



FCC 15B TEST REPORT

No. I20Z61660-EMC01

for

Lenovo (Shanghai) Electronics Technology Co., Ltd.

Portable Tablet Computer

Model Name: Lenovo TB-J606F

FCC ID: O57TBJ606F

with

Hardware Version: Lenovo TB-J606F

Software Version: TB-J606F_RF01_200927

Issued Date: 2020-11-05

Note:

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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.

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REPORT HISTORY

| Report Number | Revision | Description | Issue Date |
|----------------------|-----------------|-------------------------|-------------------|
| I20Z61660-EMC01 | Rev.0 | 1 st edition | 2020-11-05 |



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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: 2020-09-28


Testing End Date: 2020-11-05

1.4. Signature



An Hui

(Prepared this test report)



Zhang Ying

(Reviewed this test report)



Zhang Xia

(Approved this test report)



2. Client Information

2.1. Applicant Information

Company Name: Lenovo (Shanghai) Electronics Technology Co., Ltd.
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2.2. Manufacturer Information

Company Name: Lenovo PC HK Limited
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Hong Kong, P.R.China
City: /
Postal Code: /
Country: /
Contact: Spring Zhou
Email: zhoucb1@lenovo.com
Telephone: +86 18116118237
Fax: /

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

3.1. About EUT

| | |
|-------------|--------------------------|
| Description | Portable Tablet Computer |
| Model Name | Lenovo TB-J606F |
| FCC ID | O57TBJ606F |

The Equipment under Test (EUT) is a model of Portable Tablet Computer with integrated antenna. Manual and specifications of the EUT were provided to fulfil the test.

Samples undergoing test were selected by the client.

Note: Components list, please refer to documents of the manufacturer; it is also included in the original test record of CTTL, Telecommunication Technology Labs, Academy of Telecommunication Research, MIIT.

3.2. Internal Identification of EUT used during the test

| EUT ID* | SN or IMEI | HW Version | SW Version |
|----------------|-------------------|-------------------|----------------------|
| EUT1 | HA16H66H | Lenovo TB-J606F | TB-J606F_RF01_200927 |
| EUT2 | HA16H7PS | Lenovo TB-J606F | TB-J606F_RF01_200927 |
| EUT3 | HA16JNGT | Lenovo TB-J606F | TB-J606F_RF01_200927 |

*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 | Note |
|---------------|--------------------|-----------|-------------|
| AE1-1 | Charger | / | MC-201 |
| AE1-2 | Charger | / | MC-201 |
| AE8 | USB Cable | / | / |
| AE15 | USB Cable | / | Liqi |
| AE9 | Battery | / | SCUD |
| AE10 | Battery | / | Sunwoda |
| AE11 | Headset | / | / |

AE1-1

| | |
|-----------------|--------|
| Model | MC-201 |
| Manufacturer | Acbel |
| Length of cable | / |

AE1-2

| | |
|-----------------|----------|
| Model | MC-201 |
| Manufacturer | Chenyang |
| Length of cable | / |



AE8

| | |
|-----------------|-----------|
| Model | USB Cable |
| Manufacturer | / |
| Length of cable | / |

AE15

| | |
|-----------------|---------------|
| Model | L50B-05200100 |
| Manufacturer | Liqi |
| Length of cable | / |

AE9

| | |
|-----------------|----------|
| Model | L20D2P32 |
| Manufacturer | SCUD |
| Capacitance | 7500mAh |
| Nominal voltage | 3.86V |

AE10

| | |
|-----------------|----------|
| Model | L20D2P32 |
| Manufacturer | Sunwoda |
| Capacitance | 7500mAh |
| Nominal voltage | 3.86V |

AE11

| | |
|-----------------|---------|
| Model | Headset |
| Manufacturer | / |
| Length of cable | / |

*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 + AE1-1+ AE8 + AE9 | Charger1 + MP3 |
| Set.2 | EUT1 + AE1-2+ AE8 + AE9 | Charger2 + MP4 |
| Set.7 | EUT1 + AE8 + AE9 | USB |
| Set.8 | EUT1 + AE9 + AE11 | FM (88MHz/98MHz/108MHz) Worst case |
| Set.9 | EUT2+ AE1-1+ AE8 + AE9 | Charger1 + Back Camera |
| Set.10 | EUT3 + AE1-1+ AE8 + AE9 | Charger1 + Front Camera |

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 | 10-1-16 Edition |
| 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 M |
| Ground system resistance | < 4 |
| 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 M |
| Ground system resistance | < 4 |

6. SUMMARY OF TEST RESULTS

| Abbreviations used in this clause: | | |
|------------------------------------|-------|---|
| Verdict Column | P | Pass |
| | NA | Not applicable |
| | F | Fail |
| Location Column | 1/2/4 | The test is performed in test location 1/2/4 which is described in section 1.1 of this report |

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

7. Test Equipments Utilized

| NO. | Description | TYPE | SERIES NUMBER | MANUFACTURE | CAL DUE DATE | CALIBRATION INTERVAL |
|-----|-----------------------------------|----------|---------------|-----------------|--------------|----------------------|
| 1 | LISN | ENV216 | 101200 | Rohde & Schwarz | 1 year | 2021-05-19 |
| 2 | Test Receiver | ESCI 7 | 100344 | Rohde & Schwarz | 1 Year | 2021-02-26 |
| | Test Receiver | ESU26 | 100235 | Rohde & Schwarz | 1 Year | 2021-03-03 |
| 4 | BiLog Antenna | VULB9163 | 9163-1223 | Schwarzbeck | 1 Year | 2021-03-18 |
| 5 | Dual-Ridge Waveguide Horn Antenna | 3115 | 6914 | ETS-Lindgren | 1 Year | 2021-01-14 |

| Test Item | Test Software and Version | Software Vendor |
|------------------------------|---------------------------|-----------------|
| Radiated Continuous Emission | EMC32 V9.01.0 | 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 (charging mode and FM 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 – 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.

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 2.2, 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.

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/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:

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

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, $k=2$.

Note: Test result is the worst result in LTE B5,LTE B13,LTE B17.

Measurement results for Set.1:

Charger1 + MP3 QP detector

| Frequency (MHz) | QuasiPeak (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) |
|-----------------|--------------------------|----------------------|-------------|-------------|-----|---------------|
| 41.021000 | 13.31 | 30.00 | 16.69 | 291.0 | V | 60.0 |
| 48.005000 | 26.21 | 30.00 | 3.79 | 176.0 | V | 265.0 |
| 72.024000 | 23.22 | 30.00 | 6.78 | 112.0 | V | 64.0 |
| 99.517000 | 8.93 | 33.50 | 24.59 | 125.0 | V | 30.0 |
| 580.932000 | 17.37 | 36.00 | 18.65 | 304.0 | V | 108.0 |
| 902.843000 | 21.84 | 36.00 | 14.18 | 188.0 | V | 203.0 |

Charger1 + MP3 Average detector

| Frequency (MHz) | Result (dB μ V/m) | G_{PL} (dB) | G_A (dB/m) | P_{Mea} (dB μ V) | Polarity | Limit (dB μ V/m) | Margin (dB) |
|-----------------|-----------------------|----------------------|--------------|-------------------------------|----------|----------------------|-------------|
| 17977.333 | 48.3 | -17.7 | 45.6 | 20.400 | H | 54 | 5.7 |
| 17951.267 | 48.2 | -17.7 | 45.6 | 20.300 | H | 54 | 5.8 |
| 17983.567 | 48.2 | -17.7 | 45.6 | 20.300 | V | 54 | 5.8 |
| 17900.267 | 48.2 | -18.5 | 45.6 | 21.100 | H | 54 | 5.8 |
| 17933.133 | 48.2 | -17.7 | 45.6 | 20.300 | H | 54 | 5.8 |
| 17973.367 | 47.9 | -17.7 | 45.6 | 20.000 | H | 54 | 6.1 |

