



**SGS-CSTC Standards Technical Services Co., Ltd.  
Guangzhou Branch**

198 Kezhu Road, Sciencetech Park, Guangzhou Economic & Technological  
Development District, Guangzhou, China 510663

Telephone: +86 (0) 20 82155555  
Fax: +86 (0) 20 82075059  
Email: ee.guangzhou@sgs.com

Report No.: GZEM170700411703  
Page: 1 of 32  
FCC ID: 2AJ3GRSH1104AI

# TEST REPORT

**Application No.:** GZEM1711006861CR  
**Applicant:** Zhuhai RaySharp Technology Co., Ltd.  
**Address of Applicant:** NO.100 OF TECHNOLOGY ROAD 6, NATIONAL HI-TECH ZONE, ZHUHAI, GUANGDONG, P.R. CHINA  
**Manufacturer:** The same as Applicant  
**Address of Manufacturer:** The same as Applicant  
**Factory:** The same as Applicant  
**Address of Factory:** The same as Applicant  
**Equipment Under Test (EUT):**  
**EUT Name:** Wireless Network Video Recorder  
**FCC ID:** 2AJ3GRSH1104AI  
**Model No.:** RS-H1104AI-N-W-LR, RS-H1104AI-N-W-LR-PAL, RS-Hxxxxyy-zz-zz-zzz-zzz;  
(x=0-9; y,z=A-Z or blank) ☒  
☒ Please refer to section 2 of this report for further details  
**Standards:** 47 CFR Part 15, Subpart C:2016 section 15.247  
**Date of Receipt:** 2017-12-04  
**Date of Test:** 2017-12-22  
**Date of Issue:** 2017-08-09 (for original report GZEM170700411701)  
2018-01-09 (for copy report GZEM170700411703)

<b>Test Result :</b>	<b>Pass*</b>
----------------------	--------------

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



Kobe Jian  
Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

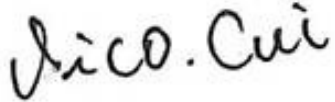

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.



## 2 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2017-08-09		Original
02		2018-01-09		Copy Report: Added new series models and performed new tests

Authorized for issue by:			
Tested By	 Vico_Cui /Project Engineer	2017-12-22	Date
Checked By	 Ricky_Liu /Reviewer	2018-01-03	Date

### 3 Test Summary

Test	Test Requirement	Test method	Result
Antenna Requirement	FCC PART 15 C section 15.247 (c) and Section 15.203	FCC PART 15 C section 15.247 (c) and Section 15.203	PASS
Radiated Spurious Emission	FCC PART 15 C section 15.209	ANSI C63.10: Clause 11.12,6.3,6.5 and 6.6	PASS
Radiated Emissions which fall in the restricted bands	FCC PART 15 C section 15.209 &15.247(d)	ANSI C63.10: Clause 11.12,6.3,6.5 and 6.6	PASS
<p><b>Remark</b>            N/A: not applicable. Refer to the relative section for the details.            EUT: In this whole report EUT means Equipment Under Test.            Tx: In this whole report Tx (or tx) means Transmitter.            Rx: In this whole report Rx (or rx) means Receiver.            RF: In this whole report RF means Radio Frequency.            ANSI C63.10: the detail version is ANSI C63.10:2013 in the whole report.            Conducted testing use a direct connection between the antenna port of the device and the spectrum analyzer, may through suitable attenuator, all the attenuation in the conducted RF path, include cable loss or external attenuation will be offset to the spectrum analyzer during testing. Detailed offset value, please refer to the corresponding test plot.</p>			
<p>⌘ <b>Remark for original report GZEM170700411701:</b>  <b>Declaration of EUT Family Grouping:</b>  <b>Model No.:</b> RS-H1104AI-N-W-LR, RS-Hxxxxyy-zz-zz-zzz; (x=0-9; y,z=A-Z or blank)            According to the declaration from the applicant, the electrical circuit design, layout, components used and internal wiring were identical for all models, with only difference on the model name.            Therefore only one model <b>RS-H1104AI-N-W-LR</b> was tested in original report GZEM170700411701.</p>			
<p>⌘ <b>Remark for copy report GZEM170700411703:</b>            This test report GZEM170700411703 is a partial test report and based on and only valid with the original test report GZEM170700411701, only added new series models <b>RS-H1104AI-N-W-LR-PAL, RS-Hxxxxyy-zz-zz-zzz..</b>            According to the declaration from the applicant, the EUT in this test report and the EUT in original test report were basically the same, except for the RF antenna design and RF antenna installation location. Considering the difference of the EUT, items <b>Antenna Requirement, Radiated Spurious Emission &amp; Radiated Emissions which fall in the restricted bands</b> were reevaluated to confirm whether the original test results were changed or not and recorded the new results in this report GZEM170700411703.            Test results for the EUT with original RF antenna please refer to report GZEM170700411701 for details</p>			



## **4 Contents**

<b>1</b>	<b>Cover Page</b> .....	<b>1</b>
<b>2</b>	<b>Version</b> .....	<b>2</b>
<b>3</b>	<b>Test Summary</b> .....	<b>3</b>
<b>4</b>	<b>Contents</b> .....	<b>4</b>
<b>5</b>	<b>General Information</b> .....	<b>5</b>
5.1	Details of E.U.T. ....	5
5.2	Description of Support Units .....	5
5.3	Deviation from Standards .....	5
5.4	Abnormalities from Standard Conditions .....	5
5.5	Other Information Requested by the Customer .....	5
5.6	Test Location .....	6
5.7	Measurement Uncertainty .....	6
5.8	Test Facility .....	7
<b>6</b>	<b>Equipment List</b> .....	<b>8</b>
<b>7</b>	<b>Test Results</b> .....	<b>9</b>
7.1	E.U.T. test conditions .....	9
7.2	Antenna Requirement .....	12
7.3	Radiated Spurious Emissions .....	13
7.4	Radiated Emissions which fall in the restricted bands .....	25

## 5 General Information

### 5.1 Details of E.U.T.

Operating Frequency	2406MHz to 2469MHz
Type of Modulation:	GFSK
Equipment types:	DSSS with Adaptive
Number of Channels	19Channels
Duty Cycle:	Continuous operation possible for testing purposes
Antenna Type	Integral
Antenna Gain:	3 dBi
Function:	2.4G Wireless Network Video Recorder
Power Supply:	DC 12V (DC power Supplied by SGS for testing purpose)
Test Voltage:	DC 12V
Cable:	NA
EUT Function:	Video recorder with 2.4GHz wireless function for data transmission with The paired wireless function monitor.
EUT Specialty:	The EUT contains two identical RF modules (RF1 & RF 2) and they are Working with paired monitors independently. And no possibility to occupy the same working frequency band at same time.

### 5.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
NoteBook	Lenovo	R400	L3-ABB9E
LCD-Displaying	DELL	SP2208WFPT	
Keyboard	DELL	SK-8115	
Mouse	Lenovo	MO28UOL	
DC Power supply(EMC 0008)	Instek	PS-6010	L9905E037.11
IR Controller	Raysharp	NA	NA

### 5.3 Deviation from Standards

Biconical and log periodic antennas were used instead of dipole antennas.

### 5.4 Abnormalities from Standard Conditions

The EUT passed Peak Power Spectral Density and Radiated Emissions which fall in the restricted bands tests after modification.

### 5.5 Other Information Requested by the Customer

None.



## 5.6 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,  
198 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District,  
Guangzhou, China 510663  
Tel: +86 20 82155555 Fax: +86 20 82075059

No tests were sub-contracted.

