

FCC EMC Test Report

Authorized under **D**eclaration of **C**onformity

according to

**47 CFR FCC Rules and Regulations Part 15 Subpart B,
Class B Digital Device**

Equipment : VDSL2/ADS2+ Network Card

Model No. : VigorNIC 131, VigorNIC 132, VigorNIC 132F

Filing Type : Declaration of Conformity

Applicant : DrayTek Corp.
No. 26 Fu Shing Rd., HuKou County,
Hsin-Chu Industrial Park, Hsin-Chu, Taiwan 303 R.O.C

- The test result refers exclusively to the test presented test model / sample.
- Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.
- Certificate or Test Report must not be used by the applicant to claim the product in this test report endorsement by TAF or any agency of U.S. government.



SPORTON International Inc.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Taoyuan City, Taiwan, R.O.C.

Table of Contents

VERIFICATION OF COMPLIANCE	1
1. General Description of Equipment under Test.....	2
1.1 Applicant	2
1.2 Manufacturer	2
1.3 Basic Description of Equipment under Test.....	2
1.4 Feature of Equipment under Test	2
1.5 Modification of EUT.....	2
2. Test Configuration of Equipment under Test	3
2.1 Test Manner.....	3
2.2 Description of Test System	4
2.3 Connection Diagram of Test System for Radiation Emission	6
3. Test Software	7
4. General Information of Test.....	8
4.1 Test Facility	8
4.2 Uncertainty of Test Site.....	8
4.3 Test Voltage	8
4.4 Standard for Methods of Measurement	8
4.5 Test in Compliance with.....	8
4.6 Frequency Range Investigated.....	8
5. Test of Conducted Powerline	9
5.1 Test Procedures.....	9
5.2 Typical Test Setup Layout of Conducted Powerline	9
5.3 Test Result of AC Powerline Conducted Emission	10
6. Test of Radiated Emission.....	12
6.1 Test Procedures.....	12
6.2 Test Result of Radiated Emission (Below 1GHz)	13
6.3 Test Result of Radiated Emission (Above 1GHz).....	15
7. List of Measuring Equipment Used	17
Appendix A. TEST PHOTOS	
Appendix B. Photographs of EUT	

History of this test report

Report No.	Version	Description	Issued Date
FD5N0414	Rev. 01	Initial issue of report	Feb. 03, 2016

VERIFICATION OF COMPLIANCE

Authorized under Declaration of Conformity

according to

**47 CFR FCC Rules and Regulations Part 15 Subpart B,
Class B Digital Device**

Equipment : VDSL2/ADS2+ Network Card

Model No. : VigorNIC 131, VigorNIC 132, VigorNIC 132F

Applicant : DrayTek Corp.
No. 26 Fu Shing Rd., HuKou County,
Hsin-Chu Industrial Park, Hsin-Chu, Taiwan 303 R.O.C

I **HEREBY** CERTIFY THAT :

The measurements shown in this test report were made in accordance with the procedures given in **ANSI C63.4-2014** and the energy emitted by this equipment were **passed FCC Part 15 Subpart B** in both radiated and conducted emission **Class B** limits.

The product sample received on Dec. 10, 2015 and completely tested on **Jan. 04, 2016** at

SPORTON International Inc. LAB.

Jack Deng / Engineering Manager

SPORTON International Inc.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Taoyuan City, Taiwan, R.O.C.

1. General Description of Equipment under Test

1.1 Applicant

DrayTek Corp.
No. 26 Fu Shing Rd., HuKou County,
Hsin-Chu Industrial Park, Hsin-Chu, Taiwan 303 R.O.C

1.2 Manufacturer

Same as 1.1

1.3 Basic Description of Equipment under Test

Equipment : VDSL2/ADS2+ Network Card
Model No. : VigorNIC 131, VigorNIC 132, VigorNIC 132F
Data Cable Type : Please see section 2.2 of this test report for details
Power Supply Type : From Host System

The maximum operating frequency : 3 GHz

1.4 Feature of Equipment under Test

Please refer to user manual.

1.5 Modification of EUT

None.

2. Test Configuration of Equipment under Test

2.1 Test Manner

- a. The EUT has been associated with supporting units and peripherals pursuant to ANSI C63.4-2014 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	Description of test modes
AC Conducted Emission	Mode 1. LAN: 1Gbps; RJ11*1 (HW01544)
	Mode 2. LAN: 1Gbps; Fiber*1 (HW01546)
	Cause "mode 1" generated the worst test result; it was reported as final data.
Radiated Emissions	Mode 1. LAN: 1Gbps; RJ11*1 (HW01544)
	Mode 2. LAN: 1Gbps; Fiber*1 (HW01546)
	< below 1GHz >
	Cause "mode 1" generated the worst test result; it was reported as final data.
	< above 1GHz >
	Cause "mode 2" is highest frequency of the internal sources of the EUT; it was reported as final data.

- c. Frequency range investigated: Conducted 150 kHz to 30 MHz, Radiated 30 MHz to 15 GHz.

