



# TEST REPORT

## No. I21Z60861-EMC01

For

**Tablet PC**

**Model Name: 9198S**

**FCC ID:2ACCJB155**

with

**Hardware Version:03**

**Software Version: 2C61**

**Issued Date: 2021-6-25**

**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.

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.

**Test Laboratory:**

**CTTL-Telecommunication Technology Labs, CAICT**

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

Tel:+86(0)10-62304633-2512, Fax:+86(0)10-62304633-2504

Email: [ctl\\_terminals@caict.ac.cn](mailto:ctl_terminals@caict.ac.cn), website: [www.caict.ac.cn](http://www.caict.ac.cn)



## **REPORT HISTORY**

| <b>Report Number</b> | <b>Revision</b> | <b>Description</b>      | <b>Issue Date</b> |
|----------------------|-----------------|-------------------------|-------------------|
| I21Z60861-EMC01      | Rev.0           | 1 <sup>st</sup> edition | 2021-6-25         |

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. China 100191

### **1.3. Testing Environment**

Normal Temperature: 15-35°C

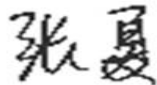
Relative Humidity: 20-75%

### **1.4. Project data**

Testing Start Date: 2021-05-26

Testing End Date: 2021-06-20

### **1.5. Signature**



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Zhang Xia

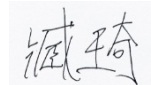
(Prepared this test report)



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Li Yan

(Reviewed this test report)



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Zang Qi

(Approved this test report)



## **2. Client Information**

### **2.1. Applicant Information**

Company Name: TCL Communication Ltd.  
Address: 5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park,  
Shatin, NT, Hong Kong  
Contact: Gong Zhizhou  
Email: [zhizhou.gong@tcl.com](mailto:zhizhou.gong@tcl.com)  
Telephone: 0086-755-36611722

### **2.2. Manufacturer Information**

Company Name: TCL Communication Ltd.  
Address: 5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park,  
Shatin, NT, Hong Kong  
Contact: Gong Zhizhou  
Email: [zhizhou.gong@tcl.com](mailto:zhizhou.gong@tcl.com)  
Telephone: 0086-755-36611722

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

#### **3.1. About EUT**

|                     |                                     |
|---------------------|-------------------------------------|
| Description         | Tablet PC                           |
| Model Name          | 9198S                               |
| FCC ID              | 2ACCJB155                           |
| Extreme vol. Limits | 3.5VDC to 4.4VDC (nominal: 3.85VDC) |

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**

| <b>EUT ID*</b> | <b>SN or IMEI</b> | <b>HW Version</b> | <b>SW Version</b> |
|----------------|-------------------|-------------------|-------------------|
| UT65a          | 35886140001072    | 03                | 2C61              |

\*EUT ID: is used to identify the test sample in the lab internally.

Note: the SW version information was provided by the client.

#### **3.3. Internal Identification of AE used during the test**

| <b>AE ID*</b> | <b>Description</b> | <b>SN</b> | <b>Remarks</b>      |
|---------------|--------------------|-----------|---------------------|
| AE1           | Charger            | /         | CBA0064AGTC1        |
| AE2           | Cable              | /         | /                   |
| AE3           | Headset            | /         | Not the part of EUT |
| AE4           | Computer           | /         | Not the part of EUT |

AE1

|                 |        |
|-----------------|--------|
| Model           | QC13US |
| Manufacturer    | BYD    |
| Length of cable | /      |

AE2

|                 |            |
|-----------------|------------|
| Type            | Data Cable |
| Manufacturer    | SHENGHUA   |
| Length of cable | 0.8 meter  |

AE3

|                 |                |
|-----------------|----------------|
| Type            | TYPE C headset |
| Manufacturer    | Not marked     |
| Length of cable | 1.5 meter      |

AE4

|              |           |
|--------------|-----------|
| Model        | E42-B0114 |
| Manufacturer | Lenovo    |

Note: the remark information of AE1 was provided by the client.

#### **3.4. General Description**

The device contains receivers which tune and operate between 30MHz-960MHz in the following bands: GSM 850, WCDMA850, LTE Band 5/12/13, Carrier aggregation 5B, 5G, and support FM, MP3, Camera, USB data transfer, memory card, power reduction.

#### **3.5. EUT set-ups**

| <b>EUT set-up No.</b> | <b>Combination of EUT and AE</b> | <b>Remarks</b>  |
|-----------------------|----------------------------------|-----------------|
| Set.1                 | UT66a+AE1+AE2                    | Charger+Cable   |
| Set.2                 | UT66a+AE4                        | Cable +Computer |



Set.3

UT66a+AE3

Headset

## **4. Reference Documents**

### **4.1. Reference Documents for testing**

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

| <b>Reference</b>       | <b>Title</b>                                                                                                                                                                     | <b>Version</b> |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| FCC Part 15, Subpart B | Radio frequency devices - Unintentional Radiators                                                                                                                                | 2019           |
| ANSI C63.4             | American National Standard for<br>Methods of Measurement of Radio-<br>Noise Emissions from Low-Voltage<br>Electrical and Electronic Equipment<br>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×17 meters×10 meters) 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;<br>1MHz - 1000MHz, >90dB. |
| Electrical insulation                                        | > 2 MΩ                                            |
| Ground system resistance                                     | < 4Ω                                              |
| Normalised site attenuation (NSA)                            | < ± 4 dB, 3m/10m distance,<br>from 30 to 1000 MHz |
| Site voltage standing-wave ratio ( <i>S<sub>VSWR</sub></i> ) | Between 0 and 6 dB, from 1GHz to 18GHz            |

**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;<br>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                        | ESU26    | 100235        | R&S          | 2022-02-23   | 1 year               |
| 2   | LISN                                 | ESH3-Z5  | 8255621028    | R&S          | 2021-10-15   | 1 year               |
| 3   | BiLog Antenna                        | VULB9163 | 9163-1223     | Schwarzbeck  | 2022-03-22   | 1 year               |
| 4   | EMI Antenna                          | 3115     | 6914          | ETS-Lindgren | 2022-02-03   | 1 year               |
| 5   | Universal Radio Communication Tester | CMW500   | 116588        | R&S          | 2021-12-07   | 1 year               |
| 6   | Test Receiver                        | ESCI     | 100344        | R&S          | 2022-02-23   | 1 year               |
| 7   | Signal Generator                     | SMBV100A | 260613        | R&S          | 2022-01-06   | 1 year               |
| 8   | Signal Generator                     | SMF100A  | 102063        | R&S          | 2021-01-06   | 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 (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 – 2014, section 8.3.

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 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 and 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 the 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.

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.

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

#### **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

$P_{\text{Mea}}$ : Measurement result on receiver.

Measurement uncertainty (worst case): 30MHz-1GHz: 5.40dB, 1GHz-18GHz: 4.32dB,  $k=2$ .

### Measurement results

#### Charging, and camera mode /Average detector

| Frequency (MHz) | Measurement Result (dB $\mu$ V/m) | Cable loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dB $\mu$ V) | Limit (dB $\mu$ V/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------------|-----------------|-----------------------|-------------------------------|----------------------|-------------|--------------------|
| 17992.633       | 47.6                              | -29.1           | 46.7                  | 29.998                        | 54                   | 5.5         | V                  |
| 17969.400       | 47.5                              | -29.1           | 46.7                  | 29.901                        | 54                   | 5.7         | H                  |
| 17960.900       | 47.3                              | -29.1           | 46.7                  | 29.701                        | 54                   | 6.1         | V                  |
| 17989.800       | 47.3                              | -29.1           | 46.7                  | 29.698                        | 54                   | 6.4         | H                  |
| 17936.533       | 47.0                              | -29.4           | 46.7                  | 29.739                        | 54                   | 6.4         | V                  |
| 17968.267       | 47.0                              | -29.1           | 46.7                  | 29.401                        | 54                   | 6.5         | H                  |

#### Charging, and camera mode /Peak detector

| Frequency (MHz) | Measurement Result (dB $\mu$ V/m) | Cable loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dB $\mu$ V) | Limit (dB $\mu$ V/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------------|-----------------|-----------------------|-------------------------------|----------------------|-------------|--------------------|
| 17992.633       | 57.1                              | -29.1           | 46.7                  | 39.498                        | 74                   | 16.6        | H                  |
| 17983.567       | 56.1                              | -29.1           | 46.7                  | 38.498                        | 74                   | 17.3        | V                  |
| 17987.533       | 55.9                              | -29.1           | 46.7                  | 38.298                        | 74                   | 18.3        | V                  |
| 17966.567       | 55.7                              | -29.1           | 46.7                  | 38.101                        | 74                   | 18.3        | V                  |
| 17932.567       | 55.7                              | -29.4           | 46.7                  | 38.439                        | 74                   | 18.3        | H                  |
| 17964.867       | 55.5                              | -29.1           | 46.7                  | 37.901                        | 74                   | 18.3        | V                  |

#### Charging and GSM 850 RX mode /Average detector

| Frequency (MHz) | Measurement Result (dB $\mu$ V/m) | Cable loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dB $\mu$ V) | Limit (dB $\mu$ V/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------------|-----------------|-----------------------|-------------------------------|----------------------|-------------|--------------------|
| 17953.533       | 47.2                              | -28.9           | 46.7                  | 29.483                        | 54                   | 5.1         | V                  |
| 17969.400       | 47.1                              | -29.1           | 46.7                  | 29.501                        | 54                   | 5.4         | H                  |
| 17941.067       | 47.1                              | -28.9           | 46.7                  | 29.383                        | 54                   | 5.9         | H                  |
| 17973.933       | 47.1                              | -29.1           | 46.7                  | 29.501                        | 54                   | 6.1         | V                  |
| 17952.400       | 47.0                              | -28.9           | 46.7                  | 29.283                        | 54                   | 6.3         | H                  |
| 17980.733       | 46.9                              | -29.1           | 46.7                  | 29.298                        | 54                   | 6.4         | H                  |

