



TEST REPORT

No. I15Z41467-EMC01

for

TCL Communication Ltd.

HSUPA/HSDPA/UMTS qudbands / GSM qudbands/LTE 6 -band

mobile phone

Model Name: 9007A

FCC ID: 2ACCJN004

with

Hardware Version: PIO

Software Version: V5B1A-3

Issued Date: 2015-07-22

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:

FCC 2.948 Listed: No. 525429

CTTL, Telecommunication Technology Labs, Academy of Telecommunication Research, MIIT

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

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
I15Z41467-EMC01	Rev.0	1st edition	2015-7-22

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1. Test Laboratory

1.1. Testing Location

Location 1: 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

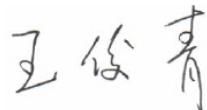
Relative Humidity: 20-75%

1.3. Project data

Testing Start Date: 2015-07-03

Testing End Date: 2015-07-07

1.4. Signature



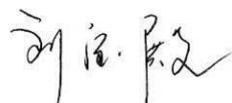
Wang Junqing

(Prepared this test report)



Qu Pengfei

(Reviewed this test report)



Liu Baodian

Deputy Director of the laboratory

(Approved this test report)

2. Client Information

2.1. Applicant Information

Company Name: TCL Communication Ltd.
Address /Post: 5F, C building, No. 232, Liang Jing Road ZhangJiang High-Tech Park,
Pudong Area Shanghai, P.R. China.
City: Shanghai
Postal Code: 201203
Country: China
Contact Person: Gong Zhizhou
Contact Email: zhizhou.gong@tcl.com
Telephone: 0086-21-51798260
Fax: 0086-21-61460602

2.2. Manufacturer Information

Company Name: TCL Communication Ltd.
Address /Post: 5F, C building, No. 232, Liang Jing Road ZhangJiang High-Tech Park,
Pudong Area Shanghai, P.R. China.
City: Shanghai
Postal Code: 201203
Country: China
Telephone: 0086-21-51798260
Fax: 0086-21-61460602

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

3.1. About EUT

Description	HSUPA/HSDPA/UMTS quadbands / GSM quadbands/LTE 6 -band mobile phone
Model Name	9007A
FCC ID	2ACCJN004
Extreme vol. Limits	3.5VDC to 4.2VDC (nominal: 3.8VDC)

Note: Components list, please refer to documents of the manufacturer; it is also included in the original test record of Telecommunication Metrology Center of MIIT of People's Republic of China.

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
EUT1	014426000000704	PIO	V5B1A-3

*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	SN	Remarks
AE1	Battery	/	Inbuilt
AE2	Battery	/	Inbuilt
AE5	Travel charger	/	15TCT-CH-0680
AE6	Travel charger	/	15TCT-CH-0681
AE7	Travel charger	/	15TCT-CH-0674
AE8	Travel charger	/	15TCT-CH-0675
AE9	USB cable	/	15TCT-DC-0006
AE10	USB cable	/	14TCT-DC-0621
AE11	USB cable	/	14TCT-DC-0800
AE12	USB cable	/	14TCT-DC-0794

AE1

Model	CAC2820006C2
Manufacturer	SCUD
Capacitance	2820mAh
Nominal voltage	V

AE2

Model	CAC2820003CC
Manufacturer	TCL JN
Capacitance	2820mAh
Nominal voltage	V

AE5, AE6
Model CBA0057AG0C1
Manufacturer BYD
Length of cable /

AE7, AE8
Model CBA0057AG0C3
Manufacturer Yingju
Length of cable /

AE9, AE10
Model CDA3122002C1
Manufacturer JUWEI
Length of cable 98cm

AE11, AE12
Model CDA3122002C2
Manufacturer Shenghua
Length of cable 98cm

*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.1	EUT1 +AE1/AE2 +AE5 +AE9/AE11	Charger
Set.2	EUT1 +AE1/AE2 +AE7 +AE9/AE11	Charger
Set.3	EUT1 +AE1/AE2 +AE9/AE11	USB

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	10-1-13
ANSI C63.4	Methods of Measurement of Radio-Noise Emissions from Low - Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	Edition 2014

