Radio Frequency Emissions Compliance Report for Verizon Wireless

Site Name:	**CANO NOVATO III**	**Site Structure Type:**	**Monopole**
Address:	**617 ATHERTON AVE**	**Latitude:**	**38.112697**
	NOVATO, CA 94945	**Longitude:**	**-122.5497**
Report Date:	**August 28, 2025**	**Project:**	**Modification**

Compliance Statement

Based on information provided by Verizon Wireless and predictive modeling, the **CANO NOVATO III** installation proposed by Verizon Wireless will be compliant with Radiofrequency Radiation Exposure Limits of 47 C.F.R. §§ 1.1307(b)(3) and 1.1310. RF alerting signage and restricting access to the antenna to authorized personnel that have completed RF safety training is required for Occupational environment compliance. The proposed operation will not expose members of the General Public to hazardous levels of RF energy at ground level or in adjacent buildings.

Certification

I, Tim Alexander, am the reviewer and approver of this report and am fully aware of and familiar with 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, specifically in accordance with FCC's OET Bulletin 65. I have reviewed this Radio Frequency Exposure Assessment report and believe it to be both true and accurate to the best of my knowledge.

SIGNED, 28 AUG 2025

General Summary

The compliance framework is derived from the Federal Communications Commission (FCC) Rules and Regulations for preventing human exposure in excess of the applicable Maximum Permissible Exposure ("MPE") limits. At any location at this site, the power density resulting from each transmitter may be expressed as a percentage of the frequency-specific limits and added to determine if 100% of the exposure limit has been exceeded. The FCC Rules define two tiers of permissible exposure differentiated by the situation in which the exposure takes place and/or the status of the individuals who are subject to exposure. General Population / Uncontrolled exposure limits apply to those situations in which persons may not be aware of the presence of electromagnetic energy, where exposure is not employment-related, or where persons cannot exercise control over their exposure. Occupational / Controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment, have been made fully aware of the potential for exposure, and can exercise control over their exposure. Based on the criteria for these classifications, the FCC General Population limit is considered to be a level that is safe for continuous exposure time. The FCC General Population limit is 5 times more restrictive than the Occupational limits.

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Table 1: FCC Limits

Frequency (MHz)	*Limits for General Population/ Uncontrolled Exposure*		*Limits for Occupational/ Controlled Exposure*	
	Power Density (mW/cm^2)	**Averaging Time (minutes)**	**Power Density (mW/cm^2)**	**Averaging Time (minutes)**
30-300	0.2	30	1	6
300-1500	f/1500	30	f/300	6
1500-100,000	1.0	30	5.0	6

f=Frequency (MHz)

In situations where the predicted MPE exceeds the General Population threshold in an accessible area as a result of emissions from multiple transmitters, FCC licensees that contribute greater than 5% of the aggregate MPE share responsibility for mitigation.

Based on the computational guidelines set forth in FCC OET Bulletin 65, Waterford Consultants, LLC has developed software to predict the overall Maximum Permissible Exposure possible at any location given the spatial orientation and operating parameters of multiple RF sources. The power density in the Far Field of an RF source is specified by OET-65 Equation 5 as follows:

$$S = \frac{EIRP}{4 \cdot \pi \cdot R^2} \ (\mathrm{mW/cm^2})$$

where EIRP is the Effective Radiated Power relative to an isotropic antenna and R is the distance between the antenna and point of study. Additionally, consideration is given to the manufacturers' horizontal and vertical antenna patterns as well as radiation reflection. At any location, the predicted power density in the Far Field is the spatial average of points within a 0 to 6-foot vertical profile that a person would occupy. Near field power density is based on OET-65 Equation 20 stated as

$$S = \left(\frac{180}{\theta_{BW}}\right) \cdot \frac{100 \cdot P_{in}}{\pi \cdot R \cdot h} \ (\mathrm{mW/cm^2})$$

where P_{in} is the power input to the antenna, θ_{BW} is the horizontal pattern beamwidth and h is the aperture length.

Some antennas employ beamforming technology where RF energy allocated to each customer device is dynamically directed toward their location. In the analysis presented herein, predicted exposure levels are based on all beams at full utilization (i.e. full power) simultaneously focused in any direction. As this condition is unlikely to occur, the actual power density levels at ground and at adjacent structures are expected to be less that the levels reported below. These theoretical results represent maximum-case predictions as all RF emitters are assumed to be operating at 100% duty cycle.

For any area in excess of 100% General Population MPE, access controls with appropriate RF alerting signage must be put in place and maintained to restrict access to authorized personnel. Signage must be posted to be visible upon approach from any direction to provide notification of potential conditions within these areas. Subject to other site security requirements, occupational personnel should be trained in RF safety and equipped with personal protective equipment (e.g. RF personal monitor) designed for safe work in the vicinity of RF emitters. Controls such as physical barriers to entry imposed by locked doors, hatches and ladders or other access control mechanisms may be supplemented by alarms that alert the individual and notify site management of a breach in access control. Waterford Consultants, LLC recommends that any work activity in these designated areas or in front of any transmitting antennas be coordinated with all wireless tenants.

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Analysis

Verizon Wireless proposes the following installation at this location:

- TOWER SCOPE OF WORK:
- INSTALL (4) CBNG - CBNG GNODEB NTE ANTENNAS

The antennas will be mounted on a 65.58’ Monopole with centerlines (63’/64.7’) for all sectors, above ground level. Proposed antenna operating parameters are listed in Appendix A. Other appurtenances such as GPS antennas, RRUs and hybrid cable below the antennas are not sources of RF emissions. other antennas are known to be operating in the vicinity of this site.

