 1" lee 2" lee 4" lee 171" lee 173" lee	0.000 0.000 0.000 0.000 0.000 0.000 0.000	0000 0000 0000 0000 0000 0000 0000	48.500 94.996 147.499 27f.310 599.587 14.600	
DTMABP7819VG12A	m ·	None			0:000	70.080	27 Fe 47 Fe No Ice 1/27 Fe 17 Fe	0.000	0.000	44.320 107.848 14.600 19.541 26.012	
DTMABP7819VG12A	U	None			0.000	70.000	4" lee No lee 1/2" lee 1" lee 2" lee	0.000 0.000 0.000 0.000 0.000 0.000	0.000	44.320 107.848 14.600 19.541 26.012	

	Page	6 of 9		Date	200	10:43:01 08/04/11	1000	Designed by		XOO
ob		CT11112H	Project		TED#112020		Client	T-Mobile Toward	S DAO COOL	
DICATE	MISALOWer		-	Stonal	5703 Junction Boulevard	Raleigh NC 36603		FAV: (919) 001-6351	05.00-100 (414) .W	

D		Territoriori S.A.								
nescription		Face or Leg	Offset Type	Offsets: Horz Lateral	Azimuth Adjustment	Placement		C ₃ A ₃ Front	CAAA Side	Weight
				n n n		4		""	H	112
TMA0002FxV1		4	None		0.000	70.000	4" Ice No Ice	0.000	0.000	107.848
							1/2" lee 1" lee	0000	0000	19.978
TMA0002FxV1		B	None		0000	70.000	2" Ice 4" Ice No Ice	0.000	0.000	43.168
							12" le	0000	0.000	19,978
[MA0002FxV]		L	N.				2" Tec	0.000	0.000	43,168
					0000	70.000	No Ice	0.000	0.000	15,432
							l" Jee	0.000	0.000	25.986
***							4. Ice	0.000	0.000	43,168
36" Canister		U	None		0.000	68.000	No Ice	0.000	0.000	PF 97
							172" Ice	0.000	0.000	344.503
							2" Ice	0.000	0,000	612,063
24" Canister	J	Ü	None		0.000	87,000	4" Icc	0.000	0.000	2217,417
							1/2" Ice	0.000	0.000	100.557
							l" lee	0.000	0.000	888.799
							2 100	0.000	0.000	1667.042
							4" lee	0.000	0.000	3223.527

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3703 Junction Boulevard	TEP#112828	10:43:01 08/04/11
Ruleigh, NC 26603	Client	Design of Land
Phone: (919) 661-6351	T-Mohile Towers	nesigned by
FAX: (919) 661-6350		COX

~	lo.		and company
C	50	Dead+Wind 150 dev+Loc+Tenm	
cı	17	Dead+Wind 180 deg+lce+Temp	
61	52	Dead+Wind 210 deg+Ice+Temp	
cı		Dead+Wind 240 deg+lce+Temp	
CI	4	Dead+Wind 270 deg+Ice+Temp	
41	5.	Dead+Wind 300 deg+lce+Temp	
CI	93	Dead+Wind 330 deg+lce+Tenn	
6.1	12	Dead+Wind 0 deg - Service	
2	28	Dead+Wind 30 deg - Service	
2	6	Dead+Wind 60 deg - Service	
100	0	Dead+Wind 90 deg - Service	
3	-	Dead+Wind 120 deg - Service	
60	C	Dead+Wind 150 deg - Service	
100	3	Dead+Wind 180 deg - Service	
re)	7	Dead+Wind 210 deg - Service	
100	9	Dead+Wind 240 deg - Service	
100	9	Dead+Wind 270 deg - Service	
*	7	Dead+Wind 300 deg - Service	
er.	×	Dead+Wind 330 deg - Service	

:		Maxillulis		Dellections	I ower Deliections - Service Wind
Section	Elevation	Horz.	Gor.	Tit	Traint
No.		Deflection	Load		
	#	in	Comb.	0	
	100 - 74	20.940	35	100.0	950.0
1.2	74-62	9.231	35	1.752	0.023
L.3	62 - 30	5 963	35	0.735	0.003
3	30 - 0	1.706	35	0.494	0.002

