Testing Laboratory
1190

FCC EMC Test Report

according to

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

Equipment	**:**	**TransferJet MicroUSB Adapter**
Model No.	**:**	**TJM35420AMU**
FCC ID	**:**	**ZVZ420M1TJ**
Filing Type	**:**	**Certification**
Applicant	**:**	**Toshiba Corporation, Semiconductor & Storage Products Co., Memory Div., Memory Application Engineering Dept.** 2-5-1, Kasama, Sakae-Ku, Yakohama, 247-8585, Japan

SPORTON International Inc.

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

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Revision History

Report No.	Version	Description	Issued Date
FC4O1804	Rev. 01	Initial issue of report	Dec. 3, 2014

Certificate No. : FC4O1804

CERTIFICATE OF COMPLIANCE

according to

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

Equipment : TransferJet MicroUSB Adapter

Model No. : TJM35420AMU

FCC ID : ZVZ420M1TJ

Applicant : Toshiba Corporation, Semiconductor & Storage Products Co., Memory Div., Memory Application Engineering Dept.
2-5-1, Kasama, Sakae-Ku, Yakohama, 247-8585, Japan

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 PUB22 and FCC Part 15 Subpart B** in both radiated and conducted emission **Class B** limits.

The sample received on **Oct. 20, 2014** and completely tested on ***Oct. 29, 2014*** at SPORTON LAB.

Kero Kuo / Assistant Manager

SPORTON International Inc.

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

1. General Description of Equipment under Test

1.1 Applicant

Toshiba Corporation, Semiconductor & Storage Products Co., Memory Div.,

Memory Application Engineering Dept.

2-5-1, Kasama, Sakae-Ku, Yakohama, 247-8585, Japan

1.2 Manufacturer

GOOD WAY TECHNOLOGY CO., LTD.

3F, No. 135, Ln. 235, Baociao Rd., Sindian Dist., New Taipei City 231, Taiwan, R.O.C

1.3 Basic Description of Equipment under Test

Equipment	:	TransferJet MicroUSB Adapter
Model No.	:	TJM35420AMU
Trade Name	:	TOSHIBA
Power Supply Type	:	From host system

The maximum operating frequency : 4488MHz

1.4 Feature of Equipment under Test

Please refer to user manual.

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 C63.4-2009 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	Description of test modes
AC Conducted Emission	Mode 1. Transmit data
	Mode 2. Receiver data
	For operating mode 1 is the worst case and it was record in this test report.
Radiated Emissions	Mode 1. Transmit data
	Mode 2. Receiver data
	For operating mode 1 is the worst case and it was record in this test report.

c. Frequency range investigated: Conducted 150 kHz to 30 MHz, Radiated 30 MHz to 23,000 MHz

2.2 Description of Test System

< EMI >

For conducted emission and radiated emission below 1GHz

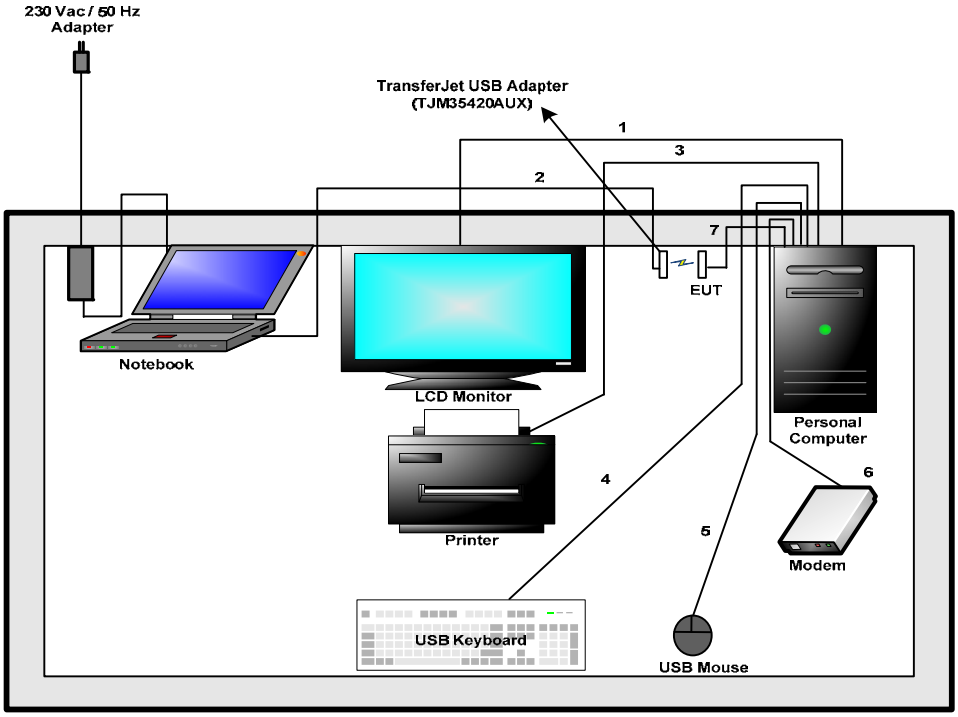
No.	Description	Manufacturer	Model	FCC ID	Signal Cable Description
For Local					
1	Personal Computer	Lenovo	C61	DoC	---
2	LCD Monitor ”19”	DELL	E198WFPF	DoC	D-SUB Cable, D-Shielded, 1.8m
3	(USB) Keyboard	Lenovo	KU-0225	DoC	USB Cable, AL-F-Shielded, 1.8m
4	(USB) Mouse	Lenovo	M-U0025-O	DoC	USB Cable, AL-F-Shielded, 1.8m
5	Printer (DJ400)	HP	C2642A	B94C2642X	LPT Cable, D-Shielded, 1.2m
6	Modem	ACEEX	DM1414	IFAXDM1414	RS-232 Cable, D-Shielded, 1.15m
7	Notebook	DELL	E5520	DoC	---
8	TransferJet USB Adapter	TOSHIBA	TJM35420AUX	ZVZ420U1TJ	---

