

RF Exposure Evaluation Report

FCC ID : 2A6PM-UA2-TMM-V2
Equipment : TrioMobil UA Module
Brand Name : TRIO MOBIL
Model Name : UA2-TMM-V2
Applicant : TRIO MOBIL INC
1401 PENNSYLVANIA AVE STE 105
WILMINGTON DELAWARE United States 19806
Manufacturer : TRIO MOBIL INC
1401 PENNSYLVANIA AVE STE 105
WILMINGTON DELAWARE United States 19806
Standard : 47 CFR FCC Part 2 Subpart J, section 2.1093

The product was received on Mar. 28, 2022, and testing was started from May 21, 2022 and completed on Jul. 20, 2022. We, SPORTON INTERNATIONAL INC. Hsinhua Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in KDB 447498 D04 Interim General RF Exposure Guidance v01 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. Hsinhua Laboratory, the test report shall not be reproduced except in full.



Approved by: Jackson Tsai

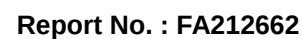
SPORTON INTERNATIONAL INC. Hsinhua Laboratory

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Photographs of EUT V01

[illegible]

Report Producer: Jenny Yang

1. General Description

1.1. EUT General Information

RF General Information			
Evaluation Mode	Frequency Range (MHz)	Operating Frequency (MHz)	Modulation Type
Ultra Wide Band	3100-10600	3494.4 3993.6	BPSK

1.2. Antenna Information

Ant.	Brand	Model Name	Antenna Type	Connector
1	Taiyo Yuden	AH086M555003-T	Multilayer Monopole	Surface Mount

Ant.	Port	Gain (dBi)	
		3494.4MHz	3993.6MHz
1	1	2.3	2.6

For UWB function:

Ant. 1 (port 1) could transmit/receive.

1.3. Table for Multiple Listing

Host Brand	Host Model Name	Unit No.	Number of UWB module
TRIO MOBIL	UA2-FRU1-V2	1	two
TRIO MOBIL	UA2-FRU2-V2	2	one

1.4. Testing Location Information

Test Lab. : Sporton International Inc. Hsinhua Laboratory			
☒	Hsinhua (TAF: 3785)	ADD: No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.)	
		TEL: 886-3-327-3456	FAX: 886-3-327-0973
Test site Designation No. TW3785 with FCC.			
☐	Wen 33rd.St. (TAF: 3785)	ADD: No.14-1, Ln. 19, Wen 33rd St., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.)	
		TEL: 886-3-318-0787	FAX: 886-3-318-0287
Test site Designation No. TW0008 with FCC.			

2. RF Exposure Evaluation

2.1. Applicable Standard

In accordance with FCC 47 CFR part 2 (2.1093) this device has been defined as a portable device which is defined as a transmitting device designed to be used so that the radiating structure(s) of the device is/are within 20 centimeters of the body of the user.

Portable devices must be evaluated using the specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2003.

2.2. RF Exposure Exempt Measurement

Option	Refer Std.	Exemption Exposure Thresholds (TL)
A	§1.1307(b)(3)(i)(A)	Available maximum time-averaged power is no more than 1 mW
B	§1.1307(b)(3)(i)(B)	$P_{th}(mW) = \begin{cases} ERP_{20cm} (d / 20cm)^x \rightarrow d \leq 20cm \\ ERP_{20cm} \rightarrow 20cm < d \leq 40cm \end{cases}$ $x = -\log_{10} \left(\frac{60}{ERP_{20cm} \sqrt{f}} \right) \text{ and } f \text{ is in GHz}$ $\begin{cases} ERP_{20cm} : 0.3GHz \leq f < 1.5GHz \rightarrow 2040 f (mW) \\ ERP_{20cm} : 1.5GHz \leq f \leq 6GHz \rightarrow 3060 (mW) \end{cases}$
C	§1.1307(b)(3)(i)(C)	$\begin{cases} 0.3 \sim 1.34MHz \rightarrow ERP(W) = 1920R^2 \\ 1.34 \sim 30MHz \rightarrow ERP(W) = 3450R^2 / f^2 \\ 30 \sim 300MHz \rightarrow ERP(W) = 3.83R^2 \\ 300 \sim 1500MHz \rightarrow ERP(W) = 0.0128R^2 f \\ 1500 \sim 100000MHz \rightarrow ERP(W) = 19.2R^2 \end{cases}$ $f \text{ is in MHz; } R \text{ is in m; } R > \lambda / 2\pi$

2.3. Multiple RF Sources Exposure

Refer Std.	Exemption Exposure Thresholds (TL)
§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)
§1.1307(b)(3)(ii)(B)	$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{ExposureLimit_k} \leq 1$ a = number of fixed, mobile, or portable RF sources claiming exemption using paragraph §1.1307(b)(3)(i)(B) of this section for P , including existing exempt transmitters and those being added. b = number of fixed, mobile, or portable RF sources claiming exemption using paragraph §1.1307(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 §1.1307(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 §1.1307(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. $Evaluated Limit_k$ = 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.

2.4. SAR evaluation

- Per KDB 447498 D04 Interim General RF Exposure Guidance v01,
Option (A): 1.1307(b)(3)(ii)(A): Available maximum time-averaged power is no more than 1 mW.
RF exposure evaluation is not required.

Unit No.1 (Left)

Mode	EIRP (dBm)	Gain (dBi)	Power (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL Pth (dBm)	TL Ratio
U1Left;UWB;Ch1	-22.60	2.30	-24.90	0.50	-22.10	0.50	0.00196	1.00	A	0.00	0.0036
U1Left;UWB;Ch2	-13.48	2.60	-16.08	0.50	-12.98	0.50	0.01603	1.00	A	0.00	0.0277

Note: EIRP = PSD-AV * OBW

Unit No.1 (Right)

Mode	EIRP (dBm)	Gain (dBi)	Power (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL Pth (dBm)	TL Ratio
U1Right;UWB;Ch1	-13.72	2.30	-16.02	0.50	-13.22	0.50	0.01515	1.00	A	0.00	0.0280
U1Right;UWB;Ch2	-13.67	2.60	-16.27	0.50	-13.17	0.50	0.01532	1.00	A	0.00	0.0265

Note: EIRP = PSD-AV * OBW

Unit No.2

Mode	EIRP (dBm)	Gain (dBi)	Power (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL Pth (dBm)	TL Ratio
U2;UWB;Ch1	-13.99	2.30	-16.29	0.50	-13.49	0.50	0.01425	1.00	A	0.00	0.0264
U2;UWB;Ch2	-13.14	2.60	-15.74	0.50	-12.64	0.50	0.01732	1.00	A	0.00	0.0299

Note: EIRP = PSD-AV * OBW

Co-location (Unit No.1 (Left) + Unit No.1 (Right))

Mode	EIRP (dBm)	Gain (dBi)	Power (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL Pth (dBm)	TL Ratio
U1Left;UWB;Ch2	-13.48	2.60	-16.08	0.50	-12.98	0.50	0.01603	1.00	A	0.00	0.0277
U1Right;UWB;Ch1	-13.72	2.30	-16.02	0.50	-13.22	0.50	0.01515	1.00	A	0.00	0.0280
										Sum Ratio	0.0557
										Ratio Limit	1

Note:

-13.04 dBm = 0.0497 mW

-12.80 dBm = 0.0525 mW

0.0497 mW + 0.0525 mW = 0.1022 mW

—THE END—