2.2 Description of Test System

< For conducted emission >

No.	Peripheral	Manufacturer	Model Number	FCC ID	Cable / Spec. Description
For Local					
1	Personal Computer	DELL	GX520	DoC	-
2	LCD Monitor	DELL	E198WFPF	DoC	D-SUB Cable, D-Shielded, 1.8m
3	Keyboard	Lenovo	KU-0225	DoC	USB Cable, AL-F-Shielded, 1.8m
4	Mouse	Lenovo	M-U0025-O	DoC	USB Cable, AL-F-Shielded, 1.8m
5	Printer	HP	C2642A	B94C2642X	LPT Cable, D-Shielded, 1.2m
6	Modem	ACEEX	DM1414	IFAXDM1414	RS-232 Cable, D-Shielded, 1.15m
For Remote					
-	CO	Draytek	Vigor2750	-	RJ11 Cable, Non-Shielded, 20m
-	Personal Computer	Lenovo	C61	DoC	RJ45 Cable, D-Shielded, 20m
-	LCD Monitor	DELL	E198WFPF	DoC	D-SUB Cable, D-Shielded, 1.8m
-	Keyboard	Lenovo	KU-0225	DoC	USB Cable, AL-F-Shielded, 1.8m
-	Mouse	Lenovo	M-U0025-O	DoC	USB Cable, AL-F-Shielded, 1.8m

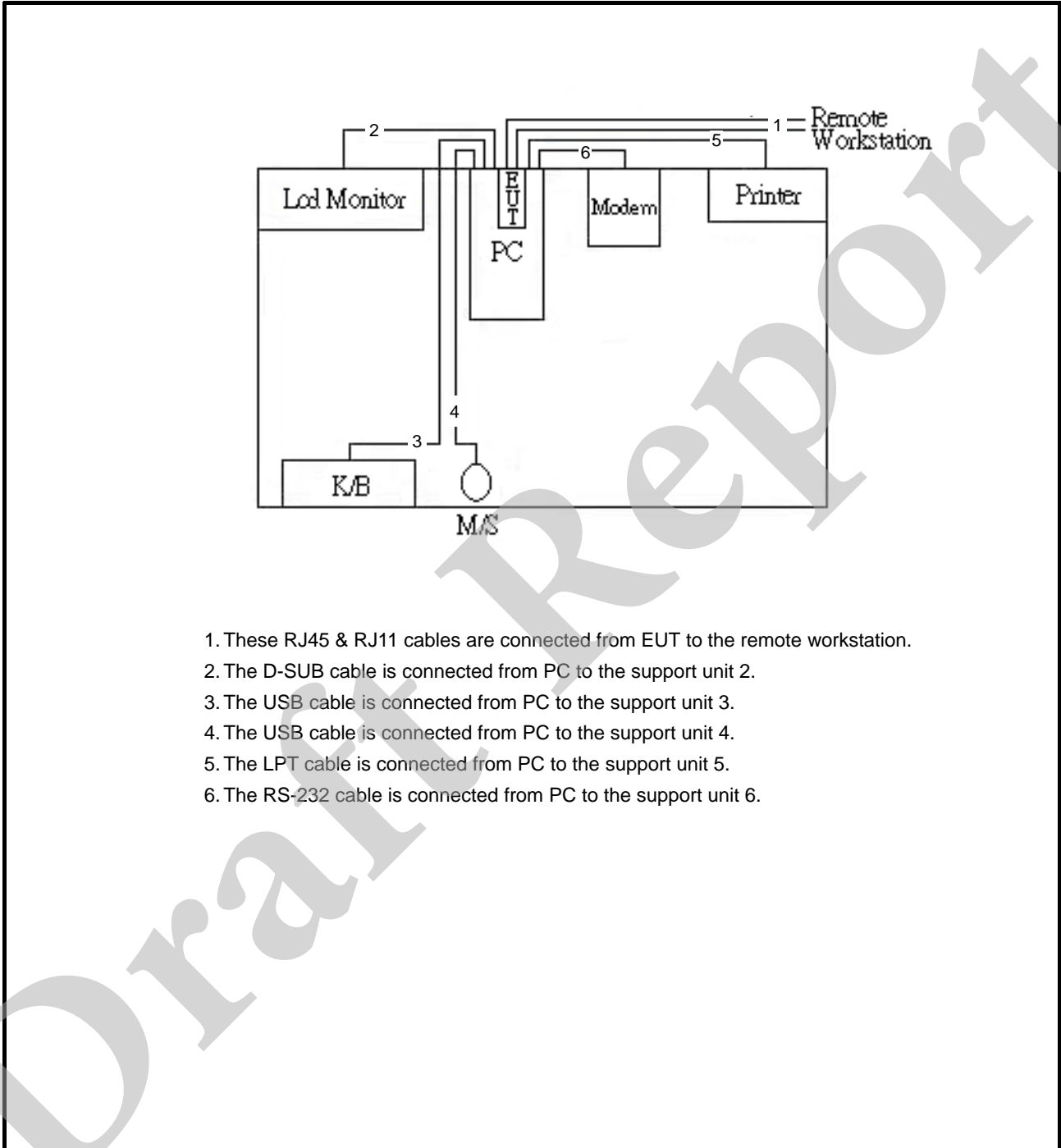
< For radiated emission below 1GHz >

No.	Peripheral	Manufacturer	Model Number	FCC ID	Cable / Spec. Description
For Local					
1	Personal Computer	DELL	DCTA	DoC	-
2	LCD Monitor	DELL	U2410f	DoC	D-SUB Cable, D-Shielded, 1.8m
3	Keyboard	DELL	MK-8175	DoC	USB Cable, AL-F-Shielded, 1.8m
4	Mouse	DELL	MOC5UO	DoC	USB Cable, AL-F-Shielded, 1.8m
5	Printer	HP	C2642A	B94C2642X	LPT Cable, D-Shielded, 1.2m
6	Modem	ACEEX	DM1414	IFAXDM1414	RS-232 Cable, D-Shielded, 1.15m
For Remote					
-	CO	Draytek	Vigor2750	-	RJ11 Cable, Non-Shielded, 10m
-	Personal Computer	DELL	DCTA	DoC	RJ45 Cable, D-Shielded, 20m
-	LCD Monitor	DELL	E198WFPF	DoC	D-SUB Cable, D-Shielded, 1.8m
-	Keyboard	DELL	MK-8175	DoC	USB Cable, AL-F-Shielded, 1.8m
-	Mouse	DELL	MOC5UO	DoC	USB Cable, AL-F-Shielded, 1.8m

