

MEASUREMENT REPORT

FCC PART 15.247 Bluetooth v3.0 + HS

FCC ID: HD5-EDA50211

APPLICANT: Honeywell International Inc
Honeywell Sensing & Productivity Solutions

Application Type: Class II Permissive Change

Product: Mobile Computer

Model No.: EDA50-211

Brand Name: Honeywell

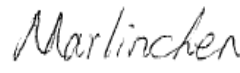
FCC Classification: FCC Part 15 Spread Spectrum Transmitter(DSS)

FCC Rule Part(s): Part 15.247

Test Procedure(s): ANSI C63.10-2013, DA 00-705

Test Date: July 24 ~ August 08, 2017

Reviewed By : 
(Jame Yuan)

Approved By : 
(Marlin Chen)



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 and DA 00-705. Test results reported herein relate only to the item(s) tested.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
1707RSU02602	Rev. 01	Initial report	08-10-2017	Valid

Note: This test report was based on MRT original report number: 1704RSU05702. The EUT change the all antennas of BT/Wi-Fi/NFC/GSM/WCDMA/LTE, and we have assessed the part of radiation emission testing.

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§2.1033 General Information

Applicant:	Honeywell International Inc Honeywell Sensing & Productivity Solutions
Applicant Address:	9680 Old Bailes Rd. Fort Mill, SC 29707 United States
Manufacturer:	Honeywell International Inc Honeywell Sensing & Productivity Solutions
Manufacturer Address:	9680 Old Bailes Rd. Fort Mill, SC 29707 United States
Test Site:	MRT Technology (Suzhou) Co., Ltd
Test Site Address:	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China
MRT Registration No.:	893164
FCC Rule Part(s):	Part 15.247
Model No.	EDA50-211
FCC ID:	HD5-EDA50211
Test Device Serial No.:	N/A ☐ Production ☒ Pre-Production ☐ Engineering
FCC Classification:	FCC Part 15 Spread Spectrum Transmitter (DSS)
Method/System:	Frequency Hopping Spread Spectrum (FHSS)

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. 893164) 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, 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. Feature of Equipment under Test

Product Name:	Mobile Computer
Model No.:	EDA50-211
Brand Name:	Honeywell
Hardware Version:	V2.0
Software Version:	205.01.00.0006.eng
IMEI:	356074080038511
Wi-Fi Specification:	802.11a/b/g/n
Bluetooth Specification:	v4.0 dual mode
GSM Operation Band (s):	E-GSM 850 / DCS 1900
WCDMA Operation Band (s):	Band II / V
LTE Operation Band (s):	FDD Band 2/4/7
NFC:	13.56MHz
GPS:	1575.42MHz
Components	
Adapter	Model No.: ADS-12B-06 05010E Input Power: 100 - 240V ~ 50/60Hz, Max. 0.3A Output Power: 5VDC 2.0A

2.2. Product Specification Subjective to this Report

Bluetooth Frequency	2402~2480MHz
Bluetooth Version	v3.0 + HS
Type of modulation	FHSS
Data Rate	1Mbps(GFSK), 2Mbps(Pi/4 DQPSK), 3Mbps (8DPSK)
Antenna Type / Antenna Gain:	FPC Antenna / 2.1dBi

The equipment under test (EUT) is the **Mobile Computer FCC ID: HD5-EDA50211**. The test data contained in this report pertains only to the emissions due to the EUT's Bluetooth transmitter.

- 15.247(g): In accordance with the Bluetooth Industry Standard, the system is designed to comply with all of the regulations in Section 15.247 when the transmitter is presented with a continuous data (or information) system.
- 15.247(h): In accordance with the Bluetooth Industry Standard, the system does not coordinate its channels selection/ hopping sequence with other frequency hopping systems for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters.
- 15.247(h): The EUT employs Adaptive Frequency Hopping (AFH) which identifies sources of interference namely devices operating in 802.11 WLAN and excludes them from the list of available channels. The process of re-mapping reduces the number of test channels from 79 channels to a minimum number of 20 channels.

2.3. Working Frequencies for this Report

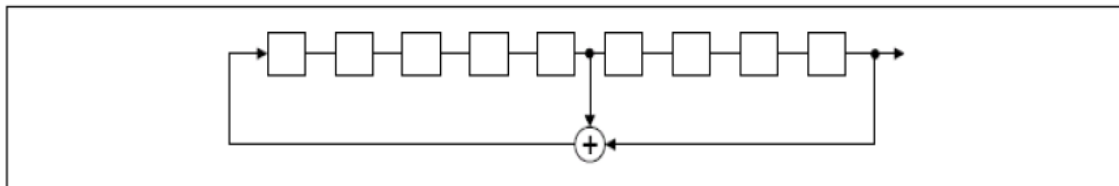
Channel List for Bluetooth v3.0 + HS

Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	01	2403 MHz	02	2404 MHz
03	2405 MHz	04	2406 MHz	05	2407 MHz
06	2408 MHz	07	2409 MHz	08	2410 MHz
09	2411 MHz	10	2412 MHz	11	2413 MHz
12	2414 MHz	13	2415 MHz	14	2416 MHz
15	2417 MHz	16	2418 MHz	17	2419 MHz
18	2420 MHz	19	2421 MHz	20	2422 MHz
21	2423 MHz	22	2424 MHz	23	2425 MHz
24	2426 MHz	25	2427 MHz	26	2428 MHz
27	2429 MHz	28	2430 MHz	29	2431 MHz
30	2432 MHz	31	2433 MHz	32	2434 MHz
33	2435 MHz	34	2436 MHz	35	2437 MHz
36	2438 MHz	37	2439 MHz	38	2440 MHz
39	2441 MHz	40	2442 MHz	41	2443 MHz
42	2444 MHz	43	2445 MHz	44	2446 MHz
45	2447 MHz	46	2448 MHz	47	2449 MHz
48	2450 MHz	49	2451 MHz	50	2452 MHz
51	2453 MHz	52	2454 MHz	53	2455 MHz
54	2456 MHz	55	2457 MHz	56	2458 MHz
57	2459 MHz	58	2460 MHz	59	2461 MHz
60	2462 MHz	61	2463 MHz	62	2464 MHz
63	2465 MHz	64	2466 MHz	65	2467 MHz
66	2468 MHz	67	2469 MHz	68	2470 MHz
69	2471 MHz	70	2472 MHz	71	2473 MHz
72	2474 MHz	73	2475 MHz	74	2476 MHz
75	2477 MHz	76	2478 MHz	77	2479 MHz
78	2480 MHz	--	--	--	--

