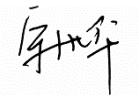
TEST REPORT

Report Number: C21T00132-EMC02-V00

Applicant	Toast, Incorporated
Product Name	Data Processing machine
Model Name	TT204,TT204W,TT203,TT203W,TT202W,TK200, TK300
Brand Name	Toast
FCC ID	2AMNG-TT200B
IC	23177-TT200B

Industrial Internet Innovation Center (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in FCC Part 15, Subpart B, ANSI C63.4-2014, ICES-003 Issue 7.

Prepared by		Reviewed by	
Approved by		Issue Date	2021-12-31

Industrial Internet Innovation Center (Shanghai) Co., Ltd.

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Test Laboratory:
Industrial Internet Innovation Center (Shanghai) Co., Ltd.
Add: Building 4, No. 766 Jingang Rd, Pudong, Shanghai, China
Tel: +86 21 68866880

Revision Version

Report Number	Revision	Date	Memo
C21T00132-EMC02-V00	00	2021-12-31	Initial creation of test report

CONTENTS

1. Test Laboratory

1.1. Testing Location

Primary Lab:

Company Name	Industrial Internet Innovation Center (Shanghai) Co., Ltd.
Address	Building 4, No. 766 Jingang Rd, Pudong, Shanghai, China
FCC Registration No.	958356
FCC Designation No.	CN1177
IC designation No.	CN0067

Subcontracting Lab #1:

Company Name	N/A
Address	N/A

1.2. Testing Environment

Normal Temperature	15℃~35℃
Relative Humidity	30%RH~60%RH
Supply Voltage	120V/60Hz

1.3. Project Information

Project Leader	Wang Wenwen
Testing Start Date	2021-11-24
Testing End Date	2021-12-28

2. Client Information

2.1. Applicant Information

Company Name	Toast, Incorporated
Address	401 Park Drive, Suite 801, Boston, MA 02215, USA
Telephone	5625462272

2.2. Manufacturer Information

Company Name	Toast, Incorporated
Address	401 Park Drive, Suite 801, Boston, MA 02215, USA
Telephone	5625462272

3. Equipment under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

Product Name	Data Processing machine
Model name	TT204,TT204W,TT203,TT203W,TT202W,TK200,TK300
Supported Radio Technology and Bands	BT4.2 WLAN 802.11b,g,n WLAN 802.11a,n,ac
Hardware Version	CT541MB80C 20210430
Software Version	Sunmi-ct541-v3.0.33p033

Note: Photographs of EUT are shown in ANNEX B of this test report.

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version	Date of Receipt
N01 (Mainly Supply)	N/A	CT541MB80C 20210430	Sunmi-ct541-v3.0.33p033	2021/11/17
N04 (Secondary Supply)	N/A	CT541MB80C 20210430	Sunmi-ct541-v3.0.33p033	2021/11/17
N02 (Thirdly Supply)	N/A	CT541MB80C 20210430	Sunmi-ct541-v3.0.33p033	2021/11/17
N07 (Fourth Supply)	N/A	CT541MB80C 20210430	Sunmi-ct541-v3.0.33p033	2021/12/2

*EUT ID: is internally used to identify the test sample in the lab.

3.3. Internal Identification of AE used during the test

AE ID*	Description	Model	SN/Remark
CA01	Adapter	SOY-2400400	N/A
CB02	Adapter	WTA96-2400400-T	N/A
UA01	Adapter Cable	N/A	N/A
UB02	Adapter Cable	N/A	N/A
UC01	LAN Cable	N/A	N/A
AE1	USB Cable	N/A	N/A
AE2	Mouse	MS111-P	CN-011D3V-71581-19J-1A64
AE3	U-disk	DataTraveler 100 G3 64GB	N/A
AE4	Notebook PC	DELL Latitude E6510	N/A
AE5	Y-Cable	N/A	N/A

AE6	On-Counter Guest Facing Display	TW200	N/A
AE7	Ethernet Poe switch	TL-SF1005P	N/A
AE8	Ethernet Poe switch Adapter	T535113-2X1	N/A

*AE ID: is internally used to identify the test sample in the lab.

*The AE is provided by the lab.

4. Reference Documents

4.1. Reference Documents for testing

The following documents listed in this section are referred for testing.

Reference	Title	Version
FCC Part 15, Subpart B	Radio frequency devices	2020/10/1
ANSI C63.4	Method of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2014
ICES-003	Information Technology Equipment (Including Digital Apparatus)-Limits and Methods of Measurement	Issue 7

5. Test Summary

5.1. Summary of Test Results

Items	Test List	Standard	Verdict
1	Radiated Emission	15.109(a)	Pass
2	AC Conducted Emission	15.107(a)	Pass

5.2. Statements

The TT204，TT204W,TT203,TT203W,TT202W,TK200,TK300, manufactured by Toast, Incorporated is a variant product for testing.

This project is a variant project based on the original report C21T00056-EMC01-V00 issued by 3IN. We tested the worst case and recorded the worst data in the report.

Industrial Internet Innovation Center (Shanghai) Co., Ltd. only performed test cases which identified with Pass/Fail/Inc result in section 5.1.

Industrial Internet Innovation Center (Shanghai) Co., Ltd. has verified that the compliance of the tested device specified in section 3 of this test report is successfully evaluated according to the procedure and test methods as defined in type certification requirement listed in section 4 of this test report.

The description of the differences between the models is updated as follows:

Mainly Supply	TT204	Main LCD panel Terminal + Sub LCD panel Terminal + Attached base support
	TT204W	The same with TT204, just the color is White
Secondary Supply	TT203	Main LCD panel Terminal + Attached base support
	TT202W, TT203W	The same with TT203, just the color is White
Thirdly Supply	TK200	Main LCD panel Terminal + Add POE module + Add one speaker
Fourth Supply	TK300	Main LCD panel Terminal + Add POE module + Add one speaker + Add one bracket

5.3. Decision of final test mode

The EUT was tested together with the above additional components, and a configuration, which produced the worst emission levels, was selected and recorded in this report.

The test configuration modes are as the following:

N01 (Mainly Supply):

Test Item	Test setup and operating modes
Radiated emission	Mode 1: Full system mode+ Big screen Camera+ CA01+ UA01+ UC01+ AE1+ AE2+ AE3+ AE4 Mode 2: Full system mode+ Small screen Camera+ CA01+ UA01+ UC01+ AE1+ AE2+ AE3+ AE4 Mode 3: Full system mode+ Big screen Camera+ CB02+ UB02+ UC01+ AE1+ AE2+ AE3+ AE4 Mode 4: Full system mode+ Small screen Camera+ CB02+ UB02+ UC01+ AE1+ AE2+ AE3+ AE4
AC Conducted Emission	Mode 1: Full system mode+ Big screen Camera+ CA01+ UA01+ UC01+ AE1+ AE2+ AE3+ AE4 Mode 2: Full system mode+ Small screen Camera+ CA01+ UA01+ UC01+ AE1+ AE2+ AE3+ AE4 Mode 3: Full system mode+ Big screen Camera+ CB02+ UB02+ UC01+ AE1+ AE2+ AE3+ AE4 Mode 4: Full system mode+ Small screen Camera+ CB02+ UB02+ UC01+ AE1+ AE2+ AE3+ AE4
Remark: The worst case of radiated emission for 30MHz-1GHz is mode 4 and for 1GHz -18GHz is mode 4. The worst case for conducted emission is mode 1.	

N04 (Secondary Supply):

Test Item	Test setup and operating modes
Radiated emission	Mode 5: Full system mode+ Big screen Camera+ CA01+ UA01+ UC01+ AE1+ AE2+ AE3+ AE4+ AE5+ AE6 Mode 6: Full system mode+ Big screen Camera+ CB02+ UB02+ UC01+ AE1+ AE2+ AE3+ AE4+ AE5+ AE6
AC Conducted Emission	Mode 5: Full system mode+ Big screen Camera+ CA01+ UA01+ UC01+ AE1+ AE2+ AE3+ AE4+ AE5+ AE6 Mode 6: Full system mode+ Big screen Camera+ CB02+ UB02+ UC01+ AE1+ AE2+ AE3+ AE4+ AE5+ AE6
Remark: The worst case of radiated emission for 30MHz-1GHz is mode 6 and for 1GHz -18GHz is mode 5. The worst case for conducted emission is mode 5.	

N02 (Thirdly Supply):

Test Item	Test setup and operating modes
Radiated emission	Mode 5: Full system mode+ Big screen Camera+ CA01+ UA01+ UC01+ AE1+ AE2+ AE3+ AE4+ AE5+ AE6 Mode 6: Full system mode+ Big screen Camera+ CB02+ UB02+ UC01+ AE1+ AE2+ AE3+ AE4+ AE5+ AE6 Mode 7: POE mode+ AE7+ AE8
AC Conducted Emission	Mode 5: Full system mode+ Big screen Camera+ CA01+ UA01+ UC01+ AE1+ AE2+ AE3+ AE4+ AE5+ AE6 Mode 6: Full system mode+ Big screen Camera+ CB02+ UB02+ UC01+ AE1+ AE2+ AE3+ AE4+ AE5+ AE6
Remark: The worst case of radiated emission for 30MHz-1GHz is mode5 and for 1GHz -18GHz is mode 5. The worst case for conducted emission is mode 5.	