For radiation emission above 1GHz

No.	Description	Manufacturer	Model	FCC ID	Signal Cable Description
For Local					
1	Personal Computer	Hp Compaq	DC7700	DoC	---
2	LCD Monitor ”24”	DELL	U2410f	DoC	D-SUB Cable, D-Shielded, 1.8m
3	(USB) Keyboard	DELL	SK-8175	DoC	USB Cable, AL-F-Shielded, 1.8m
4	(USB) Mouse	DELL	MOC5UO	DoC	USB Cable, AL-F-Shielded, 1.8m
5	Printer (DJ400)	HP	C2642A	B94C2642X	LPT Cable, D-Shielded, 1.2m
6	Modem	ACEEX	DM1414	IFAXDM1414	RS-232 Cable, D-Shielded, 1.15m
7	Notebook	DELL	E5430	DoC	---
8	TransferJet USB Adapter	TOSHIBA	TJM35420AUX	ZVZ420U1TJ	---

2.3 Test Configuration

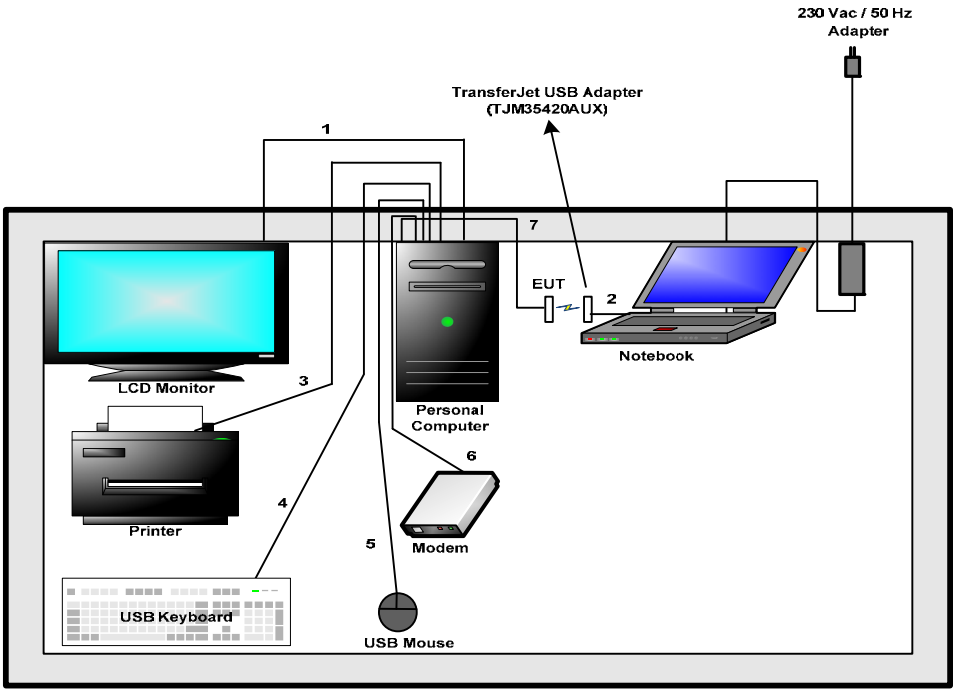
Test Setup Diagram – AC Line Conducted Emission Test



1. D-SUB Cable was connected from support unit 1 to the support unit 2
2. USB Cable was connected from support unit 7 to the support unit 8
3. LPT Cable was connected from support unit 1 to the support unit 5
4. USB Cable was connected from support unit 1 to the support unit 3
5. USB Cable was connected from support unit 1 to the support unit 4
6. RS-232 Cable was connected from support unit 1 to the support unit 6
7. USB Cable was connected from support unit 1 to the EUT

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

Test Setup Diagram - Radiated Test



1. D-SUB Cable was connected from support unit 1 to the support unit 2
2. USB Cable was connected from support unit 7 to the support unit 8
3. LPT Cable was connected from support unit 1 to the support unit 5
4. USB Cable was connected from support unit 1 to the support unit 3
5. USB Cable was connected from support unit 1 to the support unit 4
6. RS-232 Cable was connected from support unit 1 to the support unit 6
7. USB Cable was connected from support unit 1 to the EUT

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

3. Test Software

Two executive programs, "Burn In Test.exe" and "EMITEST.exe" under WIN 7, which generate a complete line of continuously repeating "H" pattern were used as the test software.

The program was executed as follows:

a. Turn on the power of all equipment.

b. The PC reads the test program from the hard disk drive and runs it.

c. The PC sends "H" pattern to the monitor, and the monitor displays "H" patterns on the screen.

d. The PC sends "H" messages to the printer, and then the printer prints them on the paper.

e. The PC sends signal messages to the modem.

f. The PC 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 program was executed:

- Executed “TJetUSBTransfer“ to open UWB function and link with the Notebook to keep transmitting and receiving data via EUT and TransferJet USB Adapter (TJM35420AUX).

