Robinson+Cole

KENNETH C. BALDWIN

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Hartford, CT 06103-3597
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Also admitted in Massachusetts

November 20, 2017

Melanie A. Bachman, Esq.
Executive Director/Staff Attorney
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Request of Cellco Partnership d/b/a Verizon Wireless for an Order to Approve the Shared Use of an Existing Tower off Jeffery Place, Trumbull, Connecticut**

Dear Ms. Bachman:

Pursuant to Connecticut General Statutes ("C.G.S.") §16-50aa, as amended, Cellco Partnership d/b/a Verizon Wireless ("Cellco") hereby requests an order from the Connecticut Siting Council ("Council") to approve the shared use of a telecommunications tower, currently under construction, on a 16.8 acre parcel off Jeffery Place in Trumbull, Connecticut (the "Property"). The Property is owned by the Town of Trumbull ("Town"). The tower will be owned and operated by Tarpon Towers II, LLC ("Tarpon"). Cellco identifies this site as its "Trumbull South Facility".

Background

The Town of Trumbull recently partnered with Tarpon to construct, maintain and operate a telecommunications facility at the Property. The tower is, principally, needed to improve municipal emergency service communications in southern portions of Trumbull. The Town entered into an agreement with Tarpon on August 17, 2016, and issued a building permit to construct the tower on August 10, 2017. (*See* Attachment 1). Pursuant to the agreement with the Town, Tarpon is constructing a 150-foot monopole tower within a 70' x 70' fenced compound in the westerly portion of the Property. A shelter housing the Town's emergency service radio equipment and a ground-mounted back-up generator will be installed in the northeast corner of the facility compound. The Town's emergency service antennas will extend off the top of the

tower. The tower and facility compound was designed and sized to accommodate multiple users, including wireless telecommunications providers.

Cellco is licensed by the Federal Communications Commission ("FCC") to provide wireless services throughout the State of Connecticut and has identified a specific need for improved wireless service in southern portions of Trumbull. Cellco and Tarpon have agreed to the proposed shared use of the Jeffrey Place tower pursuant to mutually acceptable terms and conditions. Likewise, Tarpon and Cellco have agreed to the proposed installation of equipment on the ground within the 70' x 70' tower compound. Tarpon has authorized Cellco to apply for all necessary permits and approvals that may be required to share the existing tower. (*See* Tarpon's authorization letter included in Attachment 2).

Cellco proposes to install twelve (12) antennas and nine (9) remote radio heads (RRHs) on a platform at the 140-foot level on the tower. Cellco will also install two (2) equipment cabinets and a 20 kW diesel-fueled back-up generator on a 9'-4" x 16' equipment platform with a canopy roof, in the southwest corner of the fenced compound. Included in Attachment 3 are Cellco's project plans showing the location of all proposed site improvements. Attachment 4 contains specifications for Cellco's proposed antennas, RRHs and backup generator.

C.G.S. § 16-50aa(c)(1) provides that, upon written request for approval of a proposed shared use, "if the council finds that the proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns, the council shall issue an order approving such shared use." Cellco respectfully submits that the shared use of the tower satisfies these criteria.

A. Technical Feasibility. The approved tower is structurally capable of supporting Cellco's proposed improvements. The proposed shared use of this tower is, therefore, technically feasible. A Structural Analysis Report prepared for this project confirms that the tower can support both the Town's and Cellco's tower loading. A copy of the Structural Analysis Report is included in Attachment 5.

B. Legal Feasibility. Under C.G.S. § 16-50aa, the Council has been authorized to issue orders approving the shared use of an existing tower such as the Tarpon tower. This authority complements the Council's prior-existing authority under C.G.S. § 16-50p to issue orders approving the construction of new towers that are subject to the Council's jurisdiction. In addition, § 16-50x(a) directs the Council to "give such consideration to other state laws and municipal regulations as it shall deem appropriate" in ruling on requests for the shared use of existing tower facilities. Under the statutory authority vested in the Council, an order by the

Council approving the requested shared use would permit the Applicant to obtain a building permit for the proposed installations.

C. **Environmental Feasibility.** The proposed shared use of the Tarpon tower would have a minimal environmental effect, for the following reasons:

1. The proposed installation of twelve (12) antennas and nine (9) remote radio heads at the 140-foot level on the approved 150-foot tower would have an insignificant incremental visual impact on the area around the existing tower. Cellco's equipment platform, cabinets and generator would be installed within the approved fenced compound. Cellco's shared use of this tower would therefore, not cause any significant change or alteration in the physical or environmental characteristics of the Property beyond that previously approved by the Town.

2. There are no fans, motors, or other mechanical devices included as a part of Cellco's radio equipment that would create any noise from the Cellco facility. Noise associated with Cellco's back-up generator is exempt from State and local noise standards. A Noise Report is included in Attachment 6.

3. Operation of Cellco's antennas at this site would not exceed the RF emissions standards adopted by the Federal Communications Commission ("FCC"). Included in Attachment 7 of this filing is a worst case General Power Density table that demonstrates that Cellco's antennas, will operate well within the FCC safety standards.

4. Under ordinary operating conditions, the proposed installation would not require the use of any water or sanitary facilities and would not generate air emissions or discharges to water bodies or sanitary facilities. After construction is complete the proposed installations would not generate any increased traffic to the facility other than periodic maintenance visits to the cell site.

The proposed shared use of the Tarpon tower would, therefore, have a minimal environmental effect, and is environmentally feasible.

D. **Economic Feasibility.** As previously mentioned, Cellco has entered into an agreement with Tarpon for the shared use of the new tower subject to mutually agreeable terms. The proposed tower sharing is, therefore, economically feasible.

E. **Public Safety Concerns.** As discussed above, the tower is structurally capable of supporting Cellco's full array of antennas, RRHs and all related equipment. Cellco is not aware of any public safety concerns relative to the proposed sharing of the approved tower. In fact, the provision of new and improved wireless service through shared use of the new tower is expected to enhance the safety and welfare of area residents and members of the general public traveling through southerly portions of the Town of Trumbull.

Conclusion

For the reasons discussed above, the proposed shared use of the approved Tarpon tower off Jeffrey Lane satisfies the criteria stated in C.G.S. § 16-50aa and advances the General Assembly's and the Council's goal of preventing the unnecessary proliferation of towers in Connecticut. Cellco requests that the Council find that the proposed shared use of the tower satisfies the criteria of C.G.S § 16-50aa and issue an order approving the proposed shared use. A Certificate of Mailing verifying that this filing was sent to municipal officials is included in Attachment 8.

Thank you for your consideration of this matter.

Very truly yours,

Kenneth C. Baldwin

Enclosures
Copy to:
Timothy M. Herbst, First Selectman, Town of Trumbull
Roberto Librandi, Land Use Planner, Town of Trumbull
Tarpon Towers II, LLC
Keith Coppins
Elizabeth Jamieson, Verizon Wireless

ATTACHMENT 1

Permit

Permit NO. **CO-8-17-28096**
Permit Type: **Commercial**
Work Classification: **<NONE>**
Permit Status: **Active**

Issue Date: 8/10/2017 **Expires: 02/06/2018**

5866 Main St.
Trumbull, CT 06611-3113
Phone: (203)452-5020 Fax: (203)452-5093

Project Address	Parcel No..	Tract No.	Block No.	Lot No.	Section	Township
00000 JEFFREY Place Suite: CELL TOWER Trumbull, CT 06611	**G0800212000**					

Owner Information	Address	Phone	Cell
Trumbull Town of	**5866 MAIN Street Trumbull CT 06611**		
	5866 MAIN Street Trumbull CT 06611		

Contractor(s)	Phone	Primary Contractor
CONSTRUCTION SERVICES OF BRANFORD	(203)488-0712	Yes

Proposed Construction / Details

INSTALL TELECOMMUNICATIONS FACILITY INCLUDING MONOPOLE TOWER ,RELATED EQUIPMENT & GENERATOR VERIZON

Valuation: $150,000.00
Total Sq Feet: 0

Fees Due	Amount
Building Permit Fee	$1,808.00
Certificate of Occupancy Fee	$25.00
Processing Fee	$10.00
State Tax Fee	$39.00
Total:	**$1,882.00**

Total	Amt Paid	Amt Due
$1,882.00	$1,882.00	$0.00

Required Inspections:

For Inspections call : (203) 452-5020

Inspection	IVR
Footing	101
Footing Drains	102
Above Ceiling Inspection	105
Rough Construction	105
Insulation	145
Final Construction	195
Walk Through	195
Commercial Occupancy	625
Fire Marshall Approval	802

IMPORTANT: APPLICATION IS HEREBY MADE TO THE BUILDING OFFICIAL FOR A PERMIT SUBJECT TO THE CONDITIONS AND RESTRICTIONS SET FORTH ON THIS APPLICATION AND THE FOLLOWING:

Applicant Copy

1. Construction activity is prohibited between the hours of 6:00pm and 7:00am and on Sundays and Holidays.
2. The City's approved plans and permit inspection card must remain on the job site for use by City inspection personnel.
3. Final inspection of the work authorized by this permit is required. A Certificate of Occupancy must be obtained prior to use and occupancy of new buildings, structures and remodeling work.

This permit/plan review expires by time limitation and becomes null and void if the work authorized by the permit is not commenced within 180 days from the date of permit issuance or if the permit is not obtained within 180 days from the date of plan submittal. This permit expires and becomes null and void if any work authorized by this permit is suspended or abandoned for 180 consecutive days or if no progressive work has been verified by a City building inspector for a period of 180 consecutive days.

ATTACHMENT 2

TARPON TOWERS

September 25, 2017

Alex Tyurin
Verizon Wireless
99 East River Drive
East Hartford, CT 06108

RE: Cellco Partnership d/b/a Verizon Wireless
Proposed antennas and equipment installation at 54 Jeffrey Place, Trumbull, CT

Dear Mr. Tyurin:

We, Tarpon Towers II, LLC, as owner of the above-referenced property, hereby authorize Cellco Partnership d/b/a Verizon Wireless and/or its agent(s) to apply for and obtain all necessary permits and approvals from all applicable State of Connecticut and/or Town of Trumbull boards, commissions and departments.

Please contact me at (941) 757-5010 should you have any questions.

Sincerely,

Brett Buggeln
COO

ATTACHMENT 3

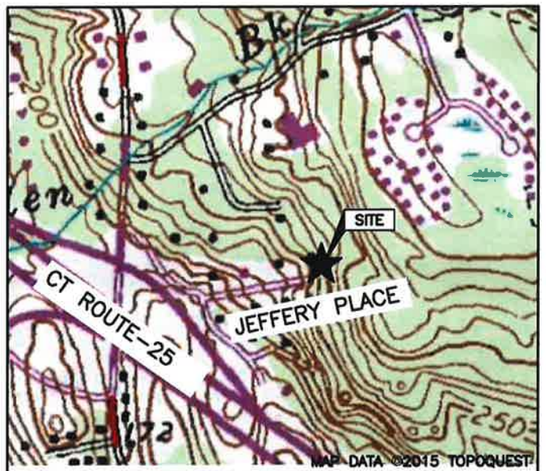
CELLCO PARTNERSHIP

d.b.a. verizon

WIRELESS COMMUNICATIONS FACILITY

TRUMBULL SOUTH CT

JEFFERY PLACE
TRUMBULL, CT 06611



VICINITY MAP SCALE: 1"=150'-0"

DIRECTIONS TO SITE:
FROM VERIZON EAST HARTFORD CT OFFICE:
HEAD SOUTHEAST TOWARD E RIVER DR
TURN RIGHT ONTO E RIVER DR
CONTINUE ONTO E RIVER DRIVE EXTENSION
TURN RIGHT TO MERGE ONTO CT-15 S/US-5 S TOWARD NEW HAVEN/I-91 S
FOLLOW I-91 S AND CT-15 S TO DANIELS FARM RD IN TRUMBULL.
TAKE EXIT 9 FROM CT-25 N
MERGE ONTO CT-15 S/US-5 S
TAKE EXIT 86 TO MERGE ONTO I-91 S TOWARD NEW HAVEN/NEW YORK CITY
TAKE EXIT 17 TO MERGE ONTO CT-15 S/WILBUR CROSS PKWY
CONTINUE TO FOLLOW CT-15 S
TAKE EXIT 49 TO MERGE ONTO CT-25 N
TAKE EXIT 9 FOR DANIELS FARM RD
TAKE ALDO DR AND DREW CIR TO JEFFREY PL
TURN RIGHT ONTO DANIELS FARM RD
TURN RIGHT ONTO ALDO DR
TURN RIGHT ONTO DREW CIR
TURN LEFT ONTO JEFFREY PL

CONSULTANT TEAM

PROJECT ENGINEER

HUDSON DESIGN GROUP, LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: 1-(978)-557-5553
FAX: 1-(978)-336-5586

MEP ENGINEER

HUDSON DESIGN GROUP, LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: 1-(978)-557-5553
FAX: 1-(978)-336-5586

SURVEYOR

NORTHEAST SURVEY CONSULTANTS
116 PLEASANT ST. SUITE 302
EASTHAMPTON, MA 01027
TEL: 1-(413)-203-5144

PROJECT SUMMARY

SITE NAME:	TRUMBULL SOUTH CT
SITE ADDRESS:	JEFFERY PLACE TRUMBULL, CT 06611
PROPERTY OWNER:	TOWN OF TRUMBULL 5866 MAIN STREET TRUMBULL, CT 06611
APPLICANT:	CELLCO PARTNERSHIP d/b/a VERIZON 99 EAST RIVER DRIVE EAST HARTFORD, CT 06108
SITE ACQUISITION CONTACT:	ALEKSEY TYURIN VERIZON WIRELESS 99 EAST RIVER DRIVE EAST HARTFORD, CT 06108 PHONE: (860) 803-8213
LEGAL/REGULATORY COUNSEL:	KENNETH C. BALDWIN ESQ. ROBINSON + COLE LLP (860)275-8345
LATITUDE:	N41° 15' 06.70"
LONGITUDE:	W73° 11' 34.62"

SCOPE OF WORK INFO.

