



# FCC TEST REPORT

## 47 CFR FCC Rules and Regulations Part 15 Subpart B, Class B Digital Device and Canada Standard ICES-003 Issue 5

Equipment : Wireless cable modem  
Model No. : CG3000X (X would indicate Data/Voice/null)  
Filing Type : Certification  
FCC ID : PY313300238  
Applicant : **NETGEAR Inc.**  
350 East Plumeria Drive, San Jose, CA 95134, USA

### Statement

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### **SPORTON International Inc.**

No.8, Lane 724, Bo-ai St., Jhubei City, Hsinchu County 302, Taiwan, R.O.C.

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**History of this test report**

<b>Report No.</b>	<b>Version</b>	<b>Issue Date</b>	<b>Description</b>
FC380102	Rev.01	Aug. 13, 2013	Initial issue of report

# CERTIFICATE OF COMPLIANCE



**47 CFR FCC Rules and Regulations Part 15 Subpart B,  
Class B Digital Device and Canada Standard ICES-003 Issue 5**

Equipment : Wireless cable modem  
Model No. : CG3000X (X would indicate Data/Voice/null)  
Applicant : **NETGEAR Inc.**  
350 East Plumeria Drive, San Jose, CA 95134, USA

**I HEREBY CERTIFY THAT :**

The measurements shown in this test report were made in accordance with the procedures given in **ANSI C63.4 - 2009** and the energy emitted by this equipment was **passed CISPR PUB. 22** and **FCC Part 15** and **Canada Standard ICES-003** in both radiated and conducted emission **Class B** limits.

The test was carried out on Apr. 19, 2013 at **SPORTON International Inc. LAB.**

  
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Jack Deng  
Engineering Manager

**SPORTON International Inc.**

No.8, Lane 724, Bo-ai St., Jhubei City, Hsinchu County 302, Taiwan, R.O.C.

## **1. General Description of Equipment under Test**

### **1.1. Applicant**

NETGEAR Inc.  
350 East Plumeria Drive, San Jose, CA 95134, USA

### **1.2. Manufacturer**

MAINTEK COMPUTER  
233 Jinfeng Ra., Suzhou, Jiangsu, PRC

### **1.3. Basic Description of Equipment under Test**

Equipment : Wireless cable modem  
Model No. : CG3000X (X would indicate Data/Voice/null)

#### **Associated with interface cables**

RJ45 Cable : Non-Shielded, 20 m  
RJ45 Cable x3 : Non-Shielded, 1 m  
Data Cable Type : Please see section 2.2 of this test report for details  
Power Supply Type : From Adapter  
AC Power Cord : Wall-Mount, 2 pin  
DC Power Cable : Non-Shielded, 1.8 m, 2 pin  
The EUT Contains TX Module FCC ID: PY3UPWL6031H2.

### **1.4. Feature of Equipment under Test**

Adapter : NETGEAR / SAS030F1 NA / P/N: 332-10643-01  
INPUT : 100V-120V ~ 47-63Hz, 0.9A  
OUTPUT : 12.0V, 2.5A  
Adapter : NETGEAR / P030WF120B 11200-6LF / P/N: 332-10200-02  
INPUT : 100V-240V ~ 50-60Hz, 1.0A  
OUTPUT : 12.0V, 2.5A  
Adapter : NETGEAR / SAS030F1 NA 30.0W / P/N: 332-10451-01  
INPUT : 100V-120V ~ 47-63Hz, 0.9A  
OUTPUT : 12.0V, 2.5A  
Please refer to user manual for others.

## 2. Test Configuration of Equipment under Test

### 2.1. Test Manner

- a. During testing, the personal computer and equipment positions were varied according to ANSI C63.4-2009 and configuration operated in a manner which tended to maximize its emission characteristics in a typical application.
- b. The equipment under test were performed the following test modes:

Test Items	Function Type
<b>AC Conducted Emission</b>	Mode 1. LAN: 1Gbps + WLAN(2.4G) + Phone, Adaptor: P030WF120B Mode 2. LAN: 1Gbps + WLAN(2.4G) + Phone, Adaptor: SAS030FWA Mode 3. LAN: 1Gbps + WLAN(2.4G) + Phone, Adaptor: SAS030F1 Mode 4. LAN: 100Mbps + WLAN(2.4G) + Phone, Adaptor: P030WF120B All of test modes were tested and recorded in this report.
<b>Radiated Emissions</b>	Mode 1. LAN: 1Gbps + WLAN(2.4G) + Phone, Adaptor: P030WF120B Mode 2. LAN: 1Gbps + WLAN(2.4G) + Phone, Adaptor: SAS030FWA Mode 3. LAN: 1Gbps + WLAN(2.4G) + Phone, Adaptor: SAS030F1 Mode 4. LAN: 100Mbps + WLAN(2.4G) + Phone, Adaptor: P030WF120B <b>&lt; below 1GHz &gt;</b> All of test modes were tested and recorded in this report. <b>&lt; above 1GHz &gt;</b> cause "mode 1" is highest frequency of the internal sources of the EUT; it was reported as final data.

- c. Frequency range investigated: Conduction 150 kHz to 30 MHz, Radiation 30 MHz to 12,000 MHz.

**2.2. Description of Test System**

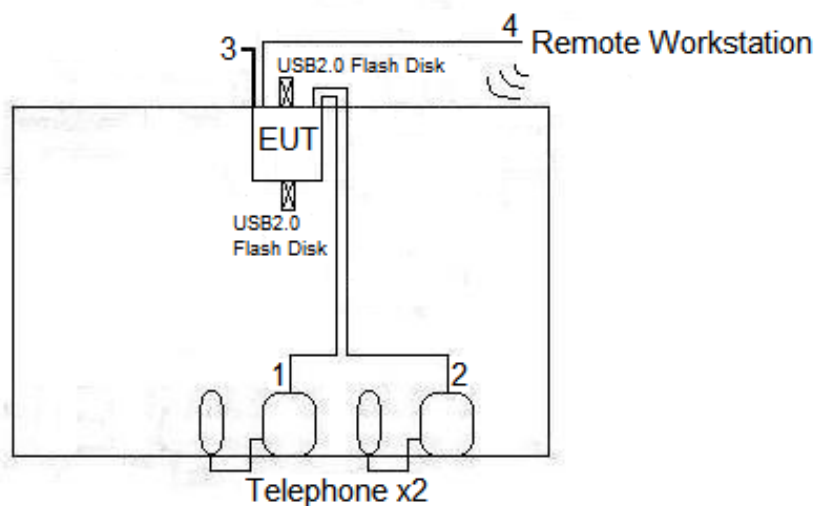
**<Conducted and Radiated below 1GHz>**

No.	Peripheral	Manufacturer	Model Number	FCC ID	Cable / Spec. Description	Placed
1	USB2.0 Flash Disk x2	TRANSCEND	JetFlash V85	DoC	N/A	Local
2	Telephone x2	BLUESKY	CT-168	N/A	RJ11 Cable, Non-Shielded, 1m	Local
3	Notebook	DELL	P15F /E5520	DoC	N/A	Remote
4	Personal Computer x2	DELL	DCTA	DoC	N/A	Remote
5	LCD Monitor x2	DELL	E198WFPF	DoC	D-SUB Cable, D-Shielded, 1.8m	Remote
6	Keyboard x2	DELL	SK-8175	DoC	USB Cable, AL-F-Shielded, 1.8m	Remote
7	Mouse x2	DELL	MOC5UO	DoC	USB Cable, AL-F-Shielded, 1.8m	Remote
8	Emulator	CASA	C2200	N/A	Coaxial Cable, D-Shielded, 20m	Remote

**<Radiated above 1GHz>**

No.	Peripheral	Manufacturer	Model Number	FCC ID	Cable / Spec. Description	Placed
1	USB2.0 Flash Disk x2	TRANSCEND	JetFlash V85	DoC	N/A	Local
2	Telephone x2	KOKA	TP-269	N/A	RJ11 Cable, Non-Shielded, 1.5m	Local
3	Notebook	DELL	PP05L (D600)	DoC	N/A	Remote
4	Personal Computer x2	DELL	DCTA (T3500)	DoC	N/A	Remote
5	LCD Monitor x2	DELL	2408WFPB	DoC	D-SUB Cable, D-Shielded, 1.8m	Remote
6	Keyboard x2	DELL	SK-8175	DoC	USB Cable, AL-F-Shielded, 1.8m	Remote
7	Mouse x2	DELL	MOC5UO	DoC	USB Cable, AL-F-Shielded, 1.8m	Remote
8	Emulator	CASA	C2200	N/A	Coaxial Cable, D-Shielded, 20m	Remote

2.3. Connection Diagram of Test System



1. The RJ11 cable is connected from the EUT to the support unit 1.
2. The RJ11 cable is connected from the EUT to the support unit 1.
3. These RJ45 cables are floating.
4. These cables (included RJ45 & Coaxial cable) are connected from the EUT to the remote workstation.

Note: Above support unit on behalf of the meaning, please refer to section 2.2.



### **3. Test Software**

During the test, the following programs under Win XP from remote workstation were executed:

<for remote PC>

- Executed "ping.exe" to link with the EUT to receive and transmit data by RJ45 cable.
- Remote PC link with the EUT to receive and transmit data via remote Emulator by Coaxial cable.

<for remote NB>

- Executed "ping.exe" to link with the EUT to receive and transmit data by WLAN.

## **4. General Information of Test**

### **4.1. Test Facility**

**Test Site : SPORTON INTERNATIONAL INC.**

Test Site Location : No. 3, Lane 238, Kang Lo Street, Nei Hwu District, Taipei 11424,  
Taiwan, R.O.C.

TEL : 886-2-2631-4739

FAX : 886-2-2631-9740

Test Site No. : CO01-NH, OS02-NH

Test Site Location : No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang,  
Tao Yuan Hsien, Taiwan, R.O.C.

TEL : 886-3-327-3456

FAX : 886-3-318-0055

Test Site No. : 03CH04-HY

### **4.2. Test Voltage**

AC 120V / 60Hz

### **4.3. Measurement Procedure**

ANSI C63.4-2009

### **4.4. Test in Compliance with**

CISPR PUB. 22 and FCC Part 15 and Canada Standard ICES-003 Issue 5

15.107 Conducted Emission

15.109 Radiated Emission

### **4.5. Frequency Range Investigated**

- a. Conducted emission test: from 150 kHz to 30 MHz
- b. Radiated emission test: from 30 MHz to 12,000 MHz

### **4.6. Test Distance**

- a. The test distance of radiated emission test from antenna to EUT is 10 M (from 30MHz~1000MHz).
- b. The test distance of radiated emission test from antenna to EUT is 3 M (from 1GHz~ 9GHz).
- c. The test distance of radiated emission test from antenna to EUT is 1 M (from 9GHz~ 12GHz).

**5. Test of Conducted Powerline**

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 kHz and return leads of the EUT according to the methods defined in ANSI C63.4-2009 Section 3.1. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meter above the ground plane as shown in section 5.3. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

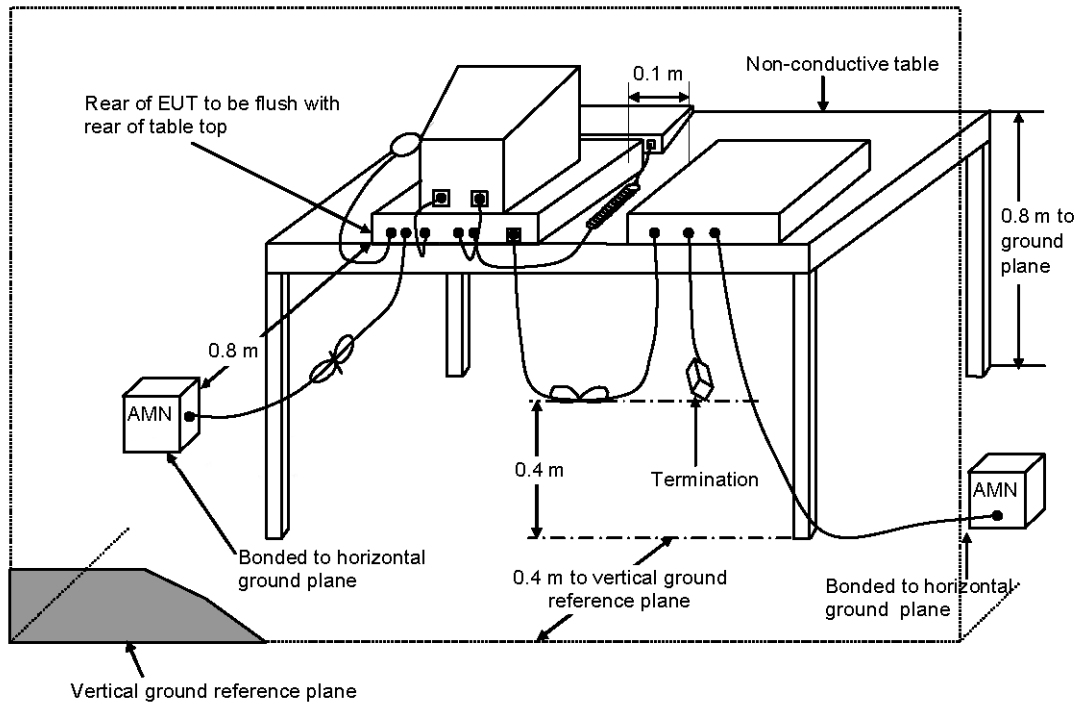
**5.1. Description of Major Test Instruments**

<b>Test Receiver Parameters</b>	<b>Setting</b>
Test Receiver	R&S ESCS 30
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz
Signal Input	9 kHz - 2.75 GHz

**5.2. Test Procedures**

- a. The EUT was placed on a desk 0.8 meters height from the metal ground plane and 0.4 meter from the conducting wall of the shielding room and it was kept at least 0.8 meters from any other grounded conducting surface.
- b. Connect EUT to the power mains through a line impedance stabilization network (LISN).
- c. All the support units are connect to the other LISN.
- d. The LISN provides 50 ohm coupling impedance for the measuring instrument.
- e. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
- f. Both sides of AC line were checked for maximum conducted interference.
- g. The frequency range from 150 kHz to 30 MHz was searched.
- h. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

5.3. Typical Test Setup Layout of Conducted Powerline



- a. AMN is 80 cm from the EUT and at least 80 cm from other units and other metal planes.
- b. EUT is connected to one artificial mains network (AMN).
- c. All other units of a system are powered from a second AMN. A multiple outlet strip can be used for multiple mains cords.
- d. Rear of EUT to be flushed with rear of table top.
- e. Peripherals shall be placed at a distance of 10 cm from each other and from the controller, except for the monitor which, if this is an acceptable installation practice, shall be placed directly on the top of the controller.
- f. If cables, which hang closer than 40 cm to the horizontal metal ground plane, cannot be shortened to appropriate length, the excess shall be folded back and forth forming a bundle 30 cm to 40 cm long.
- g. Mains cords and signal cables shall be positioned for their entire lengths, as far as possible, at 40 cm from the vertical reference plane.
- h. Cables of hand operated devices, such as keyboards, mice, etc. shall be placed as for normal usage.