Charger1 + MP3 Peak detector

| Frequency (MHz) | Result (dB μ V/m) | G_{PL} (dB) | G_A (dB/m) | P_{Mea} (dB μ V) | Polarity | Limit (dB μ V/m) | Margin (dB) |
|-----------------|-----------------------|----------------------|--------------|-------------------------------|----------|----------------------|-------------|
| 17989.233 | 57.1 | -17.7 | 45.6 | 29.200 | H | 74 | 16.9 |
| 17864.567 | 57.0 | -18.5 | 45.6 | 29.900 | H | 74 | 17.0 |
| 17987.533 | 56.9 | -17.7 | 45.6 | 29.000 | V | 74 | 17.1 |
| 17997.733 | 56.7 | -17.7 | 45.6 | 28.800 | H | 74 | 17.3 |
| 17999.433 | 56.4 | -17.7 | 45.6 | 28.500 | H | 74 | 17.6 |
| 17842.467 | 56.3 | -18.5 | 45.6 | 29.200 | H | 74 | 17.7 |

Measurement results for Set.2:
Charger2 + MP3 QP detector

| Frequency (MHz) | QuasiPeak (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) |
|-----------------|--------------------------|----------------------|-------------|-------------|-----|---------------|
| 47.982000 | 24.40 | 30.00 | 5.60 | 177.0 | V | 210.0 |
| 54.638000 | 14.17 | 30.00 | 15.83 | 101.0 | V | 186.0 |
| 71.987000 | 24.11 | 30.00 | 5.89 | 280.0 | V | 61.0 |
| 137.989000 | 14.28 | 33.50 | 19.24 | 125.0 | V | 30.0 |
| 200.004000 | 16.37 | 33.50 | 17.15 | 305.0 | V | 19.0 |
| 685.475000 | 18.62 | 36.00 | 17.40 | 125.0 | V | -9.0 |

Charger2 + MP3 Mode /Average detector

| Frequency (MHz) | Result (dB μ V/m) | G _{PL} (dB) | G _A (dB/m) | P _{Mea} (dB μ V) | Polarity | Limit (dB μ V/m) | Margin (dB) |
|-----------------|-----------------------|----------------------|-----------------------|-------------------------------|----------|----------------------|-------------|
| 17958.633 | 48.3 | -17.7 | 45.6 | 20.400 | H | 54 | 5.7 |
| 17980.733 | 48.3 | -17.7 | 45.6 | 20.400 | H | 54 | 5.7 |
| 17913.300 | 48.2 | -18.5 | 45.6 | 21.100 | V | 54 | 5.8 |
| 17861.167 | 47.9 | -18.5 | 45.6 | 20.800 | H | 54 | 6.1 |
| 17977.333 | 47.8 | -17.7 | 45.6 | 19.900 | H | 54 | 6.2 |
| 17996.033 | 47.8 | -17.7 | 45.6 | 19.900 | H | 54 | 6.2 |

Charger2 + MP3 Mode /Peak detector

| Frequency (MHz) | Result (dB μ V/m) | G _{PL} (dB) | G _A (dB/m) | P _{Mea} (dB μ V) | Polarity | Limit (dB μ V/m) | Margin (dB) |
|-----------------|-----------------------|----------------------|-----------------------|-------------------------------|----------|----------------------|-------------|
| 17958.633 | 56.9 | -17.7 | 45.6 | 29.000 | H | 74 | 17.1 |
| 17977.900 | 56.9 | -17.7 | 45.6 | 29.000 | H | 74 | 17.1 |
| 17963.167 | 56.7 | -17.7 | 45.6 | 28.800 | V | 74 | 17.3 |
| 17988.667 | 56.7 | -17.7 | 45.6 | 28.800 | H | 74 | 17.3 |
| 17996.033 | 56.7 | -17.7 | 45.6 | 28.800 | H | 74 | 17.3 |
| 17823.200 | 56.4 | -18.5 | 45.6 | 29.300 | H | 74 | 17.6 |

Measurement results for Set.7:
USB QP detector

| Frequency (MHz) | QuasiPeak (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) |
|-----------------|--------------------------|----------------------|-------------|-------------|-----|---------------|
| 47.945000 | 20.42 | 30.00 | 9.58 | 118.0 | V | 151.0 |
| 57.742000 | 9.75 | 30.00 | 20.25 | 125.0 | V | 178.0 |
| 100.034000 | 15.27 | 30.00 | 14.73 | 119.0 | V | 120.0 |
| 135.439000 | 17.97 | 30.00 | 12.03 | 109.0 | V | 161.0 |
| 165.994000 | 17.87 | 30.00 | 12.13 | 112.0 | V | 210.0 |
| 302.376000 | 21.18 | 37.00 | 15.82 | 108.0 | V | 61.0 |

USB Average detector

| Frequency (MHz) | Result (dB μ V/m) | G _{PL} (dB) | G _A (dB/m) | P _{Mea} (dB μ V) | Polarity | Limit (dB μ V/m) | Margin (dB) |
|-----------------|-----------------------|----------------------|-----------------------|-------------------------------|----------|----------------------|-------------|
| 17913.867 | 48.9 | -18.5 | 45.6 | 21.800 | H | 54 | 5.1 |
| 17966.567 | 48.5 | -17.7 | 45.6 | 20.600 | H | 54 | 5.5 |
| 17982.433 | 48.4 | -17.7 | 45.6 | 20.500 | V | 54 | 5.6 |
| 17967.133 | 48.2 | -17.7 | 45.6 | 20.300 | H | 54 | 5.8 |
| 17994.900 | 48.2 | -17.7 | 45.6 | 20.300 | H | 54 | 5.8 |
| 17985.833 | 48.0 | -17.7 | 45.6 | 20.100 | H | 54 | 6.0 |

USB Peak detector

| Frequency (MHz) | Result (dB μ V/m) | G _{PL} (dB) | G _A (dB/m) | P _{Mea} (dB μ V) | Polarity | Limit (dB μ V/m) | Margin (dB) |
|-----------------|-----------------------|----------------------|-----------------------|-------------------------------|----------|----------------------|-------------|
| 17935.400 | 57.1 | -17.7 | 45.6 | 29.200 | H | 74 | 16.9 |
| 17820.933 | 57.0 | -18.5 | 45.6 | 29.900 | H | 74 | 17.0 |
| 17998.867 | 57.0 | -17.7 | 45.6 | 29.100 | V | 74 | 17.0 |
| 17967.133 | 56.5 | -17.7 | 45.6 | 28.600 | H | 74 | 17.5 |
| 17979.600 | 56.5 | -17.7 | 45.6 | 28.600 | H | 74 | 17.5 |
| 17976.767 | 56.5 | -17.7 | 45.6 | 28.600 | H | 74 | 17.5 |

Measurement results for Set.8:
FM QP detector

| Frequency (MHz) | QuasiPeak (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) |
|-----------------|--------------------------|----------------------|-------------|-------------|-----|---------------|
| 48.005000 | 12.46 | 30.00 | 17.54 | 207.0 | V | 240.0 |
| 72.001000 | 17.16 | 30.00 | 12.84 | 276.0 | V | 272.0 |
| 99.701000 | 8.41 | 33.50 | 25.11 | 225.0 | V | -24.0 |
| 200.041000 | 15.46 | 33.50 | 18.06 | 288.0 | V | 210.0 |
| 375.029000 | 15.31 | 36.00 | 20.71 | 299.0 | V | 277.0 |
| 499.642000 | 15.31 | 36.00 | 20.71 | 101.0 | V | -30.0 |

