

RADIO PERFORMANCE TEST REPORT

Test Report No. : OT-21N-RWD-066

Reception No. : 2111004818

Applicant : Samsung Electronics Co., Ltd.

Address : 19 Chapin Rd., Building D, Pine Brook, New Jersey, United States, 07058

Manufacturer : Samsung Electronics Co., Ltd.

Address : Yen Phong 1 Industrial park, Yen Phong District Bac Ninh Province, VIETNAM

Type of Equipment : WIRELESS CHARGER

FCC ID. : A3LEPP2400

Model Name : EP-P2400

Multiple Model Name : N/A

Serial number : RF7RC6V00S1HMB

Total page of Report : 36 pages (including this page)

Date of Incoming : November 16, 2021

Date of issue : November 30, 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.

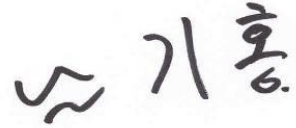
It is not a generally valid assessment of the features of the respective products of the mass-production.



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Revision History

Rev. No.	Issue Report No.	Issued Date	Revisions	Section Affected
0	OT-21N-RWD-066	November 30, 2021	Initial Release	All

1. VERIFICATION OF COMPLIANCE

APPLICANT : Samsung Electronics Co., Ltd.
 ADDRESS : 19 Chapin Rd., Building D, Pine Brook, New Jersey, United States, 07058
 CONTACT PERSON : Jenni, Chun / General Manager
 TELEPHONE NO : +973-808-6375
 FCC ID : A3LEPP2400
 MODEL NAME : EP-P2400
 BRAND NAME : -
 SERIAL NUMBER : RF7RC6V00S1HMB
 DATE : November 30, 2021

EQUIPMENT CLASS	DCD – Part 15 Low Power Transmitter Below 1 705 kHz
KIND OF EQUIPMENT	WIRELESS CHARGER
THIS REPORT CONCERNS	Original Grant
MEASUREMENT PROCEDURES	ANSI C63.10: 2020
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: 2020 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 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, 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

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 Samsung Electronics Co., Ltd., Model: EP-P2400 (referred to as the EUT in this report) is an WIRELESS CHARGER. Product specification information described herein was obtained from product data sheet or user's manual.

DEVICE TYPE	WIRELESS CHARGER
OPERATING FREQUENCY	119.0 kHz ~ 122 kHz, 126.2 kHz ~ 129.2 kHz
RATED RF OUTPUT POWER	74.7 dBμV/m
ANTENNA TYPE	Coil Antenna
MODULATION	ASK
RATED SUPPLY VOLTAGE	DC 9.0 V

3.2 Accessories Description

DEVICE	MODEL	MANUFACTURER	SERIAL	SETTING SPECIFICATION	
				WATT	FREQUENCY
Mobile 1 (Galaxy S21)	SM-G991U	SAMSUNG	R3CNA03H82J	4.5W / 7.5W / 15W	127.7 kHz
Mobile 2 (Galaxy Note 10)	SM-N970U	SAMSUNG	R38M60EDYJT	4.5W	120.5 kHz
Earphones (Earbuds)	SM-R190	SAMSUNG	RF2R10C8P1X	2W	127.7 kHz

3.3 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	EP-P2400_03	N/A
FAN	N/A	N/A	N/A
Adapter	Samsung Electronics Co., Ltd.	EP-TA500	N/A

5.2 Peripheral equipment

-. None

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.

Mode	Operating Frequency	Tx. Frequency	Set. Watt	Acc.
Mode 1 (idle)	126.2 kHz ~ 129.2 kHz	127.7 kHz	N/A	None
Mode 2 (Mobile 4.5 W)	126.2 kHz ~ 129.2 kHz	127.7 kHz	4.5 Watt	Mobile 1 (Galaxy S21)
Mode 3 (Mobile 7.5 W)	126.2 kHz ~ 129.2 kHz	127.7 kHz	7.5 W	Mobile 1 (Galaxy S21)
Mode 4 (Mobile 15 W)	126.2 kHz ~ 129.2 kHz	127.7 kHz	15 W	Mobile 1 (Galaxy S21)
Mode 5 (Specific Mobile 4.5 W)	119.0 kHz ~ 122.0 kHz	120.5 kHz	4.5 W	Mobile 2 (Galaxy Note 10)
Mode 6 (Earphone 2 W)	126.2 kHz ~ 129.2 kHz	127.7 kHz	2 W	Earphones (Earbuds)

for DC 9.0 V.

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.

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: 2020 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 & Charging 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 & Charging 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, 2021

7.4 Test data for Mode 1 (Frequency : 127.7 kHz / Accessories : None)

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 : WIRELESS CHARGER

Operating Condition : Transmitting Mode & Charging Mode

Frequency (MHz)	Detector	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)
0.010	PK	31.1	18.6	0.1	49.8	-30.2	47.6	77.8
0.013	PK	33.4	18.6	0.1	52.1	-27.9	45.3	73.2
0.023	PK	28.7	18.8	0.1	47.6	-32.4	40.4	72.8
0.030	PK	30.2	18.9	0.2	49.3	-30.7	38.1	68.8
0.047	PK	27.8	18.9	0.2	46.9	-33.1	34.2	67.3
*0.128	PK	48.3	18.9	0.2	67.4	-12.6	25.5	38.1
0.180	PK	28.2	18.9	0.2	47.3	-32.7	22.5	55.2
0.389	PK	30.6	18.9	0.1	49.6	-30.4	15.8	46.2
0.628	PK	17.5	18.8	0.1	36.4	-43.6	-8.4	35.2
0.807	PK	14.1	18.8	0.1	33.0	-47.0	-10.5	36.5

Frequency (MHz)	Detector	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)
2.598	PK	10.5	18.9	0.3	29.7	-10.3	29.5	39.8
19.045	PK	8.5	19.6	0.8	28.9	-11.1	29.5	40.6

-. “*” 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

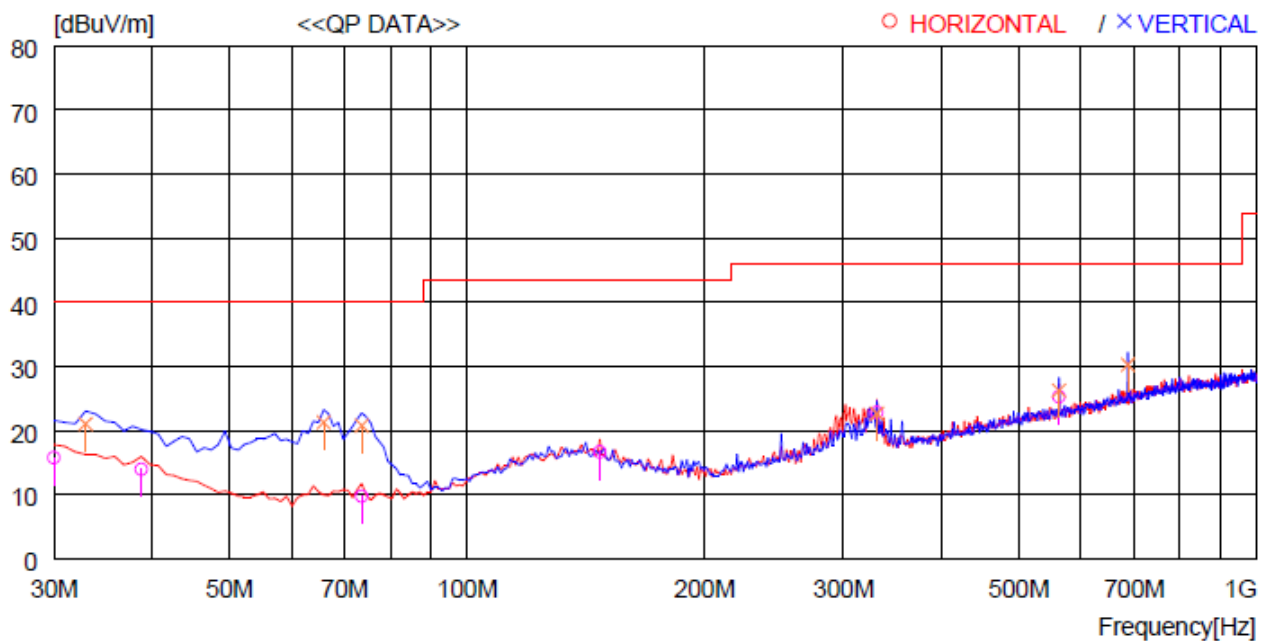
Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209

Frequency range : 30 MHz ~ 1 000 MHz

Result : PASSED

EUT : WIRELESS CHARGER

Operating Condition : Transmitting Mode & Charging Mode



No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	[dBuV]	FACTOR	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Horizontal -----										
1	30.000	25.6	21.1	1.2	32.1	15.8	40.0	24.2	200	200
2	38.730	26.9	17.8	1.3	32.0	14.0	40.0	26.0	400	0
3	73.650	27.3	12.9	1.6	32.0	9.8	40.0	30.2	400	0
4	147.370	27.8	18.9	2.1	32.1	16.7	43.5	26.8	300	347
5	330.700	32.2	19.7	3.2	32.2	22.9	46.0	23.1	100	284
6	562.529	29.8	23.8	4.1	32.4	25.3	46.0	20.7	300	359
----- Vertical -----										
7	32.910	32.1	19.9	1.2	32.1	21.1	40.0	18.9	100	152
8	65.890	39.2	12.6	1.5	32.0	21.3	40.0	18.7	100	323
9	73.650	38.3	12.9	1.6	32.0	20.8	40.0	19.2	200	0
10	330.700	32.0	19.7	3.2	32.2	22.7	46.0	23.3	200	66
11	562.529	30.8	23.8	4.1	32.4	26.3	46.0	19.7	100	192
12	687.655	32.7	25.4	4.6	32.4	30.3	46.0	15.7	100	176

7.5 Test data for Mode 2 (Frequency : 127.7 kHz / Accessories : Mobile 1)

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 : WIRELESS CHARGER

Operating Condition : Transmitting Mode & Charging Mode

Frequency (MHz)	Detector	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)
0.023	PK	48.3	18.8	0.1	67.2	-12.8	40.4	53.2
0.032	PK	52.0	18.9	0.2	71.1	-8.9	37.5	46.4
0.045	PK	45.7	18.9	0.2	64.8	-15.2	34.5	49.7
0.064	PK	44.8	18.9	0.2	63.9	-16.1	31.5	47.6
0.098	PK	37.7	18.9	0.2	56.8	-23.2	27.8	51.0
*0.128	PK	52.8	18.9	0.2	71.9	-8.1	25.5	33.6
0.180	PK	35.6	18.9	0.2	54.7	-25.3	22.5	47.8
0.359	PK	33.4	18.9	0.1	52.4	-27.6	16.5	44.1
0.628	PK	23.8	18.8	0.1	42.7	-37.3	-8.4	28.9
0.866	PK	16.8	18.8	0.1	35.7	-44.3	-11.1	33.2

