

FCC TEST REPORT
FOR
Shenzhen Kerui Smart Technology Co., Ltd
Kr-G19 alarm system
Model No.: Kr-G19

Prepared for : Shenzhen Kerui Smart Technology Co., Ltd
Address : Floor 2nd&3rd, Building B5, Xinhaosheng Industrial
Zone, Yonghe Road, Qiaotou Fuyong Subdistrict, Bao'an
District, Shenzhen, Guangdong, China

Prepared by : Shenzhen LCS Compliance Testing Laboratory Ltd.
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Date of receipt of test sample : October 21, 2015
Number of tested samples : 1
Serial number : Prototype
Date of Test : October 21, 2015 – December 08, 2015
Date of Report : December 08, 2015

FCC TEST REPORT**FCC CFR 47 PART 15 Subpart B: 2014****Report Reference No. : LCS1510211020E**

Date Of Issue : December 08, 2015

Testing Laboratory Name..... : Shenzhen LCS Compliance Testing Laboratory Ltd.Address..... : 1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue,
Bao'an District, Shenzhen, Guangdong, ChinaTesting Location/ Procedure..... : Full application of Harmonised standards
Partial application of Harmonised standards
Other standard testing method **Applicant's Name : Shenzhen Kerui Smart Technology Co., Ltd**Address..... : Floor 2nd&3rd, Building B5, Xinhaosheng Industrial Zone, Yonghe
Road, Qiaotou Fuyong Subdistrict, Bao'an District, Shenzhen,
Guangdong, China**Test Specification**

Standard..... : FCC CFR 47 PART 15 Subpart B: 2014, ANSI C63.4-2014

Test Report Form No..... : LCSEMC-1.0

TRF Originator..... : Shenzhen LCS Compliance Testing Laboratory Ltd.

Master TRF..... : Dated 2011-03

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Test Item Description..... : Kr-G19 alarm system

Trade Mark..... : Kerui

Model/Type Reference : Kr-G19

Ratings..... : DC 3.7V by battery

Result : Positive**Compiled by:**

Jacky Li/ File administrators

Supervised by:

Glin Lu/ Technique principal

Approved by:

Gavin Liang/ Manager

FCC -- TEST REPORT

Test Report No. : LCS1510211020E
December 08, 2015

Date of issue

Type / Model..... : Kr-G19

EUT..... : Kr-G19 alarm system

Applicant..... : Shenzhen Kerui Smart Technology Co., Ltd

 Address..... : Floor 2nd&3rd, Building B5, Xinhaosheng Industrial Zone,
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Manufacturer..... : Shenzhen Kerui Smart Technology Co., Ltd

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Shenzhen, Guangdong, China

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Factory..... : Shenzhen Kerui Smart Technology Co., Ltd

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Shenzhen, Guangdong, China

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Test Result according to the standards on page 5: **Positive**

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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1. SUMMARY OF STANDARDS AND RESULTS

1.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION			
Description of Test Item	Standard	Limits	Results
Conducted disturbance at mains terminals	FCC CFR 47 PART 15 Subpart B: 2014	Class B	PASS
Radiated disturbance	FCC CFR 47 PART 15 Subpart B: 2014	Class B	PASS

N/A is an abbreviation for Not Applicable.

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

EUT : Kr-G19 alarm system

Model Number : Kr-G19

Power Supply : DC 3.7V by battery

Frequency Range : 434.07MHz

Modulation Technology : ASK

Antenna Type and Gain : Integral Antenna, 3.0 dBi(Max.)

2.2. Description of Test Facility

EMC Lab. : CNAS Registration Number. is L4595.

FCC Registration Number. is 899208.

Industry Canada Registration Number. is 9642A-1.

VCCI Registration Number. is C-4260 and R-3804.

ESMD Registration Number. is ARCB0108.

UL Registration Number. is 100571-492.

TUV SUD Registration Number. is SCN1081.

