Shenzhen Certification Technology Service Co., Ltd.
2F, Building B, East Area of Nanchang Second Industrial Zone, Gushu 2nd Road, Bao'an District, Shenzhen 518126, P.R. China

# TEST REPORT

## FCC ID: SZT-ROCK05BT

Applicant : RockDoc LLC

Address : 245 Townpark Dr Suite 525 Kennesaw, GA 30144 USA

Equipment Under Test (EUT):

Name : Speaker

Model : ROCK05BT, ROCK06BT, ROCK05BT2, ROCK06BT2

In Accordance with: FCC PART 15.247

Report No : STI130429063

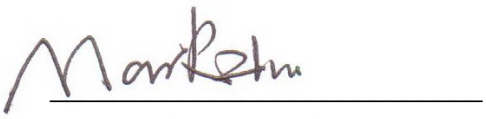
Date of Test : May 2-7, 2013

Date of Issue : May 8, 2013

Test Result: **PASS**

In the configuration tested, the EUT complied with the standards specified above

Authorized Signature



(Mark Zhu)

General Manager

# Contents

# 1. General Information

## 1.1. Description of Device (EUT)

| | | |
|---|---|---|
| EUT | : | Speaker |
| Model No. | : | ROCK05BT, ROCK06BT, ROCK05BT2, ROCK06BT2 |
| DIFF. | : | Only different in appearance, the other the same.<br>The test model: ROCK05BT. |
| Trade mark | : | RockDoc |
| Power supply | : | DC 3.7V From battery<br>DC 5V From PC With AC 120V/60Hz |
| Radio Technology | : | Bluetooth 3.0 |
| FCC Operation frequency | : | 2402MHz -2480MHz |
| Modulation | : | GFSK, π/4 DQPSK, 8-DPSK |
| Antenna Type | : | PCB antenna, Gain: 2dBi |
| Applicant | : | RockDoc LLC |
| Address | : | 245 Townpark Dr Suite 525 Kennesaw, GA 30144 USA |
| Manufacturer | : | Shenzhen Junjiahao Technology Company Limited |
| Address | : | Building B, Block A, Phase 2, Fuyu Industrial Park, Longhua Town, Shenzhen, Guangdong, China |

Accessories of device (EUT)

| | | |
|---|---|---|
| Accessories 1 | : | N/A |
| Type | : | N/A |

## 1.2. Test Lab information

Shenzhen Certification Technology Service Co., Ltd.
2F, Building B, East Area of Nanchang Second Industrial Zone,
Gushu 2nd Road, Bao'an District, Shenzhen 518126, P.R. China
FCC Registered No.:197647

# 2. Summary of test

## 2.1. Summary of test result

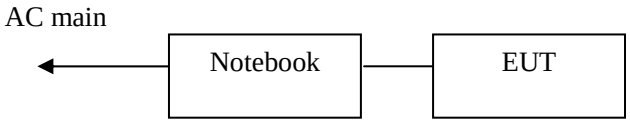
| Description of Test Item | Standard | Results |
|---|---|---|
| Maximum Peak Output Power | FCC Part 15: 15.247(b)(1)<br>ANSI C63.4 :2003 | PASS |
| 20dB Bandwidth | FCC Part 15: 15.215<br>ANSI C63.4 :2003 | PASS |
| Carrier Frequency Separation | FCC Part 15: 15.247(a)(1)<br>ANSI C63.4 :2003 | PASS |
| Number Of Hopping Channel | FCC Part 15: 15.247(a)(1)(iii)<br>ANSI C63.4 :2003 | PASS |
| Dwell Time | FCC Part 15: 15.247(a)(1)(iii)<br>ANSI C63.4 :2003 | PASS |
| Radiated Emission | FCC Part 15: 15.209<br>FCC Part 15: 15.247(d)<br>ANSI C63.4 :2003 | PASS |
| Band Edge Compliance | FCC Part 15: 15.247(d)<br>ANSI C63.4 :2003 | PASS |
| Power Line Conducted Emissions | FCC Part 15: 15.207<br>ANSI C63.4 :2003 | PASS |
| Antenna requirement | FCC Part 15: 15.203 | PASS |
| Note: the test with DA00-705 test procedure. | | |

## 2.2. Assistant equipment used for test

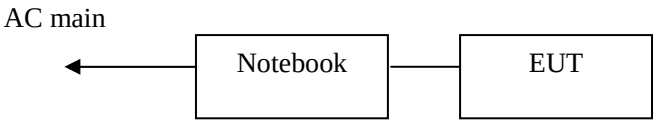
| | | |
|---|---|---|
| Description | : | Test PC 1 |
| Manufacturer | : | Dell |
| Model No. | : | D430 |

## 2.3. Block Diagram

1, For radiated emissions test: EUT was placed on a turn table, which is 0.8 meter high above ground. EUT was be set into BT test mode by Bluesuite software before test.



2, For Power Line Conducted Emissions Test: EUT was connected to power adapter by 1m USB line




## 2.4. Test mode

The test software "Bluesuite" was used to control EUT work in Continuous TX mode, and select test channel, wireless mode

| Tested mode, channel, and data rate information | | |
|---|---|---|
| Mode | Channel | Frequency (MHz) |
| BDR:GFSK | Low :CH1 | 2402 |
| | Middle: CH40 | 2441 |
| | High: CH79 | 2480 |
| EDR:π/4 QPSK | Low :CH1 | 2402 |
| | Middle: CH40 | 2441 |
| | High: CH79 | 2480 |
| EDR:8-DPSK | Low :CH1 | 2402 |
| | Middle: CH40 | 2441 |
| | High: CH79 | 2480 |

Note: For π/4 QPSK its same modulation type with 8-DPSK, and based exploratory test, there is no significant difference of that two types test result, so except output power, all other items final test were only performed with 8-DPSK and GFSK.

## 2.5. Test Conditions

| | |
|---|---|
| Temperature range | 21-25℃ |
| Humidity range | 40-75% |
| Pressure range | 86-106kPa |

## 2.6. Measurement Uncertainty (95% confidence levels, k=2)

| Item | MU | Remark |
|---|---|---|
| Uncertainty for Power point Conducted Emissions Test | 2.42dB | |
| Uncertainty for Radiation Emission test in 3m chamber (30MHz to 1GHz) | 3.54dB | Polarize: V |
| | 4.1dB | Polarize: H |
| Uncertainty for Radiation Emission test in 3m chamber (1GHz to 25GHz) | 2.08dB | Polarize: H |
| | 2.56dB | Polarize: V |
| Uncertainty for radio frequency | 1×10-9 | |
| Uncertainty for conducted RF Power | 0.65dB | |
| Uncertainty for temperature | 0.2℃ | |
| Uncertainty for humidity | 1% | |
| Uncertainty for DC and low frequency voltages | 0.06% | |

## 2.7. Test Equipment

| Equipment | Manufacture | Model No. | Serial No. | Last cal. | Cal Interval |
|---|---|---|---|---|---|
| 3m Semi-Anechoic | ETS-LINDGREN | N/A | SEL0017 | Nov. 16, 12 | 1Year |
| Spectrum analyzer | Agilent | E4407B | MY49510055 | Oct. 31, 12 | 1Year |
| Receiver | R&S | ESCI | 101165 | Oct. 31, 12 | 1Year |
| Receiver | R&S | ESCI | 101202 | Oct. 31, 12 | 1Year |
| Bilog Antenna | SCHWARZBECK | VULB 9168 | 9168-438 | Feb. 20, 13 | 1Year |
| Horn Antenna | SCHWARZBECK | BBHA 9120 D | BBHA 9120 D(1201) | Feb. 20, 13 | 1Year |
| Horn Antenna | SCHWARZBECK | BBHA 9170 | BBHA 9170 D(1432) | Feb. 20, 13 | 1Year |
| Active Loop Antenna | Beijing Daze | ZN30900A | SEL0097 | Feb.20, 13 | 1Year |
| L.I.S.N. | SCHWARZBECK | NSLK8126 | 8126466 | Oct. 31, 12 | 1Year |
| Cable | Resenberger | N/A | No.1 | Oct. 31, 12 | 1Year |
| Cable | SCHWARZBECK | N/A | No.2 | Oct. 31, 12 | 1Year |
| Cable | SCHWARZBECK | N/A | No.3 | Oct. 31, 12 | 1Year |
| Power Meter | Anritsu | ML2487A | 6K00001491 | Oct. 31, 12 | 1Year |
| Power sensor | Anritsu | ML2491A | 32516 | Oct. 31, 12 | 1Year |
| Pre-amplifier | SCHWARZBECK | BBV9743 | 9743-019 | Oct. 31, 12 | 1Year |
| Pre-amplifier | Quietek | AP-180C | CHM-0602012 | Oct. 31, 12 | 1Year |

# 3. Maximum Peak Output power

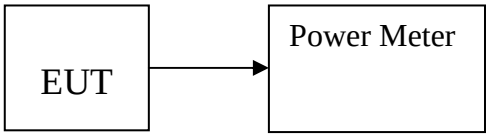
## 3.1. Limit

Please refer section15.247.
For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts, the e.i.r.p shall not exceed 4W

## 3.2. Test Procedure

The transmitter output is connected to the RF Power Meter. The RF Power Meter is set to the peak power detection.

## 3.3. Test Setup




## 3.4. Test Result

| EUT: Speaker M/N: ROCK05BT | | | | | | |
|---|---|---|---|---|---|---|
| Test date: 2013-05-04 | | Test site: RF site | | Tested by: Anna Fan | | |
| Mode | Freq (MHz) | Reading Power (dBm) | Factor (dB) | Result (dBm) | Limit (dBm) | Margin (dB) |
| GFSK | 2402 | 1.62 | 0.5 | 2.12 | 21 | 18.88 |
| | 2441 | 1.67 | 0.5 | 2.17 | 21 | 18.83 |
| | 2480 | 1.64 | 0.5 | 2.14 | 21 | 18.86 |
| π/4 QPSK | 2402 | 0.77 | 0.5 | 1.27 | 21 | 19.73 |
| | 2441 | 0.76 | 0.5 | 1.26 | 21 | 19.74 |
| | 2480 | 0.80 | 0.5 | 1.30 | 21 | 19.70 |
| 8-DPSK | 2402 | 1.34 | 0.5 | 1.84 | 21 | 19.16 |
| | 2441 | 1.31 | 0.5 | 1.81 | 21 | 19.19 |
| | 2480 | 1.30 | 0.5 | 1.80 | 21 | 19.20 |
| Conclusion: PASS | | | | | | |

# 4. 20dB bandwidth

## 4.1. Limit

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

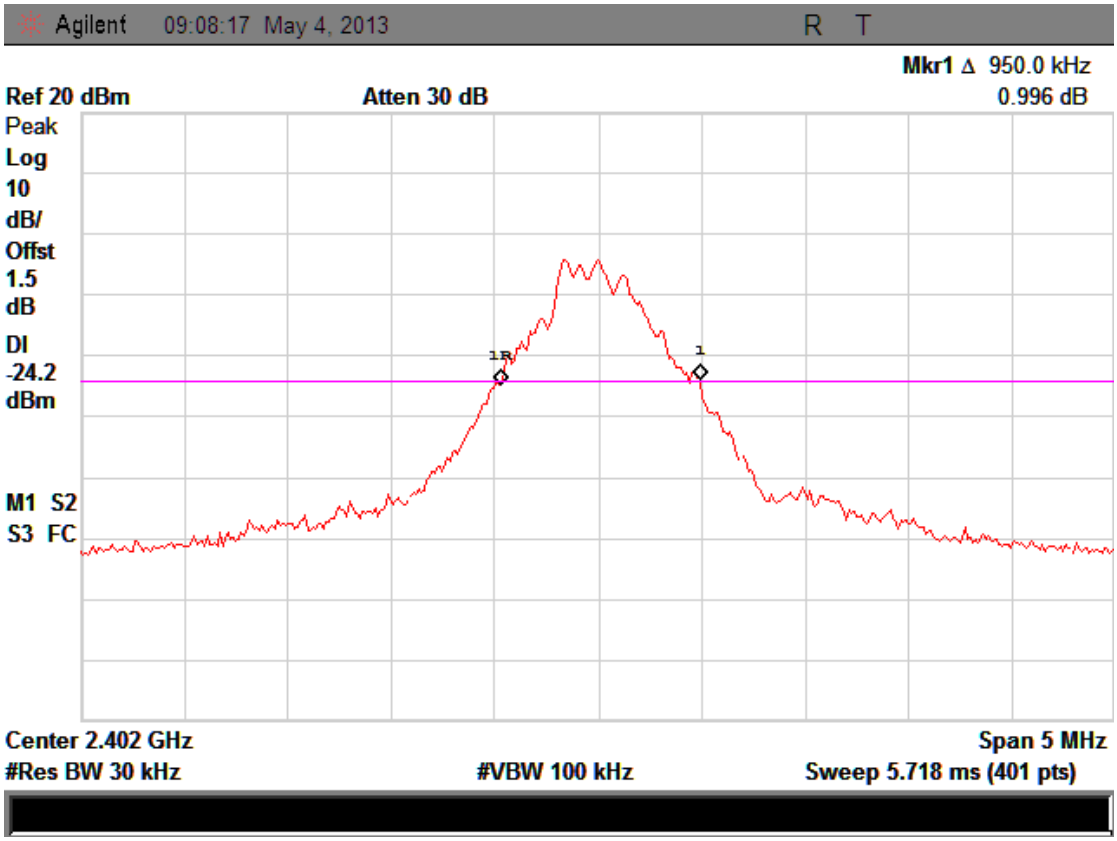
## 4.2. Test Procedure

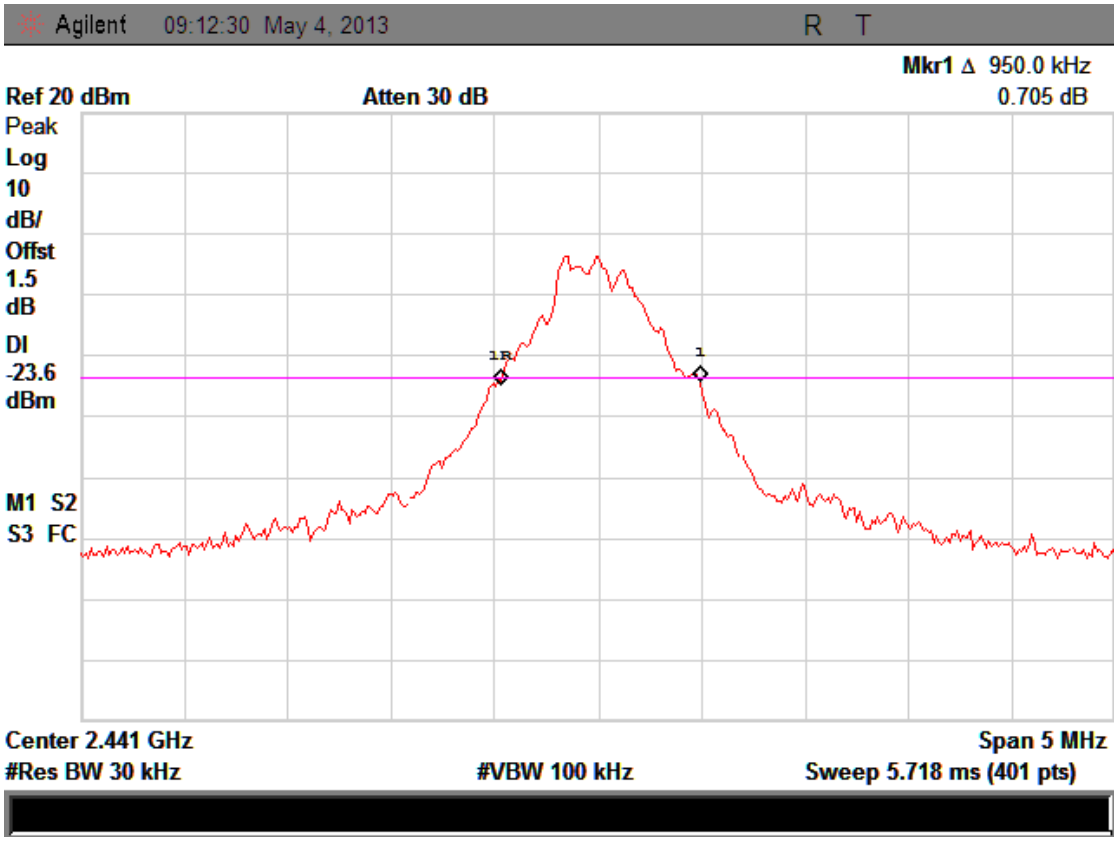
The transmitter output was coupled to a spectrum analyzer via a antenna. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 30kHz RBW and 100kHz VBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

