



EMC TEST REPORT

Report No.: SET2022-16408

Product Name: HPRT SMART POCKET PRINTER,HPRT LABEL PRINTER

FCC ID: 2AUTE-SPP5

Model No. : HPRT L5

Applicant: Xiamen Hanin Electronic Technology Co.,Ltd.

Address: Room 305A, Angye Building, Pioneering Park,Torch
High-tech,Zone,Xiamen

Received Date: 2022.11.22

Dates of Testing: 2022.11.22—2022.12.08

Issued by: CCIC Southern Testing Co., Ltd.

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

Tel: 86 755 26627338 **Fax:** 86 755 26627238

This test report consists of **19** pages in total. It may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product endorsement by CCIC-SET. The test results in the report only apply to the tested sample. The test report shall be invalid without all the signatures of testing engineers, reviewer and approver. Any objections must be raised to CCIC-SET within 15 days since the date when the report is received. It will not be taken into consideration beyond this limit.



Test Report

Product Name..... HPRT SMART POCKET PRINTER,HPRT LABEL PRINTER

Model No. HPRT L5

Series Model No. HPRT L5S,HPRT M5,HPRT M5S,HPRT L8,HPRT L8S

Trade name..... N/A

Brand Name..... N/A

Applicant..... Xiamen Hanin Electronic Technology Co.,Ltd.

Applicant Address..... Room 305A, Angye Building, Pioneering Park,Torch High-tech,Zone,Xiamen

Manufacturer Xiamen Hanin Electronic Technology Co.,Ltd.

Manufacturer Address Room 305A, Angye Building, Pioneering Park,Torch High-tech,Zone,Xiamen

Test Standards..... 47 CFR Part 15 Subpart B

Test Result..... PASS

Tested by Ruihong Xie

Ruihong Xie Test Engineer 2022.12.08

Reviewed by Chris You

Chris You Senior Engineer 2022.12.08

Approved by Hou Tao

Hou Tao, Manager 2022.12.08



TABLE OF CONTENTS

- 1. GENERAL INFORMATION4**
- 1.1 EUT Description4**
- 1.2 Test Standards and Results.....5**
- Facilities and Accreditations6**
- 1.2.1 Facilities6
- 1.2.2 Test Environment Conditions.....6
- 1.2.3 Measurement Uncertainty6
- 2. TEST CONDITIONS SETTING7**
- 2.1 Test Peripherals7**
- 2.2 Test Mode7**
- 2.3 Test Setup and Equipments List.....8**
- 2.3.1 Conducted Emission8
- 2.3.2 Radiated Emission.....9
- 3. 47 CFR PART 15B REQUIREMENTS11**
- 3.1 Conducted Emission11**
- 3.1.1 Requirement11
- 3.1.2 Test Description11
- 3.1.3 Test Result11
- 3.2 Radiated Emission14**
- 3.2.1 Requirement14
- 3.2.2 Test Description15
- 3.2.3 Test Result15

Change History		
Issue	Date	Reason for change
1.0	2022.12.08	First edition



1.2 Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 15 Subpart B:

No.	Identity	Document Title
1	47 CFR Part 15 Subpart B	Radio Frequency Devices

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

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

NOTE:

- (1) The EUT has been tested according to 47 CFR Part 15 Subpart B, Class B. 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 April 19th, 2023.

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 April 20th, 2023.

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
AC Adapter	/	SW-0018C	/	/

Support Cable:

Description	Shield Type	Ferrite Core	Length
DC Power Cable	Un- shielding	No	1.2m

2.2 Test Mode

The EUT have the following typical setups during the test:

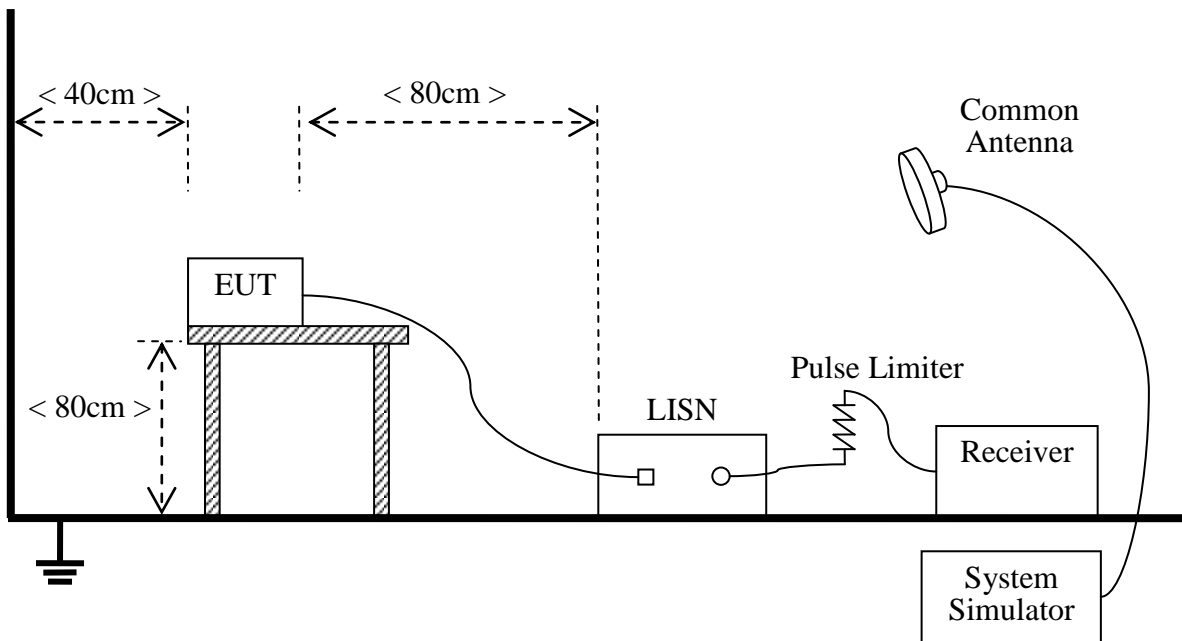
Setup1: EUT+Battery;

Setup2:EUT+Adapter

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.

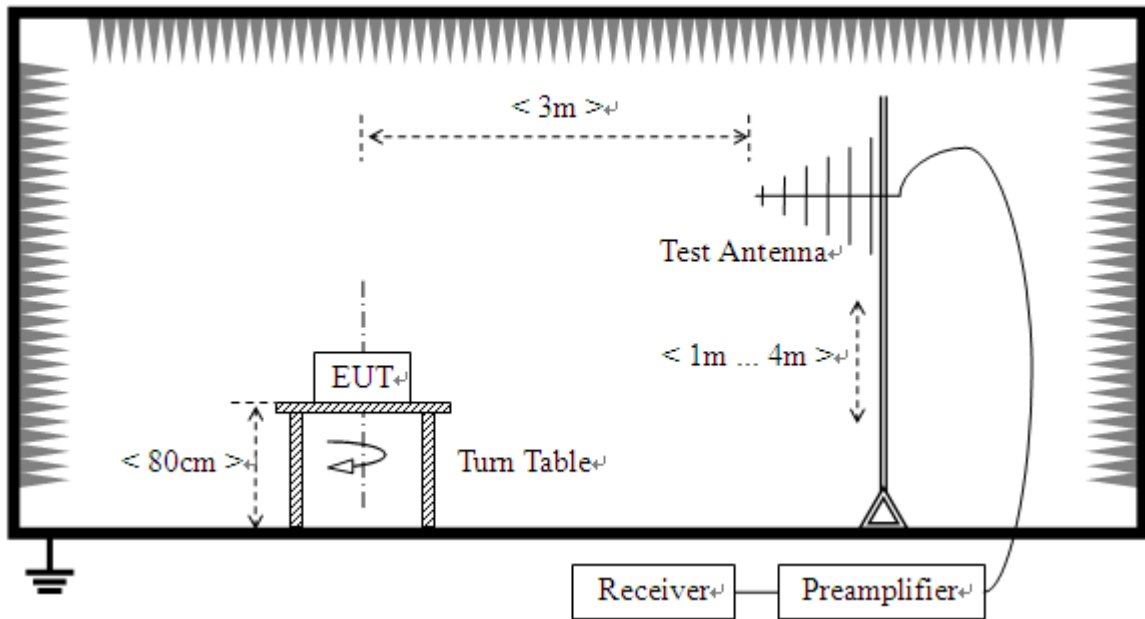
B. Equipments List:

