

EMC TEST REPORT

Project No.	LBE20133259	Issue No.	0
Applicant	Name of organization	Samsung Electronics Co., Ltd.	
	Address	(Maetan dong) 129, Samsung-ro, Yeongtong-Gu, Suwon-Si, Gyeonggi-Do 443-742 Korea	
	Date of application	June 05, 2013	
EUT	Type of device	Class B personal computers and peripherals	
	Equipment authorization	☐ Declaration of Conformity ☒ Certification ☐ Verification	
	FCC ID	A3LSLM4075FX	
	Kind of product	Mono Laser Printer	
	Model No.	ProXpress M4070FX	
	Variant Model No.	ProXpress M4075FX	
	Manufacturer	1) Samsung Electronics (Shandong) Digital Printing Co., Ltd. Samsung Road, Weihai Hi-Tech. IDZ, Weihai City, Shandong Province, China 2) Weihai Xinxing Digital Electronics Co., Ltd. 98, Jinzhou Road, Weihai Hi-Tech Industries Development Zone 3) Intops (Weihai) Electronics Company Ltd. No.268-1, Keji Road, Weihai Hi-tech IDZ, Shandong Province, P.R.China 4) Samsung Electronics Suzhou Computer Co., Ltd. 318 Fangzhou Road, Suzhou Industrial Park, Jiangsu Province, China	
Applied Standards		FCC Part 15, Subpart B / ANSI C63.4-2009	
Test Period		June 05, 2013 ~ June 24, 2013	
Issue date		July 17, 2013	
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-Man Lee 		Reviewed by : Tae Young Jang 	
The test results in this report only apply to the tested sample. This report must not be reproduced, except in full, without written permission from CS & Environment center.			
 (Maetan dong) 129, Samsung-ro, Yeongtong-Gu, Suwon-Si, Gyeonggi-Do 443-742 Korea Tel: 82 31 277 7752, Fax: 82 31 277 7753			

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

1.2.2 Radiated disturbance (at 100 MHz)

- Class B limit = 30 dB μ V/m at 10 m
- Level (20 dB μ V/m)
= Meter Reading (40 dB μ V) + factor (- 20 dB (1/m), antenna factor + cable loss – amplifier gain)
- Margin (10 dB) = Limit (30 dB μ V/m) – Level (20 dB μ V/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 (Class B)	Complied
☒	Radiated Disturbance		Complied

3. General Information

3.1 Test facility

The CS & Environment center is located on Samsung Electronics Co., Ltd. at (Maetan dong) 129, Samsung-ro, Yeongtong-Gu, Suwon-Si, Gyeonggi-Do 443-742 Korea. All testing is 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.

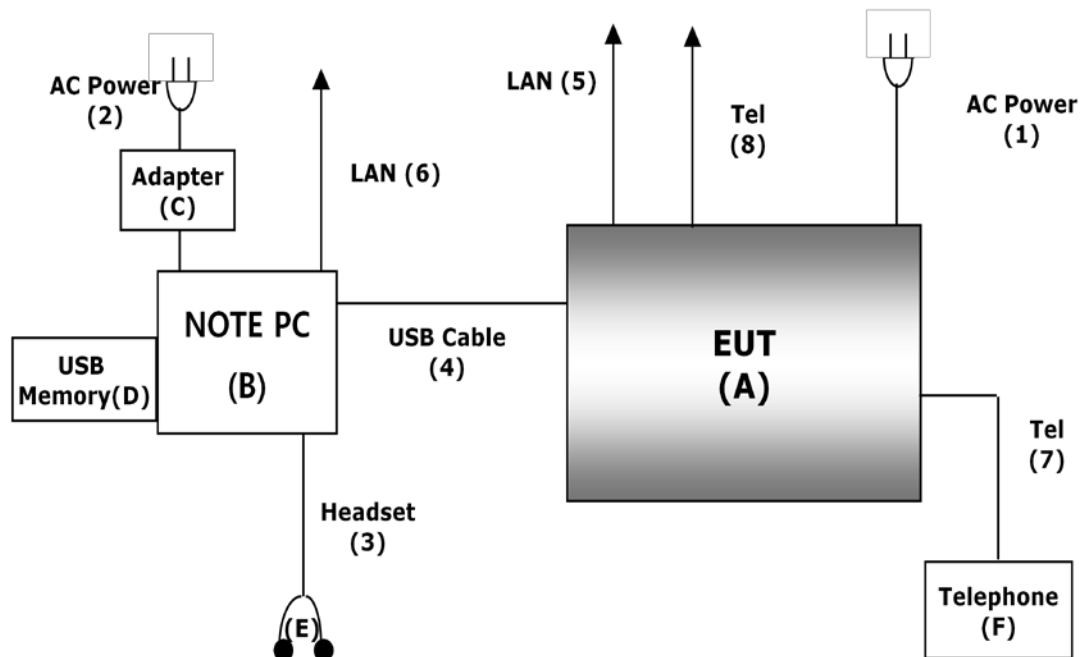
The following is a listing of the EUT and peripherals utilized during the performance of EMC test:

Seq	Description	Model No.	Serial No.	Manufacturer	Fcc ID / DoC
A	MONO LASER MFP	ProXpress M4070FX	-	Samsung	A3LSLM4075FX
B	Note PC	P10	D51491FW30032	SAMSUNG	DoC
C	Adapter	AD-6019R	CNBA4400242ADON81CN0H8G	DELL	-
D	USB Memory	Cruzer 4GB	-	Sandisk	DoC
E	Headset	COV903	-	COSY	DoC
F	Telephone	SP-F118R	B22H405215	Samsung	DoC

4.1.2 Test cables

No.	Connected cable	Length [m]	Shielded [Y/N]	Note
1	Power	1.0	No	For EUT
2	Power	1.8	No	For PC
3	USB	1.8	Yes	From EUT to PC
4	Audio	1.8	No	From PC to Headset
5	LAN	2.0	No	From EUT to HUB
6	LAN	2.0	No	From PC to HUB
7	TEL	3.0	No	From EUT to keyphone system
8	TEL	2.0	No	From EUT to telephones

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	Standby
Operating Mode 2	P2USB Printing
Operating Mode 3	RADF Copy
Operating Mode 4	Fax Tx

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	23.689
CPU Internal	1 000	DDR3	660
USB device	12	ETHERNET	25

4.5 EUT Description

The following features describe EUT represented by this report:

Item	Specification and Description
Processor	Chorus4N (1GHz)
Standard System memory	1GB DDR3 on all configurations (default)
Resolution	Pseudo 1200 dpi
Speed	Xpress M407*** series 40ppm
Paper Handling	Paper Tray(standard) 250 Sheets SCF Tray(option) 520 Sheets MP Tray 1 Sheet (33ppm) MP Tray 50 Sheets (38ppm, 40ppm)
Power Rating	120VAC , 3. 5A, 5 0/60 Hz
Power Consumption	Power save mode : 3.5 Watts Stand by mode : 50 Watts Printing simplex : 700 Watts
Printer Language	SPL,PCL6,PS3,PCL5e, IBM Proprint, EPSON, KS, KSSM, PDF V1.7
Interfaces	USB2.0, Ethernet 10/100/1000 Base TX
OS compatibility	Window XP (32/64 bit) / 2003 Server (32/64 bit) / Vista (32/64 bit) / 2008 server (32/64 bit) / 7 (32/64 bit) / 2008 Server R2 / 8 (32/64bit) Linux : RedHat Enterprise Linux WS 4, 5, 6 (32/64 bit) / Fedora 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 (32/64 bit) / OpenSuSE 10.2, 10.3, 11.0, 11.1, 11.2, 11.3, 11.4 (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, 10.10, 11.04 (32/64 bit) / SuSE Linux Enterprise Desktop 10, 11 (32/64 bit) / Debian 4.0, 5.0, 6.0 (32/64 bit) UNIX : Sun Solaris 9,10,11 (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, 6.1, .7.1 (PowerPC) Mac OS : X10.5~10.8 Citrix Presentation Server Windows Terminal Services
Modes of Operation	USB Printing, Network Printing , WI-FI Printing

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

Three different types of SMPS, SHANDONG NEW COWITEL, Dong yang were applied during testing. Each SMPS was installed for testing, tested and reported.

- Configuration 1 : Dong yang SMPS was applied.
- Configuration 2 : LITEON SMPS was applied.

- Test Voltage : AC 120 V, 60 Hz

Item	Model Name	P/N	Manufacturer
Main Board	Falcon	JC92-02620A	PIOTEK,BTI
SMPS	RAINIER-V2	JC44-00097E	DONG YANG E&P
	RAINIER-V2	JC44-00097E	LITEON
HVPS	MAGPIE	JC44-00197A	DONG YANG E&P
	MAGPIE	JC44-00197A	WEISUN

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	3.23 dB
Radiated Disturbance (Below 1 GHz)	Horizontal	3.98 dB
	Vertical	4.70 dB
Radiated Disturbance (Above 1 GHz)	Horizontal	3.46 dB
	Vertical	3.51 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 dB μ V	
		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	Model name	Manufacturer	Serial or Firmware (No./Ver.)	Calibration	
				Date	Interval (Month)
Test Receiver	ESIB26	R&S	100287	2013-05-06	12
Two-Line V-Network	ENV216	R&S	100116	2012-10-31	12
Two-Line V-Network	ESH3-Z5	R&S	100262	2012-09-26	12
Test Software	EMC32	R&S	Ver 5.20.2	-	-

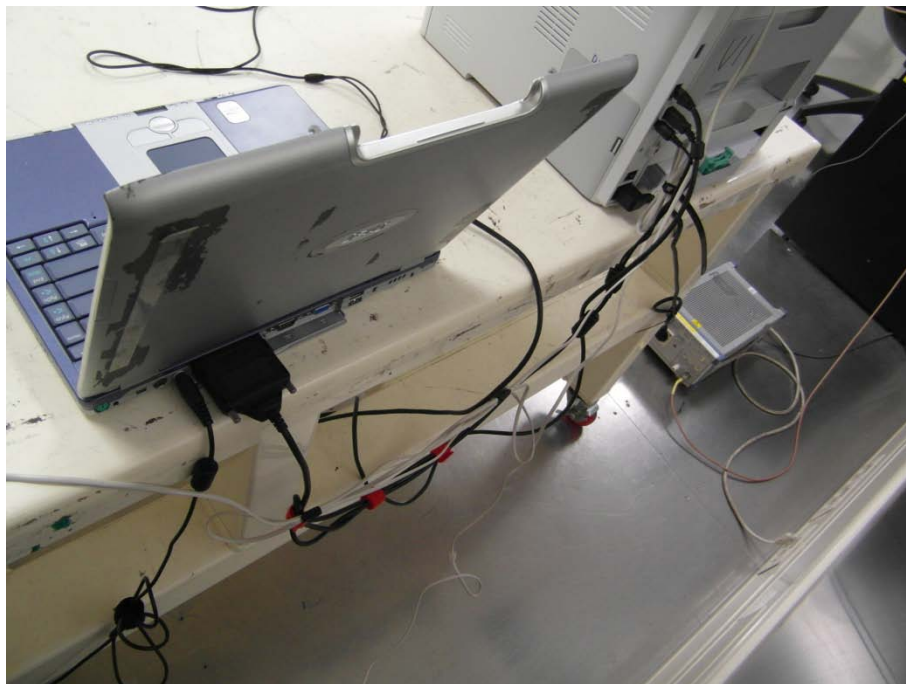
5.1.2 Temperature and humidity condition

Test date	June 24, 2013	Test engineer		Young-Man Lee	
Climate condition	Ambient temperature	24.5 °C	Relative humidity		23 %
	Atmospheric pressure	101.2 kPa			
Test place	Shielded Room #1				

