



FCC PART 15B TEST REPORT

No. 24T04Z100071-008

for

TCL Communication Ltd.

Tablet PC

Model name: 8193A

FCC ID: 2ACCJB205

with

Hardware Version: 05

Software Version: KAYM1

Issued Date: 2024-01-22

Note:

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
24T04Z100071-008	Rev.0	1 st edition	2024-01-22

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: 2024-01-20

Testing End Date: 2024-01-21

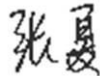
1.4. Signature



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2. Client Information

2.1. Applicant Information

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

3.1. About EUT

Description	Tablet PC
Model Name	8193A
FCC ID:	2ACCJB205

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	350367040000126	05	KAYM1

*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	Remark
AE1	Battery	2853B7PL-2P	HUNAN GAOYUAN BATTERY COMPANY LIMITED	/
AE2	Charger	CG10A0502000UU	Huizhou Juwei Electronics Co.,LTD.	/
AE3	USB Cable	XB.003.1071.0001	Huizhou Besiter Power Technology Co., Ltd	/
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	USB

Note:

Equipment Under Test (EUT) is a model of Tablet PC.

It supports

GSM Band GSM 850/900 DCS1800 PCS1900

UMTS Band FDD I(W2100)/FDD Band II(W1900) /FDD Band IV(W1700)/FDD V(W850)/FDD VI(W800)

LTE Band FDD Bands 1/2/3/4/5/7/8/12/13/17/20/26/28/66, TDD Bands 38/40/41

It has MP3, Camera, USB memory, Bluetooth 5.0, Wi-Fi (802.11a/b/g/n/ac, 802.11n supports 20MHz and 40MHz bandwidth, 802.11ac supports 20MHz, 40MHz and 80MHz bandwidth) function.

The device contains receivers which tune and operate between 30MHz-960MHz in the following mode: GSM850, WCDMA850, LTE Band 5/12/13/17/20/26/28, 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 M Ω
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 M Ω
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)
2	Conducted Emission	15.107(a)	B.2	P	CTTL(huayuan North Road)

※NOTE: The 8193A is a variant model of 8192A. According to the declaration of changes, the following items are tested. Other results please refer to I23Z61433-EMC01.

Test Item	Mode or Feature	EUT Set-up
Radiated Continues Emission	USB mode	Set.2-1
Conducted 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	13 Months
2	LISN	ENV216	101200	R&S	2024-06-05	13 Months
3	Test Receiver	ESCI 7	100344	R&S	2024-02-21	13 Months
4	EMI Antenna	VULB 9163	01222	SCHWARZBECK	2024-02-28	13 Months
5	EMI Antenna	3115	6914	ETS-Lindgren	2024-06-07	13 Months

Test software information		
Test Item	Software	Version
Radiated Emission	EMC32	V11.50.00
Conducted Emission	EMC32	V8.53.0

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.

A.1.3 Measurement Limit

Frequency range (MHz)	Field strength limit ($\mu\text{V}/\text{m}$)		
	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)
17990.480	45.50	-29.06	46.66	27.90	54.00	8.50	H
17755.200	45.40	-29.61	45.95	29.06	54.00	8.60	V
17741.940	45.30	-29.61	45.95	28.96	54.00	8.70	V
17984.020	45.30	-29.06	46.66	27.70	54.00	8.70	H
17770.160	45.30	-29.63	45.95	28.97	54.00	8.70	H
17762.680	45.10	-29.63	45.95	28.77	54.00	8.90	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)
17734.800	55.30	-29.67	45.25	39.72	74.00	18.70	V
17968.380	55.30	-29.06	46.66	37.70	74.00	18.70	H
17768.460	55.20	-29.63	45.95	38.87	74.00	18.80	H
17976.880	55.20	-29.06	46.66	37.60	74.00	18.80	H
17720.520	55.10	-29.67	45.25	39.52	74.00	18.90	H
17735.480	55.10	-29.67	45.25	39.52	74.00	18.90	H

Measurement results for Set.2-1:

Full Spectrum

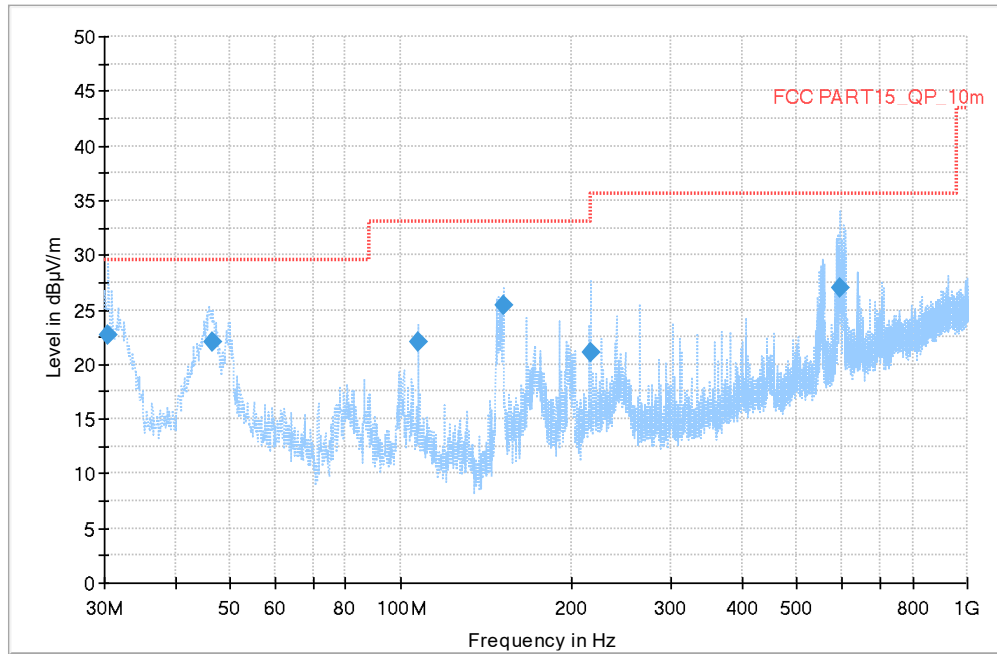


Fig A.1 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
30.485000	22.66	29.54	6.88	120.000	101.0	V	225.0
46.490000	22.10	29.54	7.44	120.000	101.0	V	173.0
107.212000	22.03	33.06	11.03	120.000	102.0	V	245.0
151.929000	25.41	33.06	7.65	120.000	175.0	V	-43.0
215.949000	21.08	33.06	11.98	120.000	100.0	V	-25.0
595.413000	26.94	35.56	8.62	120.000	222.0	V	-25.0