Frequency (MHz)	Detector	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)
2.598	PK	11.5	18.9	0.3	30.7	-9.3	29.5	38.8
18.508	PK	15.2	19.6	0.8	35.6	-4.4	29.5	33.9

-. “*” 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

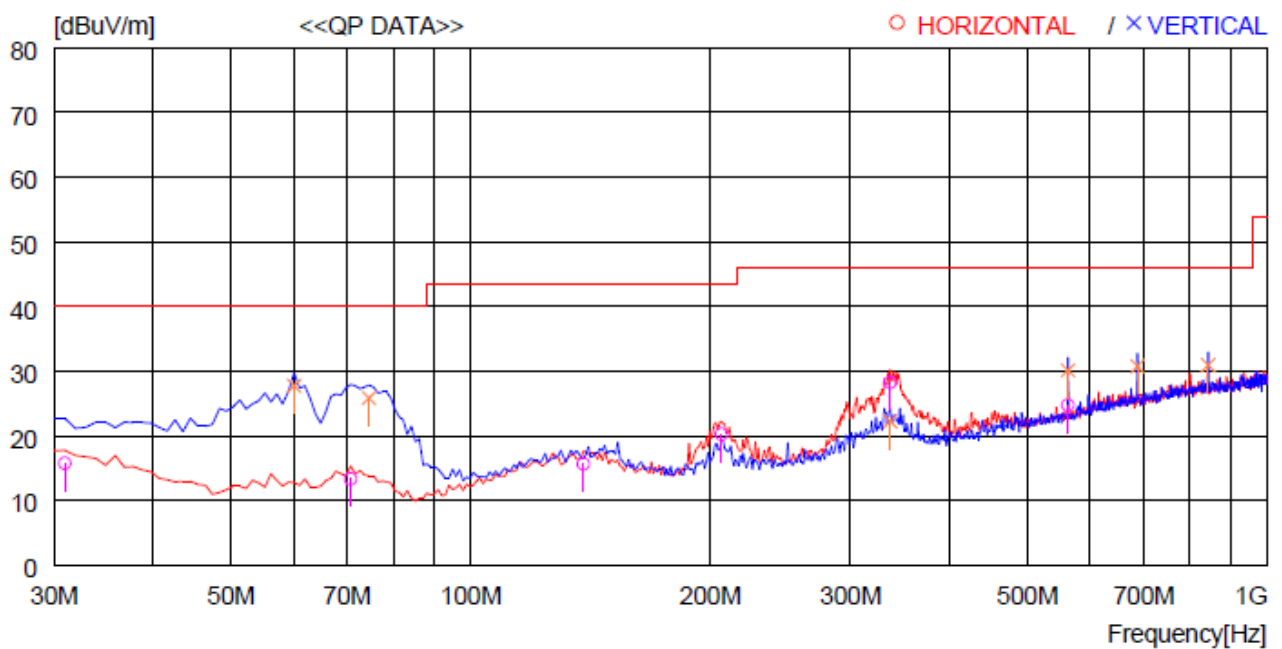
Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209

Frequency range : 30 MHz ~ 1 000 MHz

Result : PASSED

EUT : WIRELESS CHARGER

Operating Condition : Transmitting Mode & Charging Mode



No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	[dBuV]	FACTOR	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Horizontal -----										
1	30.970	26.0	20.7	1.2	32.1	15.8	40.0	24.2	300	305
2	70.740	30.9	12.9	1.6	32.0	13.4	40.0	26.6	400	306
3	138.640	26.3	19.4	2.1	32.1	15.7	43.5	27.8	100	355
4	206.540	34.0	15.9	2.5	32.1	20.3	43.5	23.2	100	290
5	336.520	37.6	19.7	3.2	32.2	28.3	46.0	17.7	100	359
6	562.529	29.3	23.8	4.1	32.4	24.8	46.0	21.2	300	359
----- Vertical -----										
7	60.070	46.2	12.1	1.5	32.0	27.8	40.0	12.2	100	2
8	74.620	43.4	12.9	1.6	32.0	25.9	40.0	14.1	200	41
9	336.520	31.6	19.7	3.2	32.2	22.3	46.0	23.7	200	31
10	562.529	34.7	23.8	4.1	32.4	30.2	46.0	15.8	100	0
11	687.655	33.2	25.4	4.6	32.4	30.8	46.0	15.2	100	303
12	843.821	30.8	27.3	5.1	32.2	31.0	46.0	15.0	200	359

7.6 Test data for Mode 3 (Frequency : 127.7 kHz / Accessories : Mobile 1)

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 : WIRELESS CHARGER

Operating Condition : Transmitting Mode & Charging Mode

Frequency (MHz)	Detector	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)
0.012	PK	31.7	18.6	0.1	50.4	-29.6	46.0	75.6
0.025	PK	50.2	18.8	0.1	69.1	-10.9	39.6	50.5
0.027	PK	50.5	18.9	0.1	69.5	-10.5	39.0	49.5
0.049	PK	46.9	18.9	0.2	66.0	-14.0	33.8	47.8
0.550	PK	46.9	18.9	0.2	66.0	-14.0	32.8	46.8
0.082	PK	41.8	18.9	0.2	60.9	-19.1	29.3	48.4
*0.128	PK	50.7	18.9	0.2	69.8	-10.2	25.5	35.7
0.210	PK	34.4	18.9	0.1	53.4	-26.6	21.2	47.8
0.389	PK	32.6	18.9	0.1	51.6	-28.4	15.8	44.2
0.717	PK	21.6	18.8	0.1	40.5	-39.5	-9.5	30.0

Frequency (MHz)	Detector	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)
3.672	PK	12.6	19.0	0.3	31.9	-8.1	29.5	37.6
18.000	PK	12.7	19.5	0.7	32.9	-7.1	29.5	36.6

-, “*” 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

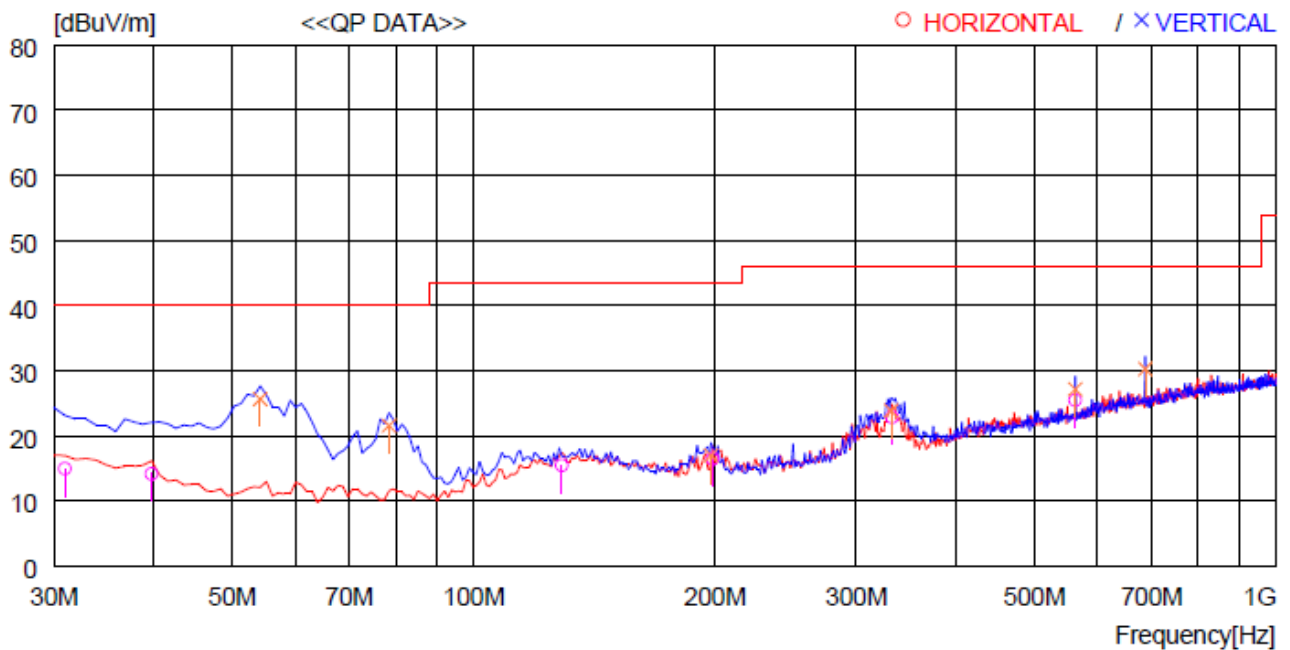
Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209

Frequency range : 30 MHz ~ 1 000 MHz

Result : PASSED

EUT : WIRELESS CHARGER

Operating Condition : Transmitting Mode & Charging Mode



No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	QP	FACTOR	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Horizontal -----										
1	30.970	25.2	20.7	1.2	32.1	15.0	40.0	25.0	300	343
2	39.700	27.5	17.4	1.3	32.0	14.2	40.0	25.8	400	279
3	128.940	26.6	19.0	2.0	32.1	15.5	43.5	28.0	300	109
4	198.780	30.4	15.7	2.5	32.1	16.5	43.5	27.0	200	110
5	332.640	32.2	19.7	3.2	32.2	22.9	46.0	23.1	100	303
6	562.529	30.0	23.8	4.1	32.4	25.5	46.0	20.5	200	0
----- Vertical -----										
7	54.250	43.6	12.7	1.4	32.0	25.7	40.0	14.3	100	359
8	78.500	39.0	12.9	1.7	32.0	21.6	40.0	18.4	200	0
9	197.810	30.9	15.7	2.5	32.1	17.0	43.5	26.5	100	359
10	331.670	33.2	19.7	3.2	32.2	23.9	46.0	22.1	100	245
11	562.529	31.7	23.8	4.1	32.4	27.2	46.0	18.8	100	359
12	687.655	32.7	25.4	4.6	32.4	30.3	46.0	15.7	100	359

7.7 Test data for Mode 4 (Frequency : 127.7 kHz / Accessories : Mobile 1)

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 : WIRELESS CHARGER

Operating Condition : Transmitting Mode & Charging Mode

Frequency (MHz)	Detector	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)
0.013	PK	33.8	18.6	0.1	52.5	-27.5	45.3	72.8
0.026	PK	49.5	18.8	0.1	68.4	-11.6	39.3	50.9
0.052	PK	45.7	18.9	0.2	64.8	-15.2	33.3	48.5
0.057	PK	42.8	18.9	0.2	61.9	-18.1	32.5	50.6
*0.128	PK	55.6	18.9	0.2	74.7	-5.3	25.5	30.8
0.180	PK	36.8	18.9	0.2	55.9	-24.1	22.5	46.6
0.359	PK	36.1	18.9	0.1	55.1	-24.9	16.5	41.4
0.628	PK	25.3	18.8	0.1	44.2	-35.8	-8.4	27.4
0.866	PK	19.5	18.8	0.1	38.4	-41.6	-11.1	30.5

