



# TEST REPORT

No. I20Z62129-EMC01

for

**HMD Global Oy**

**GSM/WCDMA/LTE phone**

**Model Name: TA-1295**

**FCC ID: 2AJOTTA-1295**

with

**Hardware Version: 0301**

**Software Version: 0.2047.11.01**

**Issued Date: 2020-12-30**

**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>
I20Z62129-EMC01	Rev.0	1 <sup>st</sup> edition	2020-12-30

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



## **CONTENTS**

<b>1. TEST LABORATORY .....</b>	<b>4</b>
<b>1.1. INTRODUCTION &amp; ACCREDITATION .....</b>	<b>4</b>
<b>1.2. TESTING LOCATION .....</b>	<b>4</b>
<b>1.3. TESTING ENVIRONMENT .....</b>	<b>4</b>
<b>1.4. PROJECT DATA .....</b>	<b>4</b>
<b>1.5. SIGNATURE.....</b>	<b>4</b>
<b>2. CLIENT INFORMATION .....</b>	<b>5</b>
<b>2.1. APPLICANT INFORMATION.....</b>	<b>5</b>
<b>2.2. MANUFACTURER INFORMATION.....</b>	<b>5</b>
<b>3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE) .....</b>	<b>6</b>
<b>3.1. ABOUT EUT.....</b>	<b>6</b>
<b>3.2. INTERNAL IDENTIFICATION OF EUT USED DURING THE TEST .....</b>	<b>6</b>
<b>3.3. INTERNAL IDENTIFICATION OF AE USED DURING THE TEST.....</b>	<b>6</b>
<b>3.4. EUT SET-UPS .....</b>	<b>7</b>
<b>4. REFERENCE DOCUMENTS.....</b>	<b>8</b>
<b>4.1. REFERENCE DOCUMENTS FOR TESTING.....</b>	<b>8</b>
<b>5. LABORATORY ENVIRONMENT.....</b>	<b>9</b>
<b>6. SUMMARY OF TEST RESULTS.....</b>	<b>10</b>
<b>7. TEST EQUIPMENTS UTILIZED.....</b>	<b>11</b>
<b>ANNEX A: MEASUREMENT RESULTS .....</b>	<b>12</b>
<b>ANNEX B: PERSONS INVOLVED IN THIS TESTING .....</b>	<b>30</b>

## **1. Test Laboratory**

### **1.1. Introduction & Accreditation**

Telecommunication Technology Labs, CAICT is an ISO/IEC 17025:2005 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 (CN0066). The detail accreditation scope can be found on NVLAP website.

### **1.2. Testing Location**

#### **CTTL (BDA)**

Address: No.18A, Kangding Street, Beijing Economic-Technology  
Development Area, Beijing, P. R. China 100176

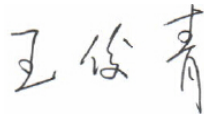
### **1.3. Testing Environment**

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

### **1.4. Project data**

Testing Start Date: 2020-12-03  
Testing End Date: 2020-12-30

### **1.5. Signature**



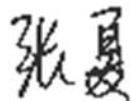
---

**Wang Junqing**  
**(Prepared this test report)**



---

**Zhang Ying**  
**(Reviewed this test report)**



---

**Zhang Xia**  
**Deputy Director of the laboratory**  
**(Approved this test report)**

## **2. Client Information**

### **2.1. Applicant Information**

Company Name: HMD Global Oy  
Address: Bertel Jungin aukio 9, 02600 Espoo, FINLAND  
Contact Person Mikko Kahlos  
Contact Email mikko.kahlos@hmdglobal.com  
Telephone: +358 408036126  
Fax: +97143697604

### **2.2. Manufacturer Information**

Company Name: HMD Global Oy  
Address: Bertel Jungin aukio 9, 02600 Espoo, FINLAND  
Contact Person Mikko Kahlos  
Contact Email mikko.kahlos@hmdglobal.com  
Telephone: +358 408036126  
Fax: +97143697604

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

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

Description	GSM/WCDMA/LTE phone
Model Name	TA-1295
FCC ID	2AJOTTA-1295
Extreme vol. Limits	3.5VDC to 4.2VDC (nominal: 3.8VDC)

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>
UT16a	004402972531432	0301	0.2047.11.01

\*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>
AE1	Battery
AE2	Charger
AE3	USB Cable
AE4	Headset
AE5	USB adapter

##### **AE1**

Model	BV-6A
Manufacturer	TIANJIN LISHEN BATTERY JOINT-STOCK CO., LTD.
Capacitance	1500mAh
Nominal voltage	3.85V

##### **AE2**

Model	AD-5WU
Manufacturer	DEE VAN ENTERPRISE CO., LTD.
Length of cable	/

##### **AE3**

Model	CA-10W
Manufacturer	Shenzhen Rongtaifeng Technology CO.,LTD
Length of cable	/

##### **AE4**

Model	WH-108
Manufacturer	Rongtaifeng
Length of cable	/

##### **AE5**

Model	21003001
Manufacturer	RongTaiFeng Technology Co.,Ltd
Length of cable	/

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

### 3.4. EUT set-ups

<b>EUT set-up No.</b>	<b>Combination of EUT and AE</b>	<b>Remarks</b>
Set. 1	UT16a+AE1+AE2+AE3+AE4	Charger+FM+GSM850 Reciever
Set. 2	UT16a+AE1+AE2+AE3	Charger+Camera+WB5/LB5/12/13 Reciever
Set. 3	UT16a+AE1+AE3+PC	USB Mode
Set. 4	UT16a+AE1+AE3+AE5+PC	USB Mode + USB adapter

**Note:**

The device supports GSM 850/1900/900/1800 and UMTS FDD Band 2/4/5 and E-UTRA FDD Band 2/4/5/12/13. It has WLAN (802.11b/g/n, 802.11n supports 20MHz bandwidth) functions. The device contains receivers which tune and operate between 30MHz-960MHz in the following bands: GSM850, WCDMA850 and LTE Band5/12/13. All licensed band receivers that tune in the range of 30MHz-960MHz are investigated. Only the worst results are shown in the report.

## **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 Methods of Measurement of Radio- Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2014

Note: The test methods have no deviation with standards.