## 5.7 Measurement Uncertainty

No.	Item	Measurement uncertainty
1	Conducted emission	1.02dB(9kHz to 150kHz)
		1.05dB(150kHz to 30MHz)
2	Radiated emission	5.06dB(30MHz to 1GHz)
		5.06dB(1GHz to 26GHz)

## 5.8 Test Facility

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

- **NVLAP (Lab Code: 200611-0)**

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

- **ACMA**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.

- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

- **CNAS (Lab Code: L0167)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2006 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

- **FCC Recognized 2.948 Listed Test Firm(Registration No.: 282399)**

SGS-CSTC Standards Technical Services 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. Registration 282399, May 31, 2002.

- **FCC Recognized Accredited Test Firm(Registration No.: 486818)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been accredited 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: CN5016, Test Firm Registration Number: 486818, Jul 13, 2017.

- **Industry Canada (Registration No.: 4620B-1)**

The 3m/10m Alternate Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Certification and Engineering of Industry Canada for radio equipment testing with Registration No. 4620B-1.

- **VCCI (Registration No.: R-2460, C-2584, G-449 and T-1179)**

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co. Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2460, C-2584, G-449 and T-1179 respectively.

- **CBTL (Lab Code: TL129)**

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2005, the Basic Rules, IEC 01 and Rules of procedure IEC 02, and the relevant IEC CB-Scheme Operational documents.

## 6 Equipment List

FCC & IC equipment						
No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. date	Cal.Due date
					(YYYY-MM-DD)	(YYYY-MM-DD)
EMC0525	Compact Semi-Anechoic Chamber	ChangZhou ZhongYu	N/A	N/A	2016-12-04	2019-12-03
EMC0522	EMI Test Receiver	Rohde & Schwarz	ESIB26	100283	2017-01-20	2018-01-19
EMC0056	EMI Test Receiver	Rohde & Schwarz	ESCI	100236	2017-01-20	2018-01-19
EMC0528	RI High frequency Cable	SGS	20 m	N/A	2016-04-19	2018-04-18
EMC2025	Trilog Broadband Antenna 30-1000MHz	SCHWARZBECK MESS-ELEKTRONIK	VULB 9160	9160-3372	2016-09-08	2019-09-07
SEM003-18	Trilog Broadband Antenna 25-2000MHz	SCHWARZBECK MESS-ELEKTRONIK	VULB 9168	665	2016-06-29	2019-06-28
EMC0524	Bi-log Type Antenna	Schaffner -Chase	CBL6112B	2966	2016-09-08	2019-09-07
EMC0519	Bilog Type Antenna	Schaffner -Chase	CBL6143	5070	2017-05-04	2020-05-03
EMC2026	Horn Antenna 1-18GHz	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	9120D-841	2016-09-09	2019-09-08
EMC0521	1-26.5 GHz Pre-Amplifier	Agilent	8449B	3008A01649	2017-01-20	2018-01-19
EMC2065	Amplifier	HP	8447F	N/A	2017-06-19	2018-06-18
EMC0523	Active Loop Antenna	EMCO	6502	42963	2016-02-27	2018-02-26
EMC2041	Broad-Band Horn Antenna (14)15-26.5(40)GHZ	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9170	9170-375	2017-05-23	2020-05-22
EMC2079	High Pass Filter(915MHz)	FSY MICROWAVE	HM1465-9SS	009	2017-01-20	2018-01-19
EMC2069	2.4GHz Filter	Micro-Tronics	BRM 50702	149	2017-01-20	2018-01-19
EMC0530	10m Semi-Anechoic Chamber	ETS	N/A	N/A	2016-04-30	2018-04-29
EMC2136	MI Cable	SGS	0.8m	N/A	2017-11-02	2018-11-01
EMC2137	MI Cable	SGS	0.8m	N/A	2017-11-02	2018-11-01
EMC2138	EXA Signal Analyzer	KEYSIGHT	N9010A	MY57120105	2017-11-15	2018-11-14
EMC0069	Signal Analyzer(20Hz ~ 26.5Ghz)	R&S	FSIQ26	100312	2017-11-20	2018-11-19

General used equipment						
No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. date	Cal.Due date
					(YYYY-MM-DD)	(YYYY-MM-DD)
EMC0006	DMM	Fluke	73	70681569	2017-07-26	2018-07-25
EMC0007	DMM	Fluke	73	70671122	2017-07-26	2018-07-25





## 7 Test Results

### 7.1 E.U.T. test conditions

**Test Voltage:** DC 12V

**Temperature:** 20.0 -25.0 °C

**Humidity:** 38-50 % RH

**Atmospheric Pressure:** 1000 -1010 mbar

**Requirements:** **15.31(e):** For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. For battery operated equipment, the equipment tests shall be performed using a new battery.  
**15.32:** Power supplies and CPU boards used with personal computers and for which separate authorizations are required to be obtained shall be tested as follows: Testing shall be in accordance with the procedures specified in Section 15.31 of this part.

**Test frequencies and frequency range:** According to the 15.31(m) Measurements on intentional radiators or receivers, other than TV broadcast receivers, shall be performed and, if required, reported for each band in which the device can be operated with the device operating at the number of frequencies in each band specified in the following table:

According to the 15.33 (a) For an intentional radiator, the spectrum shall be investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to at least the frequency shown in the following table:

**Number of fundamental frequencies to be tested in EUT transmit band**

Frequency range in which device operates	Number of frequencies	Location in frequency range of operation
1 MHz or less	1	Middle
1 MHz to 10 MHz	2	1 near top and 1 near bottom
More than 10 MHz	3	1 near top, 1 near middle and 1 near bottom

**Frequency range of radiated emission measurements**

Lowest frequency generated in the device	Upper frequency range of measurement
9 kHz to below 10 GHz	10th harmonic of highest fundamental frequency or to 40 GHz, whichever is lower
At or above 10 GHz to below 30 GHz	5th harmonic of highest fundamental frequency or to 100 GHz, whichever is lower
At or above 30 GHz	5th harmonic of highest fundamental frequency or to 200 GHz, whichever is lower, unless otherwise specified



EUT channels and frequencies list:

No.	Channel
1	2406
2	2409.5
3	2413
4	2416.5
5	2420
6	2423.5
7	2427
8	2430.5
9	2434
10	2437.5
11	2441
12	2444.5
13	2448
14	2451.5
15	2455
16	2458.5
17	2462
18	2465.5
19	2469

Using the special software and development board we can enter the product for engineer mode then we can control the EUT to select the wanted channel for test as above list.

Test frequencies are the lowest channel: 1 channel (2406MHz), middle channel: 11 channel (2441 MHz) and highest channel: 19 channel (2469 MHz).

## 7.2 Antenna Requirement

### Standard requirement

15.203 requirement:

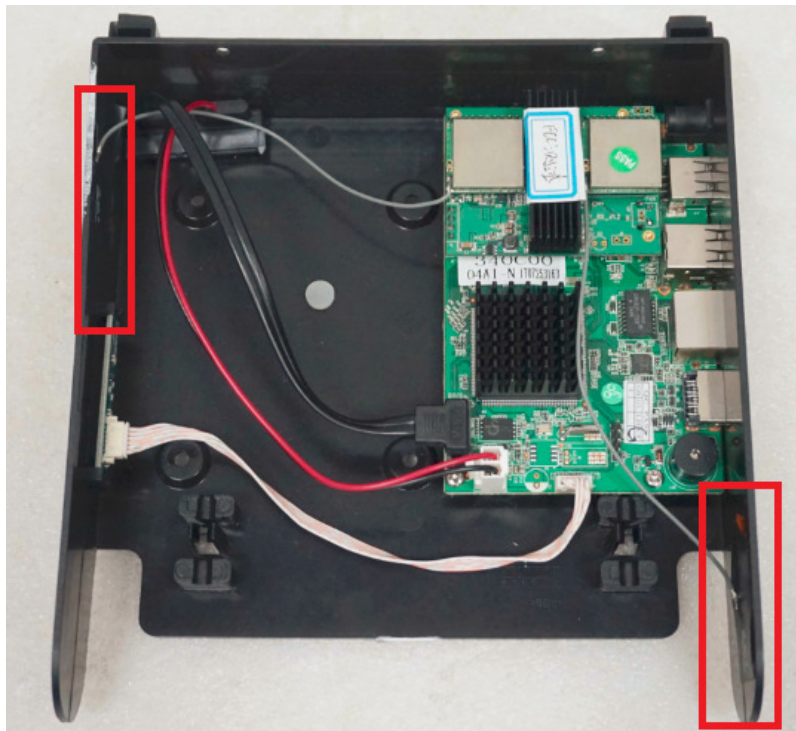
For intentional device. According to 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