Frequency (MHz)	Detector	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)
1.135	PK	15.4	18.8	0.2	34.4	-5.6	26.5	32.1
2.598	PK	11.0	18.9	0.3	30.2	-9.8	29.5	39.3
19.791	PK	10.1	19.7	0.8	30.6	-9.4	29.5	38.9

-, “*” 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

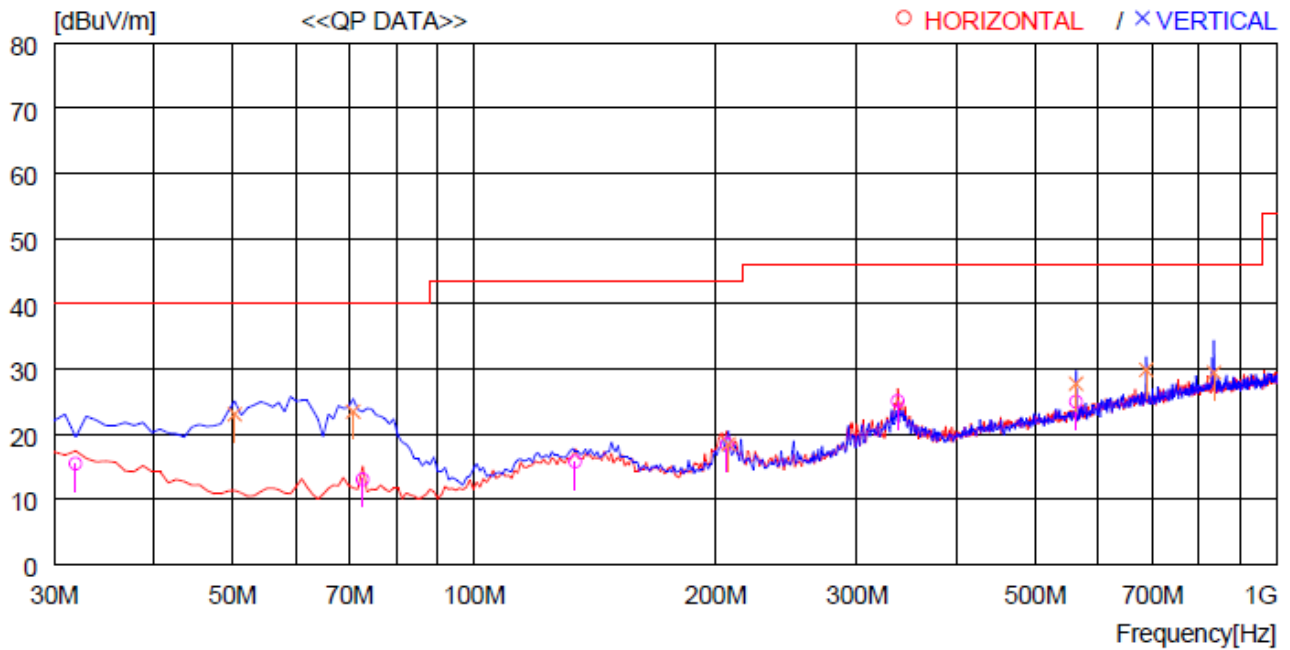
Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209

Frequency range : 30 MHz ~ 1 000 MHz

Result : PASSED

EUT : WIRELESS CHARGER

Operating Condition : Transmitting Mode & Charging Mode



No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	QP	FACTOR	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Horizontal -----										
1	31.940	26.1	20.3	1.2	32.1	15.5	40.0	24.5	100	359
2	72.680	30.6	12.9	1.6	32.0	13.1	40.0	26.9	400	258
3	133.790	26.6	19.2	2.1	32.1	15.8	43.5	27.7	100	359
4	206.540	32.2	15.9	2.5	32.1	18.5	43.5	25.0	200	0
5	337.490	34.3	19.8	3.2	32.2	25.1	46.0	20.9	100	359
6	562.529	29.5	23.8	4.1	32.4	25.0	46.0	21.0	200	323
----- Vertical -----										
7	50.370	40.6	13.1	1.4	32.0	23.1	40.0	16.9	100	0
8	70.740	41.0	12.9	1.6	32.0	23.5	40.0	16.5	200	359
9	207.510	32.2	15.9	2.5	32.1	18.5	43.5	25.0	200	359
10	562.529	32.3	23.8	4.1	32.4	27.8	46.0	18.2	100	219
11	687.655	32.3	25.4	4.6	32.4	29.9	46.0	16.1	100	0
12	835.091	29.4	27.2	5.1	32.2	29.5	46.0	16.5	400	359

7.8 Test data for Mode 5 (Frequency : 120.5 kHz / Accessories : Mobile 2)

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 : WIRELESS CHARGER

Operating Condition : Transmitting Mode & Charging Mode

Frequency (MHz)	Detector	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)
0.020	PK	49.3	18.8	0.1	68.2	-11.8	40.4	52.2
0.031	PK	39.5	18.9	0.2	58.6	-21.4	37.8	59.2
0.047	PK	46.5	18.9	0.2	65.6	-14.4	34.2	48.6
0.070	PK	42.1	18.9	0.2	61.2	-18.8	30.7	49.5
*0.121	PK	52.6	18.9	0.2	71.7	-8.3	25.9	34.2
0.128	PK	49.3	18.9	0.2	68.4	-11.6	25.5	37.1
0.210	PK	34.0	18.9	0.1	53.0	-27.0	21.2	48.2
0.389	PK	33.0	18.9	0.1	52.0	-28.0	15.8	43.8
0.568	PK	28.6	18.8	0.1	47.5	-32.5	-7.5	25.0
0.777	PK	19.4	18.8	0.1	38.3	-41.7	-10.2	31.5

Frequency (MHz)	Detector	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)
2.598	PK	13.7	18.9	0.3	32.9	-7.1	29.5	36.6
17.941	PK	11.9	19.5	0.7	32.1	-7.9	29.5	37.4

-. “*” 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

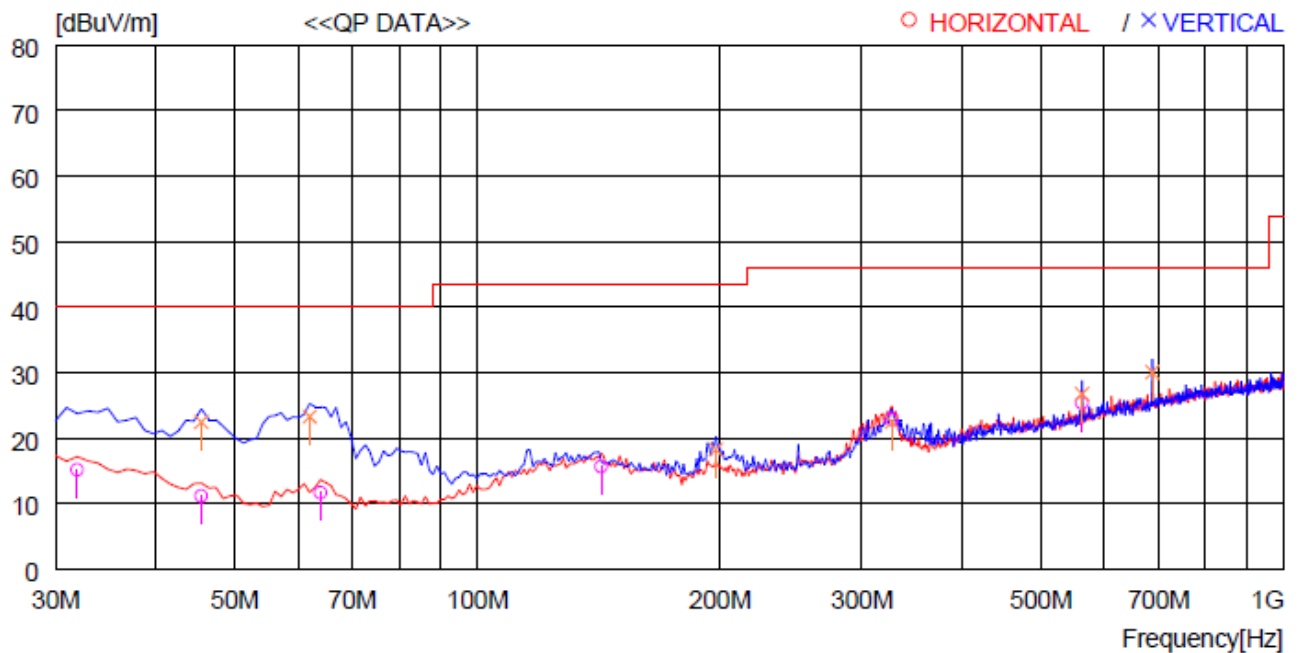
Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209

Frequency range : 30 MHz ~ 1 000 MHz

Result : PASSED

EUT : WIRELESS CHARGER

Operating Condition : Transmitting Mode & Charging Mode



No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	[dBuV]	FACTOR	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Horizontal -----										
1	31.940	25.8	20.3	1.2	32.1	15.2	40.0	24.8	400	0
2	45.520	26.8	15.0	1.4	32.0	11.2	40.0	28.8	200	81
3	63.950	29.8	12.4	1.5	32.0	11.7	40.0	28.3	400	263
4	142.520	26.4	19.3	2.1	32.1	15.7	43.5	27.8	100	356
5	326.820	32.4	19.6	3.1	32.2	22.9	46.0	23.1	100	359
6	562.529	29.9	23.8	4.1	32.4	25.4	46.0	20.6	200	318
----- Vertical -----										
7	45.520	38.1	15.0	1.4	32.0	22.5	40.0	17.5	100	0
8	62.010	41.5	12.3	1.5	32.0	23.3	40.0	16.7	100	321
9	197.810	32.2	15.7	2.5	32.1	18.3	43.5	25.2	100	0
10	326.820	32.0	19.6	3.1	32.2	22.5	46.0	23.5	200	359
11	562.529	31.3	23.8	4.1	32.4	26.8	46.0	19.2	100	238
12	687.655	32.5	25.4	4.6	32.4	30.1	46.0	15.9	100	0

7.9 Test data for Mode 6 (Frequency : 127.7 kHz / Accessories : Earphone)

7.9.1 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 : WIRELESS CHARGER

Operating Condition : Transmitting Mode & Charging Mode

Frequency (MHz)	Detector	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)
0.018	PK	37.8	18.7	0.1	56.6	-23.4	42.5	65.9
0.021	PK	41.7	18.9	0.1	60.7	-19.3	41.2	60.5
0.042	PK	37.9	18.9	0.2	57.0	-23.0	35.1	58.1
0.063	PK	34.5	18.9	0.2	53.6	-26.4	31.6	58.0
0.088	PK	31.9	18.9	0.2	51.0	-29.0	28.7	57.7
*0.128	PK	49.2	18.9	0.2	68.3	-11.7	25.5	37.2
0.210	PK	32.6	18.9	0.1	51.6	-28.4	21.2	49.6
0.359	PK	33.0	18.9	0.1	52.0	-28.0	16.5	44.5
0.628	PK	20.7	18.8	0.1	39.6	-40.4	-8.4	32.0
0.866	PK	16.0	18.8	0.1	34.9	-45.1	-11.1	34.0

