



EMC TEST REPORT

Report No.: 20240617G11014X-W1

Product Name: Thermal Imager

FCC ID: 2AEOG-TP2PLUS

Main Model No. : TP2 PLUS

Series Model No. : TP2, TP2 PRO, TP3, TP3 PLUS, TP3 PRO, TM2, TM2 PLUS, TM2 PRO, TM3, TM3 PLUS, TM3 PRO

Applicant: Shenzhen Mileseey Technology Co., Ltd.

Address: No.3601 Block A, Tanglang Town Plaza West, Fuguang Community,
Taoyuan Street, Nanshan District, 518500 Shenzhen, PEOPLE'S
REPUBLIC OF CHINA

Received Date: 2024.06.21

Dates of Testing: 2024.06.21~2024.06.27

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 Standards 47 CFR Part 15 Subpart B

Test Result..... PASS

Tested by Sun Jiaohui
Sun Jiaohui Test Engineer 2024.07.05

Reviewed by..... Chris You
Chris You Senior Engineer 2024.07.05

Approved by Yang Fan
Yang Fan, Manager 2024.07.05



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Change History		
Issue	Date	Reason for change
1.0	2024.07.05	First edition



1. GENERAL INFORMATION

1.1 EUT Description

EUT Name	Thermal Imager
Hardware Version.....	1.2
Software Version	V306
Power supply:	Battery Model No.: YF 653239 Capacitance: 1050mAh Rated Voltage: 3.85V Manufacturer: Dongguan Anyfine Electronic Technology Co., Ltd. 3.85V DC

Note1: The EUT is a Thermal Imager;

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:

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	N.A
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.
- (2) AC conduction is not applicable because the product is 3.85V DC power supply.



1.3 Facilities and Accreditations

1.3.1 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 Jun 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 Jun 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.

1.3.2 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

1.3.3 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
Adapter	/	VC56JBCH	/	/

Support Cable:

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

2.2 Test Mode

Note 1: The EUT is a Thermal Imaging Camera; It could support the following operating mode:
Bluetooth; 5G WIFI

The EUT have the following typical setups during the test:

Setup1: Bluetooth + Charger;

Setup2: 5G WIFI + Charger;

Setup3: Bluetooth + Battery;

Setup4: 5G WIFI + Battery;

Setup5: Idle + Battery;

Note 2: The product Wireless Thermal Camera for Smart devices, main model is TP2 PLUS, the additional models are TP2, TP2 PRO, TP3, TP3 PLUS, TP3 PRO, TM2, TM2 PLUS, TM2 PRO, TM3, TM3 PLUS and TM3 PRO. All models have the same technical construction including circuit diagram, PCB Layout, components and component layout, etc. The difference is the same for different sales.

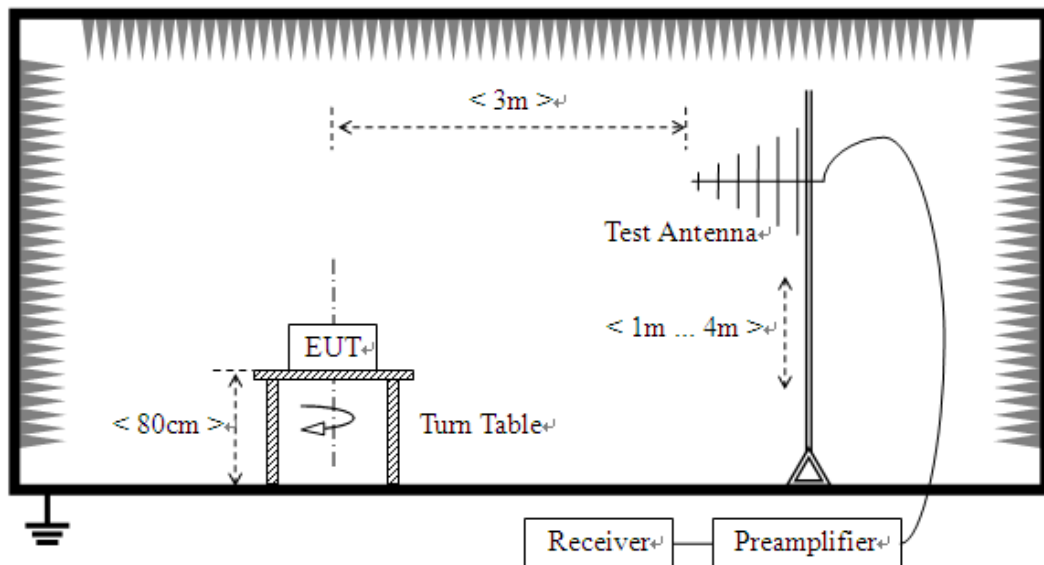
Note 3: All the patterns have been tested and only the worst results are recorded in the report.

