FCC Part 15
EMI TEST REPORT

of

E.U.T. : Wireless Ethernet Bridge
Model : ICRS-MMDS-1
FCC ID. : AFJ316101

for

APPLICANT : Icom Inc.

ADDRESS : 1-1-32 Kamiminami, Hirano-ku, Osaka 547-0003, Japan

Test Performed by

ELECTRONICS TESTING CENTER, TAIWAN
NO.34, LIN 5, DINGFU TSUEN, LINKOU SHIANG
TAIPEI COUNTY, TAIWAN, 24442, R.O.C.
Tel:(02)26023052 Fax:(02)26010910
http://www.etc.org.tw ; e-mail : r00@etc.org.tw

Report Number: 08-02-RBF-013

TEST REPORT CERTIFICATION

Applicant : Icom Inc.
1-1-32 Kamiminami, Hirano-ku, Osaka 547-0003, Japan

Manufacture : K-Best Technology Inc.
2Fl,-1, No.185, Ko Wang Rd., Kau Yuan Taun, Lung Tan Hsiang, Taoyuan Hsien, Taiwan

Description of Device :

a) Type of EUT : Wireless Ethernet Bridge
b) Trade Name : Icom
c) Model No. : ICRS-MMDS-1
d) Power Supply : AC I/P: 100-240VAC,50-60Hz 1.6A；O/P: 24VDC

Regulation Applied : FCC Rules and Regulations Part 15 Subpart C (2007)

I HEREBY CERTIFY THAT: The data shown in this report were made in accordance with the procedures given in ANSI C63.4, and the energy emitted by the device was founded to be within the limits applicable. I assume full responsibility for accuracy and completeness of these data.

Note: 1. The result of the testing report relate only to the item tested.
2. The testing report shall not be reproduced expect in full, without the written approval of ETC.

Issued Date : Apr. 17, 2008

Test Engineer : falcon Shi
(falcon Shi)

Approve & Authorized Signer : Will Yauo
Will Yauo, Manager
EMC Dept. II of ELECTRONICS TESTING CENTER, TAIWAN

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1 GENERAL INFORMATION

1.1 Product Description

a) Type of EUT : Wireless Ethernet Bridge
b) Trade Name : Icom
c) Model No. : ICRS-MMDS-1
d) Power Supply : AC I/P: 100-240VAC,50-60Hz 1.6A；O/P: 24V

1.2 Characteristics of Device

The ODU – programmable Data Rate, are specially designed for outdoor Point-to-Point and Point-to-Multipoint applications, provide high speed data connections that can be used for voice, data and video services.

1.3 Test Methodology

For Wireless Ethernet Bridge, both conducted and radiated emissions were performed according to the procedures illustrated in ANSI C63.4 (2003). Other required measurements were illustrated in separate sections of this test report for details.

1.4 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located on the roof top of Building at NO.34, LIN 5, DINGFU TSUEN, LINKOU SHIANG TAIPEI COUNTY, TAIWAN, 24442, R.O.C.

This site has been fully described in a report submitted to your office, and accepted in a letter dated Oct. 20, 2005.

2 PROVISIONS APPLICABLE

2.1 Definition

Unintentional radiator:
A device that intentionally generates and radio frequency energy for use within the device, or that sends radio frequency signals by conduction to associated equipment via connecting wiring, but which is not intended to emit RF energy by radiation or induction.

Class A Digital Device:
A digital device which is marketed for use in commercial or business environment; exclusive of a device which is market for use by the general public, or which is intended to be used in the home.

Class B Digital Device:
A digital device which is marketed for use in a residential environment notwithstanding use in a commercial, business of industrial environment. Example of such devices that are marketed for the general public.

Note: A manufacturer may also qualify a device intended to be marketed in a commercial, business, or industrial environment as a Class B digital device, and in fact is encouraged to do so, provided the device complies with the technical specifications for a Class B Digital Device. In the event that a particular type of device has been found to repeatedly cause harmful interference to radio communications, the Commission may classify such a digital device as a Class B Digital Device, Regardless of its intended use.

Intentional radiator:
A device that intentionally generates and emits radio frequency energy by radiation or induction.

2.2 Requirement for Compliance

(1) Conducted Emission Requirement

Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency MHz	Quasi Peak dB μV	Average dB μV
0.15 - 0.5	66-56*	56-46*
0.5 - 5.0	56	46
5.0 - 30.0	60	50

* Decreases with the logarithm of the frequency

For intentional device, according to §15.207(a) Line Conducted Emission Limits is same as above table.

(2) Radiated Emission Requirement

For unintentional device, according to §15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency MHz	Distance Meters	Radiated dB μV/m	Radiated μV/m
30 - 88	3	40.0	100
88 - 216	3	43.5	150
216 - 960	3	46.0	200
Above 960	3	54.0	500

For intentional device, according to §15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

(3) Antenna 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.

According to §15.407 (d), any U-NII device that operates in the 5.15-5.25 GHz band shall use a transmitting antenna that is an integral part of the device.

(4) Peak Transmit Power Requirement

For the band 5.15-5.25 GHz, the peak transmit power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10logB, where B is the 26-dB emission bandwidth in MHz.

For the band 5.25-5.35 GHz, the peak transmit power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10logB, where B is the 26-dB emission bandwidth in MHz.

If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(5) Peak Power Spectral Density Requirement

For the band 5.15-5.25 GHz, the peak power spectral density shall not exceed 4 dBm in any 1-MHz band.

For the band 5.25-5.35 GHz, the peak power spectral density shall not exceed 11 dBm in any 1-MHz band.

If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(6) Peak Excursion-to-Average Ratio Requirement

The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified in this paragraph) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

(7) Undesirable Emission Requirement

For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.

For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.

2.3 Restricted Bands of Operation

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
0.495 - 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 - 156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3360-4400	Above 38.6
13.36-13.41			

** : Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz

2.4 Labeling Requirement

The device shall bear the following statement in a conspicuous location on the device:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

2.5 User Information

The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual.

The Federal Communications Commission Radio Frequency Interference Statement includes the following paragraph.

This equipment has been tested and found to comply with the limits for a Class B Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.

-- Increase the separation between the equipment and receiver.

-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-- Consult the dealer or an experienced radio / TV technician for help.

3. SYSTEM TEST CONFIGURATION

3.1 Justification

For both radiated and conducted emissions below 1 GHz, the system was configured for testing in a typical fashion as a customer would normally use it. The peripherals other than EUT were connected in normally standing by situation. Measurement was performed under the condition that a computer program was exercised to simulate data communication of EUT, and the transmission rate was set to maximum allowed by EUT. Three highest emissions were verified with varying placement of the transmitting antenna connected to EUT to maximize the emission from EUT.

For conducted emissions, only measured on TX and RX operation, for the digital circuits portion also function normally whenever TX or RX is operated. For radiated emissions, whichever RF channel is operated, the digital circuits function identically. As the reason, measurement of radiated emissions from digital circuits is only performed with channel 7 by transmitting mode.

3.2 Devices for Tested System

Device	Manufacture	Model / FCC ID.	Description
Wireless Ethernet Bridge *	K-Best Technology Inc.	ICRS-MMDS-1/ AFJ316101	1.8 m Unshielded Power Cord 1.2 m Unshielded RS232 Line × 3 2.0 m Unshielded RJ11 Line × 1 2.0 m Unshielded RJ45 Line × 3 1.5 m Unshielded Parallel Line × 2

Remark "*" means equipment under test.