Description	Manufacturer	Model	Serial No.	Calibration Date	Calibration Due. Date
Test Receiver	KEYSIGHT	N9038A	A141202036	2022.07.21	2023.07.20
LISN	ROHDE&SCHWARZ	ENV216	A140701847	2022.07.21	2023.07.20
Cable	MATCHING PAD	W7	/	2022.08.02	2023.08.02

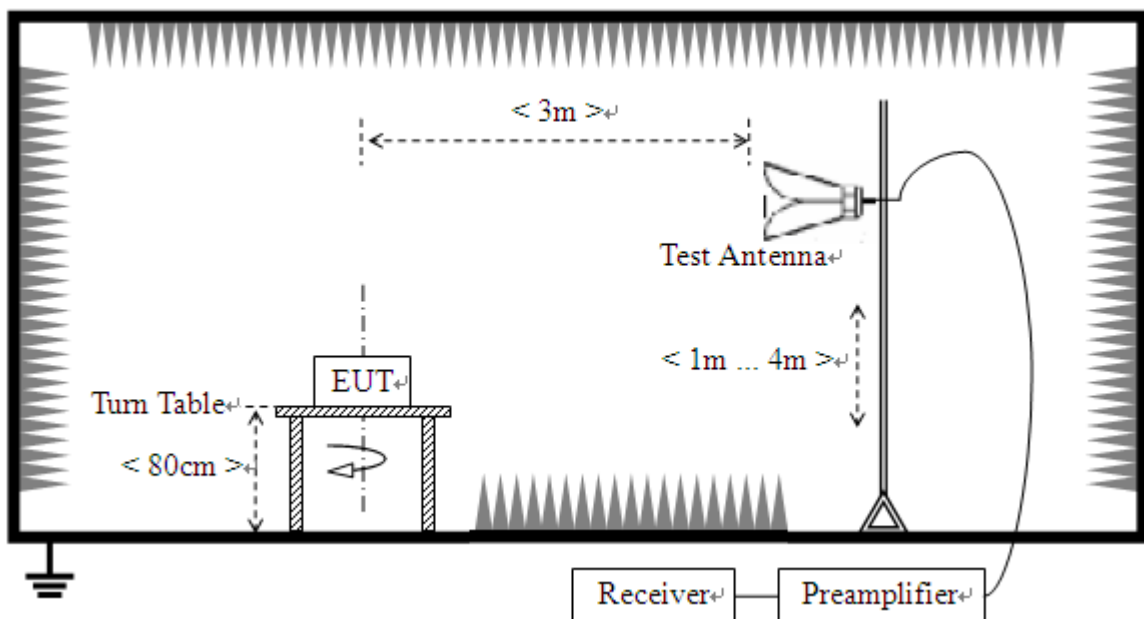
2.3.2 Radiated Emission

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	ESCI	A0902601	2022.05.23	2023.04.17
Broadband Ant.	2786	ETC	A150402239	2021.09.16	2024.03.03
3M Anechoic Chamber	Albatross	SAC-3MAC 9*6*6m	A0412375	2019.03.26	2023.03.25
EMI Test Receiver	ROHDE&SCHWARZ	ESW26	A180502935	2022.07.21	2023.07.20
5M Anechoic Chamber	Albatross	SAC-5MAC 12.8x6.8x6.4m	A0304210	2022.03.25	2023.03.24
EMI Horn Ant.	ROHDE&SCHWARZ	HF906	A0304225	2019.03.25	2023.03.24



3. 47 CFR PART 15B 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 μ H/50 Ω line impedance stabilization network (LISN).

Frequency range (MHz)	Conducted Limit (dB μ 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

