



TEST REPORT

No. I21Z70186-EMC07

for

Samsung Electronics Co., Ltd.

Notebook PC

XE315XDA

with

FCC ID: ZCAXE315XDA

Hardware Version: REV1.0

Software Version: Chrome

Issued Date: 2021-08-08

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.

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Test Laboratory:

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
I21Z70186-EMC07	Rev.0	1 st edition	2021-07-19
I21Z70186-EMC07	Rev.1	Removed the description of LTEB17 in section 3.4	2021-07-23
I21Z70186-EMC07	Rev.2	Revised the description of key component in section 3.5	2021-08-08

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

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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 NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM (NVLAP) with lab code 600118-0, and is also an FCC accredited test laboratory (CN5017), and ISED accredited test laboratory (ISED#: 24849). The detail accreditation scope can be found on NVLAP website.

1.2. Testing Location

CTTL (Huayuan North Road)

Address: No. 52, Huayuan North Road, Haidian District, Beijing, P. R. China100191

1.3. Testing Environment

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

1.4. Project data

Testing Start Date: 2021-05-06
Testing End Date: 2021-07-19

1.5. Signature



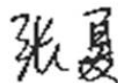
Li Yan

(Prepared this test report)



Zhang Ying

(Reviewed this test report)



Zhang Xia

Deputy Director of the laboratory
(Approved this test report)



2. Client Information

2.1. Applicant Information

Company Name: Samsung Electronics Co., Ltd.
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Postal Code: /
Country: /
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2.2. Manufacturer Information

Company Name: Samsung Electronics. Co., Ltd.
Address: Samsung R5, Maetan dong 129, Samsung ro
Youngtong gu, Suwon city 443 742, Korea
City: /
Postal Code: /
Country: /
Contact: Sunghoon Cho
Email: ggobi.cho@samsung.com
Telephone: +82-10-2722-4159

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

3.1. About EUT

Description	Notebook PC
Model name	XE315XDA
FCC ID	ZCAXE315XDA

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*	IMEI/SN	HW Version	SW Version
EUT1	2170186UT49a	REV1.0	Chrome
EUT2	2170186UT28a	REV1.0	Chrome
EUT3	2170186UT29a	REV1.0	Chrome

*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	Travel adapter	/	/
AE2	Travel adapter	/	/
AE3	USB Cable	/	/
AE4	Headset	/	/
AE5	Hard Disk	/	/
AE6	SD card	/	/

AE1

Model	EP-TA845
Manufacturer	DONGYANG E&P Inc
Length of cable	/

AE2

Model	EP-TA845
Manufacturer	SOLUM CO.,LTD
Length of cable	/

Note: The USB cables are shielded.

3.4. General Description

Equipment under Test (EUT) is a model of Notebook PC with integrated antenna.

It consists of normal options: lithium battery and charger.

Manual and specifications of the EUT were provided to fulfil the test.

Samples undergoing test were selected by the client.

The device contains receivers which tune and operate between 30MHz-960MHz in the following bands: WCDMA BAND 5, LTE BAND 5, LTE BAND 12, and LTE BAND 13.

3.5. Key component list

Item	Spec.	Vendor	Vendor P/N
CPU	Jasper lake_QS	Intel	N4500
CPU	Jasper lake_MP	Intel	N4500
WLAN	802.11 ax 2x2	Intel	Harrison Peak. HrP2-AX201
Memory	LPDDR4X 4GB	SEC	K4U6E3S4AA-MGCR
	LPDDR4X 8GB	SEC	K4U6E3S4AA-MGCR
SSD	eMMC 32GB	SEC	KLMBG2JETD-B041003
	eMMC 64GB	SEC	KLMCG4JETD-B041004
LCD	11.6" HD non touch	BOE	NT116WHM-N21
LTE	LTE	Fibocom	L850-GL-19-03
Battery	40.2Wh	SDI	P21GER-A1-S03
		BYD	EB-BW720ABA
DLC	use for 3A	BIEL	GH39-02071A
Antenna	/	AWAN	/
	/	Speed	/

Note: EUT1 - EUT3 correspond to different key component configurations.

3.6. EUT set-ups

EUT set-up No.	Combination of EUT and AE	Remarks
Set.1	EUT1+ AE1+AE3+AE4+AE5+AE6	EUT1+ Adapter 1+RX mode
Set.2	EUT2+ AE1+AE3+AE4+AE5+AE6	EUT2+ Adapter 1+RX mode
Set.3	EUT1+ AE2+AE3+AE4+AE5+AE6	EUT1+ Adapter 2+RX mode
Set.4	EUT3+ AE2+AE3+AE4+AE5+AE6	EUT3+ Adapter 2+RX mode

4. Reference Documents

4.1. Reference Documents for testing

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

Reference	Title	Version
FCC 47 CFR 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 (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, 3m distance, from 30 to 1000 MHz
Site voltage standing-wave ratio (S_{VSWR})	Between 0 and 6 dB, from 1GHz to 18GHz
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
	BR	Re-use test data from basic model report.

