

TEST REPORT**Application No.:**

SHCR2206001118LM

FCC ID:

2A7RB-KS-RF01B

Applicant:

NINGBO KAISHENG ELECTRICAL APPLIANCE CO., LTD.

Address of Applicant:

No.11 Oulanqiao West Road, Gaoqiao Town, Haishu District, Ningbo City, Zhejiang Province china

Manufacturer:

NINGBO KAISHENG ELECTRICAL APPLIANCE CO.,LTD.

Address of Manufacturer:

No.11 Oulanqiao West Road, Gaoqiao Town, Haishu District, Ningbo City, Zhejiang Province china

Factory:

NINGBO KAISHENG ELECTRICAL APPLIANCE CO.,LTD.

Address of Factory:

No.11 Oulanqiao West Road, Gaoqiao Town, Haishu District, Ningbo City, Zhejiang Province china

Equipment Under Test (EUT):**EUT Name:** Wireless remote control**Model No.:**

KS-RF01B,KS-RF02,KS-RF03,KS-RF04,KS-RF05,KS-RF06,KS-RF07, KS-RF08,KS-RF09,KS-RF10,KS-RF11,KS-RF12,KS-RF13,KS-RF14, KS-RF15,KS-RF16,KS-RF17,KS-RF18,KS-RF19,KS-RF20,KS-RF21, KS-RF22,KS-RF23 ♣

Remark ♣:

Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.

Standard(s) :

47 CFR Part 15, Subpart C 15.231

Date of Receipt:

2022-06-06

Date of Test:

2022-06-07 to 2022-09-05

Date of Issue:

2022-09-13

Test Result:

Pass*

* In the configuration tested, the EUT complied with the standards specified above.

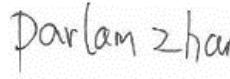
*Parlam Zhan*Parlam Zhan
Laboratory ManagerSGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.
EEC EMC Lab

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Revision Record			
Version	Description	Date	Remark
00	Original	2022-09-13	/

Authorized for issue by:			
	 Bill Wu	Bill Wu/Project Engineer	
	 Parlam Zhan	Parlam Zhan/Reviewer	



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2 Test Summary

Radio Spectrum Technical Requirement				
Item	Standard	Method	Requirement	Result
Antenna Requirement	47 CFR Part 15, Subpart C 15.231	N/A	47 CFR Part 15, Subpart C 15.203	Pass

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
20dB Bandwidth	47 CFR Part 15, Subpart C 15.231	ANSI C63.10 (2013) Section 6.9	47 CFR Part 15, Subpart C 15.231(c)	Pass
Radiated Emissions below 1GHz		ANSI C63.10 (2013) Section 6.4&6.5	47 CFR Part 15C Section 15.231(b) and 15.209	Pass
Dwell Time (15.231(a))		ANSI C63.10 (2013) Section 7.5	47 CFR Part 15, Subpart C 15.231(a)	Pass
Field Strength of the Fundamental Signal (15.231(b))		ANSI C63.10 (2013) Section 6.5	47 CFR Part 15, Subpart C 15.231(b)	Pass
Radiated Emissions above 1GHz		ANSI C63.10 (2013) Section 6.6	47 CFR Part 15C Section 15.231(b) and 15.209	Pass

Declaration of EUT Family Grouping:

Note: There are series models mentioned in this report, and they are the similar in electrical and electronic characters. Only the model KS-RF01B was tested since their differences were the model number and appearance.

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EEC EMC Lab

NO.588 West Jindu Road, Songjiang District, Shanghai China 201612
中国·上海·松江区金都西路588号 邮编: 201612

t (86-21) 61915666
t (86-21) 61915666

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4 General Information

4.1 Details of E.U.T.

Power supply:	DC 3V By CR2025
Operation Frequency	433.05MHz-434.79MHz
Modulation Technique:	2GFSK
Antenna Type:	PCB antenna
Number of Channel:	1

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
--	--	--	--

The EUT has been tested as an independent unit.

4.3 Measurement Uncertainty & Decision Rule

No.	Item	Measurement Uncertainty
1	Radio Frequency	8.4×10^{-8}
2	Timeout	2s
3	Duty cycle	0.4%
4	Occupied Bandwidth	3%
5	RF conducted power	0.6dB
6	RF power density	2.9dB
7	Conducted Spurious emissions	0.75dB
8	RF Radiated power	5.2dB (Below 1GHz) 5.9dB (Above 1GHz)
9	Radiated Spurious emission test	4.2dB (Below 30MHz) 4.5dB (30MHz-1GHz) 5.1dB (1GHz-6GHz) 5.4dB (6GHz-18GHz)
10	Temperature test	1°C
11	Humidity test	3%
12	Supply voltages	1.5%
13	Time	3%

Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

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4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. E&E Lab

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No tests were sub-contracted.

Note:

1. SGS is not responsible for wrong test results due to incorrect information (e.g. max. clock frequency, highest internal frequency, antenna gain, cable loss, etc) is provided by the applicant. (if applicable).
2. SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (if applicable).

4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **CNAS (No. CNAS L0599)**

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **A2LA (Certificate No. 6332.01)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the American Association for Laboratory Accreditation(A2LA).