**Charging and GSM 850 RX mode /Peak detector**

| 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) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17965.433       | 56.1                        | -29.1           | 46.7                  | 38.501                  | 74             | 17.4        | V                  |
| 17981.867       | 56.0                        | -29.1           | 46.7                  | 38.398                  | 74             | 17.6        | H                  |
| 17973.933       | 55.9                        | -29.1           | 46.7                  | 38.301                  | 74             | 18.1        | H                  |
| 17977.900       | 55.8                        | -29.1           | 46.7                  | 38.201                  | 74             | 18.3        | H                  |
| 17953.533       | 55.8                        | -28.9           | 46.7                  | 38.083                  | 74             | 18.4        | V                  |
| 17978.467       | 55.7                        | -29.1           | 46.7                  | 38.101                  | 74             | 18.4        | H                  |

**Charging and WCDMA 850 RX mode /Average detector**

| 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       | 47.6                        | -29.1           | 46.7                  | 30.0                    | 54             | 6.4         | V                  |
| 17974.500       | 47.2                        | -29.1           | 46.7                  | 29.6                    | 54             | 6.8         | V                  |
| 17971.100       | 47.2                        | -29.1           | 46.7                  | 29.6                    | 54             | 6.8         | H                  |
| 17973.933       | 46.9                        | -29.1           | 46.7                  | 29.3                    | 54             | 7.1         | V                  |
| 17971.667       | 46.7                        | -29.1           | 46.7                  | 29.1                    | 54             | 7.3         | V                  |
| 17996.600       | 46.7                        | -29.1           | 46.7                  | 29.1                    | 54             | 7.3         | H                  |

**Charging and WCDMA 850 RX mode /Peak detector**

| 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) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17980.167       | 57.0                        | -29.1           | 46.7                  | 39.4                    | 74             | 17.0        | H                  |
| 17959.767       | 56.8                        | -28.9           | 46.7                  | 39.1                    | 74             | 17.2        | V                  |
| 17994.900       | 56.5                        | -29.1           | 46.7                  | 38.9                    | 74             | 17.5        | V                  |
| 17993.200       | 56.1                        | -29.1           | 46.7                  | 38.5                    | 74             | 17.9        | H                  |
| 17965.433       | 55.9                        | -29.1           | 46.7                  | 38.3                    | 74             | 18.1        | V                  |
| 17994.333       | 55.9                        | -29.1           | 46.7                  | 38.3                    | 74             | 18.1        | V                  |

**Charging and LTE Band 12 RX mode /Average detector**

| 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) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17984.700       | 47.7                        | -29.1           | 46.7                  | 30.1                    | 54             | 6.3         | V                  |
| 17976.200       | 47.2                        | -29.1           | 46.7                  | 29.6                    | 54             | 6.8         | H                  |
| 17994.333       | 47.1                        | -29.1           | 46.7                  | 29.5                    | 54             | 6.9         | V                  |
| 17972.233       | 46.9                        | -29.1           | 46.7                  | 29.3                    | 54             | 7.1         | V                  |
| 17989.233       | 46.8                        | -29.1           | 46.7                  | 29.2                    | 54             | 7.2         | H                  |
| 17985.267       | 46.6                        | -29.1           | 46.7                  | 29.0                    | 54             | 7.4         | H                  |

**Charging and LTE Band 12 RX mode /Peak detector**

| 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) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17981.300       | 55.6                        | -29.1           | 46.7                  | 38.0                    | 74             | 18.4        | H                  |
| 17918.967       | 55.6                        | -29.3           | 46.7                  | 38.3                    | 74             | 18.4        | H                  |
| 17951.267       | 55.5                        | -28.9           | 46.7                  | 37.8                    | 74             | 18.5        | V                  |
| 17952.967       | 55.5                        | -28.9           | 46.7                  | 37.8                    | 74             | 18.5        | H                  |
| 17994.333       | 55.4                        | -29.1           | 46.7                  | 37.8                    | 74             | 18.6        | V                  |
| 17969.967       | 55.4                        | -29.1           | 46.7                  | 37.8                    | 74             | 18.6        | V                  |

**FM 88MHz mode /Average detector**

| 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) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17976.767       | 47.5                        | -29.1           | 46.7                  | 29.901                  | 54             | 6.1         | H                  |
| 17990.367       | 47.2                        | -29.1           | 46.7                  | 29.598                  | 54             | 6.2         | V                  |
| 17995.467       | 47.0                        | -29.1           | 46.7                  | 29.398                  | 54             | 6.4         | H                  |
| 17942.767       | 47.0                        | -28.9           | 46.7                  | 29.283                  | 54             | 6.4         | V                  |
| 17983.000       | 46.9                        | -29.1           | 46.7                  | 29.298                  | 54             | 6.5         | H                  |
| 17955.233       | 46.9                        | -28.9           | 46.7                  | 29.183                  | 54             | 6.6         | V                  |

**FM 88MHz mode /Peak detector**

| 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) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17966.000       | 56.3                        | -29.1           | 46.7                  | 38.701                  | 74             | 17.5        | V                  |
| 17990.367       | 55.7                        | -29.1           | 46.7                  | 38.098                  | 74             | 17.7        | V                  |
| 17968.833       | 55.6                        | -29.1           | 46.7                  | 38.001                  | 74             | 17.8        | H                  |
| 17976.767       | 55.4                        | -29.1           | 46.7                  | 37.801                  | 74             | 18.1        | V                  |
| 17949.567       | 55.3                        | -28.9           | 46.7                  | 37.583                  | 74             | 18.1        | H                  |
| 17984.700       | 55.3                        | -29.1           | 46.7                  | 37.698                  | 74             | 18.2        | H                  |

**USB and MP3 mode /Average detector**

| 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) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17996.600       | 47.6                        | -29.1           | 46.7                  | 29.998                  | 54             | 5.5         | H                  |
| 17983.000       | 47.0                        | -29.1           | 46.7                  | 29.398                  | 54             | 5.8         | H                  |
| 17993.200       | 46.5                        | -29.1           | 46.7                  | 28.898                  | 54             | 5.9         | V                  |
| 17977.333       | 46.5                        | -29.1           | 46.7                  | 28.901                  | 54             | 6.2         | V                  |
| 17999.433       | 46.4                        | -29.1           | 46.7                  | 28.798                  | 54             | 6.2         | V                  |
| 17954.667       | 46.3                        | -28.9           | 46.7                  | 28.583                  | 54             | 6.3         | H                  |

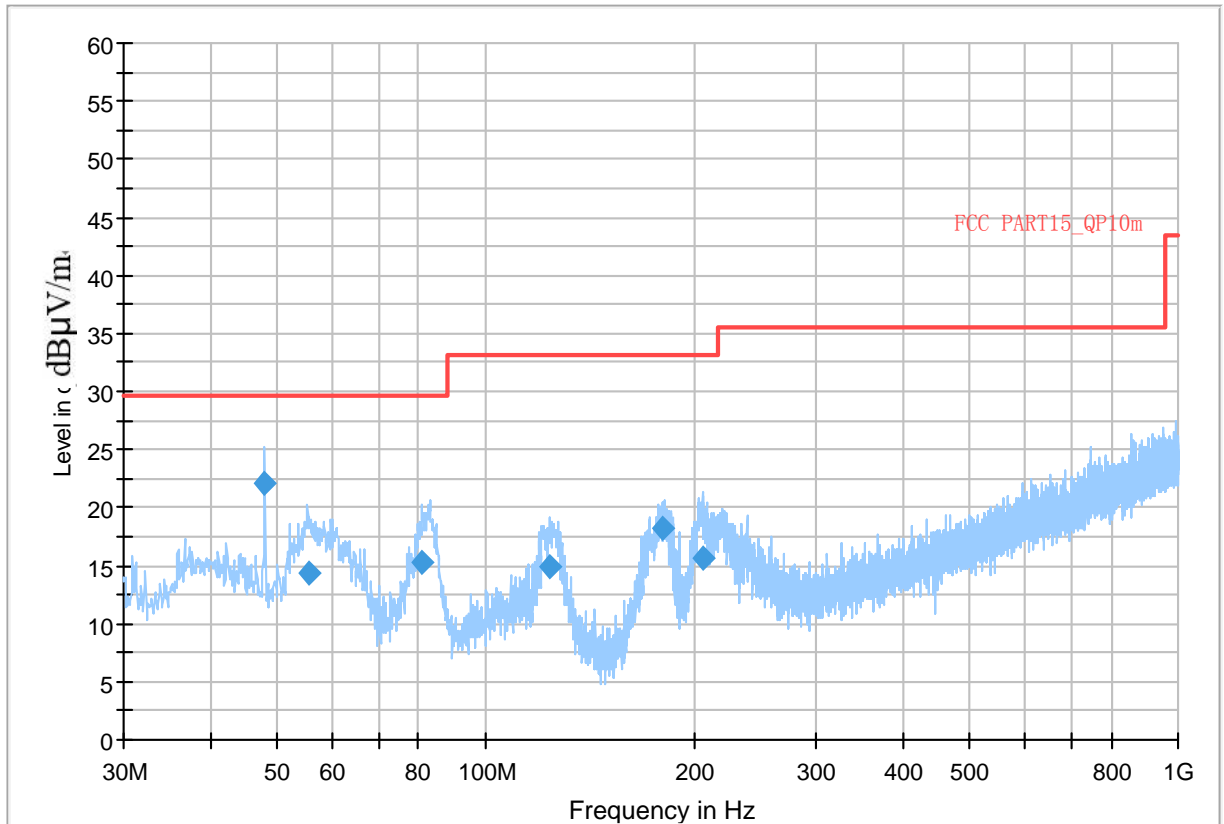
**USB and MP3 mode /Peak detector**

| Frequency (MHz) | Measurement Result (dB $\mu$ V/m) | Cable loss (dB) | Antenna Factor (dB/m) | Receiver Reading (dB $\mu$ V) | Limit (dB $\mu$ V/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------------|-----------------|-----------------------|-------------------------------|----------------------|-------------|--------------------|
| 17976.767       | 55.4                              | -29.1           | 46.7                  | 37.801                        | 74                   | 17.1        | H                  |
| 17979.600       | 55.2                              | -29.1           | 46.7                  | 37.601                        | 74                   | 17.3        | H                  |
| 17939.367       | 55.1                              | -29.4           | 46.7                  | 37.839                        | 74                   | 17.4        | H                  |
| 17989.800       | 55.1                              | -29.1           | 46.7                  | 37.498                        | 74                   | 17.4        | V                  |
| 17969.400       | 55.0                              | -29.1           | 46.7                  | 37.401                        | 74                   | 17.5        | V                  |
| 17836.800       | 54.8                              | -29.7           | 46.0                  | 38.524                        | 74                   | 17.5        | H                  |