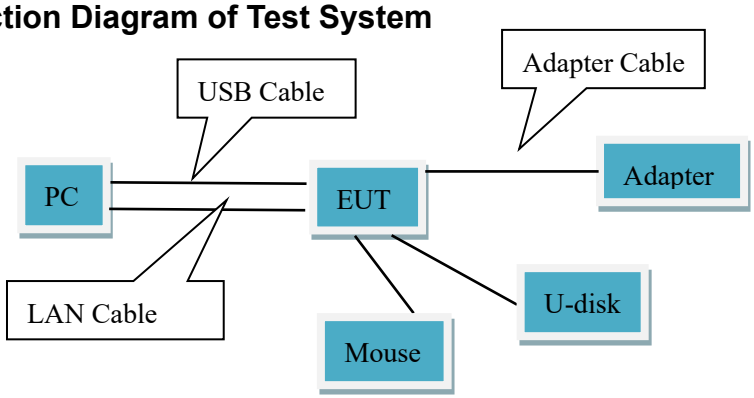
N07(Fourth supply):

Test Item	Test setup and operating modes
Radiated emission	Mode 8: Full system mode+ Big screen Camera+ CA01+ UA01+ UC01 AE4 Mode 9: Full system mode+ Big screen Camera+ CB02+ UB02+ UC01+ AE4 Mode 7: POE mode+ AE7+ AE8
Remark: The worst case of radiated emission for 30MHz-1GHz is mode 9 and for 1GHz -18GHz is mode 9.	

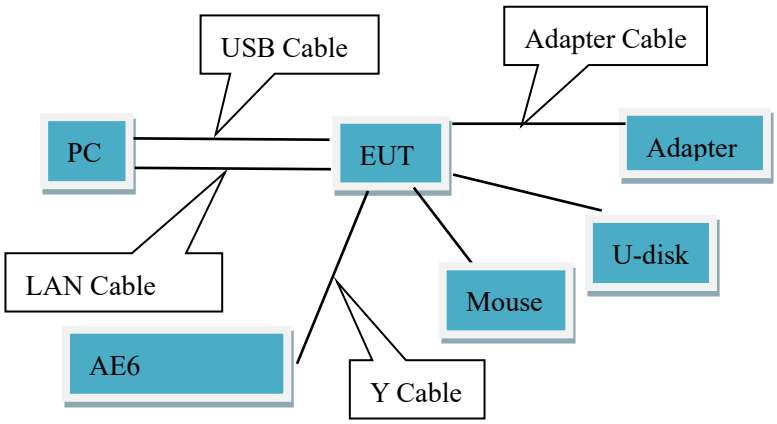
5.4. EUT System Operation

1. Connect the EUT with AE.
2. Setup the EUT according to the standard.
3. Full system mode: Data application transferred mode between EUT and PC through USB Cable and Ping mode between EUT and PC through LAN Cable.
4. BT/BLE/2.4G WLAN/5G WLAN/5.8G WLAN mode: Through the adb instructions make the EUT transmit signal.
5. Start testing and monitoring the function

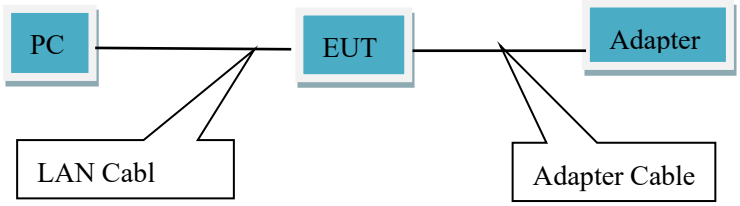
5.5. EUT Connection Diagram of Test System



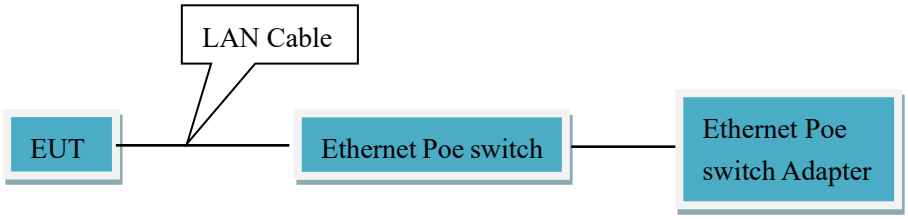
<Figure 1> Mode 1-4



<Figure 2> Mode 5-6



<Figure 3> Mode 8,9



<Figure 4> Mode 7

6. Measurement Results

6.1. Radiated Emission

Method of Measurement

a. For 30MHz -1000MHz, the EUT was placed on the top of a rotating 0.8m table above the ground at a semi-anechoic chamber. The distance between the EUT and the received antenna was 3 meters. The table was rotated 360 degree and the received antenna mounted on a variable-height antenna tower was varied from 1m to 4m to find the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna were set during the measurement.

b. For 1000MHz-18000MHz, the maximal emission value was acquired by adjusting the antenna height, the table was rotated 360 degree to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna were set during the measurement.

Limits for Radiated Emission at a measuring distance of 3m

Table 1:

Frequency Range (MHz)	Quasi-Peak (dBμV/m)
30-88	40
88-216	43.5
216-960	46
Above 960	54

Table 2:

Frequency Range (MHz)	Peak (dBμV/m)	Average (dBμV/m)
Above 1000	74	54

Table 3:

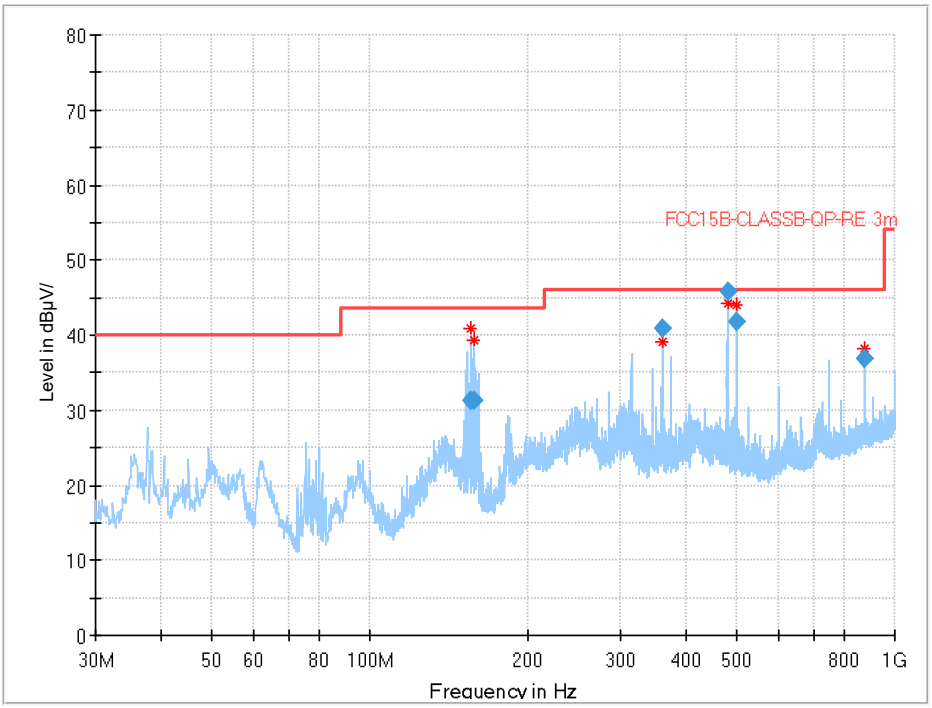
Test conditions

Frequency Range (MHz)	RBW/VBW	Sweep Time (s)
30-1000	120kHz/300kHz	Auto
1000-18000	1MHz/3MHz	Auto

Test Results

Sweep the whole frequency band through the range from 30MHz to the 5th harmonic of the carrier, the Emissions in the frequency band 18GHz-40GHz is more than 20dB below the limit are not report.

