ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART C REQUIREMENT

OF

RFID R/W

FCC ID:TQ4YWGIT-R5678900

MODEL No.: XCRF-500
XCRF-600

BRAND NAME: N/A

REPORT NO: TR05090017

ISSUE DATE: October 24, 2005

Prepared for

SHENZHEN YUANWANGGU INFORMATION TECHNOLOGY CO., LTD.
3/F. NO. T2-B. HIGH-TECH INDUSTRIAL PARK SOUTH,
SHENZHEN

Prepared by

SHENZHEN HUATONGWEI INTERNATIONAL INSPECTION CO., LTD

d.b.a.

SHENZHEN HUATONGWEI INTERNATIONAL INSPECTION CO., LTD
HUATONGWEI BUILDING, KEJI RD. 12 S., HIGH-TECH PARK,
NANSHAN DISTRICT, SHENZHEN,
GUANGDONG , P.R.CHINA

TEL: 86-755-26748099
FAX: 86-755-26748089

VERIFICATION OF COMPLIANCE

Applicant:	SHENZHEN YUANWANGGU INFORMATION TECHNOLOGY CO., LTD. 3/F. NO. T2-B. HIGH-TECH INDUSTRIAL PARK SOUTH, SHENZHEN
Manufacturer	SHENZHEN YUANWANGGU INFORMATION TECHNOLOGY CO., LTD. 3/F. NO. T2-B. HIGH-TECH INDUSTRIAL PARK SOUTH, SHENZHEN
Product Description:	RFID R/W
Brand Name:	N/A
Model Number:	XCRF-500; XCRF-600
Serial Number:	N/A
File Number:	SQE05090017
Date of Test:	September 28, 2005 ~ October 13, 2005

We hereby certify that:

The above equipment was tested by SHENZHEN HUA TONG WEI INTERNATIONAL INSPECTION CO., LTD. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (2003) and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC Rules Part 15.247.

The test results of this report relate only to the tested sample identified in this report.

Reviewed By

Jimmy Li / Technical Manager
SHENZHEN HUA TONG WEI
INTERNATIONAL INSPECTION CO., LTD

Table of Contents

1 GENERAL INFORMATION

1.1 Product Description

The EUT is an short range, lower power, RFID reader and writer designed as an " Input Device". It is designed by way of utilizing the FHSS technology to achieve the system operation.

A major technical descriptions of EUT is described as following:

A). Operation Frequency: From 903.0 MHz – 927.5 MHz for XCRF-500
total 50 channels with 500 KHz intervals, the maximum selectable hopping frequencies is 20 channels at one time.
(903.0 MHz, 903.5 MHz,……, 927.0 MHz, 927.5 MHz)

From 902.2 MHz – 927.8 MHz for XCRF-600
total 129 channels with 200 KHz intervals, the maximum selectable hopping frequencies is 60 channels at one time.
(902.2 MHz, 902.4 MHz,……, 927.6 MHz, 927.8 MHz)

B). Differences of Model: The XCRF-500 and XCRF-600 RFID R/W is physically and electrically the same, except work method: The XCRF-500 reads tag by reflection while XCRF-600 receives the identifying information by the tag after being activated. Both them are modulated.

C). Modulation: AM; Frequency Technology: FHSS

D). Antenna Designation: External antenna with N-type connecter
Model: XCAF-11 Frequency Range: 902 -928 MHz Gain: 5.83 dBi
(The external antenna provided by the manufacturer should be installed by professional installer.)

E). Power Supply: AC 120 V/60 Hz

1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: TQ4YWGIT-R5678900 filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.

1.3 Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4 (2003). Radiated testing was performed at an antenna to EUT distance 3 meters.

1.4 Test Facility

The fully anechoic chamber test site and conducted measurement facility used to collect the radiated data is located on the address of SHENZHEN HUA TONG WEI INTERNATIONAL INSPECTION CO., LTD Huatongwei Building, Keji Rd. 12 S., High-tech Park, Nanshan District, Shenzhen, Guangdong, P.R.China

The fully anechoic chamber Test Sites and the Line Conducted labs are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2003 and CISPR 22/EN 55022 requirements.

1.5 Special Accessories

Not available for this EUT intended for grant.

1.6 Equipment Modifications

Not available for this EUT intended for grant.

2 System Test Configuration

2.1 Configuration of Tested System

Fig. 2-1 Configuration of Tested System

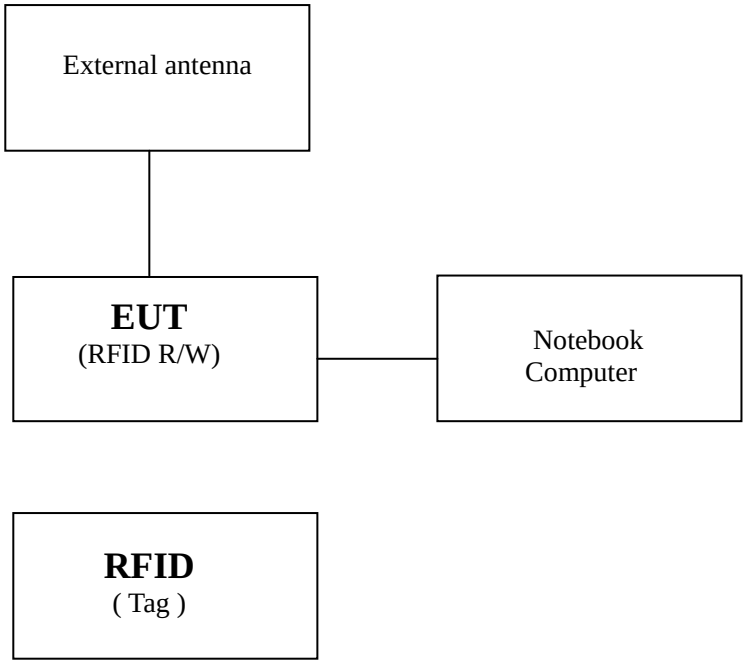


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
E-1	RFID R/W	Yuwanggu	XCRF-500 XCRF-600	TQ4YWGIT-R5678900	N/A	***EUT***
	Notebook Computer	IBM	R50e	N/A	N/A	
	Tag	N/A	N/A	N/A	N/A	

3 Summary Of Test Results

FCC Rules	Description Of Test	EUT	Result
§ 15.247	Conduction Emission	RFID R/W	Compliant
§ 15.247	Hopping Channels	RFID R/W	Compliant
§ 15.247	Channel Separation	RFID R/W	Compliant
§ 15.247	20 dB Bandwidth	RFID R/W	Compliant
§ 15.247	Operation Frequency	RFID R/W	Compliant
§ 15.247	Peak Output Power	RFID R/W	Compliant
§ 15.247	Spurious Emission	RFID R/W	Compliant
§ 15.247	Band Edge	RFID R/W	Compliant
§ 15.247	Dwell Time	RFID R/W	Compliant

4 Description of test modes

The EUT was controlled by the software that provided by the manufacturer, with the support of the software, the EUT can be set to work on two modes as discribed below.

4.1 Continuous Transmitting Mode

4.1.1 Continuous Transmitting Mode

1. The EUT (RFID R/W) has been set to operate continuously on the lowest, the middle and the highest operation frequency individually.
2. The EUT stays in continuous transmitting mode on the operation frequency being set.

4.2 Normal Hopping Mode

4.2.1 Continuous Transmitting Mode

1. The EUT (RFID R/W) has been set to operate continually from the selected lowest operation frequency to the related highest operation frequency.
2. The EUT stays in normal hopping mode on the operation frequency being set.

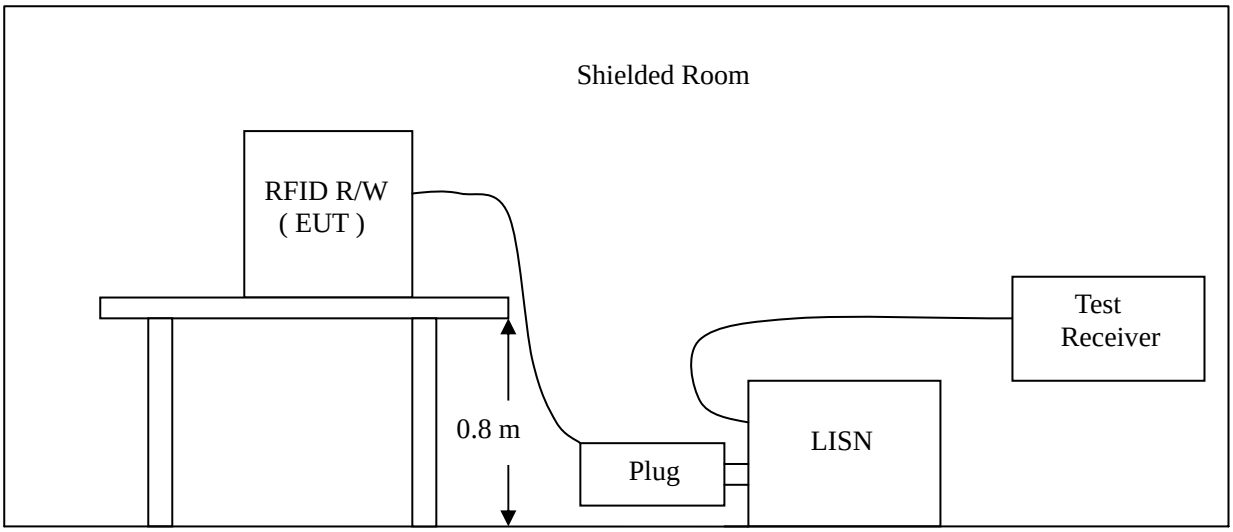
5 Measurement Parameters

5.1 Conduction Emissions

5.1.1 Measurement Procedure:

1 The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4.
2 Support equipment, if needed, was placed as per ANSI C63.4.
3 All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
4 The EUT received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5 All support equipments received AC power from a second LISN, if any.
6 The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7 Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
8 During the above scans, the emissions were maximized by cable manipulation.

5.1.2 Test SET-UP (Block Diagram of Configuration)



5.1.3 Measurement Equipment Used:

Conducted Emission Test Site # 3					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
EMI TEST RECEIVER	ROHDE & SCHWARZ	ESCS30	100038	2004/11	2005/11
ARTIFICIAL MAINS	ROHDE & SCHWARZ	ESH2-Z5	100028	2004/11	2005/11
PULSE LIMITER	ROHDE & SCHWARZ	ESHSZ2	100044	2004/11	2005/11
EMI TEST SOFTWARE	ROHDE & SCHWARZ	ESK1	N/A	N/A	N/A

5.1.4 Limits And Measurement Result:

Limits and Measurement Result Of Hopping Channel		
Applicable Limits	**Measurement Result**	
	Test Data	Criteria
Per 15.207 Conducted Emission Limit	See as the chart below	PASS

(The chart below shows the highest readings taken from the final data of the worst case of CXRF-500 and CXRF-600)

FREQ MHz	PEAK RAW dBuV	Q.P. RAW dBuV	AVG RAW dBuV	Q.P. Limit dBuV	AVG Limit dBuV	Q.P. Margin dB	AVG Margin dB	NOTE
0.403	32.22	---	---	58.76	48.76	---	-16.54	L1
0.460	31.49	---	---	57.12	47.12	---	-15.63	L1
0.581	31.73	---	---	56.00	46.00	---	-14.27	L1
0.708	33.35	---	---	56.00	46.00	---	-12.65	L1
0.952	32.02	---	---	56.00	46.00	---	-13.98	L1
1.113	38.10	---	---	56.00	46.00	---	-7.90	L1
0.606	33.50	---	---	56.00	46.00	---	-12.50	L2
0.692	32.90	---	---	56.00	46.00	---	-13.10	L2
0.988	31.71	---	---	56.00	46.00	---	-14.29	L2
1.428	38.20	---	---	56.00	46.00	---	-7.80	L2
2.011	34.30	---	---	56.00	46.00	---	-11.70	L2
2.807	36.37	---	---	56.00	46.00	---	-9.63	L2

L1 = Line One (Hot side) / L2 = Line Two (Neutral side)