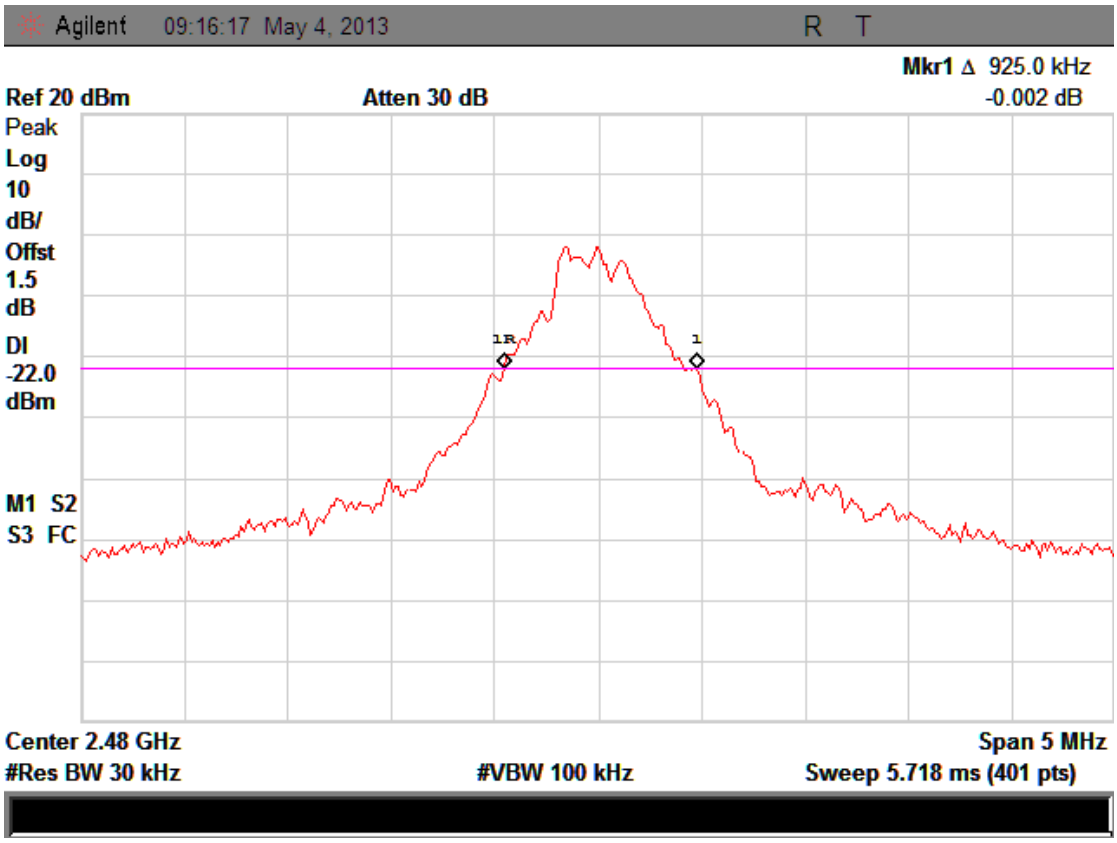
## 4.3. Test Result

| EUT: Speaker | | M/N: ROCK05BT | | |
|---|---|---|---|---|
| Test date: 2013-05-04 | | Test site: RF site | Tested by: Anna Fan | |
| Mode | Freq (MHz) | 20dB Bandwidth (MHz) | Limit (kHz) | Conclusion |
| GFSK | 2402 | 0.950 | / | PASS |
| | 2441 | 0.950 | / | PASS |
| | 2480 | 0.925 | / | PASS |
| 8-DPSK | 2402 | 1.2375 | / | PASS |
| | 2441 | 1.2375 | / | PASS |
| | 2480 | 1.2375 | / | PASS |

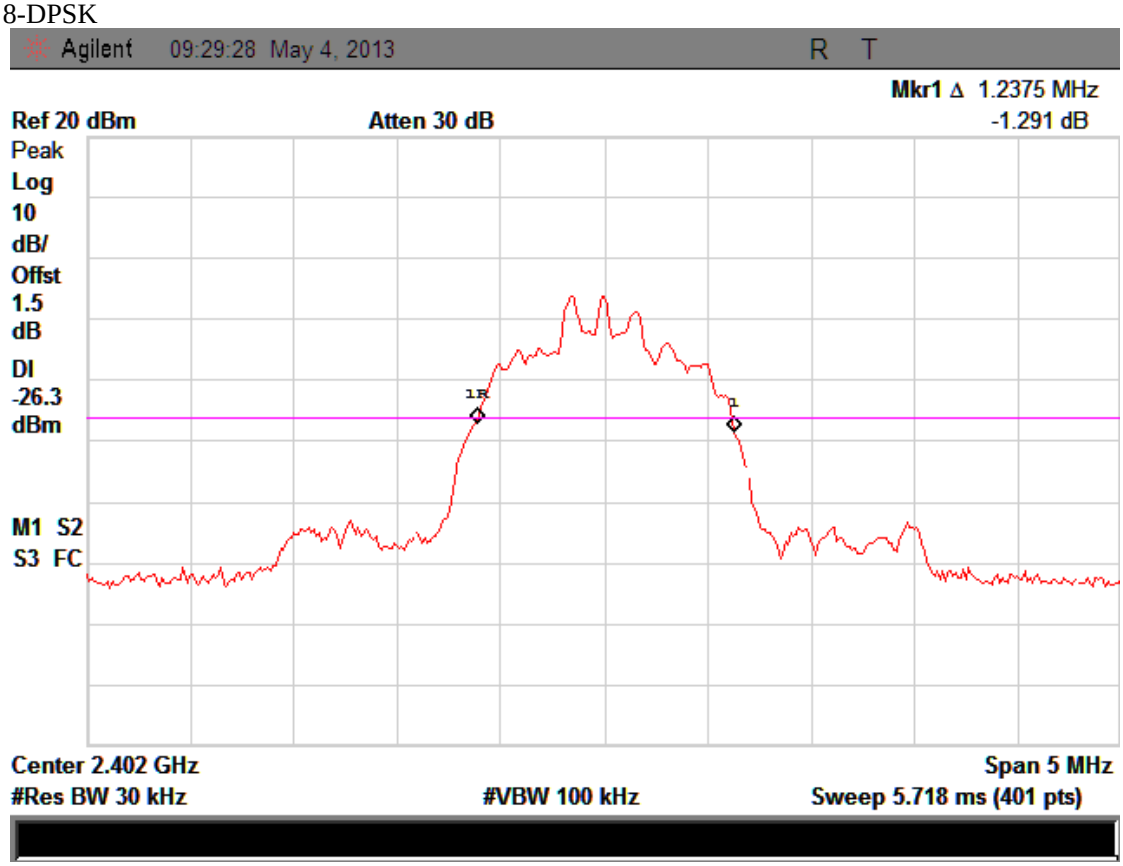
Orginal Test data For 20dB bandwidth
GFSK

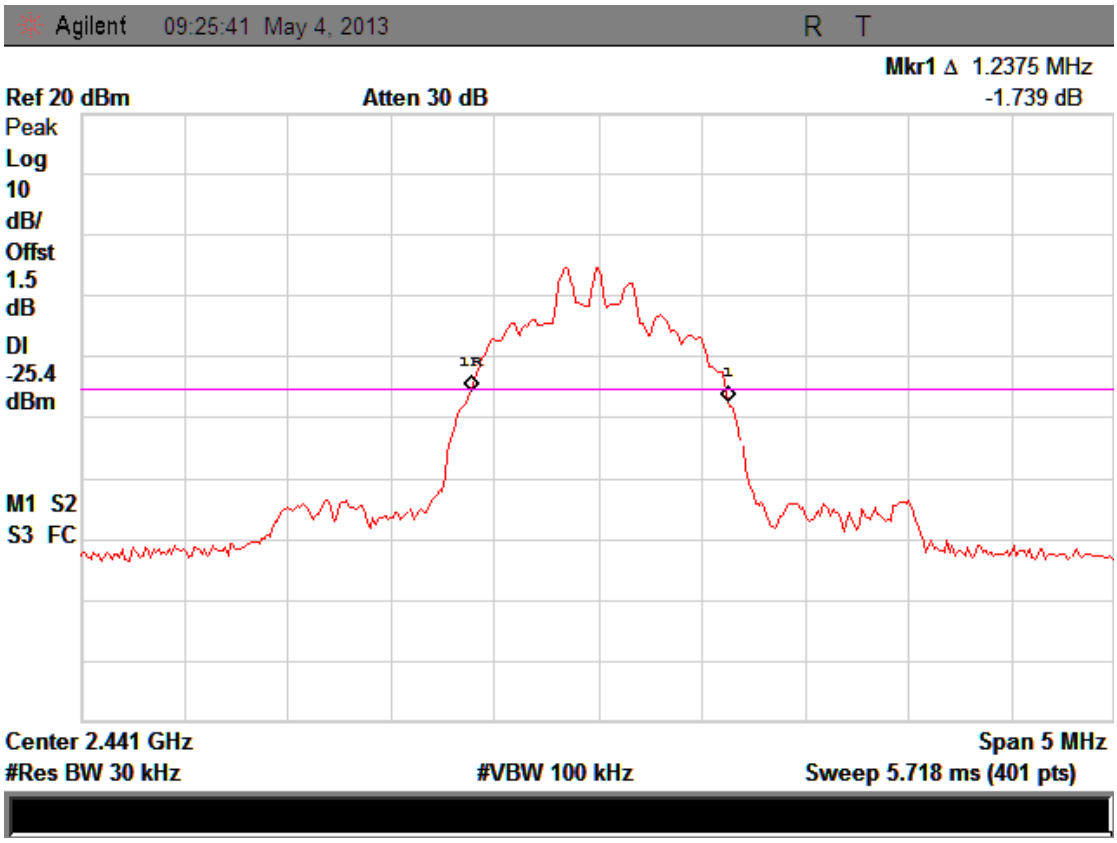


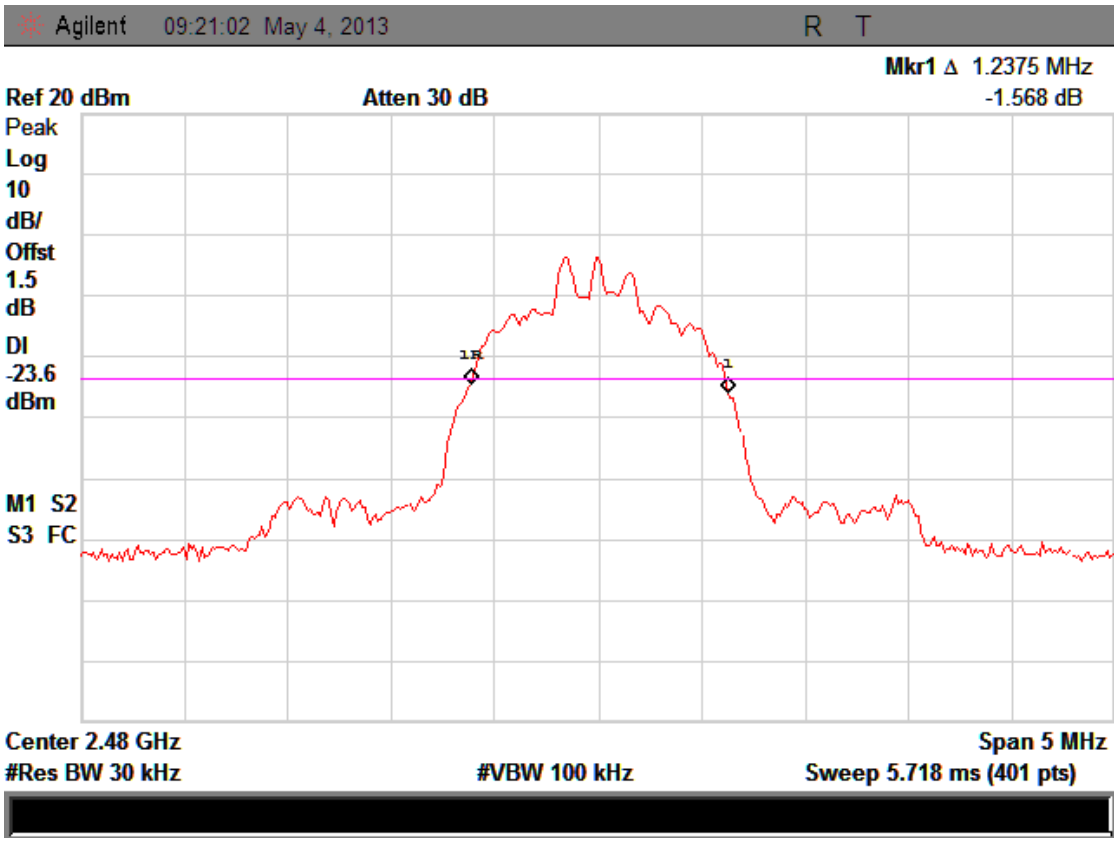




Agilent 09:16:17 May 4, 2013
R T
Mkr1 Δ 925.0 kHz
-0.002 dB
Ref 20 dBm
Atten 30 dB
Peak
Log
10
dB/
Offst
1.5
dB
Dl
-22.0
dBm
M1 S2
S3 FC
1R
1
Center 2.48 GHz
Span 5 MHz
#Res BW 30 kHz
#VBW 100 kHz
Sweep 5.718 ms (401 pts)

8-DPSK


Agilent 09:29:28 May 4, 2013
R T
Mkr1 Δ 1.2375 MHz
-1.291 dB
Ref 20 dBm
Atten 30 dB
Peak
Log
10
dB/
Offst
1.5
dB
Dl
-26.3
dBm
M1 S2
S3 FC
1R
1
Center 2.402 GHz
Span 5 MHz
#Res BW 30 kHz
#VBW 100 kHz
Sweep 5.718 ms (401 pts)


Agilent 09:25:41 May 4, 2013
R T
Mkr1 Δ 1.2375 MHz
-1.739 dB
Ref 20 dBm
Atten 30 dB
Peak
Log
10
dB/
Offst
1.5
dB
Dl
-25.4
dBm
M1 S2
S3 FC
Center 2.441 GHz
Span 5 MHz
#Res BW 30 kHz
#VBW 100 kHz
Sweep 5.718 ms (401 pts)


Agilent 09:21:02 May 4, 2013
R T
Mkr1 Δ 1.2375 MHz
-1.568 dB
Ref 20 dBm
Atten 30 dB
Peak
Log
10
dB/
Offst
1.5
dB
Dl
-23.6
dBm
M1 S2
S3 FC
Center 2.48 GHz
Span 5 MHz
#Res BW 30 kHz
#VBW 100 kHz
Sweep 5.718 ms (401 pts)

# 5. Carrier Frequency Separation

## 5.1. Limit

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz 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 125 mW

## 5.2. Test Procedure

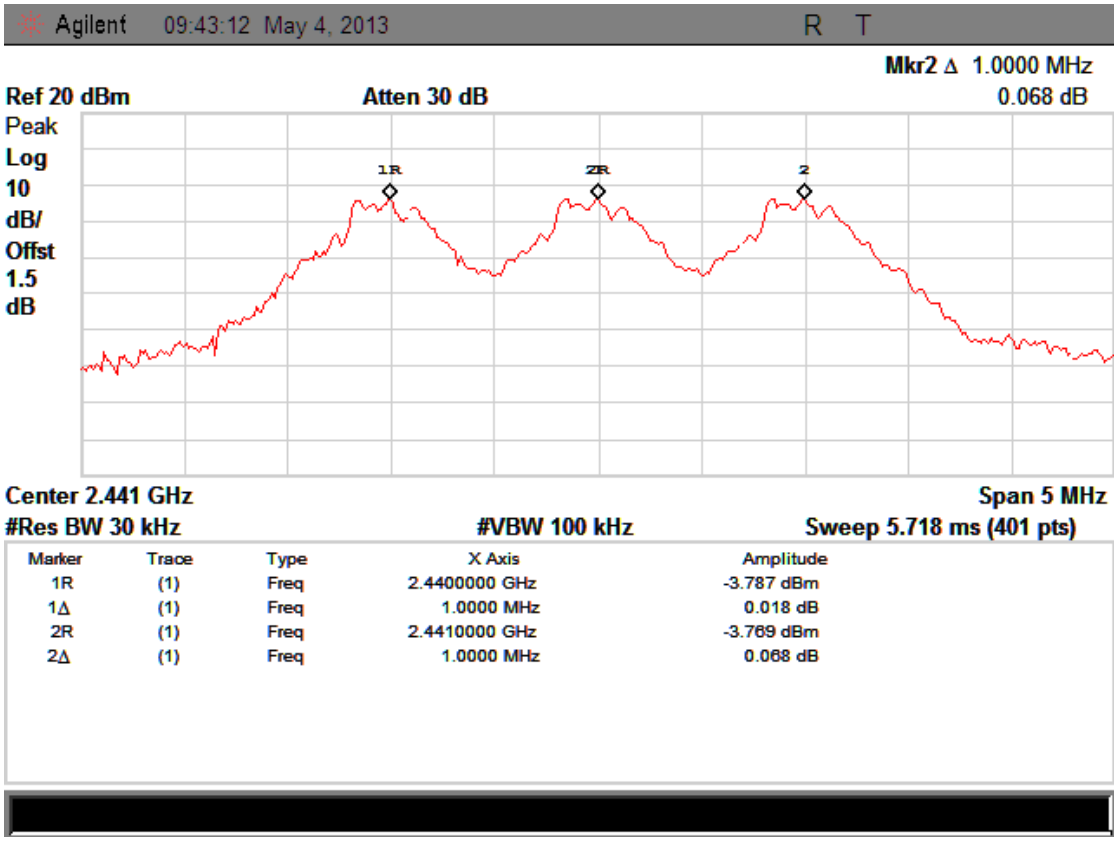
The transmitter output was coupled to a spectrum analyzer via a antenna. The carrier frequency was measured by spectrum analyzer with 30kHz RBW and 100kHz VBW.

