

FCC 15.209 Wireless Power Transfer Report

for

POWERTECH Industrial Co., Ltd

**10F, No. 407, Chung Shan Road,
Sec. 2, Chung Ho District,
New Taipei City, Taiwan**

Product Name : CURRENT TAPS
Model Name : (1)S1J20300H2 (2)S1J203NJH2
(3)S1J203NTH2 (4)S1J203O2H2
(5)S1J203O7H2 (6)S1J20300H3
(7)S1J203NJH3 (8)S1J203NTH3
(9)S1J203O2H3 (10)S1J203O7H3
Brand : (1)JASCO (2)GE (3)Philips
(4)Cordinate
FCC ID : NHS-S1J203

Prepared by: : AUDIX Technology Corporation,
EMC Department



The test report 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.
The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the U.S. Government.

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TEST REPORT CERTIFICATION

Applicant : POWERTECH Industrial Co., Ltd
Manufacture : DONGGUAN QUAN SHENG ELECTRIC CO LTD
EUT Description
(1) Product : CURRENT TAPS
(2) Model : (1)S1J20300H2 (2)S1J203NQH2 (3)S1J203NTH2 (4)S1J203O2H2
(5)S1J203O7H2 (6)S1J20300H3 (7)S1J203NQH3 (8)S1J203NTH3
(9)S1J203O2H3 (10)S1J203O7H3
(3) Brand : (1)JASCO (2)GE (3)Philips (4)Cordinate
(4) Power Rating : AC 120V, 60Hz

Applicable Standards:


47CFR FCC Part 15 Subpart C
ANSI C63.10:2013

Audix Technology Corp. tested the equipment mentioned in accordance with the requirements set forth in the above standards. Test results indicate that the equipment tested is capable of demonstrating compliance with the requirements as documented within this report.

Audix Technology Corp. does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens and samples.

Date of Report: 2019. 04. 08

Reviewed by:



(Tina Huang/Administrator)

Approved by:



(Ben Cheng/Manager)

1. REVISION RECORD OF TEST REPORT

Edition No	Issued Data	Revision Summary	Report Number
0	2019. 04. 08	Original Report	EM-F190125

2. SUMMARY OF TEST RESULTS

Rule	Description	Results
15.207	Conducted Emission	PASS
15.209	Radiated Spurious Emission	PASS
15.215 (c)	20dB Bandwidth	PASS
15.203	Antenna Requirement	Compliance

3. GENERAL INFORMATION

3.1. Description of Application

Applicant	POWERTECH Industrial Co., Ltd 10F, No. 407, Chung Shan Road, Sec. 2, Chung Ho District, New Taipei City, Taiwan
Manufacture	DONGGUAN QUAN SHENG ELECTRIC CO LTD Chu-Tang 2 nd Industrial Park Hou-Chieh Town Dongguan Guangdong 523963 China.
Product	CURRENT TAPS
Model	(1)S1J20300H2 (2)S1J203NJH2 (3)S1J203NTH2 (4)S1J203O2H2 (5)S1J203O7H2 (6)S1J20300H3 (7)S1J203NJH3 (8)S1J203NTH3 (9)S1J203O2H3 (10)S1J203O7H3 All models are totally identical except to the support surge protector or not and USB output spec. The details of differences list refer to below table.
Brand	(1)JASCO (2)GE (3)Philips (4)Cordinate

Table: Model different list

Model	S1J20300H2	S1J203NJH2	S1J203NTH2	S1J203O2H2	S1J203O7H2
Surge Protector	Not Support	560J	860J	1080J	1200J
USB output	5V 2.4A	5V 2.4A	5V 2.4A	5V 2.4A	5V 2.4A
Qi (WPC) spec.	(1)5V, 1A, 5Watt ; (2)9V, 1.1A, 10Watt				
Model	S1J20300H3	S1J203NJH3	S1J203NTH3	S1J203O2H3	S1J203O7H3
Surge Protector	Not Support	560J	860J	1080J	1200J
USB output	5V 3.4A	5V 3.4A	5V 3.4A	5V 3.4A	5V 3.4A
Qi (WPC) spec.	(1)5V, 1A, 5Watt ; (2)9V, 1.1A, 10Watt				

3.2. Description of EUT

Test Model	(1)S1J203NJH2 (2)S1J203O7H3
Serial Number	N/A
Power Rating	AC 120V/60Hz
RF Features	Wireless Power Transfer
Accessories	None
Date of Receipt	2019. 03. 22
Date of Test	2019. 03. 26 ~ 28
Interface Ports of EUT	<ul style="list-style-type: none">• AC Outlet Port x2• USB Output Port x2• AC Plug• Qi (WPC) charger Pad
Accessories Supplied	None

3.3. EUT Specifications Assessed in Current Report

Mode	Fundamental Range (MHz)	Modulation
WPC	110-205 kHz	FSK

3.4. Antenna Information

No.	Antenna Part Number	Manufacture	Antenna Type	Frequency (MHz)	Max Gain(dBi)
1	---	---	Coil	---	---

3.5. Description of Key Components

None.

3.7. Test Configuration

AC Conduction	
Test Case	Normal operation (5W)
	Normal operation (10W)

Item	Test Model	Mode	Test Frequency	
Radiated Test	S1J203NQH2	5W	120.39kHz	
		10W	151.70kHz	
	S1J203O2H3	5W	116.58kHz	
		10W	120.95kHz	
	Radiated Spurious Emission (9kHz-30MHz)	S1J203NQH2	5W	120.39kHz
			10W	151.70kHz
		S1J203O2H3	5W	116.72kHz
			10W	120.95kHz
	Radiated Spurious Emission (30MHz-1000MHz)	S1J203NQH2	5W	123.4kHz
			10W	140.9kHz
		S1J203O2H3	5W	128.4kHz
			10W	142.5kHz
20dB Bandwidth	S1J203NQH2	5W	123.4kHz	
		10W	140.9kHz	
	S1J203O2H3	5W	128.4kHz	
		10W	142.5kHz	

Note 1:

- Mobile Device:
- Portable Device, and 3 axis were assessed.
 - Lie
 - Side
 - Stand

3.8. Tested Supporting System List

3.8.1. Support Peripheral Unit

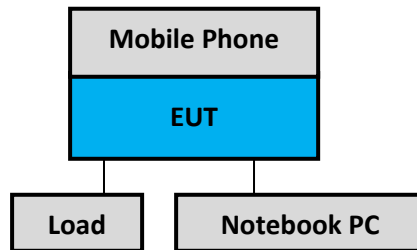
No.	Product	Brand	Model No.	Serial No.	Approval
1.	Power Socket	N/A	N/A	N/A	N/A
2.	R Load (2.7Ω)	N/A	N/A	N/A	N/A
3.	Notebook PC	hp	TPN-Q189	5CD8175992	Contains FCC ID: PD93168NG
		acer	N16Q2	N/A	Contains FCC ID: PPD-QCNFA435
4.	Mobile Phone	SAMSUNG	Galaxy S9	N/A	N/A

3.8.2. Cable Lists

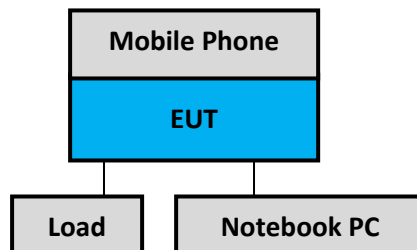
No.	Cable Description Of The Above Support Units
1.	AC Power Cord: Unshielded, Detachable, 1.0m
2.	USB Cable: Unshielded, Detachable, 0.45m
3.	Adapter: hp, M/N PPP-012C-S DC Cord : Shielded, Undetachable, 1.8m, Bonded a ferrite core AC Power Cord : Unshielded, Detachable, 1.0m
	Adapter: Chicony, M/N A11-065N1A DC Cord : Shielded, Undetachable, 1.8m, Bonded a ferrite core AC Power Cord : Unshielded, Detachable, 1.0m
4.	None

3.9. Setup Configuration

3.9.1. EUT Configuration for Power Line and Radiated Emission



3.9.2. EUT Configuration for RF Conducted Test Items



3.10. Operating Condition of EUT

The mobile phone was at 0% power and in contact directly with EUT for charging.

3.11. Description of Test Facility

Name of Test Firm	Audix Technology Corporation / EMC Department No. 53-11, Dingfu, Linkou Dist., New Taipei City 244, Taiwan Tel: +886-2-26092133 Fax: +886-2-26099303 Website : www.audixtech.com Contact e-mail: attemc_report@audixtech.com
Accreditations	The laboratory is accredited by following organizations under ISO/IEC 17025:2005 (1) NVLAP(USA) NVLAP Lab Code 200077-0 (2) TAF(Taiwan) No. 1724
Test Facilities	(1) No. 8 Shielding Room (2) Semi-Anechoic Chamber

3.12. Measurement Uncertainty

Test Item	Frequency Range	Uncertainty
Conduction Test	150kHz~30MHz	±3.50dB
Radiation Test (Distance: 3m)	30MHz~1000MHz	± 3.68dB
	Above 1GHz	±5.82dB

Remark : Uncertainty = $ku_c(y)$

Test Item	Uncertainty
20dB Bandwidth	± 0.2kHz

4. MEASUREMENT EQUIPMENT LIST

4.1. Conducted Emission Measurement

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
1.	Test Receiver	R&S	ESR3	101774	2019. 01. 23	1 Year
2.	A.M.N.	R&S	ENV4200	100169	2018. 11. 14	1 Year
3.	L.I.S.N.	Kyoritsu	KNW-407	8-855-9	2018. 12. 19	1 Year
4.	Pulse Limiter	R&S	ESH3-Z2	100354	2019. 01. 12	1 Year
5.	Digital Thermo- Hygro Meter	iMax	HTC-1	No.8 S/R	2018.04.20	1 Year
6.	Test Software	Audix	e3	V6.120619c	N.C.R.	N.C.R.

4.2. Radiated Emission Measurement

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
1.	Spectrum Analyzer	Agilent	N9010A-526	MY53400071	2018. 09. 12	1 Year
2.	Test Receiver	R & S	ESCS30	100338	2018. 06. 20	1 Year
3.	Amplifier	HP	8447D	2944A06305	2019. 01. 30	1 Year
4.	Bilog Antenna	TESEQ	CBL6112D	33821	2019. 01. 19	1 Year
5.	Loop Antenna	R&S	HFH2-Z2	891847/27	2017. 12. 18	2 Year
6.	Digital Thermo-Hygro Meter	iMax	HTC-1	No.1 3m A/C	2018. 04. 20	1 Year
7.	Test Software	Audix	e3	V6.120619c	N.C.R.	N.C.R.

