

FCC

EMC

TEST REPORT

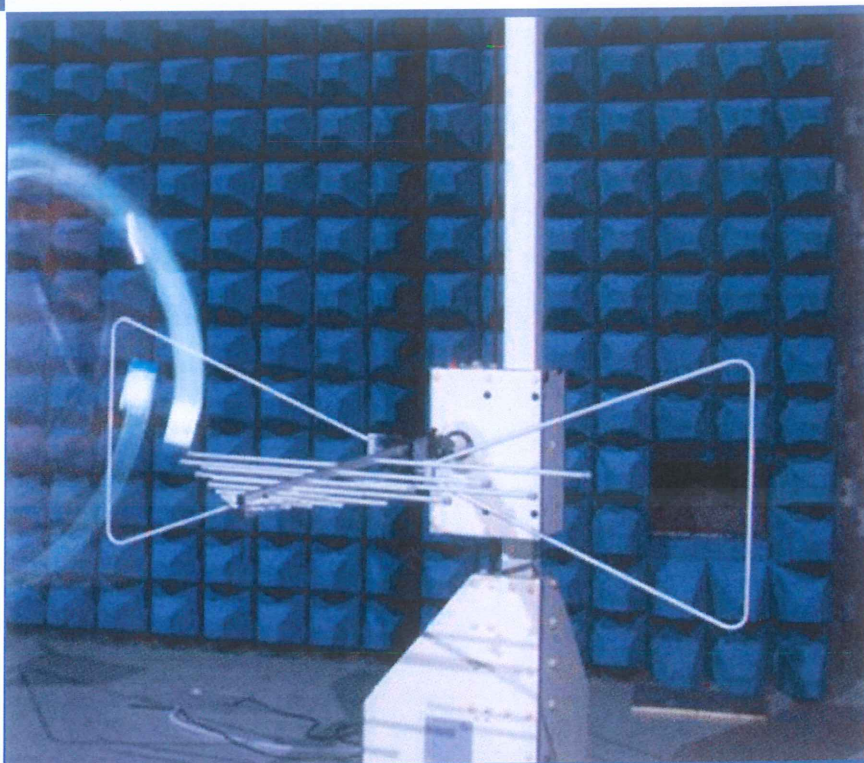
ISSUED BY
Shenzhen BALUN Technology Co., Ltd.



FOR
X1 FDD-LTE Smartphone

ISSUED TO
TP-LINK Technologies Co., Ltd.

Building 24-1F/3F/4F/5F, 28-1F/2F/3F/4F Science and Technology
Park, Shennan Road, Nanshan District, Shenzhen City, Guangdong
Province, P. R. China



Tested by: Xia Long
Xia Long
(Engineer)
Date May 15, 2017

Approved by: Liao Jianming
Liao Jianming
(Technical Director)
Date May 15, 2017



Report No.: BL-SZ1720179-401
EUT Name: X1 FDD-LTE Smartphone
Model Name: TP902C
Brand Name: neffos
Test Standard: 47 CFR Part 15 Subpart B
FCC ID: TE7X1V1

Test Conclusion: Pass
Test Date: Apr. 10, 2017 ~ May 15, 2017
Date of Issue: May 15, 2017

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Revision History

Version	Issue Date	Revisions Content
<u>Rev. 01</u>	<u>Apr. 21, 2017</u>	<u>Initial Issue</u>
<u>Rev. 02</u>	<u>May 15, 2017</u>	<u>Retest the USB mode and update the data</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

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 has been listed by US Federal Communications Commission to perform electromagnetic emission measurements. The recognition numbers of test site are 832625. 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~25°C
Ambient Relative Humidity	45% - 55%
Ambient Pressure	100 kPa - 102 kPa

1.4 Announce

- (1) The test report reference to the report template version v6.4.
- (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	TP-LINK Technologies Co., Ltd.
Address	Building 24-1F/3F/4F/5F, 28-1F/2F/3F/4F Science and Technology Park, Shennan Road, Nanshan District, Shenzhen City, Guangdong Province, P. R. China

2.2 Manufacturer Information

Manufacturer	TP-LINK Technologies Co., Ltd.
Address	Building 24-1F/3F/4F/5F, 28-1F/2F/3F/4F Science and Technology Park, Shennan Road, Nanshan District, Shenzhen City, Guangdong Province, P. R. China

2.3 Factory Information

Factory	N/A
Address	N/A

2.4 General Description for Equipment under Test (EUT)

EUT Name	X1 FDD-LTE Smartphone
Model Name Under Test	TP902C
Series Model Name	TP902C , TP902CXYZZ
Description of Model name differentiation	X=2 or 4 (2 indicates Cloudy Grey, 4 indicates Sunrise Gold); Y=4 or 6 (4 indicates the memory is 2G RAM + 16G Flash, 6 indicates the memory is 3G RAM + 32G Flash); ZZ indicates different national.
Hardware Version	N/A
Software Version	N/A
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A
Random-access Memory	3G RAM + 32G Flash
Network and Wireless connectivity	2G Network GSM/GPRS/EDGE 850/1900 MHz 3G Network WCDMA/HSDPA/HSUPA Band 2/4/5 4G Network FDD LTE Band 2/4/7 Bluetooth, WIFI, FM, GPS, GLONASS

2.5 Ancillary Equipment

Ancillary Equipment 1	Battery	
	Brand Name	neffos
	Model No.	NBL-38A2250
	Serial No.	N/A
	Capacitance	2020 mAh
	Rated Voltage	3.85 V
	Limit Charge Voltage	4.4 V
Ancillary Equipment 2	Charger	
	Brand Name	neffos
	Model Name	N050100-2B3
	Rated Input	100-240 V ~, 50/60 Hz, 300 mA
	Rated Output	5 V $\overline{\text{---}}$, 1 A
Ancillary Equipment 3	Earphone	
	Length(Approx.)	95 cm
Ancillary Equipment 4	USB Cable	
	Length(Approx.)	100 cm

2.6 Technical Information

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

The Highest Speed of Processor	1.3 GHz
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3 SUMMARY OF TEST RESULTS

3.1 Test Standards

No.	Identity	Document Title
1	FCC 47 CFR Part 15 Subpart B (10-1-15 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~26°C	AC 120 V/60 Hz	50%-55%	100 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&SCHWA RZ	ESRP	101036	2016.07.05	2017.07.04	☒
Test Antenna- Bi-Log	SCHWARZBECK	VULB 9163	9163-977	2016.07.19	2018.07.18	☒
Test Antenna- Horn	SCHWARZBECK	BBHA 9120D	9120D-1600	2016.07.12	2018.07.11	☐
Anechoic Chamber	EMC Electronic Co., Ltd	20.10*11.60 *7.35m	N/A	2016.08.09	2018.08.08	☒

Radiated Emission Test For Frequency Above 1 GHz						
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	KEYSIGHT	N9038A	MY53220118	2016.09.09	2017.09.08	☒
Test Antenna- Bi-Log	SCHWARZBECK	VULB 9163	9163-624	2015.07.22	2017.07.21	☐
Test Antenna- Horn	SCHWARZBECK	BBHA 9120D	9120D-1148	2015.07.22	2017.07.21	☒
Anechoic Chamber	RAINFORD	9m*6m*6m	N/A	2017.02.21	2019.02.20	☒

Conducted Emission Test						
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	ROHDE&SCHWA RZ	ESRP	101036	2016.07.05	2017.07.04	☒
LISN	SCHWARZBECK	NSLK 8127	8127-687	2016.07.05	2017.07.04	☒
LISN	SCHWARZBECK	NNLK 8129	8129-462	2016.09.14	2017.09.13	☐
AMN	SCHWARZBECK	NNBM8124	8124-509	2016.07.05	2017.07.04	☐
AMN	SCHWARZBECK	NNBM8124	8124-510	2016.07.05	2017.07.04	☐
ISN	TESEQ	ISN T800	34449	2016.07.05	2017.07.04	☐
Shielded Enclosure	ChangNing	CN-130701	130703	N/A	N/A	☒

