



# FCC 15B TEST REPORT

No. I22Z61293-EMC01

for

**TCL Communication Ltd.**

**GSM/UMTS/LTE Mobile phone**

**Model Name: 5131E**

**FCC ID: 2ACCJH161**

with

**Hardware Version: 05**

**Software Version: v9Q51**

**Issued Date: 2022-08-04**

**Note:**

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The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

**Test Laboratory:**

CTTL, Telecommunication Technology Labs, CAICT

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## **REPORT HISTORY**

| Report Number   | Revision | Description             | Issue Date |
|-----------------|----------|-------------------------|------------|
| I22Z61293-EMC01 | Rev.0    | 1 <sup>st</sup> edition | 2022-08-04 |

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## **1. Test Laboratory**

### **1.1. Testing Location**

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: 2022-07-22

Testing End Date: 2022-08-01

### **1.4. Signature**



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An Hui

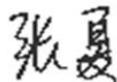
(Prepared this test report)



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Zhang Ying

(Reviewed this test report)



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Zhang Xia

Deputy Director of the laboratory

(Approved this test report)

## **2. Client Information**

### **2.1. Applicant Information**

Company Name: TCL Communication Ltd.  
Address /Post: 5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science  
Park, Shatin, NT, Hong Kong  
City: Hong Kong  
Postal Code: /  
Country: China  
Telephone: 0086-755-36645759  
Fax: 0086-755-36612000-81722

### **2.2. Manufacturer Information**

Company Name: TCL Communication Ltd.  
Address /Post: 5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science  
Park, Shatin, NT, Hong Kong  
City: Hong Kong  
Postal Code: /  
Country: China  
Telephone: 0086-755-36645759  
Fax: 0086-755-36612000-81722

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

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

|             |                           |
|-------------|---------------------------|
| Description | GSM/UMTS/LTE Mobile phone |
| Model Name  | 5131E                     |
| FCC ID      | 2ACCJH161                 |

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**

| <b>EUT ID*</b> | <b>SN or IMEI</b> | <b>HW Version</b> | <b>SW Version</b> |
|----------------|-------------------|-------------------|-------------------|
| EUT1           | 016304000220473   | 05                | v9Q51             |

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

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

| <b>AE ID*</b> | <b>Description</b> | <b>Note</b>     |
|---------------|--------------------|-----------------|
| AE1           | Adapter            | CBA0058AGTC5    |
| AE2           | USB Cable          | CDA3122005C8    |
| AE3           | Headset            | Not in sale box |

##### **AE1**

|              |              |
|--------------|--------------|
| Model        | CBA0058AGTC5 |
| Manufacturer | /            |
| Length       | /            |

##### **AE2**

|              |              |
|--------------|--------------|
| Model        | CDA3122005C8 |
| Manufacturer | PUAN         |
| Length       | /            |

##### **AE3**

|              |                 |
|--------------|-----------------|
| Model        | Headset         |
| Manufacturer | /               |
| Note         | Not in sale box |

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

### 3.4. EUT set-ups

| EUT set-up No. | Combination of EUT and AE | Remarks                           |
|----------------|---------------------------|-----------------------------------|
| Set.1          | EUT1+AE1+AE2              | Charger+ Real Camera+ GSM850 idle |
| Set.2          | EUT1+AE1+AE2              | Charger+MP4                       |
| Set.3          | EUT1+AE1+AE2+ AE3         | Charger+FM                        |
| Set.4          | EUT1+AE2                  | USB SD TO PC+ Front Camera        |

Note: The device contains receivers which tune and operate between 30MHz-960MHz in the following bands: GSM 850MHz,WCDMA Band5, LTE Bands 5/12/13/17/71 The measurement results showed here are worst cases of different bands.

### 3.5. General Description

Equipment Under Test (EUT) is a model of GSM/UMTS/LTE Mobile phone with integrated antenna.

It supports

|                     |                                      |
|---------------------|--------------------------------------|
| GSM Frequency Band  | GSM 900/GSM 1800/GSM 1900/GSM 850    |
| UMTS Frequency Band | FDD Band I/ II / IV / V / VIII       |
| LTE Frequency Band  | LTE FDD Bands 2/4/5/7/12/13/17/66/71 |

It has MP3, Camera, USB memory, FM, Bluetooth 5.0, Wi-Fi (802.11b/g/n, 802.11n supports 20MHz and 40MHz bandwidth, ) , GNSS functions.

Manual and 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. | Equipment                            | Model    | Serial Number | Manufacturer    | Calibration Period | Calibration Due date |
|-----|--------------------------------------|----------|---------------|-----------------|--------------------|----------------------|
| 1   | LISN                                 | ENV216   | 101200        | Rohde & Schwarz | 1 year             | 2023-05-30           |
| 2   | Test Receiver                        | ESCI 3   | 100344        | Rohde & Schwarz | 1 year             | 2023-02-21           |
| 3   | Signal Source                        | SMBV100A | 260613        | Rohde & Schwarz | 1 year             | 2023-01-09           |
| 4   | Dual-Ridge Waveguide Horn Antenna    | VULB9163 | 302           | Schwarzbeck     | 1 year             | 2022-12-28           |
| 5   | EMI Antenna                          | 3115     | 6914          | ETS-Lindgren    |                    | 2023-01-20           |
| 6   | Spectrum Analyzer                    | ESW44    | 103023        | Rohde & Schwarz | 1 year             | 2022-10-28           |
| 7   | Spectrum Analyzer                    | ESW44    | 103015        | Rohde & Schwarz | 1 year             | 2023-01-23           |
| 8   | Universal Radio Communication Tester | CMW500   | 150344        | Rohde & Schwarz | 1 year             | 2022-12-20           |