4.3. RF Conducted Measurement

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
1	Spectrum Analyzer	Keysight	N9020B-544	MY57120357	2019. 01. 17	1 Year
2	Digital Thermo-Hygro Meter	Shenzhen Datronn Electronics	KT-905	RF	2018. 04. 20	1 Year

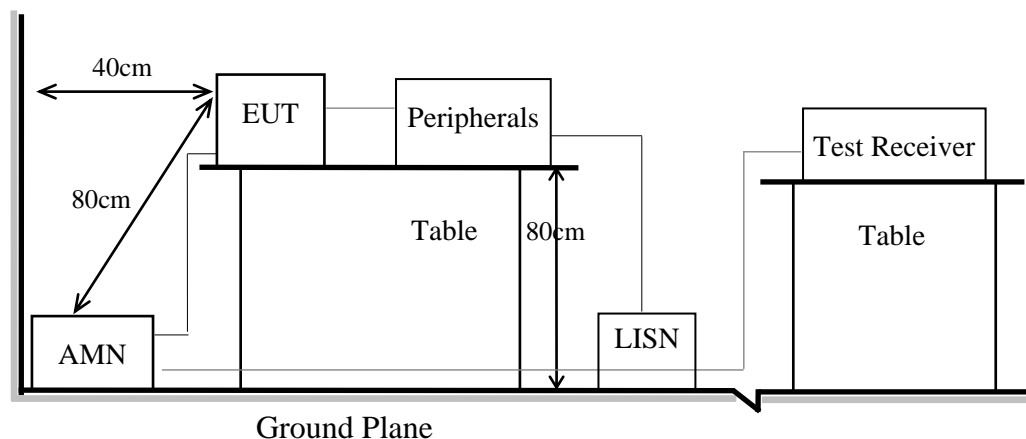
5. CONDUCTED EMISSION

5.1. Block Diagram of Test Setup

5.1.1. Block Diagram of EUT

Indicated as section 3.8

5.1.2. Shielded Room Setup Diagram



5.2. Conducted Emission Limit

Frequency	Conducted Limit	
	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

Remark1.: If the average limit is met when using a Quasi-Peak detector, the measurement using the average detector is not required.

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

5.3. Test Procedure

- 5.3.1. To set up the EUT as indicated in ANSI C 63.10. The EUT was placed on the table which has 80 cm height to the ground and 40 cm distance to the conducting wall.
- 5.3.2. Power supplier of the EUT was connected to the AC mains through an Artificial Mains Network (A.M.N.).
- 5.3.3. The AC power supplies to all peripheral devices must be provided through line impedance stabilization network (L.I.S.N.)
- 5.3.4. Checking frequency range from 150kHz to 30 MHz and record the emission which does not have 20 dB below limit.

5.4. Test Results

Please refer to Appendix A.

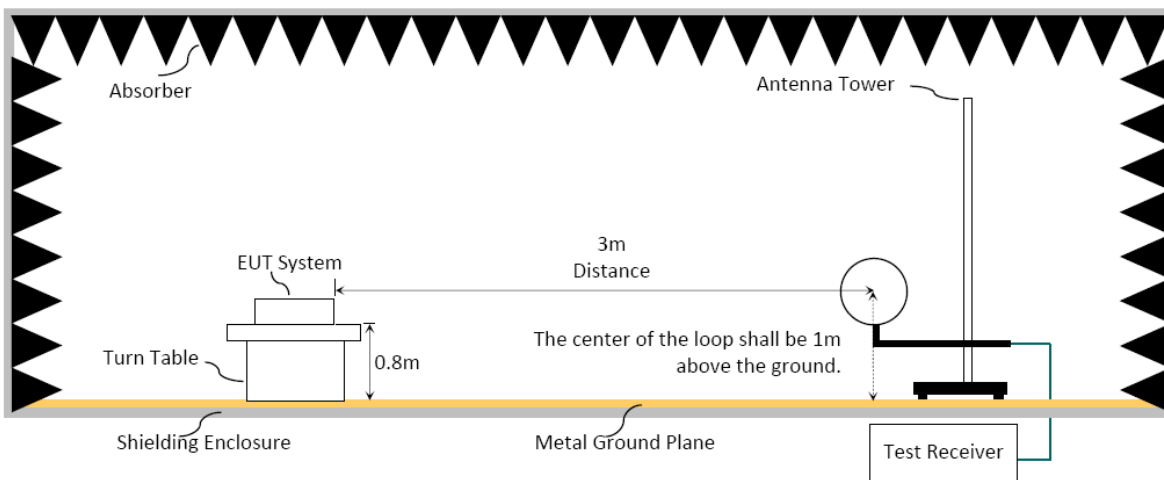
6. RADIATED SPURIOUS EMISSION

6.1. Block Diagram of Test Setup

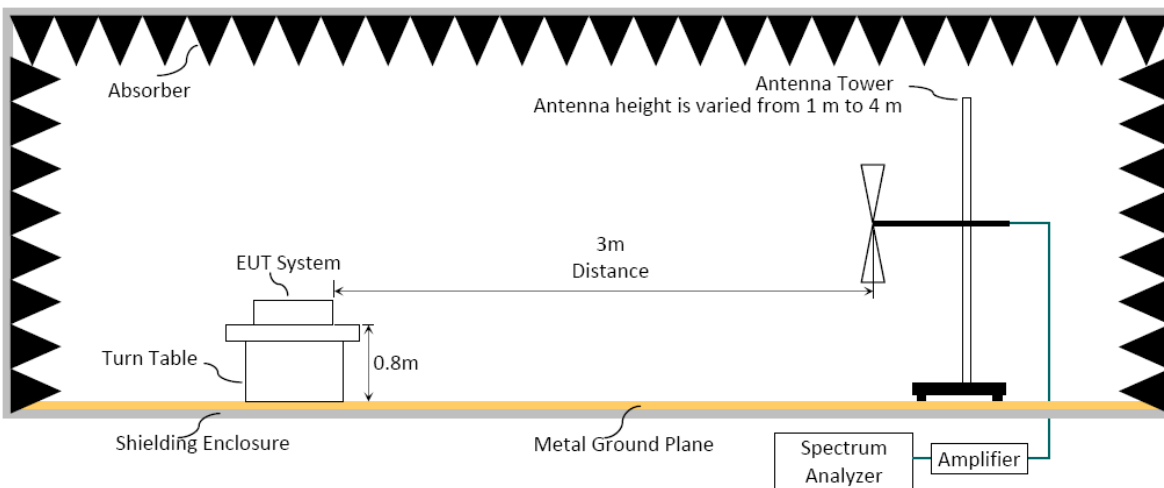
6.1.1. Block Diagram of EUT

Indicated as section 3.8

6.1.2. Setup Diagram for 9kHz-30MHz



6.1.3. Setup Diagram for 30MHz-1000MHz



6.2. Radiated Emission Limits

In any 100kHz bandwidth outside the frequency band, the radio frequency power produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level. In addition, radiated emissions which fall in restricted bands, as defined in Section 15.205 must also comply with the radiated emission limits specified as below.

Frequency (MHz)	Distance(m)	Limits	
		dB μ V/m	μ V/m
0.009 - 0.490	300	67.6-20 log f(kHz)	2400/f kHz
0.490 - 1.705	30	87.6-20 log f(kHz)	24000/f kHz
1.705 - 30	30	29.5	30
30 - 88	3	40.0	100
88- 216	3	43.5	150
216- 960	3	46.0	200
Above 960	3	54.0	500
Above 1000	3	74.0 dB μ V/m (Peak) 54.0 dB μ V/m (Average)	

Remark : (1) dB μ V/m = 20 log (μ V/m)

- (2) The tighter limit applies to the edge between two frequency bands.
- (3) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
- (4) Fundamental and emission fall within operation band are exempted from this section.
- (5) Pursuant to ANSI C63.10: 6.6.4.3, if the maximized peak measured value complies with the average limit, then it is unnecessary to perform an average measurement.

6.3. Test Procedure

Frequency Range 9kHz~30MHz:

The EUT setup on the turntable which has 0.8 m height to the ground. The turn table rotated 360 degrees and antenna fixed to 1 m to find the maximum emission level. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10-2013 regulation.

- (1) RBW = 9kHz with peak and average detector.
- (2) Detector: average and peak (10kHz-490kHz)
Q.P. (490kHz-30MHz)

Frequency Range 30MHz ~ 1000MHz:

The EUT setup on the turntable which has 0.8 m height to the ground. The turn table rotated 360 degrees and antenna varied from 1 m to 4 m to find the maximum emission level. Both horizontal and vertical polarization are required. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10: 2013 regulation.

Spectrum Analyzer is used for pre-testing with following setting:

- (1) RBW = 120KHz
- (2) VBW \geq 3 x RBW.
- (3) Detector = Peak.
- (4) Sweep time = auto.
- (5) Trace mode = max hold.
- (6) Allow sweeps to continue until the trace stabilizes.
- (7) When peak-detected value is lower than limit that the measurement using the Q.P. detector is not required. Otherwise using Q.P. for finally measurement.

6.4. Measurement Limit Formula

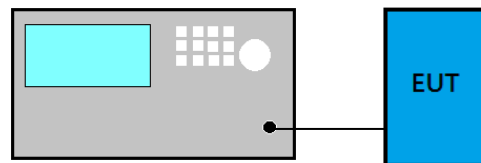
Frequency (MHz)	Formula
0.009 - 0.490MHz	3 Limit (dB μ V/m) = $20\log(2400/F^{\text{Note}}) + 40\log(300\text{m}/3\text{m})$
0.490-1.705MHz	3 Limit (dB μ V/m) = $20\log(24000/F^{\text{Note}}) + 40\log(300\text{m}/3\text{m})$
1.750-30MHz	3 Limit (dB μ V/m) = $20\log(30) + 40\log(300\text{m}/3\text{m})$
Note: F is test frequency	

6.5. Test Results

Please refer to Appendix A.

7. 20dB BANDWIDTH

7.1. Block Diagram of Test Setup



7.2. Specification Limits

The 20dB bandwidth shall be specified in operating frequency band.