Items	Test Name	Clause in FCC rules	Section in this report	Verdict	Test Location
1	Radiated Emission	15.109(a)	A.1	P	CTTL(Huayuan North Road)
2	Conducted Emission	15.107(a)	A.2	P	CTTL(Huayuan North Road)

7. Test Equipments Utilized

NO.	Description	TYPE	SERIES NUMBER	MANUFACTURE	CAL DUE DATE	CALIBRATION INTERVAL
1	Test Receiver	ESCI	100344	R&S	2022-02-23	1 year
2	LISN	ESH3-Z5	825562/028	R&S	2021-09-05	1 year
3	Test Receiver	ESU 26	100235	R&S	2022-02-23	1 year
4	BiLog Antenna	VULB9163	9163-483	Schwarzbeck	2021-08-07	1 year
5	EMI Antenna	3115	6914	R&S	2022-02-23	1 year

Test Item	Test Software and Version	Software Vendor
Radiated Continuous Emission	EMC32 V9.01.00	R&S
Conducted Emission	EMC32 V8.52.0	R&S

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 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 – 2014, section 8.3.

The EUT was placed on a non-conductive table and arranged in a typical configuration in accordance with ANSI C63.4-2014 and manipulated to obtain worst case emissions. 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.

For the test setup photographs please see the test setup photos document.

A.1.2 EUT Operating Mode

The system was configured for testing in a typical mode that a customer would normal use.

Cables were attached to each of the available I/O ports. Where applicable, peripherals were attached to the I/O cables. All the external I/O ports were exercised.

During the test, the EUT was charged by a travel adapter; EUT continuously copy data to external (Hard Disk & SD card) storage media; the camera was in video mode; the music was repetitively played through the headset; the WIFI and BT function was on and worked in receiver 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 the Section 3.4, are investigated. Only the worst case emissions are reported.

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.

Limit (10m) = limit (3m) + 20(log (3/10))

A.1.4 Test Condition

Voltage (V)	Frequency (Hz)
120	60

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:

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

Where

G_A : Antenna factor of receive antenna

G_{PL} : Path Loss

P_{Mea} : Measurement result on receiver.

Measurement uncertainty (worst case): 30MHz-1GHz: 5.16dB, 1GHz-18GHz: 5.44dB, $k=2$.

Set.1 with RX mode WCDMA B5

Full Spectrum

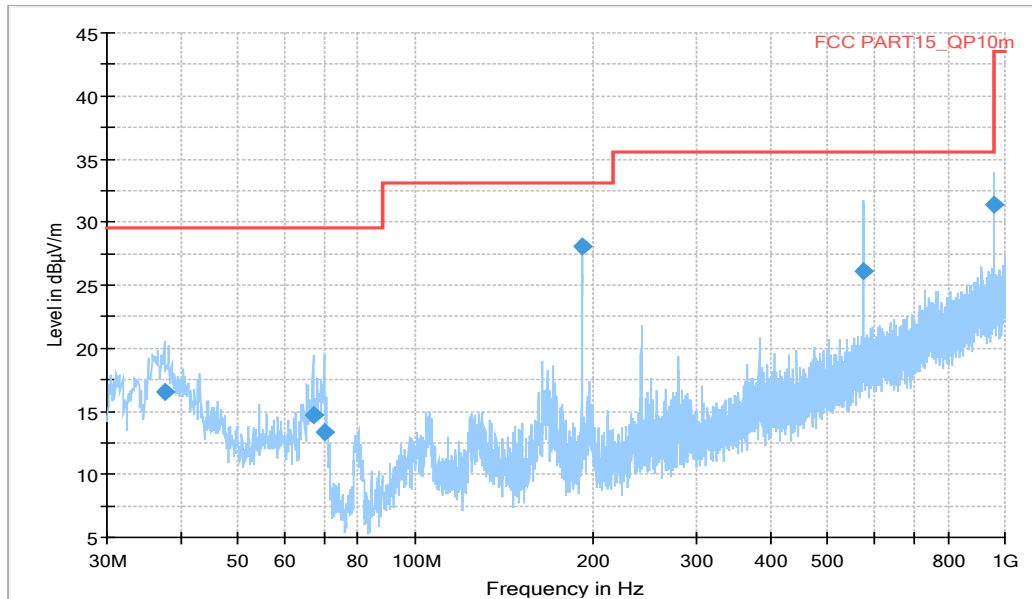


Figure A.1 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)
37.56600	16.52	29.50	13.02	1000.0	120.000	104.0	V	87.0
67.15100	14.75	29.50	14.79	1000.0	120.000	125.0	V	300.0
69.96400	13.35	29.50	16.19	1000.0	120.000	345.0	V	-20.0
192.1840	28.08	33.10	4.98	1000.0	120.000	103.0	V	171.0
574.5580	26.05	35.60	9.51	1000.0	120.000	305.0	V	179.0
957.7080	31.39	35.60	4.17	1000.0	120.000	186.0	V	1.0