2.4. Pseudorandom Frequency Hopping Sequence

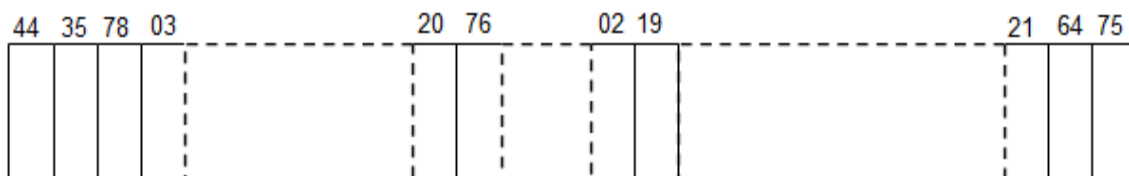
The pseudorandom sequence may be generated in a nine-stage shift register whose 5th and 9th stage outputs are added in a modulo-two addition stage. And the result is fed back to the input of the first stage. The sequence begins with the first ONE of 9 consecutive ONES; i.e. the shift register is initialized with nine ones.

- Number of shift register stages: 9
- Length of pseudo-random sequence: $2^9 - 1 = 511$ bits
- Longest sequence of zeros: 8 (non-inverted signal)



Linear Feedback Shift Register for Generation of the PRBS sequence

An example of Pseudorandom Frequency Hopping Sequence as follow:



Each frequency used equally on the average by each transmitter.

The system receivers have input bandwidths that match the hopping channel bandwidths of their Corresponding transmitters and shift frequencies in synchronization with the transmitted signals.

2.5. Device Capabilities

2.4GHz WLAN (DTS), 5GHz WLAN (UNII), Bluetooth (v4.0 dual mode), NFC, GSM 850/1900 WCDMA Band II/V, LTE FDD Band 2/4/7

2.6. Test Configuration

The **Mobile Computer FCC ID: HD5-EDA50211** was tested per the guidance of ANSI C63.10-2013 and DA 00-705. ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing.

2.7. Test Software

The test utility software used during testing was "QRCT Version3.0.105.0".

2.8. EMI Suppression Device(s)/Modifications

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

2.9. 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 FCC ID must be displayed on the device per Section 15.19(a)(5). Please see attachment for FCC ID label and label location.

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 “Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems” (DA 00-705) were used in the measurement of the **Mobile Computer FCC ID: HD5-EDA50211**.

Deviation from measurement procedure.....None

3.2. 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. ANTENNA REQUIREMENTS

Excerpt from §15.203 of the FCC Rules/Regulations:

“An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.”

- The antenna of the **Mobile Computer** is **permanently attached**.
- There are no provisions for connection to an external antenna.

Conclusion:

The **Mobile Computer FCC ID: HD5-EDA50211** unit complies with the requirement of §15.203.

5. TEST EQUIPMENT CALIBRATION DATE

Radiated Emissions - AC2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Agilent	N9038A	MRTSUE06125	1 year	2017/08/19
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2018/06/21
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2018/04/15
Loop Antenna	Schwarzbeck	FMZB1519	MRTSUE06025	1 year	2017/11/21
TRILOG Antenna	Schwarzbeck	VULB9168	MRTSUE06172	1 year	2017/11/19
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06171	1 year	2017/11/19
Broadband Horn Antenna	Schwarzbeck	BBHA9170	MRTSUE06024	1 year	2017/12/30
Digital Thermometer & Hygrometer	Minggao	N/A	MRTSUE06170	1 year	2017/12/14
Anechoic Chamber	RIKEN	Chamber-AC2	MRTSUE06213	1 year	2018/05/10

Software	Version	Function
e3	V 8.3.5	EMI Test Software

6. 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 $k = 2$.

Radiated Emission Measurement - AC2
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 9kHz ~ 1GHz: 4.18dB 1GHz ~ 25GHz: 4.76dB

7. TEST RESULT

7.1. Summary

Product Name: Mobile Computer
FCC ID: HD5-EDA50211
Method/System: Frequency Hopping Spread Spectrum (FHSS)
Number of Channels: 79

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.205 15.209	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 7.2, Section 7.3

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.
- 4) For the "Radiated Restricted Band Edge Measurement", only the worst test channel has been shown.

