

RF Exposure Exemption Report

Manufacturer: Verizon Connect

Model: AT510

Model:AT510-B



Add value.
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In accordance with FCC CFR 47 Part 1.1307

Prepared for: Verizon Connect Fleet USA LLC
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FCC Accreditation
294497/UK2010 Octagon House, Fareham Test Laboratory

EXECUTIVE SUMMARY

The wireless devices described within this report are compliant with the exemption criteria related to human exposure to electromagnetic fields laid out in FCC CFR Title 47 Part 1.1307.



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Contents

1 Report Summary2

1.1 Report Modification Record.....2

1.2 Introduction.....2

1.3 Brief Summary of Results3

1.4 Application Form3

1.5 Product Information6

1.6 Test Location.....8

2 Assessment Details9

2.1 Single RF Source Options for Determination of Exemption.....9

2.2 Multiple RF Sources Options for Determination of Exemption10

2.3 Individual Antenna Port Exposure Results.....11

2.4 Combined Antenna Port RF Exposure Results FCC 1.1307(b)(3)(ii)(B)12



1 Report Summary

1.1 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

Issue	Description of Change	Date of Issue
1	First Issue	10-Aug-2026
2	Updated customer / applicant details	11-Aug-2026

Table 1

1.2 Introduction

Applicant	Verizon Connect
Manufacturer	Verizon Connect
Model Number(s)	AT510, AT510-B
Hardware Version(s)	P3.1
Software Version(s)	2.0.11
Specification/Issue/Date	FCC 47 CFR Part 1.1307: 2024
Order Number	8000000041
Date	18 th November 2025
Related Document(s)	• KDB 447498 D04 v01 • FCC 47 CFR Part 2.1091: 2024



1.3 Brief Summary of Results

The wireless devices described within this report are compliant with the exemption criteria related to human exposure to electromagnetic fields laid out in FCC CFR Title 47 Part 1.1307.

The calculations shown in this report were made in accordance with the procedures specified in the applied test specification(s).

1.4 Application Form

Equipment Description

Technical Description: (Please provide a brief description of the intended use of the equipment)	The asset tracker is for use on vehicles, shipping containers, heavy machinery with wide global distribution. The device provides real time location and vehicle status updates for customer assets. Device Features: GPS Location, Motion detection, Low power, Cellular Cat 1 Bis connectivity, status LEDs, External power cable, Internal battery
Manufacturer:	Verizon Connect
Model:	AT510; AT510-B
Part Number:	AT510: VZC-ADD-001-US AT510-B: VZC-ADDB-001-US

Transmitter Description (for all transmitters operating in the range > 30 MHz)

Radio Access Technology	Frequency Bands (MHz)	Minimum Frequencies (MHz)	Conducted Output Power (dBm)	Duty Cycle (%)	Region
Cellular LTE CAT1.bis	777-787 824-849 1710-1755 1710-1780 1850-1910	779.5 824.7 1710.7 1710.7 1850.7	+25	100	North America
BLE	2402-2480MHz	2402	+0	32	Global

Transmitter power includes upper bounds of uncertainty therefore maximum values are used.



Transmitter Description (for all transmitters operating in the range < 30 MHz)

Radio Access Technology	Frequency (MHz)	RMS Current (A)	Field Strength Measurement (dBuV/m or dBuA/m) OR Conducted Output Power (dBm)	Field Strength Measurement Distance (cm) (N/A if Conducted Output Power)	Region

Antenna Description (Antennas intended for transmitting > 30 MHz)

Radio Access Technology	Antenna Model/Description	Gain (dBi)	Antenna length* (cm)
Cellular LTE CAT1.bis	Taoglas PA.710.A SMT Antenna	1.0 dBi (698-960 MHz), 3.2 dBi (1710-2170 MHz), 3.5 dBi (2300-2400 MHz), 3.5 dBi (2490-2690 MHz)	4.0
BLE	Taoglas WLA.10 SMT Antenna	1.25 dBi	3.2

*If exact antenna length is unavailable, a definitive "< x cm" can be provided instead.

Antenna Description (Antennas intended for transmitting < 30 MHz)

Radio Access Technology	Antenna Model/Description	Number of Turns (N)	Antenna length* (cm)

* These may be in the form of a loop antenna, in this case the antenna length is taken to be the widest diameter (in the case of circular loop antennas) or the longest edge (in the case of square antennas).

Proposed Separation Distance

Proposed Separation Distance (mm):	
------------------------------------	--



Simultaneous Transmission Configurations

Please list all combinations of simultaneous transmissions possible.