VERIZON WIRELESS IS PROPOSING TO INSTALL THE FOLLOWING IMPROVEMENTS ON PROPOSED TELECOMMUNICATION SITE:

- NEW PANEL ANTENNAS: (4) ANTENNAS PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (12) ANTENNAS.
- NEW RRHs: (3) RRHs PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (9) RRHs.
- NEW JUNCTION BOXES (OVP): (2) JUNCTION BOXES TOTAL.

ITEMS LISTED ABOVE TO BE MOUNTED ON PROPOSED MONOPOLE FURNISHED BY OTHERS.

- NEW EQUIPMENT CABINETS: (2) CABINETS WITH GENERATOR ON PROPOSED 9'-4"x16' EQUIPMENT STEEL PLATFORM.

ITEMS LISTED ABOVE TO BE INSTALLED WITHIN PROPOSED 70'x70' FENCED COMPOUND CONSTRUCTED BY OTHERS.

- NEW POWER AND TELCO SERVICES TO BE ROUTED UNDERGROUND FROM PROPOSED H-FRAME FURNISHED BY OTHERS TO PROPOSED EQUIPMENT CABINETS.
- FINAL UTILITY ROUTING TO BE DETERMINED/VERIFIED BY UTILITY COMPANIES.

SHEET INDEX

PREPARED FOR: CELLCO PARTNERSHIP D.B.A.
verizon

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
DEREK J. CREASER
No. 28351
LICENSED PROFESSIONAL ENGINEER

CHECKED BY: DJR

APPROVED BY: DJC

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	11/14/17	REVISED PER COMMENTS	SLY
0	7/13/17	ISSUED FOR REVIEW	SLY

SITE NAME:
TRUMBULL SOUTH CT

SITE ADDRESS:
JEFFERY PLACE
TRUMBULL, CT. 06611

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

n/f
NEW LIFE ASSEMBLY OF
GOD 28 HEDGEHOG ROAD
TRUMBULL, CT 06611

n/f
HOUSING AUTHORITY OF TRUMBULL HEDGEHOG
CIRCLE TRUMBULL, CT 06611

H/07/5
HEDGEHOG ROAD
n/f
BEACH MEMORIAL PK &
SW PL OLD DIKE ROAD
TRUMBULL, CT 06611

G/07/81
25 ELDOR LANE

N/F
ABBOTT RICHARD A &
ABBOTT JOYCE B
3 CORPORATE DRIVE
STE 215
SHELTON, CT 06484

ELDOR LANE

G/07/85
26 ELDOR LANE

N/F
RICCI ANGELO J &
RICCI DONNA M
26 ELDOR LANE
TRUMBULL, CT 06611

H/07/9
OLD DIKE ROAD

n/f
BEACH MEMORIAL PK & SW PL
OLD DIKE ROADTRUMBULL, CT 06611

LOCUS
G/07/75
ELDOR LANE

N/F
TOWN OF TRUMBULL 5866 MAIN
STREET TRUMBULL, CT 06611
DEED: Vol.217 Pg.168

AREA=18 ACRES ±

G/08/211
N/F
GERALD F. & JEANNE DUNN
25 JEFFERY PLACE
TRUMBULL, CT 06611

G/08/212
JEFFREY PLACE
N/F
TOWN OF TRUMBULL
5866 MAIN STREET
TRUMBULL, CT 06611

JEFFERY PLACE

VALLEY ROAD

C T . R O U T E 2 5

G/08/221
N/F
CHURCH OF CHRIST
2 DREW CIRCLE
TRUMBULL, CT 06611

1
C-2
PROPOSED EQUIPMENT ON STEEL PLATFORM WITHIN 70'x70' FENCED COMPOUND

H/08/1
BRIDGEWATER DRIVE

n/f
TRUMBULL TOWN OF
5866 MAIN STREET
TRUMBULL, CT 06611

14°7'
MAGNETIC NORTH
TRUE NORTH

ABUTTERS PLAN (1 / C-1)
22x34 SCALE: 1"=60'-0"
11x17 SCALE: 1"=120'-0"

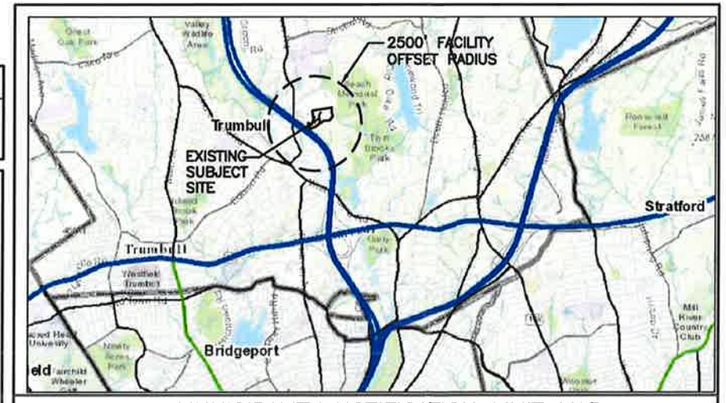
GRAPHIC SCALE
0 30 60 120 180 FEET

SOURCE:
PLANS PREPARED BY NORTHEAST SURVEY CONSULTANTS ENTITLED "EXISTING CONDITIONS PLAN", DATED 6/8/17 AND TOWN OF TRUMBULL GIS MAPS.

LEGEND

- PROPERTY LINE–SUBJECT PARCEL
- PROPERTY LINE–ABUTTERS
- TOWN BOUNDARY LINE
- CONTOUR LINE
- DELINEATED WETLAND LINE
- (E) BUILDING
- XXX–XX ASSESSORS MAP–BLOCK–LOT NO.
- (E) TREE LINE

SOURCE:
PLANS PREPARED BY NORTHEAST SURVEY CONSULTANTS ENTITLED "EXISTING CONDITIONS PLAN", DATED 6/8/17 AND TOWN OF TRUMBULL GIS MAPS.



MUNICIPALITY NOTIFICATION LIMIT MAP

PREPARED FOR: CELLCO PARTNERSHIP D.B.A.
verizon

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
DEREK J. CREASER
No. 28054
LICENSED PROFESSIONAL ENGINEER

CHECKED BY: DJR

APPROVED BY: DJC

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	11/14/17	REVISED PER COMMENTS	SLY
0	7/13/17	ISSUED FOR REVIEW	SLY

SITE NAME:
TRUMBULL SOUTH CT

SITE ADDRESS:
JEFFERY PLACE
TRUMBULL, CT. 06611

SHEET TITLE
ABUTTERS PLAN

SHEET NUMBER
C-1

JEFFERY PLACE

UP #B/6

GUY WIRE

OHW

G/08/212
JEFFREY PLACE
N/F
TOWN OF TRUMBULL
5866 MAIN STREET
TRUMBULL, CT 06611

CONSTRUCTION SILT SOCK (BY OTHERS)

150'±

MONOPOLE (BY OTHERS)

1
A-1

70'x70' FENCED COMPOUND (BY OTHERS)

12' WIDE BITUMINOUS CONCRETE DRIVEWAY (BY OTHERS)

POWER AND TELCO SERVICE ROUTED OVERHEAD FROM EXISTING UTILITY POLE # B 655 TO EQUIPMENT COMPOUND (BY OTHERS)

14' WIDE BARRIER GATE (BY OTHERS)

20' WIDE ACCESS AND UTILITY EASEMENT (BY OTHERS)

UTILITY POLE (TYP.- BY OTHERS)

G/08/221
N/F
CHURCH OF CHRIST
2 DREW CIRCLE
TRUMBULL, CT 06611

LOCUS
G/07/75
ELDOR LANE

N/F
TOWN OF TRUMBULL 5866 MAIN STREET TRUMBULL, CT 06611
DEED: Vol.217 Pg.168

AREA=18 ACRES ±

14°7'
MAGNETIC NORTH
TRUE NORTH

SITE PLAN
22x34 SCALE: 1"=20'-0"
11x17 SCALE: 1"=40'-0"
1
C-2

GRAPHIC SCALE
0 10 20 40 60 FEET

PREPARED FOR: CELLCO PARTNERSHIP D.B.A.

verizon

HUDSON
Design Group LLC
45 BEECHWOOD DRIVE
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FAX: (978) 336-5586

STATE OF CONNECTICUT
DEREK J. CREASER
No. 21557
LICENSED
PROFESSIONAL ENGINEER

CHECKED BY: DJR

APPROVED BY: DJC

SUBMITTALS

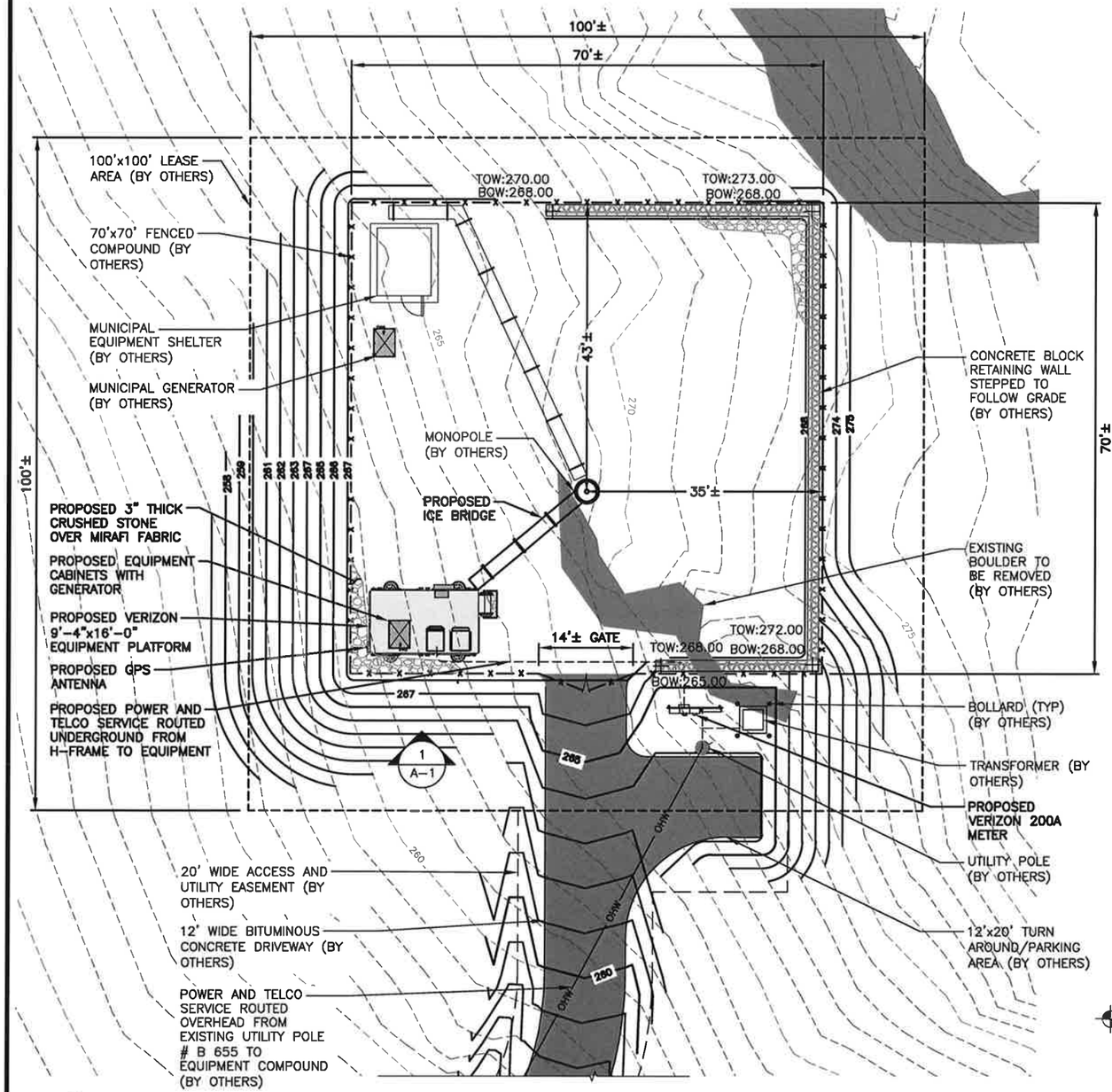
REV.	DATE	DESCRIPTION	BY
1	11/14/17	REVISED PER COMMENTS	SLY
0	7/13/17	ISSUED FOR REVIEW	SLY