**Charging, and camera mode**

Full Spectrum



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

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|------------|
| 48.042000       | 22.00              | 29.50          | 7.54        | 1000.0          | 120.000         | 187.0       | V   | 210.0         | -11.5      |
| 55.608000       | 14.39              | 29.50          | 15.15       | 1000.0          | 120.000         | 226.0       | V   | 101.0         | -11.2      |
| 81.022000       | 15.19              | 29.50          | 14.35       | 1000.0          | 120.000         | 196.0       | V   | 253.0         | -16.9      |
| 123.702000      | 14.93              | 33.10          | 18.13       | 1000.0          | 120.000         | 121.0       | V   | -16.0         | -14.8      |
| 180.253000      | 18.27              | 33.10          | 14.79       | 1000.0          | 120.000         | 103.0       | V   | -2.0          | -13.9      |
| 205.376000      | 15.63              | 33.10          | 17.43       | 1000.0          | 120.000         | 114.0       | V   | 30.0          | -12.0      |

Full Spectrum

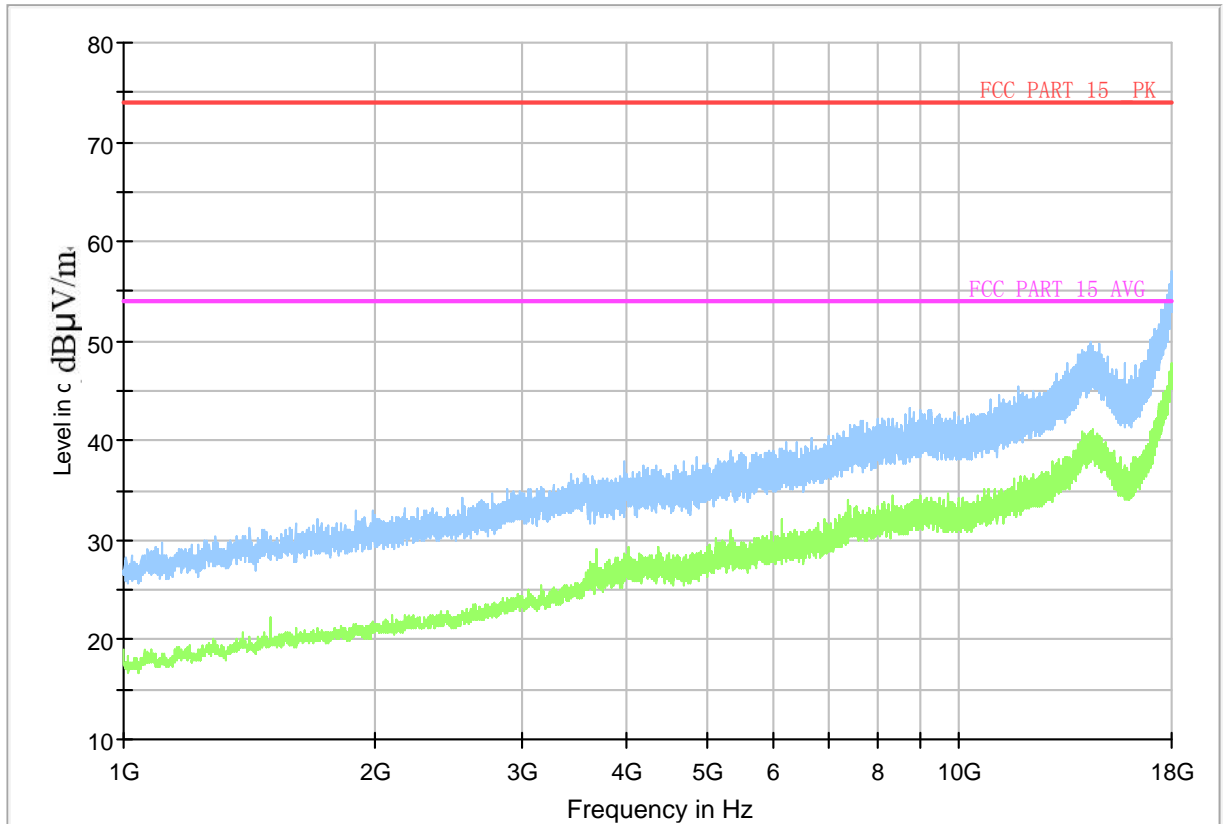


Figure A.2 Radiated Emission from 1GHz to 18GHz

### Charging and GSM 850 RX mode

Full Spectrum

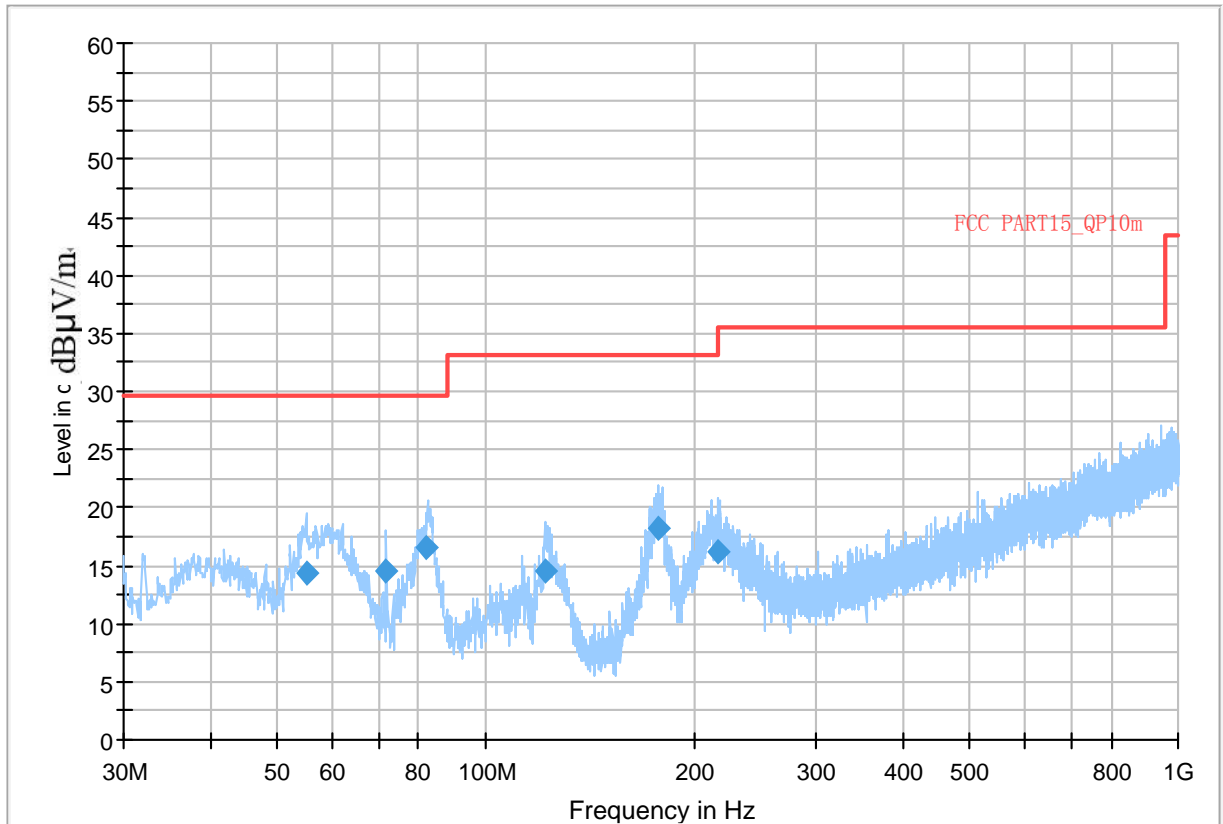


Figure A.3 Radiated Emission from 30MHz to 1GHz

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|------------|
| 55.026000       | 14.39              | 29.50          | 15.15       | 1000.0          | 120.000         | 318.0       | V   | -3.0          | -11.2      |
| 71.904000       | 14.50              | 29.50          | 15.04       | 1000.0          | 120.000         | 201.0       | V   | 30.0          | -15.7      |
| 81.895000       | 16.60              | 29.50          | 12.94       | 1000.0          | 120.000         | 187.0       | V   | 263.0         | -16.6      |
| 121.956000      | 14.59              | 33.10          | 18.47       | 1000.0          | 120.000         | 125.0       | V   | -21.0         | -14.6      |
| 177.634000      | 18.31              | 33.10          | 14.75       | 1000.0          | 120.000         | 111.0       | V   | -4.0          | -14.1      |
| 217.016000      | 16.22              | 35.60          | 19.34       | 1000.0          | 120.000         | 107.0       | V   | 160.0         | -11.6      |