7.2. Radiated Spurious Emission Measurement

7.2.1. 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

7.2.2. Test Procedure Used

ANSI C63.10-2013 - Section 6.10.5

7.2.3. Test Setting

Peak Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = as specified in Table 1
3. VBW = 3 * RBW
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Table 1 - RBW as a function of frequency

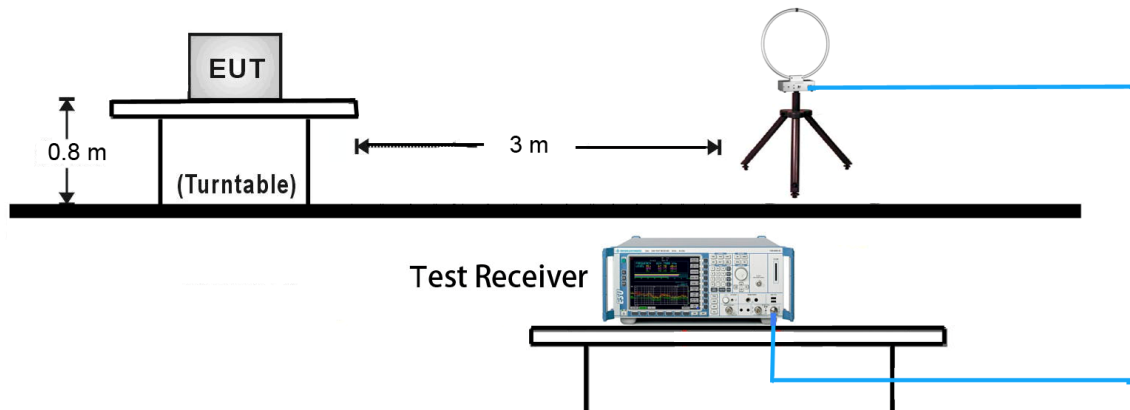
Frequency	RBW
9 ~ 150 kHz	200 ~ 300 Hz
0.15 ~ 30 MHz	9 ~ 10 kHz
30 ~ 1000 MHz	100 ~ 120 kHz
> 1000 MHz	1 MHz

Average Field Strength Measurements

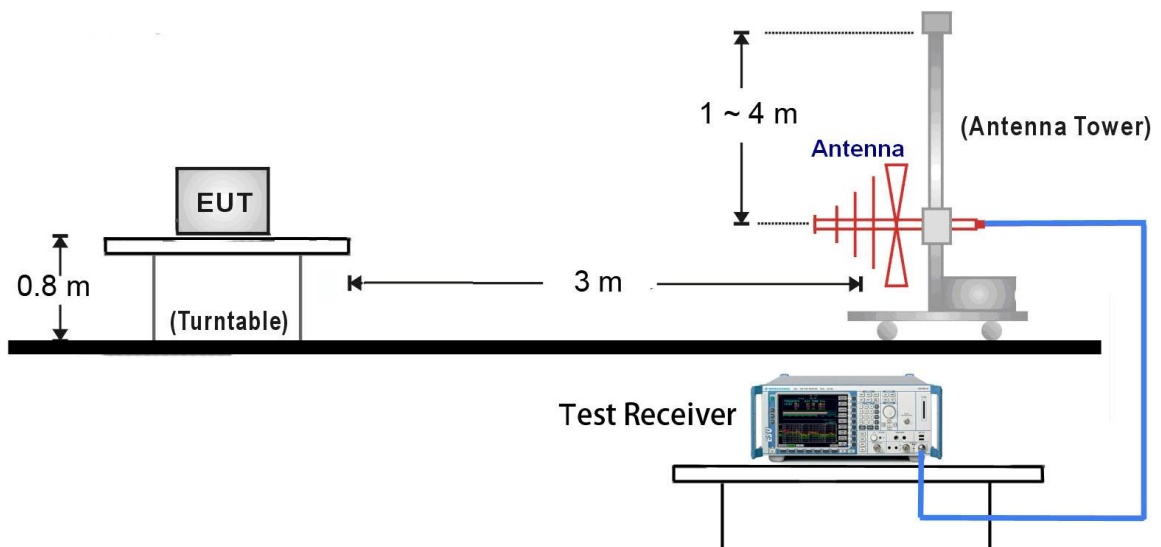
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW $\geq 1/T$
4. De As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display mode in order to accomplish this. Others have a setting for Average-VBW Type, which can be set to "Voltage" regardless of the display mode
5. Detector = Peak
6. Sweep time = auto
7. Trace mode = max hold
8. Allow max hold to run for at least 50 times (1/duty cycle) traces

7.2.4. Test Setup

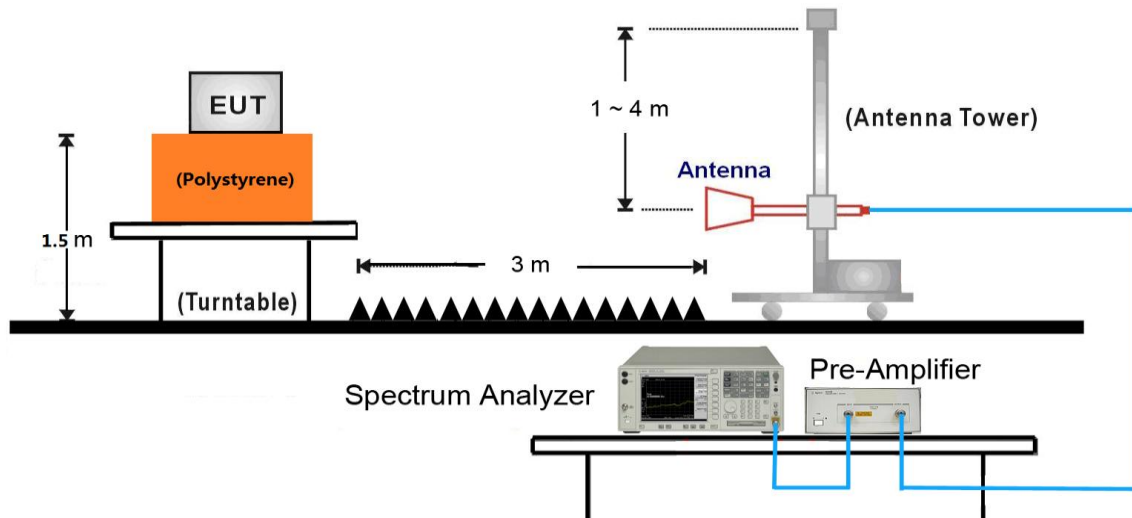
9kHz ~ 30MHz Test Setup:



30MHz ~ 1GHz Test Setup:



1GHz ~ 25GHz Test Setup:



7.2.5. Test Result

Product:	Mobile Computer	Temperature:	25°C
Test Engineer:	Snake Ni	Relative Humidity:	51 ~ 56%
Test Site:	AC2	Test data:	2017/07/28
Test Mode:	DH5	Test Channel:	00
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
	3975.0	37.4	-0.5	36.9	74.0	-37.1	Peak	Horizontal
	6499.5	33.1	7.2	40.3	74.0	-33.7	Peak	Horizontal
	7502.5	32.5	11.0	43.5	74.0	-30.5	Peak	Horizontal
	9925.0	31.8	13.3	45.1	74.0	-28.9	Peak	Horizontal
	4723.0	34.9	2.8	37.7	74.0	-36.3	Peak	Vertical
	6661.0	33.2	7.6	40.8	74.0	-33.2	Peak	Vertical
	7545.0	32.5	10.9	43.4	74.0	-30.6	Peak	Vertical
	10205.5	32.5	14.0	46.5	74.0	-27.5	Peak	Vertical

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product:	Mobile Computer	Temperature:	25°C
Test Engineer:	Snake Ni	Relative Humidity:	51 ~ 56%
Test Site:	AC2	Test data:	2017/07/28
Test Mode:	DH5	Test Channel:	39
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
	3890.0	36.3	-0.6	35.7	74.0	-38.3	Peak	Horizontal
	6431.5	33.9	6.7	40.6	74.0	-33.4	Peak	Horizontal
	7468.5	32.6	11.0	43.6	74.0	-30.4	Peak	Horizontal
	13044.5	32.3	17.5	49.8	74.0	-24.2	Peak	Horizontal
	4884.5	36.1	2.7	38.8	74.0	-35.2	Peak	Vertical
	6295.5	32.6	6.0	38.6	74.0	-35.4	Peak	Vertical
	11523.0	32.1	17.2	49.3	74.0	-24.7	Peak	Vertical
	14217.5	32.0	21.5	53.5	74.0	-20.5	Peak	Vertical

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product:	Mobile Computer	Temperature:	25°C
Test Engineer:	Snake Ni	Relative Humidity:	51 ~ 56%
Test Site:	AC2	Test data:	2017/07/28
Test Mode:	DH5	Test Channel:	79
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
	4187.5	36.4	0.5	36.9	74.0	-37.1	Peak	Horizontal
	6550.5	33.1	7.4	40.5	74.0	-33.5	Peak	Horizontal
	7460.0	32.9	11.1	44.0	74.0	-30.0	Peak	Horizontal
	10146.0	32.5	13.8	46.3	74.0	-27.7	Peak	Horizontal
	4323.5	35.9	1.0	36.9	74.0	-37.1	Peak	Vertical
	5598.5	35.4	3.7	39.1	74.0	-34.9	Peak	Vertical
	7545.0	32.9	10.9	43.8	74.0	-30.2	Peak	Vertical
	7876.5	34.1	10.5	44.6	74.0	-29.4	Peak	Vertical

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product:	Mobile Computer	Temperature:	25°C
Test Engineer:	Snake Ni	Relative Humidity:	51 ~ 56%
Test Site:	AC2	Test data:	2017/07/28
Test Mode:	2DH5	Test Channel:	00
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
	6618.5	33.3	7.6	40.9	74.0	-33.1	Peak	Horizontal
	10537.0	32.7	15.3	48.0	74.0	-26.0	Peak	Horizontal
	11098.0	31.2	16.9	48.1	74.0	-25.9	Peak	Horizontal
	14769.2	18.4	20.5	38.9	74.0	-35.1	Peak	Horizontal
	5054.5	36.1	2.9	39.0	74.0	-35.0	Peak	Vertical
	6635.5	33.5	7.6	41.1	74.0	-32.9	Peak	Vertical
	11523.0	31.4	17.2	48.6	74.0	-25.4	Peak	Vertical
	14991.0	18.5	19.1	37.6	74.0	-36.4	Peak	Vertical

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product:	Mobile Computer	Temperature:	25°C
Test Engineer:	Snake Ni	Relative Humidity:	51 ~ 56%
Test Site:	AC2	Test data:	2017/07/28
Test Mode:	2DH5	Test Channel:	39
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
	5377.5	34.6	3.0	37.6	74.0	-36.4	Peak	Horizontal
*	6550.5	33.8	7.4	41.2	74.0	-32.8	Peak	Horizontal
	11557.0	31.6	17.7	49.3	74.0	-24.7	Peak	Horizontal
*	13172.0	31.9	17.8	49.7	74.0	-24.3	Peak	Horizontal
	4706.0	34.7	2.7	37.4	74.0	-36.6	Peak	Vertical
*	6499.5	33.7	7.2	40.9	74.0	-33.1	Peak	Vertical
	9126.0	31.7	12.5	44.2	74.0	-29.8	Peak	Vertical
*	13002.0	32.2	17.3	49.5	74.0	-24.5	Peak	Vertical

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product:	Mobile Computer	Temperature:	25°C
Test Engineer:	Snake Ni	Relative Humidity:	51 ~ 56%
Test Site:	AC2	Test data:	2017/07/28
Test Mode:	2DH5	Test Channel:	79
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
	4638.0	34.8	2.4	37.2	74.0	-36.8	Peak	Horizontal
*	6720.5	33.5	7.6	41.1	74.0	-32.9	Peak	Horizontal
	7604.5	33.1	10.8	43.9	74.0	-30.1	Peak	Horizontal
*	10307.5	32.1	14.7	46.8	74.0	-27.2	Peak	Horizontal
	5080.0	35.5	3.1	38.6	74.0	-35.4	Peak	Vertical
*	6601.5	33.0	7.5	40.5	74.0	-33.5	Peak	Vertical
	7426.0	34.5	10.7	45.2	74.0	-28.8	Peak	Vertical
*	9627.5	32.6	12.7	45.3	74.0	-28.7	Peak	Vertical

