

FCC TEST REPORT
for
ASSAN ELECTRONIC CONTROL TECHNOLOGY Co., Ltd.

2.4GHz RF Module
Model No.: XRF01

Prepared for : ASSAN ELECTRONIC CONTROL TECHNOLOGY Co., Ltd.
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TEST REPORT

Applicant : ASSAN ELECTRONIC CONTROL TECHNOLOGY Co., Ltd.
Manufacturer : ASSAN ELECTRONIC CONTROL TECHNOLOGY Co., Ltd.
EUT : 2.4GHz RF Module
Model No. : XRF01
Serial No. : N/A
Rating : DC 3.3V
Trade Mark : ASSAN

Measurement Procedure Used:

FCC Part15 Subpart C, Paragraph 15.249

The device described above is tested by Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC Part 15 Subpart C requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Anbotek Compliance Laboratory Limited

Date of Test : Sep.13~30, 2007

Prepared by :  Jacky
(Engineer)

Reviewer : Di Li
(Project Manager)

Approved & Authorized Signer : [Signature]
(Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT : 2.4GHz RF Module

Model Number : XRF01

Test Power Supply : DC 3.3V

Frequency : 2400 ~ 2483MHz

Antenna assembly : 2 dBi
Gain

Applicant : ASSAN ELECTRONIC CONTROL TECHNOLOGY Co., Ltd.
Address : B1001, Xiya Square, No.33 Yuzhou Rd., Chongqing 400039, China

Manufacturer : ASSAN ELECTRONIC CONTROL TECHNOLOGY Co., Ltd.
Address : B1001, Xiya Square, No.33 Yuzhou Rd., Chongqing 400039, China

Date of receiver : Sep.01, 2007
Date of Test : Sep.13~30, 2007

1.2. Description of Test Facility

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

VCCI-Registration No.: R-2197 and C-2383

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been registered and fully described in a report filed with the (VCCI) Voluntary Control Council for Interference by Information Technology Equipment. The acceptance letter from the VCCI is maintained in our files. Registration R-2197 and C-2383, September 29, 2005.

FCC-Registration No.: 556682

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 556682, August 04, 2005.

IC-Registration No.: 6002

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration 6002, August 25, 2005.

Test Location

All Emissions tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd. at No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China

1.3. Measurement Uncertainty

Radiation Uncertainty : $U_r = \pm 4.26\text{dB}$

Conduction Uncertainty : $U_c = \pm 2.66\text{dB}$

2. MEASURING DEVICE AND TEST EQUIPMENT

Equipment	Manufacturer	Model #	Serial #	Data of Cal.	Due Data
EMI Test Receiver	Rohde & Schwarz	ESCI	100119	Mar.03, 2007	Mar.02, 2008
EMI Test Receiver	Rohde & Schwarz	ESIB26	100249	Sep.22, 2006	Sep.21, 2007
Spectrum Analyzer	Rohde & Schwarz	FSP40	100273	Sep.18, 2006	Sep.17, 2007
Signal Generator	Rohde & Schwarz	SMR27	100124	Jul.06, 2005	Jul.25, 2007
Signal Generator	Rohde & Schwarz	SML03	102319	Aug.01, 2005	Aug.01, 2007
AC Power Source	All Power Electronic Co.	APW-1100N	890869	N/A	N/A
Absorbing Clamp	Rohde & Schwarz	MDS21	100218	Apr.30, 2005	Apr.29, 2007
Power Meter	Rohde & Schwarz	NRVD	101287	Jul.19, 2005	Jul.18, 2007
Coaxial Cable	N/A	N/A	N/A	May.31, 2006	May.30, 2007
Coaxial Cable	N/A	N/A	N/A	May.31, 2006	May.30, 2007
Coaxial Cable	N/A	N/A	N/A	May.31, 2006	May.30, 2007
Universal radio Communication tester	Rohde & Schwarz	CMU200	101724	Sep.08, 2006	Sep.07, 2008
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	N/A	N/A	N/A
BiConilog Antenna	ETS-LINDGREN	3142C	00042670	Mar.03, 2007	Mar.02, 2008
BiConilog Antenna	ETS-LINDGREN	3142C	00042673	Mar.03, 2007	Mar.02, 2008
Double-ridged Waveguide horn	ETS-LINDGREN	3117	00035926	Dec.30, 2005	Dec.29, 2007
Double-ridged Waveguide horn	ETS-LINDGREN	3117	00041545	Dec.30, 2005	Dec.29, 2007
Pre-amplifier	Rohde & Schwarz	AFS42-00101800-25-S-42	1091457	Jul.17, 2006	Jul.16, 2008
Thermo-/Hygrometer	N/A	TH01	N/A	May.03, 2006	Mar.03, 2008
Shielding Room	Zhong Yu Electron	GB-88	N/A	N/A	N/A
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	N/A	Apr.28, 2005	Apr.27, 2007

3. Test Procedure

GENERAL: This report shall NOT be reproduced except in full without the written approval of Anbotek Compliance Laboratory Limited. The EUT was transmitting a test signal during the testing.