Full Spectrum

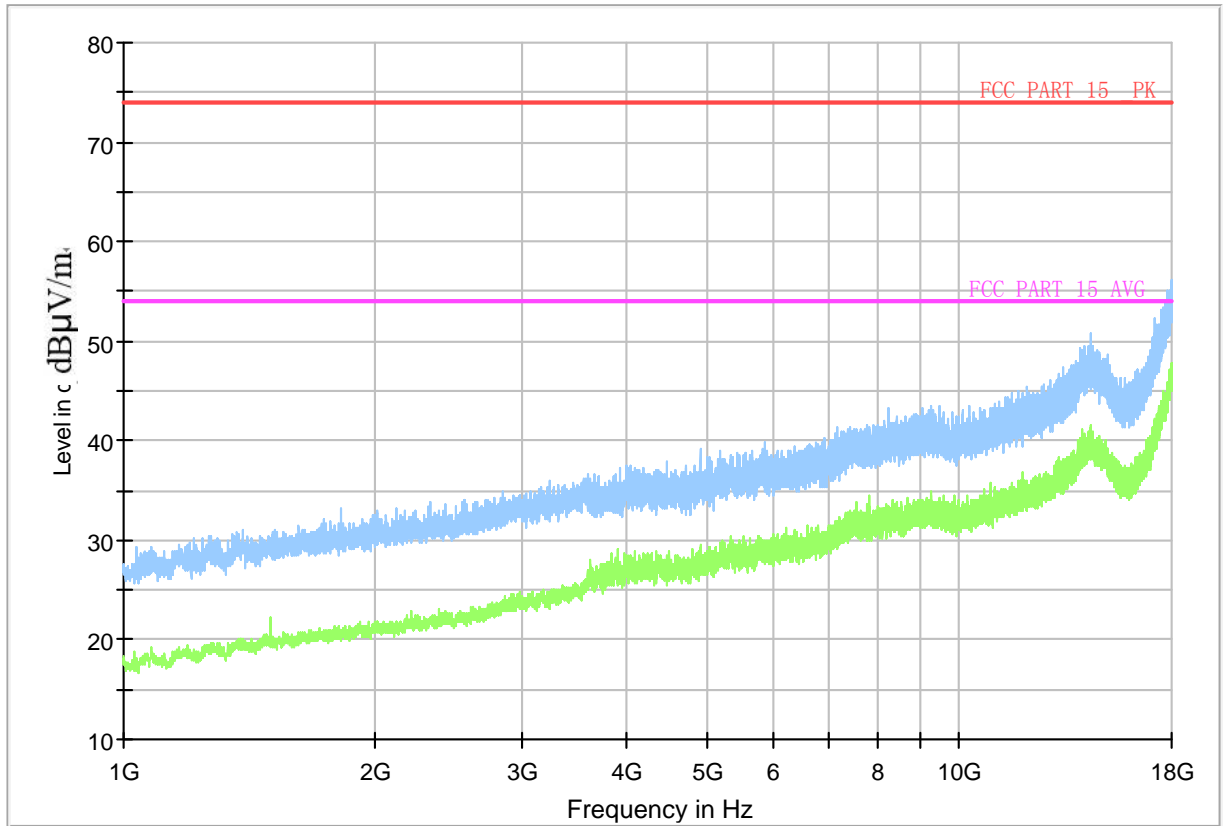
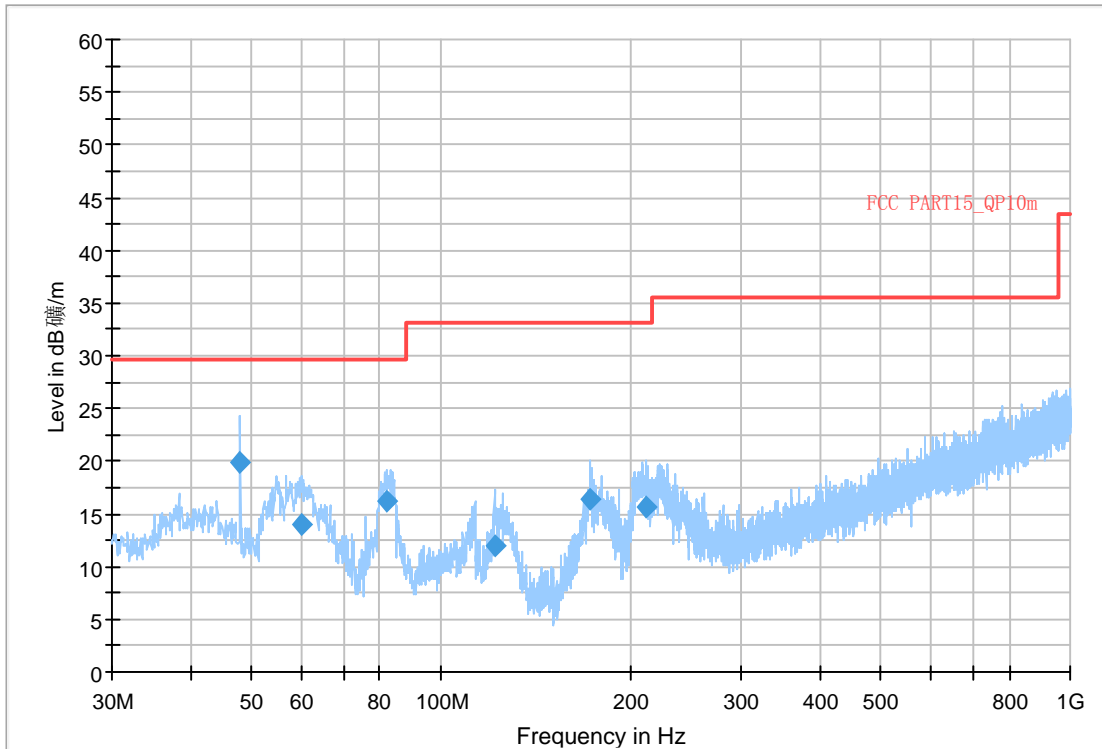


Figure A.4 Radiated Emission from 1GHz to 18GHz

### Charging and WCDMA 850 RX mode

Full Spectrum



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

| Frequency (MHz) | QuasiPeak (dB $\mu$ V/m) | Limit (dB $\mu$ V/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) |
|-----------------|--------------------------|----------------------|-------------|-----------------|-----------------|-------------|-----|---------------|------------|
| 47.945000       | 19.82                    | 29.50                | 9.72        | 1000.0          | 120.000         | 334.0       | V   | -20.0         | -11.5      |
| 59.973000       | 13.96                    | 29.50                | 15.58       | 1000.0          | 120.000         | 191.0       | V   | 0.0           | -11.4      |
| 81.895000       | 16.23                    | 29.50                | 13.31       | 1000.0          | 120.000         | 125.0       | V   | 251.0         | -16.6      |
| 121.665000      | 12.04                    | 33.10                | 21.02       | 1000.0          | 120.000         | 235.0       | V   | 61.0          | -14.5      |
| 173.075000      | 16.33                    | 33.10                | 16.73       | 1000.0          | 120.000         | 113.0       | V   | 6.0           | -14.5      |
| 211.972000      | 15.71                    | 33.10                | 17.35       | 1000.0          | 120.000         | 235.0       | V   | 65.0          | -11.9      |

