

FCC/ISED

EMC

TEST REPORT

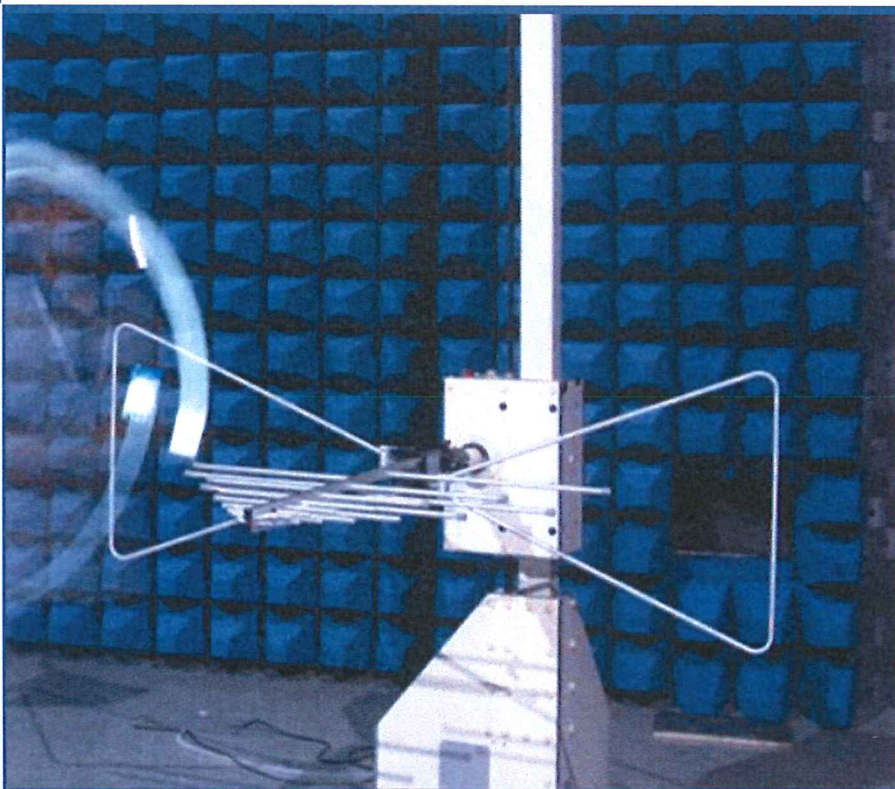
ISSUED BY
Shenzhen BALUN Technology Co., Ltd.



FOR
OTE970

ISSUED TO
GN Audio A/S

Lautrupbjerg 7, 2750 Ballerup, Denmark



Tested by: Xiong Chong

Xiong Chong

Date Jan. 20, 2021

Approved by: Liao Jianming

Liao Jianming
(Technical Director)

Date Jan. 20, 2021

Report No.: BL-SZ20A0143-401

EUT Name: OTE970

Model Name: OTE970

Brand Name: BlueParrott

Test Standard: 47 CFR Part 15 Subpart B
ICES-003 (Issue 7, October 15, 2020)

FCC ID: BCE-OTE970

Test Conclusion: Pass

Test Date: Oct. 30, 2020~ Dec. 11, 2020

Date of Issue: Jan. 20, 2021

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Revision History

Version	Issue Date	Revisions Content
<u>Rev. 01</u>	<u>Dec. 31, 2020</u>	<u>Initial Issue</u>
<u>Rev. 02</u>	<u>Jan. 20, 2021</u>	<u>Added description of lab number in Section 1.2</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.
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 v3.3.
- (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	GN Audio A/S
Address	Lautrupbjerg 7, 2750 Ballerup, Denmark

2.2 Manufacturer Information

Manufacturer	GN Audio A/S
Address	Lautrupbjerg 7, 2750 Ballerup, Denmark

2.3 Factory Information

Factory	WATA ELECTRONICS CO., LTD
Address	NO142, South Tanshen Road, TanZhou Town, Zhongshan, Guangdong, China

2.4 General Description for Equipment under Test (EUT)

EUT Name	OTE970
Model Name Under Test	OTE970
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	V1.24
Software Version	0.24
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.5 Ancillary Equipment

Ancillary Equipment 1	Battery	
	Brand Name	Everpower
	Model No.	PL501030
	Serial No.	N/A
	Capacity	150 mAh
	Rated Voltage	3.7 V
	Limit Charge Voltage	4.2 V
Ancillary Equipment 2	USB Cable	
	Model No.	N/A
	Length (Approx.)	1.2 m

2.6 Technical Information

The Highest Speed of Processor	N/A
Network and Wireless connectivity	Bluetooth, NFC

3 SUMMARY OF TEST RESULTS

3.1 Test Standards

No.	Identity	Document Title
1	FCC 47 CFR Part 15 Subpart B (10-1-19 Edition)	Unintentional Radiators
2	ICES-003 (Issue 7, October 15, 2020)	Information Technology Equipment (Including Digital Apparatus)
3	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	ISED Rule	Test Verdict	Result
1	Radiated Emission	15.109	ICES-003, 3.2.2	Pass	Annex A .1
2	Conducted Emission, AC Ports	15.107	ICES-003, 3.2.1	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)	23°C to 25°C	USB 5V or DC 3.7 V from Battery	50% to 55%	100 kPa to 102 kPa

4.2 Test Equipment List

Radiated Emission Test For Frequency Below 1 GHz (10 m)						
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	ROHDE&SCHWA RZ	ESRP	101036	2020.06.09	2021.06.08	☒
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	2021.08.07	☒
Test Software	BALUN	BL410_E	V19.918	--	--	☒

Radiated Emission Test For Frequency Below 1 GHz (3 m)						
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	KEYSIGHT	N9038A	MY53220118	2020.09.18	2021.09.17	☐
Test Antenna- Bi-Log	SCHWARZBECK	VULB 9163	9163-624	2019.07.02	2021.07.01	☐
Anechoic Chamber	YIHENG	9m*6m*6m	N/A	2018.07.18	2021.07.27	☐
Test Software	BALUN	BL410_E	V19.918	--	--	☐

Radiated Emission Test For Frequency Above 1 GHz						
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	KEYSIGHT	N9038A	MY53220118	2020.09.18	2021.09.17	☒
Test Antenna- Horn	SCHWARZBECK	BBHA 9120D	9120D-1917	2019.07.02	2021.07.01	☒
Anechoic Chamber	YIHENG	9m*6m*6m	N/A	2018.07.18	2021.07.27	☒
Test Software	BALUN	BL410_E	V19.918	--	--	☒

Conducted disturbance Test						
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	KEYSIGHT	N9010B	MY5711030 9	2020.06.08	2021.06.07	☒
LISN	SCHWARZBECK	NSLK 8127	8127-687	2020.06.09	2021.06.08	☒
Shielded Enclosure	YiHeng Electronic Co., Ltd	3.4m*3.1m*2 .8m	N/A	2018.08.16	2021.08.15	☒
Test Software	BALUN	BL410_E	V19.918	--	--	☒

4.3 Test Enclosure list

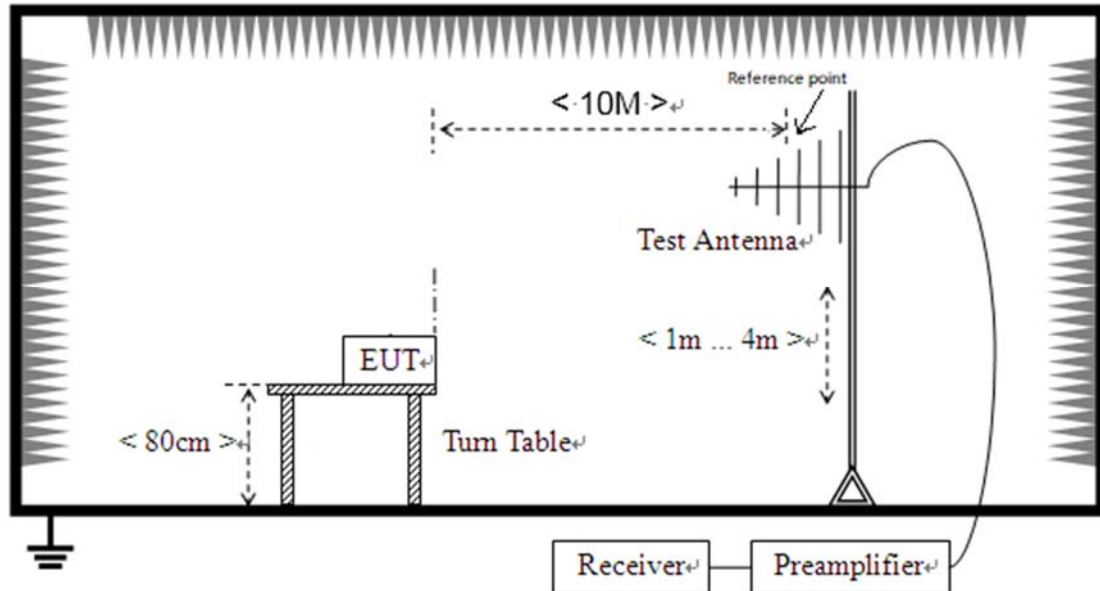
Description	Manufacturer	Model	Serial No.	Length	Description	Use
Adapter	OPPO	AK903HK	N/A	N/A	Special Handled	☒
Laptop	N/A	N/A	N/A	N/A	N/A	☒
USB Connector	N/A	N/A	N/A	N/A	N/A	☒
Keyboard	Logitech	Y-BP62a	N/A	N/A	N/A	☒
Mouse	Logitech	M100	N/A	N/A	N/A	☒
Printer	N/A	N/A	N/A	N/A	N/A	☒
Screen	N/A	N/A	N/A	N/A	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	☐
Audio Cable	N/A	N/A	N/A	0.5 m	Shielded with core	☐
iPhone	Apple	A1586	N/A	N/A	N/A	☐
Bluetooth Earphone	SAMSUNG	Gear Circle	N/A	N/A	N/A	☐
Wireless Communications Test Set	R&S	CMW500	142028	N/A	Cal. Due 2019.06.14	☐
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	☐
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 BT RX Test Mode</u> EUT+ Battery + USB Cable + Adapter +BT RX
TC02	<u>The NFC RX Test Mode</u> EUT + Battery + NFC RX
TC03	<u>The USB Test Mode</u> EUT + Battery + USB Cable + Laptop + USB Connector + Mouse + Keyboard + Printer + Screen
Note: When EUT is charging, NFC function cannot be turned on.	