- **FCC (Designation Number: CN1301)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

- **ISED (CAB Identifier: CN0020)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. EMC Laboratory has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory. Company Number: 8617A

- **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, C-14336, T-12221, G-10830 respectively.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

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f (86-21) 61915678
f (86-21) 61915678

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5 Equipment List

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
RF Conducted Test					
Spectrum Analyzer	R&S	FSP-30	SHEM002-1	2021-12-20	2022-12-19
Spectrum Analyzer	Keysight	N9020B	SHEM241-1	2021-12-20	2022-12-19
Spectrum Analyzer	Agilent	N9020A	SHEM181-1	2022-08-02	2023-08-01
Signal Generator	R&S	SMR20	SHEM006-1	2022-08-02	2023-08-01
Signal Generator	Agilent	N5182A	SHEM182-1	2022-08-02	2023-08-01
Communication Tester	R&S	CMW270	SHEM183-1	2022-07-25	2023-07-24
Communication Tester	R&S	CMW500	SHEM268-1	2022-07-25	2023-07-24
Power Sensor	Keysight	U2021XA * 4	SHEM184-1	2022-08-02	2023-08-01
Splitter	Anritsu	MA1612A	SHEM185-1	/	/
Coupler	e-meca	803-S-1	SHEM186-1	/	/
High-low Temp Cabinet	Suzhou Zhihe	TL-40	SHEM087-1	2020-04-15	2023-04-14
AC Power Stabilizer	APC	KDF-31020T-V0-F0	SHEM216-1	2021-12-20	2022-12-19
DC Power Supply	MCH	MCH-303A	SHEM210-1	2021-12-20	2022-12-19
Conducted test Cable	/	RF01-RF04	/	2021-12-20	2022-12-19
Switcher	Tonscend	JS0806	SHEM184-1	2022-08-02	2023-08-01
Test software	Tonscend	JS Tonscend BT/WIFI System	Version: 2.6	/	/
Coaxial Cable	TST		SHEM263-1	2022-08-02	2023-08-01
Test software	TST	TST PASS	Version: 2.0	/	/
RF Radiated Test					
EMI test Receiver	R&S	ESU40	SHEM051-1	2021-12-20	2022-12-19
Spectrum Analyzer	R&S	FSP-30	SHEM002-1	2021-12-20	2022-12-19
Communication Tester	R&S	CMW500	SHEM268-1	2022-07-25	2023-07-24
Loop Antenna (9kHz-30MHz)	Schwarzbeck	FMZB1519	SHEM135-1	2021-12-20	2022-12-19
Antenna (25MHz-2GHz)	Schwarzbeck	VULB9168	SHEM048-1	2021-09-11	2023-09-10
Antenna (25MHz-2GHz)	Schwarzbeck	VULB9168	SHEM202-1	2021-05-07	2023-05-06
Horn Antenna (1-18GHz)	Schwarzbeck	HF906	SHEM009-1	2022/8/11	2024-08-10
Horn Antenna (1-18GHz)	Schwarzbeck	BBHA9120D	SHEM050-1	2021-09-18	2023-09-17
Horn Antenna (14-40GHz)	Schwarzbeck	BBHA 9170	SHEM049-1	2021-09-18	2023-09-17
Pre-Amplifier	HP	8447D	SHEM236-1	2022-08-02	2023-08-01
High-amplifier (14-40GHz)	Schwarzbeck	10001	SHEM049-2	2021-12-20	2022-12-19
Band Filter	LORCH	9BRX-875/X150	SHEM156-1	/	/
Band Filter	LORCH	13BRX-1950/X500	SHEM083-2	/	/
Band Filter	LORCH	5BRX-2400/X200	SHEM155-1	/	/
Band Filter	LORCH	5BRX-5500/X1000	SHEM157-2	/	/
High pass Filter	Wainwright	WHK3.0/18G	SHEM157-1	/	/
High pass Filter	Wainwright	WHKS1700	SHEM157-3	/	/
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2020-05-25	2023-05-24
RE test Cable	/	RE01, RE02, RE06	/	2022-01-07	2023-01-06
Test software	ESE	E3	Version: 6.111221a	/	/

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6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203

6.1.2 Conclusion

15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT Antenna:

The antenna is spiral antenna and no consideration of replacement.

Antenna location: Refer to Internal photos

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中国·上海·松江区金都西路588号 邮编: 201612

t (86-21) 61915666 f (86-21) 61915678 www.sgsgroup.com.cn
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7 Radio Spectrum Matter Test Results

7.1 20dB Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.231(c)
Test Method: ANSI C63.10 (2013) Section 6.9

Limit:

Frequency range(MHz)	Limit
70-900	No wider than 0.25% of the center frequency
Above 900	No wider than 0.5% of the center frequency

7.1.1 E.U.T. Operation

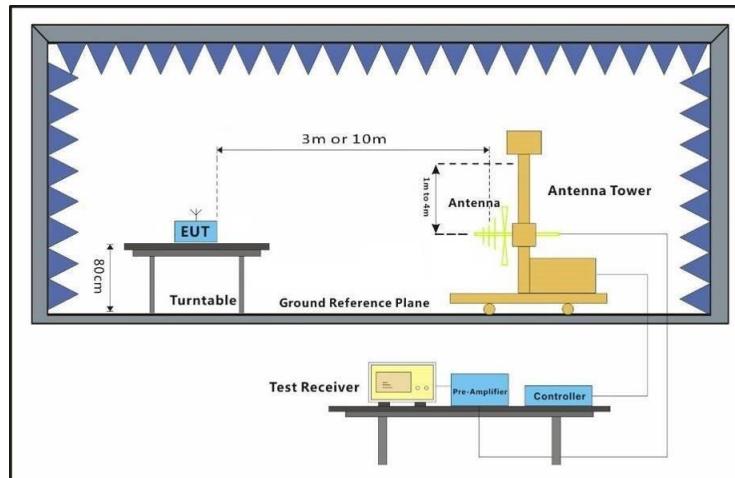
Operating Environment:

Temperature: 26.8 °C Humidity: 48.8 % RH Atmospheric Pressure: 1010 mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in transmitting mode

7.1.3 Test Setup Diagram



7.1.4 Measurement Procedure and Data



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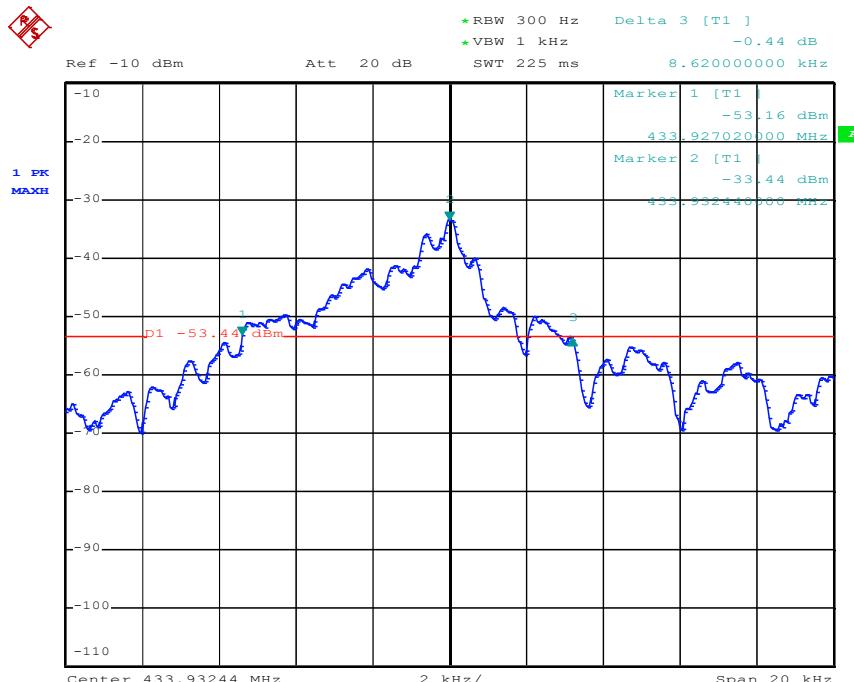
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Frequency (MHz)	20dB bandwidth (kHz)	Limit (kHz)	Results
433.93	8.62	1084.8	Pass

Note: Limit=433.93MHz*0.25%=1.0848MHz-1084.8kHz

Test plot as follows:



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SGS-CSTI (Shanghai) Technical Services (Shanghai) Co. Ltd
EEC EMC Lab

or email: CN.Doccheck@sgs.com
NO.588 West Jindu Road, Songjiang District, Shanghai China 201612
中国·上海·松江区金都西路588号 邮编: 201612

t (96-21) 61915666

t (86-21) 61915666

WWW.SASGROUP.COM.CN

www.sgsgroup.com
sgs.china@sgs.com

中国·上海·松江区金都西路588号 邮编: 201612

t (86-21) 61915666

1 (66-21) 61915666 1 (66-21) 61915670

sys.0.0.0.0@sys.com

7.2 Radiated Emissions below 1GHz

Test Requirement 47 CFR Part 15C Section 15.231(b) and 15.209

Test Method: ANSI C63.10 (2013) Section 6.4&6.5

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 26.8 °C

Humidity: 49.2 % RH

Atmospheric Pressure: 1010 mbar

7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode _Keep the EUT in transmitting mode

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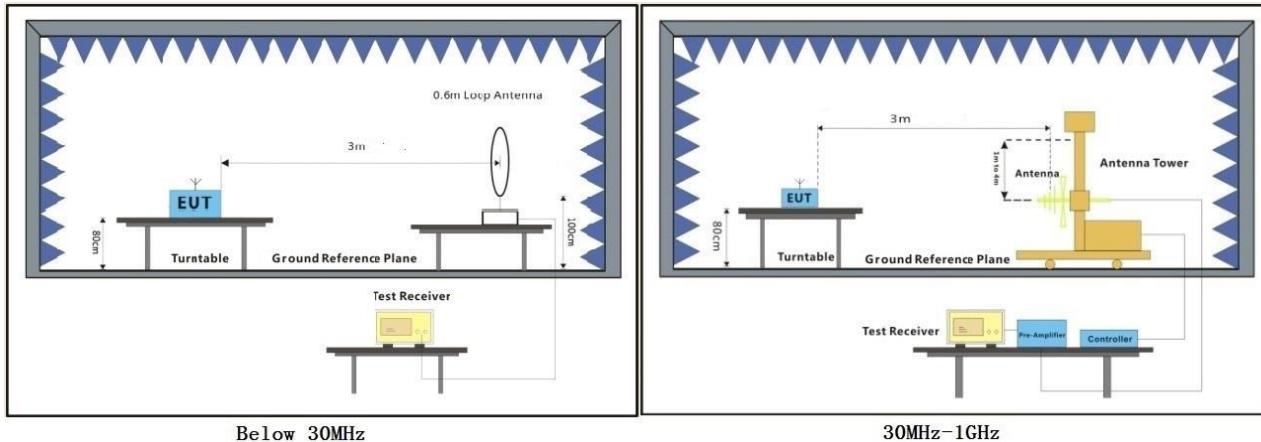


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中国·上海·松江区金都西路588号 邮编: 201612

t (86-21) 61915666 f (86-21) 61915678
t (86-21) 61915666 f (86-21) 61915678

www.sgsgroup.com.cn
sgs.china@sgs.com

7.2.3 Test Setup Diagram



7.2.4 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. 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.
- g. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test worst case mode is recorded in the report.

