EMC TEST REPORT

Report No.:	20240617G11686X-W1
Product Name:	M6 Series Dome Thermal Camera
FCC ID:	2AY3N-9000
Model No. :	M6T25
Trade Name:	InfiRay Outdoor
Applicant:	InfiRay Technologies Co., Ltd.
Address:	Building C3, NO.800 Wangjiang West Road, National High-tech Industry Development District, Hefei, Anhui, China.
Received Date:	2024.06.28
Dates of Testing:	2024.06.28~2024.07.19
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 **E-Mail:** manager@ccic-set.com

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Test Report

Product Name	M6 Series Dome Thermal Camera
Model No.	M6T25
Applicant	InfiRay Technologies Co., Ltd.
Applicant Address	Building C3, NO.800 Wangjiang West Road, National High-tech Industry Development District, Hefei, Anhui, China.
Manufacturer	InfiRay Technologies Co., Ltd.
Manufacturer Address	Building C3, NO.800 Wangjiang West Road, National High-tech Industry Development District, Hefei, Anhui, China.
Test Standards	47 CFR Part 15 Subpart B
Test Result	PASS

Tested by ..... Sun Jiaohui

Sun Jiaohui, Test Engineer 2024.07.25

Reviewed by ..... Chris You

Chris You, Senior Engineer 2024.07.25

Approved by ..... Wang Shijie 2024.07.25

Wang Shijie, Manager

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Change History		
Issue	Date	Reason for change
1.0	2024.07.25	First edition

1. GENERAL INFORMATION

1.1 EUT Description

EUT Name:	M6 Series Dome Thermal Camera
Trade Name:	InfiRay Outdoor
Power supply:	12V DC

Note1: The EUT is a M6 Series Dome Thermal Camera;

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 A. The test procedure is according to ANSI C63.4:2014.

(2) AC conduction is not applicable because the product is 12V 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 (℃):	15 ℃ - 35 ℃
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
Controller	/	/	/	/

Support Cable：

Description	Shield Type	Ferrite Core	Length
DC Power Cable	Un- shielding	/	3.5m

2.2 Test Mode

Note 1: The EUT is a M6 Series Dome Thermal Camera; It could support the following operating mode: 2.4G WIFI
The EUT have the following typical setups during the test:
Setup1: 2.4G WIFI + Controller + DC Power Supply(12V);

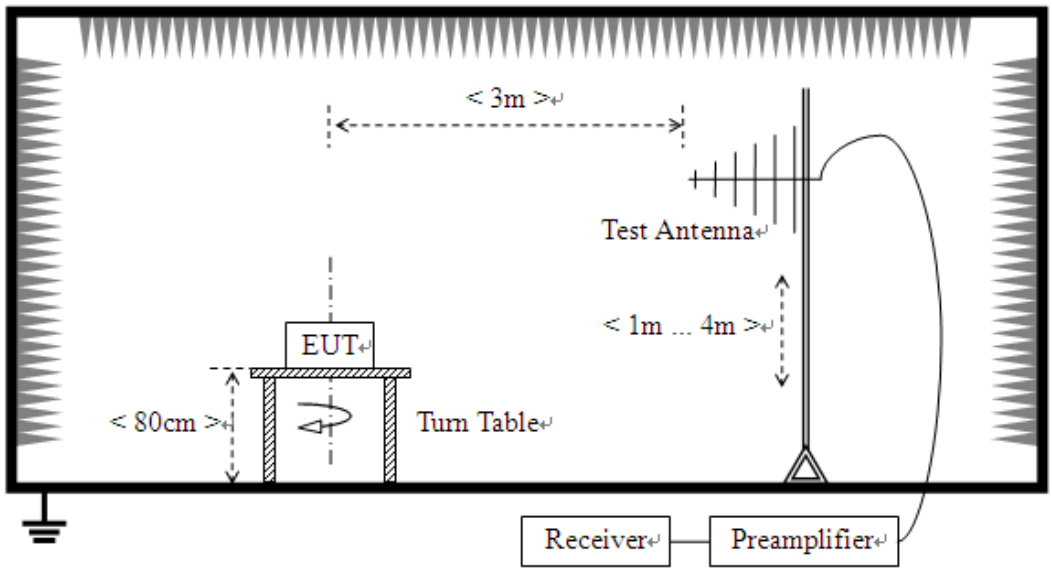
Note 2: All the patterns have been tested and only the worst results are recorded in the report.