N01 (Mainly Supply):



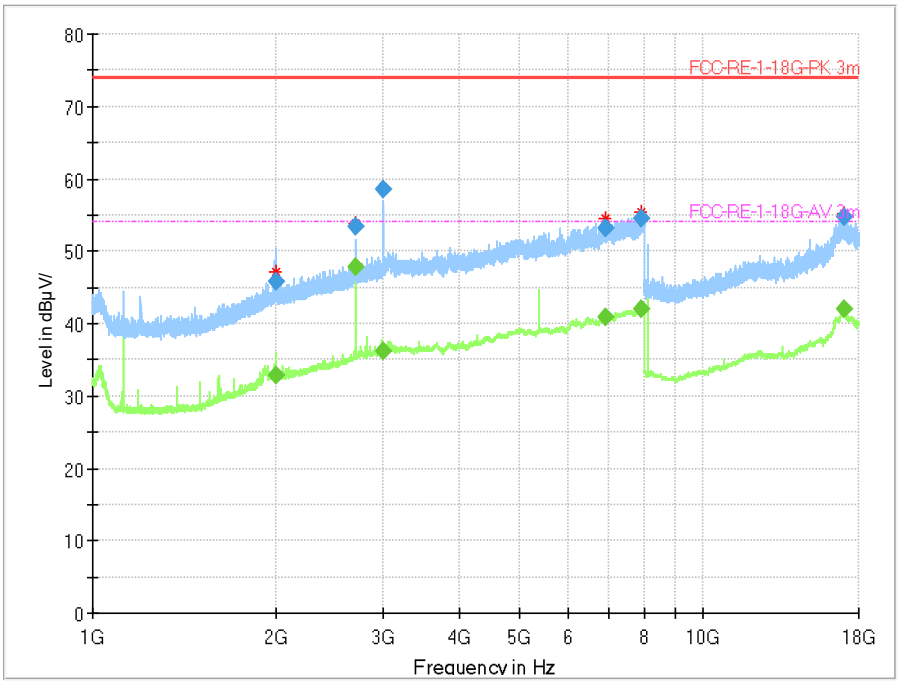
Mode 4 (30M-1GHz)

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
155.249680	31.27	43.50	12.23	100.0	V	236.0	-16.1
158.278760	31.20	43.50	12.30	200.0	H	120.0	-15.9
360.001680	40.90	46.00	5.10	100.0	H	246.0	-8.3
480.006280	45.77	46.00	0.23	100.0	H	154.0	-5.7
500.036880	41.84	46.00	4.16	100.0	H	96.0	-5.3
875.008920	36.98	46.00	9.02	100.0	H	177.0	1.2

Note:

1. Emission level(QP)=Raw value by receiver + Corr(Antenna factor + cable loss - preamplifier gain)
2. The raw value is used to calculate by software which is not shown in the sheet.
3. Margin=limit value – emission level.



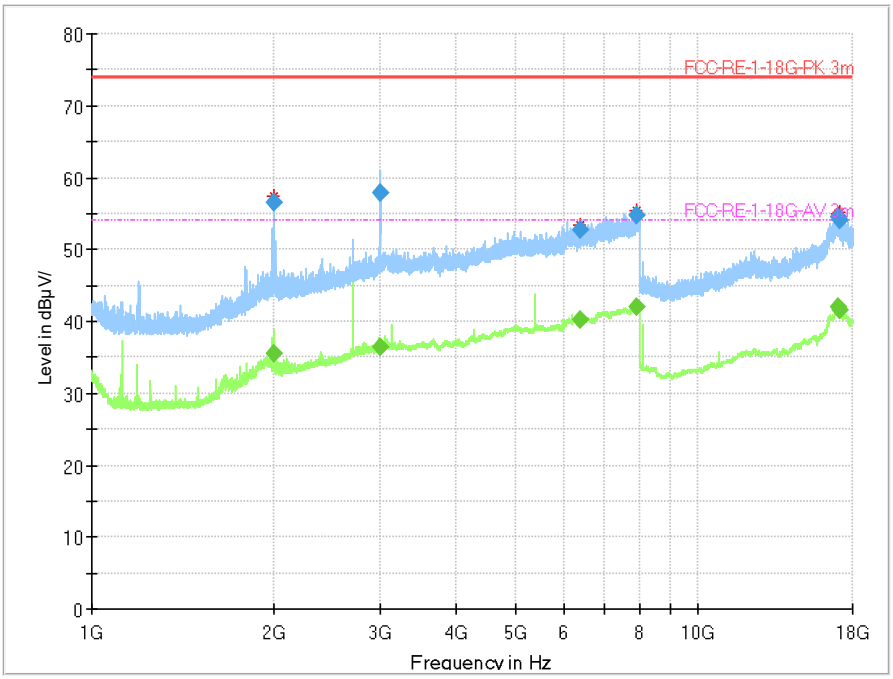
Mode 4 (1G-18G)_H

Final Result 1

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Meas. Time (ms)	Band width (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1997.907500	45.89	---	74.00	28.11	500.0	1000.0	185.0	H	162.0	6.7
1997.907500	---	32.85	54.00	21.15	500.0	1000.0	185.0	H	162.0	6.7
2700.003750	---	47.82	54.00	6.18	500.0	1000.0	100.0	H	312.0	10.3
2700.003750	53.40	---	74.00	20.60	500.0	1000.0	100.0	H	312.0	10.3
2988.695000	58.53	---	74.00	15.47	500.0	1000.0	100.0	H	113.0	11.6
2988.695000	---	36.29	54.00	17.71	500.0	1000.0	100.0	H	113.0	11.6
6914.566250	---	40.83	54.00	13.17	500.0	1000.0	200.0	H	358.0	19.5
6914.566250	53.19	---	74.00	20.81	500.0	1000.0	200.0	H	358.0	19.5
7935.172500	54.63	---	74.00	19.37	500.0	1000.0	115.0	H	0.0	21.2
7935.172500	---	42.04	54.00	11.96	500.0	1000.0	115.0	H	0.0	21.2
17024.89250	54.77	---	74.00	19.23	500.0	1000.0	111.0	H	124.0	22.6
17024.89250	---	41.97	54.00	12.03	500.0	1000.0	111.0	H	124.0	22.6

Note:

1. Emission level (peak or average)=Raw value by receiver + Corr (Antenna factor+ cable loss-preamplifier gain)
2. The raw value is used to calculate by software which is not shown in the sheet.
3. Margin=limit value – emission level.



Mode 4 (1G-18G)_V

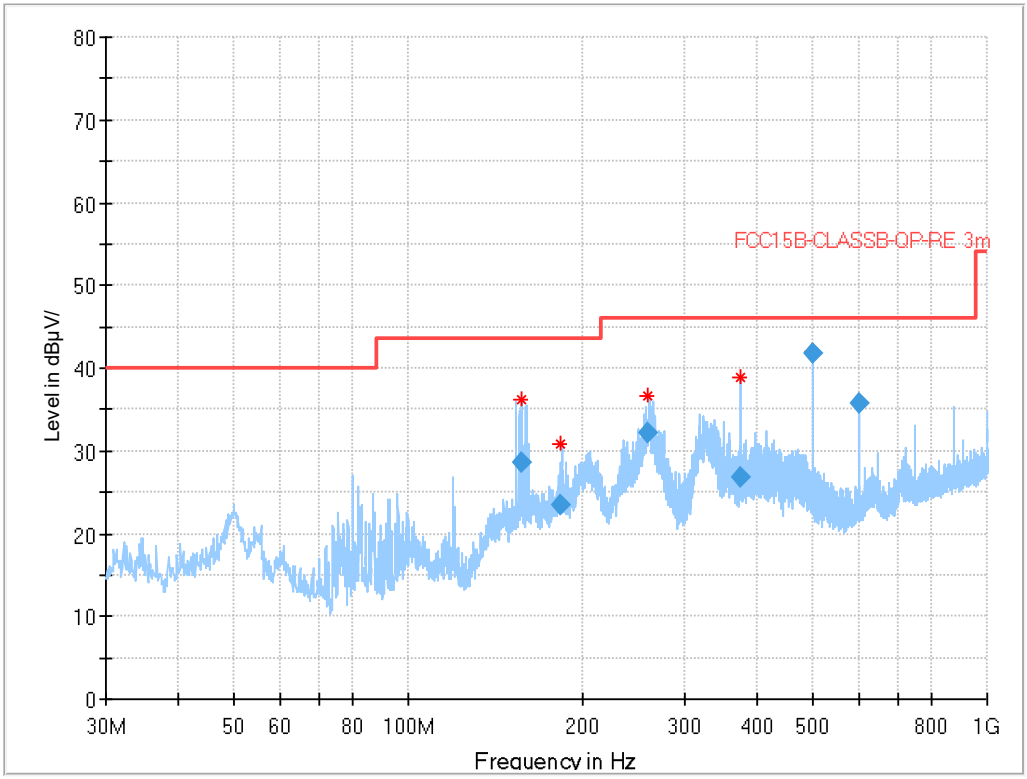
Final Result 1

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1998.171250	56.47	---	74.00	17.53	500.0	1000.000	100.0	V	22.0	6.8
1998.171250	---	35.62	54.00	18.38	500.0	1000.000	100.0	V	22.0	6.8
2998.906688	---	36.37	54.00	17.63	500.0	1000.000	102.0	V	219.0	11.7
2998.906688	57.94	---	74.00	16.06	500.0	1000.000	102.0	V	219.0	11.7
6414.263750	52.65	---	74.00	21.35	500.0	1000.000	206.0	V	1.0	18.4
6414.263750	---	40.11	54.00	13.89	500.0	1000.000	206.0	V	1.0	18.4
7915.031250	---	41.93	54.00	12.07	500.0	1000.000	115.0	V	323.0	21.1
7915.031250	54.68	---	74.00	19.32	500.0	1000.000	115.0	V	323.0	21.1
17022.73875	---	41.96	54.00	12.04	500.0	1000.000	115.0	V	3.0	22.6
17022.73875	54.54	---	74.00	19.46	500.0	1000.000	115.0	V	3.0	22.6
17171.42250	---	41.65	54.00	12.35	500.0	1000.000	207.0	V	123.0	22.4
17171.42250	54.01	---	74.00	19.99	500.0	1000.000	207.0	V	123.0	22.4

Note:

1. Emission level (peak or average) = Raw value by receiver + Corr (Antenna factor+ cable loss-preamplifier gain)
2. The raw value is used to calculate by software which is not shown in the sheet.
3. Margin=limit value – emission level.

