



**FCC Part 1 Subpart I
FCC Part 2 Subpart J**

RF EXPOSURE REPORT

FOR

OMNI-ID SENSE ASSET COMMUNICATION DEVICE

MODEL NUMBER: SENSE ASSET+

FCC ID: 2AYW9-SENSE-APLUS

REPORT NUMBER: R14541906-E4

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Prepared for

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Revision History

Rev.	Issue Date	Revisions	Revised By
V1	2023-02-24	Initial Issue	Charles Moody
V2	2023-09-15	Revised Test Methodology Section	Charles Moody
V3	2023-11-07	Revised BLE Antenna Gain	Charles Moody

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Oxit, LLC
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EUT DESCRIPTION: Omni-Id Sense Asset Communication Device

MODEL: Sense Asset+

SERIAL NUMBER: Non-Serialized

DATE TESTED: 2023-02-16

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 1 SUBPART I & PART 2 SUBPART J	Complies

UL LLC tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC will constitute fraud and shall nullify the document.

Approved & Released For
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2. TEST METHODOLOGY

All calculations were made in accordance with FCC Parts 1.1310, 2.1091, 2.1093, KDB 447498 D04 v01, KDB 447498 D03 V01, IEEE Std C95.1-2005, IEEE Std C95.3-2002, IC Safety Code 6.

3. REFERENCES

Output power, Duty cycle and Antenna gain data is excerpted from client declarations.

4. FACILITIES AND ACCREDITATION

UL LLC is accredited by A2LA, Certificate Number 0751.06, for all testing performed within the scope of this report. Testing was performed at the locations noted below.

	Address	ISED CABID	ISED Company Number	FCC Registration
<input checked="" type="checkbox"/>	2800 Suite Perimeter Park Dr. Suite B Morrisville, NC 27560, USA	US0067	27265	825374

5. EXEMPTION FROM ROUTINE EVALUATION FOR RF EXPOSURE

5.1. FCC

§2.1091 Radiofrequency radiation exposure evaluation: mobile devices

(c)(1) Evaluation of compliance with the exposure limits in § 1.1310 of this chapter, and preparation of an EA if the limits are exceeded, is necessary for mobile devices with single RF sources having either more than an available maximum time-averaged power of 1 mW or more than the ERP listed in Table 1 to § 1.1307(b)(3)(i)(C), whichever is greater. For mobile devices not exempt by § 1.1307(b)(3)(i)(C) at distances from 20 centimeters to 40 centimeters and frequencies from 0.3 GHz to 6 GHz, evaluation of compliance with the exposure limits in § 1.1310 of this chapter is necessary if the ERP of the device is greater than ERP_{20cm} in the formula below. If the ERP of a single RF source at distances from 20 centimeters to 40 centimeters and frequencies from 0.3 GHz to 6 GHz is not easily obtained, then the available maximum time-averaged power may be used (i.e., without consideration of ERP) in comparison with the following formula only if the physical dimensions of the radiating structure(s) do not exceed the electrical length of $\lambda/4$ or if the antenna gain is less than that of a half-wave dipole (1.64 linear value).

$$P_{th}(\text{mW}) = ERP_{20\text{ cm}}(\text{mW}) = \begin{cases} 2040f & 0.3\text{ GHz} \leq f < 1.5\text{ GHz} \\ 3060 & 1.5\text{ GHz} \leq f \leq 6\text{ GHz} \end{cases}$$

Table 1 to § 1.1307(b)(3)(i)(C) - Single RF Sources Subject to Routine Environmental Evaluation

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	$19.2 R^2$.

R is the minimum separation distance from the body of a nearby person for the frequency in meters.

F is the frequency at which the source operates in MHz.

ERP (watts) is the calculated value prescribed for that frequency. For the exemption in Table 1 to apply, R must be at least $\lambda/2\pi$, where λ is the free-space operating wavelength in meters.

(c)(2) For multiple mobile or portable RF sources within a device operating in the same time averaging period, routine environmental evaluation is required if the formula in §1.1307(b)(3)(ii)(B) of this chapter is applied to determine the exemption ratio and the result is greater than 1.

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure Limit_k} \leq 1$$

Where:

a = number of fixed, mobile, or portable RF sources claiming exemption using paragraph (b)(3)(i)(B) of this section for P_{th} , including existing exempt transmitters and those being added.

b = number of fixed, mobile, or portable RF sources claiming exemption using paragraph (b)(3)(i)(C) of this section for Threshold ERP, including existing exempt transmitters and those being added.

c = number of existing fixed, mobile, or portable RF sources with known evaluation for the specified minimum distance including existing evaluated transmitters.

P_i = the available maximum time-averaged power or the ERP, whichever is greater, for fixed, mobile, or portable RF source i at a distance between 0.5 cm and 40 cm (inclusive).

$P_{th,i}$ = the exemption threshold power (P_{th}) according to paragraph (b)(3)(i)(B) of this section for fixed, mobile, or portable RF source i.

ERP_j = the ERP of fixed, mobile, or portable RF source j.

$ERP_{th,j}$ = exemption threshold ERP for fixed, mobile, or portable RF source j, at a distance of at least $\lambda/2\pi$ according to the applicable formula of paragraph (b)(3)(i)(C) of this section.

$Evaluated_k$ = the maximum reported SAR or MPE of fixed, mobile, or portable RF source k either in the device or at the transmitter site from an existing evaluation at the location of exposure.

$Exposure Limit_k$ = either the general population/uncontrolled maximum permissible exposure (MPE) or specific absorption rate (SAR) limit for each fixed, mobile, or portable RF source k, as applicable from § 1.1310 of this chapter.

(c)(3) Unless otherwise specified in this chapter, any other single mobile or multiple mobile and portable RF source(s) associated with a device is exempt from routine environmental evaluation for RF exposure prior to equipment authorization or use, except as specified in § 1.1307(c) and (d) of this chapter.

SAR-based Test Exemption Results

1.1307 (b)(3)(i)(B)

Applicable to frequency range of 300 MHz to 6 GHz.

Applicable to separation distance 0.5cm to 40cm.

Applicable to Fixed, Mobile or Portable device exposure conditions.

Maximum time-averaged (matched conducted) power or its ERP, whichever greater, shall be below the specified threshold.

Below is a list of the data provided by the customer:

1. Antenna gain and type
2. Max Declared output power

In the table(s) below, Power and Gain are entered in units of dBm and dBi respectively and conversions to linear forms are used for the calculations.

Single Chain and non-colocated transmitters									
Band (GHz)	Mode	Separ. Distance (cm)	Output AVG Power (dBm)	Ant. Gain (dBi)	Ant Gain (dBd)	ERP (dBm)	Duty Cycle (%)	ERP (mW)	FCC Pth Limit (mW)
2.4	BLE	20	2.50	1.00	-1.15	1.35	100.0	1.36	3060.00
0.9	LoRa	20	16.00	2.15	0.00	16.00	100.0	39.81	1836.00

Single Chain and non-colocated transmitters				
ERP BLE (mW)	ERP LORA (mW)	ERP SUMMED (mW)	FCC Pth Limit (mW)	Exemption Status
1.36	39.81	41.17	3060.00	Exempt

Notes:

- 1) The manufacturer configures output power so that the maximum power, after accounting for manufacturing tolerances, will never exceed the maximum power level measured.
- 2) The output power in the tables above is the maximum power per chain among various channels and various modes within the specific band.
- 3) 100% Duty Cycle is used as worst-case.

END OF TEST REPORT