

TEST REPORT

Reference No...... : WTS20S06036687W003
FCC ID : ZLZ-PMACS
Applicant..... : Shenzhen Mindray Bio-Medical Electronics Co., Ltd
Address..... : Mindray Building, Keji 12th Road South, High-tech Industrial Park,
Nanshan, Shenzhen of China.
Manufacturer : Shenzhen Mindray Bio-Medical Electronics Co., Ltd
Address..... : Mindray Building, Keji 12th Road South, High-tech Industrial Park,
Nanshan, Shenzhen of China.
Product..... : Wireless module
Model(s) : SX-SDMAC-2832S+
Brand Name..... : Mindray
Standards..... : FCC Part 1.1307
: FCC Part 2.1091
Date of Receipt sample : 2020-06-13
Date of Test : 2020-06-14 to 2020-06-27
Date of Issue..... : 2021-02-25
Test Result..... : **Pass**

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

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2 Contents

	Page
1 COVER PAGE	1
2 CONTENTS	2
3 REVISION HISTORY	3
4 GENERAL INFORMATION	4
4.1 GENERAL DESCRIPTION OF E.U.T.	4
4.2 DETAILS OF E.U.T.	4
5 TEST SUMMARY	6
6 TEST FACILITY	7
7 RF EXPOSURE	8
7.1 REQUIREMENTS.....	8
7.2 THE PROCEDURES / LIMIT.....	8
7.3 MPE CALCULATION METHOD	8

3 Revision History

Test report No.	Date of Receipt sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTS20S06036 687W003	2020-06-13	2020-06-14 to 2020-06-27	2021-02-25	original	-	Valid

4 General Information

4.1 General Description of E.U.T.

Product:	Wireless module
Model(s):	SX-SDMAC-2832S+
Model Description:	N/A
Wi-Fi Specification:	2.4G-802.11b/g/n HT20/n HT40 5G-802.11a/ n(HT20/40)/ac(HT20/40/80)

4.2 Details of E.U.T.

Operation Frequency:	802.11b/g/n HT20: 2412~2462MHz 802.11n HT40: 2422~2452MHz 802.11a/n/ac (HT20): U-NII-1: 5150-5250MHz, U-NII-2A: 5250-5350MHz(DFS), U-NII-2C: 5470-5725MHz(DFS), U-NII-3:5725-5850MHz 802.11n/ac (HT40): U-NII-1: 5190-5230MHz, U-NII-2A: 5270-5310MHz(DFS), U-NII-2C: 5510-5670MHz(DFS), U-NII-3: 5755-5795MHz 802.11ac (HT80): U-NII-1: 5210MHz, U-NII-2A: 5290MHz(DFS), U-NII-2C: 5530MHz, U-NII-3: 5775MHz
Max. RF output power:	26.56dBm (2.4G WIFI) 13.95dBm(5G WIFI)
Type of Modulation:	2.4G: DSSS, OFDM 5G: OFDM
Change Antenna installation: 2.4G:	ANT1: FPC dipole ANT2: FPC dipole 5G: ANT1: FPC dipole ANT2: FPC dipole
Change Antenna Gain:	2.4G: ANT1: 2.6dBi ANT2: 0.88dBi 5G: ANT1: 3.1dBi ANT2: 3.87dBi
Original Antenna installation: 2.4G:	ANT1: Dipole ANT2: PCB Dipole ANT3: Dipole ANT4: PCB Dipole ANT5: PCB Dipole 5G:

	ANT1: Dipole
	ANT2: PCB Dipole
	ANT3: Dipole
	ANT4: PCB Dipole
	ANT5: PCB Dipole
Original Antenna Gain:	2.4:
	ANT1: 1.87dBi
	ANT2: 2.79dBi
	ANT3: 1.32dBi
	ANT4: 2.79dBi
	ANT5: 1dBi
	5G:
	ANT1: 0.94dBi
	ANT2: 3.38dBi
	ANT3: 2.75dBi
	ANT4: 3.38dBi
	ANT5: 1dBi
Ratings:	DC 3.3V from mainboard

5 Test Summary

Test Items	Test Requirement	Result
Maximum Permissible Exposure (Exposure of Humans to RF Fields)	FCC Part 1.1307(b)(1) FCC Part 2.1091	PASS

6 Test Facility

The test facility has a test site registered with the following organizations:

ISED CAB identifier: CN0013. Test Firm Registration No.: 7760A.

Waltek Testing Group Co., Ltd. Has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files.

Registration number 7760A, October 15, 2016.

FCC Designation No.: CN1201. Test Firm Registration No.: 523476.

Waltek Testing Group Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration number 523476, September 10, 2019.

7 RF Exposure

Test Requirement: FCC Part 1.1307, FCC Part 2.1091

Test Mode: The EUT work in test mode(Tx).

7.1 Requirements

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device.

7.2 The procedures / limit

FCC Part 1.1307:

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ; *Plane-wave equivalent power density

7.3 MPE Calculation Method

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \quad \text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

E = Electric field (V/m)

P = Peak RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

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$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained

2.4G WIFI

Antenna Gain (dBi)	Antenna Gain (numeric)	Max.Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (mW/cm ²)	Limit of Power Density (mW/cm ²)
2.60	1.820	26.56	452.90	0.163953	1
0.88	1.225	26.56	452.90	0.110337	1

5G WIFI

Antenna Gain (dBi)	Antenna Gain (numeric)	Max.Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (mW/cm ²)	Limit of Power Density (mW/cm ²)
3.10	2.042	13.95	24.83	0.010086	1
3.87	2.438	13.95	24.83	0.012043	1

====End of Report=====