TEST REPORT

REPORT NUMBER: I22W00049-WCDMA-WWAN-Rev1

ON

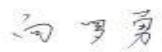
Type of Equipment:	LTE Module
Type of Designation:	L506
Brand Name:	LYNQ
Manufacturer:	Shanghai MobileTek Communication Ltd.
FCC ID:	2AK9DL506

ACCORDING TO

FCC CFR Part 2, FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS，e-CFR, 2020
PART 22, PUBLIC MOBILE SERVICES，e-CFR, 2020
PART 24, PERSONAL COMMUNICATIONS SERVICES，e-CFR, 2020
ANSI C63.26-2015

Chongqing Academy of Information and Communications Technology

Month date, year
July, 07, 2022
Signature



Xiang Luoyong
Director

Note:
The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of Chongqing Academy of Information and Communications Technology.

Revision Version

Report Number	Revision	Date	Memo
I22W00049-WCDMA-WWAN	00	2022-06-20	Initial creation of test report
I22W00049-WCDMA-WWAN	Rev1	2022-07-07	--

CONTENTS

1.Test Laboratory

1.1. Testing Location

Name:	Chongqing Academy of Information and Communications Technology
FCC Registration Number:	CN1239
Address:	Building C, Technology Innovation Center, No.8, Yuma Road, Chayuan New Area, Nan'an District, Chongqing, People's Republic of China
Postal Code:	401336
Telephone:	0086-23-88069965
Fax:	0086-23-88608777

1.2. Testing Environment

Normal Temperature:	15-35℃
Relative Humidity:	30-60%

1.3. Project data

Testing Start Date:	2022-06-17
Testing End Date:	2022-06-19

1.4. Signature

董俊鑫	2022-07-07
Dong Junxin **(Prepared this test report)**	**Date**
李旭	2022-07-07
Li Xu **(Reviewed this test report)**	**Date**
向罗勇	2022-07-07
Xiang Luoyong **Director of the laboratory** **(Approved this test report)**	**Date**

2. Client Information

2.1. Applicant Information

Company name:	Shanghai MobileTek Communication Ltd.
Address /Post:	Free Trade Zone No. 33, No. 17 building 6H3 Xiya Road China (Shanghai)
City:	Shanghai
Country:	China
Telephone:	021-54453657
Fax:	--
Email:	b.yang@mobiletek.cn
Contact Person:	yangbin

2.2. Manufacturer Information

Company name:	Shanghai MobileTek Communication Ltd.
Address /Post:	Free Trade Zone No. 33, No. 17 building 6H3 Xiya Road China (Shanghai)
City:	Shanghai
Country:	China
Telephone:	021-54453657
Fax:	--
Email:	b.yang@mobiletek.cn
Contact Person:	yangbin

3. Equipment under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

EUT Description	LTE Module
Model name	L506
Brand name	LYNQ
LTE Frequency Band	2/4/5/12/13
WCDMA Frequency Band	2/5
Type of modulation	QPSK/16QAM
Nominal Voltage	3.8
Extreme High Voltage	4.2
Extreme Low Voltage	3.4

Note: Photographs of EUT are shown in ANNEX A of this test report.
Note: High and low voltage values in extreme condition test are given by manufacturer.

3.2. Internal Identification of EUT used during the test

EUT ID	SN or IMEI	HW Version	SW Version	Date of receipt
S2	865699038738780	V1	L506Av07.01b01.00	2022-06-14

*EUT ID: is used to identify the test sample in the lab internally.

3.3. Outline of Equipment under Test

Technology	Band	UL Freq.(MHz)	DL Freq.(MHz)	Note
WCDMA	B2	1852.4-1907.6	1932.4-1987.6	--
	B5	826.4-846.6	871.4-891.6	--
LTE	B2	1850 – 1910	1930 – 1990	--
	B4	1710 – 1755	2110 – 2155	--
	B5	824 – 849	869 – 894	--
	B12	699-715.9	729-745.9	--
	B13	746-756	777-787	--

3.4. Internal Identification of AE used during the test

AE ID*	Description	dB*
AE1	--	--

*AE ID: is used to identify the test sample in the lab internally.

dB*： is provided customer.

4. Reference Documents

4.1. Documents supplied by applicant

PICS/PIXIT, referring to Annex B for detailed information, is supplied by the client or manufacturer, which is the basis of testing.