N04 (Secondary Supply):



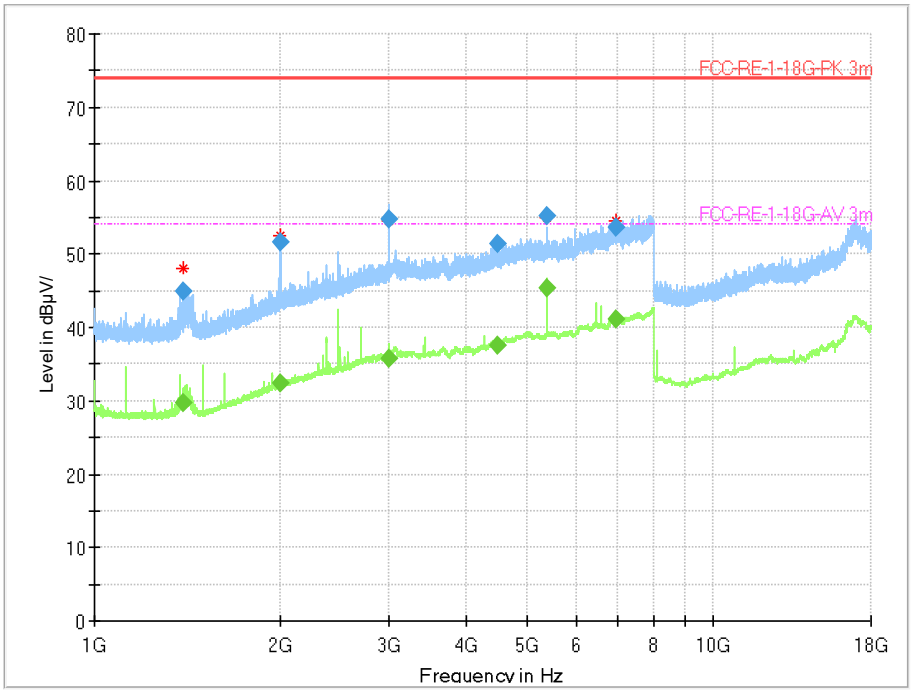
Mode 5 (30M-1GHz)

Final Result 1

Frequency (MHz)	QuasiPeak (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
156.766400	28.51	43.50	14.99	100.0	H	224.0	-16.0
183.659720	23.46	43.50	20.04	200.0	H	159.0	-14.2
259.698960	32.24	46.00	13.76	100.0	H	129.0	-10.6
375.532000	26.75	46.00	19.25	100.0	H	107.0	-7.8
499.978560	41.73	46.00	4.27	100.0	H	0.0	-5.3
599.988920	35.77	46.00	10.23	100.0	V	286.0	-3.2

Note:

1. Emission level(QP)=Raw value by receiver + Corr(Antenna factor + cable loss - preamplifier gain)
2. The raw value is used to calculate by software which is not shown in the sheet.
3. Margin=limit value – emission level.



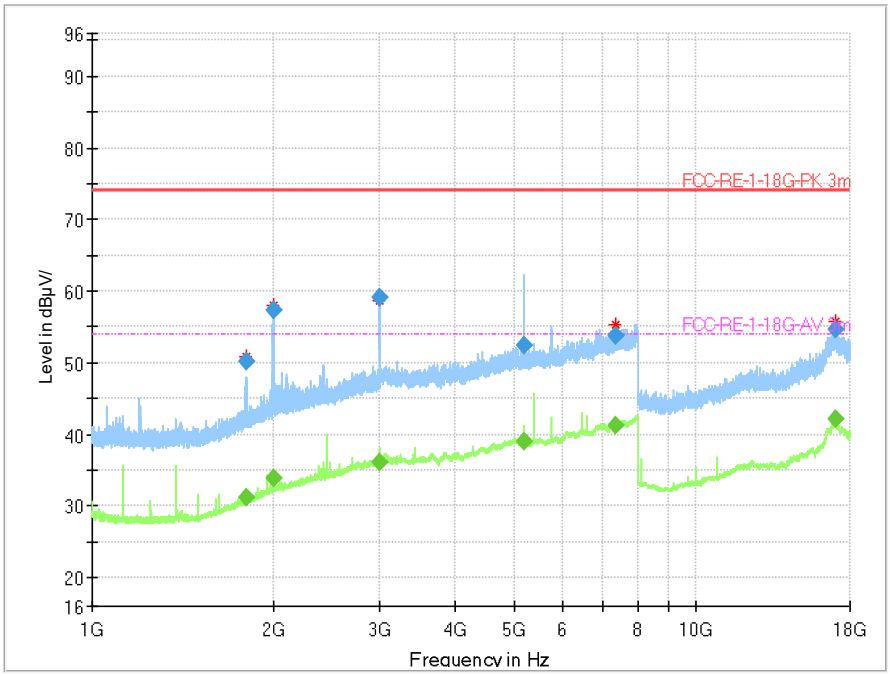
Mode 5 (1G-18G)_H

Final Result 1

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1388.77250	---	29.70	54.00	24.30	500.0	1000.000	115.0	H	8.0	2.2
1388.77250	44.85	---	74.00	29.15	500.0	1000.000	115.0	H	8.0	2.2
1997.28500	51.60	---	74.00	22.40	500.0	1000.000	100.0	H	140.0	6.7
1997.28500	---	32.34	54.00	21.66	500.0	1000.000	100.0	H	140.0	6.7
2990.50125	54.85	---	74.00	19.15	500.0	1000.000	115.0	H	140.0	11.6
2990.50125	---	35.83	54.00	18.17	500.0	1000.000	115.0	H	140.0	11.6
4474.19250	---	37.53	54.00	16.47	500.0	1000.000	215.0	H	298.0	14.3
4474.19250	51.37	---	74.00	22.63	500.0	1000.000	215.0	H	298.0	14.3
5400.32375	---	45.35	54.00	8.65	500.0	1000.000	115.0	H	3.0	16.6
5400.32375	55.27	---	74.00	18.73	500.0	1000.000	115.0	H	3.0	16.6
6960.67000	---	41.02	54.00	12.98	500.0	1000.000	115.0	H	191.0	19.6
6960.67000	53.54	---	74.00	20.46	500.0	1000.000	115.0	H	191.0	19.6

Note:

1. Emission level (peak or average)=Raw value by receiver + Corr (Antenna factor+ cable loss- preamplifier gain)
2. The raw value is used to calculate by software which is not shown in the sheet.
3. Margin=limit value – emission level.