## 5. LABORATORY ENVIRONMENT

**Semi-anechoic chamber SAC-2** (10 meters×6.7meters×6.1meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 15 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz, >60dB; 1MHz - 1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4 Ω
Normalised site attenuation (NSA)	< ±4 dB, 3m distance
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 6000 MHz

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

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz, >60dB; 1MHz—1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4 Ω

## 6. SUMMARY OF TEST RESULTS

Abbreviations used in this clause:		
Verdict Column	P	Pass
	NA	Not applicable
	F	Fail

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

## 7. Test Equipments Utilized

NO.	Description	TYPE	SERIES NUMBER	MANUFACTURE	CAL DUE DATE	CALIBRATION INTERVAL
1	Test Receiver	ESU26	100376	R&S	2021-09-04	1 Year
2	LISN	ENV216	101459	R&S	2021-03-17	1 year
3	Universal Radio Communication Tester	CMW500	127406	R&S	2020-12-29	1 year
4	Test Receiver	ESCI 3	100766	R&S	2021-03-04	1 Year
5	EMI Antenna	VULB 9163	9163-514	Schwarzbeck	2021-02-24	1 year
6	EMI Antenna	3117	00139065	ETS-Lindgren	2021-10-11	1 year
7	Signal Power	SMT06	831285/005	R&S	2020-12-26	1 year
8	PC	M4000e-17	M706GWXD	Lenovo	N/A	N/A
9	Printer	P1606dn	VNC3L52122	HP	N/A	N/A

Note: the above test equipments are used before Cal Due Date.

## **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 3 meters 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 USB mode and charging mode. During the test MS is connected to a PC via a USB cable in the case of USB mode and 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.

The model of the PC is M4000E-17, and the serial number of the PC is M706GWXD. The software is used to let the PC keep on copying data to MS, reading and erasing the data after copy action was finished.

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.

#### **A.1.4 Test Condition**

Frequency range (MHz)	RBW/BW	Sweep Time (s)	Detector
30-1000	120kHz (IF Bandwidth)	5	Peak/Quasi-peak
Above 1000	1MHz/1MHz	15	Peak, Average

### A.1.5 Measurement Results

A "reference path loss" is established and the  $A_{Rpl}$  is the attenuation of "reference path loss". It includes the antenna factor of receive antenna and the path loss.

The measurement results are obtained as described below:

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

Where

$G_A$ : Antenna factor of receive antenna

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

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

Measurement uncertainty (worst case):  $U = 4.74 \text{ dB}$ ,  $k=2$ .

#### Measurement results for Set.1:

##### Charging 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)
17683.500	39.04	-22.1	41.2	19.94	54.0	15.0	V
17697.000	39.00	-22.2	41.2	19.93	54.0	15.0	V
17693.500	38.94	-22.2	41.2	19.86	54.0	15.1	H
17692.500	38.94	-22.2	41.2	19.86	54.0	15.1	V
17695.500	38.93	-22.2	41.2	19.86	54.0	15.1	H
17909.000	38.90	-22.6	41.3	20.25	54.0	15.1	V

##### Charging 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)
17636.000	51.9	-22.0	41.2	32.73	74.0	22.1	V
17697.000	51.6	-22.2	41.2	32.50	74.0	22.4	V
17714.500	51.2	-22.2	41.2	32.12	74.0	22.8	V
17017.500	51.1	-23.0	41.7	32.44	74.0	22.9	H
17792.000	51.1	-22.4	41.3	32.18	74.0	22.9	V
17103.000	51.0	-23.0	41.6	32.46	74.0	23.0	H

**Measurement results for Set.2:**
**Charging 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)
17693.500	39.14	-22.2	41.2	20.07	54.0	14.9	V
17695.500	39.10	-22.2	41.2	20.03	54.0	14.9	H
17706.000	39.08	-22.2	41.2	20.03	54.0	14.9	H
17694.500	39.06	-22.2	41.2	19.99	54.0	14.9	H
17704.000	39.01	-22.2	41.2	19.96	54.0	15.0	V
17685.000	39.01	-22.1	41.2	19.92	54.0	15.0	H

**Charging 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)
17004.000	51.57	-23.0	41.7	32.90	74.0	22.4	H
17685.000	51.54	-22.1	41.2	32.44	74.0	22.5	V
17889.500	51.37	-22.6	41.3	32.68	74.0	22.6	V
17008.500	51.34	-23.0	41.7	32.68	74.0	22.7	H
17276.000	51.32	-22.8	41.4	32.68	74.0	22.7	V
17640.000	51.15	-22.0	41.2	31.96	74.0	22.8	H

**Measurement results for Set.3:**
**USB 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)
17692.500	38.94	-22.2	41.2	19.86	54.0	15.1	V
17697.000	38.88	-22.2	41.2	19.81	54.0	15.1	H
17702.500	38.85	-22.2	41.2	19.79	54.0	15.2	H
17905.000	38.83	-22.6	41.3	20.18	54.0	15.2	V
17695.000	38.83	-22.2	41.2	19.76	54.0	15.2	H
17697.500	38.83	-22.2	41.2	19.76	54.0	15.2	V

**Charging 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)
16968.000	51.3	-23.0	41.7	32.65	74.0	22.7	H
17719.000	51.2	-22.2	41.2	32.22	74.0	22.8	V
17002.000	51.2	-23.0	41.7	32.54	74.0	22.8	H
16977.000	51.2	-23.0	41.7	32.54	74.0	22.8	V
16865.500	51.2	-23.0	41.6	32.57	74.0	22.8	H
16997.000	51.2	-23.0	41.7	32.49	74.0	22.8	V

