



Radio Frequency Safety Survey Report Prediction (RFSSRP)

AT&T Wireless Monopole Facility

Pace ID:

PTN:

Site ID: 10141753

Site Name: Brooktondale

Address: 340 Bald Hill Road,
Brooktondale, NY 14817

Latitude: 42.365008

Longitude: -76.383761

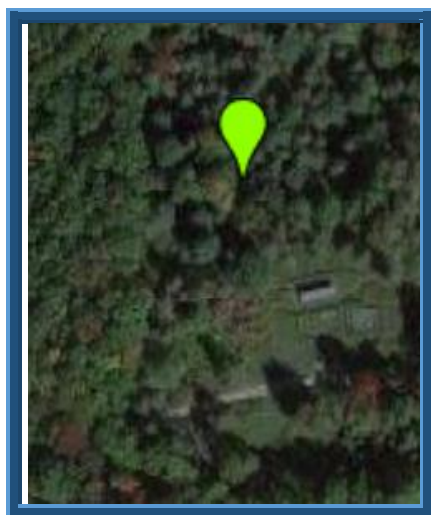
USID: 219365

FA: 10141753

Prepared for:

AT&T Mobility, LLC
c/o Airosmith Development
32 Clinton Street
Saratoga Springs, NY 12866

Centerline PN: 950016-094



Additional Site Information:

CDs:10141753.Brooktondale.FinalZoningDrawings.
NSB.03.15.19 RFDS:UPSTATE-NY_UP-STATE-
NY_UNL02079_2020-New-Site_LTE-
5C_rs706v_2151A0G9NK_10141753_219365_02-
26-2019_Preliminary-Approved_v1.00

Report Information:

Report Writer: Michelle Stone
Date: March 18, 2019

Report Reviewer: Ryan McManus

Statement of Compliance

AT&T will be compliant with FCC Regulations upon installation of recommended mitigation measures.

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1.0 GENERAL SUMMARY

Centerline Communications, LLC (“Centerline”) has been contracted to provide a Radio Frequency (RF) Analysis for the following AT&T Mobility wireless monopole facility to determine whether the facility is in compliance with federal standards and regulations regarding RF emissions. This analysis includes theoretical emissions calculations, for all equipment for AT&T Mobility

1.1 SITE SUMMARY

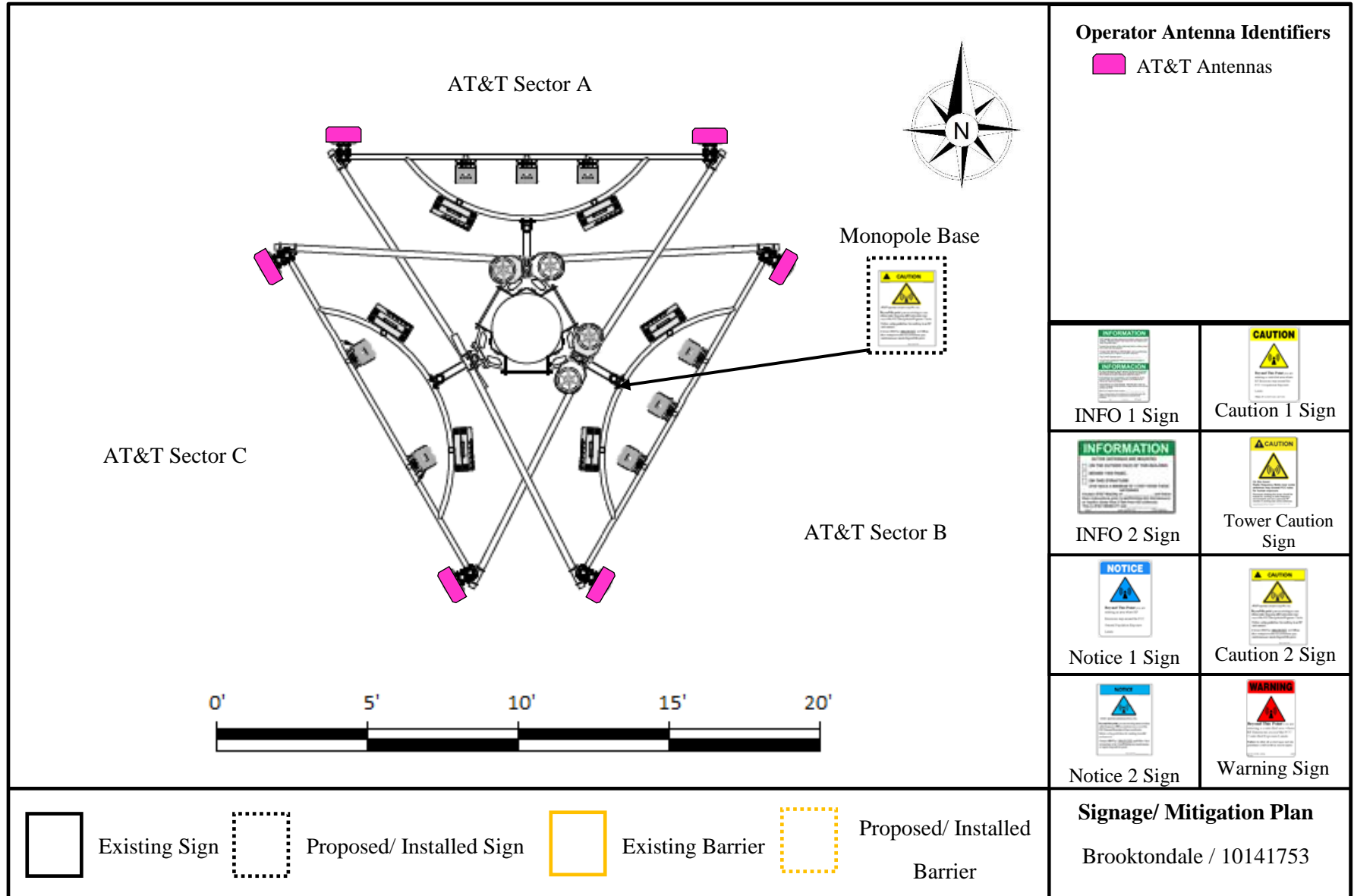
Analysis Site Data	
Site ID:	10141753
Site USID:	219365
Site FA#:	10141753
Site Name:	Brooktondale
Site Address:	340 Bald Hill Road, Brooktondale NY 14817
Site Latitude:	42.365008 N
Site Longitude:	-76.383761 W
Facility Type:	Monopole
Compliance Summary	
Compliance Status:	Compliant Upon Mitigation Installation
Maximum Modeled MPE% on Walking Surface AT&T (General Public Limit):	3.90 %
Maximum Modeled MPE% at Ground Level AT&T (General Public Limit):	3.90 %
Maximum Modeled MPE% on Walking Surface Composite (General Public Limit):	3.90 %
Maximum Modeled MPE% at Ground Level Composite (General Public Limit):	3.90 %
Site Survey Data	
Is Access Locked or Controlled? :	Controlled
Lock or Control Measures if Present:	N/A
Parapet Height:	0'

