

TEST REPORT

Applicant: Guangdong OPPO Mobile Telecommunications Corp., Ltd.
Address: NO.18 Haibin Road, Wusha Village, Chang'an Town, Dongguan City, Guangdong, China
Equipment Type: Mobile Phone
Model Name: CPH2357
Brand Name: OPPO
FCC ID: R9C-CPH2357
Test Standard: 47 CFR Part 15 Subpart B
Test Date: Mar. 10, 2022 - Mar. 11, 2022
Date of Issue: Apr. 19, 2022

ISSUED BY:

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Revision History

Version	Issue Date	Revisions Content
<u>Rev. 01</u>	<u>Apr. 19, 2022</u>	<u>Initial Issue</u>

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1 GENERAL INFORMATION

1.1 Identification of the Testing Laboratory

Company Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1/F, Baisha Science and Technology Park, Shahe West Road, Nanshan District, ShenZhen, GuangDong Province, China
Phone Number	+86 755 6685 0100

1.2 Identification of the Responsible Testing Location

Test Location	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1/F, Baisha Science and Technology Park, Shahe West Road, Nanshan District, ShenZhen, GuangDong Province, 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, 1/F, Baisha Science and Technology Park, Shahe West Road, Nanshan District, ShenZhen, GuangDong Province, China

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

Factory	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	CPH2357
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	11
Software Version	ColorOS V12.1
Dimensions (Approx.)	161.2mm*74.2mm*7.34mm
Weight (Approx.)	about 183g(with battery)

2.5 Ancillary Equipment

Ancillary Equipment 1	Li-Polymer Battery 1	
	Brand Name	SUPERVOOC
	Model No.	BLP929
	Serial No.	N/A
	Capacitance	Rated: 2185mAh/16.99Wh Typical: 2250mAh/17.50Wh
	Rated Voltage	7.78 V
	Limited Voltage	8.96 V
	Manufacturer	Dongguan NVT Technology Co., Ltd.
Ancillary Equipment 2	Li-Polymer Battery 2	
	Brand Name	SUPERVOOC
	Model No.	BLP929
	Serial No.	N/A
	Capacitance	Rated: 2185mAh/16.99Wh Typical: 2250mAh/17.50Wh
	Rated Voltage	7.78 V
	Limited Voltage	8.96 V
	Manufacturer	Sunwoda Electronic Co., Ltd.
Ancillary Equipment 3	Power Supply Unit 1	
	Brand Name	SUPERVOOC
	Model No.	VCB8JAUH
	Serial No.	GOLDEN LAKE
	Rated Input	Input 1: 100-130V ~ 50/60Hz, 2.0 A; Input 2: 200-240V ~ 50/60Hz, 2.0 A
	Rated Output	Output 1: 5VDC 2A or 5-11VDC 6A MAX; Output 2: 5VDC 2A or 5-11VDC 7.3A MAX
Ancillary Equipment 4	USB Cable	
	Model No.	DL129
	Length (Approx.)	1.0 m
Ancillary Equipment 5	Migrate USB plug to Type C	
	Model No.	N/A
	Length (Approx.)	N/A

2.6 Technical Information

Network and Wireless connectivity	2G Network GSM/GPRS/EDGE 850/1900 MHz 3G Network WCDMA/HSDPA/HSUPA Band 2/4/5 4G Network LTE FDD Band 2/4/5/7/12/17/26 LTE TDD Band 38/41 LTE CA Uplink (UL): CA_7C, CA_38C, CA_41C 5G Network SA: NR n5/n7/n38/n41 NSA(EN-DC): DC_5A_n7A, DC_7A_n5A Bluetooth (BR+EDR+BLE) 2.4G WIFI 802.11b, 802.11g, 802.11n(HT20/40), VHT20/40 and 802.11ax(HE20/40) 5G WIFI 802.11a, 802.11n(HT20/40), 802.11ac(VHT20/40/80), 802.11ax(HE20/40/80) U-NII-1/2A/2C/3, GPS, GLONASS, BDS, Galileo, SBAS, NFC
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The requirement for the following technical information of the EUT was tested in this report:

The Highest Speed of Processor	2.85GHz
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3 SUMMARY OF TEST RESULTS

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 15 Subpart B	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)	3.22 dB
Radiated emissions (30 MHz-1 GHz)-10m	4.80 dB
Radiated emissions (30 MHz-1 GHz)-3m	4.76 dB
Radiated emissions (1 GHz-18 GHz)-3m	4.88 dB

4 GENERAL TEST CONFIGURATIONS

4.1 Test Environments, Test Date and Test Engineer

Test items	Voltage	Temperature	Relative Humidity	Ambient Pressure	Test Date	Test Engineer
Radiated Emission	AC 120V/60Hz DC 3.87V(battery)	21.7℃	47%	101Pa	Mar. 10, 2022	Jiang Pan
Conducted Emission	AC 230V/50Hz AC 120V/60Hz DC 3.87V(battery)	23.4℃	56%	101Pa	Mar. 11, 2022	Ye Guangqi

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	2021.10.10	2022.10.09	☐
Amplifier (30-1GHz)	COM-MV	ZT30-1000M	B2018054558	2021.10.10	2022.10.09	☐
Test Antenna-Bi-Log	SCHWARZBECK	VULB 9163	9163-624	2019.07.02	2022.07.01	☐
Anechoic Chamber	EMC Electronic Co., Ltd	20.10*11.60*7.35m	N/A	2021.08.15	2024.08.14	☐
Description	Manufacturer	Name		Version		Use
Test Software	BALUN	BL410-E		V19.918		☐

Radiated Emission Test For Frequency Below 1 GHz (3m)						
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	KEYSIGHT	N9038A	MY55330120	2021.10.20	2022.10.19	☒
Amplifier (30-1GHz)	COM-MV	ZT30-1000M	B2017119081	2021.10.20	2022.10.19	☒
Test Antenna-Bi-Log	SCHWARZBECK	VULB 9163	9163-624	2019.07.02	2022.07.01	☒
Anechoic Chamber	YIHENG	9m*6m*6m	N/A	2021.09.04	2024.09.03	☒
Description	Manufacturer	Name		Version		Use
Test Software	BALUN	BL410-E		V19.918		☒

Radiated Emission Test For Frequency Above 1 GHz (3m)						
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	Agilent	N9038A	MY55330120	2021.10.20	2022.10.19	☒
EMI Receiver	ROHDE & SCHWARZ	FSV40	101544	2022.01.04	2023.01.03	☒
Amplifier (1-12GHz)	Advanced Microwave	WLA652A	1740103	2021.10.20	2022.10.19	☒
Amplifier (0.8-21GHz)	Mini-Circuits	ZVA-213-S+	225321316	2021.10.20	2022.10.19	☒
Amplifier (18-40GHz)	COM-MV	KA_LNA18-40G-01	18050001	2021.10.20	2022.10.19	☒
Test Antenna-Horn	SCHWARZBECK	BBHA 9120D	1917	2019.07.02	2022.07.01	☒
Test Antenna-Horn	A-INFOMW	LB-180400KF	J211060273	2021.07.02	2024.07.01	☒
Anechoic Chamber	YIHENG	9m*6m*6m	N/A	2021.09.04	2024.09.03	☒
Description	Manufacturer	Name		Version		Use
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	2021.10.10	2022.10.09	☒
LISN	SCHWARZBECK	NSLK 8127	8127-687	2021.06.08	2022.06.07	☒
Shielded Enclosure	YiHeng Electronic Co., Ltd	3.5m*3.1m*2.8m	N/A	2022.02.19	2025.02.18	☒
Description	Manufacturer	Name		Version		Use
Test Software	BALUN	BL410-E		V19.918		☒