TUV RH Registration Number. is UA 50296516-001

2.3. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16 – 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the LCS quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

2.4.Measurement Uncertainty

Test Item	Frequency Range	Expanded uncertainty (U _{lab})	Expanded uncertainty (U _{cispr})
Conducted Emission	(9kHz to 150kHz)	2.63 dB	4.0 dB
	(150kHz to 30MHz)	2.35 dB	3.6 dB
Radiated Emission	(9kHz to 30MHz)	3.68 dB	N/A
Radiated Emission	(30MHz to 1000MHz)	3.48 dB	5.2 dB
Radiated Emission	(above 1000MHz)	3.90 dB	N/A

- (1) Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus.
- (2) The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor of $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

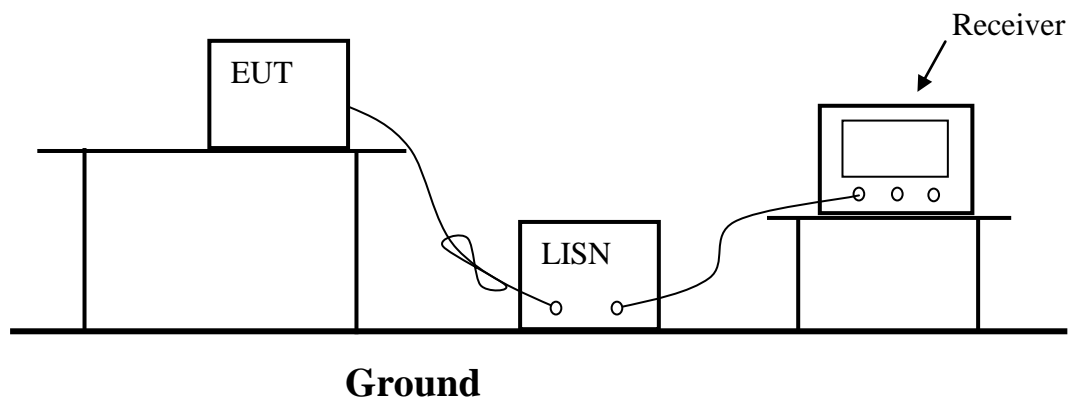
3. POWER LINE CONDUCTED MEASUREMENT

3.1. Test Equipment

The following test equipments are used during the power line conducted measurement:

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	101142	2015/06/18
2	EMI Test Receiver	ROHDE & SCHWARZ	ESPI	101840	2015/06/18
3	Artificial Mains	ROHDE & SCHWARZ	ENV216	101288	2015/06/19
4	EMI Test Software	AUDIX	E3	N/A	2015/06/18

3.2. Block Diagram of Test Setup



3.3. Power Line Conducted Emission Measurement Limits (Class B)

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 ~ 0.50	66-56	56-46
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

3.4. Configuration of EUT on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

3.5. Operating Condition of EUT

3.5.1. Setup the EUT and simulator as shown as Section 3.2.

3.5.2. Turn on the power of all equipment.

3.5.3. Let the EUT work in test mode (ON) and measure it.

3.6. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC/ANSI C63.4-2009 on Conducted Emission Measurement.

The bandwidth of test receiver is set at 9kHz.

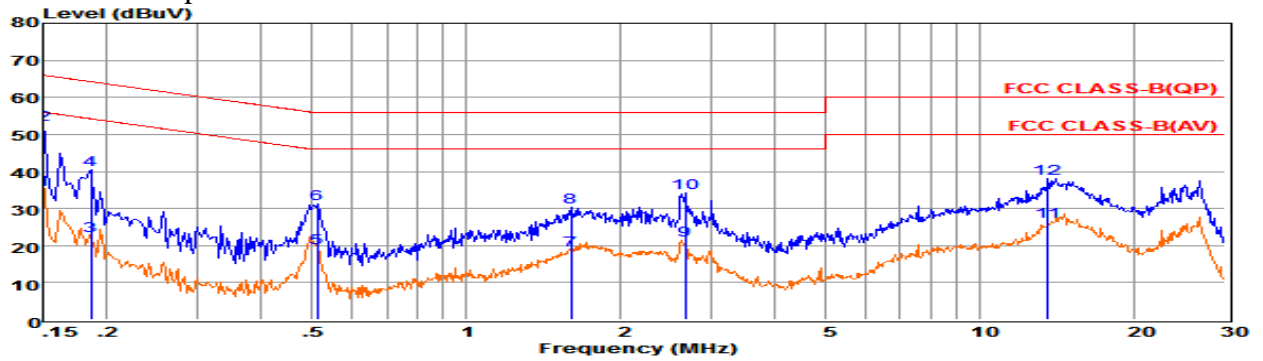
The frequency range from 150kHz to 30MHz is checked.

