

RF Exposure Evaluation Report

APPLICANT : MeiG Smart Technology Co., Ltd
EQUIPMENT : module
BRAND NAME : MEIGLink
MODEL NAME : SLM750
FCC ID : 2APJ4-SLM750
STANDARD : 47 CFR Part 2.1091
FCC KDB 447498 D01 v06

We, Sporton International (Shenzhen) Inc., 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 (Shenzhen) Inc., the test report shall not be reproduced except in full.



Approved by: Mark Qu / Manager



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**Revision History**

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA832906	Rev. 01	Initial issue of report	May 03, 2018



1. Administration Data

1.1. Testing Laboratory

Testing Laboratory	
Test Site	Sporton International (Shenzhen) Inc.
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan Shenzhen City Guangdong Province 518055 China TEL: +86-755-8637-9589 FAX: +86-755-8637-9595

Applicant	
Company Name	MeiG Smart Technology Co., Ltd
Address	Floor 9, building 1, Digital China Xi'an Science Park, no. 20, Zhangbasi Road, Gaoxin District, xi'an

Manufacturer	
Company Name	MeiG Smart Technology Co., Ltd
Address	Floor 9, building 1, Digital China Xi'an Science Park, no. 20, Zhangbasi Road, Gaoxin District, xi'an

2. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	module
Brand Name	MEIGLink
Model Name	SLM750
FCC ID	2APJ4-SLM750
Wireless Technology and Frequency Range	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz WCDMA Band IV: 1712.4 MHz ~ 1752.6 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz CDMA2000 BC0: 824.7 MHz ~ 848.31 MHz CDMA 2000 BC1: 1851.25 MHz ~ 1908.75 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 41: 2555MHz ~ 2655MHz
Mode	GSM/GPRS/EGPRS AMR/RMC 12.2Kbps HSDPA HSUPA DC-HSDPA HSPA+(16QAM uplink is not supported) CDMA2000 : 1xRTT/1xEv-Do(Rcv. A) LTE: QPSK, 16QAM
HW Version	SLM750-T_MB_V1.02
SW Version	SLM750-TA_EQ102_00B.B8E980.B8A1B0_171218_202_C00_V02.B
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. The device supports GPRS/EGPRS Class 12 and does not support DTM operation.	

3. Maximum RF average output power among production units

Mode	Burst average power(dBm)	
	GSM850	GSM1900
GSM(GMSK, 1 Tx slot)	33.50	31.00
GPRS (GMSK, 1 Tx slot)	33.50	31.00
GPRS (GMSK, 2 Tx slots)	33.50	31.00
GPRS (GMSK, 3 Tx slots)	33.00	31.00
GPRS (GMSK, 4 Tx slots)	33.00	31.00
EDGE (8PSK, 1 Tx slot)	28.00	27.50
EDGE (8PSK, 2 Tx slots)	27.50	27.50
EDGE (8PSK, 3 Tx slots)	27.50	27.00
EDGE (8PSK, 4 Tx slots)	27.50	27.00

Mode		Maximum Average power(dBm)
WCDMA	Band II	24.00
	Band IV	24.00
	Band V	24.50
CDMA2000	BC0	25.50
	BC1	25.50
LTE	Band 2	23.00
	Band 4	23.00
	Band 5	23.00
	Band 12	23.50
	Band 13	23.50
	Band 17	23.50
	Band 25	23.00
	Band 26	23.00
	Band 41	24.00