4.3 Test Enclosure list

Description	Manufacturer	Model	Serial No.	Length	Description	Use
Wireless Communications Test Set	R&S	CMW500	127801	N/A	Cal. Due 2023.01.03	☒
PC	Dell	015K3N	N/A	N/A	Special Handled	☐
5G Wireless Test Platform	Keysight	UXM E7515B	MY59321 617	N/A	Cal. Due 2022.10.10	☐
Laptop	HONOR	N/A	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 xr	Apple	A2108	N/A	N/A	N/A	☒
Phone	MI	M4	N/A	N/A	N/A	☐
Bluetooth Headset	SAMSUNG	Gear Circle	N/A	N/A	N/A	☐
WIFI Router	TP-LINK	TL-WDR7500	N/A	N/A	N/A	☐
Headset	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	☐

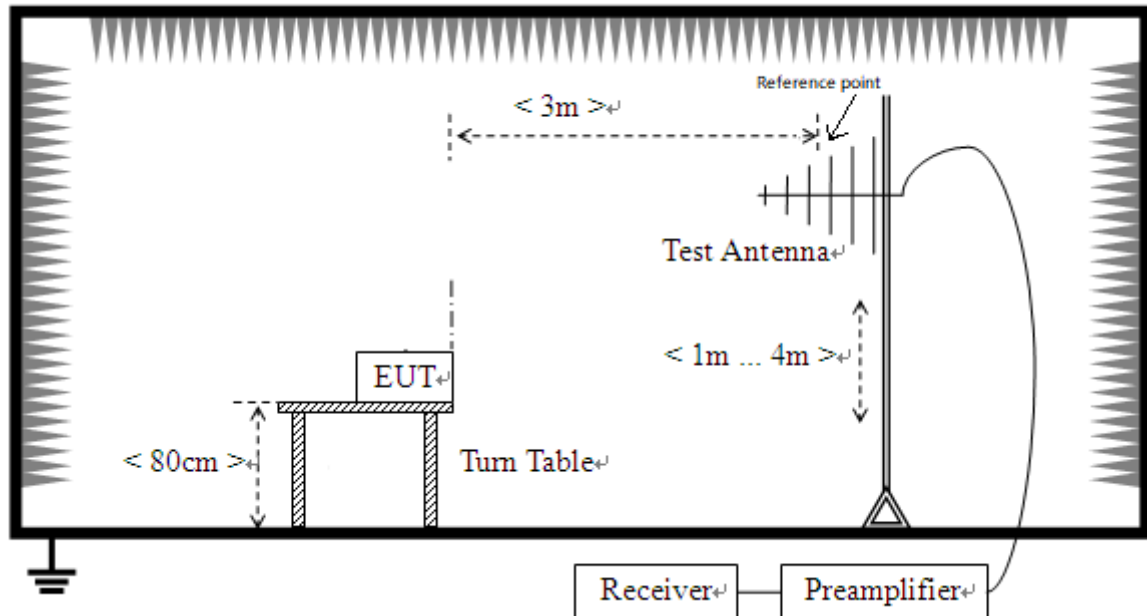
Artificial load	N/A	N/A	N/A	N/A	5 Ω /100 W	☐
Electronic Load	ITECH	IT8511	N/A	N/A	N/A	☐
USB Cable	N/A	N/A	N/A	1.5 m	Shielded with core	☐
DC Power Supply	ITECH	IT6863A	60001401 06872100 06	N/A	N/A	☐
LCD Monitor	SAMSUNG	UA32C4000P	N/A	N/A	N/A	☐
LCD Monitor	Dell	U241HB	N/A	N/A	N/A	☐
RJ45 Cable	N/A	N/A	N/A	1.5 m	Shielded with core	☐
Lighting Cable	Apple	N/A	N/A	1m	N/A	☒
Type-C Headset	OPPO	N/A	N/A	1.2m	N/A	☒

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
TC02	<u>The EGPRS 850 MHz RX Test Mode</u> EGPRS 850 MHz RX + EUT + Adapter + USB Cable + Battery
TC03	<u>The WCDMA Band 5 RX Test Mode</u> WCDMA Band 5 RX + EUT + Adapter + USB Cable + Battery
TC04	<u>The FDD LTE Band 5 RX Test Mode</u> LTE Band 5 RX + EUT + Adapter + USB Cable + Battery
TC05	<u>The FDD LTE Band 12 RX Test Mode</u> LTE Band 12 RX + EUT + Adapter + USB Cable + Battery
TC06	<u>The FDD LTE Band 17 RX Test Mode</u> LTE Band 17 RX + EUT + Adapter + USB Cable + Battery
TC07	<u>The FDD LTE Band 26 RX Test Mode</u> LTE Band 26 RX + EUT + Adapter + USB Cable + Battery
TC08	<u>The n5 Test Mode</u> n5 RX + EUT + Adapter + USB Cable + Battery
TC09	<u>The Camera Test Mode</u> EUT + Adapter + USB Cable + Battery
TC10	<u>The Video Play Test Mode</u> EUT + Adapter + USB Cable + Battery
TC11	<u>The USB Test Mode</u> EUT + USB Cable + Battery + Laptop
TC12	<u>The USB Test Mode</u> EUT + Battery + Migrate USB plug to Type C + Lighting Cable + iPhone xr
TC13	<u>The Headset Test Mode</u> EUT + Battery + Headset

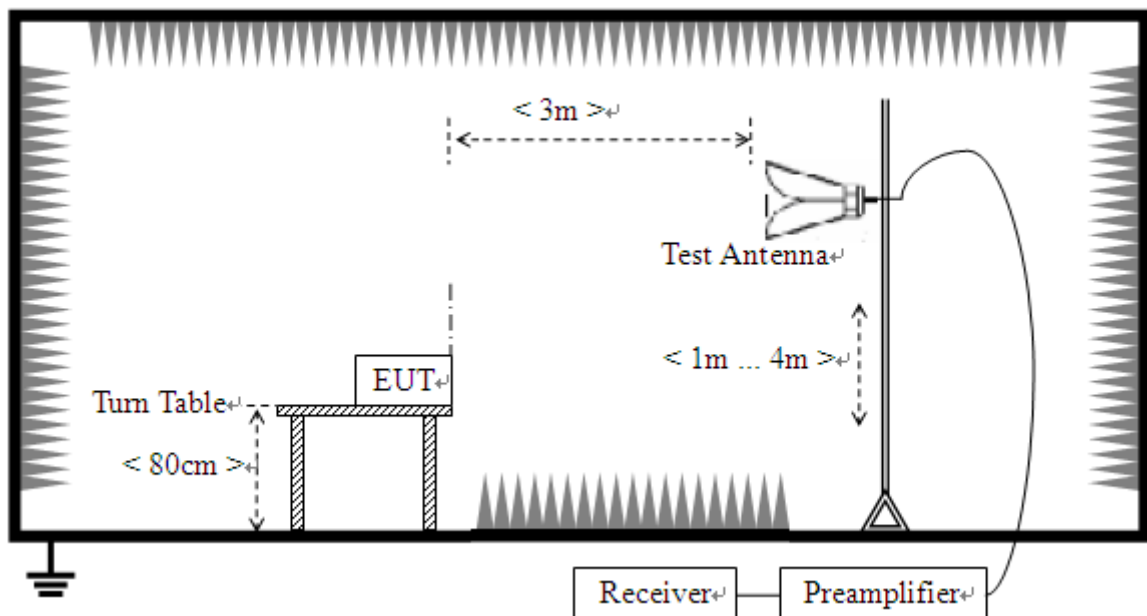
4.5 Test Setups

Test Setup 1

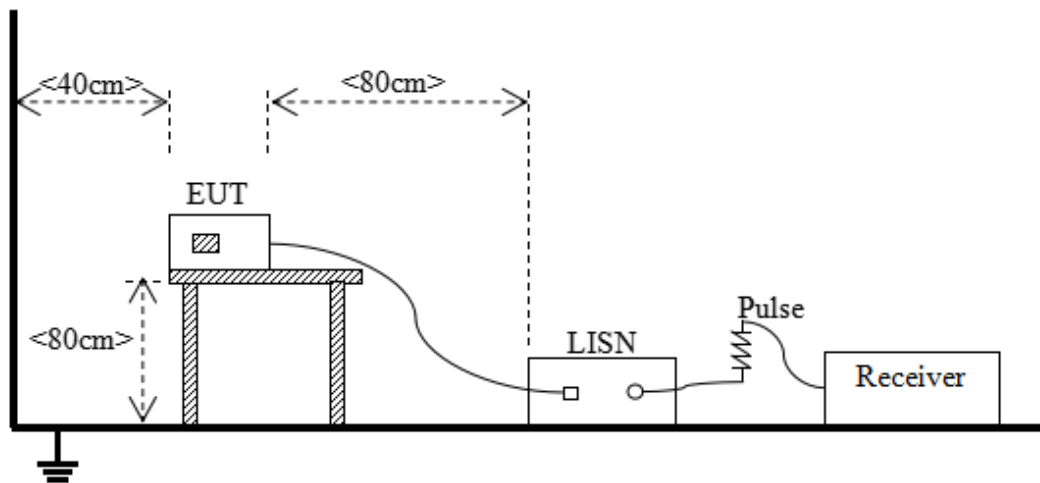


(For Radiated Emission Test (30 MHz-1 GHz))