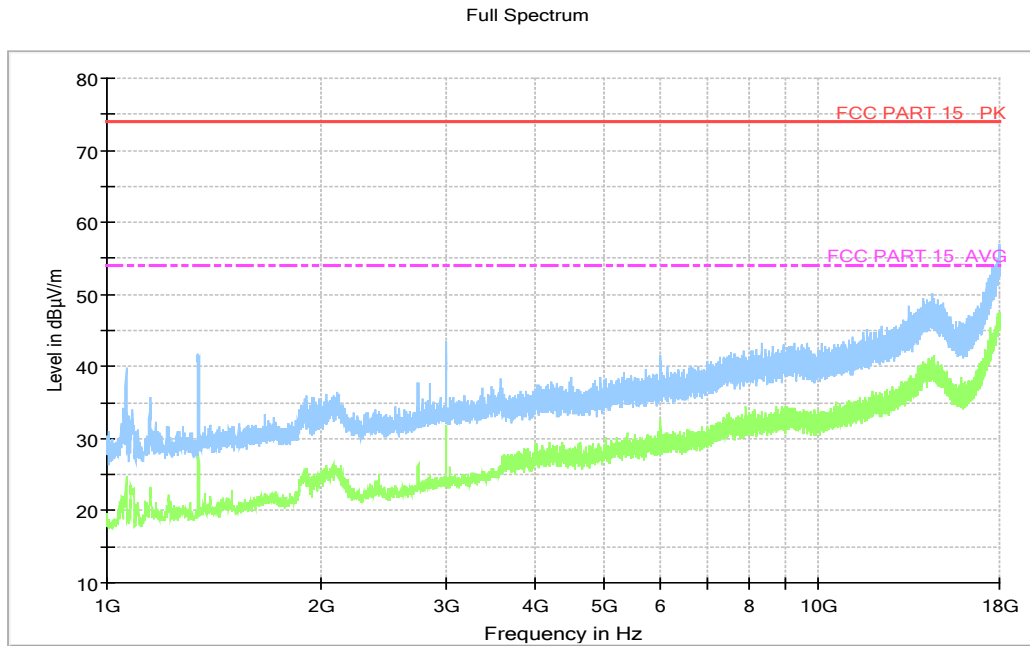


Figure A.2 Radiated Emission from 1GHz to 18GHz

Average detector result

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Limit (dBµV/m)	Margin (dB)	Antenna Pol. (H/V)
17975.633	47.5	-29.1	46.7	29.901	54.0	6.5	V
17868.533	47.3	-29.4	46.0	30.739	54.0	6.7	V
17947.867	47.1	-28.9	46.7	29.383	54.0	6.9	V
17930.867	46.9	-29.4	46.7	29.639	54.0	7.1	V
17992.633	46.9	-29.1	46.7	29.298	54.0	7.1	H
17924.633	46.8	-29.4	46.7	29.539	54.0	7.2	H

Peak detector result

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Limit (dBµV/m)	Margin (dB)	Antenna Pol. (H/V)
17987.533	57.0	-29.1	46.7	39.398	74.0	17.0	H
17949.000	56.5	-28.9	46.7	38.783	74.0	17.5	H
17963.167	55.5	-29.1	46.7	37.901	74.0	18.5	H
17967.700	55.4	-29.1	46.7	37.801	74.0	18.6	H
17990.367	55.3	-29.1	46.7	37.698	74.0	18.7	V
17936.533	55.0	-29.4	46.7	37.739	74.0	19.0	V