(In the case of cellular equipment, a single band per technology can be listed and the check boxes below this table should be completed.)

Radio Access Technology 1	Radio Access Technology 2	Radio Access Technology 3
Cellular LTE CAT1.bis	BLE	

Simultaneous Transmissions capable with all cellular bands: Yes: ☐, No: ☐, Not Applicable: ☐

If No, please specify which bands are capable of simultaneously transmitting:



1.5 Product Information

1.5.1 Technical Description

The asset tracker is for use on vehicles, shipping containers, heavy machinery with wide global distribution. The device provides real time location and vehicle status updates for customer assets.

1.5.2 Transmitter Description

The following radio access technologies and frequency bands are supported by the equipment under test.

Radio Access Technology	Frequency Band (MHz)	Minimum Frequency (MHz)	Output Power (dBm)	Duty Cycle (%)
Cellular LTE CAT1 B13	777-787	779.5	+25	100
Cellular LTE CAT1 B5	824-849	824.7	+25	100
Cellular LTE CAT1 B4	1710-1755	1710.7	+25	100
Cellular LTE CAT1 B66	1710-1780	1710.7	+25	100
Cellular LTE CAT1 B2	1850-1910	1850.7	+25	100
BLE	2400-2483.5	2402	+0	32

Table 2 - Transmitter Description - FCC

Note: Transmitter power includes upper bounds of uncertainty therefore maximum values are used.



1.5.3 Antenna Description

The following antennas are supported by the equipment under test.

Radio Access Technology	Antenna Model	Gain (dBi)	Antenna Length (cm)	Minimum Separation Distance (mm)
Cellular LTE CAT1	Taoglad PA.710.A SMT Antenna	1.0 (698-960 MHz), 3.2 (1710-2170 MHz), 3.5 (2300-2400 MHz), 3.5 (2490-2690 MHz)	4.0	200
BLE	Taoglas WLA.10 SMT Antenna	1.25	3.2	200

Table 3 - Antenna Description

In the case of more than one type of antenna being supported by the equipment, the calculation is based on the maximum of the antenna gains. If other antennas can be used that have greater gains, the minimum separation distances will need to be recalculated.

Note: Antenna gain includes upper bounds of uncertainty therefore maximum values are used.

1.5.4 Equipment Configuration

Simultaneous transmission for the following configurations;

Combination 1 – BLE and one cellular band

Notes: The worst case configuration was calculated to be BLE and LTE Band 13



1.6 Test Location

TÜV SÜD conducted the following tests at our Octagon House Test Laboratory.

Test Name	Name of Engineer(s)	Accreditation
Exposure Assessment	George Williams	UKAS

Table 4

Office Address:

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Concorde Way
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Hampshire
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United Kingdom



2 Assessment Details

2.1 Single RF Source Options for Determination of Exemption

Option	Reference	RF Exposure Test Exemptions for Single Source												
A (1-mW Test Exemption)	FCC 1.1307(b)(3)(i)(A)	The available maximum time averaged power is no more than 1 mW, regardless of separation distance.												
B (SAR-Based Exemption)	FCC 1.1307(b)(3)(i)(B)	The available maximum timeaveraged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold P_{th} (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by: $P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$ Where $x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right) \text{ and } f \text{ is in GHz;}$ and $ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$ <i>d</i> = the separation distance (cm);												
C (MPE-Based Exemption)	FCC 1.1307(b)(3)(i)(C)	Or using Table 1 and the minimum separation distance (R in meters) from the body of a nearby person for the frequency (f in MHz) at which the source operates, the ERP (watts) is no more than the calculated value prescribed for that frequency. For the exemption in Table 1 to apply, R must be at least λ/2π, where λ is the free-space operating wavelength in meters. If the ERP of a single RF source is not easily obtained, then the available maximum time-averaged power may be used in lieu of ERP if the physical dimensions of the radiating structure(s) do not exceed the electrical length of λ/4 or if the antenna gain is less than that of a half-wave dipole (1.64 linear value). TABLE 1 TO § 1.1307(b)(3)(i)(C)—SINGLE RF SOURCES SUBJECT TO ROUTINE ENVIRONMENTAL EVALUATION <table><tr><th>RF Source frequency (MHz)</th><th>Threshold ERP (watts)</th></tr><tr><td>0.3–1.34</td><td>1,920 R².</td></tr><tr><td>1.34–30</td><td>3,450 R²/f².</td></tr><tr><td>30–300</td><td>3.83 R².</td></tr><tr><td>300–1,500</td><td>0.0128 R²f.</td></tr><tr><td>1,500–100,000</td><td>19.2R².</td></tr></table>	RF Source frequency (MHz)	Threshold ERP (watts)	0.3–1.34	1,920 R ² .	1.34–30	3,450 R ² /f ² .	30–300	3.83 R ² .	300–1,500	0.0128 R ² f.	1,500–100,000	19.2R ² .
RF Source frequency (MHz)	Threshold ERP (watts)													
0.3–1.34	1,920 R ² .													
1.34–30	3,450 R ² /f ² .													
30–300	3.83 R ² .													
300–1,500	0.0128 R ² f.													
1,500–100,000	19.2R ² .													

