

FCC

EMC

TEST REPORT

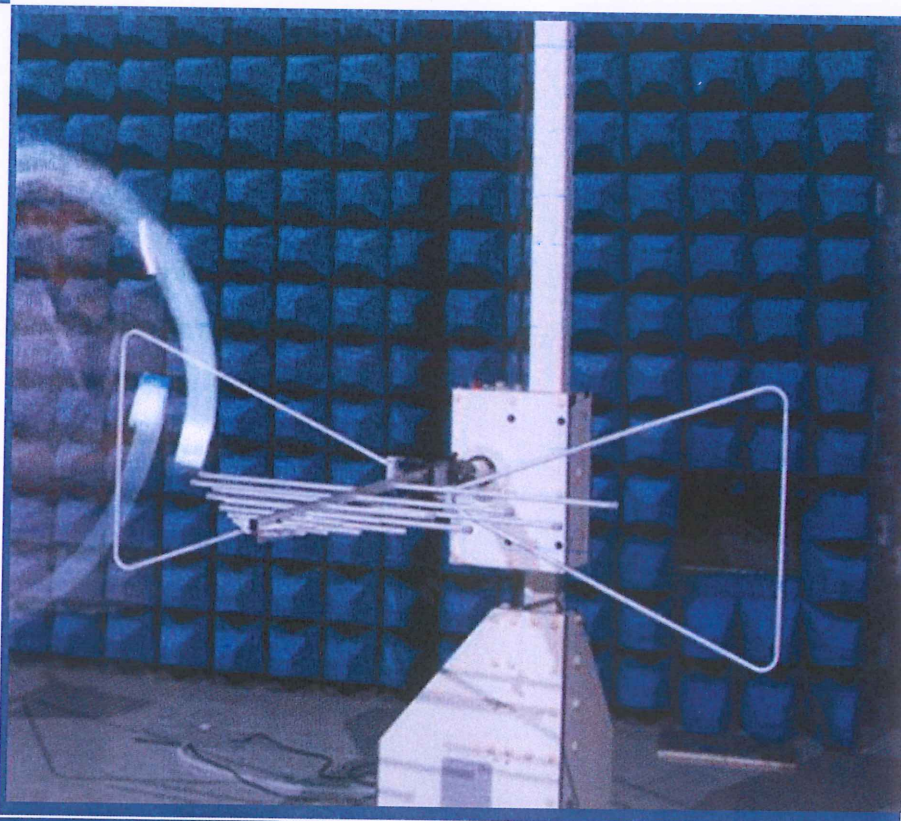
ISSUED BY
Shenzhen BALUN Technology Co., Ltd.



FOR
Mobile Phone

ISSUED TO
vivo Mobile Communication Co., Ltd.

#283, BBK Road, Wusha, Chang'An, DongGuan City, China



Tested by: Xia Long
Xia Long
(Engineer)

Date: Oct. 15, 2019

Approved by: Wei Yanquan
Wei Yanquan
(Chief Engineer)

Date: Oct. 15, 2019

Report No.: BL-SZ1998256-401

EUT Name: Mobile Phone

Model Name: vivo 1820

Brand Name: vivo

Test Standard: 47 CFR Part 15 Subpart B

FCC ID: 2AUCY-V1820

Test Conclusion: Pass

Test Date: Sep. 24, 2019 ~ Oct. 08, 2019

Date of Issue: Oct. 15, 2019

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Revision History

Version	Issue Date	Revisions Content
<u>Rev. 01</u>	<u>Oct. 15, 2019</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, 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 v6.7.
- (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.

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	vivo Mobile Communication Co., Ltd.
Address	#283, BBK Road, Wusha, Chang'An, DongGuan City, China

2.2 Manufacturer Information

Manufacturer	vivo Mobile Communication Co., Ltd.
Address	#283, BBK Road, Wusha, Chang'An, DongGuan City, 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	vivo 1820
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	PD1818HFEXM
Software Version	PD1818HF_EX_A_1.9.15
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.5 Ancillary Equipment

Ancillary Equipment 1	Battery	
	Brand Name	vivo
	Model No.	B-F3
	Serial No.	N/A
	Capacity	3935 mAh
	Rated Voltage	3.85 V
	Limit Charge Voltage	4.4 V
Ancillary Equipment 2	Adapter	
	Brand Name	vivo
	Model No.	V0510A-US
	Serial No.	N/A
	Rated Input	100-240 V~, 0.15 A, 50/60 Hz
	Rated Output	5 V= 1 A
Ancillary Equipment 3	USB Cable	
	Model No.	N/A
	Length (Approx.)	0.8 m

2.6 Technical Information

Network and Wireless connectivity	2G Network GSM/GPRS/EDGE 850/1900 MHz 3G Network WCDMA/HSDPA/HSUPA Band 5 4G Network FDD LTE Band 5 TDD LTE Band 41 Bluetooth 4.2 (BR+EDR+BLE) WIFI 802.11b, 802.11g, 802.11n(HT20/40) FM, GPS, GLONASS, BDS, SBAS
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The requirement for the following technical information of the EUT was tested in this report:

The Highest Speed of Processor	2.0 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 (10-1-17 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)	3.23 dB
Radiated emissions (30 MHz-1 GHz)	4.30 dB
Radiated emissions (1 GHz-18 GHz)	4.81 dB
Radiated emissions (18 GHz-40 GHz)	5.71 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 3.85V from Battery	50% to 55%	100 kPa to 102 kPa

4.2 Test Equipment List

Radiated Emission Test For Frequency Below 1 GHz						
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	ROHDE&SCHWARZ	ESRP	101036	2019.07.04	2020.07.03	☒
Test Antenna-Bi-Log	SCHWARZBECK	VULB 9163	9163-624	2018.08.22	2020.08.21	☒
Test Antenna-Horn	SCHWARZBECK	BBHA 9120D	9120D-1600	2018.07.11	2020.07.10	☐
Anechoic Chamber	RAINFORD	9m*6m*6m	N/A	2017.02.21	2020.02.20	☒
Test Software	BALUN	BL410_E	V19.419	--	--	☒

Radiated Emission Test For Frequency Above 1 GHz						
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	KEYSIGHT	N9038A	MY53220118	2018.11.07	2019.11.06	☒
Test Antenna-Bi-Log	SCHWARZBECK	VULB 9163	9163-624	2018.08.22	2020.08.21	☐
Test Antenna-Horn	SCHWARZBECK	BBHA 9120D	9120D-1148	2018.07.11	2020.07.10	☒
Anechoic Chamber	RAINFORD	9m*6m*6m	N/A	2017.02.21	2020.02.20	☒
Test Software	BALUN	BL410_E	V19.419	--	--	☒

Conducted Emission Test						
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	KEYSIGHT	N9010B	MY57110309	2019.06.13	2020.06.12	☒
LISN	SCHWARZBECK	NSLK 8127	8127-687	2019.07.04	2020.07.03	☒
ISN	TESEQ	ISN T800	34449	2018.11.16	2019.11.15	☐
Shielded Enclosure	ChangNing	CN-130701	130703	N/A	N/A	☒
Test Software	BALUN	BL410_E	V19.419	--	--	☒