4. General Information of Test

4.1 Test Facility

For conducted emission and radiated emission below 1GHz

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 / OS01-NH

For radiated emission above 1GHz

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 : 886-3-327-0973

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	OS01-NH	± 2.8dB	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 C63.4-2009

4.5 Test in Compliance with

CISPR PUB. 22 and FCC Rules and Regulations 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 23 GHz

- The test distance of radiated emission test from antenna to EUT is 10 M (from 30 MHz~ 1 GHz)
- The test distance of radiated emission test from antenna to EUT is 3 M (from 1 GHz~ 9 GHz)
- The test distance of radiated emission test from antenna to EUT is 1 M (from 9 GHz~ 23 GHz)

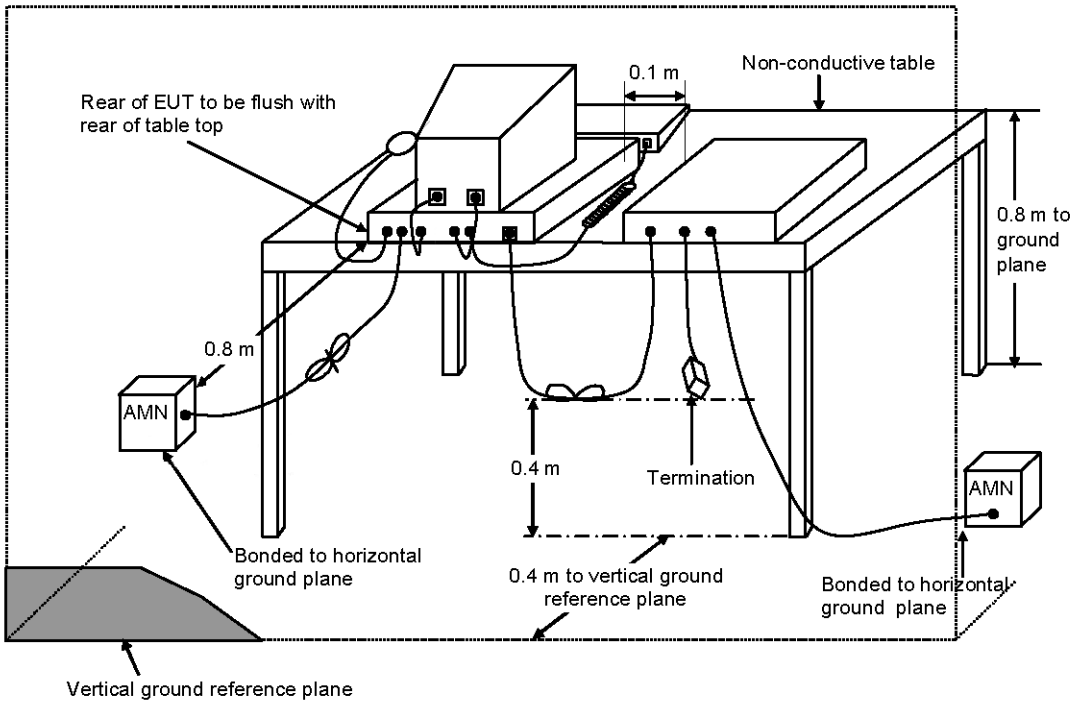
5. Test of Conducted Powerline

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 5.2. 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

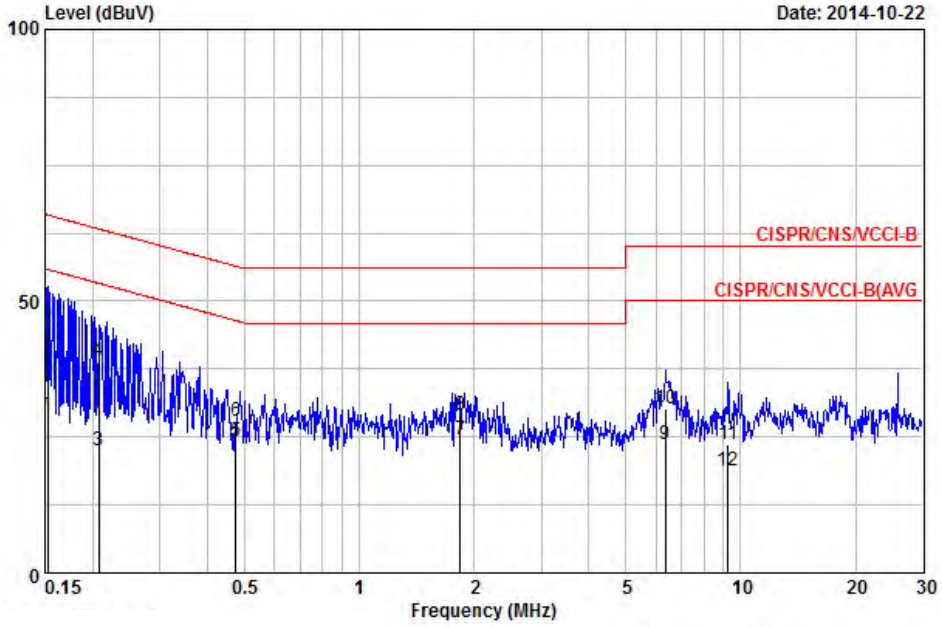


a. AMN is 80 cm from the EUT and at least 80 cm from other units and other metal planes.
b. EUT is connected to one artificial mains network (AMN).
c. All other units of a system are powered from a second AMN. A multiple outlet strip can be used for multiple mains cords.
d. Rear of EUT to be flushed 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

