

Technical Compliance Statement

For the following information

Ref. File No.: C1M1606176

Product : Multifunction Digital Product
(Copier/Printer/Scanner/Fax)

FCC ID : BBP-MFSP220SFNW1

Model Number : (1)SP 220SFNw (2)SP 220SNw

Brand Name : RICOH

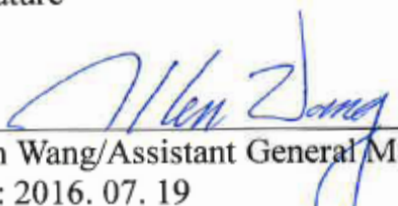
Applicant : Ricoh Company Ltd.

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-F160426**.

Signature


Allen Wang/Assistant General Manager
Date: 2016. 07. 19

Test Laboratory:
AUDIX Technology Corporation, EMC Department
NVLAP Lab Code: 200077-0
FCC OET Designation: TW1004 & TW1090
Web Site: 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 FCC
for
Ricoh Company Ltd.
Multifunction Digital Product (Copier/Printer/Scanner/Fax)
Model No.: (1)SP 220SFNw (2)SP 220SNw
Brand: RICOH
FCC ID: BBP-MFSP220SFNW1

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

Prepared by : AUDIX Technology Corporation
EMC Department
No. 53-11, Dingfu, Linkou Dist.,
New Taipei City 244, Taiwan.

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File Number : C1M1606176
(ACS Ref. No.: ACS16Q0643)
Report Number : EM-F160426
Date of Test : 2016. 06. 21 ~ 07. 15
Date of Report : 2016. 07. 19

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TEST REPORT

Applicant : Ricoh Company Ltd.
 Manufacturer : RICOH Co., Ltd.
 EUT Description : Multifunction Digital Product (Copier/Printer/Scanner/Fax)
 FCC ID : BBP-MFSP220SFNW1
 (A) Model No. : (1)SP 220SFNW (2)SP 220SNW
 (B) Serial No. : M066M300027
 (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. 06. 21 ~ 07. 15 Date of Report : 2016. 07. 19

Producer : 
 (Patty Yu/Administrator)

Signatory : 
 (Allen Wang/Assistant General Manager)

1. DESCRIPTION OF VERSION

Edition No.	Date of Revision	Revision Summary	Report Number
0	2016. 07. 19	Original Report.	EM-F160426

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.

EMISSION			
Description of Test Item	Standard	Limits	Results
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 : Multifunction Digital Product
(Copier/Printer/Scanner/Fax)

FCC ID : BBP-MFSP220SFNW1

Model Number : (1)SP 220SFNW (2)SP 220SNw

The differences between models are listed as follows:

Model	Photocopy/Printer Speed				Function			
	CPM or PPM	Printer	Scanner	WiFi	ADF	FAX	NFC	Smart Operation Panel
SP 220SFNW	23							
SP 220SNw	23					-		

The SP 220SFNW was tested in this report.

Serial Number : M066M300027

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 : 532MHz

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

USB Cable : Shielded, Detachable, 1.8m

Telephone Line : Unshielded, Detachable, 1.8m

AC Power Cord : Unshielded, Detachable, 1.8m (3C)

Date of Receipt of Sample : 2016. 06.07
Date of Test : 2016. 06. 21 ~ 07. 15

Remark :

The EUT is a Multifunction Digital Product (Copier/Printer/Scanner/Fax) which input/output ports provided as follows:

Back View:

- (1) One AC In Port
- (2) One USB-A Port
- (3) One USB-B Port
- (4) One Ethernet Port
- (5) One Telephone Port
- (6) One Line Interface Port

3.2. Tested Supporting System Details

3.2.1. Support Peripheral Unit

No.	Product	Brand	Model No.	Serial No.	Approval
1	PC System	DELL	D09M	8BLJYBX	By DoC
2	Monitor	Lenovo	LT2452P	VNA9XVX	By DoC
3	USB Keyboard	DELL	KB212-B	CN-05V23T-71581-2 8H-013K	By DoC
4	Mouse	DELL	MO71KC	406012044	By DoC
5	I-POD Player #1	APPLE	A1204	4H722TJRVTE	By DoC
6	I-POD Player #2	APPLE	A1204	4H722TH8VTE	By DoC
7	Telephone	Ju Tong	RS-802M	N/A	N/A
Partner System					
1	Dial Tone System	Sun Moon Star	SMS-4	97080018	N/A
2	FAX	SHARP	UX-178	07101511	N/A
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, 1.8m 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, Undetachable, 1.8m
4	USB Cable: Shielded, Undetachable, 1.8m
5	USB Cable: Shielded, Undetachable, 1.0m
6	USB Cable: Shielded, Undetachable, 1.0m
7	-
Partner System	
1	AC Power Cord: Unshielded, Detachable, 1.6m
2	Telephone Line: Cable: Unshielded, Detachable, 10m (To Dial Tone System) AC Power Cord: Unshielded, Detachable, 1.2m
3	LAN Cable: Unshielded, Detachable, 10m
4	LAN Cable: Unshielded, Detachable, 10m AC Power Cord: Unshielded, Detachable, 1.2m

3.3. Description of Test Facility

Name of Firm	:	AUDIX Technology Corporation EMC Department No. 53-11, Dingfu, Linkou Dist., New Taipei City 244, Taiwan
Test Location & Facility	:	No. 3 Shielded Room & No. 8 Open Area Test Site & No. 2 Semi-Anechoic Chamber No. 67-4, Dingfu, Linkou Dist., New Taipei City 244, Taiwan
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

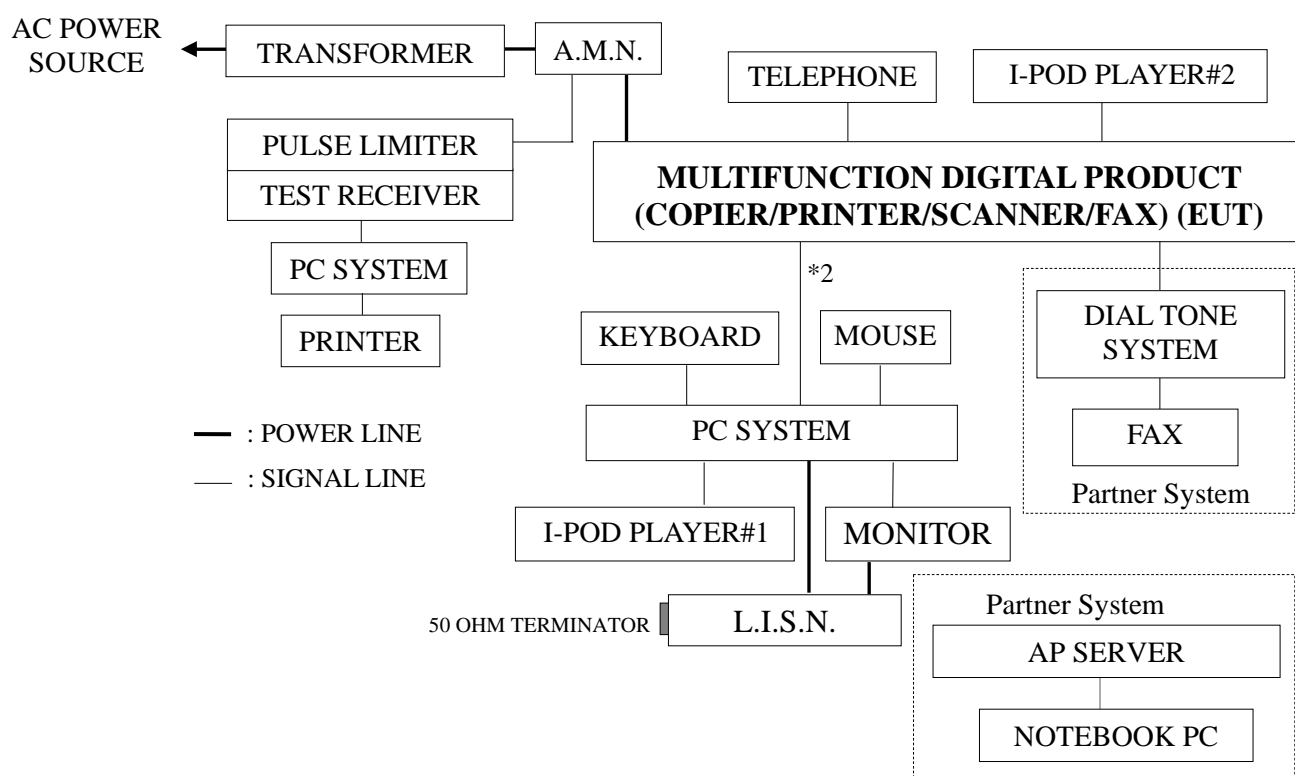
4.1. Test Equipment

The following test equipments are used during the powerline conducted emission measurement : (No. 3 Shielded Room)

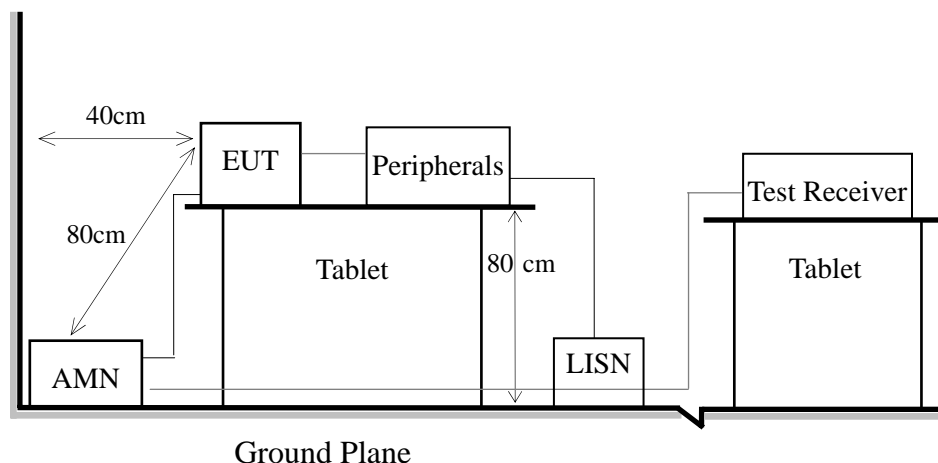
Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Test Receiver	R&S	ESR3	101772	2016. 01. 29	1 Year
2.	A.M.N.	Kyoritsu	KNW-244C	8-1373-5	2016. 04. 01	1 Year
3.	L.I.S.N.	Kyoritsu	KNW-407	8-1370-9	2016. 02. 26	1 Year
4.	Pulse Limiter	R&S	ESH3-Z2	100041	2016. 01. 17	1 Year

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 μ V	56 ~ 46 dB μ V
500kHz ~ 5MHz	56 dB μ V	46 dB μ V
5MHz ~ 30MHz	60 dB μ V	50 dB μ 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.
Copy + NIC (LAN) ping	This mode is concerned with the copying function of EUT whereby the document in the ADF will be copy and print out the paper. At the same time, network ports are connected to PC. PC send packet to the printer for receiving at the same IP domain.
USB Print + Wifi Scan	This mode is concerned with the USB printing function of EUT whereby the document will be printed form PC through the RICOH test software. At the same time, the document in the ADF will be scanned by Photoshop software before being saved into the notebook PC via wireless AP.
NIC (LAN) print + Scan to USB memory	This mode is concerned with the LAN printing function of EUT whereby the document will be printed form PC through the RICOH test software. At the same time, the document in the ADF will be scanned by Photoshop software before being saved into the USB memory.
Wifi print +USB scan	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. At the same time, the document in the ADF will be scanned by Photoshop software before being saved into the PC via USB port.
Fax	Tx: This mode is concerned with the fax function of EUT whereby the document in the ADF will be fax to support printer and sent out the paper. Rx: This mode is concerned with the fax function of EUT whereby the document in the support printer will be fax to EUT, the EUT is received the documents from the support printer.
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 ESR3 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 : Multifunction Digital Product (Copier/Printer/Scanner/Fax)

Model No. : SP 220SFNw

Test Date : 2016. 06. 21

Temperature : 24

Humidity : 54%

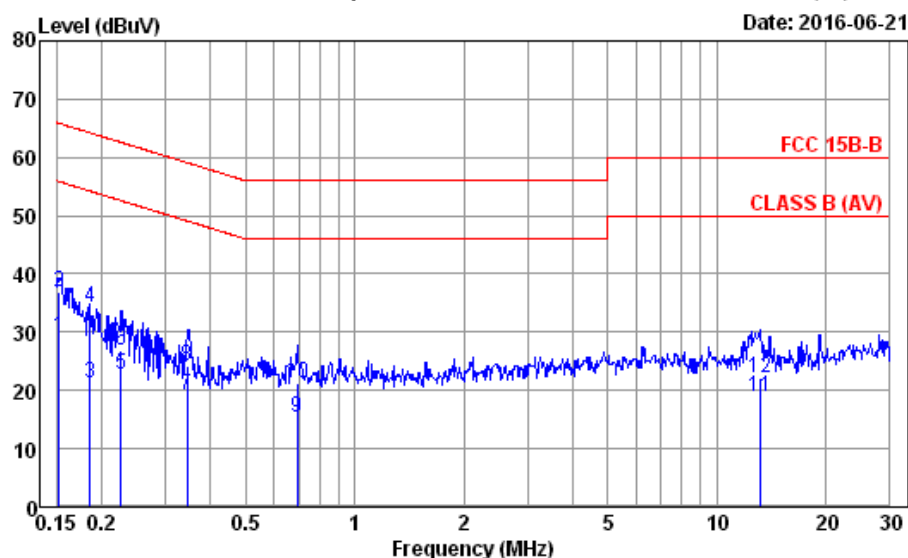
The details of test modes are as follows :

Mode	Operating Mode	Reference Test Data No.	
		Neutral	Line
1	Standby Mode	# 2	# 1
2	Copy + NIC (LAN) Ping Mode	# 4	# 3
3	USB Print + WIFI Scan Mode	# 6	# 5
4	NIC (LAN) Print + USB Memory Mode	# 8	# 7
5	WIFI Print + USB Scan Mode	# 10	# 9
6	FAX-TX Mode	# 12	# 11
7	FAX-RX Mode	# 14	# 13



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Data: 2 File: D:\test-data\Report\2016\1M1606XXX\1M1606176-C-D.EM6 (16)



Site no. : No.3 Shielded Room Data no. : 2
 Condition : KNW-244C 8-1373-5 LISN Phase : NEUTRAL
 Limit : FCC 15B-B
 Env. / Ins. : 24°C / 54% ESR3 (101772) Engineer : Fate
 EUT : SP 220SFNw
 Power Rating : 120Vac / 60Hz
 Test Mode : STANDBY

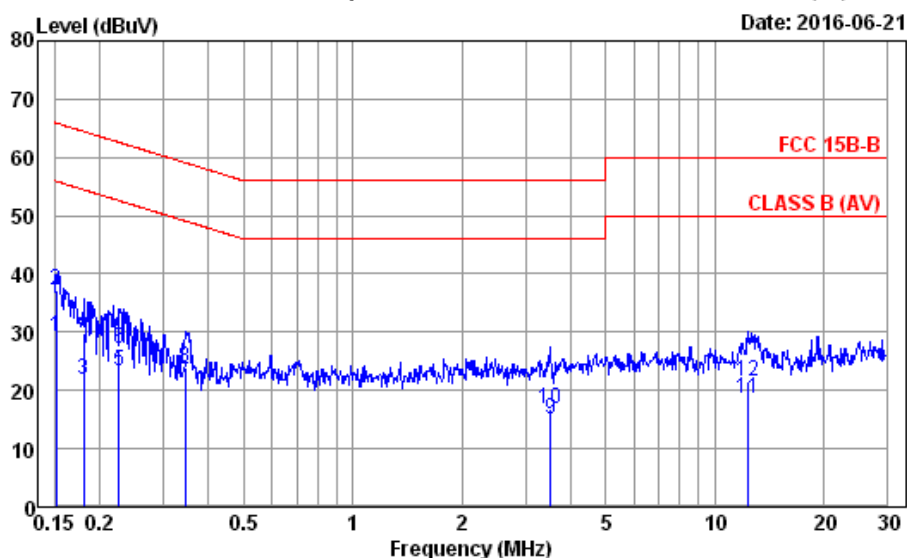
	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dB μ V)	Emission Level (dB μ V)	Limits (dB μ V)	Margin (dB)	Remark
1	0.152	0.13	0.03	9.88	19.28	29.32	55.87	26.55	Average
2	0.152	0.13	0.03	9.88	26.98	37.02	65.87	28.85	QP
3	0.185	0.12	0.02	9.87	11.10	21.11	54.24	33.13	Average
4	0.185	0.12	0.02	9.87	24.18	34.19	64.24	30.05	QP
5	0.227	0.11	0.02	9.86	12.63	22.62	52.57	29.95	Average
6	0.227	0.11	0.02	9.86	16.89	26.88	62.57	35.69	QP
7	0.345	0.11	0.02	9.86	9.24	19.23	49.09	29.86	Average
8	0.345	0.11	0.02	9.86	14.12	24.11	59.09	34.98	QP
9	0.694	0.12	0.02	9.86	5.41	15.41	46.00	30.59	Average
10	0.694	0.12	0.02	9.86	11.13	21.13	56.00	34.87	QP
11	13.127	0.53	0.13	9.90	8.20	18.76	50.00	31.24	Average
12	13.127	0.53	0.13	9.90	11.49	22.05	60.00	37.95	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.
 2. If the average limit is met when using a quasi-peak detector,
 the EUT shall be deemed to meet both limits and measurement
 with average detector is unnecessary.



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Data: 1 File: D:\test-data\Report\2016\C1M1606XXX\C1M1606176-C-D.EM6 (16)



Site no. : No.3 Shielded Room Data no. : 1
 Condition : KNW-244C 8-1373-5 LISN Phase : LINE
 Limit : FCC 15B-B
 Env. / Ins. : 24°C / 54% ESR3 (101772) Engineer : Fate
 EUT : SP 2205FNw
 Power Rating : 120Vac / 60Hz
 Test Mode : STANDBY

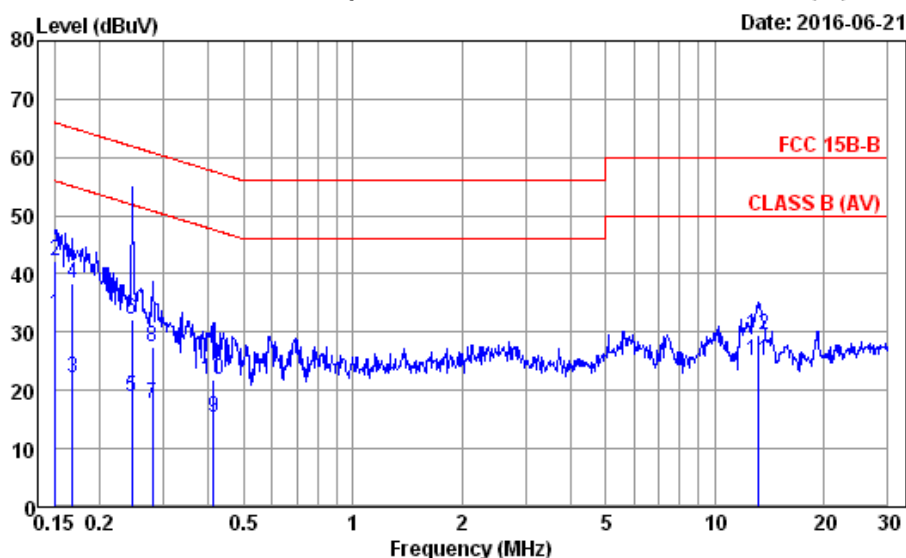
	AMN	Cable	Pulse	Emission		Limits	Margin	Remark
Freq. (MHz)	Factor (dB)	Loss (dB)	Att. (dB)	Reading (dB μ V)	Level (dB μ V)	(dB μ V)	(dB)	
1	0.11	0.03	9.88	19.30	29.32	55.91	26.59	Average
2	0.11	0.03	9.88	27.19	37.21	65.91	28.70	QP
3	0.10	0.02	9.87	11.73	21.72	54.46	32.74	Average
4	0.10	0.02	9.87	19.85	29.84	64.46	34.62	QP
5	0.10	0.02	9.86	13.47	23.45	52.57	29.12	Average
6	0.10	0.02	9.86	17.15	27.13	62.57	35.44	QP
7	0.09	0.02	9.86	11.37	21.34	49.09	27.75	Average
8	0.09	0.02	9.86	13.92	23.89	59.09	35.20	QP
9	0.22	0.06	9.86	4.80	14.94	46.00	31.06	Average
10	0.22	0.06	9.86	6.77	16.91	56.00	39.09	QP
11	0.52	0.13	9.90	8.00	18.55	50.00	31.45	Average
12	0.52	0.13	9.90	11.05	21.60	60.00	38.40	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.
 2. If the average limit is met when using a quasi-peak detector,
 the EUT shall be deemed to meet both limits and measurement
 with average detector is unnecessary.



