



# EMC TEST REPORT

**Report No.:** 20240117G01519X-W1

**Product Name:** VERTU IRONFLIP 5G digital mobile phone

**Model No. :** VTL-202302

**FCC ID:** 2A6IQ-VTL202302

**Applicant:** VERTU INTERNATIONAL CORPORATION LIMITED

**Address:** Chase Business Centre 39-41 Chase Side London England N14  
5BP

**Received Date:** 2024.01.22

**Dates of Testing:** 2024.01.23-2024.01.30

**Issued by:** CCIC Southern Testing Co., Ltd.

**Lab Location:** Electronic Testing Building, No. 43 Shahe Road, Xili Street,  
Nanshan District, Shenzhen, Guangdong, China.

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### Test Report

**Product Name**..... VERTU IRONFLIP 5G digital mobile phone

**Model No.** ..... VTL-202302

**Trade name**..... VERTU

**Applicant**..... VERTU INTERNATIONAL CORPORATION LIMITED

**Applicant Address**..... Chase Business Centre 39-41 Chase Side London England N14 5BP

**Manufacturer** ..... Chengdu VERTU Business And Service Management Co., Ltd

**Manufacturer Address** .... Room 2308, 23rd Floor, Building 2, No.1199,North Tianfu Avenue, High-tech Zone, Chengdu, China (Sichuan) Pilot Free Trade Zone

**Test Standards**..... 47 CFR Part 15 Subpart B, ICES-003 Issue 7

**Test Result**..... PASS

**Tested by** ..... Sun Jiaohui  
Sun Jiaohui Test Engineer 2024.04.08

**Reviewed by** ..... Chris You  
Chris You Senior Engineer 2024.04.08

**Approved by** ..... Yang Fan  
2024.04.08  
Yang Fan, Manager



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Change History		
Issue	Date	Reason for change
1.0	2024.04.08	First edition



# 1. GENERAL INFORMATION

## 1.1 EUT Description

EUT Name ..... : VERTU IRONFLIP 5G digital mobile phone  
 Trade Name..... : VERTU  
 Brand Name..... : VERTU  
 Hardware Version..... : P10  
 Software Version ..... : 13.0.0\_6.01.01.01  
 Power supply..... : Battery  
                         1#Model No.: LI3932T45P8h675653  
                         Capacitance: 3210mAh  
                         Rated Voltage: 3.91V  
                         Charge Limit: 4.5 V  
                         Manufacturer: Zhuhai CosMX Power JinWan Subsidiary Co., Ltd.

                        2#Model No.: LI3910T45P8h383652  
                         Capacitance: 970mAh  
                         Rated Voltage: 7.78V  
                         Charge Limit: 4.5 V  
                         Manufacturer: Zhuhai CosMX Power JinWan Subsidiary Co., Ltd.

Ancillary Equipment..... : AC Adapter  
                                   Model No.: A869-200325C-EU1  
                                   I/p: 100-240V~50/60Hz , 1.7A  
                                   O/p: 5.0V 3.0A 15.0W  
                                   9.0V 3A 27.0W  
                                   12.0V 3A 36.0W  
                                   15.0V 3A 45.0W  
                                   20.0V 3.25A 65.0W  
                                   3.3-21.0V 3.25A 65.0W Max  
                                   Manufacturer: Shenzhen Aoda Power Technology Co., Ltd.

*Note1:* The EUT is a VERTU IRONFLIP 5G digital mobile phone;  
*Note2:* For a more detailed description, please refer to Specification or User’s Manual supplied by the applicant and/or manufacturer.



## 1.2 Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 15 Subpart B and ICES-003 Issue 7:

No.	Identity	Document Title
1	47 CFR Part 15 Subpart B ICES-003 Issue 7	Radio Frequency Devices

Test detailed items/section required by FCC rules and results are as below:

No.	Section	Description	Result
1	15.107/ 6.2	Conducted Emission	PASS
2	15.109/ 6.3	Radiated Emission	PASS

**NOTE:**

- (1) The EUT has been tested according The test procedure is according to ANSI C63.4:2014.



## Facilities and Accreditations

### 1.2.1 Facilities

#### **FCC-Registration No.: CN1283**

CCIC Southern Testing Co., Ltd EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Designation Number: CN1283, valid time is until June 30,2025.

#### **ISED Registration: 11185A-1**

CCIC Southern Testing Co., Ltd. EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 11185A-1 on Aug. 04, 2016, valid time is until June 30,2025.

#### **A2LA Code: 5721.01**

CCIC-SET is a third party testing organization accredited by A2LA according to ISO/IEC 17025. The accreditation certificate number is 5721.01.

### 1.2.2 Test Environment Conditions

During the measurement, the environmental conditions were within the listed ranges:

Temperature ( °C):	15 °C - 35 °C
Relative Humidity (%):	25% -75%
Atmospheric Pressure (kPa):	86kPa-106kPa

### 1.2.3 Measurement Uncertainty

The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in Measurement" (GUM) published by ISO.