4 RADIATED EMISSION MEASUREMENTS

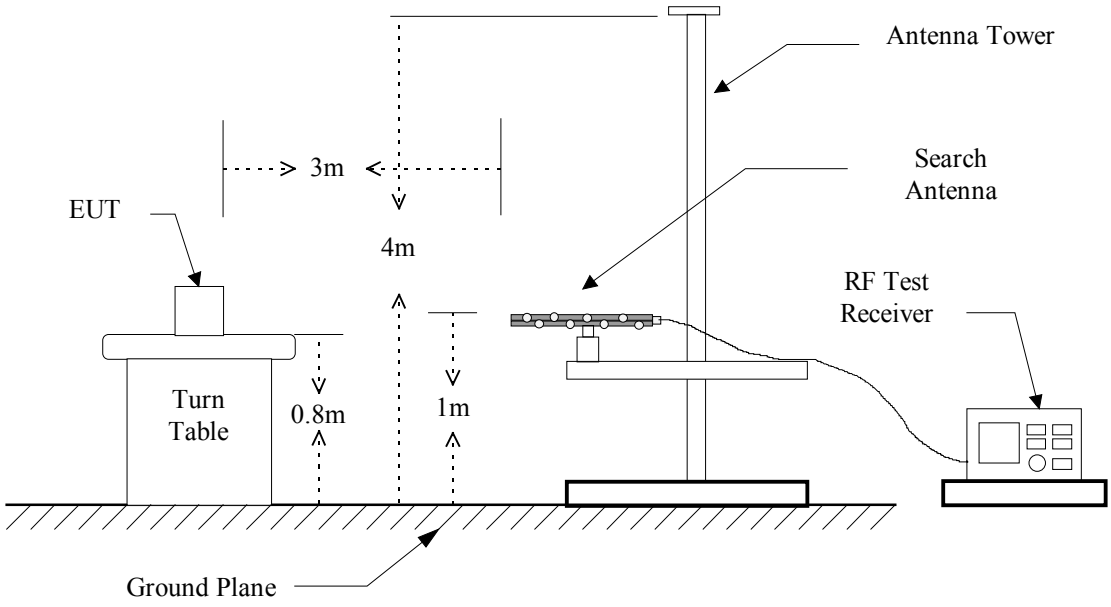
4.1 Applicable Standard

For U-NII devices, according to §15.407 (b)(6), unwanted emissions below 1 GHz must comply with the general field strength limits set forth in Sec. 15.209.

4.2 Measurement Procedure

1. Setup the configuration per figure 1 for frequencies measured below 1 GHz.
2. For emission frequencies measured below 1 GHz, a pre-scan is performed in a shielded chamber to determine the accurate frequencies of higher emissions will be checked on an open test site.
3. The search antenna is to be raised and lowered over a range from 1 to 4 meters in horizontally polarized orientation. Position the highness when the highest value is indicated on spectrum analyzer, then change the orientation of EUT on test table over a range from 0 ° to 360 ° with a speed as slow as possible, and keep the azimuth that highest emission is indicated on the spectrum analyzer. Vary the antenna position again and record the highest value as a final reading. A RF test receiver is also used to confirm emissions measured.
4. Repeat step 3 until all frequencies need to be measured was complete.
5. Repeat step 4 with search antenna in vertical polarized orientations.
6. Check the three frequencies of highest emission with varying the placement of cables associated with EUT to obtain the worse case and record the result.

Figure 1: Frequencies measured below 1 GHz configuration



4.3 Measuring Instruments

The following instruments are used for radiated emissions measurement:

Equipment	Manufacturer	Model No.	Next Cal. Due
RF Test Receiver	Rohde & Schwarz	ESCS 30	01/25/2009
Spectrum	Advantest	R3162	01/29/2009
Bi-Log Antenna	Schaffner	CBL 6111C	05/23/2008
Log periodic Antenna	EMCO	3146	08/14/2008
Biconical Antenna	EMCO	3110	08/14/2008
Double Ridged Antenna	EMCO	3115	05/16/2008
Preamplifier	Hewlett-Packard	8449B	08/18/2008
Amplifier	Hewlett-Packard	83051A	05/26/2008
Preamplifier	Hewlett-Packard	8447D	08/18/2008
Spectrum Analyzer	Hewlett-Packard	8564E	04/08/2008

Measuring instrument setup in measured frequency band when specified detector function is used:

Frequency Band (MHz)	Instrument	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	RF Test Receiver	Quasi-Peak	120 kHz	N/A
	Spectrum Analyzer	Peak	100 kHz	100 kHz

4.4 Radiated Emission Data

a) Emission frequencies below 1 GHz

Operation Mode : Transmitting

Test Date : Jan. 29, 2008 Temperature : 19 °C Humidity : 66 %

Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result @3m (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (m)
41.650	V	37.2	-12.2	25.0	40.0	-15.0	67	1.2
97.750	V	45.4	-13.9	31.5	43.5	-12.0	88	1.1
131.630	H	41.8	-11.4	30.4	43.5	-13.1	89	1.3
626.930	V	37.6	-3.3	34.3	46.0	-11.7	116	0.9
660.540	V	40.1	-2.1	38.0	46.0	-8.0	116	1.5
693.480	V	38.2	-1.0	37.2	46.0	-8.8	129	1.3

Note:

1. Remark "---" means that the emissions level is too low to be measured.

2. The expanded uncertainty of the radiated emission tests is 3.53 dB.

4.5 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor, High Pass Filter Loss (if used) and Cable Loss, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

where Corrected Factor

= Antenna FACTOR + Cable Loss + High Pass Filter Loss - Amplifier Gain

4.6 Photos of Radiation Measuring Setup

5 CONDUCTED EMISSION MEASUREMENTS

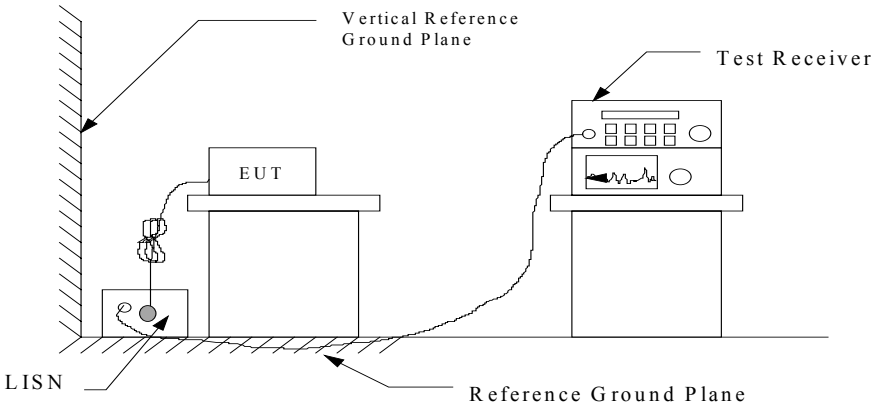
5.1 Standard Applicable

According to §15.407 (b)(6), any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in Sec. 15.207.

5.2 Measurement Procedure

1. Setup the configuration per figure 2.
2. A preliminary scan with a spectrum monitor is performed to identify the frequency of emission that has the highest amplitude relative to the limit by operating the EUT in selected modes of operation, typical cable positions, and with a typical system configuration.
3. Record the 6 or 8 highest emissions relative to the limit.
4. Measure each frequency obtained from step 3 by a test receiver set on quasi peak detector function, and then record the accuracy frequency and emission level. If all emissions measured in the specified band are attenuated more than 20 dB from the limit, this step would be ignored, and the peak detector function would be used.
5. Confirm the highest three emissions with variation of the EUT cable configuration and record the final data.
6. Repeat all above procedures on measuring each operation mode of EUT.

