



EMC TEST REPORT

Report No.: 20250317G04613X-W1

Product Name: Compact Remote Controller

FCC ID: 2AY3N-CRC1

Model No. : CRC-1

Trade Name: InfiRay Outdoor

Applicant: InfiRay Technologies Co., Ltd.

Address: Room 1705, Building A2, Phase 3, Innovation Industrial Park, High-tech Zone, Hefei City, Anhui Province, China.

Received Date: 2025.03.11

Dates of Testing: 2025.03.11~2025.03.17

Issued by: CCIC Southern Testing Co., Ltd.

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

Query E-Mail: manager@ccic-set.com

Feedback E-Mail: integrity@ccic-set.com

Report Query Tel: 0755-26627338

Feedback Tel: 0755-86185963

This test report consists of **16** 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 : Compact Remote Controller

Model No. : CRC-1

Applicant..... : InfiRay Technologies Co., Ltd.

Applicant Address : Room 1705, Building A2, Phase 3, Innovation Industrial Park, High-tech Zone, Hefei City, Anhui Province, China.

Manufacturer..... : InfiRay Technologies Co., Ltd.

Manufacturer Address : Room 1705, Building A2, Phase 3, Innovation Industrial Park, High-tech Zone, Hefei City, Anhui Province, China.

Test Standards : 47 CFR Part 15 Subpart B

Test Result..... : PASS

Tested by : Deng Shanfei

Deng Shanfei, Test Engineer

2025.03.18

Reviewed by : Sun Jiaohui

Sun Jiaohui, Senior Engineer

2025.03.18

Approved by : Chris You

Chris You, Manager

2025.03.18



TABLE OF CONTENTS

1.	GENERAL INFORMATION	4
1.1	EUT Description.....	4
1.2	Test Standards and Results	5
1.3	Facilities and Accreditations	6
1.3.1	Facilities	6
1.3.2	Test Environment Conditions	6
1.3.3	Measurement Uncertainty	7
2.	TEST CONDITIONS SETTING	8
2.1	Test Peripherals	8
2.2	Test Mode	8
2.3	Test Setup and Equipments List	9
2.3.1	Radiated Emission	9
3.	47 CFR PART 15B REQUIREMENTS	11
3.1	Radiated Emission.....	11
3.1.1	Requirement	11
3.1.2	Test Description.....	12
3.1.3	Test Result	12

Change History		
Issue	Date	Reason for change
1.0	2025.03.18	First edition



1. GENERAL INFORMATION

1.1 EUT Description

EUT Name:	Compact Remote Controller
Trade Name:	InfiRay Outdoor
Power supply:	Battery Model No: CR2032 Rated Voltage: 3V

Note1: The EUT is a Compact Remote Controller;

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
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 3V DC power supply.



1.3 Facilities and Accreditations

1.3.1 Facilities

☒ CCIC-SET Lab 1

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

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. 30th, 2025.

ISED Registration: 11185A, CAB number: CN0064

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 on Aug. 04, 2016, valid time is until Jun. 30th, 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.

CNAS L1659

CCIC Southern Testing Co., Ltd. CCIC is a third party testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L1659.

☐ CCIC-SET Lab 4

Address: No.125, Hongmei Section, Wangsha Road, Hongmei Town, Dongguan City, Guangdong Province, China

CNAS L1659

CCIC Southern Testing Co., Ltd. CCIC is a third party testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L1659.

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
Mobile phone	/	/	/	/

Support Cable:

Description	Shield Type	Ferrite Core	Length
/	/	/	/

2.2 Test Mode

Note 1: The EUT is a Compact Remote Controller; It could support the following operating mode: Bluetooth;

Note 2: The EUT have the following typical setups during the test:

Setup1: Bluetooth + EUT working + Mobile phone + Battery;