4.3 Test Enclosure list

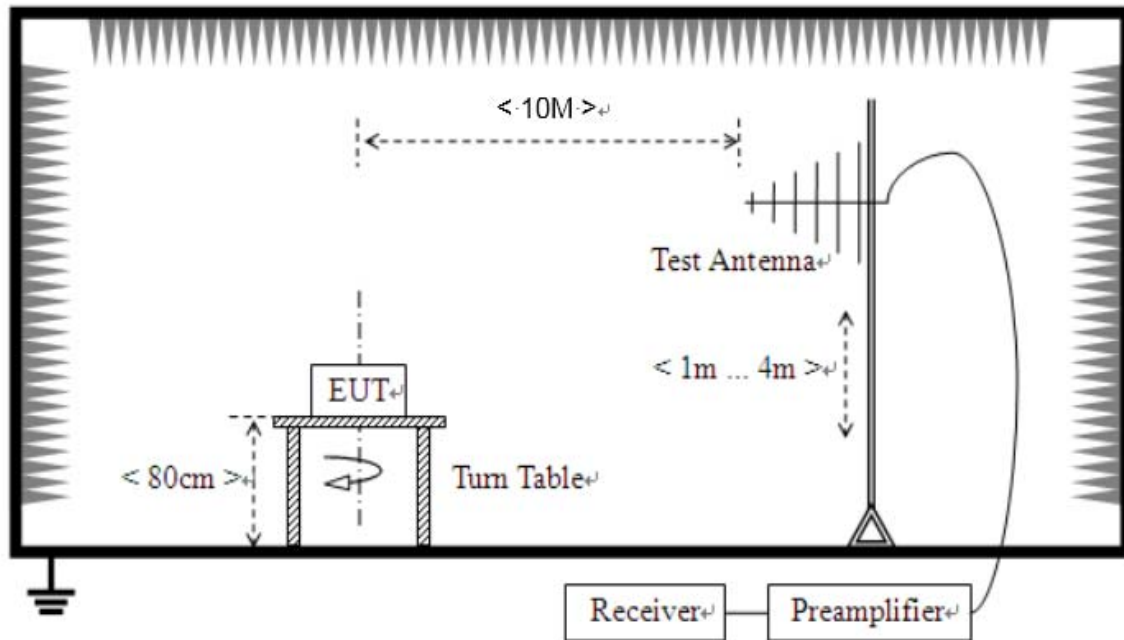
Description	Manufacturer	Model	Serial No.	Length	Description	Use
PC	Dell	015K3N	N/A	N/A	Special Handled	☒
Laptop	Apple	A1465	N/A	N/A	N/A	☐
Printer	HP	DESKJET 1000	N/A	N/A	N/A	☒
Keyboard	Dell	N/A	N/A	N/A	N/A	☒
Mouse	Dell	N/A	N/A	N/A	N/A	☒
USB disk	Kingston	N/A	N/A	N/A	N/A	☐
TF Card	Kingston	N/A	N/A	N/A	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	☒
GPS/GLONASS Vector signal generator	R&S	N5172B EXG	N/A	N/A	N/A	☒
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
Traffic Test Mode	
TC01	<u>The GSM 850 MHz Test Mode</u> GSM 850 Link + Adapter + USB Cable + Battery + Earphone + BT Link + WIFI Link + GLONASS RX
TC02	<u>The EDGE 850 MHz Test Mode</u> EDGE 850 Link + Adapter + USB Cable + Battery + Earphone + BT Link + WIFI Link + GPS RX
TC03	<u>The GSM 1900 Test Mode</u> GSM 1900 Link + Adapter + USB Cable + Battery + Earphone + BT Link + WIFI Link + GPS RX
TC04	<u>The EDGE 1900 MHz Test Mode</u> EDGE 1900 Link + Adapter + USB Cable + Battery + Earphone + BT Link + WIFI Link + GLONASS RX
TC05	<u>The WCDMA Band 2 Test Mode</u> WCDMA Band 2 Link + Adapter + USB Cable + Battery + Earphone + BT Link + WIFI Link + GLONASS RX
TC06	<u>The WCDMA Band 4 test mode</u> WCDMA Band 4 Link + Adapter + USB Cable + Battery + Earphone + BT Link + WIFI Link + GPS RX
TC07	<u>The WCDMA Band 5 test mode</u> WCDMA Band 5 Link + Adapter + USB Cable + Battery + Earphone + BT Link + WIFI Link + GPS RX
TC08	<u>The FDD LTE Band 2 Test Mode</u> LTE Band 2 Link + Adapter + USB Cable + Battery + Earphone + BT Link + WIFI Link + GLONASS RX
TC09	<u>The FDD LTE Band 4 Test Mode</u> LTE Band 4 Link + Adapter + USB Cable + Battery + Earphone + BT Link + WIFI Link+ GPS RX
TC10	<u>The FDD LTE Band 7 Test Mode</u> LTE Band 7 Link + Adapter + USB Cable + Battery + Earphone + BT Link + WIFI Link+ GLONASS RX
TC11	<u>The Idle Test Mode</u> GSM 850(Idle) + Battery + Adapter + USB Cable + Earphone + FM RX
Amusement Test Mode	
TC12	<u>The USB Test Mode</u> EUT + USB Cable + Battery + Earphone + TF Card + PC + Printer + Keyboard + Mouse
TC13	<u>The Video Record Test Mode</u> EUT + Adapter + USB Cable + Battery + Earphone + TF Card
TC14	<u>The Video Play Test Mode</u> EUT + Adapter + USB Cable + Battery + Earphone + TF Card

