



CAICT



FCC PART 15B TEST REPORT

No. 24T03Z100164-002

for

TCL Communication Ltd.

GSM/UMTS/LTE/NR Mobile phone

Model name: T614J

FCC ID: 2ACCJH179

with

Hardware Version: 06

Software Version: 8HS1

Issued Date: 2024-03-05

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 CTTL.

Test Laboratory:

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
24T03Z100164-002	Rev.0	1 st edition	2024-02-20
24T03Z100164-002	Rev.1	2 nd edition	2024-03-05

Note: the latest revision of the test report supersedes all previous version.

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1. Test Laboratory

1.1. Testing Location

CTTL (huayuan North Road)

Address: No. 52, Huayuan North Road, Haidian District, Beijing,
P. R. China 100191

1.2. Testing Environment

Normal Temperature: 15-35°C

Relative Humidity: 20-75%

1.3. Project data

Testing Start Date: 2024-01-31

Testing End Date: 2024-01-31

1.4. Signature



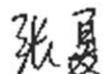
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(Reviewed this test report)



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2. Client Information

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

3.1. About EUT

Description GSM/UMTS/LTE/NR Mobile phone
Model Name T614J
FCC ID: 2ACCJH179

Note: Components list, please refer to documents of the manufacturer; it is also included in the original test record of CTTL, Telecommunication Technology Labs, CAICT.

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
EUT1	016534000202333	06	8HS1

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

3.3. Internal Identification of AE used during the test

AE ID*	Description	Model	Manufacture
AE1	Battery1	TLp049FA	TMB
AE2	Charger2	QC13US	PUAN
AE3	USB Cable1	CDA0000256C1	JUWEI
AE4	Headset	/	Provided by laboratory

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

3.4. EUT set-ups

EUT set-up No.	Combination of EUT and AE	Remarks
Set.2-1	EUT1 + AE1 + AE3 + AE4	USB + FM + LTE B5 idle

Note:

Equipment Under Test (EUT) is a model of GSM/UMTS/LTE Mobile phone.

It supports

GSM Band 850/900/1800/1900

UMTS Band FDD Band I(W2100) /FDD Band II(W1900) /FDD Band IV(W1700)/FDD V(W850)

LTE Band FDD Bands 1/2/3/4/5/7/12/13/17/20/25/26/28/29/66/71, TDD Bands 38/41/42

NR Band n2/n5/n7/n25/n38/n41/n66/n71/n77/n78

It has MP3, Camera, USB memory, Bluetooth 5.3, Wi-Fi (802.11a/b/g/n/ac, 802.11n supports 20MHz and 40MHz bandwidth, 802.11ac supports 20MHz, 40MHz and 80MHz bandwidth) and GPS function.

The device contains receivers which tune and operate between 30MHz-960MHz in the following mode: GSM 850, WCDMA850, LTE Band 5/12/13/17/26/29/71, NR Band n5/n71, FM. All licensed band receivers that tune in the range of 30MHz-960MHz are investigated. Only the worst-case emissions are reported.

4. Reference Documents

4.1. Reference Documents for testing

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

Reference	Title	Version
FCC Part 15, Subpart B	Radio frequency devices - Unintentional Radiators	2019
ANSI C63.4	American National Standard for Methods of Measurement of Radio- Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2014

Note: The test methods have no deviation with standards.

5. LABORATORY ENVIRONMENT

Semi-anechoic chamber SAC-1 did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 15 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz, >60dB; 1MHz - 1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4 Ω
Normalised site attenuation (NSA)	< ±4 dB, 3m distance
Site voltage standing-wave ratio (S_{VSWR})	Between 0 and 6 dB, from 1GHz to 6GHz
Uniformity of field strength	Between 0 and 6 dB, from 80 to 6000 MHz

Shielded room did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz, >60dB; 1MHz – 1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4 Ω

6. SUMMARY OF TEST RESULTS

Abbreviations used in this clause:		
Verdict Column	P	Pass
	NA	Not applicable
	F	Fail

Items	Test Name	Clause in FCC rules	Section in this report	Verdict	Test Location
1	Radiated Emission	15.109(a)	B.1	P	CTTL(huayuan North Road)

*NOTE: The model T614J is a variant model based on T614D. According to the declaration of changes, the following items are tested. Other results please refer to 23T04Z80421-03

Test Item	Mode or Feature	EUT Set-up
Radiated Continues Emission	USB mode	Set.2-1

Only the worst-case emissions are reported.