5. LABORATORY ENVIRONMENT

Semi-anechoic chamber SAC-1 (23 meters×17meters×10meters) 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, 10 m 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 3000 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
Location Column	1/2/3/4	The test is performed in test location 1, 2, 3 or 4 which are described in section 1.1 of this report

Clause	List	Clause in FCC rules	Verdict	Location
1	Radiated Emission	15.109(a)	P	1
2	Conducted Emission	15.107(a)	P	1

7. Test Equipments Utilized

NO.	DESCRIPTION	TYPE	SERIES NUMBER	MANUFACTURE	CAL DUE DATE	CALIBRATION INTERVAL
1	Test Receiver	ESCI	100344	R&S	2016-03-02	1 year
2	Test Receiver	ESCI 7	100948	R&S	2016-07-07	1 year
3	Universal Radio Communication Tester	CMU200	109914	R&S	2016-03-26	1 year
4	LISN	ENV216	101200	R&S	2016-07-07	1 year
5	EMI Antenna	VULB 9163	9163-234	Schwarzbeck	2016-09-15	3 years
6	EMI Antenna	3115	6914	ETS-Lindgren	2017-12-15	3 years
7	PC	OPTIPLEX 380	2X1YV2X	DELL	N/A	N/A
8	Monitor	E178FPc	CN-OWR979-64180 -7AJ-D2MS	DELL	N/A	N/A
9	Printer	P1606dn	VNC3L52122	HP	N/A	N/A
10	Keyboard	L100	CN0RH659658907 ATOI40	DELL	N/A	N/A
11	Mouse	M-UAE119	LZ935220ZRC	Lenovo	N/A	N/A

ANNEX A: MEASUREMENT RESULTS

A.1 Radiated Emission (§15.109(a))

A.1.1 Method of measurement

The field strength of radiated emissions from the unintentional radiator (USB mode of MS and charging mode of MS) at distances of 10 meters(for 30MHz-1GHz) and 3 meters (for above 1GHz) is tested. Tested in accordance with the procedures of ANSI C63.4 - 2009, 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 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 OPTIPLEX 380, and the serial number of the PC is 2X1YV2X. The software is used to let the PC keep on copying data to MS, reading and erasing the data after copy action was finished.

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/1MHz	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): $U = 4.3 \text{ dB}$, $k=2$.

Measurement results for Set.1:

Charging Mode/Average detector

Frequency(MHz)	Result(dB μ V/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea} (dB μ V)	Polarity
17983.000	43.6	-17.7	45.6	15.700	H
17987.533	43.5	-17.7	45.6	15.600	V
17993.767	43.3	-17.7	45.6	15.400	H
17974.500	43.3	-17.7	45.6	15.400	V
17985.267	43.3	-17.7	45.6	15.400	H
17959.767	43.3	-17.7	45.6	15.400	H

Charging Mode/Peak detector

Frequency(MHz)	Result(dB μ V/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea} (dB μ V)	Polarity
17975.067	55.2	-17.7	45.6	27.300	H
17975.633	54.7	-17.7	45.6	26.800	V
17945.033	54.6	-17.7	45.6	26.700	H
17958.067	54.6	-17.7	45.6	26.700	V
17986.967	54.4	-17.7	45.6	26.500	H
17996.033	54.3	-17.7	45.6	26.400	H

Measurement results for Set.2:
Charging Mode/Average detector

Frequency(MHz)	Result(dB μ V/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea} (dB μ V)	Polarity
17994.900	43.7	-17.7	45.6	15.800	H
17984.133	43.6	-17.7	45.6	15.700	H
17972.233	43.6	-17.7	45.6	15.700	V
17994.333	43.6	-17.7	45.6	15.700	H
17991.500	43.5	-17.7	45.6	15.600	V
17998.300	43.5	-17.7	45.6	15.600	H

Charging Mode/Peak detector

Frequency(MHz)	Result(dB μ V/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea} (dB μ V)	Polarity
17977.333	55.3	-17.7	45.6	27.400	H
17998.300	55.2	-17.7	45.6	27.300	H
17888.367	54.9	-18.5	45.6	27.800	V
17901.967	54.9	-18.5	45.6	27.800	H
17996.033	54.7	-17.7	45.6	26.800	V
17747.267	54.6	-18.5	45.6	27.500	H