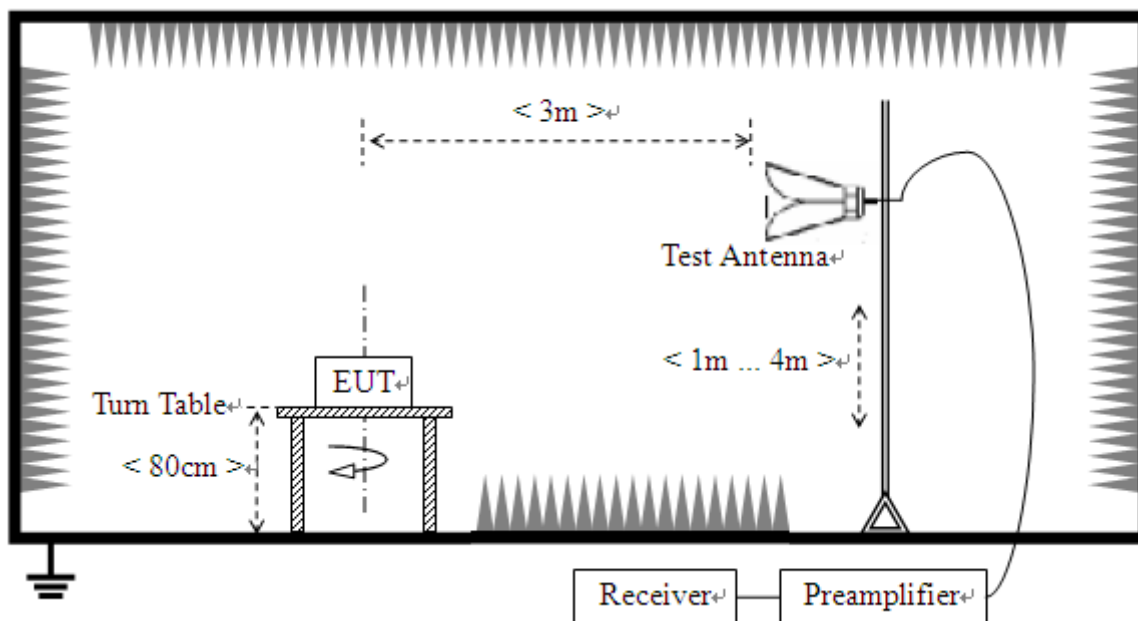
4.5 Test Setups

Test Setup 1



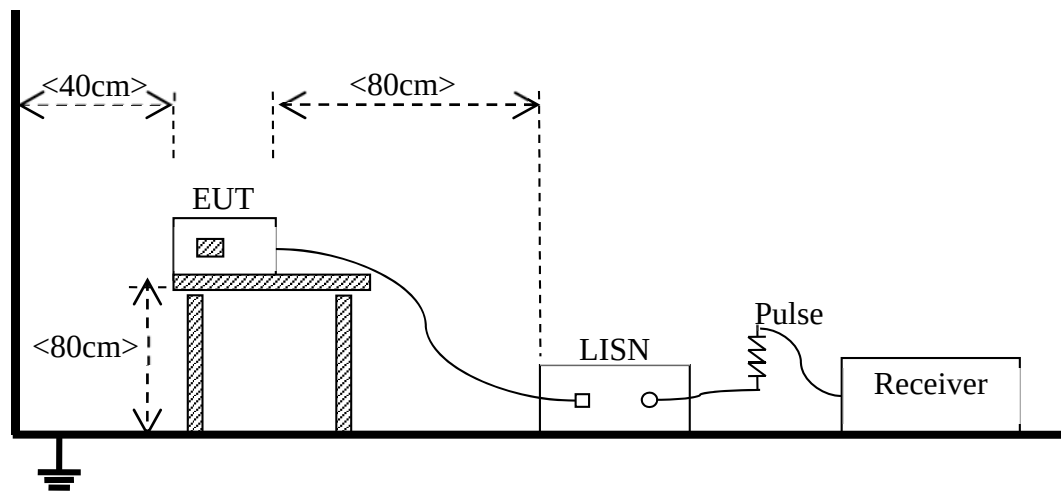
(For Radiated Emission Test (30 MHz-1 GHz))

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~TC14 ^{Note}
Conducted Emission, AC Ports	Test Env.	NTNV
	Test Setup	Test Setup 3
	Test Configuration	TC01~TC14 ^{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 850 MHz 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 A (at 10 m)	
	Field Strength ($\mu\text{V/m}$)	Field Strength (dB $\mu\text{V/m}$)	Field Strength ($\mu\text{V/m}$)	Field Strength (dB $\mu\text{V/m}$)
30 - 88	100	40	90	39
88 - 216	150	43.5	150	43.5
216 - 960	200	46	210	46.4
Above 960	500	54	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.

5.1.1.4 Test Result

Please refer to ANNEX A.1.

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.

ANNEX A TEST RESULTS

A.1 Radiated Emission

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

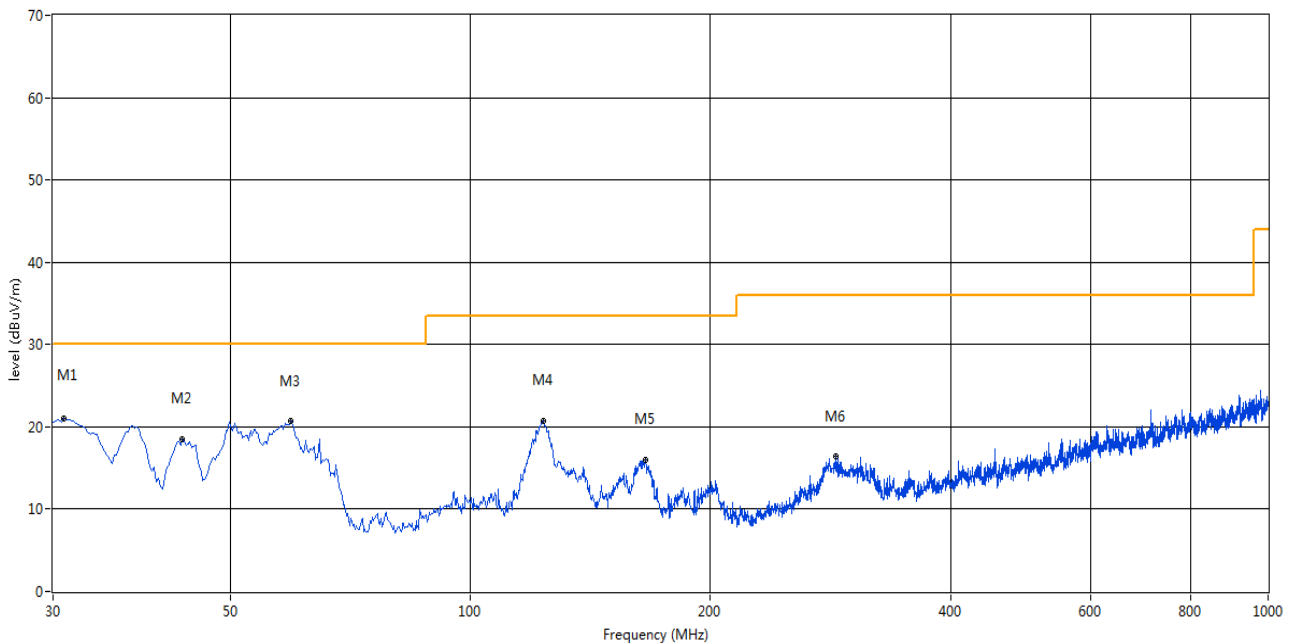
Note 2: For the test data above 1 GHz, according the ANSI C63.4-2014, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

Note 3: This frequency which near 850 MHz with circle should be ignored because they are MS and SS 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