Remark:

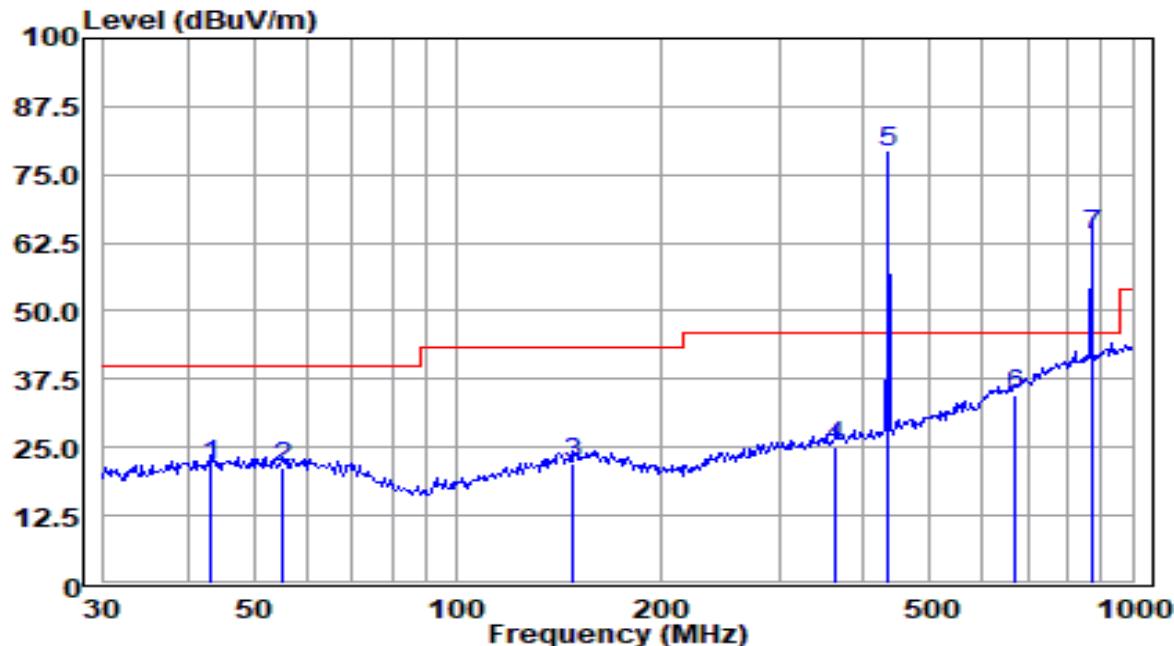
- 1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows: Final Test Level = Receiver Reading + Antenna Factor + Cable Factor - Preamplifier Factor
- 2) Scan from 9kHz to 1GHz, the disturbance below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

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Vertical:



Item	Freq.	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Result Level	Limit Line	Over Limit	Detector
(Mark)	(MHz)	(dB μ V)	(dB μ A/ μ Vm)	(dB)	(dB)	(dB μ A/m)	(dB μ A/m)	(dB)	
1	42.98	37.97	13.67	31.84	1.69	21.49	40.00	-18.51	QP
2	55.35	38.08	13.52	32.00	1.78	21.38	40.00	-18.62	QP
3	147.99	37.91	13.35	32.04	2.94	22.16	43.50	-21.34	QP
4	363.67	38.52	14.74	33.17	4.87	24.96	46.00	-21.04	QP
5	435.32	90.97	16.76	33.91	5.21	79.03	Fundamental Signal		
6	667.24	39.19	20.61	31.76	6.51	34.55	46.00	-11.45	QP
7	868.93	63.55	23.03	30.20	7.39	63.77	80.83	-17.06	PEAK
8	868.93	-	-	-	-	57.84	60.83	-2.99	AV

Remark: Result Level= Read Level + Antenna Factor + Cable Loss- Preamp Factor

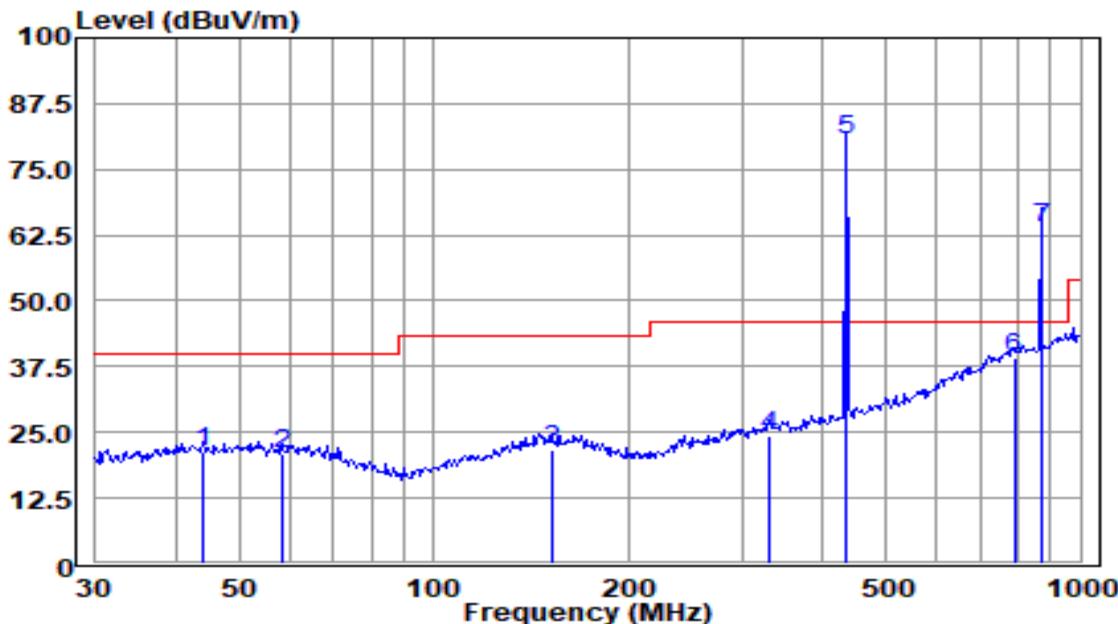
Average level=Peak level-Duty Cycle Factor