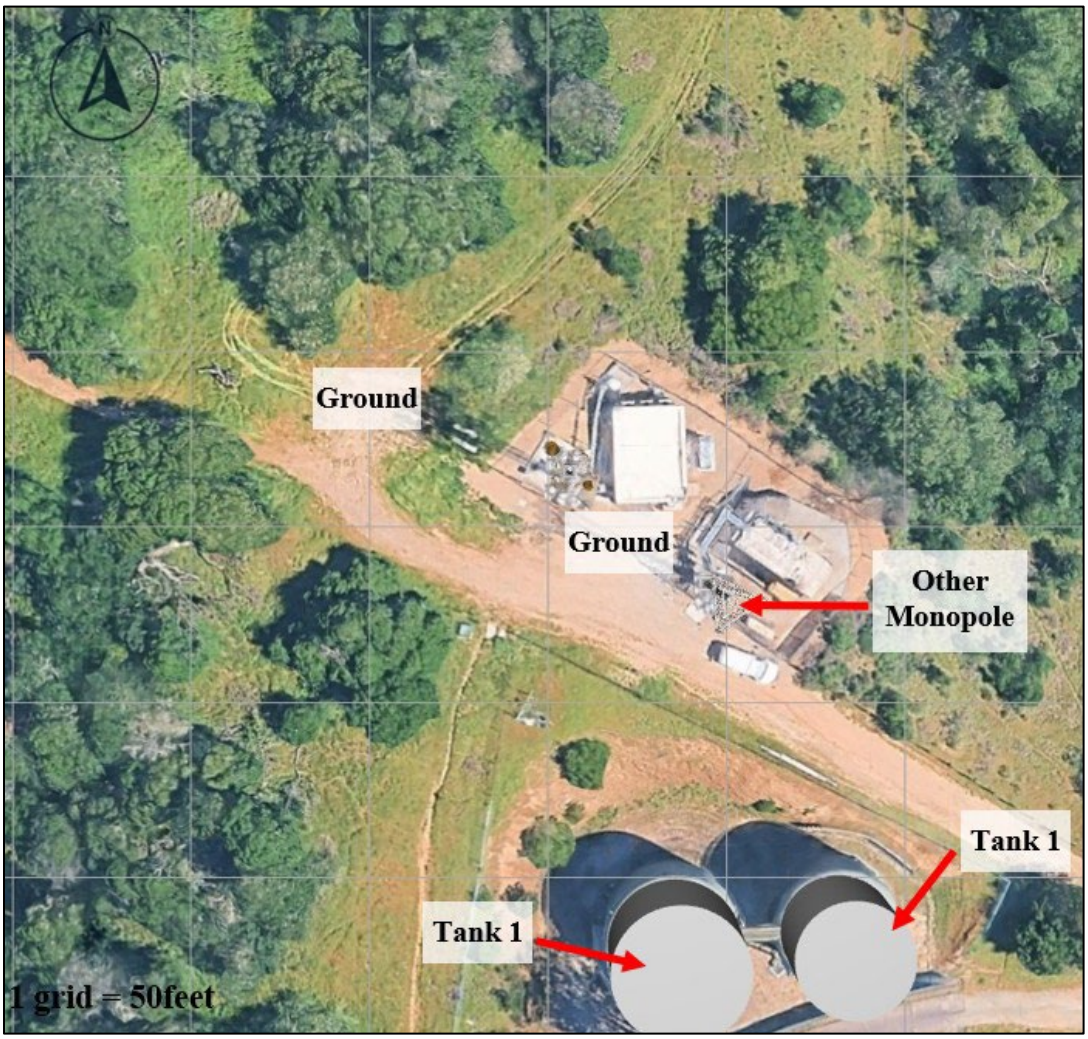

Figure 1: Antenna Locations

Power density decreases significantly with distance from any antenna. The Panel-type antenna to be employed at this site are highly directional by design and the orientation in azimuth and mounting elevation, as documented, serves to reduce the potential to exceed MPE limits at any location other than directly in front of the antennas. For accessible areas at ground level, the maximum predicted power density level