7.3. Test Procedure

Following measurement procedure:

- (1) Set RBW close to 1% of OBW.
- (2) Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
- (3) Detector = Peak.
- (4) Trace mode = max hold.
- (5) Sweep = auto couple.
- (6) Allow the trace to stabilize.
- (7) Setting channel bandwidth function x dB to -20 dB to record the final bandwidth.

7.4. Test Results

Please refer to Appendix A

8. DEVIATION TO TEST SPECIFICATIONS

【NONE】



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New Taipei City 244, Taiwan

APPENDIX A

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APPDNDIX A

TEST DATA AND PLOTS

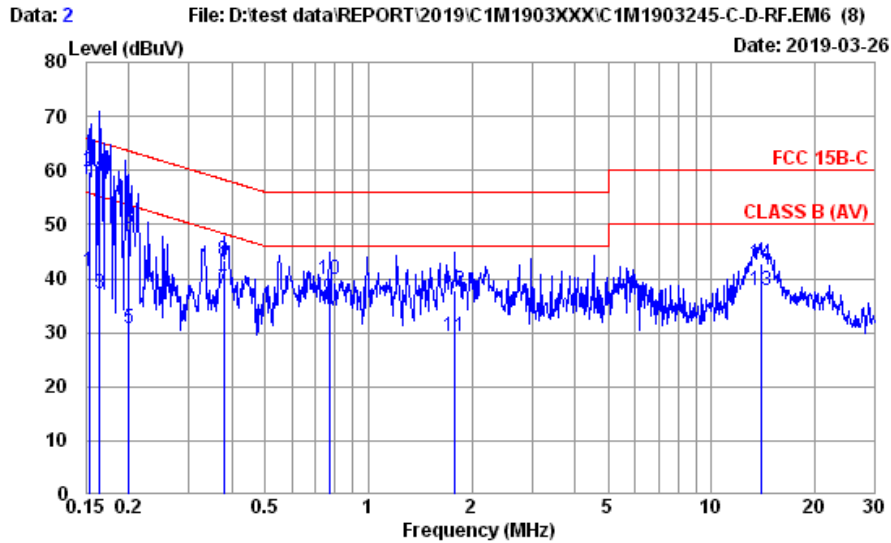
[Models: (1)S1J203NJH2 (2)S1J203O7H3]

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A.1 CONDUCTED EMISSION

Test Date	2019/03/26	Temp./Hum.	23°C/56%
Test Voltage	AC 120V/60Hz	Test Model	S1J203NJH2
		Mode	5W Charge

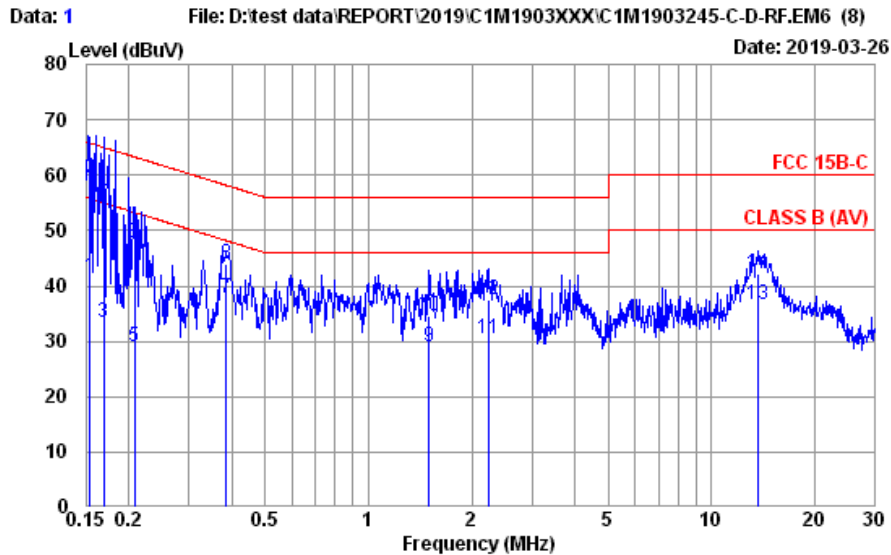


Site no. : No.8 Shielded Room Data no. : 2
 Condition : ENV4200 100169 L1SN Phase : NEUTRAL
 Limit : FCC 15B-C
 Env. / Ins. : 23°C / 56% ESR3 (1774) Engineer : Ken Yang
 EUT : S1J203NJH2
 Power Rating : 120Vac/60Hz
 Test Mode : Operating
 5W

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBµV)	Emission Level (dBµV)	Limits (dBµV)	Margin (dB)	Remark
1	0.153	10.69	0.03	9.86	20.87	41.45	55.82	14.37	Average
2	0.153	10.69	0.03	9.86	39.34	59.92	65.82	5.90	QP
3	0.165	10.67	0.03	9.86	16.79	37.35	55.21	17.86	Average
4	0.165	10.67	0.03	9.86	38.44	59.00	65.21	6.21	QP
5	0.201	10.62	0.03	9.86	10.34	30.85	53.58	22.73	Average
6	0.201	10.62	0.03	9.86	28.79	49.30	63.58	14.28	QP
7	0.379	10.50	0.04	9.86	17.76	38.16	48.30	10.14	Average
8	0.379	10.50	0.04	9.86	22.83	43.23	58.30	15.07	QP
9	0.768	10.48	0.05	9.86	16.06	36.45	46.00	9.55	Average
10	0.768	10.48	0.05	9.86	19.58	39.97	56.00	16.03	QP
11	1.790	10.50	0.07	9.86	8.82	29.25	46.00	16.75	Average
12	1.790	10.50	0.07	9.86	17.28	37.71	56.00	18.29	QP
13	13.989	12.43	0.22	9.91	15.15	37.71	50.00	12.29	Average
14	13.989	12.43	0.22	9.91	20.26	42.82	60.00	17.18	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.

Test Date	2019/03/26	Temp./Hum.	23°C/56%
Test Voltage	AC 120V/60Hz	Test Model	S1J203NJH2
		Mode	5W Charge



Site no. : No.8 Shielded Room Data no. : 1
 Condition : ENV4200 100169 LISN Phase : LINE
 Limit : FCC 15B-C
 Env. / Ins. : 23°C / 56% ESR3 (1774) Engineer : Ken Yang
 EUT : S1J203NJH2
 Power Rating : 120Vac/60Hz
 Test Mode : Operating
 SW

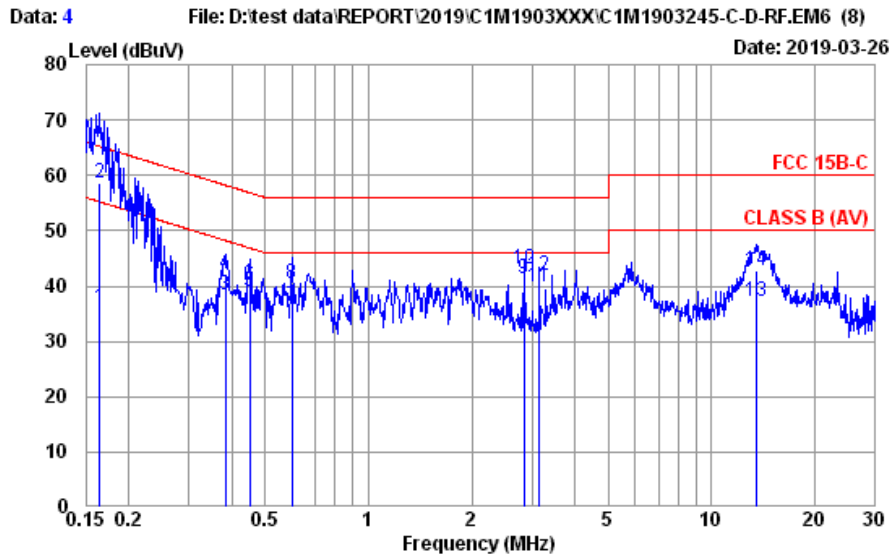
	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBµV)	Emission Level (dBµV)	Limits (dBµV)	Margin (dB)	Remark
1	0.154	10.61	0.03	9.86	21.12	41.62	55.78	14.16	Average
2	0.154	10.61	0.03	9.86	38.86	59.36	65.78	6.42	QP
3	0.169	10.59	0.03	9.86	12.82	33.30	54.99	21.69	Average
4	0.169	10.59	0.03	9.86	35.99	56.47	64.99	8.52	QP
5	0.208	10.53	0.03	9.86	8.68	29.10	53.27	24.17	Average
6	0.208	10.53	0.03	9.86	27.37	47.79	63.27	15.48	QP
7	0.385	10.45	0.04	9.86	17.44	37.79	48.17	10.38	Average
8	0.385	10.45	0.04	9.86	23.50	43.85	58.17	14.32	QP
9	1.503	10.44	0.06	9.86	8.74	29.10	46.00	16.90	Average
10	1.503	10.44	0.06	9.86	14.09	34.45	56.00	21.55	QP
11	2.237	10.47	0.08	9.86	10.21	30.62	46.00	15.38	Average
12	2.237	10.47	0.08	9.86	17.00	37.41	56.00	18.59	QP
13	13.623	12.03	0.22	9.91	14.46	36.62	50.00	13.38	Average
14	13.623	12.03	0.22	9.91	20.17	42.33	60.00	17.67	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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Test Date	2019/03/26	Temp./Hum.	23°C/56%
Test Voltage	AC 120V/60Hz	Test Model	S1J203NJH2
		Mode	10W Charge