Duty Cycle Factor= $20\log(1/\text{Duty Cycle}) = 5.93\text{dB}$ (Duty Cycle test plot refer to page 20)

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Horizontal:



Item	Freq.	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Result Level	Limit Line	Over Limit	Detector
(Mark)	(MHz)	(dB μ V)	(dB μ A/ μ Vm)	(dB)	(dB)	(dB μ A/m)	(dB μ A/m)	(dB)	
1	43.96	37.78	13.73	31.88	1.66	21.29	40.00	-18.71	QP
2	58.22	37.80	13.26	32.00	1.79	20.85	40.00	-19.15	QP
3	152.21	37.37	13.45	32.13	3.00	21.69	43.50	-21.81	QP
4	330.54	38.78	14.26	33.25	4.65	24.44	46.00	-21.56	QP
5	435.32	92.47	16.76	33.91	5.21	80.53	Fundamental Signal		
6	789.77	39.76	22.38	30.01	6.97	39.10	46.00	-6.90	QP
7	868.93	63.76	23.03	30.20	7.39	63.98	80.83	-16.85	PEAK
8	868.93	-	-	-	-	58.05	60.83	-2.78	AV

Remark: Result Level= Read Level + Antenna Factor + Cable Loss- Preamp Factor

Average level=Peak level-Duty Cycle Factor

Duty Cycle Factor= $20\log(1/\text{Duty Cycle}) = 5.93\text{dB}$ (Duty Cycle test plot refer to page 20)

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7.3 Dwell Time (15.231(a))

Test Requirement 47 CFR Part 15, Subpart C 15.231(a)

Test Method: ANSI C63.10 (2013) Section 7.5

Limit:

Device type	Limit
Manually operated transmitter	The switch automatically deactivate the transmitter within not more than 5 seconds of being released
Automatically activated transmitter	Cease transmission within 5 seconds after activation
Periodic transmissions to determine system integrity of transmitters used in security or safety applications	The total transmission time does not exceed 2 seconds per hour

7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 26.8 °C

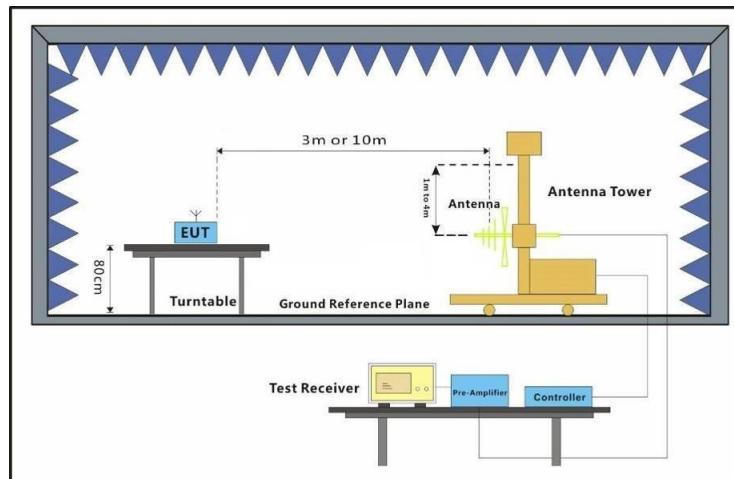
Humidity: 49.3 % RH

Atmospheric Pressure: 1010 mbar

7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in transmitting mode

7.3.3 Test Setup Diagram



7.3.4 Measurement Procedure and Data



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中国·上海·松江区金都西路588号

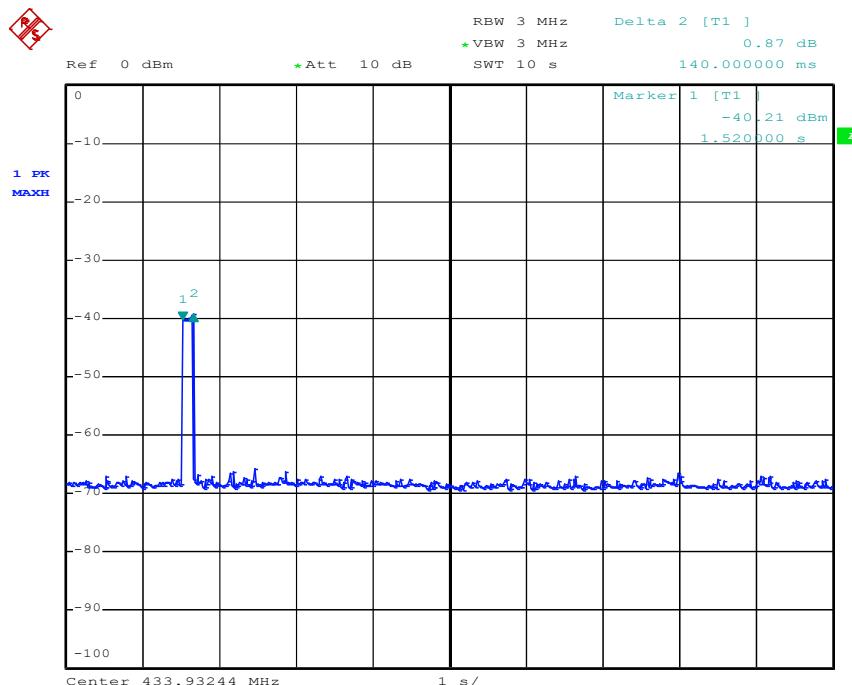
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Test item	Limit (s)	Results
Transmission Duration	≤5s	Pass