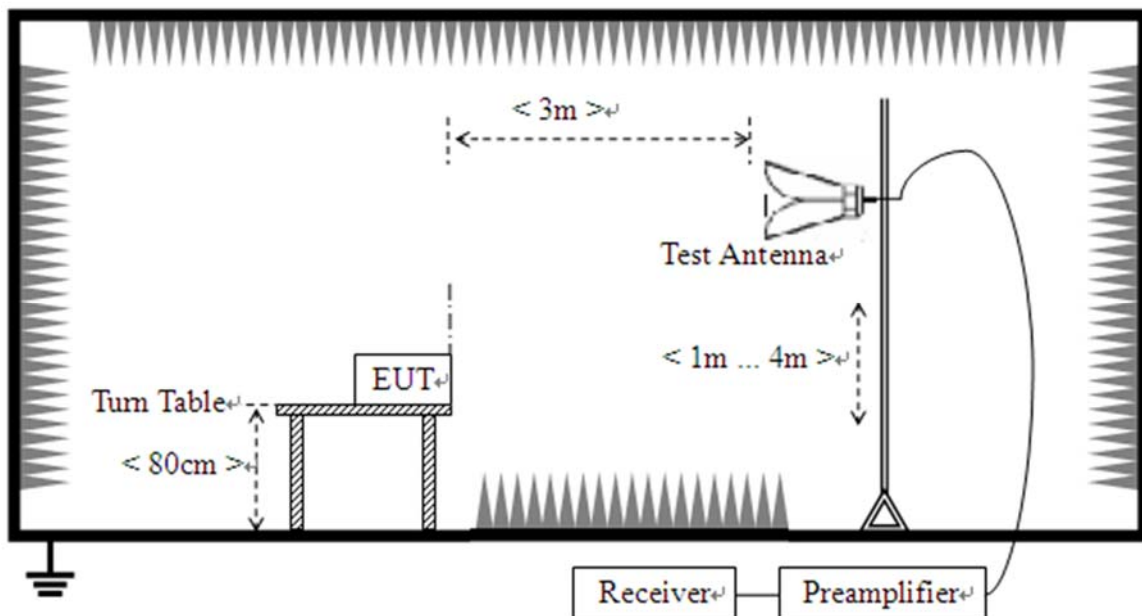
4.5 Test Setups

Test Setup 1



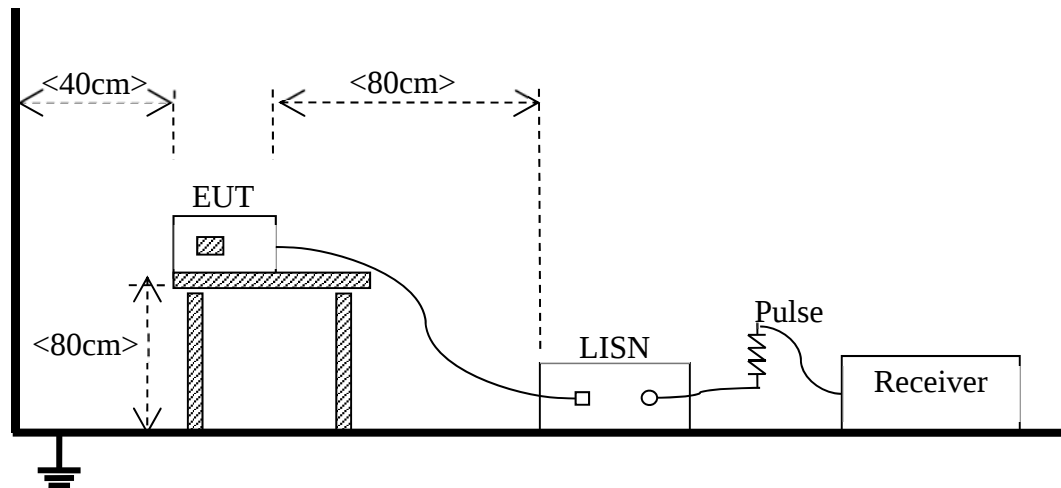
(For Radiated Emission Test (30 MHz-1 GHz))

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~TC03 ^{Note}
Conducted Emission, AC Ports	Test Env.	NTNV
	Test Setup	Test Setup 3
	Test Configuration	TC01&TC03 ^{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 BT RX Test Mode and The USB Test Mode are the worst mode in this report.		

5 TEST ITEMS

5.1 Emission Tests

5.1.1 Radiated Emission

5.1.1.1 Limit

FCC:

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.
- 3) The limits using ANSI C63.4.

IC:

Frequency range (MHz)	Class A (3 m) Quasi-peak (dB $\mu\text{V/m}$)	Class A (10 m) Quasi-peak (dB $\mu\text{V/m}$)	Class B (3 m) Quasi-peak (dB $\mu\text{V/m}$)	Class B (10m) Quasi-peak (dB $\mu\text{V/m}$)
30 - 88	50.0	40.0	40	30.0
88 - 216	54.0	43.5	43.5	33.1
216 - 230	56.9	46.4	46.0	35.6
230 - 960	57.0	47.0	47.0	37.0
960 - 1000	60.0	49.5	54.0	43.5

Note: The more stringent limit applies at transition frequencies.

Frequency range (GHz)	Class A (3 m) Average (dB $\mu\text{V/m}$)	Class A (3 m) Peak (dB $\mu\text{V/m}$)	Class B (3 m) Average (dB $\mu\text{V/m}$)	Class B (3 m) Peak (dB $\mu\text{V/m}$)
1 - F_M	60	80	54	74

Note:

1. The highest measurement frequency, F_M , in GHz, shall be determined as next Table.
2. The measurement bandwidth shall be 1 MHz or greater.
3. These limit levels apply for a measurement distance of 3 m. If using a different measurement distance, the measured levels shall be extrapolated to the 3 m limit distance using a factor of 20 dB per decade of distance. The measurement distance shall place the measurement antenna in the far field of the ITE or digital apparatus under test.
4. The test site shall have been validated at the distance used for radiated emission measurements on

Frequency range (GHz)	Class A (3 m) Average (dB μ V/m)	Class A (3 m) Peak (dB μ V/m)	Class B (3 m) Average (dB μ V/m)	Class B (3 m) Peak (dB μ V/m)
the ITE or digital apparatus under test				

Highest internal frequency (F_x)	Highest measurement frequency (F_m)
$F_x \leq 108 \text{ MHz}$	1GHz
$108 \text{ MHz} \leq F_x \leq 500 \text{ MHz}$	2GHz
$500 \text{ MHz} \leq F_x \leq 1 \text{ GHz}$	5GHz
$F_x \geq 1 \text{ GHz}$	$5 * F_x$ up to a maximum of 40 GHz
Note: F_x is the highest fundamental frequency generated and/or used in the ITE or digital apparatus under test.	

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

The test employing the methods of measurement described in the publication referenced in Section 3(b) (ANSI C63.4);

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 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 (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.
- 3) The limit using ANSI C63.4.

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 test employing the methods of measurement described in the publication referenced in Section 3(b) (ANSI C63.4);

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.