3.7. Power Line Conducted Emission Measurement Results

PASS.

All the scanning waveforms for Conducted Emission Measurement are refer to the next page.

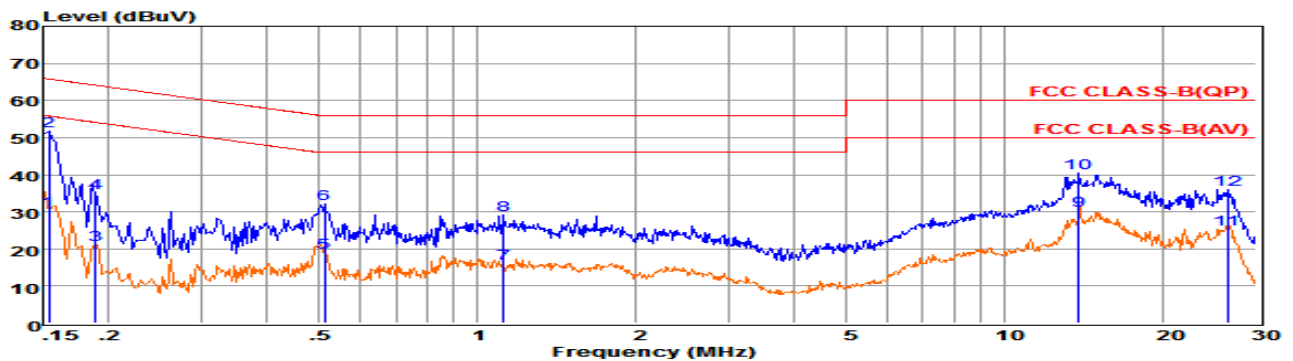
Test plot of AC 120V



Env. Ins: 24*/56%
 Power Rating: AC 120V/60Hz
 Pol: NEUTRAL

	Freq	Reading	LisnFac	CabLos	Atten_Fac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.15000	15.43	9.70	0.02	10.00	35.15	56.00	-20.85	Average
2	0.15000	32.86	9.70	0.02	10.00	52.58	66.00	-13.42	QP
3	0.18639	2.89	9.62	0.02	10.00	22.53	54.20	-31.67	Average
4	0.18639	20.75	9.62	0.02	10.00	40.39	64.20	-23.81	QP
5	0.51278	-0.24	9.62	0.04	10.00	19.42	46.00	-26.58	Average
6	0.51278	11.55	9.62	0.04	10.00	31.21	56.00	-24.79	QP
7	1.60196	-0.93	9.63	0.05	10.00	18.75	46.00	-27.25	Average
8	1.60196	10.51	9.63	0.05	10.00	30.19	56.00	-25.81	QP
9	2.66410	1.76	9.64	0.05	10.00	21.45	46.00	-24.55	Average
10	2.66410	14.56	9.64	0.05	10.00	34.25	56.00	-21.75	QP
11	13.55086	6.49	9.74	0.10	10.00	26.33	50.00	-23.67	Average
12	13.55086	18.33	9.74	0.10	10.00	38.17	60.00	-21.83	QP

Remarks: 1. Measured = Reading + Lisn Factor +Cable Loss+Atten_Fac.
 2. The emission levels that are 20dB below the official limit are not reported.