Figure 2: Conducted emissions measurement configuration



5.3 Conducted Emission Data

Operation Mode : Transmitting

Test Date : Jan. 29, 2008 Temperature : 25 °C Humidity : 65 %

N1

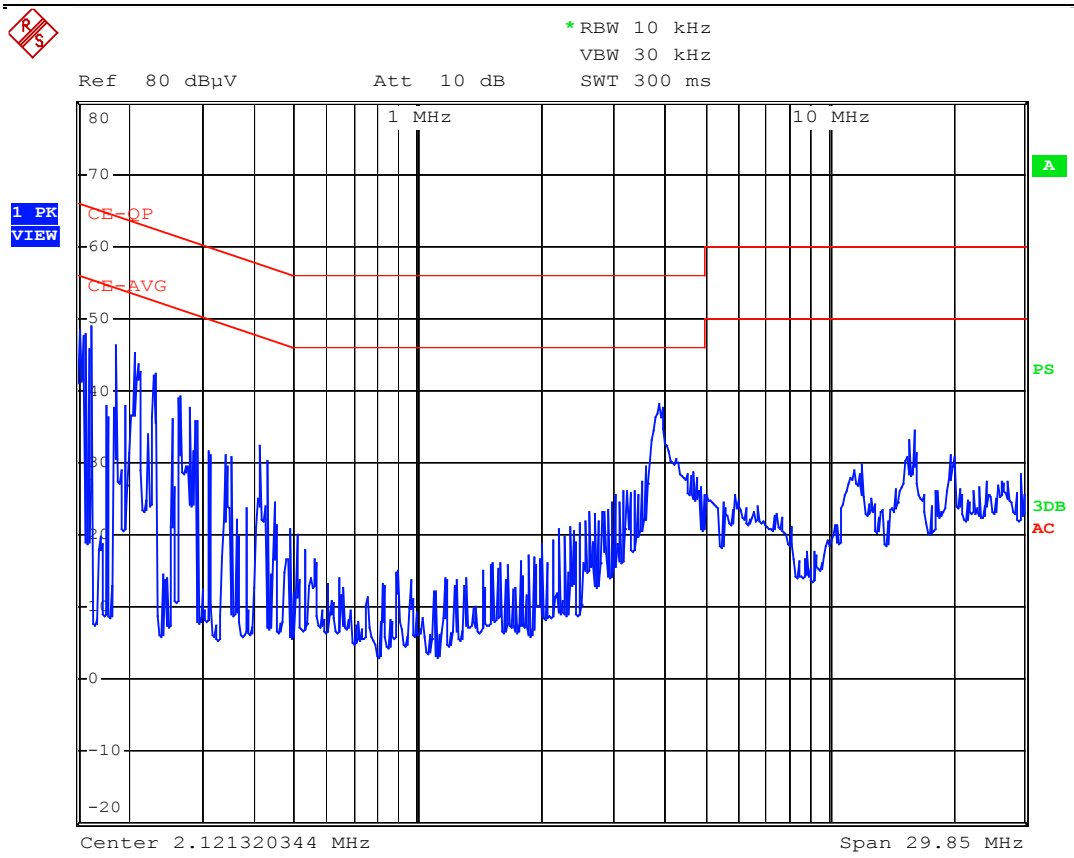
Frequency (MHz)	**Meter Reading** (dBμV)		**Factor** (dB)	**Result** (dBμV)		**Limit** (dBμV)		**Margin** (dBμV)	
	Q.P	AVG		Q.P	AVG	Q.P	AVG	Q.P	AVG
0.161	48.9	----	0.2	49.1	----	65.4	55.4	-16.3	----
0.185	46.3	----	0.2	46.5	----	64.3	54.3	-17.8	----
0.206	45.1	----	0.2	45.3	----	63.4	53.4	-18.1	----
0.231	42.3	----	0.2	42.5	----	62.4	52.4	-19.9	----
0.265	39.1	----	0.2	39.3	----	61.3	51.3	-21.9	----
3.880	38.2	----	0.6	38.8	----	56.0	46.0	-17.2	----

L1

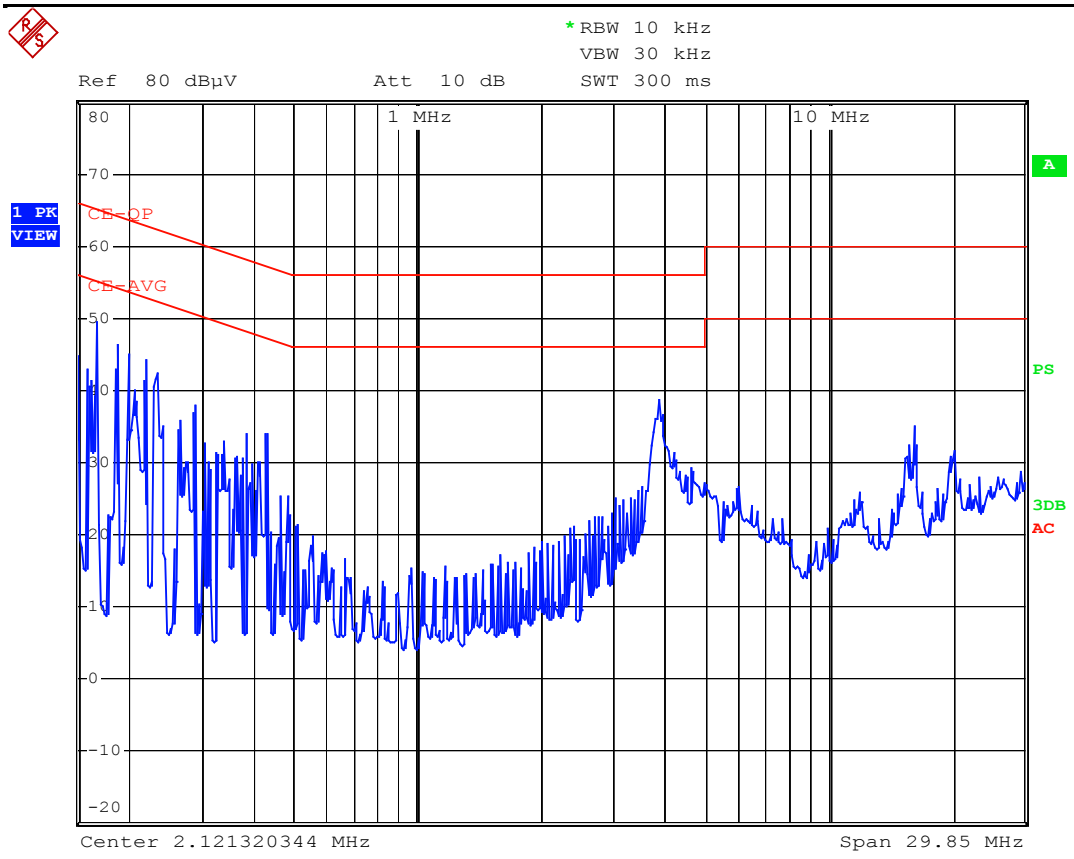
Frequency (MHz)	**Meter Reading** (dBμV)		**Factor** (dB)	**Result** (dBμV)		**Limit** (dBμV)		**Margin** (dBμV)	
	Q.P	AVG		Q.P	AVG	Q.P	AVG	Q.P	AVG
0.166	49.3	----	0.2	49.5	----	65.2	55.2	-15.7	----
0.187	46.2	----	0.2	46.4	----	64.2	54.2	-17.8	----
0.219	44.1	----	0.2	44.3	----	62.9	52.9	-18.5	----
0.234	42.2	----	0.2	42.4	----	62.3	52.3	-19.9	----
0.289	37.7	----	0.2	37.9	----	60.6	50.6	-22.6	----
3.880	38.6	----	0.6	39.2	----	56.0	46.0	-16.8	----

Note : 1. The expanded uncertainty of the conducted emission tests is 2.45 dB.

Neutral



Line



5.4 Result Data Calculation

The result data is calculated by adding the LISN Factor to the measured reading. The basic equation with a sample calculation is as follows:

RESULT = READING + LISN FACTOR

Assume a receiver reading of 22.5 dB μ V is obtained, and LISN Factor is 0.1 dB, then the total of disturbance voltage is 22.6 dB μ V.

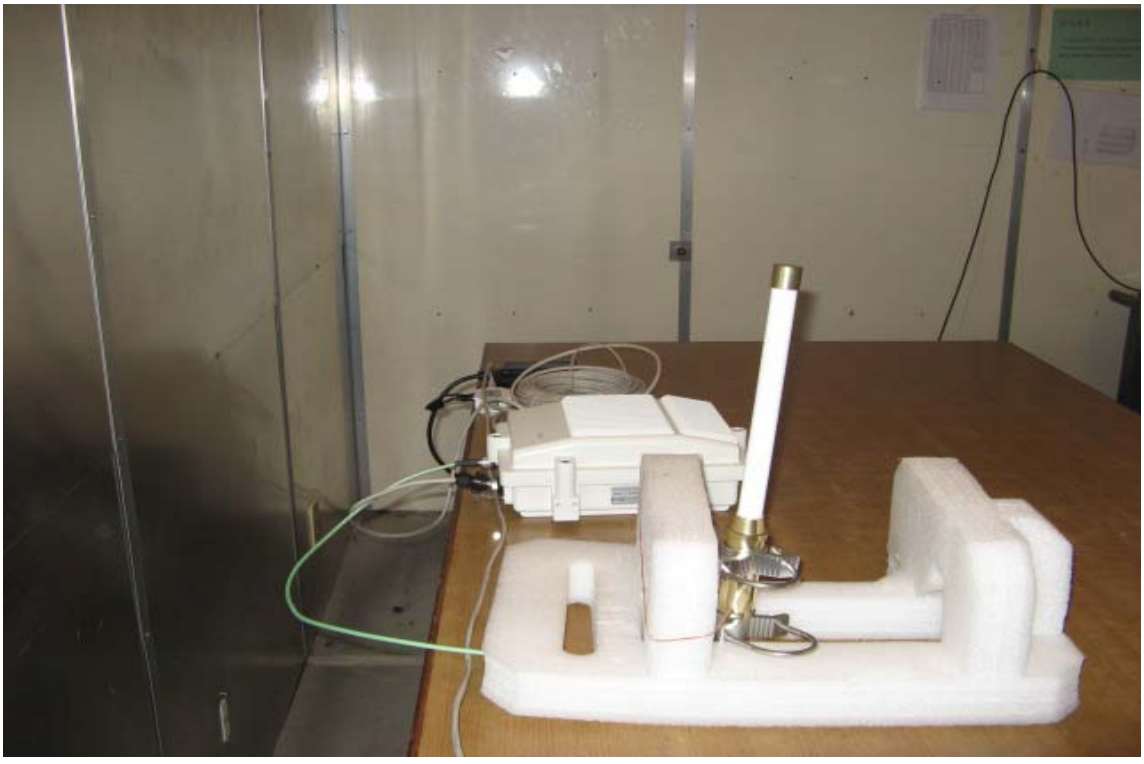
RESULT = 22.5 + 0.1 = 22.6 dB μ V
Level in μ V = Common Antilogarithm[(22.6 dB μ V)/20]
= 13.48 μ V

