



# FCC 15B TEST REPORT

No. I21Z62451-EMC01

for

**HMD Global Oy**

**Smart Phone**

**Model Name: N151DL**

**FCC ID: 2AJOTTA-1510**

with

**Hardware Version: V1.0**

**Software Version: 02US\_0\_060**

**Issued Date: 2022-02-10**

**Note:**

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**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: [cttl\\_terminals@caict.ac.cn](mailto:cttl_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> |
|----------------------|-----------------|-------------------------|-------------------|
| I21Z62451-EMC01      | Rev.0           | 1 <sup>st</sup> edition | 2022-02-10        |

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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℃

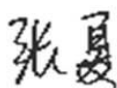
Relative Humidity: 20-75%

### **1.3. Project data**

Testing Start Date: 2022-01-13

Testing End Date: 2022-01-27

### **1.4. Signature**



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**Zhang Xia**

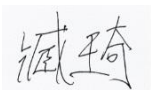
**(Prepared this test report)**



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**An Hui**

**(Reviewed this test report)**



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**Zang Qi**

**Deputy Director of the EMC laboratory**

**(Approved this test report)**

## **2. Client Information**

### **2.1. Applicant Information**

Company Name: HMD Global Oy  
Address /Post: Bertel Jungin aukio 9, 02600 Espoo, Finland  
Contact: Reza Serafat  
Email: reza.serafat@hmdglobal.com  
Telephone: +491735287964  
Fax: /

### **2.2. Manufacturer Information**

Company Name: HMD Global Oy  
Address /Post: Bertel Jungin aukio 9, 02600 Espoo, Finland  
Contact: Reza Serafat  
Email: reza.serafat@hmdglobal.com  
Telephone: +491735287964  
Fax: /

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

#### 3.1. About EUT

|             |              |
|-------------|--------------|
| Description | Smart Phone  |
| Model Name  | N151DL       |
| FCC ID      | 2AJOTTA-1510 |

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    | 350819780021001/01 | V1.0       | 02US_0_060 |

\*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 | Note                |
|--------|-------------|---------------------|
| AE1    | Adapter     | CH011               |
| AE2    | USB Cable   | /                   |
| AE3    | Headset     | Not the part of EUT |

AE1

|              |                                      |
|--------------|--------------------------------------|
| Model        | TN-050200U3                          |
| Manufacturer | Dongguan Gangqi Electronic Co., Ltd. |

AE2

|              |                                                     |
|--------------|-----------------------------------------------------|
| Model        | TYPE-C/2A                                           |
| Manufacturer | Suntops(SHENZHEN) Communication Industrial Co., Ltd |
| Length       | 1m                                                  |

AE3

|                 |         |
|-----------------|---------|
| 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                | Charger           |
| Set.2          | EUT1 + AE1+AE3            | Charger + Headset |
| Set.3          | EUT1 + PC                 | Charger + PC      |

Note : The device contains receivers which tune and operate between 30MHz-960MHz in the following bands: GSM 850MHz, WCDMA Band5, LTE Bands 5/12/13/71. The measurement results showed here are worst cases of different bands.

### **3.5. General Description**

Equipment Under Test (EUT) is a model of Smart Phone with integrated antenna.

It supports

GSM Frequency Band      GSM 1900/GSM 850

UMTS Frequency Band    FDD Band II / IV / V

LTE Frequency Band      LTE FDD Bands 2/4/5/12/13/66/71 LTE FDD Band 41.

It support MP3, Camera, USB data transfer and memory card.

Specifications of the EUT were provided to fulfil the test.

Samples undergoing test were selected by the client.

EUT feature information is supplied by the applicant or manufacturer, which is the basis of testing.

## **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 × 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;<br>1MHz - 1000MHz, >90dB. |
| Electrical insulation                           | > 2 MΩ                                          |
| Ground system resistance                        | < 4 Ω                                           |
| Normalised site attenuation (NSA)               | < ±4 dB, 10 m distance                          |
| Site voltage standing-wave ratio ( $S_{VSWR}$ ) | Between 0 and 6 dB, from 1GHz to 6GHz           |
| Uniformity of field strength                    | Between 0 and 6 dB, from 80 to 3000 MHz         |

**Shielded room** did not exceed following limits along the EMC testing:

|                          |                                               |
|--------------------------|-----------------------------------------------|
| Temperature              | Min. = 15 °C, Max. = 35 °C                    |
| Relative humidity        | Min. = 20 %, Max. = 75 %                      |
| Shielding effectiveness  | 0.014MHz-1MHz, >60dB;<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     | CALIBRATION INTERVAL | CAL DUE DATE |
|-----|--------------------------------------|-----------|---------------|-----------------|----------------------|--------------|
| 1   | LISN                                 | ENV216    | 101200        | Rohde & Schwarz | 1 year               | 2022-05-30   |
| 2   | Test Receiver                        | ESCI 7    | 100344        | Rohde & Schwarz | 1 year               | 2022-02-23   |
| 3   | Universal Radio Communication Tester | CMW500    | 116588        | R&S             | 1 year               | 2022-12-20   |
| 4   | Test Receiver                        | ESW44     | 103023        | R&S             | 1 year               | 2022-10-28   |
| 5   | BiLog Antenna                        | VULB9163  | 9163-01223    | Schwarzbeck     | 1 year               | 2022-03-22   |
| 6   | EMI Antenna                          | 3115      | 00167250      | ETS-Lindgren    | 1 year               | 2022-07-01   |
| 7   | Broadcast Test Center                | BTC       | 101024        | R&S             | 1 year               | 2022-01-27   |
| 8   | PC                                   | M4000e-17 | M706GWXD      | Lenovo          | N/A                  | N/A          |
| 9   | Printer                              | P1606dn   | VNC3L52122    | HP              | N/A                  | N/A          |

| Test Item                    | Test Software and Version | Software Vendor |
|------------------------------|---------------------------|-----------------|
| Radiated Continuous Emission | EMC32 V10.60.10           | R&S             |
| Conducted Emission           | EMC32 V8.53.0             | 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) 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 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.