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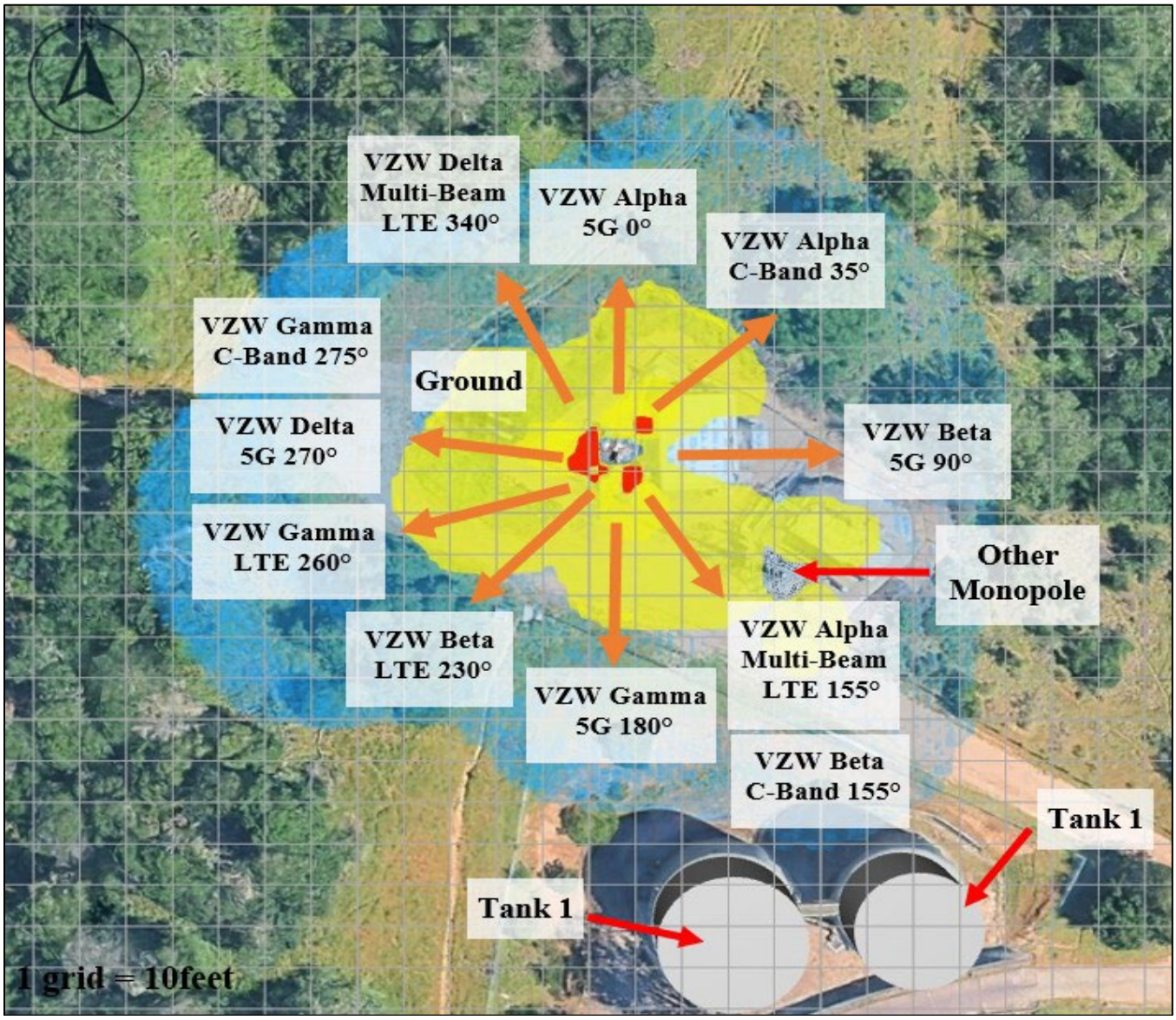
resulting from all Verizon Wireless operations is 24.99% of the FCC General Population limits (Figure 2.2). The proposed operation will not expose members of the General Public to hazardous levels of RF energy at ground level or in adjacent Structures.

On the Monopole in front of the antennas, predicted MPE levels will exceed the FCC General Population limits within 94 feet in front of the antennas and within 18 feet below antennas Centerline. The maximum predicted power density level resulting from all Verizon operations directly in front of the antennas is 24740.05% of the FCC General Population limits (4948.01% of the FCC Occupational limits). Waterford Consultants, LLC recommends an RF for inaccessible areas that may be accessed in case of maintenance.

The following plots show the cumulative spatial average predicted power density levels in the reference plane indicated as a percentage of the General Public Limits. Please note that 100% of the General Public Limits corresponds to 20% of the Occupational Limits.

All Transmitters



Legend

Study Zone	Elev. (ft)	Type	Exposure Profile	Max MPE	Att	Carriers
Antennas Level	20.0 - 90.0	3D Area	3D Sula9 GP 5.0 res	24741.38%	0.00	VZW, UNKNOWN

100%-500%	500%-5000%	5000%+

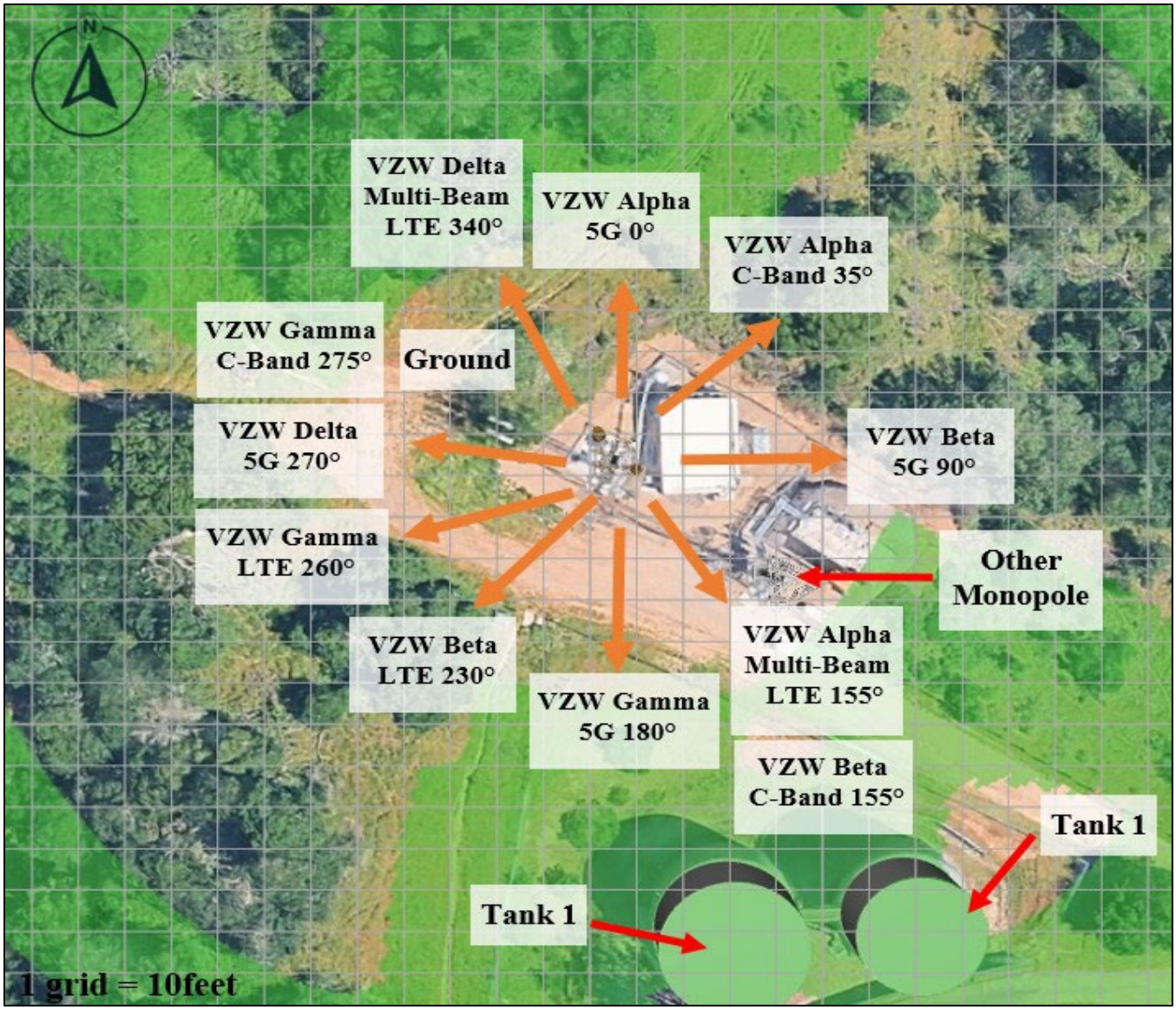
Exposure Profile Name	Model	Exposure Area	Standard	Resolution	RCF
3D Sula9 GP 5.0 res	Sula 9	Spatial Avg. (6 ft)	FCC General Public	5.0	1.0