There are no additional system operators located on this facility or considered as part of this analysis.

Signage and barriers are the primary means of mitigating access to accessible areas of exposure. Below is a summary of existing and recommended signage at this AT&T facility.

Existing Signage and Barriers (AT&T Sectors)		
Location	Signage	Barriers
Sector A	None	None
Sector B	None	None
Sector C	None	None
Access Point (s)	None	None
Recommended Signage and Barriers (AT&T Sectors)		
Location	Signage	Barriers
Sector A	No action required	No action required
Sector B	No action required	No action required
Sector C	No action required	No action required
Access Point (s)	Yellow Caution 2 sign required at the base of the monopole	No action required

2.0 SITE SCALE MAP





3.0 ANTENNA INVENTORY

ANT ID	Operator	Antenna Make	Antenna Model	Type	Freq (MHz)	# of TX	Azimuth (°)	BW (°)	Gain (dBd)	ERP (Watts)	Length (ft)	x	y	Antenna Z Value (ft)**	Ant Z Value Ground (ft)
ATT A1	AT&T	Commscope	NNH4-65C-R6	Panel	LTE 737	4	0	75	13.55	3623.43	8.0	7	20	191.0	191.0
ATT A1	AT&T	Commscope	NNH4-65C-R6	Panel	LTE 2100	2	0	61	15.55	2871.38	8.0	7	20	191.0	191.0
ATT A1	AT&T	Commscope	NNH4-65C-R6	Panel	LTE 1900	2	0	59	15.35	2742.14	8.0	7	20	191.0	191.0
ATT A1	AT&T	Commscope	NNH4-65C-R6	Panel	LTE 850	2	0	73	13.95	1986.51	8.0	7	20	191.0	191.0
ATT A1	AT&T	Commscope	NNH4-65C-R6	Panel	5 G 850	2	0	73	13.95	1986.51	8.0	7	20	191.0	191.0
ATT A2	AT&T	Commscope	NNH4-65C-R6	Panel	LTE 737	4	0	75	13.55	3623.43	8.0	19	20	191.0	191.0
ATT B1	AT&T	Commscope	NNH4-65C-R6	Panel	LTE 737	4	120	75	13.55	3623.43	8.0	22.5	13.5	191.0	191.0
ATT B1	AT&T	Commscope	NNH4-65C-R6	Panel	LTE 2100	2	120	61	15.55	2871.38	8.0	22.5	13.5	191.0	191.0
ATT B1	AT&T	Commscope	NNH4-65C-R6	Panel	LTE 1900	2	120	59	15.35	2742.14	8.0	22.5	13.5	191.0	191.0
ATT B1	AT&T	Commscope	NNH4-65C-R6	Panel	LTE 850	2	120	73	13.95	1986.51	8.0	22.5	13.5	191.0	191.0
ATT B1	AT&T	Commscope	NNH4-65C-R6	Panel	5 G 850	2	120	73	13.95	1986.51	8.0	22.5	13.5	191.0	191.0
ATT B2	AT&T	Commscope	NNH4-65C-R6	Panel	LTE 737	4	120	75	13.55	3623.43	8.0	16.5	3	191.0	191.0
ATT C1	AT&T	Commscope	NNH4-65C-R6	Panel	LTE 737	4	240	75	13.55	3623.43	8.0	9	3	191.0	191.0
ATT C1	AT&T	Commscope	NNH4-65C-R6	Panel	LTE 2100	2	240	61	15.55	2871.38	8.0	9	3	191.0	191.0
ATT C1	AT&T	Commscope	NNH4-65C-R6	Panel	LTE 1900	2	240	59	15.35	2742.14	8.0	9	3	191.0	191.0
ATT C1	AT&T	Commscope	NNH4-65C-R6	Panel	LTE 850	2	240	73	13.95	1986.51	8.0	9	3	191.0	191.0
ATT C1	AT&T	Commscope	NNH4-65C-R6	Panel	5 G 850	2	240	73	13.95	1986.51	8.0	9	3	191.0	191.0
ATT C2	AT&T	Commscope	NNH4-65C-R6	Panel	LTE 737	4	240	75	13.55	3623.43	8.0	3	13.5	191.0	191.0

