

# Technical Compliance Statement

## Test Report

### For the following information

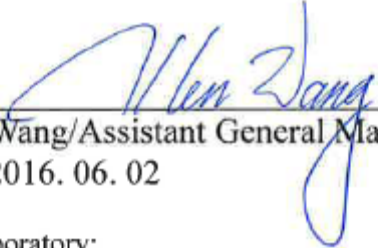
Ref. File No.: C1M1605225

Product : Printer  
FCC ID : BBP-PRSP325DNW1  
Model Number : (1)SP 325DNw (2)SP 320DN  
Brand Name : RICOH  
Applicant : Ricoh Company Ltd.  
Manufacturer : RICOH Co., Ltd.  
Standards : 47 CFR FCC Part 15 Subpart B:2015  
(Class B Limit)

We hereby certify that the above product has been tested by us and complied with the FCC official limits. The test was performed according to the procedures mentioned in ANSI C63.4-2014. The test data and results are issued on the test report no.

**EM-F160334.**

Signature

  
Allen Wang/Assistant General Manager  
Date: 2016. 06. 02

Test Laboratory:  
AUDIX Technology Corporation, EMC Department  
NVLAP Lab Code: 200077-0  
FCC OET Designation: TW1004 & TW1090  
Web Site: [www.audixtech.com](http://www.audixtech.com)



NVLAP Lab Code 200077-0

The statement is based on a single evaluation of one sample of the above-mentioned products. It does not imply an assessment of the whole production and does not permit the use of the test lab logo.

TEST REPORT  
for  
Ricoh Company Ltd.  
Printer  
Model No.: (1)SP 325DNw (2)SP 320DN  
Brand: RICOH  
FCC ID: BBP-PRSP325DNW1

Prepared for : Ricoh Company Ltd.  
810 Shimoimaizumi, Ebina City,  
Kanagawa-Pref., 243-0460 Japan

Prepared by : AUDIX Technology Corporation  
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No. 53-11, Dingfu, Linkou Dist.,  
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File Number : C1M1605225  
(ACS Ref. No.: ACS16Q0529)  
Report Number : EM-F160334  
Date of Test : 2016. 05. 23 ~ 06. 02  
Date of Report : 2016. 06. 02

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## TEST REPORT

Applicant : Ricoh Company Ltd.  
 Manufacturer : RICOH Co., Ltd.  
 EUT Description : Printer  
 FCC ID : BBP-PRSP325DNW1  
     (A) Model No. : (1)SP 325DNw (2)SP 320DN  
     (B) Serial No. : JM287Q17055  
     (C) Brand : RICOH  
     (D) Power Supply : AC 120V, 60Hz  
     (E) Test Voltage : AC 120V, 60Hz

Rules of Compliance and Measurement Standards:  
 47 CFR FCC Part 15 Subpart B:2015  
 ANSI C63.4:2014

The device described above was tested by AUDIX Technology Corporation, to determine the maximum emission levels emanating from the device. The maximum emission levels were compared to the FCC Part 15 subpart B with the provisions of sections 15.107 and 15.109 Class B limits both conducted and radiated emissions.

The measurement results are contained in this test report and AUDIX Technology Corporation is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliant with the FCC official limits.

This report applies to above tested sample only and which shall not be reproduced in part without written approval of AUDIX Technology Corporation.

Date of Test : 2016. 05. 23 ~ 06. 02      Date of Report : 2016. 06. 02

Producer :   
 (Cherry Wang/Manager)

Signatory :   
 (Allen Wang/Assistant General Manager)

## 1. DESCRIPTION OF VERSION

Edition No.	Date of Revision	Revision Summary	Report Number
0	2016. 06. 02	Original Report.	EM-F160334

## 2. SUMMARY OF STANDARDS AND RESULTS

### 2.1. Description of Standards and Results

The EUT has been tested according to the applicable standards as referenced below.

<b>EMISSION</b>			
<b>Description of Test Item</b>	<b>Standard</b>	<b>Limits</b>	<b>Results</b>
Powerline Conducted Emission Measurement	47 CFR FCC Part 15 Subpart B:2015	Class B	PASS
Radiated Emission Measurement	47 CFR FCC Part 15 Subpart B:2015	Class B	PASS

### 3. GENERAL INFORMATION

#### 3.1. Description of Device (EUT)

Description : Printer

FCC ID : BBP-PRSP325DNW1

Model Number : (1)SP 325DNw (2)SP 320DN  
The differences between models are listed as follows:

型號	Photocopy/Printer Speed	Function		
	CPM or PPM	Printer	WiFi	NFC
SP 325DNw	28			
SP 320DN	26		-	

The SP 325DNw was tested in this report.

Serial Number : JM287Q17055

Brand : RICOH

Applicant : Ricoh Company Ltd.  
810 Shimoimaizumi, Ebina City,  
Kanagawa-Pref., 243-0460 Japan

Manufacturer : RICOH Co., Ltd.  
3-6, Naka-magome 1-Chome Ohta-ku,  
Tokyo 143-8555 Japan

Max. Working Frequency : 533MHz

LAN Module : CastleNet, RTL8188CTV,  
FCC ID: RK9-RTL8188CTV

USB Cable : Shielded, Detachable, 2.0m

AC Power Cord : Unshielded, Detachable, 1.5m (3C)

Date of Receipt of Sample : 2016. 05.19

Date of Test : 2016. 05. 23 ~ 06. 02

**Remark :**

The EUT is a Printer which input/output ports provided as follows:

**Back View:**

- (1) One AC In Port
- (2) One USB Port
- (3) One Ethernet Port (10BASE-T/100BASE)

### 3.2. Tested Supporting System Details

#### 3.2.1. Support Peripheral Unit

No.	Product	Brand	Model No.	Serial No.	Approval
1	PC System	HP	HP Compaq8300 Elite MT PC	SGH231PFN5	By DoC
2	Monitor	Lenovo	LT2452P	VNA9XVX	By DoC
3	Keyboard	HP	KB-0316	N/A	By DoC
4	Mouse	HP	M-S69	F6AB70S5BOTO YUJ	By DoC
5	USB Storage Media	pqi	U273	N/A	By DoC
<b>Partner System</b>					
1	AP Server	D-Link	Di-624	F34U177001195	FCC ID: KA2DI624D2
2	Notebook PC	HP	TPN-Q110	5CD2104T9D	FCC ID: PD92230BNH

#### 3.2.2. Cable List

No.	Cable Description Of The Above Support Units
1	LAN Cable: Unshielded, Detachable, 1.0m AC Power Cord: Unshielded, Detachable, 1.8m
2	D-Sub Cable: Shielded, Detachable, 1.8m, Bonded two ferrite cores AC Power Cord: Unshielded, Detachable, 1.8m
3	USB Cable: Shielded, Detachable, 1.8m
4	USB Cable: Shielded, Detachable, 1.8m
5	USB Cable: Shielded, Detachable, 1.5m
<b>Partner System</b>	
1	LAN Cable: Unshielded, Detachable, 10m
2	LAN Cable: Unshielded, Detachable, 10m AC Power Cord: Unshielded, Detachable, 1.2m



### 3.3. Description of Test Facility

Name of Firm	:	<b>AUDIX Technology Corporation</b> <b>EMC Department</b> No. 53-11, Dingfu, Linkou Dist., New Taipei City 244, Taiwan
Test Location & Facility	:	<b>No. 4 Shielded Room &amp;</b> No. 67-4, Dingfu, Linkou Dist., New Taipei City 244, Taiwan  <b>No. 6 Open Area Test Site</b> No. 67-4, Dingfu, Linkou Dist., New Taipei City 244, Taiwan Federal Communication Commission Registration Number: 98448 Renewal on June 16, 2015  <b>No. 2 Semi-Anechoic Chamber</b> No. 67-4, Dingfu, Linkou Dist., New Taipei City 244, Taiwan Federal Communication Commission Registration Number: 370172 Renewal on July 24, 2013
NVLAP Lab. Code	:	200077-0
TAF Accreditation No	:	1724
FCC OET Designation	:	TW1004 & TW1090

### 3.4. Measurement Uncertainty

Test Item	Frequency Range	Uncertainty
Conduction Test	150kHz~30MHz	±3.5dB
Radiation Test	30MHz~1000MHz	±4.3dB
	1GHz~6GHz	±4.8dB
	6GHz~18GHz	±4.8dB

Remark : Uncertainty =  $ku_c(y)$

## 4. POWERLINE CONDUCTED EMISSION MEASUREMENT

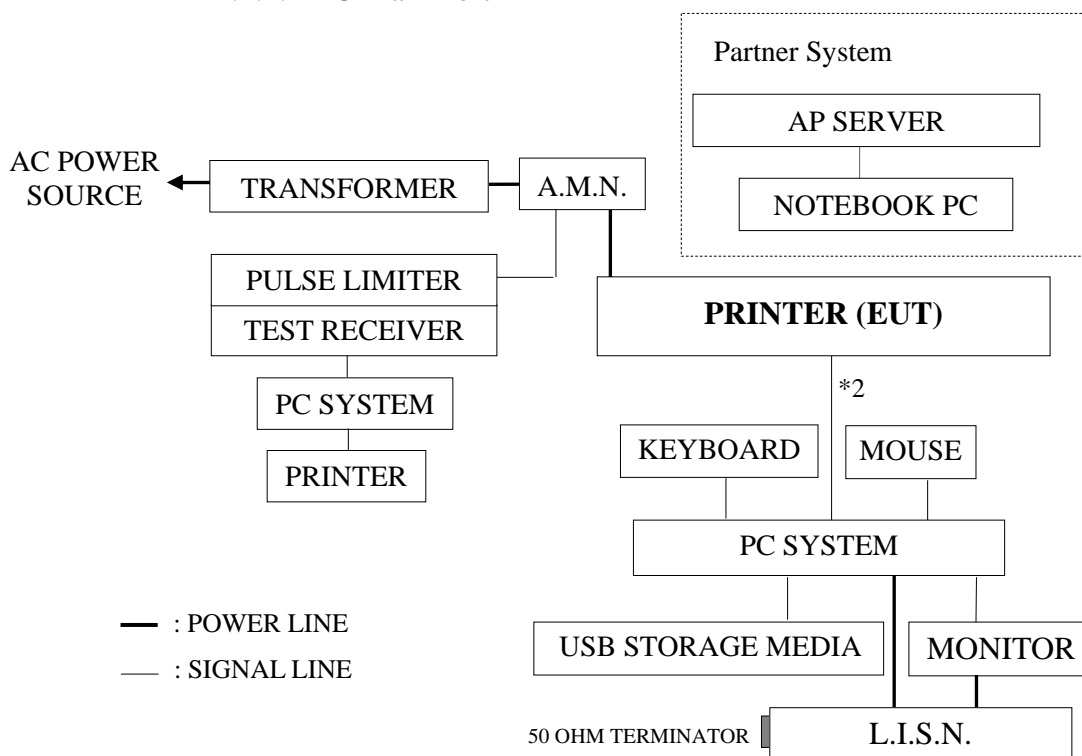
### 4.1. Test Equipment

The following test equipments are used during the powerline conducted emission measurement : (No. 4 Shielded Room)

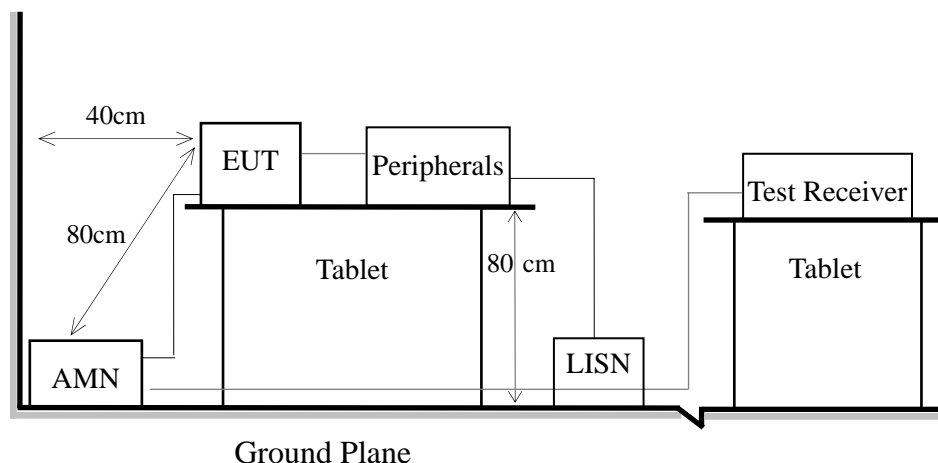
Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Test Receiver	R&S	ESCI	100555	2016. 05. 06	1 Year
2.	A.M.N.	Kyoritsu	ESH2-Z5	890485/023	2016. 04. 25	1 Year
3.	L.I.S.N.	Kyoritsu	KNW-407	8-1430-5	2016. 01. 21	1 Year
4.	Pulse Limiter	R&S	ESH3-Z2	100356	2016. 01. 17	1 Year

### 4.2. Block Diagram of Test Setup

#### 4.2.1. AC Main Port



## 4.2.2. Shielded Room Setup Diagram

4.3. Powerline Conducted Emission Limit  
(FCC§15.107, Class B)

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level	Average Level
150kHz ~ 500kHz	66 ~ 56 dB $\mu$ V	56 ~ 46 dB $\mu$ V
500kHz ~ 5MHz	56 dB $\mu$ V	46 dB $\mu$ V
5MHz ~ 30MHz	60 dB $\mu$ V	50 dB $\mu$ V

Remark 1.: If the average limit is met when using a Quasi-Peak detector, the EUT shall be deemed to meet both limits and measurement with the average detector is unnecessary.

2.: The lower limit applies at the band edges.

## 4.4. Operating Condition of EUT

EUT Exercise Program and Condition	
Operating System	Windows 7 of PC System
Standby	This mode is turn on the power in standby status.
USB Print	This mode is concerned with the USB printing function of EUT whereby the document will be printed form PC through the RICOH test software.
NIC (LAN) Print	This mode is concerned with the LAN printing function of EUT whereby the document will be printed form PC through the RICOH test software.
Wifi Print	This mode is concerned with the Wifi printing function of EUT and with the wireless AP whereby the document will be printed form notebook PC through the RICOH test software.
The other peripheral devices were driven and operated in turn during all testing.	