SITE NAME:
TRUMBULL SOUTH CT

SITE ADDRESS:
JEFFERY PLACE
TRUMBULL, CT. 06611

SHEET TITLE
SITE PLAN

SHEET NUMBER
C-2



COMPOUND PLAN (1 / A-1)
22x34 SCALE: 1"=10'-0"
11x17 SCALE: 1"=20'-0"

GRAPHIC SCALE
0 5 10 20 30 FEET

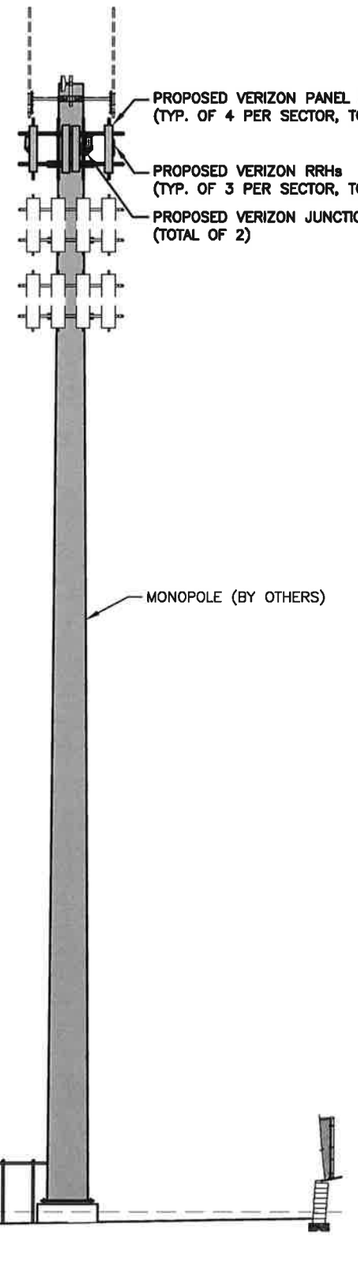
TOP OF MUNICIPAL ANTENNAS (BY OTHERS)
ELEV. = 160.0'± A.G.L
ELEV. = 429.0'± A.M.S.L

TOP OF MONOPOLE
ELEV. = 150.0'± A.G.L
ELEV. = 419.0'± A.M.S.L

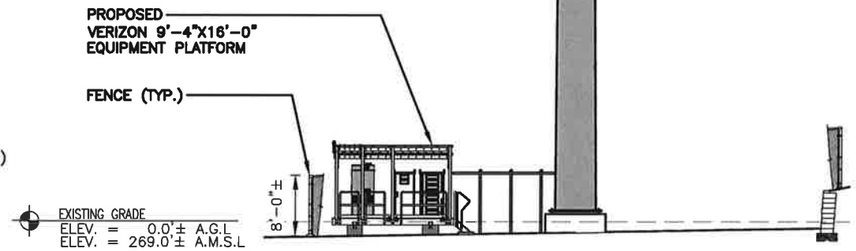
℄ OF PROPOSED VERIZON ANTENNAS
ELEV. = 140.0'± A.G.L
ELEV. = 409.0'± A.M.S.L

℄ OF FUTURE CARRIER ANTENNAS
ELEV. = 130.0'± A.G.L
ELEV. = 399.0'± A.M.S.L

℄ OF FUTURE CARRIER ANTENNAS
ELEV. = 120.0'± A.G.L
ELEV. = 389.0'± A.M.S.L



NOTE: THERE ARE SOME PROPOSED IMPROVEMENTS NOT SHOWN FOR CLARITY



SOUTH ELEVATION (2 / A-1)
22x34 SCALE: 1"=10'-0"
11x17 SCALE: 1"=20'-0"

GRAPHIC SCALE
0 5 10 20 30 FEET

PREPARED FOR: CELLCO PARTNERSHIP D.B.A.

verizon

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STATE OF CONNECTICUT
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SUBMITTALS

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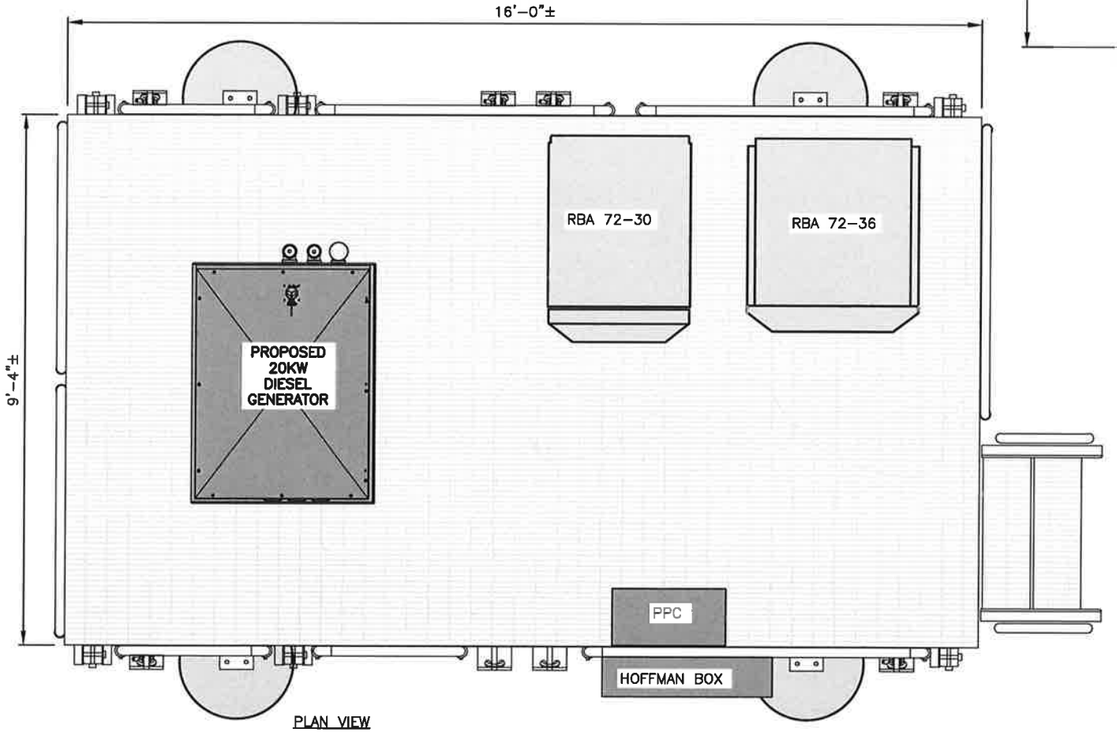
0	7/13/17	ISSUED FOR REVIEW	SLY

SITE NAME:
TRUMBULL SOUTH CT

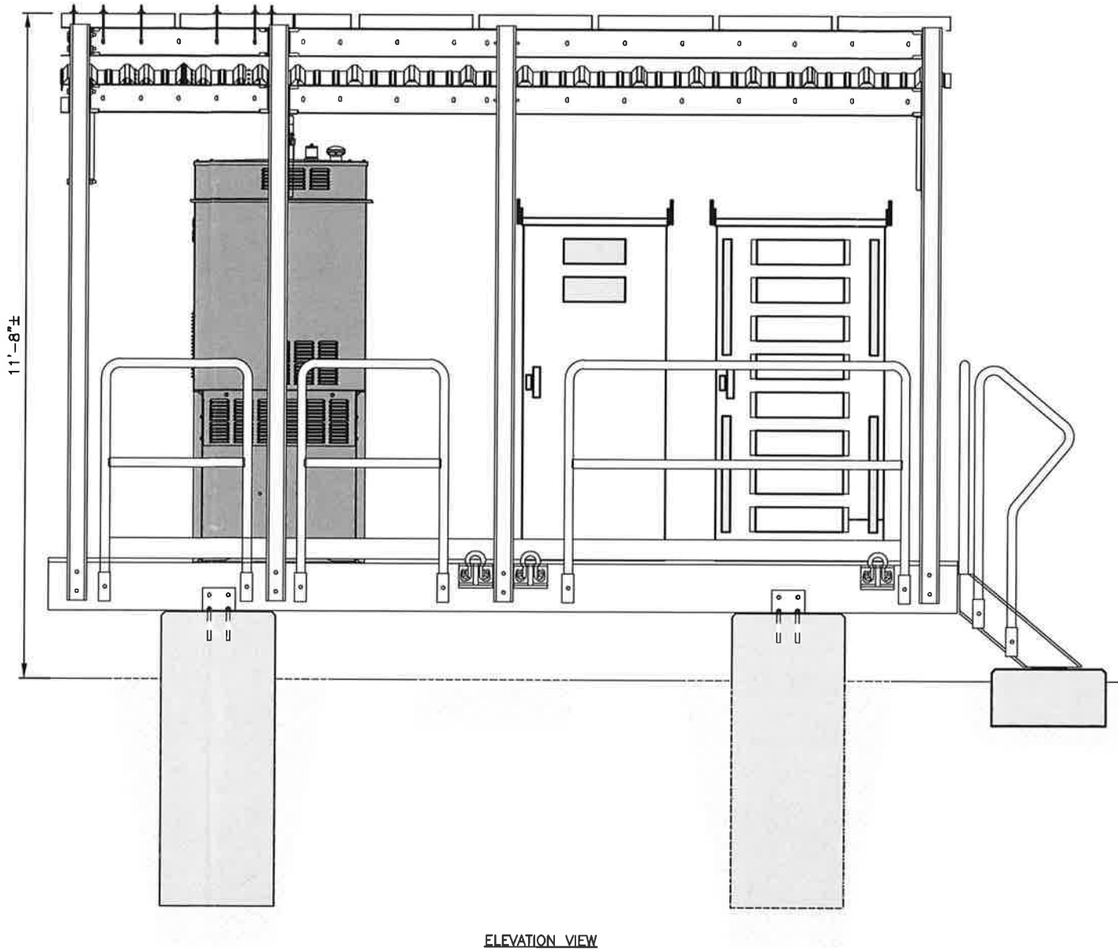
SITE ADDRESS:
JEFFERY PLACE
TRUMBULL, CT. 06611

SHEET TITLE
COMPOUND PLAN AND ELEVATION

SHEET NUMBER
A-1



PLAN VIEW



ELEVATION VIEW

PRE-FABRICATED STEEL PLATFORM BY
COMMSCOPE. MODEL #
VZW9.4x16-GLSP-3 DOCUMENT # MTC3841

EQUIPMENT STEEL PLATFORM DETAIL (1 / A-2)
SCALE: N.T.S

PREPARED FOR: CELLCO PARTNERSHIP D.B.A.

verizon

HUDSON
Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
DEREK J. CREASER
No. 28354
LICENSED
PROFESSIONAL ENGINEER

CHECKED BY: DJR

APPROVED BY: DJC

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	11/14/17	REVISED PER COMMENTS	SLY
0	7/13/17	ISSUED FOR REVIEW	SLY

SITE NAME:
TRUMBULL SOUTH CT

SITE ADDRESS:
JEFFERY PLACE
TRUMBULL, CT. 06611

SHEET TITLE
EQUIPMENT STEEL PLATFORM DETAIL

SHEET NUMBER
A-2

ATTACHMENT 4

Product Specifications

COMMSCOPE®

JAHH-65B-R3B

Multiband Antenna, 698–787, 824-894 and 2x 1695–2360 MHz, 65° horizontal beamwidth, internal RETs and low bands have diplexers. Internal SBT's on first LB(Port 1) and first HB(Port 5).