4.3 Test Enclosure list

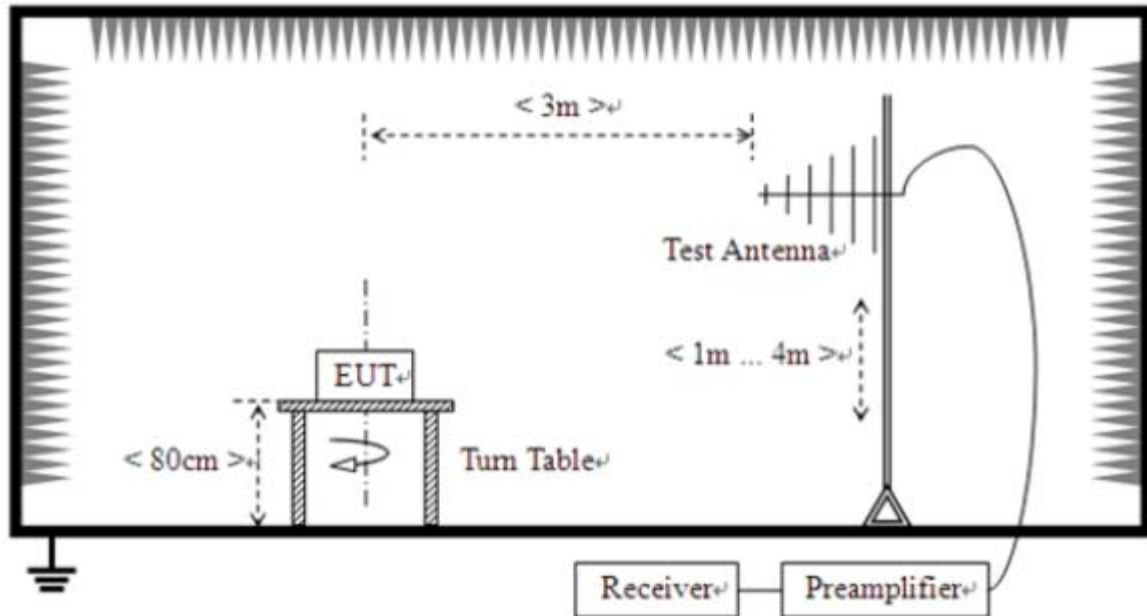
Description	Manufacturer	Model	Serial No.	Length	Description	Use
PC	Dell	015K3N	N/A	N/A	Special Handled	☐
Laptop	Apple	A1465	N/A	N/A	N/A	☒
Printer	HP	DESKJET 1000	N/A	N/A	N/A	☐
Keyboard	Logitech	Y-BP62a	N/A	N/A	N/A	☐
Mouse	Logitech	M100	N/A	N/A	N/A	☐
USB disk	Kingston	N/A	N/A	N/A	N/A	☐
TF Card	Kingston	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 2020.06.13	☒
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	☐
Earphone	N/A	N/A	N/A	N/A	N/A	☒

4.4 Test Configurations

Test Configurations (TC) No.	Description
Traffic Test Mode	
TC01	<u>The GSM 850 MHz Test Mode</u> GSM 850 Link + Adapter + USB Cable + Battery + Earphone + BT Link + WIFI Link + GPS RX
TC02	<u>The EDGE 850 MHz Test Mode</u> EDGE 850 Link + Adapter + USB Cable + Battery + Earphone + BT Link + WIFI Link + GLONASS RX
TC03	<u>The GSM 1900 Test Mode</u> GSM 1900 Link + Adapter + USB Cable + Battery + Earphone + BT Link + WIFI Link + BDS RX
TC04	<u>The EDGE 1900 MHz Test Mode</u> EDGE 1900 Link + Adapter + USB Cable + Battery + Earphone + BT Link + WIFI Link + SBAS RX
TC05	<u>The WCDMA 850 MHz Test Mode</u> WCDMA 850 Link + Adapter + USB Cable + Battery + Earphone + BT Link + WIFI Link + GPS RX
TC06	<u>The FDD LTE Band 5 Test Mode</u> LTE Band 5 Link + Adapter + USB Cable + Battery + Earphone + BT Link + WIFI Link + GLONASS RX
TC07	<u>The FDD LTE Band 41 Test Mode</u> LTE Band 41 Link + Adapter + USB Cable + Battery + Earphone + BT Link + WIFI Link + BDS RX
TC08	<u>The Idle Test Mode</u> GSM 850(Idle) + Battery + Earphone
Amusement Test Mode	
TC09	<u>The Camera Test Mode</u> EUT + Battery + Adapter + Earphone + TF Card
TC10	<u>The Video Play Test Mode</u> EUT + Battery + Adapter + Earphone + TF Card
TC11	<u>The FM Test Mode</u> EUT + Adapter + USB Cable + Battery + Earphone + FM RX
TC12	<u>The USB Test Mode</u> EUT + USB Cable + Battery + Earphone + TF Card + Laptop

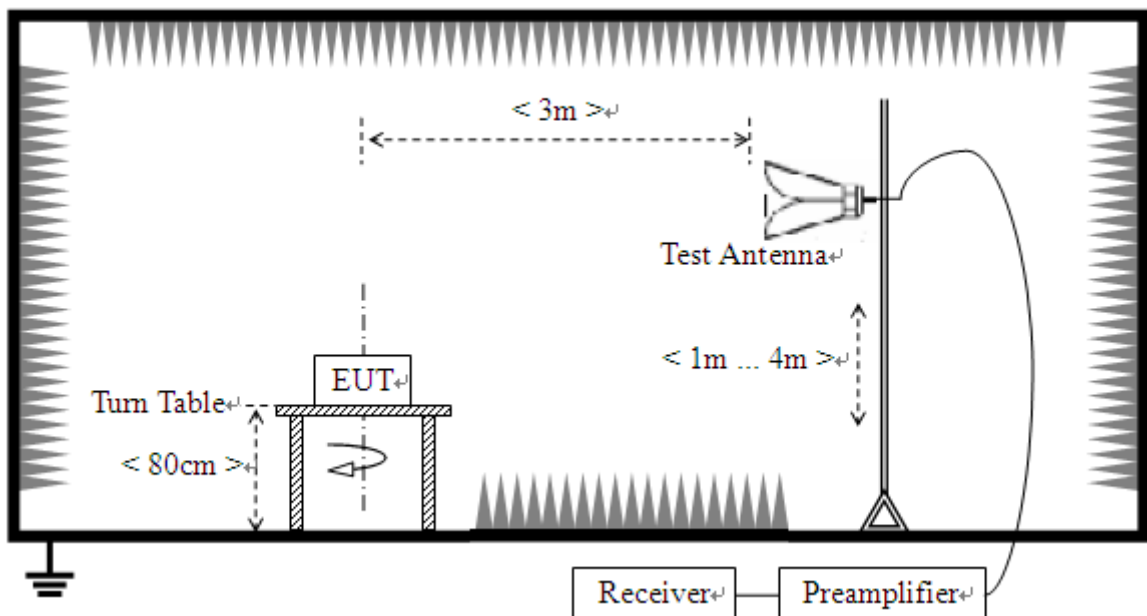
4.5 Test Setups

Test Setup 1



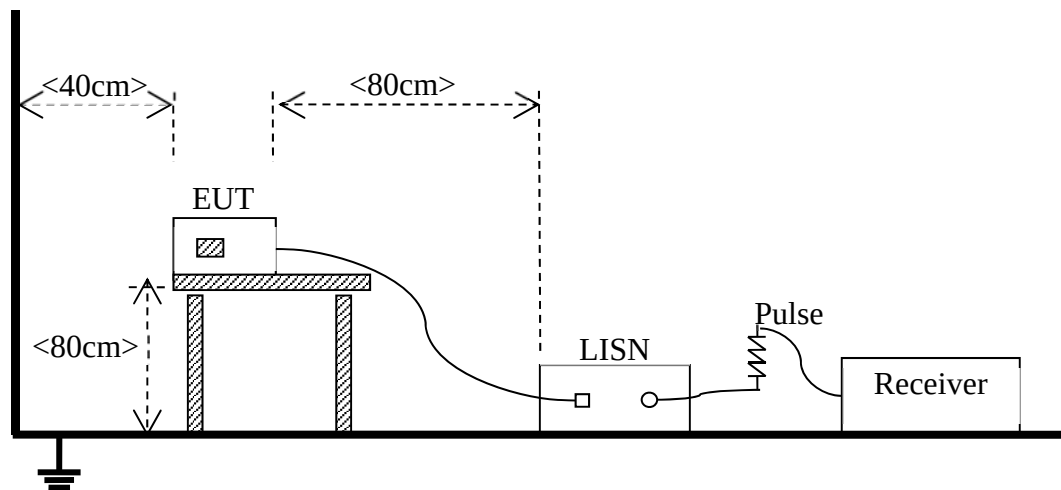
(For Radiated Emission Test (30 MHz-1 GHz))

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~TC12 ^{Note}
Conducted Emission, AC Ports	Test Env.	NTNV
	Test Setup	Test Setup 3
	Test Configuration	TC01~TC12 ^{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 GSM 1900 Test Mode(TC03) and The USB Test Mode(TC12) 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 (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.