< For radiated emission above 1GHz >

No.	Peripheral	Manufacturer	Model Number	FCC ID	Cable / Spec. Description
For Local					
1	Personal Computer	DELL	DCTA	DoC	-
2	LCD Monitor	DELL	U2410f	DoC	D-SUB Cable, D-Shielded, 1.8m
3	Keyboard	DELL	MK-8175	DoC	USB Cable, AL-F-Shielded, 1.8m
4	Mouse	DELL	MOC5UO	DoC	USB Cable, AL-F-Shielded, 1.8m
5	Printer	HP	C2642A	B94C2642X	LPT Cable, D-Shielded, 1.2m
6	Modem	ACEEX	DM1414	IFAXDM1414	RS-232 Cable, D-Shielded, 1.15m
7	Transceiver	AXCEN	AXGT-R154-05H1	-	-
For Remote					
-	CO	Draytek	Vigor2750	-	RJ11 Cable, Non-Shielded, 10m
-	Personal Computer	DELL	DCTA	DoC	RJ45 Cable, D-Shielded, 20m
-	LCD Monitor	DELL	E198WFPF	DoC	D-SUB Cable, D-Shielded, 1.8m
-	Keyboard	DELL	MK-8175	DoC	USB Cable, AL-F-Shielded, 1.8m
-	Mouse	DELL	MOC5UO	DoC	USB Cable, AL-F-Shielded, 1.8m

2.3 Connection Diagram of Test System for Radiation Emission



1. These RJ45 & RJ11 cables are connected from EUT to the remote workstation.
2. The D-SUB cable is connected from PC to the support unit 2.
3. The USB cable is connected from PC to the support unit 3.
4. The USB cable is connected from PC to the support unit 4.
5. The LPT cable is connected from PC to the support unit 5.
6. The RS-232 cable is connected from PC to the support unit 6.

3. Test Software

An executive program, "BurnInTest" under WIN 7, which generates a complete line of continuously repeating "H" pattern was used as the test software.

The program was executed as follows:

- a. Turn on the power of all equipment.
- b. The EUT reads the test program from the hard disk drive and runs it.
- c. The EUT sends "H" pattern to the monitor, and the monitor displays "H" patterns on the screen.
- d. The EUT sends "H" messages to the printer, and then the printer prints them on the paper.
- e. The EUT sends signal messages to the modem.
- f. The EUT sends signal messages to the internal Hard Disk, and the Hard Disk reads and writes the message.
- g. Repeat the steps from c to f.

At the same time, the following from remote workstation were executed:

- Remote PC executed "PING" to link with the EUT to maintain the connection via RJ45 cable.
- Remote CO link with the EUT to maintain the connection via RJ11 cable.

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

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

TEL : 886-3-327-3456

FAX : 886-3-318-0055

Test Site No. : 03CH04-HY

4.2 Uncertainty of Test Site

Test Items	Test Site No.	Uncertainty	Remark
Conducted Emissions	CO01-NH	± 2.6dB	Confidence levels of 95%
Radiated Emissions below 1GHz	03CH04-HY	± 2.6dB	Confidence levels of 95%
Radiated Emissions above 1GHz	03CH04-HY	± 4.7dB	Confidence levels of 95%

4.3 Test Voltage

120VAC / 60Hz

4.4 Standard for Methods of Measurement

ANSI C63.4-2014

4.5 Test in Compliance with

FCC Part 15 Subpart B

4.6 Frequency Range Investigated

- a. Conducted emission test: from 150 kHz to 30 MHz
- b. Radiated emission test: from 30 MHz to 15 GHz
 - The test distance of radiated emission from antenna to EUT is 10 M (from 30MHz ~ 1GHz)
 - The test distance of radiated emission from antenna to EUT is 3 M (from 1GHz ~ 9GHz)
 - The test distance of radiated emission from antenna to EUT is 1 M (from 9GHz ~ 15GHz)

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 Clause 7. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meter above the ground plane. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

5.1 Test Procedures

- a. The EUT was warmed up for 15 minutes before testing started.
- b. 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.
- c. Connect EUT to the power mains through a line impedance stabilization network (LISN).
- d. All the support units are connected to the other LISN.
- e. The LISN provides 50 ohm coupling impedance for the measuring instrument.
- f. The CISPR states that a 50 ohm, 50 micro henry LISN should be used.
- g. Both sides of AC line were checked for maximum conducted interference.
- h. The frequency range from 150 kHz to 30 MHz was searched.
- i. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

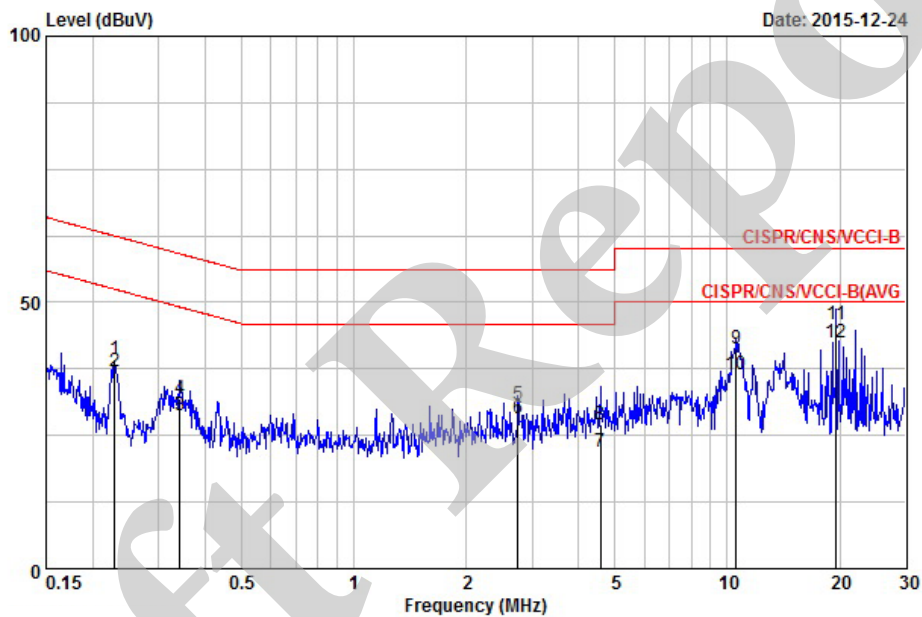
5.2 Typical Test Setup Layout of Conducted Powerline

- 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.

