

FCC

EMC

TEST REPORT

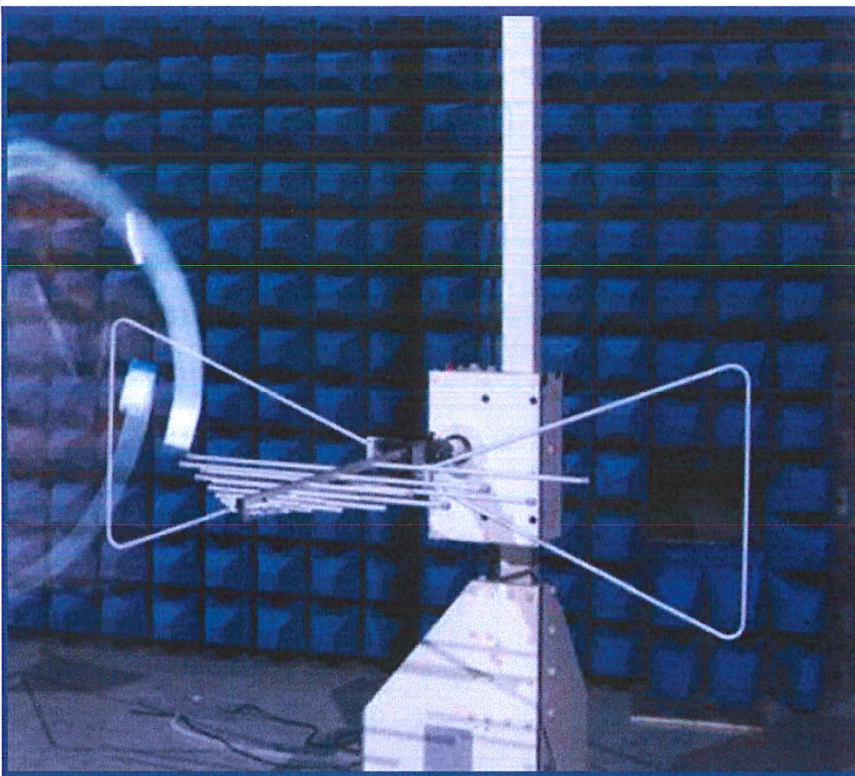
ISSUED BY
Shenzhen BALUN Technology Co., Ltd.



FOR
Mobile Phone

ISSUED TO
Guangdong OPPO Mobile Telecommunications Corp., Ltd.

NO.18 HaiBin Road, Wusha village, Chang An Town, DongGuan City,
GuangDong, China



Tested by: Liu Zhenxiang

Liu Zhenxiang

Date Jul. 15, 2020

Approved by: Tolan Tu

Tolan Tu

(Testing Director)

Date Jul. 15, 2020

Report No.: BL-SZ2060102-401

EUT Name: Mobile Phone

Model Name: CPH2123

Brand Name: OPPO

Test Standard: 47 CFR Part 15 Subpart B

FCC ID: R9C-CPH2123

Test Conclusion: Pass

Test Date: Jun. 09, 2020 ~ Jun. 18, 2020

Date of Issue: Jul. 15, 2020

NOTE: This test report of test results only related to testing samples, which can be duplicated completely for the legal use with the approval of the applicant; it shall not be reproduced except in full, without the written approval of Shenzhen BALUN Technology Co., Ltd. Any objections should be raised within thirty days from the date of issue. To validate the report, please contact us.

Revision History

Version	Issue Date	Revisions Content
<u>Rev. 01</u>	<u>Jul. 15, 2020</u>	<u>Initial Issue</u>

TABLE OF CONTENTS

1	GENERAL INFORMATION	4
1.1	Identification of the Testing Laboratory	4
1.2	Identification of the Responsible Testing Location	4
1.3	Laboratory Condition	4
1.4	Announce	5
2	PRODUCT INFORMATION	6
2.1	Applicant Information	6
2.2	Manufacturer Information	6
2.3	Factory Information	6
2.4	General Description for Equipment under Test (EUT)	6
2.5	Ancillary Equipment	7
2.6	Technical Information	8
3	SUMMARY OF TEST RESULTS	9
3.1	Test Standards	9
3.2	Verdict	9
3.3	Test Uncertainty	9
4	GENERAL TEST CONFIGURATIONS	10
4.1	Test Environments	10
4.2	Test Equipment List	10
4.3	Test Enclosure list	12
4.4	Test Configurations	13
4.5	Test Setups	14
4.6	Test Conditions	16
5	TEST ITEMS	17
5.1	Emission Tests	17
ANNEX A	TEST RESULTS	19

A.1	Radiated Emission	19
A.2	Conducted Emission	28
ANNEX B	TEST SETUP PHOTOS	32
ANNEX C	EUT EXTERNAL PHOTOS	32
ANNEX D	EUT INTERNAL PHOTOS	32

1 GENERAL INFORMATION

1.1 Identification of the Testing Laboratory

Company Name	Shenzhen BALUN Technology Co.,Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Phone Number	+86 755 6685 0100
Fax Number	+86 755 6182 4271

1.2 Identification of the Responsible Testing Location

Test Location	Shenzhen BALUN Technology Co.,Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Accreditation Certificate	The laboratory has been listed by Industry Canada to perform electromagnetic emission measurements. The recognition numbers of test site are 11524A-1. The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1196. The laboratory is a testing organization accredited by American Association for Laboratory Accreditation(A2LA) according to ISO/IEC 17025.The accreditation certificate is 4344.01. The laboratory is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L6791.
Description	All measurement facilities used to collect the measurement data are located at Block B, FL 1, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China 518055

1.3 Laboratory Condition

Ambient Temperature	20°C to 25°C
Ambient Relative Humidity	45% to 55%
Ambient Pressure	100 kPa to 102 kPa

1.4 Announce

- (1) The test report refer to the BALUN report mode v6.8.
- (2) The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.
- (3) The test report is invalid if there is any evidence and/or falsification.
- (4) The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein.
- (5) This document may not be altered or revised in any way unless done so by BALUN and all revisions are duly noted in the revisions section.
- (6) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
- (7) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	Guangdong OPPO Mobile Telecommunications Corp., Ltd.
Address	NO.18 HaiBin Road, Wusha village, Chang An Town, DongGuan City, GuangDong, China

2.2 Manufacturer Information

Manufacturer	Guangdong OPPO Mobile Telecommunications Corp., Ltd.
Address	NO.18 HaiBin Road, Wusha village, Chang An Town, DongGuan City, GuangDong, China

2.3 Factory Information

N/A	Guangdong OPPO Mobile Telecommunications Corp., Ltd.
Address	NO.18 HaiBin Road, Wusha village, Chang An Town, DongGuan City, GuangDong, China

2.4 General Description for Equipment under Test (EUT)

EUT Name	Mobile Phone
Model Name Under Test	CPH2123
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	11
Software Version	ColorOS 7.2
Dimensions (Approx.)	160.1x73.8x7.5mm
Weight (Approx.)	164g(with battery)

2.5 Ancillary Equipment

Ancillary Equipment 1	Li-Polymer Battery	
	Brand Name	OPPO
	Model No.	BLP779(ATL cell)
	Serial No.	N/A
	Capacitance	Rated: 3890mAh/14.97Wh Typical: 4000mAh/15.40Wh
	Rated Voltage	3.85 V
	Limited Voltage	4.40 V
	Manufacturer	TWS Technology (Guangzhou) Limited
Ancillary Equipment 2	Li-Polymer Battery	
	Brand Name	OPPO
	Model No.	BLP779(SDI cell)
	Serial No.	N/A
	Capacitance	Rated: 3890mAh/14.97Wh Typical: 4000mAh/15.40Wh
	Rated Voltage	3.85 V
	Limited Voltage	4.40 V
	Manufacturer	TWS Technology (Guangzhou) Limited
Ancillary Equipment 3	Power Supply Unit 1	
	Brand Name	OPPO
	Model No.	OP92KAUH
	Serial No.	N/A
	Rated Input	100-240VAC 50/60Hz 0.5A
	Rated Output	5.0VDC 2A or 9.0VDC (US Plug)
Ancillary Equipment 4	Power Supply Unit(alternative) 2	
	Brand Name	OPPO
	Model No.	OP92JAUH
	Serial No.	N/A
	Rated Input	100-240VAC 50/60Hz 0.5A
	Rated Output	5.0VDC 2A or 9.0VDC (US Plug)
Ancillary Equipment 5	USB Cable	
	Model No.	DL143
	Length (Approx.)	1.0 m
Ancillary Equipment 6	Headset	
	Model No.	MH156
	Length (Approx.)	1.2 m
Note 1: Letter in () means plug type.		
Note 2: All adapters are tested, only the worst data of OP92KAUH (US Plug) shown in this report.		