## **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 3 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+ Real Camera+ GSM850 idle Mode/QP detector**

| Frequency (MHz) | QuasiPeak (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|
| 37.760000       | 9.87               | 29.54          | 19.67       | 2000.0          | 120.000         | 108.0       | V   | -45.0         |
| 54.541000       | 15.99              | 29.54          | 13.55       | 2000.0          | 120.000         | 125.0       | V   | 163.0         |
| 69.188000       | 10.04              | 29.54          | 19.50       | 2000.0          | 120.000         | 283.0       | V   | 292.0         |
| 97.415000       | 8.76               | 33.06          | 24.30       | 2000.0          | 120.000         | 275.0       | H   | -31.0         |
| 111.480000      | 9.94               | 33.06          | 23.12       | 2000.0          | 120.000         | 225.0       | V   | -31.0         |
| 192.475000      | 15.46              | 33.06          | 17.60       | 2000.0          | 120.000         | 125.0       | V   | 73.0          |

**EUT1 Charger+ Real Camera+ GSM850 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) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17912.620       | 45.7                        | -29.3           | 46.0                  | 29.1                    | 54.0           | 8.3         | H                  |
| 17787.500       | 45.0                        | -29.9           | 46.0                  | 28.9                    | 54.0           | 9.0         | V                  |
| 17766.760       | 44.9                        | -29.6           | 46.0                  | 28.6                    | 54.0           | 9.1         | H                  |
| 17810.960       | 44.9                        | -29.6           | 46.0                  | 28.6                    | 54.0           | 9.1         | H                  |
| 17951.720       | 44.9                        | -28.9           | 46.7                  | 27.2                    | 54.0           | 9.1         | V                  |
| 17927.240       | 44.9                        | -29.4           | 46.7                  | 27.6                    | 54.0           | 9.1         | V                  |

**EUT1 Charger+ Real Camera+ GSM850 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) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17806.200       | 56.2                        | -29.6           | 46.0                  | 39.9                    | 74.0           | 17.8        | V                  |
| 17787.500       | 55.6                        | -29.9           | 46.0                  | 39.5                    | 74.0           | 18.4        | V                  |
| 17802.120       | 55.4                        | -29.6           | 46.0                  | 39.1                    | 74.0           | 18.6        | V                  |
| 17901.060       | 55.4                        | -29.3           | 46.0                  | 38.8                    | 74.0           | 18.6        | V                  |
| 17768.120       | 55.3                        | -29.6           | 46.0                  | 39.0                    | 74.0           | 18.7        | H                  |
| 17809.260       | 55.3                        | -29.6           | 46.0                  | 39.0                    | 74.0           | 18.7        | H                  |

**Measurement results for Set.2:**
**EUT1 Charger+MP4 Mode/QP detector**

| Frequency (MHz) | QuasiPeak (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|
| 42.513000       | 11.35              | 29.54          | 18.19       | 2000.0          | 120.000         | 100.0       | V   | -31.0         |
| 55.220000       | 15.31              | 29.54          | 14.23       | 2000.0          | 120.000         | 108.0       | V   | -44.0         |
| 66.763000       | 10.79              | 29.54          | 18.75       | 2000.0          | 120.000         | 222.0       | V   | -45.0         |
| 103.235000      | 10.71              | 33.06          | 22.35       | 2000.0          | 120.000         | 175.0       | V   | 175.0         |
| 175.694000      | 13.53              | 33.06          | 19.53       | 2000.0          | 120.000         | 108.0       | V   | 72.0          |
| 191.408000      | 15.21              | 33.06          | 17.85       | 2000.0          | 120.000         | 108.0       | V   | 268.0         |

**EUT1 Charger+MP4 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) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17919.760       | 45.5                        | -29.3           | 46.7                  | 28.2                    | 54.0           | 8.5         | V                  |
| 17818.440       | 45.3                        | -29.6           | 46.0                  | 29.0                    | 54.0           | 8.7         | H                  |
| 17913.640       | 45.3                        | -29.3           | 46.0                  | 28.7                    | 54.0           | 8.7         | H                  |
| 17939.480       | 45.3                        | -29.4           | 46.7                  | 28.0                    | 54.0           | 8.7         | H                  |
| 17826.600       | 45.2                        | -29.7           | 46.0                  | 28.9                    | 54.0           | 8.8         | V                  |
| 17890.860       | 45.1                        | -29.5           | 46.0                  | 28.7                    | 54.0           | 8.9         | V                  |

**EUT1 Charger+MP4 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) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17700.1         | 55.9                        | -29.7           | 45.2                  | 40.4                    | 74.0           | 18.1        | V                  |
| 17859.9         | 55.6                        | -29.3           | 46.0                  | 39.0                    | 74.0           | 18.4        | V                  |
| 17817.1         | 55.3                        | -29.6           | 46.0                  | 39.0                    | 74.0           | 18.7        | V                  |
| 17727.3         | 55.2                        | -29.7           | 45.2                  | 39.6                    | 74.0           | 18.8        | H                  |
| 17862.0         | 55.1                        | -29.4           | 46.0                  | 38.5                    | 74.0           | 18.9        | H                  |
| 17816.7         | 55.1                        | -29.6           | 46.0                  | 38.8                    | 74.0           | 18.9        | H                  |

**Measurement results for Set.3:**
**EUT1 Charger+FM Mode/QP detector**

| Frequency (MHz) | QuasiPeak (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|
| 42.222000       | 15.20              | 29.54          | 14.34       | 2000.0          | 120.000         | 175.0       | V   | 86.0          |
| 48.721000       | 17.96              | 29.54          | 11.58       | 2000.0          | 120.000         | 325.0       | V   | 135.0         |
| 80.634000       | 6.06               | 29.54          | 23.48       | 2000.0          | 120.000         | 108.0       | V   | 45.0          |
| 104.787000      | 12.95              | 33.06          | 20.11       | 2000.0          | 120.000         | 100.0       | V   | 315.0         |
| 150.474000      | 9.61               | 33.06          | 23.45       | 2000.0          | 120.000         | 302.0       | H   | 278.0         |
| 187.431000      | 18.48              | 33.06          | 14.58       | 2000.0          | 120.000         | 100.0       | V   | 162.0         |