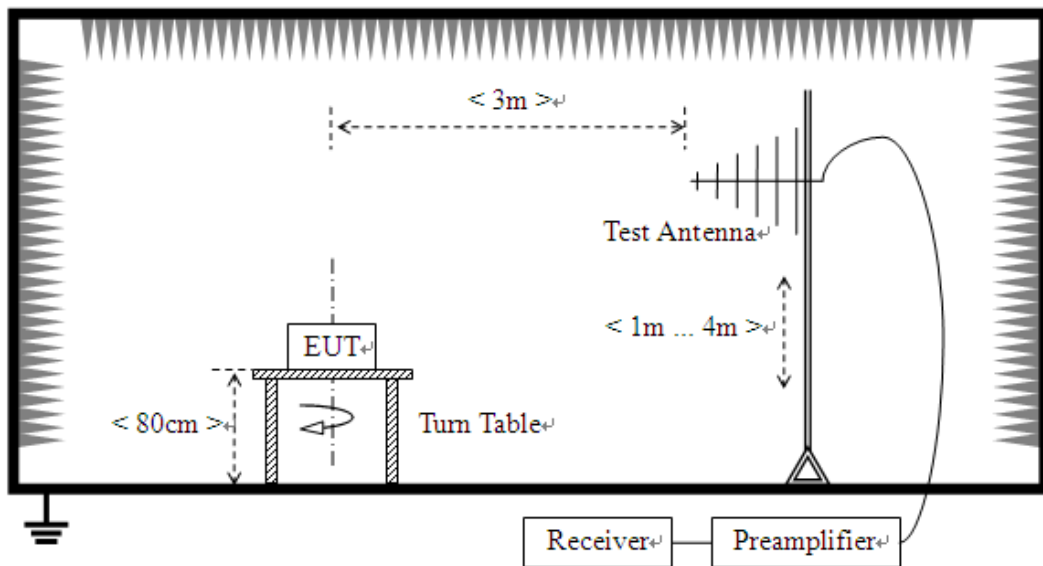
Note 3: All the patterns have been tested and only the worst results are recorded in the report.

2.3 Test Setup and Equipments List

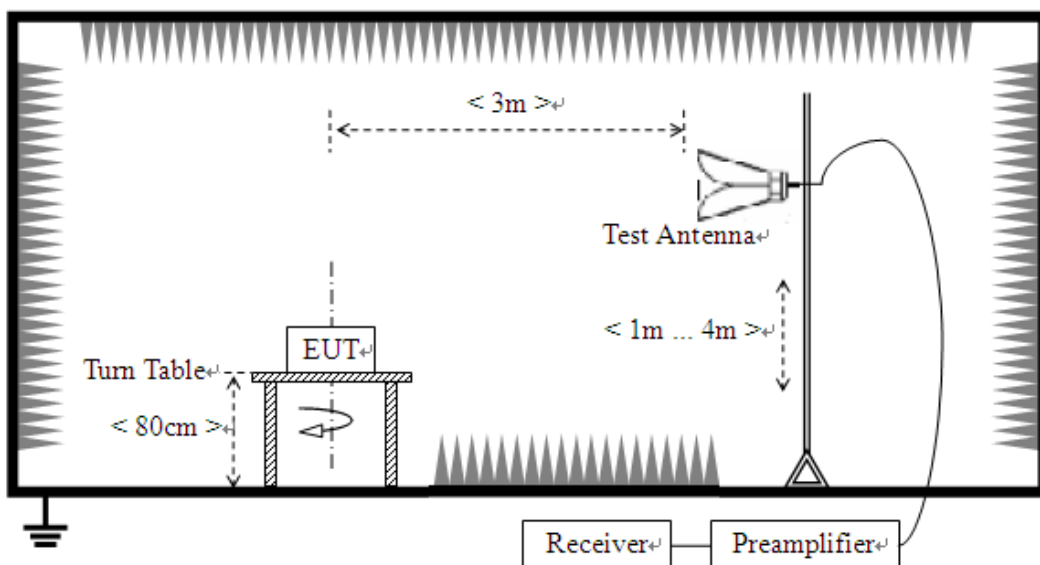
2.3.1 Radiated Emission

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	2025.01.13	2026.01.12
Broadband Ant.	ETC	MCTD2786	A150402239	2024.06.01	2025.05.31
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	2024.04.02	2027.04.01

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	49.0	40.0
88 - 216	53.5	43.5
216 - 230	56.5	46.0
230 - 960	56.5	46.0
960-1000	59.5	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	59.5(AV) /79.5(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

