FCC TEST REPORT FOR CERTIFICATION

On Behalf of

TCL Communication Ltd.

Tablet PC

Model No.: 8188G

FCC ID: 2ACCJB224

Prepared for : TCL Communication Ltd.
5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong

Prepared By : Audix Technology (Shenzhen) Co., Ltd.
No. 6, Kefeng Road, Science & Technology Park, Nanshan District , Shenzhen, Guangdong, China

Tel: (0755) 26639496

TESTING
NVLAP LAB CODE 200372-0

Report Number	:	ACS-F24107
Date of Test	:	May.25~Jun.03, 2024
Date of Report	:	Jul.17, 2024

TABLE OF CONTENTS

TEST REPORT

Applicant	:	TCL Communication Ltd.
Manufacture	:	TCL Communication Ltd.
Product	:	Tablet PC
FCC ID	:	2ACCJB224
	(A) Model No.	: 8188G
	(B) Serial No.	: N/A
	(C) Test Voltage	: DC 3.85V DC 5V From Adapter Input AC 120V /60Hz

Tested for comply with:
FCC part 2, 22H & 24E
Test Method:
KDB971168 D01 v03; ANSI C63.26 2015

The device described above is tested by AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. to confirm comply with all the FCC part 2, 22H & 24E requirements.

The test results are contained in this test report and AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. is assumed full responsibility for the accuracy and completeness of these tests. This report contains data that are not covered by the NVLAP accreditation. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC and IC requirements.

This Report is made under FCC part 2, 22H & 24E. No modifications were required during testing to bring this product into compliance.

This report applies to single evaluation of one sample of above mentioned product. This report shall not be reproduced in part without written approval of Audix Technology (Shenzhen) Co., Ltd.

Date of Test : May.25~Jun.03, 2024 Date of Report: Jul.17, 2024

Prepared by : Jasmine Ning
Jasmine Ning / Assistant

Reviewed by : Thomas Chen
Thomas Chen / Assistant Manager

AUDIX® 信華科技（深圳）有限公司
Audix Technology (Shenzhen) Co., Ltd.
EMC 部門報告專用章
Stamp only for EMC Dept. Report

Approved & Authorized Signer : Signature:
Sunny Lu / Manager

1. SUMMARY OF STANDARDS AND RESULTS

1.1.Description of Standards and Results

The EUT has been tested according to the applicable standards as referenced below.

EMISSION		
Description of Test Item	**Standard**	**Results**
RF Output Power	2.1046	PASS
Effective Isotropic Radiated Power	2.1046(a) 22.913(a) 24.232(c)	PASS
Peak to Average Power Ratio	24.232(d)	PASS
26dB Bandwidth and Occupied Bandwidth	2.1049	PASS
Band Edge	2.1051 22.917(a) 24.238(a)	PASS
Conducted Spurious Emission	2.1053 22.917(a) 24.238(a)	PASS
Frequency Stability	2.1055 22.355 24.235	PASS
Emission Limit	2.1053 22.917(a) 24.238(a)	PASS
Note: Measurement uncertainty affection to the result is not considered, the EUT is technically compliant with standard requirements.		

2. GENERAL INFORMATION

2.1.Description of Device (EUT)

Product	:	Tablet PC
Model No.	:	8188G
FCC ID	:	2ACCJB224
Applicant	:	TCL Communication Ltd. 5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
Manufacturer	:	TCL Communication Ltd. 5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
Factory	:	Huizhou TCL Mobile Communication Co., Ltd. No.86, Hechang 7th West Road, Zhong Kai Hi-tech Development District, Hui Zhou, Guang Dong
Date of Test	:	May.25~Jun.03, 2024
Date of Receipt	:	May.21, 2024
Sample Type	:	Prototype production