Frequency (MHz)	Detector	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)
6.001	PK	9.3	19.1	0.4	28.8	-11.2	29.5	40.7
19.045	PK	9.2	19.6	0.8	29.6	-10.4	29.5	39.9

-, “*” 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

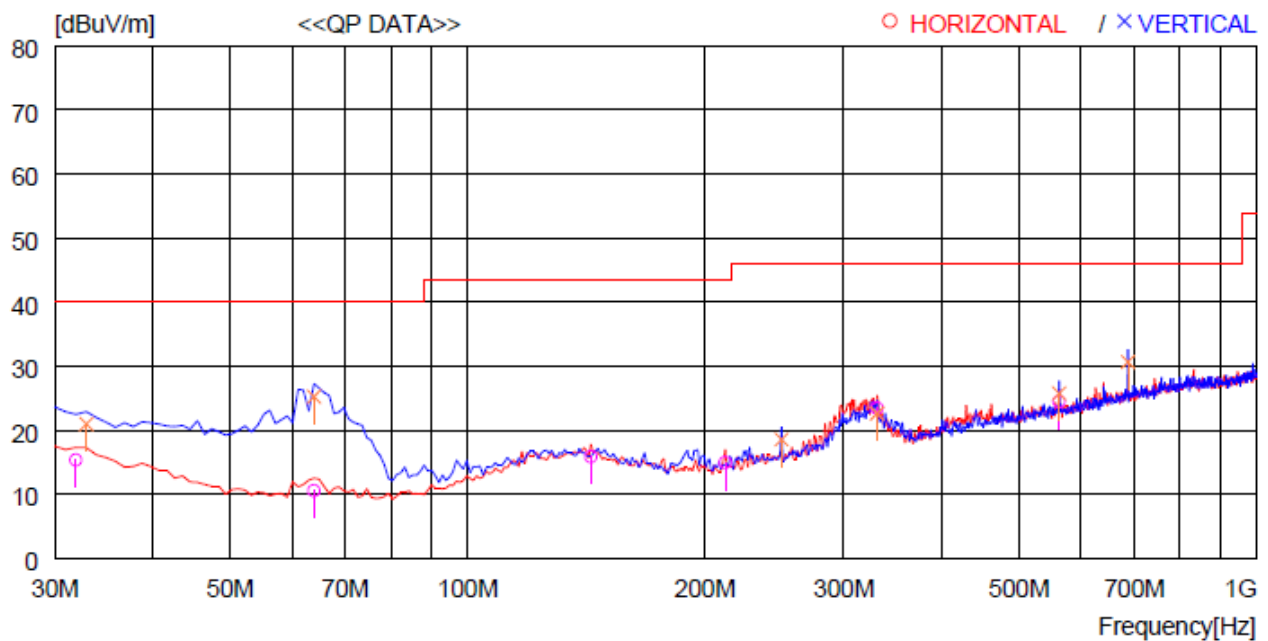
Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209

Frequency range : 30 MHz ~ 1 000 MHz

Result : PASSED

EUT : WIRELESS CHARGER

Operating Condition : Transmitting Mode & Charging Mode



No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	[dBuV]	FACTOR	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Horizontal -----										
1	31.940	26.0	20.3	1.2	32.1	15.4	40.0	24.6	100	173
2	63.950	28.7	12.4	1.5	32.0	10.6	40.0	29.4	400	0
3	143.490	26.7	19.2	2.1	32.1	15.9	43.5	27.6	400	305
4	212.360	28.5	16.1	2.5	32.1	15.0	43.5	28.5	200	124
5	330.700	32.8	19.7	3.2	32.2	23.5	46.0	22.5	100	283
6	562.529	29.0	23.8	4.1	32.4	24.5	46.0	21.5	200	337
----- Vertical -----										
7	32.910	32.0	19.9	1.2	32.1	21.0	40.0	19.0	100	0
8	63.950	43.4	12.4	1.5	32.0	25.3	40.0	14.7	100	292
9	250.190	30.2	17.8	2.8	32.2	18.6	46.0	27.4	200	114
10	330.700	32.0	19.7	3.2	32.2	22.7	46.0	23.3	200	359
11	562.529	30.3	23.8	4.1	32.4	25.8	46.0	20.2	100	227
12	687.655	33.1	25.4	4.6	32.4	30.7	46.0	15.3	100	162

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

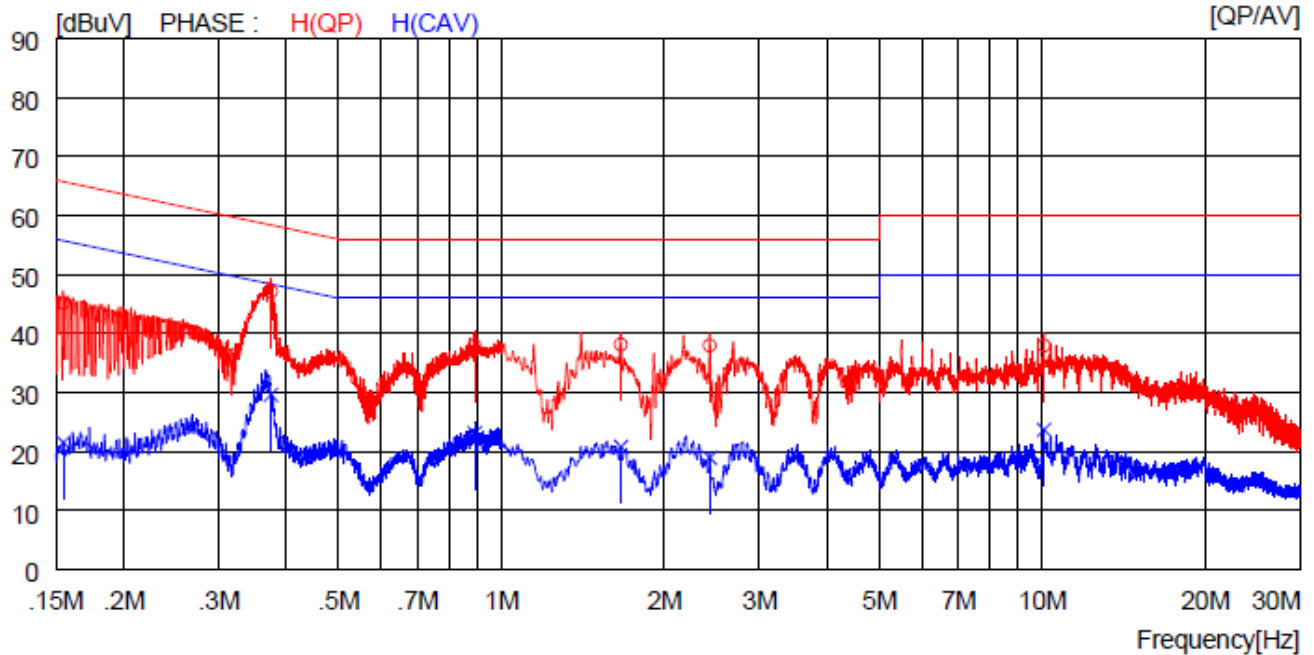
All test equipment used is calibrated on a regular basis.

8.4 Test date

November 16, 2021

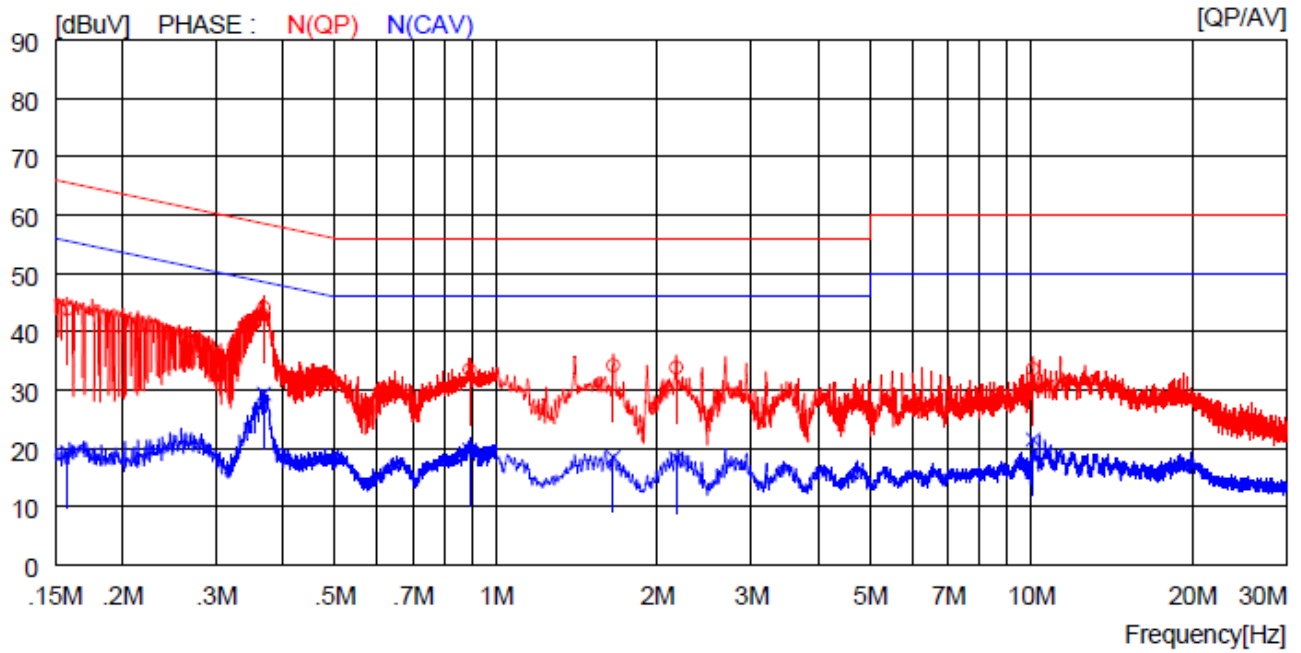
8.5 Test data for Mode 1 (Frequency : 127.7 kHz / Accessories : Mobile 1)

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



NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.15500	35.2	----	10.0	45.2	----	65.7	----	20.5	----	H (QP)
2	0.37500	37.1	----	10.0	47.1	----	58.4	----	11.3	----	H (QP)
3	0.89200	28.0	----	10.0	38.0	----	56.0	----	18.0	----	H (QP)
4	1.66400	28.0	----	10.1	38.1	----	56.0	----	17.9	----	H (QP)
5	2.42800	27.9	----	10.1	38.0	----	56.0	----	18.0	----	H (QP)
6	10.08000	27.8	----	10.2	38.0	----	60.0	----	22.0	----	H (QP)
7	0.15500	----	11.5	10.0	----	21.5	----	55.7	----	34.2	H (CAV)
8	0.37500	----	19.6	10.0	----	29.6	----	48.4	----	18.8	H (CAV)
9	0.89200	----	13.1	10.0	----	23.1	----	46.0	----	22.9	H (CAV)
10	1.66400	----	10.7	10.1	----	20.8	----	46.0	----	25.2	H (CAV)
11	2.42800	----	8.9	10.1	----	19.0	----	46.0	----	27.0	H (CAV)
12	10.08000	----	13.5	10.2	----	23.7	----	50.0	----	26.3	H (CAV)