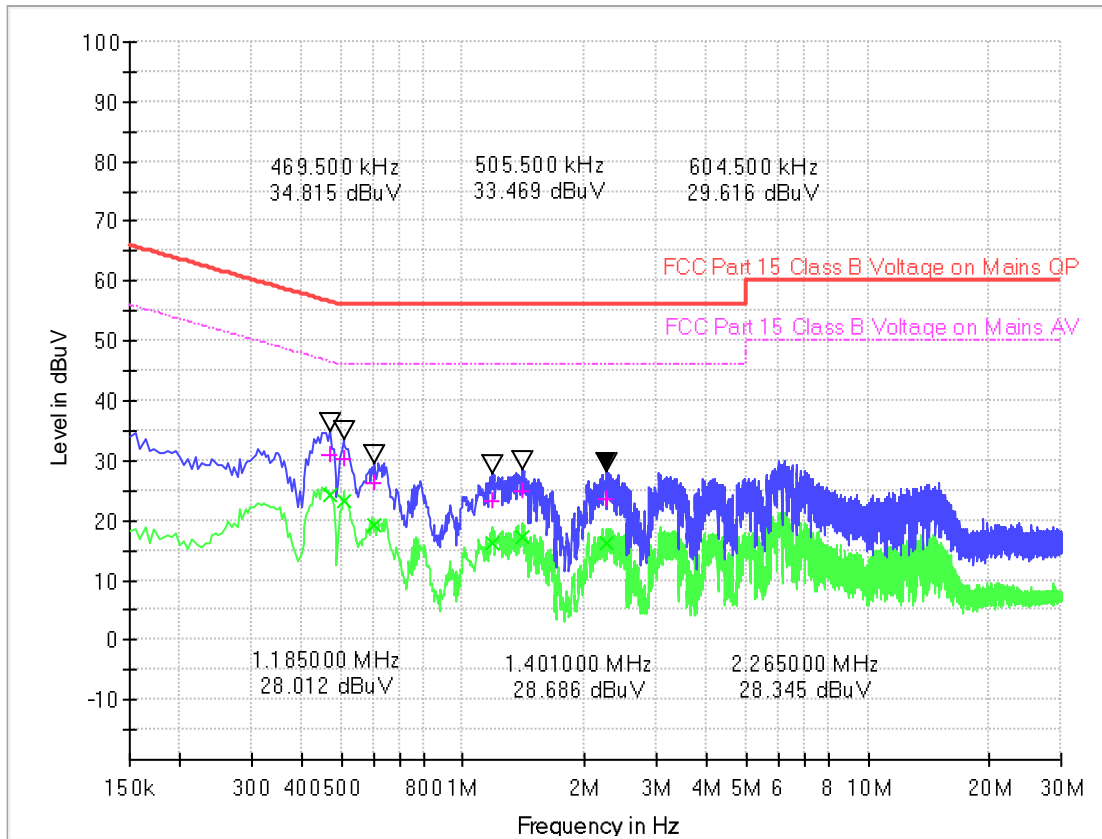
The maximum conducted interference is searched using Peak (PK), Quasi-peak (QP) and Average (AV) detectors; the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines 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 230V AC 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 (24V DC)

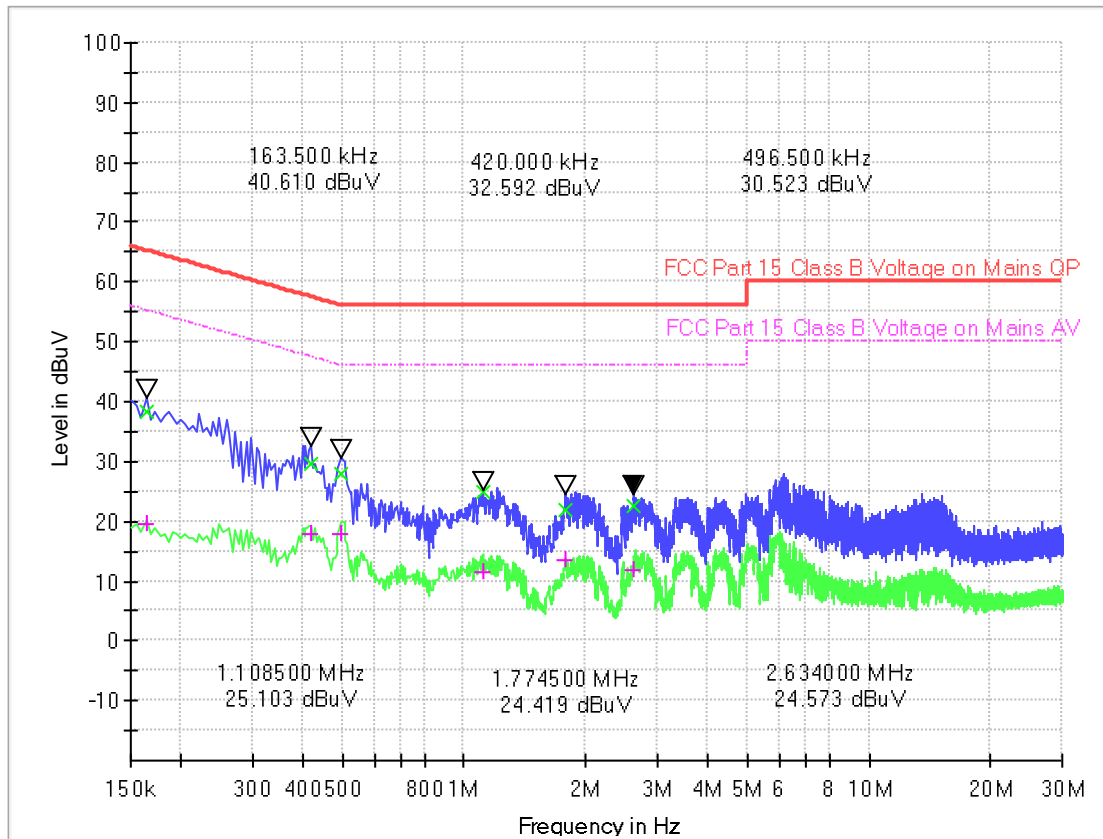
A. Mains terminal disturbance voltage, L phase, Setup 2



