# TEST REPORT

| | | |
|---|---|---|
| **Product** | : | Clean Wipe Keyboard Bluetooth |
| **Trade mark** | : | SEAL SHIELD™ |
| **Model/Type reference** | : | SSKSV099BT |
| **Serial number** | : | N/A |
| **Ratings** | : | DC 5V |
| **FCC ID** | : | X7LSSKSV099BT |
| **Report number** | : | EESZF12050020 |
| **Date** | : | Dec. 30, 2013 |
| **Regulations** | : | See below |

| Test Standards | Results |
|---|---|
| ☒ 47 CFR FCC Part 15 Subpart C 15.247: 2012 | PASS |

Prepared for:

**Seal Shield Corporation**
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Prepared by:

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Approved by: _____ Date: Dec. 30, 2013

Jimmy Li
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*N/A means not applicable.*

# 1. GENERAL INFORMATION

**Applicant:** Seal Shield Corporation
3105 Riverside Avenue Jacksonville, FL 32205

**Manufacturer:** CAN Technology Co., Ltd.
No. 827 Sec. 1St , Chung Hua Rd. Chung Li city Taoyuan Hsien Taiwan

**Factory:** SQT shenzhen SQT Electronics Co., Ltd.
Bldg B4, Hengji Industry Zone, He Yi Village, Sha Jing Town, Bao An Area, Shenzhen, Guangdong Province, China

**FCC ID:** X7LSSKSV099BT

**Product:** Clean Wipe Keyboard Bluetooth

**Trade mark:** SEAL SHIELD™

**Model/Type reference:** SSKSV099BT

**Serial number:** N/A

**Report number:** EESZF12050020

**Sample Received Date:** Nov. 15, 2013

**Sample tested Date:** Nov. 15, 2013 to Dec. 29, 2013

The above equipment was tested by Centre Testing International for compliance with the requirements set forth in the FCC and IC Rules and the measurement procedure according to ANSI C63.4:2003.

# 2. PRODUCT INFORMATION

| Items | Description |
|---|---|
| Rating | Charging Input: 5V⎓<br>Lithium Battery: 3.7V⎓ |
| Intentional Transceiver | Intentional Transceiver |
| Frequency Range | 2402 ~ 2480 MHz |
| Channel Number | 79 (at intervals of 1MHz) |
| Modulation Type | GFSK |
| Antenna Type | PCB Antenna |
| Antenna Type | 0dBi |

# 3. TEST SUMMARY

| No. | Test Item | Rule | Test Result |
|---|---|---|---|
| 1 | Conducted Emission (CE) | FCC 15.207 | **PASS** |
| 2 | 20dB Bandwidth | FCC 15.247(a)(1) | **PASS** |
| 3 | Carrier Frequency Separation | FCC15.247(a)(1) | **PASS** |
| 4 | Number of Hopping Frequency | FCC 15.247(a)(iii) | **PASS** |
| 5 | Time of Occupancy (Dwell Time) | FCC 15.247(a)(iii) | **PASS** |
| 6 | Maximum Peak Conducted Output Power | FCC 15.247(b)(1) | **PASS** |
| 7 | Band edge Emission | FCC 15.247(d) | **PASS** |
| 8 | Spurious RF Conducted Emission | FCC 15.247(d) | **PASS** |
| 9 | Radiated Emission | FCC 15.247(d) | **PASS** |
| 10 | Antenna Requirements * | FCC 15.203 | **PASS** |

*: According to Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The EUT has a built in antenna which is a short wire solder on the PCB, this is permanently attached antenna and meets the requirements of this section.

# 4. MEASUREMENT UNCERTAINTY

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

| Measurement items | Uncertainty |
|---|---|
| Conducted Emission Test | 3.2 dB |
| Radiated Emissions / Bandedge Emission | 4.5 dB |

# 5. SYSTEM TEST CONFIGURATION

## 5.1 JUSTIFICATION

For emissions testing, the equipment under test (Product) setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing. During testing, all cables were manipulated to produce worst case emissions. It was powered by 3.7VDC. Only the worst case data were recorded in this test report.

The signal is maximized through rotation and placement in the three orthogonal axes. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters. Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance.

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. Analyzer resolution is 100 kHz or greater for frequencies below 1000 MHz. The resolution is 1 MHz or greater for frequencies above 1000 MHz. The spurious emissions more than 20 dB below the permissible value are not reported.

Radiated emission measurement were performed the lowest radio frequency signal

generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

### 5.2 PRODUCT EXERCISING SOFTWARE

The Product exercise program ISRT, (provided by client) used during testing was designed to exercise the various system components in a manner similar to a typical use.

The parameters of test software setting:
During the test, Channel and power controlling software provided by the applicant was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the application and is going to be fixed on the firmware of the end product.

| Channel No. | Data rate | Modulation Type |
|---|---|---|
| 1 to 79 | 1 Mbps | GFSK |

## 6. TABLE OF TEST MODE

Preliminary tests were performed the entire possible configuration in different modulation type and different data rate according to the following table to find the worst cases. And only one group of the worst - case data for each test item is shown in the report.

| Test Items | Mode | Data Rate | Channel |
|---|---|---|---|
| 20dB Bandwidth | GFSK | 1 Mbps | 1 / 40 / 79 |
| Carrier Frequency Separation | GFSK | 1 Mbps | 1 and 2 /40 and 41 / 78 and 79 |
| Number of Hopping Frequency | GFSK | 1 Mbps | 1 to 79 |
| Time of Occupancy (Dwell Time) | GFSK | 1 Mbps | 1 / 40 / 79 |
| Maximum Peak Conducted Output Power | GFSK | 1 Mbps | 1 / 40 / 79 |
| Band edge Emission | GFSK | 1 Mbps | 1 / 79 |
| Spurious RF Conducted Emission | GFSK | 1 Mbps | 1 / 40 / 79 |
| Radiated Emission | GFSK | 1 Mbps | 1 / 40 / 79 |

## 7. TEST EQUIPMENT LIST

| Equipment | Manufacturer | Model Number | Serial Number | Due Date |
|---|---|---|---|---|
| Receiver | R&S | ESCI | 100009 | 07/19/2014 |
| LISN | R&S | ENV216 | 100098 | 07/19/2014 |
| 3M Chamber & Accessory Equipment | ETS-LINDGREN | FACT-3 | 3510 | 07/12/2016 |
| Spectrum Analyzer | Agilent | E4443A | MY45300910 | 01/18/2014 |
| Receiver | R&S | ESCI | 100435 | 07/19/2014 |
| TRILOG Broadband Antenna | schwarzbeck | VULB 9163 | 618 | 06/25/2014 |
| Multi device Controller | ETS-LINGREN | 2090 | 00057230 | N/A |

| | | | | |
|---|---|---|---|---|
| Horn Antenna | ETS-LINGREN | 3117 | 00057407 | 07/19/2014 |
| Microwave Preamplifier | Agilent | 8449B | 3008A02425 | 04/16/2014 |
| Spectrum Analyzer | R&S | FSP40 | 100416 | 07/06/2014 |

## 8. SUPPORT EQUIPMENT LIST

| No. | Device Type | Brand | Model | Series No. | Data Cable | Remark |
|---|---|---|---|---|---|---|
| 1. | Notebook | DELL | Vostro 3400 | GYQTVP1 | N/A | FCC DOC |
| 2. | Mouse | L.Selectron | M004 | 02284699 | Un-shielded 1.2M | FCC DOC |

Notes:
1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

# 9. CONDUCTED EMISSION TEST

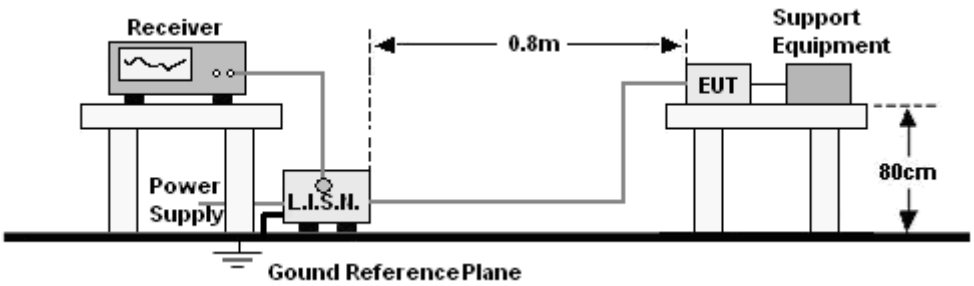
## 9.1. LIMITS

| Frequency range (MHz) | Limits dB(μV) | |
|---|---|---|
| | Quasi-peak | Average |
| 0,15 to 0,50 | 66 to 56 | 56 to 46 |
| 0,50 to 5 | 56 | 46 |
| 5 to 30 | 60 | 50 |

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

2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 to 0.50 MHz.

## 9.2. BLOCK DIAGRAM OF TEST SETUP



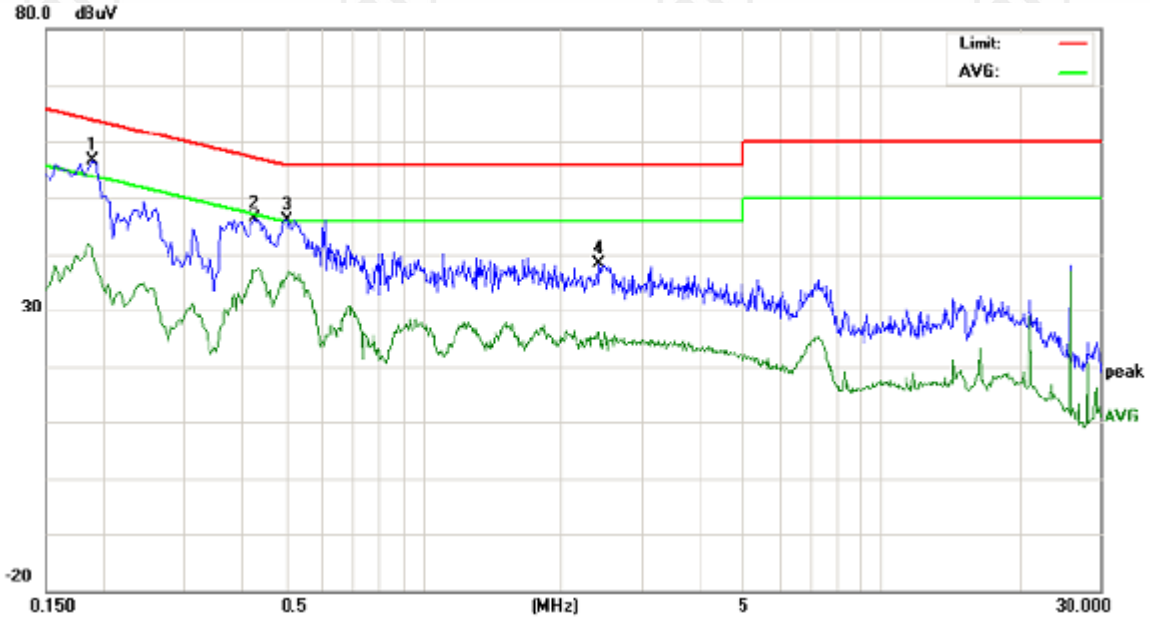

## 9.3. PROCEDURE OF CONDUCTED EMISSION TEST

a. The Product was placed on a nonconductive table above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).

b. The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak and AVG detector in Max Hold mode. Run the receiver's pre-scan to record the maximum disturbance generated from Product in all power lines in the full band.

c. For each frequency whose maximum record was higher or close to limit, measure its QP and AVG values and record.