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 Setup	Test Setup 1&2
	Test Configuration	TC01~TC13 ^{Note}
Conducted Emission, AC Ports	Test Setup	Test Setup 3
	Test Configuration	TC01~TC11 ^{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 $\mu\text{V/m}$) = $20 \cdot \log [\text{Field Strength } (\mu\text{V/m})]$.
- 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.

The measurement frequency range is from 30 MHz to the 5th harmonic of the maximum frequency of the EUT internal source. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

Use the following spectrum analyzer settings:

Span = wide enough to fully capture the emission being measured

RBW = 1 MHz for $f \geq 1 \text{ GHz}$, 100 kHz for $f < 1 \text{ GHz}$

VBW $\geq$ RBW

Sweep = auto

Detector function = peak for $f < 1 \text{ GHz}$, peak & RMS Average for $f \geq 1 \text{ GHz}$

Trace = max hold

5.1.1.4 Test Result

Please refer to ANNEX A.1.

NOTE:

1. Results (dBuV/m) = Reading (dBuV/m) + 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 (dB μ V)	Average (dB μ V)
0.15 - 0.50	79	66
0.50 - 30	73	60

Frequency range (MHz)	Class B	
	Quasi-peak (dB μ V)	Average (dB μ V)
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 μ H 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.

Use the following spectrum analyzer settings:

RBW = 9 KHz

VBW $\geq$ RBW

Sweep = 10ms

Detector function = peak & Average

Trace = max hold

5.1.2.4 Test Result

Please refer to ANNEX A.2.

NOTE:

1. Results (dBUV) = Reading (dBUV) + Factor (dB)

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.

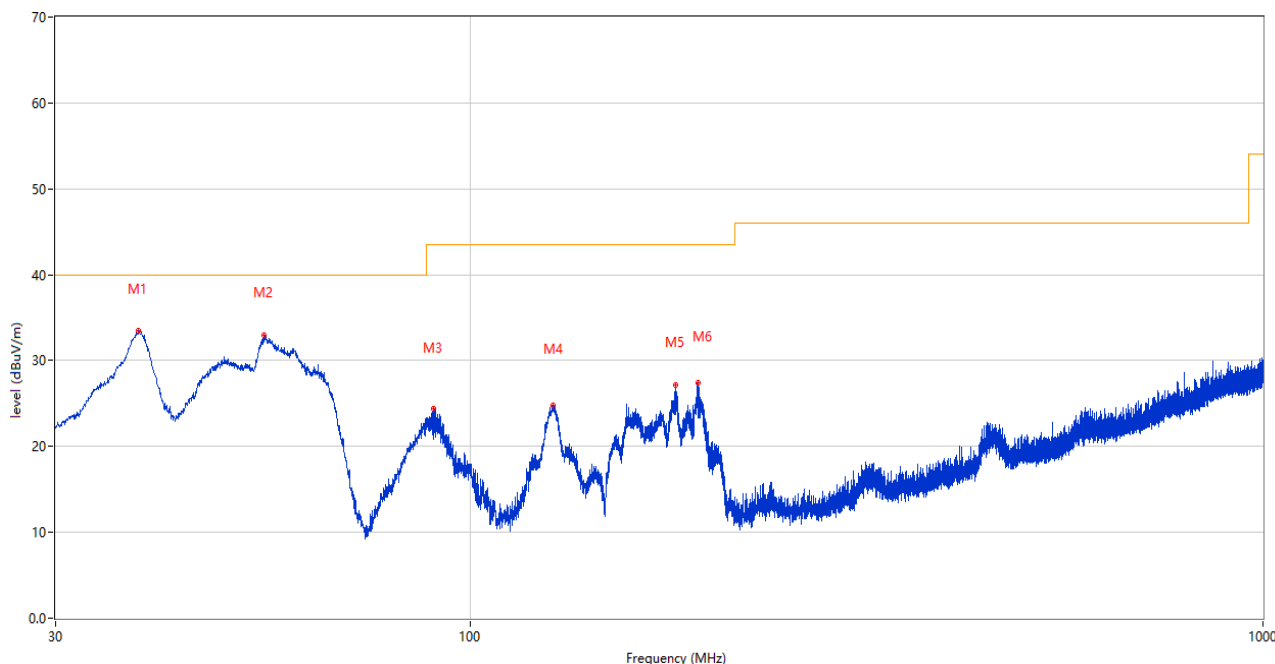
Note 3: The Radiated Emission from 18G-40G is noise only, do not show on the report.

Note 4: All the configurations were pre tested, only the worst configuration has been reported in this report.