(Plot A: L Phase)

Frequency (MHz)	QuasiPeak (dB μ V)	CAverage (dB μ V)	Cabel Loss (dB)	Corr. (dB)	Margin - QPK	Limit - QPK	Margin - AV	Limit - AV (dB μ V)
0.469500	31.05	24.19	0.1	10.2	25.47	56.5	22.33	46.5
0.505500	30.33	23.35	0.1	10.2	25.67	56.0	22.65	46.0
0.604500	26.34	19.14	0.1	10.2	29.66	56.0	26.86	46.0
1.185000	23.30	16.18	0.2	10.2	32.70	56.0	29.82	46.0
1.401000	24.91	17.35	0.2	10.2	31.09	56.0	28.65	46.0
2.265000	23.64	16.23	0.2	10.2	32.36	56.0	29.77	46.0

B. Mains terminal disturbance voltage, N phase, Setup 2



(Plot B: N Phase)

Frequency (MHz)	QuasiPeak (dB μ V)	CAverage (dB μ V)	Cabel Loss (dB)	Corr. (dB)	Margin - QPK	Limit - QPK	Margin - AV	Limit - AV (dB μ V)
0.163500	38.49	19.56	0.1	10.2	26.79	65.3	35.72	55.3
0.420000	29.67	17.89	0.1	10.2	27.78	57.4	29.56	47.4
0.496500	27.77	17.92	0.1	10.2	28.29	56.1	28.14	46.1
1.108500	24.99	11.48	0.2	10.2	31.01	56.0	34.52	46.0
1.774500	21.82	13.50	0.5	10.2	34.18	56.0	32.50	46.0
2.634000	22.44	11.89	0.2	10.2	33.56	56.0	34.11	46.0



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	($\mu\text{V/m}$)	(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 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

