

RADIO PERFORMANCE TEST REPORT

Test Report No. : OT-211-RWD-015

Reception No. : 2011004466

Applicant : mikai co.,ltd

Address : #225 Shinsung Tower 25 Juanjungro Michuholgu Incheon 22140 South Korea

Manufacturer : mikai co.,ltd

Address : #225 Shinsung Tower 25 Juanjungro Michuholgu Incheon 22140 South Korea

Type of Equipment : Smartphone wireless charger with sterilizing

FCC ID. : 2AYNY-DALBITSS300

Model Name : dalbit ss300

Multiple Model Name : N/A

Serial number : N/A

Total page of Report : 37 pages (including this page)

Date of Incoming : November 11, 2020

Date of issue : January 12, 2021

SUMMARY

The equipment complies with the regulation; **FCC CFR47 Part 15 Subpart C Section 15.207 and 15.209**

This test report only contains the result of a single test of the sample supplied for the examination.

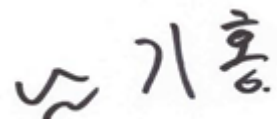
It is not a generally valid assessment of the features of the respective products of the mass-production.



Tested by
/ Sieon Lee / Assistant Manager
ONETECH Corp.



Reviewed by
/ Ha-Ram Lee / Manager
ONETECH Corp.



Approved by
/ Ki-Hong, Nam / General Manager
ONETECH Corp.

CONTENTS

PAGE

1. VERIFICATION OF COMPLIANCE	5
2. TEST SUMMARY	6
2.1 TEST ITEMS AND RESULTS	6
2.2 ADDITIONS, DEVIATIONS, EXCLUSIONS FROM STANDARDS.....	6
2.3 RELATED SUBMITTAL(S) / GRANT(S)	6
2.4 PURPOSE OF THE TEST	6
2.5 TEST METHODOLOGY.....	6
2.6 TEST FACILITY.....	6
3. GENERAL INFORMATION	7
3.1 PRODUCT DESCRIPTION.....	7
3.2 ALTERNATIVE TYPE(S)/MODEL(S); ALSO COVERED BY THIS TEST REPORT.....	7
4. EUT MODIFICATIONS	7
5. SYSTEM TEST CONFIGURATION	8
5.1 JUSTIFICATION.....	8
5.2 PERIPHERAL EQUIPMENT	8
5.3 MODE OF OPERATION DURING THE TEST	8
5.4 CONFIGURATION OF TEST SYSTEM.....	9
5.5 ANTENNA REQUIREMENT	9
6. PRELIMINARY TEST	10
6.1 AC POWER LINE CONDUCTED EMISSIONS TESTS.....	10
7. SPURIOUS EMISSION TEST	11
7.1 REGULATION	11
7.2 TEST SET-UP	11
7.3 TEST DATE.....	11
7.4 TEST DATA FOR USING MAX LOAD (5 V).....	12
7.4.1 Spurious Radiated Emission Below 30 MHz	12
7.4.2 Spurious Radiated Emission below 1 GHz.....	13
7.5 TEST DATA FOR USING MAX LOAD (9 V).....	14
7.5.1 Spurious Radiated Emission Below 30 MHz	14
7.5.2 Spurious Radiated Emission below 1 GHz.....	15
7.6 TEST DATA FOR USING MAX LOAD (12 V).....	16

7.6.1 Spurious Radiated Emission Below 30 MHz	16
7.6.2 Spurious Radiated Emission below 1 GHz.....	17
7.7 TEST DATA FOR USING MID. LOAD (5 V).....	18
7.7.1 Spurious Radiated Emission Below 30 MHz	18
7.7.2 Spurious Radiated Emission below 1 GHz.....	19
7.8 TEST DATA FOR USING MID. LOAD (9 V).....	20
7.8.1 Spurious Radiated Emission Below 30 MHz	20
7.8.2 Spurious Radiated Emission below 1 GHz.....	21
7.9 TEST DATA FOR USING MID. LOAD (12 V).....	22
7.9.1 Spurious Radiated Emission Below 30 MHz	22
7.9.2 Spurious Radiated Emission below 1 GHz.....	23
7.10 TEST DATA FOR USING MIN. LOAD (5 V).....	24
7.10.1 Spurious Radiated Emission Below 30 MHz	24
7.10.2 Spurious Radiated Emission below 1 GHz.....	25
7.11 TEST DATA FOR USING MIN. LOAD (9 V).....	26
7.11.1 Spurious Radiated Emission Below 30 MHz	26
7.11.2 Spurious Radiated Emission Below 1 GHz	27
7.12 TEST DATA FOR USING MIN. LOAD (12 V).....	28
7.12.1 Spurious Radiated Emission Below 30 MHz	28
7.12.2 Spurious Radiated Emission Below 1 GHz	29
8. CONDUCTED EMISSION TEST.....	30
8.1 OPERATING ENVIRONMENT	30
8.2 TEST SET-UP	30
8.3 TEST EQUIPMENT USED	30
8.4 TEST DATE	30
8.5 TEST DATA FOR 5 V	31
8.6 TEST DATA FOR 9 V	33
8.7 TEST DATA FOR 12 V	35
9. LIST OF TEST EQUIPMENT	37

Revision History

Issue Report No.	Issued Date	Revisions	Effect Section
OT-211-RWD-015	January 12, 2021	Initial Release	All

1. VERIFICATION OF COMPLIANCE

APPLICANT : mikai co.,ltd
 ADDRESS : #225 Shinsung Tower 25 Juanjungro Michuholgu Incheon 22140 South Korea
 CONTACT PERSON : Ryu, Hyunil / CEO
 TELEPHONE NO : +82-32-423-2441
 FCC ID : 2AYNY-DALBITSS300
 MODEL NAME : dalbit ss300
 BRAND NAME : mikai
 SERIAL NUMBER : N/A
 DATE : January 12, 2021

EQUIPMENT CLASS	DCD – Part 15 Low Power Transmitter Below 1 705 kHz
KIND OF EQUIPMENT	Smartphone wireless charger with sterilizing
THIS REPORT CONCERNS	Original Grant
MEASUREMENT PROCEDURES	ANSI C63.10: 2013
TYPE OF EQUIPMENT TESTED	Pre-Production
KIND OF EQUIPMENT AUTHORIZATION REQUESTED	Certification
EQUIPMENT WILL BE OPERATED UNDER FCC&IC RULES PART(S)	FCC CFR47 Part 15 Subpart C Section 15.207 and 15.209
MODIFICATIONS ON THE EQUIPMENT TO ACHIEVE COMPLIANCE	No
FINAL TEST WAS CONDUCTED ON	3 m, Semi Anechoic Chamber

-. The above equipment was tested by ONETECH Corp. for compliance with the requirement set forth in the FCC Rules and Regulations. The equipment in the configuration described in this report shows the maximum emission levels emanating from equipment are within the compliance requirements.

2. TEST SUMMARY

2.1 Test items and results

SECTION	TEST ITEMS	RESULTS
15.209, 15.209(a)	Radiated emission, Spurious Emission and Field Strength of Fundamental	Met the Limit / PASS
15.207	Transmitter AC Power Line Conducted Emission	Met the Limit / PASS

2.2 Additions, deviations, exclusions from standards

No additions, deviations or exclusions have been made from standard.

2.3 Related Submittal(s) / Grant(s)

Original submittal only

2.4 Purpose of the test

To determine whether the equipment under test fulfills the requirements of the regulation stated in FCC CFR47 Part 15 Subpart C Section 15.207 and 15.209.

2.5 Test Methodology

Radiated testing was performed according to the procedures in ANSI C63.10: 2013 at a distance of 3 m from EUT to the antenna.

2.6 Test Facility

The ONETECH Corp. has been designated to perform equipment testing in compliance with ISO/IEC 17025.

The Electromagnetic compatibility measurement facilities are located at 301-14, Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do, 464-862 Korea.

-. Site Filing:

VCCI (Voluntary Control Council for Interference) – Registration No. R-20122/ C-14617/ G-10666/ T-11842

ISED (Innovation, Science and Economic Development Canada) – Registration No. Site# 3736A-3

-. Site Accreditation:

KOLAS (Korea Laboratory Accreditation Scheme) - Accreditation NO. KT085

FCC (Federal Communications Commission) - Accreditation No. KR0013

RRA (Radio Research Agency) – Designation No. KR0013

3. GENERAL INFORMATION

3.1 Product Description

The mikai co.,ltd, Model: dalbit ss300 (referred to as the EUT in this report) is an Smartphone wireless charger with sterilizing. Product specification information described herein was obtained from product data sheet or user's manual.

DEVICE TYPE	Wireless Charger
OPERATING FREQUENCY	110 kHz ~ 205 kHz
RATED RF OUTPUT POWER	60.7 dB μ V/m
ANTENNA TYPE	Coil Antenna
MODULATION	ASK
RATED SUPPLY VOLTAGE	DC 5.0 V, DC 9.0 V, DC 12.0 V

3.2 Alternative type(s)/model(s); also covered by this test report.

-. None

4. EUT MODIFICATIONS

-. None

5. SYSTEM TEST CONFIGURATION

5.1 Justification

This device was configured for testing in a typical way as a normal customer is supposed to be used. During the test, the following components were installed inside of the EUT.

DEVICE TYPE	MANUFACTURER	MODEL/PART NUMBER	FCC ID
Main Board	N/A	N/A	N/A

5.2 Peripheral equipment

Model	Manufacturer	Description	Connected to
N/A	N/A	DUMMY load	N/A

5.3 Mode of operation during the test

For the testing, software used to control the EUT for staying in continuous transmitting is programmed.

For final testing, the EUT was set as following condition.

- Max. load (113 kHz), Mid. load (127 kHz), and Min. load (141 kHz) for 5V.
- Max. load (112 kHz), Mid. load (127 kHz), and Min. load (141 kHz) for 9V.
- Max. load (111 kHz), Mid. load (127 kHz), and Min. load (144 kHz) for 12V.

To get a maximum emission levels from the EUT, the EUT was moved throughout the XY, XZ, and YZ planes and the worst case is "XY" axis.

Mode	Charging current	Description
Charging Mode With load	1 250 mA (12 V) / 1 670 mA (9 V) / 3 000 mA (5 V)	Using Max. load
	625 mA (12 V) / 835 mA (9 V) / 1 500 mA (5 V)	Using Mid. load
	100 mA (12 V, 9 V, 5 V)	Using Min. load

5.4 Configuration of Test System

Line Conducted Test : The EUT was tested in a charging mode. The EUT was connected to USB and the power of USB was connected to Adapter. All supporting equipment were connected to another LISN. Preliminary Power line Conducted Emission test was performed by using the procedure in ANSI C63.4: 2009 7.3.3 to determine the worse operating conditions.

Radiated Emission Test : Preliminary radiated emissions test were conducted using the procedure in ANSI C63.10: 2013 to determine the worse operating conditions. Final radiated emission tests were conducted at 3 m Semi Anechoic Chamber.

The turntable was rotated through 360 degrees and the EUT was tested by positioned three orthogonal planes to obtain the highest reading on the field strength meter. Once maximum reading was determined, the search antenna was raised and lowered in both vertical and horizontal polarization.