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)	Maximum EIRP (W)	Maximum Output Power Limit (W)	Average EIRP (mW)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)
GSM 850 (1 Tx slot)	824.2	4.00	33.50	37.50	5.62	7.00	707.95	0.141	0.549
GPRS 850 (1 Tx slot)	824.2	4.00	33.50	37.50	5.62	7.00	707.95	0.141	0.549
GPRS 850 (2 Tx slots)	824.2	4.00	33.50	37.50	5.62	7.00	1405.85	0.280	0.549
GPRS 850 (3 Tx slots)	824.2	4.00	33.00	37.00	5.01	7.00	1879.32	0.374	0.549
GPRS 850 (4 Tx slots)	824.2	4.00	33.00	37.00	5.01	7.00	2511.89	0.500	0.549
EGPRS 850 (1 Tx slot)	824.2	4.00	28.00	32.00	1.58	7.00	199.53	0.040	0.549
EGPRS 850 (2 Tx slots)	824.2	4.00	27.50	31.50	1.41	7.00	353.13	0.070	0.549
EGPRS 850 (3 Tx slots)	824.2	4.00	27.50	31.50	1.41	7.00	529.70	0.105	0.549
EGPRS 850 (4 Tx slots)	824.2	4.00	27.50	31.50	1.41	7.00	706.27	0.141	0.549
GSM 1900 (1 Tx slot)	1850.2	1.50	31.00	32.50	1.78	2.00	223.87	0.045	1.000
GPRS 1900 (1 Tx slot)	1850.2	1.50	31.00	32.50	1.78	2.00	223.87	0.045	1.000
GPRS 1900 (2 Tx slots)	1850.2	1.50	31.00	32.50	1.78	2.00	444.57	0.088	1.000
GPRS 1900 (3 Tx slots)	1850.2	1.50	31.00	32.50	1.78	2.00	666.81	0.133	1.000
GPRS 1900 (4 Tx slots)	1850.2	1.50	31.00	32.50	1.78	2.00	891.25	0.177	1.000
EGPRS 1900 (1 Tx slot)	1850.2	1.50	27.50	29.00	0.79	2.00	100.00	0.020	1.000
EGPRS 1900 (2 Tx slots)	1850.2	1.50	27.50	29.00	0.79	2.00	198.58	0.040	1.000
EGPRS 1900 (3 Tx slots)	1850.2	1.50	27.00	28.50	0.71	2.00	265.48	0.053	1.000
EGPRS 1900 (4 Tx slots)	1850.2	1.50	27.00	28.50	0.71	2.00	353.97	0.070	1.000
CDMA2000 BC0	824.7	4.00	25.50	29.50	0.89	7.00	891.25	0.177	0.550
CDMA2000 BC1	1851.25	1.50	25.50	27.00	0.50	2.00	501.19	0.100	1.000
WCDMA Band II	1852.4	1.50	24.00	25.50	0.35	2.00	354.81	0.071	1.000
WCDMA Band IV	1712.4	5.50	24.00	29.50	0.89	1.00	891.25	0.177	1.000
WCDMA Band V	826.4	4.00	24.50	28.50	0.71	7.00	707.95	0.141	0.551
LTE Band 2	1850.7	1.50	23.00	24.50	0.28	2.00	281.84	0.056	1.000
LTE Band 4	1710.7	5.50	23.00	28.50	0.71	1.00	707.95	0.141	1.000
LTE Band 5	824.7	4.00	23.00	27.00	0.50	7.00	501.19	0.100	0.550
LTE Band 12	699.7	7.00	23.50	30.50	1.12	3.00	1122.02	0.223	0.466
LTE Band 13	779.5	7.00	23.50	30.50	1.12	3.00	1122.02	0.223	0.520
LTE Band 17	706.5	7.00	23.50	30.50	1.12	3.00	1122.02	0.223	0.471
LTE Band 25	1850.7	1.50	23.00	24.50	0.50	2.00	281.84	0.056	1.000
LTE Band 26	814.7	4.00	23.00	27.00	0.28	7.00	501.19	0.100	0.543
LTE Band 41	2557.5	8.50	24.00	32.50	1.78	2.00	1778.28	0.354	1.000

Note: For conservativeness, the lowest frequency of each band is used to determine the MPE limit of that band

5.2. Collocated Power Density Calculation

Note:

1. This MPE analysis is applicable to any collocated transmitters with transmit power for WLAN is less than or equal to 27dBm and for Bluetooth is less than or equal to 26dBm.
2. A maximum antenna gain of 4dBi for WLAN/BT has been assumed for all collocated antennas.