RADIATION INTERFERENCE: The test procedure used was ANSI STANDARD C63.4-2003 using a spectrum analyzer with a pre-selector. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was 100KHz and the video bandwidth was 300KHz up to 1.0GHz and 1.0MHz with a video BW of 3.0MHz above 1.0GHz. The ambient temperature of the EUT was 74.3oF with a humidity of 69%.

FORMULA OF CONVERSION FACTORS: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB. The gain of the Preselector was accounted for in the Spectrum Analyzer Meter Reading.

Example:

Freq (MHz) METER READING + ACF = FS

33 20 dBuV + 10.36 dB = 30.36 dBuV/m @ 3m

ANSI STANDARD C63.4-2003 10.1.7 MEASUREMENT PROCEDURES: The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The EUT was placed in the center of the table (1.5m side). The table used for radiated measurements is capable of continuous rotation. When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

4. Radiation Interference

4.1. Requirements (15.249, 15.209):

FIELD STRENGTH of Fundamental: 902-928 MHz 2.4-2.4835 GHz 94 dBμV/m @3m	FIELD STRENGTH of Harmonics 54 dBμV/m @3m	S15.209 30 - 88 MHz 88 - 216 MHz 216 - 960 MHz ABOVE 960 MHz	40 dBuV/m @3M 43.5 46 54dBuV/m
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Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in 15.209, whichever is the lesser attenuation.

4.2 Test Results

PASS.

a. Low Mode(2402MHz)

Horizontal

Frequency MHz	Cable Loss dB	Ant Factor dB/m	Preamp Factor dB	Read Level dBμV	Level dBμV/m	Limit dBμV/m	Over Limit dB
2,402.2	0.00	26.01	40.05	90.06	76.02	94.0	-17.98
4,804.1	0.00	30.49	42.56	57.92	45.85	54.0	-8.15
7,206.0	0.00	34.02	43.55	34.20	24.67	54.0	-29.33
9,607.9	0.00	36.54	44.20	31.61	23.95	54.0	-30.05
-	-	-	-	-	-	-	-

Vertical

Frequency MHz	Cable Loss dB	Ant Factor dB/m	Preamp Factor dB	Read Level dBμV	Level dBμV/m	Limit dBμV/m	Over Limit dB
2,402.2	0.00	26.01	40.05	91.58	77.54	94.0	-16.46
4,804.1	0.00	30.49	42.56	60.63	48.56	54.0	-5.44
7,206.0	0.00	34.02	43.55	35.58	26.05	54.0	-27.95
9,607.9	0.00	36.54	44.20	31.72	24.06	54.0	-29.94
-	-	-	-	-	-	-	-

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b. Middle Mode(2441MHz)

Horizontal

Frequency MHz	Cable Loss dB	Ant Factor dB/m	Preamplifier Factor dB	Read Level dBμV	Level dBμV/m	Limit dBμV/m	Over Limit dB
2,440.9	0.00	27.87	40.17	89.78	77.48	94.0	-16.52
4,882.4	0.00	31.91	43.02	57.66	46.55	54.0	-7.45
7,323.2	0.00	34.58	43.67	33.58	24.49	54.0	-29.51
9,764.0	0.00	36.66	44.43	31.33	23.56	54.0	-30.44
-	-	-	-	-	-	-	-

Vertical

Frequency MHz	Cable Loss dB	Ant Factor dB/m	Preamplifier Factor dB	Read Level dBμV	Level dBμV/m	Limit dBμV/m	Over Limit dB
2,440.9	0.00	27.87	40.17	90.99	78.69	94.0	-15.31
4,882.4	0.00	31.91	43.02	57.70	46.59	54.0	-7.41
7,323.2	0.00	34.58	43.67	33.56	24.47	54.0	-29.53
9,764.0	0.00	36.66	44.43	31.37	23.60	54.0	-30.40
-	-	-	-	-	-	-	-

c. High Mode(2480MHz)

