



# Radio Frequency Exposure Evaluation Report

**For:**  
Geoforce Inc.

**Model Name:**  
OWA1C00

**Product Description:**  
Battery Powered Asset Logistics Device

**FCC ID:** OWA00GT1C  
**ISED:** 10540A-00GT1C

**Applied Rules and Standards:**  
CFR Part Part1 (1.1307 & 1.1310), Part 2 (2.1091),  
FCC KDB 447498 D01 General RF Exposure Guidance v06  
ISED RSS-102 Issue 6

**Report number:** EMC\_GEOFO\_051\_25001\_RF\_Exposure

**DATE:** 2025-08-26



**CETECOM Inc.**

411 Dixon Landing Road • Milpitas, CA 95035 • U.S.A.

Phone: + 1 (408) 586 6200 • Fax: + 1 (408) 586 6299 • E-mail: [info@cetecom.com](mailto:info@cetecom.com) • <http://www.cetecom.com>  
CETECOM Inc. is a Delaware Corporation with Corporation number: 2905571

## TABLE OF CONTENTS

1	Assessment.....	3
2	Administrative Data .....	4
2.1	Identification of the Testing Laboratory Issuing the EMC Test Report .....	4
2.2	Identification of the Client .....	4
2.3	Identification of the Manufacturer.....	4
3	Equipment under Assessment.....	5
3.1	EUT Specifications .....	5
4	RF Exposure Limits and FCC and ISED Basic Rules .....	6
	FCC .....	6
	ISED RSS 102.....	7
5	Evaluations.....	8
5.1	<u>Analysis of RF Exposure</u> .....	8
5.2	<u>FCC RF Exposure (Standalone)</u> .....	8
5.3	<u>ISED RF Exposure (Standalone)</u> .....	8
5.4	<u>RF Exposure Test Exemptions for Simultaneous Transmission Sources</u> .....	8
6	Revision History .....	9

## 1 Assessment

This RF Exposure evaluation report provides evidence for compliance of the below identified device with the RF Exposure limits for mobile devices as defined in FCC CFR Part 1 (1.1307 & 1.1310), Part 2 (2.1093) and ISED standard RSS-102 issue 6 under worst case conditions (measured or rated RF output power, antenna gain, distance towards human body, multiple transmitter information as presented by the applicant).

In addition, maximum antenna gain or minimum distance towards the human body is calculated respectively, where relevant.

The device meets the limits as stipulated by the above given FCC and ISED rule parts based on available specifications for worst-case conditions at 11 cm distance to the body.

Company Name	Product Description	Model No.
Geoforce Inc.	Battery Powered Asset Logistics Device	OWA1C00

### Report Reviewer:

Alvin, Ilarina

2025-08-26 Compliance (Senior Manager Regulatory Services)

Date	Section	Name	Signature
------	---------	------	-----------

### Responsible for the Report:

Art Thammanavarat

2025-08-26 Compliance (Senior EMC Engineer)

Date	Section	Name	Signature
------	---------	------	-----------

The test results of this test report relate exclusively to the test item specified in Section 3.

CETECOM Inc. USA does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of CETECOM Inc. USA.

## 2 Administrative Data

### 2.1 Identification of the Testing Laboratory Issuing the EMC Test Report

Company Name:	CETECOM Inc.
Department:	Compliance
Street Address:	411 Dixon Landing Road
City/Zip Code	Milpitas, CA 95035
Country	USA
Telephone:	+1 (408) 586 6200
Fax:	+1 (408) 586 6299
EMC Lab Manager:	Alvin, Ilarina
Responsible Project Leader:	Jayalakshmi, Sekar

### 2.2 Identification of the Client

Client Firm/Name:	Geoforce Inc.
Street Address:	5830 Granite Parkway, Suite 1200
City/Zip Code	Plano, TX 75024
Country	USA

### 2.3 Identification of the Manufacturer

Manufacturer's Name:	Same as Client
Manufacturers Address:	
City/Zip Code	
Country	