2.6 Technical Information

Network and Wireless connectivity	2G Network GSM/GPRS/EDGE 850/1900 MHz 3G Network WCDMA/HSDPA/HSUPA/HSPA+ Band 2/4/5 4G Network FDD LTE Band 2/4/5/7/12/17/26/66 TDD LTE Band 38/41 LTE CA Uplink (UL): CA_7C, CA_38C, CA_41C Bluetooth 5.1 (BR+EDR+BLE) 2.4G WIFI 802.11b, 802.11g, 802.11n(HT20) 5G WIFI 802.11a, 802.11n(HT20/40) and 802.11ac(VHT20/40/80) Band 1/2A/2C/3, GPS, GLONASS, BDS, SBAS, Galileo FM receiver, NFC
-----------------------------------	--

The requirement for the following technical information of the EUT was tested in this report:

The Highest Speed of Processor	2.3 GHz
About the Product	The equipment is Mobile Phone, intended for used with information technology equipment.

3 SUMMARY OF TEST RESULTS

3.1 Test Standards

No.	Identity	Document Title
1	FCC 47 CFR Part 15 Subpart B (10-1-18 Edition)	Unintentional Radiators
2	ANSI C63.4-2014	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low- Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

3.2 Verdict

No.	Description	FCC Rule	Test Verdict	Result
1	Radiated Emission	15.109	Pass	Annex A .1
2	Conducted Emission, AC Ports	15.107	Pass	Annex A .2

3.3 Test Uncertainty

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Measurement	Value
Conducted emissions (9 kHz-30 MHz)	2.96 dB
Radiated emissions (30 MHz-1 GHz)	3.66 dB
Radiated emissions (1 GHz-18 GHz)	5.57 dB
Radiated emissions (18 GHz-40 GHz)	6.12 dB

4 GENERAL TEST CONFIGURATIONS

4.1 Test Environments

Environment Parameter	Selected Values During Tests			
	Temperature	Voltage	Relative Humidity	Ambient Pressure
Normal Temperature, Normal Voltage (NTNV)	23°C to 25°C	AC 120 V/60 Hz or DC 3.85 V from Battery	50% to 55%	100 kPa to 102 kPa

4.2 Test Equipment List

Radiated Emission Test For Frequency Below 1 GHz (10 m)						
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	ROHDE&SCHWARZ	ESRP	101036	2020.06.09	2021.06.08	☐
Test Antenna-Bi-Log	SCHWARZBECK	VULB 9168	9168-0883	2020.05.10	2022.05.09	☐
Anechoic Chamber	EMC Electronic Co., Ltd	20.10*11.60*7.35m	N/A	2018.08.08	2021.08.07	☐
Test Software	BALUN	BL410_E	V19.918	--	--	☐

Radiated Emission Test For Frequency Below 1 GHz (3 m)						
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	KEYSIGHT	N9038A	MY53220118	2019.10.29	2020.10.28	☒
Test Antenna-Bi-Log	SCHWARZBECK	VULB 9163	9163-624	2018.08.22	2020.08.21	☒
Test Antenna-Horn	SCHWARZBECK	BBHA 9120D	9120D-1600	2018.07.12	2020.07.11	☐
Anechoic Chamber	YIHENG	9m*6m*6m	N/A	2018.07.18	2021.07.17	☒
Test Software	BALUN	BL410_E	V19.918	--	--	☒

Radiated Emission Test For Frequency 1 GHz-18 GHz						
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	KEYSIGHT	N9038A	MY53220118	2019.10.29	2020.10.28	☒
Test Antenna-Horn	SCHWARZBECK	BBHA 9120D	9120D-1148	2018.07.12	2020.07.11	☒
Anechoic Chamber	YIHENG	9m*6m*6m	N/A	2018.07.18	2021.07.17	☒
Test Software	BALUN	BL410_E	V19.918	--	--	☒

Radiated Emission Test For Frequency Above 18 GHz						
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	ROHDE & SCHWARZ	FSV40	101544	2020.02.19	2021.02.18	☒
Test Antenna-Horn	A-INFOMW	LB-180400KF	J211060273	2019.01.05	2021.01.04	☒
Anechoic Chamber	YIHENG	9m*6m*6m	N/A	2018.07.18	2021.07.17	☒
Test Software	BALUN	BL410_E	V19.918	--	--	☒

Conducted disturbance Test						
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	KEYSIGHT	N9010B	MY57110309	2020.06.12	2021.06.11	☒
LISN	SCHWARZBECK	NSLK 8127	8127-687	2019.07.04	2020.07.03	☒
Shielded Enclosure	YiHeng Electronic Co., Ltd	3.4m*3.1m*2.8m	N/A	2018.08.16	2021.08.15	☒
Test Software	BALUN	BL410_E	V19.918	--	--	☒

4.3 Test Enclosure list

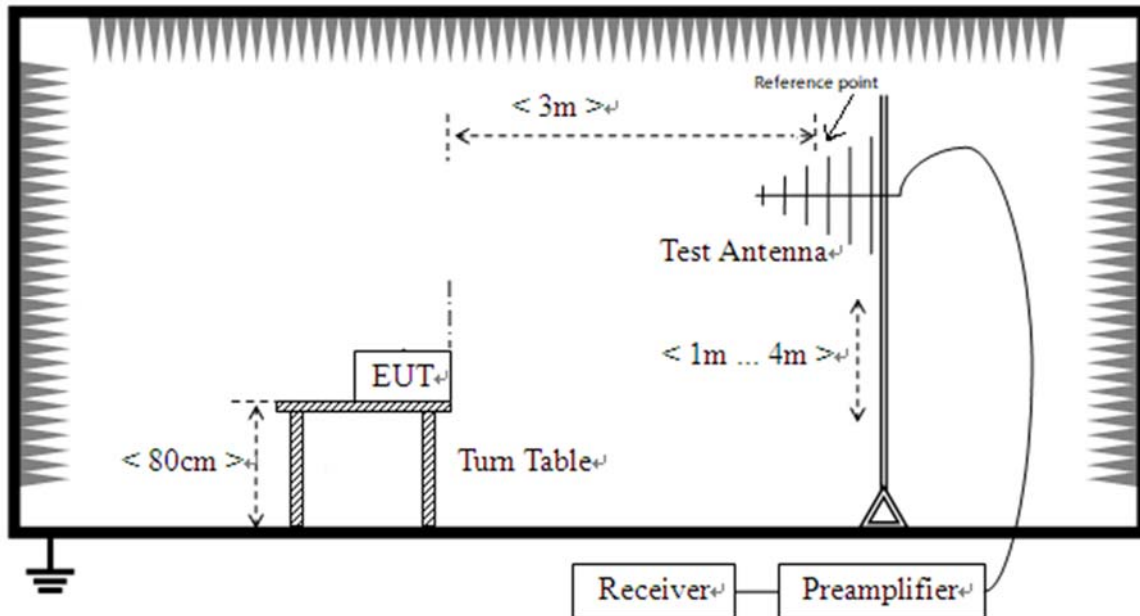
Description	Manufacturer	Model	Serial No.	Length	Description	Use
PC	Dell	015K3N	N/A	N/A	Special Handled	☐
Laptop	Apple	A1465	N/A	N/A	N/A	☒
Printer	HP	DESKJET 1000	N/A	N/A	N/A	☐
Keyboard	Logitech	Y-BP62a	N/A	N/A	N/A	☐
Mouse	Logitech	M100	N/A	N/A	N/A	☐
USB disk	Kingston	N/A	N/A	N/A	N/A	☐
TF Card	Kingston	N/A	N/A	N/A	N/A	☒
VGA Cable	N/A	N/A	N/A	1.5 m	Shielded with core	☐
HDMI Cable	N/A	N/A	N/A	1.5 m	Shielded with core	☐
DVI Cable	N/A	N/A	N/A	1.5 m	Shielded with core	☐
Coaxial video cable	N/A	N/A	N/A	2.0 m	Shielded with core	☐
iPhone	Apple	A1586	N/A	N/A	N/A	☐
Phone	MI	M4	N/A	N/A	N/A	☐
Bluetooth Earphone	SAMSUNG	Gear Circle	N/A	N/A	N/A	☐
Wireless Communication s Test Set	R&S	CMW500	142028	N/A	Cal. Due 2021.06.08	☐
WIFI Router	TP-LINK	TL-WDR7500	N/A	N/A	N/A	☐
Earphone	N/A	OPPO	N/A	1.1 m	N/A	☐
Car Battery	Camel	55530	N/A	N/A	12 V/55 Ah	☐
Artificial load	N/A	N/A	N/A	N/A	2.5 Ω /100 W	☐
Artificial load	N/A	N/A	N/A	N/A	5 Ω /100 W	☐
Electronic Load	ITECH	IT8511	N/A	N/A	N/A	☐
USB Cable	N/A	N/A	N/A	1.5 m	Shielded with core	☐
DC Power Supply	ITECH	IT6863A	60001401068 7210006	N/A	N/A	☐
LCD Monitor	SAMSUNG	UA32C4000P	N/A	N/A	N/A	☐
LCD Monitor	Dell	U241HB	N/A	N/A	N/A	☐
RJ45 Cable	N/A	N/A	N/A	1.5 m	Shielded with core	☐