**EUT1 Charger+FM 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) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17810.960       | 45.5                        | -29.6           | 46.0                  | 29.2                    | 54.0           | 8.5         | V                  |
| 17804.160       | 45.3                        | -29.6           | 46.0                  | 29.0                    | 54.0           | 8.7         | H                  |
| 17905.140       | 45.3                        | -29.3           | 46.0                  | 28.7                    | 54.0           | 8.7         | H                  |
| 17797.700       | 45.2                        | -29.9           | 46.0                  | 29.1                    | 54.0           | 8.8         | H                  |
| 17830.000       | 45.2                        | -29.7           | 46.0                  | 28.9                    | 54.0           | 8.8         | V                  |
| 17921.120       | 45.1                        | -29.4           | 46.7                  | 27.8                    | 54.0           | 8.9         | H                  |

**EUT1 Charger+FM 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) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17801.100       | 55.6                        | -29.6           | 46.0                  | 39.3                    | 74.0           | 18.4        | V                  |
| 17809.600       | 55.3                        | -29.6           | 46.0                  | 39.0                    | 74.0           | 18.7        | V                  |
| 17999.320       | 55.1                        | -29.1           | 46.7                  | 37.5                    | 74.0           | 18.9        | V                  |
| 17929.960       | 55.0                        | -29.4           | 46.7                  | 37.7                    | 74.0           | 19          | H                  |
| 17801.780       | 54.8                        | -29.6           | 46.0                  | 38.5                    | 74.0           | 19.2        | V                  |
| 17722.900       | 54.8                        | -29.7           | 45.2                  | 39.2                    | 74.0           | 19.2        | V                  |

**Measurement results for Set.4:**
**EUT1 USB SD TO PC+ Front Camera Mode/QP detector**

| Frequency (MHz) | QuasiPeak (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|
| 82.283000       | 17.32              | 29.54          | 12.22       | 2000.0          | 120.000         | 125.0       | V   | 135.0         |
| 136.700000      | 21.78              | 33.06          | 11.28       | 2000.0          | 120.000         | 323.0       | H   | 45.0          |
| 215.949000      | 18.37              | 33.06          | 14.69       | 2000.0          | 120.000         | 125.0       | V   | 154.0         |
| 263.964000      | 18.47              | 35.56          | 17.09       | 2000.0          | 120.000         | 325.0       | H   | 189.0         |
| 403.159000      | 23.72              | 35.56          | 11.84       | 2000.0          | 120.000         | 223.0       | H   | 188.0         |
| 493.951000      | 22.23              | 35.56          | 13.33       | 2000.0          | 120.000         | 283.0       | V   | 9.0           |

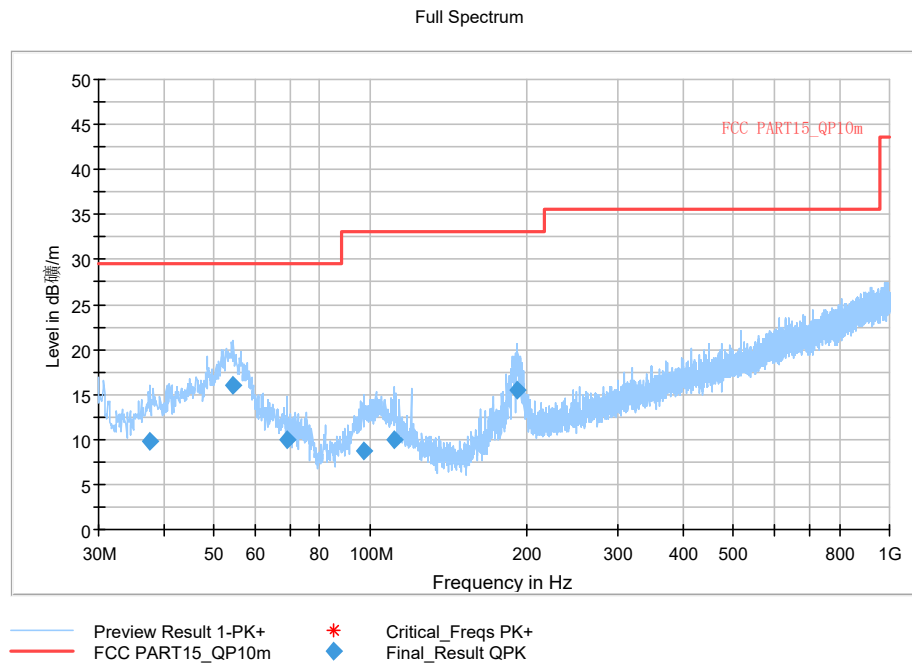
**EUT1 USB SD TO PC+ Front Camera Mode/Average detector**

| 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) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17717.120       | 45.6                        | -29.7           | 45.2                  | 30.1                    | 54.0           | 8.4         | V                  |
| 17910.240       | 45.6                        | -29.3           | 46.0                  | 29.0                    | 54.0           | 8.4         | V                  |
| 17808.920       | 45.6                        | -29.6           | 46.0                  | 29.3                    | 54.0           | 8.4         | H                  |
| 17828.300       | 45.6                        | -29.7           | 46.0                  | 29.3                    | 54.0           | 8.4         | H                  |
| 17911.260       | 45.5                        | -29.3           | 46.0                  | 28.9                    | 54.0           | 8.5         | V                  |
| 17910.920       | 45.5                        | -29.3           | 46.0                  | 28.9                    | 54.0           | 8.5         | H                  |