- Internal SBT on low and high band allow remote RET control from the radio over the RF jumper cable
- One RET for 700MHz, one RET for 850MHz, and one RET for both high bands to ensure same tilt level for 4x Rx or 4x MIMO
- Internal filter on low band and interleaved dipole technology providing for attractive, low wind load mechanical package
- Separate RS-485 RET input/output for low and high band

Electrical Specifications

Frequency Band, MHz	698–787	824–894	1695–1880	1850–1990	1920–2200	2300–2360
Gain, dBi	14.5	15.8	18.0	18.4	18.5	18.8
Beamwidth, Horizontal, degrees	67	65	63	63	65	68
Beamwidth, Vertical, degrees	12.4	10.5	5.7	5.2	4.9	4.4
Beam Tilt, degrees	2–14	2–14	0–10	0–10	0–10	0–10
USLS (First Lobe), dB	18	18	20	20	21	23
Front-to-Back Ratio at 180°, dB	32	34	31	35	36	38
Isolation, dB	25	25	25	25	25	25
Isolation, Intersystem, dB	30	30	30	30	30	30
VSWR | Return Loss, dB	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-153
Input Power per Port, maximum, watts	350	350	350	350	350	300
Polarization	±45°	±45°	±45°	±45°	±45°	±45°
Impedance	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm

Electrical Specifications, BASTA*

Frequency Band, MHz	698–787	824–894	1695–1880	1850–1990	1920–2200	2300–2360
Gain by all Beam Tilts, average, dBi	14.3	14.9	17.6	18.1	18.2	18.5
Gain by all Beam Tilts Tolerance, dB	±0.3	±0.5	±0.6	±0.4	±0.5	±0.6
Gain by Beam Tilt, average, dBi	2 ° | 14.3	2 ° | 15.0	0 ° | 17.2	0 ° | 17.6	0 ° | 17.7	0 ° | 17.9
	8 ° | 14.3	8 ° | 14.9	5 ° | 17.6	5 ° | 18.2	5 ° | 18.3	5 ° | 18.7
	14 ° | 14.3	14 ° | 15.4	10 ° | 17.6	10 ° | 18.2	10 ° | 18.3	10 ° | 18.7
Beamwidth, Horizontal Tolerance, degrees	±1.2	±1.4	±4	±2.4	±2.9	±2.7
Beamwidth, Vertical Tolerance, degrees	±0.9	±0.5	±0.3	±0.2	±0.3	±0.1
USLS, beampeak to 20° above beampeak, dB	18	17	17	18	19	18
Front-to-Back Total Power at 180° ± 30°, dB	25	24	26	29	27	29
CPR at Boresight, dB	22	23	20	21	21	24
CPR at Sector, dB	11	12	11	11	11	8

* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, download the whitepaper Time to Raise the Bar on BSAs.

General Specifications

Operating Frequency Band	1695 – 2360 MHz | 698 – 787 MHz | 824 – 894 MHz
Antenna Type	Sector
Band	Multiband
Performance Note	Outdoor usage

Product Specifications

JAHH-65B-R3B

Mechanical Specifications

RF Connector Quantity, total	8
RF Connector Quantity, low band	4
RF Connector Quantity, high band	4
RF Connector Interface	4.3-10 Female
Color	Light gray
Grounding Type	RF connector body grounded to reflector and mounting bracket
Radiator Material	Aluminum | Low loss circuit board
Radome Material	Fiberglass, UV resistant
Reflector Material	Aluminum
RF Connector Location	Bottom
Wind Loading, frontal	746.0 N @ 150 km/h 167.7 lbf @ 150 km/h
Wind Loading, lateral	243.0 N @ 150 km/h 54.6 lbf @ 150 km/h
Wind Loading, rear	776.0 N @ 150 km/h 174.5 lbf @ 150 km/h
Wind Speed, maximum	241 km/h | 150 mph

Dimensions

Length	1828.0 mm | 72.0 in
Width	350.0 mm | 13.8 in
Depth	208.0 mm | 8.2 in
Net Weight, without mounting kit	28.7 kg | 63.3 lb

Remote Electrical Tilt (RET) Information

Input Voltage	10–30 Vdc
Internal Bias Tee	Port 1 | Port 5
Internal RET	High band (1) | Low band (2)
Power Consumption, idle state, maximum	2.0 W
Power Consumption, normal conditions, maximum	13.0 W
Protocol	3GPP/AISG 2.0 (Single RET)
RET Interface	8-pin DIN Female | 8-pin DIN Male
RET Interface, quantity	2 female | 2 male

Packed Dimensions

Length	1975.0 mm | 77.8 in
Width	456.0 mm | 18.0 in
Depth	357.0 mm | 14.1 in
Shipping Weight	42.0 kg | 92.6 lb

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant by Exemption
China RoHS SJ/T 11364-2006	Above Maximum Concentration Value (MCV)

Product Specifications

JAHH-65B-R3B

ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system

Included Products

BSAMNT-1 — Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.

* Footnotes

Performance Note	Severe environmental conditions may degrade optimum performance

Product Specifications

COMMSCOPE®

BSAMNT-1

Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.

General Specifications

Mount Type	Downtilt mounts
Application	Outdoor
Includes	Brackets | Hardware
Package Quantity	1

Mechanical Specifications

Color	Silver
Material Type	Galvanized steel

Dimensions

Compatible Diameter, maximum	115.0 mm | 4.5 in
Compatible Diameter, minimum	60.0 mm | 2.4 in
Net Weight	3.4 kg | 7.5 lb

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant by Exemption
China RoHS SJ/T 11364-2006	Above Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system

ALCATEL-LUCENT B13 RRH4X30-4R

Alcatel-Lucent B13 Remote Radio Head 4x30-4R is the newest addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering.

Supporting 2Tx/4Tx MIMO and 4-way Rx diversity, Alcatel-Lucent B13 RRH4x30-4R allows operators to have a compact radio solution to deploy LTE in the 700U band (700 MHz, 3GPP band 13), providing them with the means to achieve high capacity, high quality and high coverage with minimum site requirements.

The Alcatel-Lucent B13 RRH4x30-4R product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x60 W or 4x30 W RF output power. It supports also 4-way Rx diversity and up to 10MHz instantaneous bandwidth.

The Alcatel-Lucent B13 RRH4x30-4R is a near zero-footprint solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

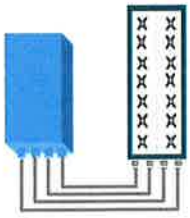
Its compactness and slim design makes the Alcatel-Lucent B13 RRH4x30-4R easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

FEATURES

- Supporting LTE in 700 MHz band (700U, 3GPP band 13)
- LTE 2Tx or 4Tx MIMO (SW switchable)
- Output power: Up to 2x60W or 4x30W
- 10MHz LTE carrier with 4Rx Diversity
- Convection-cooled (fan-less)
- Supports AISG 2.0 ALD devices (RET, TMA) through RS485 or RF ports

BENEFITS

- Compact to reduce additional footprint when adding LTE in 700U band
- MIMO scheme operation selection (2Tx or 4Tx) by software only
- Improves downlink spectral efficiency through MIMO4
- Increases LTE coverage thanks to 4Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options: Pole or Wall



4x30W with 4T4R
or
2x60W with 2T4R

Can be switched between modes via SW w/o site visit

Alcatel·Lucent

Features & performance	
Number of TX/RX paths	4 duplexed (either 4T4R or 2T4R by SW)
Frequency band	U700 (C) (3GPP bands 13): DL: 746 - 756 MHz / UL: 777 - 787 MHz
Instantaneous bandwidth - #carriers	10MHz – 1 LTE carrier (In 10MHz occupied bandwidth)
LTE carrier bandwidth	10 MHz
RF output power	2x60W or 4x30W (by SW)
Noise figure – RX Diversity scheme	2 dB typ. (<2.5 dB max) – 2 or 4 way Rx diversity
Sizes (HxWxD) in mm (in.) **Volume in L** **Weight in kg (lb) (w/o mounting HW)**	550 x 305 x 230 (21.6" x 12.0" x 9") (with solar shield) 38 (with solar shield) 26 (57.2) (with solar shield)
DC voltage range **DC power consumption**	-40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption 550W typical @100% RF load (In 2Tx or 4TX mode)
Environmental conditions **Wind load (@150km/h or 93mph)**	-40°C (-40°F) /+55°C (+131°F) IP65 Frontal:<200N / Lateral :<150N
Antenna ports	4 ports 7/16 DIN female (50 ohms) VSWR < 1.5
CPRI ports	2 CPRI ports (HW ready for Rate7, 9.8 Gbps) SFP single mode dual fiber
AISG interfaces	1 AISG2.0 output (RS485) Integrated Smart Bias Tees (x2)
Misc. Interfaces	4 external alarms (1 connector) – 4 RF Tx & 4 RF Rx monitor ports - 1 DC connector (2 pins)
Installation conditions	Pole and wall mounting
Regulatory compliance	3GPP 36.141 / 3GPP 36.113 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27

ALCATEL-LUCENT B25 RRH4X30

Alcatel-Lucent Band 25 Remote Radio Head 4x30W is the new addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering.

Supporting 2Tx/4Tx MIMO and 4-way Rx diversity, Alcatel-Lucent B25 RRH4x30 allows operators to have a compact radio solution to deploy LTE in the PCS band (1.9 GHz, 3GPP band 25), providing them with the means to achieve high capacity, high quality and high coverage with minimum site requirements.

The Alcatel-Lucent B25 RRH4x30 product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x60 W or 4x30 W RF output power. It supports also 4-way Rx diversity, LTE carriers from 3 MHz up to 20 MHz and up to 65 MHz instantaneous bandwidth.

The Alcatel-Lucent B25 RRH4x30 is a near zero-footprint solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

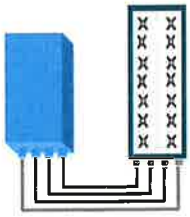
Its compactness and slim design makes the Alcatel-Lucent B25 RRH4x30 easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

FEATURES

- Supporting LTE in 1.9 GHz band (PCS, 3GPP band 2 & 25)
- LTE 2Tx or 4Tx MIMO (SW switchable)
- Output power: Up to 2x60W or 4x30W
- Ready for 3, 5, 10, 15 or 20MHz LTE carrier operation with 4Rx Diversity
- Ready to support up to 4 carriers anywhere in 65MHz instantaneous bandwidth
- Convection-cooled (fan-less)
- Supports AISG 2.0 devices (RET, TMA) through RS485 or RF ports

BENEFITS

- Compact to reduce additional footprint when adding LTE in PCS band
- MIMO scheme operation selection (2Tx or 4Tx) by software only
- Full flexibility for multiple carriers operation over entire PCS spectrum
- Improves downlink spectral efficiency and cell edge throughput through MIMO4
- Increases LTE coverage thanks to 4-way Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options (Pole or Wall)



4x30W with 4T4R
or
2x60W with 2T4R

Can be switched between modes via SW w/o site visit

Alcatel·Lucent

Features & performance	
Number of TX/RX paths	4 duplexed (either 4T4R or 2T4R by SW)
Frequency band	3GPP bands 2 & 25 (PCS-G) DL: 1930 - 1995 MHz UL: 1850 - 1915 MHz
Instantaneous bandwidth - #carriers	65MHz – Up to 4 LTE carriers (in 40MHz occupied bandwidth)
LTE carrier bandwidth	3, 5, 10, 15 or 20 MHz
RF output power	2x60W or 4x30W (by SW)
Noise figure (3GPP band 2) **RX Diversity scheme**	2.0 dB typ. (<2.5 dB max) 2 or 4 way Rx diversity
Sizes (HxWxD)(w/ solar shield) in mm (in.) **Volume (w/ solar shield) in L** **Weight (w/ solar shield) in kg (lb)**	538 x 304 x 182 (21.2" x 12.0" x 7.2") 30 24 (53)
DC voltage range **DC power consumption**	-40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption 580W typical @100% RF load
Environmental conditions **Wind load (@150km/h or 93mph)**	-40°C (-40°F) /+55°C (+131°F) IP65 Frontal:<200N / Lateral :<150N
Antenna ports	4 ports 7/16 DIN female (50 ohms) VSWR < 1.5 (> 14dB)
CPRI ports	2 CPRI ports (HW ready for Rate7 / 9.8 Gbps)
AISG interfaces	1 AISG2.0 output (RS485), +24V/2A DC power Integrated Smart Bias Tees (x2)
Misc. Interfaces	1 external alarms connector (4 alarms) 4 RF Tx & 4 RF Rx monitor ports 1 DC connector (2 pins)
Installation conditions	Pole and wall mounting
Regulatory compliance	3GPP 36.141 / 3GPP 36.113 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27

ALCATEL-LUCENT B66A RRH4X45

The Alcatel-Lucent B66a Remote Radio Head 4x45 is the newest addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering. Its operational range covers beyond that of B4 (AWS) and B10 (AWS+).