2.2.Feature of Equipment Under Test

Product Feature & Specification		
Product	Tablet PC	
Model No.	8188G	
Power Source	☒ Commercial Power	AC 100-240V~50/60Hz
	☒ External Power Source	DC 5.0V, 2.0A
	☒ Li-ion Battery	DC 3.85V
	☐ UM battery	DC V
GSM 850 & GSM 1900		
Frequency Range	850 Band: 824-849MHz 1900 Band: 1850-1910MHz	
Type of Modulation	GMSK, 8PSK.	
Antenna System		
Type of Antenna & Antenna Peak Gain	Antenna Type : Loop Antenna GSM 850 Antenna Gain: 1.07 dBi PCS1900 Antenna Gain: 2.07 dBi	
Remark: This report is for GSM radio specification only. EUT also supports other radio specification as below listed: UMTS(Test report No. ACS-F24108) LTE(Test report No. ACS-F24109) BDR+EDR (Test report No. ACS-F24110) BLE (Test report No. ACS-F24111) Wi-Fi 2.4GHz (Test report No. ACS-F24112) Wi-Fi 5GHz (Test report No. ACS-F24113)		

2.3.Photographs of the EUT

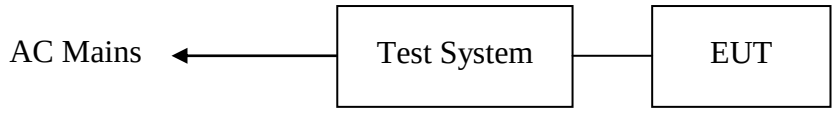
Please reference APPDENX B

2.4.Tested Supporting System Details

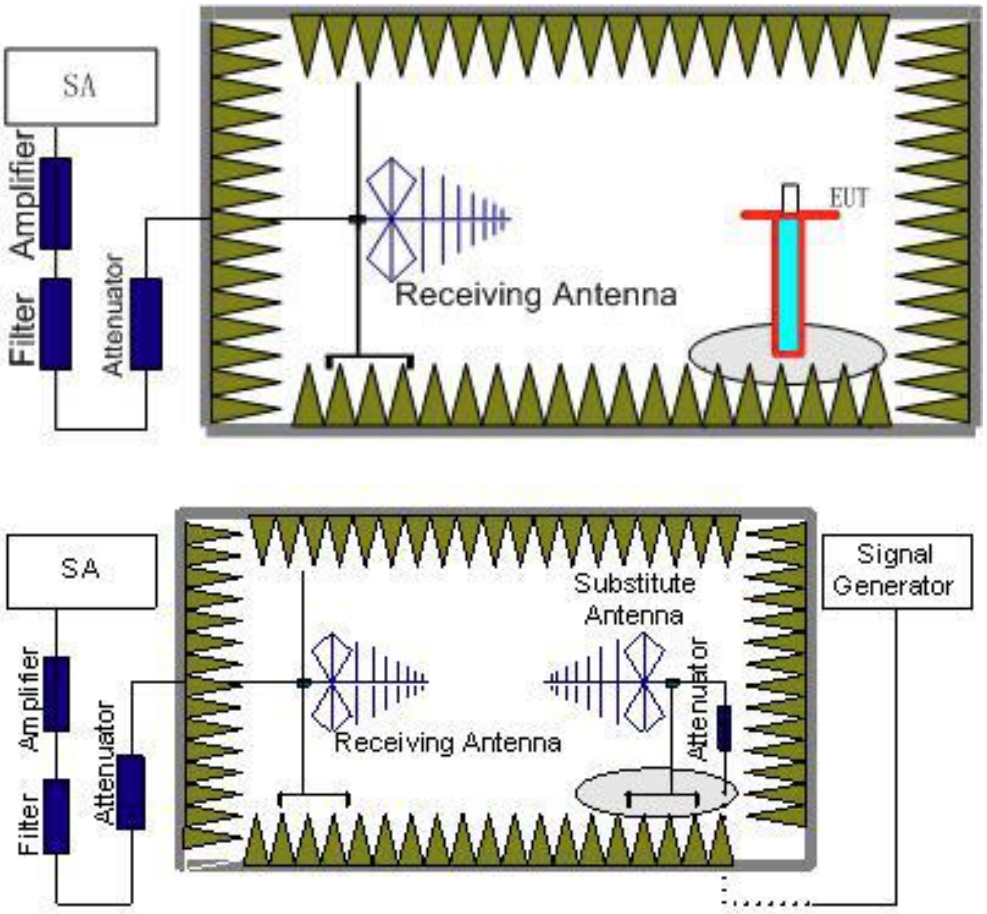
[None]