Full Spectrum

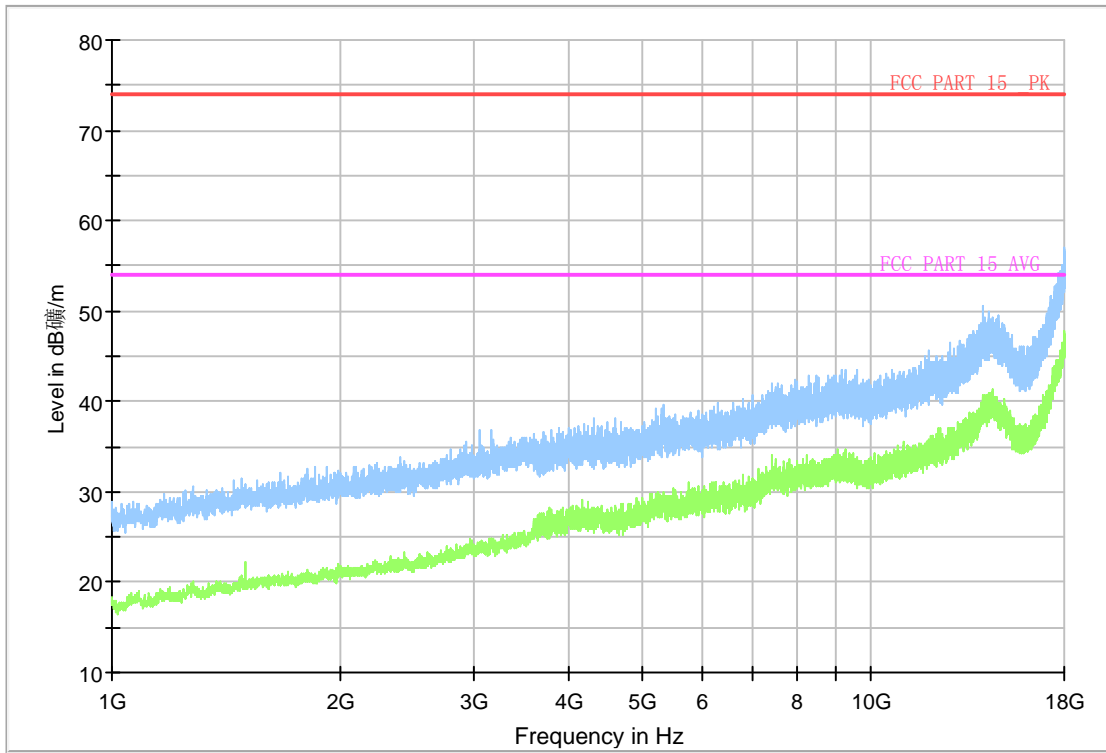


Figure A.6 Radiated Emission from 1GHz to 18GHz

### Charging and LTE Band 12 RX mode

Full Spectrum

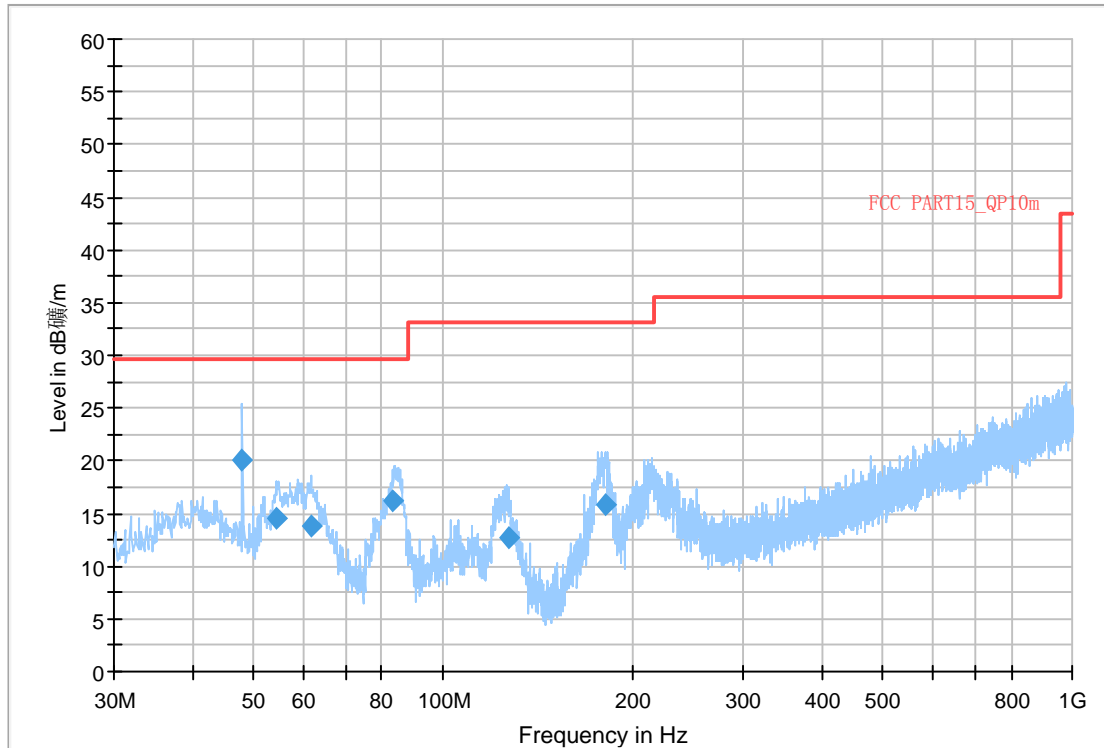


Figure A.7 Radiated Emission from 30MHz to 1GHz

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) |
|-----------------|--------------------|----------------|-------------|------------|-----------------|-------------|-----|---------------|------------|
| 47.945000       | 19.97              | 29.50          | 9.57        | 1000.0     | 120.000         | 298.0       | V   | 279.0         | -11.5      |
| 54.347000       | 14.45              | 29.50          | 15.09       | 1000.0     | 120.000         | 300.0       | V   | -12.0         | -11.4      |
| 61.913000       | 13.73              | 29.50          | 15.81       | 1000.0     | 120.000         | 203.0       | V   | 9.0           | -12.3      |
| 83.156000       | 16.19              | 29.50          | 13.35       | 1000.0     | 120.000         | 125.0       | V   | 240.0         | -16.3      |
| 127.097000      | 12.75              | 33.10          | 20.31       | 1000.0     | 120.000         | 125.0       | V   | -9.0          | -15.2      |
| 181.514000      | 15.81              | 33.10          | 17.25       | 1000.0     | 120.000         | 107.0       | V   | -10.0         | -13.8      |

Full Spectrum

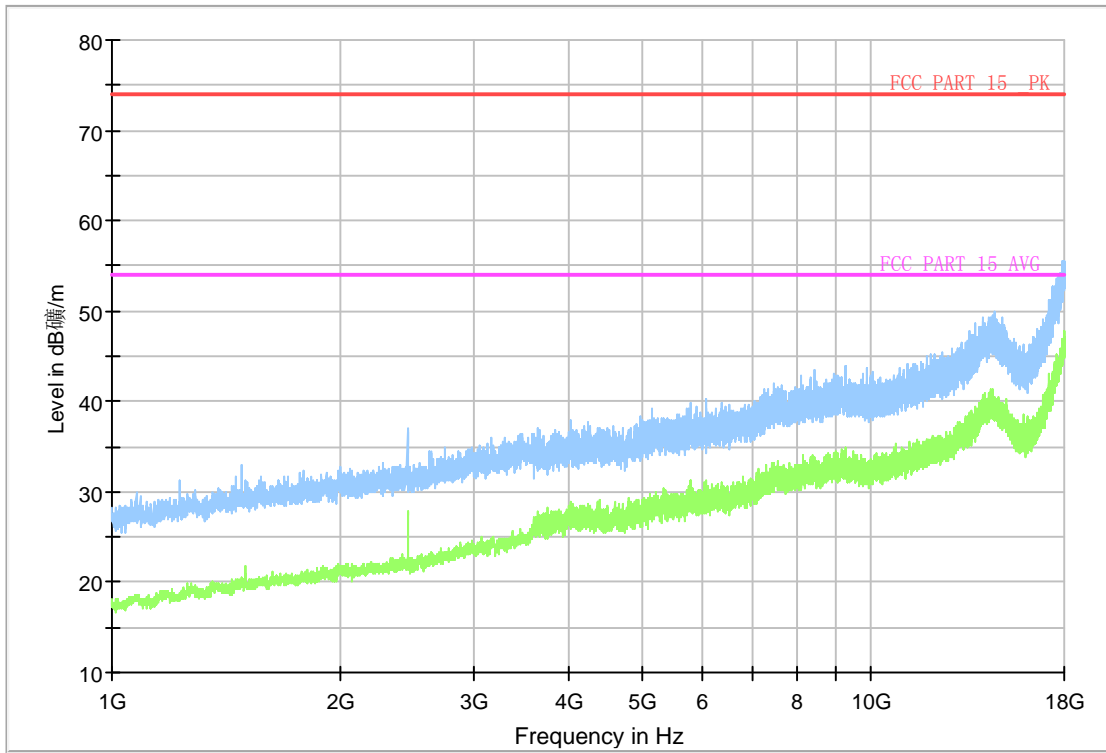
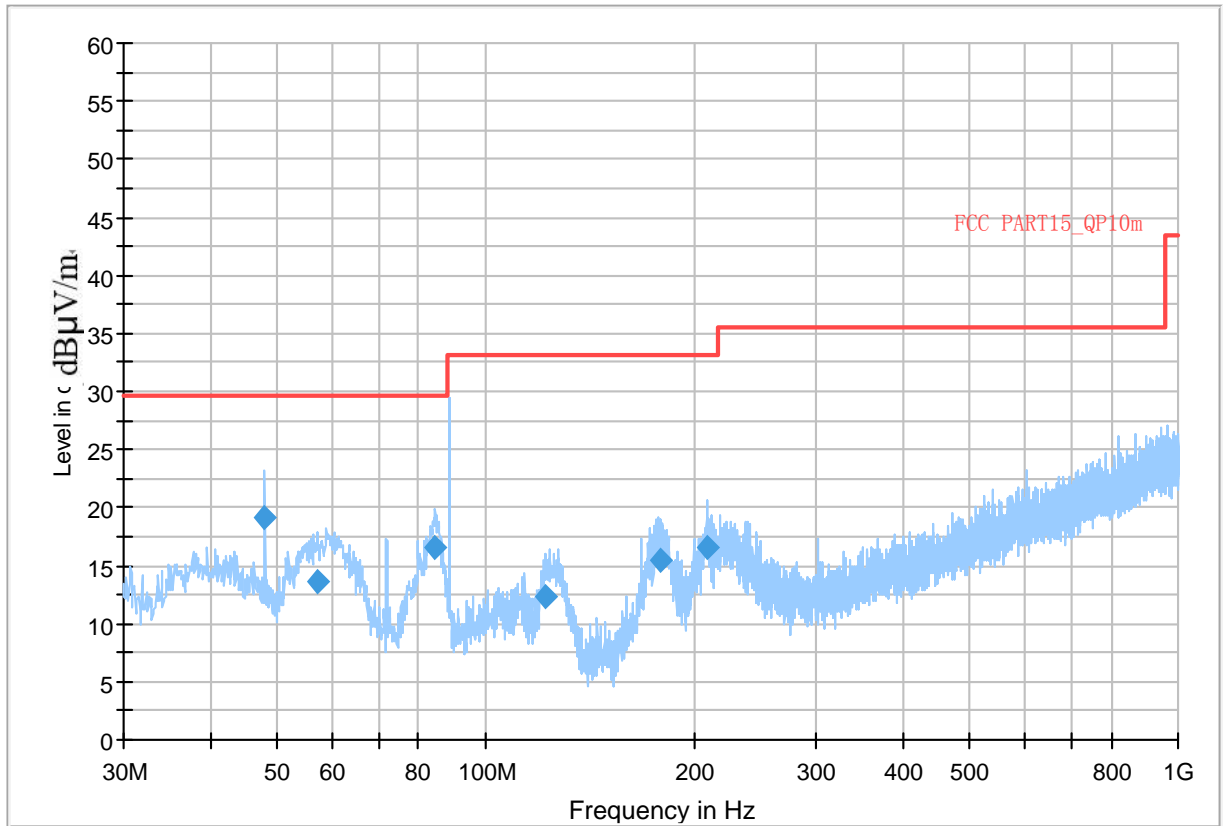


Figure A.8 Radiated Emission from 1GHz to 18GHz



**FM 88MHz mode**

## Full Spectrum


**Figure A.9 Radiated Emission from 30MHz to 1GHz**

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|------------|
| 47.945000       | 19.06              | 29.50          | 10.48       | 1000.0          | 120.000         | 331.0       | V   | 79.0          | -11.5      |
| 57.063000       | 13.56              | 29.50          | 15.98       | 1000.0          | 120.000         | 345.0       | V   | 120.0         | -11.2      |
| 84.611000       | 16.59              | 29.50          | 12.95       | 1000.0          | 120.000         | 125.0       | V   | 254.0         | -16.0      |
| 121.956000      | 12.26              | 33.10          | 20.80       | 1000.0          | 120.000         | 125.0       | V   | 5.0           | -14.6      |
| 179.380000      | 15.40              | 33.10          | 17.66       | 1000.0          | 120.000         | 191.0       | V   | -6.0          | -14.0      |
| 209.062000      | 16.56              | 33.10          | 16.50       | 1000.0          | 120.000         | 105.0       | V   | 78.0          | -12.0      |