### 3 Equipment under Assessment

#### 3.1 EUT Specifications

<b>Product Description:</b>	Battery Powered Asset Logistics Device
<b>Model Name:</b>	OWA1C00
<b>HW Version:</b>	R1
<b>SW Version:</b>	1.X.X
<b>FCC ID:</b>	OWA00GT1C
<b>ISED:</b>	10540A-00GT1C
<b>Contains FCC ID:</b>	2ANPO00NRF9151
<b>Contains ISED:</b>	24529- NRF9151
<b>Bands/Modes Supported</b>	<b>Cellular Modules</b> <b>Model Name:</b> Nordic <b>Model Number:</b> NRF9151 <b>FCC:</b> 2ANPO00NRF9151 <b>Wireless Technologies</b> <b>LTE CAT M1:</b> 2,4,5,12,13,26 <b>LTE CAT NB-IoT:</b> 2,4,5,12,13,25,26,66
	<b>Bluetooth Modules</b> <b>Model Name:</b> Nordic <b>Model Number:</b> NRF52840 <b>FCC:</b> N/A <b>Wireless Technologies</b> <b>Bluetooth LE</b>
	<b>GNSS Modules</b> <b>Model Name:</b> Quectel <b>Model Number:</b> LC76GPA <b>Wireless Technologies</b> GPS, GLONASS, GALILEO, BDS and QZSS
<b>Mode Of Operations</b>	BLE: GFSK Cellular: QPSK / 16-QAM / 64-QAM
<b>Power Supply/ Rated Operating Voltage Range</b>	3.45VDC - 3.65VDC
<b>Operating Temperature Range</b>	-40C to +85C
<b>Sample Revision</b>	<input type="checkbox"/> Production <input checked="" type="checkbox"/> Pre-Production
<b>EUT Dimensions</b>	71mm x 71mm x 32mm
<b>EUT Diameter</b>	<input checked="" type="checkbox"/> < 60 cm <input type="checkbox"/> Other _____
Note: The information of the EUT specifications in the table above is provided by the client.	

## 4 RF Exposure Limits and FCC and ISED Basic Rules

### FCC

#### 4.1.1 § 2.1093(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 portable devices having single RF sources with more than an available maximum time-averaged power of 1 mW, more than the ERP listed in Table 1 to § 1.1307(b)(3)(i)(C), or more than the Pth in the following formula, whichever is greater. The following formula shall only be used in conjunction with portable devices not exempt by § 1.1307(b)(3)(i)(C) at distances from 0.5 centimeters to 20 centimeters and frequencies from 0.3 GHz to 6 GHz.

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

#### 4.1.2 § 2.1093(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.

#### 4.1.3 § 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.

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

## ISED RSS 102

### 4.1.4 Clause 6.3 SAR exemption limits

Devices operating at or below the applicable output power levels (adjusted for tune-up tolerance) specified in table 11, based on the separation distance, are exempt from SAR evaluation. The separation distance, defined as the distance between the user and/or bystander and the antenna and/or radiating element of the device or the outer surface of the device, shall be less than or equal to 20 cm for these exemption limits to apply.

Table 11: Power limits for exemption from routine SAR evaluation based on the separation distance

Frequency (MHz)	≤ 5 mm (mW)	10 mm (mW)	15 mm (mW)	20 mm (mW)	25 mm (mW)	30 mm (mW)	35 mm (mW)	40 mm (mW)	45 mm (mW)	> 50 mm (mW)
≤ 300	45	116	139	163	189	216	246	280	319	362
450	32	71	87	104	124	147	175	208	248	296
835	21	32	41	54	72	96	129	172	228	298
1900	6	10	18	33	57	92	138	194	257	323
2450	3	7	16	32	56	89	128	170	209	245
3500	2	6	15	29	50	72	94	114	134	158
5800	1	5	13	23	32	41	54	74	102	128

The exemption limits in table 11 are based on measurements and simulations of half-wave dipole antennas at separation distances of 5 mm to 50 mm from a flat phantom, which provides a SAR value of approximately 0.4 W/kg for 1 g of tissue.

For limb-worn devices where the 10 gram of tissue applies, the exemption limits for routine evaluation in table 11 are multiplied by a factor of 2.5.

For controlled-use devices where the 8 W/kg for 1 gram of tissue applies, the exemption limits for routine evaluation in table 11 are multiplied by a factor of 5.

When the operating frequency of the device is between two frequencies located in table 11, linear interpolation shall be applied for the applicable separation distance. If the separation distance of the device is between two distances located in table 11, linear interpolation may be applied for the applicable frequency. Alternatively, the limit corresponding to the smaller distance may be employed. For example, in case of a 7 mm separation distance, either use the exception value for a 5 mm separation distance or interpolate between the limits corresponding to 5 mm and 10 mm separation distances.