5.5 Conducted Measurement Equipment

The following test equipment are used during the conducted test.

Equipment	Manufacturer	Model No.	Next Cal. Due
EMI Test Receiver	Rohde & Schwarz	ESCI	2008/12/25
LISN	EMCO	3825/2	2008/10/08
Monitor	IBM	E54	N.C.R.
Printer	HP	LaserJet 1000	N.C.R.
Shielded Room	Riken	----	N.C.R.
Computer	Acer	Veriton	N.C.R.

5.6 Photos of Conduction Measuring Setup



6 ANTENNA REQUIREMENTS

6.1 Standard Applicable

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.

6.2 Antenna Structure

Please see constraction Photos of Exhibit B for details.
The directional gain of the transmitting antenna is 6dBi.

7 EMISSION BANDWIDTH MEASUREMENTS

7.1 Standard Applicable

According to 15.407(a)(1), for the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10log B, where B is the 26dB emission bandwidth in MHz.

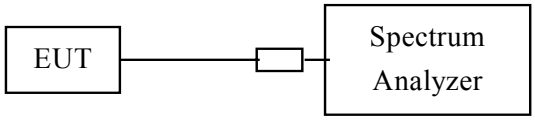
According to 15.407(a)(2), for the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10log B, where B is the 26 dB emission bandwidth in megahertz.

According to 15.407(a)(3), for the band 5.725-5.825 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 1 W or 17 dBm + 10log B, where B is the 26dB emission bandwidth in MHz.

7.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in figure 3 without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range.
3. Set RBW of spectrum analyzer to 100 kHz and VBW to 1 MHz.
4. Measure the frequency difference of two frequencies that were attenuated 26 dB from the reference level. Record the frequency difference as the emission bandwidth.
5. Repeat above procedures until all frequencies measured were complete.

Figure 3: Emission bandwidth measurement configuration



7.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Next Cal. Due
Spectrum Analyzer	Rohde & Schwarz	FSP 40	2008/08/11
Attenuator	Weinschel Engineering	1	N/A

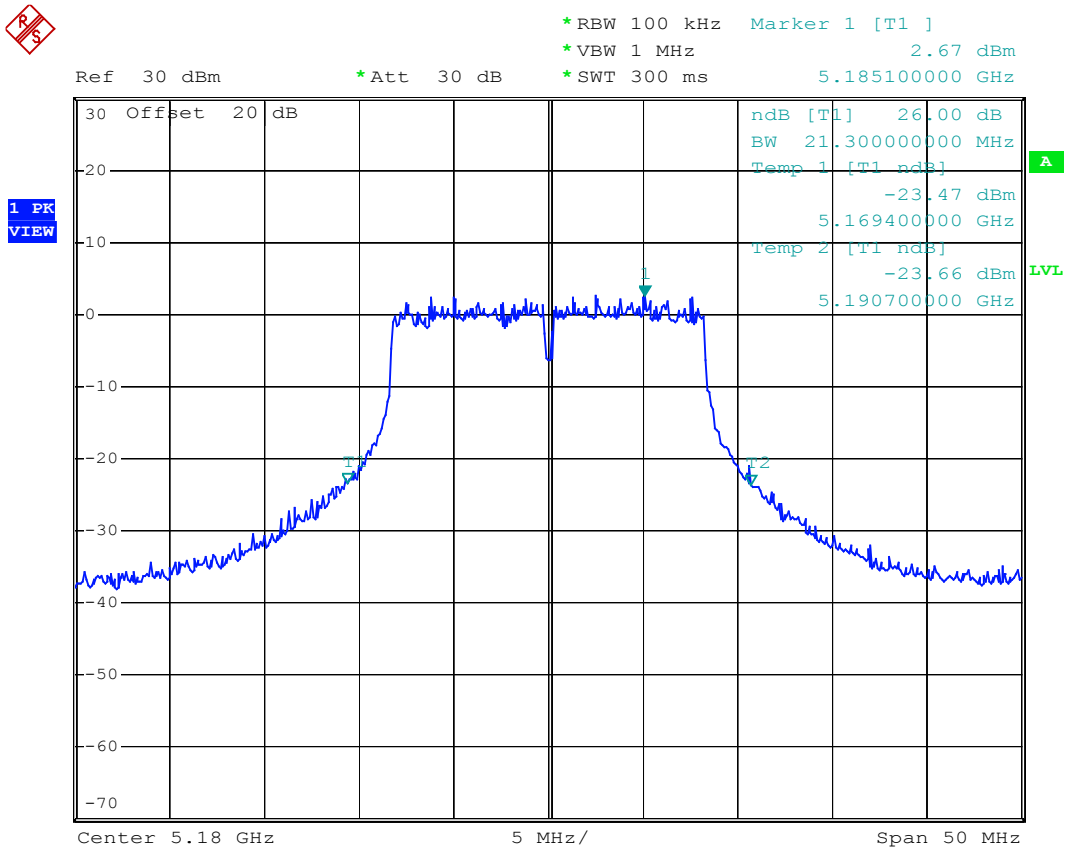
7.4 Measurement Data

Test Date : Jan. 29, 2008 Temperature : 23 °C Humidity : 63 %

a) 5180MHz : 26 dB Emission Bandwidth is 21.3 MHz
b) 5220MHz : 26 dB Emission Bandwidth is 21.1 MHz
c) 5240MHz : 26 dB Emission Bandwidth is 21.2 MHz

Note : The expanded uncertainty of the emission bandwidth tests is 1500Hz

Mode: Channel Low



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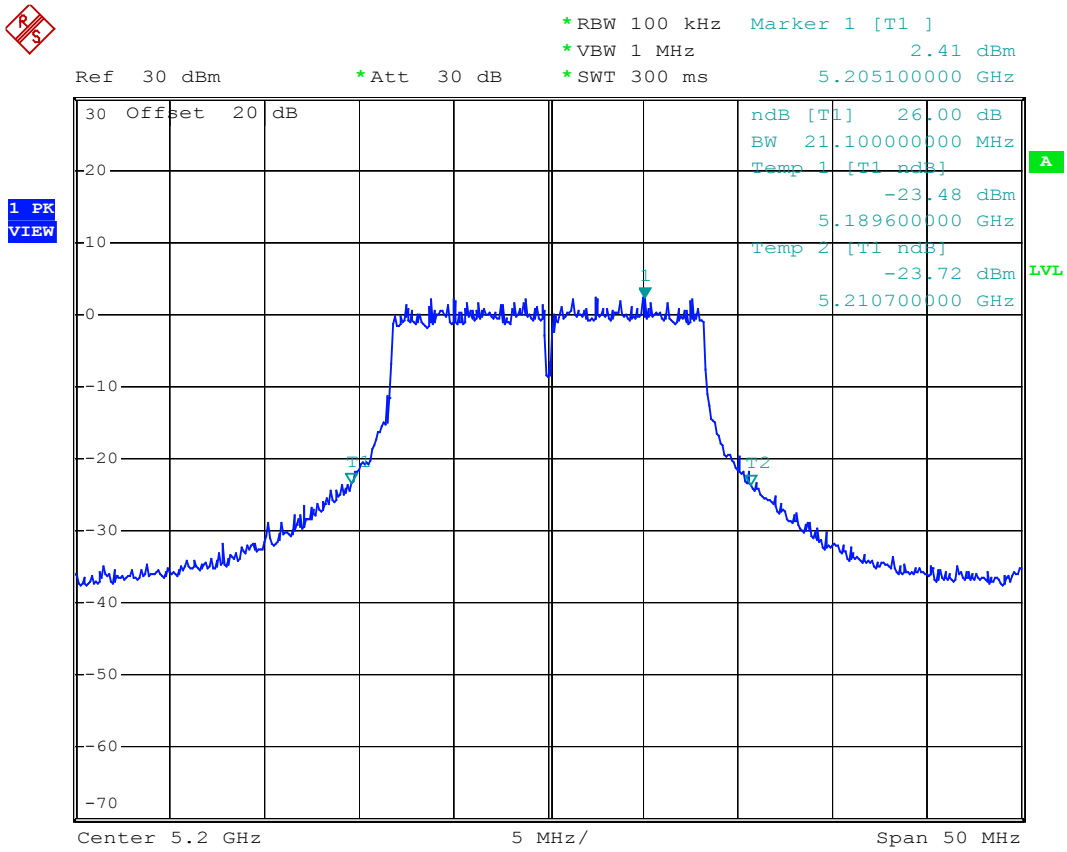
Mode: Channel Middle