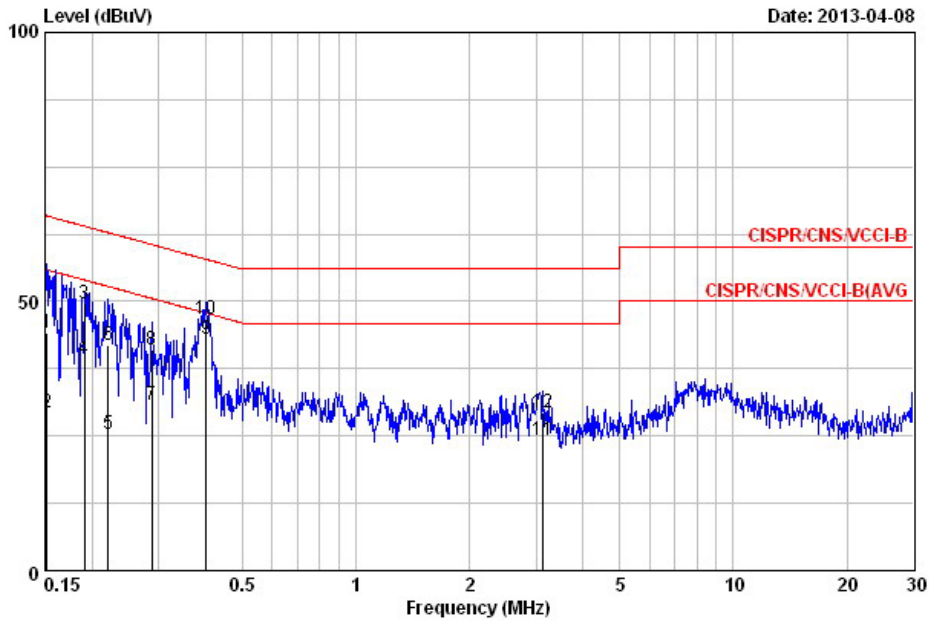
5.4. Test Result of AC Powerline Conducted Emission

Test Mode	Mode 1	Test Site No.	CO01-NH
Test Frequency	0.15 MHz ~ 30 MHz	Test Engineer	Willy
Temperature	25 °C	Relative Humidity	54 %

Note: 1. Corrected Reading (dBµV) = LISN Factor + Cable Loss + Read Level = Level  
 2. All emissions not reported here are more than 10 dB below the prescribed limit.

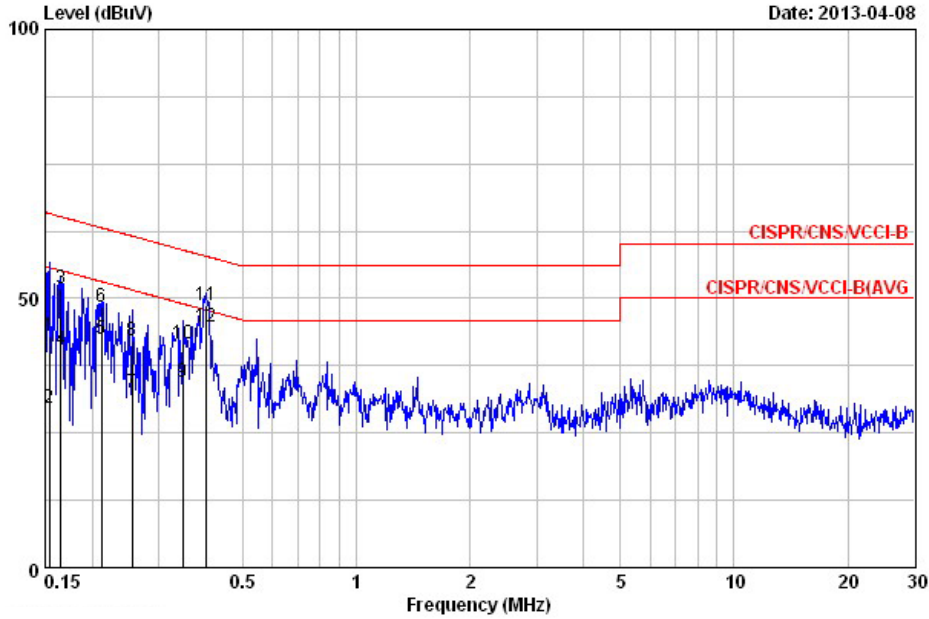
■ The test was passed at the minimum margin that marked by the frame in the following data

Line



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBµV	dB	dBµV	dBµV	dB	dB	
1	0.152	44.16	-21.75	65.91	33.89	10.17	0.10	QP
2	0.152	29.37	-26.54	55.91	19.10	10.17	0.10	AVERAGE
3	0.190	49.44	-14.58	64.02	39.17	10.17	0.10	QP
4	0.190	39.40	-14.62	54.02	29.13	10.17	0.10	AVERAGE
5	0.221	25.22	-27.57	52.79	14.95	10.17	0.10	AVERAGE
6	0.221	42.02	-20.77	62.79	31.75	10.17	0.10	QP
7	0.288	30.78	-19.80	50.59	20.51	10.17	0.10	AVERAGE
8	0.288	41.03	-19.55	60.59	30.76	10.17	0.10	QP
9	0.402	43.13	-4.68	47.81	32.86	10.17	0.10	AVERAGE
10	0.402	46.68	-11.13	57.81	36.41	10.17	0.10	QP
11	3.140	24.13	-21.87	46.00	13.71	10.22	0.20	AVERAGE
12	3.140	29.47	-26.53	56.00	19.05	10.22	0.20	QP

Neutral



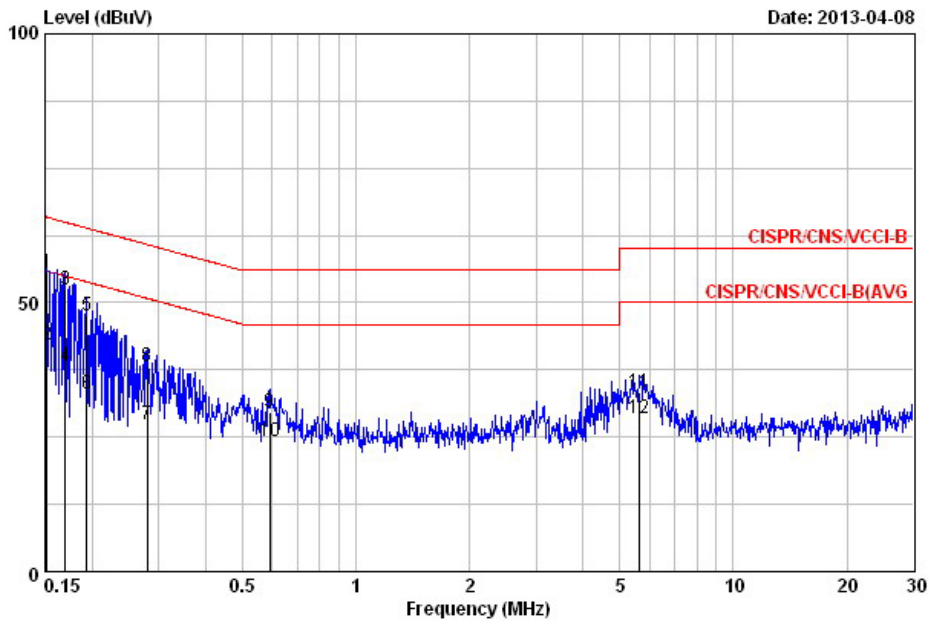
	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.154	43.01	-22.77	65.78	32.77	10.14	0.10	QP
2	0.154	29.64	-26.14	55.78	19.40	10.14	0.10	AVERAGE
3	0.165	51.92	-13.28	65.21	41.68	10.14	0.10	QP
4	0.165	40.46	-14.74	55.21	30.22	10.14	0.10	AVERAGE
5	0.212	42.52	-10.62	53.14	32.28	10.14	0.10	AVERAGE
6	0.212	48.43	-14.71	63.14	38.19	10.14	0.10	QP
7	0.255	32.50	-19.10	51.60	22.26	10.14	0.10	AVERAGE
8	0.255	42.16	-19.44	61.60	31.92	10.14	0.10	QP
9	0.346	34.45	-14.60	49.05	24.21	10.14	0.10	AVERAGE
10	0.346	41.50	-17.55	59.05	31.26	10.14	0.10	QP
11	0.402	48.74	-9.07	57.81	38.50	10.14	0.10	QP
12	0.402	44.72	-3.09	47.81	34.48	10.14	0.10	AVERAGE

Test Mode	Mode 2	Test Site No.	CO01-NH
Test Frequency	0.15 MHz ~ 30 MHz	Test Engineer	Willy
Temperature	25 °C	Relative Humidity	54 %

Note: 1. Corrected Reading (dBμV) = LISN Factor + Cable Loss + Read Level = Level  
 2. All emissions not reported here are more than 10 dB below the prescribed limit.

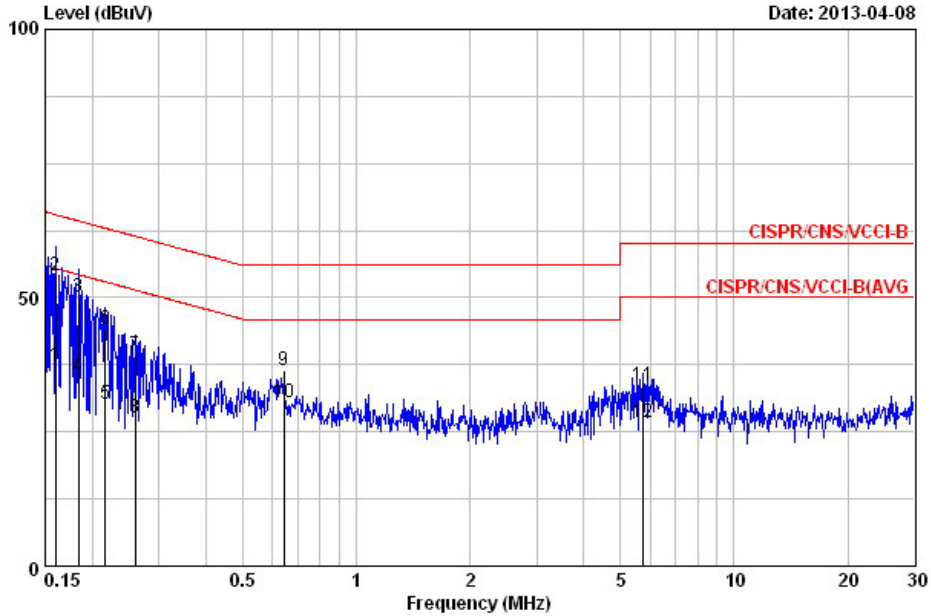
■ The test was passed at the minimum margin that marked by the frame in the following data

Line



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.152	55.65	-10.26	65.91	45.38	10.17	0.10	QP
2	0.152	42.20	-13.71	55.91	31.93	10.17	0.10	AVERAGE
3	0.169	52.45	-12.54	64.99	42.18	10.17	0.10	QP
4	0.169	38.06	-16.93	54.99	27.79	10.17	0.10	AVERAGE
5	0.193	47.72	-16.17	63.89	37.45	10.17	0.10	QP
6	0.193	32.97	-20.92	53.89	22.70	10.17	0.10	AVERAGE
7	0.280	27.29	-23.51	50.81	17.02	10.17	0.10	AVERAGE
8	0.280	38.24	-22.56	60.81	27.97	10.17	0.10	QP
9	0.592	29.63	-26.37	56.00	19.35	10.18	0.10	QP
10	0.592	24.08	-21.92	46.00	13.80	10.18	0.10	AVERAGE
11	5.623	33.47	-26.53	60.00	23.01	10.26	0.20	QP
12	5.623	28.57	-21.43	50.00	18.11	10.26	0.20	AVERAGE

