

TEST REPORT

Applicant: Shanghai MobileTek Communication Ltd.
Address: Free Trade Zone No. 33, No. 17 building 6H3 Xiya Road China (Shanghai)
Equipment Type: LTE Module
Model Name: L509
Brand Name: LYNQ
FCC ID: 2AK9DL509
Test Standard: 47 CFR Part 2.1091
KDB 447498 D04 v01
Sample Arrival Date: N/A
Test Date: N/A
Date of Issue: Jul. 21, 2025

ISSUED BY:

Shanghai Tejet Communications Technology Co., Ltd. Testing Center



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Revision History

<u>Version</u>	<u>Issue Date</u>	<u>Revisions Content</u>
<u>Rev. 01</u>	<u>Jul. 21, 2025</u>	<u>Initial Issue</u>

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1 GENERAL INFORMATION

1.1 Test Laboratory

Name	Shanghai Tejet Communications Technology Co., Ltd. Testing Center
Address	1-2/F., Building 1, No.222, Xuanlan Road, Xuanqiao, Pudong New District, Shanghai, China

1.2 Test Location

Name	Shanghai Tejet Communications Technology Co., Ltd. Testing Center
Location	1-2/F., Building 1, No.222, Xuanlan Road, Xuanqiao, Pudong New District, Shanghai, China
Accreditation Certificate	The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1352. The laboratory has been listed by Industry Canada to perform electromagnetic emission measurements. The recognition numbers of test site are 29671.

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	Shanghai MobileTek Communication Ltd.
Address	Free Trade Zone No. 33, No. 17 building 6H3 Xiya Road China (Shanghai)

2.2 Manufacturer Information

Manufacturer	Shanghai MobileTek Communication Ltd.
Address	Free Trade Zone No. 33, No. 17 building 6H3 Xiya Road China (Shanghai)

2.3 General Description for Equipment under Test (EUT)

EUT Name	LTE Module
Model Name Under Test	L509
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	V1
Software Version	L509RLAN_SCv07.02b04.00
Dimensions (Approx.)	L:32mm* W:29mm* H:2.4mm*
Weight (Approx.)	N/A

2.4 Technical Information

Network and Wireless connectivity	2G Network: GPRS/EGPRS 850/1900MHz 3G Network: WCDMA/HSDPA/HSUPA B2/B4/B5 4G Network: LTE FDD Band: B2/B4/B5/B7/B66 GNSS: GPS+GLONASS+BDS
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The requirement for the following technical information of the EUT was tested in this report:

Operating Mode	GSM,WCDMA, LTE		
Frequency Range	GSM 850	TX: 824 ~ 849 MHz	RX: 869 ~ 894 MHz
	GSM 1900	TX: 1850 ~ 1910 MHz	RX: 1930 ~ 1990 MHz
	WCDMA B2	TX: 1850 ~ 1910 MHz	RX: 1930 ~ 1990 MHz
	WCDMA B4	TX: 1710 ~ 1755 MHz	RX: 2110 ~ 2155 MHz
	WCDMA B5	TX: 824 ~ 849 MHz	RX: 869 ~ 894 MHz
	LTE B2	TX: 1850 ~ 1910 MHz	RX: 1930 ~ 1990 MHz
	LTE B4	TX: 1710 ~ 1755 MHz	RX: 2110 ~ 2155 MHz
	LTE B5	TX: 824 ~ 849 MHz	RX: 869 ~ 894 MHz
	LTE B7	TX: 2500 ~ 2570 MHz	RX: 2620 ~ 2690 MHz
	LTE B66	TX: 1710 ~ 1780 MHz	RX: 2110 ~ 2180 MHz
Antenna Type	WWAN	External Antenna	
Exposure Category	General Population/Uncontrolled Exposure		
Product Type	Mobile Device		

3 SUMMARY OF TEST RESULT

3.1 Test Standards

No.	Identity	Document Title
1	KDB 447498 D04 v01	447498 D04 Interim General RF Exposure Guidance v01

3.2 Limit Standards

No.	Identity	Document Title
1	47 CFR Part 2.1091	Radiofrequency radiation exposure evaluation: mobile devices

4 DEVICE CATEGORY AND LEVELS LIMITS

Mobile Devices:

CFR Title 47 §2.1091(b)

For purposes of this section, a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons.

FCC KDB 447498 D04 General RF Exposure Guidance v01 Limit

Evaluation of compliance with the exposure limits in § 1.1310 is necessary if the ERP of the device is greater than ERP_{20cm} in Formula (B.1) [repeated from § 2.1091(c)(1) and § 1.1307(b)(1)(i)(B)].

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases} \quad (\text{B.1})$$

If the ERP is not easily obtained, then the available maximum time-averaged power may be used (i. e., without consideration of ERP only if the physical dimensions of the radiating structure(s) do not exceed the electrical length of $\lambda/4$ or if the antenna gain is less than that of a half-wave dipole.

SAR-based exemptions are constant at separation distances between 20 cm and 40 cm to avoid discontinuities in the threshold when transitioning between SAR-based and MPE-based exemption criteria at 40 cm, considering the importance of reflections.

The SAR-based exemption formula of § 1.1307(b)(3)(i)(B), repeated here as Formula (B.2), applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold P_{th} (mW).

