



Radio Frequency Emissions Compliance Report for Verizon Wireless

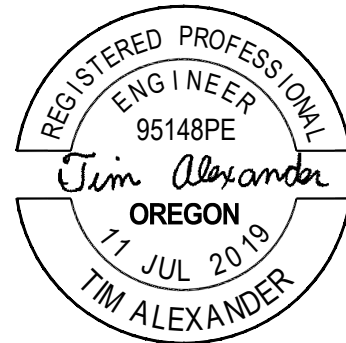
Site Name:	SAUVIE	Site Structure Type:	Monopine
Address:	14443 NW Charlton Rd Portland, OR 97231	Latitude:	45.65618
		Longitude:	-122.8247
Report Date:	11/05/2025	Project:	NSB

Compliance Statement

Based on information provided by Verizon and predictive modeling, the **SAUVIE** installation proposed by Verizon 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, 13 NOV 2025
EXPIRES, 31 DEC 2027

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.

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:

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

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

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

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 than the levels reported below. These theoretical results represent maximum-case predictions as all RF emitters are assumed to be operating at maximum 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.

Analysis

SCOPE:

- **INSTALL (3) AIR3283 RADIO/ANTENNA**
- **INSTALL (3) AIR6419 RADIO/ANTENNA**
- **INSTALL (2) MX06FHG865-HG ANTENNA**
- **INSTALL (2) MX06FRO840-02 ANTENNA**
- **INSTALL (2) MX06FRO860-02E ANTENNA**
- **INSTALL (3) 4490 RADIO**

The antennas will be mounted on a 150' Monopine with centerlines at (145') 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. No 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 antennas 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 and incident at adjacent structures, the maximum predicted RF power density level resulting from all operations is depicted in Figure 2. The proposed operations will not expose members of the public to hazardous levels of RF energy at ground level or in adjacent buildings.