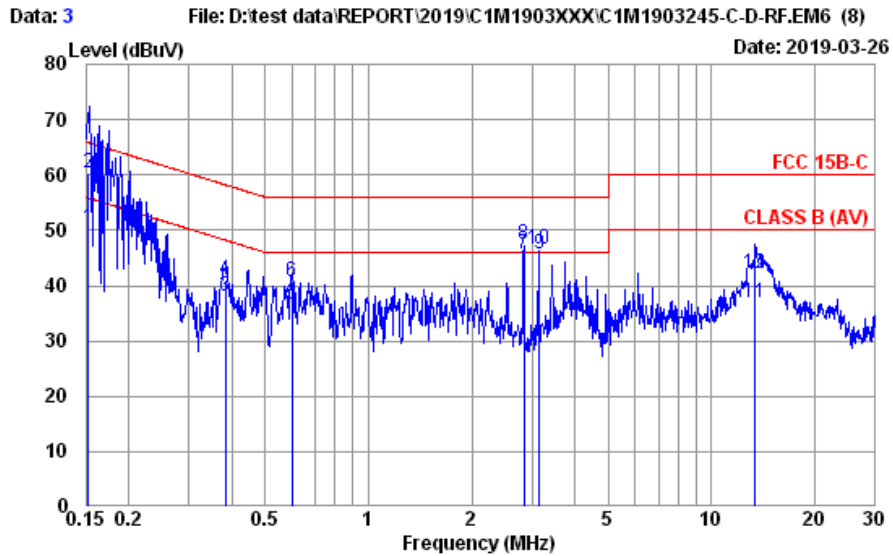


Site no. : No.8 Shielded Room Data no. : 4
 Condition : ENV4200 100169 LISN Phase : NEUTRAL
 Limit : FCC 15B-C
 Env. / Ins. : 23°C / 56% ESR3 (1774) Engineer : Ken Yang
 EUT : S1J203NJH2
 Power Rating : 120Vac/60Hz
 Test Mode : Operating
 10W

	AMN	Cable	Pulse	Emission			Margin	Remark	
Freq. (MHz)	Factor (dB)	Loss (dB)	Att. (dB)	Reading (dBµV)	Level (dBµV)	Limits (dBµV)	(dB)		
1	0.165	10.67	0.03	9.86	15.36	35.92	55.21	19.29	Average
2	0.165	10.67	0.03	9.86	37.95	58.51	65.21	6.70	QP
3	0.383	10.50	0.04	9.86	18.09	38.49	48.21	9.72	Average
4	0.383	10.50	0.04	9.86	21.84	42.24	58.21	15.97	QP
5	0.452	10.49	0.04	9.86	18.66	39.05	46.85	7.80	Average
6	0.452	10.49	0.04	9.86	19.70	40.09	56.85	16.76	QP
7	0.599	10.48	0.05	9.86	16.05	36.44	46.00	9.56	Average
8	0.599	10.48	0.05	9.86	20.14	40.53	56.00	15.47	QP
9	2.842	10.58	0.09	9.87	20.68	41.22	46.00	4.78	Average
10	2.842	10.58	0.09	9.87	22.52	43.06	56.00	12.94	QP
11	3.143	10.59	0.10	9.87	19.16	39.72	46.00	6.28	Average
12	3.143	10.59	0.10	9.87	21.33	41.89	56.00	14.11	QP
13	13.479	12.31	0.22	9.91	14.90	37.34	50.00	12.66	Average
14	13.479	12.31	0.22	9.91	20.39	42.83	60.00	17.17	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.

Test Date	2019/03/26	Temp./Hum.	23°C/56%
Test Voltage	AC 120V/60Hz	Test Model	S1J203NJH2
		Mode	10W Charge

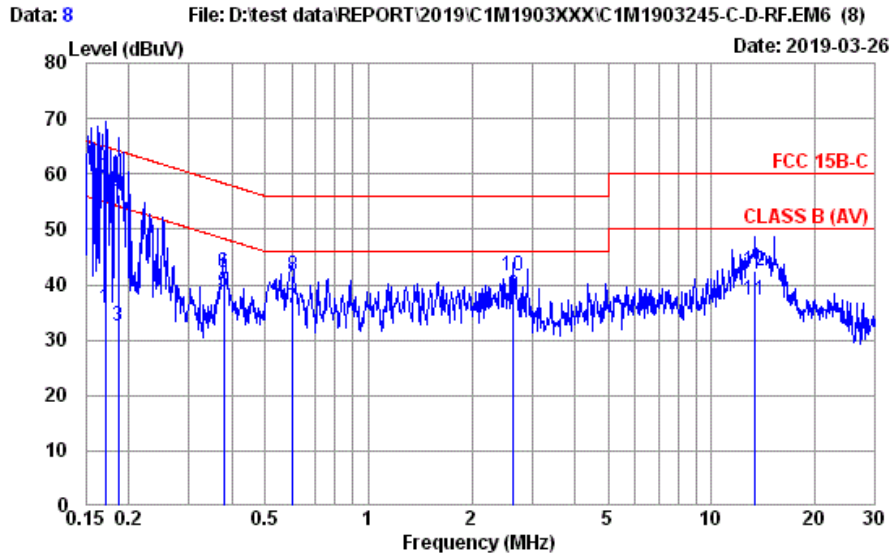


Site no. : No.8 Shielded Room Data no. : 3
 Condition : ENV4200 100169 LISN Phase : LINE
 Limit : FCC 15B-C
 Env. / Ins. : 23°C / 56% ESR3 (1774) Engineer : Ken Yang
 EUT : S1J203NJH2
 Power Rating : 120Vac/60Hz
 Test Mode : Operating
 10W

	AMN	Cable	Pulse	Emission			Margin	Remark	
Freq. (MHz)	Factor (dB)	Loss (dB)	Att. (dB)	Reading (dBμV)	Level (dBμV)	Limits (dBμV)	(dB)		
1	0.152	10.62	0.03	9.86	29.97	50.48	55.87	5.39	Average
2	0.152	10.62	0.03	9.86	39.94	60.45	65.87	5.42	QP
3	0.383	10.46	0.04	9.86	17.81	38.17	48.21	10.04	Average
4	0.383	10.46	0.04	9.86	20.60	40.96	58.21	17.25	QP
5	0.598	10.44	0.05	9.86	16.15	36.50	46.00	9.50	Average
6	0.598	10.44	0.05	9.86	20.38	40.73	56.00	15.27	QP
7	2.842	10.50	0.09	9.87	25.13	45.59	46.00	0.41	Average
8	2.842	10.50	0.09	9.87	27.00	47.46	56.00	8.54	QP
9	3.143	10.52	0.10	9.87	25.09	45.58	46.00	0.42	Average
10	3.143	10.52	0.10	9.87	26.01	46.50	56.00	9.50	QP
11	13.408	11.98	0.22	9.91	14.85	36.96	50.00	13.04	Average
12	13.408	11.98	0.22	9.91	19.99	42.10	60.00	17.90	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.

Test Date	2019/03/26	Temp./Hum.	23°C/56%
Test Voltage	AC 120V/60Hz	Test Model	S1J20307H3
		Mode	5W Charge

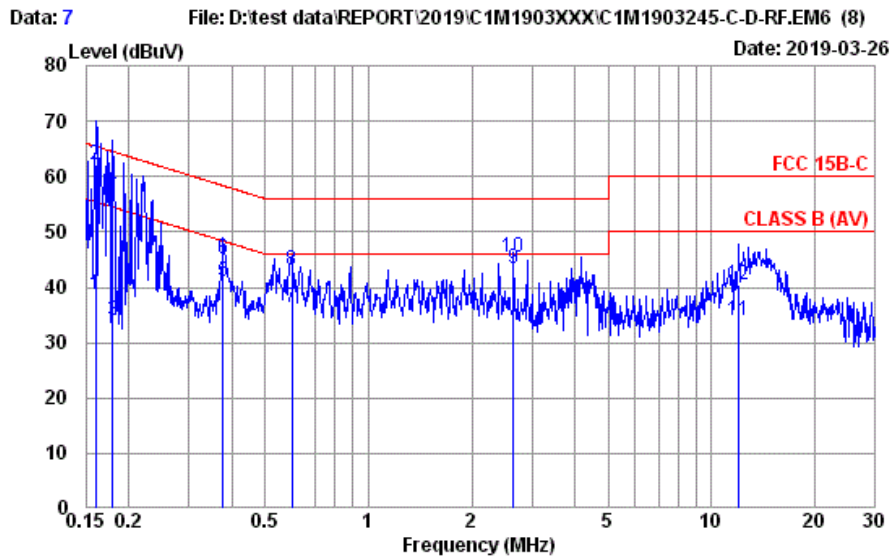


Site no. : No.8 Shielded Room Data no. : 8
 Condition : ENV4200 100169 LISN Phase : NEUTRAL
 Limit : FCC 15B-C
 Env. / Ins. : 23°C / 56% ESR3 (1774) Engineer : Ken Yang
 EUT : S1J20307H3
 Power Rating : 120Vac/60Hz
 Test Mode : Operating
 5W

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Remark
1	0.171	10.66	0.03	9.86	15.08	35.63	54.90	19.27	Average
2	0.171	10.66	0.03	9.86	38.77	59.32	64.90	5.58	QP
3	0.186	10.64	0.03	9.86	12.09	32.62	54.20	21.58	Average
4	0.186	10.64	0.03	9.86	35.75	56.28	64.20	7.92	QP
5	0.379	10.50	0.04	9.86	18.25	38.65	48.30	9.65	Average
6	0.379	10.50	0.04	9.86	21.90	42.30	58.30	16.00	QP
7	0.601	10.48	0.05	9.86	15.38	35.77	46.00	10.23	Average
8	0.601	10.48	0.05	9.86	21.15	41.54	56.00	14.46	QP
9	2.650	10.56	0.09	9.87	17.66	38.18	46.00	7.82	Average
10	2.650	10.56	0.09	9.87	21.20	41.72	56.00	14.28	QP
11	13.408	12.30	0.22	9.91	14.80	37.23	50.00	12.77	Average
12	13.408	12.30	0.22	9.91	20.12	42.55	60.00	17.45	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.