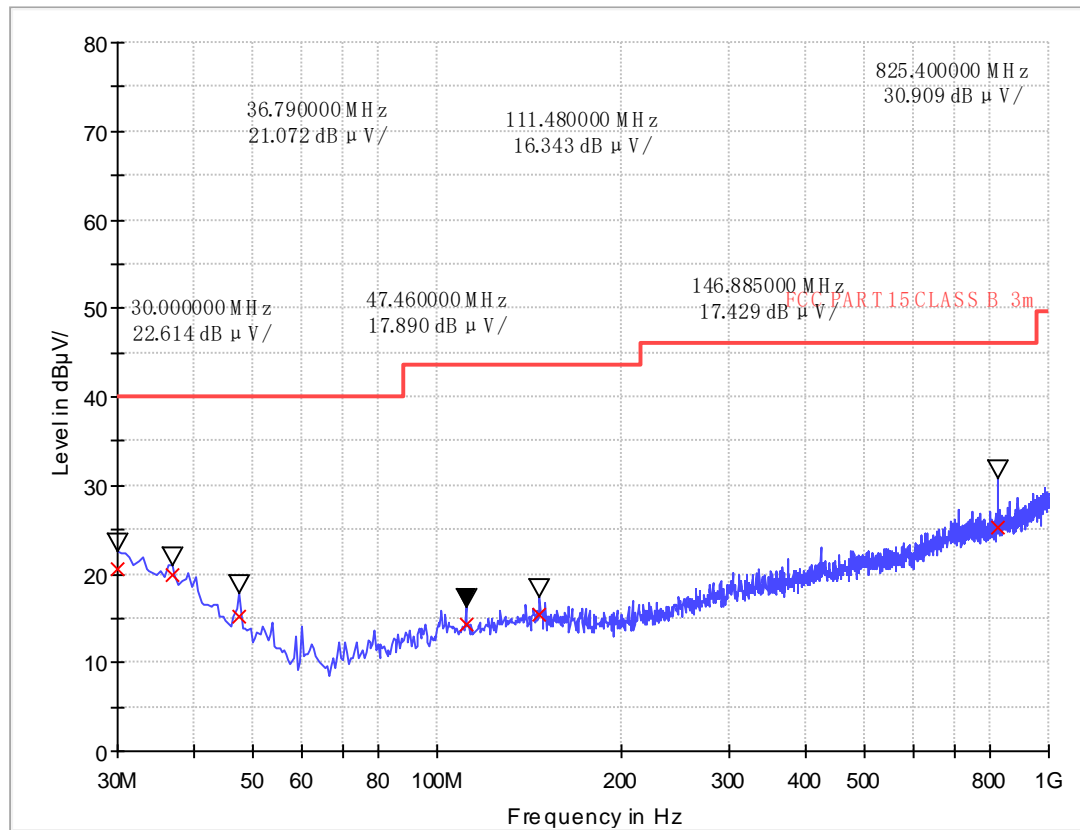
The maximum radiated emission is searched using PK, QP and AV detectors; the emission levels more than the limits, and that have narrow margins from the limits will be re-measured with AV and QP detectors. Both the vertical and the horizontal polarizations of the Test Antenna are considered to perform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

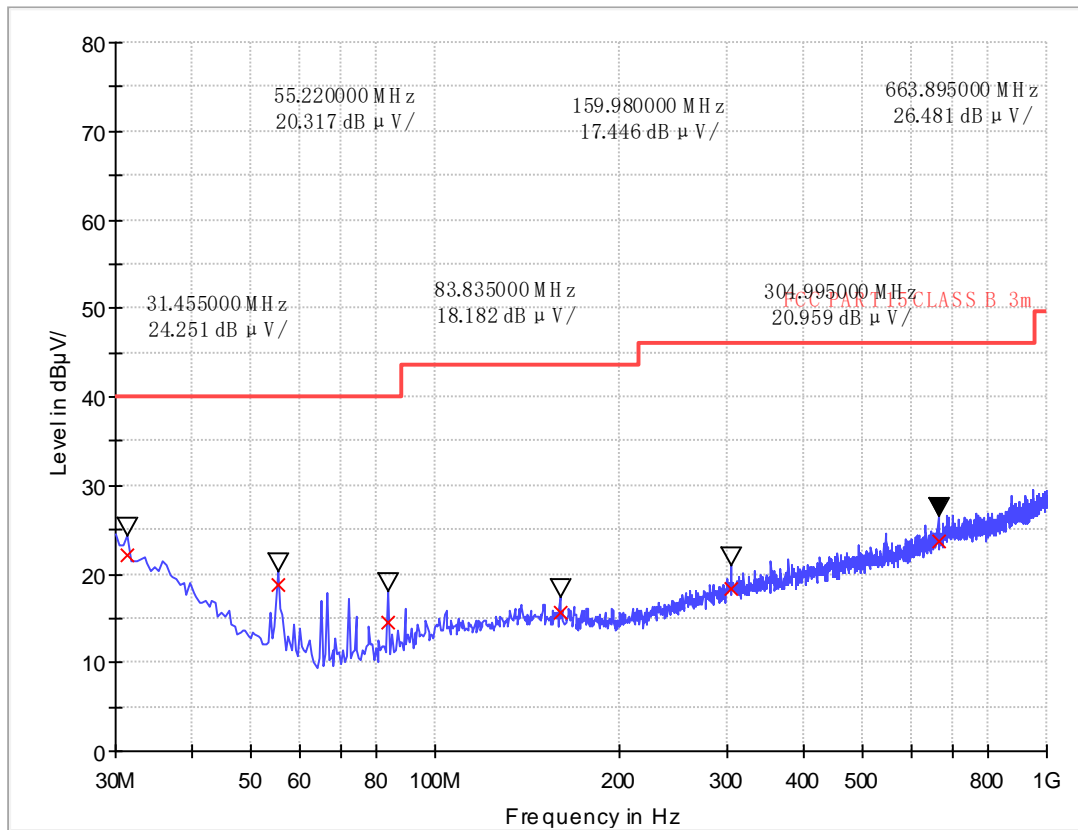
A. Radiation disturbances, antenna polarization: Vertical, Setup1