5.3 Test Result of AC Powerline Conducted Emission

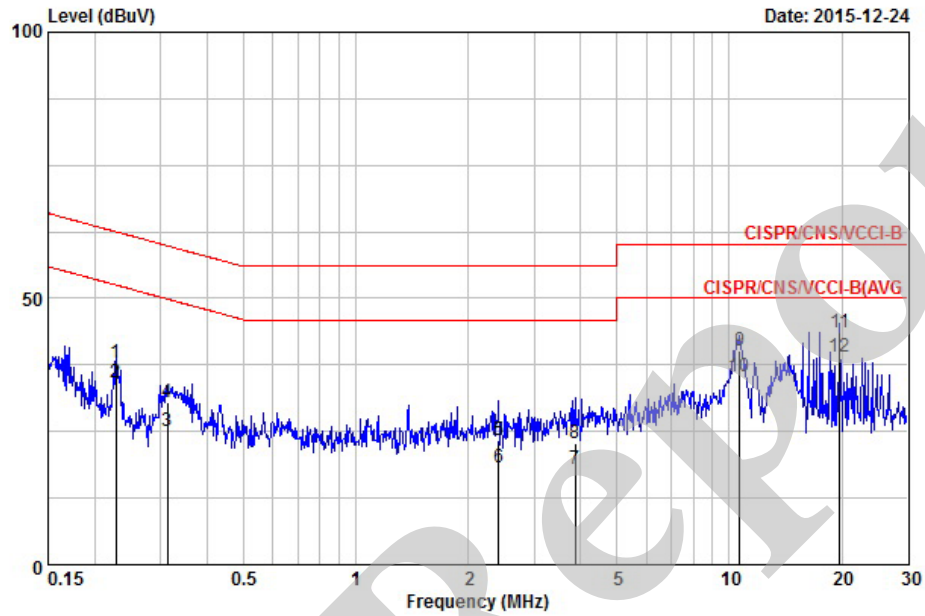
Test Mode	Mode 1	Test Site No.	CO01-NH
Test Frequency	0.15 MHz ~ 30 MHz	Test Engineer	Willy
Temperature	25 °C	Relative Humidity	54 %
Note: 1. Corrected Reading (dB μ V) = LISN Factor + Cable Loss + Read Level = Level			
2. All emissions not reported here are more than 10 dB below the prescribed limit.			
■The test was passed at the minimum margin that marked by the frame in the following data			

Line



	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.229	39.42	-23.06	62.48	29.11	10.21	0.10	QP
2	0.229	37.06	-15.42	52.48	26.75	10.21	0.10	AVERAGE
3	0.343	28.74	-20.39	49.13	18.42	10.22	0.10	AVERAGE
4	0.343	31.97	-27.16	59.13	21.65	10.22	0.10	QP
5	2.750	30.66	-25.34	56.00	20.08	10.43	0.15	QP
6	2.750	28.33	-17.67	46.00	17.75	10.43	0.15	AVERAGE
7	4.574	21.96	-24.04	46.00	11.26	10.50	0.20	AVERAGE
8	4.574	27.00	-29.00	56.00	16.30	10.50	0.20	QP
9	10.564	41.21	-18.79	60.00	30.39	10.62	0.20	QP
10	10.564	36.44	-13.56	50.00	25.62	10.62	0.20	AVERAGE
11	19.575	45.98	-14.02	60.00	34.95	10.74	0.29	QP
12	19.575	42.56	-7.44	50.00	31.53	10.74	0.29	AVERAGE

Neutral



	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.228	37.82	-24.70	62.52	27.51	10.21	0.10	QP
2	0.228	34.05	-18.47	52.52	23.74	10.21	0.10	AVERAGE
3	0.313	24.93	-24.95	49.88	14.62	10.21	0.10	AVERAGE
4	0.313	30.38	-29.50	59.88	20.07	10.21	0.10	QP
5	2.409	23.31	-32.69	56.00	12.94	10.24	0.13	QP
6	2.409	18.30	-27.70	46.00	7.93	10.24	0.13	AVERAGE
7	3.860	17.89	-28.11	46.00	7.45	10.25	0.20	AVERAGE
8	3.860	22.92	-33.08	56.00	12.48	10.25	0.20	QP
9	10.676	40.08	-19.92	60.00	29.52	10.35	0.20	QP
10	10.676	35.28	-14.72	50.00	24.72	10.35	0.20	AVERAGE
11	19.719	43.52	-16.48	60.00	32.74	10.49	0.29	QP
12	19.719	39.09	-10.91	50.00	28.31	10.49	0.29	AVERAGE

6. Test of Radiated Emission

Radiated emissions 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, Clause 8. The EUT was placed on a nonmetallic stand, 0.8 meter above the ground plane. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions.

6.1 Test Procedures

- a. The EUT was placed on a rotatable table top 0.8 meter above ground.
- b. The EUT was set at 1/3m(above 1GHz) and 3m(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.
- j. The main board was tested in accordance with section 15.32 of the FCC rules. Testing for radiated emissions was first performed with the main board installed in a typical enclosure but with the enclosure's cover removed so that the internal circuitry is exposed at the top and on at least two sides. And then the EUT was tested with enclosure's cover unless it pass the required limits at first condition.

