



# FCC PART 15B TEST REPORT

No. I23Z61573-EMC01

for

**TCL Communication Ltd.**

**GSM/UMTS/LTE mobile phone**

**Model name: 4058P**

**FCC ID: 2ACCJN064**

with

**Hardware Version: 03**

**Software Version: RL3W**

**Issued Date: 2023-09-14**

**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.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

**Test Laboratory:**

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## **REPORT HISTORY**

<b>Report Number</b>	<b>Revision</b>	<b>Description</b>	<b>Issue Date</b>
I23Z61573-EMC01	Rev.0	1 <sup>st</sup> edition	2023-09-14

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

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## 1. Test Laboratory

### 1.1. Introduction & Accreditation

**Telecommunication Technology Labs, CAICT** is an ISO/IEC 17025:2017 accredited test laboratory under American Association for Laboratory Accreditation (A2LA) with lab code 7049.01, and is also an FCC accredited test laboratory (CN1349), and ISED accredited test laboratory (CAB identifier:CN0066). The detail accreditation scope can be found on A2LA website.

### 1.2. Testing Location

#### **CTTL (huayuan North Road)**

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

### 1.3. Testing Environment

Normal Temperature: 15-35° C  
Relative Humidity: 20-75%

### 1.4. Project data

Testing Start Date: 2023-09-12  
Testing End Date: 2023-09-13

### 1.5. Signature



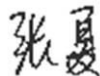
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## **2. Client Information**

### **2.1. Applicant Information**

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### **2.2. Manufacturer Information**

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Fax: +86 755 3661 2000-81722

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

#### **3.1. About EUT**

Description	GSM/UMTS/LTE mobile phone
Model Name	4058P
FCC ID:	2ACCJN064

Note: The EUT functions are described in Annex A of this test report. Specifications of the EUT were provided to fulfil the test. Samples undergoing test were selected by the client. 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	016211000027131	03	RL3W

\*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	Battery	TLi017D1	BYD
AE2	Charger1	UC11US	PUAN
AE3	Charger2	UC11US	Chenyang
AE4	USB Cable	CDA0000162C1	juwei
AE5	USB Cable	CDA0000162C2	shenghua
AE6	Docking	CBC0032A00C5	PUAN
AE7	Headset	/	Provided by laboratory
AE2-1	Battery	TLi017D7	Veken
AE2-2	Charger3	NBS05C050100VU	Mass Power

\*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 + AE2-1 + AE2-2	Charging mode

Note:

Equipment Under Test (EUT) is a model of GSM/UMTS/LTE mobile phone with integrated antenna.

It supports

GSM Band	GSM900/DCS1800/PCS1900/GSM850
UMTS Band	FDD Band II(W1900) / FDD Band V(W850)
LTE Band	FDD2/FDD4/FDD5/FDD12/FDD13/FDD66

It has MP3, Camera, USB memory, FM, Bluetooth 4.2, Wi-Fi (802.11b/g/n/a, 802.11n supports 20MHz and 40MHz bandwidth) ,GNSS functions

The device contains receivers which tune and operate between 30MHz-960MHz in the



following bands: GSM850, WCDMA850, LTE Band 5/12/13. All licensed band receivers that tune in the range of 30MHz-960MHz are investigated. Only the worst-case emissions are reported.

Note: The I23Z61573 is a variant model based on I22Z60568. According to the declaration of changes, the following test items and test modes were performed.

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

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.

<b>Reference</b>	<b>Title</b>	<b>Version</b>
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. 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)
2	Conducted Emission	15.107(a)	B.2	P	CTTL(huayuan North Road)

## 6. Test Equipments Utilized

NO.	Description	TYPE	SERIES NUMBER	MANUFACTURE	CAL DUE DATE	CALIBRATION INTERVAL
1	Test Receiver	ESW44	103144	R&S	2023-10-25	1 Year
2	LISN	ENV216	101200	R&S	2024-06-05	1 year
3	Test Receiver	ESCI 7	100344	R&S	2024-02-21	1 Year
4	EMI Antenna	VULB 9163	01222	SCHWARZBECK	2024-02-28	1 year
5	EMI Antenna	3115	6914	ETS-Lindgren	2024-04-25	1 year

