

RF Exposure Report

FCC ID: 2BERN-MT15

Report No. : SSP24080208-4E

Applicant : TIENGINE

Product Name : OrderPad

Model Name : OrderPad-MT15

Test Standard : FCC CFR 47 PART 2.1093

Date of Issue : 2024-09-03



Shenzhen CCUT Quality Technology Co., Ltd.

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This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by Shenzhen CCUT Quality Technology Co., Ltd.

Test Report Basic Information

Applicant:	TIENGINE
Address of Applicant:	9HO, 3F, SC JEIL BANK, 135, Daecheong-ro, Jung-gu, Busan, South Korea
Manufacturer:	Shenzhen Kingtex Technology Co., Ltd
Address of Manufacturer:	Building 3, 2nd Floor, Ji'antai Industrial Park, Fuhai Street, Bao'an District, Shenzhen City
Product Name:	OrderPad
Brand Name:	menu.it
Main Model:	OrderPad-MT15
Series Models:	-
Test Standard:	FCC CFR 47 PART 2.1093 KDB 447498 D01 v06
Date of Test	2024-01-10 to 2024-01-26
Test Result:	PASSED
Tested By	<u>Lorzix Luo</u> (Lorzix Luo)
Reviewed By:	<u>Lieber Ouyang</u> (Lieber Ouyang)
Authorized Signatory:	<u>Lahm Peng</u> (Lahm Peng)
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CONTENTS

1. General Information.....5

 1.1 Product Information5

 1.2 Test Facilities.....5

2. RF Exposure.....6

 2.1 Standard and Limit.....6

 2.2 Test Procedure.....6

 2.3 Test Data and Results.....7

Revision History

Revision	Issue Date	Description	Revised By
V1.0	2024-09-03	Initial Release	Lahm Peng

1. General Information

1.1 Product Information

Product Name:	OrderPad
Trade Name:	menu.it
Main Model:	OrderPad-MT15
Series Models:	-
Rated Voltage:	DC 3.8V by Rechargeable Lithium-Ion Battery Pack, USB 5V charging
Battery:	N/A
Test Sample No:	SSP24080208-1
Hardware Version:	EM_T6840_V1.0_L20
Software Version:	MT15_202306_V1.0
Note 1: The test data is gathered from a production sample, provided by the manufacturer.	

Wireless Specification	
Wireless Standard:	Bluetooth BR+EDR/BLE, 802.11b/g/n
Operating Frequency:	BT: 2402MHz ~2480MHz, 2.4GWiFi: 2412 MHz ~2462 MHz
RF Output Power:	BR+EDR: -3.54dBm, BLE: -4.01dBm, 2.4GWiFi: 2.7dBm
Antenna Gain:	1.5dBi
Type of Antenna:	FPCB Antenna
Type of Device:	☒ Portable Device ☐ Mobile Device ☐ Modular Device

1.2 Test Facilities

Laboratory Name:	Shenzhen CCUT Quality Technology Co., Ltd. 1F, Building 35, Changxing Technology Industrial Park, Yutang Street, Guangming District, Shenzhen, Guangdong, China
CNAS Laboratory No.:	L18863
A2LA Certificate No.:	6893.01
FCC Registration No:	583813
ISED Registration No.:	CN0164
All measurement facilities used to collect the measurement data are located at 1F, Building 35, Changxing Technology Industrial Park, Yutang Street, Guangming District, Shenzhen, Guangdong, China.	

2. RF Exposure

2.1 Standard and Limit

3.0 for 1g SAR.

2.2 Test Procedure

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Test Exclusion Threshold condition(s), listed below, is (are) satisfied.

These test exclusion conditions are based on source-based time-averaged maximum conducted output power of the RF channel requiring evaluation, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions.

The minimum test separation distance defined in 4.1 f) is determined by the smallest distance from the antenna and radiating structures or outer surface of the device, according to the host form factor, exposure conditions and platform requirements, to any part of the body or extremity of a user or bystander.

To qualify for SAR test exclusion, the test separation distances applied must be fully explained and justified, typically in the SAR measurement or SAR analysis report, by the operating configurations and exposure conditions of the transmitter and applicable host platform requirements, according to the required published RF exposure KDB procedures.

When no other RF exposure testing or reporting are required, a statement of justification and compliance must be included in the equipment approval, in lieu of the SAR report, to qualify for SAR test exclusion.

When required, the device specific conditions described in the other published RF exposure KDB procedures must be satisfied before applying these SAR test exclusion provisions.

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:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}]$$

 ≤ 3.0 for 1-g SAR, and ≤ 7.5 for 10-g extremity 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

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm, and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm according to 4.1 f) is applied to determine SAR test exclusion.

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

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.

When SAR test exclusion cannot be applied, a KDB inquiry is required to determine SAR evaluation requirements for any SAR test results below 100 MHz to be acceptable.

2.3 Test Data and Results

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.

For BR+EDR

Max Conducted Power(dBm)	Tune-up Power(dBm)	Max Tune-up Power(dBm)	Max Power(mW)	Frequency(MHz)	Min. distance(mm)	Calc. thresholds	limit
-3.54	-3(± 1)	-2	0.63	2441	5	0.196859	3.0

For BLE

Max Conducted Power(dBm)	Tune-up Power(dBm)	Max Tune-up Power(dBm)	Max Power(mW)	Frequency(MHz)	Min. distance(mm)	Calc. thresholds	limit
-4.01	-4(± 1)	-3	0.50	2440	5	0.156205	3.0

For 2.4G WiFi

Max Conducted Power(dBm)	Tune-up Power(dBm)	Max Tune-up Power(dBm)	Max Power(mW)	Frequency(MHz)	Min. distance(mm)	Calc. thresholds	limit
2.7	2(± 1)	3	2.00	2462	5	0.627630	3.0

So a SAR test is not required