VZW UNKNOWN

Max MPE

Grid Size: 10.00 feet **Floor = Elevation +6' | Mid-Level = Elevation +/- 3'**

Figure 1.1: Antenna Level



Legend

Study Zone	Elev. (ft)	Type	Exposure Profile	Max MPE	Att	Carriers
Ground	0.1	Floor	2D Sula9 GP 0.5 res	25.01%	0.00	VZW, UNKNOWN
Tank 1	26.1	Floor	2D Sula9 GP 0.5 res	60.01%	0.00	VZW, UNKNOWN
Tank 2	26.2	Floor	2D Sula9 GP 0.5 res	39.16%	0.00	VZW, UNKNOWN

5%-100%	100%-500%	500%-5000%	5000%+

Exposure Profile Name	Model	Exposure Area	Standard	Resolution	RCF
2D Sula9 GP 0.5 res	Sula 9	Spatial Avg. (6 ft)	FCC General Public	0.5	1.0

VZW UNKNOWN

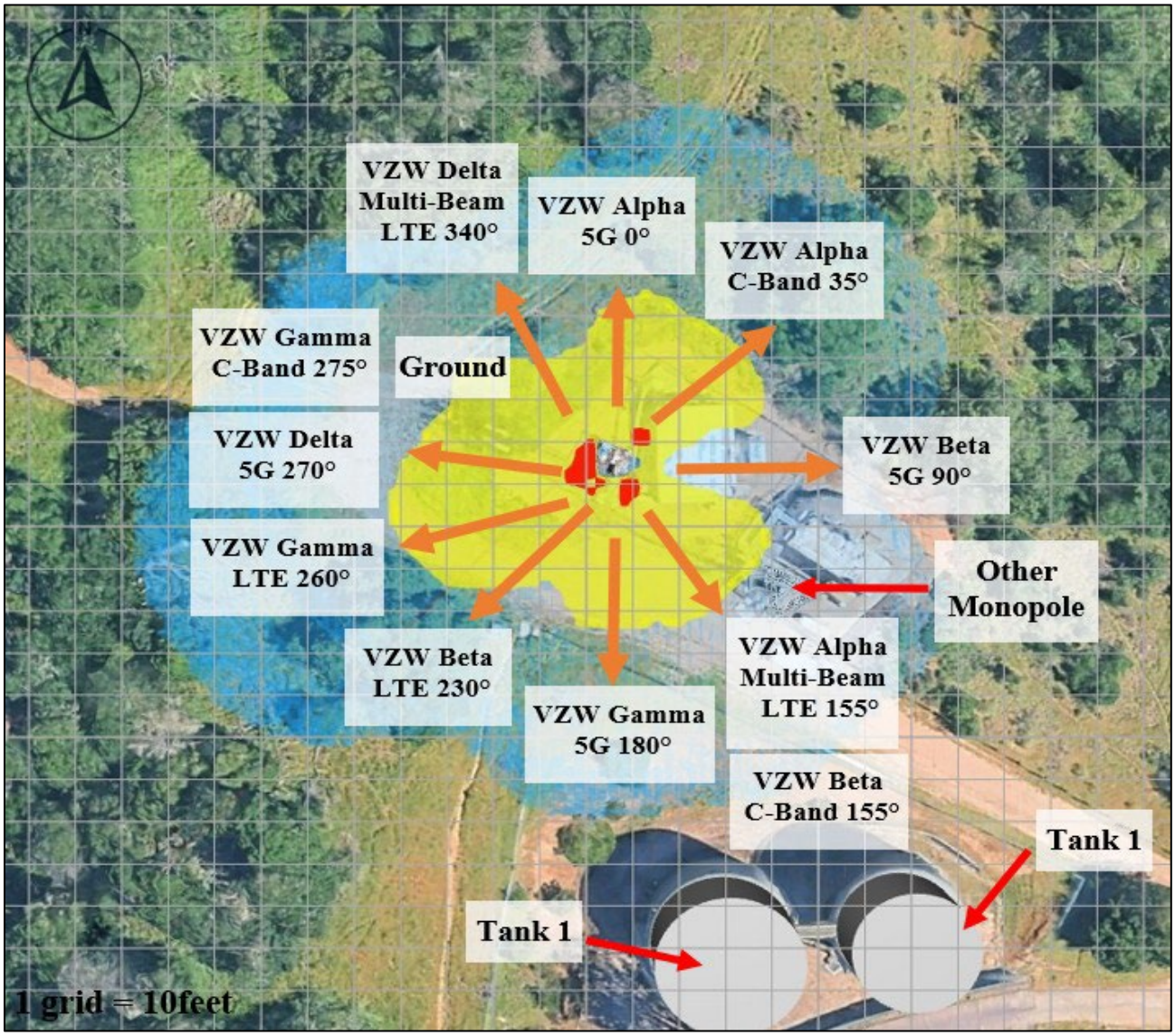
Max MPE

Grid Size: 10.00 feet

Floor = Elevation +6' | Mid-Level = Elevation +/- 3'