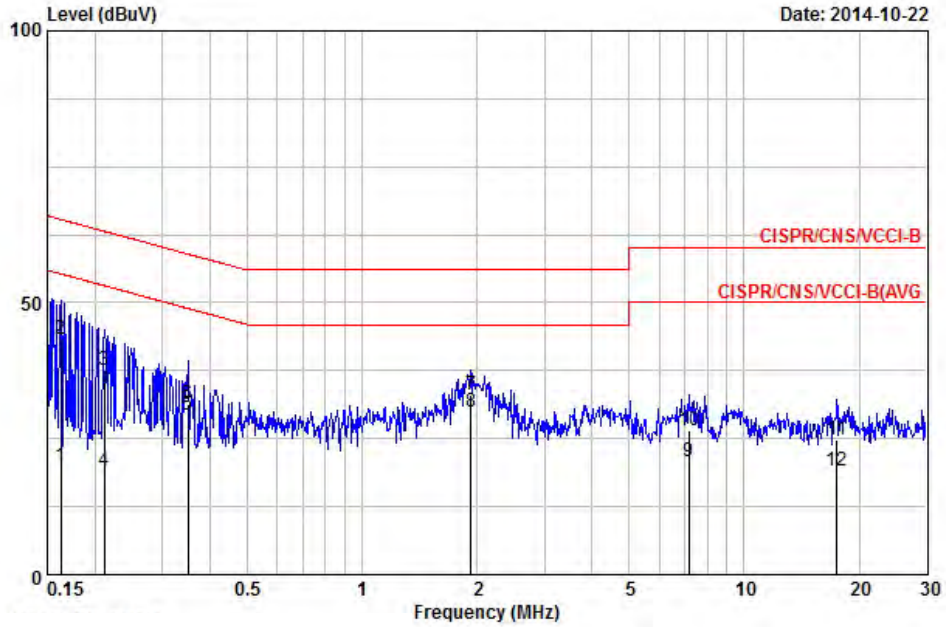
Test Mode	Mode 1	Test Site No.	CO01-NH
Test Frequency	0.15 MHz ~ 30 MHz	Test Engineer	Willy
Temperature	24 ℃	Relative Humidity	55 %
Note: 1. Corrected Reading (dBμV) = LISN Factor + Cable Loss + Read Level = Level			
2. All emissions not reported here are more than 10 dB below the prescribed limit.			
■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	29.19	-26.67	55.87	18.52	10.58	0.10	AVERAGE
2 @	0.152	45.25	-20.61	65.87	34.58	10.58	0.10	QP
3	0.207	22.50	-30.82	53.32	11.84	10.56	0.10	AVERAGE
4	0.207	38.92	-24.40	63.32	28.26	10.56	0.10	QP
5	0.474	24.33	-22.12	46.45	13.72	10.49	0.12	AVERAGE
6	0.474	27.79	-28.66	56.45	17.18	10.49	0.12	QP
7	1.839	24.48	-21.52	46.00	13.73	10.55	0.20	AVERAGE
8	1.839	28.95	-27.05	56.00	18.20	10.55	0.20	QP
9	6.352	23.69	-26.31	50.00	12.77	10.67	0.25	AVERAGE
10	6.352	30.15	-29.85	60.00	19.23	10.67	0.25	QP
11	9.253	23.62	-36.38	60.00	12.61	10.72	0.29	QP
12	9.253	18.86	-31.14	50.00	7.85	10.72	0.29	AVERAGE

Neutral



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.162	19.98	-35.36	55.34	9.79	10.09	0.10	AVERAGE
2	0.162	43.36	-21.98	65.34	33.17	10.09	0.10	QP
3	0.212	37.69	-25.45	63.14	27.51	10.08	0.10	QP
4	0.212	19.14	-34.00	53.14	8.96	10.08	0.10	AVERAGE
5 @	0.350	29.23	-19.73	48.96	19.05	10.08	0.10	AVERAGE
6	0.350	31.36	-27.60	58.96	21.18	10.08	0.10	QP
7	1.928	33.02	-22.98	56.00	22.70	10.12	0.20	QP
8 @	1.928	30.03	-15.97	46.00	19.71	10.12	0.20	AVERAGE
9	7.175	20.82	-29.18	50.00	10.31	10.25	0.26	AVERAGE
10	7.175	26.50	-33.50	60.00	15.99	10.25	0.26	QP
11	17.475	24.85	-35.15	60.00	14.11	10.44	0.30	QP
12	17.475	19.18	-30.82	50.00	8.44	10.44	0.30	AVERAGE

6. Test of Radiated Emission

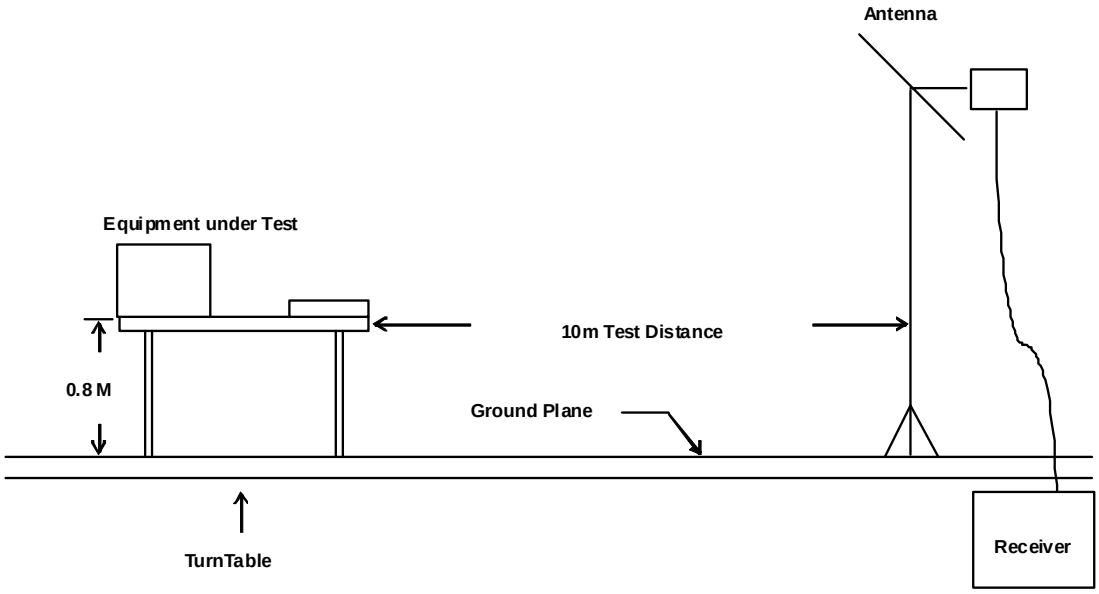
Radiated emissions from 30 MHz to 23,000 MHz were measured with a bandwidth of 120 kHz for 30 MHz to 1000 MHz and 1 MHz for above 1GHz according to the methods defines in ANSI C63.4-2009. The EUT was placed on a nonmetallic stand, 0.8 meter above the ground plane, as shown in section 6.2. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions.