FM Average detector

| Frequency (MHz) | Result (dB μ V/m) | G _{PL} (dB) | G _A (dB/m) | P _{Mea} (dB μ V) | Polarity | Limit (dB μ V/m) | Margin (dB) |
|-----------------|-----------------------|----------------------|-----------------------|-------------------------------|----------|----------------------|-------------|
| 17997.733 | 48.8 | -17.7 | 45.6 | 20.900 | H | 54 | 4.7 |
| 17990.367 | 48.4 | -17.7 | 45.6 | 20.500 | H | 54 | 5.7 |
| 17988.667 | 48.3 | -17.7 | 45.6 | 20.400 | V | 54 | 5.7 |
| 17979.033 | 48.3 | -17.7 | 45.6 | 20.400 | H | 54 | 5.8 |
| 17907.633 | 48.3 | -18.5 | 45.6 | 21.200 | H | 54 | 5.8 |
| 17913.300 | 48.3 | -18.5 | 45.6 | 21.200 | H | 54 | 5.9 |

FM Peak detector

| Frequency (MHz) | Result (dB μ V/m) | G _{PL} (dB) | G _A (dB/m) | P _{Mea} (dB μ V) | Polarity | Limit (dB μ V/m) | Margin (dB) |
|-----------------|-----------------------|----------------------|-----------------------|-------------------------------|----------|----------------------|-------------|
| 17979.033 | 57.4 | -17.7 | 45.6 | 29.500 | H | 74 | 16.6 |
| 17981.867 | 57.0 | -17.7 | 45.6 | 29.100 | H | 74 | 17.0 |
| 17897.433 | 56.3 | -18.5 | 45.6 | 29.200 | V | 74 | 17.7 |
| 17992.633 | 56.3 | -17.7 | 45.6 | 28.400 | H | 74 | 17.7 |
| 17993.200 | 56.3 | -17.7 | 45.6 | 28.400 | H | 74 | 17.7 |
| 17943.333 | 56.1 | -17.7 | 45.6 | 28.200 | H | 74 | 17.9 |

Measurement results for Set.9:
Charger1 + MP3 QP detector

| Frequency (MHz) | QuasiPeak (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) |
|-----------------|--------------------------|----------------------|-------------|-------------|-------|---------------|
| 37.575000 | 15.90 | 30.00 | 14.10 | 120.000 | 116.0 | V |
| 48.042000 | 26.42 | 30.00 | 3.58 | 120.000 | 282.0 | V |
| 71.978000 | 22.55 | 30.00 | 7.45 | 120.000 | 284.0 | V |
| 100.034000 | 14.20 | 33.50 | 19.32 | 120.000 | 117.0 | V |
| 167.994000 | 9.04 | 33.50 | 24.48 | 120.000 | 101.0 | V |
| 300.011000 | 16.37 | 36.00 | 19.65 | 120.000 | 118.0 | V |

Charger1 + MP3 Average detector

| Frequency (MHz) | Result (dB μ V/m) | G _{PL} (dB) | G _A (dB/m) | P _{Mea} (dB μ V) | Polarity | Limit (dB μ V/m) | Margin (dB) |
|-----------------|-----------------------|----------------------|-----------------------|-------------------------------|----------|----------------------|-------------|
| 17983.000 | 49.2 | -17.7 | 45.6 | 21.300 | H | 54 | 4.8 |
| 17972.233 | 48.9 | -17.7 | 45.6 | 21.000 | H | 54 | 5.1 |
| 17937.667 | 48.4 | -17.7 | 45.6 | 20.500 | V | 54 | 5.6 |
| 17998.300 | 48.4 | -17.7 | 45.6 | 20.500 | H | 54 | 5.6 |
| 17943.900 | 48.4 | -17.7 | 45.6 | 20.500 | H | 54 | 5.6 |
| 17992.067 | 48.3 | -17.7 | 45.6 | 20.400 | H | 54 | 5.7 |

Charger1 + MP3 Peak detector

| Frequency (MHz) | Result (dB μ V/m) | G _{PL} (dB) | G _A (dB/m) | P _{Mea} (dB μ V) | Polarity | Limit (dB μ V/m) | Margin (dB) |
|-----------------|-----------------------|----------------------|-----------------------|-------------------------------|----------|----------------------|-------------|
| 17997.167 | 58.4 | -17.7 | 45.6 | 30.500 | H | 74 | 15.6 |
| 17960.900 | 57.5 | -17.7 | 45.6 | 29.600 | H | 74 | 16.5 |
| 17989.233 | 57.3 | -17.7 | 45.6 | 29.400 | V | 74 | 16.7 |
| 17985.833 | 57.1 | -17.7 | 45.6 | 29.200 | H | 74 | 16.9 |
| 18000.000 | 56.9 | -45.6 | 44.5 | 57.966 | H | 74 | 17.1 |
| 17944.467 | 56.8 | -17.7 | 45.6 | 28.900 | H | 74 | 17.2 |

Measurement results for Set.10:
Charger1 + MP3 QP detector

| Frequency (MHz) | QuasiPeak (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) |
|-----------------|--------------------------|----------------------|-------------|-------------|-----|---------------|
| 40.037000 | 17.24 | 30.00 | 12.76 | 109.0 | V | 112.0 |
| 48.065000 | 28.92 | 30.00 | 1.08 | 117.0 | V | 293.0 |
| 72.001000 | 25.55 | 30.00 | 4.45 | 180.0 | V | -29.0 |
| 99.974000 | 13.82 | 33.50 | 19.70 | 125.0 | V | 60.0 |
| 156.936000 | 9.22 | 33.50 | 24.30 | 116.0 | V | 5.0 |
| 300.011000 | 16.05 | 36.00 | 19.97 | 182.0 | V | 30.0 |

Charger1 + MP3 Average detector

| Frequency (MHz) | Result (dB μ V/m) | G _{PL} (dB) | G _A (dB/m) | P _{Mea} (dB μ V) | Polarity | Limit (dB μ V/m) | Margin (dB) |
|-----------------|-----------------------|----------------------|-----------------------|-------------------------------|----------|----------------------|-------------|
| 17979.600 | 49.6 | -17.7 | 45.6 | 21.700 | H | 54 | 4.9 |
| 17969.400 | 49.1 | -17.7 | 45.6 | 21.200 | H | 54 | 5.2 |
| 17967.133 | 48.8 | -17.7 | 45.6 | 20.900 | V | 54 | 5.4 |
| 17984.700 | 48.6 | -17.7 | 45.6 | 20.700 | H | 54 | 5.5 |
| 17999.433 | 48.5 | -17.7 | 45.6 | 20.600 | H | 54 | 5.7 |
| 17995.467 | 48.3 | -17.7 | 45.6 | 20.400 | H | 54 | 5.7 |

Charger1 + MP3 Peak detector

| Frequency (MHz) | Result (dB μ V/m) | G _{PL} (dB) | G _A (dB/m) | P _{Mea} (dB μ V) | Polarity | Limit (dB μ V/m) | Margin (dB) |
|-----------------|-----------------------|----------------------|-----------------------|-------------------------------|----------|----------------------|-------------|
| 17995.467 | 58.1 | -17.7 | 45.6 | 30.200 | H | 74 | 15.9 |
| 17932.567 | 57.5 | -17.7 | 45.6 | 29.600 | H | 74 | 16.5 |
| 17986.967 | 57.4 | -17.7 | 45.6 | 29.500 | V | 74 | 16.6 |
| 17975.067 | 57.3 | -17.7 | 45.6 | 29.400 | H | 74 | 16.7 |
| 17890.633 | 57.3 | -18.5 | 45.6 | 30.200 | H | 74 | 16.7 |
| 17912.733 | 56.9 | -18.5 | 45.6 | 29.800 | H | 74 | 17.1 |