2.3 Test Setup and Equipments List

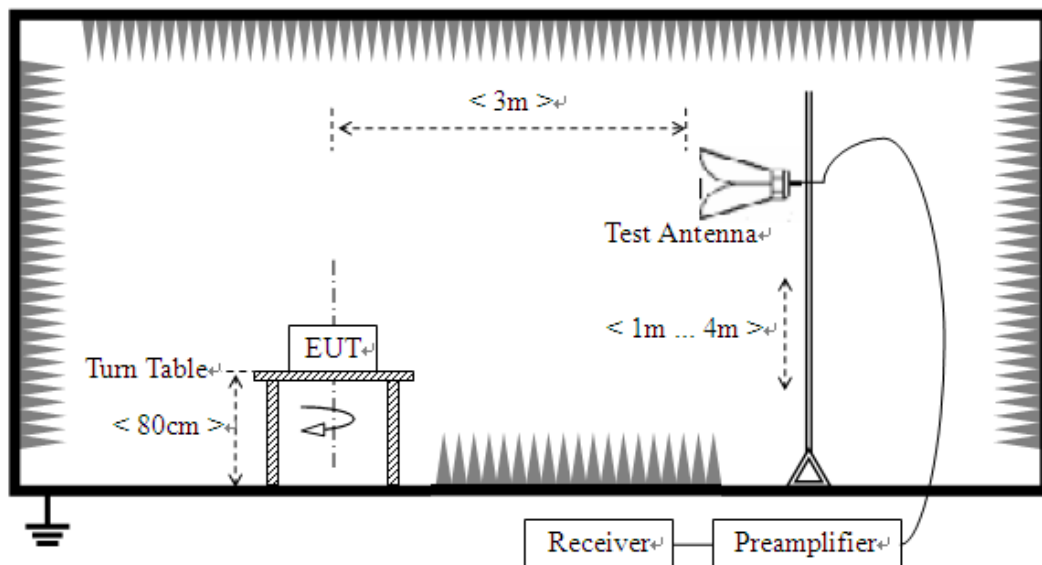
2.3.1 Radiated Emission

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	2024.02.29	2025.02.28
Broadband Ant.	ETC	MCTD2786	A240204135	2024.01.19	2025.01.18
3M Anechoic Chamber	Albatross	SAC-3MAC 9*6*6m	A0412375	2024.02.28	2027.02.27
EMI Test Receiver	ROHDE&SCHWARZ	ESW26	A180502935	2024.05.24	2025.05.23
5M Anechoic Chamber	Albatross	SAC-5MAC 12.8x6.8x6.4m	A0304210	2023.08.02	2026.08.01
EMI Horn Ant.	ROHDE&SCHWARZ	HF906	A0304225	2022.04.12	2025.04.11

3. 47 CFR PART 15B REQUIREMENTS

3.1 Radiated Emission

3.1.1 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	($\mu\text{V/m}$)	($\text{dB}\mu\text{V/m}$)
30.0 - 88.0	100	3m	100	$20\log 100$
88.0 - 216.0	150	3m	150	$20\log 150$
216.0 - 960.0	200	3m	200	$20\log 200$
Above 960.0	500	3m	500	$20\log 500$