## 5.3. Test Result

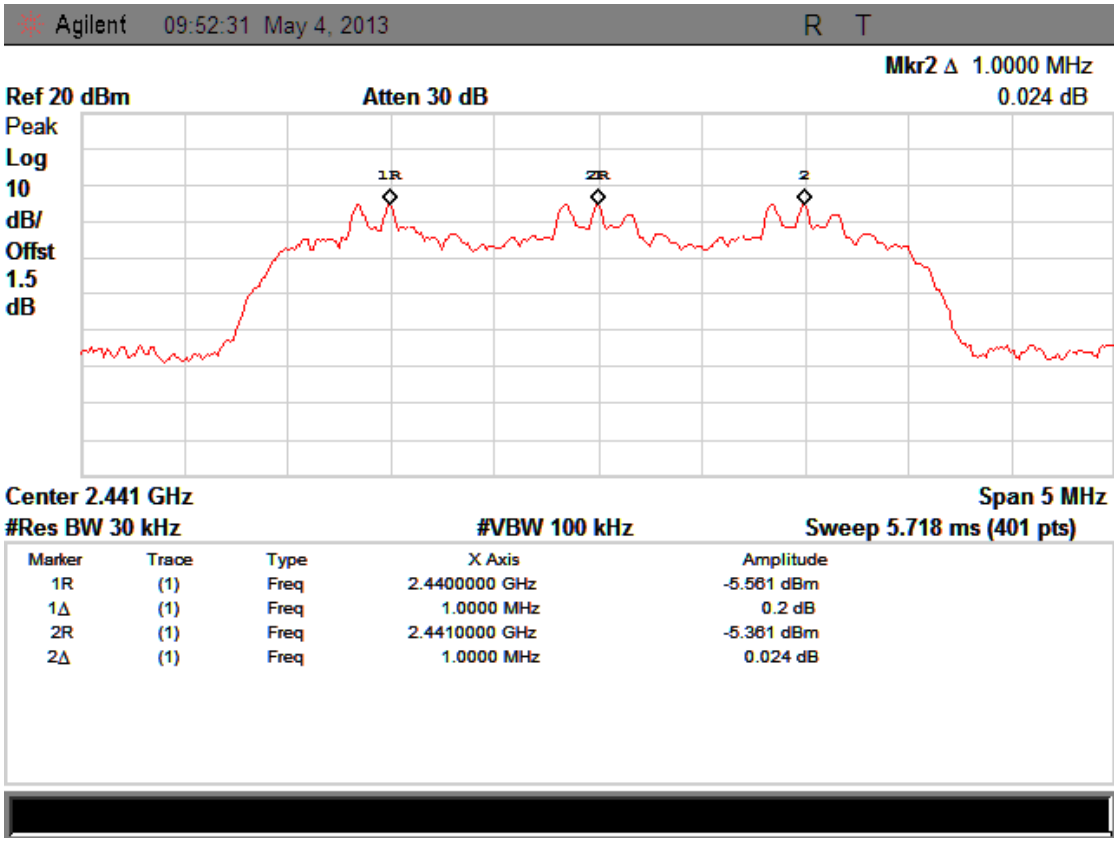
| EUT: Speaker M/N: ROCK05BT | | | | |
|---|---|---|---|---|
| Test date: 2013-05-04 | | Test site: RF site | Tested by: Anna Fan | |
| Mode | Channel separation (MHz) | 20dB Bandwidth (MHz) | Limit (MHz) 2/3 20dB bandwidth | Conclusion |
| GFSK | 1.0 | 0.950 | 0.633 | PASS |
| 8-DPSK | 1.0 | 1.2375 | 0.825 | PASS |

Orginal test data for channel separation

GFSK




8-DPSK



# 6. Number Of Hopping Channel

## 6.1. Limit

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

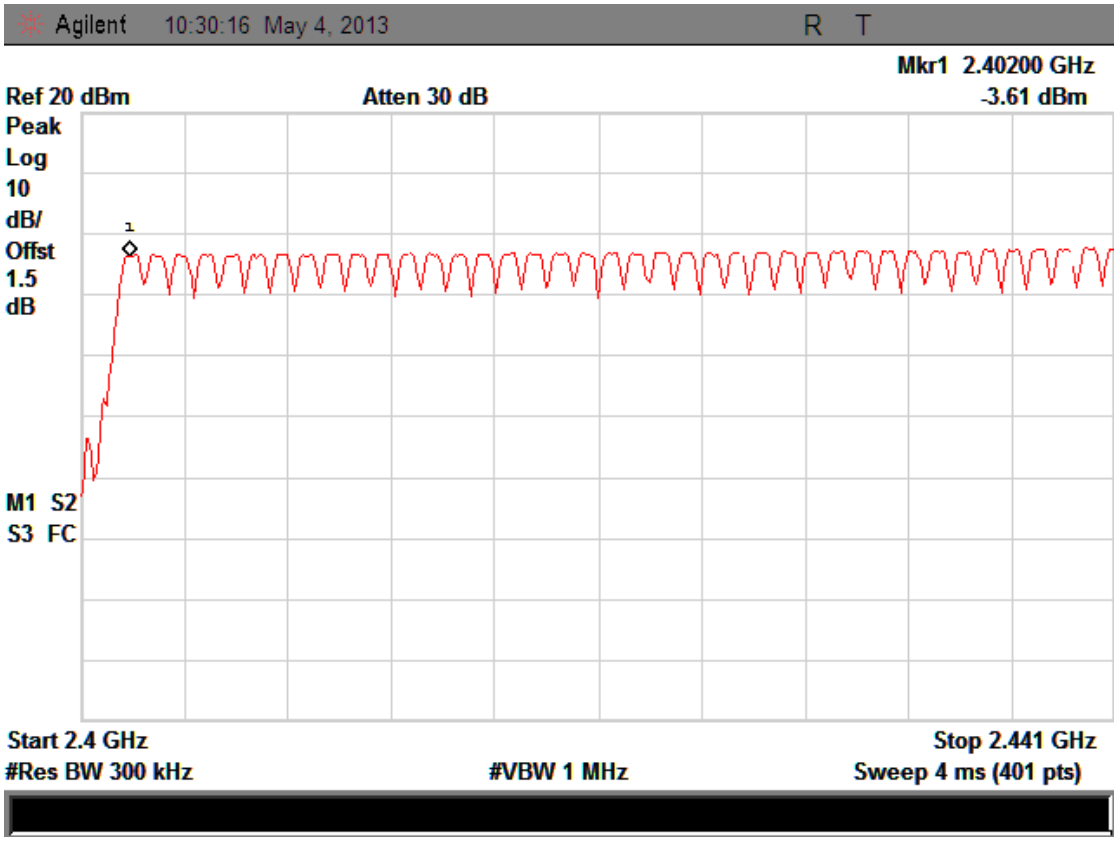
## 6.2. Test Procedure

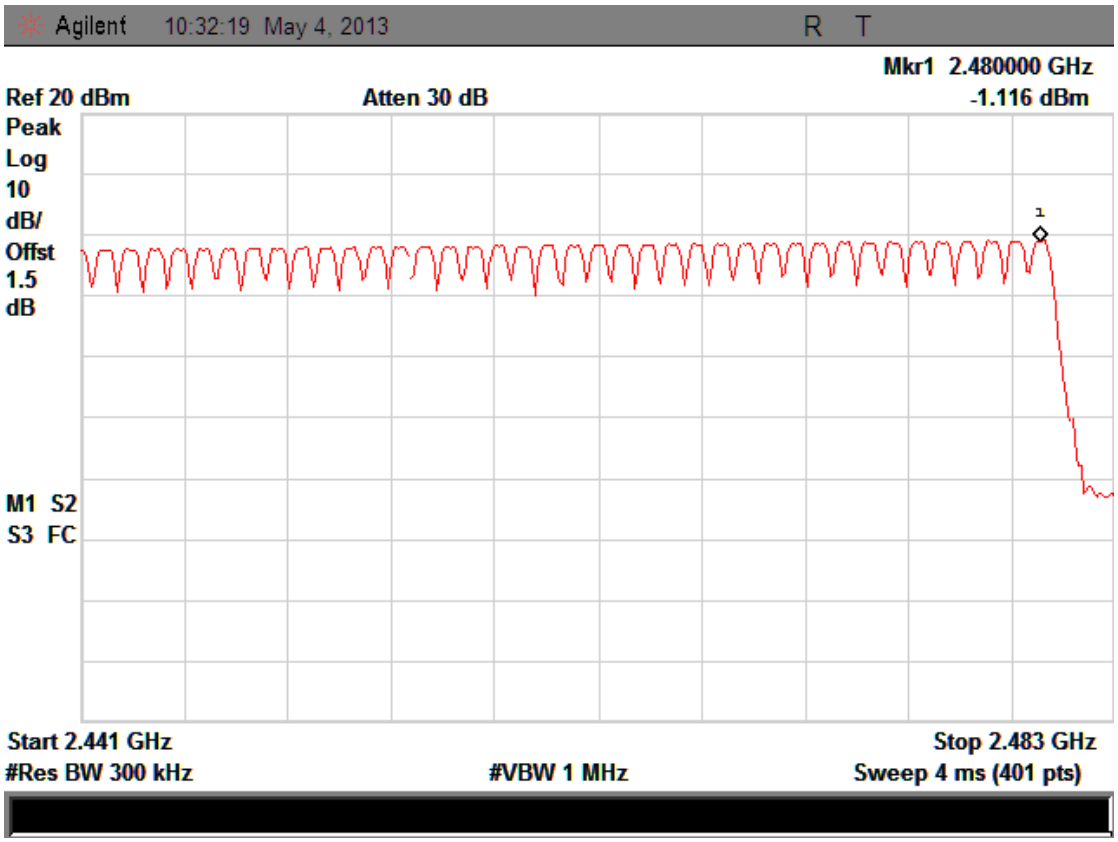
The transmitter output was coupled to a spectrum analyzer via a antenna. The number of hopping channel was measured by spectrum analyzer with 300kHz RBW and 1MHz VBW.

## 6.3. Test Result

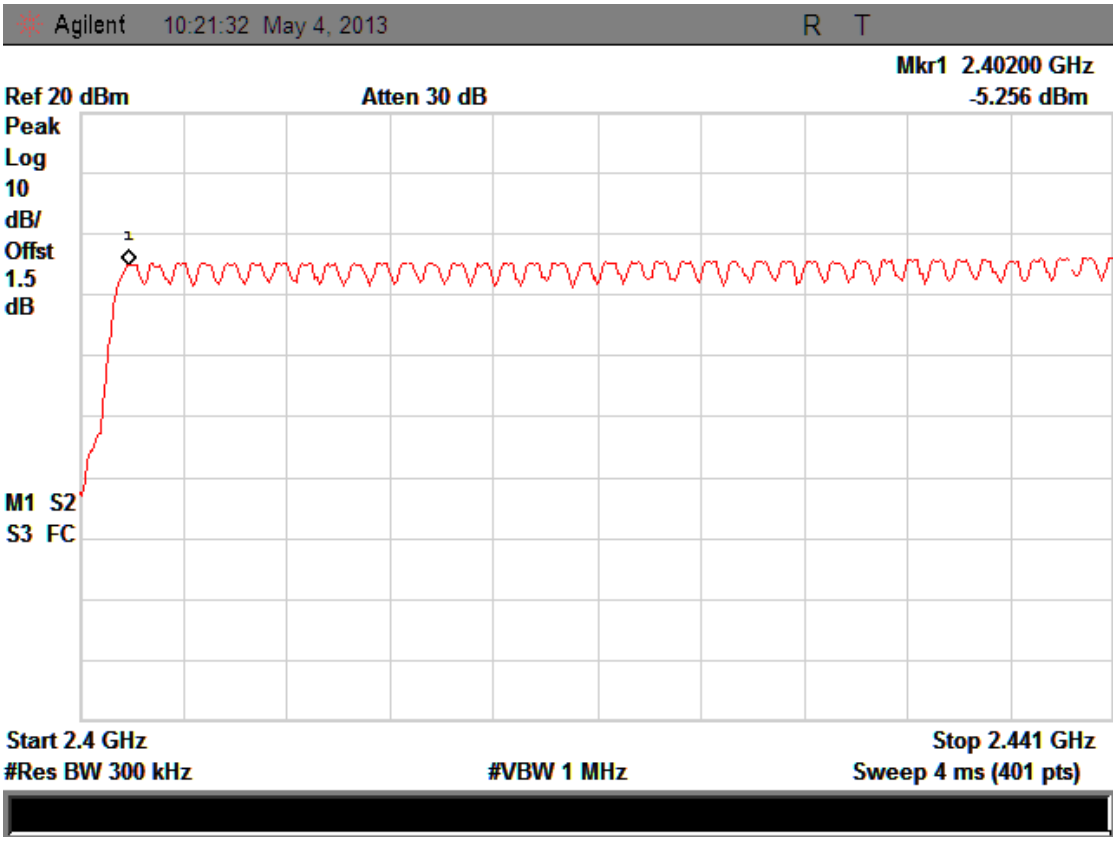
| EUT: Speaker | M/N: ROCK05BT | | |
|---|---|---|---|
| Test date: 2013-05-04 | Test site: RF site | Tested by: Anna Fan | |
| Mode | Number of hopping channel | Limit | Conclusion |
| GFSK | 79 | >15 | PASS |
| 8-DPSK | 79 | >15 | PASS |

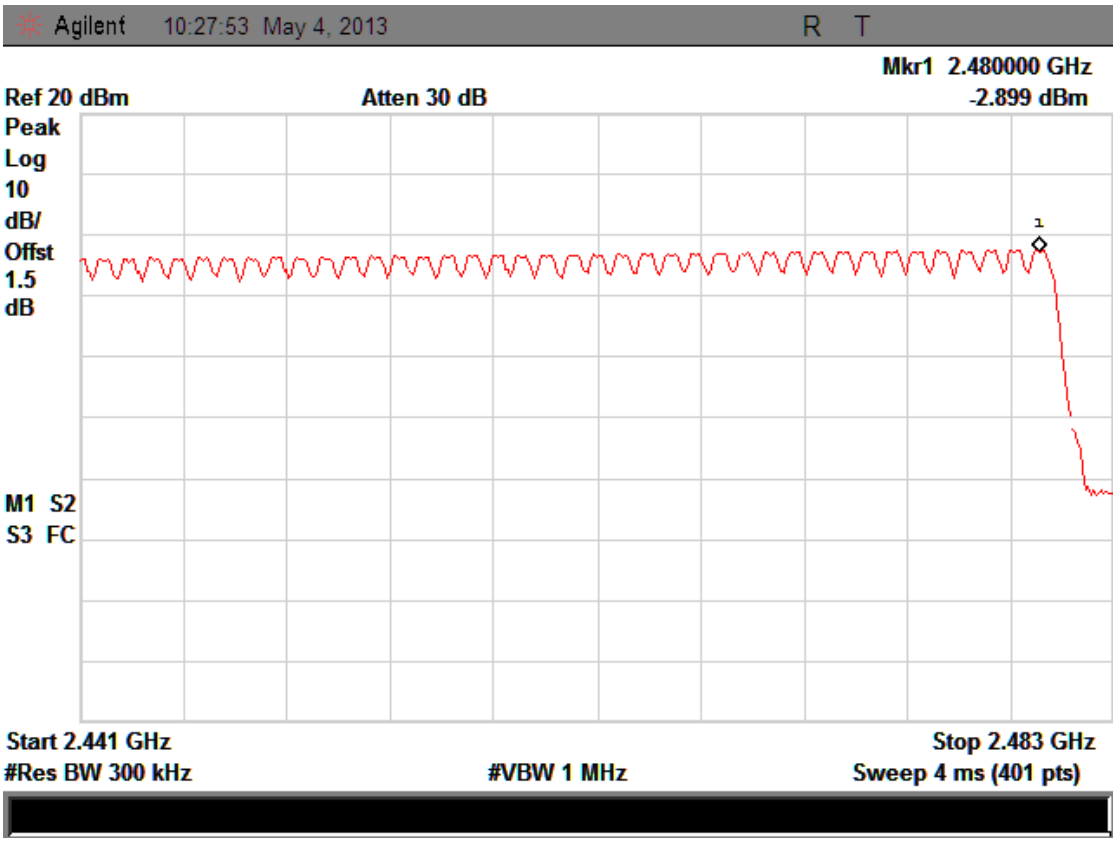
GFSK:


Agilent 10:30:16 May 4, 2013
R T
Mkr1 2.40200 GHz
Ref 20 dBm
Atten 30 dB
-3.61 dBm
Peak
Log
10
dB/
Offst
1.5
dB
1
M1 S2
S3 FC
Start 2.4 GHz
Stop 2.441 GHz
#Res BW 300 kHz
#VBW 1 MHz
Sweep 4 ms (401 pts)


Agilent 10:32:19 May 4, 2013
R T
Mkr1 2.480000 GHz
Ref 20 dBm
Atten 30 dB
-1.116 dBm
Peak
Log
10
dB/
Offst
1.5
dB
1
M1 S2
S3 FC
Start 2.441 GHz
Stop 2.483 GHz
#Res BW 300 kHz
#VBW 1 MHz
Sweep 4 ms (401 pts)

8-DPSK


Agilent 10:21:32 May 4, 2013
R T
Mkr1 2.40200 GHz
Ref 20 dBm
Atten 30 dB
-5.256 dBm
Peak
Log
10
dB/
Offst
1.5
dB
M1 S2
S3 FC
Start 2.4 GHz
Stop 2.441 GHz
#Res BW 300 kHz
#VBW 1 MHz
Sweep 4 ms (401 pts)


Agilent 10:27:53 May 4, 2013
R T
Mkr1 2.480000 GHz
Ref 20 dBm
Atten 30 dB
-2.899 dBm
Peak
Log
10
dB/
Offst
1.5
dB
M1 S2
S3 FC
Start 2.441 GHz
Stop 2.483 GHz
#Res BW 300 kHz
#VBW 1 MHz
Sweep 4 ms (401 pts)

# 7. Dwell Time

## 7.1. Test limit

Please refer section15.247

According to §15.247(a)(1)(iii), Frequency hopping systems operating in the 2400MHz-2483.5 MHz. The average time of occupancy on any frequency shall not greater than 0.4 s within period of 0.4 sec- onds multiplied by the number of hopping channel employed.

## 7.2. Test Procedure

7.2.1. Place the EUT on the table and set it in transmitting mode.

7.2.2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.

7.2.3. Set center frequency of spectrum analyzer = operating frequency.

7.2.4. Set the spectrum analyzer as RBW, VBW=1MHz, Span = 0Hz, Sweep = auto.

7.2.5. Repeat above procedures until all frequency measured were complete.

## 7.3. Test Results

PASS.