Table 1: Total Site data table *** (Z Value is distance from bottom of antenna to walking surface)*



3.1 ROOFVIEW® EXPORT FILE

Ant Num	ID	Name	(MHz) Freq	Trans Power	Trans Count	Coax Len	Coax Type	Other Loss	Input Power	Calc Power	Mfg	Model	(ft) X	(ft) Y	(ft) Z	(ft) Type	dBd Aper	Gain	BWdth Pt Dir
1	ATT A1	LTE	737.00000	40.0	4			0.0		160.0	CommScope	NNH4-65C-R6	7.0	20.0	191.0		8.0	13.55	75;0
2	ATT A1	LTE	2100.00000	40.0	2			0.0		80.0	CommScope	NNH4-65C-R6	7.0	20.0	191.0		8.0	15.55	61;0
3	ATT A1	LTE	1900.00000	40.0	2			0.0		80.0	CommScope	NNH4-65C-R6	7.0	20.0	191.0		8.0	15.35	59;0
4	ATT A1	LTE	850.00000	40.0	2			0.0		80.0	CommScope	NNH4-65C-R6	7.0	20.0	191.0		8.0	13.95	73;0
5	ATT A1	5 G	850.00000	40.0	2			0.0		80.0	CommScope	NNH4-65C-R6	7.0	20.0	191.0		8.0	13.95	73;0
6	ATT A2	LTE	737.00000	40.0	4			0.0		160.0	CommScope	NNH4-65C-R6	19.0	20.0	191.0		8.0	13.55	75;0
7	ATT B1	LTE	737.00000	40.0	4			0.0		160.0	CommScope	NNH4-65C-R6	22.5	13.5	191.0		8.0	13.55	75;120
8	ATT B1	LTE	2100.00000	40.0	2			0.0		80.0	CommScope	NNH4-65C-R6	22.5	13.5	191.0		8.0	15.55	61;120
9	ATT B1	LTE	1900.00000	40.0	2			0.0		80.0	CommScope	NNH4-65C-R6	22.5	13.5	191.0		8.0	15.35	59;120
10	ATT B1	LTE	850.00000	40.0	2			0.0		80.0	CommScope	NNH4-65C-R6	22.5	13.5	191.0		8.0	13.95	73;120
11	ATT B1	5 G	850.00000	40.0	2			0.0		80.0	CommScope	NNH4-65C-R6	22.5	13.5	191.0		8.0	13.95	73;120
12	ATT B2	LTE	737.00000	40.0	4			0.0		160.0	CommScope	NNH4-65C-R6	16.5	3.0	191.0		8.0	13.55	75;120
13	ATT C1	LTE	737.00000	40.0	4			0.0		160.0	CommScope	NNH4-65C-R6	9.0	3.0	191.0		8.0	13.55	75;240
14	ATT C1	LTE	2100.00000	40.0	2			0.0		80.0	CommScope	NNH4-65C-R6	9.0	3.0	191.0		8.0	15.55	61;240
15	ATT C1	LTE	1900.00000	40.0	2			0.0		80.0	CommScope	NNH4-65C-R6	9.0	3.0	191.0		8.0	15.35	59;240
16	ATT C1	LTE	850.00000	40.0	2			0.0		80.0	CommScope	NNH4-65C-R6	9.0	3.0	191.0		8.0	13.95	73;240
17	ATT C1	5 G	850.00000	40.0	2			0.0		80.0	CommScope	NNH4-65C-R6	9.0	3.0	191.0		8.0	13.95	73;240
18	ATT C2	LTE	737.00000	40.0	4			0.0		160.0	CommScope	NNH4-65C-R6	3.0	13.5	191.0		8.0	13.55	75;240