Figure 1.2: All Levels

Verizon Wireless Transmitters Only



Legend

Study Zone	Elev. (ft)	Type	Exposure Profile	Max MPE	Att	Carriers
Antennas Level	20.0 - 90.0	3D Area	3D Sula9 GP 5.0 res	24740.05%	0.00	VZW

100%-500%	500%-5000%	5000%+

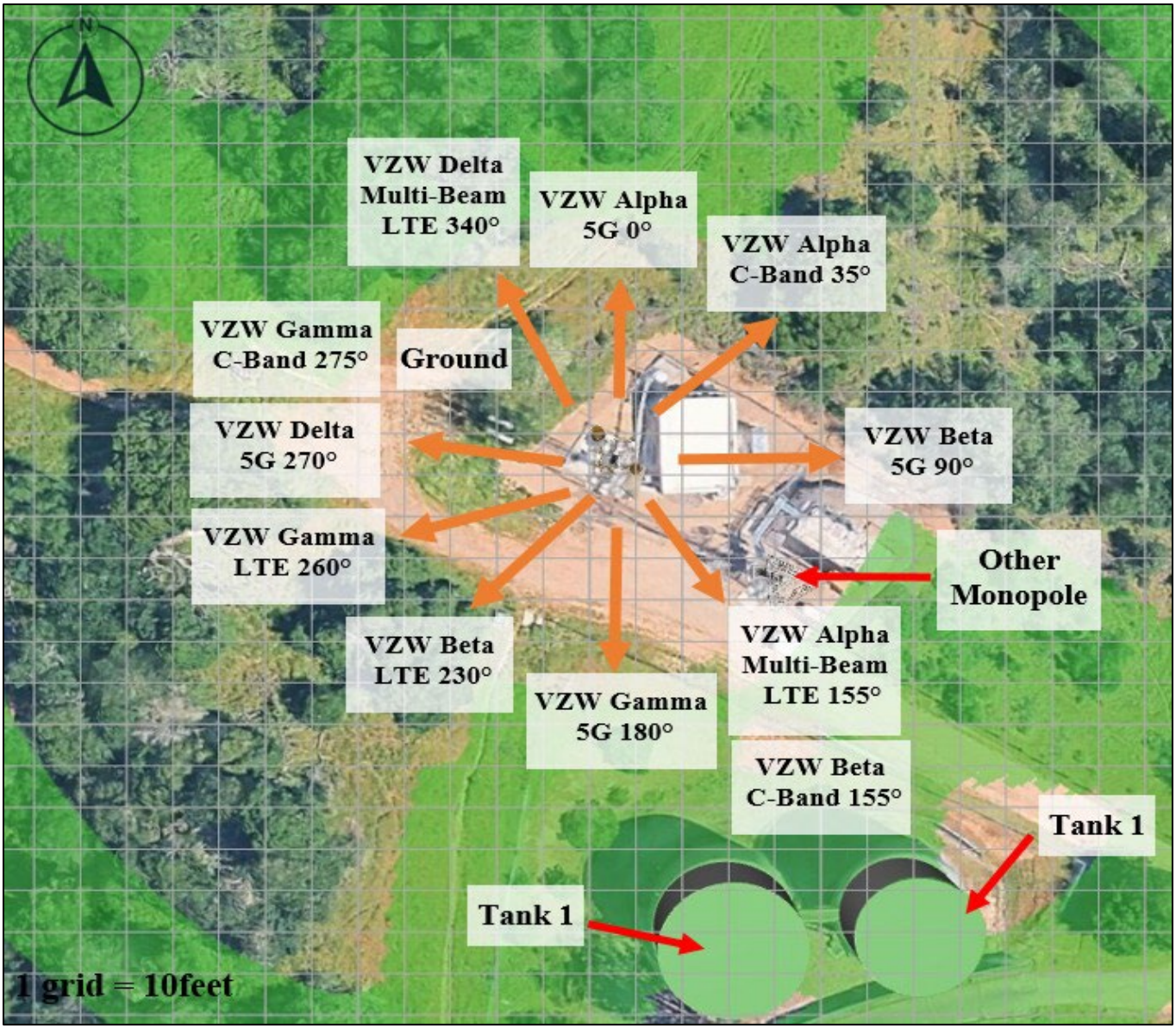
Exposure Profile Name	Model	Exposure Area	Standard	Resolution	RCF
3D Sula9 GP 5.0 res	Sula 9	Spatial Avg. (6 ft)	FCC General Public	5.0	1.0

VZW UNKNOWN

Max MPE

Grid Size: 10.00 feet **Floor = Elevation +6' | Mid-Level = Elevation +/- 3'**

Figure 2.1: Antenna Level



Legend

Study Zone	Elev. (ft)	Type	Exposure Profile	Max MPE	Att	Carriers
Ground	0.1	Floor	2D Sula9 GP 0.5 res	24.99%	0.00	VZW
Tank 1	26.1	Floor	2D Sula9 GP 0.5 res	53.81%	0.00	VZW
Tank 2	26.2	Floor	2D Sula9 GP 0.5 res	34.71%	0.00	VZW