#### 4.5. Test Procedure

The EUT was placed on the table which was above the ground by 80cm and its power cord connected to the AC mains through an Artificial Mains Network (A.M.N.). The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provided a 50 ohm coupling impedance for the measuring equipment. (Please refer to the block diagram of the test setup and photographs.) Both sides of A.C. line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables were changed according to ANSI C63.4-2014 during conducted measurement.

The bandwidth of the R&S Test Receiver ESCI was set at 9 kHz.

The frequency range from 150kHz to 30MHz was pre-scanned with a peak detector.

The all final readings from test receiver were measured with Quasi-Peak detector and Average detector. (Remark: If the Average limit is met when using a Quasi-Peak detector, the Average detector is unnecessary)

#### 4.6. Powerline Conducted Emission Measurement Results

**PASSED.** All emissions not reported below are too low against the prescribed limits.

The EUT with following modes was measured during this section testing and all the test results are listed in next pages.

EUT : Printer

Model No. : SP 325DNw

Test Date : 2016. 05. 24

Temperature : 24

Humidity : 60%

Test Date : 2016. 06. 02

Temperature : 24

Humidity : 60%

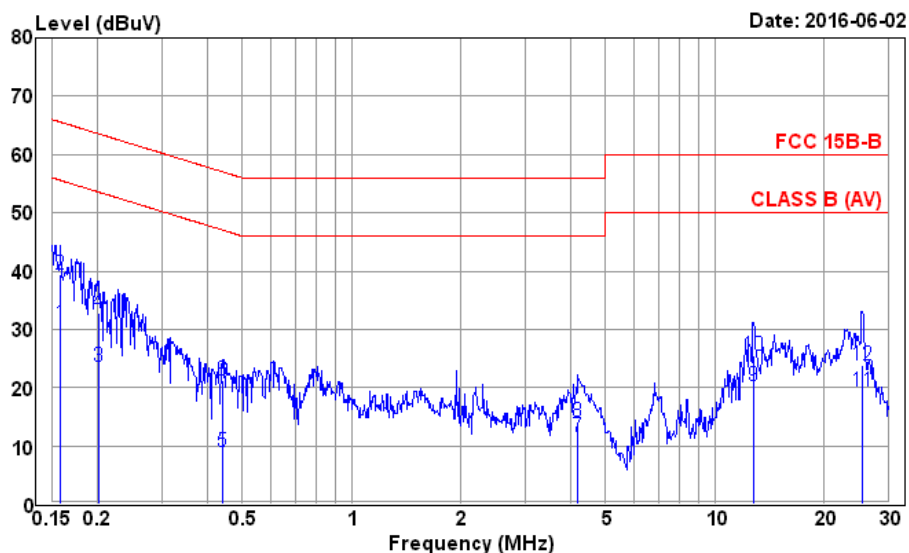
The details of test modes are as follows :

Mode	Operating Mode	Reference Test Data No.	
		Neutral	Line
1	Standby Mode	# 4	# 3
2	USB Print Mode	# 2	# 1
3	NIC (LAN) Print Mode	# 6	# 5
4	WIFI Print	# 8	# 7



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Data: 4 File: D:\TEST-DATA\REPORT\2016\IC1M1605XXX\IC1M1605225-C-D.EM6 (8)



Site no. : No.4 Shielded Room Data no. : 4  
 Condition : ESH2-Z5 890485/023 LISN Phase : NEUTRAL  
 Limit : FCC 15B-B  
 Env. / Ins. : 24°C/ 60% ESCI (100555) Engineer : Ghost  
 EUT : SP325DNw  
 Power Rating : 120Vac/60Hz  
 Test Mode : Standby

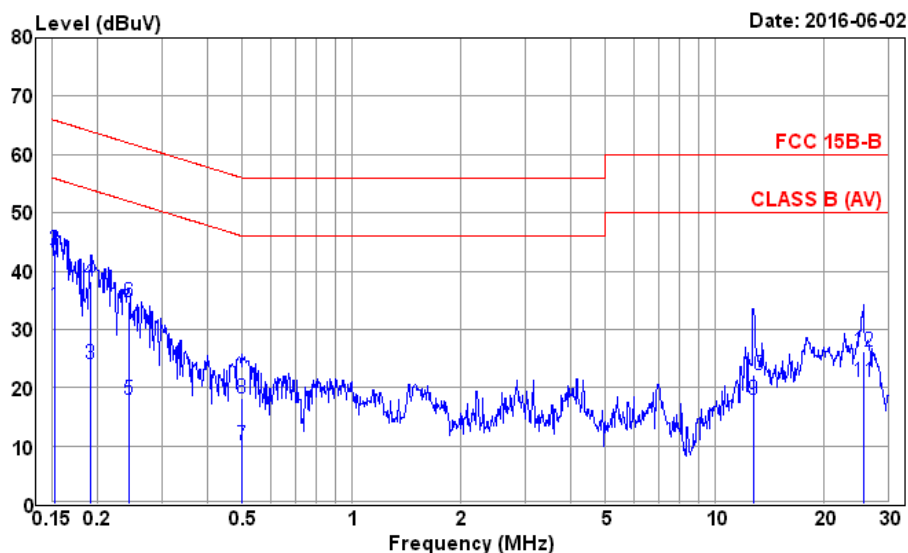
	AMN	Cable	Pulse	Emission			Margin	Remark
Freq. (MHz)	Factor (dB)	Loss (dB)	Att. (dB)	Reading (dBμV)	Level (dBμV)	Limits (dBμV)	(dB)	
1	0.158	0.15	0.02	9.86	20.91	30.94	24.62	Average
2	0.158	0.15	0.02	9.86	29.32	39.35	26.21	QP
3	0.201	0.15	0.02	9.85	13.48	23.50	30.08	Average
4	0.201	0.15	0.02	9.85	22.81	32.83	30.75	QP
5	0.442	0.18	0.03	9.86	-1.02	9.05	37.97	Average
6	0.442	0.18	0.03	9.86	11.30	21.37	35.65	QP
7	4.202	0.32	0.05	9.86	1.35	11.58	34.42	Average
8	4.202	0.32	0.05	9.86	3.95	14.18	41.82	QP
9	12.784	0.75	0.11	9.90	9.60	20.36	29.64	Average
10	12.784	0.75	0.11	9.90	14.84	25.60	34.40	QP
11	25.456	1.19	0.15	9.98	8.13	19.45	30.55	Average
12	25.456	1.19	0.15	9.98	12.61	23.93	36.07	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.



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Data: 3 File: D:\TEST-DATA\REPORT\2016\1C1M1605XXX\1C1M1605225-C-D.EM6 (8)



Site no. : No.4 Shielded Room Data no. : 3  
 Condition : ESH2-Z5 890485/023 LISN Phase : LINE  
 Limit : FCC 15B-B  
 Env. / Ins. : 24°C/ 60% ESCI (100555) Engineer : Ghost  
 EUT : SP325DNw  
 Power Rating : 120Vac/60Hz  
 Test Mode : Standby

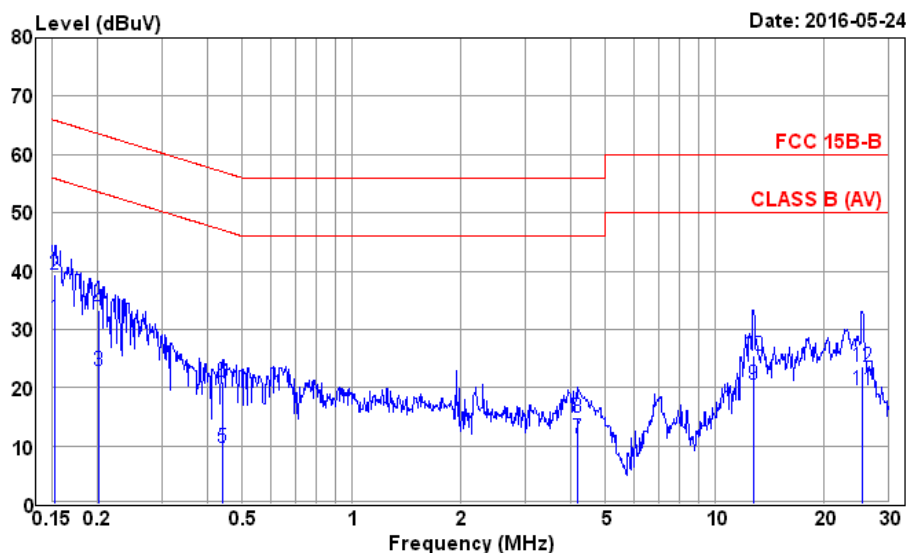
	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Remark
1	0.152	0.17	0.02	9.86	23.99	34.04	55.87	21.83	Average
2	0.152	0.17	0.02	9.86	33.58	43.63	65.87	22.24	QP
3	0.191	0.17	0.02	9.85	14.15	24.19	53.98	29.79	Average
4	0.191	0.17	0.02	9.85	28.14	38.18	63.98	25.80	QP
5	0.244	0.18	0.02	9.85	7.94	17.99	51.95	33.96	Average
6	0.244	0.18	0.02	9.85	24.63	34.68	61.95	27.27	QP
7	0.499	0.19	0.03	9.85	0.10	10.17	46.01	35.84	Average
8	0.499	0.19	0.03	9.85	8.18	18.25	56.01	37.76	QP
9	12.784	0.44	0.11	9.90	7.46	17.91	50.00	32.09	Average
10	12.784	0.44	0.11	9.90	11.70	22.15	60.00	37.85	QP
11	25.591	0.33	0.15	9.98	10.60	21.06	50.00	28.94	Average
12	25.591	0.33	0.15	9.98	15.68	26.14	60.00	33.86	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.



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Data: 2 File: D:\TEST-DATA\REPORT\2016\1M1605XXX\1C1M1605225-C-D.EM6 (2)



Site no. : No.4 Shielded Room Data no. : 2  
 Condition : ESH2-Z5 890485/023 LISN Phase : NEUTRAL  
 Limit : FCC 15B-B  
 Env. / Ins. : 24°C/ 60% ESCI (100555) Engineer : Ghost  
 EUT : SP325DNw  
 Power Rating : 120Vac/60Hz  
 Test Mode : USB Print

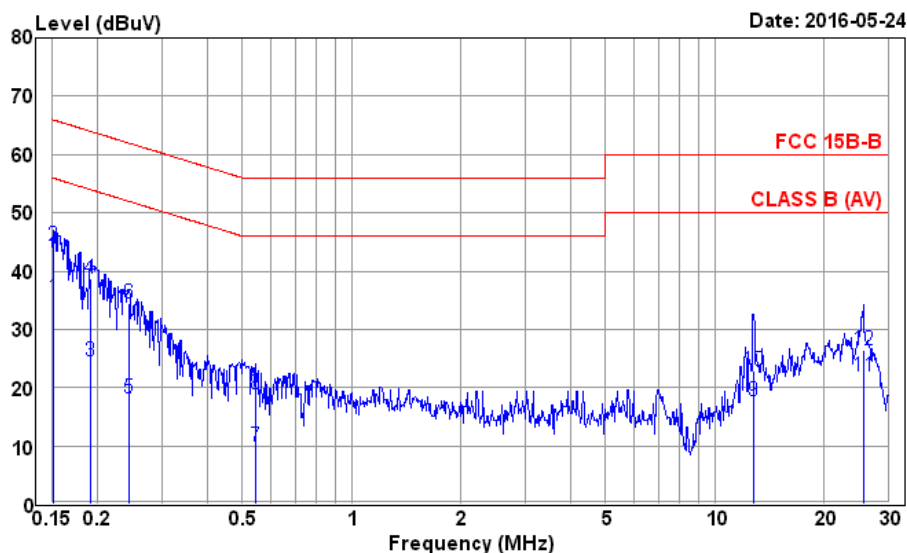
	AMN	Cable	Pulse	Emission		Limits	Margin	Remark	
Freq. (MHz)	Factor (dB)	Loss (dB)	Att. (dB)	Reading (dBμV)	Level (dBμV)	(dBμV)	(dB)		
1	0.152	0.15	0.02	9.86	21.79	31.82	55.87	24.05	Average
2	0.152	0.15	0.02	9.86	29.44	39.47	65.87	26.40	QP
3	0.201	0.15	0.02	9.85	12.83	22.85	53.58	30.73	Average
4	0.201	0.15	0.02	9.85	23.23	33.25	63.58	30.33	QP
5	0.442	0.18	0.03	9.86	-0.27	9.80	47.02	37.22	Average
6	0.442	0.18	0.03	9.86	10.99	21.06	57.02	35.96	QP
7	4.202	0.32	0.05	9.86	1.05	11.28	46.00	34.72	Average
8	4.202	0.32	0.05	9.86	4.57	14.80	56.00	41.20	QP
9	12.784	0.75	0.11	9.90	9.88	20.64	50.00	29.36	Average
10	12.784	0.75	0.11	9.90	14.80	25.56	60.00	34.44	QP
11	25.456	1.19	0.15	9.98	8.20	19.52	50.00	30.48	Average
12	25.456	1.19	0.15	9.98	12.38	23.70	60.00	36.30	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.



