EMC TEST REPORT

Project No.	LBE20113605	**Issue No.**	0
Applicant	**Name of organization**	**Samsung Electronics Co., Ltd.**	
	Address	416 Maetan 3-Dong, Yeongtong-Gu, Suwon-Si, Gyeonggi-Do 443-742 Korea	
	Date of application	July 7, 2011	
EUT	**Type of device**	Class B personal computers and peripherals	
	Equipment authorization	☐ Declaration of Conformity ☒ Certification ☐ Verification	
	FCC ID	**A3LSCX3405FW**	
	Kind of product	**Mono Laser Printer**	
	Model No.	**SCX-3405FW**	
	Variant Model No.	**SCX-3400F, SCX-3405F**	
	Manufacturer	**1) Samsung Electronics Co., Ltd.** **259, Gongdan-Dong, Gumi-City, Gyeongsangbuk-Do, Korea 730-030** **2) Samsung Electronics (Shandong) Digital Printing Co., Ltd.** **264209, Samsung Road, Weihai Hi-Tech. IDZ, Shandong Province, P.R.China** **3) Weihai Shin Heung Digital Electronics Co., Ltd.** **98, Samsung Road, Weihai Hi-Tech. IDZ, Shandong Province, P.R.China** **4) Intops : Intops (Weihai) Electronics Co., Ltd.,** **Keji Road-268-1 , Weihai Hi-Tech,Industries Development Zone Shandong Province , CHINA**	
Applied Standards		FCC Part 15, Subpart B / ANSI C63.4-2009	
Test Period		September 6, 2011 ~ September 17, 2011	
Issue date		September 18, 2011	

Test result : **Complied**

The equipment under test has found to be compliant with the applied standards.
The result is not applied the uncertainty concept.
This mean that the result is applied the original (standard) limit.
(Refer to the attached test result for more detail.)

Tested by : Young Hun Cheong

Reviewed by : Tae Young Jang

SAMSUNG

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1. Report information

1.1 Revision history

No.	Revised detailed information
Issue 0	There are no revisions and this version is basic test report.

1.2 Sample calculation

1.2.1 Conducted disturbance (at 10 MHz)

- Class B limit = 60 dBμV (Quasi-peak limit)
- Level (50 dBμV) = Meter Reading (40.2 dBμV) + factor (9.8 dB, AMN factor 9.7 dB + Cable loss 0.1 dB)
- Margin (10 dB) = Limit (60 dBμV) – Level (50 dBμV) = 10 dB below limit

1.2.2 Radiated disturbance (at 100 MHz)

- Class B limit = 40 dBμV/m at 3 m
- Level (30 dBμV/m) = Meter Reading (50 dBμV) + factor (- 20 dB(1/m), antenna factor + cable loss – amplifier gain)
- Margin (10 dB) = Limit (40 dBμV/m) – Level (30 dBμV/m) = 10 dB below limit

2. Summary of test results

2.1 Emission

The EUT has been tested according to the following specifications:

Applied	Test type	Applied standard	Result
☒	Conducted Disturbance (Mains Port)	FCC Part 15 Subpart B / ANSI C63.4-2009	Complied
☒	Radiated Disturbance		Complied

3. General Information

3.1 Test facility

The CS & Environment center is located on Samsung Electronics Co., Ltd. at 416 Maetan 3-Dong, Yeongtong-Gu, Suwon-Si, Gyeonggi-Do, South Korea.
All testing are performed in Semi-anechoic chambers conforming to the site attenuation Characteristics defined by ANSI C63.4, CISPR 22, 16-1 and 16-2. and Shielded rooms.

The CS & Environment center is operated as testing laboratory in accordance with the requirements of ISO/IEC 17025:2005.

4. Test Setup configuration

4.1 Test configuration

4.1.1 Test Peripherals

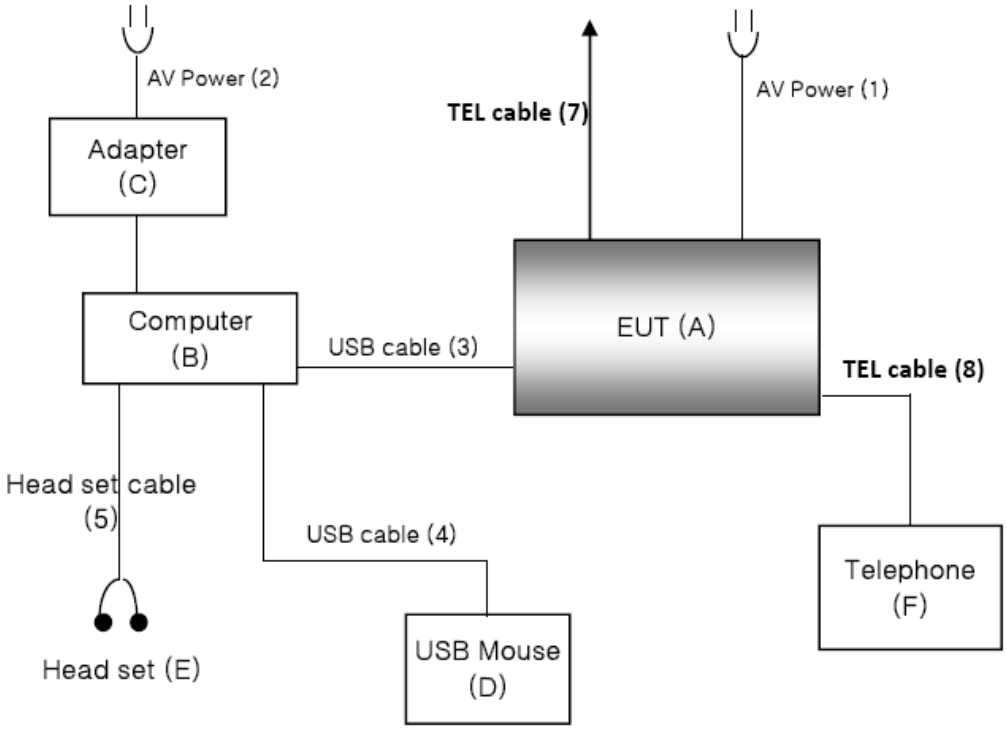
The cables used for these peripherals are either permanently attached by the peripheral manufacturer or coupled with an assigned cable as defined below.
The following is a listing of the EUT and peripherals utilized during the performance of EMC test:

Seq	Description	Model No.	Serial No.	Manufacturer	Fcc ID / DoC
A	Mono Laser Printer	SCX-3405FW	-	SAMSUNG	A3LSCX3405FW
B	Note book Computer	NP600B5B	DZJD93CB200028P	SAMSUNG	DoC
C	Adapter	AD-9019S	CNBA4400215AD2VH8720449	Li Shin	-
D	USB Mouse	MS201U	73H1886	MONTEREY INTERNATIONAL CORP	DoC
E	Head set	COV903	-	COSY	DoC
F	Telephone	SF-F131	-	Samsung	DoC

4.1.2 Test cables

No.	Connected cable	Length [m]	Shielded [Y/N]	Note
1	Power	1.8	No	For EUT
2	Power	1.8	No	For laptop PC
3	USB	1.5	Yes	From laptop PC to EUT
4	USB	1.8	Yes	From laptop PC to Mouse
5	Head set	1.5	No	For Note PC to Head set
6	Ethernet	10.0	No	From EUT to HUB
7	TEL	10.0	No	From EUT to K/P system
8	TEL	2.0	No	From EUT to Telephone

4.1.3 Test arrangement



4.2 EUT operating mode

To achieve compliance applied standard specification, the following mode(s) were made during compliance testing:

Operating Mode 1	ADF Copy Mode
Operating Mode 2	Fax Tx Mode
Operating Mode 3	Scan to PC Mode
Operating Mode 4	WLAN Mode

4.3 Details of Sampling

Customer selected, single unit.

4.4 Clock Frequencies

Kind of Clocks	Frequency[MHz]	Kind of Clocks	Frequency[MHz]
Main Source	12	Video	23.571
CPU Internal	**433**	DDR2 SDRAM	300
USB Device	12	CIS	4

4.5 EUT Description

The following features describe EUT represented by this report:

Item	Specification and Description
Processor	CHORUS3-N(433Mhz)
Standard System memory	**128MB DDR2 SDRAM (SCX-3405F : 64M DDR2 SDRAM)**
Resolution	1200 x 1200 dpi
Copy Quality mode	Text > Scan: 300x300dpi , Printing : 600x600dpi @ ADF Scan: 600x300dpi , Printing : 600x600dpi @ Platen Text/Photo > Scan: 300x300dpi , Printing : 600x600dpi @ ADF Scan: 600x300dpi , Printing : 600x600dpi @ Platen Photo > Scan: Scan: 600x300dpi , Printing : 600x600dpi @ ADF Scan: 600x600dpi , Printing : 1200x1200dpi @ Platen
Paper Handling	150-sheet Cassette @ 80g/㎡, 10-sheet @ Special Paper
Power Rating	110-127 VAC, 5A 50/60 Hz
Power Consumption	-. Power Save mode: 2.1W -. Printing Mode : 310W -. Ready Mode : 30W -. Off Mode : 0.45W
Printer Language	**SPL**
PC Interfaces	High speed USB2.0, 802.11 b/g/n
OS compatibility	Windows 2000/XP(32/64bits)/Vista(32/64bits)/2003 Server(32/64bits)/2008 Server(32/64bits)/7(32/64bits)/2008 Server R2(64bits) Mac OS X 10.4 ~ 10.6 RedHat Enterprise Linux WS 4, 5 (32/64 bit) Fedora 5, 6, 7, 8, 9, 10, 11, 12, 13 (32/64 bit) SuSE Linux 10.1 (32 bit) OpenSuSE 10.2, 10.3, 11.0, 11.1, 11.2 (32/64 bit) Mandriva 2007, 2008, 2009, 2009.1, 2010 (32/64 bit) Ubuntu 6.06, 6.10, 7.04, 7.10, 8.04, 8.10, 9.04, 9.10, 10.04 (32/64 bit) SuSE Linux Enterprise Desktop 10, 11 (32/64 bit) Debian 4.0, 5.0 (32/64 bit) Sun Solaris 9,10 (x86, SPARC) HP-UX 11.0, 11i v1, 11i v2, 11i v3 (PA-RISC, Itanium) IBM AIX 5.1, 5.2, 5.3, 5.4
Modes of Operation	USB Printing, Platen Scan, Platen Copy, ADF Scan, ADF Copy, Wireless FAX
Intended Class for Emissions	Class B

4.6 Test configuration and condition

The system was configured for testing in typical fashion use. Cables were attached to each of the available I/O Ports. Where applicable, peripherals were attached to the I/O cables. The mode of operation utilized for testing was selected to best simulate typical EUT use.

The EUT was measured all testing with toner cartridge.