## 9.4. GRAPHS AND DATA




Site site #1 Phase: L1 Temperature: 18

Limit: FCC Class B CE (QP) Power: AC 120V/60Hz Humidity: 45 %

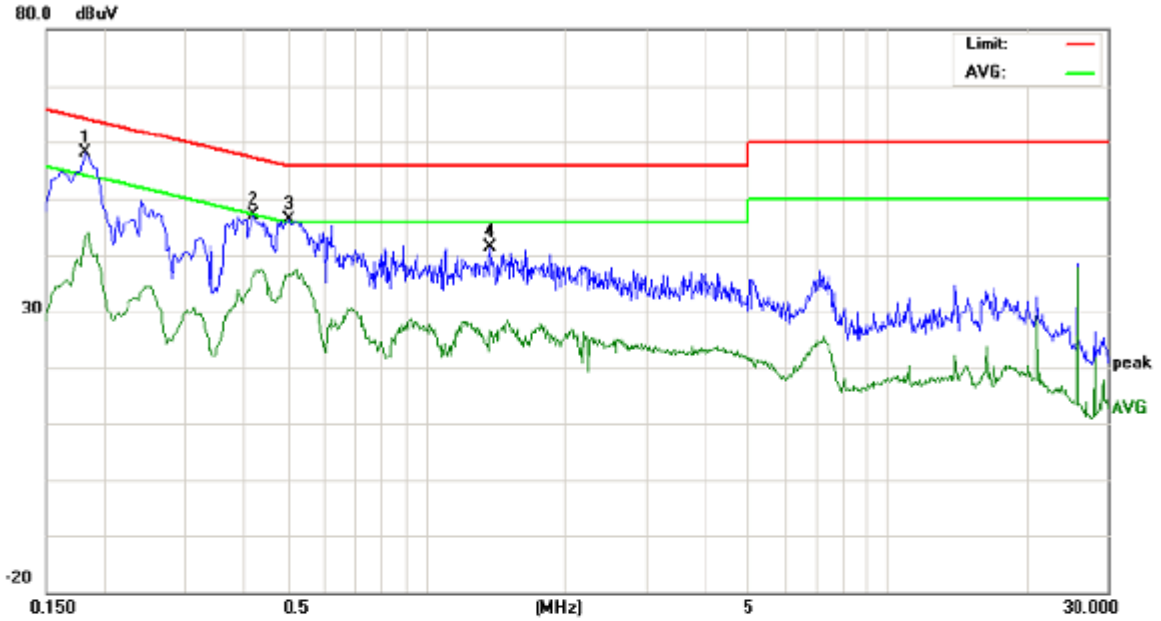
EUT: Clean Wipe Keyboard Bluetooth

M/N: SSKSV099BT

Mode: hopping off Keeping TX

Note:

| No. | Freq. | Reading_Level (dBuV) | | | Correct Factor | Measurement (dBuV) | | | Limit (dBuV) | | Margin (dB) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | Peak | QP | AVG | dB | peak | QP | AVG | QP | AVG | QP | AVG | P/F | Comment |
| 1 | 0.1900 | 46.73 | 43.68 | 30.14 | 9.79 | 56.52 | 53.47 | 39.93 | 64.03 | 54.03 | -10.56 | -14.10 | P | |
| 2 | 0.4300 | 36.58 | 33.52 | 27.45 | 9.80 | 46.38 | 43.32 | 37.25 | 57.25 | 47.25 | -13.93 | -10.00 | P | |
| 3 | 0.5020 | 36.41 | 33.42 | 26.39 | 9.80 | 46.21 | 43.22 | 36.19 | 56.00 | 46.00 | -12.78 | -9.81 | P | |
| 4 | 2.4340 | 28.36 | 20.96 | 14.57 | 9.91 | 38.27 | 30.87 | 24.48 | 56.00 | 46.00 | -25.13 | -21.52 | P | |




Site site #1 Phase: N Temperature: 18

Limit: FCC Class B CE (QP) Power: AC 120V/60Hz Humidity: 45 %

EUT: Clean Wipe Keyboard Bluetooth

M/N: SSKSV099BT

Mode: hopping off Keeping TX

Note:

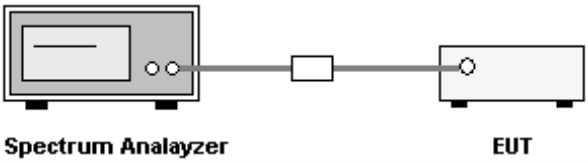
| No. | Freq. | Reading_Level (dBuV) | | | Correct Factor | Measurement (dBuV) | | | Limit (dBuV) | | Margin (dB) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | Peak | QP | AVG | dB | peak | QP | AVG | QP | AVG | QP | AVG | P/F | Comment |
| 1 | 0.1819 | 48.45 | 43.77 | 30.58 | 9.78 | 58.23 | 53.55 | 40.36 | 64.39 | 54.39 | -10.84 | -14.03 | P | |
| 2 | 0.4220 | 37.26 | 32.87 | 26.07 | 9.80 | 47.06 | 42.67 | 35.87 | 57.41 | 47.41 | -14.74 | -11.54 | P | |
| 3 | 0.5020 | 36.66 | 33.43 | 26.51 | 9.80 | 46.46 | 43.23 | 36.31 | 56.00 | 46.00 | -12.77 | -9.69 | P | |
| 4 | 1.3779 | 31.59 | 26.15 | 14.61 | 9.84 | 41.43 | 35.99 | 24.45 | 56.00 | 46.00 | -20.01 | -21.55 | P | |

# 10. 20DB BANDWIDTH OCCUPIED BANDWIDTH MEASUREMENT

## 10.1. LIMITS

None

## 10.2. BLOCK DIAGRAM OF TEST SETUP

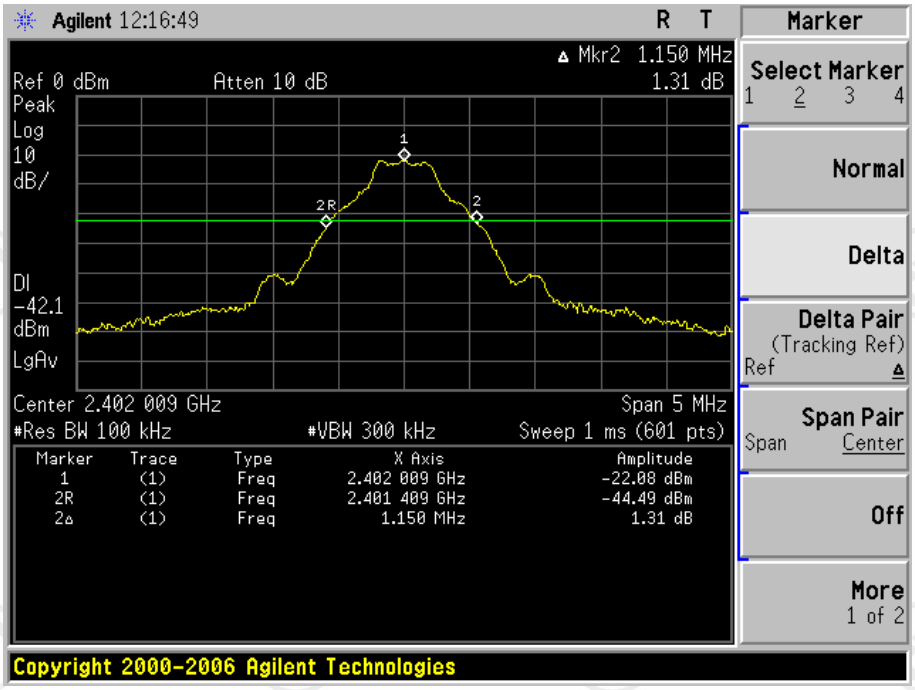



## 10.3. TEST PROCEDURE

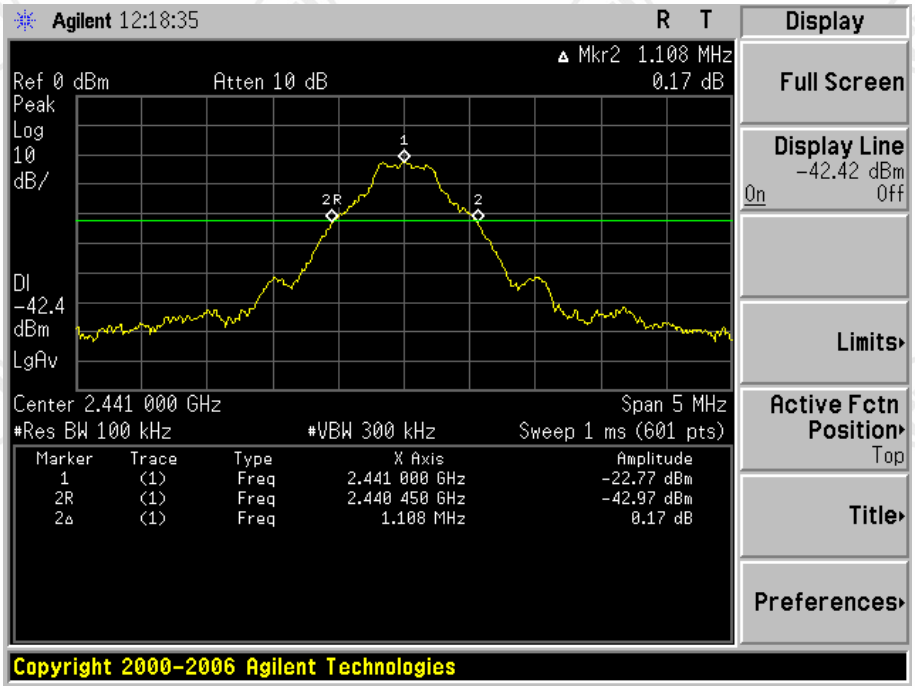
1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Set spectrum analyzer's RBW and VBW to applicable value with Peak in Max Hold.
3. A PEAK output reading and 20dB OBW function in spectrum analyzer were taken.

## 10.4. TEST RESULT

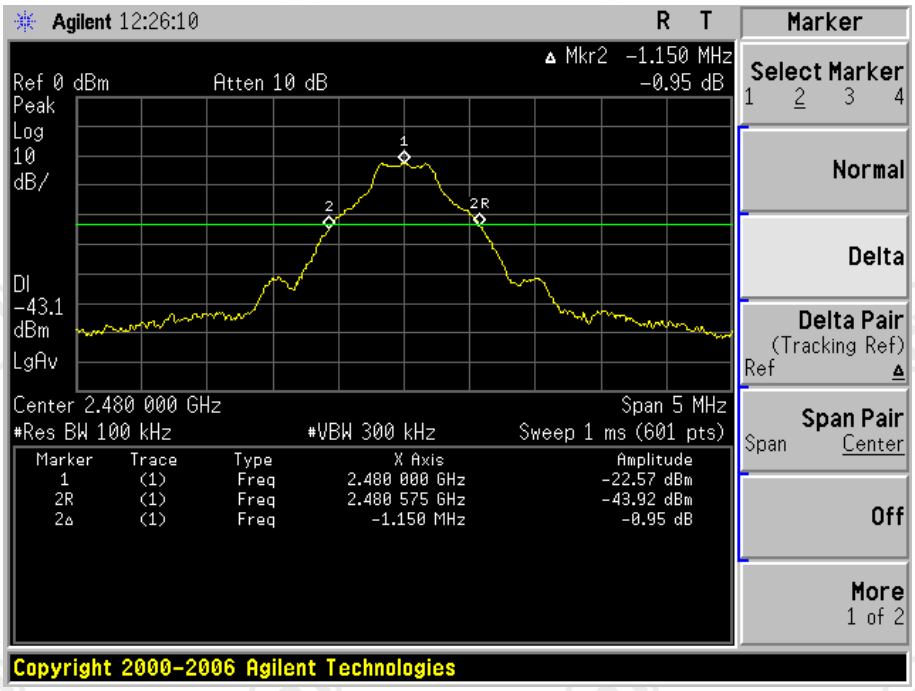
| Frequency (MHz) | 20 dB BW (MHz) |
|---|---|
| 2402 | 1.150 |
| 2441 | 1.108 |
| 2480 | 1.150 |




2402 MHz




2441 MHz



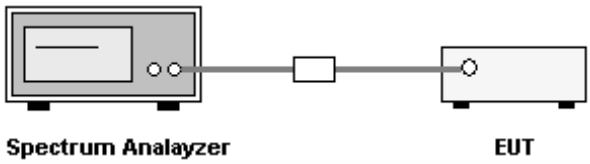

2480 MHz

# 11. CARRIER FREQUENCY SEPARATION

## 11.1. LIMITS

Frequency hopping systems operating in the 2400-2483.5MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125mW.