A period time = 0.4 (s) * 79 = 31.6(s)

CH Low: DH1 time slot =0.400 (ms) * (1600/(1*79)) * 31.6 = 256 (ms)

DH3 time slot = 1.650 (ms) * (1600/(3*79)) * 31.6 = 352 (ms)

DH5 time slot = 2.900 (ms) * (1600/(5*79)) * 31.6 = 372.48 (ms)

3-DH1 time slot = 0.410 (ms) * (1600/(1*79)) * 31.6 = 262.4 (ms)

3-DH3 time slot = 1.660 (ms) * (1600/(3*79)) * 31.6 = 354.13 (ms)

3-DH5 time slot =2.910 (ms) * (1600/(5*79)) * 31.6 = 372.48 (ms)

CH Mid: DH1 time slot = 0.390 (ms) * (1600/(1*79)) * 31.6 = 249.6 (ms)

DH3 time slot = 1.650 (ms) * (1600/(3*79)) * 31.6 = 352 (ms)

DH5 time slot = 2.900 (ms) * (1600/(5*79)) * 31.6 = 372.48 (ms)

3-DH1 time slot = 0.400 (ms) * (1600/(1*79)) * 31.6 = 256 (ms)

3-DH3 time slot = 1.660 (ms) * (1600/(3*79)) * 31.6 = 354.13 (ms)

3-DH5 time slot = 2.910 (ms) * (1600/(5*79)) * 31.6 = 372.48 (ms)

CH High: DH1 time slot = 0.400 (ms) * (1600/(1*79)) * 31.6 = 256 (ms)

DH3 time slot =1.650 (ms) * (1600/(3*79)) * 31.6 = 352 (ms)

DH5 time slot = 2.900 (ms) * (1600/(5*79)) * 31.6 = 372.48 (ms)

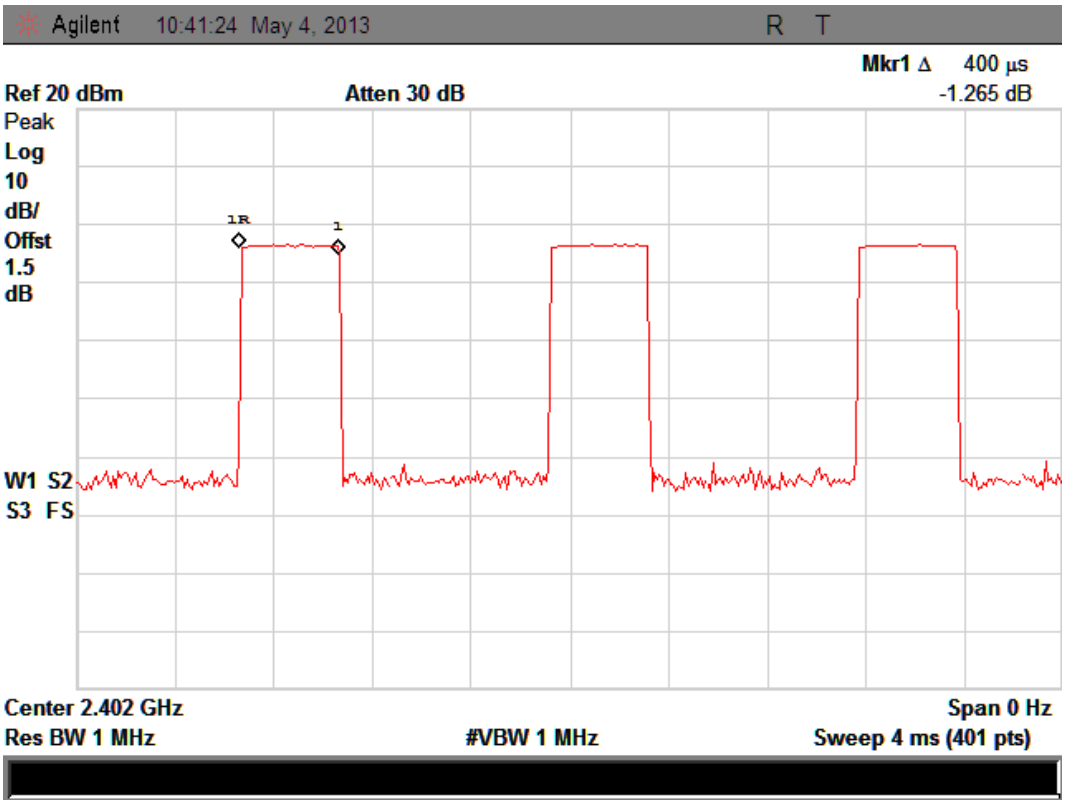
3-DH1 time slot = 0.410 (ms) * (1600/(1*79)) * 31.6 = 262.4 (ms)

3-DH3 time slot = 1.650 (ms) * (1600/(3*79)) * 31.6 = 352 (ms)

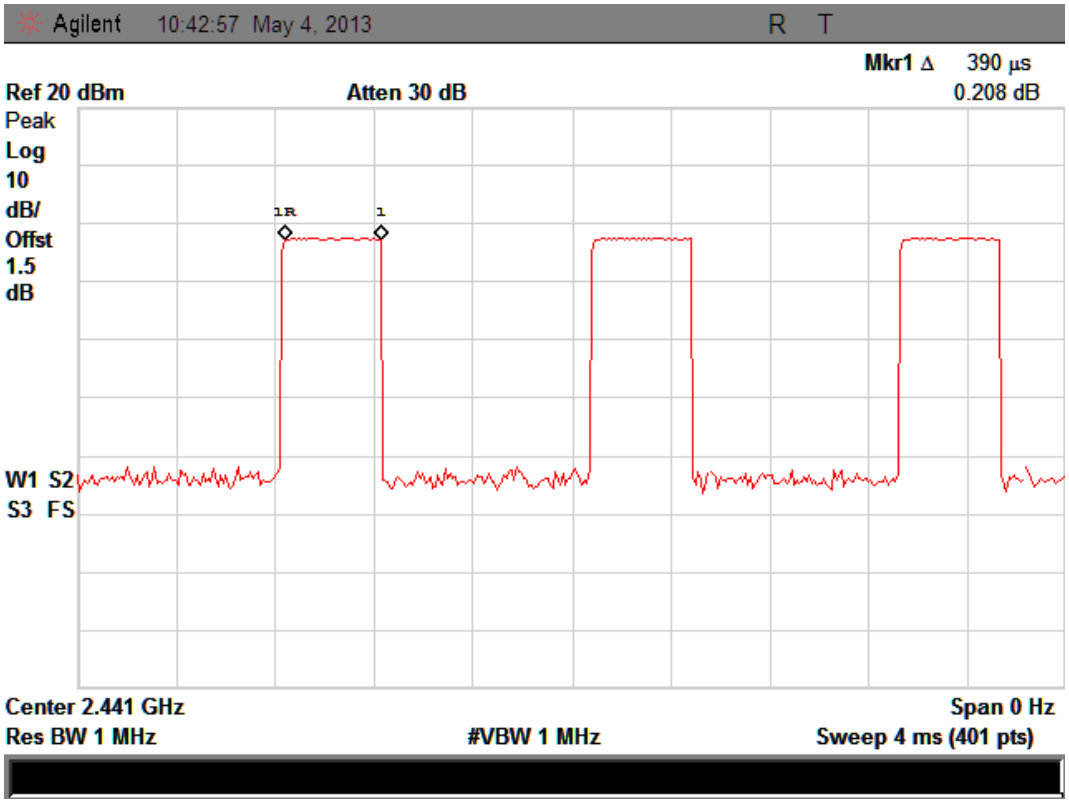
3-DH5 time slot = 2.910 (ms) * (1600/(5*79)) * 31.6 = 372.48 (ms)

Detailed information please see the following page.

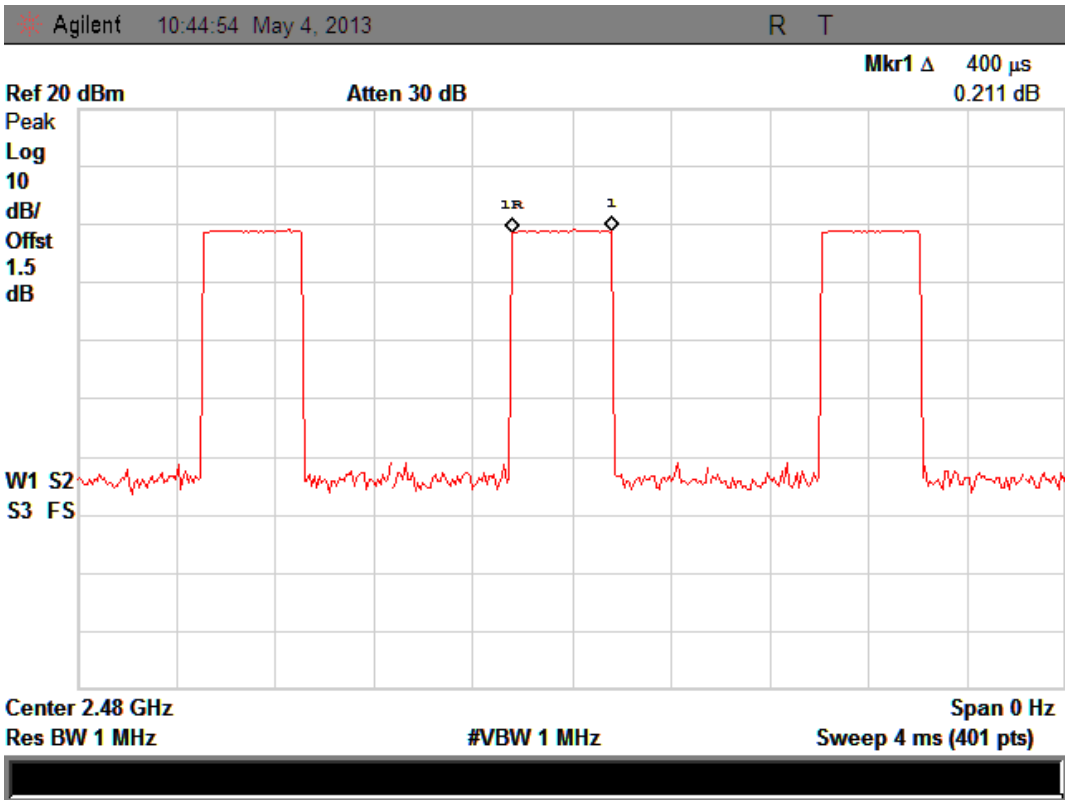
DH1: CH Low



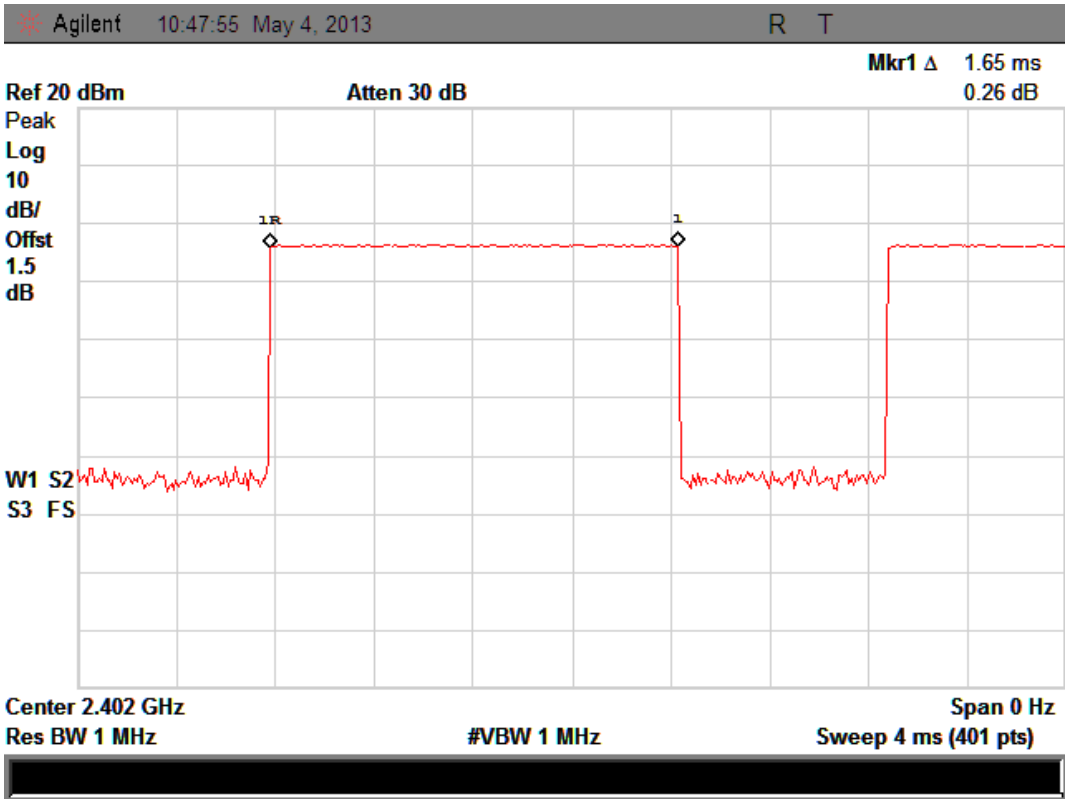

DH1: CH Mid



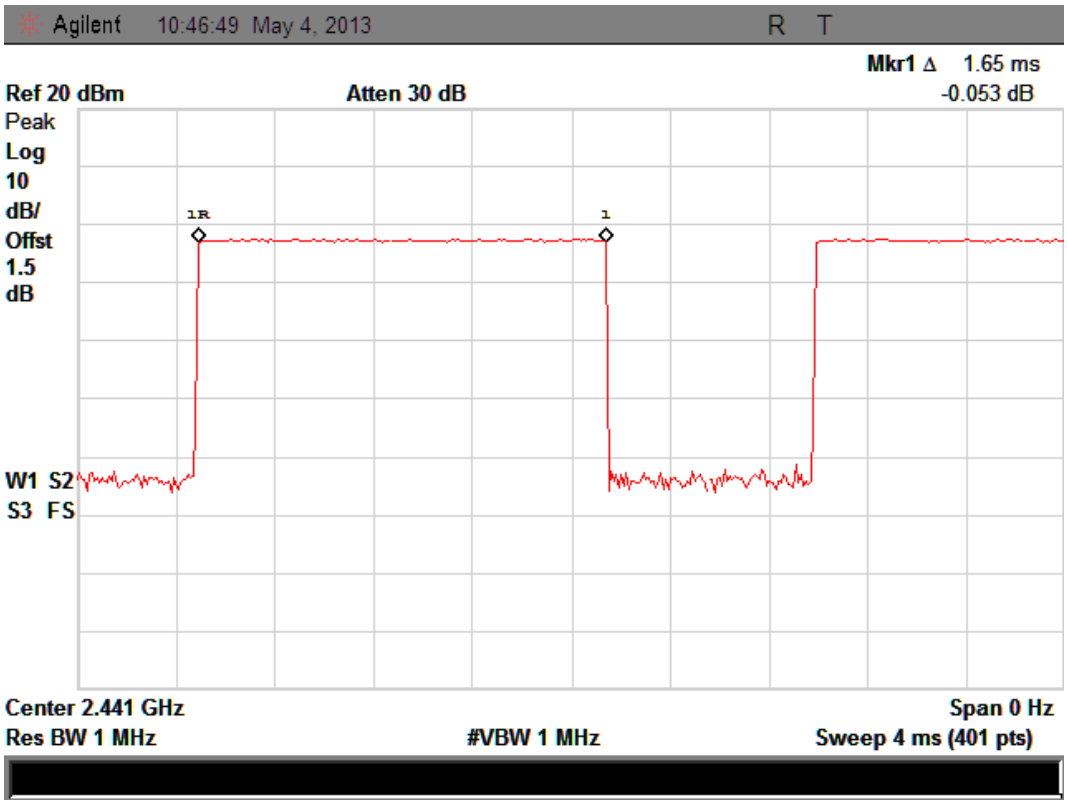
DH1: CH High



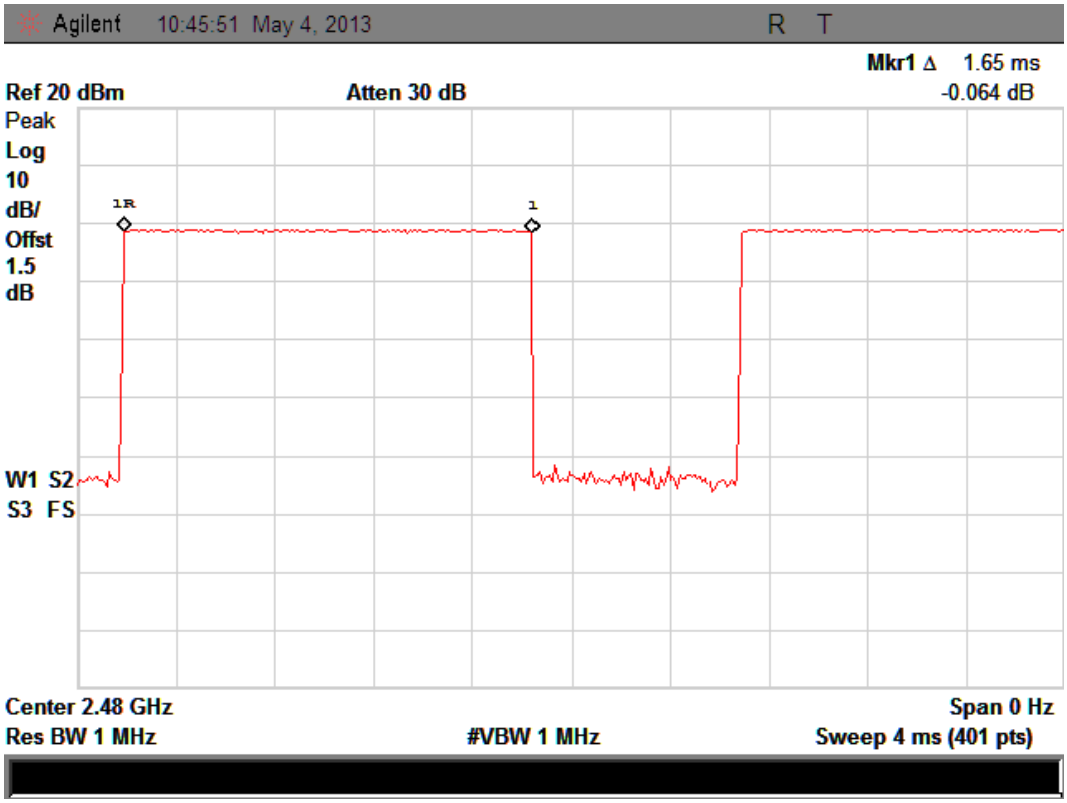

DH3: CH Low:



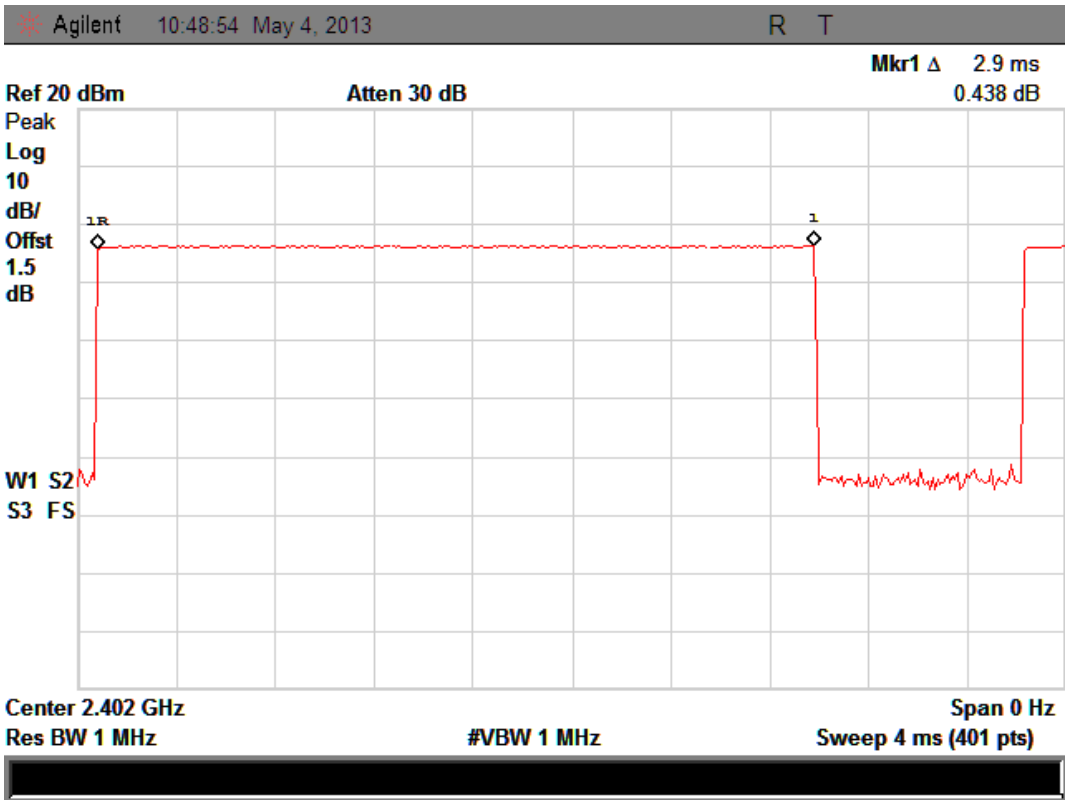
DH3: CH Mid



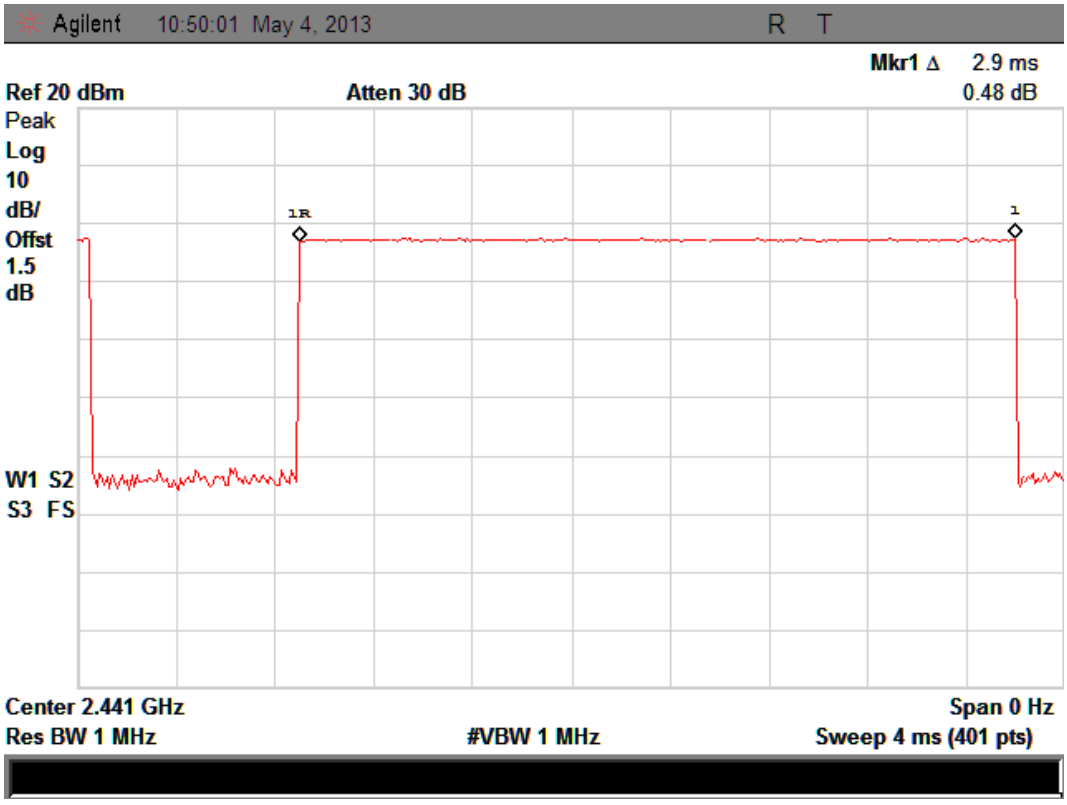

DH3 CH High



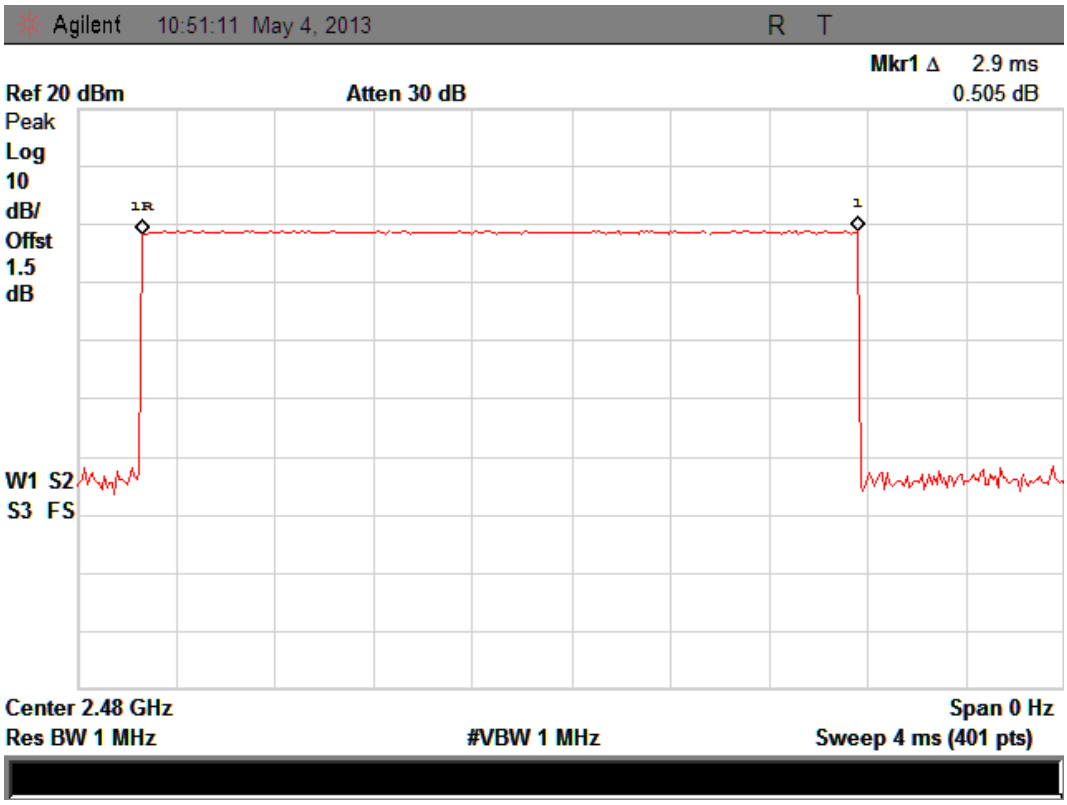
DH5 CH Low



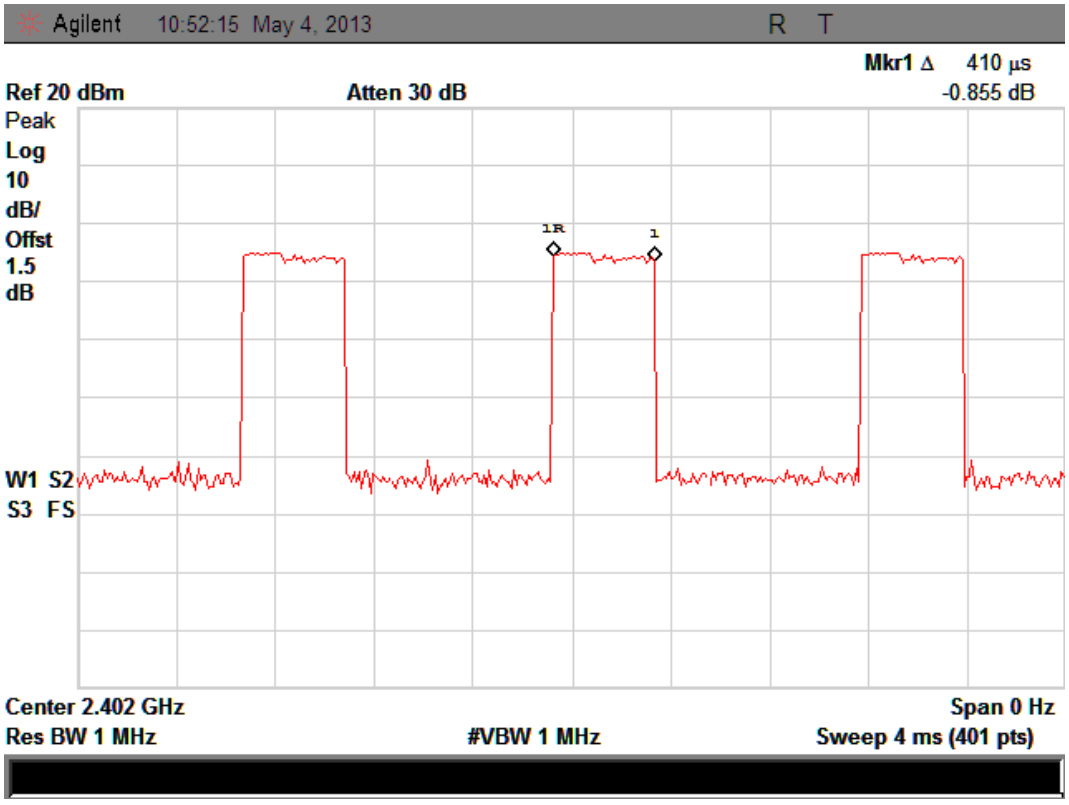

DH5 CH Mid



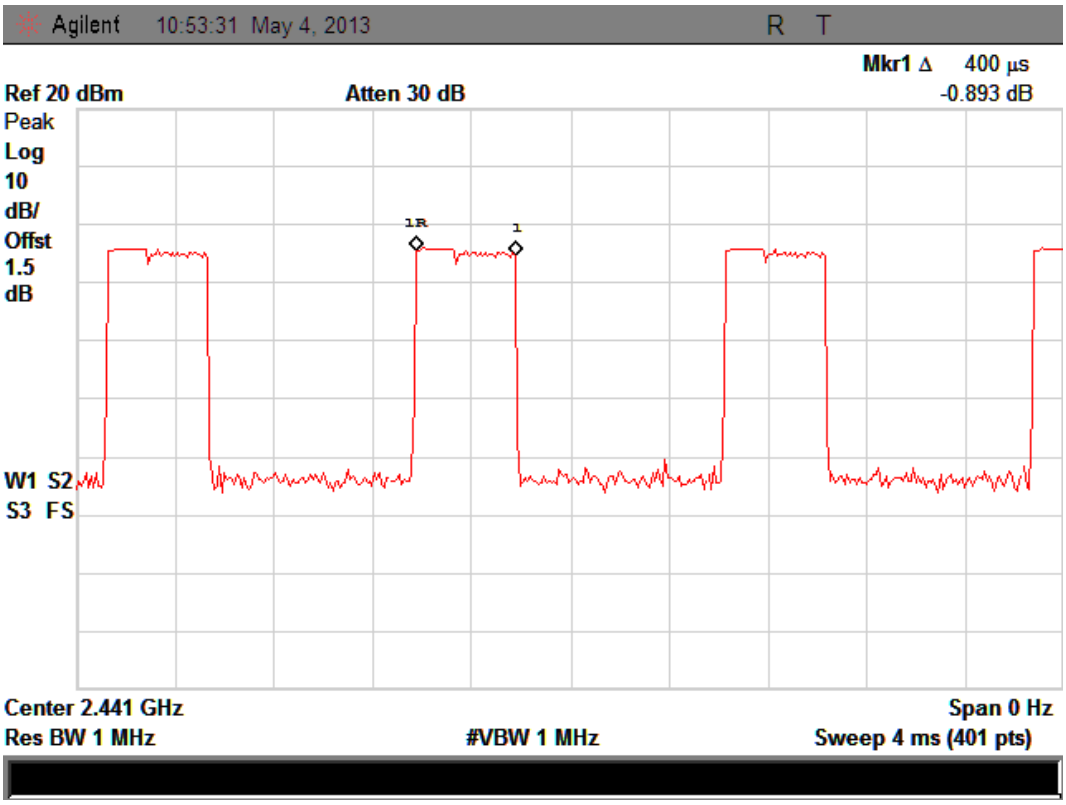
DH5 CH High



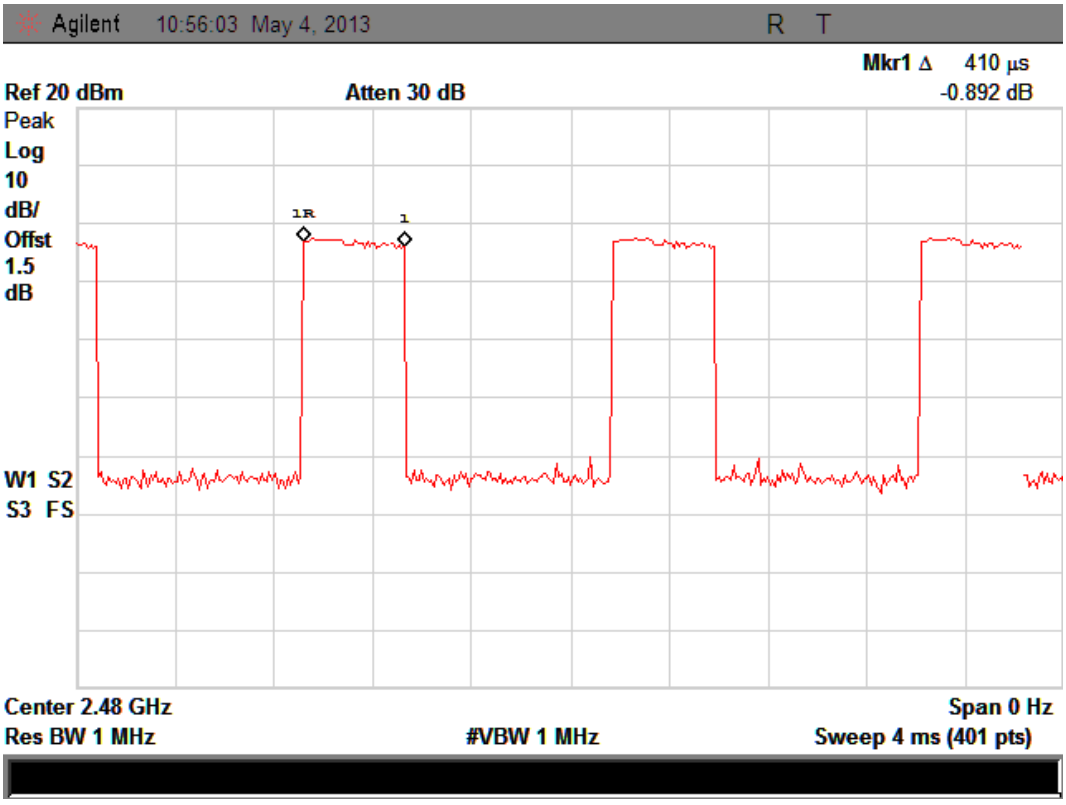

3-DH1: CH Low



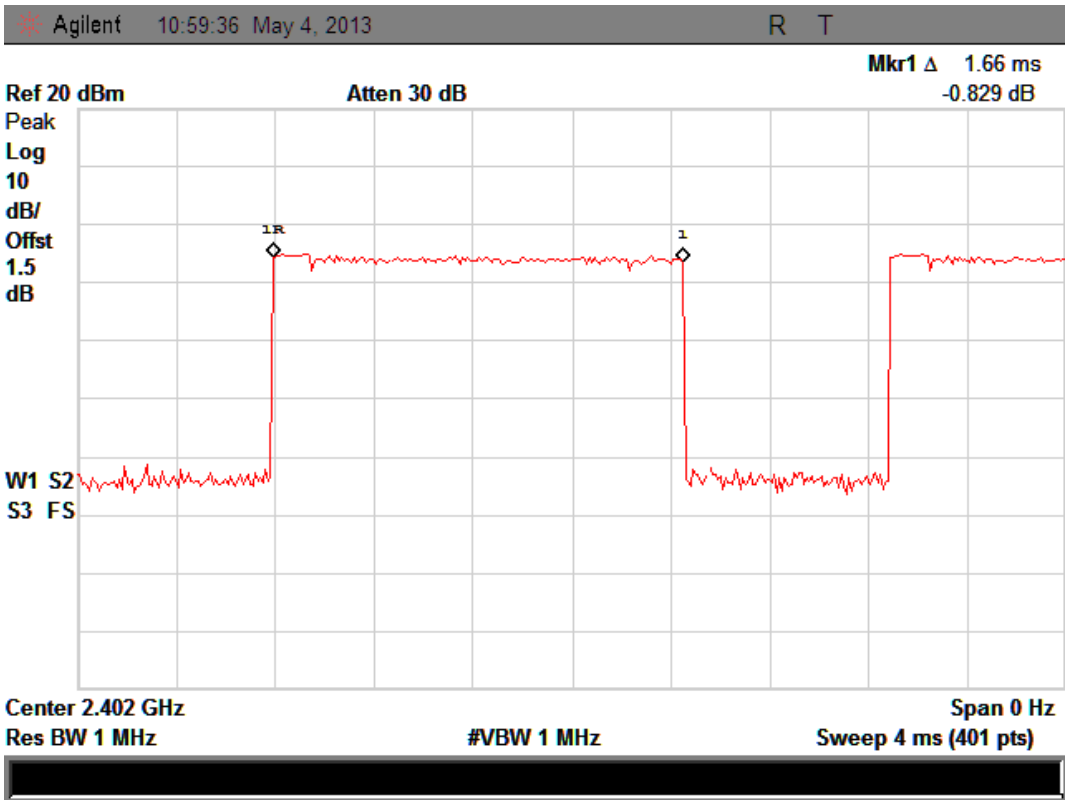
3-DH1: CH Mid



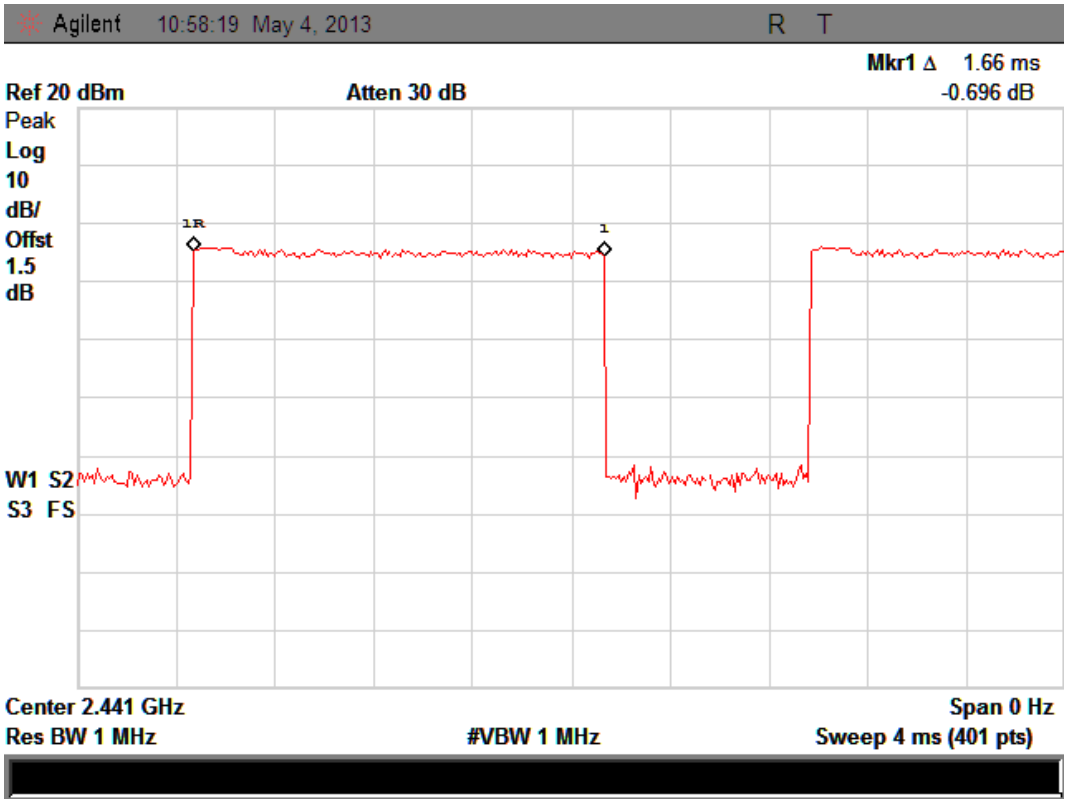

3-DH1: CH High



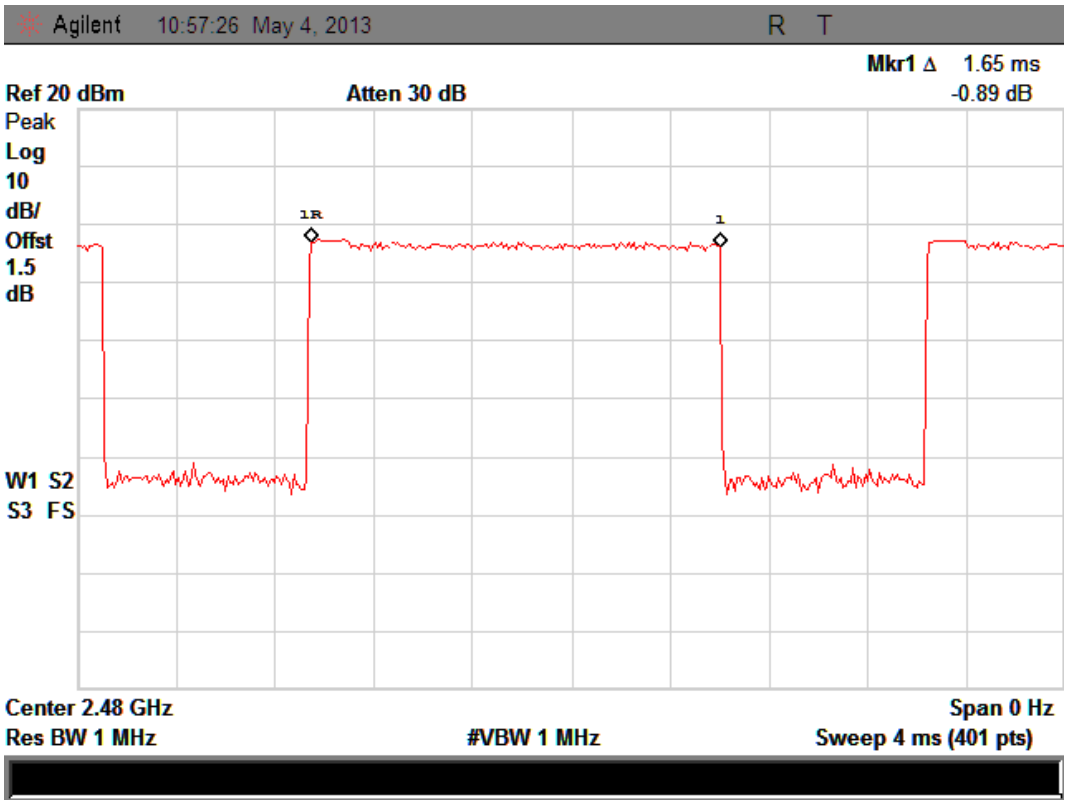
3-DH3: CH Low



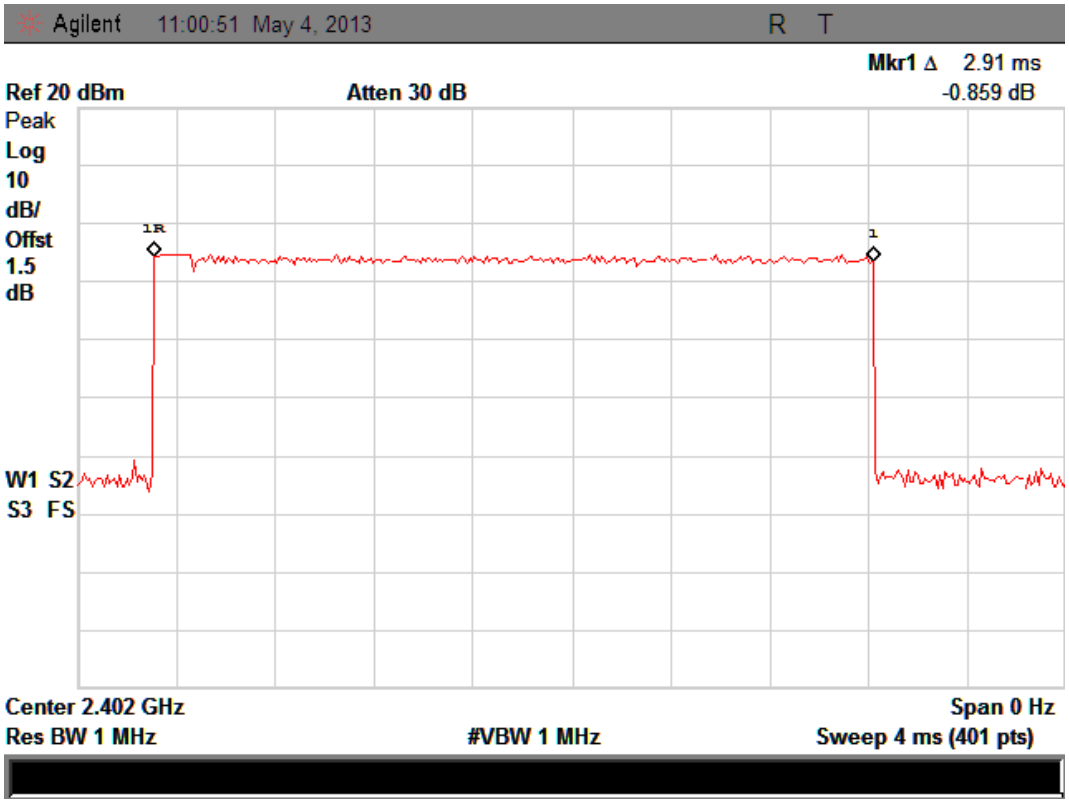

3-DH3: CH Mid



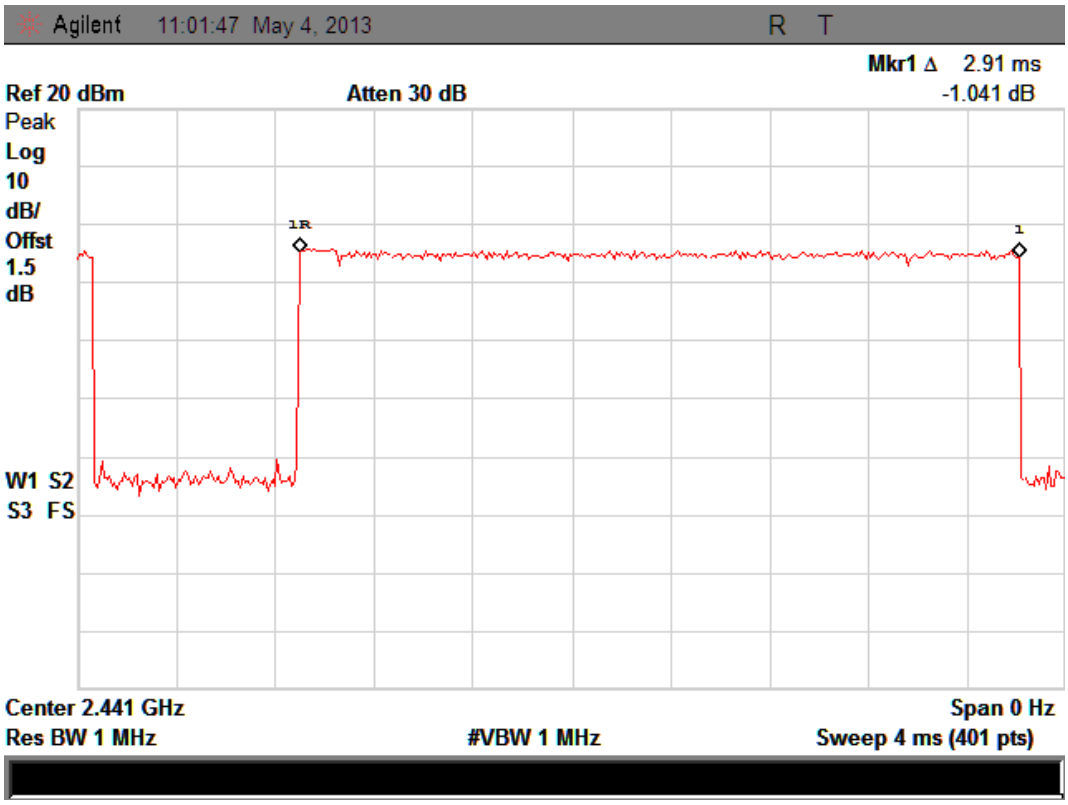
3-DH3: CH High



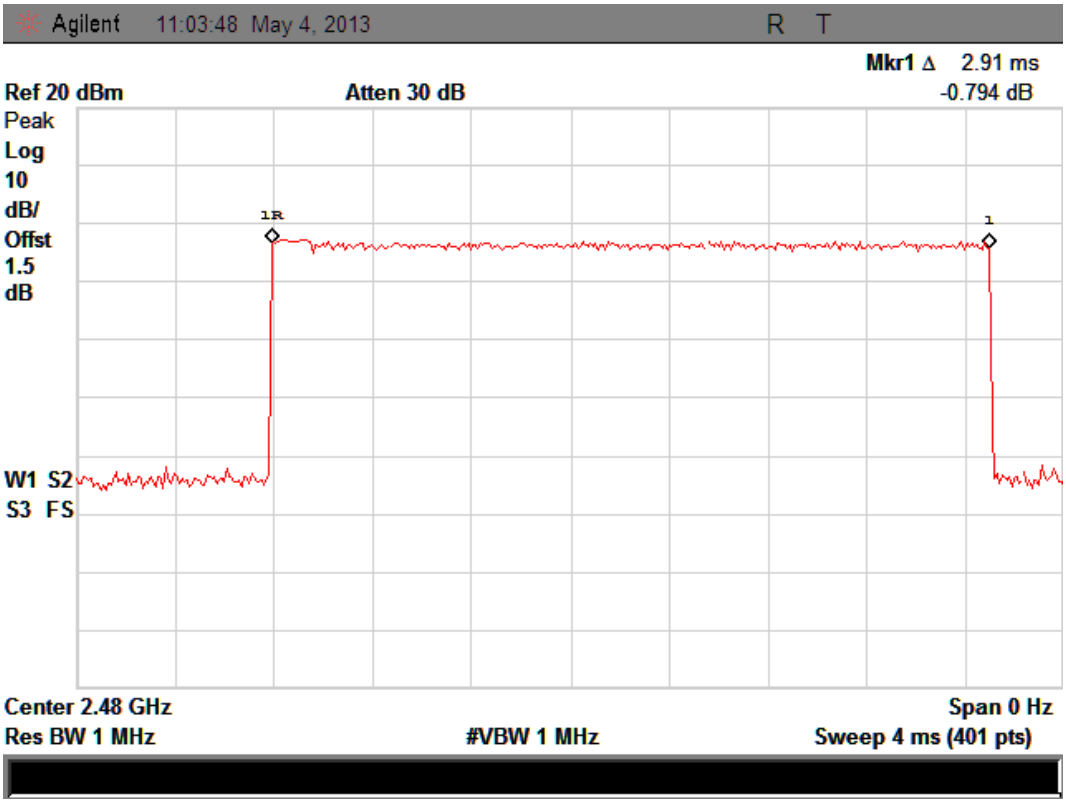

3-DH5: CH Low



3-DH5: CH Mid




3-DH5: CH High



# 8. Radiated emissions

## 8.1. Limit

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

15.205 Restricted frequency band

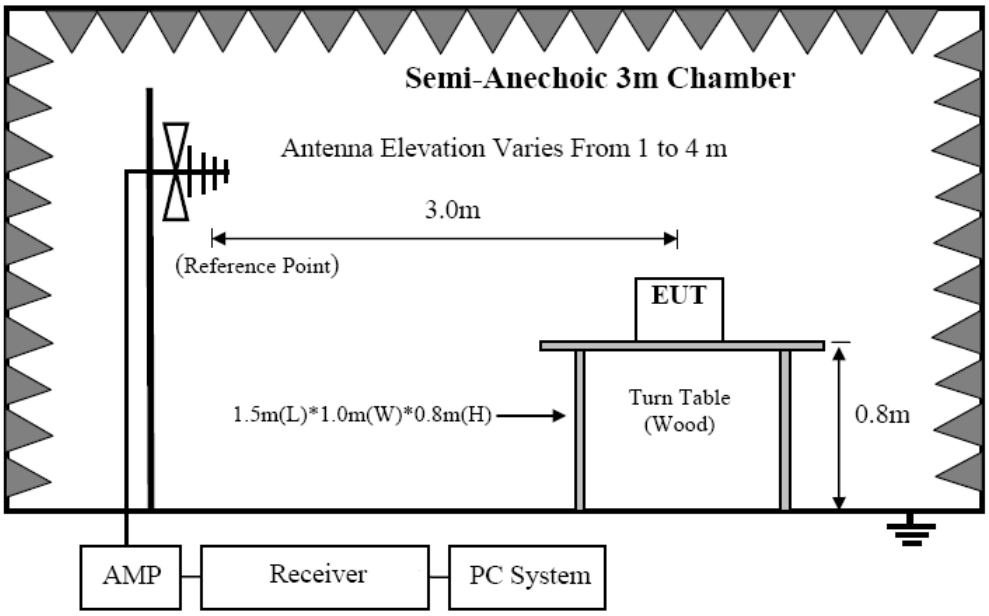
| MHz | MHz | MHz | GHz |
|---|---|---|---|
| 0.090 - 0.110 | 16.42 - 16.423 | 399.9 - 410 | 4.5 - 5.15 |