Table 2: Roofview® Export File

4.0 PREDICTED EMISSION LEVELS AND DISCUSSION

All calculations performed based upon the data listed for this facility have produced results that are within allowable limits for General Population for exposure to RF emissions as specified by federal standards. AT&T can ensure compliance on this facility by following the signage and barrier recommendations presented in this report

The anticipated maximum power density value (% MPE) calculated in front of any of the AT&T sectors is **3.90 %** of the FCC's allowable limit for General Population exposure to radio frequency emissions (**0.78 %** of the FCC's allowable Occupational limit). This was determined based upon worst-case theoretical modeling as described in this report for all walking surfaces in close proximity to the antenna arrays. The following is a summary for each AT&T Sector.

Sector A: There are no areas that exceed the **FCC's General Population or Occupational limit** for exposure to radio frequency emissions. The maximum power density value (% MPE) calculated for AT&T's Sector A antennas is **3.90 %** of the FCC's allowable limit for General Population exposure to radio frequency emissions (**0.78 %** of the FCC's allowable Occupational limit). The Sector A antennas are transmitting over the ground level.

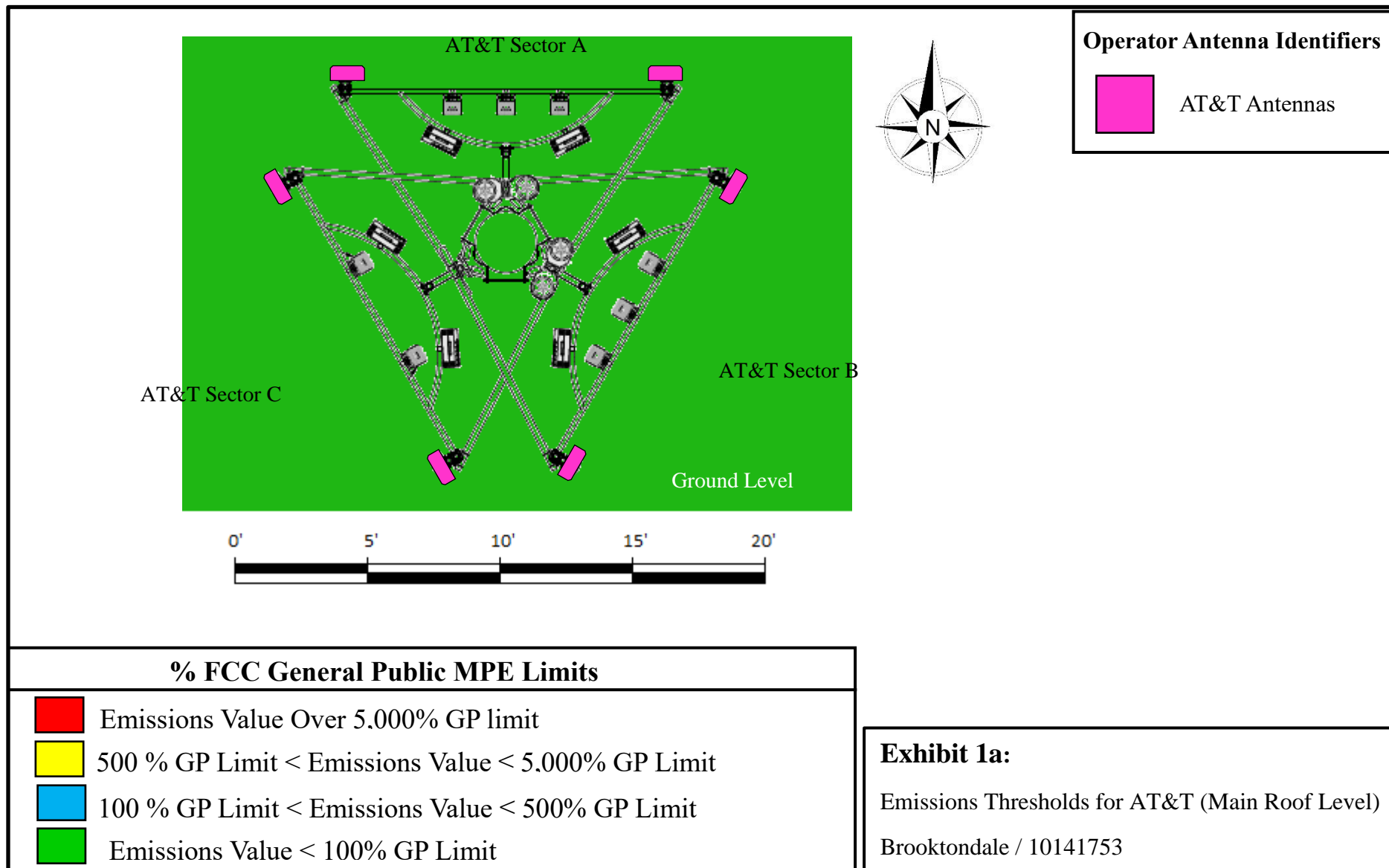
Sector B: There are no areas that exceed the **FCC's General Population or Occupational limit** for exposure to radio frequency emissions. The maximum power density value (% MPE) calculated for AT&T's Sector A antennas is **3.90 %** of the FCC's allowable limit for General Population exposure to radio frequency emissions (**0.78 %** of the FCC's allowable Occupational limit). The Sector A antennas are transmitting over the ground level.