4.4 Test Configurations

Test Configurations (TC) No.	Description
TC01	<u>The Camera Test Mode</u> EUT + Adapter + USB Cable + Battery + Earphone + TF Card
TC02	<u>The Video Play Test Mode</u> EUT + Adapter + USB Cable + Battery + Earphone + TF Card
TC03	<u>The FM Test Mode</u> EUT + Adapter + USB Cable + Battery + Earphone + TF Card
TC04	<u>The USB Test Mode</u> EUT + USB Cable + Battery + Laptop+ Earphone + TF Card

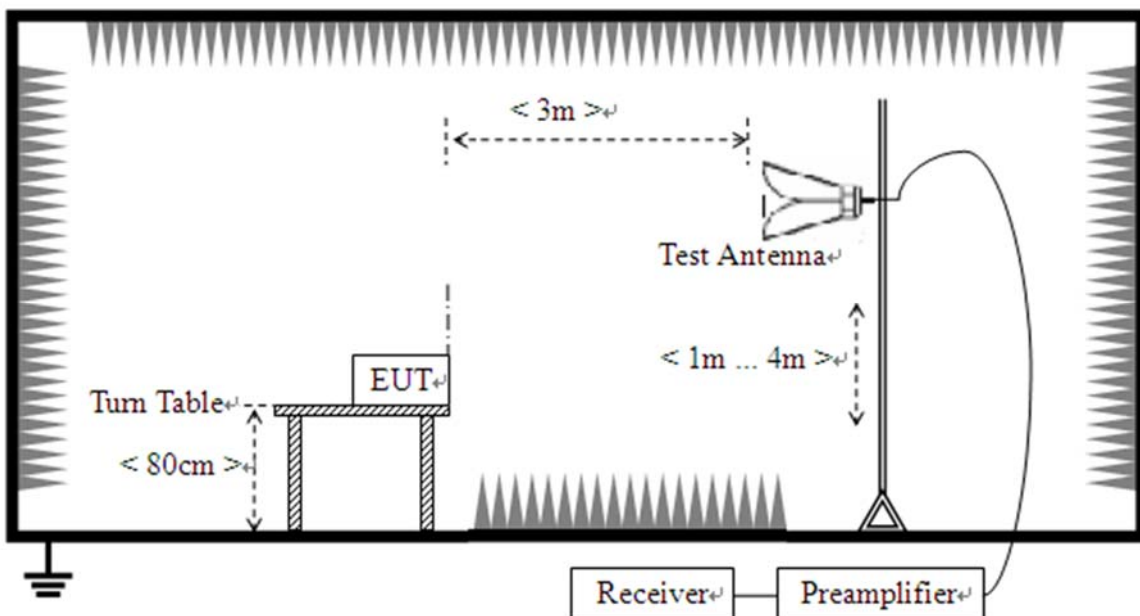
4.5 Test Setups

Test Setup 1



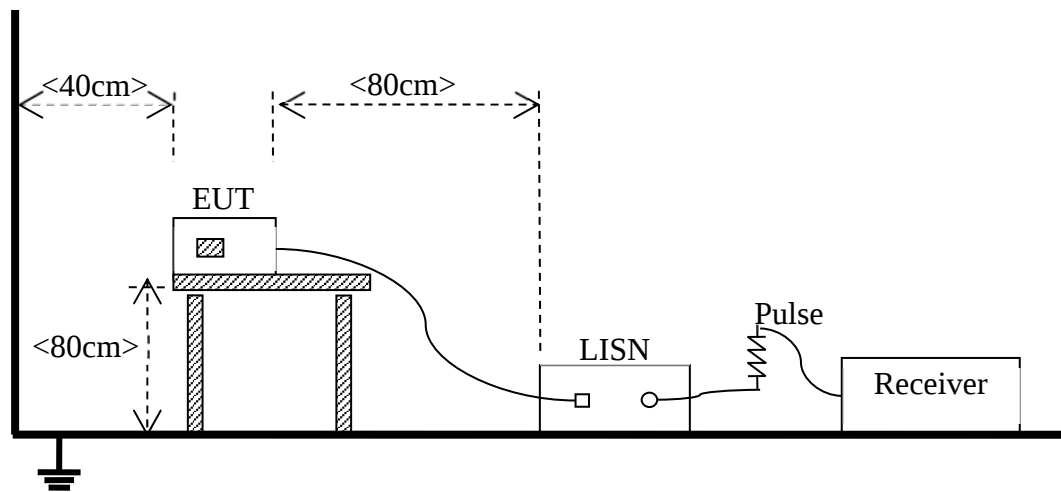
(For Radiated Emission Test (30 MHz-1 GHz))

Test Setup 2



(For Radiated Emission Test (above 1 GHz))

Test Setup 3



(For Conducted Emission, AC Ports Test)

4.6 Test Conditions

Test Case	Test Conditions	
Radiated Emission	Test Env.	NTNV
	Test Setup	Test Setup 1&2
	Test Configuration	TC01~TC04 ^{Note}
Conducted Emission, AC Ports	Test Env.	NTNV
	Test Setup	Test Setup 3
	Test Configuration	TC01~TC04 ^{Note}
Note: Based on client request, all normal using modes of the normal function were tested but only the worst test data of the worst mode is reported by this report. The Camera Test Mode is the worst mode in this report.		

5 TEST ITEMS

5.1 Emission Tests

5.1.1 Radiated Emission

5.1.1.1 Limit

Frequency range (MHz)	Class B (at 3 m)		Class B (at 10 m)	Class A (at 10 m)	
	Field Strength ($\mu\text{V/m}$)	Field Strength (dB $\mu\text{V/m}$)	Field Strength (dB $\mu\text{V/m}$)	Field Strength ($\mu\text{V/m}$)	Field Strength (dB $\mu\text{V/m}$)
30 - 88	100	40	30	90	39
88 - 216	150	43.5	33.5	150	43.5
216 - 960	200	46	36	210	46.4
Above 960	500	54	44	300	49.5

NOTE:

- 1) Field Strength (dB $\mu\text{V/m}$) = $20 \times \log [\text{Field Strength } (\mu\text{V/m})]$.
- 2) In the emission tables above, the tighter limit applies at the band edges.

5.1.1.2 Test Setup

Refer to 4.5 section (test setup 1 to test setup 2) for radiated emission test, the photo of test setup please refer to ANNEX B.

5.1.1.3 Test Procedure

All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

An initial pre-scan was performed in the chamber using the EMI Receiver in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by Bi-Log antenna with 2 orthogonal polarities.

5.1.1.4 Test Result

Please refer to ANNEX A.1.

NOTE:

1. Results (dB $\mu\text{V/m}$) = Reading (dB μV) + Factor (dB/m)

The reading level is calculated by software which is not shown in the sheet

2. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Amplifier Gain (dB)

3. Over limit = Results – Limit.

5.1.2 Conducted Emission

5.1.2.1 Test Limit

Frequency range (MHz)	Class A	
	Quasi-peak (dBμV)	Average (dBμV)
0.15 - 0.50	79	66
0.50 - 30	73	60

Frequency range (MHz)	Class B	
	Quasi-peak (dBμV)	Average (dBμV)
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5 - 30	60	50

NOTE:

- 1) The lower limit shall apply at the band edges.
- 2) The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50 MHz.

5.1.2.2 Test Setup

Refer to 4.5 section test (test setup 3) for conducted emission, the photo of test setup please refer to ANNEX B.

5.1.2.3 Test Procedure

The EUT is connected to the power mains through a LISN which provides 50 Ω/50 μH of coupling impedance for the measuring instrument. The test frequency range is from 150 kHz to 30 MHz. The maximum conducted interference is searched using Peak (PK), Quasi-peak (QP) and Average (AV) detectors; the emission levels that are more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed.

Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz) for which the device is capable of operation. A device rated for 50/60 Hz operation need not be tested at both frequencies provided the radiated and line conducted emissions are the same at both frequencies.

5.1.2.4 Test Result

Please refer to ANNEX A.2.

NOTE:

$$1. \text{ Results (dBuV/m) = Reading (dBuV) + Factor (dB/m)}$$

The reading level is calculated by software which is not shown in the sheet

$$2. \text{ Factor = Insertion loss + Cable loss}$$

$$3. \text{ Over limit = Results – Limit.}$$

ANNEX A TEST RESULTS

A.1 Radiated Emission

Note 1: The symbol of “--” in the table which means not application.