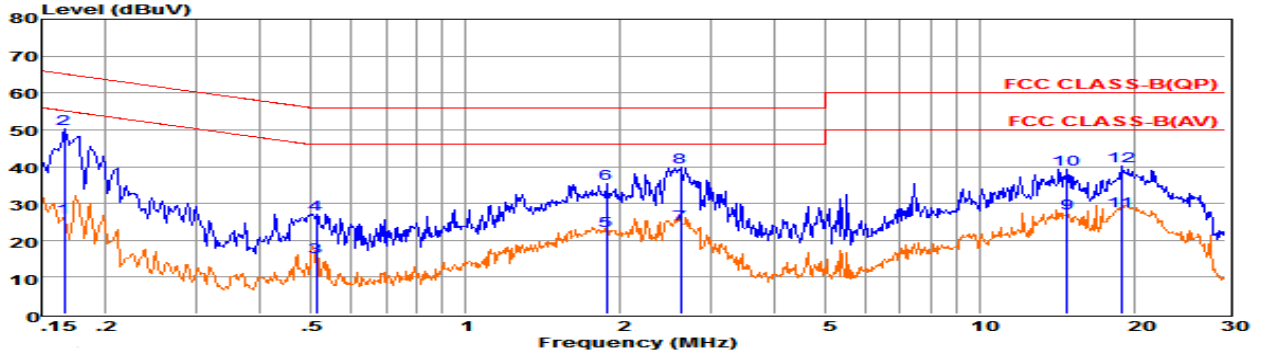


Env. Ins: 24*/56%
 Power Rating: AC 120V/60Hz
 Pol: LINE

	Freq	Reading	LisnFac	CabLos	Atten_Fac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.15403	10.86	9.58	0.02	10.00	30.46	55.78	-25.32	Average
2	0.15403	32.14	9.58	0.02	10.00	51.74	65.78	-14.04	QP
3	0.18838	1.47	9.62	0.02	10.00	21.11	54.11	-33.00	Average
4	0.18838	15.35	9.62	0.02	10.00	34.99	64.11	-29.12	QP
5	0.51278	-0.55	9.62	0.04	10.00	19.11	46.00	-26.89	Average
6	0.51278	12.53	9.62	0.04	10.00	32.19	56.00	-23.81	QP
7	1.12327	-3.68	9.63	0.05	10.00	16.00	46.00	-30.00	Average
8	1.12327	9.37	9.63	0.05	10.00	29.05	56.00	-26.95	QP
9	13.84111	10.50	9.71	0.10	10.00	30.31	50.00	-19.69	Average
10	13.84111	20.68	9.71	0.10	10.00	40.49	60.00	-19.51	QP
11	126.41779	5.53	9.71	0.13	10.00	25.37	50.00	-24.63	Average
12	126.41779	16.27	9.71	0.13	10.00	36.11	60.00	-23.89	QP

Remarks: 1. Measured = Reading + Lisn Factor +Cable Loss+Atten_Fac.
 2. The emission levels that are 20dB below the official limit are not reported.