15.247(c) (1)(i) requirement:

(i) Systems operating in the 2400-2483.5 MHz bands that are used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

### EUT Antenna

The antenna is integrated flex antenna and no consideration of replacement. The two antennas and the two connected RF modules are totally identical. The maximum gain of the antenna is 3 dBi.



**Test result: The unit does meet the FCC requirements.**

### 7.3 Radiated Spurious Emissions

Test Requirement: 47 CFR Part 15C Section 15.209 and 15.205

Test Method: ANSI C63.10: 2013

Test Site: Measurement Distance:3m

(Semi-Anechoic Chamber below 1GHz, Full Anechoic Chamber above 1GHz)

Receiver Setup:

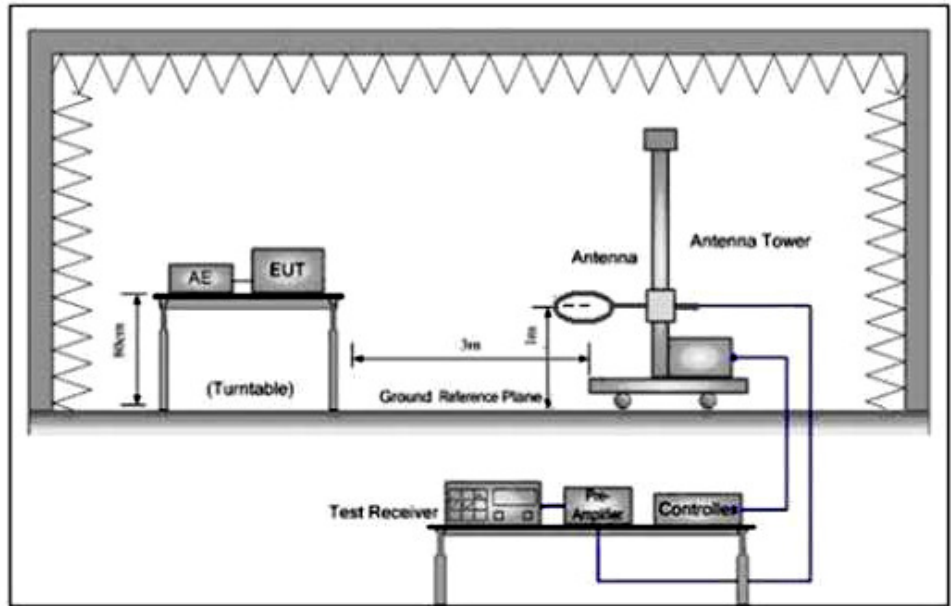
Frequency	Detector	RBW	VBW	Remark
0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak
0.009MHz-0.090MHz	Average	10kHz	30kHz	Average
0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak
0.110MHz-0.490MHz	Average	10kHz	30kHz	Average
0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
30MHz-1GHz	Quasi-peak	100 kHz	300kHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	10Hz	Average

Limit:

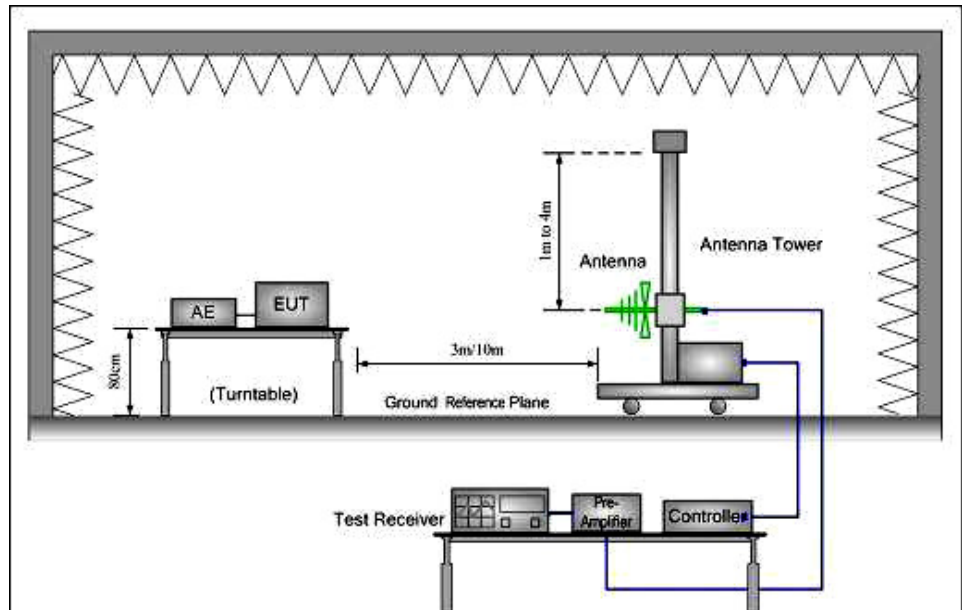
Frequency	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
1.705MHz-30MHz	30	-	-	30
30MHz-88MHz	100	40.0	Quasi-peak	3
88MHz-216MHz	150	43.5	Quasi-peak	3
216MHz-960MHz	200	46.0	Quasi-peak	3
960MHz-1GHz	500	54.0	Quasi-peak	3
Above 1GHz	500	54.0	Average	3

Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

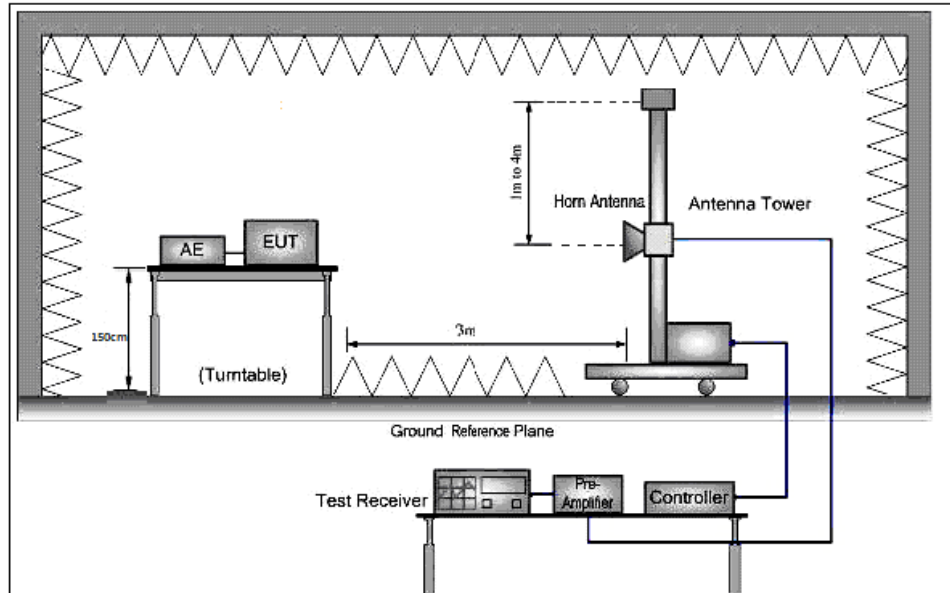
Test Setup:



Below 30MHz



30MHz to 1GHz



Above 1 GHz

Test Procedure:

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 and 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter full-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. 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.
- d. 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.
- e. 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 degree to 360 degrees to find the maximum reading.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. 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.
- h. Test the EUT in the lowest channel (2406MHz), the middle channel (2441MHz), the Highest channel (2469MHz)
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete.

