

MPE TEST REPORT

Applicant MeiG Smart Technology Co., Ltd
FCC ID 2APJ4-SLM336Q
Product LTE Cat1 Module
Brand MEIGLink
Model SLM336Q
Report No. R2407A0777-M1
Issue Date August 7, 2024

Eurofins TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC 47 CFR Part 1 1.1310**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

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Table of Contents

1	Test Laboratory	3
1.1	Notes of the Test Report.....	3
1.2	Test Facility.....	3
1.3	Testing Location.....	3
1.4	Laboratory Environment	3
2	Description of Equipment Under Test	4
3	Maximum Tune up.....	5
4	MPE Limit.....	6
5	RF Exposure Evaluation Result.....	8
	ANNEX A: The EUT Appearance	10

1 Test Laboratory

1.1 Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **Eurofins TA Technology (Shanghai) Co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

1.2 Test Facility

FCC (Designation number: CN1179, Test Firm Registration Number: 446626)

Eurofins TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform measurements.

1.3 Testing Location

Company: Eurofins TA Technology (Shanghai) Co., Ltd.
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1.4 Laboratory Environment

Temperature	Min. = 18°C, Max. = 25°C
Relative humidity	Min. = 20%, Max. = 80%
Ground system resistance	< 0.5 Ω
Ambient noise is checked and found very low and in compliance with requirement of standards. Reflection of surrounding objects is minimized and in compliance with requirement of standards.	

2 Description of Equipment Under Test

Client Information

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

General Technologies

EUT Description			
Model	SLM336Q		
SN	M336QA1AHE013000171		
Hardware Version	SLM336QA1A_MB_V1.01		
Software Version	V08		
Frequency	Band	Tx (MHz)	Rx (MHz)
	LTE Band 2	1850 ~ 1910	1930 ~ 1990
	LTE Band 4	1710 ~ 1755	2110 ~ 2155
	LTE Band 5	824 ~ 849	869 ~ 894
	LTE Band 12	699 ~ 716	729 ~ 746
	LTE Band 13	777 ~ 787	746 ~ 756
	LTE Band 14	788 ~ 798	758 ~ 768
	LTE Band 66	1710 ~ 1780	2110 ~ 2180
	LTE Band 71	663 ~ 698	617 ~ 652
Date of Sample Received	July 4, 2024		
<p>Note:</p> <ol style="list-style-type: none"> The EUT is sent from the applicant to Eurofins TA and the information of the EUT is declared by the applicant. All indications of Pass/Fail in this report are opinions expressed by Eurofins TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. 			

3 Maximum Tune up

Band	Maximum Tune up	
	(dBm)	(mW)
LTE Band 2	25.00	316.228
LTE Band 4	25.00	316.228
LTE Band 5	25.00	316.228
LTE Band 12	25.00	316.228
LTE Band 13	25.00	316.228
LTE Band 14	25.00	316.228
LTE Band 66	25.00	316.228
LTE Band 71	25.00	316.228

4 MPE Limit

According to section 1.1310 of FCC 47 CFR Part 1, limits for maximum permissible exposure (MPE) are as following.

TABLE 1 – LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

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
3-30	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

f = frequency in MHz

* = Plane-wave equivalent power density

Note1. Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational / controlled limits apply provided he or she is made aware of the potential for exposure.

Note2: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

The maximum permissible exposure for 300~1500 MHz is $f/1500$, for 1500~100,000MHz is 1.0. So

Band	The Maximum Permissible Exposure (mW/cm ²)
LTE Band 2	1.000
LTE Band 4	1.000
LTE Band 5	0.549
LTE Band 12	0.466
LTE Band 13	0.518
LTE Band 14	0.525
LTE Band 66	1.000
LTE Band 71	0.442

5 RF Exposure Evaluation Result

RF exposure evaluation method is based on KDB 447498 D01, this calculation is based on the conducted power, maximum power and antenna gain with provides the minimum separation distance. The formula shown below is from OET Bulletin 65 Edition 97-01 Per KDB 447498 D01:

$$S = PG / 4\pi R^2$$

Where: S = power density (in appropriate units, e.g. mW/cm²)

P = Time-average maximum tune up procedure (in appropriate units, e.g., mW)

G = the numeric gain of the antenna

R = distance to the center of radiation of the antenna (20 cm = limit for MPE)

According to customer requirements, when theoretically calculating the maximum gain, the RF exposure evaluation results are as follows:

Band	Maximum tune up (dBm)	EIRP Limit (dBm)	Margin 1 (dB)	Power Density Limit (mW/cm ²)	PG (dBm)	Margin 2 (dB)	Final Margin (dB)	Gain (dBi)
LTE Band 2	25.00	33.000	8.000	1.000	37.013	12.013	8.000	8.000
LTE Band 4	25.00	30.000	5.000	1.000	37.013	12.013	5.000	5.000
LTE Band 5	25.00	40.600	15.600	0.549	34.408	9.408	9.408	9.408
LTE Band 12	25.00	36.920	11.920	0.466	33.697	8.697	8.697	8.697
LTE Band 13	25.00	36.920	11.920	0.518	34.156	9.156	9.156	9.156
LTE Band 14	25.00	34.770	9.770	0.525	34.214	9.214	9.214	9.214
LTE Band 66	25.00	30.000	5.000	1.000	37.013	12.013	5.000	5.000
LTE Band 71	25.00	34.770	9.770	0.442	33.467	8.467	8.467	8.467

Note: 1. The Maximum allowed antenna gain per Band should be less than or equal to the **Final Margin** which is the allowable maximum gain value to comply with limits for maximum permissible exposure (MPE).
 2. The Final Margin is determined and selected to the worst-case of Margin 1 and Margin 2.
 3. Margin 1=EIRP Limit (dBm)-Maximum Output Power (dBm). EIRP limit reference standard part 22/ part 24 /part 27and part 90 for each band, EIRP = ERP + 2.15 (dB).
 4. Margin 2=PG (dBm)-Maximum Output Power (dBm).
 PG (dBm): Based on the limit value of power density at 20cm.

Band	Maximum Tune up (dBm)	Antenna Gain (dBi)	PG (mW)	Result (mW/cm ²)	Limit Value (mW/cm ²)	Conclusion
LTE Band 2	25.00	8.000	1995.262	0.397	1.000	Pass
LTE Band 4	25.00	5.000	1000.000	0.199	1.000	Pass
LTE Band 5	25.00	9.408	2759.307	0.549	0.549	Pass
LTE Band 12	25.00	8.697	2342.610	0.466	0.466	Pass
LTE Band 13	25.00	9.156	2603.754	0.518	0.518	Pass
LTE Band 14	25.00	9.214	2638.761	0.525	0.525	Pass
LTE Band 66	25.00	5.000	1000.000	0.199	1.000	Pass
LTE Band 71	25.00	8.467	2221.775	0.442	0.442	Pass
Note: $R = 20\text{cm}$ $\pi = 3.1416$						

Note: For transmitters, minimum separation distance is 20cm, even if calculations indicate MPE distance is less.

IMPORTANT NOTE: To comply with the FCC RF exposure compliance requirements, the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. No change to the antenna or the device is permitted. Any change to the antenna or the device could result in the device exceeding the RF exposure requirements and void user's authority to operate the device.

ANNEX A: The EUT Appearance

The EUT Appearance are submitted separately.

*****END OF REPORT *****