5.1.3 Photograph of Test Setup



Front



Rear

5.1.4 Test results (mains port)

- Configuration 1 : Standby

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

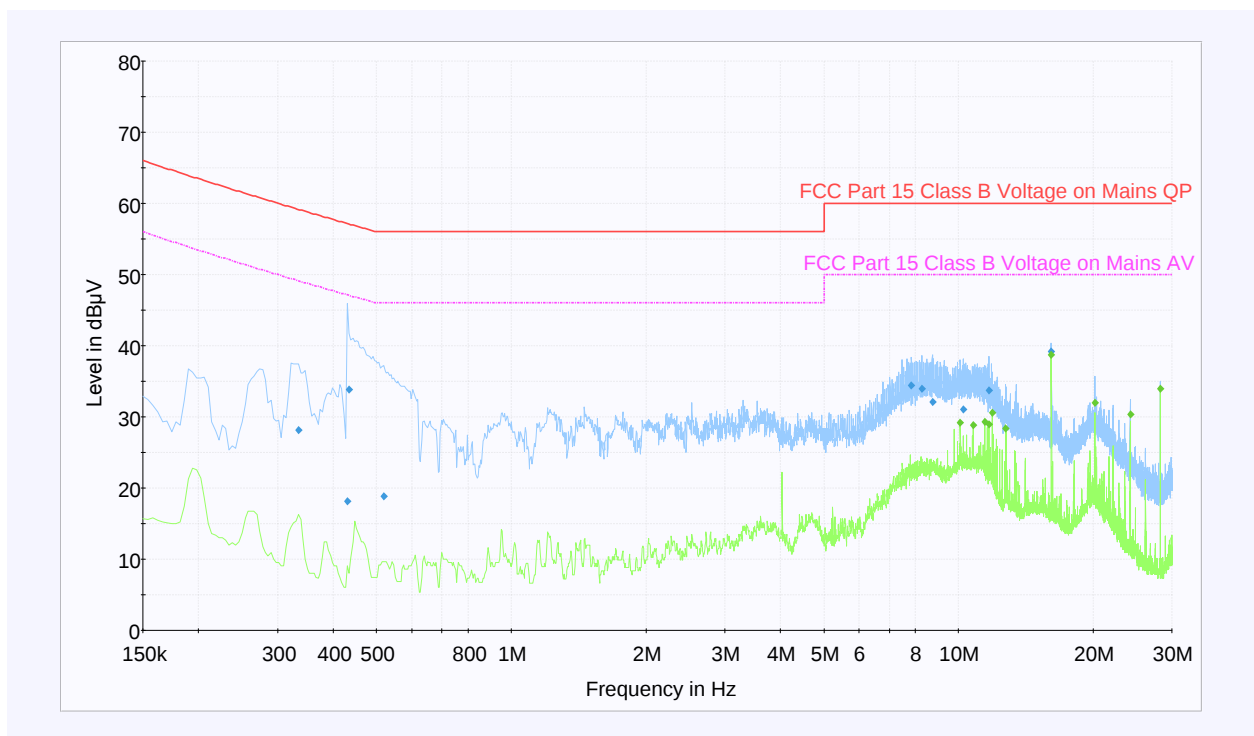
Scan Setup: EN55022_B_ENV 2-Line-LISN fin [EMI conducted]

Hardware Setup: Voltage with ENV 2-Line-LISN

Level Unit: dB μ V

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 (dB μ V)	Line	Factor (dB)	Margin (dB)	Limit (dB μ V)
0.334	28.2	L1	10.1	31.0	59.2
0.430	18.1	N	10.1	39.1	57.2
0.434	33.8	N	10.1	23.3	57.1
0.518	18.9	L1	10.1	37.1	56.0
7.848	34.4	L1	9.9	25.6	60.0
8.292	33.9	N	9.9	26.1	60.0
8.736	32.1	N	9.9	27.9	60.0
10.256	31.0	N	10.0	29.0	60.0
11.708	33.7	N	10.1	26.3	60.0
16.128	39.2	N	10.2	20.8	60.0

Average final measurement results table

Frequency (MHz)	Average (dB μ V)	Line	Factor (dB)	Margin (dB)	Limit (dB μ V)
10.092	29.2	L1	10.0	20.8	50.0
10.796	28.8	L1	10.0	21.2	50.0
11.464	29.3	L1	10.0	20.7	50.0
11.708	29.0	N	10.1	21.0	50.0
11.892	30.5	N	10.1	19.5	50.0
12.748	28.4	L1	10.1	21.6	50.0
16.128	38.7	N	10.2	11.3	50.0
20.16	32.0	N	10.3	18.0	50.0
24.192	30.3	N	10.5	19.7	50.0
28.224	34.0	N	10.6	16.0	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)

- Configuration 1 : P2USB Printing

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

Subrange 1

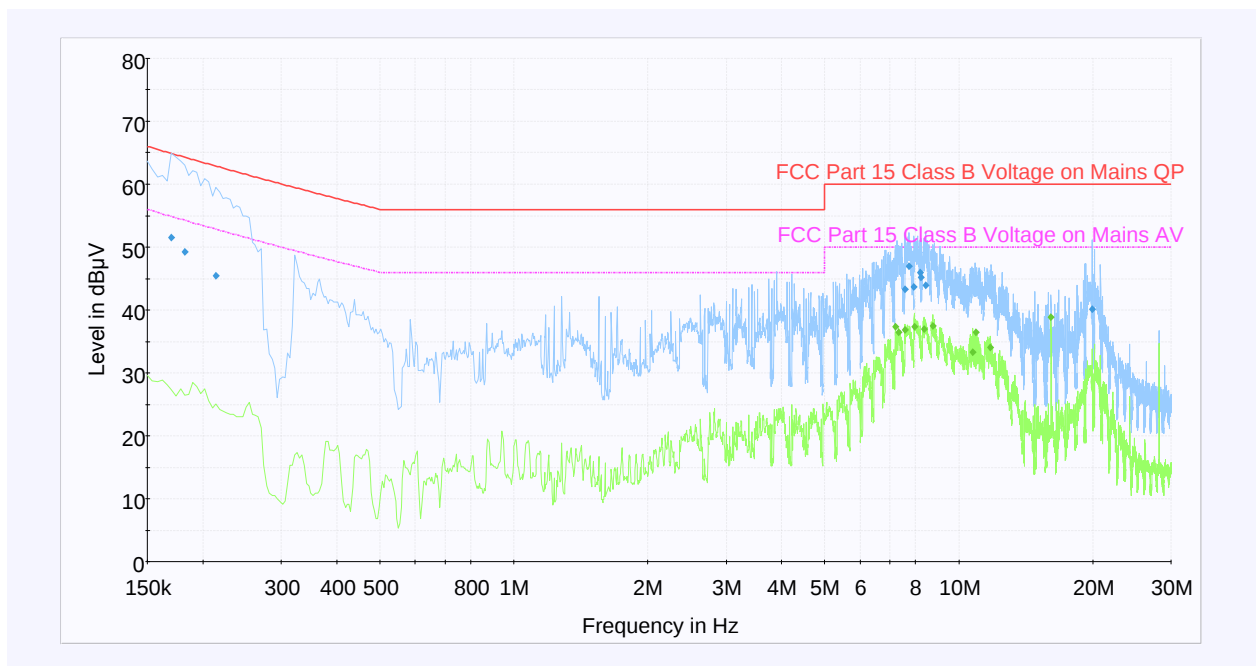
Frequency Range: 150 kHz – 30 MHz
Receiver: ESIB 26
Transducer: ENV216 / Receiver-2-Line-LISN ENV216

Scan Setup: EN55022_B_ENV 2-Line-LISN fin [EMI conducted]

Hardware Setup: Voltage with ENV 2-Line-LISN
Level Unit: dB μ V

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 (dB μ V)	Line	Factor (dB)	Margin (dB)	Limit (dB μ V)
0.170	51.5	N	10.3	13.4	64.9
0.182	49.2	N	10.1	15.1	64.3
0.214	45.5	N	9.9	17.4	62.9
7.564	43.3	N	9.9	16.7	60.0
7.736	47.0	L1	9.9	13.0	60.0
7.936	43.7	L1	10.0	16.3	60.0
8.188	46.0	L1	9.9	14.0	60.0
8.236	45.2	L1	9.9	14.8	60.0
8.432	43.9	L1	9.9	16.1	60.0
19.948	40.1	N	10.4	19.9	60.0

Average final measurement results table

Frequency (MHz)	Average (dB μ V)	Line	Factor (dB)	Margin (dB)	Limit (dB μ V)
7.192	37.3	L1	9.9	12.7	50.0
7.328	36.4	L1	9.9	13.6	50.0
7.564	36.8	L1	9.9	13.2	50.0
7.940	37.3	L1	10.0	12.7	50.0
8.340	37.0	N	9.9	13.0	50.0
8.744	37.4	N	9.9	12.6	50.0
10.760	33.3	N	10.0	16.7	50.0
10.924	36.4	N	10.0	13.6	50.0
11.768	34.1	N	10.1	15.9	50.0
16.128	38.9	N	10.2	11.1	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)

- Configuration 1 : RADF Copy

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

Subrange 1

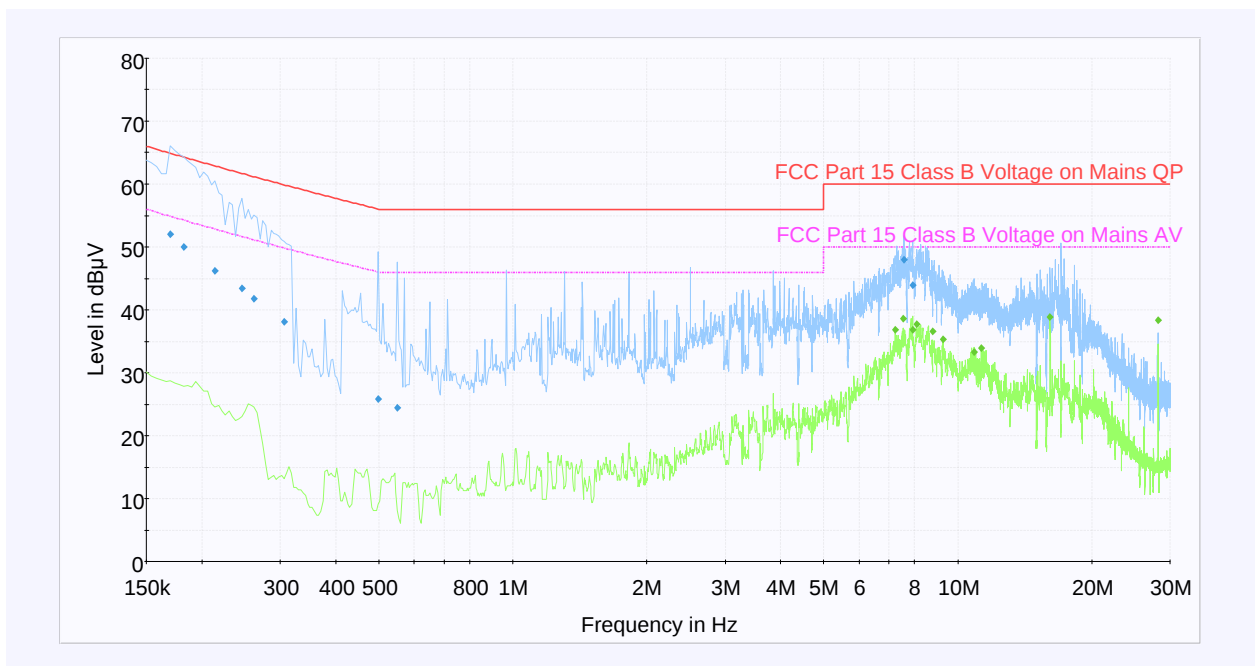
Frequency Range: 150 kHz – 30 MHz
Receiver: ESIB 26
Transducer: ENV216 / Receiver-2-Line-LISN ENV216

Scan Setup: EN55022_B_ENV 2-Line-LISN fin [EMI conducted]