5.1.2.4 Test Result

Please refer to ANNEX A.2.

NOTE:

1. Results (dB μ V/m) = Reading (dB μ V) + 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.

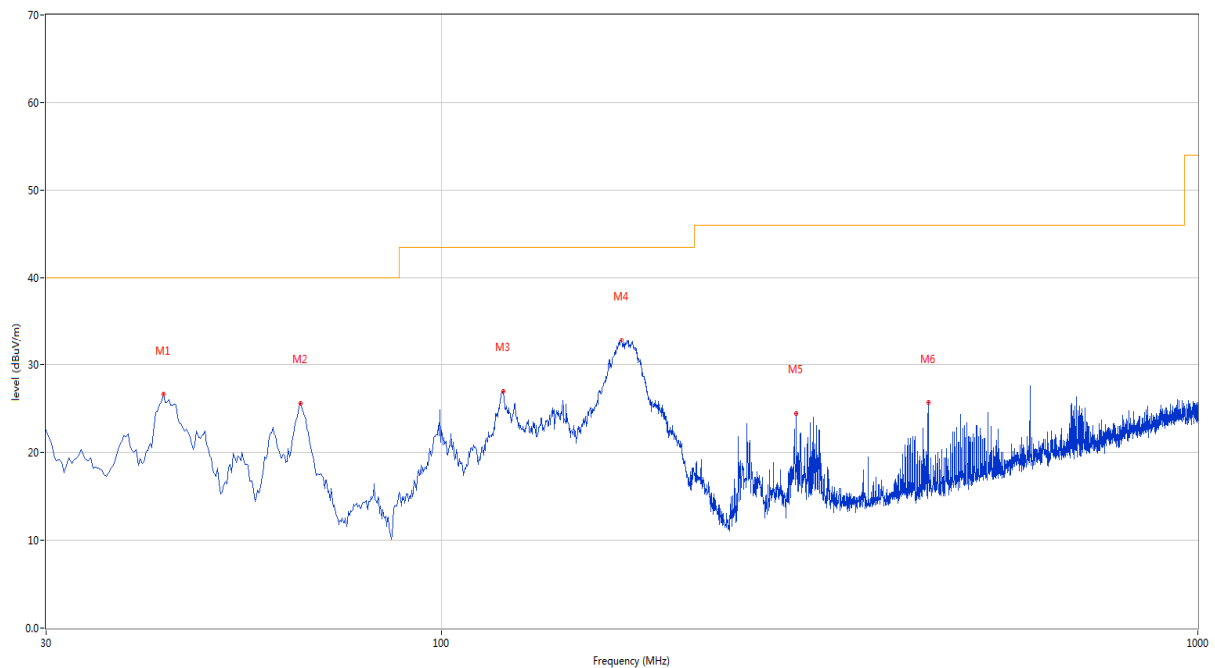
Note 2: For the test data above 1 GHz, according the ANSI C63.4-2014, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

Note 3: This frequency which near 1880 MHz and 1960 MHz with circle should be ignored because they are GSM1900 carrier frequency, the marked spikes near 2400 MHz with circle should be ignored because they are Bluetooth or WIFI carrier frequency.

Test Data and Plots

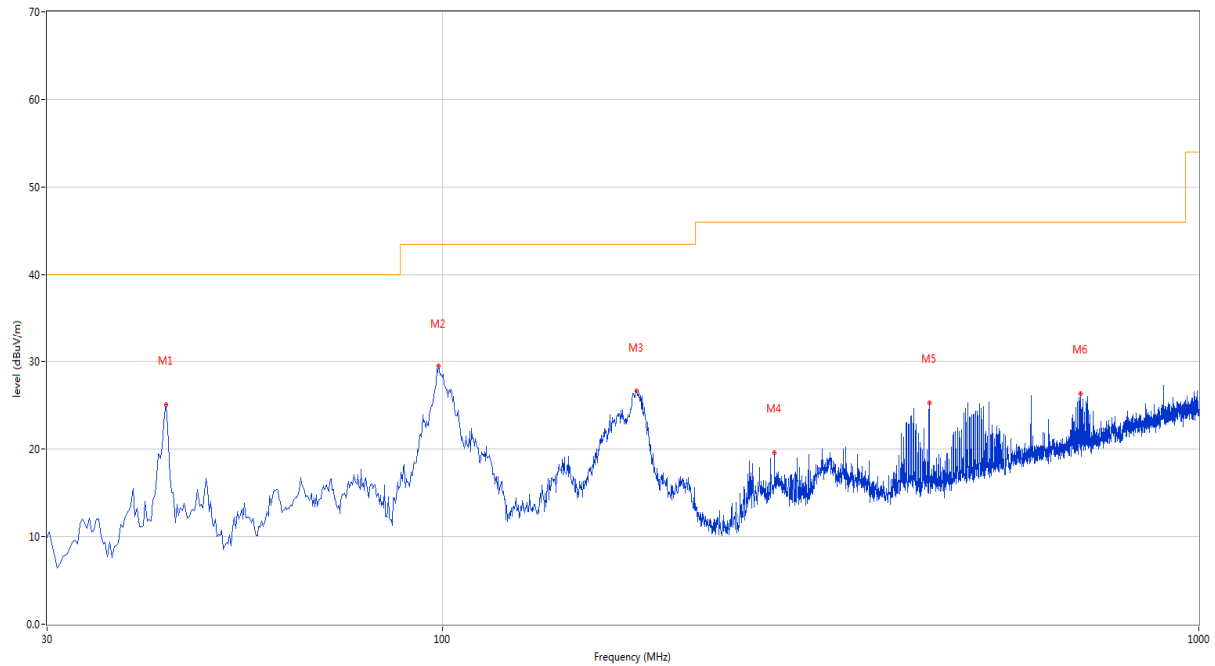
The GSM1900 Test Mode (TC03)