****NOTE:** "---" denotes the peak emission level was or more than 2dB below the Average limit, so no re-check anymore.

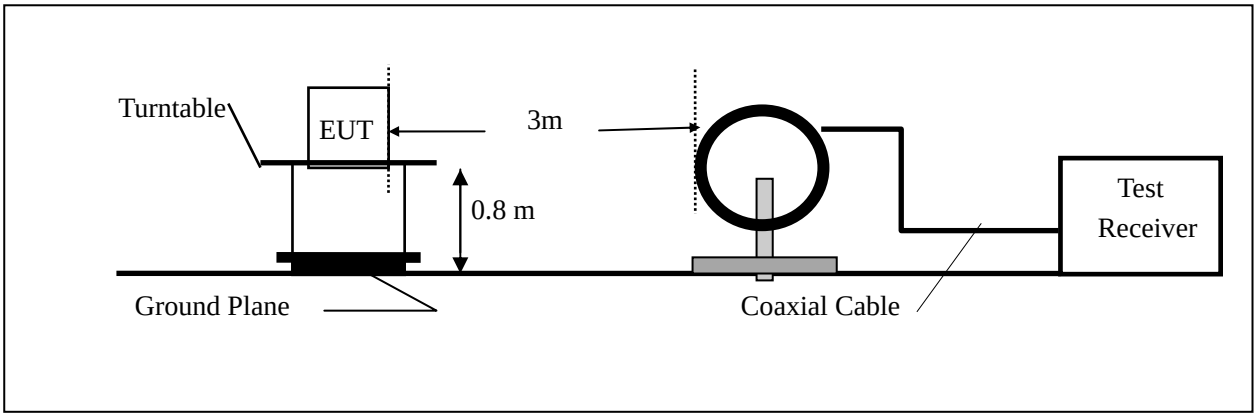
5.2 Hopping Channels

5.2.1 Measurement Procedure:

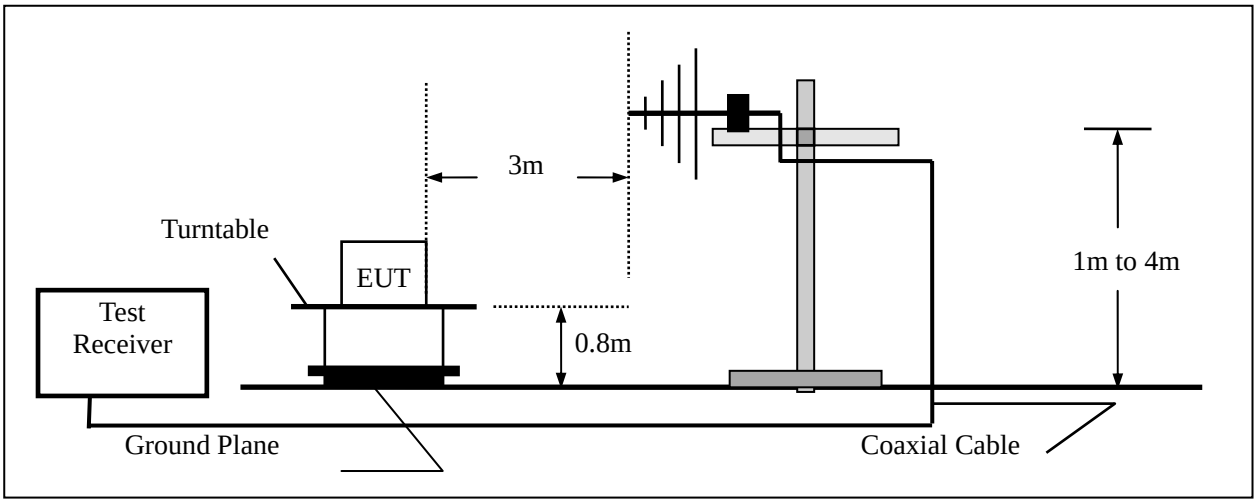
1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Set EUT as Normal Operation mode
3. Set SPA Start Frequency, Stop Frequency, RBW and VBW as required.
4. Set SPA Trace 1 Max hold, then View.

5.2.2 Test SET-UP (Block Diagram of Configuration)

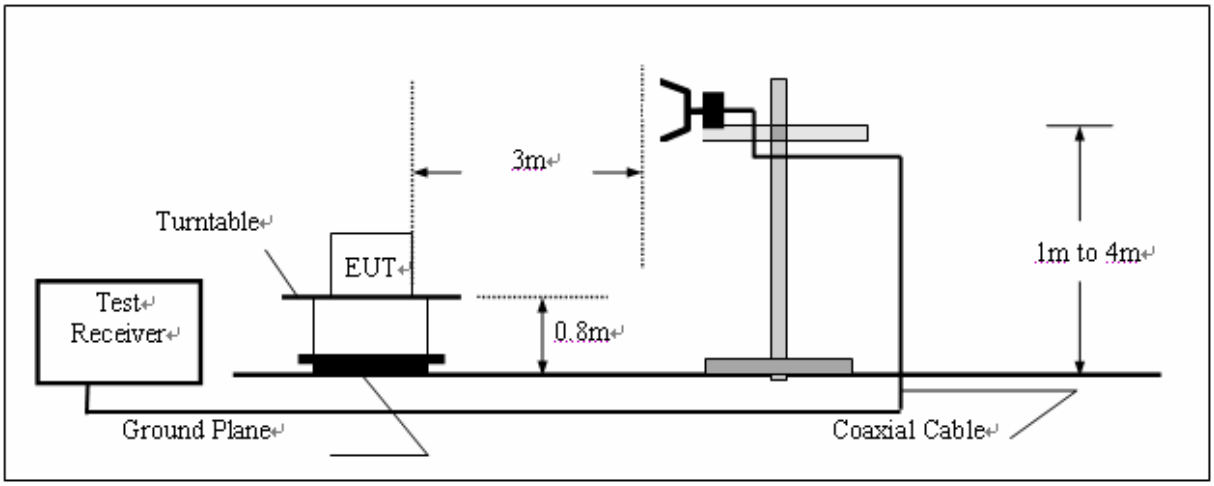
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(C) Radiated Emission Test Set-Up, Frequency Above 1000MHz



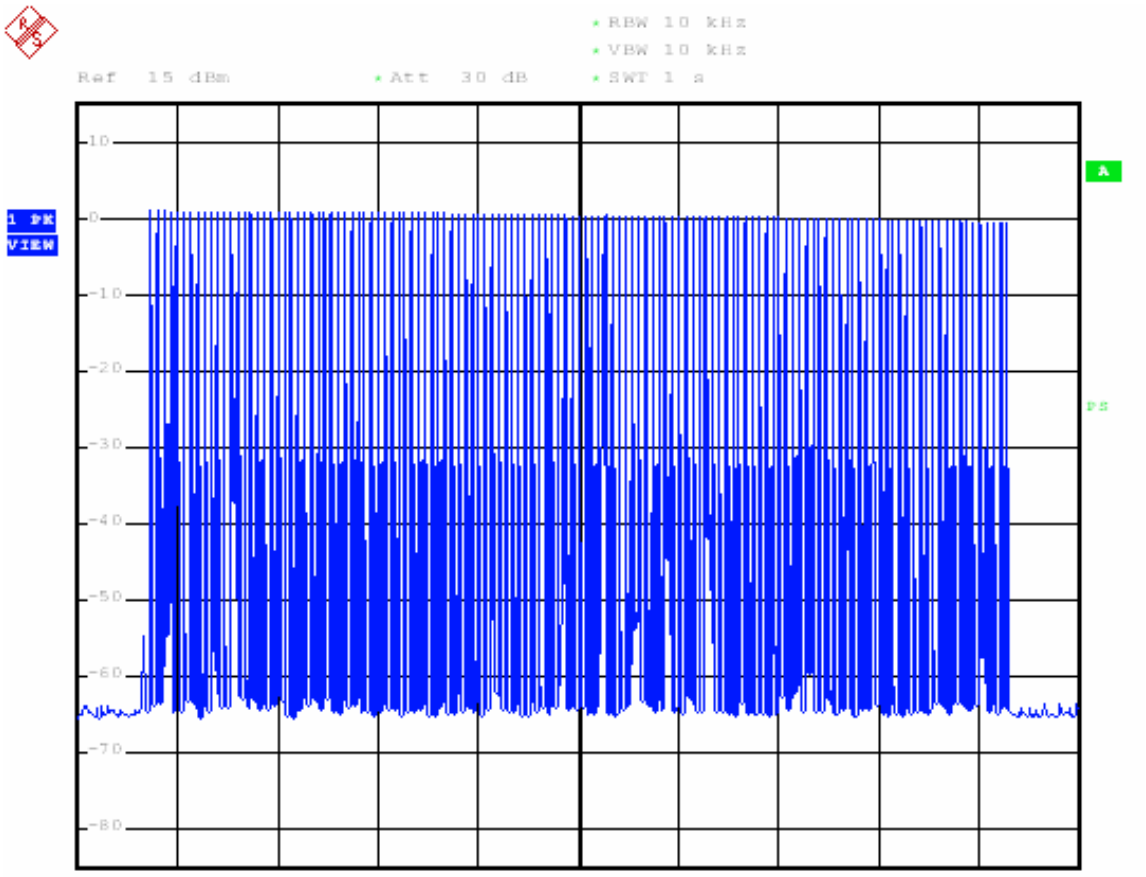
5.2.3 Measurement Equipment Used:

3/5 Anechoic Chamber Radiation Test Site # 4					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
ULTRA-BROADBAND ANTENNA	ROHDE & SCHWARZ	HL562	100015	2004/11	2005/11
EMI TEST RECEIVER	ROHDE & SCHWARZ	ESI 26	100009	2004/11	2005/11
RF TEST PANEL	ROHDE & SCHWARZ	TS / RSP	335015/ 0017	N/A	N/A
TURNTABLE	ETS	2088	2149	N/A	N/A
ANTENNA MAST	ETS	2075	2346	N/A	N/A
EMI TEST SOFTWARE	ROHDE & SCHWARZ	ESK1	NA	N/A	N/A

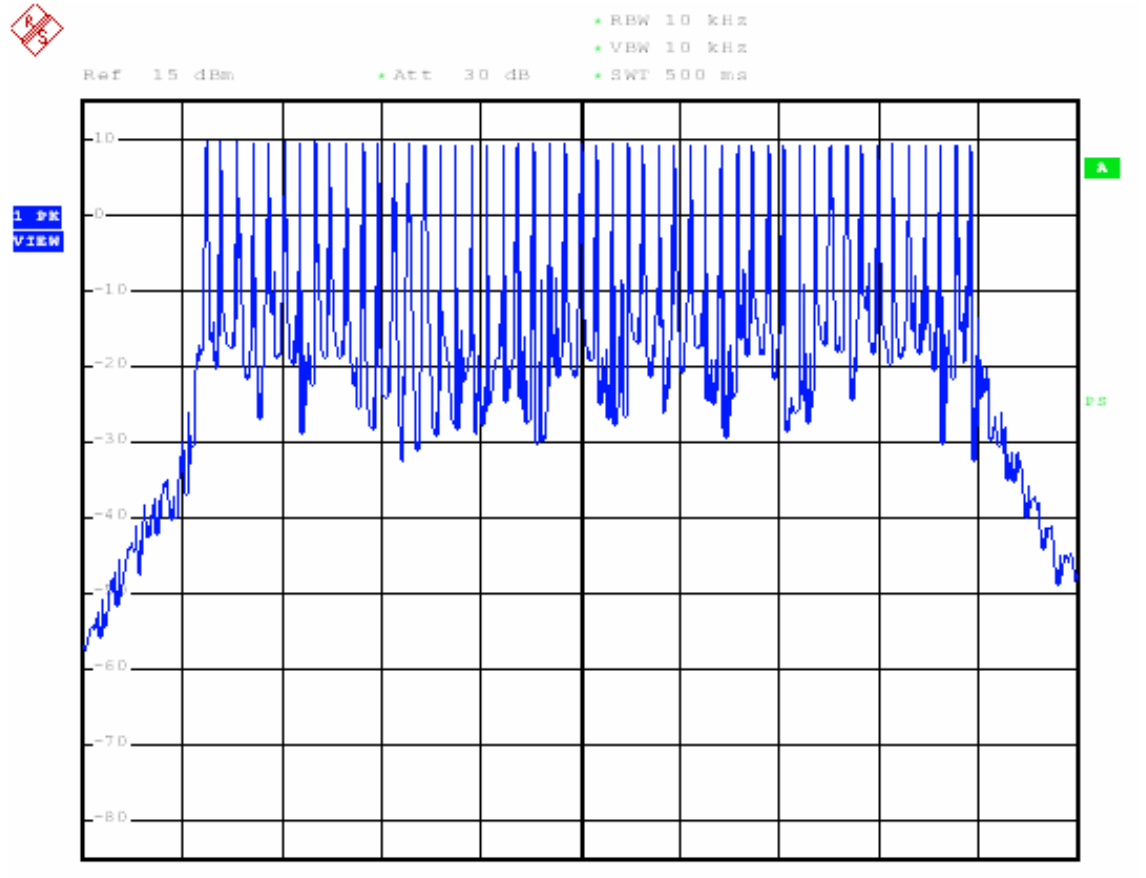
5.2.4 Limits And Measurement Result:

Limits and Measurement Result Of Hopping Channel		
Applicable Limits	**Measurement Result**	
	Test Data	Criteria
Per 15.247 (a)(1)(ⅰ) At least 50 hopping Frequencies for 20 dB channel bandwidth less than 250 KHz	Total 129 Channels For XCRF-600	PASS
Per 15.247 (a)(1)(ⅰ) At least 25 hopping Frequencies for 20 dB channel bandwidth great than or equal to 250 KHz	Total 51 Channels For XCRF-500	PASS

XCRF-600



XCRF-500



5.3 Channel Separation

5.3.1 Measurement Procedure:

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Set EUT as Normal Operation mode
3. Set Start Frequency, Stop Frequency, RBW and VBW as required.
4. Set SPA Trace 1 Max hold, then View.