Exploratory Test

Mode:

Transmitting with GFSK modulation.

For below 1GHz part, through pre-scan, the worst case is the lowest channel

Only the worst case is recorded in the report.

Instruments Used: Refer to section 6 for details

Test Results: Pass





**Test Result:**

**9KHz~30 MHz, Quasi-Peak Measurement**

The measurements with Loop antenna and the amplitude of spurious emissions from the radiator are attenuated more than 20dB below the limit, so the test data were not recorded in the test report.

**30MHz~1GHz, Quasi-Peak Measurement**

The measurements with Log antenna.

**For RF module1**

Channel 1 (2406MHz):

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	132.221	36.33	12.40	1.24	26.87	23.10	43.50	-20.40	HORIZONTAL	QP
2	250.301	51.88	12.57	1.66	26.40	39.71	46.00	-6.29	HORIZONTAL	QP
3	287.990	53.52	13.71	1.76	26.40	42.59	46.00	-3.41	HORIZONTAL	QP
4	337.450	51.77	14.67	1.91	26.63	41.72	46.00	-4.28	HORIZONTAL	QP
5	482.216	48.58	17.93	2.36	27.76	41.11	46.00	-4.89	HORIZONTAL	QP
6	675.208	35.05	21.14	2.78	28.04	30.93	46.00	-15.07	HORIZONTAL	QP

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	128.563	37.59	11.84	1.22	26.88	23.77	43.50	-19.73	VERTICAL	QP
2	290.017	49.30	13.75	1.76	26.40	38.41	46.00	-7.59	VERTICAL	QP
3	336.035	49.40	14.63	1.91	26.61	39.33	46.00	-6.67	VERTICAL	QP
4	440.196	43.58	16.99	2.30	27.46	35.41	46.00	-10.59	VERTICAL	QP
5	480.030	46.81	17.91	2.36	27.75	39.33	46.00	-6.67	VERTICAL	QP
6	670.489	34.65	21.10	2.78	28.06	30.47	46.00	-15.53	VERTICAL	QP



**SGS-CSTC Standards Technical Services Co., Ltd.  
Guangzhou Branch**

Report No.: GZEM170700411703

Page: 18 of 32

FCC ID: 2AJ3GRSH1104AI

**For RF module 2**

Channel 1 (2406MHz)

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	250.301	51.88	12.57	1.66	26.40	39.71	46.00	-6.29	HORIZONTAL	QP
2	287.990	53.52	13.71	1.76	26.40	42.59	46.00	-3.41	HORIZONTAL	QP
3	337.450	51.77	14.67	1.91	26.63	41.72	46.00	-4.28	HORIZONTAL	QP
4	482.216	48.58	17.93	2.36	27.76	41.11	46.00	-4.89	HORIZONTAL	QP
5	675.208	37.05	21.14	2.78	28.04	32.93	46.00	-13.07	HORIZONTAL	QP
6	804.603	40.02	22.44	3.00	27.72	37.74	46.00	-8.26	HORIZONTAL	QP

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	290.017	50.30	13.75	1.76	26.40	39.41	46.00	-6.59	VERTICAL	QP
2	336.035	51.40	14.63	1.91	26.61	41.33	46.00	-4.67	VERTICAL	QP
3	440.196	43.58	16.99	2.30	27.46	35.41	46.00	-10.59	VERTICAL	QP
4	480.030	44.81	17.91	2.36	27.75	37.33	46.00	-8.67	VERTICAL	QP
5	670.489	36.65	21.10	2.78	28.06	32.47	46.00	-13.53	VERTICAL	QP
6	804.603	34.45	22.44	3.00	27.72	32.17	46.00	-13.83	VERTICAL	QP



**Above 1GHz, Peak & Average Measurement**

**For RF module1**

Channel 1 (2406MHz):

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2981.899	36.96	27.88	7.70	39.40	33.14	54.00	-20.86	HORIZONTAL	Average
2	2981.899	41.30	27.88	7.70	39.40	37.48	74.00	-36.52	HORIZONTAL	Peak
3	3924.135	36.38	29.35	8.92	40.05	34.60	54.00	-19.40	HORIZONTAL	Average
4	3924.135	41.66	29.35	8.92	40.05	39.88	74.00	-34.12	HORIZONTAL	Peak
5	4812.766	39.57	30.82	9.96	40.21	40.14	54.00	-13.86	HORIZONTAL	Average
6	4812.766	44.88	30.82	9.96	40.21	45.45	74.00	-28.55	HORIZONTAL	Peak
7	7218.241	33.23	35.50	12.76	39.25	42.24	54.00	-11.76	HORIZONTAL	Average
8	7218.241	38.70	35.50	12.76	39.25	47.71	74.00	-26.29	HORIZONTAL	Peak
9	9624.145	30.21	37.51	14.48	37.97	44.23	54.00	-9.77	HORIZONTAL	Average
10	9624.145	33.94	37.51	14.48	37.97	47.96	74.00	-26.04	HORIZONTAL	Peak
11	12030.530	27.46	39.46	15.83	38.08	44.67	54.00	-9.33	HORIZONTAL	Average
12	12030.530	31.64	39.46	15.83	38.08	48.85	74.00	-25.15	HORIZONTAL	Peak

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	3042.846	38.83	27.90	7.78	39.46	35.05	54.00	-18.95	VERTICAL	Average
2	3042.846	41.35	27.90	7.78	39.46	37.57	74.00	-36.43	VERTICAL	Peak
3	3981.257	36.04	29.46	8.98	40.06	34.42	54.00	-19.58	VERTICAL	Average
4	3981.257	41.79	29.46	8.98	40.06	40.17	74.00	-33.83	VERTICAL	Peak
5	4812.731	36.30	30.82	9.96	40.21	36.87	54.00	-17.13	VERTICAL	Average
6	4812.731	47.50	30.82	9.96	40.21	48.07	74.00	-25.93	VERTICAL	Peak
7	7218.543	33.36	35.50	12.76	39.25	42.37	54.00	-11.63	VERTICAL	Average
8	7218.543	39.07	35.50	12.76	39.25	48.08	74.00	-25.92	VERTICAL	Peak
9	9624.512	29.09	37.51	14.48	37.97	43.11	54.00	-10.89	VERTICAL	Average
10	9624.512	38.43	37.51	14.48	37.97	52.45	74.00	-21.55	VERTICAL	Peak
11	12030.120	26.21	39.46	15.83	38.08	43.42	54.00	-10.58	VERTICAL	Average
12	12030.120	32.58	39.46	15.83	38.08	49.79	74.00	-24.21	VERTICAL	Peak





**SGS-CSTC Standards Technical Services Co., Ltd.  
Guangzhou Branch**

Report No.: GZEM170700411703

Page: 20 of 32

FCC ID: 2AJ3GRSH1104AI

Channel 11 (2441 MHz)

