

EMC

TEST REPORT

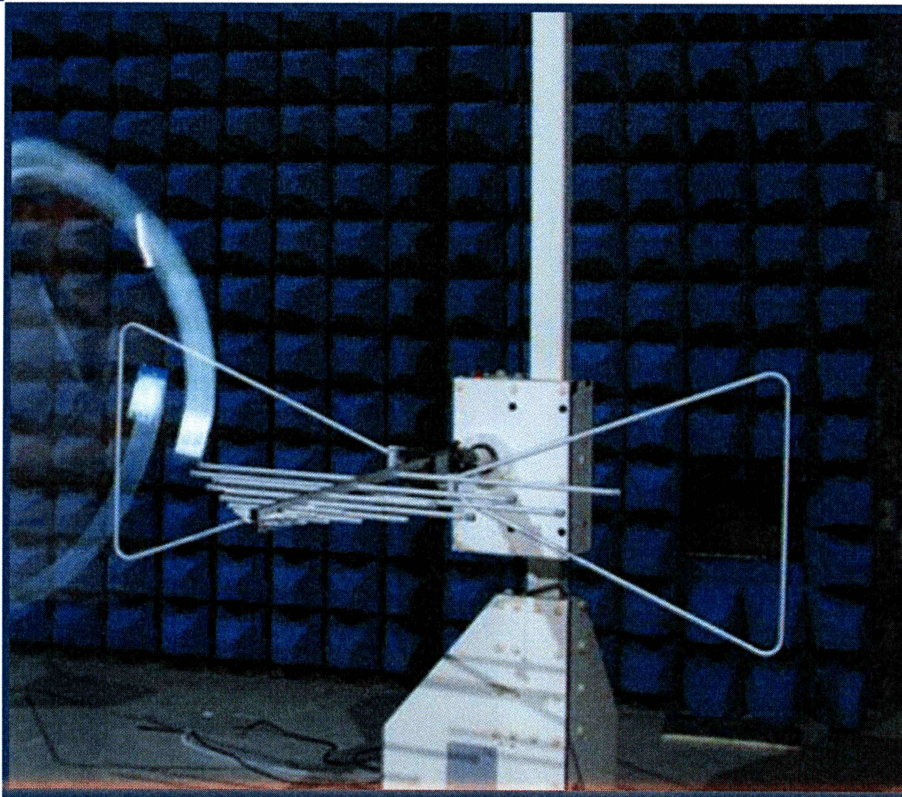
ISSUED BY
Shenzhen BALUN Technology Co., Ltd.



FOR
Mobile Phone

ISSUED TO
vivo Mobile Communication Co., Ltd.

No.168 Jinghai East Rd., Chang'an, Dongguan, Guangdong, China



Tested by: Liu Zhen Xiang
Liu Zhenxiang
Date Oct. 26, 2021

Approved by: Liao Jianming
Liao Jianming
(Technical Director)
Date Oct. 26, 2021

Report No.: BL-SZ2190692-401
EUT Name: Mobile Phone
Model Name: V2139
Brand Name: vivo
Test Standard: 47 CFR Part 15 Subpart B
FCC ID: 2AUCY-V2118

Test Conclusion: Pass
Test Date: Sep. 06, 2021 ~ Sep. 28, 2021
Date of Issue: Oct. 26, 2021

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>Oct. 26, 2021</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.....	4
2	PRODUCT INFORMATION.....	5
2.1	Applicant Information.....	5
2.2	Manufacturer Information.....	5
2.3	Factory Information.....	5
2.4	General Description for Equipment under Test (EUT).....	5
2.5	Ancillary Equipment.....	6
2.6	Technical Information.....	6
3	SUMMARY OF TEST RESULTS.....	7
3.1	Test Standards.....	7
3.2	Verdict.....	7
3.3	Test Uncertainty.....	7
4	GENERAL TEST CONFIGURATIONS.....	8
4.1	Test Environments.....	8
4.2	Test Equipment List.....	8
4.3	Test Enclosure list.....	10
4.4	Test Configurations.....	11
4.5	Test Setups.....	12
4.6	Test Conditions.....	14
5	TEST ITEMS.....	15
5.1	Emission Tests.....	15
ANNEX A	TEST RESULTS.....	17

A.1	Radiated Emission	17
A.2	Conducted Emission	25
ANNEX B	TEST SETUP PHOTOS	29
ANNEX C	EUT EXTERNAL PHOTOS	29
ANNEX D	EUT INTERNAL PHOTOS.....	29

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 is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1196.
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	30% to 60%
Ambient Pressure	100 kPa to 102 kPa

1.4 Announce

- (1) The test report refer to the BALUN report mode v7.0.
- (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	vivo Mobile Communication Co., Ltd.
Address	No.168 Jinghai East Rd., Chang'an, Dongguan, Guangdong, China

2.2 Manufacturer Information

Manufacturer	vivo Mobile Communication Co., Ltd.
Address	No.168 Jinghai East Rd., Chang'an, Dongguan, Guangdong, China

2.3 Factory Information

Factory	N/A
Address	N/A

2.4 General Description for Equipment under Test (EUT)

EUT Name	Mobile Phone
Model Name Under Test	V2139
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	MP_0.1
Software Version	PD2140F_EX_A_3.5.3
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.5 Ancillary Equipment

Ancillary Equipment 1	Battery	
	Brand Name	vivo
	Model No.	B-S7
	Serial No.	N/A
	Capacity	4910 mAh
	Rated Voltage	3.87 V
	Limit Charge Voltage	4.45 V
Ancillary Equipment 2	Adapter 1	
	Brand Name	vivo
	Model No.	V1020D-US
	Serial No.	N/A
	Rated Input	100-240 V~, 0.35 A, 50/60 Hz
	Rated Output	5 V= 2.0 A
Ancillary Equipment 2	Adapter 2	
	Brand Name	vivo
	Model No.	V1020D-EU
	Serial No.	N/A
	Rated Input	100-240 V~, 0.35 A, 50/60 Hz
	Rated Output	5 V= 2.0 A
Ancillary Equipment 3	USB Cable	
	Model No.	N/A
	Length (Approx.)	1.0 m
Note 1: Letter in () means plug type.		
Note 2: All batteries are tested, only the worst data of V1020D-US (US 100-240VAC) shown in this report.		

2.6 Technical Information

Network and Wireless connectivity	2G Network GSM/GPRS/EGPRS 850/1900 MHz 3G Network WCDMA/HSDPA/HSUPA Band 2/4/5 4G Network FDD LTE Band 2/4/5/7/13/66 TDD LTE Band 38/41 Bluetooth (BR+EDR+BLE) 2.4G WIFI 802.11b, 802.11g, 802.11n(HT20) 5G WIFI 802.11a, 802.11n(HT20/40), 802.11ac(VHT20/40/80) U-NII-1/2C/3, GPS, GLONASS, BDS, Galileo, FM Receiver
-----------------------------------	--

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

The Highest Speed of Processor	2.3 GHz
--------------------------------	---------

