

RF Exposure Evaluation Report

APPLICANT : MeiG Smart Technology Co., Ltd
EQUIPMENT : CPE
BRAND NAME : MEIGLink
MODEL NAME : SLT866
FCC ID : 2APJ4-SLT866
STANDARD : 47 CFR Part 2.1091

We, Sporton International Inc. (Kunshan), would like to declare that the device has been evaluated in accordance with 47 CFR Part 2.1091 and FCC KDB 447498 D01 v06, and pass the limit. Without written approval of Sporton International Inc. (Kunshan), the test report shall not be reproduced except in full.



Approved by: Si Zhang

Sporton International Inc. (Kunshan)

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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA293023	Rev. 01	Initial issue of report	Dec. 28, 2022



1. Administration Data

1.1. Testing Laboratory

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Testing Laboratory			
Test Firm	Sporton International Inc. (Kunshan)		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158 FAX : +86-512-57900958		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	SAR01-KS	CN1257	314309

Applicant	
Company Name	MeiG Smart Technology Co., Ltd
Address	2nd Floor,Office Building,No.5 Lingxia Road,Fenghuang,Fuyong Street,Bao'an District,Shenzhen

Manufacturer	
Company Name	MeiG Smart Technology Co., Ltd
Address	2nd Floor,Office Building,No.5 Lingxia Road,Fenghuang,Fuyong Street,Bao'an District,Shenzhen

2. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	CPE
Brand Name	MEIGLink
Model Name	SLT866
FCC ID	2APJ4-SLT866
Wireless Technology and Frequency Range	WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV : 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2 : 1850 MHz ~ 1910 MHz LTE Band 4 : 1710 MHz ~ 1755 MHz LTE Band 5 : 824 MHz ~ 849 MHz LTE Band 7 : 2500 MHz ~ 2570 MHz LTE Band 38 : 2570 MHz ~ 2620 MHz LTE Band 41 : 2496 MHz ~ 2690 MHz LTE Band 42 : 3450 MHz ~ 3550 MHz, 3550 MHz ~ 3600 MHz LTE Band 43 : 3600 MHz ~ 3700 MHz LTE Band 48 : 3550 MHz ~ 3700 MHz LTE Band 66 : 1710 MHz ~ 1780 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz
Mode	RMC 12.2Kbps HSDPA HSUPA DC-HSDPA HSPA+ (16QAM uplink is not supported) LTE: QPSK, 16QAM WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80
Antenna Type	WWAN : Fixed External Antenna/Fixed Internal Antenna WLAN : Fixed Internal Antenna
HW Version	SLT866_V1.01_PCB
SW Version	SLT866_EQ100_C44_V1403
EUT Stage	Identical Prototype
Remark: 1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description. 2. LTE band 42(3550 MHz ~ 3600 MHz)/LTE band 43 covered by LTE band 48 with the same power level, so only chose LTE band 48 to perform standalone power density calculation. 3. WLAN2.4GHz/5GHz all support SISO/MIMO mode, MIMO mode is only supported in 2.4GHz WLAN 802.11n and 5GHz WLAN 802.11n/ac.	

Comments and Explanations:

- The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.
- The maximum RF output tune up power, antenna gain also the safe distance used for evaluate RF exposure were declared by manufacturer.

**WWAN Antenna Gain table:**

Frequency Bands	Fixed External Antenna 1 Gain (dBi)	Fixed External Antenna 2 Gain (dBi)	Fixed Internal Antenna Gain (dBi)
WCDMA II	1.5	1.5	1.5
WCDMA IV	1.5	1.5	1.5
WCDMA V	1.5	1	1
LTE Band 2	1.5	1.5	1.5
LTE Band 4	1.5	1.5	1.5
LTE Band 5	1.5	1	1
LTE Band 7	0.5	2	2
LTE Band 66	1.5	1.5	1.5
LTE Band 38	1	2	2
LTE Band 41	1.5	2	2
LTE Band 42	1	/	1
LTE Band 43	1	/	1
LTE Band 48	1	/	1

Wlan Antenna Gain table:

Frequency Bands	Ant 0Gain (dBi)	Ant 1 Gain (dBi)
WLAN 2.4GMHz	1.2	1.2
WLAN 5.2GMHz	1.4	1.4
WLAN 5.8GMHz	1.4	1.4

**3. Maximum RF average output tune up power among production units****<WWAN>**

WWAN Bands	Maximum Average Power (dBm)		
	Fixed External Antenna 1	Fixed External Antenna 2	Fixed Internal Antenna
WCDMA II	25.00	25.00	25.00
WCDMA IV	25.00	25.00	25.00
WCDMA V	25.00	25.00	25.00
LTE Band 2	24.00	24.00	24.00
LTE Band 4	24.00	24.00	24.00
LTE Band 5	24.00	24.00	24.00
LTE Band 7	24.00	24.00	24.00
LTE Band 66	24.00	24.00	24.00
LTE Band 38	24.00	24.00	24.00
LTE Band 41	25.00	25.00	25.00
LTE Band 42 (3450 MHz ~ 3550 MHz)	24.00	/	24.00
LTE Band 42 (3550 MHz ~ 3600 MHz)	22.00	/	22.00
LTE Band 43	22.00	/	22.00
LTE Band 48	22.00	/	22.00