Test Data and Plots

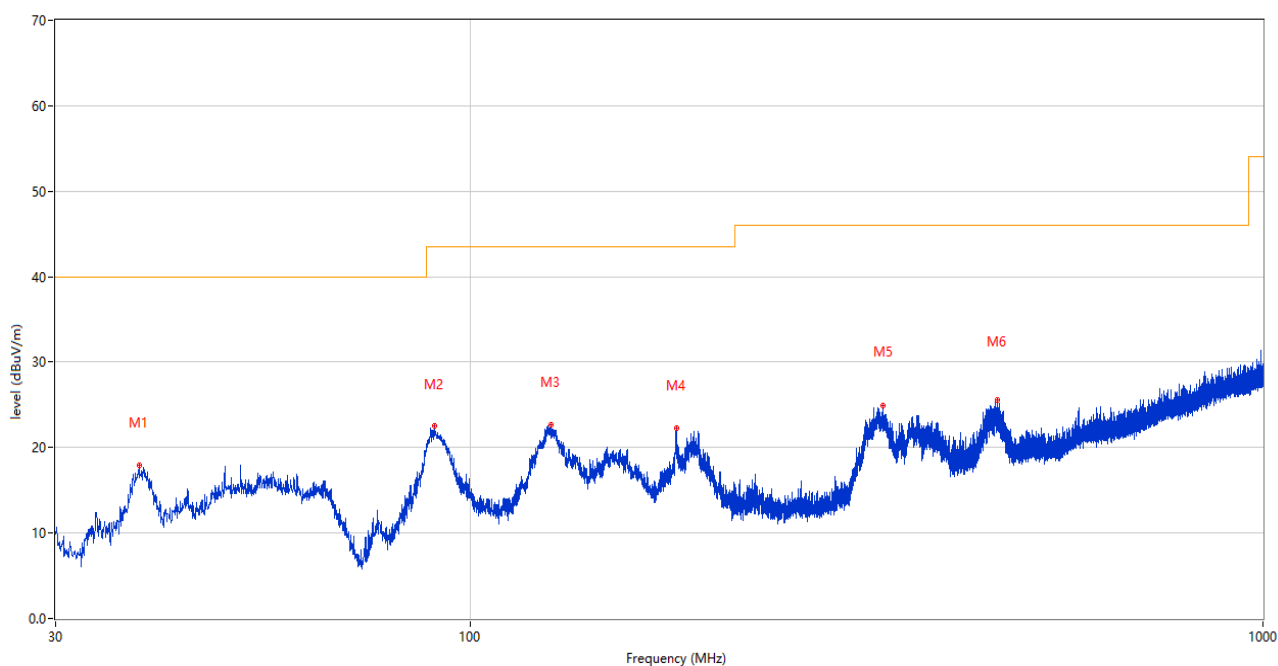
The Camera Test Mode

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



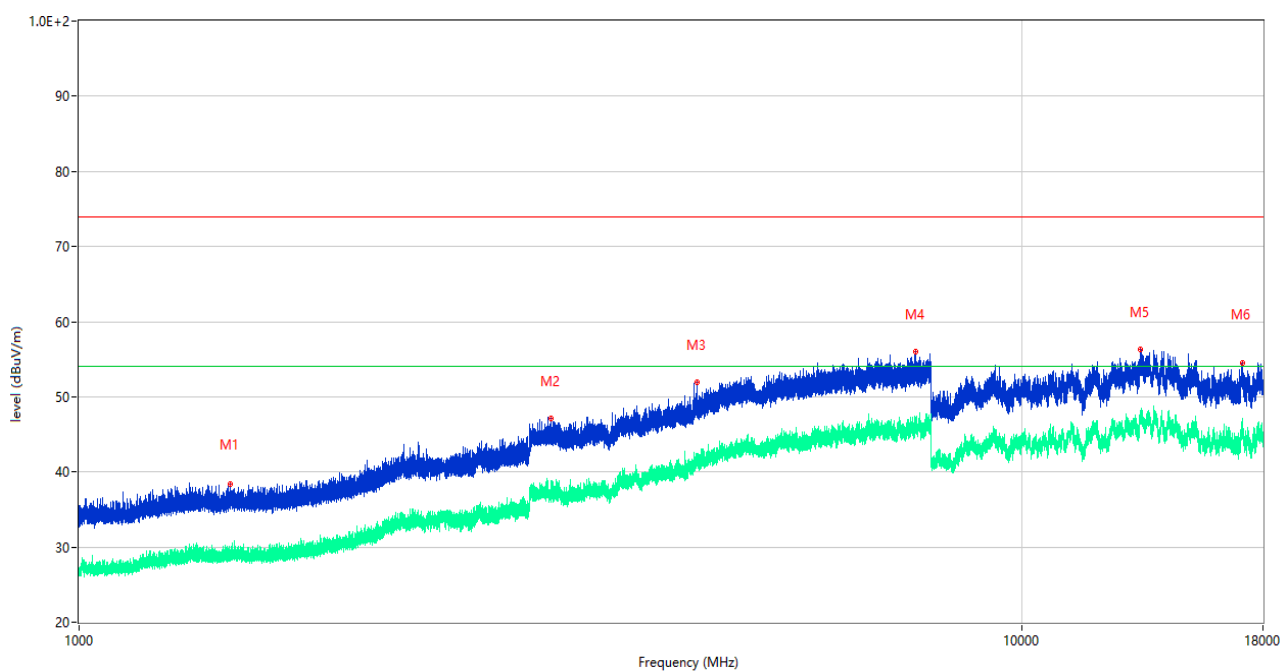
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	38.148	33.42	-27.17	40.0	-6.58	Peak	44.00	100	Vertical	Pass
2	55.026	32.95	-25.80	40.0	-7.05	Peak	360.00	100	Vertical	Pass
3	89.849	24.34	-28.57	43.5	-19.16	Peak	78.00	100	Vertical	Pass
4	127.097	24.81	-29.54	43.5	-18.69	Peak	326.00	100	Vertical	Pass
5	181.660	27.14	-28.37	43.5	-16.36	Peak	24.00	100	Vertical	Pass
6	193.882	27.43	-27.08	43.5	-16.07	Peak	13.00	100	Vertical	Pass

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



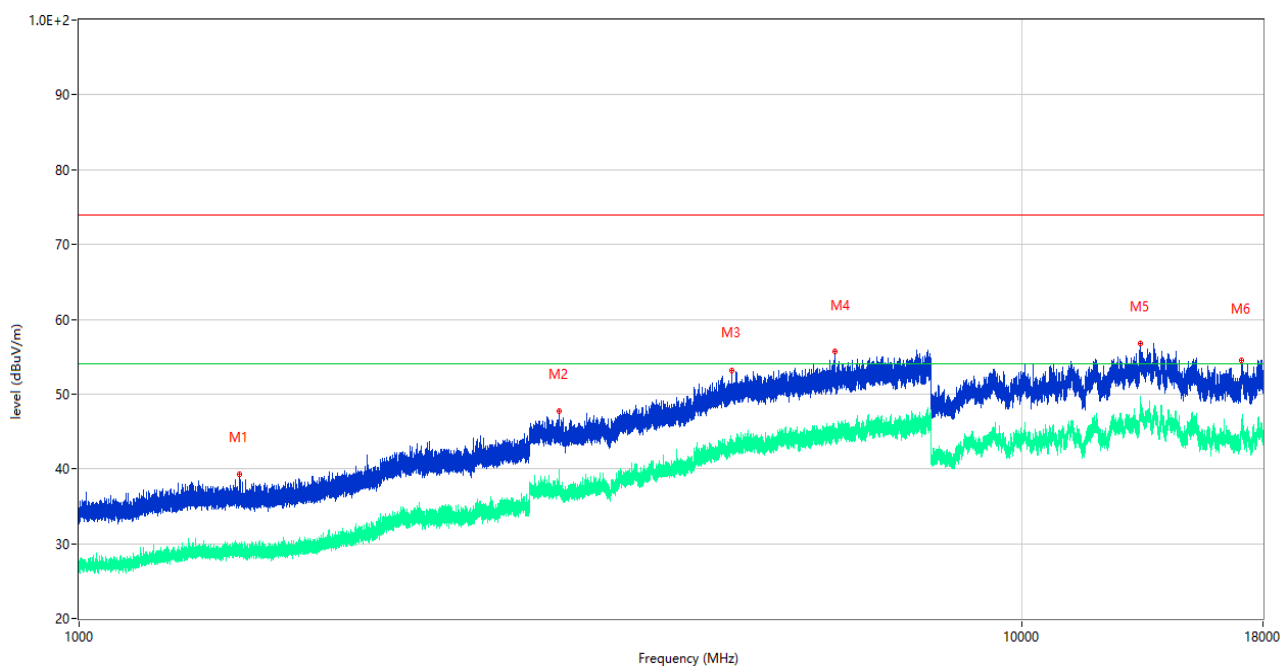
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	38.245	17.96	-27.14	40.0	-22.04	Peak	93.00	200	Horizontal	Pass
2	90.188	22.48	-28.46	43.5	-21.02	Peak	113.00	200	Horizontal	Pass
3	126.369	22.62	-29.45	43.5	-20.88	Peak	320.00	200	Horizontal	Pass
4	182.048	22.26	-28.30	43.5	-21.24	Peak	313.00	200	Horizontal	Pass
5	331.913	24.95	-22.76	46.0	-21.05	Peak	168.00	100	Horizontal	Pass
6	462.620	25.54	-19.65	46.0	-20.46	Peak	217.00	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	1445.200	38.44	-16.66	74.0	-35.56	Peak	9.00	150	Vertical	Pass
1**	1445.200	29.18	-16.66	54.0	-24.82	AV	9.00	150	Vertical	Pass
2	3166.500	47.07	-6.13	74.0	-26.93	Peak	49.00	150	Vertical	Pass
2**	3166.500	37.96	-6.13	54.0	-16.04	AV	49.00	150	Vertical	Pass
3	4516.500	51.89	-0.66	74.0	-22.11	Peak	170.00	150	Vertical	Pass
3**	4516.500	41.73	-0.66	54.0	-12.27	AV	170.00	150	Vertical	Pass
4	7702.500	56.03	2.79	74.0	-17.97	Peak	327.00	150	Vertical	Pass
4**	7702.500	45.18	2.79	54.0	-8.82	AV	327.00	150	Vertical	Pass
5	13350.000	56.28	5.23	74.0	-17.72	Peak	32.00	150	Vertical	Pass
5**	13350.000	47.55	5.23	54.0	-6.45	AV	32.00	150	Vertical	Pass
6	17109.500	54.56	3.60	74.0	-19.44	Peak	159.00	150	Vertical	Pass
6**	17109.500	45.65	3.60	54.0	-8.35	AV	159.00	150	Vertical	Pass