5.5 Antenna Requirement

According to section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

Antenna Construction:

The antenna of the EUT is a Coil Antenna on the main board in the EUT, so no consideration of replacement by the user.

6. PRELIMINARY TEST

6.1 AC Power line Conducted Emissions Tests

During Preliminary Tests, the following operating modes were investigated

Operation Mode	The Worse operating condition (Please check one only)
Transmitting Mode	X

6.2 General Radiated Emissions Tests

During Preliminary Tests, the following operating modes were investigated

Operation Mode	The Worse operating condition (Please check one only)
Transmitting Mode	X

7. Spurious Emission Test

7.1 Regulation

According to §15.209(a), for an intentional device, the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency [MHz]	Field strength [μ V/m]	Field strength [dBμ V/m]	Measurement distance [m]
0.009 ~ 0.490	2 400 / F (kHz)	48.52 ~ 13.80	300
0.490 ~ 1.705	24 000 / F (kHz)	33.8 ~ 22.97	30
1.705 ~ 30	30	29.50	30
30 ~ 88	*100	40.00	3
88 ~ 216	*150	43.52	3
216 ~ 960	*200	46.02	3
Above 960	500	53.98	3

*Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54 ~ 72 MHz, 76 ~ 88 MHz, 174 ~ 216 MHz or 470 ~ 806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

7.2 Test set-up

The radiated emissions measurements were on the 3 m semi anechoic chamber. The EUT and other support equipment were placed on a non-conductive turntable above the ground plane. The interconnecting cables from outside test site were inserted into ferrite clamps at the point where the cables reach the turntable.

The frequency spectrum from 30 kHz to 1 GHz was scanned and maximum emission levels at each frequency recorded. The system was rotated 360°, and the antenna was varied in the height between 1.0 m and 4.0 ms in order to determine the maximum emission levels. This procedure was performed for horizontal and vertical polarization of the receiving antenna.

7.3 Test date

November 16, 2020

7.4 Test data for Using Max load (5 V)

7.4.1 Spurious Radiated Emission Below 30 MHz

Humidity Level : 50 % R.H.

Temperature: 22 °C

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209

Frequency Range : 9 kHz ~ 30 MHz

Result : PASSED

EUT : Smartphone wireless charger with sterilizing

Operating Condition : Transmitting Mode

Frequency (MHz)	Detector	Ant. Pol. (H/V)	Reading (dBμV)	Ant. Factor (dB/m)	Cable Loss	Emission Level at 3m (dBμV/m)	Emission Level at 300m (dBμV/m)	Limit at 300m (dBμV/m)	Margin (dB)
0.035	AV	V	32.4	20.5	0.1	53.0	-27.0	36.7	63.7
*0.113	AV	H	57.2	20.8	0.2	78.2	-1.8	26.5	28.3
0.329	AV	H	28.6	20.8	0.2	49.6	-30.4	17.3	47.7

Frequency (MHz)	Detector	Ant. Pol. (H/V)	Reading (dBμV)	Ant. Factor (dB/m)	Cable Loss	Emission Level at 3m (dBμV/m)	Emission Level at 30m (dBμV/m)	Limit at 30m (dBμV/m)	Margin (dB)
0.538	QP	H	23.7	20.7	0.2	44.6	4.6	33.0	28.4
0.777	QP	H	20.0	20.7	0.2	40.9	0.9	29.8	28.9
23.642	QP	V	37.4	20.5	1.0	58.9	18.9	29.5	10.6

-. Remark: "H" Horizontal, "V" Vertical

-. "*" Means Fundamental frequency

-. Emission Level at 3m [dB μ V/m] = Reading [dBμV] + Ant. Factor [dB/m] + Cable Loss [dB]

-. Margin [dB] = Emission Level at 300m [dBμV/m] – Limit at 300m [dBμV/m]

= Emission Level at 300m [dBμV/m] – Limit at 30m [dBμV/m]

-. Emission Level at 300m [dBμV/m] = Emission Level at 3m [dBμV/m] - 40log (300/3), 80 dB for up to 0.49 MHz

-. Emission Level at 30m [dBμV/m] = Emission Level at 3m [dBμV/m] - 40log (30/3), 40 dB for above 0.49 MHz, Below 30 MHz

7.4.2 Spurious Radiated Emission below 1 GHz

The following table shows the highest levels of radiated emissions on both polarizations of horizontal and vertical.

Humidity Level : 50 % R.H.

Temperature: 22 °C

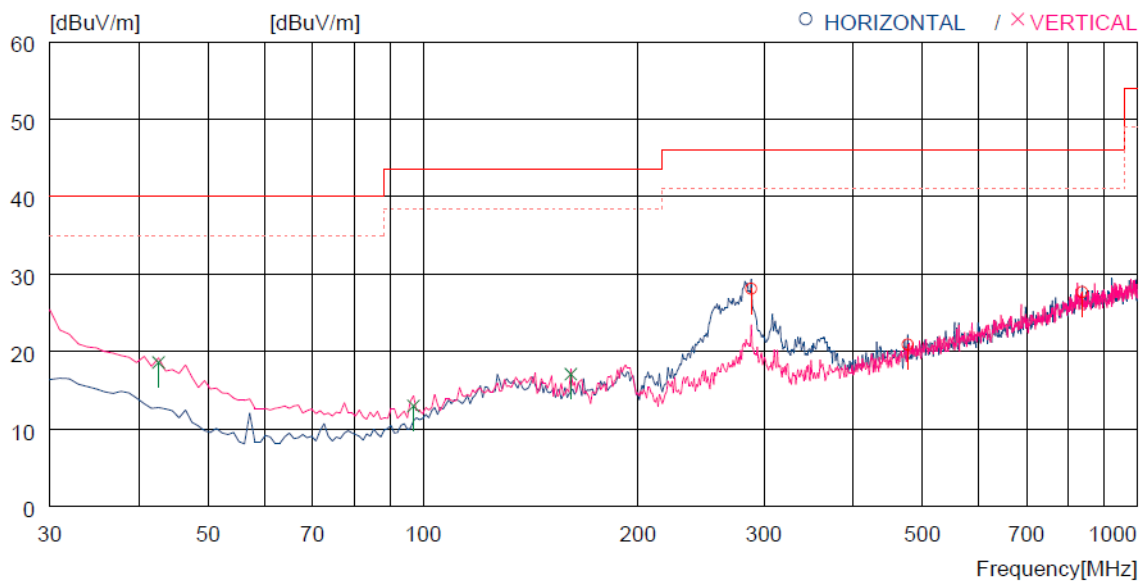
Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209

Frequency range : 30 MHz ~ 1 000 MHz

Result : PASSED

EUT : Smartphone wireless charger with sterilizing

Operating Condition : Transmitting Mode



No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	[dBuV]	[dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Horizontal -----										
1	288.020	39.1	18.9	2.1	32.0	28.1	46.0	17.9	100	359
2	477.171	28.0	22.6	2.6	32.3	20.9	46.0	25.1	100	184
3	837.031	28.2	27.2	4.2	31.9	27.7	46.0	18.3	100	308
----- Vertical -----										
4	42.610	33.5	16.2	0.9	32.0	18.6	40.0	21.4	110	0
5	96.930	29.1	14.7	1.2	32.0	13.0	43.5	30.5	110	0
6	160.950	29.7	17.8	1.6	32.0	17.1	43.5	26.4	100	359

7.5 Test data for Using Max load (9 V)

7.5.1 Spurious Radiated Emission Below 30 MHz

Humidity Level : 50 % R.H.

Temperature: 22 °C

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209

Frequency Range : 9 kHz ~ 30 MHz

Result : PASSED

EUT : Smartphone wireless charger with sterilizing

Operating Condition : Transmitting Mode

Frequency (MHz)	Detector	Ant. Pol. (H/V)	Reading (dBμV)	Ant. Factor (dB/m)	Cable Loss	Emission Level at 3m (dBμV/m)	Emission Level at 300m (dBμV/m)	Limit at 300m (dBμV/m)	Margin (dB)
0.035	AV	V	31.8	20.5	0.1	52.4	-27.6	36.7	64.3
*0.112	AV	H	59.7	20.8	0.2	80.7	0.7	26.6	25.9
0.329	AV	H	31.7	20.8	0.2	52.7	-27.3	17.3	44.6

Frequency (MHz)	Detector	Ant. Pol. (H/V)	Reading (dBμV)	Ant. Factor (dB/m)	Cable Loss	Emission Level at 3m (dBμV/m)	Emission Level at 30m (dBμV/m)	Limit at 30m (dBμV/m)	Margin (dB)
0.538	QP	H	24.6	20.7	0.2	45.5	5.5	33.0	27.5
0.777	QP	H	22.0	20.7	0.2	42.9	2.9	29.8	26.9
23.463	QP	V	37.5	20.5	1.0	59.0	19.0	29.5	10.5

-. Remark: "H" Horizontal, "V" Vertical

-. "*" Means Fundamental frequency

-. Emission Level at 3m [dB μ V/m] = Reading [dBμV] + Ant. Factor [dB/m] + Cable Loss [dB]

-. Margin [dB] = Emission Level at 300m [dBμV/m] – Limit at 300m [dBμV/m]

= Emission Level at 300m [dBμV/m] – Limit at 30m [dBμV/m]

-. Emission Level at 300m [dBμV/m] = Emission Level at 3m [dBμV/m] - 40log (300/3), 80 dB for up to 0.49 MHz

-. Emission Level at 30m [dBμV/m] = Emission Level at 3m [dBμV/m] - 40log (30/3), 40 dB for above 0.49 MHz, Below 30 MHz

7.5.2 Spurious Radiated Emission below 1 GHz

The following table shows the highest levels of radiated emissions on both polarizations of horizontal and vertical.

Humidity Level : 50 % R.H.

