Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.

Tectonic Engineering
Theresa Ranciato-Viele
63-3 N. Branford Road
Branford, CT 06405
Tranciato@Tectonicengineering.com
203-606-5127

January 15, 2022

Ms. Melanie Bachman, Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: **Notice of Tower Share Application for an existing 134'monopole located at 220 Evergreen Street, Bridgeport, Connecticut**

Latitude: 41° 11' 51.99" / Longitude: 73° 11' 26.48"

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of Dish Wireless, LLC ("Dish"). Dish plans to install antennas and related equipment to the tower site at the existing 134'monopole tower facility located at 220 Evergreen Street, Bridgeport, Connecticut (See Original Facility Approval attached as Exhibit A) ("Facility"). The property is owned by Chapin and Bangs Company. (See Bridgeport Assessor Property Card attached hereto as Exhibit B), the tower facility is owned by American Tower Corporation.

Dish proposes to install three (3) 600/1900/2100 MHz JMA – MX08Fr0665-21 antennas and six (6) FUJITSU TA08025 RRUs on the tower at the ninety nine foot (99') centerline AGL. Dish further proposes to install one (1) 1.5" Hybrid Cable. Dish will also install its equipment cabinets on a 10' X 8' platform within its 10' X 8' lease area. The installation is shown on plans completed by Tectonic Engineering, dated September 9, 2021 and attached hereto as Exhibit C.

Dish requests that the Connecticut Siting Council ("Council") find that the proposed shared use of this Facility satisfies the criteria of C.G.S. sec. 16-50aa and accordingly issue an order approving the proposed shared use. This proposed installation constitutes an exempt modification pursuant to R.C.S.A. 16-50j-89. Pursuant to R.C.S.A. 16-50j-73, Dish is providing notice to Joseph P. Ganim, Mayor of the City of Bridgeport, Dennis Buckley, Zoning Administrator for Bridgeport, the tower owner, American Tower Corporation and the property owner, Chapin & Bangs Company.

Under the Council's regulations, Dish's plans do not constitute a modification subject to the Council's review in that:

Dish will not change the existing 134' height of the Tower as the Dish antennas will be installed at a height of 99'.

The proposed installation will not extend the existing boundaries of the approved compound as depicted in Exhibit C;

The proposed installation will not increase the noise levels at the facility by six (6) decibels or more, or to levels that exceed local and state criteria; and

The proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. The attached Exhibit F indicates that the combined site operations will result in a total power density of 4.8092%.

Tower

The Facility consists of a one hundred thirty four foot (134') foot monopole tower located at 220 Evergreen Street, Bridgeport, Connecticut. As indicated above, the tower is owned by American Tower Corporation. The tower currently supports, AT&T antennas at the one hundred thirty foot (130') centerline AGL, Sprint/Nextel at the one hundred twenty foot (120') centerline AGL, and T-Mobile at the one hundred ten foot (110') centerline AGL. The antenna locations are set forth on Sheet A-2 of the attached drawings in Exhibit C.

A. TECHNICAL FEASIBILTY

The existing monopole has been deemed structurally capable of supporting the proposed Dish loading. The structural and mount analyses are attached hereto as Exhibits D and E respectively.

B. LEGAL FEASIBILITY

C.G.S. Se. 16-50aa authorizes the Council to issue orders approving the shared use of existing towers such as the above referenced tower. Under the authority granted to the Council, an order of the Council approving the requested shared use would permit Dish to obtain a building permit from the City of Bridgeport to proceed with the proposed installation. Additionally, a Supplement to The Master Lease Agreement is attached as Exhibit G, granting Dish the authority from the tower owner to proceed with this application for shared use.

C. ENVIRONMENTAL FEASIBILITY

The proposed shared use of this Facility would have a minimal environmental impact. The installation of the Dish equipment at the 99' level of the existing

tower would have an insignificant visual impact on the area surrounding the tower. The proposed Dish ground equipment would be installed within the existing Facility compound. The Dish installation would not cause any significant alteration to the physical or environmental characteristics of the existing Facility. Additionally, as evidenced by Exhibit F, the proposed antennas would not increase the radio frequency emissions to a level at or above the Federal Communications Commission safety standards.

D. ECONOMIC FEASIBILTY

Dish has entered into a Lease Agreement (Exhibit G) with the Facility owner for the proposed colocation. Therefore, this shared use is economically feasible.

E. PUBLIC SAFETY CONCERNS

As set forth above, the tower is structurally capable of supporting the proposed Dish loading. Dish is not aware of any public safety concerns relative to the proposed sharing of the existing tower.

For the reasons set forth herein, the proposed shared use of the existing tower at 220 Evergreen Street, Bridgeport, satisfies the criteria stated in C.G.S. sec. 16-50aa, and supports the general goal of preventing the unnecessary proliferation of tower sites in Connecticut. Dish respectfully requests the Council issue an order approving the proposed shared use.

Respectfully submitted,
Dish Wireless, LLC

By _____
Theresa Ranciato-Viele, consultant
63-3 N. Branford Road
Branford, CT 06405
Tranciato@Tectonicengineering.com
203-606-5127

cc: Bridgeport Mayor, Honorable Joseph P. Ganim
999 Broad Street
Bridgeport, CT 06604

Bridgeport Zoning Administrator, Dennis Buckley
45 Lyon Terrace, Room 210
Bridgeport, CT 06604

Tower Owner: American Tower Corporation
116 Huntington Avenue, Suite 1100
Boston, MA 02116

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PRACTICAL SOLUTIONS, EXCEPTIONAL SERVICE.

Property Owner: Chapin & Bangs Company
220 Evergreen Street
Bridgeport, CT 06606

Exhibit A

Original Facility Approval

DOCKET NO. 464 – Blue Sky Towers, LLC and New Cingular Wireless PCS, LLC application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a telecommunications facility located at Bridgeport Tax Assessor Map 53, Block 1527, Lot 2, 220 Evergreen Street, Bridgeport, Connecticut.	}	Connecticut
	}	Siting
	}	Council
		April 14, 2016

Decision and Order

Pursuant to Connecticut General Statutes §16-50p and the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, maintenance, and operation of a telecommunications facility, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate, either alone or cumulatively with other effects, when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to Blue Sky Towers, LLC, hereinafter referred to as the Certificate Holder, for a telecommunications facility at the proposed site located at 220 Evergreen Street, Bridgeport, Connecticut.

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

1. The tower shall be constructed as a monopole at a height of 135 feet above ground level to provide the proposed wireless services, sufficient to accommodate the antennas of New Cingular Wireless PCS, LLC (AT&T) and other entities, both public and private. The height of the tower may be extended after the date of this Decision and Order pursuant to regulations of the Federal Communications Commission.

2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the City of Bridgeport (City) for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:
    a) final site plan(s) for development of the facility to include specifications for the tower, tower foundation, antennas, equipment compound including, but not limited to, fence with less than two inch mesh, radio equipment, access road, utility line, transformer, emergency backup generator, space for a future shared generator, flood elevation mitigation plan for equipment, and landscaping that employ the governing standard in the State of Connecticut for tower design in accordance with the currently adopted International Building Code and taking into account inundation risk;
    b) the tower designed with a yield point to ensure that the tower setback radius remains within the boundaries of the subject property;
    c) location of emergency generator and equipment shelter with air conditioning units and evidence of compliance with noise regulations;
    d) construction plans for site clearing, grading, landscaping, water drainage, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended; and
    e) hours of construction.

3. Prior to the commencement of operation, the Certificate Holder shall provide the Council worst-case modeling of the electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of the electromagnetic radio frequency power density be submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.

4. Upon the establishment of any new federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.

5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.

6. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed with at least one fully operational wireless telecommunications carrier providing wireless service within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The Certificate Holder shall provide written notice to the Executive Director of any schedule changes as soon as is practicable.

7. Any request for extension of the time period referred to in Condition 6 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the City of Bridgeport.

8. If the facility ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council within 90 days from the one year period of cessation of service. The Certificate Holder may submit a written request to the Council for an extension of the 90 day period not later than 60 days prior to the expiration of the 90 day period.

9. Any nonfunctioning antenna, and associated antenna mounting equipment, on this facility shall be removed within 60 days of the date the antenna ceased to function.

10. In accordance with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction, and the commencement of site operation.

11. The Certificate Holder shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under Conn. Gen. Stat. §16-50v.

12. This Certificate may be transferred in accordance with Conn. Gen. Stat. §16-50k(b), provided both the Certificate Holder/transferor and the transferee are current with payments to the Council for their respective annual assessments and invoices under Conn. Gen. Stat. §16-50v. In addition, both the Certificate Holder/transferor and the transferee shall provide the Council a written agreement as to the entity responsible for any quarterly assessment charges under Conn. Gen. Stat. §16-50v(b)(2) that may be associated with this facility.

13. The Certificate Holder shall maintain the facility and associated equipment, including but not limited to, the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line and landscaping in a reasonable physical and operational condition that is consistent with this Decision and Order and a Development and Management Plan to be approved by the Council.

14. If the Certificate Holder is a wholly-owned subsidiary of a corporation or other entity and is sold/transferred to another corporation or other entity, the Council shall be notified of such sale and/or transfer and of any change in contact information for the individual or representative responsible for management and operations of the Certificate Holder within 30 days of the sale and/or transfer.

15. This Certificate may be surrendered by the Certificate Holder upon written notification and approval by the Council.

We hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed in the Service List, dated December 3, 2015, and notice of issuance published in the Connecticut Post.

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

Exhibit B

Property Card

220 EVERGREEN ST

Location	220 EVERGREEN ST	**Mblu**	53/ 1527/ 2/ /
Acct#	R--0048990	**Owner**	CHAPIN & BANGS COMPANY
Assessment	$215,420	**Appraisal**	$307,740
PID	13578	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$2,250	$305,490	$307,740
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$1,580	$213,840	$215,420

Owner of Record

Owner	CHAPIN & BANGS COMPANY	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	PO BOX 1117 BRIDGEPORT, CT 06601	**Book & Page**	2291/0054
		Sale Date	05/12/1987
		Instrument	

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
CHAPIN & BANGS COMPANY	$0		2291/0054		05/12/1987

Building Information

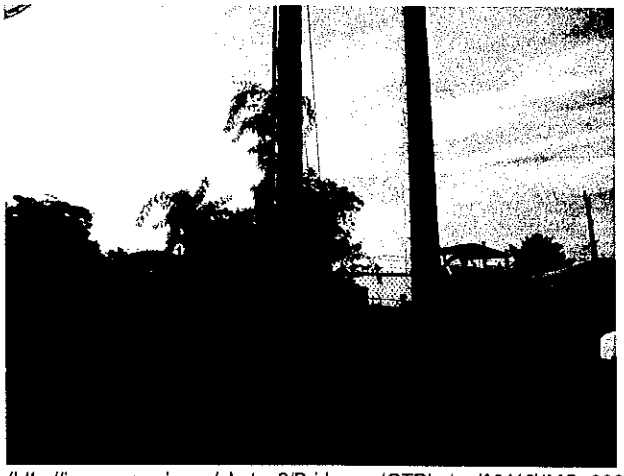
Building 1 : Section 1

Year Built:	
Living Area:	0
Replacement Cost:	$0
Building Percent Good:	
Replacement Cost Less Depreciation:	$0

Building Attributes

Field	Description
Style:	Vacant Land
Model	
Grade:	
Stories:	
Occupancy:	
Exterior Wall 1:	
Exterior Wall 2:	
Roof Structure:	
Roof Cover:	
Interior Wall 1:	
Interior Wall 2:	
Interior Flr 1:	
Interior Flr 2	
Heat Fuel:	
Heat Type:	
AC Type:	
Total Bedrooms	
Total Full Baths	
Total Half Baths	
Total Xtra Fixtrs:	
Total Rooms	
Bath Style:	
Kitchen Style:	
Num Kitchens	
Fireplaces	
Fin Bsmt Area	
Fin Bsmt Quality	
Num Park	
Bsmt Garages	
.	
Fndtn Cndtn	
Basement	

Building Photo



(http://images.vgsi.com/photos2/BridgeportCTPhotos/\0113\IMG_0024_11

Building Layout

(ParcelSketch.ashx?pid=13578&bid=13578)

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	399
Description	Vac Ind Lnd
Zone	ILI
Neighborhood	IND
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	1.00
Frontage	0
Depth	0
Assessed Value	$213,840
Appraised Value	$305,490

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
FN2	Fence, WD	4	4 ft	150.00 LF	$2,250	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$2,250	$350,110	$352,360
2018	$2,250	$350,110	$352,360
2017	$2,250	$350,110	$352,360

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$1,580	$245,072	$246,652
2018	$1,580	$245,072	$246,652
2017	$1,580	$245,072	$246,652

Exhibit C

Project Plans

dish wireless™

DISH WIRELESS SITE ID:

NJJER01163A

DISH WIRELESS SITE ADDRESS:

220 EVERGREEN STREET
BRIDGEPORT, CT 06606

CONNECTICUT CODE COMPLIANCE

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES:

CODE TYPE	CODE
BUILDING	2018 CT STATE BUILDING CODE/2015 IBC W/ CT AMENDMENTS
MECHANICAL	2018 CT STATE BUILDING CODE/2015 IMC W/ CT AMENDMENTS
ELECTRICAL	2018 CT STATE BUILDING CODE/2017 NEC W/ CT AMENDMENTS

SHEET INDEX

SCOPE OF WORK

THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT PART OR ENGINEER APPROVED EQUIVALENT. CONTRACTOR SHALL VERIFY ALL NEEDED EQUIPMENT TO PROVIDE A FUNCTIONAL SITE. THE PROJECT GENERALLY CONSISTS OF THE FOLLOWING:

TOWER SCOPE OF WORK:
- INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
- INSTALL (1) PROPOSED ANTENNA MOUNT
- INSTALL (6) PROPOSED RRHs (2 PER SECTOR)
- INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)
- INSTALL (1) PROPOSED HYBRID CABLE

GROUND SCOPE OF WORK:
- INSTALL (1) PROPOSED RAISED METAL PLATFORM
- INSTALL (1) PROPOSED ICE BRIDGE
- INSTALL (1) PROPOSED PPC CABINET
- INSTALL (1) PROPOSED EQUIPMENT CABINET
- INSTALL (1) PROPOSED POWER CONDUIT
- INSTALL (1) PROPOSED TELCO CONDUIT
- INSTALL (1) PROPOSED TELCO-FIBER BOX
- INSTALL (1) PROPOSED GPS UNIT
- INSTALL (1) PROPOSED SAFETY SWITCH (IF REQUIRED)
- INSTALL (1) PROPOSED FIBER NID (IF REQUIRED)
- INSTALL (1) PROPOSED CIENA BOX (IF REQUIRED)
- INSTALL (1) PROPOSED METER SOCKET

SITE PHOTO

UNDERGROUND SERVICE ALERT CBYD 811
UTILITY NOTIFICATION CENTER OF CONNECTICUT
(800) 922-4455
WWW.CBYD.COM
CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

811

GENERAL NOTES

THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE. NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.

11"x17" PLOT WILL BE HALF SCALE UNLESS OTHERWISE NOTED

CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON THE JOB SITE, AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.

SITE INFORMATION

PROPERTY OWNER:	CHAPIN & BANGS CO.
ADDRESS:	220 EVERGREEN STREET BRIDGEPORT, CT 06606
TOWER TYPE:	MONOPOLE
TOWER CO SITE ID:	210747
TOWER APP NUMBER:	N/A
COUNTY:	FAIRFIELD COUNTY
LATITUDE (NAD 83):	41° 11' 51.99" N N 41.197775
LONGITUDE (NAD 83):	73° 11' 26.46" W W 73.190686
ZONING JURISDICTION:	CITY OF BRIDGEPORT
ZONING DISTRICT:	IU
PARCEL NUMBER:	53-1527-2
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	UNITED ILLUMINATING CO
TELEPHONE COMPANY:	T.B.D

PROJECT DIRECTORY

APPLICANT:	DISH WIRELESS 3 ADP BOULEVARD ROSELAND, NJ 07068
TOWER OWNER:	AMERICAN TOWER CORP 116 HUNTINGTON AVENUE, SUITE 1100 BOSTON , MA 02116
SITE DESIGNER:	TECTONIC ENGINEERING & SURVEY CONSULTANTS P.C. 1279 ROUTE 300 NEWBURGH, NY 10953 (845) 567-6656
SITE ACQUISITION:	TECTONIC ENGINEERING (845) 567-6656
CONSTRUCTION MANAGER:	JOE DIPIAZZA
RF ENGINEER:	VAISHNAVI VALIE

DIRECTIONS

DIRECTIONS FROM 3 ADP BOULEVARD ROSELAND, NJ 07068:

HEAD NORTHEAST TOWARD ADP BLVD. TURN LEFT. TURN LEFT TOWARD ADP BLVD. TURN LEFT ONTO ADP BLVD. TURN RIGHT TOWARD CHOCTAW WAY. SLIGHT RIGHT ONTO CHOCTAW WAY. USE THE RIGHT LANE TO TURN RIGHT ONTO LIVINGSTON AVE. USE THE RIGHT LANE TO MERGE WITH I-280 W VIA THE RAMP TO PARSIPPANY. MERGE WITH I-280 W. TAKE THE I-287 EXIT TOWARD US-46/MAHWAH/MORRISTOWN. KEEP RIGHT AT THE Y JUNCTION, FOLLOW SIGNS FOR I-287 N AND MERGE WITH I-287 N. ENTERING NEW YORK. TAKE THE I-87 S/NEW YORK STATE THRUWAY/I-287 EXIT TOWARD GOV MARIO M. CUOMO BR/NEW YORK CITY. MERGE WITH I-287 E/I-87 S. KEEP LEFT AT THE Y JUNCTION TO CONTINUE ON I-287 E, FOLLOW SIGNS FOR WHITE PLAINS/RYE. KEEP LEFT TO STAY ON I-287 E. MERGE WITH I-95 N. ENTERING CONNECTICUT. TAKE EXIT 27A FOR CT-25/CT-8 TOWARD TRUMBULL/WATERBURY. CONTINUE ONTO CT-25 N/CT-8 N. TAKE EXIT 4 FOR LINDLEY ST. TURN RIGHT ONTO LINDLEY ST. TURN LEFT AT THE 1ST CROSS STREET ONTO NORTH AVE. PASS BY TACO BELL (ON THE RIGHT). TURN RIGHT ONTO RIVER ST. TURN LEFT ONTO EVERGREEN ST.

VICINITY MAP

NO SCALE

dish wireless.
3 ADP BOULEVARD,
ROSELAND, NJ 07068

Tectonic

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

DRAWN BY:	CHECKED BY:	APPROVED BY:
VM	JQ	MP

RFDS REV #: 03

PRELIMINARY DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	[illegible]	ISSUED FOR REVIEW
B	[illegible]	ISSUED FOR COMMENTS

A&E PROJECT NUMBER
10710.NJJER01163A

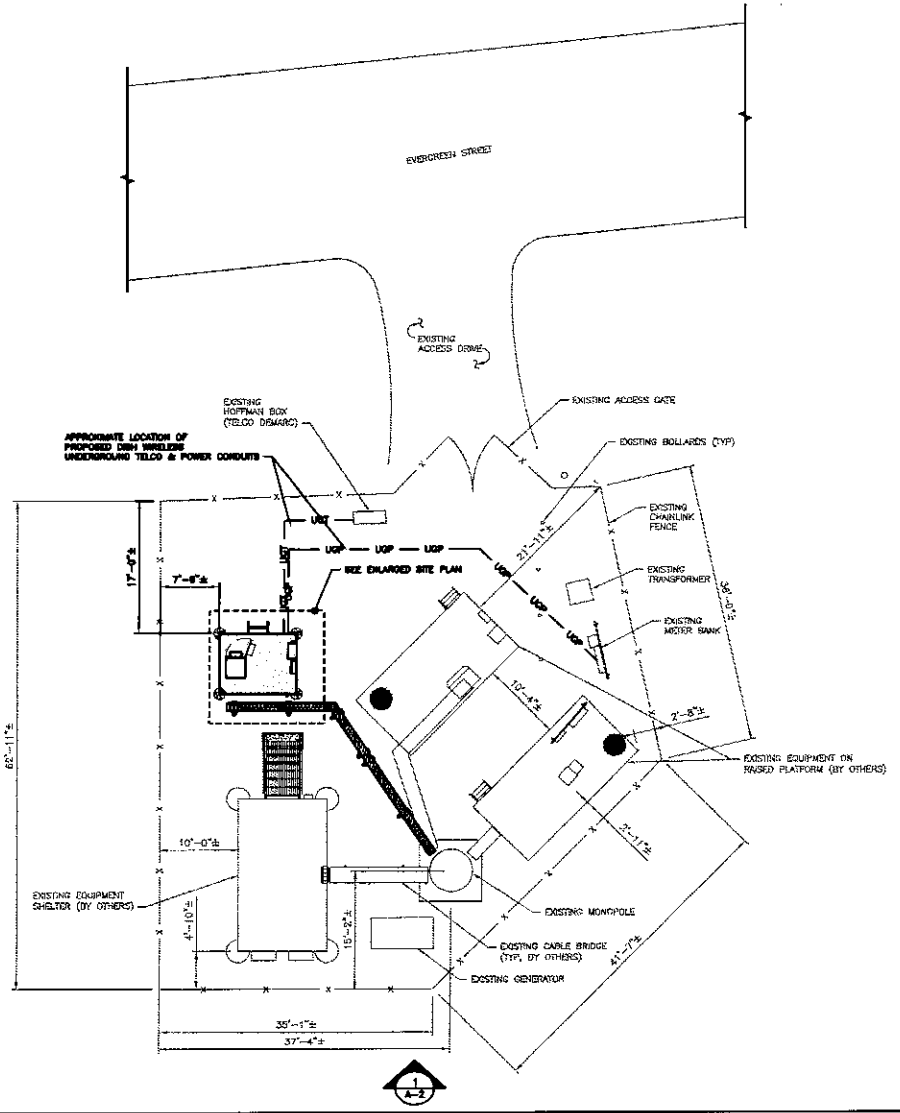
DISH WIRELESS PROJECT INFORMATION
NJJER01163A
220 EVERGREEN STREET
BRIDGEPORT, CT 06606

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.
3. EXISTING STRUCTURE SHALL BE ANALYZED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF CONNECTICUT.



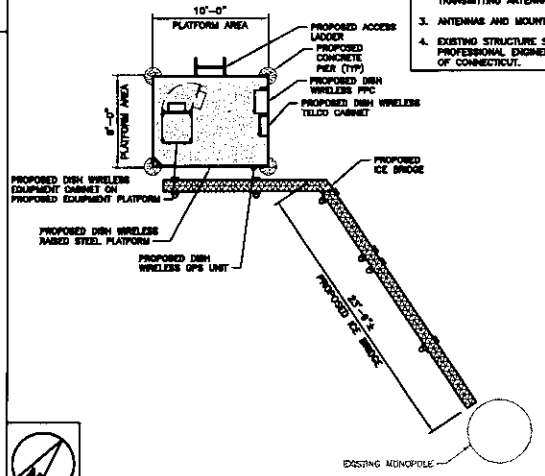
OVERALL SITE PLAN

6' 4' 0 8' 16'
1/8"=1'-0"

1

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
3. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.
4. EXISTING STRUCTURE SHALL BE ANALYZED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF CONNECTICUT.



ENLARGED EQUIPMENT PLAN

8' 4' 2' 0 5' 10'
3/16"=1'-0"

2

NOT USED

3

dish wireless.
3 ADP BOULEVARD,
ROSELAND, NJ 07068

Tectonic
Tectonic Engineering & Surveying Consultants P.C.

DRAWN BY:	CHECKED BY:	APPROVED BY:
VM	JQ	MP

RFDS REV #: 03

PRELIMINARY DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	08/23/21	ISSUED FOR REVIEW
B	09/09/21	ISSUED PER COMMENTS

A&E PROJECT NUMBER
10710.NJJER01163A

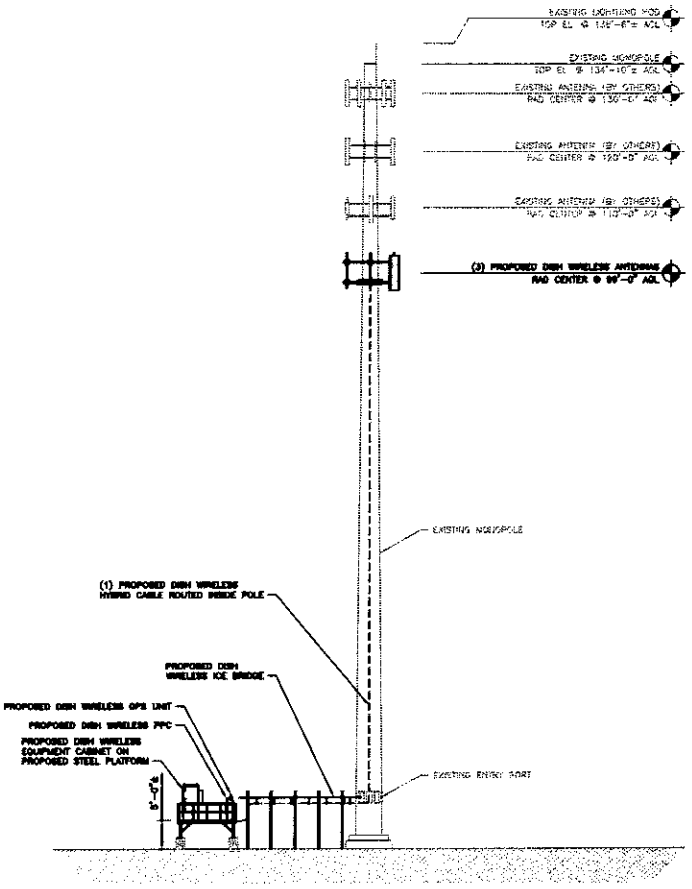
DISH WIRELESS PROJECT INFORMATION
NJJER01163A
220 EVERGREEN STREET
BRIDGEPORT, CT 06606

SHEET TITLE
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER
A-1

NOTES

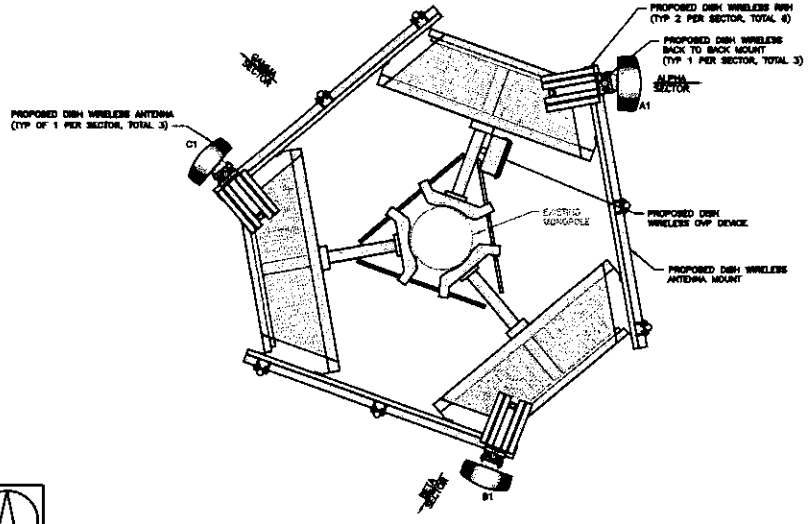
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING STRUCTURE SHALL BE ANALYZED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF CONNECTICUT.