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Data: 4 File: D:\test-data\Report\2016\C1M1606XXX\C1M1606176-C-D.EM6 (16)



Site no. : No.3 Shielded Room Data no. : 4
 Condition : KMW-244C 8-1373-5 LISN Phase : NEUTRAL
 Limit : FCC 15B-B
 Env. / Ins. : 24°C / 54% ESR3 (101772) Engineer : Fate
 EUT : SP 220SFNw
 Power Rating : 120Vac / 60Hz
 Test Mode : COPY+NIC PING

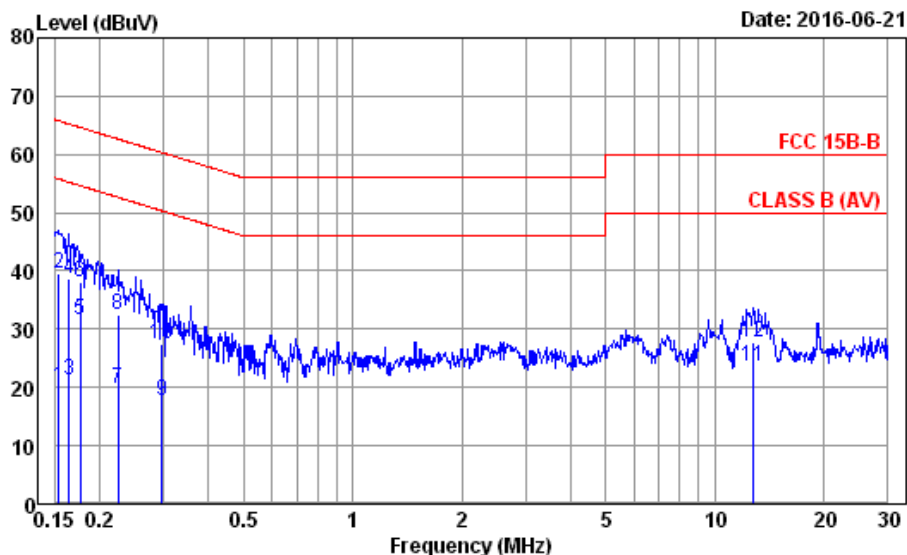
	AMN	Cable	Pulse	Emission		Limits	Margin	Remark
Freq. (MHz)	Factor (dB)	Loss (dB)	Att. (dB)	Reading (dBμV)	Level (dBμV)	(dBμV)	(dB)	
1	0.13	0.03	9.88	22.99	33.03	55.96	22.93	Average
2	0.13	0.03	9.88	32.11	42.15	65.96	23.81	QP
3	0.12	0.03	9.87	12.01	22.03	55.03	33.00	Average
4	0.12	0.03	9.87	28.32	38.34	65.03	26.69	QP
5	0.11	0.02	9.86	8.77	18.76	51.91	33.15	Average
6	0.11	0.02	9.86	22.05	32.04	61.91	29.87	QP
7	0.11	0.02	9.86	7.59	17.58	50.81	33.23	Average
8	0.11	0.02	9.86	17.37	27.36	60.81	33.45	QP
9	0.11	0.02	9.86	5.40	15.39	47.59	32.20	Average
10	0.11	0.02	9.86	11.76	21.75	57.59	35.84	QP
11	0.53	0.13	9.90	14.46	25.02	50.00	24.98	Average
12	0.53	0.13	9.90	19.01	29.57	60.00	30.43	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.
 2. If the average limit is met when using a quasi-peak detector,
 the EUT shall be deemed to meet both limits and measurement
 with average detector is unnecessary.



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Data: 3 File: D:\test-data\Report\2016\C1M1606XXX\C1M1606176-C-D.EM6 (16)



Site no. : No.3 Shielded Room Data no. : 3
 Condition : KNW-244C 8-1373-5 LISN Phase : LINE
 Limit : FCC 15B-B
 Env. / Ins. : 24°C / 54% ESR3 (101772) Engineer : Fate
 EUT : SP 220SFNw
 Power Rating : 120Vac / 60Hz
 Test Mode : COPY+NIC PING

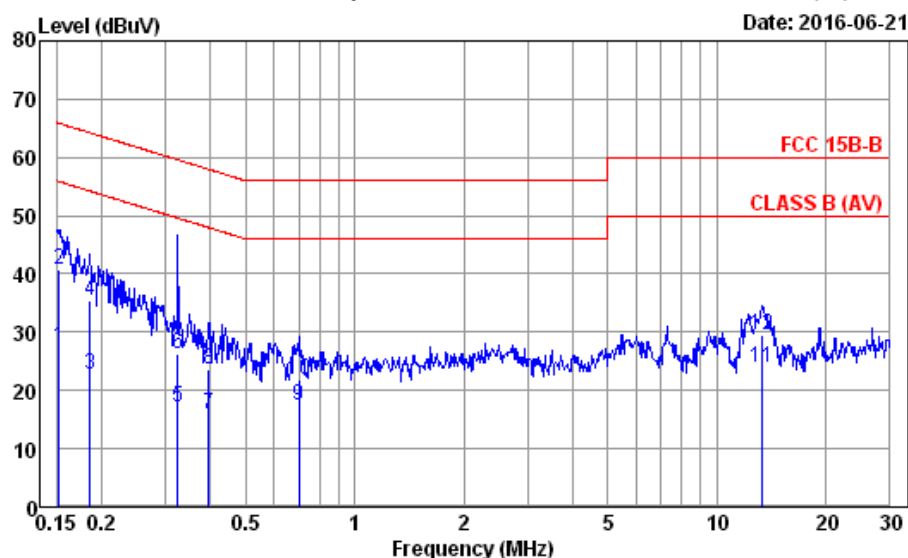
	AMN	Cable	Pulse	Emission					
Freq.	Factor	Loss	Att.	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB)	(dB)	(dB)	(dBμV)	(dBμV)	(dBμV)	(dB)		
1	0.154	0.11	0.03	9.88	10.08	20.10	55.78	35.68	Average
2	0.154	0.11	0.03	9.88	29.63	39.65	65.78	26.13	QP
3	0.165	0.11	0.03	9.87	11.32	21.33	55.21	33.88	Average
4	0.165	0.11	0.03	9.87	28.69	38.70	65.21	26.51	QP
5	0.177	0.10	0.02	9.87	21.52	31.51	54.64	23.13	Average
6	0.177	0.10	0.02	9.87	28.09	38.08	64.64	26.56	QP
7	0.224	0.10	0.02	9.86	9.85	19.83	52.66	32.83	Average
8	0.224	0.10	0.02	9.86	22.35	32.33	62.66	30.33	QP
9	0.297	0.09	0.02	9.86	7.87	17.84	50.32	32.48	Average
10	0.297	0.09	0.02	9.86	17.45	27.42	60.32	32.90	QP
11	12.784	0.52	0.13	9.90	13.00	23.55	50.00	26.45	Average
12	12.784	0.52	0.13	9.90	17.10	27.65	60.00	32.35	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.
 2. If the average limit is met when using a quasi-peak detector,
 the EUT shall be deemed to meet both limits and measurement
 with average detector is unnecessary.



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Data: 6 File: D:\test-data\Report\2016\C1M1606XXX\C1M1606176-C-D.EM6 (16)



Site no. : No.3 Shielded Room Data no. : 6
 Condition : KNW-244C 8-1373-5 LISN Phase : NEUTRAL
 Limit : FCC 15B-B
 Env. / Ins. : 24°C / 54% ESR3 (101772) Engineer : Fate
 EUT : SP 220SFNw
 Power Rating : 120Vac / 60Hz
 Test Mode : USB PRINT+WIFI SCAN

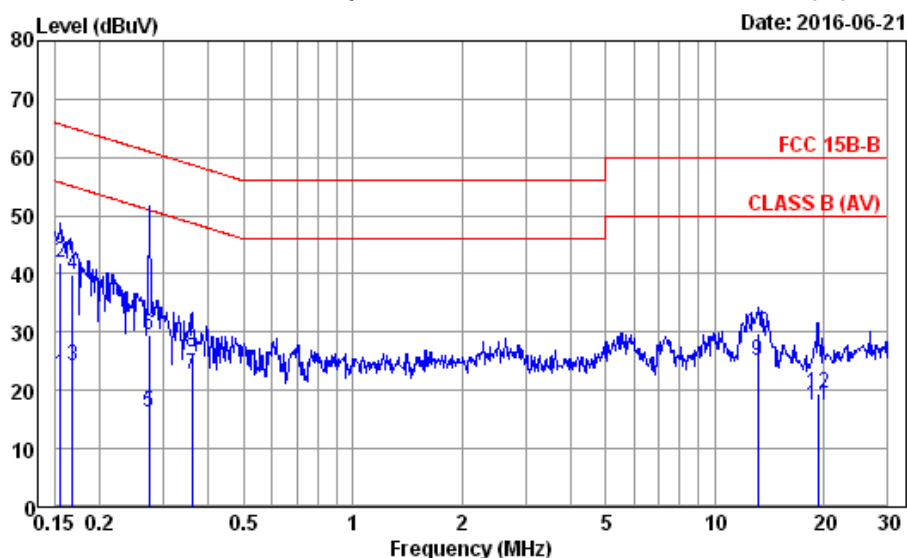
	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Remark
1	0.152	0.13	0.03	9.88	17.54	27.58	55.87	28.29	Average
2	0.152	0.13	0.03	9.88	30.77	40.81	65.87	25.06	QP
3	0.185	0.12	0.02	9.87	12.58	22.59	54.24	31.65	Average
4	0.185	0.12	0.02	9.87	25.28	35.29	64.24	28.95	QP
5	0.325	0.11	0.02	9.86	7.19	17.18	49.57	32.39	Average
6	0.325	0.11	0.02	9.86	16.21	26.20	59.57	33.37	QP
7	0.396	0.11	0.02	9.86	5.81	15.80	47.95	32.15	Average
8	0.396	0.11	0.02	9.86	13.53	23.52	57.95	34.43	QP
9	0.701	0.12	0.02	9.86	7.55	17.55	46.00	28.45	Average
10	0.701	0.12	0.02	9.86	11.96	21.96	56.00	34.04	QP
11	13.337	0.54	0.13	9.90	13.40	23.97	50.00	26.03	Average
12	13.337	0.54	0.13	9.90	18.94	29.51	60.00	30.49	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.
 2. If the average limit is met when using a quasi-peak detector,
 the EUT shall be deemed to meet both limits and measurement
 with average detector is unnecessary.



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Data: 5 File: D:\test-data\Report\2016\C1M1606XXX\C1M1606176-C-D.EM6 (16)



Site no. : No.3 Shielded Room Data no. : 5
 Condition : KNW-244C 8-1373-5 LISN Phase : LINE
 Limit : FCC 15B-B
 Env. / Ins. : 24°C / 54% ESR3 (101772) Engineer : Fate
 EUT : SP 220SFNw
 Power Rating : 120Vac / 60Hz
 Test Mode : USB PRINT+WIFI SCAN

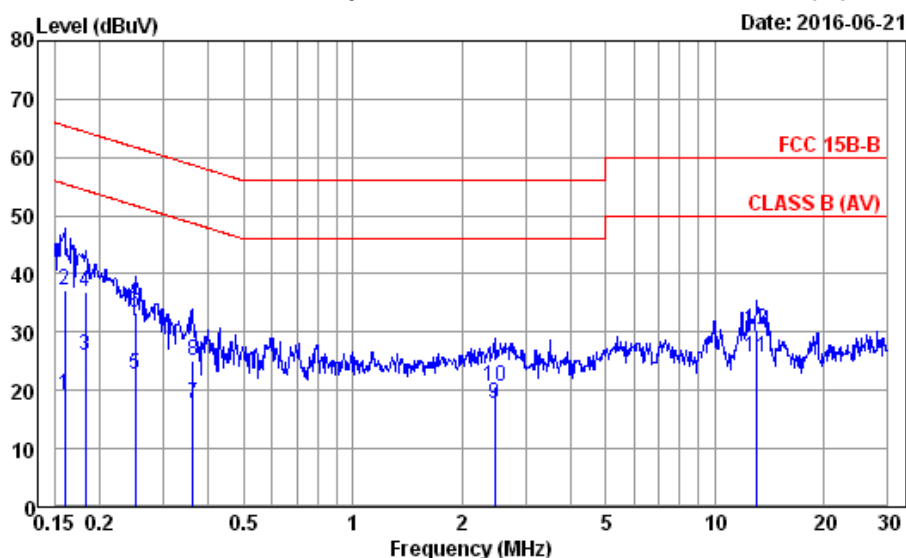
	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Remark
1	0.156	0.11	0.03	9.88	12.62	22.64	55.69	33.05	Average
2	0.156	0.11	0.03	9.88	31.88	41.90	65.69	23.79	QP
3	0.169	0.11	0.03	9.87	14.31	24.32	55.03	30.71	Average
4	0.169	0.11	0.03	9.87	29.74	39.75	65.03	25.28	QP
5	0.274	0.10	0.02	9.86	6.32	16.30	50.98	34.68	Average
6	0.274	0.10	0.02	9.86	19.61	29.59	60.98	31.39	QP
7	0.360	0.09	0.02	9.86	12.68	22.65	48.74	26.09	Average
8	0.360	0.09	0.02	9.86	16.58	26.55	58.74	32.19	QP
9	13.127	0.52	0.13	9.90	14.40	24.95	50.00	25.05	Average
10	13.127	0.52	0.13	9.90	19.39	29.94	60.00	30.06	QP
11	19.224	0.55	0.17	9.94	6.71	17.37	50.00	32.63	Average
12	19.224	0.55	0.17	9.94	8.81	19.47	60.00	40.53	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.
 2. If the average limit is met when using a quasi-peak detector,
 the EUT shall be deemed to meet both limits and measurement
 with average detector is unnecessary.



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Data: 8 File: D:\test-data\Report\2016\C1M1606XXX\C1M1606176-C-D.EM6 (16)



Site no. : No.3 Shielded Room Data no. : 8
 Condition : KMW-244C 8-1373-5 LISN Phase : NEUTRAL
 Limit : FCC 15B-B
 Env. / Ins. : 24°C / 54% ESR3 (101772) Engineer : Fate
 EUT : SP 220SFNw
 Power Rating : 120Vac / 60Hz
 Test Mode : NIC PRINT+SCAN TO USB MEMORY

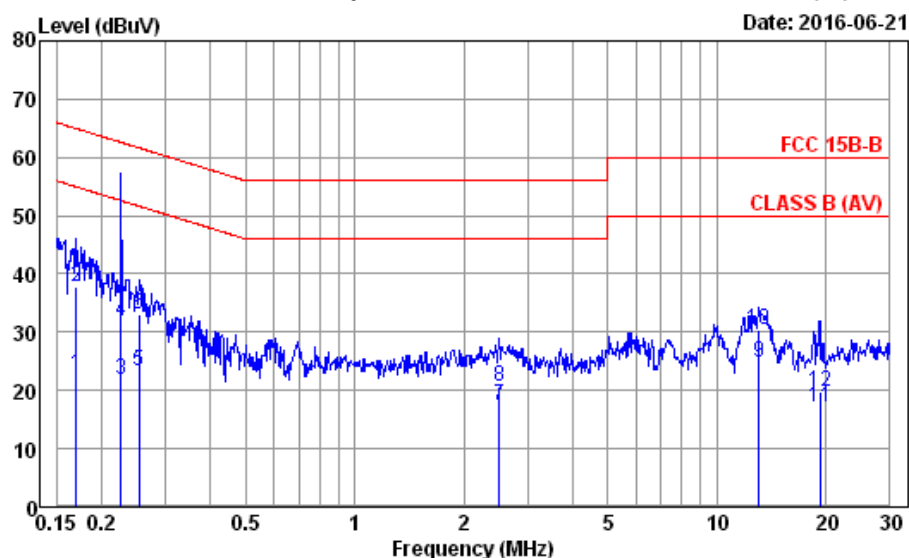
	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dB μ V)	Emission Level (dB μ V)	Limits (dB μ V)	Margin (dB)	Remark
1	0.160	0.13	0.03	9.88	9.16	19.20	55.47	36.27	Average
2	0.160	0.13	0.03	9.88	27.26	37.30	65.47	28.17	QP
3	0.182	0.12	0.02	9.87	15.92	25.93	54.37	28.44	Average
4	0.182	0.12	0.02	9.87	26.97	36.98	64.37	27.39	QP
5	0.251	0.11	0.02	9.86	12.77	22.76	51.73	28.97	Average
6	0.251	0.11	0.02	9.86	23.32	33.31	61.73	28.42	QP
7	0.361	0.11	0.02	9.86	7.66	17.65	48.69	31.04	Average
8	0.361	0.11	0.02	9.86	14.96	24.95	58.69	33.74	QP
9	2.461	0.18	0.05	9.86	7.74	17.83	46.00	28.17	Average
10	2.461	0.18	0.05	9.86	10.60	20.69	56.00	35.31	QP
11	13.057	0.53	0.13	9.90	15.08	25.64	50.00	24.36	Average
12	13.057	0.53	0.13	9.90	19.90	30.46	60.00	29.54	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.
 2. If the average limit is met when using a quasi-peak detector,
 the EUT shall be deemed to meet both limits and measurement
 with average detector is unnecessary.



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Data: 7 File: D:\test-data\Report\2016\C1M1606XXX\C1M1606176-C-D.EM6 (16)



Site no. : No.3 Shielded Room Data no. : 7
 Condition : KNW-244C 8-1373-5 LISN Phase : LINE
 Limit : FCC 15B-B
 Env. / Ins. : 24°C / 54% ESR3 (101772) Engineer : Fate
 EUT : SP 220SFNw
 Power Rating : 120Vac / 60Hz
 Test Mode : NIC PRINT+SCAN TO USB MEMORY

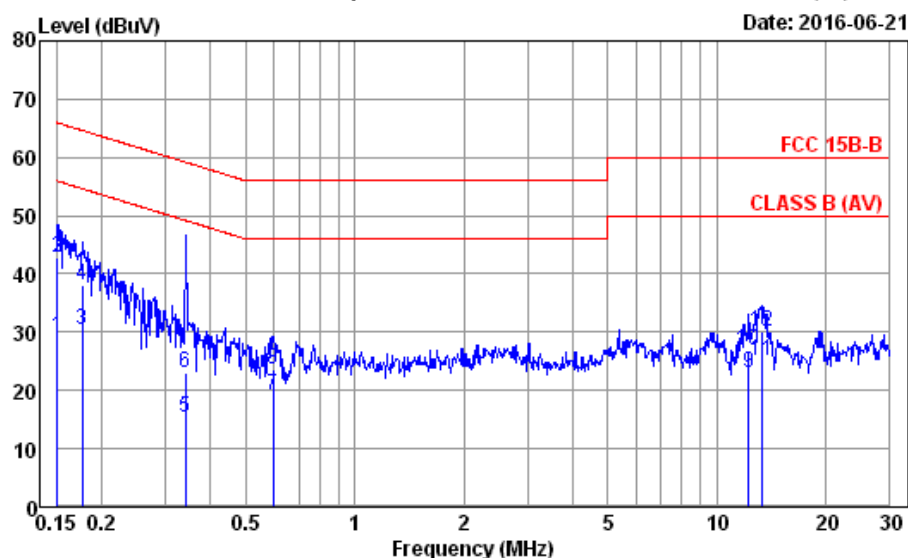
	AMN	Cable	Pulse	Emission		Limits	Margin	Remark
Freq. (MHz)	Factor (dB)	Loss (dB)	Att. (dB)	Reading (dBμV)	Level (dBμV)	(dBμV)	(dB)	
1	0.11	0.03	9.87	12.58	22.59	54.94	32.35	Average
2	0.11	0.03	9.87	27.68	37.69	64.94	27.25	QP
3	0.10	0.02	9.86	11.88	21.86	52.57	30.71	Average
4	0.10	0.02	9.86	22.00	31.98	62.57	30.59	QP
5	0.10	0.02	9.86	13.45	23.43	51.64	28.21	Average
6	0.10	0.02	9.86	23.06	33.04	61.64	28.60	QP
7	0.19	0.05	9.86	7.46	17.56	46.00	28.44	Average
8	0.19	0.05	9.86	10.44	20.54	56.00	35.46	QP
9	0.52	0.13	9.90	14.36	24.91	50.00	25.09	Average
10	0.52	0.13	9.90	19.79	30.34	60.00	29.66	QP
11	0.55	0.17	9.94	6.38	17.04	50.00	32.96	Average
12	0.55	0.17	9.94	9.19	19.85	60.00	40.15	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.
 2. If the average limit is met when using a quasi-peak detector,
 the EUT shall be deemed to meet both limits and measurement
 with average detector is unnecessary.