This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by Formula (B.2).

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases} \quad (\text{B. 2})$$

where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right)$$

and f is in GHz, d is the separation distance (cm), and $ERP_{20 \text{ cm}}$ is per Formula (B.1).
The example values shown in Table B.2 are for illustration only.

Table B.2—Example Power Thresholds (mW)

Table B-2 Example Power Thresholds (mW)											
Frequency (MHz)	Distance (mm)										
	5	10	15	20	25	30	35	40	45	50	
	300	39	65	88	110	129	148	166	184	201	217
	450	22	44	67	89	112	135	158	180	203	226
	835	9	25	44	66	90	116	145	175	207	240
	1900	3	12	26	44	66	92	122	157	195	236
	2450	3	10	22	38	59	83	111	143	179	219
	3600	2	8	18	32	49	71	96	125	158	195
	5800	1	6	14	25	40	58	80	106	136	169

5 ASSESSMENT RESULT

5.1 Output Power

GSM					
Mode	Burst Average Power(dBm)		Division	Frame-Averaged power (dBm)	
	GSM 850	GSM 1900	Factors	GSM 850	GSM 1900
GPRS (GMSK, 1-Slot)	32.06	29.29	9.19	22.87	20.10
GPRS (GMSK, 2-Slots)	31.91	29.04	6.13	25.78	22.91
GPRS (GMSK, 3-Slots)	30.40	27.71	4.42	25.98	23.29
GPRS (GMSK, 4-Slots)	28.61	25.63	3.18	25.43	22.45
EGPRS (8PSK, 1-Slot)	28.24	25.42	9.19	19.05	16.23
EGPRS (8PSK, 2-Slots)	26.38	25.00	6.13	20.25	18.87
EGPRS (8PSK, 3-Slots)	25.09	23.20	4.42	20.67	18.78
EGPRS (8PSK, 4-Slots)	22.48	20.83	3.18	19.30	17.65
Antenna Gain (dB)	2.3	2.3	N/A	2.3	2.3
MAX ERP/EIRP (dBm)	32.21	31.59	N/A	26.13	25.59
Note: This report listed the worst case conducted power value, please refer to RF test report No.BL-SH2560649-501 for more details.					

WCDMA			
Mode	Band 2	Band 4	Band 5
Conducted Power (dBm)	22.56	22.41	22.51
Antenna Gain (dBi)	2.30	2.30	2.30
EIRP/ERP (dBm)	24.86	24.71	22.66
Note: This report listed the worst case conducted power value, please refer to RF test report No.BL-SH2560649-501 for more details.			

LTE					
Mode	Band 2	Band 4	Band 5	Band 7	Band 66
Conducted Power (dBm)	23.16	23.06	23.09	22.33	23.07
Antenna Gain (dBi)	2.30	2.30	2.30	2.30	2.30
EIRP/ERP (dBm)	25.46	25.36	23.24	24.63	25.37
Note: This report listed the worst case conducted power value, please refer to RF test report No.BL-SH2560649-501 for more details.					

5.2 Tune-up power

Mode		Conducted Power Range (dBm)	EIRP Range (dBm)	ERP Range (dBm)
GSM	GSM 850	【25.00,27.00】	/	【25.15,27.15】
	GSM 1900	【22.00,24.00】	【24.30,26.30】	【22.15,24.15】
WCDMA	Band 2	【22.00,24.00】	【24.30,26.30】	【22.15,24.15】
	Band 4	【21.00,23.00】	【23.30,25.30】	【21.15,23.15】
	Band 5	【22.00,24.00】	/	【22.15,24.15】
LTE	Band 2	【22.00,24.00】	【24.30,26.30】	【22.15,24.15】
	Band 4	【22.00,24.00】	【24.30,26.30】	【22.15,24.15】
	Band 5	【22.00,24.00】	/	【22.15,24.15】
	Band 7	【21.00,23.00】	【23.30,25.30】	【21.15,23.15】
	Band 66	【22.00,24.00】	【24.30,26.30】	【22.15,24.15】
Note1: ERP= EIRP -2.15dB.				
Note2: According KDB 447498 D04, used the greater of maximum conducted power and ERP to compare with the threshold value Pth.				

5.3 RF Exposure Evaluation Result

Evolution mode		Frequency (MHz)	Distance (cm)	Maximum power Tune up(dBm)	Maximum power (mw)	Threshold Power (mW)	Verdict
GSM	GSM850	824	20	27.15	518.80	1680.96	Pass
	GSM1900	1850	20	24.15	260.02	3060.00	Pass
WCDMA	Band 2	1850	20	24.15	260.02	3060.00	Pass
	Band 4	1710	20	23.15	206.54	3060.00	Pass
	Band 5	824	20	24.15	260.02	1680.96	Pass
LTE	Band 2	1850	20	24.15	260.02	3060.00	Pass
	Band 4	1710	20	24.15	260.02	3060.00	Pass
	Band 5	824	20	24.15	260.02	1680.96	Pass
	Band 7	2500	20	23.15	206.54	3060.00	Pass
	Band 66	1710	20	24.15	260.02	3060.00	Pass

5.4 Conclusion

This EUT is deemed to comply with the reference level limits, therefore the basic restrictions are compliant with human exposure limits.

Statement

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