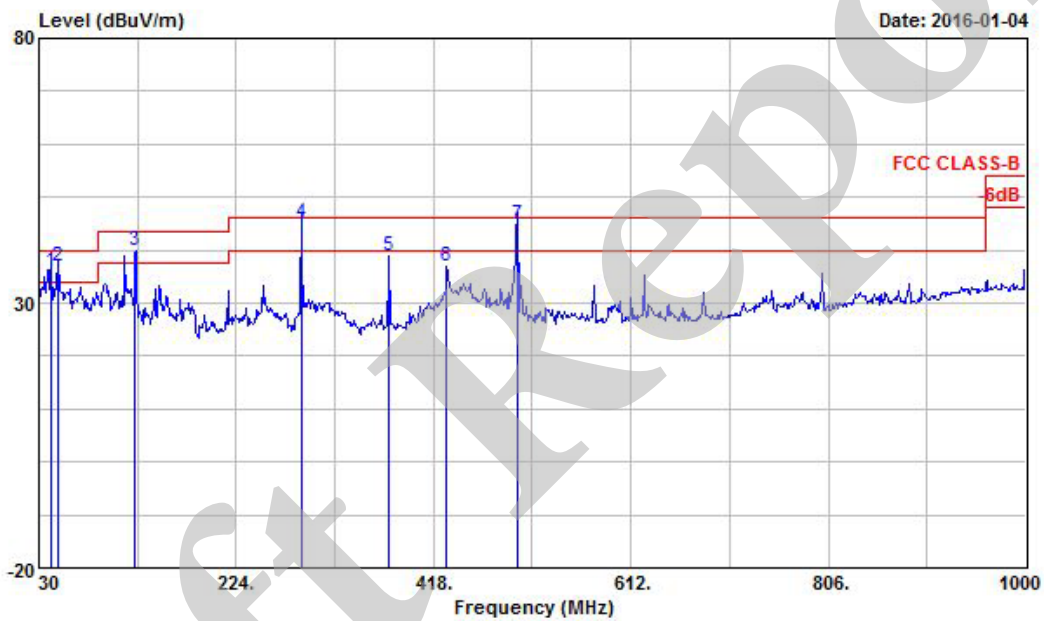
6.2 Test Result of Radiated Emission (Below 1GHz)

Test mode	Mode 1	Test Site No.	03CH04-HY
Test frequency	30 MHz ~ 1000 MHz	Test Engineer	Kevin
Temperature	21 °C	Relative Humidity	60 %

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

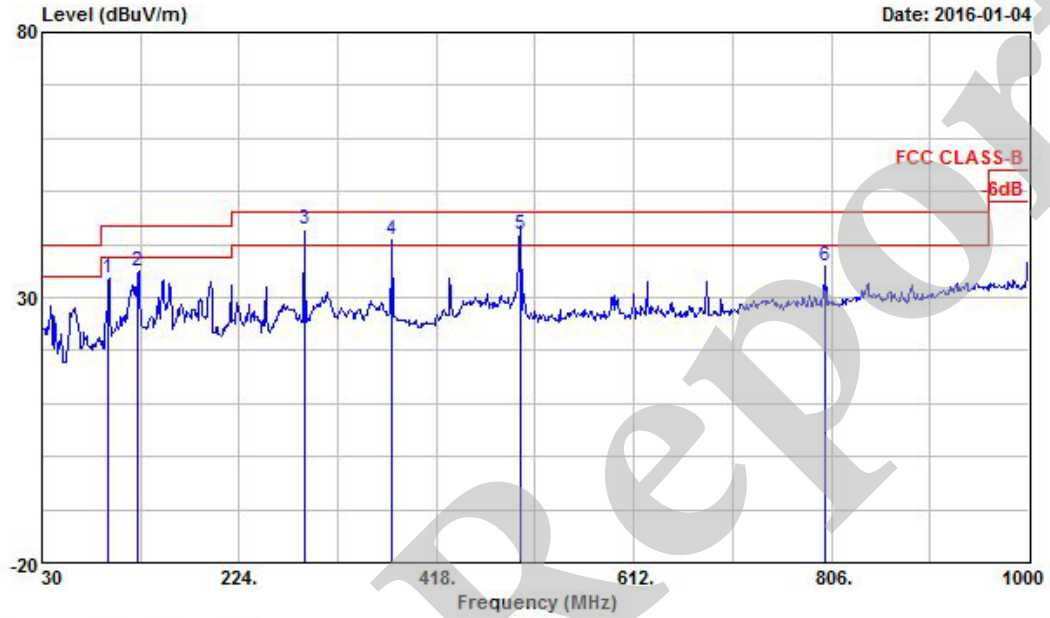
■The test was passed at the minimum margin that marked by the frame in the following data

Vertical



	Freq	Level	Over	Limit	Read	Antenna	Preamp	Cable	Ant	Table	
	MHz	dBuV/m	Limit	Line	Level	Factor	Factor	Loss	Pos	Pos	Remark
			dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 !	41.610	35.94	-4.06	40.00	46.91	18.72	30.23	0.54	101	157	QP
2 !	48.090	36.76	-3.24	40.00	50.92	15.49	30.22	0.57	100	116	QP
3 !	124.770	39.93	-3.57	43.50	51.30	17.83	30.07	0.87	---	---	Peak
4 @	287.990	45.20	-0.80	46.00	54.28	19.11	29.48	1.29	100	25	QP
5	374.200	38.80	-7.20	46.00	46.14	21.05	29.85	1.46	---	---	Peak
6	430.900	37.06	-8.94	46.00	42.78	22.85	30.14	1.56	---	---	Peak
7 @	500.200	44.85	-1.15	46.00	49.52	24.12	30.47	1.68	---	---	QP