Hardware Setup: Voltage with ENV 2-Line-LISN
Level Unit: dB μ V

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 (dB μ V)	Line	Factor (dB)	Margin (dB)	Limit (dB μ V)
0.170	52.1	N	10.3	12.8	64.9
0.182	50.0	N	10.1	14.3	64.3
0.214	46.2	N	9.9	16.7	62.9
0.246	43.4	L1	10.0	18.3	61.7
0.262	41.7	L1	10.0	19.5	61.2
0.306	38.1	L1	10.0	21.8	59.9
0.498	25.8	L1	10.1	30.2	56.0
0.550	24.4	N	10.1	31.6	56.0
7.572	48.0	N	9.9	12.0	60.0
7.908	43.9	N	9.9	16.1	60.0

Average final measurement results table

Frequency (MHz)	Average (dB μ V)	Line	Factor (dB)	Margin (dB)	Limit (dB μ V)
7.232	36.8	N	9.9	13.2	50.0
7.536	38.5	N	9.9	11.5	50.0
7.908	36.8	L1	9.9	13.2	50.0
8.072	37.7	L1	9.9	12.3	50.0
8.792	36.5	L1	9.9	13.5	50.0
9.264	35.4	L1	10.0	14.6	50.0
10.880	33.3	L1	10.0	16.7	50.0
11.308	34.0	L1	10.0	16.0	50.0
16.128	38.9	N	10.2	11.1	50.0
28.224	38.3	N	10.6	11.7	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)

- Configuration 1 : Fax Tx

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

Subrange 1

Frequency Range: 150 kHz – 30 MHz

Receiver: ESIB 26

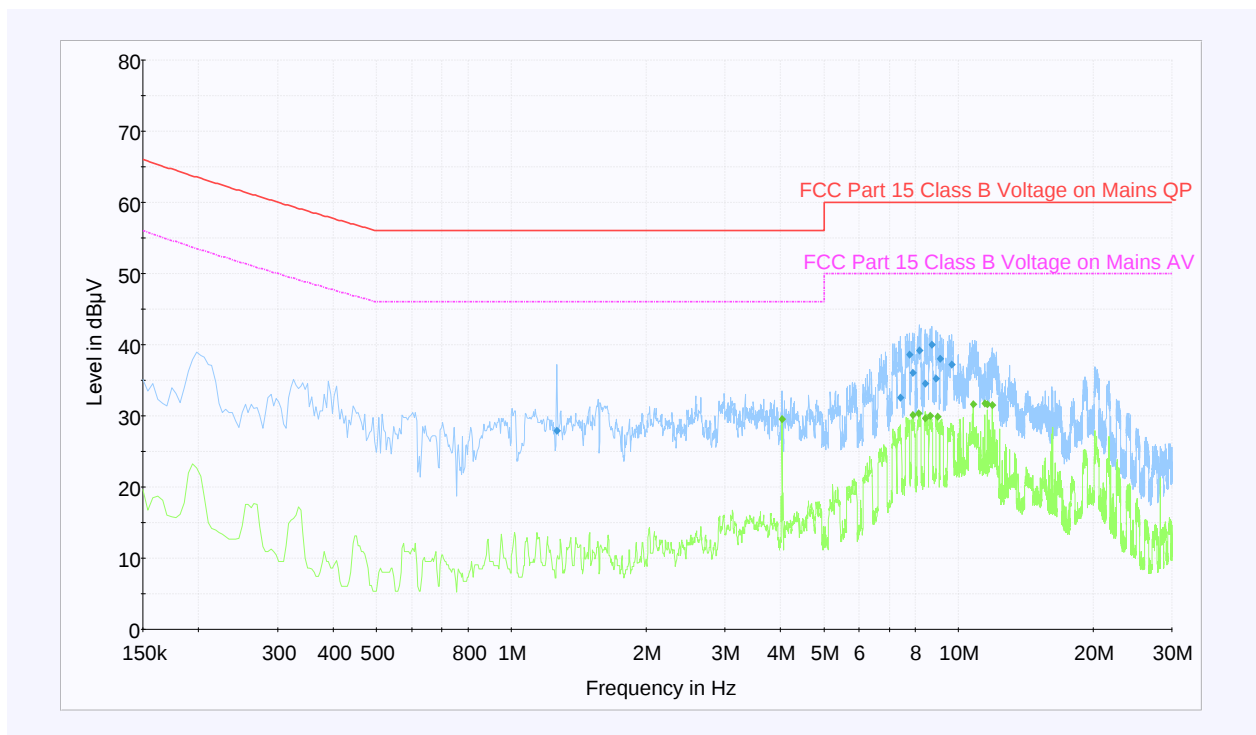
Transducer: ENV216 / Receiver-2-Line-LISN ENV216

Scan Setup: EN55022_B_ENV 2-Line-LISN fin [EMI conducted]

Hardware Setup: Voltage with ENV 2-Line-LISN

Level Unit: dB μ V

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 (dB μ V)	Line	Factor (dB)	Margin (dB)	Limit (dB μ V)
1.264	27.9	L1	9.9	28.1	56.0
7.416	32.6	N	9.9	27.4	60.0
7.752	38.6	L1	9.9	21.4	60.0
7.892	36.0	N	9.9	24.0	60.0
8.160	39.2	N	9.9	20.8	60.0
8.436	34.5	N	9.9	25.5	60.0
8.704	40.0	L1	9.9	20.0	60.0
8.912	35.2	N	9.9	24.8	60.0
9.112	38.1	N	10.0	22.0	60.0
9.656	37.2	N	10.0	22.8	60.0

Average final measurement results table

Frequency (MHz)	Average (dB μ V)	Line	Factor (dB)	Margin (dB)	Limit (dB μ V)
4.032	29.6	N	9.8	16.4	46.0
7.888	30.1	N	9.9	19.9	50.0
8.152	30.4	L1	9.9	19.6	50.0
8.436	29.7	N	9.9	20.3	50.0
8.632	30.0	N	9.9	20.0	50.0
8.976	29.9	N	10.0	20.1	50.0
10.792	31.7	N	10.0	18.3	50.0
11.464	31.8	N	10.1	18.2	50.0
11.588	31.6	N	10.0	18.4	50.0
11.892	31.5	N	10.1	18.5	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)

- Configuration 2 : Standby

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: EN55022_B_ENV 2-Line-LISN fin [EMI conducted]

Hardware Setup: Voltage with ENV 2-Line-LISN
Level Unit: dB μ V

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 (dB μ V)	Line	Factor (dB)	Margin (dB)	Limit (dB μ V)
0.150	33.4	N	10.4	32.6	66.0
2.776	15.4	N	9.8	40.6	56.0
3.404	26.7	L1	9.8	29.3	56.0
10.376	32.6	L1	10.0	27.4	60.0
11.224	34.3	L1	10.0	25.7	60.0
13.152	35.3	L1	10.1	24.7	60.0
16.128	37.4	N	10.2	22.6	60.0
21.664	30.0	N	10.4	30.0	60.0
24.192	37.2	N	10.5	22.8	60.0
28.224	38.1	N	10.6	21.9	60.0

Average final measurement results table

Frequency (MHz)	Average (dB μ V)	Line	Factor (dB)	Margin (dB)	Limit (dB μ V)
10.872	31.3	L1	10.0	18.7	50.0
10.896	30.7	L1	10.0	19.3	50.0
10.920	30.2	L1	10.0	19.8	50.0
10.944	30.0	L1	10.0	20.0	50.0
11.036	31.7	L1	10.0	18.3	50.0
11.084	31.1	L1	10.0	18.9	50.0
13.056	30.2	L1	10.1	19.8	50.0
16.128	37.1	N	10.2	12.9	50.0
24.192	37.3	N	10.5	12.7	50.0
28.224	37.9	N	10.6	12.1	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)

- Configuration 2 : P2USB Printing

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

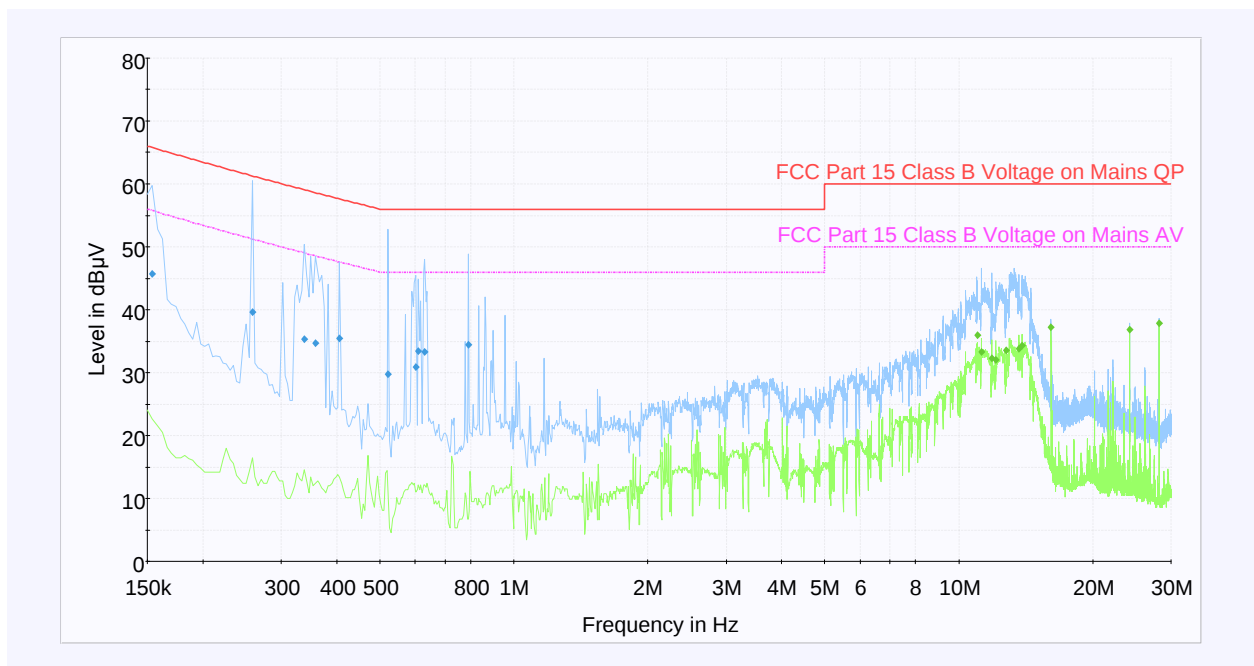
Scan Setup: EN55022_B_ENV 2-Line-LISN fin [EMI conducted]

Hardware Setup: Voltage with ENV 2-Line-LISN

Level Unit: dB μ V

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 (dB μ V)	Line	Factor (dB)	Margin (dB)	Limit (dB μ V)
0.154	45.7	L1	10.0	20.1	65.8
0.258	39.6	L1	10.0	21.7	61.3
0.338	35.3	L1	10.0	23.8	59.1
0.358	34.7	L1	10.0	23.9	58.6
0.406	35.5	L1	10.1	22.1	57.6
0.522	29.8	L1	10.1	26.2	56.0
0.602	30.9	L1	10.1	25.1	56.0
0.610	33.5	L1	10.1	22.5	56.0
0.630	33.3	N	10.1	22.7	56.0
0.790	34.4	L1	10.0	21.6	56.0

Average final measurement results table

Frequency (MHz)	Average (dB μ V)	Line	Factor (dB)	Margin (dB)	Limit (dB μ V)
11.000	35.9	L1	10.0	14.1	50.0
11.248	33.3	L1	10.0	16.7	50.0
11.880	32.3	L1	10.1	17.7	50.0
12.128	32.0	L1	10.1	18.0	50.0
12.760	33.6	L1	10.1	16.4	50.0
13.640	33.8	L1	10.1	16.2	50.0
13.888	34.3	N	10.2	15.7	50.0
16.128	37.2	N	10.2	12.8	50.0
24.192	36.8	N	10.5	13.2	50.0
28.224	37.9	N	10.6	12.1	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 dB μ V/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, $20 \log 500 = 53.979 \text{ dB} \approx 54 \text{ dB}$		

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.