#### **A.1.3 Measurement Limit**

| Frequency range<br>(MHz) | Field strength limit (μV/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.

$$\text{Limit}(10\text{m})=\text{Limit}(3\text{m})+20[\log(3/10)]$$

#### **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:

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

Where

$G_A$ : Antenna factor of receive antenna

$G_{\text{PL}}$ : Path Loss

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

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

Note: The measurement results showed here are worst cases of the combinations of different Battery, cables and Headset.

Note: The measurement results showed here are worst cases.

**Measurement results for Set.1:**
**EUT1 Charger+Front Camera+LTE Band 12 idle Mode/QP detector**

| Frequency (MHz) | QuasiPeak (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|
| 54.347000       | 14.65              | 29.54          | 14.89       | 2000.0          | 120.000         | 95.0        | V   | 280.0         |
| 84.223000       | 18.76              | 29.54          | 10.78       | 2000.0          | 120.000         | 125.0       | V   | -10.0         |
| 87.715000       | 15.94              | 29.54          | 13.60       | 2000.0          | 120.000         | 183.0       | V   | 11.0          |
| 169.486000      | 11.66              | 33.06          | 21.40       | 2000.0          | 120.000         | 275.0       | V   | -8.0          |
| 176.082000      | 15.07              | 33.06          | 17.99       | 2000.0          | 120.000         | 183.0       | V   | -10.0         |
| 292.288000      | 13.96              | 35.56          | 21.60       | 2000.0          | 120.000         | 275.0       | H   | 120.0         |

**EUT1 Charger+Front Camera+LTE Band 12 idle Mode/Average detector**

| Frequency (MHz) | Measurement Result (dBμV/m) | Cable loss (dB) | Antenna Factor (dB/m) | Receiver eading (dBμV) | Limit (dBμV/m) | Margin (dB) | Antenna Pol. (H/V) |
|-----------------|-----------------------------|-----------------|-----------------------|------------------------|----------------|-------------|--------------------|
| 17965.320       | 44.2                        | -29.1           | 46.7                  | 26.601                 | 54.000         | 9.800       | H                  |
| 17946.620       | 43.9                        | -28.9           | 46.7                  | 26.183                 | 54.000         | 10.100      | V                  |
| 17977.560       | 43.8                        | -29.1           | 46.7                  | 26.201                 | 54.000         | 10.200      | H                  |
| 17930.640       | 43.8                        | -29.4           | 46.7                  | 26.539                 | 54.000         | 10.300      | H                  |
| 17964.640       | 43.8                        | -29.1           | 46.7                  | 26.201                 | 54.000         | 10.300      | H                  |
| 17945.600       | 43.7                        | -28.9           | 46.7                  | 25.983                 | 54.000         | 10.300      | V                  |

**EUT1 Charger+Front Camera+LTE Band 12 idle 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) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17874.200       | 55.8                        | -29.4           | 46.0                  | 39.239                  | 74.000         | 18.200      | V                  |
| 17949.340       | 55.8                        | -28.9           | 46.7                  | 38.083                  | 74.000         | 18.200      | V                  |
| 17869.780       | 55.5                        | -29.4           | 46.0                  | 38.939                  | 74.000         | 18.500      | H                  |
| 17972.800       | 55.3                        | -29.1           | 46.7                  | 37.701                  | 74.000         | 18.700      | H                  |
| 17906.500       | 55.1                        | -29.3           | 46.0                  | 38.472                  | 74.000         | 18.900      | V                  |
| 17921.800       | 55.1                        | -29.4           | 46.7                  | 37.839                  | 74.000         | 18.900      | V                  |

**Measurement results for Set.2:**
**EUT1 Charger+GSM850MHz Reciever +Rear Camera idle Mode/QP detector**

| Frequency (MHz) | QuasiPeak (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|
| 52.795000       | 13.11              | 29.54          | 16.43       | 2000.0          | 120.000         | 95.0        | V   | 210.0         |
| 76.075000       | 11.13              | 29.54          | 18.41       | 2000.0          | 120.000         | 183.0       | V   | 11.0          |
| 163.375000      | 17.28              | 33.06          | 15.78       | 2000.0          | 120.000         | 95.0        | V   | -27.0         |
| 174.627000      | 12.57              | 33.06          | 20.49       | 2000.0          | 120.000         | 125.0       | V   | 62.0          |
| 205.085000      | 13.75              | 33.06          | 19.31       | 2000.0          | 120.000         | 103.0       | V   | 14.0          |
| 232.536000      | 13.14              | 35.56          | 22.42       | 2000.0          | 120.000         | 175.0       | V   | 81.0          |

**EUT1 Charger+GSM850MHz Reciever +Rear Camera idle 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) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17970.080       | 43.9                        | -29.1           | 46.7                  | 26.301                  | 54.000         | 10.100      | H                  |
| 17979.600       | 43.8                        | -29.1           | 46.7                  | 26.201                  | 54.000         | 10.200      | V                  |
| 17947.640       | 43.8                        | -28.9           | 46.7                  | 26.083                  | 54.000         | 10.200      | H                  |
| 17956.140       | 43.8                        | -28.9           | 46.7                  | 26.083                  | 54.000         | 10.200      | V                  |
| 17991.840       | 43.8                        | -29.1           | 46.7                  | 26.198                  | 54.000         | 10.200      | H                  |
| 17976.540       | 43.8                        | -29.1           | 46.7                  | 26.201                  | 54.000         | 10.200      | H                  |

**EUT1 Charger+GSM850MHz Reciever +Rear Camera idle 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) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17913.0         | 55.5                        | -29.3           | 46.0                  | 38.872                  | 74.000         | 18.500      | V                  |
| 17985.0         | 55.5                        | -29.1           | 46.7                  | 37.898                  | 74.000         | 18.500      | V                  |
| 17918.1         | 55.4                        | -29.3           | 46.7                  | 38.065                  | 74.000         | 18.600      | H                  |
| 17879.0         | 55.2                        | -29.4           | 46.0                  | 38.639                  | 74.000         | 18.800      | V                  |
| 17362.2         | 55.2                        | -30.0           | 43.4                  | 41.812                  | 74.000         | 18.800      | H                  |
| 17986.7         | 55.1                        | -29.1           | 46.7                  | 37.498                  | 74.000         | 18.900      | V                  |

