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Report No.: 1512RSU00101
Report Version: V03
Issue Date: 04-21-2016

MEASUREMENT REPORT

FCC PART 15.247 & IC RSS-247 Bluetooth v4.1

FCC ID:	2AF2B-NB
IC:	20915-NB01
APPLICANT:	Ninebot (Tianjin) Tech Co., Ltd.
Application Type:	Certification
Product:	Ninebot miniPRO
Model No.:	N3M320, N3M260, N3M240
Brand Name:	ninebot
FCC Classification:	Digital Transmission System (DTS)
FCC Rule Part(s):	Part 15.247
IC Rule(s):	RSS-247 Issue 1, RSS-Gen Issue4
Test Procedure(s):	ANSI C63.10-2013, KDB 558074 D01v03r05
Test Date:	December 03, 2015 ~ April 08, 2016

Reviewed By : Robin Wu
(Robin Wu)

Approved By : Marlin Chen
(Marlin Chen)

ACCREDITED
TESTING LABORATORY
CERTIFICATE #3628.01

The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.10-2013. Test results reported herein relate only to the item(s) tested.

Revision History

Report No.	Version	Description	Issue Date
1512RSU00101	Rev. 01	Initial report	12-17-2015
1512RSU00101	Rev. 02	Added the FCC Rule(s)	04-10-2016
1512RSU00101	Rev. 03	Revised the Product Name	04-21-2016

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§2.1033 General Information

Applicant:	Ninebot (Tianjin) Tech Co., Ltd.
Applicant Address:	11 Tianrui Rd., Auto Industrial Park, Wuqing Dist., Tianjin, China.
Manufacturer:	Ninebot (Tianjin) Tech Co., Ltd.
Manufacturer Address:	11 Tianrui Rd., Auto Industrial Park, Wuqing Dist., Tianjin, China.
Test Site:	MRT Technology (Suzhou) Co., Ltd
Test Site Address:	D8 Building, Youxin Industrial Park, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China
MRT FCC Registration No.:	809388
MRT IC Registration No.:	11384A
FCC Rule Part(s):	Part 15.247
IC Rule(s):	RSS-247 Issue 1, RSS-Gen Issue4
Model No.:	N3M320, N3M260, N3M240
FCC ID:	2AF2B-NB
IC:	20915-NB01
Test Device Serial No.:	N/A ☐ Production ☒ Pre-Production ☐ Engineering

Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Tian'edang Rd., Suzhou, China.

- **MRT facility is a FCC registered (MRT Reg. No. 809388) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules.**
- **MRT facility is an IC registered (MRT Reg. No. 11384A-1) test laboratory with the site description on file at Industry Canada.**
- **MRT facility is a VCCI registered (R-4179, G-814, C-4664, T-2206) test laboratory with the site description on file at VCCI Council.**
- **MRT Lab is accredited to ISO 17025 by the American Association for Laboratory Accreditation (A2LA) under the American Association for Laboratory Accreditation Program (A2LA Cert. No. 3628.01) in EMC, Telecommunications and Radio testing for FCC, Industry Canada, EU and TELEC Rules.**

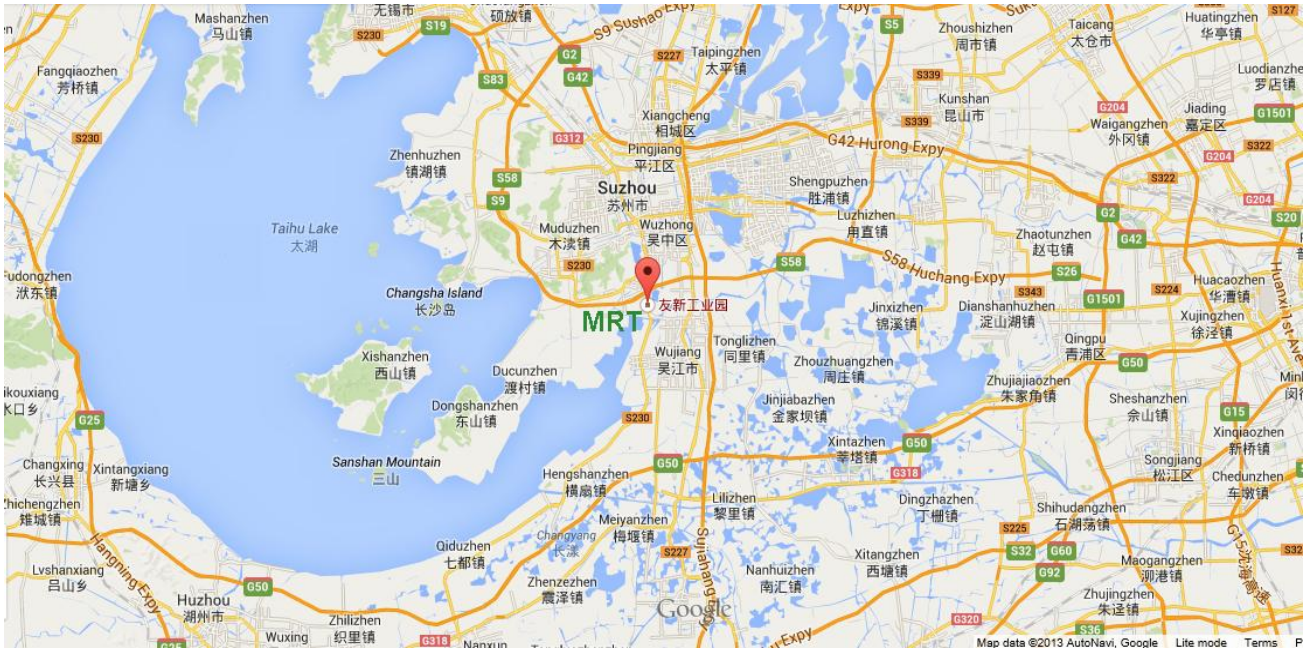
1. INTRODUCTION

1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Industry Canada Certification and Engineering Bureau.

1.2. MRT Test Location

The map below shows the location of the MRT LABORATORY, its proximity to the Taihu Lake. These measurement tests were conducted at the MRT Technology (Suzhou) Co., Ltd. Facility located at D8 Building, Youxin Industrial Park, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2009 on September 30, 2013.



2. PRODUCT INFORMATION

2.1. Equipment Description

Product Name	Ninebot miniPRO
Model No.	N3M320, N3M260, N3M240
Frequency Range	2402~2480MHz
Bluetooth Version	v4.1
Data Rate	1Mbps(GFSK)
Maximum Output Power	-0.62dBm
Type of Modulation	FHSS
Antenna Type	Internal
Antenna Gain	5.0dBi

Note: There is different battery with these models.

Channel List for BLE

Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	01	2404 MHz	02	2406 MHz
03	2408 MHz	04	2410 MHz	05	2412 MHz
06	2414 MHz	07	2416 MHz	08	2418 MHz
09	2420 MHz	10	2422 MHz	11	2424 MHz
12	2426 MHz	13	2428 MHz	14	2430 MHz
15	2432 MHz	16	2434 MHz	17	2436 MHz
18	2438 MHz	19	2440 MHz	20	2442 MHz
21	2444 MHz	22	2446 MHz	23	2448 MHz
24	2450 MHz	25	2452 MHz	26	2454 MHz
27	2456 MHz	28	2458 MHz	29	2460 MHz
30	2462 MHz	31	2464 MHz	32	2466 MHz
33	2468 MHz	34	2470 MHz	35	2472 MHz
36	2474 MHz	37	2476 MHz	38	2478 MHz
39	2480 MHz	--	--	--	--

2.2. Device Capabilities

This device contains the following capabilities:
Bluetooth v4.1

2.3. Test Configuration

The **Ninebot miniPRO, FCC ID: 2AF2B-NB** was tested per the guidance of KDB 558074 D01v03r05. ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing.

2.4. EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

2.5. Labeling Requirements

Per 2.1074 & 15.19; Docket 95-19
The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase. However, when the device is so small wherein placement of the label with specified statement is not practical, only the trade name and FCC ID must be displayed on the device per Section 15.19(a)(5). Please see attachment for FCC ID label and label location.

2.6. Test Software

The test utility software used during testing was engineering directive ordered by applicant.

3. DESCRIPTION OF TEST

3.1. Evaluation Procedure

The measurement procedures described in the American National Standard for Testing Unlicensed Wireless Devices (ANSI C63.10-2013), and the guidance provided in KDB 558074 D01v03r05 were used in the measurement of the **Ninebot miniPRO, FCC ID: 2AF2B-NB.**

Deviation from measurement procedure…….....None

3.2. AC Line Conducted Emissions

The line-conducted facility is located inside an 8'x4'x4' shielded enclosure. A 1m x 2m wooden table 80cm high is placed 40cm away from the vertical wall and 80cm away from the sidewall of the shielded room. Two 10kHz-30MHz, 50Ω/50uH Line-Impedance Stabilization Networks (LISNs) are bonded to the shielded room floor. Power to the LISNs is filtered by external high-current high-insertion loss power line filters. These filters attenuate ambient signal noise from entering the measurement lines. These filters are also bonded to the shielded enclosure.

The EUT is powered from one LISN and the support equipment is powered from the second LISN. All interconnecting cables more than 1 meter were shortened to a 1 meter length by non-inductive bundling (serpentine fashion) and draped over the back edge of the test table. All cables were at least 40cm above the horizontal reference ground-plane. Power cables for support equipment were routed down to the second LISN while ensuring that that cables were not draped over the second LISN.

Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the receiver and exploratory measurements were made to determine the frequencies producing the maximum emission from the EUT. The receiver was scanned from 150kHz to 30MHz. The detector function was set to peak mode for exploratory measurements while the bandwidth of the analyzer was set to 9kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Each emission was also maximized by varying: power lines, the mode of operation or data exchange speed, or support equipment whichever determined the worst-case emission. Once the worst case emissions have been identified, the one EUT cable configuration/arrangement and mode of operation that produced these emissions were used for final measurements on the same test site. The analyzer is set to CISPR quasi-peak and average detectors with a 9kHz resolution bandwidth for final measurements.

An extension cord was used to connect to a single LISN which powered by EUT. The extension cord was calibrated with LISN, the impedance and insertion loss are compliance with the requirements as stated in ANSI C63.10-2013.

Line conducted emissions test results are shown in Section 6.8.

3.3. Radiated Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. For measurements above 1GHz absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1GHz, the absorbers are removed. A MF Model 210SS turntable is used for radiated measurement. It is a continuously rotatable, remote controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm high PVC support structure is placed on top of the turntable.
For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30MHz up to the upper frequency shown in 15.33(b)(1) depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn antennas were used. For frequencies below 30MHz, a calibrated loop antenna was used. When exploratory measurements were necessary, they were performed at 1 meter test distance inside the semi-anechoic chamber using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies and modes producing the maximum emissions. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up for frequencies below 1GHz was placed on top of the 0.8 meter high, 1 x 1.5 meter table; and test set-up for frequencies 1-40GHz was placed on top of the 1.5 meter high, 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, clock speed, mode of operation or video resolution, if applicable, turntable azimuth, and receive antenna height was noted for each frequency found.
Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable containing the EUT was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, whichever produced the worst-case emissions. According to 3dB Beam-Width of horn antenna, the horn antenna should be always directed to the EUT when rising height.

4. TEST EQUIPMENT CALIBRATION DATE

Conducted Emissions - SR2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2016/11/03
Two-Line V-Network	R&S	ENV216	MRTSUE06002	1 year	2016/11/03
Two-Line V-Network	R&S	ENV216	MRTSUE06003	1 year	2016/11/03
Temperature/Humidity Meter	Yuhuaze	N/A	MRTSUE06182	1 year	2016/12/20

Radiated Emissions - AC1

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Agilent	E4447A	MRTSUE06028	1 year	2016/06/23
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2016/11/03
Preamplifier	Agilent	83017A	MRTSUE06020	1 year	2017/03/28
Loop Antenna	Schwarzbeck	FMZB1519	MRTSUE06025	1 year	2016/12/15
TRILOG Antenna	Schwarzbeck	VULB9162	MRTSUE06022	1 year	2016/11/07
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06023	1 year	2016/11/07
Broadband Horn Antenna	Schwarzbeck	BBHA9170	MRTSUE06024	1 year	2017/01/04
Temperature/Humidity Meter	Yuhuaze	HTC-2	MRTSUE06183	1 year	2016/12/20

Conducted Test Equipment - TR3

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2016/05/08
USB Wideband Power Sensor	Boonton	55006	MRTSUE06109	1 year	2016/05/08
Temperature/Humidity Meter	Yuhuaze	HTC-2	MRTSUE06180	1 year	2016/12/20

Software	Version	Function
e3	V8.3.5	EMI Test Software

5. MEASUREMENT UNCERTAINTY

Where relevant, the following test 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.