	Critical Deflections and Radius of Curvature - Service Wind	ns and	Radius o	Curvat	ure - Ser	vice Wind
Tevation	Appurtenance	Gov.	Deflection	Tift	Twist	Radius of
		Load				Curretture
-		Comb.	101	3	٠	, ,
100:000	Ball Truck 14" DIA	35	20 940	1000	0.056	70.00
97.500	TMBXX-6516-R2M	35	19 676	2 3/15	0.050	4630
94.000	FIRE	32	17.970	2 316	0000	0.04
87.500	TMBXX-6516-R2M	52	14 777	3 300	0.0.0	1000
87,000	24" Canister	35	14 530	1300	7000	1934
79.500	FR65-17-DP	35	11 274	2.022	0.032	1170
70,000	AM-X-CD-16-65-00T-RET	35	7 977	1.419	9100	2001
68.000	36" Canister	35	7.417	1 237	0.013	1001

Maximum Tower Deflections - Design Wind	Twist	0	0.113	500
- suomania	Titi	9	4.584	
I DANCE	Gov. Load	Comb.	Ξ	=
	Horz. Deflection	III	41.923	18.503
	Elevation	JI	100 - 74	74 - 62
	Section No.		=	7

DICA Touron	Job	Page
NO POLICIA	GT11112H	8 of 9
Tower Engineering Professional	Project	Date
3703 Junction Bouleverd	TEP#112828	10:43:01 08/04/11
Raleigh, NC 26603 Phone: (910, 661, 633)	Client	Designed by
FAX: (919) 661-6350	I-Mobile Towers	уоој

Twist		0.007
Tilt	0	1.475
Gov. Load	Comb.	= 9
Horz. Deflection	in	3.422
Elevation	JI.	62 - 30 30 - 0
Section No.		E 4

	Critical Deflections and Radius of Curvature - Design Wind	ons and	Radius	f Curval	ture - Des	ign Wind	
Elevation	Appurtenance	Gov.	Deflection	Tilt	Twist	Radius of	
		Loud				Cumatura	
11		Comb.	112	0	0	1	
100,000	Ball Truck 14" DIA	Ξ	41.923	4 58.1	6113	2117	
07 500	TAIDAY CELL DAM				511.5	1	
2000000	WEN-0110-VVGWI	-	the 60	4.613	6.107	2442	
94,000	Flag	=	35.883	4.639	0000	2035	
87.500	TMBXX-6516-R2M	=	29.588	4 570	0.084	920	
87,000	24" Canister	=	2017	4 566	0.000	97.0	
79.500	FR65-17-DP	=	22 500	4 140	0.00	939	
70.000	AM-Y-CT. 16 65 00T BET	: :	1000	4,149	0.003	566	
000000	WILLIAM DELOCOSON PARTI		166.61	7.847	0.032	850	
XX. XX	M. Canister	=	1.1.671	2 470	2000		

		Allow. Rath	41		701389,000 0,00
		Actual As		-1862.530 3940 -2981.660 3940	-6401.820 7013
		V	in.		27.833
ecks	ata	Fu	ksi	25.200	25.200
Compression Checks	Pole Design Data	KUr		0.0	0.0
ress	e Des	L_{n}	i,	0.000	0.000
Com	Pol	7	11	26.000	32,000
**		Size		TEP#112828 24" Canister TEP#112828 36" Canister	P24x3/8 P24x3/8
		Elevation	ħ	74 - 62 (2)	62 - 30 (3). 30 - 0 (4)
		No.		<u> </u>	27

		ā	Pole Bending Design Data	nding	Des (ign D	ata			
No.	Elevation	Stee	Actual M, 115-71	Actual fr. ksi	Allow. Fr.,	Ratio	Actual M. Ib-ft	Actual Iss	Allow.	Ratio
3	100 - 74 (1)	TEP#112828 24" Canister	27144.5	16.186	25.200	0.642	0.000	0.000	25.200	0.000
1.2	74 - 62 (2)	TEP#112828 36" Canister	53885.4		25.200	1.275	0.000	0.000	25,200	0.000
1.3	62 - 30 (3)	P24x3/8	160168.	11.875	27.720	0.428	0.000	0.000	27.720	0.000
2	30 - 0 (4)	P24x3/8	295537.	21.911	27.720	0.790	0.000	0.000	27.720	0.000