Power source for the EUT operating was supplied by CVCF made by the Pacific Corp.

- Test Voltage : AC 120 V, 60 Hz

4.7 Measurement uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus: (According to CISPR 16-4 and UKAS Lab 34.)

4.7.1 Emission

Test type		Measurement uncertainty (C.L. 95 %, k = 2)
Conducted disturbance	Main terminal	3.30 dB
Radiated Disturbance (Below 1 GHz)	Horizontal	5.26 dB
	Vertical	5.27 dB
Radiated Disturbance (Above 1 GHz)	Horizontal	3.40 dB
	Vertical	3.12 dB

5. Results of individual test

5.1 Conducted disturbance

Both conducted lines are measured in Quasi-Peak and Average mode, including the worst-case data points for each tested configuration. The EUT measured in accordance with the methods described in standards.

Limits for conducted disturbance at the mains ports of class B ITE

Frequency range Limits MHz	Resolution Bandwidth	Limits dBµV	
		Quasi-peak	Average
0.15 to 0.50	9 kHz	66 to 56	56 to 46
0.50 to 5	9 kHz	56	46
5 to 30	9 kHz	60	50
NOTE 1 The lower limit shall apply at the transition frequency NOTE 2 The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.			

5.1.1 Test instrumentation

Test instrumentation	Manufacturer	Model name	Serial or Firmware (No./Ver.)	Calibration	
				Date	Interval (Month)
Test Receiver	R&S	ESIB 26	100287	2011-07-30	12
Two-Line V-Network	R&S	ENV216	100117	2010-11-16	12
Two-Line V-Network	R&S	ESH3-Z5	100262	2010-09-27	12
Test software	EMC32	R&S	Ver 5.2.1	-	-

5.1.2 Temperature and humidity condition

Test date	September 17, 2011	**Test engineer**	Young Hun Cheong	
Climate condition	**Ambient temperature**	26.2 ℃	**Relative humidity**	40 %
	Atmospheric pressure	100.3 kPa		
Test place	Shielded Room #1			

5.1.3 Photograph of Test Setup

Front

Rear

5.1.4 Test results (mains port)

- **Operating Mode 1 : ADF Copy Mode**

Hardware Setup: Voltage with ENV 2-Line-LISN - [EMI conducted]

Subrange 1

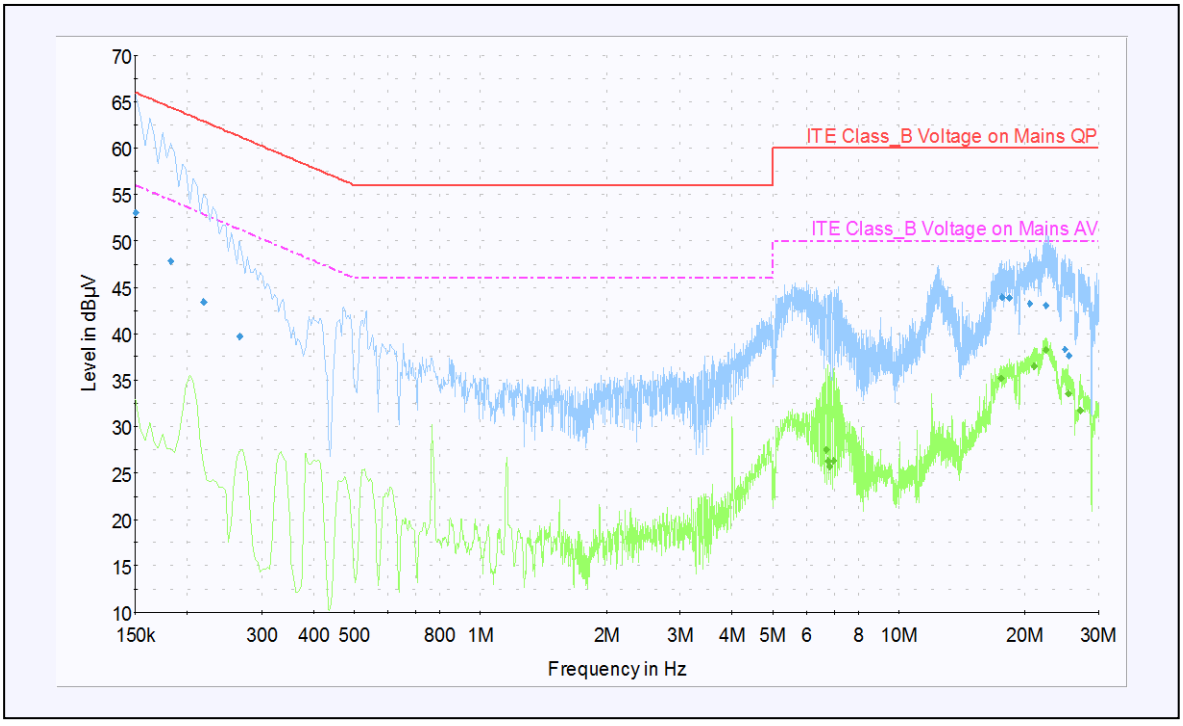
Frequency Range:	150 kHz – 30 MHz
Receiver:	ESIB 26
Transducer:	ENV216 / Receiver-2-Line-LISN ENV216

Scan Setup: ITE_B_ENV 2-Line-LISN fin [EMI conducted]

Hardware Setup:	Voltage with ENV 2-Line-LISN
Level Unit:	dBµV

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
150 kHz – 30 MHz	Quasi Peak; Average	9 kHz	15 s	ESIB 26

Test Graph



Note) Two graphs measured for both Live(L1) and Neutral(N) of the LISN are combined into one graph.

Test Results (Quasi-Peak and Average)

Quasi-peak final measurement results table

Frequency (MHz)	Level Quasi-Peak (dBµV)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150	53.1	N	10.4	12.9	66.0
0.182	47.8	L1	10.2	16.6	64.4
0.218	43.4	L1	10.0	19.5	62.9
0.266	39.7	N	10.0	21.5	61.2
17.604	44.0	N	10.2	16.0	60.0
18.336	43.9	N	10.2	16.1	60.0
20.604	43.3	N	10.3	16.7	60.0
22.488	43.1	L1	10.2	16.9	60.0
24.960	38.3	L1	10.2	21.7	60.0
25.460	37.6	L1	10.2	22.4	60.0

Average final measurement results table

Frequency (MHz)	Level Average (dBµV)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
6.704	27.5	L1	9.8	22.5	50.0
6.772	26.3	L1	9.8	23.7	50.0
6.840	25.7	L1	9.8	24.3	50.0
6.968	26.2	L1	9.8	23.8	50.0
17.580	35.2	N	10.2	14.8	50.0
21.004	36.5	N	10.3	13.5	50.0
22.460	38.2	N	10.3	11.8	50.0
25.388	33.6	N	10.4	16.4	50.0
27.108	31.8	N	10.5	18.2	50.0

Note) Level (Quasi-Peak and/or Average) = Meter Reading (Quasi-Peak and/or Average) + Factor (LISN Insertion Loss + Cable Loss)

Margin = Limit – Level (Quasi-Peak and/or Average)

- **Operating Mode 2 : Fax Tx Mode**

Hardware Setup: Voltage with ENV 2-Line-LISN - [EMI conducted]

Subrange 1

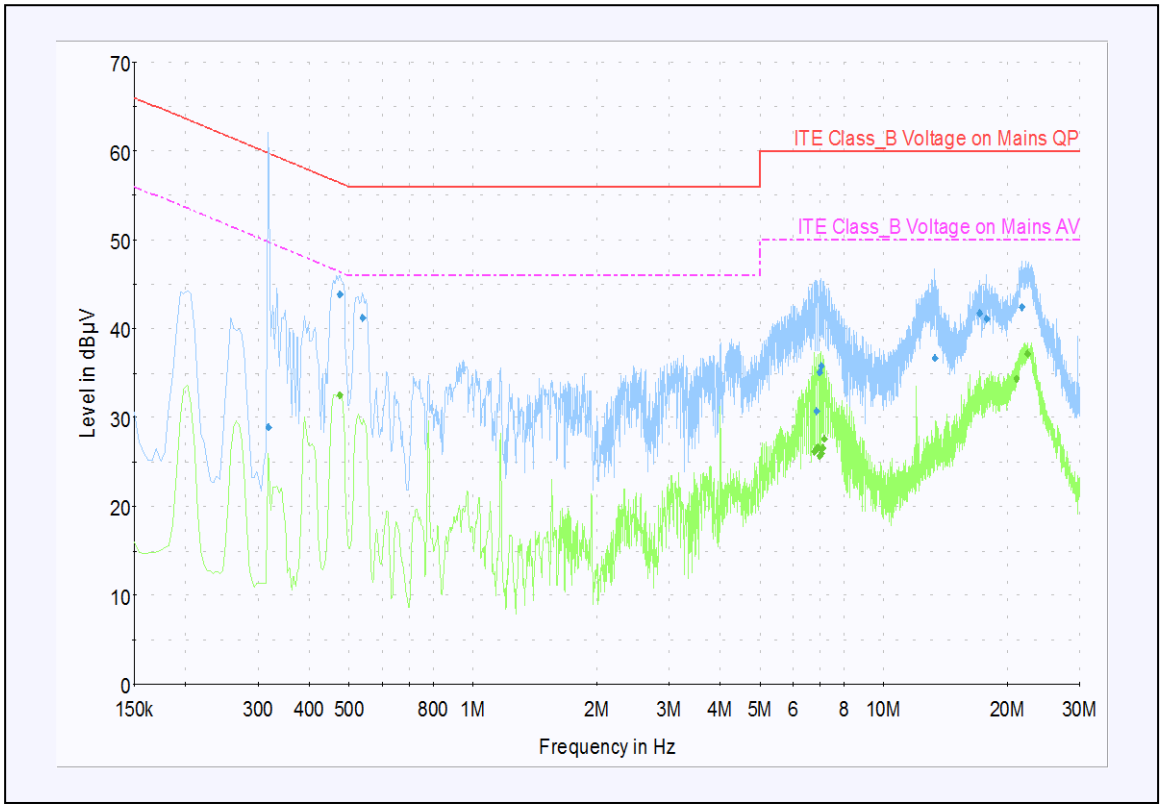
Frequency Range:	150 kHz – 30 MHz
Receiver:	ESIB 26
Transducer:	ENV216 / Receiver-2-Line-LISN ENV216

Scan Setup: ITE_B_ENV 2-Line-LISN fin [EMI conducted]

Hardware Setup:	Voltage with ENV 2-Line-LISN
Level Unit:	dBµV

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
150 kHz – 30 MHz	Quasi Peak; Average	9 kHz	15 s	ESIB 26

Test Graph



Note) Two graphs measured for both Live(L1) and Neutral(N) of the LISN are combined into one graph.