## 11.2. BLOCK DIAGRAM OF TEST SETUP




## 11.3. TEST PROCEDURE

1. The transmitter output (antenna port) was connected to the spectrum analyzer.

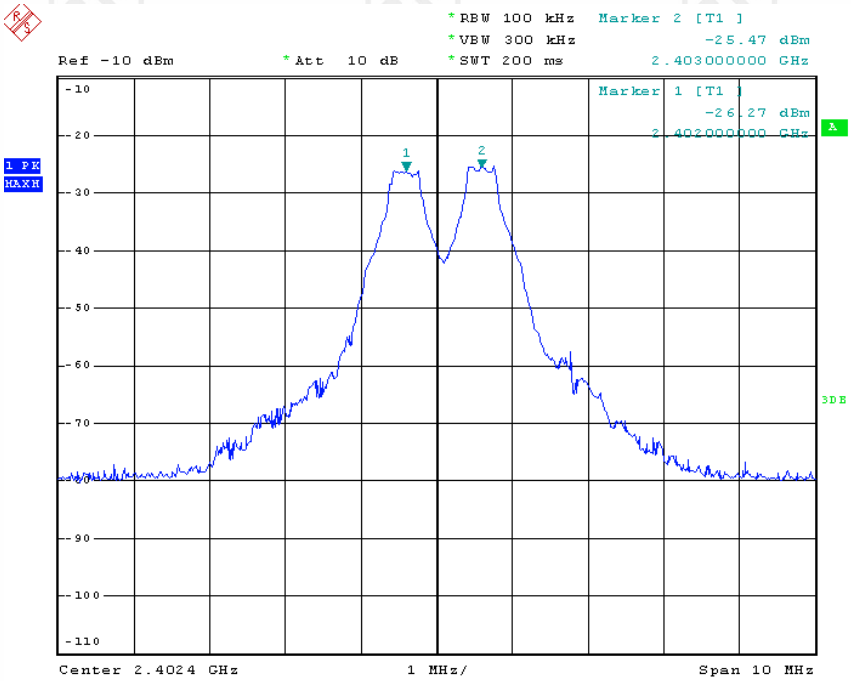
2. Set spectrum analyzer's RBW and VBW to applicable value with Peak in Max Hold. The original channel's carrier frequency was taken.

3. Make Product transmit in adjacent channel.

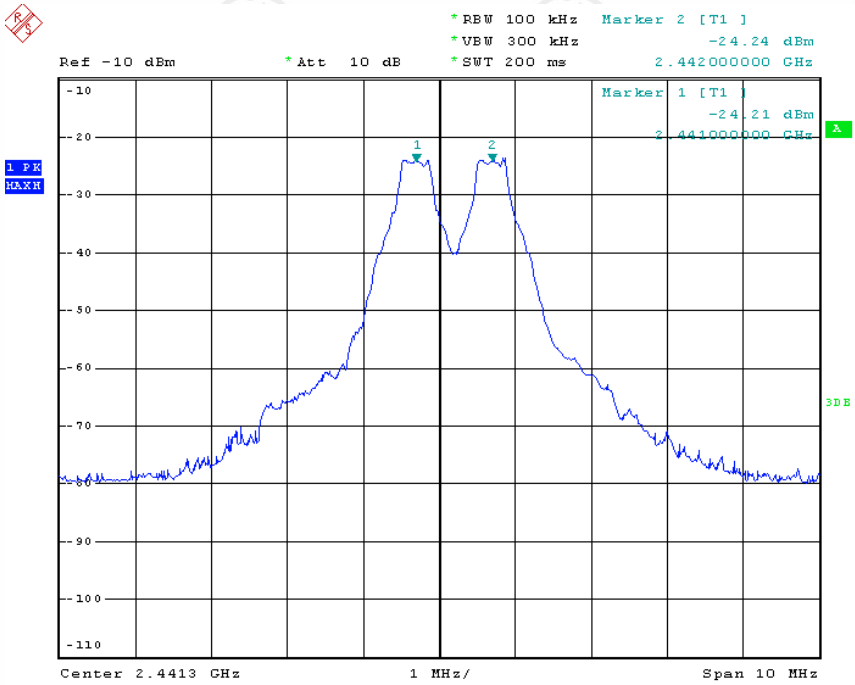
4. Use the delta maker button on spectrum analyzer to read the channel separation from the adjacent channel to original channel.

## 11.4. TEST RESULT

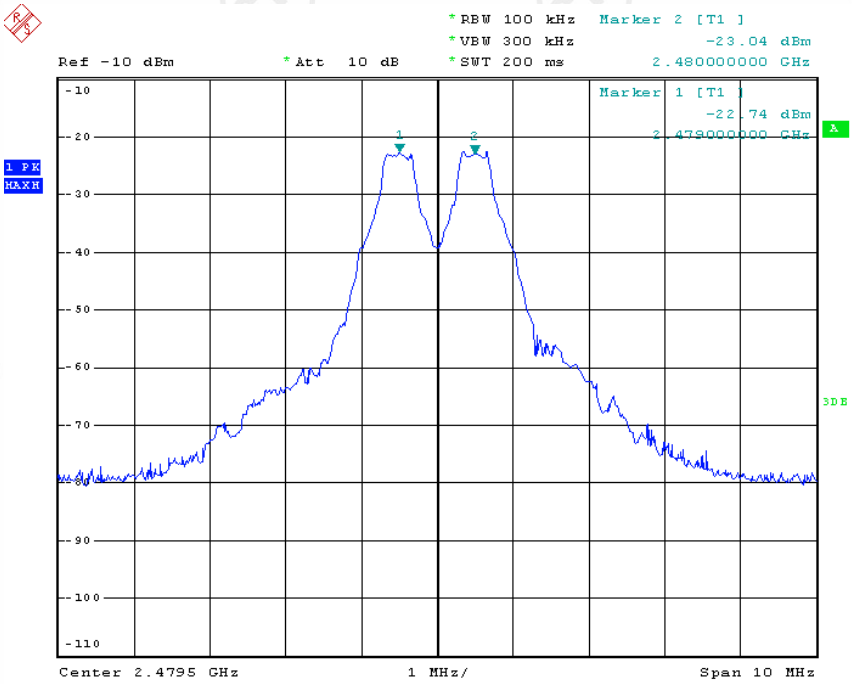
Carrier Frequency Separation: 1 MHz




2402 MHz




2441 MHz



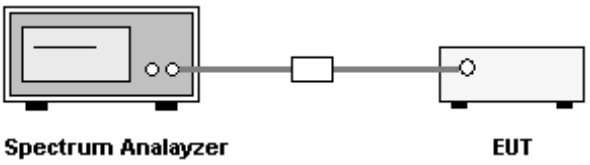

2480 MHz

# 12. NUMBER OF HOPPING FREQUENCY

## 12.1. LIMITS

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.

## 12.2. BLOCK DIAGRAM OF TEST SETUP

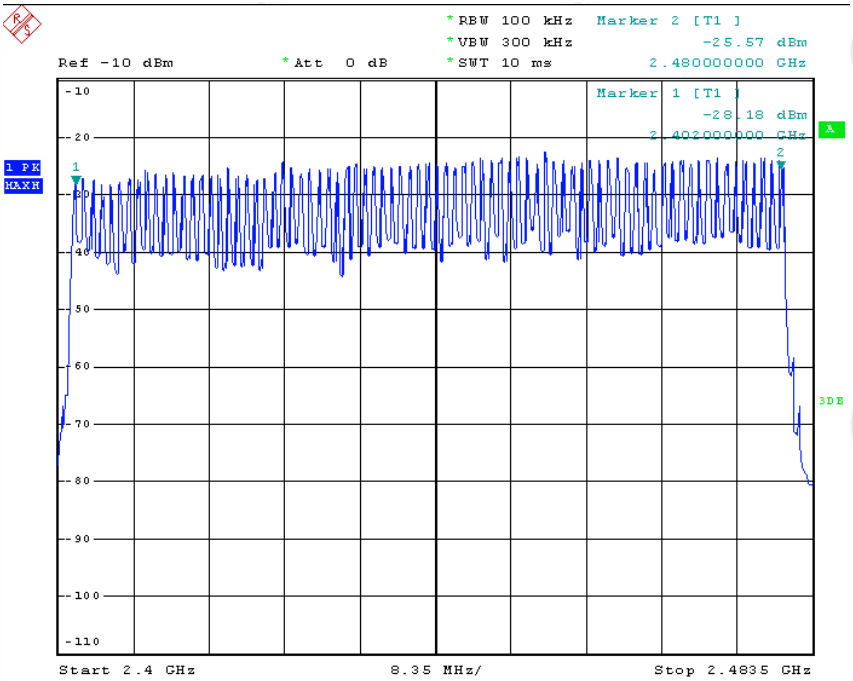



## 12.3. TEST PROCEDURE

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Set spectrum analyzer to Peak in Max Hold.
3. Make Product work continually, till all operation channels were recorded.

## 12.4. TEST RESULT

Number of Hopping Frequency is 79, with frequency space = 1MHz.

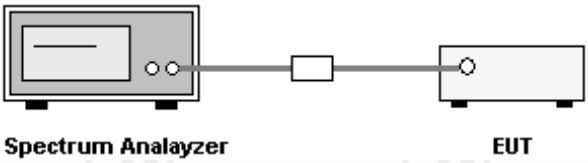


# 13. TIME OF OCCUPANCY (DWELL TIME)

## 13.1. LIMITS

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

## 13.2. BLOCK DIAGRAM OF TEST SETUP




## 13.3. TEST PROCEDURE

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Set spectrum analyzer's RBW and VBW to applicable value with Peak in Max Hold.
3. Measured pulse time and Time separation.

## 13.4. TEST RESULT

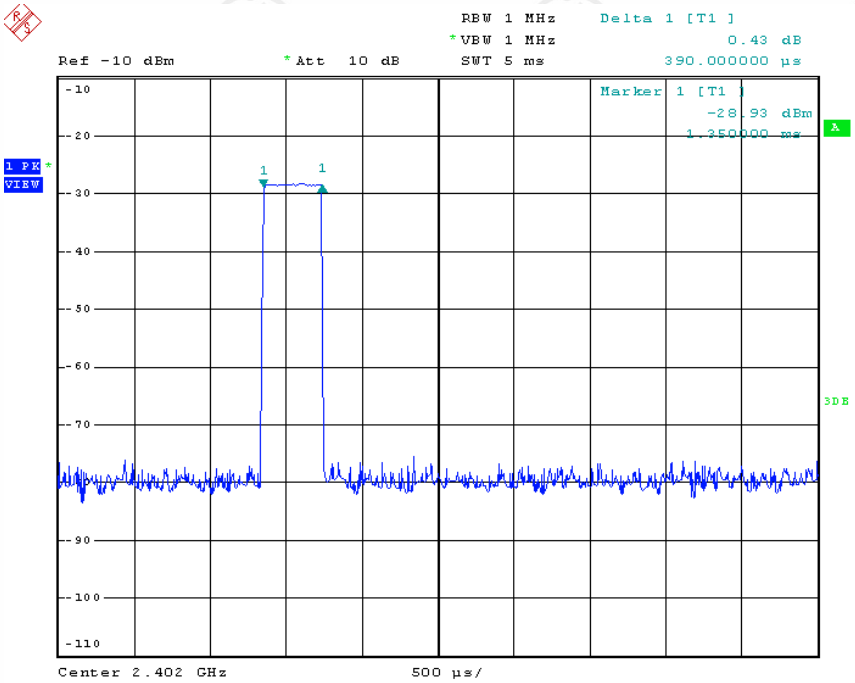
| Frequency (MHz) | Pulse Wide(ms) | | Dwell Time (ms) | Limit (s) | Result (Pass / Fail) |
|---|---|---|---|---|---|
| 2402 | DH1 | 0.39 | 124.8 | 0.4 | Pass |
| | DH3 | 1.66 | 265.6 | | |
| | DH5 | 2.90 | 309.3 | | |
| 2441 | DH1 | 0.40 | 128.0 | 0.4 | Pass |
| | DH3 | 1.66 | 265.6 | | |
| | DH5 | 2.90 | 309.3 | | |
| 2480 | DH1 | 0.39 | 124.8 | 0.4 | Pass |
| | DH3 | 1.66 | 265.6 | | |
| | DH5 | 2.90 | 309.3 | | |

Remark:

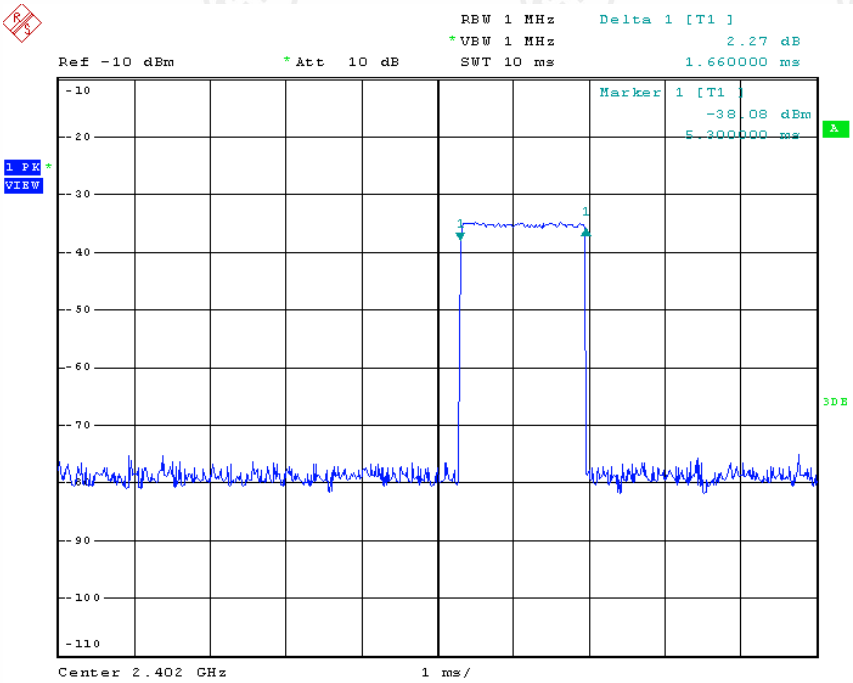
DH1 Packet permit maximum 1600 / 79 /2 = 10.12 hops per second in each channel (1 time slot RX, 1 time slot TX). So, total hops is 10.12 x 31.6 = 320

DH3 Packet permit maximum 1600 / 79 / 4 = 5.06 hops per second in each channel (3 time slots RX, 1 time slot TX). So, total hops is 5.06 x 31.6 = 160

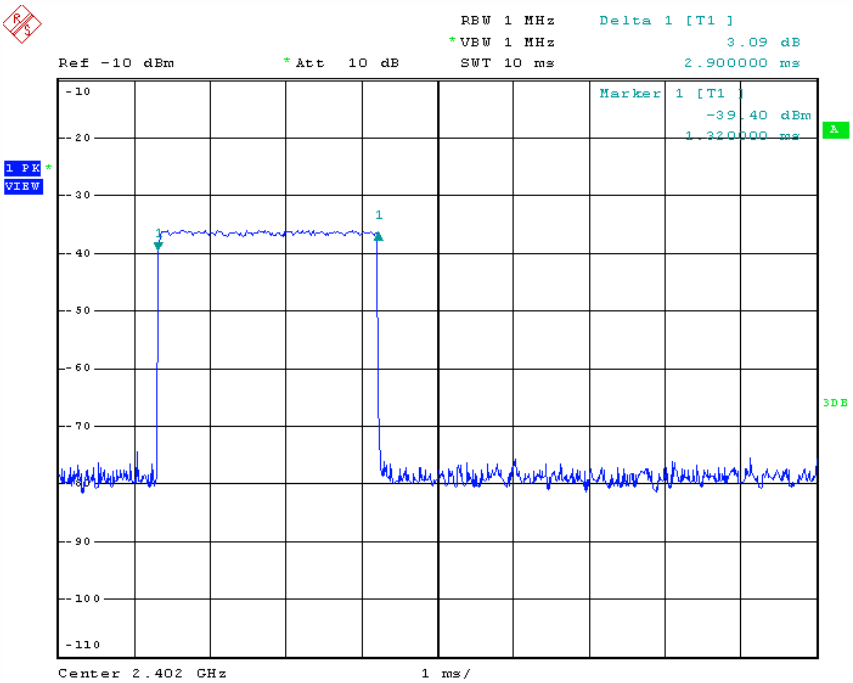
DH5 Packet permit maximum 1600/ 79 / 6 = 3.37 hops per second in each channel (5 time slots RX, 1 time slot TX). So, total hops is 3.37 x 31.6 = 106.67