Set.1

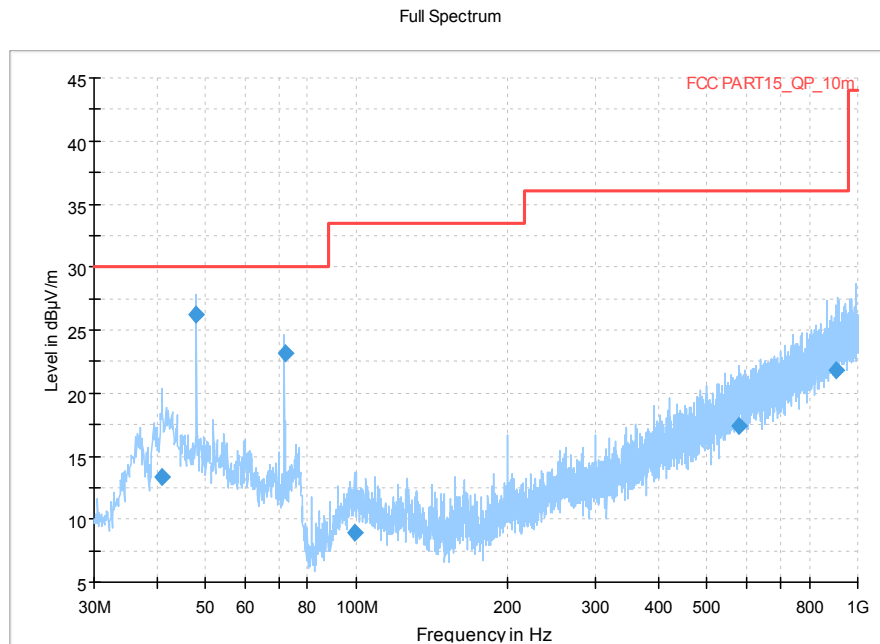


Figure A.1 Radiated Emission from 30MHz to 1GHz

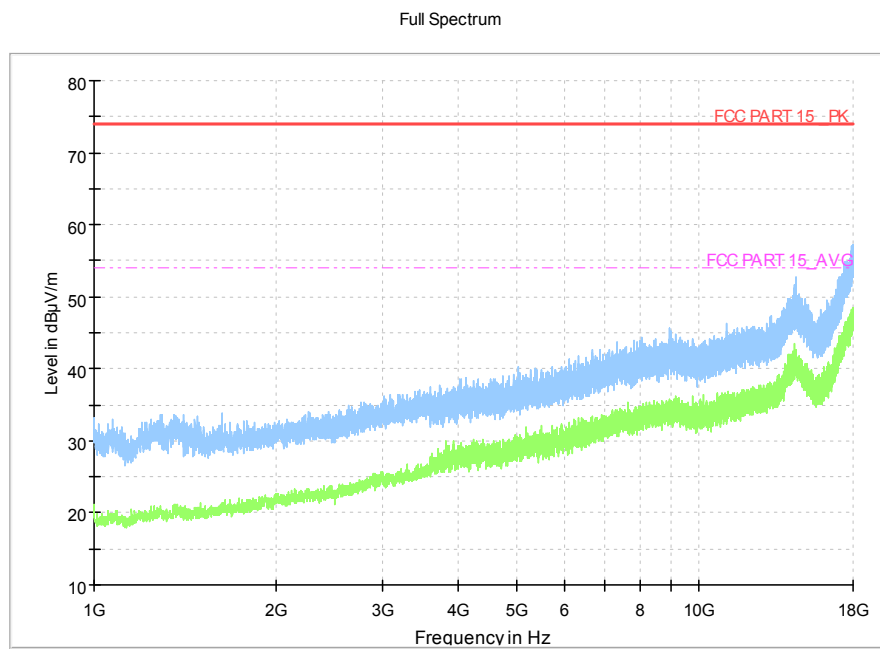


Figure A.2 Radiated Emission from 1GHz to 18GHz

Set.2

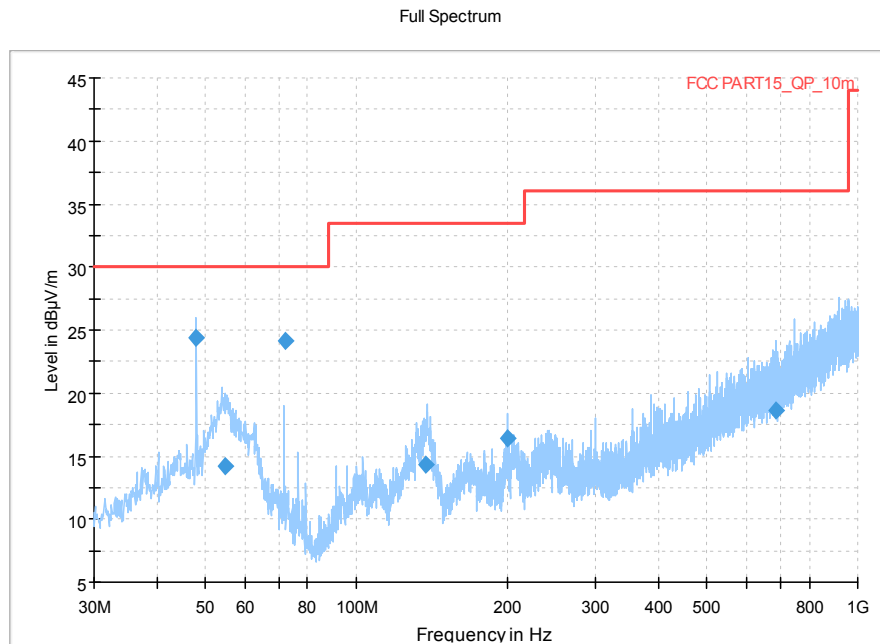


Figure A.3 Radiated Emission from 30MHz to 1GHz

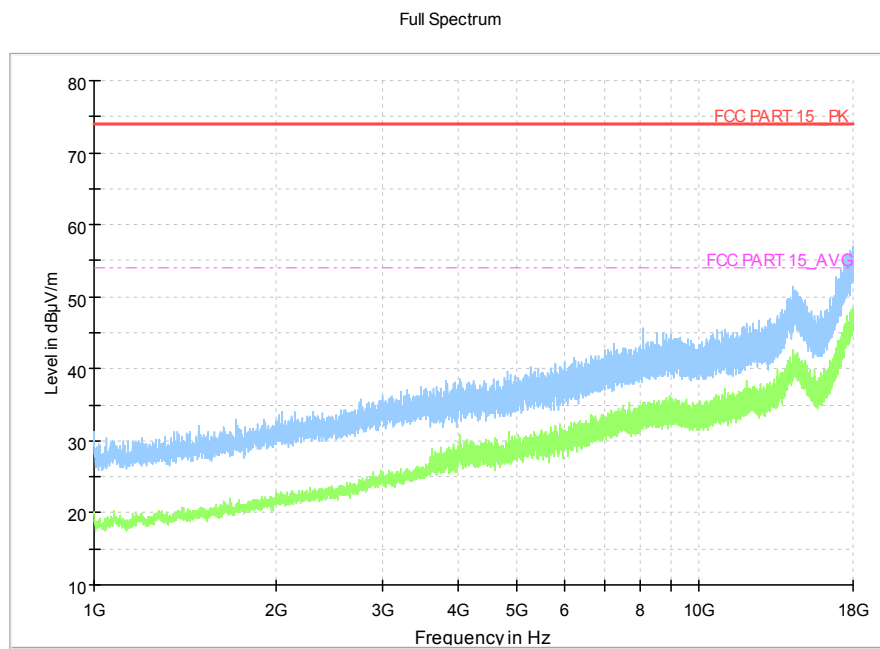


Figure A.4 Radiated Emission from 1GHz to 18GHz

Set.7

Full Spectrum

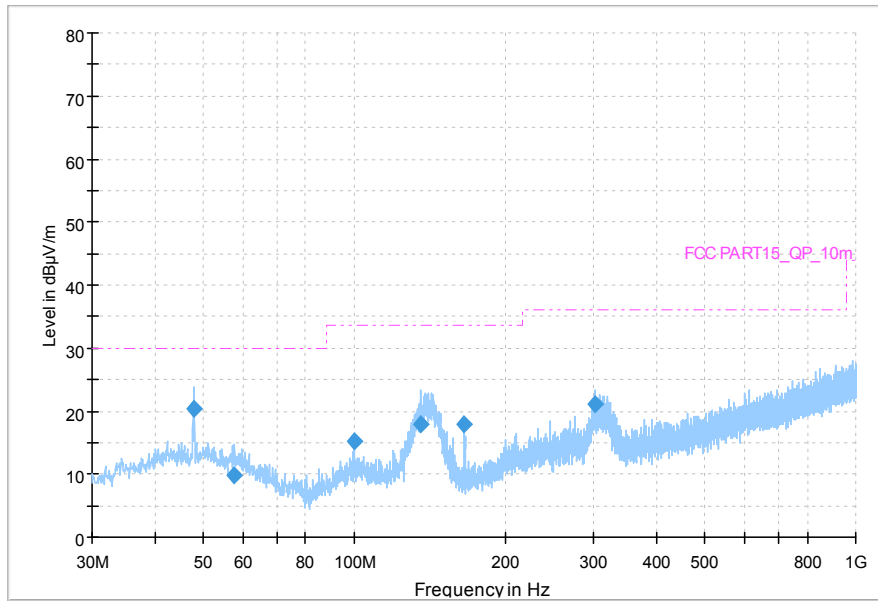