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



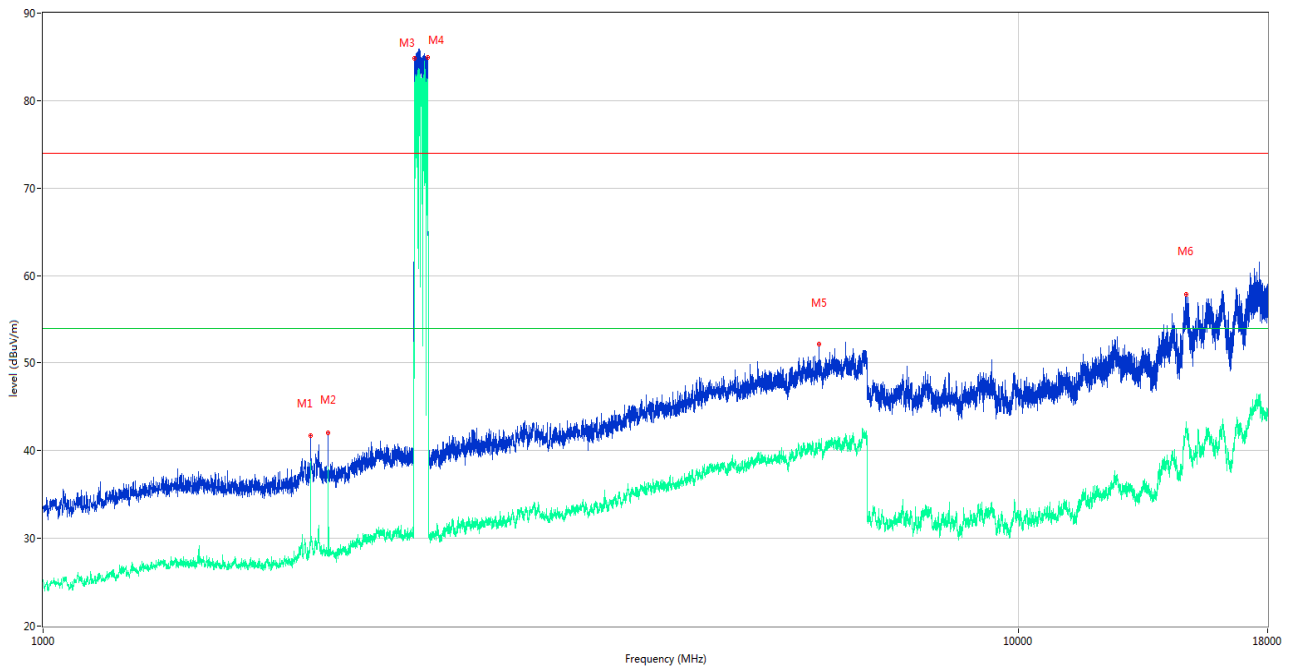
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	42.852	26.60	-23.16	40.0	-13.40	Peak	14.90	100	Vertical	Pass
2	65.162	25.63	-24.74	40.0	-14.37	Peak	193.80	100	Vertical	Pass
3	120.695	26.99	-25.86	43.5	-16.51	Peak	333.20	100	Vertical	Pass
4	172.833	32.88	-26.35	43.5	-10.62	Peak	304.90	100	Vertical	Pass
5	294.325	24.42	-21.86	46.0	-21.58	Peak	0.00	200	Vertical	Pass
6	440.068	25.64	-18.04	46.0	-20.36	Peak	0.00	200	Vertical	Pass

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



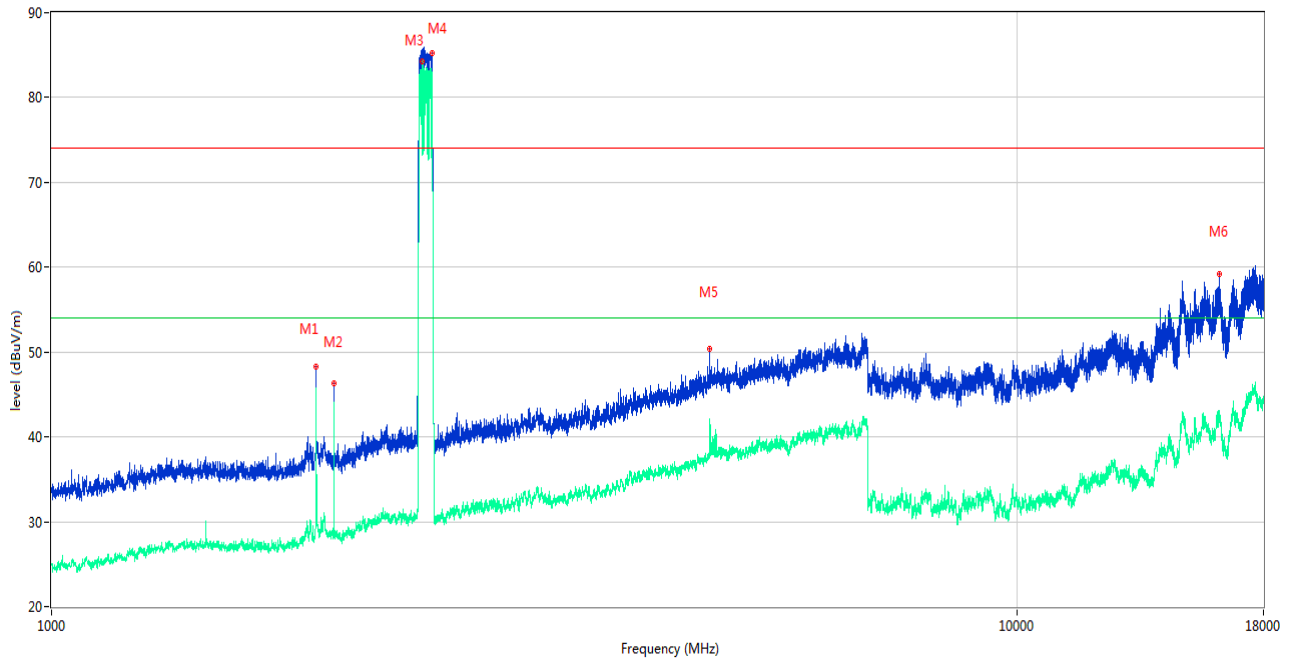
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	43.095	25.06	-23.15	40.0	-14.94	Peak	299.40	200	Horizontal	Pass
2	98.870	29.44	-24.93	43.5	-14.06	Peak	288.90	200	Horizontal	Pass
3	180.592	26.63	-26.13	43.5	-16.87	Peak	86.30	200	Horizontal	Pass
4	274.682	19.59	-22.19	46.0	-26.41	Peak	116.10	100	Horizontal	Pass
5	440.068	25.29	-18.04	46.0	-20.71	Peak	299.40	200	Horizontal	Pass
6	697.118	26.32	-13.22	46.0	-19.68	Peak	157.40	200	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 (o)	Height (cm)	ANT	Verdict
1**	1880.000	34.69	-11.32	54.0	-19.31	AV	52.00	100	Vertical	N/A
1	1880.000	41.70	-11.32	74.0	-32.30	Peak	52.00	100	Vertical	N/A
2**	1960.000	33.82	-12.46	54.0	-20.18	AV	187.00	100	Vertical	N/A
2	1960.000	41.96	-12.46	74.0	-32.04	Peak	187.00	100	Vertical	N/A
3**	2403.500	82.15	-10.36	54.0	28.15	AV	360.00	100	Vertical	N/A
3	2403.500	84.89	-10.36	74.0	10.89	Peak	360.00	100	Vertical	N/A
4**	2477.000	80.53	-9.95	54.0	26.53	AV	97.00	100	Vertical	N/A
4	2477.000	84.99	-9.95	74.0	10.99	Peak	97.00	100	Vertical	N/A
5**	6239.000	41.28	2.83	54.0	-12.72	AV	244.00	100	Vertical	Pass
5	6239.000	52.10	2.83	74.0	-21.90	Peak	244.00	100	Vertical	Pass
6**	14859.187	42.47	27.13	54.0	-11.53	AV	244.00	100	Vertical	Pass
6	14859.187	57.89	27.13	74.0	-16.11	Peak	244.00	100	Vertical	Pass