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	3096.075	37.62	27.90	7.90	39.51	33.91	54.00	-20.09	HORIZONTAL	Average
2	3096.075	42.06	27.90	7.90	39.51	38.35	74.00	-35.65	HORIZONTAL	Peak
3	4133.699	37.05	29.62	9.12	40.10	35.69	54.00	-18.31	HORIZONTAL	Average
4	4133.699	42.55	29.62	9.12	40.10	41.19	74.00	-32.81	HORIZONTAL	Peak
5	4882.350	40.95	30.95	10.02	40.22	41.70	54.00	-12.30	HORIZONTAL	Average
6	4882.350	45.72	30.95	10.02	40.22	46.47	74.00	-27.53	HORIZONTAL	Peak
7	7323.518	33.74	35.74	12.93	39.22	43.19	54.00	-10.81	HORIZONTAL	Average
8	7323.518	38.27	35.74	12.93	39.22	47.72	74.00	-26.28	HORIZONTAL	Peak
9	9764.523	31.06	37.70	14.45	37.90	45.31	54.00	-8.69	HORIZONTAL	Average
10	9764.523	37.61	37.70	14.45	37.90	51.86	74.00	-22.14	HORIZONTAL	Peak
11	12205.240	32.67	39.21	16.05	38.10	49.83	74.00	-24.17	HORIZONTAL	Peak
12	12205.240	27.99	39.21	16.05	38.10	45.15	54.00	-8.85	HORIZONTAL	Average

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2990.531	39.06	27.89	7.70	39.41	35.24	54.00	-18.76	VERTICAL	Average
2	2990.531	42.31	27.89	7.70	39.41	38.49	74.00	-35.51	VERTICAL	Peak
3	3619.064	38.05	28.20	8.52	39.95	34.82	54.00	-19.18	VERTICAL	Average
4	3619.064	42.91	28.20	8.52	39.95	39.68	74.00	-34.32	VERTICAL	Peak
5	4882.975	44.00	30.95	10.02	40.22	44.75	54.00	-9.25	VERTICAL	Average
6	4882.975	47.93	30.95	10.02	40.22	48.68	74.00	-25.32	VERTICAL	Peak
7	7323.906	34.38	35.74	12.93	39.22	43.83	54.00	-10.17	VERTICAL	Average
8	7323.906	38.84	35.74	12.93	39.22	48.29	74.00	-25.71	VERTICAL	Peak
9	9764.371	35.87	37.70	14.45	37.90	50.12	54.00	-3.88	VERTICAL	Average
10	9764.371	40.39	37.70	14.45	37.90	54.64	74.00	-19.36	VERTICAL	Peak
11	12205.620	27.44	39.21	16.05	38.10	44.60	54.00	-9.40	VERTICAL	Average
12	12205.620	32.85	39.21	16.05	38.10	50.01	74.00	-23.99	VERTICAL	Peak



**SGS-CSTC Standards Technical Services Co., Ltd.  
Guangzhou Branch**

Report No.: GZEM170700411703

Page: 21 of 32

FCC ID: 2AJ3GRSH1104AI

Channel 19 (2469 MHz):

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2990.531	39.52	27.89	7.70	39.41	35.70	54.00	-18.30	HORIZONTAL	Average
2	2990.531	42.22	27.89	7.70	39.41	38.40	74.00	-35.60	HORIZONTAL	Peak
3	3834.438	38.81	29.12	8.77	40.03	36.67	54.00	-17.33	HORIZONTAL	Average
4	3834.438	42.08	29.12	8.77	40.03	39.94	74.00	-34.06	HORIZONTAL	Peak
5	4938.125	35.37	31.03	10.07	40.22	36.25	54.00	-17.75	HORIZONTAL	Average
6	4938.125	41.13	31.03	10.07	40.22	42.01	74.00	-31.99	HORIZONTAL	Peak
7	7407.521	31.35	35.89	13.02	39.20	41.06	54.00	-12.94	HORIZONTAL	Average
8	7407.521	36.54	35.89	13.02	39.20	46.25	74.00	-27.75	HORIZONTAL	Peak
9	9876.240	27.07	37.86	14.42	37.86	41.49	54.00	-12.51	HORIZONTAL	Average
10	9876.240	31.91	37.86	14.42	37.86	46.33	74.00	-27.67	HORIZONTAL	Peak
11	12345.710	27.72	38.98	16.25	38.11	44.84	54.00	-9.16	HORIZONTAL	Average
12	12345.710	32.78	38.98	16.25	38.11	49.90	74.00	-24.10	HORIZONTAL	Peak

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2956.155	37.11	27.84	7.70	39.38	33.27	54.00	-20.73	VERTICAL	Average
2	2956.155	42.22	27.84	7.70	39.38	38.38	74.00	-35.62	VERTICAL	Peak
3	3992.781	36.86	29.48	8.99	40.07	35.26	54.00	-18.74	VERTICAL	Average
4	3992.781	41.82	29.48	8.99	40.07	40.22	74.00	-33.78	VERTICAL	Peak
5	4938.772	43.10	31.03	10.07	40.22	43.98	54.00	-10.02	VERTICAL	Average
6	4938.772	47.52	31.03	10.07	40.22	48.40	74.00	-25.60	VERTICAL	Peak
7	7407.628	32.57	35.89	13.02	39.20	42.28	54.00	-11.72	VERTICAL	Average
8	7407.628	36.34	35.89	13.02	39.20	46.05	74.00	-27.95	VERTICAL	Peak
9	9876.273	39.72	37.86	14.42	37.86	54.14	74.00	-19.86	VERTICAL	Peak
10	9876.273	34.56	37.86	14.42	37.86	48.98	74.00	-25.02	VERTICAL	Peak
11	12345.910	27.11	38.98	16.25	38.11	44.23	54.00	-9.77	VERTICAL	Average
12	12345.910	32.70	38.98	16.25	38.11	49.82	74.00	-24.18	VERTICAL	Peak





**SGS-CSTC Standards Technical Services Co., Ltd.  
Guangzhou Branch**

Report No.: GZEM170700411703

Page: 22 of 32

FCC ID: 2AJ3GRSH1104AI

**For RF module 2**

Channel 1 (2406MHz):

	Freq	ReadAntenna Level Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	3025.306	37.25	27.90	7.74	39.44	33.45	54.00	-20.55	HORIZONTAL Average
2	3025.306	41.25	27.90	7.74	39.44	37.45	74.00	-36.55	HORIZONTAL Peak
3	3924.135	37.00	29.35	8.92	40.05	35.22	54.00	-18.78	HORIZONTAL Average
4	3924.135	42.80	29.35	8.92	40.05	41.02	74.00	-32.98	HORIZONTAL Peak
5	4812.387	35.87	30.82	9.96	40.21	36.44	54.00	-17.56	HORIZONTAL Average
6	4812.387	43.86	30.82	9.96	40.21	44.43	74.00	-29.57	HORIZONTAL Peak
7	7218.555	33.23	35.50	12.76	39.25	42.24	54.00	-11.76	HORIZONTAL Average
8	7218.555	38.69	35.50	12.76	39.25	47.70	74.00	-26.30	HORIZONTAL Peak
9	9624.871	29.73	37.51	14.48	37.97	43.75	54.00	-10.25	HORIZONTAL Average
10	9624.871	39.68	37.51	14.48	37.97	53.70	74.00	-20.30	HORIZONTAL Peak
11	12030.820	27.42	39.46	15.83	38.08	44.63	54.00	-9.37	HORIZONTAL Average
12	12030.820	31.75	39.46	15.83	38.08	48.96	74.00	-25.04	HORIZONTAL Peak