Figure A.13 Radiated Emission from 30MHz to 1GHz

Full Spectrum

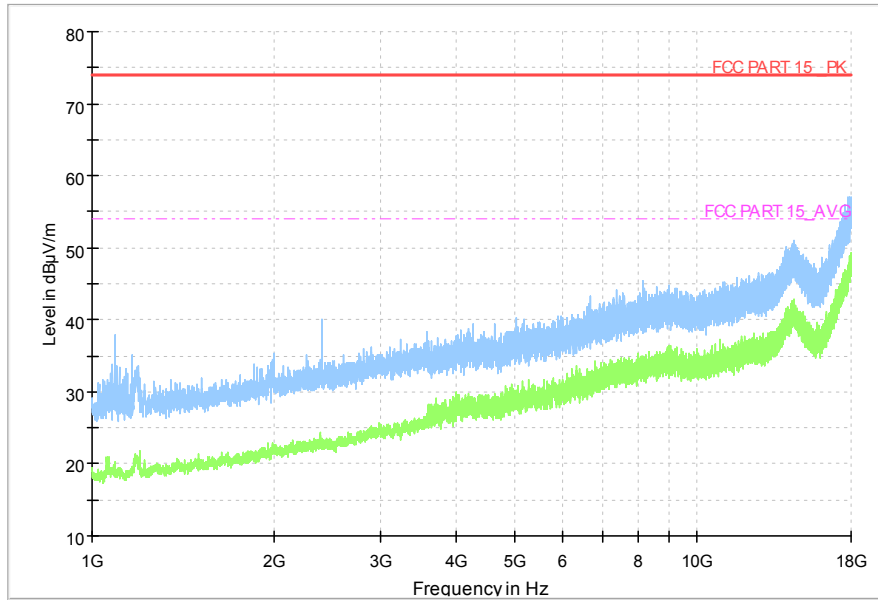


Figure A.14 Radiated Emission from 1GHz to 18GHz

Set.8

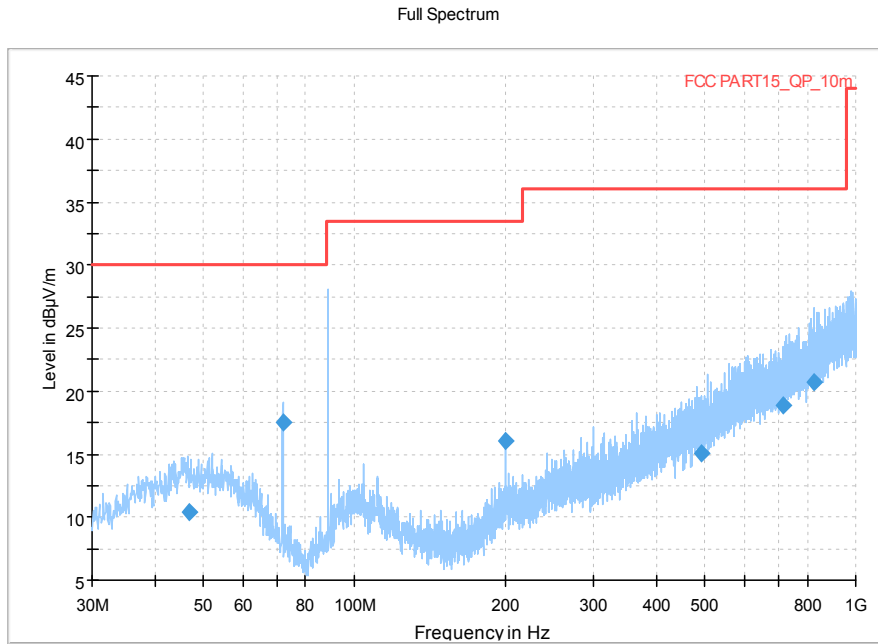


Figure A.15 Radiated Emission from 30MHz to 1GHz

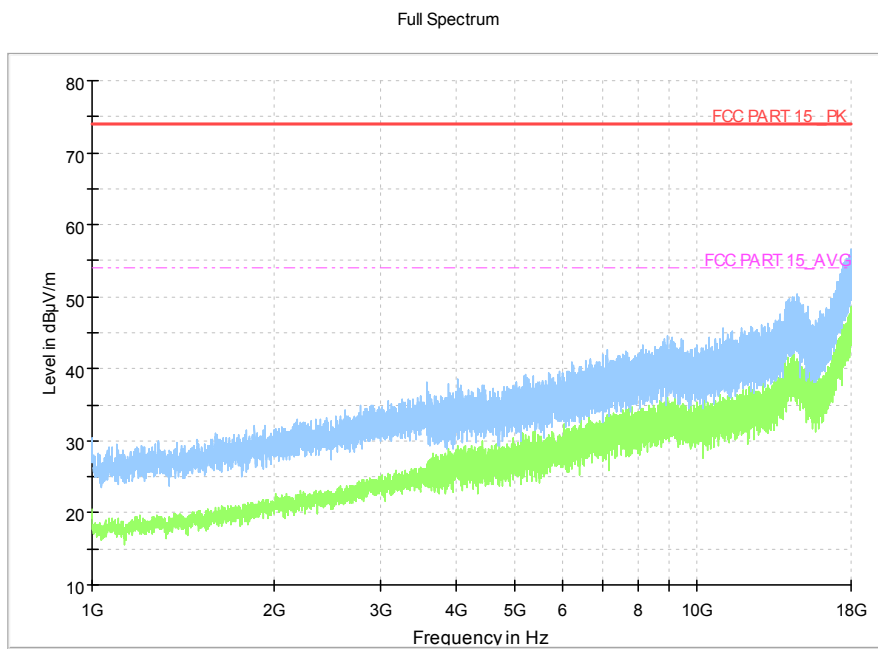


Figure A.16 Radiated Emission from 1GHz to 18GHz

Set.9

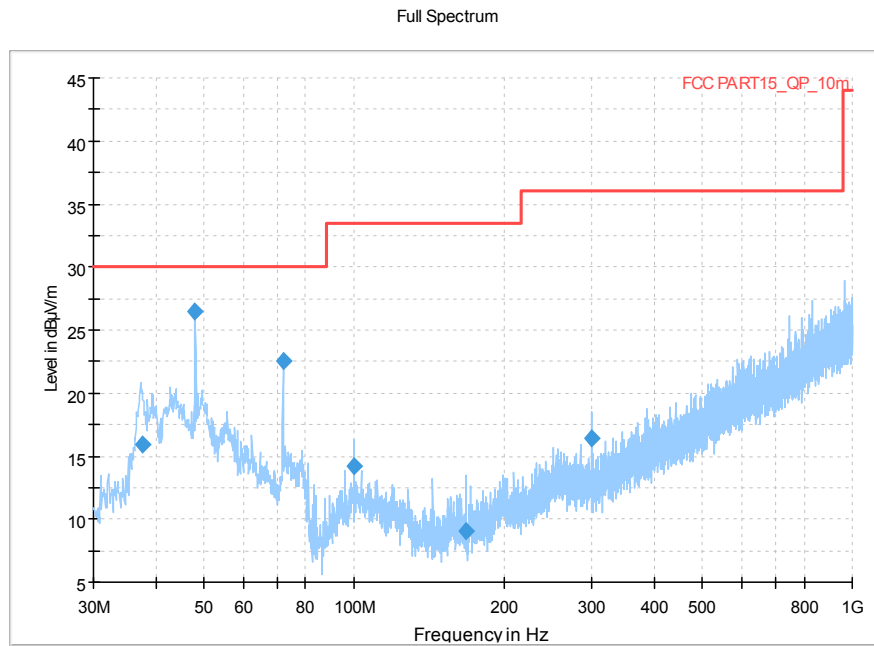


Figure A.17 Radiated Emission from 30MHz to 1GHz

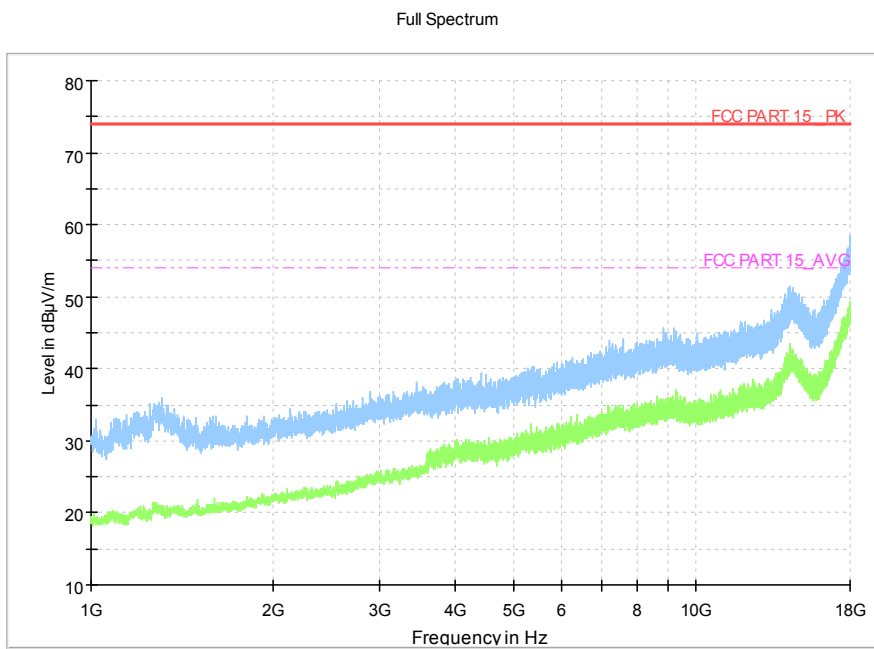