Note 2: For the test data above 1 GHz, according the ANSI C63.4-2014, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

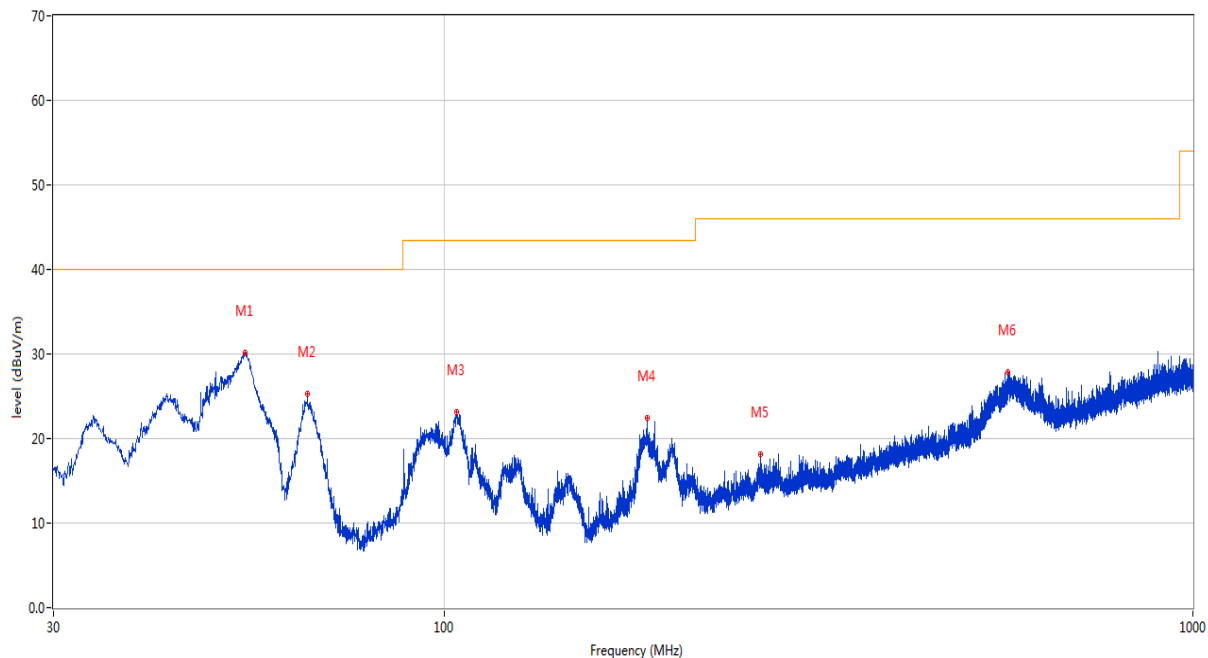
Note 4: The spurious from 18G-40G is noise only, do not show on the report.

Note 5: Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz) for which the device is capable of operation. So, The configuration 120 VAC, 60 Hz and 240 VAC, 50 Hz were tested respectively, but only the worst configuration (120 VAC, 60 Hz) shown here.

Test Data and Plots

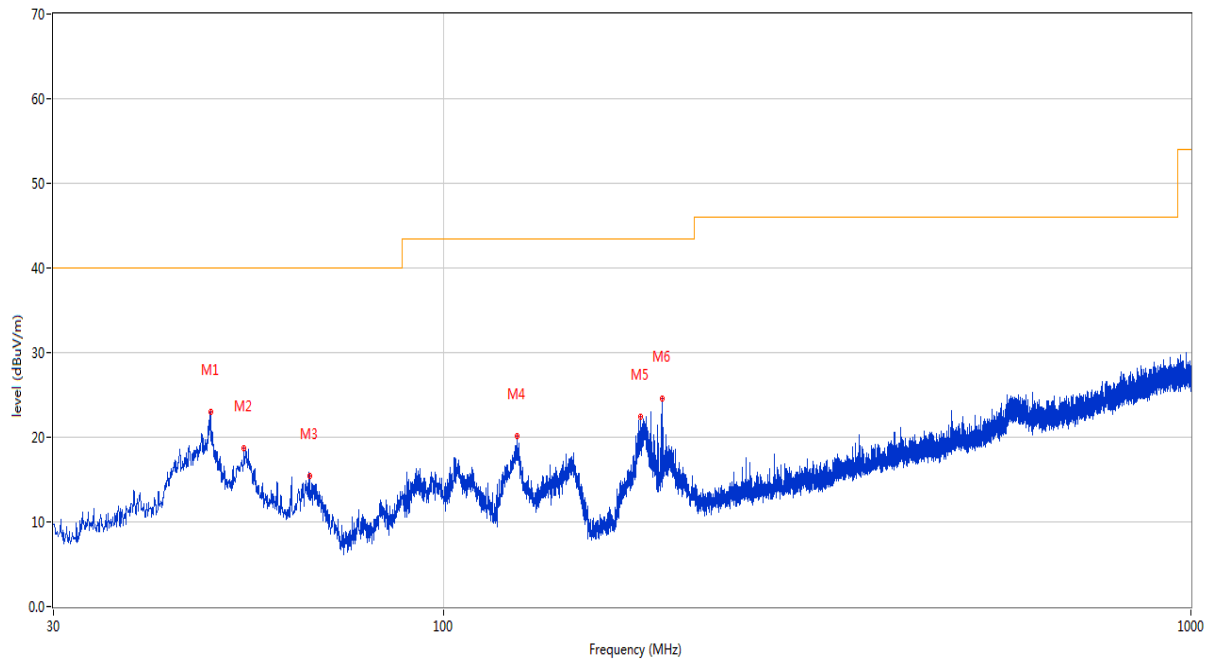
The Camera Test Mode

A.1.1 Test Antenna Vertical, 30 MHz – 1 GHz



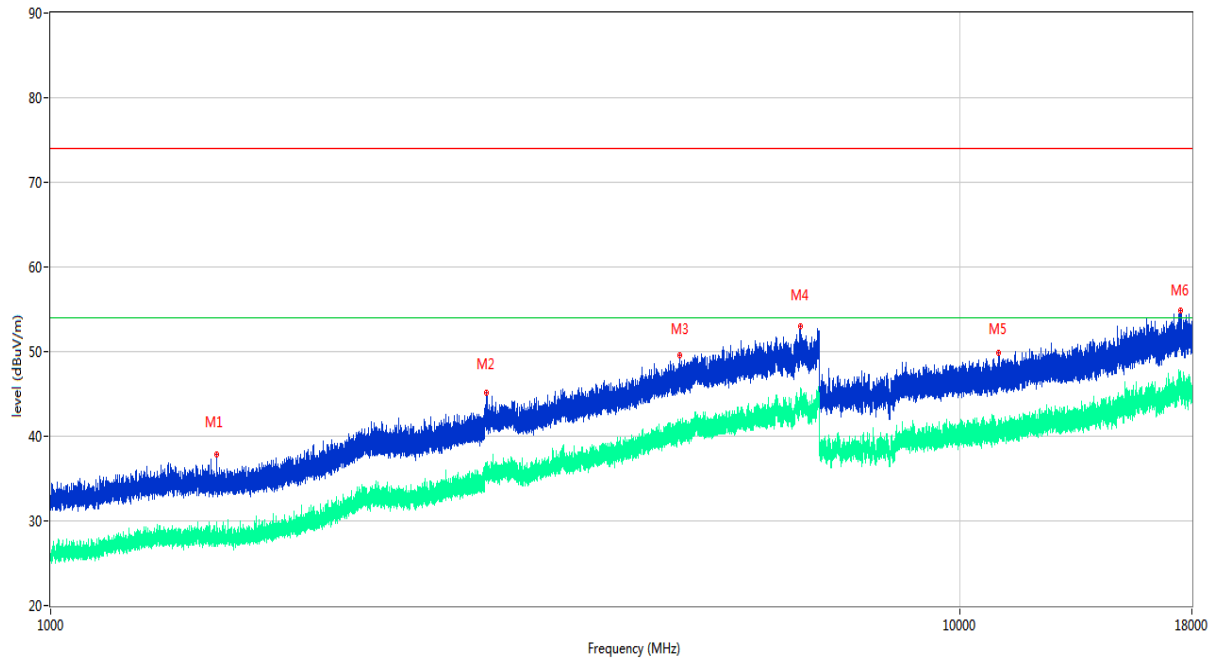
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	54.153	30.18	-23.01	40.0	-9.82	Peak	168.30	100	Vertical	Pass
2	65.550	25.22	-25.09	40.0	-14.78	Peak	90.00	100	Vertical	Pass
3	103.866	23.08	-24.39	43.5	-20.42	Peak	50.40	100	Vertical	Pass
4	186.655	22.36	-25.43	43.5	-21.14	Peak	150.10	100	Vertical	Pass
5	264.546	18.12	-22.16	46.0	-27.88	Peak	64.70	200	Vertical	Pass
6	565.779	27.83	-15.34	46.0	-18.17	Peak	360.00	200	Vertical	Pass