Supporting 2Tx/4Tx MIMO and 2-way/4-way Rx diversity, the Alcatel-Lucent B66a RRH4x45 allows operators to have a compact radio solution to deploy LTE in the 2100 band (3GPP band 4, 10, and 66), providing them with the means to achieve high capacity, high quality, high reliability, large instantaneous bandwidth, and high coverage with minimum site requirements.

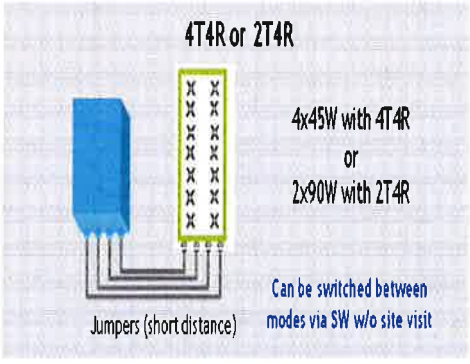
The Alcatel-Lucent B66a RRH4x45 product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x90W or 4x45W RF output power. It also supports 4-way Rx diversity at the 70 MHz instantaneous bandwidth.

The Alcatel-Lucent B66a RRH4x45 is a compact (near zero-footprint) solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

Its compactness and slim design makes the Alcatel-Lucent B66a RRH4x45 easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

FEATURES

- Supporting LTE in 2110 - 2180 MHz band/DL, 1710-1780MHz/UL (3GPP band 4, 10, and 66a)
- LTE 2Tx or 4Tx MIMO (SW selectable)
- Configuration: 2T2R/2T4R/4T4R
- Output power: Up to 2x90W or 4x45W (SW configurable)
- 70MHz LTE carrier with 4Rx Diversity
- Convection-cooled (fan-less)
- Supports AISG 2.0 ALD devices (RET, TMA) through RS485 or RF ports



BENEFITS

- Compact to reduce additional footprint when adding LTE in AWS 1-3 band
- Selection of MIMO configuration (2Tx or 4Tx) by software only
- Improves downlink spectral efficiency through 4Tx MIMO
- Increases LTE coverage thanks to 4Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options: Pole or Wall

Features & Performance	
Number of TX/RX paths	4 duplexed (either 4T4R or 2T4R selectable by SW)
Frequency band	AWS 1-3, B4/B66a DL: 2110-2180 MHz / UL: 1710-1780 MHz
Instantaneous bandwidth - #carriers	70 MHz – 4 LTE MIMO carriers (in 70 MHz occupied bandwidth)
LTE carrier bandwidth	5, 10, 15, 20 MHz
RF output power	2x90W or 4x45W (selectable by SW)
Noise figure – RX Diversity scheme **Receiver Sensivity (FRC A1-3)**	2 dB typical (<2.5 dB max) – 2 or 4 way Rx diversity -104.5 dBm maximum
Sizes (HxWxD) in mm (in.) **Volume in Liters** **Weight in kg (lb) (w/o mounting HW)**	655x299x182 (25.8x11.8x7.2) (with solar shield) 640x290x160 (25.2x11.4x6.3) (without solar shield) 35.5 (with solar shield) 29.7 (without solar shield) 25.8kg (56.8lb) (with solar shield)
DC voltage range **DC power consumption**	Nominal: -48V, -40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption 750W typical @100% RF load (in 2Tx or 4Tx mode); Add 58W for 2A*29V for AISG
Environmental conditions **Wind load (@150km/h or 93mph)**	-40°C (-40°F) /+55°C (+131°F) UL50E Type 4 Enclosure 250N (56lb) Frontal/150N (34lb) Lateral
Antenna ports	4 ports 4.3-10 female (50 ohms) VSWR < 1.5
CPRI ports	2 CPRI ports (HW ready for Rate 7, 9.8 Gbps) SFP: SMDF (HW supports also SMSF and MMDF)
AISG interfaces	1 AISG 2.0 output (RS485) Integrated Smart Bias Tees (x2)
Misc. Interfaces	4 external alarms (1 connector) 1 DC connector (2 pins)
Installation conditions	Pole and wall mounting
Regulatory compliance	3GPP 36.141 / 3GPP 36.113 / GR-487 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27 / FCC Part 15 / GR-3178-CORE

SDC20 | 2.5L | 20 kW - AC

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL

Standby Power Rating

20 kW AC, 60 Hz

*Built in the USA using domestic and foreign parts

Image used for illustration purposes only

Codes and Standards

Generac products are designed to the following standards:

- UL2200, UL508, UL142, UL489
- NFPA 37, 70, 99, 110
- NEC700, 701, 702, 708
- ISO 3046, 7637, 8528, 9001
- NEMA ICS10, MG1, 250, ICS6, AB1
- ANSI C62.41

Powering Ahead

For over 50 years, Generac has provided innovative design and superior manufacturing.

Generac ensures superior quality by designing and manufacturing most of its generator components, including alternators, enclosures and base tanks, control systems and communications software.

Generac gensets utilize a wide variety of options, configurations and arrangements, allowing us to meet the standby power needs of practically every application.

Generac searched globally to ensure the most reliable engines power our generators. We choose only engines that have already been proven in heavy-duty industrial applications under adverse conditions.

Generac is committed to ensuring our customers' service support continues after their generator purchase.

SDC20 | 2.5L | 20 kW - AC

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL

STANDARD OPTIONS

ENGINE SYSTEM

- Oil Drain Extension
- Air Cleaner with Service Indicator
- Fan Guard
- Stainless Steel Flexible Exhaust Connection
- Exhaust Silencer with Drain
- Factory Filled Oil & Coolant

Fuel System

- Primary Fuel Filter

Cooling System

- 120V AC Coolant Heater
- Closed Coolant Recovery System
- UV/Ozone Resistant Hoses
- Factory-Installed Radiator
- 50/50 Ethylene Glycol Antifreeze
- Radiator Drain Extension

Electrical System

- Battery Charging Alternator
- AGM Spill Proof Battery
- Battery Cables
- Rubber-Booted Engine Electrical Connections
- Solenoid Activated Starter Motor

ALTERNATOR SYSTEM

- Class H Insulation Material
- Vented Rotor
- 2/3 Pitch
- Skewed Stator
- Auxiliary Voltage Regulator Power Winding
- Amortisseur Winding
- Brushless Excitation
- Sealed Bearings
- Automated Manufacturing (Winding, Insertion, Lacing and Varnishing)
- Rotor Dynamically Spin Balanced
- Full Load Capacity Alternator
- Protective Thermal Switch

GENERATOR SET

- Single-Side Service
- Internal Genset Puck Style Vibration Isolators
- Separation of Circuits- High/Low Voltage
- Silencer Heat Shield
- High Heat Wrapped Exhaust Piping
- Silencer Enclosed Within Generator
- 5 Year Extended Warranty
- Extended Factory Testing
- 12 Gallon System Spill Containment
- 2.5 Gallon Fuel Fill Spill Containment

ENCLOSURE

- Serviceable Items Accessible Though Single Lift-Off Side Door
- High Performance Sound-Absorbing Material
- Gasketed Door
- Stamped Air-Intake Louvers
- Single Door Latch Lockable with Key & Padlock
- Rhino Coat™ - Textured Polyester Powder Coat
- 150 MPH Wind Rating
- 36" Snow Rating
- 4 Point Lift System

FUEL TANK

- UL 142 Compliant
- Double Wall Construction
- Thermal Valve (Fusible Link)
- Factory Pressure Tested (5 psi)
- Rupture Basin Alarm
- Fuel Level Gauge and Sender
- Check Valve in Supply Line
- Fire Rated Hose
- Rhino Coat™ - Textured Polyester Powder Coat
- Stainless Steel Hardware
- Integrated Fork Pockets

CONTROL SYSTEM

- Digital H Control Panel - Dual 4x20 Display
- Programmable Crank Limiter
- 7-Day Programmable Exerciser
- Special Applications Programmable PLC
- RS-232/485
- All-Phase Sensing DVR
- Full System Status
- Utility Monitoring
- 2-Wire Start Compatible
- Power Output (kW)
- Power Factor
- kW Hours, Total & Last Run
- Real/Reactive/Apparent Power
- All Phase AC Voltage
- All Phase Currents
- Oil Pressure
- Coolant Temperature
- Coolant Level
- Engine Speed
- Battery Voltage
- Frequency
- Date/Time Fault History (Event Log)
- Isochronous Governor Control
- Waterproof/Sealed Connectors
- Audible Alarms and Shutdowns
- Not in Auto (Flashing Light)
- Auto/Off/Manual Switch
- E-Stop (Red Mushroom-Type)
- NFPA110 Level I and II (Programmable)
- Customizable Alarms, Warnings, and Events
- Modbus protocol
- Predictive Maintenance Algorithm
- Sealed Boards
- Password Parameter Adjustment Protection
- Single Point Ground
- 15 Channel Data Logging
- 0.2 msec High Speed Data Logging
- Alarm Information Automatically Comes Up On the Display

Alarms

- Generator Run- Dry Contact
- Major Alarm- Dry Contact
- Minor Alarm- Dry Contact
- Low Fuel Alarm- Dry Contact
- Rupture Basin Alarm- Dry Contact
- Alarms & Warnings Time and Date Stamped
- Alarms & Warnings for Transient and Steady State Conditions
- Snap Shots of Key Operation Parameters During Alarms & Warnings
- Alarms and Warnings Spelled Out (No Alarm Codes)

MODEL OPTIONS

CONTROL SYSTEM

- ○ 21 Light Annunciator- Shipped Loose Kit and Field Installed
- ○ External E-Stop-Shipped Loose Kit and Field Installed

ENCLOSURE

- ○ Aluminum Enclosure
- ○ Extreme Cold Weather Kit (-40°C)- Shipped Loose Kit and Field Installed

TANKS

- ○ External Fuel Vent- Shipped Loose Kit and Field Installed

SDC20 | 2.5L | 20 kW - AC

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL

APPLICATION AND ENGINEERING DATA

ENGINE SPECIFICATIONS

General

Make	Mitsubishi
EPA Emissions Compliance	Interim Tier 4
Cylinder #	4
Type	In-Line
Displacement - L (Cu In)	2.5 (158)
Bore - mm (in)	88 (3.5)
Stroke - mm (in)	103 (4.1)
Compression Ratio	22:1
Intake Air Method	Naturally Aspirated

Engine Governing

Governor	Electronic Isochronous
Frequency Regulation (Steady State)	± 0.25%

Lubrication System

Oil Pump Type	Trochoid Gear Pump
Oil Filter Type	Filtering Paper, Full Flow
Crankcase Capacity - L (qts)	6.5 (6.9)

Cooling System

Cooling System Type	Forced Circulation
Water Pump Type	Centrifugal Pump
Fan Type	Pusher
Fan Speed (rpm)	2100
Fan Diameter - mm (in)	431.8 (17)
Coolant Heater Wattage	1000
Coolant Heater Standard Voltage	120

Fuel System

Fuel Type	Ultra Low Sulfur Diesel #2
Fuel Specifications	ASTM
Fuel Filtering (microns)	6
Fuel Inject Pump Make	Bosch
Injector Type	Engine Driven Gear
Engine Type	Diesel
Fuel Supply Line - mm (in.)	6.6 (0.26)

Engine Electrical System

System Voltage	12 VDC
Battery Charger Alternator	12V-50A
Battery Size	650 CCA
Battery Group	35
Battery Voltage	12 VDC
Ground Polarity	Negative

ALTERNATOR SPECIFICATIONS

Standard Model	Mecc Alte ECP 28-2L/4
Poles	4
Field Type	Revolving
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	<5%
Telephone Interference Factor (TIF)	<45
Standard Excitation	Brushless
Bearings	Dual Sealed
Coupling	Belt, Pulley
Load Capacity - Standby	100%
Prototype Short Circuit Test	Yes
Voltage Regulator Type	Digital
Number of Sensed Phases	All
Regulation Accuracy (Steady State)	±1.0%

RATING DEFINITIONS

Standby - Applicable for a varying emergency load for the duration of a utility power outage with no overload capability.

SDC20 | 2.5L | 20 kW - AC

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL

OPERATING DATA

POWER RATINGS

Single-Phase 120/240 VAC @1.0pf	20 kW	Amps: 83
Circuit Breaker	100A	

FUEL CONSUMPTION RATES*

Diesel - gph (lph)

Percent Load	Standby
25%	0.77 (2.91)
50%	1.03 (3.90)
75%	1.46 (5.53)
100%	1.97 (7.46)

* Fuel supply installation must accommodate fuel consumption rates at 100% load.