Mode 5 (1G-18G)_V

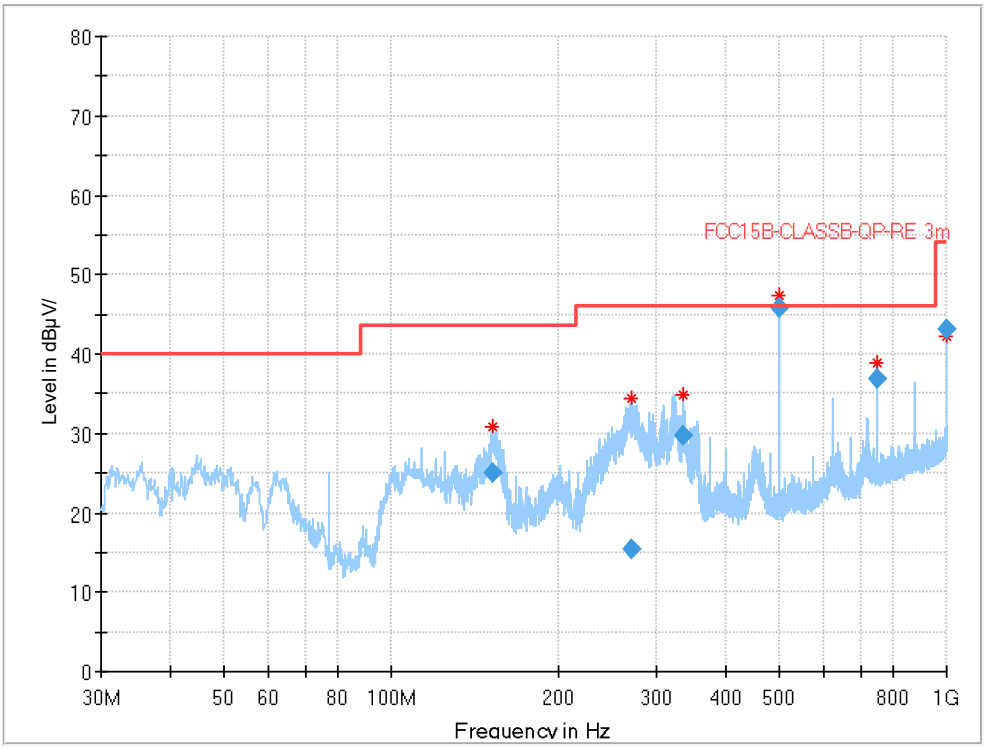
Final Result 1

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1798.9100	50.10	---	74.00	23.90	500.0	1000.000	115.0	V	28.0	5.1
1798.9100	---	31.09	54.00	22.91	500.0	1000.000	115.0	V	28.0	5.1
1997.9150	57.33	---	74.00	16.67	500.0	1000.000	100.0	V	3.0	6.7
1997.9150	---	33.78	54.00	20.22	500.0	1000.000	100.0	V	3.0	6.7
2993.8830	---	36.01	54.00	17.99	500.0	1000.000	100.0	V	171.0	11.6
2993.8830	59.06	---	74.00	14.94	500.0	1000.000	100.0	V	171.0	11.6
5197.7462	---	39.02	54.00	14.98	500.0	1000.000	115.0	V	292.0	16.1
5197.7462	52.43	---	74.00	21.57	500.0	1000.000	115.0	V	292.0	16.1
7381.1787	53.78	---	74.00	20.22	500.0	1000.000	200.0	V	251.0	20.2
7381.1787	---	41.30	54.00	12.70	500.0	1000.000	200.0	V	251.0	20.2
16991.217	54.67	---	74.00	19.33	500.0	1000.000	200.0	V	110.0	22.6
16991.217	---	42.05	54.00	11.95	500.0	1000.000	200.0	V	110.0	22.6

Note:

1. Emission level (peak or average) = Raw value by receiver + Corr (Antenna factor+ cable loss-preamplifier gain)
2. The raw value is used to calculate by software which is not shown in the sheet.
3. Margin=limit value – emission level.

N02 (Thirdly Supply):



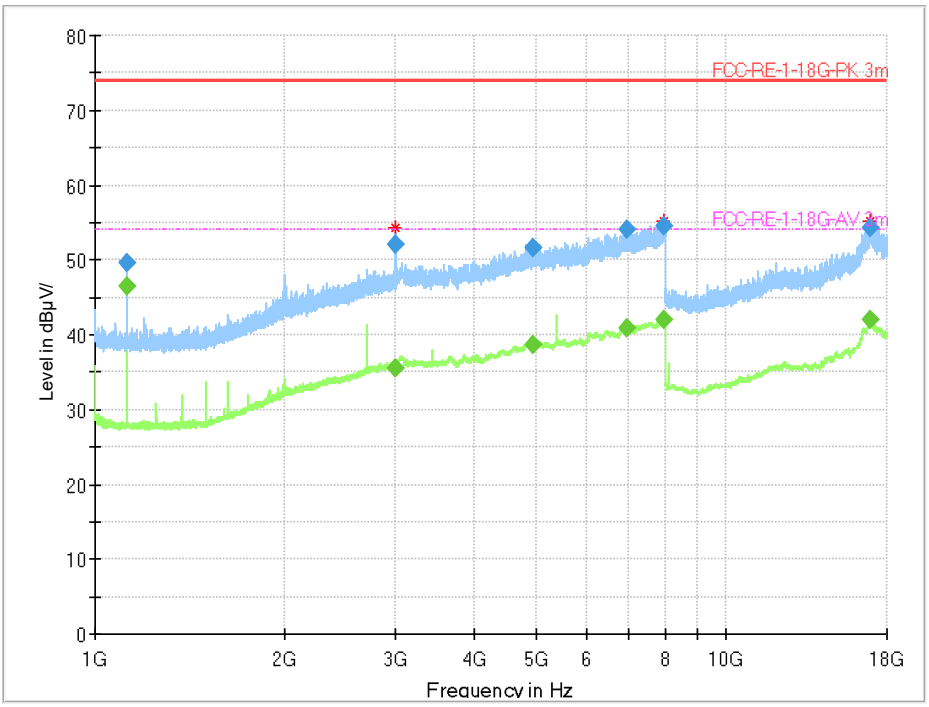
Mode 5 (30M-1GHz)

Final Result 1

Frequency (MHz)	QuasiPeak (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
152.522960	25.01	40.00	14.99	200.0	H	349.0	-16.3
270.328400	15.47	46.00	30.53	200.0	H	0.0	-10.6
335.201360	29.74	46.00	16.26	100.0	H	169.0	-9.0
499.997640	45.80	46.00	0.20	100.0	H	99.0	-5.3
750.001960	36.94	46.00	9.06	100.0	V	344.0	-0.5
999.987820	43.05	54.00	10.95	100.0	H	6.0	2.6

Note:

1. Emission level(QP)=Raw value by receiver + Corr(Antenna factor + cable loss - preamplifier gain)
2. The raw value is used to calculate by software which is not shown in the sheet.
3. Margin=limit value – emission level.



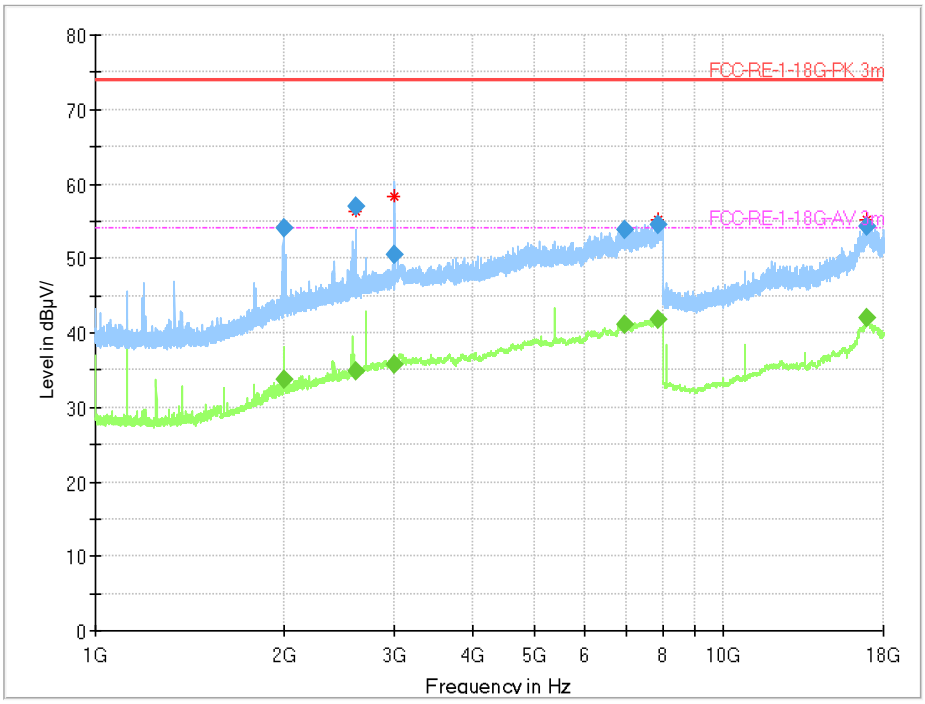
Mode 5 (1G-18G)_H

Final Result 1

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1124.831250	49.71	---	74.00	24.29	500.0	1000.000	100.0	H	326.0	1.8
1124.831250	---	46.54	54.00	7.46	500.0	1000.000	100.0	H	326.0	1.8
2990.101250	---	35.64	54.00	18.36	500.0	1000.000	115.0	H	128.0	11.6
2990.101250	52.07	---	74.00	21.93	500.0	1000.000	115.0	H	128.0	11.6
4953.637500	51.53	---	74.00	22.47	500.0	1000.000	188.0	H	37.0	15.8
4953.637500	---	38.77	54.00	15.23	500.0	1000.000	188.0	H	37.0	15.8
6971.743750	54.19	---	74.00	19.81	500.0	1000.000	115.0	H	61.0	19.7
6971.743750	---	40.98	54.00	13.02	500.0	1000.000	115.0	H	61.0	19.7
7956.647500	---	42.01	54.00	11.99	500.0	1000.000	215.0	H	102.0	21.3
7956.647500	54.48	---	74.00	19.52	500.0	1000.000	215.0	H	102.0	21.3
16972.85000	54.37	---	74.00	19.63	500.0	1000.000	215.0	H	0.0	22.6
16972.85000	---	42.02	54.00	11.98	500.0	1000.000	215.0	H	0.0	22.6

Note:

1. Emission level (peak or average)=Raw value by receiver + Corr (Antenna factor+ cable loss-preamplifier gain)
2. The raw value is used to calculate by software which is not shown in the sheet.
3. Margin=limit value – emission level.