5.3.2 Test SET-UP (Block Diagram of Configuration)

The same as described in Section 5.2.2

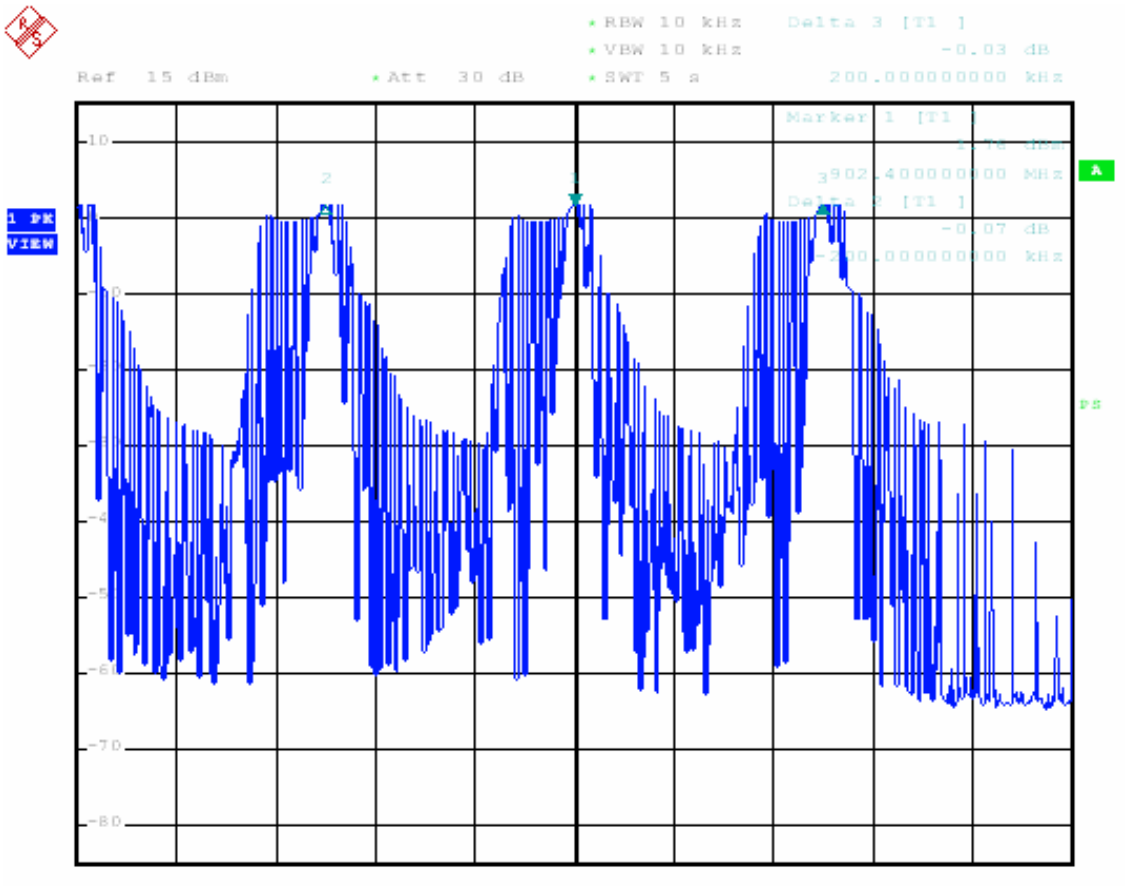
5.3.3 Measurement Equipment Used:

The same as described in Section 5.2.3

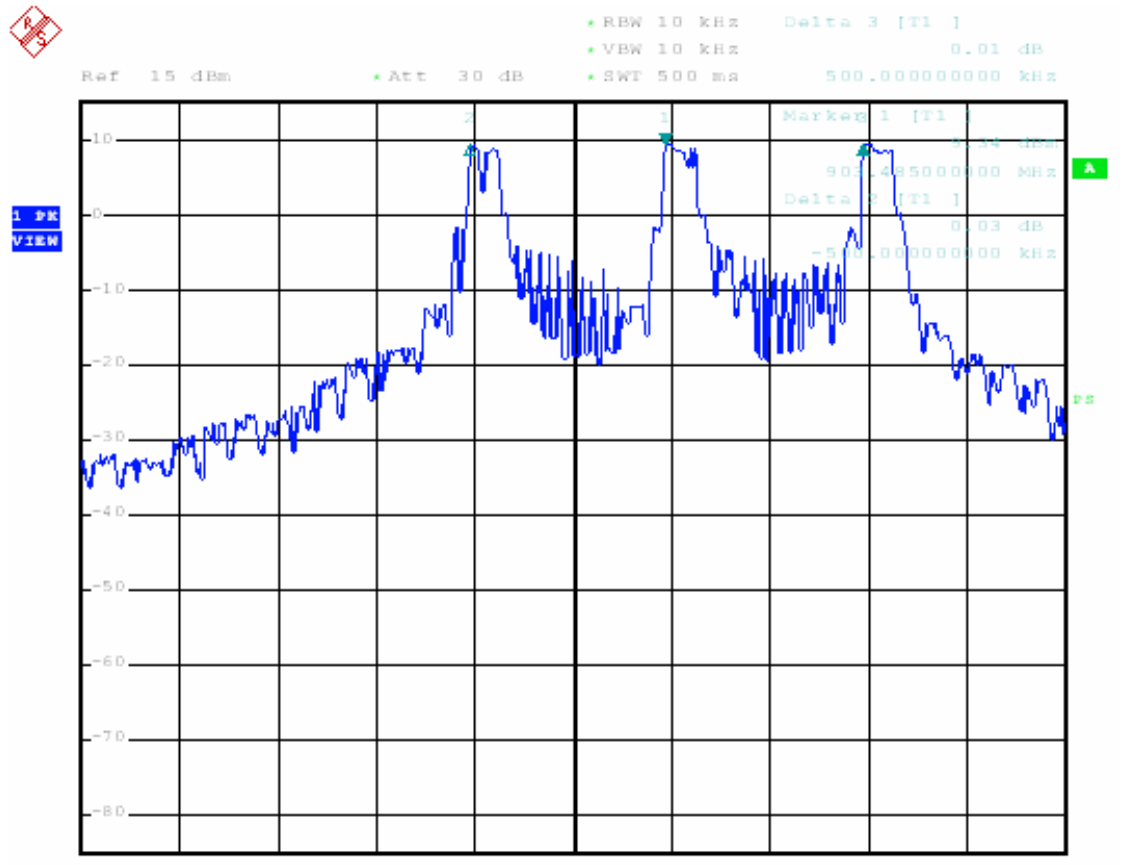
5.3.4 Limits And Measurement Result:

Limits and Measurement Result Of Channel Separation		
Applicable Limits	**Measurement Result**	
	Test Data	Criteria
Per 15.247 (a)(1) At least 25 KHz or 20 dB bandwidth of the hopping Channel, whichever is greater	200 KHz For XCRF-600	PASS
	500 KHz For XCRF-500	PASS

XCRF-600



XCRF-500



5.4 20 dB Bandwidth

5.4.1 Measurement Procedure

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Set EUT as continuous transmitting mode
3. Set SPA Center Frequency = Operation Frequency. RBW and VBW as required.
4. Set SPA Trace 1 Max hold, then View.

5.4.2 Test SET-UP (Block Diagram of Configuration)

The Same as described in Section 5.2.2

5.4.3 Measurement Equipment Used:

The same as described in Section 5.2.3

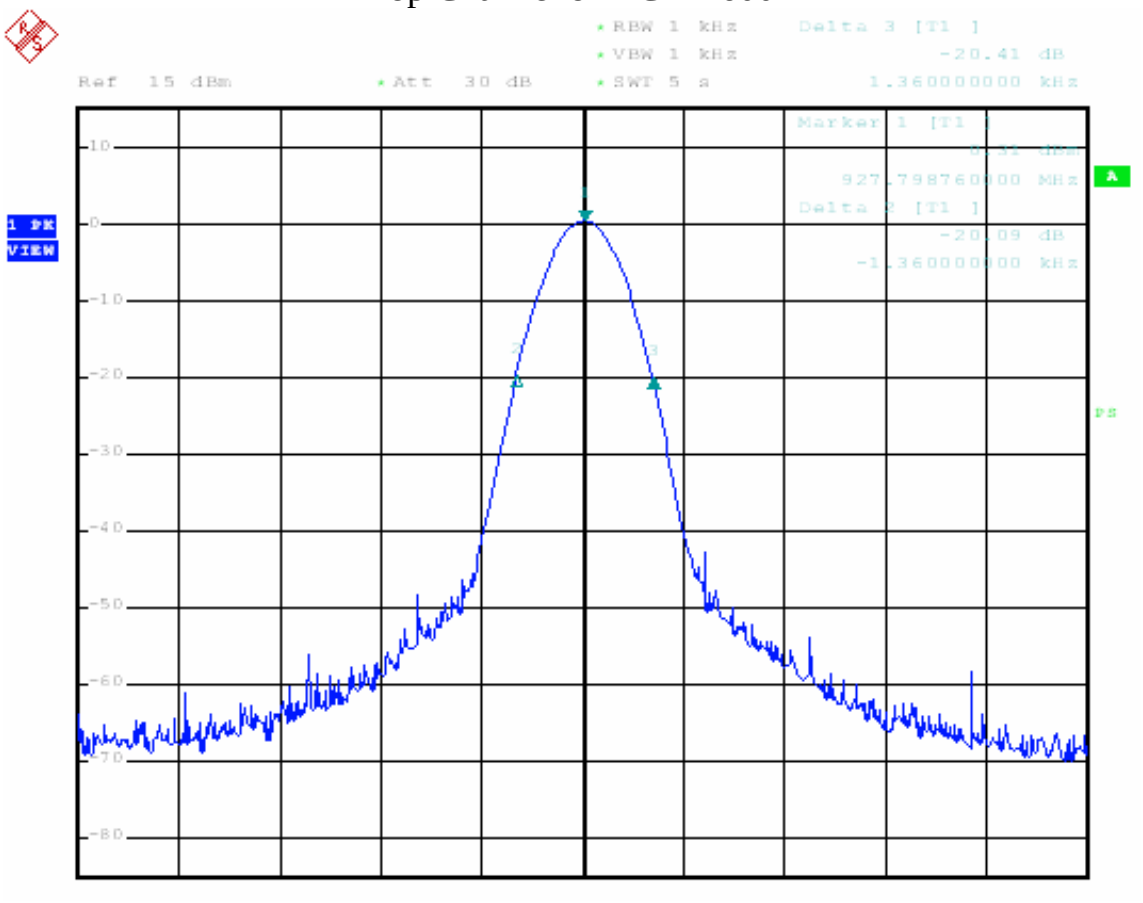
5.4.4 Limits And Measurement Results:

Limits and Measurement Result Of 20 dB Bandwidth For The Top Channel		
Applicable Limits	**Measurement Result**	
	Test Data	Criteria
Per 15.247 (a)(1)(ⅰ) The maximum 20 dB bandwidth of the hopping channel is 500 KHz	2.72 KHz For XCRF-600	PASS
	252 KHz For XCRF-500	PASS

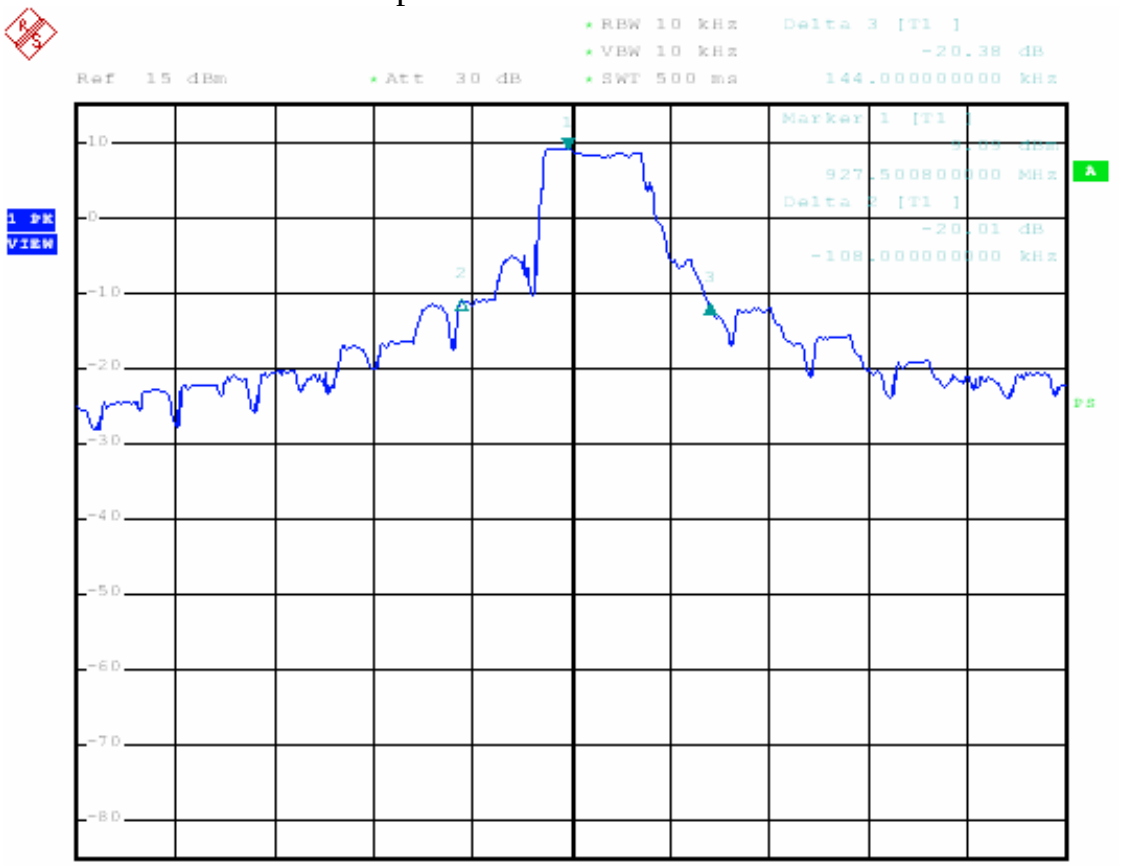
Limits and Measurement Result Of 20 dB Bandwidth For The Middle Channel		
Applicable Limits	**Measurement Result**	
	Test Data	Criteria
Per 15.247 (a)(1)(ⅰ) The maximum 20 dB bandwidth of the hopping channel is 500 KHz	2.76 KHz For XCRF-600	PASS
	270 KHz For XCRF-500	PASS