Temperature: 22 °C

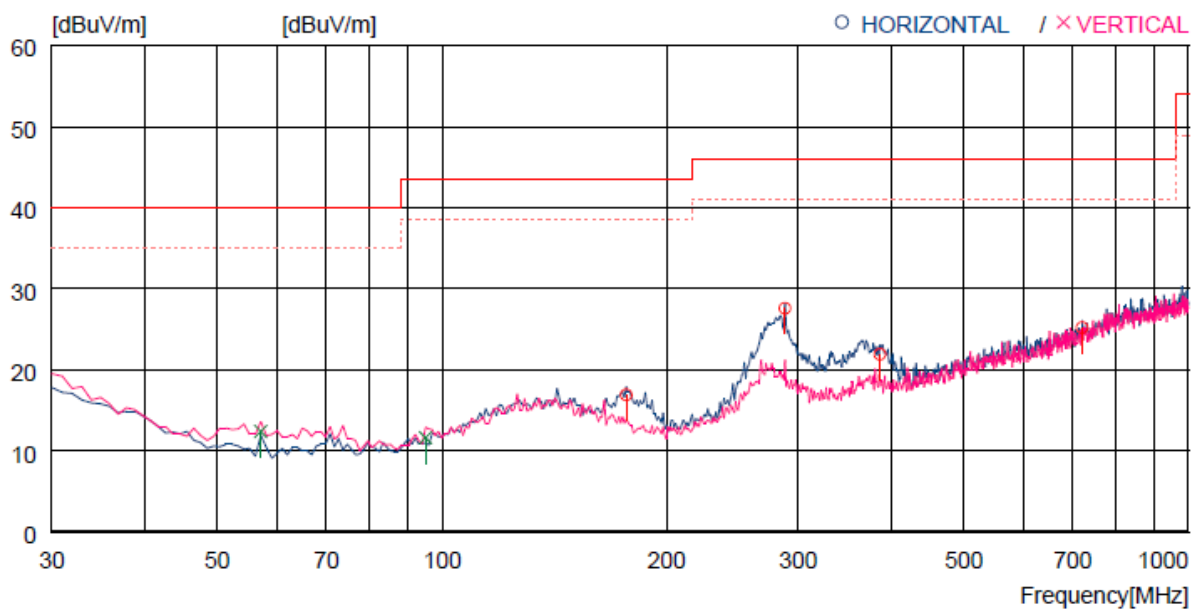
Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209

Frequency range : 30 MHz ~ 1 000 MHz

Result : PASSED

EUT : Smartphone wireless charger with sterilizing

Operating Condition : Transmitting Mode



No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA TABLE	
	[MHz]	[dBuV]	[dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
---- Horizontal ----										
1	176.470	30.4	16.8	1.7	32.0	16.9	43.5	26.6	200	0
2	288.020	38.6	18.9	2.1	32.0	27.6	46.0	18.4	100	140
3	385.990	31.2	20.5	2.3	32.1	21.9	46.0	24.1	100	359
4	720.634	28.0	25.9	3.5	32.2	25.2	46.0	20.8	200	75
---- Vertical ----										
5	57.160	31.2	12.4	0.9	32.1	12.4	40.0	27.6	400	358
6	94.990	28.0	14.4	1.2	32.0	11.6	43.5	31.9	400	0

7.6 Test data for Using Max load (12 V)

7.6.1 Spurious Radiated Emission Below 30 MHz

Humidity Level : 50 % R.H.

Temperature: 22 °C

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209

Frequency Range : 9 kHz ~ 30 MHz

Result : PASSED

EUT : Smartphone wireless charger with sterilizing

Operating Condition : Transmitting Mode

Frequency (MHz)	Detector	Ant. Pol. (H/V)	Reading (dBμV)	Ant. Factor (dB/m)	Cable Loss	Emission Level at 3m (dBμV/m)	Emission Level at 300m (dBμV/m)	Limit at 300m (dBμV/m)	Margin (dB)
0.035	AV	V	32.4	20.5	0.1	53.0	-27.0	36.7	63.7
*0.111	AV	H	60.7	20.8	0.2	81.7	1.7	26.7	25.0
0.329	AV	H	31.0	20.8	0.2	52.0	-28.0	17.3	45.3

Frequency (MHz)	Detector	Ant. Pol. (H/V)	Reading (dBμV)	Ant. Factor (dB/m)	Cable Loss	Emission Level at 3m (dBμV/m)	Emission Level at 30m (dBμV/m)	Limit at 30m (dBμV/m)	Margin (dB)
0.538	QP	H	28.0	20.7	0.2	48.9	8.9	33.0	24.1
0.777	QP	H	21.0	20.7	0.2	41.9	1.9	29.8	27.9
24.448	QP	V	42.0	20.4	1.0	63.4	23.4	29.5	6.1

-. Remark: "H" Horizontal, "V" Vertical

-. "*" Means Fundamental frequency

-. Emission Level at 3m [dB μ V/m] = Reading [dBμV] + Ant. Factor [dB/m] + Cable Loss [dB]

-. Margin [dB] = Emission Level at 300m [dBμV/m] – Limit at 300m [dBμV/m]

= Emission Level at 300m [dBμV/m] – Limit at 30m [dBμV/m]

-. Emission Level at 300m [dBμV/m] = Emission Level at 3m [dBμV/m] - 40log (300/3), 80 dB for up to 0.49 MHz

-. Emission Level at 30m [dBμV/m] = Emission Level at 3m [dBμV/m] - 40log (30/3), 40 dB for above 0.49 MHz, Below 30 MHz

7.6.2 Spurious Radiated Emission below 1 GHz

The following table shows the highest levels of radiated emissions on both polarizations of horizontal and vertical.

Humidity Level : 50 % R.H.

Temperature: 22 °C

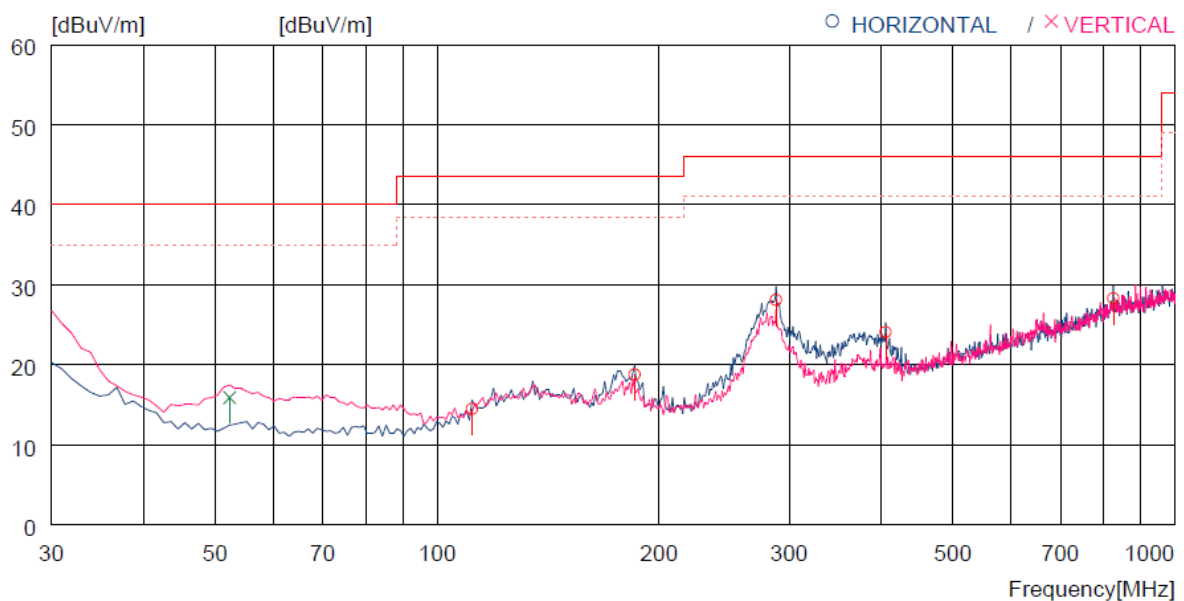
Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209

Frequency range : 30 MHz ~ 1 000 MHz

Result : PASSED

EUT : Smartphone wireless charger with sterilizing

Operating Condition : Transmitting Mode



No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA TABLE	
	[MHz]	[dBuV]	[dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Horizontal -----										
1	111.480	28.0	17.2	1.3	32.0	14.5	43.5	29.0	300	149
2	185.200	32.8	16.3	1.7	32.0	18.8	43.5	24.7	200	122
3	288.020	39.1	18.9	2.1	32.0	28.1	46.0	17.9	100	133
4	405.390	33.0	20.8	2.4	32.1	24.1	46.0	21.9	100	159
5	825.391	28.9	27.2	4.1	31.9	28.3	46.0	17.7	200	0
----- Vertical -----										
6	52.310	34.2	12.9	0.9	32.1	15.9	40.0	24.1	100	0

7.7 Test data for Using Mid. load (5 V)

7.7.1 Spurious Radiated Emission Below 30 MHz

Humidity Level : 50 % R.H.

Temperature: 22 °C

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209

Frequency Range : 9 kHz ~ 30 MHz

Result : PASSED

EUT : Smartphone wireless charger with sterilizing

Operating Condition : Transmitting Mode

Frequency (MHz)	Detector	Ant. Pol. (H/V)	Reading (dBμV)	Ant. Factor (dB/m)	Cable Loss	Emission Level at 3m (dBμV/m)	Emission Level at 300m (dBμV/m)	Limit at 300m (dBμV/m)	Margin (dB)
0.035	AV	H	31.4	20.5	0.1	52.0	-28.0	36.7	64.7
*0.127	AV	H	51.3	20.8	0.2	72.3	-7.7	25.5	33.2
0.240	AV	H	30.0	20.8	0.2	51.0	-29.0	20.0	49.0
0.329	AV	H	22.1	20.8	0.2	43.1	-36.9	17.3	54.2

Frequency (MHz)	Detector	Ant. Pol. (H/V)	Reading (dBμV)	Ant. Factor (dB/m)	Cable Loss	Emission Level at 3m (dBμV/m)	Emission Level at 30m (dBμV/m)	Limit at 30m (dBμV/m)	Margin (dB)
0.508	QP	H	15.4	20.7	0.2	36.3	-3.7	33.5	37.2
25.045	QP	V	36.9	20.4	1.0	58.3	18.3	29.5	11.2

-. Remark: "H" Horizontal, "V" Vertical

-. "*" Means Fundamental frequency

-. Emission Level at 3m [dB μ V/m] = Reading [dBμV] + Ant. Factor [dB/m] + Cable Loss [dB]

-. Margin [dB] = Emission Level at 300m [dBμV/m] – Limit at 300m [dBμV/m]

= Emission Level at 300m [dBμV/m] – Limit at 30m [dBμV/m]

-. Emission Level at 300m [dBμV/m] = Emission Level at 3m [dBμV/m] - 40log (300/3), 80 dB for up to 0.49 MHz

-. Emission Level at 30m [dBμV/m] = Emission Level at 3m [dBμV/m] - 40log (30/3), 40 dB for above 0.49 MHz, Below 30 MHz

7.7.2 Spurious Radiated Emission below 1 GHz

The following table shows the highest levels of radiated emissions on both polarizations of horizontal and vertical.