COOLING

		Standby
Coolant Flow per Minute	gpm (lpm)	11.9 (45)
Coolant System Capacity	gal (L)	3.5 (13.2)
Heat Rejection to Coolant	BTU/hr	238,200
Max. Operating Ambient Temperature (Before Derate)	°F (°C)	77° (25°)
Maximum Radiator Backpressure	in H_2O	0.50

COMBUSTION AIR REQUIREMENTS

	Standby
Flow at Rated Power cfm (m^3/min)	88 (2.49)

ENGINE

		Standby
Rated Engine Speed	rpm	1800
Horsepower at Rated kW**	hp	33.5
Piston Speed	ft/min	1220.47
BMEP	psi	96.5

EXHAUST

		Standby
Exhaust Flow (Rated Output)	cfm (m^3/min)	193 (328)
Max. Backpressure (Post Silencer)	inHg (kPa)	1.38 (4.67)
Exhaust Temp (Rated Output - Post Silencer)	°F (°C)	928 (497.7)

** Refer to "Emissions Data Sheet" for maximum bHP for EPA and SCAQMD permitting purposes.

Deration – Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical site conditions.
Please consult a Generac Power Systems Industrial Dealer for additional details. All performance ratings in accordance with ISO3046, BS5514, ISO8528 and DIN6271 standards.

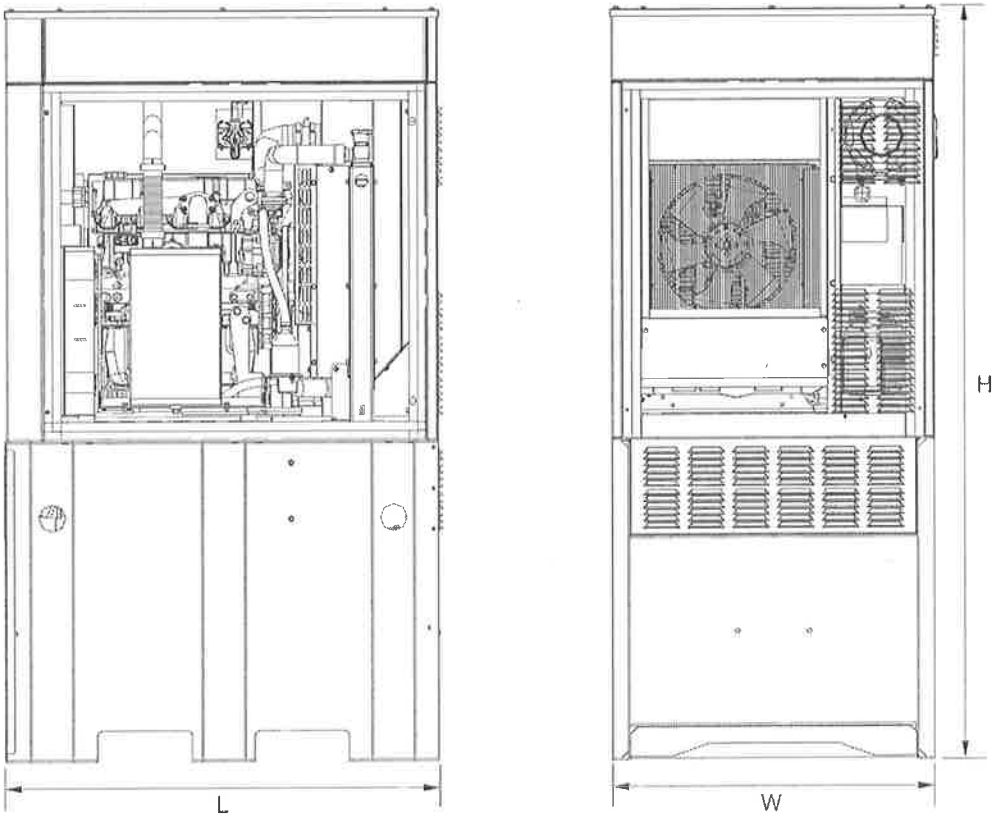
SDC20 | 2.5L | 20 kW - AC

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL

DIMENSIONS AND WEIGHTS*



Level 2 Sound Attenuation Enclosure

Run Time Hours	46.7
Usable Capacity Gal (L)	92 (348.2)
L x W x H in (mm)	48 x 36 x 90 (1219.2 x 914.4 x 2286)
Weight lbs (kg)	2400 (1089)
Sound Level	65 dBA

* All measurements are approximate and for estimation purposes only.

YOUR FACTORY RECOGNIZED GENERAC INDUSTRIAL DEALER

SPEC SHEET

Specification characteristics may change without notice. Dimensions and weights are for preliminary purposes only. Please consult a Generac Power Systems Industrial Dealer for detailed installation drawings.

Generac Power Systems, Inc. | P.O.Box 8 | Waukesha, WI 53189
P: (262) 544-4811

Document No. 10000000844
Rev. F 07/18/16

ATTACHMENT 5

STRUCTURAL ANALYSIS REPORT

For

TRUMBULL SOUTH CT

JEFFERY PLACE
TRUMBULL, CT 06611

Antennas Mounted to the Monopole

Prepared for:

verizon

99 East River Road, 9th Floor
East Hartford, CT 06108

Dated: October 17, 2017

Prepared by:

HUDSON Design Group LLC

45 Beechwood Drive
North Andover, MA 01845
(P) 978.557.5553 (F) 978.336.5586
www.hudsondesigngroupllc.com

10/17/2017

HUDSON
Design Group LLC

SCOPE OF WORK:

Hudson Design Group LLC (HDG) has been authorized by VERIZON to conduct a structural evaluation of the 150' monopole supporting the proposed VERIZON's antennas located at elevation 140' above the ground level.

This report represents this office's findings, conclusions and recommendations pertaining to the support of VERIZON's proposed antennas listed below.

Record drawings and structural analysis of the monopole prepared by TransAmerican Power Products, Inc., dated July 23, 2017, was available and obtained for our use.

CONCLUSION SUMMARY:

Based on our evaluation, we have determined that the existing monopole and foundation **are in conformance** with the ANSI/TIA-222-G Standard for the loading considered under the criteria listed in this report. The monopole structure is rated at **68.1%** - (Pole Section L1 from El.101' to El.150' Controlling).

HUDSON
Design Group LLC

APPURTENANCES CONFIGURATION:

Tenant	Appurtenances	Elev.	Mount
	(2) DB810KE-Y	155.5'	Side Mount Standoff
	(1) HP2 Dish	149'	Side Mount Standoff
VERIZON	***(12) JAHH-65B-R3B Antennas***	140'	***Low Profile Platform***
VERIZON	***(3) RRH4X45 AWS***	140'	***Low Profile Platform***
VERIZON	***(3) B13 RRH4X30-4R***	140'	***Low Profile Platform***
VERIZON	***(3) B25 RRH4X30-4R***	140'	***Low Profile Platform***
VERIZON	***(2) DB-T1-6Z-8AB-0Z***	140'	***Low Profile Platform***

Proposed VERIZON Appurtenances shown in Bold.

VERIZON EXISTING/PROPOSED COAX CABLES:

Tenant	Coax Cables	Elev.	Mount
VERIZON	***(2) Fiber Cables***	140'	Inside Monopole

Proposed VERIZON Coax Cables shown in Bold.

ANALYSIS RESULTS SUMMARY:

Component	Max. Stress Ratio	Elev. of Component (ft)	Pass/Fail	Comments
Pole Section-L1	**68.1 %**	101 – 150	PASS	**Controlling**
Pole Section-L2	63.1 %	80 – 101	PASS	
Pole Section-L3	62.6 %	47.5 – 80	PASS	
Pole Section-L4	64.2 %	1 – 47.5	PASS	

FOUNDATION ANALYSIS RESULTS SUMMARY:

	Design Reactions (DL + WL)	Base Reactions (DL + WL)	Pass/Fail	Comments
AXIAL	**46 k**	34.0 k	PASS	
SHEAR	**45 k**	31.6 k	PASS	
MOMENT	**4932 ft-k**	3184 ft-k	PASS	

HUDSON
Design Group LLC

DESIGN CRITERIA:

1. EIA/TIA-222-G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures

   County: Fairfield
   Wind Load: 110 mph (3 second gust)
   Structural Class: II
   Exposure Category: C
   Topographic Category: 1
   Nominal Ice Thickness: 0.75 inch

2. Approximate height above grade to proposed antennas: 140'

***Calculations and referenced documents are attached.**

ASSUMPTIONS:

1. The appurtenances configuration is as stated in this report. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.

2. The monopole and foundation are properly constructed and maintained. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.

3. The support mounts and platforms are not analyzed and are considered adequate to support the loading. The analysis is limited to the primary support structure itself.

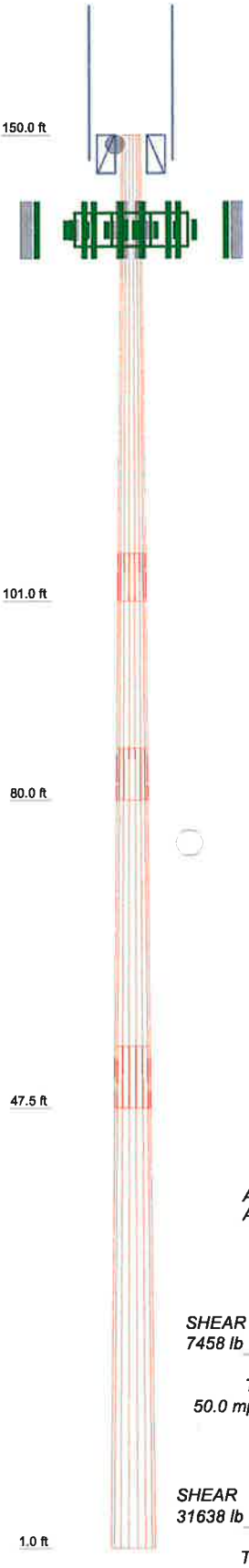
4. All prior structural modification, if any, are assumed to be as per the data supplied (if available), and installed properly.

SUPPORT RECOMMENDATIONS:

HDG recommends that the proposed antennas, RRHs and distribution boxes be mounted on the proposed steel platform supported by the monopole.

HUDSON
Design Group LLC

CALCULATIONS



Section	1	2	3	4
Length (ft)	49.00	26.00	38.00	53.00
Number of Sides	18	18	18	18
Thickness (in)	0.1875	0.2500	0.3125	0.3750
Socket Length (ft)	5.00	5.50	6.50	
Top Dia (in)	24.0000	33.6642	37.8443	44.4027
Bot Dia (in)	35.1600	39.6000	46.5100	56.5000
Grade	A572-65			
Weight (lb)	2917.6	2554.1	5369.4	10749.3

21590.4

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
DB810KE-Y	155.5	RRH 4X45 AWS	140
DB810KE-Y	155.5	RRH 4X45 AWS	140
HP2-102	149	B13 RRH4X30-4R	140
Pirod 4' Side Mount Standoff (1)	148	B13 RRH4X30-4R	140
Pirod 4' Side Mount Standoff (1)	148	B13 RRH4X30-4R	140
(2) JAHH-65B-R3B w/ Mount Pipe	140	B25 RRH4X30-4R	140
(2) JAHH-65B-R3B w/ Mount Pipe	140	B25 RRH4X30-4R	140
(2) JAHH-65B-R3B w/ Mount Pipe	140	B25 RRH4X30-4R	140
(2) JAHH-65B-R3B w/ Mount Pipe	140	RFS DB-T1-6Z-8AB-0Z	140
(2) JAHH-65B-R3B w/ Mount Pipe	140	RFS DB-T1-6Z-8AB-0Z	140
(2) JAHH-65B-R3B w/ Mount Pipe	140	PIROD 13' Platform w/handrail (Verizon - proposed)	140
RRH 4X45 AWS	140		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 110.0 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50.0 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60.0 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 68.1%

ALL REACTIONS ARE FACTORED

AXIAL
55292 lb

SHEAR
7458 lb

MOMENT
743979 lb-ft

TORQUE 815 lb-ft
50.0 mph WIND - 0.7500 in ICE

AXIAL
34042 lb

SHEAR
31638 lb

MOMENT
3183643 lb-ft

TORQUE 2930 lb-ft
REACTIONS - 110.0 mph WIND

Hudson Design Group LLC
45 Beechwood Drive
North Andover, MA 01845
Phone: (978) 557-5553
FAX: (978) 336-5586

Job: *TRUMBULL SOUTH CT*			
Project: *150 ft Monopole*			
Client: VERIZON	Drawn by: kw	App'd:	
Code: TIA-222-G	Date: 10/17/17	Scale: N	
Path:		Dwg No.	