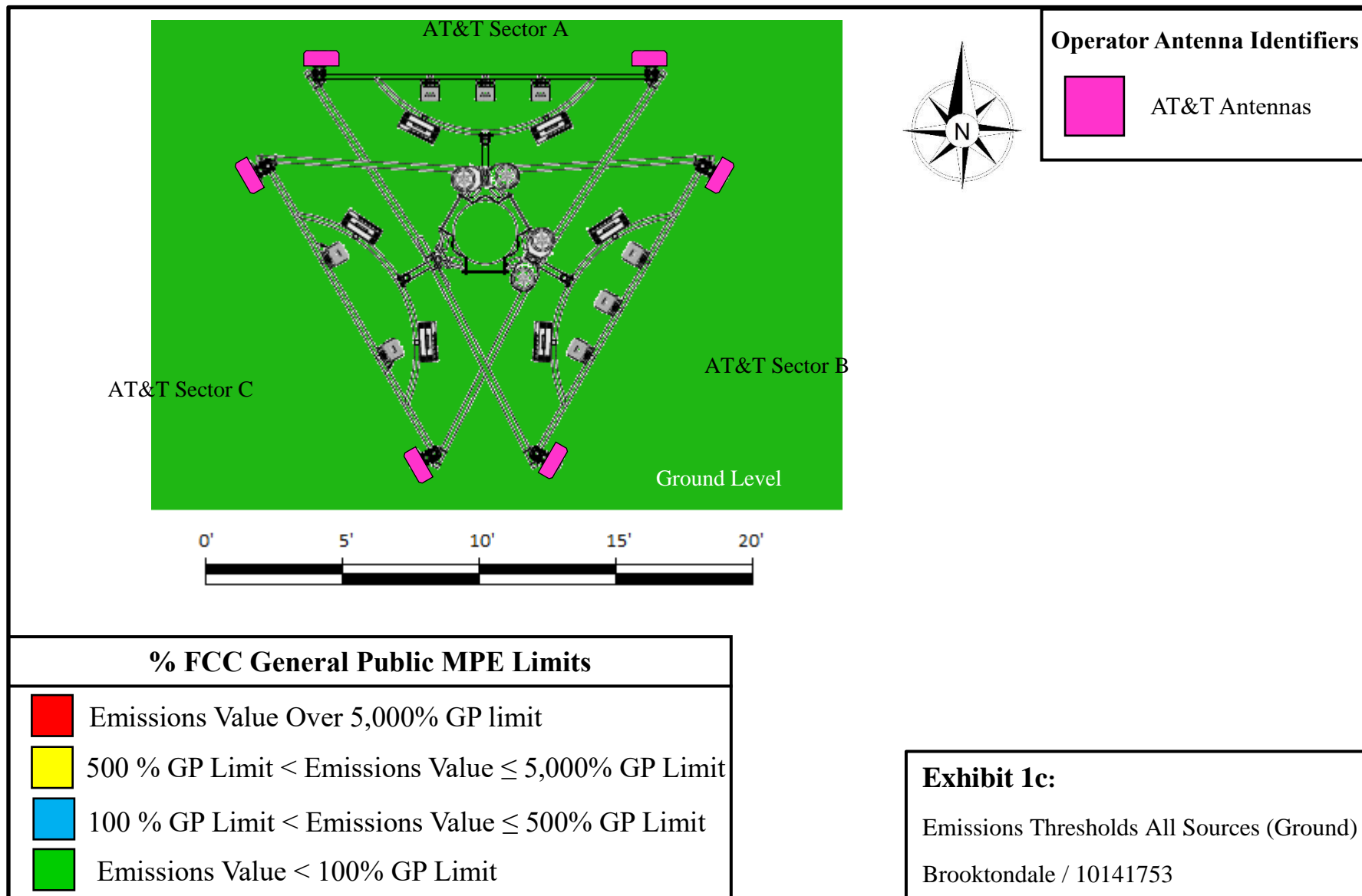
Sector C: There are no areas that exceed the **FCC's General Population or Occupational limit** for exposure to radio frequency emissions. The maximum power density value (% MPE) calculated for AT&T's Sector A antennas is **3.90 %** of the FCC's allowable limit for General Population exposure to radio frequency emissions (**0.78 %** of the FCC's allowable Occupational limit). The Sector A antennas are transmitting over the ground level.

