



STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

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VIA ELECTRONIC MAIL

April 24, 2020

Moriah King
Site Acquisition Specialist
Empire Telecom USA, LLC
16 Esquire Road
Billerica, MA 01862

RE: **EM-AT&T-015-200416** – AT&T notice of intent to modify an existing telecommunications facility located at 430 John Street, Bridgeport, Connecticut.

Dear Ms. King:

The Connecticut Siting Council (Council) is in receipt of your correspondence of April 23, 2020 submitted in response to the Council's April 21, 2020 notification of an incomplete request for exempt modification with regard to the above-referenced matter.

The submission renders the request for exempt modification complete and the Council will process the request in accordance with the Federal Communications Commission 60-day timeframe.

Thank you for your attention and cooperation.

Sincerely,

s/ Melanie A. Bachman

Melanie A. Bachman
Executive Director

MAB/IN/emr

From: Moriah King <moking@empiretelecomm.com>
Sent: Thursday, April 23, 2020 12:13 AM
To: Robidoux, Evan <Evan.Robidoux@ct.gov>
Cc: CSC-DL Siting Council <Siting.Council@ct.gov>
Subject: RE: Council Incomplete Letter for EM-AT&T-015-200416 (430 John Street, Bridgeport)

RE: EM-AT&T-015-200416

Attached, please see the revised structural listing Connecticut Building Code 2018.

Thank you,

Moriah King, JD
Site Acquisition Specialist
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Vertical Resources Group, Inc.

April 22, 2020

David P. Cooper
 Director of Program Management
Empire Telecom
 16 Esquire Street
 Billerica, MA 01862

SUBJECT: RF Mod/IP Repeater Analysis Document
Existing ±146'-0" Tall 7 story existing building
 Site ID: CT2176 Bridgeport
 430 John Street, Bridgeport, CT 06604
 Our File: CT2176-IPRepeater

The following is to confirm we have reviewed aforementioned building's rooftop for AT&T Mobility's proposed addition of new Sirius-XM Commscope (3) ION-M23 radios, (3) CBC23SR43 combiners equipment on existing unistrut frame supports atop an existing ±146' tall building.

Code: Connecticut Building Code 2018, I.B.C. 2015, ASCE7-12, EIA-222-G
Risk Category: II
Exposure Category: 'C'
Topographic Category: 1
Wind Speed: 125 Mph (CT B.C. 2018 ultimate gust), 97 Mph (3 sec gust CT B.C. 2018, IBC 1609.3.1)
Ice: ¾" ø radial
Snow: P_G = ground snow load = 30 Psf (CT B.C. 2018)
Load Combination: 1.2D + 1.0D_G + 1.6W_o
 1.2D + 1.0D_G + 1.0D_i + 1.0W_i
Antenna Mount Type: Custom wall mounted clamp halves/rectangular tubes secured to roof parapet with ½" ø Hilti Hit-I HY20 adhesive anchors

Penthouse Existing & Proposed Loading (appurtenances): *install height of ±148' Alpha / ±148' Beta / ±148' Gamma*

(e) 3-Powerwave 7770 (UMTS850)	55.0"x11.0"x5.0"	35 Lbs	50 Lbs (ice)
(e) 3-Kathrein 800-10964 (LTEb14/AWS)	59.0"x20.0"x6.9"	84Lbs	90 Lbs (ice)
(e) 3-Quintel QS665122 (LTE700de/PCS/850/WCS)	72.0"x12.0"x9.6"	111 Lbs	88 Lbs (ice)
(e) 2-Andrew SBNHH1D65A (LTE700bc)	55.0"x11.9"x7.1"	33 Lbs	60 Lbs (ice)
(e) 1-KMW AMXCD146500T (LTE700bc)	48.0"x11.8"x5.9"	36 Lbs	49 Lbs (ice)
(e) 6-Powerwave LGP21401 (UMTS850)	14.4"x9.0"x2.7"	19 Lbs	12 Lbs (ice)
(e) 6-CCI TPX070821 (LTE850/700de)	5.8"x9.6"x2.0"	7 Lbs	6 Lbs (ice)
(e) 1-Commscope WCSIMFTAMT (Sirius XM)	15.4"x10.6"x6.9"	34 Lbs	19 Lbs (ice)
(P) 3-Commscope IONM23SDARS (Sirius XM)	32.7"x6.0"x5.8"	48 Lbs	24 Lbs (ice)
(P) 3-Commscope CBC23SR43 (Sirius XM)	12.0"x6.3"x2.1"	6 Lbs	7 Lbs (ice)
(e) 3-Ericsson RRUS-11 (LTE700bc)	19.7"x17.0"x7.2"	51 Lbs	33 Lbs (ice)
(e) 3-Ericsson RRUS-32 (LTEWCS)	27.2"x12.1"x7.0"	53 Lbs	33 Lbs (ice)
(e) 3-Ericsson RRUS-32b2 (LTEPCS)	27.2"x12.1"x7.0"	53 Lbs	33 Lbs (ice)
(e) 3-Ericsson RRUS-32b66 (LTEAWS)	27.2"x12.1"x7.0"	53 Lbs	33 Lbs (ice)
(e) 3-Ericsson RRUS-4478 (LTE700b14)	18.1"x13.4"x8.3"	59 Lbs	27 Lbs (ice)
(e) 3-Raycap DC6-48-60-18-8F	24"x12.0"x12.0"	32 Lbs	39 Lbs (ice)