AC Conducted Emission Measurement - SR2
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 150kHz~30MHz: 3.46dB
Radiated Emission Measurement - AC1
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 9kHz ~ 1GHz: 4.18dB 1GHz ~ 25GHz: 4.76dB

6. TEST RESULT

6.1. Summary

Company Name: **Ninebot (Tianjin) Tech Co., Ltd.**

FCC ID: **2AF2B-NB**

IC: **20915-NB01**

Data Rate(s) Tested: **1Mbps(GFSK) (BLE)**

FCC Section(s)	FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.247(a)(2)	RSS-247 [5.2]	6dB Bandwidth	≥ 500kHz	Conducted	Pass	Section 6.2
15.247(b)(3)	RSS-247 [5.4(4)]	Output Power	≤ 30dBm	Conducted	Pass	Section 6.3
15.247(e)	RSS-247 [5.2]	Power Spectral Density	≤ 8dBm/3kHz	Conducted	Pass	Section 6.4
15.247(d)	RSS-247 [5.5]	Band Edge / Out-of-Band Emissions	≥ 20dBc(Peak)	Conducted	Pass	Section 6.5
15.205 15.209	RSS-247 [5.5]	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in 15.209	Radiated	Pass	Section 6.6 & 6.7
15.207	RSS-Gen [8.8]	AC Conducted Emissions 150kHz - 30MHz	< FCC 15.207 limits	Line Conducted	Pass	Section 6.8

Notes:

1) All modes of operation and data rates were investigated. For radiated emission test, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst case emissions.
2) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
3) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables and attenuators.

6.2. 6dB Bandwidth Measurement

6.2.1. Test Limit

The minimum 6dB bandwidth shall be at least 500 kHz.

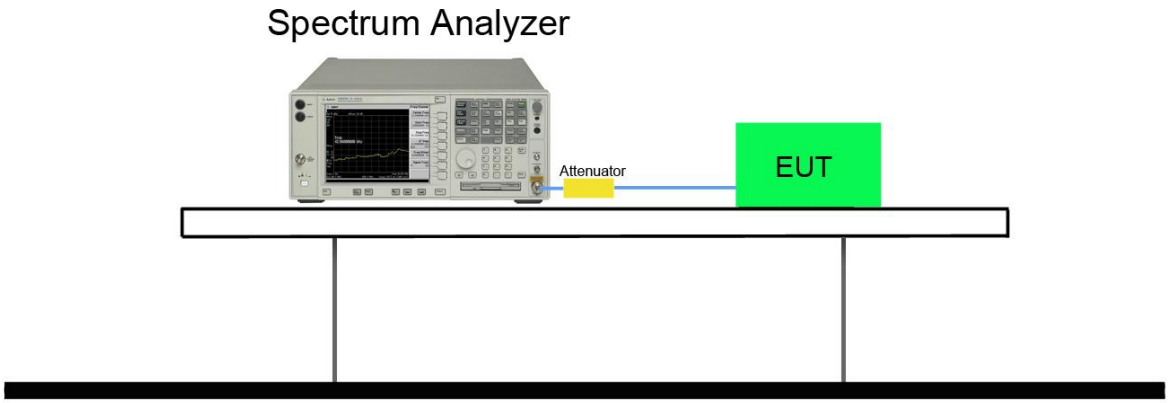
6.2.2. Test Procedure used

KDB 558074 D01v03r05 - Section 8.2 Option 2

6.2.3. Test Setting

1. The Spectrum's automatic bandwidth measurement capability was used to perform the 6dB bandwidth measurement. The "X" dB bandwidth parameter was set to X = 6. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. Set RBW = 100 kHz
3. VBW ≥ 3 × RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. Allow the trace was allowed to stabilize

6.2.4. Test Setup

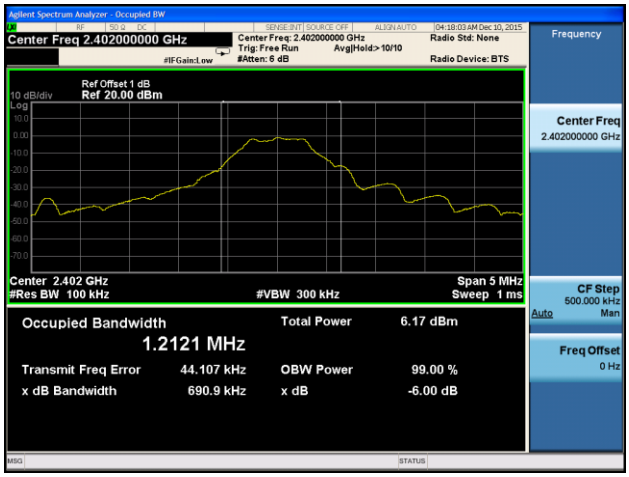


6.2.5. Test Result

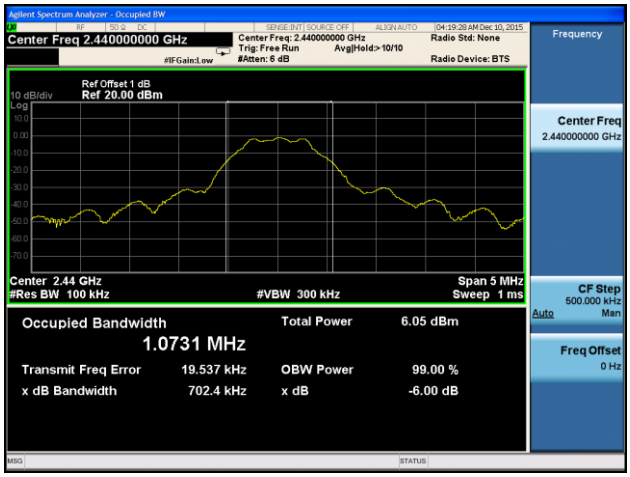
Test Mode	Data Rate (Mbps)	Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)	Result
BLE	1	00	2402	0.69	≥ 0.5	Pass
BLE	1	19	2440	0.70	≥ 0.5	Pass
BLE	1	39	2480	0.71	≥ 0.5	Pass

BLE 6dB Bandwidth

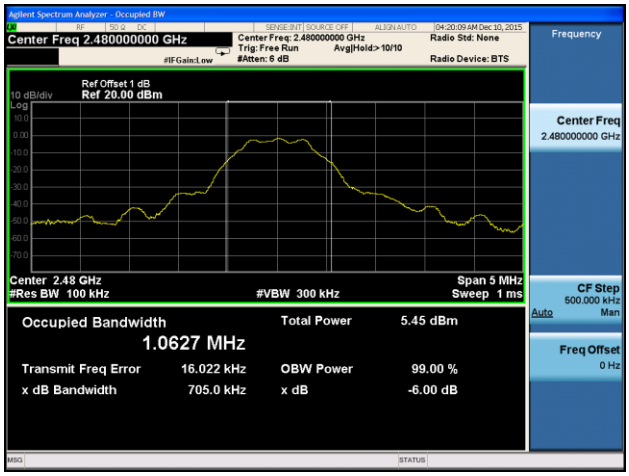
Channel 00 (2402MHz)



Channel 19 (2440MHz)



Channel 39 (2480MHz)



6.3. Output Power Measurement

6.3.1. Test Limit

The maximum conducted output power shall be exceed 1 Watt (30dBm) and the E.I.R.P shall not exceed 4 Watt (36dBm).

6.3.2. Test Procedure Used

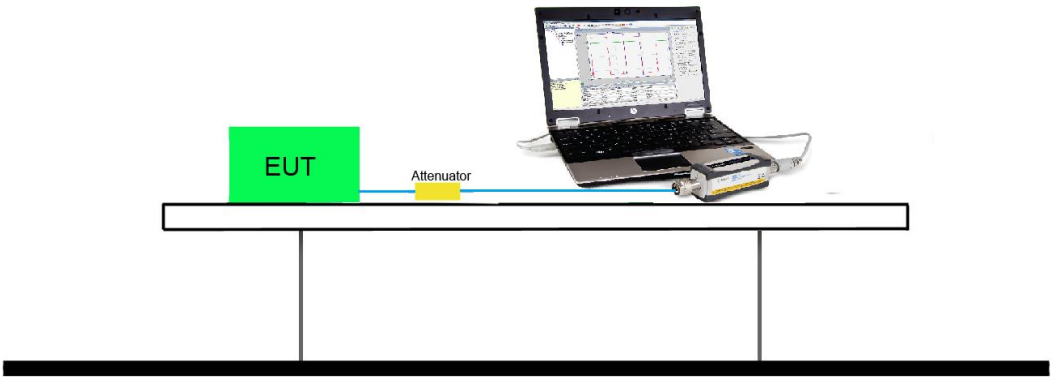
KDB 558074 D01v03r05 - Section 9.1.2 PKPM1 Peak power meter Method

6.3.3. Test Setting

Method PKPM1 (Peak Power Measurement of Signals with DTS BW ≤ 50MHz)

Peak power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The pulse sensor employs a VBW = 50MHz so this method was only used for signals whose DTS bandwidth was less than or equal to 50MHz.

6.3.4. Test Setup



6.3.5. Test Result of Output Power

Test Result of Peak Output Power

Test Mode	Data Rate (Mbps)	Channel No.	Frequency (MHz)	Peak Power (dBm)	Limit (dBm)	EIRP Power (dBm)	EIRP Limit (dBm)	Result
BLE	1	00	2402	-0.62	≤ 30	4.38	≤ 36	Pass
BLE	1	19	2440	-0.96	≤ 30	4.04	≤ 36	Pass
BLE	1	39	2480	-1.51	≤ 30	3.49	≤ 36	Pass

6.4. Power Spectral Density Measurement

6.4.1. Test Limit

The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission

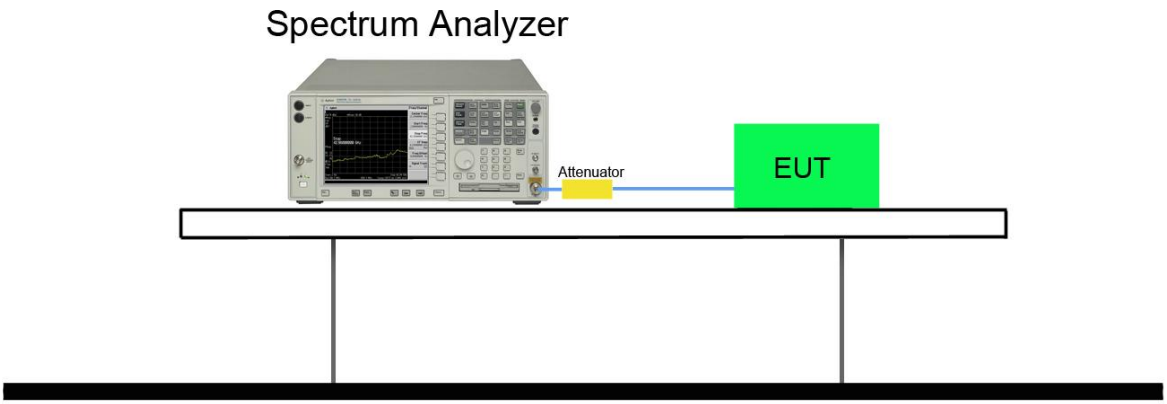
6.4.2. Test Procedure Used

KDB 558074 D01v03r05 - Section 10.2 Method PKPSD

6.4.3. Test Setting

1. Analyzer was set to the center frequency of the DTS channel under investigation
2. Span = 1.5 times the DTS channel bandwidth
3. RBW = 3kHz
4. VBW = 10kHz
5. Detector = peak
6. Sweep time = auto couple
7. Trace mode = max hold
8. Trace was allowed to stabilize

6.4.4. Test Setup

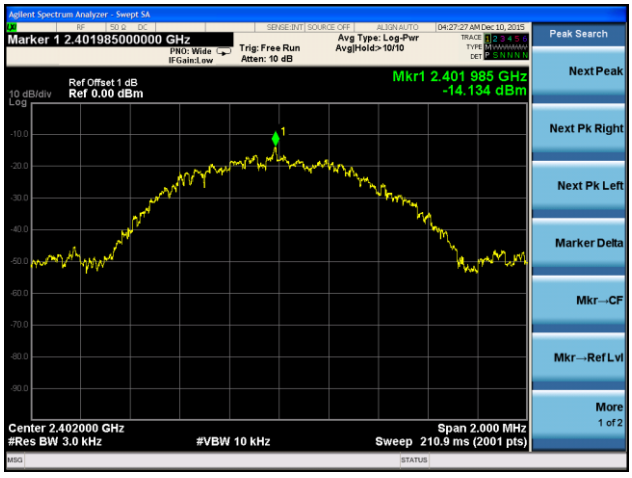


6.4.5. Test Result

Test Mode	Data Rate (Mbps)	Channel No.	Frequency (MHz)	PSD Result (dBm / 3kHz)	Limit (dBm / 3kHz)	Result
BLE	1	00	2402	-14.13	≤ 8	Pass
BLE	1	19	2440	-14.64	≤ 8	Pass
BLE	1	39	2480	-14.68	≤ 8	Pass

BLE PSD

Channel 00 (2402MHz)



Channel 19 (2440MHz)

Channel 39 (2480MHz)

6.5. Conducted Band Edge and Out-of-Band Emissions

6.5.1. Test Limit

The limit for out-of-band spurious emissions at the band edge is 20dB below the fundamental emission level, as determined from the in-band power measurement of the DTS channel performed in a 100kHz bandwidth per the PSD procedure.

