



March 26th, 2020

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

Regarding: Notice of Exempt Modification – Equipment Modification
Property Address: 239 Middle Turnpike East, Manchester, CT 06040 (also known by the Town of Manchester, CT as “239 Middle Turnpike East”)
Applicant: Empire Telecom on behalf of AT&T (“AT&T”, Site # CT5448)

Dear Ms. Bachman:

AT&T currently maintains a wireless telecommunications facility on an existing 184-foot monopole at the above-referenced address 41.7844444444444, longitude -72.5116666666667°. Said the underlying property is owned by the Town of Manchester.

AT&T desires to modify its existing telecommunications facility by adding: (3) CB-C23SR-43 Combiners, (3) SDARS Remote Radios, (1) Main Unit, (3) RR-FA3 Mounts, (1) Cabinet and ancillary equipment and cables. The centerline height of the existing AT&T antennas and ancillary tower-mounted equipment is and will remain at 143-feet.

Please accept this application as notification pursuant to R.C.S.A. §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16-50j-72 (b)(2). In accordance with R.C.S.A. §16-50j-73, a copy of this letter is being sent to the town Mayor, Jay Moran, the Zoning Enforcement Officer, James Davis, and to the Town of Manchester, c/o Scoot Shanley, as the town is both the owner of the ground and structure on which the monopole is located.

The planned modifications to AT&T’s facility fall squarely within those activities explicitly provided for in R.C.S.A. §16-50j-72 (b)(2). Specifically:

1. The planned modification will not result in an increase in the height of the existing structure. The modified equipment will be installed at the existing height of 143 feet on the 184-foot tower.
2. The proposed modifications will not involve any changes to AT&T’s ground-space footprint, and therefore and therefore will not require an extension of the site boundary.
3. The proposed modification will not increase the noise level at the facility by six decibels or more, or to levels that exceed state and local criteria.

AT&T at 239 Middlesex Turnpike Road, Manchester, CT 06040
March 26th, 2020

4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above Federal Communications Commission (FCC) safety standard. An RF emissions calculation (enclosed) for AT&T's modified facility is herein provided.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support AT&T's proposed modifications. Please see enclosed structural analysis completed by completed by Vertical Resource Group, Inc., dated December 11th, 2019; stamped December 11th, 2019.

For the foregoing reasons, AT&T respectfully requests that the proposed installation be allowed within the exempt modifications under R.C.S.A. §16-50j-72 (b)(2).

Sincerely,

Moriah King

Site Acquisition Specialist
Empire Telecom USA LLC
16 Esquire Road | Billerica, MA 01862
Mobile: 339-234-8975
Email: moking@empiretelecomm.com

Enclosures: Exhibit 1 – Field Card and GIS Map
Exhibit 2 – Construction Drawings
Exhibit 3 – Structural Analysis
Exhibit 4 – RF Emissions Analysis Report Evaluation

cc:

Mayor Jay Moran (Board of Directors)
Manchester Board of Directors
41 Center Street P.O. Box 191
Manchester, CT 06045-0191

James Davis
Zoning Enforcement Officer
Building Department
PO Box 191
Manchester, CT 06045

Town of Manchester
41 Center Street Manchester, CT 06040
(Scott Shanley)

239 MIDDLE TURNPIKE EAST

Location 239 MIDDLE TURNPIKE EAST

Mblu 92/ 3950/ 239/ /

Acct# 395000239

Owner MANCHESTER TOWN OF

Assessment \$4,243,700

Appraisal \$6,062,100

PID 10705

Building Count 2

DISTRICT X

CONCRETE

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2016	\$5,573,900	\$488,200	\$6,062,100
Assessment			
Valuation Year	Improvements	Land	Total
2016	\$3,901,900	\$341,800	\$4,243,700

Owner of Record

Owner MANCHESTER TOWN OF
Address 41 CENTER ST
 MANCHESTER, CT 06040-5096

Sale Price \$0
Certificate C
Book & Page
Sale Date

Ownership History

Ownership History				
Owner	Sale Price	Certificate	Book & Page	Sale Date
MANCHESTER TOWN OF	\$0	C		

Building Information

Building 1 : Section 1

Year Built: 1995
Living Area: 46,701
Replacement Cost: \$6,306,043

Replacement Cost
Less Depreciation:

\$5,044,800

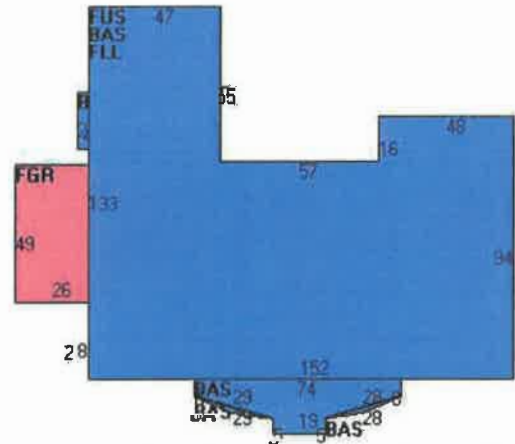
Building Photo



(<http://images.vgsi.com/photos2/ManchesterCTPhotos/A00\03\29\13.jpg>)

Building Attributes	
Field	Description
STYLE	Other Municip
MODEL	Ind/Comm
Grade	Average +10
Stories:	2
Occupancy	1
Exterior Wall 1	Brick Veneer
Exterior Wall 2	Stucco/Masonry
Roof Structure	Flat
Roof Cover	Tar + Gravel
Interior Wall 1	Minim/Masonry
Interior Wall 2	Drywall/Sheetr
Interior Floor 1	Carpet
Interior Floor 2	Tile/Vinyl Cmp
Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	Central
Bldg Use	Municipal 96
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	9011
Heat/AC	Heat/AC Packag
Frame Type	Steel
Baths/Plumbing	Average
Ceiling/Wall	Susp Ceil & WI
Rooms/Prtns	Average
Wall Height	10
% Comn Wall	0

Building Layout



(http://images.vgsi.com/photos2/ManchesterCTPhotos/Sketches/10705_1)

Building Sub-Areas (sq ft)			Legend	
Code	Description	Gross Area	Living Area	
BAS	First Floor	16,283	16,283	
FLL	Finished Lower Level	15,209	15,209	
FUS	Upper Story, Finished	15,209	15,209	
FGR	Garage	1,274	0	
		47,975	46,701	

Building 2 : Section 1

Year Built: 1975
Living Area: 7,000
Replacement Cost: \$506,690
Replacement Cost
Less Depreciation: \$309,100

Building Attributes : Bldg 2 of 2	
Field	Description

STYLE	Service Shop
MODEL	Ind/Comm
Grade	Average
Stories:	1
Occupancy	1
Exterior Wall 1	Brick Veneer
Exterior Wall 2	
Roof Structure	Gable/Hip
Roof Cover	Asphalt Shingl
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	None
Bldg Use	Municipal 96
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	9011
Heat/AC	Heat/AC Packag
Frame Type	Masonry
Baths/Plumbing	Average
Ceiling/Wall	Ceil & Min WI
Rooms/Prtns	Average
Wall Height	19
% Comn Wall	0

Building Photo



(<http://images.vgsi.com/photos2/ManchesterCTPhotos//A00\03\29\14.jpg>)

Building Layout



(http://images.vgsi.com/photos2/ManchesterCTPhotos//Sketches/10705_1)

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	6,636	6,636
AOF	Office, (Average)	364	364
		7,000	7,000

Extra Features

Extra Features				Legend
Code	Description	Size	Value	Bldg #
MEZ1	Mezzanine-Unfin	1900 S.F.	\$13,300	2
SPR1	Sprinklers-Wet	47975 S.F.	\$54,000	1

Land

Use Code 9011
Description Municipal 96
Zone RA
Neighborhood 4000
Alt Land Appr No
Category

Size (Acres) 3.97
Frontage 0
Depth 0
Assessed Value \$341,800
Appraised Value \$488,200

Outbuildings

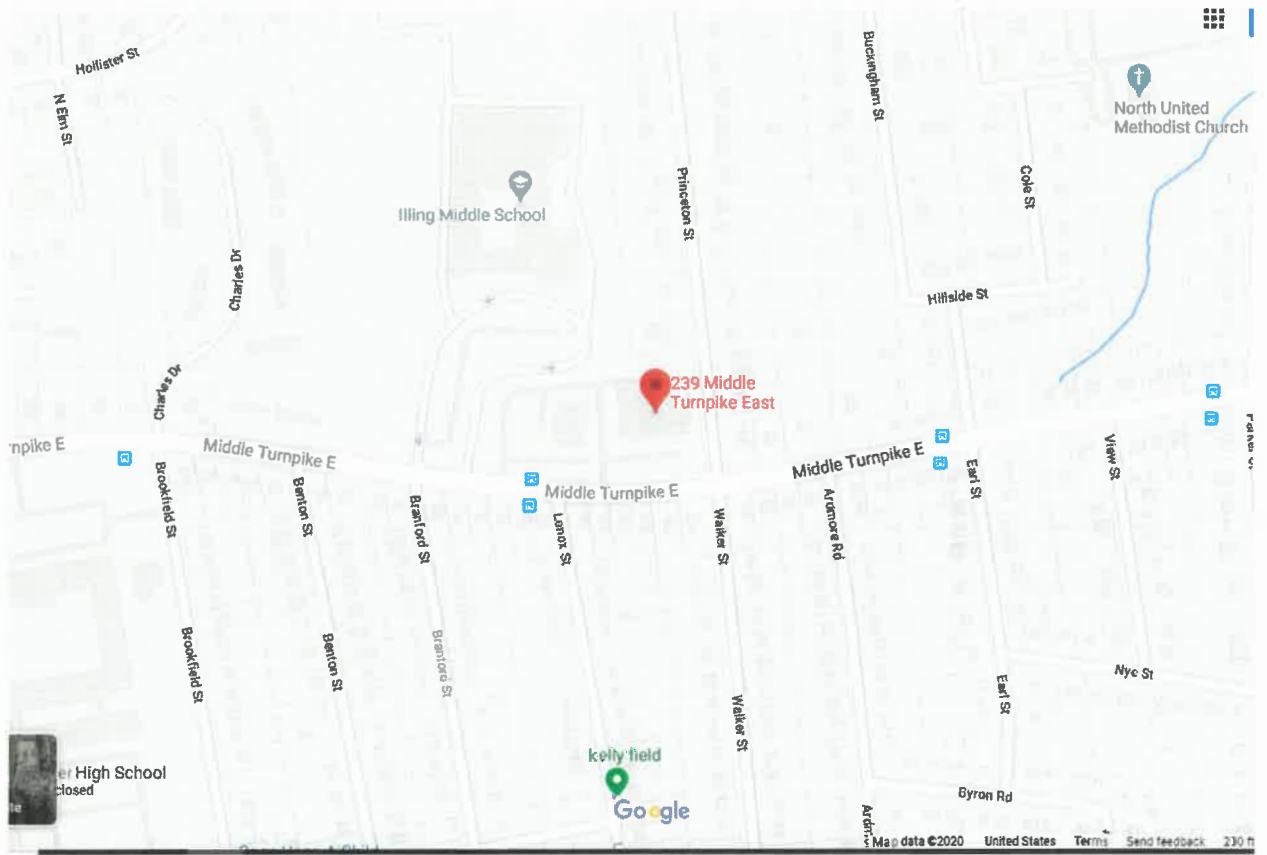
Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
PAV1	Paving Asphalt			97700 S.F.	\$122,100	1
FN4	Fence 8' Chain			128 L.F.	\$1,900	1
LT1	Lights 1Fix			15 UNITS	\$12,900	1
CNP1	Canopy Ave			360 S.F.	\$7,800	1
SHD2	Shed W/Imp			120 S.F.	\$1,300	1
SHD1	Shed			168 S.F.	\$1,500	1
FN3	Fence 6' Chain			160 L.F.	\$3,700	1
SHD2	Shed W/Imp			140 S.F.	\$1,500	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2015	\$4,365,100	\$488,200	\$4,853,300
2010	\$4,125,100	\$423,400	\$4,548,500
2005	\$3,622,600	\$380,200	\$4,002,800

Assessment			
Valuation Year	Improvements	Land	Total
2015	\$3,055,600	\$341,800	\$3,397,400
2010	\$2,887,500	\$296,400	\$3,183,900
2005	\$2,535,800	\$266,200	\$2,802,000

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Did you know you can request a refund online for unused Click-N-Ship® labels in your Shipping History? Click [here](#) to learn more.