Full Spectrum

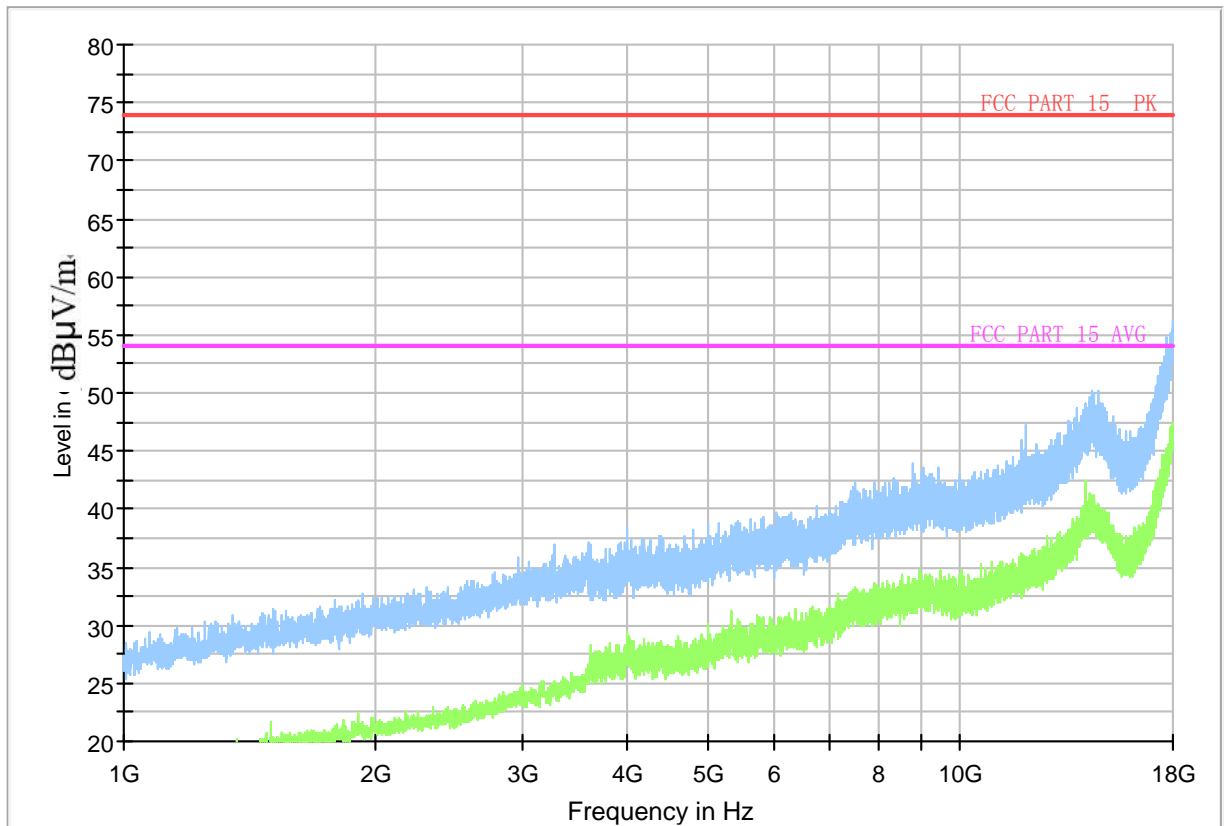


Figure A.10 Radiated Emission from 1GHz to 18GHz

USB and MP3 mode

Full Spectrum

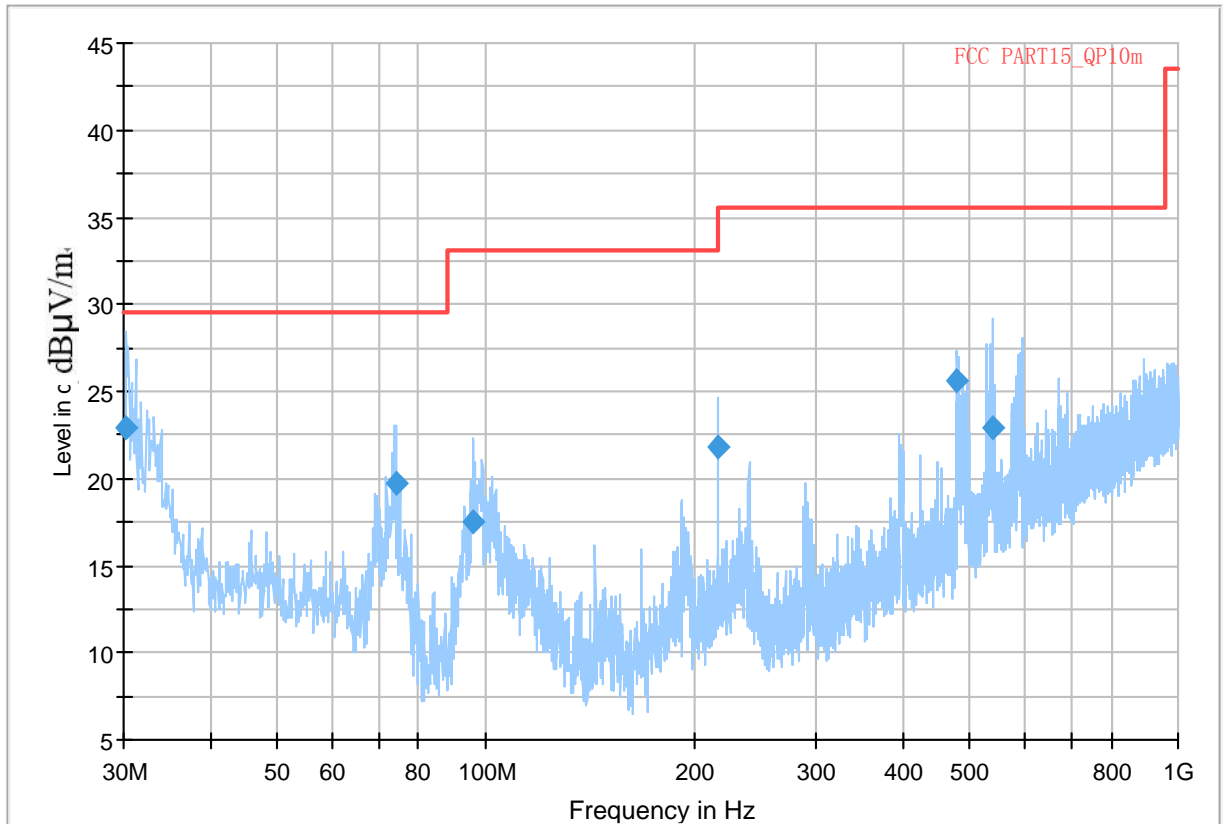


Figure A.11 Radiated Emission from 30MHz to 1GHz

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|
| 30.291000       | 22.94              | 29.50          | 6.60        | 1000.0          | 120.000         | 301.0       | V   | 202.0         |
| 74.038000       | 19.69              | 29.50          | 9.85        | 1000.0          | 120.000         | 186.0       | V   | 245.0         |
| 95.766000       | 17.51              | 33.10          | 15.55       | 1000.0          | 120.000         | 100.0       | V   | 245.0         |
| 215.949000      | 21.86              | 33.10          | 11.20       | 1000.0          | 120.000         | 120.0       | V   | -5.0          |
| 480.371000      | 25.57              | 35.60          | 9.99        | 1000.0          | 120.000         | 297.0       | V   | 16.0          |
| 538.377000      | 22.87              | 35.60          | 12.69       | 1000.0          | 120.000         | 235.0       | V   | 2.0           |