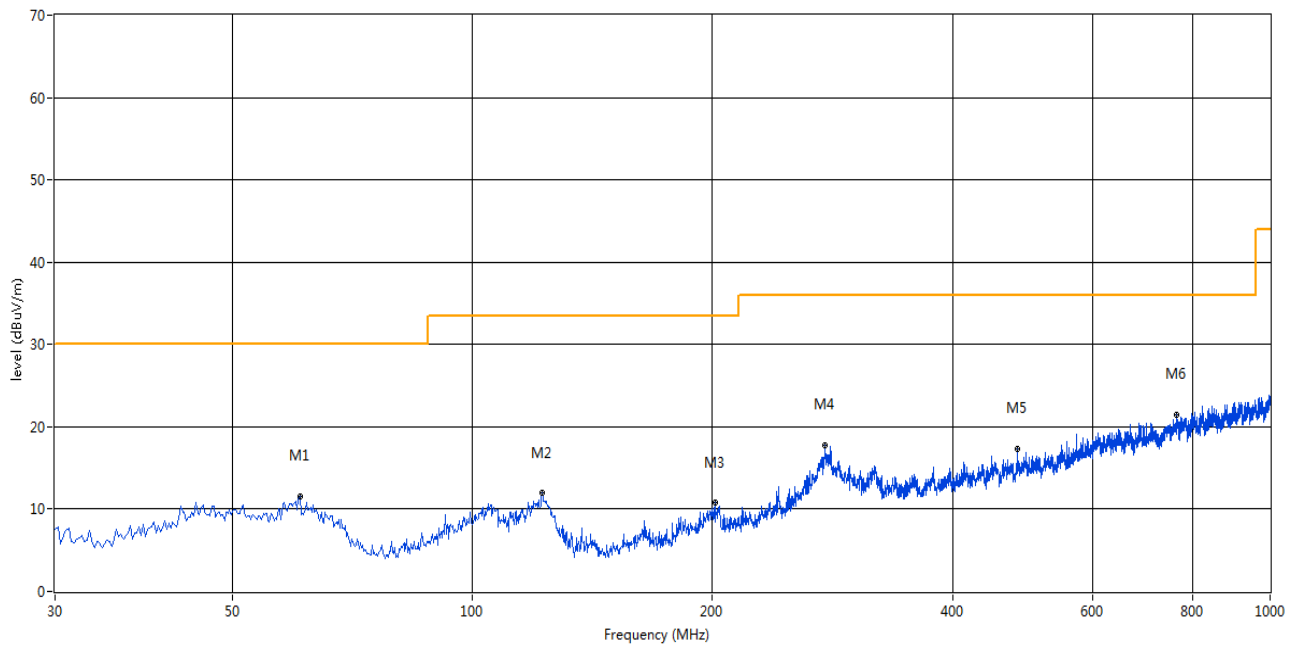
The GSM 850 MHz Test Mode

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



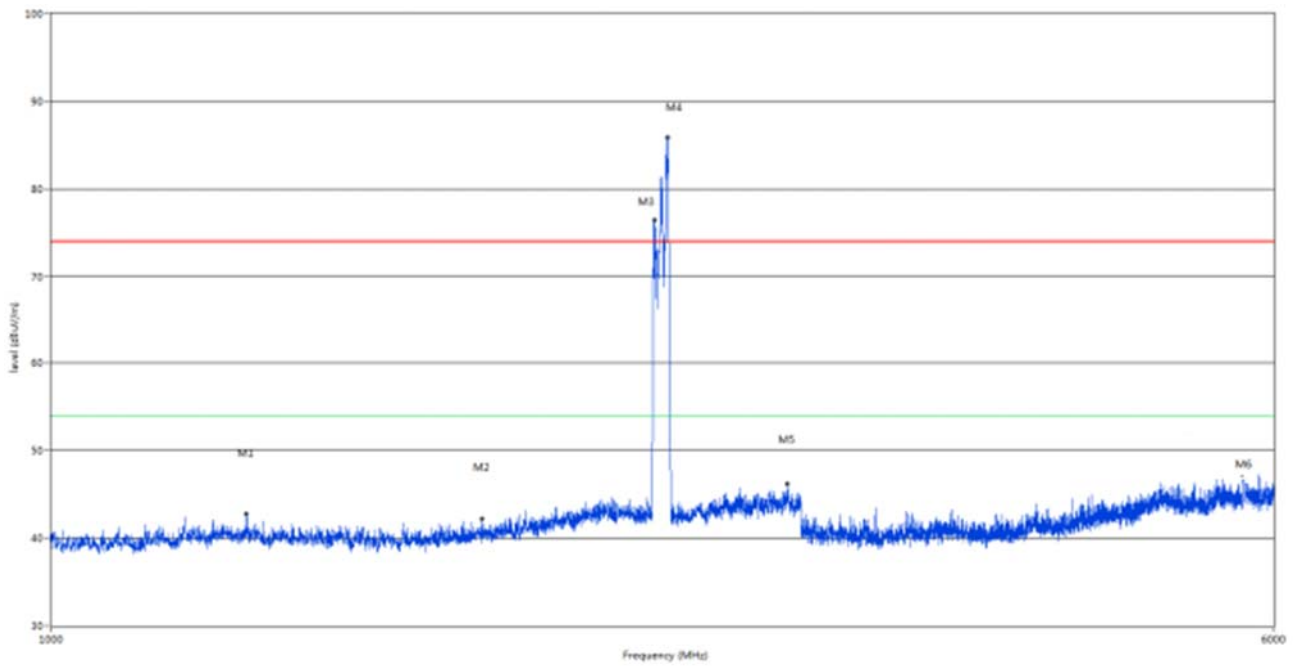
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	30.970	20.95	-16.82	30.0	9.05	Peak	170.00	100	Vertical	Pass
2	43.577	18.47	-13.41	30.0	11.53	Peak	198.00	300	Vertical	Pass
3	59.578	20.67	-14.95	30.0	9.33	Peak	147.00	100	Vertical	Pass
4	123.339	20.76	-17.71	33.5	12.74	Peak	349.00	100	Vertical	Pass
5	166.008	16.04	-17.75	33.5	17.46	Peak	205.00	100	Vertical	Pass
6	287.471	16.36	-12.53	36.0	19.64	Peak	194.00	100	Vertical	Pass

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



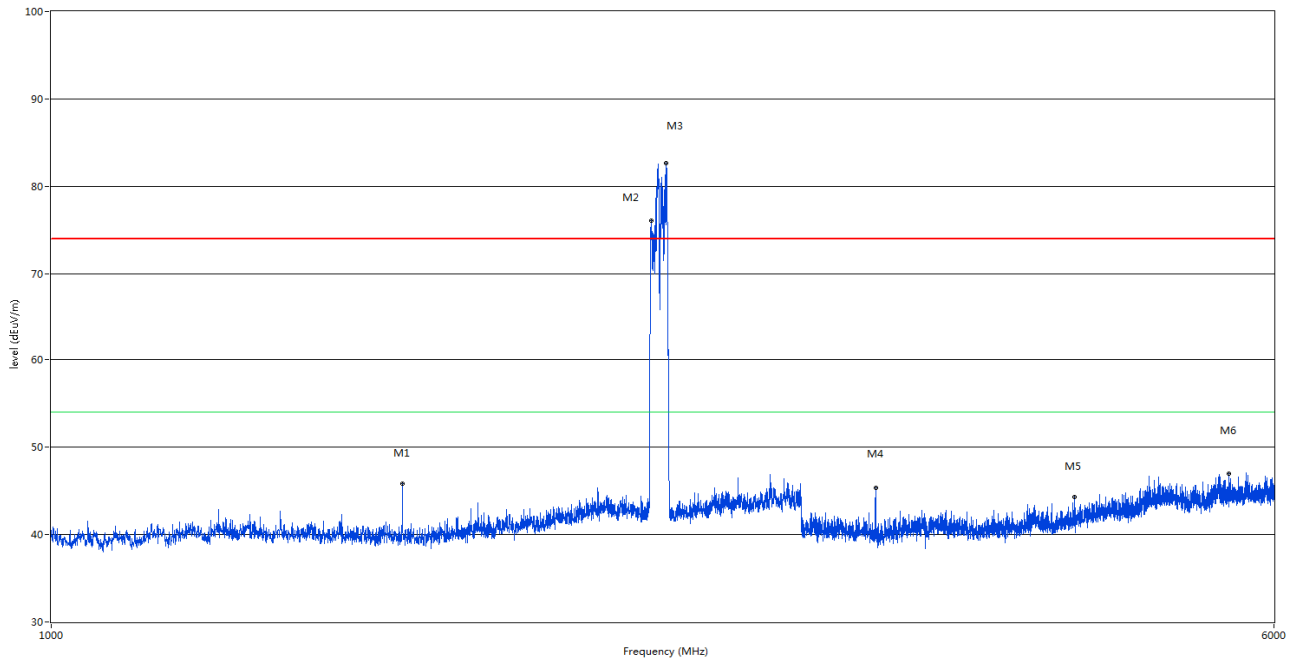
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	60.790	11.53	-15.11	30.0	18.47	Peak	347.00	400	Horizontal	Pass
2	122.369	11.94	-17.54	33.5	21.56	Peak	182.00	400	Horizontal	Pass
3	201.405	10.75	-15.03	33.5	22.75	Peak	73.00	400	Horizontal	Pass
4	276.561	17.73	-12.91	36.0	18.27	Peak	83.00	400	Horizontal	Pass
5	482.149	17.30	-8.06	36.0	18.70	Peak	42.00	400	Horizontal	Pass
6	764.106	21.45	-2.96	36.0	14.55	Peak	0.00	400	Horizontal	Pass