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Page	9 of 9	Date	10:43:01 08/04/11	Designed by	COX
1000000	HZIIIIO		IEP#112828	T-Mobile Towner	S S S S S S S S S S S S S S S S S S S
Jop	Project			Clent	
RISATower		lower Engineering Professional	Polarie My 2000	Phone: (919) 661-6351	FAX: (919) 001-6330

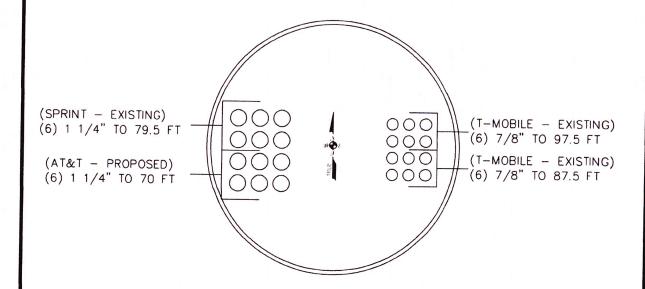
			Pole S	hear	Shear Design Dat	In De	ata			
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F. le	"evalton	Six	Actual	Actual	Allow:	Ratio	Actual	Actual	Allon.	Ratio
	j.			ksi k	- Par	- 4	7	for Les	4	14
00	-74(1)	TEP#112828 24" Canister		-0.116	16.800	0.007	0.001	0.000	16.800	0.000
74.	74 - 62 (2)	TEP#112828 36" Canister		0.167	16.800	0.010	0.001	0000	16 800	0.000
62.	52-30 (3)	P24x3/8	3982.67	0.286	16.800	0.017	296,199	100	UV SUO	1000
30	30 - 0 (4)	P24x3/8	5016.52	0.360	16.800	1,000	ret 80c	itad		0000

ou Elevation Ratio his 10 F F F F F F F F F F F F F F F F F F F					Pole Interaction Design Data	eractic	on Des	ign Dat	ta		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ion	Elevation	Ratio	Ratio	Ratio	Ratio	Ratio.	Comb.	Allow.	Criteria	
74-62 (3) 0.008 1.275 0.000 0.010 0.000 0.647 1.333 62-30 (3) 0.008 0.428 0.000 0.017 0.001 0.48 1.333 30-014 0.014 0.790 0.000 0.021 0.001 0.818 1.333		ft 1001 - 24 d x	P. 0000	Fa	Fey	F	F.,	Ratio	Ratto		
74-62 (2) 0.0008 1,275 0,000 0,010 0,000 1,283 1,333 (62-30-63) 0,009 0,428 0,000 0,017 0,001 0,48 1,333 (30-0.64) 0,014 0,790 0,000 0,021 0,001 0,805 1,333		10 +/ - 001	0.000	0.042	0.000	0.007	0.000	0.647	1.333	HI-3+VT	
62-30 (3) 0.006 0,428 0,000 0.017 0,001 0,438 1333 30-014 0.014 0,730 0.000 0.021 0.001 0.808 1333		74 - 62 (2)	0.008	1.275	0.000	0.010	0.000	1.283	1.333	HL34XT	
30-0.(4) 0.014 0.790 0.000 0.021 0.001 0.805 1.333		62 - 30 (3)	0.009	0.428	0.000	0.017	0.001	7 788	1.333	>	
		30-0(4)	0.014	0.790	0.000	0.021	0.001	7.805	1.333	HI SANT O	

			Section Capacity Table	acity 7	aple	:			
Section No.	Elevation fi	Сэтропен	Size	Critical Element	d lb		g. Capacity	Pass Fail	
- C1 W -#	74 - 62 62 - 30 30 - 0	Pole Pole Pole	TEP# 11.2828 24" Canister TEP# 11.2828 36" Canister P24x388 P24x388	— 0 m 4	-1862.530 -2981.660 -6401.820 -9672.360	525281.958 525281.958 934939.501 934939.501	48.5 96.2 32.8 60.4	Pass Pass Pass	
						Pole (1.2) RATING =	Summary 96.2 96.2	Pass Pass	

Program Version 5.4.2.0 - 6/772010 File P.7883_CT1111214StructuralRec-0.0185ASAW7HFP#113828_CT11112H.cm

APPENDIX B COAX CONFIGURATION PLAN



COAX PLAN - N.T.S.