Horizontal

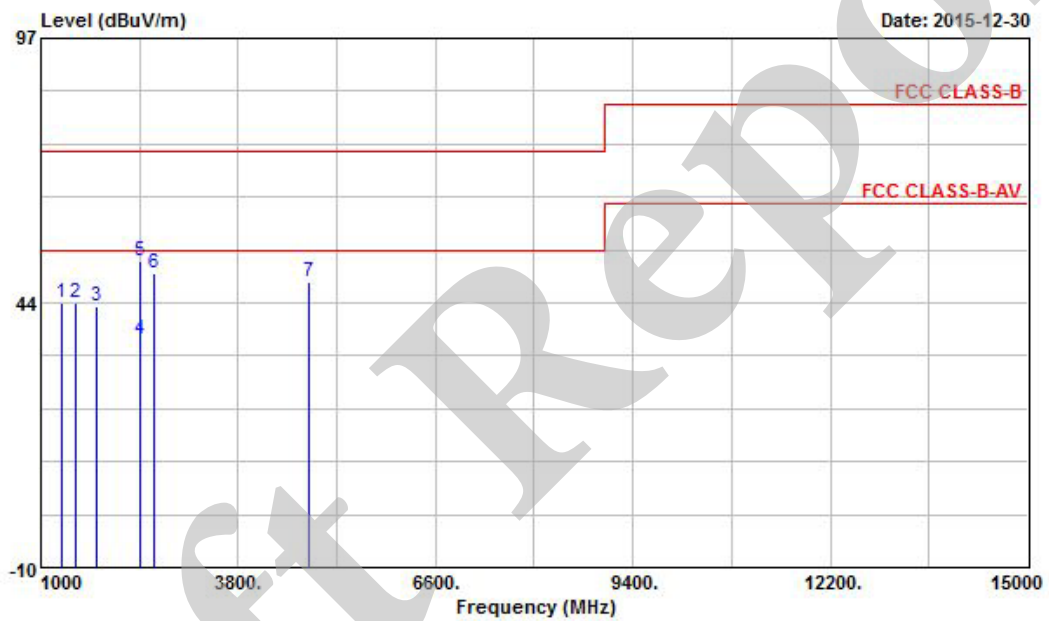


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	95.610	33.77	-9.73	43.50	47.49	15.68	30.18	0.77	---	---	Peak
2	124.770	34.91	-8.59	43.50	46.28	17.83	30.07	0.87	---	---	Peak
3 @	288.020	42.92	-3.08	46.00	52.00	19.11	29.48	1.29	---	---	Peak
4 !	374.200	40.78	-5.22	46.00	48.12	21.05	29.85	1.46	---	---	Peak
5 !	500.200	41.95	-4.05	46.00	46.62	24.12	30.47	1.68	100	264	QP
6	799.800	35.86	-10.14	46.00	35.85	28.05	30.16	2.12	---	---	Peak

6.3 Test Result of Radiated Emission (Above 1GHz)

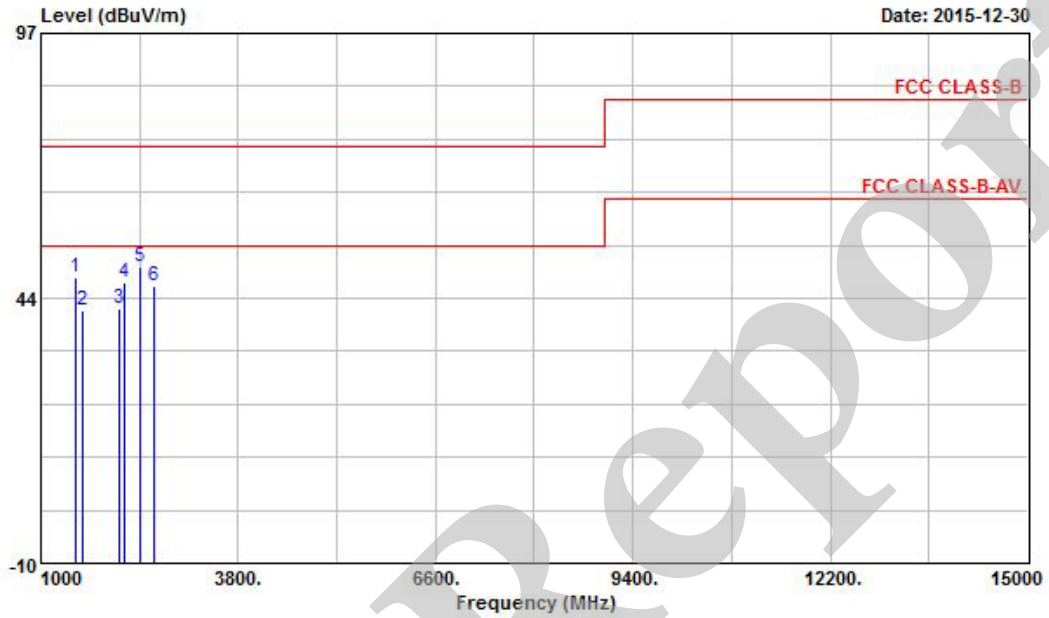
Test mode	Mode 2	Test Site No.	03CH04-HY
Test frequency	1 GHz ~ 15 GHz	Test Engineer	Kevin
Temperature	21 °C	Relative Humidity	59 %
Note: 1. Emission level (dBμV/m) = 20 log Emission level (μV/m)			
2. Corrected Reading : Antenna Factor + Cable Loss + Read Level – Preamp Factor = Level			
■ The test was passed at the minimum margin that marked by the frame in the following data			

Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna	Preamp	Cable	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	cm	deg	
1 @	1308.000	43.54	-30.46	74.00	50.10	25.41	35.24	3.28	---	Peak
2 @	1500.000	43.45	-30.55	74.00	48.82	25.90	34.81	3.54	---	Peak
3 @	1788.000	42.81	-31.19	74.00	47.52	26.07	34.65	3.87	---	Peak
4 @	2398.000	36.28	-17.72	54.00	39.21	27.15	34.63	4.54	100	Average
5 @	2398.000	51.95	-22.05	74.00	54.88	27.15	34.63	4.54	100	229 Peak
6 @	2598.000	49.38	-24.62	74.00	51.69	27.62	34.68	4.75	---	Peak
7 @	4800.000	47.64	-26.36	74.00	44.28	31.36	34.56	6.56	---	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 @	1500.000	47.81	-26.19	74.00	53.18	25.90	34.81	3.54	---	---	Peak
2 @	1596.000	41.14	-32.86	74.00	46.32	25.96	34.77	3.63	---	---	Peak
3 @	2100.000	41.22	-32.78	74.00	45.11	26.45	34.55	4.22	---	---	Peak
4 @	2196.000	46.65	-27.35	74.00	50.25	26.66	34.58	4.32	---	---	Peak
5 @	2404.000	49.92	-24.08	74.00	52.81	27.19	34.63	4.54	---	---	Peak
6 @	2598.000	46.10	-27.90	74.00	48.41	27.62	34.68	4.75	---	---	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	9kHz ~ 2.75GHz	Jan. 21, 2015	Conduction (CO01-NH)
LISN	SCHAFFNER	NNB41	04/10153	9kHz ~ 30MHz	Mar. 20, 2015	Conduction (CO01-NH)
LISN	KYORITSU	KNW-407	8-1010-15	9kHz ~ 30MHz	NCR	Conduction (CO01-NH)
Power Filter	CORCOM	MR12030	N/A	30A*2	NCR	Conduction (CO01-NH)
RF Cable-CON	Suhner Switzerland	RG223/U	CB004	9kHz ~ 30MHz	Dec. 10, 2015	Conduction (CO01-NH)

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

< Radiated Emission below 1GHz >

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH04-HY	30MHz ~ 1GHz 3m	Oct. 17, 2015	Radiation (03CH04-HY)
Amplifier	Agilent	8447D	2944A09073	0.1MHz ~ 1.3GHz	Dec. 17, 2015	Radiation (03CH04-HY)
Receiver	R&S	ESU-26	100422/026	20Hz ~ 26.5GHz	Sep. 03, 2015	Radiation (03CH04-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2724	30MHz ~ 1GHz	Aug. 03, 2015	Radiation (03CH04-HY)
Turn Table	Chaintek	3000	MF7802056	0 ~ 360 degree	NCR	Radiation (03CH04-HY)
Antenna Mast	MF	MF-7802	MF780208163	1m ~ 4m	NCR	Radiation (03CH04-HY)
RF Cable-R03m	Suhner Switzerland + RFIDEN	RG223/U +RG8/U	CB025	30MHz ~ 1GHz	Dec. 18, 2015	Radiation (03CH04-HY)

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

< Radiated Emission above 1GHz >

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSP40	100004	9kHz ~ 40GHz	Apr. 02, 2015	Radiation (03CH04-HY)
Amplifier	Agilent	8449B	3008A02326	1GHz ~ 26.5GHz	Sep. 07, 2015	Radiation (03CH04-HY)
Horn Antenna	SCHWARZBECK	BBHA9120	BBHA9120D1130	1GHz ~ 18GHz	Sep. 25, 2015	Radiation (03CH04-HY)
Turn Table	Chaintek	3000	MF7802056	0 ~ 360 degree	NCR	Radiation (03CH04-HY)
Antenna Mast	MF	MF-7802	MF780208163	1 m ~ 4 m	NCR	Radiation (03CH04-HY)
RF Cable-HIGH	SUHNER	SUCOFLEX 106	CB069-HF	1GHz ~ 26GHz	Nov. 06, 2015	Radiation (03CH04-HY)