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Data: 10 File: D:\test-data\Report\2016\C1M1606XXX\C1M1606176-C-D.EM6 (16)



Site no. : No.3 Shielded Room Data no. : 10
 Condition : KNW-244C 8-1373-5 LISN Phase : NEUTRAL
 Limit : FCC 15B-B
 Env. / Ins. : 24°C / 54% ESR3 (101772) Engineer : Fate
 EUT : SP 220SFNw
 Power Rating : 120Vac / 60Hz
 Test Mode : WIFI PRINT+USB SCAN

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dB μ V)	Emission Level (dB μ V)	Limits (dB μ V)	Margin (dB)	Remark
1	0.151	0.13	0.03	9.88	19.22	29.26	55.96	26.70	Average
2	0.151	0.13	0.03	9.88	32.78	42.82	65.96	23.14	QP
3	0.177	0.12	0.02	9.87	20.39	30.40	54.64	24.24	Average
4	0.177	0.12	0.02	9.87	27.95	37.96	64.64	26.68	QP
5	0.341	0.11	0.02	9.86	5.23	15.22	49.18	33.96	Average
6	0.341	0.11	0.02	9.86	13.16	23.15	59.18	36.03	QP
7	0.595	0.11	0.02	9.85	9.09	19.07	46.00	26.93	Average
8	0.595	0.11	0.02	9.85	13.72	23.70	56.00	32.30	QP
9	12.253	0.50	0.13	9.90	12.44	22.97	50.00	27.03	Average
10	12.253	0.50	0.13	9.90	16.20	26.73	60.00	33.27	QP
11	13.267	0.54	0.13	9.90	14.42	24.99	50.00	25.01	Average
12	13.267	0.54	0.13	9.90	19.60	30.17	60.00	29.83	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.
 2. If the average limit is met when using a quasi-peak detector,
 the EUT shall be deemed to meet both limits and measurement
 with average detector is unnecessary.

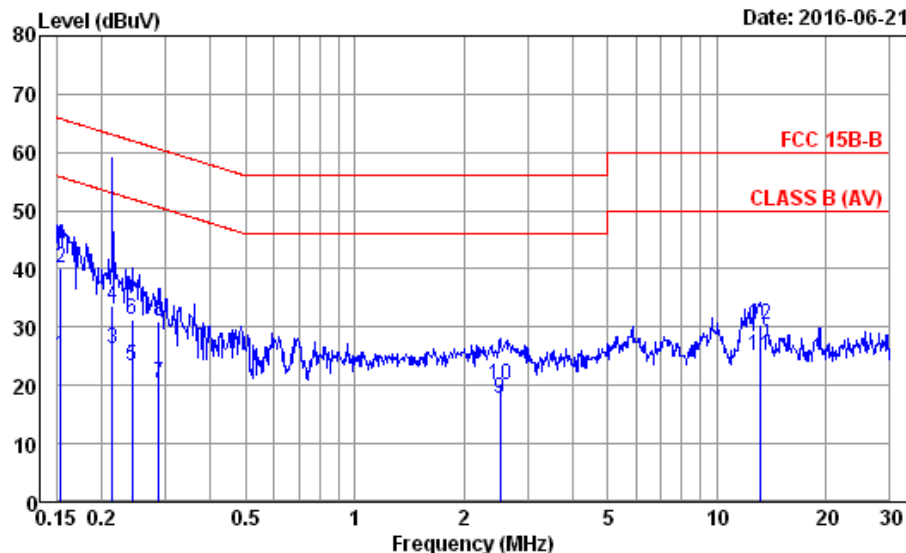


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Data: 9

File: D:\test-data\Report\2016\C1M1606XXX\C1M1606176-C-D.EM6 (16)

Date: 2016-06-21



Site no. : No.3 Shielded Room Data no. : 9
 Condition : KNW-244C 8-1373-5 LISN Phase : LINE
 Limit : FCC 15B-B
 Env. / Ins. : 24°C / 54% ESR3 (101772) Engineer : Fate
 EUT : SP 220SFNw
 Power Rating : 120Vac / 60Hz
 Test Mode : WIFI PRINT+USB SCAN

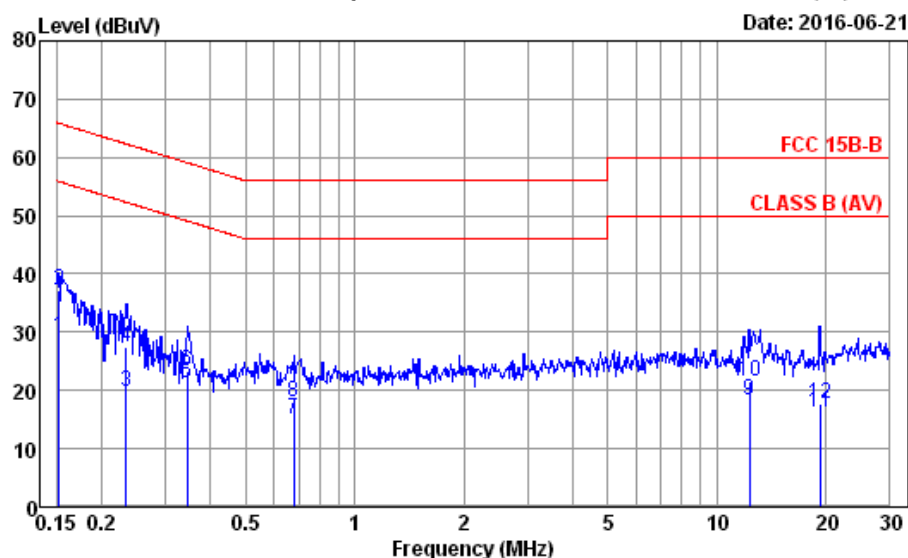
	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dB μ V)	Emission Level (dB μ V)	Limits (dB μ V)	Margin (dB)	Remark
1	0.154	0.11	0.03	9.88	14.97	24.99	55.78	30.79	Average
2	0.154	0.11	0.03	9.88	30.09	40.11	65.78	25.67	QP
3	0.214	0.10	0.02	9.86	16.30	26.28	53.05	26.77	Average
4	0.214	0.10	0.02	9.86	23.57	33.55	63.05	29.50	QP
5	0.243	0.10	0.02	9.86	13.24	23.22	52.00	28.78	Average
6	0.243	0.10	0.02	9.86	21.42	31.40	62.00	30.60	QP
7	0.288	0.09	0.02	9.86	10.49	20.46	50.59	30.13	Average
8	0.288	0.09	0.02	9.86	20.94	30.91	60.59	29.68	QP
9	2.513	0.19	0.05	9.86	7.75	17.85	46.00	28.15	Average
10	2.513	0.19	0.05	9.86	10.08	20.18	56.00	35.82	QP
11	13.127	0.52	0.13	9.90	14.56	25.11	50.00	24.89	Average
12	13.127	0.52	0.13	9.90	19.90	30.45	60.00	29.55	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.
 2. If the average limit is met when using a quasi-peak detector,
 the EUT shall be deemed to meet both limits and measurement
 with average detector is unnecessary.



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Data: 12 File: D:\test-data\Report\2016\1M1606XXX\1M1606176-C-D.EM6 (16)



Site no. : No.3 Shielded Room Data no. : 12
 Condition : KNW-244C 8-1373-5 LISN Phase : NEUTRAL
 Limit : FCC 15B-B
 Env. / Ins. : 24°C / 54% ESR3 (101772) Engineer : Fate
 EUT : SP 220SFNw
 Power Rating : 120Vac / 60Hz
 Test Mode : FAX-TX

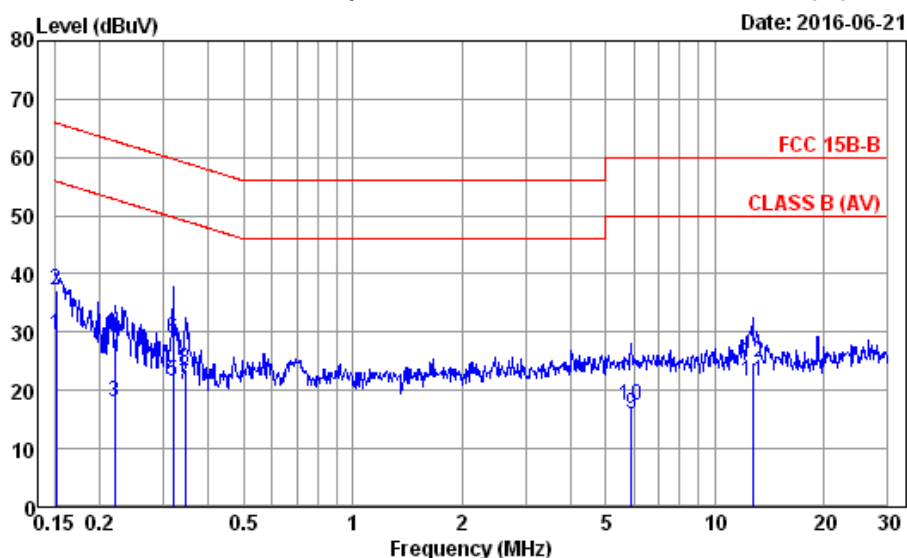
	AMN	Cable	Pulse	Emission		Limits	Margin	Remark
Freq. (MHz)	Factor (dB)	Loss (dB)	Att. (dB)	Reading (dBμV)	Level (dBμV)	(dBμV)	(dB)	
1	0.13	0.03	9.88	19.12	29.16	55.87	26.71	Average
2	0.13	0.03	9.88	27.08	37.12	65.87	28.75	QP
3	0.11	0.02	9.86	9.77	19.76	52.30	32.54	Average
4	0.11	0.02	9.86	17.35	27.34	62.30	34.96	QP
5	0.11	0.02	9.86	11.27	21.26	49.09	27.83	Average
6	0.11	0.02	9.86	13.25	23.24	59.09	35.85	QP
7	0.12	0.02	9.86	5.13	15.13	46.00	30.87	Average
8	0.12	0.02	9.86	8.07	18.07	56.00	37.93	QP
9	0.50	0.13	9.90	7.84	18.37	50.00	31.63	Average
10	0.50	0.13	9.90	11.06	21.59	60.00	38.41	QP
11	0.72	0.17	9.94	5.31	16.14	50.00	33.86	Average
12	0.72	0.17	9.94	7.03	17.86	60.00	42.14	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.
 2. If the average limit is met when using a quasi-peak detector,
 the EUT shall be deemed to meet both limits and measurement
 with average detector is unnecessary.



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Data: 11 File: D:\test-data\Report\2016\C1M1606XXX\C1M1606176-C-D.EM6 (16)



Site no. : No.3 Shielded Room Data no. : 11
 Condition : KNW-244C 8-1373-5 LISN Phase : LINE
 Limit : FCC 15B-B
 Env. / Ins. : 24°C / 54% ESR3 (101772) Engineer : Fate
 EUT : SP 220SFNw
 Power Rating : 120Vac / 60Hz
 Test Mode : FAX-TX

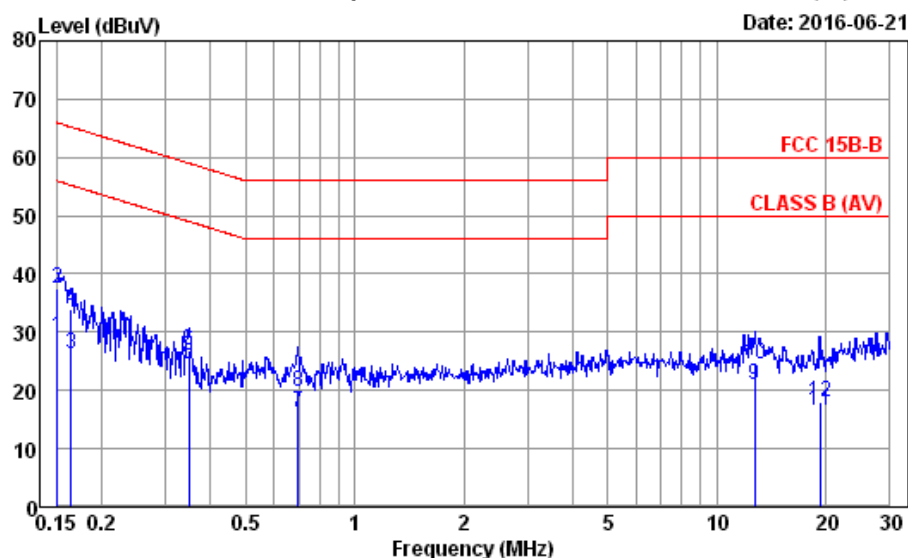
	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dB μ V)	Emission Level (dB μ V)	Limits (dB μ V)	Margin (dB)	Remark
1	0.152	0.11	0.03	9.88	19.38	29.40	55.91	26.51	Average
2	0.152	0.11	0.03	9.88	27.23	37.25	65.91	28.66	QP
3	0.220	0.10	0.02	9.86	8.17	18.15	52.83	34.68	Average
4	0.220	0.10	0.02	9.86	19.05	29.03	62.83	33.80	QP
5	0.318	0.09	0.02	9.86	11.58	21.55	49.75	28.20	Average
6	0.318	0.09	0.02	9.86	19.01	28.98	59.75	30.77	QP
7	0.345	0.09	0.02	9.86	11.03	21.00	49.09	28.09	Average
8	0.345	0.09	0.02	9.86	13.54	23.51	59.09	35.58	QP
9	5.867	0.35	0.08	9.87	5.56	15.86	50.00	34.14	Average
10	5.867	0.35	0.08	9.87	7.19	17.49	60.00	42.51	QP
11	12.716	0.52	0.13	9.90	10.99	21.54	50.00	28.46	Average
12	12.716	0.52	0.13	9.90	14.23	24.78	60.00	35.22	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.
 2. If the average limit is met when using a quasi-peak detector,
 the EUT shall be deemed to meet both limits and measurement
 with average detector is unnecessary.



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Data: 14 File: D:\test-data\Report\2016\1M1606XXX\1M1606176-C-D.EM6 (16)



Site no. : No.3 Shielded Room Data no. : 14
 Condition : KNW-244C 8-1373-5 LISN Phase : NEUTRAL
 Limit : FCC 15B-B
 Env. / Ins. : 24°C / 54% ESR3 (101772) Engineer : Fate
 EUT : SP 220SFNw
 Power Rating : 120Vac / 60Hz
 Test Mode : FAX-RX

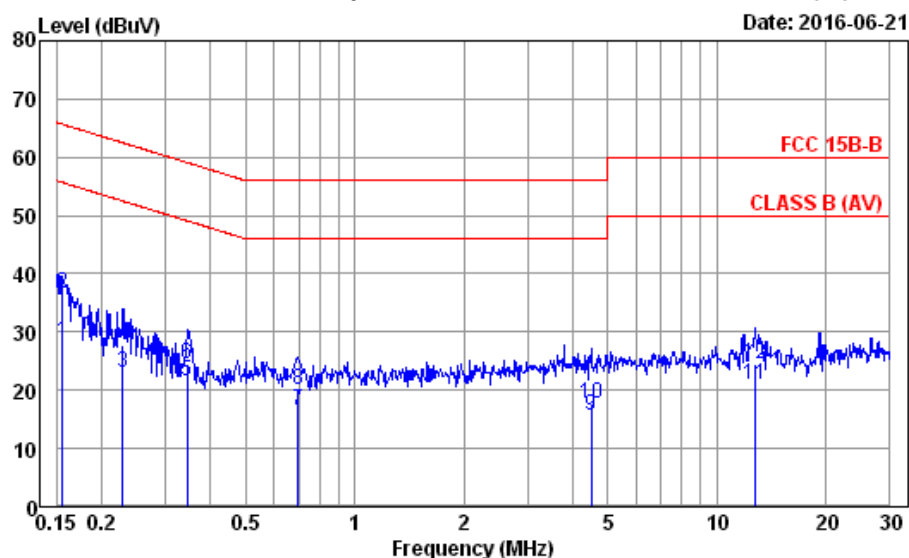
	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dB μ V)	Emission Level (dB μ V)	Limits (dB μ V)	Margin (dB)	Remark
1	0.151	0.13	0.03	9.88	19.16	29.20	55.96	26.76	Average
2	0.151	0.13	0.03	9.88	27.37	37.41	65.96	28.55	QP
3	0.165	0.12	0.03	9.87	16.22	26.24	55.21	28.97	Average
4	0.165	0.12	0.03	9.87	23.97	33.99	65.21	31.22	QP
5	0.348	0.11	0.02	9.86	14.38	24.37	49.00	24.63	Average
6	0.348	0.11	0.02	9.86	16.93	26.92	59.00	32.08	QP
7	0.697	0.12	0.02	9.86	6.26	16.26	46.00	29.74	Average
8	0.697	0.12	0.02	9.86	9.89	19.89	56.00	36.11	QP
9	12.716	0.52	0.13	9.90	10.45	21.00	50.00	29.00	Average
10	12.716	0.52	0.13	9.90	13.94	24.49	60.00	35.51	QP
11	19.224	0.72	0.17	9.94	5.75	16.58	50.00	33.42	Average
12	19.224	0.72	0.17	9.94	7.10	17.93	60.00	42.07	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.
 2. If the average limit is met when using a quasi-peak detector,
 the EUT shall be deemed to meet both limits and measurement
 with average detector is unnecessary.



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Data: 13 File: D:\test-data\Report\2016\C1M1606XXX\C1M1606176-C-D.EM6 (16)



Site no. : No.3 Shielded Room Data no. : 13
 Condition : KNW-244C 8-1373-5 LISN Phase : LINE
 Limit : FCC 15B-B
 Env. / Ins. : 24°C / 54% ESR3 (101772) Engineer : Fate
 EUT : SP 2205FNw
 Power Rating : 120Vac / 60Hz
 Test Mode : FAX-RX

	AMN	Cable	Pulse	Emission					
Freq.	Factor	Loss	Att.	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB)	(dB)	(dB)	(dB μ V)	(dB μ V)	(dB μ V)	(dB)		
1	0.156	0.11	0.03	9.88	18.30	28.32	55.69	27.37	Average
2	0.156	0.11	0.03	9.88	26.56	36.58	65.69	29.11	QP
3	0.229	0.10	0.02	9.86	13.16	23.14	52.48	29.34	Average
4	0.229	0.10	0.02	9.86	17.63	27.61	62.48	34.87	QP
5	0.345	0.09	0.02	9.86	11.46	21.43	49.09	27.66	Average
6	0.345	0.09	0.02	9.86	14.66	24.63	59.09	34.46	QP
7	0.697	0.10	0.02	9.86	6.57	16.55	46.00	29.45	Average
8	0.697	0.10	0.02	9.86	10.02	20.00	56.00	36.00	QP
9	4.501	0.27	0.07	9.87	5.40	15.61	46.00	30.39	Average
10	4.501	0.27	0.07	9.87	7.43	17.64	56.00	38.36	QP
11	12.716	0.52	0.13	9.90	10.29	20.84	50.00	29.16	Average
12	12.716	0.52	0.13	9.90	13.85	24.40	60.00	35.60	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.
 2. If the average limit is met when using a quasi-peak detector,
 the EUT shall be deemed to meet both limits and measurement
 with average detector is unnecessary.