	Freq	ReadAntenna Level Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	3105.037	37.03	27.90	7.91	39.53	33.31	54.00	-20.69	VERTICAL Average
2	3105.037	41.09	27.90	7.91	39.53	37.37	74.00	-36.63	VERTICAL Peak
3	4027.554	36.70	29.52	9.02	40.07	35.17	54.00	-18.83	VERTICAL Average
4	4027.554	41.40	29.52	9.02	40.07	39.87	74.00	-34.13	VERTICAL Peak
5	4812.545	46.50	30.82	9.96	40.21	47.07	54.00	-6.93	VERTICAL Average
6	4812.545	50.75	30.82	9.96	40.21	51.32	74.00	-22.68	VERTICAL Peak
7	7218.253	37.18	35.50	12.76	39.25	46.19	54.00	-7.81	VERTICAL Average
8	7218.253	41.57	35.50	12.76	39.25	50.58	74.00	-23.42	VERTICAL Peak
9	9624.721	35.00	37.51	14.48	37.97	49.02	54.00	-4.98	VERTICAL Average
10	9624.721	39.60	37.51	14.48	37.97	53.62	74.00	-20.38	VERTICAL Peak
11	12030.820	35.75	39.46	15.83	38.08	52.96	74.00	-21.04	VERTICAL Peak
12	12030.820	30.54	39.46	15.83	38.08	47.75	54.00	-6.25	VERTICAL Average



**SGS-CSTC Standards Technical Services Co., Ltd.**  
**Guangzhou Branch**

Report No.: GZEM170700411703

Page: 23 of 32

FCC ID: 2AJ3GRSH1104AI

Channel 11 (2441 MHz)

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2990.531	38.16	27.89	7.70	39.41	34.34	54.00	-19.66	HORIZONTAL	Average
2	2990.531	42.13	27.89	7.70	39.41	38.31	74.00	-35.69	HORIZONTAL	Peak
3	3856.668	37.24	29.19	8.82	40.03	35.22	54.00	-18.78	HORIZONTAL	Average
4	3856.668	41.82	29.19	8.82	40.03	39.80	74.00	-34.20	HORIZONTAL	Peak
5	4882.731	39.27	30.95	10.02	40.22	40.02	54.00	-13.98	HORIZONTAL	Average
6	4882.731	43.63	30.95	10.02	40.22	44.38	74.00	-29.62	HORIZONTAL	Peak
7	7323.763	33.84	35.74	12.93	39.22	43.29	54.00	-10.71	HORIZONTAL	Average
8	7323.763	38.49	35.74	12.93	39.22	47.94	74.00	-26.06	HORIZONTAL	Peak
9	9764.371	32.61	37.70	14.45	37.90	46.86	54.00	-7.14	HORIZONTAL	Average
10	9764.371	37.56	37.70	14.45	37.90	51.81	74.00	-22.19	HORIZONTAL	Peak
11	12205.540	28.38	39.21	16.05	38.10	45.54	54.00	-8.46	HORIZONTAL	Average
12	12205.540	32.59	39.21	16.05	38.10	49.75	74.00	-24.25	HORIZONTAL	Peak

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	3168.500	38.00	27.90	7.98	39.60	34.28	54.00	-19.72	VERTICAL	Average
2	3168.500	42.58	27.90	7.98	39.60	38.86	74.00	-35.14	VERTICAL	Peak
3	4157.664	36.98	29.66	9.16	40.10	35.70	54.00	-18.30	VERTICAL	Average
4	4157.664	41.92	29.66	9.16	40.10	40.64	74.00	-33.36	VERTICAL	Peak
5	4882.975	44.89	30.95	10.02	40.22	45.64	54.00	-8.36	VERTICAL	Average
6	4882.975	48.82	30.95	10.02	40.22	49.57	74.00	-24.43	VERTICAL	Peak
7	7323.762	33.34	35.74	12.93	39.22	42.79	54.00	-11.21	VERTICAL	Average
8	7323.762	38.84	35.74	12.93	39.22	48.29	74.00	-25.71	VERTICAL	Peak
9	9764.512	36.63	37.70	14.45	37.90	50.88	54.00	-3.12	VERTICAL	Average
10	9764.512	40.12	37.70	14.45	37.90	54.37	74.00	-19.63	VERTICAL	Peak
11	12205.850	28.02	39.21	16.05	38.10	45.18	54.00	-8.82	VERTICAL	Average
12	12205.850	33.57	39.21	16.05	38.10	50.73	74.00	-23.27	VERTICAL	Peak





**SGS-CSTC Standards Technical Services Co., Ltd.**  
**Guangzhou Branch**

Report No.: GZEM170700411703

Page: 24 of 32

FCC ID: 2AJ3GRSH1104AI

Channel 19 (2469 MHz):

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	3025.306	37.85	27.90	7.74	39.44	34.05	54.00	-19.95	HORIZONTAL	Average
2	3025.306	41.69	27.90	7.74	39.44	37.89	74.00	-36.11	HORIZONTAL	Peak
3	4086.182	37.56	29.57	9.07	40.09	36.11	54.00	-17.89	HORIZONTAL	Average
4	4086.182	41.55	29.57	9.07	40.09	40.10	74.00	-33.90	HORIZONTAL	Peak
5	4938.241	38.24	31.03	10.07	40.22	39.12	54.00	-14.88	HORIZONTAL	Average
6	4938.241	42.92	31.03	10.07	40.22	43.80	74.00	-30.20	HORIZONTAL	Peak
7	7407.356	34.31	35.89	13.02	39.20	44.02	54.00	-9.98	HORIZONTAL	Average
8	7407.356	38.93	35.89	13.02	39.20	48.64	74.00	-25.36	HORIZONTAL	Peak
9	9876.150	32.32	37.86	14.42	37.86	46.74	54.00	-7.26	HORIZONTAL	Average
10	9876.150	36.92	37.86	14.42	37.86	51.34	74.00	-22.66	HORIZONTAL	Peak
11	12345.250	29.68	38.98	16.25	38.11	46.80	54.00	-7.20	HORIZONTAL	Average
12	12345.250	33.06	38.98	16.25	38.11	50.18	74.00	-23.82	HORIZONTAL	Peak

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2956.155	37.67	27.84	7.70	39.38	33.83	54.00	-20.17	VERTICAL	Average
2	2956.155	42.08	27.84	7.70	39.38	38.24	74.00	-35.76	VERTICAL	Peak
3	4004.339	36.06	29.50	9.00	40.07	34.49	54.00	-19.51	VERTICAL	Average
4	4004.339	41.61	29.50	9.00	40.07	40.04	74.00	-33.96	VERTICAL	Peak
5	4938.146	43.51	31.03	10.07	40.22	44.39	54.00	-9.61	VERTICAL	Average
6	4938.146	47.79	31.03	10.07	40.22	48.67	74.00	-25.33	VERTICAL	Peak
7	7407.214	35.11	35.89	13.02	39.20	44.82	54.00	-9.18	VERTICAL	Average
8	7407.214	38.74	35.89	13.02	39.20	48.45	74.00	-25.55	VERTICAL	Peak
9	9876.150	35.33	37.86	14.42	37.86	49.75	54.00	-4.25	VERTICAL	Average
10	9876.150	39.94	37.86	14.42	37.86	54.36	74.00	-19.64	VERTICAL	Peak
11	12345.850	30.01	38.98	16.25	38.11	47.13	54.00	-6.87	VERTICAL	Average
12	12345.850	33.62	38.98	16.25	38.11	50.74	74.00	-23.26	VERTICAL	Peak

**Test result: The unit does meet the FCC requirements.**



#### 7.4 Radiated Emissions which fall in the restricted bands

Test Requirement: FCC Part 15 C section 15.247

(d) In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

Test Method: ANSI C63.10.2013

Test Status: Enter test mode for the product. Test in Channel lowest (2406MHz), middle (2441 MHz) and highest (2469 MHz), keep in continuously transmitting status.