Mode 5 (1G-18G)_V

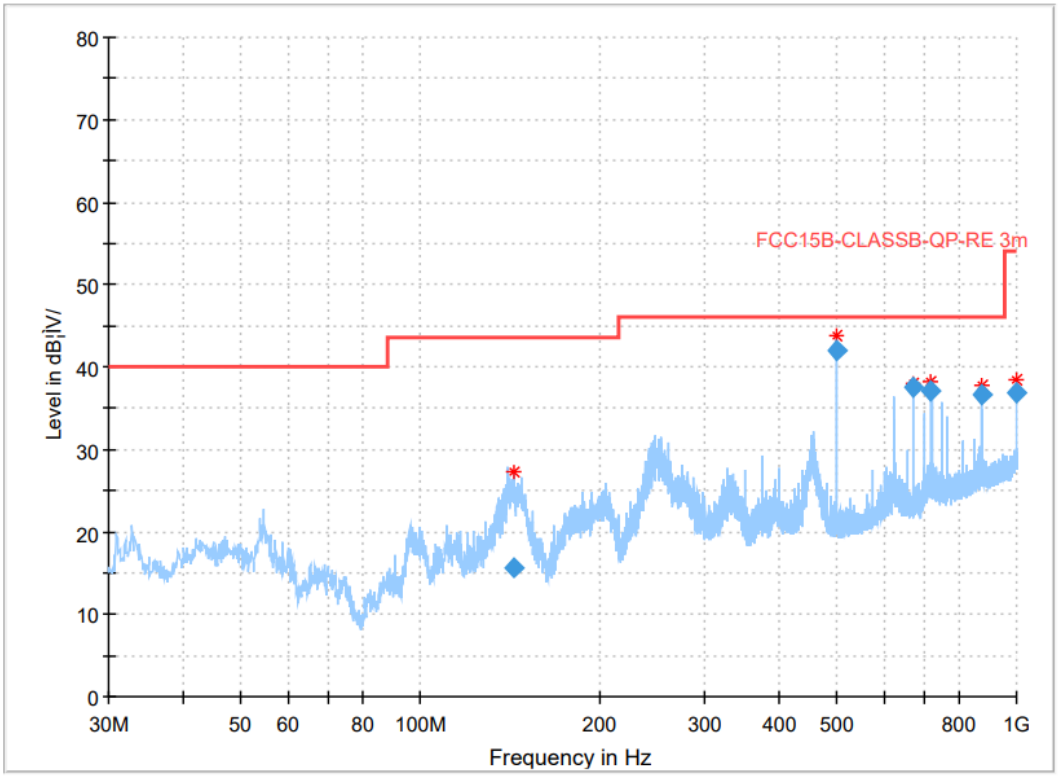
Final Result 1

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1993.8000	---	33.65	54.00	20.35	500.0	1000.000	100.0	V	0.0	6.7
1993.8000	54.17	---	74.00	19.83	500.0	1000.000	100.0	V	0.0	6.7
2594.7525	---	34.83	54.00	19.17	500.0	1000.000	100.0	V	140.0	9.7
2594.7525	56.95	---	74.00	17.05	500.0	1000.000	100.0	V	140.0	9.7
2995.1062	---	35.84	54.00	18.16	500.0	1000.000	100.0	V	198.0	11.6
2995.1062	50.46	---	74.00	23.54	500.0	1000.000	100.0	V	198.0	11.6
6983.5475	53.95	---	74.00	20.05	500.0	1000.000	206.0	V	359.0	19.7
6983.5475	---	41.07	54.00	12.93	500.0	1000.000	206.0	V	359.0	19.7
7868.7887	54.59	---	74.00	19.41	500.0	1000.000	206.0	V	359.0	20.9
7868.7887	---	41.79	54.00	12.21	500.0	1000.000	206.0	V	359.0	20.9
16973.390	---	41.94	54.00	12.06	500.0	1000.000	200.0	V	2.0	22.6
16973.390	54.34	---	74.00	19.66	500.0	1000.000	200.0	V	2.0	22.6

Note:

1. Emission level (peak or average) = Raw value by receiver + Corr (Antenna factor+ cable loss-preamplifier gain)
2. The raw value is used to calculate by software which is not shown in the sheet.
3. Margin=limit value – emission level.

N07 (Fourth Supply):



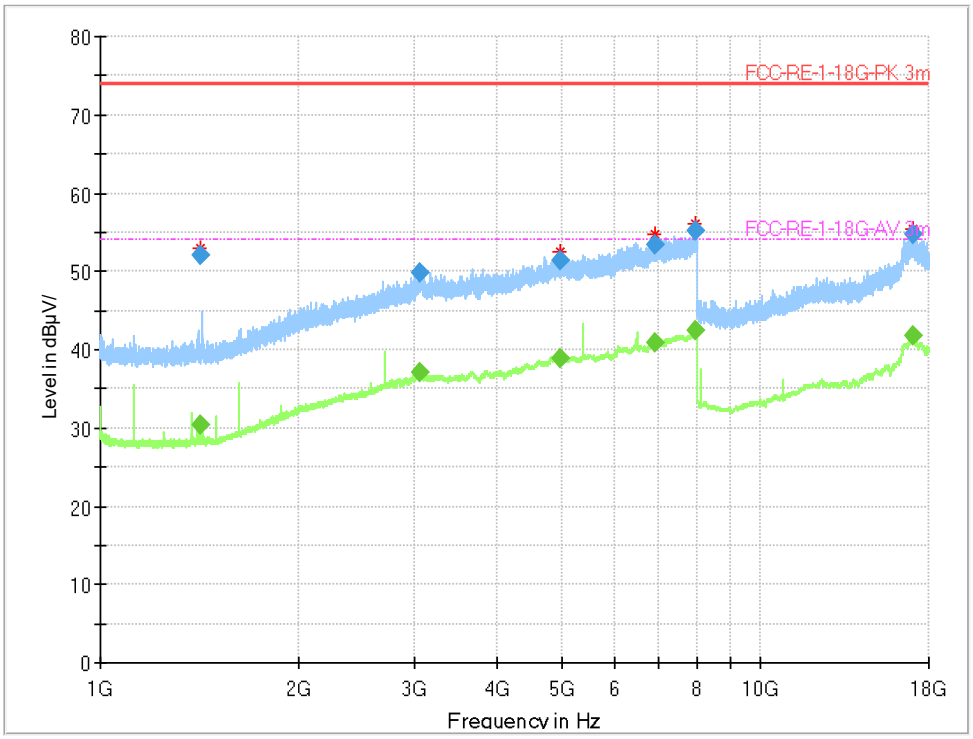
Mode 5 (30M-1GHz)

Final Result 1

Frequency (MHz)	QuasiPeak (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
143.489560	15.67	43.50	27.83	100.0	V	276.0	-16.4
500.005320	41.98	46.00	4.02	100.0	H	183.0	-5.3
671.990680	37.49	46.00	8.51	100.0	V	358.0	-2.4
719.980200	37.01	46.00	8.99	100.0	V	0.0	-1.3
875.010120	36.54	46.00	9.46	100.0	H	183.0	1.2
999.985480	36.79	54.00	17.21	100.0	H	307.0	2.6

Note:

1. Emission level(QP)=Raw value by receiver + Corr(Antenna factor + cable loss - preamplifier gain)
2. The raw value is used to calculate by software which is not shown in the sheet.
3. Margin=limit value – emission level.