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. 8 Open Area Test Site)

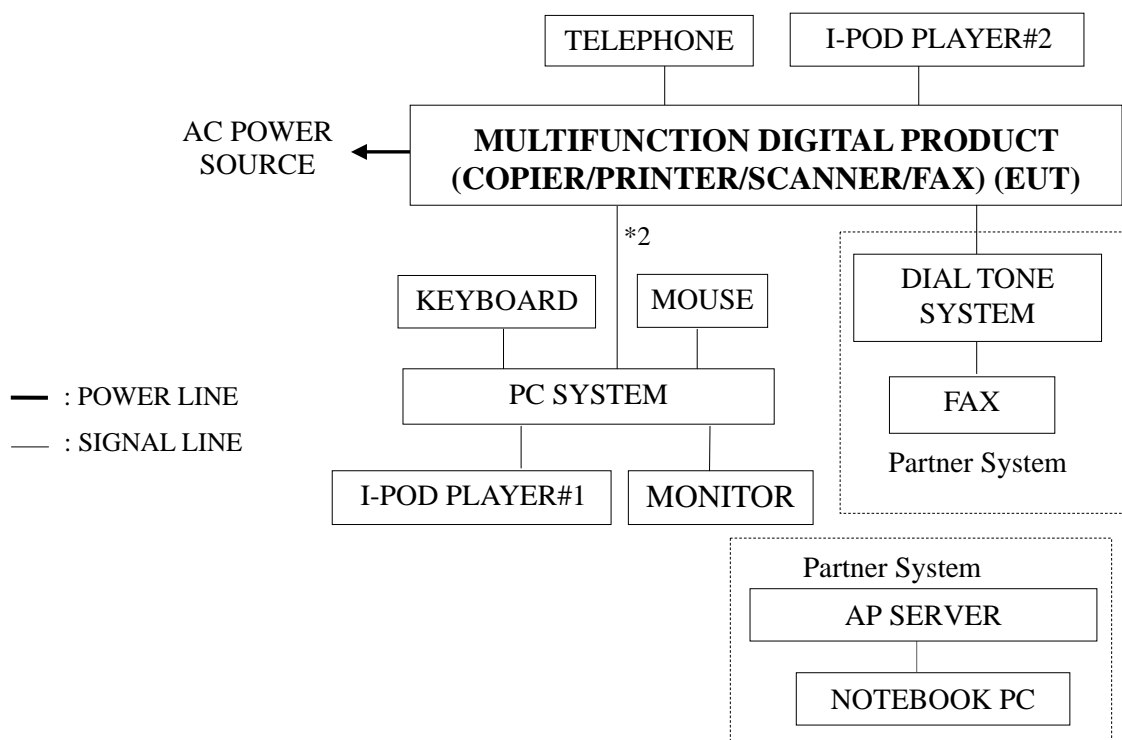
Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1	Spectrum Analyzer	Agilent	N9010A-507	MY51250907	2016. 04. 15	1 Year
2	Test Receiver	R&S	ESCI	100556	2016. 06. 29	1 Year
3	Amplifier	HP	8447D	2944A06891	N.C.R.	N.C.R.
4	Biconical Antenna	ETC	MCTD 0286	BC14N02010	2016. 02. 26	1 Year
5	Log-Periodic Dipole Array Antenna	ETC	MCTD 2856	LP14N02012	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

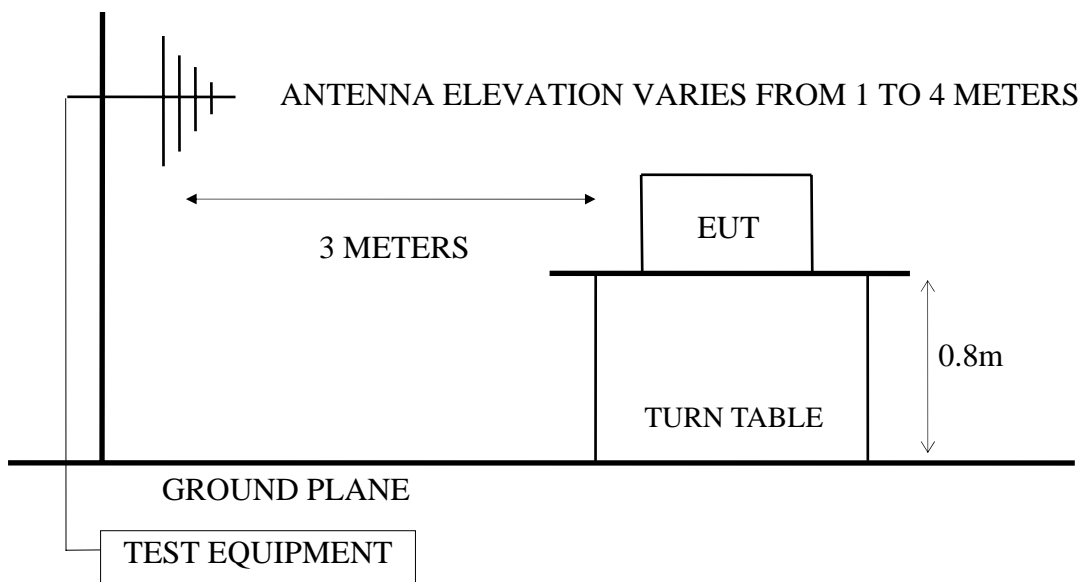
5.2. Block Diagram of Test Setup

5.2.1. Block Diagram of connection between EUT and simulators



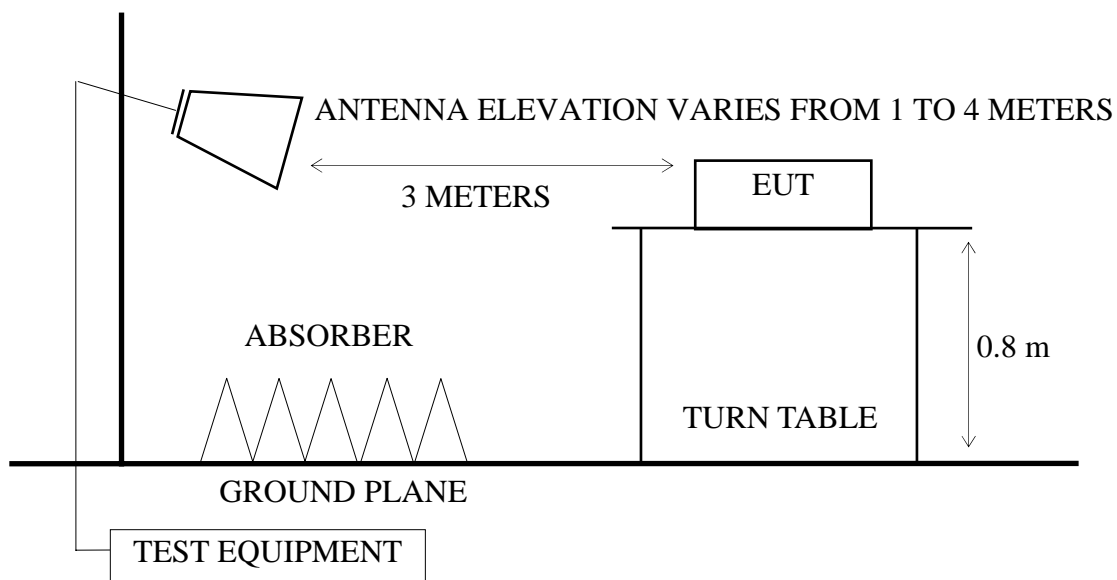
5.2.2. Open Area Test Site Setup Diagram for 30-1000MHz

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, Class B)

All emanations from receiver, shall not exceed the level of field strengths specified below:

FREQUENCY	DISTANCE	FIELD STRENGTHS LIMITS	
		$\mu\text{V/m}$	$\text{dB}\mu\text{V/m}$
30 ~ 88	3	100	40.00
88 ~ 216	3	150	43.52
216 ~ 960	3	200	46.02
Above 960	3	500	73.98 (PK)
Above 960	3	500	53.98 (AV)

Remark : (1) Emission level ($\text{dB}\mu\text{V/m}$) = $20 \log$ Emission level ($\mu\text{V/m}$)
 (2) The tighter limit applies at the edge between two frequency bands.

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 30MHz-1000MHz, which measurement was at Open Area Test Site:

The EUT and its simulators were placed on a turn table which was 0.8 meter above ground. 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 meter and 4 meters to find out the maximum emission level. Broadband antenna was used as receiving antenna. 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 ESCI 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, which measurement was 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 : Multifunction Digital Product (Copier/Printer/Scanner/Fax)

Model No. : SP 220SFNw

Test Date : 2016. 07. 15 Temperature : 24 Humidity : 62%

The details of test modes are as follows :

Mode	Operating Mode	Reference Test Data No.	
		Horizontal	Vertical
1	Standby Mode	# 2	# 1
2	Copy + NIC (LAN) Ping Mode	# 4	# 3
3	USB Print + WIFI Scan Mode	# 6	# 5
4	NIC (LAN) Print + USB Memory Mode	# 8	# 7
5	WIFI Print + USB Scan Mode	# 10	# 9
6	FAX-TX Mode	# 12	# 11
7	FAX-RX Mode	# 14	# 13

(**mode for maximum detected emission**)

For Above 1GHz frequency range

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

EUT : Multifunction Digital Product (Copier/Printer/Scanner/Fax)

Model No. : SP 220SFNw

Test Date : 2016. 07. 11

Temperature : 28

Humidity : 66%

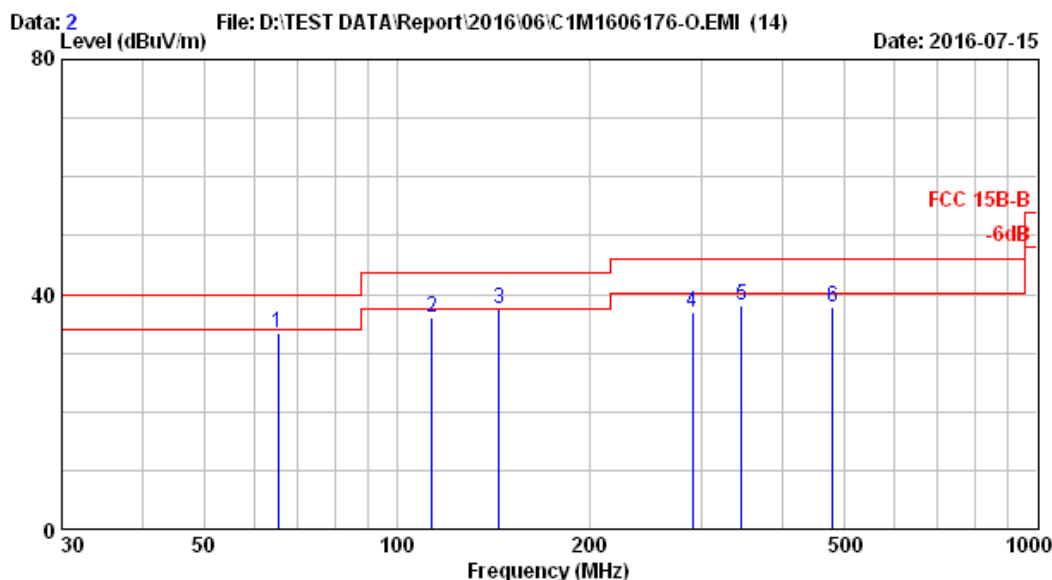
The details of test modes are as follows :

Mode	Operating Mode	Reference Test Data No.	
		Horizontal	Vertical
1	Standby Mode	# 4	# 3
2	Copy + NIC (LAN) Ping Mode	# 6	# 5
3	USB Print + WIFI Scan Mode	# 2	# 1
4	NIC (LAN) Print + USB Memory Mode	# 8	# 7
5	WIFI Print + USB Scan Mode	# 10	# 9
6	FAX-TX Mode	# 12	# 11
7	FAX-RX Mode	# 14	# 13

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



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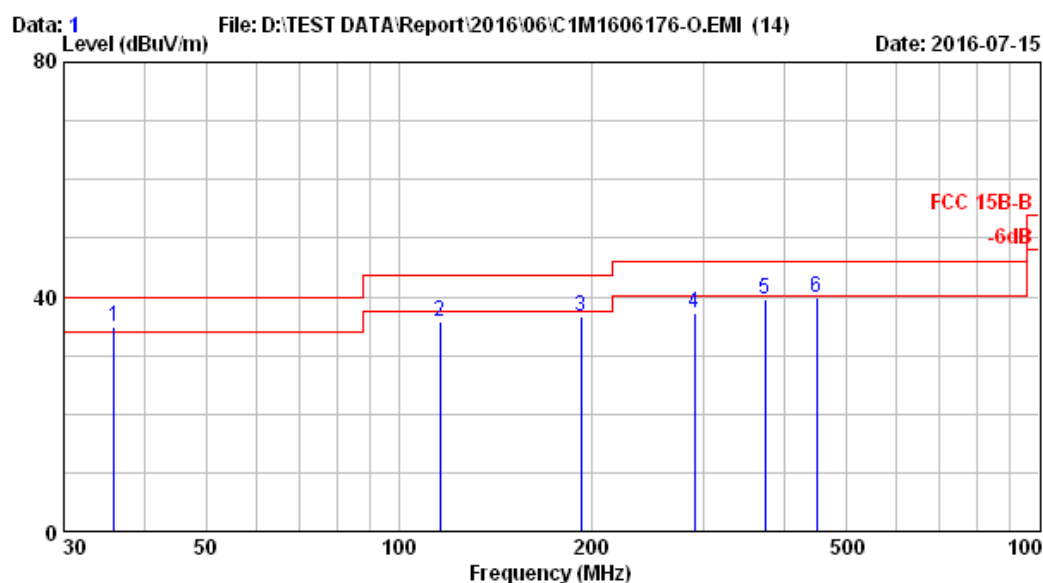
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 Dis. / Ant. : 3m MCTD 0286/2856 10/12 Ant. pol. : HORIZONTAL
 Limit : FCC 15B-B
 Env. / Ins. : 24°C / 62% ESCI (556) Engineer : Gary Tsai
 EUT M/N : SP 220SFNw
 Power Rating : 120Vac/60Hz
 Test Mode : STANDBY

	Ant.	Cable	Emission		Limits	Margin	Remark	
Freq. (MHz)	Factor (dB/m)	Loss (dB)	Reading (dBuV)	Level (dBuV/m)	(dBuV/m)	(dB)		
1	65.294	15.45	1.27	16.63	33.36	40.00	6.64	QP
2	113.659	16.76	1.75	17.63	36.13	43.52	7.39	QP
3	144.630	17.81	2.02	17.64	37.46	43.52	6.06	QP
4	289.660	26.44	3.06	7.36	36.85	46.02	9.17	QP
5	345.295	16.10	3.36	18.56	38.02	46.02	8.00	QP
6	480.519	18.14	4.02	15.64	37.79	46.02	8.23	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emissions not reported are 20 dB lower than the specified limit.



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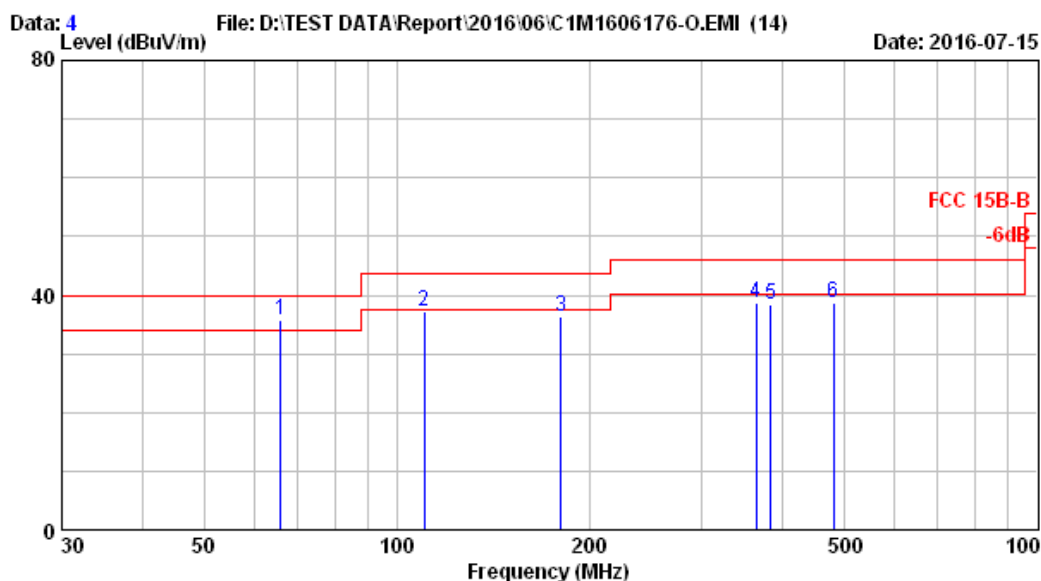
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 Limit : FCC 15B-B
 Env. / Ins. : 24°C / 62% ESCI (556) Engineer : Gary Tsai
 EUT M/N : SP 220SFNw
 Power Rating : 120Vac/60Hz
 Test Mode : STANDBY

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	35.928	20.02	0.92	13.86	34.80	40.00	5.20	QP
2	115.934	16.85	1.77	17.24	35.85	43.52	7.67	QP
3	192.584	20.50	2.44	13.66	36.60	43.52	6.92	QP
4	289.558	26.44	3.06	7.70	37.19	46.02	8.83	QP
5	373.659	16.29	3.50	19.63	39.42	46.02	6.60	QP
6	449.257	17.55	3.87	18.35	39.77	46.02	6.25	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emissions not reported are 20 dB lower than the specified limit.



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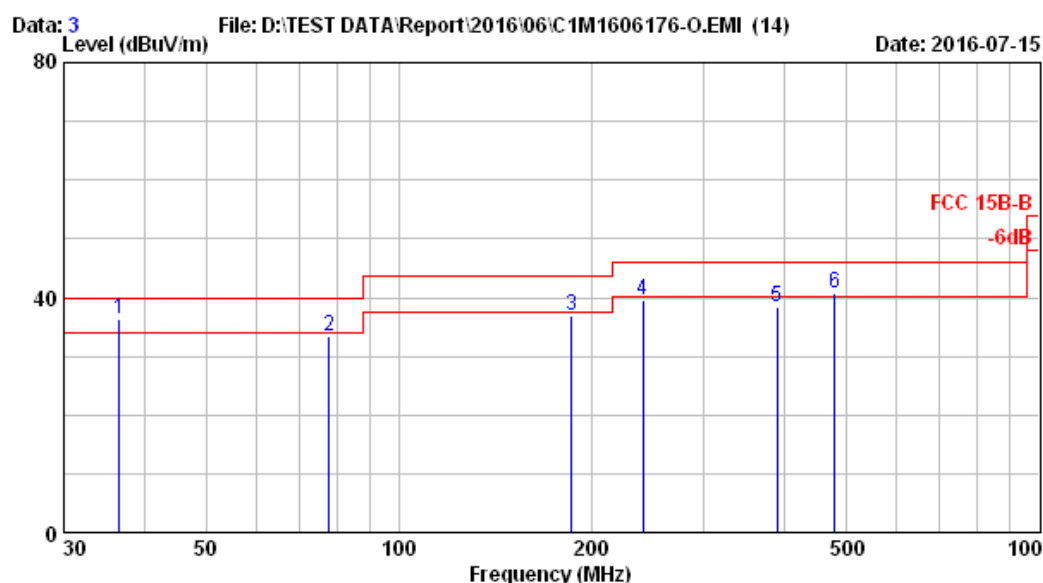
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 Dis. / Ant. : 3m MCTD 0286/2856 10/12 Ant. pol. : HORIZONTAL
 Limit : FCC 15B-B
 Env. / Ins. : 24°C / 62% ESCI (556) Engineer : Gary Tsai
 EUT M/N : SP 220SFNw
 Power Rating : 120Vac/60Hz
 Test Mode : COPY+NIC Ping

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	65.929	15.43	1.28	18.96	35.67	40.00	4.33	QP *
2	110.595	16.64	1.72	18.85	37.21	43.52	6.31	QP
3	180.594	19.39	2.35	14.66	36.40	43.52	7.12	QP
4	363.957	16.23	3.45	18.96	38.64	46.02	7.38	QP
5	384.592	16.36	3.55	18.36	38.26	46.02	7.76	QP
6	480.597	18.14	4.02	16.63	38.79	46.02	7.23	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emissions not reported are 20 dB lower than the specified limit.
 3. The worst emission is detected at 65.929MHz with corrected signal level of 35.67dBuV/m (limit is 40.00dBuV/m) when the antenna is at horizontal polarization and is at 1.0m high and the turn table is at 12°.
 4. 0°was the table front facing the antenna. Degree is calculated from 0°clockwise facing the antenna.



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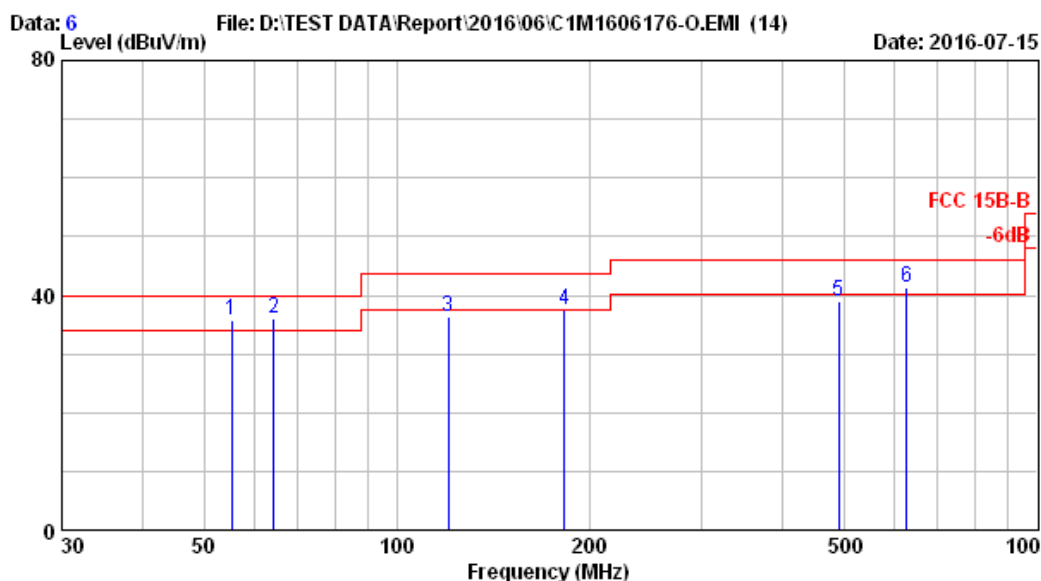
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 Limit : FCC 15B-B
 Env. / Ins. : 24°C / 62% ESCI (556) Engineer : Gary Tsai
 EUT M/N : SP 220SFNw
 Power Rating : 120Vac/60Hz
 Test Mode : COPY+NIC Ping

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	36.595	19.66	0.93	15.65	36.25	40.00	3.75	QP *
2	77.959	15.33	1.41	16.53	33.26	40.00	6.74	QP
3	186.524	19.94	2.39	14.66	37.00	43.52	6.52	QP
4	240.518	23.48	2.77	13.35	39.61	46.02	6.41	QP
5	389.584	16.39	3.57	18.33	38.29	46.02	7.73	QP
6	480.518	18.14	4.02	18.63	40.79	46.02	5.23	QP

- Remarks:
- Emission Level= Antenna Factor + Cable Loss + Reading.
 - The emissions not reported are 20 dB lower than the specified limit.
 - The worst emission is detected at 36.595MHz with corrected signal level of 36.25dBuV/m (limit is 40.00dBuV/m) when the antenna is at vertical polarization and is at 1.0m high and the turn table is at 72°.
 - 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.