Figure A.18 Radiated Emission from 1GHz to 18GHz

Set.10

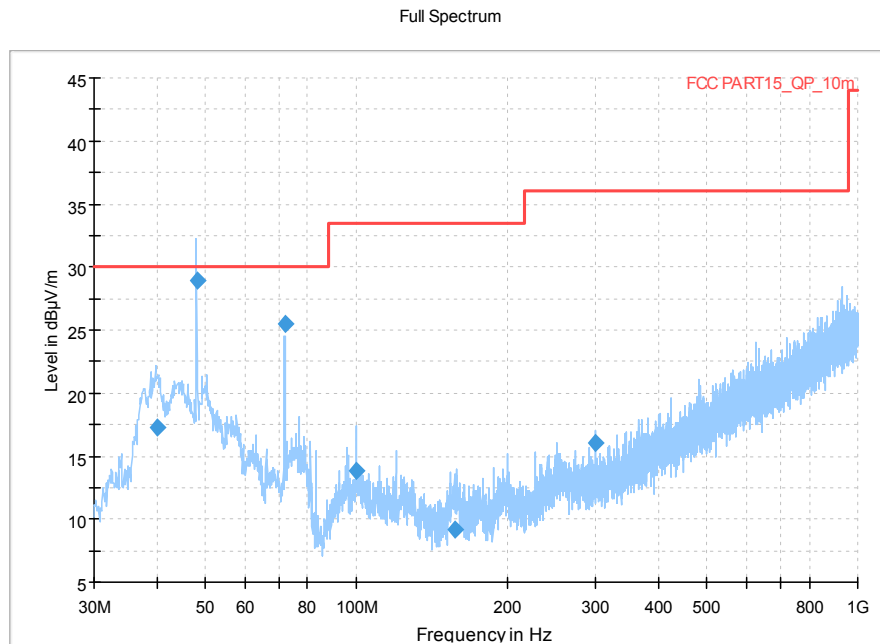


Figure A.19 Radiated Emission from 30MHz to 1GHz

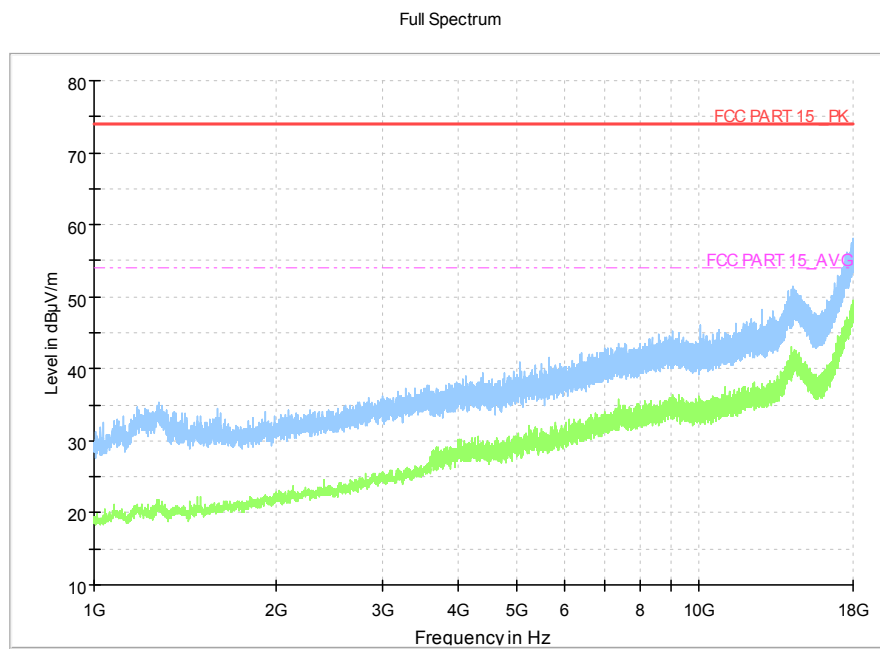


Figure A.20 Radiated Emission from 1GHz to 18GHz

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 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: $U=3.08\text{dB}$, $k=2$.

Note: Test result is the worst result in LTE B5, LTE B13, LTE B17.