**Measurement results for Set.2:**
**EUT1 Charger+FM98MHz+Headset idle Mode/QP detector**

| Frequency (MHz) | QuasiPeak (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|
| 51.049000       | 12.45              | 29.54          | 17.09       | 2000.0          | 120.000         | 95.0        | V   | 240.0         |
| 74.717000       | 5.56               | 29.54          | 23.98       | 2000.0          | 120.000         | 183.0       | V   | 242.0         |
| 164.442000      | 15.81              | 33.06          | 17.25       | 2000.0          | 120.000         | 183.0       | V   | -28.0         |
| 176.858000      | 13.24              | 33.06          | 19.82       | 2000.0          | 120.000         | 175.0       | V   | 30.0          |
| 207.122000      | 14.07              | 33.06          | 18.99       | 2000.0          | 120.000         | 95.0        | V   | -10.0         |
| 227.492000      | 11.94              | 35.56          | 23.62       | 2000.0          | 120.000         | 125.0       | V   | 120.0         |

**EUT1 Charger+FM98MHz+Headset idle 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) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17974.500       | 44.3                        | -29.1           | 46.7                  | 26.701                  | 54.000         | 9.700       | V                  |
| 17973.820       | 44.2                        | -29.1           | 46.7                  | 26.601                  | 54.000         | 9.800       | H                  |
| 17954.100       | 44.1                        | -28.9           | 46.7                  | 26.383                  | 54.000         | 9.900       | H                  |
| 17963.960       | 44.0                        | -29.1           | 46.7                  | 26.401                  | 54.000         | 10.000      | H                  |
| 17972.460       | 44.0                        | -29.1           | 46.7                  | 26.401                  | 54.000         | 10.000      | V                  |
| 17971.440       | 44.0                        | -29.1           | 46.7                  | 26.401                  | 54.000         | 10.000      | V                  |

**EUT1 Charger+FM98MHz+Headset idle 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) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17941.180       | 55.2                        | -28.9           | 46.7                  | 37.483                  | 74.000         | 18.800      | H                  |
| 17917.040       | 54.8                        | -29.3           | 46.7                  | 37.465                  | 74.000         | 19.200      | H                  |
| 17977.900       | 54.6                        | -29.1           | 46.7                  | 37.001                  | 74.000         | 19.400      | H                  |
| 17945.600       | 54.5                        | -28.9           | 46.7                  | 36.783                  | 74.000         | 19.500      | V                  |
| 17910.580       | 54.4                        | -29.3           | 46.0                  | 37.772                  | 74.000         | 19.600      | V                  |
| 17444.440       | 54.4                        | -29.9           | 44.4                  | 39.917                  | 74.000         | 19.600      | H                  |



**Measurement results for Set.3:**
**EUT1 USB to PC + MP3+W850MHz idle Mode/QP detector**

| Frequency (MHz) | QuasiPeak (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|
| 31.164000       | 28.58              | 29.54          | 0.96        | 2000.0          | 120.000         | 95.0        | V   | 300.0         |
| 62.592000       | 20.37              | 29.54          | 9.17        | 2000.0          | 120.000         | 95.0        | V   | 210.0         |
| 125.836000      | 18.93              | 33.06          | 14.13       | 2000.0          | 120.000         | 103.0       | V   | 171.0         |
| 215.949000      | 22.65              | 33.06          | 10.41       | 2000.0          | 120.000         | 103.0       | V   | 120.0         |
| 450.010000      | 29.95              | 35.56          | 5.61        | 2000.0          | 120.000         | 95.0        | V   | 100.0         |
| 576.692000      | 26.84              | 35.56          | 8.72        | 2000.0          | 120.000         | 225.0       | V   | -9.0          |

**EUT1 USB to PC + MP3+W850MHz idle 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) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17955.120       | 44.3                        | -28.9           | 46.7                  | 26.583                  | 54.000         | 9.700       | H                  |
| 17940.840       | 44.3                        | -28.9           | 46.7                  | 26.583                  | 54.000         | 9.700       | H                  |
| 17946.960       | 44.3                        | -28.9           | 46.7                  | 26.583                  | 54.000         | 9.700       | V                  |
| 17972.800       | 44.2                        | -29.1           | 46.7                  | 26.601                  | 54.000         | 9.800       | V                  |
| 17979.260       | 44.2                        | -29.1           | 46.7                  | 26.601                  | 54.000         | 9.800       | V                  |
| 17964.640       | 44.1                        | -29.1           | 46.7                  | 26.501                  | 54.000         | 9.900       | H                  |

**EUT1 USB to PC + MP3+W850MHz idle 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) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17971.440       | 56.0                        | -29.1           | 46.7                  | 38.401                  | 74.000         | 18.000      | H                  |
| 17694.340       | 55.8                        | -30.0           | 45.2                  | 40.534                  | 74.000         | 18.200      | V                  |
| 17953.420       | 55.7                        | -28.9           | 46.7                  | 37.983                  | 74.000         | 18.300      | V                  |
| 17567.520       | 55.6                        | -29.8           | 45.2                  | 40.146                  | 74.000         | 18.400      | V                  |
| 17941.180       | 55.6                        | -28.9           | 46.7                  | 37.883                  | 74.000         | 18.400      | H                  |
| 17374.740       | 55.6                        | -30.0           | 43.4                  | 42.212                  | 74.000         | 18.400      | H                  |