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product:	Mobile Computer	Temperature:	25°C
Test Engineer:	Snake Ni	Relative Humidity:	51 ~ 56%
Test Site:	AC2	Test data:	2017/07/28
Test Mode:	3DH5	Test Channel:	00
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
	4808.0	35.6	2.7	38.3	74.0	-35.7	Peak	Horizontal
*	5683.5	35.5	4.0	39.5	74.0	-34.5	Peak	Horizontal
	7264.5	33.1	10.7	43.8	74.0	-30.2	Peak	Horizontal
*	9916.5	32.1	13.4	45.5	74.0	-28.5	Peak	Horizontal
	4629.5	35.1	2.3	37.4	74.0	-36.6	Peak	Vertical
*	6678.0	31.9	7.7	39.6	74.0	-34.4	Peak	Vertical
	7630.0	33.5	10.5	44.0	74.0	-30.0	Peak	Vertical
*	9729.5	33.2	12.4	45.6	74.0	-28.4	Peak	Vertical

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product:	Mobile Computer	Temperature:	25°C
Test Engineer:	Snake Ni	Relative Humidity:	51 ~ 56%
Test Site:	AC2	Test data:	2017/07/28
Test Mode:	3DH5	Test Channel:	39
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
	5080.0	35.7	3.1	38.8	74.0	-35.2	Peak	Horizontal
*	6499.5	33.3	7.2	40.5	74.0	-33.5	Peak	Horizontal
	7460.0	33.1	11.1	44.2	74.0	-29.8	Peak	Horizontal
*	9916.5	33.0	13.4	46.4	74.0	-27.6	Peak	Horizontal
	5445.5	35.9	3.1	39.0	74.0	-35.0	Peak	Vertical
*	6610.0	33.6	7.6	41.2	74.0	-32.8	Peak	Vertical
	11557.0	31.4	17.7	49.1	74.0	-24.9	Peak	Vertical
*	14659.5	18.7	20.5	39.2	74.0	-34.8	Peak	Vertical

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product:	Mobile Computer	Temperature:	25°C
Test Engineer:	Snake Ni	Relative Humidity:	51 ~ 56%
Test Site:	AC2	Test data:	2017/07/28
Test Mode:	3DH5	Test Channel:	79
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.		

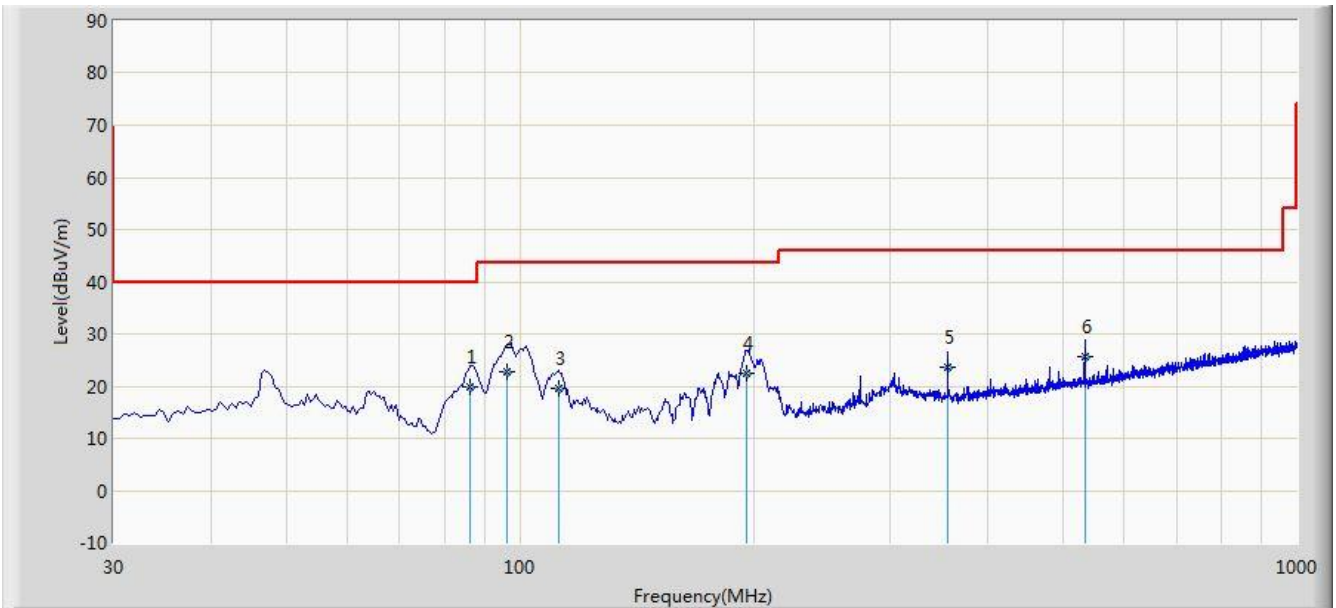
Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4655.0	34.9	2.6	37.5	74.0	-36.5	Peak	Horizontal
	6491.0	34.2	7.3	41.5	74.0	-32.5	Peak	Horizontal
	8429.0	33.0	10.6	43.6	74.0	-30.4	Peak	Horizontal
	15280.0	34.0	18.7	52.7	74.0	-21.3	Peak	Horizontal
	5131.0	35.5	3.2	38.7	74.0	-35.3	Peak	Vertical
	6227.5	35.4	6.1	41.5	74.0	-32.5	Peak	Vertical
	7494.0	33.4	11.0	44.4	74.0	-29.6	Peak	Vertical
	9942.0	31.2	13.3	44.5	74.0	-29.5	Peak	Vertical