Neutral



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.160	37.36	-18.11	55.47	27.12	10.14	0.10	AVERAGE
2	0.160	54.05	-11.42	65.47	43.81	10.14	0.10	QP
3	0.183	50.16	-14.17	64.33	39.92	10.14	0.10	QP
4	0.183	35.20	-19.13	54.33	24.96	10.14	0.10	AVERAGE
5	0.216	30.24	-22.73	52.96	20.00	10.14	0.10	AVERAGE
6	0.216	44.14	-18.83	62.96	33.90	10.14	0.10	QP
7	0.260	39.34	-22.08	61.42	29.10	10.14	0.10	QP
8	0.260	27.72	-23.70	51.42	17.48	10.14	0.10	AVERAGE
9	0.644	36.56	-9.44	46.00	26.31	10.15	0.10	AVERAGE
10	0.644	30.47	-25.53	56.00	20.22	10.15	0.10	QP
11	5.744	33.48	-26.52	60.00	23.05	10.23	0.20	QP
12	5.744	26.80	-23.20	50.00	16.37	10.23	0.20	AVERAGE

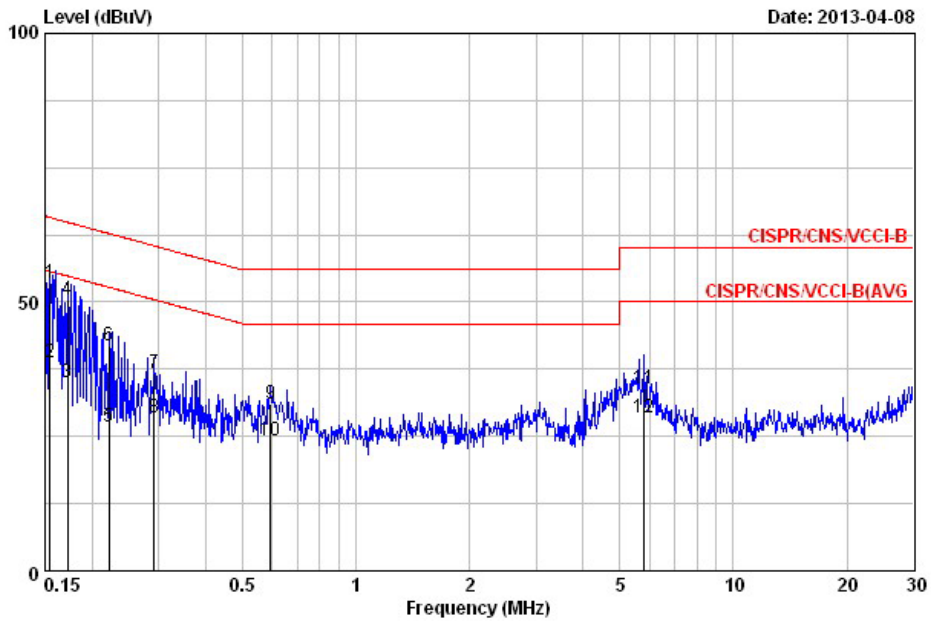


Test Mode	Mode 3	Test Site No.	CO01-NH
Test Frequency	0.15 MHz ~ 30 MHz	Test Engineer	Willy
Temperature	25 °C	Relative Humidity	54 %

Note: 1. Corrected Reading (dBµV) = LISN Factor + Cable Loss + Read Level = Level  
 2. All emissions not reported here are more than 10 dB below the prescribed limit.

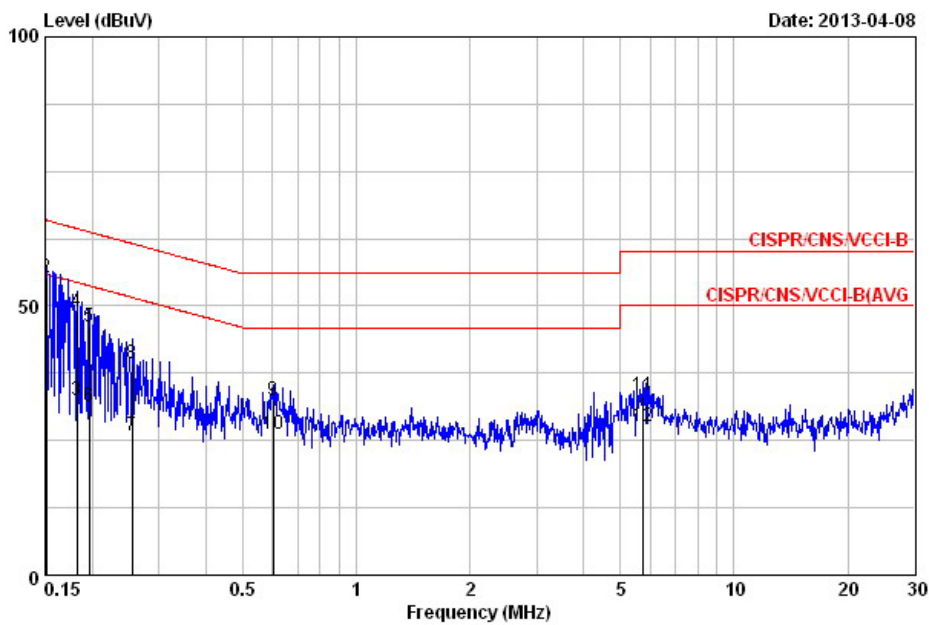
■ The test was passed at the minimum margin that marked by the frame in the following data

Line



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.155	53.59	-12.14	65.74	43.32	10.17	0.10	QP
2	0.155	38.69	-17.04	55.74	28.42	10.17	0.10	AVERAGE
3	0.172	35.15	-19.71	54.86	24.88	10.17	0.10	AVERAGE
4	0.172	50.39	-14.47	64.86	40.12	10.17	0.10	QP
5	0.222	26.78	-25.96	52.74	16.51	10.17	0.10	AVERAGE
6	0.222	41.92	-20.82	62.74	31.65	10.17	0.10	QP
7	0.292	36.79	-23.67	60.46	26.52	10.17	0.10	QP
8	0.292	28.41	-22.05	50.46	18.14	10.17	0.10	AVERAGE
9	0.595	31.08	-24.92	56.00	20.80	10.18	0.10	QP
10	0.595	24.19	-21.81	46.00	13.91	10.18	0.10	AVERAGE
11	5.805	33.82	-26.18	60.00	23.35	10.27	0.20	QP
12	5.805	28.49	-21.51	50.00	18.02	10.27	0.20	AVERAGE

Neutral



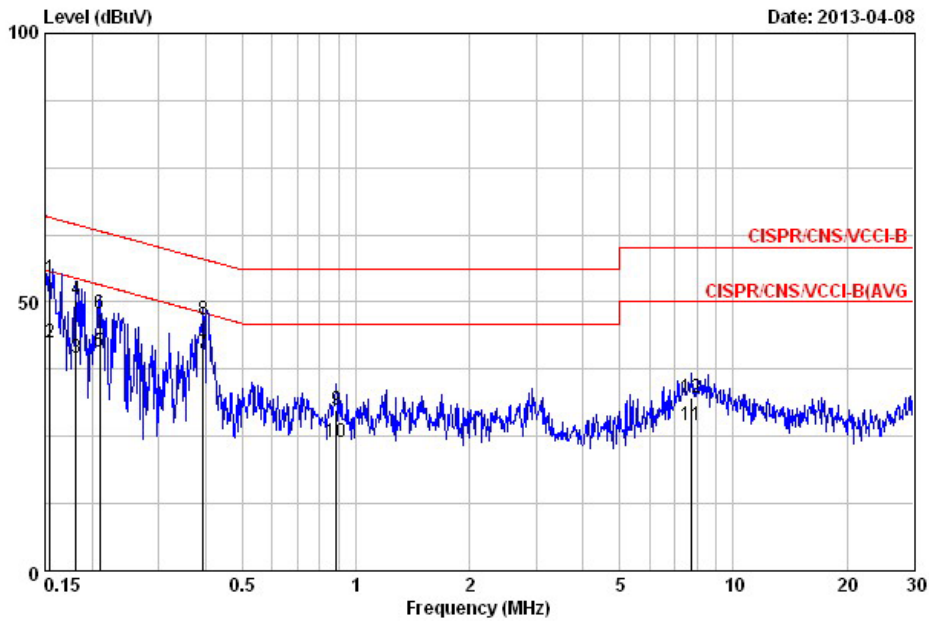
	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.151	38.78	-17.17	55.96	28.54	10.14	0.10	AVERAGE
2	0.151	55.21	-10.74	65.96	44.97	10.14	0.10	QP
3	0.182	32.60	-21.77	54.37	22.36	10.14	0.10	AVERAGE
4	0.182	48.88	-15.49	64.37	38.64	10.14	0.10	QP
5	0.197	46.08	-17.67	63.76	35.84	10.14	0.10	QP
6	0.197	31.20	-22.55	53.76	20.96	10.14	0.10	AVERAGE
7	0.255	25.99	-25.61	51.60	15.75	10.14	0.10	AVERAGE
8	0.255	39.25	-22.35	61.60	29.01	10.14	0.10	QP
9	0.601	32.35	-23.65	56.00	22.10	10.14	0.10	QP
10	0.601	26.35	-19.65	46.00	16.10	10.14	0.10	AVERAGE
11	5.713	33.20	-26.80	60.00	22.77	10.23	0.20	QP
12	5.713	27.75	-22.25	50.00	17.32	10.23	0.20	AVERAGE

Test Mode	Mode 4	Test Site No.	CO01-NH
Test Frequency	0.15 MHz ~ 30 MHz	Test Engineer	Willy
Temperature	25 °C	Relative Humidity	54 %

Note: 1. Corrected Reading (dBμV) = LISN Factor + Cable Loss + Read Level = Level  
 2. All emissions not reported here are more than 10 dB below the prescribed limit.

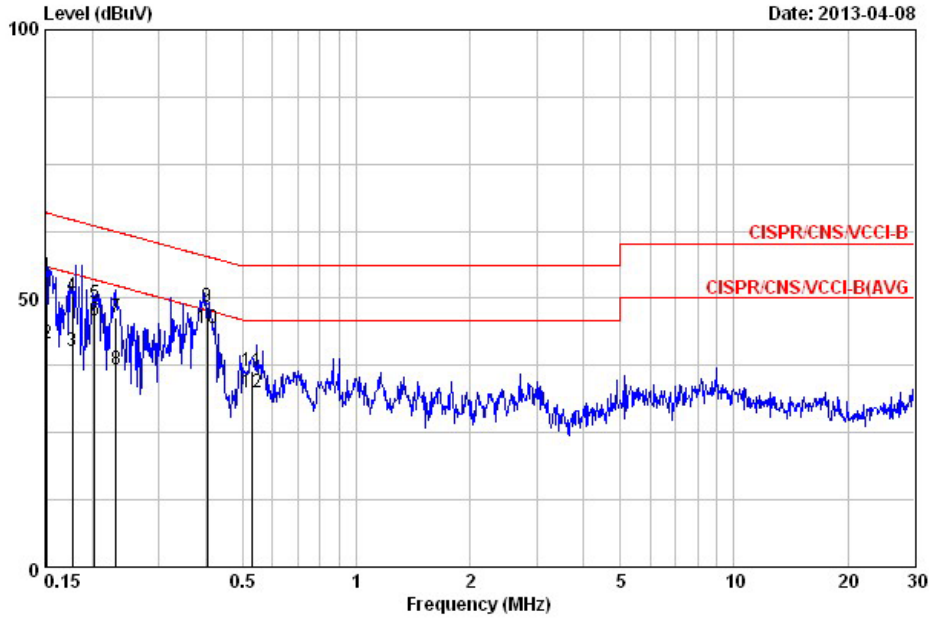
■ The test was passed at the minimum margin that marked by the frame in the following data

Line



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.155	54.36	-11.37	65.74	44.09	10.17	0.10	QP
2	0.155	42.54	-13.19	55.74	32.27	10.17	0.10	AVERAGE
3	0.182	39.64	-14.78	54.42	29.37	10.17	0.10	AVERAGE
4	0.182	50.46	-13.96	64.42	40.19	10.17	0.10	QP
5	0.209	40.76	-12.47	53.23	30.49	10.17	0.10	AVERAGE
6	0.209	47.95	-15.28	63.23	37.68	10.17	0.10	QP
7	0.393	40.33	-7.66	47.99	30.06	10.17	0.10	AVERAGE
8	0.393	46.69	-11.30	57.99	36.42	10.17	0.10	QP
9	0.888	30.04	-25.96	56.00	19.76	10.19	0.10	QP
10	0.888	23.92	-22.08	46.00	13.64	10.19	0.10	AVERAGE
11	7.769	27.09	-22.91	50.00	16.59	10.30	0.20	AVERAGE
12	7.769	32.13	-27.87	60.00	21.63	10.30	0.20	QP

Neutral



	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.152	54.07	-11.84	65.91	43.83	10.14	0.10	QP
2	0.152	41.45	-14.46	55.91	31.21	10.14	0.10	AVERAGE
3	0.177	40.13	-14.51	54.64	29.89	10.14	0.10	AVERAGE
4	0.177	50.40	-14.24	64.64	40.16	10.14	0.10	QP
5	0.203	49.13	-14.38	63.50	38.89	10.14	0.10	QP
6	0.203	45.98	-7.53	53.50	35.74	10.14	0.10	AVERAGE
7	0.232	46.40	-15.99	62.39	36.16	10.14	0.10	QP
8	0.232	36.67	-15.72	52.39	26.43	10.14	0.10	AVERAGE
9	0.403	48.38	-9.42	57.80	38.14	10.14	0.10	QP
10	0.403	44.32	-3.48	47.80	34.08	10.14	0.10	AVERAGE
11	0.531	36.59	-19.41	56.00	26.35	10.14	0.10	QP
12	0.531	32.57	-13.43	46.00	22.33	10.14	0.10	AVERAGE

## 6. Test of Radiated Emission

Radiated emissions from 30 MHz to 12,000 MHz were measured with a bandwidth of 120 kHz for 30 MHz to 1000 MHz and 1 MHz for above 1GHz according to the methods defines in ANSI C63.4-2009. The EUT was placed on a nonmetallic stand, 0.8 meter above the ground plane, as shown in section 6.3. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions.