Test Date	2019/03/26	Temp./Hum.	23°C/56%
Test Voltage	AC 120V/60Hz	Test Model	S1J20307H3
		Mode	5W Charge

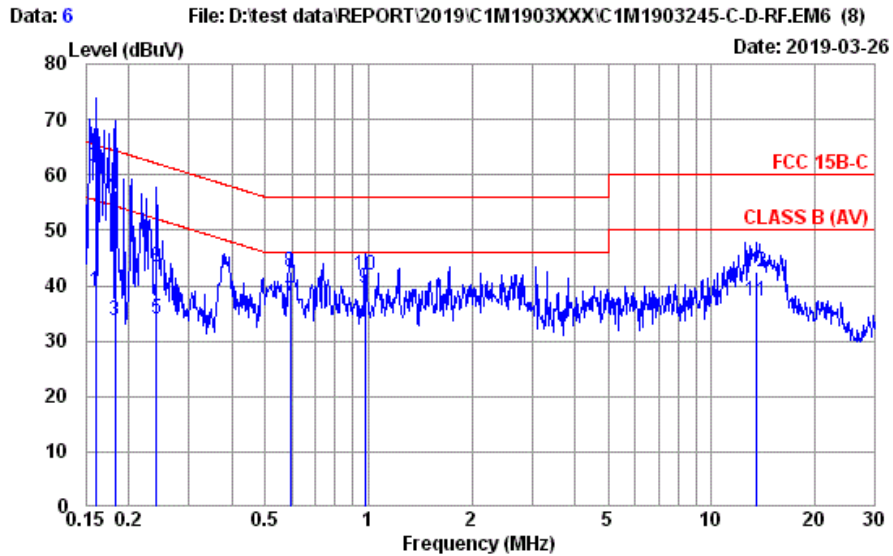


Site no. : No.8 Shielded Room Data no. : 7
 Condition : ENV4200 100169 LISN Phase : LINE
 Limit : FCC 15B-C
 Env. / Ins. : 23°C / 56% ESR3 (1774) Engineer : Ken Yang
 EUT : S1J20307H3
 Power Rating : 120Vac/60Hz
 Test Mode : Operating
 5W

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBµV)	Emission Level (dBµV)	Limits (dBµV)	Margin (dB)	Remark
1	0.160	10.60	0.03	9.86	18.28	38.77	55.47	16.70	Average
2	0.160	10.60	0.03	9.86	41.75	62.24	65.47	3.23	QP
3	0.180	10.57	0.03	9.86	13.48	33.94	54.50	20.56	Average
4	0.180	10.57	0.03	9.86	37.48	57.94	64.50	6.56	QP
5	0.377	10.46	0.04	9.86	20.62	40.98	48.34	7.36	Average
6	0.377	10.46	0.04	9.86	24.89	45.25	58.34	13.09	QP
7	0.598	10.44	0.05	9.86	16.13	36.48	46.00	9.52	Average
8	0.598	10.44	0.05	9.86	22.58	42.93	56.00	13.07	QP
9	2.650	10.49	0.09	9.87	22.86	43.31	46.00	2.69	Average
10	2.650	10.49	0.09	9.87	24.98	45.43	56.00	10.57	QP
11	11.996	11.67	0.21	9.90	12.32	34.10	50.00	15.90	Average
12	11.996	11.67	0.21	9.90	18.60	40.38	60.00	19.62	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.

Test Date	2019/03/26	Temp./Hum.	23°C/56%
Test Voltage	AC 120V/60Hz	Test Model	S1J20307H3
		Mode	10W Charge

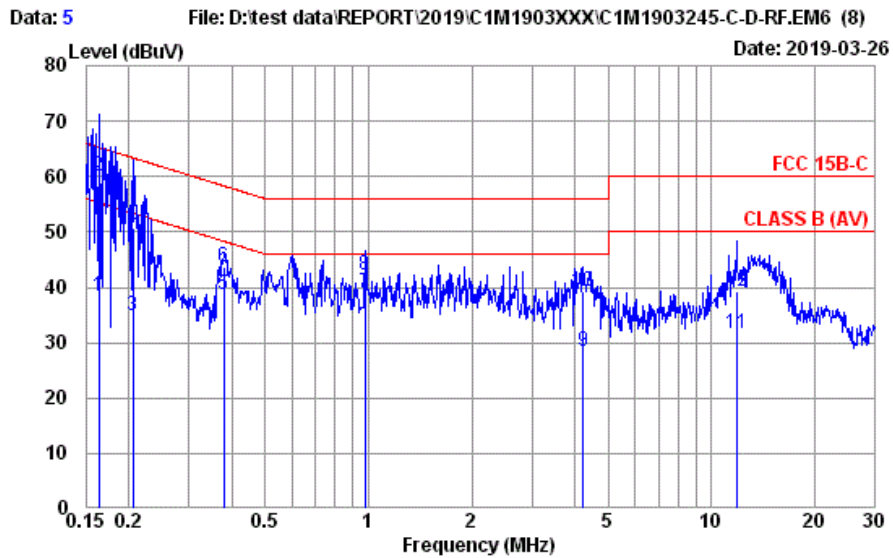


Site no. : No.8 Shielded Room Data no. : 6
 Condition : ENV4200 100169 LISN Phase : NEUTRAL
 Limit : FCC 15B-C
 Env. / Ins. : 23°C / 56% ESR3 (1774) Engineer : Ken Yang
 EUT : S1J20307H3
 Power Rating : 120Vac/60Hz
 Test Mode : Operating
 10W

	AMN	Cable	Pulse	Emission			Margin	Remark
Freq. (MHz)	Factor (dB)	Loss (dB)	Att. (dB)	Reading (dBµV)	Level (dBµV)	Limits (dBµV)	(dB)	
1	0.160	10.68	0.03	9.86	18.40	38.97	16.50	Average
2	0.160	10.68	0.03	9.86	41.02	61.59	3.88	QP
3	0.182	10.65	0.03	9.86	13.22	33.76	20.61	Average
4	0.182	10.65	0.03	9.86	36.61	57.15	7.22	QP
5	0.240	10.59	0.03	9.86	13.48	33.96	18.12	Average
6	0.240	10.59	0.03	9.86	22.76	43.24	18.84	QP
7	0.592	10.48	0.05	9.86	16.89	37.28	8.72	Average
8	0.592	10.48	0.05	9.86	21.95	42.34	13.66	QP
9	0.979	10.47	0.06	9.86	19.17	39.56	6.44	Average
10	0.979	10.47	0.06	9.86	21.63	42.02	13.98	QP
11	13.479	12.31	0.22	9.91	14.86	37.30	12.70	Average
12	13.479	12.31	0.22	9.91	19.96	42.40	17.60	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.

Test Date	2019/03/26	Temp./Hum.	23°C/56%
Test Voltage	AC 120V/60Hz	Test Model	S1J20307H3
		Mode	10W Charge



Site no. : No.8 Shielded Room Data no. : 5
 Condition : ENV4200 100169 LISN Phase : LINE
 Limit : FCC 15B-C
 Env. / Ins. : 23°C / 56% ESR3 (1774) Engineer : Ken Yang
 EUT : S1J20307H3
 Power Rating : 120Vac/60Hz
 Test Mode : Operating
 10W

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBµV)	Emission Level (dBµV)	Limits (dBµV)	Margin (dB)	Remark
1	0.163	10.60	0.03	9.86	18.03	38.52	55.30	16.78	Average
2	0.163	10.60	0.03	9.86	39.49	59.98	65.30	5.32	QP
3	0.206	10.54	0.03	9.86	14.58	35.01	53.36	18.35	Average
4	0.206	10.54	0.03	9.86	30.41	50.84	63.36	12.52	QP
5	0.379	10.46	0.04	9.86	18.43	38.79	48.30	9.51	Average
6	0.379	10.46	0.04	9.86	23.35	43.71	58.30	14.59	QP
7	0.979	10.42	0.06	9.86	18.57	38.91	46.00	7.09	Average
8	0.979	10.42	0.06	9.86	21.81	42.15	56.00	13.85	QP
9	4.224	10.59	0.11	9.87	7.83	28.40	46.00	17.60	Average
10	4.224	10.59	0.11	9.87	18.68	39.25	56.00	16.75	QP
11	11.807	11.62	0.21	9.90	9.92	31.65	50.00	18.35	Average
12	11.807	11.62	0.21	9.90	17.66	39.39	60.00	20.61	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.

A.2 RADIATED SPURIOUS EMISSION

Test Date	2019/03/28	Temp./Hum.	24°C/45%
Test Voltage	AC 120V/60Hz		

A.2.1. Frequency 9kHz~30MHz

Test Model	S1J203NJH2	Mode/Test Frequency	5W Charge (TX 120.39kHz)
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Antenna at 0 Degree

Test Frequency (kHz)	Test Result (dB μ V/m at 3m)	Limits (dB μ V/m at 3m)	Margin (dB)	Detector
120.39	77.98	105.99	28.01	Peak
361.17	53.73	96.45	42.72	Peak
601.95	47.35	72.01	24.66	QP
842.73	46.13	69.09	22.96	QP

Test Model	S1J203NJH2	Mode/Test Frequency	5W Charge (TX 120.39kHz)
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Antenna at 90 Degree

Test Frequency (kHz)	Test Result (dB μ V/m at 3m)	Limits (dB μ V/m at 3m)	Margin (dB)	Detector
120.39	74.34	105.99	31.65	Peak
361.17	54.03	96.45	42.42	Peak

Note: 1. All emissions are lower than the ambient level cannot be measured.

2. The Peak value has been compliance with Average limit, thus measurement with Average is not needed.

Test Model	S1J203NJH2	Mode/Test Frequency	10W Charge (TX 151.70kHz)
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Antenna at 0 Degree

Test Frequency (kHz)	Test Result (dB μ V/m at 3m)	Limits (dB μ V/m at 3m)	Margin (dB)	Detector
151.70	69.98	103.98	34.00	Peak
455.10	49.99	94.44	44.45	Peak

Test Model	S1J203NJH2	Mode/Test Frequency	10W Charge (TX 151.70kHz)
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Antenna at 90 Degree

Test Frequency (kHz)	Test Result (dB μ V/m at 3m)	Limits (dB μ V/m at 3m)	Margin (dB)	Detector
151.70	67.69	103.98	36.29	Peak
455.10	51.33	94.44	43.11	Peak
758.50	57.50	70.01	12.51	QP

Note: 1. All emissions are lower than the ambient level cannot be measured.

2. The Peak value has been compliance with Average limit, thus measurement with Average is not needed.

Test Model	S1J203O7H3	Mode/Test Frequency	5W Charge (TX 116.58kHz)
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Antenna at 0 Degree

Test Frequency (kHz)	Test Result (dB μ V/m at 3m)	Limits (dB μ V/m at 3m)	Margin (dB)	Detector
116.580	74.94	106.27	31.33	Peak
349.740	53.76	96.73	42.97	Peak
582.90	51.95	72.29	20.34	QP
816.06	48.89	69.37	20.48	QP

Test Model	S1J203O7H3	Mode/Test Frequency	5W Charge (TX 116.58kHz)
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Antenna at 90 Degree

Test Frequency (kHz)	Test Result (dB μ V/m at 3m)	Limits (dB μ V/m at 3m)	Margin (dB)	Detector
116.580	78.21	106.27	28.06	Peak
349.740	54.94	96.73	41.79	Peak

Note: 1. All emissions are lower than the ambient level cannot be measured.