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Data: 1 File: D:\TEST-DATA\REPORT\2016\1M1605XXX\1M1605225-C-D.EM6 (2)



Site no. : No.4 Shielded Room Data no. : 1  
 Condition : ESH2-Z5 890485/023 LISN Phase : LINE  
 Limit : FCC 15B-B  
 Env. / Ins. : 24°C/ 60% ESCI (100555) Engineer : Ghost  
 EUT : SP325DNw  
 Power Rating : 120Vac/60Hz  
 Test Mode : USB Print

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Remark
1	0.151	0.17	0.02	9.86	25.32	35.37	55.96	20.59	Average
2	0.151	0.17	0.02	9.86	34.27	44.32	65.96	21.64	QP
3	0.191	0.17	0.02	9.85	14.62	24.66	53.98	29.32	Average
4	0.191	0.17	0.02	9.85	28.74	38.78	63.98	25.20	QP
5	0.244	0.18	0.02	9.85	8.23	18.28	51.95	33.67	Average
6	0.244	0.18	0.02	9.85	24.51	34.56	61.95	27.39	QP
7	0.546	0.20	0.03	9.85	-0.05	10.03	46.00	35.97	Average
8	0.546	0.20	0.03	9.85	8.71	18.79	56.00	37.21	QP
9	12.784	0.44	0.11	9.90	7.21	17.66	50.00	32.34	Average
10	12.784	0.44	0.11	9.90	12.50	22.95	60.00	37.05	QP
11	25.591	0.33	0.15	9.98	11.42	21.88	50.00	28.12	Average
12	25.591	0.33	0.15	9.98	15.99	26.45	60.00	33.55	QP

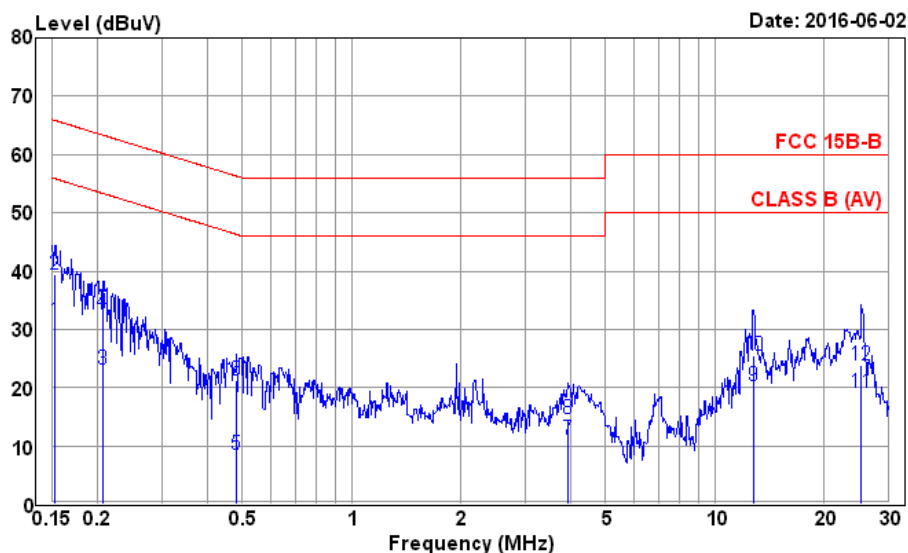
Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.





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Data: 6 File: D:\TEST-DATA\REPORT\2016\1C1M1605XXX\1C1M1605225-C-D.EM6 (8)



Site no. : No.4 Shielded Room Data no. : 6  
 Condition : ESH2-Z5 890485/023 LISN Phase : NEUTRAL  
 Limit : FCC 15B-B  
 Env. / Ins. : 24°C/ 60% ESCI (100555) Engineer : Ghost  
 EUT : SP325DNw  
 Power Rating : 120Vac/60Hz  
 Test Mode : NIC Print

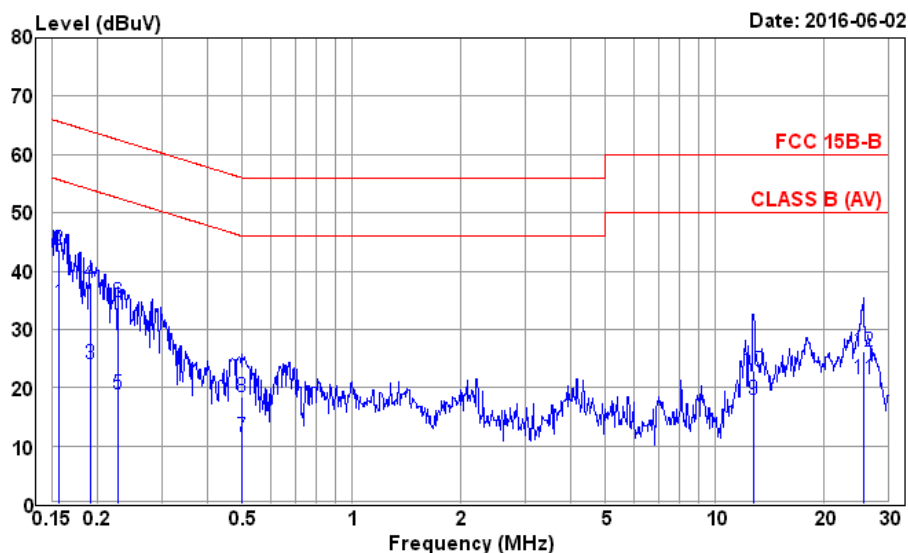
	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Remark
1	0.152	0.15	0.02	9.86	21.33	31.36	55.87	24.51	Average
2	0.152	0.15	0.02	9.86	29.36	39.39	65.87	26.48	QP
3	0.207	0.15	0.02	9.85	13.00	23.02	53.32	30.30	Average
4	0.207	0.15	0.02	9.85	22.86	32.88	63.32	30.44	QP
5	0.484	0.18	0.03	9.85	-1.57	8.49	46.27	37.78	Average
6	0.484	0.18	0.03	9.85	11.18	21.24	56.27	35.03	QP
7	3.943	0.31	0.05	9.86	1.00	11.22	46.00	34.78	Average
8	3.943	0.31	0.05	9.86	4.40	14.62	56.00	41.38	QP
9	12.784	0.75	0.11	9.90	9.46	20.22	50.00	29.78	Average
10	12.784	0.75	0.11	9.90	14.71	25.47	60.00	34.53	QP
11	25.321	1.19	0.15	9.98	7.79	19.11	50.00	30.89	Average
12	25.321	1.19	0.15	9.98	12.53	23.85	60.00	36.15	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.



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 E-mail: emc@audixtech.com

Data: 5 File: D:\TEST-DATA\REPORT\2016\1C1M1605XXX\1C1M1605225-C-D.EM6 (8)



Site no. : No.4 Shielded Room Data no. : 5  
 Condition : ESH2-Z5 890485/023 LISN Phase : LINE  
 Limit : FCC 15B-B  
 Env. / Ins. : 24°C/ 60% ESCI (100555) Engineer : Ghost  
 EUT : SP325DNw  
 Power Rating : 120Vac/60Hz  
 Test Mode : NIC Print

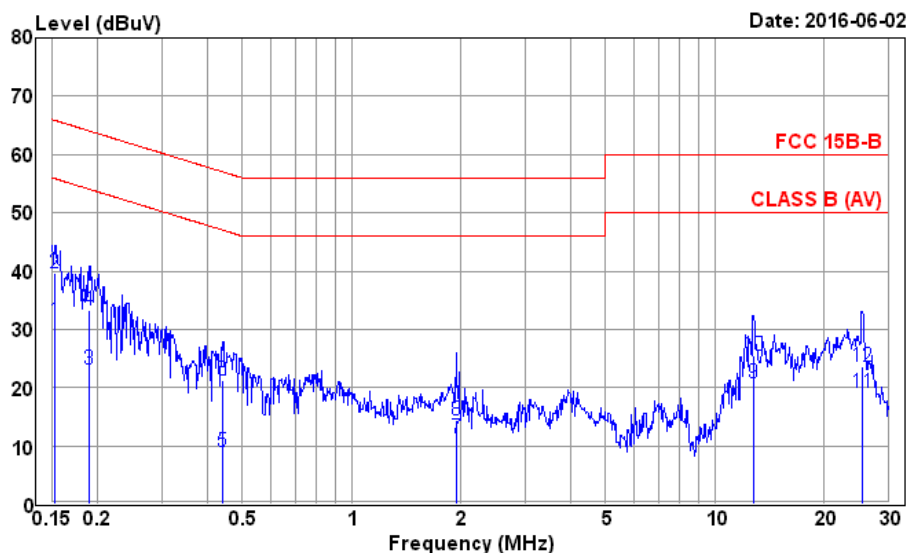
	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Remark
1	0.156	0.17	0.02	9.86	24.35	34.40	55.65	21.25	Average
2	0.156	0.17	0.02	9.86	33.54	43.59	65.65	22.06	QP
3	0.191	0.17	0.02	9.85	14.05	24.09	53.98	29.89	Average
4	0.191	0.17	0.02	9.85	28.00	38.04	63.98	25.94	QP
5	0.227	0.17	0.02	9.85	8.79	18.83	52.57	33.74	Average
6	0.227	0.17	0.02	9.85	24.77	34.81	62.57	27.76	QP
7	0.499	0.19	0.03	9.85	1.45	11.52	46.01	34.49	Average
8	0.499	0.19	0.03	9.85	8.37	18.44	56.01	37.57	QP
9	12.784	0.44	0.11	9.90	7.39	17.84	50.00	32.16	Average
10	12.784	0.44	0.11	9.90	12.51	22.96	60.00	37.04	QP
11	25.591	0.33	0.15	9.98	11.11	21.57	50.00	28.43	Average
12	25.591	0.33	0.15	9.98	15.78	26.24	60.00	33.76	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.



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Data: 8 File: D:\TEST-DATA\REPORT\2016\1M1605XXX\1C1M1605225-C-D.EM6 (8)



Site no. : No.4 Shielded Room Data no. : 8  
 Condition : ESH2-Z5 890485/023 LISN Phase : NEUTRAL  
 Limit : FCC 15B-B  
 Env. / Ins. : 24°C/ 60% ESCI (100555) Engineer : Ghost  
 EUT : SP325DNw  
 Power Rating : 120Vac/60Hz  
 Test Mode : WiFi Print

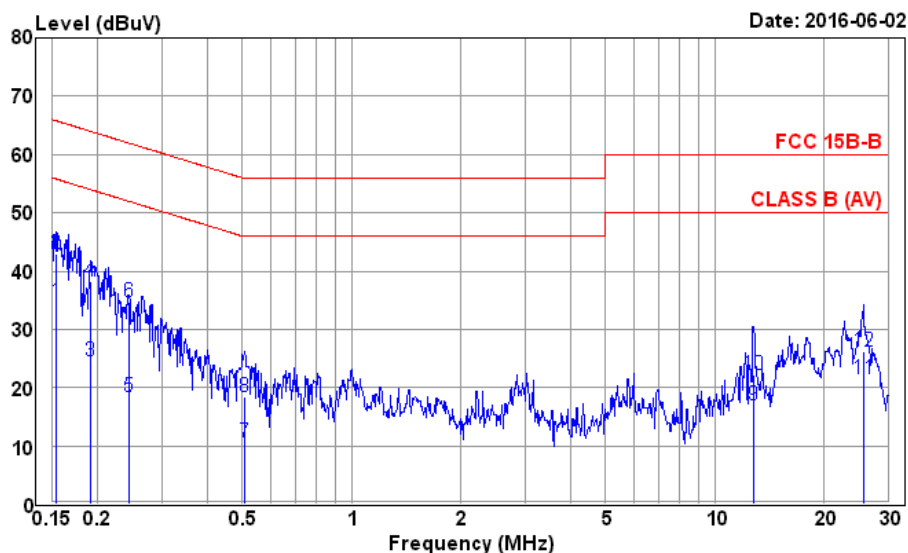
	AMN	Cable	Pulse	Emission					
Freq.	Factor	Loss	Att.	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB)	(dB)	(dB)	(dBμV)	(dBμV)	(dBμV)	(dB)		
1	0.152	0.15	0.02	9.86	21.33	31.36	55.87	24.51	Average
2	0.152	0.15	0.02	9.86	29.54	39.57	65.87	26.30	QP
3	0.189	0.15	0.02	9.85	13.14	23.16	54.06	30.90	Average
4	0.189	0.15	0.02	9.85	23.19	33.21	64.06	30.85	QP
5	0.442	0.18	0.03	9.86	-1.03	9.04	47.02	37.98	Average
6	0.442	0.18	0.03	9.86	11.17	21.24	57.02	35.78	QP
7	1.939	0.24	0.04	9.86	1.14	11.28	46.00	34.72	Average
8	1.939	0.24	0.04	9.86	4.31	14.45	56.00	41.55	QP
9	12.784	0.75	0.11	9.90	9.99	20.75	50.00	29.25	Average
10	12.784	0.75	0.11	9.90	14.79	25.55	60.00	34.45	QP
11	25.456	1.19	0.15	9.98	7.84	19.16	50.00	30.84	Average
12	25.456	1.19	0.15	9.98	12.36	23.68	60.00	36.32	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.



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Data: 7 File: D:\TEST-DATA\REPORT\2016\1M1605XXX\1M1605225-C-D.EM6 (8)



Site no. : No.4 Shielded Room Data no. : 7  
 Condition : ESH2-Z5 890485/023 LISN Phase : LINE  
 Limit : FCC 15B-B  
 Env. / Ins. : 24°C/ 60% ESCI (100555) Engineer : Ghost  
 EUT : SP325DNw  
 Power Rating : 120Vac/60Hz  
 Test Mode : WiFi Print

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Remark
1	0.153	0.17	0.02	9.86	24.66	34.71	55.82	21.11	Average
2	0.153	0.17	0.02	9.86	32.88	42.93	65.82	22.89	QP
3	0.191	0.17	0.02	9.85	14.44	24.48	53.98	29.50	Average
4	0.191	0.17	0.02	9.85	28.19	38.23	63.98	25.75	QP
5	0.244	0.18	0.02	9.85	8.43	18.48	51.95	33.47	Average
6	0.244	0.18	0.02	9.85	24.63	34.68	61.95	27.27	QP
7	0.507	0.20	0.03	9.85	0.44	10.52	46.00	35.48	Average
8	0.507	0.20	0.03	9.85	8.23	18.31	56.00	37.69	QP
9	12.784	0.44	0.11	9.90	6.59	17.04	50.00	32.96	Average
10	12.784	0.44	0.11	9.90	11.65	22.10	60.00	37.90	QP
11	25.591	0.33	0.15	9.98	10.94	21.40	50.00	28.60	Average
12	25.591	0.33	0.15	9.98	15.68	26.14	60.00	33.86	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.

