ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART C REQUIREMENT AND INDUSTRY CANADA RSS 210 CLASS II PERMISSIVE CHANGE REPORT

OF

Product Name:	**scala-500**
Brand Name:	**CARDO SYSTEMS**
Model Name:	**scala-500**
IC Number:	**4668A-SC01**
ID Number:	**Q95SC01**
Report No.:	**EF/2005/80004**
Issue Date:	**Sep. 07, 2005**
Rule Part:	**FCC §15.247, RSS 210, Section 6.2.2(o)**
Prepared for	**Cardo Systems, Inc.** **100 High Tower Blvd, Pittsburgh,** **PA 15205, USA**
Prepared by	**SGS Taiwan Ltd.** **No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei County, Taiwan.**

VERIFICATION OF COMPLIANCE

Applicant:	Cardo Systems Inc. 100 High Tower Blvd, Pittsburgh, PA 15205, USA
Equipment Under Test:	scala-500
Brand Name:	CARDO SYSTEMS
IC Number:	4668A-SC01
ID Number:	Q95SC01
Model No.:	scala-500
Model Difference:	N/A
File Number:	EF/2005/80004
Date of test:	Aug. 09, 2005 ~ Sep. 08, 2005
Date of EUT Received:	Aug. 08, 2005

We hereby certify that:

The above equipment was tested by SGS Taiwan 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 conducted and radiated emission limits of FCC Rules Part 15.247 and IC RSS 210 section 6.2.2(o).

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

Test By:	Sky Wang	***Date***	Sep. 07, 2005
	Sky Wang		
Prepared By:	Eva Kao	***Date***	Sep. 07, 2005
	Eva Kao		
Approved By:	Vincent Su	***Date***	Sep. 07, 2005
	Vincent Su		

Version

Version No.	Date
00	Sep. 07, 2005

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1. GENERAL INFORMATION

1.1. Product Description

The CARDO SYSTEM., Model: scala-500 (referred to as the EUT in this report) is Bluetooth Headset.

A major technical descriptions of EUT is described as following:
A). Operation Frequency: 2402 – 2480Hz, 79 channels
B). Rated output power: 4 dBm
C). Modulation type: Frequency Hopping Spread Spectrum (FHSS)
D). Antenna Designation: Micro-Strip Antenna, 2 dBi, Non-User Replaceable (Fixed)
E). Power Supply: Input: 110V/ 60Hz; Output: 9Vdc, Model: OH-35020DT

1.2. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID **Q95SC01** filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules. And IC: **4668A-SC01** filing to comply with industry CANADA RSS 210. secfion 6.2.10

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 open area test site and conducted measurement facility used to collect the radiated data is located on the address of SGS Taiwan Ltd. No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei Country, Taiwan. The Open Area 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. Accreditation and Listing

The test facilities used to perform radiated and conducted emissions tests are listed In Canada, Certification and Engineering Bureau, IC4620. for 3m & 10m Open Area Test Site. FCC Site No. 1(3 &10 meters) Registration Number: 94644, Anechoic chamber (3 meters) Registration Number: 573967

1.6. Special Accessories

Not available for this EUT intended for grant.

1.7. Equipment Modifications

Not available for this EUT intended for grant.

2. SYSTEM TEST CONFIGURATION

2.1. EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2. EUT Exercise

The EUT (Transmitter) was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements.

2.3. Test Procedure

2.3.1 Conducted Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. According to the requirements in Section 7, 13 of ANSI C63.4-2003.Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and Average detector mode.

2.3.2 Radiated Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter(EUT) was rotated through three orthogonal axes according to the requirements in Section 8, 13 of ANSI C63.4-2003.

2.4. Configuration of Tested System

Fig. 2-1 Configuration of Tested System (Fixed channel)

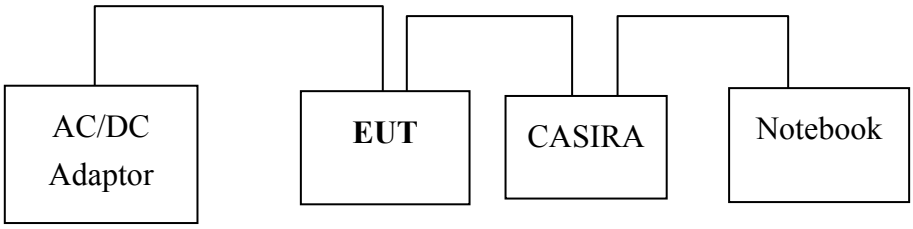


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/ Type No.	FCC ID	Series No.	Data Cable	Power Cord
1.	Notebook	IBM	T2367	DOC	99GLD64	120cm , shielded	Un-shield
2.	BT devel-opment kit	CSR/CASIRA	BCES301199	DOC	7383-07-04-03	30cm, un-shielded	Un-shield

3. SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§15.209(a) (f)	Spurious Emission	Compliant
§15.203, §15.247(b)(4)(i)	Antenna Requirement	Compliant

4. DESCRIPTION OF TEST MODES

This is Class II Permissive Change report, only Radiated Spurious emission was performed.

The EUT has been tested under operating condition.
Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.
Channel low (2402MHz)、mid (2441MHz) and high (2480MHz) with 741k highest data rate are chosen for radiated spurious emission.
Normal operation for Audio input mode was repeated for radiated spurious emission testing.
The X, Y and Z-axis of EUT were pre-test for spurious emission; the Y mode was the worst case and reported.

5. SPURIOUS RADIATED EMISSION TEST

5.1. Standard Applicable

According to §15.247(c), all other emissions outside these bands shall not exceed the general radiated emission limits specified in §15.209(a). And according to §15.33(a)(1), for an intentional radiator operates below 10GHz, the frequency range of measurements: to the tenth harmonic of the highest fundamental frequency or to 40GHz, whichever is lower.

According to §6.2.2(o)(e1), In any 100 kHz bandwidth outside the operating frequency bands, between 30 MHz and 5 times the carrier frequency, the unwanted emission spectral density shall be either at least 20 dB below the inband spectral density, or shall not exceed the levels specified in Table 3, whichever is less stringent.

5.2. EUT Setup

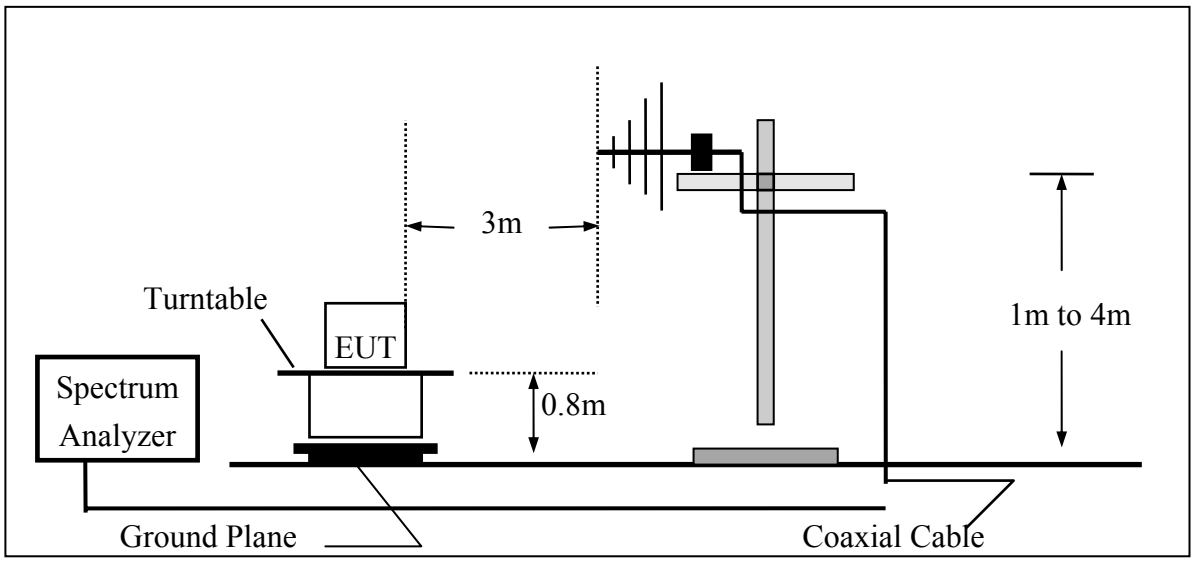
1. The radiated emission tests were performed in the 3 meter open-test site, using the setup in accordance with the ANSI C63.4-2001.
2. The EUT was put in the front of the test table. The peripherals was placed on the side of the host system. The rear of the EUT and peripherals were placed flushed with the rear of the tabletop.
3. The spacing between the peripherals was 10 centimeters.
4. External I/O cables were draped along the edge of the test table and bundle when necessary.
5. The host PC system was connected with 110Vac/60Hz power source.