Test site: Measurement Distance: 3m (Semi-Anechoic Chamber)

Limit:

Frequency	Limit (dBuV/m @3m)	Remark
30MHz-88MHz	40.0	Quasi-peak Value
88MHz-216MHz	43.5	Quasi-peak Value
216MHz-960MHz	46.0	Quasi-peak Value
960MHz-1GHz	54.0	Quasi-peak Value
Above 1GHz	54.0	Average Value
	74.0	Peak Value

Detector:

For PK value:

RBW = 1 MHz for  $f \geq 1$  GHz, 100 kHz for  $f < 1$  GHz

VBW  $\geq$  RBW

Sweep = auto

Detector function = peak

Trace = max hold

For AV value:

RBW = 1 MHz for  $f \geq 1$  GHz, 100 kHz for  $f < 1$  GHz

VBW = 10Hz

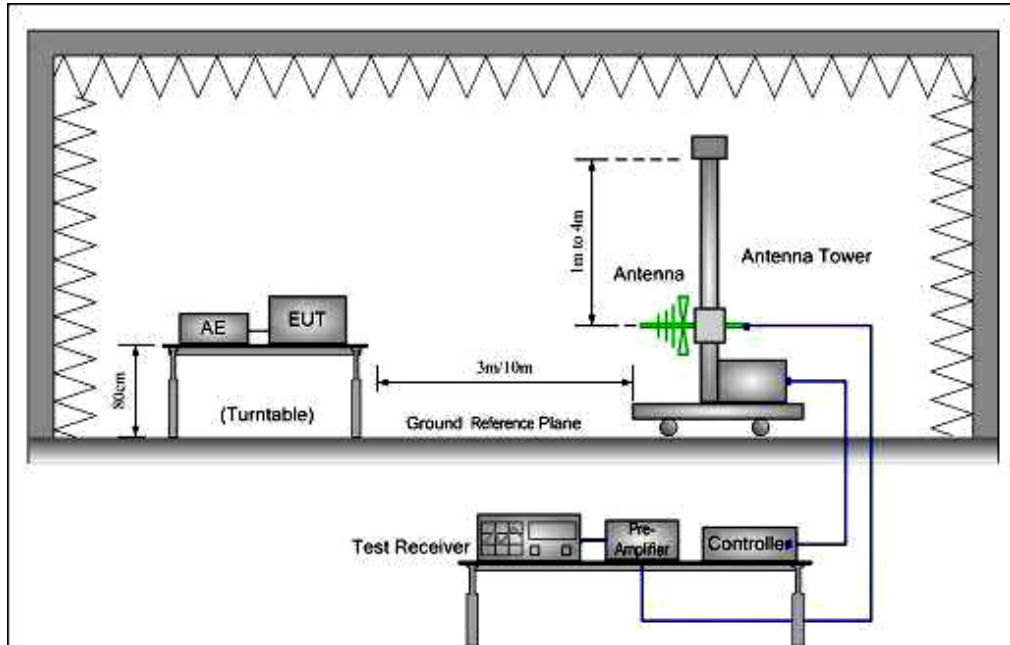
Sweep = auto

Detector function = peak

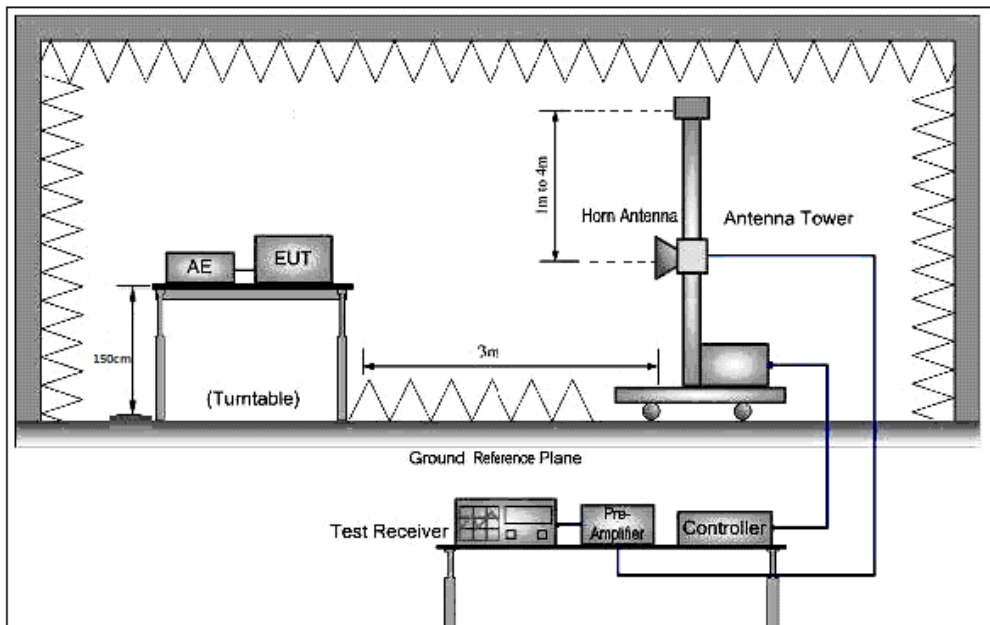
Trace = max hold

**Test Configuration:**

- 1). 30 MHz to 1 GHz emissions:



- 2). Above 1 GHz emissions:



**Test Procedure:**

Test site with RF absorbing material covering the ground plane that met the site validation criterion called out in CISPR 16-1-4:2010 was used to perform radiated emission test above 1 GHz.

The receiver scanned from the lowest frequency generated within the EUT to 25GHz. When an emission was found, the table was rotated to produce the maximum signal strength. An initial pre-scan was performed for in peak detection mode using the receiver. The EUT was measured for both the Horizontal and Vertical polarities and performed a pre-test three orthogonal planes. For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. The worst case emissions were reported.

From 30MHz to 1GHz, read the Quasi-Peak field strength of the emissions with receiver QP detector RBW=120KHz.

Above 1GHz, read the Peak field strength and Average field strength.

Read the Peak field strength through RBW=1MHz, VBW=3MHz in spectrum analyzer setting;

Read the Average field strength through RBW=1MHz, VBW=10Hz in spectrum analyzer setting;

While maintaining all of the other instrument settings. This peak level, once corrected, must comply with the limit specified in Section 15.209. If the dwell time per channel of the hopping signal is less than 100 ms, then the average field strength reading obtained with the 10 Hz VBW may be further adjusted by a "duty cycle correction factor", derived from  $20\log(\text{dwell time}/100 \text{ ms})$ , in an effort to demonstrate compliance with the 15.209 limit.

Section 15.205 Restricted bands of operation.

(a) Except as shown in paragraph (d) of this section. only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
10.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 -	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.52525	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	156.7 - 156.9	3260 - 3267	23.6 - 24.0
12.29 - 12.293	162.0125 - 167.17	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	167.72 - 173.2	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	240 - 285	3600 - 4400	
13.36 - 13.41	322 - 335.4		



**Test Result:**

**30 MHz to 1 GHz Measurement**

The measurements with Log antenna were greater than 20dB below the limit, so the test data were not recorded in the test report.