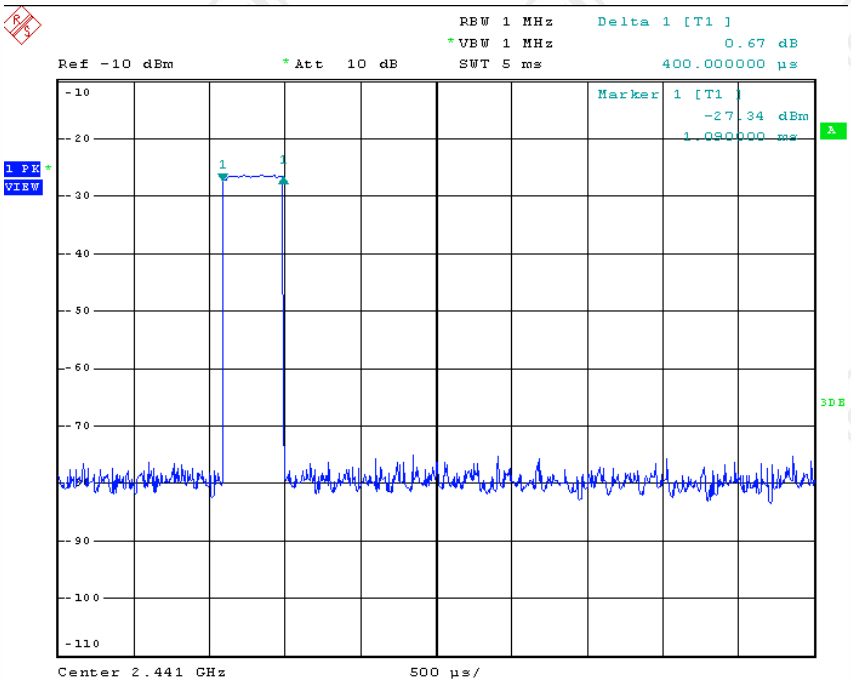

Channel 1_ 2402 MHz_DH1



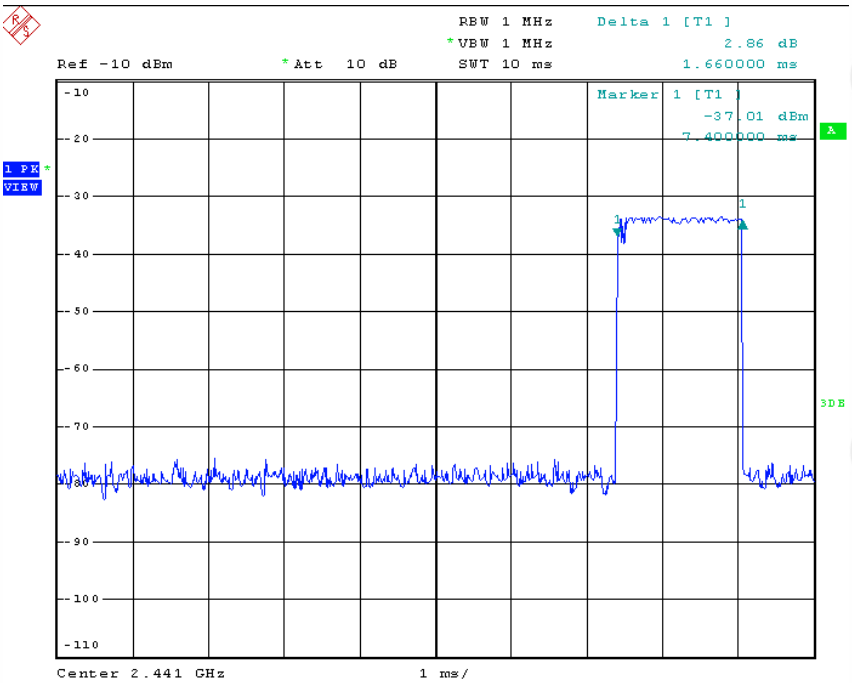

Channel 1_ 2402 MHz_DH3



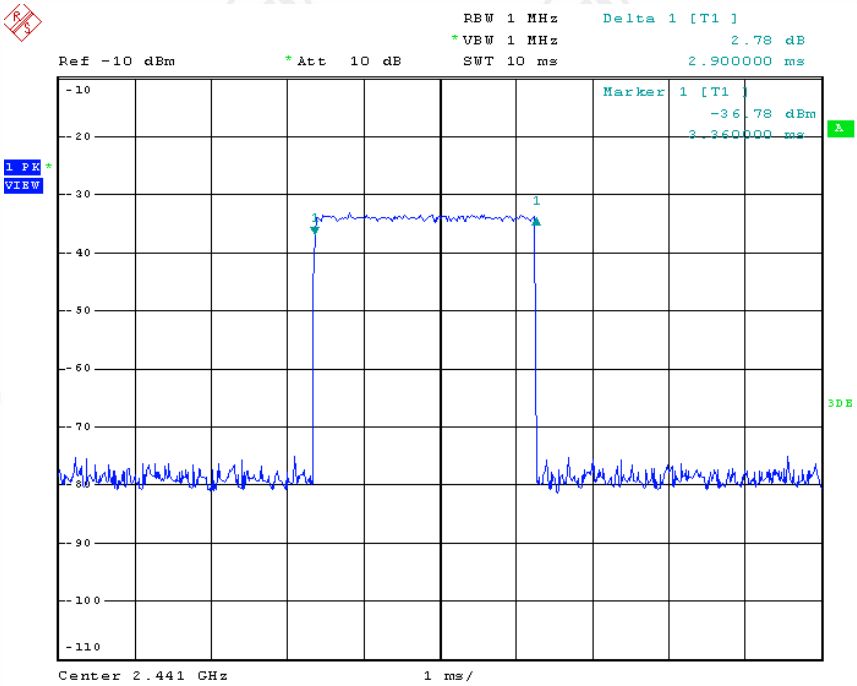

Channel 1_ 2402 MHz_DH5



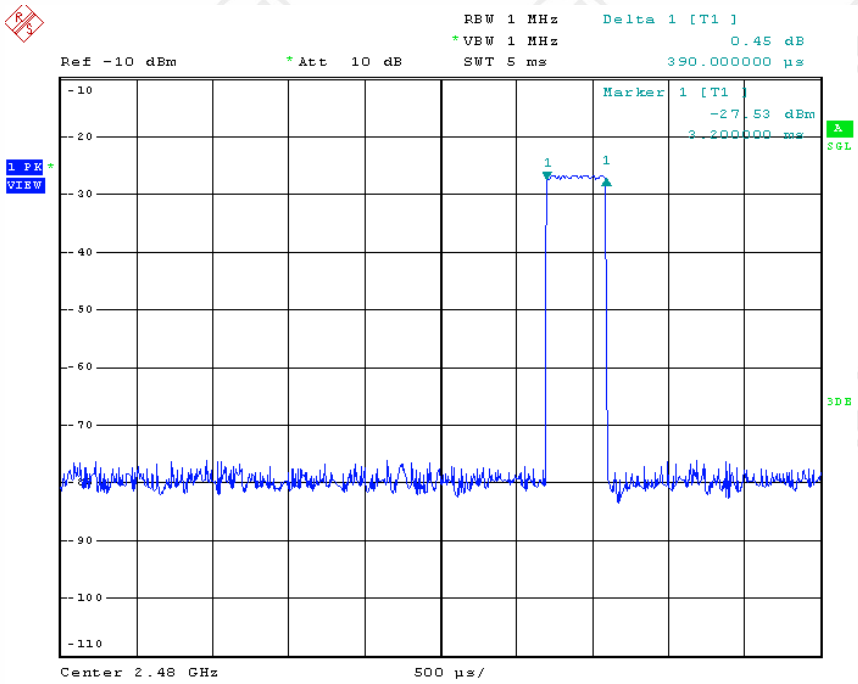

Channel 40_ 2441 MHz_DH1



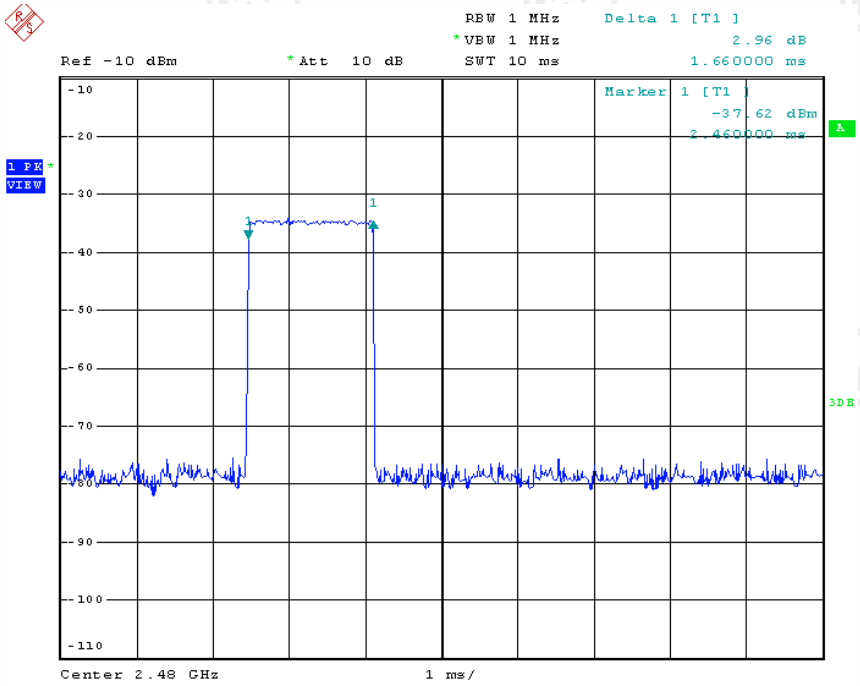

Channel 40_ 2441 MHz_DH3



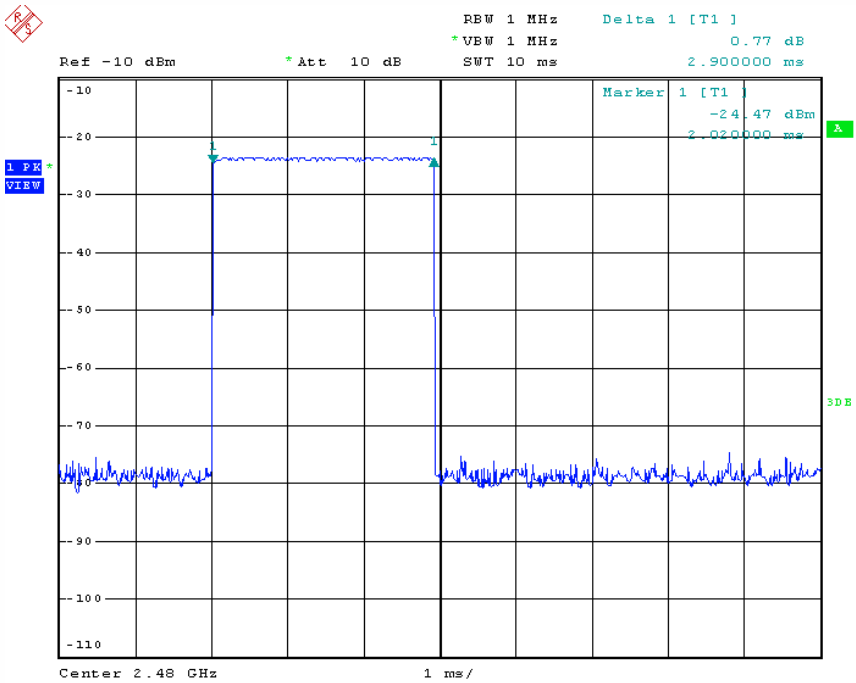

Channel 40_ 2441 MHz_DH5




Channel 79_ 2480 MHz_DH1




Channel 79_ 2480 MHz_DH3



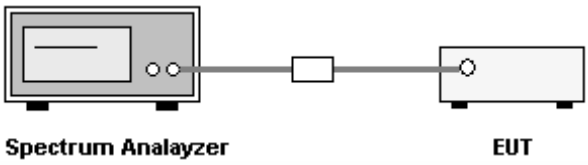

Channel 79_ 2480 MHz_DH5

# 14. MAXIMUM PEAK CONDUCTED OUTPUT POWER MEASUREMENT

## 14.1. LIMITS

The limit for peak output power is 0.125Watt (21dBm).

## 14.2. BLOCK DIAGRAM OF TEST SETUP

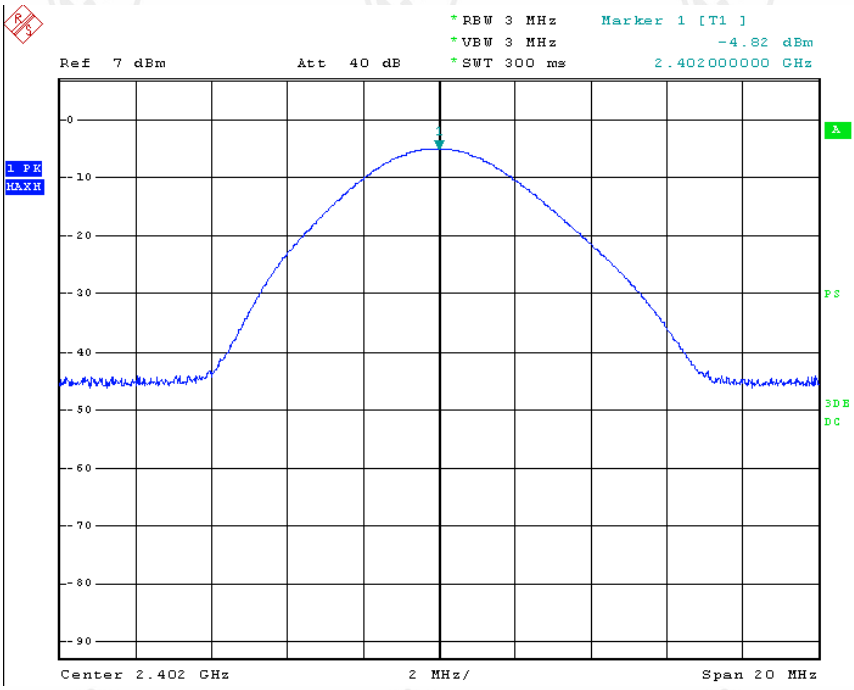



## 14.3. TEST PROCEDURE

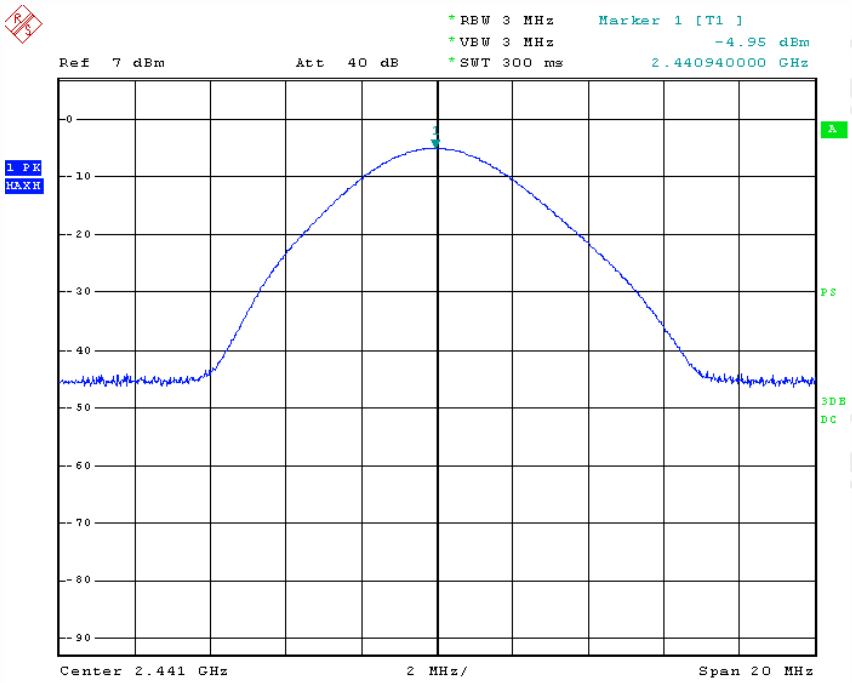
1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Set spectrum analyzer's RBW and VBW to applicable value with Peak in Max Hold.
3. Record the channel power directly from the spectrum analyzer.

## 14.4. TEST RESULT

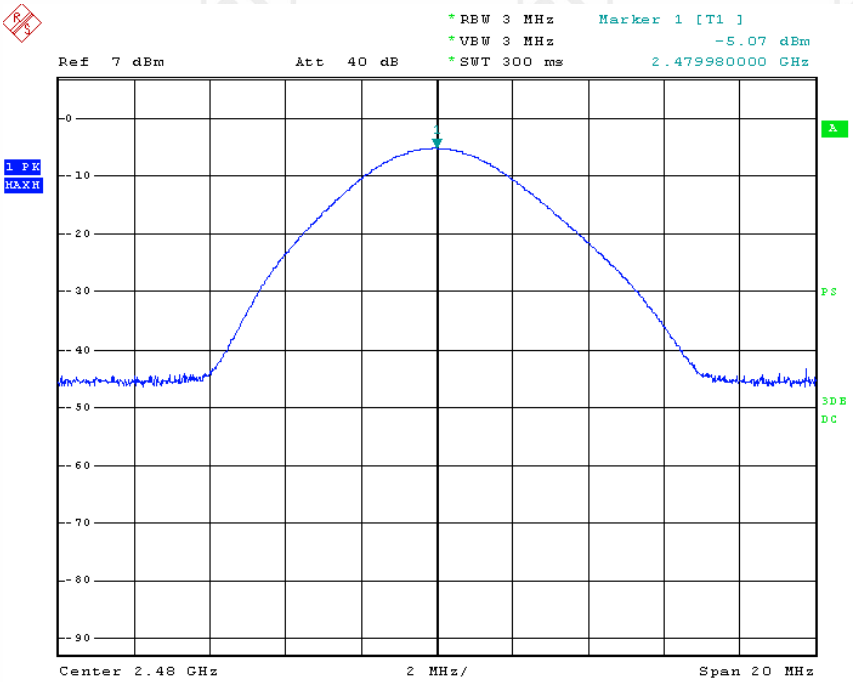
| Frequency (MHz) | Peak Power (dBm) | Limit (dBm) | Result (Pass / Fail) |
|---|---|---|---|
| 2402 | -4.82 | 21 | Pass |
| 2441 | -4.95 | 21 | Pass |
| 2480 | -5.07 | 21 | Pass |




2402MHz




2441MHz




2480MHz

# 15. BAND EDGE EMISSION MEASUREMENT

## 15.1. LIMITS

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

## 15.2. BLOCK DIAGRAM OF TEST SETUP

## 15.3. TEST PROCEDURE

1. Set spectrum analyzer's RBW and VBW to applicable value with Peak in Max Hold.

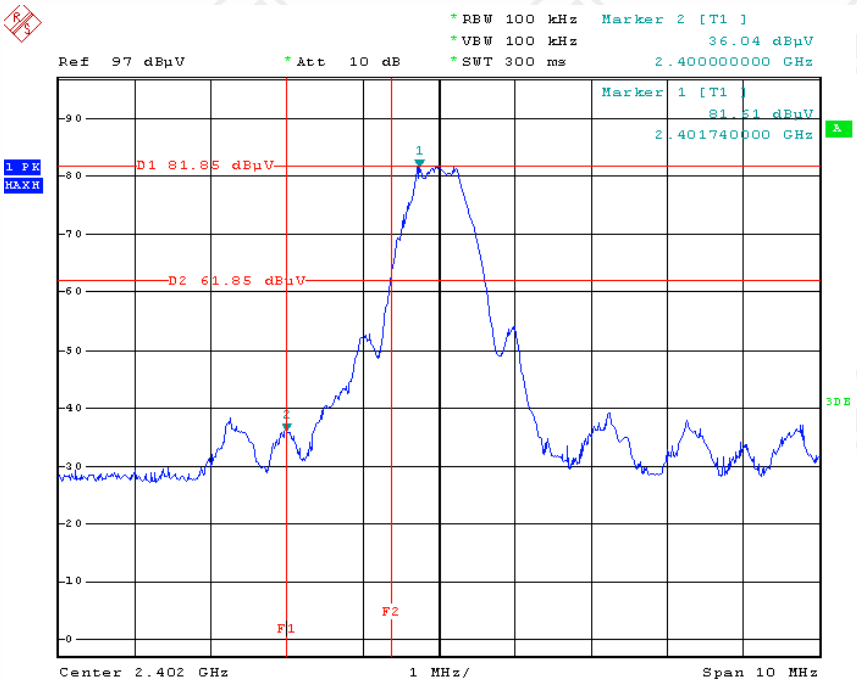
2. Record the emission drops at the band-edge relative to the highest fundamental emission level.