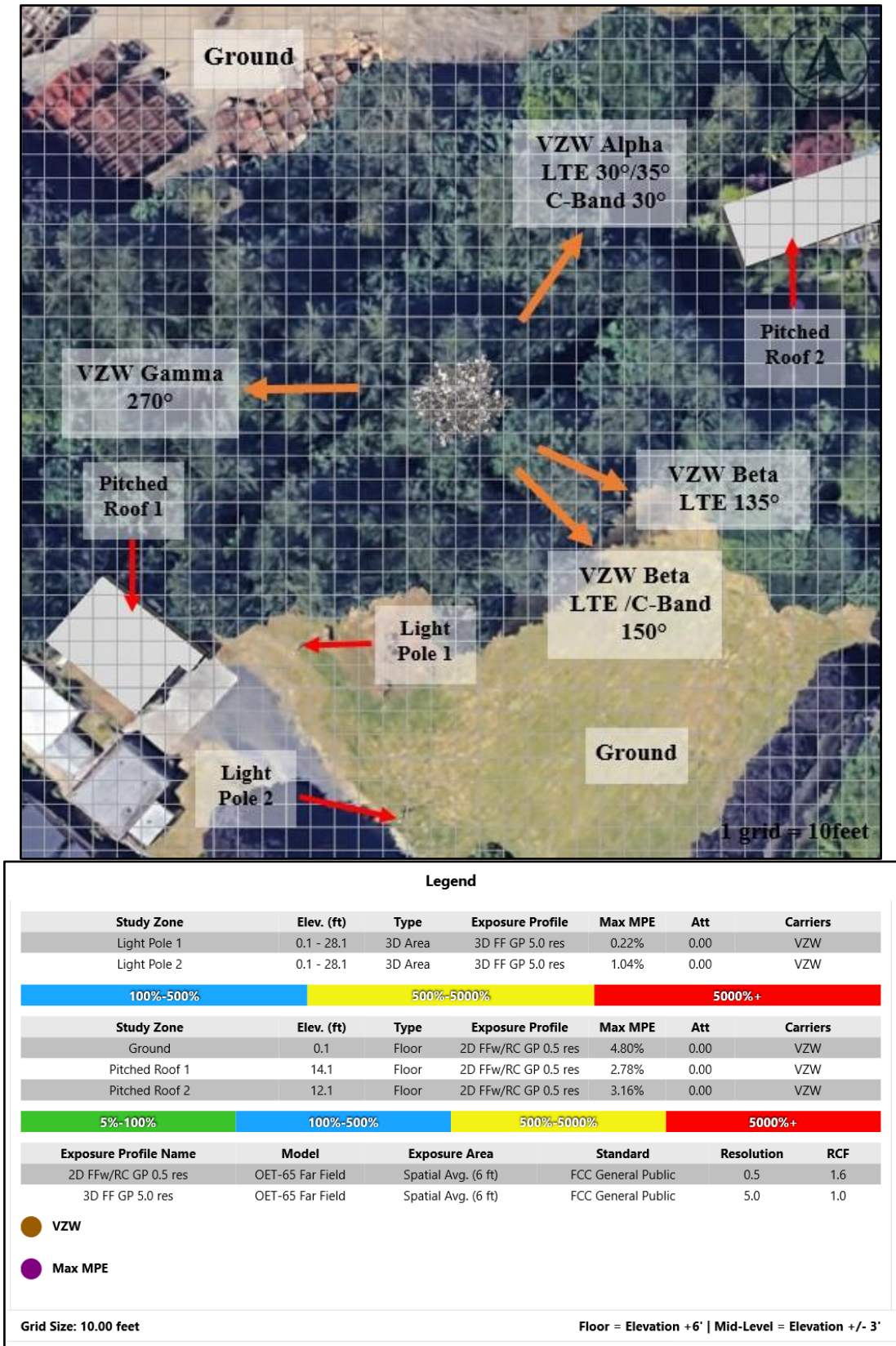


Figure 2: Predicted MPE as Percentage of FCC General Population Limits

Figure 3 shows predicted MPE levels near the antennas. Waterford Consultants LLC recommends a posting RF Any work activity in front of transmitting antennas should be coordinated with Verizon. Any work activity in front of transmitting antennas should be coordinated with Verizon.