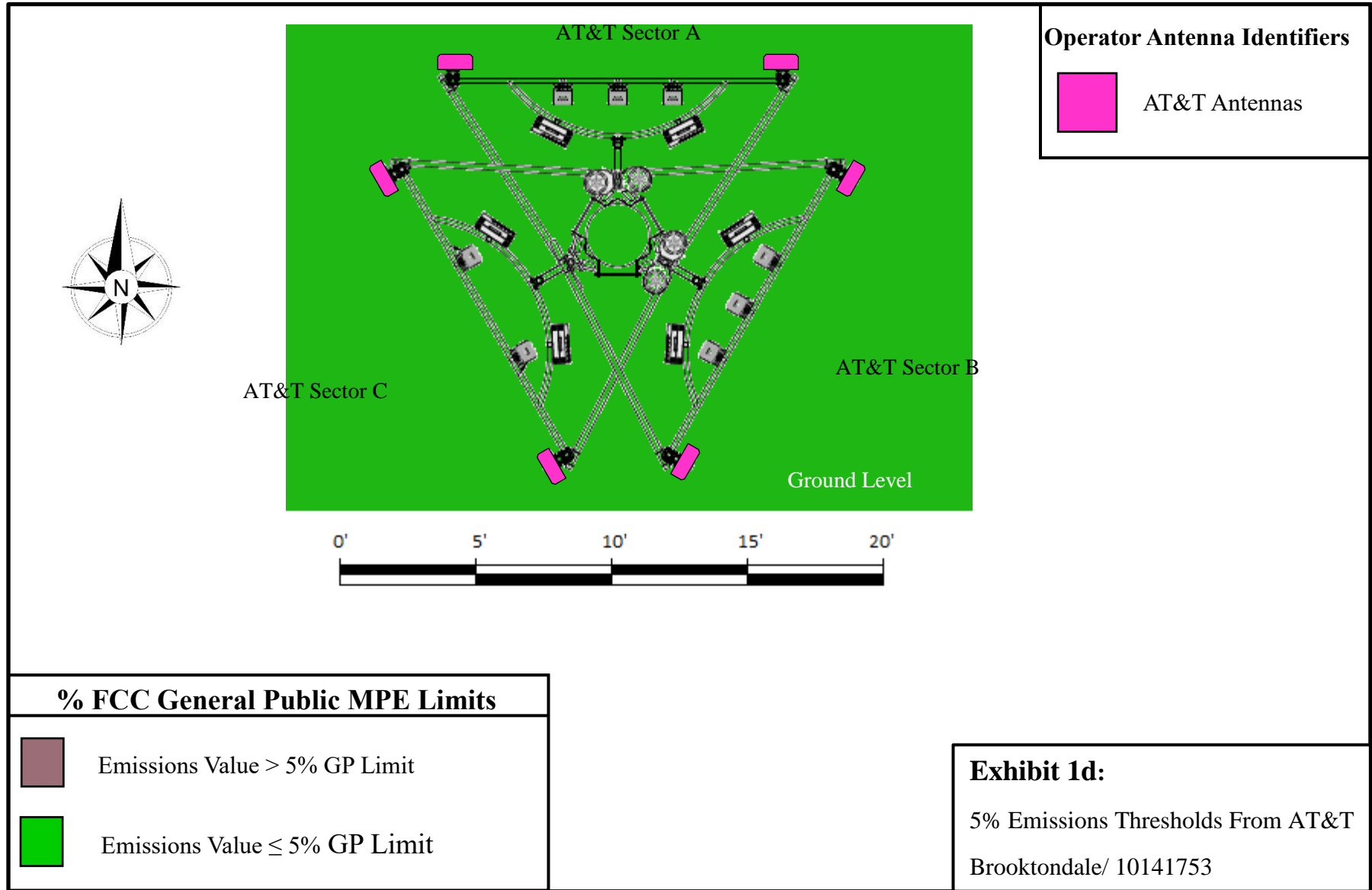
At the ground level the maximum power density value calculated from the AT&T radio equipment is **3.90 %** of the **FCC's General Population limit** for exposure to radio frequency emissions. At ground level the maximum composite power density for all system operators on this facility is **0.78 %** of the **FCC's Occupational limit** for exposure to radio frequency emissions.

AT&T's RF Exposure: Responsibilities, Procedures & Guidelines document states that microwave dishes are compliant if they are mounted 20 feet or greater above any accessible walking or working surface. There are no microwave antennas identified on site.

Emissions threshold plots which graphically show power density values is shown following in **Exhibits 1a-1c**.







5.0 STATEMENT OF COMPLIANCE

Centerline conducted worst case modeling to determine whether the monopole facility located at 340 Bald Hill Road in Brooktondale, New York is in compliance with FCC Regulations.

5.1 STATEMENT OF AT&T MOBILITY COMPLIANCE

Based on the information analyzed, AT&T will be compliant with FCC Regulations once the mitigation measures recommended in this report are implemented.