6.1 Test Procedures

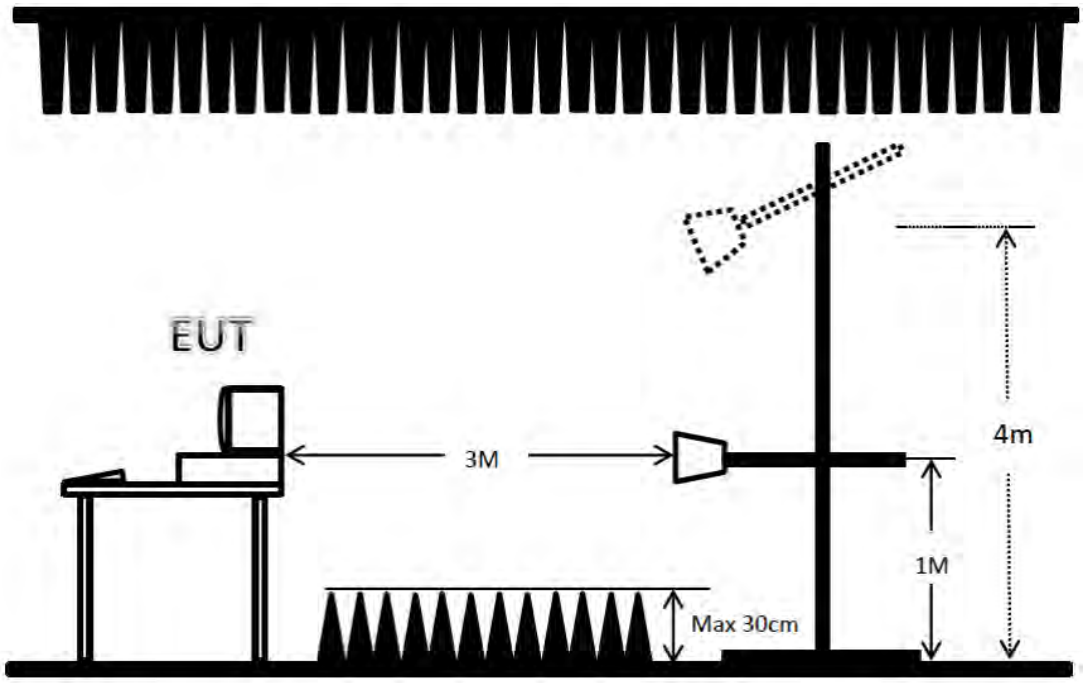
a. The EUT was placed on a rotatable table top 0.8 meter above ground.
b. The EUT was set 3m from the interference-receiving antenna which was mounted on the top of a variable height antenna tower.
c. The table was rotated 360 degrees to determine the position of the highest radiation.
d. The antenna 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. 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.