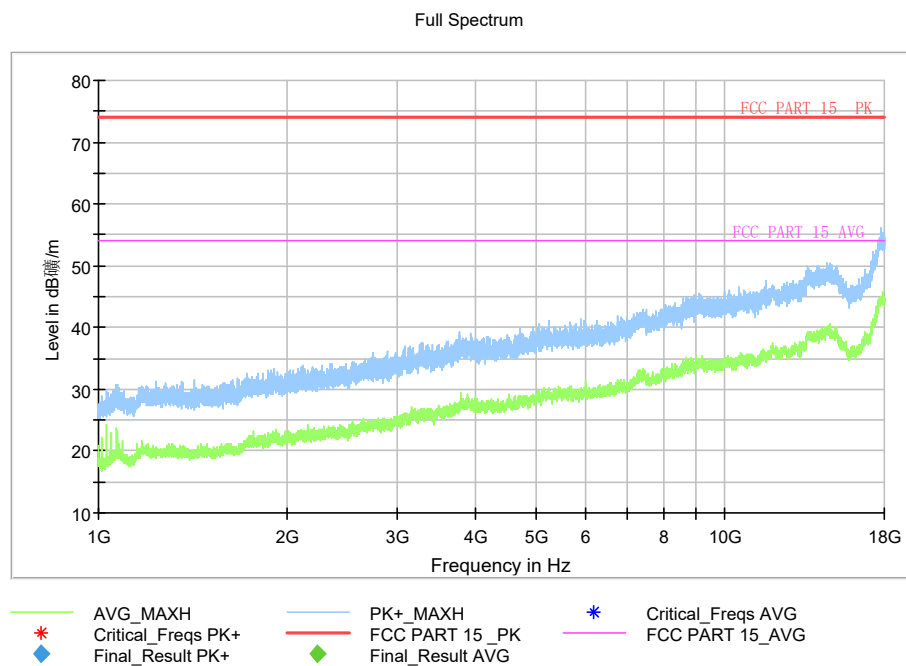
**EUT1 USB SD TO PC+ Front Camera Mode/Peak detector**

| 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) |
|-----------------|-----------------------------|-----------------|-----------------------|-------------------------|----------------|-------------|--------------------|
| 17912.620       | 55.9                        | -29.3           | 46.0                  | 39.3                    | 74.0           | 18.1        | H                  |
| 17899.700       | 55.8                        | -29.5           | 46.0                  | 39.4                    | 74.0           | 18.2        | V                  |
| 17900.380       | 55.3                        | -29.3           | 46.0                  | 38.7                    | 74.0           | 18.7        | H                  |
| 17887.460       | 55.1                        | -29.5           | 46.0                  | 38.7                    | 74.0           | 18.9        | H                  |
| 17871.140       | 55.1                        | -29.4           | 46.0                  | 38.5                    | 74.0           | 18.9        | V                  |
| 17773.220       | 55.1                        | -29.6           | 46.0                  | 38.8                    | 74.0           | 18.9        | H                  |