Limits and Measurement Result Of 20 dB Bandwidth For The Bottom Channel		
Applicable Limits	**Measurement Result**	
	Test Data	Criteria
Per 15.247 (a)(1)(ⅰ) The maximum 20 dB bandwidth of the hopping channel is 500 KHz	2.76 KHz For XCRF-600	PASS
	254 KHz For XCRF-500	PASS

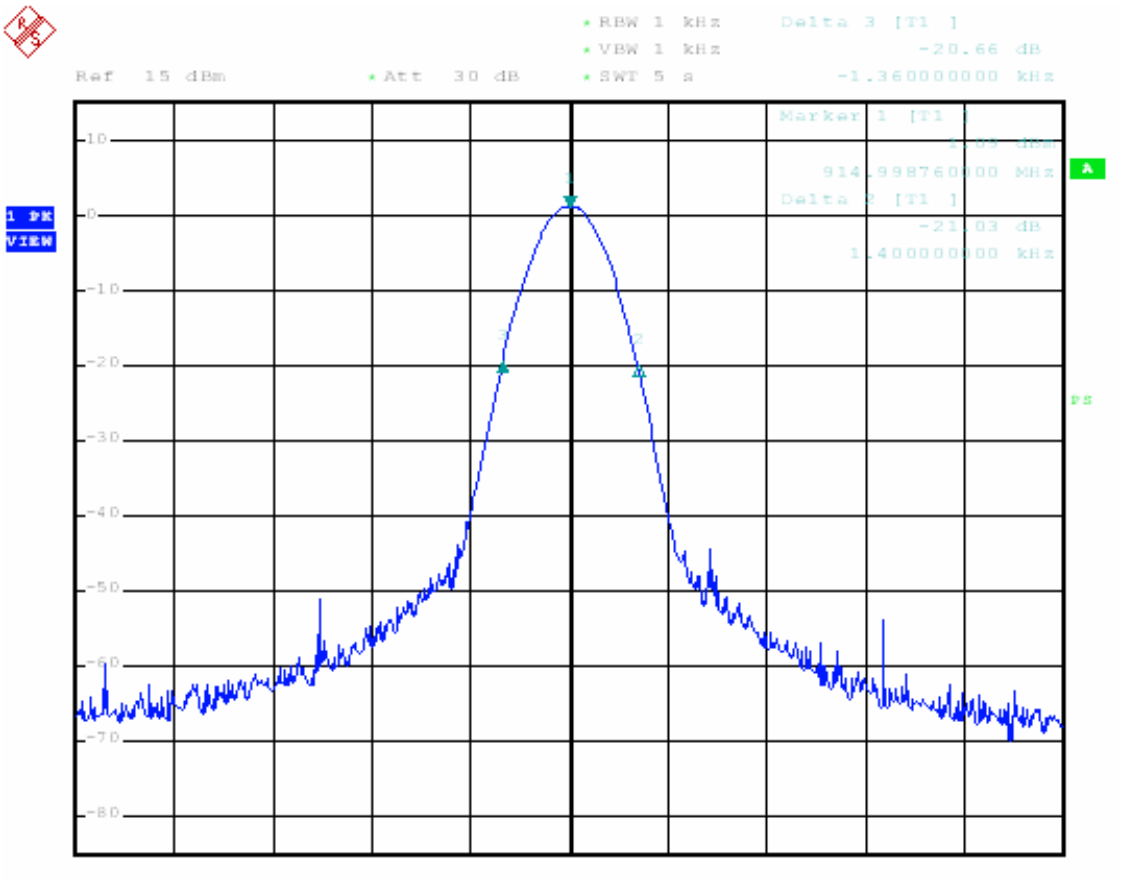
Top Channel of XCRF-600



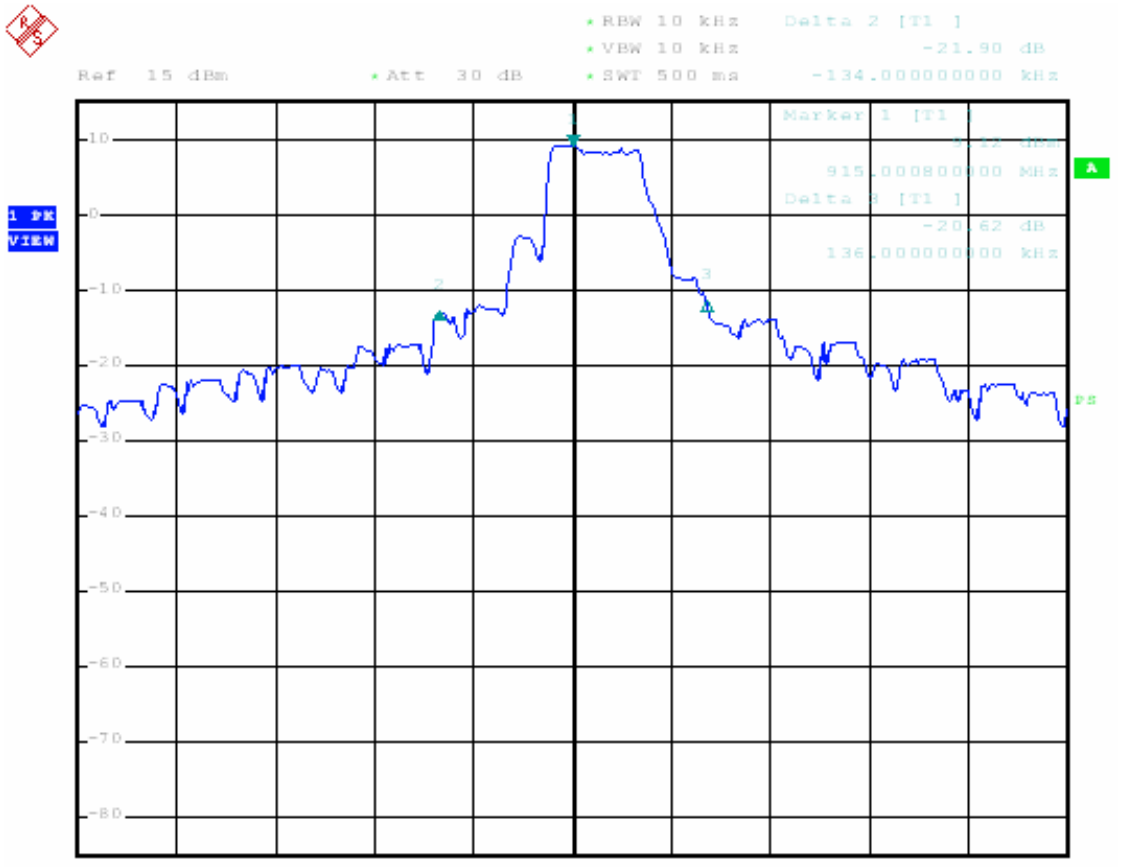
Top Channel of XCRF-500



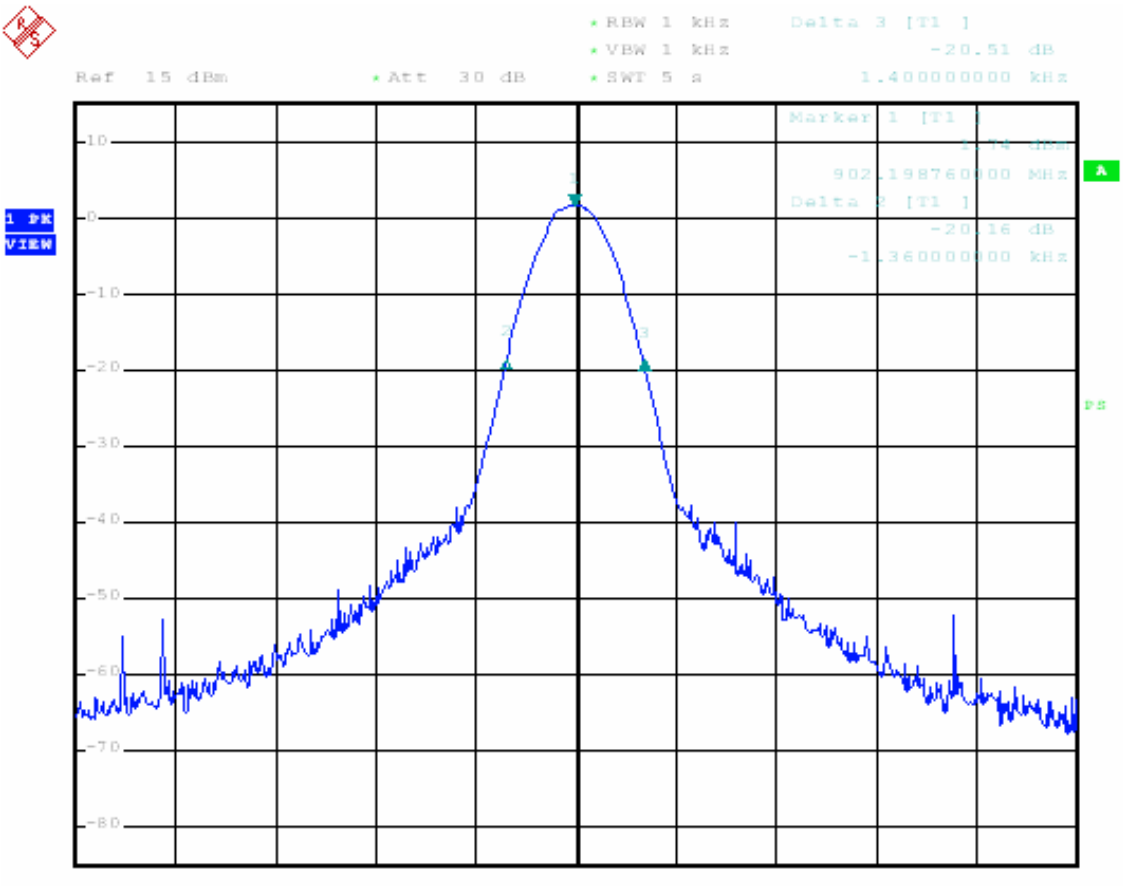
Middle Channel of XCRF-600



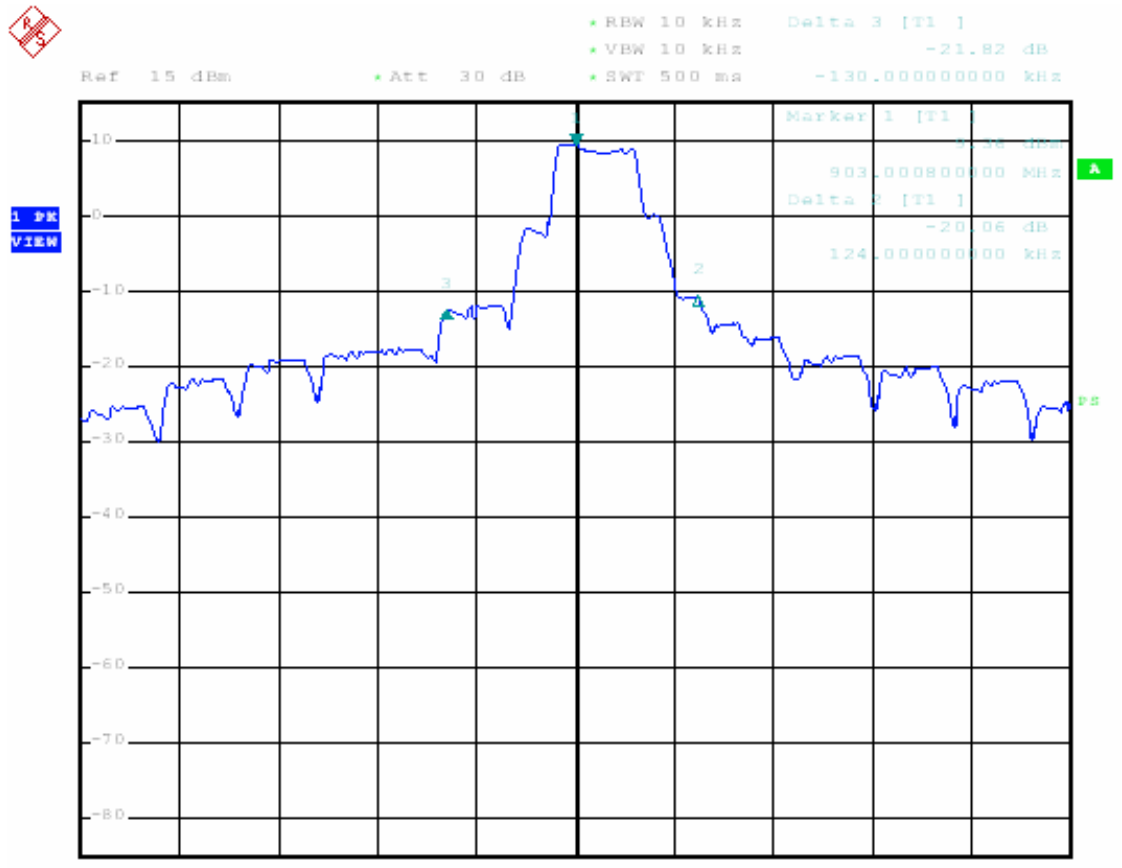
Middle Channel of XCRF-500



Bottom Channel of XCRF-600



Bottom Channel of XCRF-500



5.5 Operation Frequency

5.5.1 Measurement Procedure:

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Set EUT as Continuous Transmitting Mode.
3. Set SPA Center Frequency = Bottom Channel for Fl measurement (Top Channel for Ft measurement), RBW and VBW as required.
4. Set SPA Trace 1 Max hold, then View.

5.5.2 Test SET-UP (Block Diagram of Configuration)

The same as described in Section 5.2.2

5.5.3 Measurement Equipment Used:

The same as described in Section 5.2.3

5.5.4 Limits And Measurement Result:

Limits and Measurement Result Of Operation Frequency		
Applicable Limits	**Measurement Result**	
	Test Data	Criteria
Per 15.247 The operation frequencies shall lie wholly within 902 MHz to 928 MHz	Fl=902.19736 MHz Ft=927.80012 MHz For XCRF-600	PASS
	Fl=902.8708 MHz Ft=927.6448 MHz For XCRF-500	PASS

Notes:

Fl means the lowest band edge frequency of the bottom channel; Ft means the highest band edge frequency of the top channel

5.6 Peak Output Power

5.6.1 Measurement Procedure:

Conducted measurement:

1 Detached the external antenna

2 Connect the end output of the transmitting cable to the measurement instruments through an 20 dB attenuator.

Radiated measurement:

3 On a test site, the EUT shall be placed on a turntable

4 The test antenna shall be oriented initially for vertical polarization located 3m from the EUT to correspond to the transmitter.

5 The output of the antenna shall be connected to the measuring receiver and either a peak or quasi-peak detector was used for the measurement as indicated on the report. The detector selection is based on how close the emission level was approaching the limit.

6 The transmitter shall be switched on; if possible, without the modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test.

7 The test antenna shall be raised and lowered through the specified range of height until the measuring receiver detects a maximum signal level.

8 The transmitter shall than be rotated through 360 ° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.