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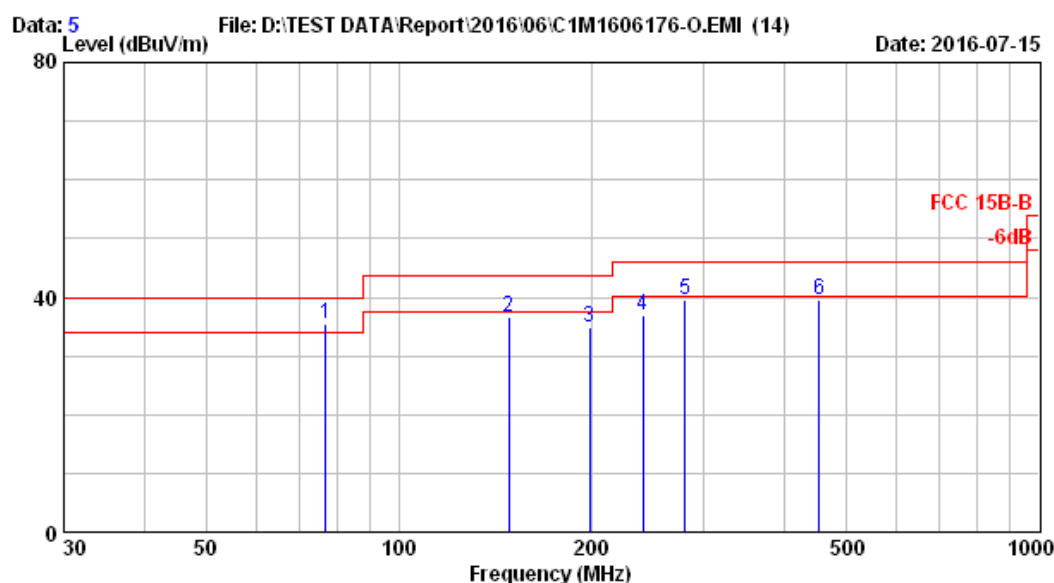
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 Limit : FCC 15B-B
 Env. / Ins. : 24°C / 62% ESCI (556) Engineer : Gary Tsai
 EUT M/N : SP 220SFNw
 Power Rating : 120Vac/60Hz
 Test Mode : USB Print+WiFi Scan

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	55.236	15.99	1.16	18.52	35.68	40.00	4.32	QP
2	64.262	15.49	1.26	19.19	35.94	40.00	4.06	QP
3	120.359	17.00	1.80	17.66	36.46	43.52	7.06	QP
4	182.595	19.58	2.36	15.66	37.60	43.52	5.92	QP
5	489.567	18.31	4.05	16.63	38.99	46.02	7.03	QP
6	625.620	21.03	4.71	15.58	41.33	46.02	4.69	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emissions not reported are 20 dB lower than the specified limit.



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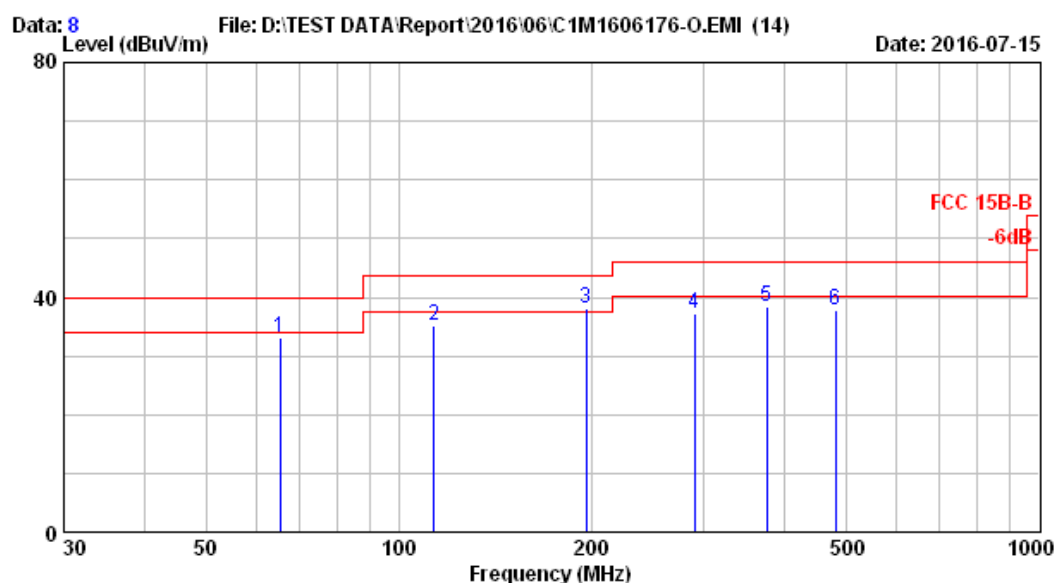
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 Limit : FCC 15B-B
 Env. / Ins. : 24°C / 62% ESCI (556) Engineer : Gary Tsai
 EUT M/N : SP 220SFNw
 Power Rating : 120Vac/60Hz
 Test Mode : USB Print+WiFi Scan

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	76.958	15.32	1.40	18.66	35.38	40.00	4.62	QP
2	148.592	17.86	2.05	16.63	36.54	43.52	6.98	QP
3	198.565	21.08	2.49	11.36	34.94	43.52	8.58	QP
4	240.582	23.48	2.77	10.65	36.91	46.02	9.11	QP
5	280.541	25.92	3.01	10.65	39.58	46.02	6.44	QP
6	453.630	17.64	3.89	17.97	39.50	46.02	6.52	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emissions not reported are 20 dB lower than the specified limit.



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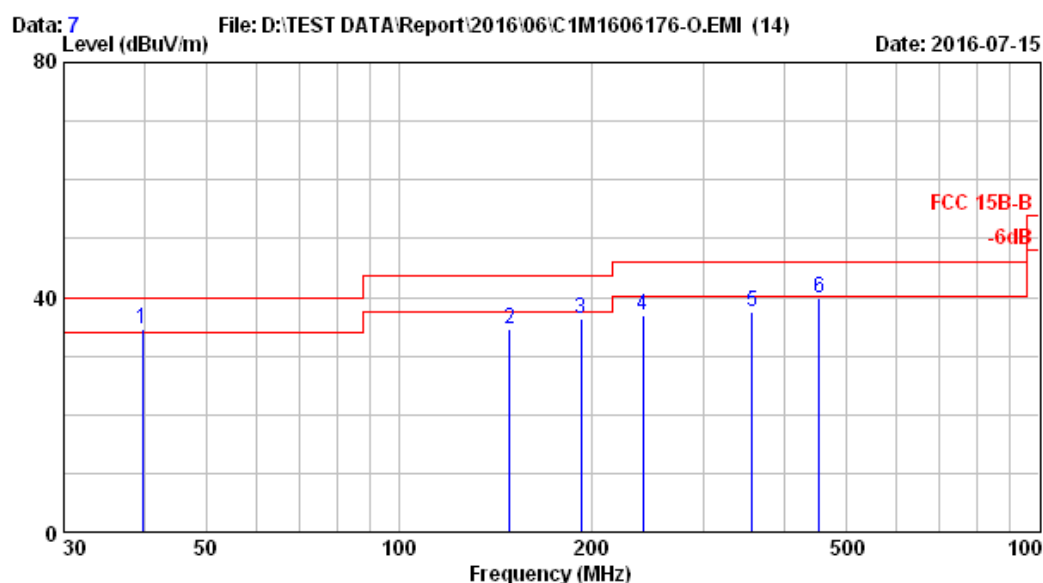
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 Limit : FCC 15B-B
 Env. / Ins. : 24°C / 62% ESCI (556) Engineer : Gary Tsai
 EUT M/N : SP 220SFNw
 Power Rating : 120Vac/60Hz
 Test Mode : NIC Print+Scan to USB Memory

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	65.231	15.45	1.27	16.36	33.09	40.00	6.91	QP
2	113.594	16.76	1.75	16.62	35.12	43.52	8.40	QP
3	196.585	20.89	2.47	14.63	37.99	43.52	5.53	QP
4	289.567	26.44	3.06	7.66	37.15	46.02	8.87	QP
5	375.850	16.31	3.51	18.63	38.45	46.02	7.57	QP
6	480.592	18.14	4.02	15.56	37.72	46.02	8.30	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emissions not reported are 20 dB lower than the specified limit.



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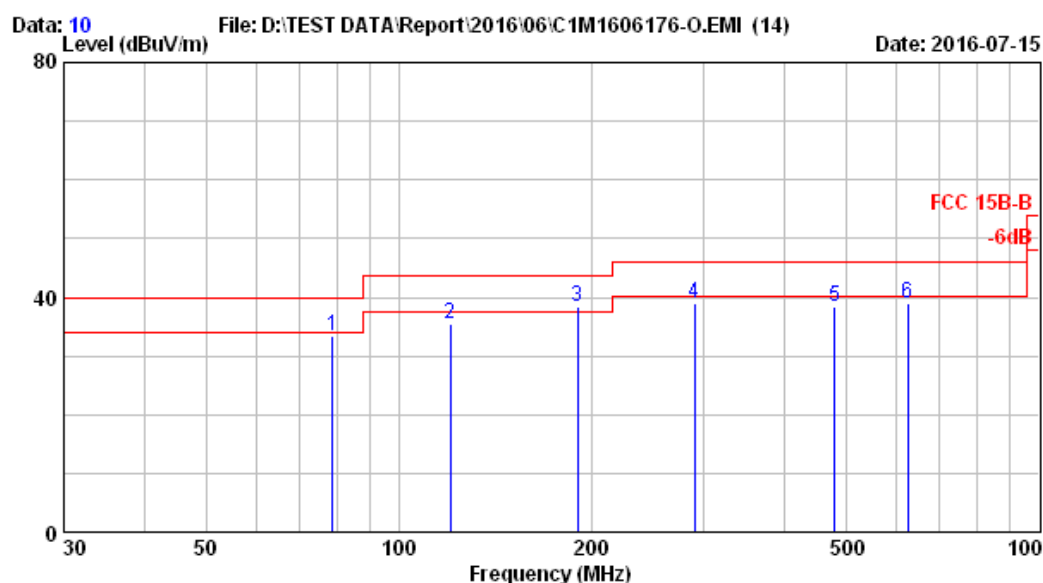
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 Limit : FCC 15B-B
 Env. / Ins. : 24°C / 62% ESCI (556) Engineer : Gary Tsai
 EUT M/N : SP 220SFNw
 Power Rating : 120Vac/60Hz
 Test Mode : NIC Print+Scan to USB Memory

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	39.857	18.03	0.98	15.63	34.64	40.00	5.36	QP
2	148.957	17.87	2.06	14.66	34.58	43.52	8.94	QP
3	192.585	20.50	2.44	13.36	36.31	43.52	7.21	QP
4	240.581	23.48	2.77	10.66	36.92	46.02	9.10	QP
5	356.929	16.18	3.41	17.96	37.55	46.02	8.47	QP
6	453.630	17.64	3.89	18.35	39.89	46.02	6.13	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emissions not reported are 20 dB lower than the specified limit.



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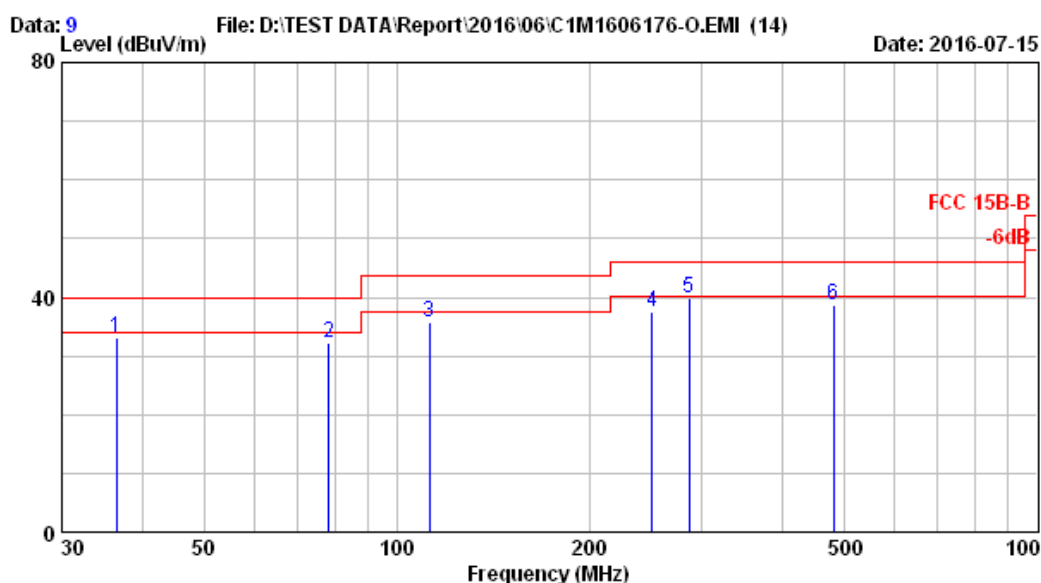
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 Limit : FCC 15B-B
 Env. / Ins. : 24°C / 62% ESCI (556) Engineer : Gary Tsai
 EUT M/N : SP 220SFNw
 Power Rating : 120Vac/60Hz
 Test Mode : WiFi Print+USB Scan

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	78.955	15.33	1.42	16.53	33.28	40.00	6.72	QP
2	120.595	17.01	1.81	16.52	35.34	43.52	8.18	QP
3	190.262	20.31	2.43	15.70	38.43	43.52	5.09	QP
4	289.658	26.44	3.06	9.62	39.12	46.02	6.90	QP
5	480.517	18.14	4.02	16.25	38.41	46.02	7.61	QP
6	623.615	20.97	4.70	13.41	39.09	46.02	6.93	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emissions not reported are 20 dB lower than the specified limit.



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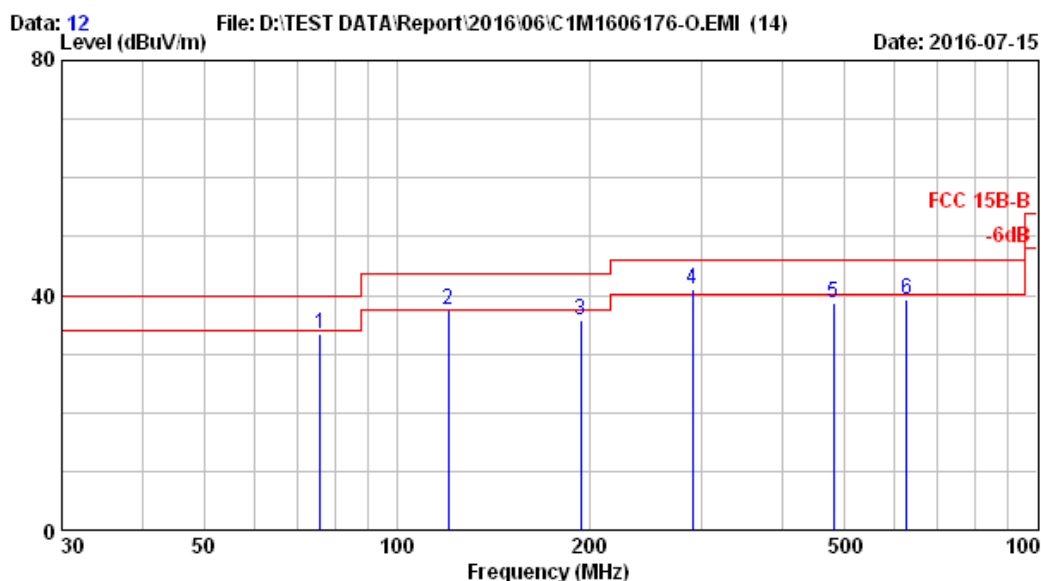
Site no. : OATS NO.8 Data no. : 9
 Dis. / Ant. : 3m MCTD 0286/2856 10/12 Ant. pol. : VERTICAL
 Limit : FCC 15B-B
 Env. / Ins. : 24°C / 62% ESCI (556) Engineer : Gary Tsai
 EUT M/N : SP 220SFNw
 Power Rating : 120Vac/60Hz
 Test Mode : WiFi Print+USB Scan

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	36.529	19.73	0.93	12.48	33.14	40.00	6.86	QP
2	78.417	15.33	1.41	15.63	32.37	40.00	7.63	QP
3	112.548	16.71	1.74	17.27	35.71	43.52	7.81	QP
4	250.620	23.95	2.83	10.62	37.40	46.02	8.62	QP
5	286.547	26.27	3.04	10.65	39.97	46.02	6.05	QP
6	480.591	18.14	4.02	16.65	38.81	46.02	7.21	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emissions not reported are 20 dB lower than the specified limit.



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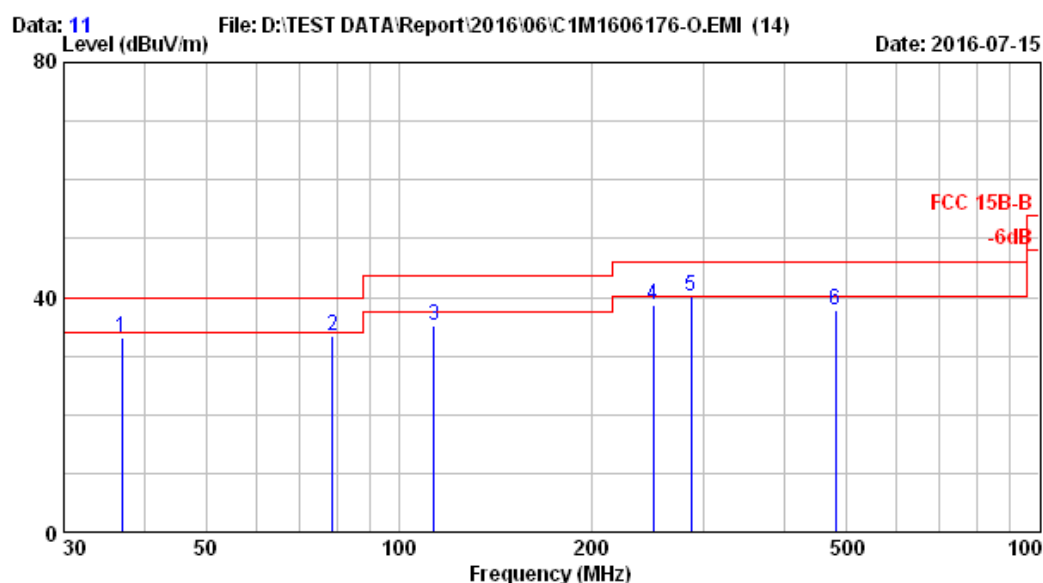
Site no. : OATS NO.8 Data no. : 12
 Dis. / Ant. : 3m MCTD 0286/2856 10/12 Ant. pol. : HORIZONTAL
 Limit : FCC 15B-B
 Env. / Ins. : 24°C / 62% ESCI (556) Engineer : Gary Tsai
 EUT M/N : SP 220SFNw
 Power Rating : 120Vac/60Hz
 Test Mode : FAX-TX

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	75.949	15.32	1.39	16.63	33.34	40.00	6.66	QP
2	120.595	17.01	1.81	18.63	37.45	43.52	6.07	QP
3	193.630	20.63	2.45	12.64	35.72	43.52	7.80	QP
4	289.659	26.44	3.06	11.66	41.15	46.02	4.87	QP
5	480.592	18.14	4.02	16.63	38.79	46.02	7.23	QP
6	625.392	21.03	4.71	13.63	39.37	46.02	6.65	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emissions not reported are 20 dB lower than the specified limit.