5.3. Measurement Procedure

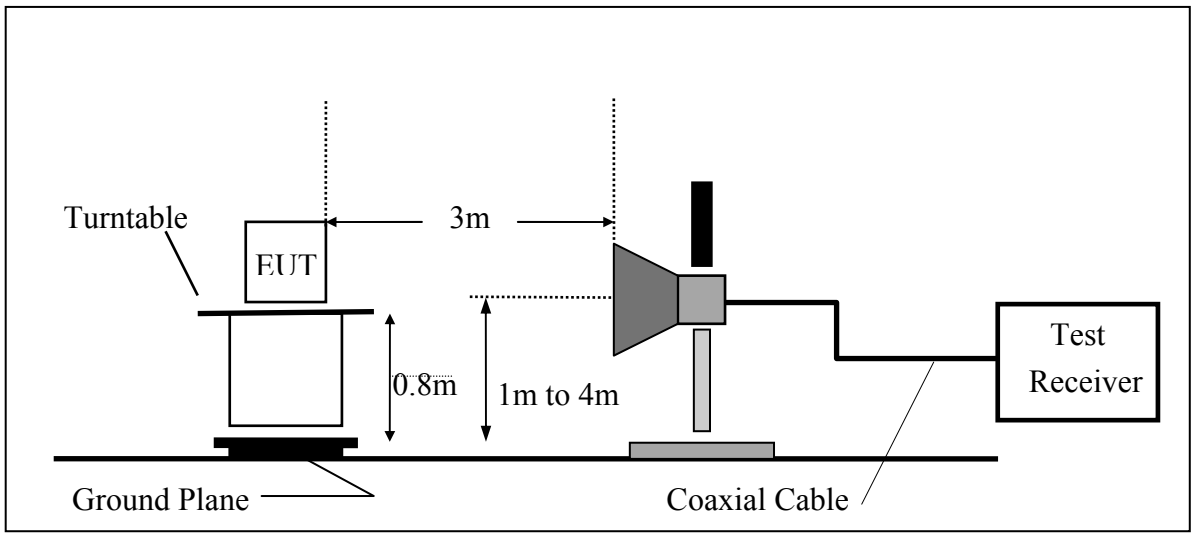
1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. The turn table shall rotate 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until all frequency measured were complete.

5.4. Test SET-UP (Block Diagram of Configuration)

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



(B) Radiated Emission Test Set-UP Frequency Over 1 GHz



5.5. Measurement Equipment Used:

966 Chamber					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	R&S	FSP 40	100034	05/27/2005	05/26/2006
Spectrum Analyzer	Agilent	E7405A	US41160416	08/27/2005	08/26/2006
Bilog Antenna	SCHWAZBECK	VULB9163	152	06/03/2005	06/02/2006
Horn antenna	Schwarzbeck	BBHA 9120D	309/320	08/16/2005	08/15/2006
Horn antenna	Schwarzbeck	BBHA 9170	184/185	07/04/2005	07/03/2006
Pre-Amplifier	HP	8447D	2944A09469	07/19/2005	07/18/2006
Pre-Amplifier	HP	8494B	3008A00578	02/26/2005	02/25/2006
Turn Table	HD	DT420	N/A	N.C.R	N.C.R
Antenna Tower	HD	MA240-N	240/657	N.C.R	N.C.R
Controller	HD	HD100	N/A	N.C.R	N.C.R
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-10M	10m	10/09/2004	10/08/2005
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	10/09/2004	10/08/2005
Site NSA	SGS	966 chamber	N/A	11/17/2004	11/16/2005

5.6. Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor(if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL - AG

Where	FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
	RA = Reading Amplitude	AG = Amplifier Gain
	AF = Antenna Factor	

5.7. Measurement Result

Refer to attach tabular data sheets.