3 SUMMARY OF TEST RESULTS

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 15 Subpart B (10-1-19 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)	3.67 dB
Radiated emissions (1 GHz-18 GHz)	3.57 dB
Radiated emissions (18 GHz-40 GHz)	5.16 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)	20°C to 25°C	AC 120 V/60 Hz	30% to 60%	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	2021.06.01	2022.05.31	☐
Test Antenna-Bi-Log	SCHWARZBECK	VULB 9168	9168-0883	2020.05.11	2022.05.10	☐
Anechoic Chamber	EMC Electronic Co., Ltd	20.10*11.60 *7.35m	N/A	2018.08.08	2022.08.07	☐
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	2021.09.13	2022.09.12	☒
Test Antenna-Bi-Log	SCHWARZBECK	VULB 9163	9163-624	2019.07.02	2022.07.01	☒
Anechoic Chamber	YIHENG	9m*6m*6m	N/A	2018.07.18	2022.07.17	☒
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	2021.09.13	2022.09.12	☒
Test Antenna-Horn	SCHWARZBECK	BBHA 9120D	9120D-1917	2019.07.02	2022.07.01	☒
Anechoic Chamber	YIHENG	9m*6m*6m	N/A	2018.07.18	2022.07.17	☒
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	2021.04.01	2022.03.31	☒
Test Antenna-Horn	A-INFOMW	LB-180400KF	J211060273	2021.01.05	2023.01.04	☒
Anechoic Chamber	YIHENG	9m*6m*6m	N/A	2018.07.18	2022.07.17	☒
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	2021.06.01	2022.05.31	☒
LISN	SCHWARZBECK	NSLK 8127	8127-687	2021.06.08	2022.06.07	☒
Shielded Enclosure	YiHeng Electronic Co., Ltd	3.4m*3.1m*2.8m	N/A	2018.08.16	2022.08.15	☒
Test Software	BALUN	BL410_E	V19.918	--	--	☒

4.3 Test Enclosure list

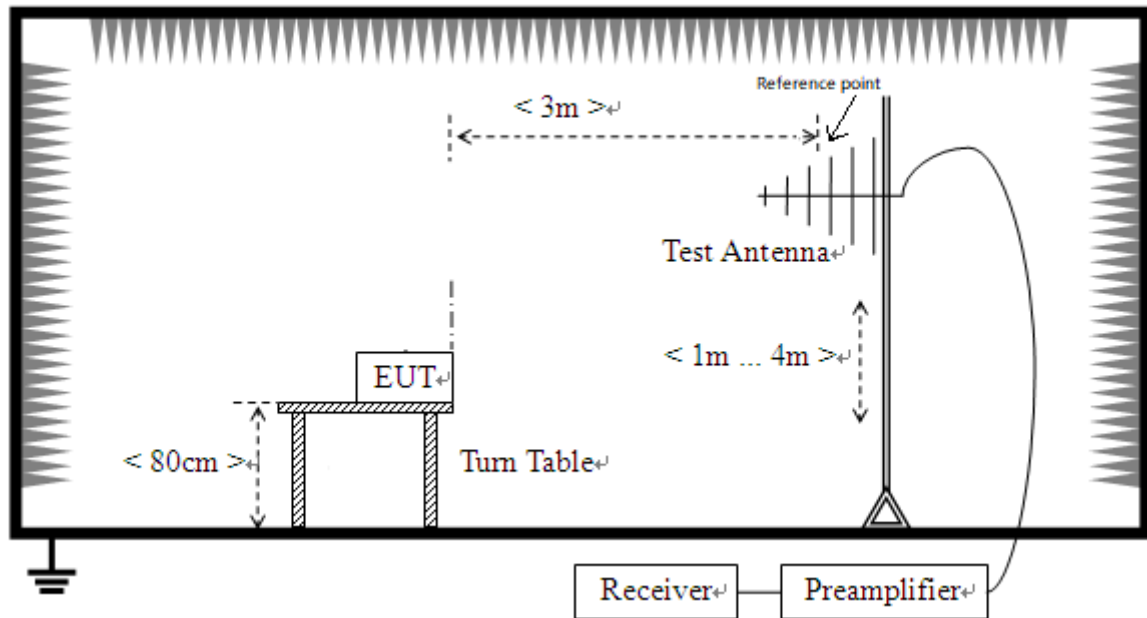
Description	Manufacturer	Model	Serial No.	Length	Description	Use
PC	Dell	015K3N	N/A	N/A	Special Handled	☐
Laptop	Apple	A1465	N/A	N/A	N/A	☒
Printer	HP	DESKJET 1000	N/A	N/A	N/A	☐
Keyboard	Logitech	Y-BP62a	N/A	N/A	N/A	☐
Mouse	Logitech	M100	N/A	N/A	N/A	☐
USB disk	Kingston	N/A	N/A	N/A	N/A	☐
TF Card	Kingston	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 2022.06.07	☒
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 GSM 850 MHz RX Test Mode</u> GSM 850 MHz RX + EUT +Adapter + USB Cable + Battery + Headset
TC02	<u>The EGPRS 850 MHz RX Test Mode</u> EGPRS 850 MHz RX + EUT +Adapter + USB Cable + Battery + Headset
TC03	<u>The WCDMA Band 5 RX Test Mode</u> WCDMA Band 5 RX + EUT +Adapter + USB Cable + Battery + Headset
TC04	<u>The FDD LTE Band 5 RX Test Mode</u> LTE Band 5 RX + EUT +Adapter + USB Cable + Battery + Headset
TC05	<u>The FDD LTE Band 13 RX Test Mode</u> LTE Band 13 RX + EUT +Adapter + USB Cable + Battery + Headset
TC06	<u>The Camera Test Mode</u> EUT + Adapter + USB Cable + Battery + Headset + TF Card
TC07	<u>The Video Play Test Mode</u> EUT + Adapter + USB Cable + Battery + Headset + TF Card
TC08	<u>The USB Test Mode</u> EUT + USB Cable + Battery + Laptop+ Headset + TF Card