7. Test Equipments Utilized

NO.	Description	TYPE	SERIES NUMBER	MANUFACTURE	CAL DUE DATE	CALIBRATION INTERVAL
1	Test Receiver	ESW44	103023	R&S	2024-07-08	1 Year
2	EMI Antenna	VULB 9163	01222	SCHWARZBECK	2024-02-28	1 Year
3	EMI Antenna	3115	6914	ETS-Lindgren	2024-06-07	1 Year
4	Signal Generator	SMBV100A	260613	R&S	2024-03-14	1 Year
5	Universal Communication Tester	CMW500	116588	R&S	2024-12-20	1 Year

Test software information		
Test Item	Software	Version
Radiated Emission	EMC32	V11.50.00

ANNEX A: MEASUREMENT RESULTS

A.1 Radiated Emission

Reference

FCC: CFR Part 15.109(a).

A.1.1 Method of measurement

The field strength of radiated emissions from the unintentional radiator (USB mode of MS) at distances of 3 meters is tested. Tested in accordance with the procedures of ANSI C63.4 – 2014, section 8.3.

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3/10 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

A.1.2 EUT Operating Mode

The MS is operating in the USB mode. During the test MS is connected to a PC via a USB cable in the case of USB mode.

The EUT was tested while operating in licensed band Rx mode. All licensed band receivers that tune in the range of 30MHz-960MHz, as listed in section 3.4, are investigated. Only the worst case emissions are reported.

All equipment is placed on the test table top and arranged in a typical configuration in accordance with ANSI C63.4-2014 and manipulated to obtain worst case emissions.

The model of the PC is M4000E-17, and the serial number of the PC is M706GWXD. The software is used to let the PC keep on copying data to MS, reading and erasing the data after copy action was finished.

Note : I/O information : Printer – USB, Mouse – PS/2, Keyboard – USB.

The EUT was tested while operating in licensed band Rx mode. All licensed band receivers that tune in the range of 30MHz-960MHz, as listed in section 3.4, are investigated. Only the worst case emissions are reported.

All equipment is placed on the test table top and arranged in a typical configuration in accordance with ANSI C63.4-2014 and manipulated to obtain worst case emissions.

A.1.3 Measurement Limit

Frequency range (MHz)	Field strength limit (μ V/m)		
	Quasi-peak	Average	Peak
30-88	100		
88-216	150		
216-960	200		
960-1000	500		
>1000		500	5000

Note: the above limit is for 3 meters test distance. 10 meters' limit is got by converting.

A.1.4 Test Condition

Frequency range (MHz)	RBW/VBW	Sweep Time (s)	Detector
30-1000	120kHz (IF Bandwidth)	5	Peak/Quasi-peak
Above 1000	1MHz/3MHz	15	Peak, Average

A.1.5 Measurement Results

A "reference path loss" is established and the A_{RPL} is the attenuation of "reference path loss". It includes the antenna factor of receive antenna and the path loss.

The measurement results are obtained as described below:

$$\text{Result} = P_{\text{Mea}} + A_{RPL} = P_{\text{Mea}} + G_A + G_{PL}$$

Where

G_A : Antenna factor of receive antenna

G_{PL} : Path Loss

P_{Mea} : Measurement result on receiver.

Measurement uncertainty (worst case): $U = 4.84 \text{ dB}$, $k=2$.

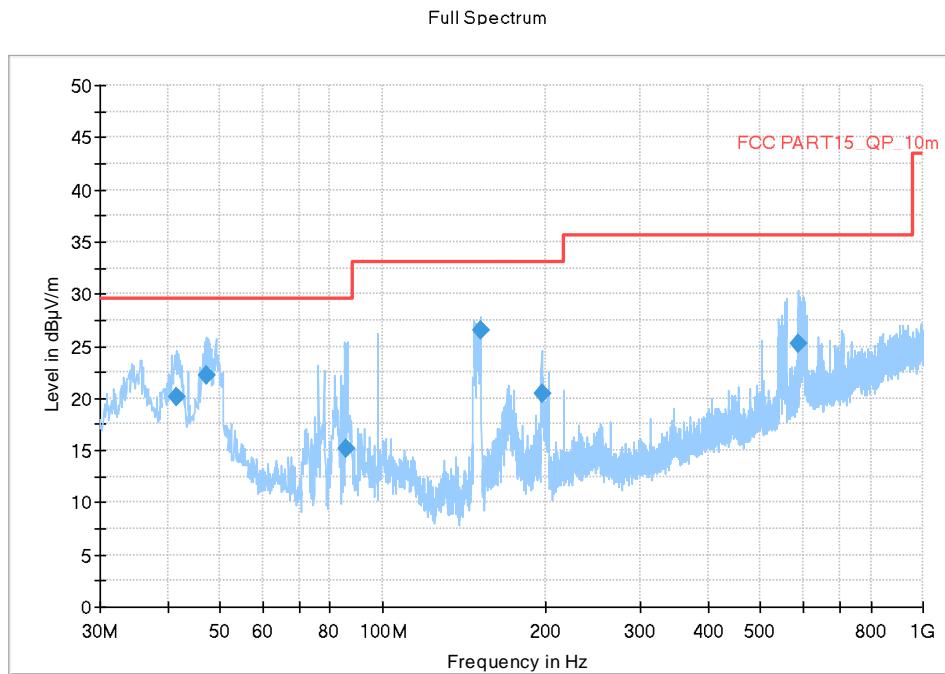
Measurement results for Set.2-1:

USB Mode/Average detector

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
17778.320	47.70	-29.63	45.95	31.37	54.00	6.30	V
17765.740	47.60	-29.63	45.95	31.27	54.00	6.40	V
17768.800	47.40	-29.63	45.95	31.07	54.00	6.60	H
17999.320	47.30	-29.06	46.66	29.70	54.00	6.70	V
17754.180	47.30	-29.61	45.95	30.96	54.00	6.70	H
17767.100	47.20	-29.63	45.95	30.87	54.00	6.80	V

USB Mode/Peak detector

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
17748.740	57.80	-29.61	45.95	41.46	74.00	16.20	V
17818.780	57.60	-29.63	45.95	41.28	74.00	16.40	V
17770.840	57.60	-29.63	45.95	41.27	74.00	16.40	H
17876.580	57.40	-29.39	45.95	40.84	74.00	16.60	V
17751.120	57.30	-29.61	45.95	40.96	74.00	16.70	V
17818.100	57.20	-29.63	45.95	40.88	74.00	16.80	H

Measurement results for Set.1:

Fig A.1 Radiated Emission from 30MHz to 1GHz
Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
41.446000	20.16	29.54	9.38	120.000	275.0	V	264.0
47.072000	22.19	29.54	7.35	120.000	275.0	V	245.0
85.581000	15.21	29.54	14.33	120.000	276.0	V	135.0
151.929000	26.48	33.06	6.58	120.000	100.0	V	-7.0
196.840000	20.42	33.06	12.64	120.000	100.0	V	-19.0
589.399000	25.20	35.56	10.36	120.000	222.0	V	-25.0

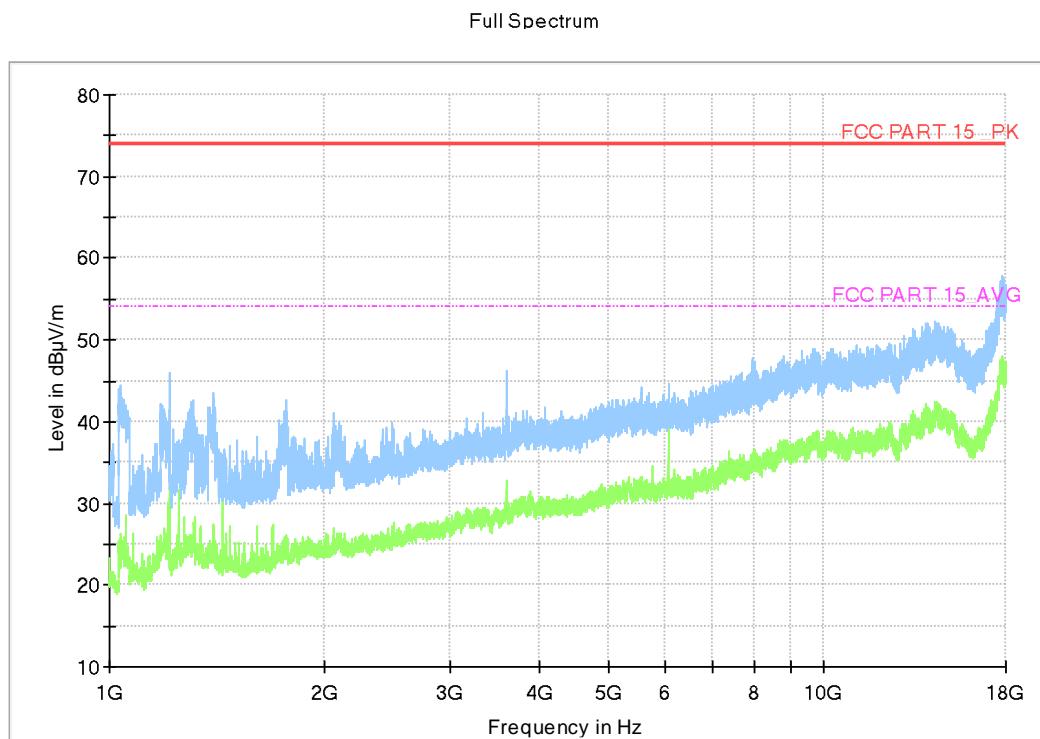


Fig A.2 Radiated Emission from 1GHz to 18GHz

END OF REPORT