Set.1

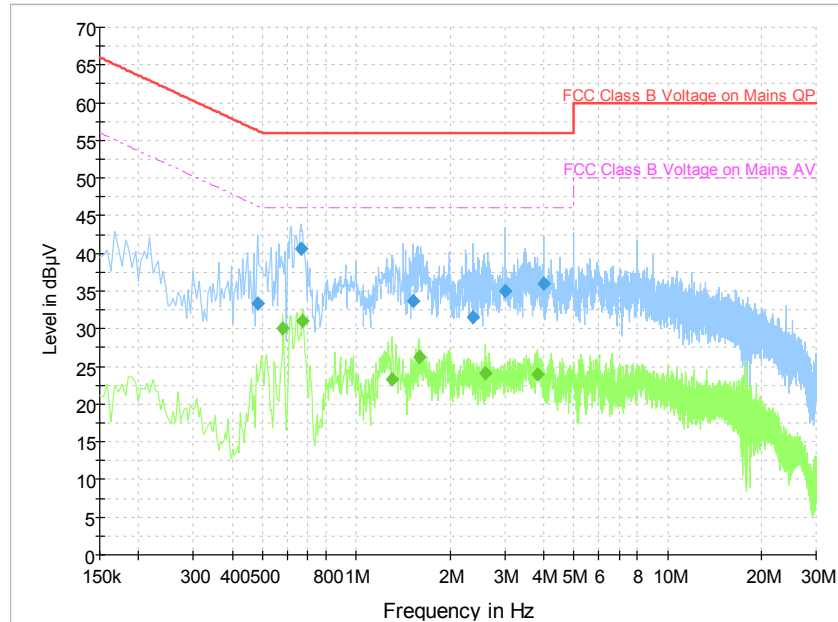


Figure A.11 Conducted Emission

Final Result 1

| Frequency (MHz) | QuasiPeak (dBµV) | PE | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|-----------------|------------------|-----|------|------------|-------------|--------------|
| 0.483000 | 33.3 | GND | L1 | 10.0 | 23.0 | 56.3 |
| 0.663000 | 40.6 | GND | L1 | 10.0 | 15.4 | 56.0 |
| 1.518000 | 33.6 | GND | L1 | 10.0 | 22.4 | 56.0 |
| 2.364000 | 31.5 | GND | L1 | 10.0 | 24.5 | 56.0 |
| 3.003000 | 35.0 | GND | L1 | 10.1 | 21.0 | 56.0 |
| 4.002000 | 35.9 | GND | L1 | 10.1 | 20.1 | 56.0 |

Final Result 2

| Frequency (MHz) | Average (dBµV) | PE | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|-----------------|----------------|-----|------|------------|-------------|--------------|
| 0.582000 | 30.0 | GND | L1 | 10.0 | 16.0 | 46.0 |
| 0.672000 | 31.0 | GND | L1 | 10.0 | 15.0 | 46.0 |
| 1.302000 | 23.3 | GND | L1 | 10.0 | 22.7 | 46.0 |
| 1.590000 | 26.3 | GND | L1 | 10.0 | 19.7 | 46.0 |
| 2.593500 | 24.0 | GND | L1 | 10.1 | 22.0 | 46.0 |
| 3.822000 | 24.0 | GND | L1 | 10.1 | 22.0 | 46.0 |

Set.2

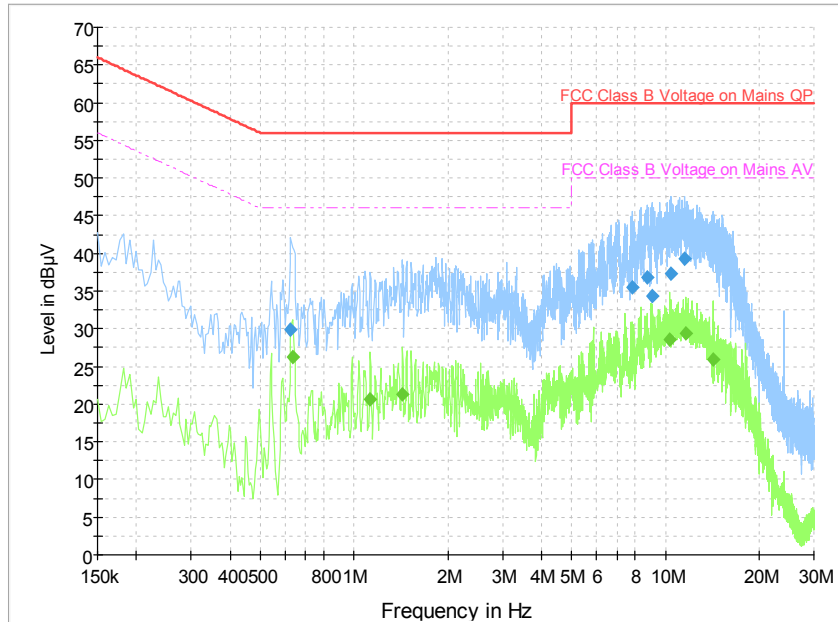


Figure A.12 Conducted Emission

Final Result 1

| Frequency (MHz) | QuasiPeak (dBµV) | PE | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|-----------------|------------------|-----|------|------------|-------------|--------------|
| 0.627000 | 29.9 | GND | L1 | 10.0 | 26.1 | 0.627000 |
| 7.836000 | 35.4 | GND | L1 | 10.3 | 24.6 | 7.836000 |
| 8.718000 | 36.9 | GND | L1 | 10.3 | 23.1 | 8.718000 |
| 9.042000 | 34.3 | GND | L1 | 10.4 | 25.7 | 9.042000 |
| 10.396500 | 37.4 | GND | L1 | 10.4 | 22.6 | 10.396500 |
| 11.566500 | 39.4 | GND | L1 | 10.5 | 20.6 | 11.566500 |

Final Result 2

| Frequency (MHz) | Average (dBµV) | PE | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|-----------------|----------------|-----|------|------------|-------------|--------------|
| 0.636000 | 26.2 | GND | L1 | 10.0 | 19.8 | 0.636000 |
| 1.126500 | 20.6 | GND | L1 | 10.0 | 25.4 | 1.126500 |
| 1.432500 | 21.3 | GND | L1 | 10.0 | 24.7 | 1.432500 |
| 10.342500 | 28.6 | GND | L1 | 10.4 | 21.4 | 10.342500 |
| 11.679000 | 29.5 | GND | L1 | 10.5 | 20.5 | 11.679000 |
| 14.185500 | 25.9 | GND | L1 | 10.7 | 24.1 | 14.185500 |

Set.7

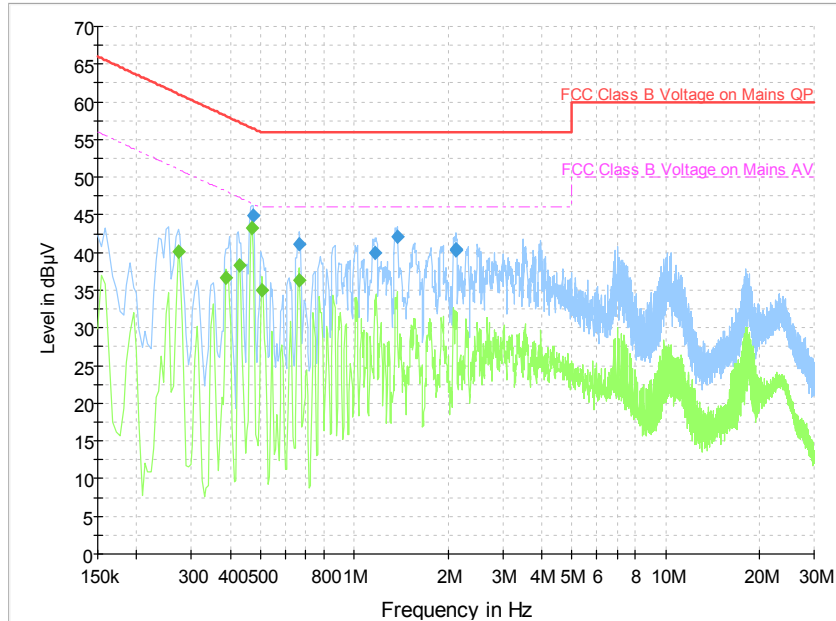


Figure A.11 Conducted Emission

Final Result 1

| Frequency (MHz) | QuasiPeak (dBµV) | PE | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|-----------------|------------------|-----|------|------------|-------------|--------------|
| 0.474000 | 44.9 | GND | L1 | 10.0 | 11.6 | 56.4 |
| 0.667500 | 41.1 | GND | N | 10.0 | 14.9 | 56.0 |
| 1.171500 | 40.0 | GND | L1 | 10.0 | 16.0 | 56.0 |
| 1.378500 | 42.0 | GND | L1 | 10.0 | 14.0 | 56.0 |
| 2.121000 | 40.2 | GND | N | 10.1 | 15.8 | 56.0 |
| 2.125500 | 40.4 | GND | N | 10.1 | 15.6 | 56.0 |

