FCC Test Report

Report No.:	RFBBCBS-WTW-P21100276
FCC ID:	K7SWIA004
Test Model:	WIA004
Received Date:	Oct. 08, 2021
Test Date:	Oct. 15 ~ Oct. 25, 2021
Issued Date:	Nov. 25, 2021
Applicant:	Belkin International, Inc.
Address:	12045 East Waterfront Drive, Playa Vista, CA 90094
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN
FCC Registration / Designation Number:	788550 / TW0003

Table of Contents

Release Control Record

Issue No.	Description	Date Issued
RFBBCBS-WTW-P21100276	Original release	Nov. 25, 2021

1 Certificate of Conformity

Product:	BOOST↑CHARGE™ PRO Portable Wireless Charger Pad with MagSafe
Brand:	belkin
Test Model:	WIA004
Sample Status:	Engineering sample
Applicant:	Belkin International, Inc.
Test Date:	Oct. 15 ~ Oct. 25, 2021
Standards:	47 CFR FCC Part 15, Subpart C (Section 15.209) ANSI C63.10: 2013

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by : Celine Chou , **Date:** Nov. 25, 2021

Celine Chou / Senior Specialist

Approved by : Jeremy Lin , **Date:** Nov. 25, 2021

Jeremy Lin / Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.209)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	Pass	Meet the requirement of limit. Minimum passing margin is -13.19dB at 0.56600MHz.
15.209	Radiated Emission Test	Pass	Meet the requirement of limit. Minimum passing margin is -7.4dB at 59.10MHz

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.94 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.00 dB
	30MHz ~ 200MHz	2.91 dB
	200MHz ~ 1000MHz	2.93 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	BOOST↑CHARGE™ PRO Portable Wireless Charger Pad with MagSafe
Brand	belkin
Test Model	WIA004
Sample Status	Engineering sample
Power Supply Rating	27W (9Vdc, 3A)
Modulation Type	FSK
Operating Frequency	360.0kHz
Antenna Type	Coil antenna (The Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible)
Field Strength	-32.1dBuV/m (PK) (300m) -34.4dBuV/m (AV) (300m)
Dimension for iPhone charging coil	16.62cm^2 (Diameter = 46.01mm)
Accessory Device	Refer to Note as below
Data Cable Supplied	2.0m shielded cable without core attached on EUT
Maximum Power Output for iPhone charging coil	15W

Note:

1. The EUT has two types for sale.

Brand	Model	Type
belkin	WIA004	with plastic kick stand / with PSU
		with metal kick stand / without PSU

* After pre-test, EUT with metal kick stand was chosen for final test and presented in the test report.

2. The EUT uses following adapters.

Adapter 1	
Brand	belkin
Model	PD027U-1C01 (Black)
Input Power	100-240Vac, 50-60Hz, 0.9A
Output Power	5Vdc, 3A; 9Vdc, 3A

Adapter 2	
Brand	belkin
Model	PD027U-1C02 (White)
Input Power	100-240Vac, 50-60Hz, 0.9A
Output Power	5Vdc, 3A; 9Vdc, 3A

Adapter 3	
Brand	belkin
Model	WCA004dq V2
Input Power	100-240Vac, 50-60Hz, 0.7A
Output Power	5Vdc, 3A; 9Vdc, 2.77A

* Adapter 1 and adapter 2 are different at appearance color only, after pre-test adapter 2 and adapter 3, adapter 2 was chosen for final test and presented in the test report.

3.2 Description of Test Modes

1 channel is provided to this EUT

Channel	Freq. (kHz)
1	360.0

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable to		Description
	RE<1G	PLC	
A	√	√	Charging Mode (Powered by adapter)
B	√	√	Standby Mode (Powered by adapter)
C	-	√	Charging Mode (Powered by notebook)
D	-	√	Standby Mode (Powered by notebook)

Where **RE<1G:** Radiated Emission below 1GHz **PLC:** Power Line Conducted Emission

Note: The EUT had been pre-tested on the positioned of 2 axis (X and Z). The worst case was found when positioned on **Z-plane**.

Radiated Emission Test (Below 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel
A	1	1
B	1	1

Power Line Conducted Emission Test:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel
A	1	1
B	1	1
C	1	1
D	1	1

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested by
RE<1G	23 deg. C, 67% RH	120Vac, 60Hz	Raymond Lee
PLC	25 deg. C, 75% RH	120Vac, 60Hz	Rex Wang

3.3 Description of Support Units

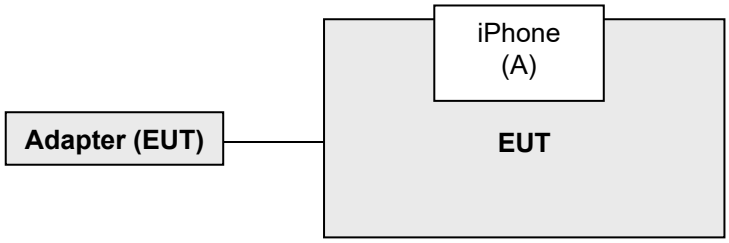
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	iPhone	APPLE	A2633	NA	BCG-E4031A	Provided by manufacturer
B.	Notebook	ASUS	X571G	L1N0CX01741801A	PD99560NG	-

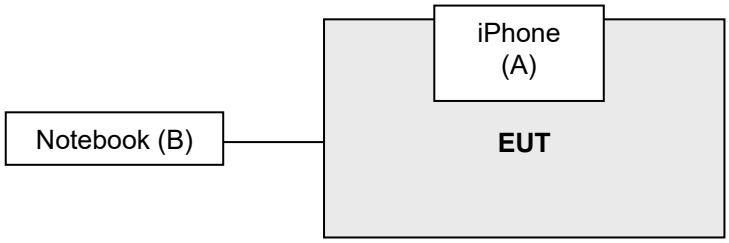
3.3.1 Configuration of System under Test

Charging Mode:

Test Mode A

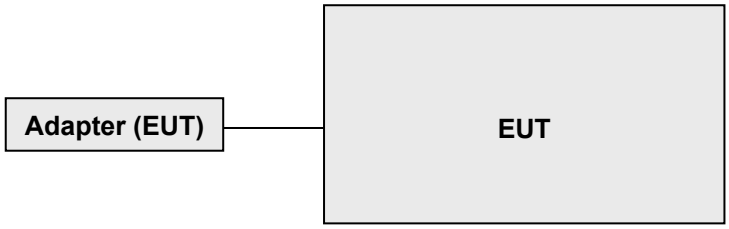


Test Mode C

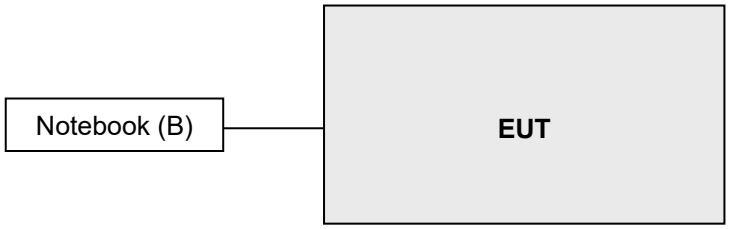


Standby Mode:

Test Mode B



Test Mode D



3.4 General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C (15.209)

ANSI C63.10-2013

All test items have been performed and recorded as per the above standards.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

FOR FREQUENCY BELOW 30MHz

Frequency (MHz)	Field Strength (dBuV/m)		Measurement Distance (meters)
	uV/m	dBuV/m	
0.009 – 0.490	2400 / F (kHz)	48.52-13.80	300
0.490 – 1.705	24000 / F (kHz)	33.80-22.97	30
1.705 – 30.0	30	29.54	30

FOR FREQUENCY BETWEEN 30-1000MHz

Frequency (MHz)	Field Strength (dBuV/m)		Measurement Distance (meters)
	uV/m	dBuV/m	
30-88	100	40.0	3
88-216	150	43.5	
216-960	200	46.0	
Above 960	500	54.0	

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver Rohde & Schwarz	ESR3	102783	Dec. 21, 2020	Dec. 20, 2021
Spectrum Analyzer KEYSIGHT	N9020B	MY60110513	Dec. 21, 2020	Dec. 20, 2021
BILOG Antenna SCHWARZBECK	VULB9168	1214	Nov. 04, 2020	Nov. 03, 2021
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-1170	Nov. 22, 2020	Nov. 21, 2021
HORN Antenna SCHWARZBECK	BBHA 9170	995	Nov. 22, 2020	Nov. 21, 2021
Loop Antenna EMCI	EM-6879	269	Sep. 16, 2021	Sep. 15, 2022
Loop Antenna TESEQ	HLA 6121	45745	Jul. 21, 2021	Jul. 20, 2022
Preamplifier EMCI	EMC330N	980798	Jan. 12, 2021	Jan. 11, 2022
Preamplifier EMCI	EMC118A45SE	980809	Jan. 12, 2021	Jan. 11, 2022
Preamplifier EMCI	EMC184045SE	980786	Jan. 12, 2021	Jan. 11, 2022
RF signal cable EMCI	EMC104-SM-SM-(9000+2000+1000)	201244+ 201232+ 210103	Jan. 12, 2021	Jan. 11, 2022
RF signal cable EMCI	EMCCFD400-NM-NM-(9000+300+500)	201251+ 201249+ 201248	Jan. 12, 2021	Jan. 11, 2022
RF signal cable EMCI	EMC101G-KM-KM-(5000+3000+2000)	201261+201258+201249	Jan. 12, 2021	Jan. 11, 2022
Software BV ADT	ADT_Radiated_V7.6.15.9.5	NA	NA	NA
Antenna Tower Max-Full	MFA-515BSN	NA	NA	NA
Turn Table Max-Full	MFT-201SS	NA	NA	NA
Turn Table Controller Max-Full	MF-7802BS	MF780208676	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in WM Chamber 9.

4.1.3 Test Procedures

For Radiated emission below 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. Parallel, perpendicular, and Ground-Parallel orientations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode, except for the frequency band (9kHz-90kHz, 110kHz-490kHz) set to average detect function and peak detect function.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 200 Hz at frequency band (9kHz-150kHz) and 9kHz at frequency below 30MHz (except 9kHz-150kHz).
2. There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

For Radiated emission above 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters (for below 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

Note:

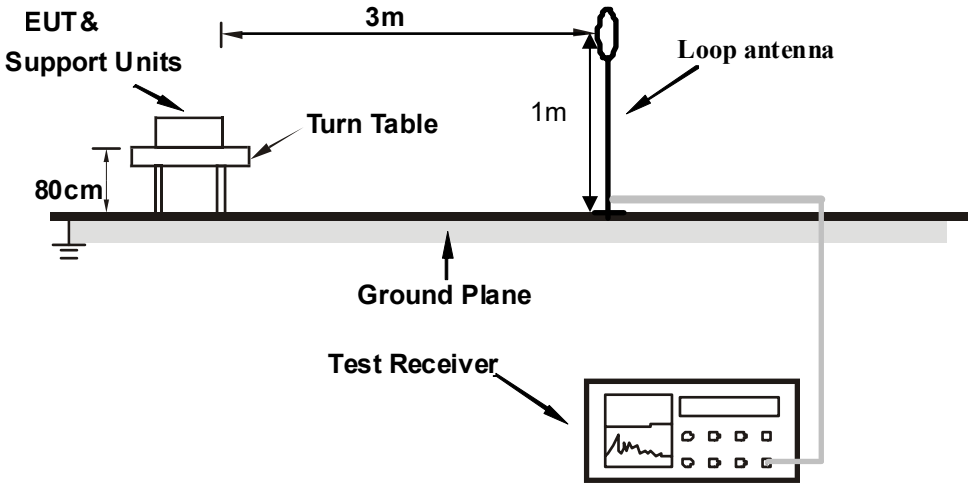
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

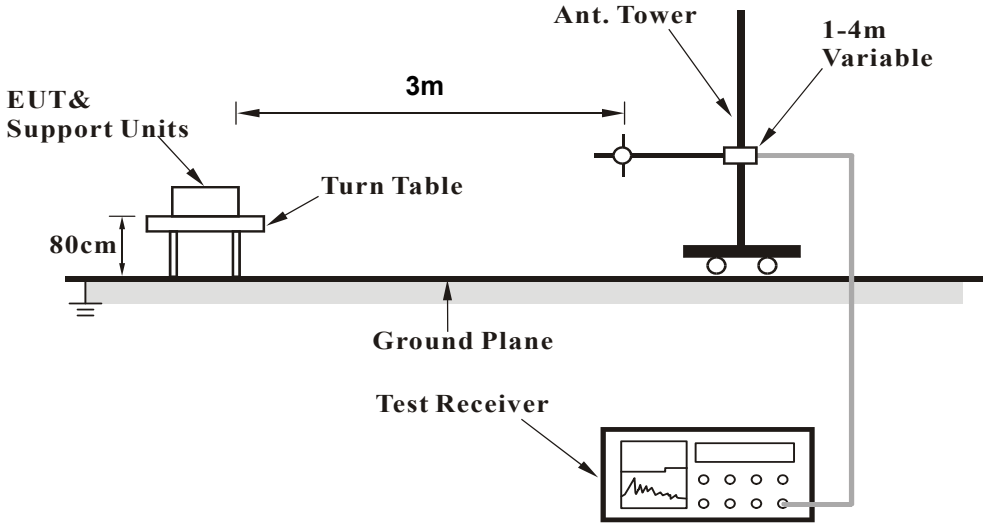
No deviation.