Uncertainty of Conducted Emission:	Uc = 3.2 dB (k=2)
Uncertainty of Radiated Emission: (30MHz~1GHz)	Uc = 5.8 dB (k=2)
Uncertainty of Radiated Emission: (1~6GHz)	Uc = 5.1 dB (k=2)
Uncertainty of Radiated Emission: (6~18GHz)	Uc = 5.5 dB (k=2)



## 2. TEST CONDITIONS SETTING

### 2.1 Test Peripherals

The following is a listing of the EUT and peripherals utilized during the performance of EMC test:

#### Support Equipment:

Description	Brand name	Model	Serial No.	FCCID
Sliding Rheostat	/	/	/	/
Light	/	/	/	/

#### Support Cable:

Description	Shield Type	Ferrite Core	Length
DC Power Cable	Un- shielding	/	0.8m
AC Power Cable	Un- shielding	/	0.8m

### 2.2 Test Mode

The EUT have the following typical setups during the test:

Setup1: EUT + Charging + Adapter;

Setup2: EUT + Notebook PC + DATA;

Setup3: EUT + Adapter+ Band 5/12/17 working

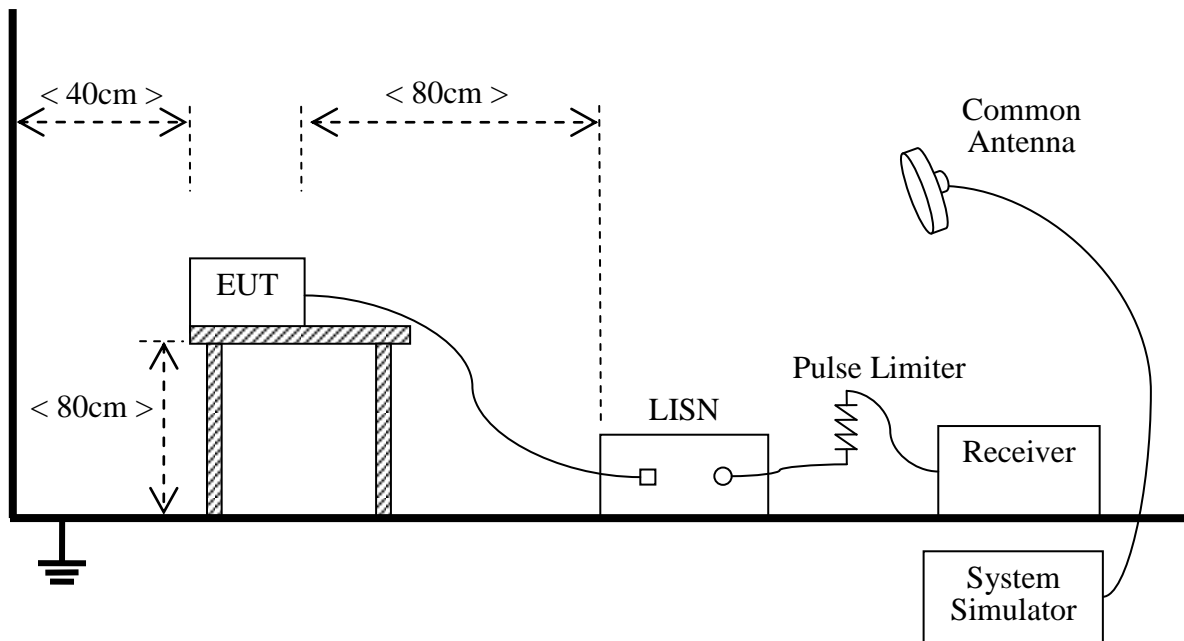
Note: Only the worst test patterns are recorded in the report.



## 2.3 Test Setup and Equipments List

### 2.3.1 Conducted Emission

#### A. Test Setup:



The EUT is placed on a 0.8m high insulating table, which stands on the grounded conducting floor, and keeps 0.4m away from the grounded conducting wall. The EUT is connected to the power mains through a LISN which provides  $50\Omega/50\mu\text{H}$  of coupling impedance for the measuring instrument. The Common Antenna is used for the call between the EUT and the System Simulator (SS). A Pulse Limiter is used to protect the measuring instrument. The factors of the whole test system are calibrated to correct the reading.

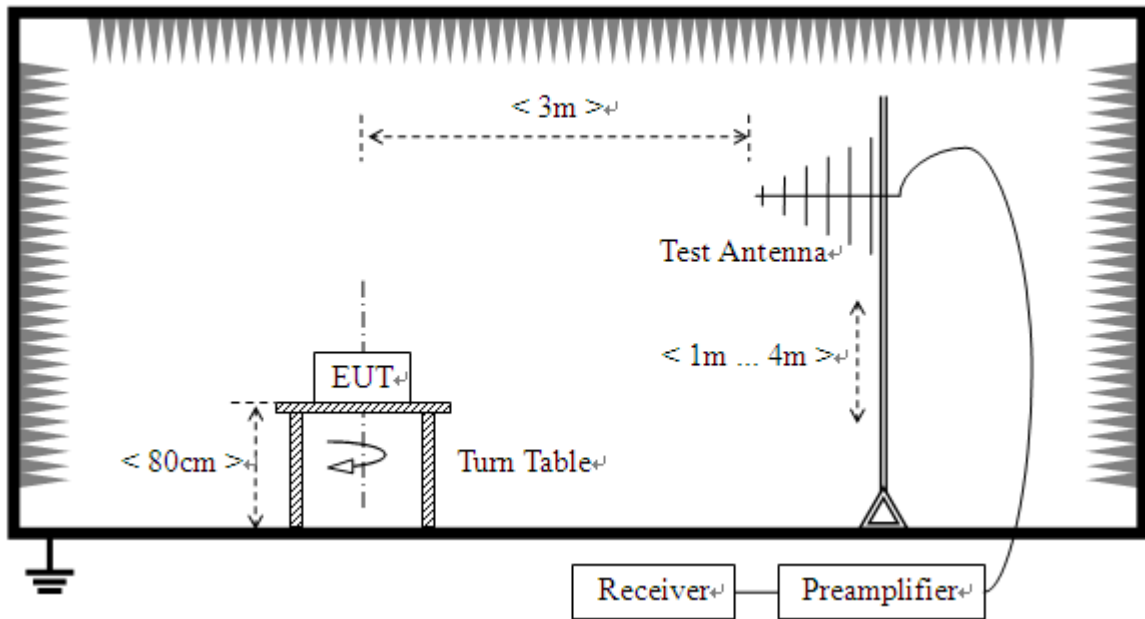
#### B. Equipments List:

Description	Manufacturer	Model	Serial No.	Calibration Date	Calibration Due. Date
Test Receiver	KEYSIGHT	N9038A	A141202036	2023.06.13	2024.06.12
LISN	ROHDE&SCHWARZ	ENV216	A140701847	2023.06.09	2024.06.08
Cable	MATCHING PAD	W7	/	2023.08.02	2024.08.02

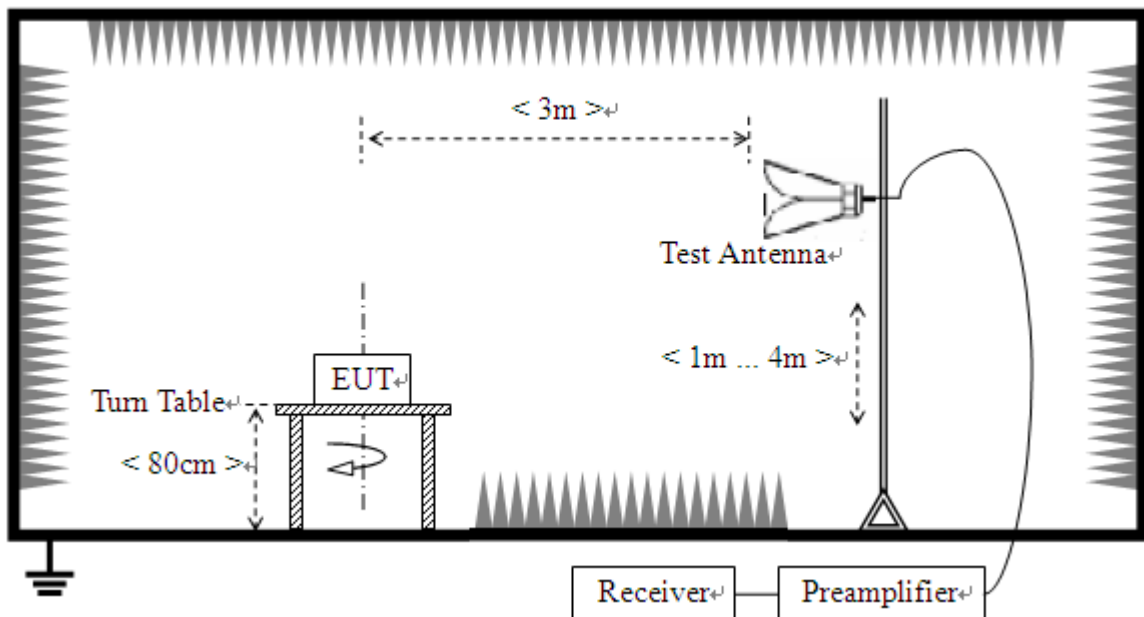
### 2.3.2 Radiated Emission

#### A. Test Setup:

- 1) For radiated emissions from 30MHz to 1GHz



- 2) For radiated emissions above 1GHz



**B. Test Procedure**

The test is performed in a 3m Semi-Anechoic Chamber; the antenna factor, cable loss and so on of the site (factors) is calculated to correct the reading. The EUT is placed on a 0.8m high insulating Turn Table, and keeps 3m away from the Test Antenna, which is mounted on a variable-height antenna master tower.

For the test Antenna:

- 1) In the frequency range above 30MHz, Bi-Log Test Antenna (30MHz to 1GHz) and Horn Test Antenna (above 1GHz) are used. Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground to determine the maximum value of the field strength. The emission levels at both horizontal and vertical polarizations should be tested.

**C. Equipments List:**

Description	Manufacturer	Model	Serial No.	Calibration Date	Calibration Due. Date
EMI Test Receiver	ROHDE&SCHWARZ	ESIB7	A0501375	2023.03.16	2024.03.15
Broadband Ant.	ETC	2786	A150402239	2021.03.04	2024.03.03
3M Anechoic Chamber	Albatross	SAC-3MAC 9*6*6m	A0412375	2021.03.26	2024.03.25
EMI Test Receiver	ROHDE&SCHWARZ	ESW26	A180502935	2023.06.08	2024.06.07
5M Anechoic Chamber	Albatross	SAC-5MAC 12.8x6.8x6.4m	A0304210	2022.03.25	2025.06.07
EMI Horn Ant.	ROHDE&SCHWARZ	HF906	A0304225	2022.04.12	2025.04.11



### 3. TEST REQUIREMENTS

#### 3.1 Conducted Emission

##### 3.1.1 Requirement

According to FCC section 15.107, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150kHz to 30MHz shall not exceed the limits in the following table, as measured using a 50 $\mu$ H/50 $\Omega$  line impedance stabilization network (LISN).