A.1.3 Test Antenna Vertical, 1 GHz – 6 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1331.500	42.75	-6.02	74.0	31.25	Peak	357.30	100	Vertical	Pass
2	1881.000	42.25	-4.89	74.0	31.75	Peak	33.50	100	Vertical	Pass
3	2420.500	76.40	-1.90	74.0	-2.40	Peak	275.00	100	Vertical	N/A
4	2468.500	85.90	-2.71	74.0	-11.90	Peak	329.20	100	Vertical	N/A
5	2939.500	46.25	0.29	74.0	27.75	Peak	61.00	100	Vertical	Pass
6	5742.750	47.05	10.13	74.0	26.95	Peak	45.60	100	Vertical	Pass

A.1.4 Test Antenna Horizontal, 1 GHz – 6 GHz



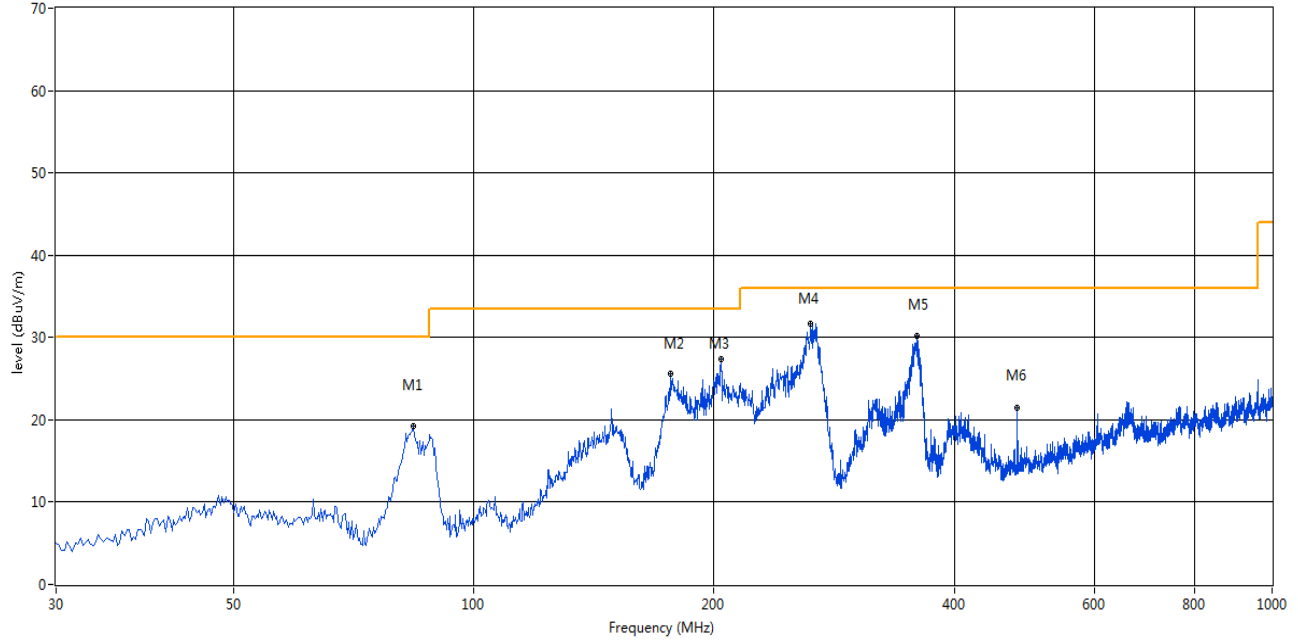
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1673.000	45.80	-6.04	74.0	28.20	Peak	360.00	100	Horizontal	N/A
2	2408.000	76.06	-2.33	74.0	-2.06	Peak	264.80	100	Horizontal	N/A
3	2463.000	82.68	-2.85	74.0	-8.68	Peak	270.30	100	Horizontal	N/A
4	3346.500	45.33	5.55	74.0	28.67	Peak	330.80	100	Horizontal	N/A
5	4478.250	44.30	7.91	74.0	29.70	Peak	171.90	100	Horizontal	Pass
6	5614.500	46.93	10.08	74.0	27.07	Peak	293.80	100	Horizontal	Pass

Test Data and Plots

The USB Test Mode

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

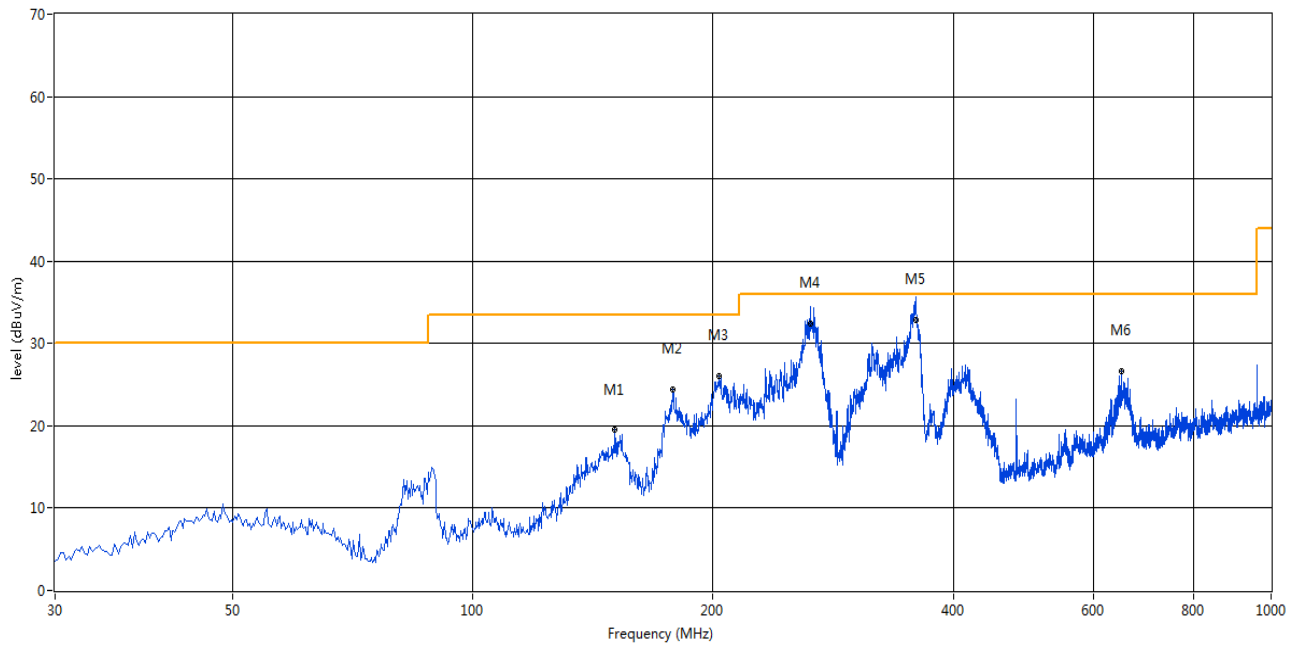
RE Test Case_FCC Certification_FCC 15B ClassB 30MHz-1GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	84.064	19.28	-18.62	30.0	10.72	Peak	0.00	200	Vertical	Pass
2	176.676	25.63	-17.21	33.5	7.87	Peak	198.00	100	Vertical	Pass
3	204.314	27.33	-14.94	33.5	6.17	Peak	0.00	200	Vertical	Pass
4	264.196	31.60	-13.21	36.0	4.40	Peak	0.00	200	Vertical	Pass
5	359.233	30.25	-10.63	36.0	5.75	Peak	228.00	100	Vertical	Pass
6	479.968	21.48	-8.21	36.0	14.52	Peak	216.00	100	Vertical	Pass