Humidity Level : 50 % R.H. Temperature: 22 °C

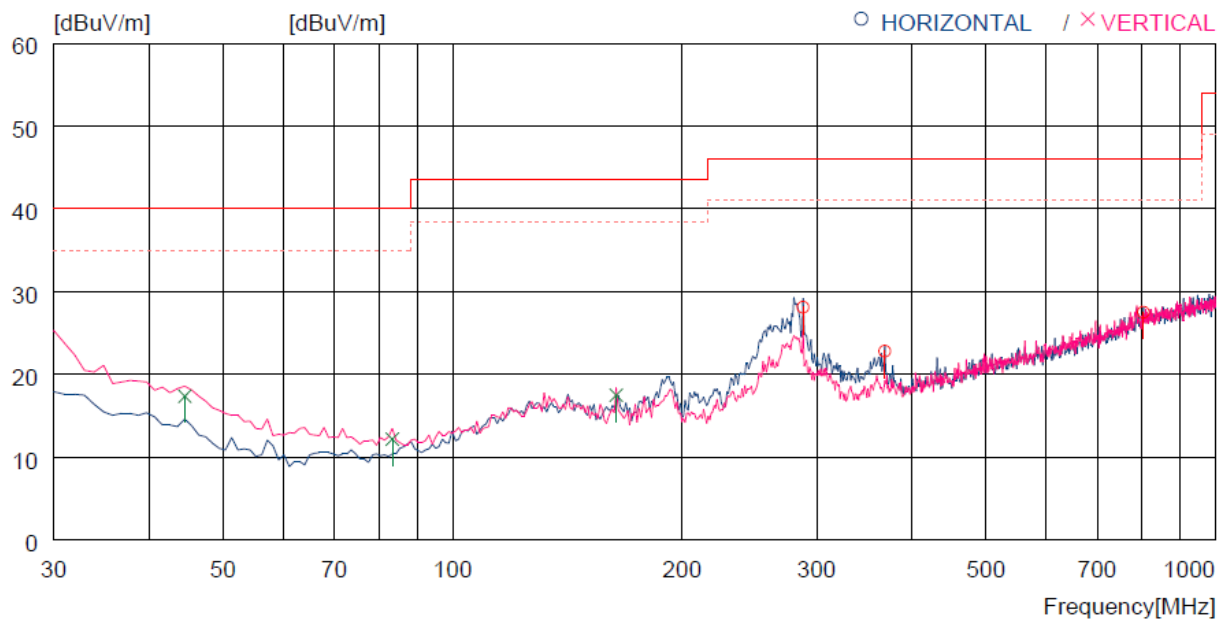
Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209

Frequency range : 30 MHz ~ 1 000 MHz

Result : PASSED

EUT : Smartphone wireless charger with sterilizing

Operating Condition : Transmitting Mode



No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA TABLE	
	[MHz]	[dBuV]	[dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Horizontal -----										
1	288.020	39.1	18.9	2.1	32.0	28.1	46.0	17.9	100	359
2	368.530	32.4	20.2	2.3	32.1	22.8	46.0	23.2	100	79
3	805.022	28.4	27.1	4.0	32.0	27.5	46.0	18.5	200	0
----- Vertical -----										
4	44.550	33.1	15.4	0.9	32.0	17.4	40.0	22.6	100	0
5	83.350	30.0	13.1	1.1	32.0	12.2	40.0	27.8	100	0
6	163.860	30.3	17.6	1.6	32.0	17.5	43.5	26.0	100	3

7.8 Test data for Using Mid. load (9 V)

7.8.1 Spurious Radiated Emission Below 30 MHz

Humidity Level : 50 % R.H.

Temperature: 22 °C

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209

Frequency Range : 9 kHz ~ 30 MHz

Result : PASSED

EUT : Smartphone wireless charger with sterilizing

Operating Condition : Transmitting Mode

Frequency (MHz)	Detector	Ant. Pol. (H/V)	Reading (dBμV)	Ant. Factor (dB/m)	Cable Loss	Emission Level at 3m (dBμV/m)	Emission Level at 300m (dBμV/m)	Limit at 300m (dBμV/m)	Margin (dB)
0.035	AV	H	32.5	20.5	0.1	53.1	-26.9	36.7	63.6
*0.127	AV	H	58.1	20.8	0.2	79.1	-0.9	25.5	26.4
0.240	AV	H	33.4	20.8	0.2	54.4	-25.6	20.0	45.6
0.359	AV	H	29.0	20.8	0.2	50.0	-30.0	16.5	46.5
0.478	AV	H	28.5	20.7	0.2	49.4	-30.6	14.0	44.6

Frequency (MHz)	Detector	Ant. Pol. (H/V)	Reading (dBμV)	Ant. Factor (dB/m)	Cable Loss	Emission Level at 3m (dBμV/m)	Emission Level at 30m (dBμV/m)	Limit at 30m (dBμV/m)	Margin (dB)
23.911	QP	V	37.6	20.5	1.0	59.1	19.1	29.5	10.4

-. Remark: "H" Horizontal, "V" Vertical

-. "*" Means Fundamental frequency

-. Emission Level at 3m [dB μ V/m] = Reading [dBμV] + Ant. Factor [dB/m] + Cable Loss [dB]

-. Margin [dB] = Emission Level at 300m [dBμV/m] – Limit at 300m [dBμV/m]

= Emission Level at 300m [dBμV/m] – Limit at 30m [dBμV/m]

-. Emission Level at 300m [dBμV/m] = Emission Level at 3m [dBμV/m] - 40log (300/3), 80 dB for up to 0.49 MHz

-. Emission Level at 30m [dBμV/m] = Emission Level at 3m [dBμV/m] - 40log (30/3), 40 dB for above 0.49 MHz, Below 30 MHz

7.8.2 Spurious Radiated Emission below 1 GHz

The following table shows the highest levels of radiated emissions on both polarizations of horizontal and vertical.

Humidity Level : 50 % R.H. Temperature: 22 °C

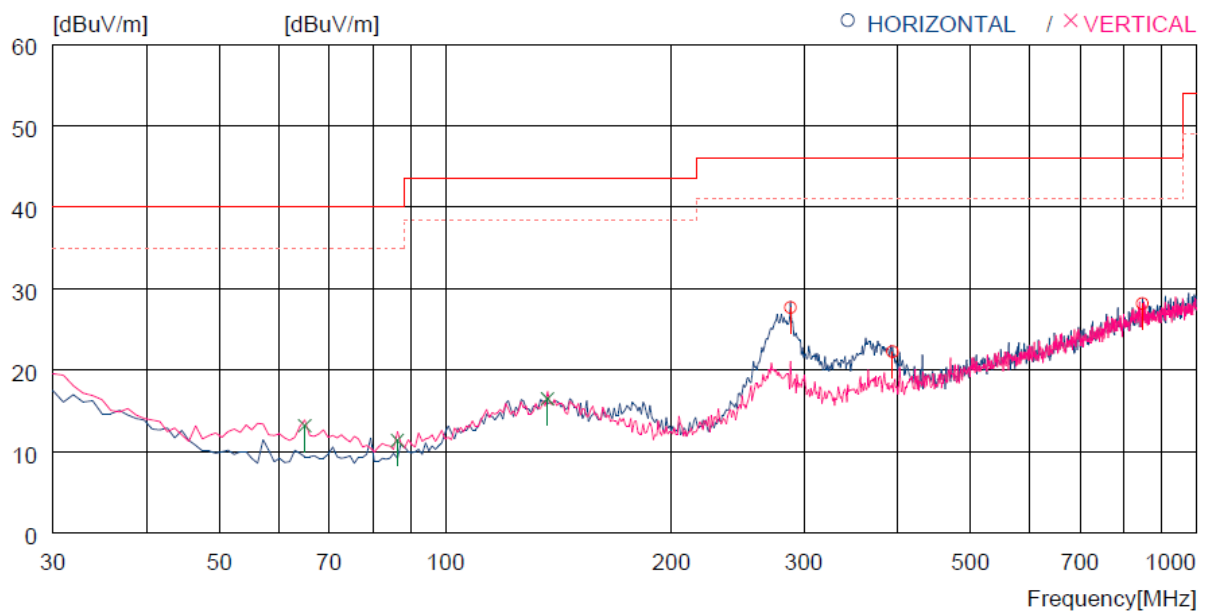
Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209

Frequency range : 30 MHz ~ 1 000 MHz

Result : PASSED

EUT : Smartphone wireless charger with sterilizing

Operating Condition : Transmitting Mode



No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	[dBuV]	[dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Horizontal -----										
1	288.020	38.7	18.9	2.1	32.0	27.7	46.0	18.3	100	155
2	393.750	31.5	20.6	2.3	32.1	22.3	46.0	23.7	100	129
3	847.700	28.6	27.3	4.2	31.9	28.2	46.0	17.8	200	0
----- Vertical -----										
4	64.920	31.9	12.5	0.9	32.1	13.2	40.0	26.8	400	2
5	86.260	29.0	13.3	1.1	32.0	11.4	40.0	28.6	400	359
6	136.700	27.7	19.4	1.4	32.0	16.5	43.5	27.0	400	265

7.9 Test data for Using Mid. load (12 V)

7.9.1 Spurious Radiated Emission Below 30 MHz

Humidity Level : 49 % R.H.

Temperature: 23 °C

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209

Frequency Range : 9 kHz ~ 30 MHz

Result : PASSED

EUT : Smartphone wireless charger with sterilizing

Date: January 02, 2020

Operating Condition : Transmitting Mode

Frequency (MHz)	Detector	Ant. Pol. (H/V)	Reading (dBμV)	Ant. Factor (dB/m)	Cable Loss	Emission Level at 3m (dBμV/m)	Emission Level at 300m (dBμV/m)	Limit at 300m (dBμV/m)	Margin (dB)
0.035	AV	V	31.5	20.5	0.1	52.1	-27.9	36.7	64.6
*0.127	AV	H	59.8	20.8	0.2	80.8	0.8	25.5	24.7
0.240	AV	H	41.2	20.8	0.2	62.2	-17.8	20.0	37.8
0.359	AV	H	31.8	20.8	0.2	52.8	-27.2	16.5	43.7
0.478	AV	H	29.5	20.7	0.2	50.4	-29.6	14.0	43.6

Frequency (MHz)	Detector	Ant. Pol. (H/V)	Reading (dBμV)	Ant. Factor (dB/m)	Cable Loss	Emission Level at 3m (dBμV/m)	Emission Level at 30m (dBμV/m)	Limit at 30m (dBμV/m)	Margin (dB)
24.418	QP	H	36.1	20.4	1.0	57.5	17.5	29.5	12.0

-. Remark: "H" Horizontal, "V" Vertical

-. "*" Means Fundamental frequency

-. Emission Level at 3m [dB μ V/m] = Reading [dBμV] + Ant. Factor [dB/m] + Cable Loss [dB]

-. Margin [dB] = Emission Level at 300m [dBμV/m] – Limit at 300m [dBμV/m]

= Emission Level at 300m [dBμV/m] – Limit at 30m [dBμV/m]

-. Emission Level at 300m [dBμV/m] = Emission Level at 3m [dBμV/m] - 40log (300/3), 80 dB for up to 0.49 MHz

-. Emission Level at 30m [dBμV/m] = Emission Level at 3m [dBμV/m] - 40log (30/3), 40 dB for above 0.49 MHz, Below 30 MHz

7.9.2 Spurious Radiated Emission below 1 GHz

The following table shows the highest levels of radiated emissions on both polarizations of horizontal and vertical.

Humidity Level : 50 % R.H.