Horizontal

Frequency MHz	Cable Loss dB	Ant Factor dB/m	Preamplifier Factor dB	Read Level dBμV	Level dBμV/m	Limit dBμV/m	Over Limit dB
2,480.0	0.00	28.84	40.23	87.20	75.81	94.0	-18.19
4,959.7	0.00	33.72	43.25	55.59	46.06	54.0	-7.94
7,440.0	0.00	34.70	43.82	32.41	23.29	54.0	-30.71
9,920.0	0.00	36.77	44.51	31.42	23.68	54.0	-30.32
-	-	-	-	-	-	-	-

Vertical

Frequency MHz	Cable Loss dB	Ant Factor dB/m	Preamplifier Factor dB	Read Level dBμV	Level dBμV/m	Limit dBμV/m	Over Limit dB
2,480.0	0.00	28.84	40.23	87.96	76.57	94.0	-17.43
4,959.7	0.00	33.72	43.25	56.18	46.65	54.0	-7.35
7,440.0	0.00	34.70	43.82	33.66	24.54	54.0	-29.46
9,920.0	0.00	36.77	44.51	31.56	23.82	54.0	-30.18
-	-	-	-	-	-	-	-

Emissions attenuated more than 20 dB below the permissible value are not reported.

5. Occupied Bandwidth

5.1. Requirements (15.249):

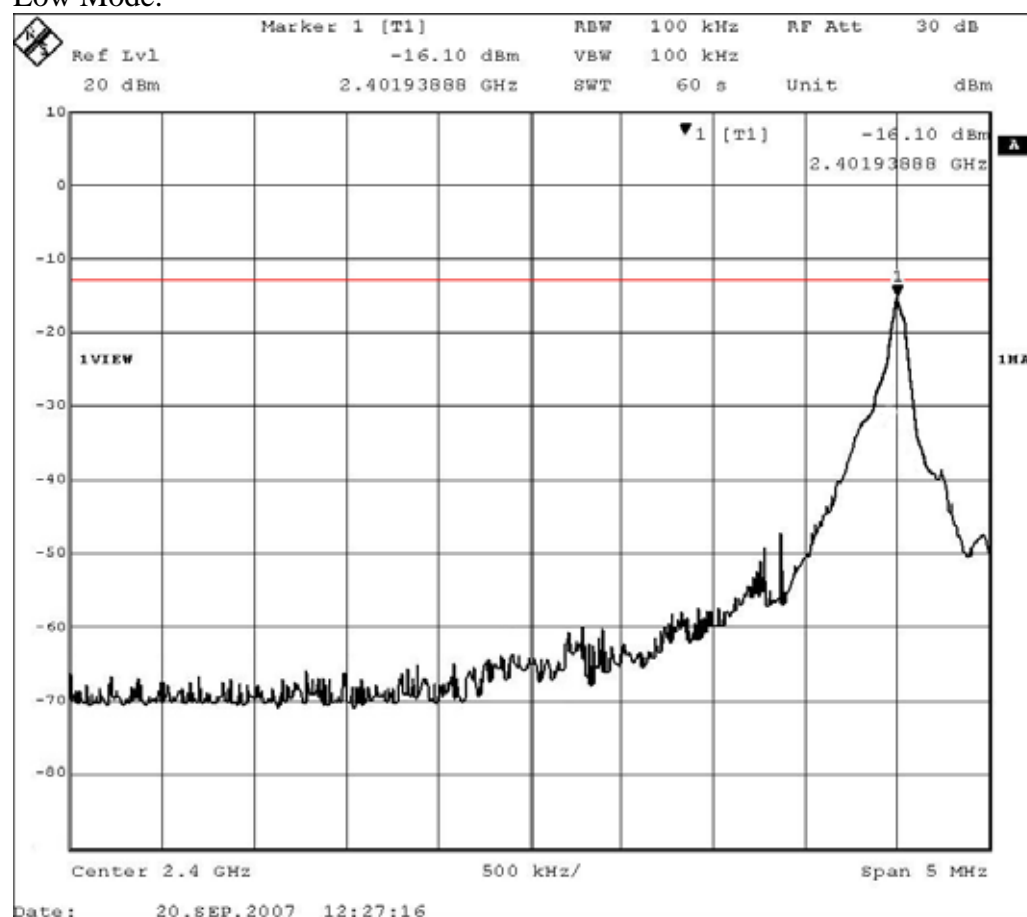
The field strength of any emissions appearing outside the band edges and up to 10 kHz above and below the band edges shall be attenuated at least 50 dB below the level of the carrier or to the general limits of 15.249.