PROPOSED EAST ELEVATION

12' 8' 4' 0 10' 20'
3/32"=1'-0"

1



ANTENNA LAYOUT

12" 6" 0 1' 2' 3' 4' 5'
1/2"=1'-0"

2

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	JMA – MX08FRO665-21	5G	72.0" x 20.0"	90°	99'-0"	(1) HIGH-CAPACITY HYBRID CABLE (129' LONG)
BETA	B1	PROPOSED	JMA – MX08FRO665-21	5G	72.0" X 20.0"	200°	99'-0"	
GAMMA	C1	PROPOSED	JMA – MX08FRO665-21	5G	72.0" X 20.0"	310°	99'-0"	

SECTOR	POSITION	RRH	
		MANUFACTURER – MODEL NUMBER	TECHNOLOGY
ALPHA	A1	FUJITSU – TA08025-B604	N70/N66
	A1	FUJITSU – TA08025-B605	N71
BETA	B1	FUJITSU – TA08025-B604	N70/N66
	B1	FUJITSU – TA08025-B605	N71
GAMMA	C1	FUJITSU – TA08025-B604	N70/N66
	C1	FUJITSU – TA08025-B605	N71

NOTES

1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS.
2. ANTENNA AND RRH MODELS MAY CHANGE DUE TO EQUIPMENT AVAILABILITY. ALL EQUIPMENT CHANGES MUST BE APPROVED AND REMAIN IN COMPLIANCE WITH THE PROPOSED DESIGN AND STRUCTURAL ANALYSES.
3. AZIMUTHS ARE SUBJECT TO CHANGE AND NEED TO BE CONFIRMED WITH THE LATEST RFDS PRIOR TO THE START OF CONSTRUCTION.

ANTENNA SCHEDULE

NO SCALE

3

dish wireless.

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VM	JQ	MP

RFDS REV #: 03

PRELIMINARY DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	06/22/21	ISSUED FOR REVIEW
B	08/06/21	ISSUED FOR COMMENTS

A&E PROJECT NUMBER

10710.NJJER01163A

DISH WIRELESS PROJECT INFORMATION

NJJER01163A

220 EVERGREEN STREET
BRIDGEPORT, CT 06606

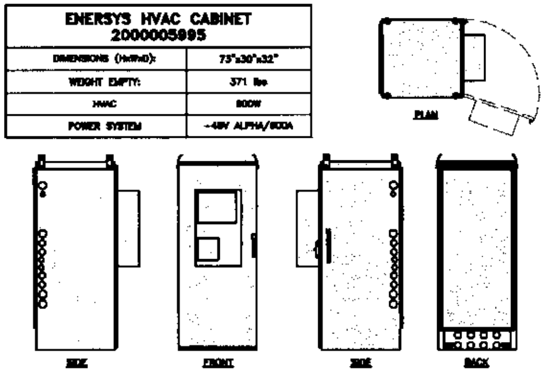
SHEET TITLE

ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER

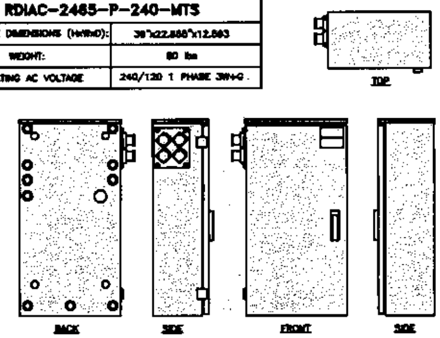
A-2

ENERSYS HVAC CABINET 2000005995	
DIMENSIONS (HxWxD):	73"x30"x32"
WEIGHT EMPTY:	371 lbs
HVAC	800W
POWER SYSTEM	-48V ALPHA/800A



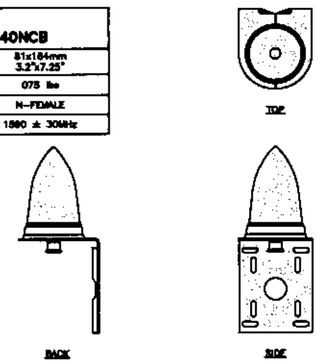
CABINET DETAIL | NO SCALE | 1

RAYCAP PPC RDIAC-2465-P-240-MTS	
ENCLOSURE DIMENSIONS (HxWxD):	36"x22.865"x12.863
WEIGHT:	80 lbs
OPERATING AC VOLTAGE	240/120 1 PHASE 3W+G

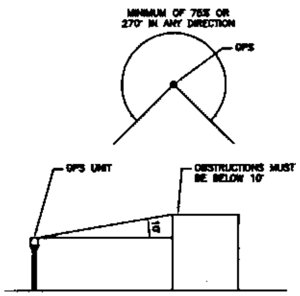


CABINET DETAIL | NO SCALE | 2

PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz

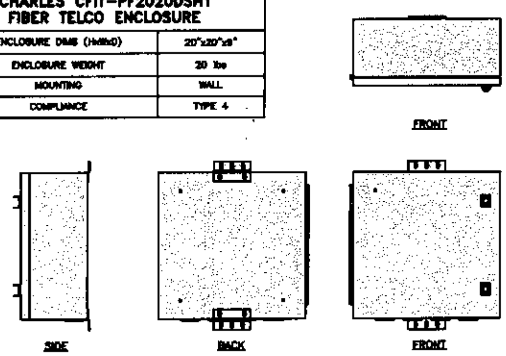


GPS DETAIL | NO SCALE | 3



GPS MINIMUM SKY VIEW REQUIREMENTS | NO SCALE | 4

CHARLES CFIT-PF2020DSH1 FIBER TELCO ENCLOSURE	
ENCLOSURE DIMS (HxWxD)	20"x20"x9"
ENCLOSURE WEIGHT	20 lbs
MOUNTING	WALL
COMPLIANCE	TYPE 4



FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 5

NO SCALE | 6

NO SCALE | 7

NO SCALE | 8

NO SCALE | 9

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RFDS REV #: 03

PRELIMINARY DOCUMENTS

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REV	DATE	DESCRIPTION
A	[illegible]	ISSUED FOR REVIEW
B	[illegible]	[illegible]

A&E PROJECT NUMBER
10710.NJJER01163A

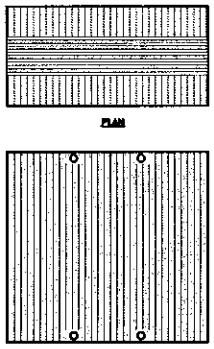
DISH WIRELESS PROJECT INFORMATION
NJJER01163A

220 EVERGREEN STREET
BRIDGEPORT, CT 06606

SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

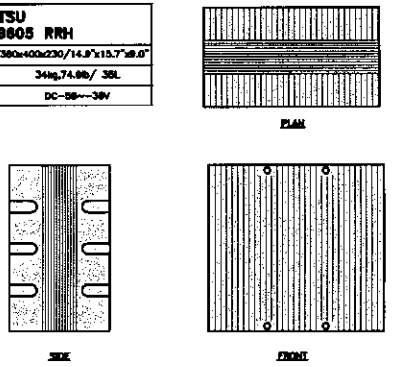
SHEET NUMBER
A-3

FUJITSU TA08025-B604 RRH	
DIMENSIONS (HxWxD) (MM/IN)	380x400x200/14.9"x15.7"x7.8"
WEIGHT(KG,LB)/ VOLUME	29kg,63.9lb/ 30L
POWER SUPPLY	DC-58~-38V



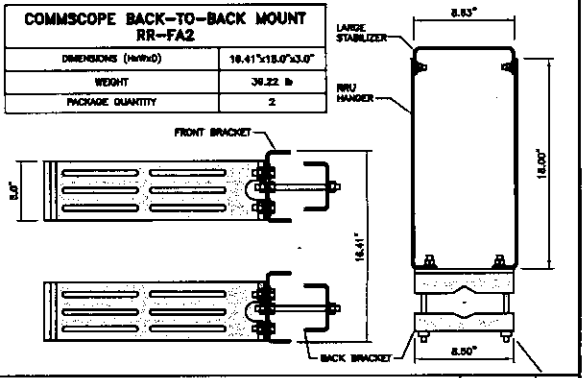
REMOTE RADIO HEAD DETAIL | NO SCALE | 1

FUJITSU TA08025-B605 RRH	
DIMENSIONS (HxWxD) (MM/IN)	380x400x230/14.9"x15.7"x9.0"
WEIGHT(KG,LB)/ VOLUME	34kg,74.8lb/ 38L
POWER SUPPLY	DC-58~-38V



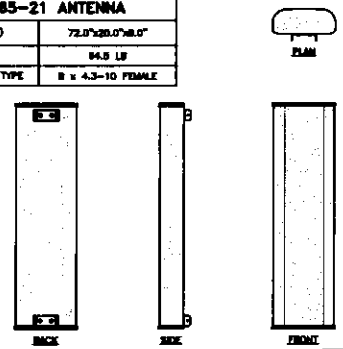
REMOTE RADIO HEAD DETAIL | NO SCALE | 2

COMMSCOPE BACK-TO-BACK MOUNT RR-FA2	
DIMENSIONS (HxWxD)	16.41"x15.0"x3.0"
WEIGHT	30.22 lb
PACKAGE QUANTITY	2

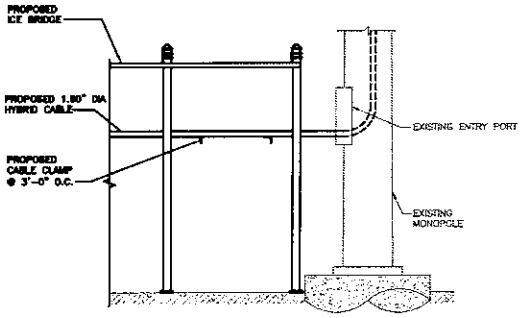


REMOTE RADIO MOUNT DETAIL | NO SCALE | 3

JMA WIRELESS MX08FRO665-21 ANTENNA	
DIMENSIONS (HxWxD)	72.0"x20.0"x8.0"
TOTAL WEIGHT	84.5 LB
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE



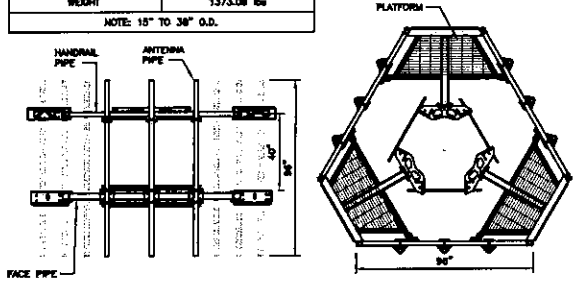
ANTENNA DETAIL | NO SCALE | 4



HYBRID CABLE RUN | NO SCALE | 5

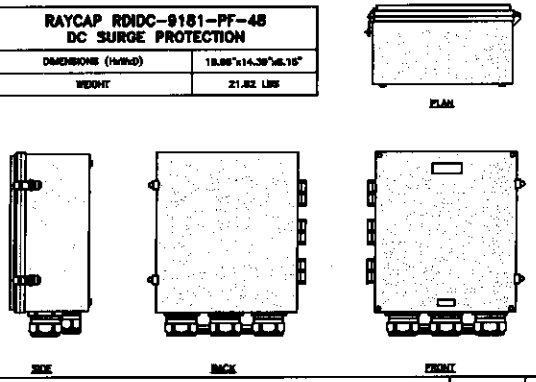
COMMSCOPE MC-PK8-DSH	
FACE WIDTH	96"
WEIGHT	1373.08 lbs
NOTE: 15" TO 30" O.D.	

NOTE: OR DISH Wireless L.L.C. APPROVED EQUIVALENT



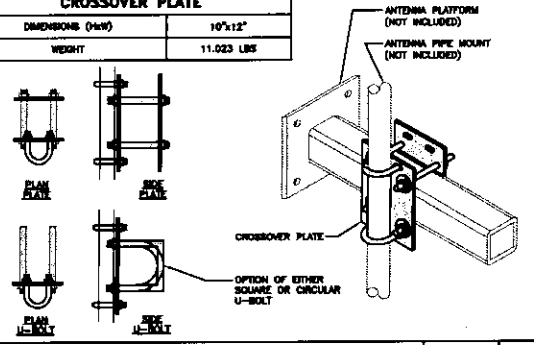
ANTENNA PLATFORM DETAIL | NO SCALE | 6

RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION	
DIMENSIONS (HxWxD)	18.86"x14.38"x8.15"
WEIGHT	21.82 LBS



SURGE SUPPRESSION DETAIL | NO SCALE | 7

COMMSCOPE XP-2040 CROSSOVER PLATE	
DIMENSIONS (HxW)	10"x12"
WEIGHT	11.023 LBS



RRH/OVP MOUNT DETAIL | NO SCALE | 8

JMA ANTENNA MOUNT BRACKET #91900318	
TOTAL WEIGHT (WITH BRACKETS)	18 lbs (8.18 Kg)
POLE DIAMETER RANGE	2.5" TO 4.5"

NOTE: KIT #91900318: TOP AND BOTTOM BRACKETS FOR 4-, 6-, AND 8-FOOT ANTENNAS
ANTENNA BRACKET NOT PART OF KIT

NOTE: OR DISH Wireless L.L.C. APPROVED EQUIVALENT

ANTENNA BRACKET DETAIL | NO SCALE | 9

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RFDS REV #: 03

PRELIMINARY DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	08/20/21	ISSUED FOR REVIEW
B	09/09/21	ISSUED FOR COMMENTS

A&E PROJECT NUMBER
10710.NJJER01163A

DISH WIRELESS PROJECT INFORMATION
NJJER01163A
220 EVERGREEN STREET
BRIDGEPORT, CT 06606

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-4

LEGEND

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

EXOTHERMIC WITH INSPECTION SLEEVE

GROUNDING BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE

SINGLE POLE SWITCH

DUPLEX RECEPTACLE

DUPLEX GFCI RECEPTACLE

FLUORESCENT LIGHTING FIXTURE
(2) TWO LAMPS 48-T8

SMOKE DETECTION (DC)

EMERGENCY LIGHTING (DC)

SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW
LED-1-25A400/51K-SR4-120-PE-DDBTXD

CHAIN LINK FENCE

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE

UNDERGROUND POWER

UNDERGROUND TELCO

OVERHEAD POWER

OVERHEAD TELCO

UNDERGROUND TELCO/POWER

ABOVE GROUND POWER

ABOVE GROUND TELCO

ABOVE GROUND TELCO/POWER

WORKPOINT

SECTION REFERENCE

DETAIL REFERENCE

ABBREVIATIONS

AB	ANCHOR BOLT
ABV	ABOVE
AC	ALTERNATING CURRENT
ADDL	ADDITIONAL
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AGL	ABOVE GROUND LEVEL
AIC	AMPERAGE INTERRUPTION CAPACITY
ALUM	ALUMINUM
ALT	ALTERNATE
ANT	ANTENNA
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BATT	BATTERY
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BM	BEAM
BTC	BARE TINNED COPPER CONDUCTOR
BOF	BOTTOM OF FOOTING
CAB	CABINET
CANT	CANTILEVERED
CHG	CHARGING
CLG	CEILING
CLR	CLEAR
COL	COLUMN
COMM	COMMON
CONC	CONCRETE
CONSTR	CONSTRUCTION
DBL	DOUBLE
DC	DIRECT CURRENT
DEPT	DEPARTMENT
DF	DOUGLAS FIR
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DWG	DRAWING
DWL	DOWEL
EA	EACH
EC	ELECTRICAL CONDUCTOR
EL.	ELEVATION
ELEC	ELECTRICAL
EMT	ELECTRICAL METALLIC TUBING
ENG	ENGINEER
EQ	EQUAL
EXP	EXPANSION
EXT	EXTERIOR
EW	EACH WAY
FAB	FABRICATION
FF	FINISH FLOOR
FG	FINISH GRADE
FIF	FACILITY INTERFACE FRAME
FIN	FINISH(ED)
FLR	FLOOR
FDN	FOUNDATION
FOC	FACE OF CONCRETE
FOM	FACE OF MASONRY
FOS	FACE OF STUD
FOW	FACE OF WALL
FS	FINISH SURFACE
FT	FOOT
FTG	FOOTING
GA	GAUGE
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GLB	GLUE LAMINATED BEAM
GLV	GALVANIZED
GPS	GLOBAL POSITIONING SYSTEM
GND	GROUND
GSM	GLOBAL SYSTEM FOR MOBILE
HDG	HOT DIPPED GALVANIZED
HDR	HEADER
HGR	HANGER
HVAC	HEAT/VENTILATION/AIR CONDITIONING
HT	HEIGHT
IGR	INTERIOR GROUND RING
IN	INCH
INT	INTERIOR
LB(S)	POUND(S)
LF	LINEAR FEET
LTE	LONG TERM EVOLUTION
MAS	MASONRY
MAX	MAXIMUM
MB	MACHINE BOLT
MECH	MECHANICAL
MFR	MANUFACTURER
MGB	MASTER GROUND BAR
MIN	MINIMUM
MISC	MISCELLANEOUS
MTL	METAL
MTS	MANUAL TRANSFER SWITCH
MW	MICROWAVE
NEC	NATIONAL ELECTRIC CODE
NM	NEWTON METERS
NO.	NUMBER
#	NUMBER
NTS	NOT TO SCALE
OC	ON-CENTER
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OPNG	OPENING
P/C	PRECAST CONCRETE
PCS	PERSONAL COMMUNICATION SERVICES
PCU	PRIMARY CONTROL UNIT
PRC	PRIMARY RADIO CABINET
PP	POLARIZING PRESERVING
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PRESSURE TREATED
PWR	POWER CABINET
QTY	QUANTITY
RAD	RADIUS
RECT	RECTIFIER
REF	REFERENCE
REINF	REINFORCEMENT
REQ'D	REQUIRED
RET	REMOTE ELECTRIC TILT
RF	RADIO FREQUENCY
RMC	RIGID METALLIC CONDUIT
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
RWY	RACEWAY
SCH	SCHEDULE
SHT	SHEET
SIAD	SMART INTEGRATED ACCESS DEVICE
SIM	SIMILAR
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STL	STEEL
TEMP	TEMPORARY
THK	THICKNESS
TMA	TOWER MOUNTED AMPLIFIER
TN	TOE NAIL
TOA	TOP OF ANTENNA
TOC	TOP OF CURB
TOF	TOP OF FOUNDATION
TOP	TOP OF PLATE (PARAPET)
TOS	TOP OF STEEL
TOW	TOP OF WALL
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
UPS	UNINTERRUPTIBLE POWER SYSTEM (DC POWER PLANT)
VIF	VERIFIED IN FIELD
W	WIDE
W/	WITH
WD	WOOD
WP	WEATHERPROOF
WT	WEIGHT

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VM	JQ	MP

RFDS REV #: 03

PRELIMINARY DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	08/25/21	ISSUED FOR REVIEW
B	09/09/21	ISSUED FOR COMMENTS

A&E PROJECT NUMBER

10710.NJJER01163A

DISH WIRELESS PROJECT INFORMATION

NJJER01163A

220 EVERGREEN STREET
BRIDGEPORT, CT 06606

SHEET TITLE

LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED – NO WORK SHALL COMMENCE PRIOR TO CONTRACTOR RECEIVING A WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE DISH WIRELESS AND TOWER OWNER NOC & THE DISH WIRELESS AND TOWER OWNER CONSTRUCTION MANAGER.

2. "LOOK UP" – DISH WIRELESS AND TOWER OWNER SAFETY CLIMB REQUIREMENT:

THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR DISH WIRELESS AND DISH WIRELESS AND TOWER OWNER POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.

3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.

4. ALL CONSTRUCTION MEANS AND METHODS: INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND DISH WIRELESS AND TOWER OWNER STANDARDS, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA-322 (LATEST EDITION).

5. ALL SITE WORK TO COMPLY WITH DISH WIRELESS AND TOWER OWNER INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON DISH WIRELESS AND TOWER OWNER TOWER SITE AND LATEST VERSION OF ANSI/TIA-1019-A-2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."

6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY DISH WIRELESS AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.

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

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

9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES INCLUDING PRIVATE LOCATES SERVICES PRIOR TO THE START OF CONSTRUCTION.

10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.

11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND DISH PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.

12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.

13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF DISH WIRELESS AND TOWER OWNER, AND/OR LOCAL UTILITIES.

14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.

15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.

16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.

17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.

18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

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

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

21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

1.FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION

CARRIER:DISH WIRELESS

TOWER OWNER:TOWER OWNER

2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.

3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.

4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.

5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.

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

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

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

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

10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.

11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION, BEFORE SUBMITTING BIDS, TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.

12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF DISH WIRELESS AND TOWER OWNER

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

14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

dish wireless.

3 ADP BOULEVARD,
ROSELAND, NJ 07068

Tectonic

Tectonic Engineering & Surveying Consultants P.C.

DRAWN BY:	CHECKED BY:	APPROVED BY:
VM	JQ	MP

RFDS REV #: 03

PRELIMINARY DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	08/23/21	ISSUED FOR REVIEW
B	09/09/21	ISSUED PER COMMENTS

A&E PROJECT NUMBER

10710.NJJER01163A

DISH WIRELESS PROJECT INFORMATION

NJJER01163A

220 EVERGREEN STREET
BRIDGEPORT, CT 06606

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-2

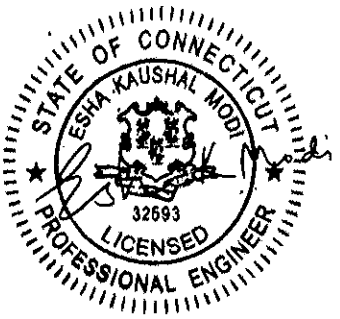
Exhibit D

Structural Analysis

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**134 ft Monopole**
ATC Site Name	:	**Evergreen Street CT,CT**
ATC Site Number	:	**210747**
Engineering Number	:	**OAA768135_C3_02**
Proposed Carrier	:	**DISH WIRELESS L.L.C.**
Carrier Site Name	:	**NJJER01163A**
Carrier Site Number	:	**NJJER01163A**
Site Location	:	**220 Evergreen Street** **Bridgeport, CT 06606** **41.1978, -73.1908**
County	:	**Fairfield**
Date	:	**August 24, 2021**
Max Usage	:	**28%**
Result	:	**Pass**



Prepared By:

Steven Nedrud
Structural Engineer I

Reviewed By:

COA : PEC.0001553

Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 134 ft Monopole to reflect the change in loading by DISH WIRELESS L.L.C..

Supporting Documents

Tower Drawings	Rohn Drawing #217435-01-D1, dated March 17, 2016
Foundation Drawing	Rohn Drawing #217435-01-F1, dated March 17, 2016
Geotechnical Report	TEP Project #64250.39272, dated October 30, 2015

Analysis

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

Basic Wind Speed:	119 mph (3-second gust)
Basic Wind Speed w/ Ice:	50 mph (3-second gust) w/ 1.00" radial ice concurrent
Code:	ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	B
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	1
Crest Height (H):	0 ft
Spectral Response:	Ss = 0.21, S_1 = 0.05
Site Class:	D - Stiff Soil - Default

Conclusion

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

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

Existing and Reserved Equipment

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
130.0	6	Kaelus DBC0051F3V51-2	Triangular Platform with Handrails	(2) 0.39" (10mm) Fiber Trunk (8) 0.78" (19.7mm) 8 AWG 6 (1) 0.96" (24.3mm) Cable (4) 2" conduit (3) 3/8" (0.38"-9.5mm) RET Control Cable	AT&T MOBILITY
	3	CCI DMP65R-BU8D			
	1	Raycap DC6-48-60-18-8F			
	3	Ericsson RRUS 8843 B2, B66A			
	3	Ericsson RRUS 4426 B66			
	3	Ericsson RRUS 4478 B14			
	2	Ericsson RRUS 4449 B5, B12			
	2	Ericsson RRUS 32 B2			
	2	Ericsson RRUS 11 B12			
	3	Ericsson RRUS 11 B5			
	2	Ericsson RRUS 12 B5 w/ Solar Shield			
	3	Ericsson RRUS E2 B29			
	3	Ericsson RRUS-32 B30 (77 lbs)			
	1	Raycap DC9-48-60-24-8C-EV			
	3	CCI OPA-65R-LCUU-H8 (92.7")			
	5	CCI HPA-65R-BUU-H8			
	1	Matsing MBA-3.2-H4-L4			
	2	Raycap DC6-48-60-18-8F			
120.0	1	PCTEL GPS-TMG-HR-26N	Triangular Platform with Handrails	(4) 1 1/4" Hybriflex Cable (5) 1/2" Coax (6) 5/16" (0.31"-7.9mm) Coax	SPRINT NEXTEL
	3	RFS APXVSPP18-C-A20 (62 lbs)			
	3	RFS APXVTM14-ALU-I20			
	3	Commscope VHLP2-18-1WH/C			
	3	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield			
	3	Generic Nilko 500mm x 500mm x 600 mm BTS			
	3	DragonWave Airpair (Radio-7.5" diameter)			
	3	RFS IBC1900BB-1			
	3	RFS IBC1900HG-2A			
	1	Motorola PTP-600			
	1	MTI Wireless Edge MT-485025/NVH			
	3	Alcatel-Lucent 800 MHz RRH			
	6	Alcatel-Lucent 1900MHz RRH (65MHz) w/ solar shield			
110.0	4	Ericsson RRUS 11 B12	Square Platform with Handrails	(4) 1 5/8" Hybriflex	T-MOBILE
	4	Ericsson RRUS 11 B4			
	4	Ericsson Radio 4478 B71			
	4	Andrew DBXNH-6565B-A2M			
	4	Ericsson AIR32 B4A B2P			
	4	RFS APXVAA24_43-U-A20			

Equipment to be Removed

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
No loading was considered as removed as part of this analysis.					