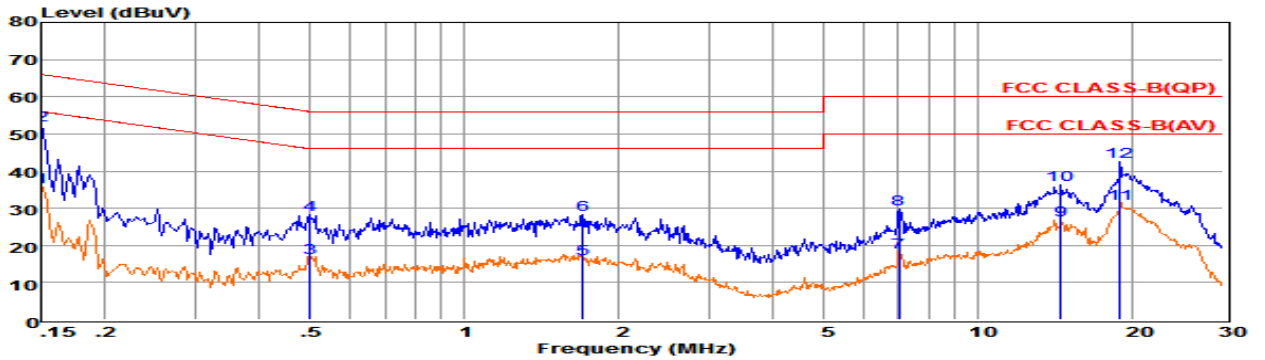
Test plot of AC 230V



Env. Ins: 24*/56%
 Power Rating: AC 230V/50Hz
 Pol: NEUTRAL

Freq	Reading	LisnFac	CabLos	Atten_Fac	Measured	Limit	Over	Remark
MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1 0.16589	6.39	9.66	0.02	10.00	26.07	55.16	-29.09	Average
2 0.16589	30.46	9.66	0.02	10.00	50.14	65.16	-15.02	QP
3 0.51278	-4.27	9.62	0.04	10.00	15.39	46.00	-30.61	Average
4 0.51278	7.43	9.62	0.04	10.00	27.09	56.00	-28.91	QP
5 1.87794	2.98	9.63	0.05	10.00	22.66	46.00	-23.34	Average
6 1.87794	15.56	9.63	0.05	10.00	35.24	56.00	-20.76	QP
7 2.62209	4.78	9.64	0.05	10.00	24.47	46.00	-21.53	Average
8 2.62209	20.16	9.64	0.05	10.00	39.85	56.00	-16.15	QP
914.74970	7.65	9.74	0.10	10.00	27.49	50.00	-22.51	Average
1014.74970	19.50	9.74	0.10	10.00	39.34	60.00	-20.66	QP
1118.82048	8.15	9.84	0.11	10.00	28.10	50.00	-21.90	Average
1218.82048	20.15	9.84	0.11	10.00	40.10	60.00	-19.90	QP

Remarks: 1. Measured = Reading + Lisn Factor +Cable Loss+Atten_Fac.
 2. The emission levels that are 20dB below the official limit are not reported.



Env. Ins: 24*/56%
 Power Rating: AC 230V/50Hz
 Pol: LINE

Freq	Reading	LisnFac	CabLos	Atten_Fac	Measured	Limit	Over	Remark
MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1 0.15000	16.17	9.57	0.02	10.00	35.76	56.00	-20.24	Average
2 0.15000	32.62	9.57	0.02	10.00	52.21	66.00	-13.79	QP
3 0.50203	-2.87	9.62	0.04	10.00	16.79	46.00	-29.21	Average
4 0.50203	8.69	9.62	0.04	10.00	28.35	56.00	-27.65	QP
5 1.69810	-3.45	9.64	0.05	10.00	16.24	46.00	-29.76	Average
6 1.69810	8.58	9.64	0.05	10.00	28.27	56.00	-27.73	QP
7 7.02488	-1.75	9.68	0.07	10.00	18.00	50.00	-32.00	Average
8 7.02488	9.98	9.68	0.07	10.00	29.73	60.00	-30.27	QP
914.51711	6.91	9.71	0.10	10.00	26.72	50.00	-23.28	Average
1014.51711	16.49	9.71	0.10	10.00	36.30	60.00	-23.70	QP
1118.92046	11.34	9.75	0.11	10.00	31.20	50.00	-18.80	Average
1218.92046	22.63	9.75	0.11	10.00	42.49	60.00	-17.51	QP

Remarks: 1. Measured = Reading + Lisn Factor +Cable Loss+Atten_Fac.
 2. The emission levels that are 20dB below the official limit are not reported.