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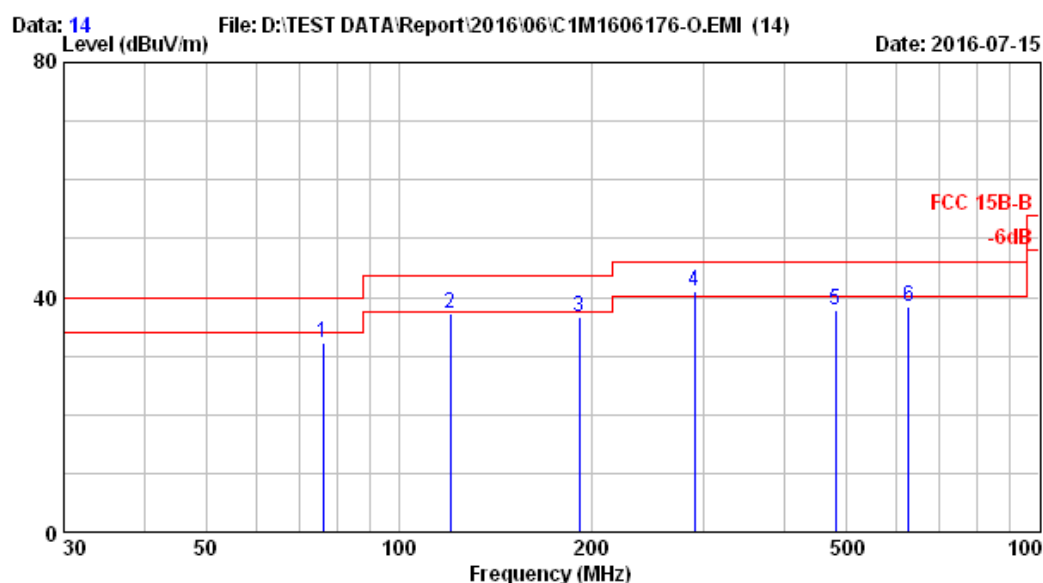
Site no. : OATS NO.8 Data no. : 11
 Dis. / Ant. : 3m MCTD 0286/2856 10/12 Ant. pol. : VERTICAL
 Limit : FCC 15B-B
 Env. / Ins. : 24°C / 62% ESCI (556) Engineer : Gary Tsai
 EUT M/N : SP 220SFNw
 Power Rating : 120Vac/60Hz
 Test Mode : FAX-TX

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	36.925	19.53	0.94	12.53	32.99	40.00	7.01	QP
2	78.949	15.33	1.42	16.52	33.27	40.00	6.73	QP
3	113.630	16.76	1.75	16.63	35.13	43.52	8.39	QP
4	249.657	23.91	2.82	11.96	38.70	46.02	7.32	QP
5	285.965	26.22	3.03	10.95	40.20	46.02	5.82	QP
6	480.592	18.14	4.02	15.63	37.79	46.02	8.23	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emissions not reported are 20 dB lower than the specified limit.



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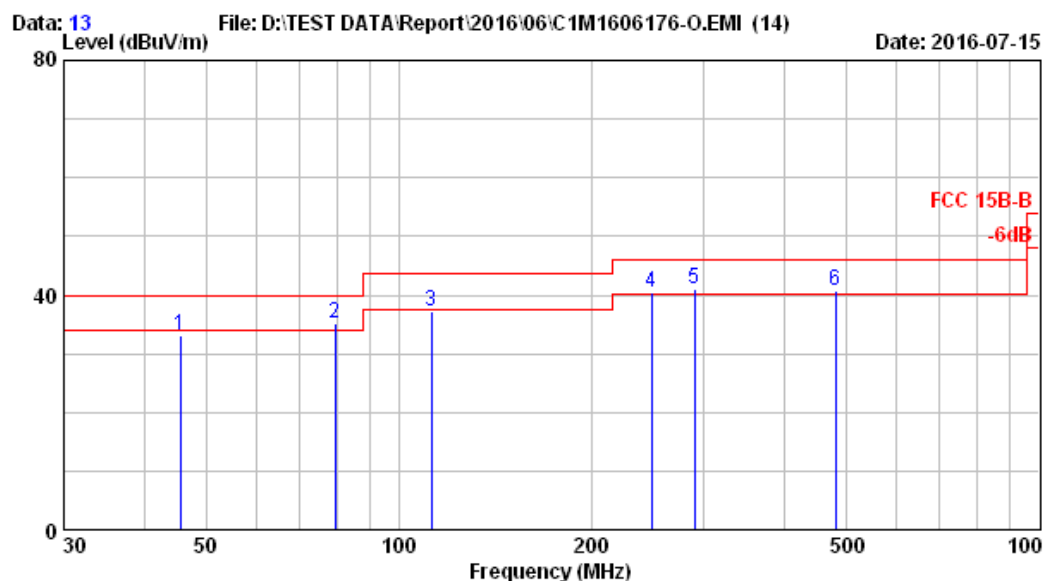
Site no. : OATS NO.8 Data no. : 14
 Dis. / Ant. : 3m MCTD 0286/2856 10/12 Ant. pol. : HORIZONTAL
 Limit : FCC 15B-B
 Env. / Ins. : 24°C / 62% ESCI (556) Engineer : Gary Tsai
 EUT M/N : SP 220SFNw
 Power Rating : 120Vac/60Hz
 Test Mode : FAX-RX

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dB μ V)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Remark
1	76.255	15.32	1.39	15.63	32.34	40.00	7.66	QP
2	120.565	17.01	1.81	18.40	37.22	43.52	6.30	QP
3	191.585	20.44	2.44	13.62	36.50	43.52	7.02	QP
4	289.659	26.44	3.06	11.65	41.15	46.02	4.87	QP
5	480.592	18.14	4.02	15.63	37.79	46.02	8.23	QP
6	625.362	21.03	4.71	12.52	38.26	46.02	7.76	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emissions not reported are 20 dB lower than the specified limit.



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Site no. : OATS NO.8 Data no. : 13
 Dis. / Ant. : 3m MCTD 0286/2856 10/12 Ant. pol. : VERTICAL
 Limit : FCC 15B-B
 Env. / Ins. : 24°C / 62% ESCI (556) Engineer : Gary Tsai
 EUT M/N : SP 220SFNw
 Power Rating : 120Vac/60Hz
 Test Mode : FAX-RX

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dB μ V)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Remark
1	45.629	17.57	1.06	14.63	33.25	40.00	6.75	QP
2	79.565	15.33	1.42	18.33	35.08	40.00	4.92	QP
3	112.636	16.71	1.74	18.63	37.08	43.52	6.44	QP
4	248.659	23.87	2.82	13.63	40.31	46.02	5.71	QP
5	289.659	26.44	3.06	11.66	41.15	46.02	4.87	QP
6	480.592	18.14	4.02	18.63	40.79	46.02	5.23	QP

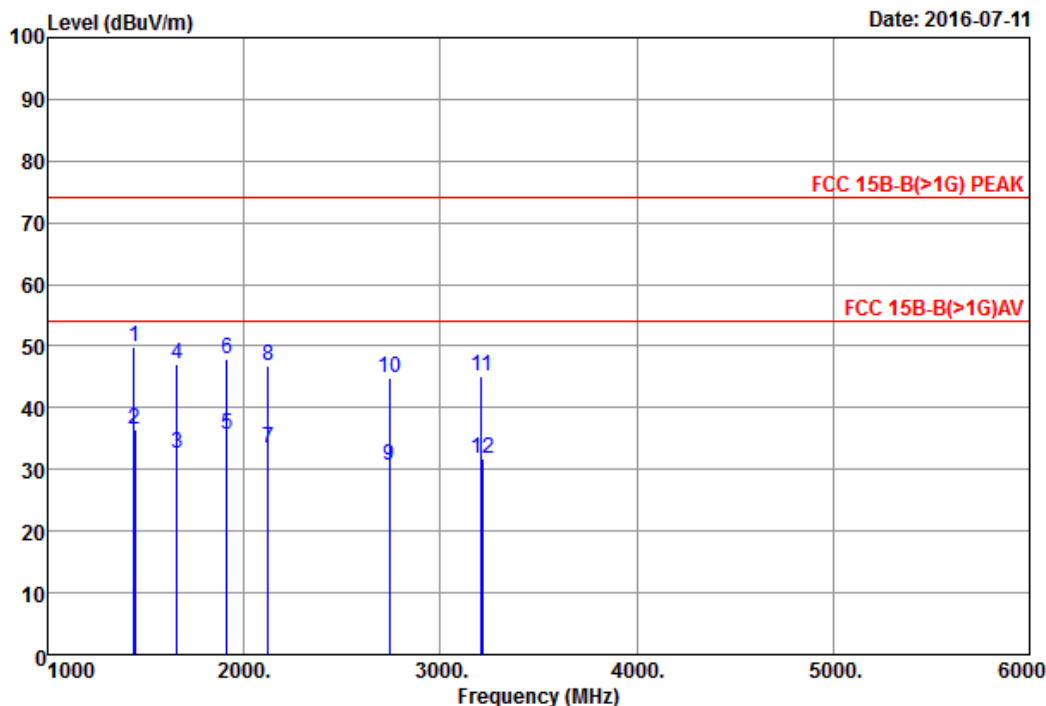
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emissions not reported are 20 dB lower than the specified limit.

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\C1M1606XXX\C1M1606176-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. : 28°C / 66% N9010A (076) Engineer : Edward_lin
 EUT : SP 220SFNw
 Power Rating : 120Vac/60Hz
 Test Mode : Stand By

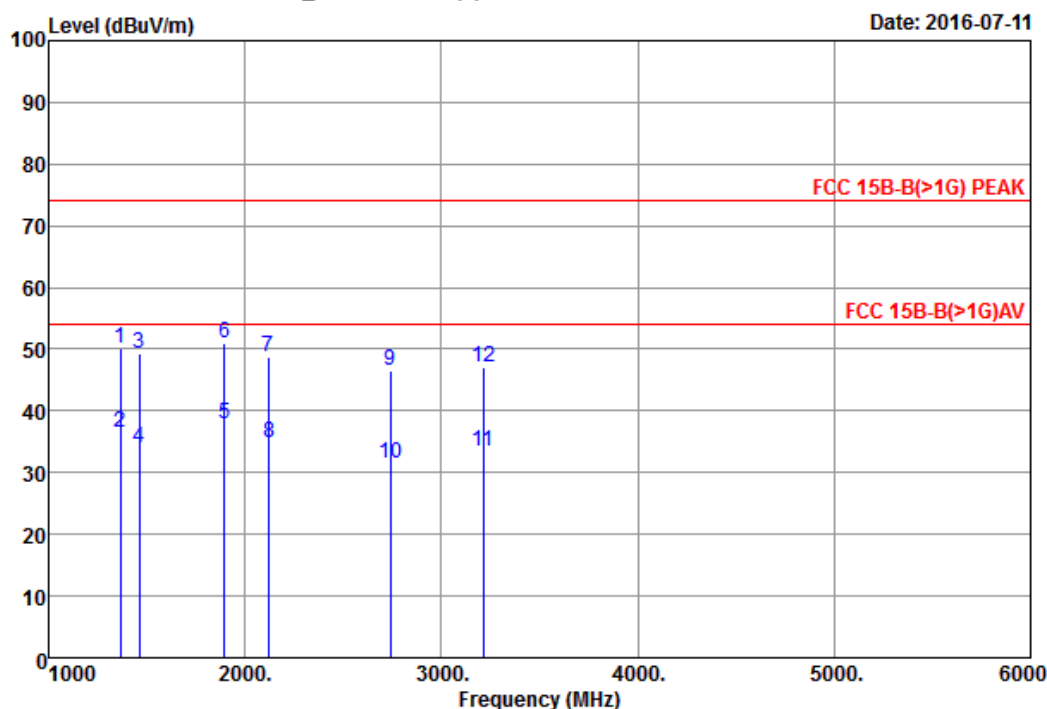
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	PREAMP Gain (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	1440.000	25.83	5.65	35.90	54.36	49.94	73.98	24.04	Peak
2	1442.890	25.83	5.65	35.89	40.96	36.55	53.98	17.43	Average
3	1659.540	26.74	6.33	35.60	35.21	32.68	53.98	21.30	Average
4	1660.000	26.74	6.33	35.60	49.49	46.96	73.98	27.02	Peak
5	1914.710	27.94	7.16	35.34	35.81	35.57	53.98	18.41	Average
6	1915.000	27.94	7.18	35.34	48.17	47.95	73.98	26.03	Peak
7	2123.212	28.40	7.57	35.21	32.79	33.55	53.98	20.43	Average
8	2125.000	28.41	7.57	35.21	46.09	46.86	73.98	27.12	Peak
9	2739.926	29.72	8.22	35.06	27.88	30.76	53.98	23.22	Average
10	2740.000	29.72	8.22	35.06	41.96	44.84	73.98	29.14	Peak
11	3210.000	31.11	8.75	34.90	40.24	45.20	73.98	28.78	Peak
12	3211.050	31.11	8.75	34.90	26.77	31.73	53.98	22.25	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Preamp Gain + Reading.
 2. The emissions not reported are 20 dB lower than the specified limit.



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Data: 3 File: \\Em2_chamber\data (d)\Test data\REPORT\2016\C1M1606XXX\C1M1606176-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. : 28°C / 66% N9010A (076) Engineer : Edward_lin
 EUT : SP 220SFNw
 Power Rating : 120Vac/60Hz
 Test Mode : Stand By

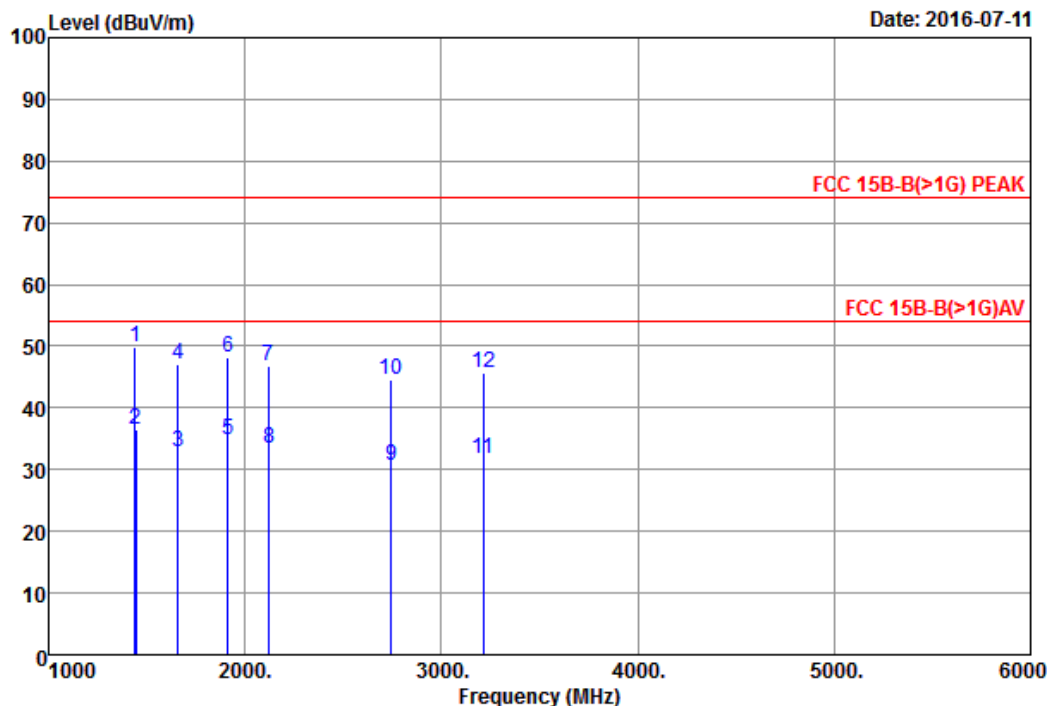
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	PREAMP Gain (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	1365.000	25.74	5.44	36.04	54.86	50.00	73.98	23.98	Peak
2	1365.540	25.74	5.44	36.04	41.26	36.40	53.98	17.58	Average
3	1460.000	25.85	5.70	35.87	53.71	49.39	73.98	24.59	Peak
4	1461.480	25.85	5.70	35.86	38.29	33.98	53.98	20.00	Average
5	1894.350	27.84	7.10	35.36	38.17	37.75	53.98	16.23	Average
6	1895.000	27.84	7.10	35.36	51.44	51.02	73.98	22.96	Peak
7	2120.000	28.40	7.57	35.22	47.94	48.69	73.98	25.29	Peak
8	2121.753	28.40	7.57	35.21	34.09	34.85	53.98	19.13	Average
9	2740.000	29.72	8.22	35.06	43.71	46.59	73.98	27.39	Peak
10	2740.859	29.72	8.22	35.06	28.70	31.58	53.98	22.40	Average
11	3214.330	31.11	8.76	34.90	28.54	33.51	53.98	20.47	Average
12	3215.000	31.11	8.76	34.90	42.21	47.18	73.98	26.80	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Preamp Gain + Reading.
 2. The emissions not reported are 20 dB lower than the specified limit.



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Data: 6 File: \\Em2_chamber\data (d)\Test data\REPORT\2016\C1M1606XXX\C1M1606176-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. : 28°C / 66% N9010A (076) Engineer : Edward_lin
 EUT : SP 220SFNw
 Power Rating : 120Vac/60Hz
 Test Mode : Copy+NIC Ping

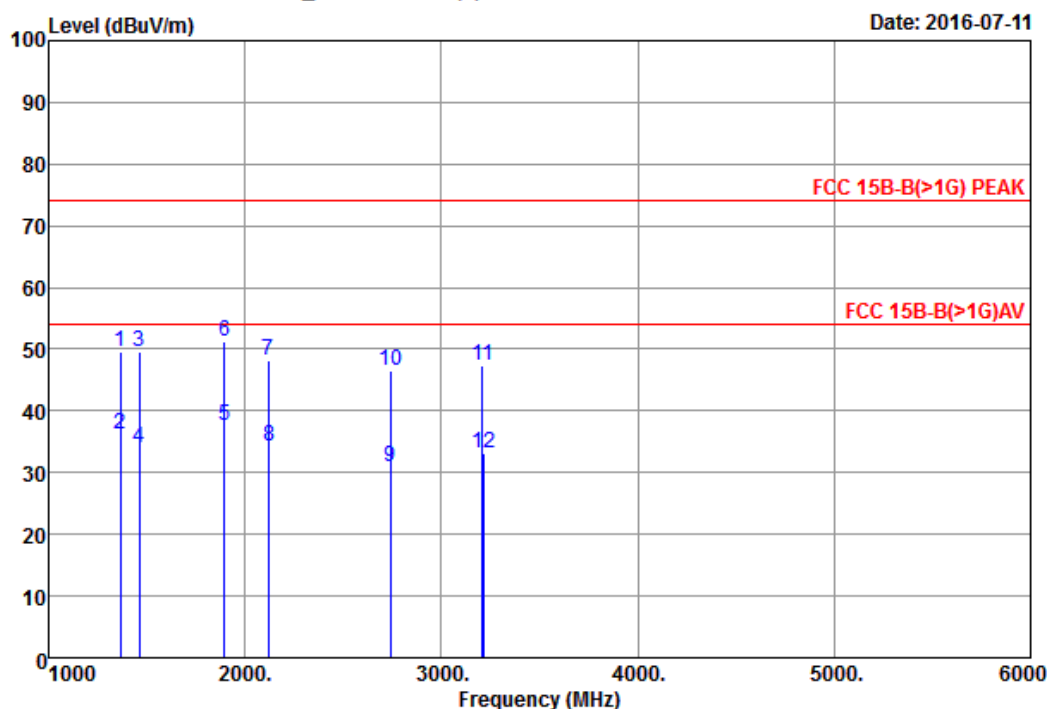
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	PREAMP Gain (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	1440.000	25.83	5.65	35.90	54.17	49.75	73.98	24.23	Peak
2	1442.520	25.83	5.65	35.89	40.86	36.45	53.98	17.53	Average
3	1659.710	26.74	6.33	35.60	35.28	32.75	53.98	21.23	Average
4	1660.000	26.74	6.33	35.60	49.53	47.00	73.98	26.98	Peak
5	1914.630	27.94	7.16	35.34	35.04	34.80	53.98	19.18	Average
6	1915.000	27.94	7.18	35.34	48.38	48.16	73.98	25.82	Peak
7	2120.000	28.40	7.57	35.22	45.94	46.69	73.98	27.29	Peak
8	2122.762	28.40	7.57	35.21	32.70	33.46	53.98	20.52	Average
9	2744.102	29.72	8.22	35.06	27.70	30.58	53.98	23.40	Average
10	2745.000	29.72	8.22	35.06	41.71	44.59	73.98	29.39	Peak
11	3214.319	31.11	8.76	34.90	26.68	31.65	53.98	22.33	Average
12	3215.000	31.11	8.76	34.90	40.72	45.69	73.98	28.29	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Preamp Gain + Reading.
 2. The emissions not reported are 20 dB lower than the specified limit.