2.5.Block diagram of measurement connection

Conducted Method



Radiated Method



(EUT: Tablet PC)

2.6.Test Information

Band	Test Mode	Frequency (MHz)	CH
850MHz	GSM 850	824.2	128
		836.6	190
		848.8	251
	GPRS 850	824.2	128
		836.6	190
		848.8	251
	EGPRS 850	824.2	128
		836.6	190
		848.8	251
1900MHz	GSM 1900	1850.2	512
		1880.0	661
		1909.8	810
	GPRS 1900	1850.2	512
		1880.0	661
		1909.8	810
	EGPRS 1900	1850.2	512
		1880.0	661
		1909.8	810

2.7.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Radio Communication Analyzer	Rohde & Schwarz	CMW500	103249	Sep.15,23	1 Year
2.	Signal Analyzer	Rohde & Schwarz	FSV40	101608	Nov.07,23	1 Year
3.	RF Vector Signal Generator	Agilent	N5182B	MY53050865	Sep.15,23	1 Year
4.	Signal Generator	Rohde & Schwarz	SMB100A	181375	Mar.16,24	1 Year
5.	Constant Humidity Thermostat	GuangZhouGong Wen	HSD-010	0507	Aug.06,23	1Year
6.	Test the shield box manually	HUAGEFENG	691-200	NO.1	NCR	NCR
7.	3m Chamber(NSA)	AUDIX	N/A	N/A	Aug.11,22	3Year
8.	3m Chamber(SE)	AUDIX	N/A	N/A	Sep.16,22	3 Year
9.	Signal Analyzer	Rohde & Schwarz	FSV40	101608	Nov.07,23	1 Year
10.	Tri-log-Broadband Antenna	SCHWARZBECK	VULB 9168	429	Oct.10,23	1 Year
11.	NSA Cable	HUBER+SUHNER	CFD400NL-LW	No.3+190411	Sep.20,23	1 Year
12.	Coaxial Switch	Anritsu	MP59B	6201397223	Mar.17,24	1 Year
13.	EMI Test Receiver	Rohde & Schwarz	ESR3	101931	Mar.17,24	1 Year
14.	Amplifier	HP	8447D	2944A11159	Mar.17,24	1 Year
15.	Test Software	AUDIX	e3	6.100913a	N/A	N/A
16.	Signal Analyzer	Rohde & Schwarz	FSV40	101608	Nov.07,23	1 Year
17.	Amplifier	EMCI	EMC0518A45SE	980965	Aug.25,23	1 Year
18.	RF Cable	TIMES MICROWAVE	SFT205-NMSM-10.00M	689241	Aug.25,23	1 Year
19.	Test Software	AUDIX	e3	6.100913a	N/A	N/A
20.	Horn Antenna	ETC	MCTD 1209	DRH15F03007	Aug.23,23	1 Year
21.	Horn Antenna	ETS	3117	00218552	Feb.22,24	1 Year
Note: N/A means Not applicable.						