-. Tested Line : NEUTRAL LINE



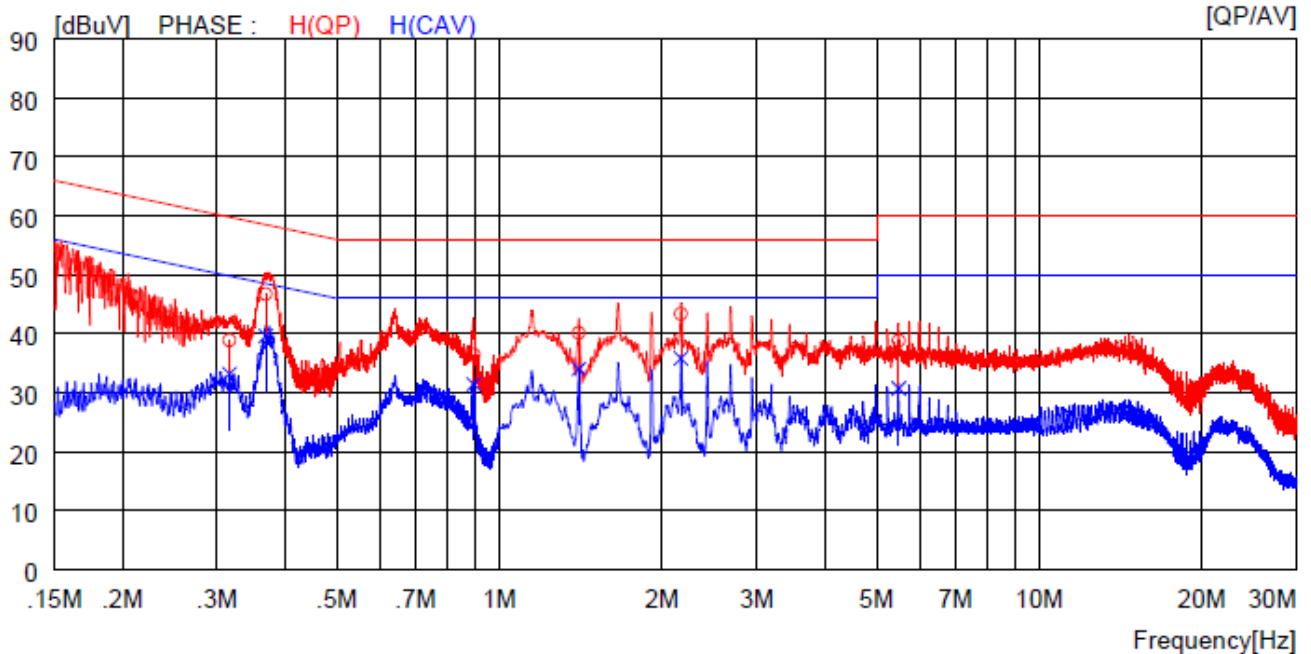
NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.15800	33.9	----	10.0	43.9	----	65.6	----	21.7	----	N(QP)
2	0.36800	34.1	----	10.0	44.1	----	58.5	----	14.4	----	N(QP)
3	0.89200	23.5	----	10.0	33.5	----	56.0	----	22.5	----	N(QP)
4	1.65600	24.1	----	10.1	34.2	----	56.0	----	21.8	----	N(QP)
5	2.17200	23.8	----	10.1	33.9	----	56.0	----	22.1	----	N(QP)
6	10.08000	23.4	----	10.2	33.6	----	60.0	----	26.4	----	N(QP)
7	0.15800	----	9.3	10.0	----	19.3	----	55.6	----	36.3	N(CAV)
8	0.36800	----	19.4	10.0	----	29.4	----	48.5	----	19.1	N(CAV)
9	0.89200	----	9.7	10.0	----	19.7	----	46.0	----	26.3	N(CAV)
10	1.65600	----	8.4	10.1	----	18.5	----	46.0	----	27.5	N(CAV)
11	2.17200	----	8.2	10.1	----	18.3	----	46.0	----	27.7	N(CAV)
12	10.08000	----	11.3	10.2	----	21.5	----	50.0	----	28.5	N(CAV)

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.

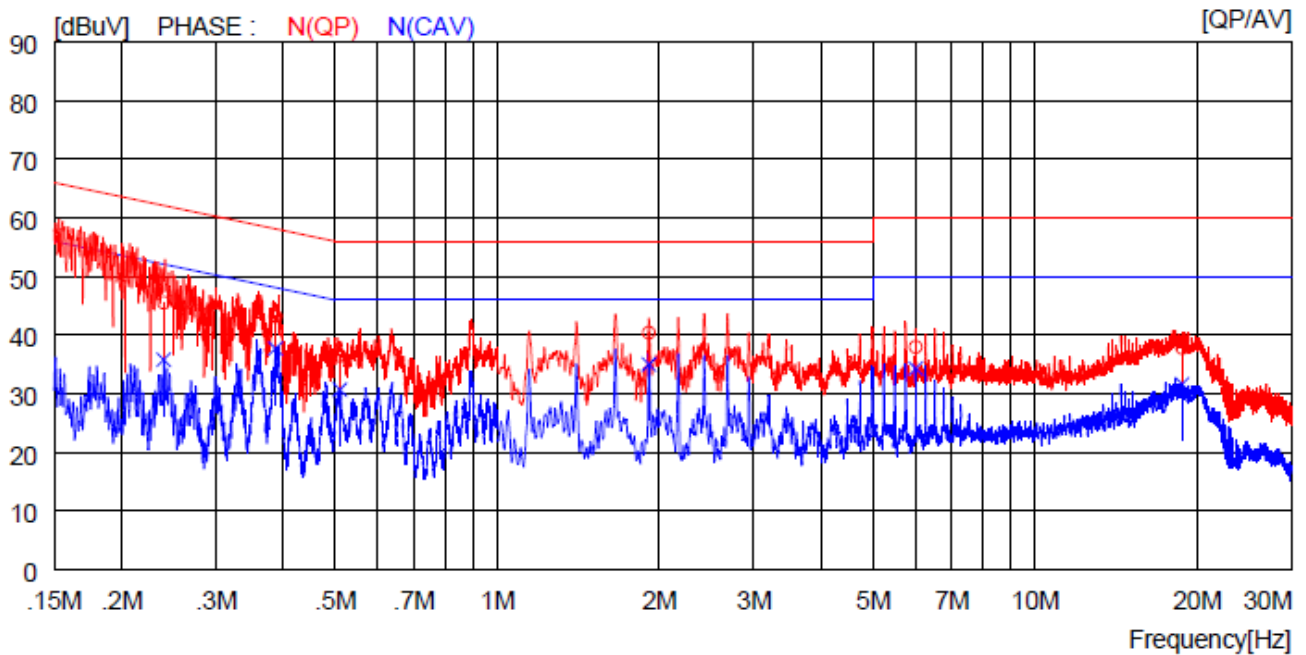
8.6 Test data for Mode 2 (Frequency : 127.7 kHz / Accessories : Mobile 1)

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



NO	FREQ [MHz]	READING		C. FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.31600	28.9	----	10.0	38.9	----	59.8	----	20.9	----	H (QP)
2	0.36900	36.7	----	10.0	46.7	----	58.5	----	11.8	----	H (QP)
3	0.89600	26.4	----	10.0	36.4	----	56.0	----	19.6	----	H (QP)
4	1.40400	30.0	----	10.1	40.1	----	56.0	----	15.9	----	H (QP)
5	2.16800	33.3	----	10.1	43.4	----	56.0	----	12.6	----	H (QP)
6	5.49000	28.6	----	10.2	38.8	----	60.0	----	21.2	----	H (QP)
7	0.31600	----	23.2	10.0	----	33.2	----	49.8	----	16.6	H (CAV)
8	0.36900	----	29.6	10.0	----	39.6	----	48.5	----	8.9	H (CAV)
9	0.89600	----	21.4	10.0	----	31.4	----	46.0	----	14.6	H (CAV)
10	1.40400	----	23.9	10.1	----	34.0	----	46.0	----	12.0	H (CAV)
11	2.16800	----	25.7	10.1	----	35.8	----	46.0	----	10.2	H (CAV)
12	5.49000	----	20.5	10.2	----	30.7	----	50.0	----	19.3	H (CAV)

-. Tested Line : NEUTRAL LINE



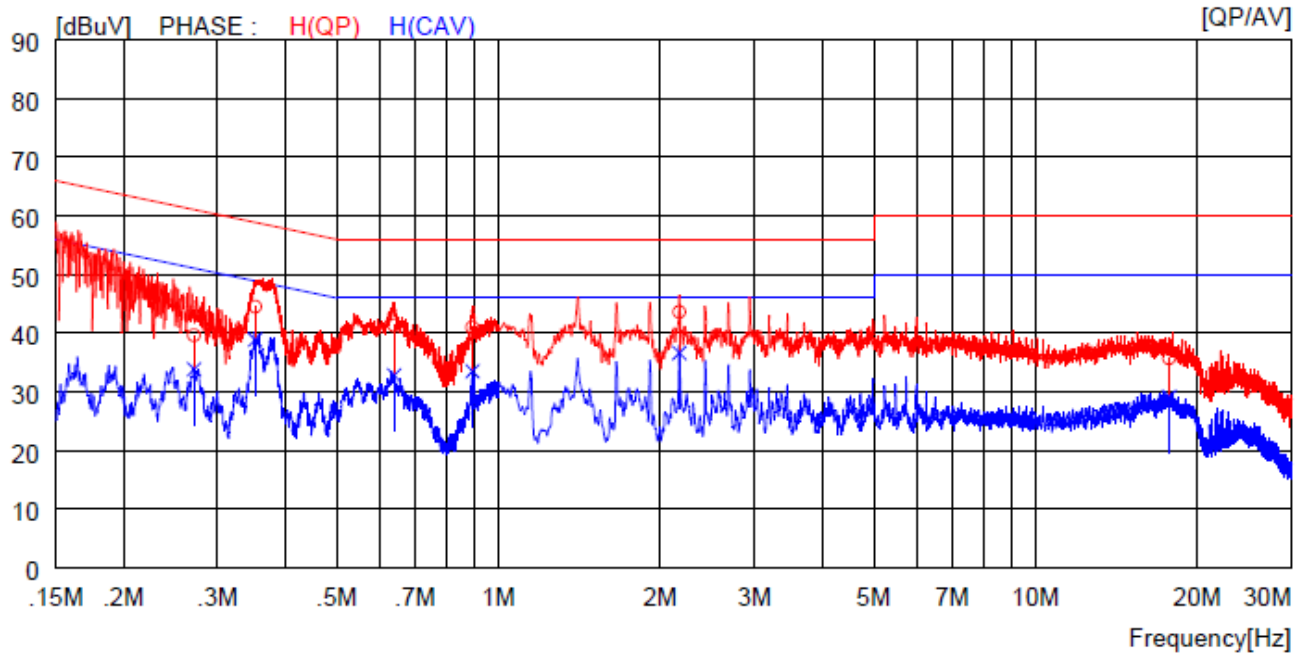
NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.24000	35.5	----	10.0	45.5	----	62.1	----	16.6	----	N(QP)
2	0.38700	33.2	----	10.0	43.2	----	58.1	----	14.9	----	N(QP)
3	0.51000	26.5	----	10.0	36.5	----	56.0	----	19.5	----	N(QP)
4	1.91600	30.3	----	10.1	40.4	----	56.0	----	15.6	----	N(QP)
5	6.00000	27.8	----	10.2	38.0	----	60.0	----	22.0	----	N(QP)
6	18.77000	27.4	----	10.4	37.8	----	60.0	----	22.2	----	N(QP)
7	0.24000	----	25.8	10.0	----	35.8	----	52.1	----	16.3	N(CAV)
8	0.38700	----	27.7	10.0	----	37.7	----	48.1	----	10.4	N(CAV)
9	0.51000	----	20.7	10.0	----	30.7	----	46.0	----	15.3	N(CAV)
10	1.91600	----	24.9	10.1	----	35.0	----	46.0	----	11.0	N(CAV)
11	6.00000	----	24.1	10.2	----	34.3	----	50.0	----	15.7	N(CAV)
12	18.77000	----	21.2	10.4	----	31.6	----	50.0	----	18.4	N(CAV)