For implanted medical devices, the exemption limit for routine SAR evaluation is set at an output power of 1 mW, regardless of frequency.

## 5 Evaluations

### 5.1 Analysis of RF Exposure

### 5.2 FCC RF Exposure (Standalone)

Radio	Tech-Band	Freq-Low <sub>[GHz]</sub>	Pwr <sub>[dBm]</sub>	Power <sub>[W]</sub>	Ant-G <sub>[dBi]</sub>	EIRP <sub>[W]</sub>	ERP <sub>[W]</sub>	FCC 2.1093(c)(1) P <sub>th</sub> <sub>[mW]</sub> = ERP <sub>20cm</sub>	P/P <sub>th</sub> ratio
Cellular	LTE 2	1.8550	19.68	0.093	1.10	0.120	0.073	3060.00	0.030
	LTE 4	1.7150	19.83	0.096	1.10	0.124	0.076	3060.00	0.031
	LTE 5	0.8290	19.61	0.091	2.40	0.159	0.097	1691.16	0.057
	LTE 12	0.7040	19.52	0.090	2.40	0.156	0.095	1436.16	0.066
	LTE 13	0.7820	19.72	0.094	1.10	0.121	0.074	1595.28	0.059
	LTE 26	0.8190	19.56	0.090	1.10	0.116	0.071	1670.76	0.054
Radio	Tech-Band	Freq-Low <sub>[GHz]</sub>	Pwr <sub>[dBm]</sub>	Power <sub>[W]</sub>	AG <sub>[dBi]</sub>	EIRP <sub>[W]</sub>	ERP <sub>[W]</sub>	FCC 2.1093(c)(1) P <sub>th</sub> <sub>[mW]</sub> = ERP <sub>20cm</sub>	P/P <sub>th</sub> ratio
BT	LE	2.4020	-2.00	0.0006	2.40	0.001	0.001	3060.00	0.000

#### Conclusion:

- The maximum RF emissions from this equipment fulfills the RF exclusion threshold limits for separating distance between the antenna and the human body greater than 11 cm. No RF Exposure evaluation is required.

### 5.3 ISED RF Exposure (Standalone)

									SAR
									RSS-102 6.3 D≤20 cm (300 ≤ Freq ≤ 5800 MHz)
Radio	Tech-Band	Freq-Low [MHz]	Pwr <sub>[dBm]</sub>	Power <sub>[W]</sub>	Ant-G [dBi]	EIRP <sub>[W]</sub>	EIRP <sub>[mW]</sub>	Exemption limit for Routine Evaluation	Exemption (Y/N)
Cellular	LTE 2	1855.00	19.68	0.09	1.10	0.12	119.67	321.94	Yes
	LTE 4	1715.00	19.83	0.10	1.10	0.12	123.88	318.66	Yes
	LTE 5	829.00	19.61	0.09	2.40	0.16	158.85	297.97	Yes
	LTE 12	704.00	19.52	0.09	2.40	0.16	155.60	297.32	Yes
	LTE 13	782.00	19.72	0.09	1.10	0.12	120.78	297.72	Yes
	LTE 26	819.00	19.56	0.09	1.10	0.12	116.41	297.92	Yes
Radio	Tech-Band	Freq-Low [MHz]	Pwr <sub>[dBm]</sub>	Power <sub>[W]</sub>	Ant-G [dBi]	EIRP <sub>[W]</sub>	EIRP <sub>[mW]</sub>	Exemption limit for Routine Evaluation	Exemption (Y/N)
BT	LE	2402.00	-2.00	0.0006	2.40	0.00	1.10	316.19	Yes

#### Conclusion:

- The maximum RF emissions from this equipment fulfills the RF exclusion threshold limits for separating distance between the antenna and the human body greater than 11 cm. No RF Exposure evaluation is required.

### 5.4 RF Exposure Test Exemptions for Simultaneous Transmission Sources

#### Conclusion:

- The radio complies with routine environmental evaluation requirements for RF exposure. Simultaneous transmission with other radios is not support.



## 6 Revision History

Date	Report Name	Changes to report	Report prepared by
2025-08-26	EMC_GEOFO_051_25001_RF_Exposure	Initial Version	Art Thammanavarat

<<< The End >>>