Proposed Equipment

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
99.0	3	JMA Wireless MX08FRO665-21	Sector Frame	(1) 1.63" (41.3mm) Hybrid	DISH WIRELESS L.L.C.
	3	Fujitsu TA08025-B604			
	1	Raycap RDIDC-3045-PF-48			

[1] Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Install proposed lines inside the pole shaft.

Standard Conditions

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

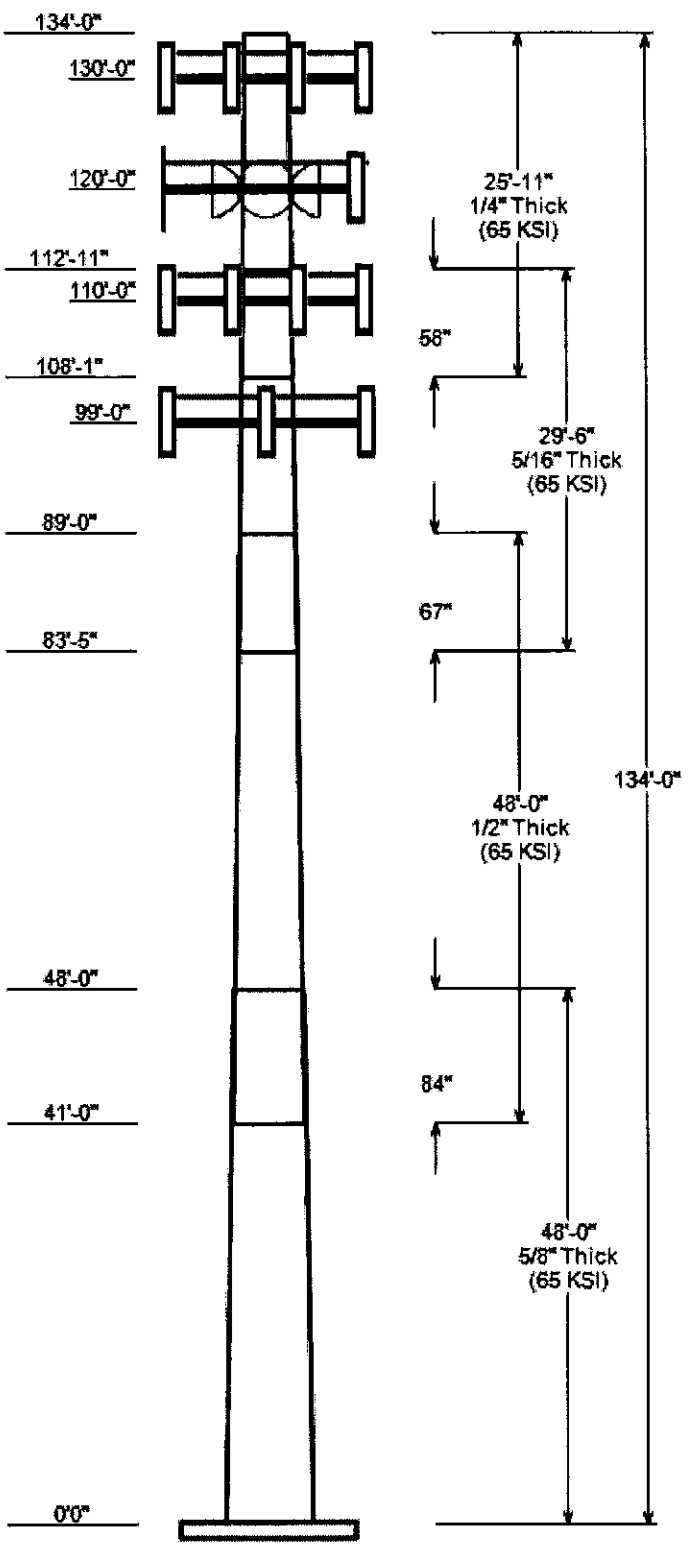
All assets of American Tower Corporation, its affiliates, and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

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

JOB INFORMATION

Asset :	210747, Evergreen Street CT	Height :	134 ft
Client :	DISH WIRELESS L.L.C.	Base Width :	64
Code :	ANSI/TIA-222-H	Shape :	18 Sides



SITE PARAMETERS

Base Elev (ft):	0.00	Structure Class:	II
Taper :	0.27300 (in/ft)	Exposure :	B
Topographic Category :	1	Topographic Feature:	
Topo Method :	Method 1		

SECTION PROPERTIES

Shaft Section	Length (ft)	Diameter (in) Across Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	48.000	50.89	64.00	0.625		0.000	18 Sides	65
2	48.000	40.69	53.80	0.500	Slip Joint	84.000	18 Sides	65
3	29.500	34.78	42.84	0.312	Slip Joint	67.000	18 Sides	65
4	25.917	29.52	36.60	0.250	Slip Joint	58.000	18 Sides	65

DISCRETE APPURTENANCE

Attach Elev (ft)	Force Elev (ft)	Qty	Description
130.0	130.0	6	Kaelus DBC0051F3V51-2
130.0	130.0	1	Raycap DC6-48-60-18-8F
130.0	130.0	2	Raycap DC6-48-60-18-8F
130.0	130.0	3	Ericsson RRUS 8843 B2, B66A
130.0	130.0	3	Ericsson RRUS 4426 B66
130.0	130.0	3	Ericsson RRUS 4478 B14
130.0	130.0	2	Ericsson RRUS 4449 B5, B12
130.0	130.0	2	Ericsson RRUS 32 B2
130.0	130.0	2	Ericsson RRUS 11 B12
130.0	130.0	3	Ericsson RRUS 11 B5
130.0	130.0	2	Ericsson RRUS 12 B5 w/ Solar S
130.0	130.0	3	Ericsson RRUS E2 B29
130.0	130.0	3	Ericsson RRUS-32 B30 (77 lbs)
130.0	130.0	1	Raycap DC9-48-60-24-8C-EV
130.0	130.0	3	CCI OPA-65R-LCUU-H8 (92.7")
130.0	130.0	5	CCI HPA-65R-BUU-H8
130.0	130.0	1	Matsing MBA-3.2-H4-L4
130.0	130.0	3	CCI DMP65R-BU8D
130.0	130.0	1	Generic Flat Platform with Han
120.0	120.0	1	PCTEL GPS-TMG-HR-26N
120.0	120.0	3	DragonWave Airpair (Radio-7.5"
120.0	120.0	3	RFS IBC1900BB-1
120.0	120.0	3	RFS IBC1900HG-2A
120.0	120.0	1	Motorola PTP-600
120.0	120.0	1	MTI Wireless Edge MT-485025/NV
120.0	120.0	3	Alcatel-Lucent 800 MHz RRH
120.0	120.0	6	Alcatel-Lucent 1900MHz RRH (65
120.0	120.0	3	Generic Nilko 500mm x 500mm x
120.0	120.0	3	Alcatel-Lucent TD-RRH8x20-25 w
120.0	120.0	3	Commscope VHLP2-18-1WH/C
120.0	120.0	3	RFS APXVTM14-ALU-I20
120.0	120.0	1	Generic Mount Reinforcement
120.0	120.0	3	RFS APXVSPP18-C-A20 (62 lbs)
120.0	120.0	1	Generic Flat Platform with Han
110.0	110.0	4	Ericsson Radio 4478 B71
110.0	110.0	4	Ericsson RRUS 11 B12
110.0	110.0	4	Ericsson RRUS 11 B4
110.0	110.0	4	Ericsson AIR32 B4A B2P
110.0	110.0	4	Andrew DBXNH-6565B-A2M
110.0	110.0	4	RFS APXVAA24_43-U-A20
110.0	110.0	1	Generic Square Platform with H
99.0	99.0	3	Fujitsu TA08025-B604
99.0	99.0	1	Raycap RDIDC-3045-PF-48
99.0	99.0	3	JMA Wireless MX08FRO665-21

Model ID : 64097 8/24/2021 11:36:42

JOB INFORMATION

Asset :	210747, Evergreen Street CT	Height :	134 ft
Client :	DISH WIRELESS L.L.C.	Base Width :	64
Code :	ANSI/TIA-222-H	Shape :	18 Sides

DISCRETE APPURTENANCE

Attach Elev (ft)	Force Elev (ft)	Qty	Description
99.0	99.0	3	Generic Round Sector Frame

LINEAR APPURTENANCE

Elev From (ft)	Elev To (ft)	Description	Exp To Wind
0.0	130.0	3/8" (0.38"- 9.5mm) RET Control Cable	No
0.0	130.0	2" conduit	No
0.0	130.0	0.96" (24.3mm) Cable	No
0.0	130.0	0.78" (19.7mm) 8 AWG 6	No
0.0	130.0	0.39" (10mm) Fiber Trunk	No
0.0	120.0	5/16" (0.31"-7.9mm) Coax	No
0.0	120.0	1/2" Coax	No
0.0	120.0	1 1/4" Hybriflex Cable	No
0.0	110.0	1 5/8" Hybriflex	No
0.0	99.0	1.63" (41.3mm) Hybrid	No

LOAD CASES

1.2D + 1.0W Normal	119 mph wind with no Ice
0.9D + 1.0W Normal	119 mph wind with no Ice
1.2D + 1.0Di + 1.0Wi Nor	50 mph wind with 1" radial ice
1.2D + 1.0Ev + 1.0Eh Nor	Seismic
0.9D - 1.0Ev + 1.0Eh Nor	Seismic (Reduced DL)
1.0D + 1.0W Service Norm	60 mph Wind with No Ice

REACTIONS

Load Case	Moment (kip-ft)	Shear (Kip)	Axial (Kip)
1.2D + 1.0W Normal	3010.31	30.27	68.20
0.9D + 1.0W Normal	2995.42	30.26	51.14
1.2D + 1.0Di + 1.0Wi Normal	776.74	8.02	87.89
1.2D + 1.0Ev + 1.0Eh Normal	230.89	2.24	67.93
0.9D - 1.0Ev + 1.0Eh Normal	229.50	2.24	46.65
1.0D + 1.0W Service Normal	682.55	6.88	56.84

DISH DEFLECTIONS

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W Service Normal	120.00	4.926	0.387

ANALYSIS PARAMETERS

Location:	Fairfield County,CT	Height:	134 ft
Type and Shape:	Taper, 18 Sides	Base Diameter:	64.00 in
Manufacturer:	Rohn	Top Diameter:	29.52 in
K_d (non-service):	0.95	Taper:	0.2730 in/ft
K_e:	1.00	Rotation:	0.000°

ICE & WIND PARAMETERS

Exposure Category:	B	Design Wind Speed w/o Ice:	119 mph
Risk Category:	II	Design Wind Speed w/Ice:	50 mph
Topo Factor Procedure:	Method 1	Operational Wind Speed:	60 mph
Topographic Category:	1	Design Ice Thickness:	1.00 in
Crest Height:	0 ft	HMSL:	0.00 ft

SEISMIC PARAMETERS

Analysis Method:	Equivalent Lateral Force Method				
Site Class:	D - Stiff Soil			Period Based on Rayleigh Method (sec):	1.46
T_L (sec):	6	P:	1	C_s:	0.039
S_s:	0.211	S_1:	0.054	C_s Max:	0.039
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.225	S_{d1}:	0.086		

LOAD CASES

1.2D + 1.0W Normal	119 mph wind with no ice
0.9D + 1.0W Normal	119 mph wind with no ice
1.2D + 1.0DI + 1.0WI Normal	50 mph wind with 1" radial ice
1.2D + 1.0Ev + 1.0Eh Normal	Seismic
0.9D - 1.0Ev + 1.0Eh Normal	Seismic (Reduced DL)
1.0D + 1.0W Service Normal	60 mph Wind with No Ice

SHAFT SECTION PROPERTIES

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (in)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
									125.7							31,824.8			
1-18	48.00	0.6250	65		0.00	18,409	64.00	0.000	2	63,793.8	16.29	102.40	50.89	48.00	99.71		12.59	81.42	0.2732
2-18	48.00	0.5000	65	Slip	84.00	12,116	53.80	41.000	84.58	30,359.6	17.21	107.60	40.69	89.00	63.78	13,013.7	12.59	81.38	0.2732
3-18	29.50	0.3125	65	Slip	67.00	3,833	42.84	83.420	42.18	9,637.1	22.41	137.08	34.78	112.92	34.19	5,131.1	17.86	111.30	0.2732
4-18	25.92	0.2500	65	Slip	58.00	2,296	36.60	108.083	28.84	4,815.0	24.05	146.40	29.52	134.00	23.23	2,514.0	19.06	118.08	0.2732

Shaft Weight 36,654

DISCRETE APPURTENANCE PROPERTIES

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor
130.00	CCI DMP65R-BU8D	3	0.75	0.000	95.70	17.871	0.63	319.09	20.293	0.63
130.00	Ericsson RRUS E2 B29	3	0.75	0.000	60.00	3.145	0.62	113.16	3.907	0.62
130.00	CCI HPA-65R-BUU-H8	5	0.75	0.000	68.00	12.976	0.67	236.88	15.329	0.67
130.00	CCI OPA-65R-LCUU-H8 (92.7")	3	0.75	0.000	88.00	12.746	0.67	251.19	15.110	0.67
130.00	Raycap DC9-48-60-24-8C-EV	1	0.75	0.000	16.00	4.788	1.00	100.85	5.755	1.00
130.00	Ericsson RRUS-32 B30 (77 lbs)	3	0.75	0.000	77.00	3.314	0.71	140.92	4.158	0.71
130.00	Generic Flat Platform with Han	1	1.00	0.000	2500.00	42.400	1.00	3667.62	56.184	1.00
130.00	Matsing MBA-3.2-H4-L4	1	0.75	0.000	130.00	15.211	1.00	445.31	17.105	1.00
130.00	Ericsson RRUS 12 B5 w/ Solar S	2	0.75	0.000	57.90	3.130	0.71	110.92	3.888	0.71
130.00	Ericsson RRUS 11 B5	3	0.75	0.000	50.70	2.791	0.67	98.29	3.512	0.67
130.00	Ericsson RRUS 11 B12	2	0.75	0.000	50.70	2.791	0.67	98.29	3.512	0.67
130.00	Ericsson RRUS 32 B2	2	0.75	0.000	53.00	2.743	0.67	101.34	3.512	0.67
130.00	Ericsson RRUS 4449 B5, B12	2	0.75	0.000	71.00	1.969	0.50	113.36	2.582	0.50
130.00	Ericsson RRUS 4478 B14	3	0.75	0.000	59.90	1.842	0.50	96.24	2.432	0.50
130.00	Ericsson RRUS 4426 B66	3	0.75	0.000	48.40	1.650	0.50	77.74	2.208	0.50
130.00	Ericsson RRUS 8843 B2, B66A	3	0.75	0.000	72.00	1.639	0.50	112.29	2.194	0.50
130.00	Raycap DC6-48-60-18-8F	1	0.75	0.000	20.00	1.260	1.00	54.61	1.693	1.00
130.00	Raycap DC6-48-60-18-8F	2	0.75	0.000	20.00	1.260	1.00	54.61	1.693	1.00
130.00	Kaelus DBC0051F3V51-2	6	0.75	0.000	12.40	0.413	0.50	22.17	0.703	0.50
120.00	Generic Mount Reinforcement	1	1.00	0.000	200.00	7.500	1.00	326.17	12.381	1.00
120.00	PCTEL GPS-TMG-HR-26N	1	0.75	0.000	0.60	0.090	1.00	3.76	0.208	1.00
120.00	Generic Flat Platform with Han	1	1.00	0.000	2500.00	42.400	1.00	3658.12	56.072	1.00
120.00	RFS APXVTM14-ALU-I20	3	0.75	0.000	56.20	6.342	0.66	145.97	7.762	0.66
120.00	Commscope VHLP2-18-1WH/C	3	1.00	0.000	17.00	4.650	1.00	75.61	5.478	1.00
120.00	Alcatel-Lucent TD-RRH8x20-25 w	3	0.75	0.000	70.00	4.046	0.61	131.61	4.911	0.61
120.00	Generic Nilko 500mm x 500mm x	3	0.75	0.000	30.00	3.874	0.74	131.70	4.711	0.74
120.00	Alcatel-Lucent 1900MHz RRH (65	6	0.75	0.000	60.00	2.583	0.67	120.11	3.309	0.67
120.00	Alcatel-Lucent 800 MHz RRH	3	0.75	0.000	53.00	2.134	0.67	101.12	2.772	0.67
120.00	MTI Wireless Edge MT-485025/NV	1	0.75	0.000	5.50	1.776	1.00	26.88	2.347	1.00
120.00	Motorola PTP-600	1	0.75	0.000	12.10	1.752	1.00	38.06	2.319	1.00
120.00	RFS IBC1900HG-2A	3	0.75	0.000	22.00	0.966	0.50	39.60	1.397	0.50
120.00	RFS IBC1900BB-1	3	0.75	0.000	22.00	0.966	0.50	39.60	1.397	0.50
120.00	DragonWave Airpair (Radio-7.5"	3	0.75	0.000	7.00	0.340	1.00	12.51	0.629	1.00
120.00	RFS APXVSPP18-C-A20 (62 lbs)	3	0.75	0.000	62.00	8.024	0.71	180.07	9.842	0.71
110.00	Generic Square Platform with H	1	1.00	0.000	3790.00	49.300	1.00	6660.23	104.415	1.00
110.00	RFS APXVAA24_43-U-A20	4	0.75	0.000	101.40	20.267	0.63	353.67	22.670	0.63
110.00	Andrew DBXNH-6565B-A2M	4	0.75	0.000	46.30	8.173	0.69	160.13	9.997	0.69
110.00	Ericsson AIR32 B4A B2P	4	0.75	0.000	105.80	6.523	0.71	209.15	7.943	0.71
110.00	Ericsson RRUS 11 B12	4	0.75	0.000	50.70	2.791	0.67	97.55	3.501	0.67
110.00	Ericsson Radio 4478 B71	4	0.75	0.000	60.00	1.650	0.50	92.38	2.198	0.50
110.00	Ericsson RRUS 11 B4	4	0.75	0.000	50.70	2.791	0.67	97.55	3.501	0.67
99.00	Fujitsu TA08025-B604	3	0.80	0.000	63.90	1.962	0.50	101.20	2.550	0.50
99.00	Raycap RDIDC-3045-PF-48	1	0.80	0.000	21.90	2.020	1.00	60.58	2.618	1.00
99.00	JMA Wireless MX08FRO665-21	3	0.80	0.000	64.50	12.489	0.64	228.88	14.286	0.64
99.00	Generic Round Sector Frame	3	0.75	0.000	300.00	14.400	0.75	535.24	24.986	0.75
Totals	Num Loadings: 45	122			16,093.20			30,875.12		

LINEAR APPURTENANCE PROPERTIES

Load Case Azimuth (deg) : 0.00

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Flat	Max Coax/ Row	Dist Between Rows(in)	Dist Between Cols(in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Flat	Max Coax/ Row	Dist Between Rows(in)	Dist Between Cols(in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
0.00	130.00	8	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	130.00	4	2" conduit	2.38	3.65	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	130.00	3	3/8" (0.38"- 9.5mm) R	0.38	0.23	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	130.00	2	0.39" (10mm) Fiber Tr	0.39	0.06	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	130.00	1	0.96" (24.3mm) Cable	0.96	0.88	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	120.00	6	5/16" (0.31"-7.9mm) C	0.31	0.05	N	0	0	0	0	0	N	SPRINT NEXTEL
0.00	120.00	5	1/2" Coax	0.63	0.15	N	0	0	0	0	0	N	SPRINT NEXTEL
0.00	120.00	4	1 1/4" Hybriflex Cabl	1.54	1	N	0	0	0	0	0	N	SPRINT NEXTEL
0.00	110.00	4	1 5/8" Hybriflex	1.98	1.3	N	0	0	0	0	0	N	T-MOBILE
0.00	99.00	1	1.63" (41.3mm) Hybrid	1.63	1.91	N	0	0	0	0	0	N	DISH WIRELESS

SEGMENT PROPERTIES

(Max Len: 5 ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in^3)	Z (in^3)	Weight (lb)
0.00		0.6250	64.000	125.716	63,793.80	16.29	102.40	82.2	1963.3	0.0	0.0
5.00		0.6250	62.634	123.006	59,757.40	15.91	100.21	82.6	1879.2	0.0	2,115.9
10.00		0.6250	61.268	120.297	55,895.00	15.52	98.03	82.6	1796.9	0.0	2,069.8
15.00		0.6250	59.902	117.587	52,202.70	15.14	95.84	82.6	1716.4	0.0	2,023.7
20.00		0.6250	58.537	114.878	48,676.70	14.75	93.66	82.6	1637.9	0.0	1,977.6
25.00		0.6250	57.171	112.169	45,313.20	14.37	91.47	82.6	1561.1	0.0	1,931.5
30.00		0.6250	55.805	109.459	42,108.20	13.98	89.29	82.6	1486.2	0.0	1,885.4
35.00		0.6250	54.439	106.750	39,058.10	13.60	87.10	82.6	1413.1	0.0	1,839.3
40.00		0.6250	53.073	104.040	36,159.00	13.21	84.92	82.6	1341.9	0.0	1,793.2
41.00	Bot - Section 2	0.6250	52.800	103.498	35,596.90	13.13	84.48	82.6	1327.9	0.0	353.1
45.00		0.6250	51.707	101.331	33,407.00	12.82	82.73	82.6	1272.5	0.0	2,533.5
48.00	Top - Section 1	0.5000	51.888	81.550	27,207.90	16.54	103.78	82	1032.8	0.0	1,865.2
50.00		0.5000	51.342	80.683	26,349.30	16.34	102.68	82.2	1010.8	0.0	552.0
55.00		0.5000	49.976	78.515	24,282.20	15.86	99.95	82.6	957.0	0.0	1,354.3
60.00		0.5000	48.610	76.348	22,326.20	15.38	97.22	82.6	904.6	0.0	1,317.4
65.00		0.5000	47.244	74.180	20,478.10	14.90	94.49	82.6	853.7	0.0	1,280.5
70.00		0.5000	45.878	72.012	18,735.00	14.42	91.76	82.6	804.3	0.0	1,243.7
75.00		0.5000	44.512	69.845	17,093.70	13.93	89.02	82.6	756.4	0.0	1,206.8
80.00		0.5000	43.146	67.677	15,551.10	13.45	86.29	82.6	709.9	0.0	1,169.9
83.42	Bot - Section 3	0.5000	42.213	66.196	14,552.30	13.12	84.43	82.6	679.0	0.0	778.2
85.00		0.5000	41.781	65.510	14,104.30	12.97	83.56	82.6	664.9	0.0	580.9
89.00	Top - Section 2	0.3125	41.313	40.666	8,636.90	21.55	132.20	76.1	411.8	0.0	1,440.7
90.00		0.3125	41.040	40.395	8,465.40	21.39	131.33	76.2	406.3	0.0	137.9
95.00		0.3125	39.674	39.040	7,642.00	20.62	126.96	77.1	379.4	0.0	675.7
99.00		0.3125	38.581	37.956	7,023.00	20.01	123.46	77.9	358.5	0.0	524.0
100.00		0.3125	38.308	37.685	6,873.70	19.85	122.59	78.1	353.4	0.0	128.7
105.00		0.3125	36.942	36.331	6,158.80	19.08	118.21	79	328.4	0.0	629.7
108.08	Bot - Section 4	0.3125	36.100	35.495	5,743.60	18.61	115.52	79.5	313.4	0.0	376.8
110.00		0.3125	35.576	34.976	5,495.20	18.31	113.84	79.9	304.2	0.0	416.6
112.92	Top - Section 3	0.2500	35.280	27.795	4,309.10	23.12	141.12	74.2	240.6	0.0	622.2
115.00		0.2500	34.710	27.343	4,102.50	22.72	138.84	74.7	232.8	0.0	195.4
120.00		0.2500	33.345	26.260	3,633.80	21.75	133.38	75.8	214.6	0.0	456.0
125.00		0.2500	31.979	25.176	3,202.20	20.79	127.92	76.9	197.2	0.0	437.6
130.00		0.2500	30.613	24.092	2,806.20	19.83	122.45	78.1	180.5	0.0	419.1
134.00		0.2500	29.520	23.225	2,514.00	19.06	118.08	79	167.7	0.0	322.0
								Totals:			36,654.3

Load Case: 1.2D + 1.0W Normal 119 mph wind with no ice 17 Iterations
Gust Response Factor: 1.10
Dead load Factor: 1.20
Wind Load Factor: 1.00