<WLAN>

Mode		Maximum Average Power (dBm)		
		ANT0	ANT1	ANT0+1
2.4GHz	802.11b	17.00	-	-
	802.11g	14.00	-	-
	802.11n-HT20	14.00	14.50	17.50
	802.11n-HT40	14.00	14.00	17.00

Mode		Maximum Average Power (dBm)		
		ANT0	ANT1	ANT0+1
5.2GHz	802.11a	16.00	-	-
	802.11n-HT20	15.00	15.00	18.00
	802.11n-HT40	14.00	14.00	17.00
	802.11ac-VHT20	13.00	13.00	16.00
	802.11ac-VHT40	13.00	13.00	16.00
	802.11ac-VHT80	11.00	11.00	14.00
5.8GHz	802.11a	14.00	-	-
	802.11n-HT20	13.00	15.00	18.00
	802.11n-HT40	13.00	14.00	17.00
	802.11ac-VHT20	12.00	14.00	17.00
	802.11ac-VHT40	12.00	14.00	17.00
	802.11ac-VHT80	11.00	13.00	16.00

Note: WLAN2.4GHz/5GHz all support SISO/MIMO mode, we only chose MIMO tune up power to perform MPE calculation conservatively for MIMO power is higher.

4. RF Exposure Limit Introduction

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f ²)	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				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100,000			1.0	30

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$S = \frac{PG}{4\pi R^2}$$

Where:

S = Power Density

P = Output Power at Antenna Terminals

G = Gain of Transmit Antenna (linear gain)

R = Distance from Transmitting Antenna



5. Radio Frequency Radiation Exposure Evaluation

5.1. Standalone Power Density Calculation

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Average EIRP (mW)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)	Power Density / Limit
WCDMA Band II	1852.4	1.50	25.00	26.50	446.684	0.089	1.000	0.089
WCDMA Band IV	1712.4	1.50	25.00	26.50	446.684	0.089	1.000	0.089
WCDMA Band V	826.4	1.50	25.00	26.50	446.684	0.089	0.551	0.161
LTE Band 2	1850.7	1.50	24.00	25.50	354.813	0.071	1.000	0.071
LTE Band 4	1710.7	1.50	24.00	25.50	354.813	0.071	1.000	0.071
LTE Band 5	824.7	1.50	24.00	25.50	354.813	0.071	0.550	0.128
LTE Band 7	2502.5	2.00	24.00	26.00	398.107	0.079	1.000	0.079
LTE Band 66	1710.7	1.50	24.00	25.50	354.813	0.071	1.000	0.071
LTE Band 38	2572.5	2.00	24.00	26.00	398.107	0.079	1.000	0.079
LTE Band 41	2498.5	2.00	25.00	27.00	501.187	0.100	1.000	0.100
LTE Band 42	3452.5	1.00	24.00	25.00	316.228	0.063	1.000	0.063
LTE Band 48	3552.5	1.00	22.00	23.00	199.526	0.040	1.000	0.040
2.4GHz WLAN	2412.0	1.20	17.50	18.70	74.131	0.015	1.000	0.015
5.2GHz WLAN	5180.0	1.40	18.00	19.40	87.096	0.017	1.000	0.017
5.8GHz WLAN	5745.0	1.40	18.00	19.40	87.096	0.017	1.000	0.017

Note:

1. For conservativeness, the lowest frequency of each band is used to determine the MPE limit of that band.
2. LTE band 42(3550 MHz ~ 3600 MHz)/LTE band 43 covered by LTE band 48 with the same power level, so only chose LTE band 48 to perform standalone power density calculation.
3. Chose the maximum RF output tune up power of all antennas among same frequency WWAN bands and the maximum antenna gain to perform MPE calculation conservatively.
4. Chose the worst power density among WLAN2.4/5GHz to do co-located.

**5.2. Collocated Power Density Calculation**

WWAN Power Density / Limit	WLAN 2.4GHz Power Density / Limit	$\Sigma(\text{Power Density / Limit})$ of WWAN + WLAN 2.4GHz
0.161	0.015	0.176
WWAN Power Density / Limit	WLAN 5GHz Power Density / Limit	$\Sigma(\text{Power Density / Limit})$ of WWAN + WLAN 5GHz
0.161	0.017	0.178

Note:

1. Chose the maximum RF output tune up power of all antennas among same frequency WWAN bands and the maximum antenna gain to perform MPE calculation conservatively.
2. For colocation analysis, WCDMA Band V is chosen for summation due to the highest (power density/limit) among all WWAN wireless modes.
3. $\Sigma(\text{Power Density / Limit})$: This is a summation of [(power density for each transmitter/antenna included in the simultaneous transmission)/ (corresponding MPE limit)].

Conclusion:

According to 47 CFR §2.1091, the RF exposure analysis concludes that the RF Exposure is FCC compliant.

-----THE END-----