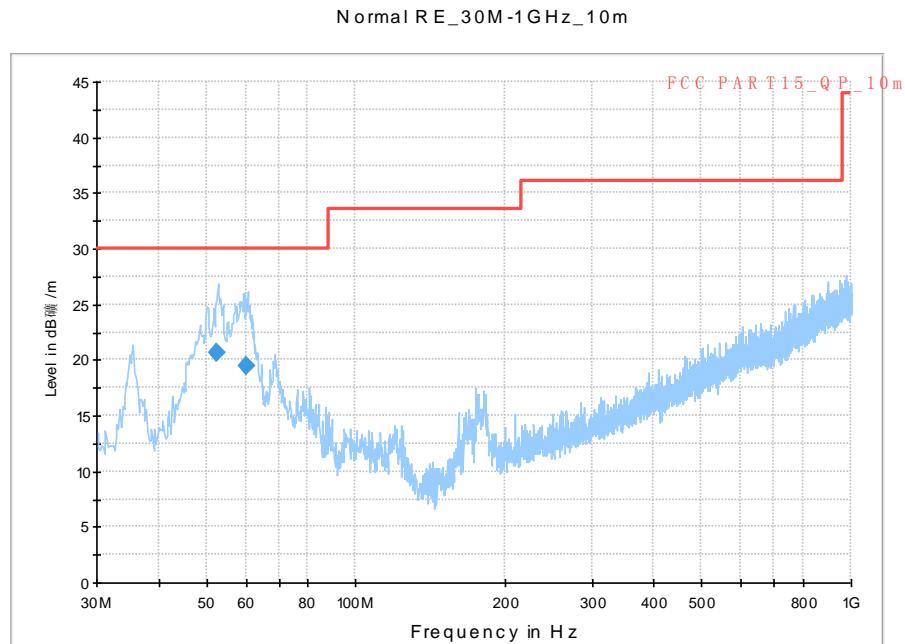
Measurement results for Set.3:
USB Mode/Average detector

Frequency(MHz)	Result(dB μ V/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea} (dB μ V)	Polarity
17996.600	43.7	-17.7	45.6	15.800	H
17995.467	43.5	-17.7	45.6	15.600	V
17985.267	43.5	-17.7	45.6	15.600	V
17964.300	43.4	-17.7	45.6	15.500	H
17970.533	43.4	-17.7	45.6	15.500	V
17979.033	43.4	-17.7	45.6	15.500	H

USB Mode/Peak detector

Frequency(MHz)	Result(dB μ V/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea} (dB μ V)	Polarity
17925.767	54.8	-17.7	45.6	26.900	H
17962.033	54.6	-17.7	45.6	26.700	V
17890.067	54.6	-18.5	45.6	27.500	V
17984.700	54.6	-17.7	45.6	26.700	H
17945.600	54.4	-17.7	45.6	26.500	V
17988.100	54.3	-17.7	45.6	26.400	H

Note: The measurement results of Set.1, Set.2 and Set.3 showed here are worst cases of the combinations of different batteries and different USB cables.

Charging Mode, Set.1

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

Frequency (MHz)	QuasiPeak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBuV /m)
52.495000	20.7	175.0	V	104.0	-11.6	9.3	30.0
60.352000	19.4	125.0	V	-30.0	-12.1	10.6	30.0