Temperature: 22 °C

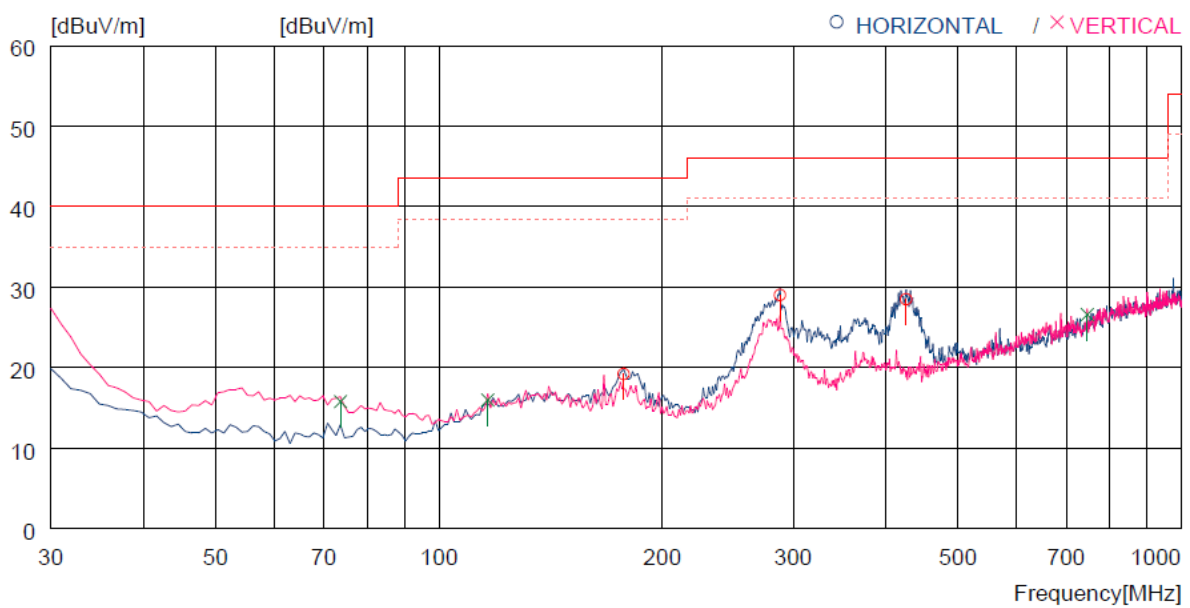
Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209

Frequency range : 30 MHz ~ 1 000 MHz

Result : PASSED

EUT : Smartphone wireless charger with sterilizing

Operating Condition : Transmitting Mode



No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	[dBuV]	[dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Horizontal -----										
1	177.440	32.7	16.8	1.7	32.0	19.2	43.5	24.3	200	0
2	288.020	40.0	18.9	2.1	32.0	29.0	46.0	17.0	100	359
3	425.761	37.0	21.3	2.4	32.2	28.5	46.0	17.5	100	252
----- Vertical -----										
4	73.650	34.0	12.9	1.0	32.1	15.8	40.0	24.2	100	0
5	116.330	28.6	18.0	1.4	32.0	16.0	43.5	27.5	100	50
6	746.824	28.9	26.3	3.6	32.2	26.6	46.0	19.4	200	162

7.10 Test data for Using Min. load (5 V)

7.10.1 Spurious Radiated Emission Below 30 MHz

Humidity Level : 50 % R.H.

Temperature: 22 °C

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209

Frequency Range : 9 kHz ~ 30 MHz

Result : PASSED

EUT : Smartphone wireless charger with sterilizing

Operating Condition : Transmitting Mode

Frequency (MHz)	Detector	Ant. Pol. (H/V)	Reading (dBμV)	Ant. Factor (dB/m)	Cable Loss	Emission Level at 3m (dBμV/m)	Emission Level at 300m (dBμV/m)	Limit at 300m (dBμV/m)	Margin (dB)
0.035	AV	H	31.6	20.5	0.1	52.2	-27.8	36.7	64.5
*0.141	AV	H	60.2	20.8	0.2	81.2	1.2	24.6	23.4
0.419	AV	H	35.7	20.7	0.2	56.6	-23.4	15.2	38.6

Frequency (MHz)	Detector	Ant. Pol. (H/V)	Reading (dBμV)	Ant. Factor (dB/m)	Cable Loss	Emission Level at 3m (dBμV/m)	Emission Level at 30m (dBμV/m)	Limit at 30m (dBμV/m)	Margin (dB)
0.687	QP	H	26.0	20.7	0.2	46.9	6.9	30.9	24.0
0.986	QP	H	20.4	20.7	0.2	41.3	1.3	27.7	26.4
23.821	QP	H	32.9	20.5	1.0	54.4	14.4	29.5	15.1

-. Remark: "H" Horizontal, "V" Vertical

-. "*" Means Fundamental frequency

-. Emission Level at 3m [dB μ V/m] = Reading [dBμV] + Ant. Factor [dB/m] + Cable Loss [dB]

-. Margin [dB] = Emission Level at 300m [dBμV/m] – Limit at 300m [dBμV/m]

= Emission Level at 300m [dBμV/m] – Limit at 30m [dBμV/m]

-. Emission Level at 300m [dBμV/m] = Emission Level at 3m [dBμV/m] - 40log (300/3), 80 dB for up to 0.49 MHz

-. Emission Level at 30m [dBμV/m] = Emission Level at 3m [dBμV/m] - 40log (30/3), 40 dB for above 0.49 MHz, Below 30 MHz

7.10.2 Spurious Radiated Emission below 1 GHz

The following table shows the highest levels of radiated emissions on both polarizations of horizontal and vertical.

Humidity Level : 50 % R.H.

Temperature: 22 °C

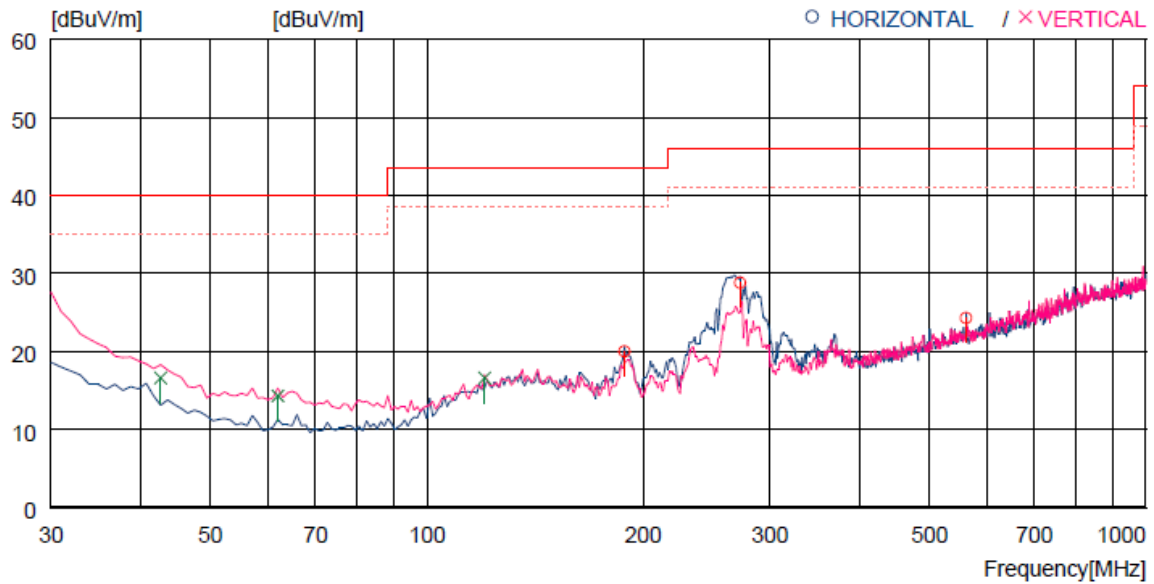
Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209

Frequency range : 30 MHz ~ 1 000 MHz

Result : PASSED

EUT : Smartphone wireless charger with sterilizing

Operating Condition : Transmitting Mode



No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	[dBuV]	[dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Horizontal -----										
1	188.110	34.1	16.2	1.7	32.0	20.0	43.5	23.5	200	0
2	272.500	40.4	18.4	2.0	32.0	28.8	46.0	17.2	100	359
3	562.529	30.0	23.8	2.9	32.4	24.3	46.0	21.7	100	236
----- Vertical -----										
4	42.610	31.5	16.2	0.9	32.0	16.6	40.0	23.4	100	217
5	62.010	33.2	12.3	0.9	32.1	14.3	40.0	25.7	100	336
6	120.210	28.6	18.6	1.4	32.0	16.6	43.5	26.9	100	0

7.11 Test data for Using Min. load (9 V)

7.11.1 Spurious Radiated Emission Below 30 MHz

Humidity Level : 50 % R.H.

Temperature: 22 °C

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209

Frequency Range : 9 kHz ~ 30 MHz

Result : PASSED

EUT : Smartphone wireless charger with sterilizing

Operating Condition : Transmitting Mode

Frequency (MHz)	Detector	Ant. Pol. (H/V)	Reading (dBμV)	Ant. Factor (dB/m)	Cable Loss	Emission Level at 3m (dBμV/m)	Emission Level at 300m (dBμV/m)	Limit at 300m (dBμV/m)	Margin (dB)
0.035	AV	V	30.2	20.5	0.1	50.8	-29.2	36.7	65.9
*0.141	AV	H	58.6	20.8	0.2	79.6	-0.4	24.6	25.0
0.269	AV	V	29.5	20.8	0.2	50.5	-29.5	19.0	48.5
0.419	AV	H	34.2	20.7	0.2	55.1	-24.9	15.2	40.1

Frequency (MHz)	Detector	Ant. Pol. (H/V)	Reading (dBμV)	Ant. Factor (dB/m)	Cable Loss	Emission Level at 3m (dBμV/m)	Emission Level at 300m (dBμV/m)	Limit at 300m (dBμV/m)	Margin (dB)
0.687	QP	H	24.8	20.7	0.2	45.7	5.7	30.9	25.2
24.239	QP	V	35.6	20.4	1.0	57.0	17.0	29.5	12.5

- Remark: "H" Horizontal, "V" Vertical

- "*" Means Fundamental frequency

- Emission Level at 3m [dB μ V/m] = Reading [dBμV] + Ant. Factor [dB/m] + Cable Loss [dB]

- Margin [dB] = Emission Level at 300m [dBμV/m] – Limit at 300m [dBμV/m]

= Emission Level at 300m [dBμV/m] – Limit at 30m [dBμV/m]

- Emission Level at 300m [dBμV/m] = Emission Level at 3m [dBμV/m] - 40log (300/3), 80 dB for up to 0.49 MHz

- Emission Level at 30m [dBμV/m] = Emission Level at 3m [dBμV/m] - 40log (30/3), 40 dB for above 0.49 MHz, Below 30 MHz

7.11.2 Spurious Radiated Emission Below 1 GHz

The following table shows the highest levels of radiated emissions on both polarizations of horizontal and vertical.

Humidity Level : 49 % R.H.