4.1.5 Test Set Up

For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.6 EUT Operating Conditions

Charging Mode:

Test Mode A

a. The EUT powered by adapter.

b. Put the iPhone on the EUT (wireless charging) during the test.

Test Mode C (for power line conducted emission)

a. The EUT powered by notebook.

b. Put the iPhone on the EUT (wireless charging) during the test.

Standby Mode:

Test Mode B

a. The EUT powered by adapter.

Test Mode D (for power line conducted emission)

a. The EUT powered by notebook.

4.1.7 Test Results

Below 30MHz Data:

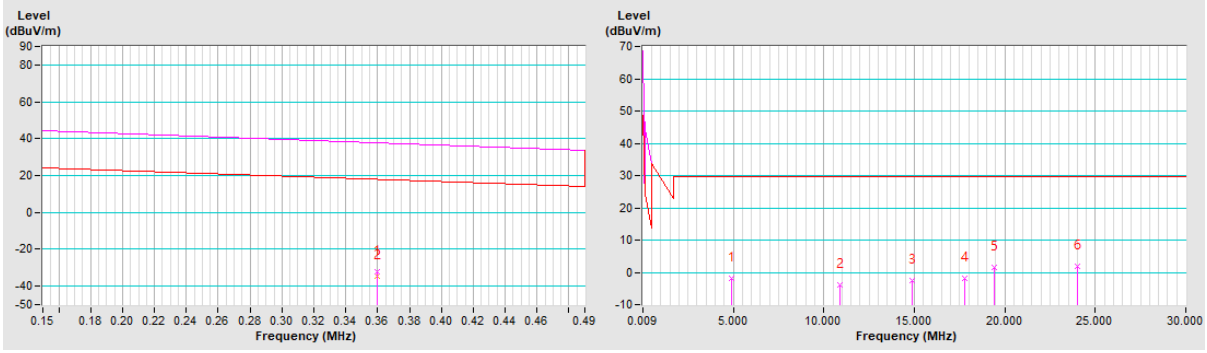
Charging Mode

Channel	TX Channel 1	Detector Function	Average (AV) Peak (PK) Quasi-Peak (QP)
Frequency Range	9 kHz ~ 30 MHz		
Test Mode	A		

Antenna Polarity & Test Distance: Loop antenna Parallel at 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*0.360	-32.1 PK	36.5	-68.6	1.00	101	27.6	-59.7
2	*0.360	-34.4 AV	16.5	-50.9	1.00	101	25.3	-59.7
3	4.921	-1.7 QP	29.5	-31.2	1.00	187	18.1	-19.8
4	10.919	-3.9 QP	29.5	-33.4	1.00	117	14.2	-18.1
5	14.874	-2.6 QP	29.5	-32.1	1.00	1	15.4	-18.0
6	17.786	-1.8 QP	29.5	-31.3	1.00	4	16.1	-17.9
7	19.438	1.5 QP	29.5	-28.0	1.00	356	19.3	-17.8
8	24.002	1.8 QP	29.5	-27.7	1.00	105	19.7	-17.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB). +Distance Factor
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value.
5. " * ": Fundamental frequency.
6. Loop antenna was used for all radiated emission below 30MHz.
7. 0.009 ~ 0.49MHz, the measured field strength was extrapolated to distance 300 meters Distance factor@3m = 40*log(3/300) = -80dB
   For 0.49 ~ 30MHz, the measured field strength was extrapolated to distance 30 meters Distance factor@3m = 40*log(3/30) = -40dB

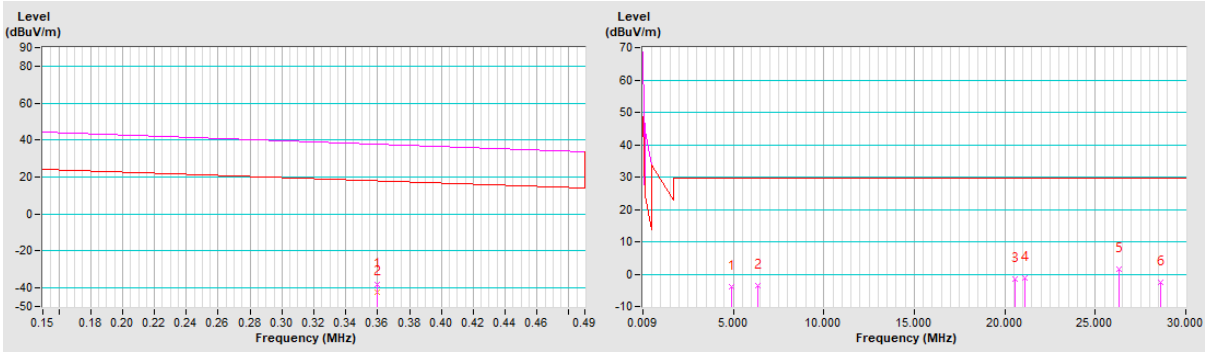


Channel	TX Channel 1	Detector Function	Average (AV) Peak (PK) Quasi-Peak (QP)
Frequency Range	9 kHz ~ 30 MHz		
Test Mode	A		

Antenna Polarity & Test Distance: Loop antenna Perpendicular at 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*0.360	-37.9 PK	36.5	-74.4	1.00	20	21.8	-59.7
2	*0.360	-42.4 AV	16.5	-58.9	1.00	20	17.3	-59.7
3	4.877	-3.8 QP	29.5	-33.3	1.00	24	16.0	-19.8
4	6.355	-3.7 QP	29.5	-33.2	1.00	265	15.6	-19.3
5	20.568	-1.4 QP	29.5	-30.9	1.00	159	16.4	-17.8
6	21.133	-1.2 QP	29.5	-30.7	1.00	109	16.6	-17.8
7	26.305	1.6 QP	29.5	-27.9	1.00	10	19.5	-17.9
8	28.609	-2.6 QP	29.5	-32.1	1.00	152	15.4	-18.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB). +Distance Factor
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value.
5. " * ": Fundamental frequency.
6. Loop antenna was used for all radiated emission below 30MHz.
7. 0.009 ~ 0.49MHz, the measured field strength was extrapolated to distance 300 meters Distance factor@3m = 40*log(3/300) = -80dB
   For 0.49 ~ 30MHz, the measured field strength was extrapolated to distance 30 meters Distance factor@3m = 40*log(3/30) = -40dB