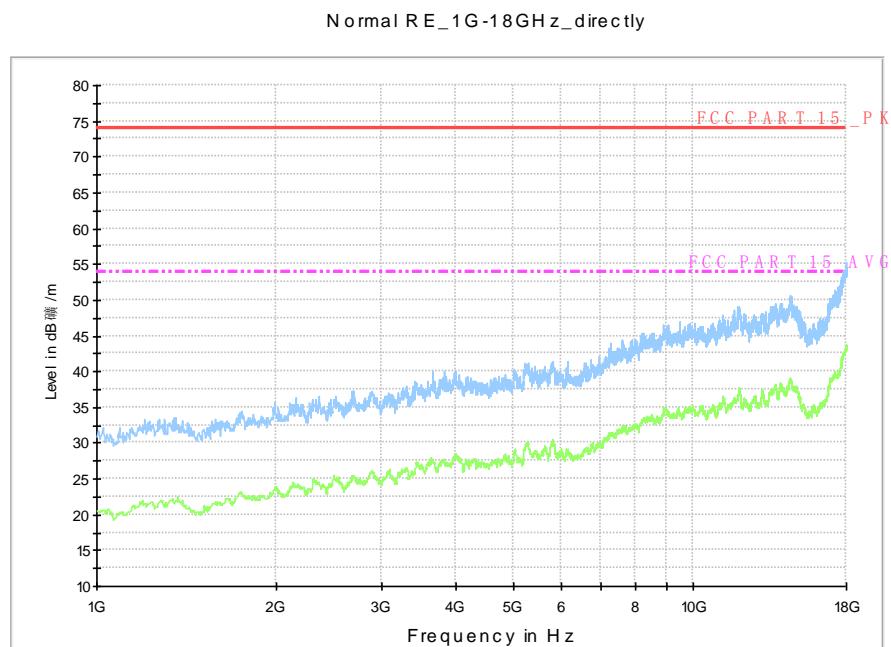


Fig.2 Radiated Emission from 1GHz to 18GHz

Charging Mode, Set.2

Normal R E_30M-1GHz_10m

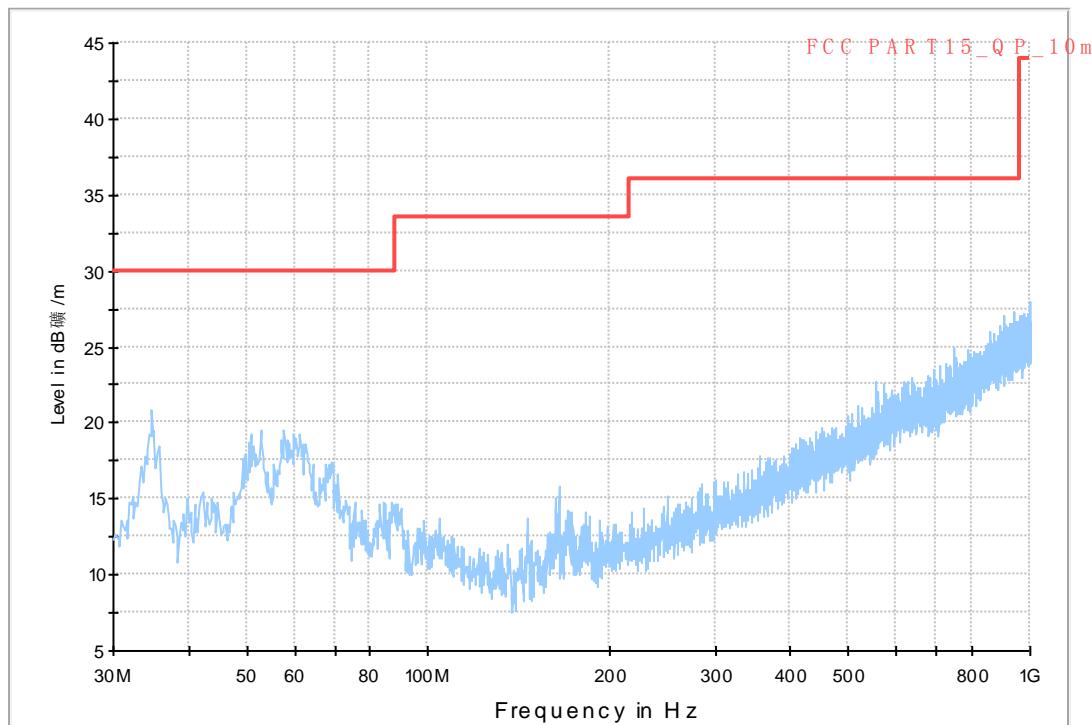