Proposed Wind Load:

$$F = (q_z)(G_H)(C_A)(A_A) \quad G_H = 0.85 \quad C_A = \text{Table 2-8}$$

$$q_z = (0.00256)(K_z)(K_{zT})(K_D)(V^2)(I)$$

$$K_z = 1.37 \quad K_D = 0.95 \quad V = 97 \text{ mph}$$

$$K_{zT} = 1.0 \quad I = 1.0$$

$$q_z = 0.00256(1.37)(1.0)(0.95)(97)^2(1.0) = 31.3 \text{ Lbs/Ft}^2$$

$$F_B = (q_z)(G_H)(C_A)(A_A) = (31.3 \text{ Lbs/Ft}^2)(0.85)(C_A)(A_A) = 26.6 \text{ Lbs/Ft}^2 * C_A * A_A$$

$$F_I = (q_z)(G_H)(C_A)(A_A) = (8.3 \text{ Lbs/Ft}^2)(0.85)(C_A)(A_A) = 7.0 \text{ Lbs/Ft}^2 * C_A * A_A$$

Verification of Antenna/RRU Mounts Alpha/Beta/Gamma Sectors

Total Bare Weight of Appurtenances/sector	= 670 Lbs
Total Ice Weight on Appurtenances/sector	= 553 Lbs
Total Bare Weight of one Pipe Mount	= 89 Lbs (Alpha/Beta/Gamma)
Total Ice Weight on one Pipe Mount	= 65 Lbs (Alpha/Beta/Gamma)
Total weight to be supported by one pipe mount	= (111Lbs+88Lbs+89Lbs+65Lbs) = 353 Lbs
$F_{Bare WindF K7770} = 26.6\text{Lbs}/\text{Ft}^2 * C_A * A_A = (26.6\text{Lbs}/\text{Ft}^2)(1.31*4.2\text{Ft}^2)$	= 146Lbs
$F_{Bare WindF Q665122} = 26.6\text{Lbs}/\text{Ft}^2 * C_A * A_A = (26.6\text{Lbs}/\text{Ft}^2)(1.35*6.0\text{Ft}^2)$	= 215Lbs
$F_{Bare WindF K10964} = 26.6\text{Lbs}/\text{Ft}^2 * C_A * A_A = (26.6\text{Lbs}/\text{Ft}^2)(1.22*8.2\text{Ft}^2)$	= 266Lbs
$F_{Bare WindS K7770} = 26.6\text{Lbs}/\text{Ft}^2 * C_A * A_A = (26.6\text{Lbs}/\text{Ft}^2)(1.31*1.9\text{Ft}^2+1.2*0.8\text{Ft}^2)$	= 92Lbs
$F_{Bare WindS Q665122} = 26.6\text{Lbs}/\text{Ft}^2 * C_A * A_A = (26.6\text{Lbs}/\text{Ft}^2)(1.35*4.8\text{Ft}^2+1.2*0.8\text{Ft}^2)$	= 198Lbs
$F_{Bare WindS K10964} = 26.6\text{Lbs}/\text{Ft}^2 * C_A * A_A = (26.6\text{Lbs}/\text{Ft}^2)(1.22*2.8\text{Ft}^2+1.2*0.8\text{Ft}^2)$	= 116Lbs
$F_{Iced WindF K7770} = 7.0\text{Lbs}/\text{Ft}^2 * C_A * A_A = (7.0\text{Lbs}/\text{Ft}^2)(1.33*4.9\text{Ft}^2)$	= 46Lbs
$F_{Iced WindF Q665122} = 7.0\text{Lbs}/\text{Ft}^2 * C_A * A_A = (7.0\text{Lbs}/\text{Ft}^2)(1.37*6.9\text{Ft}^2)$	= 66Lbs
$F_{Iced WindF K10964} = 7.0\text{Lbs}/\text{Ft}^2 * C_A * A_A = (7.0\text{Lbs}/\text{Ft}^2)(1.24*9.0\text{Ft}^2)$	= 79Lbs
$F_{Iced WindS K7770} = 7.0\text{Lbs}/\text{Ft}^2 * C_A * A_A = (7.0\text{Lbs}/\text{Ft}^2)(1.33*2.6\text{Ft}^2+1.2*1.3\text{Ft}^2)$	= 35Lbs
$F_{Iced WindS Q665122} = 7.0\text{Lbs}/\text{Ft}^2 * C_A * A_A = (7.0\text{Lbs}/\text{Ft}^2)(1.37*5.6\text{Ft}^2+1.2*1.3\text{Ft}^2)$	= 65Lbs
$F_{Iced WindS K10964} = 7.0\text{Lbs}/\text{Ft}^2 * C_A * A_A = (7.0\text{Lbs}/\text{Ft}^2)(1.24*3.5\text{Ft}^2+1.2*1.3\text{Ft}^2)$	= 42Lbs