Full Spectrum

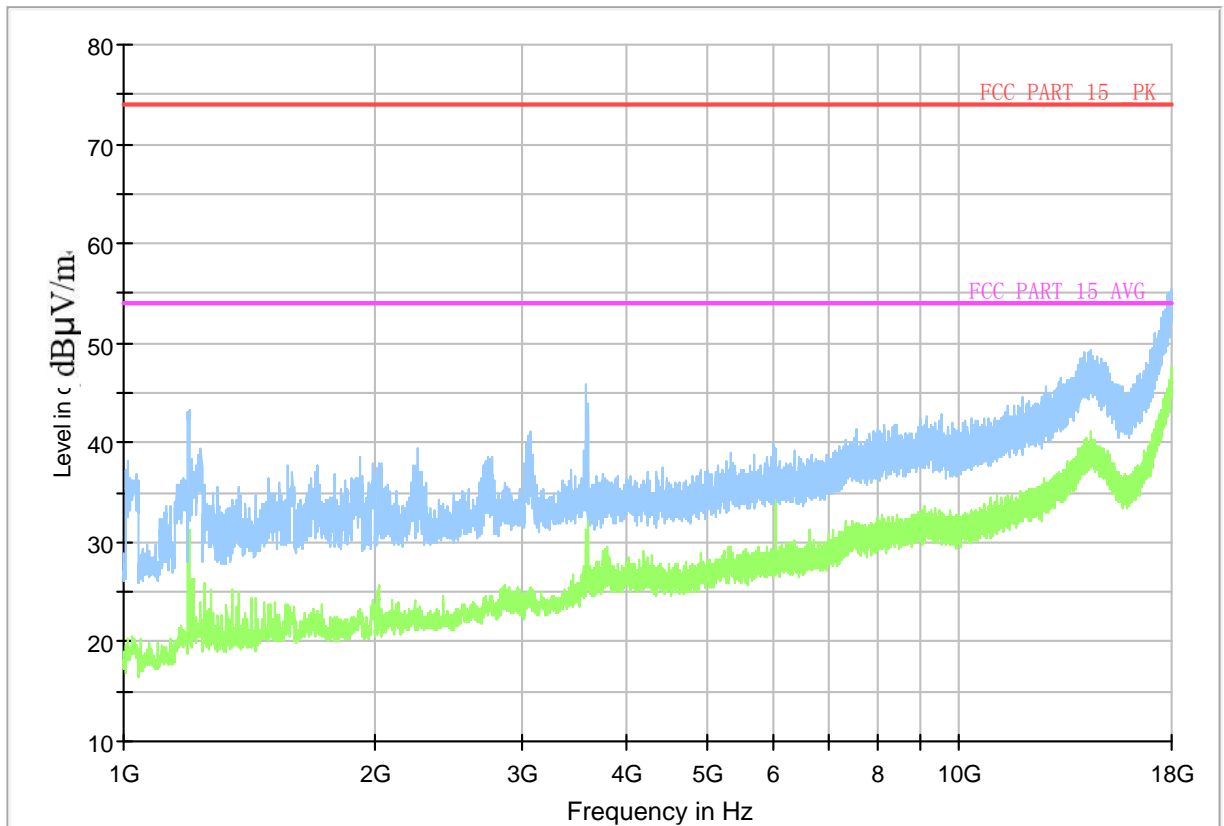


Figure A.12 Radiated Emission from 1GHz to 18GHz

### Charging and NSA 2A\_n5A RX mode

Full Spectrum

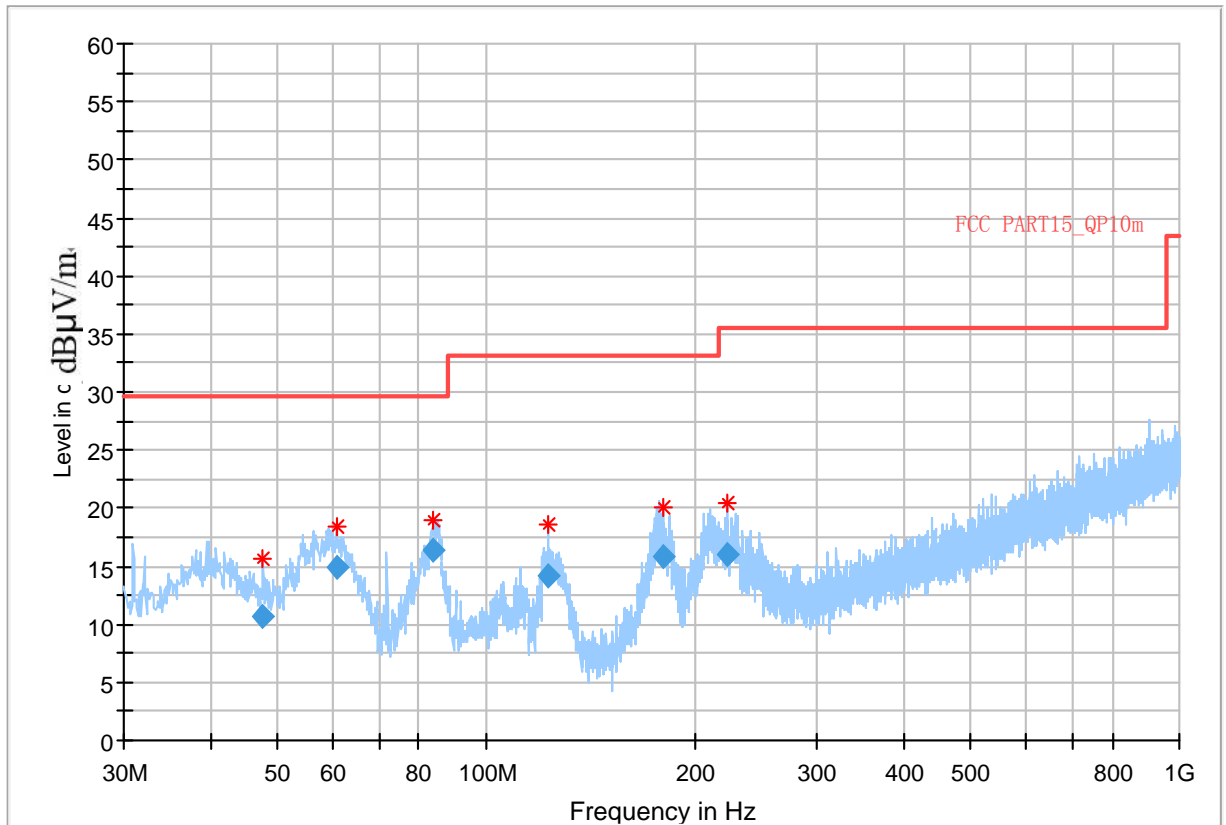


Figure A.13 Radiated Emission from 30MHz to 1GHz

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|------------|
| 47.654000       | 10.72              | 29.50          | 18.82       | 1000.0          | 120.000         | 235.0       | V   | -25.0         | -11.5      |
| 61.040000       | 15.00              | 29.50          | 14.54       | 1000.0          | 120.000         | 210.0       | V   | 160.0         | -11.9      |
| 84.029000       | 16.29              | 29.50          | 13.25       | 1000.0          | 120.000         | 120.0       | V   | 256.0         | -16.1      |
| 123.120000      | 14.20              | 33.10          | 18.86       | 1000.0          | 120.000         | 125.0       | V   | -20.0         | -14.7      |
| 179.768000      | 15.76              | 33.10          | 17.30       | 1000.0          | 120.000         | 121.0       | V   | 12.0          | -14.0      |
| 222.254000      | 16.03              | 35.60          | 19.53       | 1000.0          | 120.000         | 110.0       | V   | 157.0         | -11.3      |

Full Spectrum

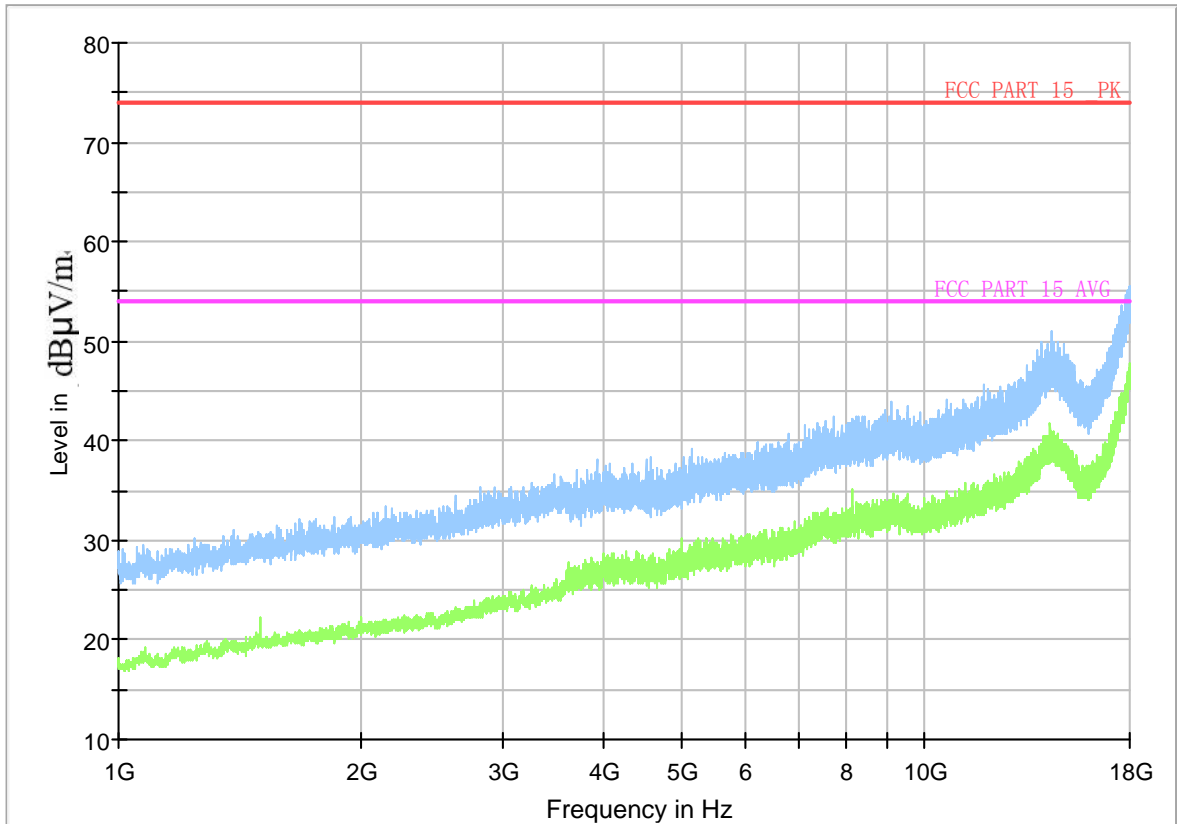


Figure A.14 Radiated Emission from 1GHz to 18GHz

## 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 and USB mode.

Note: I/O information: Printer – USB, Mouse – PS/2, Keyboard – USB.

#### A.2.3 Measurement Limit

| Frequency of emission (MHz) | Conducted limit (dB $\mu$ 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             |

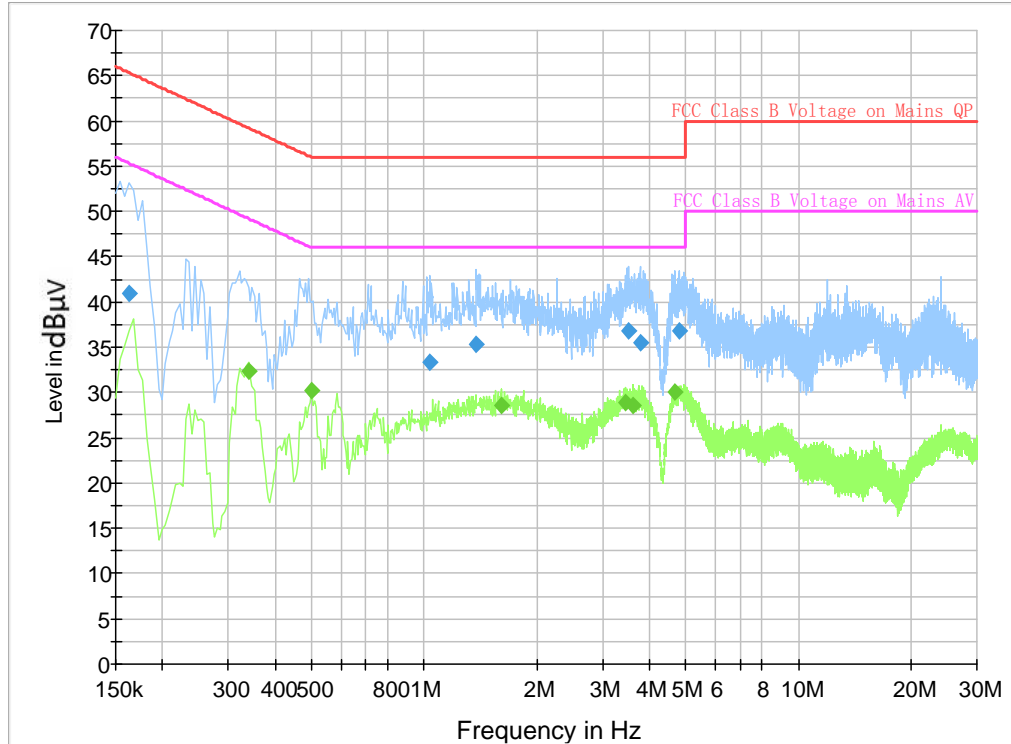
  

| RBW/IF bandwidth | Sweep Time(s) |
|------------------|---------------|
| 9kHz             | 1             |

### A.2.5 Measurement Results

Measurement uncertainty:  $U= 3.10$  dB,  $k=2$ .

#### Charging and camera mode



**Figure A.15 Conducted Emission**

Note1: The graphic result above is the maximum of the measurements for both phase line and neutral line.