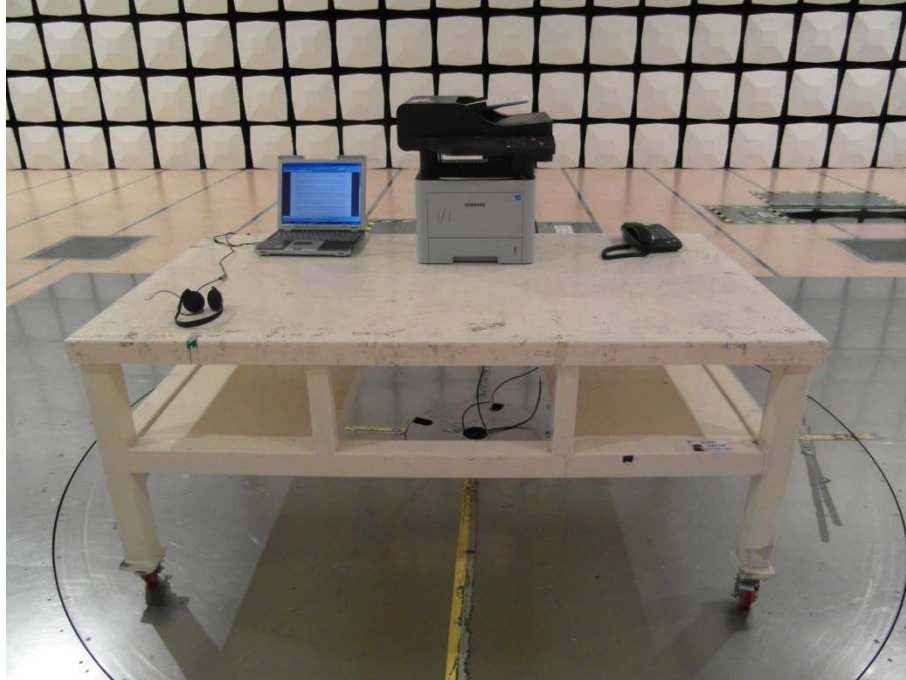
5.2.1 Test instrumentation

Test instrumentation	Model name	Manufacturer	Serial or Firmware (No./Ver.)	Calibration	
				Date	Interval (Month)
Bi-log Antenna	CBL6112D	Schaffner	22248	2012-02-16	24
Bi-log Antenna	CBL6112D	Schaffner	27627	2011-10-11	24
Horn Antenna	HF907	R&S	100016	2013-02-28	24
Test Receiver	ESCI	R&S	100086	2012-11-27	12
Test Receiver	ESCI-03	R&S	100136	2013-05-06	12
Test Receiver	ESIB 26	R&S	100147	2013-04-13	12
Amplifier	310N	Sonoma	186467	2012-11-01	12
Amplifier	310N	Sonoma	273121	2012-11-14	12
Preamplifier	SCU_F018	R&S	10049	2012-10-04	12
Antenna Mast	MA4000	INN CO	-	-	-
Antenna Mast	MA4000	INN CO	-	-	-
Antenna Mast	MA2000	INN CO	-	-	-
Mast Controller	CO2000	INN CO	-	-	-
Test software	EP5/RE	TOYO	VER 5.3.70	-	-
RF Selector	NS4900	TOYO	-	-	-

5.2.2 Temperature and humidity condition

Test date	June 05, 2013	Test engineer		Young-Man Lee	
Climate condition	Ambient temperature	25.5 ℃	Relative humidity	43.6 %	
	Atmospheric pressure	102.0 kPa			
Test place	10 m #1 Semi-Anechoic Chamber				

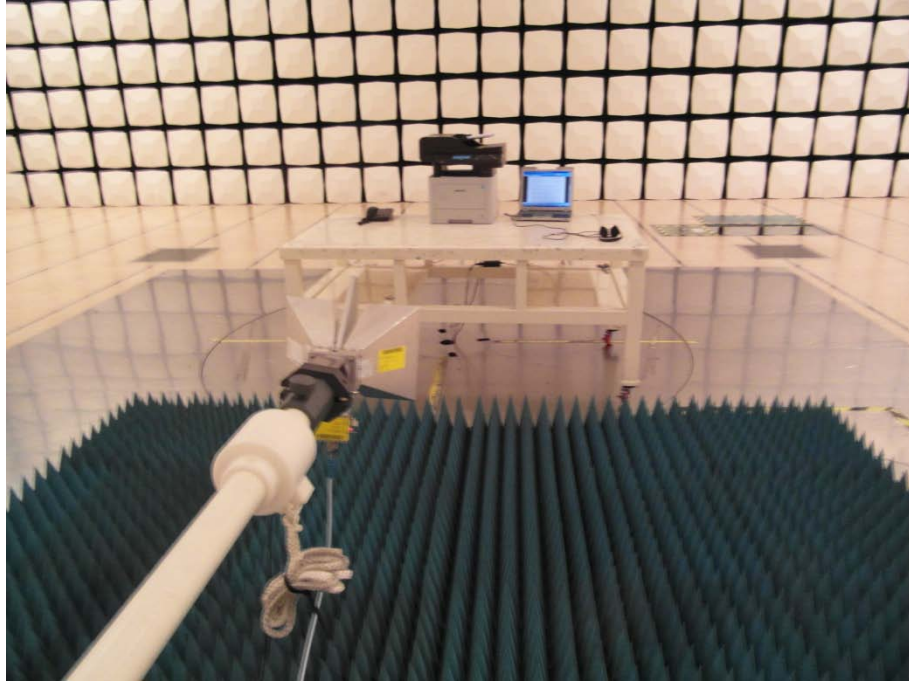
5.2.3 Photograph of Test Setup



Front (Below 1 GHz)



Rear (Below 1 GHz)



Front (above 1 GHz)



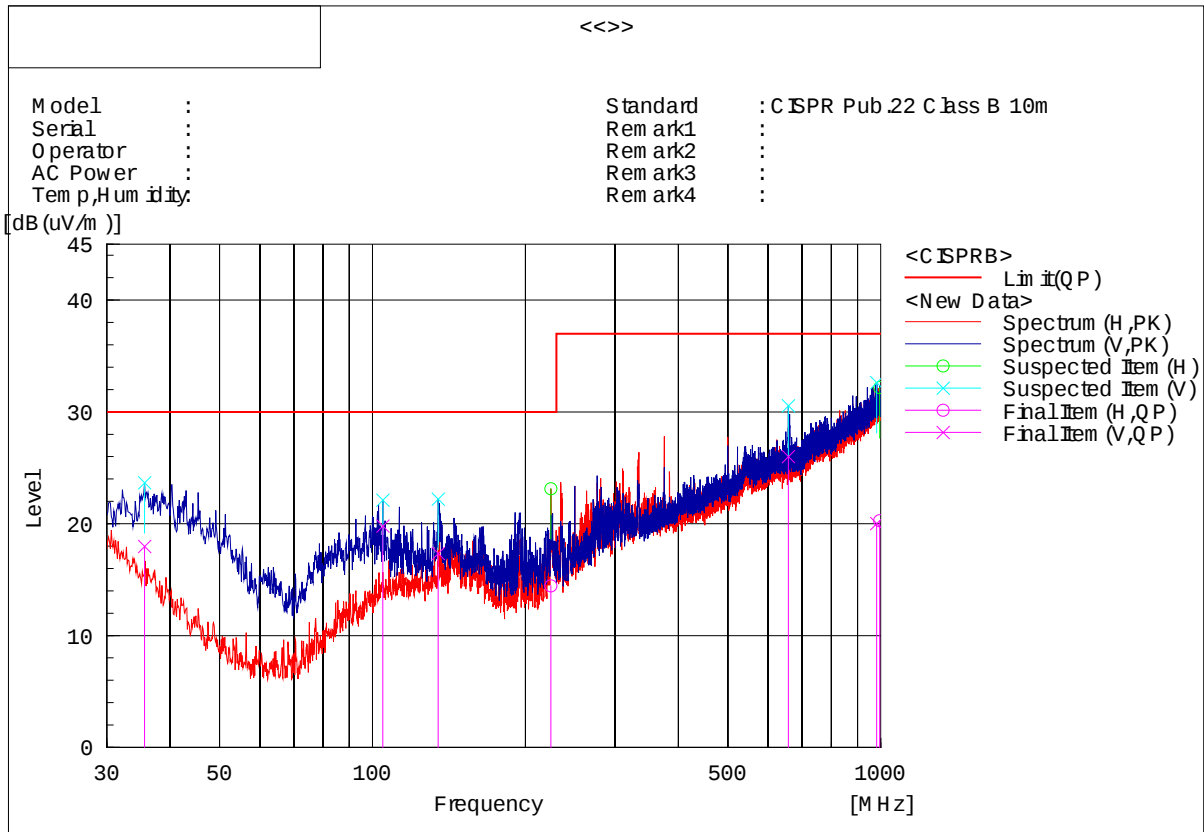
Rear (above 1 GHz)

5.2.4 Test results

5.2.4.1 30 MHz to 1 GHz test results

- Configuration 1 : Standby

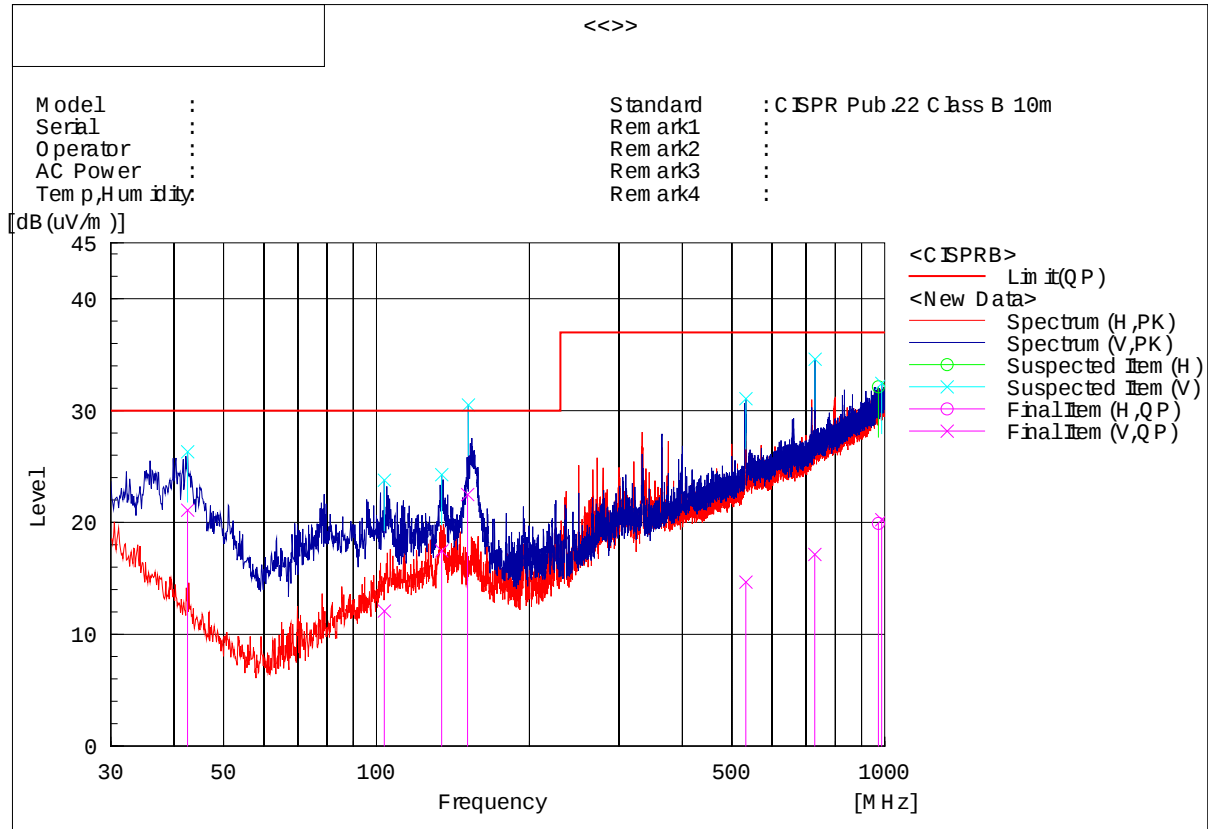
Test Graph and Results



Frequency [MHz]	Pol.	Reading QP [dB(μV)]	Factor [dB(1/m)]	Level QP [dB(μV /m)]	Limit [dB(μV /m)]	Margin QP [dB]	Height [cm]	Angle [deg]
35.578	V	33.7	-15.7	18.0	30.0	12.0	198	311.9
104.811	V	37.7	-17.9	19.8	30.0	10.2	198	354.5
134.639	V	34.4	-17.0	17.4	30.0	12.6	100	332.6
224.485	H	33.5	-19.1	14.4	30.0	15.6	398	223.3
657.954	V	32.4	-6.4	26.0	37.0	11.0	300	66.4
981.449	V	21.1	-1.1	20.0	37.0	17.0	400	7.5
995.756	H	21.4	-1.1	20.3	37.0	16.7	198	109.6