### 6.1. Description of Major Test Instruments

**For Below 1GHz**

<Mode 1-3>

Amplifier Parameters	Setting
Amplifier	BURGEON BPA-530
RF Gain	30 dB
Signal Input	0.01 MHz - 3 GHz

Test Receiver Parameters	Setting
Test Receiver	R&S ESCI
Resolution Bandwidth	120 kHz
Frequency Band	9 kHz - 3 GHz
Quasi-Peak Detector	ON for Quasi-Peak Mode
	OFF for Peak Mode

<Mode 4>

<b>Amplifier Parameters</b>	<b>Setting</b>
Amplifier	BURGEON BPA-530
RF Gain	30 dB
Signal Input	0.01 MHz - 3 GHz

<b>Spectrum Analyzer Parameters</b>	<b>Setting</b>
Spectrum Analyzer	R&S FSL
Attenuation	10 dB
Start Frequency	30 MHz
Stop Frequency	1000 MHz
Resolution Bandwidth	120 kHz
Signal Input	9 kHz - 6 GHz

<b>Test Receiver Parameters</b>	<b>Setting</b>
Test Receiver	R&S ESCS 30
Resolution Bandwidth	120 kHz
Frequency Band	9 kHz - 2.75 GHz
Quasi-Peak Detector	ON for Quasi-Peak Mode
	OFF for Peak Mode

**For above 1GHz**

<b>Amplifier Parameters</b>	<b>Setting</b>
Amplifier	AGILENT 8449B
RF Gain	35 dB
Signal Input	1 GHz - 26.5 GHz

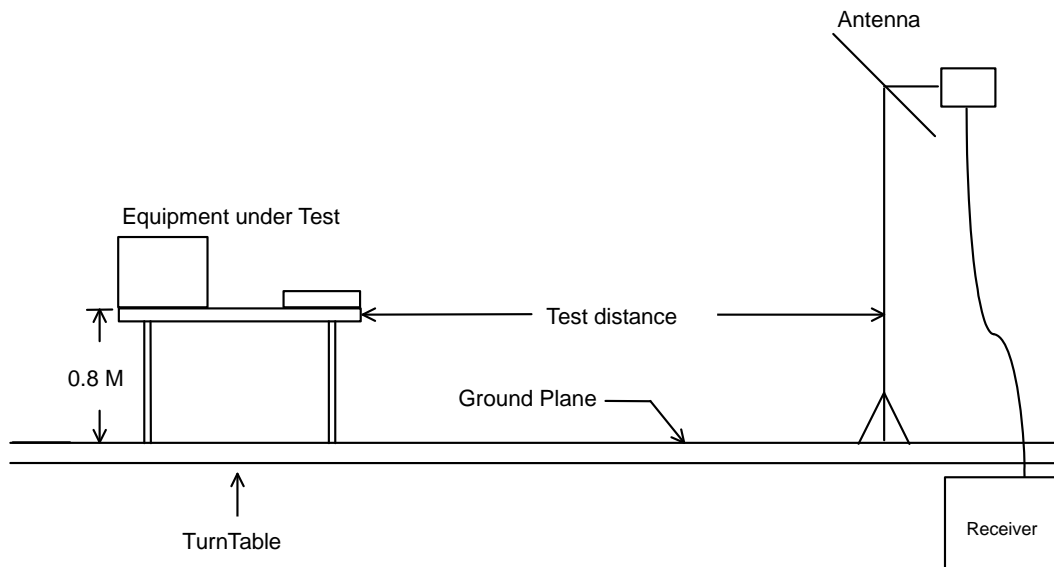
<b>Spectrum Analyzer Parameters</b>	<b>Setting</b>
Spectrum Analyzer	R&S FSP40
Attenuation	10 dB
Start Frequency	1 GHz
Stop Frequency	12 GHz
Resolution Bandwidth	1 MHz
Video Bandwidth	3 MHz
Signal Input	1 GHz - 40 GHz

**6.2. Test Procedures**

- a. The EUT was placed on a rotatable table top 0.8 meter above ground.
- b. The EUT was set 3m(above 1GHz)/10m(below 1GHz) from the interference-receiving antenna which was mounted on the top of a variable height antenna tower.
- c. The table was rotated 360 degrees to determine the position of the highest radiation.
- d. The antenna is a half wave dipole and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
- e. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
- f. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.
- h. The FCC Part 15.109 (g) permit parties seeking to authorize a digital device to choose to demonstrate that the device complies with either the Part 15 standards or the international standards found in Publication 22 of the International Special Committee on Radio Interference (CISPR).
- i. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.



6.3. Typical Test Setup Layout of Radiated Emission



6.4. Test Result of Radiated Emission for Below 1GHz

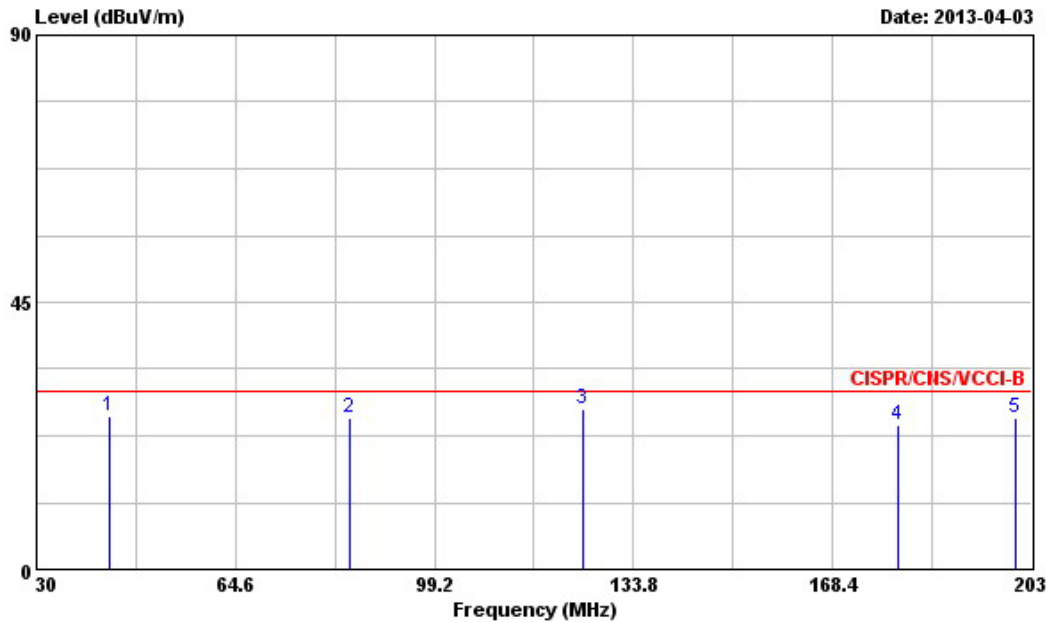
Test mode	Mode 1	Test Site No.	OS02-NH
Test frequency	30 MHz ~ 1000 MHz	Test Engineer	Chas
Temperature	27 °C	Relative Humidity	60 %

Note: 1. Emission level (dBμV/m) = 20 log Emission level (μV/m)

2. Corrected Reading : Antenna Factor + Cable Loss + Read Level – Preamp Factor = Level

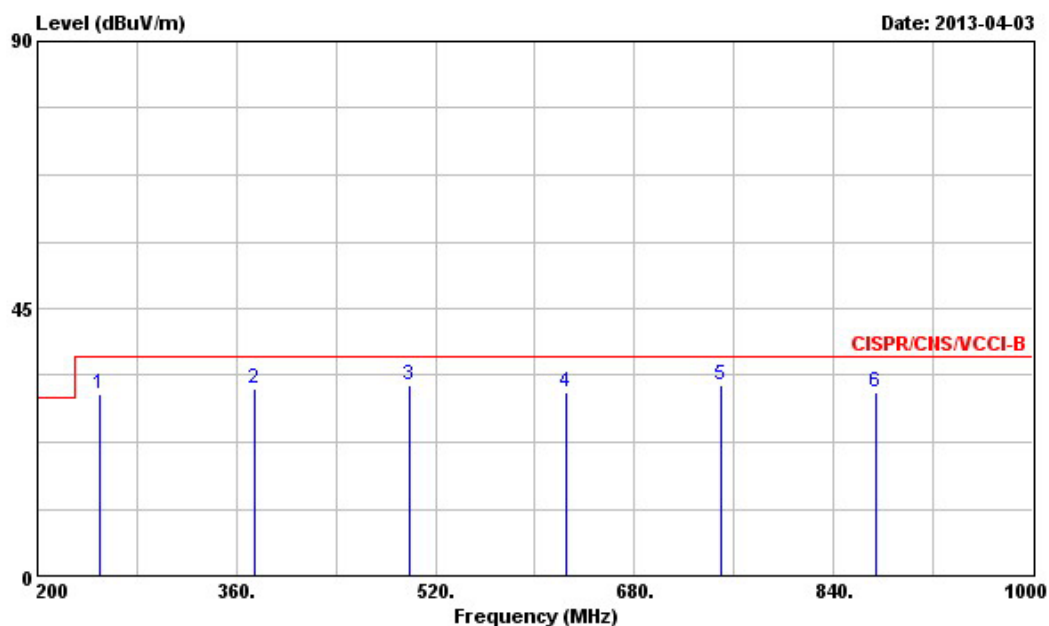
■ The test was passed at the minimum margin that marked by the frame in the following data

Vertical



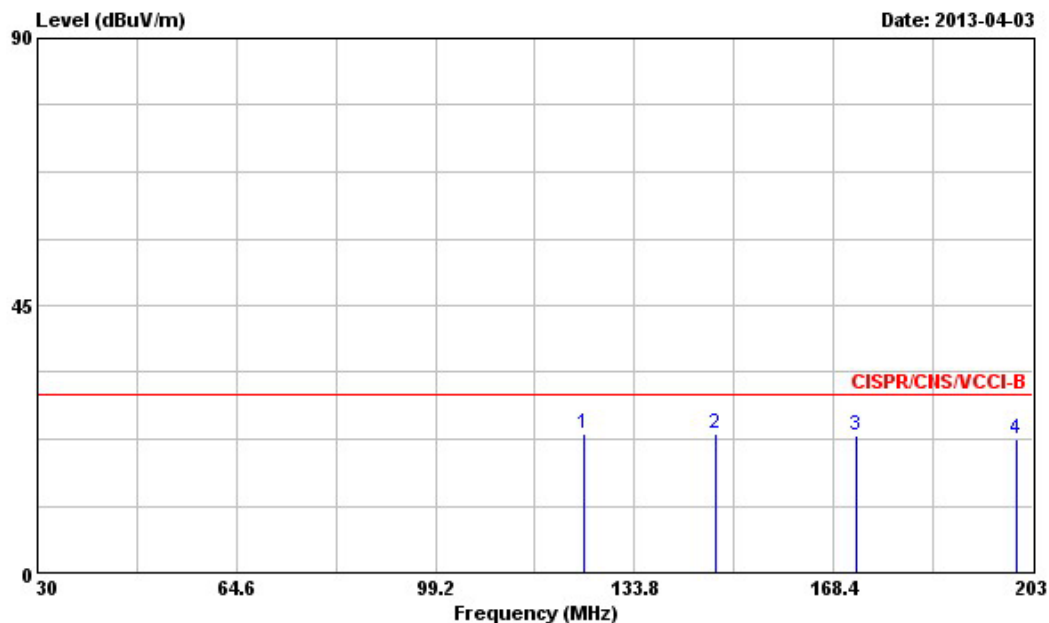
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	42.600	25.81	-4.19	30.00	44.30	12.44	0.86	31.79	QP	---	---
2	84.600	25.35	-4.65	30.00	48.00	7.92	1.16	31.73	QP	---	---
3	125.000	26.89	-3.11	30.00	44.80	12.30	1.40	31.61	QP	100	180
4	179.900	24.16	-5.84	30.00	44.68	9.29	1.66	31.47	Peak	---	---
5	200.060	25.40	-4.60	30.00	45.90	9.18	1.74	31.42	Peak	---	---