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode	TX CH Low	Test Date	Sep. 05, 2005
Fundamental Frequency	2402MHz	Test By	Sky
Temperature	27 ℃	Pol	Ver./Hor
Humidity	64 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
41.64	V	Peak	42.85	-14.67	28.18	40.00	-11.82
90.14	V	Peak	41.64	-17.89	23.75	43.50	-19.75
106.63	V	Peak	43.71	-16.65	27.06	43.50	-16.44
182.29	V	Peak	35.39	-15.35	20.04	43.50	-23.46
494.63	V	Peak	38.76	-9.34	29.42	46.00	-16.58
41.64	H	Peak	39.99	-14.67	25.32	40.00	-14.68
65.89	H	Peak	38.79	-15.35	23.44	40.00	-16.56
90.14	H	Peak	40.62	-17.89	22.73	43.50	-20.77
106.63	H	Peak	39.59	-16.65	22.94	43.50	-20.56

Remark：

(1) Measuring frequencies from 30 MHz to the 1GHz。

(2) Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.

(3) Datas 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.

(4) The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode	TX CH Mid	Test Date	Sep. 05, 2005
Fundamental Frequency	2441MHz	Test By	Sky
Temperature	27 ℃	Pol	Ver./Hor
Humidity	64 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
41.64	V	Peak	43.05	-14.67	28.38	40.00	-11.62
75.59	V	Peak	40.53	-17.66	22.87	40.00	-17.13
90.14	V	Peak	45.30	-17.89	27.41	43.50	-16.09
106.63	V	Peak	43.02	-16.65	26.37	43.50	-17.13
182.29	V	Peak	35.90	-15.35	20.55	43.50	-22.95
38.73	H	Peak	43.20	-14.77	20.05	40.00	-19.95
65.89	H	Peak	37.10	-15.35	21.56	40.00	-18.44
90.14	H	Peak	46.50	-17.89	22.65	43.50	-20.85
106.63	H	Peak	40.29	-16.65	27.97	43.50	-15.53

Remark：

(1) Measuring frequencies from 30 MHz to the 1GHz。

(2) Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.

(3) Datas 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.

(4) The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode	TX CH High	Test Date	Sep. 05, 2005
Fundamental Frequency	2480MHz	Test By	Sky
Temperature	27 ℃	Pol	Ver./Hor
Humidity	64 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
41.64	V	Peak	42.00	-14.67	27.33	40.00	-12.67
75.59	V	Peak	41.85	-17.66	24.19	40.00	-15.81
106.63	V	Peak	44.02	-16.65	27.37	43.50	-16.13
182.29	V	Peak	36.69	-15.35	21.34	43.50	-22.16
43.58	H	Peak	39.71	-14.64	25.07	40.00	-14.93
53.28	H	Peak	36.76	-14.91	21.85	40.00	-18.15
65.89	H	Peak	36.94	-15.35	21.59	40.00	-18.41
90.14	H	Peak	40.55	-17.89	22.66	43.50	-20.84
106.63	H	Peak	38.62	-16.65	21.97	43.50	-21.53

Remark：

(1) Measuring frequencies from 30 MHz to the 1GHz。

(2) Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.

(3) Datas 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.

(4) The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	TX CH Low	Test Date	Sep. 05, 2005
Fundamental Frequency	2402 MHz	Test By	Sky
Temperature	27 ℃	Pol	Ver.
Humidity	64 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	
2386.0	39.99	--	-3.40	36.59	--	74.00	54.00	-17.41	Peak
4804.0	45.64	--	4.95	50.59	--	74.00	54.00	-3.41	Peak
7206.0	----								
9608.0	----								
12010.0	----								
14412.0	----								
16814.0	----								
19216.0	----								
21618.0	----								
24020.0	----								

Remark：

(1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency。

(2) Datas 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) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column。

(4) Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 1MHz, Sweep time= 200 ms.

(5) Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	TX CH Low	Test Date	Sep. 05, 2005
Fundamental Frequency	2402 MHz	Test By	Sky
Temperature	27 ℃	Pol	Hor
Humidity	64 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	
1045.5	45.36	--	-9.25	36.11	--	74.00	54.00	-17.89	Peak
1188.5	42.58	--	-8.65	33.93	--	74.00	54.00	-20.07	Peak
2386.0	48.34	--	-3.43	44.91	--	74.00	54.00	-9.09	Peak
4804.0	47.13	--	2.95	50.08	--	74.00	54.00	-3.92	Peak
7206.0	----								
9608.0	----								
12010.0	----								
14412.0	----								
16814.0	----								
19216.0	----								
21618.0	----								
24020.0	----								

Remark：

(1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency。

(2) Datas 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) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column。

(4) Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 1MHz, Sweep time= 200 ms.