- Configuration 1 : P2USB Printing

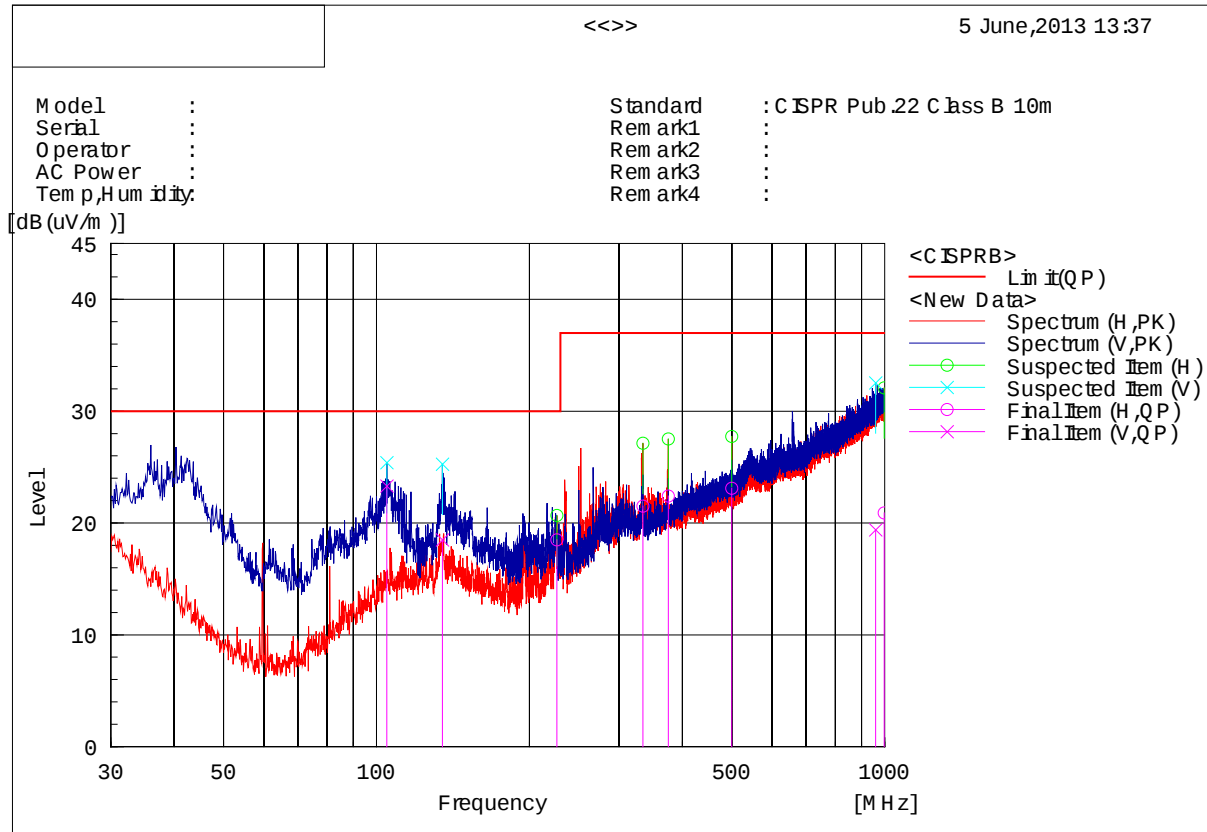
Test Graph and Results



Frequency [MHz]	Pol.	Reading QP [dB(μV)]	Factor [dB(1/m)]	Level QP [dB(μV /m)]	Limit [dB(μV /m)]	Margin QP [dB]	Height [cm]	Angle [deg]
42.489	V	40.2	-19.1	21.1	30.0	8.9	100	293.3
103.599	V	30.1	-18.0	12.1	30.0	17.9	100	10.8
134.275	V	34.5	-17.0	17.5	30.0	12.5	100	293.2
151.035	V	40.8	-18.3	22.5	30.0	7.5	108	300.4
533.188	V	22.3	-7.6	14.7	37.0	22.3	300	103.9
728.146	V	22.1	-5.0	17.1	37.0	19.9	215	195.6
971.749	H	21.4	-1.5	19.9	37.0	17.1	200	2.8
986.541	V	21.2	-1.0	20.2	37.0	16.8	300	273

- Configuration 1 : RADF Copy

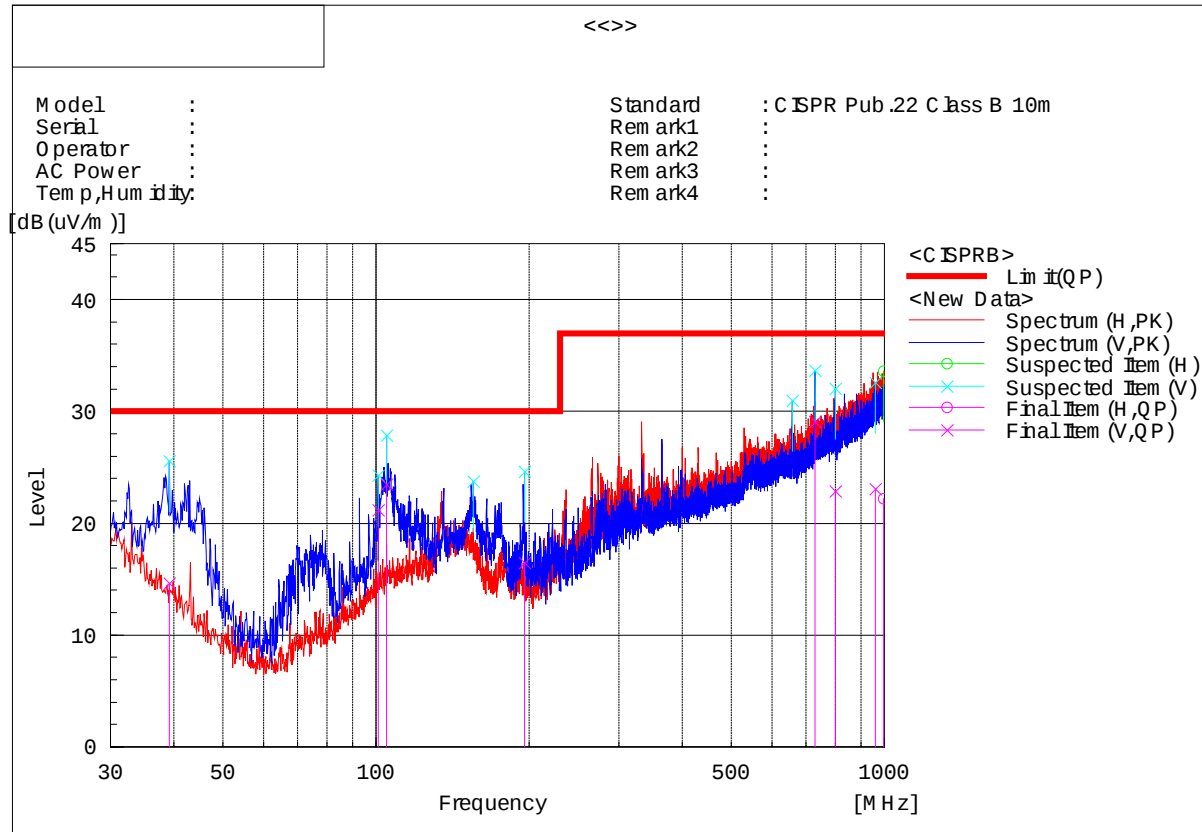
Test Graph and Results



Frequency [MHz]	Pol.	Reading QP [dB(μV)]	Factor [dB(1/m)]	Level QP [dB(μV /m)]	Limit [dB(μV /m)]	Margin QP [dB]	Height [cm]	Angle [deg]
104.811	V	41.2	-17.9	23.3	30.0	6.7	200	293.0
134.760	V	35.5	-17.0	18.5	30.0	11.5	100	198.4
226.304	H	37.4	-18.9	18.5	30.0	11.5	299	260.3
334.216	H	35.4	-13.9	21.5	37.0	15.5	299	203.3
374.956	H	34.8	-12.4	22.4	37.0	14.6	201	173.6
499.965	H	32.5	-9.4	23.1	37.0	13.9	201	60.4
960.109	V	21.0	-1.6	19.4	37.0	17.6	299	5.2
998.181	H	22.0	-1.1	20.9	37.0	16.1	201	79.2

- Configuration 1 : Fax Tx

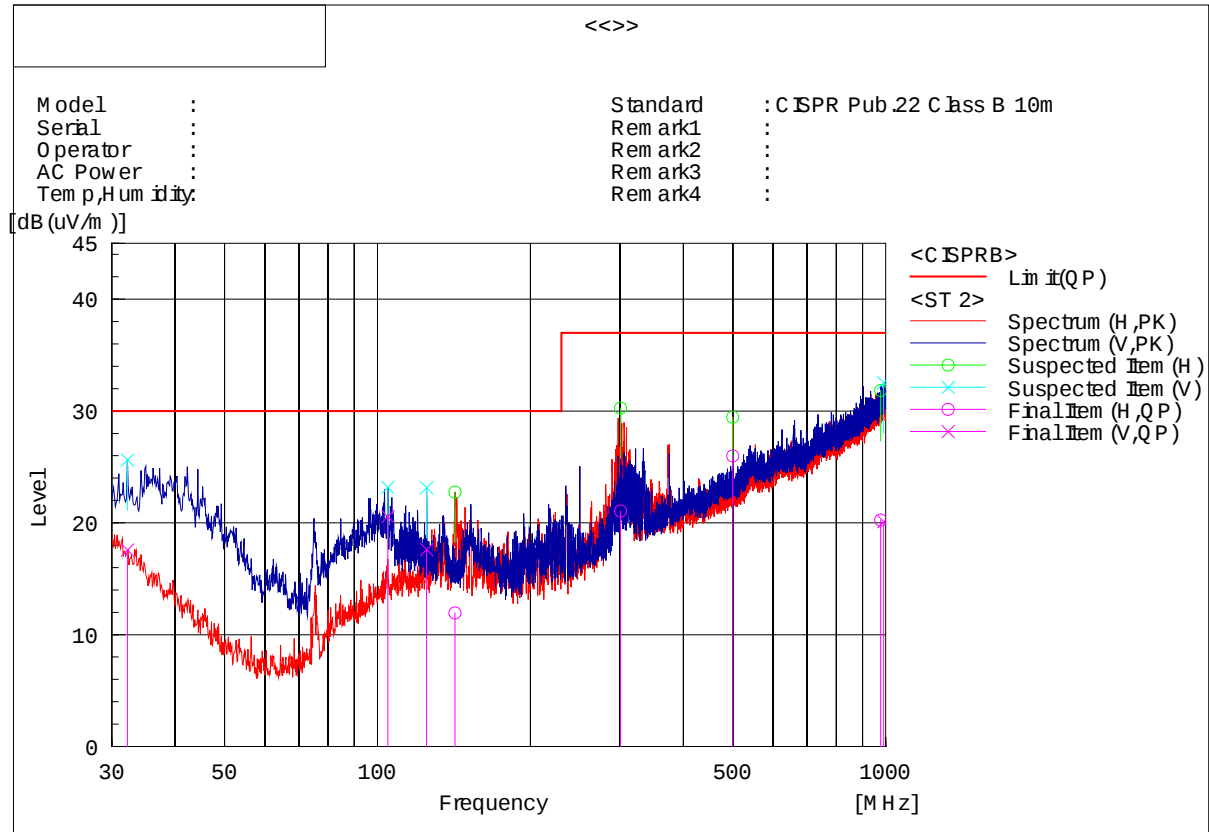
Test Graph and Results



Frequency [MHz]	Pol.	Reading QP [dB(μV)]	Factor [dB(1/m)]	Level QP [dB(μV /m)]	Limit [dB(μV /m)]	Margin QP [dB]	Height [cm]	Angle [deg]
39.215	V	32.2	-17.5	14.7	30.0	15.3	100	350.2
100.81	V	39.5	-18.3	21.2	30.0	8.8	100	353.1
104.793	V	41.3	-17.8	23.5	30.0	6.5	107	356.9
195.628	V	35.5	-19.0	16.5	30.0	13.5	100	16.8
729.006	V	34.1	-5.1	29.0	37.0	8.0	197	106.3
799.816	V	27.4	-4.5	22.9	37.0	14.1	199	3.8
960.109	V	24.4	-1.3	23.1	37.0	13.9	298	13.2
996.969	H	21.7	0.5	22.2	37.0	14.8	100	63.2