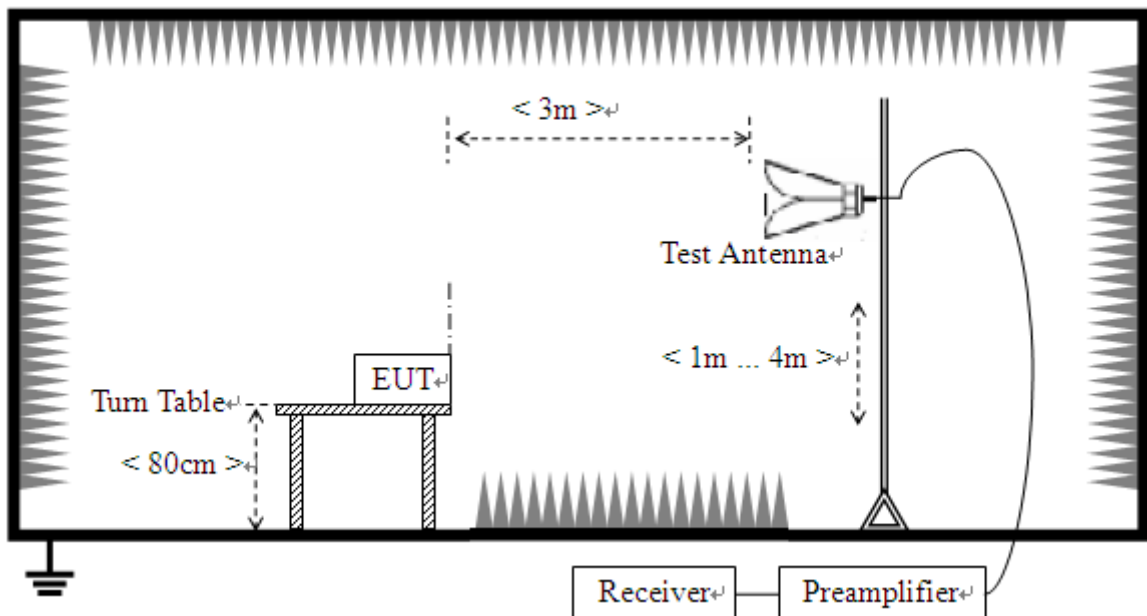
4.5 Test Setups

Test Setup 1



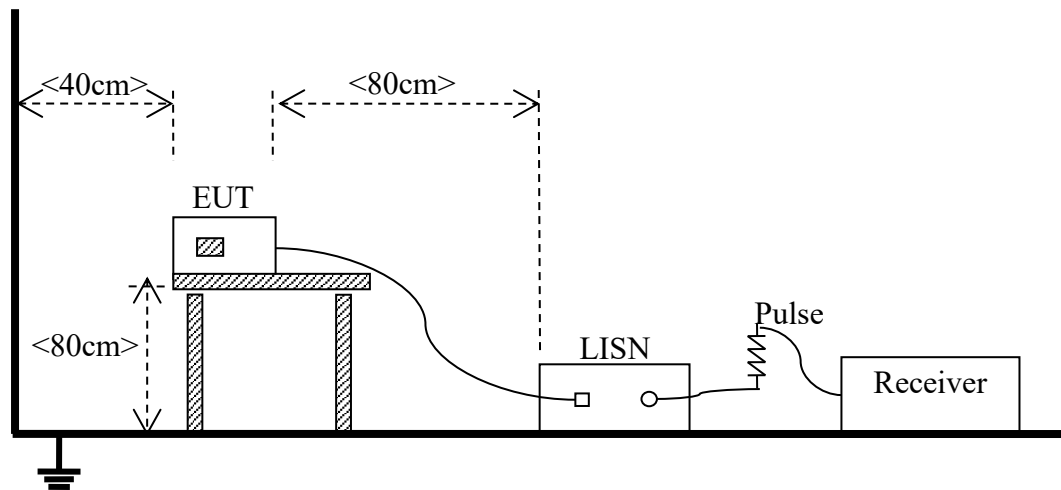
(For Radiated Emission Test (30 MHz-1 GHz))

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~TC08 ^{Note}
Conducted Emission, AC Ports	Test Env.	NTNV
	Test Setup	Test Setup 3
	Test Configuration	TC01~TC08 ^{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 (μV/m)	Field Strength (dBμV/m)	Field Strength (dBμV/m)	Field Strength (μV/m)	Field Strength (dBμV/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 (dBμV/m) = $20 \cdot \log$ [Field Strength (μV/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 (dBuV/m) = Reading (dBuV) + 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. Results (dBuV/m) = Reading (dBuV) + Factor (dB/m)

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

2. Factor = Insertion loss + Cable loss

3. Over limit = Results – Limit.

ANNEX A TEST RESULTS

A.1 Radiated Emission

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

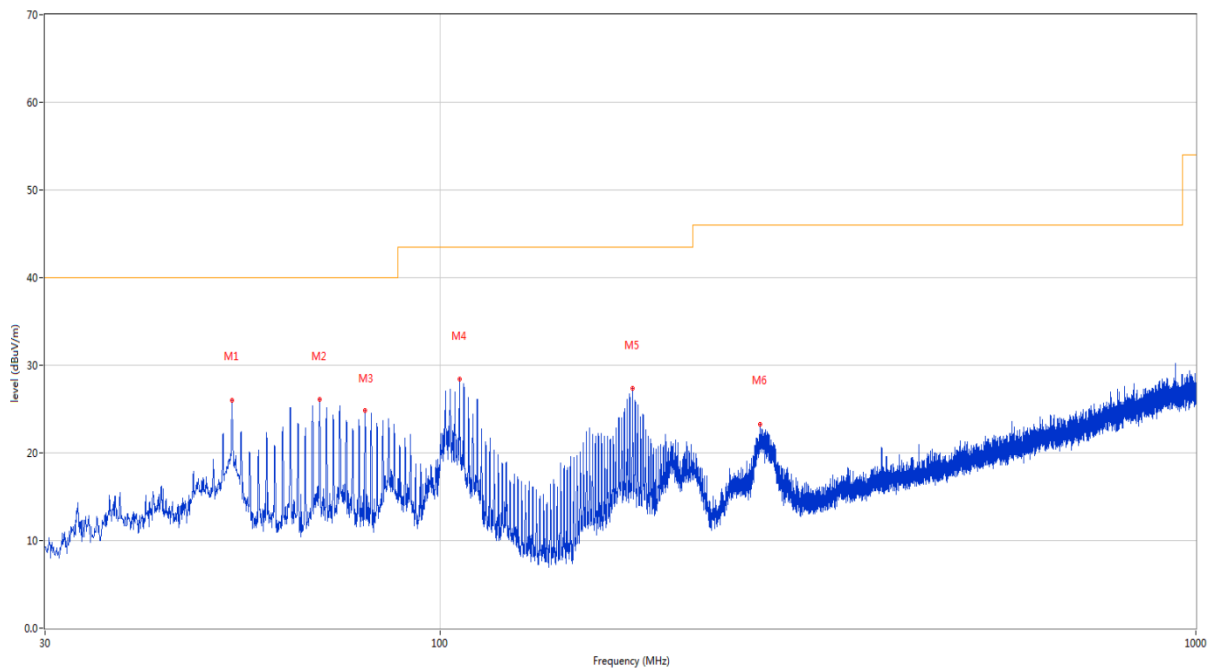
Note 2: For the test data above 1 GHz, according the ANSI C63.4-2014, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

Note 3: The Radiated Emission from 18G-40G is noise only, do not show on the report.