Set.2 with RX mode LTE B5

Full Spectrum

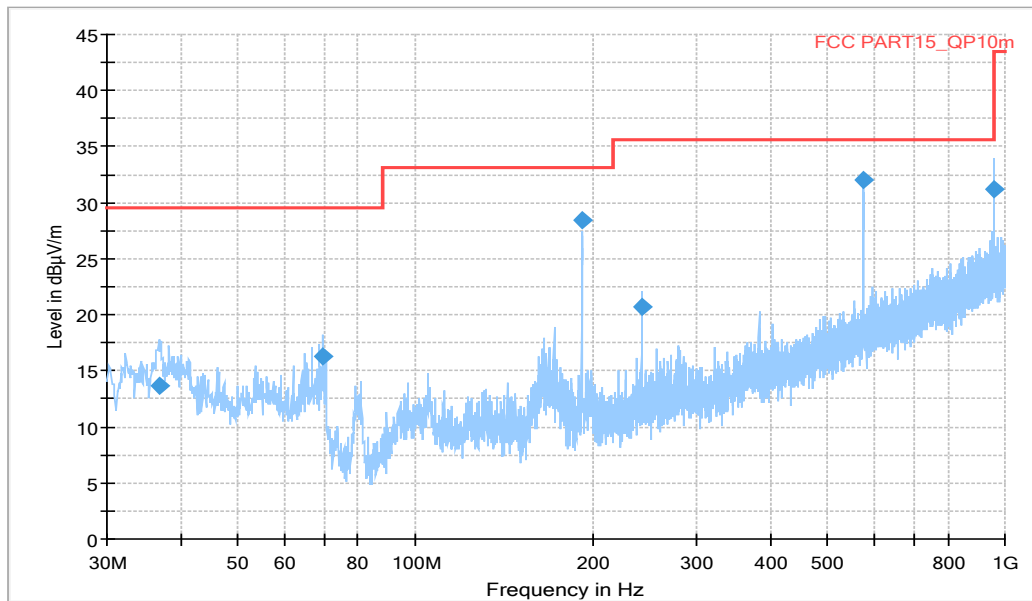


Figure A.3 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµ V/m)	Limit (dBµ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)
36.79000	13.62	29.50	15.92	1000.0	120.000	125.0	V	-29.0
69.77000	16.24	29.50	13.30	1000.0	120.000	190.0	V	300.0
191.5050	28.40	33.10	4.66	1000.0	120.000	101.0	V	186.0
242.5270	20.74	35.60	14.82	1000.0	120.000	119.0	V	182.0
574.4610	32.09	35.60	3.47	1000.0	120.000	327.0	V	180.0
957.3200	31.14	35.60	4.42	1000.0	120.000	187.0	V	3.0

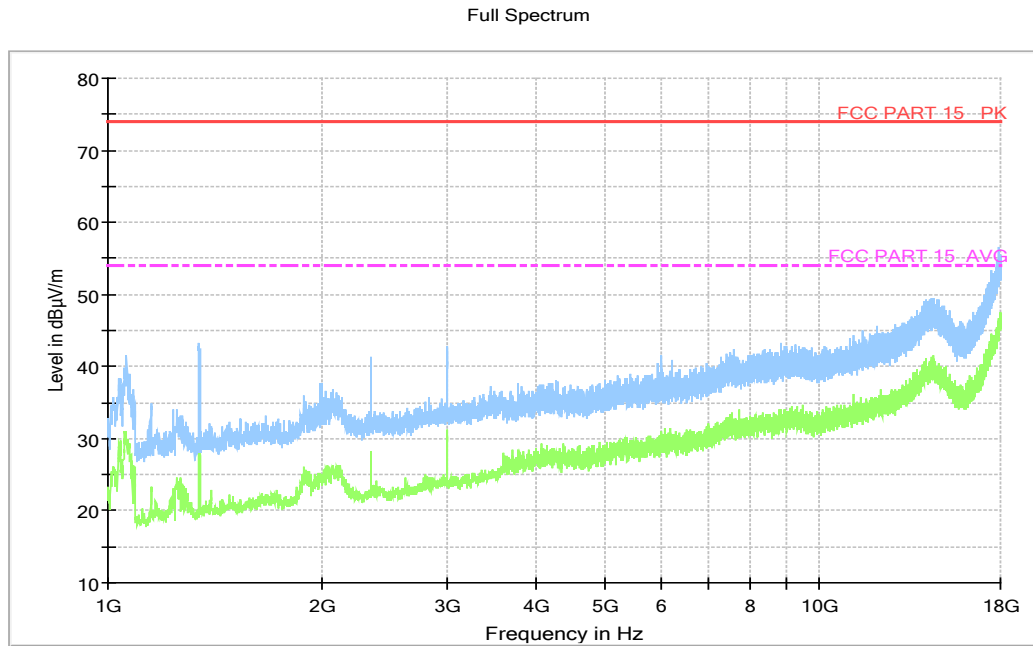


Figure A.4 Radiated Emission from 1GHz to 18GHz

Average detector result

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Limit (dBµV/m)	Margin (dB)	Antenna Pol. (H/V)
17967.700	47.1	-29.1	46.7	29.501	54.0	6.9	H
17955.233	47.0	-28.9	46.7	29.283	54.0	7.0	V
17993.767	47.0	-29.1	46.7	29.398	54.0	7.0	H
17988.667	47.0	-29.1	46.7	29.398	54.0	7.0	H
17958.067	46.8	-28.9	46.7	29.083	54.0	7.2	V
17962.033	46.7	-29.1	46.7	29.101	54.0	7.3	V

Peak detector result

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Limit (dBµV/m)	Margin (dB)	Antenna Pol. (H/V)
17888.933	56.7	-29.5	46.0	40.280	74.0	17.3	H
17981.300	55.5	-29.1	46.7	37.898	74.0	18.5	H
17977.900	55.3	-29.1	46.7	37.701	74.0	18.7	H
17947.300	55.3	-28.9	46.7	37.583	74.0	18.7	V
17947.867	55.2	-28.9	46.7	37.483	74.0	18.8	V
17994.333	55.1	-29.1	46.7	37.498	74.0	18.9	H