5.2 RECOMMENDATIONS


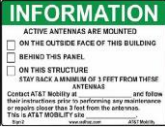

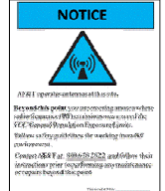


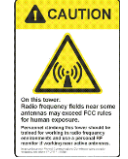

AT&T Mitigation Recommendations		
Location	Signage	Barriers
Sector A	No action required	No action required
Sector B	No action required	No action required
Sector C	No action required	No action required
Access Point (s)	Yellow Caution 2 sign required at the base of the monopole	No action required

6.0 FALL ARREST AND PARAPET INFORMATION

As per AT&T barrier policy, rooftop edges that are protected with a 36-inch parapet wall or guardrail are safe for work activity within six (6) feet of the edge. OSHA has stated that an existing 36-inch guardrail or parapet provides sufficient protection for employees. The height of the top rail or equivalent component of guardrail systems in new construction shall be at least 42 inches above the walking or working surface. It should also be noted that the height of the parapet or guardrail may be reduced to no less than 30 inches at any point provided the sum of the depth (horizontal distance) of the top edge, and the height of the top edge (vertical distance from the work surface to the top edge of the top member, is at least 48 inches. If there is no reason for working atop the roof, then edge protection is not required. In addition, workers may use personnel lifts or temporary fall protection measures to perform work within 6 feet of the roof edge in place of permanent edge protection. Reference: 29 CFR 1910.28, 29 CFR 1910.23 (NPRM-1990); OSHA Letters of Interpretation 2/9/83 and 3/8/9

APPENDIX A: RF SIGNAGE

AT&T RF Signage

Sign	Description	Sign	Description
	<p>Information 1 Sign Gives guidelines on how to proceed and who to contact regarding areas that may exceed either the FCC’s General Population or Occupational emissions limits.</p>		<p>Information 2 Sign Gives specific information on how to proceed and who to contact regarding antennas that are façade mounted, concealed or on stand-alone structures.</p>
	<p>Blue Notice 1 Sign Used to alert individuals that they are entering an area that may exceed the FCC’s General Population emissions limit. Must be positioned such that persons approaching from any angle have ample warning to avoid the marked areas.</p>		<p>Blue Notice 2 Sign Used to alert individuals that they are entering an area that may exceed either the FCC’s General Population emissions limits. To be used on barriers or antenna sectors as a hybrid of the Information 1 and Blue Notice 1 signs.</p>
	<p>Yellow Caution 1 Sign-Rooftop Used to inform individuals that they are entering an area that may exceed the FCC’s Occupational emissions limit. Must be positioned such that persons approaching from any angle have ample warning to avoid the marked areas.</p>		<p>Yellow Caution 2 Sign-Rooftop Used to alert individuals that they are entering an area that may exceed the FCC’s Occupational emissions limit. To be used on barriers or antenna sectors as a hybrid of the Information 1 and Yellow Caution 1 signs.</p>
	<p>Yellow Caution 1 Sign-Tower Used to inform individuals that they are entering an area that may exceed the FCC’s Occupational emissions limits. Must be placed at the base of the tower to warn tower climbers of potential for exposure.</p>		<p>Red Warning Sign Used to inform individuals that they are entering an area that may exceed the FCC’s Occupational emissions limit by a factor of 10 or greater. Must be positioned such that persons approaching from any angle have ample warning to avoid the marked areas.</p>

APPENDIX B: FCC GUIDELINES AND EMISSIONS THRESHOLD LIMITS

All power density values used in this report were analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General Population/Uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limit for the 700 and 800 MHz Bands is approximately $467 \mu\text{W}/\text{cm}^2$ and $567 \mu\text{W}/\text{cm}^2$ respectively, and the general population exposure limit for the 1900 MHz PCS and 2100 MHz AWS bands is $1000 \mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

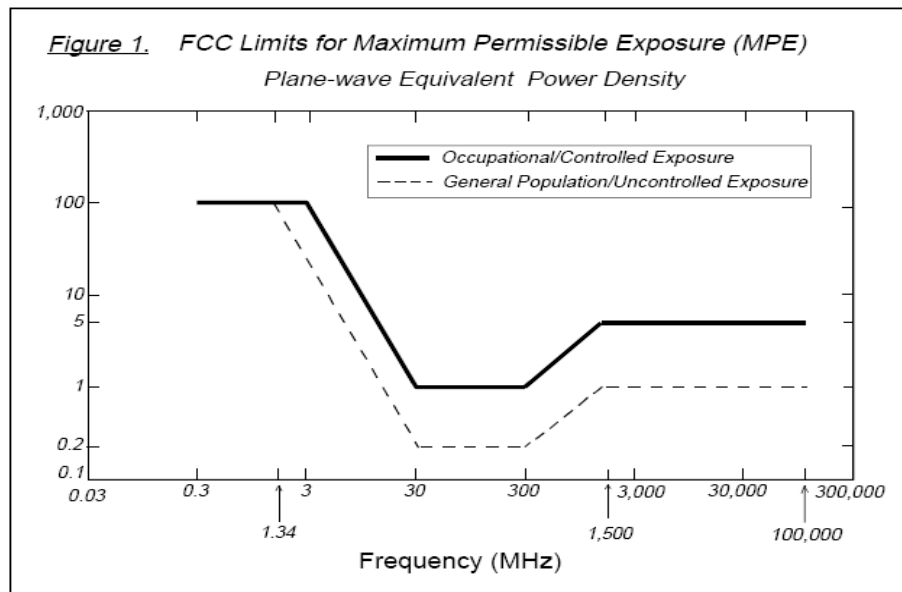
Occupational/Controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure, have been properly trained in RF safety and can exercise control over their exposure. Occupational/Controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure, have been trained in RF safety and can exercise control over his or her exposure by leaving the area or by some other appropriate means. The Occupational/Controlled exposure limits all utilized frequency bands is five (5) times the FCC's General Public / Uncontrolled exposure limit.