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

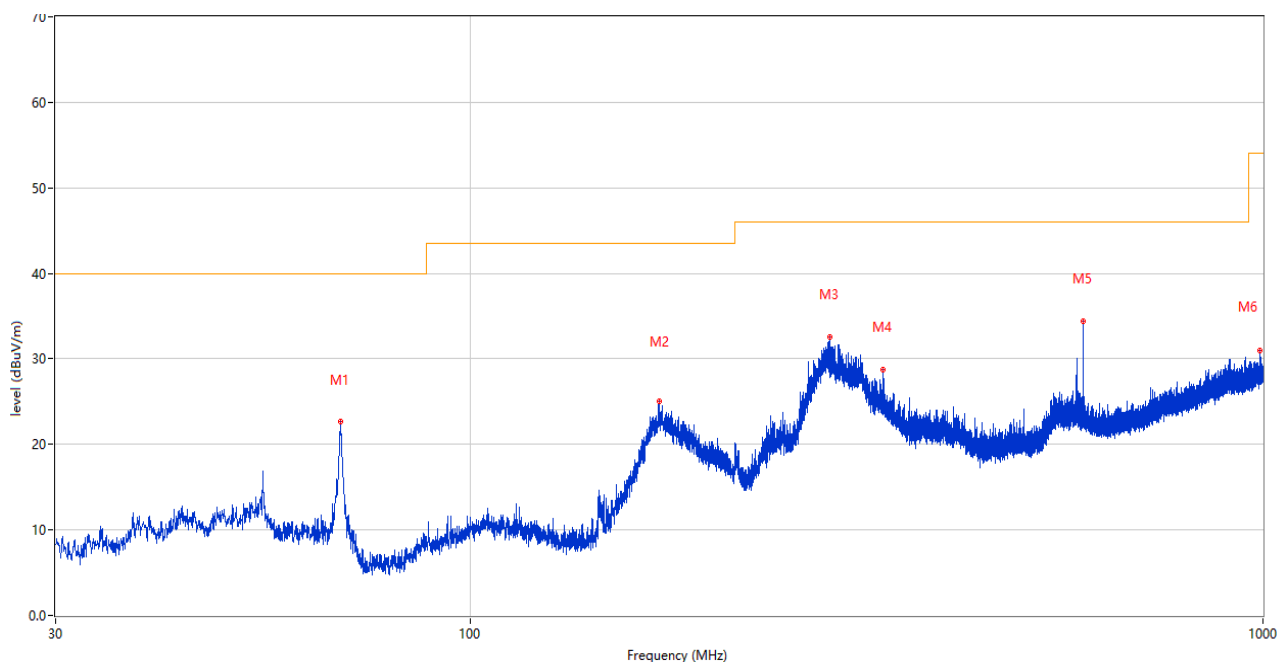


No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1478.100	39.32	-16.71	74.0	-34.68	Peak	164.00	150	Horizontal	Pass
1**	1478.100	29.35	-16.71	54.0	-24.65	AV	164.00	150	Horizontal	Pass
2	3228.750	47.70	-6.02	74.0	-26.30	Peak	95.00	150	Horizontal	Pass
2**	3228.750	36.93	-6.02	54.0	-17.07	AV	95.00	150	Horizontal	Pass
3	4926.750	53.21	0.82	74.0	-20.79	Peak	0.00	150	Horizontal	Pass
3**	4926.750	42.29	0.82	54.0	-11.71	AV	0.00	150	Horizontal	Pass
4	6324.250	55.74	1.57	74.0	-18.26	Peak	338.00	150	Horizontal	Pass
4**	6324.250	45.41	1.57	54.0	-8.59	AV	338.00	150	Horizontal	Pass
5	13357.500	56.71	5.18	74.0	-17.29	Peak	64.00	150	Horizontal	Pass
5**	13357.500	47.42	5.18	54.0	-6.58	AV	64.00	150	Horizontal	Pass
6	17064.500	54.44	2.36	74.0	-19.56	Peak	170.00	150	Horizontal	Pass
6**	17064.500	45.99	2.36	54.0	-8.01	AV	170.00	150	Horizontal	Pass