- Configuration 2 : Standby

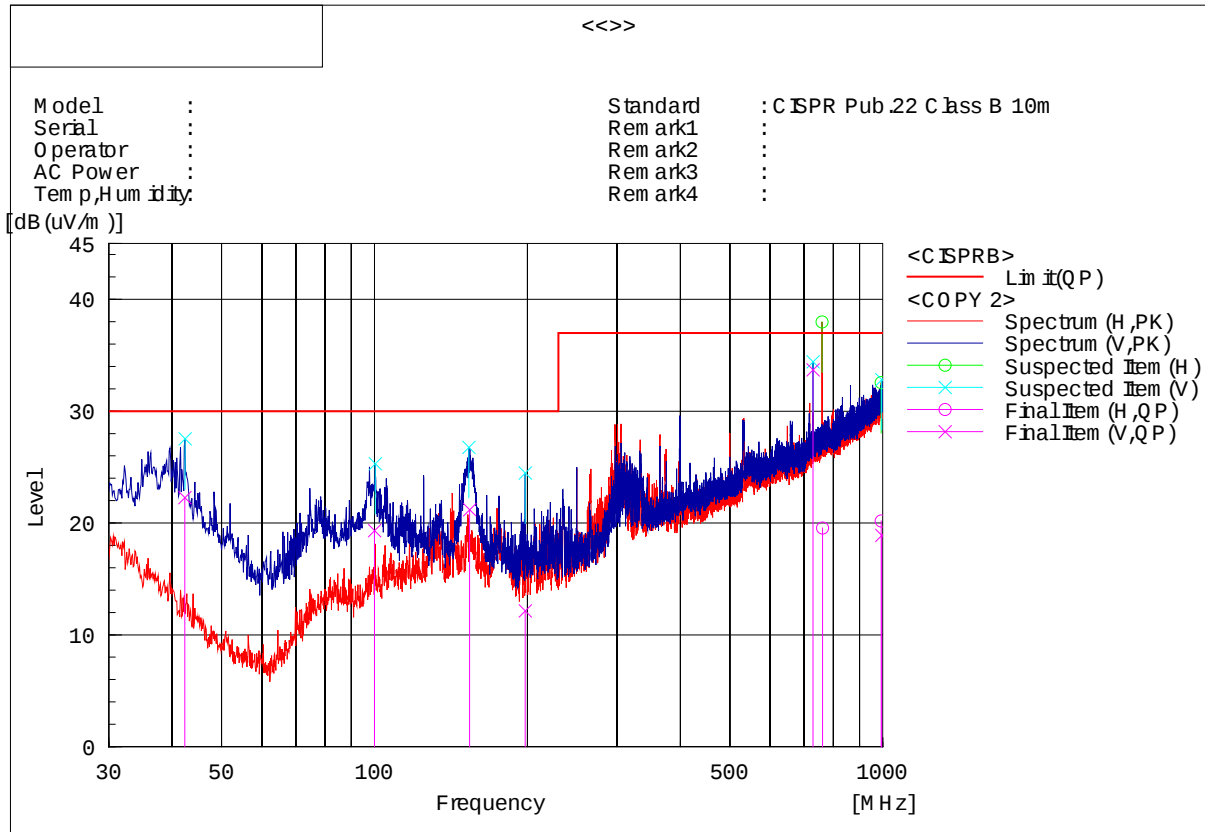
Test Graph and Results



Frequency [MHz]	Pol.	Reading QP [dB(μV)]	Factor [dB(1/m)]	Level QP [dB(μV/m)]	Limit [dB(μV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
32.183	V	31.3	-13.7	17.6	30.0	12.4	200	105.3
104.811	V	38.5	-17.9	20.6	30.0	9.4	100	84.3
124.939	V	34.3	-16.7	17.6	30.0	12.4	100	293.4
142.035	H	30.2	-18.2	12.0	30.0	18.0	299	285.6
300.873	H	35.8	-14.7	21.1	37.0	15.9	299	268.1
499.965	H	35.4	-9.4	26.0	37.0	11.0	101	40.3
976.962	H	21.3	-1.1	20.2	37.0	16.8	299	42.5
990.664	V	21.1	-1	20.1	37.0	16.9	302	351

- Configuration 2 : P2USB Printing

Test Graph and Results



Frequency [MHz]	Pol.	Reading QP [dB(μV)]	Factor [dB(1/m)]	Level QP [dB(μV /m)]	Limit [dB(μV /m)]	Margin QP [dB]	Height [cm]	Angle [deg]
42.314	V	41.3	-19.0	22.3	30.0	7.7	100	2.2
99.978	V	37.6	-18.3	19.3	30.0	10.7	100	43.2
153.818	V	39.6	-18.4	21.2	30.0	8.8	112	90.5
197.810	V	31.3	-19.1	12.2	30.0	17.8	100	331.8
728.979	V	38.6	-4.9	33.7	37.0	3.3	209	43.0
761.776	H	24.5	-5.0	19.5	37.0	17.5	365	131.3
992.725	H	21.4	-1.2	20.2	37.0	16.8	302	241.7
995.877	V	19.7	-0.8	18.9	37.0	18.1	198	4.0

Note) Receiving antenna polarization : Horizontal and/or Vertical

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

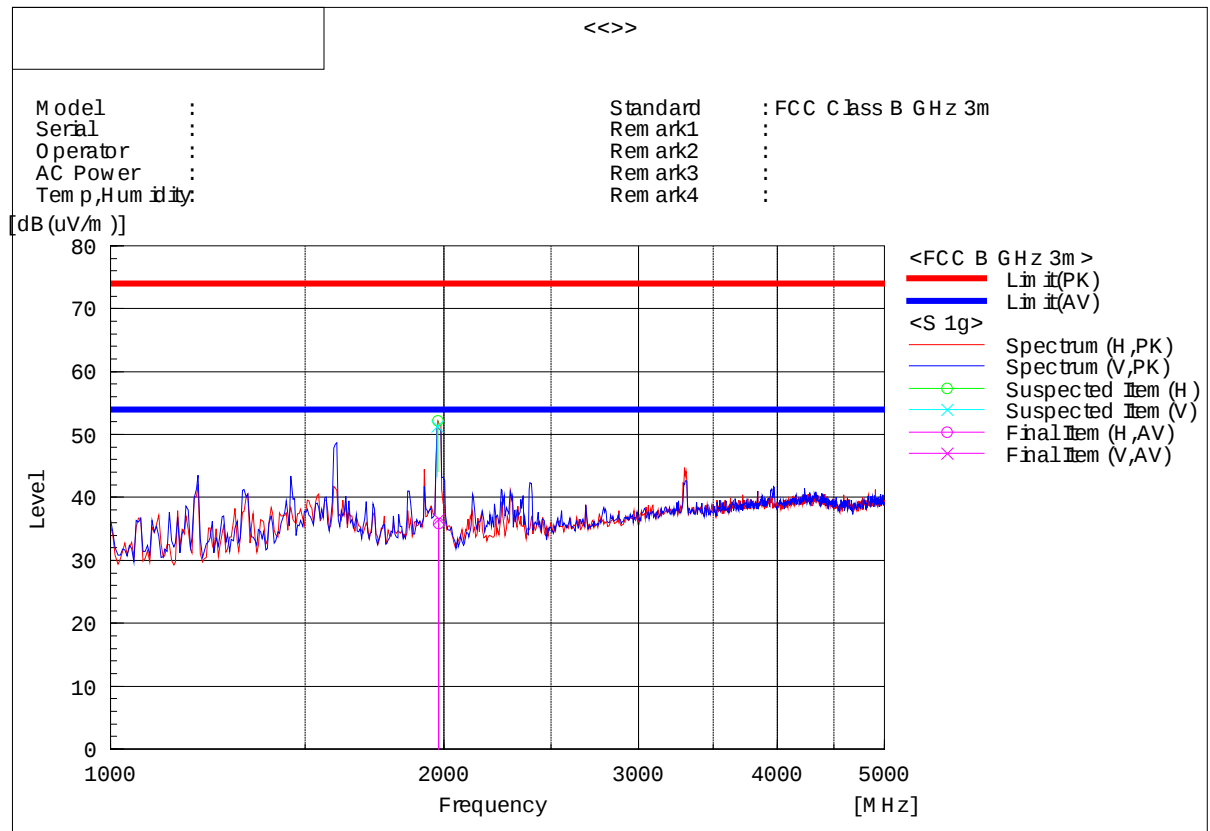
Level QP (Quasi-Peak) = Reading QP + Factor (Antenna Factor + Cable Loss - Amp. Gain)