2.3 Test Setup and Equipments List

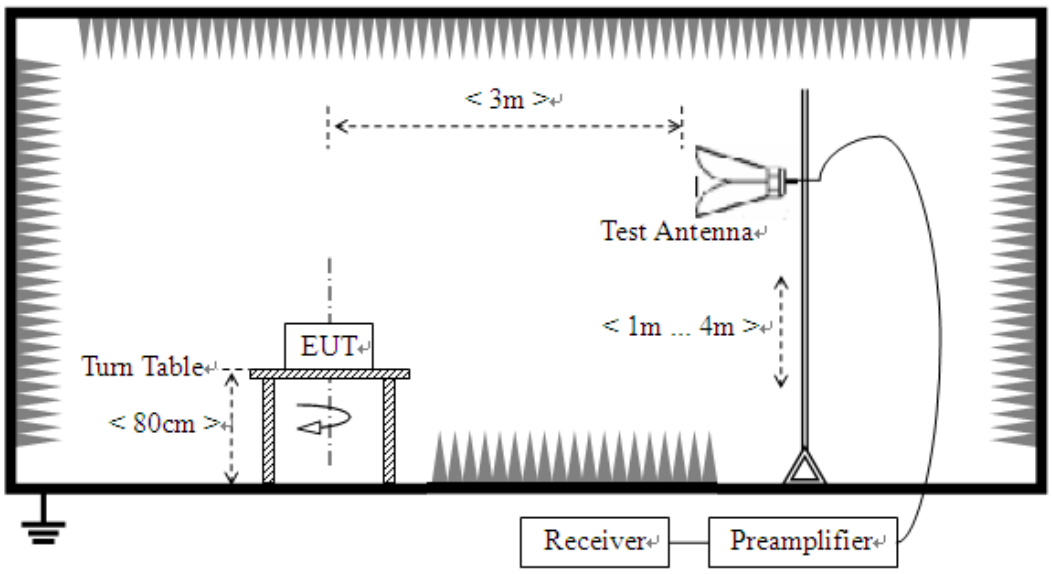
2.3.1 Radiated Emission

A. Test Setup:

1) For radiated emissions from 30MHz to1GHz



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	
	μV/m	Dist	(uV/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

Frequency range (MHz)	Field Strength Limitation at 3m Measurement Dist	
	Class A(3m) QP (dBμV/m)	Class B(3m) QP (dBμV/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) (dBμV/m)	Class B(3m) (dBμV/m)
Above 1G	60(AV) /80(PK)	54(AV) /74(PK)

a) 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.

b) 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.

c) 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 20log 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 = 30uV/m * $(10)^2$ = 100 * 30uV/m.

3.1.2 Test Description

See section 2.3.2 of this report.

