



# 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.

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## 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

<b>1. GENERAL INFORMATION .....</b>	<b>4</b>
<b>1.1 EUT Description.....</b>	<b>4</b>
<b>1.2 Test Standards and Results .....</b>	<b>5</b>
<b>1.3 Facilities and Accreditations .....</b>	<b>6</b>
1.3.1 Facilities .....	6
1.3.2 Test Environment Conditions .....	6
1.3.3 Measurement Uncertainty .....	7
<b>2. TEST CONDITIONS SETTING .....</b>	<b>8</b>
<b>2.1 Test Peripherals .....</b>	<b>8</b>
<b>2.2 Test Mode.....</b>	<b>8</b>
<b>2.3 Test Setup and Equipments List .....</b>	<b>9</b>
2.3.1 Radiated Emission.....	9
<b>3. 47 CFR PART 15B REQUIREMENTS .....</b>	<b>11</b>
<b>3.1 Radiated Emission.....</b>	<b>11</b>
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
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### 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:	$U_c = 3.2 \text{ dB (k=2)}$
Uncertainty of Radiated Emission: (30MHz~1GHz)	$U_c = 5.8 \text{ dB (k=2)}$
Uncertainty of Radiated Emission: (1~6GHz)	$U_c = 5.1 \text{ dB (k=2)}$
Uncertainty of Radiated Emission: (6~18GHz)	$U_c = 5.5 \text{ dB (k=2)}$

## 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;

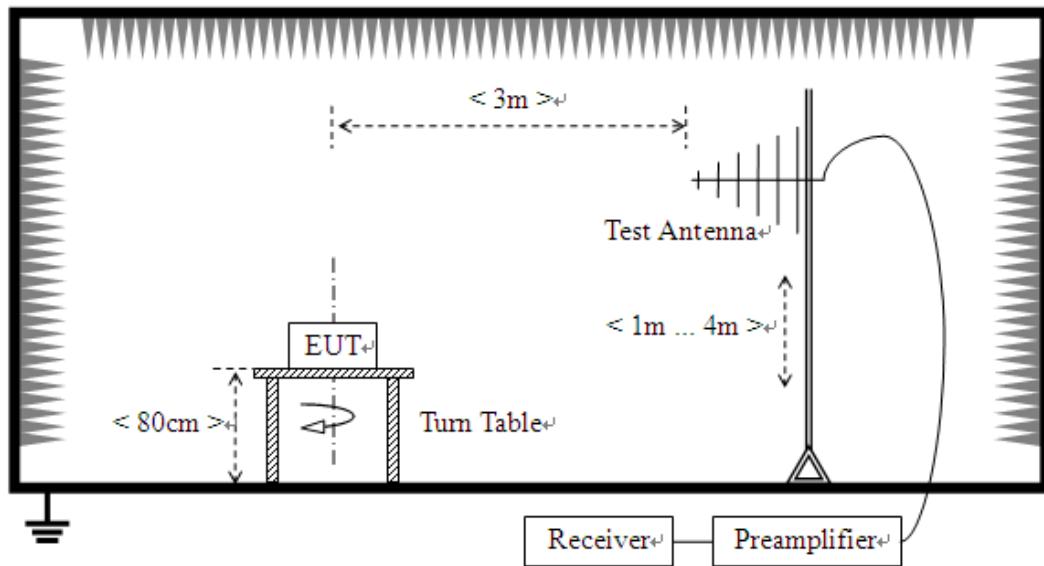
*Note 3:* All the patterns have been tested and only the worst results are recorded in the report.