(5) Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	TX CH Mid	Test Date	Sep. 05, 2005
Fundamental Frequency	2441 MHz	Test By	Sky
Temperature	27 ℃	Pol	Ver
Humidity	64 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	
4882.0	41.79	--	3.18	44.97	--	74.00	54.00	-9.03	Peak
7323.0	----								
9764.0	----								
12205.0	----								
14646.0	----								
17087.0	----								
19528.0	----								
21969.0	----								
24410.0	----								

Remark：

(1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency。

(2) Datas 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) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column。

(4) Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 1MHz, Sweep time= 200 ms.

(5) Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	TX CH Mid	Test Date	Sep. 05, 2005
Fundamental Frequency	2441 MHz	Test By	Sky
Temperature	27 ℃	Pol	Hor
Humidity	64 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	
1045.5	43.82	--	-9.25	34.57	--	74.00	54.00	-19.43	Peak
1221.0	40.85	--	-8.44	32.41	--	74.00	54.00	-21.59	Peak
4882.0	45.58	--	3.18	48.76	--	74.00	54.00	-5.24	Peak
7323.0	----								
9764.0	----								
12205.0	----								
14646.0	----								
17087.0	----								
19528.0	----								
21969.0	----								
24410.0	----								

Remark：

(1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency。

(2) Datas 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) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column。

(4) Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 1MHz, Sweep time= 200 ms.

(5) Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	TX CH High	Test Date	Sep. 05, 2005
Fundamental Frequency	2480 MHz	Test By	Sky
Temperature	27 ℃	Pol	Ver
Humidity	64 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	
2483.6	46.99	--	-3.04	43.95	--	74.00	54.00	-10.05	Peak
4960.0	38.51	--	3.40	41.91	--	74.00	54.00	-12.09	Peak
7440.0	----								
9920.0	----								
12400.0	----								
14880.0	----								
17360.0	----								
19840.0	----								
22320.0	----								
24800.0	----								

Remark：

(1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency。

(2) Datas 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) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column。

(4) Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 1MHz, Sweep time= 200 ms.

(5) Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	TX CH High	Test Date	Sep. 05, 2005
Fundamental Frequency	2480 MHz	Test By	Sky
Temperature	27 ℃	Pol	Hor
Humidity	64 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	
1045.5	44.49	--	-9.25	35.24	--	74.00	54.00	-18.76	Peak
1240.5	42.52	--	-8.42	34.10	--	74.00	54.00	-19.90	Peak
2483.6	56.27	--	-3.04	53.23	--	74.00	54.00	-0.77	Peak
4960.0	47.53	--	3.40	50.93	--	74.00	54.00	-3.07	Peak
7440.0	----								
9920.0	----								
12400.0	----								
14880.0	----								
17360.0	----								
19840.0	----								
22320.0	----								
24800.0	----								

Remark：

(1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency。

(2) Datas 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) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column。

(4) Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 1MHz, Sweep time= 200 ms.

(5) Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode	RX CH Low	Test Date	Sep. 05, 2005
Fundamental Frequency	2402MHz	Test By	Sky
Temperature	25 ℃	Pol	Ver./Hor.
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
41.64	V	Peak	41.86	-14.67	27.19	40.00	-12.81
75.59	V	Peak	40.13	-17.66	22.47	40.00	-17.53
106.63	V	Peak	42.97	-16.65	26.32	43.50	-17.18
41.64	H	Peak	38.34	-14.67	23.67	40.00	-16.33
65.89	H	Peak	36.39	-15.35	21.04	40.00	-18.96

Remark：

(1) Measuring frequencies from 30 MHz to the 1GHz。

(2) Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.

(3) Datas 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.

(4) The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode	RX CH Mid	Test Date	Sep. 05, 2005
Fundamental Frequency	2441MHz	Test By	Sky
Temperature	25 ℃	Pol	Ver./Hor.
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
36.79	V	Peak	41.93	-14.93	27.00	40.00	-13.00
75.59	V	Peak	40.74	-17.66	23.08	40.00	-16.92
90.14	V	Peak	42.87	-17.89	24.98	43.50	-18.52
106.63	V	Peak	41.83	-16.65	25.18	43.50	-18.32
41.64	H	Peak	38.88	-14.67	24.21	40.00	-15.79
65.89	H	Peak	36.81	-15.35	21.46	40.00	-18.54
90.14	H	Peak	41.64	-17.89	23.75	43.50	-19.75
106.63	H	Peak	40.19	-16.65	23.54	43.50	-19.96

Remark：

(1) Measuring frequencies from 30 MHz to the 1GHz。

(2) Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.