6.5.2. Test Procedure Used

KDB 558074 D01v03r05 - Section 11.2 & Section 11.3

6.5.3. Test Settitng

1. Reference level measurement

(a) Set instrument center frequency to DTS channel center frequency

(b) Set the span to ≥ 1.5 times the DTS bandwidth

(c) Set the RBW = 100 kHz

(d) Set the VBW ≥ 3 x RBW

(e) Detector = peak

(f) Sweep time = auto couple

(g) Trace mode = max hold

(h) Allow trace to fully stabilize

2. Emission level measurement

(a) Set the center frequency and span to encompass frequency range to be measured

(b) RBW = 100kHz

(c) VBW = 300kHz

(d) Detector = Peak

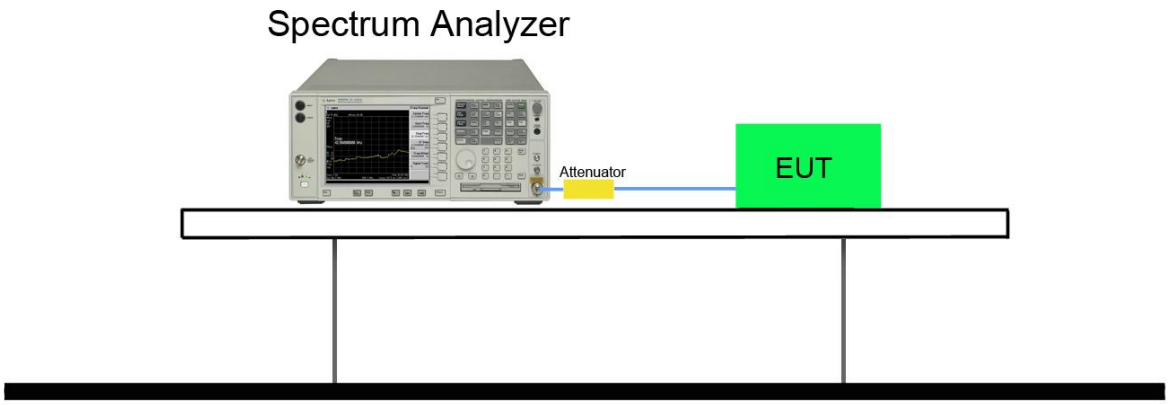
(e) Number of sweep points ≥ 2 x Span/RBW

(f) Trace mode = max hold

(g) Sweep time = auto couple

(h) The trace was allowed to stabilize

6.5.4. Test Setup



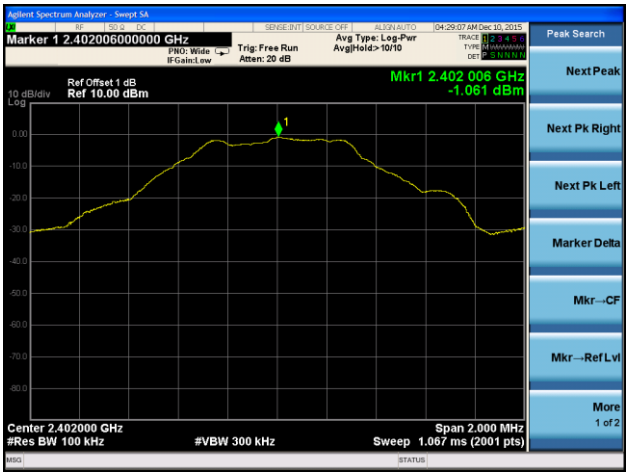
6.5.5. Test Result

Test Mode	Data Rate (Mbps)	Channel No.	Frequency (MHz)	Limit	Result
BLE	1	00	2402	20dBc	Pass
BLE	1	19	2440	20dBc	Pass
BLE	1	39	2480	20dBc	Pass

BLE Out-of-Band Emissions

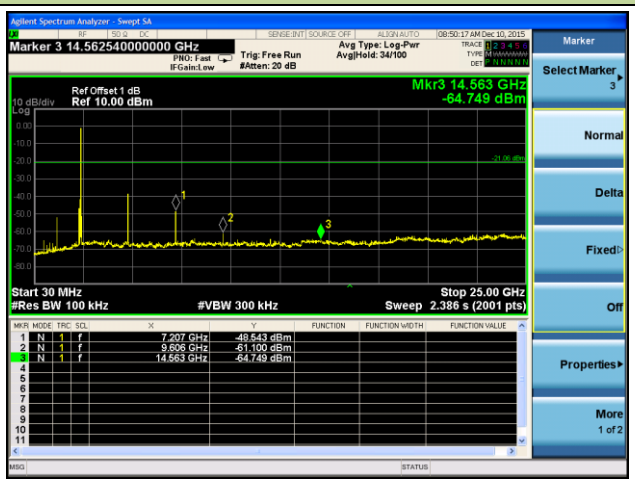
Channel 00 (2402MHz)

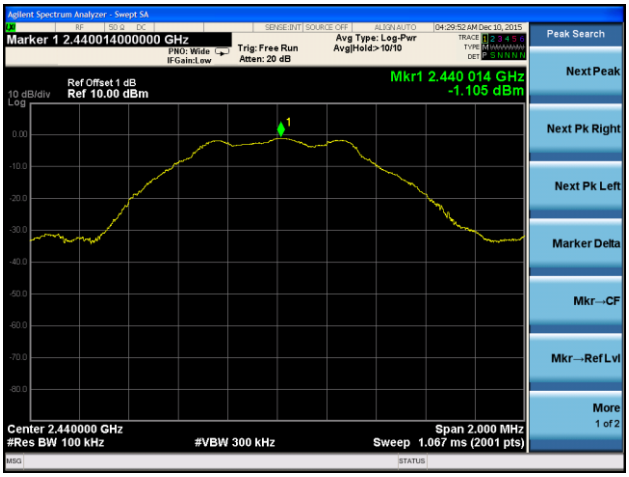
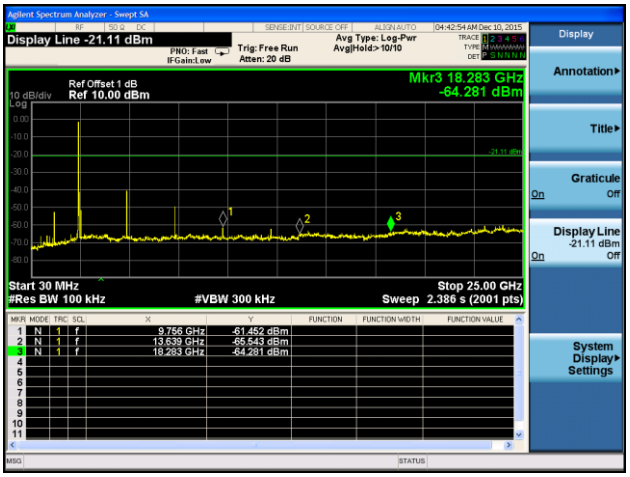
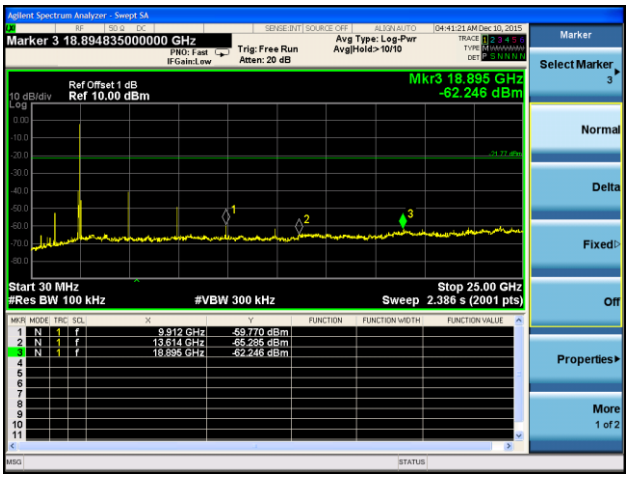
100kHz PSD reference Level



Low Band Edge

Spurious Emission 30MHz ~ 25GHz



Channel 19 (2440MHz)	
100kHz PSD reference Level	**Spurious Emission 30MHz ~ 25GHz**
	
Channel 39 (2480MHz)	
100kHz PSD reference Level	**High Band Edge**
	
Spurious Emission 30MHz ~ 25GHz	
	

6.6. Radiated Spurious Emission Measurement

6.6.1. Test Limit

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [V/m]	Measured Distance [Meters]
0.009 - 0.490	2400/F (kHz)	300
0.490 - 1.705	24000/F (kHz)	30
1.705 - 30	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

6.6.2. Test Procedure Used

KDB 558074 D01v03r05 - Section 12.2.3 (quasi-peak measurements)

KDB 558074 D01v03r05 - Section 12.2.4 (peak power measurements)

KDB 558074 D01v03r05 - Section 12.2.5 (average power measurements)

6.6.3. Test Setting

Peak Field Strength Measurements

Analyzer center frequency was set to the frequency of the radiated spurious emission of interest

1. RBW = as specified in Table 1
2. VBW = 3MHz
3. Detector = peak
4. Sweep time = auto couple

5. Trace mode = max hold

6. Trace was allowed to stabilize

Table 1 - RBW as a function of frequency

Frequency	RBW
9 ~ 150 kHz	200 ~ 300 Hz
0.15 ~ 30 MHz	9 ~ 10 kHz
30 ~ 1000 MHz	100 ~ 120 kHz
> 1000 MHz	1 MHz