Vertical



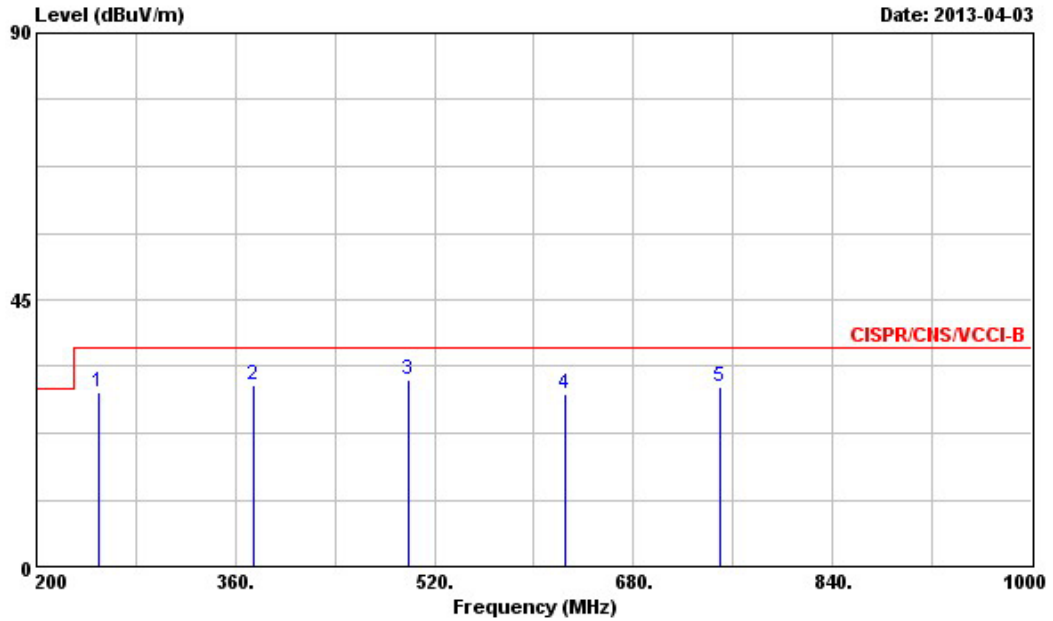
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	249.600	30.70	-6.30	37.00	47.86	12.28	1.95	31.39	Peak	---	---
2	374.400	31.55	-5.45	37.00	45.34	15.16	2.39	31.34	Peak	---	---
3	499.200	32.23	-4.77	37.00	43.22	17.54	2.79	31.32	Peak	---	---
4	624.800	30.94	-6.06	37.00	40.25	18.89	3.07	31.27	Peak	---	---
5	749.600	32.12	-4.88	37.00	40.26	19.79	3.37	31.30	Peak	---	---
6	874.400	30.87	-6.13	37.00	37.36	21.08	3.67	31.24	Peak	---	---

Horizontal



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	124.980	23.34	-6.66	30.00	41.25	12.30	1.40	31.61	Peak	---	---
2	147.990	23.53	-6.47	30.00	42.89	10.68	1.52	31.56	Peak	---	---
3	172.400	22.99	-7.01	30.00	43.27	9.59	1.63	31.50	Peak	---	---
4	200.060	22.50	-7.50	30.00	43.00	9.18	1.74	31.42	Peak	---	---

Horizontal



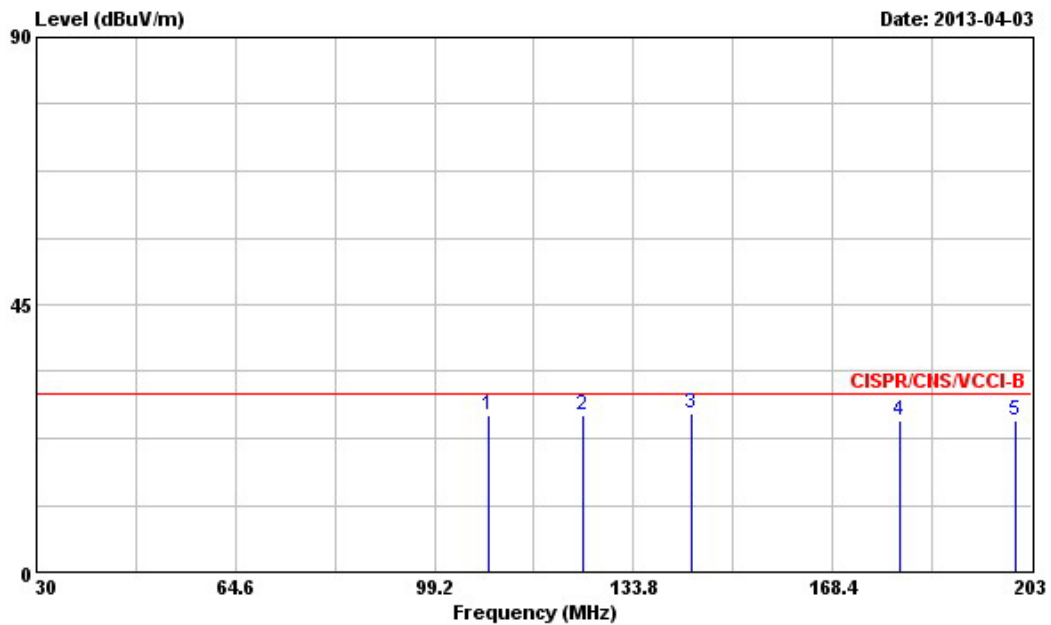
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	249.600	29.39	-7.61	37.00	46.55	12.28	1.95	31.39	Peak	---	---
2	374.400	30.55	-6.45	37.00	44.34	15.16	2.39	31.34	Peak	---	---
3	499.200	31.51	-5.49	37.00	42.50	17.54	2.79	31.32	Peak	---	---
4	624.800	29.21	-7.79	37.00	38.52	18.89	3.07	31.27	Peak	---	---
5	749.600	30.43	-6.57	37.00	38.57	19.79	3.37	31.30	Peak	---	---

<b>Test mode</b>	Mode 2	<b>Test Site No.</b>	OS02-NH
<b>Test frequency</b>	30 MHz ~ 1000 MHz	<b>Test Engineer</b>	Chas
<b>Temperature</b>	27 °C	<b>Relative Humidity</b>	60 %

Note: 1. Emission level (dB $\mu$ V/m) = 20 log Emission level ( $\mu$ V/m)  
 2. Corrected Reading : Antenna Factor + Cable Loss + Read Level – Preamp Factor = Level

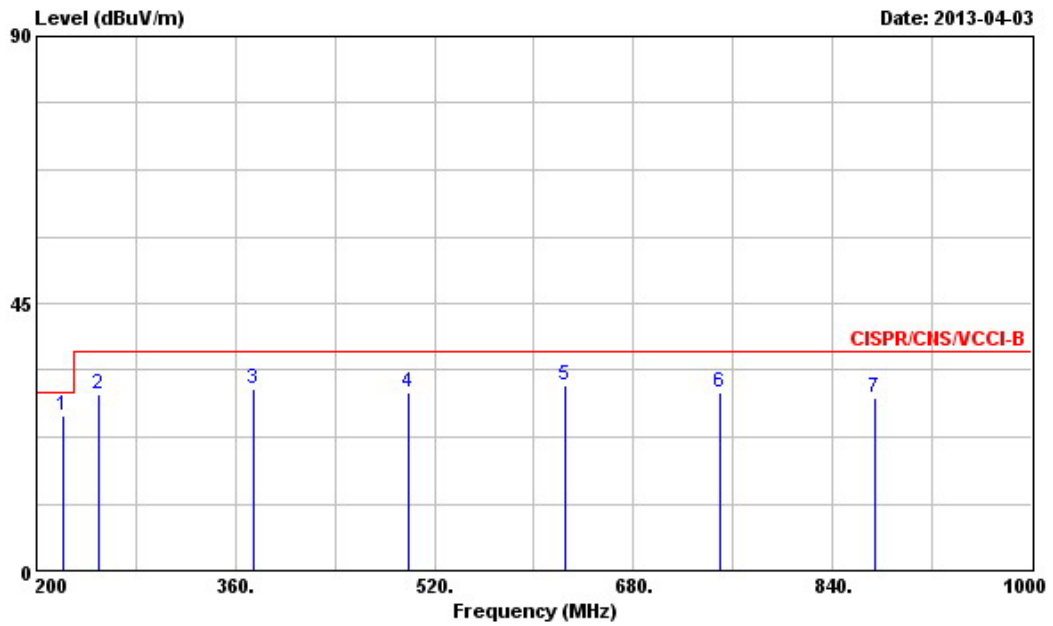
■ The test was passed at the minimum margin that marked by the frame in the following data

Vertical



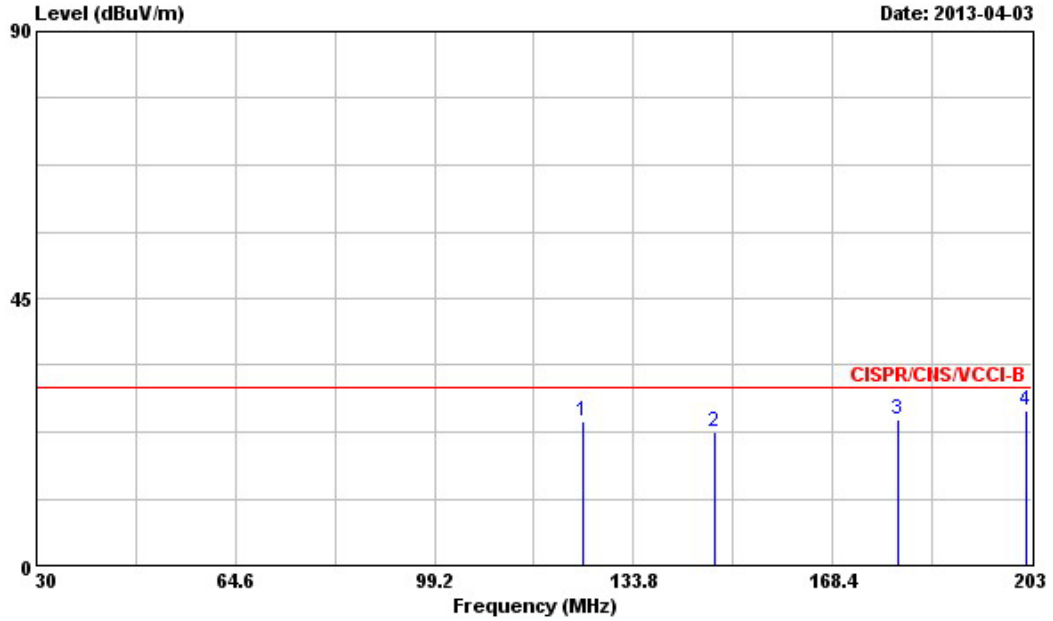
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	108.500	26.32	-3.68	30.00	45.13	11.54	1.31	31.66	QP	---	---
2	125.000	26.34	-3.66	30.00	44.25	12.30	1.40	31.61	QP	---	---
3	144.000	26.79	-3.21	30.00	46.00	10.86	1.50	31.57	QP	100	180
4	179.990	25.35	-4.65	30.00	45.87	9.29	1.66	31.47	Peak	---	---
5	200.060	25.40	-4.60	30.00	45.90	9.18	1.74	31.42	QP	---	---

Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	221.600	26.08	-3.92	30.00	45.07	10.58	1.84	31.41	QP	---	---
2	249.600	29.74	-7.26	37.00	46.90	12.28	1.95	31.39	Peak	---	---
3	374.400	30.45	-6.55	37.00	44.24	15.16	2.39	31.34	Peak	---	---
4	499.200	30.01	-6.99	37.00	41.00	17.54	2.79	31.32	Peak	---	---
5	624.800	31.21	-5.79	37.00	40.52	18.89	3.07	31.27	Peak	---	---
6	749.600	30.12	-6.88	37.00	38.26	19.79	3.37	31.30	Peak	---	---
7	874.400	29.07	-7.93	37.00	35.56	21.08	3.67	31.24	Peak	---	---

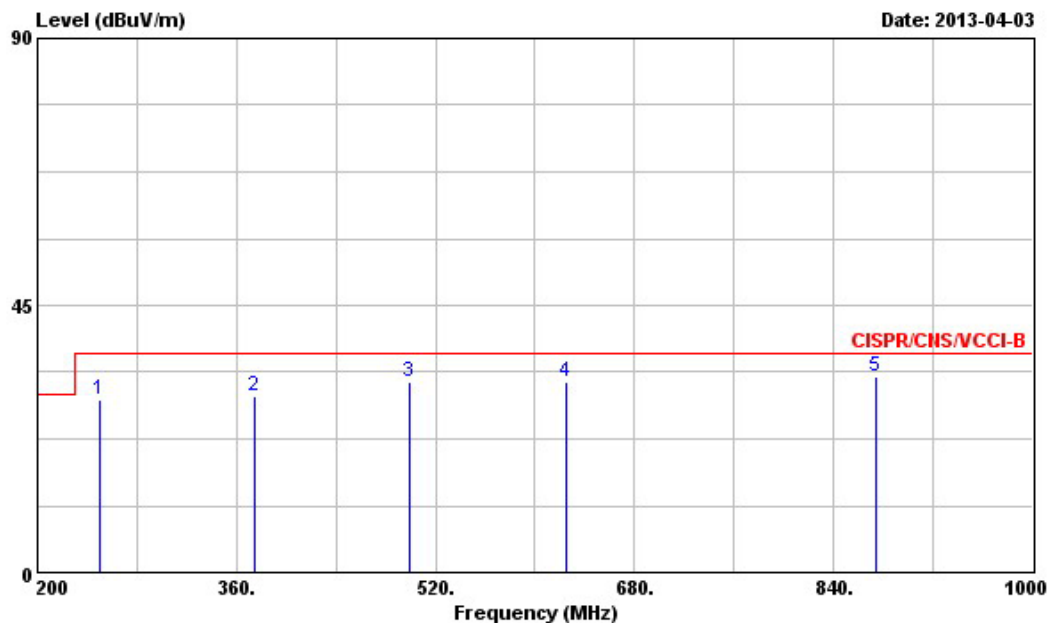
Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	124.980	24.44	-5.56	30.00	42.35	12.30	1.40	31.61	Peak	---	---
2	147.990	22.64	-7.36	30.00	42.00	10.68	1.52	31.56	Peak	---	---
3	179.900	24.58	-5.42	30.00	45.10	9.29	1.66	31.47	Peak	---	---
4	202.000	26.15	-3.85	30.00	46.52	9.30	1.75	31.42	Peak	---	---