Final Result 2

| Frequency (MHz) | Average (dBµV) | PE | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|-----------------|----------------|-----|------|------------|-------------|--------------|
| 0.271500 | 40.0 | GND | L1 | 10.0 | 11.0 | 51.1 |
| 0.388500 | 36.7 | GND | L1 | 10.0 | 11.4 | 48.1 |
| 0.429000 | 38.4 | GND | L1 | 10.0 | 8.9 | 47.3 |
| 0.469500 | 43.3 | GND | L1 | 10.0 | 3.2 | 46.5 |
| 0.505500 | 35.0 | GND | L1 | 10.0 | 11.0 | 46.0 |
| 0.663000 | 36.4 | GND | N | 10.0 | 9.6 | 46.0 |

Set.9

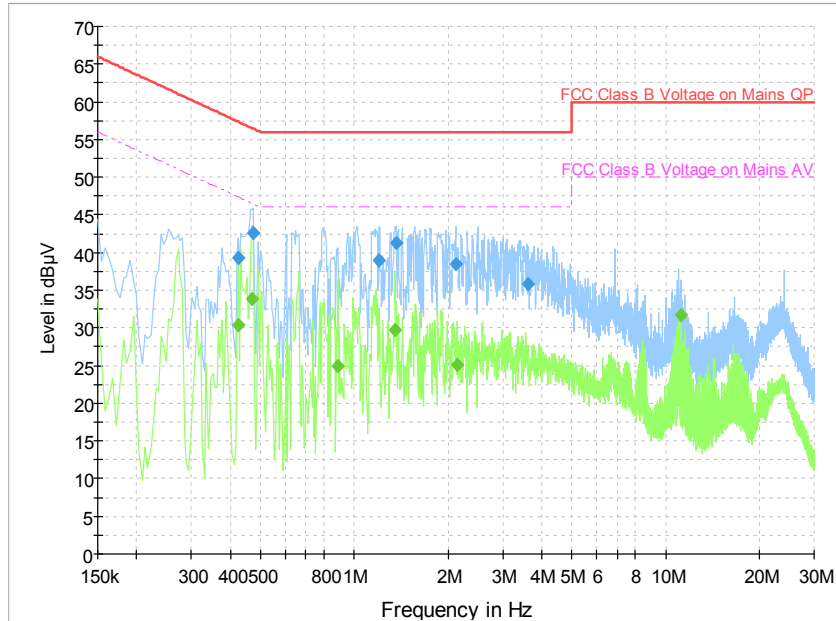


Figure A.11 Conducted Emission

Final Result 1

| Frequency (MHz) | QuasiPeak (dBµV) | PE | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|-----------------|------------------|--------|-------|------------|-------------|--------------|
| 0.424500 | 39.3 | 1000.0 | 9.000 | On | N | 19.6 |
| 0.474000 | 42.7 | 1000.0 | 9.000 | On | N | 19.6 |
| 1.203000 | 39.0 | 1000.0 | 9.000 | On | L1 | 19.6 |
| 1.365000 | 41.2 | 1000.0 | 9.000 | On | L1 | 19.6 |
| 2.125500 | 38.4 | 1000.0 | 9.000 | On | N | 19.5 |
| 3.615000 | 35.8 | 1000.0 | 9.000 | On | N | 19.6 |

Final Result 2

| Frequency (MHz) | Average (dBµV) | PE | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|-----------------|----------------|--------|-------|------------|-------------|--------------|
| 0.424500 | 30.4 | 1000.0 | 9.000 | On | N | 19.6 |
| 0.469500 | 33.9 | 1000.0 | 9.000 | On | L1 | 19.6 |
| 0.888000 | 24.9 | 1000.0 | 9.000 | On | N | 19.5 |
| 1.351500 | 29.8 | 1000.0 | 9.000 | On | L1 | 19.6 |
| 2.143500 | 25.2 | 1000.0 | 9.000 | On | N | 19.5 |
| 11.229000 | 31.7 | 1000.0 | 9.000 | On | L1 | 19.9 |

Set.10

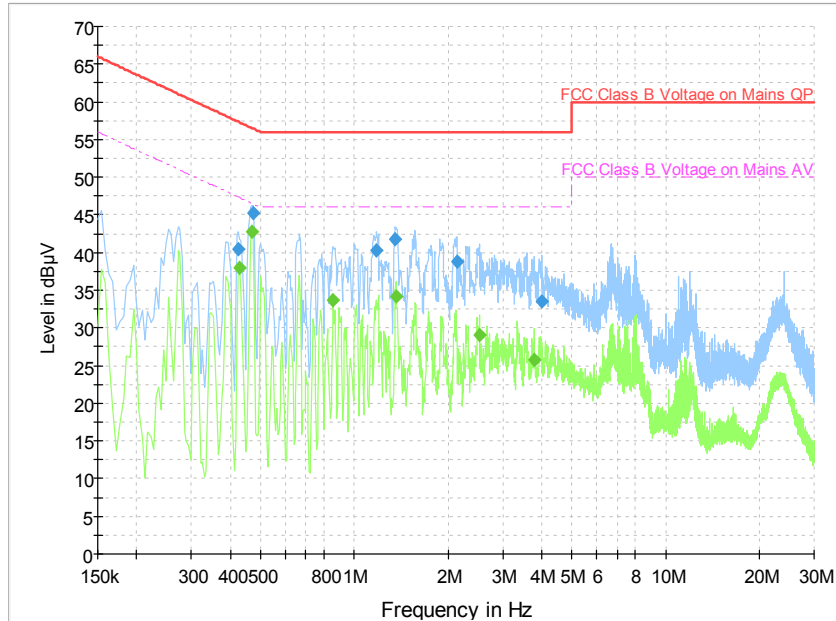


Figure A.11 Conducted Emission

Final Result 1

| Frequency (MHz) | QuasiPeak (dBµV) | PE | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|-----------------|------------------|--------|-------|------------|-------------|--------------|
| 0.424500 | 40.4 | 1000.0 | 9.000 | On | L1 | 19.6 |
| 0.474000 | 45.2 | 1000.0 | 9.000 | On | L1 | 19.6 |
| 1.180500 | 40.3 | 1000.0 | 9.000 | On | L1 | 19.6 |
| 1.356000 | 41.8 | 1000.0 | 9.000 | On | L1 | 19.6 |
| 2.134500 | 38.8 | 1000.0 | 9.000 | On | N | 19.5 |
| 4.006500 | 33.5 | 1000.0 | 9.000 | On | N | 19.7 |

Final Result 2

| Frequency (MHz) | Average (dBµV) | PE | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|-----------------|----------------|--------|-------|------------|-------------|--------------|
| 0.429000 | 37.9 | 1000.0 | 9.000 | On | L1 | 19.6 |
| 0.469500 | 42.8 | 1000.0 | 9.000 | On | N | 19.6 |
| 0.856500 | 33.7 | 1000.0 | 9.000 | On | N | 19.5 |
| 1.360500 | 34.2 | 1000.0 | 9.000 | On | L1 | 19.6 |
| 2.521500 | 29.0 | 1000.0 | 9.000 | On | N | 19.6 |
| 3.795000 | 25.8 | 1000.0 | 9.000 | On | N | 19.7 |



ANNEX B: Persons involved in this testing

| Test Item | Tester |
|-------------------------------|-------------|
| Conducted Continuous Emission | Yan Hanchen |
| Radiated Continuous Emission | Wang Huan |

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