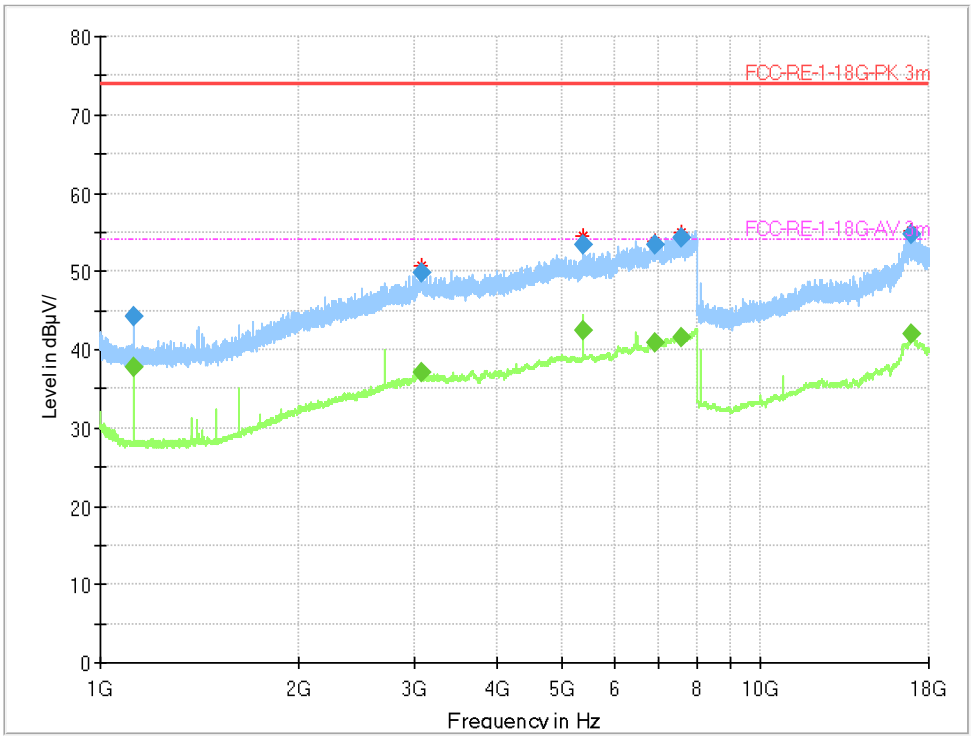
Mode 5 (1G-18G)_H

Final Result 1

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1421.342500	52.17	---	74.00	21.83	500.0	1000.000	115.0	H	35.0	2.2
1421.342500	---	30.49	54.00	23.51	500.0	1000.000	115.0	H	35.0	2.2
3049.452500	---	37.02	54.00	16.98	500.0	1000.000	100.0	H	1.0	12.7
3049.452500	49.90	---	74.00	24.10	500.0	1000.000	100.0	H	1.0	12.7
4982.832500	51.48	---	74.00	22.52	500.0	1000.000	115.0	H	1.0	16.0
4982.832500	---	38.78	54.00	15.22	500.0	1000.000	115.0	H	1.0	16.0
6920.266250	---	40.90	54.00	13.10	500.0	1000.000	115.0	H	99.0	19.5
6920.266250	53.50	---	74.00	20.50	500.0	1000.000	115.0	H	99.0	19.5
7993.820000	55.27	---	74.00	18.73	500.0	1000.000	215.0	H	67.0	21.5
7993.820000	---	42.42	54.00	11.58	500.0	1000.000	215.0	H	67.0	21.5
17083.69625	54.74	---	74.00	19.26	500.0	1000.000	100.0	H	255.0	22.5
17083.69625	---	41.87	54.00	12.13	500.0	1000.000	100.0	H	255.0	22.5

Note:

1. Emission level (peak or average)=Raw value by receiver + Corr (Antenna factor+ cable loss-preamplifier gain)
2. The raw value is used to calculate by software which is not shown in the sheet.
3. Margin=limit value – emission level.



Mode 5 (1G-18G)_V

Final Result 1

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1124.8337	44.16	---	74.00	29.84	500.0	1000.000	115.0	V	305.0	1.8
1124.8337	---	37.74	54.00	16.26	500.0	1000.000	115.0	V	305.0	1.8
3057.9850	---	37.01	54.00	16.99	500.0	1000.000	115.0	V	359.0	12.7
3057.9850	49.94	---	74.00	24.06	500.0	1000.000	115.0	V	359.0	12.7
5399.6250	---	42.38	54.00	11.62	500.0	1000.000	111.0	V	0.0	16.6
5399.6250	53.44	---	74.00	20.56	500.0	1000.000	111.0	V	0.0	16.6
6925.4862	---	40.91	54.00	13.09	500.0	1000.000	187.0	V	103.0	19.5
6925.4862	53.37	---	74.00	20.63	500.0	1000.000	187.0	V	103.0	19.5
7584.4750	54.29	---	74.00	19.71	500.0	1000.000	115.0	V	329.0	20.7
7584.4750	---	41.63	54.00	12.37	500.0	1000.000	115.0	V	329.0	20.7
16901.192	---	42.09	54.00	11.91	500.0	1000.000	215.0	V	124.0	22.5
16901.192	54.84	---	74.00	19.16	500.0	1000.000	215.0	V	124.0	22.5

Note:

1. Emission level (peak or average) = Raw value by receiver + Corr (Antenna factor+ cable loss-preamplifier gain)
2. The raw value is used to calculate by software which is not shown in the sheet.
3. Margin=limit value – emission level.

6.2. AC Conducted Emission

Method of Measurement

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies with the band 150 kHz to 30MHz shall not exceed the limits. Both lines of the power mains connected to the EUT were checked for maximum conducted interference. Tested in accordance with the procedures of ANSI C63.4-2014, section 7.3

Limit of AC Conducted Emission

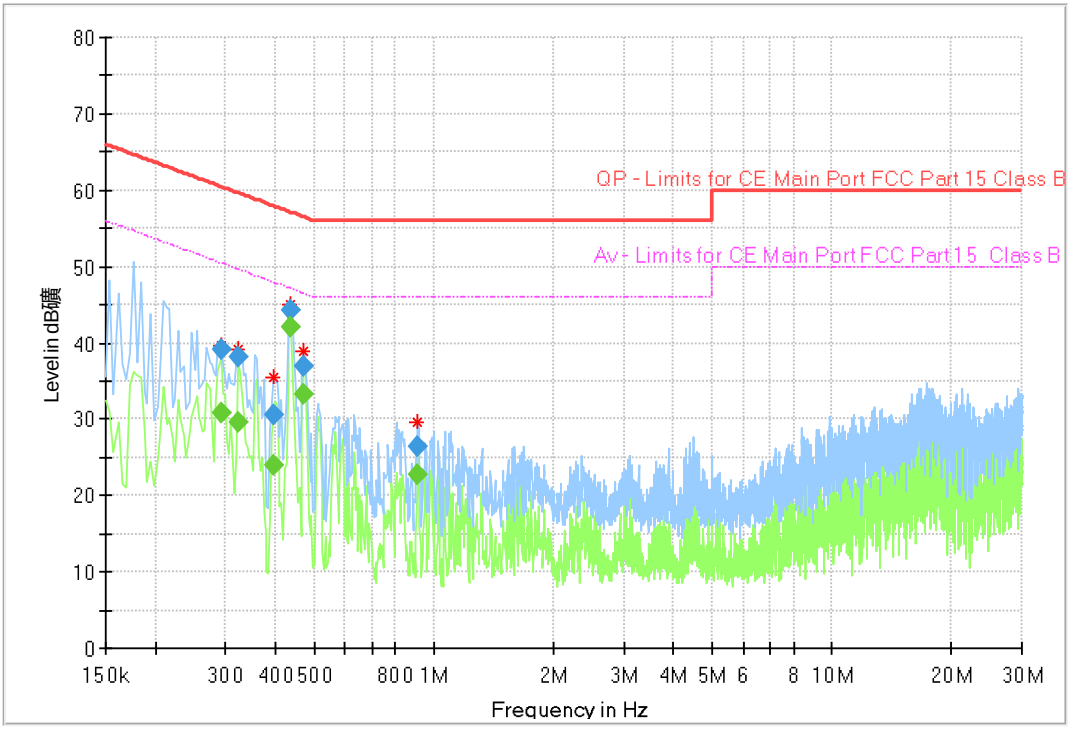
Frequency Range (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50
*Decreases with the logarithm of the frequency		

Test Condition in Charging Mode

Voltage (V)	Frequency (Hz)	RBW	Sweep Time (s)
120	60	9 kHz	Auto

Test Results

N01 (Mainly Supply):