### Test software list:

Test Item	Test Software	Software Vendor
Radiated Emission	EMC32	R&S
Conducted Emission	EMC32	R&S

### Semi-anechoic chamber utilized did not exceed following limits along the 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, 10 m distance
Site voltage standing-wave ratio ( $S_{VSWR}$ )	Between 0 and 6 dB, from 1GHz to 6GHz

### Shielded room utilized did not exceed following limits along the 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

## 7. Measurement Uncertainty

Where relevant, the following measurement uncertainty(worse case) levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

### Location 1: CTTL(huayuan North Road)

Test item	Frequency ranges	Measurement uncertainty
Radiated Emission	30MHz-1GHz	4.72dB( $k=2$ )
	1GHz-18GHz	4.84dB( $k=2$ )
Conducted Emission	150kHz-30MHz	AC Power Line: 3.08dB( $k=2$ )

## **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 (charging 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 charging mode. During the test MS is connected to a charger in the case of charging mode.

#### **A.1.3 Measurement Limit**

Frequency range (MHz)	Field strength limit ( $\mu\text{V/m}$ )		
	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

$P_{\text{Mea}}$ : Measurement result on receiver.

Measurement uncertainty (worst case):  $U = 4.74 \text{ dB}$ ,  $k=2$ .

#### Measurement results for Set.1:

##### Charing Mode/Average detector

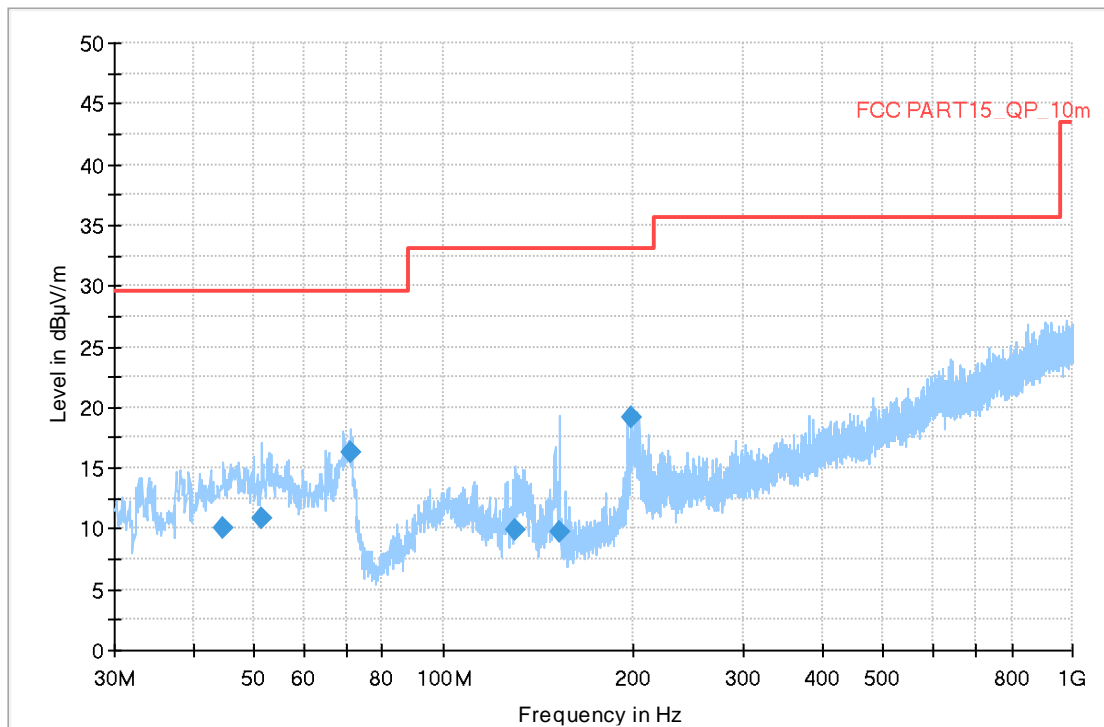
Frequency (MHz)	Measurement Result (dB $\mu$ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB $\mu$ V)	Limit (dB $\mu$ V/m)	Margin (dB)	Antenna Pol. (H/V)
17997.960	46.10	-29.06	46.66	28.50	54.00	7.90	V
17995.580	45.90	-29.06	46.66	28.30	54.00	8.10	H
17967.360	45.90	-29.06	46.66	28.30	54.00	8.10	V
17991.160	45.60	-29.06	46.66	28.00	54.00	8.40	V
17986.400	45.50	-29.06	46.66	27.90	54.00	8.50	V
17997.620	45.50	-29.06	46.66	27.90	54.00	8.50	H