3. Use the marker-delta method to determine band-edge compliance as required.

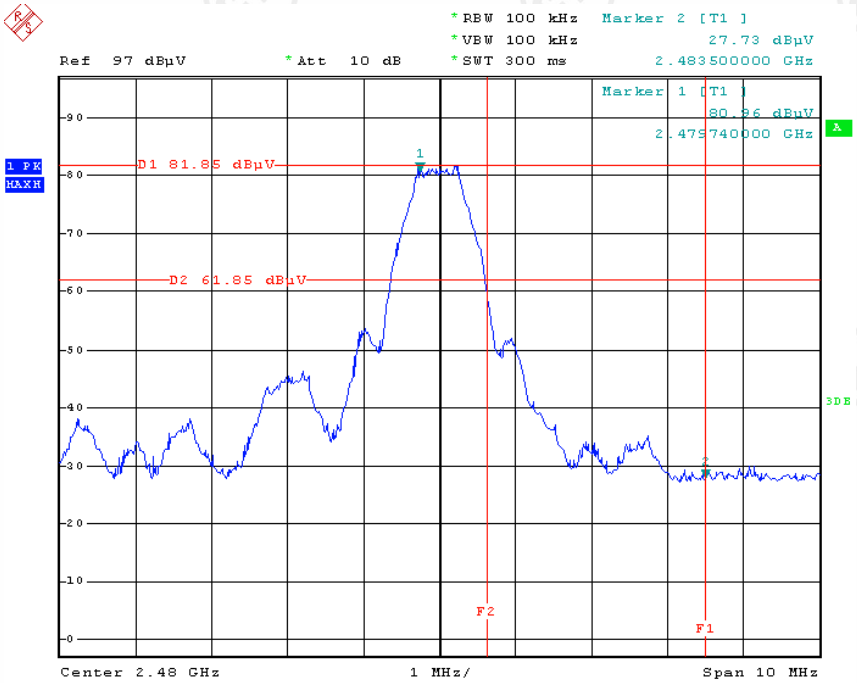
## 15.4. TEST RESULT

Pass.

Hopping off mode:

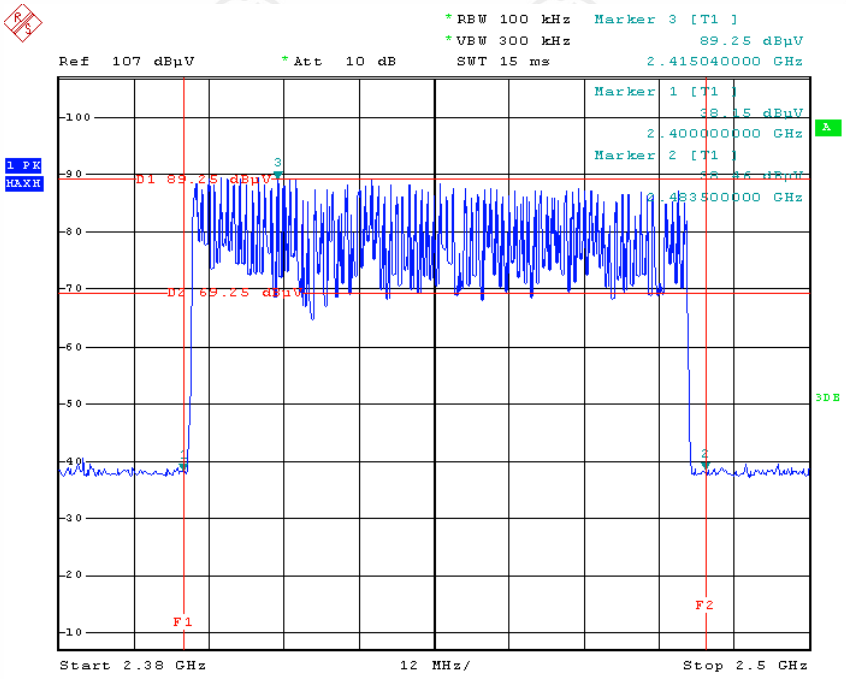



2402MHz




2480MHz

Hopping mode:

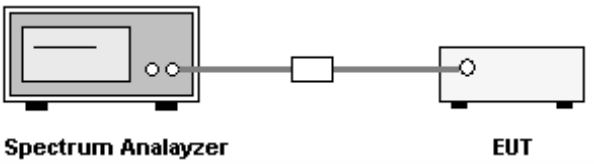


# 16. SPURIOUS RF CONDUCTED EMISSIONS MEASUREMENT

## 16.1. LIMITS

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

## 16.2. BLOCK DIAGRAM OF TEST SETUP




## 16.3. TEST PROCEDURE

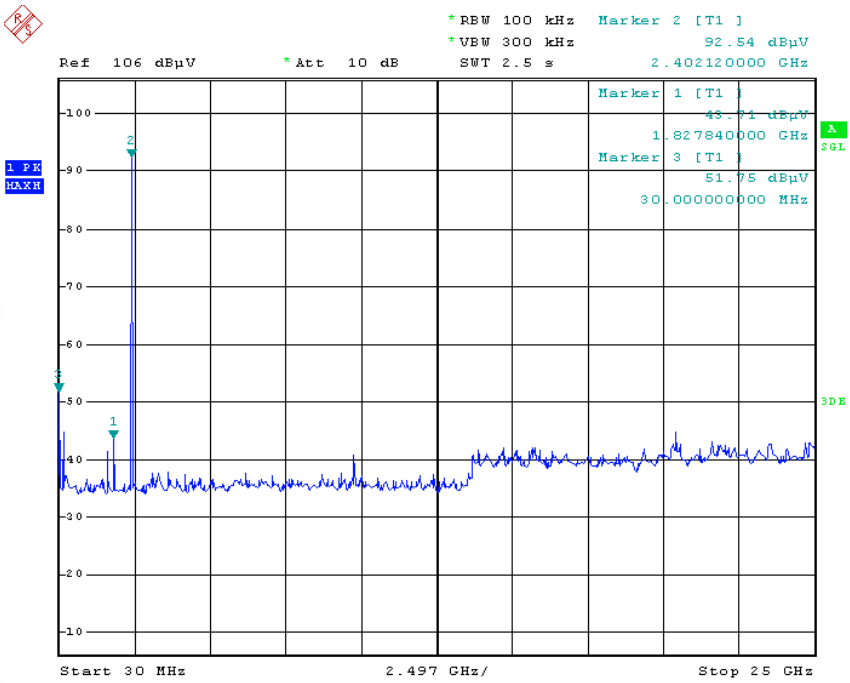
1. The transmitter output (antenna port) was connected to the spectrum analyzer.

2. Set spectrum analyzer's RBW and VBW to applicable value with Peak in Max Hold.

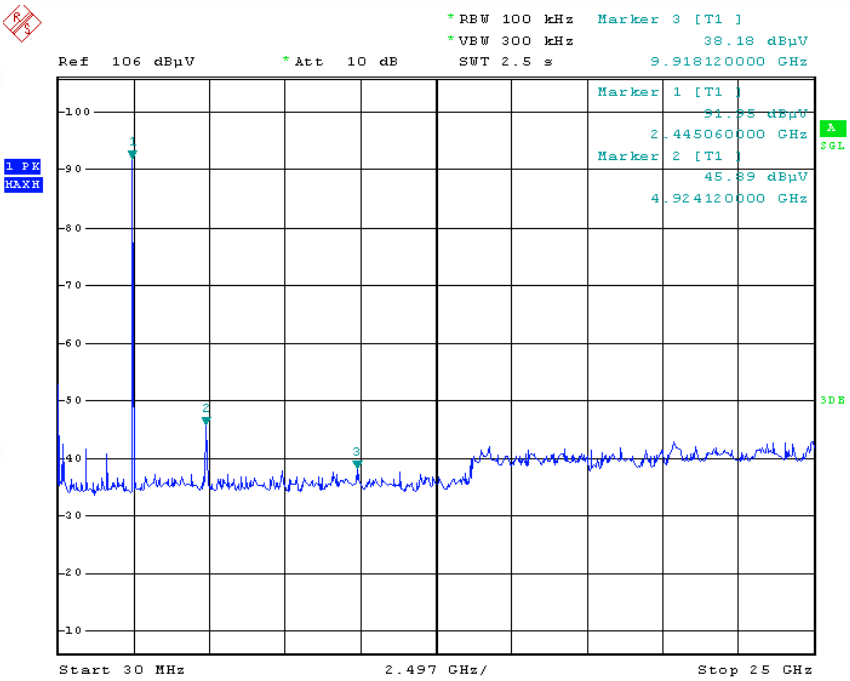
3. Record the peak level of the in-band emission and all spurious emissions from the lowest frequency generated in the Product up through the 10th harmonic.

## 16.4. TEST RESULT

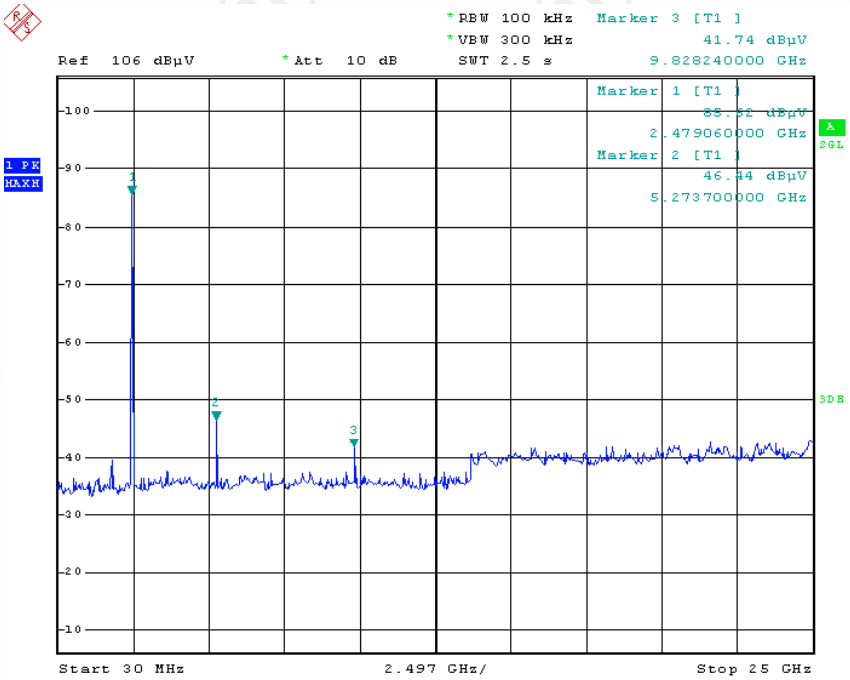
Please see the following plots.