Frequency range (MHz)	Field Strength Limitation at 3m Measurement Dist	
	Class A(3m) QP ($\text{dB}\mu\text{V/m}$)	Class B(3m) QP ($\text{dB}\mu\text{V/m}$)
30 - 88	50.0	40.0
88 - 216	54.0	43.5
216 - 230	56.9	46.0
230 - 960	57.0	47.0
960-1000	60.0	54.0
Frequency range (MHz)	Field Strength Limitation at 3m Measurement Dist	
	Class A(3m) ($\text{dB}\mu\text{V/m}$)	Class B(3m) ($\text{dB}\mu\text{V/m}$)
Above 1G	60(AV) /80(PK)	54(AV) /74(PK)

- 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 120 kHz, VBW 300 kHz.



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

Note:

- 1) The tighter limit shall apply at the boundary between two frequency ranges.
- 2) Limitation expressed in dBuV/m is calculated by $20\log$ Emission Level (uV/m).
- 3) 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 30uV/m, then F.S Limitation at 3m distance is adjusted as

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

3.1.2 Test Description

See section 2.3.2 of this report.

3.1.3 Test Result

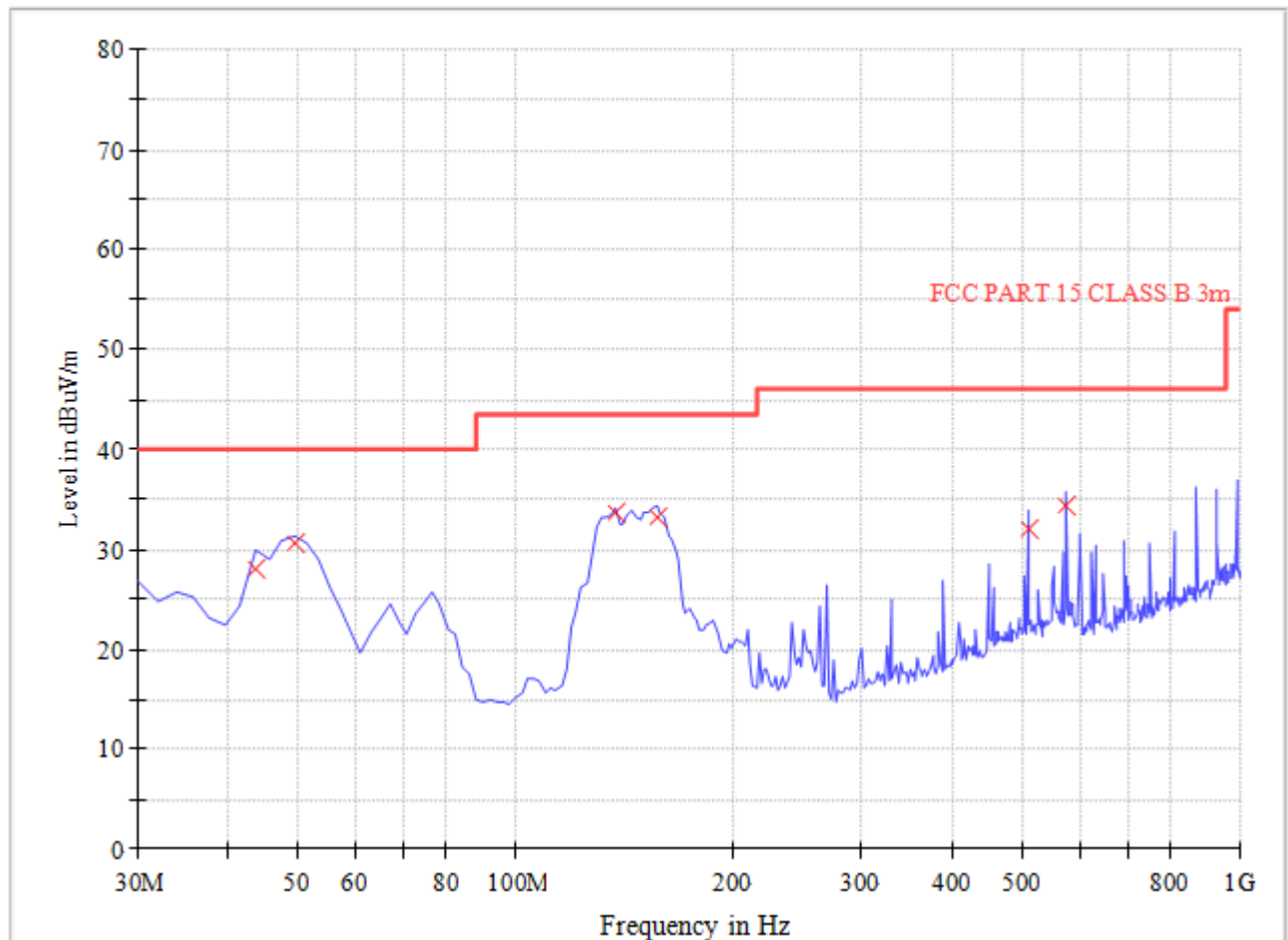
The maximum radiated emission is searched using PK, QP and AV detectors; the emission levels more than the limits, and that have narrow margins from the limits will be re-measured with AV and QP detectors. Both the vertical and the horizontal polarizations of the Test Antenna are considered to perform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