##### Charging Mode/Peak detector

Frequency (MHz)	Measurement Result (dB $\mu$ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB $\mu$ V)	Limit (dB $\mu$ V/m)	Margin (dB)	Antenna Pol. (H/V)
17987.080	56.80	-29.06	46.66	39.20	74.00	17.20	V
17987.760	56.00	-29.06	46.66	38.40	74.00	18.00	V
17968.380	56.00	-29.06	46.66	38.40	74.00	18.00	H
17777.640	55.90	-29.63	45.95	39.57	74.00	18.10	H
17996.940	55.70	-29.06	46.66	38.10	74.00	18.30	V
17973.140	55.60	-29.06	46.66	38.00	74.00	18.40	H

**Measurement results for Set.1:**

Full Spectrum

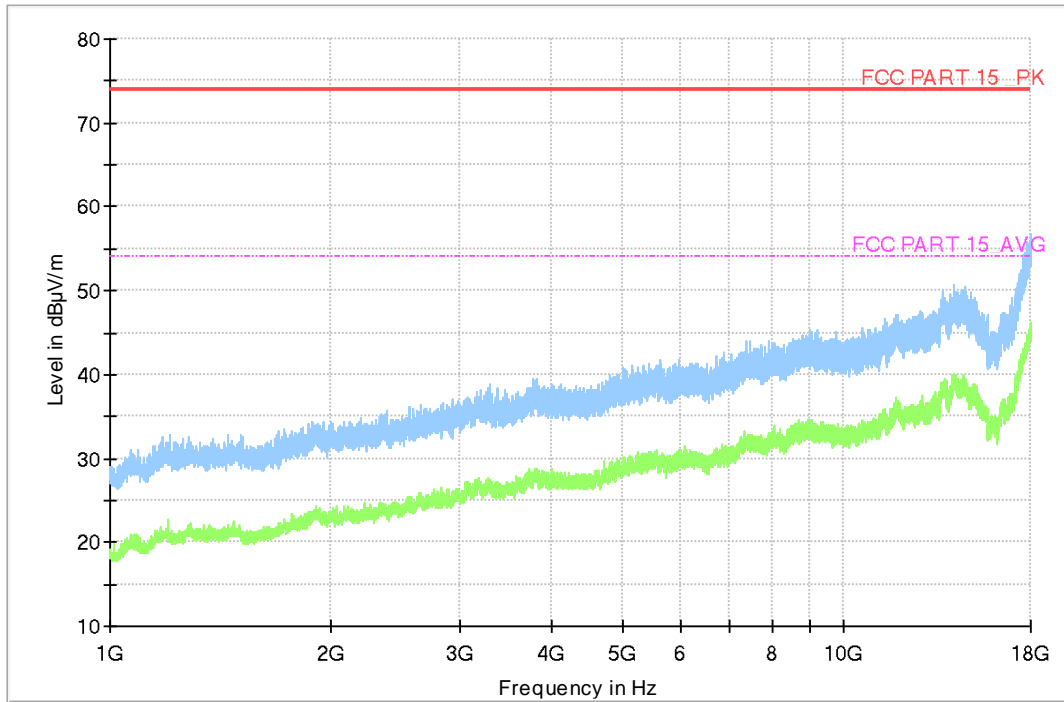


**Fig A.1 Radiated Emission from 30MHz to 1GHz**

**Final Result 1**

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
44.744000	10.14	29.54	19.40	120.000	203.0	H	99.0	-11.0
51.437000	10.79	29.54	18.75	120.000	100.0	V	225.0	-10.8
71.128000	16.35	29.54	13.19	120.000	175.0	V	176.0	-15.7
130.395000	9.84	33.06	23.22	120.000	108.0	V	72.0	-15.2
153.093000	9.71	33.06	23.35	120.000	100.0	V	86.0	-15.2
199.556000	19.18	33.06	13.88	120.000	100.0	V	45.0	-11.9

Full Spectrum



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

## A.2 Conducted Emission

### Reference

FCC: CFR Part 15.107(a).