## 2.3 Test Setup and Equipments List

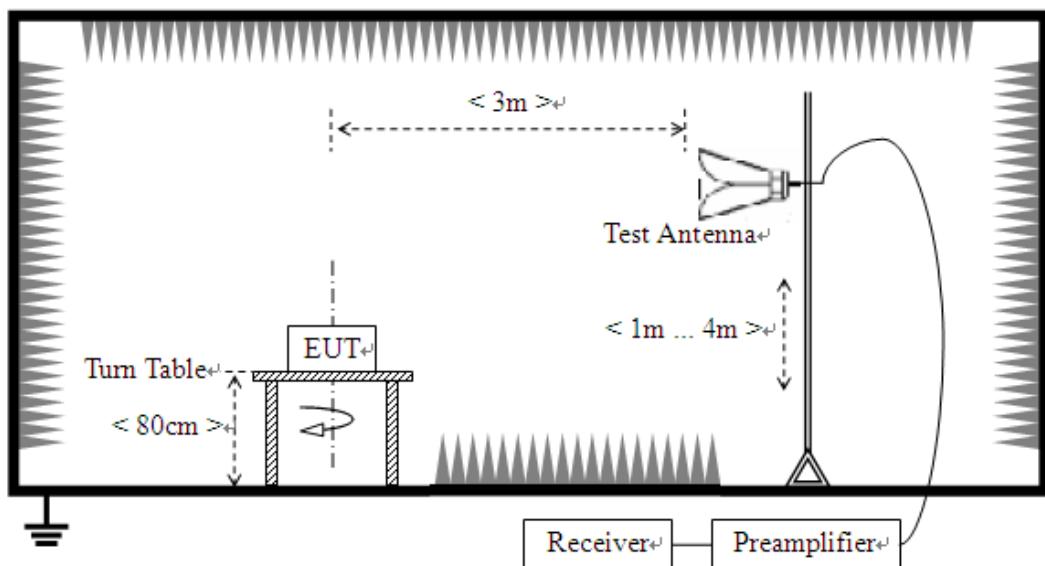
### 2.3.1 Radiated Emission

#### 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	
	$\mu$ V/m	Dist	( $\mu$ V/m)	(dB $\mu$ V/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 (dB $\mu$ V/m)	Class B(3m) QP (dB $\mu$ 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) (dB $\mu$ V/m)	Class B(3m) (dB $\mu$ 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

$$Ld1 = Ld2 * (10)^2 = 100 * 30uV/m.$$

### **3.1.2 Test Description**

See section 2.3.2 of this report.

### **3.1.3 Test Result**

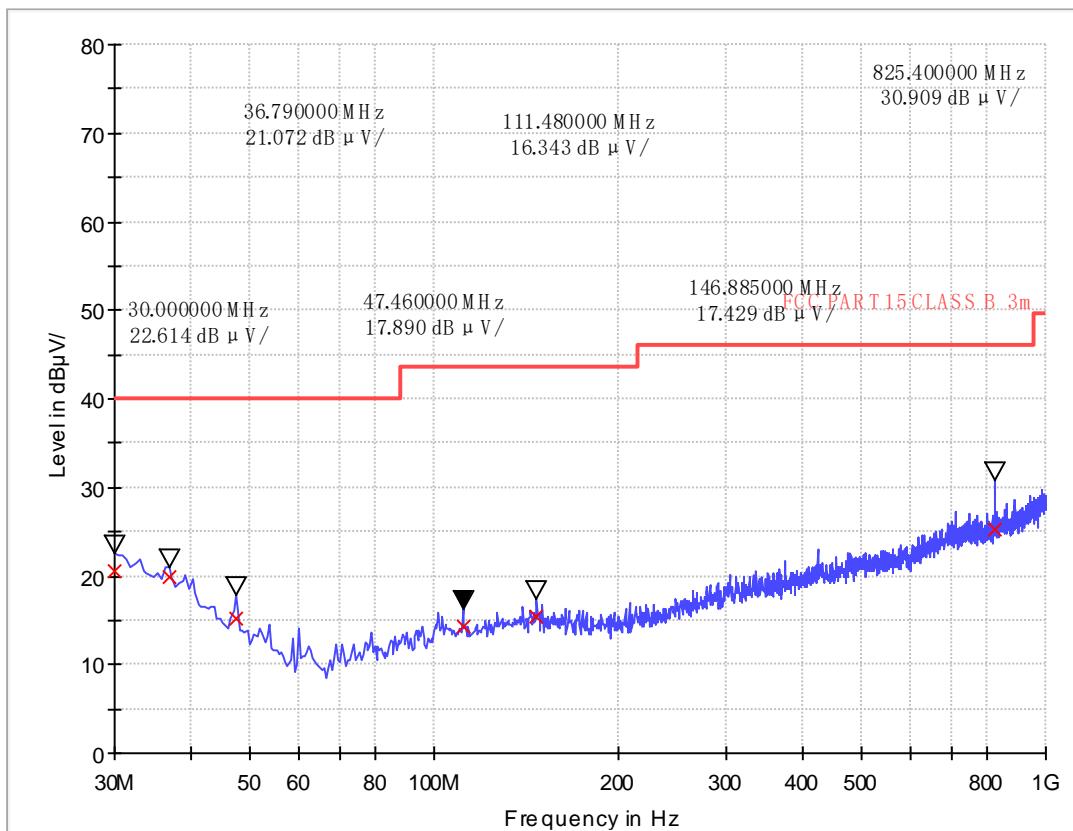
The maximum radiated emission is searched using PK, QP and AV detectors; the emission levels more than the limits, and that have narrow margins from the limits will be re-measured with AV and QP detectors. Both the vertical and the horizontal polarizations of the Test Antenna are considered to perform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