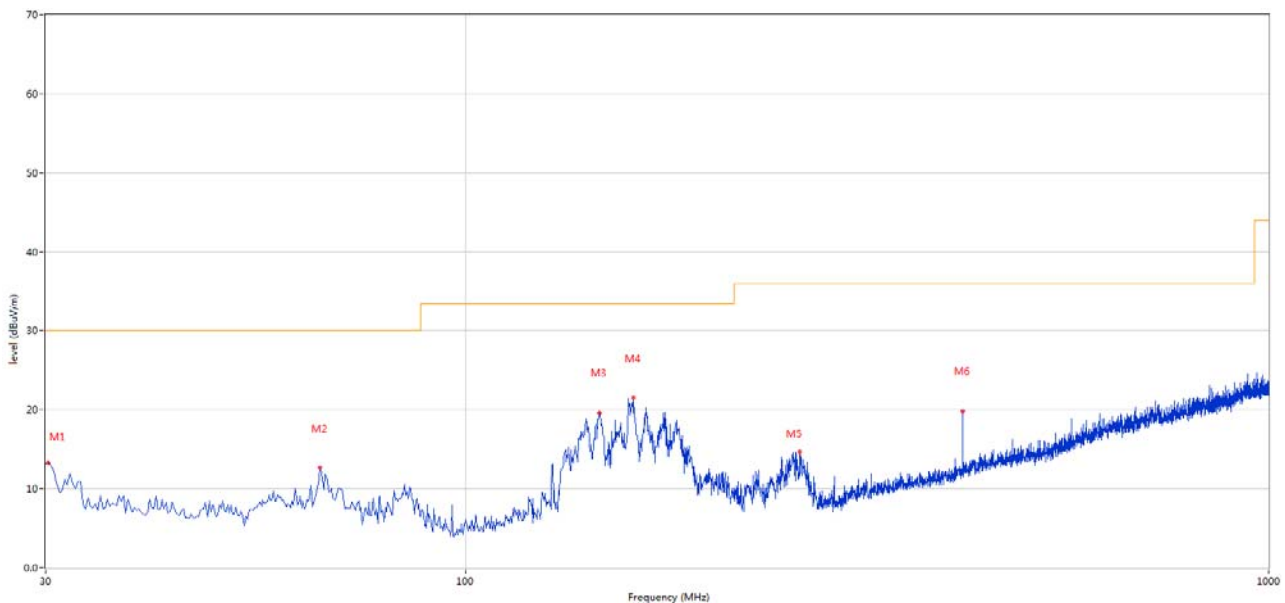
Note 2: For the test data above 1 GHz, according the ANSI C63.4-2014, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

Note 3: 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

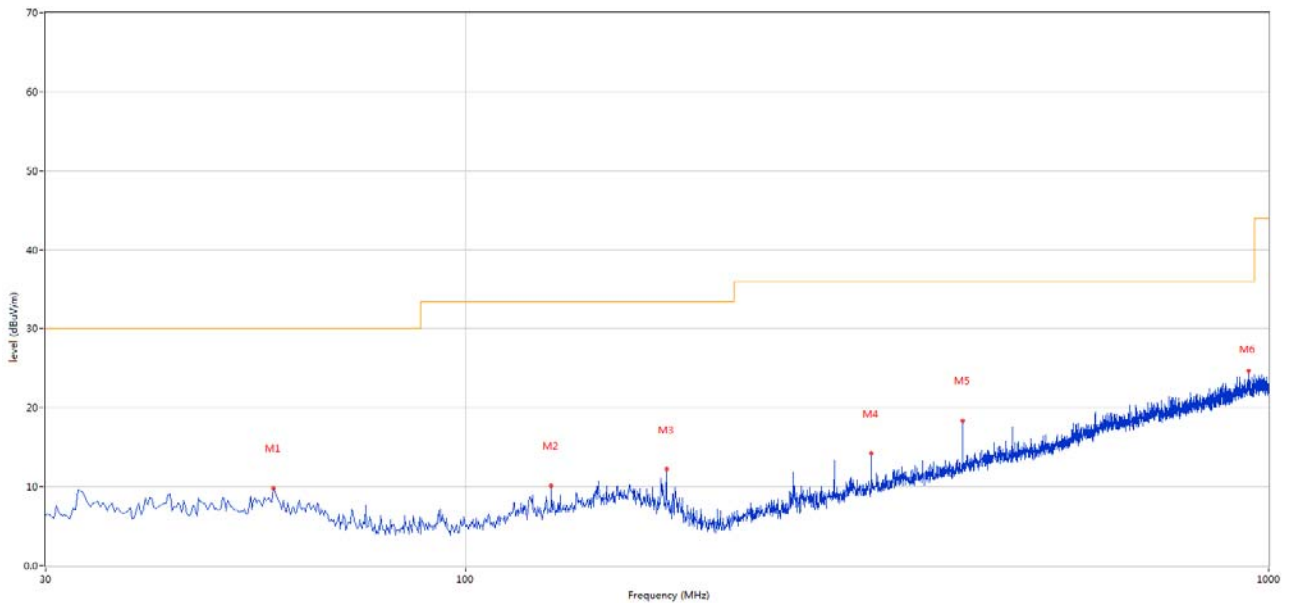
The BT RX Test Mode

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



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	30.242	13.26	-27.46	30.0	-16.74	Peak	360.00	200	Vertical	Pass
2	65.881	12.58	-29.02	30.0	-17.42	Peak	159.00	200	Vertical	Pass
3	146.613	19.59	-25.95	33.5	-13.91	Peak	140.00	100	Vertical	Pass
4	161.645	21.45	-25.88	33.5	-12.05	Peak	145.00	100	Vertical	Pass
5	260.802	14.68	-27.19	36.0	-21.32	Peak	135.00	100	Vertical	Pass
6	415.964	19.84	-22.73	36.0	-16.16	Peak	85.00	100	Vertical	Pass

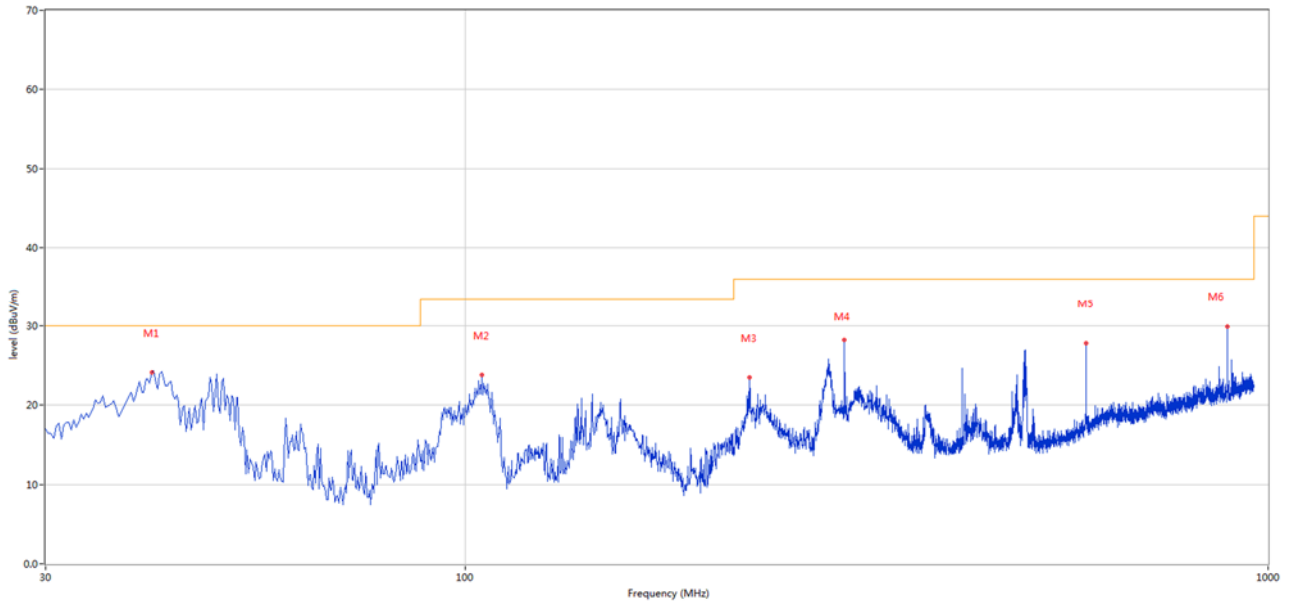
A.1.2 Test Antenna Horizontal, 30 MHz – 1 GHz(FCC)



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	57.638	9.80	-27.79	30.0	-20.20	Peak	63.00	200	Horizontal	Pass
2	127.946	10.11	-27.34	33.5	-23.39	Peak	277.00	100	Horizontal	Pass
3	177.888	12.17	-27.77	33.5	-21.33	Peak	135.00	300	Horizontal	Pass
4	319.958	14.22	-25.31	36.0	-21.78	Peak	360.00	200	Horizontal	Pass
5	415.964	18.37	-22.73	36.0	-17.63	Peak	302.00	300	Horizontal	Pass
6	945.451	24.67	-11.60	36.0	-11.33	Peak	360.00	200	Horizontal	Pass