Frequency range (MHz)	Conducted Limit (dB $\mu$ V)	
	Quasi-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5 - 30	60	50

**Note:**

- The limit subjects to the Class B digital device.
- The lower limit shall apply at the band edges.
- The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50MHz.

##### 3.1.2 Test Description

See section 2.3.1 of this report.

##### 3.1.3 Test Result

The maximum conducted interference is searched using Peak (PK), Quasi-peak (QP) and Average (AV) detectors; the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. All test modes are considered, refer to recorded points and plots below.

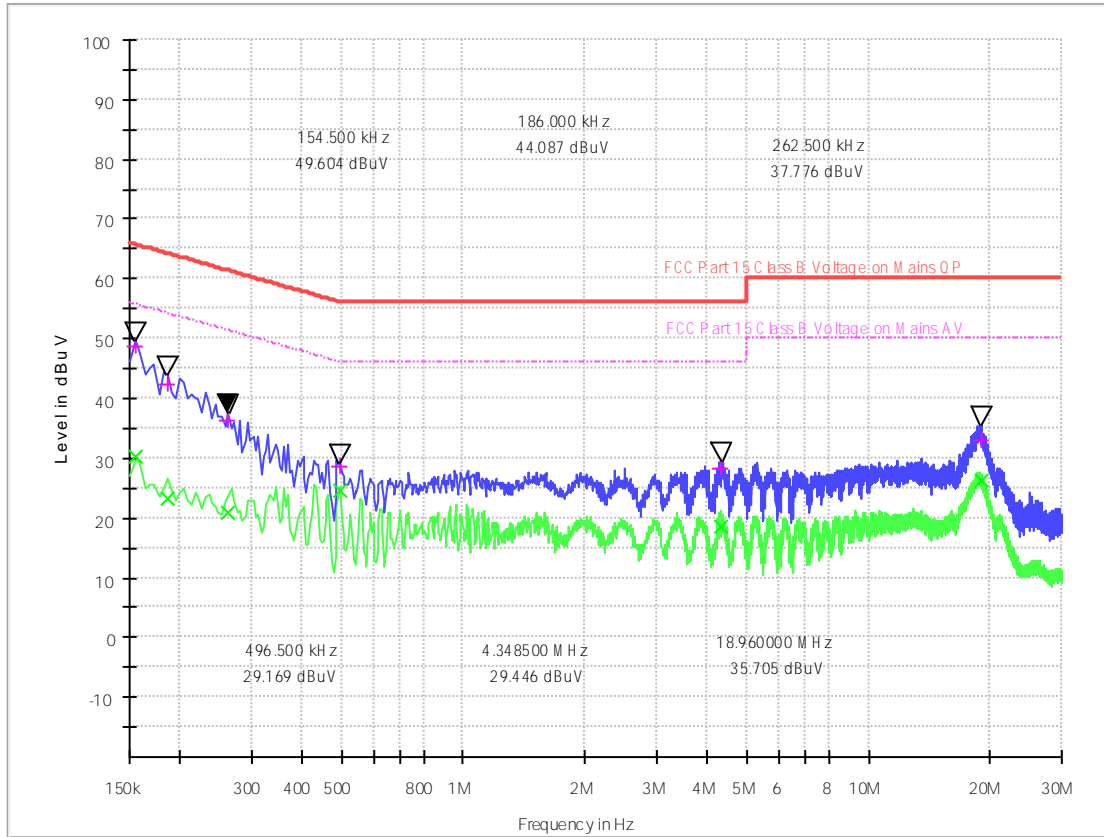
**Note:**

Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a Nominal 120V AC,50/60Hz) for which the device is capable of operation. A device rated for 50/60 Hz operation need not be tested at both frequencies provided the radiated and line conducted emissions are the same at both frequencies.