PREPARED BY:

TOWER ENGINEERING PROFESSIONALS 3703 JUNCTION BOULEVARD RALEIGH, NC 27603-5263 (919) 661-6351

www.tepgroup.net

PREPARED FOR:

T Mobile

T-MOBILE TOWERS 12920 SE 38TH STREET BELLEVUE, WA 98006 PROJECT INFORMATION:

SITE # CT11112H Redding/ Rt 7

845 ETHAN ALLEN HIGHWAY RIDGEFIELD, CT 06877 (FAIRFIELD COUNTY) REVISION:

: (

TEP JOB #: 112828

SHEET NUMBER:

M-1

APPENDIX C ADDITIONAL CALCULATIONS

CAISSON Version 10.35 10:47:20 AM Thursday, August 04, 2011 Tower Engineering Professionals

* CAISSON - Pier Foundations Analysis and Design - Copyright Power Line Systems, Inc. 1993-2010

Project Title: CT11112H - Caisson - TIA-G Project Notes: TEP Job #: 112828

Calculation Method: Full 8CD

****** I N P U T D A T A

Pier Properties

Diameter	Distance of Top of Pier above Ground	Concrete Strength	Steel Yield Strength
(ft)	(ft)	(ksi)	(ksi)
3.50	0.50	4.00	60.00

Soil Properties

Layer	Туре	Thickness (ft)	Depth at Top of Layer (ft)	Density (lbs/ft^3)	CU (psf)	КР	PHI (deg)
1 2 3	Clay Sand Sand	3.33 3.67 28.00	0.00 3.33 7.00	100.0 135.0 75.0		4.204 4.204	38.00 38.00

Design (Factored) Loads at Top of Pier

Moment	Axial Load	Shear Load	Additional Safety Factor Against Soil Failure
(ft-k)	(kips)	(kips)	Joil Pallule
295.5	9.7	5.01	8.66

****** R E S U L T S

Calculated Pier Properties

Length	Weight	End Bearing Pressure
(ft)	(kips)	(psf)
20.500	29.585	1005.6

1.33/8.66 = 15.4 %

Ultimate Resisting Forces Along Pier

Туре	Distance of Top of Layer to Top of Pier	Thickness	Density	CŪ	KP	Force	Arm
	(ft)	(ft)	(lbs/ft^3)	(psf)		(kips)	(ft)
Clay Sand Sand Sand	0.50 3.83 7.50 14.76	3.33 3.67 7.26 5.74	100.0 135.0 75.0 75.0		4.204 4.204 4.204	0.00 94.00 352.59 -402.45	2.17 5.93 11.43

Shear and Moments Along Pier

Distance below Top of Pier (ft)	Shear (with Safety Factor) (kips)	Moment (with Safety Factor) (ft-k)	Shear (without Safety Factor) (kips)	Moment (without Safety Factor) (ft-k)
0.00	44.1	2560.5	5.1	295.7
2.05	44.1	2651.0	5.1	306.1
4.10	40.0	2740.9	4.6	316.5
6.15	-5.9	2780.1	-0.7	
8.20	-76.3	2699.6	-8.8	321.0
10.25	-162.9	2456.8	-18.8	311.7
12.30	-263.5	2022.1		283.7
14.35	-378.0	1366.9	-30.4	233.5
16.40	-298.5	631.0	-43.6	157.8
18.45	-156.2		-34.5	72.9
20,50		162.5	-18.0	18.8
20.50	0.0	-0.0	0.0	-0.0





C Squared Systems, LLC 65 Dartmouth Dr, Unit A3 Auburn, NH 03032 Phone: (603) 644-2800 support@csquaredsystems.com

Calculated Radio Frequency Emissions



CT2113

845 Ethan Allen Highway, Ridgefield, CT 06877

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1. Introduction
2. FCC Guidelines for Evaluating RF Radiation Exposure Limits
3. RF Exposure Prediction Methods
4. Calculation Results
5. Conclusion
6. Statement of Certification
Attachment A: References
Attachment B: FCC Limits for Maximum Permissible Exposure (MPE)
Attachment C: AT&T's Antenna Model Data Sheets and Electrical Patterns
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Table 2: FCC Limits for Maximum Permissible Exposure (MPE)6
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1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed modifications to the existing AT&T antenna arrays mounted on the existing monopole tower located at 845 Ethan Allen Highway in Ridgefield, CT. Sprint and VoiceStream also have antennas mounted on the tower. The coordinates of the tower are 41° 18′ 46.77″ N. -73° 28′ 21″ W.