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

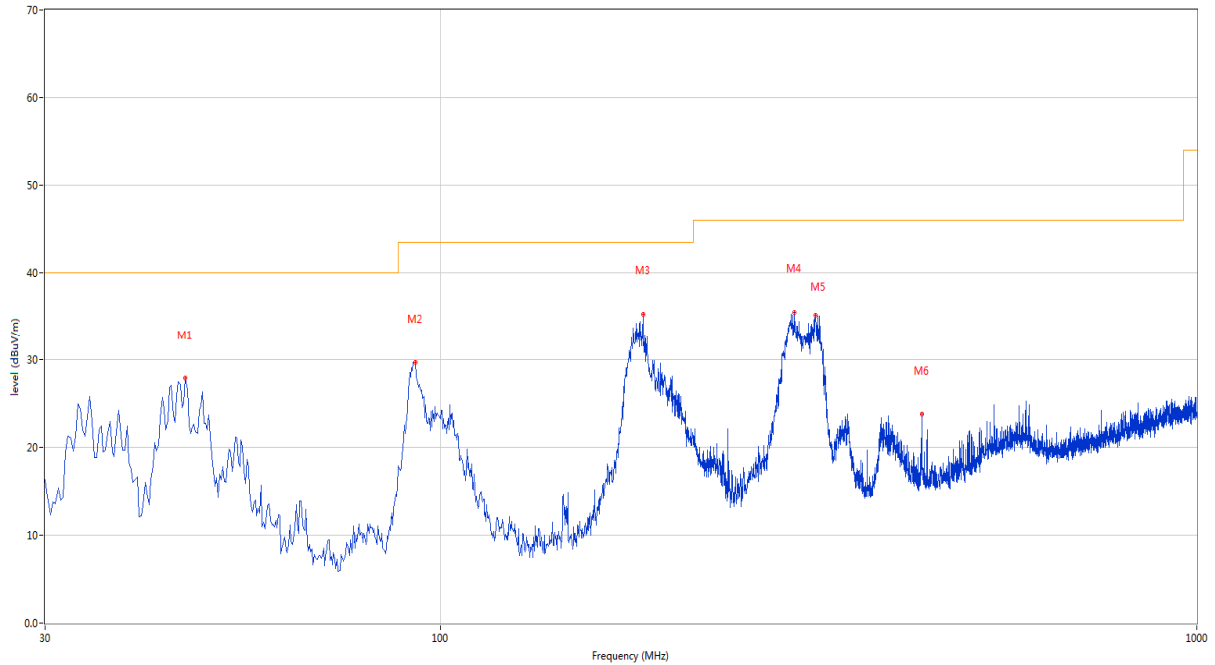


No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	1880.000	40.76	-11.32	54.0	-13.24	AV	19.00	100	Horizontal	N/A
1	1880.000	48.34	-11.32	74.0	-25.66	Peak	19.00	100	Horizontal	N/A
2**	1960.000	39.62	-12.46	54.0	-14.38	AV	135.00	100	Horizontal	N/A
2	1960.000	46.27	-12.46	74.0	-27.73	Peak	135.00	100	Horizontal	N/A
3**	2403.500	82.69	-10.36	54.0	28.69	AV	95.00	100	Horizontal	N/A
3	2403.500	84.74	-10.36	74.0	10.74	Peak	95.00	100	Horizontal	N/A
4**	2478.000	80.84	-9.75	54.0	26.84	AV	342.00	100	Horizontal	N/A
4	2478.000	85.23	-9.75	74.0	11.23	Peak	342.00	100	Horizontal	N/A
5**	4805.000	42.08	-1.98	54.0	-11.92	AV	14.00	100	Horizontal	N/A
5	4805.000	50.32	-1.98	74.0	-23.68	Peak	14.00	100	Horizontal	N/A
6**	16205.813	42.72	27.46	54.0	-11.28	AV	148.00	100	Horizontal	Pass
6	16205.813	59.22	27.46	74.0	-14.78	Peak	148.00	100	Horizontal	Pass

Test Data and Plots

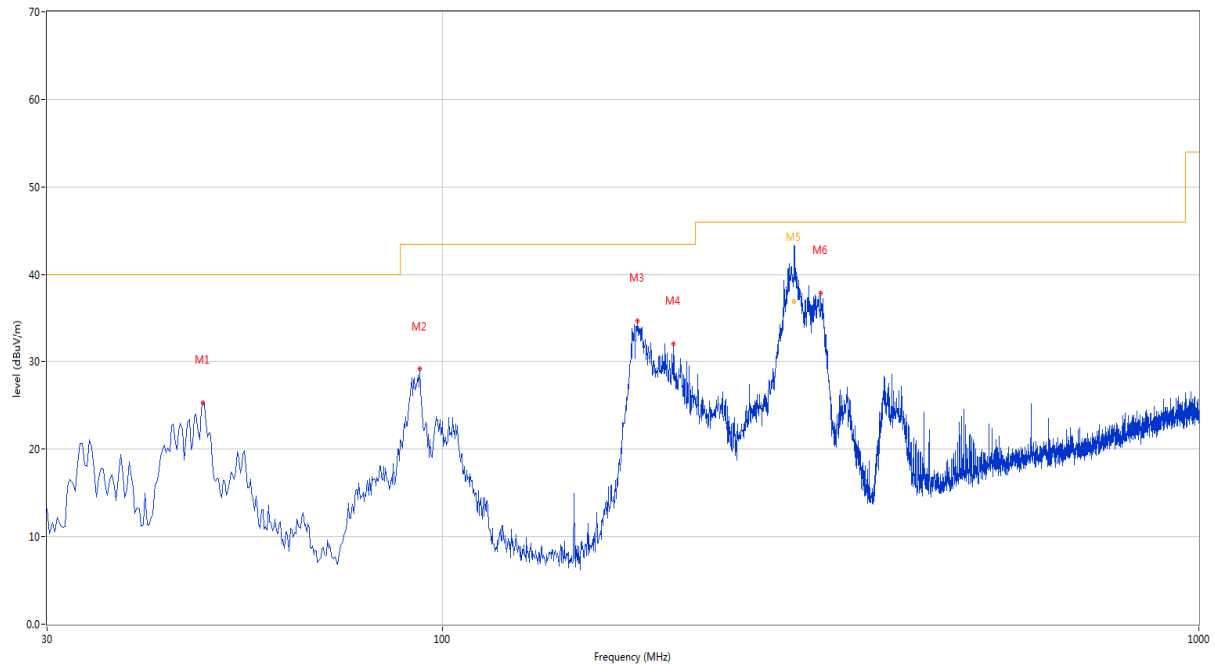
The USB Test Mode (TC12)

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



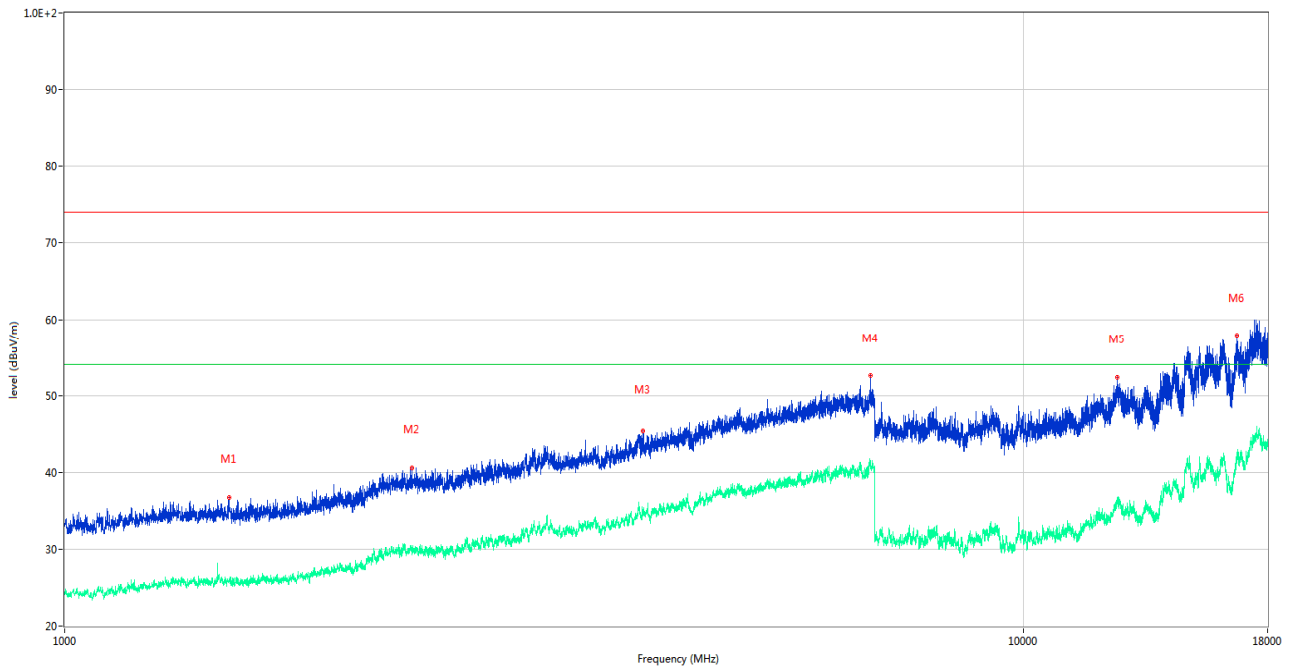
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	46.005	27.88	-23.04	40.0	-12.12	Peak	69.70	100	Vertical	Pass
2	92.565	29.72	-25.56	43.5	-13.78	Peak	0.00	200	Vertical	Pass
3	185.200	35.29	-25.38	43.5	-8.21	Peak	132.50	100	Vertical	Pass
4	293.840	35.49	-21.80	46.0	-10.51	Peak	0.00	200	Vertical	Pass
5	312.998	35.18	-21.30	46.0	-10.82	Peak	0.00	200	Vertical	Pass
6	433.278	23.77	-18.06	46.0	-22.23	Peak	0.00	200	Vertical	Pass