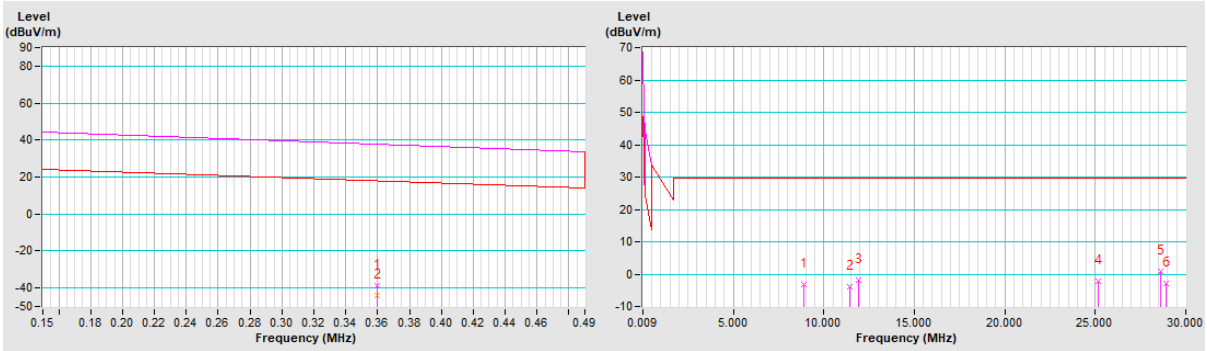


Channel	TX Channel 1	Detector Function	Average (AV) Peak (PK) Quasi-Peak (QP)
Frequency Range	9 kHz ~ 30 MHz		
Test Mode	A		

Antenna Polarity & Test Distance: Loop antenna Ground-Parallel at 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*0.360	-38.9 PK	36.5	-75.4	1.00	254	20.8	-59.7
2	*0.360	-44.3 AV	16.5	-60.8	1.00	254	15.4	-59.7
3	8.876	-3.2 QP	29.5	-32.7	1.00	21	15.3	-18.5
4	11.440	-3.9 QP	29.5	-33.4	1.00	212	14.2	-18.1
5	11.918	-1.8 QP	29.5	-31.3	1.00	0	16.2	-18.0
6	25.175	-2.1 QP	29.5	-31.6	1.00	45	15.8	-17.9
7	28.609	0.9 QP	29.5	-28.6	1.00	359	18.9	-18.0
8	28.913	-3.0 QP	29.5	-32.5	1.00	188	15.0	-18.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB). +Distance Factor
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value.
5. " * ": Fundamental frequency.
6. Loop antenna was used for all radiated emission below 30MHz.
7. 0.009 ~ 0.49MHz, the measured field strength was extrapolated to distance 300 meters Distance factor@3m = 40*log(3/300) = -80dB
   For 0.49 ~ 30MHz, the measured field strength was extrapolated to distance 30 meters Distance factor@3m = 40*log(3/30) = -40dB



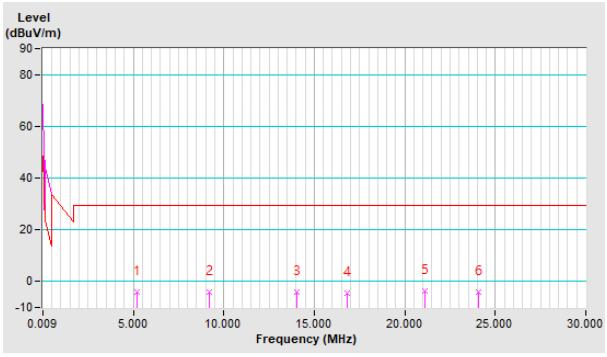
Standby Mode

Channel	TX Channel 1	Detector Function	Quasi-Peak (QP)
Frequency Range	9 kHz ~ 30 MHz		
Test Mode	B		

Antenna Polarity & Test Distance: Loop antenna Parallel at 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5.181	-4.2 QP	29.5	-33.7	1.00	76	15.5	-19.7
2	9.224	-4.0 QP	29.5	-33.5	1.00	4	14.4	-18.4
3	14.048	-4.2 QP	29.5	-33.7	1.00	350	13.8	-18.0
4	16.830	-4.7 QP	29.5	-34.2	1.00	238	13.2	-17.9
5	21.133	-3.5 QP	29.5	-33.0	1.00	148	14.3	-17.8
6	24.045	-4.0 QP	29.5	-33.5	1.00	286	13.9	-17.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB). +Distance Factor
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value.
5. " * ": Fundamental frequency.
6. Loop antenna was used for all radiated emission below 30MHz.
7. 0.009 ~ 0.49MHz, the measured field strength was extrapolated to distance 300 meters Distance factor@3m = 40*log(3/300) = -80dB
   For 0.49 ~ 30MHz, the measured field strength was extrapolated to distance 30 meters Distance factor@3m = 40*log(3/30) = -40dB

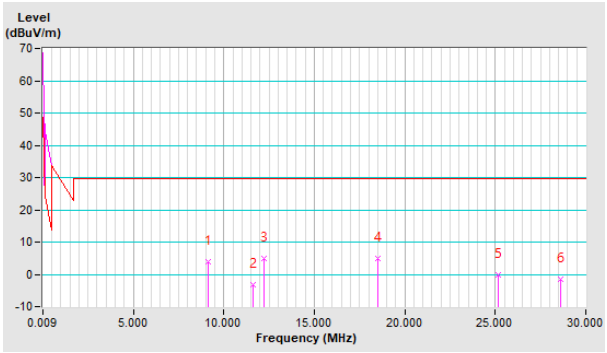


Channel	TX Channel 1	Detector Function	Quasi-Peak (QP)
Frequency Range	9 kHz ~ 30 MHz		
Test Mode	B		