Horizontal



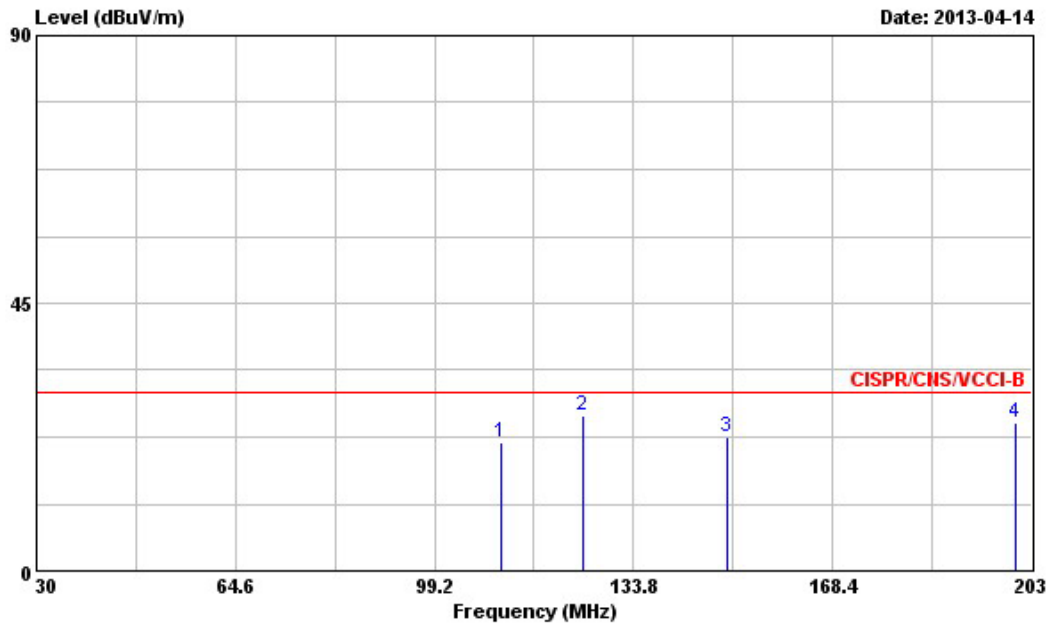
Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	249.600	29.09	-7.91	37.00	46.25	12.28	1.95	31.39 Peak	---	---
2	374.400	29.55	-7.45	37.00	43.34	15.16	2.39	31.34 Peak	---	---
3	499.200	32.04	-4.96	37.00	43.03	17.54	2.79	31.32 Peak	---	---
4	624.800	32.04	-4.96	37.00	41.35	18.89	3.07	31.27 Peak	---	---
5	874.400	32.88	-4.12	37.00	39.37	21.08	3.67	31.24 Peak	---	---

<b>Test mode</b>	Mode 3	<b>Test Site No.</b>	OS02-NH
<b>Test frequency</b>	30 MHz ~ 1000 MHz	<b>Test Engineer</b>	Chas
<b>Temperature</b>	27 °C	<b>Relative Humidity</b>	60 %

Note: 1. Emission level (dBµV/m) = 20 log Emission level (µV/m)  
 2. Corrected Reading : Antenna Factor + Cable Loss + Read Level – Preamp Factor = Level

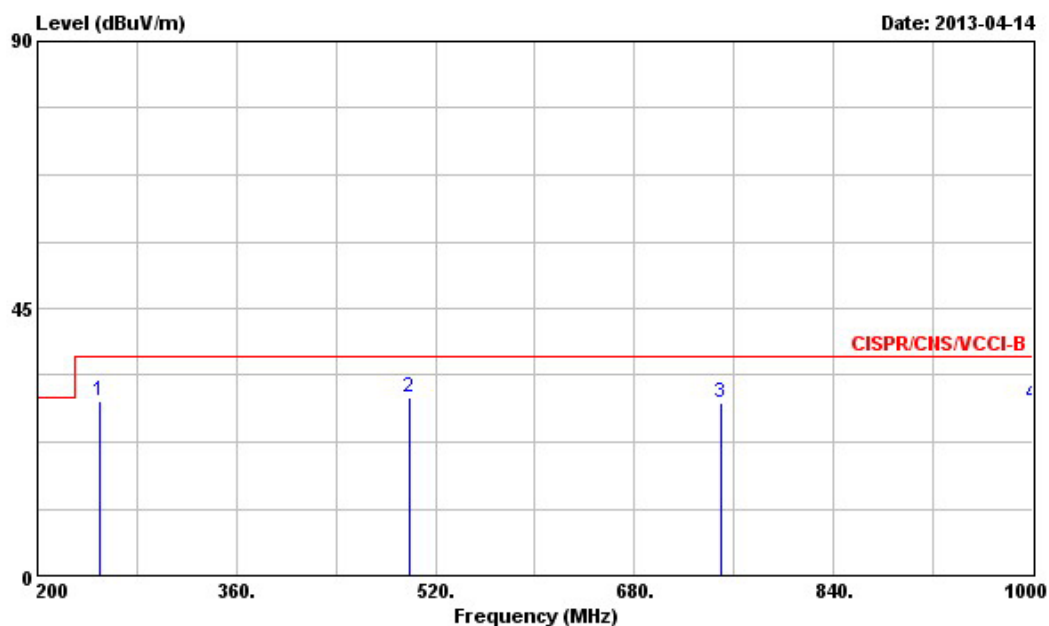
■ The test was passed at the minimum margin that marked by the frame in the following data

Vertical



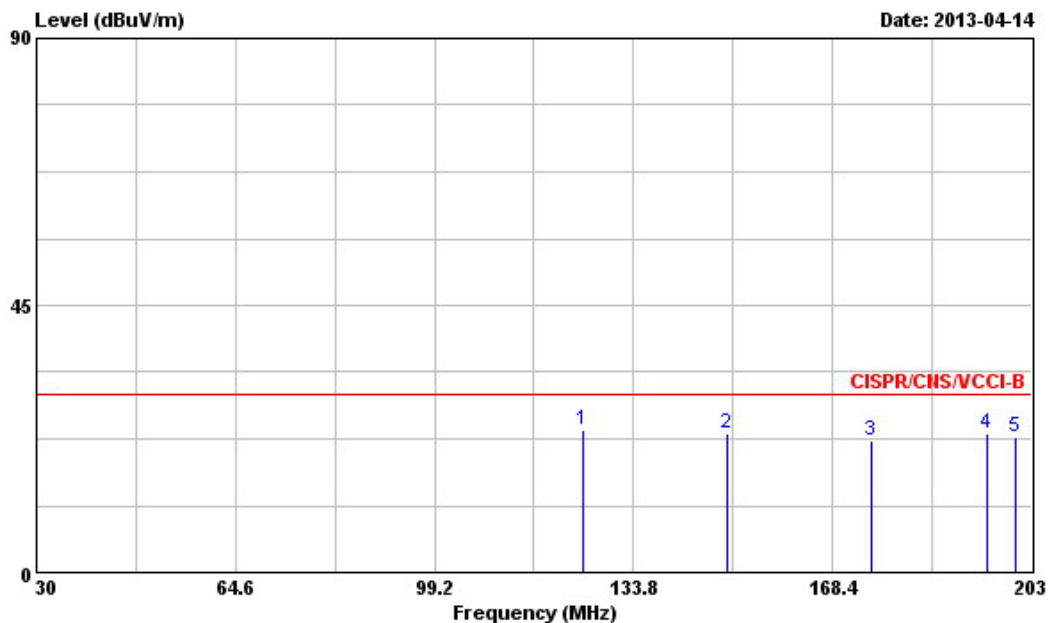
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	110.790	21.52	-8.48	30.00	40.20	11.65	1.32	31.65	Peak	---	---
2 @	125.000	26.25	-3.75	30.00	44.16	12.30	1.40	31.61	QP	100	180
3	150.060	22.63	-7.37	30.00	42.06	10.59	1.53	31.55	Peak	---	---
4 @	200.060	24.80	-5.20	30.00	45.30	9.18	1.74	31.42	Peak	---	---

Vertical



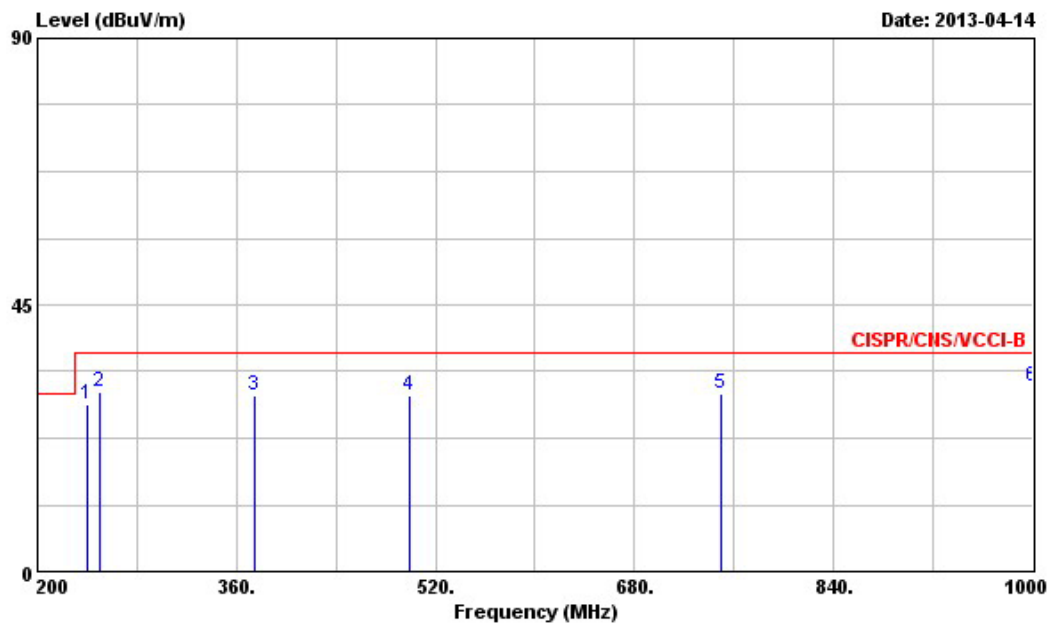
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	249.600	29.47	-7.53	37.00	46.63	12.28	1.95	31.39	Peak	---	---
2	499.200	29.98	-7.02	37.00	40.97	17.54	2.79	31.32	Peak	---	---
3	749.600	29.22	-7.78	37.00	37.36	19.79	3.37	31.30	Peak	---	---
4	1000.000	28.72	-8.28	37.00	33.58	22.36	3.97	31.19	Peak	---	---

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	125.150	23.93	-6.07	30.00	41.84	12.30	1.40	31.61	Peak	---	---
2	150.060	23.28	-6.72	30.00	42.71	10.59	1.53	31.55	Peak	---	---
3	175.150	22.23	-7.77	30.00	42.63	9.45	1.64	31.49	Peak	---	---
4	195.220	23.51	-6.49	30.00	44.02	9.21	1.72	31.44	Peak	---	---
5	200.060	22.72	-7.28	30.00	43.22	9.18	1.74	31.42	Peak	---	---

Horizontal



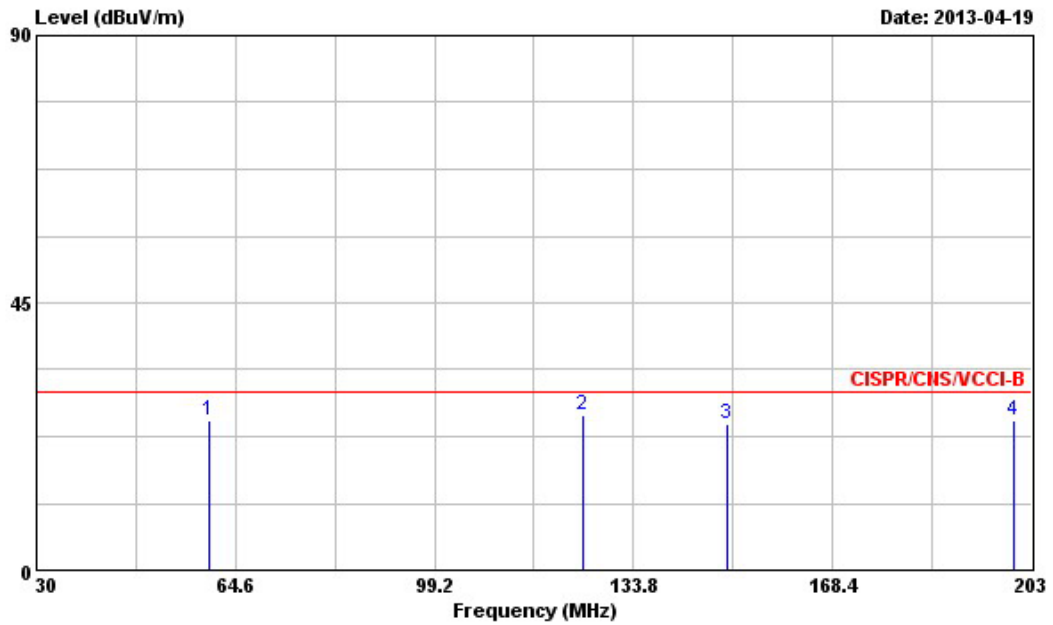
Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	240.000	28.18	-8.82	37.00	45.99	11.67	1.92	31.40 Peak	---	---
2	249.600	30.19	-6.81	37.00	47.35	12.28	1.95	31.39 Peak	---	---
3	374.400	29.69	-7.31	37.00	43.48	15.16	2.39	31.34 Peak	---	---
4	499.200	29.59	-7.41	37.00	40.58	17.54	2.79	31.32 Peak	---	---
5	749.600	30.03	-6.97	37.00	38.17	19.79	3.37	31.30 Peak	---	---
6	1000.000	31.31	-5.69	37.00	36.17	22.36	3.97	31.19 Peak	---	---

<b>Test mode</b>	Mode 4	<b>Test Site No.</b>	OS02-NH
<b>Test frequency</b>	30 MHz ~ 1000 MHz	<b>Test Engineer</b>	Chas
<b>Temperature</b>	27 °C	<b>Relative Humidity</b>	60 %