Set.3 with RX mode LTE B12

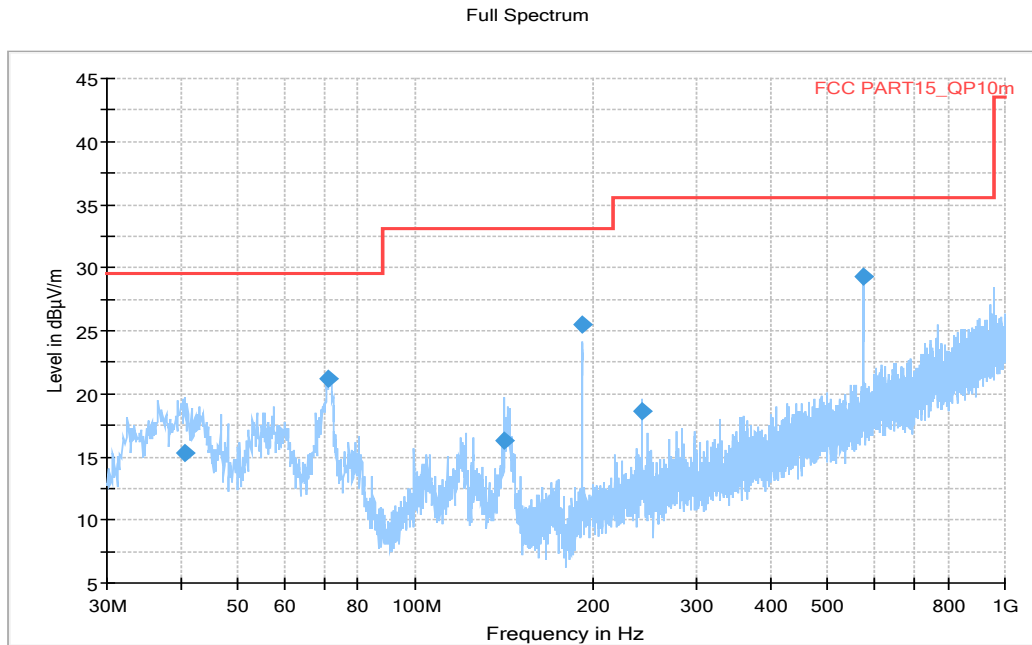


Figure A.5 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµ V/m)	Limit (dBµ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)
17888.93	56.7	-29.5	46.0	40.280	74.0	17.3	H	17888.93
17981.30	55.5	-29.1	46.7	37.898	74.0	18.5	H	17981.30
17977.90	55.3	-29.1	46.7	37.701	74.0	18.7	H	17977.90
17947.30	55.3	-28.9	46.7	37.583	74.0	18.7	V	17947.30
17947.86	55.2	-28.9	46.7	37.483	74.0	18.8	V	17947.86
17994.33	55.1	-29.1	46.7	37.498	74.0	18.9	H	17994.33