Average Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest

2. RBW = 1MHz

3. VBW = 10Hz

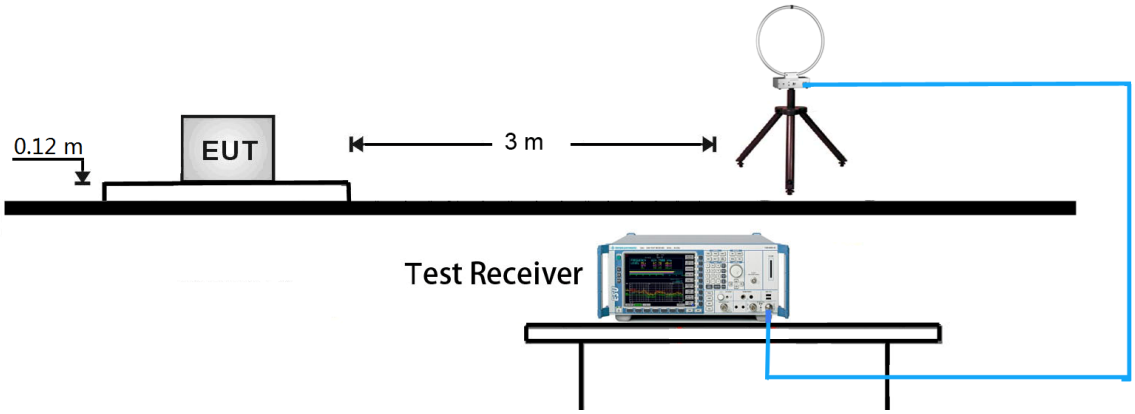
4. Detector = Peak

5. Sweep time = auto

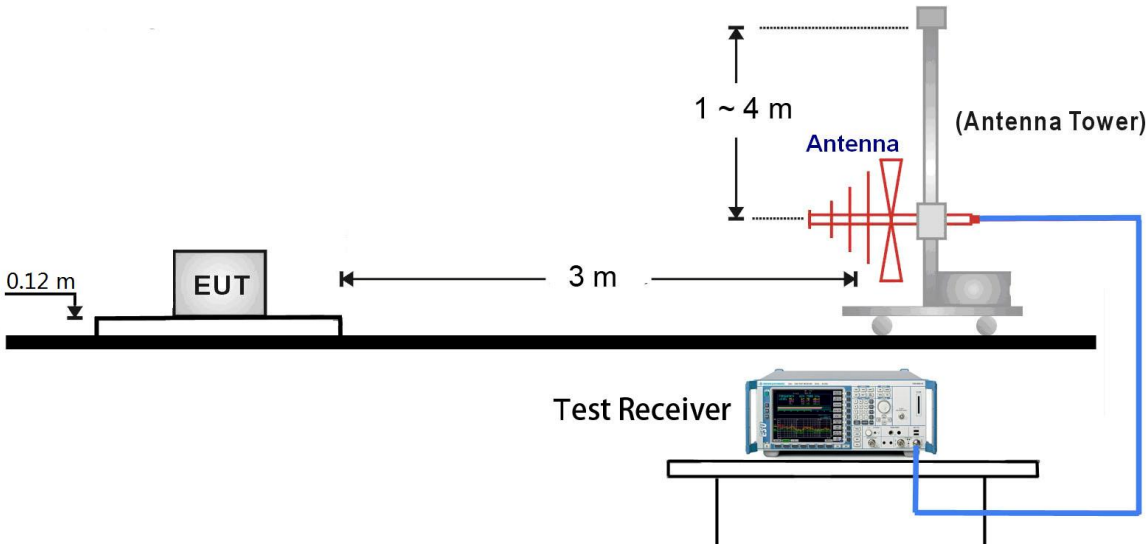
6. Trace mode = max hold

6.6.4. Test Setup

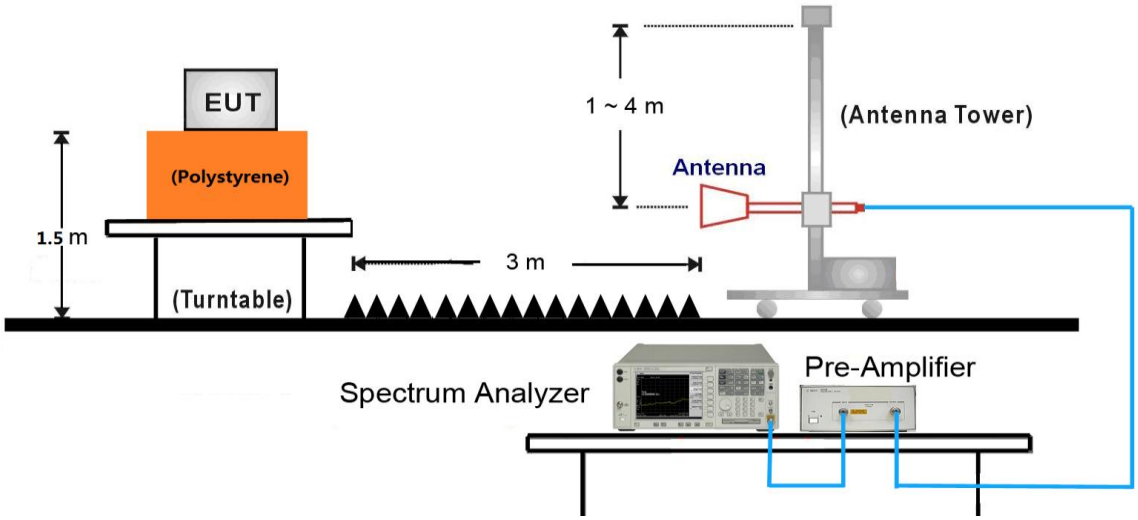
9kHz ~ 30MHz Test Setup:



30MHz ~ 1GHz Test Setup:



1GHz ~ 25GHz Test Setup:



6.6.5. Test Result

Test Mode:	BLE	Test Site:	AC1
Test Channel:	00	Test Engineer:	Peak Wang
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4026.0	38.2	0.4	38.6	74.0	-35.4	Peak	Horizontal
	4808.0	43.1	2.7	45.8	74.0	-28.2	Peak	Horizontal
*	6346.5	36.7	5.1	41.8	69.8	-28.0	Peak	Horizontal
*	7205.0	38.9	7.8	46.7	69.8	-23.1	Peak	Horizontal
	3941.0	37.7	0.3	38.0	74.0	-36.0	Peak	Vertical
	4799.5	45.6	2.7	48.3	74.0	-25.7	Peak	Vertical
*	6576.0	37.1	6.0	43.1	69.8	-26.7	Peak	Vertical
*	7205.0	38.8	7.8	46.6	69.8	-23.2	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (89.8dBμV/m).

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Mode:	BLE	Test Site:	AC1
Test Channel:	19	Test Engineer:	Peak Wang
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	3567.0	38.4	-0.8	37.6	70.3	-32.7	Peak	Horizontal
*	4442.5	37.6	1.5	39.1	70.3	-31.2	Peak	Horizontal
	4876.0	42.7	2.7	45.4	74.0	-28.6	Peak	Horizontal
	7324.0	38.0	8.0	46.0	74.0	-28.0	Peak	Horizontal
*	3524.5	38.0	-1.0	37.0	70.3	-33.3	Peak	Vertical
*	4493.5	36.4	1.6	38.0	70.3	-32.3	Peak	Vertical
	4876.0	44.8	2.7	47.5	74.0	-26.5	Peak	Vertical
	7315.5	39.5	8.0	47.5	74.0	-26.5	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (90.3dBμV/m).

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Mode:	BLE	Test Site:	AC1
Test Channel:	39	Test Engineer:	Peak Wang
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	3516.0	39.0	-1.1	37.9	72.5	-34.6	Peak	Horizontal
*	4425.5	36.1	1.5	37.6	72.5	-34.9	Peak	Horizontal
	4961.0	40.2	2.9	43.1	74.0	-30.9	Peak	Horizontal
	7443.0	38.2	8.0	46.2	74.0	-27.8	Peak	Horizontal
*	3584.0	39.3	-0.8	38.5	72.5	-34.0	Peak	Vertical
*	4485.0	36.9	1.6	38.5	72.5	-34.0	Peak	Vertical
	4961.0	42.5	2.9	45.4	74.0	-28.6	Peak	Vertical
	7443.0	41.2	8.0	49.2	74.0	-24.8	Peak	Vertical

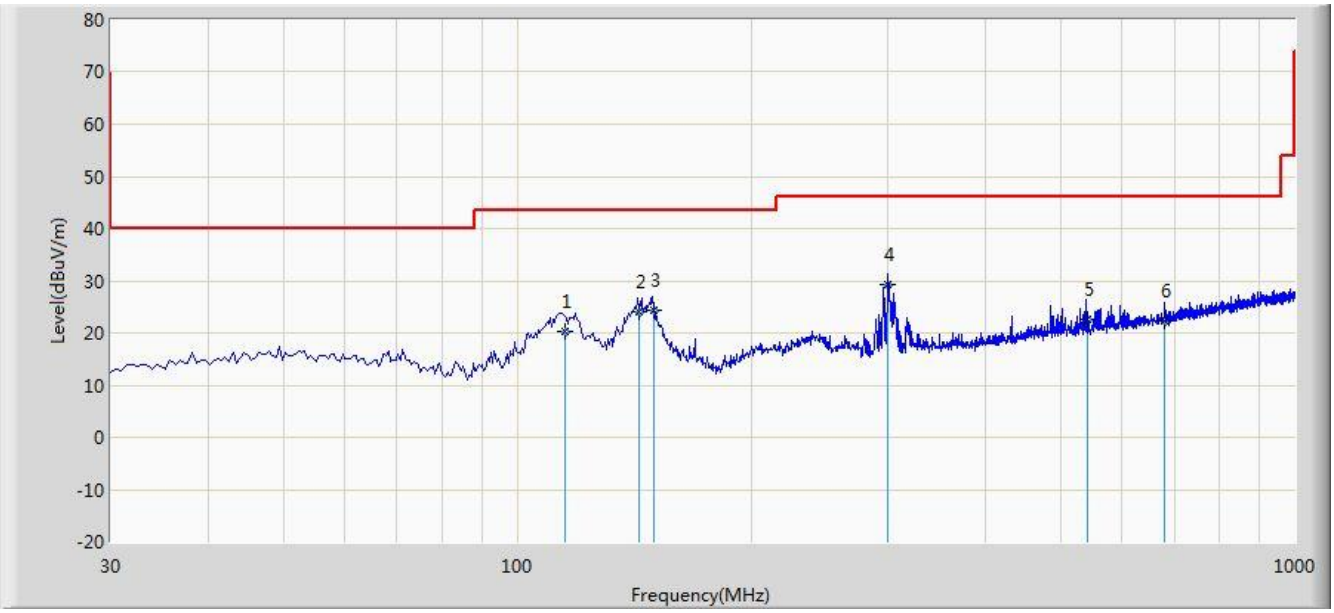
Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (92.5dBμV/m).

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

The worst case of Radiated Emission below 1GHz:

Site: AC1	Time: 2015/12/09 - 15:11
Limit: FCC_Part15.209_RE(3m)	Engineer: Peak Wang
Probe: VULB9162_0.03-8GHz	Polarity: Horizontal
EUT: Ninebot miniPRO	Power: DC 12V
Worse Case Mode: Transmit by BLE at channel 2402MHz	

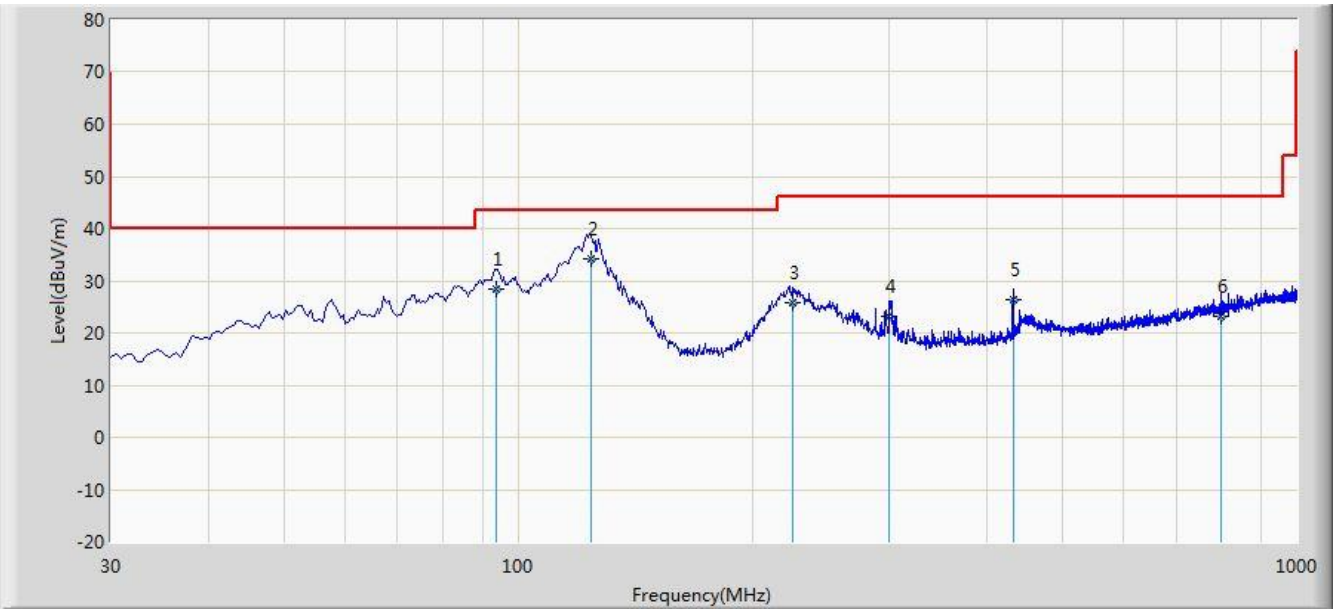


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			115.010	20.428	8.420	-23.072	43.500	12.009	QP
2			143.510	24.202	14.800	-19.298	43.500	9.402	QP
3			150.080	24.430	14.990	-19.070	43.500	9.441	QP
4		*	300.150	29.295	14.730	-16.705	46.000	14.565	QP
5			540.200	22.551	3.600	-23.449	46.000	18.951	QP
6			680.530	22.358	1.070	-23.642	46.000	21.288	QP