## 5. RADIATED EMISSION MEASUREMENT

### 5.1. Test Equipment

The following test equipment was used during radiated disturbance measurement:

#### 5.1.1. For 30MHz-1000MHz Frequency (At No. 6 Open Area Test Site)

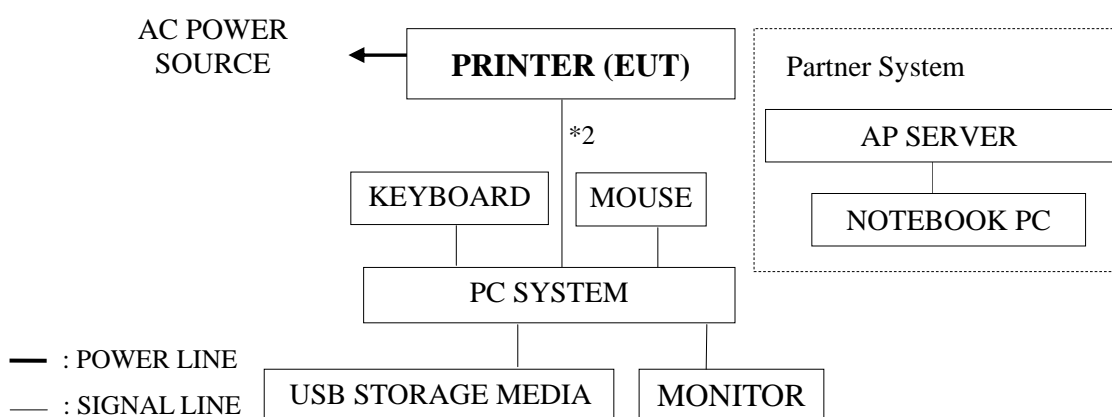
Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1	Spectrum Analyzer	Agilent	N9010A-507	MY49061167	2016. 05. 06	1 Year
2	Test Receiver	R&S	ESCS30	100339	2016. 04. 26	1 Year
3	Amplifier	HP	8447D	2443A03938	N.C.R.	N.C.R.
4	Biconical Antenna	ETC	MCTD 0286	BC14N02008	2016. 02. 26	1 Year
5	Log-Periodic Dipole Array Antenna	ETC	MCTD 2856	LP14N02010	2016. 02. 26	1 Year

#### 5.1.2. For Above 1GHz Frequency (At No. 2 Semi-Anechoic Chamber)

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1	Spectrum Analyzer	Agilent	N9010A-526	MY48031076	2015. 09. 24	1 Year
2	Amplifier	Agilent	8449B	3008A02681	2016. 03. 24	1 Year
3	Horn Antenna	EMCO	3115	9112-3775	2016. 05. 13	1 Year

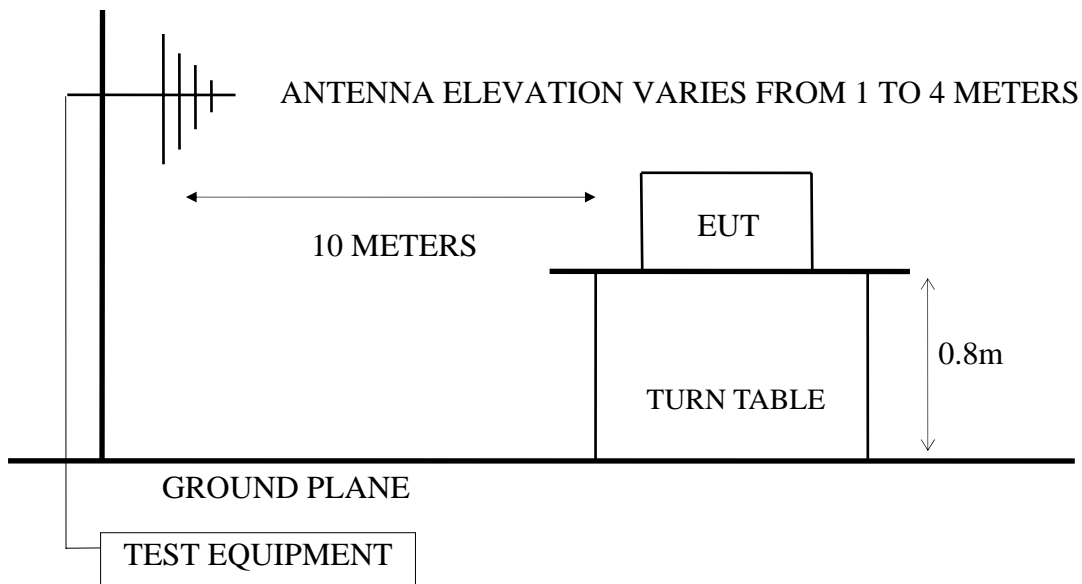
### 5.2. Block Diagram of Test Setup

#### 5.2.1. Block Diagram of connection between EUT and simulators



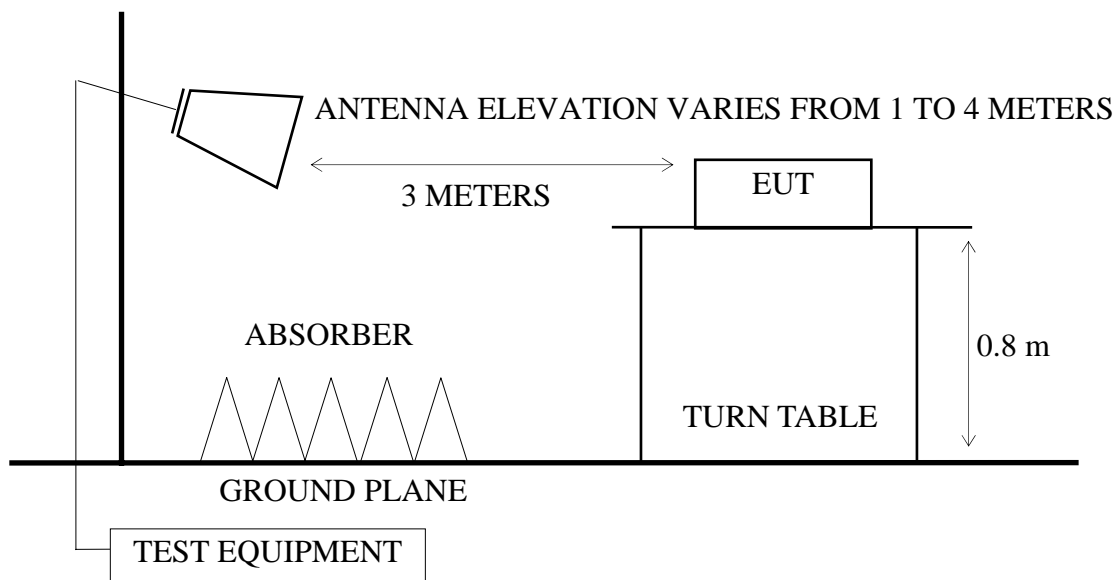
5.2.2. Open Area Test Site Setup Diagram for 30-1000MHz

ANTENNA TOWER



5.2.3. Semi-Anechoic Chamber (3m) Setup Diagram for above 1GHz

BORE-SIGHT ANTENNA TOWER



### 5.3. Radiation Emission Limit

(FCC§15.109/CISPR 22, Class B)

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMITS (dB $\mu$ V/m)
30 ~ 230	10	30
230 ~ 1000	10	37
Above 1000	3	73.98 (Peak)
Above 1000	3	53.98 (Average)

- Note :
- (1) The tighter limit applies at the edge between two frequency bands.
  - (2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the E.U.T.
  - (3) The limits applied for radiated emission measurement were used against the requirement of FCC Part 15.109 (a)/(g).

### 5.4. Operating Condition of EUT

Same as powerline conducted measurement which is listed in 4.4., except the test set up replaced by section 5.2.

## 5.5. Test Procedure

- 5.5.1. For Frequency Range was 30MHz-1000MHz which measurement distance was 10m at Open Area Test Site:

The EUT was placed on a turn table which was 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. EUT was set to 10 meters away from the receiving antenna which was mounted on an antenna tower. The antenna could be moved up and down between 1 to 4 meters to find out the maximum emission level. Broadband antennas were used as receiving antennas. Both horizontal and vertical polarization of the antenna was set on measurement. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4-2014 on radiated measurement.

The bandwidth of the R&S Test Receiver ESCS30 was set at 120 kHz.

The frequency range from 30MHz to 1000MHz was pre-scanned with Peak detector and all the final readings of measurement were with Quasi-Peak detector.

- 5.5.2. For frequency range above 1GHz measurement at distance of 3m at Semi-Anechoic Chamber:

The EUT and its simulators were placed on a turn table which was 0.8 meter above ground. The portion of the test volume that was obstructed by absorber placed on the floor (30cm maximum). The turn table rotated 360 degrees to determine the position of the maximum emission level. EUT was set to 3 meters away from the receiving antenna which was mounted on an antenna tower. The antenna could be moved up and down between 1 to 4 meters to find out the maximum emission level. A calibrated Horn Antenna was used as a receiving antenna. Both horizontal and vertical polarizations of the antenna were set on measurement, and both average and peak emission level were recorded from spectrum analyzer. In order to find the maximum emission level, all the interface cables were manipulated according to ANSI C63.4-2014 on radiated measurement.

The resolution bandwidth of Agilent Spectrum Analyzer N9010A-526 was set at 1MHz.

The frequency range above 1GHz was checked and all final readings of measurement were with Peak and Average detector.



## 5.6. Radiated Emission Measurement Results

**PASSED.** All emissions not reported below are too low against the prescribed limits.

**For 30MHz~1000MHz frequency range :**

The EUT with following modes was measured during radiated testing and all the test data are listed in section 5.6.1.

EUT : Printer

Model No. : SP 325DNw

Test Date : 2016. 05. 23                      Temperature : 21                      Humidity : 56%

Test Date : 2016. 06. 01                      Temperature : 21                      Humidity : 56%

The details of test modes are as follows :

Mode	Operating Mode	Reference Test Data No.	
		Horizontal	Vertical
1	Standby Mode	# 3	# 4
2	USB Print Mode	# 6	# 5
<b>3</b>	<b>NIC (LAN) Print Mode</b>	<b># 2</b>	<b># 1</b>
4	WIFI Print	# 7	# 8

(  **mode for maximum detected emission**)

**For Above 1GHz frequency range**

The EUT with worst mode was measured during radiated testing and all the test data are listed in section 5.6.2.

EUT : Printer

Model No. : SP 325DNw

Test Date : 2016. 05. 24

Temperature : 25

Humidity : 53%

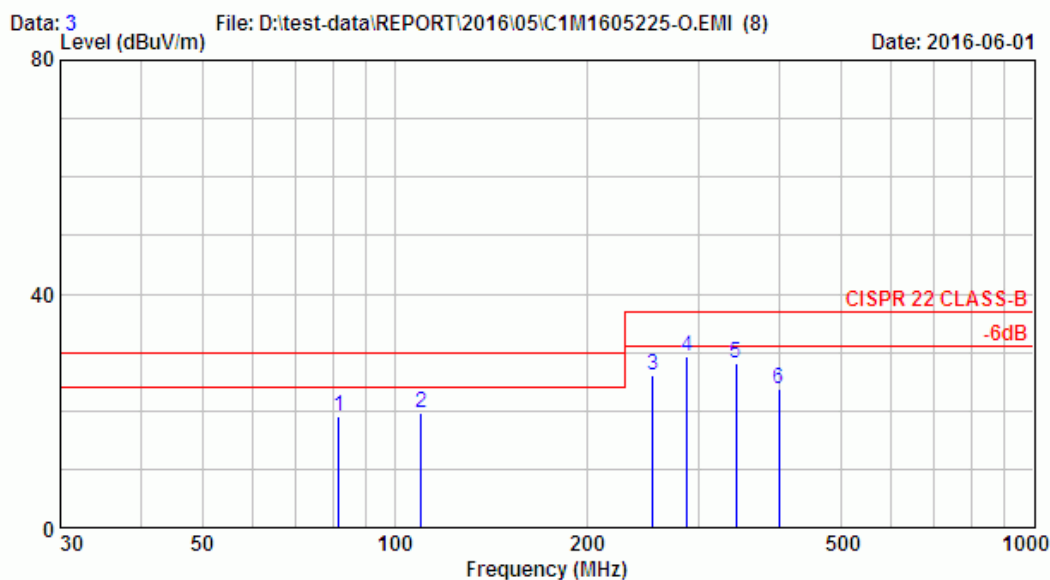
The details of test modes are as follows :

Mode	Operating Mode	Reference Test Data No.	
		Horizontal	Vertical
1	Standby Mode	# 4	# 3
2	USB Print Mode	# 6	# 5
3	NIC (LAN) Print Mode	# 2	# 1
4	WIFI Print	# 8	# 7

### 5.6.1. 30 - 1000MHz Frequency Range Radiated Disturbance Measurement Results at Open Area Test Site:



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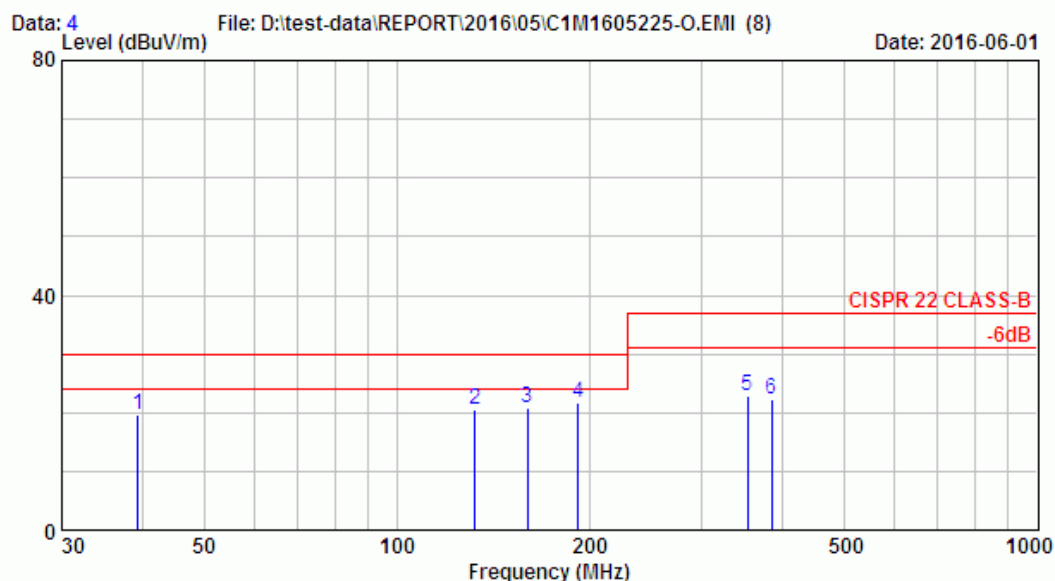
Site no. : OATS No. 6 Data no. : 3  
 Dis. / Ant. : 10m MCTD 0286/2856 08/10 Ant. pol. : HORIZONTAL  
 Limit : CISPR 22 CLASS-B  
 Env. / Ins. : 21°C / 56% ESCS 30 (339) Engineer : Joey  
 EUT : SP 325DNw  
 Power Rating : 120Vac / 60Hz  
 Test Mode : STANDBY