3.1.3 Test Result

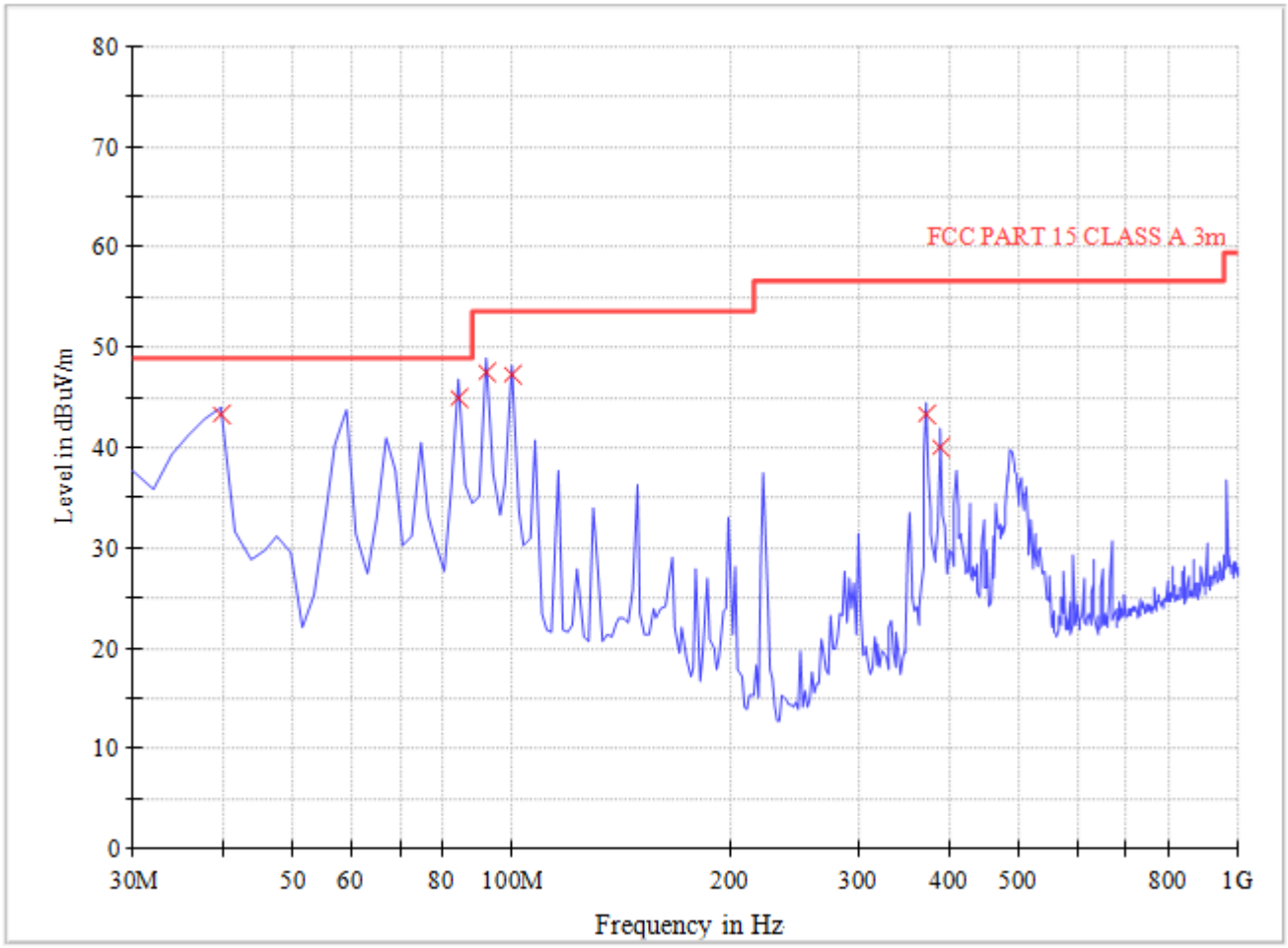
The maximum radiated emission is searched using PK, QP and AV detectors; the emission levels more than the limits, and that have narrow margins from the limits will be re-measured with AV and QP detectors. Both the vertical and the horizontal polarizations of the Test Antenna are considered to perform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

