

RF Exposure Report

Report No.: SA171116C13

FCC ID: 2AIHD2024

Test Model: 010-2024

Received Date: Nov. 03, 2017

Test Date: Nov. 03 ~ Nov. 20, 2017

Issued Date: Nov. 21, 2017

Applicant: SAMSARA NETWORKS INC

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

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Test Location: No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)

**FCC Registration /
Designation Number:** 788550 / TW0003



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Release Control Record

Issue No.	Description	Date Issued
SA171116C13	Original release.	Nov. 21, 2017

1 Certificate of Conformity

Product: AG24

Brand: SAMSARA

Test Model: 010-2024

Sample Status: Engineering sample

Applicant: SAMSARA NETWORKS INC

Test Date: Nov. 03 ~ Nov. 20, 2017

Standards: FCC Part 2 (Section 2.1091)

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.1

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by : Celine Chou , **Date:** Nov. 21, 2017
Celine Chou / Specialist

Approved by : Ken Liu , **Date:** Nov. 21, 2017
Ken Liu / Senior Manager

2 RF Exposure

2.1 Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
300-1500	F/1500	30
1500-100,000	1.0	30

F = Frequency in MHz

2.2 MPE Calculation Formula

$$P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$$

where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

2.3 Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as **Mobile Device**.

3 Calculation Result of Maximum Tune up Power

For WLAN and BT LE:

Function	Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
WLAN	2412-2462	17.82	3.80	20	0.029	1
BT LE	2402-2480	9.67	3.80	20	0.004	1

For WWAN: (Base on WWAN module report (model no.: M14Q2FG-1, brand name: WNC, FCC ID: NKRM18Q2))

Function	Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
WCDMA Band 2	1852.4-1907.6	24.13	4.50	20	0.145	1
WCDMA Band 5	826.4-846.6	24.44	4.70	20	0.163	0.550
LTE Band 2	1850.7-1909.3	23.07	4.50	20	0.114	1
LTE Band 4	1710.7-1754.3	23.77	3.50	20	0.106	1
LTE Band 5	824.7-848.3	23.43	4.70	20	0.129	0.549
LTE Band 12	699.7-715.3	23.50	4.30	20	0.120	0.466

2.4GHz and BT LE technology cannot transmit simultaneously.

2.4GHz and WWAN or BT LE and WWAN technology can transmit simultaneously.

Conclusion:

The formula of calculated the MPE is:

$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$

CPD = Calculation power density

LPD = Limit of power density

1. $WLAN + WWAN = 0.029 / 1 + 0.163 / 0.550 = 0.325$

2. $BT LE + WWAN = 0.004 / 1 + 0.163 / 0.550 = 0.300$

Therefore the maximum calculations of above situations are less than the "1" limit.

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