Create Label

Preferences

Shipping History

Address Book

Account # 161068927

Label Details

Label Number:

[9405503699300277737318](#)

SCAN® Form: 9475703699300345356850

Terms

Acceptance Cutoff: 03/09/2020 4:30 PM

Acceptance Time: 03/28/2020 2:25 PM

Expected Date: 03/11/2020 11:59 PM

Delivery Status: Delivered, PO Box
2020-03-30
08:07:00.0

Label Actions

[USPS Tracking®](#)
[Ship Again](#)

Need help

[File an Insurance claim](#)
[Request A Service Refund](#)

Return Address:

MORIAH KING
EMPIRE TELECOM
16 ESQUIRE RD
N BILLERICA, MA 01862-2527
ne_sa_deliverable@empiretelecomm.com

Delivery Address:

SCOTT SHANLEY
TOWN OF MANCHESTER GENERAL MANAGER
41 CENTER ST
MANCHESTER, CT 06040-5090

Package:

Ship Date: 03/09/20
Value: \$50.00
From: 01862

Service:

Priority Mail® 2-Day
Flat Rate Envelope
USPS Tracking®

Feedback

Transaction Number: 485922481

Transaction Type: Label

Payment Method: VISA-4382

Payment Status: Account Charged

Postage Cost \$7.75
USPS Tracking® Free

Label Total: \$7.75

Order Total: \$23.25

Timestamp

03-09-2020 10:00:08
03-09-2020 09:59:58
03-09-2020 09:59:51
03-09-2020 09:59:35

Message

LABEL REPRINTED
LABEL PRINTED
Getting Payment
Setting Payment

Tracking for this label is available until July 7, 2020. Need to keep Tracking history longer? Find out if your label is eligible for [Premium Tracking today!](#)

[Back to Shipping History](#)

Did you know you can request a refund online for unused Click-N-Ship® labels in your Shipping History? Click [here](#) to learn more.

Create Label

Preferences

Shipping History

Address Book

Account # 161968927

Label Details

Label Number:

[9405503699300277737325](#)

SCAN® Form: 9475703699300345355850

Terms

Acceptance Cutoff: 03/09/2020 4:30 PM

Acceptance Time: 03/28/2020 2:25 PM

Expected Date: 03/11/2020 11:59 PM

Delivery Status: **Delivered, PO Box**
2020-03-30
08:07:00.0

Label Actions

[USPS Tracking®](#)
[Ship Again](#)

Need help

[File an Insurance claim](#)
[Request A Service Refund](#)

Return Address:

MORIAH KING
EMPIRE TELECOM
16 ESQUIRE RD
N BILLERICA, MA 01862-2527
ne_sa_deliverable@empiretelecomm.com

Delivery Address:

JAMES DAVIS
TOWN OF MANCHESTER ZONING
ENFORCEMENT OFFICER
PO BOX 191
MANCHESTER, CT 06045-0191

Package:

Ship Date: 03/09/20
Value: \$50.00
From: 01862

Service:

Priority Mail® 2-Day
Flat Rate Envelope
USPS Tracking®

Feedback

Transaction Number: [485922481](#)

Transaction Type: Label

Payment Method: VISA-4382

Payment Status: Account Charged

Postage Cost **\$7.75**
USPS Tracking® **Free**

Label Total: \$7.75

Order Total: \$23.25

Timestamp

03-09-2020 10:00:08
03-09-2020 09:59:58
03-09-2020 09:59:51
03-09-2020 09:59:35

Message

LABEL REPRINTED
LABEL PRINTED
Getting Payment
Setting Payment

Tracking for this label is available until July 7, 2020. Need to keep Tracking history longer? Find out if your label is eligible for [Premium Tracking](#) today!

[Back to Shipping History](#)

Did you know you can request a refund online for unused Click-N-Ship® labels in your Shipping History? Click [here](#) to learn more.

Create Label	Preferences	Shipping History	Address Book
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Account # 161668027

Label Details

Label Number:
[9405503699300277737301](#)

SCAN® Form: 9475703699300345355850

Terms
Acceptance Cutoff: 03/09/2020 4:30 PM
Acceptance Time: 03/28/2020 2:25 PM
Expected Date: 03/11/2020 11:59 PM
Delivery Status: Delivered, PO Box
 2020-03-30
 08:07:00.0

Label Actions

[USPS Tracking®](#)
[Ship Again](#)

Need help

[File an Insurance claim](#)
[Request A Service Refund](#)

Return Address:
 MORIAH KING
 EMPIRE TELECOM
 16 ESQUIRE RD
 N BILLERICA, MA 01862-2527
 ne_sa_deliverable@empiretelecomm.com

Delivery Address:
 JAY MORAN
 TOWN OF MANCHESTER MAYOR
 41 CENTER ST
 P O BOX 191
 MANCHESTER, CT 06040-5090

Package:
 Ship Date: 03/09/20
 Value: \$50.00
 From: 01862

Service:
 Priority Mail® 2-Day
 Flat Rate Envelope
 USPS Tracking®

Transaction Number:	485922481	Postage Cost	\$7.75
Transaction Type:	Label	USPS Tracking®	Free
Payment Method:	VISA-4382	Label Total:	\$7.75
Payment Status:	Account Charged	Order Total:	\$23.25

Timestamp	Message
03-09-2020 10:00:08	LABEL REPRINTED
03-09-2020 09:59:57	LABEL PRINTED
03-09-2020 09:59:51	Getting Payment
03-09-2020 09:59:35	Setting Payment

Tracking for this label is available until July 7, 2020. Need to keep Tracking history longer? Find out if your label is eligible for [Premium Tracking today!](#)

[Back to Shipping History](#)

Feedback

Vertical Resources Group, Inc.

December 11, 2019

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

Object: RF Mod/IP Repeater Engineering Mount Opinion Letter
Existing 184' Tall Tower installed AT&T LTE Antenna Supports
Site ID: CT5448 Manchester-Central
239 Turnpike East, Manchester, CT 06040
Our File : CT5448-IPRepeater

Mr Cooper,

The following are the calculations for the proposed installation of AT&T Mobility's Sirius-XM IP Repeater equipment on existing Commscope MTC3607 platform mount. Tower in question has been designed and manufactured by an unknown entity.

Code: Connecticut State Building Code 2018, I.B.C. 2015, ASCE7-12, EIA-222-G.
Risk Category: II Exposure Category: 'B' Topographic Category: '1'
Wind Speed: 125 Mph (CT B.C. 2018 ultimate gust), 97 Mph (nominal 3 sec gust IBC 1609.3.1)
Ice: $\frac{3}{4}$ " \emptyset radial Snow: P_G = ground snow load = 30 Psf (CT BC 2018)
 $F_A = q_z * G_H * (EPA)$ $EPA = \text{Effective Projected Area} = C_A * A_A$

Commscope MTC3607 Platform Capacity Chart per pipe mount @ elevation 143'-0":
Maximum $(EPA)_A$ per pipe mount $EPA = C_A * A_A = (1) * (17.0)^2 = 17.0 \text{ Sq.Ft.}$
Maximum $(EPA)_A$ per platform $EPA = C_A * A_A = (12) * (17.0)^2 = 204.0 \text{ Sq.Ft.}$
Total Commscope design $(EPA)_A = 204.0 \text{ Sq.Ft.}$

Existing & Proposed AT&T Mobility MTC3607 platform equipment @ elevation 143'-0":
(e) 3-Kathrein 800-10121 (UMTS850) $EPA = C_A * A_A = (3) * (1.32) * (3.90)^2 = 15.4 \text{ Sq.Ft.}$
(e) 1-CCI HPA65RBUUH6 (LTE850/AWS) $EPA = C_A * A_A = (1) * (1.30) * (7.40)^2 = 9.6 \text{ Sq.Ft.}$
(e) 2-CCI OPA65RLCUUH6 (LTE700bc/PCS/WCS) $EPA = C_A * A_A = (2) * (1.30) * (7.40)^2 = 19.2 \text{ Sq.Ft.}$
(e) 2-CCI HPA65RBUUH8 (LTE850/AWS) $EPA = C_A * A_A = (2) * (1.36) * (9.49)^2 = 25.8 \text{ Sq.Ft.}$
(e) 4-CCI OPA65RLCUUH8 (LTE700bc/PCS/WCS) $EPA = C_A * A_A = (4) * (1.37) * (9.27)^2 = 50.7 \text{ Sq.Ft.}$
(e) 6-Powerwave LGP21401 (UMTS850) $EPA = C_A * A_A = (6) * (1.2) * (0.9)^2 = 6.4 \text{ Sq.Ft.}$
(e) 3- Ericsson RRUS-11 (LTE700bc) $EPA = C_A * A_A = (3) * (1.2) * (2.32)^2 = 8.3 \text{ Sq.Ft.}$
(e) 3- Ericsson RRUS-12A2 (LTEPCS) $EPA = C_A * A_A = (3) * (1.2) * (2.62)^2 = 9.4 \text{ Sq.Ft.}$
(e) 3- Ericsson RRUS-32 (LTEWCS) $EPA = C_A * A_A = (3) * (1.2) * (2.28)^2 = 8.2 \text{ Sq.Ft.}$
(e) 3- Ericsson RRUS-32b66 (LTEAWS) $EPA = C_A * A_A = (3) * (1.2) * (2.28)^2 = 8.2 \text{ Sq.Ft.}$
(e) 3- Ericsson RRUS-4478 (LTE850) $EPA = C_A * A_A = (3) * (1.2) * (1.68)^2 = 6.0 \text{ Sq.Ft.}$
(P) 3- Commscope IONM23SDARS (SXM) $EPA = C_A * A_A = (3) * (1.2) * (1.36)^2 = 4.9 \text{ Sq.Ft.}$
(P) 3- Commscope CBC23SR43 (SXM) $EPA = C_A * A_A = (3) * (1.2) * (0.52)^2 = 1.8 \text{ Sq.Ft.}$
(e 2) DC6-48-60-18-8F, (e 1) DC6-48-60-0-8F, $EPA = C_A * A_A = (3) * (1.2) * (2.0)^2 = 7.2 \text{ Sq.Ft.}$
Total AT&T Mobility proposed install $EPA = 181.0 \text{ Sq.Ft.}$

Total Commscope Design $(EPA)_A = 204 \text{ Sq.Ft.} > \text{Total AT\&T Install equipment } (EPA)_A = 181.0 \text{ Sq.Ft.}$ OK!

The aforementioned existing & proposed AT&T equipment at tower elevation 143'-0" has a smaller exposed surface area than what the Commscope MTC3607 heavy duty platform was originally designed for, being at approximately 88% capacity, and therefore can be safely be installed.

We trust the information presented in this offer will meet your requirements. However, please do not hesitate to contact us if you have any queries, or require any further information regarding this proposal.

Yours very truly


Miguel Nobre



PROJECT INFORMATION

SCOPE OF WORK: UNMANNED COMMUNICATIONS FACILITY MODIFICATIONS INCLUDING:
 - (P) SIRIUS-VM NEW CONSCOPE 10H-UZ3 SZARS REARTE ARMED ON NEW RR-FA3 MOUNT (1/SECT., 3 TOT.)
 - (P) SIRIUS-VM NEW CONSCOPE CSK23SR-43 COMBINER ON NEW RR-FA3 MOUNT (1/SECT., 3 TOT.)
 - (P) AT&T ALPHA/BETA/DAMA LINES RRUS-32 15x4 PORT TO BE CONNECTED TO NEW CONSCOPE SUM/WCS DEPLETER CSK23SR43 (1/SECT., 3 TOT.)
 IN SHELTER:
 - SIRIUS-VM EQUIPMENT IN NEW PURCELL FLX21-2520 EXTERIOR ENCLOSURE RACK
 - ADD 2.5A BREAKER IN AT&T POWER PLANT FOR SIRIUS-VM EQUIPMENT

SITE NUMBER: CT5448
SITE NAME: MANCHESTER - CENTRAL
SITE ADDRESS: 239 TURNPIKE EAST
 MANCHESTER, CT 06040
TOWER OWNER: TOWN OF MANCHESTER
 41 CENTER STREET
 MANCHESTER, CT 06042
APPLICANT: AT&T
 550 COCHITUATE RD
 SUITES 13 & 14
 FRAMINGHAM, MA 01701
NOI CONTACT: TEL 866-915-5600
COORDINATES: LAT. N41° 47' 03.9"
 LONG. W72° 30' 42.3"
GROUND LEVEL: ±288'
DEED REFERENCE: N/A
SITE PARCEL NO.: N/A
CURRENT ZONING: N/A
HORIZONTAL DATUM: (NAD) 1983



at&t

SITE NUMBER: CT5448 FA: 10071105
SITE NAME: MANCHESTER CENTRAL
PROJECT: RF MOD // IP REPEATER MRTCB037949

DRAWING INDEX

REV

LOCATION MAP

APPLICABLE BUILDING CODES AND STANDARDS

01 TITLE SHEET

1

DIRECTIONS: FROM ROCKY HILL, PROCEED NORTH ON I-91 TOWARD HARTFORD. TAKE I-91 NORTH EXIT #29 TOWARDS I-84 EAST. CONTINUE ONTO I-84 EAST. TAKE I-84 EAST EXIT #80. PROCEED EAST ON US-6/RT-44. TURN LEFT ONTO MAIN STREET. TURN RIGHT ONTO MIDDLE TURNPIKE. ARRIVE AT #239 SITE IS ON LEFT

SUBCONTRACTOR'S WORK SHALL COMPLY WITH PROJECT STANDARDS AND SPECIFICATIONS. SUBCONTRACTOR WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AAJ) FOR THE LOCATION. THE EDITION OF THE AAJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

02 NOTES

1

SITE ACCESS: LOCKED GATE

BUILDING CODE:
 CONNECTICUT STATE BUILDING CODE

03 RF SCHEDULE/ANTENNA PLAN

1

ELECTRICAL CODE:
 NATIONAL ELECTRICAL CODE LATEST EDITION
 SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:
 AMERICAN CONCRETE INSTITUTE (ACI) 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
 AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION, ASD, NINTH EDITION
 AMERICAN NATIONAL STANDARDS INSTITUTE/TELECOMMUNICATIONS INDUSTRY ASSOCIATION (ANSI/TIA) 222-F OR G AS APPLICABLE, STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES
 TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS

04 SITE PLAN & EQUIPMENT PLAN

1

05 ELEVATION VIEW & DETAILS

1

06 GROUNDING DETAILS

1



INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) 81, GUIDE FOR MEASURING EARTH RESISTIVITY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUND SYSTEM
 IEEE 1100 (1999) RECOMMENDED PRACTICE FOR POWERING AND GROUNDING OF ELECTRONIC EQUIPMENT

IEEE C62.41, RECOMMENDED PRACTICES ON SURGE VOLTAGES IN LOW VOLTAGE AC POWER CIRCUITS (FOR LOCATION CATEGORY "C3" AND "HIGH SYSTEM EXPOSURE")

TELECORDIA GR-1503, COAXIAL CABLE CONNECTIONS

ANSI T1.311, FOR TELECOM - DC POWER SYSTEMS - TELECOM, ENVIRONMENTAL PROTECTION

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.