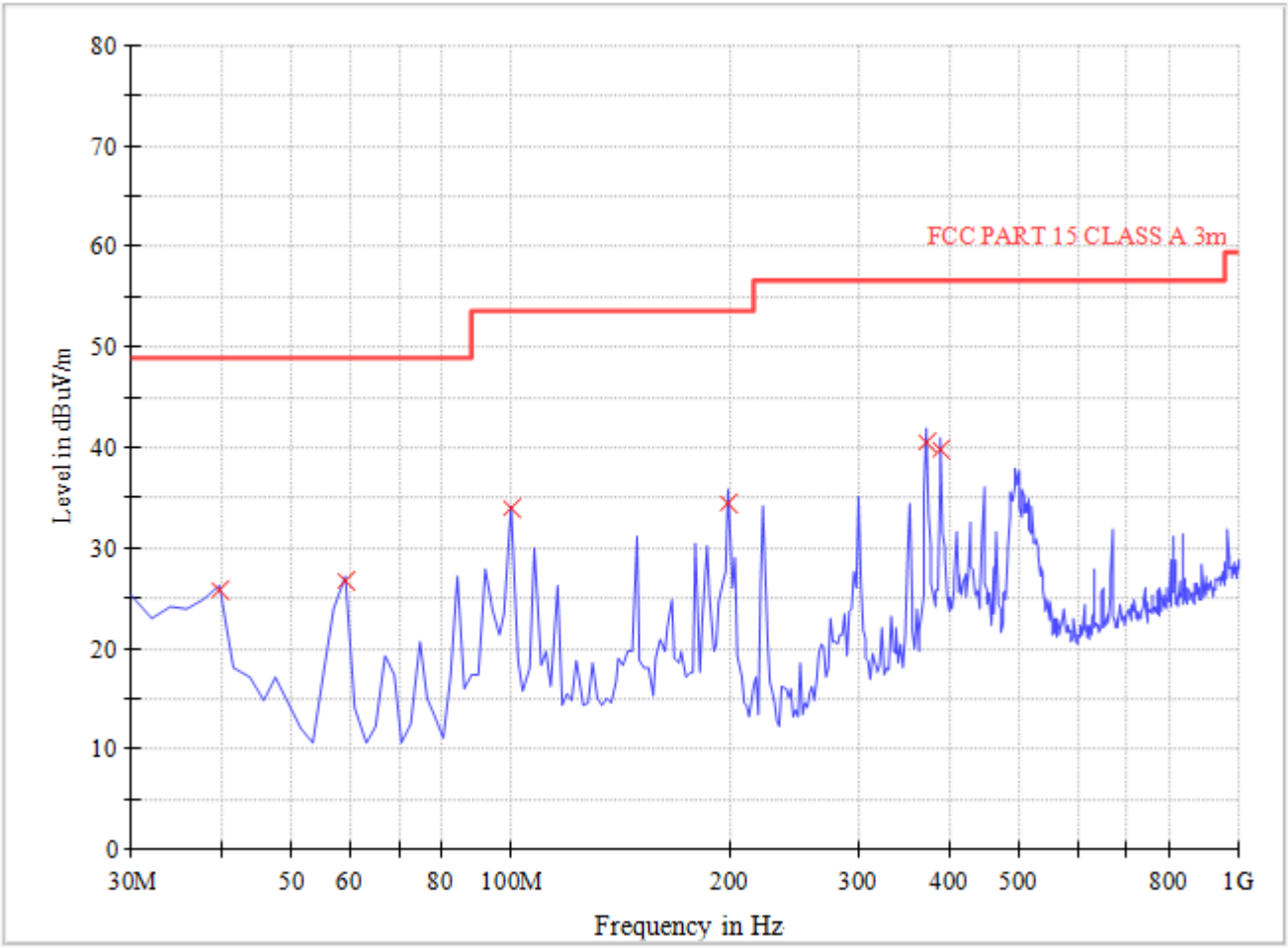
A. Radiation disturbances, antenna polarization: Vertical, Setup1



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

Frequency (MHz)	QuasiPeak (dBµV/m)	Bandwidth (kHz)	Antenna height (cm)	Limit (dBµV/m)	Margin (dB)	Antenna	Cable Loss(dB)	ANT. Factor(dB)	Verdict
39.72	43.22	120.000	106	49.0	5.78	Vertical	0.5	13.6	Pass
84.44	45.00	120.000	102	49.0	4.00	Vertical	0.8	8.5	Pass
92.20	47.51	120.000	103	53.5	5.99	Vertical	0.8	9.3	Pass
99.96	47.25	120.000	108	53.5	6.25	Vertical	0.8	10.0	Pass
372.12	43.31	120.000	106	56.5	13.19	Vertical	1.4	15.8	Pass
389.60	40.09	120.000	101	56.5	16.41	Vertical	1.4	16.0	Pass