**Test voltage and frequency (120V AC, 60Hz)**

**A. Mains terminal disturbance voltage, L phase, Setup 1**

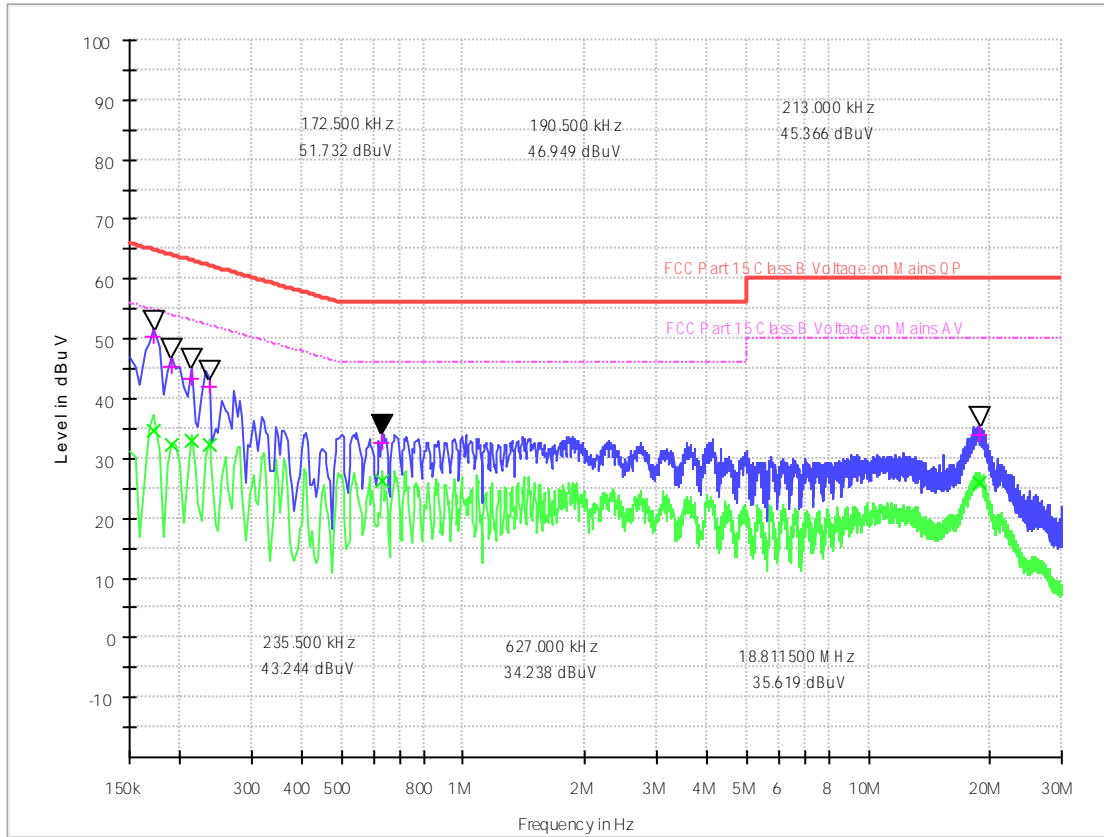


(Plot A: L Phase)

Frequency (MHz)	QuasiPeak (dB $\mu$ V)	CAverage (dB $\mu$ V)	Cabel Loss (dB)	Corr. (dB)	Margin - QPK	Limit - QPK	Margin - AV	Limit - AV (dB $\mu$ V)
0.154500	48.82	30.38	0.1	10.1	16.93	65.8	25.37	55.8
0.186000	42.36	23.33	0.1	10.1	21.85	64.2	30.88	54.2
0.262500	36.34	20.97	0.1	10.1	25.01	61.4	30.38	51.4
0.496500	28.57	24.74	0.1	10.1	27.49	56.1	21.32	46.1
4.348500	28.40	18.69	0.5	10.5	27.60	56.0	27.31	46.0
18.960000	32.84	26.24	0.5	10.5	27.16	60.0	23.76	50.0



**B. Mains terminal disturbance voltage, N phase, Setup 1**



(Plot B: N Phase)

Frequency (MHz)	QuasiPea k	CAverage (dB $\mu$ V)	Cabel Loss (dB)	Corr. (dB)	Margin - QPK	Limit - QPK	Margin - AV	Limit - AV (dB $\mu$ V)
0.172500	50.40	34.49	0.1	10.1	14.44	64.8	20.35	54.8
0.190500	45.32	32.22	0.1	10.1	18.69	64.0	21.79	54.0
0.213000	43.40	33.08	0.1	10.1	19.69	63.1	20.01	53.1
0.235500	42.09	32.35	0.1	10.1	20.16	62.3	19.90	52.3
0.627000	32.53	26.29	0.1	10.1	23.47	56.0	19.71	46.0
18.811500	33.92	26.06	0.5	10.5	26.08	60.0	23.94	50.0



## 3.2 Radiated Emission

### 3.2.1 Requirement

According to FCC section 15.109, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency range (MHz)	Field Strength		Field Strength Limitation at 3m Measurement Dist	
	$\mu\text{V/m}$	Dist	( $\mu\text{V/m}$ )	( $\text{dBuV/m}$ )
30.0 - 88.0	100	3m	100	20log 100
88.0 - 216.0	150	3m	150	20log 150
216.0 - 960.0	200	3m	200	20log 200
Above 960.0	500	3m	500	20log 500

- For frequencies above 1000MHz, the field strength limits are based on average detector. When average radiated emission measurements are specified in this part, including emission measurements below 1000MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules.
- Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground to determine the maximum value of the field strength.
- For below 1G :QP detector RBW 120kHz ,VBW 300kHz.

For Above 1G: PK detector RBW 1MHz,VBW 3MHz for PK value ;AV detector RBW 1MHz, VBW 10Hz for AV value.

#### Note:

- The tighter limit shall apply at the boundary between two frequency range.
- Limitation expressed in  $\text{dBuV/m}$  is calculated by  $20\log \text{Emission Level}(\mu\text{V/m})$ .
- If measurement is made at 3m distance, then F.S Limitation at 3m distance is adjusted by using the formula of  $Ld1 = Ld2 * (d2/d1)^2$

Example:

F.S Limit at 30m distance is  $30\mu\text{V/m}$ , then F.S Limitation at 3m distance is adjusted as

$$Ld1 = L1 = 30\mu\text{V/m} * (10)^2 = 100 * 30\mu\text{V/m}.$$



### **3.2.2 Test Description**

See section 2.3.2 of this report.

### **3.2.3 Test Result**

The maximum radiated emission is searched using PK, QP and AV detectors; the emission levels more than the limits, and that have narrow margins from the limits will be re-measured with AV and QP detectors. Both the vertical and the horizontal polarizations of the Test Antenna are considered to perform the tests. All test modes are considered, refer to recorded points and plots below.