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-68.20	-30.27	0.00	-3,010.3	0.00	3,010.31	9,304.68	2,206.31	12,630.11	12,109.07	0	0	0.256
5.00	-65.42	-29.83	0.00	-2,859.0	0.00	2,858.96	9,138.75	2,158.76	12,091.65	11,634.30	0.04	-0.07	0.253
10.00	-62.71	-29.40	0.00	-2,709.8	0.00	2,709.81	8,937.45	2,111.21	11,564.92	11,124.92	0.14	-0.13	0.251
15.00	-60.05	-28.97	0.00	-2,562.8	0.00	2,562.82	8,736.16	2,063.66	11,049.92	10,626.94	0.31	-0.2	0.248
20.00	-57.44	-28.55	0.00	-2,418.0	0.00	2,417.97	8,534.86	2,016.11	10,546.65	10,140.36	0.56	-0.27	0.245
25.00	-54.90	-28.13	0.00	-2,275.2	0.00	2,275.23	8,333.57	1,968.56	10,055.11	9,665.19	0.88	-0.34	0.242
30.00	-52.40	-27.72	0.00	-2,134.6	0.00	2,134.57	8,132.27	1,921.01	9,575.30	9,201.41	1.26	-0.4	0.239
35.00	-49.97	-27.29	0.00	-1,996.0	0.00	1,995.98	7,930.97	1,873.46	9,107.22	8,749.05	1.73	-0.47	0.235
40.00	-47.60	-27.03	0.00	-1,859.5	0.00	1,859.51	7,729.68	1,825.91	8,650.87	8,308.08	2.26	-0.54	0.230
41.00	-47.12	-26.81	0.00	-1,832.5	0.00	1,832.48	7,689.42	1,816.40	8,561.00	8,221.26	2.38	-0.56	0.229
45.00	-43.90	-26.48	0.00	-1,725.2	0.00	1,725.24	7,528.38	1,778.36	8,206.24	7,878.52	2.87	-0.62	0.225
48.00	-41.53	-26.23	0.00	-1,645.8	0.00	1,645.81	6,014.85	1,431.19	6,643.24	6,347.94	3.27	-0.66	0.267
50.00	-40.77	-25.92	0.00	-1,593.3	0.00	1,593.34	5,967.36	1,415.98	6,502.76	6,230.22	3.55	-0.69	0.263
55.00	-38.91	-25.47	0.00	-1,463.7	0.00	1,463.72	5,833.27	1,377.94	6,158.11	5,925.03	4.32	-0.77	0.254
60.00	-37.11	-25.01	0.00	-1,336.4	0.00	1,336.37	5,672.24	1,339.90	5,822.85	5,600.81	5.17	-0.85	0.245
65.00	-35.34	-24.55	0.00	-1,211.3	0.00	1,211.32	5,511.20	1,301.86	5,496.97	5,285.72	6.11	-0.93	0.236
70.00	-33.63	-24.09	0.00	-1,088.6	0.00	1,088.56	5,350.16	1,263.82	5,180.47	4,979.75	7.13	-1.01	0.225
75.00	-31.96	-23.63	0.00	-968.1	0.00	968.10	5,189.13	1,225.78	4,873.36	4,682.90	8.23	-1.09	0.213
80.00	-30.34	-23.24	0.00	-850.0	0.00	849.96	5,028.09	1,187.74	4,575.63	4,395.18	9.42	-1.17	0.200
83.42	-29.26	-23.00	0.00	-770.6	0.00	770.57	4,918.05	1,161.74	4,377.58	4,203.82	10.27	-1.22	0.190
85.00	-28.49	-22.74	0.00	-734.2	0.00	734.15	4,867.06	1,149.70	4,287.28	4,116.58	10.68	-1.24	0.185
89.00	-26.59	-22.48	0.00	-643.2	0.00	643.18	2,783.63	713.68	2,642.94	2,348.85	11.75	-1.3	0.284
90.00	-26.37	-22.23	0.00	-620.7	0.00	620.70	2,771.67	708.93	2,607.84	2,323.06	12.02	-1.31	0.278
95.00	-25.34	-21.84	0.00	-509.5	0.00	509.54	2,710.57	685.15	2,435.88	2,195.08	13.45	-1.41	0.242
99.00	-23.02	-19.80	0.00	-422.2	0.00	422.19	2,660.10	666.13	2,302.53	2,093.93	14.65	-1.47	0.211
100.00	-22.82	-19.55	0.00	-402.4	0.00	402.40	2,647.26	661.38	2,269.78	2,068.83	14.97	-1.49	0.204
105.00	-21.87	-19.19	0.00	-304.6	0.00	304.65	2,581.73	637.60	2,109.55	1,944.50	16.57	-1.56	0.166
108.08	-21.30	-18.97	0.00	-245.5	0.00	245.47	2,540.22	622.94	2,013.66	1,868.87	17.59	-1.6	0.141
110.00	-14.33	-13.49	0.00	-209.1	0.00	209.10	2,514.00	613.83	1,955.18	1,822.28	18.24	-1.63	0.121
112.92	-13.49	-13.26	0.00	-169.7	0.00	169.74	1,856.34	487.80	1,543.35	1,338.93	19.25	-1.65	0.135
115.00	-13.20	-12.97	0.00	-142.1	0.00	142.11	1,837.80	479.88	1,493.62	1,303.87	19.97	-1.67	0.117
120.00	-7.72	-7.88	0.00	-77.3	0.00	77.27	1,791.74	460.86	1,377.57	1,220.44	21.75	-1.71	0.068
125.00	-7.08	-7.47	0.00	-37.9	0.00	37.89	1,743.46	441.84	1,266.23	1,138.18	23.55	-1.73	0.038
130.00	-0.38	-0.14	0.00	-0.6	0.00	0.57	1,692.98	422.82	1,159.57	1,057.27	25.37	-1.74	0.001
134.00	0.00	-0.13	0.00	0.0	0.00	0.00	1,651.00	407.60	1,077.62	993.65	26.83	-1.74	0.000

Load Case: 0.9D + 1.0W Normal — 119 mph wind with no ice — 17 Iterations
Gust Response Factor: 1.10
Dead load Factor: 0.90
Wind Load Factor: 1.00

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-51.14	-30.26	0.00	-2,995.4	0.00	2,995.42	9,304.68	2,206.31	12,630.11	12,109.07	0	0	0.253
5.00	-49.06	-29.80	0.00	-2,844.1	0.00	2,844.13	9,138.75	2,158.76	12,091.65	11,634.30	0.04	-0.07	0.250
10.00	-47.01	-29.35	0.00	-2,695.1	0.00	2,695.12	8,937.45	2,111.21	11,564.92	11,124.92	0.14	-0.13	0.248
15.00	-45.01	-28.91	0.00	-2,548.4	0.00	2,548.36	8,736.16	2,063.66	11,049.92	10,626.94	0.31	-0.2	0.245
20.00	-43.05	-28.47	0.00	-2,403.8	0.00	2,403.83	8,534.86	2,016.11	10,546.65	10,140.36	0.56	-0.27	0.242
25.00	-41.13	-28.04	0.00	-2,261.5	0.00	2,261.47	8,333.57	1,968.56	10,055.11	9,665.19	0.87	-0.33	0.239
30.00	-39.25	-27.62	0.00	-2,121.3	0.00	2,121.26	8,132.27	1,921.01	9,575.30	9,201.41	1.26	-0.4	0.236
35.00	-37.42	-27.18	0.00	-1,983.2	0.00	1,983.18	7,930.97	1,873.46	9,107.22	8,749.05	1.72	-0.47	0.232
40.00	-35.64	-26.91	0.00	-1,847.3	0.00	1,847.28	7,729.68	1,825.91	8,650.87	8,308.08	2.25	-0.54	0.227
41.00	-35.28	-26.69	0.00	-1,820.4	0.00	1,820.37	7,689.42	1,816.40	8,561.00	8,221.26	2.36	-0.56	0.226
45.00	-32.86	-26.35	0.00	-1,713.6	0.00	1,713.62	7,528.38	1,778.36	8,206.24	7,878.52	2.85	-0.61	0.222
48.00	-31.08	-26.11	0.00	-1,634.6	0.00	1,634.57	6,014.85	1,431.19	6,643.24	6,347.94	3.25	-0.65	0.263
50.00	-30.50	-25.79	0.00	-1,582.4	0.00	1,582.35	5,967.36	1,415.98	6,502.76	6,230.22	3.53	-0.68	0.259
55.00	-29.10	-25.33	0.00	-1,453.4	0.00	1,453.40	5,833.27	1,377.94	6,158.11	5,925.03	4.29	-0.77	0.251
60.00	-27.74	-24.86	0.00	-1,326.8	0.00	1,326.76	5,672.24	1,339.90	5,822.85	5,600.81	5.14	-0.85	0.242
65.00	-26.41	-24.40	0.00	-1,202.4	0.00	1,202.45	5,511.20	1,301.86	5,496.97	5,285.72	6.07	-0.93	0.233
70.00	-25.12	-23.93	0.00	-1,080.5	0.00	1,080.46	5,350.16	1,263.82	5,180.47	4,979.75	7.09	-1.01	0.222
75.00	-23.86	-23.47	0.00	-960.8	0.00	960.81	5,189.13	1,225.78	4,873.36	4,682.90	8.18	-1.08	0.210
80.00	-22.64	-23.07	0.00	-843.5	0.00	843.48	5,028.09	1,187.74	4,575.63	4,395.18	9.36	-1.16	0.197
83.42	-21.83	-22.84	0.00	-764.6	0.00	764.64	4,918.05	1,161.74	4,377.58	4,203.82	10.21	-1.21	0.187
85.00	-21.25	-22.58	0.00	-728.5	0.00	728.49	4,867.06	1,149.70	4,287.28	4,116.58	10.62	-1.23	0.182
89.00	-19.82	-22.33	0.00	-638.2	0.00	638.17	2,783.63	713.68	2,642.94	2,348.85	11.67	-1.29	0.280
90.00	-19.65	-22.07	0.00	-615.8	0.00	615.84	2,771.67	708.93	2,607.84	2,323.06	11.94	-1.3	0.273
95.00	-18.88	-21.67	0.00	-505.5	0.00	505.50	2,710.57	685.15	2,435.88	2,195.08	13.36	-1.4	0.238
99.00	-17.14	-19.64	0.00	-418.8	0.00	418.82	2,660.10	666.13	2,302.53	2,093.93	14.56	-1.46	0.207
100.00	-16.99	-19.39	0.00	-399.2	0.00	399.17	2,647.26	661.38	2,269.78	2,068.83	14.87	-1.48	0.200
105.00	-16.28	-19.04	0.00	-302.2	0.00	302.22	2,581.73	637.60	2,109.55	1,944.50	16.46	-1.55	0.163
108.08	-15.85	-18.82	0.00	-243.5	0.00	243.53	2,540.22	622.94	2,013.66	1,868.87	17.48	-1.59	0.137
110.00	-10.66	-13.39	0.00	-207.5	0.00	207.46	2,514.00	613.83	1,955.18	1,822.28	18.13	-1.61	0.119
112.92	-10.03	-13.16	0.00	-168.4	0.00	168.42	1,856.34	487.80	1,543.35	1,338.93	19.12	-1.64	0.132
115.00	-9.81	-12.87	0.00	-141.0	0.00	141.00	1,837.80	479.88	1,493.62	1,303.87	19.84	-1.66	0.114
120.00	-5.74	-7.82	0.00	-76.7	0.00	76.67	1,791.74	460.86	1,377.57	1,220.44	21.61	-1.7	0.066
125.00	-5.26	-7.41	0.00	-37.6	0.00	37.60	1,743.46	441.84	1,266.23	1,138.18	23.4	-1.72	0.036
130.00	-0.29	-0.14	0.00	-0.6	0.00	0.55	1,692.98	422.82	1,159.57	1,057.27	25.21	-1.73	0.001
134.00	0.00	-0.13	0.00	0.0	0.00	0.00	1,651.00	407.60	1,077.62	993.65	26.65	-1.73	0.000

Load Case: 1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice 17 Iterations
Gust Response Factor: 1.10 Ice Dead Load Factor 1.00
Dead load Factor: 1.20 Ice Importance Factor 1.00
Wind Load Factor: 1.00

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-87.89	-8.02	0.00	-776.7	0.00	776.74	9,304.68	2,206.31	12,630.11	12,109.07	0	0	0.074
5.00	-84.84	-7.89	0.00	-736.6	0.00	736.62	9,138.75	2,158.76	12,091.65	11,634.30	0.01	-0.02	0.073
10.00	-81.82	-7.77	0.00	-697.2	0.00	697.15	8,937.45	2,111.21	11,564.92	11,124.92	0.04	-0.03	0.072
15.00	-78.84	-7.64	0.00	-658.3	0.00	658.31	8,736.16	2,063.66	11,049.92	10,626.94	0.08	-0.05	0.071
20.00	-75.92	-7.52	0.00	-620.1	0.00	620.10	8,534.86	2,016.11	10,546.65	10,140.36	0.14	-0.07	0.070
25.00	-73.05	-7.40	0.00	-582.5	0.00	582.50	8,333.57	1,968.56	10,055.11	9,665.19	0.23	-0.09	0.069
30.00	-70.24	-7.28	0.00	-545.5	0.00	545.51	8,132.27	1,921.01	9,575.30	9,201.41	0.33	-0.1	0.068
35.00	-67.48	-7.15	0.00	-509.1	0.00	509.13	7,930.97	1,873.46	9,107.22	8,749.05	0.44	-0.12	0.067
40.00	-64.79	-7.07	0.00	-473.4	0.00	473.38	7,729.68	1,825.91	8,650.87	8,308.08	0.58	-0.14	0.065
41.00	-64.25	-7.01	0.00	-466.3	0.00	466.30	7,689.42	1,816.40	8,561.00	8,221.26	0.61	-0.14	0.065
45.00	-60.78	-6.91	0.00	-438.3	0.00	438.27	7,528.38	1,778.36	8,206.24	7,878.52	0.74	-0.16	0.064
48.00	-58.21	-6.84	0.00	-417.5	0.00	417.54	6,014.85	1,431.19	6,643.24	6,347.94	0.84	-0.17	0.075
50.00	-57.33	-6.75	0.00	-403.9	0.00	403.86	5,967.36	1,415.98	6,502.76	6,230.22	0.91	-0.18	0.074
55.00	-55.17	-6.61	0.00	-370.1	0.00	370.12	5,833.27	1,377.94	6,158.11	5,925.03	1.11	-0.2	0.072
60.00	-53.06	-6.48	0.00	-337.0	0.00	337.05	5,672.24	1,339.90	5,822.85	5,600.81	1.33	-0.22	0.070
65.00	-51.00	-6.34	0.00	-304.7	0.00	304.66	5,511.20	1,301.86	5,496.97	5,285.72	1.56	-0.24	0.067
70.00	-48.99	-6.20	0.00	-273.0	0.00	272.95	5,350.16	1,263.82	5,180.47	4,979.75	1.83	-0.26	0.064
75.00	-47.03	-6.07	0.00	-241.9	0.00	241.92	5,189.13	1,225.78	4,873.36	4,682.90	2.11	-0.28	0.061
80.00	-45.13	-5.95	0.00	-211.6	0.00	211.59	5,028.09	1,187.74	4,575.63	4,395.18	2.41	-0.3	0.057
83.42	-43.85	-5.88	0.00	-191.3	0.00	191.26	4,918.05	1,161.74	4,377.58	4,203.82	2.62	-0.31	0.054
85.00	-43.00	-5.80	0.00	-182.0	0.00	181.95	4,867.06	1,149.70	4,287.28	4,116.58	2.73	-0.31	0.053
89.00	-40.88	-5.73	0.00	-158.8	0.00	158.75	2,783.63	713.68	2,642.94	2,348.85	3	-0.33	0.082
90.00	-40.61	-5.65	0.00	-153.0	0.00	153.02	2,771.67	708.93	2,607.84	2,323.06	3.07	-0.33	0.081
95.00	-39.32	-5.53	0.00	-124.8	0.00	124.77	2,710.57	685.15	2,435.88	2,195.08	3.43	-0.36	0.071
99.00	-35.70	-4.99	0.00	-102.6	0.00	102.65	2,660.10	666.13	2,302.53	2,093.93	3.73	-0.37	0.062
100.00	-35.45	-4.91	0.00	-97.7	0.00	97.66	2,647.26	661.38	2,269.78	2,068.83	3.81	-0.38	0.061
105.00	-34.24	-4.81	0.00	-73.1	0.00	73.09	2,581.73	637.60	2,109.55	1,944.50	4.22	-0.39	0.051
108.08	-33.51	-4.74	0.00	-58.3	0.00	58.28	2,540.22	622.94	2,013.66	1,868.87	4.47	-0.4	0.044
110.00	-22.22	-3.22	0.00	-49.2	0.00	49.19	2,514.00	613.83	1,955.18	1,822.28	4.64	-0.41	0.036
112.92	-21.23	-3.15	0.00	-39.8	0.00	39.79	1,856.34	487.80	1,543.35	1,338.93	4.89	-0.42	0.041
115.00	-20.83	-3.06	0.00	-33.2	0.00	33.23	1,837.80	479.88	1,493.62	1,303.87	5.07	-0.42	0.037
120.00	-12.44	-1.84	0.00	-17.9	0.00	17.92	1,791.74	460.86	1,377.57	1,220.44	5.52	-0.43	0.022
125.00	-11.55	-1.71	0.00	-8.7	0.00	8.73	1,743.46	441.84	1,266.23	1,138.18	5.97	-0.43	0.014
130.00	-0.56	-0.05	0.00	-0.2	0.00	0.19	1,692.98	422.82	1,159.57	1,057.27	6.42	-0.44	0.001
134.00	0.00	-0.04	0.00	0.0	0.00	0.00	1,651.00	407.60	1,077.62	993.65	6.79	-0.44	0.000

Load Case: 1.0D + 1.0W Service Normal 60 mph Wind with No Ice 17 Iterations
Gust Response Factor: 1.10
Dead load Factor: 1.00
Wind Load Factor: 1.00

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-56.84	-6.88	0.00	-682.6	0.00	682.55	9,304.68	2,206.31	12,630.11	12,109.07	0	0	0.062
5.00	-54.56	-6.78	0.00	-648.1	0.00	648.13	9,138.75	2,158.76	12,091.65	11,634.30	0.01	-0.01	0.062
10.00	-52.32	-6.68	0.00	-614.2	0.00	614.23	8,937.45	2,111.21	11,564.92	11,124.92	0.03	-0.03	0.061
15.00	-50.13	-6.58	0.00	-580.8	0.00	580.83	8,736.16	2,063.66	11,049.92	10,626.94	0.07	-0.05	0.060
20.00	-47.99	-6.48	0.00	-547.9	0.00	547.93	8,534.86	2,016.11	10,546.65	10,140.36	0.13	-0.06	0.060
25.00	-45.89	-6.39	0.00	-515.5	0.00	515.52	8,333.57	1,968.56	10,055.11	9,665.19	0.2	-0.08	0.059
30.00	-43.84	-6.29	0.00	-483.6	0.00	483.59	8,132.27	1,921.01	9,575.30	9,201.41	0.29	-0.09	0.058
35.00	-41.83	-6.19	0.00	-452.2	0.00	452.15	7,930.97	1,873.46	9,107.22	8,749.05	0.39	-0.11	0.057
40.00	-39.87	-6.13	0.00	-421.2	0.00	421.19	7,729.68	1,825.91	8,650.87	8,308.08	0.51	-0.12	0.056
41.00	-39.48	-6.08	0.00	-415.1	0.00	415.06	7,689.42	1,816.40	8,561.00	8,221.26	0.54	-0.13	0.056
45.00	-36.82	-6.00	0.00	-390.7	0.00	390.74	7,528.38	1,778.36	8,206.24	7,878.52	0.65	-0.14	0.054
48.00	-34.85	-5.95	0.00	-372.7	0.00	372.73	6,014.85	1,431.19	6,643.24	6,347.94	0.74	-0.15	0.065
50.00	-34.23	-5.88	0.00	-360.8	0.00	360.83	5,967.36	1,415.98	6,502.76	6,230.22	0.81	-0.16	0.064
55.00	-32.71	-5.77	0.00	-331.4	0.00	331.45	5,833.27	1,377.94	6,158.11	5,925.03	0.98	-0.17	0.062
60.00	-31.22	-5.67	0.00	-302.6	0.00	302.59	5,672.24	1,339.90	5,822.85	5,600.81	1.17	-0.19	0.060
65.00	-29.78	-5.56	0.00	-274.2	0.00	274.25	5,511.20	1,301.86	5,496.97	5,285.72	1.38	-0.21	0.057
70.00	-28.37	-5.46	0.00	-246.4	0.00	246.44	5,350.16	1,263.82	5,180.47	4,979.75	1.62	-0.23	0.055
75.00	-26.99	-5.35	0.00	-219.2	0.00	219.16	5,189.13	1,225.78	4,873.36	4,682.90	1.87	-0.25	0.052
80.00	-25.65	-5.26	0.00	-192.4	0.00	192.41	5,028.09	1,187.74	4,575.63	4,395.18	2.13	-0.26	0.049
83.42	-24.76	-5.21	0.00	-174.4	0.00	174.43	4,918.05	1,161.74	4,377.58	4,203.82	2.33	-0.28	0.047
85.00	-24.13	-5.15	0.00	-166.2	0.00	166.18	4,867.06	1,149.70	4,287.28	4,116.58	2.42	-0.28	0.045
89.00	-22.56	-5.09	0.00	-145.6	0.00	145.59	2,783.63	713.68	2,642.94	2,348.85	2.66	-0.29	0.070
90.00	-22.38	-5.03	0.00	-140.5	0.00	140.49	2,771.67	708.93	2,607.84	2,323.06	2.72	-0.3	0.069
95.00	-21.54	-4.94	0.00	-115.3	0.00	115.33	2,710.57	685.15	2,435.88	2,195.08	3.05	-0.32	0.061
99.00	-19.58	-4.48	0.00	-95.6	0.00	95.56	2,660.10	666.13	2,302.53	2,093.93	3.32	-0.33	0.053
100.00	-19.42	-4.42	0.00	-91.1	0.00	91.07	2,647.26	661.38	2,269.78	2,068.83	3.39	-0.34	0.051
105.00	-18.63	-4.34	0.00	-69.0	0.00	68.95	2,581.73	637.60	2,109.55	1,944.50	3.75	-0.35	0.043
108.08	-18.16	-4.29	0.00	-55.6	0.00	55.56	2,540.22	622.94	2,013.66	1,868.87	3.99	-0.36	0.037
110.00	-12.24	-3.05	0.00	-47.3	0.00	47.33	2,514.00	613.83	1,955.18	1,822.28	4.13	-0.37	0.031
112.92	-11.54	-3.00	0.00	-38.4	0.00	38.42	1,856.34	487.80	1,543.35	1,338.93	4.36	-0.37	0.035
115.00	-11.29	-2.94	0.00	-32.2	0.00	32.17	1,837.80	479.88	1,493.62	1,303.87	4.52	-0.38	0.031
120.00	-6.62	-1.78	0.00	-17.5	0.00	17.49	1,791.74	460.86	1,377.57	1,220.44	4.93	-0.39	0.018
125.00	-6.08	-1.69	0.00	-8.6	0.00	8.58	1,743.46	441.84	1,266.23	1,138.18	5.34	-0.39	0.011
130.00	-0.32	-0.03	0.00	-0.1	0.00	0.13	1,692.98	422.82	1,159.57	1,057.27	5.75	-0.39	0.000
134.00	0.00	-0.03	0.00	0.0	0.00	0.00	1,651.00	407.60	1,077.62	993.65	6.08	-0.39	0.000

EQUIVALENT LATERAL FORCES METHOD ANALYSIS

(Based on ASCE7-16 Chapters 11, 12 and 15)

Spectral Response Acceleration for Short Period (S_S):	0.211
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.054
Long-Period Transition Period (T_L -- Seconds):	6
Importance Factor (I_e):	1.000
Site Coefficient F_a:	1.600
Site Coefficient F_v:	2.400
Response Modification Coefficient (R):	1.500
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.225
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.086
Seismic Response Coefficient (C_s):	0.039
Upper Limit C_S:	0.039
Lower Limit C_S:	0.030
Period based on Rayleigh Method (sec):	1.460
Redundancy Factor (p):	1.000
Seismic Force Distribution Exponent (k):	1.480
Total Unfactored Dead Load:	56.850 k
Seismic Base Shear (E):	2.240 k

1.2D + 1.0Ev + 1.0Eh Normal **Seismic**

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
34	132	322	443	0.013	28	401
33	127.5	524	685	0.020	44	653
32	122.5	543	668	0.019	43	676
31	117.5	586	679	0.019	43	730
30	113.9583	250	276	0.008	18	311
29	111.4583	698	748	0.021	48	869
28	109.0417	476	494	0.014	32	593
27	106.5417	473	474	0.014	30	589
26	102.5	786	743	0.021	48	979
25	99.5	160	145	0.004	9	199
24	97	657	572	0.016	37	818
23	92.5	842	684	0.020	44	1,048
22	89.5	171	132	0.004	8	213
21	87	1,573	1,168	0.033	75	1,959
20	84.2083	633	448	0.013	29	789
19	81.7083	892	603	0.017	39	1,110
18	77.5	1,336	835	0.024	53	1,663
17	72.5	1,373	778	0.022	50	1,709
16	67.5	1,410	718	0.020	46	1,755
15	62.5	1,446	658	0.019	42	1,801
14	57.5	1,483	596	0.017	38	1,847
13	52.5	1,520	534	0.015	34	1,893
12	49	618	196	0.006	13	770
11	46.5	1,965	577	0.016	37	2,446
10	43	2,666	697	0.020	45	3,319
9	40.5	386	92	0.003	6	481
8	37.5	1,959	418	0.012	27	2,439
7	32.5	2,005	347	0.010	22	2,496
6	27.5	2,051	277	0.008	18	2,554
5	22.5	2,097	210	0.006	13	2,611
4	17.5	2,143	148	0.004	9	2,669
3	12.5	2,190	92	0.003	6	2,726
2	7.5	2,236	44	0.001	3	2,783
1	2.5	2,282	9	0.000	1	2,841