	Ant.	Cable	Emission		Limits	Margin	Remark	
Freq. (MHz)	Factor (dB/m)	Loss (dB)	Reading (dB $\mu$ V)	Level (dB $\mu$ V/m)	(dB $\mu$ V/m)	(dB)		
1	81.814	15.32	1.26	2.40	18.97	30.00	11.03	QP
2	110.078	16.33	1.50	1.83	19.66	30.00	10.34	QP
3	254.004	23.09	2.44	0.45	25.98	37.00	11.02	QP
4	287.210	25.56	2.62	1.27	29.45	37.00	7.55	QP
5	342.605	15.21	2.88	10.17	28.26	37.00	8.74	QP
6	400.345	15.77	3.12	4.89	23.78	37.00	13.22	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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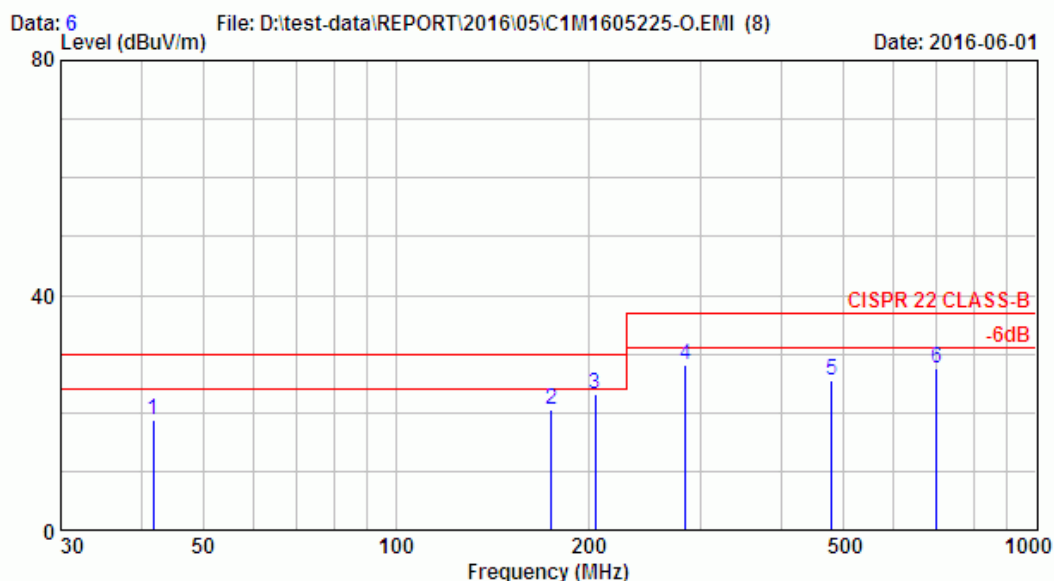
Site no. : OATS No. 6 Data no. : 4  
 Dis. / Ant. : 10m MCTD 0286/2856 08/10 Ant. pol. : VERTICAL  
 Limit : CISPR 22 CLASS-B  
 Env. / Ins. : 21°C / 56% ESCS 30 (339) Engineer : Joey  
 EUT : SP 325DNw  
 Power Rating : 120Vac / 60Hz  
 Test Mode : STANDBY

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dB $\mu$ V)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Remark
1	39.427	18.40	0.84	0.36	19.60	30.00	10.40	QP
2	132.611	17.55	1.67	1.27	20.49	30.00	9.51	QP
3	160.157	18.17	1.87	0.90	20.95	30.00	9.05	QP
4	192.001	20.17	2.09	-0.51	21.75	30.00	8.25	QP
5	352.786	15.31	2.93	4.54	22.78	37.00	14.22	QP
6	385.698	15.63	3.06	3.58	22.27	37.00	14.73	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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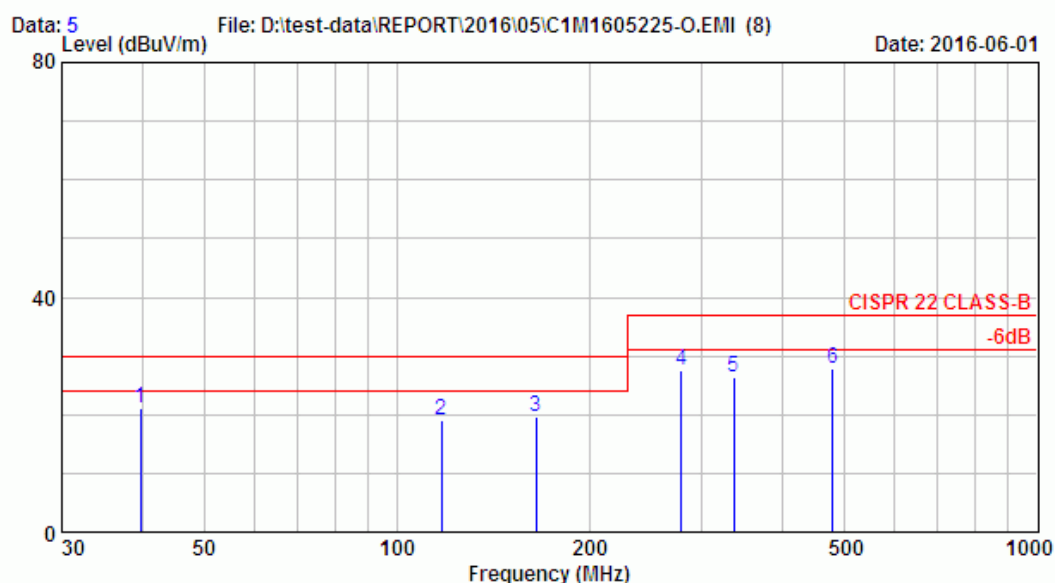
Site no. : OATS No. 6 Data no. : 6  
 Dis. / Ant. : 10m MCTD 0286/2856 08/10 Ant. pol. : HORIZONTAL  
 Limit : CISPR 22 CLASS-B  
 Env. / Ins. : 21°C / 56% ESCS 30 (339) Engineer : Joey  
 EUT : SP 325DNw  
 Power Rating : 120Vac / 60Hz  
 Test Mode : USB Print

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	41.870	17.81	0.87	0.06	18.74	30.00	11.26	QP
2	175.197	18.92	1.98	-0.46	20.43	30.00	9.57	QP
3	205.139	21.10	2.17	-0.22	23.05	30.00	6.95	QP
4	283.397	25.28	2.60	0.13	28.00	37.00	9.00	QP
5	480.000	17.92	3.47	4.18	25.57	37.00	11.43	QP
6	700.153	21.94	4.28	1.23	27.45	37.00	9.55	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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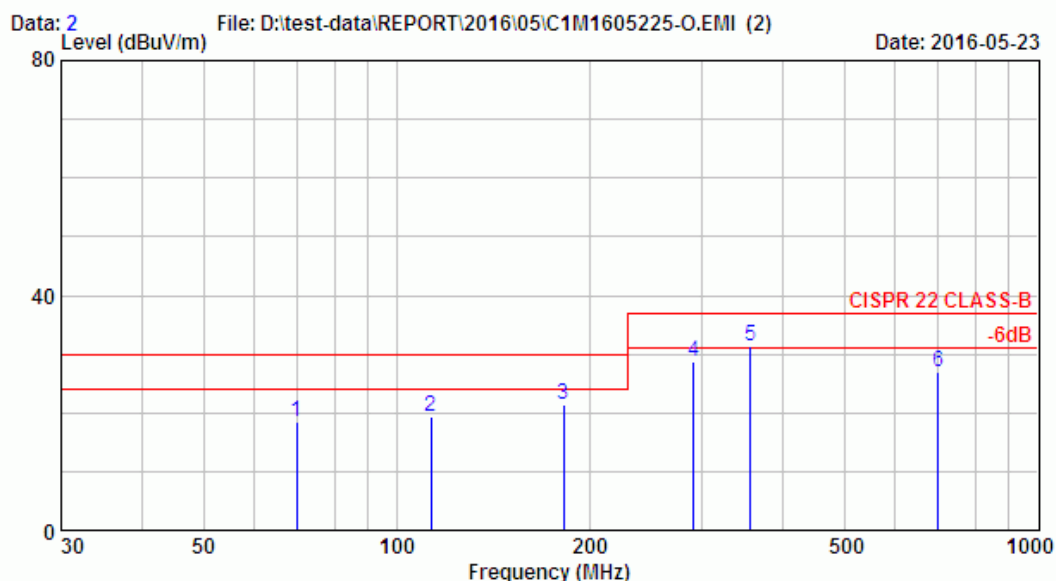
Site no. : OATS No. 6 Data no. : 5  
 Dis. / Ant. : 10m MCTD 0286/2856 08/10 Ant. pol. : VERTICAL  
 Limit : CISPR 22 CLASS-B  
 Env. / Ins. : 21°C / 56% ESCS 30 (339) Engineer : Joey  
 EUT : SP 325DNw  
 Power Rating : 120Vac / 60Hz  
 Test Mode : USB Print

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dB $\mu$ V)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Remark
1	39.773	18.39	0.85	1.72	20.96	30.00	9.04	QP
2	117.573	16.76	1.55	0.86	19.18	30.00	10.82	QP
3	164.936	18.40	1.91	-0.60	19.70	30.00	10.30	QP
4	278.570	24.99	2.58	0.08	27.64	37.00	9.36	QP
5	336.640	15.14	2.86	8.27	26.27	37.00	10.73	QP
6	480.009	17.92	3.47	6.59	27.98	37.00	9.02	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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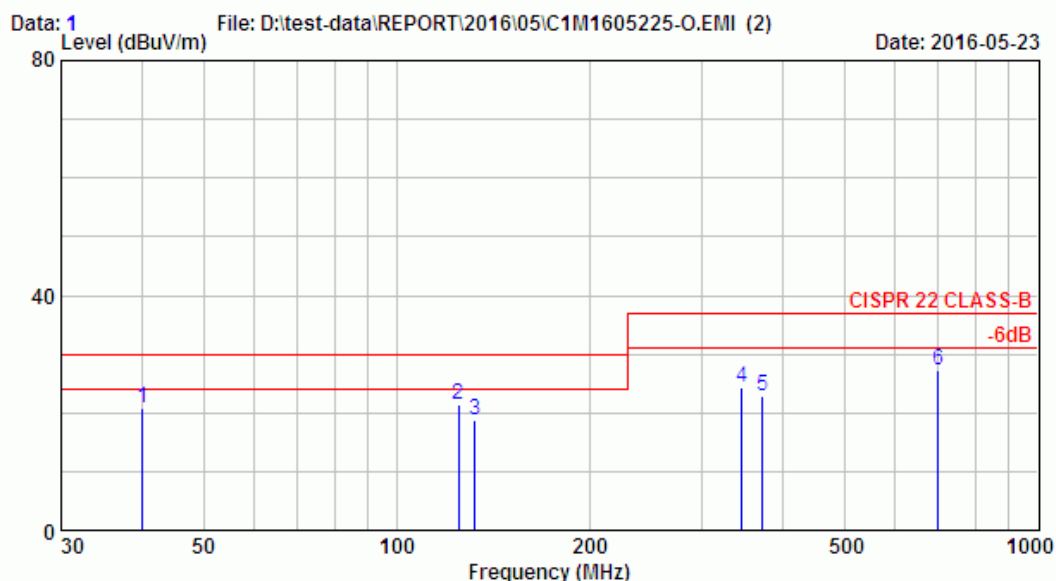
Site no. : OATS No. 6 Data no. : 2  
 Dis. / Ant. : 10m MCTD 0286/2856 08/10 Ant. pol. : HORIZONTAL  
 Limit : CISPR 22 CLASS-B  
 Env. / Ins. : 21°C / 56% ESCS 30 (339) Engineer : Joey  
 EUT : SP 325DNw  
 Power Rating : 120Vac / 60Hz  
 Test Mode : NIC Print

	Ant. Cable		Emission			Limits	Margin	Remark
Freq. (MHz)	Factor (dB/m)	Loss (dB)	Reading (dB $\mu$ V)	Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	(dB)		
1	69.971	15.21	1.15	2.16	18.52	30.00	11.48	QP
2	113.099	16.49	1.52	1.47	19.48	30.00	10.52	QP
3	182.373	19.38	2.03	-0.14	21.27	30.00	8.73	QP
4	291.070	25.83	2.64	0.13	28.59	37.00	8.41	QP
5	356.836	15.35	2.94	12.98	31.28	37.00	5.72*	QP
6	700.005	21.94	4.28	0.85	27.07	37.00	9.93	QP

- Remarks:
1. Emission Level= Antenna Factor + Cable Loss + Reading.
  2. The emission levels that are 20dB below the official limit are not reported.
  3. The worst emission is detected at 356.836MHz with corrected signal level of 31.28dB $\mu$ V/m (limit is 37.00dB $\mu$ V/m) when the antenna is at horizontal polarization and is at 2.7m high and the turn table is at 350°.
  4. 0°was the table front facing the antenna. Degree is calculated from 0°clockwise facing the antenna.