## EUT1 Charger+ Real Camera+ GSM850 idle Mode, Set.1

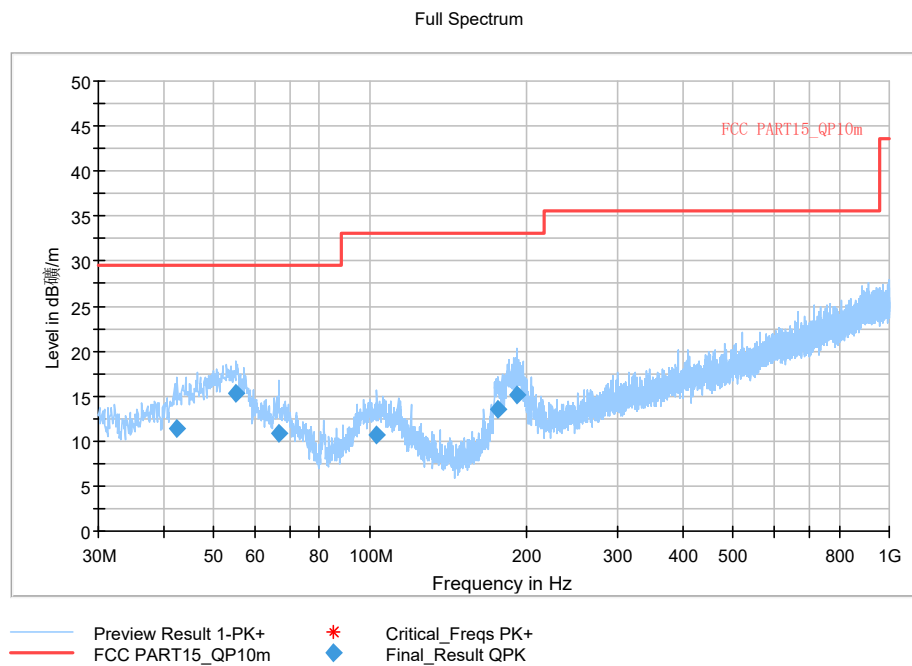


**Figure A.1 Radiated Emission from 30MHz to 1GHz**

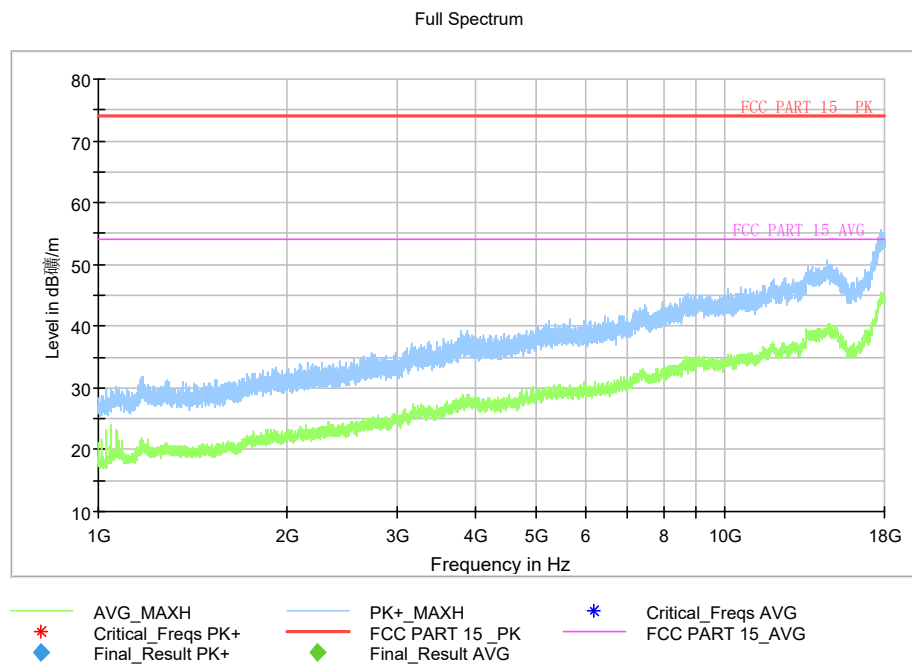


**Figure A.2 Radiated Emission from 1GHz to 18GHz**

## EUT1 Charger+MP4 Mode, Set.2

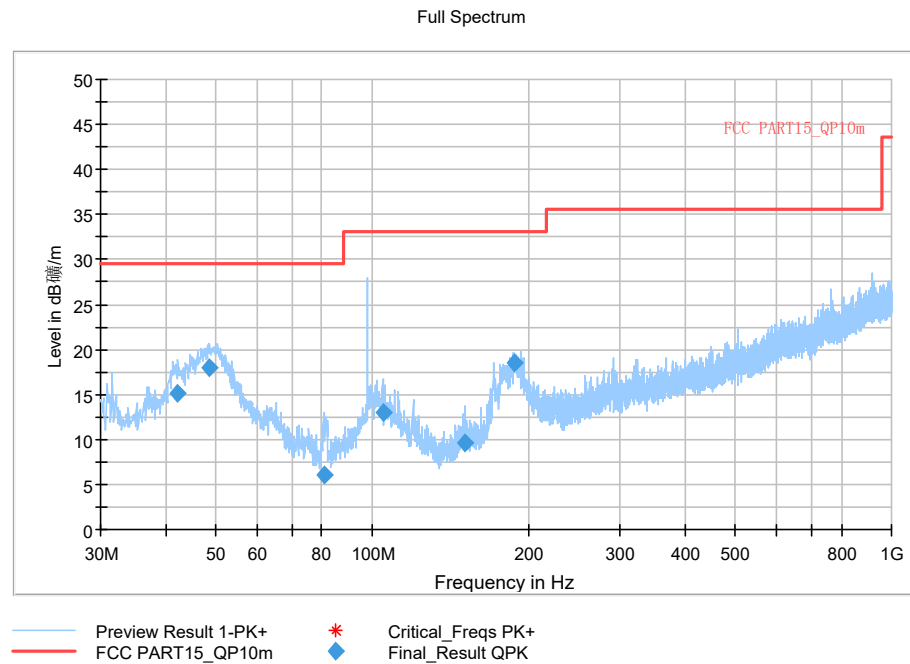


**Figure A.3 Radiated Emission from 30MHz to 1GHz**

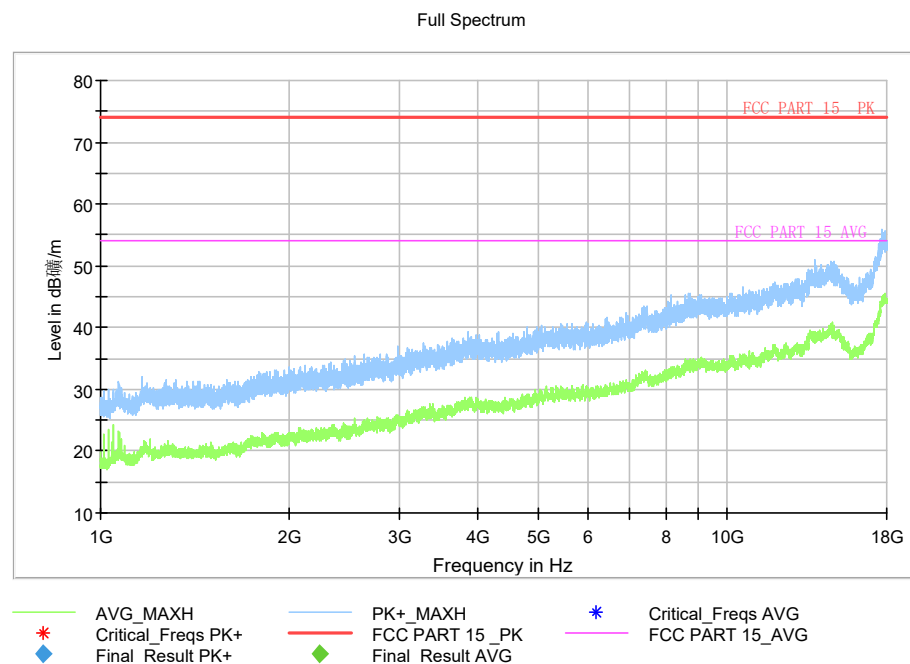


**Figure A.4 Radiated Emission from 1GHz to 18GHz**

### EUT1 Charger+FM Mode, Set.3

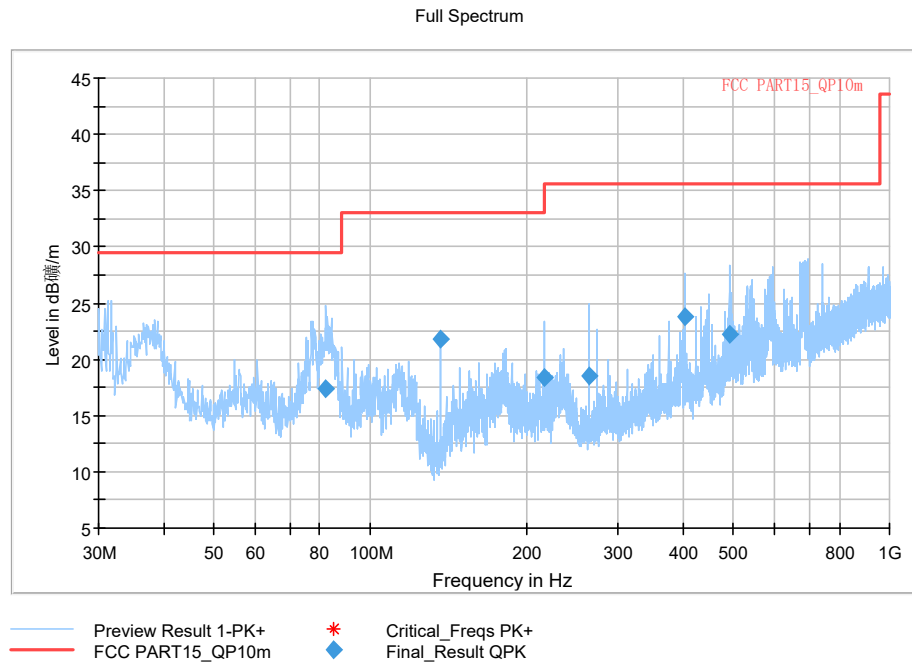


**Figure A.5 Radiated Emission from 30MHz to 1GHz**

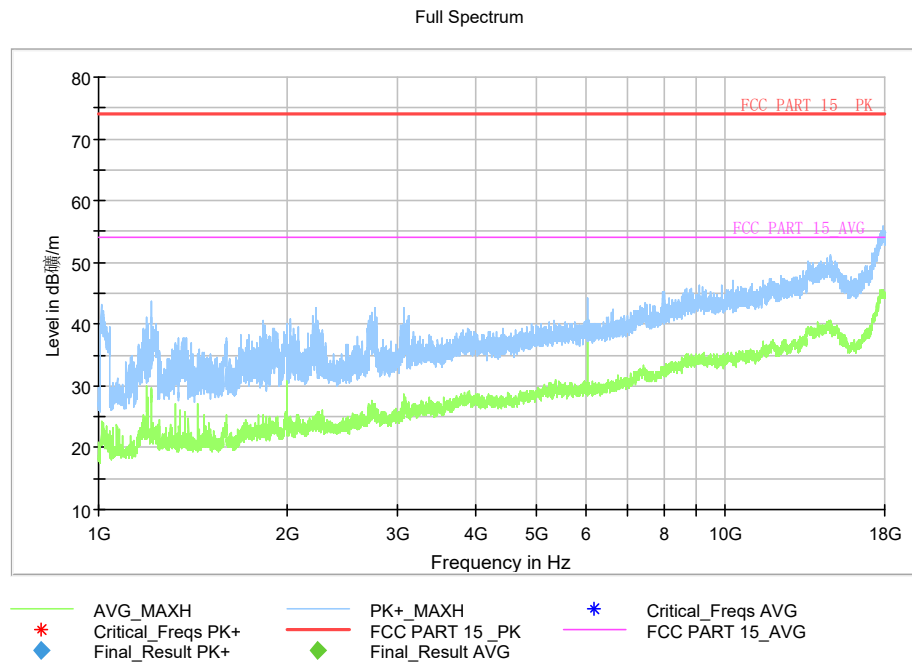