4.2. Reference Documents for testing

The following documents listed in this section are referred for testing.

Reference	Title	Version
FCC CFR Part 2	FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS，e-CFR	2020
Part 22	PUBLIC MOBILE SERVICES	2020
Part 24	PERSONAL COMMUNICATIONS SERVICES，e-CFR	2020
ANSI C63.26-2015	--	2015

5. Test Equipments Utilized

5.1. RSE Test System

No.	Equipment	Model	SN	HW Version	SW Version	Manufacture	Cal.Due Date
1	Test Receiver	ESU26	100367	01	4.43 SP3	R&S	2023-06-29
2	Ultra-wideband Log Periodic Antenna	VULB 9163	01392	--	--	Schwarzbeck	2024-05-04
3	Double Ridged Guide Antenna	HF907	100357	--	--	R&S	2023-02-10
4	Universal Radio Communication Tester	CMW500	128181	--	--	R&S	2023-06-29

5.2. Climate Chamber

No.	Name	Type	SN	Manufacture	Cal.Due Date
1	Fully-Anechoic Chamber	FACT3-2	--	ETS	2025-04-29

5.3. Vibration table

No.	Name	Type	SN	Manufacture	Cal.Due Date
--	--	--	--	--	--

5.4. Test software

No.	Name	version	SN	Manufacture
1	EMC32	V 8.51.00	--	R&S

6. Test Results

Summary of Test Results

A brief summary of the tests carried out is shown as following.

FCC Rules	Name of Test	Result
2.1051,24.238,2.1053,22.917, 27.53	Radiated Spurious Emission	Pass
Note 1: No applicable performance criteria. Note 2： Explanation of worst-case configuration The worst-case scenario for all measurements is based on the conducted output power. Output power was measured on QPSK,16QAM modulations. It was found that QPSK was the worst case. All testing was performed using QPSK modulations to represent the worst case unless otherwise stated. The test results shown in the following sections represent the worst case emission.		

6.1. Radiated Spurious Emission

Specifications:	FCC Part 2.1051, 2.1053, 24.238, 22.917
DUT Serial Number:	865699038738798
Test conditions:	Ambient Temperature:24.1℃-27.2℃ Relative Humidity:57.0%-59.0% Air pressure: 97.4kPa
Test Results:	Pass

Limit Level Construction:

According to Part 22.917 (a), i.e., Out of Band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

According to Part 24.238 (a), i.e., Out of Band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB, so the limit level is: P(dBm)– (43 + 10 log(P)) dB= -13dBm.

Measurement Uncertainty:

Item	Uncertainty
Expanded Uncertainty（30MHz-150MHz）	5.15 dB (k=2)
Expanded Uncertainty（150MHz-1GHz）	4.09dB (k=2)
Expanded Uncertainty（1GHz-3GHz）	2.92dB (k=2)
Expanded Uncertainty（3GHz-6GHz）	2.93dB (k=2)
Expanded Uncertainty（3GHz-18GHz）	2.69dB (k=2)

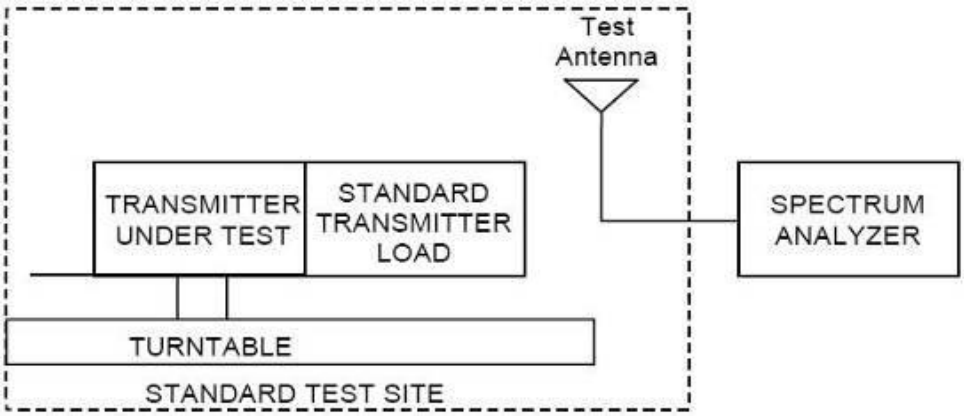
Test Setup:

The EUT was placed in an anechoic chamber. The Wireless Communications Test Set was used to set the TX channel and power level and modulate the TX signal with different bit patterns.