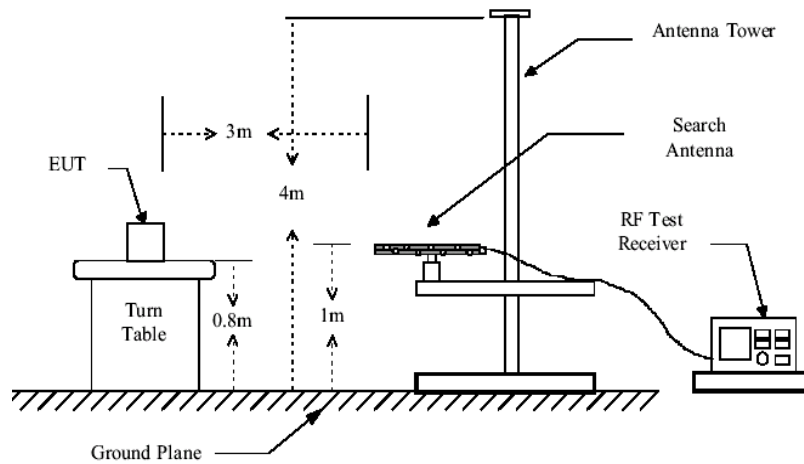
4. RADIATED EMISSION MEASUREMENT

4.1. Test Equipment

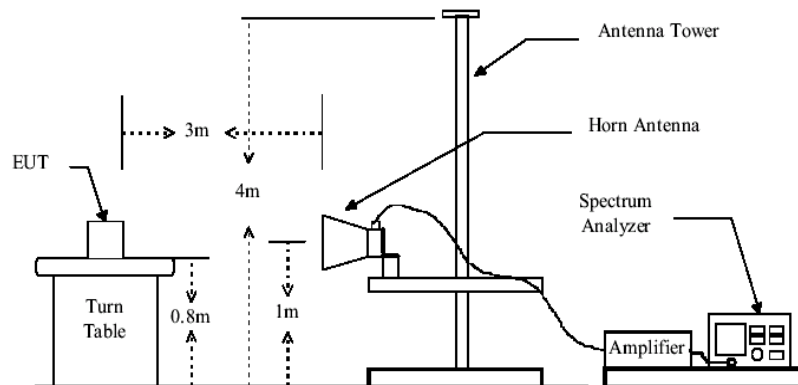
The following test equipments are used during the radiated emission measurement:

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	2015/02/04
2	EMI Test Receiver	ROHDE & SCHWARZ	ESPI	101840	2015/06/18
3	Log per Antenna	SCHWARZBECK	VULB9163	9163-470	2015/06/18
4	EMI Test Software	AUDIX	E3	N/A	2015/06/18
5	Positioning Controller	MF	MF-7082	/	2015/06/18

4.2. Block Diagram of Test Setup



Below 1G



Above 1G

4.3. Radiated Emission Limit (Class B)

Limits for radiated disturbance Blow 1GHz

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		$\mu\text{V}/\text{m}$	$\text{dB}(\mu\text{V})/\text{m}$
30 ~ 88	3	100	40
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46
960 ~ 1000	3	500	54

Remark: (1) Emission level $(\text{dB})\mu\text{V} = 20 \log$ Emission level $\mu\text{V}/\text{m}$
(2) The smaller limit shall apply at the cross point between two frequency bands.
(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

4.4. EUT Configuration on Measurement

The following equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

4.5. Operating Condition of EUT

4.5.1. Setup the EUT as shown in Section 4.2.

4.5.2. Let the EUT work in test mode (on) and measure it.

4.6. Test Procedure

EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated by-log antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-2014 on radiated emission measurement. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Below 1G:

The bandwidth of the EMI test receiver is set at 120kHz, 1000kHz.

The frequency range from 30MHz to 1000MHz is checked.

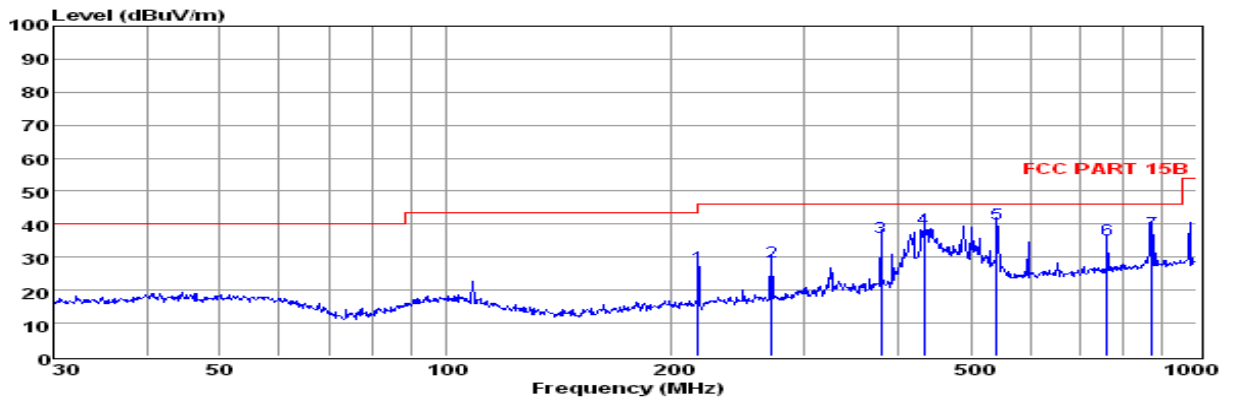
Above 1G:

The bandwidth of the EMI test receiver is set at 1MHz, 3MHz for Peak detector.

The bandwidth of the EMI test receiver is set at 1MHz, 10Hz for Average detector

The frequency range from 1GHz to 26.5GHz is checked.

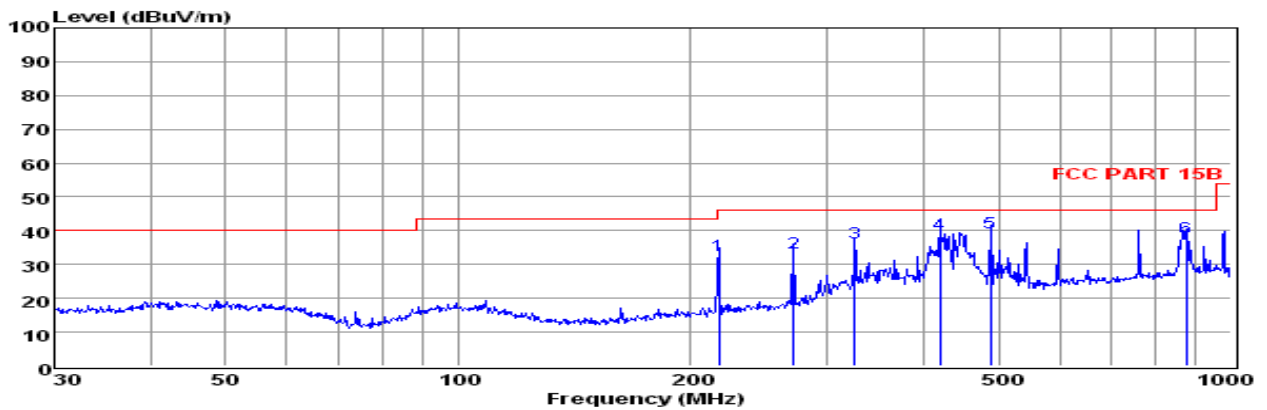
4.7. Radiated Emission Noise Measurement Result PASS.



Env./Ins: 24°C/56%
pol: VERTICAL

	Freq MHz	Reading dBuV	CabLos dB	Antfac dB/m	Measured dBuV/m	Limit dBuV/m	Over dB	Remark
1	216.78	15.25	0.88	11.10	27.23	46.00	-18.77	QP
2	271.32	15.14	0.99	12.40	28.53	46.00	-17.47	QP
3	379.91	20.47	1.18	14.59	36.24	46.00	-9.76	QP
4	434.07	21.78	1.18	15.53	38.49	46.00	-7.51	QP
5	541.37	21.32	1.34	17.35	40.01	46.00	-5.99	QP
6	760.70	13.81	1.77	19.57	35.15	46.00	-10.85	QP
7	872.18	15.04	1.84	20.80	37.68	46.00	-8.32	QP

Note: 1. All readings are Quasi-peak values.
2. Measured= Reading + Antenna Factor + Cable Loss
3. The emission that are 20db below the official limit are not reported



Env./Ins: 24°C/56%
pol: HORIZONTAL

	Freq MHz	Reading dBuV	CabLos dB	Antfac dB/m	Measured dBuV/m	Limit dBuV/m	Over dB	Remark
1	217.54	20.73	0.88	11.12	32.73	46.00	-13.27	QP
2	271.32	20.17	0.99	12.40	33.56	46.00	-12.44	QP
3	325.60	21.86	1.04	13.55	36.45	46.00	-9.55	QP
4	420.58	22.16	1.33	15.47	38.96	46.00	-7.04	QP
5	489.03	21.69	1.32	16.30	39.31	46.00	-6.69	QP
6	875.25	15.12	1.87	20.84	37.83	46.00	-8.17	QP