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC1	Time: 2015/12/09 - 15:12
Limit: FCC_Part15.209_RE(3m)	Engineer: Peak Wang
Probe: VULB9162_0.03-8GHz	Polarity: Vertical
EUT: Ninebot miniPRO	Power: DC 12V
Worse Case Mode: Transmit by BLE at channel 2402MHz	

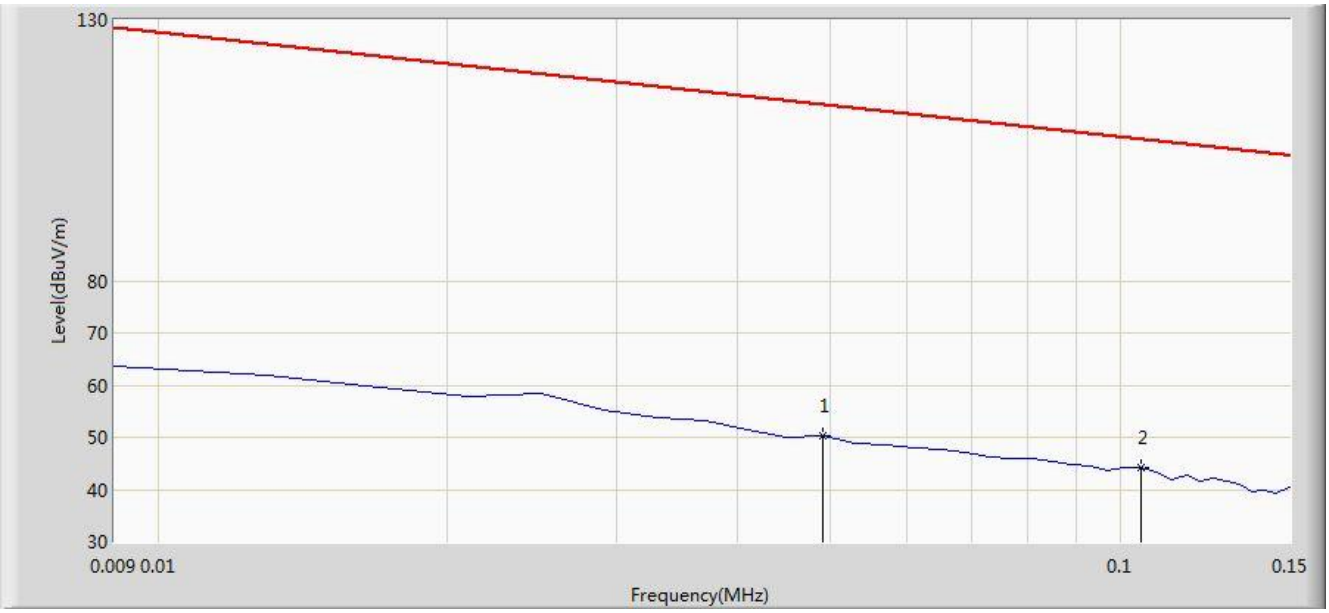


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			93.600	28.463	16.400	-15.037	43.500	12.063	QP
2		*	124.200	34.243	23.620	-9.257	43.500	10.623	QP
3			225.510	25.683	12.820	-20.317	46.000	12.862	QP
4			300.080	23.263	8.700	-22.737	46.000	14.563	QP
5			432.290	26.482	9.300	-19.518	46.000	17.182	QP
6			801.040	23.075	0.220	-22.925	46.000	22.855	QP

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC1	Time: 2015/12/09 - 15:32
Limit: RSS-Gen Issue 4_RE(3m)	Engineer: Roy Cheng
Probe: FMZB1519_0.009-30MHz	Polarity: Face On
EUT: Ninebot miniPRO	Power: DC 12V
Note: There is the ambient noise within frequency range 9kHz~30MHz.	

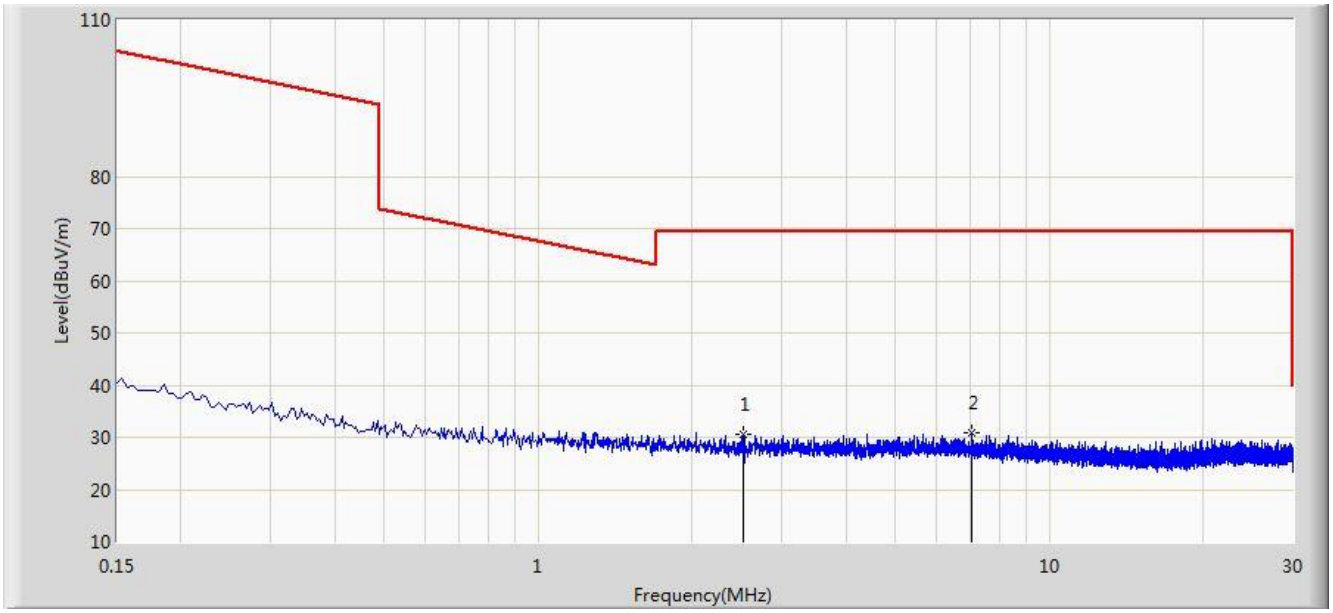


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			0.049	50.367	29.861	-63.422	113.789	20.505	QP
2		*	0.105	44.143	23.996	-63.029	107.173	20.147	QP

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC1	Time: 2015/12/09 - 15:41
Limit: RSS-Gen Issue 4_RE(3m)	Engineer: Roy Cheng
Probe: FMZB1519_0.009-30MHz	Polarity: Face On
EUT: Ninebot miniPRO	Power: DC 12V
Note: There is the ambient noise within frequency range 9kHz~30MHz.	

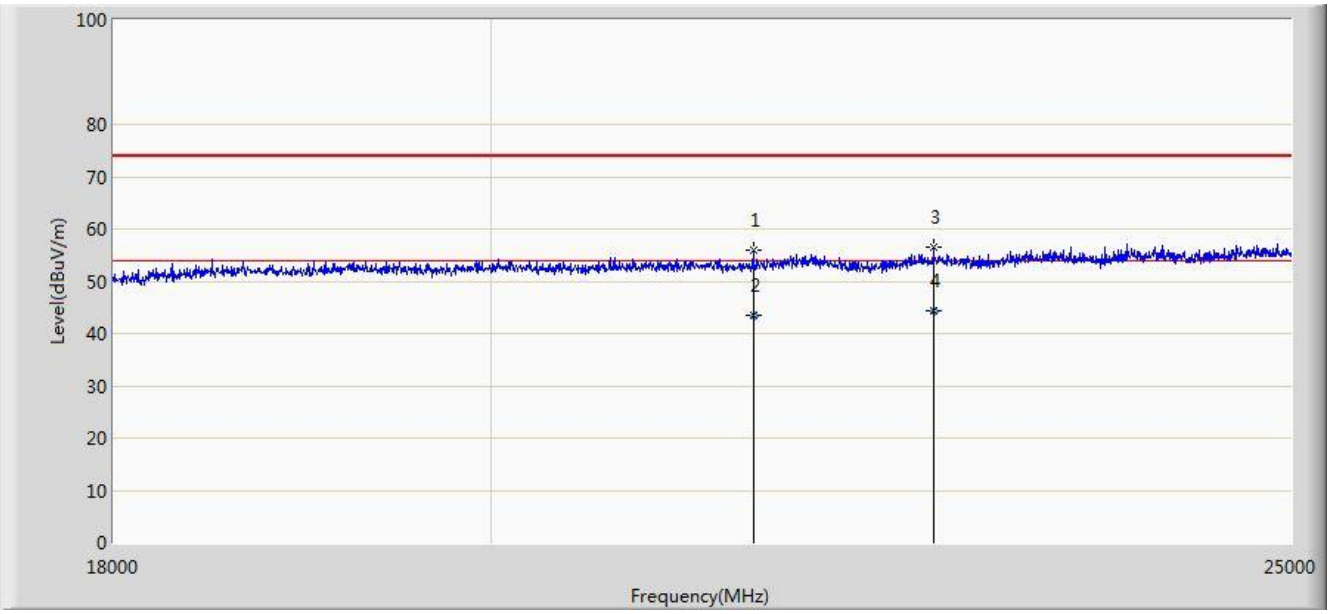


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2.513	30.495	10.336	-39.005	69.500	20.159	QP
2		*	7.041	30.974	10.579	-38.526	69.500	20.395	QP

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC1	Time: 2015/12/09 - 15:45
Limit: RSS-Gen Issue 4_RE(3m)	Engineer: Roy Cheng
Probe: BBHA9170_18-40GHz	Polarity: Horizontal
EUT: Ninebot miniPRO	Power: DC 12V
Note: There is the ambient noise within frequency range 18 ~ 25GHz.	