9 The test antenna shall be raised and lowered again through the specified range of height until the measuring receiver detects a maximum signal level.

10 The maximum signal level detected by the measuring receiver shall be noted.

11 Replace the antenna with a proper Antenna (substitution antenna).

12 The substitution antenna shall be oriented for vertical polarization and, if necessary, the length of the substitution antenna shall be adjusted to correspond to the frequency of transmitting.

13 The substitution antenna shall be connected to a calibrated signal generator.

14 If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.

15 The test antenna shall be raised and lowered through the specified range of the height to ensure that the maximum signal is received.

16 The input signal to substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuation setting of the measuring receiver.

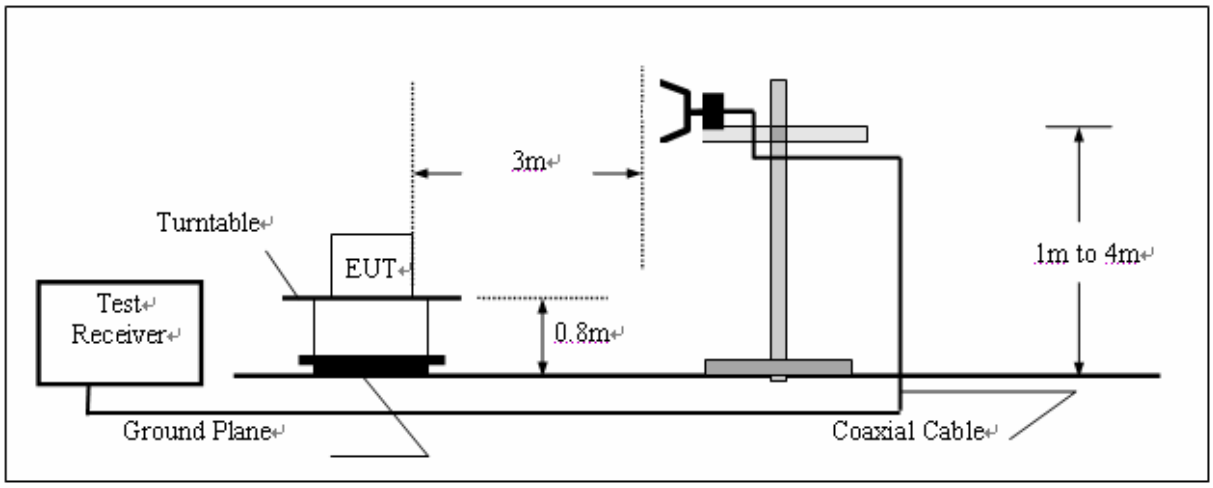
17 The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.

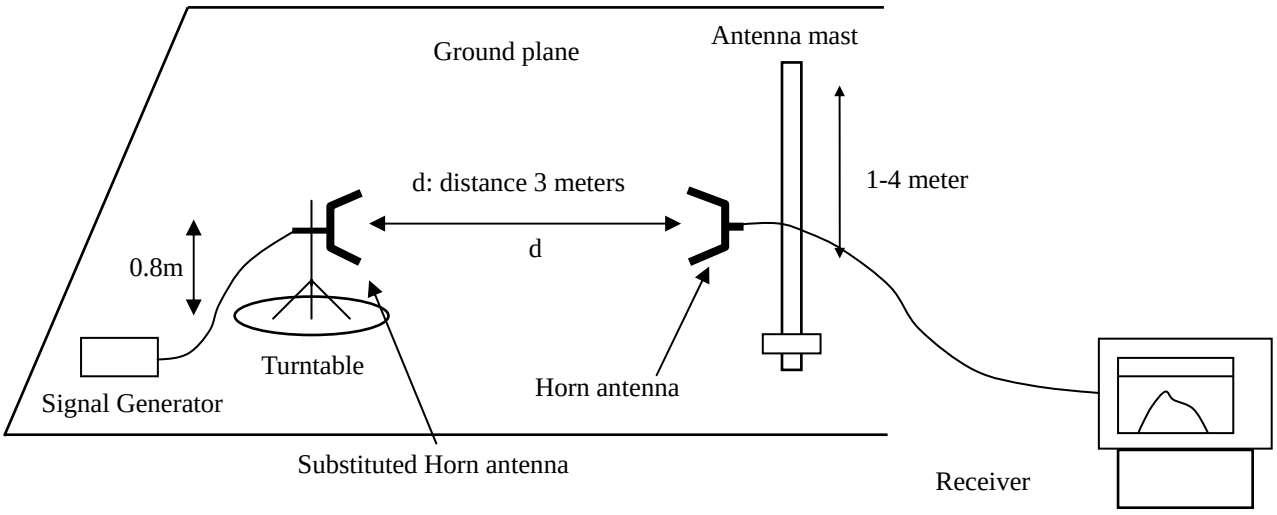
18 The measurement shall be repeated with the test antenna and the substitution antenna oriented for horizontal polarization.

19 The measure of the effective radiated power is the larger of the two levels recorded, at the input to the substitution antenna, corrected for the gain of the substitution antenna .

5.6.2 Test SET-UP (Block Diagram of Configuration)

Substitution Method (Radiated Emission)





5.6.3 Measurement Equipment Used:

3/5 Anechoic Chamber Radiation Test Site # 4					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
ULTRA-BROADBAND ANTENNA	ROHDE & SCHWARZ	HL562	100015	2004/11	2005/11
EMI TEST RECEIVER	ROHDE & SCHWARZ	ESI 26	100009	2004/11	2005/11
RF TEST PANEL	ROHDE & SCHWARZ	TS / RSP	335015/ 0017	N/A	N/A
TURNTABLE	ETS	2088	2149	N/A	N/A
ANTENNA MAST	ETS	2075	2346	N/A	N/A
EMI TEST SOFTWARE	ROHDE & SCHWARZ	ESK1	NA	N/A	N/A

5.6.4 Limits And Measurement Result:

Limits and Measurement Result Of Peak Output Power(Conducted)		
Applicable Limits	**Measurement Result**	
	Test Data	Criteria
Per 15.247 (b)(2) The maximum conducted peak output power is 1 W (30 dBm)	Pt= 29.55 dBm	PASS
	Pm=29.46 dBm	PASS
	Pl=29.43 dBm	PASS

Limits and Measurement Result Of Peak Output Power(EIRP)		
Applicable Limits	**Measurement Result**	
	Test Data	Antenna Gain(dBi)
Per 15.247 (b)(4) Gain of the antenna	Pt= 35.37 dBm	5.82
	Pm=35.29 dBm	5.83
	Pl=35.22 dBm	5.79

Note:

Antenna Gain is calculated by the following formula

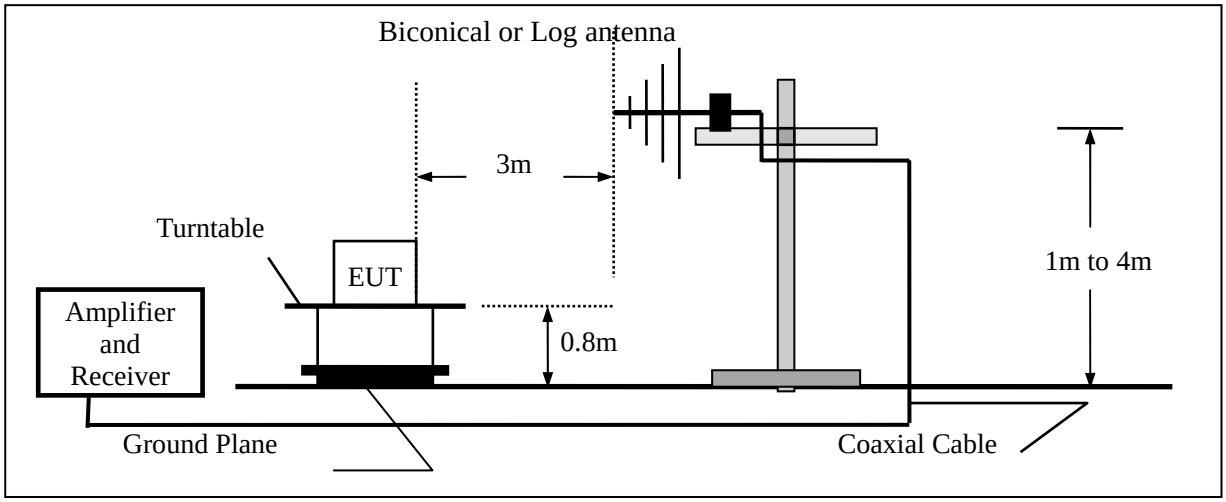
Antenna Gain = Peak Power of EIRP – Peak Power of Conducted