Test Data and Plots

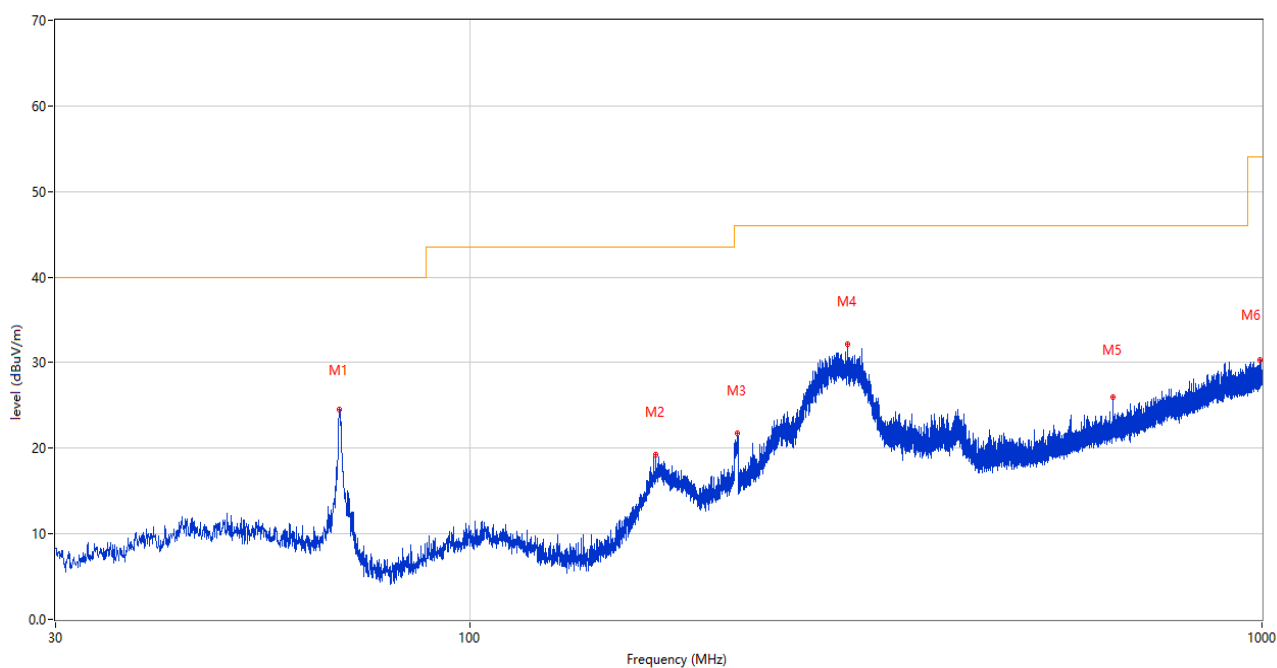
The USB Test Mode

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



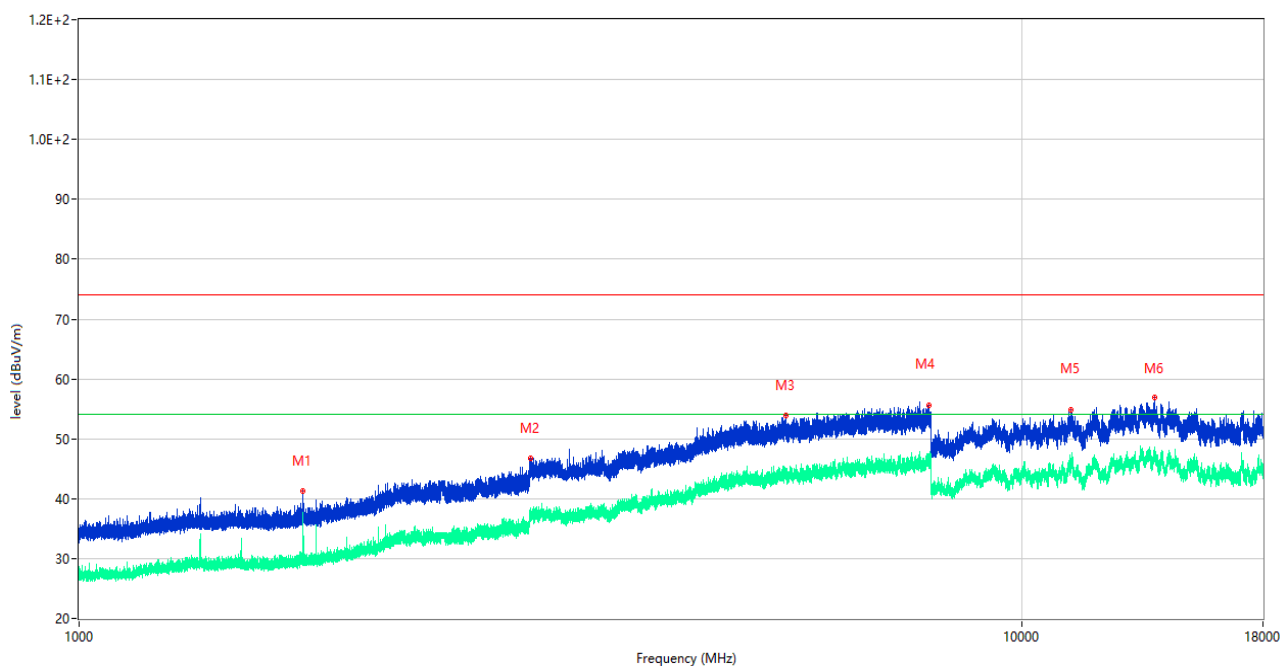
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	68.558	22.61	-28.78	40.0	-17.39	Peak	75.00	100	Vertical	Pass
2	173.318	25.10	-28.97	43.5	-18.40	Peak	0.00	100	Vertical	Pass
3	284.091	32.61	-24.09	46.0	-13.39	Peak	360.00	200	Vertical	Pass
4	331.573	28.69	-22.78	46.0	-17.31	Peak	360.00	200	Vertical	Pass
5	593.958	34.34	-16.07	46.0	-11.66	Peak	153.00	100	Vertical	Pass
6	992.143	31.00	-8.43	54.0	-23.00	Peak	190.00	100	Vertical	Pass

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



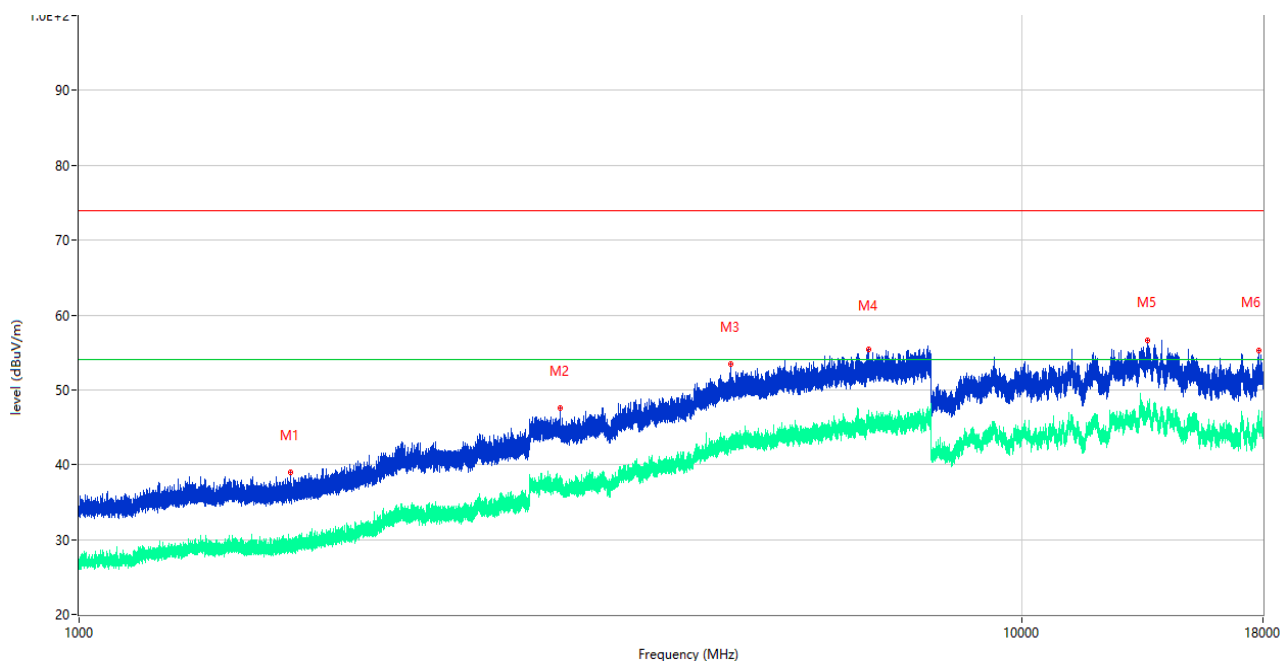
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	68.412	24.58	-28.71	40.0	-15.42	Peak	142.00	200	Horizontal	Pass
2	171.814	19.31	-29.06	43.5	-24.19	Peak	205.00	200	Horizontal	Pass
3	217.938	21.71	-26.33	46.0	-24.29	Peak	91.00	200	Horizontal	Pass
4	300.242	32.13	-23.67	46.0	-13.87	Peak	81.00	100	Horizontal	Pass
5	649.054	26.01	-14.92	46.0	-19.99	Peak	360.00	200	Horizontal	Pass
6	993.744	30.30	-8.41	54.0	-23.70	Peak	360.00	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	1728.100	41.34	-16.46	74.0	-32.66	Peak	168.00	100	Vertical	Pass
1**	1728.100	37.69	-16.46	54.0	-16.31	AV	168.00	100	Vertical	Pass
2	3014.750	46.66	-6.69	74.0	-27.34	Peak	106.00	100	Vertical	Pass
2**	3014.750	36.93	-6.69	54.0	-17.07	AV	106.00	100	Vertical	Pass
3	5612.750	53.97	0.66	74.0	-20.03	Peak	93.00	100	Vertical	Pass
3**	5612.750	44.35	0.66	54.0	-9.65	AV	93.00	100	Vertical	Pass
4	7967.000	55.59	2.34	74.0	-18.41	Peak	216.00	100	Vertical	Pass
4**	7967.000	45.39	2.34	54.0	-8.61	AV	216.00	100	Vertical	Pass
5	11265.500	54.76	1.97	74.0	-19.24	Peak	200.00	100	Vertical	Pass
5**	11265.500	46.11	1.97	54.0	-7.89	AV	200.00	100	Vertical	Pass
6	13815.000	56.96	5.62	74.0	-17.04	Peak	238.00	100	Vertical	Pass
6**	13815.000	47.11	5.62	54.0	-6.89	AV	238.00	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	1674.500	39.00	-16.49	74.0	-35.00	Peak	360.00	150	Horizontal	Pass
1**	1674.500	29.64	-16.49	54.0	-24.36	AV	360.00	150	Horizontal	Pass
2	3233.250	47.60	-6.01	74.0	-26.40	Peak	98.00	150	Horizontal	Pass
2**	3233.250	37.63	-6.01	54.0	-16.37	AV	98.00	150	Horizontal	Pass
3	4905.500	53.46	0.38	74.0	-20.54	Peak	312.00	150	Horizontal	Pass
3**	4905.500	43.56	0.38	54.0	-10.44	AV	312.00	150	Horizontal	Pass
4	6880.250	55.39	1.54	74.0	-18.61	Peak	161.00	150	Horizontal	Pass
4**	6880.250	44.89	1.54	54.0	-9.11	AV	161.00	150	Horizontal	Pass
5	13586.500	56.63	4.72	74.0	-17.37	Peak	338.00	150	Horizontal	Pass
5**	13586.500	46.56	4.72	54.0	-7.44	AV	338.00	150	Horizontal	Pass
6	17821.999	55.29	2.15	74.0	-18.71	Peak	33.00	150	Horizontal	Pass
6**	17821.999	45.92	2.15	54.0	-8.08	AV	33.00	150	Horizontal	Pass