AT&T is proposing the following modifications:

- 1) Replace existing dual-band antennas with three dual-band (800 MHz/1900 MHz) antennas (one per sector);
- 2) Add UMTS PCS frequencies.

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

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

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

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm²). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment B of this report.

Higher exposure limits are permitted under the occupational/controlled exposure category, but only for persons who are exposed as a consequence of their employment and who have been made fully aware of the potential for exposure, and they must be able to exercise control over their exposure. General population/uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals. Attachment B contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit.

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



3. RF Exposure Prediction Methods

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

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

Where:

EIRP = Effective Isotropic Radiated Power

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

H = Horizontal Distance from antenna in meters

V = Vertical Distance from radiation center of antenna in meters

Ground reflection factor of 1.6

Off Beam Loss is determined by the selected antenna pattern

These calculations assume that the antennas are operating at 100 percent capacity and power, and that all channels are transmitting simultaneously. Obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. The calculations assume even terrain in the area of study and do not take into account actual terrain elevations which could attenuate the signal. As a result, the predicted signal levels reported below are much higher than the actual signal levels will be from the finished modifications.



4. Calculation Results

Table 1 below outlines the power density information for the site. All information for Sprint and VoiceStream comes directly from the current CSC database. Because the proposed AT&T antennas are directional in nature, the majority of the RF power is focused out towards the horizon. As a result, there will be less RF power directed below the antennas relative to the horizon, and consequently lower power density levels around the base of the tower. Please refer to Attachment C for the vertical pattern of the proposed AT&T antennas. The calculated results for AT&T in Table 1 include a nominal 10 dB off-beam pattern loss to account for the lower relative gain below the antennas.

Carrier	Antenna Height (Feet)	Operating Frequency (MHz)	Number of Trans.	ERP Per Transmitter (Watts)	Power Density (mw/cm²)	Limit	%МРЕ
Sprint	79.5	1962.5	11	395	0.2470	1.0000	24.70%
VoiceStream	97.5	1930		1,111,114	0.0147	1.0000	1.47%
VoiceStream	87.5	1930			0.0190	1.0000	1.90%
AT&T UMTS	70	880	1 1	500	0.0367	0.5867	0.63%
AT&T UMTS	70	1900	1	500	0.0367	1.0000	0.37%
AT&T GSM	70	880	3	296	0.0652	0.5867	1.11%
AT&T GSM	70	1900	1	427	0.0313	1.0000	0.31%
						Total	30.49%

Table 1: Carrier Information 12

October 26, 2011

¹ Calculated values for AT&T include a -10 dB off-beam loss factor. Antenna specifics for Sprint and VoiceStream were unavailable and therefore do not include any off-beam loss factor.

 $^{^2}$ Blank spaces indicate where information was unavailable from the CSC database. CT5244 $$\rm 3$$



5. Conclusion

The above analysis verifies that emissions from the existing site will be below the maximum power density levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Even when using conservative methods, the cumulative power density from the proposed and existing transmit antennas at the existing facility is below the limits for the general public. The highest expected percent of Maximum Permissible Exposure at the base of the tower is 30.49% of the FCC limit.

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

6. Statement of Certification

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

Daniel L. Goulet-

C Squared Systems, LLC

October 26, 2011

Date



Attachment A: References

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

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

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



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

(A) Limits for Occupational/Controlled Exposure³

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time $ E ^2$, $ H ^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	$(900/f^2)*$	6
30-300	61.4	0.163	1.0	6
300-1500		-	f/300	6
500-100,000	-	÷	5	6

(B) Limits for General Population/Uncontrolled Exposure 4

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

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

Table 2: FCC Limits for Maximum Permissible Exposure (MPE)