6.2 Typical Test Setup Layout of Radiated Emission

< Below 1GHz >



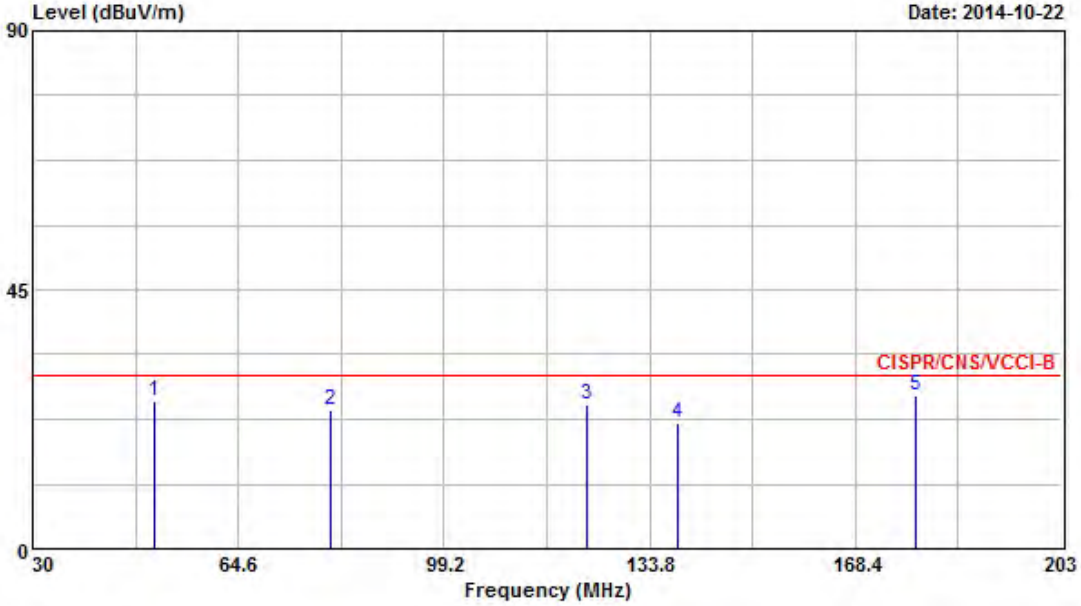
< Above 1GHz >



6.3 Test Result of Radiated Emission (Below 1GHz)

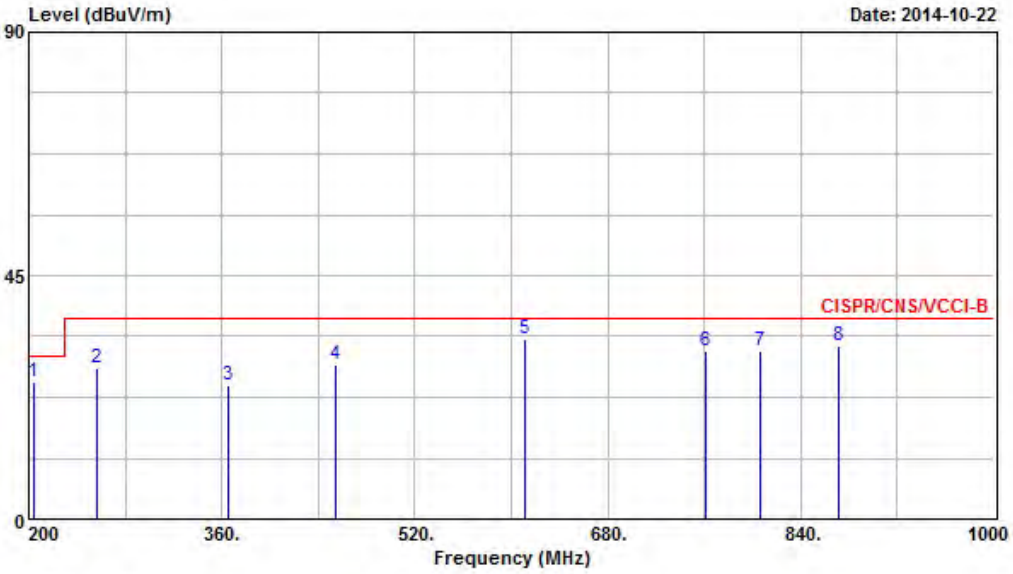
Test mode	Mode 1	Test Site No.	OS01-NH
Test frequency	30 MHz ~ 1000 MHz	Test Engineer	Louis
Temperature	25 ℃	Relative Humidity	58 %
Note: 1. Emission level (dBμV/m) = 20 log Emission level (μV/m)			
2. Corrected Reading : Probe Factor + Cable Loss + Read Level – Preamp Factor = Level			
■The test was passed at the minimum margin that marked by the frame in the following data			

Vertical



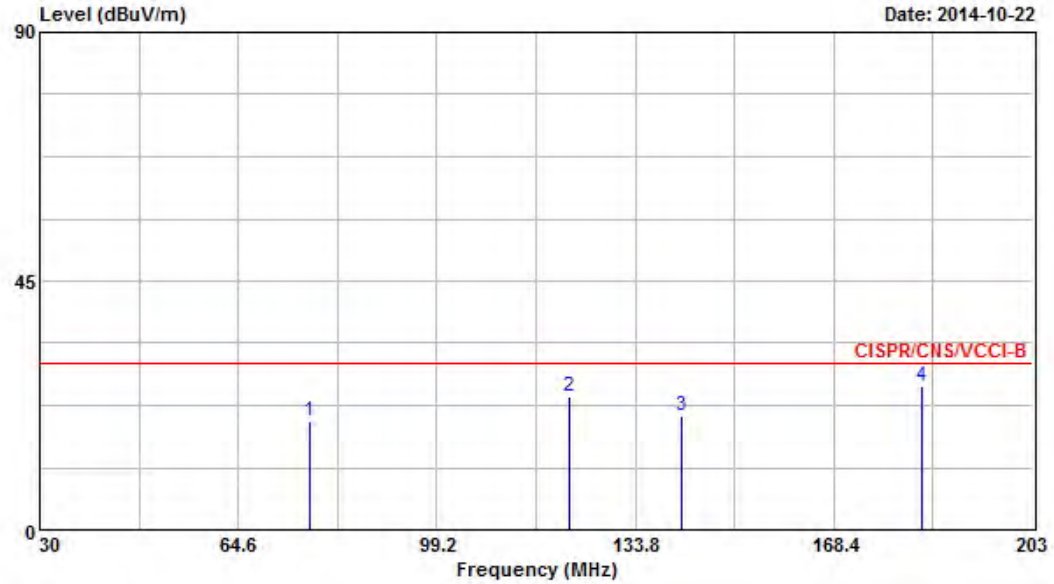
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	50.410	25.81	-4.19	30.00	44.10	8.02	1.05	27.36	Peak	---	---
2	80.170	24.23	-5.77	30.00	42.83	7.42	1.27	27.29	Peak	---	---
3	123.250	24.91	-5.09	30.00	38.88	11.64	1.53	27.14	Peak	---	---
4	138.470	22.01	-7.99	30.00	35.93	11.54	1.62	27.08	Peak	---	---
5 @	178.610	26.48	-3.52	30.00	42.54	9.04	1.82	26.92	QP	---	---