A.1.2 Test Antenna Horizontal, 30 MHz – 1 GHz



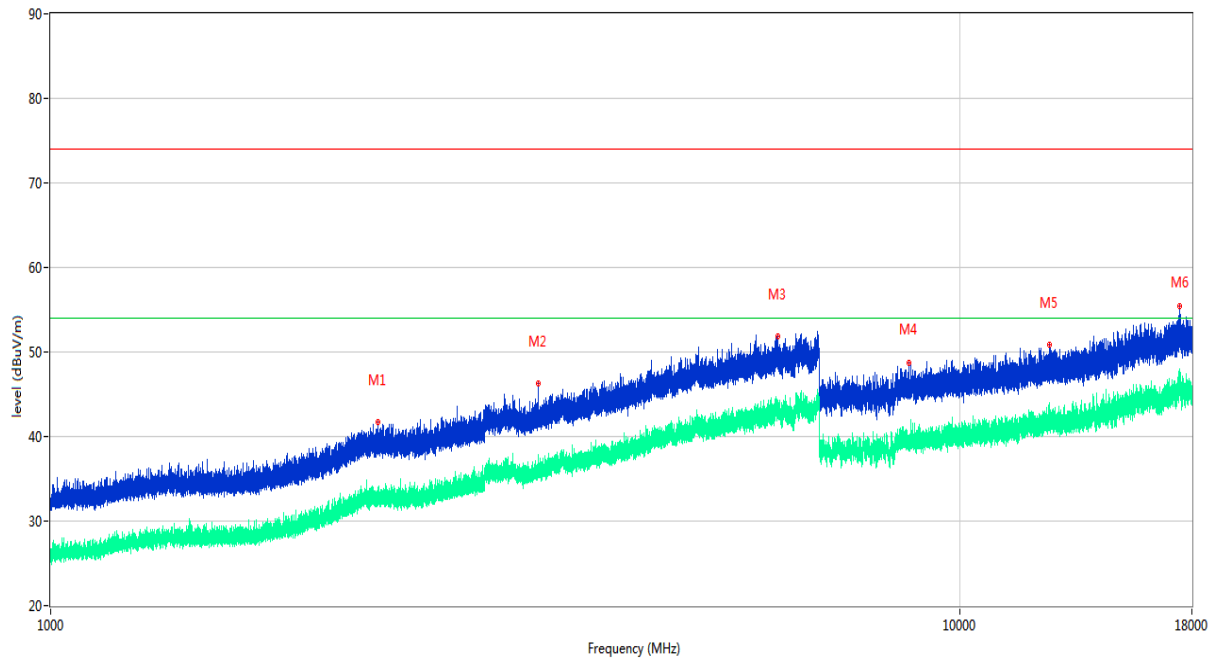
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	48.672	22.95	-22.50	40.0	-17.05	Peak	201.10	100	Horizontal	Pass
2	53.959	18.65	-22.97	40.0	-21.35	Peak	16.50	100	Horizontal	Pass
3	66.035	15.38	-25.14	40.0	-24.62	Peak	338.10	200	Horizontal	Pass
4	125.302	20.11	-26.52	43.5	-23.39	Peak	31.00	200	Horizontal	Pass
5	183.260	22.41	-25.28	43.5	-21.09	Peak	109.30	100	Horizontal	Pass
6	195.724	24.53	-24.34	43.5	-18.97	Peak	80.40	100	Horizontal	Pass

A.1.3 Test Antenna Vertical, 1 GHz – 18 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1521.700	37.85	-17.67	74.0	-36.15	Peak	161.00	100	Vertical	Pass
1**	1521.700	29.17	-17.67	54.0	-24.83	AV	161.00	100	Vertical	Pass
2	3018.400	45.14	-8.42	74.0	-28.86	Peak	324.00	100	Vertical	Pass
2**	3018.400	36.78	-8.42	54.0	-17.22	AV	324.00	100	Vertical	Pass
3	4914.800	49.56	-2.34	74.0	-24.44	Peak	250.00	100	Vertical	Pass
3**	4914.800	40.72	-2.34	54.0	-13.28	AV	250.00	100	Vertical	Pass
4	6686.600	52.94	-0.21	74.0	-21.06	Peak	141.00	100	Vertical	Pass
4**	6686.600	44.62	-0.21	54.0	-9.38	AV	141.00	100	Vertical	Pass
5	11039.088	49.85	-0.52	74.0	-24.15	Peak	345.00	100	Vertical	Pass
5**	11039.088	40.60	-0.52	54.0	-13.40	AV	345.00	100	Vertical	Pass
6	17474.214	54.82	2.83	74.0	-19.18	Peak	91.00	100	Vertical	Pass
6**	17474.214	45.89	2.83	54.0	-8.11	AV	91.00	100	Vertical	Pass

A.1.4 Test Antenna Horizontal, 1 GHz – 18 GHz

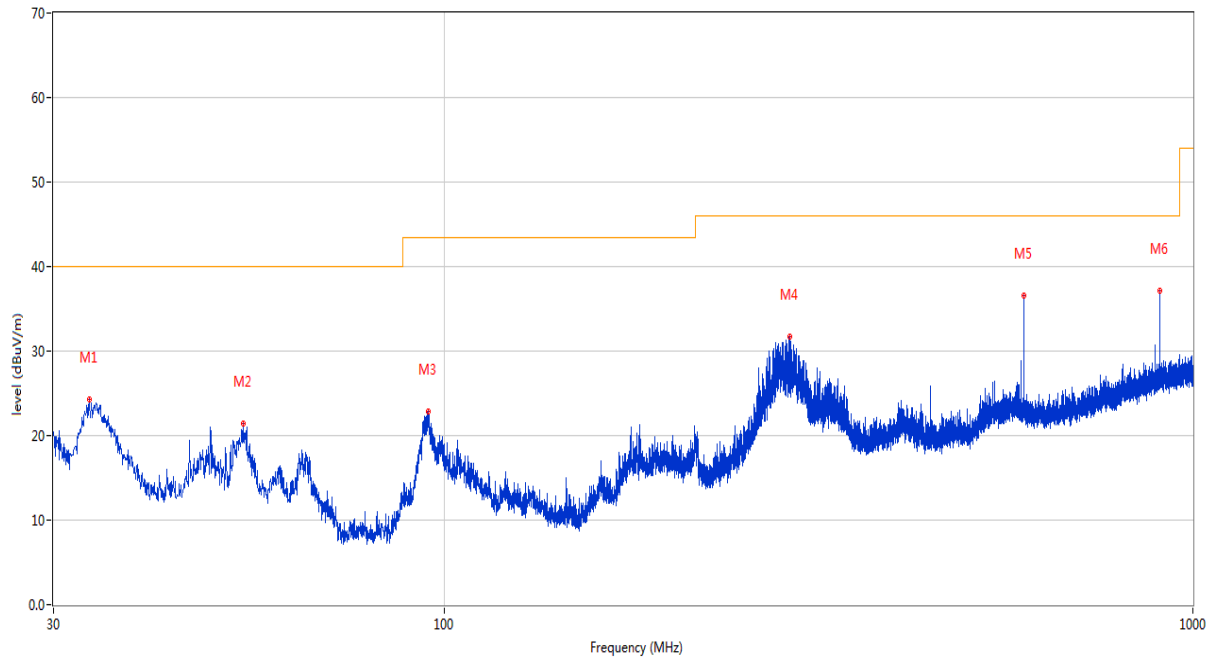


No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2289.300	41.70	-12.75	74.0	-32.30	Peak	270.00	100	Horizontal	Pass
1**	2289.300	33.39	-12.75	54.0	-20.61	AV	270.00	100	Horizontal	Pass
2	3441.800	46.23	-7.42	74.0	-27.77	Peak	191.00	100	Horizontal	Pass
2**	3441.800	35.40	-7.42	54.0	-18.60	AV	191.00	100	Horizontal	Pass
3	6301.400	51.89	-0.97	74.0	-22.11	Peak	326.00	100	Horizontal	Pass
3**	6301.400	42.69	-0.97	54.0	-11.31	AV	326.00	100	Horizontal	Pass
4	8784.513	48.69	-1.61	74.0	-25.31	Peak	0.00	100	Horizontal	Pass
4**	8784.513	39.16	-1.61	54.0	-14.84	AV	0.00	100	Horizontal	Pass
5	12559.100	50.83	1.67	74.0	-23.17	Peak	277.00	100	Horizontal	Pass
5**	12559.100	41.87	1.67	54.0	-12.13	AV	277.00	100	Horizontal	Pass
6	17464.762	55.39	2.89	74.0	-18.61	Peak	301.00	100	Horizontal	Pass
6**	17464.762	45.70	2.89	54.0	-8.30	AV	301.00	100	Horizontal	Pass