CONNECTICUT LAW REQUIRES TWO WORKING DAYS NOTICE PRIOR TO ANY EARTH MOVING ACTIVITIES BY CALLING 800-922-4455 OR DIAL 811

CONTACT & UTILITY INFORMATION

CONTACT	COMPANY	PHONE NO.
ENGINEERING: MIQUEL NOBRE	VRG	(508) 981-9590
SITE ACQUISITION: DAVID COOPER	EMPIRE	(617) 639-4908
CONSTRUCTION: GREG DORMAN	EMPIRE	(484) 683-1750
UTILITIES:		
POWER: WORK REQUEST GROUP	NATIONAL GRID	(800) 375-7405
TELCO: VERIZON	VERIZON	(800) 941-9900



489 Washington Street
 Auburn, MA 01501
 Tel. (508) 981-9590
 Fax. (508) 519-8939
 mobile@verticalresources.com



EMPIRE TELECOM USA, LLC
 16 ESQUIRE ROAD
 BILLERICA, MA 01821

SITE NUMBER: CT5448
SITE NAME: MANCHESTER
PROJECT: RF MOD // IP
 239 MIDDLE TURNPIKE EAST
 MANCHESTER, CT 06040
 HARTFORD COUNTY



at&t

550 COCHITUATE RD
 SUITES 13 & 14
 FRAMINGHAM, MA 01701

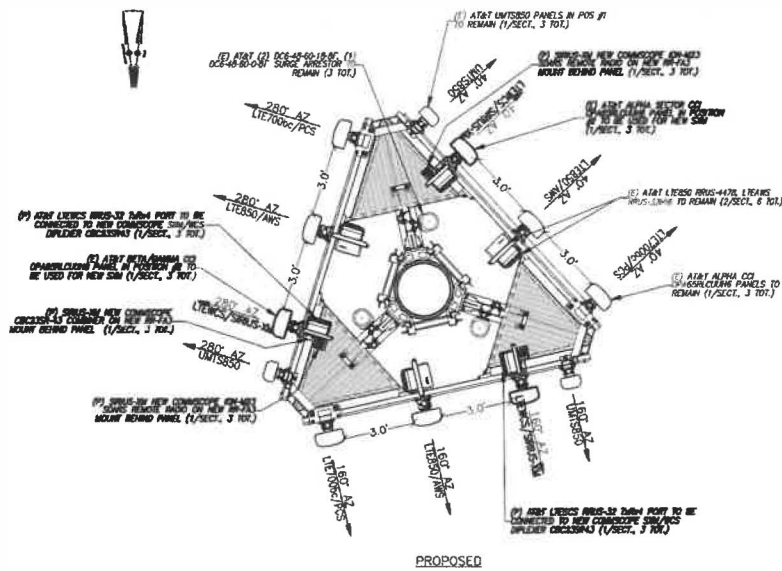
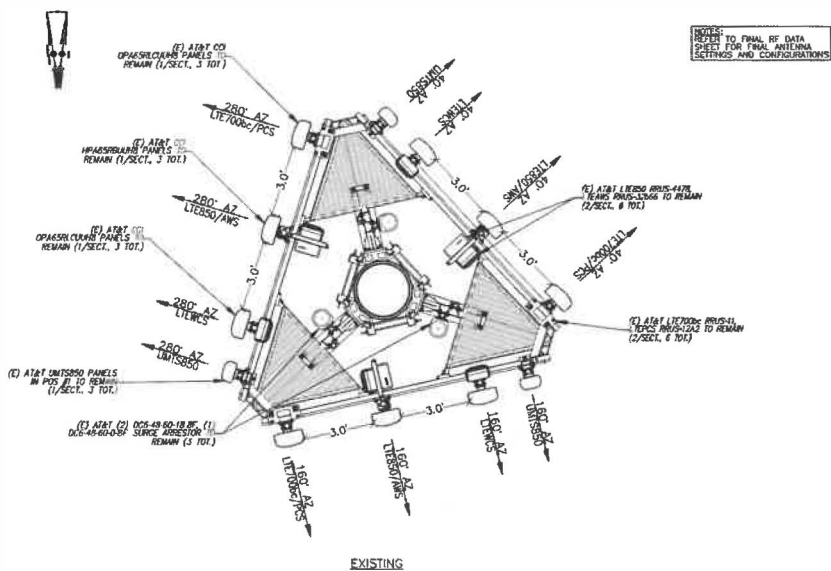
NO.	DATE	REVISION	BY	CHK	APP'D
1	04/22/19	GENERAL REVISIONS	E.L.P.	G.A.M.	
2	04/14/19	FOR CONSTRUCTION	E.L.P.	G.A.M.	
3					
4					
5					



AT&T	
TITLE SHEET	
JOB NUMBER	DRAWING NUMBER
CT5448-19thcenter	01
	1

AT&T RF SYSTEM SCHEDULE

POSITION	SECTOR	STATUS	BAND	ANTENNA MAKE	ANTENNA MODEL	SIZE(INCHES) (LxWxH)	RAD. CTR. FT. AGL	AZIMUTH	TWA/DIPLEXER /COMBINER	REMOTE RADIOS	RADIO LOCATION	SIZE(INCHES) (LxWxH)	FEEDER TYPE	FEEDER LENGTH	RAYCAP
1	Alpha	EXISTING	UMTS850	KATHREIN	800-10121	54.5x10.3x5.9	±143.0'	40°	[Symbol]	---	---	---	[Symbol]	(E2) 180'	
2	Alpha	EXISTING	LTE1850/SRL35M	CCI	OP46SRGLCULMB	72.0x14.8x7.4	±143.0'	40°	1:00M [Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	
3	Alpha	EXISTING	LTE1850/AWS	CCI	HP46SRBLUMB	72.0x14.8x9.0	±143.0'	40°	---	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	
4	Alpha	EXISTING	LTE1850/PCS	CCI	OP46SRGLCULMB	72.0x14.8x7.4	±143.0'	40°	---	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	
1	Beta	EXISTING	UMTS850	KATHREIN	800-10121	54.5x10.3x5.9	±143.0'	180°	[Symbol]	---	---	---	[Symbol]	(E2) 180'	(B) DCS-45-60-D-5F (E1) DCS-45-60-D-5F
2	Beta	EXISTING	LTE1850/SRL35M	CCI	OP46SRGLCULMB	92.7x14.4x7.0	±143.0'	160°	1:00M [Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	
3	Beta	EXISTING	LTE1850/AWS	CCI	HP46SRBLUMB	92.4x14.8x7.4	±143.0'	160°	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	
4	Beta	EXISTING	LTE1850/PCS	CCI	OP46SRGLCULMB	92.7x14.4x7.0	±143.0'	160°	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	
1	Gamma	EXISTING	UMTS850	KATHREIN	800-10121	54.5x10.3x5.9	±143.0'	280°	[Symbol]	---	---	---	[Symbol]	(E2) 180'	
2	Gamma	EXISTING	LTE1850/SRL35M	CCI	OP46SRGLCULMB	92.7x14.4x7.0	±143.0'	280°	1:00M [Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	
3	Gamma	EXISTING	LTE1850/AWS	CCI	HP46SRBLUMB	92.4x14.8x7.4	±143.0'	280°	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	
4	Gamma	EXISTING	LTE1850/PCS	CCI	OP46SRGLCULMB	92.7x14.4x7.0	±143.0'	280°	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	



ANTENNA MOUNTING PLAN VIEW 2
SCALE: N.T.S.

VRG
VERTICAL RESOURCES GRP.

489 Washington Street
Auburn, MA 01501
Tel. (508) 981-3550
Fax (508) 519-8939
mobile@verticalresourcesgrp.com

EMPIRE telecom
EMPIRE TELECOM USA, LLC
16 ESCURE ROAD
BILERICA, MA 01821

SITE NUMBER: CT5448
SITE NAME: MANCHESTER
PROJECT: RF MOD // IP

239 MIDDLE TURNPIKE EAST
MANCHESTER, CT 06040
HARTFORD COUNTY



at&t
550 COCHITUATE RD
SUITES 13 & 14
FRAMINGHAM, MA 01701

NO.	DATE	REVISION	BY	CHK	APP'D
1	11/13/19	GENERAL REVISIONS	E.L.P.	G.A.M.	
2	11/14/19	FOR CONSTRUCTION	E.L.P.	G.A.M.	

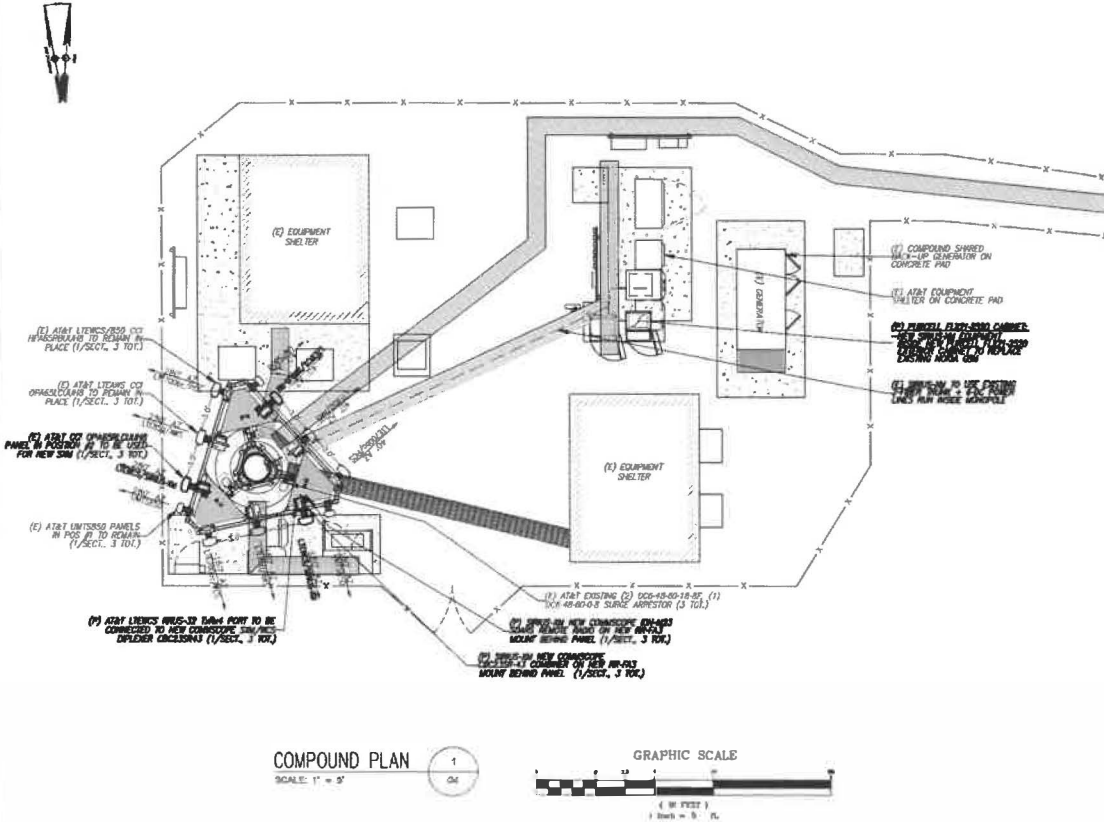


AT&T
RF SCHEDULE/ANTENNA PLAN

JOB NUMBER	DRAWING NUMBER	TITLE
CT5448-01	03	1

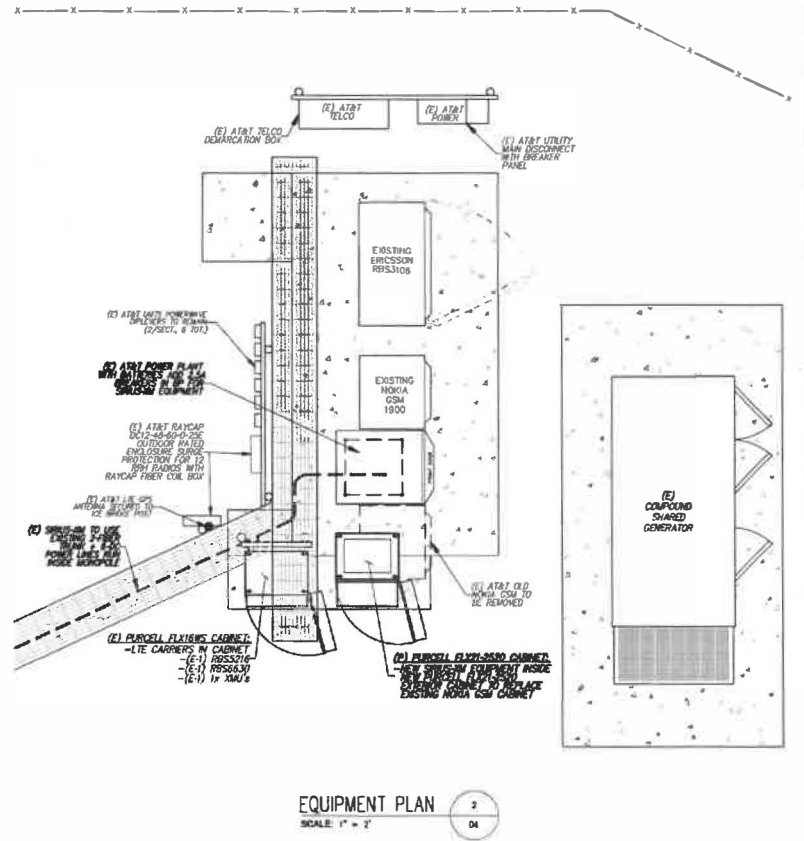
GENERAL NOTES

- THE CELLULAR INSTALLATION IS AN UNMANNED PRIVATE AND SECURED COMPOUND. IT IS ONLY ACCESSIBLE BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE, AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
- CONSTRUCTION, MAINTENANCE & OPERATION OF PROPOSED TOWER FACILITY WILL BE HELD IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE & FEDERAL REGULATIONS AND GUIDELINES.