Antenna Polarity & Test Distance: Loop antenna Perpendicular at 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	9.137	4.0 QP	29.5	-25.5	1.00	20	22.4	-18.4
2	11.614	-3.2 QP	29.5	-32.7	1.00	236	14.9	-18.1
3	12.223	5.0 QP	29.5	-24.5	1.00	226	23.0	-18.0
4	18.482	5.0 QP	29.5	-24.5	1.00	18	22.8	-17.8
5	25.175	-0.1 QP	29.5	-29.6	1.00	64	17.8	-17.9
6	28.609	-1.4 QP	29.5	-30.9	1.00	40	16.6	-18.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB). +Distance Factor
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value.
5. " * ": Fundamental frequency.
6. Loop antenna was used for all radiated emission below 30MHz.
7. 0.009 ~ 0.49MHz, the measured field strength was extrapolated to distance 300 meters Distance factor@3m = 40*log(3/300) = -80dB
   For 0.49 ~ 30MHz, the measured field strength was extrapolated to distance 30 meters Distance factor@3m = 40*log(3/30) = -40dB

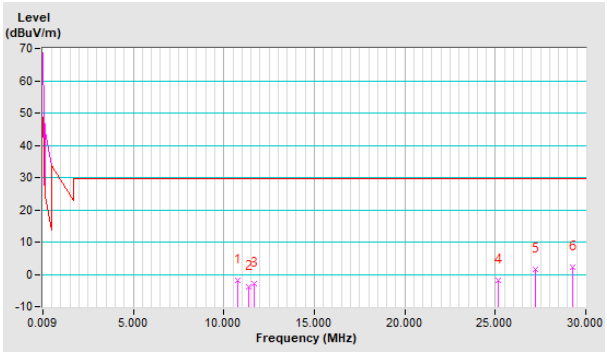


Channel	TX Channel 1	Detector Function	Quasi-Peak (QP)
Frequency Range	9 kHz ~ 30 MHz		
Test Mode	B		

Antenna Polarity & Test Distance: Loop antenna Ground-Parallel at 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	10.788	-2.0 QP	29.5	-31.5	1.00	180	16.1	-18.1
2	11.353	-3.8 QP	29.5	-33.3	1.00	242	14.3	-18.1
3	11.701	-2.8 QP	29.5	-32.3	1.00	14	15.2	-18.0
4	25.175	-2.0 QP	29.5	-31.5	1.00	251	15.9	-17.9
5	27.218	1.4 QP	29.5	-28.1	1.00	11	19.3	-17.9
6	29.261	2.3 QP	29.5	-27.2	1.00	156	20.3	-18.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB). +Distance Factor
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value.
5. " * ": Fundamental frequency.
6. Loop antenna was used for all radiated emission below 30MHz.
7. 0.009 ~ 0.49MHz, the measured field strength was extrapolated to distance 300 meters Distance factor@3m = 40*log(3/300) = -80dB
   For 0.49 ~ 30MHz, the measured field strength was extrapolated to distance 30 meters Distance factor@3m = 40*log(3/30) = -40dB



Below 1GHz Data:

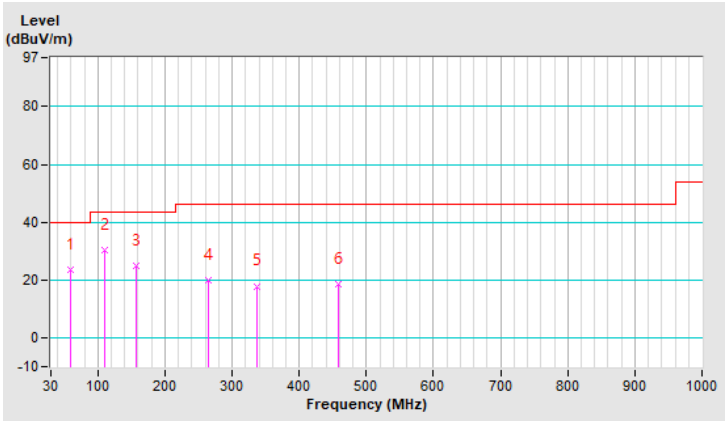
Charging Mode

Channel	TX Channel 1	Detector Function	Quasi-Peak (QP)
Frequency Range	30MHz ~ 1GHz		
Test Mode	A		

Antenna Polarity & Test Distance: Horizontal At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	59.10	23.5 QP	40.0	-16.5	1.49 H	214	42.3	-18.8
2	110.51	30.2 QP	43.5	-13.3	1.49 H	185	51.7	-21.5
3	157.07	24.8 QP	43.5	-18.7	1.99 H	104	43.1	-18.3
4	264.74	19.8 QP	46.0	-26.2	1.49 H	75	39.0	-19.2
5	336.52	17.9 QP	46.0	-28.1	1.00 H	167	34.7	-16.8
6	457.77	18.5 QP	46.0	-27.5	1.99 H	53	32.2	-13.7

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value.

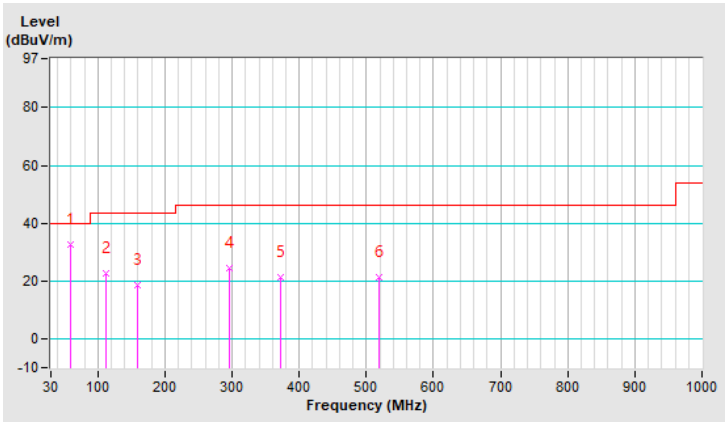


Channel	TX Channel 1	Detector Function	Quasi-Peak (QP)
Frequency Range	30MHz ~ 1GHz		
Test Mode	A		

Antenna Polarity & Test Distance: Vertical At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	59.10	32.6 QP	40.0	-7.4	1.00 V	225	51.4	-18.8
2	112.45	22.7 QP	43.5	-20.8	1.51 V	321	44.0	-21.3
3	159.01	18.4 QP	43.5	-25.1	2.00 V	172	36.7	-18.3
4	296.75	24.5 QP	46.0	-21.5	1.00 V	231	42.4	-17.9
5	371.44	21.3 QP	46.0	-24.7	1.51 V	252	37.3	-16.0
6	519.85	21.3 QP	46.0	-24.7	1.00 V	87	33.9	-12.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value.