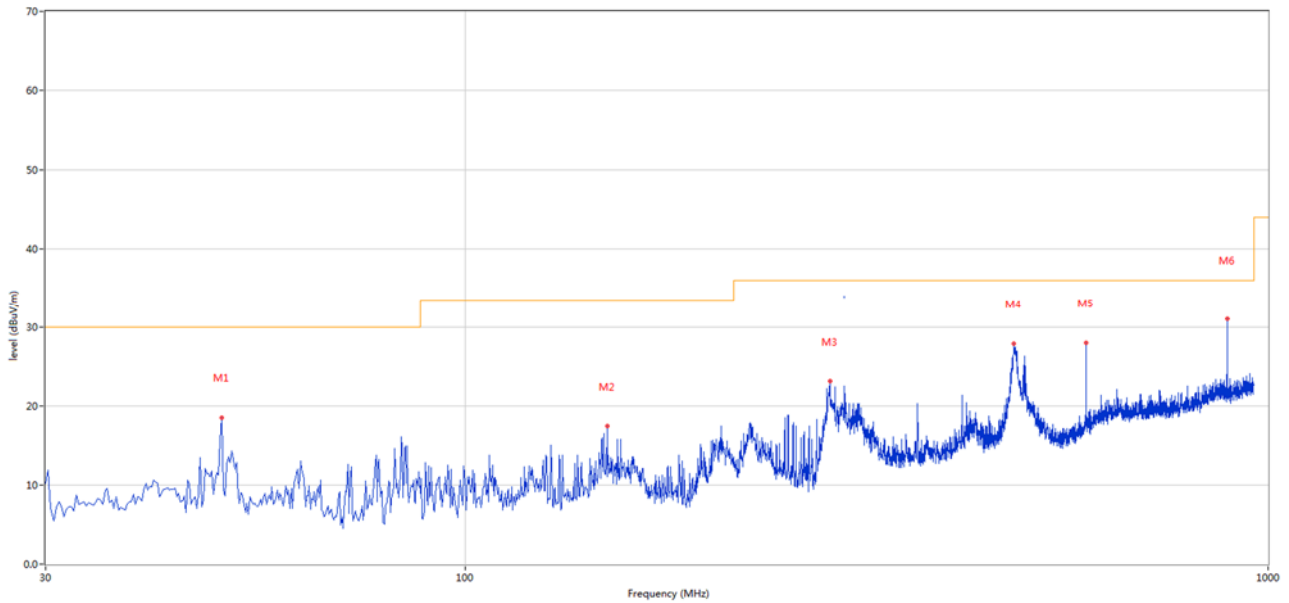
The USB Test Mode

A.1.3 Test Antenna Vertical, 30 MHz – 1 GHz(FCC)



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	40.692	24.07	-26.79	30.0	-5.93	Peak	262.00	300	Vertical	Pass
2	104.846	23.77	-29.68	33.5	-9.73	Peak	104.00	100	Vertical	Pass
3	225.716	23.44	-28.21	36.0	-12.56	Peak	155.00	100	Vertical	Pass
4	296.843	28.18	-26.05	36.0	-7.82	Peak	230.00	100	Vertical	Pass
5	593.439	27.82	-18.30	36.0	-8.18	Peak	98.00	100	Vertical	Pass
6	890.035	29.93	-12.61	36.0	-6.07	Peak	224.00	300	Vertical	Pass

A.1.4 Test Antenna Horizontal, 30 MHz – 1 GHz(FCC)

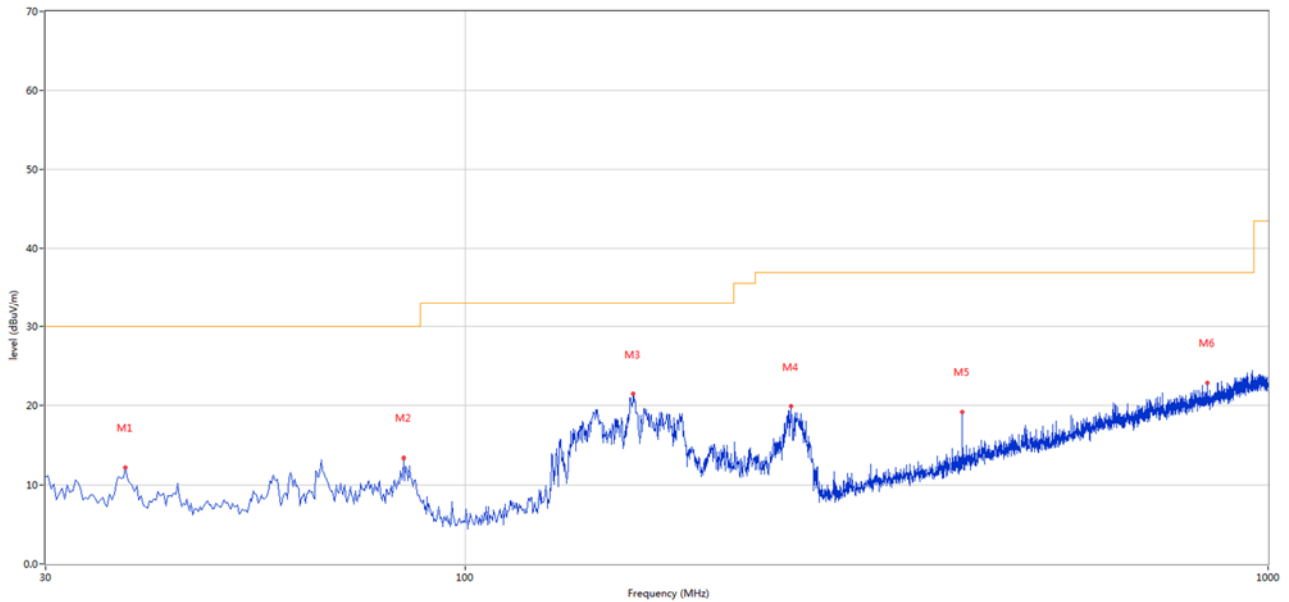


No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	49.758	18.55	-27.29	30.0	-11.45	Peak	117.00	200	Horizontal	Pass
2	150.172	17.47	-25.96	33.5	-16.03	Peak	180.00	200	Horizontal	Pass
3	284.756	23.13	-26.14	36.0	-12.87	Peak	35.00	200	Horizontal	Pass
4	481.867	27.93	-20.96	36.0	-8.07	Peak	360.00	200	Horizontal	Pass
5	593.207	28.02	-18.31	36.0	-7.98	Peak	350.00	200	Horizontal	Pass
6	890.035	31.49	-12.61	36.0	-4.51	Peak	360.00	200	Horizontal	Pass

Test Data and Plots

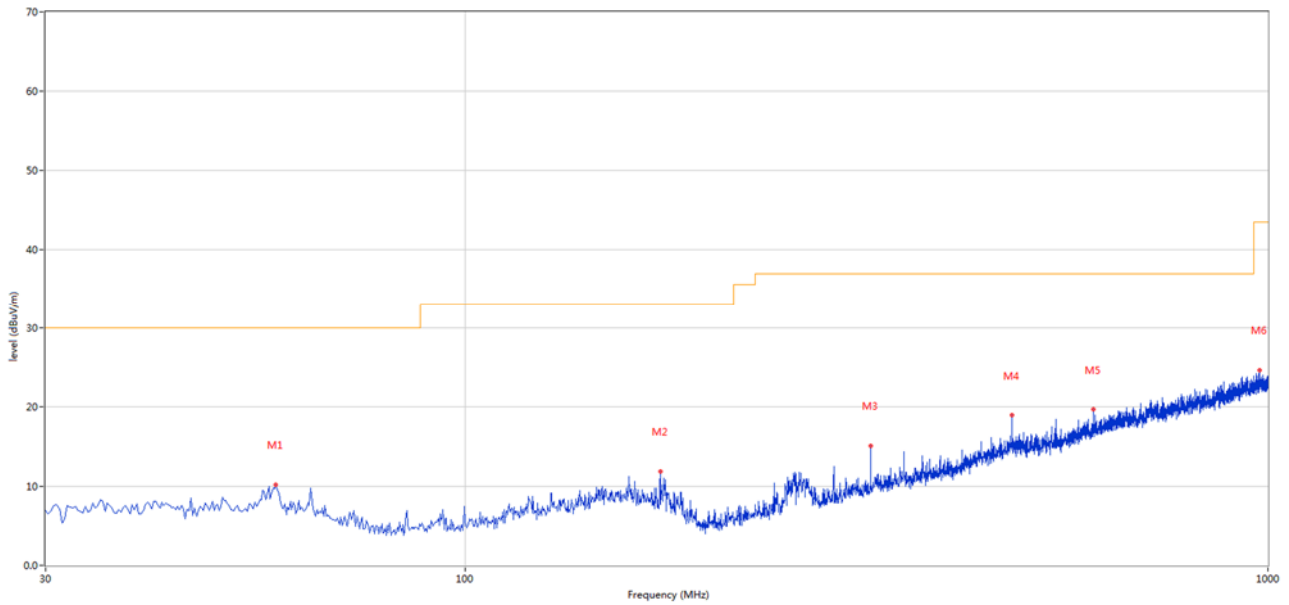
The BT RX Test Mode

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



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	37.758	12.17	-27.03	30.0	-17.83	Peak	231.00	200	Vertical	Pass
2	83.822	13.38	-31.26	30.0	-16.62	Peak	156.00	200	Vertical	Pass
3	161.887	21.45	-25.90	33.1	-11.65	Peak	38.00	100	Vertical	Pass
4	254.499	19.85	-27.22	37.0	-17.15	Peak	144.00	100	Vertical	Pass
5	415.964	19.17	-22.73	37.0	-17.83	Peak	134.00	100	Vertical	Pass
6	840.475	22.85	-13.50	37.0	-14.15	Peak	58.00	300	Vertical	Pass

