

RF Exposure Evaluation Report

Product : Motherboard
Trade mark : SIGNWAY
Model/Type reference : AloT3568, DS3288-A,
DS3288-B, DS133, DS3566,
DS960X, DS3128, AloT3568-X,
AloT3568-V, AloT3399-X, AI3399-C,
AloT3588
Serial Number : N/A
Report Number : EED32O81989604
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Date of Issue : Jan. 13, 2023
Test Standards : 47 CFR Part 1.1307
47 CFR Part 1.1310
47 CFR Part 2.1091
47 CFR Part 2.1093
447498 D04 Interim General RF
Exposure Guidance v01
Test result : PASS

Prepared for:

Nanjing Signway Technology Co.,Ltd.
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2 Version

Version No.	Date	Description
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4 General Information

4.1 Client Information

Applicant:	Nanjing Signway Technology Co.,Ltd.
Address of Applicant:	5th Floor, Building 3, No. 30, Fengzhan Road, Yuhuatai District, Nanjing
Manufacturer:	Nanjing Signway Technology Co.,Ltd.
Address of Manufacturer:	5th Floor, Building 3, No. 30, Fengzhan Road, Yuhuatai District, Nanjing
Factory:	Nanjing Signway Technology Co.,Ltd.
Address of Factory:	5th Floor, Building 3, No. 30, Fengzhan Road, Yuhuatai District, Nanjing

4.2 General Description of EUT

Product Name:	Motherboard
Model No.(EUT):	AloT3568, DS3288-A, DS3288-B, DS133, DS3566, DS960X, DS3128, AloT3568-X, AloT3568-V, AloT3399-X, AI3399-C,AloT3588
Test Model No.:	AloT3568
Trade Mark:	SIGNWAY

4.3 Product Specification subjective to this standard

Frequency Range:	BLE/BT: 2402MHz~2480MHz 2.4G WIFI: IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz IEEE 802.11n(HT40): 2422MHz to 2452MHz	
Modulation Type:	BLE: GFSK, BT: GFSK, $\pi/4$ DQPSK, 8DPSK 2.4G WIFI: IEEE for 802.11b:DSSS(CCK, DQPSK, DBPSK) IEEE for 802.11g:OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE for 802.11n(HT20 and HT40): OFDM (64QAM, 16QAM,QPSK,BPSK)	
Test Power Grade:	Default	
Test Software of EUT:	ADB	
Antenna Type:	External Antenna	
Antenna Gain:	5.25dBi	
Power Supply:	Adapter	Model:SK03T1-1200300U Input:AC100-240V,50/60Hz 0.85A Output:12V---3A
Sample Received Date:	Dec. 12, 2022	
Sample tested Date:	Dec. 12, 2022 to Jan. 04, 2023	
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. Model No.: AloT3568, DS3288-A, DS3288-B, DS133, DS3566, DS960X, DS3128, AloT3568-X, AloT3568-V, AloT3399-X, AI3399-C, AloT3588 Only the model AloT3568 was tested. Their electrical circuit design, layout, components used and internal wiring are identical. Only the outer decoration is different.		

4.4 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

4.5 Deviation from Standards

None.

4.6 Abnormalities from Standard Conditions

None.

4.7 Other Information Requested by the Customer

None.

5 SAR Evaluation

5.1 RF Exposure Compliance Requirement

5.1.1 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 Pth (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). Pth 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 ERP20cm 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.

5.1.2 Test Procedure

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

5.1.3 EUT RF Exposure Evaluation

For Stand alone:

For BLE

Frequency (MHz)	Separation distance (cm)	Max. Conducted Output power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	ERP (dBm)	ERP (mW)	Limit (mW)	Result
2480	20	-2.72	5.25	2.53	0.38	1.091	3060	PASS

For BT

Frequency (MHz)	Separation distance (cm)	Max. Conducted Output power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	ERP (dBm)	ERP (mW)	Limit (mW)	Result
2402	20	6.26	5.25	11.51	9.36	8.630	3060	PASS

For 2.4G Wi-Fi

Frequency (MHz)	Separation distance (cm)	Max. Conducted Output power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	ERP (dBm)	ERP (mW)	Limit (mW)	Result
2462	20	17.57	5.25	22.82	20.67	116.681	3060	PASS

Note:

- ① EIRP=conducted power+antenna gain;
- ② ERP=EIRP-2.15
- ③ 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 ***