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.

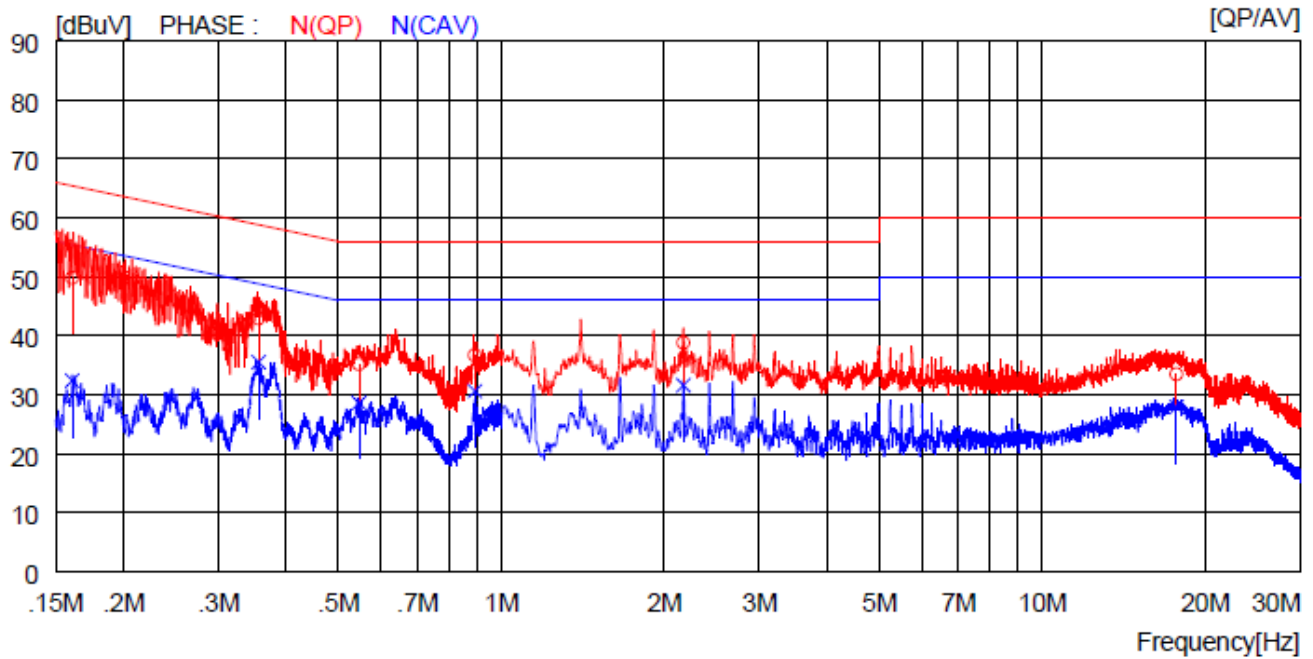
8.7 Test data for Mode 3 (Frequency : 127.7 kHz / Accessories : Mobile 1)

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



NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.27100	29.6	----	10.0	39.6	----	61.1	----	21.5	----	H (QP)
2	0.35200	34.5	----	10.0	44.5	----	58.9	----	14.4	----	H (QP)
3	0.63900	31.3	----	10.0	41.3	----	56.0	----	14.7	----	H (QP)
4	0.89400	31.0	----	10.0	41.0	----	56.0	----	15.0	----	H (QP)
5	2.17200	33.5	----	10.1	43.6	----	56.0	----	12.4	----	H (QP)
6	17.74000	25.4	----	10.3	35.7	----	60.0	----	24.3	----	H (QP)
7	0.27100	----	23.8	10.0	----	33.8	----	51.1	----	17.3	H (CAV)
8	0.35200	----	28.9	10.0	----	38.9	----	48.9	----	10.0	H (CAV)
9	0.63900	----	22.8	10.0	----	32.8	----	46.0	----	13.2	H (CAV)
10	0.89400	----	23.5	10.0	----	33.5	----	46.0	----	12.5	H (CAV)
11	2.17200	----	26.5	10.1	----	36.6	----	46.0	----	9.4	H (CAV)
12	17.74000	----	18.8	10.3	----	29.1	----	50.0	----	20.9	H (CAV)

-. Tested Line : NEUTRAL LINE



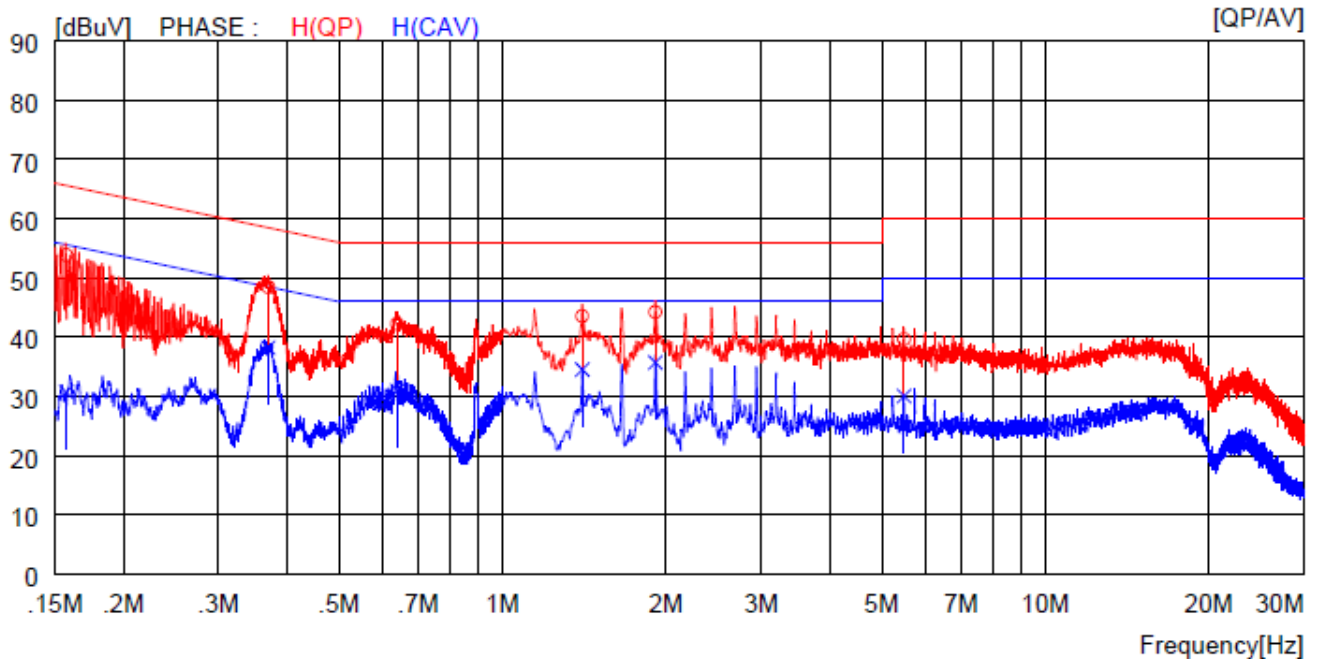
NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.16100	39.8	----	10.0	49.8	----	65.4	----	15.6	----	N (QP)
2	0.35600	32.9	----	10.0	42.9	----	58.8	----	15.9	----	N (QP)
3	0.54600	25.2	----	10.0	35.2	----	56.0	----	20.8	----	N (QP)
4	0.89400	26.7	----	10.0	36.7	----	56.0	----	19.3	----	N (QP)
5	2.17200	28.7	----	10.1	38.8	----	56.0	----	17.2	----	N (QP)
6	17.71000	23.2	----	10.3	33.5	----	60.0	----	26.5	----	N (QP)
7	0.16100	----	22.4	10.0	----	32.4	----	55.4	----	23.0	N (CAV)
8	0.35600	----	25.5	10.0	----	35.5	----	48.8	----	13.3	N (CAV)
9	0.54600	----	18.6	10.0	----	28.6	----	46.0	----	17.4	N (CAV)
10	0.89400	----	20.6	10.0	----	30.6	----	46.0	----	15.4	N (CAV)
11	2.17200	----	21.5	10.1	----	31.6	----	46.0	----	14.4	N (CAV)
12	17.71000	----	17.6	10.3	----	27.9	----	50.0	----	22.1	N (CAV)

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.