5%-100%	100%-500%	500%-5000%	5000%+

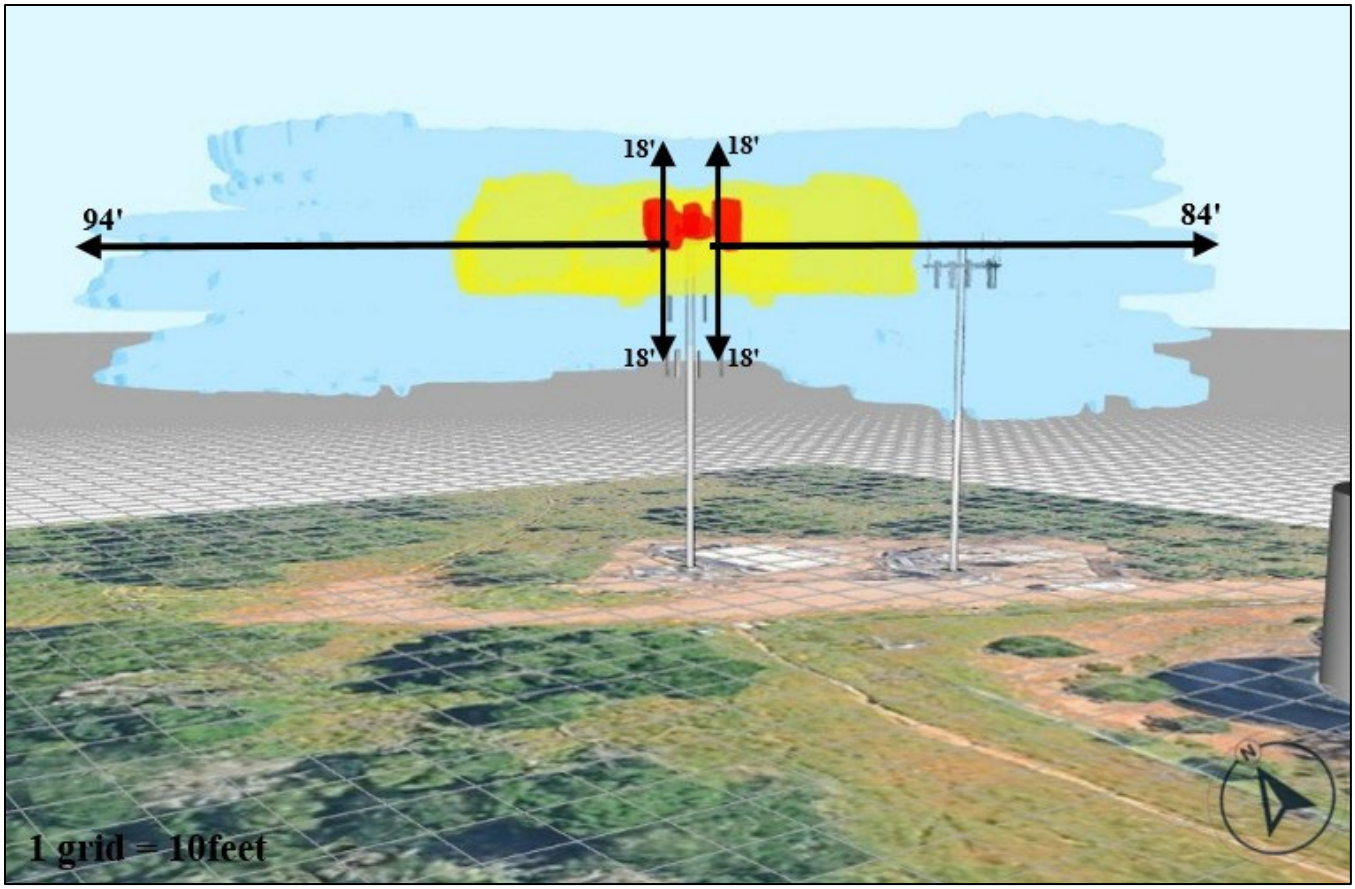
Exposure Profile Name	Model	Exposure Area	Standard	Resolution	RCF
2D Sula9 GP 0.5 res	Sula 9	Spatial Avg. (6 ft)	FCC General Public	0.5	1.0

VZW UNKNOWN

Max MPE

Grid Size: 10.00 feet **Floor = Elevation +6' | Mid-Level = Elevation +/- 3'**

Figure 2.2: All Levels



Legend

Study Zone	Elev. (ft)	Type	Exposure Profile	Max MPE	Att	Carriers
Antennas Level	20.0 - 90.0	3D Area	3D Sula9 GP 5.0 res	24740.05%	0.00	VZW

100%-500%	500%-5000%	5000%+

Exposure Profile Name	Model	Exposure Area	Standard	Resolution	RCF
3D Sula9 GP 5.0 res	Sula 9	Spatial Avg. (6 ft)	FCC General Public	5.0	1.0

VZW UNKNOWN

Max MPE

Grid Size: 10.00 feet **Floor = Elevation +6' | Mid-Level = Elevation +/- 3'**

Figure 2.3: Elevation Level

Compliance Requirement Diagram (Access Location)

NA

Recommendations

NA

Materials

NA

NA

NA

Proposed Barriers

Existing Signs/Barriers

Figure 3: Mitigation Recommendations

Appendix A: Operating Parameters Considered in this Analysis.