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
Kaelus DBC0051F3V51-2	130	74	100	0.003	6	93
Raycap DC6-48-60-18-8F	130	40	54	0.002	3	50
Raycap DC6-48-60-18-8F	130	20	27	0.001	2	25
Ericsson RRUS 8843 B2, B66A	130	216	290	0.008	19	269
Ericsson RRUS 4426 B66	130	145	195	0.006	13	181
Ericsson RRUS 4478 B14	130	180	242	0.007	15	224
Ericsson RRUS 4449 B5, B12	130	142	191	0.006	12	177
Ericsson RRUS 32 B2	130	106	143	0.004	9	132
Ericsson RRUS 11 B12	130	101	136	0.004	9	126
Ericsson RRUS 11 B12	110	203	213	0.006	14	252
Ericsson RRUS 11 B5	130	152	205	0.006	13	189
Ericsson RRUS 12 B5 w/ Solar Shield	130	116	156	0.004	10	144
Ericsson RRUS E2 B29	130	180	242	0.007	15	224
Ericsson RRUS-32 B30 (77 lbs)	130	231	311	0.009	20	288
Raycap DC9-48-60-24-8C-EV	130	16	22	0.001	1	20
CCI OPA-65R-LCUU-H8 (92.7")	130	264	355	0.010	23	329
CCI HPA-65R-BUU-H8	130	340	457	0.013	29	423
Matsing MBA-3.2-H4-L4	130	130	175	0.005	11	162
CCI DMP65R-BU8D	130	287	386	0.011	25	357
Generic Flat Platform with Handrails	130	2,500	3,362	0.096	215	3,113
Generic Flat Platform with Handrails	120	2,500	2,986	0.085	191	3,113
PCTEL GPS-TMG-HR-26N	120	1	1	0.000	0	1
DragonWave Airpair (Radio-7.5" diameter)	120	21	25	0.001	2	26
RFS IBC1900BB-1	120	66	79	0.002	5	82
RFS IBC1900HG-2A	120	66	79	0.002	5	82
Motorola PTP-600	120	12	14	0.000	1	15
MTI Wireless Edge MT-485025/NVH	120	6	7	0.000	0	7
Alcatel-Lucent 800 MHz RRH	120	159	190	0.005	12	198
Alcatel-Lucent 1900MHz RRH (65MHz) w/ solar shield	120	360	430	0.012	28	448
Generic Nilko 500mm x 500mm x 600 mm BTS	120	90	107	0.003	7	112
Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield	120	210	251	0.007	16	261
Commscope VHLP2-18-1WH/C	120	51	61	0.002	4	63
RFS APXVTM14-ALU-I20	120	169	201	0.006	13	210
Generic Mount Reinforcement	120	200	239	0.007	15	249
RFS APXVSPP18-C-A20 (62 lbs)	120	186	222	0.006	14	232
Ericsson Radio 4478 B71	110	240	252	0.007	16	299
Ericsson RRUS 11 B4	110	203	213	0.006	14	252
Ericsson AIR32 B4A B2P	110	423	444	0.013	28	527
Andrew DBXNH-6565B-A2M	110	185	194	0.006	12	231
RFS APXVAA24_43-U-A20	110	406	426	0.012	27	505
Generic Square Platform with Handrails	110	3,790	3,980	0.114	255	4,719
Fujitsu TA08025-B604	99	192	172	0.005	11	239
Raycap RDIDC-3045-PF-48	99	22	20	0.001	1	27
JMA Wireless MX08FRO665-21	99	194	174	0.005	11	241
Generic Round Sector Frame	99	900	809	0.023	52	1,121
		56,846	35,026	1.000	2,243	70,774

0.9D - 1.0Ev + 1.0Eh Normal **Seismic (Reduced DL)**

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
34	132	322	443	0.013	28	275
33	127.5	524	685	0.020	44	448
32	122.5	543	668	0.019	43	464
31	117.5	586	679	0.019	43	501
30	113.9583	250	276	0.008	18	214
29	111.4583	698	748	0.021	48	597
28	109.0417	476	494	0.014	32	407
27	106.5417	473	474	0.014	30	405
26	102.5	786	743	0.021	48	672
25	99.5	160	145	0.004	9	137
24	97	657	572	0.016	37	561

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
23	92.5	842	684	0.020	44	720
22	89.5	171	132	0.004	8	146
21	87	1,573	1,168	0.033	75	1,345
20	84.2083	633	448	0.013	29	542
19	81.7083	892	603	0.017	39	762
18	77.5	1,336	835	0.024	53	1,142
17	72.5	1,373	778	0.022	50	1,174
16	67.5	1,410	718	0.020	46	1,205
15	62.5	1,446	658	0.019	42	1,237
14	57.5	1,483	596	0.017	38	1,268
13	52.5	1,520	534	0.015	34	1,300
12	49	618	196	0.006	13	529
11	46.5	1,965	577	0.016	37	1,680
10	43	2,666	697	0.020	45	2,280
9	40.5	386	92	0.003	6	330
8	37.5	1,959	418	0.012	27	1,675
7	32.5	2,005	347	0.010	22	1,714
6	27.5	2,051	277	0.008	18	1,754
5	22.5	2,097	210	0.006	13	1,793
4	17.5	2,143	148	0.004	9	1,833
3	12.5	2,190	92	0.003	6	1,872
2	7.5	2,236	44	0.001	3	1,911
1	2.5	2,282	9	0.000	1	1,951
Kaelus DBC0051F3V51-2	130	74	100	0.003	6	64
Raycap DC6-48-60-18-8F	130	40	54	0.002	3	34
Raycap DC6-48-60-18-8F	130	20	27	0.001	2	17
Ericsson RRUS 8843 B2, B66A	130	216	290	0.008	19	185
Ericsson RRUS 4426 B66	130	145	195	0.006	13	124
Ericsson RRUS 4478 B14	130	180	242	0.007	15	154
Ericsson RRUS 4449 B5, B12	130	142	191	0.006	12	121
Ericsson RRUS 32 B2	130	106	143	0.004	9	91
Ericsson RRUS 11 B12	130	101	136	0.004	9	87
Ericsson RRUS 11 B12	110	203	213	0.006	14	173
Ericsson RRUS 11 B5	130	152	205	0.006	13	130
Ericsson RRUS 12 B5 w/ Solar Shield	130	116	156	0.004	10	99
Ericsson RRUS E2 B29	130	180	242	0.007	15	154
Ericsson RRUS-32 B30 (77 lbs)	130	231	311	0.009	20	198
Raycap DC9-48-60-24-8C-EV	130	16	22	0.001	1	14
CCI OPA-65R-LCUU-H8 (92.7")	130	264	355	0.010	23	226
CCI HPA-65R-BUU-H8	130	340	457	0.013	29	291
Matsing MBA-3.2-H4-L4	130	130	175	0.005	11	111
CCI DMP65R-BU8D	130	287	386	0.011	25	245
Generic Flat Platform with Handrails	130	2,500	3,362	0.096	215	2,137
Generic Flat Platform with Handrails	120	2,500	2,986	0.085	191	2,137
PCTEL GPS-TMG-HR-26N	120	1	1	0.000	0	1
DragonWave Airpair (Radio-7.5" diameter)	120	21	25	0.001	2	18
RFS IBC1900BB-1	120	66	79	0.002	5	56
RFS IBC1900HG-2A	120	66	79	0.002	5	56
Motorola PTP-600	120	12	14	0.000	1	10
MTI Wireless Edge MT-485025/NVH	120	6	7	0.000	0	5
Alcatel-Lucent 800 MHz RRH	120	159	190	0.005	12	136
Alcatel-Lucent 1900MHz RRH (65MHz) w/ solar shield	120	360	430	0.012	28	308
Generic Nilko 500mm x 500mm x 600 mm BTS	120	90	107	0.003	7	77
Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield	120	210	251	0.007	16	180
Commscope VHLP2-18-1WH/C	120	51	61	0.002	4	44
RFS APXVTM14-ALU-I20	120	169	201	0.006	13	144
Generic Mount Reinforcement	120	200	239	0.007	15	171
RFS APXVSPP18-C-A20 (62 lbs)	120	186	222	0.006	14	159
Ericsson Radio 4478 B71	110	240	252	0.007	16	205
Ericsson RRUS 11 B4	110	203	213	0.006	14	173
Ericsson AIR32 B4A B2P	110	423	444	0.013	28	362
Andrew DBXNH-6565B-A2M	110	185	194	0.006	12	158
RFS APXVAA24_43-U-A20	110	406	426	0.012	27	347
Generic Square Platform with Handrails	110	3,790	3,980	0.114	255	3,240
Fujitsu TA08025-B604	99	192	172	0.005	11	164
Raycap RDIDC-3045-PF-48	99	22	20	0.001	1	19
JMA Wireless MX08FRO665-21	99	194	174	0.005	11	165
Generic Round Sector Frame	99	900	809	0.023	52	769

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
		56,846	35,026	1.000	2,243	48,602

1.2D + 1.0Ev + 1.0Eh Normal **Seismic**

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-67.93	-2.24	0.00	-230.89	0.00	230.89	9,304.68	2,206.31	12,630	12,109.07	0.00	0.00	0.03
5.00	-65.15	-2.25	0.00	-219.67	0.00	219.67	9,138.75	2,158.76	12,092	11,634.30	0.00	-0.01	0.03
10.00	-62.42	-2.25	0.00	-208.43	0.00	208.43	8,937.45	2,111.21	11,565	11,124.92	0.01	-0.01	0.03
15.00	-59.75	-2.24	0.00	-197.20	0.00	197.20	8,736.16	2,063.66	11,050	10,626.94	0.02	-0.02	0.03
20.00	-57.14	-2.23	0.00	-185.99	0.00	185.99	8,534.86	2,016.11	10,547	10,140.36	0.04	-0.02	0.03
25.00	-54.59	-2.22	0.00	-174.82	0.00	174.82	8,333.57	1,968.56	10,055	9,665.19	0.07	-0.03	0.03
30.00	-52.09	-2.20	0.00	-163.72	0.00	163.72	8,132.27	1,921.01	9,575	9,201.41	0.10	-0.03	0.02
35.00	-49.65	-2.18	0.00	-152.72	0.00	152.72	7,930.97	1,873.46	9,107	8,749.05	0.13	-0.04	0.02
40.00	-49.17	-2.17	0.00	-141.83	0.00	141.83	7,729.68	1,825.91	8,651	8,308.08	0.17	-0.04	0.02
41.00	-45.85	-2.13	0.00	-139.66	0.00	139.66	7,689.42	1,816.40	8,561	8,221.26	0.18	-0.04	0.02
45.00	-43.41	-2.09	0.00	-131.14	0.00	131.14	7,528.38	1,778.36	8,206	7,878.52	0.22	-0.05	0.02
48.00	-42.64	-2.08	0.00	-124.87	0.00	124.87	6,014.85	1,431.19	6,643	6,347.94	0.25	-0.05	0.03
50.00	-40.74	-2.05	0.00	-120.70	0.00	120.70	5,967.36	1,415.98	6,503	6,230.22	0.27	-0.05	0.03
55.00	-38.90	-2.01	0.00	-110.46	0.00	110.46	5,833.27	1,377.94	6,158	5,925.03	0.33	-0.06	0.03
60.00	-37.10	-1.97	0.00	-100.39	0.00	100.39	5,672.24	1,339.90	5,823	5,600.81	0.40	-0.07	0.02
65.00	-35.34	-1.93	0.00	-90.53	0.00	90.53	5,511.20	1,301.86	5,497	5,285.72	0.47	-0.07	0.02
70.00	-33.63	-1.88	0.00	-80.89	0.00	80.89	5,350.16	1,263.82	5,180	4,979.75	0.55	-0.08	0.02
75.00	-31.97	-1.83	0.00	-71.49	0.00	71.49	5,189.13	1,225.78	4,873	4,682.90	0.63	-0.08	0.02
80.00	-30.86	-1.79	0.00	-62.35	0.00	62.35	5,028.09	1,187.74	4,576	4,395.18	0.72	-0.09	0.02
83.42	-30.07	-1.76	0.00	-56.23	0.00	56.23	4,918.05	1,161.74	4,378	4,203.82	0.78	-0.09	0.02
85.00	-28.11	-1.68	0.00	-53.45	0.00	53.45	4,867.06	1,149.70	4,287	4,116.58	0.82	-0.09	0.02
89.00	-27.90	-1.68	0.00	-46.71	0.00	46.71	2,783.63	713.68	2,643	2,348.85	0.90	-0.10	0.03
90.00	-26.85	-1.63	0.00	-45.03	0.00	45.03	2,771.67	708.93	2,608	2,323.06	0.92	-0.10	0.03
95.00	-26.03	-1.60	0.00	-36.86	0.00	36.86	2,710.57	685.15	2,436	2,195.08	1.02	-0.11	0.03
99.00	-24.21	-1.51	0.00	-30.47	0.00	30.47	2,660.10	666.13	2,303	2,093.93	1.12	-0.11	0.02
100.00	-23.23	-1.46	0.00	-28.96	0.00	28.96	2,647.26	661.38	2,270	2,068.83	1.14	-0.11	0.02
105.00	-22.64	-1.43	0.00	-21.64	0.00	21.64	2,581.73	637.60	2,110	1,944.50	1.26	-0.12	0.02
108.08	-22.05	-1.40	0.00	-17.22	0.00	17.22	2,540.22	622.94	2,014	1,868.87	1.34	-0.12	0.02
110.00	-14.39	-0.97	0.00	-14.54	0.00	14.54	2,514.00	613.83	1,955	1,822.28	1.38	-0.12	0.01
112.92	-14.08	-0.95	0.00	-11.71	0.00	11.71	1,856.34	487.80	1,543	1,338.93	1.46	-0.12	0.02
115.00	-13.35	-0.91	0.00	-9.72	0.00	9.72	1,837.80	479.88	1,494	1,303.87	1.51	-0.12	0.02
120.00	-7.58	-0.54	0.00	-5.18	0.00	5.18	1,791.74	460.86	1,378	1,220.44	1.65	-0.13	0.01
125.00	-6.92	-0.50	0.00	-2.48	0.00	2.48	1,743.46	441.84	1,266	1,138.18	1.78	-0.13	0.01
130.00	0.00	0.00	0.00	0.00	0.00	0.00	1,692.98	422.82	1,160	1,057.27	1.92	-0.13	0.00
134.00	0.00	0.00	0.00	0.00	0.00	0.00	1,651.00	407.60	1,078	993.65	2.02	-0.13	0.00

0.9D - 1.0Ev + 1.0Eh Normal **Seismic (Reduced DL)**

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-46.65	-2.24	0.00	-229.50	0.00	229.50	9,304.68	2,206.31	12,630	12,109.07	0.00	0.00	0.02
5.00	-44.74	-2.24	0.00	-218.28	0.00	218.28	9,138.75	2,158.76	12,092	11,634.30	0.00	0.00	0.02
10.00	-42.87	-2.24	0.00	-207.05	0.00	207.05	8,937.45	2,111.21	11,565	11,124.92	0.01	-0.01	0.02
15.00	-41.03	-2.24	0.00	-195.84	0.00	195.84	8,736.16	2,063.66	11,050	10,626.94	0.02	-0.02	0.02
20.00	-39.24	-2.23	0.00	-184.66	0.00	184.66	8,534.86	2,016.11	10,547	10,140.36	0.04	-0.02	0.02
25.00	-37.49	-2.21	0.00	-173.53	0.00	173.53	8,333.57	1,968.56	10,055	9,665.19	0.07	-0.03	0.02
30.00	-35.77	-2.19	0.00	-162.48	0.00	162.48	8,132.27	1,921.01	9,575	9,201.41	0.10	-0.03	0.02
35.00	-34.10	-2.17	0.00	-151.52	0.00	151.52	7,930.97	1,873.46	9,107	8,749.05	0.13	-0.04	0.02
40.00	-33.77	-2.16	0.00	-140.69	0.00	140.69	7,729.68	1,825.91	8,651	8,308.08	0.17	-0.04	0.02
41.00	-31.49	-2.12	0.00	-138.53	0.00	138.53	7,689.42	1,816.40	8,561	8,221.26	0.18	-0.04	0.02
45.00	-29.81	-2.08	0.00	-130.06	0.00	130.06	7,528.38	1,778.36	8,206	7,878.52	0.22	-0.05	0.02
48.00	-29.28	-2.07	0.00	-123.81	0.00	123.81	6,014.85	1,431.19	6,643	6,347.94	0.25	-0.05	0.02
50.00	-27.98	-2.04	0.00	-119.67	0.00	119.67	5,967.36	1,415.98	6,503	6,230.22	0.27	-0.05	0.02
55.00	-26.71	-2.00	0.00	-109.49	0.00	109.49	5,833.27	1,377.94	6,158	5,925.03	0.33	-0.06	0.02

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
60.00	-25.47	-1.96	0.00	-99.49	0.00	99.49	5,672.24	1,339.90	5,823	5,600.81	0.39	-0.06	0.02
65.00	-24.27	-1.91	0.00	-89.70	0.00	89.70	5,511.20	1,301.86	5,497	5,285.72	0.46	-0.07	0.02
70.00	-23.10	-1.87	0.00	-80.13	0.00	80.13	5,350.16	1,263.82	5,180	4,979.75	0.54	-0.08	0.02
75.00	-21.95	-1.81	0.00	-70.80	0.00	70.80	5,189.13	1,225.78	4,873	4,682.90	0.63	-0.08	0.02
80.00	-21.19	-1.77	0.00	-61.74	0.00	61.74	5,028.09	1,187.74	4,576	4,395.18	0.71	-0.09	0.02
83.42	-20.65	-1.75	0.00	-55.68	0.00	55.68	4,918.05	1,161.74	4,378	4,203.82	0.78	-0.09	0.02
85.00	-19.30	-1.67	0.00	-52.92	0.00	52.92	4,867.06	1,149.70	4,287	4,116.58	0.81	-0.09	0.02
89.00	-19.16	-1.66	0.00	-46.24	0.00	46.24	2,783.63	713.68	2,643	2,348.85	0.89	-0.10	0.03
90.00	-18.44	-1.62	0.00	-44.58	0.00	44.58	2,771.67	708.93	2,608	2,323.06	0.91	-0.10	0.03
95.00	-17.88	-1.58	0.00	-36.49	0.00	36.49	2,710.57	685.15	2,436	2,195.08	1.02	-0.10	0.02
99.00	-16.62	-1.50	0.00	-30.16	0.00	30.16	2,660.10	666.13	2,303	2,093.93	1.11	-0.11	0.02
100.00	-15.95	-1.45	0.00	-28.66	0.00	28.66	2,647.26	661.38	2,270	2,068.83	1.13	-0.11	0.02
105.00	-15.55	-1.42	0.00	-21.42	0.00	21.42	2,581.73	637.60	2,110	1,944.50	1.25	-0.12	0.02
108.08	-15.14	-1.39	0.00	-17.05	0.00	17.05	2,540.22	622.94	2,014	1,868.87	1.33	-0.12	0.02
110.00	-9.88	-0.96	0.00	-14.39	0.00	14.39	2,514.00	613.83	1,955	1,822.28	1.37	-0.12	0.01
112.92	-9.67	-0.94	0.00	-11.59	0.00	11.59	1,856.34	487.80	1,543	1,338.93	1.45	-0.12	0.01
115.00	-9.17	-0.90	0.00	-9.62	0.00	9.62	1,837.80	479.88	1,494	1,303.87	1.50	-0.12	0.01
120.00	-5.20	-0.53	0.00	-5.12	0.00	5.12	1,791.74	460.86	1,378	1,220.44	1.63	-0.13	0.01
125.00	-4.75	-0.49	0.00	-2.45	0.00	2.45	1,743.46	441.84	1,266	1,138.18	1.77	-0.13	0.01
130.00	0.00	0.00	0.00	0.00	0.00	0.00	1,692.98	422.82	1,160	1,057.27	1.90	-0.13	0.00
134.00	0.00	0.00	0.00	0.00	0.00	0.00	1,651.00	407.60	1,078	993.65	2.01	-0.13	0.00

ANALYSIS SUMMARY

	Reactions						Max Usage	
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.0W Normal	30.27	0.00	68.20	0.00	0.00	3010.31	89.00	0.28
0.9D + 1.0W Normal	30.26	0.00	51.14	0.00	0.00	2995.42	89.00	0.28
1.2D + 1.0Di + 1.0Wi Normal	8.02	0.00	87.89	0.00	0.00	776.74	89.00	0.08
1.2D + 1.0Ev + 1.0Eh Normal	2.25	0.00	67.93	0.00	0.00	230.89	89.00	0.03
0.9D - 1.0Ev + 1.0Eh Normal	2.24	0.00	46.65	0.00	0.00	229.50	89.00	0.03
1.0D + 1.0W Service Normal	6.88	0.00	56.84	0.00	0.00	682.55	89.00	0.07

Existing and Reserved Equipment

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
120.0	1	PCTEL GPS-TMG-HR-26N	Triangular Platform with Handrails and Kickers	(4) 1 1/4" Hybriflex Cable (5) 1/2" Coax (6) 5/16" (0.31"-7.9mm) Coax	SPRINT NEXTEL
	3	RFS APXVSPP18-C-A20 (62 lbs)			
	3	RFS APXVTM14-ALU-I20			
	3	Commscope VHLP2-18-1WH/C			
	3	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield			
	3	Generic Nilko 500mm x 500mm x 600 mm BTS			
	3	DragonWave Airpair (Radio-7.5" diameter)			
	3	RFS IBC1900HG-2A			
	3	RFS IBC1900BB-1			
	1	Motorola PTP-600			
	1	MTI Wireless Edge MT-485025/NVH			
	3	Alcatel-Lucent 800 MHz RRH			
	6	Alcatel-Lucent 1900MHz RRH (65MHz) w/ solar shield			
110.0	4	Ericsson RRUS 11 B12	Square Platform with Handrails	(4) 1 5/8" Hybriflex	T-MOBILE
	4	Ericsson RRUS 11 B4			
	4	Ericsson Radio 4478 B71			
	4	Andrew DBXNH-6565B-A2M			
	4	Ericsson AIR32 B4A B2P			
	4	RFS APXVAA24_43-U-A20			

Equipment to be Removed

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
No loading was considered as removed as part of this analysis.					

Proposed Equipment

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
99.0	1	Raycap RDIDC-9181-PF-48	Triangular Platform with Handrails	(1) 1.63" (41.3mm) Hybrid	DISH WIRELESS L.L.C.
	3	Fujitsu TA08025-B605			
	3	Fujitsu TA08025-B604			
	3	JMA Wireless MX08FRO665-21			

[1] Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Install proposed lines inside the pole shaft.

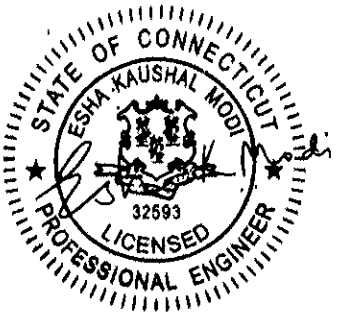
AMERICAN TOWER®
CORPORATION

Structural Evaluation

ATC Site Number & Name	**210747** **Evergreen Street CT, CT**
Carrier Site Number & Name	**NJJER01163A** **NJJER01163A**
Site Location	220 Evergreen Street Bridgeport, CT 06606, Fairfield County 41.1978 N / 73.1908 W
Tower Description	**128 ft Monopole**
Basic Wind Speed Basic Wind w/ Ice Applicable Code	119 mph (3-second gust) 50 mph (3-second gust) w/1" radical ice concurrent ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code

Evaluation Results:
The loading in the tables below was evaluated with respect to the tower and foundation capacities. As future loading is added, or if actual loading is different from these tables, re-evaluation shall be required. This tower and foundation ***are adequate*** to support the below loads in conformance with specified requirements.

Reviewed By:



Created By: Stevennedrud

Existing and Reserved Equipment

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
130.0	6	Kaelus DBC0051F3V51-2	Triangular Platform with Handrails	(2) 0.39" (10mm) Fiber Trunk (8) 0.78" (19.7mm) 8 AWG 6 (1) 0.96" (24.3mm) Cable (4) 2" conduit (3) 3/8" (0.38"-9.5mm) RET Control Cable	AT&T MOBILITY
	3	CCI DMP65R-BU8D			
	3	Ericsson RRUS 8843 B2, B66A			
	3	Ericsson RRUS 4426 B66			
	3	Ericsson RRUS 4478 B14			
	2	Ericsson RRUS 4449 B5, B12			
	2	Ericsson RRUS 32 B2			
	2	Ericsson RRUS 11 B12			
	3	Ericsson RRUS 11 B5			
	2	Ericsson RRUS 12 B5 w/ Solar Shield			
	3	Ericsson RRUS E2 B29			
	3	Ericsson RRUS-32 B30 (77 lbs)			
	1	Raycap DC9-48-60-24-8C-EV			
	3	CCI OPA-65R-LCUU-H8 (92.7")			
	5	CCI HPA-65R-BUU-H8			
	1	Matsing MBA-3.2-H4-L4			
	3	Raycap DC6-48-60-18-8F			

Exhibit E

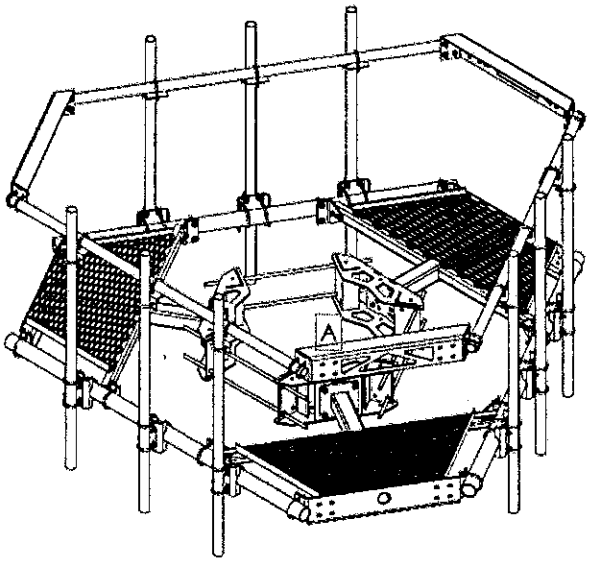
Mount Analysis

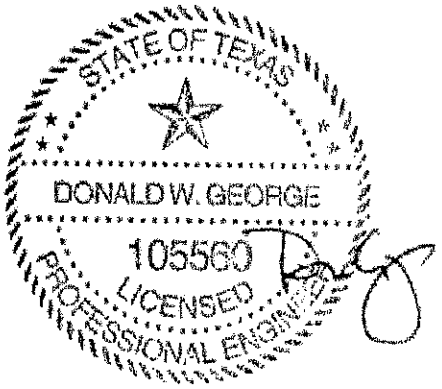
COMMSCOPE®

MONOPOLE PLATFORM

MC-PK8-C

STRUCTURAL ANALYSIS REPORT





Date: 2/18/2021

CommScope Inc.