### A.2.1 Method of measurement

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits. Tested in accordance with the procedures of ANSI C63.4 – 2014, section 7.3.

### A.2.2 EUT Operating Mode

The MS is operating in the charging mode. During the test MS is connected to a charger in the case of charging mode.

### A.2.3 Measurement Limit

Frequency of emission (MHz)	Conducted limit (dB $\mu$ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

\*Decreases with the logarithm of the frequency

### A.2.4 Test Condition in charging mode

Voltage (V)	Frequency (Hz)
120	60

RBW/IF bandwidth	Sweep Time(s)
9kHz	1



### A.2.5 Measurement Results

Measurement uncertainty:  $U= 3.08$  dB,  $k=2$ .

#### Charging Mode, Set.1:

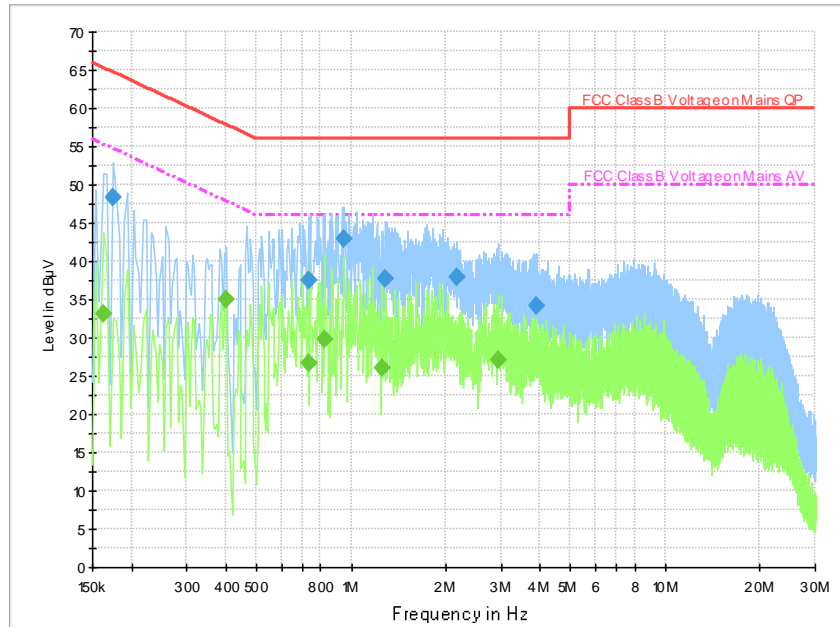


Fig A.3 Conducted Emission from 150kHz to 30MHz

#### Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.174000	48.3	2000.0	9.000	On	L1	19.7	16.4	64.8	
0.730000	37.4	2000.0	9.000	On	N	19.7	18.6	56.0	
0.950000	42.9	2000.0	9.000	On	N	19.6	13.1	56.0	
1.282000	37.8	2000.0	9.000	On	N	19.6	18.2	56.0	
2.170000	37.9	2000.0	9.000	On	N	19.6	18.1	56.0	
3.870000	34.2	2000.0	9.000	On	L1	19.6	21.8	56.0	

#### Final Result 2

Frequency (MHz)	Average (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.162000	33.0	2000.0	9.000	On	L1	19.8	22.3	55.4	
0.398000	35.0	2000.0	9.000	On	L1	19.7	12.9	47.9	
0.730000	26.7	2000.0	9.000	On	N	19.7	19.3	46.0	
0.822000	29.8	2000.0	9.000	On	L1	19.7	16.2	46.0	
1.254000	26.1	2000.0	9.000	On	N	19.6	19.9	46.0	
2.954000	27.2	2000.0	9.000	On	L1	19.6	18.8	46.0	

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