Table 5



2.2 Multiple RF Sources Options for Determination of Exemption

Option	Reference	
A 1-mW Test Exemption for Multiple Sources	FCC 1.1307(b)(3)(ii)(A)	The available maximum time averaged power of each source is no more than 1 mW and there is a separation distance of two centimeters between any portion of a radiating structure operating and the nearest portion of any other radiating structure in the same device, except if the sum of multiple sources is less than 1 mW during the time-averaging period, in which case they may be treated as a single source (separation is not required). This exemption may not be used in conjunction with other exemption criteria other than those in paragraph (b)(3)(i)(A) of this section. Medical implant devices may only use this exemption and that in paragraph (b)(3)(i)(A).
B Simultaneous Transmission with both SAR-based and MPE- Based Test Exemptions	FCC 1.1307(b)(3)(ii)(B)	In the case of fixed RF sources operating in the same time-averaging period, or of multiple mobile or portable RF sources within a device operating in the same time averaging period, if the sum of the fractional contributions to the applicable thresholds is less than or equal to 1 as indicated in the following equation. $\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure\ Limit_k} \leq 1$

Table 6



2.3 Individual Antenna Port Exposure Results

2.3.1 Single Source Calculation of Exposure at Specified Separation Distance FCC 1.1307(b)(3)(i)(B) 'Option B' (SAR Based Exemption)

RAT	Frequency (MHz)	Conducted Power Output mW	Duty Cycle %	Time Average Conducted Power Output mW	Antenna Gain Ratio	Maximum Power (EIRP) mW	Maximum Power (ERP) mW	Minimum Antenna to User Separation Distance (mm)	Pth (mW) 1.1307 (b)(3)(i)(B)	Greater of Max time averaged conducted power or ERP?	1.1307(b)(3)(i)(B) Exemption (Yes/No) (300 MHz to 6 GHz, 0.5 cm to 20 cm)
BLE	2402	1.00	32	0.32	1.33	0.43	0.26	200	3060.0	0.43	Yes
LTE B13	779.5	316.23	100	316.23	1.26	398.11	242.75	200	1590.2	316.23	Yes
LTE B5	824.7	316.23	100	316.23	1.26	398.11	242.75	200	1682.4	316.23	Yes
LTE B4	1710.7	316.23	100	316.23	2.09	660.69	402.86	200	3060.0	402.86	Yes
LTE B66	1710.7	316.23	100	316.23	2.09	660.69	402.86	200	3060.0	402.86	Yes
LTE B2	1850.7	316.23	100	316.23	2.09	660.69	402.86	200	3060.0	402.86	Yes

Table 7 - Transmitter Result

The calculations show that the individual transmitters comply with FCC 1.1307(b)(3)(i)(B) SAR-based exemption at a minimum distance of 200 mm.



2.4 Combined Antenna Port RF Exposure Results FCC 1.1307(b)(3)(ii)(B)

2.4.1 Combination 1 - Option B Summation

RAT	Frequency (MHz)	Conducted Power Output mW	Duty Cycle %	Time Average Conducted Power Output mW	Antenna Gain Ratio	Maximum Power (EIRP) mW	Maximum Power (ERP) mW	Test Separation Distance (mm)	Pi / Pth	Sum of the fractional contributions to the applicable thresholds is less than or equal to 1. Compliant? (Yes/No)
BLE	2402	1.0000	32	0.3200	1.3300	0.4300	0.2600	200	0.0001	
LTE B13	779.5	316.2300	100	316.2300	1.2600	398.1100	242.7500	200	0.1989	
Calculated RF exposure level at minimum compliance boundary of 0.2 m as a fraction of the limit									0.1990	Yes

Table 8 - Transmitter Result

The calculations show that the multiple transmitters comply with FCC 1.1307(b)(3)(ii)(B) summation-based exemption.