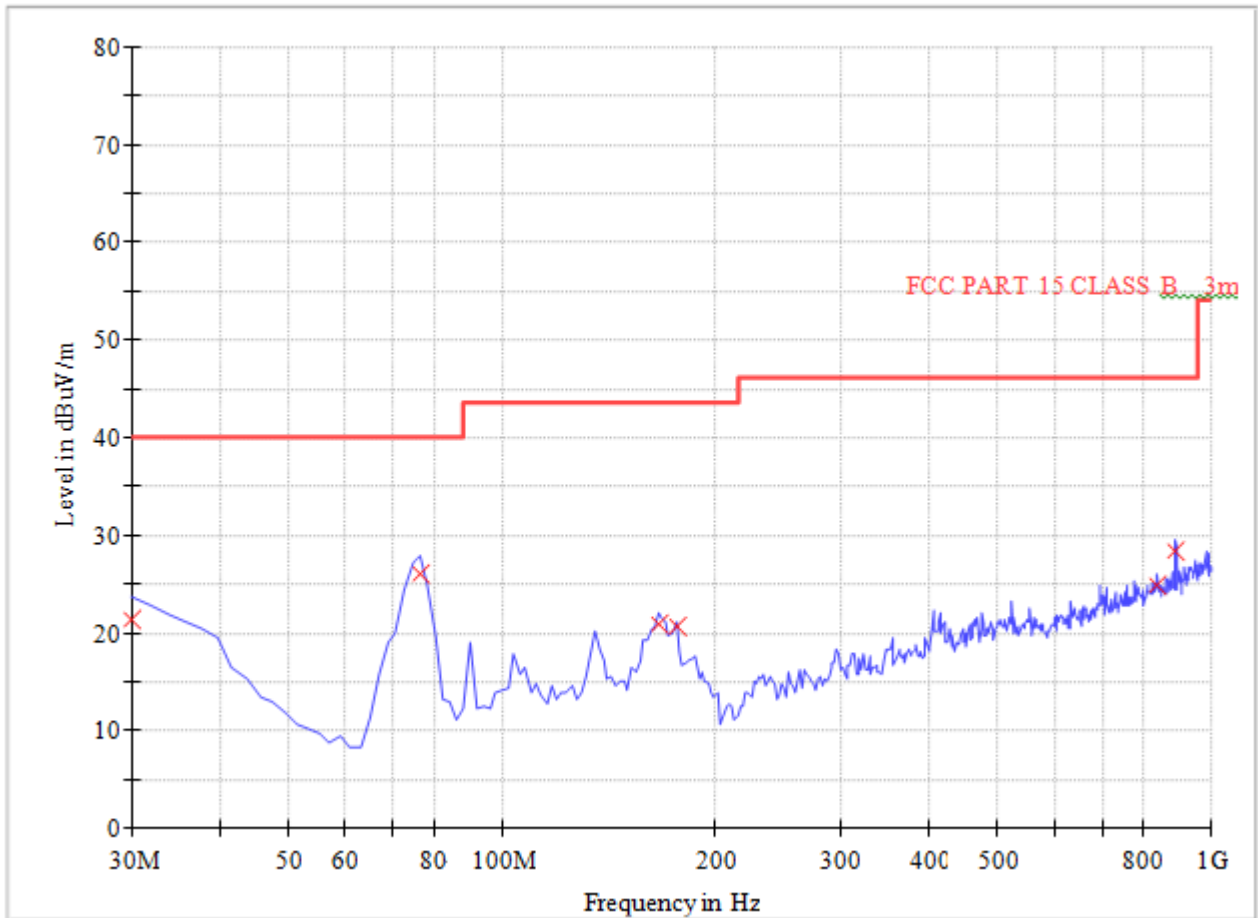
The amplitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be reported.

Note: All radiated emission tests were performed in X, Y, Z axis direction, and only the worst axis test condition was recorded in this test report.