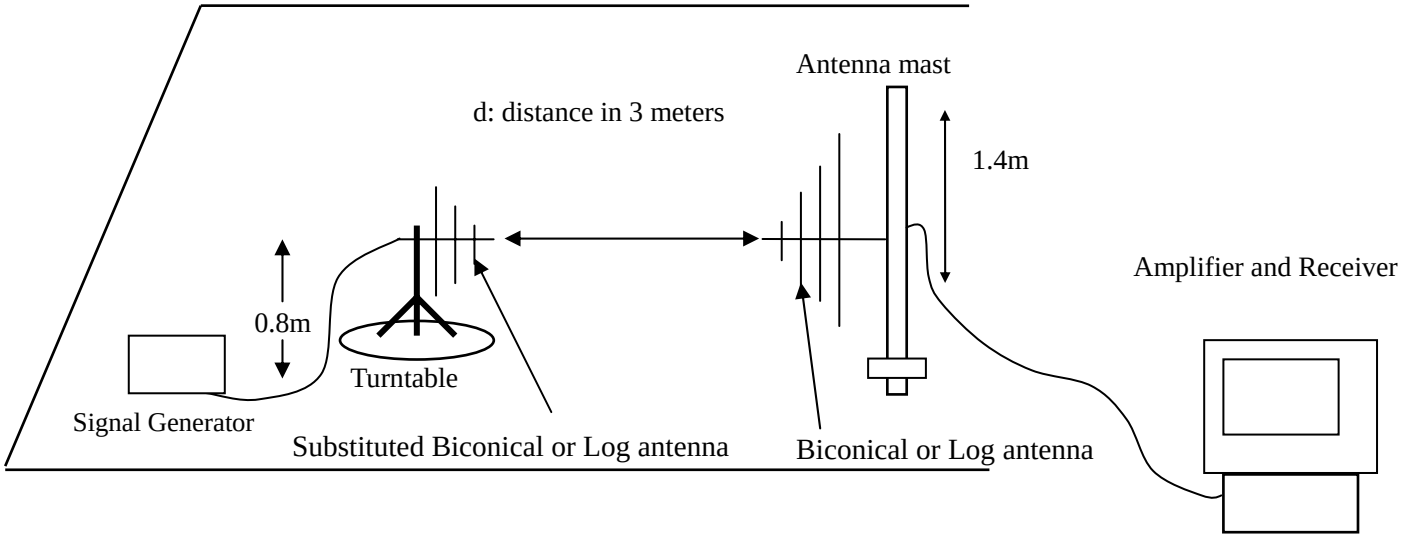
5.7 Spurious Emission At Transmitting mode

5.7.1 Measurement Procedure:
The same as described in section 5.6.1

5.7.2 Test SET-UP (Block Diagram of Configuration)

Substitution method (Radiation Emission below 1 GHz)





Substitution method (Radiation Emission Above 1 GHz)

The same as described in section 5.6.2

5.7.3 Measurement Equipment Used:

3/5 Anechoic Chamber Radiation Test Site # 4					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
ULTRA-BROADBAND ANTENNA	ROHDE & SCHWARZ	HL562	100015	2004/11	2005/11
EMI TEST RECEIVER	ROHDE & SCHWARZ	ESI 26	100009	2004/11	2005/11
RF TEST PANEL	ROHDE & SCHWARZ	TS / RSP	335015/ 0017	N/A	N/A
TURNTABLE	ETS	2088	2149	N/A	N/A
ANTENNA MAST	ETS	2075	2346	N/A	N/A
EMI TEST SOFTWARE	ROHDE & SCHWARZ	ESK1	NA	N/A	N/A

5.7.4 Limits And Measurement Result:

Limits and Measurement Result Of Spurious Emission		
Applicable Limits	**Measurement Result**	
	Test Data	Criteria
Per 15.247 (c) In any 100 KHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produce by the intentional radiator shall be at least 20 dB below that in 100KHz bandwidth within the band that contains the highest level of the desired power. In addition, radiation emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in§15.209(a)	See as the chart Below	PASS

Frequency (MHz)	**Reading level (dBuV)**	**Antenna Polarization**	**S.G. (dBm)**	**Cable loss (dB)**	**Ant.Gain (dB)**	**Emission level (dBm)**	**Limit**	**Margin (dB)**
Others	--	V	--				15.247(c)	
Others	--	H	--				15.247(c)	

Remark:

(1) Corrected Power (dBm) = SG O/P-Cable + Ant Gain
(2) Measuring frequencies from 30 MHz to the 10 GHz.
(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 measured.

5.8 BAND EDGE

5.8.1 Measurement Procedure:

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Set EUT as Continuous Transmitting Mode.
3. Set SPA Center Frequency = Bottom Channel for lowest frequency band edge (Top Channel for highest frequency band edge)
4. Set SPA Trace 1 Max hold, then View.

5.8.2 Test SET-UP (Block Diagram of Configuration)

The same as described in section 5.2.2

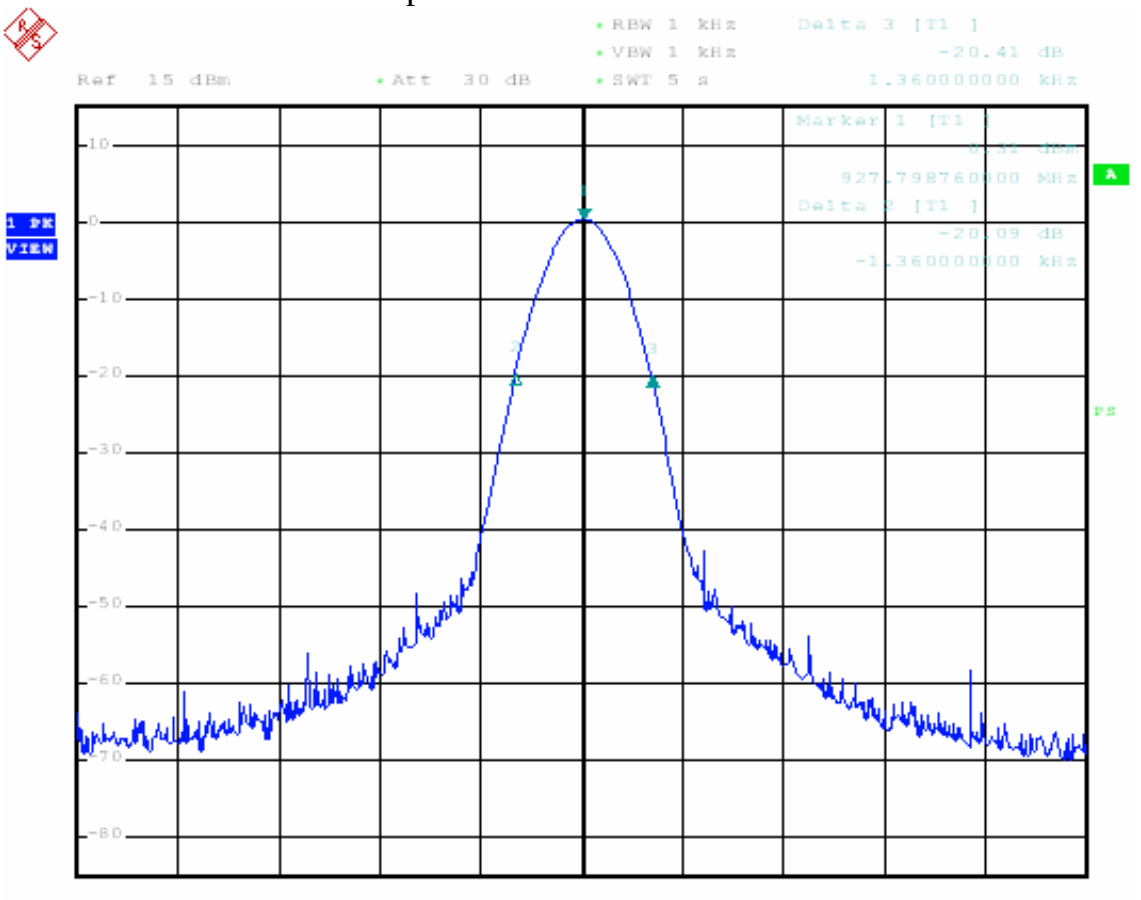
5.8.3 Measurement Equipment Used:

The same as described in section 5.2.3

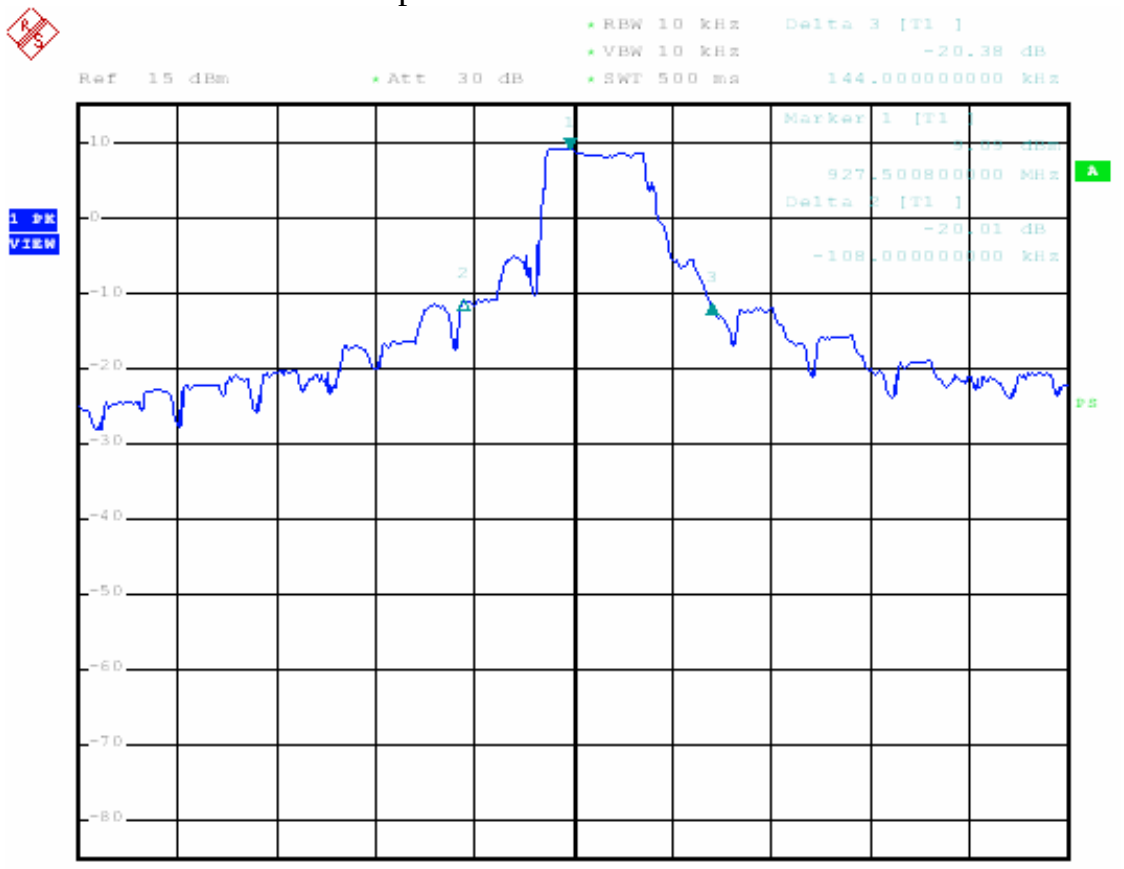
5.8.4 Limits And Measurement Result:

Limits and Measurement Result Of Band Edge		
Applicable Limits	**Measurement Result**	
	Test Data	Criteria
Per 15.247 (c) In any 100 KHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produce by the intentional radiator shall be at least 20 dB below that in 100 KHz bandwidth within the band that contains the highest level of the desired power.	See the test plots attached below	PASS