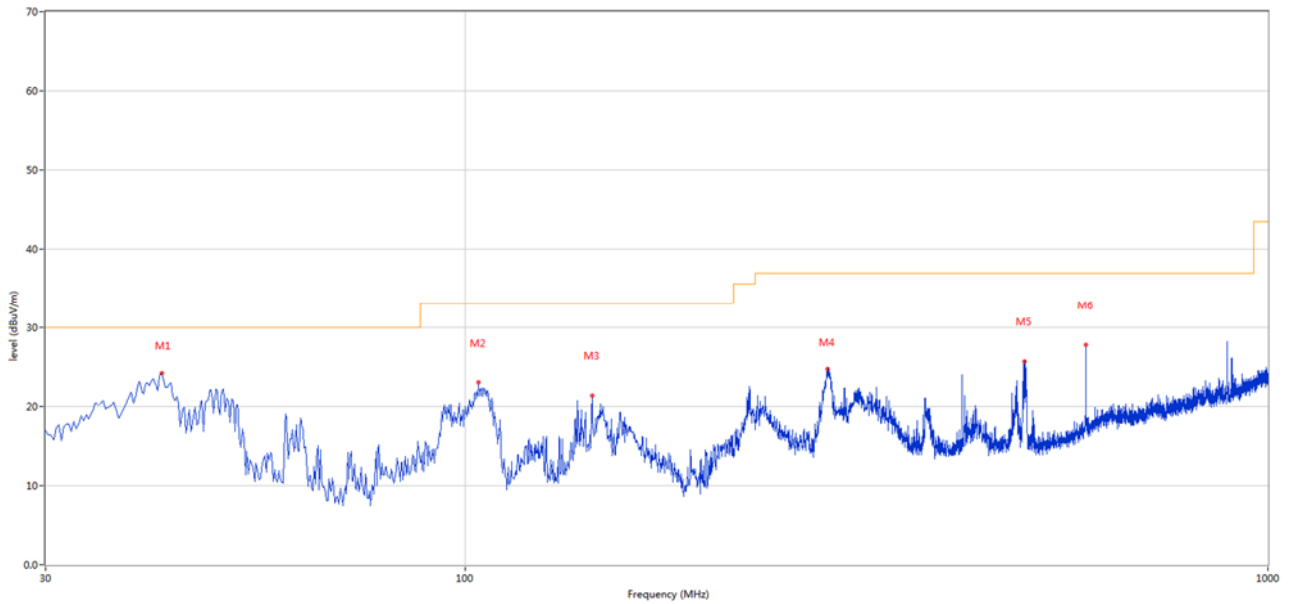
A.1.6 Test Antenna Horizontal, 30 MHz – 1 GHz(IC)



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	58.123	10.16	-27.79	30.0	-19.84	Peak	231.00	200	Horizontal	Pass
2	174.979	11.88	-27.45	33.1	-21.22	Peak	114.00	300	Horizontal	Pass
3	319.958	15.07	-25.31	37.0	-21.93	Peak	0.00	200	Horizontal	Pass
4	479.968	18.92	-21.01	37.0	-18.08	Peak	360.00	300	Horizontal	Pass
5	606.521	19.63	-17.92	37.0	-17.37	Peak	360.00	300	Horizontal	Pass
6	975.514	24.67	-11.47	43.5	-18.83	Peak	250.00	300	Horizontal	Pass

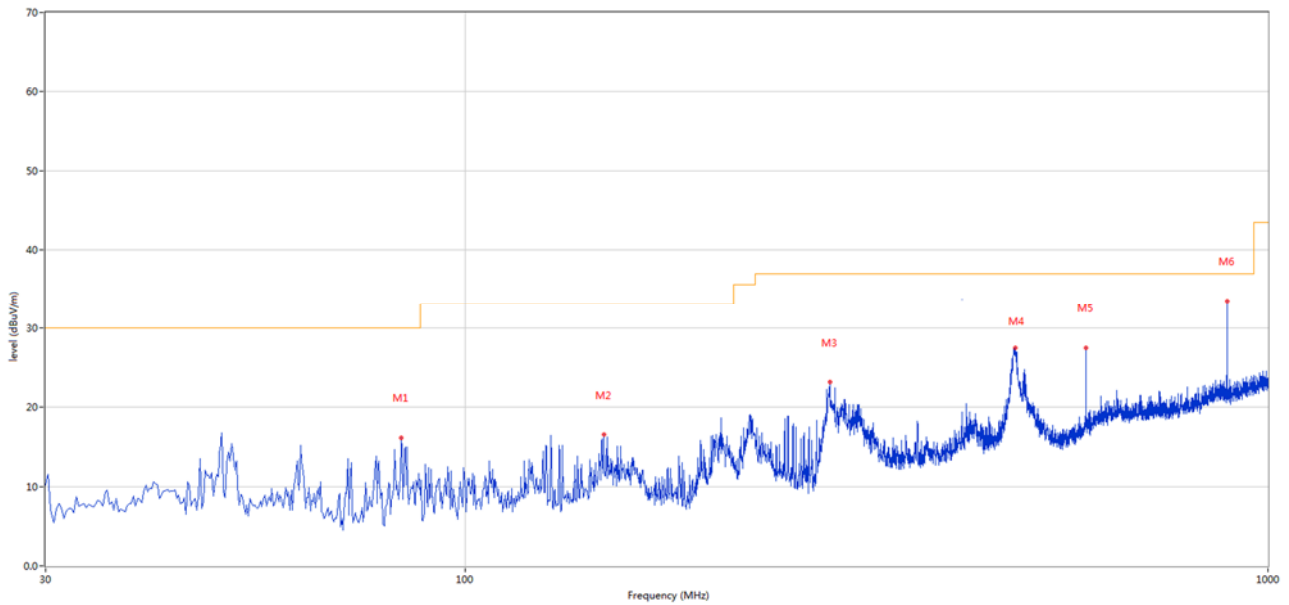
The USB Test Mode

A.1.7 Test Antenna Vertical, 30 MHz – 1 GHz(IC)



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	41.855	24.19	-26.76	30.0	-5.81	Peak	348.00	200	Vertical	Pass
2	103.917	23.06	-29.81	33.1	-10.04	Peak	95.00	100	Vertical	Pass
3	143.897	21.39	-26.16	33.1	-11.71	Peak	10.00	200	Vertical	Pass
4	282.432	24.74	-26.19	37.0	-12.26	Peak	123.00	100	Vertical	Pass
5	497.208	25.69	-20.72	37.0	-11.31	Peak	350.00	200	Vertical	Pass
6	593.439	27.82	-18.30	37.0	-9.18	Peak	90.00	100	Vertical	Pass

A.1.8 Test Antenna Horizontal, 30 MHz – 1 GHz(IC)

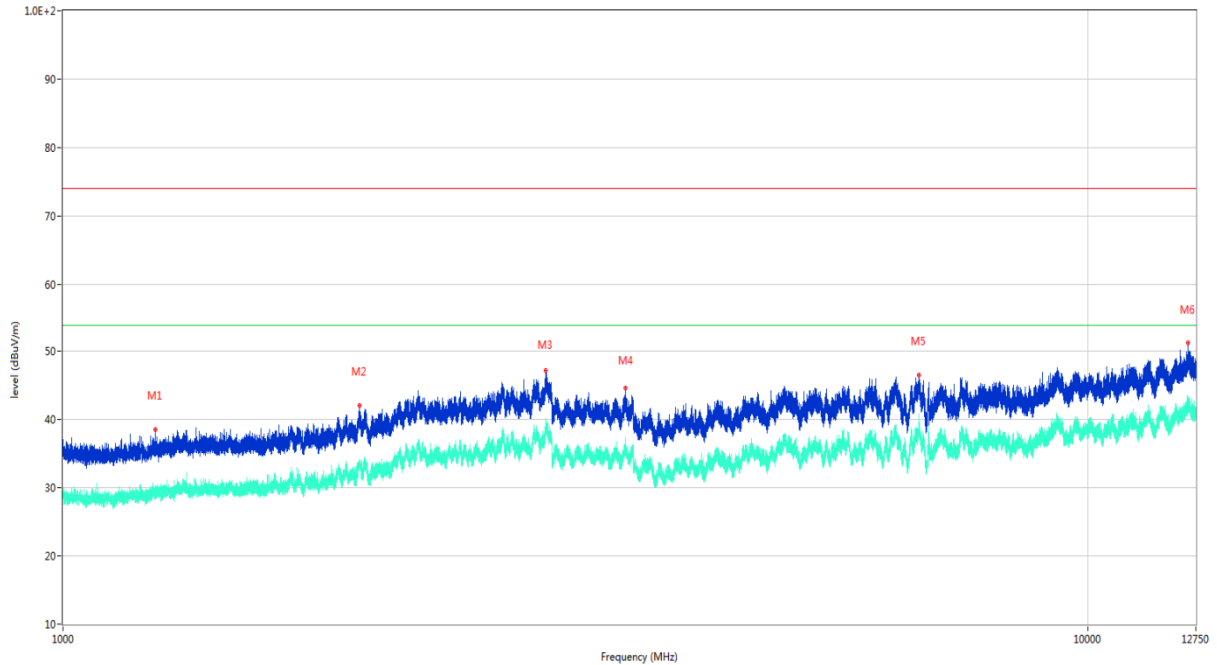


No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	83.229	16.13	-31.31	30.0	-13.87	Peak	29.00	200	Horizontal	Pass
2	149.010	16.54	-25.94	33.1	-16.56	Peak	193.00	200	Horizontal	Pass
3	284.756	23.13	-26.14	37.0	-13.87	Peak	35.00	200	Horizontal	Pass
4	484.191	27.51	-21.00	37.0	-9.49	Peak	360.00	200	Horizontal	Pass
5	593.439	27.53	-18.30	37.0	-9.47	Peak	352.00	200	Horizontal	Pass
6	890.035	33.49	-12.61	37.0	-3.51	Peak	356.00	200	Horizontal	Pass