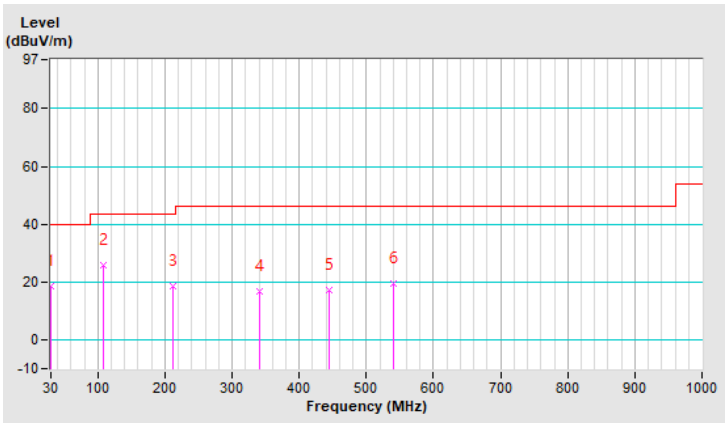
Standby Mode

Channel	TX Channel 1	Detector Function	Quasi-Peak (QP)
Frequency Range	30MHz ~ 1GHz		
Test Mode	B		

Antenna Polarity & Test Distance: Horizontal At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	30.97	18.6 QP	40.0	-21.4	1.99 H	153	38.4	-19.8
2	107.60	25.9 QP	43.5	-17.6	1.49 H	205	47.6	-21.7
3	211.39	18.7 QP	43.5	-24.8	1.49 H	132	40.4	-21.7
4	341.37	16.7 QP	46.0	-29.3	1.00 H	157	33.5	-16.8
5	445.16	17.4 QP	46.0	-28.6	1.99 H	144	31.3	-13.9
6	540.22	19.6 QP	46.0	-26.4	1.99 H	200	32.0	-12.4

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value.

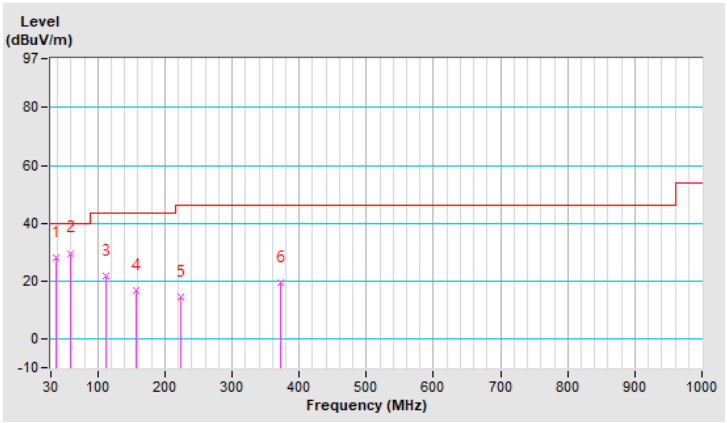


Channel	TX Channel 1	Detector Function	Quasi-Peak (QP)
Frequency Range	30MHz ~ 1GHz		
Test Mode	B		

Antenna Polarity & Test Distance: Vertical At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	38.73	28.2 QP	40.0	-11.8	1.01 V	104	47.0	-18.8
2	59.10	29.7 QP	40.0	-10.3	1.01 V	231	48.5	-18.8
3	112.45	21.8 QP	43.5	-21.7	1.01 V	159	43.1	-21.3
4	158.04	16.6 QP	43.5	-26.9	1.01 V	196	35.0	-18.4
5	223.03	14.5 QP	46.0	-31.5	1.01 V	110	36.2	-21.7
6	371.44	19.4 QP	46.0	-26.6	1.01 V	244	35.4	-16.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value.



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESR3	102412	Jan. 29, 2021	Jan. 28, 2022
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond2-01	Sep. 04, 2021	Sep. 03, 2022
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Jan. 28, 2021	Jan. 27, 2022
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Sep. 17, 2021	Sep. 16, 2022
Software ADT	BV ADT_Cond_ V7.3.7.4	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Shielded Room 2 (Conduction 2).
3. The VCCI Site Registration No. is C-12047.

4.2.3 Test Procedures

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

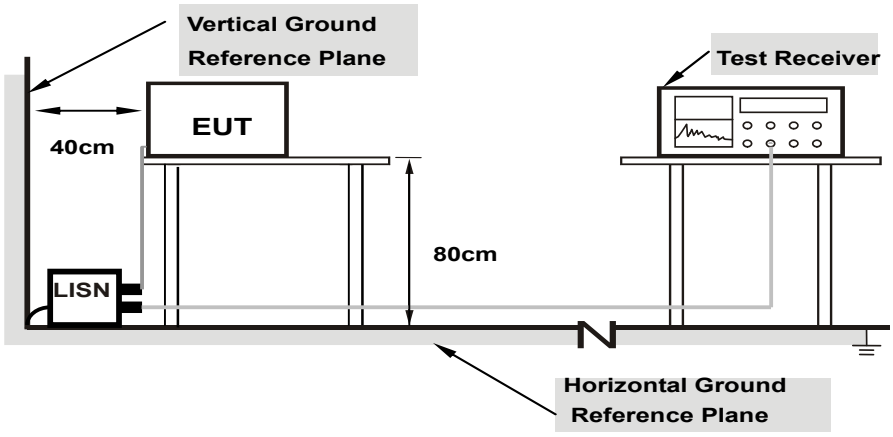
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) were not recorded.

NOTE: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



Note: 1.Support units were connected to second LISN.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.6 EUT Operating Conditions

Same as 4.1.6.

4.2.7 Test Results

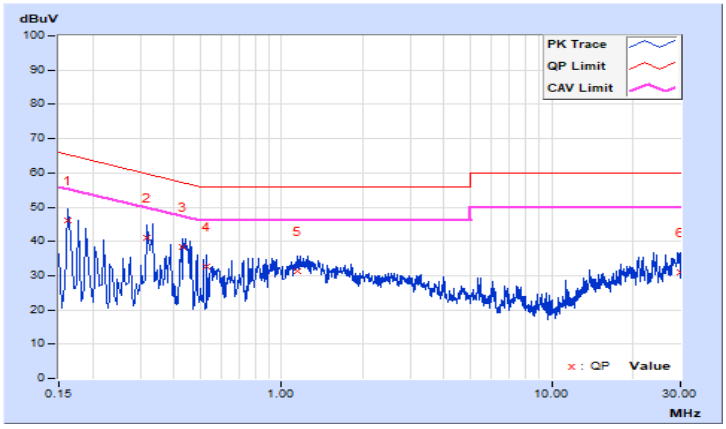
Charging Mode

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16173	9.76	36.28	19.12	46.04	28.88	65.37	55.37	-19.33	-26.49
2	0.31813	9.81	31.29	20.22	41.10	30.03	59.76	49.76	-18.66	-19.73
3	0.43152	9.83	28.57	18.54	38.40	28.37	57.22	47.22	-18.82	-18.85
4	0.52927	9.85	22.71	10.56	32.56	20.41	56.00	46.00	-23.44	-25.59
5	1.14705	9.91	21.49	12.31	31.40	22.22	56.00	46.00	-24.60	-23.78
6	29.90510	10.09	21.03	11.48	31.12	21.57	60.00	50.00	-28.88	-28.43