CT5244

³ Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure

⁴ General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure



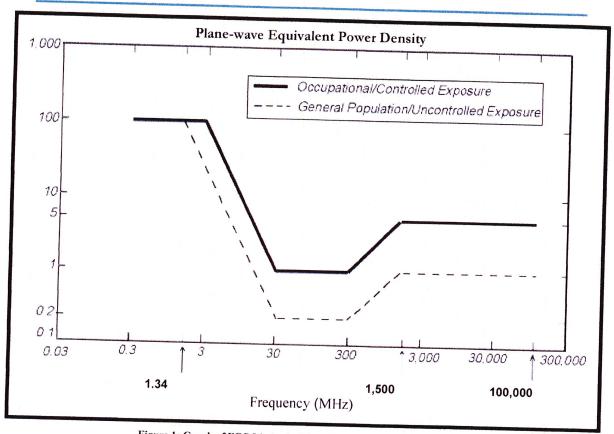
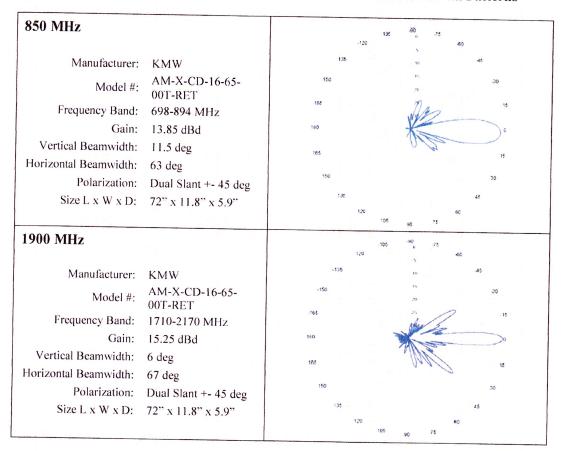


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

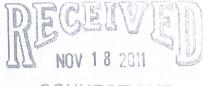


Attachment C: AT&T's Antenna Model Data Sheets and Electrical Patterns





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CONNECTICUT SITING COUNCIL

Calculated Radio Frequency Emissions



CT5244

845 Ethan Allen Highway, Ridgefield, CT 06877

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1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed modifications to the existing AT&T antenna arrays mounted within the existing stealth flagpole tower located at 845 Ethan Allen Highway in Ridgefield, CT. Sprint and T-Mobile also have antennas mounted within the tower. The coordinates of the tower are 41° 18′ 46.69″ N, 73° 28′ 20.42″ W.

AT&T is proposing the following modifications:

- 1) Add 1900 MHz UMTS frequencies;
- 2) Add 700 MHz LTE frequencies;
- 3) Replace the existing dual-band antennas with tri-band (750/850/1900 MHz) antennas.

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

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

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

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm²). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment B of this report.

Higher exposure limits are permitted under the occupational/controlled exposure category, but only for persons who are exposed as a consequence of their employment and who have been made fully aware of the potential for exposure, and they must be able to exercise control over their exposure. General population/uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals. Attachment B contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit.

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



3. RF Exposure Prediction Methods

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

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

Where:

EIRP = Effective Isotropic Radiated Power

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

H = Horizontal Distance from antenna in meters

V = Vertical Distance from radiation center of antenna in meters

Ground reflection factor of 1.6

Off Beam Loss is determined by the selected antenna pattern

These calculations assume that the antennas are operating at 100 percent capacity and power, and that all channels are transmitting simultaneously. Obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. The calculations assume even terrain in the area of study and do not take into account actual terrain elevations which could attenuate the signal. As a result, the predicted signal levels reported below are much higher than the actual signal levels will be from the finished modifications.



4. Calculation Results

Table 1 below outlines the power density information for the site. All information for Sprint and T-Mobile comes directly from the current CSC database. Because the proposed AT&T antennas are directional in nature, the majority of the RF power is focused out towards the horizon. As a result, there will be less RF power directed below the antennas relative to the horizon, and consequently lower power density levels around the base of the tower. Please refer to Attachment C for the vertical pattern of the proposed AT&T antennas. The calculated results for AT&T in Table 1 include a nominal 10 dB off-beam pattern loss to account for the lower relative gain below the antennas.