Alpha/Beta/Gamma sector max applied moment on ±8'-0" long main RHS2.875"Ø (with 6' overhang) from wind, ice & dead load:

$M_{XBare Dead} = 1.2*(M_{BARE1}) + 1.2*(W_{Bare}*L^2/2) = 1.2(864\text{LbsFt})$	= 1037 LbsFt
$M_{F Bare Wind} = 1.6*[(wI^2/2)] + 1.6*[F_{Bare WindFront}*I] = 1.6*(1122\text{LbsFt})$	= 1795 LbsFt
$M_{Xiced Dead} = (M_{Bare Dead}) + (M_{ICED1}) + (W_{ICED}*L^2/8) = (1037\text{LbsFt} + 644\text{LbsFt})$	= 1681 LbsFt
$M_{Yiced Wind} = 1.0*(M_{Iced Wind1}) + 1.0*(W_{Iced Wind}*L^2/2) = (350\text{LbsFt})$	= 350 LbsFt
$M_{max BARE} = 2832 \text{ LbsFt}$	$M_{max ICE} = 2031 \text{ LbsFt}$
$M_{RX \& YAXIS} = (RHS4.0" \text{Ø ASTM A53} = \Phi(S_x)(F_y) = (0.9)(2.39^{*3})(35\text{Ksi}) = 6273 \text{ LbsFt}$	
$M_{RX \& YAXIS} = 6273 \text{ LbsFt} > M_{F Bare Wind} = 2832 \text{ LbsFt}$	<u>OK!</u>

Existing pipe mount supports secured to clamp halves/rectangular tube roof parapet brackets can support AT&T loads

Existing clamp halves/rectangular tubes secured to roof parapet with ½"Ø Hilti Hit-I HY20 adhesive anchors with 3¾" min embedment.

- Considering 2 Hit-HY20 anchors per HSS roof parapet wall bracket

Max Shear on ½"Ø Hilti Hit-I HY20 anchors	$V_F = 353\text{Lbs}$
Max Shear Capacity of ½"Ø Hilti Hit-I HY20 anchors	$V_R = 1635\text{Lbs}$
$V_R = 1635 \text{ Lbs} > V_F = 353 \text{ Lbs}$	<u>OK!</u>
Max Tension on ½"Ø Hilti Hit-I HY20 anchors	$T_F = 625 \text{ Lbs}$
Max Tensile Capacity of ½"Ø Hilti Hit-I HY20 anchors	$T_R = 1160 \text{ Lbs}$
$T_R = 1160 \text{ Lbs} > T_F = 625 \text{ Lbs}$	<u>OK!</u>

Check for combined tension & shear

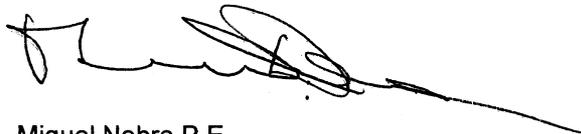
$$V_F/V_R + T_F/T_R = 353/1635 + 625/1160 = 0.75 < 1.0 \quad \text{OK!}$$

*Existing Hilti ½"Ø Hit-I HY20 wall anchors are installed 2 per pipe mount wall bracket, 4 total, can support proposed loads *

Based on these results, we can confirm that the present ±146'-0" tall concrete/masonry framed building roof parapet, associated AT&T Mobility mounts, currently loaded to approximately 75% capacity, can accommodate AT&T existing & proposed loads outlined above in appurtenance loading, in apparent agreement with the Connecticut Building Code 2018, EIA-222-G with respect to individual member capacities.

We trust the forgoing information will meet your requirements.

Yours very truly,



Miguel Nobre, P.E.