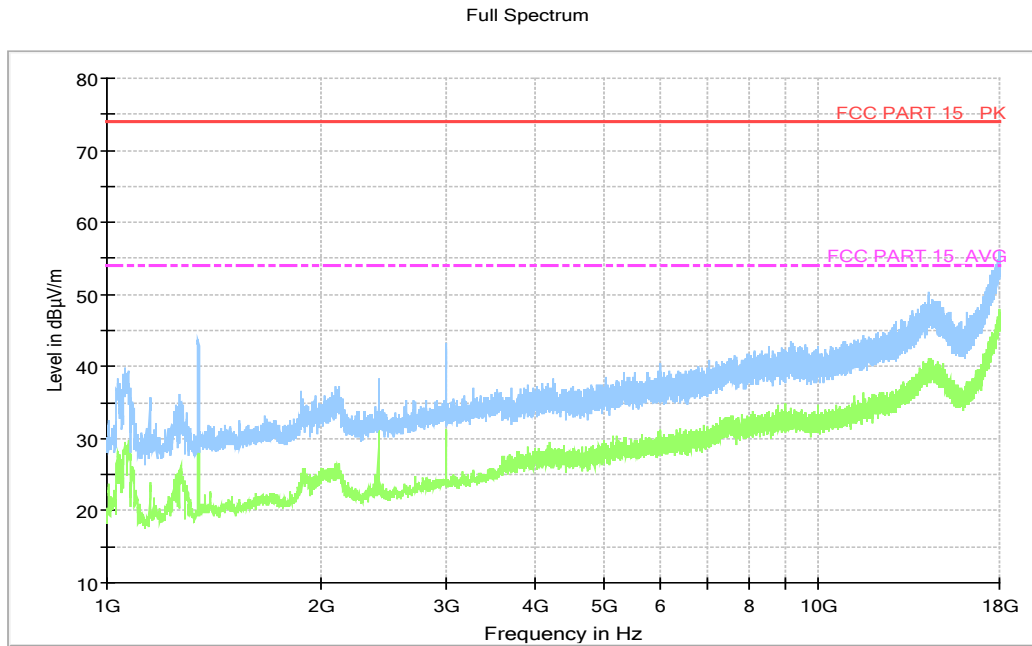


Figure A.6 Radiated Emission from 1GHz to 18GHz

Average detector result

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Limit (dBµV/m)	Margin (dB)	Antenna Pol. (H/V)
17964.300	47.3	-29.1	46.7	29.701	54.0	6.7	V
17974.500	47.0	-29.1	46.7	29.401	54.0	7.0	V
17874.200	46.9	-29.4	46.0	30.339	54.0	7.1	H
17981.300	46.9	-29.1	46.7	29.298	54.0	7.1	V
17986.400	46.8	-29.1	46.7	29.198	54.0	7.2	V
17976.200	46.8	-29.1	46.7	29.201	54.0	7.2	H

Peak detector result

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Limit (dBµV/m)	Margin (dB)	Antenna Pol. (H/V)
17979.600	56.0	-29.1	46.7	38.401	74.0	18.0	H
17974.500	55.9	-29.1	46.7	38.301	74.0	18.1	H
17982.433	55.7	-29.1	46.7	38.098	74.0	18.3	H
17971.667	55.4	-29.1	46.7	37.801	74.0	18.6	V
17984.700	55.3	-29.1	46.7	37.698	74.0	18.7	H
17981.867	55.3	-29.1	46.7	37.698	74.0	18.7	V

Set.4 with RX mode LTE B13

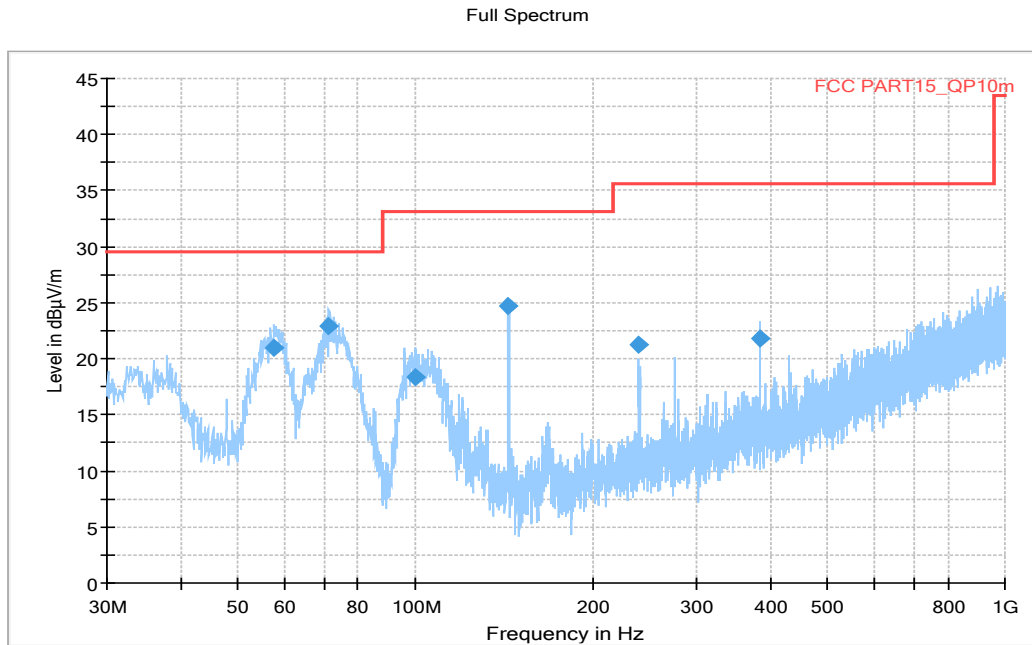


Figure A.7 Radiated Emission from 30MHz to 1GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dBµ V/m)	Limit (dBµ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)
57.54800	21.05	29.50	8.49	1000.0	120.000	332.0	V	4.0
71.41900	22.96	29.50	6.58	1000.0	120.000	217.0	V	186.0
100.3250	18.39	33.10	14.67	1000.0	120.000	109.0	V	-18.0
143.6840	24.74	33.10	8.32	1000.0	120.000	125.0	V	30.0
239.3260	21.27	35.60	14.29	1000.0	120.000	103.0	V	30.0
385.11700	21.78	35.60	13.78	1000.0	120.000	112.0	V	16.0

