

# RF Exposure Evaluation Declaration

Product Name : Asset Tracker  
Brand Name : Samsara  
Model No. : 010-2057, 010-2058, 010-2059  
FCC ID : 2AIHD2057

Applicant : SAMSARA NETWORKS INC  
Address : 1 De Haro St, San Francisco, CA 94107

Date of Receipt : Aug. 05, 2022  
Issued Date : Aug. 31, 2022  
Report No. : 2280191R-RFUSMPEV02-A  
Report Version : V1.0



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by TAF or any agency of the government.

Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

The test report shall not be reproduced except in full without the written approval of DEKRA Testing and Certification Co., Ltd.



## Revision History

Version	Description	Issued Date
V1.0	Initial issue of report	Aug. 31, 2022

## 1. General Information

### 1.1. EUT General Information

RF General Information			
Evaluation Mode	Frequency Range (MHz)	Operating Frequency (MHz)	Modulation Type
WiFi 2.4 GHz	2400 ~ 2483.5	2412 ~ 2472	802.11b: DSSS 802.11g/n: OFDM
Bluetooth	2400 ~ 2483.5	2402 ~ 2480	LE: GFSK

EUT	3	2	1
Model	010-2057	010-2058	010-2059
Type	Crevasse*	Serac*	Avalanche*
Key ICs			
Battery End-of-Service Monitoring	N/A	MAX17260	MAX17260
CAN transceiver	N/A	MCP25625 or MCP2515	MCP25625 or MCP2515
ADC Input	N/A	2x	2x
Output	N/A	1x	1x
CAN Bus	N/A	N/A	1x
Power			
Primary Power source	3x Primary Cell L91	EVE Secondary Cell (Lithium-ion) 18650 pack (3.6V)	EVE Secondary Cell (Lithium-ion) 18650 pack (3.6V)
		LISON ERGY Secondary Cell (Lithium-ion) 18650 pack (3.65V)	LISON ERGY Secondary Cell (Lithium-ion) 18650 pack (3.65V)
External Power source	4.5 VDC	9~36 VDC	9~36 VDC
Enclosure			
Rough dimensions	81 x 110 x 31 mm	124 x 81 x 35 mm	124 x 81 x 35 mm
LTEAntenna	Monopole Antenna (Antenna-AG51)	Monopole Antenna (Antenna-AG52/AG53)	Monopole Antenna (Antenna-AG52/AG53)
Ambient Temp Rating	-40°C ~ +60°C	-20°C ~ +60°C	-20°C ~ +60°C
Screw	Phillips	Hexalobular socket	Hexalobular socket
The manufacturer declares that RF-related parts and software are unchanged for three models.			

The EUT 1 (model: 010-2059) and EUT 2 (model: 010-2058) has two sources of battery for marketing:

Sources of Battery	Main Source	Second Source
Brand Name	EVE	LISONERGY
Model No.	A0679B	LS.11110D01
Nominal Voltage	3.6V	3.65V
Typical Capacity	3100mAh	3000mAh
MAX Charge Current	3.1A	0.9A
Typical Over Charge	4.28V	4.275V
Typical Over Charge Release	4.080V	4.075V
Typical Over Charge Delay Time	1.2s	1s
Typical Over Discharge	2.3V	2.5V
Typical Over Discharge Release	2.3V	2.9V
Typical Over Discharge Delay Time	150ms	128ms

Note: The above EUT information is declared by the manufacturer.

## 1.2. Test Facility

### Laboratory Information

**USA** : **FCC Registration Number: TW3024**  
**Canada** : **CAB identifier : TW3024**

The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site: <http://www.dekra.com.tw>

If you have any comments, please don't hesitate to contact us. Our test sites as below:

Test Laboratory	DEKRA Testing and Certification Co., Ltd.
Address	1. No.372-2, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C. 2. No.372, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C.
Phone number	1. +886-3-582-8001 2. +886-3-582-8001
Fax number	1. +886-3-582-8958 2. +886-3-582-8958
E mail address	<a href="mailto:info.tw@dekra.com">info.tw@dekra.com</a>
Website	<a href="http://www.dekra.com.tw">http://www.dekra.com.tw</a>
Note: Test site number for address 1 includes HC-SR02. Test site number for address 2 includes HC-CB02, HC-CB03, HC-CB04, HC-SR10 and HC-SR12.	

## 2. RF Exposure Evaluation

### 2.1. Test Limit

(A) Test Limit for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> , H  <sup>2</sup> or S (minutes)
0.3-3.0	614	1.63	*(100)	<6
3.0-30	1842/f	4.89/f	*(900/f <sup>2</sup> )	<6
30-300	61.4	0.163	1.0	<6
300-1500	-	-	f/300	<6
1500-100,000	-	-	5	<6

(B) Test Limit for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> , H  <sup>2</sup> or S (minutes)
0.3-1.34	614	1.63	*(100)	<30
1.34-30	824/f	2.19/f	*(180/f <sup>2</sup> )	<30
30-300	27.5	0.073	0.2	<30
300-1500	-	-	f/1500	<30
1500-100,000	-	-	1.0	<30

Note: f = frequency in MHz; \*Plane-wave equivalent power density

Power Density (S) is calculated by the following formula:

$$S=(P*G) /4\pi R^2$$

where:

S = power density (in appropriate units, e.g. mW/ cm<sup>2</sup>)

P = power input to the antenna (in appropriate units, e.g., mW)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

$\pi$  = 3.1416

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)



## 2.2. Test Result of RF Exposure Evaluation

### Exposure Environment: General Population / Uncontrolled Exposure

Evaluation Mode	E.I.R.P (dBm)	E.I.R.P (mW)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Test Result (PASS/FAIL)
WiFi 2.4 GHz	22.050	160.325	0.032	1.000	PASS
Bluetooth LE	22.990	199.067	0.040	1.000	PASS

Distance (cm): 20 for Maximum Permissible Exposure.

#### Note:

1. The above EUT information is declared by the manufacturer.
2. The results are evaluated using the maximum power.