Fig.3 Radiated Emission from 30MHz to 1GHz

Normal R E_1G-18GHz_directly

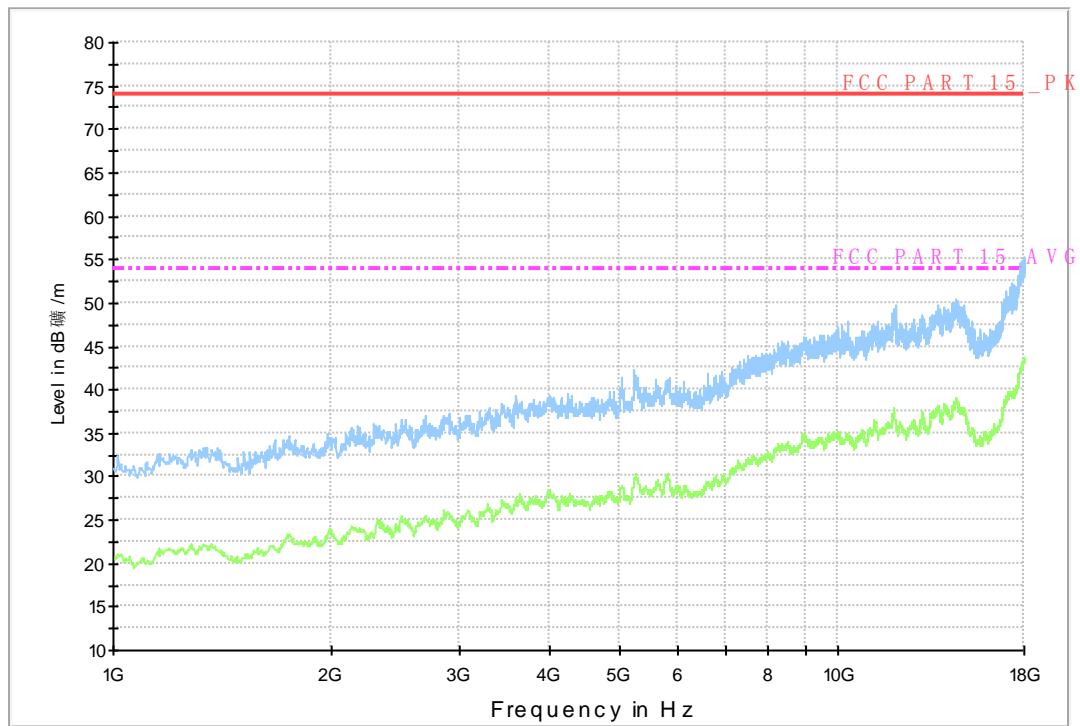
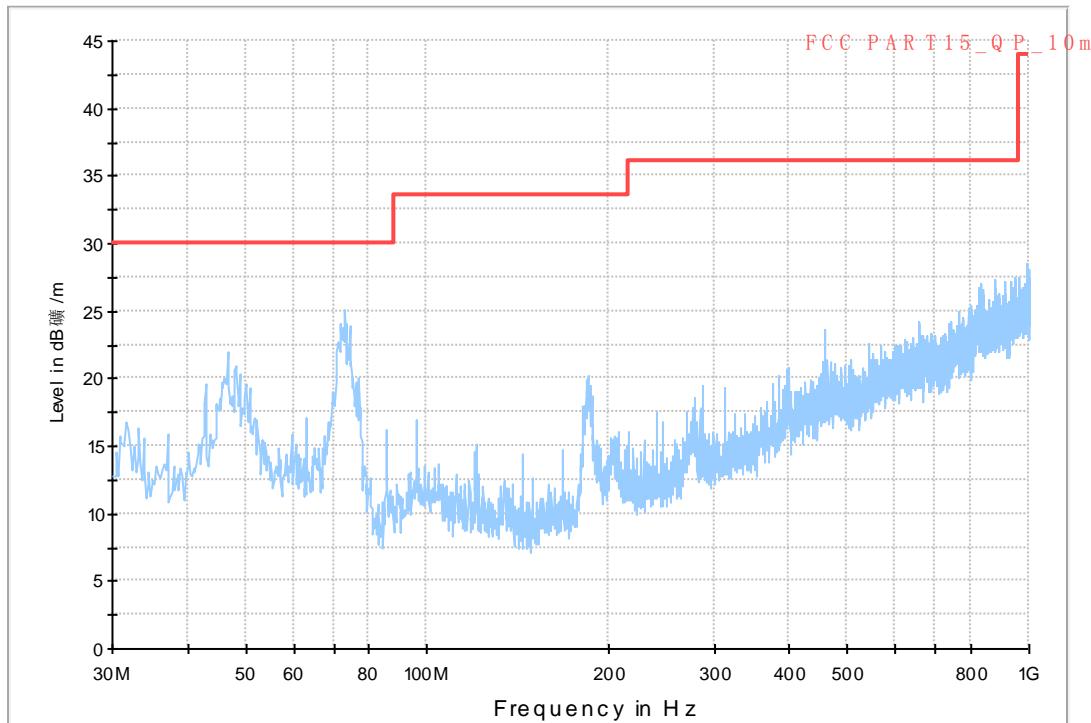