11312 S. Pipeline Road

Euless, TX 76040

Steel Products (SteelProducts@commscope.com)

COMMSCOPE®

1 SUMMARY

Analysis of monopole platform was performed to determine the structural integrity of mounting system with the proposed loads. The purpose of the analysis is to determine acceptability of the mount stress level.

2 DESIGN CRITERIA

TIA Standard	ANSI/TIA-222-G and ANSI/TIA-222-H
Wind Speed	140 mph (3-Second Gust, VASD) / 180 mph (3-Second Gust, VULT)
Wind Speed w/ ice	60 mph (3-Second Gust, VASD) w/ 2" ice
Structure Class	I or II
Exposure Category	B or C
Topographic Category	1
Max. Mount Height	175ft
*Antenna Information	(1)JMA MX08FIT865-20 & (2)Fujitsu RRU / Each Antenna Pipe
Mount Material	CommScope mount material are using mill certified steel with minimum or exceeding the following ASTM specification.
Round Pipe/Tube Rectangular/Square Tube Solid Rod Angles	ASTM A500 Grade C (46Ksi) ASTM A500 Grade C (46 Ksi) ASTM A529 (50 Ksi) ASTM A529 (50 Ksi)

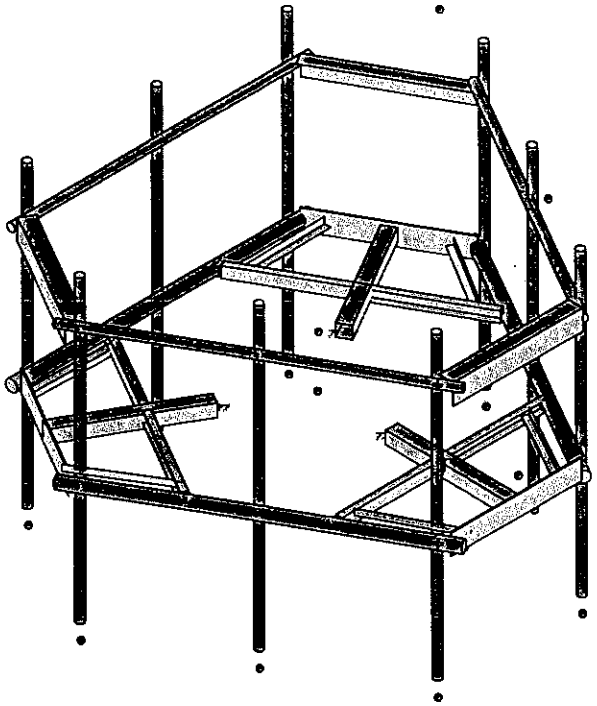
*Loaded two antenna pipe position per sector. For three antenna positions per sector, upgrade antenna pipes to 27/8" OD
** Code allowed shielding considered

3 ANALYSIS PROCEDURE

RISA-3D (Version No. 17.0.0), a commercially available software package, was used to create a three-dimensional model of the mount and calculate member stresses for various loading cases.

4 ANALYSIS RESULTS

The mount model MC-PK8-C when installed as per instruction listed in assembly drawing has sufficient capacity to carry above mentioned equipment loads with stated design criteria without the need for additional structural supporting/ modification.



Envelope Only Solution

CommScope	MC-PK8-C	Rendered View
		Feb 3, 2021 at 2:26 PM
		MC-PK8.r3d

JMA WIRELESS

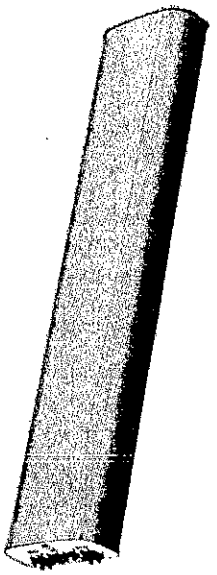
MX08FIT865-20

NWAV™ X-Pol 8-Port Antenna

X-Pol 8-Port 8 ft 65° with Smart Bias-Ts:

4 ports 617-894 MHz and 4 ports 1695-2200 MHz

- Excellent passive intermodulation (PIM) performance reduces harmful interference.
- Fully integrated (iRETs) with Smart Bias-Ts & independent RET control for low and high bands for ease of network optimization
- SON-Ready array spacing supports beamforming capabilities.
- High total power handling to maximize network efficiency
- Supports 4X4 MIMO in all bands



nWAV

Electrical specification (minimum/maximum)	Ports 1, 2, 3, 4		Ports 5, 6, 7, 8		
Frequency bands, MHz	617-698	698-894	1695-1880	1850-1990	1920-2200
Polarization	± 45°		± 45°		
Average gain over all tilts, dBi	15.3	16.1	17.5	17.8	18.6
Horizontal beamwidth (HBW), degrees[1]	68	62	69	66	62
Front-to-back ratio, co-polar power @180°± 30°, dB	>27	>29	>30	>30	>30
Vertical beamwidth (VBW), degrees[1]	10.3	8.8	5.4	5.2	4.9
Electrical downtilt (EDT) range, degrees	2-13		2-12		
First upper side lobe (USLS) suppression, dB[1]	≤-18.0	≤-16.5	≤-18.0	≤-18.0	≤-20.0
Minimum cross-polar isolation, port-to-port, dB[1]	25	25	25	25	25
Max VSWR / return loss, dB	1.5:1 / -14.0		1.5:1 / -14.0		
Max passive intermodulation (PIM), 2x20W carrier, dBc	-153		-153		
Max input power per any port, watts	300		250		
Total composite power all ports (1-12), watts	1500				

[1] Typical value over frequency and tilt

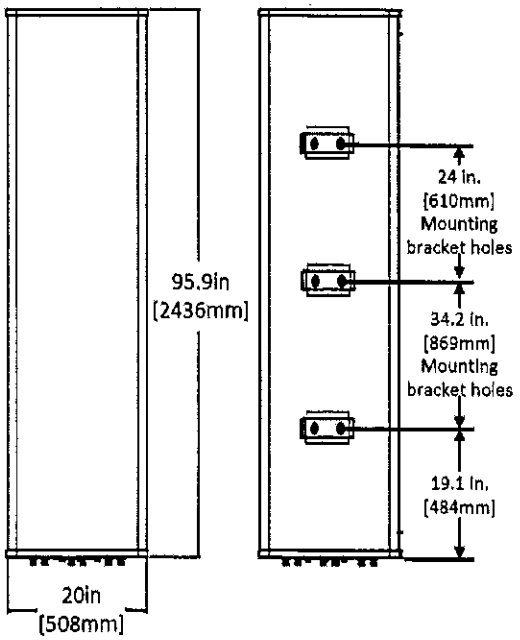
MX08FIT865-20 *NWAV™*

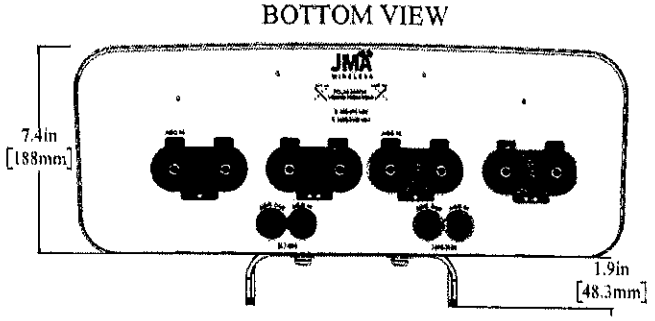
X-Pol 8-Port Antenna

Electrical specification (minimum/maximum)	Ports 1, 2, 3, 4		Ports 5, 6, 7, 8		
Frequency bands, MHz	617-698	698-894	1695-1880	1850-1990	1920-2200
Average gain over all tilts, dBi (Gaine Tolerance)	14.8±0.5	15.7±0.5	17.1±0.4	17.3±0.4	18.2±0.5
Horizontal beamwidth tolerance (HBW), degrees[1]	±5	±4.5	±4.5	±4.0	±5.0
Vertical beamwidth tolerance (VBW), degrees	±0.6	±0.5	±0.5	±0.5	±0.5
Front-to-back ratio, co-polar power @180°± 30°, dB	>27	>25	>25	>26	>24
X-Pol discrimination (CPR) at boresight, dB	>23	>25	>25	>22	>24
First upper side lobe (USLS) suppression boresight to 20°, dB[1]	≤-16	≤-15	≤-16	≤-16	≤-16

Mechanical specifications	
Dimensions height/width/depth, inches (mm)	95.9/ 20.0/ 7.4 (2436/ 508.0/ 188.0)
Shipping dimensions length/width/height, inches (mm)	100.6/ 23.8/ 14.5 (2555/ 605/ 368)
No. of RF input ports, connector type, and location	8 x 4.3-10 female, bottom
RF connector torque	96 lbf·in (10.85 N·m or 8 lbf·ft)
Net antenna weight, lb (kg)	101 (45.8)
Shipping weight, lb (kg)	151 (68.5)
Antenna mounting and downtilt kit included with antenna	91900318, 91900319 (middle bracket)
Net weight of the mounting and downtilt kit, lb (kg)	26 (11.8)
Range of mechanical up/down tilt	-2° to 12°
Rated wind survival speed, mph (km/h)	150 (241)
Frontal, lateral, and rear wind loading @ 150 km/h, lbf (N)	247.4 (1101), 55.3 (246), 373.7 (1662)
Equivalent flat plate @ 100 mph and Cd=2, sq ft	4.98

Front view **Back view** **Bottom view**





MX08FIT865-20 *NWAV™*

X-Pol 8-Port Antenna

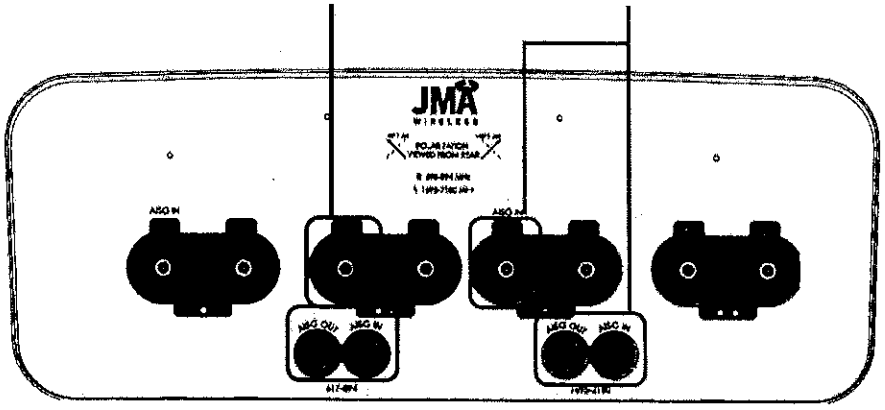
Remote electrical tilt (RET 1000) information	
RET location	Integrated into antenna
RET interface connector type	8-pin AISG connector per IEC 60130-9 or RF port bias-t
RET connector torque	Min 0.5 N·m to max 1.0 N·m (hand pressure & finger tight)
RET interface connector quantity	2 pairs of AISG male/female connectors and 2 RF port bias-ts
RET interface connector location	Bottom of the antenna
Total no. of internal RETs 698-894 MHz	1
Total no. of internal RETs 1695-2200 MHz	1
RET input operating voltage, vdc	10-30
RET max power consumption, idle state, W	≤ 2.0
RET max power consumption, normal operating conditions, W	≤ 13.0
RET communication protocol	AISG 2.0 / 3GPP

RET and RF connector topology

Each RET device can be controlled either via the designated external AISG connector or RF port as shown below:

Band	RF port
617-894	1-4

Band	RF port
1695-2200	5-8

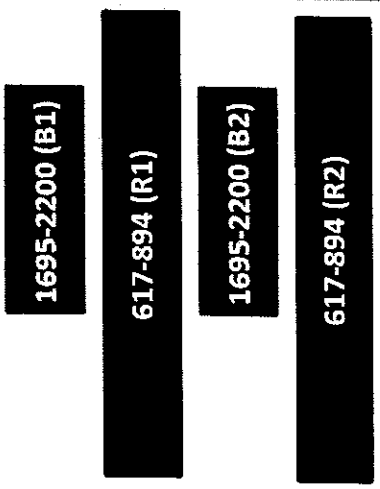


Array topology

6 sets of radiating arrays

R1: 617-894 MHz
R2: 617-894 MHz
B1: 1695-2200 MHz
B2: 1695-2200 MHz

Band	RF port
617-894	1-2
617-894	3-4
1695-2200	5-6
1695-2200	7-8



Fujitsu – DiSH Triple-band RU Technical Specifications

RU General Specification	
Part number	TA08025-B605
TRX Configuration	4T4R
Operating Frequency	n71 & n29 & n26 Frequencies (Triple-Band)
Instantaneous Bandwidth	n71: 35MHz n29: 11MHz n26: 7MHz
Operation Bandwidth (3GPP)	n71: 35MHz n29: 10MHz n26: 5MHz
CC BW	5/10/20 MHz
Capacity	n71:2Cr(5/10/20MHz)/NB-IOT n26:1Cr(5MHz)/NB-IOT n29:2Cr(5/10MHz)
Interface to DU	ORAN 7.2x / 10G optical IF
TX Specification	
Output Power per TX	n71: 30W per port n29: 40W per port n26: 10 W per port
ACLR	Compliant with 3GPP TS 38.104
Transmitter Spurious Emissions	Compliant with 3GPP TS 38.104
EVM	Compliant with 3GPP TS 38.104
RX Specification	
Noise Figure	2.5dB (normal condition 2.2dB)
Blocking Features	Compliant with 3GPP TS 38.104
Receiver spurious emissions	Compliant with 3GPP TS 38.104
Mechanical Specification	
Volume	35 L
Dimension	W:400mm, H: 380mm, D: 230mm
Antenna Connector Type	4.3-10 RF connector
Antenna Control Interface	AISG
Power Supply	DC -58~-36V
Power Consumption	<1300W
Weight	34 kg
Environmental	
Humidity (Absolute humidity)	0.03 g/m3 ~30 g/m3
Atmospheric Pressure	Between 70 kPa and 106 kPa
Operating Temperature	-40°C ~ +55°C
IP Rating	IP65
Cooling	Passive

Mounting Options	
Pole	TBD
Wall	TBD

Exhibit F

Emissions Report

Exhibit F

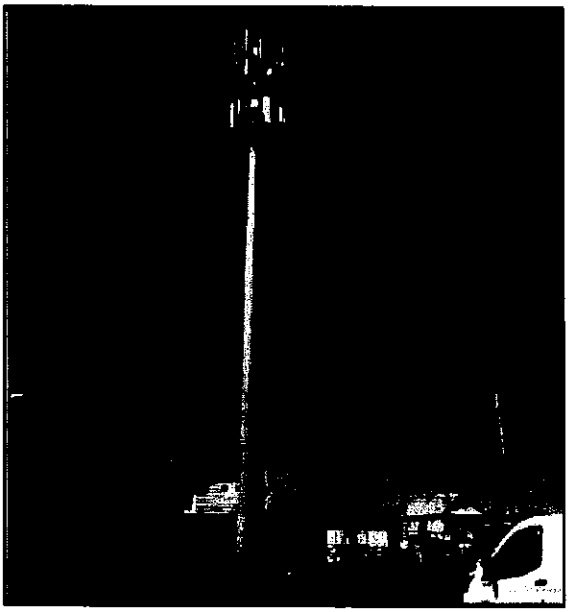
Emissions Report

Pinnacle Telecom Group

Professional and Technical Services

Telecom Consulting

Antenna Site FCC RF Compliance Assessment and Report for Municipal Submission



Prepared for:	Dish Wireless, LLC
Site ID:	NJJER01163A
Site Address:	220 Evergreen Street Bridgeport, CT
Latitude:	N 41.197775
Longitude:	W 73.190689
Structure type:	Monopole
Report date:	December 9, 2021
Compliance Conclusion:	Dish Wireless, LLC will be in compliance with the rules and regulations as described in OET Bulletin 65, following the implementation of the proposed mitigation as detailed in the report.

14 Ridgedale Avenue - Suite 260 • Cedar Knolls, NJ 07927 • 973-451-1630

Contents

Introduction and Summary

At the request of Dish Wireless, LLC ("Dish"), Pinnacle Telecom Group has performed an independent expert assessment of radiofrequency (RF) levels and related FCC compliance for proposed wireless base station antenna operations on an existing monopole located at 220 Evergreen Street in Bridgeport, CT. Dish refers to the antenna site by the code "NJJER01163A", and its proposed operation involves directional panel antennas and transmission in the 600 MHz, 2000 MHz, and 2100 MHz frequency bands licensed to it by the FCC.

The FCC requires all wireless antenna operators to perform an assessment of potential human exposure to radiofrequency (RF) fields emanating from all the transmitting antennas at a site whenever antenna operations are added or modified, and to ensure compliance with the Maximum Permissible Exposure (MPE) limit in the FCC's regulations. In this case, the compliance assessment needs to take into account the RF effects of other existing antenna operations at the site by AT&T, Sprint, and T-Mobile. Note that FCC regulations require any future antenna collocators to assess and assure continuing compliance based on the cumulative effects of all then-proposed and then-existing antennas at the site.

This report describes a mathematical analysis of RF levels resulting around the site in areas of unrestricted public access, that is, at street level around the site. The compliance analysis employs a standard FCC formula for calculating the effects of the antennas in a very conservative manner, in order to overstate the RF levels and to ensure "safe-side" conclusions regarding compliance with the FCC limit for safe continuous exposure of the general public.

The results of a compliance assessment can be described in layman's terms by expressing the calculated RF levels as simple percentages of the FCC MPE limit. If the normalized reference for that limit is 100 percent, then calculated RF levels higher than 100 percent indicate the MPE limit is exceeded and there is a need to mitigate the potential exposure. On the other hand, calculated RF levels consistently below 100 percent serve as a clear and sufficient demonstration of compliance with the MPE limit. We can (and will) also describe the overall worst-case result via the "plain-English" equivalent "times-below-the-limit" factor.

The result of the RF compliance assessment in this case is as follows:

- At street level, the conservatively calculated maximum RF level from the combination of proposed and existing antenna operations at the site is 4.8092 percent of the FCC general population MPE limit – well below the 100-percent reference for compliance. In other words, the worst-case calculated RF level – intentionally and significantly overstated by the calculations – is still more than 20 times below the FCC limit for safe, continuous exposure of the general public.
- A supplemental analysis of the RF levels at the same height as the Dish antennas indicate that the FCC MPE limit is potentially exceeded. Therefore, it is recommended that two Caution signs be installed six feet below the antennas. In addition, NOC Information signs are to be installed at the base of the monopole.
- The results of the calculations, along with the proposed mitigation, combine to satisfy the FCC requirements and associated guidelines on RF compliance. Moreover, because of the significant conservatism incorporated in the analysis, RF levels actually caused by the antennas will be lower than these calculations indicate.

The remainder of this report provides the following:

- relevant technical data on the proposed Dish antenna operations at the site, as well as on the other existing antenna operations;
- a description of the applicable FCC mathematical model for calculating RF levels, and application of the relevant technical data to that model;
- analysis of the results of the calculations against the FCC MPE limit, and the compliance conclusion for the site.

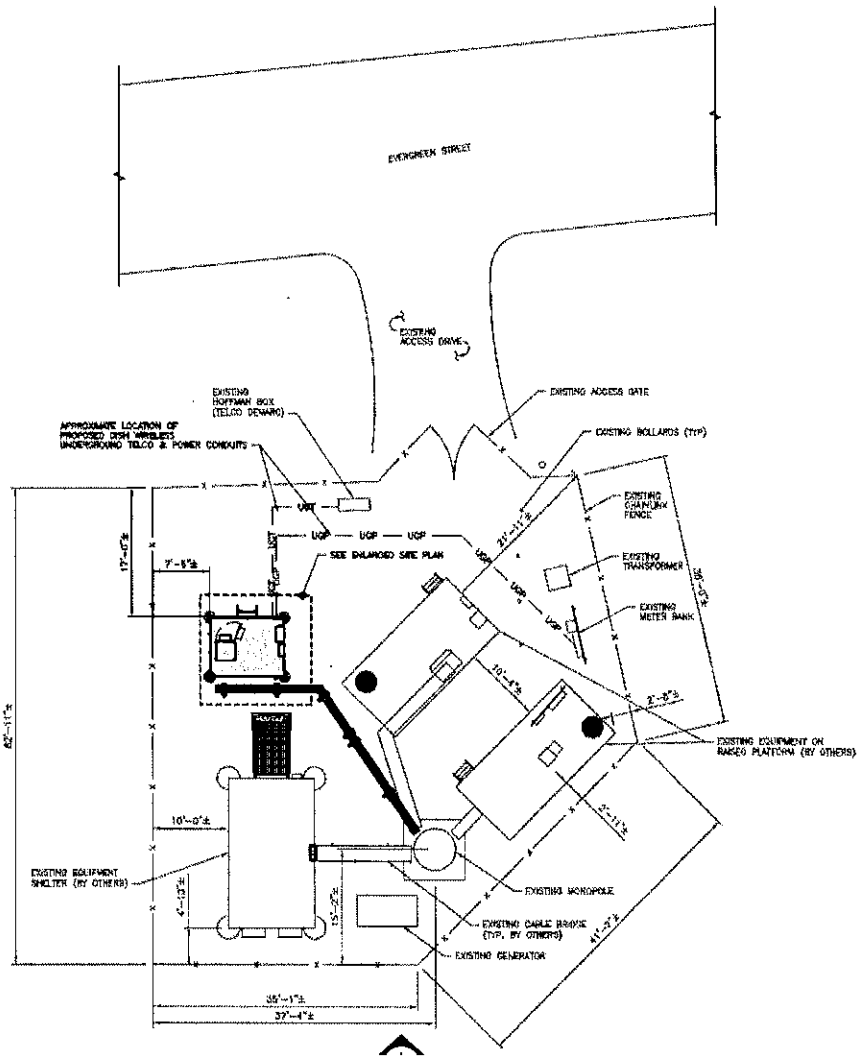
In addition, four Appendices are included. Appendix A provides information on the documents used to prepare the analysis. Appendix B provides background on the FCC MPE limit. Appendix C details the proposed mitigation to satisfy the FCC requirements and associated guidelines on RF compliance. Appendix D provides

a summary of the qualifications of the expert certifying FCC compliance for this site.

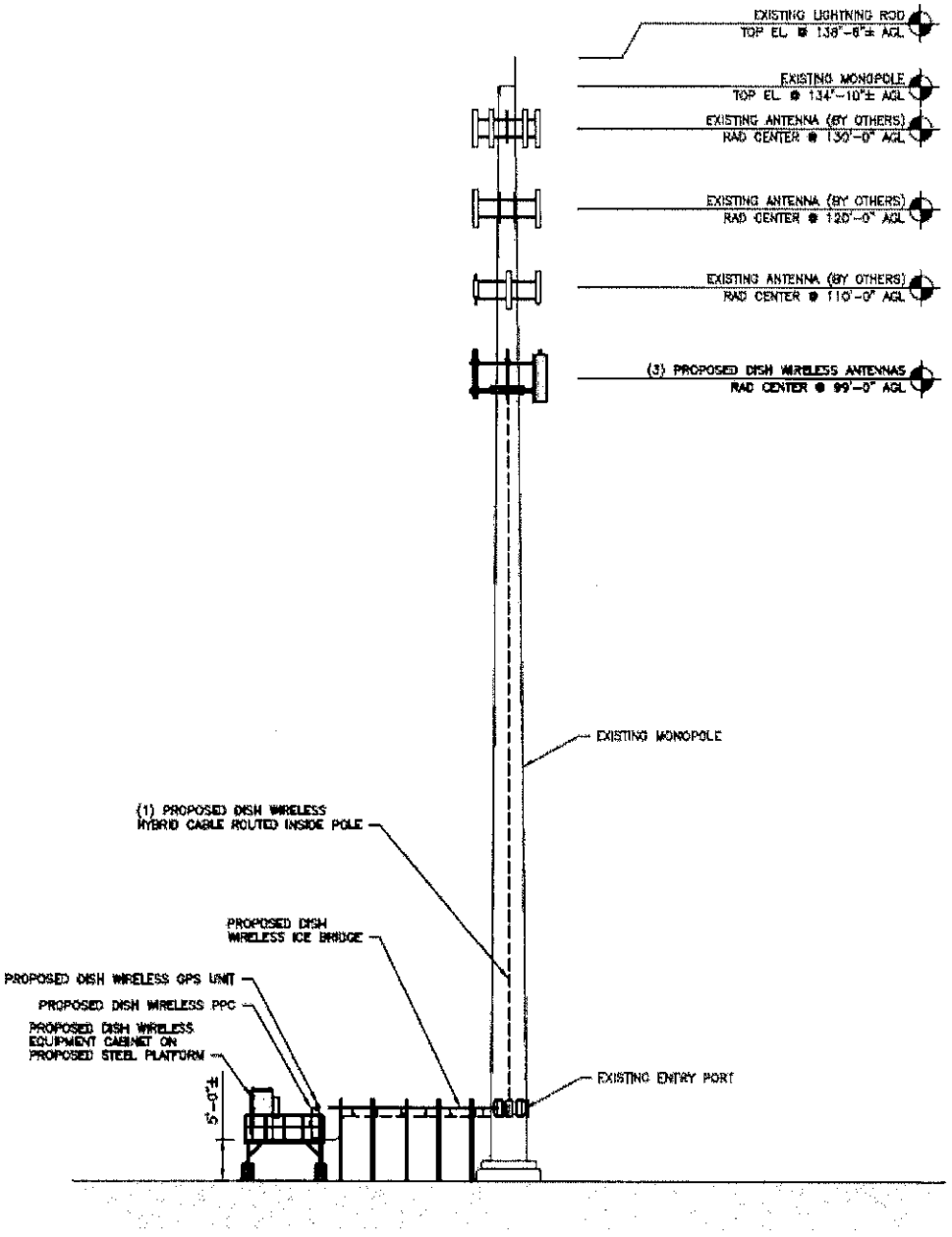
Antenna and Transmission Data

The plan and elevation views that follow, extracted from the site drawings, illustrate the mounting positions of the Dish antennas at the site.