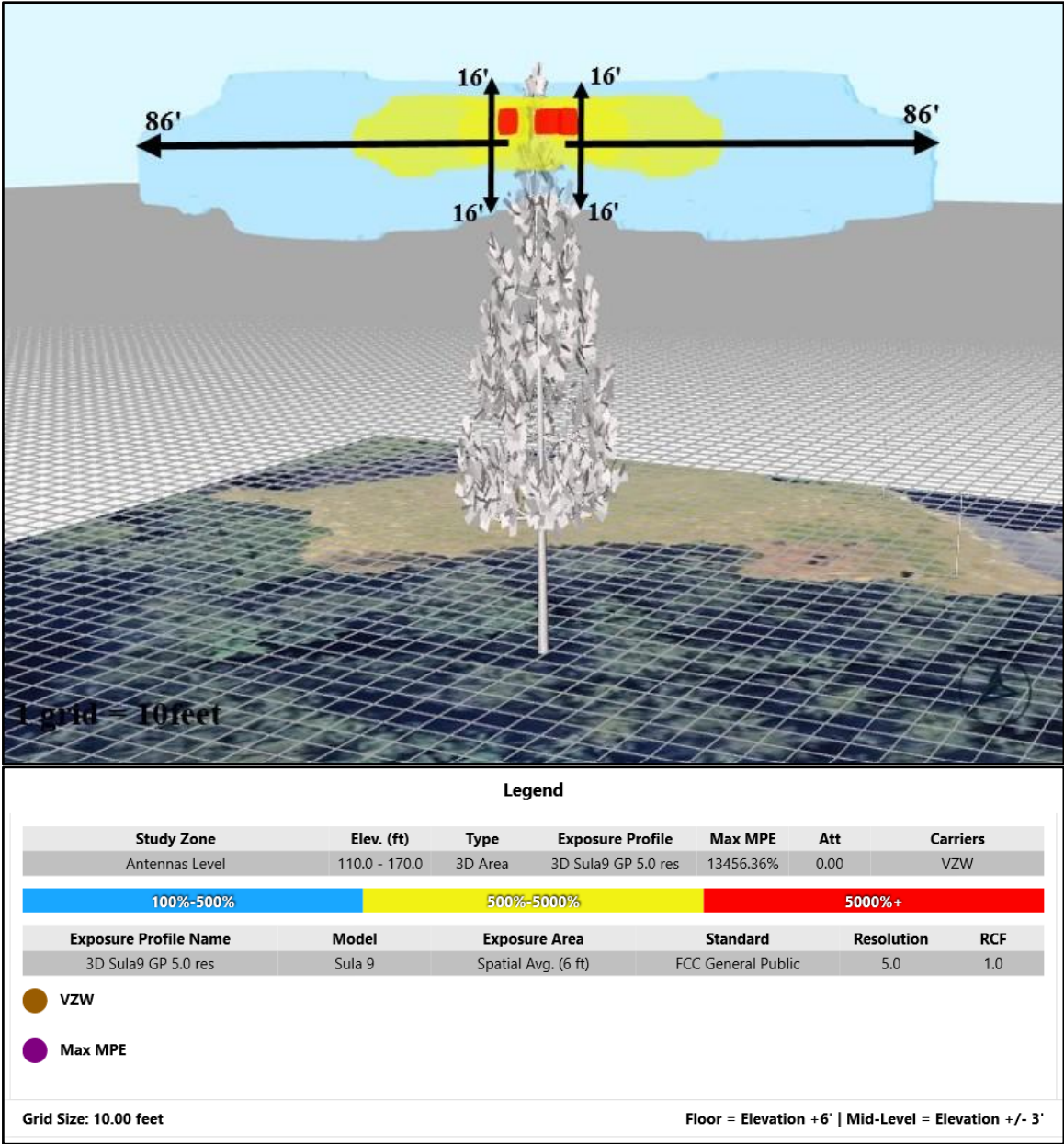


Figure 3: Predicted MPE at Antenna Elevation as Percentage of FCC General Population Limits

Stay Back Distance	
Horizontal from CL	86'
Vertical Up from CL	16'
Vertical Down from CL	16'