Test Results (Quasi-Peak and Average)

Quasi-peak final measurement results table

Frequency (MHz)	Quasi-Peak (dBµV)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.318	28.8	N	10.1	31.0	59.8
0.474	43.8	L1	10.1	12.6	56.4
0.538	41.2	N	10.1	14.8	56.0
6.844	30.7	L1	9.8	29.3	60.0
6.968	35.0	N	9.8	25.0	60.0
7.040	35.7	N	9.8	24.3	60.0
13.320	36.7	N	10.0	23.3	60.0
17.076	41.7	N	10.1	18.3	60.0
17.796	41.1	N	10.2	18.9	60.0
21.700	42.4	N	10.3	17.6	60.0

Average final measurement results table

Frequency (MHz)	Average (dBµV)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.474	32.5	N	10.1	13.9	46.4
6.780	26.1	L1	9.8	23.9	50.0
6.848	26.4	L1	9.8	23.6	50.0
6.916	26.6	L1	9.8	23.4	50.0
6.972	25.6	L1	9.8	24.4	50.0
7.040	25.9	L1	9.8	24.1	50.0
7.108	26.5	L1	9.8	23.5	50.0
7.172	27.6	L1	9.8	22.4	50.0
20.972	34.4	N	10.3	15.6	50.0
22.344	37.2	L1	10.1	12.8	50.0

Note) Level (Quasi-Peak and/or Average) = Meter Reading (Quasi-Peak and/or Average) + Factor (LISN Insertion Loss + Cable Loss)

Margin = Limit – Level (Quasi-Peak and/or Average)

- **Operating Mode 3 : Scan to PC Mode**

Hardware Setup: Voltage with ENV 2-Line-LISN - [EMI conducted]

Subrange 1

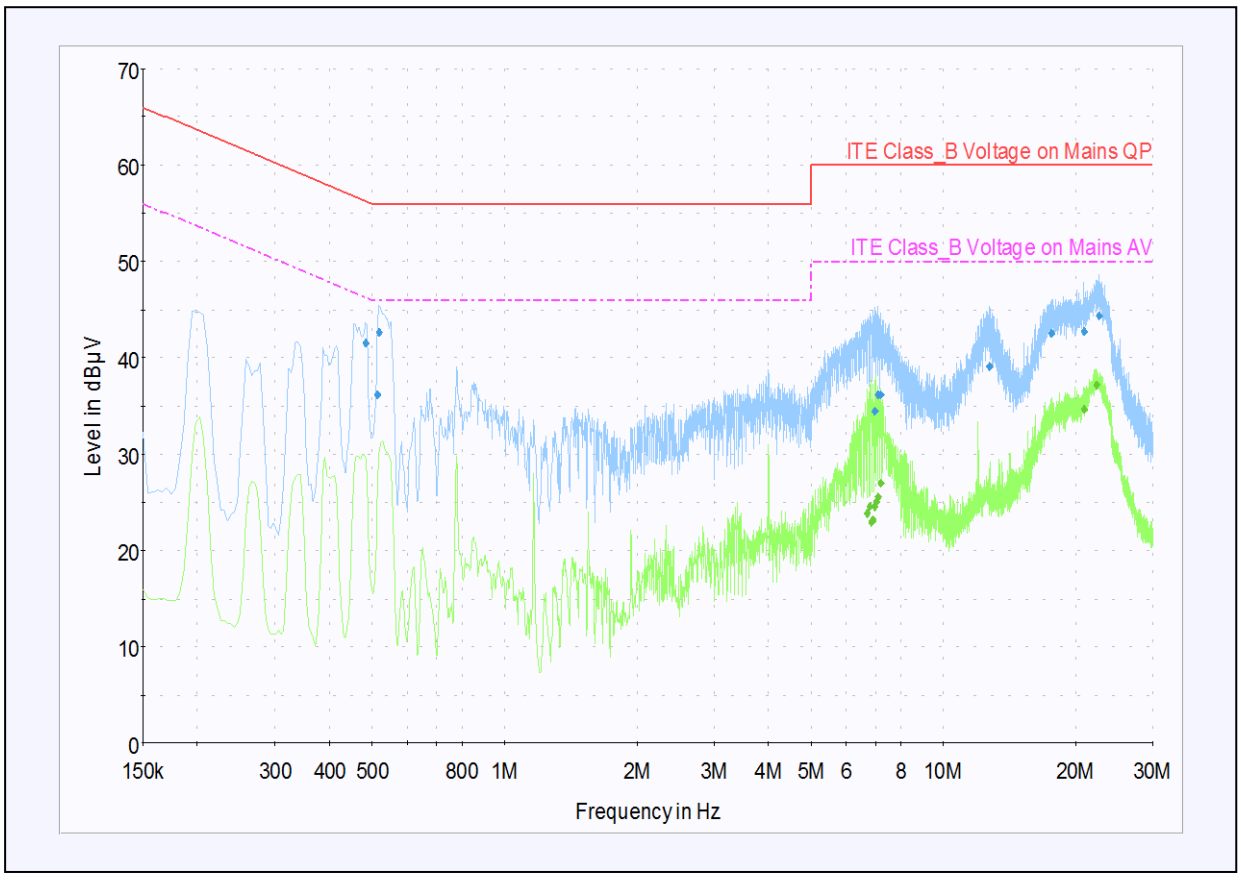
Frequency Range:	150 kHz – 30 MHz
Receiver:	ESIB 26
Transducer:	ENV216 / Receiver-2-Line-LISN ENV216

Scan Setup: ITE_B_ENV 2-Line-LISN fin [EMI conducted]

Hardware Setup:	Voltage with ENV 2-Line-LISN
Level Unit:	dBµV

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
150 kHz – 30 MHz	Quasi Peak; Average	9 kHz	15 s	ESIB 26

Test Graph



Note) Two graphs measured for both Live(L1) and Neutral(N) of the LISN are combined into one graph.

Test Results (Quasi-Peak and Average)

Quasi-peak final measurement results table

Frequency (MHz)	Quasi-Peak (dBµV)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.482	41.5	L1	10.1	14.8	56.3
0.514	36.2	N	10.1	19.8	56.0
0.518	42.6	N	10.1	13.4	56.0
6.984	34.5	L1	9.8	25.5	60.0
7.116	36.2	L1	9.8	23.8	60.0
7.180	36.2	L1	9.8	23.8	60.0
12.724	39.1	N	10.0	20.9	60.0
17.648	42.5	N	10.2	17.5	60.0
20.960	42.8	N	10.3	17.2	60.0
22.692	44.4	L1	10.2	15.6	60.0

Average final measurement results table

Frequency (MHz)	Average (dBµV)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
6.720	23.8	L1	9.8	26.2	50.0
6.788	24.6	L1	9.8	25.4	50.0
6.852	22.9	L1	9.8	27.1	50.0
6.920	23.2	L1	9.8	26.8	50.0
6.980	24.5	L1	9.8	25.5	50.0
7.048	25.0	L1	9.8	25.0	50.0
7.112	25.6	L1	9.8	24.4	50.0
7.180	26.9	L1	9.8	23.1	50.0
20.924	34.7	N	10.3	15.3	50.0
22.332	37.1	N	10.3	12.9	50.0

Note) Level (Quasi-Peak and/or Average) = Meter Reading (Quasi-Peak and/or Average) + Factor (LISN Insertion Loss + Cable Loss)

Margin = Limit – Level (Quasi-Peak and/or Average)

- **Operating Mode 4 : WLAN Mode**

Hardware Setup: Voltage with ENV 2-Line-LISN - [EMI conducted]

Subrange 1

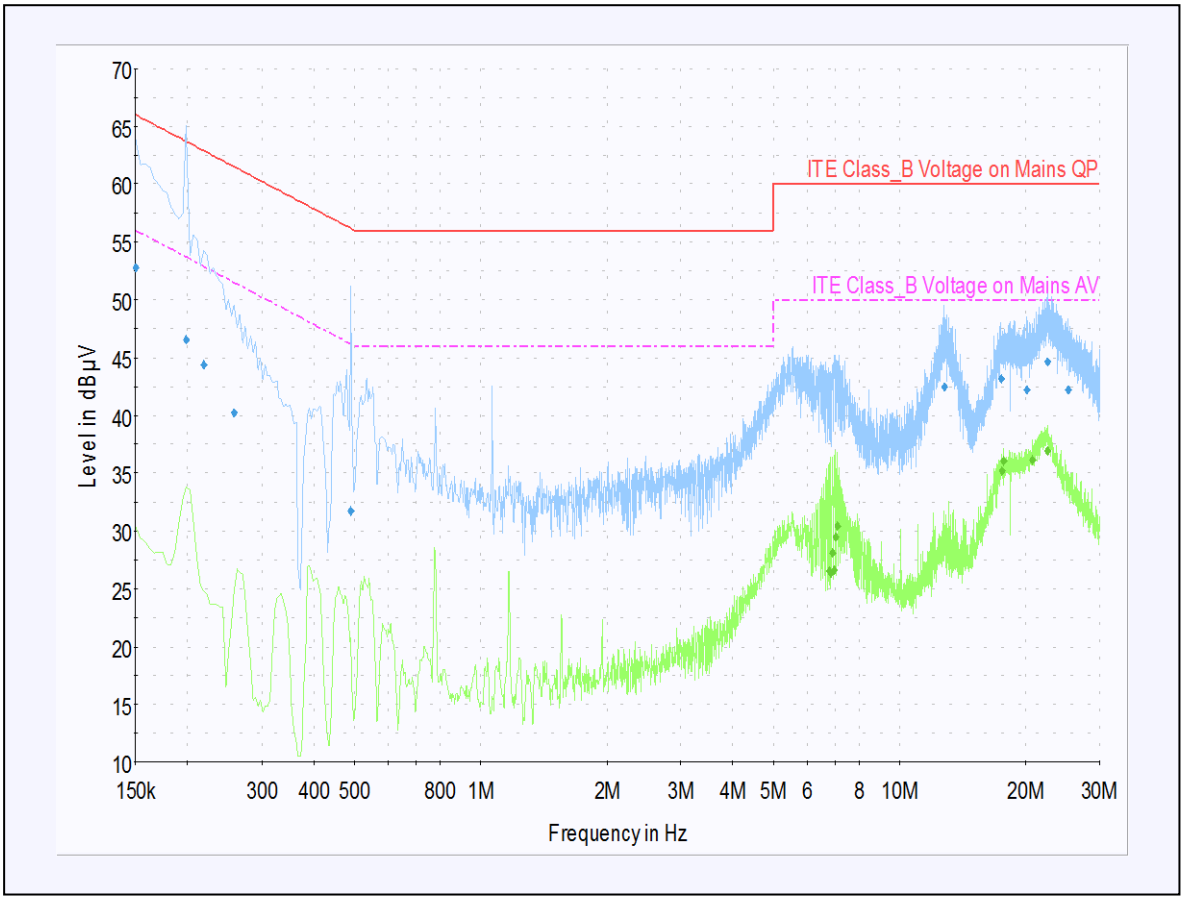
Frequency Range:	150 kHz – 30 MHz
Receiver:	ESIB 26
Transducer:	ENV216 / Receiver-2-Line-LISN ENV216

Scan Setup: ITE_B_ENV 2-Line-LISN fin [EMI conducted]

Hardware Setup:	Voltage with ENV 2-Line-LISN
Level Unit:	dBµV

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
150 kHz – 30 MHz	Quasi Peak; Average	9 kHz	15 s	ESIB 26

Test Graph



Note) Two graphs measured for both Live(L1) and Neutral(N) of the LISN are combined into one graph.