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

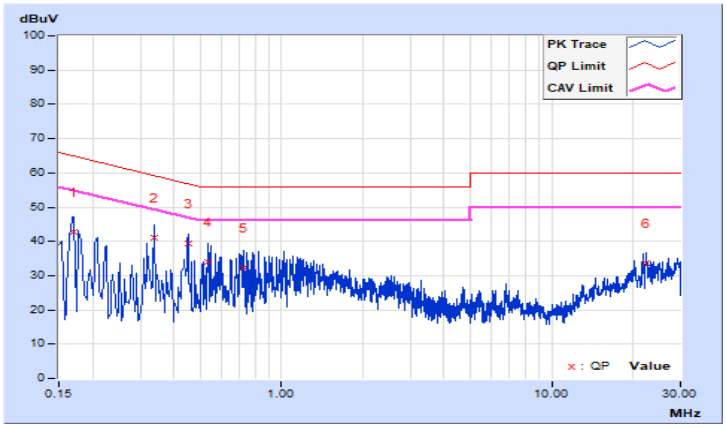


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16955	9.81	33.08	16.81	42.89	26.62	64.98	54.98	-22.09	-28.36
2	0.33768	9.88	31.07	12.63	40.95	22.51	59.26	49.26	-18.31	-26.75
3	0.45097	9.91	29.32	12.41	39.23	22.32	56.86	46.86	-17.63	-24.54
4	0.53318	9.91	24.05	9.00	33.96	18.91	56.00	46.00	-22.04	-27.09
5	0.72868	9.93	22.44	9.95	32.37	19.88	56.00	46.00	-23.63	-26.12
6	22.43309	10.28	23.48	20.29	33.76	30.57	60.00	50.00	-26.24	-19.43

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

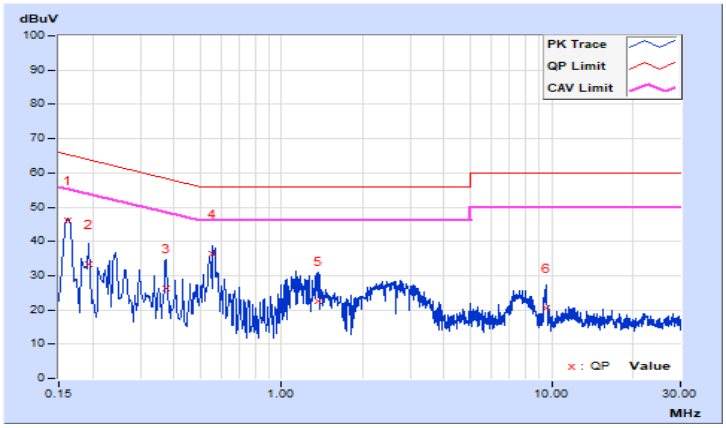


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	C		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16190	10.13	35.90	22.01	46.03	32.14	65.37	55.37	-19.34	-23.23
2	0.19400	10.15	23.21	13.78	33.36	23.93	63.86	53.86	-30.50	-29.93
3	0.37224	10.21	16.10	2.75	26.31	12.96	58.45	48.45	-32.14	-35.49
4	0.55800	10.24	26.26	11.34	36.50	21.58	56.00	46.00	-19.50	-24.42
5	1.37000	10.31	12.28	3.31	22.59	13.62	56.00	46.00	-33.41	-32.38
6	9.57800	10.49	9.97	4.21	20.46	14.70	60.00	50.00	-39.54	-35.30

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

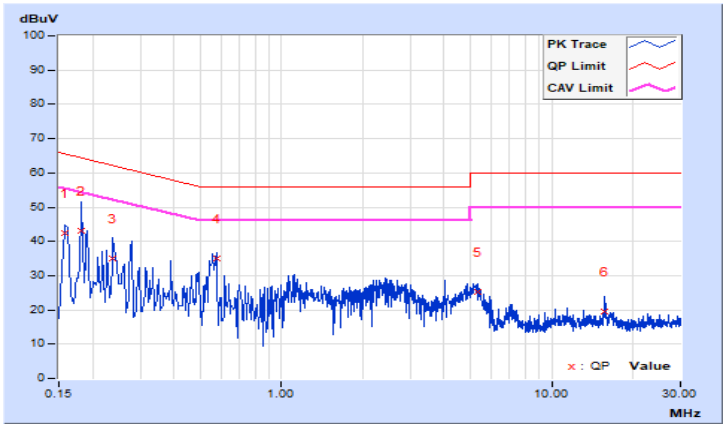


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	C		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15800	10.14	32.36	20.35	42.50	30.49	65.57	55.57	-23.07	-25.08
2	0.18200	10.16	33.10	14.89	43.26	25.05	64.39	54.39	-21.13	-29.34
3	0.23800	10.18	24.96	10.85	35.14	21.03	62.17	52.17	-27.03	-31.14
4	0.57400	10.25	24.61	16.24	34.86	26.49	56.00	46.00	-21.14	-19.51
5	5.33400	10.45	14.87	9.55	25.32	20.00	60.00	50.00	-34.68	-30.00
6	15.73000	10.74	8.63	2.23	19.37	12.97	60.00	50.00	-40.63	-37.03

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.