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

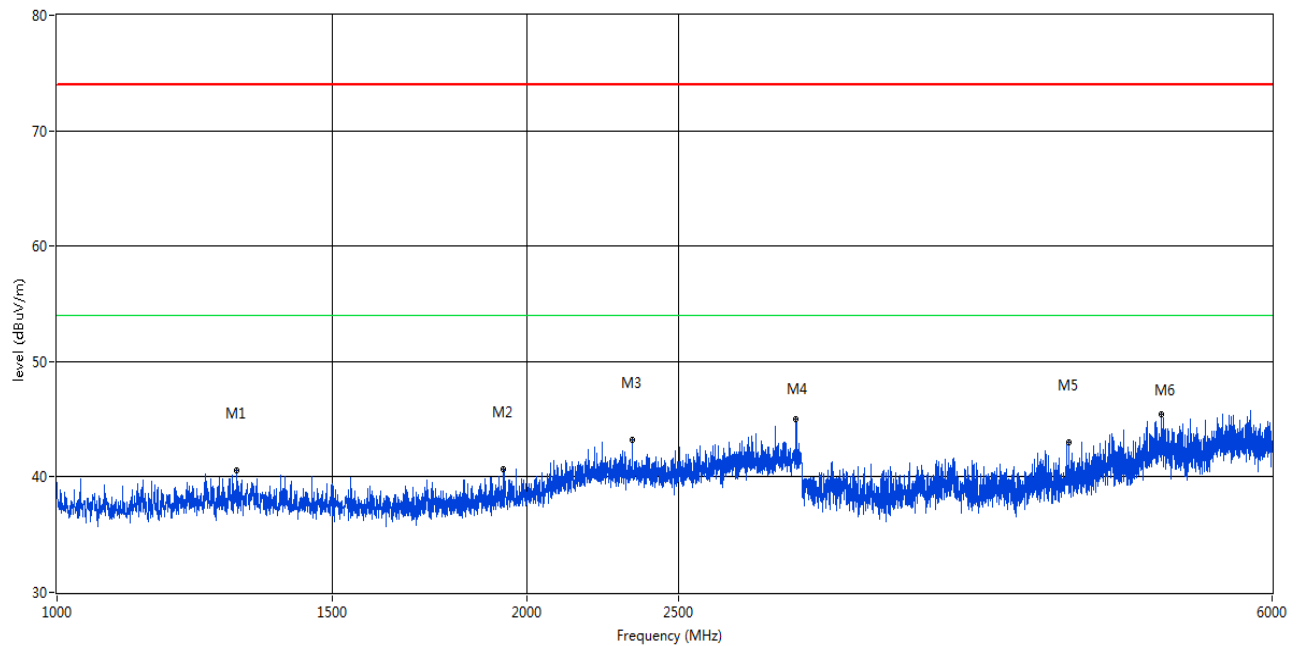
RE Test Case_FCC Certification_FCC 15B ClassB 30MHz-1GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	150.735	19.48	-18.65	33.5	14.02	Peak	0.00	300	Horizontal	Pass
2	177.888	24.44	-17.13	33.5	9.06	Peak	348.00	300	Horizontal	Pass
3	203.587	26.04	-14.94	33.5	7.46	Peak	43.00	300	Horizontal	Pass
4	264.681	34.53	-13.18	36.0	1.47	Peak	31.00	300	Horizontal	N/A
4*	264.681	32.45	-13.18	36.0	3.55	QP	31.00	300	Horizontal	Pass
5	358.748	35.63	-10.69	36.0	0.37	Peak	360.00	300	Horizontal	N/A
5*	358.748	32.80	-10.69	36.0	3.20	QP	360.00	300	Horizontal	Pass
6	649.433	26.57	-4.87	36.0	9.43	Peak	227.00	200	Horizontal	Pass

A.1.7 Test Antenna Vertical, 1 GHz – 6 GHz

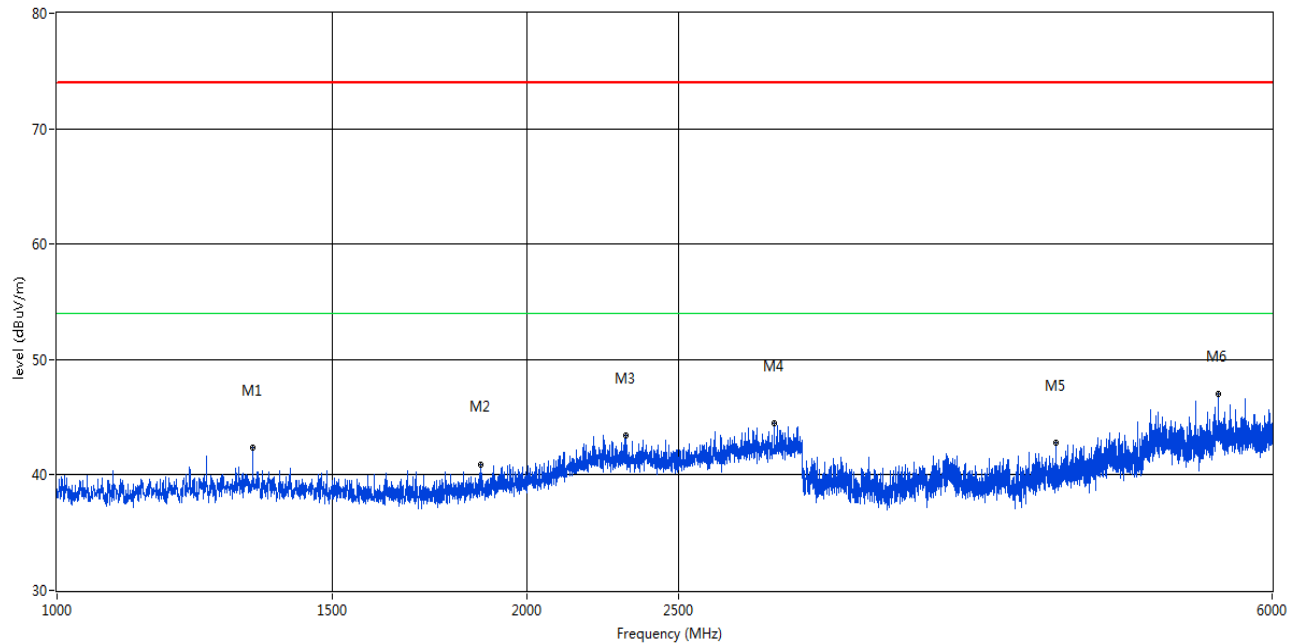
RE Test case_FCC_Part 15B_FCC Part 15B Class B 1GHz-6GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1303.500	40.55	-6.16	74.0	33.45	Peak	12.00	100	Vertical	Pass
2	1932.500	40.64	-4.57	74.0	33.36	Peak	13.00	100	Vertical	Pass
3	2336.000	43.22	-2.61	74.0	30.78	Peak	15.00	100	Vertical	Pass
4	2974.500	45.00	0.10	74.0	29.00	Peak	15.00	100	Vertical	Pass
5	4444.500	42.96	9.39	74.0	31.04	Peak	5.00	100	Vertical	Pass
6	5095.500	45.45	11.11	74.0	28.55	Peak	8.00	100	Vertical	Pass

A.1.8 Test Antenna Horizontal, 1 GHz – 6 GHz

RE Test case_FCC_Part 15B_FCC Part 15B Class B 1GHz-6GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1334.000	42.32	-6.12	74.0	31.68	Peak	345.70	100	Horizontal	Pass
2	1869.000	40.93	-4.87	74.0	33.07	Peak	282.30	100	Horizontal	Pass
3	2312.000	43.41	-2.63	74.0	30.59	Peak	259.30	100	Horizontal	Pass
4	2878.500	44.47	0.22	74.0	29.53	Peak	31.60	100	Horizontal	Pass
5	4362.000	42.78	8.90	74.0	31.22	Peak	317.00	100	Horizontal	Pass
6	5544.000	47.03	12.12	74.0	26.97	Peak	357.30	100	Horizontal	Pass