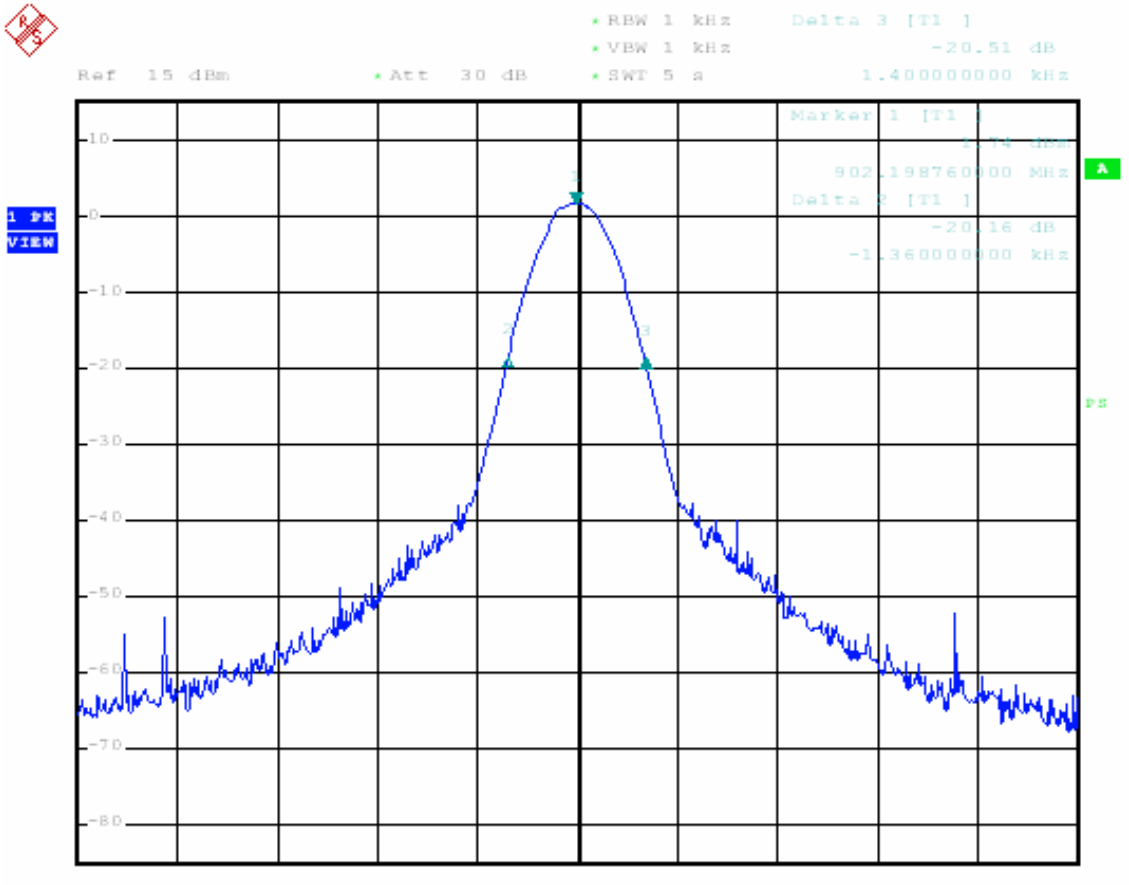
Top Channel of XCRF-600



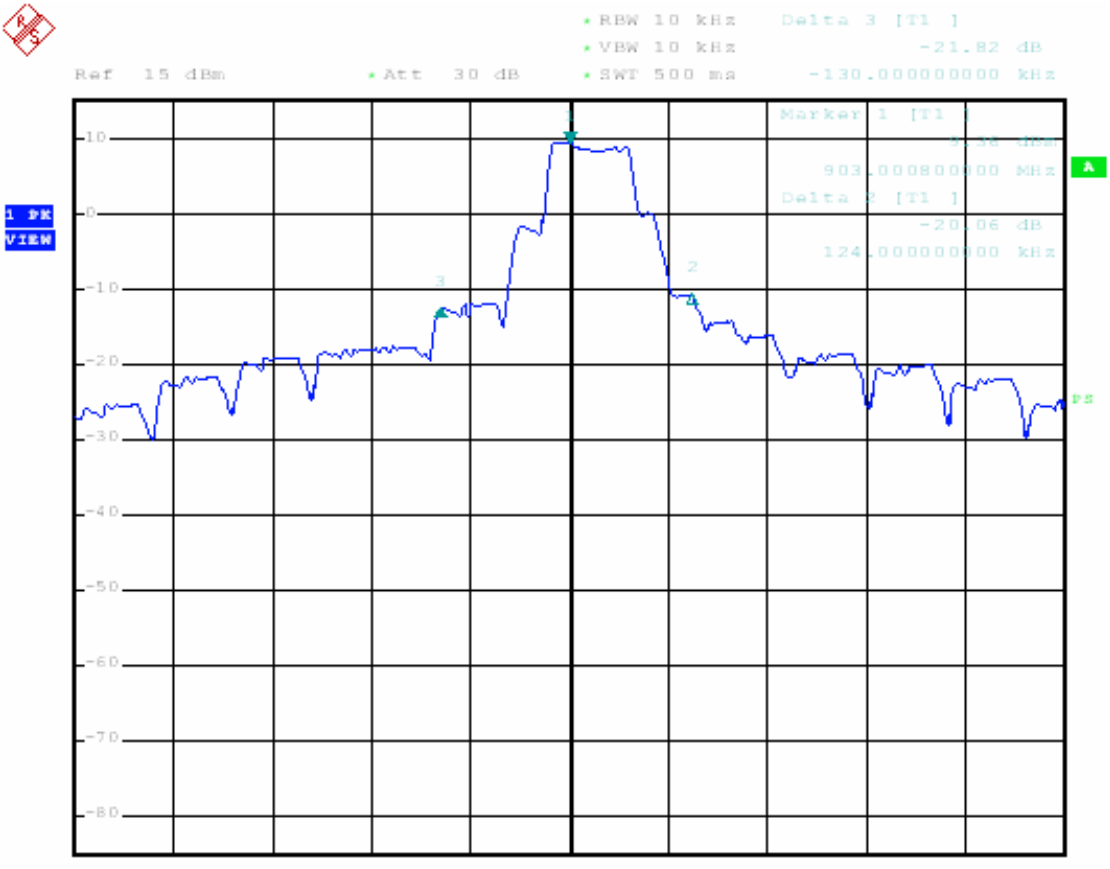
Top Channel of XCRF-500



Bottom Channel of XCRF-600



Bottom Channel of XCRF-500



5.9 Spurious Emission At Receiving Mode

5.9.1 Measurement Procedure:

1 The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane as per ANSI C63.4 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.

2 Support equipment, if needed, was placed as per ANSI C63.4.

3 All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.

4 The EUT received DC3V from the adapter, and the adapter received AC120V/60Hz power through the outlet socket under the turntable. All support equipments received AC 120V/60Hz power from socket under the turntable, if any.

5 The antenna was placed at 10 meter away from the EUT as stated in CISPR 22. The antenna connected to the Analyzer via a cable and at times a pre-amplifier would be used.

6 The Analyzer / Receiver quickly scanned from 30MHz to 1000MHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.

5.9.2 Test SET-UP (Block Diagram of Configuration)

The same as described in section 5.2.2

5.9.3 Measurement Equipment Used:

3/5 Anechoic Chamber Radiation Test Site # 4					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
ULTRA-BROADBAND ANTENNA	ROHDE & SCHWARZ	HL562	100015	2004/11	2005/11
EMI TEST RECEIVER	ROHDE & SCHWARZ	ESI 26	100009	2004/11	2005/11
RF TEST PANEL	ROHDE & SCHWARZ	TS / RSP	335015/ 0017	N/A	N/A
TURNTABLE	ETS	2088	2149	N/A	N/A
ANTENNA MAST	ETS	2075	2346	N/A	N/A
EMI TEST SOFTWARE	ROHDE & SCHWARZ	ESK1	NA	N/A	N/A

5.9.4 Limits And Measurement Result:

Limits and Measurement Result Of Spurious Emission		
Applicable Limits	**Measurement Result**	
	Test Data	Criteria
§ 15.209 shall apply	See as the chart below	PASS

Operation Mode:	Receiving Mode	Test Date :	September 29, 2005
Temperature :	25 ℃	Test By:	Jimmy Zhang
Humidity :	59 %	Pol:	Vertical & Horizontal

Freq. (MHz)	Ant.Pol. H/V	DetectorMode (PK/AV)	Reading (dBuV)	Ant./CL/ Amp. CF(dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
Below 1 GHz	V	Peak	---			Per15.209	At least 20
Below 1 GHz	H	Peak	---			Per15.209	dB down
Above 1 GHz	V	Peak	---			Per15.209	than the
Above 1 GHz	H	Peak	---			Per15.209	Limit

Remark：

(1) Measuring frequencies from 25 MHz to the 10 GHz。

(2) Datum 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 measured.

(3) The IF bandwidth of EMI Test Receiver between 25MHz to 1GHz was 120KHz and 1 MHz for above 1 GHz

5.10 Dwell Time

5.10.1 Measurement Procedure:

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Set EUT as Normal Operation mode
3. Set SPA Span= 0 Hz, RBW= 1 MHz, VBW= 1 MHz
4. Set SPA Trace 1 Max hold, then View.

5.10.2 Test SET-UP (Block Diagram of Configuration)

The same as described in Section 5.2.2

5.10.3 Measurement Equipment Used:

The same as described in Section 5.2.3

5.10.4 Limits And Measurement Result:

Limits and Measurement Result Of Dwell Time		
Applicable Limits	**Measurement Result**	
	Test Data	Criteria
Per 15.247 (a)(1)(ii) The average time of occupancy on any frequency shall not be greater than 0.4 seconds	395.93 ms For XCRF-600	PASS
	360 ms For XCRF-500	PASS

Notes:

30 Channels had been selteted for XCRF-600:

As the test plots shown below, the Dwell Time(Td) for each channel is 58.4 ms and the Repeat Time(Tr) for each channel is 1770 ms. So the total Occupation Time(To) for each channel during 0.4 s × total number of the used hopping channels (Nc)' observation time is calculated by the following formula:

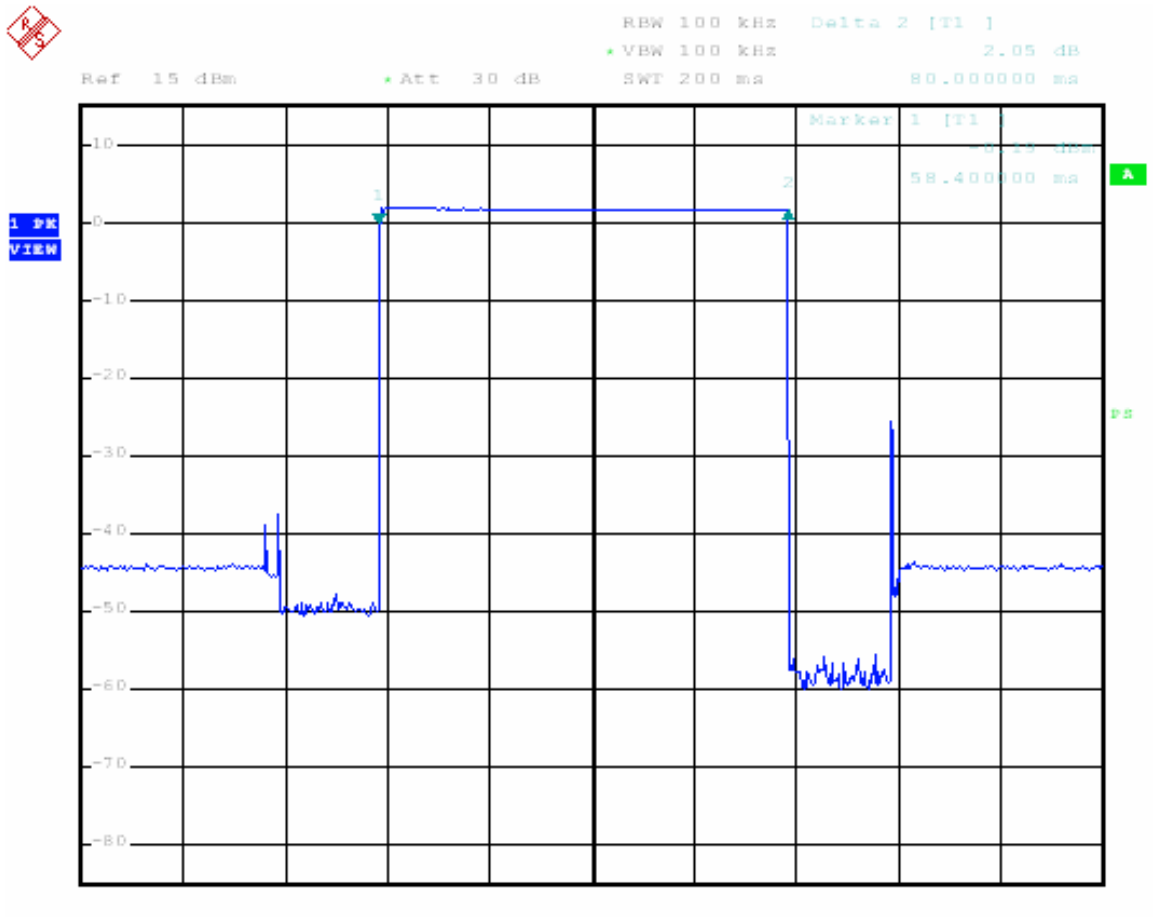
To = Td *(400 * Nc)/Tr = 58.4 * (400 * 30)/ 1770 = 395.93 ms