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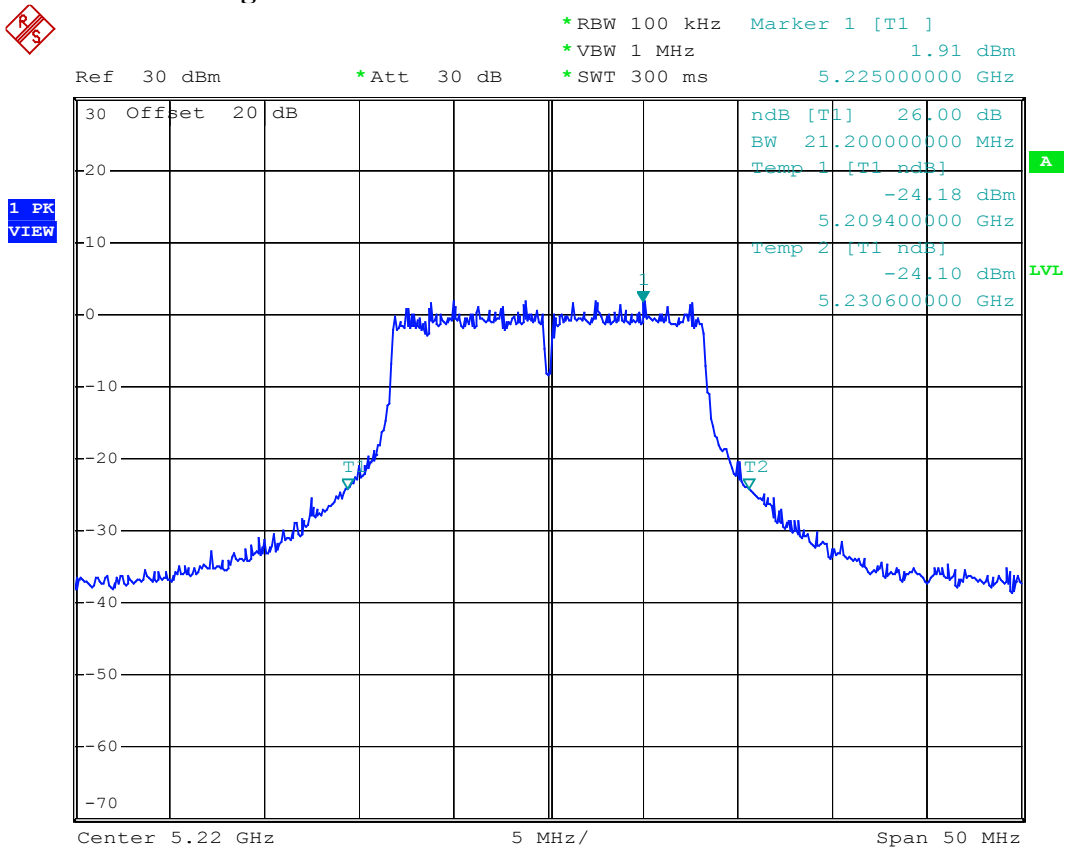
Mode: Channel High



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8 MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENTS

8.1 Standard Applicable

According to 15.407(a)(1), for the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10log B, where B is the 26dB emission bandwidth in MHz.

According to 15.407(a)(2), for the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10log B, where B is the 26 dB emission bandwidth in megahertz.

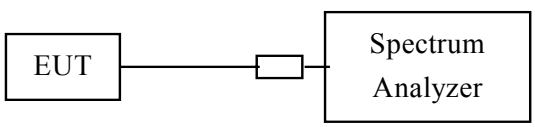
According to 15.407(a)(3), for the band 5.725-5.825 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 1 W or 17 dBm + 10log B, where B is the 26dB emission bandwidth in MHz.

If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

8.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in figure 4 without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Set RBW of spectrum analyzer to 1 MHz and VBW to 30 kHz.
4. Measure the highest amplitude appearing on spectral display and record the level to calculate result data.
5. Repeat above procedures until all frequencies measured were complete.

Figure 4: Conducted output power measurement configuration.



8.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Next Cal. Due
Spectrum Analyzer	Rohde & Schwarz	FSP 40	2008/08/11
Attenuator	Weinschel Engineering	1	N/A

8.4 Measurement Data

Maximum conducted output power limit calculation:

a) 5180MHz: 4 dBm + 10log(21.3) = 17.28 dBm > 17 dBm(50mW)
b) 5200MHz: 4 dBm + 10log(21.1) = 17.24 dBm > 17 dBm(50mW)
c) 5220MHz: 4 dBm + 10log(21.2) = 17.26 dBm > 17 dBm(50mW)

The directional gain of transmit antenna is 6 dBi, no reduction of limit is required.

The peak transmit power limit for 5.15-5.25 GHz band is 17 dBm.

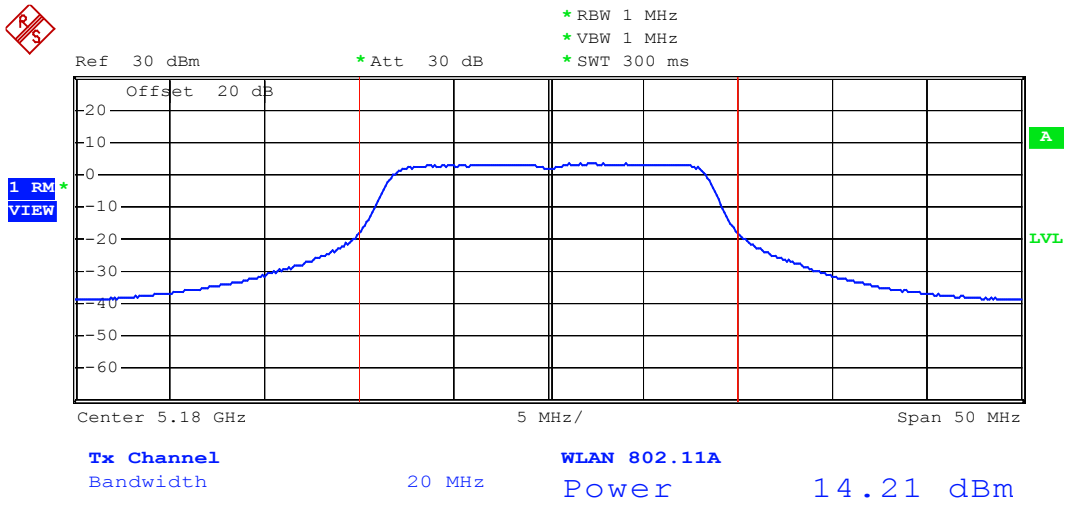
Maximum conducted output power measurement results:

Test Date : Mar. 02, 2007 Temperature : 25 °C Humidity : 65 %

a) 5180MHz : Conducted Output Power is 14.21 dBm or 26.363 mW
b) 5200MHz : Conducted Output Power is 13.46 dBm or 22.182 mW
c) 5220MHz : Conducted Output Power is 13.04 dBm or 20.137 mW