2402MHz




2441MHz




2480MHz

# 17. RADIATED EMISSIONS MEASUREMENT

## 17.1. LIMITS

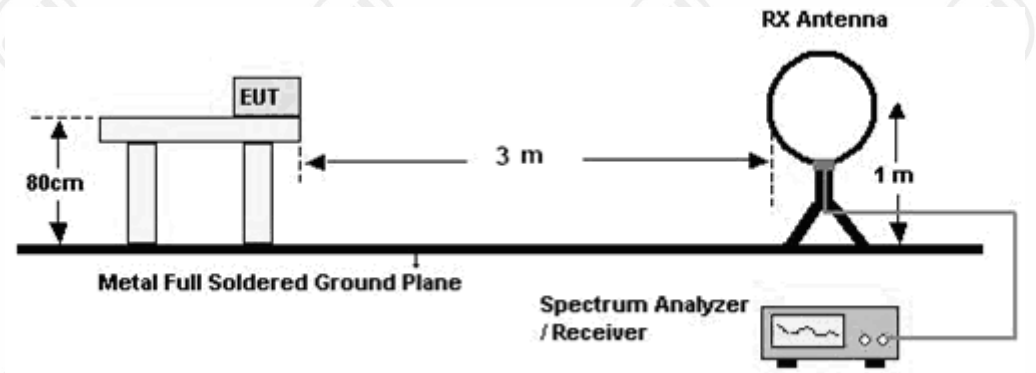
The field strength of any emissions, which appear outside of operating frequency band and restricted band specified on FCC 15.205(a), shall not exceed the general radiated emission limits as below.

| Frequency (MHz) | Field strength (μV/m) | Distance (m) |
|---|---|---|
| 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 |

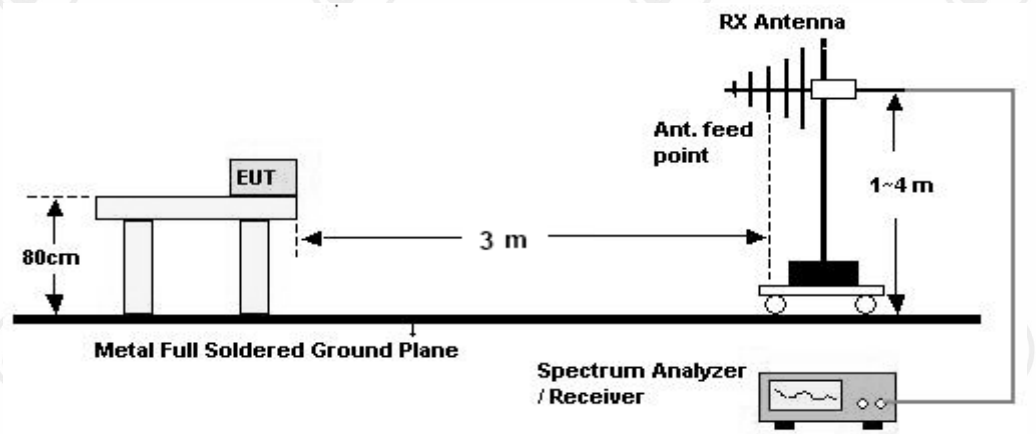
**Note:** the tighter limit applies at the band edges.

## 17.2. BLOCK DIAGRAM OF TEST SETUP

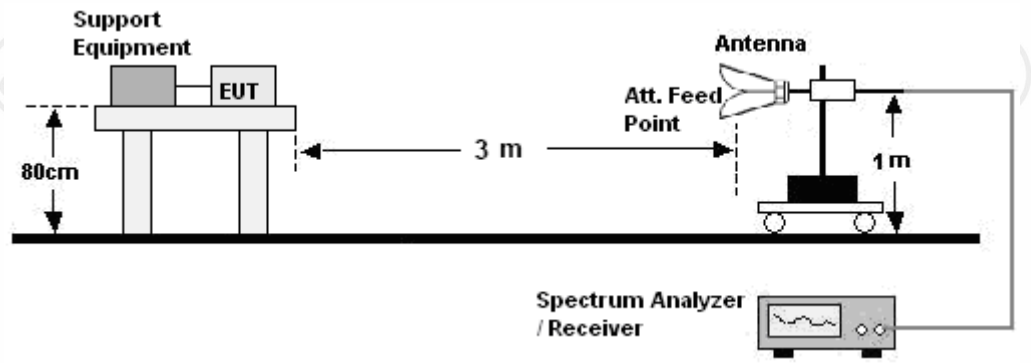
For radiated emissions from 9kHz to 30MHz




For radiated emissions from 30 - 1000MHz




For radiated emissions from 1GHz to 25GHz




## 17.3. TEST PROCEDURE

**30MHz ~ 1GHz:**

a. The Product was placed on the non-conductive turntable 0.8m above the ground at a chamber.

b. Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 100 kHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied between 1~4 m in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.

c. For each frequency whose maximum record was higher or close to limit, measure its QP value (120 kHz RBW): vary the antenna's height and rotate the turntable from 0 to 360 degrees to find the height and degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to QP Detector and specified bandwidth with Maximum Hold Mode, and record the maximum value.

**Below 30MHz**

a. The Product is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna (loop antenna). The maximum values of the field strength are recorded by adjusting the polarizations of the test antenna and rotating the turntable.

b. For each suspected emission, the Product was arranged to its worst case and then turn table was turned from 0 degrees to 360 degrees to find the maximum reading.

c. The test frequency analyzer system was set to Peak Detect (300Hz RBW in 9kHz to 150kHz and 10kHz RBW in 150kHz to 30MHz) Function and Specified Bandwidth with Maximum Hold Mode.

**Above 1GHz:**

a. The EUT was placed on the non-conductive turntable 0.8 m above the ground at a chamber.

b. Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 1MHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.

## 17.4. TEST RESULT

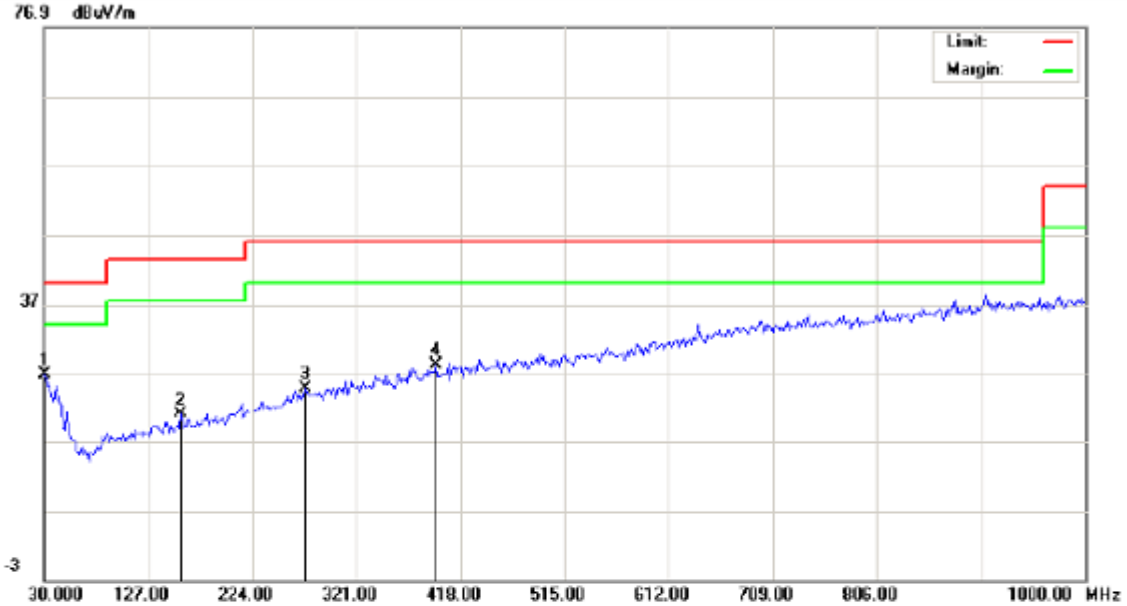
### A. Below 30MHz:

No emissions were found higher than the background below 30MHz and background is lower than the limit, so it deems to compliance with the limit without recorded.

### B. 30MHz ～ 1GHz:

The test data of low channel, middle channel and high channel are almost same in frequency bands 30MHz to 1GHz, and the data of middle channel are chosen as representative in below:

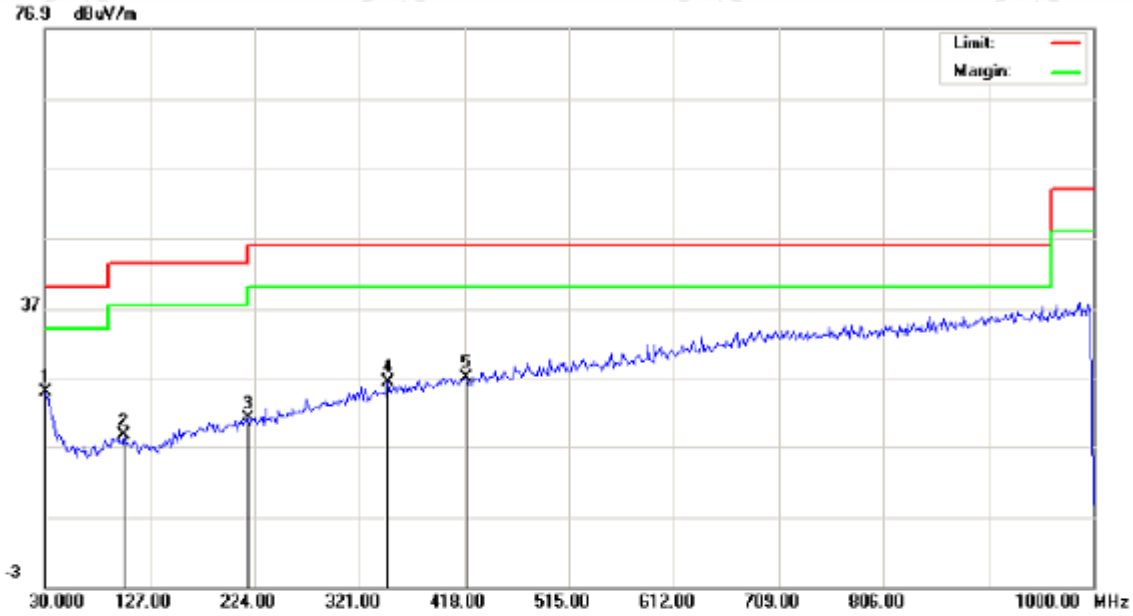
**H:**




Site site #1 Polarization: *Horizontal* Temperature: 16
Limit: FCC PART15.207 Power: DC 5V Humidity: 52 %
EUT: Clean Wipe Keyboard Bluetooth
M/N: SSKSV099BT
Mode: hopping off Keeping TX
Note:

| No. | Freq. | Reading_Level (dBuV) | | | Correct Factor | Measurement (dBuV/m) | | | Limit (dBuV/m) | | Margin (dB) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | Peak | QP | AVG | dB | peak | QP | AVG | QP | AVG | QP | AVG | P/F | Comment |
| 1 | 30.0000 | 7.29 | | | 19.55 | 26.84 | | | 40.00 | | -13.16 | | P | |
| 2 | 157.7167 | 9.13 | | | 11.81 | 20.94 | | | 43.50 | | -22.56 | | P | |
| 3 | 274.1167 | 8.95 | | | 15.86 | 24.81 | | | 46.00 | | -21.19 | | P | |
| 4 | 395.3667 | 9.11 | | | 19.11 | 28.22 | | | 46.00 | | -17.78 | | P | |

**V:**




Site site #1 Polarization: *Vertical* Temperature: 16

Limit: FCC PART15.207 Power: DC 5V Humidity: 52 %

EUT: Clean Wipe Keyboard Bluetooth

M/N: SSKSV099BT

Mode: hopping off Keeping TX

Note:

| No. | Freq. | Reading_Level (dBuV) | | | Correct Factor | Measurement (dBuV/m) | | | Limit (dBuV/m) | | Margin (dB) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | Peak | QP | AVG | dB | peak | QP | AVG | QP | AVG | QP | AVG | P/F | Comment |
| 1 | 30.0000 | 7.34 | | | 17.63 | 24.97 | | | 40.00 | | -15.03 | | P | |
| 2 | 102.7500 | 8.30 | | | 10.24 | 18.54 | | | 43.50 | | -24.96 | | P | |
| 3 | 217.5333 | 8.71 | | | 12.54 | 21.25 | | | 46.00 | | -24.75 | | P | |
| 4 | 346.8667 | 9.41 | | | 17.03 | 26.44 | | | 46.00 | | -19.56 | | P | |
| 5 | 419.6167 | 8.27 | | | 18.69 | 26.96 | | | 46.00 | | -19.04 | | P | |