Test plot as follows:



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7.4 Field Strength of the Fundamental Signal (15.231(b))

Test Requirement 47 CFR Part 15, Subpart C 15.231(b)

Test Method: ANSI C63.10 (2013) Section 6.5

Limit:

Fundamental frequency(MHz)	Field strength of fundamental(microvolts/meter)	Field strength of spurious emissions(microvolts/meter)
40.66-40.70	2250	225
70-130	1250	125
130-174	1250 to 3750	125 to 375
174-260	3750	375
260-470	3750 to 12500	375 to 1250
Above 470	12500	1250

Remark: the emission limit is based on measurement instrumentation employing an average detector at a distance of 3 meters. The frequencies above 1000MHz are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 26.8 °C Humidity: 49.4 % RH Atmospheric Pressure: 1010 mbar

7.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in transmitting mode

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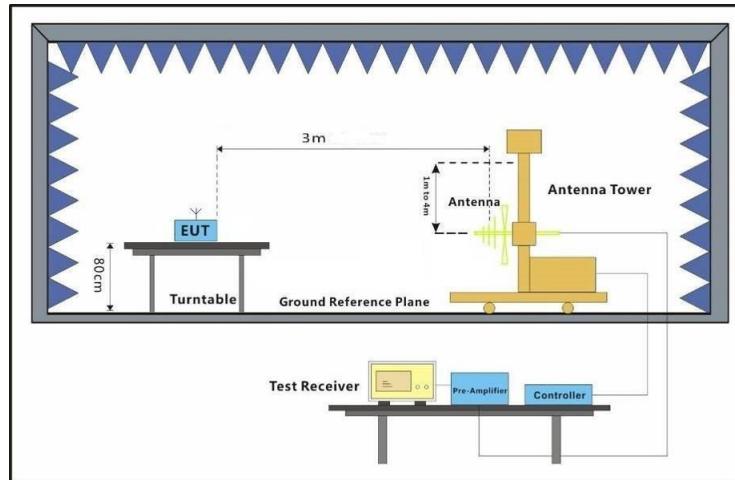
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NO.588 West Jindu Road, Songjiang District, Shanghai China 201612
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t (86-21) 61915666

www.sgsgroup.com.cn
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7.4.3 Test Setup Diagram



7.4.4 Measurement Procedure and Data

- For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- 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.
- The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test worst case mode is recorded in the report.

Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor



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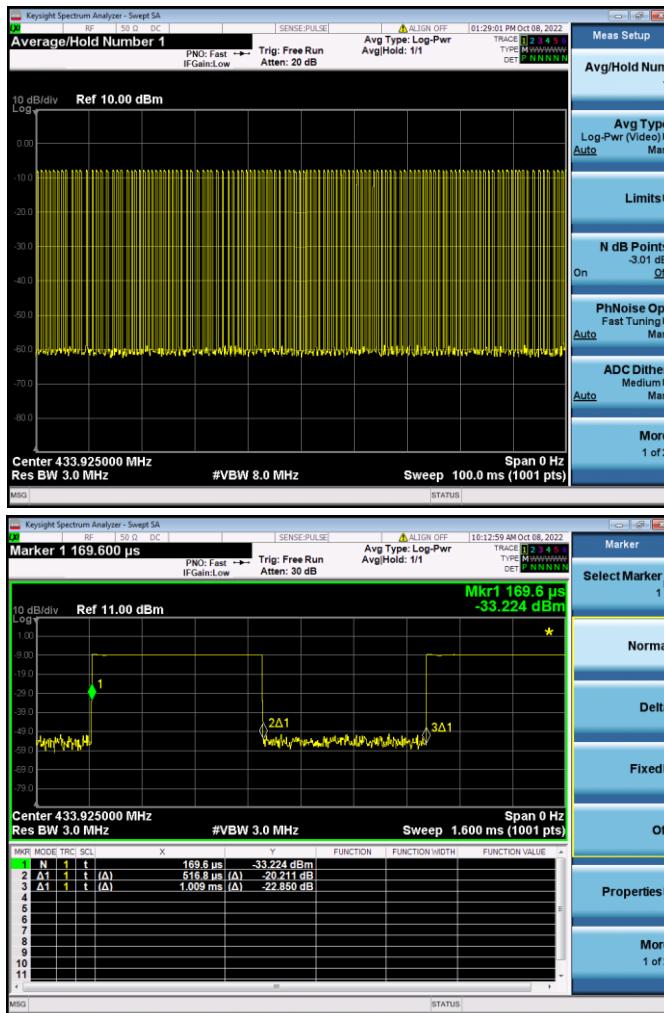
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Test channel	Freq. (MHz)	Result Level (dB μ V/m)	Limit Line (dB μ V/m)	Over Limit (dB)	Detector	Polarization
Channel 1	433.93	79.03	100.83	-21.8	Peak	Vertical
		73.10	80.83	-7.73	Average	Vertical
		80.53	100.83	-20.3	Peak	Horizontal
		74.60	80.83	-6.23	Average	Horizontal