Note: 1. Emission level (dBµV/m) = 20 log Emission level (µV/m)  
 2. Corrected Reading : Antenna Factor + Cable Loss + Read Level – Preamp Factor = Level

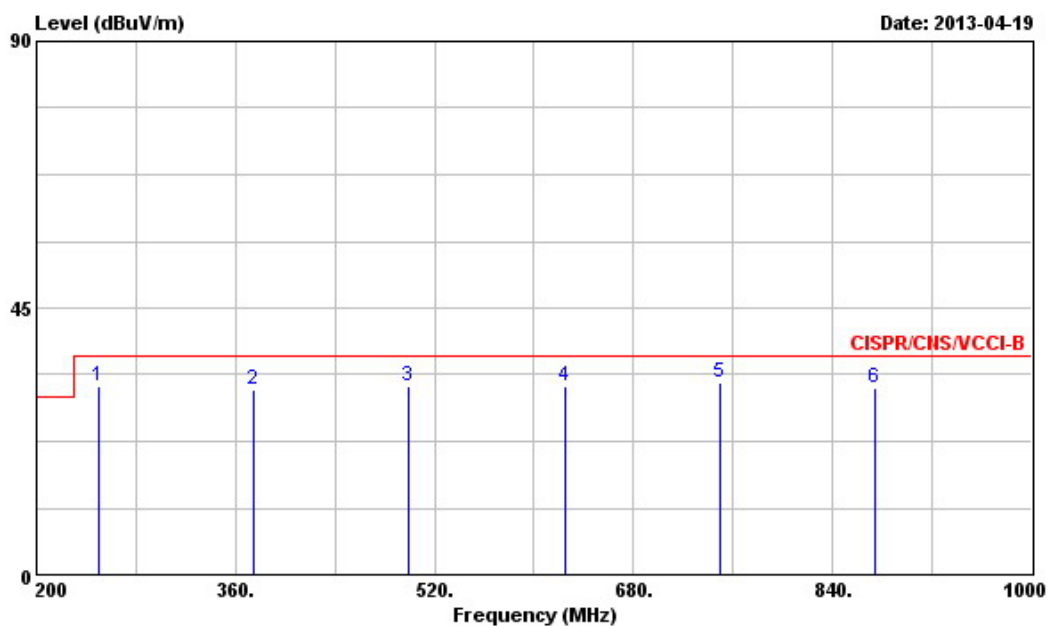
■ The test was passed at the minimum margin that marked by the frame in the following data

Vertical



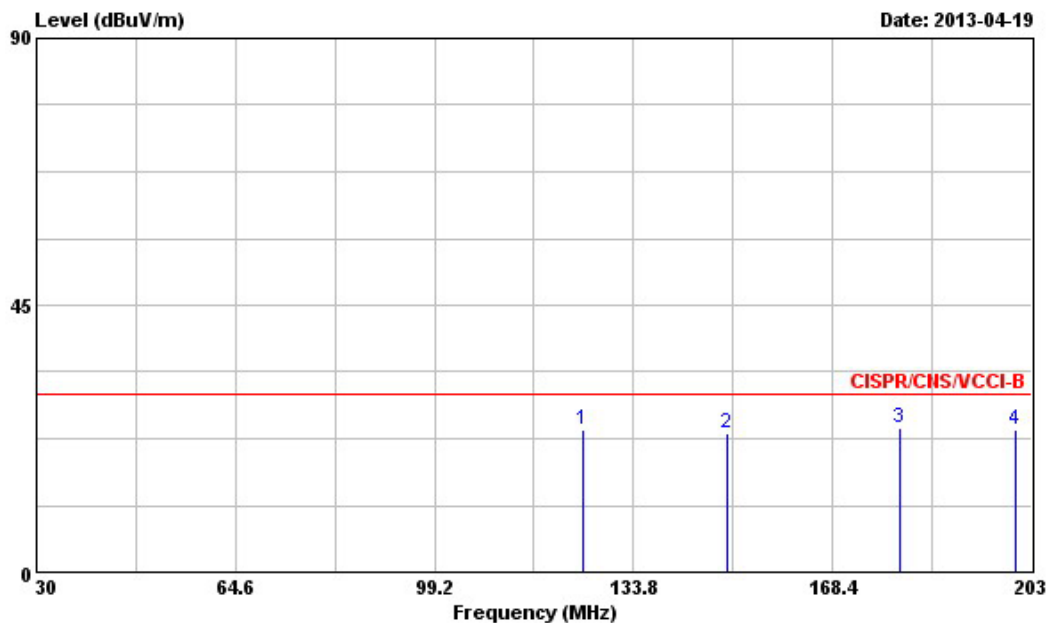
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	60.000	25.25	-4.75	30.00	49.50	6.38	1.17	31.80	QP	---	---
2	125.000	26.25	-3.75	30.00	44.00	12.30	1.56	31.61	QP	100	180
3	150.000	24.49	-5.51	30.00	43.78	10.59	1.67	31.55	QP	---	---
4	200.010	25.20	-4.80	30.00	45.55	9.18	1.89	31.42	Peak	---	---

Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @	249.600	31.83	-5.17	37.00	48.85	12.28	2.09	31.39	Peak	---	---
2 @	374.800	31.33	-5.67	37.00	44.99	15.16	2.52	31.34	Peak	---	---
3 @	499.200	31.76	-5.24	37.00	42.57	17.54	2.97	31.32	Peak	---	---
4 @	624.800	31.67	-5.33	37.00	40.85	18.89	3.20	31.27	Peak	---	---
5 @	749.600	32.43	-4.57	37.00	40.41	19.79	3.53	31.30	Peak	---	---
6 @	874.400	31.55	-5.45	37.00	37.90	21.08	3.81	31.24	Peak	---	---

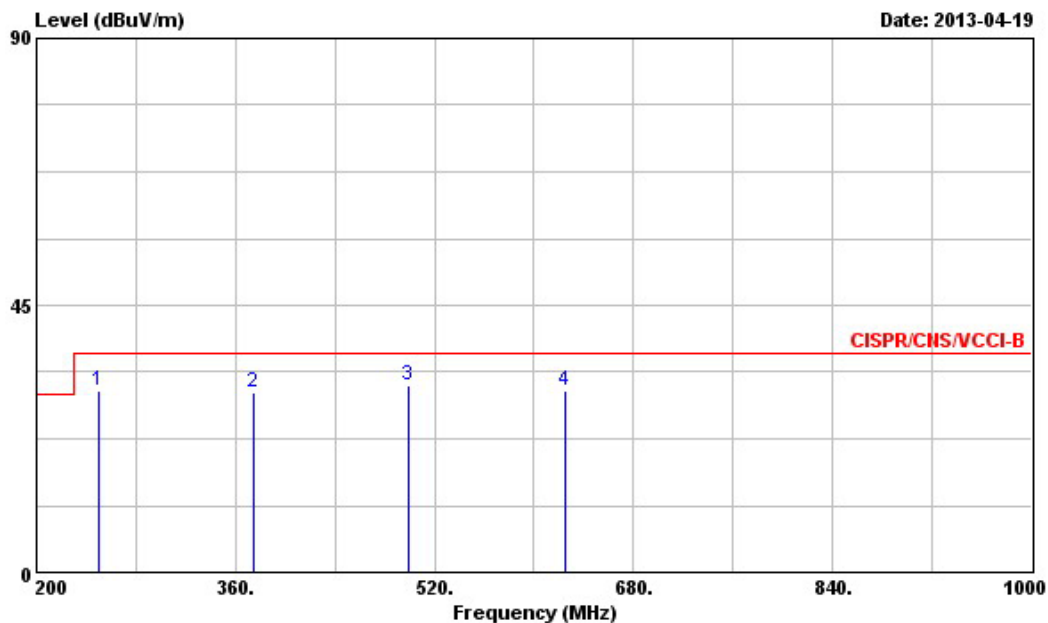
Horizontal



Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	124.980	24.09	-5.91	30.00	42.00	12.30	1.40	31.61 Peak	---	---
2	150.000	23.37	-6.63	30.00	42.80	10.59	1.53	31.55 Peak	---	---
3	179.990	24.27	-5.73	30.00	44.79	9.29	1.66	31.47 Peak	---	---
4	200.060	23.86	-6.14	30.00	44.36	9.18	1.74	31.42 Peak	---	---



Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	249.600	30.48	-6.52	37.00	47.50	12.28	2.09	31.39	Peak	---	---
2	374.400	30.33	-6.67	37.00	43.99	15.16	2.52	31.34	Peak	---	---
3	499.200	31.58	-5.42	37.00	42.39	17.54	2.97	31.32	Peak	---	---
4	624.800	30.51	-6.49	37.00	39.69	18.89	3.20	31.27	Peak	---	---

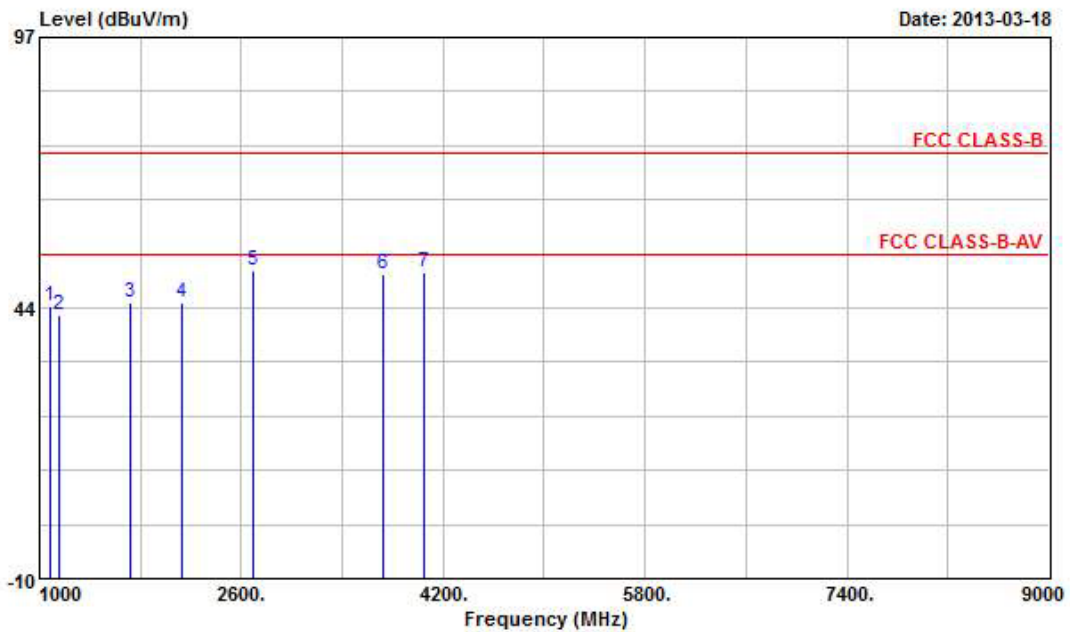
6.5. Test Result of Radiated Emission for Above 1GHz

Test mode	Mode 1	Test Site No.	03CH04-HY
Test frequency	1 GHz ~ 12 GHz	Test Engineer	Kevin
Temperature	19 °C	Relative Humidity	54 %

Note: 1. Emission level (dBµV/m) = 20 log Emission level (µV/m)

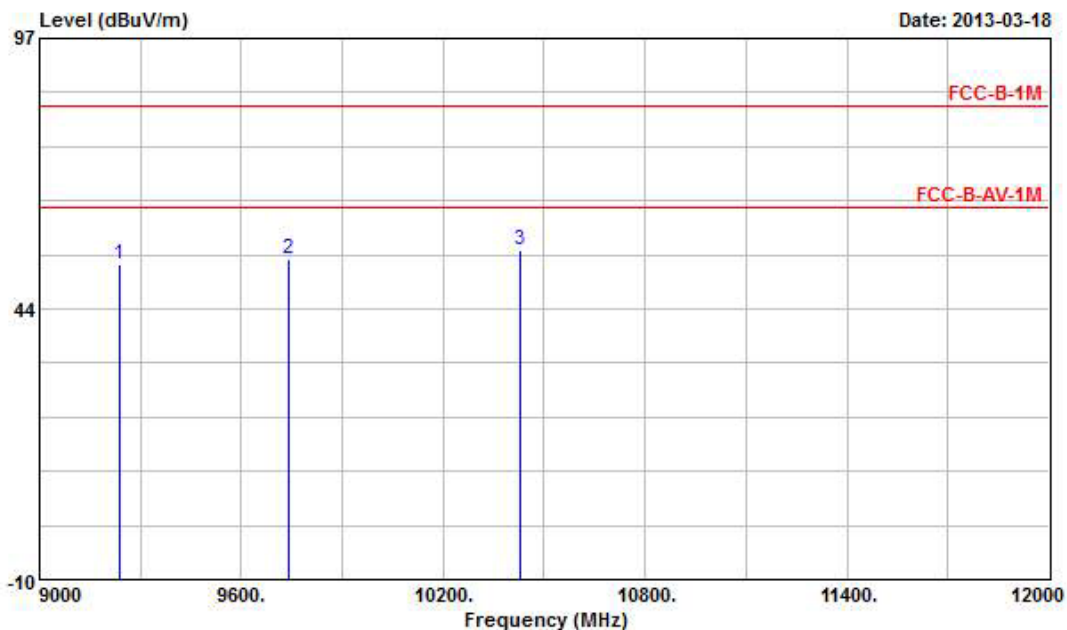
2. Corrected Reading : Antenna Factor + Cable Loss + Read Level – Preamp Factor = Level

■ The test was passed at the minimum margin that marked by the frame in the following data  
Vertical