**Measurement results for Set.4:**

**USB Mode with AE5/Average detector**

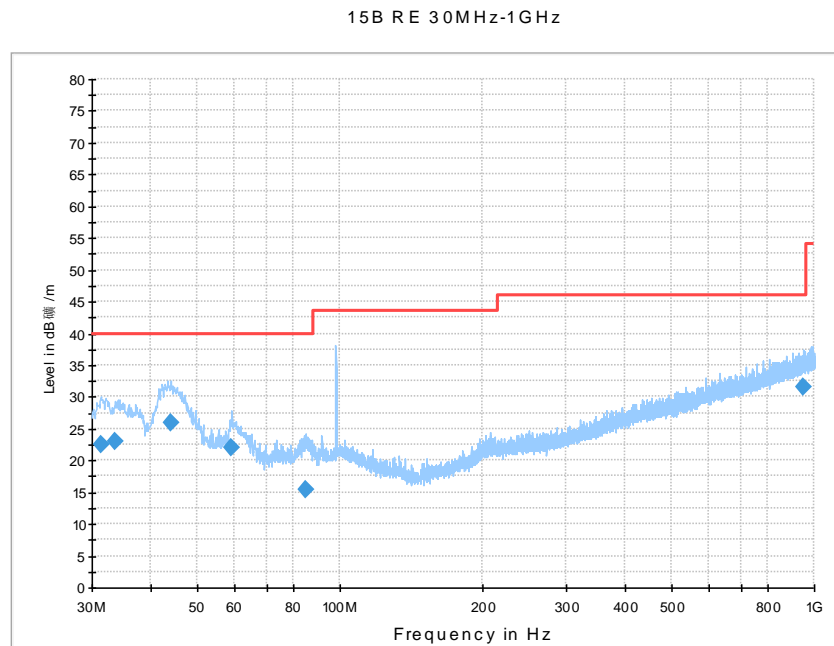
Frequency (MHz)	Measurement Result (dB $\mu$ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB $\mu$ V)	Limit (dB $\mu$ V/m)	Margin (dB)	Antenna Pol. (H/V)
17689.000	39.11	-22.2	41.2	20.03	54.0	14.9	H
17696.500	39.05	-22.2	41.2	19.98	54.0	14.9	V
17703.500	39.05	-22.2	41.2	19.99	54.0	15.0	H
17692.500	39.00	-22.2	41.2	19.92	54.0	15.0	V
17690.000	39.00	-22.2	41.2	19.91	54.0	15.0	V
17698.500	39.00	-22.2	41.2	19.93	54.0	15.0	H

**USB Mode with AE5/ 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)
17086.500	51.6	-23.0	41.6	33.00	74.0	22.4	H
17097.500	51.6	-23.0	41.6	32.99	74.0	22.4	H
17680.500	51.4	-22.1	41.2	32.26	74.0	22.6	H
17890.500	51.3	-22.6	41.3	32.62	74.0	22.7	V
17003.500	51.2	-23.0	41.7	32.55	74.0	22.8	H
17640.000	51.2	-22.0	41.2	32.01	74.0	22.8	H



**Measurement results for Set.1:**

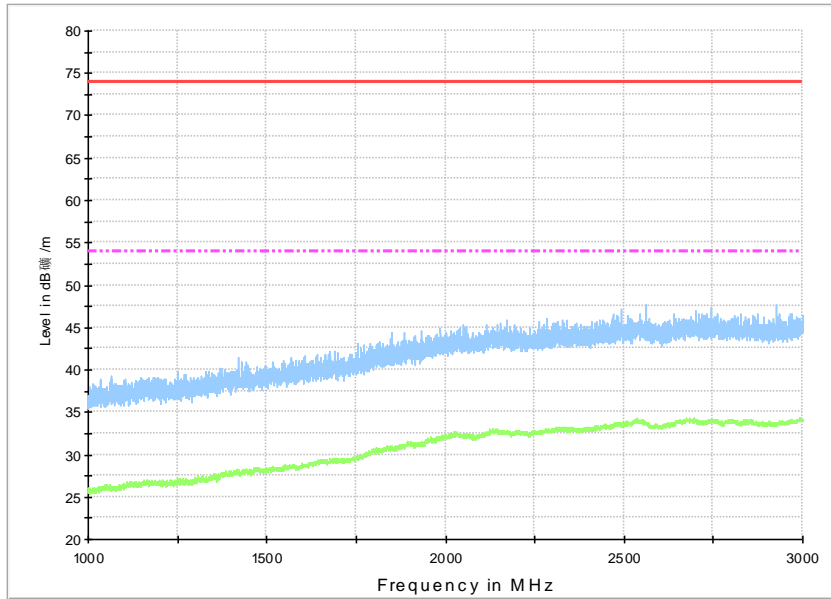


**Fig A.1 Radiated Emission from 30MHz to 1GHz**

**Final Result 1**

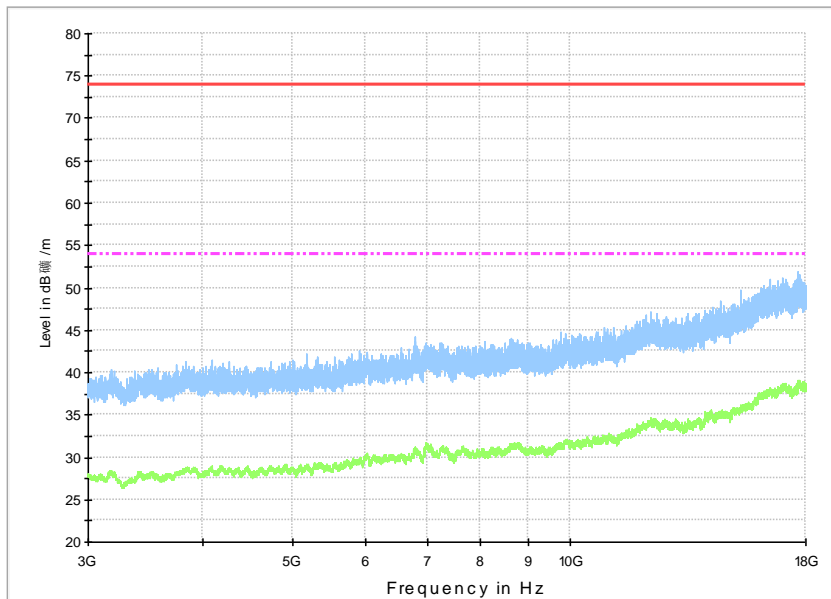
Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
31.358000	22.5	100.0	V	206.0	-2.2	17.5	40.0	
33.589000	22.9	111.0	V	177.0	-1.8	17.1	40.0	
43.968000	26.0	100.0	V	292.0	-0.5	14.0	40.0	
59.197000	22.1	125.0	V	-42.0	-0.8	18.0	40.0	
84.708000	15.5	125.0	V	315.0	-5.4	24.5	40.0	
951.015000	31.6	100.0	H	135.0	12.3	14.4	46.0	