Test Data and Plots

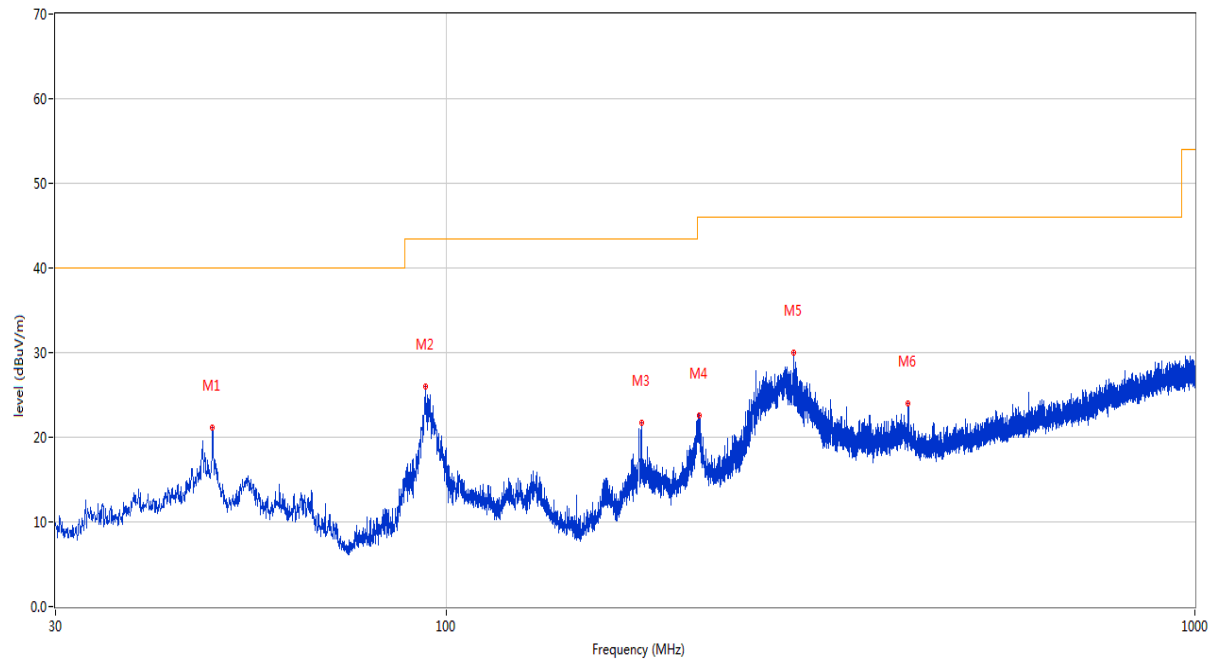
The USB Test Mode

A.1.5 Test Antenna Vertical, 30 MHz – 1 GHz



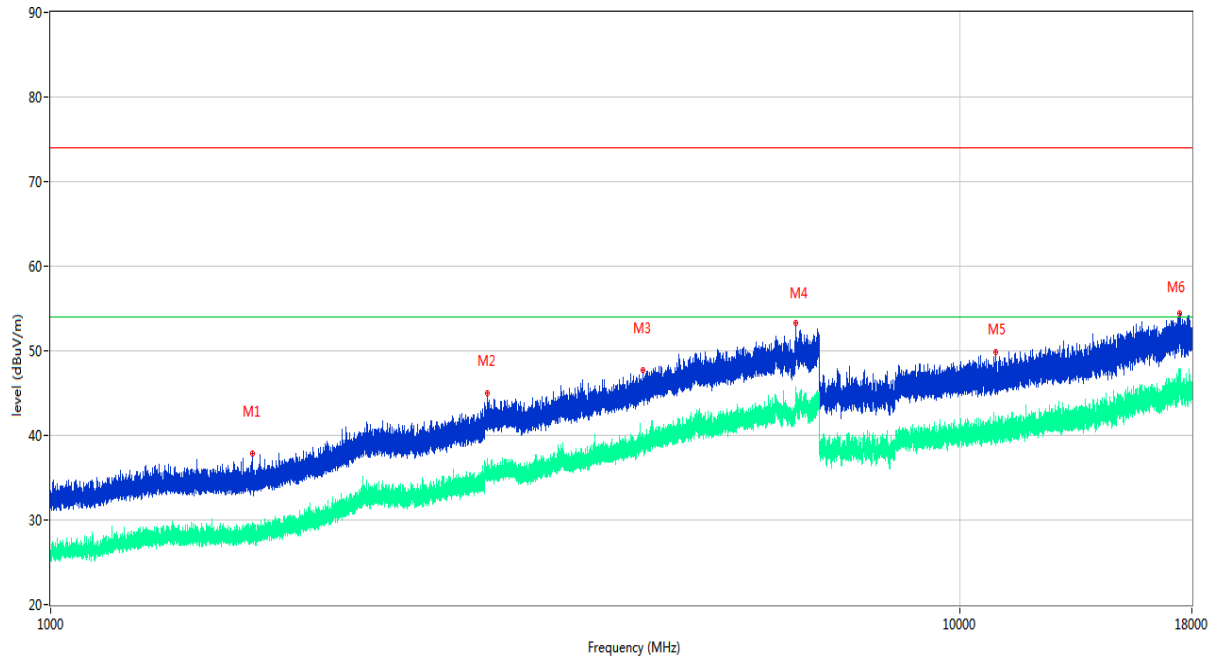
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	33.492	24.33	-26.20	40.0	-15.67	Peak	268.40	100	Vertical	Pass
2	53.862	21.42	-22.96	40.0	-18.58	Peak	57.30	100	Vertical	Pass
3	94.941	22.81	-25.03	43.5	-20.69	Peak	1.00	200	Vertical	Pass
4	289.572	31.74	-21.86	46.0	-14.26	Peak	16.90	200	Vertical	Pass
5	593.958	36.57	-14.68	46.0	-9.43	Peak	229.10	100	Vertical	Pass
6	903.242	37.17	-9.52	46.0	-8.83	Peak	103.20	200	Vertical	Pass

A.1.6 Test Antenna Horizontal, 30 MHz – 1 GHz



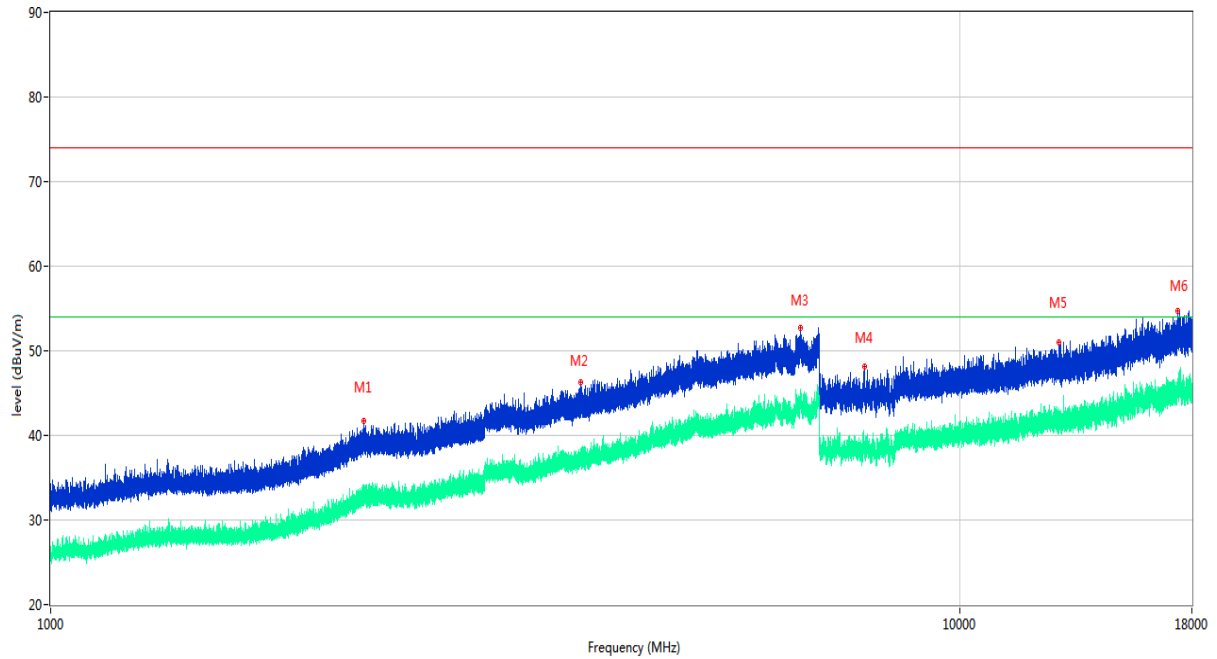
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	48.624	21.19	-22.51	40.0	-18.81	Peak	66.90	100	Horizontal	Pass
2	93.632	25.95	-25.41	43.5	-17.55	Peak	83.40	200	Horizontal	Pass
3	181.999	21.65	-25.60	43.5	-21.85	Peak	248.60	100	Horizontal	Pass
4	217.889	22.55	-24.11	46.0	-23.45	Peak	130.70	200	Horizontal	Pass
5	290.687	29.94	-21.67	46.0	-16.06	Peak	117.20	100	Horizontal	Pass
6	414.023	24.03	-18.46	46.0	-21.97	Peak	333.10	100	Horizontal	Pass