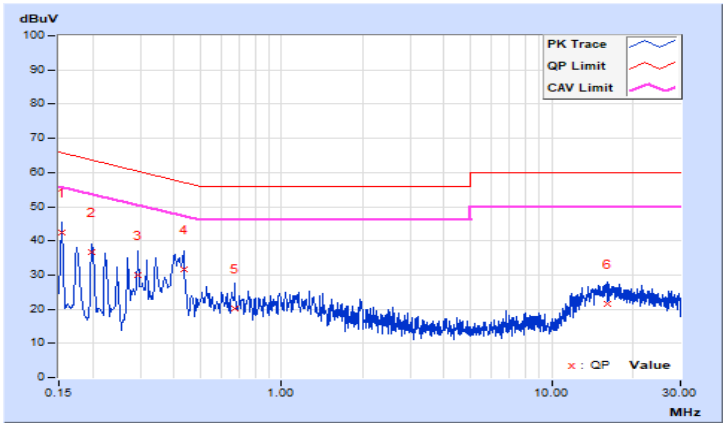
Standby Mode

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15400	9.76	32.77	5.89	42.53	15.65	65.78	55.78	-23.25	-40.13
2	0.19800	9.77	27.04	3.68	36.81	13.45	63.69	53.69	-26.88	-40.24
3	0.29400	9.80	20.17	4.29	29.97	14.09	60.41	50.41	-30.44	-36.32
4	0.43400	9.83	21.66	8.16	31.49	17.99	57.18	47.18	-25.69	-29.19
5	0.67000	9.87	10.18	1.55	20.05	11.42	56.00	46.00	-35.95	-34.58
6	16.16200	10.06	11.40	0.80	21.46	10.86	60.00	50.00	-38.54	-39.14

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

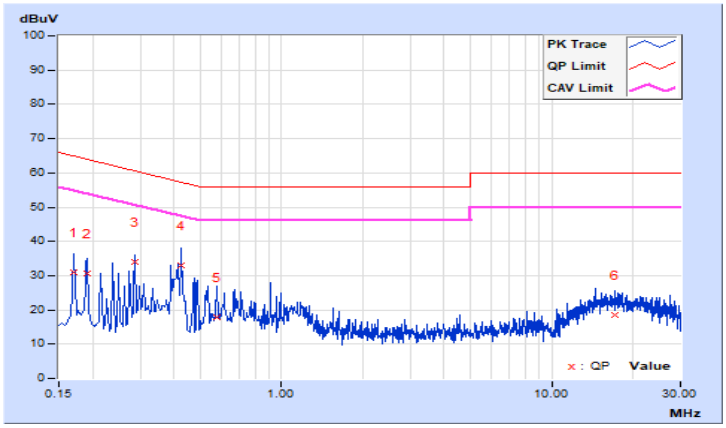


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17000	9.81	21.32	4.19	31.13	14.00	64.96	54.96	-33.83	-40.96
2	0.19000	9.83	20.81	3.39	30.64	13.22	64.04	54.04	-33.40	-40.82
3	0.28600	9.86	24.07	2.32	33.93	12.18	60.64	50.64	-26.71	-38.46
4	0.42600	9.90	23.04	5.60	32.94	15.50	57.33	47.33	-24.39	-31.83
5	0.57796	9.92	7.93	1.28	17.85	11.20	56.00	46.00	-38.15	-34.80
6	17.24200	10.23	8.26	1.15	18.49	11.38	60.00	50.00	-41.51	-38.62

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

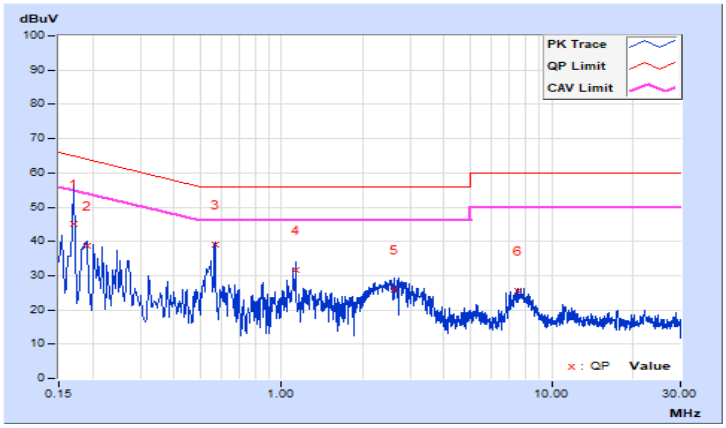


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	D		

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17000	10.13	34.95	14.19	45.08	24.32	64.96	54.96	-19.88	-30.64
2	0.19000	10.14	28.63	18.61	38.77	28.75	64.04	54.04	-25.27	-25.29
3	**0.56600**	**10.24**	**28.73**	**22.57**	**38.97**	**32.81**	**56.00**	**46.00**	**-17.03**	**-13.19**
4	1.13400	10.29	21.30	11.87	31.59	22.16	56.00	46.00	-24.41	-23.84
5	2.61000	10.37	15.43	9.42	25.80	19.79	56.00	46.00	-30.20	-26.21
6	7.53400	10.45	15.21	5.64	25.66	16.09	60.00	50.00	-34.34	-33.91

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

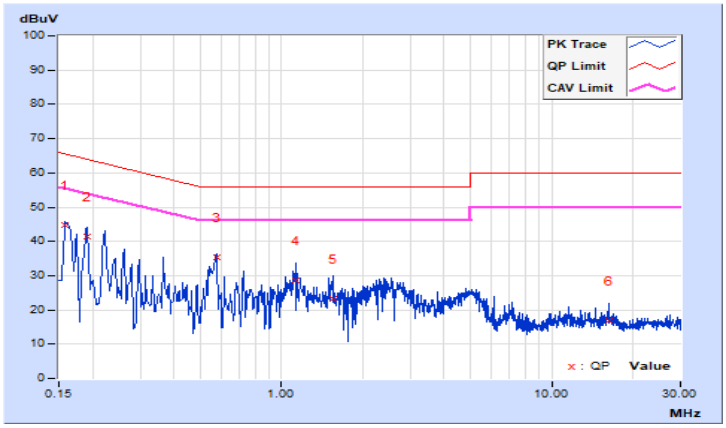


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	D		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15800	10.14	34.77	21.25	44.91	31.39	65.57	55.57	-20.66	-24.18
2	0.19000	10.16	31.35	18.27	41.51	28.43	64.04	54.04	-22.53	-25.61
3	0.57342	10.25	24.97	15.68	35.22	25.93	56.00	46.00	-20.78	-20.07
4	1.12600	10.30	18.29	9.38	28.59	19.68	56.00	46.00	-27.41	-26.32
5	1.54600	10.32	12.84	1.50	23.16	11.82	56.00	46.00	-32.84	-34.18
6	16.23400	10.76	6.12	2.30	16.88	13.06	60.00	50.00	-43.12	-36.94

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.



5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Lin Kou EMC/RF Lab
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab
Tel: 886-3-6668565
Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab
Tel: 886-3-3183232
Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com
Web Site: www.bureauveritas-adt.com

The address and road map of all our labs can be found in our web site also.

--- END ---