## EUT1 Charger+Front Camera+LTE Band 12 idle Mode, Set.1

Full Spectrum

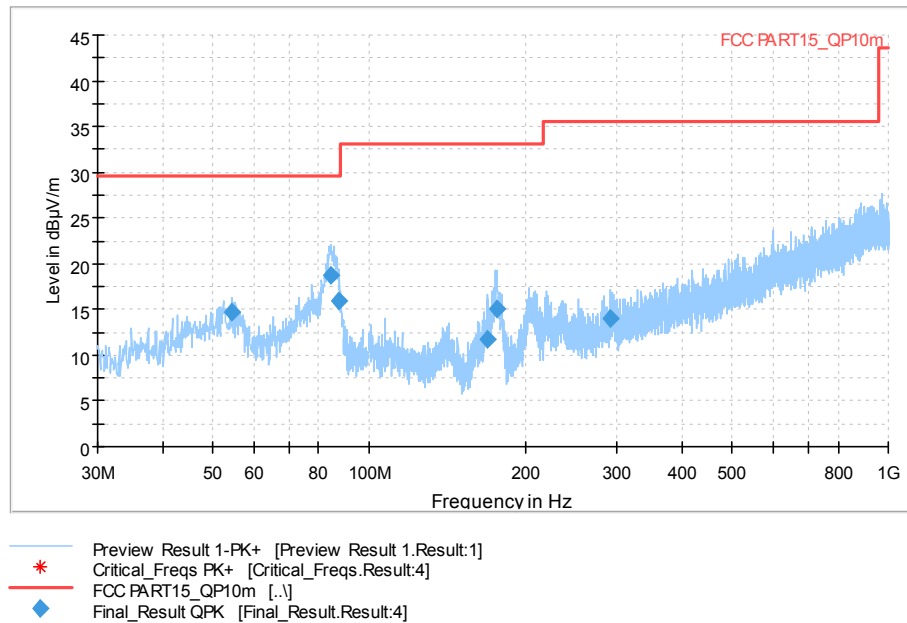


Figure A.1 Radiated Emission from 30MHz to 1GHz

Full Spectrum

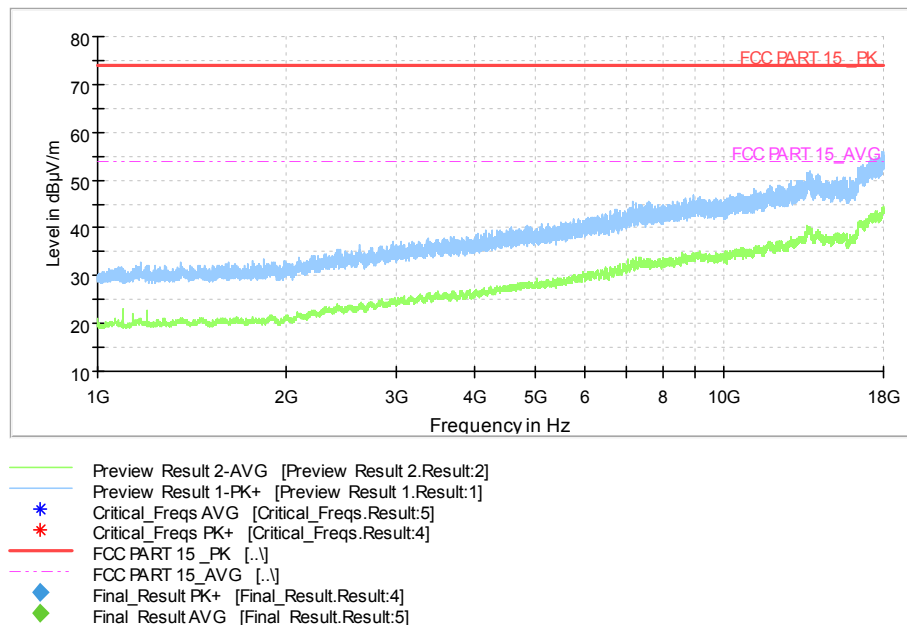
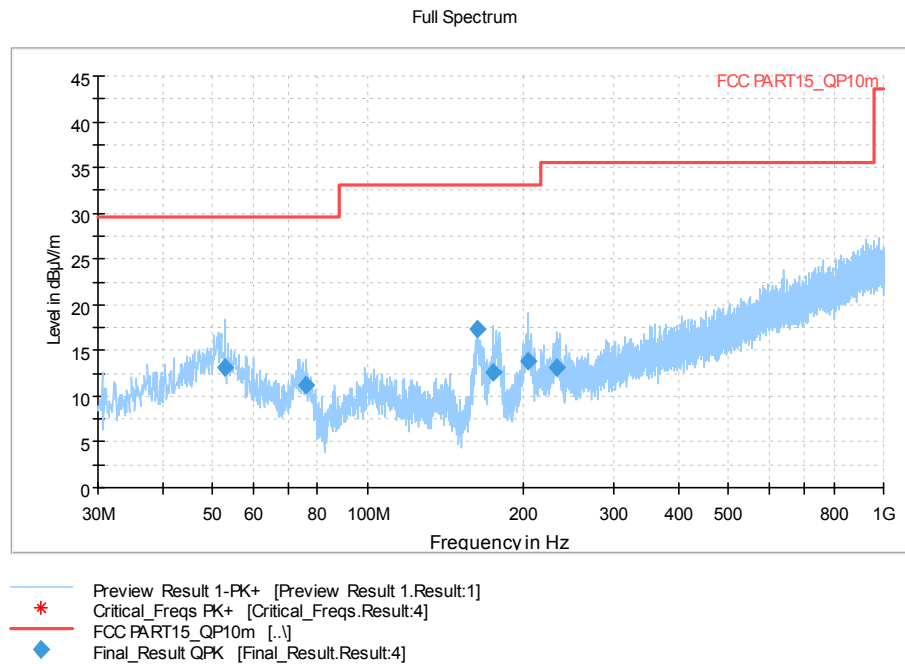
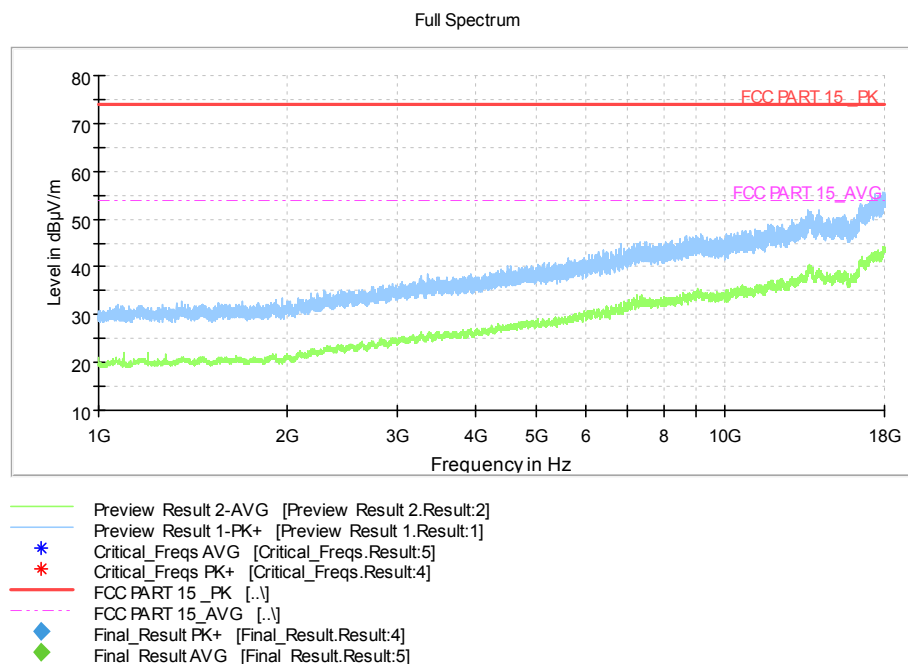