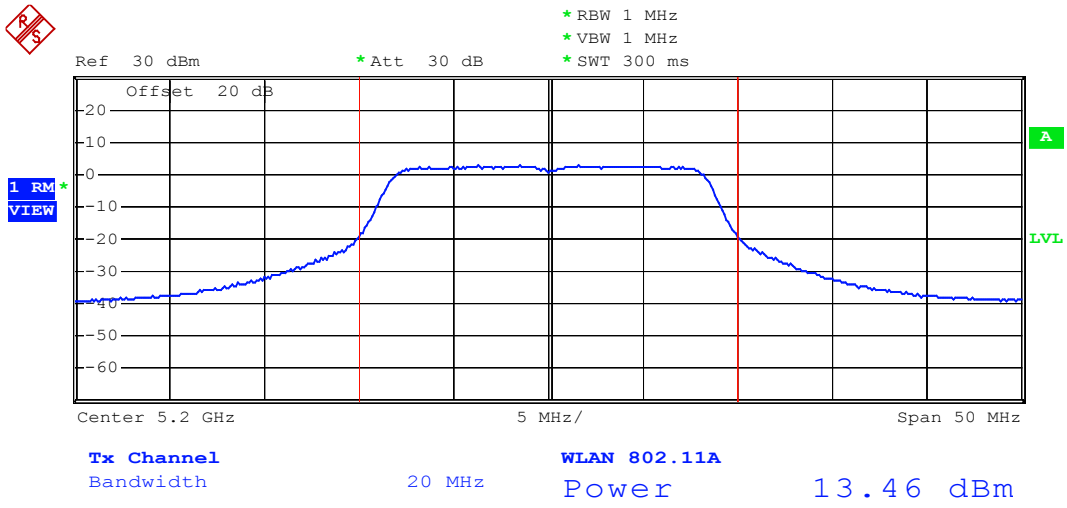
Note: The expanded uncertainty of the conducted output power tests is 2dB.

Mode: Channel Low



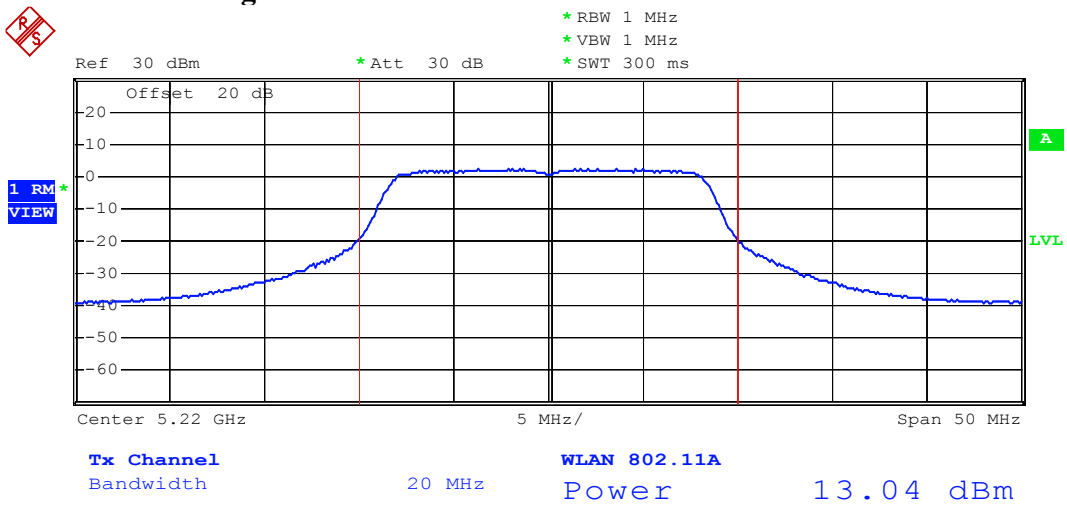
Date: 29.JAN.2008 10:21:03

Mode: Channel Middle



Date: 29.JAN.2008 10:22:59

Mode: Channel High



Date: 29.JAN.2008 10:25:14

9 PEAK POWER SPECTRAL DENSITY MEASUREMENTS

9.1 Standard Applicable

According to 15.407(a)(1), for the band 5.15-5.25 GHz, the peak power spectral density shall not exceed 4 dBm in any 1-MHz band.

According to 15.407(a)(2), for the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the peak power spectral density shall not exceed 11 dBm in any 1-MHz band.

According to 15.407(a)(3), for the band 5.725-5.825 GHz, the peak power spectral density shall not exceed 17 dBm in any 1-MHz band.

If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

9.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in figure 4 without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Set RBW of spectrum analyzer to 1 MHz and VBW to 3 MHz.
4. Turn on the video averaging of the spectrum analyzer.
5. Measure the highest amplitude appearing on spectral display. Plot the graph with marking the highest point and edge frequency.
6. Repeat above procedures until all measured frequencies were complete.

9.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Next Cal. Due
Spectrum Analyzer	Rohde & Schwarz	FSP 40	2008/08/11
Attenuator	Weinschel Engineering	1	N/A

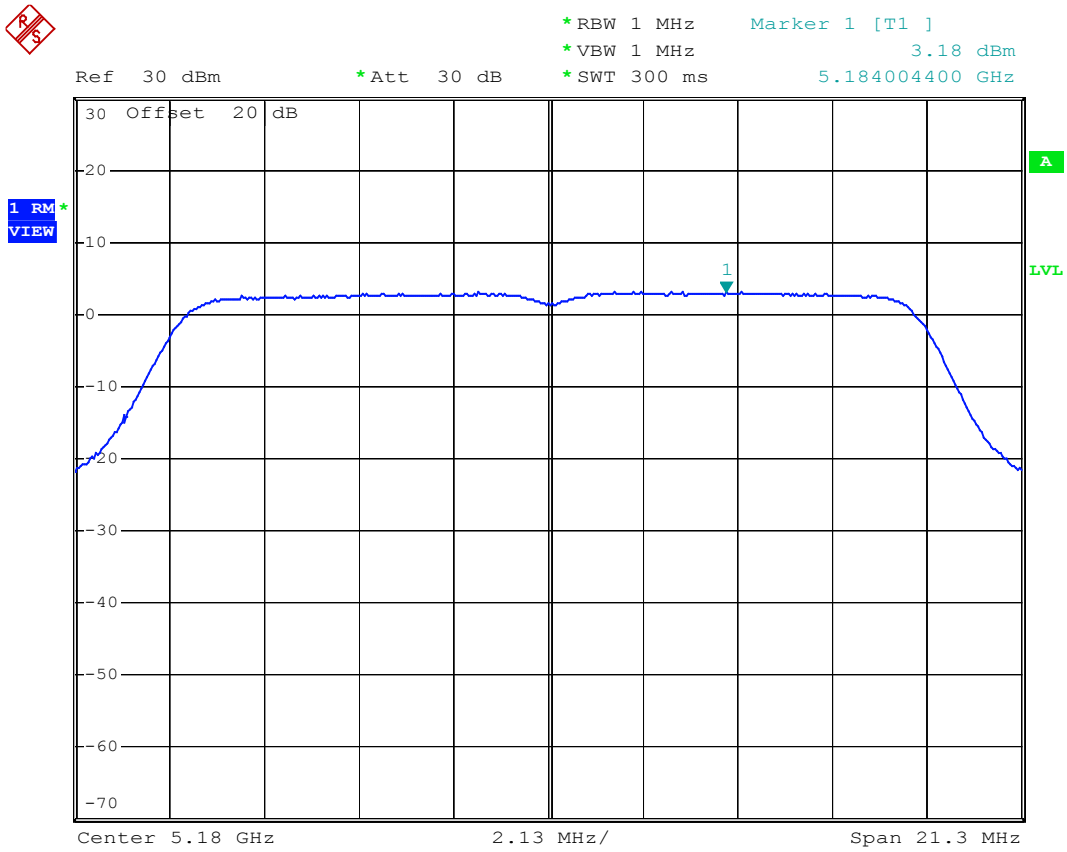
9.4 Measurement Data

Test Date : Jan. 29, 2008 Temperature : 25 °C Humidity : 65 %

a) 5180MHz : Peak Power Spectral Density is 3.18 dBm
b) 5200MHz : Peak Power Spectral Density is 2.65 dBm
c) 5220MHz : Peak Power Spectral Density is 2.42 dBm