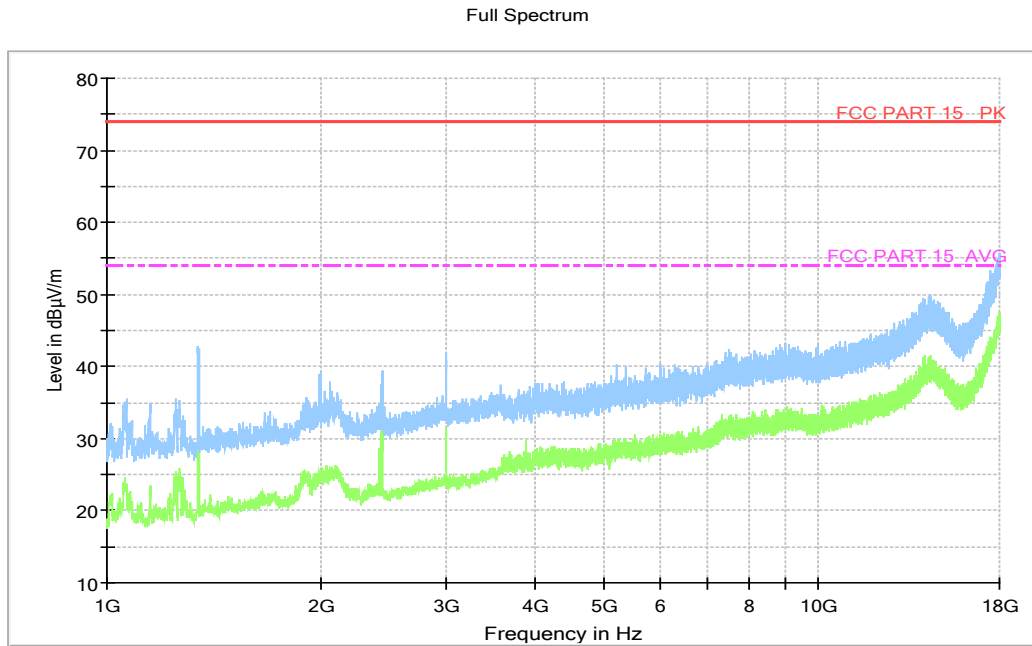


Figure A.8 Radiated Emission from 1GHz to 18GHz

Average detector result

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Limit (dBµV/m)	Margin (dB)	Antenna Pol. (H/V)
17963.167	46.9	-29.1	46.7	29.301	54.0	7.1	H
17998.300	46.8	-29.1	46.7	29.198	54.0	7.2	V
17980.733	46.7	-29.1	46.7	29.098	54.0	7.3	V
17963.733	46.7	-29.1	46.7	29.101	54.0	7.3	H
17978.467	46.6	-29.1	46.7	29.001	54.0	7.4	H
17976.200	46.6	-29.1	46.7	29.001	54.0	7.4	V

Peak detector result

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Limit (dBµV/m)	Margin (dB)	Antenna Pol. (H/V)
17960.900	55.8	-29.1	46.7	38.201	74.0	18.2	H
17963.733	55.7	-29.1	46.7	38.101	74.0	18.3	H
17957.500	55.7	-28.9	46.7	37.983	74.0	18.3	H
17984.700	55.6	-29.1	46.7	37.998	74.0	18.4	V
17963.167	55.6	-29.1	46.7	38.001	74.0	18.4	V
17981.867	55.5	-29.1	46.7	37.898	74.0	18.5	V

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.

For the test setup photographs please see the test setup photos document.

A.2.2 EUT Operating Mode

The system was configured for testing in a typical mode that a customer would normal use.

Cables were attached to each of the available I/O ports. Where applicable, peripherals were attached to the I/O cables. All the external I/O ports were exercised.

During the test, the EUT was charged by a travel adapter; EUT continuously copy data to external (Hard Disk & SD card) storage media; the camera was in video mode; the music was repetitively played through the headset; the WIFI and BT function was on and worked in receiver mode.