Figure A.2 Radiated Emission from 1GHz to 18GHz

## EUT1 Charger+GSM850MHz Receiver +Rear Camera idle Mode, Set.2

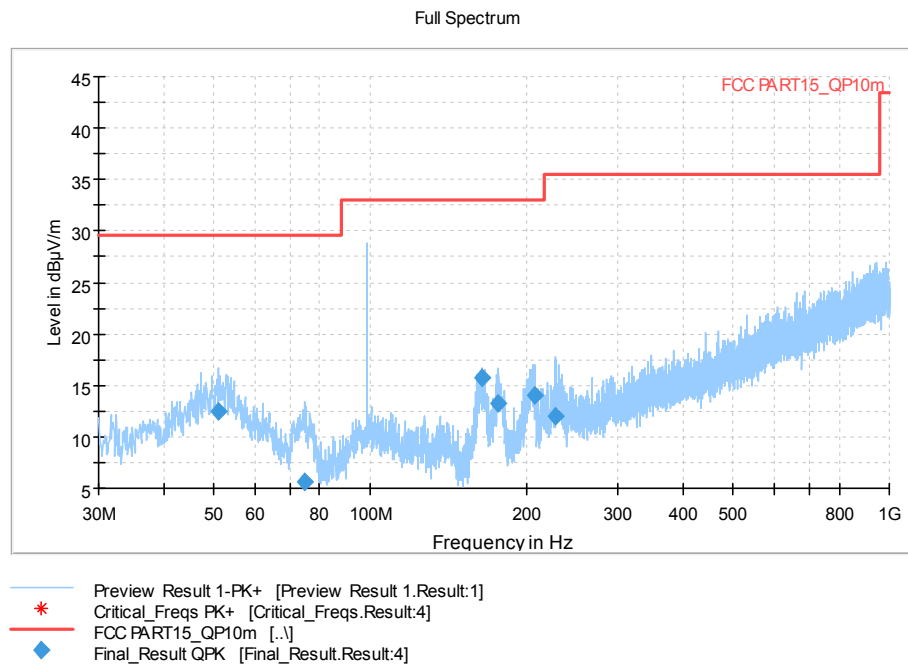


**Figure A.3 Radiated Emission from 30MHz to 1GHz**

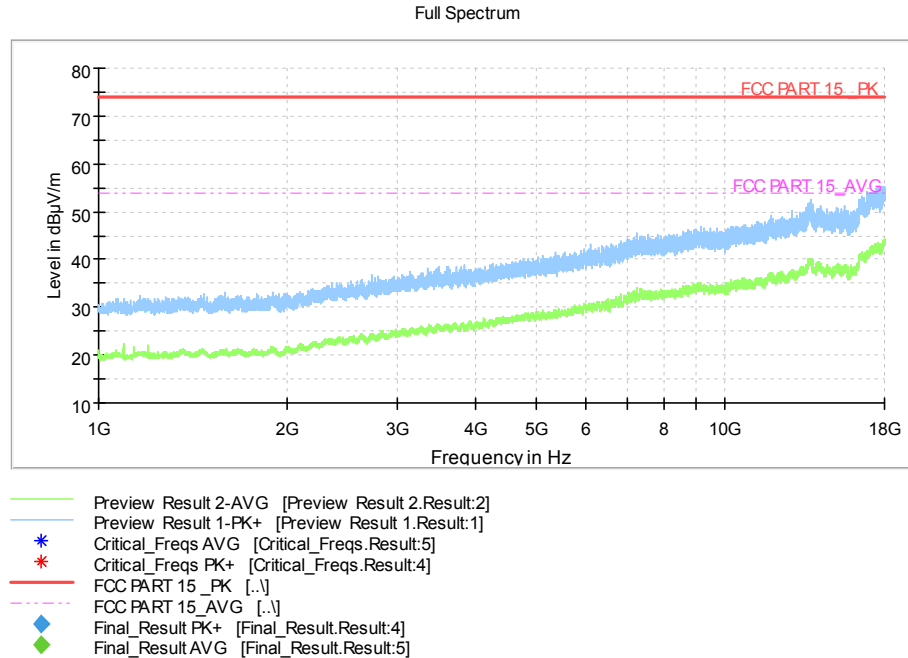


**Figure A.4 Radiated Emission from 1GHz to 18GHz**

## EUT1 Charger+FM98MHz+Headset idle Mode, Set.2

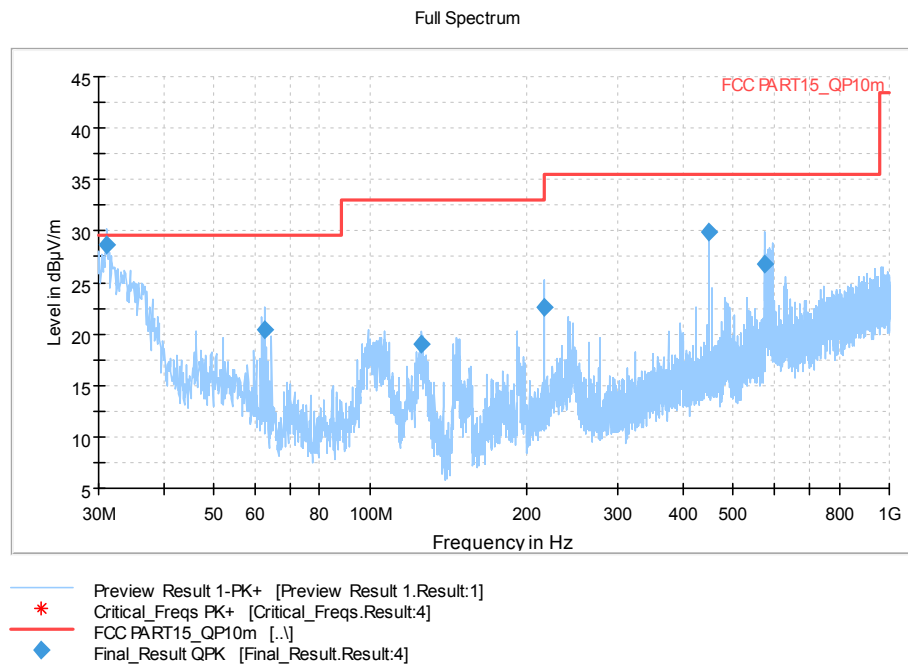


**Figure A.5 Radiated Emission from 30MHz to 1GHz**

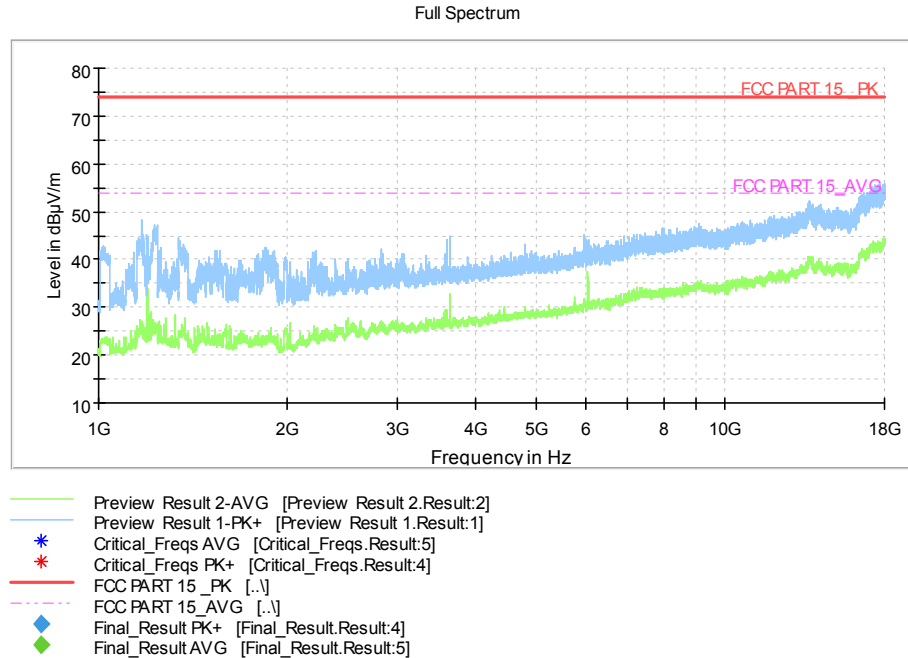


**Figure A.6 Radiated Emission from 1GHz to 18GHz**

### EUT1 USB to PC + MP3+W850MHz idle Mode, Set.3



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



**Figure A.8 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.

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

Note: The measurement results showed here are worst cases of the combinations of different Battery, cables and Headset.

Note: The measurement results showed here are worst cases.