COMPOUND PLAN

1
04



EQUIPMENT PLAN

2
04

VRG
VERTICAL RESOURCES GRP.

489 Washington Street
Auburn, MA 01501
Tel. (508) 981-9590
Fax (508) 919-8939
va001@verticalresourcesgrp.com

EMPIRE telecom
EMPIRE TELECOM USA, LLC
15 COCHITUATE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT5448
SITE NAME: MANCHESTER
PROJECT: RF MOD // IP
239 MIDDLE TURNPIKE EAST
MANCHESTER, CT 06040
HARTFORD COUNTY

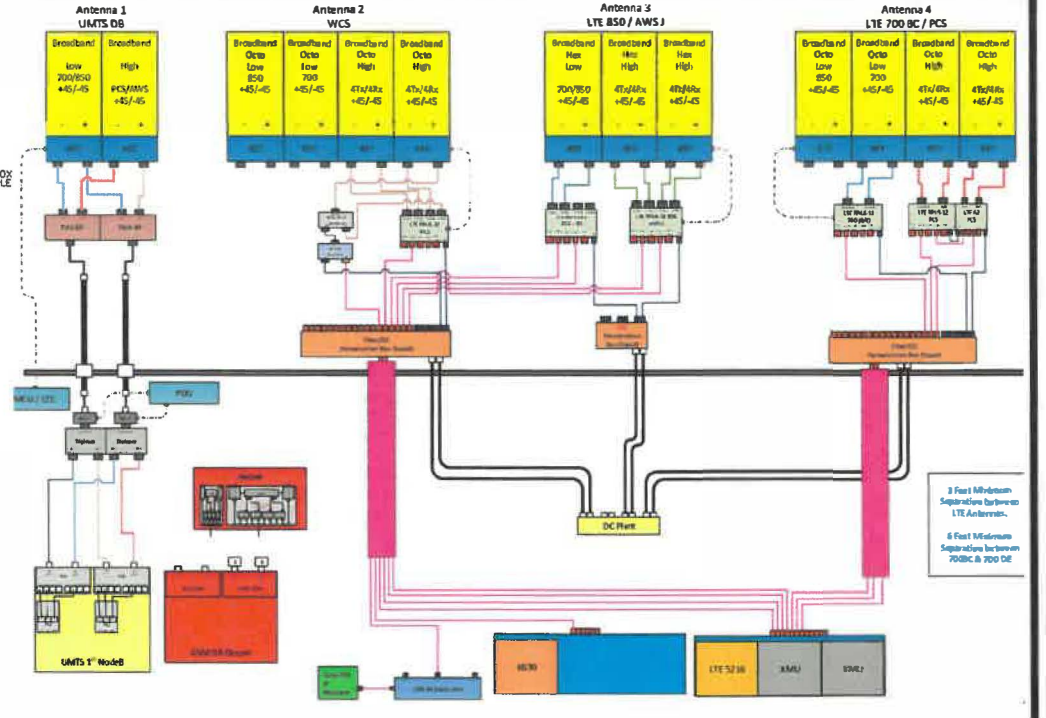
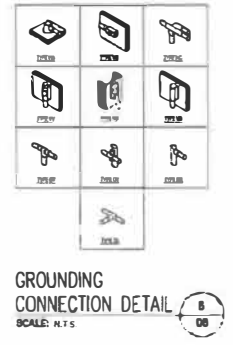
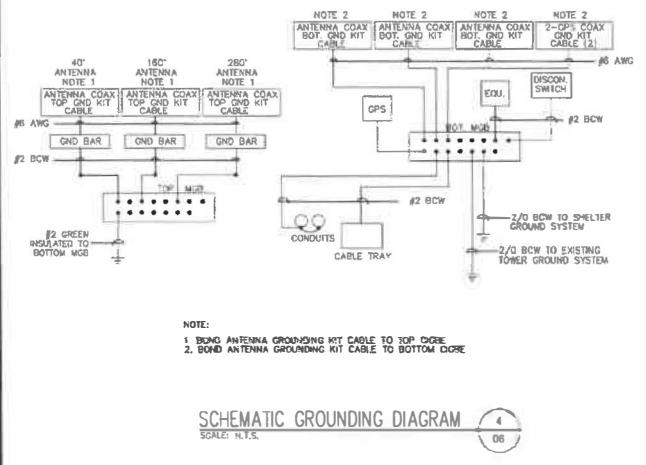
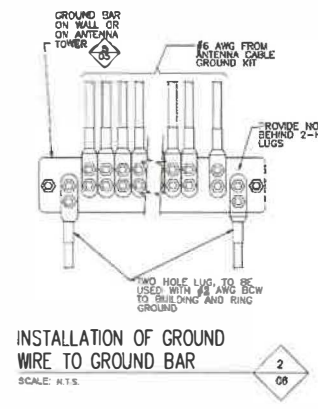
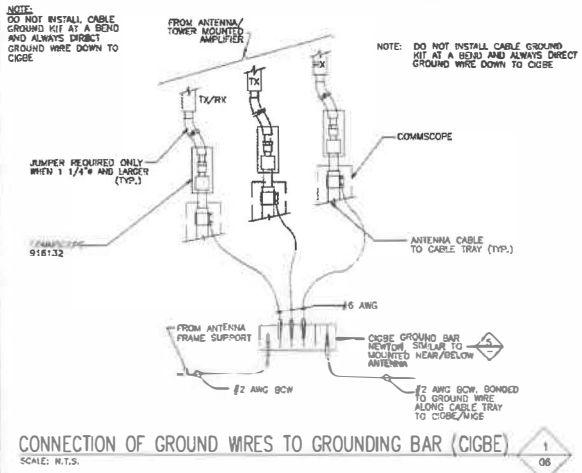


at&t
550 COCHITUATE RD
SUITES 13 & 14
FRAMINGHAM, MA 01701

NO.	DATE	REVISION	BY	CHK	APPTD	SCALE	DESIGNER	M.N.	DRAWN BY	G.A.M.
01	01/23/19	GENERAL REVISIONS	E.L.P.	G.A.M.						
02	06/14/19	FOR CONSTRUCTION	E.L.P.	G.A.M.						



AT&T
SITE PLAN & EQUIPMENT PLAN
SITE NUMBER: 015448-#1rev004
DRAWING NUMBER: 04
REV: 1

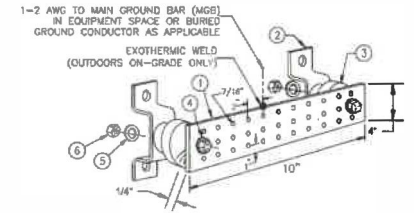


ALPHA/BETA/GAMMA SIRIUS-XM PLUMBING DIAGRAM
SCALE: N.T.S.

NOTE:
1. CONTRACTOR TO CONFIRM ALL PARTS
2. INSTALL ALL EQUIPMENT PER MANUFACTURERS RECOMMENDATIONS

NEWTON INSTRUMENT COMPANY, INC.
BUTLER, N.C. OR APPROVED EQUAL

ITEM	REQ.	PART NO.	DESCRIPTION
1	1	1/4"x6"x12"	PRE DRILLED GND. BAR
2	3	A-6056	WALL MTG. BRKT.
3	2	3061-4	INSULATORS
4	2	3012-13	5/8"-11x4" H.H.C.S.
5	4	3015-8	5/8 LOCKWASHER
6	2	3014-8	5/8"-11 HEX NUT



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EMPIRE telecom
EMPIRE TELECOM USA, LLC
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT5448
SITE NAME: MANCHESTER
PROJECT: RF MOD #1/P
239 MIDDLE TURNPIKE EAST
MANCHESTER, CT 06040
HARTFORD COUNTY



at&t
550 COCHITUATE RD
SUITES 13 & 14
FRAMINGHAM, MA 01701

DATE	REVISION	BY	CHK	APP'D
10/25/19	GENERAL REVISIONS			E.L.P. G.A.M.
09/14/19	FOR CONSTRUCTION			E.L.P. G.A.M.
	REVISION			BY: CRK APP'D:

DESIGNED BY: M.N. DRAWN BY: G.A.M.



AT&T

GROUNDING DETAILS

JOB NUMBER	DRAWING NUMBER	REV.
0548-PHYE001	08	1



SITE SAFE
RF COMPLIANCE EXPERTS



8618 Westwood Center Drive, Suite 315, Vienna, VA 22182
703.276.1100 • 703.276.1169 fax
info@sitesafe.com • www.sitesafe.com



**Empire Telecom on behalf of
AT&T Mobility, LLC
Site FA – 10071105
Site ID – CT5448
USID – 26172
Site Name – MANCHESTER CENTRAL
(MRCTB037949)**

**239 Middle Turnpike East
Manchester, CT 06040**

Latitude: N41-47-03.81
Longitude: W72-30-42.12
Structure Type: Monopole

Report generated date: January 30, 2020
Report by Scott Broyles
Customer Contact: Nora Oliver

**AT&T Mobility, LLC will be compliant when the
remediation recommended in Section 5.2 or
other appropriate remediation is implemented.**

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Table of Contents

1	GENERAL SITE SUMMARY.....	3
1.1	REPORT SUMMARY	3
1.2	FALL ARREST ANCHOR POINT SUMMARY	3
1.3	SIGNAGE SUMMARY	4
2	SCALE MAPS OF SITE.....	5
3	ANTENNA INVENTORY	7
4	EMISSION PREDICTIONS	11
5	SITE COMPLIANCE	16
5.1	SITE COMPLIANCE STATEMENT	16
5.2	ACTIONS FOR SITE COMPLIANCE	16
6	REVIEWER CERTIFICATION	17
	APPENDIX A – STATEMENT OF LIMITING CONDITIONS	18
	APPENDIX B – REGULATORY BACKGROUND INFORMATION	19
	FCC RULES AND REGULATIONS.....	19
	OSHA STATEMENT.....	20
	APPENDIX C – SAFETY PLAN AND PROCEDURES.....	21
	APPENDIX D – RF EMISSIONS.....	22
	APPENDIX E – ASSUMPTIONS AND DEFINITIONS	23
	GENERAL MODEL ASSUMPTIONS	23
	USE OF GENERIC ANTENNAS	23
	APPENDIX F – DEFINITIONS.....	24
	APPENDIX G – REFERENCES.....	26

1 General Site Summary

1.1 Report Summary

AT&T Mobility, LLC	Summary
Max Cumulative Simulated RFE Level on the Ground	<1% General Public Limit
Max Cumulative Simulated RFE Level at the Antenna Level	10,878.29% General Public Limit 1" in front of AT&T Mobility, LLC Alpha Sector Antenna 3
Max Cumulative Simulated RFE Level on the Ground	<1% General Public Limit
Compliant per FCC Rules and Regulations?	Will Be Compliant
Compliant per AT&T Mobility, LLC's Policy?	No

The following documents were provided by the client and were utilized to create this report:

RFDS: 10071105.PM201.RFDS.01092019.As-Built-In-Progress.CT5448

CD's: 10071105.AE201CD.LTE.RFMod.Rev1.09.23.2019

RF Powers Used: AT&T Max RRU Powers

1.2 Fall Arrest Anchor Point Summary

Fall Arrest Anchor & Parapet Info	Parapet Available (Y/N)	Parapet Height (Inches)	Fall Arrest Anchor Available (Y/N)
Roof Safety Info	N	N/A	N

1.3 Signage Summary

a. Pre-Site Visit AT&T Signage (Existing Signage)

AT&T Signage Locations									
	Information 1	Information 2	Notice	Notice 2	Caution	Caution 2B	Warning	Warning 2	Barriers
Monopole Access Point(s)									
Alpha									
Beta									
Gamma									

b. Proposed AT&T Signage

AT&T Signage Locations									
	Information 1	Information 2	Notice	Notice 2	Caution	Caution 2B	Warning	Warning 2	Barriers
Monopole Access Point(s)						1			
Alpha									
Beta									
Gamma									