5.2 Test Results

Pass.

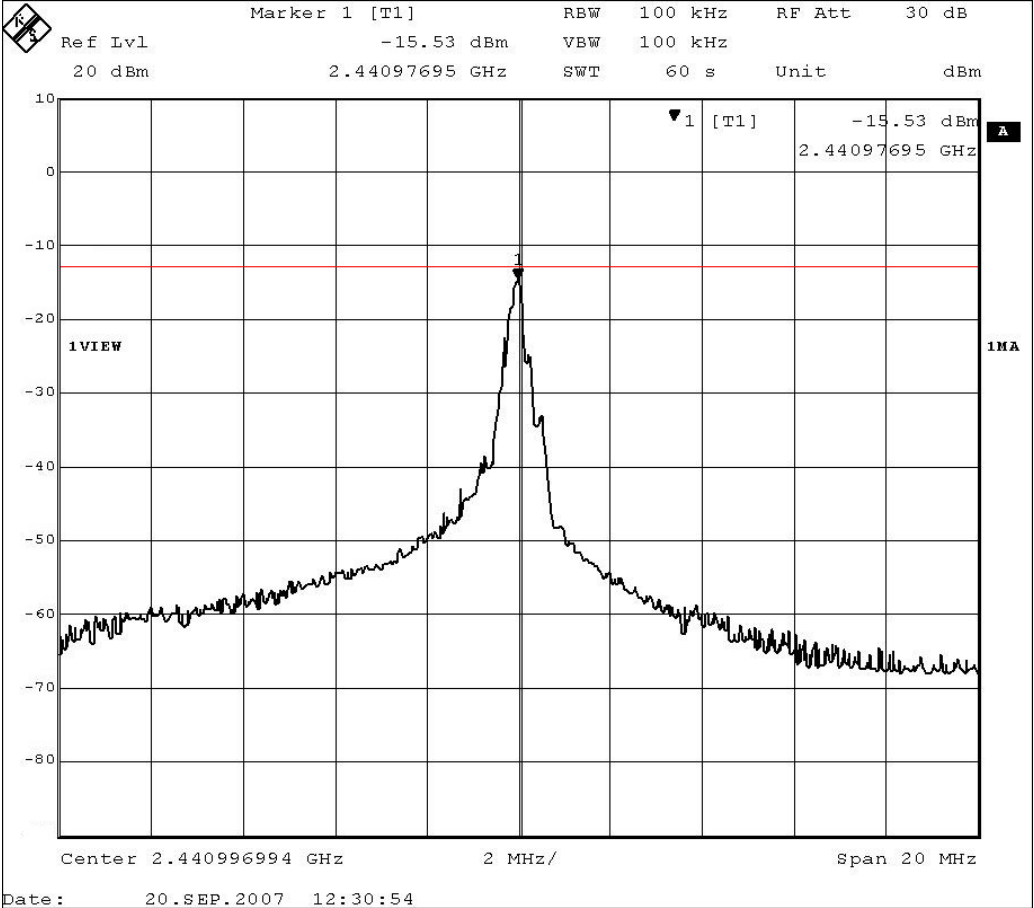
Please refer the following plot.

Low Mode:

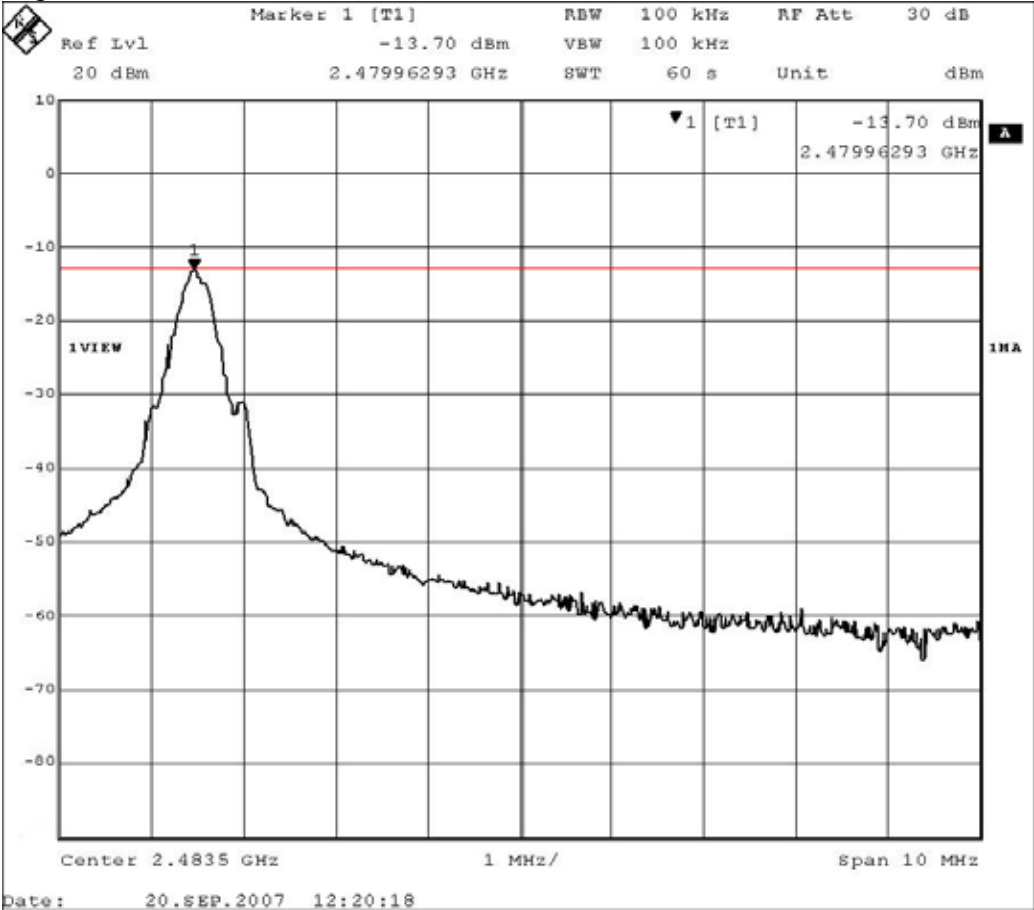


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Middle Mode:

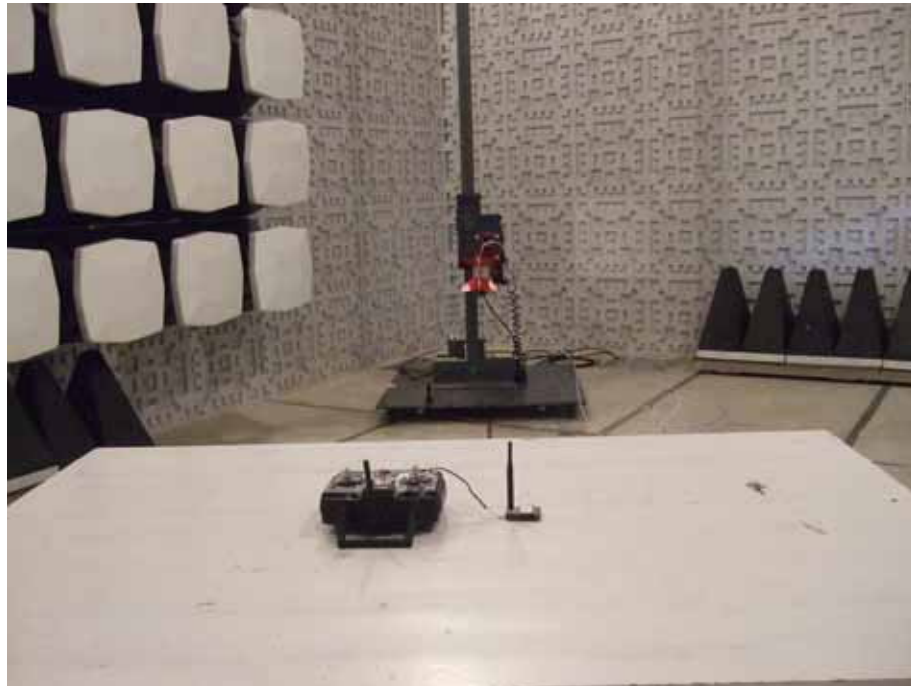


High Mode:



6. PHOTOGRAPH

6.1. Photo of Radiation Emission Test



APPENDIX I (Photos of EUT)

Figure 1
The EUT-Front View



Figure 2
The EUT-Back View