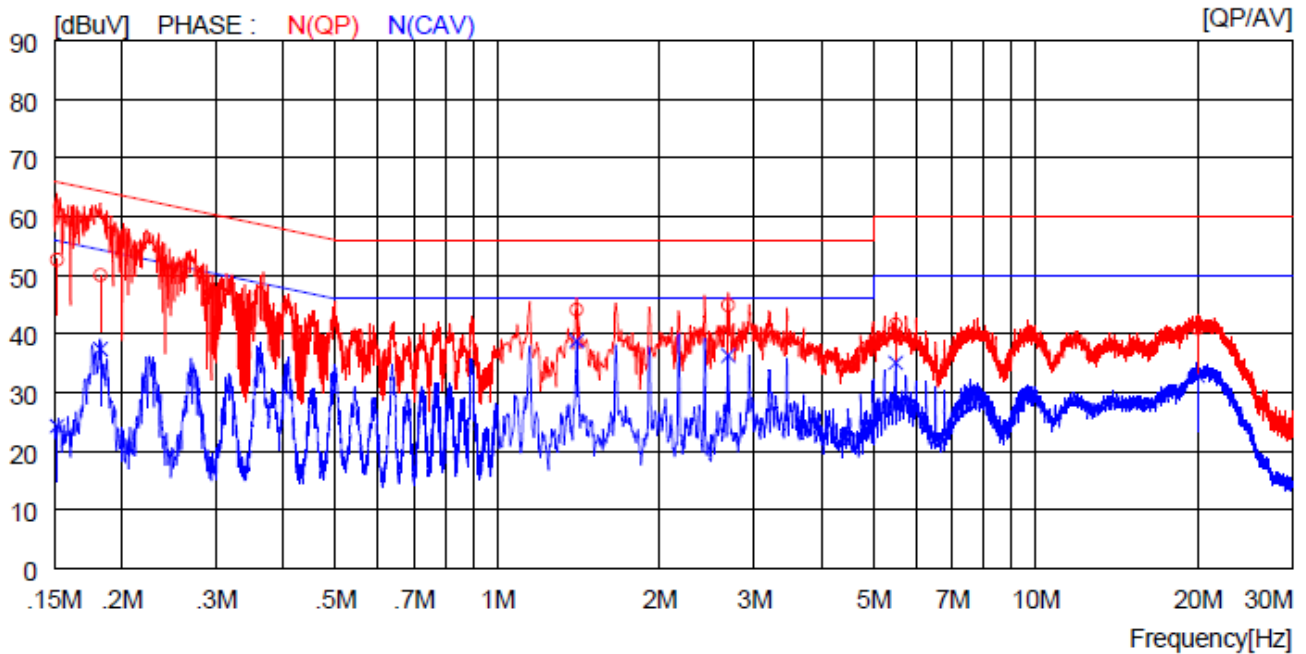
8.8 Test data for Mode 4 (Frequency : 127.7 kHz / Accessories : Mobile 1)

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



NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.15700	43.9	----	10.0	53.9	----	65.6	----	11.7	----	H (QP)
2	0.37000	38.4	----	10.0	48.4	----	58.5	----	10.1	----	H (QP)
3	0.64000	32.2	----	10.0	42.2	----	56.0	----	13.8	----	H (QP)
4	1.40400	33.4	----	10.1	43.5	----	56.0	----	12.5	----	H (QP)
5	1.91200	34.1	----	10.1	44.2	----	56.0	----	11.8	----	H (QP)
6	5.49000	29.4	----	10.2	39.6	----	60.0	----	20.4	----	H (QP)
7	0.15700	----	20.7	10.0	----	30.7	----	55.6	----	24.9	H (CAV)
8	0.37000	----	28.2	10.0	----	38.2	----	48.5	----	10.3	H (CAV)
9	0.64000	----	20.9	10.0	----	30.9	----	46.0	----	15.1	H (CAV)
10	1.40400	----	24.4	10.1	----	34.5	----	46.0	----	11.5	H (CAV)
11	1.91200	----	25.6	10.1	----	35.7	----	46.0	----	10.3	H (CAV)
12	5.49000	----	19.8	10.2	----	30.0	----	50.0	----	20.0	H (CAV)

-. Tested Line : NEUTRAL LINE



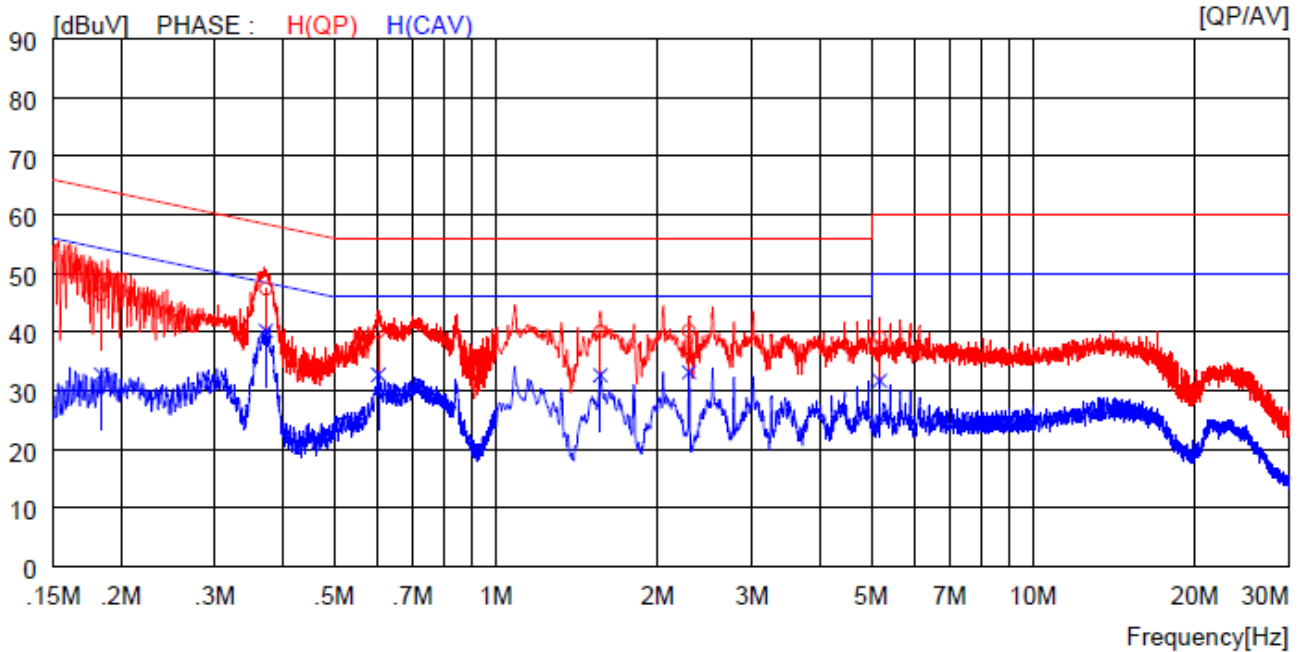
NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.15200	42.6	----	10.0	52.6	----	65.9	----	13.3	----	N(QP)
2	0.18300	40.0	----	10.0	50.0	----	64.3	----	14.3	----	N(QP)
3	1.40400	34.0	----	10.1	44.1	----	56.0	----	11.9	----	N(QP)
4	2.68400	34.8	----	10.1	44.9	----	56.0	----	11.1	----	N(QP)
5	5.49000	31.4	----	10.2	41.6	----	60.0	----	18.4	----	N(QP)
6	19.99000	30.6	----	10.4	41.0	----	60.0	----	19.0	----	N(QP)
7	0.15200	----	14.3	10.0	----	24.3	----	55.9	----	31.6	N(CAV)
8	0.18300	----	27.4	10.0	----	37.4	----	54.3	----	16.9	N(CAV)
9	1.40400	----	28.7	10.1	----	38.8	----	46.0	----	7.2	N(CAV)
10	2.68400	----	26.2	10.1	----	36.3	----	46.0	----	9.7	N(CAV)
11	5.49000	----	24.9	10.2	----	35.1	----	50.0	----	14.9	N(CAV)
12	19.99000	----	22.5	10.4	----	32.9	----	50.0	----	17.1	N(CAV)

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.

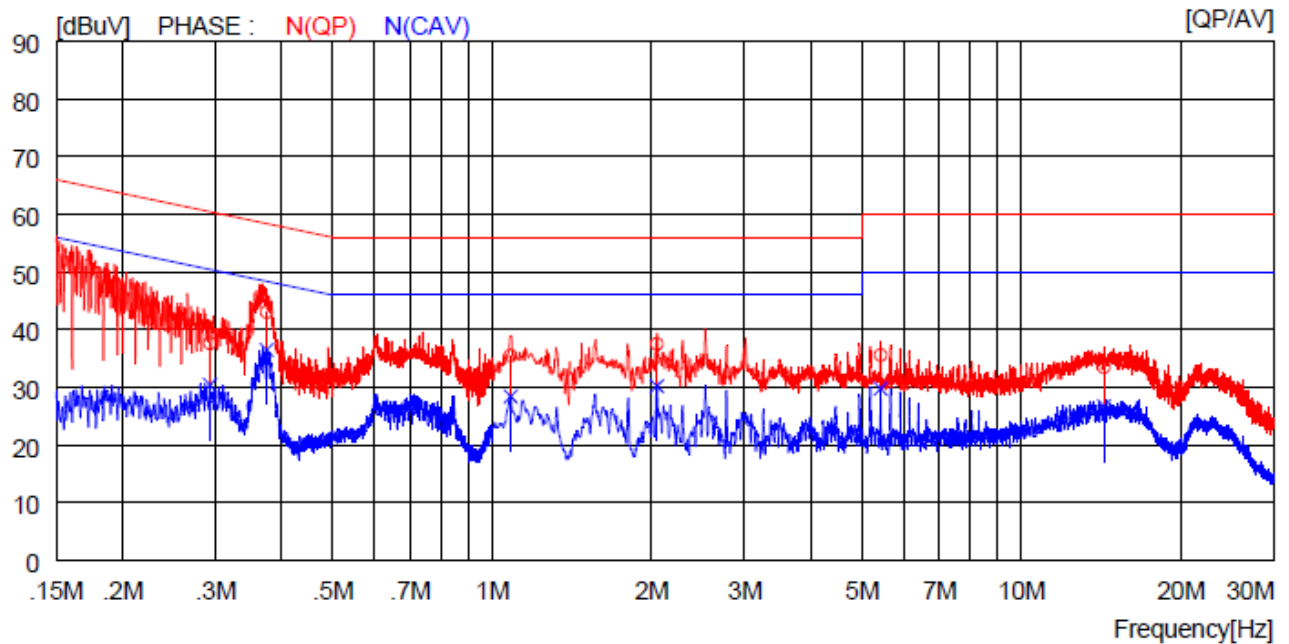
8.9 Test data for Mode 5 (Frequency: 120.5 kHz / Accessories : Mobile 2)

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



NO	FREQ [MHz]	READING		C. FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.18400	36.5	----	10.0	46.5	----	64.3	----	17.8	----	H (QP)
2	0.37300	37.4	----	10.0	47.4	----	58.4	----	11.0	----	H (QP)
3	0.60400	30.1	----	10.0	40.1	----	56.0	----	15.9	----	H (QP)
4	1.56400	29.9	----	10.1	40.0	----	56.0	----	16.0	----	H (QP)
5	2.28800	30.1	----	10.1	40.2	----	56.0	----	15.8	----	H (QP)
6	5.18000	28.9	----	10.2	39.1	----	60.0	----	20.9	----	H (QP)
7	0.18400	----	22.7	10.0	----	32.7	----	54.3	----	21.6	H (CAV)
8	0.37300	----	30.2	10.0	----	40.2	----	48.4	----	8.2	H (CAV)
9	0.60400	----	22.7	10.0	----	32.7	----	46.0	----	13.3	H (CAV)
10	1.56400	----	22.5	10.1	----	32.6	----	46.0	----	13.4	H (CAV)
11	2.28800	----	23.0	10.1	----	33.1	----	46.0	----	12.9	H (CAV)
12	5.18000	----	21.5	10.2	----	31.7	----	50.0	----	18.3	H (CAV)