2. The Peak value has been compliance with Average limit, thus measurement with Average is not needed.

Test Model	S1J203O7H3	Mode/Test Frequency	10W Charge (TX 120.95kHz)
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Antenna at 0 Degree

Test Frequency (kHz)	Test Result (dB μ V/m at 3m)	Limits (dB μ V/m at 3m)	Margin (dB)	Detector
120.95	84.71	105.95	21.24	Peak
362.85	60.19	96.41	36.22	Peak
604.75	52.71	71.97	19.26	QP
846.65	49.78	69.05	19.27	QP

Test Model	S1J203O7H3	Mode/Test Frequency	10W Charge (TX 120.95kHz)
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Antenna at 90 Degree

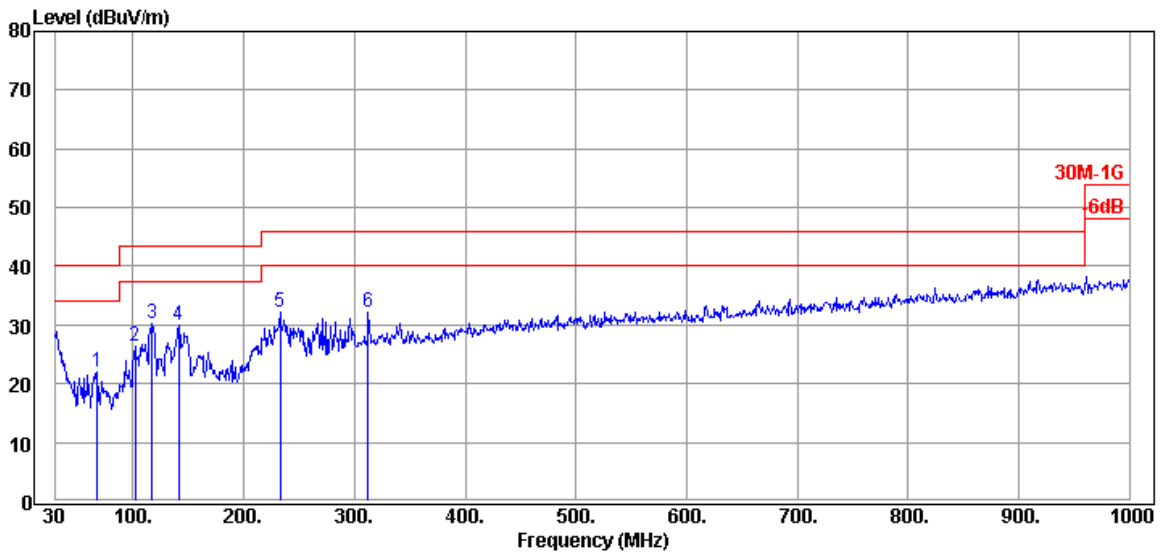
Test Frequency (kHz)	Test Result (dB μ V/m at 3m)	Limits (dB μ V/m at 3m)	Margin (dB)	Detector
120.95	81.29	105.95	24.66	Peak
362.8	57.11	96.41	39.30	Peak
604.75	50.91	71.97	21.06	QP
846.65	47.16	69.05	21.89	QP

Note: 1. All emissions are lower than the ambient level cannot be measured.

2. The Peak value has been compliance with Average limit, thus measurement with Average is not needed.

A.2.2. Frequency 30MHz ~ 1000MHz

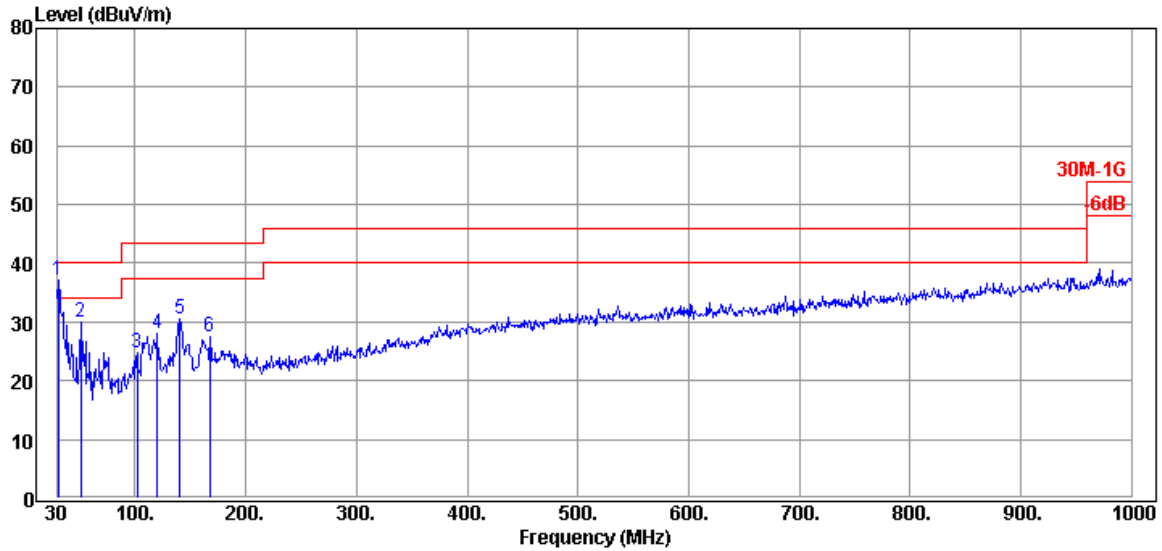
Test Model	S1J203NJH2	Mode/Test Frequency	5W Charge (TX 120.39kHz)
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
67.83	12.48	1.85	7.80	22.13	40.00	17.87	Peak
101.78	17.50	2.31	6.69	26.50	43.50	17.00	Peak
117.30	18.50	2.50	9.13	30.13	43.50	13.37	Peak
141.55	17.49	2.79	9.62	29.90	43.50	13.60	Peak
232.73	17.98	3.77	10.33	32.08	46.00	13.92	Peak
312.27	20.07	4.63	7.55	32.25	46.00	13.75	Peak

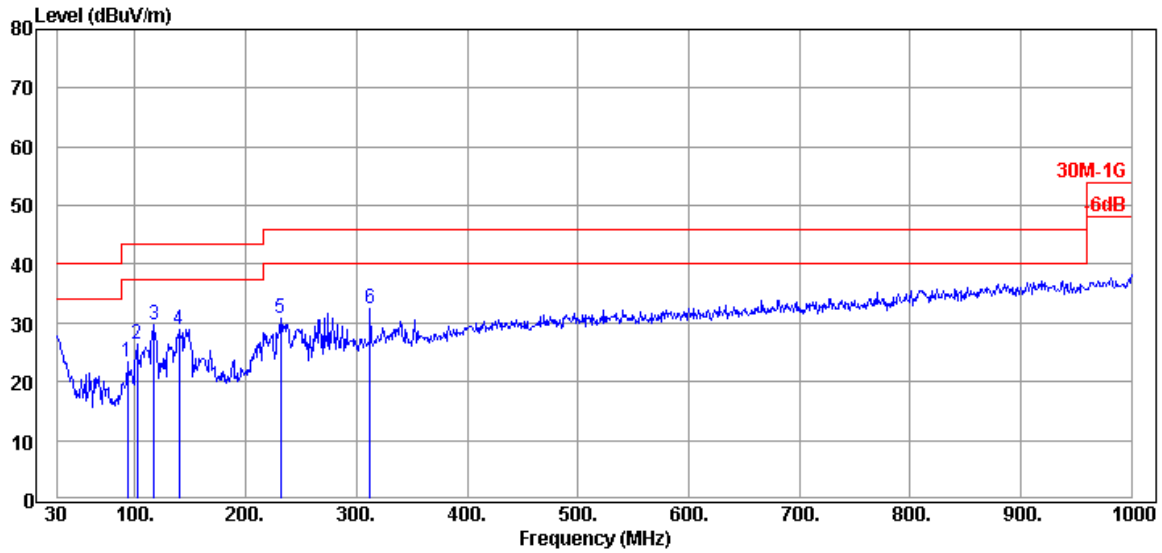
Test Model	S1J203NJH2	Mode/Test Frequency	5W Charge (TX 120.39kHz)
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Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
30.97	25.03	1.21	10.85	37.09	40.00	2.91	Peak
51.34	14.47	1.58	13.91	29.96	40.00	10.04	Peak
101.78	17.50	2.31	4.83	24.64	43.50	18.86	Peak
120.21	18.63	2.53	6.97	28.13	43.50	15.37	Peak
140.58	17.55	2.78	10.16	30.49	43.50	13.01	Peak
167.74	16.05	3.10	8.44	27.59	43.50	15.91	Peak

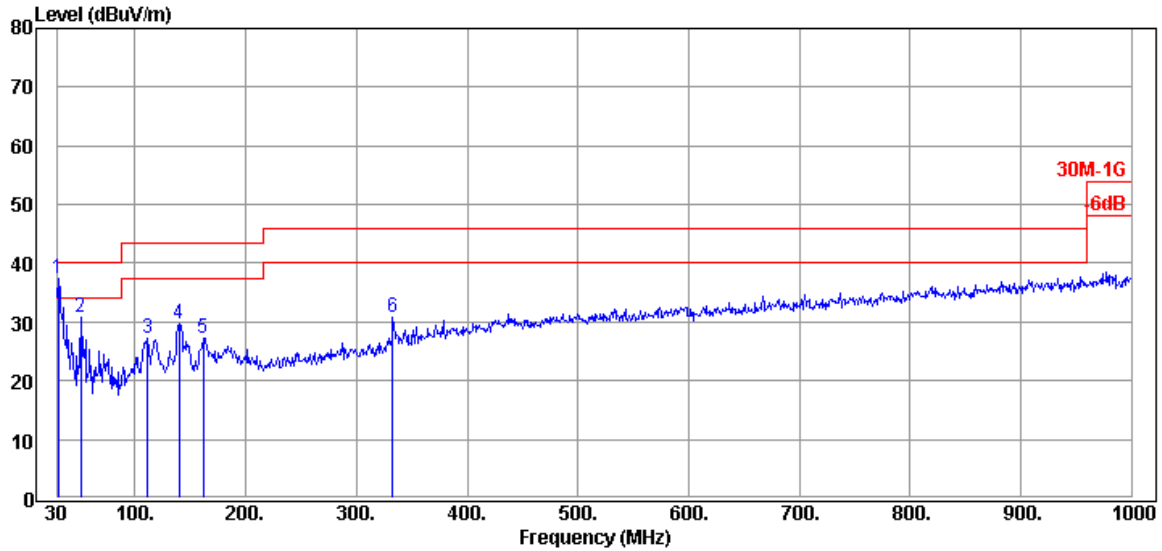
Test Model	S1J203NJH2	Mode/Test Frequency	10W Charge (TX 151.70kHz)
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
93.05	16.05	2.20	5.17	23.42	43.50	20.08	Peak
101.78	17.50	2.31	6.46	26.27	43.50	17.23	Peak
117.30	18.50	2.50	8.80	29.80	43.50	13.70	Peak
139.61	17.58	2.77	8.53	28.88	43.50	14.62	Peak
231.76	17.94	3.76	9.21	30.91	46.00	15.09	Peak
312.27	20.07	4.63	7.68	32.38	46.00	13.62	Peak