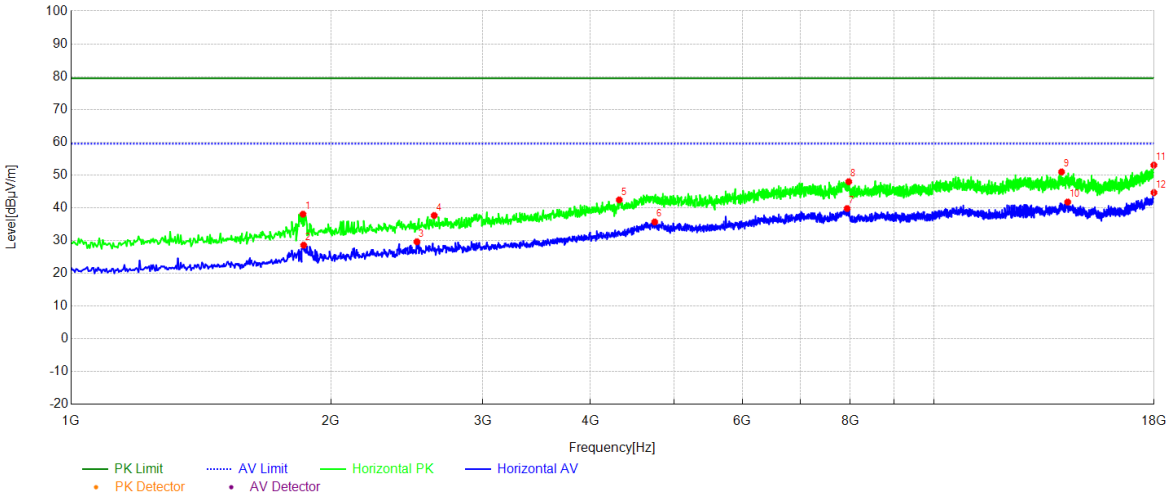
B. Radiation disturbances, antenna polarization: Horizontal, Setup1



(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
39.72	25.84	120.000	106	49.0	23.16	Horizontal	0.5	13.6	Pass
59.16	26.57	120.000	102	49.0	22.43	Horizontal	0.7	5.4	Pass
99.96	33.96	120.000	105	53.5	19.54	Horizontal	0.8	10.0	Pass
199.12	34.42	120.000	107	53.5	19.08	Horizontal	1.2	8.8	Pass
372.12	40.58	120.000	108	56.5	15.92	Horizontal	1.4	15.8	Pass
389.60	39.79	120.000	101	56.5	16.71	Horizontal	1.4	16.0	Pass

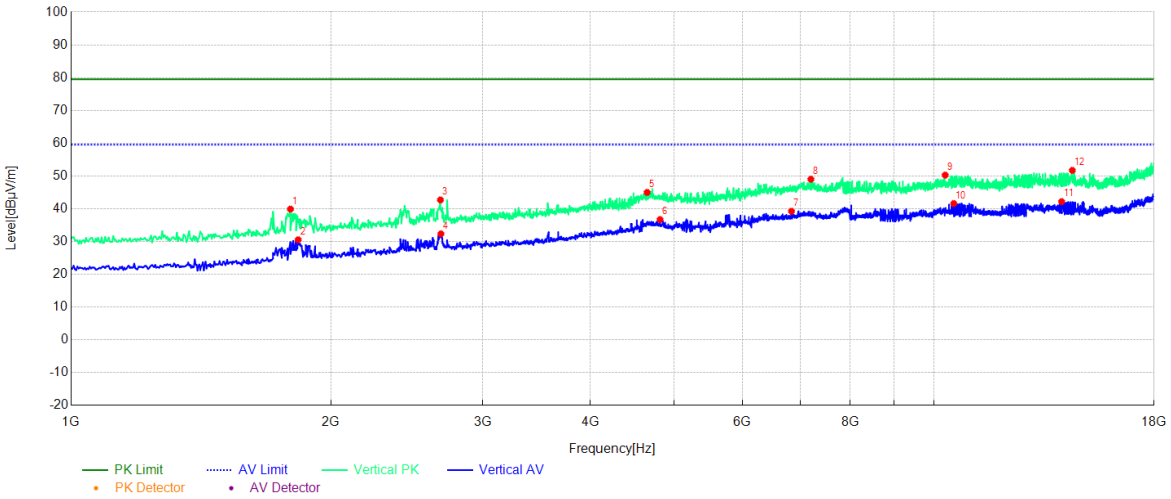
A. Radiation disturbances, antenna polarization: Horizontal, Setup1



(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	1856.97	38.04	-12.49	79.50	41.46	PK	105	332	Horizontal
2	1860.37	28.59	-12.47	59.50	30.91	AV	106	340	Horizontal
3	2516.70	29.63	-10.19	59.50	29.87	AV	101	355	Horizontal
4	2635.73	37.65	-9.78	79.50	41.85	PK	108	348	Horizontal
5	4319.06	42.40	-3.45	79.50	37.10	PK	106	123	Horizontal
6	4747.55	35.67	-0.96	59.50	23.83	AV	105	162	Horizontal
7	7933.99	39.76	4.09	59.50	19.74	AV	102	204	Horizontal
8	7967.99	47.95	4.08	79.50	31.55	PK	104	240	Horizontal
9	14062.01	50.93	9.35	79.50	28.57	PK	107	302	Horizontal
10	14293.26	41.74	9.86	59.50	17.76	AV	103	168	Horizontal
11	17989.80	53.00	14.84	79.50	26.50	PK	105	256	Horizontal
12	17993.20	44.63	14.85	59.50	14.87	AV	109	321	Horizontal