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Site no. : OATS No. 6 Data no. : 1  
 Dis. / Ant. : 10m MCTD 0286/2856 08/10 Ant. pol. : VERTICAL  
 Limit : CISPR 22 CLASS-B  
 Env. / Ins. : 21°C / 56% ESCS 30 (339) Engineer : Joey  
 EUT : SP 325DNw  
 Power Rating : 120Vac / 60Hz  
 Test Mode : NIC Print

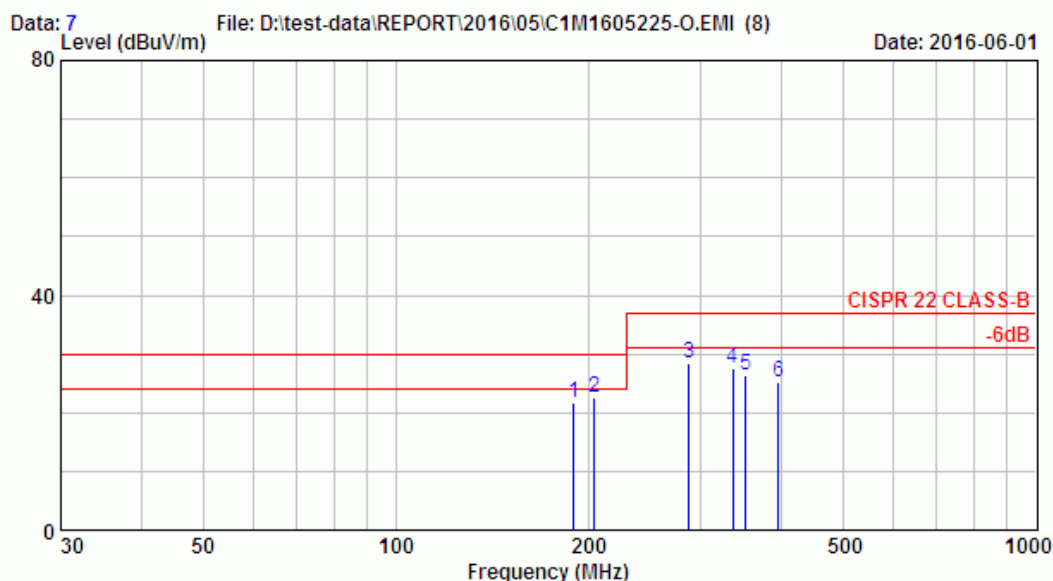
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dB $\mu$ V)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Remark
1	40.210	18.30	0.85	1.67	20.82	30.00	9.18	QP
2	125.006	17.15	1.61	2.56	21.33	30.00	8.67*	QP
3	132.359	17.53	1.67	-0.53	18.66	30.00	11.34	QP
4	345.372	15.23	2.89	6.34	24.46	37.00	12.54	QP
5	372.743	15.52	3.01	4.32	22.85	37.00	14.15	QP
6	700.003	21.94	4.28	1.02	27.24	37.00	9.76	QP

- Remarks:
1. Emission Level= Antenna Factor + Cable Loss + Reading.
  2. The emission levels that are 20dB below the official limit are not reported.
  3. The worst emission is detected at 125.006MHz with corrected signal level of 21.33dB $\mu$ V/m (limit is 30.00dB $\mu$ V/m) when the antenna is at vertical polarization and is at 1.0m high and the turn table is at 320°.
  4. 0°was the table front facing the antenna. Degree is calculated from 0°clockwise facing the antenna.





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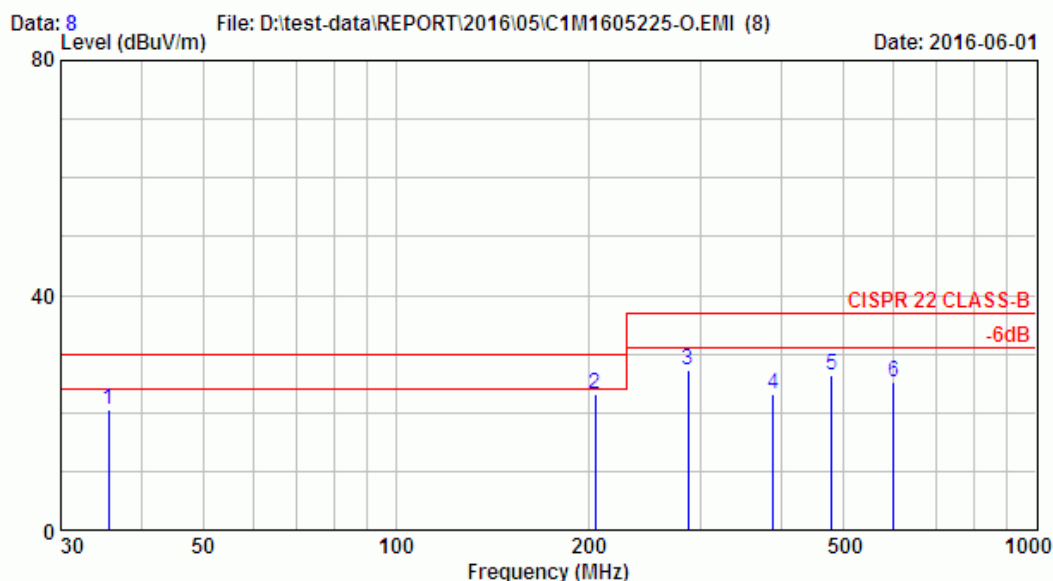
Site no. : OATS No. 6 Data no. : 7  
 Dis. / Ant. : 10m MCTD 0286/2856 08/10 Ant. pol. : HORIZONTAL  
 Limit : CISPR 22 CLASS-B  
 Env. / Ins. : 21°C / 56% ESCS 30 (339) Engineer : Joey  
 EUT : SP 325DNw  
 Power Rating : 120Vac / 60Hz  
 Test Mode : WiFi Print

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	189.881	20.00	2.08	-0.26	21.82	30.00	8.18	QP
2	204.305	21.07	2.17	-0.68	22.55	30.00	7.45	QP
3	287.230	25.56	2.62	0.16	28.33	37.00	8.67	QP
4	336.291	15.13	2.85	9.66	27.64	37.00	9.36	QP
5	352.651	15.31	2.93	8.27	26.51	37.00	10.49	QP
6	396.266	15.73	3.10	6.22	25.06	37.00	11.94	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Site no. : OATS No. 6 Data no. : 8  
 Dis. / Ant. : 10m MCTD 0286/2856 08/10 Ant. pol. : VERTICAL  
 Limit : CISPR 22 CLASS-B  
 Env. / Ins. : 21°C / 56% ESCS 30 (339) Engineer : Joey  
 EUT : SP 325DNw  
 Power Rating : 120Vac / 60Hz  
 Test Mode : WiFi Print

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dB $\mu$ V)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Remark
1	35.622	18.44	0.80	1.40	20.64	30.00	9.36	QP
2	205.109	21.10	2.17	-0.17	23.10	30.00	6.90	QP
3	286.369	25.50	2.61	-0.94	27.17	37.00	9.83	QP
4	389.384	15.66	3.08	4.49	23.23	37.00	13.77	QP
5	480.001	17.92	3.47	5.02	26.41	37.00	10.59	QP
6	600.044	19.68	3.92	1.70	25.30	37.00	11.70	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

## 5.6.2. Above 1GHz Frequency Range Radiated Emission Measurement Results at Semi-Anechoic Chamber

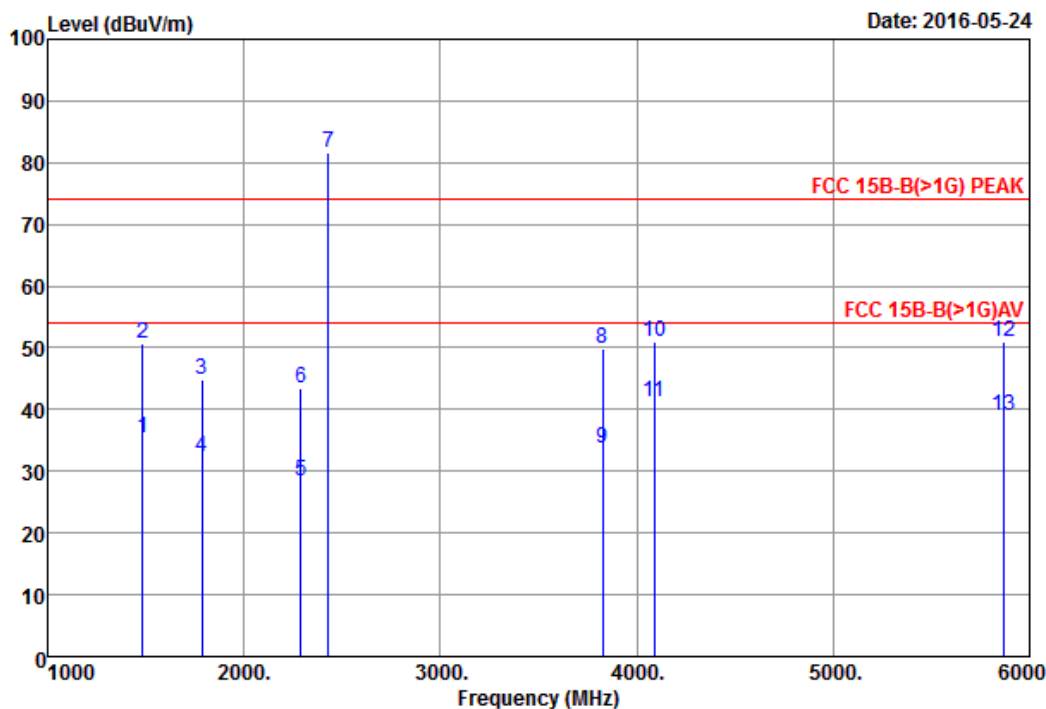


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Data: 4 File: \\Em2\_chamber\data (d)\Test data\REPORT\2016\C1M1605XXX\C1M1605225-CHAME



Site no. : Audix No.2 Chamber Data no. : 4  
Dis. / Ant. : 3m HORN3115-3775 Ant. pol. : HORIZONTAL  
Limit : FCC 15B-B(>1G) PEAK  
Env. / Ins. : 25°C / 53% N9010A (076) Engineer : Edward\_lin  
EUT : SP 325DNw  
Power Rating : 120Vac/60Hz  
Test Mode : STANDBY

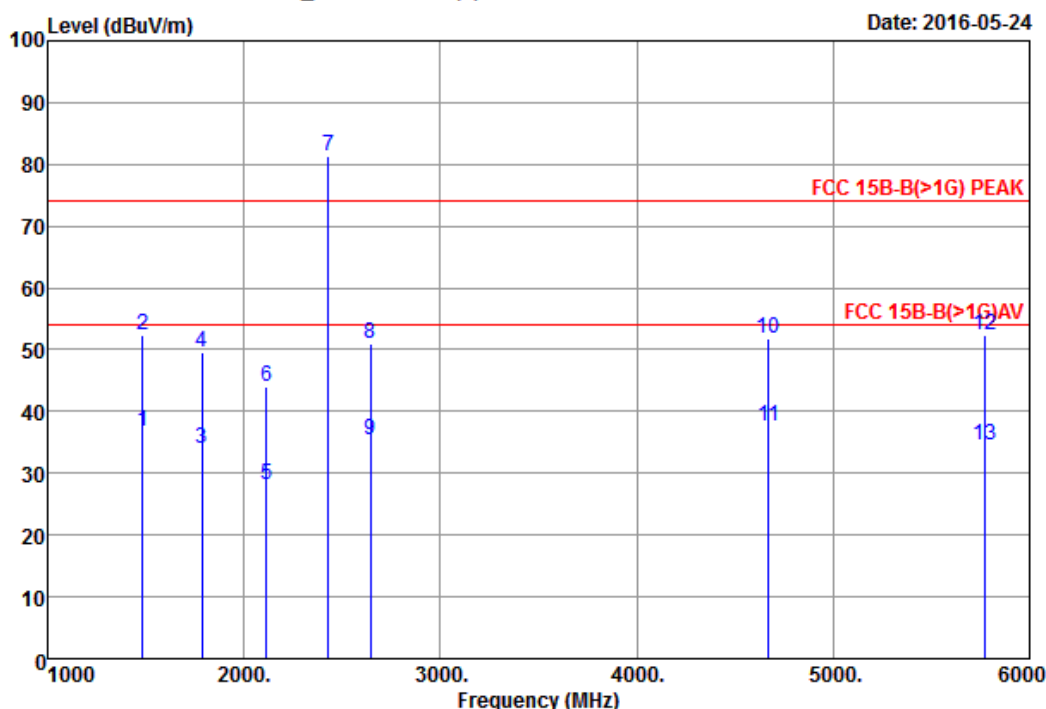
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	PREAMP Gain (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	
1	1484.79	25.89	5.77	35.82	39.65	35.49	53.98	18.49	Average
2	1485.00	25.89	5.77	35.82	54.88	50.72	73.98	23.26	Peak
3	1785.00	27.34	6.76	35.47	46.23	44.86	73.98	29.12	Peak
4	1787.47	27.36	6.76	35.47	33.65	32.30	53.98	21.68	Average
5	2289.48	28.54	7.74	35.15	27.34	28.47	53.98	25.51	Average
6	2290.00	28.54	7.74	35.15	42.32	43.45	73.98	30.53	Peak
@ 7	2430.00	28.65	7.88	35.10	80.09	81.52			
8	3825.00	32.33	9.70	34.55	42.28	49.76	73.98	24.22	Peak
9	3825.95	32.33	9.70	34.55	26.35	33.83	53.98	20.15	Average
10	4090.00	32.70	10.09	34.46	42.60	50.93	73.98	23.05	Peak
11	4090.73	32.70	10.09	34.46	32.94	41.27	53.98	12.71	Average
12	5871.00	34.47	11.31	34.22	39.45	51.01	73.98	22.97	Peak
13	5871.64	34.47	11.31	34.22	27.32	38.88	53.98	15.10	Average

- Remarks:
1. Emission Level= Antenna Factor + Cable Loss - Preamp Gain + Reading.
  2. The emission levels that are 20dB below the official limit are not reported.
  3. "@" means the radiated emission from the transmitter/transceiver, it is ignored in this report.