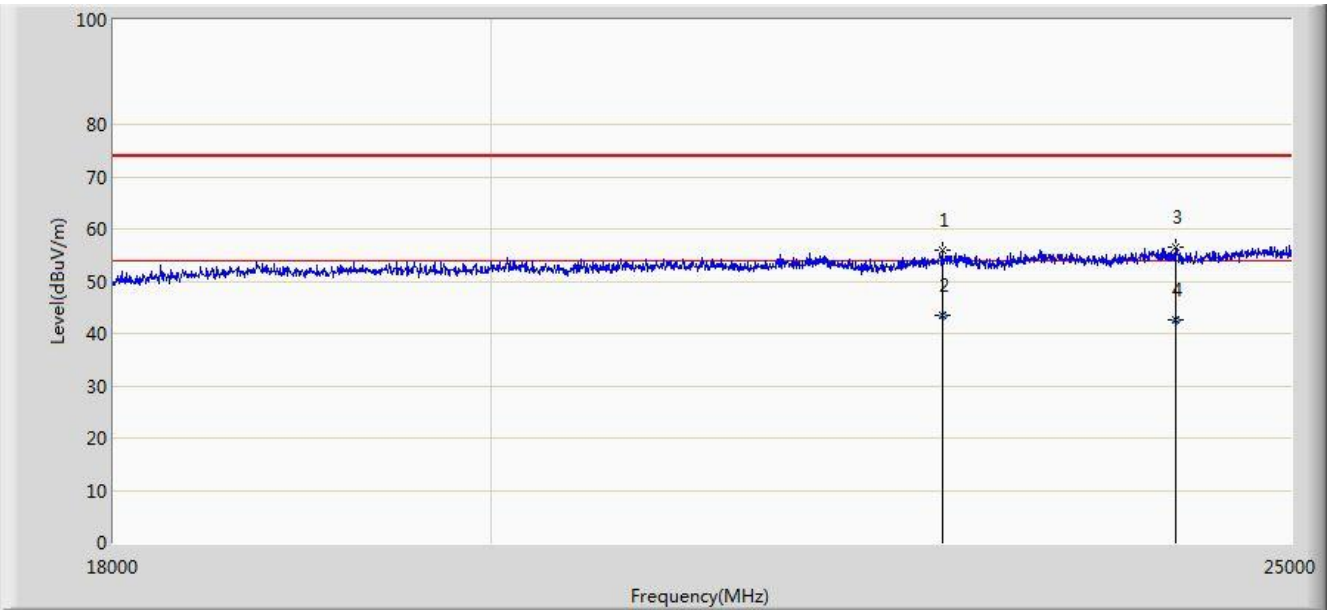


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			21517.500	55.869	17.883	-18.131	74.000	37.986	PK
2			21517.650	43.351	5.365	-10.649	54.000	37.986	AV
3			22630.500	56.509	18.223	-17.491	74.000	38.286	PK
4		*	22630.540	44.310	6.024	-9.690	54.000	38.286	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC1	Time: 2015/12/09 - 15:59
Limit: RSS-Gen Issue 4_RE(3m)	Engineer: Roy Cheng
Probe: BBHA9170_18-40GHz	Polarity: Vertical
EUT: Ninebot miniPRO	Power: DC 12V
Note: There is the ambient noise within frequency range 18 ~ 25GHz.	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			22686.500	55.811	17.457	-18.189	74.000	38.354	PK
2		*	22686.540	43.598	5.244	-10.402	54.000	38.354	AV
3			24205.500	56.430	17.607	-17.570	74.000	38.823	PK
4			24205.658	42.518	3.695	-11.482	54.000	38.823	AV

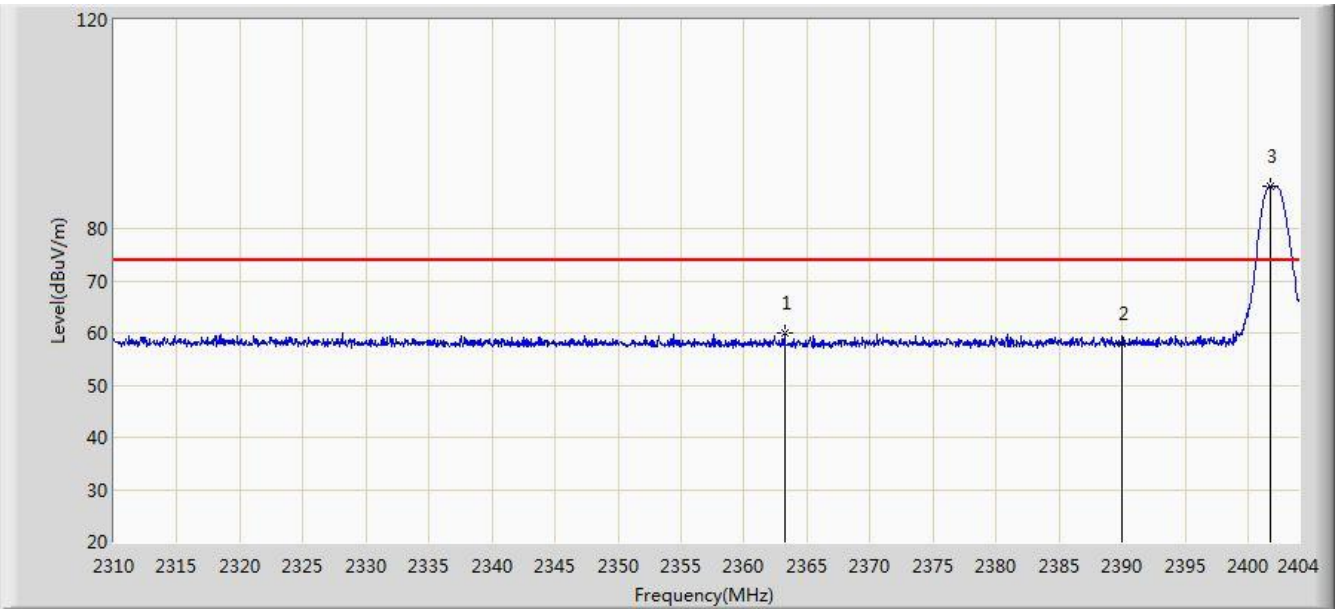
Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

6.7. Radiated Restricted Band Edge Measurement

6.7.1. Test Result

Site: AC1	Time: 2015/12/07 - 10:01
Limit: FCC_Part15.209_RE(3m)	Engineer: Peak Wang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Ninebot miniPRO	Power: DC 12V
Test Mode: Transmit by BLE at Channel 2402MHz	

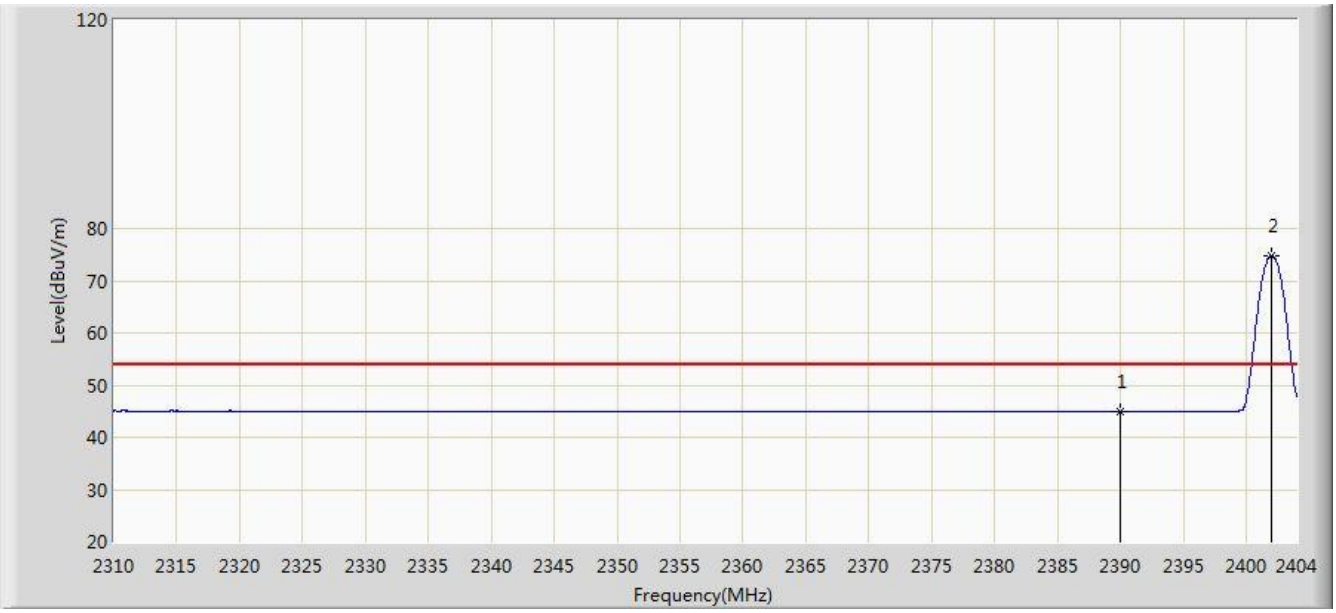


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2363.204	59.941	28.688	-14.059	74.000	31.252	PK
2			2390.000	57.830	26.627	-16.170	74.000	31.203	PK
3		*	2401.744	88.019	56.835	N/A	N/A	31.184	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC1	Time: 2015/12/07 - 10:07
Limit: FCC_Part15.209_RE(3m)	Engineer: Peak Wang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Ninebot miniPRO	Power: DC 12V
Test Mode: Transmit by BLE at Channel 2402MHz	

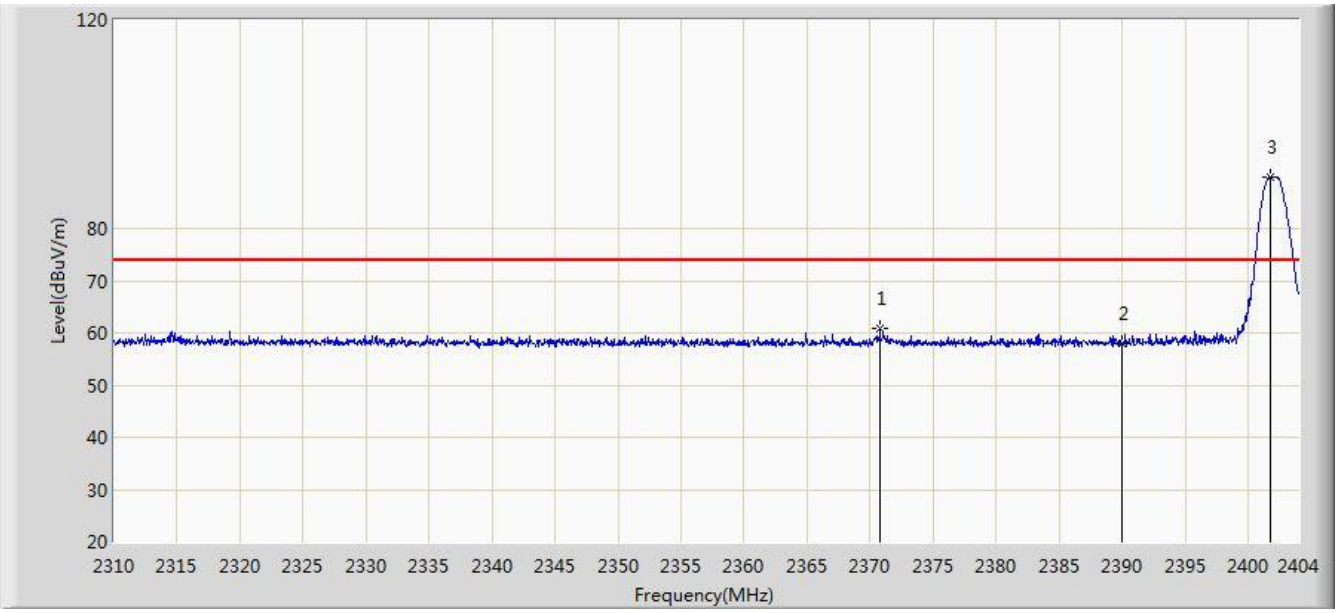


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	44.879	13.676	-9.121	54.000	31.203	AV
2		*	2401.979	74.831	43.647	N/A	N/A	31.184	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC1	Time: 2015/12/07 - 10:07
Limit: FCC_Part15.209_RE(3m)	Engineer: Peak Wang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Ninebot miniPRO	Power: DC 12V
Test Mode: Transmit by BLE at Channel 2402MHz	