ID Sub															
ID	Carrier NAME	Antenna Model	MDT (°)	Az (°)	Freq Band	EDT (°)	HBW (°)	VBW (°)	Paths	Transmit Power (W)	Total Power (W)	Gain (dBd)	ERP (W)	Tank 1	Ground
A1	VZW	SON_AIR6449	0	35	3700	SON	11	24	64	5	320.00	23.55	72468.65	38.5	64.7
A2	VZW	SON_VectaStar NR gNB	0	0	39000	SON	7	21	2	1.58	3.16	26.32	1354.22	37	63
A3	VZW	SON_MS-MBA-3.2-H8-L4	0	125	700	SON	39	82	2	40	71.30	10.45	790.84	37	63
A3	VZW	SON_MS-MBA-3.2-H8-L4	0	125	850	SON	33	79	2	40	71.30	11.45	995.61	37	63
A3	VZW	SON_MS-MBA-3.2-H4-L4	0	185	700	SON	40	80	2	40	71.30	10.14	736.35	37	63
A3	VZW	SON_MS-MBA-3.2-H4-L4	0	185	850	SON	36	77	2	40	71.30	12.74	1339.95	37	63
A3	VZW	SON_MS-MBA-3.2-H8-L4	0	115	1900	SON	23	51	2	40	71.30	15.85	2742.14	37	63
A3	VZW	SON_MS-MBA-3.2-H8-L4	0	115	2100	SON	21	51	2	40	71.30	16.45	3148.39	37	63
A3	VZW	SON_MS-MBA-3.2-H8-L4	0	115	2100-3	SON	21	51	2	20	35.65	16.45	1574.20	37	63
A3	VZW	SON_MS-MBA-3.2-H4-L4	0	155	1900	SON	23	52	2	40	71.30	15.89	2767.51	37	63
A3	VZW	SON_MS-MBA-3.2-H4-L4	0	155	2100	SON	21	51	2	40	71.30	16.28	3027.53	37	63
A3	VZW	SON_MS-MBA-3.2-H4-L4	0	155	2100-3	SON	21	51	2	20	35.65	16.28	1513.77	37	63
A3	VZW	SON_MS-MBA-3.2-H4-L4	0	195	1900	SON	22	52	2	40	71.30	15.75	2679.72	37	63
A3	VZW	SON_MS-MBA-3.2-H4-L4	0	195	2100	SON	21	48	2	40	71.30	16.34	3069.65	37	63
A3	VZW	SON_MS-MBA-3.2-H4-L4	0	195	2100-3	SON	21	48	2	20	35.65	16.34	1534.82	37	63
B1	VZW	SON_AIR6449	0	155	3700	SON	11	24	64	5	320.00	23.55	72468.65	38.5	64.7
B2	VZW	SON_VectaStar NR gNB	0	90	39000	SON	7	21	2	1.58	3.16	26.32	1354.22	37	63
B3	VZW	SON_NHH-33B-R2B	0	230	700	SON	38	23	2	40	71.30	14.86	2183.18	37	63
B3	VZW	SON_NHH-33B-R2B	0	230	850	SON	33	22	2	40	71.30	16.18	2958.62	37	63
B3	VZW	SON_NHH-33B-R2B	0	230	1900	SON	33	15	4	40	142.60	17.88	8752.24	37	63
B4	VZW	SON_NHH-33B-R2B	0	230	700	SON	38	23	2	40	71.30	14.86	2183.18	37	63
B4	VZW	SON_NHH-33B-R2B	0	230	850	SON	33	22	2	40	71.30	16.18	2958.62	37	63
B4	VZW	SON_NHH-33B-R2B	0	230	2100	SON	33	14	4	40	142.60	18.64	10426.05	37	63
B4	VZW	SON_NHH-33B-R2B	0	230	2100-3	SON	33	14	4	20	35.65	18.64	5213.02	37	63
C1	VZW	SON_NHH-33B-R2B	0	260	700	SON	38	23	2	40	71.30	14.86	2183.18	37	63
C1	VZW	SON_NHH-33B-R2B	0	260	850	SON	33	22	2	40	71.30	16.18	2958.62	37	63
C1	VZW	SON_NHH-33B-R2B	0	260	1900	SON	33	15	4	40	142.60	17.88	8752.24	37	63
C2	VZW	SON_NHH-33B-R2B	0	260	700	SON	38	23	2	40	71.30	14.86	2183.18	37	63
C2	VZW	SON_NHH-33B-R2B	0	260	850	SON	33	22	2	40	71.30	16.18	2958.62	37	63
C2	VZW	SON_NHH-33B-R2B	0	260	2100	SON	33	14	4	40	142.60	18.64	10426.05	37	63