Vertical



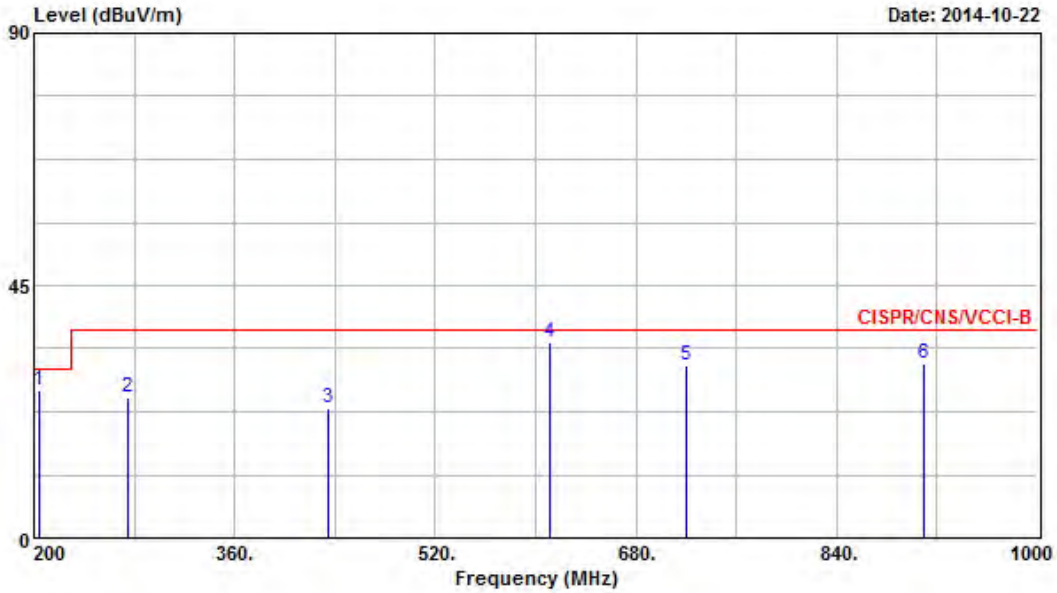
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	204.200	25.33	-4.67	30.00	41.17	9.05	1.93	26.82	Peak	---	---
2	256.800	27.78	-9.22	37.00	38.88	13.35	2.24	26.69	Peak	---	---
3	364.800	24.70	-12.30	37.00	34.50	14.68	2.60	27.08	Peak	---	---
4	454.400	28.60	-8.40	37.00	35.96	17.26	3.04	27.66	Peak	---	---
5	612.000	33.33	-3.67	37.00	37.81	20.10	3.51	28.09	Peak	---	---
6	761.600	31.00	-6.00	37.00	32.83	22.12	4.00	27.95	Peak	---	---
7	806.400	30.97	-6.03	37.00	32.70	22.18	3.96	27.87	Peak	---	---
8	871.200	31.88	-5.12	37.00	32.38	22.90	4.27	27.67	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	77.060	19.71	-10.29	30.00	38.67	7.08	1.25	27.29	Peak	---	---
2	122.380	23.93	-6.07	30.00	37.95	11.60	1.53	27.15	Peak	---	---
3	141.930	20.74	-9.26	30.00	34.72	11.47	1.62	27.07	Peak	---	---
4	183.800	26.03	-3.97	30.00	42.18	8.89	1.85	26.89	QP	---	---

Horizontal

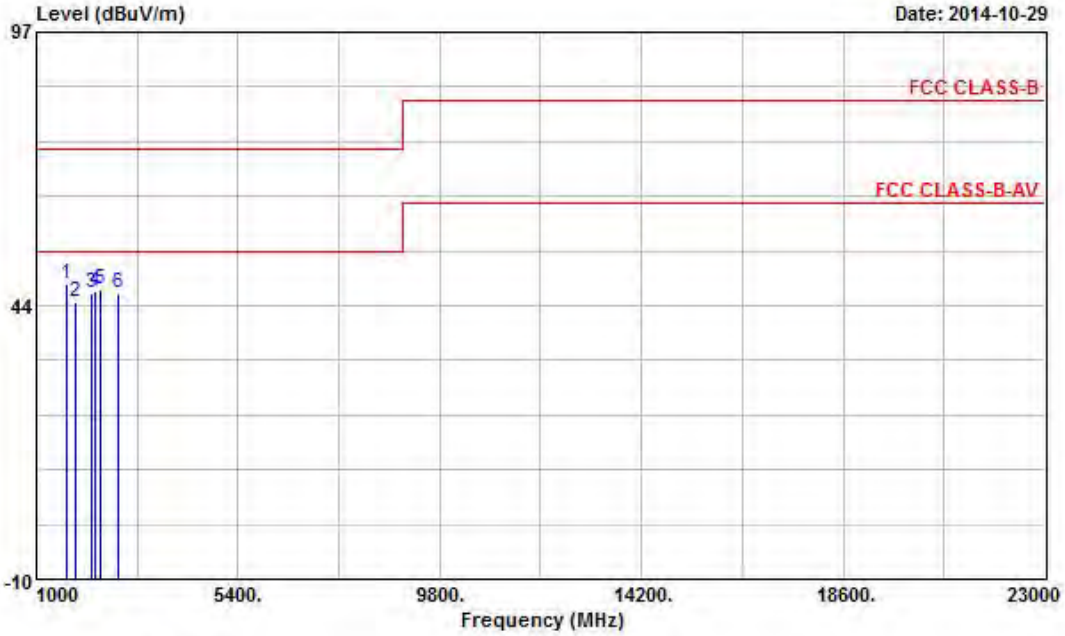


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @	204.400	26.45	-3.55	30.00	42.29	9.05	1.93	26.82	Peak	---	---
2	275.200	25.14	-11.86	37.00	36.79	12.74	2.26	26.65	Peak	---	---
3	435.200	23.27	-13.73	37.00	30.92	16.97	2.93	27.55	Peak	---	---
4 @	612.000	34.95	-2.05	37.00	39.43	20.10	3.51	28.09	QP	400	178
5	720.000	30.77	-6.23	37.00	33.55	21.45	3.79	28.02	Peak	---	---
6	909.600	31.15	-5.85	37.00	31.07	23.33	4.30	27.55	Peak	---	---