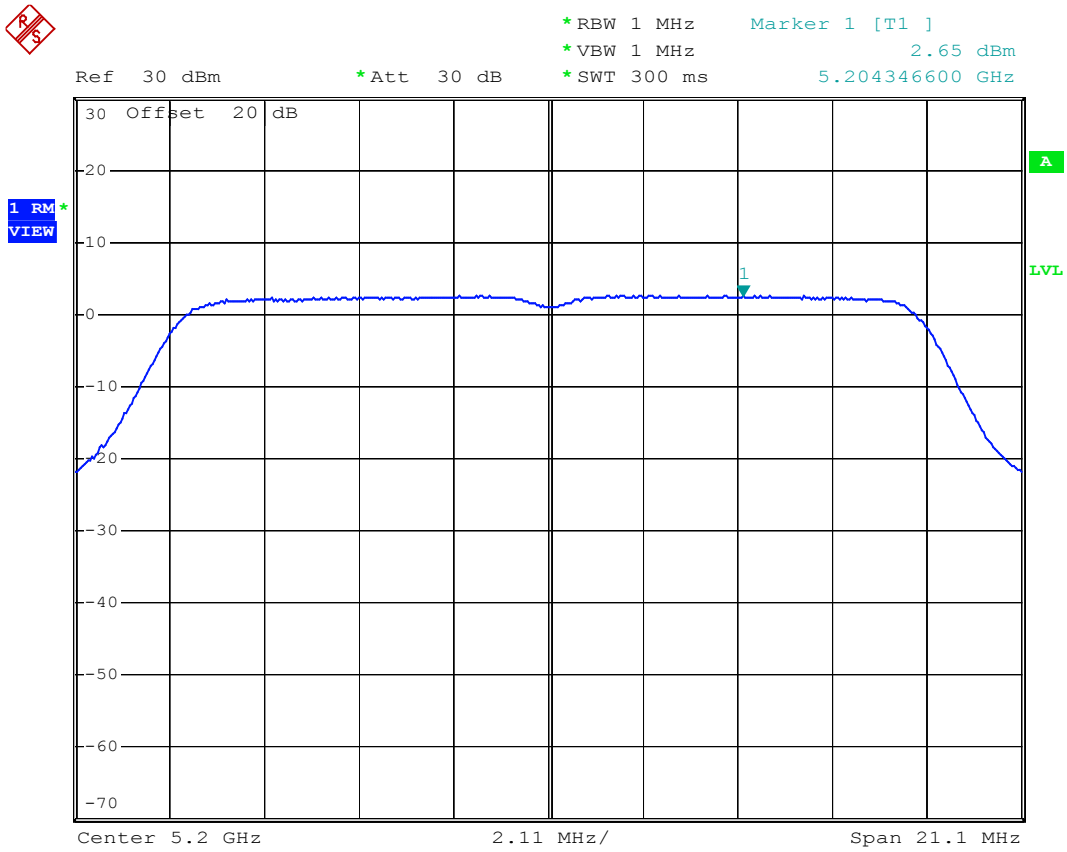
Note: The expanded uncertainty of the Peak Power Spectral Density tests is 2dB.

Mode: Channel Low



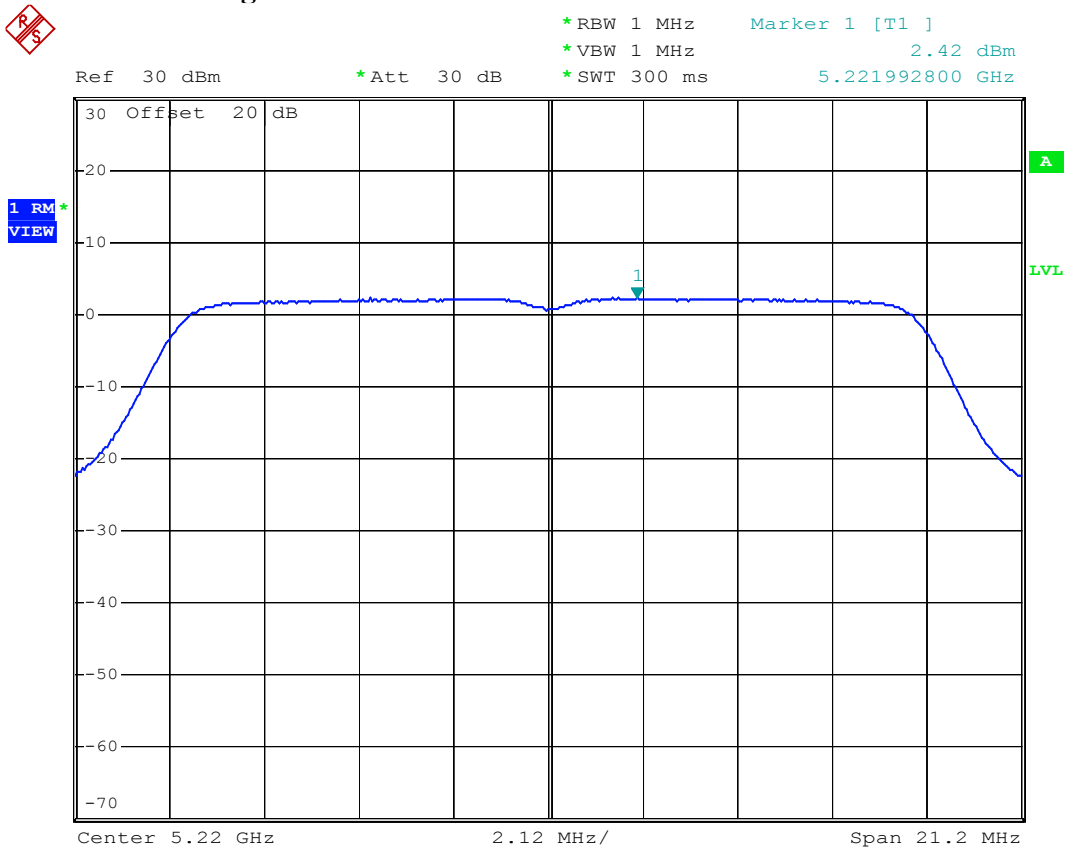
Date: 29.JAN.2008 10:22:24

Mode: Channel Middle



Date: 29.JAN.2008 10:23:55

Mode: Channel High



Date: 29.JAN.2008 10:26:08

10 PEAK EXCURSION-to-AVERAGE RATIO MEASUREMENTS

10.1 Standard Applicable

According to 15.407(a)(6), the ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified in this paragraph) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

10.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in figure 4 without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Set RBW of spectrum analyzer to 1 MHz and VBW to 1 MHz.
4. Measure the highest amplitude appearing on spectral display and record the level to calculate result data.
5. Set RBW of spectrum analyzer to 1 MHz and VBW to 30 kHz.
6. Measure the highest amplitude appearing on spectral display and record the level to calculate result data.
7. Repeat above procedures until all frequencies measured were complete.

10.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Next Cal. Due
Spectrum Analyzer	Rohde & Schwarz	FSP 40	2008/08/11
Attenuator	Weinschel Engineering	1	N/A

10.4 Measurement Data

Test Date : Jan. 29, 2008 Temperature : 19 °C Humidity : 66 %

a) 5180MHz: Peak Excursion-to-Average Ratio is 14.21 – 3.18 = 11.03 dBm
b) 5220MHz: Peak Excursion-to-Average Ratio is 13.46 – 2.65 = 10.81 dBm
c) 5240MHz: Peak Excursion-to-Average Ratio is 13.04 – 2.42 = 10.62 dBm

Note: The expanded uncertainty of the Peak Excursion-to-Average Ratio tests is 2dB.

11 UNDESIRABLE EMISSION MEASUREMENTS

11.1 Standard Applicable

According to 15.407(b)(1), for transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.

According to 15.407(b)(2), for transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.

According to 15.407(b)(3), for transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.

According to 15.407(b)(4), for transmitters operating in the 5.725-5.825 GHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of -27 dBm/MHz.