Temperature: 23 °C

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209

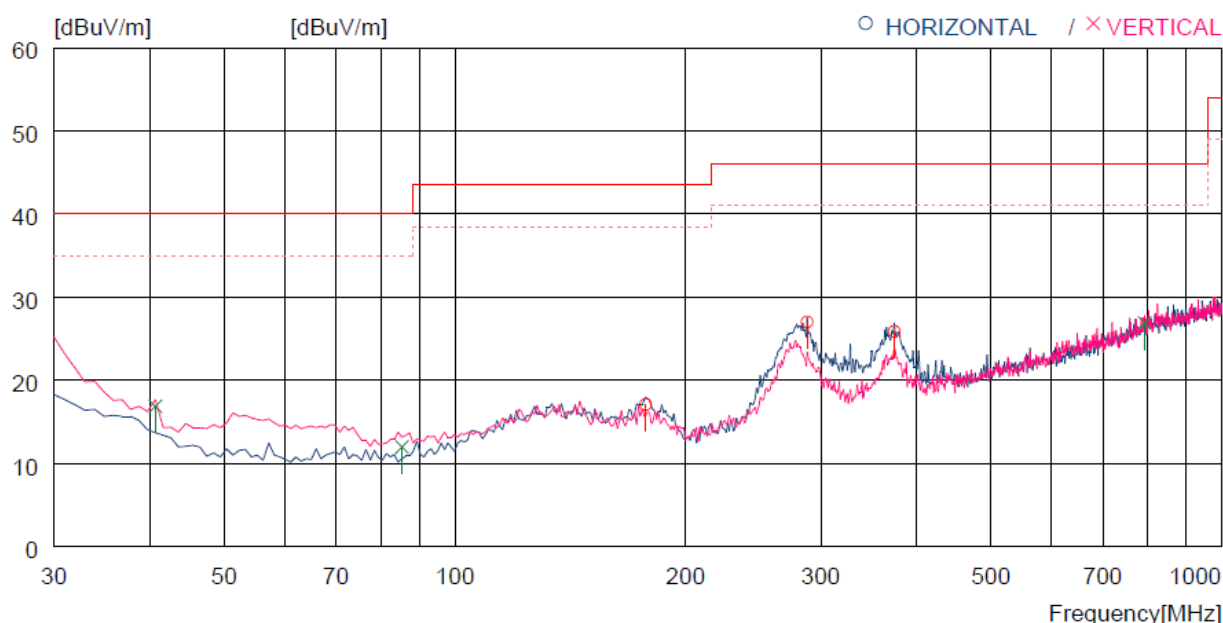
Frequency range : 30 MHz ~ 1 000 MHz

Result : PASSED

EUT : Smartphone wireless charger with sterilizing

Date: January 02, 2020

Operating Condition : Transmitting Mode



No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	[dBuV]	[dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Horizontal -----										
1	177.440	30.6	16.8	1.7	32.0	17.1	43.5	26.4	300	115
2	288.020	38.0	18.9	2.1	32.0	27.0	46.0	19.0	100	359
3	374.350	35.4	20.3	2.3	32.1	25.9	46.0	20.1	100	359
----- Vertical -----										
4	40.670	31.0	17.0	0.9	32.0	16.9	40.0	23.1	200	359
5	85.290	29.7	13.2	1.1	32.0	12.0	40.0	28.0	100	0
6	793.382	28.0	27.0	3.9	32.0	26.9	46.0	19.1	200	104

7.12 Test data for Using Min. load (12 V)

7.12.1 Spurious Radiated Emission Below 30 MHz

Humidity Level : 50 % R.H.

Temperature: 22 °C

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209

Frequency Range : 9 kHz ~ 30 MHz

Result : PASSED

EUT : Smartphone wireless charger with sterilizing

Operating Condition : Transmitting Mode

Frequency (MHz)	Detector	Ant. Pol. (H/V)	Reading (dBμV)	Ant. Factor (dB/m)	Cable Loss	Emission Level at 3m (dBμV/m)	Emission Level at 300m (dBμV/m)	Limit at 300m (dBμV/m)	Margin (dB)
0.035	AV	H	30.6	20.5	0.1	51.2	-28.8	36.7	65.5
*0.144	AV	H	55.1	20.8	0.2	76.1	-3.9	24.4	28.3
0.269	AV	H	33.2	20.8	0.2	54.2	-25.8	19.0	44.8
0.419	AV	H	31.0	20.7	0.2	51.9	-28.1	15.2	43.3

Frequency (MHz)	Detector	Ant. Pol. (H/V)	Reading (dBμV)	Ant. Factor (dB/m)	Cable Loss	Emission Level at 3m (dBμV/m)	Emission Level at 300m (dBμV/m)	Limit at 300m (dBμV/m)	Margin (dB)
0.717	QP	H	23.5	20.7	0.2	44.4	4.4	30.5	26.1
24.508	QP	V	37.9	20.4	1.0	59.3	19.3	29.5	10.2

-. Remark: "H" Horizontal, "V" Vertical

-. "*" Means Fundamental frequency

-. Emission Level at 3m [dB μ V/m] = Reading [dBμV] + Ant. Factor [dB/m] + Cable Loss [dB]

-. Margin [dB] = Emission Level at 300m [dBμV/m] – Limit at 300m [dBμV/m]

= Emission Level at 300m [dBμV/m] – Limit at 30m [dBμV/m]

-. Emission Level at 300m [dBμV/m] = Emission Level at 3m [dBμV/m] - 40log (300/3), 80 dB for up to 0.49 MHz

-. Emission Level at 30m [dBμV/m] = Emission Level at 3m [dBμV/m] - 40log (30/3), 40 dB for above 0.49 MHz, Below 30 MHz

7.12.2 Spurious Radiated Emission Below 1 GHz

The following table shows the highest levels of radiated emissions on both polarizations of horizontal and vertical.

Humidity Level : 50 % R.H.

Temperature: 22 °C

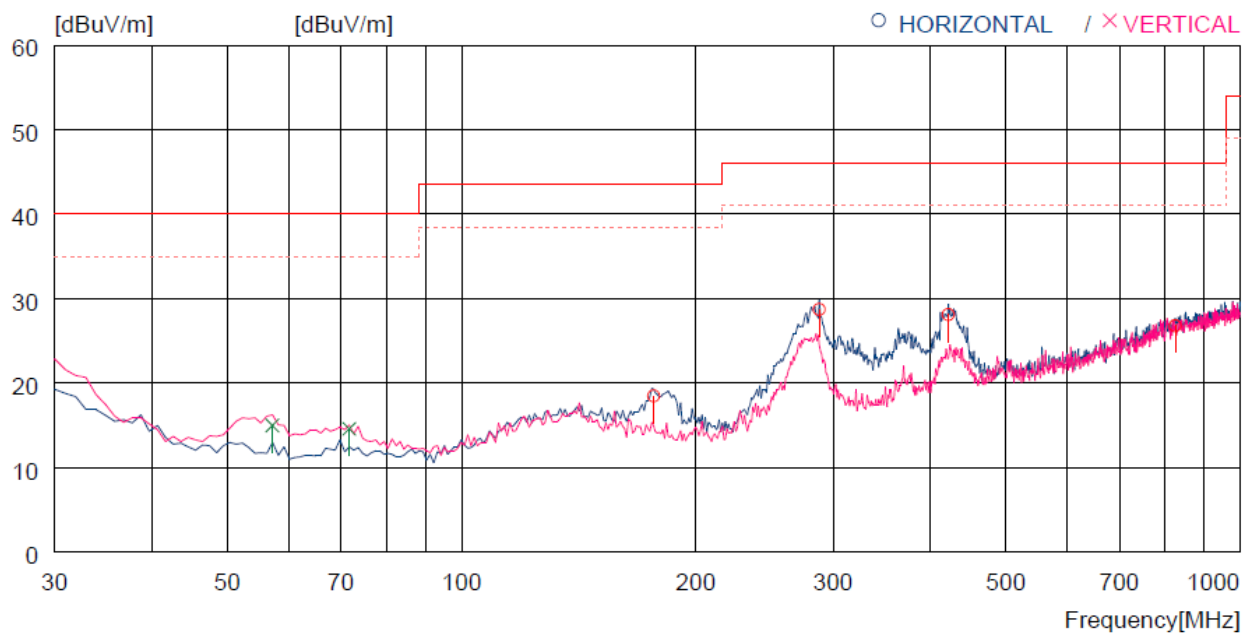
Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209

Frequency range : 30 MHz ~ 1 000 MHz

Result : PASSED

EUT : Smartphone wireless charger with sterilizing

Operating Condition : Transmitting Mode



No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	[dBuV]	[dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Horizontal -----										
1	176.470	32.0	16.8	1.7	32.0	18.5	43.5	25.0	200	105
2	288.020	39.7	18.9	2.1	32.0	28.7	46.0	17.3	100	359
3	421.881	36.6	21.2	2.4	32.1	28.1	46.0	17.9	100	256
4	825.391	27.4	27.2	4.1	31.9	26.8	46.0	19.2	300	106
----- Vertical -----										
5	57.160	33.8	12.4	0.9	32.1	15.0	40.0	25.0	300	19
6	71.710	32.8	12.9	1.0	32.1	14.6	40.0	25.4	300	7

8. CONDUCTED EMISSION TEST

8.1 Operating environment

Temperature : 22 °C
Relative humidity : 50 % R.H

8.2 Test set-up

The EUT was placed on a wooden table, 0.8 m height above the floor. Power was fed to the EUT through a 50 Ω / 50 μ H + 5 Ω Artificial Mains Network (AMN). The ground plane was electrically bonded to the reference ground system and all power lines were filtered from ambient.

8.3 Test equipment used

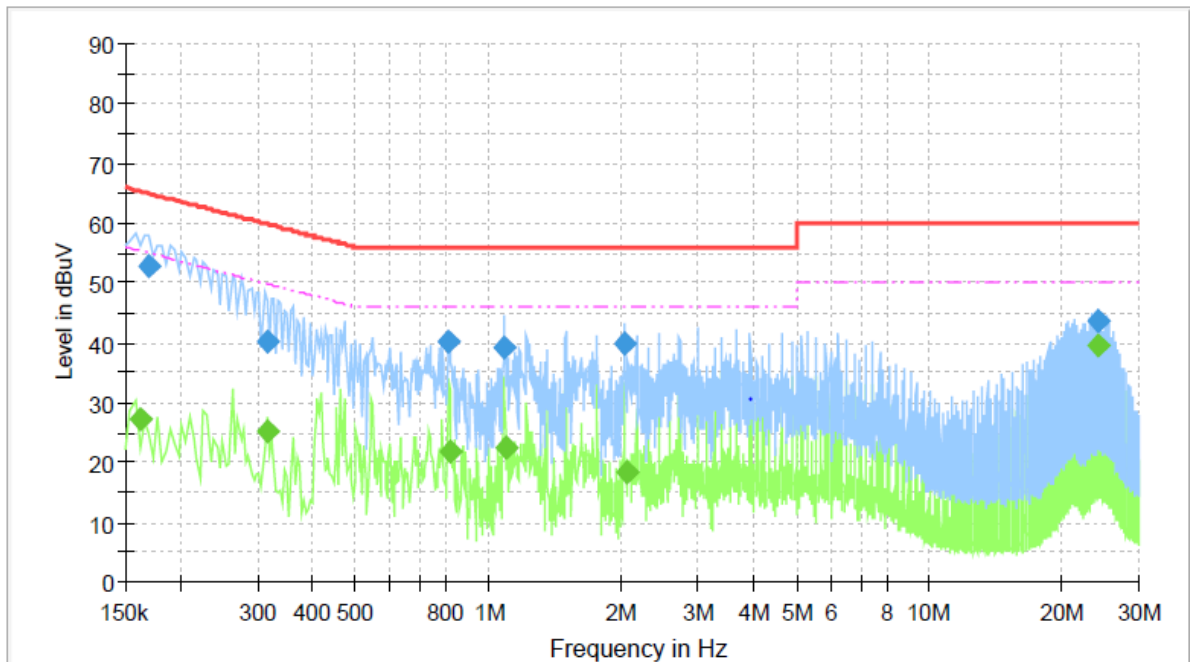
All test equipment used is calibrated on a regular basis.