| [1]0.495 - 0.505 | 16.69475 - 16.69525 | 608 - 614 | 5.35 - 5.46 |
| 2.1735 - 2.1905 | 16.80425 - 16.80475 | 960 - 1240 | 7.25 - 7.75 |
| 4.125 - 4.128 | 25.5 - 25.67 | 1300 - 1427 | 8.025 - 8.5 |
| 4.17725 - 4.17775 | 37.5 - 38.25 | 1435 - 1626.5 | 9.0 - 9.2 |
| 4.20725 - 4.20775 | 73 - 74.6 | 1645.5 - 1646.5 | 9.3 - 9.5 |
| 6.215 - 6.218 | 74.8 - 75.2 | 1660 - 1710 | 10.6 - 12.7 |
| 6.26775 - 6.26825 | 108 - 121.94 | 1718.8 - 1722.2 | 13.25 - 13.4 |
| 6.31175 - 6.31225 | 123 - 138 | 2200 - 2300 | 14.47 - 14.5 |
| 8.291 - 8.294 | 149.9 - 150.05 | 2310 - 2390 | 15.35 - 16.2 |
| 8.362 - 8.366 | 156.52475 - 156.52525 | 2483.5 - 2500 | 17.7 - 21.4 |
| 8.37625 - 8.38675 | 156.7 - 156.9 | 2690 - 2900 | 22.01 - 23.12 |
| 8.41425 - 8.41475 | 162.0125 - 167.17 | 3260 - 3267 | 23.6 - 24.0 |
| 12.29 - 12.293 | 167.72 - 173.2 | 3332 - 3339 | 31.2 - 31.8 |
| 12.51975 - 12.52025 | 240 - 285 | 3345.8 - 3358 | 36.43 - 36.5 |
| 12.57675 - 12.57725 | 322 - 335.4 | 3600 - 4400 | ([2]) |