Test Results (Quasi-Peak and Average)

Quasi-peak final measurement results table

Frequency (MHz)	Quasi-Peak (dBµV)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150	52.7	N	10.4	13.3	66.0
0.198	46.6	N	10.0	17.1	63.7
0.218	44.3	N	10.0	18.6	62.9
0.258	40.2	N	10.0	21.3	61.5
0.490	31.7	L1	10.1	24.5	56.2
12.780	42.5	L1	9.9	17.5	60.0
17.508	43.1	N	10.2	16.9	60.0
20.144	42.2	N	10.2	17.8	60.0
22.540	44.6	N	10.3	15.4	60.0
25.304	42.2	N	10.4	17.8	60.0

Average final measurement results table

Frequency (MHz)	Average (dBµV)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
6.784	26.5	L1	9.8	23.5	50.0
6.848	26.3	L1	9.8	23.7	50.0
6.916	28.1	L1	9.8	21.9	50.0
6.976	26.6	L1	9.8	23.4	50.0
7.044	29.5	L1	9.8	20.5	50.0
7.108	30.5	L1	9.8	19.5	50.0
17.552	35.2	N	10.2	14.8	50.0
17.692	36.0	N	10.2	14.0	50.0
20.784	36.1	N	10.3	13.9	50.0
22.516	36.9	N	10.3	13.1	50.0

Note) Level (Quasi-Peak and/or Average) = Meter Reading (Quasi-Peak and/or Average) +
Factor (LISN Insertion Loss + Cable Loss)

Margin = Limit – Level (Quasi-Peak and/or Average)

5.2 Radiated disturbance

Of those disturbances above (*L* – 20 dB), where *L* is the limit level in logarithmic units, record at least the disturbance levels and the frequencies of the six highest disturbances.
The following data lists the significant emission frequencies, measured levels, correction factors (for antenna and cables), orientation of table, polarization and height of antenna, the corrected reading, the limit, and the amount of margin. All measurements were taken utilizing quasi-peak detection unless stated otherwise.
Measurements were performed at an antenna to EUT distance of 10 m and elevated between 1 m and 4 m.
Both vertical and horizontal antenna polarizations were measured.

Limits for radiated disturbance of ITE at a measuring distance of 10 m

Frequency range Limits MHz	Resolution Bandwidth	Quasi-peak Limits dBµV/m
		Class B
30 to 230	120 kHz	30
230 to 1 000	120 kHz	37
NOTE 1 The lower limit shall apply at the transition frequency NOTE 2 Additional provisions may be required for cases where interference occurs.		

Peak measurements were made over the changeable frequency range 1 GHz to 40 GHz or 5th in accordance with internal maximum operating frequency at a measurement distance of 3 m for the following antenna and turntable arrangements:

Antenna Height (cm)	Antenna Polarisation	Turntable position (degrees)
100 ~ 400	Horizontal, Vertical	Continuous

Above 1 GHz, peak detector function mode is used with a resolution bandwidth of 1 MHz and a video bandwidth of 1 MHz.

Limits for above 1GHz radiated disturbance of ITE at a measuring distance of 3 m

Class	Limits - dB(μV/m)	
	Peak	Average
B	74	54
Average limit 500, 20 log 500 = 53.979 dB ≒ 54 dB		

Measurements within 20 dB of the limit were then maximized by adjusting turntable position. Final measurements were made using a average detector.

Results checked manually; and points close to the limit line were re-measured.

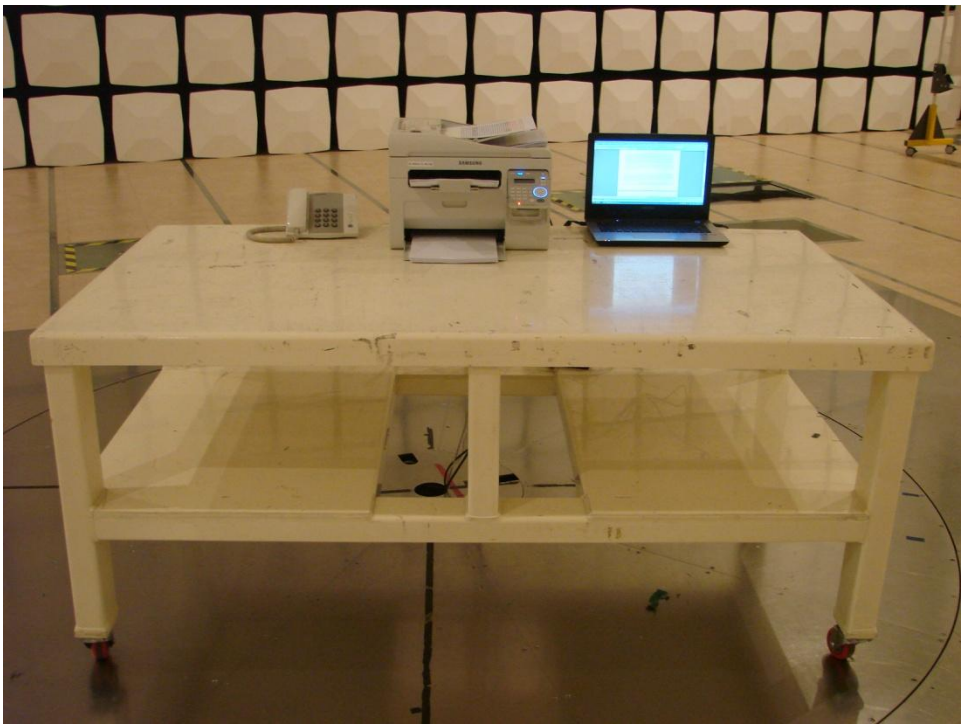
5.2.1 Test instrumentation

Test instrumentation	Manufacturer	Model name	Serial or Firmware (No./Ver.)	Calibration	
				Date	Interval (Month)
Bi-log Antenna	Schaffner	CBL6112D	22602	2010-04-21	24
Bi-log Antenna	Schaffner	CBL6112D	22248	2009-11-25	24
Horn Antenna	R&S	HF907	100166	2010-01-20	24
Test Receiver	R&S	ESCI	100369	2011-08-03	12
Test Receiver	R&S	ESCI	100370	2011-05-29	12
Test Receiver	R&S	ESIB 26	100288	2011-06-16	12
Amplifier	Sonoma	310N	185861	2011-04-07	12
Amplifier	Sonoma	310N	251676	2011-04-07	12
Preamplifier	R&S	SCU18	10001	2011-05-03	12
Antenna Mast	INN CO	MA4000	-	-	-
Antenna Mast	INN CO	MA4000	-	-	-
Mast Controller	INN CO	CO2000	-	-	-
Test software	TOYO	EP5/RE	VER 3.10.20	-	-
RF Selector	TOYO	NS4900	-	-	-

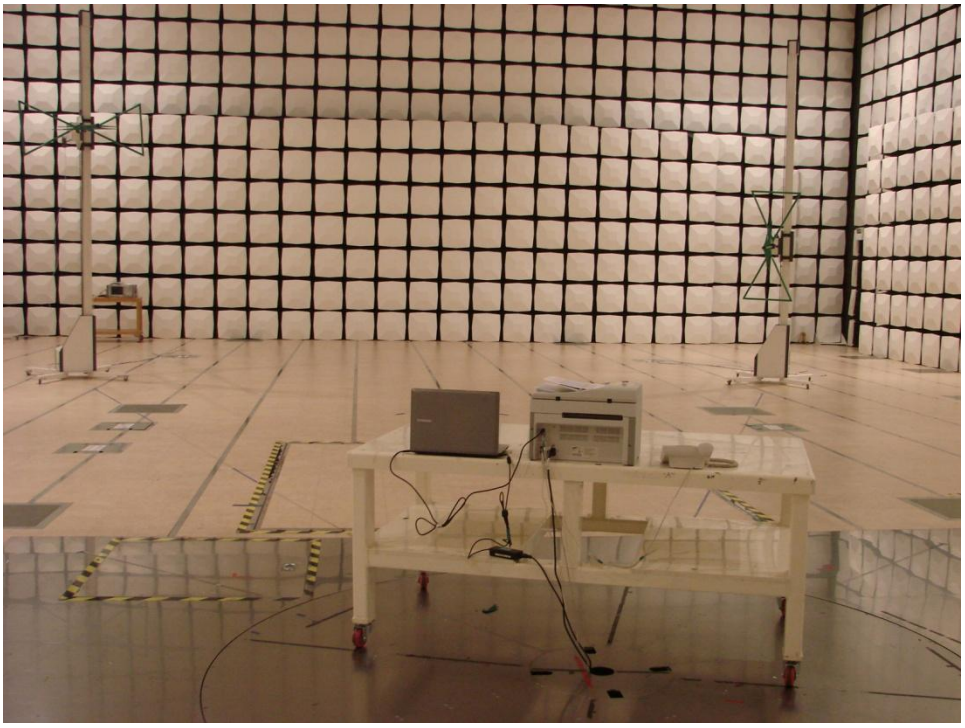
5.2.2 Temperature and humidity condition

Test date	September 6, 2011	Test engineer	Young Hun Cheong	
Climate condition	Ambient temperature	25.3 ℃	Relative humidity	35 %
	Atmospheric pressure	100.4 kPa		
Test place	10 m Semi-Anechoic Chamber			