8.4 Test date

November 16, 2020

8.5 Test data for 5 V

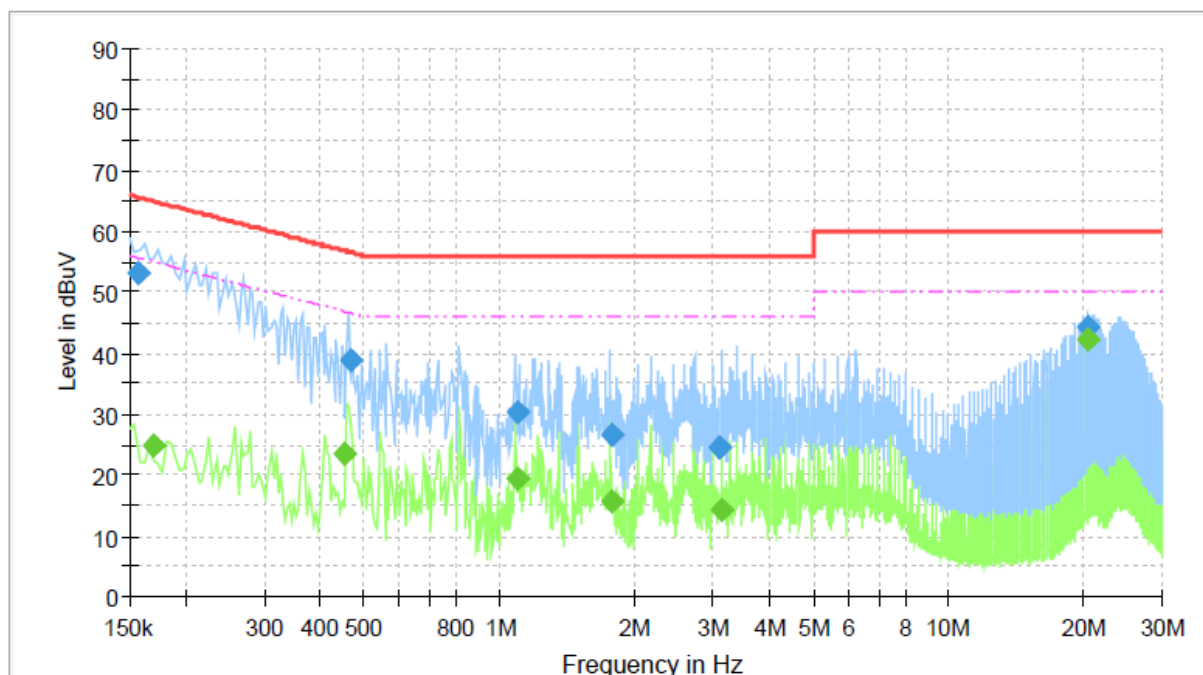
- Resolution bandwidth : 9 kHz
- Frequency range : 0.15 MHz ~ 30 MHz
- Tested Line : HOT LINE



Final Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.161	---	27.19	55.39	28.20	3000.0	9.0	L1	9.93
0.170	52.78	---	64.99	12.20	3000.0	9.0	L1	9.93
0.314	---	25.17	49.88	24.70	3000.0	9.0	L1	9.92
0.314	40.40	---	59.88	19.48	3000.0	9.0	L1	9.92
0.814	40.29	---	56.00	15.71	3000.0	9.0	L1	9.97
0.822	---	21.86	46.00	24.14	3000.0	9.0	L1	9.97
1.083	39.25	---	56.00	16.75	3000.0	9.0	L1	9.99
1.097	---	22.67	46.00	23.33	3000.0	9.0	L1	9.99
2.038	40.03	---	56.00	15.97	3000.0	9.0	L1	10.01
2.054	---	18.37	46.00	27.63	3000.0	9.0	L1	10.01
24.239	---	39.61	50.00	10.39	3000.0	9.0	L1	10.66
24.303	43.71	---	60.00	16.29	3000.0	9.0	L1	10.66

-. Tested Line : NEUTRAL LINE



Final Result

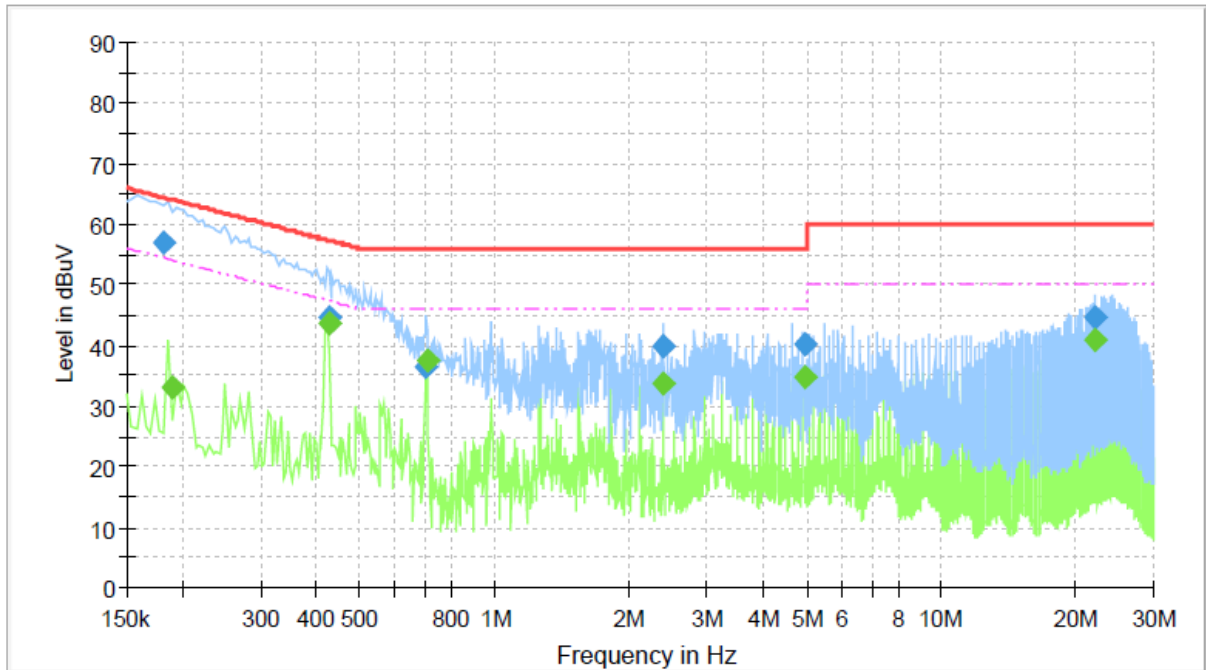
Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.157	53.35	---	65.60	12.25	3000.0	9.0	N	9.94
0.169	---	24.90	54.99	30.09	3000.0	9.0	N	9.94
0.453	---	23.50	46.81	23.31	3000.0	9.0	N	9.94
0.465	38.81	---	56.60	17.79	3000.0	9.0	N	9.94
1.095	---	19.60	46.00	26.40	3000.0	9.0	N	9.99
1.097	30.20	---	56.00	25.80	3000.0	9.0	N	9.99
1.776	26.75	---	56.00	29.25	3000.0	9.0	N	10.03
1.780	---	15.56	46.00	30.44	3000.0	9.0	N	10.03
3.107	24.44	---	56.00	31.56	3000.0	9.0	N	10.06
3.135	---	14.28	46.00	31.72	3000.0	9.0	N	10.06
20.576	44.31	---	60.00	15.69	3000.0	9.0	N	10.73
20.580	---	42.20	50.00	7.80	3000.0	9.0	N	10.73

Remark: Margin (dB) = Limit – Level (Result)

The emission level in above table is included the transducer factor that means insertion loss (LISN), cable loss and attenuator.

8.6 Test data for 9 V

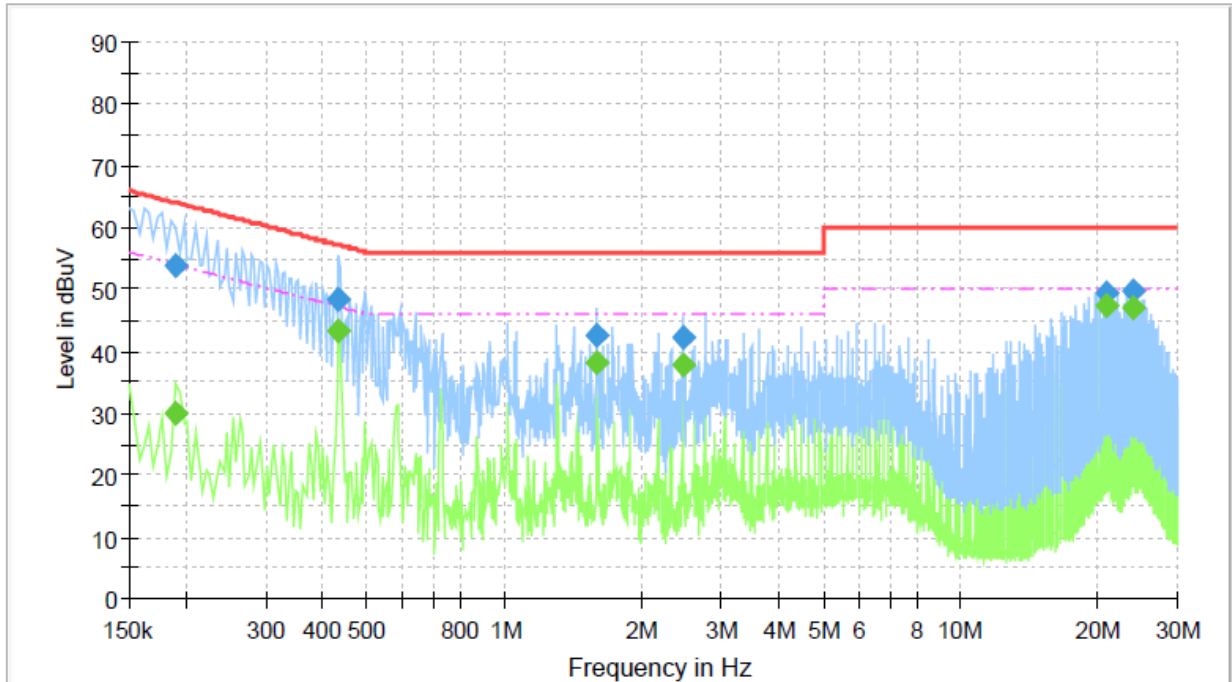
- . Resolution bandwidth : 9 kHz
- . Frequency range : 0.15 MHz ~ 30 MHz
- . Tested Line : HOT LINE