Test Data and Plots (Above 1 GHz)

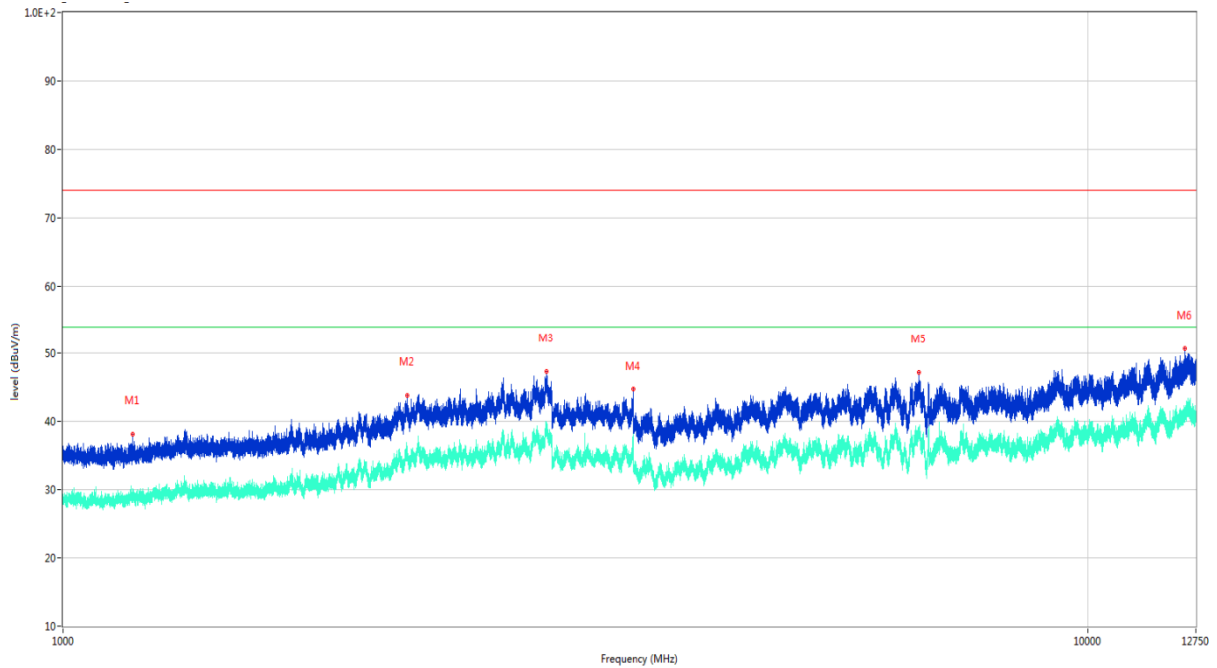
The BT RX Test Mode

A.1.9 Test Antenna Vertical, 1 GHz – 12.75 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1230.500	38.58	-15.66	74.0	-35.42	Peak	343.10	100	Vertical	Pass
1**	1230.500	28.97	-15.66	54.0	-25.03	AV	343.10	100	Vertical	Pass
2	1945.900	42.10	-11.91	74.0	-31.90	Peak	359.50	100	Vertical	Pass
2**	1945.900	33.59	-11.91	54.0	-20.41	AV	359.50	100	Vertical	Pass
3	2960.500	47.27	-4.79	74.0	-26.73	Peak	347.60	100	Vertical	Pass
3**	2960.500	38.91	-4.79	54.0	-15.09	AV	347.60	100	Vertical	Pass
4	3541.600	44.67	-6.56	74.0	-29.33	Peak	252.40	100	Vertical	Pass
4**	3541.600	36.23	-6.56	54.0	-17.77	AV	252.40	100	Vertical	Pass
5	6838.200	46.60	-1.58	74.0	-27.40	Peak	327.80	100	Vertical	Pass
5**	6838.200	38.99	-1.58	54.0	-15.01	AV	327.80	100	Vertical	Pass
6	12522.875	51.26	21.47	74.0	-22.74	Peak	57.20	100	Vertical	Pass
6**	12522.875	42.21	21.47	54.0	-11.79	AV	57.20	100	Vertical	Pass

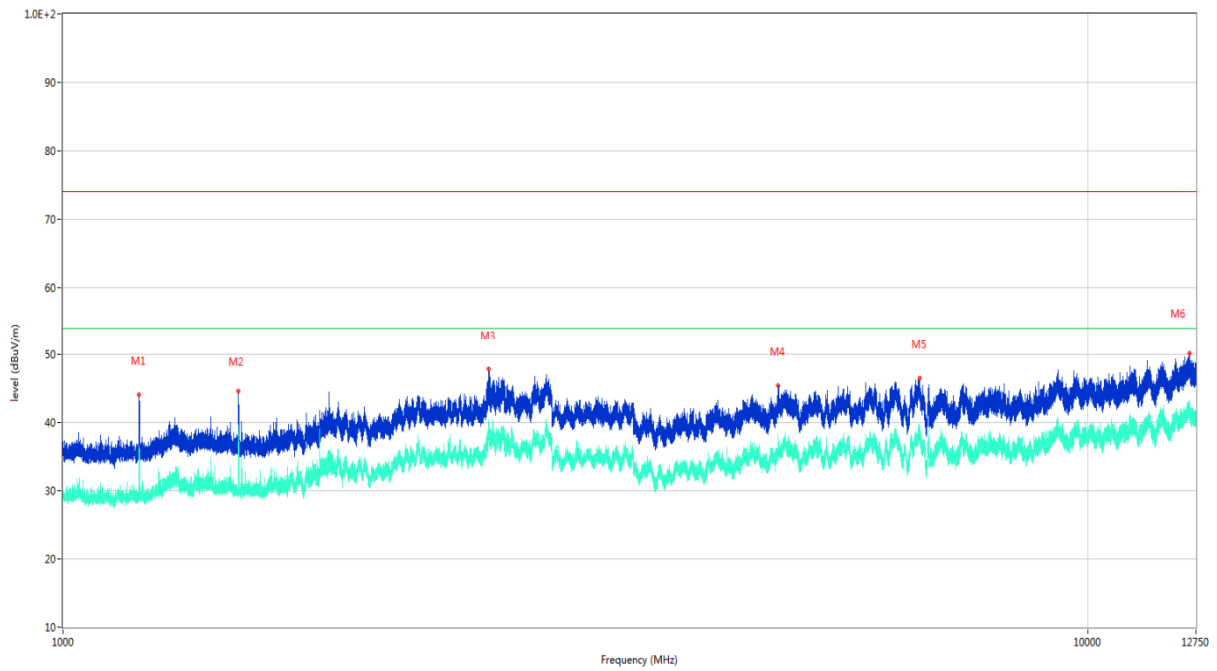
A.1.10 Test Antenna Horizontal, 1 GHz – 12.75 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1169.000	38.09	-15.82	74.0	-35.91	Peak	136.20	100	Horizontal	Pass
1**	1169.000	29.41	-15.82	54.0	-24.59	AV	136.20	100	Horizontal	Pass
2	2168.200	43.78	-10.29	74.0	-30.22	Peak	89.70	100	Horizontal	Pass
2**	2168.200	35.03	-10.29	54.0	-18.97	AV	89.70	100	Horizontal	Pass
3	2962.600	47.35	-4.98	74.0	-26.65	Peak	62.20	100	Horizontal	Pass
3**	2962.600	39.75	-4.98	54.0	-14.25	AV	62.20	100	Horizontal	Pass
4	3599.800	44.81	-6.01	74.0	-29.19	Peak	60.10	100	Horizontal	Pass
4**	3599.800	38.17	-6.01	54.0	-15.83	AV	60.10	100	Horizontal	Pass
5	6838.200	47.20	-1.58	74.0	-26.80	Peak	122.90	100	Horizontal	Pass
5**	6838.200	38.51	-1.58	54.0	-15.49	AV	122.90	100	Horizontal	Pass
6	12437.200	50.68	21.49	74.0	-23.32	Peak	1.00	100	Horizontal	Pass
6**	12437.200	41.95	21.49	54.0	-12.05	AV	1.00	100	Horizontal	Pass