**Figure A.6 Radiated Emission from 1GHz to 18GHz**

#### EUT1 USB SD TO PC+ Front Camera Mode, Set.4



**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 (dBμV) |           |
|------------------------------------------------|------------------------|-----------|
|                                                | 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             |

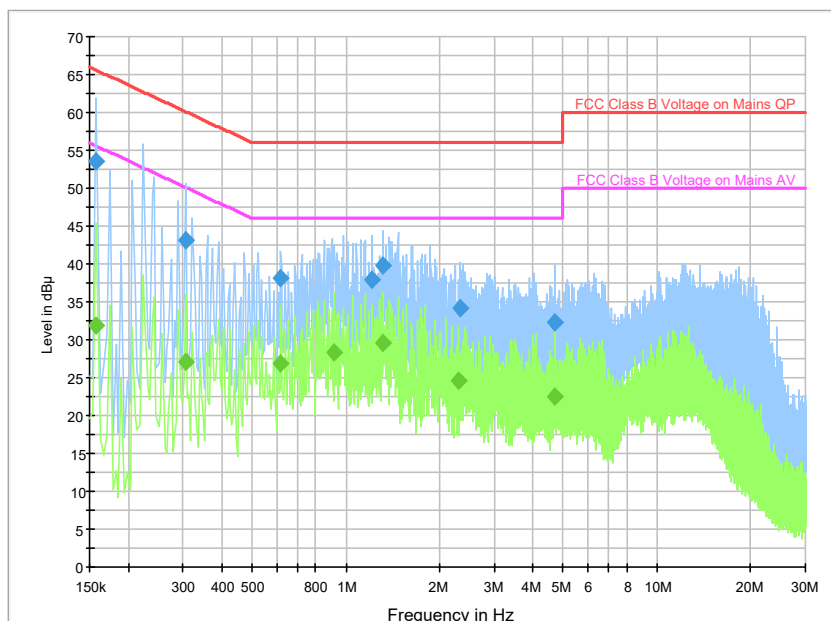
### A.2.5 Measurement Results

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+ Real Camera+ GSM850 Mode, Set.1