ID Sub															
ID	Carrier NAME	Antenna Model	MDT (°)	Az (°)	Freq Band	EDT (°)	HBW (°)	VBW (°)	Paths	Transmit Power (W)	Total Power (W)	Gain (dBd)	ERP (W)	Tank 1	Ground
C2	VZW	SON_NHH-33B-R2B	0	260	2100-3	SON	33	14	4	20	35.65	18.64	5213.025	37	63
C3	VZW	SON_AIR6449	0	275	3700	SON	11	24	64	5	320.00	23.55	72468.65	38.5	64.7
C4	VZW	SON_VectaStar NR gNB	0	180	39000	SON	7	21	2	1.58	3.16	26.32	1354.22	37	63
D1	VZW	SON_VectaStar NR gNB	0	270	39000	SON	7	21	2	1.58	3.16	26.32	1354.22	37	63
D2	VZW	SON_MS-MBA-3.2-H8-L4	0	310	700	SON	39	82	2	40	71.30	10.45	790.84	37	63
D2	VZW	SON_MS-MBA-3.2-H8-L4	0	310	850	SON	33	79	2	40	71.30	11.45	995.61	37	63
D2	VZW	SON_MS-MBA-3.2-H4-L4	0	370	700	SON	40	80	2	40	71.30	10.14	736.359	37	63
D2	VZW	SON_MS-MBA-3.2-H4-L4	0	370	850	SON	36	77	2	40	71.30	12.74	1339.95	37	63
D2	VZW	SON_MS-MBA-3.2-H8-L4	0	300	1900	SON	23	51	2	40	71.30	15.85	2742.14	37	63
D2	VZW	SON_MS-MBA-3.2-H8-L4	0	300	2100	SON	21	51	2	40	71.30	16.45	3148.39	37	63
D2	VZW	SON_MS-MBA-3.2-H8-L4	0	300	2100-3	SON	21	51	2	20	35.65	16.45	1574.20	37	63
D2	VZW	SON_MS-MBA-3.2-H4-L4	0	340	1900	SON	23	52	2	40	71.30	15.89	2767.51	37	63
D2	VZW	SON_MS-MBA-3.2-H4-L4	0	340	2100	SON	21	51	2	40	71.30	16.28	3027.53	37	63
D2	VZW	SON_MS-MBA-3.2-H4-L4	0	340	2100-3	SON	21	51	2	20	35.65	16.28	1513.77	37	63
D2	VZW	SON_MS-MBA-3.2-H4-L4	0	20	1900	SON	22	52	2	40	71.30	15.75	2679.72	37	63
D2	VZW	SON_MS-MBA-3.2-H4-L4	0	20	2100	SON	21	48	2	40	71.30	16.34	3069.65	37	63
D2	VZW	SON_MS-MBA-3.2-H4-L4	0	20	2100-3	SON	21	48	2	20	35.65	16.34	1534.82	37	63
UN1	Unknown	Unknown	0	35	700	-	80	17	4	40	142.60	10.11	1462.58	13	39
UN1	Unknown	Unknown	0	35	1900	-	66	7	2	80	142.60	14.64	4150.68	13	39
UN2	Unknown	Unknown	0	35	700	-	80	17	4	40	142.60	10.11	1462.58	13	39
UN2	Unknown	Unknown	0	35	1900	-	66	7	2	80	142.60	14.64	4150.68	13	39
UN3	Unknown	Unknown	0	155	700	-	80	17	4	40	142.60	10.11	1462.58	13	39
UN3	Unknown	Unknown	0	155	1900	-	66	7	2	80	142.60	14.64	4150.68	13	39
UN4	Unknown	Unknown	0	155	700	-	80	17	4	40	142.60	10.11	1462.58	23	49
UN4	Unknown	Unknown	0	155	1900	-	66	7	2	80	142.60	14.64	4150.68	23	49
UN5	Unknown	Unknown	0	275	700	-	80	17	4	40	142.60	10.11	1462.58	23	49
UN5	Unknown	Unknown	0	275	1900	-	66	7	2	80	142.60	14.64	4150.68	23	49
UN6	Unknown	Unknown	0	275	700	-	80	17	4	40	142.60	10.11	1462.58	23	49
UN6	Unknown	Unknown	0	275	1900	-	66	7	2	80	142.60	14.64	4150.68	23	49
UN7	Unknown	Unknown	0	35	700	-	80	17	4	40	142.60	10.11	1462.58	23	49
UN7	Unknown	Unknown	0	35	1900	-	66	7	2	80	142.60	14.64	4150.68	23	49
UN8	Unknown	Unknown	0	155	700	-	80	17	4	40	142.60	10.11	1462.58	23	49
UN8	Unknown	Unknown	0	155	1900	-	66	7	2	80	142.60	14.64	4150.68	23	49
UN9	Unknown	Unknown	0	275	700	-	80	17	4	40	142.60	10.11	1462.58	23	49

ID Sub															
ID	Carrier NAME	Antenna Model	MDT (°)	Az (°)	Freq Band	EDT (°)	HBW (°)	VBW (°)	Paths	Transmit Power (W)	Total Power (W)	Gain (dBd)	ERP (W)	Tank 1	Ground
UN9	Unknown	Unknown	0	275	1900	-	66	7	2	80	142.60	14.64	4150.68	23	49
UN10	Unknown	Unknown	0	35	700	-	80	17	4	40	142.60	10.11	1462.58	29	55
UN10	Unknown	Unknown	0	35	1900	-	66	7	2	80	142.60	14.64	4150.68	29	55
UN11	Unknown	Unknown	0	35	700	-	80	17	4	40	142.60	10.11	1462.58	29	55
UN11	Unknown	Unknown	0	35	1900	-	66	7	2	80	142.60	14.64	4150.68	29	55
UN12	Unknown	Unknown	0	155	700	-	80	17	4	40	142.60	10.11	1462.58	29	55
UN12	Unknown	Unknown	0	155	1900	-	66	7	2	80	142.60	14.64	4150.68	29	55
UN13	Unknown	Unknown	0	155	700	-	80	17	4	40	142.60	10.11	1462.58	29	55
UN13	Unknown	Unknown	0	155	1900	-	66	7	2	80	142.60	14.64	4150.68	29	55
UN14	Unknown	Unknown	0	275	700	-	80	17	4	40	142.60	10.11	1462.58	29	55
UN14	Unknown	Unknown	0	275	1900	-	66	7	2	80	142.60	14.64	4150.68	29	55
UN15	Unknown	Unknown	0	275	700	-	80	17	4	40	142.60	10.11	1462.58	29	55
UN15	Unknown	Unknown	0	275	1900	-	66	7	2	80	142.60	14.64	4150.68	29	55

Note: Waterford Consultants, LLC has assumed transmission parameters for Unknown RF emitters based on similar installations found at other radio communications sites. Generic antenna models have been used where existing antenna part numbers or radiation patterns are not available. The frequencies presented in this table may have been assumed in order to represent the approximate band of operation and to support a worst-case calculation of power density.