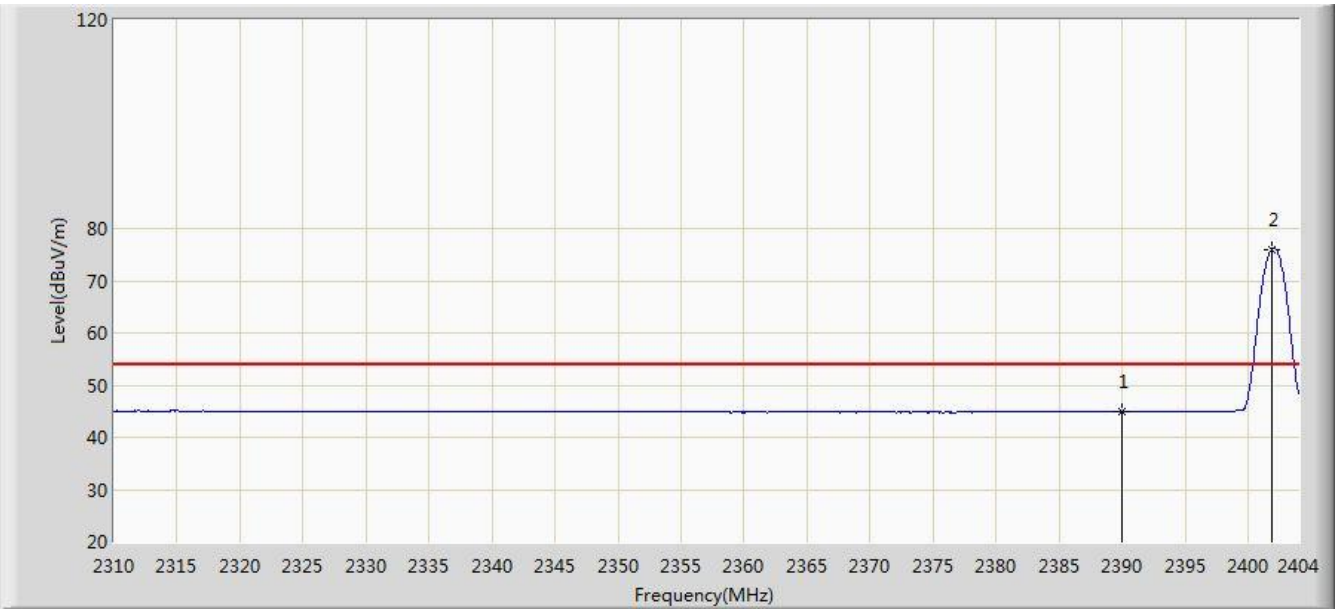


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2370.771	60.845	29.607	-13.155	74.000	31.239	PK
2			2390.000	58.107	26.904	-15.893	74.000	31.203	PK
3		*	2401.744	89.753	58.569	N/A	N/A	31.184	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC1	Time: 2015/12/07 - 10:11
Limit: FCC_Part15.209_RE(3m)	Engineer: Peak Wang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Ninebot miniPRO	Power: DC 12V
Test Mode: Transmit by BLE at Channel 2402MHz	

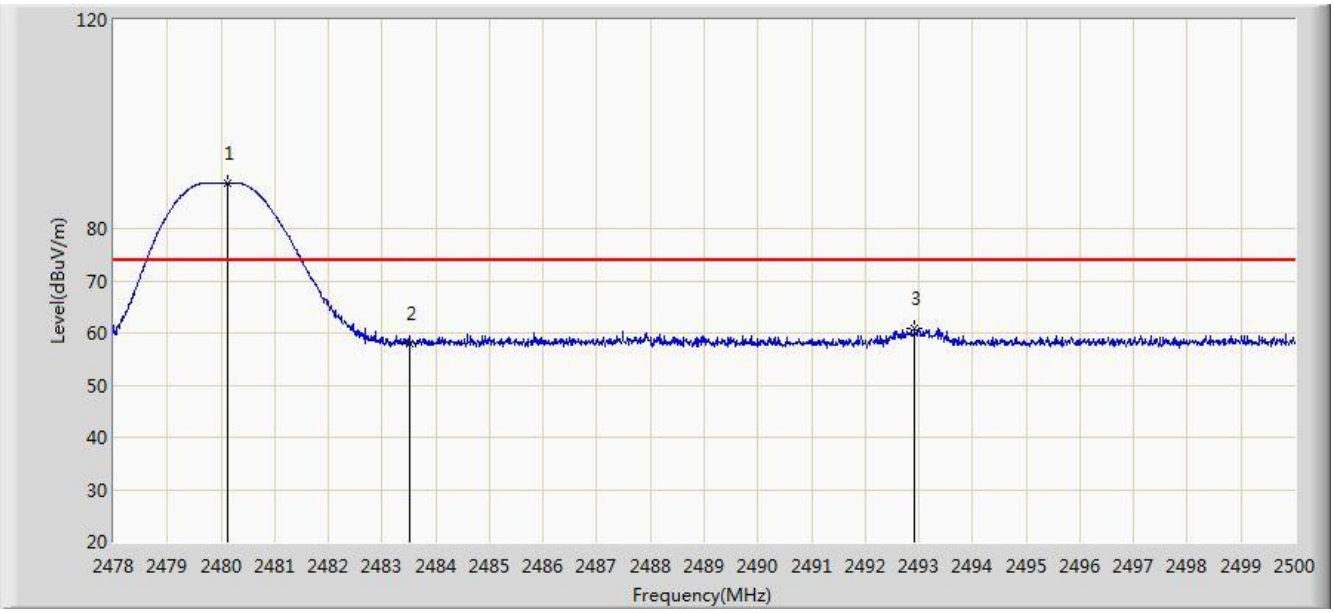


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	44.886	13.683	-9.114	54.000	31.203	AV
2		*	2401.885	76.060	44.876	N/A	N/A	31.184	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC1	Time: 2015/12/07 - 10:12
Limit: FCC_Part15.209_RE(3m)	Engineer: Peak Wang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Ninebot miniPRO	Power: DC 12V
Test Mode: Transmit by BLE at Channel 2480MHz	

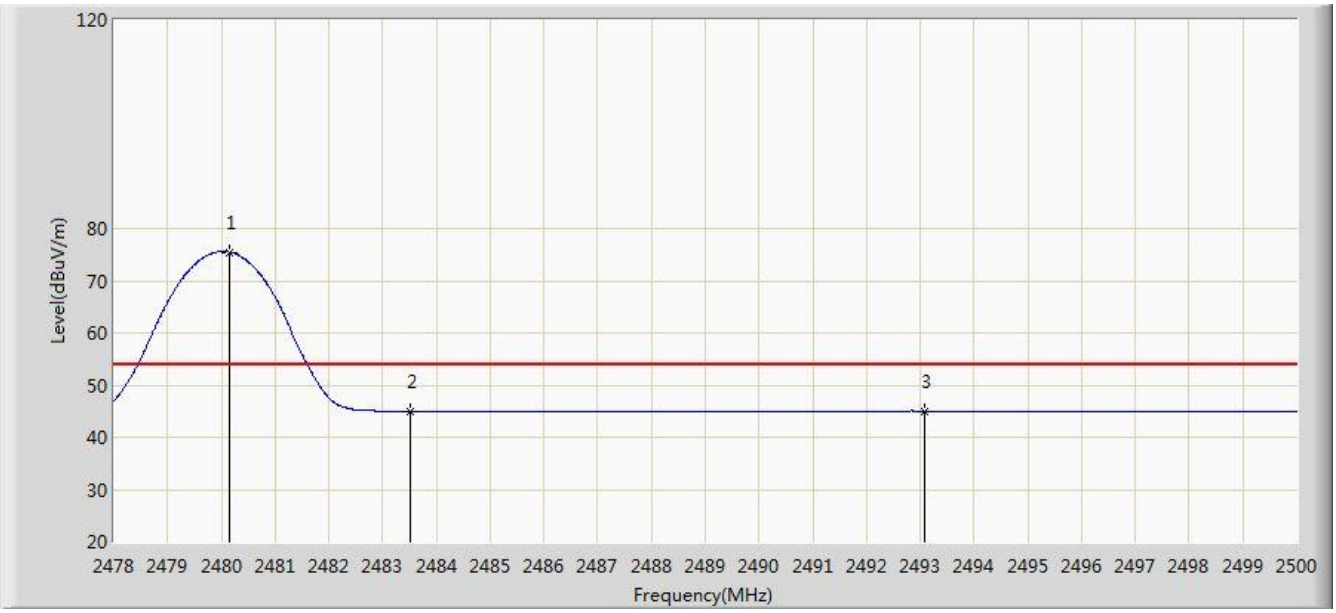


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2480.112	88.724	57.540	N/A	N/A	31.184	PK
2			2483.500	57.916	26.723	-16.084	74.000	31.194	PK
3			2492.916	60.759	29.541	-13.241	74.000	31.218	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC1	Time: 2015/12/07 - 10:16
Limit: FCC_Part15.209_RE(3m)	Engineer: Peak Wang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Ninebot miniPRO	Power: DC 12V
Test Mode: Transmit by BLE at Channel 2480MHz	

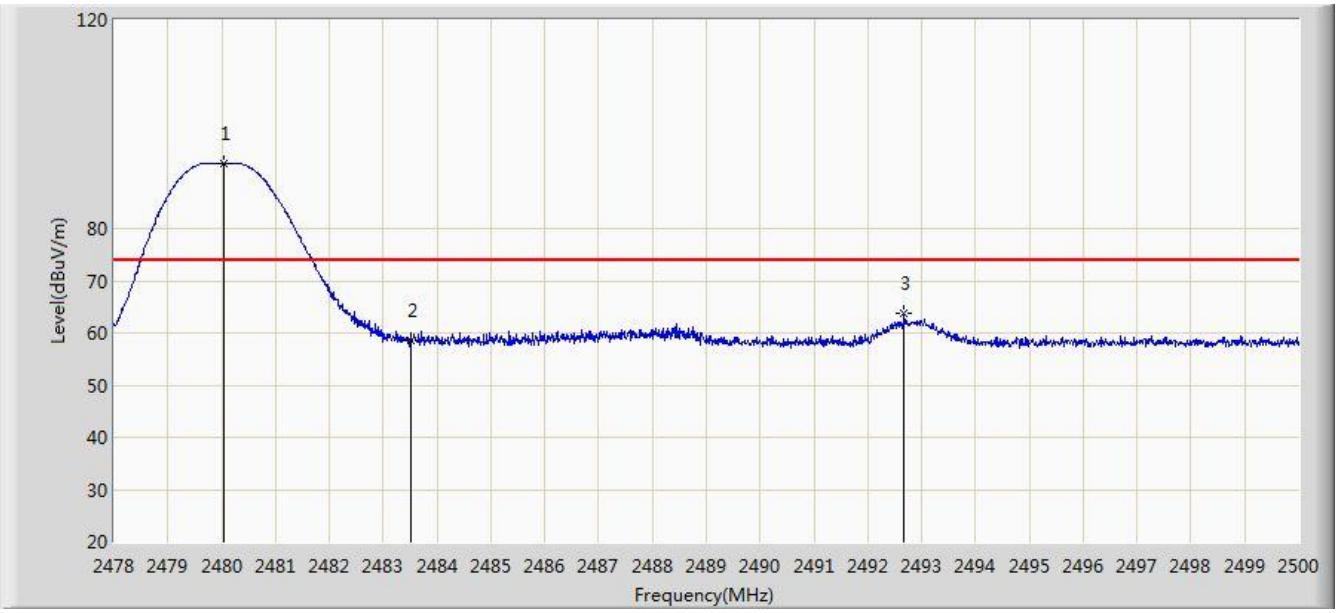


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2480.145	75.502	44.318	N/A	N/A	31.185	AV
2			2483.500	44.987	13.794	-9.013	54.000	31.194	AV
3			2493.081	45.015	13.796	-8.985	54.000	31.219	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC1	Time: 2015/12/07 - 10:17
Limit: FCC_Part15.209_RE(3m)	Engineer: Peak Wang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Ninebot miniPRO	Power: DC 12V
Test Mode: Transmit by BLE at Channel 2480MHz	