**Figure A.9 Conducted Emission**

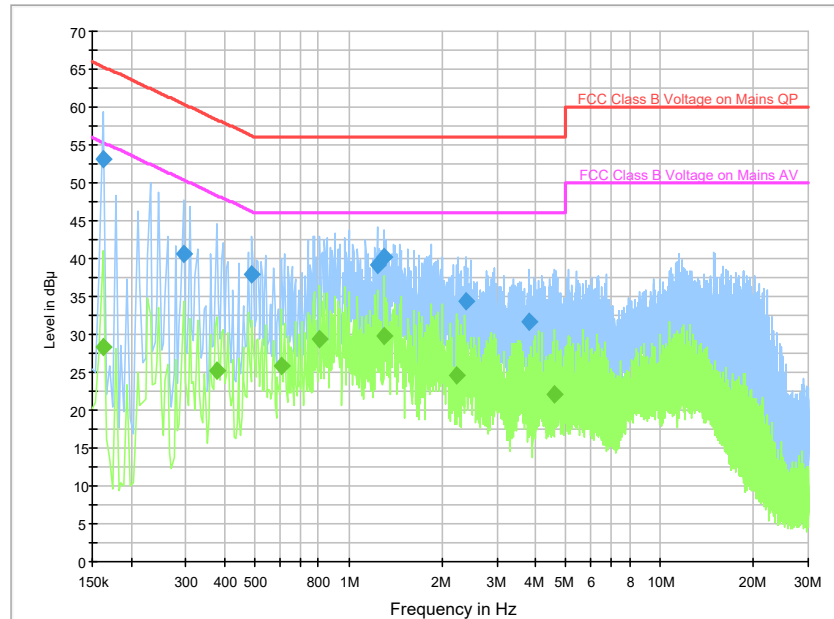
#### Final Result 1

| Frequency (MHz) | QuasiPeak (dBμV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) |
|-----------------|------------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 0.158000        | 53.5             | 5000.0          | 9.000           | On     | N    | 19.6       | 12.1        | 65.6         |
| 0.306000        | 43.1             | 5000.0          | 9.000           | On     | N    | 19.8       | 17.0        | 60.1         |
| 0.618000        | 38.1             | 5000.0          | 9.000           | On     | L1   | 19.6       | 17.9        | 56.0         |
| 1.214000        | 38.0             | 5000.0          | 9.000           | On     | L1   | 19.7       | 18.0        | 56.0         |
| 1.314000        | 39.8             | 5000.0          | 9.000           | On     | L1   | 19.7       | 16.2        | 56.0         |
| 2.338000        | 34.2             | 5000.0          | 9.000           | On     | L1   | 19.6       | 21.8        | 56.0         |
| 4.682000        | 32.4             | 5000.0          | 9.000           | On     | L1   | 19.6       | 23.6        | 56.0         |

#### Final Result 2

| Frequency (MHz) | CAverage (dBμV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) |
|-----------------|-----------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 0.158000        | 31.8            | 5000.0          | 9.000           | On     | L1   | 19.8       | 23.7        | 55.6         |
| 0.306000        | 27.0            | 5000.0          | 9.000           | On     | L1   | 19.8       | 23.1        | 50.1         |
| 0.618000        | 26.9            | 5000.0          | 9.000           | On     | L1   | 19.6       | 19.1        | 46.0         |
| 0.918000        | 28.3            | 5000.0          | 9.000           | On     | L1   | 19.7       | 17.7        | 46.0         |
| 1.314000        | 29.7            | 5000.0          | 9.000           | On     | L1   | 19.7       | 16.3        | 46.0         |
| 2.310000        | 24.5            | 5000.0          | 9.000           | On     | L1   | 19.6       | 21.5        | 46.0         |
| 4.682000        | 22.4            | 5000.0          | 9.000           | On     | L1   | 19.6       | 23.6        | 46.0         |

## EUT1 Charger+MP4 Mode, Set.2



**Figure A.10 Conducted Emission**

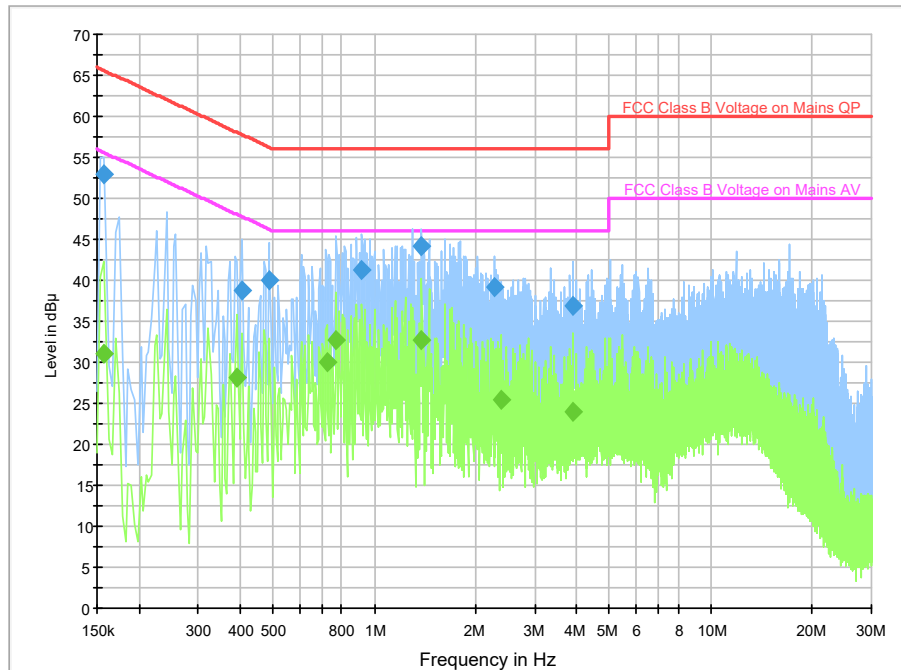
### Final Result 1

| Frequency (MHz) | QuasiPeak (dBμV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) |
|-----------------|------------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 0.162000        | 53.2             | 5000.0          | 9.000           | On     | N    | 19.5       | 12.2        | 65.4         |
| 0.294000        | 40.6             | 5000.0          | 9.000           | On     | L1   | 19.8       | 19.8        | 60.4         |
| 0.490000        | 38.0             | 5000.0          | 9.000           | On     | L1   | 19.8       | 18.2        | 56.2         |
| 1.234000        | 39.2             | 5000.0          | 9.000           | On     | L1   | 19.7       | 16.8        | 56.0         |
| 1.302000        | 40.3             | 5000.0          | 9.000           | On     | L1   | 19.7       | 15.7        | 56.0         |
| 2.386000        | 34.3             | 5000.0          | 9.000           | On     | L1   | 19.6       | 21.7        | 56.0         |
| 3.818000        | 31.6             | 5000.0          | 9.000           | On     | L1   | 19.6       | 24.4        | 56.0         |

### Final Result 2

| Frequency (MHz) | CAverage (dBμV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) |
|-----------------|-----------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 0.162000        | 28.4            | 5000.0          | 9.000           | On     | L1   | 19.8       | 27.0        | 55.4         |
| 0.378000        | 25.3            | 5000.0          | 9.000           | On     | N    | 19.8       | 23.1        | 48.3         |
| 0.606000        | 25.9            | 5000.0          | 9.000           | On     | L1   | 19.6       | 20.1        | 46.0         |
| 0.806000        | 29.3            | 5000.0          | 9.000           | On     | L1   | 19.7       | 16.7        | 46.0         |
| 1.302000        | 29.8            | 5000.0          | 9.000           | On     | L1   | 19.7       | 16.2        | 46.0         |
| 2.210000        | 24.5            | 5000.0          | 9.000           | On     | L1   | 19.6       | 21.5        | 46.0         |
| 4.578000        | 22.0            | 5000.0          | 9.000           | On     | L1   | 19.5       | 24.0        | 46.0         |