A.1.7 Test Antenna Vertical, 1 GHz – 18 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1667.700	37.85	-17.37	74.0	-36.15	Peak	348.00	100	Vertical	Pass
1**	1667.700	28.21	-17.37	54.0	-25.79	AV	348.00	100	Vertical	Pass
2	3022.400	44.96	-8.51	74.0	-29.04	Peak	238.00	100	Vertical	Pass
2**	3022.400	35.25	-8.51	54.0	-18.75	AV	238.00	100	Vertical	Pass
3	4481.000	47.65	-4.12	74.0	-26.35	Peak	298.00	100	Vertical	Pass
3**	4481.000	38.51	-4.12	54.0	-15.49	AV	298.00	100	Vertical	Pass
4	6607.600	53.31	0.15	74.0	-20.69	Peak	68.00	100	Vertical	Pass
4**	6607.600	43.86	0.15	54.0	-10.14	AV	68.00	100	Vertical	Pass
5	10940.188	49.79	-0.06	74.0	-24.21	Peak	311.00	100	Vertical	Pass
5**	10940.188	41.49	-0.06	54.0	-12.51	AV	311.00	100	Vertical	Pass
6	17433.262	54.37	3.33	74.0	-19.63	Peak	321.00	100	Vertical	Pass
6**	17433.262	46.04	3.33	54.0	-7.96	AV	321.00	100	Vertical	Pass

A.1.8 Test Antenna Horizontal, 1 GHz – 18 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2208.900	41.65	-12.96	74.0	-32.35	Peak	291.00	100	Horizontal	Pass
1**	2208.900	32.93	-12.96	54.0	-21.07	AV	291.00	100	Horizontal	Pass
2	3826.800	46.28	-5.14	74.0	-27.72	Peak	263.00	100	Horizontal	Pass
2**	3826.800	36.75	-5.14	54.0	-17.25	AV	263.00	100	Horizontal	Pass
3	6685.600	52.77	-0.19	74.0	-21.23	Peak	360.00	100	Horizontal	Pass
3**	6685.600	44.71	-0.19	54.0	-9.29	AV	360.00	100	Horizontal	Pass
4	7857.612	48.16	-3.40	74.0	-25.84	Peak	66.00	100	Horizontal	Pass
4**	7857.612	38.13	-3.40	54.0	-15.87	AV	66.00	100	Horizontal	Pass
5	12844.500	51.06	1.34	74.0	-22.94	Peak	331.00	100	Horizontal	Pass
5**	12844.500	41.22	1.34	54.0	-12.78	AV	331.00	100	Horizontal	Pass
6	17369.999	54.76	2.42	74.0	-19.24	Peak	357.00	100	Horizontal	Pass
6**	17369.999	45.00	2.42	54.0	-9.00	AV	357.00	100	Horizontal	Pass

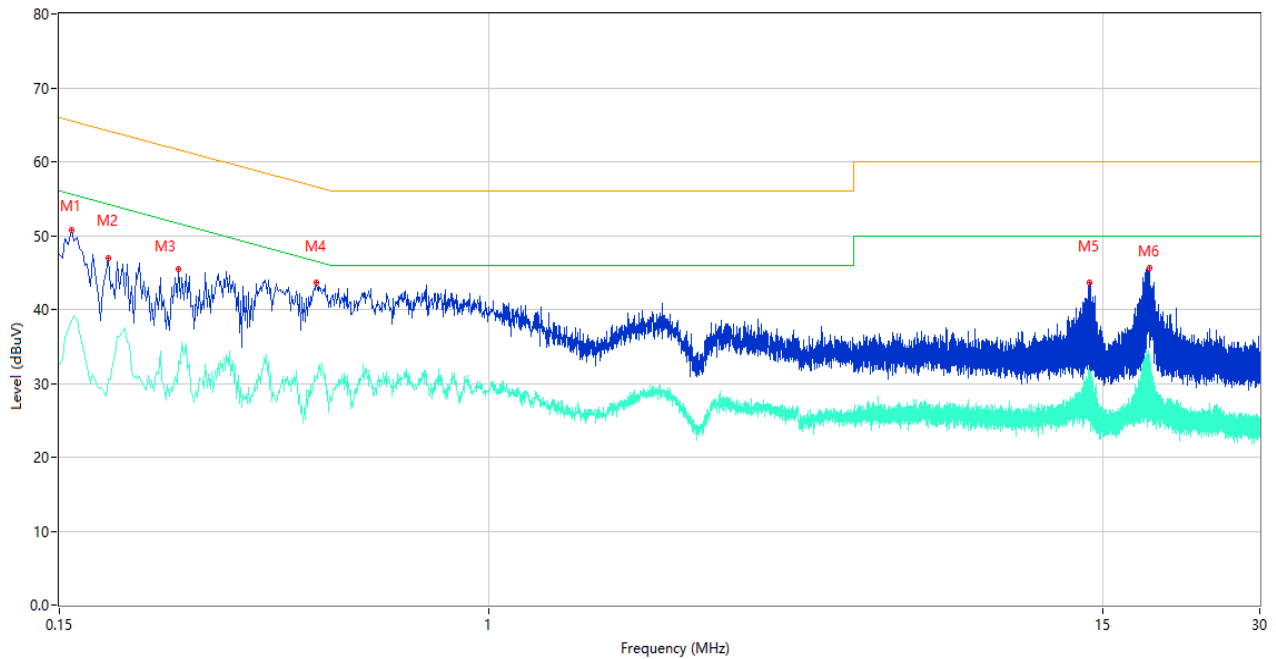
A.2 Conducted Emission

Note: Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz) for which the device is capable of operation. So, The configuration 120 VAC, 60 Hz and 240 VAC, 50 Hz were tested respectively, but only the worst configuration (120 VAC, 60 Hz) shown here.

Test Data and Plots

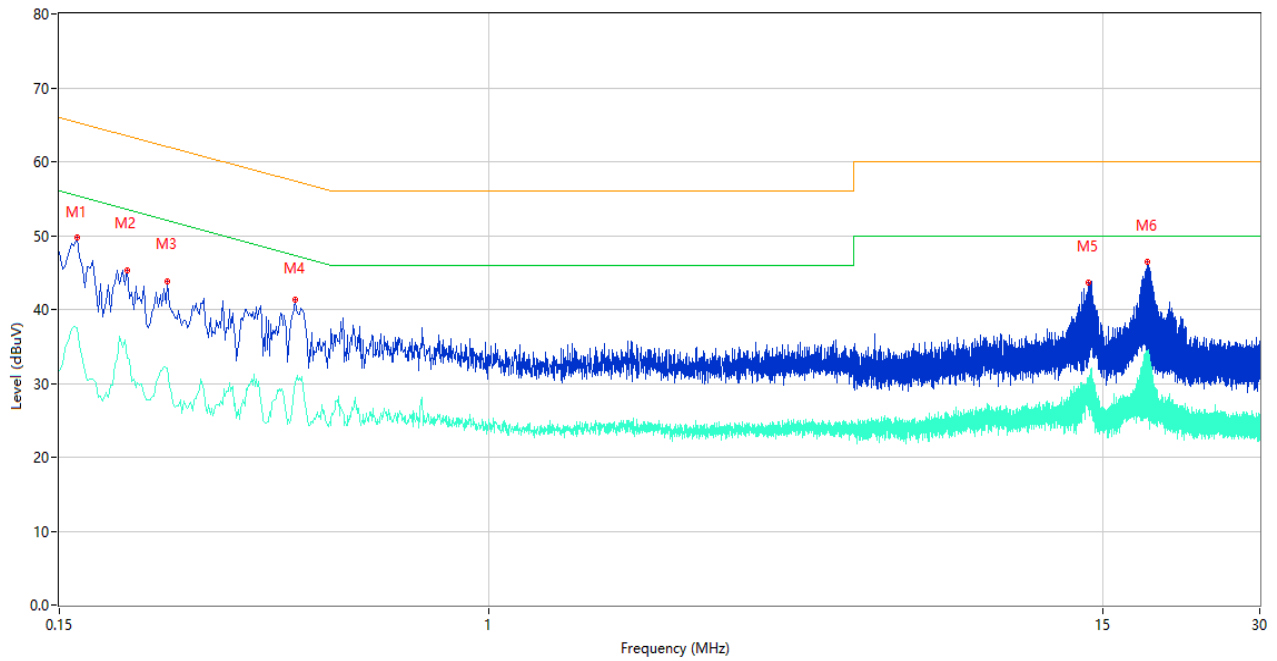
The Camera Test Mode

A.2.1 L Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.158	50.74	10.40	65.57	-14.83	Peak	L	Pass
1**	0.158	38.36	10.40	55.57	-17.21	AV	L	Pass
2	0.186	46.88	10.39	64.21	-17.33	Peak	L	Pass
2**	0.186	30.50	10.39	54.21	-23.71	AV	L	Pass
3	0.254	45.38	10.34	61.63	-16.25	Peak	L	Pass
3**	0.254	33.04	10.34	51.63	-18.59	AV	L	Pass
4	0.466	43.60	10.30	56.58	-12.98	Peak	L	Pass
4**	0.466	30.88	10.30	46.58	-15.70	AV	L	Pass
5	14.132	43.59	10.40	60.00	-16.41	Peak	L	Pass
5**	14.132	31.78	10.40	50.00	-18.22	AV	L	Pass
6	18.450	45.65	10.51	60.00	-14.35	Peak	L	Pass
6**	18.450	32.56	10.51	50.00	-17.44	AV	L	Pass