#### EUT1 Charger+Front Camera+LTE Band 12 idle Mode, Set.1

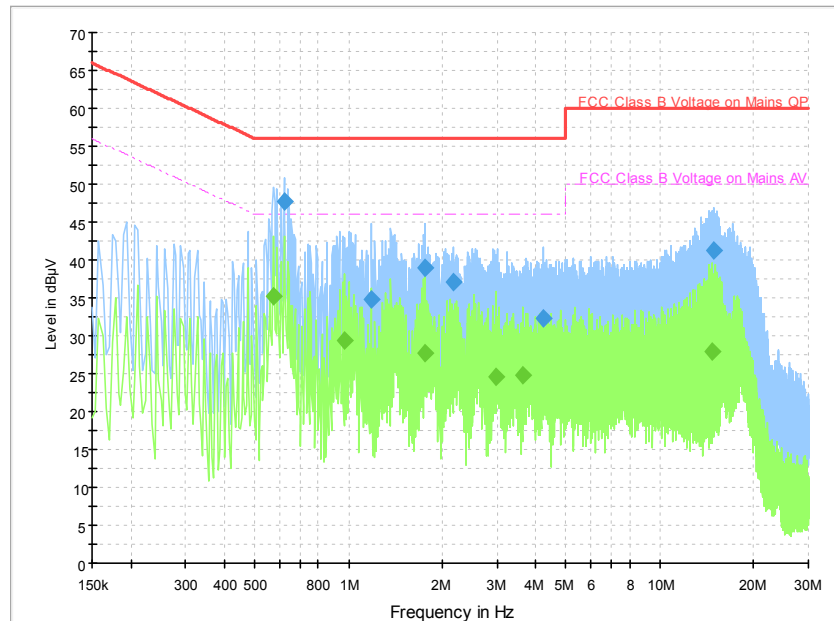


Figure A.9 Conducted Emission

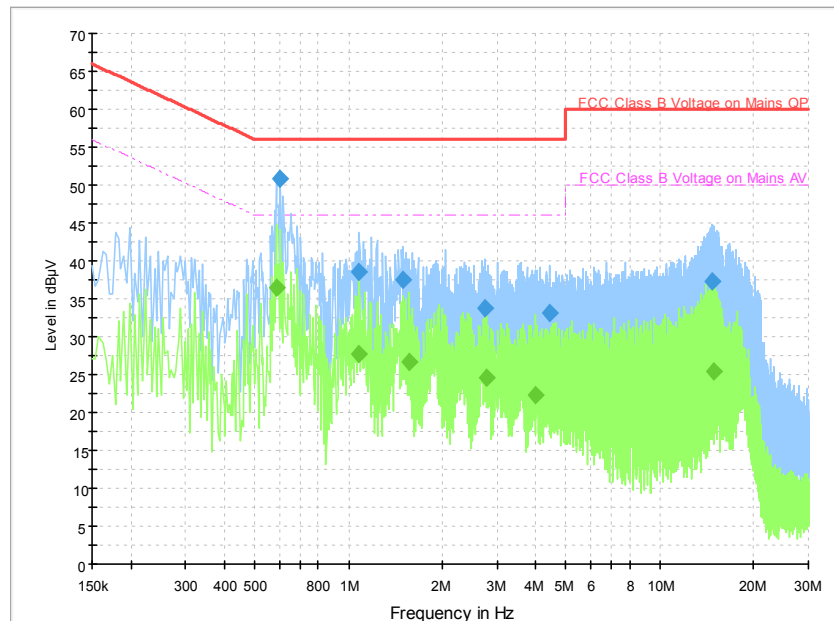
#### Final Result 1

| Frequency (MHz) | QuasiPeak (dBμV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) |
|-----------------|------------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 0.622000        | 47.8             | 5000.0          | 9.000           | On     | L1   | 19.7       | 8.2         | 56.0         |
| 1.186000        | 34.8             | 5000.0          | 9.000           | On     | N    | 19.8       | 21.2        | 56.0         |
| 1.762000        | 38.9             | 5000.0          | 9.000           | On     | L1   | 19.5       | 17.1        | 56.0         |
| 2.178000        | 37.1             | 5000.0          | 9.000           | On     | L1   | 19.5       | 18.9        | 56.0         |
| 4.230000        | 32.4             | 5000.0          | 9.000           | On     | N    | 19.7       | 23.6        | 56.0         |
| 14.942000       | 41.2             | 5000.0          | 9.000           | On     | N    | 20.0       | 18.8        | 60.0         |

#### Final Result 2

| Frequency (MHz) | CAverage (dBμV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) |
|-----------------|-----------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 0.574000        | 35.3            | 5000.0          | 9.000           | On     | L1   | 19.8       | 10.7        | 46.0         |
| 0.970000        | 29.3            | 5000.0          | 9.000           | On     | L1   | 19.6       | 16.7        | 46.0         |
| 1.762000        | 27.7            | 5000.0          | 9.000           | On     | L1   | 19.5       | 18.3        | 46.0         |
| 2.966000        | 24.5            | 5000.0          | 9.000           | On     | L1   | 19.5       | 21.5        | 46.0         |
| 3.614000        | 24.7            | 5000.0          | 9.000           | On     | L1   | 19.5       | 21.3        | 46.0         |
| 14.774000       | 28.0            | 5000.0          | 9.000           | On     | L1   | 19.8       | 22.0        | 50.0         |

