

RF EXPOSURE REPORT



FCC Applicant: TaiDoc Technology Corp
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Product Name: Bluetooth Smart Module

Model No.: TD-9050A

Model Difference: N/A

Report Number: ES/2021/B0003

FCC ID TM79050A01

IC: 7528A-9050A01

Issue Date: December 24, 2021

Date of EUT Received: November 2, 2021

Approved By _____

John Yeh

We hereby certify that:

The above equipment was evaluate by SGS Taiwan Ltd. The evaluation in this report is in compliance with FCC Rule Part §2.1093 and RSS-102.

The results of this report relate only to the sample identified in this report.

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Revision History

Report Number	Revision	Description	Issue Date	Revised By	Remark
ES/2021/B0003	Rev.00	Original.	Dec. 02, 2021	Kimmy Chiou	*
ES/2021/B0003	Rev.01	Modify ISED Standard	Dec. 16, 2021	Kimmy Chiou	*
ES/2021/B0003	Rev.02	Modify IC ID	Dec. 24, 2021	Kimmy Chiou	

Note:

- The remark "*" indicates modification of the report upon requests from certification body.

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1 DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)

1.1 Product Description

Product Name:	Bluetooth Smart Module
Brand Name:	N/A
Model No.:	TD-9050A
Power Supply:	3.3Vdc

1.2 Antenna Information:

1.2.1 BT

Antenna Type	Supplier	Freq. (MHz)	Peak Antenna Gain (dBi)
L,F,A = Chip Antenna	YAGEO	2.4GHz	5.46

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2 RF EXPOSURE EVALUATION FOR PORTABLE CONDITIONS

2.1 FCC Standard Applicable:

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

2.1.1 As per KDB 447498 D01 4.3.1,

Step a: For 100 MHz to 6 GHz and test separation distances ≤ 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot \sqrt{f(\text{GHz})} \leq 3.0$ for 1-g Head & Body SAR and ≤ 7.5 for 10-g extremity Hand SAR, where

- $f(\text{GHz})$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison
- The values 3.0 and 7.5 are referred to as numeric thresholds in **step b)** below

Step b: For 100 MHz to 6 GHz and test separation distances > 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following (also illustrated in Appendix B):

- 1) $\{[\text{Power allowed at numeric threshold for 50 mm in step a)}] + [(\text{test separation distance} - 50 \text{ mm}) \cdot (f(\text{MHz})/150)]\}$ mW, for 100 MHz to 1500 MHz
- 2) $\{[\text{Power allowed at numeric threshold for 50 mm in step a)}] + [(\text{test separation distance} - 50 \text{ mm}) \cdot 10]\}$ mW, for > 1500 MHz and ≤ 6 GHz

Step c: For frequencies below 100 MHz, the following may be considered for SAR test exclusion (also illustrated in Appendix C):

- 1) For test separation distances > 50 mm and < 200 mm, the power threshold at the corresponding test separation distance at 100 MHz in step b) is multiplied by $[1 + \log(100/f(\text{MHz}))]$
- 2) For test separation distances ≤ 50 mm, the power threshold determined by the equation in c) 1) for 50 mm and 100 MHz is multiplied by $\frac{1}{2}$
- 3) SAR measurement procedures are not established below 100 MHz

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2.2 Measurement Result:

Step a:

This is a portable device and the max. output power including tune-up tolerance is 2.512 (mW), lower than the threshold given and derived as formula given above, where

$$=2.512(\text{mW})/5(\text{mm})*\sqrt{2.48(\text{GHz})} = 0.791 < 7.5$$

Frequency (MHz)	Max. output power including tune-up tolerance(dBm)	Max. output power including tune-up tolerance(mW)	Distance (mm)	Result	≤ 7.5 for 10-g extremity SAR
2480	4	2.512	5	0.791	TRUE

As the result of calculation result indicates, the RF exposure generating from given transmitter (transmitter employed digital modulation) can be excluded from SAR measurement, and is deemed compliant with RF exposure as per FCC.

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2.3 ISED Standard Applicable

As per RSS-102 Issue 5 March 2015, Amendment 1 (February 2, 2021), any transmitter shall be compliant with applicable RF exposure prior to being market. In §2.5.1, SAR evaluation is required if the separation distance between the user and/or bystander and the antenna and/or radiating element of the device is less than or equal to 20 cm, except when the device operates at or below the applicable output power level (adjusted for tune-up tolerance) for the specified separation distance defined in Table 1. Output power level shall be the higher of the maximum conducted or equivalent isotropically radiated power (e.i.r.p.) source-based, time-averaged output power.

For limb-worn devices where the 10 gram value applies, the exemption limits for routine evaluation in Table 1 are multiplied by a factor of 2.5.

2.4 Result: (Conducted power)

Freq. (MHz)	Max. output power including tune-up tolerance(dBm)	Peak Gain (dBi)	Max Conducted Output Power (mW)	e.i.r.p (mW)	Exemption Limit (mW)
2480	4	5.46	2.512	8.831	10

Measurement Result

The e.i.r.p is 8.831mW when the device operates at the saperation distance below or equals to 5mm. It is below the SAR exemption limit 10mW.

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