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Data: 3 File: \\Em2\_chamber\data (d)\Test data\REPORT\2016\1M1605XXX\1M1605225-CHAME



Site no. : Audix No.2 Chamber Data no. : 3  
 Dis. / Ant. : 3m HORN3115-3775 Ant. pol. : VERTICAL  
 Limit : FCC 15B-B(>1G) PEAK  
 Env. / Ins. : 25°C / 53% N9010A (076) Engineer : Edward\_lin  
 EUT : SP 325DNw  
 Power Rating : 120Vac/60Hz  
 Test Mode : STANDBY

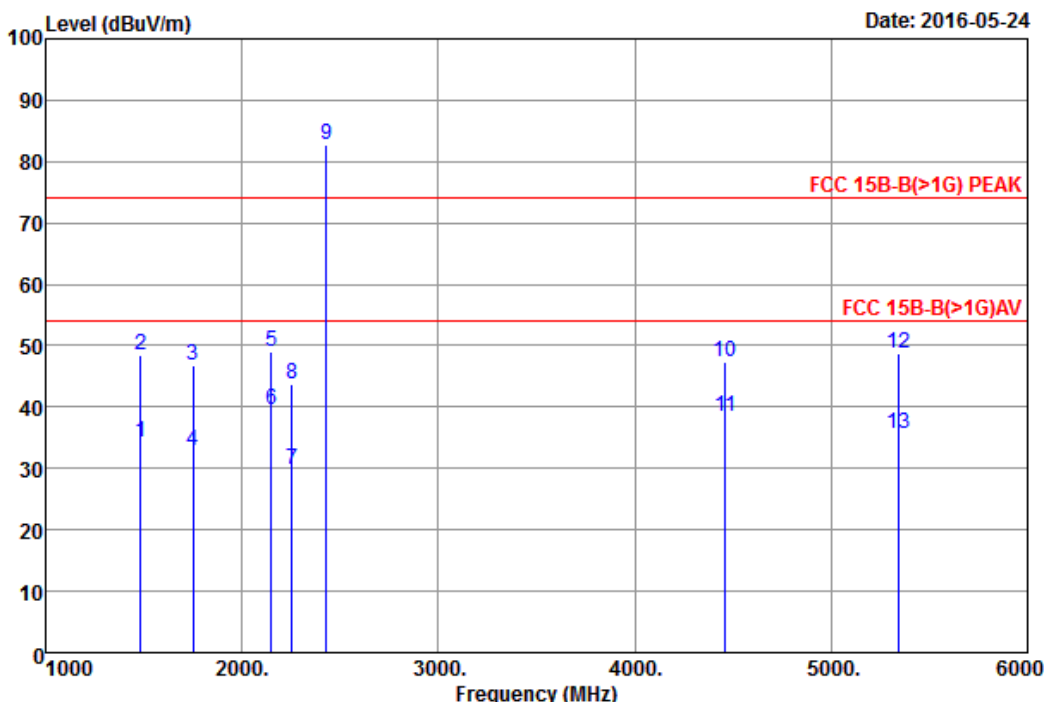
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	PREAMP Gain (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	
1	1484.75	25.89	5.77	35.82	40.95	36.79	53.98	17.19	Average
2	1485.00	25.89	5.77	35.82	56.41	52.25	73.98	21.73	Peak
3	1784.49	27.34	6.76	35.47	35.22	33.85	53.98	20.13	Average
4	1785.00	27.34	6.76	35.47	50.96	49.59	73.98	24.39	Peak
5	2114.75	28.40	7.56	35.22	27.28	28.02	53.98	25.96	Average
6	2115.00	28.40	7.56	35.22	43.33	44.07	73.98	29.91	Peak
@ 7	2430.00	28.65	7.88	35.10	79.98	81.41			
8	2643.00	29.30	8.11	35.07	48.73	51.07	73.98	22.91	Peak
9	2643.80	29.30	8.11	35.07	32.99	35.33	53.98	18.65	Average
10	4671.00	33.09	10.70	34.40	42.46	51.85	73.98	22.13	Peak
11	4671.19	33.09	10.70	34.40	28.14	37.53	53.98	16.45	Average
12	5769.00	34.45	11.30	34.20	40.94	52.49	73.98	21.49	Peak
13	5769.95	34.45	11.30	34.20	23.05	34.60	53.98	19.38	Average

- Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Preamp Gain + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.  
 3. "@" means the radiated emission from the transmitter/transceiver, it is ignored in this report.



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Data: 6 File: \\Em2\_chamber\data (d)\Test data\REPORT\2016\IC1M1605XXX\IC1M1605225-CHAME



Site no. : Audix No.2 Chamber Data no. : 6  
 Dis. / Ant. : 3m HORN3115-3775 Ant. pol. : HORIZONTAL  
 Limit : FCC 15B-B(>1G) PEAK  
 Env. / Ins. : 25°C / 53% N9010A (076) Engineer : Edward\_lin  
 EUT : SP 325DNw  
 Power Rating : 120Vac/60Hz  
 Test Mode : USB PRINT

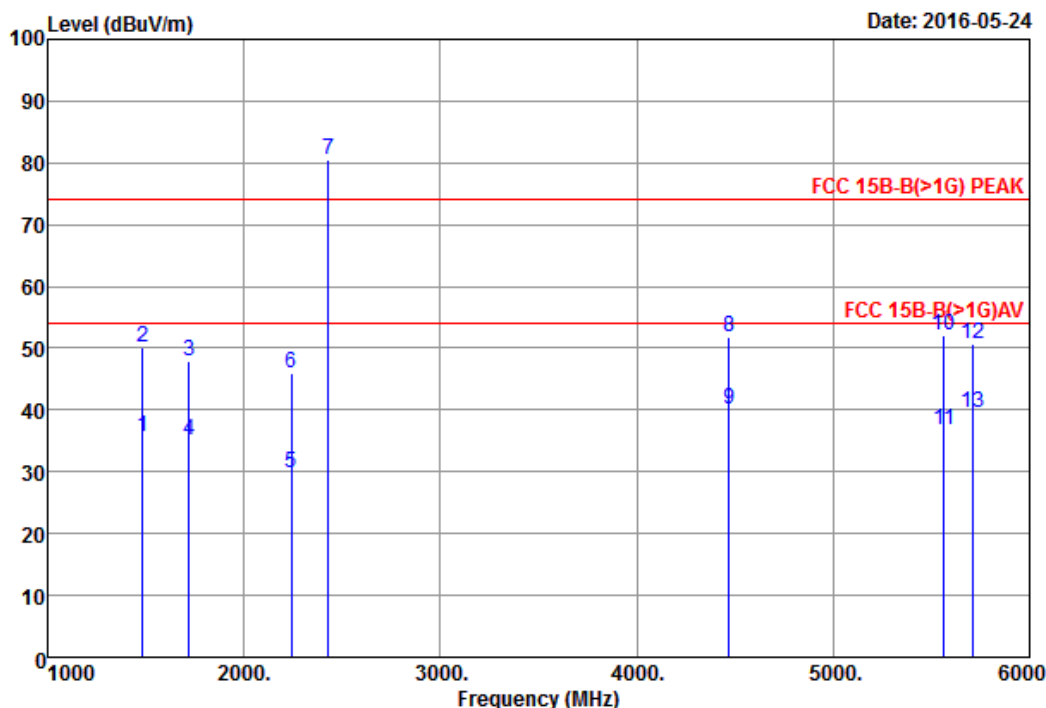
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	PREAMP Gain (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	
1	1484.98	25.89	5.77	35.82	38.51	34.35	53.98	19.63	Average
2	1485.00	25.89	5.77	35.82	52.66	48.50	73.98	25.48	Peak
3	1750.00	27.20	6.64	35.51	48.38	46.71	73.98	27.27	Peak
4	1752.42	27.20	6.64	35.51	34.58	32.91	53.98	21.07	Average
5	2149.00	28.43	7.60	35.20	48.18	49.01	73.98	24.97	Peak
6	2149.34	28.43	7.60	35.20	38.68	39.51	53.98	14.47	Average
7	2254.48	28.51	7.71	35.16	28.68	29.74	53.98	24.24	Average
8	2255.00	28.51	7.71	35.16	42.77	43.83	73.98	30.15	Peak
@ 9	2430.00	28.65	7.88	35.10	81.41	82.84			
10	4462.00	32.70	10.41	34.46	38.61	47.26	73.98	26.72	Peak
11	4462.40	32.70	10.41	34.46	29.79	38.44	53.98	15.54	Average
12	5342.00	34.22	11.23	34.20	37.44	48.69	73.98	25.29	Peak
13	5342.89	34.22	11.23	34.20	24.45	35.70	53.98	18.28	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Preamp Gain + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.  
 3. "@" means the radiated emission from the transmitter/transceiver, it is ignored in this report.



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Data: 5 File: \\Em2\_chamber\data (d)\Test data\REPORT\2016\C1M1605XXX\C1M1605225-CHAME



Site no. : Audix No.2 Chamber Data no. : 5  
 Dis. / Ant. : 3m HORN3115-3775 Ant. pol. : VERTICAL  
 Limit : FCC 15B-B(>1G) PEAK  
 Env. / Ins. : 25°C / 53% N9010A (076) Engineer : Edward\_lin  
 EUT : SP 325DNw  
 Power Rating : 120Vac/60Hz  
 Test Mode : USB PRINT

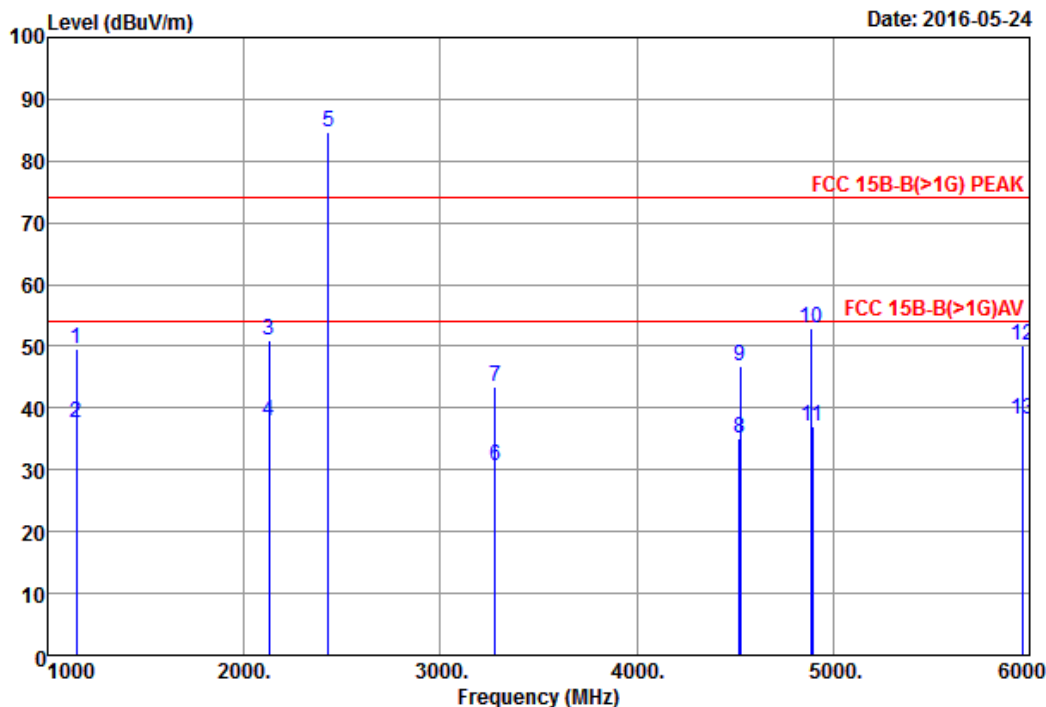
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	PREAMP Gain (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	
1	1484.86	25.89	5.77	35.82	39.87	35.71	53.98	18.27	Average
2	1485.00	25.89	5.77	35.82	54.39	50.23	73.98	23.75	Peak
3	1720.00	27.05	6.53	35.54	49.85	47.89	73.98	26.09	Peak
4	1720.78	27.05	6.55	35.54	36.91	34.97	53.98	19.01	Average
5	2239.75	28.50	7.69	35.17	28.75	29.77	53.98	24.21	Average
6	2240.00	28.50	7.69	35.17	44.86	45.88	73.98	28.10	Peak
@ 7	2430.00	28.65	7.88	35.10	79.05	80.48			
8	4470.00	32.70	10.41	34.46	43.30	51.95	73.98	22.03	Peak
9	4470.70	32.70	10.41	34.46	31.58	40.23	53.98	13.75	Average
10	5563.00	34.41	11.27	34.17	40.57	52.08	73.98	21.90	Peak
11	5563.71	34.41	11.27	34.17	25.14	36.65	53.98	17.33	Average
12	5707.00	34.44	11.29	34.19	39.27	50.81	73.98	23.17	Peak
13	5707.43	34.44	11.29	34.19	27.89	39.43	53.98	14.55	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Preamp Gain + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.  
 3. "@" means the radiated emission from the transmitter/transceiver, it is ignored in this report.