Mode 1

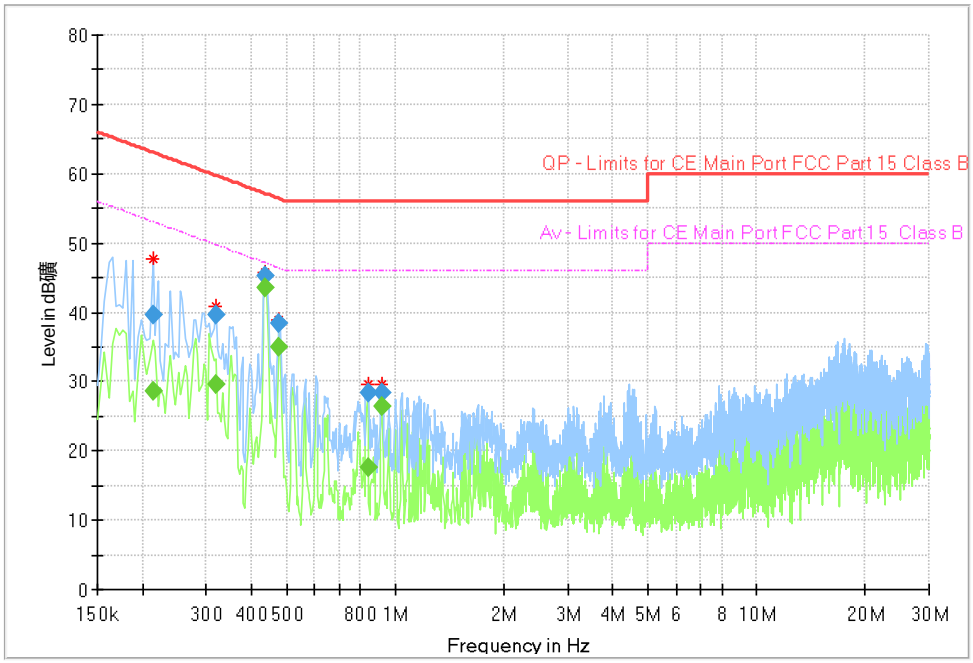
Final Result 1

Frequency (MHz)	QuasiPeak (dB µ V)	Average (dB µ V)	Limit (dB µ V)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.291788	---	30.82	50.47	19.65	15000.0	9.000	N	ON	9.6
0.291788	39.24	---	60.47	21.23	15000.0	9.000	N	ON	9.6
0.321638	38.12	---	59.66	21.55	15000.0	9.000	L1	ON	9.6
0.321638	---	29.68	49.66	19.98	15000.0	9.000	L1	ON	9.6
0.396263	---	24.08	47.93	23.85	15000.0	9.000	L1	ON	9.6
0.396263	30.54	---	57.93	27.39	15000.0	9.000	L1	ON	9.6
0.437306	---	42.11	47.11	5.01	15000.0	9.000	N	ON	9.6
0.437306	44.24	---	57.11	12.88	15000.0	9.000	N	ON	9.6
0.470888	---	33.22	46.50	13.28	15000.0	9.000	N	ON	9.6
0.470888	37.00	---	56.50	19.50	15000.0	9.000	N	ON	9.6
0.911175	26.49	---	56.00	29.51	15000.0	9.000	L1	ON	9.6
0.911175	---	22.72	46.00	23.28	15000.0	9.000	L1	ON	9.6

Note:

1. Emission level(quasi-peak or Average peak)=Raw value by receiver + Corr(Insertion loss+ cable loss)
2. The raw value is used to calculate by software which is not shown in the sheet.
3. Margin=limit value – emission level.
4. L1 and N line is all have been tested, the result of them is synthesized in the above data diagram.

N04 (Secondary Supply):



Mode 6

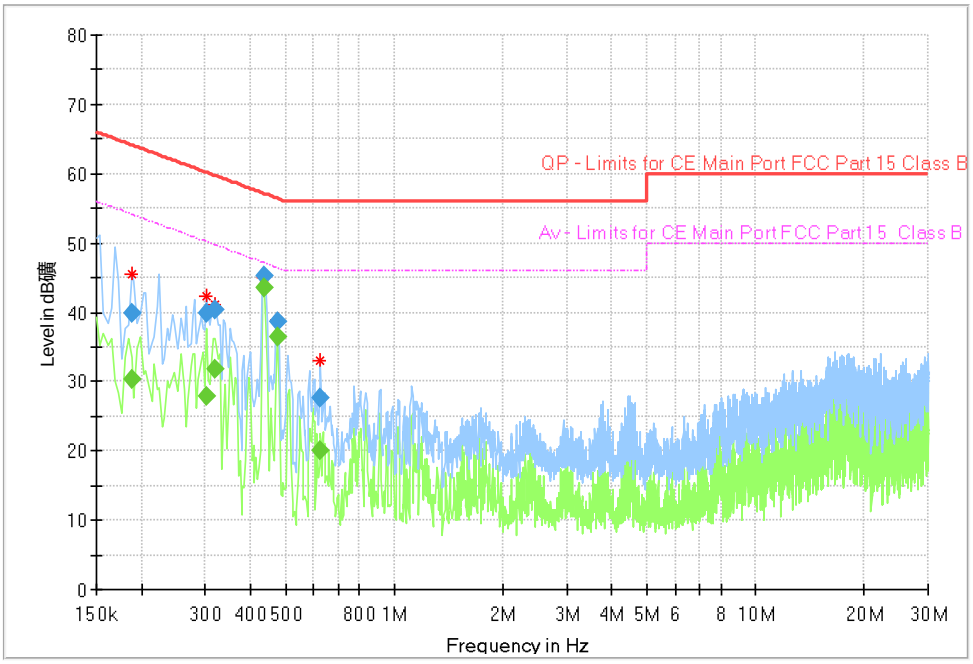
Final Result 1

Frequency (MHz)	QuasiPeak (dB µ V)	Average (dB µ V)	Limit (dB µ V)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.213431	39.75	---	63.07	23.32	15000.0	9.000	N	ON	9.6
0.213431	---	28.54	53.07	24.53	15000.0	9.000	N	ON	9.6
0.317906	---	29.65	49.76	20.11	15000.0	9.000	N	ON	9.6
0.317906	39.65	---	59.76	20.11	15000.0	9.000	N	ON	9.6
0.437306	45.21	---	57.11	11.90	15000.0	9.000	N	ON	9.6
0.437306	---	43.43	47.11	3.68	15000.0	9.000	N	ON	9.6
0.478350	38.39	---	56.37	17.98	15000.0	9.000	N	ON	9.6
0.478350	---	34.88	46.37	11.49	15000.0	9.000	N	ON	9.6
0.840281	28.30	---	56.00	27.70	15000.0	9.000	N	ON	9.6
0.840281	---	17.69	46.00	28.31	15000.0	9.000	N	ON	9.6
0.918638	---	26.47	46.00	19.53	15000.0	9.000	L1	ON	9.6
0.918638	28.28	---	56.00	27.72	15000.0	9.000	L1	ON	9.6

Note:

1. Emission level(quasi-peak or Average peak)=Raw value by receiver + Corr(Insertion loss+ cable loss)
2. The raw value is used to calculate by software which is not shown in the sheet.
3. Margin=limit value – emission level.
4. L1 and N line is all have been tested, the result of them is synthesized in the above data diagram.

N02 (Thirdly Supply):



Mode 9

Final Result 1

Frequency (MHz)	QuasiPeak (dB µ V)	Average (dB µ V)	Limit (dB µ V)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.187313	39.93	---	64.16	24.23	15000.0	9.000	N	ON	9.6
0.187313	---	30.35	54.16	23.81	15000.0	9.000	N	ON	9.6
0.302981	39.77	---	60.16	20.39	15000.0	9.000	N	ON	9.6
0.302981	---	27.79	50.16	22.37	15000.0	9.000	N	ON	9.6
0.317906	40.40	---	59.76	19.36	15000.0	9.000	L1	ON	9.6
0.317906	---	31.71	49.76	18.05	15000.0	9.000	L1	ON	9.6
0.437306	45.20	---	57.11	11.91	15000.0	9.000	N	ON	9.6
0.437306	---	43.55	47.11	3.56	15000.0	9.000	N	ON	9.6
0.474619	---	36.46	46.43	9.97	15000.0	9.000	N	ON	9.6
0.474619	38.58	---	56.43	17.86	15000.0	9.000	N	ON	9.6
0.623869	---	19.99	46.00	26.01	15000.0	9.000	L1	ON	9.6
0.623869	27.68	---	56.00	28.32	15000.0	9.000	L1	ON	9.6

Note:

1. Emission level(quasi-peak or Average peak)=Raw value by receiver + Corr(Insertion loss+ cable loss)
2. The raw value is used to calculate by software which is not shown in the sheet.
3. Margin=limit value – emission level.
4. L1 and N line is all have been tested, the result of them is synthesized in the above data diagram.

7. Test Equipment List

7.1. Radiated Emission Equipment list

Item	Equipment Name	Type	Serial Number	Manufacturer	Cal. Date	Cal. interval
1	Test Receiver	ESU40	100307	R&S	2021-03-03	1 year
2	Trilog Antenna	VULB9163	VULB9163-515	Schwarzbeck	2021-02-03	2 years
3	Double Ridged Guide Antenna	ETS-3117	00135890	ETS	2020-02-28	2 years
4	EMI Test Software	EMC32 V9.15	N/A	R&S	N/A	N/A

7.2. AC Conducted Emission Equipment list

Item	Equipment Name	Type	Serial Number	Manufacturer	Cal. Date	Cal. interval
1	Test Receiver	ESCI	101235	R&S	2021-05-10	1 year
2	2-Line V-Network	ENV216	101380	R&S	2021-03-20	1 year
3	EMI Test Software	EMC32 V10.35.02	N/A	R&S	N/A	N/A

Annex A: Measurement Uncertain

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of *k*=2.

Case	Uncertainty
Radiated Emission 30MHz-1000MHz	4.96 dB
Radiated Emission 1000MHz-18000MHz	5.18 dB
AC Conducted Emission	3.66 dB

Annex B: Accreditation Certificate

Accredited Laboratory

A2LA has accredited

INDUSTRIAL INTERNET INNOVATION CENTER (SHANGHAI) CO., LTD.

Shanghai, People's Republic of China

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated April 2017*).

Presented this 12th day of April 2021.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 3682.01
Valid to February 28, 2023

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

************END OF REPORT************