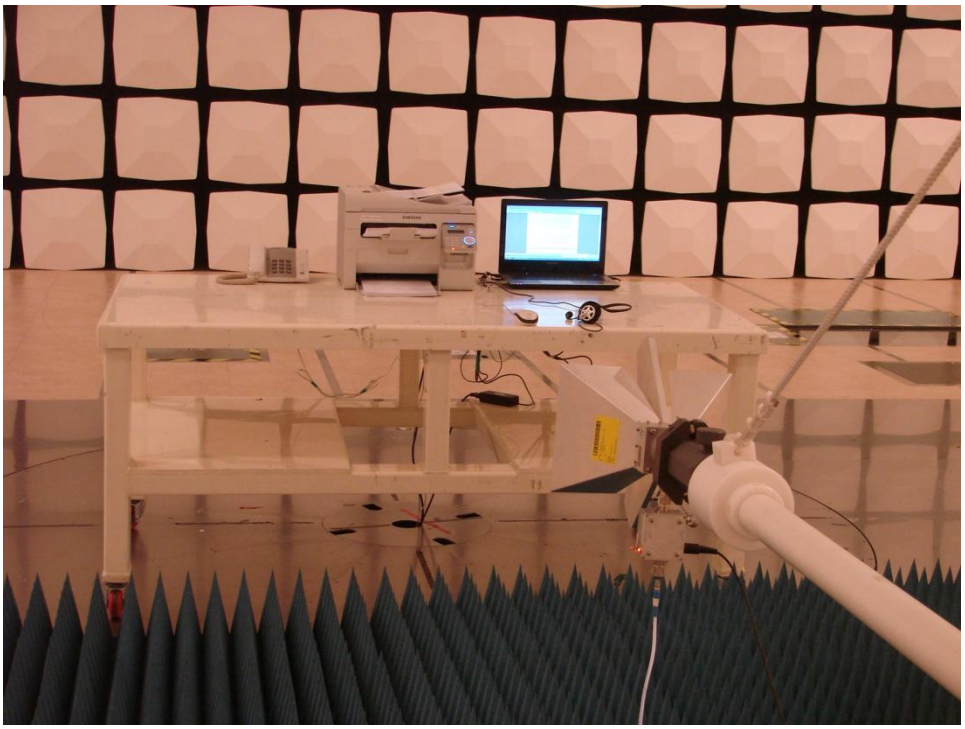
5.2.3 Photograph of Test Setup



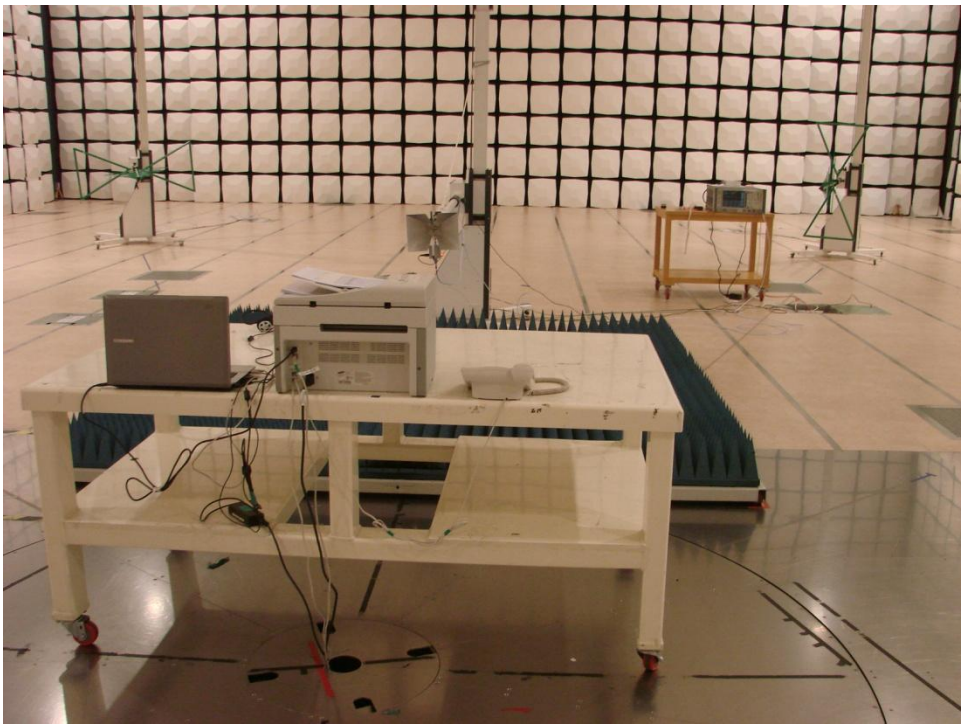
Front (Below 1 GHz)



Rear (Below 1 GHz)



Front (above 1 GHz)



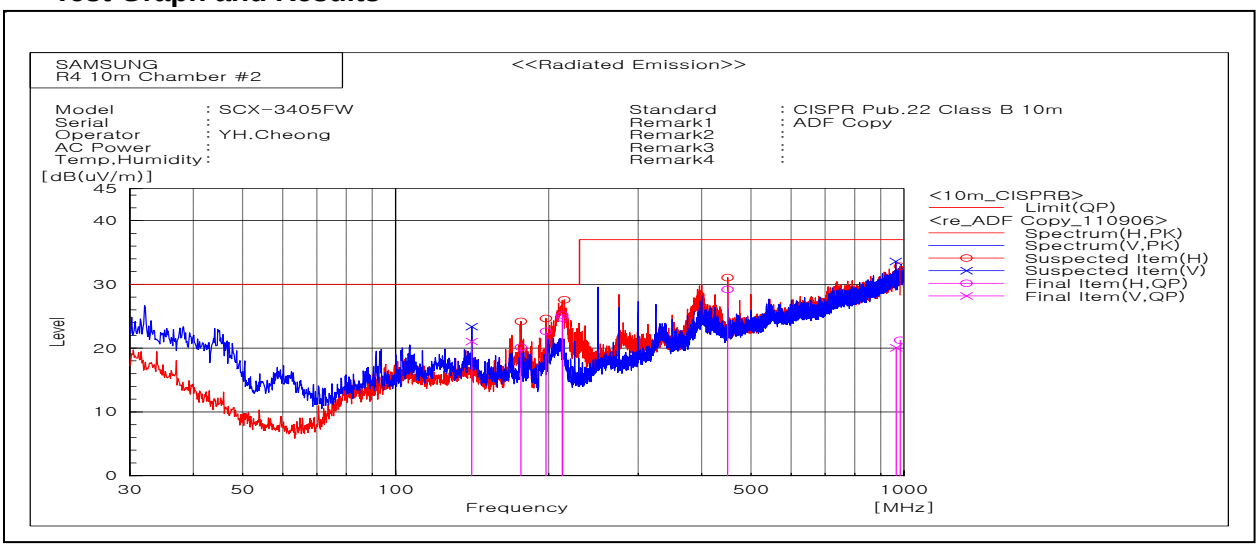
Rear (above 1 GHz)

5.2.4 Test results

5.2.4.1 30 MHz to 1 GHz test results

- **Operating Mode 1 : ADF Copy Mode**

Test Graph and Results



Frequency [MHz]	(P)	Reading QP [dB(uV)]	Factor [dB(1/m)]	Level QP [dB(uV/m)]	Limit [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
141.120	V	38.8	-17.8	21.0	30.0	9.0	101.0	347.3
176.402	H	38.9	-18.8	20.1	30.0	9.9	400.0	154.4
197.549	H	41.4	-18.8	22.6	30.0	7.4	400.0	63.5
212.785	H	43.9	-18.7	25.2	30.0	4.8	400.0	8.8
212.879	H	43.4	-18.7	24.7	30.0	5.3	384.0	4.0
449.962	H	38.2	-9.0	29.2	37.0	7.8	196.0	130.3
965.119	V	20.7	-0.6	20.1	37.0	16.9	101.0	358.7
982.683	H	21.2	0.0	21.2	37.0	15.8	295.0	292.7

Note) Receiving antenna polarization : Horizontal and/or Vertical

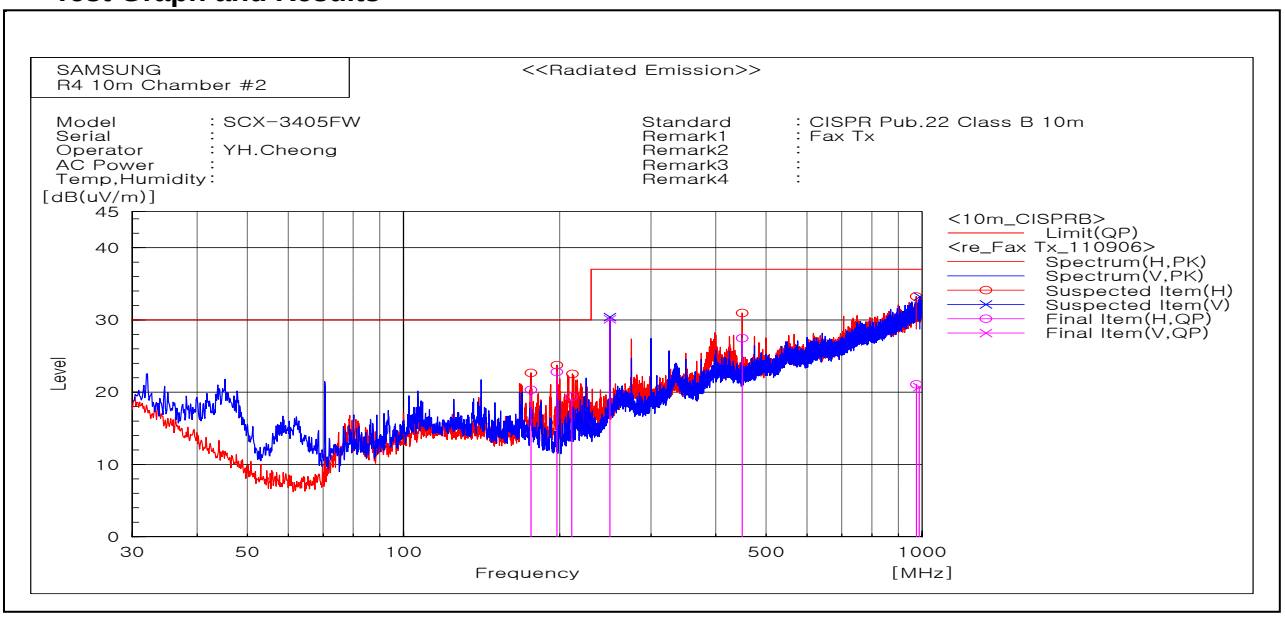
Test Distance : 10 m, Antenna Height : 1 to 4 meters

Level QP (Quasi-Peak) = Reading QP + Factor (Antenna Factor + Cable Loss - Amp. Gain)

Margin QP (Quasi-Peak) = Limit – Level QP

- **Operating Mode 2 : Fax Tx Mode**

Test Graph and Results



Frequency [MHz]	(P)	Reading QP [dB(uV)]	Factor [dB(1/m)]	Level QP [dB(uV/m)]	Limit [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
176.113	H	39.1	-18.8	20.3	30.0	9.7	400.0	172.7
197.568	H	41.6	-18.8	22.8	30.0	7.2	400.0	130.5
210.934	H	38.1	-18.7	19.4	30.0	10.6	400.0	355.3
250.001	V	45.5	-15.4	30.1	37.0	6.9	101.0	331.9
449.965	H	36.5	-9.0	27.5	37.0	9.5	205.0	270.5
974.771	H	21.3	-0.2	21.1	37.0	15.9	400.0	9.6
986.784	V	20.8	-0.1	20.7	37.0	16.3	399.0	309.9