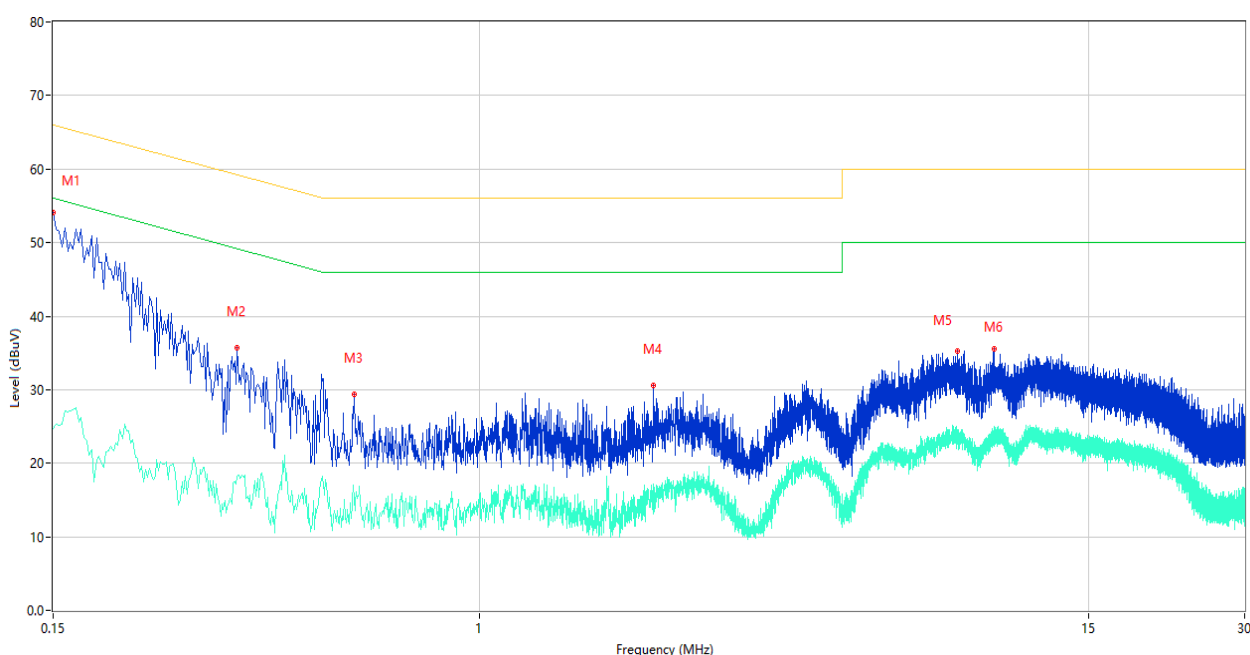
A.2 Conducted Emission

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

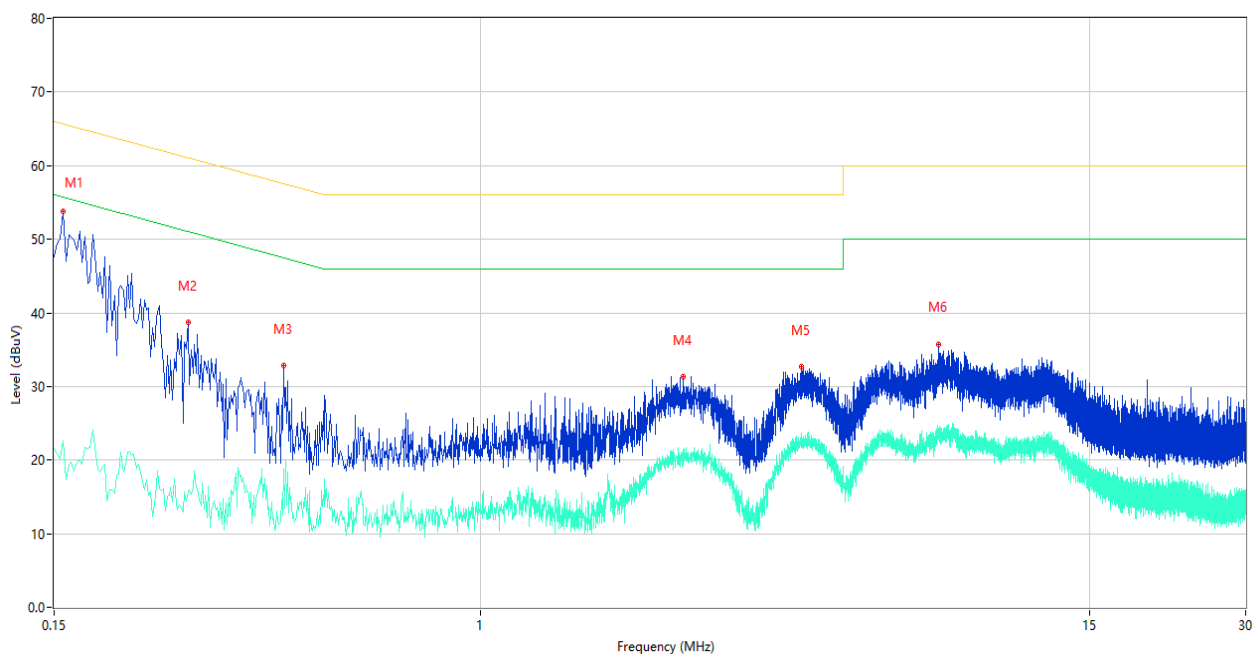
The Camera Test Mode

A.2.1 L Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.150	54.16	10.19	66.00	-11.84	Peak	L	Pass
1**	0.150	24.76	10.19	56.00	-31.24	AV	L	Pass
2	0.340	35.64	10.08	59.20	-23.56	Peak	L	Pass
2**	0.340	18.28	10.08	49.20	-30.92	AV	L	Pass
3	0.572	29.40	10.10	56.00	-26.60	Peak	L	Pass
3**	0.572	15.03	10.10	46.00	-30.97	AV	L	Pass
4	2.166	30.55	9.89	56.00	-25.45	Peak	L	Pass
4**	2.166	17.14	9.89	46.00	-28.86	AV	L	Pass
5	8.380	35.26	10.09	60.00	-24.74	Peak	L	Pass
5**	8.380	24.21	10.09	50.00	-25.79	AV	L	Pass
6	9.830	35.55	10.10	60.00	-24.45	Peak	L	Pass
6**	9.830	23.50	10.10	50.00	-26.50	AV	L	Pass