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

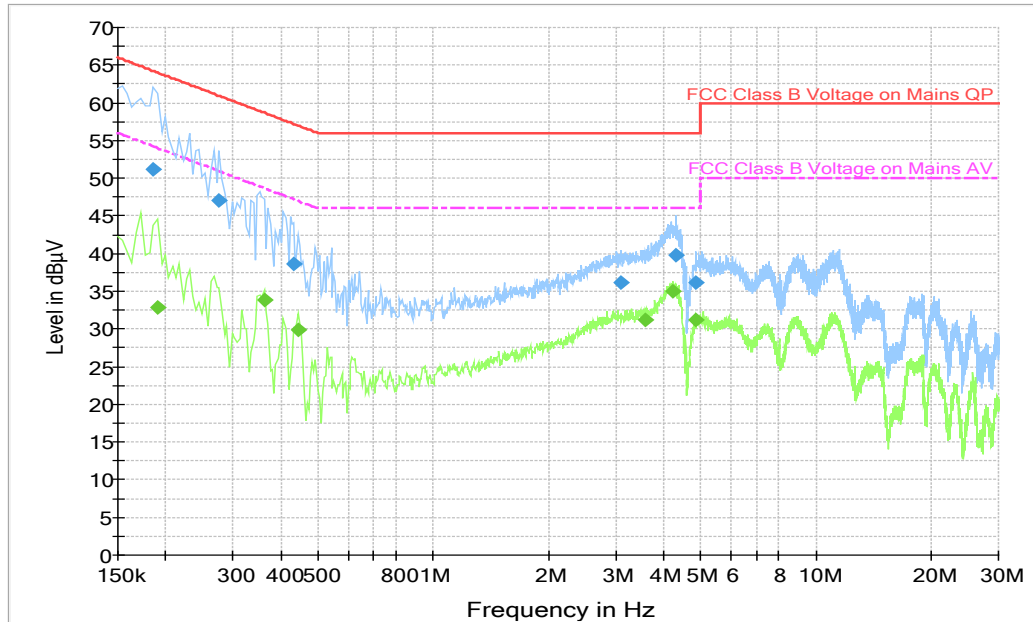
RBW/IF bandwidth	Sweep Time(s)
9kHz	1

A.2.5 Measurement Results

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

Note: all modes have been tested and the worst results shown here.

Set.1



Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Figure A.9 Conducted Emission

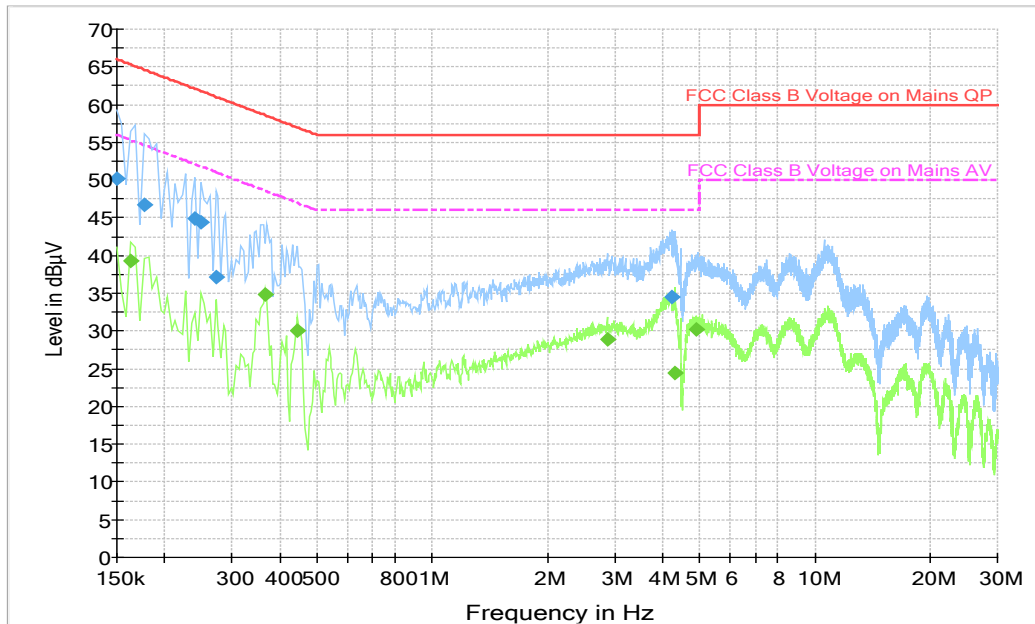
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.186000	51.1	GND	L1	9.8	13.1	64.2
0.276000	47.0	GND	L1	9.8	13.9	60.9
0.433500	38.6	GND	L1	9.8	18.6	57.2
3.088500	36.2	GND	L1	9.7	19.8	56.0
4.294500	39.8	GND	L1	9.7	16.2	56.0
4.857000	36.1	GND	N	9.6	19.9	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.190500	32.8	GND	L1	9.8	21.2	54.0
0.361500	33.8	GND	N	9.8	14.9	48.7
0.442500	29.8	GND	N	9.8	17.2	47.0
3.597000	31.2	GND	L1	9.7	14.8	46.0
4.231500	35.0	GND	L1	9.7	11.0	46.0
4.875000	31.3	GND	N	9.6	14.7	46.0

Set.3



Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Figure A.10 Conducted Emission

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	50.2	GND	L1	9.8	15.8	66.0
0.177000	46.7	GND	N	9.8	17.9	64.6
0.240000	44.8	GND	L1	9.8	17.3	62.1
0.249000	44.4	GND	N	9.8	17.4	61.8
0.271500	37.1	GND	L1	9.8	24.0	61.1
4.227000	34.4	GND	L1	9.7	21.6	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.163500	39.3	GND	N	9.8	16.0	55.3
0.366000	34.9	GND	N	9.8	13.7	48.6
0.442500	30.0	GND	N	9.8	17.0	47.0
2.863500	28.8	GND	L1	9.7	17.2	46.0
4.312500	24.4	GND	L1	9.7	21.6	46.0
4.884000	30.3	GND	N	9.6	15.7	46.0



ANNEX B: Persons involved in this testing

Test Item	Tester
Radiated Emission	Zhang Tianli, Ding Zai
Conducted Emission	Yang Mengke

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