(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	Corr. (dB/m)	Verdict
30.00	20.60	120.000	104	40.0	19.40	Vertical	19.4	Pass
36.80	19.90	120.000	109	40.0	20.10	Vertical	15.8	Pass
47.44	15.22	120.000	103	40.0	24.78	Vertical	10.2	Pass
111.48	14.27	120.000	106	43.5	29.23	Vertical	10.7	Pass
146.88	15.40	120.000	101	43.5	28.10	Vertical	12.0	Pass
825.40	25.33	120.000	105	46.0	20.67	Vertical	22.0	Pass

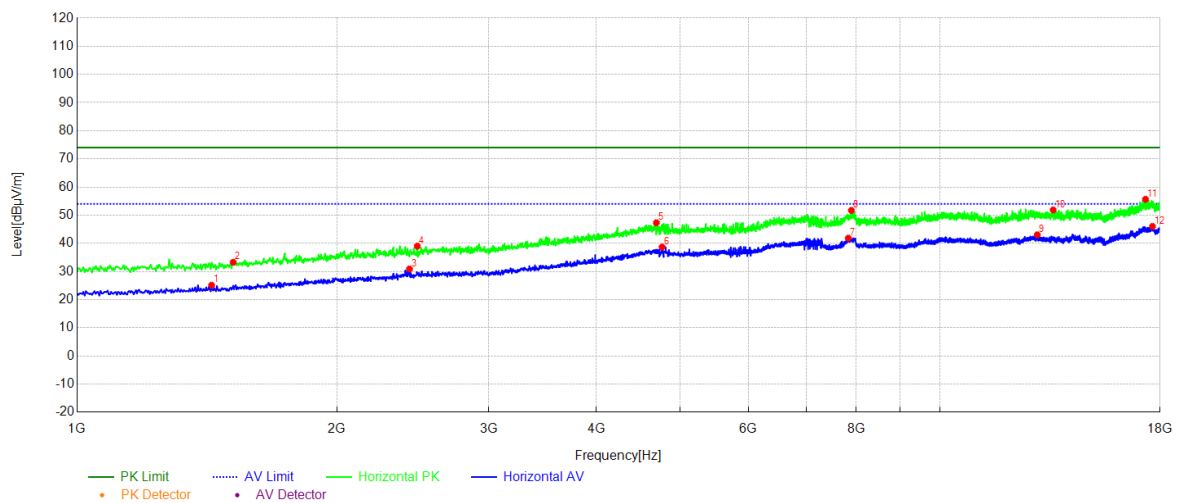
B. Radiation disturbances, antenna polarization: Horizontal, Setup1



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

Frequency (MHz)	QuasiPeak (dB μ V/m)	Bandwidth (kHz)	Antenna height (cm)	Limit (dB μ V/m)	Margin (dB)	Antenna	Corr. (dB/m)	Verdict
31.44	22.05	120.000	102	40.0	17.95	Horizontal	18.6	Pass
55.20	18.76	120.000	107	40.0	21.24	Horizontal	7.1	Pass
83.84	14.60	120.000	103	40.0	25.40	Horizontal	8.3	Pass
159.96	15.59	120.000	109	43.5	27.91	Horizontal	12.0	Pass
305.00	18.38	120.000	105	46.0	27.62	Horizontal	15.1	Pass
663.88	23.70	120.000	104	46.0	22.30	Horizontal	20.3	Pass