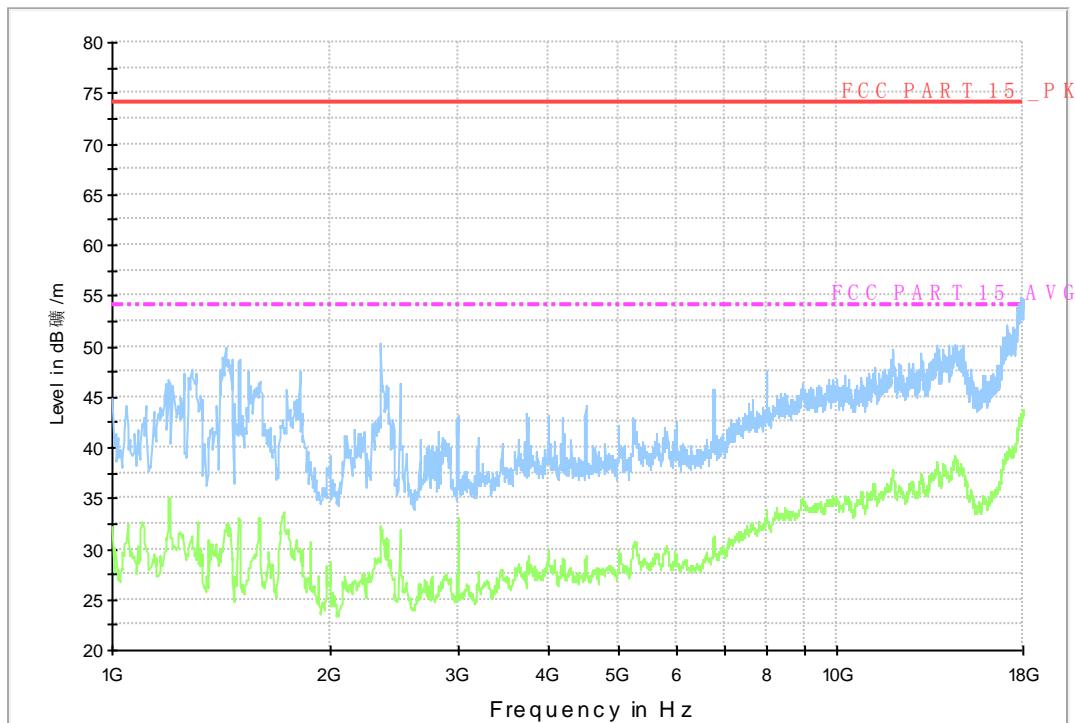
Fig.4 Radiated Emission from 1GHz to 18GHz

USB Mode, Set.3

Normal R E _ 30M -1 G H z _ 10m


Fig.5 Radiated Emission from 30MHz to 1GHz

Normal R E _ 1 G -18 G H z _ d i r e c t l y


Fig.6 Radiated Emission from 1GHz to 18GHz

A.2 Conducted Emission (§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 - 2009, section 7.2.

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 OPTIPLEX 380, and the serial number of the PC is 2X1YV2X. The software is used to let the PC keep on copying data to MS, reading and erasing the data after copy action was finished.

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: $U = 2.9 \text{ dB}$, $k=2$.