(3) Datas 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.

(4) The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode	RX CH High	Test Date	Sep. 05, 2005
Fundamental Frequency	2480MHz	Test By	Sky
Temperature	25 ℃	Pol	Ver./Hor.
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
41.64	V	Peak	43.41	-14.67	28.74	40.00	-11.26
75.59	V	Peak	40.63	-17.66	22.97	40.00	-17.03
106.63	V	Peak	42.34	-16.65	25.69	43.50	-17.81
43.58	H	Peak	38.83	-14.64	24.19	40.00	-15.81
138.64	H	Peak	37.95	-14.00	23.95	43.50	-19.55

Remark：

(1) Measuring frequencies from 30 MHz to the 1GHz。

(2) Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.

(3) Datas 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.

(4) The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	RX CH Low	Test Date	Sep. 05, 2005
Fundamental Frequency	2402 MHz	Test By	Sky
Temperature	25 ℃	Pol	Ver. / Hor.
Humidity	65 %		

Freq. (MHz)	Ant. Pol. H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	
1819.0	V	38.10	---	-5.90	32.20	---	74.00	54.00	-21.80	Peak
4804.0	V	----								
7206.0	V	----								
9608.0	V	----								
12010.0	V	----								
1188.5	H	39.19	---	-8.65	30.54	---	74.00	54.00	-23.46	Peak
1825.5	H	38.94	---	-5.86	33.08	---	74.00	54.00	-20.92	Peak
4804.0	H	----								
7206.0	H	----								
9608.0	H	----								
12010.0	H	----								

Remark：

(1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency。

(2) Datas 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) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column。

(4) Spectrum Peak Setting : 1GHz- 26GHz, RBW= 3MHz, VBW= 1MHz, Sweep time= 200 ms.

(5) Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	RX CH Mid	Test Date	Sep. 05, 2005
Fundamental Frequency	2441 MHz	Test By	Sky
Temperature	25 ℃	Pol	Ver. / Hor.
Humidity	65 %		

Freq. (MHz)	Ant. Pol. H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	
1825.5	V	42.14	---	-5.86	36.28	---	74.00	54.00	-17.72	Peak
1988.0	V	40.70	---	-5.19	35.51	---	74.00	54.00	-18.49	Peak
4882.0	V	----								
7323.0	V	----								
9764.0	V	----								
12205.0	V	----								
1221.0	H	41.32	---	-8.44	32.88	---	74.00	54.00	-21.12	Peak
1825.5	H	40.13	---	-5.86	34.27	---	74.00	54.00	-19.73	Peak
4882.0	H	----								
7323.0	H	----								
9764.0	H	----								
12205.0	H	----								

Remark：

(1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency。

(2) Datas 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) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column。

(4) Spectrum Peak Setting : 1GHz- 26GHz, RBW= 3MHz, VBW= 1MHz, Sweep time= 200 ms.

(5) Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	RX CH High	Test Date	Sep. 05, 2005
Fundamental Frequency	2480 MHz	Test By	Sky
Temperature	25 ℃	Pol	Ver. / Hor.
Humidity	65 %		

Freq. (MHz)	Ant. Pol. H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	
1825.5	V	40.51	---	-5.86	34.65	---	74.00	54.00	-19.35	Peak
2033.5	V	44.73	---	-4.99	39.74	---	74.00	54.00	-14.26	Peak
4960.0	V	----								
7440.0	V	----								
9920.0	V	----								
12400.0	V	----								
1825.5	H	42.05	---	-5.86	36.19	---	74.00	54.00	-17.81	Peak
4960.0	H	----								
7440.0	H	----								
9920.0	H	----								
12400.0	H	----								

Remark：

(1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency。

(2) Datas 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) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column。

(4) Spectrum Peak Setting : 1GHz- 26GHz, RBW= 3MHz, VBW= 1MHz, Sweep time= 200 ms.

(5) Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

6. ANTENNA REQUIREMENT

6.1. Standard Applicable

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

And according to §15.247(4)(1), system operating in the 2400-2483.5MHz bands that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum peak 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.

6.2. Antenna Connected Construction

The directional gains of antenna used for transmitting is 2 dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Please see EUT photo for details.