### EUT1 Charger+FM Mode, Set.3



**Figure A.11 Conducted Emission**

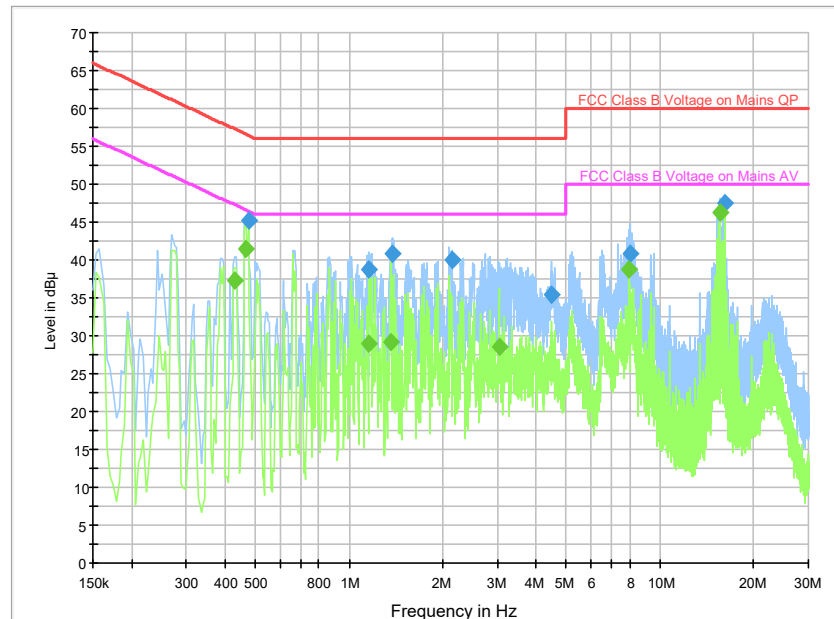
#### Final Result 1

| Frequency (MHz) | QuasiPeak (dBμV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) |
|-----------------|------------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 0.158000        | 53.0             | 5000.0          | 9.000           | On     | L1   | 19.8       | 12.6        | 65.6         |
| 0.406000        | 38.8             | 5000.0          | 9.000           | On     | L1   | 19.7       | 19.0        | 57.7         |
| 0.486000        | 40.1             | 5000.0          | 9.000           | On     | L1   | 19.8       | 16.2        | 56.2         |
| 0.918000        | 41.2             | 5000.0          | 9.000           | On     | L1   | 19.7       | 14.8        | 56.0         |
| 1.382000        | 44.2             | 5000.0          | 9.000           | On     | L1   | 19.7       | 11.8        | 56.0         |
| 2.282000        | 39.3             | 5000.0          | 9.000           | On     | L1   | 19.6       | 16.7        | 56.0         |
| 3.910000        | 36.8             | 5000.0          | 9.000           | On     | L1   | 19.6       | 19.2        | 56.0         |

#### Final Result 2

| Frequency (MHz) | CAverage (dBμV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) |
|-----------------|-----------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 0.158000        | 31.0            | 5000.0          | 9.000           | On     | L1   | 19.8       | 24.5        | 55.6         |
| 0.390000        | 28.2            | 5000.0          | 9.000           | On     | L1   | 19.8       | 19.8        | 48.1         |
| 0.722000        | 29.9            | 5000.0          | 9.000           | On     | L1   | 19.6       | 16.1        | 46.0         |
| 0.770000        | 32.7            | 5000.0          | 9.000           | On     | L1   | 19.7       | 13.3        | 46.0         |
| 1.382000        | 32.7            | 5000.0          | 9.000           | On     | L1   | 19.7       | 13.3        | 46.0         |
| 2.386000        | 25.4            | 5000.0          | 9.000           | On     | L1   | 19.6       | 20.6        | 46.0         |
| 3.910000        | 24.0            | 5000.0          | 9.000           | On     | L1   | 19.6       | 22.0        | 46.0         |

# EUT1 USB SD TO PC+ Front Camera Mode, Set.4



**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) |
|-----------------|------------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 0.474000        | 45.3             | 5000.0          | 9.000           | On     | L1   | 19.8       | 11.2        | 56.4         |
| 1.162000        | 38.7             | 5000.0          | 9.000           | On     | L1   | 19.8       | 17.3        | 56.0         |
| 1.382000        | 40.9             | 5000.0          | 9.000           | On     | L1   | 19.7       | 15.1        | 56.0         |
| 2.134000        | 39.9             | 5000.0          | 9.000           | On     | N    | 19.7       | 16.1        | 56.0         |
| 4.466000        | 35.3             | 5000.0          | 9.000           | On     | N    | 19.5       | 20.7        | 56.0         |
| 7.982000        | 40.9             | 5000.0          | 9.000           | On     | L1   | 19.7       | 19.1        | 60.0         |
| 16.166000       | 47.4             | 5000.0          | 9.000           | On     | L1   | 19.7       | 12.6        | 60.0         |

## Final Result 2

| Frequency (MHz) | CAverage (dBμV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) |
|-----------------|-----------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 0.430000        | 37.3            | 5000.0          | 9.000           | On     | L1   | 19.8       | 10.0        | 47.3         |
| 0.466000        | 41.4            | 5000.0          | 9.000           | On     | L1   | 19.8       | 5.2         | 46.6         |
| 1.162000        | 29.0            | 5000.0          | 9.000           | On     | L1   | 19.8       | 17.0        | 46.0         |
| 1.354000        | 29.2            | 5000.0          | 9.000           | On     | N    | 19.6       | 16.8        | 46.0         |
| 3.030000        | 28.5            | 5000.0          | 9.000           | On     | N    | 19.6       | 17.5        | 46.0         |
| 7.922000        | 38.7            | 5000.0          | 9.000           | On     | L1   | 19.8       | 11.3        | 50.0         |
| 15.618000       | 46.3            | 5000.0          | 9.000           | On     | N    | 19.7       | 3.7         | 50.0         |

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

| Test Item                     | Tester       |
|-------------------------------|--------------|
| Conducted Continuous Emission | Zhang Tianli |
| Radiated Continuous Emission  | Yan Hanchen  |

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