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Data: 2 File: \\Em2\_chamber\data (d)\Test data\REPORT\2016\1C1M1605XXX\1C1M1605225-CHAME



Site no. : Audix No.2 Chamber Data no. : 2  
 Dis. / Ant. : 3m HORN3115-3775 Ant. pol. : HORIZONTAL  
 Limit : FCC 15B-B(>1G) PEAK  
 Env. / Ins. : 25°C / 53% N9010A (076) Engineer : Edward\_lin  
 EUT : SP 325DNw  
 Power Rating : 120Vac/60Hz  
 Test Mode : NIC Print

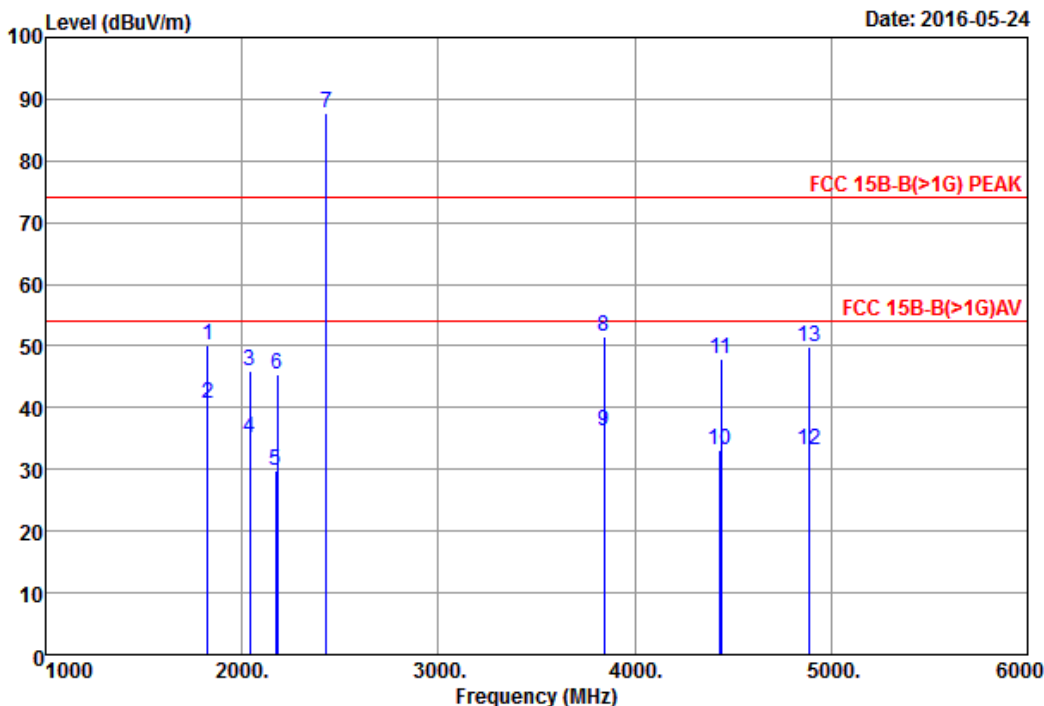
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	PREAMP Gain (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	
1	1148.00	25.44	4.80	36.50	55.72	49.46	73.98	24.52	Peak
2	1148.62	25.44	4.80	36.50	43.91	37.65	53.98	16.33	Average
3	2126.00	28.41	7.57	35.21	50.07	50.84	73.98	23.14	Peak
4	2126.98	28.41	7.57	35.21	37.18	37.95	53.98	16.03	Average
@ 5	2430.00	28.65	7.88	35.10	83.27	84.70			
6	3276.78	31.23	8.82	34.85	25.32	30.52	53.98	23.46	Average
7	3280.00	31.23	8.83	34.85	38.24	43.45	73.98	30.53	Peak
8	4524.12	32.76	10.48	34.45	26.17	34.96	53.98	19.02	Average
9	4525.00	32.76	10.48	34.45	37.88	46.67	73.98	27.31	Peak
10	4890.00	33.56	11.03	34.32	42.55	52.82	73.98	21.16	Peak
11	4894.57	33.56	11.03	34.31	26.63	36.91	53.98	17.07	Average
12	5968.00	34.49	11.33	34.23	38.58	50.17	73.98	23.81	Peak
13	5968.92	34.49	11.33	34.23	26.54	38.13	53.98	15.85	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Preamp Gain + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.  
 3. "@" means the radiated emission from the transmitter/transceiver, it is ignored in this report.



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Data: 1 File: \\Em2\_chamber\data (d)\Test data\REPORT\2016\C1M1605XXX\C1M1605225-CHAME Date: 2016-05-24



Site no. : Audix No.2 Chamber Data no. : 1  
 Dis. / Ant. : 3m HORN3115-3775 Ant. pol. : VERTICAL  
 Limit : FCC 15B-B(>1G) PEAK  
 Env. / Ins. : 25°C / 53% N9010A (076) Engineer : Edward\_lin  
 EUT : SP 325DNw  
 Power Rating : 120Vac/60Hz  
 Test Mode : NIC Print

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	PREAMP Gain (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	
1	1825.00	27.53	6.88	35.43	51.17	50.15	73.98	23.83	Peak
2	1825.14	27.53	6.88	35.43	41.76	40.74	53.98	13.24	Average
3	2040.00	28.34	7.48	35.24	45.44	46.02	73.98	27.96	Peak
4	2040.24	28.34	7.48	35.24	34.54	35.12	53.98	18.86	Average
5	2171.63	28.45	7.62	35.19	28.79	29.67	53.98	24.31	Average
6	2180.00	28.46	7.63	35.19	44.53	45.43	73.98	28.55	Peak
@ 7	2430.00	28.65	7.88	35.10	86.29	87.72			
8	3844.00	32.37	9.75	34.53	43.86	51.45	73.98	22.53	Peak
9	3844.92	32.37	9.75	34.53	28.53	36.12	53.98	17.86	Average
10	4436.88	32.70	10.39	34.46	24.52	33.15	53.98	20.83	Average
11	4440.00	32.70	10.39	34.46	39.24	47.87	73.98	26.11	Peak
12	4888.12	33.56	11.03	34.32	22.85	33.12	53.98	20.86	Average
13	4890.00	33.56	11.03	34.32	39.45	49.72	73.98	24.26	Peak

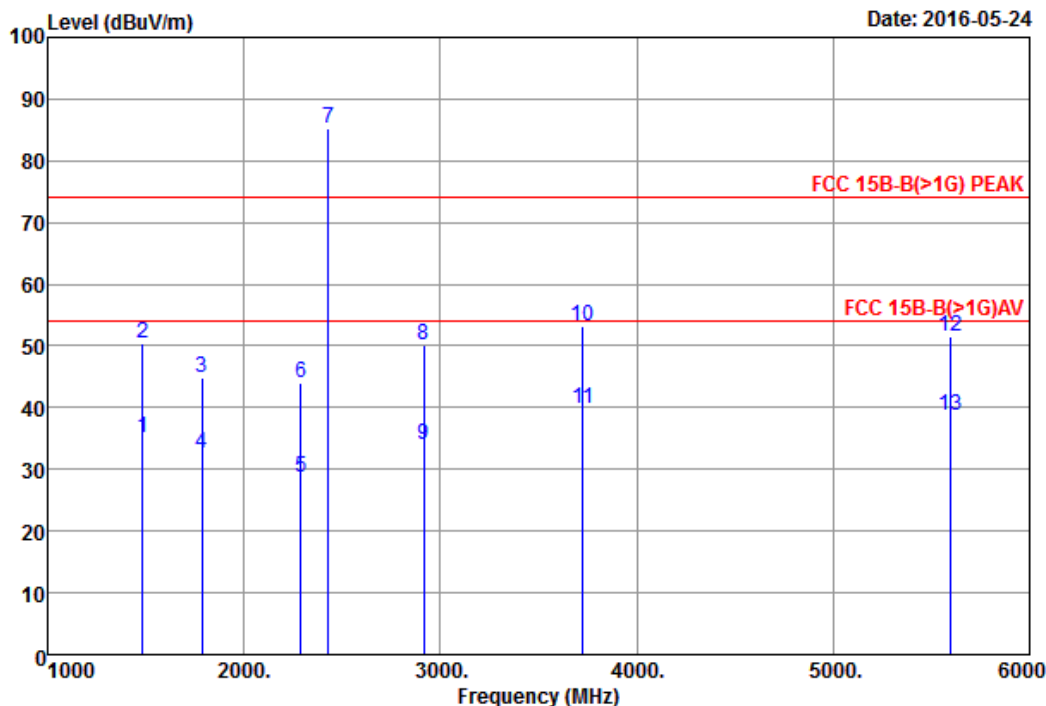
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Preamp Gain + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.  
 3. "@" means the radiated emission from the transmitter/transceiver, it is ignored in this report.





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Data: 8 File: \\Em2\_chamber\data (d)\Test data\REPORT\2016\1M1605XXX\1M1605225-CHAME Date: 2016-05-24



Site no. : Audix No.2 Chamber Data no. : 8  
 Dis. / Ant. : 3m HORN3115-3775 Ant. pol. : HORIZONTAL  
 Limit : FCC 15B-B(>1G) PEAK  
 Env. / Ins. : 25°C / 53% N9010A (076) Engineer : Edward\_lin  
 EUT : SP 325DNw  
 Power Rating : 120Vac/60Hz  
 Test Mode : WIFI Print

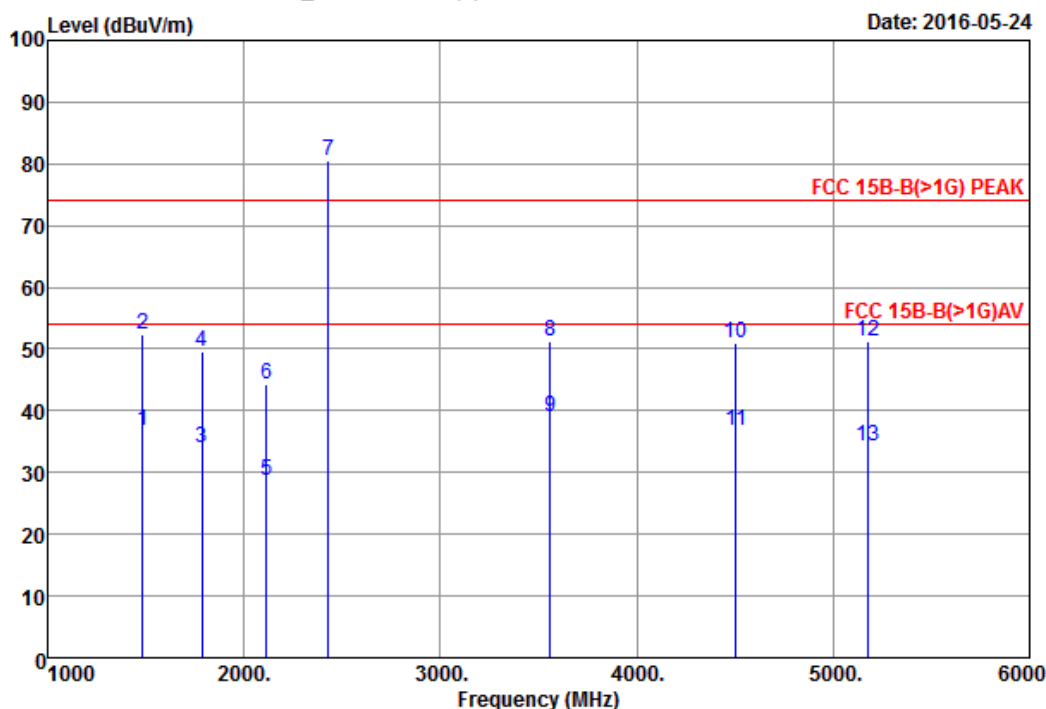
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	PREAMP Gain (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	
1	1484.48	25.89	5.77	35.82	39.36	35.20	53.98	18.78	Average
2	1485.00	25.89	5.77	35.82	54.57	50.41	73.98	23.57	Peak
3	1785.00	27.34	6.76	35.47	46.33	44.96	73.98	29.02	Peak
4	1787.75	27.36	6.76	35.47	33.85	32.50	53.98	21.48	Average
5	2289.65	28.54	7.74	35.15	27.59	28.72	53.98	25.26	Average
6	2290.00	28.54	7.74	35.15	42.85	43.98	73.98	30.00	Peak
@ 7	2430.00	28.65	7.88	35.10	83.80	85.23			
8	2915.00	30.38	8.40	35.05	46.45	50.18	73.98	23.80	Peak
9	2915.87	30.38	8.40	35.05	30.24	33.97	53.98	20.01	Average
10	3725.00	32.11	9.52	34.59	46.13	53.17	73.98	20.81	Peak
11	3725.86	32.11	9.52	34.59	32.77	39.81	53.98	14.17	Average
12	5594.00	34.42	11.27	34.17	40.11	51.63	73.98	22.35	Peak
13	5594.97	34.42	11.27	34.17	27.17	38.69	53.98	15.29	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Preamp Gain + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.  
 3. "@" means the radiated emission from the transmitter/transceiver, it is ignored in this report.



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Data: 7 File: \\Em2\_chamber\data (d)\Test data\REPORT\2016\C1M1605XXX\C1M1605225-CHAME



Site no. : Audix No.2 Chamber Data no. : 7  
 Dis. / Ant. : 3m HORN3115-3775 Ant. pol. : VERTICAL  
 Limit : FCC 15B-B(>1G) PEAK  
 Env. / Ins. : 25°C / 53% N9010A (076) Engineer : Edward\_lin  
 EUT : SP 325DNw  
 Power Rating : 120Vac/60Hz  
 Test Mode : WIFI Print

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	PREAMP Gain (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	
1	1484.39	25.89	5.77	35.82	40.84	36.68	53.98	17.30	Average
2	1485.00	25.89	5.77	35.82	56.65	52.49	73.98	21.49	Peak
3	1784.85	27.34	6.76	35.47	35.37	34.00	53.98	19.98	Average
4	1785.00	27.34	6.76	35.47	50.87	49.50	73.98	24.48	Peak
5	2114.48	28.40	7.56	35.22	27.88	28.62	53.98	25.36	Average
6	2115.00	28.40	7.56	35.22	43.62	44.36	73.98	29.62	Peak
@ 7	2430.00	28.65	7.88	35.10	79.05	80.48			
8	3560.00	31.74	9.20	34.68	45.11	51.37	73.98	22.61	Peak
9	3560.38	31.74	9.20	34.68	32.79	39.05	53.98	14.93	Average
10	4505.00	32.73	10.46	34.46	42.11	50.84	73.98	23.14	Peak
11	4505.18	32.73	10.46	34.46	28.07	36.80	53.98	17.18	Average
12	5179.00	34.02	11.21	34.23	40.35	51.35	73.98	22.63	Peak
13	5179.61	34.02	11.21	34.23	23.26	34.26	53.98	19.72	Average

- Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Preamp Gain + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.  
 3. "@" means the radiated emission from the transmitter/transceiver, it is ignored in this report.

## **6. DEVIATION TO TEST SPECIFICATIONS**

**【NONE】**