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)	Power Density / Limit
GSM 850 (1 Tx slot)	824.2	3.50	33.50	37.0	5.01	630.96	0.126	0.549	0.229
GPRS 850 (1 Tx slot)	824.2	3.50	33.50	37.0	5.01	630.96	0.126	0.549	0.229
GPRS 850 (2 Tx slots)	824.2	3.50	33.50	37.0	5.01	1252.97	0.249	0.549	0.454
GPRS 850 (3 Tx slots)	824.2	3.50	33.00	36.5	4.47	1674.94	0.333	0.549	0.607
GPRS 850 (4 Tx slots)	824.2	3.50	33.00	36.5	4.47	2238.72	0.446	0.549	0.811
EGPRS 850 (1 Tx slot)	824.2	3.50	28.00	31.5	1.41	177.83	0.035	0.549	0.064
EGPRS 850 (2 Tx slots)	824.2	3.50	27.50	31.0	1.26	314.73	0.063	0.549	0.114
EGPRS 850 (3 Tx slots)	824.2	3.50	27.50	31.0	1.26	472.10	0.094	0.549	0.171
EGPRS 850 (4 Tx slots)	824.2	3.50	27.50	31.0	1.26	629.46	0.125	0.549	0.228
GSM 1900 (1 Tx slot)	1850.2	1.50	31.00	32.5	1.78	223.87	0.045	1.000	0.045
GPRS 1900 (1 Tx slot)	1850.2	1.50	31.00	32.5	1.78	223.87	0.045	1.000	0.045
GPRS 1900 (2 Tx slots)	1850.2	1.50	31.00	32.5	1.78	444.57	0.088	1.000	0.088
GPRS 1900 (3 Tx slots)	1850.2	1.50	31.00	32.5	1.78	666.81	0.133	1.000	0.133
GPRS 1900 (4 Tx slots)	1850.2	1.50	31.00	32.5	1.78	891.25	0.177	1.000	0.177
EGPRS 1900 (1 Tx slot)	1850.2	1.50	27.50	29.0	0.79	100.00	0.020	1.000	0.020
EGPRS 1900 (2 Tx slots)	1850.2	1.50	27.50	29.0	0.79	198.58	0.040	1.000	0.040
EGPRS 1900 (3 Tx slots)	1850.2	1.50	27.00	28.5	0.71	265.48	0.053	1.000	0.053
EGPRS 1900 (4 Tx slots)	1850.2	1.50	27.00	28.5	0.71	353.97	0.070	1.000	0.070
CDMA2000 BC0	824.7	3.50	25.50	29.0	0.79	794.33	0.158	0.550	0.288
CDMA2000 BC1	1851.25	1.50	25.50	27.0	0.50	501.19	0.100	1.000	0.100
WCDMA Band II	1852.4	1.50	24.00	25.5	0.35	354.81	0.071	1.000	0.071
WCDMA Band IV	1712.4	5.50	24.00	29.5	0.89	891.25	0.177	1.000	0.177
WCDMA Band V	826.4	3.50	24.50	28.0	0.63	630.96	0.126	0.551	0.228
LTE Band 2	1850.7	1.50	23.00	24.5	0.28	281.84	0.056	1.000	0.056
LTE Band 4	1710.7	5.50	23.00	28.5	0.71	707.95	0.141	1.000	0.141
LTE Band 5	824.7	3.50	23.00	26.5	0.45	446.68	0.089	0.550	0.162
LTE Band 12	699.7	6.50	23.50	30.0	1.00	1000.00	0.199	0.466	0.427
LTE Band 13	779.5	6.50	23.50	30.0	1.00	1000.00	0.199	0.520	0.383
LTE Band 17	706.5	6.50	23.50	30.0	1.00	1000.00	0.199	0.471	0.423
LTE Band 25	1850.7	1.50	23.00	24.5	0.28	281.84	0.056	1.000	0.056
LTE Band 26	814.7	3.50	23.00	26.5	0.45	446.68	0.089	0.543	0.164
LTE Band 41	2557.5	8.50	24.00	32.5	1.78	1778.28	0.354	1.000	0.354
WLNA2.4GHz Band	2412.0	4.0	23.00	27.0	0.50	501.19	0.100	1.000	0.100
WLNA5GHz Band	5180.0	4.0	23.00	27.0	0.50	501.19	0.100	1.000	0.100
Bluetooth	2402.0	4.0	22.00	26.0	0.40	398.11	0.079	1.000	0.079



WWAN Power Density / Limit	WLAN Power Density / Limit	Bluetooth Power Density / Limit	Σ (Power Density / Limit) of WWAN+WLAN+Bluetooth
0.811	0.100	0.079	0.990

Note:

1. For colocation analysis, GSM850 is chosen for summation due to the highest (power density/limit) among all WWAN wireless modes.
2. Σ (Power Density / Limit): This is a summation of [(power density for each transmitter/antenna included in the simultaneous transmission)/ (corresponding MPE limit)], for WWAN + WLAN + Bluetooth.
3. Considering the WWAN module collocation with the WLAN and Bluetooth transmitter of the EIRP performance listed in the table above, the aggregated (power density /limit) is smaller than 1, and MPE of 3 collocated transmitters is compliant

Conclusion:

Based on 47 CFR §2.1091 and FCC KDB 447498 D01 v06, the analysis concludes that this product when transmitting in standalone within a host device, is compliant with the FCC RF exposure requirements in mobile exposure condition, provided the conducted power and antenna gain do not exceed the limits for each given frequency band per wireless technology as follow table:

Device	Band	Frequency (MHz)	Maximum Conducted Power (dBm)	Standalone Maximum Antenna Gain (dBi)	Collocated Maximum Antenna Gain (dBi)
SLM750-TA	GSM850	824.2	33.50	4.00	3.50
	GSM1900	1850.2	31.00	1.50	1.50
	CDMA2000 BC0	824.7	25.50	4.00	3.50
	CDMA2000 BC1	1851.25	25.50	1.50	1.50
	WCDMA Band II	1852.4	24.00	1.50	1.50
	WCDMA Band IV	1712.4	24.00	5.50	5.50
	WCDMA Band V	826.4	24.50	4.00	3.50
	LTE Band 2	1850.7	23.00	1.50	1.50
	LTE Band 4	1710.7	23.00	5.50	5.50
	LTE Band 5	824.7	23.00	4.00	3.50
	LTE Band 12	699.7	23.50	7.00	6.50
	LTE Band 13	779.5	23.50	7.00	6.50
	LTE Band 17	706.5	23.50	7.00	6.50
	LTE Band 25	1850.7	23.00	1.50	1.50
	LTE Band 26	814.7	23.00	4.00	3.50
	LTE Band 41	2557.5	24.00	8.50	8.50
Collocated Transmitters	WLAN2.4GHz	2412.0	23.00		4.00
	WLAN5GHz	5180.0	23.00		4.00
	Bluetooth	2402.0	22.00		4.00