-. Tested Line : NEUTRAL LINE



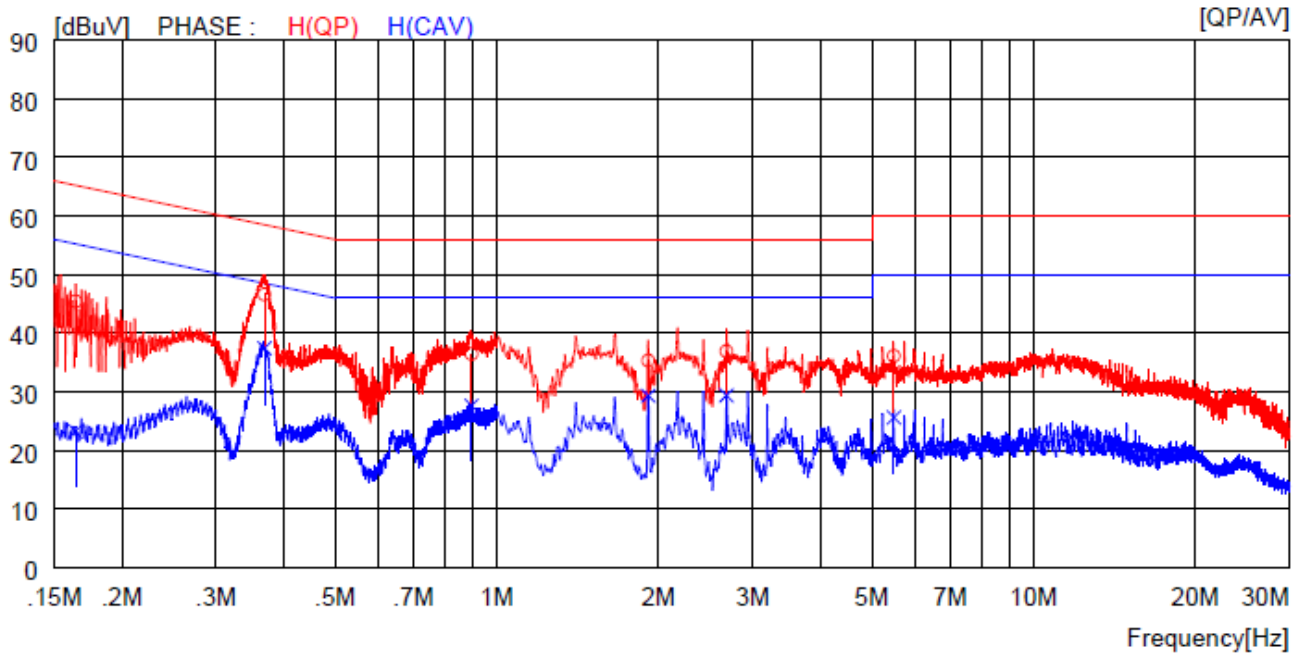
NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.29300	27.6	----	10.0	37.6	----	60.4	----	22.8	----	N(QP)
2	0.37500	33.0	----	10.0	43.0	----	58.4	----	15.4	----	N(QP)
3	1.08400	25.4	----	10.1	35.5	----	56.0	----	20.5	----	N(QP)
4	2.04800	27.4	----	10.1	37.5	----	56.0	----	18.5	----	N(QP)
5	5.42000	25.4	----	10.2	35.6	----	60.0	----	24.4	----	N(QP)
6	14.33000	23.2	----	10.3	33.5	----	60.0	----	26.5	----	N(QP)
7	0.29300	----	20.4	10.0	----	30.4	----	50.4	----	20.0	N(CAV)
8	0.37500	----	26.5	10.0	----	36.5	----	48.4	----	11.9	N(CAV)
9	1.08400	----	18.3	10.1	----	28.4	----	46.0	----	17.6	N(CAV)
10	2.04800	----	20.1	10.1	----	30.2	----	46.0	----	15.8	N(CAV)
11	5.42000	----	19.6	10.2	----	29.8	----	50.0	----	20.2	N(CAV)
12	14.33000	----	16.4	10.3	----	26.7	----	50.0	----	23.3	N(CAV)

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.

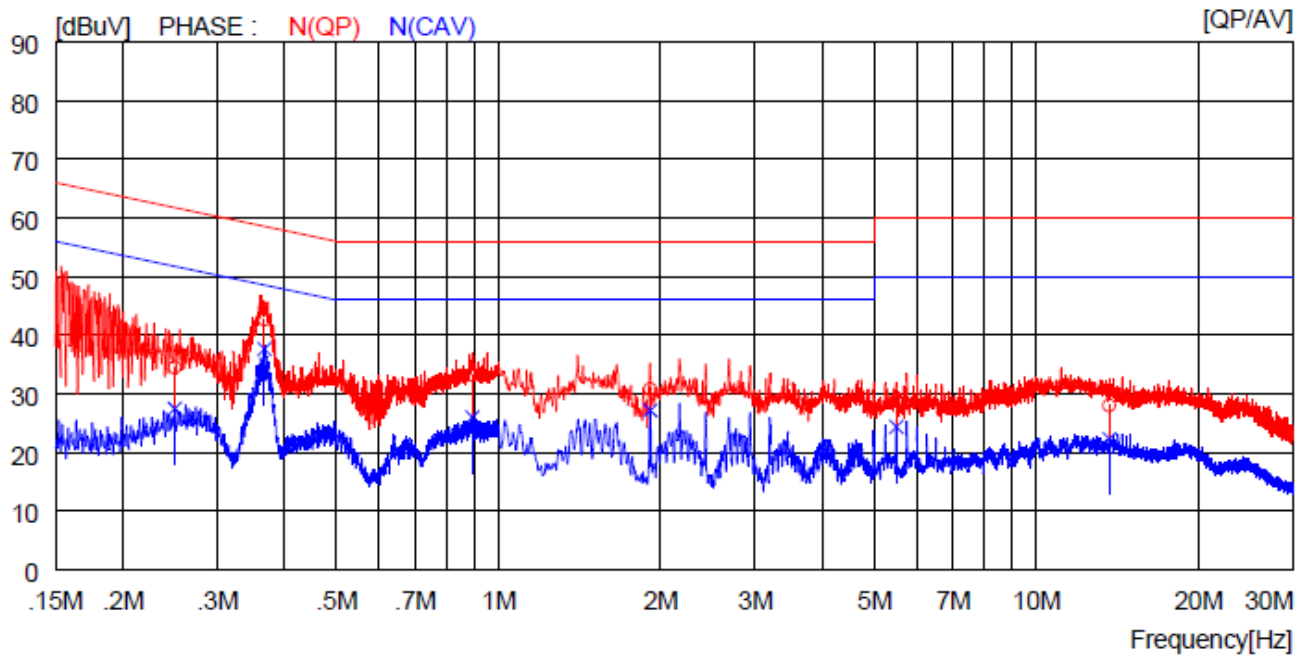
8.10 Test data for Mode 2 (Frequency : 127.7 kHz / Accessories : Earphone)

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



NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.16400	35.4	----	10.0	45.4	----	65.3	----	19.9	----	H (QP)
2	0.36900	36.6	----	10.0	46.6	----	58.5	----	11.9	----	H (QP)
3	0.89700	26.4	----	10.0	36.4	----	56.0	----	19.6	----	H (QP)
4	1.91600	25.2	----	10.1	35.3	----	56.0	----	20.7	----	H (QP)
5	2.68000	26.8	----	10.1	36.9	----	56.0	----	19.1	----	H (QP)
6	5.49000	25.9	----	10.2	36.1	----	60.0	----	23.9	----	H (QP)
7	0.16400	----	13.2	10.0	----	23.2	----	55.3	----	32.1	H (CAV)
8	0.36900	----	27.4	10.0	----	37.4	----	48.5	----	11.1	H (CAV)
9	0.89700	----	17.6	10.0	----	27.6	----	46.0	----	18.4	H (CAV)
10	1.91600	----	19.2	10.1	----	29.3	----	46.0	----	16.7	H (CAV)
11	2.68000	----	19.3	10.1	----	29.4	----	46.0	----	16.6	H (CAV)
12	5.49000	----	15.4	10.2	----	25.6	----	50.0	----	24.4	H (CAV)

-. Tested Line : NEUTRAL LINE



NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.25000	24.5	----	10.0	34.5	----	61.8	----	27.3	----	N(QP)
2	0.36700	32.7	----	10.0	42.7	----	58.6	----	15.9	----	N(QP)
3	0.89400	23.2	----	10.0	33.2	----	56.0	----	22.8	----	N(QP)
4	1.91600	20.7	----	10.1	30.8	----	56.0	----	25.2	----	N(QP)
5	5.49000	18.6	----	10.2	28.8	----	60.0	----	31.2	----	N(QP)
6	13.67000	17.7	----	10.3	28.0	----	60.0	----	32.0	----	N(QP)
7	0.25000	----	17.5	10.0	----	27.5	----	51.8	----	24.3	N(CAV)
8	0.36700	----	27.6	10.0	----	37.6	----	48.6	----	11.0	N(CAV)
9	0.89400	----	16.0	10.0	----	26.0	----	46.0	----	20.0	N(CAV)
10	1.91600	----	17.1	10.1	----	27.2	----	46.0	----	18.8	N(CAV)
11	5.49000	----	14.2	10.2	----	24.4	----	50.0	----	25.6	N(CAV)
12	13.67000	----	12.0	10.3	----	22.3	----	50.0	----	27.7	N(CAV)

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

Model Number	Manufacturer	Description	Serial Number	Last Cal.(Interval)
ESR	R/S	Spectrum analyzer	101470	Oct. 18, 2021 (1Y)
ESCI	R/S	Test Receiver	101012	Oct. 20, 2021 (1Y)
310N	Sonoma Instrument	Pre-Amplifier	392756	Oct. 14, 2021 (1Y)
HLP-2008	TDK	Hybrid Antenna	131316	Feb. 27, 2020 (2Y)
CO3000	Innco Systems GmbH	Controller	N/A	N/A
DT3000-3t	Innco System	Turn Table	DT3000/093	N/A
NSLK8128	Schwarzbeck	V - LISN (4*32/50A)	8128216	Mar. 16, 2021 (1Y)
ESH3-Z2	R/S	Pulse Limiter	100655	Mar. 15, 2021 (1Y)
MA-4000XPET	Innco System	Antenna Master	MA4000/509	N/A
FMZB 1513	Schwarzbeck	Loop Antenna	1513-235	Mar. 24, 2020 (2Y)