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



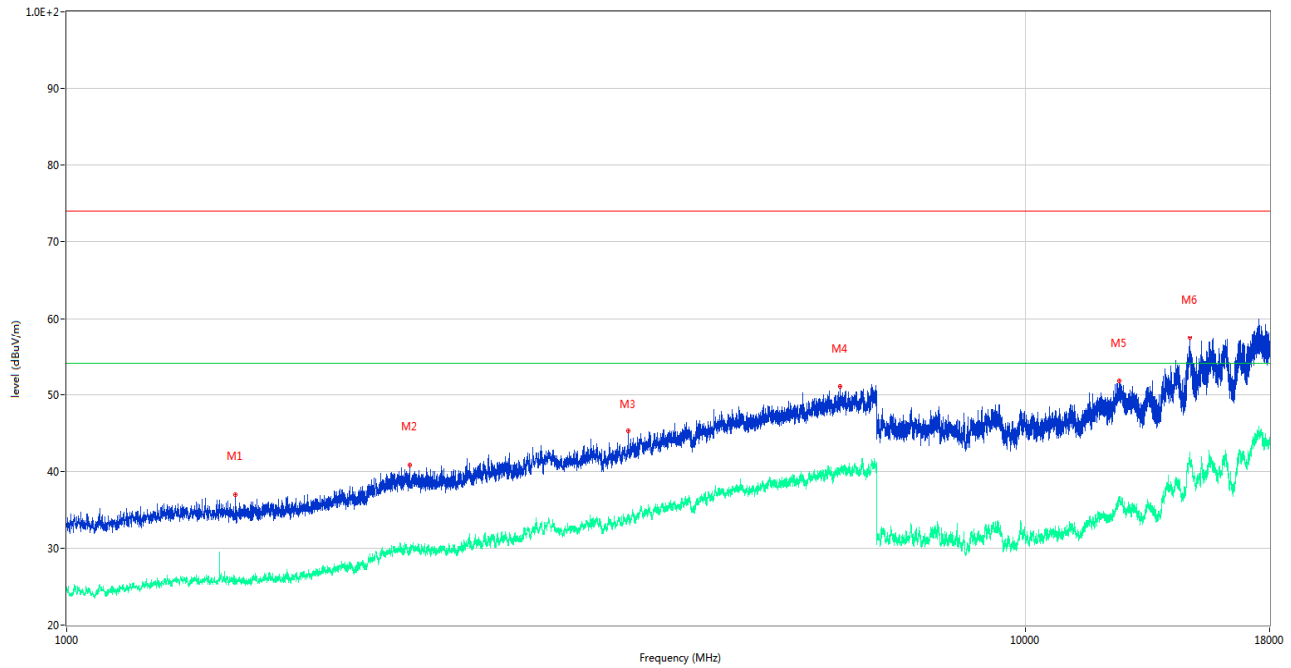
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	48.187	25.26	-22.60	40.0	-14.74	Peak	0.00	200	Horizontal	Pass
2	93.293	29.12	-25.45	43.5	-14.38	Peak	271.50	200	Horizontal	Pass
3	180.835	34.70	-25.95	43.5	-8.80	Peak	50.70	100	Horizontal	Pass
4	202.175	32.01	-23.76	43.5	-11.49	Peak	71.40	100	Horizontal	Pass
5	291.548	43.10	-21.60	46.0	-2.90	Peak	71.40	100	Horizontal	N/A
5*	291.548	36.91	-21.60	46.0	-9.09	QP	71.40	100	Horizontal	Pass
6	316.150	37.89	-20.98	46.0	-8.11	Peak	0.00	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 (o)	Height (cm)	ANT	Verdict
1**	1485.500	26.11	-15.01	54.0	-27.89	AV	97.00	100	Vertical	Pass
1	1485.500	36.78	-15.01	74.0	-37.22	Peak	97.00	100	Vertical	Pass
2**	2304.500	29.26	-10.12	54.0	-24.74	AV	251.00	100	Vertical	Pass
2	2304.500	40.54	-10.12	74.0	-33.46	Peak	251.00	100	Vertical	Pass
3**	4016.000	34.98	-4.47	54.0	-19.02	AV	74.00	100	Vertical	Pass
3	4016.000	45.39	-4.47	74.0	-28.61	Peak	74.00	100	Vertical	Pass
4**	6931.000	40.76	4.03	54.0	-13.24	AV	356.00	100	Vertical	Pass
4	6931.000	52.58	4.03	74.0	-21.42	Peak	356.00	100	Vertical	Pass
5**	12543.000	36.35	21.73	54.0	-17.65	AV	105.00	100	Vertical	Pass
5	12543.000	52.39	21.73	74.0	-21.61	Peak	105.00	100	Vertical	Pass
6**	16722.938	41.80	27.82	54.0	-12.20	AV	139.00	100	Vertical	Pass
6	16722.938	57.85	27.82	74.0	-16.15	Peak	139.00	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 (o)	Height (cm)	ANT	Verdict
1**	1501.000	25.78	-15.20	54.0	-28.22	AV	44.00	100	Horizontal	Pass
1	1501.000	36.97	-15.20	74.0	-37.03	Peak	44.00	100	Horizontal	Pass
2**	2279.000	30.09	-10.57	54.0	-23.91	AV	168.00	100	Horizontal	Pass
2	2279.000	40.86	-10.57	74.0	-33.14	Peak	168.00	100	Horizontal	Pass
3**	3853.000	33.91	-5.34	54.0	-20.09	AV	275.00	100	Horizontal	Pass
3	3853.000	45.28	-5.34	74.0	-28.72	Peak	275.00	100	Horizontal	Pass
4**	6414.000	39.85	2.85	54.0	-14.15	AV	254.00	100	Horizontal	Pass
4	6414.000	50.99	2.85	74.0	-23.01	Peak	254.00	100	Horizontal	Pass
5**	12550.187	36.69	21.77	54.0	-17.31	AV	251.00	100	Horizontal	Pass
5	12550.187	51.75	21.77	74.0	-22.25	Peak	251.00	100	Horizontal	Pass
6**	14861.813	42.44	27.09	54.0	-11.56	AV	30.00	100	Horizontal	Pass
6	14861.813	57.42	27.09	74.0	-16.58	Peak	30.00	100	Horizontal	Pass