Note) Receiving antenna polarization : Horizontal and/or Vertical

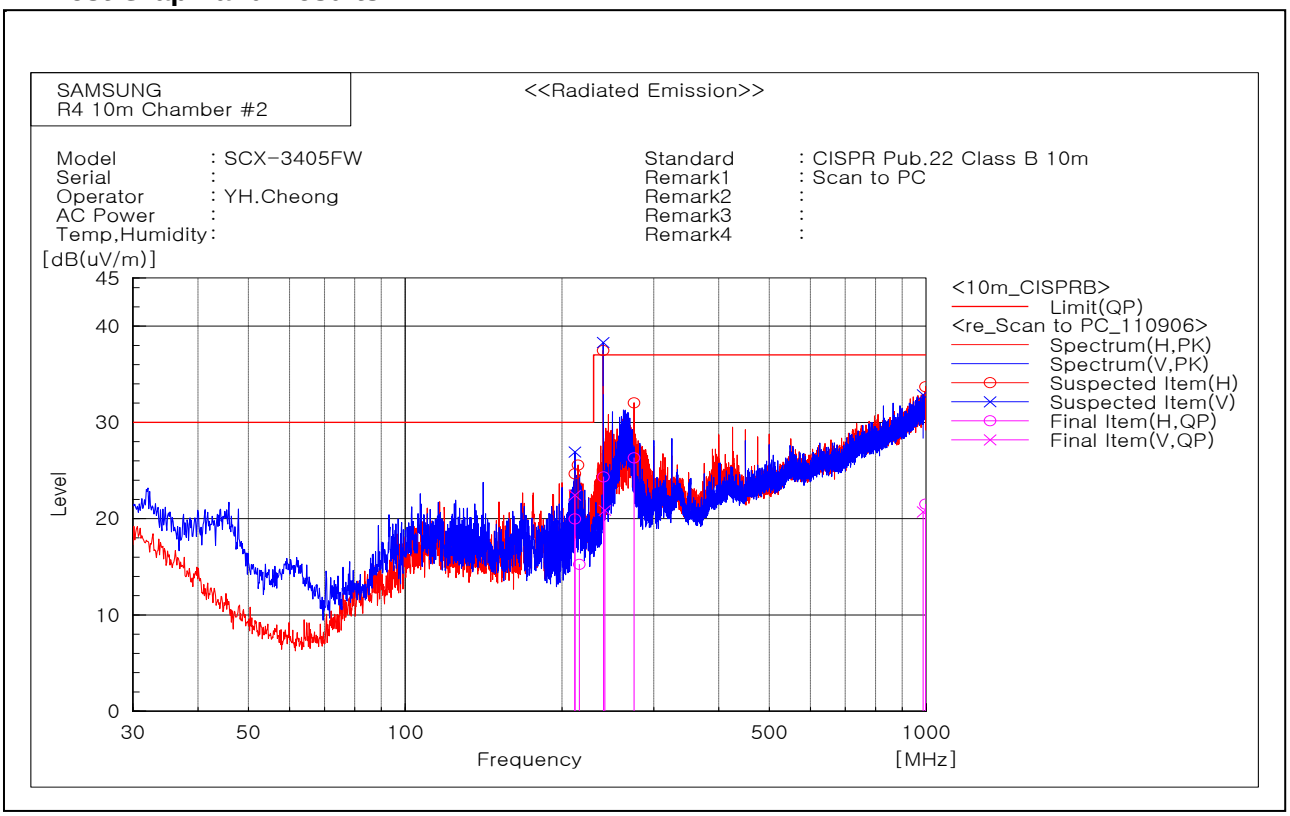
Test Distance : 10 m, Antenna Height : 1 to 4 meters

Level QP (Quasi-Peak) = Reading QP + Factor (Antenna Factor + Cable Loss - Amp. Gain)

Margin QP (Quasi-Peak) = Limit – Level QP

- **Operating Mode 3 : Scan to PC Mode**

Test Graph and Results



Frequency [MHz]	(P)	Reading QP [dB(uV)]	Factor [dB(1/m)]	Level QP [dB(uV/m)]	Limit [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
211.681	H	38.7	-18.7	20.0	30.0	10.0	300.0	56.9
211.732	V	41.6	-19.2	22.4	30.0	7.6	101.0	84.1
216.009	H	33.8	-18.6	15.2	30.0	14.8	300.0	237.0
240.388	H	40.6	-16.3	24.3	37.0	12.7	389.0	351.5
241.754	V	37.8	-16.9	20.9	37.0	16.1	106.0	39.6
274.993	H	40.9	-14.6	26.3	37.0	10.7	300.0	139.7
986.784	V	20.8	-0.1	20.7	37.0	16.3	399.0	309.9

Note) Receiving antenna polarization : Horizontal and/or Vertical

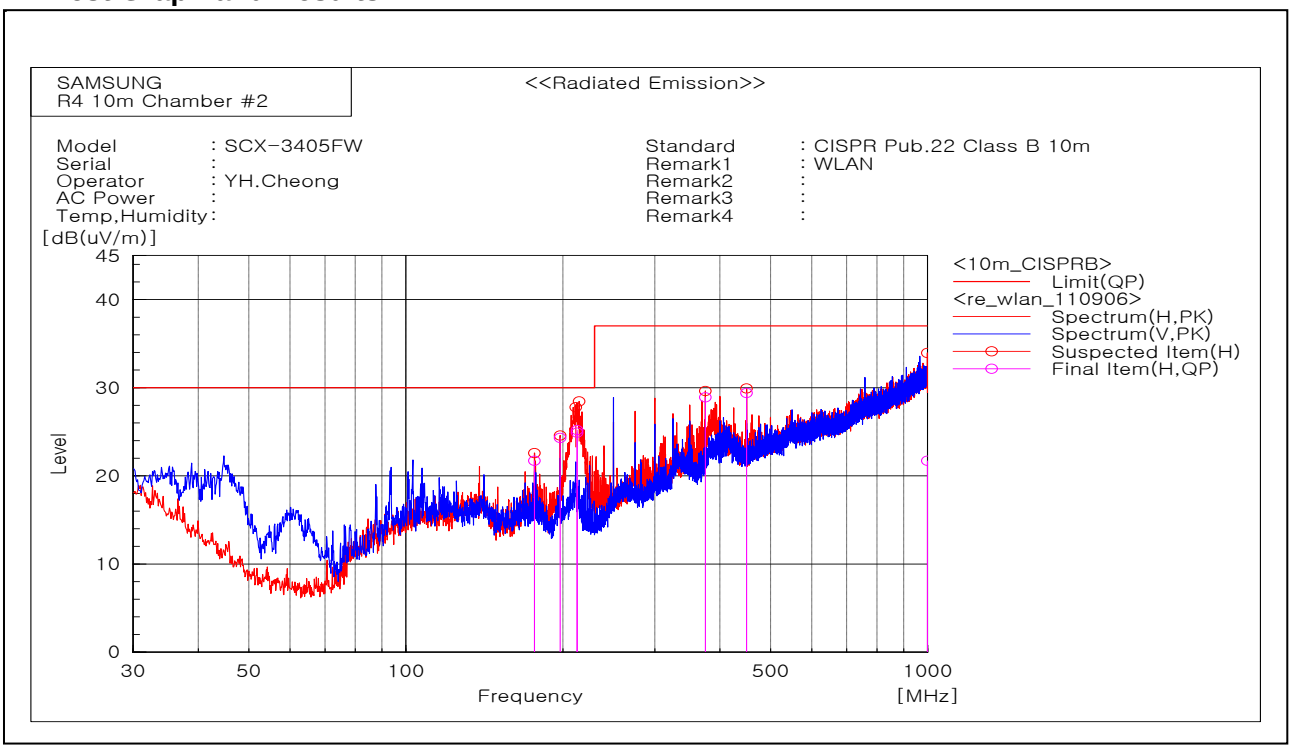
Test Distance : 10 m, Antenna Height : 1 to 4 meters

Level QP (Quasi-Peak) = Reading QP + Factor (Antenna Factor + Cable Loss - Amp. Gain)

Margin QP (Quasi-Peak) = Limit – Level QP

- **Operating Mode 4 : WLAN Mode**

Test Graph and Results



Frequency [MHz]	(P)	Reading QP [dB(uV)]	Factor [dB(1/m)]	Level QP [dB(uV/m)]	Limit [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
176.403	H	40.5	-18.8	21.7	30.0	8.3	400.0	139.1
197.550	H	43.1	-18.8	24.3	30.0	5.7	400.0	105.7
212.903	H	43.6	-18.7	24.9	30.0	5.1	383.0	327.5
213.006	H	43.9	-18.7	25.2	30.0	4.8	391.0	320.2
375.011	H	39.9	-11.0	28.9	37.0	8.1	399.0	269.3
450.002	H	38.4	-9.0	29.4	37.0	7.6	374.0	240.9
998.787	H	21.4	0.3	21.7	37.0	15.3	108.0	73.4

Note) Receiving antenna polarization : Horizontal and/or Vertical

Test Distance : 10 m, Antenna Height : 1 to 4 meters

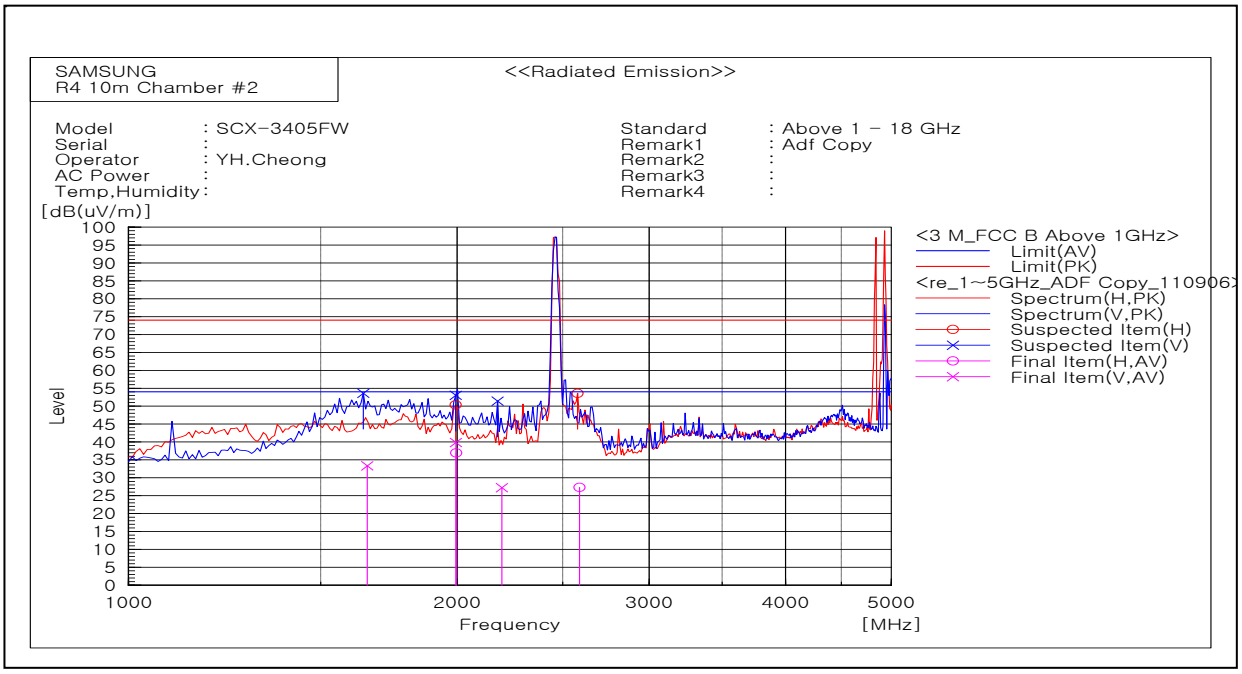
Level QP (Quasi-Peak) = Reading QP + Factor (Antenna Factor + Cable Loss - Amp. Gain)