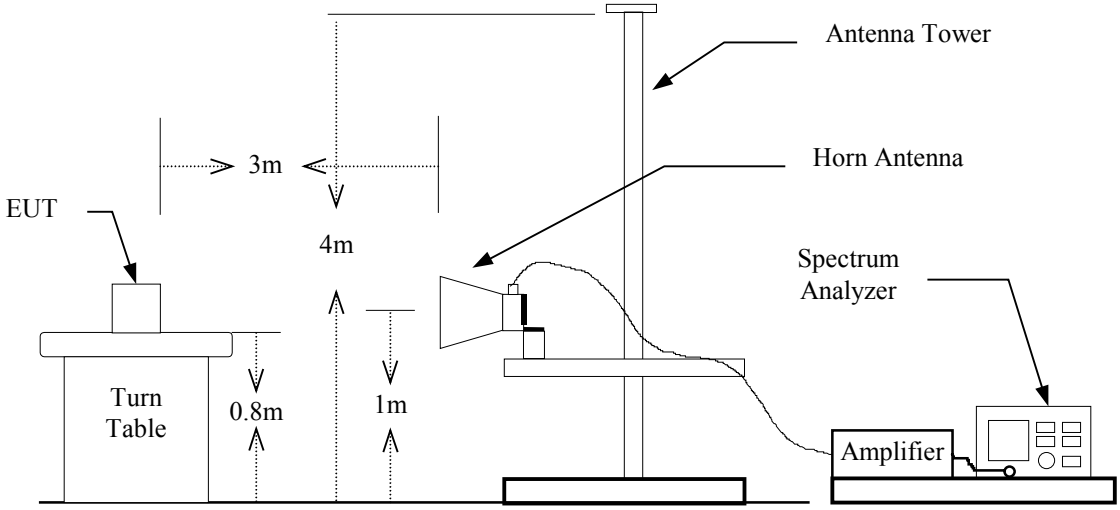
11.2 Measurement Procedure

1. Setup the configuration per figure 5 for frequencies measured above 1 GHz.
2. Adjust the spectrum analyzer for each frequency measured on a 1 MHz frequency span and 100 kHz resolution bandwidth.
3. The search antenna is to be raised and lowered over a range from 1 to 4 meters in horizontally polarized orientation. Position the highness when the highest value is indicated on spectrum analyzer, then change the orientation of EUT on test table over a range from 0 ° to 360 °, and record the highest value indicated on spectrum analyzer as reference value.
4. Repeat step 3 until all frequencies need to be measured was complete.
5. Repeat step 4 with search antenna in vertical polarized orientations.
6. Replace the EUT with a horn antenna in horizontally polarized orientation and as the same polarized orientation with search antenna. Connect the horn antenna to a standard signal generator (SG) via a low loss cable. Power on the SG and tune the right frequency in measuring as well as set SG at an appreciated output level. Rise and lower the search antenna to get the highest value on spectrum analyzer, and then hold

this position. Adjust the SG output to get an identical value derived from step 3 on spectrum analyzer. Record this value for result calculated.

7. Repeat step 6 until all frequencies need to be measured was complete.
8. Repeat step 7 with horn antenna and search antenna in vertical polarized orientations.

Figure 5: Frequencies measured above 1 GHz configuration



11.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Next Cal. Due
RF Test Receiver	Rohde & Schwarz	ESCS 30	01/25/2009
Spectrum	Advantest	R3162	01/29/2009
Bi-Log Antenna	Schaffner	CBL 6111C	05/23/2008
Log periodic Antenna	EMCO	3146	08/14/2008
Biconical Antenna	EMCO	3110	08/14/2008
Double Ridged Antenna	EMCO	3115	05/16/2008
Preamplifier	Hewlett-Packard	8449B	08/18/2008
Amplifier	Hewlett-Packard	83051A	05/26/2008
Preamplifier	Hewlett-Packard	8447D	08/18/2008
Spectrum Analyzer	Hewlett-Packard	8564E	04/08/2008

11.4 Measurement Data

A) CH Low

Operation Mode : Transmitting

Fundamental Frequency : 5180.215MHz

Test Date : Jan. 29, 2008 Temperature : 19 °C Humidity : 66 %

Freq. (MHz)	Meter Reading (dBμV) H	V	SG Reading (dBm) H	V	Amp. Gain (dB)	Antnna Gain (dB)	Cable Loss (dB)	Result (dBm) H	V	Limit (dBm)	Margin (dB)
10360.430	45.9	50.6	-17.29	-13.39	36	12.8	3.14	-43.63	-39.73	-27.0	-12.73
15540.645	---	---	---	---	---	---	---	---	---	-27.0	---
20720.860	---	---	---	---	---	---	---	---	---	-27.0	---
25901.075	---	---	---	---	---	---	---	---	---	-27.0	---
31081.290	---	---	---	---	---	---	---	---	---	-27.0	---
36261.505	---	---	---	---	---	---	---	---	---	-27.0	---
41441.720	---	---	---	---	---	---	---	---	---	-27.0	---
46621.935	---	---	---	---	---	---	---	---	---	-27.0	---
51802.150	---	---	---	---	---	---	---	---	---	-27.0	---

Note : 1. Remark "---" means that the emission level is too weak to be detected.

2. For measured frequency below 1GHz, a tuned dipole antenna is used.

3. Result calculation is as following :

Result ＝SG Reading - Cable Loss +Antenna Gain +Antenna Gain Corrected

Antenna Gain Corrected : is used for antenna other than dipole to convert radiated power to ERP.

Spurious or harmonics above 1 GHz is too low to be detected or attenuated more than 60 dB from limit value.

B) CH Middle

Operation Mode : Transmitting

Fundamental Frequency : 5200.505MHz

Test Date : Jan. 29, 2008 Temperature : 19 °C Humidity : 66 %

Freq. (MHz)	Meter Reading (dBμV) H	V	SG Reading (dBm) H	V	Amp. Gain (dB)	Antnna Gain (dB)	Cable Loss (dB)	Result (dBm) H	V	Limit (dBm)	Margin (dB)
10401.010	45.7	48.5	-17.12	-14.81	36	12.8	3.56	-43.88	-41.57	-27.0	-14.57
15601.515	---	---	---	---	---	---	---	---	---	-27.0	---
20802.020	---	---	---	---	---	---	---	---	---	-27.0	---
26002.525	---	---	---	---	---	---	---	---	---	-27.0	---
31203.030	---	---	---	---	---	---	---	---	---	-27.0	---
36403.535	---	---	---	---	---	---	---	---	---	-27.0	---
41604.040	---	---	---	---	---	---	---	---	---	-27.0	---
46804.545	---	---	---	---	---	---	---	---	---	-27.0	---
52005.050	---	---	---	---	---	---	---	---	---	-27.0	---

Note : 1. Remark "---" means that the emission level is too weak to be detected.

2. For measured frequency below 1GHz, a tuned dipole antenna is used.

3. Result calculation is as following :

Result ＝SG Reading - Cable Loss +Antenna Gain +Antenna Gain Corrected

Antenna Gain Corrected : is used for antenna other than dipole to convert radiated power to ERP.

Spurious or harmonics above 1 GHz is too low to be detected or attenuated more than 60 dB from limit value.

C) CH High

Operation Mode : Transmitting

Fundamental Frequency : 5219.650MHz

Test Date : Jan. 29, 2008 Temperature : 19 °C Humidity : 66 %

Freq. (MHz)	Meter Reading (dBμV) H	V	SG Reading (dBm) H	V	Amp. Gain (dB)	Antnna Gain (dB)	Cable Loss (dB)	Result (dBm) H	V	Limit (dBm)	Margin (dB)
10439.300	46.1	47.5	-16.82	-15.71	36.0	12.8	3.56	-43.58	-42.47	-27.0	-15.47
15658.950	---	---	---	---	---	---	---	---	---	-27.0	---
20878.600	---	---	---	---	---	---	---	---	---	-27.0	---
26098.250	---	---	---	---	---	---	---	---	---	-27.0	---
31317.900	---	---	---	---	---	---	---	---	---	-27.0	---
36537.550	---	---	---	---	---	---	---	---	---	-27.0	---
41757.200	---	---	---	---	---	---	---	---	---	-27.0	---
46976.850	---	---	---	---	---	---	---	---	---	-27.0	---
52196.500	---	---	---	---	---	---	---	---	---	-27.0	---

Note : 1. Remark "---" means that the emission level is too weak to be detected.

2. For measured frequency below 1GHz, a tuned dipole antenna is used.

3. Result calculation is as following :

Result ＝SG Reading - Cable Loss +Antenna Gain +Antenna Gain Corrected

Antenna Gain Corrected : is used for antenna other than dipole to convert radiated power to ERP.

Spurious or harmonics above 1 GHz is too low to be detected or attenuated more than 60 dB from limit value.