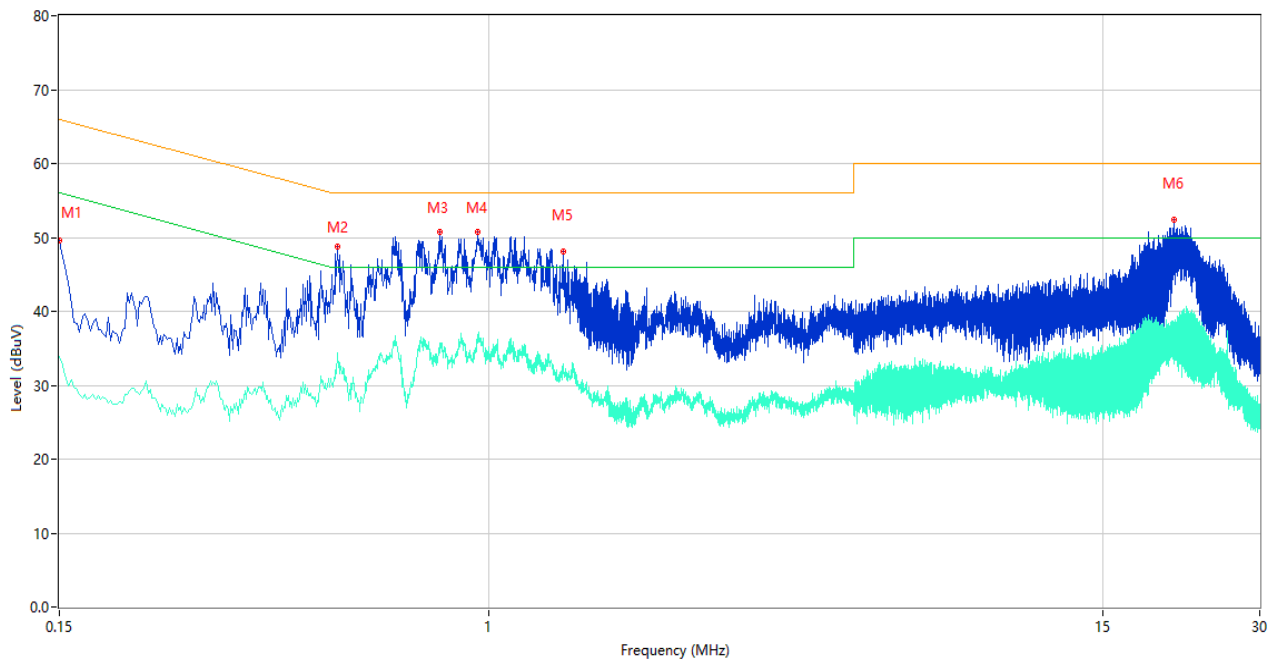
A.2 Conducted Emission

Test Data and Plots

The GSM1900 Test Mode (TC03)

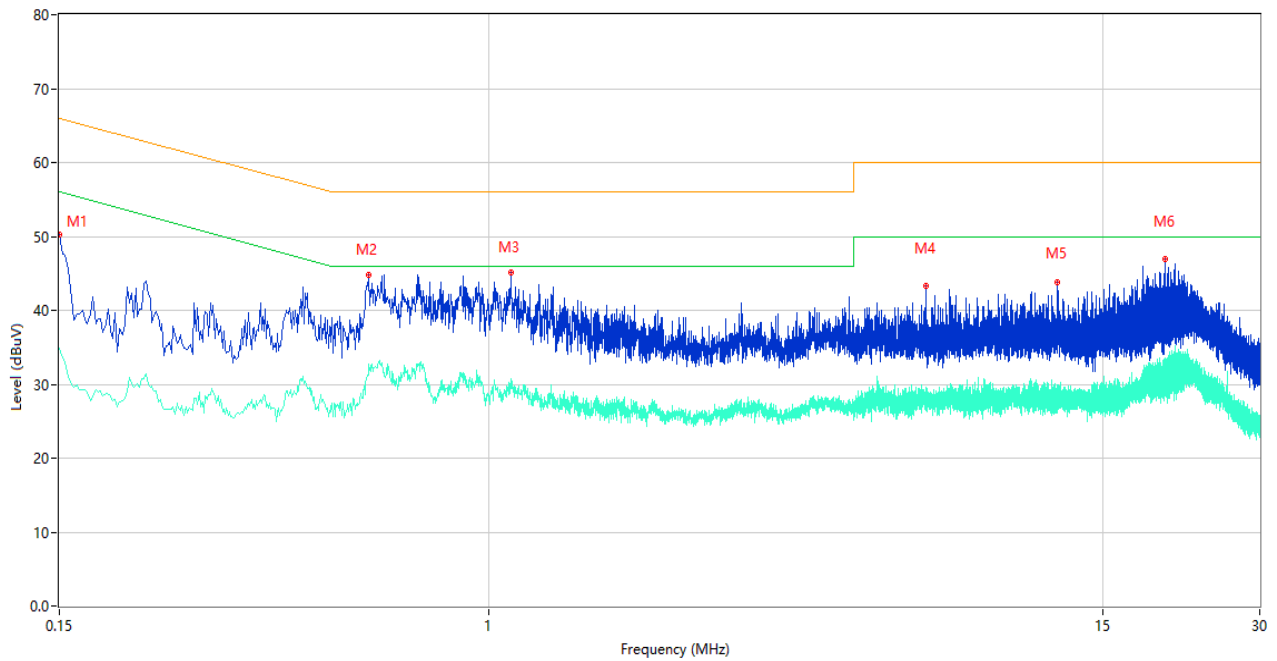
Note: Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz) for which the device is capable of operation. So, The configuration 120 VAC, 60 Hz and 240 VAC, 50 Hz were tested respectively, but only the worst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

A.2.1 L Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.150	49.64	10.41	66.00	-16.36	Peak	L	Pass
1**	0.150	33.86	10.41	56.00	-22.14	AV	L	Pass
2	0.512	48.69	10.30	56.00	-7.31	Peak	L	Pass
2**	0.512	34.34	10.30	46.00	-11.66	AV	L	Pass
3	0.804	50.84	10.27	56.00	-5.16	Peak	L	N/A
3*	0.804	47.22	10.27	56.00	-8.78	QP	L	Pass
3**	0.804	35.69	10.27	46.00	-10.31	AV	L	Pass
4	0.952	51.54	10.24	56.00	-4.46	Peak	L	N/A
4*	0.952	47.72	10.24	56.00	-8.28	QP	L	Pass
4**	0.952	36.89	10.24	46.00	-9.11	AV	L	Pass
5	1.390	48.03	10.25	56.00	-7.97	Peak	L	Pass
5**	1.390	31.98	10.25	46.00	-14.02	AV	L	Pass
6	20.534	52.37	10.56	60.00	-7.63	Peak	L	Pass
6**	20.534	35.87	10.56	50.00	-14.13	AV	L	Pass