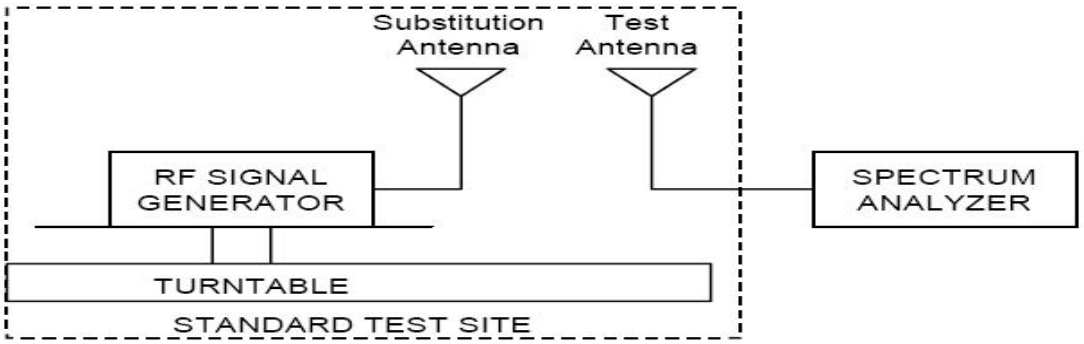
Test Method:

The measurement method is substitution method accordance with section 2.2.12 of ANSI/TIA-603-E: Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.

(a) Connect the equipment as illustrated and measure the spurious emissions as the method as above. The distance from the device to the antenna is 3 m .



(b) Reconnect the equipment as illustrated.



(c) Remove the transmitter and replace it with a substitution antenna. The center of the substitution antenna should be approximately at the same location as the center of the transmitter.

(d) Feed the substitution antenna at the transmitter end with a signal generator connected to the antenna by means of a non-radiating cable. With the antennas at both ends horizontally polarized, and with the signal generator tuned to a particular spurious frequency, raise and lower the test antenna to obtain a maximum reading at the spectrum analyzer. Adjust the level of the signal generator output until the previously recorded maximum reading for this set of conditions is obtained. This should be done carefully repeating the adjustment of the test antenna and generator output.

(e) Repeat step d) with both antennas vertically polarized for each spurious frequency.

(f) Calculate power in dBm into a reference ideal half-wave dipole antenna by reducing the readings obtained in steps d) and e) by the power loss in the cable between the generator and the antenna, and further corrected for the gain of the substitution antenna used relative to an ideal half-wave dipole antenna by the following formula:

P_d(dBm) = P_g(dBm) – cable loss (dB) + antenna gain (dB)

where:

Pd is the dipole equivalent power and Pg is the generator output power into the substitution antenna.

Note: The evaluation of radiated spurious emission under the transmission of WWAN

WCDMA B2 Radiated Spurious Emission Results

Test Data （QPSK Mode channel 9262）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Antenna Polarization [H/V]
3704.8	-63.6	1.6	8.9	-56.3	V
5557.2	-61.4	2.2	10.5	-53.1	V
7409.6	-59.3	2.5	11.9	-49.9	V
9262.0	-55.7	3.1	11.5	-47.3	V
11114.4	-52.9	3.4	12.1	-44.2	V
12966.8	-52.7	3.7	12.4	-44.0	V

WCDMA B5 Radiated Spurious Emission Results

Test Data （QPSK Mode channel 4132）

Frequency [MHz]	Generator output power(Pg) [dBm]	Cable loss [dB]	Antenna Gain [dB]	Spurious Emission Power (Pd) [dBm]	Antenna Polarization [H/V]
1652.8	-60.1	1.1	7.3	-53.9	V
2479.2	-53.5	1.2	6.7	-48.0	V
3305.6	-63.3	1.5	8.9	-55.9	V
4132.0	-61.7	1.8	9.2	-54.3	V
4958.4	-60.2	2.0	9.9	-52.3	V
5784.8	-60.7	2.3	10.5	-52.5	V

ANNEX A EUT Photos

See the document" I22W00049-External Photos".

See the document" I22W00049-Internal Photos ".

ANNEX B Deviations from Prescribed Test Methods

No deviation from Prescribed Test Methods.

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