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

5.2.4.2 1 GHz to 5 GHz test results

- Configuration 1 : Standby

Test Results



Peak Measurement

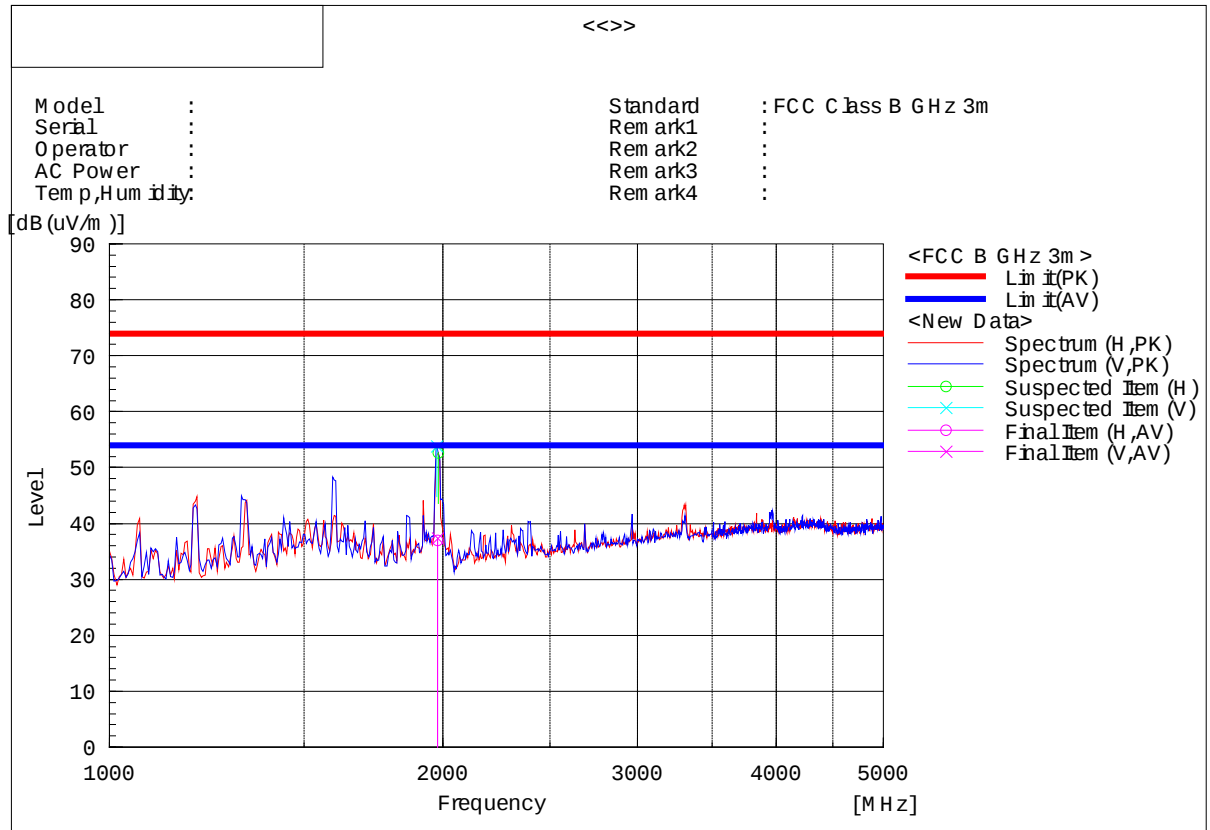
Frequency [MHz]	POL	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level PK [dB(uV/m)]	Limit [dB(uV/m)]	Margin PK [dB]	Height [cm]	Angle [deg]
1 971.944	V	53.8	-2.4	51.4	74.0	22.6	108	138.0
1 976.954	H	54.5	-2.3	52.2	74.0	21.8	108	137.7

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]
1 979.51	V	38.8	-2.2	36.6	54.0	17.4	108	80.0
1 977.28	H	38.0	-2.2	35.8	54.0	18.2	108	137.6

- Configuration 1 : P2USB Printing

Test Results



Peak Measurement

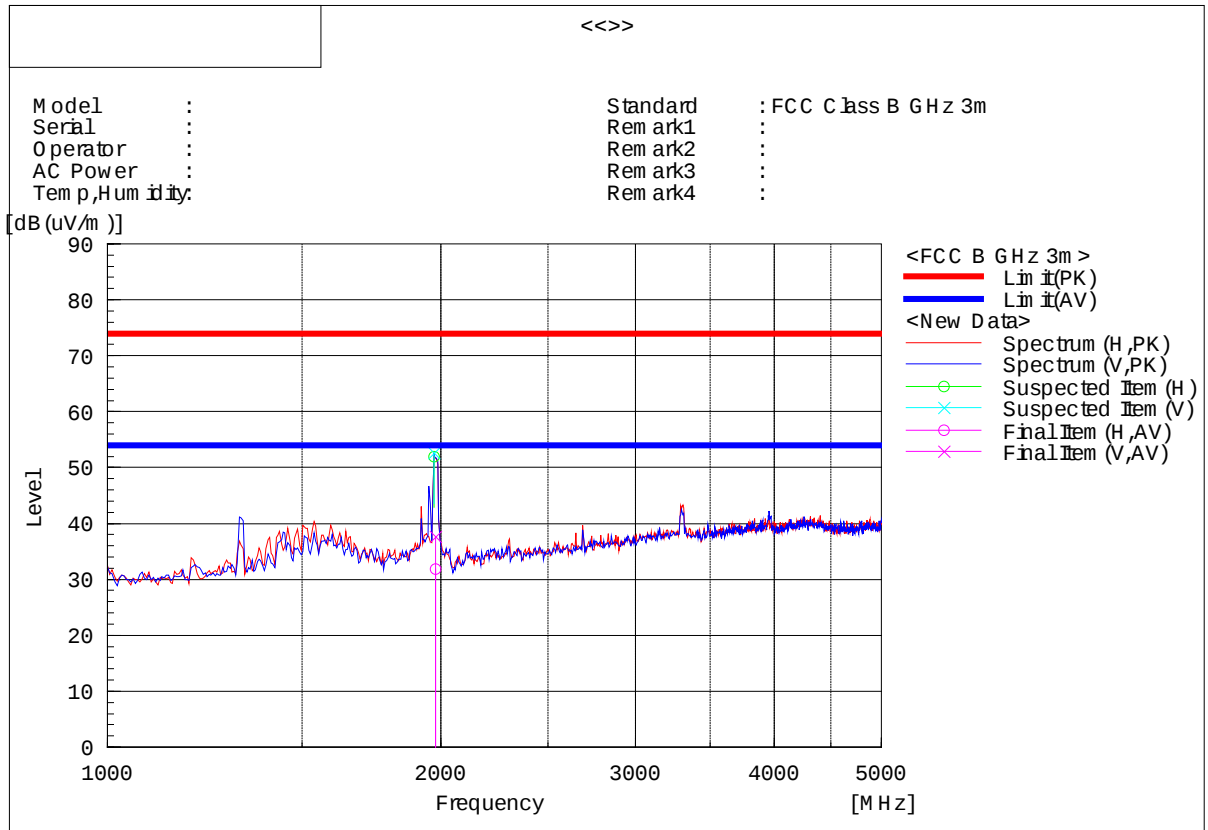
Frequency [MHz]	POL	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level PK [dB(uV/m)]	Limit [dB(uV/m)]	Margin PK [dB]	Height [cm]	Angle [deg]
1 976.954	V	56.1	-2.3	53.8	74.0	20.2	108	138.4
1 981.964	H	54.7	-2.1	52.6	74.0	21.4	108	147.1

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]
1 977.254	V	39.6	-2.2	37.4	54.0	16.6	108	100.6
1 978.908	H	39.2	-2.2	37.0	54.0	17.0	108	129.5

- Configuration 1 : RADF Copy

Test Results



Peak Measurement

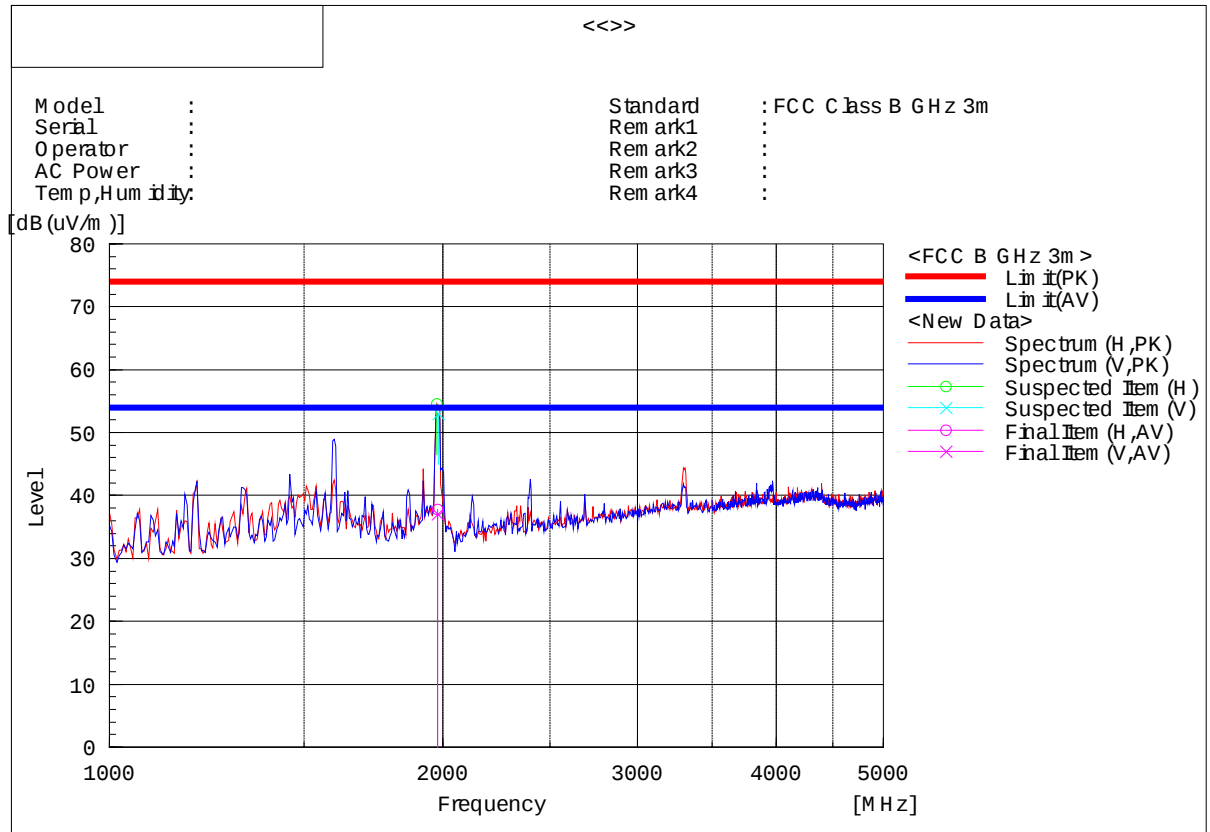
Frequency [MHz]	POL	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level PK [dB(uV/m)]	Limit [dB(uV/m)]	Margin PK [dB]	Height [cm]	Angle [deg]
1 971.944	V	55.0	-2.4	52.6	74.0	21.4	108	112.8
1 971.944	H	54.3	-2.4	51.9	74.0	22.1	108	138.2

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]
1 978.532	V	39.9	-2.2	37.7	54.0	16.3	108	112.8
1 978.632	H	34.0	-2.2	31.8	54.0	22.2	108	138.2

- Configuration 1 : Fax Tx

Test Results



Peak Measurement

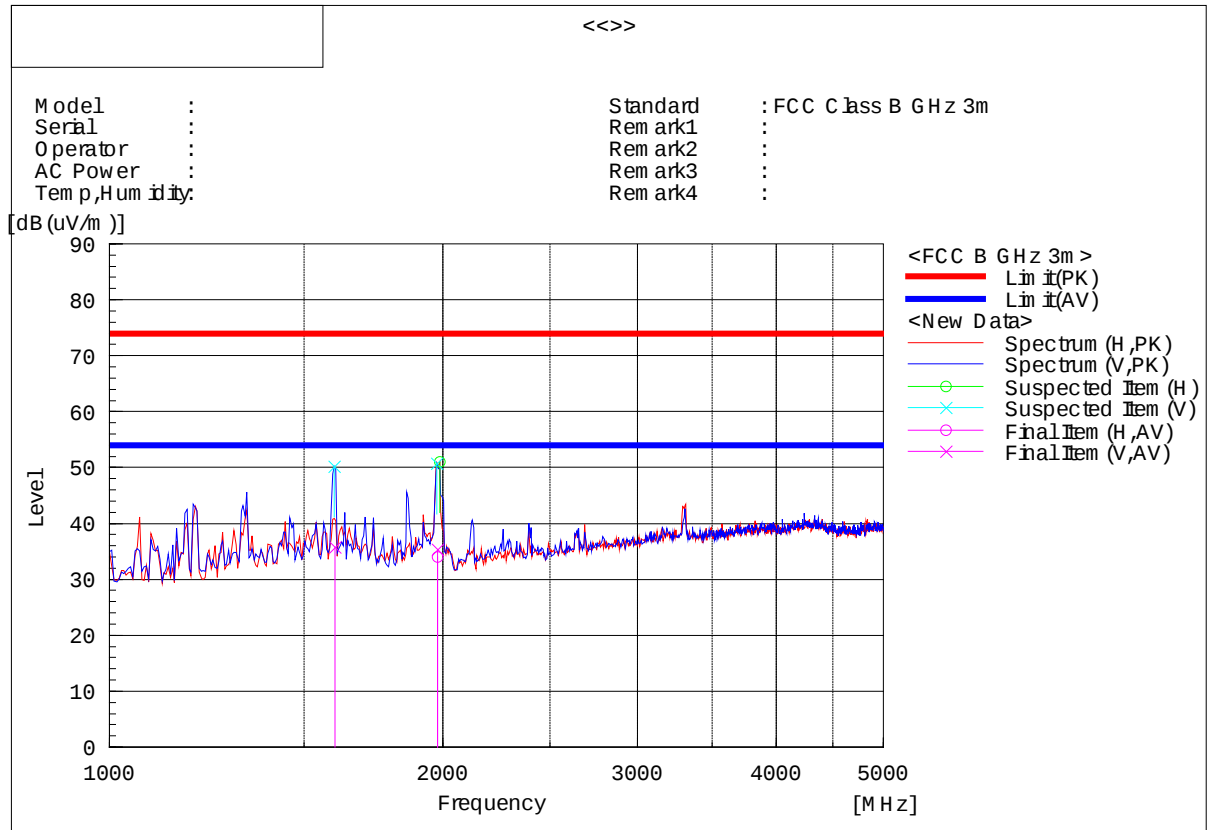
Frequency [MHz]	POL	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level PK [dB(uV/m)]	Limit [dB(uV/m)]	Margin PK [dB]	Height [cm]	Angle [deg]
1 976.954	H	56.8	-2.3	54.5	74.0	19.5	112	146.2
1 981.964	V	55.2	-2.1	53.1	74.0	20.9	110	87.4