15.209 Limit

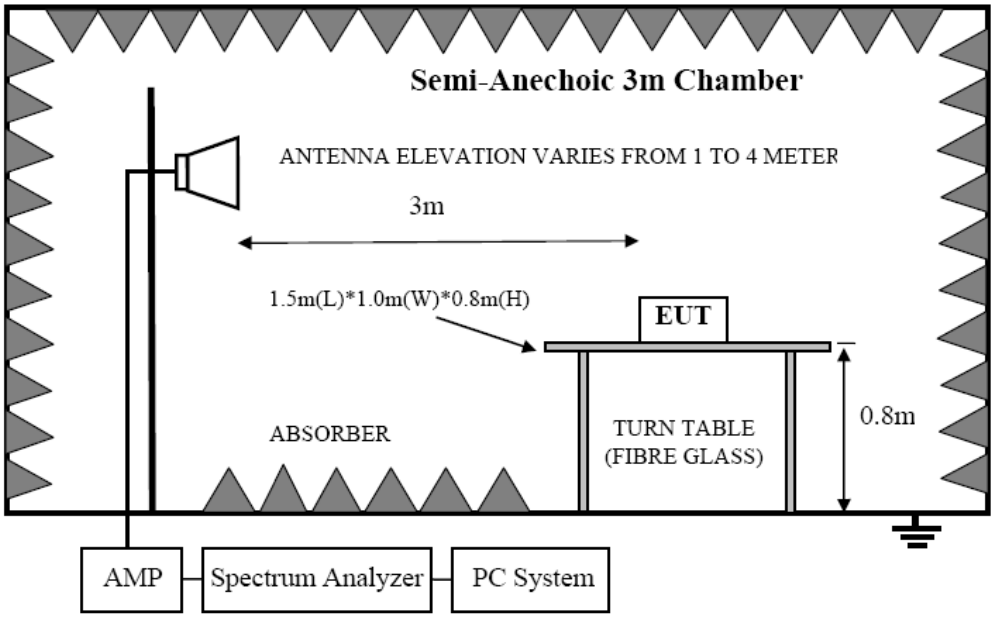
| FREQUENCY MHz | DISTANCE Meters | FIELD STRENGTHS LIMIT | |
|---|---|---|---|
| | | μV/m | dB(μV)/m |
| 0.009-0.490 | 300 | 2400/F(KHz) | / |
| 0.490-1.705 | 30 | 24000/F(KHz) | / |
| 1.705-30 | 30 | 30 | 29.5 |
| 30 ~ 88 | 3 | 100 | 40.0 |
| 88 ~ 216 | 3 | 150 | 43.5 |
| 216 ~ 960 | 3 | 200 | 46.0 |
| 960 ~ 1000 | 3 | 500 | 54.0 |
| Above 1000 | 3 | 74.0 dB(μV)/m (Peak)<br>54.0 dB(μV)/m (Average) | |

## 8.2. Block Diagram of Test setup

### 8.2.1. In 3m Anechoic Chamber Test Setup Diagram for below 1GHz




### 8.2.2. In 3m Anechoic Chamber Test Setup Diagram for frequency above 1GHz




Note: For harmonic emissions test a appropriate high pass filter was inserted in the input port of AMP.

## 8.3. Test Procedure

(1) EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber.

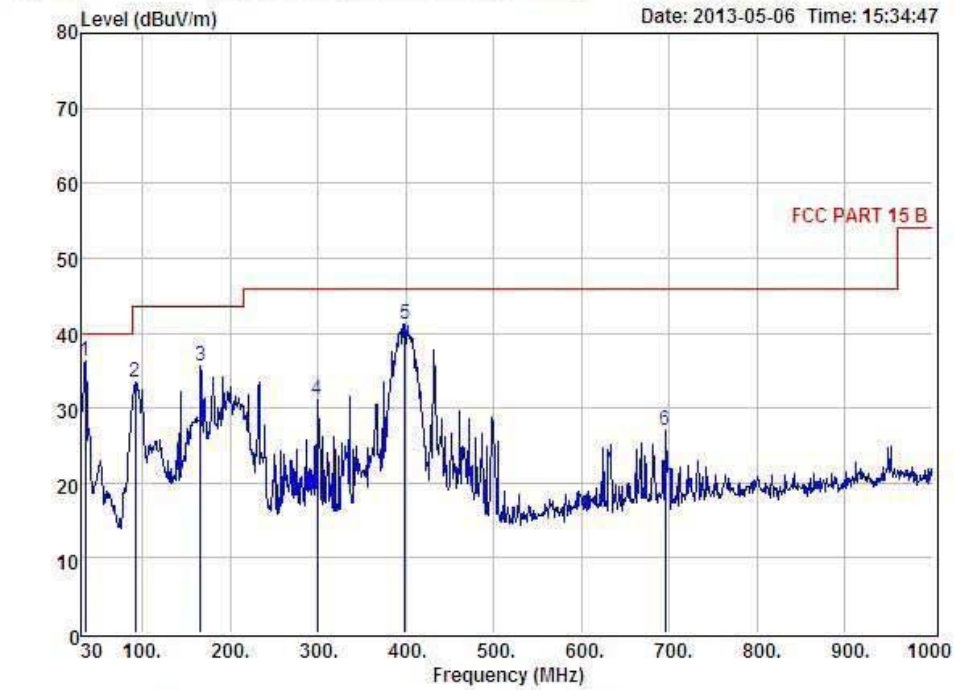
(2) Setup EUT and simulator as shown in section 1.4 and 6.1
(3) Test antenna was located 3m from the EUT on an adjustable mast. Below pre-scan procedure was first performed in order to find prominent radiated emissions.
(a) Change work frequency or channel of device if practicable.
(b) Change modulation type of device if practicable.
(c) Change power supply range from 85% to 115% of the rated supply voltage for AC power supply.
(d) Rotated EUT though three orthogonal axes to determine the attitude of EUT arrangement produces highest emissions
(4) Spectrum frequency from 9KHz to 25GHz (tenth harmonic of fundamental frequency) was investigated
(5) For final emissions measurements at each frequency of interest, the EUT were rotated and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.4 2003 on Radiated Emission test.
(6) For emissions above 1GHz, both Peak and Average level were measured with Spectrum Analyzer, and the RBW is set at 1MHz, VBW is set at 3MHz for Peak measure; RBW is set at 1MHz, VBW is set at 10Hz for Average measure.

## 8.4. Test Result

We have scanned the 10th harmonic from 9KHz to the EUT.
Detailed information please see the following page.
From 9KHz to 30MHz: Conclusion: PASS

Note: The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Shenzhen Certification Technology Service Co., Ltd.
2F, Building B, East Area of Nanchang Second Industrial Zone,
Gushu 2nd Road, Bao'an District, Shenzhen 518126, P.R. China
Tel: 4006786199 FAX: +86-755-26736857
Website: http://www.cessz.com Email: Service@cessz.com




Condition : FCC PART 15 B 3m POL: HORIZONTAL
EUT : Speaker
Model No : ROCK05BT
Test Mode : Link mode
Power : DC 5V From PC with AC 120V/60Hz adapter
Test Engineer : Anna
Remark : STE130429063
Temp : 25.2°C
Hum : 56%

| Item | Freq | Read Level | Antenna Factor | Preamp Factor | Cable Loss | Level | Limit | Margin | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dB | dB | dBuV | dBuV | dBuV | |
| 1 | 34.85 | 50.45 | 13.33 | 27.58 | 0.13 | 36.33 | 40.00 | -3.67 | QP |
| 2 | 92.08 | 50.47 | 9.58 | 26.82 | 0.30 | 33.53 | 43.50 | -9.97 | QP |
| 3 | 165.80 | 48.65 | 13.56 | 26.92 | 0.39 | 35.68 | 43.50 | -7.82 | QP |
| 4 | 298.69 | 44.79 | 12.80 | 27.19 | 0.77 | 31.17 | 46.00 | -14.83 | QP |
| 5 | 398.60 | 53.20 | 14.71 | 27.42 | 0.66 | 41.15 | 46.00 | -4.85 | QP |
| 6 | 695.42 | 34.03 | 19.60 | 27.76 | 1.13 | 27.00 | 46.00 | -19.00 | QP |

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

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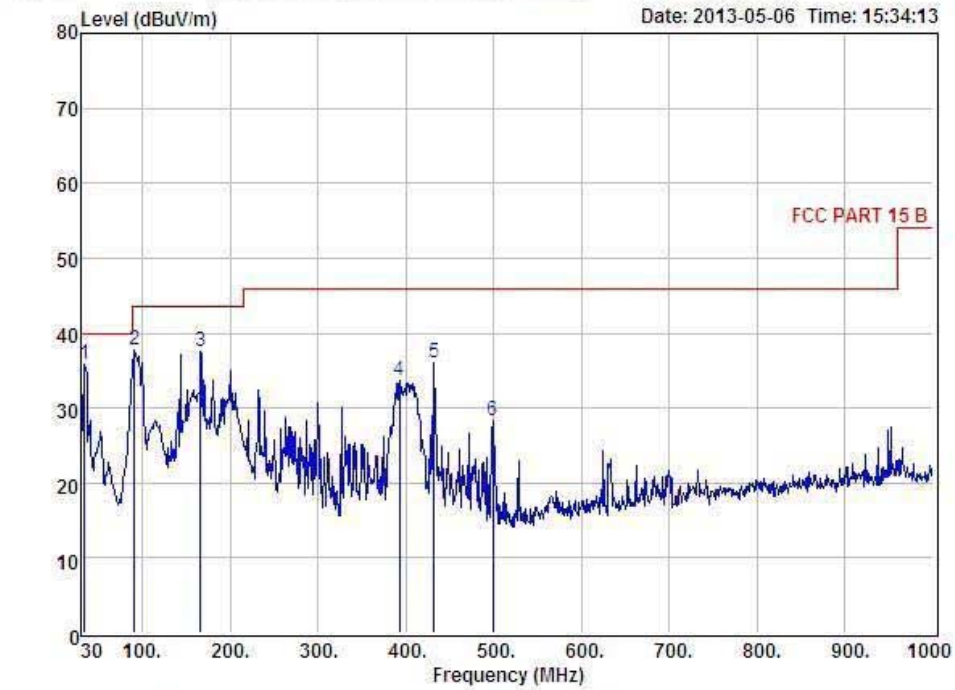
Gushu 2nd Road, Bao'an District, Shenzhen 518126, P.R. China
Tel: 4006786199 FAX: +86-755-26736857
Website: http://www.cessz.com Email: Service@cessz.com




Condition : FCC PART 15 B 3m POL: VERTICAL
EUT : Speaker
Model No : ROCK05BT
Test Mode : Link mode
Power : DC 5V From PC with AC 120V/60Hz adapter
Test Engineer : Anna
Remark : STE130429063
Temp : 25.2°C
Hum : 56%

| Item | Freq | Read Level | Antenna Factor | Preamp Factor | Cable Loss | Level | Limit | Margin | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dB | dB | dBuV | dBuV | dBuV | |
| 1 | 33.88 | 50.00 | 13.33 | 27.58 | 0.12 | 35.87 | 40.00 | -4.13 | QP |
| 2 | 91.11 | 54.76 | 9.58 | 26.82 | 0.32 | 37.84 | 43.50 | -5.66 | QP |
| 3 | 165.80 | 50.48 | 13.56 | 26.92 | 0.39 | 37.51 | 43.50 | -5.99 | QP |
| 4 | 392.78 | 45.73 | 14.61 | 27.41 | 0.70 | 33.63 | 46.00 | -12.37 | QP |
| 5 | 431.58 | 47.18 | 15.53 | 27.46 | 0.74 | 35.99 | 46.00 | -10.01 | QP |
| 6 | 498.51 | 38.57 | 16.51 | 27.62 | 0.93 | 28.39 | 46.00 | -17.61 | QP |

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

| 1GHz—25GHz Radiated emissison Test result | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| EUT: Speaker M/N: ROCK05BT | | | | | | | | | |
| Power: DC 5V From PC with AC 120V/60Hz adapter | | | | | | | | | |
| Test date: 2013-05-06 Test site: 3m Chamber Tested by: Anna Fan | | | | | | | | | |
| Test mode: GFSK Tx CH1 2402MHz | | | | | | | | | |
| Antenna polarity: Vertical | | | | | | | | | |
| No | Freq (MHz) | Read Level (dBuV/m) | Antenna Factor (dB/m) | Cable loss(dB) | Amp Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
| 1 | 4804 | 46.19 | 33.82 | 10.77 | 34.45 | 56.33 | 74.00 | 17.67 | PK |
| 2 | 4804 | 32.72 | 33.82 | 10.77 | 34.45 | 42.86 | 54.00 | 11.14 | AV |
| 3 | 7206 | / | | | | | | | |
| 4 | 9608 | / | | | | | | | |
| 5 | 12010 | / | | | | | | | |
| Antenna Polarity: Horizontal | | | | | | | | | |
| 1 | 4804 | 48.75 | 33.82 | 10.77 | 34.45 | 58.89 | 74.00 | 15.11 | PK |
| 2 | 4804 | 33.49 | 33.82 | 10.77 | 34.45 | 43.63 | 54.00 | 10.37 | AV |
| 3 | 7206 | / | | | | | | | |
| 4 | 9608 | / | | | | | | | |
| 5 | 12010 | / | | | | | | | |
| Note:<br>1, Measuring frequency from 1GHz to 25GHz<br>2, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK<br>2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK<br>3, Result = Read level + Antenna factor + cable loss-Amp factor<br>4, All the other emissions not reported were too low to read and deemed to comply with FCC limit. | | | | | | | | | |

| 1GHz—25GHz Radiated emissison Test result | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| EUT: Speaker M/N: ROCK05BT | | | | | | | | | |
| Power: DC 5V From PC with AC 120V/60Hz adapter | | | | | | | | | |
| Test date: 2013-05-06 Test site: 3m Chamber Tested by: Anna Fan | | | | | | | | | |
| Test mode: GFSK Tx CH40 2441MHz | | | | | | | | | |
| Antenna polarity: Vertical | | | | | | | | | |
| No | Freq (MHz) | Read Level (dBuV/m) | Antenna Factor (dB/m) | Cable loss(dB) | Amp Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
| 1 | 4882 | 45.92 | 33.84 | 10.79 | 34.47 | 56.08 | 74.00 | 17.92 | PK |
| 2 | 4882 | 31.47 | 33.84 | 10.59 | 34.47 | 41.43 | 54.00 | 12.57 | AV |
| 3 | 7323 | / | | | | | | | |
| 4 | 9764 | / | | | | | | | |
| 5 | 12205 | / | | | | | | | |
| Antenna Polarity: Horizontal | | | | | | | | | |
| 1 | 4882 | 46.58 | 33.84 | 10.79 | 34.47 | 56.74 | 74.00 | 17.26 | PK |
| 2 | 4882 | 30.49 | 33.84 | 10.79 | 34.47 | 40.65 | 54.00 | 13.35 | AV |
| 3 | 7323 | / | | | | | | | |
| 4 | 9764 | / | | | | | | | |
| 5 | 12205 | / | | | | | | | |
| Note:<br>1, Measuring frequency from 1GHz to 25GHz<br>2, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK<br>2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK<br>3, Result = Read level + Antenna factor + cable loss-Amp factor<br>4, All the other emissions not reported were too low to read and deemed to comply with FCC limit. | | | | | | | | | |

| 1GHz—25GHz Radiated emissison Test result | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| EUT: Speaker M/N: ROCK05BT | | | | | | | | | |
| Power: DC 5V From PC with AC 120V/60Hz adapter | | | | | | | | | |
| Test date: 2013-05-06 Test site: 3m Chamber Tested by: Anna Fan | | | | | | | | | |
| Test mode: GFSK Tx CH79 2480MHz | | | | | | | | | |
| Antenna polarity: Vertical | | | | | | | | | |
| No | Freq (MHz) | Read Level (dBuV/m) | Antenna Factor (dB/m) | Cable loss(dB) | Amp Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
| 1 | 4960 | 47.52 | 33.85 | 10.80 | 34.44 | 57.73 | 74.00 | 16.27 | PK |
| 2 | 4960 | 33.16 | 33.85 | 10.80 | 34.44 | 43.37 | 54.00 | 10.63 | AV |
| 3 | 7440 | / | | | | | | | |
| 4 | 9920 | / | | | | | | | |
| 5 | 12400 | / | | | | | | | |
| Antenna Polarity: Horizontal | | | | | | | | | |
| 1 | 4960 | 48.13 | 33.85 | 10.80 | 34.44 | 58.34 | 74.00 | 15.66 | PK |
| 2 | 4960 | 34.27 | 33.85 | 10.80 | 34.44 | 44.48 | 54.00 | 9.52 | AV |
| 3 | 7440 | / | | | | | | | |
| 4 | 9920 | / | | | | | | | |
| 5 | 12400 | / | | | | | | | |
| Note:<br>1, Measuring frequency from 1GHz to 25GHz<br>2, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK<br>2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK<br>3, Result = Read level + Antenna factor + cable loss-Amp factor<br>4, All the other emissions not reported were too low to read and deemed to comply with FCC limit. | | | | | | | | | |