Test Data and Plots

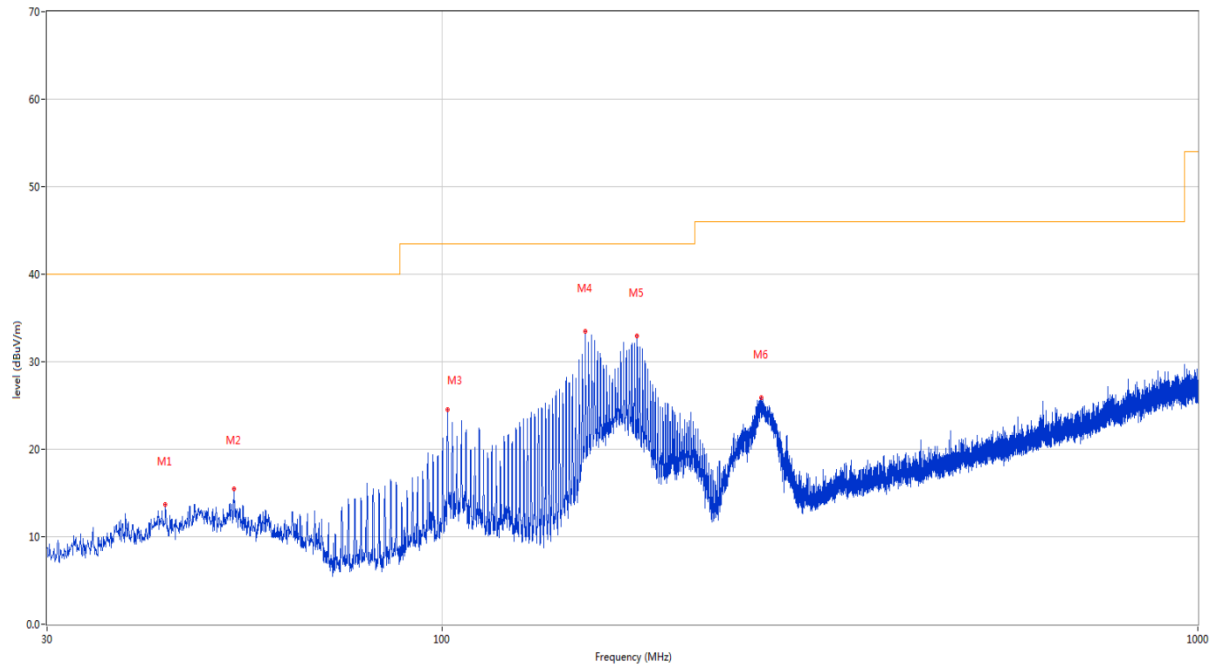
The Camera Test Mode

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



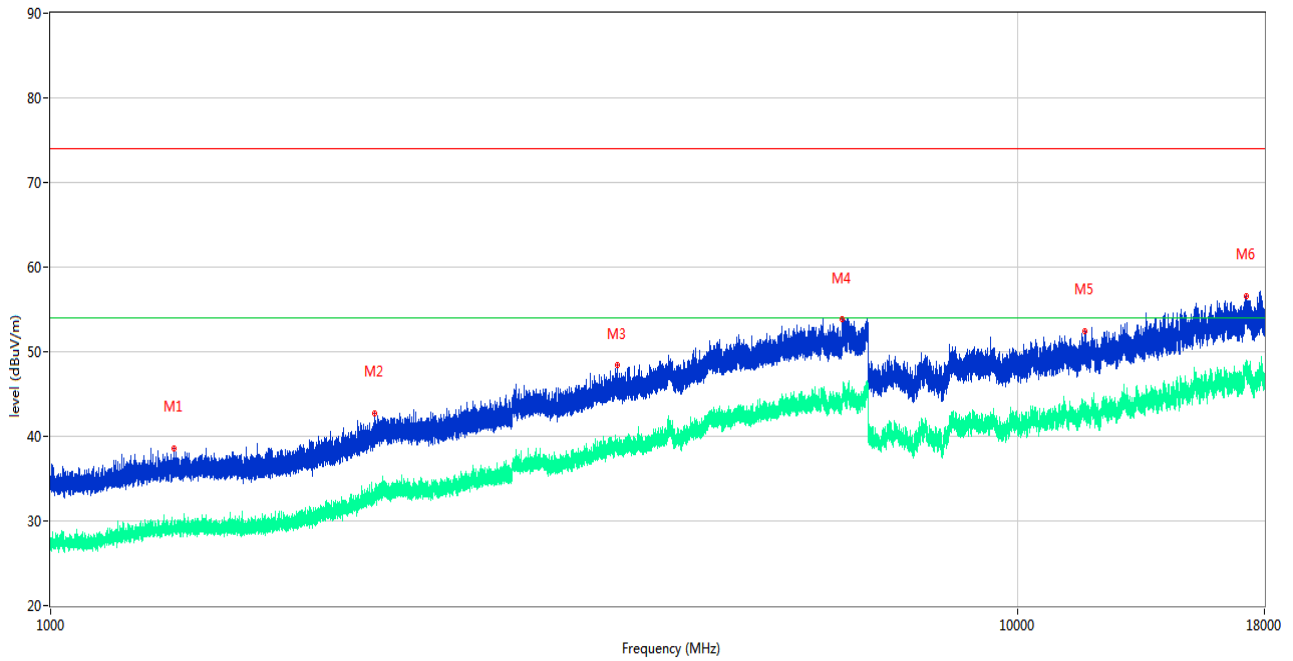
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	53.038	26.03	-23.00	40.0	-13.97	Peak	178.80	100	Vertical	Pass
2	69.237	26.16	-26.69	40.0	-13.84	Peak	231.30	100	Vertical	Pass
3	79.567	24.89	-28.43	40.0	-15.11	Peak	348.70	100	Vertical	Pass
4	106.096	28.41	-24.16	43.5	-15.09	Peak	290.50	100	Vertical	Pass
5	179.720	27.38	-26.06	43.5	-16.12	Peak	48.50	200	Vertical	Pass
6	265.177	23.26	-22.17	46.0	-22.74	Peak	143.80	200	Vertical	Pass

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



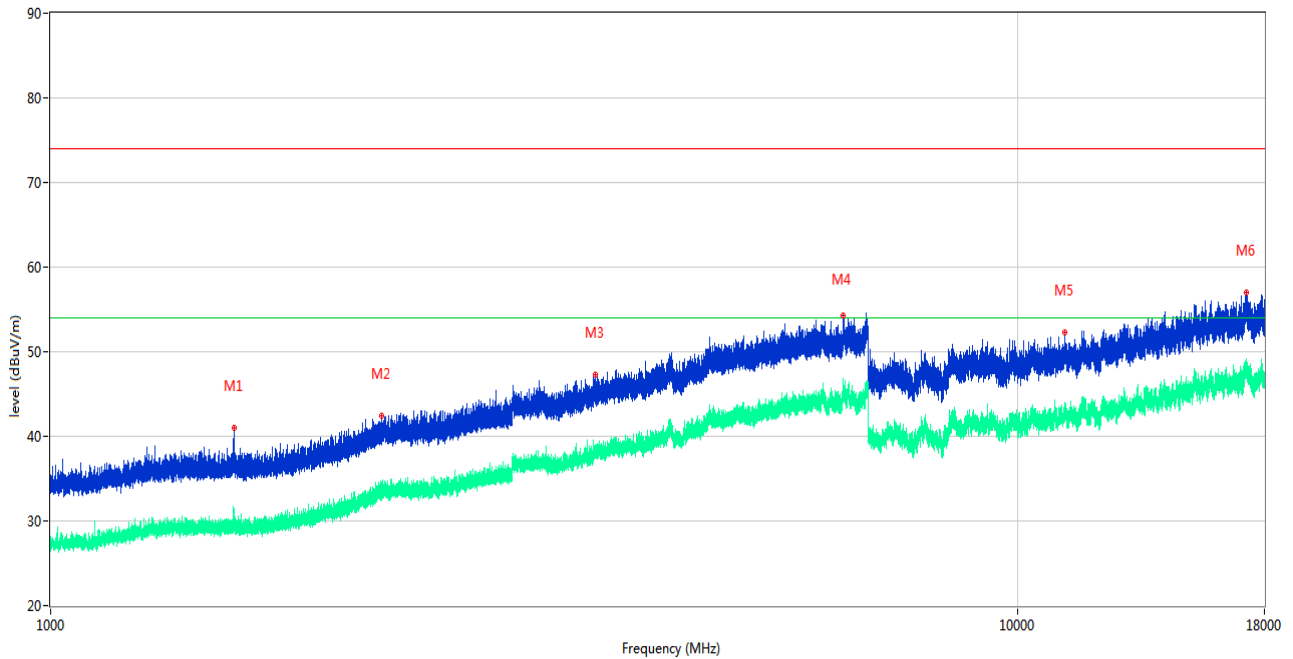
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	43.047	13.64	-23.38	40.0	-26.36	Peak	0.00	200	Horizontal	Pass
2	52.989	15.51	-23.00	40.0	-24.49	Peak	128.80	200	Horizontal	Pass
3	101.634	24.55	-24.58	43.5	-18.95	Peak	284.50	200	Horizontal	Pass
4	154.694	33.47	-27.39	43.5	-10.03	Peak	101.80	200	Horizontal	Pass
5	181.174	32.98	-25.86	43.5	-10.52	Peak	273.80	200	Horizontal	Pass
6	264.449	25.91	-22.16	46.0	-20.09	Peak	99.70	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	1343.100	38.53	-17.32	74.0	-35.47	Peak	211.00	100	Vertical	Pass
1**	1343.100	29.14	-17.32	54.0	-24.86	AV	211.00	100	Vertical	Pass
2	2165.700	42.72	-13.52	74.0	-31.28	Peak	90.00	100	Vertical	Pass
2**	2165.700	32.82	-13.52	54.0	-21.18	AV	90.00	100	Vertical	Pass
3	3852.000	48.44	-5.73	74.0	-25.56	Peak	59.00	100	Vertical	Pass
3**	3852.000	38.04	-5.73	54.0	-15.96	AV	59.00	100	Vertical	Pass
4	6591.000	53.82	-1.31	74.0	-20.18	Peak	33.00	100	Vertical	Pass
4**	6591.000	44.00	-1.31	54.0	-10.00	AV	33.00	100	Vertical	Pass
5	11748.924	52.45	0.91	74.0	-21.55	Peak	205.00	100	Vertical	Pass
5**	11748.924	42.51	0.91	54.0	-11.49	AV	205.00	100	Vertical	Pass
6	17223.526	56.58	1.38	74.0	-17.42	Peak	262.00	100	Vertical	Pass
6**	17223.526	47.07	1.38	54.0	-6.93	AV	262.00	100	Vertical	Pass