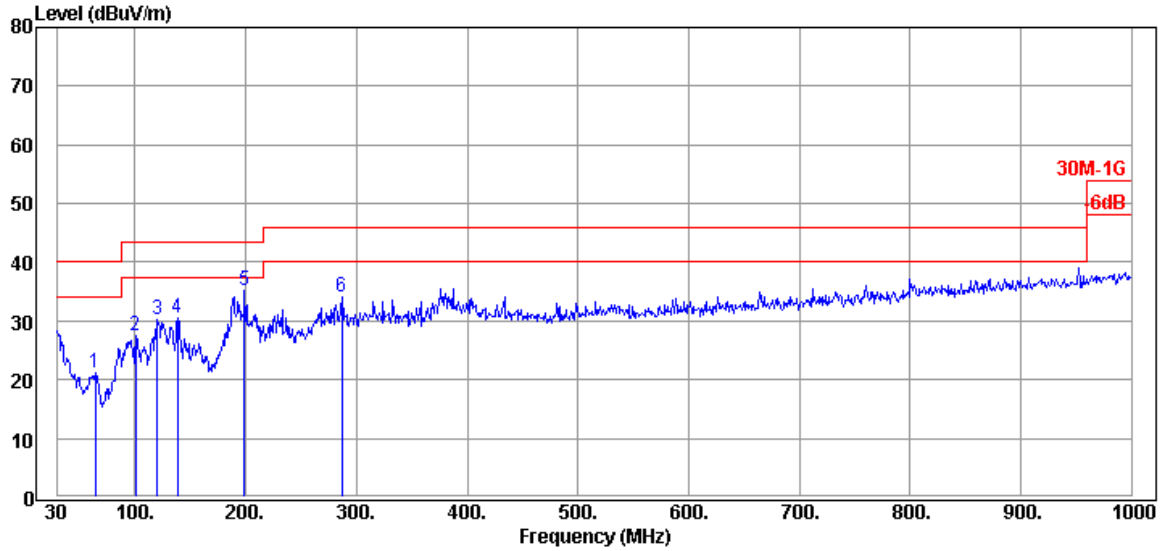
Test Model	S1J203NJH2	Mode/Test Frequency	10W Charge (TX 151.70kHz)
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Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
30.97	25.03	1.21	11.19	37.43	40.00	2.57	Peak
51.34	14.47	1.58	14.61	30.66	40.00	9.34	Peak
111.48	18.14	2.43	6.57	27.14	43.50	16.36	Peak
139.61	17.58	2.77	9.37	29.72	43.50	13.78	Peak
161.92	16.37	3.03	7.85	27.25	43.50	16.25	Peak
332.64	20.66	4.95	5.24	30.85	46.00	15.15	Peak

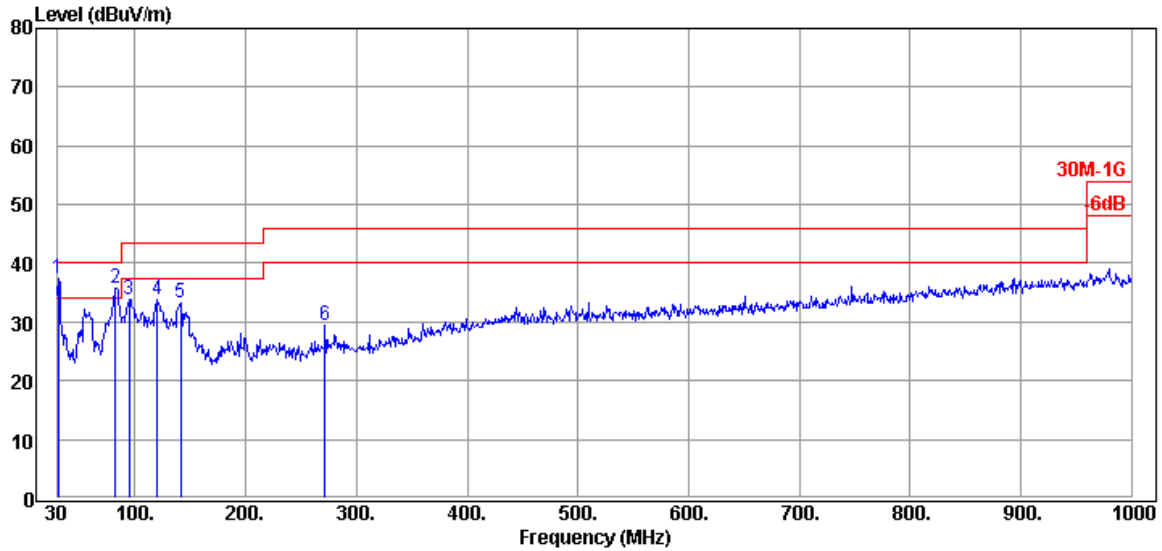
Test Model	S1J203O7H3	Mode/Test Frequency	5W Charge (TX 116.72kHz)
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
63.95	12.47	1.79	6.90	21.16	40.00	18.84	Peak
100.81	17.45	2.30	7.74	27.49	43.50	16.01	Peak
120.21	18.63	2.53	8.95	30.11	43.50	13.39	Peak
138.64	17.63	2.75	10.03	30.41	43.50	13.09	Peak
198.78	16.21	3.41	15.57	35.19	43.50	8.31	Peak
287.05	19.49	4.31	10.15	33.95	46.00	12.05	Peak

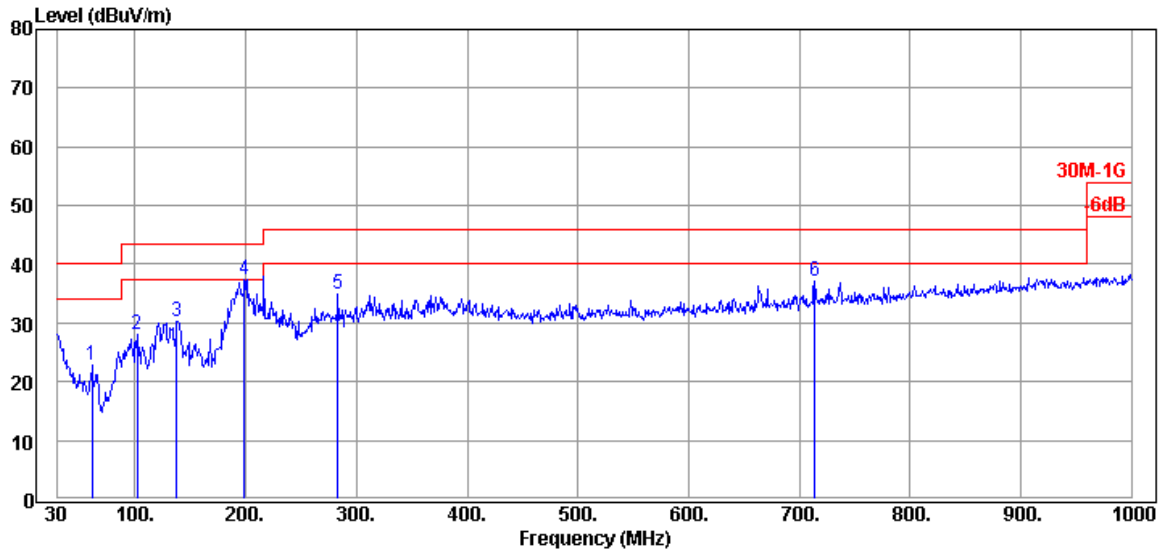
Test Model	S1J203O7H3	Mode/Test Frequency	5W Charge (TX 116.72kHz)
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Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
30.97	25.03	1.21	11.16	37.40	40.00	2.60	Peak
82.38	13.95	2.07	19.62	35.64	40.00	4.36	Peak
94.99	16.45	2.23	15.19	33.87	43.50	9.63	Peak
120.21	18.63	2.53	12.56	33.72	43.50	9.78	Peak
141.55	17.49	2.79	13.00	33.28	43.50	10.22	Peak
271.53	19.21	4.16	6.10	29.47	46.00	16.53	Peak

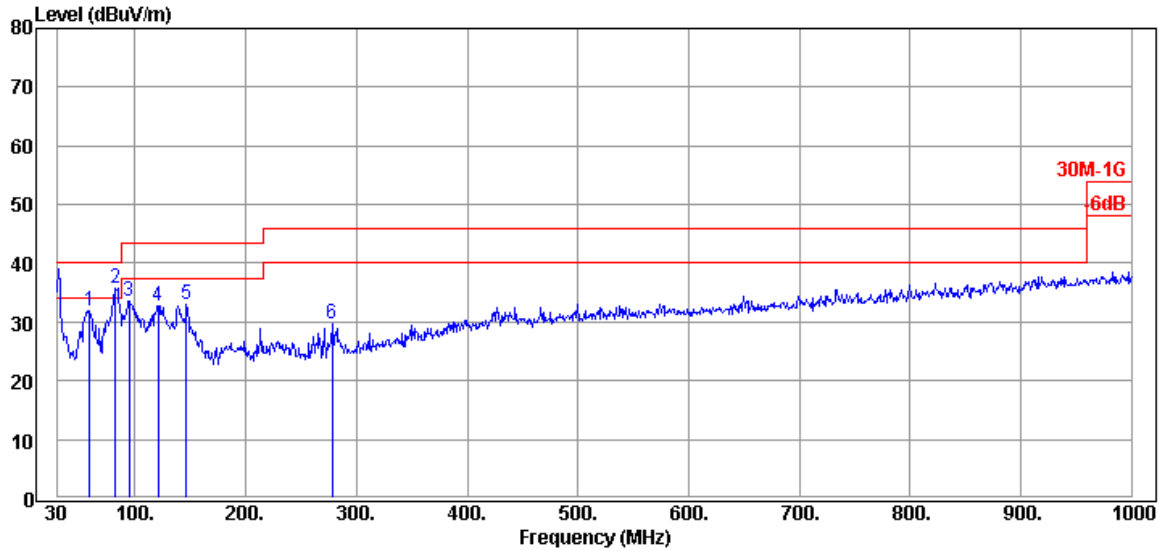
Test Model	S1J203O7H3	Mode/Test Frequency	10W Charge (TX 120.95kHz)
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
61.04	12.47	1.75	8.50	22.72	40.00	17.28	Peak
101.78	17.50	2.31	8.23	28.04	43.50	15.46	Peak
137.67	17.68	2.74	9.95	30.37	43.50	13.13	Peak
198.78	16.21	3.41	17.84	37.46	43.50	6.04	Peak
283.17	19.42	4.27	11.09	34.78	46.00	11.22	Peak
713.85	25.60	7.44	4.08	37.12	46.00	8.88	Peak