20 Channels had been selteted for XCRF-500:

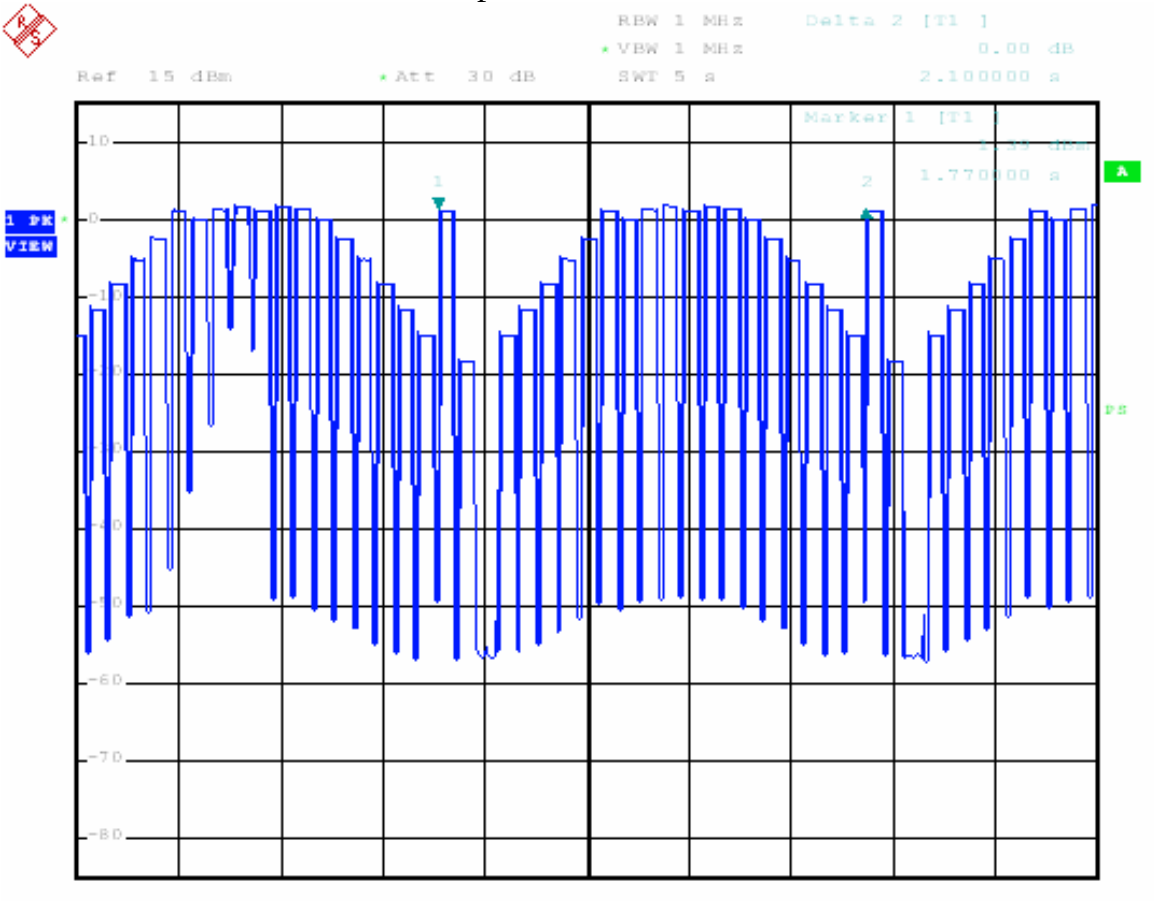
As the test plots shown below, the Dwell Time(Td) for each channel is 58.4 ms and the Repeat Time(Tr) for each channel is 1333 ms. So the total Occupation Time(To) for each channel during 0.4 s × total number of the used hopping channels (Nc)' observation time is calculated by the following formula:

To = Td *(400 * Nc)/Tr = 60 * (400 * 20)/ 1333 = 360 ms

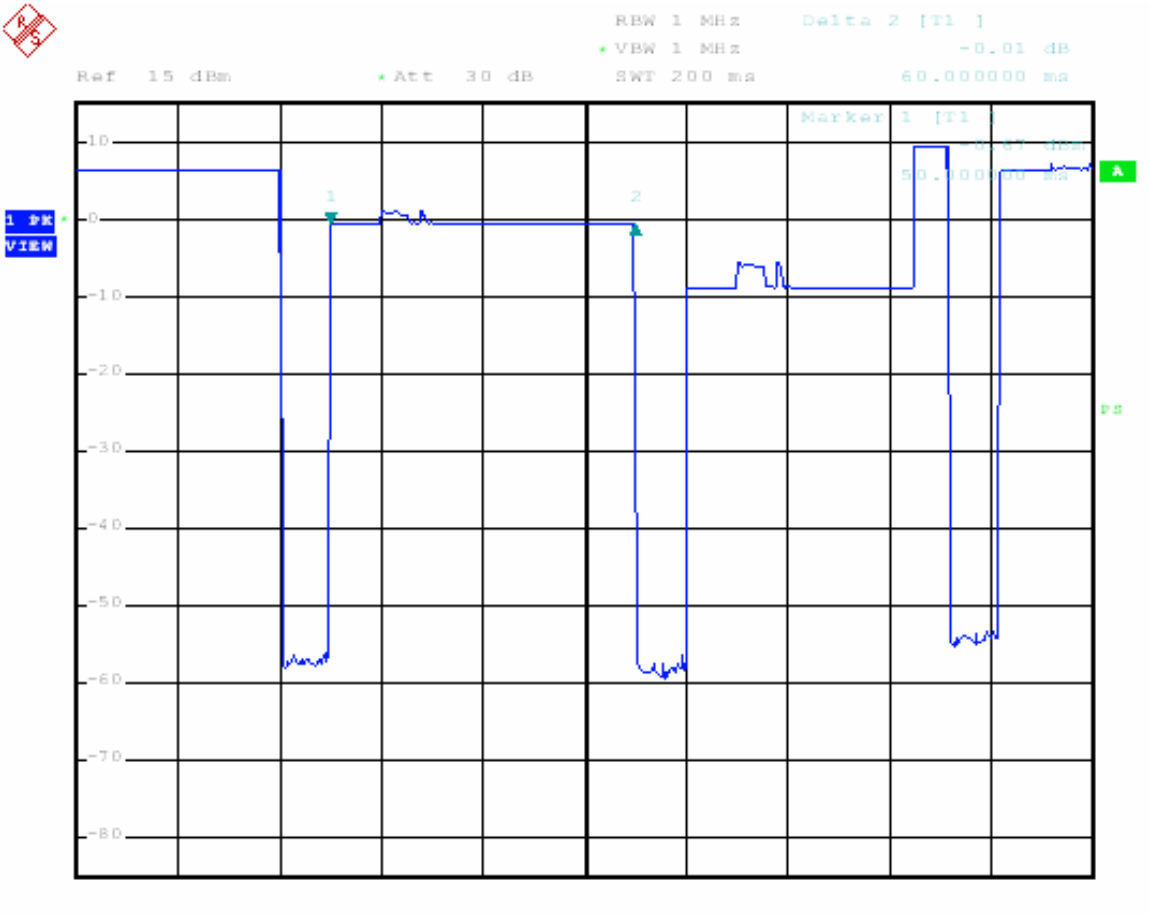
The Dwell Time of XCRF-600



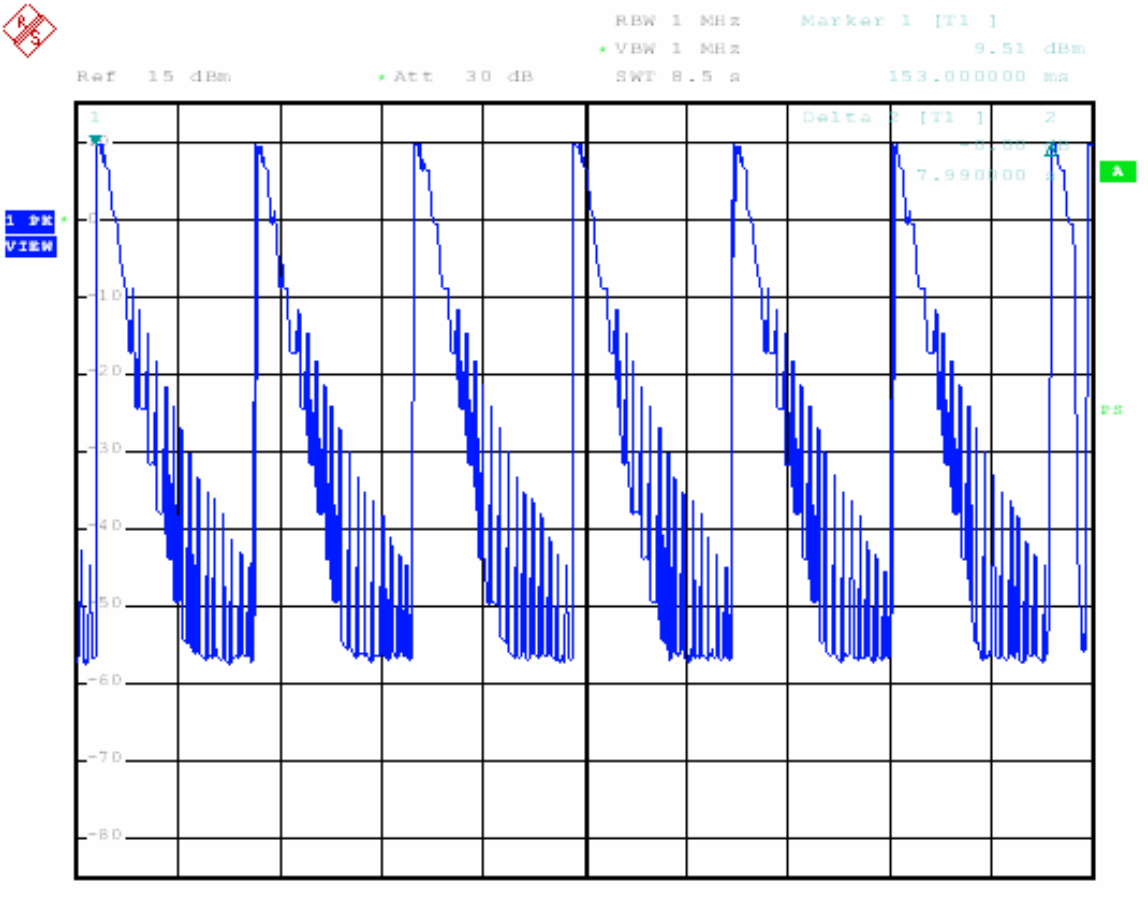
The Reapt Time of XCRF-600



The Dwell Time of XCRF-500



The Reapt Time of XCRF-500

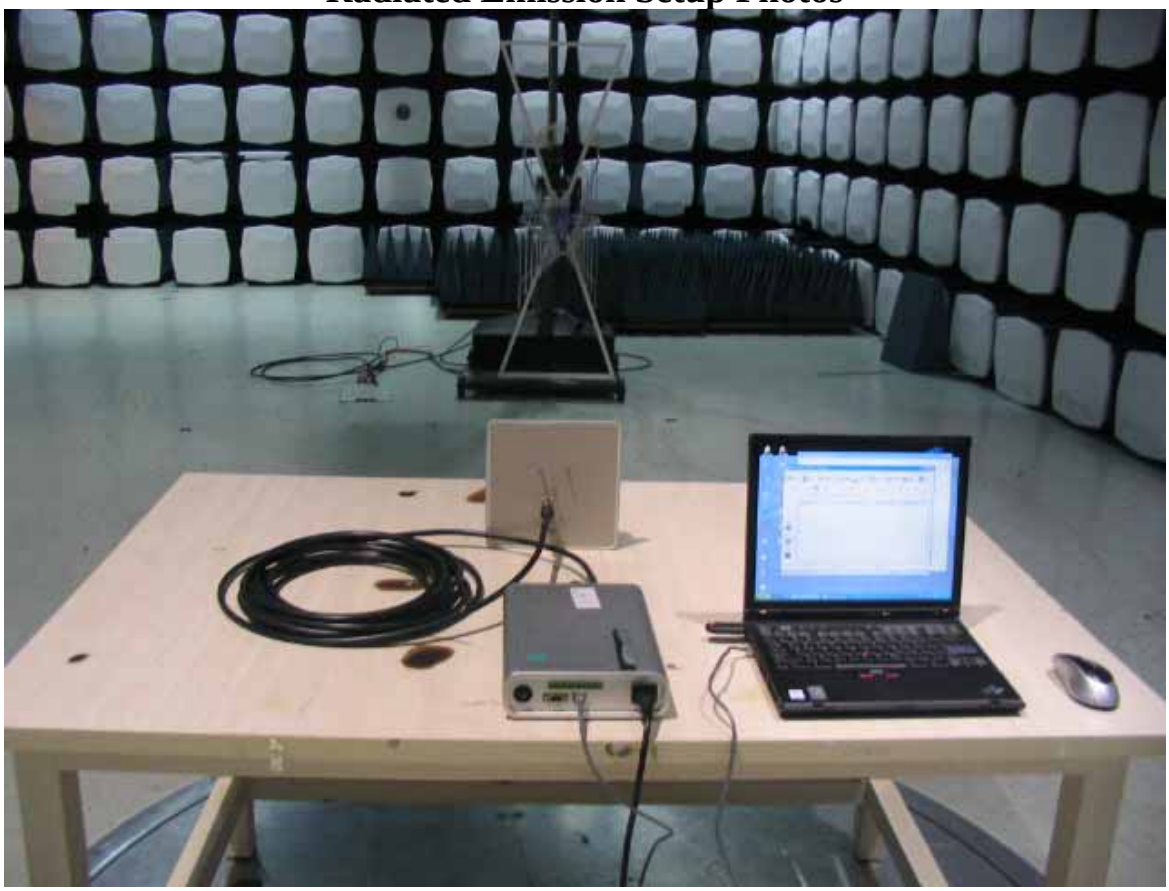


APPENDIX 1

PHOTOGRAPHS OF SET UP

Conducted Emission Setup Photos

Radiated Emission Setup Photos



APPENDIX 2

PHOTOGRAPHS OF EUT

Top View of EUT

Bottom View of EUT

Front View of EUT

Back View of EUT

Left View of EUT

Right View of EUT

Cable of System

Antenna of System

Internal of EUT-1

Internal of EUT-2