#### Final Result 1

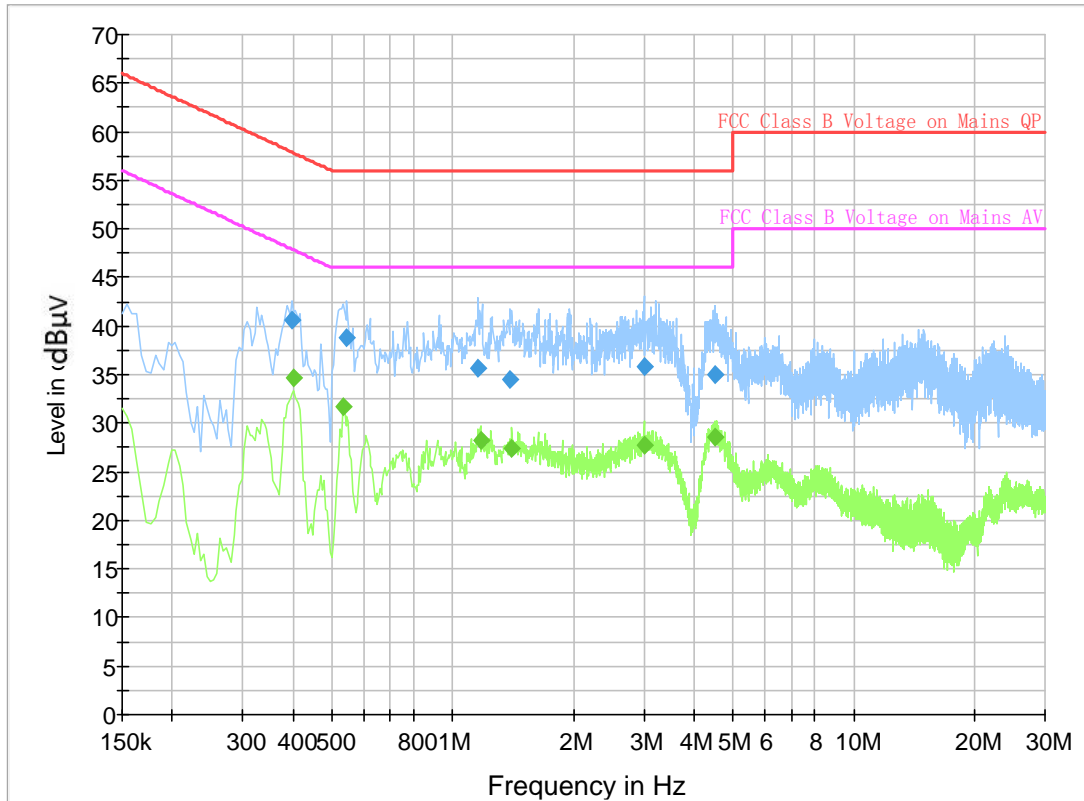
| Frequency (MHz) | QuasiPeak (dBµV) | PE  | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|-----------------|------------------|-----|------|------------|-------------|--------------|
| 0.163500        | 41.0             | GND | L1   | 10.0       | 24.3        | 65.3         |
| 1.036500        | 33.4             | GND | L1   | 10.0       | 22.6        | 56.0         |
| 1.378500        | 35.4             | GND | L1   | 10.0       | 20.6        | 56.0         |
| 3.511500        | 36.8             | GND | L1   | 10.1       | 19.2        | 56.0         |
| 3.772500        | 35.5             | GND | L1   | 10.1       | 20.5        | 56.0         |
| 4.816500        | 36.9             | GND | L1   | 10.2       | 19.1        | 56.0         |

#### Final Result 2

| Frequency (MHz) | CAverage (dBµV) | PE  | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|-----------------|-----------------|-----|------|------------|-------------|--------------|
| 0.339000        | 32.3            | GND | N    | 10.0       | 16.9        | 49.2         |
| 0.501000        | 30.2            | GND | N    | 10.0       | 15.8        | 46.0         |
| 1.612500        | 28.6            | GND | L1   | 10.0       | 17.4        | 46.0         |
| 3.448500        | 28.9            | GND | N    | 10.1       | 17.1        | 46.0         |
| 3.628500        | 28.5            | GND | L1   | 10.1       | 17.5        | 46.0         |
| 4.699500        | 30.0            | GND | N    | 10.1       | 16.0        | 46.0         |



### Charging and GSM 850 RX mode



**Figure A.16 Conducted Emission**

Note1: The graphic result above is the maximum of the measurements for both phase line and neutral line.

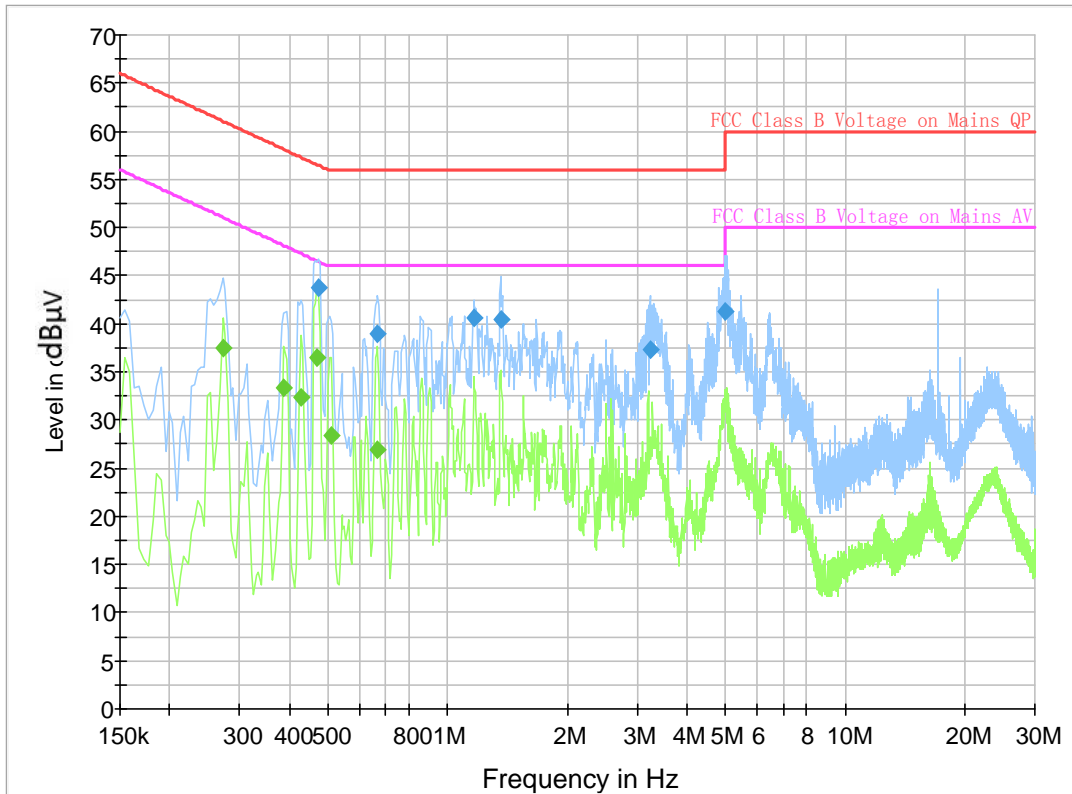
#### Final Result 1

| Frequency (MHz) | QuasiPeak (dBµV) | PE  | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|-----------------|------------------|-----|------|------------|-------------|--------------|
| 0.397500        | 40.6             | GND | N    | 9.9        | 17.3        | 57.9         |
| 0.546000        | 38.8             | GND | N    | 10.0       | 17.2        | 56.0         |
| 1.158000        | 35.6             | GND | N    | 10.0       | 20.4        | 56.0         |
| 1.392000        | 34.5             | GND | L1   | 10.0       | 21.5        | 56.0         |
| 2.998500        | 35.8             | GND | N    | 10.0       | 20.2        | 56.0         |
| 4.519500        | 35.1             | GND | L1   | 10.1       | 20.9        | 56.0         |

#### Final Result 2

| Frequency (MHz) | CAverage (dBµV) | PE  | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|-----------------|-----------------|-----|------|------------|-------------|--------------|
| 0.402000        | 34.7            | GND | N    | 9.9        | 13.1        | 47.8         |
| 0.532500        | 31.7            | GND | N    | 10.0       | 14.3        | 46.0         |
| 1.176000        | 28.2            | GND | L1   | 10.0       | 17.8        | 46.0         |
| 1.405500        | 27.4            | GND | N    | 10.0       | 18.6        | 46.0         |
| 2.998500        | 27.7            | GND | L1   | 10.1       | 18.3        | 46.0         |
| 4.492500        | 28.6            | GND | N    | 10.1       | 17.4        | 46.0         |

### USB and MP3 mode



**Figure A.17 Conducted Emission**

Note1: The graphic result above is the maximum of the measurements for both phase line and neutral line.

#### Final Result 1

| Frequency (MHz) | QuasiPeak (dBµV) | PE  | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|-----------------|------------------|-----|------|------------|-------------|--------------|
| 0.474000        | 43.8             | GND | N    | 10.0       | 12.7        | 56.4         |
| 0.667500        | 39.0             | GND | L1   | 9.9        | 17.0        | 56.0         |
| 1.167000        | 40.7             | GND | L1   | 10.0       | 15.3        | 56.0         |
| 1.360500        | 40.4             | GND | L1   | 10.0       | 15.6        | 56.0         |
| 3.228000        | 37.3             | GND | L1   | 10.0       | 18.7        | 56.0         |
| 4.996500        | 41.3             | GND | L1   | 10.2       | 14.7        | 56.0         |

#### Final Result 2

| Frequency (MHz) | CAverage (dBµV) | PE  | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|-----------------|-----------------|-----|------|------------|-------------|--------------|
| 0.271500        | 37.4            | GND | N    | 10.0       | 13.7        | 51.1         |
| 0.388500        | 33.4            | GND | N    | 10.0       | 14.7        | 48.1         |
| 0.429000        | 32.4            | GND | L1   | 10.0       | 14.9        | 47.3         |
| 0.469500        | 36.5            | GND | N    | 10.0       | 10.1        | 46.5         |
| 0.510000        | 28.4            | GND | N    | 10.0       | 17.6        | 46.0         |
| 0.667500        | 27.0            | GND | N    | 9.9        | 19.0        | 46.0         |

## **ANNEX B: Persons involved in this testing**

| Test Item           | Tester               |
|---------------------|----------------------|
| Radiated Emission   | Wang Huan, Ding Zai  |
| Conducted Emission  | Yang Mengke          |
| Edit of this report | Wan Sijia, Zhang Xia |

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