A.2.2 N Phase

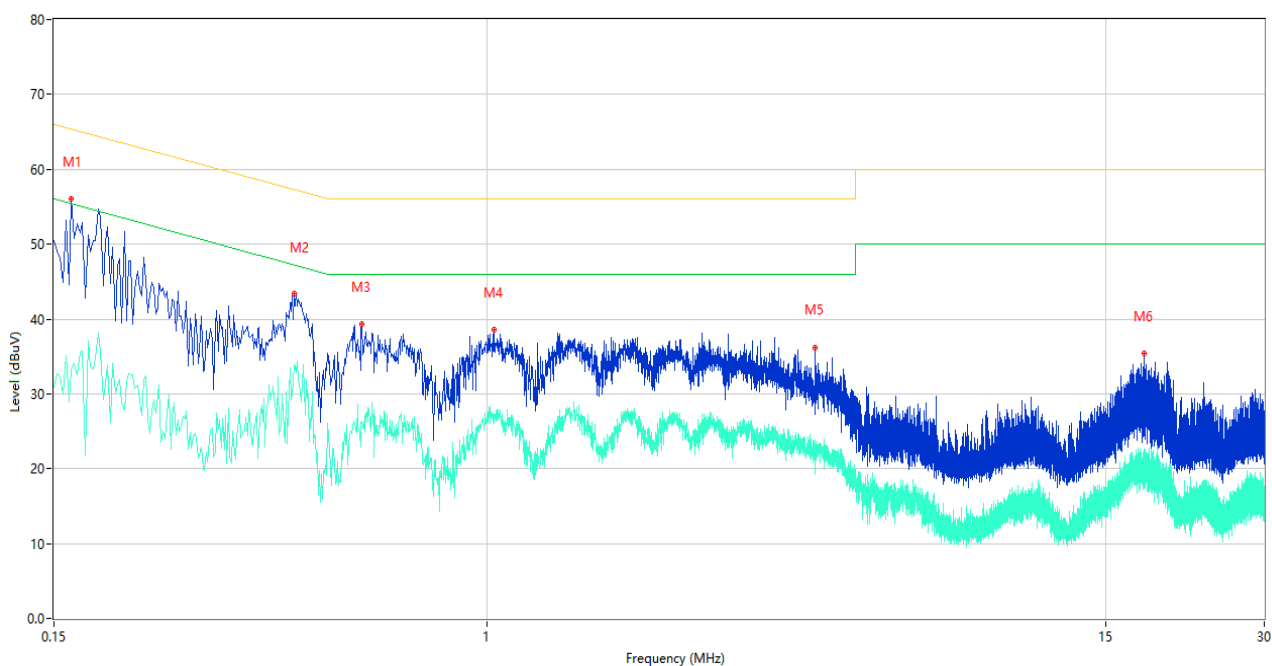


No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.156	53.76	10.18	65.67	-11.91	Peak	N	Pass
1**	0.156	22.54	10.18	55.67	-33.13	AV	N	Pass
2	0.272	38.66	10.08	61.06	-22.40	Peak	N	Pass
2**	0.272	15.63	10.08	51.06	-35.43	AV	N	Pass
3	0.416	32.81	10.09	57.53	-24.72	Peak	N	Pass
3**	0.416	18.77	10.09	47.53	-28.76	AV	N	Pass
4	2.464	31.37	9.96	56.00	-24.63	Peak	N	Pass
4**	2.464	19.31	9.96	46.00	-26.69	AV	N	Pass
5	4.156	32.71	10.07	56.00	-23.29	Peak	N	Pass
5**	4.156	23.59	10.07	46.00	-22.41	AV	N	Pass
6	7.644	35.77	10.00	60.00	-24.23	Peak	N	Pass
6**	7.644	23.23	10.00	50.00	-26.77	AV	N	Pass

Test Data and Plots

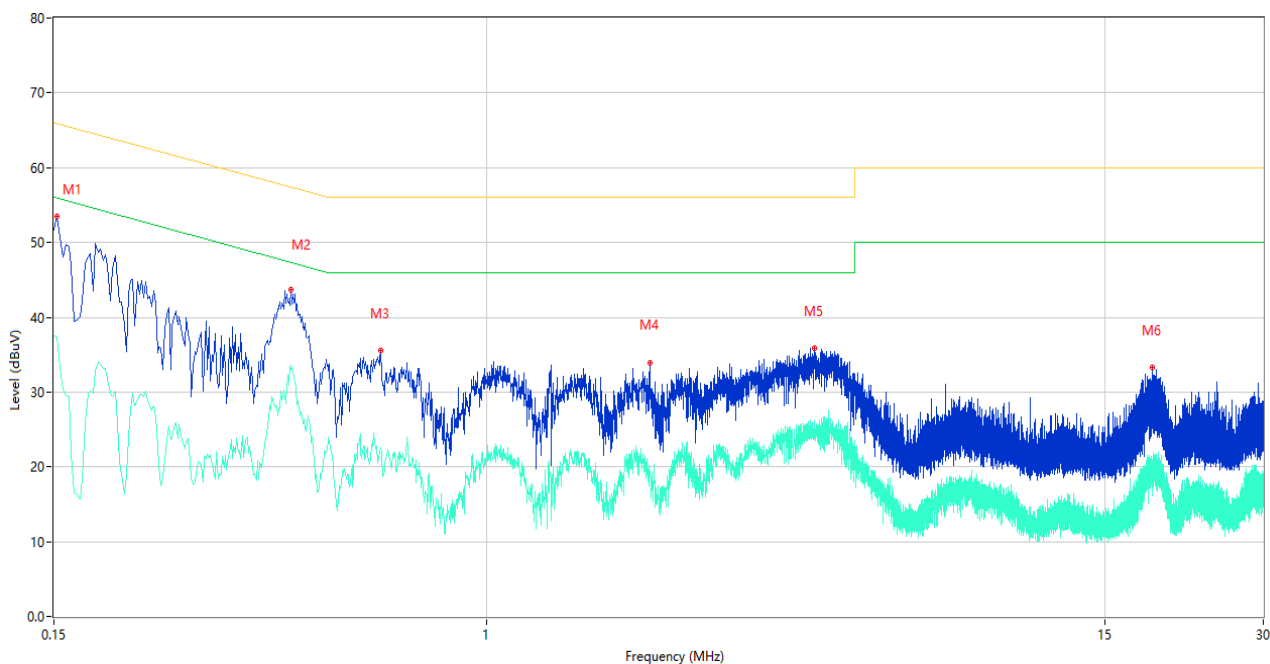
The USB Test Mode

A.2.3 L Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.162	55.98	10.17	65.36	-9.38	Peak	L	Pass
1**	0.162	33.17	10.17	55.36	-22.19	AV	L	Pass
2	0.430	43.44	10.10	57.25	-13.81	Peak	L	Pass
2**	0.430	33.82	10.10	47.25	-13.43	AV	L	Pass
3	0.578	39.30	10.10	56.00	-16.70	Peak	L	Pass
3**	0.578	26.37	10.10	46.00	-19.63	AV	L	Pass
4	1.028	38.53	10.03	56.00	-17.47	Peak	L	Pass
4**	1.028	27.19	10.03	46.00	-18.81	AV	L	Pass
5	4.204	36.21	10.06	56.00	-19.79	Peak	L	Pass
5**	4.204	23.33	10.06	46.00	-22.67	AV	L	Pass
6	17.766	35.35	10.19	60.00	-24.65	Peak	L	Pass
6**	17.766	22.66	10.19	50.00	-27.34	AV	L	Pass

A.2.4 N Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.152	53.47	10.19	65.89	-12.42	Peak	N	Pass
1**	0.152	37.42	10.19	55.89	-18.47	AV	N	Pass
2	0.424	43.68	10.09	57.37	-13.69	Peak	N	Pass
2**	0.424	32.97	10.09	47.37	-14.40	AV	N	Pass
3	0.628	35.50	10.09	56.00	-20.50	Peak	N	Pass
3**	0.628	22.59	10.09	46.00	-23.41	AV	N	Pass
4	2.040	33.95	9.87	56.00	-22.05	Peak	N	Pass
4**	2.040	18.84	9.87	46.00	-27.16	AV	N	Pass
5	4.196	35.88	10.06	56.00	-20.12	Peak	N	Pass
5**	4.196	26.24	10.06	46.00	-19.76	AV	N	Pass
6	18.470	33.27	10.20	60.00	-26.73	Peak	N	Pass
6**	18.470	18.97	10.20	50.00	-31.03	AV	N	Pass

ANNEX B TEST SETUP PHOTOS

Please refer the document “BL-SZ2230121-AE-1.PDF”.

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ2230121-AW.PDF”.

ANNEX D EUT INTERNAL PHOTOS

Please refer the document “BL-SZ2230121-AI.PDF”.

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--END OF REPORT--