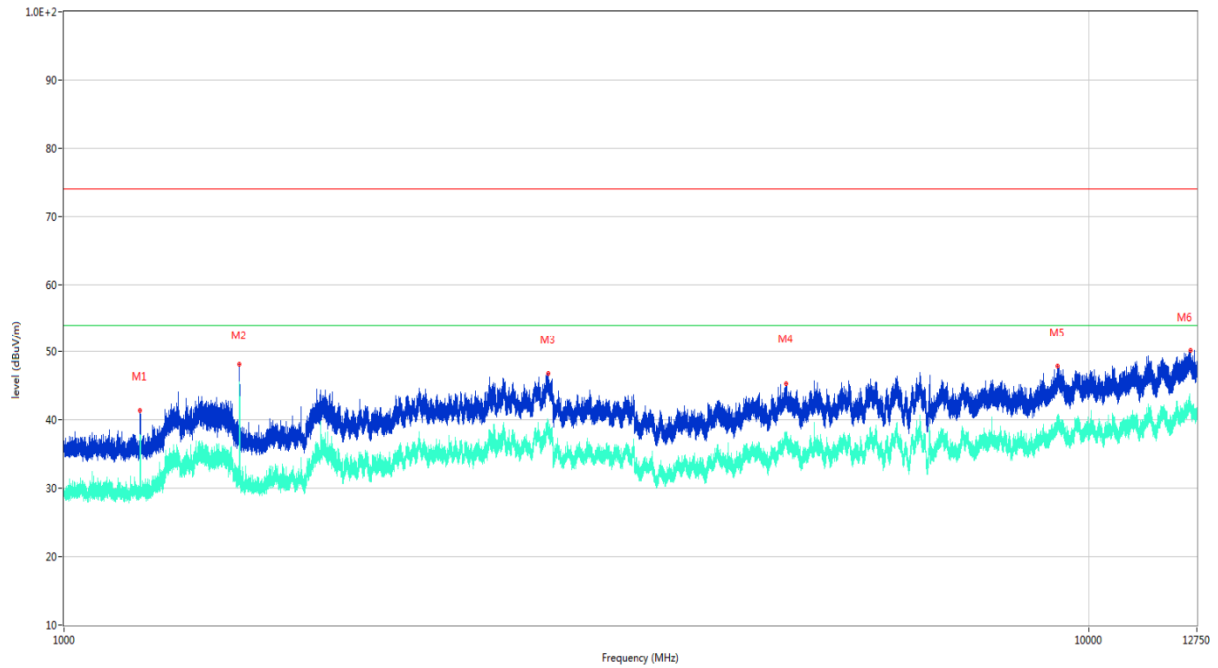
The USB Test Mode

A.1.11 Test Antenna Vertical, 1 GHz – 12.75 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1186.900	44.07	-16.01	74.0	-29.93	Peak	202.10	100	Vertical	Pass
1**	1186.900	36.62	-16.01	54.0	-17.38	AV	202.10	100	Vertical	Pass
2	1483.600	44.59	-15.54	74.0	-29.41	Peak	202.10	100	Vertical	Pass
2**	1483.600	39.70	-15.54	54.0	-14.30	AV	202.10	100	Vertical	Pass
3	2604.400	47.84	-8.71	74.0	-26.16	Peak	243.20	100	Vertical	Pass
3**	2604.400	38.63	-8.71	54.0	-15.37	AV	243.20	100	Vertical	Pass
4	4989.600	45.51	-4.15	74.0	-28.49	Peak	162.50	100	Vertical	Pass
4**	4989.600	38.16	-4.15	54.0	-15.84	AV	162.50	100	Vertical	Pass
5	6854.600	46.57	-2.54	74.0	-27.43	Peak	144.00	100	Vertical	Pass
5**	6854.600	38.10	-2.54	54.0	-15.90	AV	144.00	100	Vertical	Pass
6	12568.875	50.18	22.08	74.0	-23.82	Peak	49.20	100	Vertical	Pass
6**	12568.875	41.40	22.08	54.0	-12.60	AV	49.20	100	Vertical	Pass

A.1.12 Test Antenna Horizontal, 1 GHz – 12.75 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1186.700	41.45	-16.02	74.0	-32.55	Peak	287.10	100	Horizontal	Pass
1**	1186.700	34.44	-16.02	54.0	-19.56	AV	287.10	100	Horizontal	Pass
2	1483.500	48.16	-15.55	74.0	-25.84	Peak	235.90	100	Horizontal	Pass
2**	1483.500	45.39	-15.55	54.0	-8.61	AV	235.90	100	Horizontal	Pass
3	2969.600	46.77	-5.65	74.0	-27.23	Peak	245.30	100	Horizontal	Pass
3**	2969.600	38.97	-5.65	54.0	-15.03	AV	245.30	100	Horizontal	Pass
4	5064.000	45.34	-3.12	74.0	-28.66	Peak	258.20	100	Horizontal	Pass
4**	5064.000	37.59	-3.12	54.0	-16.41	AV	258.20	100	Horizontal	Pass
5	9325.300	47.91	20.50	74.0	-26.09	Peak	341.60	100	Horizontal	Pass
5**	9325.300	38.79	20.50	54.0	-15.21	AV	341.60	100	Horizontal	Pass
6	12564.850	50.26	21.99	74.0	-23.74	Peak	291.80	100	Horizontal	Pass
6**	12564.850	42.45	21.99	54.0	-11.55	AV	291.80	100	Horizontal	Pass

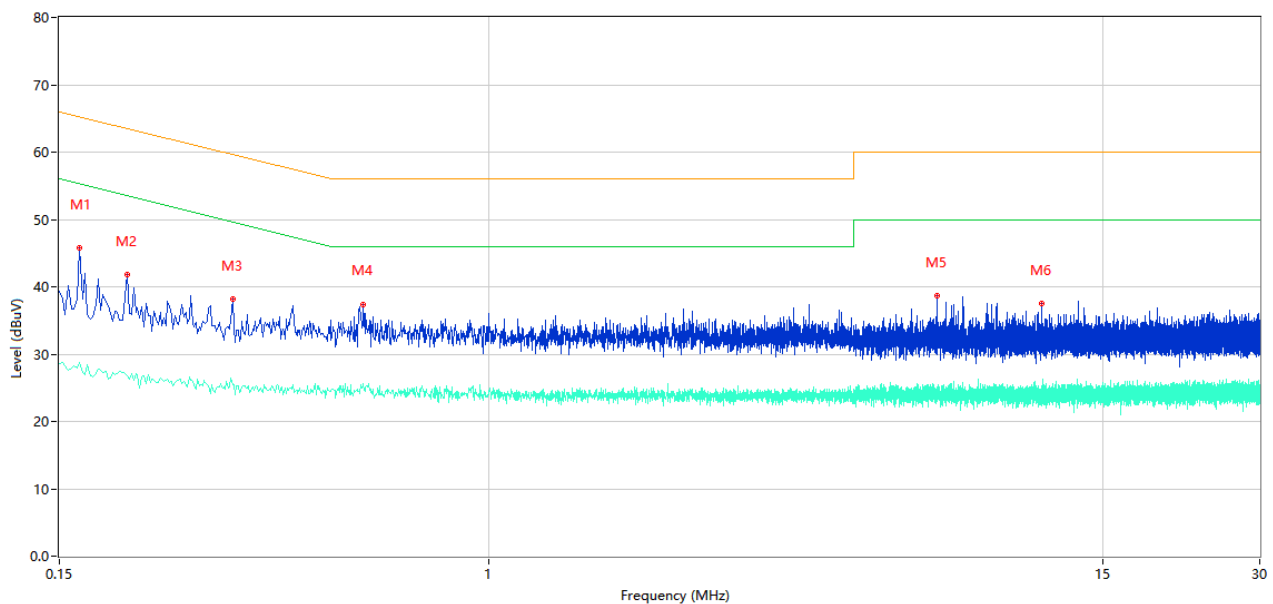
A.2 Conducted Emission

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

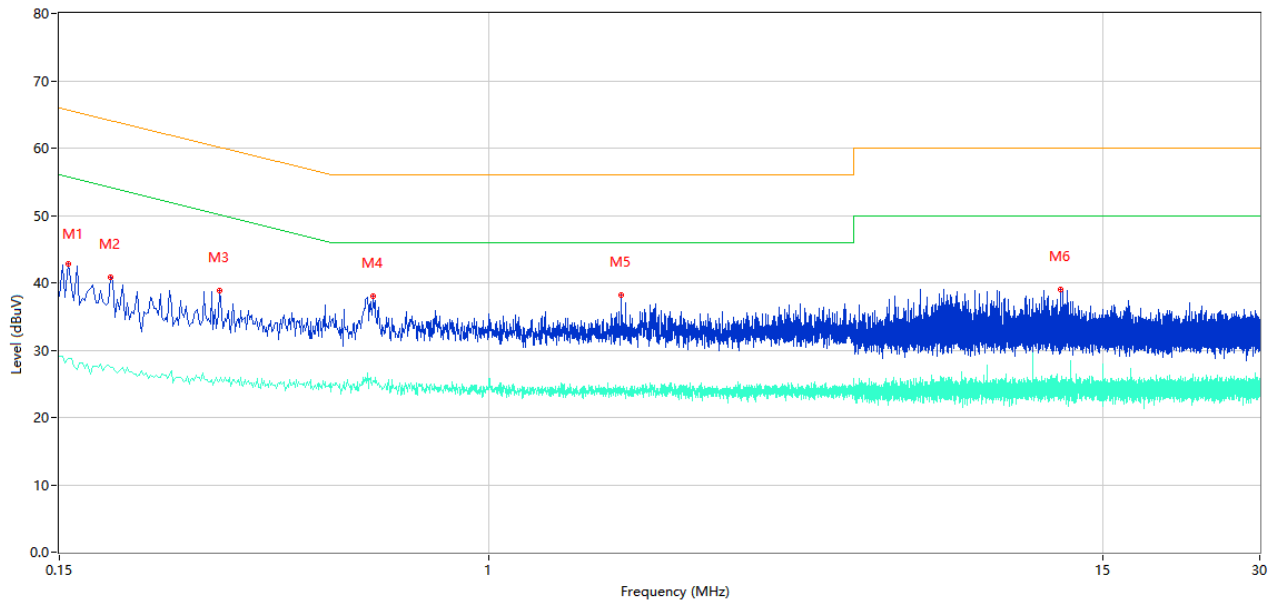
The BT RX Test Mode

A.2.1 L Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.164	45.84	10.40	65.26	-19.42	Peak	L	Pass
1**	0.164	28.76	10.40	55.26	-26.50	AV	L	Pass
2	0.202	41.78	10.38	63.53	-21.75	Peak	L	Pass
2**	0.202	26.78	10.38	53.53	-26.75	AV	L	Pass
3	0.322	38.13	10.33	59.66	-21.53	Peak	L	Pass
3**	0.322	25.50	10.33	49.66	-24.16	AV	L	Pass
4	0.574	37.43	10.27	56.00	-18.57	Peak	L	Pass
4**	0.574	25.65	10.27	46.00	-20.35	AV	L	Pass
5	7.232	38.73	10.35	60.00	-21.27	Peak	L	Pass
5**	7.232	24.54	10.35	50.00	-25.46	AV	L	Pass
6	11.470	37.47	10.38	60.00	-22.53	Peak	L	Pass
6**	11.470	24.90	10.38	50.00	-25.10	AV	L	Pass