Margin QP (Quasi-Peak) = Limit – Level QP

5.2.4.2 1 GHz to 5 GHz test results

- **Operating Mode 1 : ADF Copy Mode**

Test Graph and Results



Note1) Wireless Frequency : 2.4 GHz, 4.8 GHz

Peak Measurement

Frequency [MHz]	POL	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level PK [dB(uV/m)]	Limit [dB(uV/m)]	Margin PK [dB]	Height [cm]	Angle [deg]
1 641.283	V	64.3	-10.7	53.6	74.0	20.4	108.0	8.9
1 993.988	V	61.5	-8.4	53.1	74.0	20.9	108.0	4.2
1 993.988	H	58.7	-8.4	50.3	74.0	23.7	108.0	42.4
2 178.357	V	59.9	-8.5	51.4	74.0	22.6	108.0	157.0
2 579.158	H	59.4	-5.8	53.6	74.0	20.4	108.0	352.1

Average Measurement

Frequency [MHz]	POL	Reading AV [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Limit [dB(uV/m)]	Margin AV [dB]	Height [cm]	Angle [deg]
1 654.910	V	43.9	-10.6	33.3	54.0	20.7	108.0	8.3
1 995.431	V	48.3	-8.4	39.9	54.0	14.1	108.0	4.7
1 996.554	H	45.3	-8.4	36.9	54.0	17.1	108.0	41.8
2 198.317	V	35.8	-8.5	27.3	54.0	26.7	108.0	156.3
2 590.140	H	33.0	-5.7	27.3	54.0	26.7	108.0	351.4

Note1) Representative operating modes were selected by customer and any emissions that do NOT exceed Average limit were not tested with average detector mode.

Note2) Receiving antenna polarization : Horizontal and Vertical

Level P K(Peak) = Reading PK(Peak) + Factor(Antenna Factor + Cable Loss - Amp. Gain)

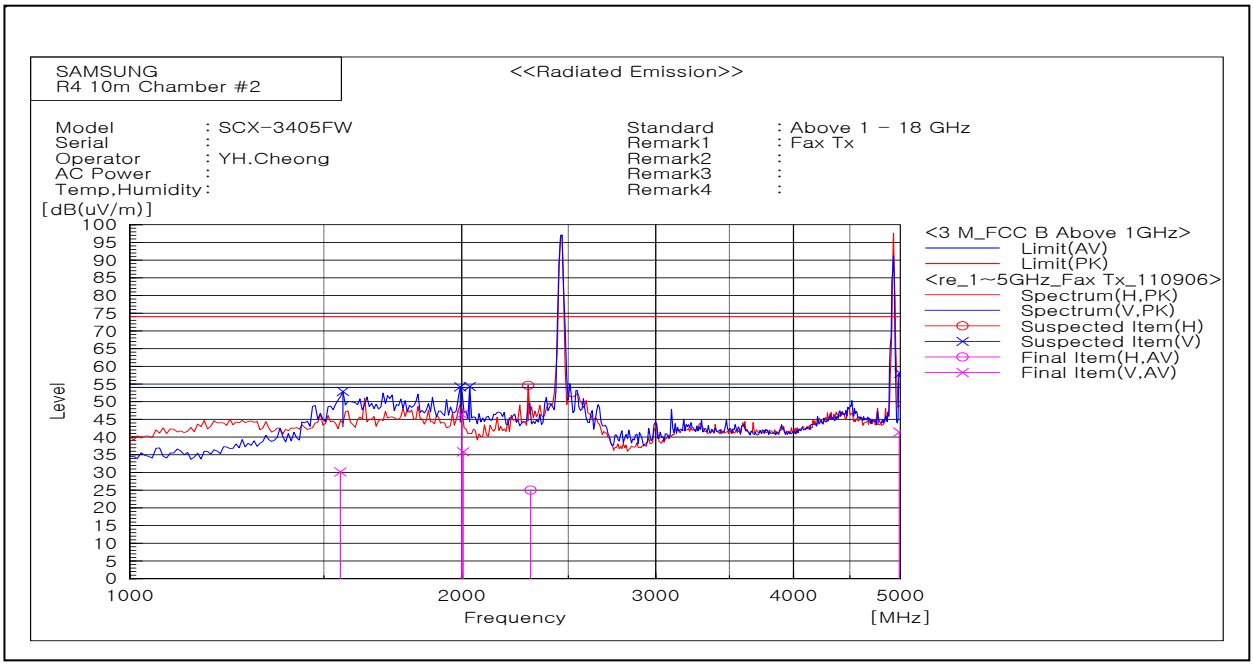
Level AV (Average) = Reading AV (Average) + Factor(Antenna Factor + Cable Loss - Amp. Gain)

Margin PK (Peak) = Limit – Level PK (Peak)

Margin AV (Average) = Limit – Level AV (Average)

- **Operating Mode 2 : Fax Tx Mode**

Test Graph and Results



Note1) Wireless Frequency : 2.4 GHz, 4.8 GHz

Peak Measurement

Frequency [MHz]	POL	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level PK [dB(uV/m)]	Limit [dB(uV/m)]	Margin PK [dB]	Height [cm]	Angle [deg]
1 561.122	V	64.2	-11.3	52.9	74.0	21.1	108.0	14.9
1 993.988	V	62.6	-8.4	54.2	74.0	19.8	108.0	3.9
2 034.068	V	62.7	-8.4	54.3	74.0	19.7	108.0	75.0
2 298.597	H	62.8	-8.2	54.6	74.0	19.4	108.0	18.4
5 000.000	V	54.6	3.4	58.0	74.0	16.0	108.0	62.2

Average Measurement

Frequency [MHz]	POL	Reading AV [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Limit [dB(uV/m)]	Margin AV [dB]	Height [cm]	Angle [deg]
1 552.705	V	41.6	-11.4	30.2	54.0	23.8	108.0	15.4
2 000.000	V	54.8	-8.4	46.4	54.0	7.6	108.0	4.6
2 006.333	V	44.2	-8.4	35.8	54.0	18.2	108.0	74.3
2 309.819	H	33.1	-8.1	25.0	54.0	29.0	108.0	19.0
4988.218	V	38.0	3.4	41.4	54.0	12.6	108.0	61.6

Note1) Representative operating modes were selected by customer and any emissions that do NOT exceed Average limit were not tested with average detector mode.

Note2) Receiving antenna polarization : Horizontal and Vertical

Level P K(Peak) = Reading PK(Peak) + Factor(Antenna Factor + Cable Loss - Amp. Gain)

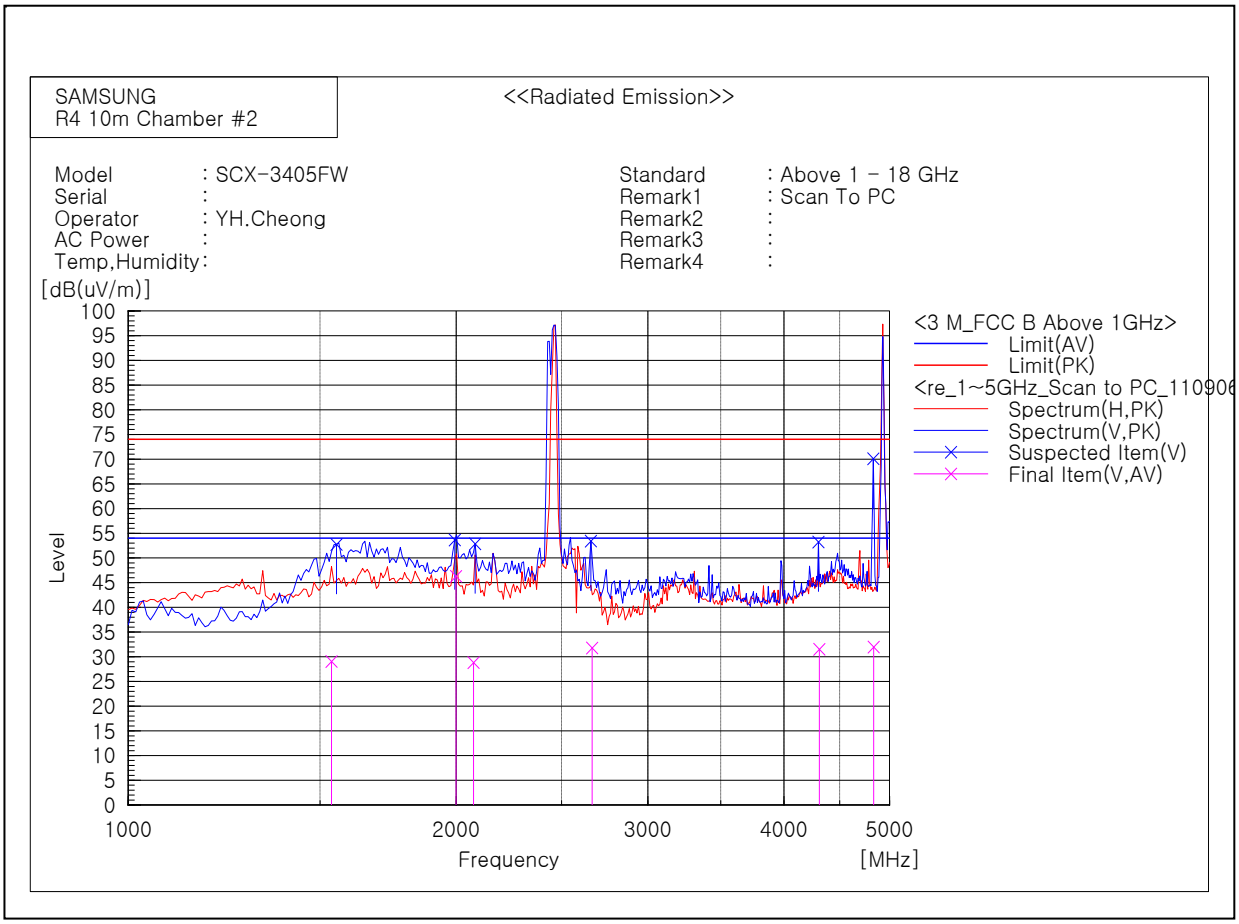
Level AV (Average) = Reading AV (Average) + Factor(Antenna Factor + Cable Loss - Amp. Gain)