Carrier	Antenna Height (Feet)	Operating Frequency (MHz)	Number of Trans.	ERP Per Transmitter (Watts)	Power Density (mw/cm²)	Limit	%МРЕ
Sprint	79.5	1962.5	11	395	0.2470	1.0000	24.70%
T-Mobile	97.5	1930			0.0147	1.0000	1.47%
T-Mobile	87.5	1930			0.0190	1.0000	1.90%
AT&T LTE	70	734	1	1117	0.0820	0.4893	1.68%
AT&T UMTS	70	880	2	565	0.0829	0.5867	1.41%
AT&T UMTS	70	1900	2	875	0.1284	1.0000	1.28%
AT&T GSM	70	880	1	296	0.0217	0.5867	0.37%
AT&T GSM	70	1900	4	525	0.1541	1.0000	1.54%
						Total	34.36%

Table 1: Carrier Information ^{1 2}

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¹ The nominal 10 dB off-beam loss factor for AT&T is derived from the specific AT&T antennas for this site and their associated antenna patterns which are presented in Attachment C. Antenna specifics for Sprint and T-Mobile were unavailable and therefore do not include any off-beam loss factor.

² Blank spaces indicate where information was unavailable from the CSC database.



5. Conclusion

The above analysis verifies that emissions from the existing site will be below the maximum power density levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Even when using conservative methods, the cumulative power density from the proposed and existing transmit antennas at the existing facility is below the limits for the general public. The highest expected percent of Maximum Permissible Exposure at the base of the tower is 34.36% of the FCC limit.

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

6. Statement of Certification

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

Daniel L. Goulet-

C Squared Systems, LLC

November 17, 2011

Date



Attachment A: References

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

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

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

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

(A) Limits for Occupational/Controlled Exposure³

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time $ E ^2$, $ H ^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	$(900/f^2)*$	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
500-100,000			5	6

(B) Limits for General Population/Uncontrolled Exposure⁴

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

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

Table 2: FCC Limits for Maximum Permissible Exposure (MPE)

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³ Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure

⁴ General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure



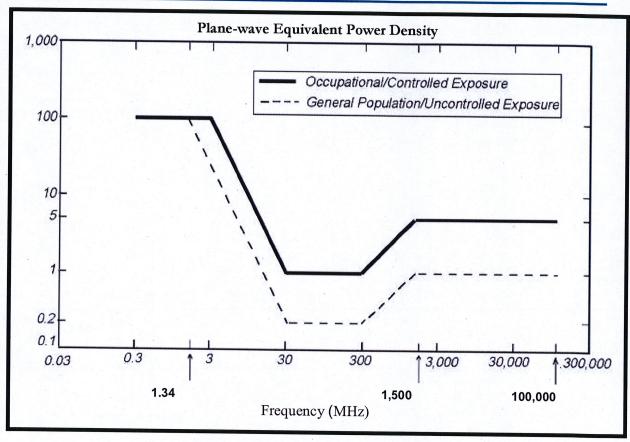


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)



Attachment C: AT&T's Antenna Model Data Sheets and Electrical Patterns

750 MHz

Manufacturer: KMW

Model #: AM-X-CD-16-65-

00T-RET

Frequency Band: 698-894 MHz

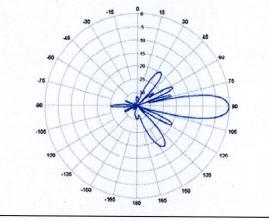
Gain: 11.9 dBd

Vertical Beamwidth: 15°

Horizontal Beamwidth: 65°

Polarization: Dual Slant ±45°

Size L x W x D: 54.0" x 12.6" x 7.9"



850 MHz

Manufacturer: KMW

Model #: AM-X-CD-16-65-

00T-RET

Frequency Band: 698-894 MHz

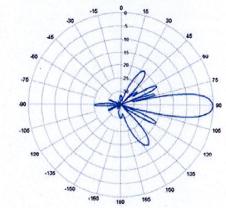
Gain: 11.9 dBd

Vertical Beamwidth: 15°

Horizontal Beamwidth: 65°

Polarization: Dual Slant ±45°

Size L x W x D: 54.0" x 12.6" x 7.9"



1900 MHz

Manufacturer: KMW

Model #: A

AM-X-CD-16-65-

00T-RET

Frequency Band: 1710-2170 MHz

Gain: 14.4 dBd

Vertical Beamwidth: 7.5°

Horizontal Beamwidth: 65°

Polarization: Dual Slant ±45°

Size L x W x D: 54.0" x 12.6" x 7.9"