Test Model	S1J203O7H3	Mode/Test Frequency	10W Charge (TX 120.95kHz)
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Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
59.10	12.69	1.72	17.59	32.00	40.00	8.00	Peak
82.38	13.95	2.07	19.73	35.75	40.00	4.25	Peak
94.99	16.45	2.23	14.95	33.63	43.50	9.87	Peak
121.18	18.58	2.55	11.72	32.85	43.50	10.65	Peak
146.40	17.21	2.85	12.85	32.91	43.50	10.59	Peak
278.32	19.33	4.23	6.11	29.67	46.00	16.33	Peak

A.3 20dB BANDWIDTH

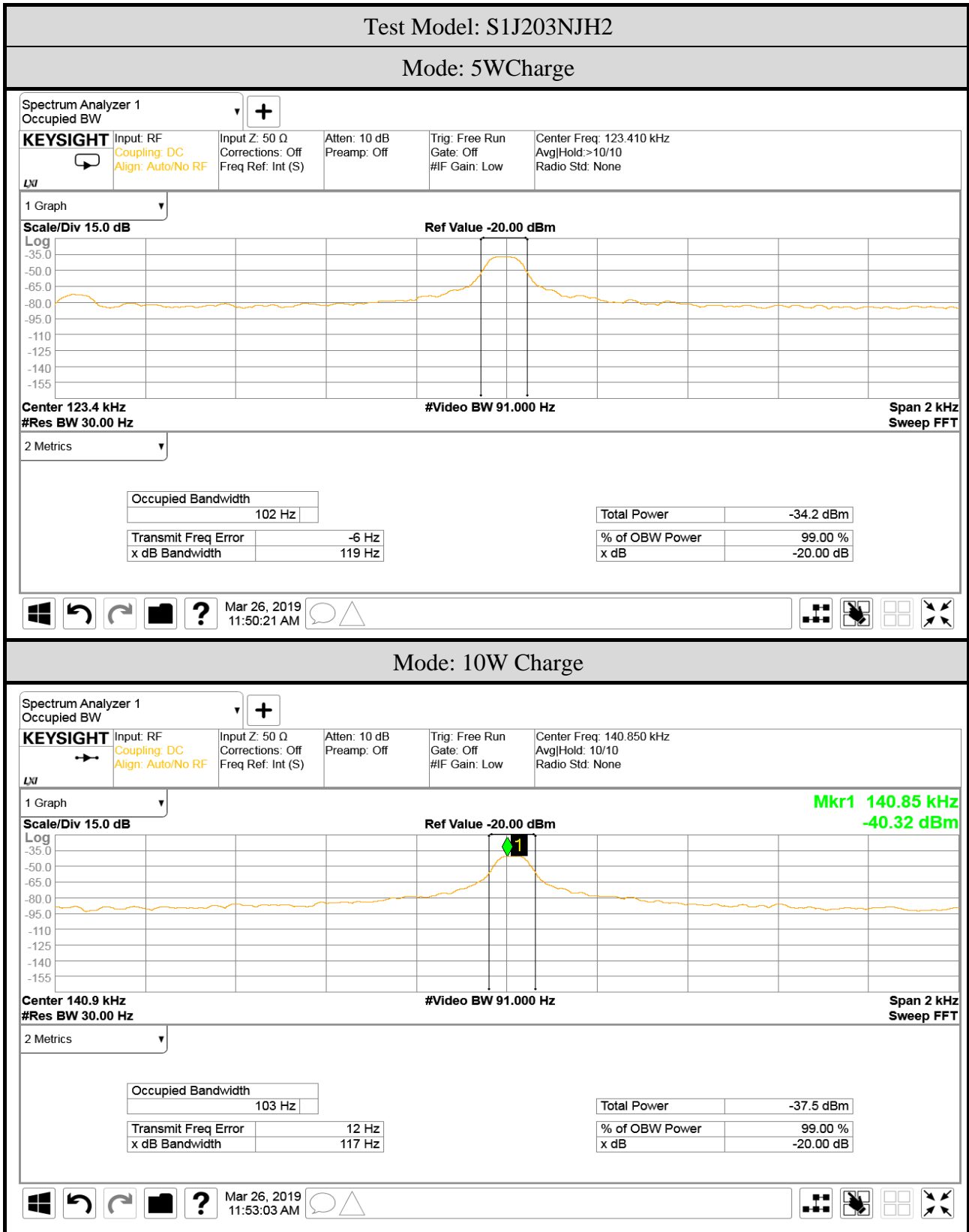
Test Date	2019/03/26	Temp./Hum.	24°C/45%
Cable Loss	N/A	Test Voltage	AC 120V/60Hz

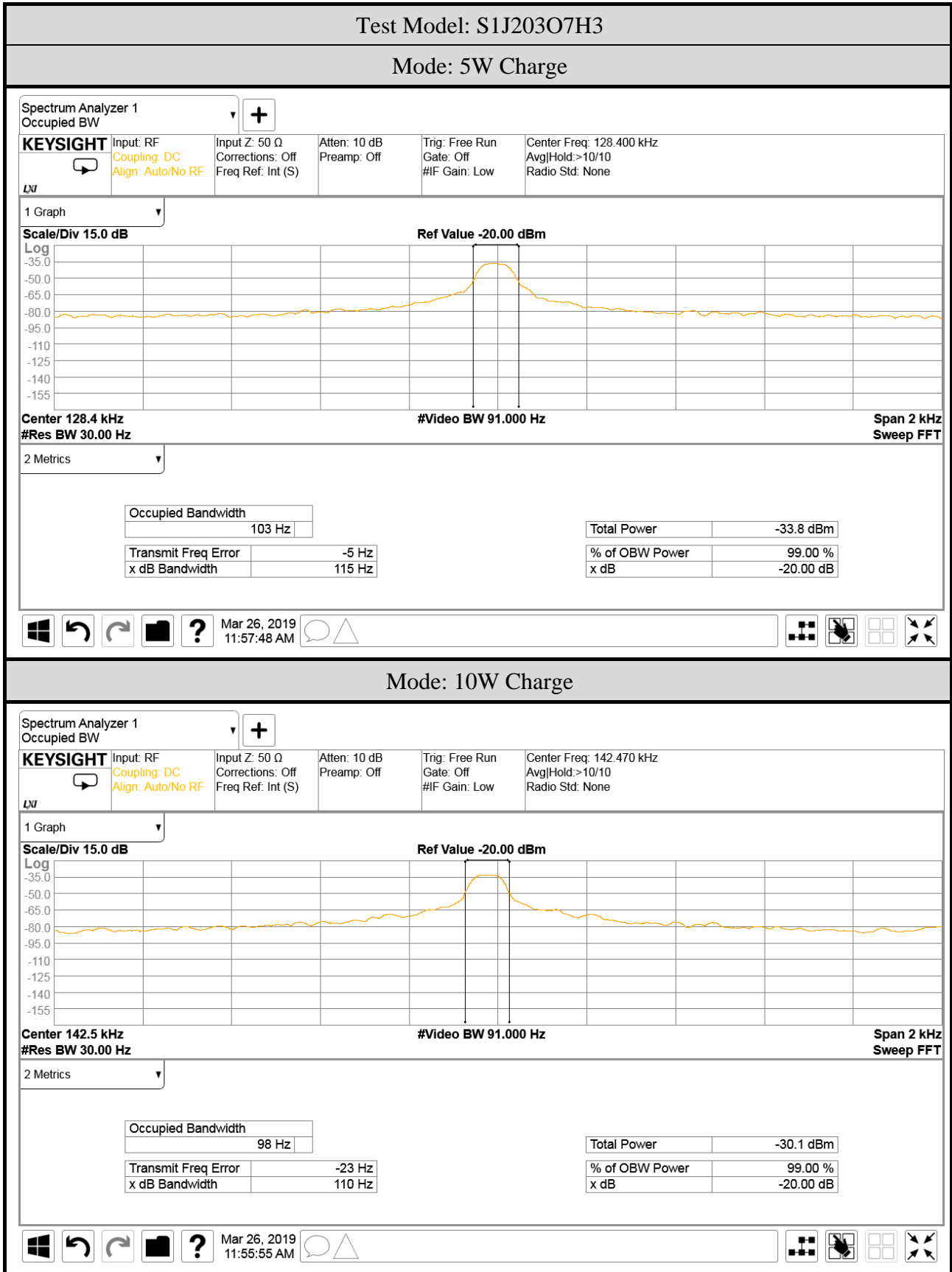
A.4.1.1 20dB Bandwidth Result

Test Model: S1J203NJH2			
Test Mode	Centre Frequency (kHz)	20 dB Bandwidth (Hz)	99 dB Bandwidth (Hz)
5WCharge	123.4	119	102
10WCharge	140.9	117	103

Test Model: S1J203O7H3			
Test Mode	Centre Frequency (kHz)	20 dB Bandwidth (Hz)	99 dB Bandwidth (Hz)
5WCharge	128.4	115	103
10WCharge	142.5	110	98

A.4.1.2 Measurement Plots







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APPENDIX B

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APPDNDIX B

TEST PHOTOGRAPHS

[Models: (1)S1J203NJH2 (2)S1J203O7H3]