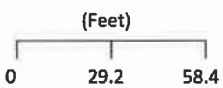
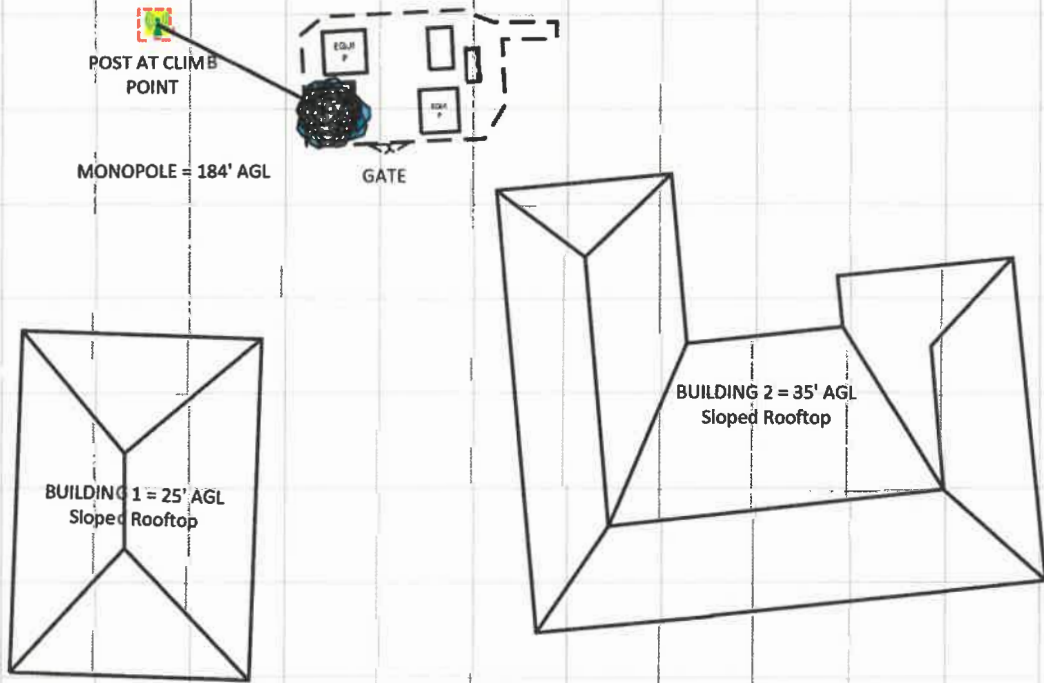


2 Scale Maps of Site

The following diagrams are included:

- Site Scale Map
- RF Exposure Diagram
- RF Exposure Diagram – Detailed View
- RF Exposure Diagram – Elevation View
- AT&T Mobility, LLC Contribution

Site Scale Map For: MANCHESTER CENTRAL



www.sitesafe.com
 Site Name: MANCHESTER CENTRAL
 1/30/2020 2:23:25 PM

Carrier Identification					
	AT&T MOBILITY LLC		VERIZON WIRELESS		T-MOBILE
	SPRINT		UNKNOWN CARRIER		
Sign Legend					
	Caution 1		Caution 20		Notice 2
	Notice 1		Warning		Warning 2
	Info 1		Info 2		RSP
Barrier			Proposed Barriers/ Signs		



3 Antenna Inventory

The following antenna inventory was obtained by the customer and was utilized to create the site model diagrams:

Ant ID	Operator	Antenna Make & Model	Type	TX Freq (MHz)	Technology	Az (Deg)	Hor BW (Deg)	Ant Len (ft)	Power	Power Type	Power Unit	Misc Loss	TX Count	Total ERP (Watts)	Ant Gain (dBd)	Z AGL	MDT	EDT
1	AT&T MOBILITY LLC	Kathrein-Scala 800-10121	Panel	850	UMTS	40	87.6	4.5	40	TPO	Watt	0	1	545.8	11.35	140.7'	0°	0°
1	AT&T MOBILITY LLC	Kathrein-Scala 800-10121	Panel	1900	UMTS	40	85.7	4.5	40	TPO	Watt	0	1	1081.6	14.32	140.7'	0°	0°
2	AT&T MOBILITY LLC	Cci OPA-65R-LCUU-H6	Panel	2300	LTE	40	63.7	6	100	TPO	Watt	0	1	3206.3	15.06	140'	0°	4°
3	AT&T MOBILITY LLC	CCI Antennas HPA-65R-BUU-H6	Panel	850	LTE	40	66.2	6	80	TPO	Watt	0	1	1177.9	11.68	140'	0°	2°
3	AT&T MOBILITY LLC	CCI Antennas HPA-65R-BUU-H6	Panel	850	5G	40	66.2	6	80	TPO	Watt	0	1	1177.9	11.68	140'	0°	2°
3	AT&T MOBILITY LLC	CCI Antennas HPA-65R-BUU-H6	Panel	2100	AWS	40	61.1	6	160	TPO	Watt	0	1	4540.7	14.53	140'	0°	4°
4	AT&T MOBILITY LLC	Cci OPA-65R-LCUU-H6	Panel	737	LTE	40	66.4	6	60	TPO	Watt	0	1	942.2	11.96	140'	0°	2°
4	AT&T MOBILITY LLC	Cci OPA-65R-LCUU-H6	Panel	1900	LTE	40	61.9	6	120	TPO	Watt	0	1	3509	14.66	140'	0°	4°
5	AT&T MOBILITY LLC	Kathrein-Scala 800-10121	Panel	850	UMTS	160	87.6	4.5	40	TPO	Watt	0	1	545.8	11.35	140.7'	0°	0°
5	AT&T MOBILITY LLC	Kathrein-Scala 800-10121	Panel	1900	UMTS	160	85.7	4.5	40	TPO	Watt	0	1	1081.6	14.32	140.7'	0°	0°
6	AT&T MOBILITY LLC	CCI Antennas OPA-65R-LCUU-H8	Panel	2300	LTE	160	63.7	7.7	100	TPO	Watt	0	1	2924.2	14.66	139.1'	0°	6°
7	AT&T MOBILITY LLC	CCI Antennas HPA-65R-BUU-H8	Panel	850	LTE	160	58.1	7.7	80	TPO	Watt	0	1	2234	14.46	139.2'	0°	8°
7	AT&T MOBILITY LLC	CCI Antennas HPA-65R-BUU-H8	Panel	850	5G	160	58.1	7.7	80	TPO	Watt	0	1	2234	14.46	139.2'	0°	8°
7	AT&T MOBILITY LLC	CCI Antennas HPA-65R-BUU-H8	Panel	2100	AWS	160	65.5	7.7	160	TPO	Watt	0	1	5371.8	15.26	139.2'	0°	4°
8	AT&T MOBILITY LLC	CCI Antennas OPA-65R-LCUU-H8	Panel	737	LTE	160	63.9	7.7	60	TPO	Watt	0	1	1009.6	12.26	139.1'	0°	8°
8	AT&T MOBILITY LLC	CCI Antennas OPA-65R-LCUU-H8	Panel	1900	LTE	160	64.3	7.7	120	TPO	Watt	0	1	3590.7	14.76	139.1'	0°	6°
9	AT&T MOBILITY LLC	Kathrein-Scala 800-10121	Panel	850	UMTS	280	87.6	4.5	40	TPO	Watt	0	1	545.8	11.35	140.7'	0°	0°
9	AT&T MOBILITY LLC	Kathrein-Scala 800-10121	Panel	1900	UMTS	280	85.7	4.5	40	TPO	Watt	0	1	1081.6	14.32	140.7'	0°	0°
10	AT&T MOBILITY LLC	CCI Antennas OPA-65R-LCUU-H8	Panel	2300	LTE	280	63.7	7.7	100	TPO	Watt	0	1	2924.2	14.66	139.1'	0°	5°
11	AT&T MOBILITY LLC	CCI Antennas HPA-65R-BUU-H8	Panel	850	LTE	280	58.1	7.7	80	TPO	Watt	0	1	2234	14.46	139.2'	0°	9°



Ant ID	Operator	Antenna Make & Model	Type	TX Freq (MHz)	Technology	Az (Deg)	Hor BW (Deg)	Ant Len (ft)	Power	Power Type	Power Unit	Misc Loss	TX Count	Total ERP (Watts)	Ant Gain (dBd)	Z AGL	MDT	EDT
11	AT&T MOBILITY LLC	CCI Antennas HPA-65R-BUU-H8	Panel	850	5G	280	58.1	7.7	80	TPO	Watt	0	1	2234	14.46	139.2'	0°	9°
11	AT&T MOBILITY LLC	CCI Antennas HPA-65R-BUU-H8	Panel	2100	AWS	280	65.5	7.7	160	TPO	Watt	0	1	5371.8	15.26	139.2'	0°	4°
12	AT&T MOBILITY LLC	CCI Antennas OPA-65R-LCUU-H8	Panel	737	LTE	280	63.9	7.7	60	TPO	Watt	0	1	1009.6	12.26	139.1'	0°	8°
12	AT&T MOBILITY LLC	CCI Antennas OPA-65R-LCUU-H8	Panel	1900	LTE	280	64.3	7.7	120	TPO	Watt	0	1	3590.7	14.76	139.1'	0°	5°
13	UNKNOWN CARRIER	Generic	Panel	700		0	65	6.3	160	TPO	Watt	0		2884.8	12.56	106.9'	0°	0°
14	UNKNOWN CARRIER	Generic	Panel	850		0	65	6.3	160	TPO	Watt	0		3524.7	13.43	106.9'	0°	0°
15	UNKNOWN CARRIER	Generic	Panel	1900		0	65	6.3	160	TPO	Watt	0		6762.7	16.26	106.9'	0°	0°
16	UNKNOWN CARRIER	Generic	Panel	2100		0	65	6.3	160	TPO	Watt	0		5716.4	15.53	106.9'	0°	0°
17	UNKNOWN CARRIER	Generic	Panel	700		120	65	6.3	160	TPO	Watt	0		2884.8	12.56	106.9'	0°	0°
18	UNKNOWN CARRIER	Generic	Panel	850		120	65	6.3	160	TPO	Watt	0		3524.7	13.43	106.9'	0°	0°
19	UNKNOWN CARRIER	Generic	Panel	1900		120	65	6.3	160	TPO	Watt	0		6762.7	16.26	106.9'	0°	0°
20	UNKNOWN CARRIER	Generic	Panel	2100		120	65	6.3	160	TPO	Watt	0		5716.4	15.53	106.9'	0°	0°
21	UNKNOWN CARRIER	Generic	Panel	700		240	65	6.3	160	TPO	Watt	0		2884.8	12.56	106.9'	0°	0°
22	UNKNOWN CARRIER	Generic	Panel	850		240	65	6.3	160	TPO	Watt	0		3524.7	13.43	106.9'	0°	0°
23	UNKNOWN CARRIER	Generic	Panel	1900		240	65	6.3	160	TPO	Watt	0		6762.7	16.26	106.9'	0°	0°
24	UNKNOWN CARRIER	Generic	Panel	2100		240	65	6.3	160	TPO	Watt	0		5716.4	15.53	106.9'	0°	0°
25	UNKNOWN CARRIER	Generic	Panel	700		0	65	6.3	160	TPO	Watt	0		2884.8	12.56	149.9'	0°	0°
26	UNKNOWN CARRIER	Generic	Panel	850		0	65	6.3	160	TPO	Watt	0		3524.7	13.43	149.9'	0°	0°
27	UNKNOWN CARRIER	Generic	Panel	1900		0	65	6.3	160	TPO	Watt	0		6762.7	16.26	149.9'	0°	0°
28	UNKNOWN CARRIER	Generic	Panel	2100		0	65	6.3	160	TPO	Watt	0		5716.4	15.53	149.9'	0°	0°