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

Draft Report

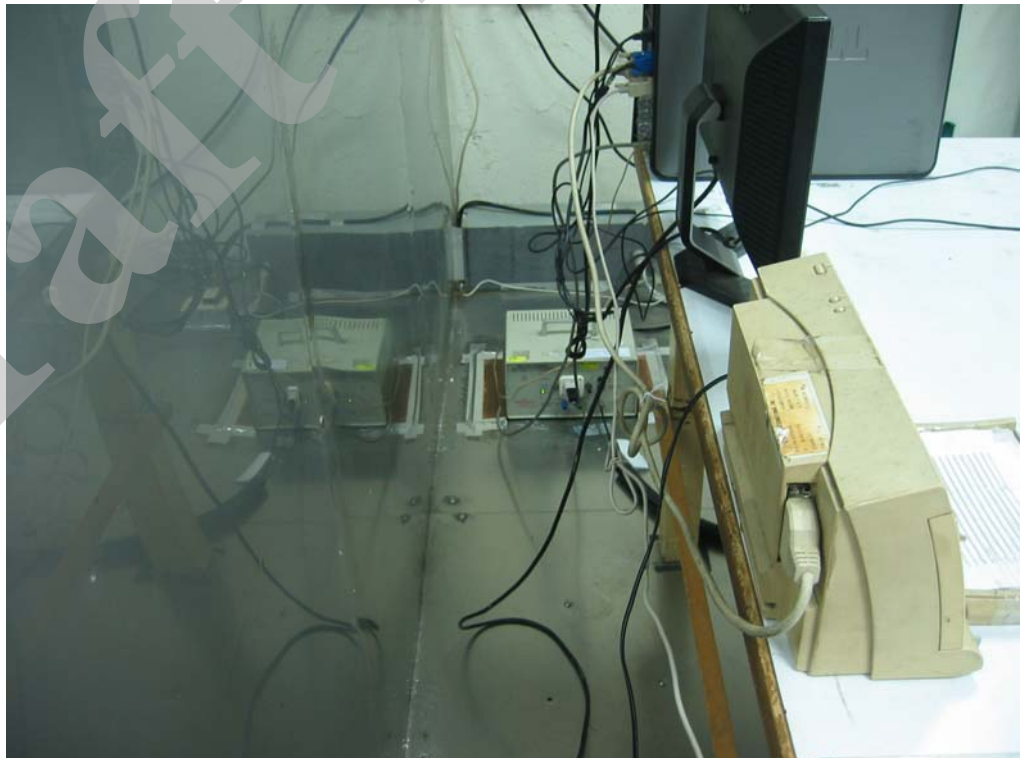
Appendix A. Test Photos

1. Photographs of Conducted Emissions Test Configuration

Front view



Rear view



Side view



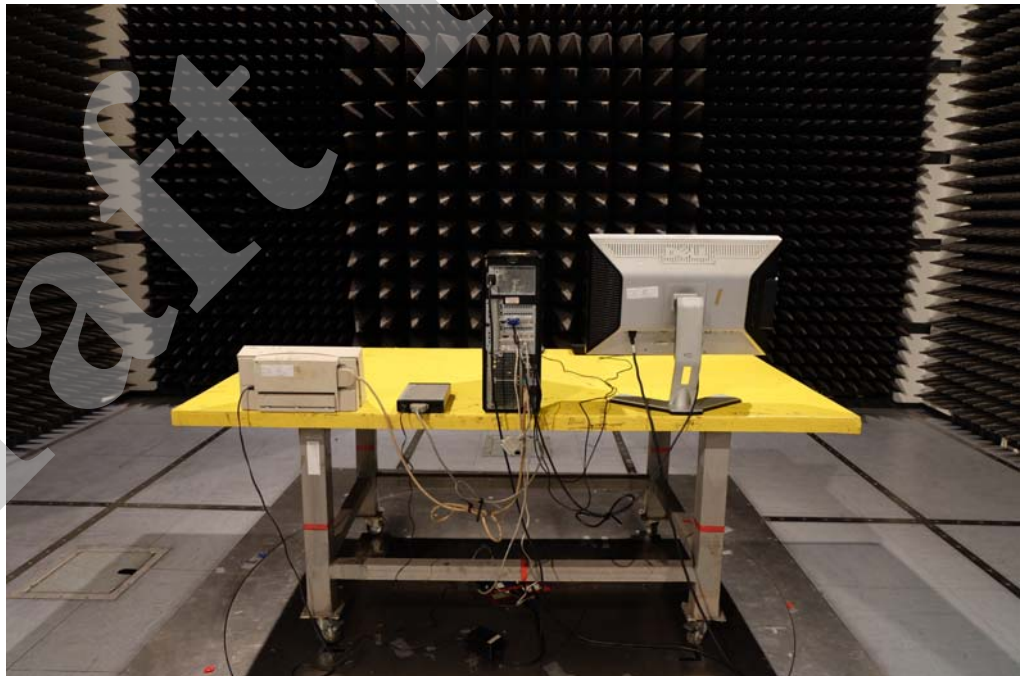
2. Photographs of Radiated Emissions Test Configuration

For radiated emissions below 1GHz

Front view



Rear view

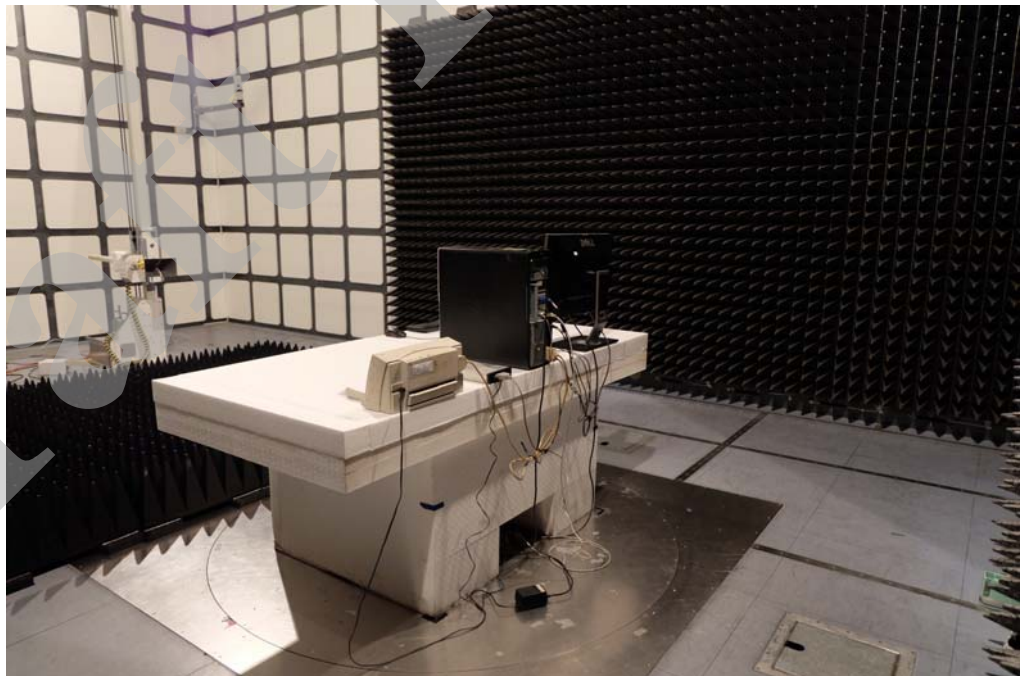


For radiated emissions above 1GHz

Front view



Rear view



APPENDIX B. Photographs of EUT