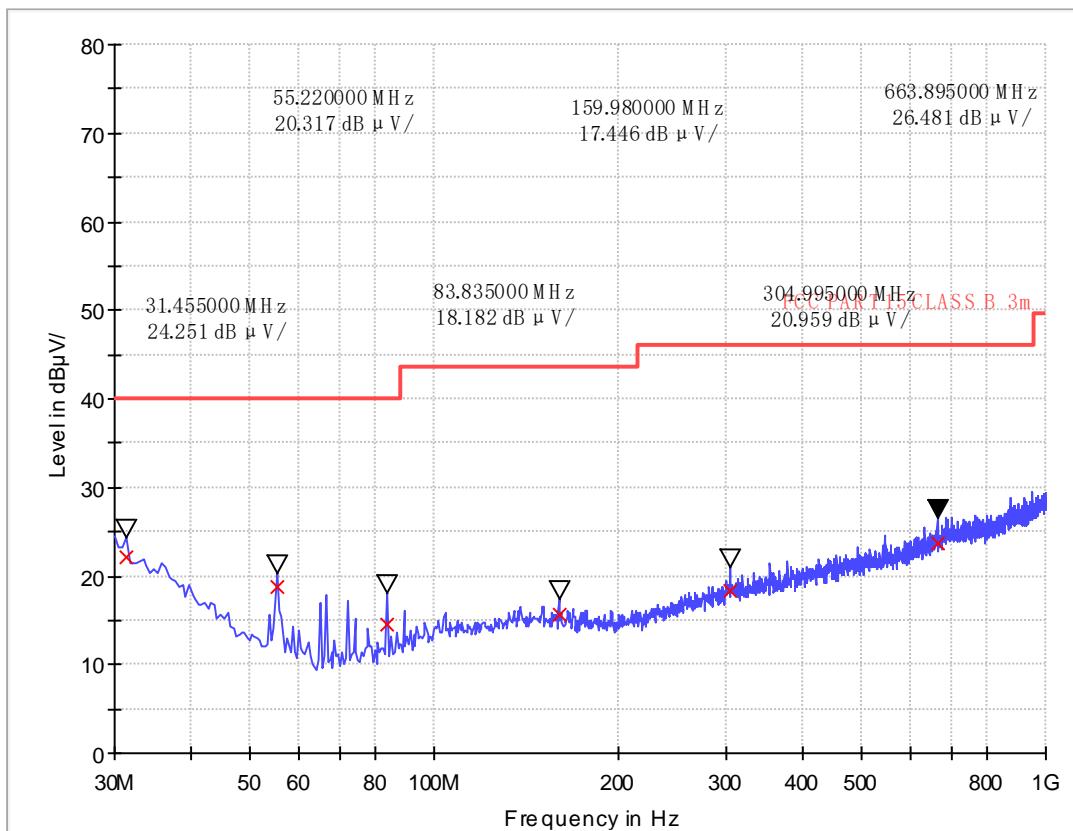
### A. Radiation disturbances, antenna polarization: Vertical, Setup1