1. 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.

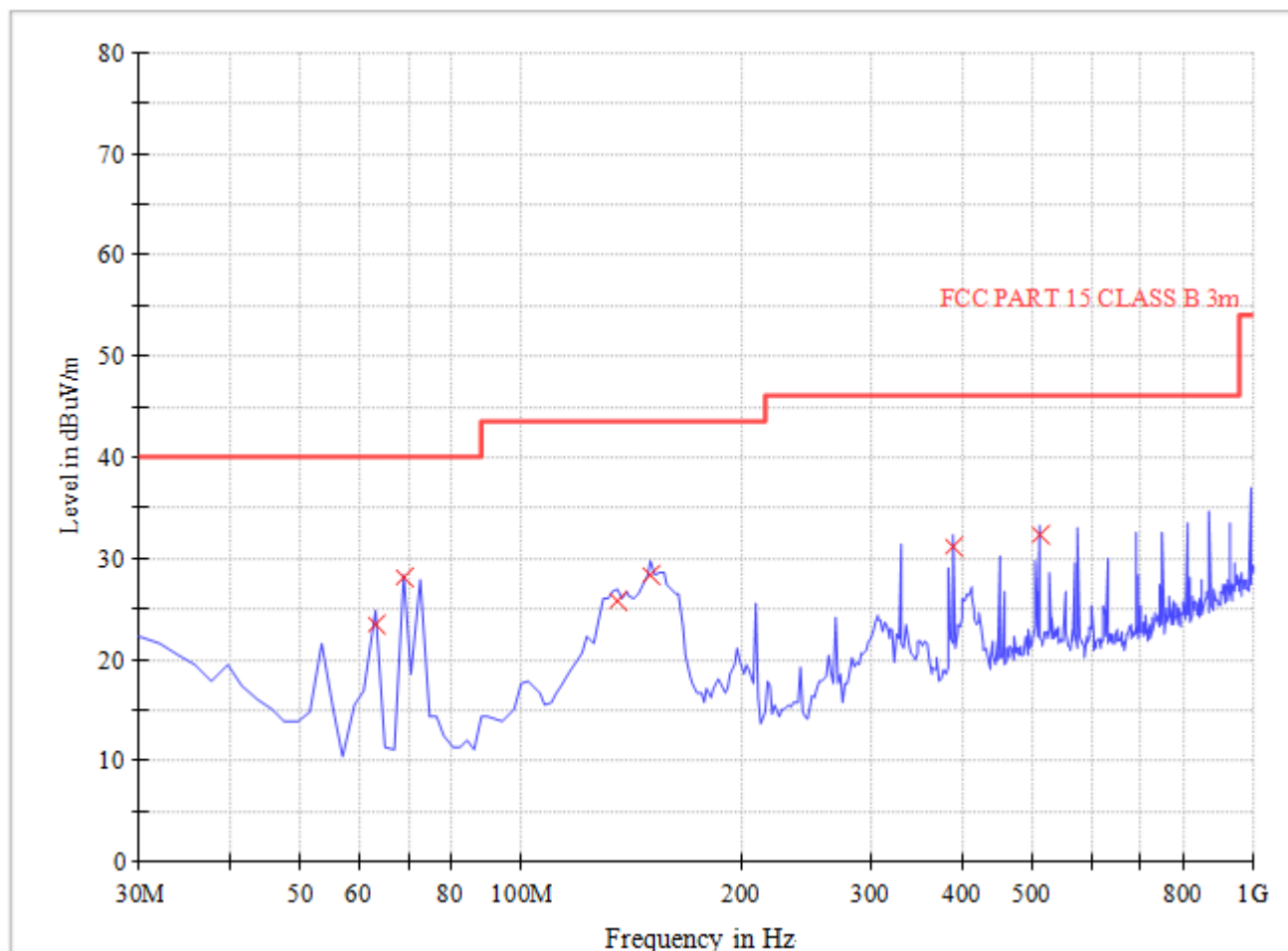
A. Radiation disturbances, antenna polarization: Vertical, Setup1