6.4 Test Result of Radiated Emission (Above 1GHz)

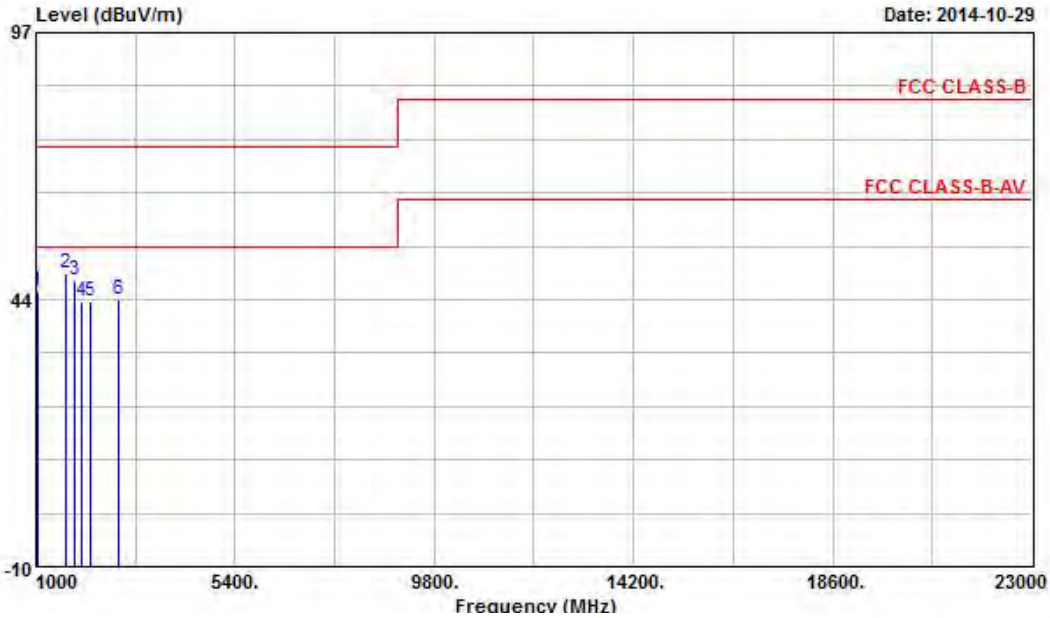
Test mode	Mode 1	Test Site No.	03CH04-HY
Test frequency	1 GHz ~ 23 GHz	Test Engineer	Ou Yen Liang
Temperature	25 ℃	Relative Humidity	50 %
Note: 1. Emission level (dBμV/m) = 20 log Emission level (μV/m)			
2. Corrected Reading : Antenna Factor + Cable Loss + Read Level – Preamp Factor = Level			
■ The 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	Preamp Factor	Cable Loss	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1662.000	47.69	-26.31	74.00	53.45	25.90	33.68	2.01	---	---	Peak
2	1862.000	44.32	-29.68	74.00	49.73	26.02	33.58	2.15	---	---	Peak
3	2196.000	45.95	-28.05	74.00	50.71	26.56	33.71	2.39	---	---	Peak
4	2294.000	46.22	-27.78	74.00	50.78	26.80	33.80	2.44	---	---	Peak
5	2396.000	46.76	-27.24	74.00	51.09	27.05	33.90	2.52	---	---	Peak
6	2796.000	45.85	-28.15	74.00	49.31	27.90	34.18	2.81	---	---	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	1020.000	45.09	-28.91	74.00	53.23	24.74	34.48	1.60	---	---	Peak
2 @	1660.000	48.89	-25.11	74.00	54.65	25.90	33.68	2.01	100	358	Peak
3	1868.000	47.34	-26.66	74.00	52.75	26.02	33.58	2.15	---	---	Peak
4	2022.000	43.29	-30.71	74.00	48.43	26.14	33.54	2.27	---	---	Peak
5	2188.000	43.31	-30.69	74.00	48.10	26.56	33.71	2.37	---	---	Peak
6	2836.000	43.39	-30.61	74.00	46.79	27.97	34.21	2.84	---	---	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	Jun. 13, 2014	Conduction (CO01-NH)
LISN	SCHAFFNER	NNB41	06/10024	9kHz ~ 30MHz	Dec. 05, 2013	Conduction (CO01-NH)
LISN	KYORITSU	KNW-407	8-1010-15	9kHz ~ 30MHz	N/A	Conduction (CO01-NH)
Power Filter	CORCOM	MR12030	N/A	30A*2	N/A	Conduction (CO01-NH)
RF Cable-CON	Suhner Switzerland	RG223/U	CB004	9kHz ~ 30MHz	Dec. 11, 2013	Conduction (CO01-NH)

※ Calibration Interval of instruments listed above is one year.

< Radiated Emission below 1GHz >

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Open Area Test Site	SPORTON	OATS-10	OS01-NH	30MHz ~ 1GHz 10m	Jul. 27, 2014	Radiation (OS01-NH)
Amplifier	HP	8447D	2944A06292	0.1MHz ~ 1.3GHz	Apr. 21, 2014	Radiation (OS01-NH)
Spectrum Analyzer	R&S	FSP	838858/038	9kHz ~ 7GHz	Mar. 17, 2014	Radiation (OS01-NH)
Test Receiver	R&S	ESCS 30	100167	9kHz ~ 2.75GHz	Nov. 05, 2013	Radiation (OS01-NH)
Bilog Antenna	SCHAFFNER	CBL6111C	2738	30MHz ~ 1GHz	Mar. 06, 2014	Radiation (OS01-NH)
Turn Table	EMCO	1060-1.211	9507-1805	0 ~ 360 degree	NCR	Radiation (OS01-NH)
Antenna Mast	EMCO	1051-1.2	9503-1876	1 m ~ 4 m	NCR	Radiation (OS01-NH)
RF Cable-R10m	BELDEN	RG8/U	CB001	30MHz ~ 1GHz	Nov. 14, 2013	Radiation (OS01-NH)

※ Calibration Interval of instruments listed above is one year. NCR: Non-Calibration required.

< Radiated Emission above 1GHz >

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSP40	100004	9 kHz ~ 40 GHz	Mar. 27, 2014	Radiation (03CH04-HY)
Amplifier	Agilent	8449B	3008A02326	1GHz ~ 26.5GHz	May. 22, 2014	Radiation (03CH04-HY)
Horn Antenna	SCHWARZBECK	BBHA9120	BBHA9120D1130	1 GHz ~ 18 GHz	Sep.16, 2014	Radiation (03CH04-HY)
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170339	15 GHz ~ 40 GHz	Feb. 17, 2014	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	CB063-HF	1 GHz ~ 40 GHz	Nov.20 , 2013	Radiation (03CH04-HY)

※ Calibration Interval of instruments listed above is one year. NCR: Non-Calibration required.