Remark: Average level=Peak level-Duty Cycle Factor

Duty Cycle Factor= $20\log(1/\text{Duty Cycle}) = 5.93\text{dB}$

Duty Cycle test Plot:



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中国·上海·松江区金都西路588号 邮编: 201612

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f (86-21) 61915678

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sgs.china@sgs.com

7.5 Radiated Emissions above 1GHz

Test Requirement 47 CFR Part 15C Section 15.231(b) and 15.209

Test Method: ANSI C63.10 (2013) Section 6.6

Limit:

For Restricted bands

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

For Other bands

Fundamental Frequency MHz	Field Strength of Fundamental (dB μ V/m @ 3 m)	Field Strength of Harmonics and Spurious Emissions (dB μ V/m @ 3 m)
40.66 to 40.70	67.04	47.04
70 to 130	61.94	41.94
130 to 174	**61.94 to 71.48	41.94 to 51.48
174 to 260	71.48	51.48
260 to 470	**71.48 to 81.94	51.48 to 61.94
Above 470	81.94	61.94
Detector:	Peak for pre-scan	
	QP for 30MHz to 1000 MHz: 120 kHz resolution bandwidth	
	Peak for Above 1 GHz: 1 MHz resolution bandwidth	

** linear interpolations

[Where F is the frequency in MHz, the formulas for calculating the maximum permitted fundamental field strengths are as follows:

for the band 130-174 MHz, uV/m at 3 meters = 56.81818(F) - 6136.3636;

for the band 260-470 MHz, uV/m at 3 meters = 41.6667(F) - 7083.3333.

The maximum permitted unwanted emission level is 20 dB below the maximum permitted fundamental level.]

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NO.588 West Jindu Road, Songjiang District, Shanghai China 201612
中国·上海·松江区金都西路588号

t (86-21) 61915666
t (86-21) 61915666

f (86-21) 61915678
f (86-21) 61915678

www.sgsgroup.com.cn
sgs.china@sgs.com

The fundamental frequency of the EUT is 433.92 MHz

The limit for average or QP field strength dB_{UV}/m for the fundamental emission= 80.83 dB_{UV}/m

No fundamental is allowed in the restricted bands.

The limit for average field strength dB_{UV}/m for the spurious emission=60.83 dB_{UV}/m. Spurious in the restricted bands must be less than 60.83 dB_{UV}/m or 15.209, whichever limit permits a higher field strength.

7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 26.8 °C

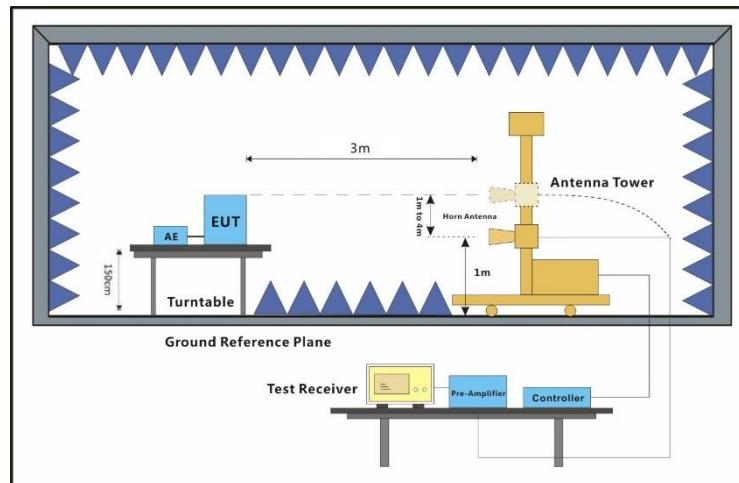
Humidity: 49.3 % RH

Atmospheric Pressure: 1010 mbar

7.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in transmitting mode

7.5.3 Test Setup Diagram



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7.5.4 Measurement Procedure and Data

- a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. 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.
- g. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test worst case mode is recorded in the report.

Remark:

- 1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows: Final Test Level = Receiver Reading + Antenna Factor + Cable Factor - Preamplifier Factor
- 2) For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.