Final Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.181	56.88	---	64.42	7.53	3000.0	9.0	L1	9.92
0.191	---	32.99	54.02	21.03	3000.0	9.0	L1	9.92
0.425	---	43.53	47.34	3.81	3000.0	9.0	L1	9.93
0.427	44.58	---	57.32	12.74	3000.0	9.0	L1	9.93
0.699	36.44	---	56.00	19.56	3000.0	9.0	L1	9.95
0.707	---	37.66	46.00	8.34	3000.0	9.0	L1	9.96
2.398	39.84	---	56.00	16.16	3000.0	9.0	L1	10.02
2.398	---	33.65	46.00	12.35	3000.0	9.0	L1	10.02
4.937	40.19	---	56.00	15.81	3000.0	9.0	L1	10.08
4.937	---	34.73	46.00	11.27	3000.0	9.0	L1	10.08
22.152	44.64	---	60.00	15.36	3000.0	9.0	L1	10.63
22.152	---	40.76	50.00	9.24	3000.0	9.0	L1	10.63

-. Tested Line : NEUTRAL LINE



Final Result

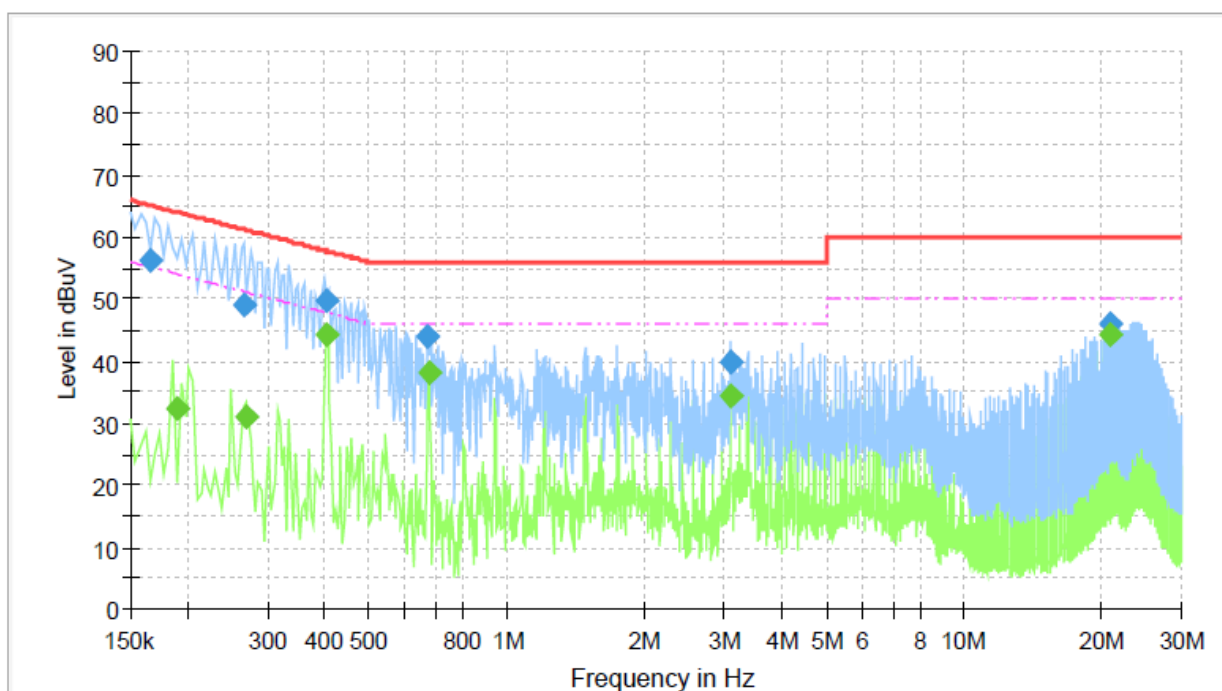
Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.189	53.82	---	64.06	10.23	3000.0	9.0	N	9.93
0.190	---	30.17	54.06	23.89	3000.0	9.0	N	9.93
0.433	---	43.28	47.19	3.91	3000.0	9.0	N	9.94
0.433	48.45	---	57.19	8.74	3000.0	9.0	N	9.94
1.594	---	38.29	46.00	7.71	3000.0	9.0	N	10.02
1.594	42.48	---	56.00	13.52	3000.0	9.0	N	10.02
2.465	---	37.76	46.00	8.24	3000.0	9.0	N	10.04
2.465	42.13	---	56.00	13.87	3000.0	9.0	N	10.04
20.869	49.44	---	60.00	10.56	3000.0	9.0	N	10.74
20.869	---	47.22	50.00	2.78	3000.0	9.0	N	10.74
24.057	---	47.09	50.00	2.91	3000.0	9.0	N	10.75
24.057	49.65	---	60.00	10.35	3000.0	9.0	N	10.75

Remark: Margin (dB) = Limit – Level (Result)

The emission level in above table is included the transducer factor that means insertion loss (LISN), cable loss and attenuator.

8.7 Test data for 12 V

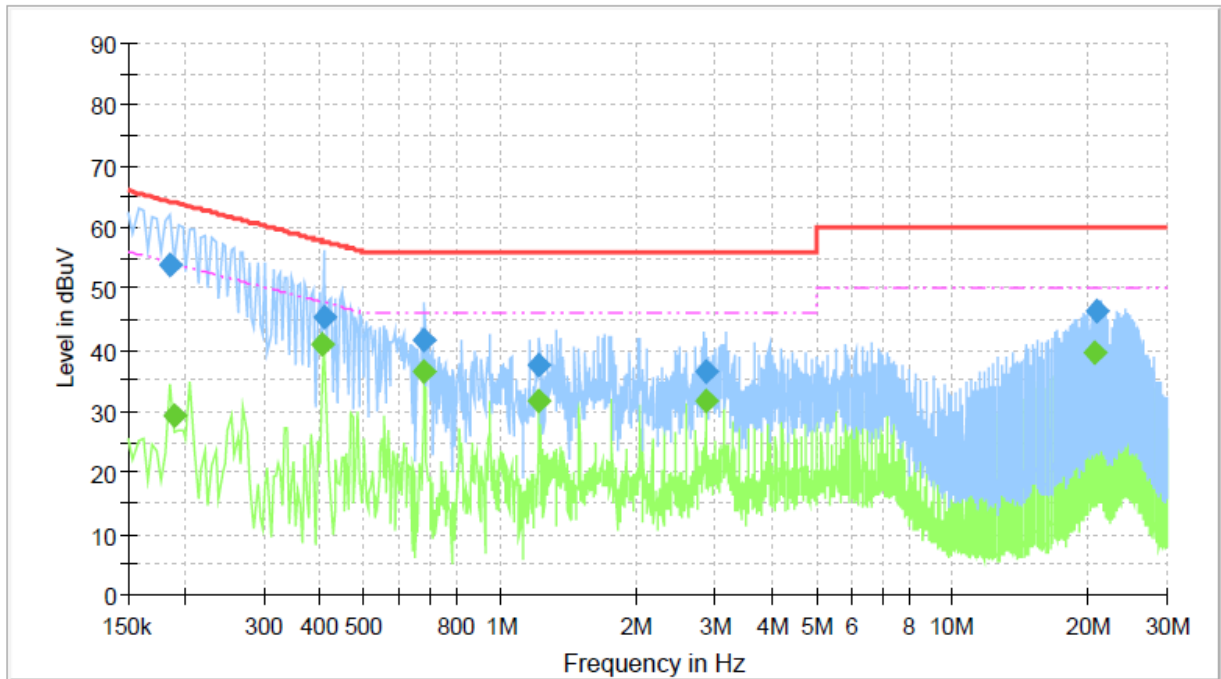
- . Resolution bandwidth : 9 kHz
- . Frequency range : 0.15 MHz ~ 30 MHz
- . Tested Line : HOT LINE



Final Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.166	56.11	---	65.18	9.08	3000.0	9.0	L1	9.93
0.191	---	32.43	54.02	21.59	3000.0	9.0	L1	9.92
0.266	48.97	---	61.26	12.29	3000.0	9.0	L1	9.92
0.270	---	31.17	51.13	19.96	3000.0	9.0	L1	9.92
0.403	49.79	---	57.80	8.01	3000.0	9.0	L1	9.93
0.405	---	44.27	47.74	3.47	3000.0	9.0	L1	9.93
0.671	44.07	---	56.00	11.93	3000.0	9.0	L1	9.95
0.675	---	38.31	46.00	7.69	3000.0	9.0	L1	9.95
3.095	39.89	---	56.00	16.11	3000.0	9.0	L1	10.04
3.095	---	34.50	46.00	11.50	3000.0	9.0	L1	10.04
20.996	45.97	---	60.00	14.03	3000.0	9.0	L1	10.62
21.000	---	44.48	50.00	5.52	3000.0	9.0	L1	10.62

-. Tested Line : NEUTRAL LINE



Final Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.185	54.00	---	64.24	10.23	3000.0	9.0	N	9.93
0.191	---	29.24	54.02	24.77	3000.0	9.0	N	9.93
0.405	---	40.90	47.74	6.84	3000.0	9.0	N	9.94
0.411	45.42	---	57.64	12.22	3000.0	9.0	N	9.94
0.679	41.54	---	56.00	14.46	3000.0	9.0	N	9.95
0.679	---	36.37	46.00	9.63	3000.0	9.0	N	9.95
1.222	37.51	---	56.00	18.49	3000.0	9.0	N	10.00
1.222	---	31.79	46.00	14.21	3000.0	9.0	N	10.00
2.850	---	31.79	46.00	14.21	3000.0	9.0	N	10.05
2.854	36.52	---	56.00	19.48	3000.0	9.0	N	10.05
20.769	---	39.54	50.00	10.46	3000.0	9.0	N	10.73
20.901	46.47	---	60.00	13.53	3000.0	9.0	N	10.74

Remark: Margin (dB) = Limit – Level (Result)

The emission level in above table is included the transducer factor that means insertion loss (LISN), cable loss and attenuator.

9. LIST OF TEST EQUIPMENT

No.	EQUIPMENTS	MFR.	MODEL	SER. NO.	LAST CAL	DUE CAL	USE
1	Spectrum analyzer	R/S	FSV30	101199	Feb. 20, 2020	One Year	■
2	Test receiver	R/S	ESCI	101420	Mar. 23, 2020	One Year	■
3	Amplifier	Sonoma Instrument	310N	392756	Oct. 16, 2020	One Year	■
4	Hybrid Antenna	TDK	HLP-2008	131316	Feb. 27, 2020	Two Year	■
5	Controller	Innco Systems GmbH	CO3000	1026/40960617/P	N/A	N/A	■
6	Turn Table	Innco Systems GmbH	DT2000-2t	N/A	N/A	N/A	■
7	LISN	Schwarzbeck	NSLK8126	8126404	Mar. 16, 2020	One Year	■
		Schwarzbeck	NSLK8128	8128216	Oct. 19, 2020	One Year	■
8	AMN	EMCO	3825/2	9109-1867	Mar. 23, 2020	One Year	■
9	Antenna Master	Innco Systems GmbH	MA-4640- XPET	MA4640/652/43100318/P	N/A	N/A	■
10	Loop Antenna	TESEQ	HLA 6121	50841	Apr. 06, 2020	Two Years	■
11	Environmental Test Chamber	ESPEC	PSL-2KP	14009407	Feb. 21, 2020	One Year	■
12	DC Power Supply	LG Precision Co.,Ltd	GP-4303D	5071069	Jan. 06, 2021	One Year	■