**A. Radiation disturbances, antenna polarization: Vertical, Setup1**

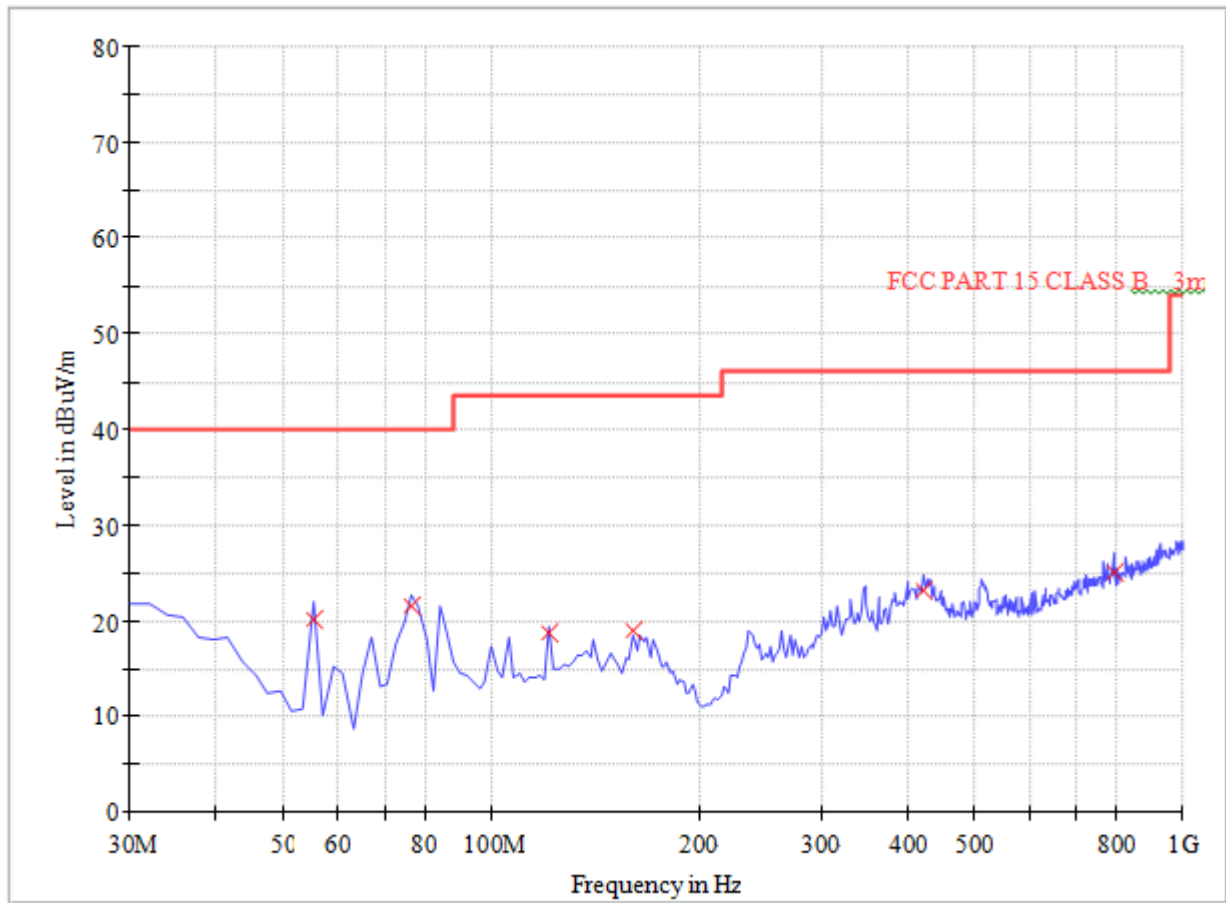


(Plot C: Test Antenna Vertical 30M - 1G)

Frequency (MHz)	QuasiPeak (dBµV/m)	Bandwidth (kHz)	Antenna height (cm)	Limit (dBµV/m)	Margin (dB)	Antenna	Cable Loss(dB)	ANT. Factor(dB )	Verdict
30.00	21.21	120.000	104	40.00	18.79	Vertical	0.5	19.3	Pass
76.64	26.01	120.000	103	40.00	13.99	Vertical	0.8	8.0	Pass
166.08	20.92	120.000	105	43.50	22.58	Vertical	1.2	12.3	Pass
175.80	20.68	120.000	101	43.50	22.82	Vertical	1.2	11.4	Pass
840.60	24.83	120.000	107	46.00	21.17	Vertical	2.0	23.2	Pass
891.16	28.42	120.000	103	46.00	17.58	Vertical	2.1	24.1	Pass



**B. Radiation disturbances, antenna polarization: Horizontal, Setup2**

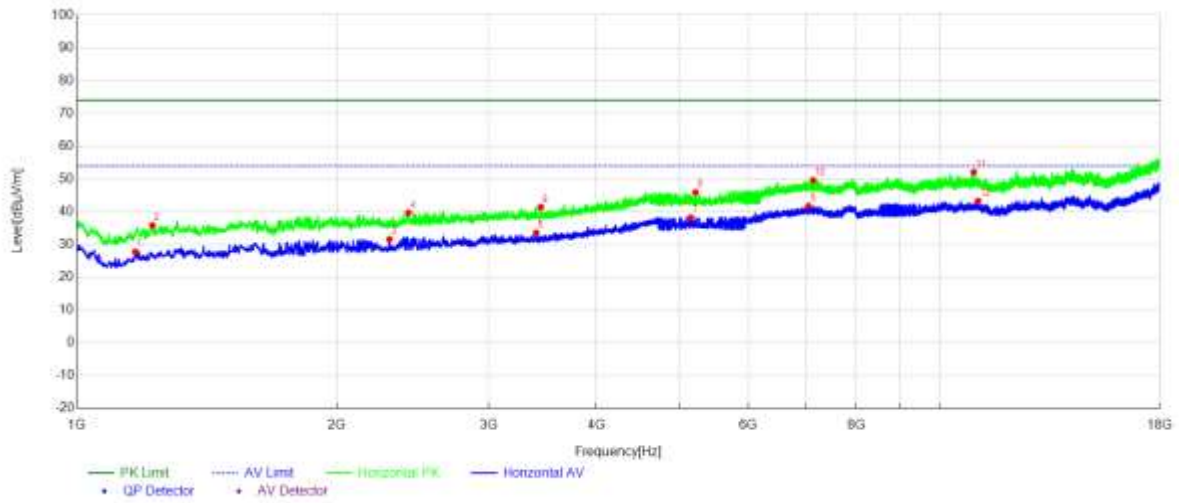


(Plot D: Test Antenna Horizontal 30M - 1G)

Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Bandwidth (kHz)	Antenna height (cm)	Limit (dB $\mu$ V/m)	Margin (dB)	Antenna	Cable Loss(dB)	ANT. Factor(dB)	Verdict
55.28	20.08	120.000	103	40.00	19.92	Horizontal	0.6	7.4	Pass
76.64	21.51	120.000	105	40.00	18.49	Horizontal	0.8	6.5	Pass
121.36	18.74	120.000	102	43.50	24.76	Horizontal	1.0	11.4	Pass
160.24	18.88	120.000	107	43.50	24.62	Horizontal	1.2	11.3	Pass
422.68	23.14	120.000	102	46.00	22.86	Horizontal	1.5	16.8	Pass
793.96	25.06	120.000	101	46.00	20.94	Horizontal	1.9	20.6	Pass



**A. Radiation disturbances, antenna polarization: Horizontal, Setup1**

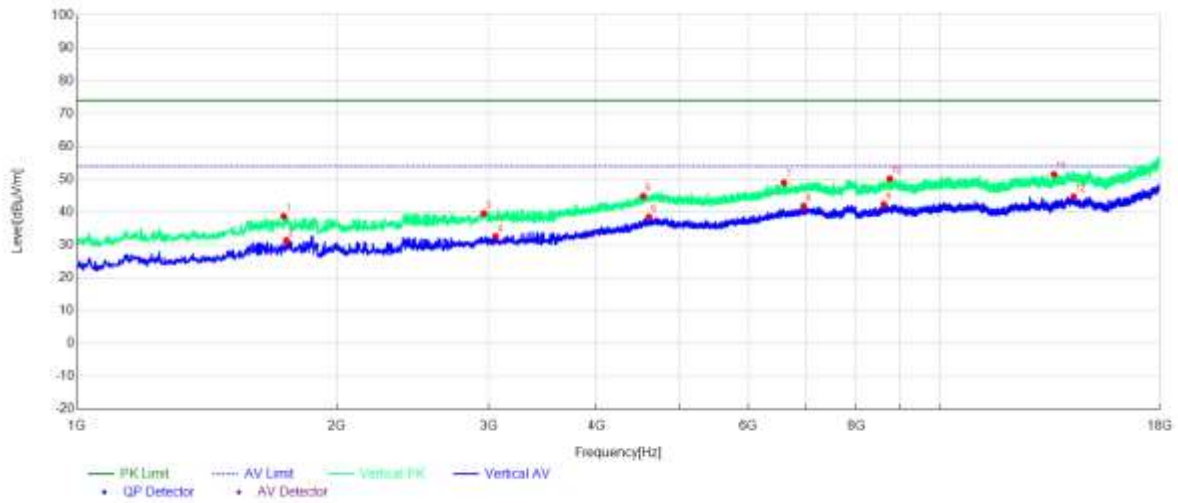


(Plot M: Test Antenna Horizontal 1G – 18G)

NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin[dB µV/m]	Trace	Height [cm]	Angle [°]	Polarity
1	1168.32	27.75	-15.51	54.00	26.25	AV	100	321	Horizontal
2	1222.72	35.85	-15.29	74.00	38.15	PK	100	265	Horizontal
3	2302.33	31.58	-10.98	54.00	22.42	AV	100	33	Horizontal
4	2421.34	39.65	-10.58	74.00	34.35	PK	100	205	Horizontal
5	3405.74	33.58	-7.15	54.00	20.42	AV	100	13	Horizontal
6	3446.54	41.38	-7.13	74.00	32.62	PK	100	305	Horizontal
7	5141.61	38.22	-1.33	54.00	15.78	AV	100	313	Horizontal
8	5211.32	45.90	-1.47	74.00	28.10	PK	100	112	Horizontal
9	7042.40	41.71	3.46	54.00	12.29	AV	100	64	Horizontal
10	7130.81	49.61	3.49	74.00	24.39	PK	100	107	Horizontal
11	10949.39	52.09	6.71	74.00	21.91	PK	100	228	Horizontal
12	11073.51	43.26	6.70	54.00	10.74	AV	100	345	Horizontal



**B. Radiation disturbances, antenna polarization: Vertical, Setup1**



(Plot N: Test Antenna Vertical 1G – 18G)

NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin[dB µV/m]	Trace	Height [cm]	Angle [°]	Polarity
1	1736.17	38.75	-13.06	74.00	35.25	PK	100	263	Vertical
2	1748.07	31.41	-13.01	54.00	22.59	AV	100	245	Vertical
3	2960.30	39.63	-8.23	74.00	34.37	PK	100	22	Vertical
4	3055.51	32.64	-7.97	54.00	21.36	AV	100	246	Vertical
5	4531.25	44.88	-1.59	74.00	29.12	PK	100	147	Vertical
6	4600.96	38.53	-1.12	54.00	15.47	AV	100	192	Vertical
7	6598.66	48.92	2.68	74.00	25.08	PK	100	74	Vertical
8	6952.30	41.85	3.35	54.00	12.15	AV	100	251	Vertical
9	8611.66	42.36	4.52	54.00	11.64	AV	100	262	Vertical
10	8749.37	50.16	4.45	74.00	23.84	PK	100	178	Vertical
11	13560.86	51.52	8.42	74.00	22.48	PK	100	134	Vertical
12	14290.23	44.75	9.76	54.00	9.25	AV	100	172	Vertical

-----End of Report-----