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

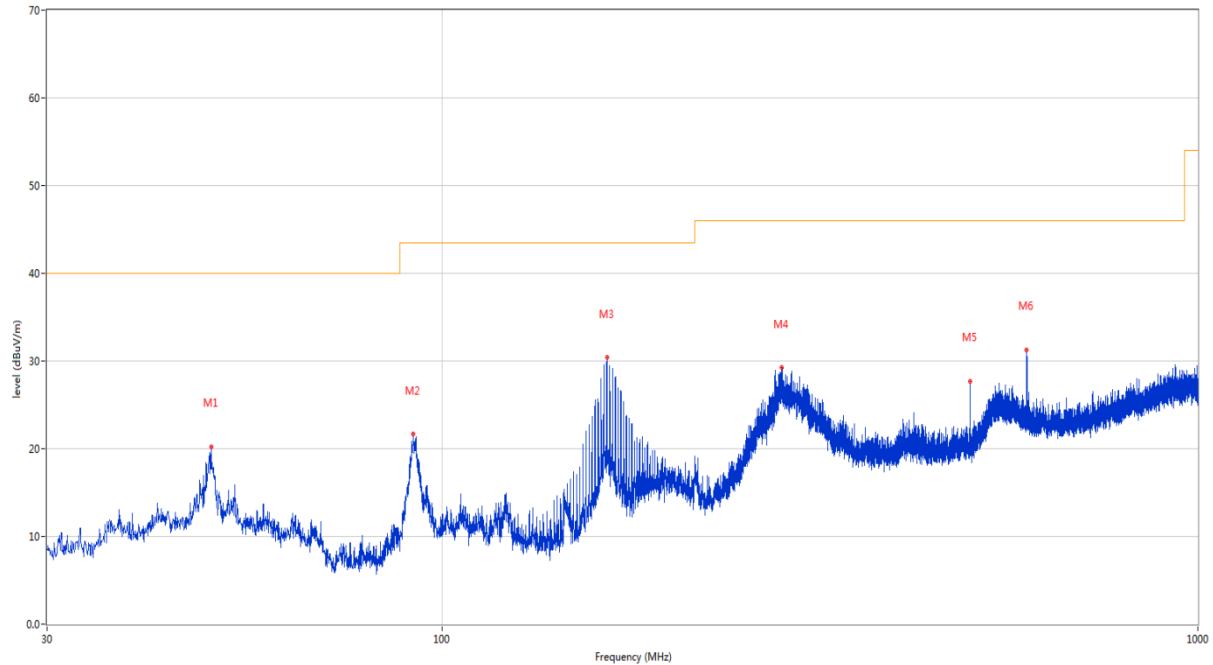


No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1548.100	41.00	-17.53	74.0	-33.00	Peak	207.00	100	Horizontal	Pass
1**	1548.100	30.20	-17.53	54.0	-23.80	AV	207.00	100	Horizontal	Pass
2	2199.400	42.44	-13.20	74.0	-31.56	Peak	183.00	100	Horizontal	Pass
2**	2199.400	33.51	-13.20	54.0	-20.49	AV	183.00	100	Horizontal	Pass
3	3660.400	47.27	-6.84	74.0	-26.73	Peak	46.00	100	Horizontal	Pass
3**	3660.400	37.85	-6.84	54.0	-16.15	AV	46.00	100	Horizontal	Pass
4	6601.600	54.29	-0.25	74.0	-19.71	Peak	222.00	100	Horizontal	Pass
4**	6601.600	45.52	-0.25	54.0	-8.48	AV	222.00	100	Horizontal	Pass
5	11201.526	52.24	-0.27	74.0	-21.76	Peak	100.00	100	Horizontal	Pass
5**	11201.526	42.49	-0.27	54.0	-11.51	AV	100.00	100	Horizontal	Pass
6	17223.000	57.01	1.37	74.0	-16.99	Peak	98.00	100	Horizontal	Pass
6**	17223.000	48.32	1.37	54.0	-5.68	AV	98.00	100	Horizontal	Pass