15B RE - 1GHz-3GHz



**Fig A.2 Radiated Emission from 1GHz to 6GHz**

15b RE - 3GHz-18GHz



**Fig A.3 Radiated Emission from 6GHz to 18GHz**

Measurement results for Set.2:

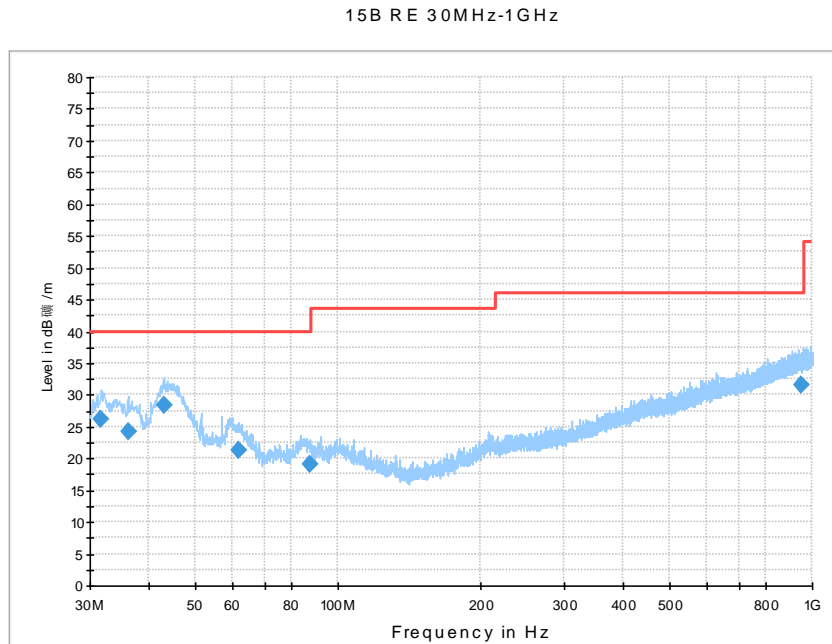
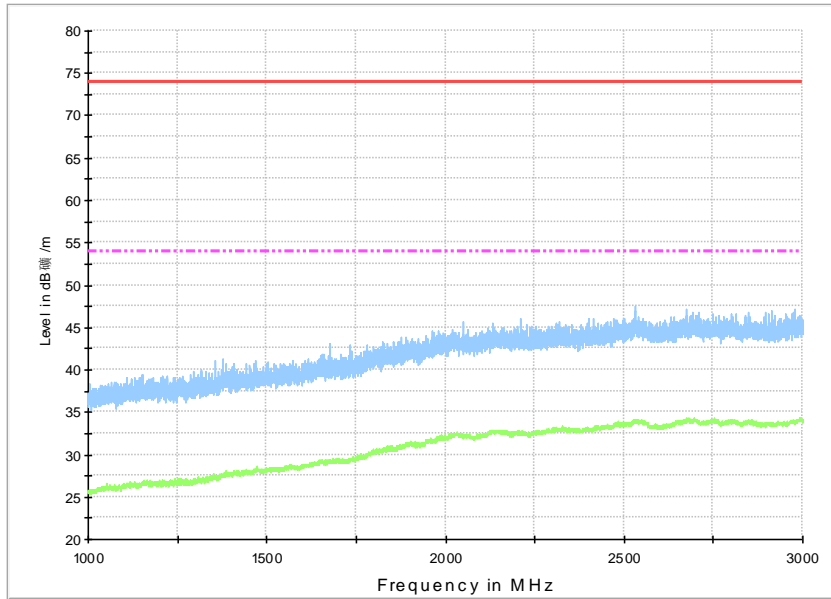


Fig A.4 Radiated Emission from 30MHz to 1GHz

Final Result 1

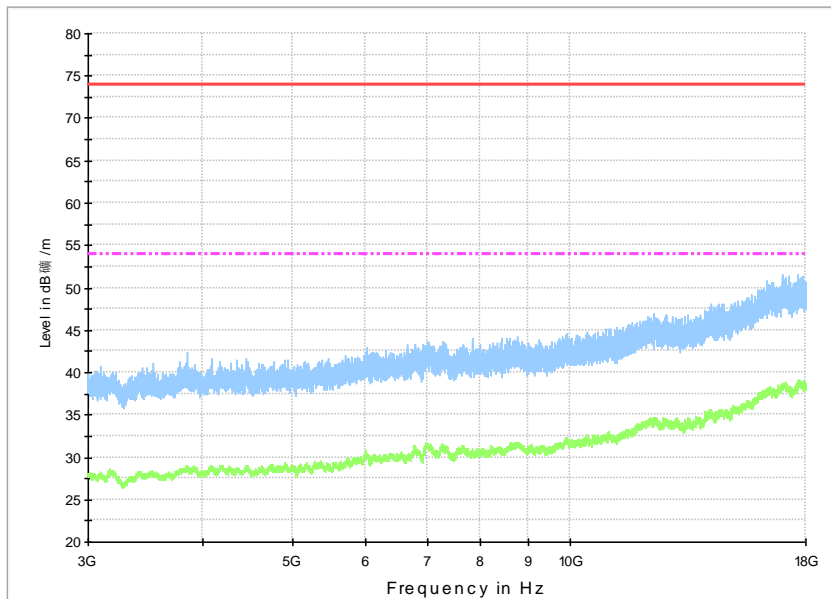
Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
31.649000	26.2	110.0	V	138.0	-2.2	13.8	40.0	
36.111000	24.3	100.0	V	45.0	-1.3	15.7	40.0	
42.901000	28.4	100.0	V	157.0	-0.6	11.6	40.0	
61.816000	21.3	111.0	V	246.0	-1.6	18.7	40.0	
87.133000	19.1	100.0	V	263.0	-4.6	20.9	40.0	
949.754000	31.5	100.0	H	315.0	12.3	14.5	46.0	