Full Spectrum

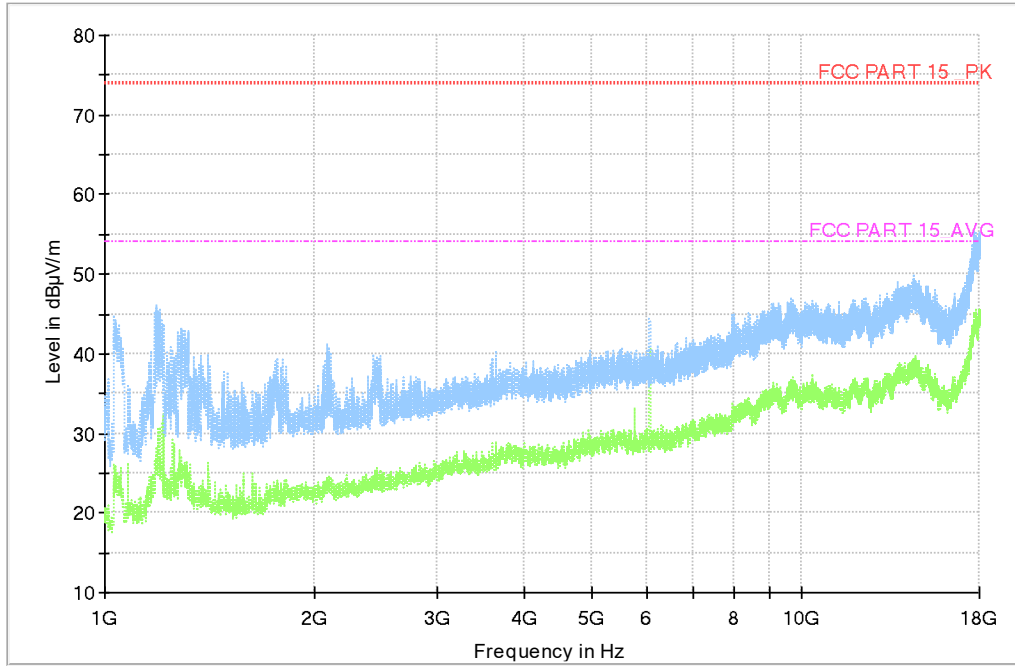


Fig A.2 Radiated Emission from 1GHz to 18GHz

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 USB mode and charging mode. During the test MS is connected to a PC via a USB cable in the case of USB mode and is connected to a charger in the case of charging mode. The model of the PC is DELL 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.

A.2.3 Measurement Limit

Frequency of emission (MHz)	Conducted limit (dB μ 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, $k=2$.

USB Mode, Set.2-1:

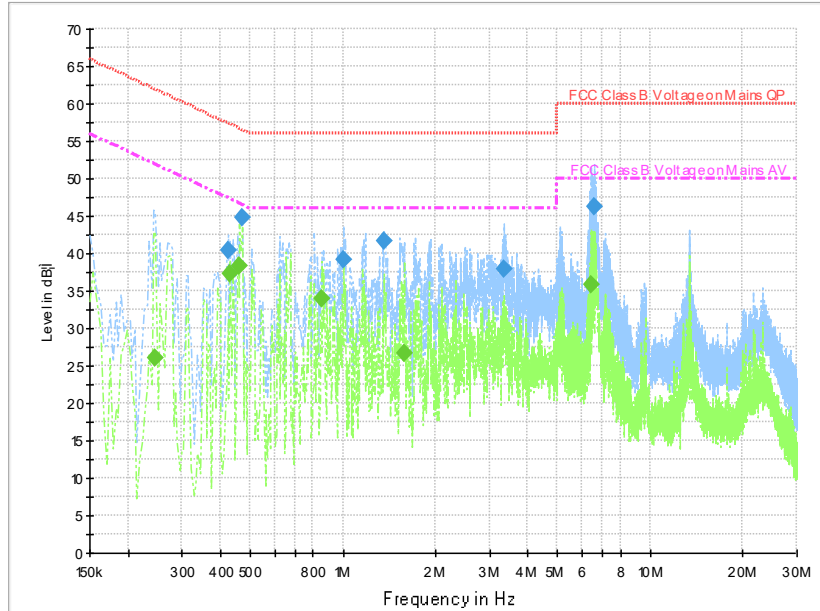


Fig A.3 Conducted Emission from 150kHz to 30MHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.422000	40.4	2000.0	9.000	On	L1	19.7	17.0	57.4	
0.470000	44.9	2000.0	9.000	On	N	19.7	11.6	56.5	
1.006000	39.1	2000.0	9.000	On	L1	19.7	16.9	56.0	
1.358000	41.6	2000.0	9.000	On	L1	19.6	14.4	56.0	
3.334000	38.0	2000.0	9.000	On	L1	19.6	18.0	56.0	
6.550000	46.2	2000.0	9.000	On	N	19.6	13.8	60.0	

Final Result 2

Frequency (MHz)	Average (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.246000	26.0	2000.0	9.000	On	L1	19.7	25.9	51.9	
0.430000	37.3	2000.0	9.000	On	N	19.7	9.9	47.3	
0.462000	38.2	2000.0	9.000	On	N	19.7	8.4	46.7	
0.858000	33.9	2000.0	9.000	On	N	19.6	12.1	46.0	
1.586000	26.7	2000.0	9.000	On	L1	19.6	19.3	46.0	
6.450000	35.8	2000.0	9.000	On	L1	19.7	14.2	50.0	

END OF REPORT