Compliance Requirement Diagram

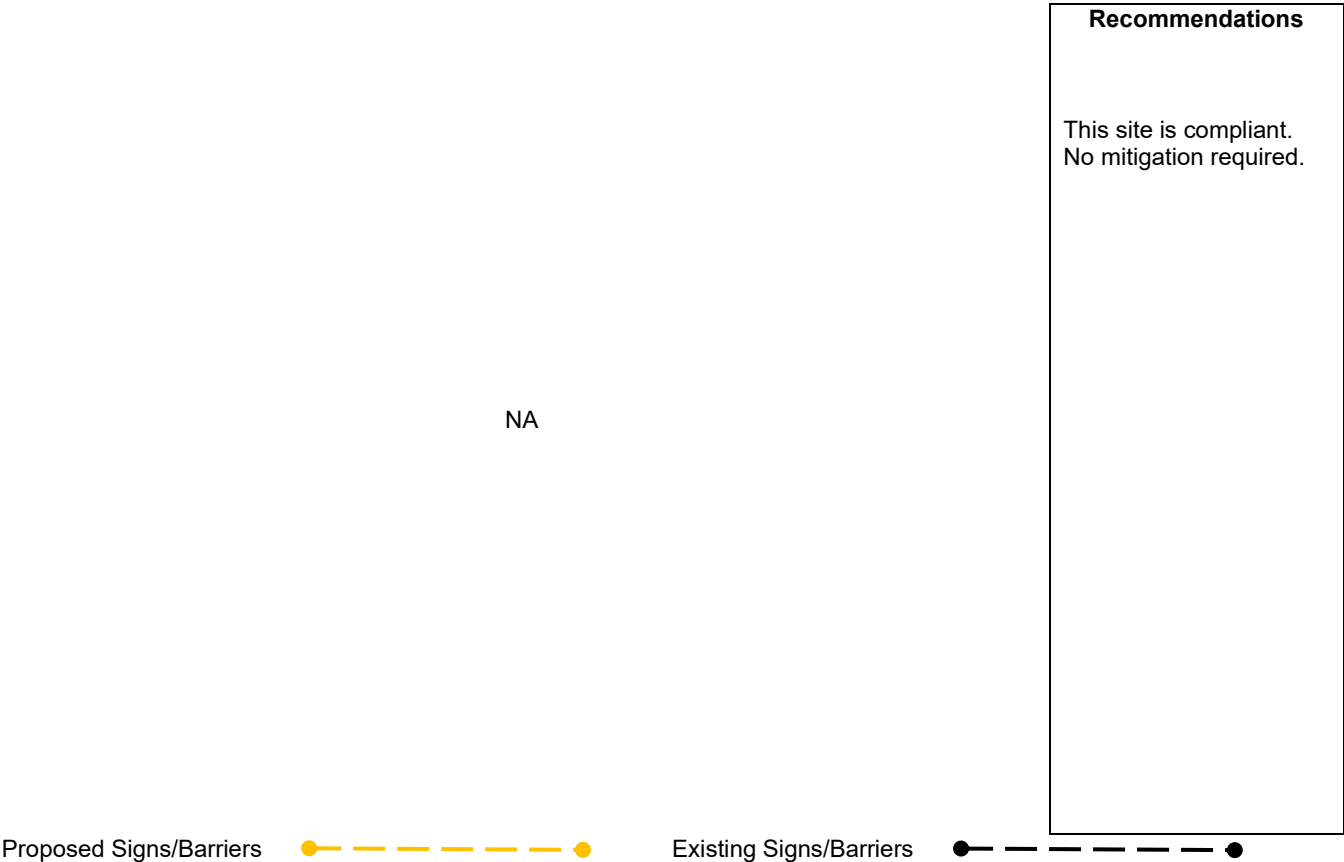


Figure 4: Mitigation Recommendations

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)	Ant Level z Height	Ground z Height
A1	VZW	SON_AIR3283	0	30	1900	SON	69	17	32	5	160.00	14.48	4488.69	0	145
A1	VZW	SON_AIR3283	0	30	2100	SON	67	15	32	2.5	80.00	15.01	2535.65	0	145
A1	VZW	SON_AIR3283	0	30	2100_3	SON	67	15	32	2.5	80.00	15.01	2535.65	0	145
A2	VZW	SON_AIR6419	0	30	3700	SON	11	25	1	320	320.00	23.45	70818.96	0	145
A3	VZW	SON_MX06FHG865-HG	0	35	700	SON	67	8	2	60	106.95	15.05	3421.22	0	145
A3	VZW	SON_MX06FHG865-HG	0	35	850	SON	65	7	2	60	106.95	15.35	3665.89	0	145
A4	VZW	SON_MX06FHG865-HG	0	35	700	SON	67	8	2	60	106.95	15.05	3421.22	0	145
A4	VZW	SON_MX06FHG865-HG	0	35	850	SON	65	7	2	60	106.95	15.35	3665.89	0	145
B1	VZW	SON_MX06FRO840-02	0	135	700	SON	40	19	2	60	106.95	15.40	3708.35	0	145
B1	VZW	SON_MX06FRO840-02	0	135	850	SON	37	17	2	60	106.95	15.80	4066.12	0	145
B2	VZW	SON_MX06FRO840-02	0	135	700	SON	40	19	2	60	106.95	15.40	3708.35	0	145
B2	VZW	SON_MX06FRO840-02	0	135	850	SON	37	17	2	60	106.95	15.80	4066.12	0	145
B3	VZW	SON_AIR6419	0	150	3700	SON	11	25	1	320	320.00	23.45	70818.96	0	145
B4	VZW	SON_AIR3283	0	150	1900	SON	69	17	32	5	160.00	14.48	4488.69	0	145
B4	VZW	SON_AIR3283	0	150	2100	SON	67	15	32	2.5	80.00	15.01	2535.65	0	145
B4	VZW	SON_AIR3283	0	150	2100_3	SON	67	15	32	2.5	80.00	15.01	2535.65	0	145
C1	VZW	SON_MX06FRO860-02E	0	270	700	SON	61	21	2	60	106.95	14.75	3192.86	0	145
C1	VZW	SON_MX06FRO860-02E	0	270	850	SON	58	20	2	60	106.95	15.25	3582.45	0	145
C2	VZW	SON_MX06FRO860-02E	0	270	700	SON	61	21	2	60	106.95	14.75	3192.86	0	145
C2	VZW	SON_MX06FRO860-02E	0	270	850	SON	58	20	2	60	106.95	15.25	3582.45	0	145
C3	VZW	SON_AIR6419	0	270	3700	SON	11	25	1	320	320.00	23.45	70818.96	0	145
C4	VZW	SON_AIR3283	0	270	1900	SON	69	17	32	5	160.00	14.48	4488.69	0	145
C4	VZW	SON_AIR3283	0	270	2100	SON	67	15	32	2.5	80.00	15.01	2535.65	0	145
C4	VZW	SON_AIR3283	0	270	2100_3	SON	67	15	32	2.5	80.00	15.01	2535.65	0	145