Note 1: 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 9KHz ~ 1GHz and 18GHz ~ 25GHz:

Site: AC2	Time: 2017/08/06 - 02:40
Limit: FCC_Part15.209_RE(3m)	Engineer: Snake Ni
Probe: VULB9162_0.03-8GHz	Polarity: Horizontal
EUT: Mobile Computer	Power: AC 120V/60Hz
Worse Case Mode: Transmit by DH5 at Channel 2480MHz	



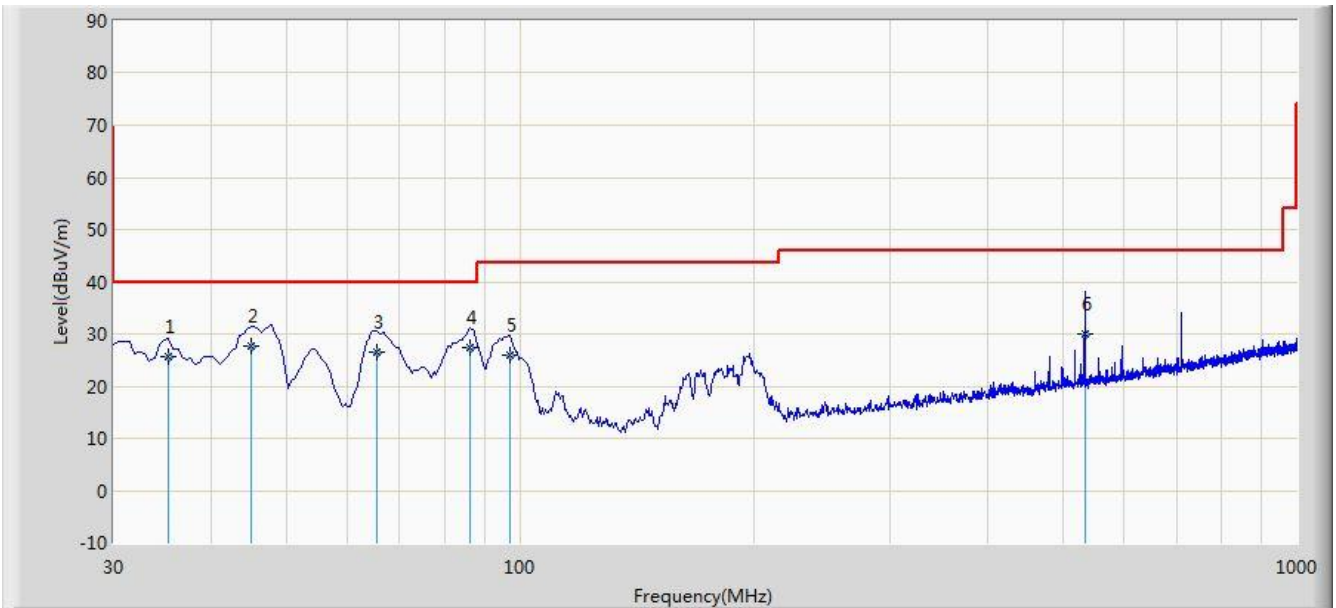
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	86.260	19.867	9.551	-20.133	40.000	10.316	QP
2			96.445	22.775	10.251	-20.725	43.500	12.524	QP
3			112.450	19.472	6.958	-24.028	43.500	12.514	QP
4			195.870	22.348	10.205	-21.152	43.500	12.143	QP
5			355.435	23.525	7.585	-22.475	46.000	15.940	QP
6			533.430	25.701	6.870	-20.299	46.000	18.832	QP

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

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

Note 2: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 25GHz), therefore no data appear in the report.

Site: AC2	Time: 2017/08/06 - 02:54
Limit: FCC_Part15.209_RE(3m)	Engineer: Snake Ni
Probe: VULB9162_0.03-8GHz	Polarity: Vertical
EUT: Mobile Computer	Power: AC 120V/60Hz
Worse Case Mode: Transmit by DH5 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			35.335	25.520	12.518	-14.480	40.000	13.001	QP
2		*	45.035	27.796	12.950	-12.204	40.000	14.846	QP
3			65.405	26.637	14.215	-13.363	40.000	12.422	QP
4			86.260	27.517	17.201	-12.483	40.000	10.316	QP
5			96.930	25.866	13.280	-17.634	43.500	12.585	QP
6			533.430	30.041	11.210	-15.959	46.000	18.832	QP