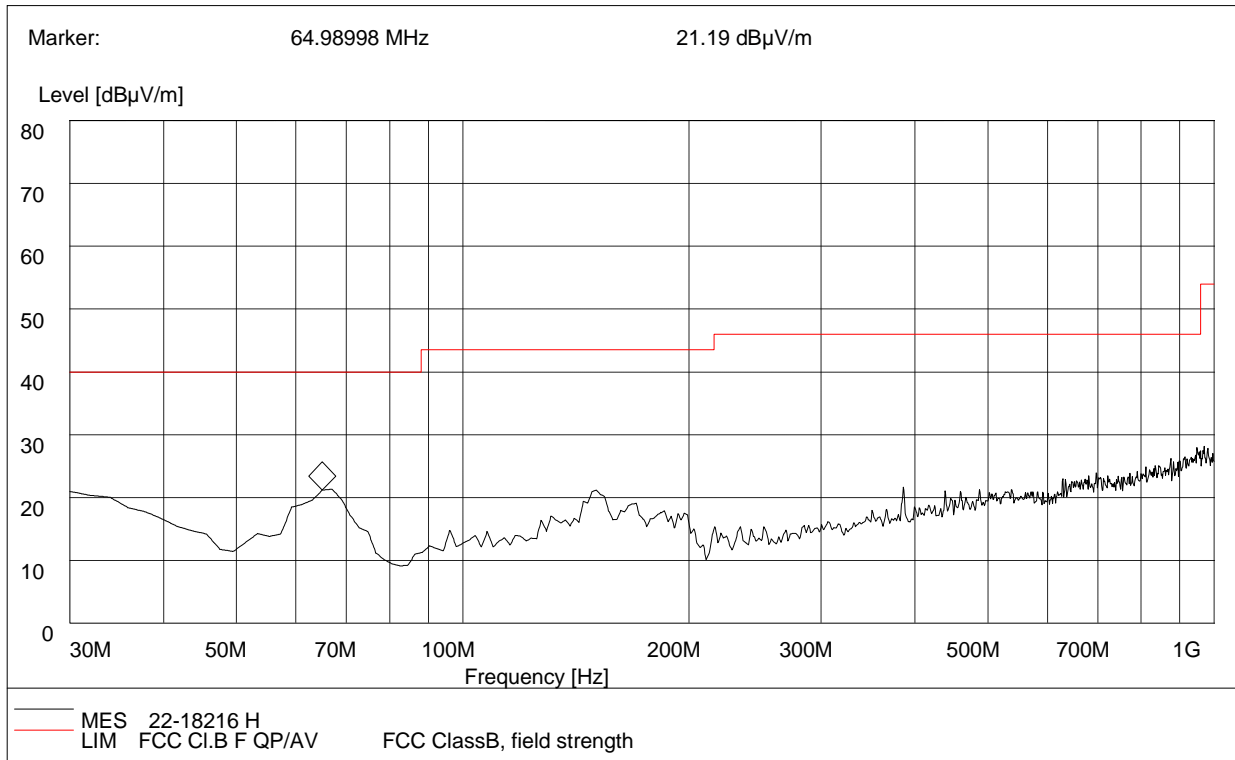
The maximum radiated emission is searched using PK, QP and AV detectors; the emission levels more than the limits, and that have narrow margins from the limits will be re-measured with AV and QP detectors. Both the vertical and the horizontal polarizations of the Test Antenna are considered to perform 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: Horizontal,Setup2