15B RE - 1GHz-3GHz



**Fig A.5 Radiated Emission from 1GHz to 6GHz**

15b RE - 3GHz-18GHz



**Fig A.6 Radiated Emission from 6GHz to 18GHz**

### Measurement results for Set.3:

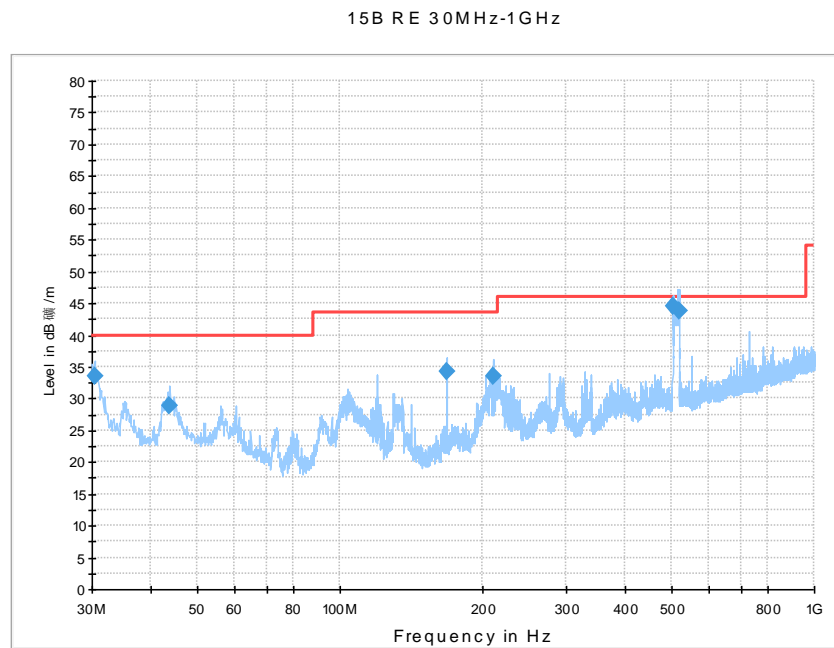
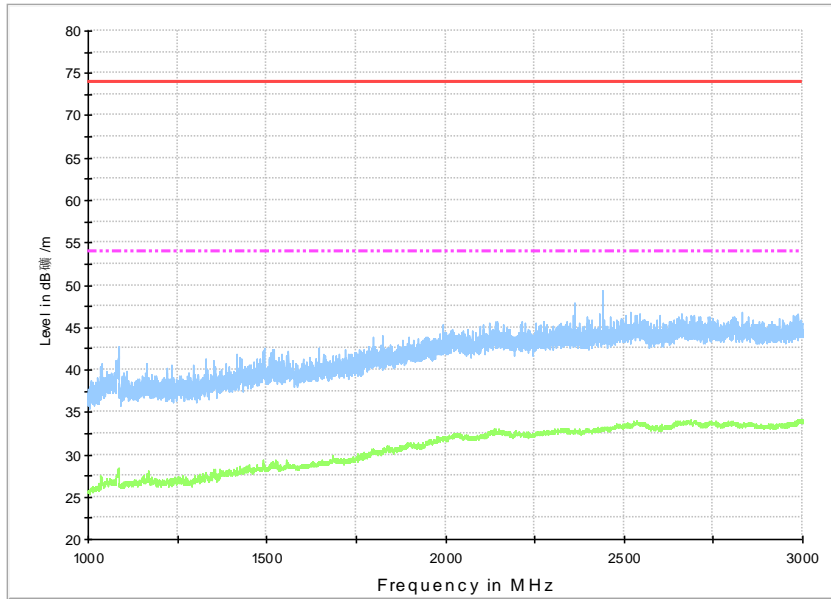


Fig A.7 Radiated Emission from 30MHz to 1GHz

### Final Result 1

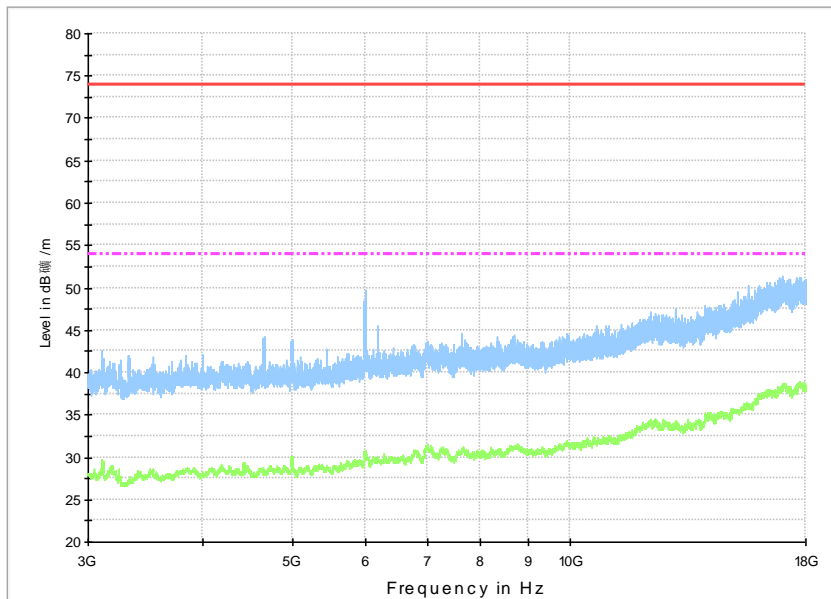
Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
30.388000	33.4	100.0	V	-17.0	-2.4	6.6	40.0	
43.774000	28.9	100.0	V	-24.0	-0.5	11.1	40.0	
168.031000	34.2	125.0	H	281.0	-4.1	9.3	43.5	
211.293000	33.6	110.0	H	291.0	-1.5	9.9	43.5	
504.136000	44.6	100.0	H	-7.0	6.1	1.4	46.0	
517.910000	43.8	100.0	H	0.0	6.3	2.2	46.0	