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]
1 979.334	H	40.0	-2.2	37.8	54.0	16.2	108	146.5
1 978.181	V	39.2	-2.2	37.0	54.0	17.0	108	87.5

- Configuration 2 : Standby

Test Results



Peak Measurement

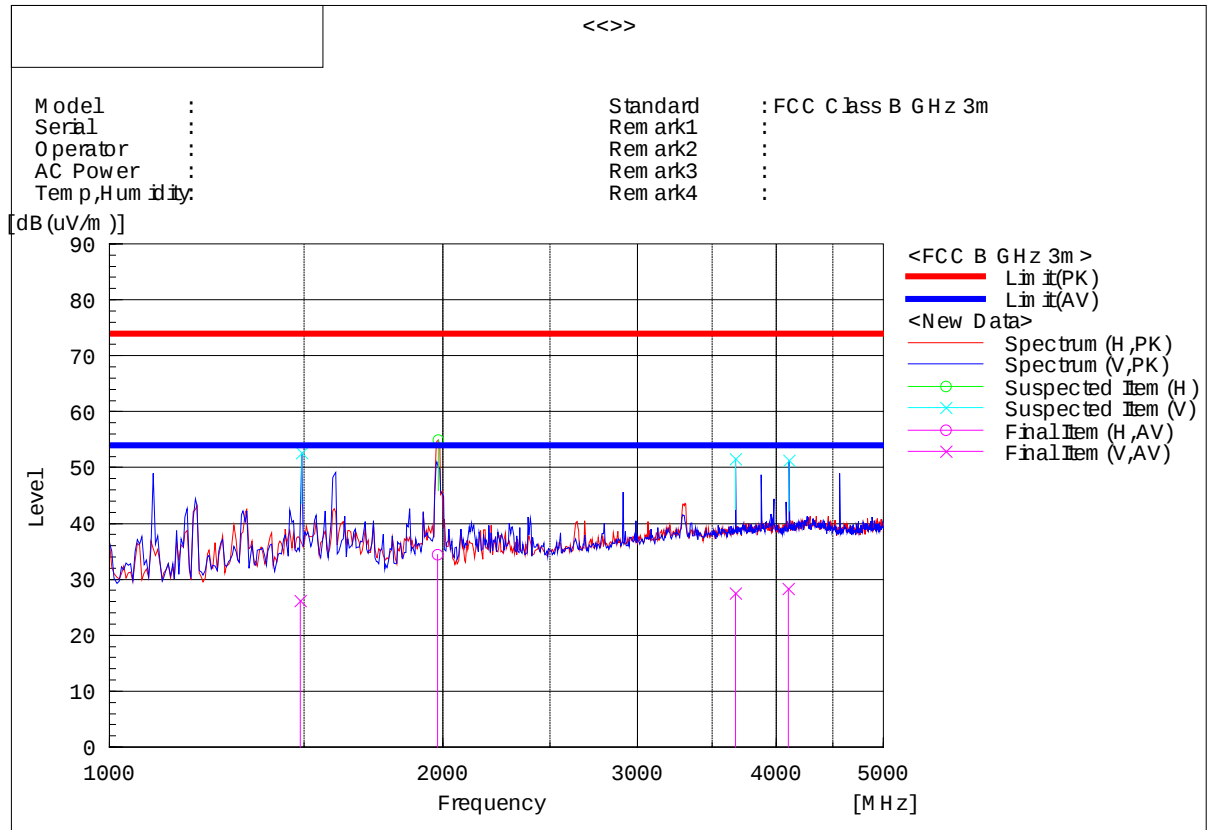
Frequency [MHz]	POL	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level PK [dB(uV/m)]	Limit [dB(uV/m)]	Margin PK [dB]	Height [cm]	Angle [deg]
1 596.192	V	60.4	-10.2	50.2	74.0	23.8	108	346.4
1 976.954	V	53.0	-2.3	50.7	74.0	23.3	108	66.5
1 986.974	H	53.0	-2.0	51.0	74.0	23.0	108	32.8

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]
1 978.131	H	36.2	-2.2	34.0	54.0	20.0	108	28.0
1 977.731	V	37.6	-2.2	35.4	54.0	18.6	108	71.4
1 599.574	V	45.9	-10.2	35.7	54.0	18.3	108	348.3

- Configuration 1 : P2USB Printing

Test Results



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]
1 490.982	V	63.4	-10.8	52.6	74.0	21.4	108	318.4
1 981.964	H	57.0	-2.1	54.9	74.0	19.1	108	43.4
3 677.355	V	53.5	-2.0	51.5	74.0	22.5	108	282.1
4 110.221	V	52.6	-1.3	51.3	74.0	22.7	108	307.8

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]
1 488.202	V	37.0	-10.8	26.2	54.0	27.8	108	318.4
1 979.083	H	36.6	-2.2	34.4	54.0	19.6	108	43.2
3 676.198	V	29.6	-2.1	27.5	54.0	26.5	108	282.1
4 105.276	V	29.6	-1.3	28.3	54.0	25.7	108	309.1

Note1) Receiving antenna polarization : Horizontal and Vertical

Level PK (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)

Note2) Remark: Radiated emissions

(Tx / Rx frequency and Harmonics) from the transceiver shall be ignored.

Appendix – EUT photography



Front View



Rear View with label location



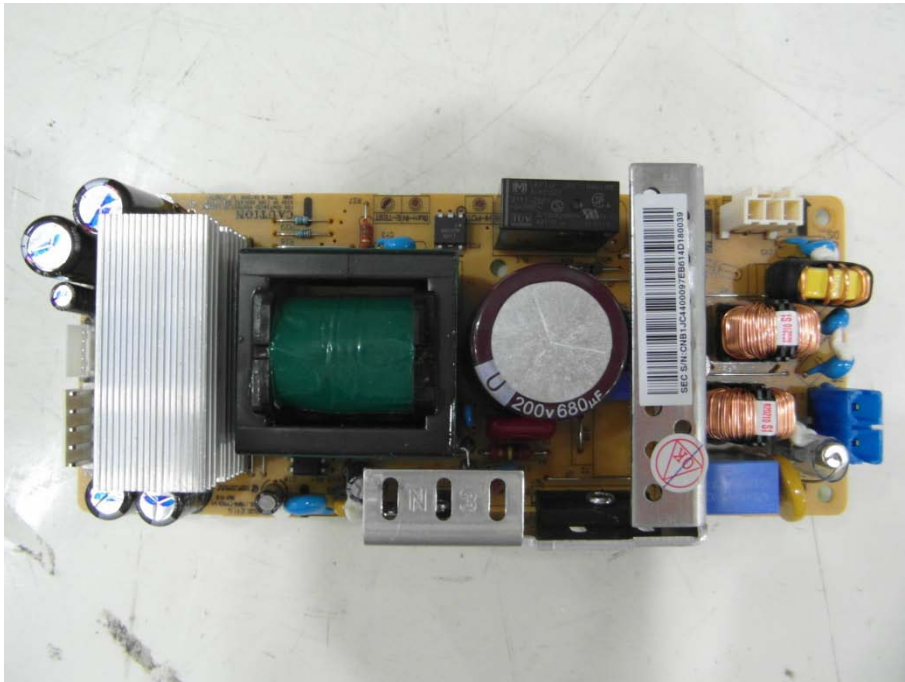
Inside View(Front)



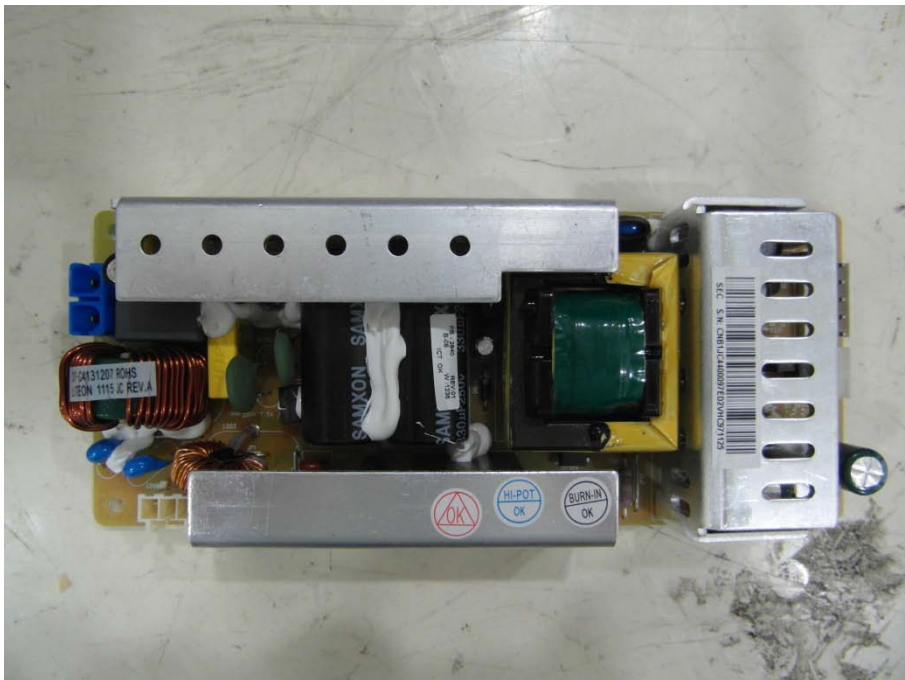
Inside View(Right)



Inside View(Rear)



Main SMPS View (DONG YANG E&P)



Main SMPS View (LITEON)



	Model: ProXpress M4070FX Volts: AC 110-127V Hertz: 50/60 Hz Amps: 6.5A Ringer Equivalence: 0.0B	FCC ID : A3LSLM4075FX This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: i) This device may not cause harmful interference, and ii) This device must accept any interference received,
USOC Jack Type: RJ11C	Manufactured: FVJDKKBHJ 2011	including interference that may cause undesired operation.
Samsung Electronics Co., Ltd. Suwon, Korea, 443-742 Place: M264		Complies with Part 68, FCC Rules. FCC Certification No.: US: A3LFA00BSLM4075FW
M/C: SL-M4070FX/XAA	3UU7 US E337632 LISTED	This Class B digital apparatus complies with Canadian ICES-003
	I.T.E.	Cet appareil numérique de la classe B est Conforme à la norme NMB-003 du Canada. This product complies with 21 CFR Chapter 1, subchapter J.
Serial No.: FHBKBBNKJ001X		IC: 649E-SLM4075FW Made in China Fabriqu� en Chine REV.00

Label