Additional details can be found in FCC OET 65.

Table 1: Limits for Maximum Permissible Exposure (MPE)				
(A) Limits for Occupational/Controlled Exposure				
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
300-1,500	--	--	f/300	6
1,500-100,000	--	--	5	6
(B) Limits for General Public/Uncontrolled Exposure				
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
300-1,500	--	--	f/1,500	30
1,500-100,000	--	--	1.0	30

f = Frequency in (MHz)

* Plane-wave equivalent power density



APPENDIX C: CALCULATION METHODOLOGY

Centerline has performed theoretical calculations on all transmission equipment located on this facility. All calculations have been performed using the RoofView® software from Richard Tell Associates. This software performs calculations using a cylindrical model for very conservative power density predictions within the near-field of the antenna where the antenna pattern has not truly formed yet. Within this area power density values tend to decrease based upon an inverse distance function. At the point where it is appropriate for modeling to change from near-field calculations to far-field calculations the power decreases inversely with the square of the distance. This modeling technique is very accurate with very low antenna centerlines, such as rooftops, where persons can get very close to the antennas and pass through fields in close proximity.

The below calculation in Figure 1 shows the theoretical distribution of power over an imaginary cylinder with equal power distribution in all directions.

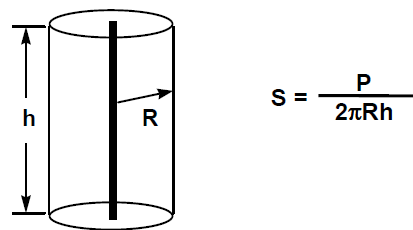


Figure 1: Distribution of power over an imaginary cylinder in all directions

This model can be modified for directional antennas to show directionality of power distribution. This formula will tend to be conservative as it assumes that all power is focused between the 3 dB power roll off points as shown in Figure 2.

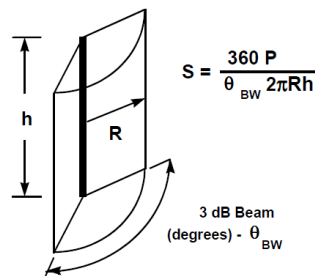


Figure 2: Distribution of power over an imaginary cylinder between the half power (3dB) roll off points (HBW) for directional antennas

APPENDIX D: CERTIFICATIONS

I, Michelle Stone, preparer of this report certify that I am fully trained and aware of the Rules and Regulations of both the Federal Communications Commissions (FCC) and the Occupational Safety and Health Administration (OSHA) with regard to Human Exposure to Radio Frequency Radiation. I have been trained in the procedures and requirements outlined in AT&T's RF Exposure: Responsibilities, Procedures & Guidelines document.

A handwritten signature in black ink that reads 'Michelle Stone'.

3/18/2019

I, Scott Heffernan, reviewer and approver of this report certify that I am fully trained and aware of the Rules and Regulations of both the Federal Communications Commissions (FCC) and the Occupational Safety and Health Administration (OSHA) with regard to Human Exposure to Radio Frequency Radiation. I have been trained in the procedures and requirements outlined in AT&T's RF Exposure: Responsibilities, Procedures & Guidelines document.

A handwritten signature in black ink that appears to read 'Scott Heffernan'.

3/18/2019

APPENDIX E: PROPRIETARY STATEMENT

This report was prepared for the use of AT&T Mobility, LLC to meet requirements specified in AT&T's corporate RF safety guidelines. It was performed in accordance with generally accepted practices of other consultants undertaking similar studies at the same time and in the same locale under like circumstances. The conclusions provided by Centerline Communications, LLC are based solely on the information provided by AT&T Mobility and all observations in this report are valid on the date of the investigation. Any additional information that becomes available concerning the site should be provided to Centerline Communications, LLC so that our conclusions may be revised and modified, if necessary. This report has been prepared in accordance with Standard Conditions for Engagement and authorized proposal, both of which are integral parts of this report. No other warranty, expressed or implied, is made.