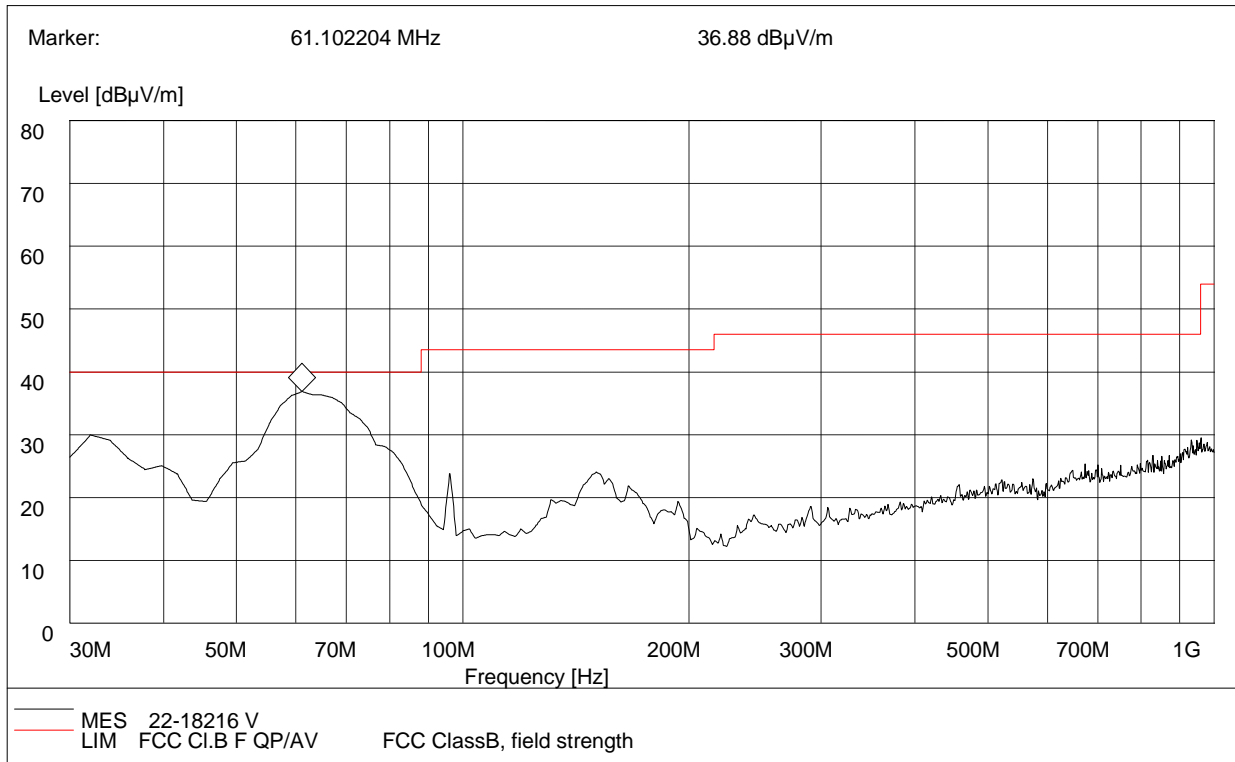


(Plot C: Test Antenna Vertical 30M - 1G)

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	20.01	120.000	114	40.00	19.99	Vertical	0.5	18.8	Pass
64.80	21.40	120.000	109	40.00	18.60	Vertical	0.8	5.8	Pass
148.65	20.95	120.000	121	43.50	22.55	Vertical	1.0	11.6	Pass
169.93	19.00	120.000	130	43.50	24.50	Vertical	1.2	10.7	Pass
385.65	21.65	120.000	115	46.00	24.35	Vertical	1.4	16.1	Pass
914.83	26.45	120.000	108	46.00	19.55	Vertical	2.3	22.5	Pass



B.Radiation disturbances, antenna polarization: Vertical,Setup2

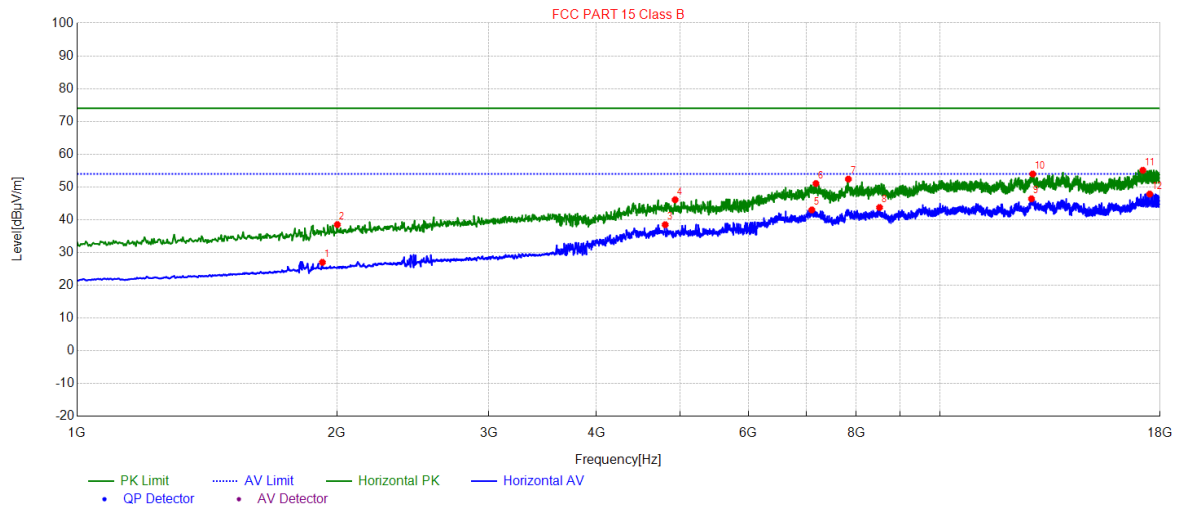


(Plot D: Test Antenna Horizontal 30M - 1G)

Frequency (MHz)	QuasiPeak (dBµV/m)	Bandwidth (kHz)	Antenna height (cm)	Limit (dBµV/m)	Margin (dB)	Antenna	Cable Loss(dB)	ANT. Factor(dB)	Verdict
31.94	29.95	120.000	106	40.00	10.05	Vertical	0.5	17.4	Pass
61.05	36.54	120.000	121	40.00	3.46	Vertical	0.8	5.5	Pass
96.64	23.68	120.000	133	43.50	19.82	Vertical	0.8	9.6	Pass
150.05	24.60	120.000	142	43.50	18.90	Vertical	1.1	11.4	Pass
456.68	22.00	120.000	115	46.00	24.00	Vertical	1.5	17.6	Pass
673.65	24.86	120.000	109	46.00	21.14	Vertical	1.7	20.2	Pass