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

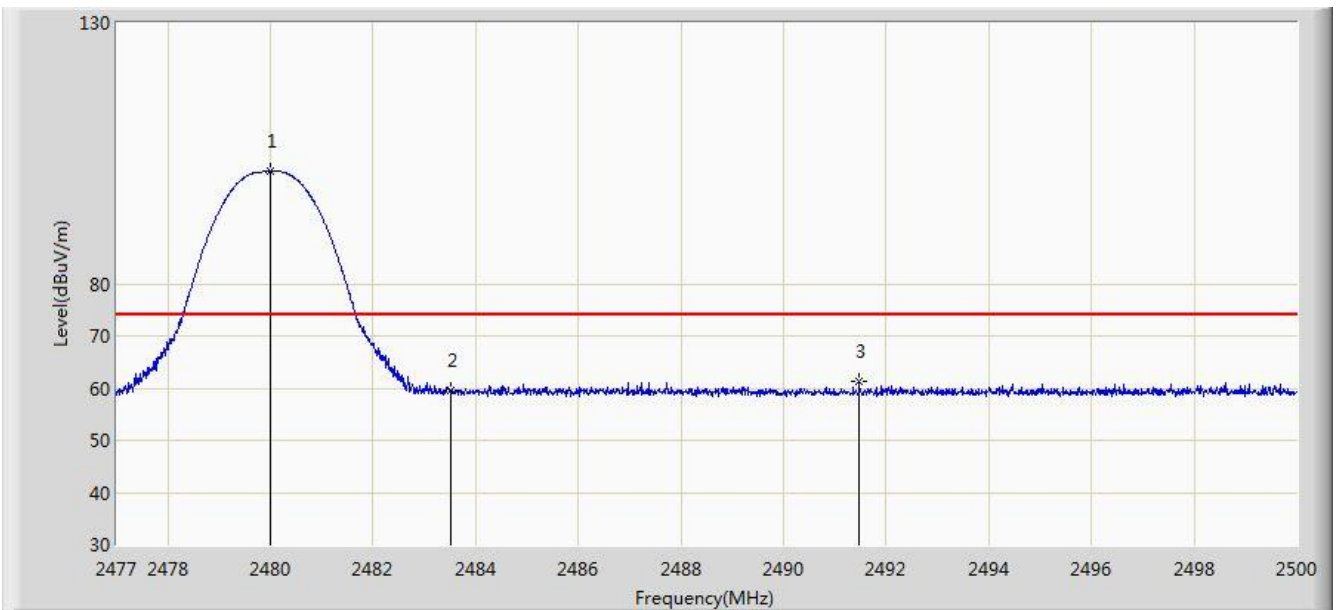
Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Note 2: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 25GHz), therefore no data appear in the report.

7.3. Radiated Restricted Band Edge Measurement

7.3.1. Test Result

Site: AC2	Time: 2017/08/06 - 05:46
Limit: FCC_Part15.209_RE(3m)	Engineer: Snake Ni
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Mobile Computer	Power: AC 120V/60Hz
Test Mode: Transmit by DH5 at Channel 2480MHz	

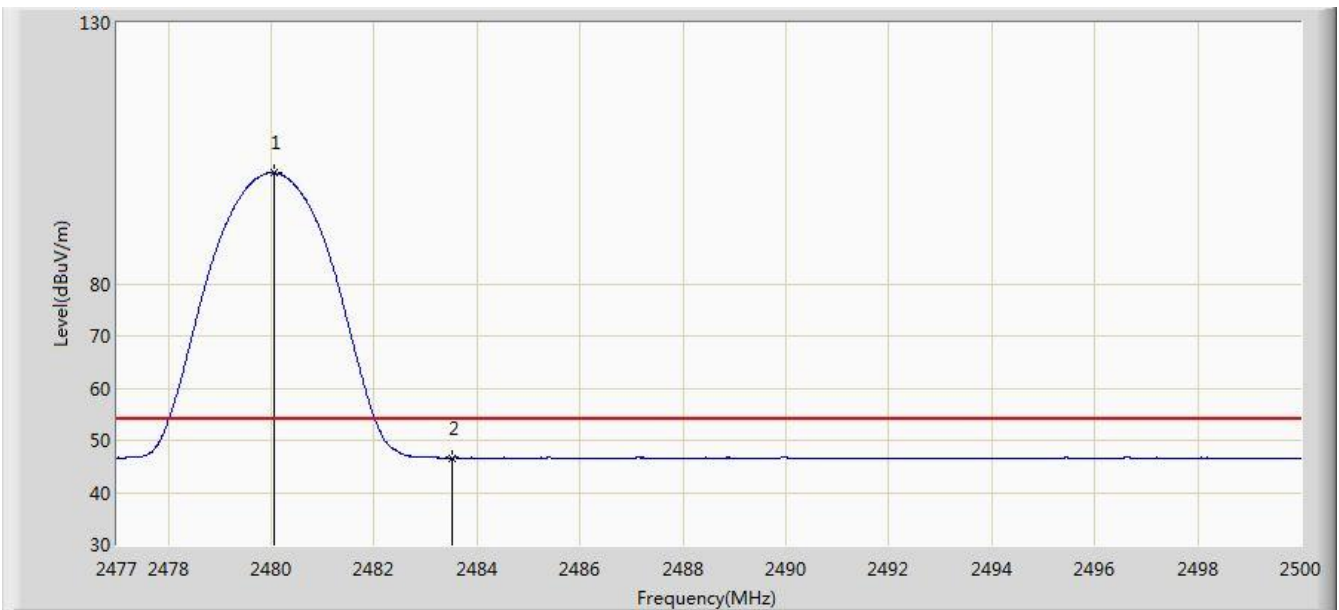


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2479.990	101.486	69.217	N/A	N/A	32.269	PK
2			2483.500	59.500	27.219	-14.500	74.000	32.282	PK
3			2491.467	61.292	28.983	-12.708	74.000	32.309	PK

Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

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

Site: AC2	Time: 2017/08/06 - 05:54
Limit: FCC_Part15.209_RE(3m)	Engineer: Snake Ni
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Mobile Computer	Power: AC 120V/60Hz
Test Mode: Transmit by DH5 at Channel 2480MHz	