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

Frequency (MHz)	QuasiPeak (dB μ V/m)	Bandwidth (kHz)	Antenna height (cm)	Limit (dB μ V/m)	Margin (dB)	Antenna	Cable Loss(dB)	ANT. Factor(dB)	Verdict
43.60	28.05	120.000	105	40.0	11.95	Vertical	0.5	11.3	Pass
49.44	30.67	120.000	103	40.0	9.33	Vertical	0.5	8.0	Pass
136.92	33.59	120.000	105	43.5	9.91	Vertical	1.0	11.6	Pass
156.36	33.31	120.000	106	43.5	10.19	Vertical	1.1	11.4	Pass
510.16	32.08	120.000	108	46.0	13.92	Vertical	1.5	18.2	Pass
576.24	34.49	120.000	104	46.0	11.51	Vertical	1.5	18.4	Pass

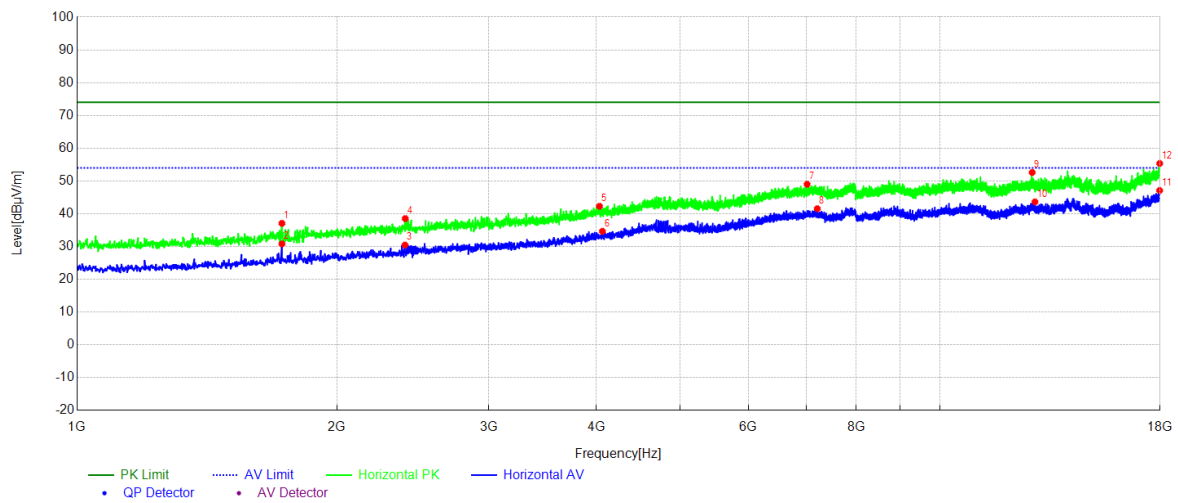
B. Radiation disturbances, antenna polarization: Horizontal, Setup1