A.2.2 N Phase

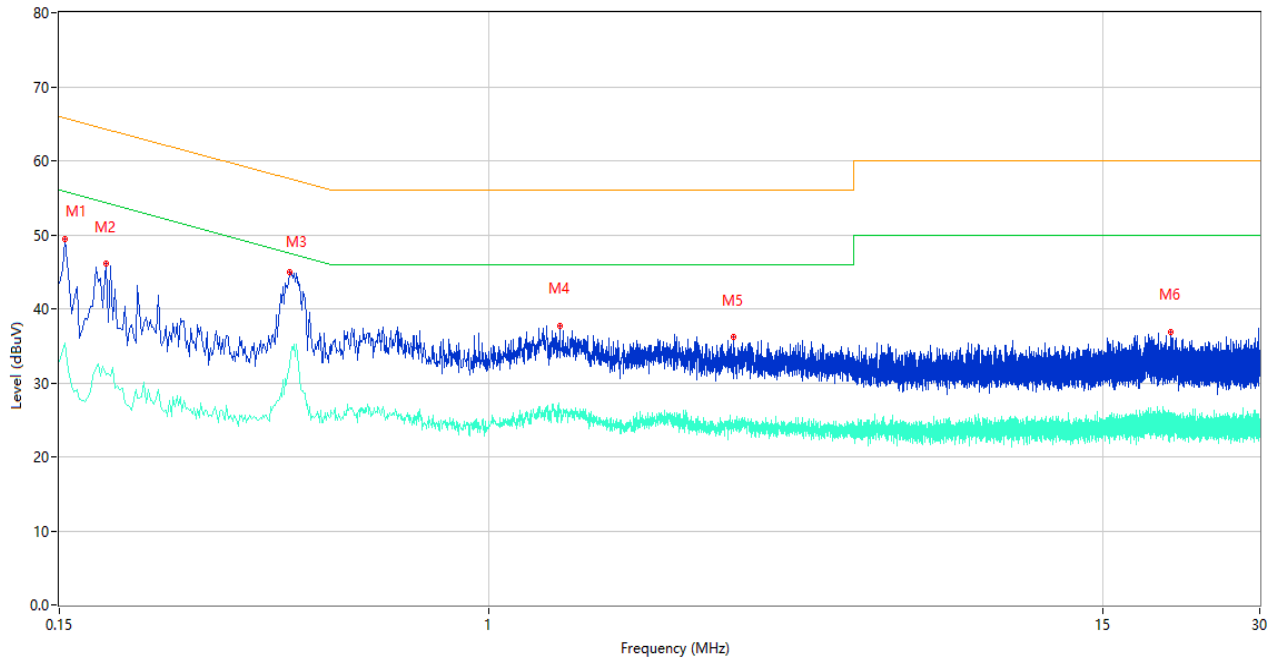


No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.150	50.28	10.41	66.00	-15.72	Peak	N	Pass
1**	0.150	34.89	10.41	56.00	-21.11	AV	N	Pass
2	0.588	44.80	10.27	56.00	-11.20	Peak	N	Pass
2**	0.588	32.75	10.27	46.00	-13.25	AV	N	Pass
3	1.100	45.11	10.23	56.00	-10.89	Peak	N	Pass
3**	1.100	30.70	10.23	46.00	-15.30	AV	N	Pass
4	6.878	43.33	10.34	60.00	-16.67	Peak	N	Pass
4**	6.878	26.71	10.34	50.00	-23.29	AV	N	Pass
5	12.284	43.85	10.39	60.00	-16.15	Peak	N	Pass
5**	12.284	29.85	10.39	50.00	-20.15	AV	N	Pass
6	19.752	46.90	10.55	60.00	-13.10	Peak	N	Pass
6**	19.752	33.45	10.55	50.00	-16.55	AV	N	Pass

Test Data and Plots

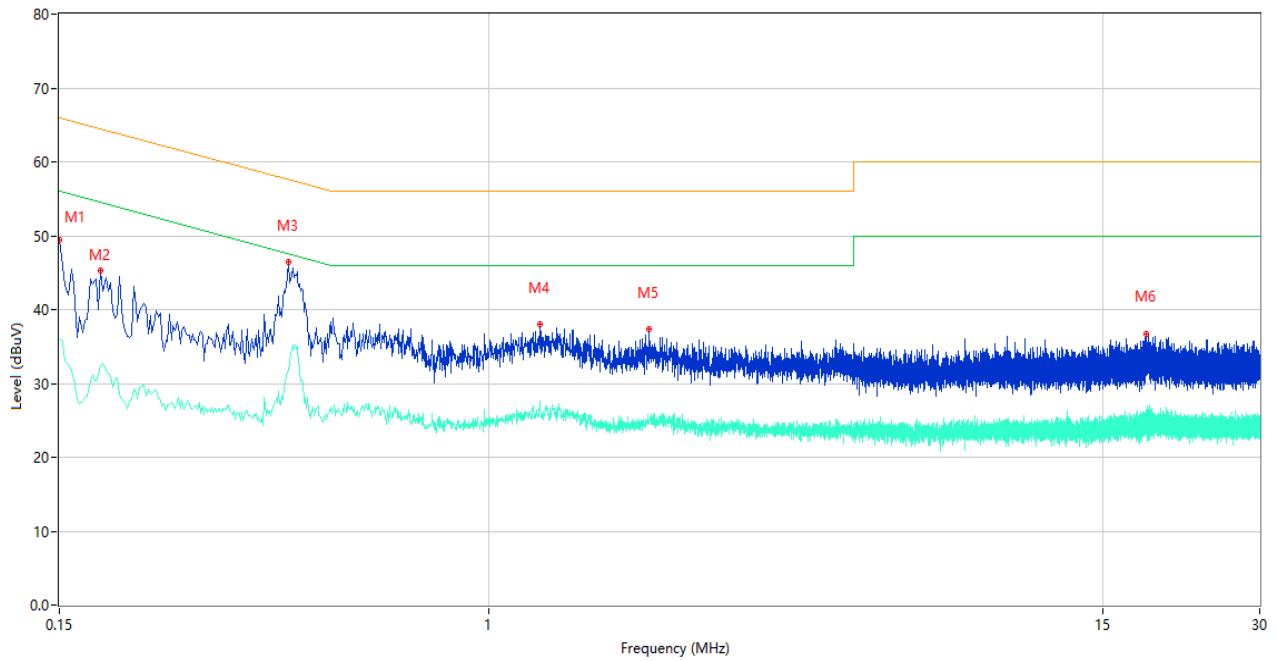
The USB Test Mode (TC12)

A.2.3 L Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.154	49.44	10.41	65.78	-16.34	Peak	L	Pass
1**	0.154	35.37	10.41	55.78	-20.41	AV	L	Pass
2	0.184	46.08	10.39	64.30	-18.22	Peak	L	Pass
2**	0.184	31.00	10.39	54.30	-23.30	AV	L	Pass
3	0.414	44.88	10.31	57.57	-12.69	Peak	L	Pass
3**	0.414	32.38	10.31	47.57	-15.19	AV	L	Pass
4	1.368	37.75	10.25	56.00	-18.25	Peak	L	Pass
4**	1.368	26.08	10.25	46.00	-19.92	AV	L	Pass
5	2.944	36.16	10.27	56.00	-19.84	Peak	L	Pass
5**	2.944	24.01	10.27	46.00	-21.99	AV	L	Pass
6	20.290	36.83	10.56	60.00	-23.17	Peak	L	Pass
6**	20.290	25.13	10.56	50.00	-24.87	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	49.42	10.41	66.00	-16.58	Peak	N	Pass
1**	0.150	36.06	10.41	56.00	-19.94	AV	N	Pass
2	0.180	45.33	10.39	64.49	-19.16	Peak	N	Pass
2**	0.180	32.37	10.39	54.49	-22.12	AV	N	Pass
3	0.412	46.40	10.31	57.61	-11.21	Peak	N	Pass
3**	0.412	31.80	10.31	47.61	-15.81	AV	N	Pass
4	1.254	38.00	10.25	56.00	-18.00	Peak	N	Pass
4**	1.254	26.73	10.25	46.00	-19.27	AV	N	Pass
5	2.028	37.34	10.26	56.00	-18.66	Peak	N	Pass
5**	2.028	24.45	10.26	46.00	-21.55	AV	N	Pass
6	18.182	36.66	10.49	60.00	-23.34	Peak	N	Pass
6**	18.182	26.37	10.49	50.00	-23.63	AV	N	Pass

ANNEX B TEST SETUP PHOTOS

Please refer the document “BL-SZ1998256-AE.PDF”.

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ1998256-AW.PDF”.

ANNEX D EUT INTERNAL PHOTOS

Please refer the document “BL-SZ1998256-AI.PDF”.

--END OF REPORT--