Charging Mode, Set.1

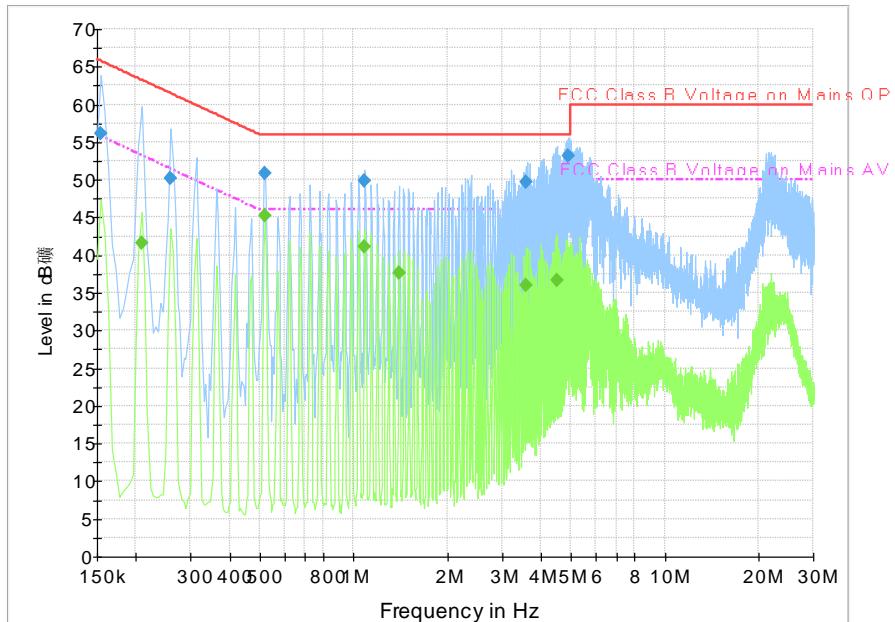


Fig.7 Conducted Emission

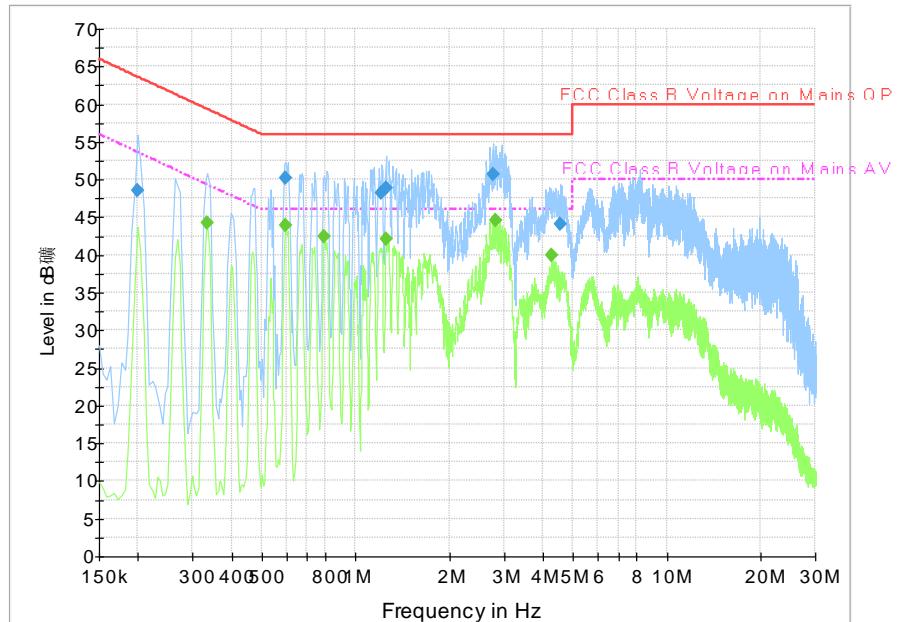
Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.154500	56.2	GND	L1	19.9	9.5	65.8
0.258000	50.2	GND	L1	19.8	11.3	61.5
0.519000	50.8	GND	L1	19.8	5.2	56.0
1.086000	49.8	GND	L1	19.7	6.2	56.0
3.570000	49.7	GND	L1	19.7	6.3	56.0
4.920000	53.1	GND	L1	19.7	2.9	56.0

Final Result 2

Frequency (MHz)	CAverage (dB μ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.208500	41.6	GND	L1	19.7	11.6	53.3
0.519000	45.2	GND	N	19.8	0.8	46.0
1.086000	41.2	GND	L1	19.7	4.8	46.0
1.396500	37.7	GND	L1	19.7	8.3	46.0
3.570000	36.1	GND	L1	19.7	9.9	46.0
4.501500	36.7	GND	L1	19.6	9.3	46.0

Note: The measurement results showed here are worst cases of the combinations of different batteries and different USB cables.