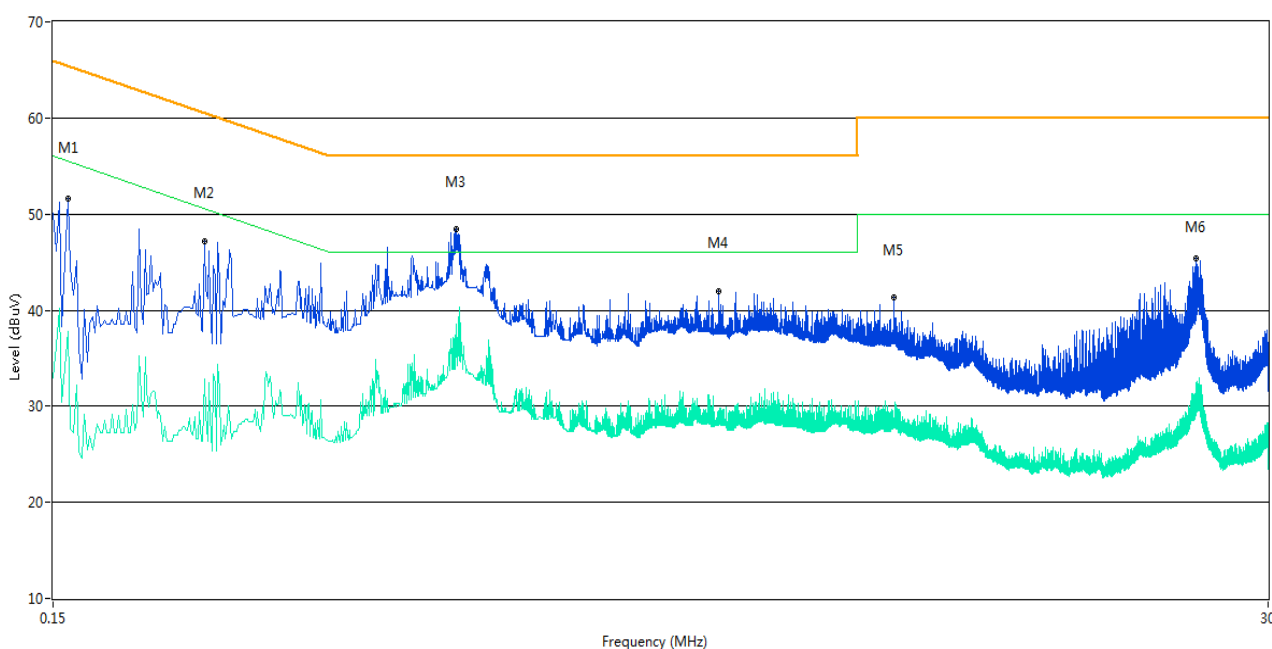
A.2 Conducted Emission

Test Data and Plots

The GSM 850 MHz Test Mode

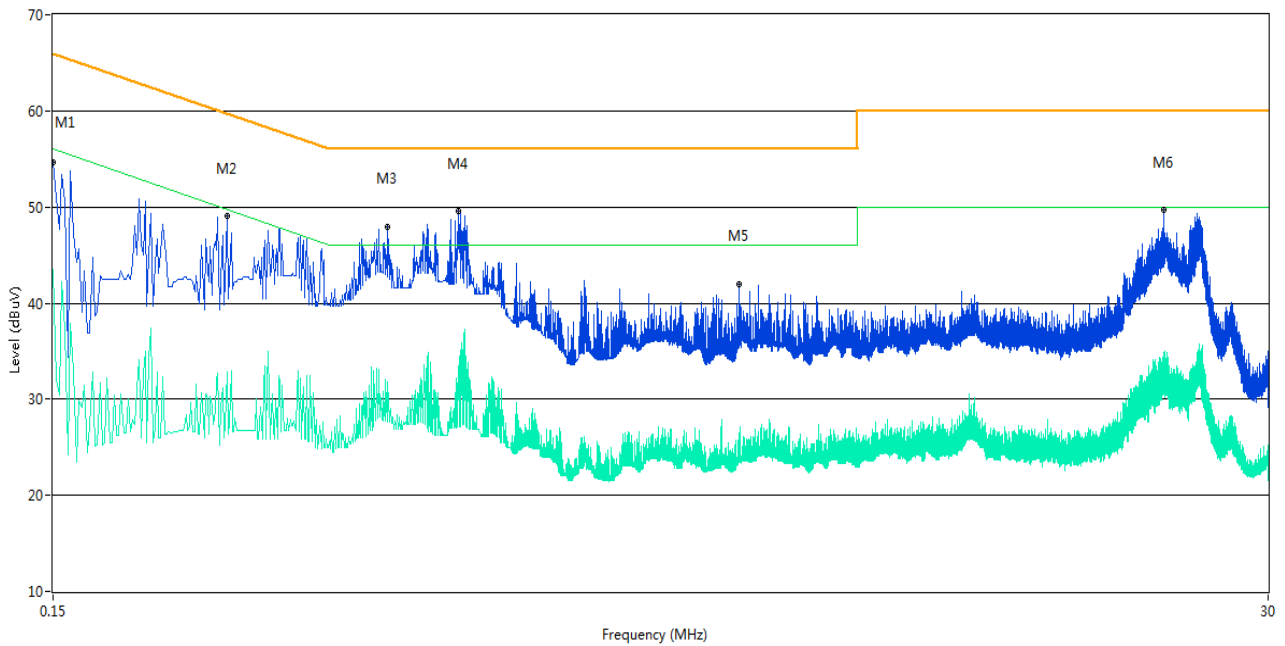
Note: Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz) for which the device is capable of operation. So, The configuration 120 VAC, 60 Hz and 240 VAC, 50 Hz were tested respectively, but only the worst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

A.2.1 L Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.160	51.6	10.29	65.5	13.90	Peak	L Line	Pass
1**	0.160	37.7	10.29	55.5	17.80	AV	L Line	Pass
2	0.290	47.2	9.60	60.5	13.30	Peak	L Line	Pass
2**	0.290	32.8	9.60	50.5	17.70	AV	L Line	Pass
3	0.872	48.4	9.78	56.0	7.60	Peak	L Line	Pass
3**	0.872	38.6	9.78	46.0	7.40	AV	L Line	Pass
4	2.736	41.9	10.45	56.0	14.10	Peak	L Line	Pass
4**	2.736	28.9	10.45	46.0	17.10	AV	L Line	Pass
5	5.860	41.3	10.16	60.0	18.70	Peak	L Line	Pass
5**	5.860	28.0	10.16	50.0	22.00	AV	L Line	Pass
6	21.914	45.4	11.10	60.0	14.60	Peak	L Line	Pass
6**	21.914	29.9	11.10	50.0	20.10	AV	L Line	Pass