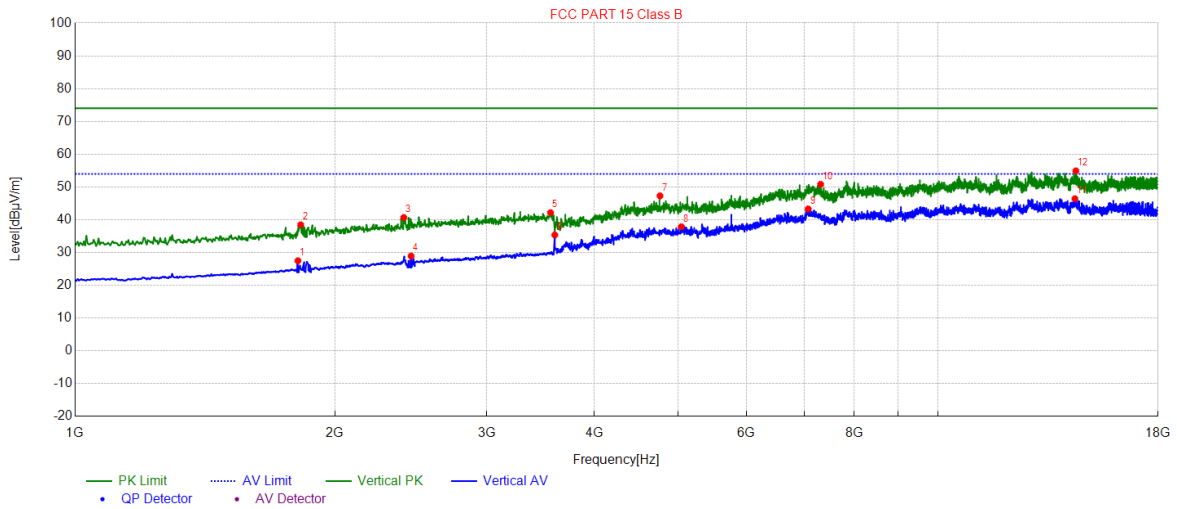
A.Radiation disturbances, antenna polarization: Horizontal,Setup2



(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	1856.84	39.23	-12.49	74.00	34.77	PK	109	314	Horizontal
2	1856.37	28.04	-12.49	54.00	25.96	AV	117	310	Horizontal
3	2431.49	41.12	-10.53	74.00	32.88	PK	124	346	Horizontal
4	2438.25	29.81	-10.50	54.00	24.19	AV	109	355	Horizontal
5	4406.39	44.99	-3.01	74.00	29.01	PK	130	343	Horizontal
6	4417.00	37.34	-2.94	54.00	16.66	AV	125	39	Horizontal
7	7079.24	42.58	3.41	54.00	11.42	AV	117	256	Horizontal
8	7150.61	50.36	3.46	74.00	23.64	PK	129	47	Horizontal
9	13977.83	45.90	9.26	54.00	8.10	AV	106	304	Horizontal
10	14521.86	52.87	9.44	74.00	21.13	PK	138	281	Horizontal
11	16799.87	46.44	10.35	54.00	7.56	AV	116	243	Horizontal
12	17014.25	53.95	11.59	74.00	20.05	PK	123	281	Horizontal

B.Radiation disturbances, antenna polarization: Vertical,Setup2



(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	1812.61	27.50	-12.69	54.00	26.50	AV	116	192	Vertical
2	1826.20	38.47	-12.62	74.00	35.53	PK	125	10	Vertical
3	2404.23	40.69	-10.64	74.00	33.31	PK	114	43	Vertical
4	2451.87	28.94	-10.45	54.00	25.06	AV	107	265	Vertical
5	3556.69	42.17	-6.98	74.00	31.83	PK	136	60	Vertical
6	3597.34	35.36	-6.75	54.00	18.64	AV	140	82	Vertical
7	4763.81	47.31	-0.92	74.00	26.69	PK	100	201	Vertical
8	5042.65	37.86	-1.39	54.00	16.14	AV	100	64	Vertical
9	7075.33	43.29	3.41	54.00	10.71	AV	100	181	Vertical
10	7313.19	50.81	3.28	74.00	23.19	PK	100	140	Vertical
11	14416.2	46.42	9.26	54.00	7.58	AV	100	183	Vertical
12	14453.1	54.92	9.46	74.00	19.08	PK	100	94	Vertical

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