Test Data and Plots

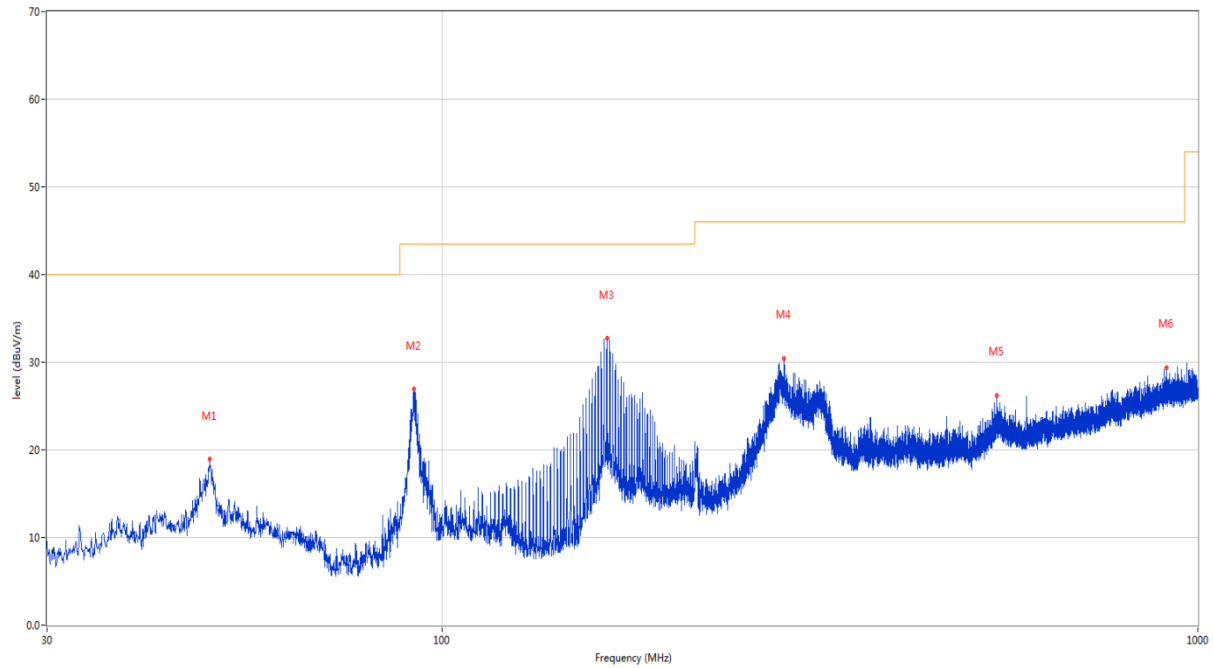
The USB Test Mode

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



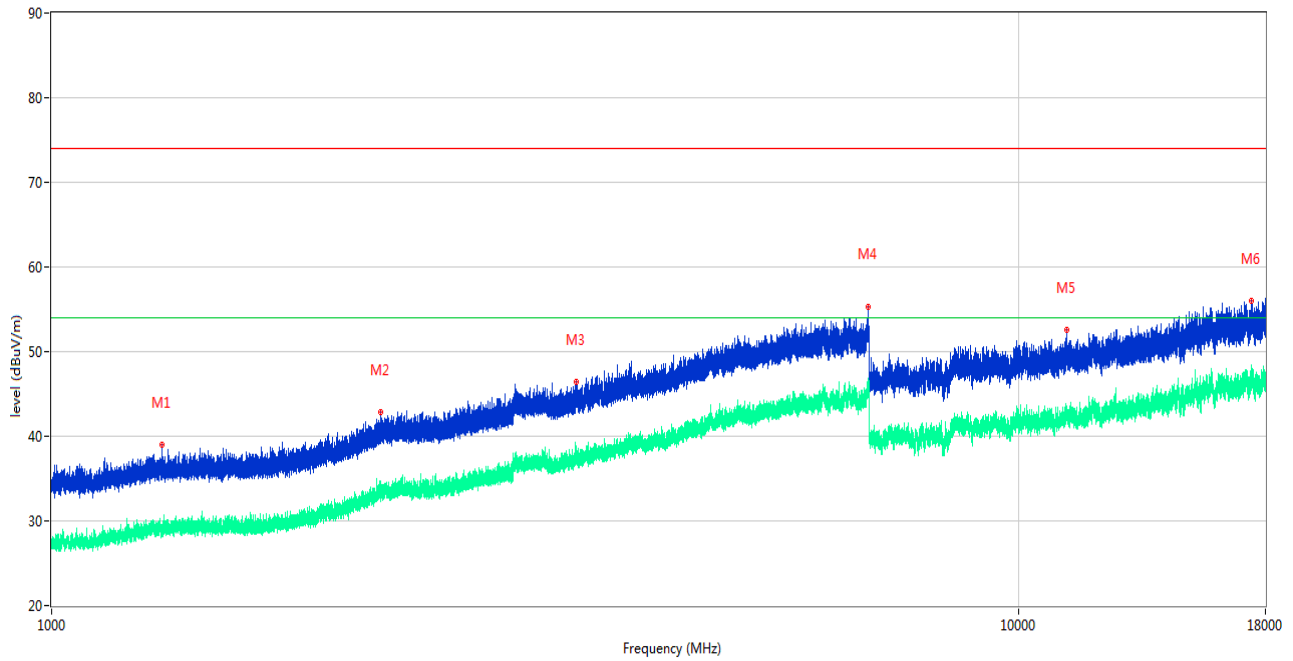
No.	Frequen cy (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	49.497	20.18	-22.55	40.0	-19.82	Peak	73.30	100	Vertical	Pass
2	91.595	21.68	-25.72	43.5	-21.82	Peak	12.80	200	Vertical	Pass
3	165.169	30.40	-26.76	43.5	-13.10	Peak	320.50	100	Vertical	Pass
4	281.182	29.30	-21.74	46.0	-16.70	Peak	38.10	200	Vertical	Pass
5	500.014	27.63	-16.93	46.0	-18.37	Peak	162.90	100	Vertical	Pass
6	593.958	31.29	-14.68	46.0	-14.71	Peak	167.10	100	Vertical	Pass

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



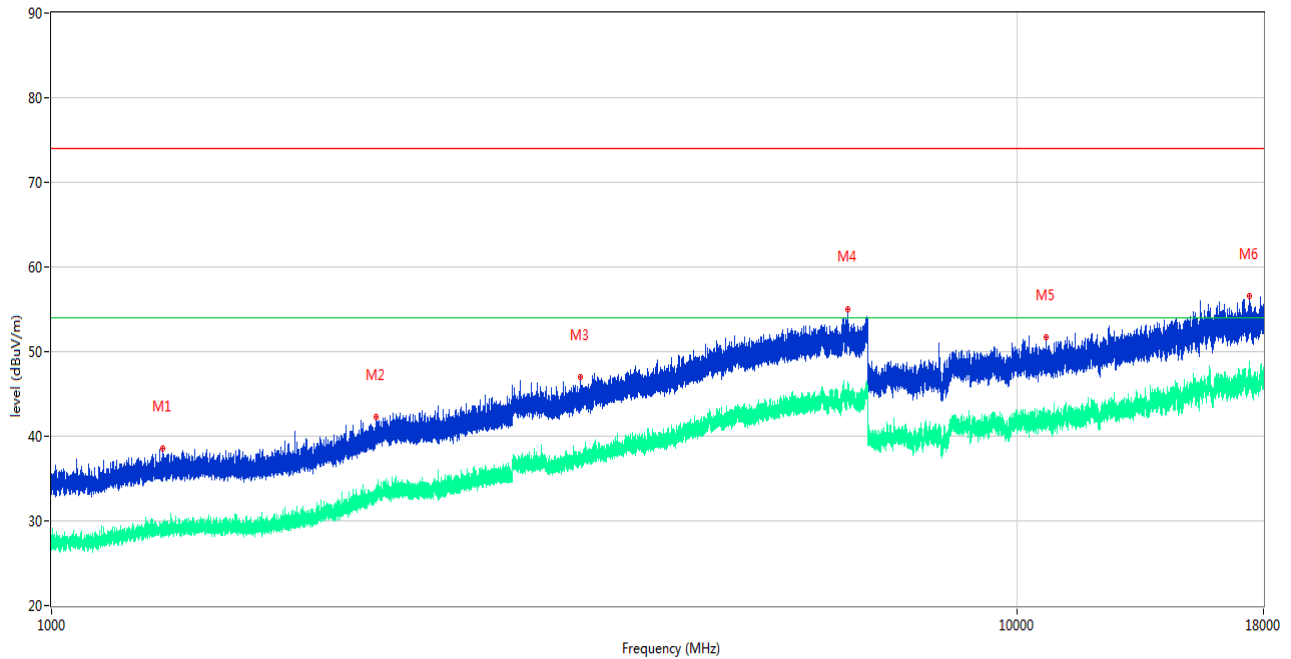
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	49.255	18.92	-22.44	40.0	-21.08	Peak	132.30	200	Horizontal	Pass
2	91.838	26.97	-25.67	43.5	-16.53	Peak	285.60	200	Horizontal	Pass
3	165.218	32.73	-26.76	43.5	-10.77	Peak	149.70	200	Horizontal	Pass
4	283.606	30.43	-21.93	46.0	-15.57	Peak	253.20	100	Horizontal	Pass
5	542.451	26.20	-15.50	46.0	-19.80	Peak	77.20	200	Horizontal	Pass
6	908.287	29.32	-9.74	46.0	-16.68	Peak	268.70	200	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	1299.500	39.06	-17.41	74.0	-34.94	Peak	306.00	100	Vertical	Pass
1**	1299.500	28.37	-17.41	54.0	-25.63	AV	306.00	100	Vertical	Pass
2	2187.600	42.83	-13.30	74.0	-31.17	Peak	256.00	100	Vertical	Pass
2**	2187.600	33.49	-13.30	54.0	-20.51	AV	256.00	100	Vertical	Pass
3	3490.600	46.45	-6.90	74.0	-27.55	Peak	9.00	100	Vertical	Pass
3**	3490.600	36.95	-6.90	54.0	-17.05	AV	9.00	100	Vertical	Pass
4	6985.200	55.36	0.52	74.0	-18.64	Peak	122.00	100	Vertical	Pass
4**	6985.200	45.60	0.52	54.0	-8.40	AV	122.00	100	Vertical	Pass
5	11218.487	52.54	-0.20	74.0	-21.46	Peak	34.00	100	Vertical	Pass
5**	11218.487	42.44	-0.20	54.0	-11.56	AV	34.00	100	Vertical	Pass
6	17408.063	56.02	3.40	74.0	-17.98	Peak	82.00	100	Vertical	Pass
6**	17408.063	46.02	3.40	54.0	-7.98	AV	82.00	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	1302.900	38.50	-17.36	74.0	-35.50	Peak	315.00	100	Horizontal	Pass
1**	1302.900	28.77	-17.36	54.0	-25.23	AV	315.00	100	Horizontal	Pass
2	2166.900	42.25	-13.49	74.0	-31.75	Peak	61.00	100	Horizontal	Pass
2**	2166.900	33.00	-13.49	54.0	-21.00	AV	61.00	100	Horizontal	Pass
3	3525.800	47.00	-6.58	74.0	-27.00	Peak	147.00	100	Horizontal	Pass
3**	3525.800	37.65	-6.58	54.0	-16.35	AV	147.00	100	Horizontal	Pass
4	6686.800	55.03	-0.22	74.0	-18.97	Peak	109.00	100	Horizontal	Pass
4**	6686.800	45.61	-0.22	54.0	-8.39	AV	109.00	100	Horizontal	Pass
5	10712.487	51.77	-0.73	74.0	-22.23	Peak	360.00	100	Horizontal	Pass
5**	10712.487	41.96	-0.73	54.0	-12.04	AV	360.00	100	Horizontal	Pass
6	17423.813	56.64	3.65	74.0	-17.36	Peak	40.00	100	Horizontal	Pass
6**	17423.813	47.53	3.65	54.0	-6.47	AV	40.00	100	Horizontal	Pass