A.2.2 N Phase



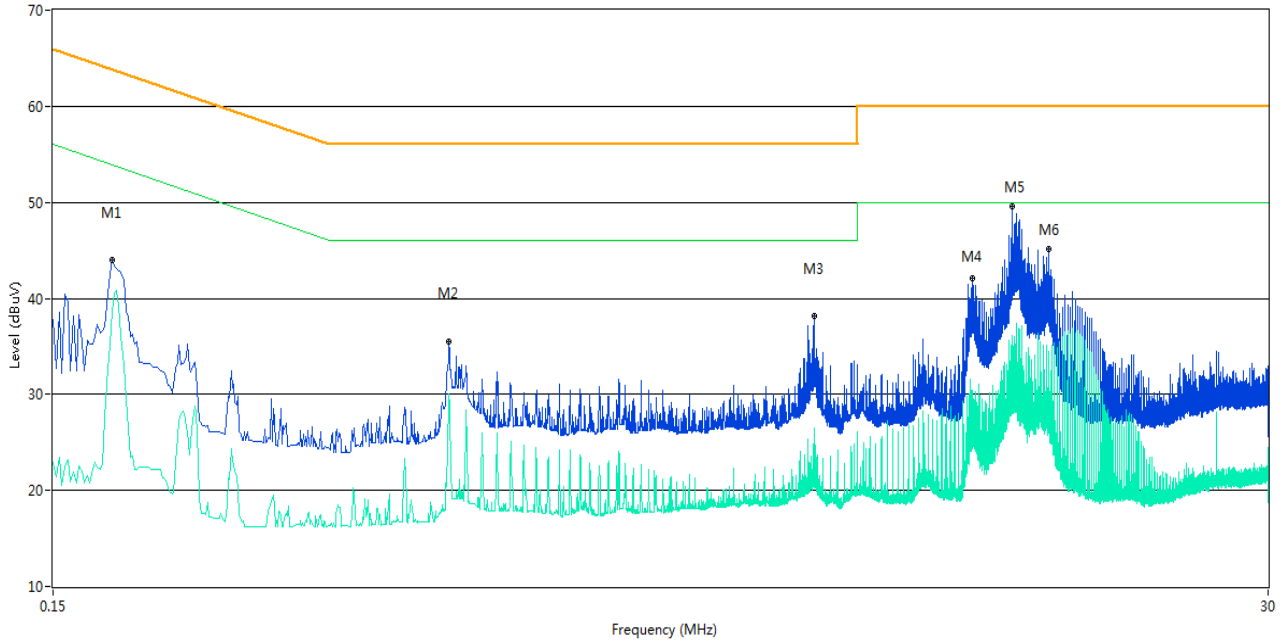
No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.150	54.6	9.70	66.0	11.40	Peak	N Line	Pass
1**	0.150	43.5	9.70	56.0	12.50	AV	N Line	Pass
2	0.320	49.0	10.13	59.7	10.70	Peak	N Line	Pass
2**	0.320	32.9	10.13	49.7	16.80	AV	N Line	Pass
3	0.646	47.9	10.69	56.0	8.10	Peak	N Line	Pass
3**	0.646	31.9	10.69	46.0	14.10	AV	N Line	Pass
4	0.880	49.5	9.79	56.0	6.50	Peak	N Line	Pass
4**	0.880	32.7	9.79	46.0	13.30	AV	N Line	Pass
5	2.994	42.0	10.86	56.0	14.00	Peak	N Line	Pass
5**	2.994	26.5	10.86	46.0	19.50	AV	N Line	Pass
6	19.012	49.7	10.89	60.0	10.30	Peak	N Line	Pass
6**	19.012	32.0	10.89	50.0	18.00	AV	N Line	Pass

Test Data and Plots

The USB Test Mode

A.2.3 L Phase

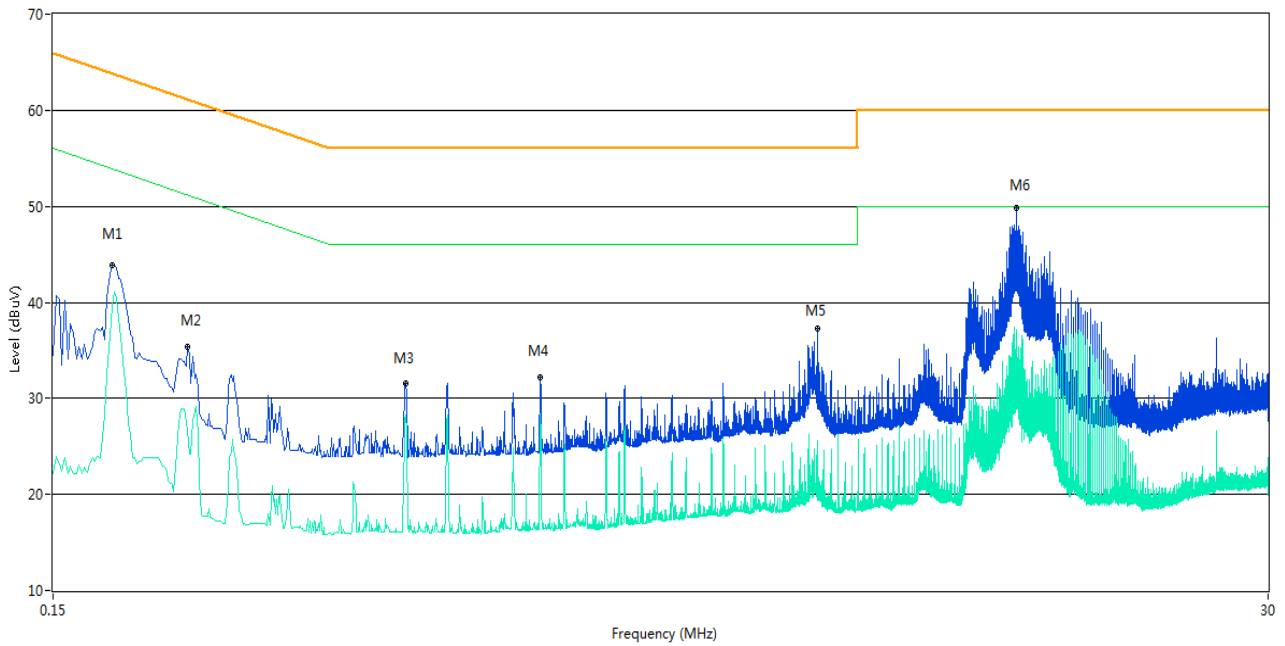
CE Test case_FCC_CE_FCC PART 15_Class B



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.194	43.9	9.43	63.9	20.00	Peak	L Line	Pass
1**	0.194	38.6	9.43	53.9	15.30	AV	L Line	Pass
2	0.844	35.5	10.21	56.0	20.50	Peak	L Line	Pass
2**	0.844	30.1	10.21	46.0	15.90	AV	L Line	Pass
3	4.144	38.1	10.31	56.0	17.90	Peak	L Line	Pass
3**	4.144	26.5	10.31	46.0	19.50	AV	L Line	Pass
4	8.282	42.1	9.99	60.0	17.90	Peak	L Line	Pass
4**	8.282	29.6	9.99	50.0	20.40	AV	L Line	Pass
5	9.844	49.5	10.34	60.0	10.50	Peak	L Line	Pass
5**	9.844	34.2	10.34	50.0	15.80	AV	L Line	Pass
6	11.550	45.1	10.71	60.0	14.90	Peak	L Line	Pass
6**	11.550	34.0	10.71	50.0	16.00	AV	L Line	Pass

A.2.4 N Phase

CE Test case_FCC_CE_FCC PART 15_Class B



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.194	43.9	9.43	63.9	20.00	Peak	N Line	Pass
1**	0.194	39.5	9.43	53.9	14.40	AV	N Line	Pass
2	0.270	35.4	10.32	61.1	25.70	Peak	N Line	Pass
2**	0.270	26.6	10.32	51.1	24.50	AV	N Line	Pass
3	0.698	31.6	9.53	56.0	24.40	Peak	N Line	Pass
3**	0.698	28.2	9.53	46.0	17.80	AV	N Line	Pass
4	1.256	32.2	10.26	56.0	23.80	Peak	N Line	Pass
4**	1.256	28.2	10.26	46.0	17.80	AV	N Line	Pass
5	4.198	37.3	10.61	56.0	18.70	Peak	N Line	Pass
5**	4.198	24.2	10.61	46.0	21.80	AV	N Line	Pass
6	10.008	49.8	10.25	60.0	10.20	Peak	N Line	Pass
6**	10.008	37.2	10.25	50.0	12.80	AV	N Line	Pass

ANNEX B TEST SETUP PHOTOS

Please refer the document “BL-SZ1720179-AE.PDF”.

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ1720179-AW.PDF”.

ANNEX D EUT INTERNAL PHOTOS

Please refer the document “BL-SZ1720179-AI.PDF”.

--END OF REPORT--