15B RE - 1GHz-3GHz



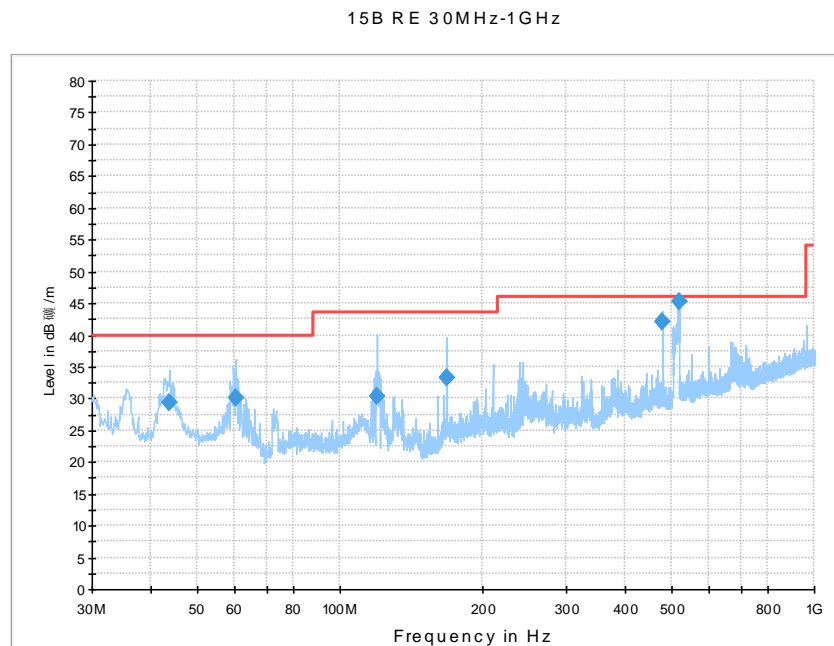
**Fig A.8 Radiated Emission from 1GHz to 6GHz**

15b RE - 3GHz-18GHz



**Fig A.9 Radiated Emission from 6GHz to 18GHz**

### Measurement results for Set.4:

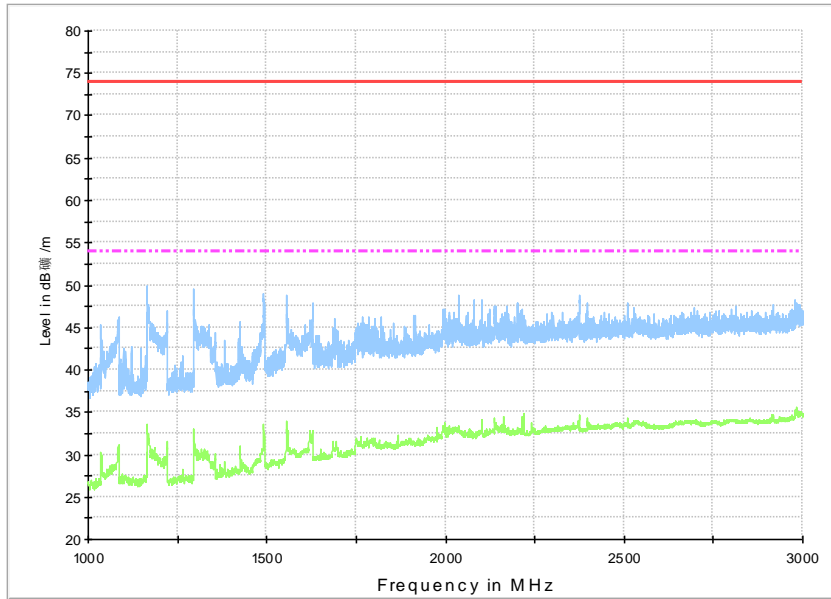


**Fig A.10 Radiated Emission from 30MHz to 1GHz**

### Final Result 1

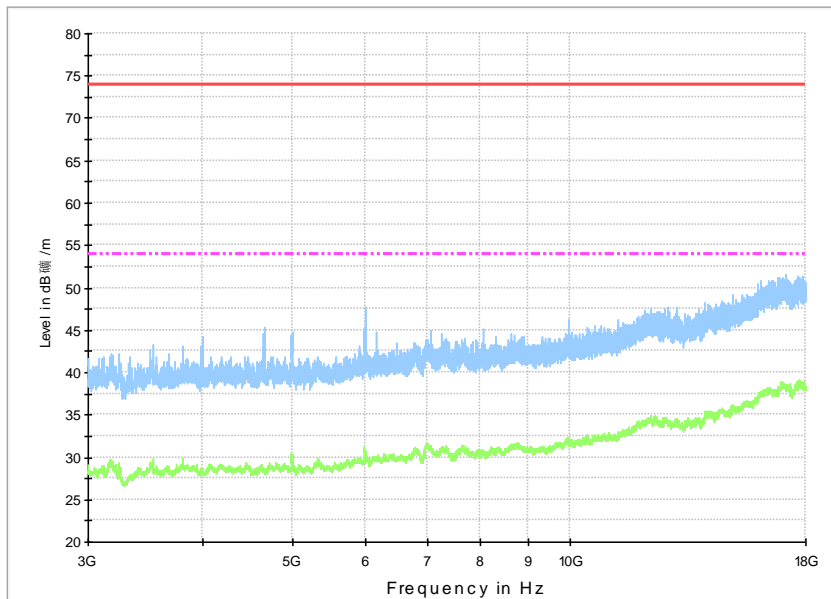
Frequency (MHz)	QuasiPeak (dB <sub>μV/m</sub> )	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB <sub>μV/m</sub> )	Comment
43.677000	29.4	100.0	V	315.0	-0.5	10.6	40.0	
60.264000	30.0	100.0	V	0.0	-1.0	10.0	40.0	
119.919000	30.4	125.0	H	288.0	-3.8	13.1	43.5	
167.934000	33.2	175.0	H	256.0	-4.1	10.3	43.5	
479.983000	42.2	194.0	H	281.0	5.8	3.8	46.0	
518.007000	45.3	125.0	V	-4.0	6.3	0.7	46.0	

15B RE - 1GHz-3GHz



**Fig A.11 Radiated Emission from 1GHz to 6GHz**

15b RE - 3GHz-18GHz



**Fig A.12 Radiated Emission from 6GHz 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 USB mode and charging mode. During the test MS is connected to a PC via a USB cable in the case of USB mode and is connected to a charger in the case of charging mode. The model of the PC is DELL M4000E-17, and the serial number of the PC is M706GWXD. The software is used to let the PC keep on copying data to MS, reading and erasing the data after copy action was finished.