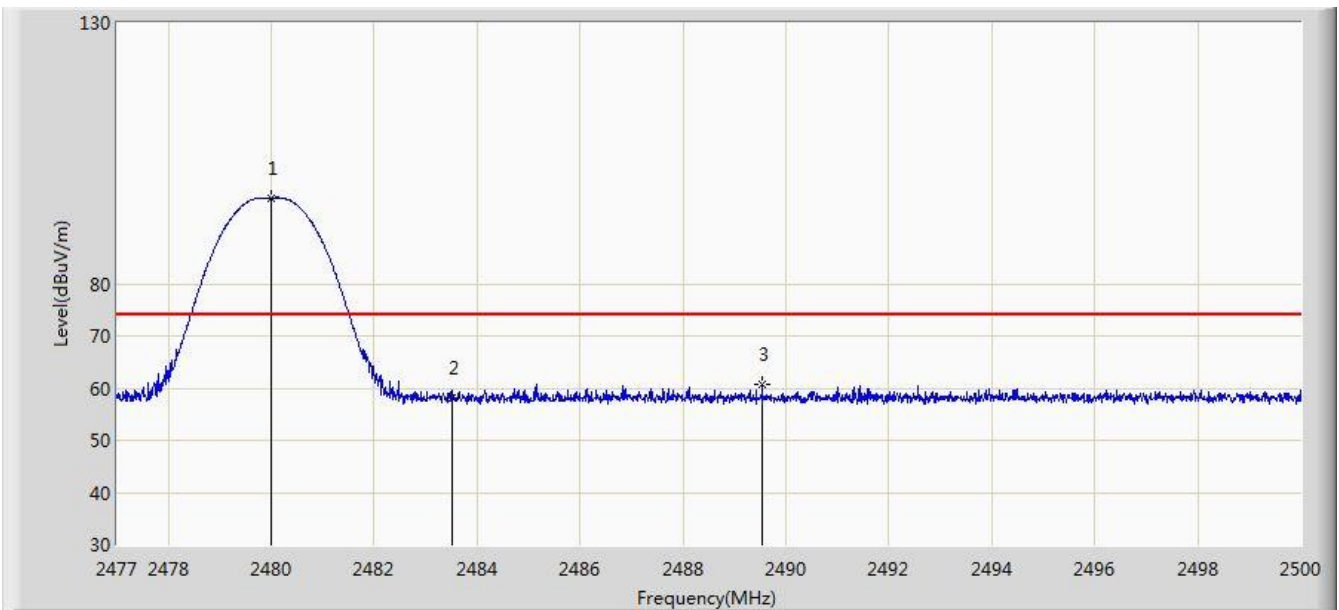


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2480.059	101.228	68.959	N/A	N/A	32.269	AV
2			2483.500	46.589	14.308	-7.411	54.000	32.282	AV

Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

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

Site: AC2	Time: 2017/08/06 - 05:57
Limit: FCC_Part15.209_RE(3m)	Engineer: Snake Ni
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Mobile Computer	Power: AC 120V/60Hz
Test Mode: Transmit by DH5 at Channel 2480MHz	

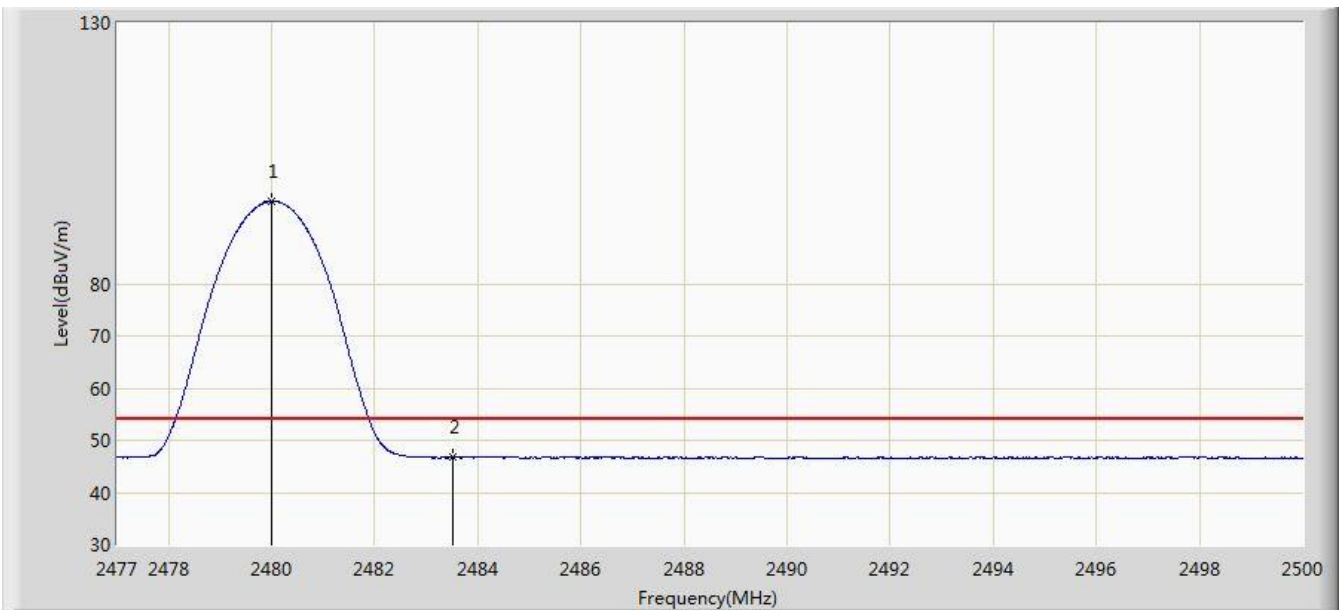


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2479.990	96.497	64.228	N/A	N/A	32.269	PK
2			2483.500	58.178	25.897	-15.822	74.000	32.282	PK
3			2489.535	60.592	28.290	-13.408	74.000	32.303	PK

Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

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

Site: AC2	Time: 2017/08/06 - 06:01
Limit: FCC_Part15.209_RE(3m)	Engineer: Snake Ni
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Mobile Computer	Power: AC 120V/60Hz
Test Mode: Transmit by DH5 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		*	2479.990	95.793	63.524	N/A	N/A	32.269	AV
2			2483.500	46.725	14.444	-7.275	54.000	32.282	AV

Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

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

8. CONCLUSION

The data collected relate only the item(s) tested and show that the **Mobile Computer FCC ID:**

HD5-EDA50211 is in compliance with Part 15C of the FCC Rules.

The End