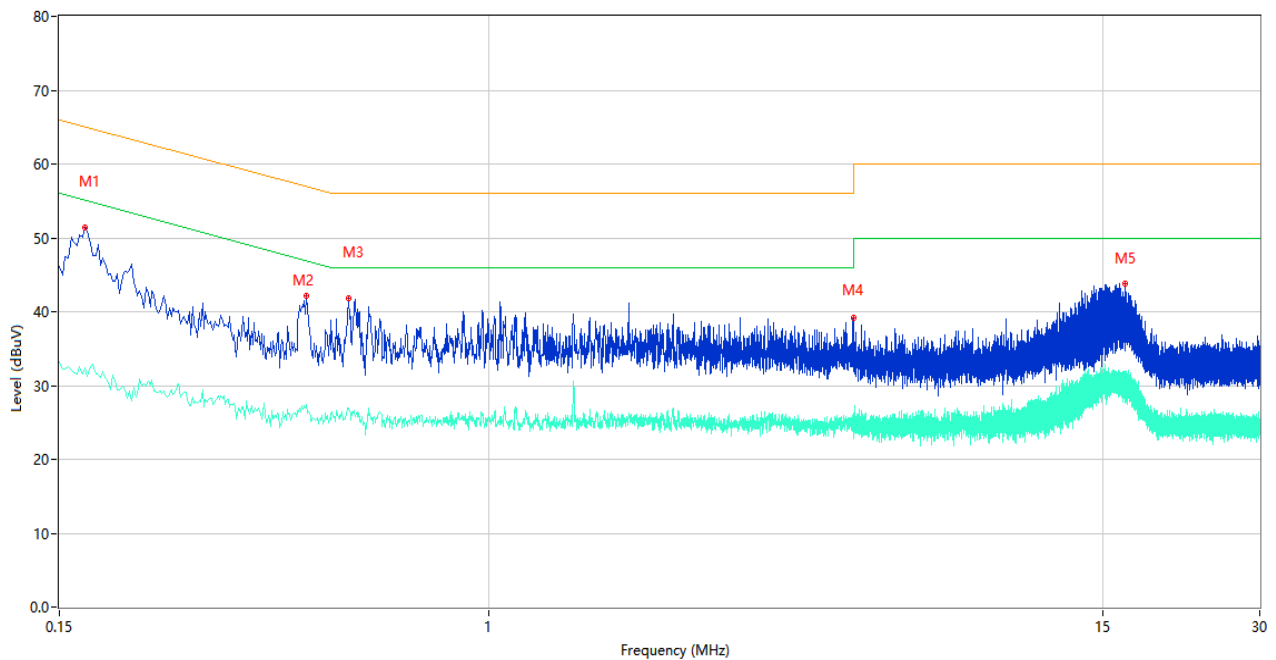
A.2 Conducted Emission

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

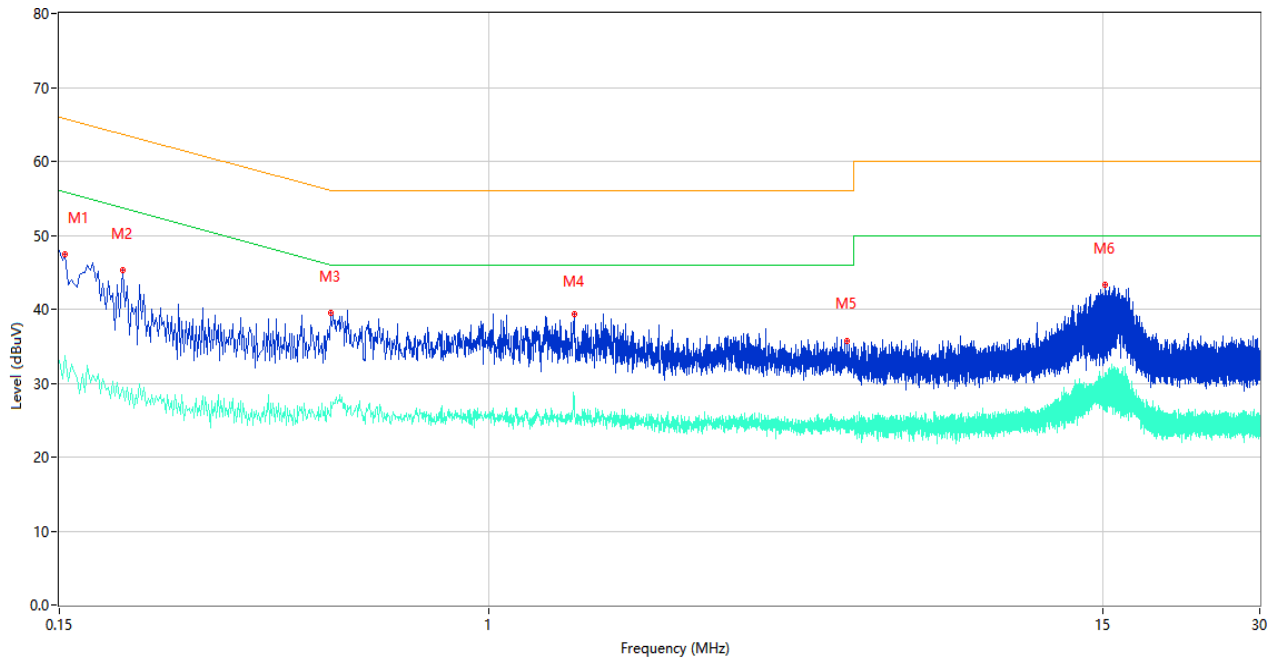
The Camera Test Mode

A.2.1 L Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.168	51.38	10.40	65.06	-13.68	Peak	L	Pass
1**	0.168	32.43	10.40	55.06	-22.63	AV	L	Pass
2	0.446	42.16	10.30	56.95	-14.79	Peak	L	Pass
2**	0.446	27.45	10.30	46.95	-19.50	AV	L	Pass
3	0.538	41.75	10.29	56.00	-14.25	Peak	L	Pass
3**	0.538	26.99	10.29	46.00	-19.01	AV	L	Pass
4	5.006	39.13	10.31	60.00	-20.87	Peak	L	Pass
4**	5.006	24.22	10.31	50.00	-25.78	AV	L	Pass
5	16.532	43.84	10.45	60.00	-16.16	Peak	L	Pass
5**	16.532	29.03	10.45	50.00	-20.97	AV	L	Pass