(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
63.04	23.43	120.000	104	40.00	16.57	Horizontal	0.8	5.6	Pass
68.88	27.99	120.000	105	40.00	12.01	Horizontal	0.8	5.8	Pass
134.96	25.64	120.000	102	43.50	17.86	Horizontal	1.0	11.6	Pass
150.52	28.27	120.000	106	43.50	15.23	Horizontal	1.0	11.4	Pass
389.60	31.03	120.000	109	46.00	14.97	Horizontal	1.4	16.1	Pass
510.16	32.35	120.000	102	46.00	13.65	Horizontal	1.5	18.2	Pass

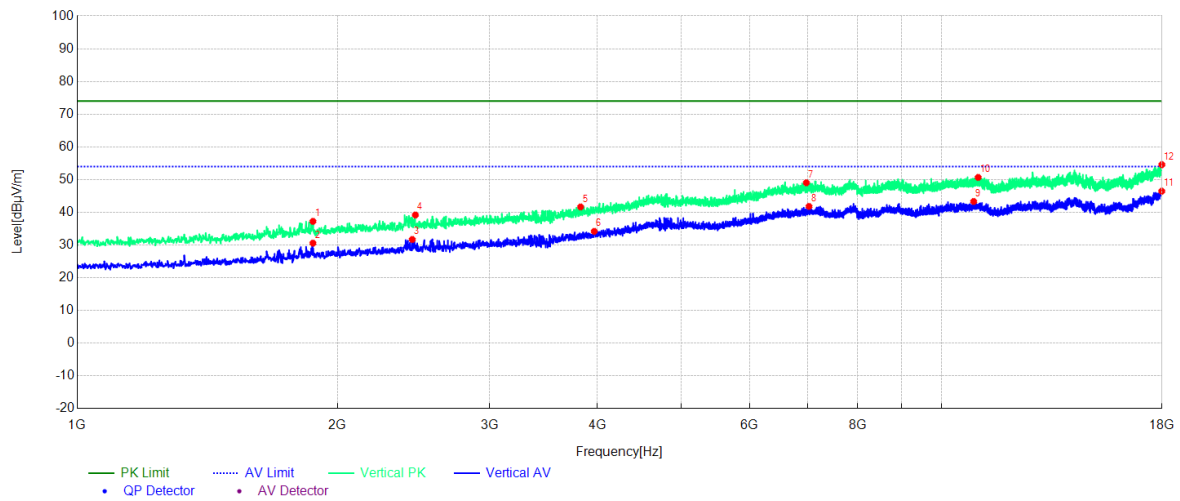
A. Radiation disturbances, antenna polarization: Horizontal, Setup1



(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	1727.67	37.08	-13.12	74.00	36.92	PK	103	254	Horizontal
2	1727.67	30.82	-13.12	54.00	23.18	AV	108	253	Horizontal
3	2399.24	30.45	-10.66	54.00	23.55	AV	104	248	Horizontal
4	2400.94	38.53	-10.66	74.00	35.47	PK	102	232	Horizontal
5	4031.40	42.27	-4.69	74.00	31.73	PK	105	318	Horizontal
6	4063.71	34.64	-4.55	54.00	19.36	AV	106	346	Horizontal
7	7016.90	48.99	3.36	74.00	25.01	PK	105	237	Horizontal
8	7210.72	41.53	3.47	54.00	12.47	AV	107	265	Horizontal
9	12794.08	52.59	7.68	74.00	21.41	PK	102	241	Horizontal
10	12889.29	43.61	8.02	54.00	10.39	AV	104	315	Horizontal
11	17977.90	47.10	14.82	54.00	6.90	AV	101	312	Horizontal
12	17981.30	55.35	14.82	74.00	18.65	PK	103	284	Horizontal