2.9.Test Facility

Site Description

Name of Firm	:	Audix Technology (Shenzhen) Co., Ltd. No. 6, Kefeng Road, Science & Technology Park, Nanshan District , Shenzhen, Guangdong, China
EMC Lab.	:	Certificated by ISED, Canada Company Number: 5183A CAB identifier: CN0034 Valid Date: Mar.31, 2025
	:	Certificated by FCC, USA Designation No.: CN5022 Valid Date: Mar.31, 2025
	:	Accredited by NVLAP, USA NVLAP Code: 200372-0 Valid Date: Mar.31, 2025

2.10.Measurement Uncertainty (95% confidence levels, k=2)

Test Item	Uncertainty
Uncertainty for Radiated Spurious Emission test in RF chamber	±3.7dB(30MHz~1000MHz)
	±3.3dB(1~26.5GHz)
Uncertainty for Conduction Spurious emission test	±2.0dB
Uncertainty for Output power test	±0.8dB
Uncertainty for Power density test	±2.0dB
Uncertainty for Radio Frequency	$\pm 2.0 \times 10^{-7}$
Uncertainty for Bandwidth test	±4.6%
Uncertainty for DC power test	±0.1 %
Uncertainty for test site temperature and humidity	±0.6℃
	±3%

3. RF POWER OUTPUT TEST

3.1.Limit

1. Part 22.913(a) Mobile station are limited to 7W and for Conducted Power we can use antenna Gain to calculate the limit, so the Conducted Power:
   $P_{cod.}$ (dBm)=EIRP(dBm)-Gain(dBi)
   =7W(38.5dBm)-(3.15dBi-2.15dBi)
   =37.5dBm

2. Part 24.232(b) Peak power measurement, Mobile station are limited to 2W and for conducted Power we can use antenna Gain to calculate the limit, so the Conducted Power:
   $P_{cod.}$ (dBm)=EIRP(dBm)-Gain(dBi)
   =2W(33dBm)-3.15(dBi)
   =29.85dBm

3.2.Test Procedure

The transmitter output was connected to calibrated attenuator, the other end of which was connected to a power meter. Transmitter output was read off the power in dBm. The power output at the transmitter antenna port was determined by adding the value of attenuator to the power meter reading.

3.3.Test Results

PASSED

The detailed test data please refer to Appendix A

4. EFFECTIVE ISOTROPIC RADIATED POWER

4.1.Limit

22.913(a) Mobile station are limited to 7W ERP.
Part 24.232(b) Mobile station are Limited to 2W EIRP.

4.2.Test Procedure

The EUT was placed on a non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer. During the measurement, the EUT was communication with the station. The highest emission was recorded with the rotation of the turntable and lowering of the test antenna from 4m to 1m. The reading was recorded and the field strength(E in dBuV/m) was calculated.

ERP in frequency band 824.2-848.8MHz were measured using substitution method. The EUT was replaced by dipole antenna connected, the S.G. output was recorded and ERP was calculated as follow:

EIRP in frequency band 1850.2-1909.8MHz were measured using a substitution method. The EUT was replaced by a horn antenna connected, the S.G. output was recorded and EIRP was calculated as follows:

ERP=S.G. output (dBm) + Antenna Gain (dBd) - Cable Loss(dB)

EIRP= S.G. output (dBm) + Antenna Gain (dBi) - Cable Loss(dB)

dBd=dBi-2.15dB

4.3.Test Results

PASSED

The detailed test data please refer to Appendix A

5. PEAK-TO-AVERAGE POWER RATIO

5.1.Limit

FCC Part 24.232:

(a) Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (e) of this section. In both instances, equipment employed must be authorized in accordance with the provisions of §24.51. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

(b) Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage. The measurement results shall be properly adjusted for any instrument limitations, such as detector response times, limited resolution bandwidth capability when compared to the emission bandwidth, sensitivity, etc., so as to obtain a true peak measurement for the emission in question over the full bandwidth of the channel.

5.2.Test Procedure

According to KDB 971168:

a) Refer to instrument's analyzer instruction manual for details on how to use the power statistics/CCDF function;

b) Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;

c) Set the number of counts to a value that stabilizes the measured CCDF curve;

d) Set the measurement interval to 1 ms

e) Record the maximum PAPR level associated with a probability of 0.1%

5.3.Test Result

PASSED

The detailed test data please refer to Appendix A

6. 26DB BANDWIDTH AND OCCUPIED BANDWIDTH

6.1. Test Procedure

The EUT output RF connector was connected with a short a cable to the spectrum analyzer.
RBW was set to about 1% of emission BW, VBW>=3 times RBW;
99% bandwidth were measured;
the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.