A.2.2 N Phase

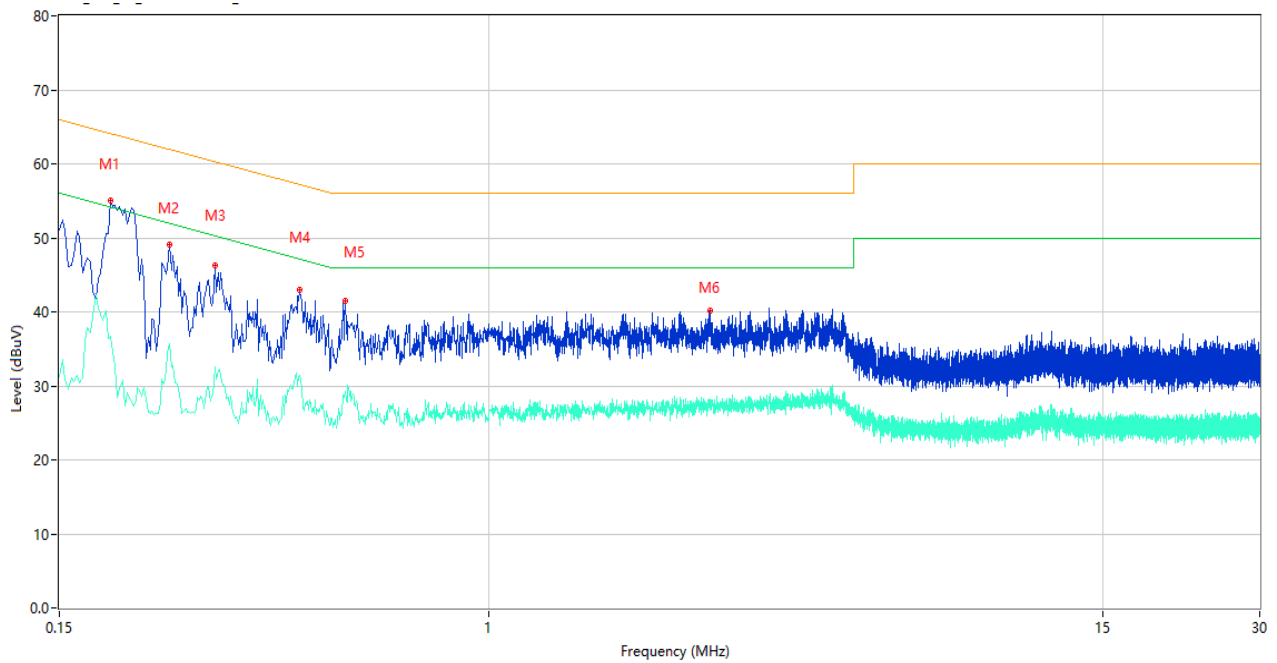


No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.154	47.49	10.41	65.78	-18.29	Peak	N	Pass
1**	0.154	33.64	10.41	55.78	-22.14	AV	N	Pass
2	0.198	45.27	10.38	63.69	-18.42	Peak	N	Pass
2**	0.198	29.34	10.38	53.69	-24.35	AV	N	Pass
3	0.496	39.45	10.29	56.07	-16.62	Peak	N	Pass
3**	0.496	25.41	10.29	46.07	-20.66	AV	N	Pass
4	1.454	39.32	10.25	56.00	-16.68	Peak	N	Pass
4**	1.454	28.26	10.25	46.00	-17.74	AV	N	Pass
5	4.864	35.70	10.31	56.00	-20.30	Peak	N	Pass
5**	4.864	24.63	10.31	46.00	-21.37	AV	N	Pass
6	15.124	43.26	10.41	60.00	-16.74	Peak	N	Pass
6**	15.124	30.71	10.41	50.00	-19.29	AV	N	Pass

Test Data and Plots

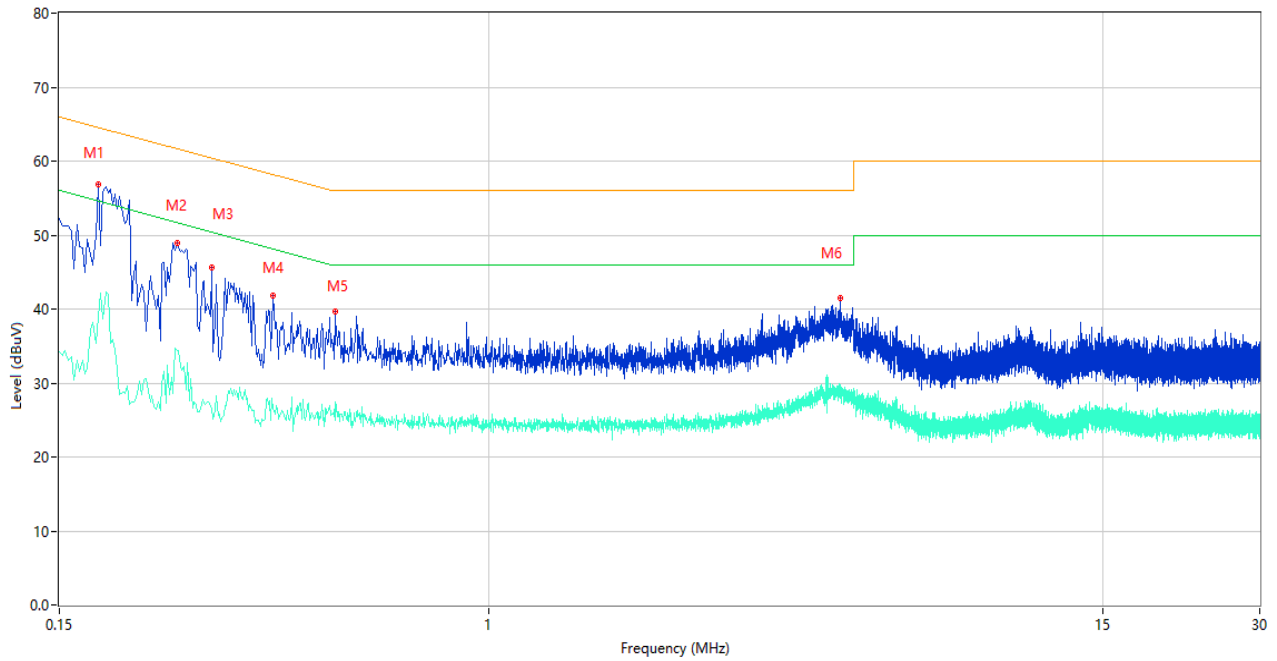
The USB Test Mode

A.2.3 L Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.188	55.06	10.38	64.12	-9.06	Peak	L	Pass
1**	0.188	36.64	10.38	54.12	-17.48	AV	L	Pass
2	0.244	49.02	10.34	61.96	-12.94	Peak	L	Pass
2**	0.244	35.65	10.34	51.96	-16.31	AV	L	Pass
3	0.298	46.24	10.33	60.30	-14.06	Peak	L	Pass
3**	0.298	32.63	10.33	50.30	-17.67	AV	L	Pass
4	0.434	42.97	10.31	57.18	-14.21	Peak	L	Pass
4**	0.434	31.45	10.31	47.18	-15.73	AV	L	Pass
5	0.530	41.45	10.29	56.00	-14.55	Peak	L	Pass
5**	0.530	29.31	10.29	46.00	-16.69	AV	L	Pass
6	2.650	40.12	10.28	56.00	-15.88	Peak	L	Pass
6**	2.650	28.03	10.28	46.00	-17.97	AV	L	Pass

A.2.4 N Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.178	56.91	10.39	64.58	-7.67	Peak	N	Pass
1**	0.178	38.96	10.39	54.58	-15.62	AV	N	Pass
2	0.252	48.99	10.34	61.69	-12.70	Peak	N	Pass
2**	0.252	34.44	10.34	51.69	-17.25	AV	N	Pass
3	0.294	45.60	10.33	60.41	-14.81	Peak	N	Pass
3**	0.294	26.58	10.33	50.41	-23.83	AV	N	Pass
4	0.386	41.88	10.30	58.15	-16.27	Peak	N	Pass
4**	0.386	26.58	10.30	48.15	-21.57	AV	N	Pass
5	0.506	39.69	10.30	56.00	-16.31	Peak	N	Pass
5**	0.506	27.41	10.30	46.00	-18.59	AV	N	Pass
6	4.704	41.43	10.30	56.00	-14.57	Peak	N	Pass
6**	4.704	29.20	10.30	46.00	-16.80	AV	N	Pass

ANNEX B TEST SETUP PHOTOS

Please refer the document “BL-SZ2190692-AE.PDF”.

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ2190692-AW.PDF”.

ANNEX D EUT INTERNAL PHOTOS

Please refer the document “BL-SZ2190692-AI.PDF”.

--END OF REPORT--