B. Radiation disturbances, antenna polarization: Vertical, Setup1



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

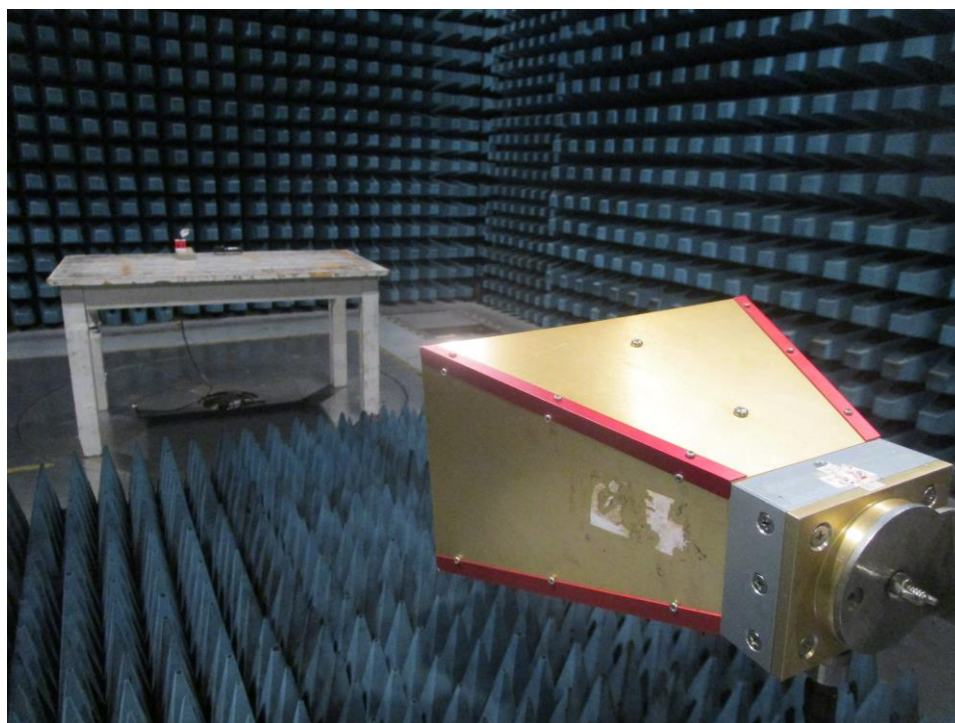
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin[dB μV/m]	Trace	Height [cm]	Angle [°]	Polarity
1	1873.89	37.25	-12.41	74.00	36.75	PK	105	181	Vertical
2	1873.89	30.59	-12.41	54.00	23.41	AV	106	189	Vertical
3	2441.74	31.71	-10.49	54.00	22.29	AV	108	45	Vertical
4	2462.15	39.18	-10.40	74.00	34.82	PK	101	31	Vertical
5	3823.98	41.65	-5.85	74.00	32.35	PK	103	275	Vertical
6	3965.10	34.18	-5.04	54.00	19.82	AV	105	16	Vertical
7	6977.80	49.03	3.30	74.00	24.97	PK	104	102	Vertical
8	7027.10	41.80	3.36	54.00	12.20	AV	108	107	Vertical
9	10898.39	43.31	6.59	54.00	10.69	AV	106	235	Vertical
10	11029.30	50.67	6.63	74.00	23.33	PK	102	264	Vertical
11	17988.10	46.45	14.84	54.00	7.55	AV	106	146	Vertical
12	17993.20	54.57	14.85	74.00	19.43	PK	105	91	Vertical

Appendix II: Photographs of EMC Test Configuration

1. Radiated Emission Measurement below 1GHz



2. Radiated Emission Measurement above 1GHz



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