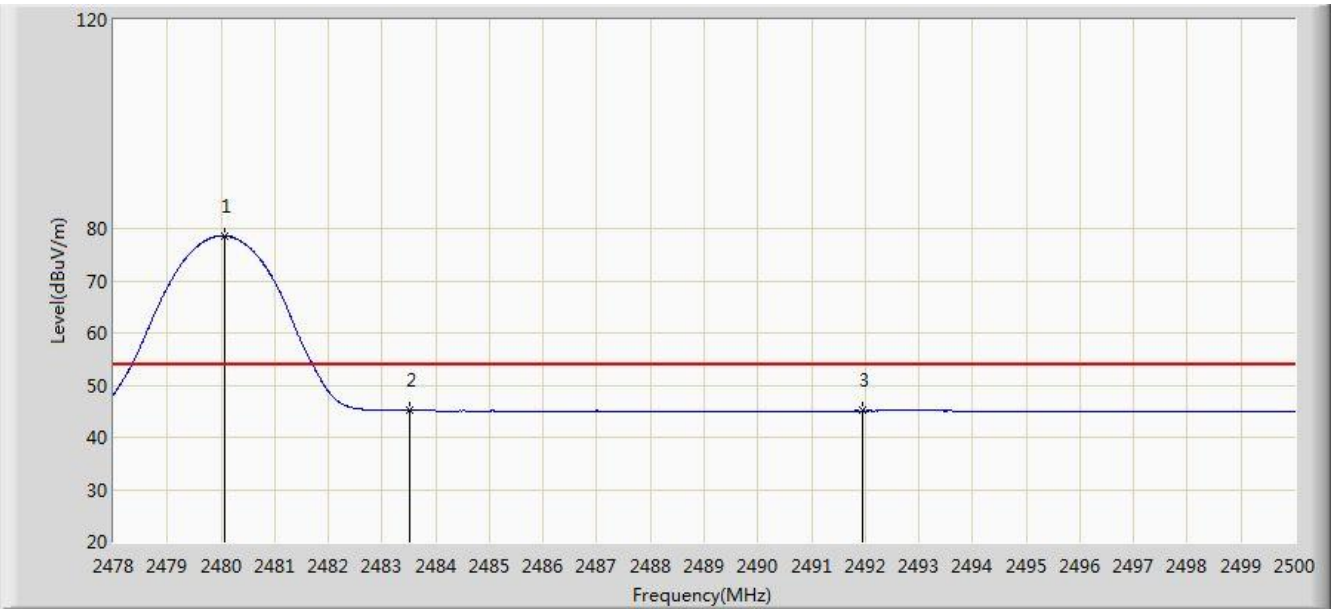


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2480.046	92.516	61.332	N/A	N/A	31.184	PK
2			2483.500	58.659	27.466	-15.341	74.000	31.194	PK
3			2492.674	63.676	32.459	-10.324	74.000	31.217	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC1	Time: 2015/12/07 - 10:20
Limit: FCC_Part15.209_RE(3m)	Engineer: Peak Wang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Ninebot miniPRO	Power: DC 12V
Test Mode: Transmit by BLE at Channel 2480MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2480.079	78.568	47.384	N/A	N/A	31.184	AV
2			2483.500	45.084	13.891	-8.916	54.000	31.194	AV
3			2491.948	45.082	13.866	-8.918	54.000	31.216	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

6.8. AC Conducted Emissions Measurement

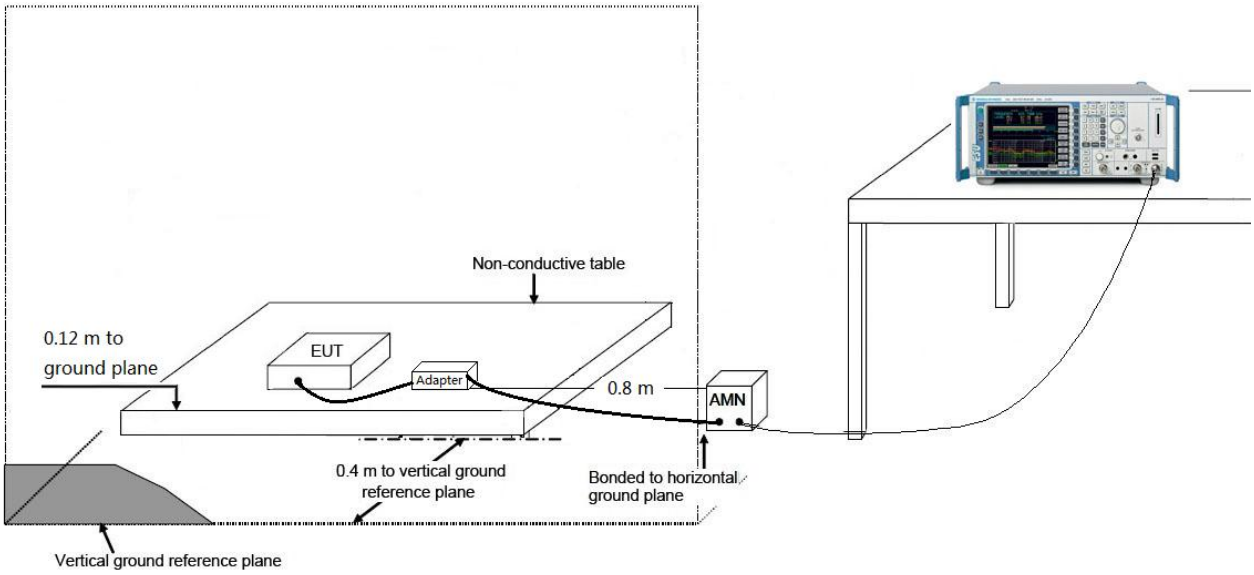
6.8.1. Test Limit

FCC Part 15 Subpart C Paragraph 15.207 Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Note 1: The lower limit shall apply at the transition frequencies.

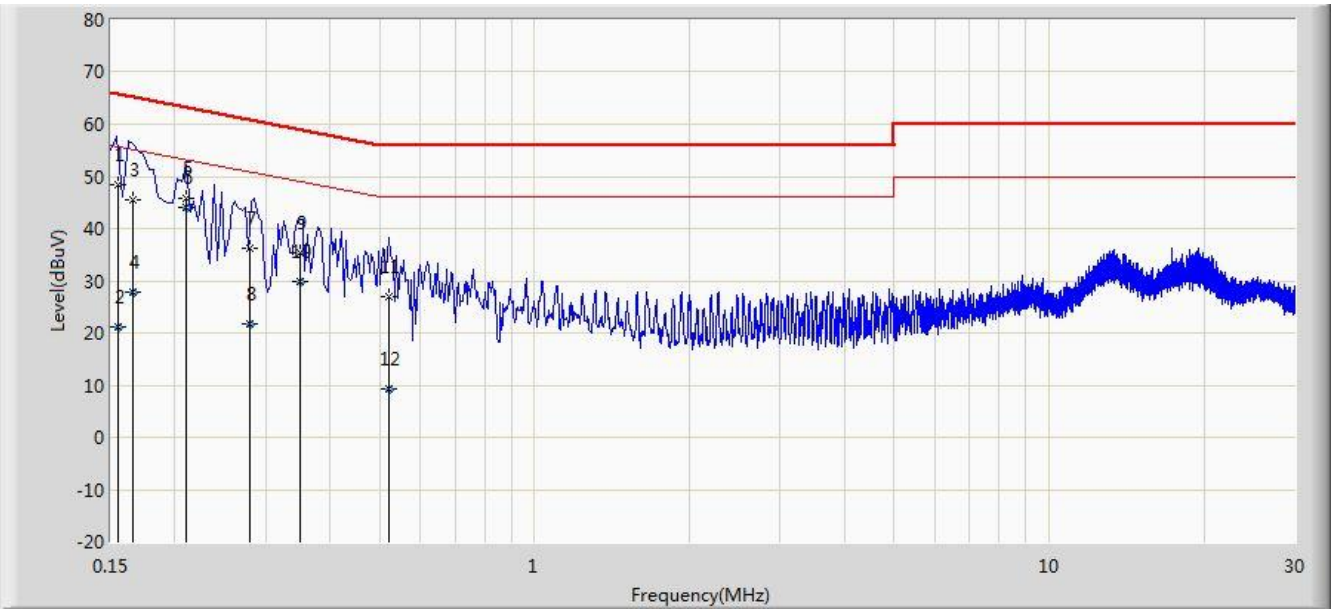
Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

6.8.2. Test Setup



6.8.3. Test Result

Site: SR2	Time: 2016/04/08 - 15:58
Limit: FCC_Part15.207_CE_AC Power	Engineer: Vince Yu
Probe: ENV216_101683_Filter On	Polarity: Line
EUT: Ninebot miniPRO	Power: AC 120V/60Hz
Test Mode: Mode 1	

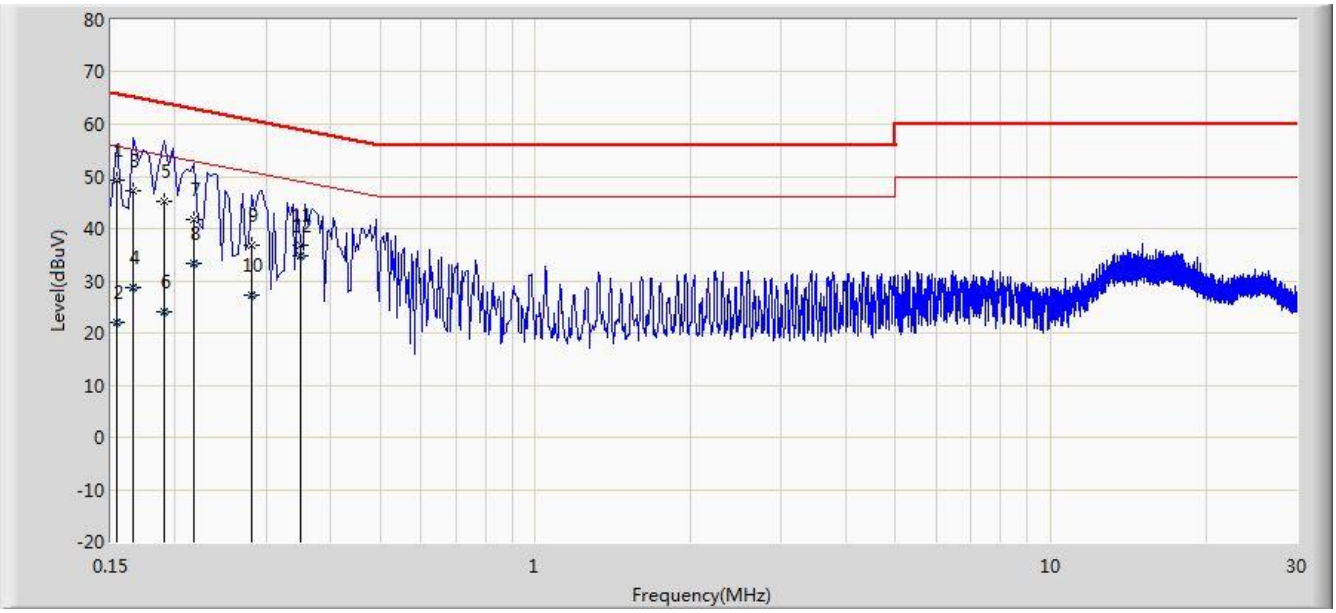


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.155	48.532	37.900	-17.195	65.728	10.632	QP
2			0.155	21.032	10.400	-34.695	55.728	10.632	AV
3			0.166	45.417	35.330	-19.741	65.158	10.087	QP
4			0.166	27.843	17.755	-27.316	55.158	10.087	AV
5			0.210	45.765	35.796	-17.441	63.205	9.969	QP
6		*	0.210	44.102	34.133	-9.103	53.205	9.969	AV
7			0.279	36.287	26.300	-24.558	60.846	9.987	QP
8			0.279	21.787	11.800	-29.058	50.846	9.987	AV
9			0.350	35.444	25.400	-23.518	58.962	10.044	QP
10			0.350	29.944	19.900	-19.018	48.962	10.044	AV
11			0.522	26.878	16.723	-29.122	56.000	10.155	QP
12			0.522	9.190	-0.965	-36.810	46.000	10.155	AV

Note: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB)

Site: SR2	Time: 2016/04/08 - 16:09
Limit: FCC_Part15.207_CE_AC Power	Engineer: Vince Yu
Probe: ENV216_101683_Filter On	Polarity: Neutral
EUT: Ninebot miniPRO	Power: AC 120V/60Hz
Test Mode: Mode 1	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.154	49.241	38.525	-16.540	65.781	10.716	QP
2			0.154	21.970	11.254	-33.811	55.781	10.716	AV
3			0.166	47.339	37.268	-17.819	65.158	10.071	QP
4			0.166	28.748	18.676	-26.411	55.158	10.071	AV
5			0.190	45.343	35.315	-18.693	64.037	10.028	QP
6			0.190	23.993	13.965	-30.043	54.037	10.028	AV
7			0.218	41.681	31.699	-21.214	62.895	9.981	QP
8			0.218	33.216	23.234	-19.679	52.895	9.981	AV
9			0.282	36.825	26.800	-23.932	60.757	10.025	QP
10			0.282	27.125	17.100	-23.632	50.757	10.025	AV
11			0.350	36.775	26.700	-22.188	58.962	10.074	QP
12		*	0.350	34.675	24.600	-14.288	48.962	10.074	AV

Note: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB)

7. CONCLUSION

The data collected relate only the item(s) tested and show that the **FCC ID: 2AF2B-NB** is in compliance with Part 15C of the FCC Rules.

The End