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Data: 5 File: \\Em2_chamber\data (d)\Test data\REPORT\2016\C1M1606XXX\C1M1606176-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. : 28°C / 66% N9010A (076) Engineer : Edward_lin
 EUT : SP 220SFNw
 Power Rating : 120Vac/60Hz
 Test Mode : Copy+NIC Ping

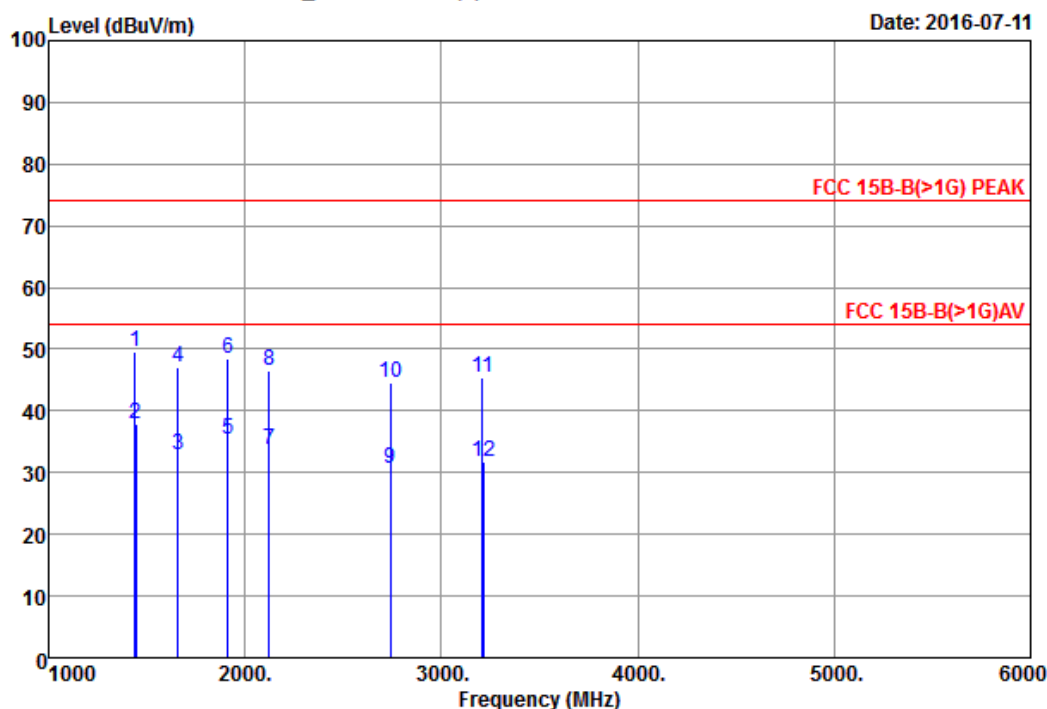
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	PREAMP Gain (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	1365.000	25.74	5.44	36.04	54.48	49.62	73.98	24.36	Peak
2	1365.660	25.74	5.44	36.04	41.05	36.19	53.98	17.79	Average
3	1460.000	25.85	5.70	35.87	53.88	49.56	73.98	24.42	Peak
4	1461.940	25.85	5.70	35.86	38.29	33.98	53.98	20.00	Average
5	1894.420	27.84	7.10	35.36	38.12	37.70	53.98	16.28	Average
6	1895.000	27.84	7.10	35.36	51.63	51.21	73.98	22.77	Peak
7	2120.000	28.40	7.57	35.22	47.44	48.19	73.98	25.79	Peak
8	2122.495	28.40	7.57	35.21	33.50	34.26	53.98	19.72	Average
9	2738.363	29.72	8.22	35.07	28.17	31.04	53.98	22.94	Average
10	2740.000	29.72	8.22	35.06	43.60	46.48	73.98	27.50	Peak
11	3210.000	31.11	8.75	34.90	42.40	47.36	73.98	26.62	Peak
12	3211.280	31.11	8.75	34.90	28.20	33.16	53.98	20.82	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Preamp Gain + Reading.
 2. The emissions not reported are 20 dB lower than the specified limit.



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Data: 2 File: \\Em2_chamber\data (d)\Test data\REPORT\2016\C1M1606XXX\C1M1606176-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. : 28°C / 66% N9010A (076) Engineer : Edward_lin
 EUT : SP 220SFNw
 Power Rating : 120Vac/60Hz
 Test Mode : USB Print+WiFi Scan

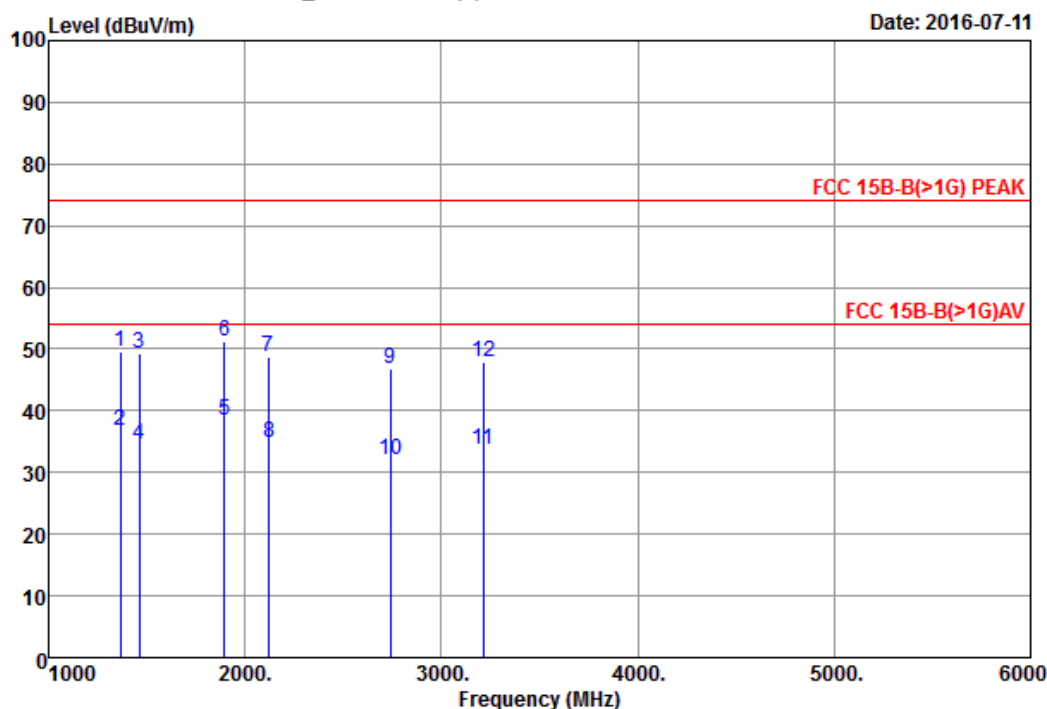
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	PREAMP Gain (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	1440.000	25.83	5.65	35.90	54.07	49.65	73.98	24.33	Peak
2	1442.360	25.83	5.65	35.89	42.33	37.92	53.98	16.06	Average
3	1659.880	26.74	6.33	35.60	35.40	32.87	53.98	21.11	Average
4	1660.000	26.74	6.33	35.60	49.69	47.16	73.98	26.82	Peak
5	1914.230	27.94	7.16	35.34	35.73	35.49	53.98	18.49	Average
6	1915.000	27.94	7.18	35.34	48.65	48.43	73.98	25.55	Peak
7	2124.029	28.41	7.57	35.21	32.93	33.70	53.98	20.28	Average
8	2125.000	28.41	7.57	35.21	45.83	46.60	73.98	27.38	Peak
9	2739.923	29.72	8.22	35.06	27.82	30.70	53.98	23.28	Average
10	2740.000	29.72	8.22	35.06	41.64	44.52	73.98	29.46	Peak
11	3210.000	31.11	8.75	34.90	40.49	45.45	73.98	28.53	Peak
12	3211.460	31.11	8.75	34.90	26.73	31.69	53.98	22.29	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Preamp Gain + Reading.
 2. The emissions not reported are 20 dB lower than the specified limit.



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Data: 1 File: \\Em2_chamber\data (d)\Test data\REPORT\2016\C1M1606XXX\C1M1606176-CHAME



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. : 28°C / 66% N9010A (076) Engineer : Edward_lin
 EUT : SP 220SFNw
 Power Rating : 120Vac/60Hz
 Test Mode : USB Print+WiFi Scan

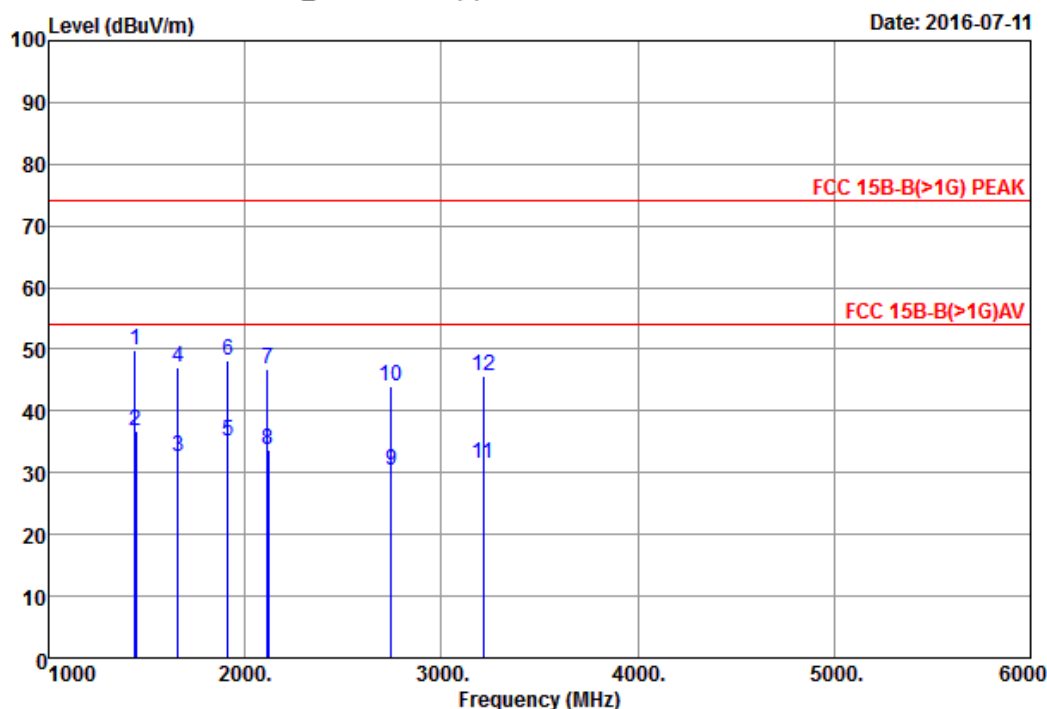
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	PREAMP Gain (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	1365.000	25.74	5.44	36.04	54.37	49.51	73.98	24.47	Peak
2	1365.330	25.74	5.44	36.04	41.58	36.72	53.98	17.26	Average
3	1460.000	25.85	5.70	35.87	53.51	49.19	73.98	24.79	Peak
4	1461.330	25.85	5.70	35.86	38.85	34.54	53.98	19.44	Average
5	1894.630	27.84	7.10	35.36	38.85	38.43	53.98	15.55	Average
6	1895.000	27.84	7.10	35.36	51.72	51.30	73.98	22.68	Peak
7	2120.000	28.40	7.57	35.22	47.99	48.74	73.98	25.24	Peak
8	2122.146	28.40	7.57	35.21	33.99	34.75	53.98	19.23	Average
9	2740.000	29.72	8.22	35.06	43.91	46.79	73.98	27.19	Peak
10	2742.701	29.72	8.22	35.06	29.03	31.91	53.98	22.07	Average
11	3214.987	31.11	8.76	34.90	28.80	33.77	53.98	20.21	Average
12	3215.000	31.11	8.76	34.90	42.84	47.81	73.98	26.17	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Preamp Gain + Reading.
 2. The emissions not reported are 20 dB lower than the specified limit.



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Data: 8 File: \\Em2_chamber\data (d)\Test data\REPORT\2016\C1M1606XXX\C1M1606176-CHAME



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. : 28°C / 66% N9010A (076) Engineer : Edward_lin
 EUT : SP 220SFNw
 Power Rating : 120Vac/60Hz
 Test Mode : NIC Print+Scan to usb memory

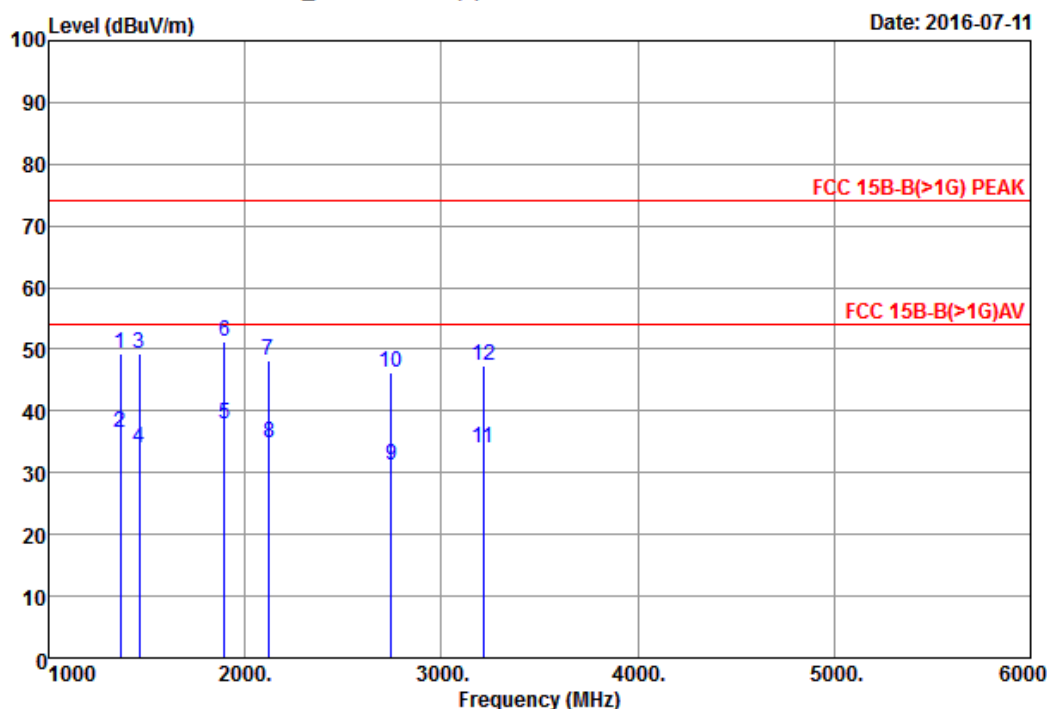
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	PREAMP Gain (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	1440.000	25.83	5.65	35.90	54.17	49.75	73.98	24.23	Peak
2	1442.590	25.83	5.65	35.89	41.22	36.81	53.98	17.17	Average
3	1659.760	26.74	6.33	35.60	35.09	32.56	53.98	21.42	Average
4	1660.000	26.74	6.33	35.60	49.52	46.99	73.98	26.99	Peak
5	1914.670	27.94	7.16	35.34	35.27	35.03	53.98	18.95	Average
6	1915.000	27.94	7.18	35.34	48.31	48.09	73.98	25.89	Peak
7	2115.000	28.40	7.56	35.22	46.09	46.83	73.98	27.15	Peak
8	2117.486	28.40	7.57	35.22	33.03	33.78	53.98	20.20	Average
9	2744.947	29.72	8.22	35.06	27.57	30.45	53.98	23.53	Average
10	2745.000	29.72	8.22	35.06	41.23	44.11	73.98	29.87	Peak
11	3214.698	31.11	8.76	34.90	26.55	31.52	53.98	22.46	Average
12	3215.000	31.11	8.76	34.90	40.77	45.74	73.98	28.24	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Preamp Gain + Reading.
 2. The emissions not reported are 20 dB lower than the specified limit.



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Data: 7 File: \\Em2_chamber\data (d)\Test data\REPORT\2016\C1M1606XXX\C1M1606176-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. : 28°C / 66% N9010A (076) Engineer : Edward_lin
 EUT : SP 220SFNw
 Power Rating : 120Vac/60Hz
 Test Mode : NIC Print+Scan to usb memory

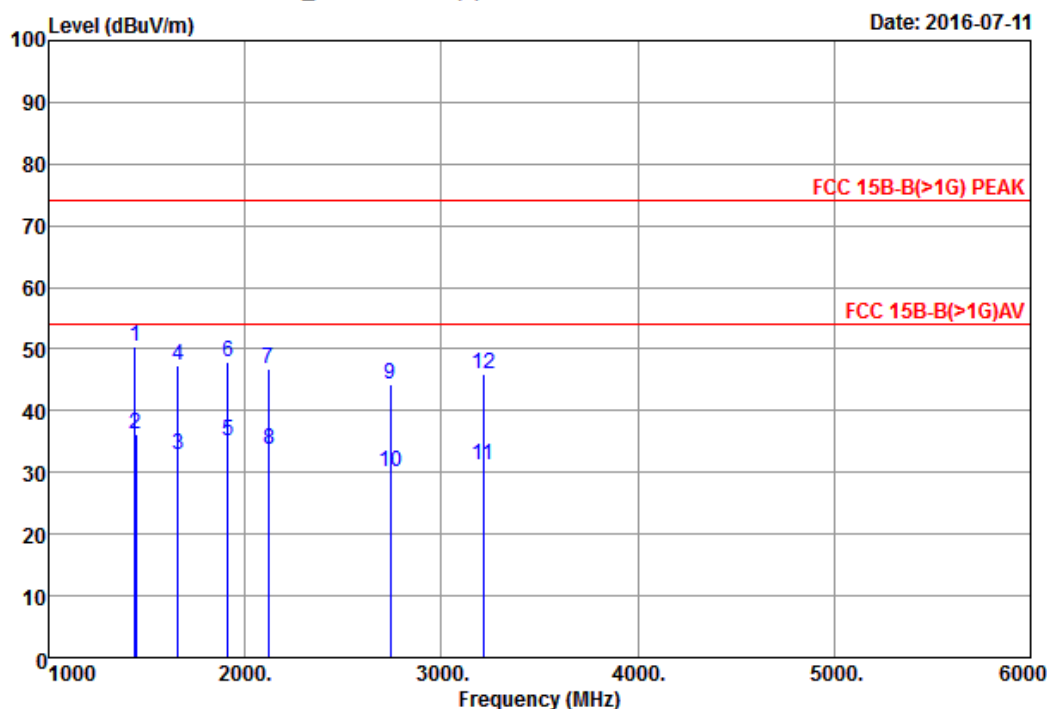
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	PREAMP Gain (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	1365.000	25.74	5.44	36.04	54.07	49.21	73.98	24.77	Peak
2	1365.220	25.74	5.44	36.04	41.35	36.49	53.98	17.49	Average
3	1460.000	25.85	5.70	35.87	53.72	49.40	73.98	24.58	Peak
4	1461.460	25.85	5.70	35.86	38.28	33.97	53.98	20.01	Average
5	1894.610	27.84	7.10	35.36	38.33	37.91	53.98	16.07	Average
6	1895.000	27.84	7.10	35.36	51.54	51.12	73.98	22.86	Peak
7	2120.000	28.40	7.57	35.22	47.57	48.32	73.98	25.66	Peak
8	2121.117	28.40	7.57	35.22	33.98	34.73	53.98	19.25	Average
9	2744.647	29.72	8.22	35.06	28.22	31.10	53.98	22.88	Average
10	2745.000	29.72	8.22	35.06	43.40	46.28	73.98	27.70	Peak
11	3214.132	31.11	8.76	34.90	29.01	33.98	53.98	20.00	Average
12	3215.000	31.11	8.76	34.90	42.32	47.29	73.98	26.69	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Preamp Gain + Reading.
 2. The emissions not reported are 20 dB lower than the specified limit.