Plan View:



Elevation View:



The table that follows summarizes the relevant data for the proposed Dish antenna operations. Note that the "Z" height references the centerline of the antenna.

Ant. ID	Carrier	Antenna Manufacturer	Antenna Model	Type	Freq (MHz)	Ant. Dim. (ft.)	Total ERP (watts)	Z (ft)	Ant. Gain (dBd)	B/W	Azimuth	EDT	MDT
❶	Dish	JMA Wireless	MX08FRO665-21	Panel	600	6	1637	99	11.46	68	90	2	0
❶	Dish	JMA Wireless	MX08FRO665-21	Panel	2000	6	6011	99	16.16	62	90	2	0
❶	Dish	JMA Wireless	MX08FRO665-21	Panel	2100	6	7567	99	16.66	64	90	2	0
❷	Dish	JMA Wireless	MX08FRO665-21	Panel	600	6	1637	99	11.46	68	200	2	0
❷	Dish	JMA Wireless	MX08FRO665-21	Panel	2000	6	6011	99	16.16	62	200	2	0
❷	Dish	JMA Wireless	MX08FRO665-21	Panel	2100	6	7567	99	16.66	64	200	2	0
❸	Dish	JMA Wireless	MX08FRO665-21	Panel	600	6	1637	99	11.46	68	310	2	0
❸	Dish	JMA Wireless	MX08FRO665-21	Panel	2000	6	6011	99	16.16	62	310	2	0
❸	Dish	JMA Wireless	MX08FRO665-21	Panel	2100	6	7567	99	16.66	64	310	2	0

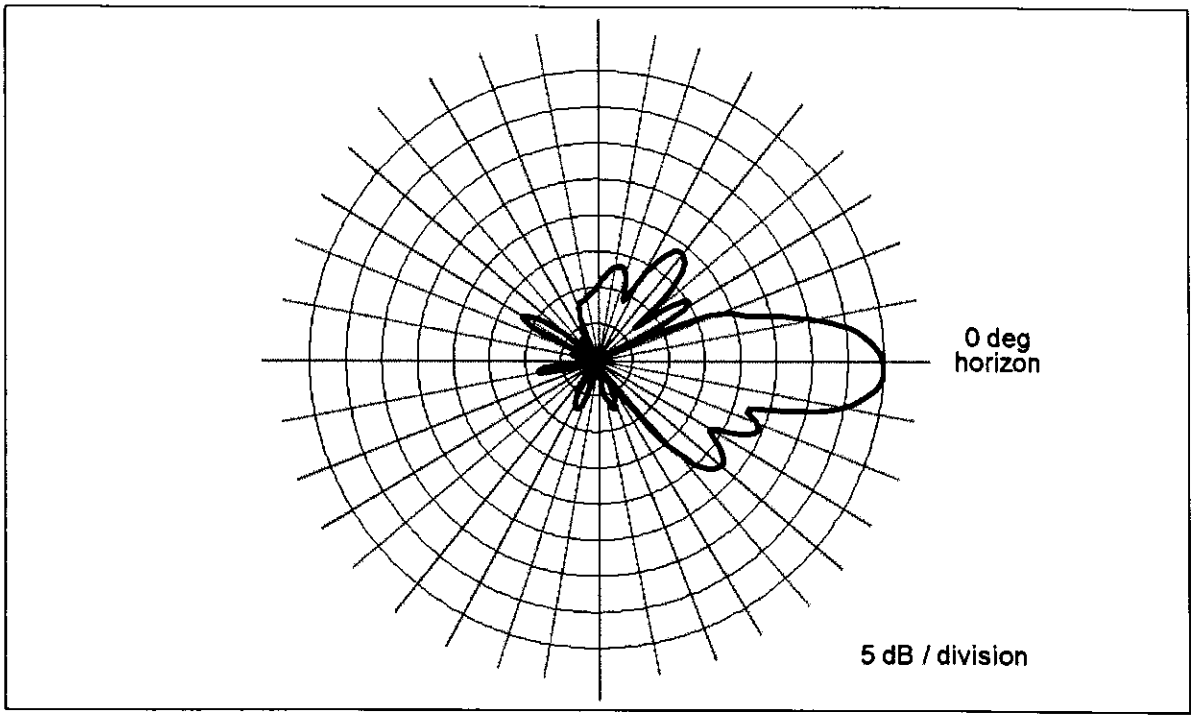
The area below the antennas, at street level, is of interest in terms of potential "uncontrolled" exposure of the general public, so the antenna's vertical-plane emission characteristic is used in the calculations, as it is a key determinant of the relative amount of RF emissions in the "downward" direction.

By way of illustration, Figure 1 that follows shows the vertical-plane radiation pattern of the proposed antenna model in the 600 MHz frequency band. In this type of antenna radiation pattern diagram, the antenna is effectively pointed at the three o'clock position (the horizon) and the relative strength of the pattern at different angles is described using decibel units.

Note that the use of a decibel scale to describe the relative pattern at different angles actually serves to significantly understate the actual focusing effects of the antenna. Where the antenna pattern reads 20 dB the relative RF energy emitted at the corresponding downward angle is 1/100th of the maximum that occurs in the main beam (at 0 degrees); at 30 dB, the energy is only 1/1000th of the maximum.

Finally, note that the automatic pattern-scaling feature of our internal software may skew side-by-side visual comparisons of different antenna models, or even different parties' depictions of the same antenna model.

Figure 1. JMA Wireless MX08FRO665-21 – 600 MHz Vertical-plane Pattern



As noted at the outset, there are other existing wireless antenna operations to include in the compliance assessment. For each of the wireless operators, we will conservatively assume operation with maximum channel capacity and at maximum transmitter power per channel to be used by each wireless operator in each of their respective FCC-licensed frequency bands.

The table that follows summarizes the relevant data for the collocated antenna operations.

Carrier	Antenna Manufacturer	Antenna Model	Type	Freq (MHz)	Total ERP (watts)	Z (AGL) (ft)	Ant. Gain (dBd)	Azimuth
AT&T	Unknown	Unknown	Panel	700	4945	130	11.25	N/A
AT&T	Unknown	Unknown	Panel	850	2400	130	11.76	N/A
AT&T	Unknown	Unknown	Panel	1900	5756	130	15.56	N/A
AT&T	Unknown	Unknown	Panel	2100	5890	130	15.66	N/A
AT&T	Unknown	Unknown	Panel	2300	4131	130	16.16	N/A
Sprint	Unknown	Unknown	Panel	800	2168	120	13.36	N/A
Sprint	Unknown	Unknown	Panel	1900	6168	120	15.86	N/A
Sprint	Unknown	Unknown	Panel	2500	4669	120	15.90	N/A
T-Mobile	Unknown	Unknown	Panel	600	3163	110	12.96	N/A
T-Mobile	Unknown	Unknown	Panel	700	867	110	13.36	N/A
T-Mobile	Unknown	Unknown	Panel	1900	4123	110	15.36	N/A
T-Mobile	Unknown	Unknown	Panel	1900	1452	110	15.60	N/A
T-Mobile	Unknown	Unknown	Panel	2100	4626	110	15.86	N/A
T-Mobile	Unknown	Unknown	Panel	2100	1419	110	15.50	N/A
T-Mobile	Unknown	Unknown	Panel	2500	12804	110	22.35	N/A

Compliance Analysis

FCC Office of Engineering and Technology Bulletin 65 ("OET Bulletin 65") provides guidelines for mathematical models to calculate the RF levels at various points around transmitting antennas. Different models apply in different areas around antennas, with one model applying to street level around a site, and another applying to the area at the same height as the antennas. We will address each area of interest in turn in the subsections that follow.

Street Level Analysis

At street-level around an antenna site (in what is called the "far field" of the antennas), the RF levels are directly proportional to the total antenna input power and the relative antenna gain in the downward direction of interest – and the levels are otherwise inversely proportional to the square of the straight-line distance to the antenna.

Conservative calculations also assume the potential RF exposure is enhanced by reflection of the RF energy from the intervening ground. Our calculations will assume a 100% "perfect", mirror-like reflection, which is the absolute worst-case scenario.

The formula for street-level compliance assessment for any given wireless antenna operation is as follows:

$$MPE\% = (100 * Chans * TxPower * 10^{(Gmax-Vdisc/10)} * 4) / (MPE * 4\pi * R^2)$$

where

MPE%	=	RF level, expressed as a percentage of the MPE limit applicable to continuous exposure of the general public
100	=	factor to convert the raw result to a percentage
Chans	=	maximum number of RF channels per sector
TxPower	=	maximum transmitter power per channel, in milliwatts

$10^{(Gmax-Vdisc/10)}$	=	numeric equivalent of the relative antenna gain in the downward direction of interest; data on the antenna vertical-plane pattern is taken from manufacturer specifications
4	=	factor to account for a 100-percent-efficient energy reflection from the ground, and the squared relationship between RF field strength and power density ($2^2 = 4$)
MPE	=	FCC general population MPE limit
R	=	straight-line distance from the RF source to the point of interest, centimeters

The MPE% calculations are performed out to a distance of 500 feet from the facility to points 6.5 feet (approximately two meters, the FCC-recommended standing height) off the ground, as illustrated in Figure 2, below.

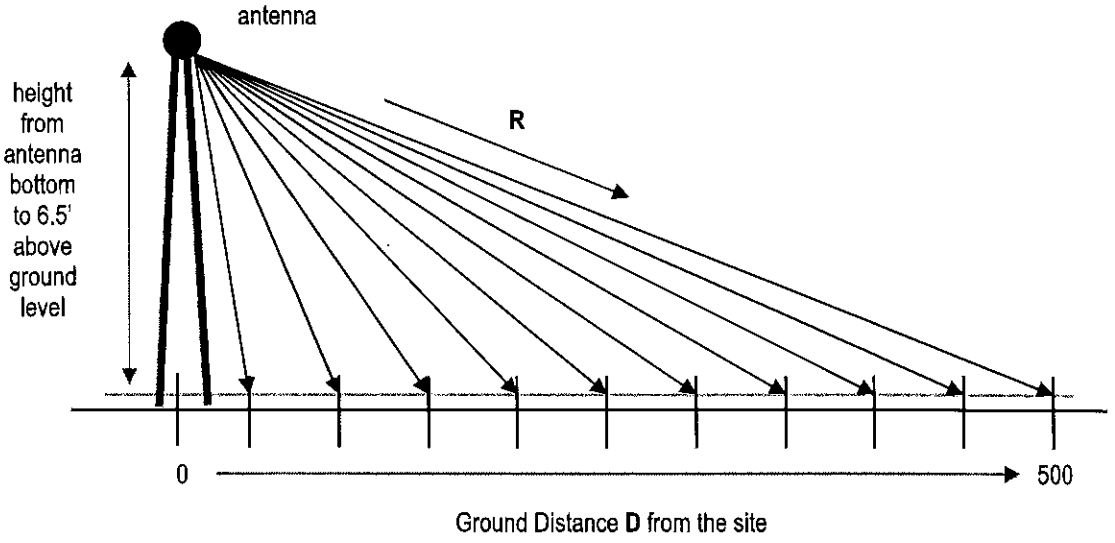


Figure 2. Street-level MPE% Calculation Geometry

It is popularly understood that the farther away one is from an antenna, the lower the RF level – which is generally but not universally correct. The results of MPE% calculations fairly close to the site will reflect the variations in the vertical-plane antenna pattern as well as the variation in straight-line distance to the antenna.

Therefore, RF levels may actually increase slightly with increasing distance within

the range of zero to 500 feet from the site. As the distance approaches 500 feet and beyond, though, the antenna pattern factor becomes less significant, the RF levels become primarily distance-controlled and, as a result, the RF levels generally decrease with increasing distance. In any case, the RF levels more than 500 feet from a wireless antenna site are well understood to be sufficiently low to be comfortably in compliance.

According to the FCC, when directional antennas (such as panels) are used, compliance assessments are based on the RF effect of a single (facing) antenna sector, as the effects of directional antennas pointed away from the point(s) of interest are considered insignificant. If the different parameters apply in the different sectors, compliance is based on the worst-case parameters.

Street level FCC compliance for a collocated antenna site is assessed in the following manner. At each distance point along the ground, an MPE% calculation is made for each antenna operation (including each frequency band), and the sum of the individual MPE% contributions at each point is compared to 100 percent, the normalized reference for compliance with the MPE limit. We refer to the sum of the individual MPE% contributions as "total MPE%", and any calculated total MPE% result exceeding 100 percent is, by definition, higher than the FCC limit and represents non-compliance and a need to mitigate the potential exposure. If all results are consistently below 100 percent, on the other hand, that set of results serves as a clear and sufficient demonstration of compliance with the MPE limit.

Note that the following conservative methodology and assumptions are incorporated into the MPE% calculations on a general basis:

1. The antennas are assumed to be operating continuously at maximum power and maximum channel capacity.
2. The power-attenuation effects of shadowing or other obstructions to the line-of-sight path from the antenna to the point of interest are ignored.
3. The calculations intentionally minimize the distance factor (R) by assuming a 6'6" human and performing the calculations from the bottom (rather than the centerline) of each operator's lowest-mounted antenna, as applicable.

4. The calculations also conservatively take into account, when applicable, the different technical characteristics and related RF effects of the use of multiple antennas for transmission in the same frequency band.
5. The RF exposure at ground level is assumed to be 100-percent enhanced (increased) via a "perfect" field reflection from the intervening ground.

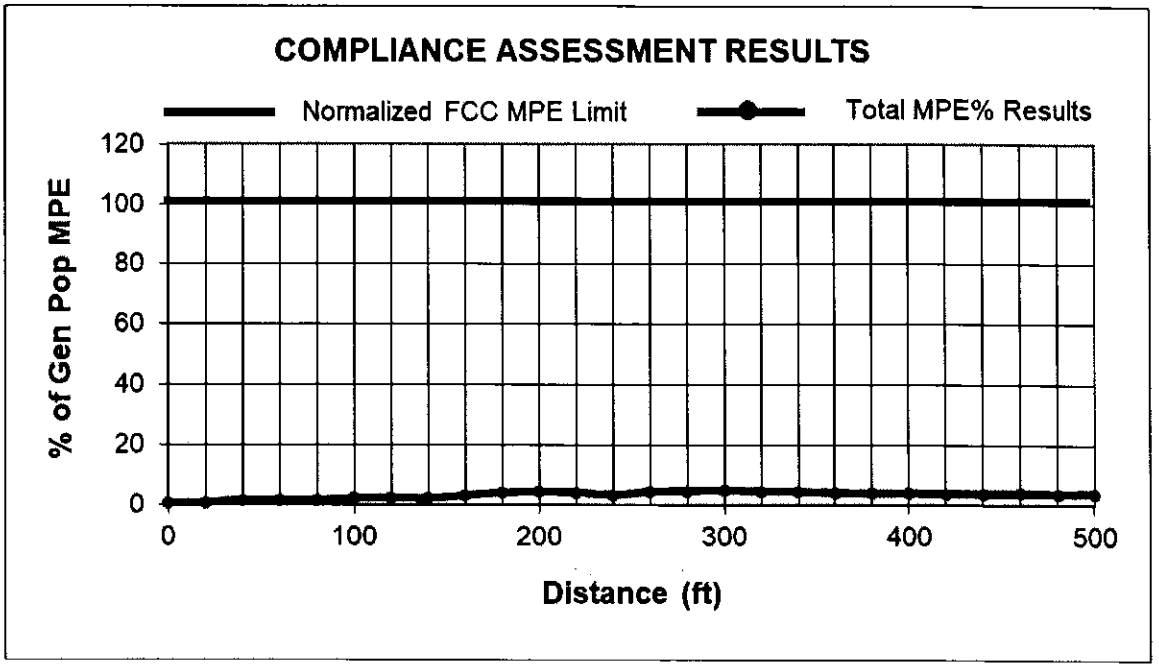
The net result of these assumptions is to intentionally and significantly overstate the calculated RF levels relative to the levels that will actually result from the antenna operations – and the purpose of this conservatism is to allow very "safe-side" conclusions about compliance.

The table that follows provides the results of the MPE% calculations for each antenna operation, with the overall worst-case calculated result highlighted in bold in the last column.

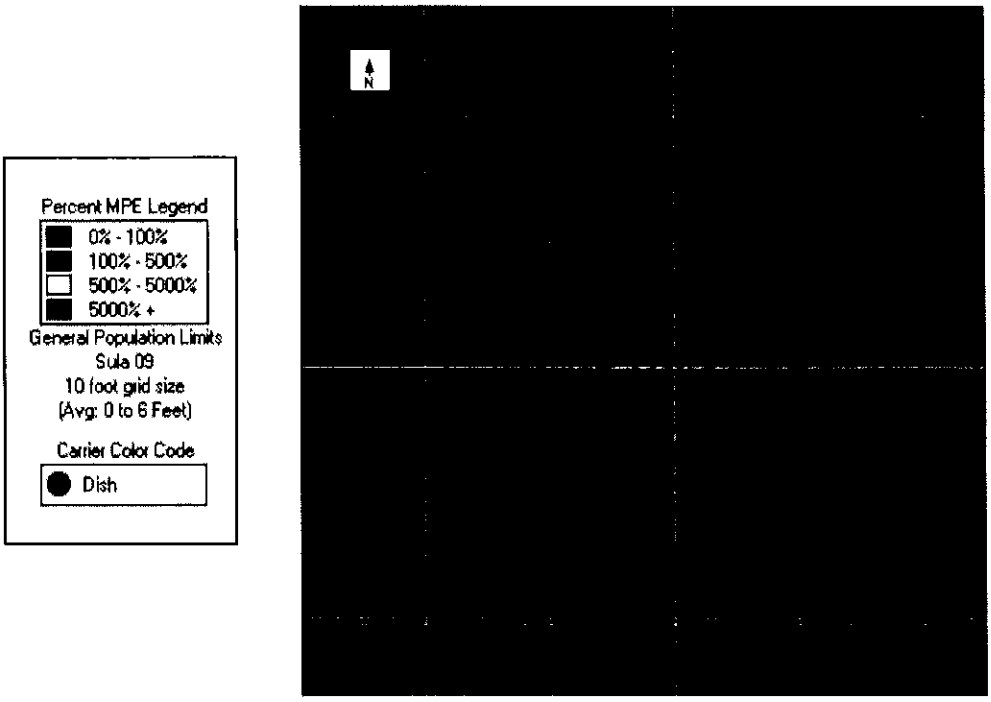
Ground Distance (ft)	Dish 600 MHz MPE%	Dish 2000 MHz MPE%	Dish 2100 MHz MPE%	AT&T MPE%	Sprint MPE%	T-Mobile MPE%	Total MPE%
0	0.0018	0.0023	0.0000	0.0788	0.0322	0.3931	0.5082
20	0.0083	0.0150	0.0086	0.0867	0.0117	0.5713	0.7016
40	0.0074	0.0233	0.0067	0.1772	0.0132	1.3073	1.5351
60	0.0046	0.0104	0.0359	0.2867	0.0513	1.1370	1.5259
80	0.1083	0.0066	0.2577	0.3956	0.0540	0.6191	1.4413
100	0.2228	0.2261	0.6372	0.3947	0.0707	0.5685	2.1200
120	0.1297	0.4890	0.3306	0.4476	0.0748	0.8406	2.3123
140	0.0565	0.0181	0.0165	0.7550	0.1417	1.1452	2.1330
160	0.0736	0.0086	0.0211	0.7705	0.1900	2.0658	3.1296
180	0.1194	0.1328	0.0482	0.8271	0.0979	2.8786	4.1040
200	0.1236	0.0974	0.0674	0.8454	0.0480	3.2194	4.4012
220	0.1005	0.0041	0.0138	0.8737	0.0556	3.1263	4.1740
240	0.0655	0.0541	0.0566	0.6991	0.0791	2.4305	3.3849
260	0.0484	0.0514	0.0399	0.4379	0.0815	3.7980	4.4571
280	0.0558	0.0341	0.0210	0.3093	0.1008	4.1270	4.6480
300	0.0780	0.0406	0.0362	0.2109	0.0997	4.3438	**4.8092**
320	0.1176	0.0558	0.0671	0.1935	0.0841	4.1044	4.6225
340	0.1704	0.0499	0.0704	0.1898	0.0547	3.8758	4.4110
360	0.2370	0.0214	0.0381	0.1979	0.0258	3.6927	4.2129
380	0.2140	0.0194	0.0344	0.2312	0.0174	3.3764	3.8928
400	0.2806	0.0011	0.0051	0.3139	0.0336	3.2452	3.8795
420	0.2556	0.0010	0.0046	0.2869	0.0616	3.1630	3.7727
440	0.3303	0.0047	0.0024	0.4254	0.0564	2.9737	3.7929
460	0.3032	0.0043	0.0022	0.6213	0.0767	2.8374	3.8451
480	0.3682	0.0127	0.0136	0.5736	0.0934	2.6736	3.7351
500	0.3402	0.0117	0.0125	0.7853	0.0824	2.5490	3.7811

As indicated, the maximum calculated overall RF level is 4.8092 percent of the FCC MPE limit – well below the 100-percent reference for compliance.

A graph of the overall calculation results, shown below, perhaps provides a clearer *visual* illustration of the relative compliance of the calculated RF levels. The line representing the overall calculation results barely visibly rises above the graph's baseline, and shows an obviously clear, consistent margin to the FCC MPE limit.



The graphic output for the areas at street level surrounding the site is reproduced on the next page.

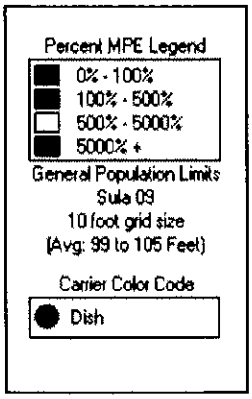


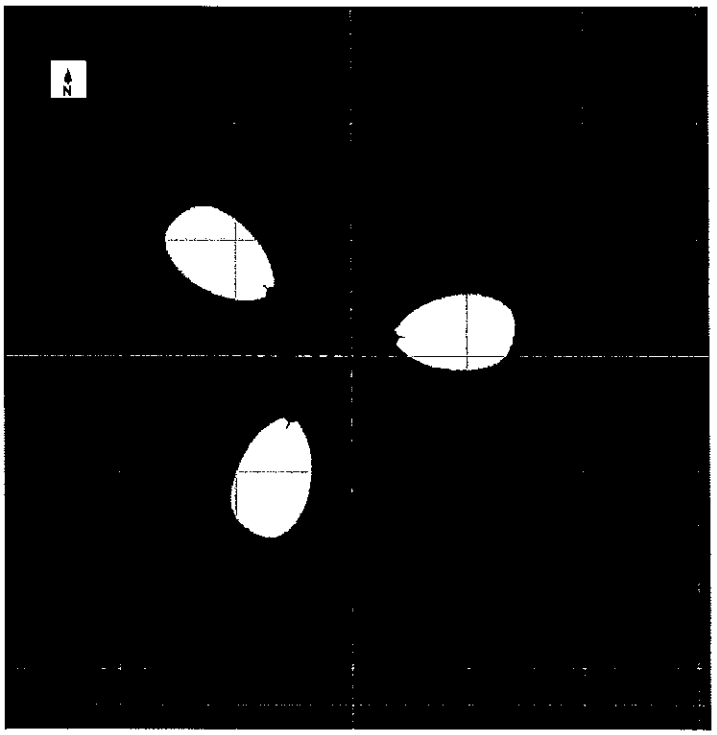
Near-field Analysis

The compliance analysis for the same height as the antennas is performed using the RoofMaster program by Waterford Consultants.

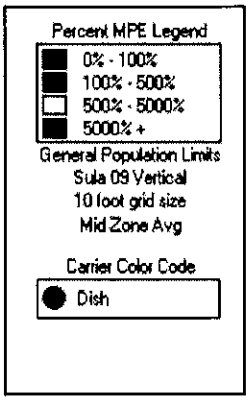
RF levels in the near field of an antenna depend on the power input to the antenna, the antenna's length and horizontal beamwidth, the mounting height of the antenna above nearby standing level, and one's position and distance from the antenna. RF levels in front of a directional antenna are higher than they are to the sides or rear, and in any given horizontal direction are inversely proportional to the straight-line distance to the antenna.

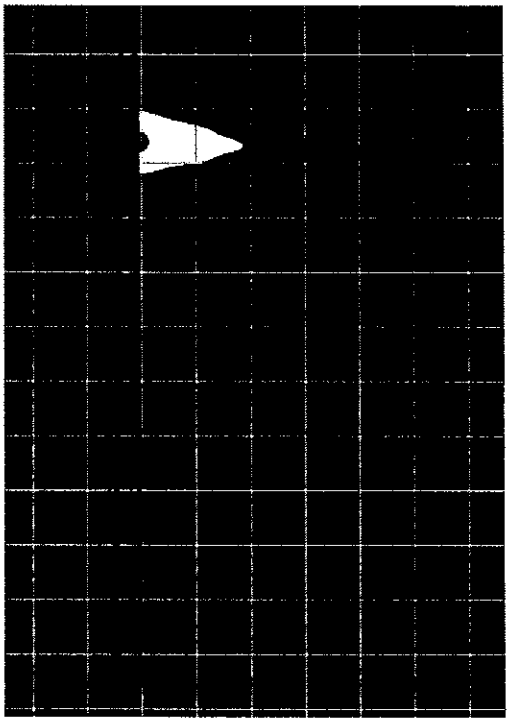
The RoofMaster graphic outputs for the same height as the Dish antennas are reproduced on the next page.