Margin PK (Peak) = Limit – Level PK (Peak)

Margin AV (Average) = Limit – Level AV (Average)

- **Operating Mode 3 : Scan to PC Mode**

Test Graph and Results



Note1) Wireless Frequency : 2.4 GHz, 4.8 GHz

Peak Measurement

Frequency [MHz]	POL	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level PK [dB(uV/m)]	Limit [dB(uV/m)]	Margin PK [dB]	Height [cm]	Angle [deg]
1 553.106	V	64.1	-11.4	52.7	74.0	21.3	108.0	61.4
1 993.988	V	62.1	-8.4	53.7	74.0	20.3	108.0	3.5
2 082.164	V	61.4	-8.5	52.9	74.0	21.1	108.0	61.4
2 659.319	V	59.2	-5.8	53.4	74.0	20.6	108.0	74.3
4 302.605	V	52.6	0.7	53.3	74.0	20.7	108.0	79.2
4 831.663	V	67.5	2.6	70.1	74.0	3.9	108.0	242.3

Average Measurement

Frequency [MHz]	POL	Reading AV [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Limit [dB(uV/m)]	Margin AV [dB]	Height [cm]	Angle [deg]
1 536.994	V	40.6	-11.6	29.0	54.0	25.0	108.0	65.6
1 999.920	V	54.7	-8.4	46.3	54.0	7.7	108.0	4.0
2 074.710	V	37.3	-8.5	28.8	54.0	25.2	108.0	60.9
2 665.812	V	37.6	-5.8	31.8	54.0	22.2	108.0	73.8
4 310.221	V	30.7	0.8	31.5	54.0	22.5	108.0	78.7
4 833.988	V	29.4	2.6	32.0	54.0	22.0	108.0	241.7

Note1) Representative operating modes were selected by customer and any emissions that do NOT exceed Average limit were not tested with average detector mode.

Note2) Receiving antenna polarization : Horizontal and Vertical

Level P K(Peak) = Reading PK(Peak) + Factor(Antenna Factor + Cable Loss - Amp. Gain)

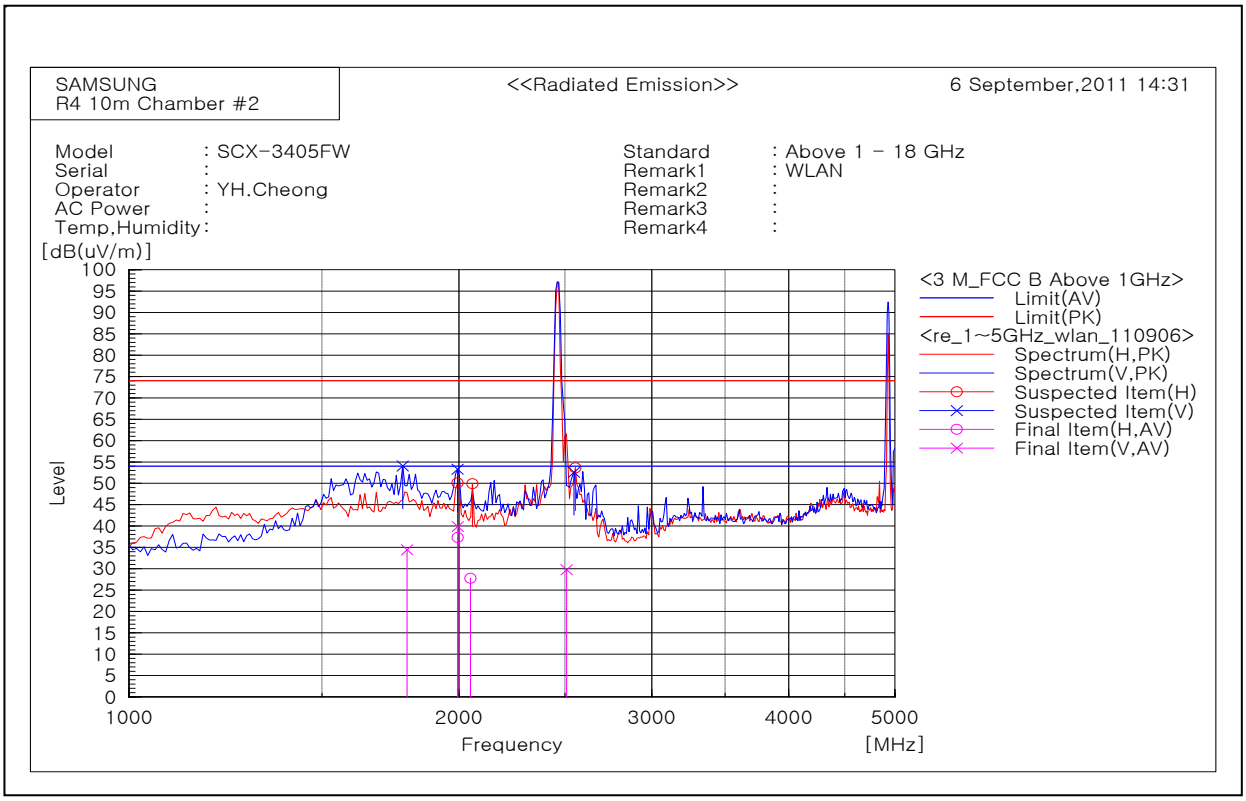
Level AV (Average) = Reading AV (Average) + Factor(Antenna Factor + Cable Loss - Amp. Gain)

Margin PK (Peak) = Limit – Level PK (Peak)

Margin AV (Average) = Limit – Level AV (Average)

- **Operating Mode 4 : WLAN Mode**

Test Graph and Results



Note1) Wireless Frequency : 2.4 GHz, 4.8 GHz

Peak Measurement

Frequency [MHz]	POL	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level PK [dB(uV/m)]	Limit [dB(uV/m)]	Margin PK [dB]	Height [cm]	Angle [deg]
1 777.555	V	64.4	-10.3	54.1	74.0	19.9	108.0	2.5
1 993.988	H	58.5	-8.4	50.1	74.0	23.9	108.0	36.4
1 993.988	V	61.7	-8.4	53.3	74.0	20.7	108.0	351.6
2 058.116	H	58.3	-8.4	49.9	74.0	24.1	108.0	7.0
2 547.094	V	58.5	-5.9	52.6	74.0	21.4	108.0	10.3
2 555.110	H	59.5	-5.9	53.6	74.0	20.4	108.0	334.9

Average Measurement

Frequency [MHz]	POL	Reading AV [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Limit [dB(uV/m)]	Margin AV [dB]	Height [cm]	Angle [deg]
1 793.788	V	44.7	-10.2	34.5	54.0	19.5	108.0	336.9
1 994.830	V	48.3	-8.4	39.9	54.0	14.1	108.0	45.9
1 994.831	H	45.7	-8.4	37.3	54.0	16.7	108.0	39.4
2 049.018	H	36.2	-8.4	27.8	54.0	26.2	108.0	36.9
2 507.695	V	36.1	-6.3	29.8	54.0	24.2	108.0	42.4

Note1) Representative operating modes were selected by customer and any emissions that do NOT exceed Average limit were not tested with average detector mode.

Note2) Receiving antenna polarization : Horizontal and Vertical

Level P K(Peak) = Reading PK(Peak) + Factor(Antenna Factor + Cable Loss - Amp. Gain)

Level AV (Average) = Reading AV (Average) + Factor(Antenna Factor + Cable Loss - Amp. Gain)

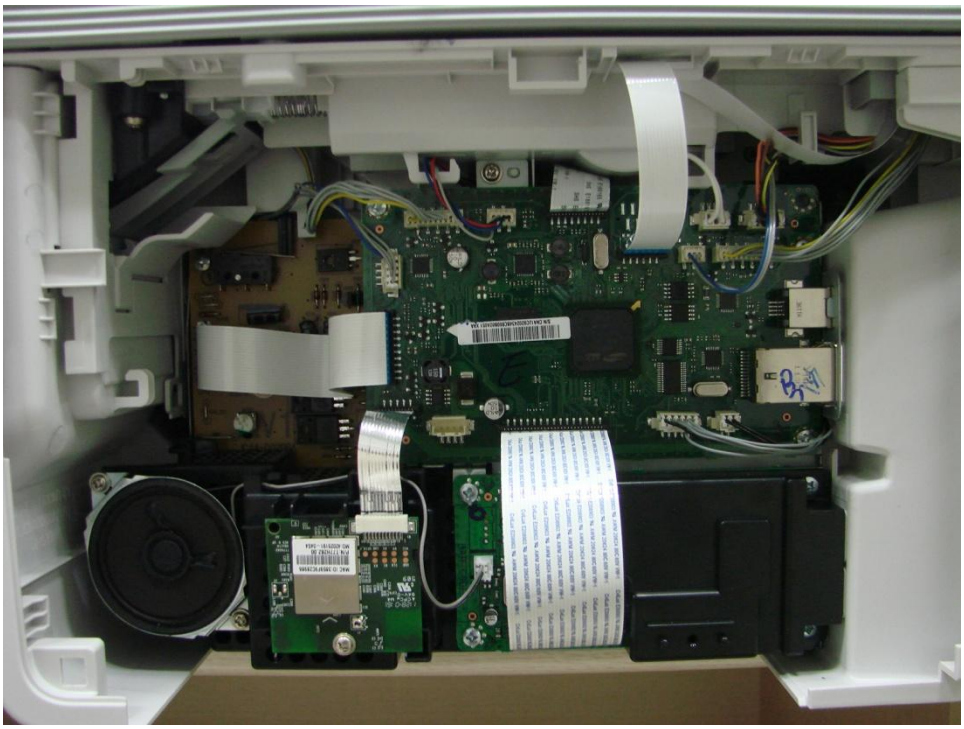
Margin PK (Peak) = Limit – Level PK (Peak)

Margin AV (Average) = Limit – Level AV (Average)

Appendix – EUT photography

Front View

Rear View with label location



inside View

Label