Note: 1. All readings are Quasi-peak values.
2. Measured= Reading + Antenna Factor + Cable Loss
3. The emission that are 20db below the official limit are not reported

Test Mode: Receive	Tested by: Jacky
Test voltage: DC 3.7V	Test Distance: 3m
Detector Function: Peak+AV	Test Results: Passed

Polarization	Frequency MHz	Emission Level dB μ V/m		Limits dB μ V/m		Margin dB μ V/m	
		Peak	AVG	Peak	AVG	Peak	AVG
Horizontal	2235.02	58.67	41.78	74.00	54.00	-15.33	-12.22
	3042.10	60.71	44.04	74.00	54.00	-13.29	-9.96
	4452.65	55.23	40.36	74.00	54.00	-18.77	-13.64
Vertical	2354.19	57.13	41.81	74.00	54.00	-16.87	-12.19
	3240.55	61.71	44.89	74.00	54.00	-12.29	-9.11
	4125.03	58.71	42.27	74.00	54.00	-15.29	-11.73

Notes:

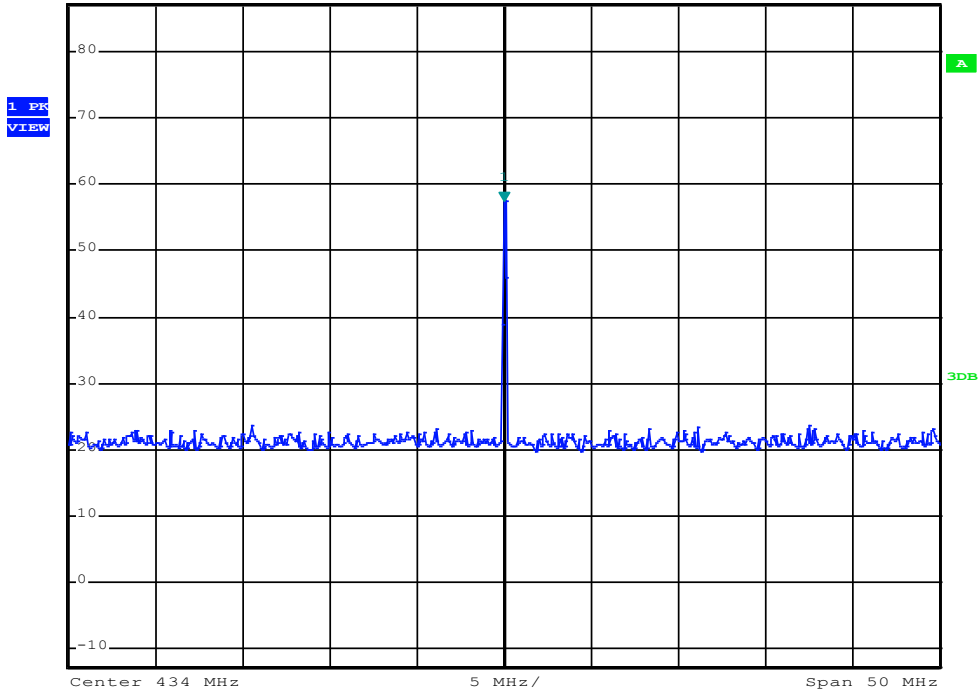
1. Measuring frequencies from 9k~26.5GHz , No emission found between lowest internal used/generated frequency to 30MHz.
2. Radiated emissions measured in frequency range from 9k~26.5GHz were made with an instrument using Peak detector mode.
3. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measure

Receiver Type:

The receiver not belongs to Super regenerative Receiver; please refer to following confirm plots.



Ref 87 dBμV Att 10 dB RBW 100 kHz Marker 1 [T1]
VBW 100 kHz 57.55 dBμV
SWT 5 ms 434.000000000 MHz



-----THE END OF REPORT-----