6.2. Test Result

PASSED
The detailed test data please refer to Appendix A

7. BAND EDGE

7.1. Limit

FCC part 22.917(a), 24.238(a) the magnitude of each spurious and harmonic emission that can be detected when the equipment is operated under the conditions specification in the instruction manual and/or alignment procedure, shall not be less than 43+10log(Mean power in watts) dBc below the mean power output outside a license's frequency block(-13dBm).

7.2. Test Procedure

The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation.
The resolution bandwidth of spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emission is any up to 10th harmonic.
For the out of band:
set RBW, VBW=1MHz, stat=30MHz, stop= 10 th harmonic. Limit= -13dBm
Band Edge requirements: In 1Mhz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 % of bandwidth of fundamental emission of the transmitter any be employed to measure the out of band emission. Limit=-13dBm.

7.3. Test result

PASSED

The detailed test data please refer to Appendix A

8. CONDUCTED SPURIOUS EMISSIONS

8.1.Limit

FCC part 22.917(a), 24.238(a) the magnitude of each spurious and harmonic emission that can be detected when the equipment is operated under the conditions specification in the instruction manual and/or alignment procedure, shall not be less than 43+10log(Mean power in watts) dBc below the mean power output outside a license's frequency block(-13dBm).

8.2.Test Procedure

The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emission is any up to 10th harmonic. For the out of band: set RBW, VBW=1MHz, stat=30MHz, stop= 10 th harmonic. Limit= -13dBm Band Edge requirements: In 1Mhz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 % of bandwidth of fundamental emission of the transmitter any be employed to measure the out of band emission. Limit=-13dBm.

8.3.Test result

PASSED

The detailed test data please refer to Appendix A

9. FREQUENCY STABILITY

9.1.Limit

Frequency Tolerance:
+/-2.5ppm for 850MHz band
+/-2.5ppm for 1900MHz band

9.2.Test procedure

The equipment under test was connected to an external DC power supply and input rated voltage.
Reference power supply voltage for these tests is DC 3.85V.
RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators.
The EUT was placed inside the temperature chamber. Set the Spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25 degree operating frequency as reference frequency.
Turn EUT off and set the chamber temperature to -30 degree.
After the temperature stabilized for approximately 30 minutes record the frequency.
Repeat step measure with 10 degree per stage until the highest temperature of 50 degree reached.

9.3.Test Result

PASSED
The detailed test data please refer to Appendix A

10. EMISSION LIMIT

10.1. Limit

FCC part 22.917(a), 24.238(a) the magnitude of each spurious and harmonic emission that can be detected when the equipment is operated under the conditions specification in the instruction manual and/or alignment procedure, shall not be less than 43+10log(Mean power in watts) dBc below the mean power output outside a license's frequency block(-13dBm).

10.2. Test Procedure

1. EUT was placed on a 1.5-meter-high non-conductive stand at a 3-meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1.5m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10^{th} harmonic were measured with peak detector.
2. The EUT is then put into continuously transmitting mode at its maximum power level during the test. And the maximum value of the receiver should be recorded as (Pr).
3. The EUT shall be replaced by a substitution antenna.
In the chamber, a substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna and adjusts the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
4. The Path loss (Ppl) between the Signal Source with the Substitution Antenna and the Substitution Antenna Gain (Ga) should be recorded after test. A amplifier should be connected in for the test. The Path loss (Ppl) is the summation of the cable loss and the gain of the amplifier. The measurement results are obtained as described below:
Power (EIRP) = $P_{Mea} - P_{pl} + G_a$
5. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.
6. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP -2.15dBi.

10.3. Test Result

PASSED

The detailed test data please refer to Appendix A

THE END

APPENDIX A

Test Results of GSM