B. Radiation disturbances, antenna polarization: Vertical, Setup1



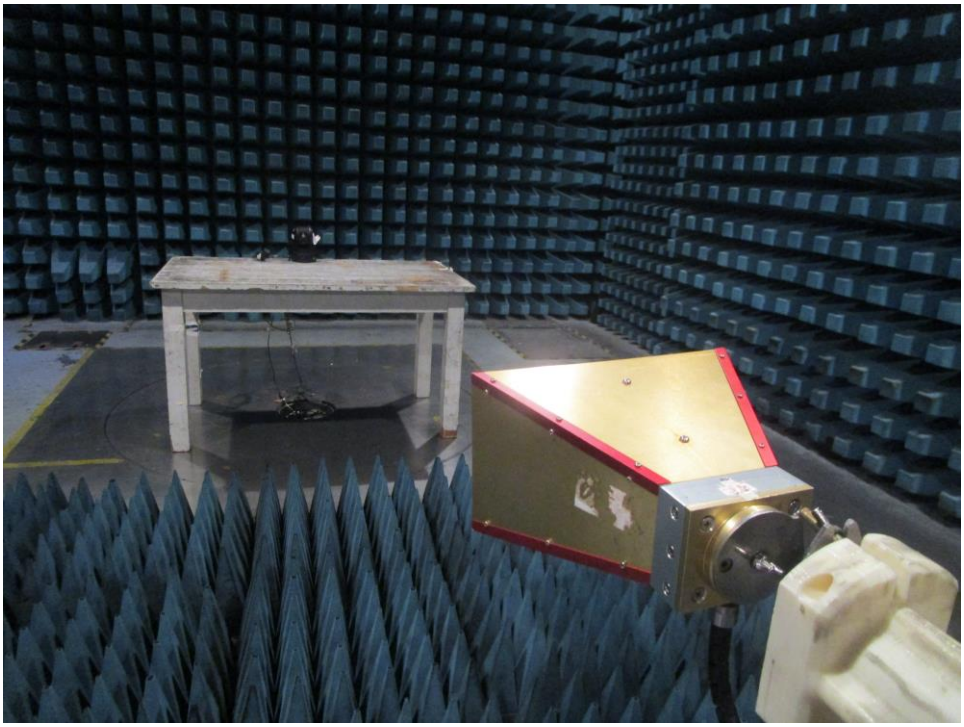
(Plot N: Test Antenna Vertical 1G – 18G)

NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin[dBµV/m]	Trace	Height [cm]	Angle [°]	Polarity
1	1795.76	39.89	-12.76	79.50	39.61	PK	101	344	Vertical
2	1833.17	30.54	-12.60	59.50	28.96	AV	108	153	Vertical
3	2679.94	42.69	-9.55	79.50	36.81	PK	103	334	Vertical
4	2683.34	32.35	-9.52	59.50	27.15	AV	104	338	Vertical
5	4652.33	44.99	-1.30	79.50	34.51	PK	108	182	Vertical
6	4815.56	36.71	-0.94	59.50	22.79	AV	107	136	Vertical
7	6838.97	39.25	3.06	59.50	20.25	AV	102	291	Vertical
8	7202.84	49.01	3.48	79.50	30.49	PK	109	323	Vertical
9	10307.66	50.26	5.70	79.50	29.24	PK	106	222	Vertical
10	10545.71	41.60	6.26	59.50	17.90	AV	104	307	Vertical
11	14065.41	42.17	9.35	59.50	17.33	AV	102	293	Vertical
12	14470.09	51.71	9.54	79.50	27.79	PK	108	192	Vertical

Appendix I：Photographs of EMC Test Configuration

1. Radiated Emission Measurement below 1GHz

2. Radiated Emission Measurement above 1GHz



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