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Data: 10 File: \\Em2_chamber\data (d)\Test data\REPORT\2016\C1M1606XXX\C1M1606176-CHAME



Site no. : Audix No.2 Chamber Data no. : 10
 Dis. / Ant. : 3m HORN3115-3775 Ant. pol. : HORIZONTAL
 Limit : FCC 15B-B(>1G) PEAK
 Env. / Ins. : 28°C / 66% N9010A (076) Engineer : Edward_lin
 EUT : SP 220SFNw
 Power Rating : 120Vac/60Hz
 Test Mode : WiFi Print+USB Scan

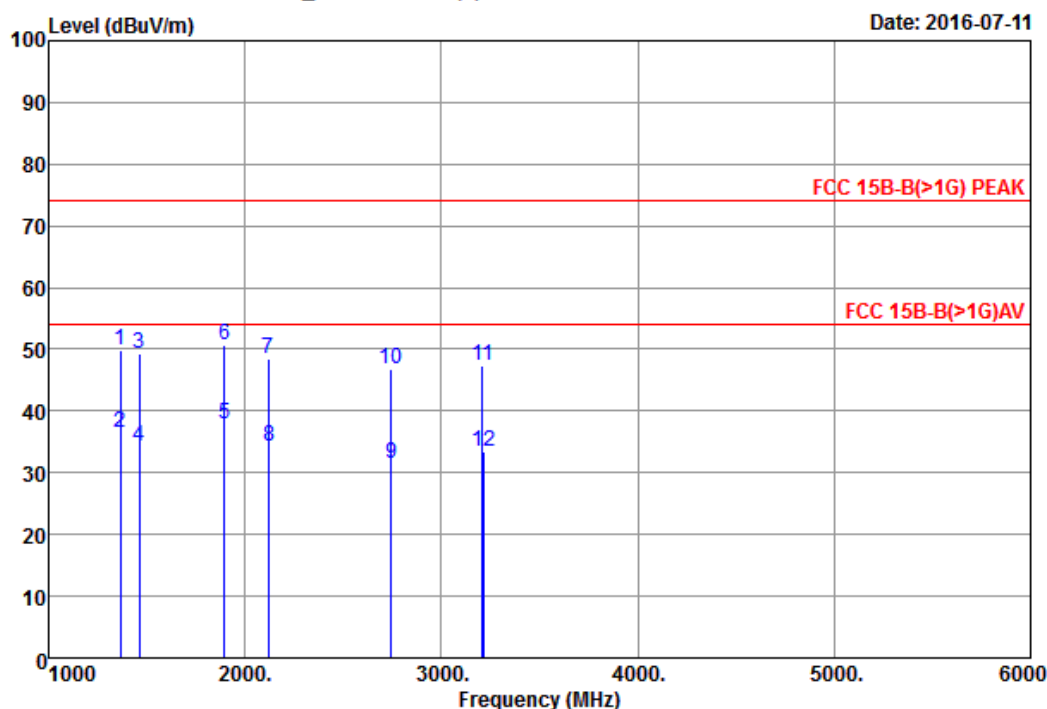
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	PREAMP Gain (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	1440.000	25.83	5.65	35.90	54.80	50.38	73.98	23.60	Peak
2	1442.670	25.83	5.65	35.89	40.54	36.13	53.98	17.85	Average
3	1659.420	26.74	6.33	35.60	35.36	32.83	53.98	21.15	Average
4	1660.000	26.74	6.33	35.60	49.91	47.38	73.98	26.60	Peak
5	1914.570	27.94	7.16	35.34	35.35	35.11	53.98	18.87	Average
6	1915.000	27.94	7.18	35.34	48.07	47.85	73.98	26.13	Peak
7	2120.000	28.40	7.57	35.22	46.13	46.88	73.98	27.10	Peak
8	2122.319	28.40	7.57	35.21	32.87	33.63	53.98	20.35	Average
9	2740.000	29.72	8.22	35.06	41.38	44.26	73.98	29.72	Peak
10	2741.083	29.72	8.22	35.06	27.15	30.03	53.98	23.95	Average
11	3214.080	31.11	8.75	34.90	26.16	31.12	53.98	22.86	Average
12	3215.000	31.11	8.76	34.90	41.00	45.97	73.98	28.01	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Preamp Gain + Reading.
 2. The emissions not reported are 20 dB lower than the specified limit.



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Data: 9 File: \\Em2_chamber\data (d)\Test data\REPORT\2016\C1M1606XXX\C1M1606176-CHAME



Site no. : Audix No.2 Chamber Data no. : 9
 Dis. / Ant. : 3m HORN3115-3775 Ant. pol. : VERTICAL
 Limit : FCC 15B-B(>1G) PEAK
 Env. / Ins. : 28°C / 66% N9010A (076) Engineer : Edward_lin
 EUT : SP 220SFnw
 Power Rating : 120Vac/60Hz
 Test Mode : WiFi Print+USB Scan

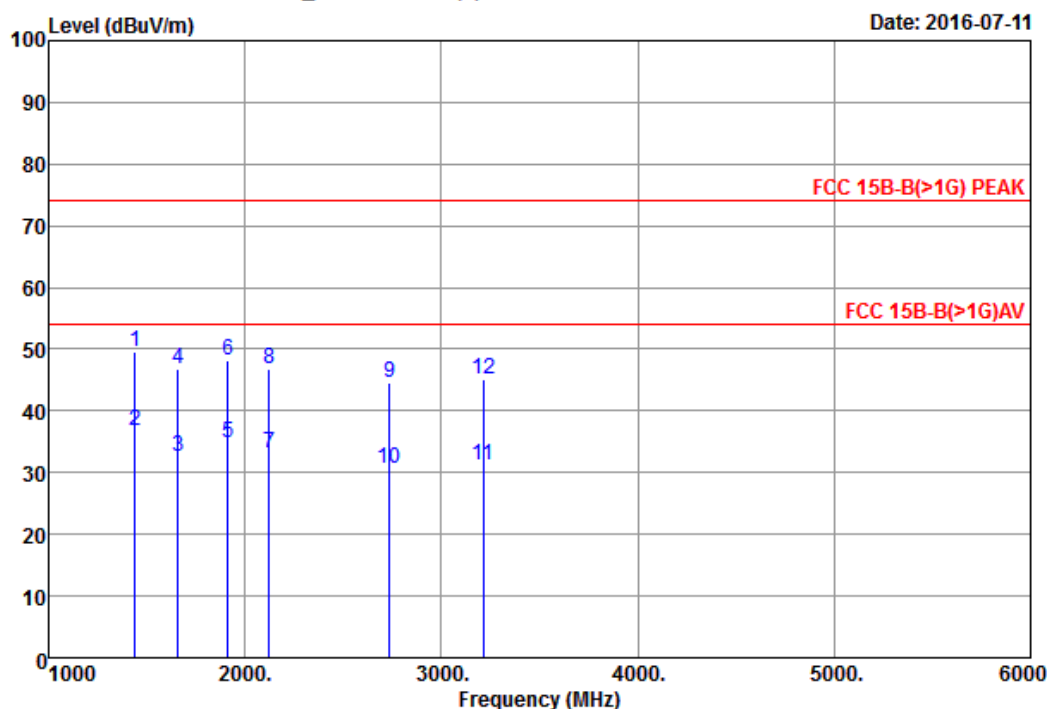
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	PREAMP Gain (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	1365.000	25.74	5.44	36.04	54.61	49.75	73.98	24.23	Peak
2	1365.820	25.74	5.44	36.04	41.41	36.55	53.98	17.43	Average
3	1460.000	25.85	5.70	35.87	53.73	49.41	73.98	24.57	Peak
4	1461.250	25.85	5.70	35.86	38.47	34.16	53.98	19.82	Average
5	1894.190	27.84	7.10	35.36	38.20	37.78	53.98	16.20	Average
6	1895.000	27.84	7.10	35.36	51.06	50.64	73.98	23.34	Peak
7	2120.000	28.40	7.57	35.22	47.83	48.58	73.98	25.40	Peak
8	2121.490	28.40	7.57	35.21	33.57	34.33	53.98	19.65	Average
9	2744.271	29.72	8.22	35.06	28.69	31.57	53.98	22.41	Average
10	2745.000	29.72	8.22	35.06	44.04	46.92	73.98	27.06	Peak
11	3210.000	31.11	8.75	34.90	42.28	47.24	73.98	26.74	Peak
12	3211.810	31.11	8.75	34.90	28.46	33.42	53.98	20.56	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Preamp Gain + Reading.
 2. The emissions not reported are 20 dB lower than the specified limit.



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Data: 12 File: \\Em2_chamber\data (d)\Test data\REPORT\2016\C1M1606XXX\C1M1606176-CHAME



Site no. : Audix No.2 Chamber Data no. : 12
 Dis. / Ant. : 3m HORN3115-3775 Ant. pol. : HORIZONTAL
 Limit : FCC 15B-B(>1G) PEAK
 Env. / Ins. : 28°C / 66% N9010A (076) Engineer : Edward_lin
 EUT : SP 220SFNw
 Power Rating : 120Vac/60Hz
 Test Mode : FAX-TX

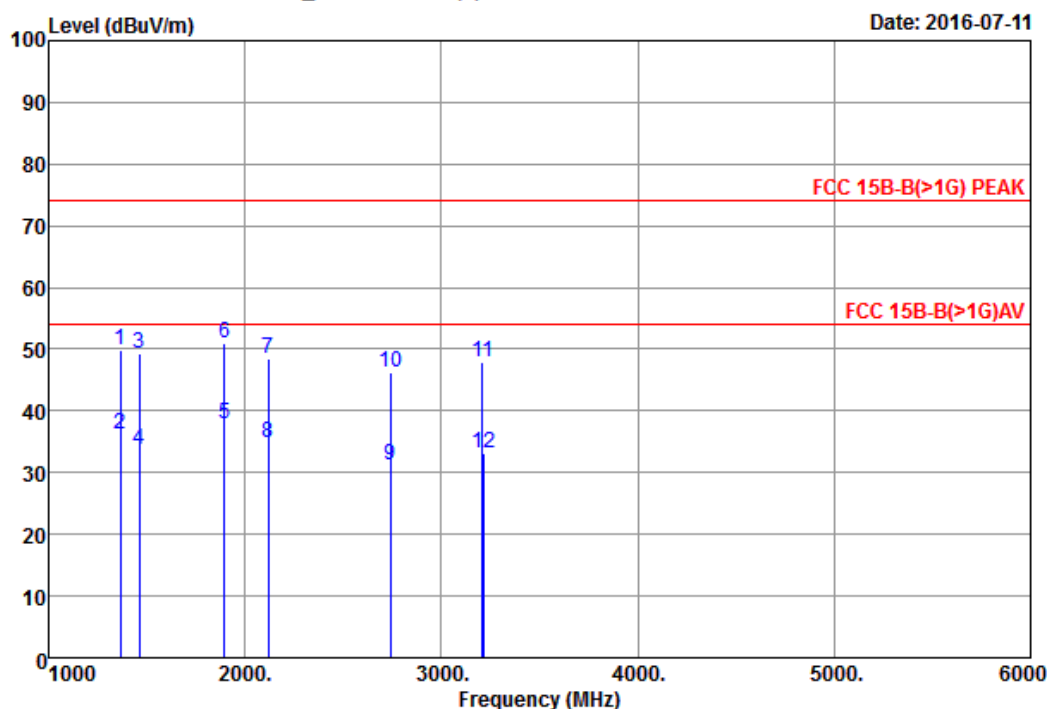
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	PREAMP Gain (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	1440.000	25.83	5.65	35.90	54.10	49.68	73.98	24.30	Peak
2	1442.040	25.83	5.65	35.89	41.29	36.88	53.98	17.10	Average
3	1659.520	26.74	6.33	35.60	35.15	32.62	53.98	21.36	Average
4	1660.000	26.74	6.33	35.60	49.25	46.72	73.98	27.26	Peak
5	1914.420	27.94	7.16	35.34	35.07	34.83	53.98	19.15	Average
6	1915.000	27.94	7.18	35.34	48.38	48.16	73.98	25.82	Peak
7	2124.319	28.41	7.57	35.21	32.43	33.20	53.98	20.78	Average
8	2125.000	28.41	7.57	35.21	45.90	46.67	73.98	27.31	Peak
9	2735.000	29.68	8.22	35.07	41.75	44.58	73.98	29.40	Peak
10	2737.254	29.68	8.22	35.07	27.73	30.56	53.98	23.42	Average
11	3214.899	31.11	8.76	34.90	26.20	31.17	53.98	22.81	Average
12	3215.000	31.11	8.76	34.90	40.16	45.13	73.98	28.85	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Preamp Gain + Reading.
 2. The emissions not reported are 20 dB lower than the specified limit.



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Data: 11 File: \\Em2_chamber\data (d)\Test data\REPORT\2016\C1M1606XXX\C1M1606176-CHAME



Site no. : Audix No.2 Chamber Data no. : 11
 Dis. / Ant. : 3m HORN3115-3775 Ant. pol. : VERTICAL
 Limit : FCC 15B-B(>1G) PEAK
 Env. / Ins. : 28°C / 66% N9010A (076) Engineer : Edward_lin
 EUT : SP 220SFNw
 Power Rating : 120Vac/60Hz
 Test Mode : FAX-TX

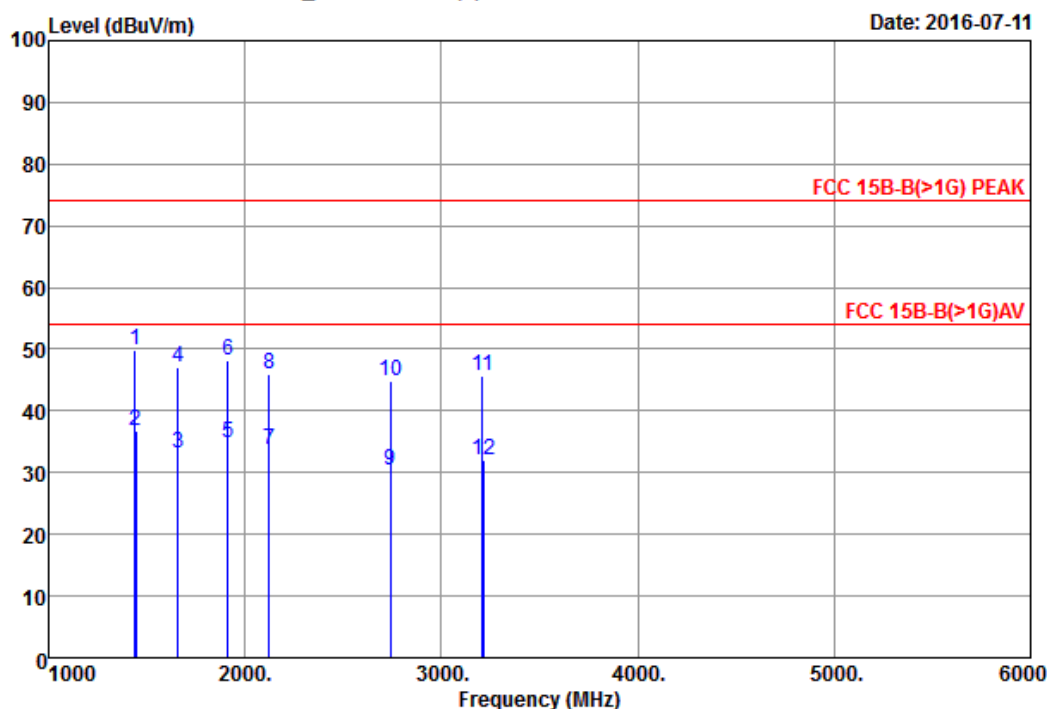
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	PREAMP Gain (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	1365.000	25.74	5.44	36.04	54.59	49.73	73.98	24.25	Peak
2	1365.820	25.74	5.44	36.04	41.06	36.20	53.98	17.78	Average
3	1460.000	25.85	5.70	35.87	53.71	49.39	73.98	24.59	Peak
4	1461.270	25.85	5.70	35.86	38.09	33.78	53.98	20.20	Average
5	1894.420	27.84	7.10	35.36	38.22	37.80	53.98	16.18	Average
6	1895.000	27.84	7.10	35.36	51.33	50.91	73.98	23.07	Peak
7	2120.000	28.40	7.57	35.22	47.59	48.34	73.98	25.64	Peak
8	2120.610	28.40	7.57	35.22	34.12	34.87	53.98	19.11	Average
9	2739.917	29.72	8.22	35.06	28.27	31.15	53.98	22.83	Average
10	2740.000	29.72	8.22	35.06	43.48	46.36	73.98	27.62	Peak
11	3210.000	31.11	8.75	34.90	42.84	47.80	73.98	26.18	Peak
12	3212.817	31.11	8.75	34.90	28.19	33.15	53.98	20.83	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Preamp Gain + Reading.
 2. The emissions not reported are 20 dB lower than the specified limit.



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Data: 14 File: \\Em2_chamber\data (d)\Test data\REPORT\2016\C1M1606XXX\C1M1606176-CHAME



Site no. : Audix No.2 Chamber Data no. : 14
 Dis. / Ant. : 3m HORN3115-3775 Ant. pol. : HORIZONTAL
 Limit : FCC 15B-B(>1G) PEAK
 Env. / Ins. : 28°C / 66% N9010A (076) Engineer : Edward_lin
 EUT : SP 220SFNw
 Power Rating : 120Vac/60Hz
 Test Mode : FAX-RX

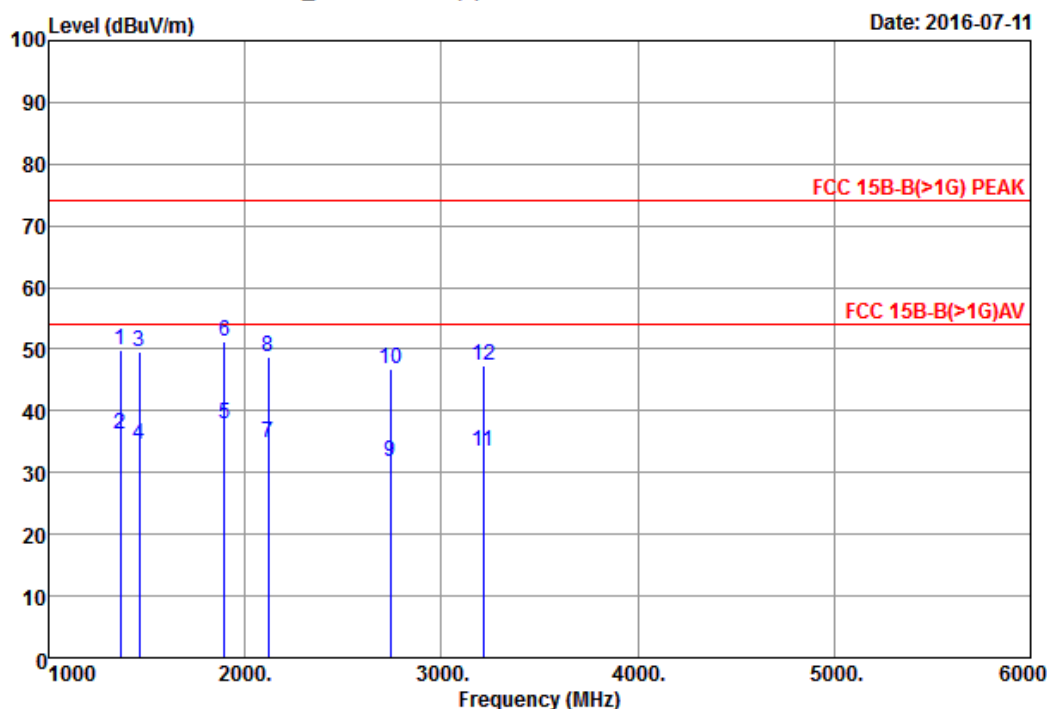
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	PREAMP Gain (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	1440.000	25.83	5.65	35.90	54.31	49.89	73.98	24.09	Peak
2	1442.280	25.83	5.65	35.89	41.11	36.70	53.98	17.28	Average
3	1659.490	26.74	6.33	35.60	35.68	33.15	53.98	20.83	Average
4	1660.000	26.74	6.33	35.60	49.71	47.18	73.98	26.80	Peak
5	1914.440	27.94	7.16	35.34	35.08	34.84	53.98	19.14	Average
6	1915.000	27.94	7.18	35.34	48.31	48.09	73.98	25.89	Peak
7	2124.669	28.41	7.57	35.21	32.85	33.62	53.98	20.36	Average
8	2125.000	28.41	7.57	35.21	45.29	46.06	73.98	27.92	Peak
9	2739.333	29.72	8.22	35.07	27.45	30.32	53.98	23.66	Average
10	2740.000	29.72	8.22	35.06	41.90	44.78	73.98	29.20	Peak
11	3210.000	31.11	8.75	34.90	40.63	45.59	73.98	28.39	Peak
12	3212.712	31.11	8.75	34.90	26.98	31.94	53.98	22.04	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Preamp Gain + Reading.
 2. The emissions not reported are 20 dB lower than the specified limit.



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Data: 13 File: \\Em2_chamber\data (d)\Test data\REPORT\2016\C1M1606XXX\C1M1606176-CHAME



Site no. : Audix No.2 Chamber Data no. : 13
 Dis. / Ant. : 3m HORN3115-3775 Ant. pol. : VERTICAL
 Limit : FCC 15B-B(>1G) PEAK
 Env. / Ins. : 28°C / 66% N9010A (076) Engineer : Edward_lin
 EUT : SP 220SFNw
 Power Rating : 120Vac/60Hz
 Test Mode : FAX-RX

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	PREAMP Gain (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	1365.000	25.74	5.44	36.04	54.76	49.90	73.98	24.08	Peak
2	1365.420	25.74	5.44	36.04	41.08	36.22	53.98	17.76	Average
3	1460.000	25.85	5.70	35.87	53.94	49.62	73.98	24.36	Peak
4	1461.520	25.85	5.70	35.86	38.76	34.45	53.98	19.53	Average
5	1894.480	27.84	7.10	35.36	38.33	37.91	53.98	16.07	Average
6	1895.000	27.84	7.10	35.36	51.61	51.19	73.98	22.79	Peak
7	2119.598	28.40	7.57	35.22	33.98	34.73	53.98	19.25	Average
8	2120.000	28.40	7.57	35.22	47.91	48.66	73.98	25.32	Peak
9	2738.394	29.72	8.22	35.07	28.82	31.69	53.98	22.29	Average
10	2740.000	29.72	8.22	35.06	43.91	46.79	73.98	27.19	Peak
11	3214.649	31.11	8.76	34.90	28.40	33.37	53.98	20.61	Average
12	3215.000	31.11	8.76	34.90	42.27	47.24	73.98	26.74	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Preamp Gain + Reading.
 2. The emissions not reported are 20 dB lower than the specified limit.

6. DEVIATION TO TEST SPECIFICATIONS

【NONE】