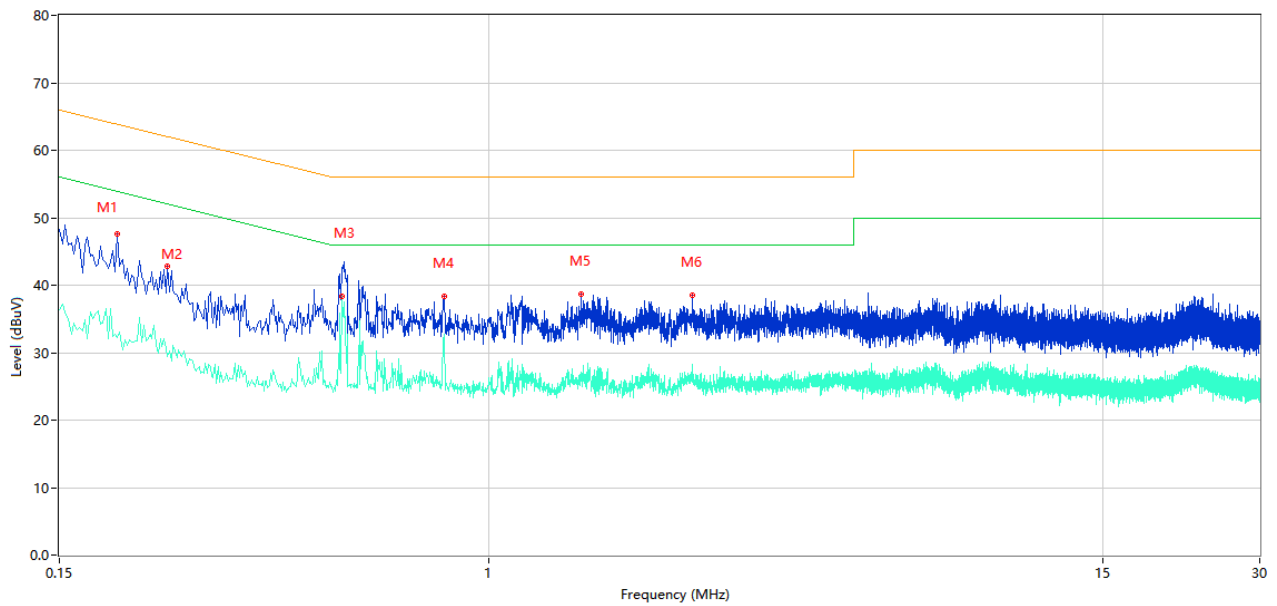
A.2.2 N Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.156	42.74	10.41	65.67	-22.93	Peak	N	Pass
1**	0.156	28.84	10.41	55.67	-26.83	AV	N	Pass
2	0.188	40.79	10.38	64.12	-23.33	Peak	N	Pass
2**	0.188	27.39	10.38	54.12	-26.73	AV	N	Pass
3	0.304	38.88	10.33	60.13	-21.25	Peak	N	Pass
3**	0.304	25.48	10.33	50.13	-24.65	AV	N	Pass
4	0.600	37.95	10.28	56.00	-18.05	Peak	N	Pass
4**	0.600	25.46	10.28	46.00	-20.54	AV	N	Pass
5	1.794	38.22	10.25	56.00	-17.78	Peak	N	Pass
5**	1.794	23.99	10.25	46.00	-22.01	AV	N	Pass
6	12.462	38.97	10.39	60.00	-21.03	Peak	N	Pass
6**	12.462	23.33	10.39	50.00	-26.67	AV	N	Pass

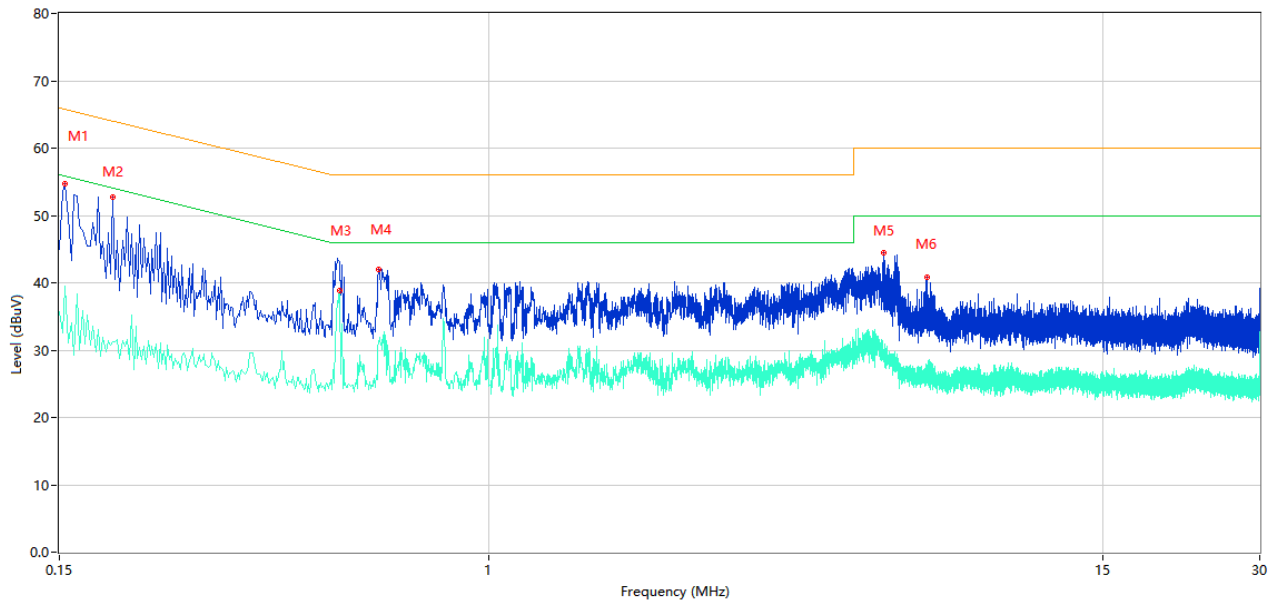
The USB Test Mode

A.2.3 L Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.194	47.64	10.38	63.86	-16.22	Peak	L	Pass
1**	0.194	32.17	10.38	53.86	-21.69	AV	L	Pass
2	0.242	42.81	10.34	62.03	-19.22	Peak	L	Pass
2**	0.242	29.49	10.34	52.03	-22.54	AV	L	Pass
3	0.522	42.49	10.30	56.00	-13.51	Peak	L	Pass
3**	0.522	38.33	10.30	46.00	-7.67	AV	L	Pass
4	0.820	38.30	10.27	56.00	-17.70	Peak	L	Pass
4**	0.820	32.78	10.27	46.00	-13.22	AV	L	Pass
5	1.504	38.60	10.25	56.00	-17.40	Peak	L	Pass
5**	1.504	27.04	10.25	46.00	-18.96	AV	L	Pass
6	2.454	38.49	10.27	56.00	-17.51	Peak	L	Pass
6**	2.454	28.20	10.27	46.00	-17.80	AV	L	Pass

A.2.4 N Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.154	54.64	10.41	65.78	-11.14	Peak	N	Pass
1**	0.154	39.55	10.41	55.78	-16.23	AV	N	Pass
2	0.190	52.69	10.38	64.04	-11.35	Peak	N	Pass
2**	0.190	31.25	10.38	54.04	-22.79	AV	N	Pass
3	0.518	42.42	10.30	56.00	-13.58	Peak	N	Pass
3**	0.518	38.82	10.30	46.00	-7.18	AV	N	Pass
4	0.614	42.05	10.28	56.00	-13.95	Peak	N	Pass
4**	0.614	31.05	10.28	46.00	-14.95	AV	N	Pass
5	5.704	44.45	10.32	60.00	-15.55	Peak	N	Pass
5**	5.704	29.88	10.32	50.00	-20.12	AV	N	Pass
6	6.912	40.84	10.33	60.00	-19.16	Peak	N	Pass
6**	6.912	25.12	10.33	50.00	-24.88	AV	N	Pass

ANNEX B TEST SETUP PHOTOS

Please refer the document “BL-SZ20A0143-AE-1.PDF”.

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ20A0143-AW.PDF”.

ANNEX D EUT INTERNAL PHOTOS

Please refer the document “BL-SZ20A0143-AI.PDF”.

--END OF REPORT--