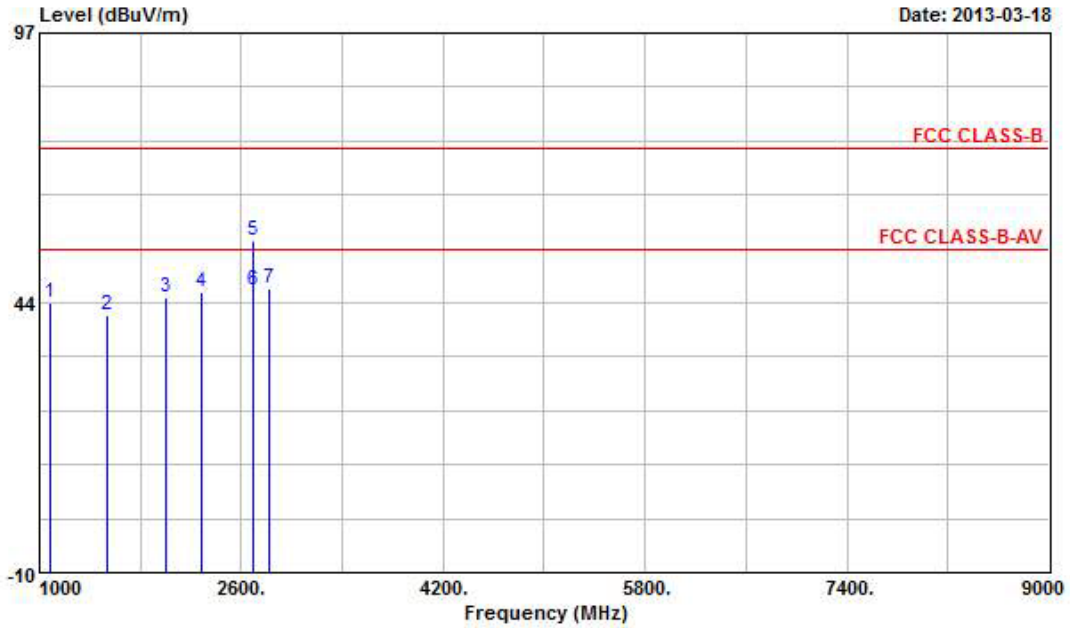
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Preamp Factor	Cable Loss	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	cm	deg	
1	1078.000	43.79	-30.21	74.00	47.73	28.05	34.30	2.31	---	Peak
2	1158.000	42.03	-31.97	74.00	45.80	28.01	34.19	2.42	---	Peak
3	1726.000	44.56	-29.44	74.00	45.76	29.48	33.70	3.02	---	Peak
4	2134.000	44.64	-29.36	74.00	43.22	31.68	33.73	3.46	---	Peak
5	2700.000	50.73	-23.27	74.00	47.96	32.68	33.97	4.06	---	Peak
6	3729.000	50.34	-23.66	74.00	46.03	33.34	34.16	5.13	---	Peak
7	4050.000	50.67	-23.33	74.00	45.57	33.79	34.12	5.43	---	Peak

Vertical



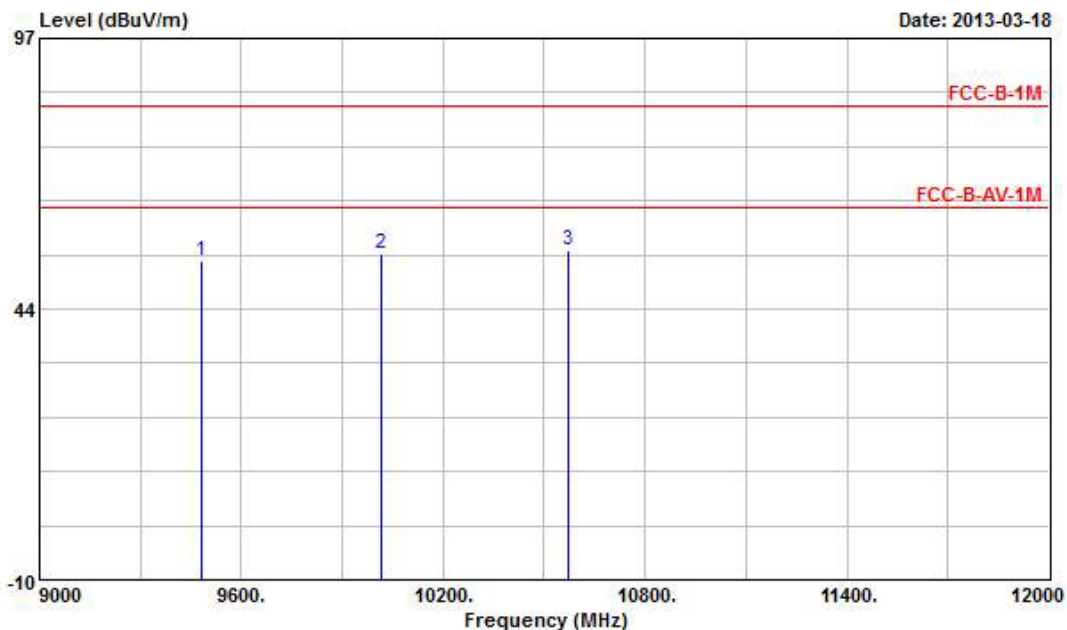
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Preamp Factor	Cable Loss	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	cm	deg	
1	9238.000	52.35	-31.19	83.54	43.15	36.70	34.89	7.39	---	Peak
2	9740.000	53.22	-30.32	83.54	43.38	37.19	35.00	7.65	---	Peak
3	10428.000	54.99	-28.55	83.54	43.91	37.86	34.58	7.80	---	Peak

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1078.000	43.50	-30.50	74.00	47.44	28.05	34.30	2.31	---	---	Peak
2	1540.000	41.04	-32.96	74.00	43.77	28.16	33.70	2.81	---	---	Peak
3	1998.000	44.60	-29.40	74.00	43.56	31.40	33.70	3.34	---	---	Peak
4	2284.000	45.67	-28.33	74.00	43.80	31.99	33.76	3.64	---	---	Peak
5	2700.000	55.95	-18.05	74.00	53.18	32.68	33.97	4.06	---	---	Peak
6 @	2700.000	45.94	-8.06	54.00	43.17	32.68	33.97	4.06	100	129	Average
7	2822.000	46.29	-27.71	74.00	43.31	32.84	34.05	4.19	---	---	Peak

Horizontal



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Preamp Factor	Cable Loss	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	9484.000	52.89	-30.65	83.54	43.57	36.79	35.00	7.53	---	---	Peak
2	10014.000	54.53	-29.01	83.54	44.13	37.61	35.00	7.79	---	---	Peak
3	10572.000	55.17	-28.37	83.54	43.91	37.93	34.47	7.80	---	---	Peak

## 7. List of Measuring Equipment Used

### Conducted Emission

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Receiver	R&S	ESCS 30	100357	9 kHz ~ 2.75 GHz	Nov. 22, 2012	Conduction (CO01-NH)
LISN	SCHAFFNER	NNB41	04/10053	9 kHz ~ 30 MHz	Nov. 20, 2012	Conduction (CO01-NH)
Power Filter	CORCOM	MR12030	N/A	30A*2	NCR	Conduction (CO01-NH)
RF Cable-CON	Suhner Switzerland	RG223/U	CB004	9 kHz ~ 30 MHz	Dec. 12, 2012	Conduction (CO01-NH)

Note: Calibration Interval of instruments listed above is one year.

NCR: NO CALIBRATION REQUEST.

### Radiation Emission – for Mode 1-3

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Open Area Test Site	SPORTON	OATS-10	OS02-NH	30 MHz - 1 GHz 10m, 3m	Dec. 31, 2012	Radiation (OS02-NH)
Amplifier	BURGEON	BPA-530	100203	0.01 MHz - 3 GHz	Jun. 01, 2012	Radiation (OS02-NH)
Receiver	R&S	ESCI	100497	9 kHz – 3 GHz	Apr. 17, 2012	Radiation (OS02-NH)
Bilog Antenna	CHASE	CBL6122B	2884	30 MHz - 2 GHz	Feb. 10, 2013	Radiation (OS02-NH)
Turn Table	EMCO	2080	9508-1805	0 - 360 degree	NCR	Radiation (OS02-NH)
Antenna Mast	ETS	2075-2	2385	1 m - 4 m	NCR	Radiation (OS02-NH)
RF Cable-R10m	MIYAZAKI	5DFB	CB044	30 MHz - 1 GHz	Sep. 14, 2012	Radiation (OS02-NH)

Note: Calibration Interval of instruments listed above is one year.

NCR: NO CALIBRATION REQUEST.

***Radiation Emission – for Mode 4***

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Open Area Test Site	SPORTON	OATS-10	OS02-NH	30 MHz - 1 GHz 10m, 3m	Dec. 31, 2012	Radiation (OS02-NH)
Amplifier	BURGEON	BPA-530	100203	0.01 MHz - 3 GHz	Jun. 01, 2012	Radiation (OS02-NH)
Spectrum Analyzer	R&S	FSL	100303	9KHz - 6 GHz	Sep. 26, 2012	Radiation (OS02-NH)
Receiver	R&S	ESCS 30	838251/002	9 kHz - 2.75 GHz	Oct. 12, 2012	Radiation (OS02-NH)
Bilog Antenna	CHASE	CBL6122B	2884	30 MHz - 2 GHz	Feb. 10, 2013	Radiation (OS02-NH)
Turn Table	EMCO	2080	9508-1805	0 - 360 degree	NCR	Radiation (OS02-NH)
Antenna Mast	ETS	2075-2	2385	1 m - 4 m	NCR	Radiation (OS02-NH)
RF Cable-R10m	MIYAZAKI	5DFB	CB044	30 MHz - 1 GHz	Sep. 14, 2012	Radiation (OS02-NH)

Note: Calibration Interval of instruments listed above is one year.  
NCR: NO CALIBRATION REQUEST.

***Radiation Emission Above 1GHz***

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSP40	100593	9 kHz ~ 40 GHz	Sep. 14, 2012	Radiation
Amplifier	Agilent	8449B	3008A02120	1 GHz ~ 26.5 GHz	Aug. 16, 2012	Radiation
RF Cable-HIGH	SUHNER	SUCOFLEX 106	CB063-HF	1 GHz ~ 40 GHz	Nov. 21, 2012	Radiation
Horn Antenna	ETS	3117	00075954	1 GHz ~ 18 GHz	Oct. 31, 2012	Radiation

Note: Calibration Interval of instruments listed above is one year.

### 8. Uncertainty of Test Site

#### Uncertainty of Conducted Emission Measurement from 150kHz to 30MHz

Contribution	Uncertainty of $x_i$		$u(x_i)$
	dB	Probability Distribution	
Receiver reading	0.20	Normal(k=2)	0.10
Cable loss	0.19	Normal(k=2)	0.10
AMN insertion loss	2.50	Rectangular	0.63
Receiver Spec	1.50	Rectangular	0.43
Site imperfection	1.75	Rectangular	1.01
Mismatch	+0.44/-0.46	U-shape	0.32
combined standard uncertainty $Uc(y)$			<b>1.31</b>
Measuring uncertainty for a level of confidence of 95% $U=2Uc(y)$			<b>2.62</b>

#### Uncertainty of Radiated Emission Measurement from 30MHz to 1000MHz

Contribution	Uncertainty of $x_i$		$u(x_i)$
	dB	Probability Distribution	
Receiver reading	0.27	Normal(k=2)	0.14
Antenna factor calibration	0.92	Normal(k=2)	0.46
Cable loss calibration	0.16	Normal(k=2)	0.08
Pre Amplifier Gain calibration	0.17	Normal(k=2)	0.09
RCV/SPA specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site imperfection	1.99	Rectangular	1.15
Mismatch	+0.50/-0.54	U-shaped	0.37
combined standard uncertainty $Uc(y)$			<b>1.52</b>
Measuring uncertainty for a level of confidence of 95% $U=2Uc(y)$			<b>3.04</b>



Uncertainty of Radiated Emission Measurement from 1GHz to 18GHz

Input quantity	$X_i$	Uncertainty of $x_i$		$u(x_i)$	$c_i$	$c_i u(x_i)$
		dB	Probability distribution function	dB		dB
Receiver reading	$V_r$	± 0.1	k=1	0.10	1	0.10
Attenuation: antenna-receiver	$L_c$	± 0.1	k=2	0.05	1	0.05
Receiver corrections:	$\delta RC$	± 1.0	k=2	0.50	1	0.50
Antenna factor	AF	± 1.3	k=2	0.65	1	0.65
Horn antenna corrections:						
AF frequency interpolation	$\delta AF_f$	± 0.5	Rectangular	0.29	1	0.29
AF height deviations	$\delta AF_h$	± 0.5	Rectangular	0.29	1	0.29
Directivity difference	$\delta A_{dir}$	± 1.0	Rectangular	0.58	1	0.58
Phase centre location	$\delta A_{ph}$	± 1.0	Rectangular	0.58	1	0.58
Cross-polarization	$\delta A_{cp}$	± 0.9	Rectangular	0.52	1	0.52
Mismatch: antenna-receiver	$\delta M$	+0.9/-1.0	U-shaped	0.67	1	0.67
Site corrections						
Site imperfections	$\delta SA$	± 4.0	Triangular	1.63	1	1.63
Measurement system repeatability	R	± 1.53	Rectangular	0.884	1	0.884
Cable loss	C	± 0.24	Rectangular	0.139	1	0.139
Pre-amplifier factor	PA	± 0.17	Rectangular	0.099	1	0.099
				$u_c(y) =$	<b>2.39</b>	
				$2 u_c(y) =$	<b>4.78</b>	