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

Frequency (MHz)	QuasiPeak (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

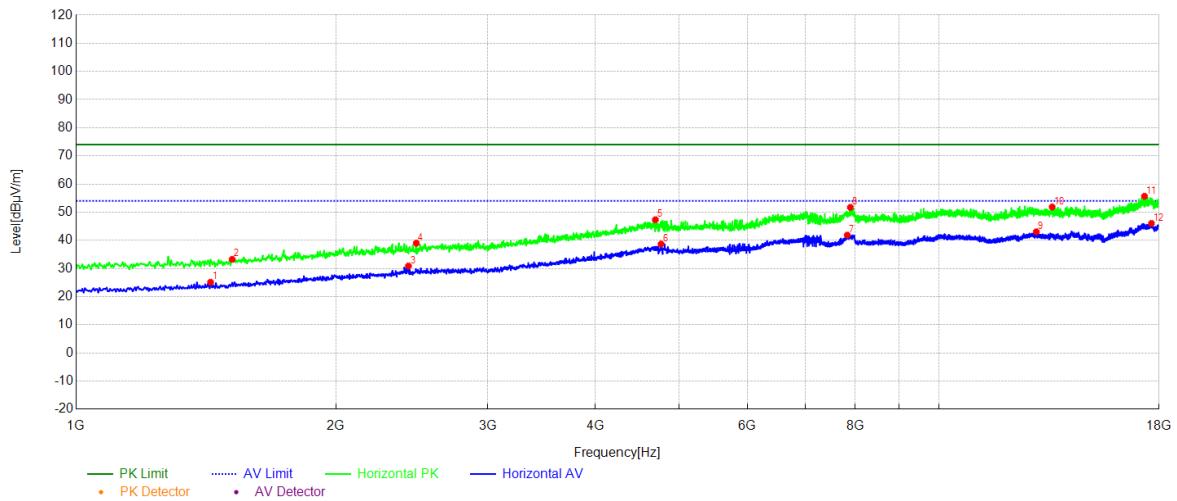
## B. Radiation disturbances, antenna polarization: Horizontal, Setup1



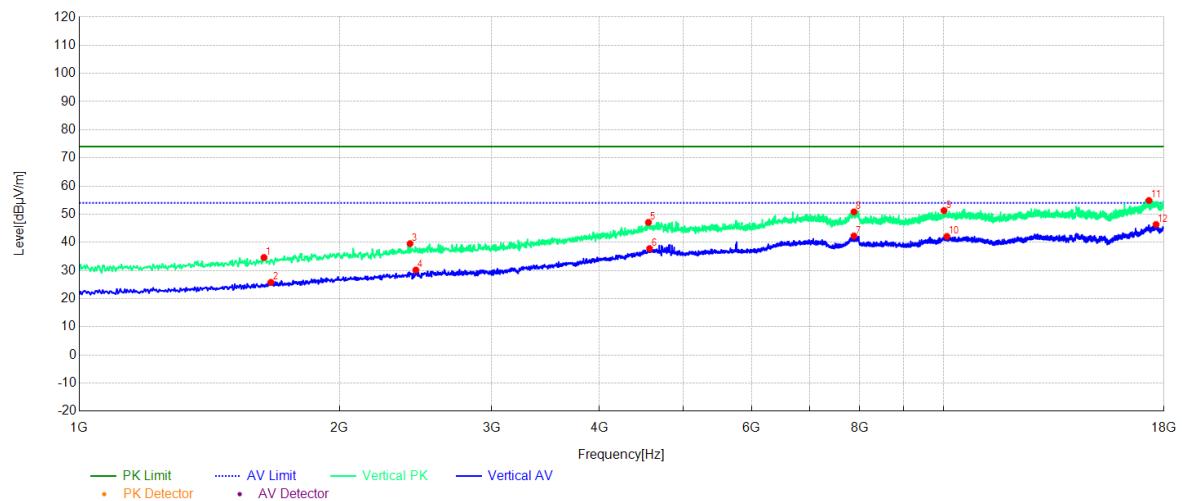
(Plot D: Test Antenna Horizontal 30M - 1G)

Frequency (MHz)	QuasiPeak (dB µV/m)	Bandwidth (kHz)	Antenna height (cm)	Limit (dB µV/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



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



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

NO.	Freq. [MHz]	Level [dB $\mu$ V/m]	Factor [dB]	Limit [dB $\mu$ V/m]	Margin[dB $\mu$ V/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-----