Ant ID	Operator	Antenna Make & Model	Type	TX Freq (MHz)	Technology	Az (Deg)	Hor BW (Deg)	Ant Len (ft)	Power	Power Type	Power Unit	Misc Loss	TX Count	Total ERP (Watts)	Ant Gain (dBi)	Z AGL	MDT	EDT
29	UNKNOWN CARRIER	Generic	Panel	700		120	65	6.3	160	TPO	Watt	0		2884.8	12.56	149.9'	0°	0°
30	UNKNOWN CARRIER	Generic	Panel	850		120	65	6.3	160	TPO	Watt	0		3524.7	13.43	149.9'	0°	0°
31	UNKNOWN CARRIER	Generic	Panel	1900		120	65	6.3	160	TPO	Watt	0		6762.7	16.26	149.9'	0°	0°
32	UNKNOWN CARRIER	Generic	Panel	2100		120	65	6.3	160	TPO	Watt	0		5716.4	15.53	149.9'	0°	0°
33	UNKNOWN CARRIER	Generic	Panel	700		240	65	6.3	160	TPO	Watt	0		2884.8	12.56	149.9'	0°	0°
34	UNKNOWN CARRIER	Generic	Panel	850		240	65	6.3	160	TPO	Watt	0		3524.7	13.43	149.9'	0°	0°
35	UNKNOWN CARRIER	Generic	Panel	1900		240	65	6.3	160	TPO	Watt	0		6762.7	16.26	149.9'	0°	0°
36	UNKNOWN CARRIER	Generic	Panel	2100		240	65	6.3	160	TPO	Watt	0		5716.4	15.53	149.9'	0°	0°
37	UNKNOWN CARRIER	Generic	Panel	700		0	65	6.3	160	TPO	Watt	0		2884.8	12.56	160.9'	0°	0°
38	UNKNOWN CARRIER	Generic	Panel	1900		0	65	6.3	160	TPO	Watt	0		6762.7	16.26	160.9'	0°	0°
39	UNKNOWN CARRIER	Generic	Panel	2100		0	65	6.3	160	TPO	Watt	0		5716.4	15.53	160.9'	0°	0°
40	UNKNOWN CARRIER	Generic	Panel	700		120	65	6.3	160	TPO	Watt	0		2884.8	12.56	160.9'	0°	0°
41	UNKNOWN CARRIER	Generic	Panel	1900		120	65	6.3	160	TPO	Watt	0		6762.7	16.26	160.9'	0°	0°
42	UNKNOWN CARRIER	Generic	Panel	2100		120	65	6.3	160	TPO	Watt	0		5716.4	15.53	160.9'	0°	0°
43	UNKNOWN CARRIER	Generic	Panel	700		240	65	6.3	160	TPO	Watt	0		2884.8	12.56	160.9'	0°	0°
44	UNKNOWN CARRIER	Generic	Panel	1900		240	65	6.3	160	TPO	Watt	0		6762.7	16.26	160.9'	0°	0°
45	UNKNOWN CARRIER	Generic	Panel	2100		240	65	6.3	160	TPO	Watt	0		5716.4	15.53	160.9'	0°	0°
46	UNKNOWN CARRIER	Generic	Omni	900		0	360	10	100	ERP	Watt	0		100	9.01	179'	0°	0°



Ant ID	Operator	Antenna Make & Model	Type	TX Freq (MHz)	Technology	Az (Deg)	Hor BW (Deg)	Ant Len (ft)	Power	Power Type	Power Unit	Misc Loss	TX Count	Total ERP (Watts)	Ant Gain (dBi)	Z AGL	MDT	EDT
47	UNKNOWN CARRIER	Generic	Omni	900		0	360	10	100	ERP	Watt	0		100	9.01	179'	0°	0°
48	UNKNOWN CARRIER	Generic	Omni	850		0	360	14	100	ERP	Watt	0		100	9.97	177'	0°	0°

Note: The Z reference indicates the bottom of the antenna height above the main site level unless otherwise indicated. Effective Radiated Power (ERP) is provided by the operator or based on Sitesafe experience. The values used in the modeling may be greater than are currently deployed. For other operators at this site the use of "Generic" as an antenna model or "Unknown" for a wireless operator means the information with regard to operator, their FCC license and/or antenna information was not available nor could it be secured while on site. Other operator's equipment, antenna models and powers used for modeling are based on obtained information or Sitesafe experience.

Note: The 2300 MHz SDARS remotes are being added to antennas 2, 6 and 10.

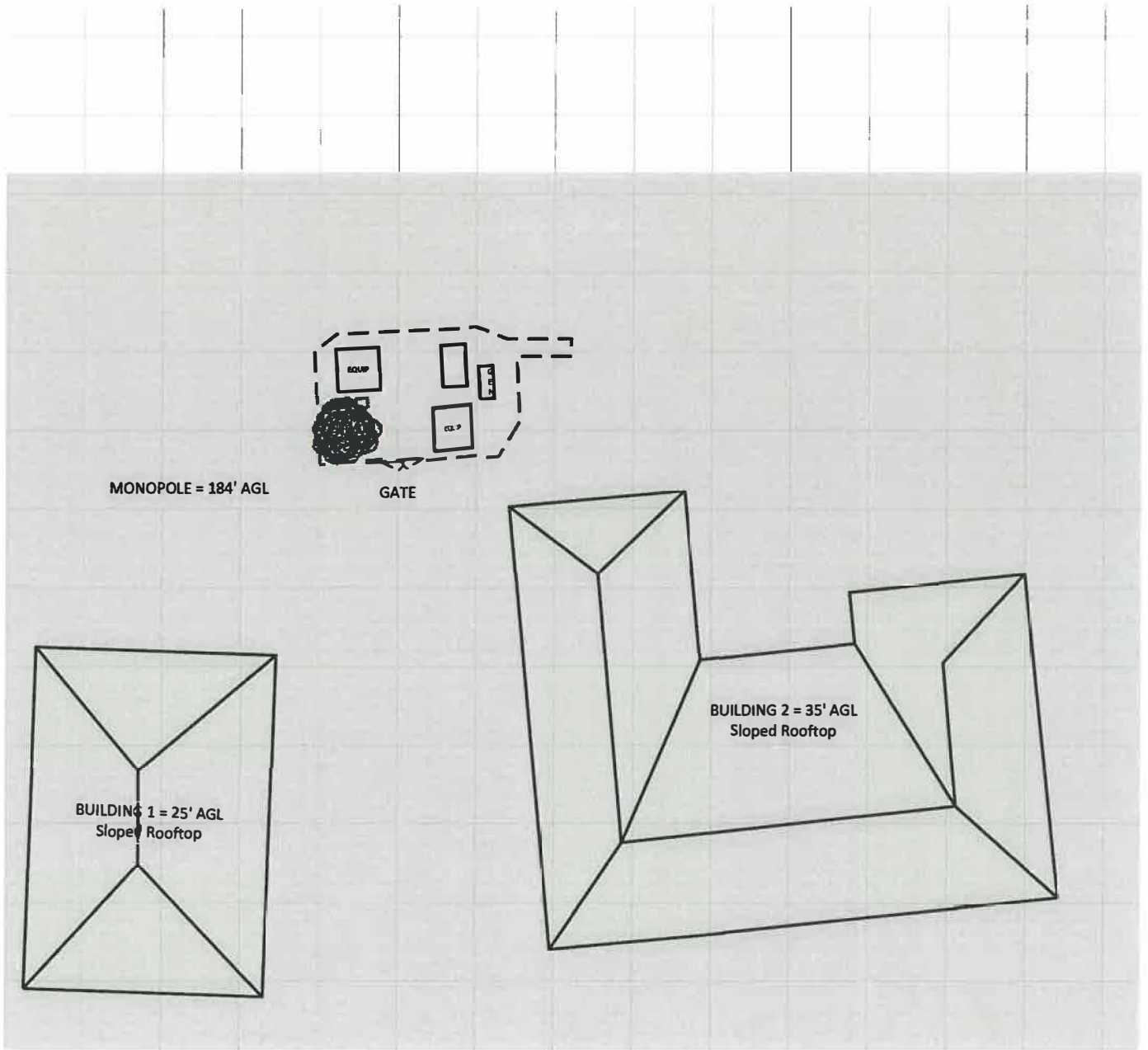
4 Emission Predictions

In the RF Exposure Simulations below, all heights are reflected with respect to main site level. In most rooftop cases this is the height of the main rooftop and in other cases this can be ground level. Each different height area, rooftop, or platform level is labeled with its height relative to the main site level. Emissions are calculated appropriately based on the relative height and location of that area to all antennas. The total analyzed elevations in the below RF Exposure Simulations are listed below.

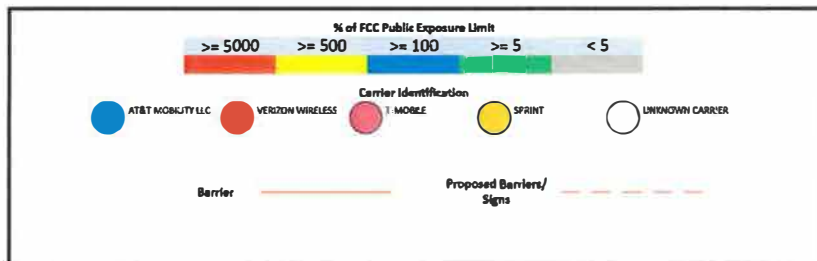
- Ground = 0'
- Building 1 = 25' AGL
- Building 2 = 35' AGL

The Antenna Inventory heights are referenced to the same level.

RF Exposure Simulation For: MANCHESTER CENTRAL Composite View



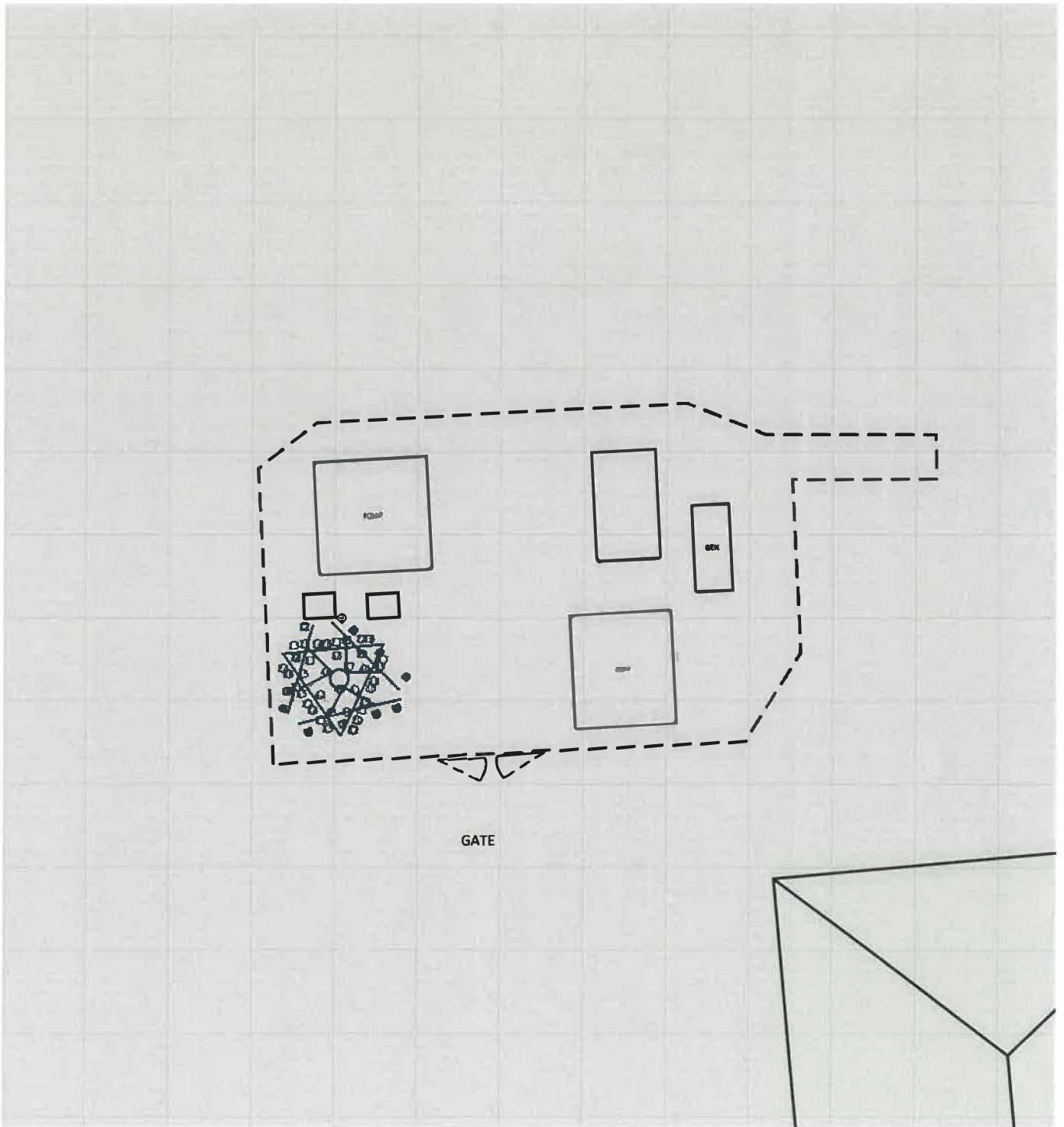
% of FCC Public Exposure Limit



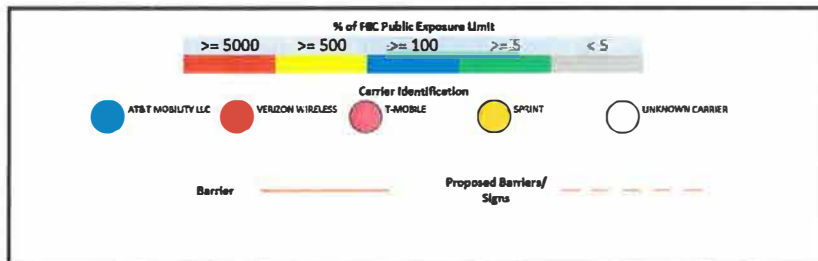
(Feet)
0 24.1 48.2
www.sitesafe.com
Site Name: MANCHESTER CENTRAL
1/30/2020 2:27:14 PM

Sitesafe OET-65 Model
Near Field Boundary:
1.5 ° Aperture
Reflection Factor: 1
Spatially Averaged

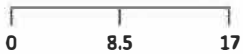
RF Exposure Simulation For: MANCHESTER CENTRAL Detailed View