Tower Input Data

There is a pole section.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in Fairfield County, Connecticut.
Basic wind speed of 110.0 mph.
Structure Class II.
Exposure Category C.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56.0 pcf.
A wind speed of 50.0 mph is used in combination with ice.
Temperature drop of 50.0 °F.
Deflections calculated using a wind speed of 60.0 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	150.00-101.00	49.00	5.00	18	24.0000	35.1800	0.1875	0.7500	A572-65 (65 ksi)
L2	101.00-80.00	26.00	5.50	18	33.6642	39.6000	0.2500	1.0000	A572-65 (65 ksi)
L3	80.00-47.50	38.00	6.50	18	37.8443	46.5100	0.3125	1.2500	A572-65 (65 ksi)
L4	47.50-1.00	53.00		18	44.4027	56.5000	0.3750	1.5000	A572-65 (65 ksi)

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
1 5/8	C	No	Inside Pole	150.00 - 1.00	18	No Ice	0.00	1.04
						1/2" Ice	0.00	1.04
						1" Ice	0.00	1.04
**********								
1 5/8 Fiber Cable (Verizon)	C	No	Inside Pole	140.00 - 1.00	2	No Ice	0.00	1.04
						1/2" Ice	0.00	1.04
						1" Ice	0.00	1.04

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
DB810KE-Y	A	From Face	4.00	0.0000	155.50	No Ice	4.83	4.83	35.00
			0.00			1/2" Ice	6.55	6.55	70.26
			0.00			1" Ice	8.23	8.23	115.93
DB810KE-Y	B	From Face	4.00	0.0000	155.50	No Ice	4.83	4.83	35.00
			0.00			1/2" Ice	6.55	6.55	70.26
			0.00			1" Ice	8.23	8.23	115.93
Pirod 4' Side Mount Standoff (1)	A	From Face	2.00	0.0000	148.00	No Ice	2.72	2.72	50.00
			0.00			1/2" Ice	4.91	4.91	89.00
			0.00			1" Ice	7.10	7.10	128.00
Pirod 4' Side Mount Standoff (1)	B	From Face	2.00	0.0000	148.00	No Ice	2.72	2.72	50.00
			0.00			1/2" Ice	4.91	4.91	89.00
			0.00			1" Ice	7.10	7.10	128.00
**********									
PiROD 13' Platform w/handrail (Verizon - proposed)	A	None		0.0000	140.00	No Ice	31.30	31.30	1822.00
						1/2" Ice	40.20	40.20	2452.00
						1" Ice	49.10	49.10	3082.00
(2) JAHH-65B-R3B w/ Mount Pipe	A	From Leg	4.00	0.0000	140.00	No Ice	9.35	7.65	88.85
			6.00			1/2" Ice	9.92	8.83	165.42
			0.00			1" Ice	10.46	9.73	250.16
(2) JAHH-65B-R3B w/ Mount Pipe	A	From Leg	4.00	0.0000	140.00	No Ice	9.35	7.65	88.85
			-6.00			1/2" Ice	9.92	8.83	165.42
			0.00			1" Ice	10.46	9.73	250.16
(2) JAHH-65B-R3B w/ Mount Pipe	B	From Leg	4.00	0.0000	140.00	No Ice	9.35	7.65	88.85
			6.00			1/2" Ice	9.92	8.83	165.42
			0.00			1" Ice	10.46	9.73	250.16
(2) JAHH-65B-R3B w/ Mount Pipe	B	From Leg	4.00	0.0000	140.00	No Ice	9.35	7.65	88.85
			-6.00			1/2" Ice	9.92	8.83	165.42
			0.00			1" Ice	10.46	9.73	250.16
(2) JAHH-65B-R3B w/ Mount Pipe	C	From Leg	4.00	0.0000	140.00	No Ice	9.35	7.65	88.85
			6.00			1/2" Ice	9.92	8.83	165.42
			0.00			1" Ice	10.46	9.73	250.16
(2) JAHH-65B-R3B w/ Mount Pipe	C	From Leg	4.00	0.0000	140.00	No Ice	9.35	7.65	88.85
			-6.00			1/2" Ice	9.92	8.83	165.42
			0.00			1" Ice	10.46	9.73	250.16
RRH 4X45 AWS	A	From Leg	3.00	0.0000	140.00	No Ice	2.66	1.59	64.00
			-6.00			1/2" Ice	2.88	1.77	84.35
			0.00			1" Ice	3.10	1.96	107.85
RRH 4X45 AWS	B	From Leg	3.00	0.0000	140.00	No Ice	2.66	1.59	64.00
			-6.00			1/2" Ice	2.88	1.77	84.35
			0.00			1" Ice	3.10	1.96	107.85
RRH 4X45 AWS	C	From Leg	3.00	0.0000	140.00	No Ice	2.66	1.59	64.00
			-6.00			1/2" Ice	2.88	1.77	84.35
			0.00			1" Ice	3.10	1.96	107.85
B13 RRH4X30-4R	A	From Leg	3.00	0.0000	140.00	No Ice	2.16	1.62	57.20
			-2.00			1/2" Ice	2.35	1.79	76.81
			0.00			1" Ice	2.55	1.97	99.38
B13 RRH4X30-4R	B	From Leg	3.00	0.0000	140.00	No Ice	2.16	1.62	57.20
			-2.00			1/2" Ice	2.35	1.79	76.81
			0.00			1" Ice	2.55	1.97	99.38
B13 RRH4X30-4R	C	From Leg	3.00	0.0000	140.00	No Ice	2.16	1.62	57.20
			-2.00			1/2" Ice	2.35	1.79	76.81
			0.00			1" Ice	2.55	1.97	99.38

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
B25 RRH4X30-4R	A	From Leg	3.00	0.0000	140.00	No Ice	2.20	1.74	55.00
			2.00			1/2" Ice	2.39	1.92	75.47
			0.00			1" Ice	2.59	2.11	98.94
B25 RRH4X30-4R	B	From Leg	3.00	0.0000	140.00	No Ice	2.20	1.74	55.00
			2.00			1/2" Ice	2.39	1.92	75.47
			0.00			1" Ice	2.59	2.11	98.94
B25 RRH4X30-4R	C	From Leg	3.00	0.0000	140.00	No Ice	2.20	1.74	55.00
			2.00			1/2" Ice	2.39	1.92	75.47
			0.00			1" Ice	2.59	2.11	98.94
RFS DB-T1-6Z-8AB-0Z	B	From Leg	3.00	0.0000	140.00	No Ice	4.80	2.00	44.00
			6.00			1/2" Ice	5.07	2.19	80.13
			0.00			1" Ice	5.35	2.39	120.22
RFS DB-T1-6Z-8AB-0Z	C	From Leg	3.00	0.0000	140.00	No Ice	4.80	2.00	44.00
			6.00			1/2" Ice	5.07	2.19	80.13
			0.00			1" Ice	5.35	2.39	120.22
**********									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight lb
HP2-102	A	Paraboloid w/Shroud (HP)	From Face	1.00	0.0000		149.00	2.00	No Ice	3.14	25.00
				0.00					1/2" Ice	3.41	42.49
				0.00					1" Ice	3.67	59.98

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice

Comb. No.	Description
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Pole	Max. Vert	36	55291.74	7449.14	12.23
	Max. H_x	20	34042.37	31581.72	73.04
	Max. H_z	3	25531.78	88.85	31343.89
	Max. M_x	2	3141565.41	88.85	31343.89
	Max. M_z	8	3183614.03	-31637.50	-90.10
	Max. Torsion	4	2930.31	-15737.01	27135.65
	Min. Vert	13	25531.78	-15896.78	-27183.21
	Min. H_x	8	34042.37	-31637.50	-90.10
	Min. H_z	14	34042.37	-142.16	-31356.50
	Min. M_x	14	-3143044.95	-142.16	-31356.50
	Min. M_z	20	-3175928.01	31581.72	73.04
	Min. Torsion	16	-2926.44	15779.41	-27111.17

Tower Mast Reaction Summary

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
Dead Only	28368.64	0.00	0.00	-170.89	307.51	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	34042.37	-88.85	-31343.89	-3141565.41	13875.02	-2235.54
0.9 Dead+1.6 Wind 0 deg - No Ice	25531.78	-88.85	-31343.89	-3123124.35	13683.98	-2238.64
1.2 Dead+1.6 Wind 30 deg - No Ice	34042.37	15737.01	-27135.65	-2719330.39	-1579259.35	-2930.31
0.9 Dead+1.6 Wind 30 deg - No Ice	25531.78	15737.01	-27135.65	-2703364.12	-1570105.03	-2929.58
1.2 Dead+1.6 Wind 60 deg - No Ice	34042.37	27397.21	-15555.13	-1553101.27	-2756839.63	-2682.92
0.9 Dead+1.6 Wind 60 deg - No Ice	25531.78	27397.21	-15555.13	-1543980.61	-2740767.39	-2678.50
1.2 Dead+1.6 Wind 90 deg - No Ice	34042.37	31637.50	90.10	13483.31	-3183614.03	-1838.82
0.9 Dead+1.6 Wind 90 deg - No Ice	25531.78	31637.50	90.10	13441.01	-3165042.15	-1832.00
1.2 Dead+1.6 Wind 120 deg - No Ice	34042.37	27417.46	15730.97	1579380.52	-2759869.74	-521.08
0.9 Dead+1.6 Wind 120 deg - No Ice	25531.78	27417.46	15730.97	1570181.51	-2743778.92	-513.69
1.2 Dead+1.6 Wind 150 deg - No Ice	34042.37	15896.78	27183.21	2726089.70	-1603502.22	934.86
0.9 Dead+1.6 Wind 150 deg - No Ice	25531.78	15896.78	27183.21	2710183.96	-1594181.01	940.89
1.2 Dead+1.6 Wind 180 deg - No Ice	34042.37	142.16	31356.50	3143044.95	-21226.58	2157.87
0.9 Dead+1.6 Wind 180 deg - No Ice	25531.78	142.16	31356.49	3124702.86	-21172.51	2160.93
1.2 Dead+1.6 Wind 210 deg - No Ice	34042.37	-15779.41	27111.17	2715193.86	1586447.45	2926.44
0.9 Dead+1.6 Wind 210 deg - No Ice	25531.78	-15779.41	27111.17	2699361.32	1577055.48	2925.69
1.2 Dead+1.6 Wind 240 deg - No Ice	34042.37	-27359.65	15595.00	1558752.57	2751890.69	2756.45
0.9 Dead+1.6 Wind 240 deg - No Ice	25531.78	-27359.65	15595.00	1549695.16	2735663.10	2752.12
1.2 Dead+1.6 Wind 270 deg - No Ice	34042.37	-31581.72	-73.04	-11303.61	3175928.01	1860.61
0.9 Dead+1.6 Wind 270 deg - No Ice	25531.78	-31581.72	-73.04	-11172.79	3157216.60	1853.83
1.2 Dead+1.6 Wind 300 deg - No Ice	34042.37	-27369.75	-15703.43	-1575630.86	2753409.37	525.04
0.9 Dead+1.6 Wind 300 deg - No Ice	25531.78	-27369.75	-15703.43	-1566351.13	2737169.84	517.63
1.2 Dead+1.6 Wind 330 deg - No Ice	34042.37	-15854.11	-27143.44	-2720497.99	1597791.14	-952.76
0.9 Dead+1.6 Wind 330 deg - No Ice	25531.78	-15854.11	-27143.44	-2704522.08	1588318.31	-958.82
1.2 Dead+1.0 Ice+1.0 Temp	55291.74	-0.00	-0.00	-997.92	1402.59	0.34
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	55291.74	-14.88	-7414.41	-738377.49	3818.05	-345.75
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	55291.74	3715.55	-6419.57	-639359.28	-368346.78	-677.47
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	55291.74	6458.95	-3687.65	-366647.15	-642755.84	-801.22
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	55291.74	7458.48	15.09	1311.52	-742469.21	-731.15
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	55291.74	6462.34	3717.09	369154.70	-643285.70	-468.28