## EUT1 Charger+GSM850MHz Receiver +Rear Camera idle Mode, Set.2



**Figure A.10 Conducted Emission**

### Final Result 1

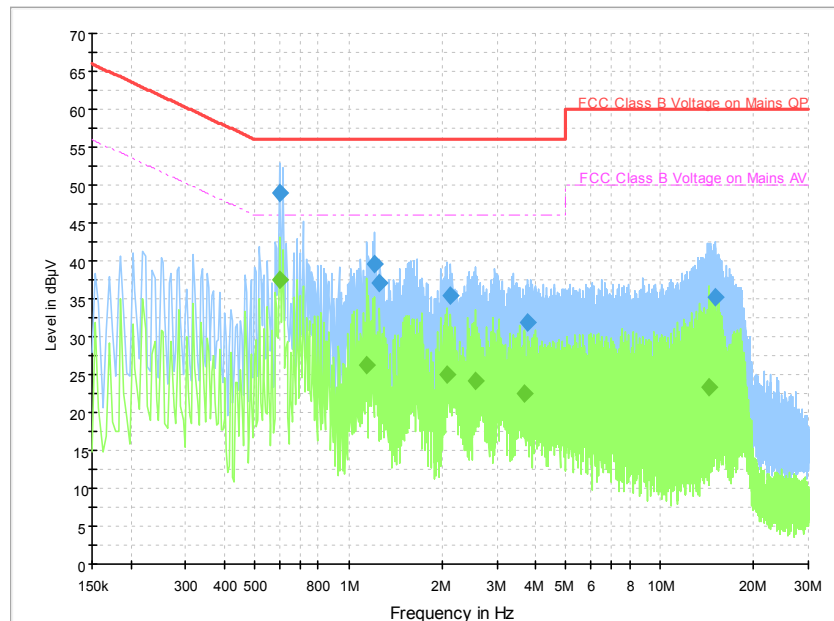
| Frequency (MHz) | QuasiPeak (dBμV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) |
|-----------------|------------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 0.602000        | 50.9             | 5000.0          | 9.000           | On     | L1   | 19.8       | 5.1         | 56.0         |
| 1.082000        | 38.6             | 5000.0          | 9.000           | On     | L1   | 19.5       | 17.4        | 56.0         |
| 1.502000        | 37.5             | 5000.0          | 9.000           | On     | L1   | 19.5       | 18.5        | 56.0         |
| 2.734000        | 33.7             | 5000.0          | 9.000           | On     | L1   | 19.5       | 22.3        | 56.0         |
| 4.418000        | 33.1             | 5000.0          | 9.000           | On     | L1   | 19.6       | 22.9        | 56.0         |
| 14.750000       | 37.2             | 5000.0          | 9.000           | On     | N    | 20.0       | 22.8        | 60.0         |

### Final Result 2

| Frequency (MHz) | CAverage (dBμV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) |
|-----------------|-----------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 0.586000        | 36.4            | 5000.0          | 9.000           | On     | L1   | 19.8       | 9.6         | 46.0         |
| 1.082000        | 27.6            | 5000.0          | 9.000           | On     | L1   | 19.5       | 18.4        | 46.0         |
| 1.566000        | 26.8            | 5000.0          | 9.000           | On     | L1   | 19.5       | 19.2        | 46.0         |
| 2.778000        | 24.7            | 5000.0          | 9.000           | On     | L1   | 19.5       | 21.3        | 46.0         |
| 3.982000        | 22.2            | 5000.0          | 9.000           | On     | L1   | 19.6       | 23.8        | 46.0         |
| 14.870000       | 25.5            | 5000.0          | 9.000           | On     | L1   | 19.9       | 24.5        | 50.0         |