% of FCC Public Exposure Limit



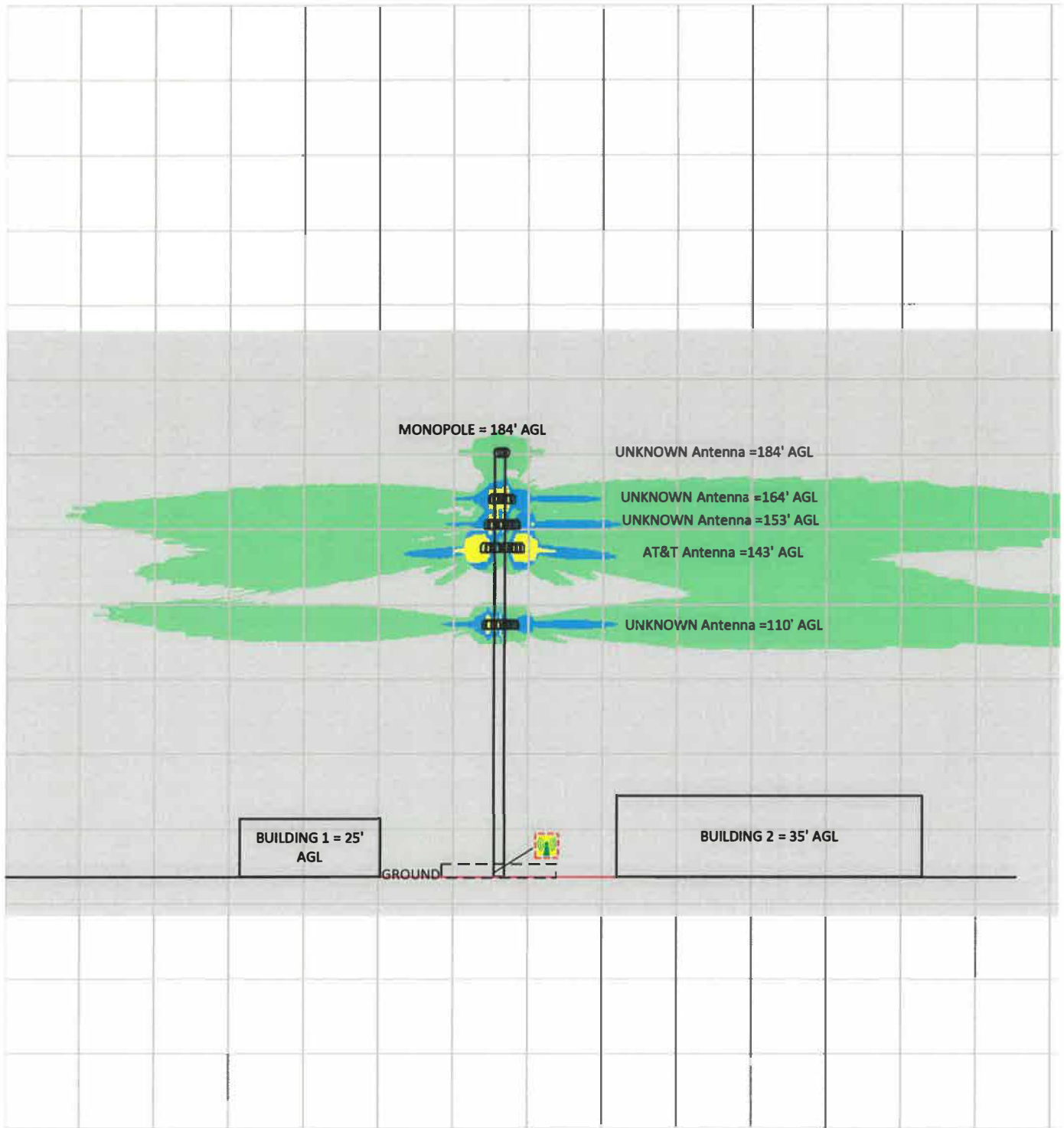
(Feet)



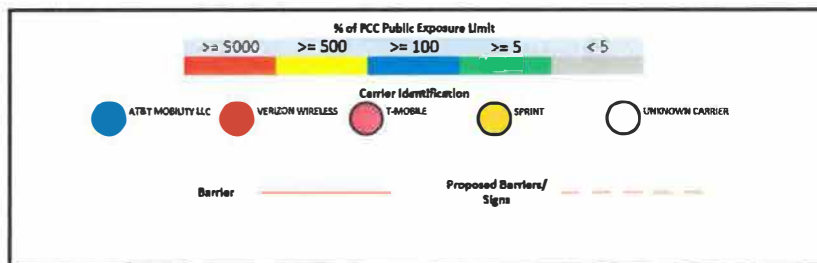
www.sitesafe.com
Site Name: MANCHESTER CENTRAL
1/30/2020 2:29:38 PM

Sitesafe OET-65 Model
Near Field Boundary:
1.5 ° Aperture
Reflection Factor: 1
Spatially Averaged

RF Exposure Simulation For: MANCHESTER CENTRAL Elevation View



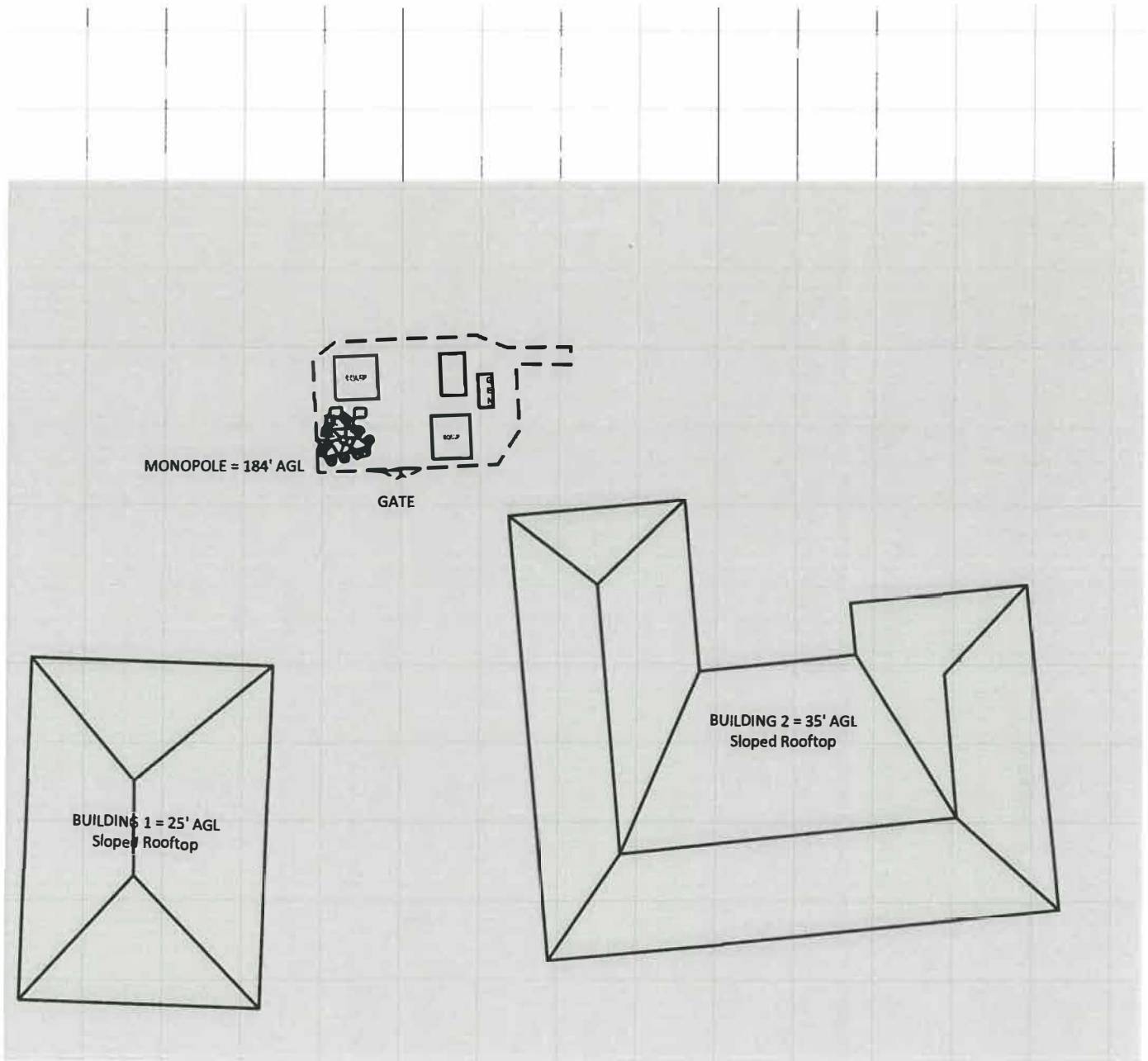
% of FCC Public Exposure Limit



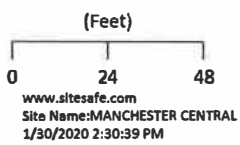
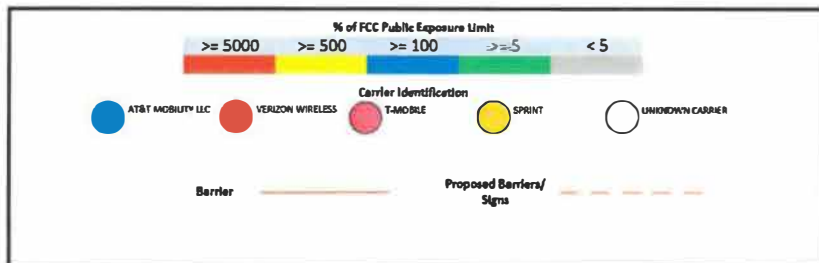
(Feet)
 0 30.6 61.2
 www.sitesafe.com
 Site Name: MANCHESTER CENTRAL
 1/30/2020 2:43:17 PM

Sitesafe OET-6S Model
 Near Field Boundary:
 1.5° Aperture
 Reflection Factor: 1
 Single Level (0)

RF Exposure Simulation For: MANCHESTER CENTRAL AT&T Mobility, LLC Contributions



% of FCC Public Exposure Limit



Sitesafe OET-65 Model
Near Field Boundary:
1.5 ° Aperture
Reflection Factor: 1
Spatially Averaged

5 Site Compliance

5.1 Site Compliance Statement

Upon evaluation of the cumulative RF emission levels from all operators at this site, RF hazard signage and antenna locations, Sitesafe has determined that:

AT&T Mobility, LLC will be compliant when the remediation recommended in Section 5.2 or other appropriate remediation is implemented.

The compliance determination is based on General Public RFE levels derived from theoretical modeling, RF signage placement, and the level of restricted access to the antennas at the site. Any deviation from the proposed AT&T Mobility, LLC deployment plan could result in the site being rendered non-compliant.

Modeling is used for determining compliance and the percentage of MPE contribution.

5.2 Actions for Site Compliance

Based on FCC regulations, common industry practice, and our understanding of AT&T Mobility, LLC's RF Safety Policy requirements, this section provides a statement of recommendations for site compliance. Recommendations have been proposed based on our understanding of existing access restrictions, signage, and an analysis of predicted RFE levels.

AT&T Mobility, LLC will be made compliant if the following changes are implemented:

Monopole Access Location

- (1) Yellow Caution 2B sign(s) required at monopole climb point.

Notes:

- Any existing signage that conflicts with the proposed signage in this report should be removed per AT&T Signage Posting Rules.
- Areas where the predicted RF emission level is above 5000% General Public MPE level are located within the near field of the antennas and are restricted by the antenna mounts. Thus, Caution 2 signs are sufficient.
- Signage may already be in place. Sitesafe does not have record of any existing signage because there were no previous visits or data supplied regarding them. All remediation is based on a worst-case scenario.



6 Reviewer Certification

The reviewer whose signature appears below hereby certifies and affirms:

That I am an employee of Site Safe, LLC, in Vienna, Virginia, at which place the staff and I provide RF compliance services to clients in the wireless communications industry; and

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission (FCC) as well as the regulations of the Occupational Safety and Health Administration (OSHA), both in general and specifically as they apply to the FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields; and

That I have thoroughly reviewed this Site Compliance Report and believe it to be true and accurate to the best of my knowledge as assembled by and attested to by Scott Broyles.

January 31, 2020

A handwritten signature in black ink, appearing to read "Anthony Handley".

Anthony Handley



Appendix A – Statement of Limiting Conditions

Sitesafe has provided computer generated model(s) in this Site Compliance Report to show approximate dimensions of the site, and the model is included to assist the reader of the compliance report to visualize the site area, and to provide supporting documentation for Sitesafe's recommendations.

Sitesafe may note in the Site Compliance Report any adverse physical conditions, such as needed repairs, that Sitesafe became aware of during the normal research involved in creating this report. Sitesafe will not be responsible for any such conditions that do exist or for any engineering or testing that might be required to discover whether such conditions exist. Because Sitesafe is not an expert in the field of mechanical engineering or building maintenance, the Site Compliance Report must not be considered a structural or physical engineering report.

Sitesafe obtained information used in this Site Compliance Report from sources that Sitesafe considers reliable and believes them to be true and correct. Sitesafe does not assume any responsibility for the accuracy of such items that were furnished by other parties. When conflicts in information occur between data collected by Sitesafe provided by a second party and data collected by Sitesafe, the data will be used.

Appendix B – Regulatory Background Information

FCC Rules and Regulations

In 1996, the Federal Communications Commission (FCC) adopted regulations for evaluating the effects of RF emissions in 47 CFR § 1.1307 and 1.1310. The guideline from the FCC Office of Engineering and Technology is Bulletin 65 ("OET Bulletin 65"), *Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields*, Edition 97-01, published August 1997. Since 1996, the FCC periodically reviews these rules and regulations as per their congressional mandate.