## C. Above 1GHz:

| Test Results-(Measurement Distance: 3m)_Channel low | | | | | | | |
|---|---|---|---|---|---|---|---|
| Frequency (MHz) | Measurement value | | | Limit | | Antenna | Result |
| | PK (dBμV/m) | AV factor (dB) | AV (dBμV/m) | PK (dBμV/m) | AV (dBμV/m) | (H/V) | (P/F) |
| 2390.000 | 30.36 | --- | --- | 74 | 54 | H | P |
| 2402.000* | 93.21 | --- | --- | --- | --- | H | P |
| 2483.500 | 31.02 | --- | --- | 74 | 54 | H | P |
| 4804.000 | 42.21 | --- | --- | 74 | 54 | H | P |
| | | | | | | | |
| 2390.000 | 30.66 | --- | --- | 74 | 54 | V | P |
| 2402.000* | 89.23 | --- | --- | --- | --- | V | P |
| 2483.500 | 31.25 | --- | --- | 74 | 54 | V | P |
| 4804.000 | 39.26 | --- | --- | 74 | 54 | V | P |

*: fundamental frequency

| Test Results-(Measurement Distance: 3m)_Channel middle | | | | | | | |
|---|---|---|---|---|---|---|---|
| Frequency (MHz) | Measurement value | | | Limit | | Antenna | Result |
| | PK (dBμV/m) | AV factor (dB) | AV (dBμV/m) | PK (dBμV/m) | AV (dBμV/m) | (H/V) | (P/F) |
| 2390.000 | 31.23 | --- | --- | 74 | 54 | H | P |
| 2441.000* | 92.63 | --- | --- | --- | --- | H | P |
| 2483.500 | 30.66 | --- | --- | 74 | 54 | H | P |
| 4882.000 | 39.35 | --- | --- | 74 | 54 | H | P |
| | | | | | | | |
| 2390.000 | 31.25 | --- | --- | 74 | 54 | V | P |
| 2441.000* | 89.96 | --- | --- | --- | --- | V | P |
| 2483.500 | 30.25 | --- | --- | 74 | 54 | V | P |
| 4882.000 | 36.63 | --- | --- | 74 | 54 | V | P |

*: fundamental frequency

| Test Results-(Measurement Distance: 3m)_Channel high | | | | | | | |
|---|---|---|---|---|---|---|---|
| Frequency (MHz) | Measurement value | | | Limit | | Antenna | Result |
| | PK (dBμV/m) | AV factor (dB) | AV (dBμV/m) | PK (dBμV/m) | AV (dBμV/m) | (H/V) | (P/F) |
| 2390.000 | 31.25 | --- | --- | 74 | 54 | H | P |
| 2480.000* | 91.36 | --- | --- | --- | --- | H | P |
| 2483.500 | 30.66 | --- | --- | 74 | 54 | H | |
| 4960.000 | 38.23 | --- | --- | 74 | 54 | H | P |
| | | | | | | | |
| 2390.000 | 31.63 | --- | --- | 74 | 54 | V | P |
| 2480.000* | 87.63 | --- | --- | --- | --- | V | P |
| 2483.500 | 31.02 | --- | --- | 74 | 54 | V | P |
| 4960.000 | 35.66 | --- | --- | 74 | 54 | V | P |

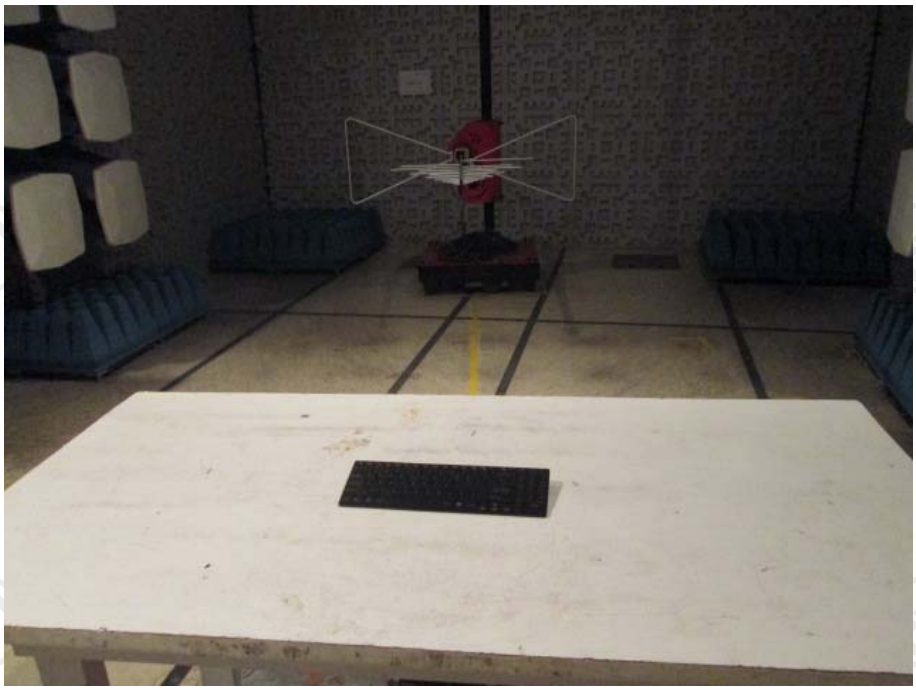
*: fundamental frequency

Remark:

1. The above tables show that the frequencies peak data are all below the average limit, so the average data of these frequencies are deems to fulfill the average limits and not reported.
2. According to the emissions below 18GHz, the data curve is lower than the limit, and the data between 18GHz to 25GHz will be lower than the limit, so they are not recorded in the report.
3. All outside of operating frequency band and restricted band specified are below 15.209.

# APPENDIX 1 PHOTOGRAPHS OF TEST SETUP

**CONDUCTED EMISSION TEST SETUP**



**TEST SETUP OF RADIATED EMISSION (30MHz-1GHz)**

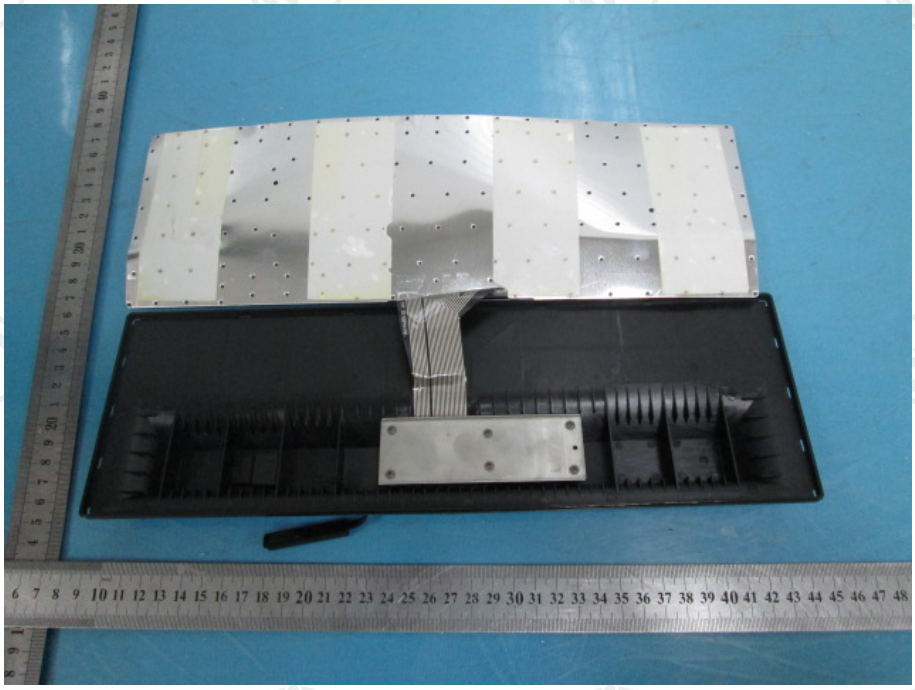
**TEST SETUP OF RADIATED EMISSION (above 1GHz)**

# APPENDIX 2 EXTERNAL PHOTOGRAPHS OF PRODUCT

View of Product-1

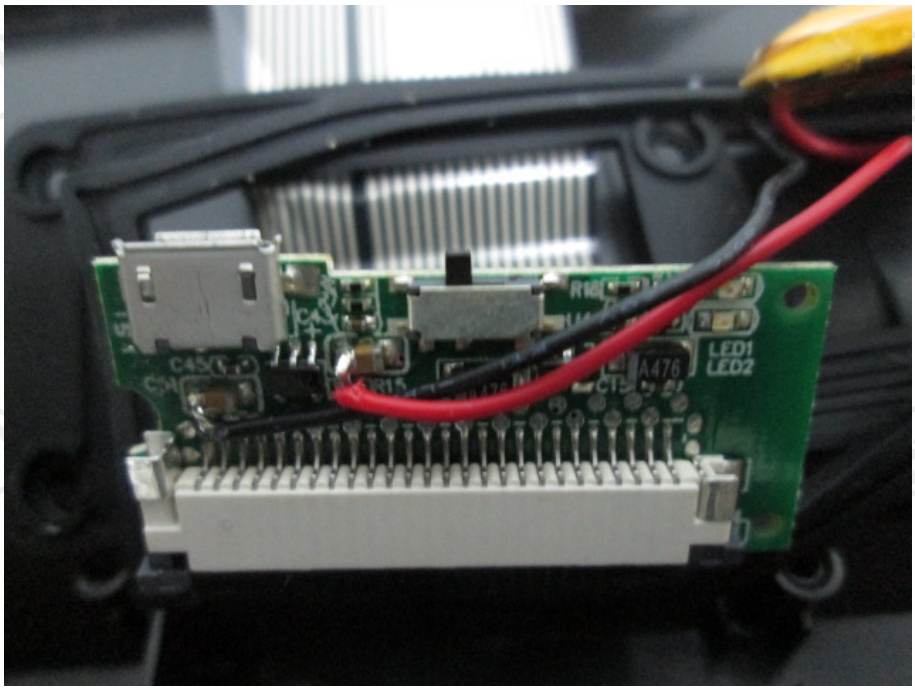
View of Product-2

# APPENDIX 3 INTERNAL PHOTOGRAPHS OF PRODUCT

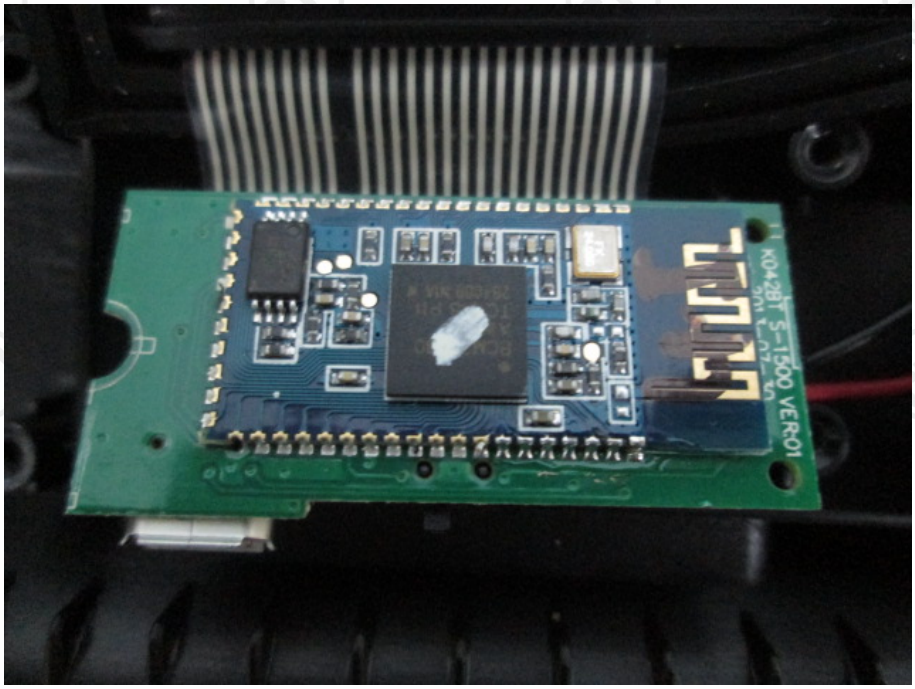


Internal View of Product-1

Internal View of Product-2




Internal View of Product-3




Internal View of Product-4

*** End of report ***

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