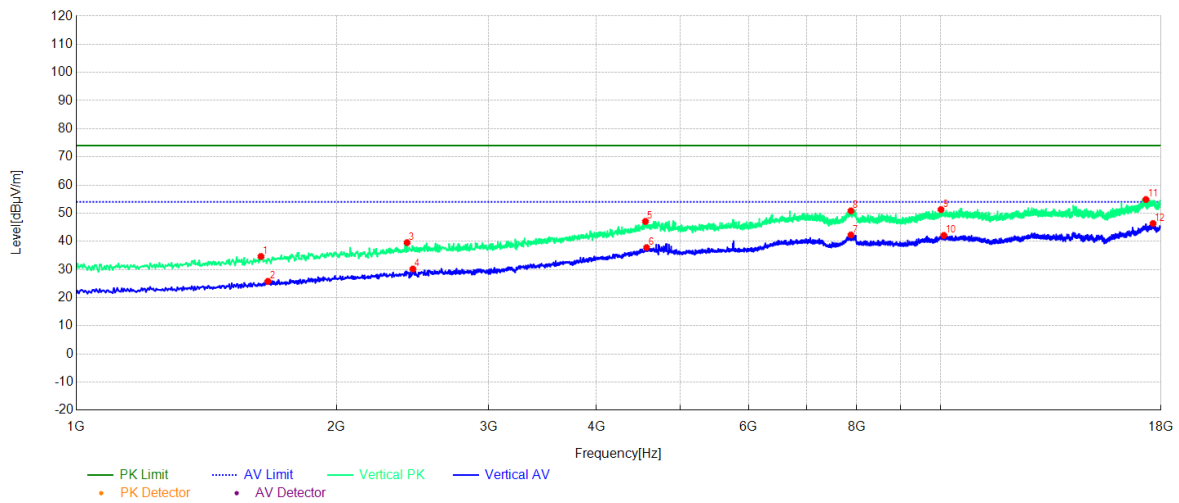
A. Radiation disturbances, antenna polarization: Horizontal, Setup1



(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	1431.89	25.12	-14.08	54.00	28.88	AV	103	352	Horizontal
2	1516.90	33.27	-13.76	74.00	40.73	PK	108	215	Horizontal
3	2428.29	30.88	-9.66	54.00	23.12	AV	101	306	Horizontal
4	2479.30	39.00	-9.44	74.00	35.00	PK	102	107	Horizontal
5	4693.14	47.34	0.33	74.00	26.66	PK	105	341	Horizontal
6	4764.55	38.69	0.39	54.00	15.31	AV	109	22	Horizontal
7	7831.97	41.85	4.99	54.00	12.15	AV	105	154	Horizontal
8	7896.58	51.71	5.25	74.00	22.29	PK	106	53	Horizontal
9	12970.39	43.04	8.62	54.00	10.96	AV	104	258	Horizontal
10	13531.51	51.86	9.37	74.00	22.14	PK	102	65	Horizontal
11	17313.06	55.64	14.09	74.00	18.36	PK	107	42	Horizontal
12	17636.13	46.02	14.62	54.00	7.98	AV	103	123	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	1635.93	34.63	-13.11	74.00	39.37	PK	105	63	Vertical
2	1666.53	25.79	-12.97	54.00	28.21	AV	103	194	Vertical
3	2414.68	39.54	-9.72	74.00	34.46	PK	104	333	Vertical
4	2452.09	30.18	-9.56	54.00	23.82	AV	101	327	Vertical
5	4557.11	47.09	-0.15	74.00	26.91	PK	108	232	Vertical
6	4570.71	37.80	-0.07	54.00	16.20	AV	106	121	Vertical
7	7879.58	42.28	5.18	54.00	11.72	AV	102	56	Vertical
8	7879.58	50.83	5.18	74.00	23.17	PK	105	241	Vertical
9	10015.20	51.29	7.27	74.00	22.71	PK	101	335	Vertical
10	10093.42	42.12	7.38	54.00	11.88	AV	107	354	Vertical
11	17292.66	54.86	14.03	74.00	19.14	PK	106	143	Vertical
12	17622.52	46.35	14.56	54.00	7.65	AV	104	352	Vertical

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