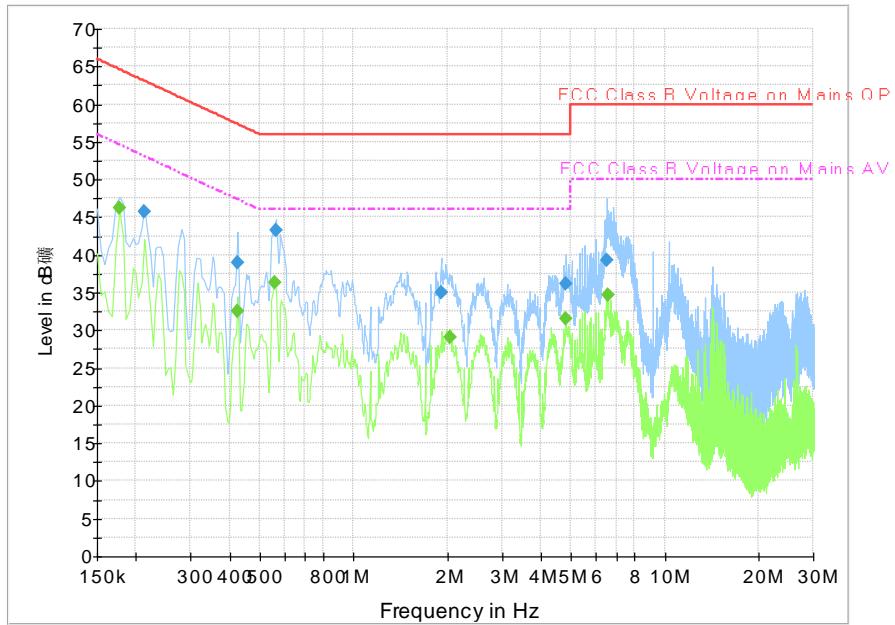
Charging Mode, Set.2

Fig.8 Conducted Emission
Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.199500	48.6	GND	L1	19.8	15.0	63.6
0.595500	50.2	GND	L1	19.8	5.8	56.0
1.212000	48.3	GND	L1	19.7	7.7	56.0
1.252500	48.9	GND	L1	19.7	7.1	56.0
2.760000	50.7	GND	L1	19.6	5.3	56.0
4.537500	44.0	GND	L1	19.6	12.0	56.0

Final Result 2

Frequency (MHz)	CAverage (dB μ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.334500	44.2	GND	L1	19.8	5.2	49.3
0.595500	44.0	GND	L1	19.8	2.0	46.0
0.793500	42.4	GND	L1	19.8	3.6	46.0
1.252500	42.0	GND	L1	19.7	4.0	46.0
2.827500	44.6	GND	L1	19.7	1.4	46.0
4.263000	39.9	GND	L1	19.6	6.1	46.0

Note: The measurement results showed here are worst cases of the combinations of different batteries and different USB cables.

USB Mode, Set.3

Fig.9 Conducted Emission
Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.213000	45.7	GND	N	19.8	17.4	63.1
0.424500	38.9	GND	L1	19.8	18.4	57.4
0.564000	43.3	GND	L1	19.8	12.7	56.0
1.914000	35.0	GND	L1	19.6	21.0	56.0
4.816500	36.2	GND	N	19.7	19.8	56.0
6.504000	39.4	GND	N	19.7	20.6	60.0

Final Result 2

Frequency (MHz)	CAverage (dB μ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.177000	46.2	GND	N	19.7	8.4	54.6
0.424500	32.5	GND	L1	19.8	14.8	47.4
0.559500	36.3	GND	L1	19.8	9.7	46.0
2.053500	29.1	GND	N	19.6	16.9	46.0
4.821000	31.6	GND	N	19.7	14.4	46.0
6.589500	34.7	GND	N	19.7	15.3	50.0

Note: The measurement results showed here are worst cases of the combinations of different batteries and different USB cables.

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