RoofMaster – Same Height as the Antennas – Alpha / Beta / Gamma sectors





RoofMaster – Same Height as the Antennas – Alpha / Beta / Gamma sectors

Compliance Conclusion

According to the FCC, the MPE limit has been constructed in such a manner that continuous human exposure to RF fields up to and including 100 percent of the MPE limit is acceptable and safe.

The conservative analysis in this case shows that the maximum calculated RF level from the proposed modifications to the existing antenna operations at the site is 4.8092 percent of the FCC general population MPE limit. At the same height as the antennas, the analysis shows that the calculated RF levels potentially exceed the FCC MPE limit. Per Dish guidelines, and consistent with FCC guidance on compliance, it is recommended that two Caution signs be six feet below the antennas. In addition, NOC Information signs be installed at the base of the monopole.

The results of the calculations, along with the described RF mitigation, combine to satisfy the FCC's RF compliance requirements and associated guidelines on compliance.

Moreover, because of the extremely conservative calculation methodology and operational assumptions we applied in the analysis, RF levels actually caused by the antennas will be significantly lower than the calculation results here indicate.

Certification

It is the policy of Pinnacle Telecom Group that all FCC RF compliance assessments are reviewed, approved, and signed by the firm's Chief Technical Officer who certifies as follows:

1. I have read and fully understand the FCC regulations concerning RF safety and the control of human exposure to RF fields (47 CFR 1.1301 *et seq*).
2. To the best of my knowledge, the statements and information disclosed in this report are true, complete and accurate.
3. The analysis of site RF compliance provided herein is consistent with the applicable FCC regulations, additional guidelines issued by the FCC, and industry practice.
4. The results of the analysis indicate that the subject antenna operations will be in compliance with the FCC regulations concerning the control of potential human exposure to the RF emissions from antennas.

12/9/21

Daniel J. Collins
Chief Technical Officer
Pinnacle Telecom Group, LLC

Date

Appendix A. Documents Used to Prepare the Analysis

RFDS: RFDS-NJJER01163A-Preliminary-20211101-v.1_20211101121344

CD: NJJER01163A_ZD_20210909140307

Appendix B. Background on the FCC MPE Limit

As directed by the Telecommunications Act of 1996, the FCC has established limits for maximum continuous human exposure to RF fields.

The FCC maximum permissible exposure (MPE) limits represent the consensus of federal agencies and independent experts responsible for RF safety matters. Those agencies include the National Council on Radiation Protection and Measurements (NCRP), the Occupational Safety and Health Administration (OSHA), the National Institute for Occupational Safety and Health (NIOSH), the American National Standards Institute (ANSI), the Environmental Protection Agency (EPA), and the Food and Drug Administration (FDA). In formulating its guidelines, the FCC also considered input from the public and technical community – notably the Institute of Electrical and Electronics Engineers (IEEE).

The FCC's RF exposure guidelines are incorporated in Section 1.301 *et seq* of its Rules and Regulations (47 CFR 1.1301-1.1310). Those guidelines specify MPE limits for both occupational and general population exposure.

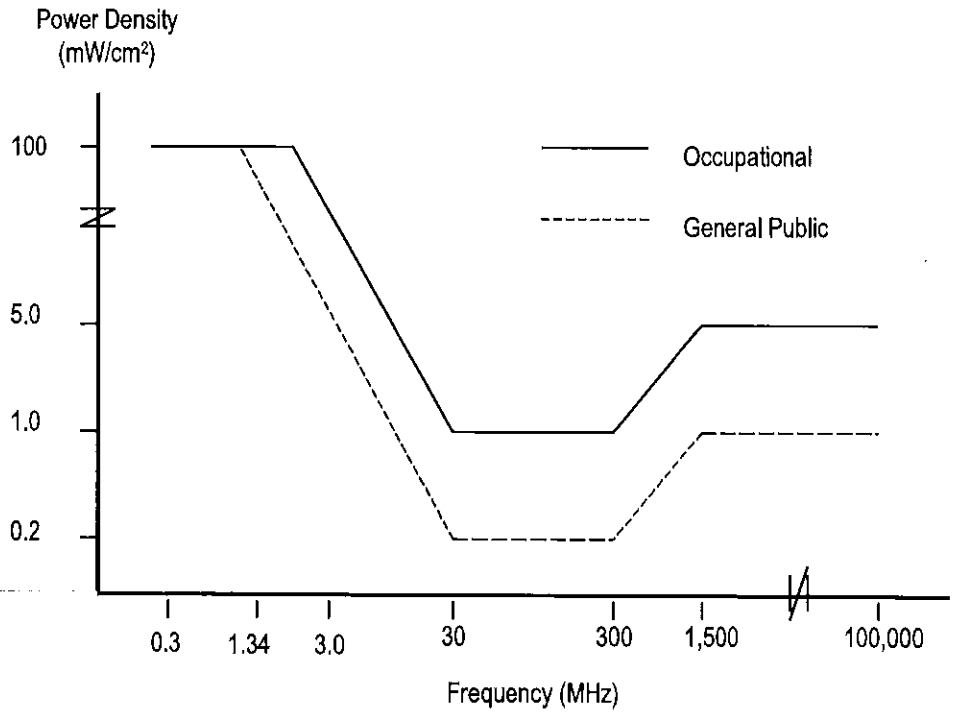
The specified continuous exposure MPE limits are based on known variation of human body susceptibility in different frequency ranges, and a Specific Absorption Rate (SAR) of 4 watts per kilogram, which is universally considered to accurately represent human capacity to dissipate incident RF energy (in the form of heat). The occupational MPE guidelines incorporate a safety factor of 10 or greater with respect to RF levels known to represent a health hazard, and an additional safety factor of five is applied to the MPE limits for general population exposure. Thus, the general population MPE limit has a built-in safety factor of more than 50. The limits were constructed to appropriately protect humans of both sexes and all ages and sizes and under all conditions – and continuous exposure at levels equal to or below the applicable MPE limits is considered to result in no adverse health effects or even health risk.

The reason for *two* tiers of MPE limits is based on an understanding and assumption that members of the general public are unlikely to have had appropriate RF safety training and may not be aware of the exposures they receive; occupational exposure in controlled environments, on the other hand, is assumed to involve individuals who have had such training, are aware of the exposures, and know how to maintain a safe personal work environment.

The FCC's RF exposure limits are expressed in two equivalent forms, using alternative units of field strength (expressed in volts per meter, or V/m), and power density (expressed in milliwatts per square centimeter, or mW/cm^2). The table on the next page lists the FCC limits for both occupational and general population exposures, using the mW/cm^2 reference, for the different radio frequency ranges.

Frequency Range (F) (MHz)	Occupational Exposure (mW/cm^2)	General Public Exposure (mW/cm^2)
0.3 - 1.34	100	100
1.34 - 3.0	100	$180 / F^2$
3.0 - 30	$900 / F^2$	$180 / F^2$
30 - 300	1.0	0.2
300 - 1,500	F / 300	F / 1500
1,500 - 100,000	5.0	1.0

The diagram below provides a graphical illustration of both the FCC's occupational and general population MPE limits.



Because the FCC's RF exposure limits are frequency-shaped, the exact MPE limits applicable to the instant situation depend on the frequency range used by the systems of interest.

The most appropriate method of determining RF compliance is to calculate the RF power density attributable to a particular system and compare that to the MPE limit applicable to the operating frequency in question. The result is usually expressed as a percentage of the MPE limit.

For potential exposure from multiple systems, the respective percentages of the MPE limits are added, and the total percentage compared to 100 (percent of the limit). If the result is less than 100, the total exposure is in compliance; if it is more than 100, exposure mitigation measures are necessary to achieve compliance.

Note that the FCC "categorically excludes" all "non-building-mounted" wireless antenna operations whose mounting heights are more than 10 meters (32.8 feet) from the routine requirement to demonstrate compliance with the MPE limit, because such operations "are deemed, individually and cumulatively, to have no significant effect on the human environment". The categorical exclusion also applies to *all* point-to-point antenna operations, regardless of the type of structure they're mounted on. Note that the FCC considers any facility qualifying for the categorical exclusion to be automatically in compliance.

In addition, FCC Rules and Regulations Section 1.1307(b)(3) describes a provision known in the industry as "the 5% rule". It describes that when a specific location – like a spot on a rooftop – is subject to an overall exposure level exceeding the applicable MPE limit, operators with antennas whose MPE% contributions at the point of interest are less than 5% are exempted from the obligation otherwise shared by all operators to bring the site into compliance, and those antennas are automatically deemed by the FCC to satisfy the rooftop compliance requirement.

FCC References on RF Compliance

47 CFR, FCC Rules and Regulations, Part 1 (Practice and Procedure), Section 1.1310 (Radiofrequency radiation exposure limits).

FCC Second Memorandum Opinion and Order and Notice of Proposed Rulemaking (FCC 97-303), *In the Matter of Procedures for Reviewing Requests for Relief From State and Local Regulations Pursuant to Section 332(c)(7)(B)(v) of the Communications Act of 1934 (WT Docket 97-192), Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation (ET Docket 93-62), and Petition for Rulemaking of the Cellular Telecommunications Industry Association Concerning Amendment of the Commission's Rules to Preempt State and Local Regulation of Commercial Mobile Radio Service Transmitting Facilities*, released August 25, 1997.

FCC First Memorandum Opinion and Order, ET Docket 93-62, *In the Matter of Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation*, released December 24, 1996.

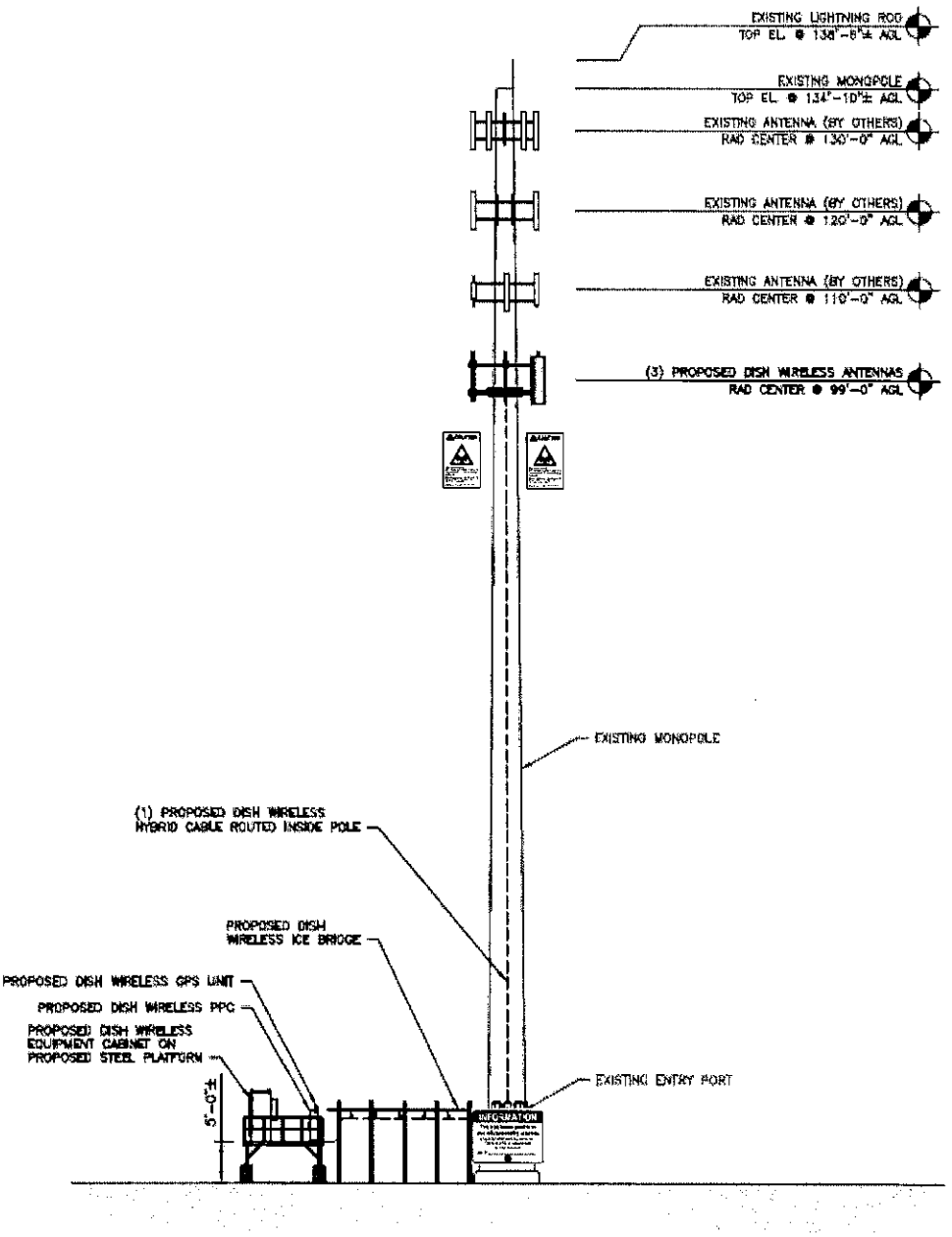
FCC Report and Order, ET Docket 93-62, *In the Matter of Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation*, released August 1, 1996.

FCC Report and Order, Notice of Proposed Rulemaking, Memorandum Opinion and Order (FCC 19-126), *Proposed Changes in the Commission's Rules Regarding Human Exposure to Radiofrequency Electromagnetic Fields; Reassessment of Federal Communications Commission Radiofrequency Exposure Limits and Policies,* released December 4, 2019.

FCC Office of Engineering and Technology (OET) Bulletin 65, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields", Edition 97-01, August 1997.

FCC Office of Engineering and Technology (OET) Bulletin 56, "Questions and Answers About Biological Effects and Potential Hazards of RF Radiation", edition 4, August 1999.

Appendix C. Proposed Signage



NOC Information Sign		Caution Sign	
Guidelines Sign		Warning Sign	
Notice Sign			

Appendix D. Summary of Expert Qualifications

Daniel J. Collins, Chief Technical Officer, Pinnacle Telecom Group, LLC

Synopsis:	• 40+ years of experience in all aspects of wireless system engineering, related regulation, and RF exposure • Has performed or led RF exposure compliance assessments on more than 20,000 antenna sites since the latest FCC regulations went into effect in 1997 • Has provided testimony as an RF compliance expert more than 1,500 times since 1997 • Have been accepted as an FCC compliance expert in Connecticut, New York, New Jersey, Pennsylvania and more than 40 other states, as well as by the FCC
Education:	• B.E.E., City College of New York (Sch. Of Eng.), 1971 • M.B.A., 1982, Fairleigh Dickinson University, 1982 • Bronx High School of Science, 1966
Current Responsibilities:	• Leads all PTG staff work involving RF safety and FCC compliance, microwave and satellite system engineering, and consulting on wireless technology and regulation
Prior Experience:	• Edwards & Kelcey, VP – RF Engineering and Chief Information Technology Officer, 1996-99 • Bellcore (a Bell Labs offshoot after AT&T's 1984 divestiture), Executive Director – Regulation and Public Policy, 1983-96 • AT&T (Corp. HQ), Division Manager – RF Engineering, and Director – Radio Spectrum Management, 1977-83 • AT&T Long Lines, Group Supervisor – Microwave Radio System Design, 1972-77
Specific RF Safety / Compliance Experience:	• Involved in RF exposure matters since 1972 • Have had lead corporate responsibility for RF safety and compliance at AT&T, Bellcore, Edwards & Kelcey, and PTG • While at AT&T, helped develop the mathematical models for calculating RF exposure levels • Have been relied on for compliance by all major wireless carriers, as well as by the federal government, several state and local governments, equipment manufacturers, system integrators, and other consulting / engineering firms
Other Background:	• Author, *Microwave System Engineering* (AT&T, 1974) • Co-author and executive editor, *A Guide to New Technologies and Services* (Bellcore, 1993) • National Spectrum Management Association (NSMA) – former three-term President and Chairman of the Board of Directors; was founding member, twice-elected Vice President, long-time member of the Board, and was named an NSMA Fellow in 1991 • Have published more than 35 articles in industry magazines

Exhibit G

Lease Agreement

Other License Site Schedule

This New License Site Schedule (this "***New License***") is executed and delivered pursuant to that certain Strategic Collocation Agreement between Licensor and Licensee, each as identified below, with an Effective Date of March 12, 2021. All terms and conditions of the Strategic Collocation Agreement are incorporated herein by reference and made a part hereof for all purposes.

The following space shall be licensed on the terms indicated below:

1. **Licensee's Name**: DISH Wireless L.L.C., a Colorado limited liability company

   Notice Address: 9601 South Meridian Blvd.
   Englewood, Colorado 80112
   Attn: Tower Lease Team

   Contact Name: Network Operations Center
   Contact Number: (866) 624-6874
   E-mail: NA

2. **Licensor Information:**
   Notice Address: ATC Green Grass LLC, a Delaware limited liability company
   10 Presidential Way
   Woburn, MA 01801
   Attn: Contracts Manager

   Contact Name: Contracts Manager
   Contact Number: (781) 926-4500
   Fax Number: (781) 926-4555

   Remittance Address: American Tower Corporation
   29637 Network Place
   Chicago, IL 60673-1296

3. **Tower Information:**
   Licensor's Tower Name: Evergreen Street CT
   Licensor's Tower Number: 210747
   Coordinates: Lat: 41° 11' 52.08" N Lon: 073° 11' 26.87" W
   Licensee's Tower Name: NJJER01163A
   Licensee's Tower Number: NJJER01163A

4. **License Commencement Date, License Fee and other Fees:**

   License Commencement Date: the earlier to occur of (i) Licensor's issuance of a Notice to Proceed; or (ii) the date that is sixty (60) days from the full execution date of this New License.

I hereby confirm that I have reviewed and approved all pages. DS GEB

Monthly License Fee:

- **For Other Licenses**: The Parties acknowledge that this New License is an Other License. During the Term, the Monthly License Fee for the Initial Equipment Allowance (as defined in the Strategic Collocation Agreement) shall be an initial rate of [redacted]

Electricity for operation of Approved Equipment is to be provided by (check one):

☐ Licensor, with the cost of such electricity to be paid by Licensee at the initial rate of $_____ and 00/100 Dollars ($_____.00) per month ("**Utility Fee**") subject to adjustment pursuant to Subsection 5(b) of the Terms and Conditions of Each New License; OR

☒ Licensee, at its sole expense.

BLM/USFS Fees applicable (check one) ____Yes __X__ No

[redacted]

5. **Licensee Approved Equipment Information:**
Licensee's Approved Equipment (and its location at the Tower Facility), along with its Permitted Frequencies, are as set forth in Exhibit A, which is incorporated herein by reference and made a part hereof.

Site Drawings are to be attached as Exhibit B which is incorporated herein by reference and made a part hereof.

6. **Other Provisions:** The following provisions are applicable to the Tower Facility:

☐ Structural analysis contingency.
☐ Pre/Post AM Study.
☐ A Capital Contribution Fee in the amount N/A.
☐ Expanded Initial Equipment Allowance.
☐ Other Monetary Payment in the amount of N/A.
[redacted]
☐ Additional Costs in the amount of N/A.
☐ WAIVER OF TEXAS DECEPTIVE TRADE PRACTICES ACT.
☐ Interference with Licensor's lighting system.
☐ Rider for AirTouch/Sequoia Subleased Sites.
☐ Additional provisions that may be negotiated by the Parties for a site, as necessary:

7. **Representation & Warranty:**
Licensor covenants, warrants and represents to Licensee that, as of the New License Effective Date, Licensor, or one of its Affiliates, has a property interest in the applicable Tower Facility (as defined

I hereby confirm that I have reviewed and approved all pages. DS GEB

in Appendix I to Appendix B to the SCA) as necessary to grant Licensee the rights set forth in this New License.

[SIGNATURES ARE ON THE NEXT PAGE]

I hereby confirm that I have reviewed and approved all pages.

DS GEB

Agreed to and Accepted by:

LICENSEE:

DISH Wireless L.L.C., a Colorado limited liability company

By: DocuSigned by: Mike Fox FC0472392498468...

Name: Mike Fox

Title: Market General Manager NY/NJ

Date: December 9, 2021

Agreed to and Accepted by:

LICENSOR:

ATC Green Grass, LLC a Delaware limited liability company

By: DocuSigned by: Margaret A Robinson FA490C47D3D8460...

Name: Margaret A Robinson

Title: .Sr Counsel US Tower.

Date: December 12, 2021

This New License is not effective until completed and executed by both Parties. The New License may be rescinded by either Party prior to such date.

SDM Approver

I hereby confirm that I have reviewed and approved all pages.

DS GEB

Exhibit H

Mailing Receipts

LTR 1 OF 1

FROM:
LEV MAYZLER
(203) 488-0712
CONSTRUCTION SERVICES OF BRANF
63-3 NORTH BRANFORD ROAD
BRANFORD CT 06405-2848

SHIP TO:
HON. JOSEPH P. GANIM
999 BROAD ST.
BRIDGEPORT CT 06604

CT 066 9-04

UPS 2ND DAY AIR **2**
TRACKING #: 1Z E05 345 02 6108 3286

BILLING: P/P

WS 22.0.17 SHARP MX-3070 03.0A 01/2022

Fold here and place in label pouch

Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number
1ZE053450261083286

Service

UPS 2nd Day Air®

Delivered On

01/19/2022 11:59 A.M.

Delivered To

999 BROAD ST
BRIDGEPORT, CT, 06604, US

Received By

SONIA

Left At

Office

Thank you for giving us this opportunity to serve you. Details are only available for shipments delivered within the last 120 days. Please print for your records if you require this information after 120 days.

Sincerely,

UPS

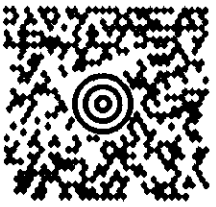
Tracking results provided by UPS: 01/20/2022 6:46 A.M. EST

LTR 1 OF 1

FROM:
LEV MAYZLER
(203) 488-0712
CONSTRUCTION SERVICES OF BRANF
63-3 NORTH BRANFORD ROAD
BRANFORD CT 06405-2848

SHIP TO:

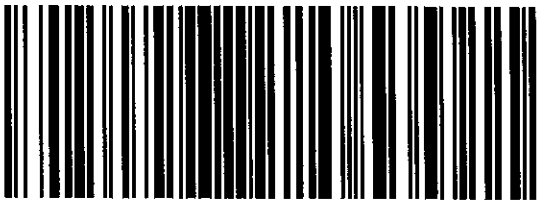
BRIDGEPORT ZONING ADMINISTRATOR
MR. DENNIS BUCKLEY
45 LYON TERRACE, ROOM 210
BRIDGEPORT CT 06604



CT 066 9-04

UPS 2ND DAY AIR
TRACKING #: 1Z E05 345 02 6293 7898

2



BILLING: P/P

WS 22.0.17 SHARP MX-3070 03.0A 01/2022

Fold here and place in label pouch

Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number

1ZE053450262937898

Service

UPS 2nd Day Air®

Delivered On

01/19/2022 9:44 A.M.

Delivered To

45 LYON TER
2 210
BRIDGEPORT, CT, 06604, US

Received By

GLORIA

Left At

Office

Thank you for giving us this opportunity to serve you. Details are only available for shipments delivered within the last 120 days. Please print for your records if you require this information after 120 days.

Sincerely,

UPS

Tracking results provided by UPS: 01/20/2022 6:47 A.M. EST

LTR 1 OF 1

FROM:
LEV MAYZLER
(203) 488-0712
CONSTRUCTION SERVICES OF BRANF
63-3 NORTH BRANFORD ROAD
BRANFORD CT 06405-2848

SHIP TO:
CHAPIN & BANGS CO.
220 EVERGREEN ST.
BRIDGEPORT CT 06606

CT 066 9-04

UPS 2ND DAY AIR **2**
TRACKING #: 1Z E05 345 02 6271 9516

BILLING: P/P

WS 22.0.17 SHARP MX-3070 03.0A 01/2022

Fold here and place in label pouch

Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number

1ZE053450262719516

Service

UPS 2nd Day Air®

Delivered On

01/19/2022 4:24 P.M.

Delivered To

165 RIVER ST
BRIDGEPORT, CT, 06606, US

Received By

JOSH

Left At

Inside Delivery

Thank you for giving us this opportunity to serve you. Details are only available for shipments delivered within the last 120 days. Please print for your records if you require this information after 120 days.

Sincerely,

UPS

Tracking results provided by UPS: 01/20/2022 6:49 A.M. EST

LTR 1 OF 1

FROM:
LEV MAYZLER
(203) 488-0712
CONSTRUCTION SERVICES OF BRANF
63-3 NORTH BRANFORD ROAD
BRANFORD CT 06405-2848

SHIP TO:

AMERICAN TOWER CORP.
SUITE 1100
116 HUNTINGTON AVE.
BOSTON MA 02116

MA 021 9-02

UPS 2ND DAY AIR **2**
TRACKING #: 1Z E05 345 02 6283 5300

BILLING: P/P

WS 22.0.17 SHARP MX-3070 03.0A 01/2022

Fold here and place in label pouch

Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number

1ZE053450262835300

Service

UPS 2nd Day Air®

Delivered On

01/19/2022 2:48 P.M.

Delivered To

116 HUNTINGTON AVE
BOSTON, MA, 02116, US

Received By

ATC

Left At

Front Desk

Thank you for giving us this opportunity to serve you. Details are only available for shipments delivered within the last 120 days. Please print for your records if you require this information after 120 days.

Sincerely,

UPS

Tracking results provided by UPS: 01/20/2022 6:50 A.M. EST