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	55291.74	3742.30	6427.53	638495.73	-372541.60	-80.00
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	55291.74	23.80	7416.52	736595.07	-2249.82	332.87
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	55291.74	-3722.65	6415.47	636604.09	372427.73	678.04
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	55291.74	-6452.66	3694.32	365583.79	644736.77	815.10
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	55291.74	-7449.14	-12.23	-2973.44	743973.56	735.65
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	55291.74	-6454.35	-3712.48	-370542.56	645003.26	469.05
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	55291.74	-3735.16	-6420.87	-639564.02	374391.13	76.84
Dead+Wind 0 deg - Service	28368.64	-14.78	-5214.89	-521313.36	2558.54	-375.98
Dead+Wind 30 deg - Service	28368.64	2618.27	-4514.74	-451268.54	-261734.29	-491.84
Dead+Wind 60 deg - Service	28368.64	4558.26	-2588.01	-257801.70	-457096.38	-449.61
Dead+Wind 90 deg - Service	28368.64	5263.74	14.99	2092.74	-527906.92	-307.98
Dead+Wind 120 deg - Service	28368.64	4561.63	2617.27	261877.19	-457606.08	-86.99
Dead+Wind 150 deg - Service	28368.64	2644.85	4522.65	452111.50	-265759.92	157.25
Dead+Wind 180 deg - Service	28368.64	23.65	5216.99	521275.35	-3262.62	362.47
Dead+Wind 210 deg - Service	28368.64	-2625.33	4510.67	450296.36	263441.92	491.77
Dead+Wind 240 deg - Service	28368.64	-4552.01	2594.64	258451.14	456789.07	463.02
Dead+Wind 270 deg - Service	28368.64	-5254.46	-12.15	-2018.02	527140.99	311.99
Dead+Wind 300 deg - Service	28368.64	-4553.69	-2612.68	-261538.59	457043.61	87.12
Dead+Wind 330 deg - Service	28368.64	-2637.75	-4516.04	-451464.87	265324.30	-161.12

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
1	0.00	-28368.64	0.00	0.00	28368.64	0.00	0.000%
2	-88.85	-34042.37	-31343.89	88.85	34042.37	31343.89	0.000%
3	-88.85	-25531.78	-31343.89	88.85	25531.78	31343.89	0.000%
4	15737.01	-34042.37	-27135.65	-15737.01	34042.37	27135.65	0.000%
5	15737.01	-25531.78	-27135.65	-15737.01	25531.78	27135.65	0.000%
6	27397.21	-34042.37	-15555.13	-27397.21	34042.37	15555.13	0.000%
7	27397.21	-25531.78	-15555.13	-27397.21	25531.78	15555.13	0.000%
8	31637.50	-34042.37	90.10	-31637.50	34042.37	-90.10	0.000%
9	31637.50	-25531.78	90.10	-31637.50	25531.78	-90.10	0.000%
10	27417.46	-34042.37	15730.97	-27417.46	34042.37	-15730.97	0.000%
11	27417.46	-25531.78	15730.97	-27417.46	25531.78	-15730.97	0.000%
12	15896.78	-34042.37	27183.21	-15896.78	34042.37	-27183.21	0.000%
13	15896.78	-25531.78	27183.21	-15896.78	25531.78	-27183.21	0.000%
14	142.16	-34042.37	31356.49	-142.16	34042.37	-31356.50	0.000%
15	142.16	-25531.78	31356.49	-142.16	25531.78	-31356.49	0.000%
16	-15779.41	-34042.37	27111.17	15779.41	34042.37	-27111.17	0.000%
17	-15779.41	-25531.78	27111.17	15779.41	25531.78	-27111.17	0.000%
18	-27359.65	-34042.37	15595.00	27359.65	34042.37	-15595.00	0.000%
19	-27359.65	-25531.78	15595.00	27359.65	25531.78	-15595.00	0.000%
20	-31581.72	-34042.37	-73.04	31581.72	34042.37	73.04	0.000%
21	-31581.72	-25531.78	-73.04	31581.72	25531.78	73.04	0.000%
22	-27369.75	-34042.37	-15703.43	27369.75	34042.37	15703.43	0.000%
23	-27369.75	-25531.78	-15703.43	27369.75	25531.78	15703.43	0.000%
24	-15854.11	-34042.37	-27143.44	15854.11	34042.37	27143.44	0.000%
25	-15854.11	-25531.78	-27143.44	15854.11	25531.78	27143.44	0.000%

Load Comb.	Sum of Applied Forces PX lb	PY lb	PZ lb	Sum of Reactions PX lb	PY lb	PZ lb	% Error
26	0.00	-55291.74	0.00	0.00	55291.74	0.00	0.000%
27	-14.88	-55291.74	-7414.41	14.88	55291.74	7414.41	0.000%
28	3715.55	-55291.74	-6419.56	-3715.55	55291.74	6419.57	0.000%
29	6458.95	-55291.74	-3687.64	-6458.95	55291.74	3687.65	0.000%
30	7458.47	-55291.74	15.09	-7458.48	55291.74	-15.09	0.000%
31	6462.34	-55291.74	3717.09	-6462.34	55291.74	-3717.09	0.000%
32	3742.30	-55291.74	6427.53	-3742.30	55291.74	-6427.53	0.000%
33	23.80	-55291.74	7416.52	-23.80	55291.74	-7416.52	0.000%
34	-3722.65	-55291.74	6415.46	3722.65	55291.74	-6415.47	0.000%
35	-6452.66	-55291.74	3694.32	6452.66	55291.74	-3694.32	0.000%
36	-7449.13	-55291.74	-12.23	7449.14	55291.74	12.23	0.000%
37	-6454.35	-55291.74	-3712.47	6454.35	55291.74	3712.48	0.000%
38	-3735.16	-55291.74	-6420.87	3735.16	55291.74	6420.87	0.000%
39	-14.78	-28368.64	-5214.89	14.78	28368.64	5214.89	0.000%
40	2618.27	-28368.64	-4514.74	-2618.27	28368.64	4514.74	0.000%
41	4558.26	-28368.64	-2588.01	-4558.26	28368.64	2588.01	0.000%
42	5263.74	-28368.64	14.99	-5263.74	28368.64	-14.99	0.000%
43	4561.63	-28368.64	2617.27	-4561.63	28368.64	-2617.27	0.000%
44	2644.85	-28368.64	4522.65	-2644.85	28368.64	-4522.65	0.000%
45	23.65	-28368.64	5216.99	-23.65	28368.64	-5216.99	0.000%
46	-2625.33	-28368.64	4510.67	2625.33	28368.64	-4510.67	0.000%
47	-4552.01	-28368.64	2594.64	4552.01	28368.64	-2594.64	0.000%
48	-5254.46	-28368.64	-12.15	5254.46	28368.64	12.15	0.000%
49	-4553.69	-28368.64	-2612.68	4553.69	28368.64	2612.68	0.000%
50	-2637.75	-28368.64	-4516.04	2637.75	28368.64	4516.04	0.000%

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 101	14.0701	42	0.8470	0.0057
L2	106 - 80	6.8646	42	0.6409	0.0018
L3	85.5 - 47.5	4.3836	42	0.4992	0.0011
L4	54 - 1	1.7093	42	0.2961	0.0005

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
155.50	DB810KE-Y	42	14.0701	0.8470	0.0057	58605
149.00	HP2-102	42	13.8932	0.8431	0.0056	58605
148.00	Pirod 4' Side Mount Standoff (1)	42	13.7164	0.8392	0.0055	58605
140.00	PiROD 13' Platform w/handrail	42	12.3079	0.8077	0.0046	29303

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
L1	150 - 101	Pole	TP35.18x24x0.1875	1	-7385.72	1194680.00	68.1	Pass
L2	101 - 80	Pole	TP39.6x33.6642x0.25	2	-10822.60	1951160.00	63.1	Pass
L3	80 - 47.5	Pole	TP46.51x37.8443x0.3125	3	-17840.70	2939600.00	62.6	Pass
L4	47.5 - 1	Pole	TP56.5x44.4027x0.375	4	-34019.20	4345760.00	64.2	Pass
							Summary	
						Pole (L1)	68.1	Pass
						RATING =	**68.1**	**Pass**

ATTACHMENT 6

HMB

HMB Acoustics LLC 3 Cherry Tree Lane, Avon, CT 06001 860-677-5955

Noise Evaluation Report

Verizon Telecommunications Facility
"Trumbull South CT"
Jeffrey Place
Trumbull, CT

October 5, 2017

Prepared For:
Kenneth Baldwin, ESQ
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT

Prepared By:
Allan Smardin
HMB Acoustics LLC
3 Cherry Tree Lane
Avon, CT

Introduction

Verizon is proposing an installation of a Generac 20 kw emergency back-up generator at Jeffrey Place - Trumbull, CT. The generator will have a Level 2 Sound Attenuation Enclosure, and will be placed on a raised equipment platform. The generator is located inside a 70' x 70' fenced compound area. The areas abutting the fenced compound area are in a Residential Noise Zone.

On October 1, 2017, I visited the area around the proposed site in order to perform an acoustical evaluation in the surrounding community. Some of these areas are: Jeffrey Place; Elder Lane; Drew Circle; Bridgewater Drive; and a church to the southwest. The average background noise level was 45-50 dBA, which is caused by vehicular traffic. This report and the State of CT Noise Regulations utilize a dBA scale. This scale is used because it closely approximates the response characteristic of the human ear to loudness, and is the scale most commonly used in the measurement of community noise. The purpose of this evaluation is to determine whether the generator will comply with the noise regulations.

It is important to note that the emergency generator operates for approximately 15-20 minutes every other week for testing. All testing is done during the daytime hours. Other than these testing periods, the generator runs only in times of emergency when commercial power to the facility is interrupted.

Noise Regulations

The State of CT has enacted regulations which limit the amount of noise which may be transferred from one property to another. In pertinent part, the Regulations provide as follows:

Daytime hours - The hours between 7 a.m. and 10 p.m. local time.

Nighttime hours - The hours between 10 p.m. and 7 a.m., local time.

(Sec. 22a-69-1.1(h)&(n).

Exemptions -
"Noise created as a result of, or relating to an emergency."
(Sec. 22a-69-1.8(f).

The State of CT allowable noise level, from the proposed generator, when projected to the nearest residential property lines are shown in TABLE 1

TABLE 1

Allowable Noise Levels (dBA)

Emitter Zone	At Residential Receptor Zone	
	Residential / Day	Residential / Night
Commercial (Sec. 22a-69-3.5(b)	55	45

The Calculated dBA Noise Levels From The Proposed Generator Have Been Projected To The Nearest Residential Property Lines

Property Line	Residential
North	31
South	41
East (Twin Brooks Park)	34
West	36
Southwest (Church)	33

Noise Evaluation Results

The dBA scale takes into account the effect of acoustical shielding provided by other structures on the premises. The calculated noise data demonstrates that the noise

levels, from the proposed emergency generator, meet the conditions for compliance as set forth in the noise regulations when projected to the nearest residential property lines.

ATTACHMENT 7

Site Name: TRUMBULL SOUTH, CT
General Power Density

Operator	Operating Frequency	Number of Trans.	ERP Per Trans.	Total ERP	Distance to Target	Calculated Power Density	Maximum Permissible Exposure*	Fraction of MPE
	(MHz)		(watts)	(watts)	(feet)	(mW/cm^2)	(mW/cm^2)	(%)
VZW PCS	1970	1	1866	1866	140	0.0342	1.0	3.42%
VZW Cellular	869	1	1624	1624	140	0.0298	0.579333333	5.14%
VZW AWS	2145	1	2124	708	140	0.0130	1.0	1.30%
VZW 700	746	1	1105	1105	140	0.0203	0.497333333	4.08%
Total Percentage of Maximum Permissible Exposure								13.94%

*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Part 1 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992

MHz = Megahertz
mW/cm^2 = milliwatts per square centimeter
ERP = Effective Radiated Power

ATTACHMENT 8

UNITED STATES POSTAL SERVICE®

Certificate of Mailing — Firm

Name and Address of Sender	TOTAL NO. of Pieces Listed by Sender	TOTAL NO. of Pieces Received at Post Office™	Affix Stamp Here *Postmark with Date of Receipt.*
Kenneth C. Baldwin, Esq. Robinson & Cole LLP 280 Trumbull Street Hartford, CT 06103	2	2	OLD STATE HOUSE STATION 06103 Postage 11/20/2017 USPS Retail NOV 20 2017 $[redacted].38 ZIP 06103 [redacted] USPS
	Postmaster, per *(name of receiving employee)*		

	USPS® Tracking Number Firm-specific Identifier	Address (Name, Street, City, State, and ZIP Code™)	Postage	Fee	Special Handling	Parcel Airlift
1.		Timothy M. Herbst, First Selectman Town of Trumbull 5866 Main Street Trumbull, CT 06611				
2.		Roberto Librandi, Land Use Planner Town of Trumbull 5866 Main Street Trumbull, CT 06611				
3.						
4.						
5.						
6.						

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See Reverse for Instructions