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:  $U= 3.1 \text{ dB}$ ,  $k=2$ .

Charging Mode, Set.1:

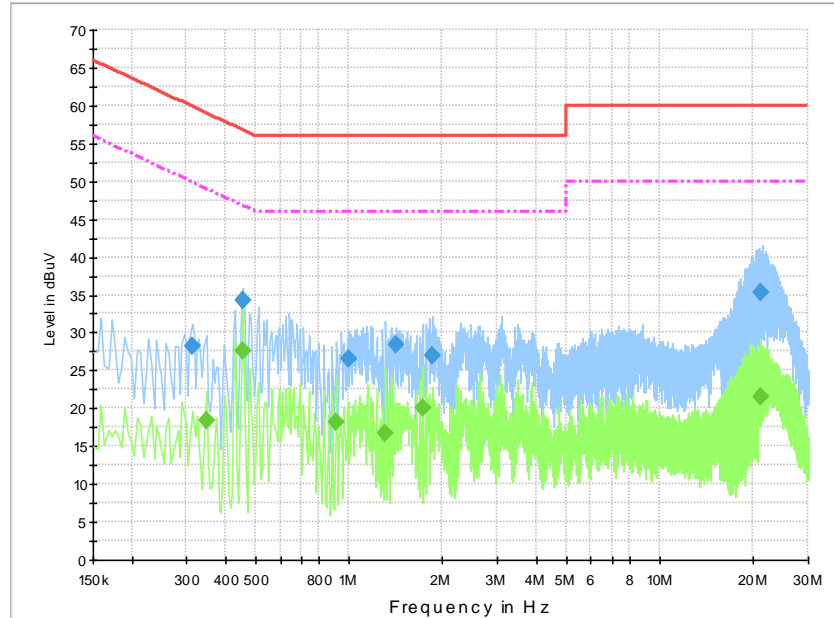


Fig A.13 Conducted Emission from 150kHz to 30MHz

### Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.312000	28.2	1000.0	9.000	On	L1	20.0	31.7	59.9	
0.456000	34.3	1000.0	9.000	On	L1	20.0	22.5	56.8	
0.996000	26.6	1000.0	9.000	On	L1	19.8	29.4	56.0	
1.419000	28.5	1000.0	9.000	On	L1	19.8	27.5	56.0	
1.851000	27.0	1000.0	9.000	On	L1	19.8	29.0	56.0	
21.183000	35.3	1000.0	9.000	On	N	20.0	24.7	60.0	

### Final Result 2

Frequency (MHz)	Average (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.348000	18.3	1000.0	9.000	On	L1	19.9	30.7	49.0	
0.456000	27.6	1000.0	9.000	On	L1	20.0	19.2	46.8	
0.910500	18.3	1000.0	9.000	On	L1	19.9	27.7	46.0	
1.311000	16.7	1000.0	9.000	On	L1	19.8	29.3	46.0	
1.734000	20.1	1000.0	9.000	On	L1	19.8	25.9	46.0	
21.196500	21.5	1000.0	9.000	On	L1	20.0	28.5	50.0	

### Charging Mode, Set.2:

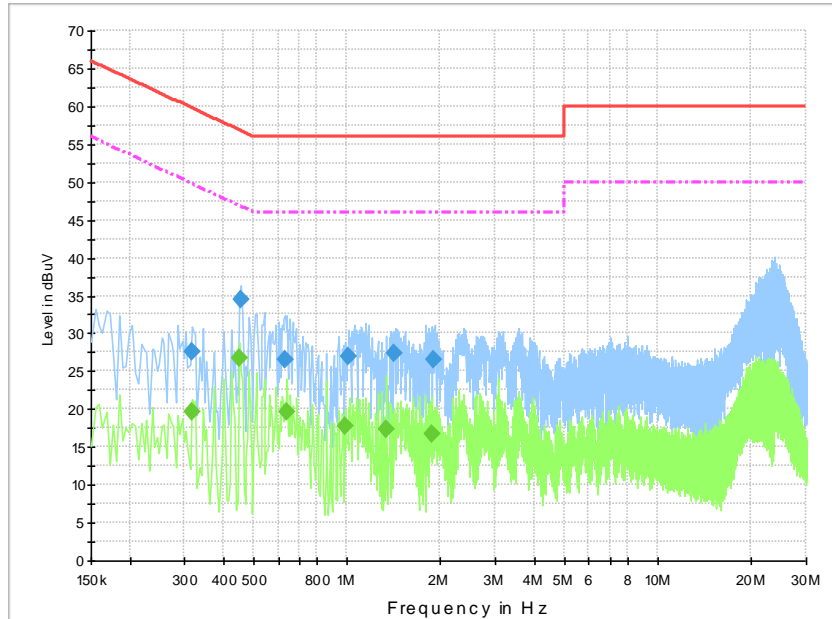


Fig A.14 Conducted Emission from 150kHz to 30MHz

### Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.316500	27.6	1000.0	9.000	On	L1	19.9	32.2	59.8	
0.456000	34.5	1000.0	9.000	On	L1	20.0	22.3	56.8	
0.631500	26.5	1000.0	9.000	On	L1	19.9	29.5	56.0	
1.014000	27.0	1000.0	9.000	On	L1	19.8	29.0	56.0	
1.419000	27.4	1000.0	9.000	On	L1	19.8	28.6	56.0	
1.905000	26.6	1000.0	9.000	On	L1	19.8	29.4	56.0	

### Final Result 2

Frequency (MHz)	Average (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.316500	19.6	1000.0	9.000	On	L1	19.9	30.2	49.8	
0.451500	26.8	1000.0	9.000	On	L1	20.0	20.0	46.8	
0.640500	19.6	1000.0	9.000	On	L1	19.9	26.4	46.0	
0.991500	17.8	1000.0	9.000	On	L1	19.8	28.2	46.0	
1.338000	17.3	1000.0	9.000	On	L1	19.8	28.7	46.0	
1.878000	16.8	1000.0	9.000	On	L1	19.8	29.2	46.0	

