

RF Exposure Evaluation Report

Product : Wireless temperature probe
Trade mark : N/A
Model/Type reference : See section 3.2
Serial Number : N/A
Report Number : EED32Q81276202
FCC ID : 2BLKU-TPSC001
Date of Issue : Nov. 06, 2024
Test Standards : 47 CFR Part 1.1307
47 CFR Part 1.1310
47 CFR Part 2.1091
47 CFR Part 2.1093
KDB 447498 D04 Interim General RF
Exposure Guidance v01
Test result : PASS

Prepared for:

Shenzhen TOPOS Sensor Technology co., LTD.
2nd Floor, Building 7, Skyworth Innovation Valley, Tangtou 1st Road,
Bao'an District, Shenzhen City, Guangdong Province, P.R.China

Prepared by:

Centre Testing International Group Co., Ltd.
Hongwei Industrial Zone, Bao'an 70 District,
Shenzhen, Guangdong, China
TEL: +86-755-3368 3668
FAX: +86-755-3368 3385

Compiled by:

Zhenxia Wen

Zhenxia Wen

Aaron Ma

Aaron Ma

Reviewed by:

Frazer Li

Frazer Li

Date:

Nov. 06, 2024

Approved by:



Check No.: 6036210824

1 Version

Version No.	Date	Description
00	Nov. 06, 2024	Original

2 Contents

	Page
1 VERSION	2
2 CONTENTS	3
3 GENERAL INFORMATION	4
3.1 CLIENT INFORMATION	4
3.2 GENERAL DESCRIPTION OF EUT	4
3.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD	4
3.4 TEST LOCATION	5
3.5 DEVIATION FROM STANDARDS	5
3.6 ABNORMALITIES FROM STANDARD CONDITIONS	5
3.7 OTHER INFORMATION REQUESTED BY THE CUSTOMER	5
4 SAR EVALUATION	6
4.1 RF EXPOSURE COMPLIANCE REQUIREMENT	6
4.1.1 <i>Limits</i>	6
4.1.2 <i>Test Procedure</i>	6
4.1.3 <i>EUT RF Exposure Evaluation</i>	7

3 General Information

3.1 Client Information

Applicant:	Shenzhen TOPOS Sensor Technology co., LTD.
Address of Applicant:	2nd Floor, Building 7, Skyworth Innovation Valley, Tangtou 1st Road, Bao'an District, Shenzhen City, Guangdong Province, P.R.China
Manufacturer:	Wuhan TOPOS Sensor Technology co., LTD.
Address of Manufacturer:	Intersection of Wuchu Avenue and Yanghu Road, Fankou Street, Echeng District, Ezhou City, Hubei Province (TOP. Binjiang Sensor Technology Park)

3.2 General Description of EUT

Product Name:	Wireless temperature probe
Model No.:	TPSC001, TPSC002, TPSC003, TPSC004, TPSC005, TPSC006, TPSC007, TPSC008, TPSC009, TPSC010, TPSC011, TPSC012, TPSC013, TPSC014, TPSC015, TPSC016, TPSC017, TPSC018, TPSC019, TPSC020
Test Model No.:	TPSC001
Trade mark:	N/A

3.3 Product Specification subjective to this standard

Frequency Range:	2402MHz~2480MHz
Modulation Type:	GFSK
Test Power Grade:	Default
Test Software of EUT:	prodtest_vista
Antenna Type:	PCB antenna
Antenna Gain:	0.51dBi
Power Supply:	DC 5V
Sample Received Date:	Sep. 05, 2024
Sample tested Date:	Sep. 05, 2024 to Sep. 20, 2024
Remark:	<p>Company Name and Address shown on Report, the sample(s) and sample Information was/ were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.</p> <p>Model No.: TPSC001, TPSC002, TPSC003, TPSC004, TPSC005, TPSC006, TPSC007, TPSC008, TPSC009, TPSC010, TPSC011, TPSC012, TPSC013, TPSC014, TPSC015, TPSC016, TPSC017, TPSC018, TPSC019, TPSC020</p> <p>Only the model TPSC001 was tested. Their electrical circuit design, layout, components used and internal wiring are identical. Only the color of the appearance is different.</p>

3.4 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd

Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China

Telephone: +86 (0) 755 33683668 Fax:+86 (0) 755 33683385

No tests were sub-contracted.

FCC Designation No.: CN1164

3.5 Deviation from Standards

None.

3.6 Abnormalities from Standard Conditions

None.

3.7 Other Information Requested by the Customer

None.

4 SAR Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 Limits

The SAR-based exemption formula of § 1.1307(b)(3)(i)(B), repeated here as Formula (B.2), applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold P_{th} (mW).

This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by Formula

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right)$$

and f is in GHz, d is the separation distance (cm), and $ERP_{20 \text{ cm}}$ is per Formula (B.1).

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases} \quad (\text{B.1})$$

The 1 mW Blanket Exemption of § 1.1307(b)(3)(i)(A) applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power of no more than 1 mW, regardless of separation distance.

4.1.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

4.1.3 EUT RF Exposure Evaluation

For Stand alone:

Frequency (MHz)	Estimation distance (cm)	Max. Conducted Output power (dBm)	Antenna Gain (dBi)	ERP (dBm)	ERP (mW)	Limit (mW)	MPE ratio
2480	0.5	1.96	0.5100	0.32	1.0765	2.7172	0.3962

Note:

- ① EIRP=conducted power+antenna gain;
- ② ERP=EIRP-2.15;
- ③ $EIRP(dBm) = \text{Field strength of the fundamental signal}(dBuV/m@3m) - 95.23$;
- ④ $ERP(mW) = 10^{(ERP(dBm)/10)}$;
- ⑤ The estimation distance is 0.5cm;
- ⑥ The test data please refer to the report of EED32Q81276201 and only the worst case data was recorded in the report.

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CTI, this report can't be reproduced except in full.

*** End of Report ***