**Above 1GHz, Peak & Average Measurement**

**For RF module1**

Channel 1 (2406MHz):

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	39.75	26.25	6.80	39.07	33.73	54.00	-20.27	HORIZONTAL	Average
2	2310.000	42.49	26.25	6.80	39.07	36.47	74.00	-37.53	HORIZONTAL	Peak
3	2390.000	49.91	26.43	6.87	39.10	44.11	54.00	-9.89	HORIZONTAL	Average
4	2390.000	53.71	26.43	6.87	39.10	47.91	74.00	-26.09	HORIZONTAL	Peak
5	2483.500	41.24	26.58	7.07	39.14	35.75	54.00	-18.25	HORIZONTAL	Average
6	2483.500	44.53	26.58	7.07	39.14	39.04	74.00	-34.96	HORIZONTAL	Peak
7	2500.000	40.86	26.60	7.10	39.14	35.42	54.00	-18.58	HORIZONTAL	Average
8	2500.000	44.44	26.60	7.10	39.14	39.00	74.00	-35.00	HORIZONTAL	Peak

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	40.83	26.25	6.80	39.07	34.81	54.00	-19.19	VERTICAL	Average
2	2310.000	42.83	26.25	6.80	39.07	36.81	74.00	-37.19	VERTICAL	Peak
3	2390.000	48.60	26.43	6.87	39.10	42.80	54.00	-11.20	VERTICAL	Average
4	2390.000	53.60	26.43	6.87	39.10	47.80	74.00	-26.20	VERTICAL	Peak
5	2483.500	39.95	26.58	7.07	39.14	34.46	54.00	-19.54	VERTICAL	Average
6	2483.500	43.94	26.58	7.07	39.14	38.45	74.00	-35.55	VERTICAL	Peak
7	2500.000	39.77	26.60	7.10	39.14	34.33	54.00	-19.67	VERTICAL	Average
8	2500.000	43.42	26.60	7.10	39.14	37.98	74.00	-36.02	VERTICAL	Peak





**SGS-CSTC Standards Technical Services Co., Ltd.  
Guangzhou Branch**

Report No.: GZEM170700411703

Page: 30 of 32

FCC ID: 2AJ3GRSH1104AI

Channel 19 (2469 MHz):

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	39.35	26.25	6.80	39.07	33.33	54.00	-20.67	HORIZONTAL	Average
2	2310.000	43.50	26.25	6.80	39.07	37.48	74.00	-36.52	HORIZONTAL	Peak
3	2390.000	39.87	26.43	6.87	39.10	34.07	54.00	-19.93	HORIZONTAL	Average
4	2390.000	44.21	26.43	6.87	39.10	38.41	74.00	-35.59	HORIZONTAL	Peak
5	2483.500	46.91	26.58	7.07	39.14	41.42	54.00	-12.58	HORIZONTAL	Average
6	2483.500	52.70	26.58	7.07	39.14	47.21	74.00	-26.79	HORIZONTAL	Peak
7	2500.000	39.28	26.60	7.10	39.14	33.84	54.00	-20.16	HORIZONTAL	Average
8	2500.000	44.41	26.60	7.10	39.14	38.97	74.00	-35.03	HORIZONTAL	Peak

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	40.36	26.25	6.80	39.07	34.34	54.00	-19.66	VERTICAL	Average
2	2310.000	44.13	26.25	6.80	39.07	38.11	74.00	-35.89	VERTICAL	Peak
3	2390.000	40.01	26.43	6.87	39.10	34.21	54.00	-19.79	VERTICAL	Average
4	2390.000	44.86	26.43	6.87	39.10	39.06	74.00	-34.94	VERTICAL	Peak
5	2483.500	40.04	26.58	7.07	39.14	34.55	54.00	-19.45	VERTICAL	Average
6	2483.500	44.41	26.58	7.07	39.14	38.92	74.00	-35.08	VERTICAL	Peak
7	2500.000	39.77	26.60	7.10	39.14	34.33	54.00	-19.67	VERTICAL	Average
8	2500.000	43.46	26.60	7.10	39.14	38.02	74.00	-35.98	VERTICAL	Peak



**SGS-CSTC Standards Technical Services Co., Ltd.**  
**Guangzhou Branch**

Report No.: GZEM170700411703

Page: 31 of 32

FCC ID: 2AJ3GRSH1104AI

**For RF module 2**

Channel 1 (2406MHz):

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	38.18	26.25	6.80	39.07	32.16	54.00	-21.84	HORIZONTAL	Average
2	2310.000	42.45	26.25	6.80	39.07	36.43	74.00	-37.57	HORIZONTAL	Peak
3	2390.000	44.06	26.43	6.87	39.10	38.26	54.00	-15.74	HORIZONTAL	Average
4	2390.000	52.06	26.43	6.87	39.10	46.26	74.00	-27.74	HORIZONTAL	Peak
5	2483.500	38.84	26.58	7.07	39.14	33.35	54.00	-20.65	HORIZONTAL	Average
6	2483.500	43.96	26.58	7.07	39.14	38.47	74.00	-35.53	HORIZONTAL	Peak
7	2500.000	39.99	26.60	7.10	39.14	34.55	54.00	-19.45	HORIZONTAL	Average
8	2500.000	44.15	26.60	7.10	39.14	38.71	74.00	-35.29	HORIZONTAL	Peak

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	39.40	26.25	6.80	39.07	33.38	54.00	-20.62	VERTICAL	Average
2	2310.000	43.53	26.25	6.80	39.07	37.51	74.00	-36.49	VERTICAL	Peak
3	2390.000	49.93	26.43	6.87	39.10	44.13	54.00	-9.87	VERTICAL	Average
4	2390.000	53.60	26.43	6.87	39.10	47.80	74.00	-26.20	VERTICAL	Peak
5	2483.500	39.18	26.58	7.07	39.14	33.69	54.00	-20.31	VERTICAL	Average
6	2483.500	43.34	26.58	7.07	39.14	37.85	74.00	-36.15	VERTICAL	Peak
7	2500.000	39.77	26.60	7.10	39.14	34.33	54.00	-19.67	VERTICAL	Average
8	2500.000	43.42	26.60	7.10	39.14	37.98	74.00	-36.02	VERTICAL	Peak



**SGS-CSTC Standards Technical Services Co., Ltd.**  
**Guangzhou Branch**

Report No.: GZEM170700411703

Page: 32 of 32

FCC ID: 2AJ3GRSH1104AI

Channel 19 (2469 MHz):

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	39.35	26.25	6.80	39.07	33.33	54.00	-20.67	HORIZONTAL	Average
2	2310.000	43.50	26.25	6.80	39.07	37.48	74.00	-36.52	HORIZONTAL	Peak
3	2390.000	39.81	26.43	6.87	39.10	34.01	54.00	-19.99	HORIZONTAL	Average
4	2390.000	43.90	26.43	6.87	39.10	38.10	74.00	-35.90	HORIZONTAL	Peak
5	2483.500	39.05	26.58	7.07	39.14	33.56	54.00	-20.44	HORIZONTAL	Average
6	2483.500	43.31	26.58	7.07	39.14	37.82	74.00	-36.18	HORIZONTAL	Peak
7	2500.000	39.02	26.60	7.10	39.14	33.58	54.00	-20.42	HORIZONTAL	Average
8	2500.000	43.09	26.60	7.10	39.14	37.65	74.00	-36.35	HORIZONTAL	Peak

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	39.42	26.25	6.80	39.07	33.40	54.00	-20.60	VERTICAL	Average
2	2310.000	43.04	26.25	6.80	39.07	37.02	74.00	-36.98	VERTICAL	Peak
3	2390.000	38.97	26.43	6.87	39.10	33.17	54.00	-20.83	VERTICAL	Average
4	2390.000	42.80	26.43	6.87	39.10	37.00	74.00	-37.00	VERTICAL	Peak
5	2483.500	39.39	26.58	7.07	39.14	33.90	54.00	-20.10	VERTICAL	Average
6	2483.500	44.41	26.58	7.07	39.14	38.92	74.00	-35.08	VERTICAL	Peak
7	2500.000	39.21	26.60	7.10	39.14	33.77	54.00	-20.23	VERTICAL	Average
8	2500.000	43.23	26.60	7.10	39.14	37.79	74.00	-36.21	VERTICAL	Peak

--End of Report--