FCC regulations define two separate tiers of exposure limits: Occupational or "Controlled environment" and General Public or "Uncontrolled environment". The General Public limits are generally five times more conservative or restrictive than the Occupational limit. These limits apply to *accessible* areas where workers or the general public may be exposed to Radio Frequency (RF) electromagnetic fields.

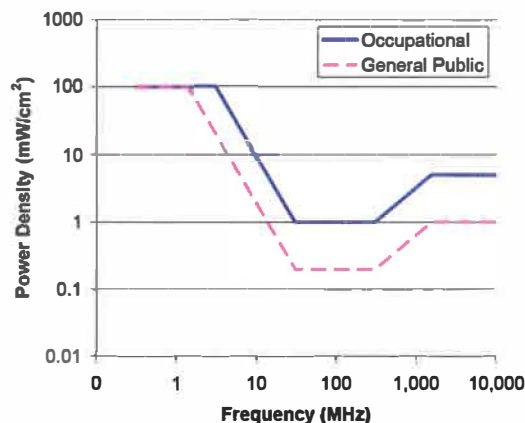
Occupational or Controlled limits apply in situations in which persons are exposed as a consequence of their employment and where those persons exposed have been made fully aware of the potential for exposure and can exercise control over their exposure.

An area is considered a Controlled environment when access is limited to these aware personnel. Typical criteria are restricted access (i.e. locked or alarmed doors, barriers, etc.) to the areas where antennas are located coupled with proper RF warning signage. A site with Controlled environments is evaluated with Occupational limits.

All other areas are considered Uncontrolled environments. If a site has no access controls or no RF warning signage it is evaluated with General Public limits.

The theoretical modeling of the RF electromagnetic fields has been performed in accordance with OET Bulletin 65. The Maximum Permissible Exposure (MPE) limits utilized in this analysis are outlined in the following diagram:

FCC Limits for Maximum Permissible Exposure (MPE)
Plane-wave Equivalent Power Density



Limits for Occupational/Controlled Exposure (MPE)

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

Limits for General Population/Uncontrolled Exposure (MPE)

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

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

OSHA Statement

The General Duty clause of the OSHA Act (Section 5) outlines the occupational safety and health responsibilities of the employer and employee. The General Duty clause in Section 5 states:

(a) Each employer –

- (1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees;
- (2) shall comply with occupational safety and health standards promulgated under this Act.

(b) Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct.

OSHA has defined Radiofrequency and Microwave Radiation safety standards for workers who may enter hazardous RF areas. Regulation Standards 29 CFR § 1910.147 identify a generic Lockout/Tagout procedure aimed to control the unexpected energization or startup of machines when maintenance or service is being performed.

Appendix C – Safety Plan and Procedures

The following items are general safety recommendations that should be administered on a site by site basis as needed by the carrier.

General Maintenance Work: Any maintenance personnel required to work immediately in front of antennas and / or in areas indicated as above 100% of the Occupational MPE limits should coordinate with the wireless operators to disable transmitters during their work activities.

Training and Qualification Verification: All personnel accessing areas indicated as exceeding the General Population MPE limits should have a basic understanding of EME awareness and RF Safety procedures when working around transmitting antennas. Awareness training increases a worker's understanding to potential RF exposure scenarios. Awareness can be achieved in a number of ways (e.g. videos, formal classroom lecture or internet-based courses).

Physical Access Control: Access restrictions to transmitting antennas locations is the primary element in a site safety plan. Examples of access restrictions are as follows:

- Locked door or gate
- Alarmed door
- Locked ladder access
- Restrictive Barrier at antenna (e.g. Chain link with posted RF Sign)

RF Signage: Everyone should obey all posted signs at all times. RF signs play an important role in properly warning a worker prior to entering into a potential RF Exposure area.

Assume all antennas are active: Due to the nature of telecommunications transmissions, an antenna transmits intermittently. Always assume an antenna is transmitting. Never stop in front of an antenna. If you have to pass by an antenna, move through as quickly and safely as possible thereby reducing any exposure to a minimum.

Maintain a 3-foot clearance from all antennas: There is a direct correlation between the strength of an EME field and the distance from the transmitting antenna. The further away from an antenna, the lower the corresponding EME field is.

Site RF Emissions Diagram(s): Section 4 of this report contains RF Diagram(s) that outline various theoretical Maximum Permissible Exposure (MPE) areas at the site. The modeling is a worst-case scenario assuming a duty cycle of 100% for each transmitting antenna at full power. This analysis is based on one of two access control criteria: General Public criteria means the access to the site is uncontrolled and anyone can gain access. Occupational criteria means the access is restricted and only properly trained individuals can gain access to the antenna locations.

Appendix D – RF Emissions

The RF Emissions Simulation(s) in this report display theoretical spatially averaged percentage of the Maximum Permissible Exposure for all systems at the site unless otherwise noted. These diagrams use modeling as prescribed in OET Bulletin 65 and assumptions detailed in Appendix E.

The key at the bottom of each RF Emissions Simulation indicates percentages displayed referenced to FCC General Public Maximum Permissible Exposure (MPE) limits. Color coding on the diagram is as follows:

- Areas indicated as Gray are predicted to be below 5% of the MPE limits. Gray represents areas more than 20 times below the most conservative exposure limit. **Gray areas are accessible to anyone.**
- Green represents areas are predicted to be between 5% and 100% of the MPE limits. **Green areas are accessible to anyone.**
- Blue represents areas predicted to exceed the General Public MPE limits but are less than Occupational limits. **Blue areas should be accessible only to RF trained workers.**
- Yellow represents areas predicted to exceed Occupational MPE limits. **Yellow areas should be accessible only to RF trained workers able to assess current exposure levels.**
- Red represents areas predicted to have exposure more than 10 times the Occupational MPE limits. **Red indicates that the RF levels must be reduced prior to access.** An RF Safety Plan is required which outlines how to reduce the RF energy in these areas prior to access.

If trained occupational personnel require access to areas that are delineated as above 100% of the limit, Sitesafe recommends that they utilize the proper personal protection equipment (RF monitors), coordinate with the carriers to reduce or shutdown power, or make real-time power density measurements with the appropriate power density meter to determine real-time MPE levels. This will allow the personnel to ensure that their work area is within exposure limits.



Appendix E – Assumptions and Definitions

General Model Assumptions

In this site compliance report, it is assumed that all antennas are operating at **full power at all times**. Software modeling was performed for all transmitting antennas located on the site. Sitesafe has further assumed a 100% duty cycle and maximum radiated power.

The modeling is based on recommendations from the FCC's OET-65 bulletin with the following variances per AT&T guidance. Reflection has not been considered in the modeling, i.e. the reflection factor is 1.0. The near / far field boundary has been set to 1.5 times the aperture height of the antenna and modeling beyond that point is the lesser of the near field cylindrical model and the far field model taking into account the gain of the antenna.

The site has been modeled with these assumptions to show the maximum RF energy density. Areas modeled with exposure greater than 100% of the General Public MPE level may not actually occur but are shown as a prediction that could be realized. Sitesafe believes these areas to be safe for entry by occupationally trained personnel utilizing appropriate personal protective equipment (in most cases, a personal monitor).

Use of Generic Antennas

For the purposes of this report, the use of "Generic" as an antenna model, or "Unknown" for an operator means the information about a carrier, their FCC license and/or antenna information was not provided and could not be obtained while on site. In the event of unknown information, Sitesafe will use our industry specific knowledge of equipment, antenna models, and transmit power to model the site. If more specific information can be obtained for the unknown measurement criteria, Sitesafe recommends remodeling of the site utilizing the more complete and accurate data. Information about similar facilities is used when the service is identified and associated with a particular antenna. If no information is available regarding the transmitting service associated with an unidentified antenna, using the antenna manufacturer's published data regarding the antenna's physical characteristics makes more conservative assumptions.

Where the frequency is unknown, Sitesafe uses the closest frequency in the antenna's range that corresponds to the highest Maximum Permissible Exposure (MPE), resulting in a conservative analysis.

Appendix F – Definitions

5% Rule – The rules adopted by the FCC specify that, in general, at multiple transmitter sites actions necessary to bring the area into compliance with the guidelines are the shared responsibility of all licensees whose transmitters produce field strengths or power density levels at the area in question in excess of 5% of the exposure limits. In other words, any wireless operator that contributes 5% or greater of the MPE limit in an area that is identified to be greater than 100% of the MPE limit is responsible for taking corrective actions to bring the site into compliance.

Compliance – The determination of whether a site complies with FCC standards with regards to Human Exposure to Radio Frequency Electromagnetic Fields from transmitting antennas.

Decibel (dB) – A unit for measuring power or strength of a signal.

Duty Cycle – The percent of pulse duration to the pulse period of a periodic pulse train. Also, may be a measure of the temporal transmission characteristic of an intermittently transmitting RF source such as a paging antenna by dividing average transmission duration by the average period for transmission. A duty cycle of 100% corresponds to continuous operation.

Effective (or Equivalent) Isotropic Radiated Power (EIRP) – The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna.

Effective Radiated Power (ERP) – The product of the power supplied to the antenna and the antenna gain in a given direction relative to a half-wave dipole antenna.

Gain (of an antenna) – The ratio of the maximum power in a given direction to the maximum power in the same direction from an isotropic radiator. Gain is a measure of the relative efficiency of a directional antenna as compared to an omnidirectional antenna.

General Population/Uncontrolled Environment – Defined by the FCC as an area where RF exposure may occur to persons who are **unaware** of the potential for exposure and who have no control over their exposure. General Population is also referenced as General Public.

Generic Antenna – For the purposes of this report, the use of "Generic" as an antenna model means the antenna information was not provided and could not be obtained while on site. In the event of unknown information, Sitesafe will use its industry specific knowledge of antenna models to select a worst-case scenario antenna to model the site.

Isotropic Antenna – An antenna that is completely non-directional. In other words, an antenna that radiates energy equally in all directions.

Maximum Measurement – This measurement represents the single largest measurement recorded when performing a spatial average measurement.

Maximum Permissible Exposure (MPE) – The rms and peak electric and magnetic field strength, their squares, or the plane-wave equivalent power densities associated with these fields to which a person may be exposed without harmful effect and with acceptable safety factor.



Occupational/Controlled Environment – Defined by the FCC as an area where RF exposure may occur to persons who are **aware** of the potential for exposure as a condition of employment or specific activity and can exercise control over their exposure.

OET Bulletin 65 – Technical guideline developed by the FCC's Office of Engineering and Technology to determine the impact of RF exposure on humans. The guideline was published in August 1997.

OSHA (Occupational Safety and Health Administration) – Under the Occupational Safety and Health Act of 1970, employers are responsible for providing a safe and healthy workplace for their employees. OSHA's role is to promote the safety and health of America's working men and women by setting and enforcing standards; providing training, outreach and education; establishing partnerships; and encouraging continual process improvement in workplace safety and health. For more information, visit www.osha.gov.

Radio Frequency Exposure or Electromagnetic Fields – Electromagnetic waves that are propagated from antennas through space.

Spatial Average Measurement – A technique used to average a minimum of ten (10) measurements taken in a ten (10) second interval from zero (0) to six (6) feet. This measurement is intended to model the average energy a 6-foot tall human body will absorb while present in an electromagnetic field of energy.

Transmitter Power Output (TPO) – The radio frequency output power of a transmitter's final radio frequency stage as measured at the output terminal while connected to a load.



Appendix G – References

The following references can be followed for further information about RF Health and Safety.

Site Safe, LLC

<http://www.sitesafe.com>

FCC Radio Frequency Safety

<http://www.fcc.gov/encyclopedia/radio-frequency-safety>

National Council on Radiation Protection and Measurements (NCRP)

<http://www.ncrponline.org>

Institute of Electrical and Electronics Engineers, Inc., (IEEE)

<http://www.ieee.org>

American National Standards Institute (ANSI)

<http://www.ansi.org>

Environmental Protection Agency (EPA)

<http://www.epa.gov/radtown/wireless-tech.html>

National Institutes of Health (NIH)

<http://www.niehs.nih.gov/health/topics/agents/emf/>

Occupational Safety and Health Agency (OSHA)

<http://www.osha.gov/SLTC/radiofrequencyradiation/>

International Commission on Non-Ionizing Radiation Protection (ICNIRP)

<http://www.icnirp.org>

World Health Organization (WHO)

<http://www.who.int/peh-emf/en/>

National Cancer Institute

<http://www.cancer.gov/cancertopics/factsheet/Risk/cellphones>

American Cancer Society (ACS)

http://www.cancer.org/docroot/PED/content/PED_1_3X_Cellular_Phone_Towers.asp?sitearea=PED

European Commission Scientific Committee on Emerging and Newly Identified Health Risks

http://ec.europa.eu/health/ph_risk/committees/04_scenihp/docs/scenihp_o_022.pdf

Fairfax County, Virginia Public School Survey

<http://www.fcps.edu/fts/safety-security/RFEESurvey/>

UK Health Protection Agency Advisory Group on Non-Ionizing Radiation

http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb_C/1317133826368

Norwegian Institute of Public Health

<http://www.fhi.no/dokumenter/545eea7147.pdf>