## EUT1 Charger+FM98MHz+Headset idle Mode, Set.2



**Figure A.11 Conducted Emission**

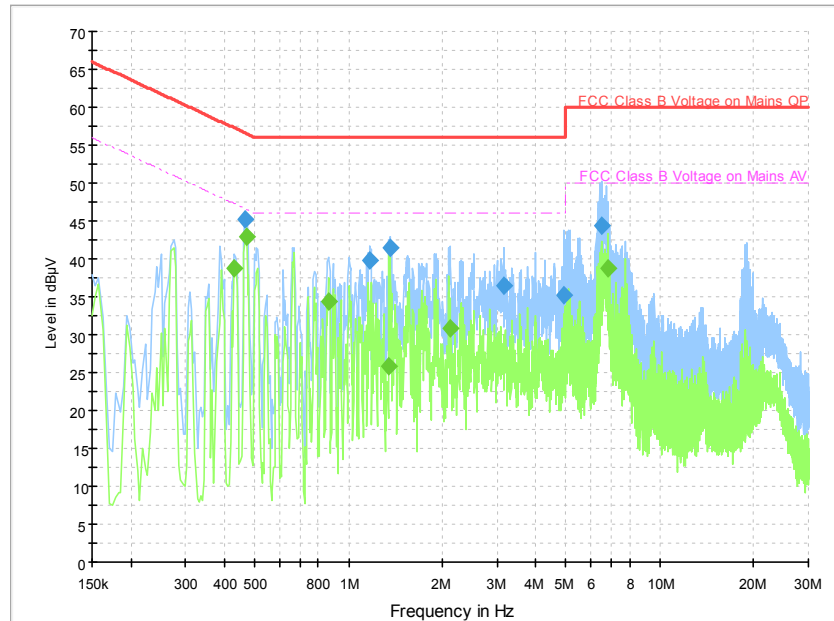
### Final Result 1

| Frequency (MHz) | QuasiPeak (dBμV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) |
|-----------------|------------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 0.598000        | 49.0             | 5000.0          | 9.000           | On     | L1   | 19.8       | 7.0         | 56.0         |
| 1.210000        | 39.5             | 5000.0          | 9.000           | On     | L1   | 19.5       | 16.5        | 56.0         |
| 1.262000        | 37.0             | 5000.0          | 9.000           | On     | L1   | 19.5       | 19.0        | 56.0         |
| 2.130000        | 35.4             | 5000.0          | 9.000           | On     | L1   | 19.5       | 20.6        | 56.0         |
| 3.738000        | 31.9             | 5000.0          | 9.000           | On     | L1   | 19.5       | 24.1        | 56.0         |
| 15.018000       | 35.2             | 5000.0          | 9.000           | On     | N    | 20.0       | 24.8        | 60.0         |

### Final Result 2

| Frequency (MHz) | CAverage (dBμV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) |
|-----------------|-----------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 0.602000        | 37.4            | 5000.0          | 9.000           | On     | L1   | 19.8       | 8.6         | 46.0         |
| 1.146000        | 26.2            | 5000.0          | 9.000           | On     | L1   | 19.5       | 19.8        | 46.0         |
| 2.070000        | 25.1            | 5000.0          | 9.000           | On     | L1   | 19.5       | 20.9        | 46.0         |
| 2.566000        | 24.2            | 5000.0          | 9.000           | On     | L1   | 19.5       | 21.8        | 46.0         |
| 3.654000        | 22.6            | 5000.0          | 9.000           | On     | L1   | 19.5       | 23.4        | 46.0         |
| 14.378000       | 23.3            | 5000.0          | 9.000           | On     | L1   | 19.8       | 26.7        | 50.0         |

### EUT1 USB to PC + MP3+W850MHz idle Mode, Set.3



**Figure A.12 Conducted Emission**

#### Final Result 1

| Frequency (MHz) | QuasiPeak (dBμV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) |
|-----------------|------------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 0.466000        | 45.2             | 5000.0          | 9.000           | On     | L1   | 19.9       | 11.3        | 56.6         |
| 1.170000        | 39.8             | 5000.0          | 9.000           | On     | L1   | 19.6       | 16.2        | 56.0         |
| 1.362000        | 41.5             | 5000.0          | 9.000           | On     | L1   | 19.5       | 14.5        | 56.0         |
| 3.150000        | 36.4             | 5000.0          | 9.000           | On     | N    | 19.7       | 19.6        | 56.0         |
| 4.906000        | 35.2             | 5000.0          | 9.000           | On     | N    | 19.8       | 20.8        | 56.0         |
| 6.494000        | 44.4             | 5000.0          | 9.000           | On     | L1   | 19.5       | 15.6        | 60.0         |

#### Final Result 2

| Frequency (MHz) | CAverage (dBμV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) |
|-----------------|-----------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 0.430000        | 38.7            | 5000.0          | 9.000           | On     | L1   | 19.9       | 8.5         | 47.3         |
| 0.470000        | 42.9            | 5000.0          | 9.000           | On     | L1   | 19.9       | 3.6         | 46.5         |
| 0.862000        | 34.4            | 5000.0          | 9.000           | On     | N    | 19.8       | 11.6        | 46.0         |
| 1.346000        | 25.7            | 5000.0          | 9.000           | On     | L1   | 19.5       | 20.3        | 46.0         |
| 2.122000        | 30.7            | 5000.0          | 9.000           | On     | L1   | 19.5       | 15.3        | 46.0         |
| 6.798000        | 38.8            | 5000.0          | 9.000           | On     | N    | 19.7       | 11.2        | 50.0         |

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

| Test Item                     | Tester              |
|-------------------------------|---------------------|
| Conducted Continuous Emission | Yan Hanchen         |
| Radiated Continuous Emission  | Ding Zai,Li Pengfei |

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