A.2.2 N Phase

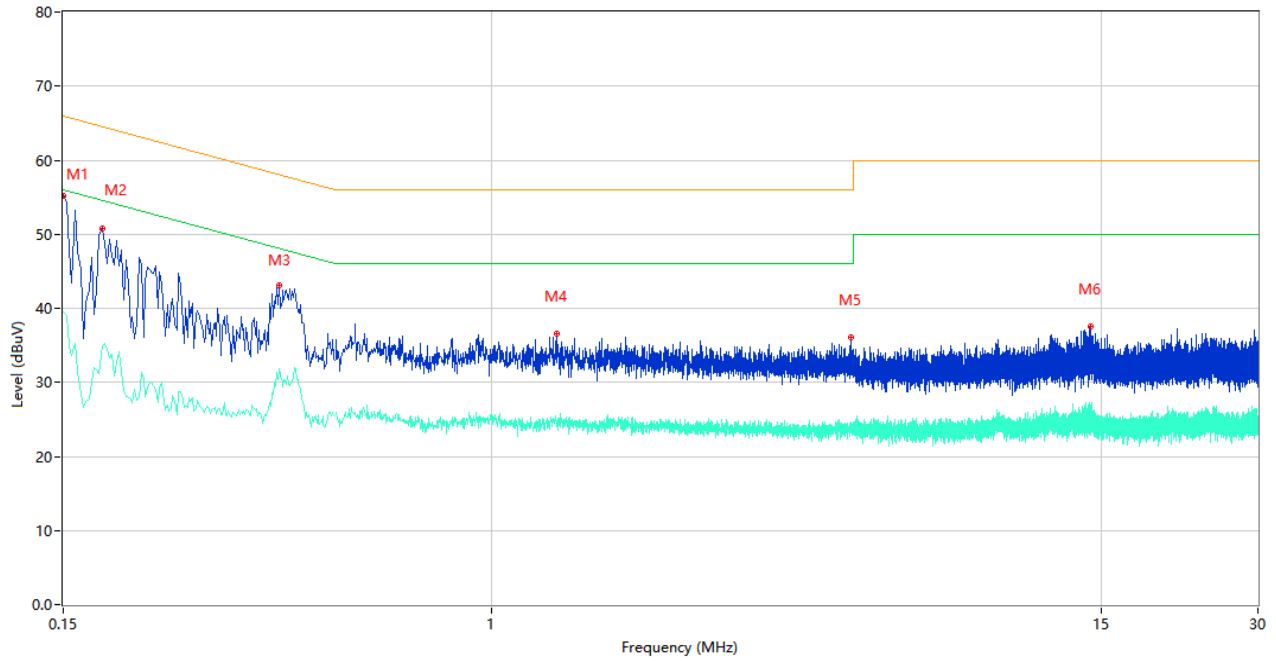


No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.162	49.74	10.40	65.36	-15.62	Peak	N	Pass
1**	0.162	37.51	10.40	55.36	-17.85	AV	N	Pass
2	0.202	45.36	10.38	63.53	-18.17	Peak	N	Pass
2**	0.202	33.32	10.38	53.53	-20.21	AV	N	Pass
3	0.242	43.87	10.34	62.03	-18.16	Peak	N	Pass
3**	0.242	32.00	10.34	52.03	-20.03	AV	N	Pass
4	0.424	41.25	10.31	57.37	-16.12	Peak	N	Pass
4**	0.424	29.80	10.31	47.37	-17.57	AV	N	Pass
5	14.072	43.62	10.40	60.00	-16.38	Peak	N	Pass
5**	14.072	27.54	10.40	50.00	-22.46	AV	N	Pass
6	18.236	46.42	10.50	60.00	-13.58	Peak	N	Pass
6**	18.236	33.48	10.50	50.00	-16.52	AV	N	Pass

Test Data and Plots

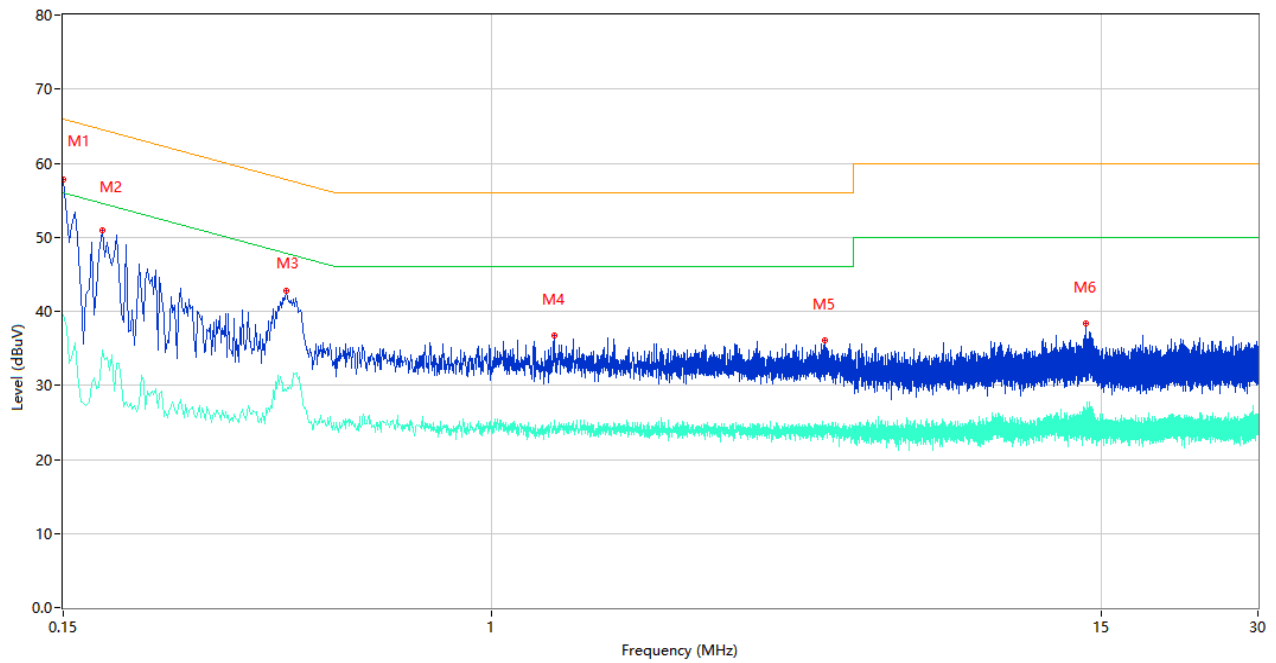
The USB Test Mode

A.2.3 L Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.150	55.24	10.41	66.00	-10.76	Peak	L	Pass
1**	0.150	39.52	10.41	56.00	-16.48	AV	L	Pass
2	0.178	50.72	10.39	64.58	-13.86	Peak	L	Pass
2**	0.178	34.90	10.39	54.58	-19.68	AV	L	Pass
3	0.390	43.02	10.30	58.06	-15.04	Peak	L	Pass
3**	0.390	31.88	10.30	48.06	-16.18	AV	L	Pass
4	1.342	36.57	10.24	56.00	-19.43	Peak	L	Pass
4**	1.342	23.98	10.24	46.00	-22.02	AV	L	Pass
5	4.930	36.09	10.31	56.00	-19.91	Peak	L	Pass
5**	4.930	23.53	10.31	46.00	-22.47	AV	L	Pass
6	14.300	37.56	10.40	60.00	-22.44	Peak	L	Pass
6**	14.300	25.97	10.40	50.00	-24.03	AV	L	Pass

A.2.4 N Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.150	57.82	10.41	66.00	-8.18	Peak	N	Pass
1**	0.150	39.53	10.41	56.00	-16.47	AV	N	Pass
2	0.178	50.89	10.39	64.58	-13.69	Peak	N	Pass
2**	0.178	34.83	10.39	54.58	-19.75	AV	N	Pass
3	0.404	42.84	10.31	57.77	-14.93	Peak	N	Pass
3**	0.404	29.27	10.31	47.77	-18.50	AV	N	Pass
4	1.322	36.66	10.24	56.00	-19.34	Peak	N	Pass
4**	1.322	24.79	10.24	46.00	-21.21	AV	N	Pass
5	4.400	36.04	10.31	56.00	-19.96	Peak	N	Pass
5**	4.400	24.09	10.31	46.00	-21.91	AV	N	Pass
6	14.012	38.40	10.40	60.00	-21.60	Peak	N	Pass
6**	14.012	26.19	10.40	50.00	-23.81	AV	N	Pass

ANNEX B TEST SETUP PHOTOS

Please refer the document “BL-SZ2060102-AE-1.PDF”.

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ2060102-AW.PDF”.

ANNEX D EUT INTERNAL PHOTOS

Please refer the document “BL-SZ2060102-AI.PDF”.

--END OF REPORT--