### Charging Mode, Set.3:

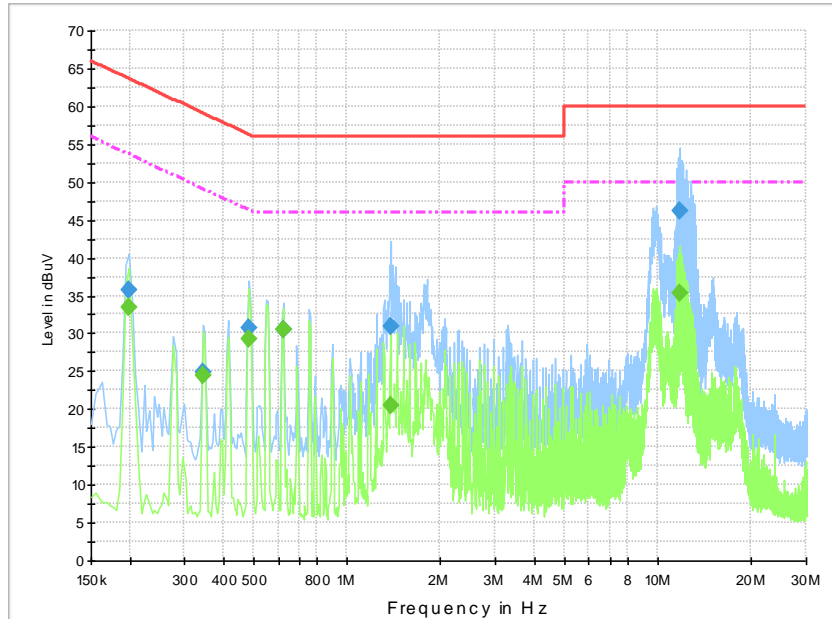


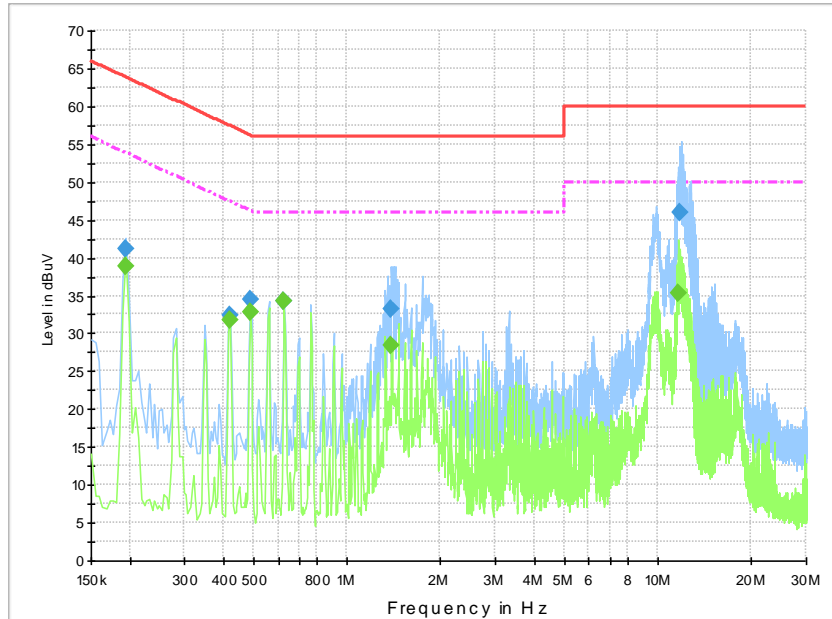
Fig A.15 Conducted Emission from 150kHz to 30MHz

### Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.199500	35.8	1000.0	9.000	On	L1	19.9	27.8	63.6	
0.343500	24.8	1000.0	9.000	On	L1	20.0	34.4	59.1	
0.483000	30.7	1000.0	9.000	On	L1	20.0	25.6	56.3	
0.622500	30.5	1000.0	9.000	On	L1	19.9	25.5	56.0	
1.383000	30.9	1000.0	9.000	On	L1	19.8	25.1	56.0	
11.823000	46.3	1000.0	9.000	On	N	19.9	13.7	60.0	

### Final Result 2

Frequency (MHz)	Average (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.199500	33.5	1000.0	9.000	On	L1	19.9	20.1	53.6	
0.343500	24.5	1000.0	9.000	On	L1	20.0	24.6	49.1	
0.483000	29.3	1000.0	9.000	On	L1	20.0	16.9	46.3	
0.622500	30.4	1000.0	9.000	On	L1	19.9	15.6	46.0	
1.383000	20.6	1000.0	9.000	On	L1	19.8	25.4	46.0	
11.773500	35.4	1000.0	9.000	On	N	19.9	14.6	50.0	

**USB Mode, Set.4:**

**Fig A.16 Conducted Emission from 150kHz to 30MHz**
**Final Result 1**

Frequency (MHz)	QuasiPeak (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.195000	41.2	1000.0	9.000	On	L1	20.0	22.6	63.8	
0.420000	32.3	1000.0	9.000	On	N	20.0	25.1	57.4	
0.487500	34.5	1000.0	9.000	On	N	20.0	21.8	56.2	
0.627000	34.2	1000.0	9.000	On	N	19.9	21.8	56.0	
1.392000	33.2	1000.0	9.000	On	N	19.8	22.8	56.0	
11.809500	46.0	1000.0	9.000	On	L1	19.9	14.0	60.0	

**Final Result 2**

Frequency (MHz)	Average (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.195000	38.8	1000.0	9.000	On	L1	20.0	15.0	53.8	
0.420000	31.8	1000.0	9.000	On	L1	20.0	15.7	47.4	
0.487500	32.7	1000.0	9.000	On	N	20.0	13.5	46.2	
0.627000	34.3	1000.0	9.000	On	N	19.9	11.7	46.0	
1.392000	28.5	1000.0	9.000	On	L1	19.8	17.5	46.0	
11.697000	35.3	1000.0	9.000	On	N	19.9	14.7	50.0	



## **ANNEX B: PERSONS INVOLVED IN THIS TESTING**

<b>Test Item</b>	<b>Test Software and Version</b>	<b>Software Vendor</b>	<b>Test operator</b>
Conducted Emission	EMC32 V8.5.2	R&S	Zhao Wenhui
Radiated Emission	EMC32 V9.01.00	R&S	Guo Qian

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