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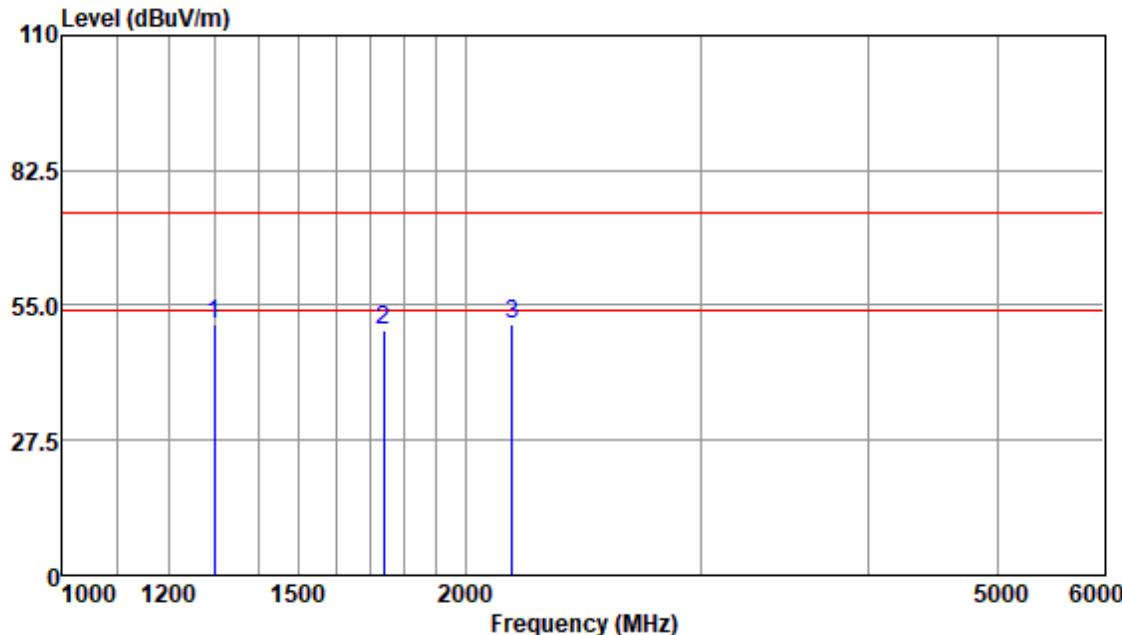
NO.588 West Jindu Road, Songjiang District, Shanghai China 201612
中国·上海·松江区金都西路588号 邮编: 201612

t (86-21) 61915666
t (86-21) 61915666

f (86-21) 61915678
f (86-21) 61915678

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sgs.china@sgs.com

Test Mode: 00; Polarity: Horizontal



Antenna Polarity :HORIZONTAL

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
1299.00	56.33	25.26	4.50	34.78	51.31	74.00	-22.69	Peak
1736.48	52.55	27.25	5.03	34.77	50.06	74.00	-23.94	Peak
2168.51	53.38	28.14	4.74	34.99	51.27	74.00	-22.73	Peak

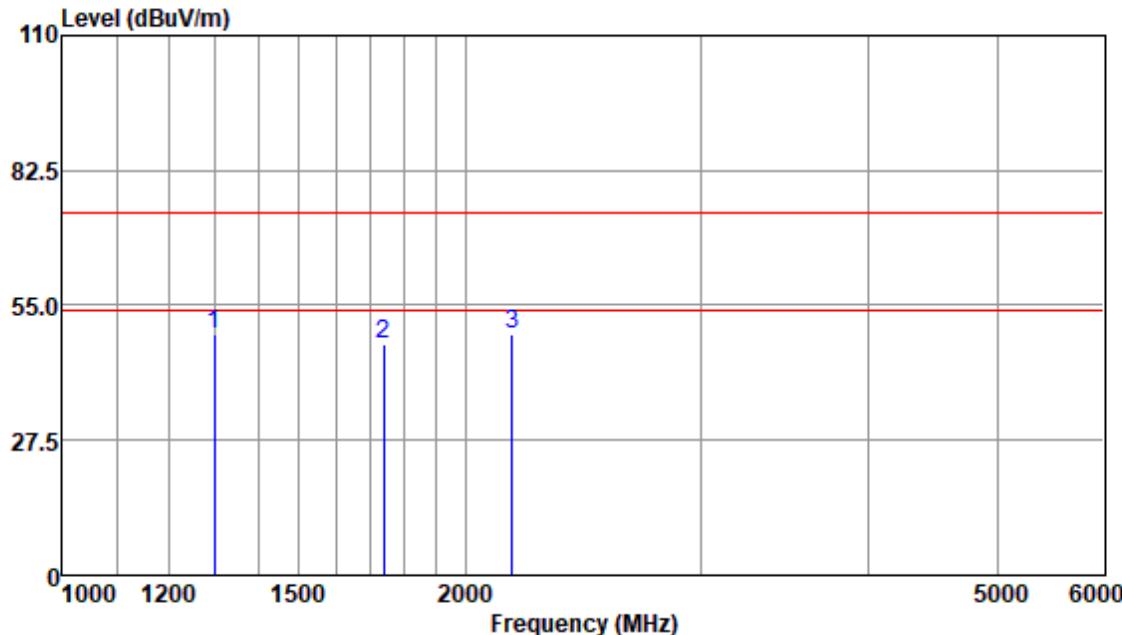
Note: Emission Level=Read Level+Antenna Factor+Cable loss+Preamp Factor



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Test Mode: 00; Polarity: Vertical

**Antenna Polarity :VERTICAL**

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
1299.00	53.93	25.26	4.50	34.78	48.91	74.00	-25.09	Peak
1736.48	49.59	27.25	5.03	34.77	47.10	74.00	-26.90	Peak
2168.51	51.27	28.14	4.74	34.99	49.16	74.00	-24.84	Peak

Note: Emission Level=Read Level+Antenna Factor+Cable loss+Preamp Factor

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t (86-21) 61915666 f (86-21) 61915678 www.sgsgroup.com.cn
t (86-21) 61915666 f (86-21) 61915678 sgs.china@sgs.com

8 Test Setup Photo

Refer to Appendix - Test Setup Photo for SHCR2206001118LM

9 EUT Constructional Details (EUT Photos)

Refer to Appendix - Photographs of EUT Constructional Details for SHCR2206001118LM

- End of the Report --



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t (86-21) 61915666
t (86-21) 61915666

f (86-21) 61915678
f (86-21) 61915678

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sgs.china@sgs.com