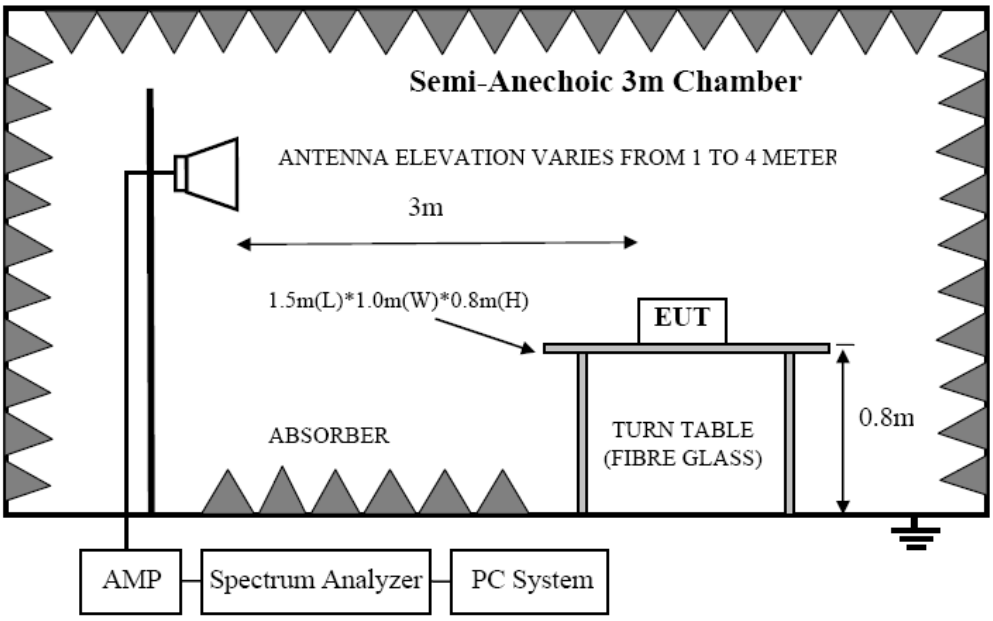
| 1GHz—25GHz Radiated emissison Test result | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| EUT: Speaker M/N: ROCK05BT | | | | | | | | | |
| Power: DC 5V From PC with AC 120V/60Hz adapter | | | | | | | | | |
| Test date: 2013-05-06 Test site: 3m Chamber Tested by: Anna Fan | | | | | | | | | |
| Test mode: 8-DPSK Tx CH1 2402MHz | | | | | | | | | |
| Antenna polarity: Vertical | | | | | | | | | |
| No | Freq (MHz) | Read Level (dBuV/m) | Antenna Factor (dB/m) | Cable loss(dB) | Amp Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
| 1 | 4804 | 45.91 | 33.88 | 10.78 | 34.46 | 56.11 | 74.00 | 17.89 | PK |
| 2 | 4804 | 31.16 | 33.88 | 10.78 | 34.46 | 41.36 | 54.00 | 12.64 | AV |
| 3 | 7206 | / | | | | | | | |
| 4 | 9608 | / | | | | | | | |
| 5 | 12010 | / | | | | | | | |
| Antenna Polarity: Horizontal | | | | | | | | | |
| 1 | 4804 | 46.78 | 33.88 | 10.78 | 34.46 | 56.98 | 74.00 | 17.02 | PK |
| 2 | 4804 | 31.86 | 33.88 | 10.78 | 34.46 | 42.06 | 54.00 | 11.94 | AV |
| 3 | 7206 | / | | | | | | | |
| 4 | 9608 | / | | | | | | | |
| 5 | 12010 | / | | | | | | | |
| Note:<br>1,Measuring frequency from 1GHz to 25GHz<br>2,Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK<br>2,Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK<br>3,Result = Read level + Antenna factor + cable loss-Amp factor<br>4,All the other emissions not reported were too low to read and deemed to comply with FCC limit. | | | | | | | | | |

| 1GHz—25GHz Radiated emissison Test result | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| EUT: Speaker M/N: ROCK05BT | | | | | | | | | |
| Power: DC 5V From PC with AC 120V/60Hz adapter | | | | | | | | | |
| Test date: 2013-05-06 Test site: 3m Chamber Tested by: Anna Fan | | | | | | | | | |
| Test mode: 8-DPSK Tx CH40 2441MHz | | | | | | | | | |
| Antenna polarity: Vertical | | | | | | | | | |
| No | Freq (MHz) | Read Level (dBuV/m) | Antenna Factor (dB/m) | Cable loss(dB) | Amp Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
| 1 | 4882 | 47.37 | 33.87 | 10.82 | 34.49 | 57.57 | 74.00 | 16.43 | PK |
| 2 | 4882 | 33.42 | 33.87 | 10.82 | 34.49 | 43.62 | 54.00 | 10.38 | AV |
| 3 | 7323 | / | | | | | | | |
| 4 | 9764 | / | | | | | | | |
| 5 | 12205 | / | | | | | | | |
| Antenna Polarity: Horizontal | | | | | | | | | |
| 1 | 4882 | 48.04 | 33.87 | 10.82 | 34.49 | 58.24 | 74.00 | 15.76 | PK |
| 2 | 4882 | 33.25 | 33.87 | 10.82 | 34.49 | 43.45 | 54.00 | 10.55 | AV |
| 3 | 7323 | / | | | | | | | |
| 4 | 9764 | / | | | | | | | |
| 5 | 12205 | / | | | | | | | |
| Note:<br>1, Measuring frequency from 1GHz to 25GHz<br>2, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK<br>2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK<br>3, Result = Read level + Antenna factor + cable loss-Amp factor<br>4, All the other emissions not reported were too low to read and deemed to comply with FCC limit. | | | | | | | | | |

| 1GHz—25GHz Radiated emission Test result | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| EUT: Speaker M/N: ROCK05BT | | | | | | | | | |
| Power: DC 5V From PC with AC 120V/60Hz adapter | | | | | | | | | |
| Test date: 2013-05-06 Test site: 3m Chamber Tested by: Anna Fan | | | | | | | | | |
| Test mode: 8-DPSK Tx CH79 2480MHz | | | | | | | | | |
| Antenna polarity: Vertical | | | | | | | | | |
| No | Freq (MHz) | Read Level (dBuV/m) | Antenna Factor (dB/m) | Cable loss(dB) | Amp Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
| 1 | 4960 | 48.15 | 33.90 | 10.84 | 34.48 | 58.41 | 74.00 | 15.59 | PK |
| 2 | 4960 | 34.36 | 33.90 | 10.84 | 34.48 | 44.62 | 54.00 | 9.38 | AV |
| 3 | 7440 | / | | | | | | | |
| 4 | 9920 | / | | | | | | | |
| 5 | 12400 | / | | | | | | | |
| Antenna Polarity: Horizontal | | | | | | | | | |
| 1 | 4960 | 49.04 | 33.90 | 10.84 | 34.48 | 59.30 | 74.00 | 14.70 | PK |
| 2 | 4960 | 34.17 | 33.90 | 10.84 | 34.48 | 44.43 | 54.00 | 9.57 | AV |
| 3 | 7440 | / | | | | | | | |
| 4 | 9920 | / | | | | | | | |
| 5 | 12400 | / | | | | | | | |
| Note:<br>1, Measuring frequency from 1GHz to 25GHz<br>2, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK<br>2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK<br>3, Result = Read level + Antenna factor + cable loss-Amp factor<br>4, All the other emissions not reported were too low to read and deemed to comply with FCC limit. | | | | | | | | | |

# 9. Band Edge Compliance

## 9.1. Block Diagram of Test Setup




## 9.2. Limit

All the lower and upper band-edges emissions appearing within 2310MHz to 2390MHz and 2483.5MHz to 2500MHz restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions outside operation frequency band 2400MHz to 2483.5MHz and 5725MHz to 5850MHz shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

## 9.3. Test Procedure

Same with clause 6.3 except change investigated frequency range from 2310MHz to 2415MHz, 2475MHz to 2500MHz and 5725MHz to 5850MHz

## 9.4. Test Result

**PASS. (See below detailed test data)**

GFSK
CH LOW :

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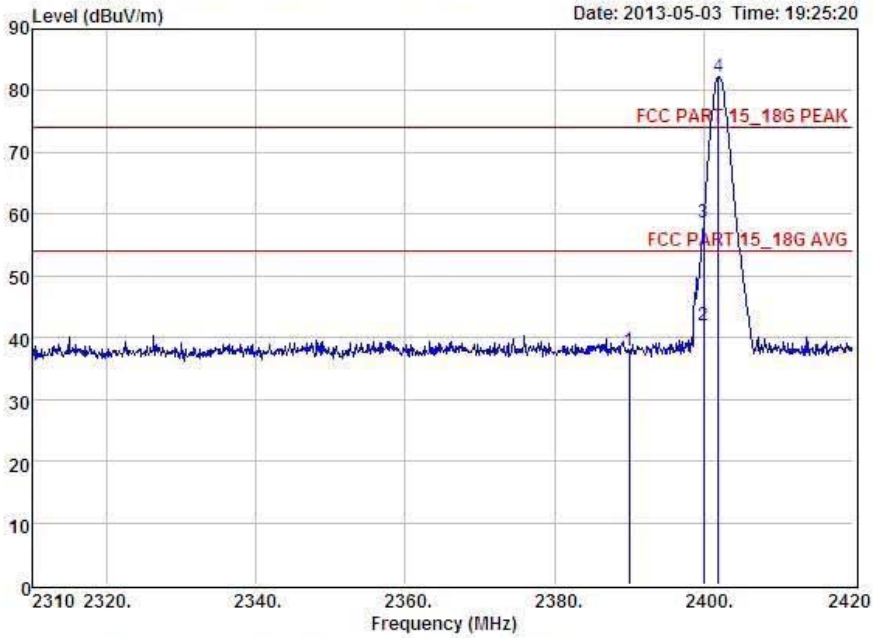
Website: http://www.cessz.com Email: Service@cessz.com




Condition : FCC PART 15_18G PEAK 3m POL: HORIZONTAL
EUT : Speaker
Model No : ROCK05BT
Test Mode : GFSK TX 2402MHz
Power : DC 5V From PC with AC 120V/60Hz adapter
Test Engineer : Anna
Remark :
Temp :
Hum :

| Item | Freq | Read Level | Antenna Factor | Preamp Factor | Cable Loss | Level | Limit | Margin | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dB | dB | dBuV | dBuV | dBuV | |
| 1 | 2390.00 | 41.33 | 27.62 | 34.97 | 3.92 | 37.90 | 74.00 | -36.10 | Peak |
| 2 | 2400.00 | 45.37 | 27.62 | 34.97 | 3.94 | 41.96 | 54.00 | -12.04 | Average |
| 3 | 2400.00 | 62.13 | 27.62 | 34.97 | 3.94 | 58.72 | 74.00 | -15.28 | Peak |
| 4 | 2402.00 | 85.68 | 27.62 | 34.97 | 3.94 | 82.27 | 74.00 | 8.27 | Peak |

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

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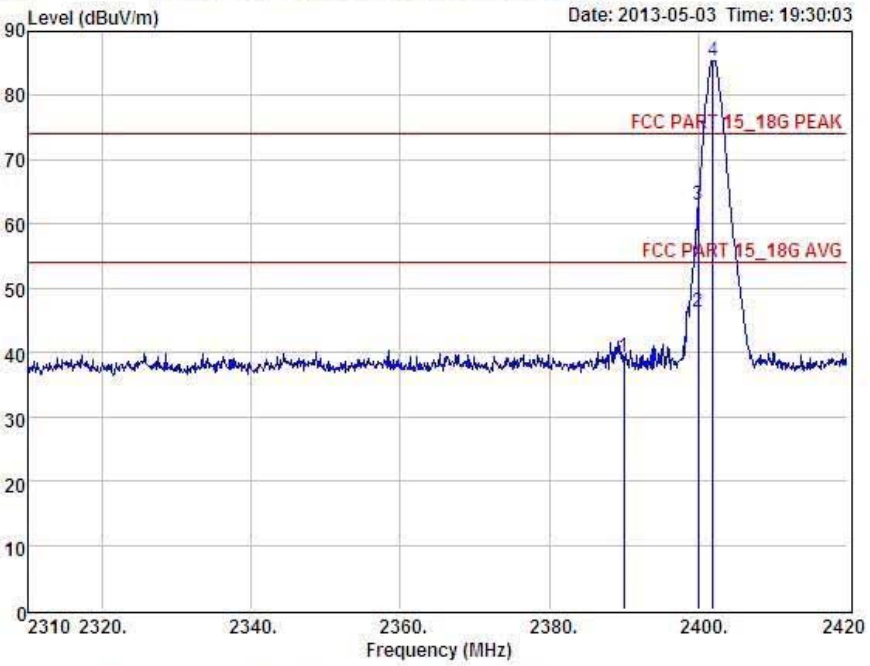
Website: http://www.cessz.com Email: Service@cessz.com




Condition : FCC PART 15_18G PEAK 3m POL: VERTICAL
EUT : Speaker
Model No : ROCK05BT
Test Mode : GFSK TX 2402MHz
Power : DC 5V From PC with AC 120V/60Hz adapter
Test Engineer : Anna
Remark :
Temp :
Hum :

| Item | Freq | Read Level | Antenna Factor | Preamp Factor | Cable Loss | Level | Limit | Margin | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dB | dB | dBuV | dBuV | dBuV | |
| 1 | 2390.00 | 42.79 | 27.62 | 34.97 | 3.92 | 39.36 | 74.00 | -34.64 | Peak |
| 2 | 2400.00 | 49.85 | 27.62 | 34.97 | 3.94 | 46.44 | 54.00 | -7.56 | Average |
| 3 | 2400.00 | 66.41 | 27.62 | 34.97 | 3.94 | 63.00 | 74.00 | -11.00 | Peak |
| 4 | 2402.00 | 88.81 | 27.62 | 34.97 | 3.94 | 85.40 | 74.00 | 11.40 | Peak |

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

CH High :

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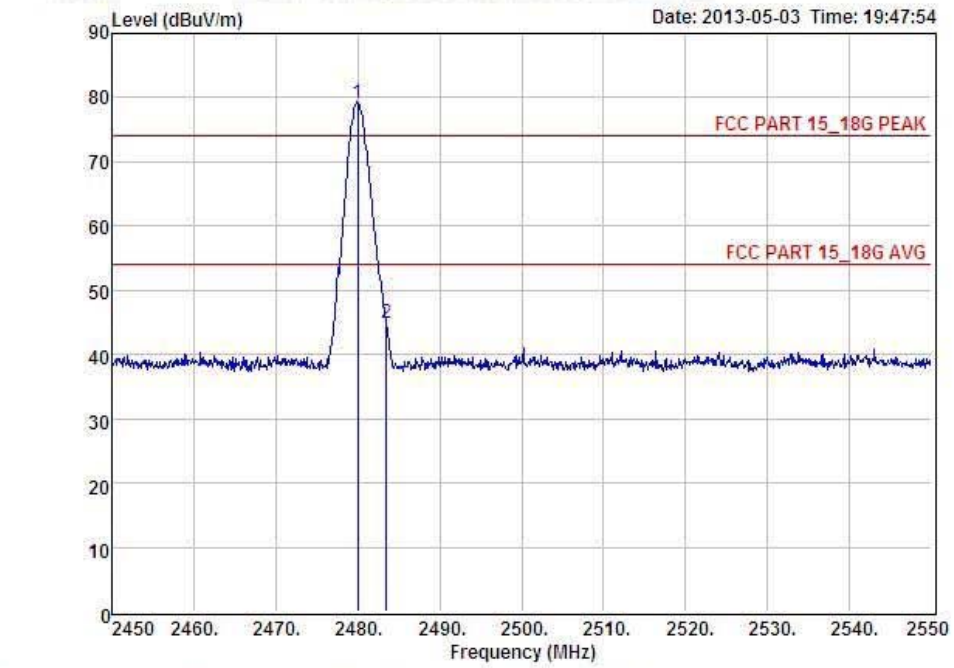
Website: http://www.cessz.com Email: Service@cessz.com




```
Condition      : FCC PART 15_18G PEAK 3m       POL: HORIZONTAL
EUT            : Speaker
Model No       : ROCK05BT
Test Mode      : GFSK TX 2480MHz
Power          : DC 5V From PC with AC 120V/60Hz adapter
Test Engineer  : Anna
Remark         :
Temp           :
Hum            :
```

| Item | Freq | Read Level | Antenna Factor | Preamp Factor | Cable Loss | Level | Limit | Margin | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dB | dB | dBuV | dBuV | dBuV | |
| 1 | 2480.00 | 82.44 | 27.59 | 34.97 | 4.00 | 79.06 | 74.00 | 5.06 | Peak |
| 2 | 2483.50 | 48.27 | 27.59 | 34.97 | 4.00 | 44.89 | 74.00 | -29.11 | Peak |

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

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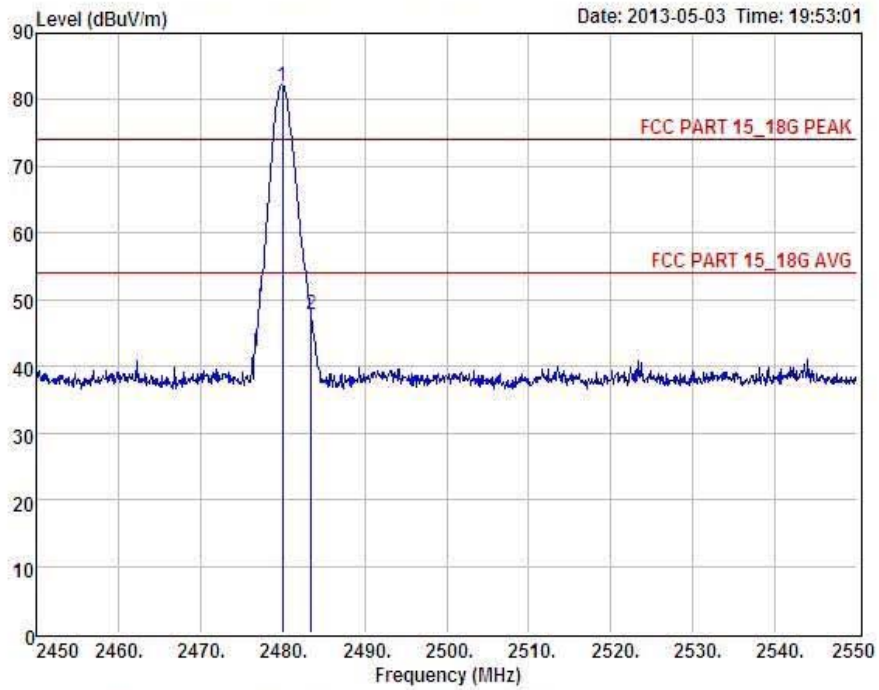


Condition : FCC PART 15_18G PEAK 3m POL: VERTICAL
EUT : Speaker
Model No : ROCK05BT
Test Mode : GFSK TX 2480MHz
Power : DC 5V From PC with AC 120V/60Hz adapter
Test Engineer : Anna
Remark :
Temp :
Hum :

| Item | Freq | Read Level | Antenna Factor | Preamp Factor | Cable Loss | Level | Limit | Margin | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dB | dB | dBuV | dBuV | dBuV | |
| 1 | 2480.00 | 85.46 | 27.59 | 34.97 | 4.00 | 82.08 | 74.00 | 8.08 | Peak |
| 2 | 2483.50 | 51.23 | 27.59 | 34.97 | 4.00 | 47.85 | 74.00 | -26.15 | Peak |

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

Hopping mode

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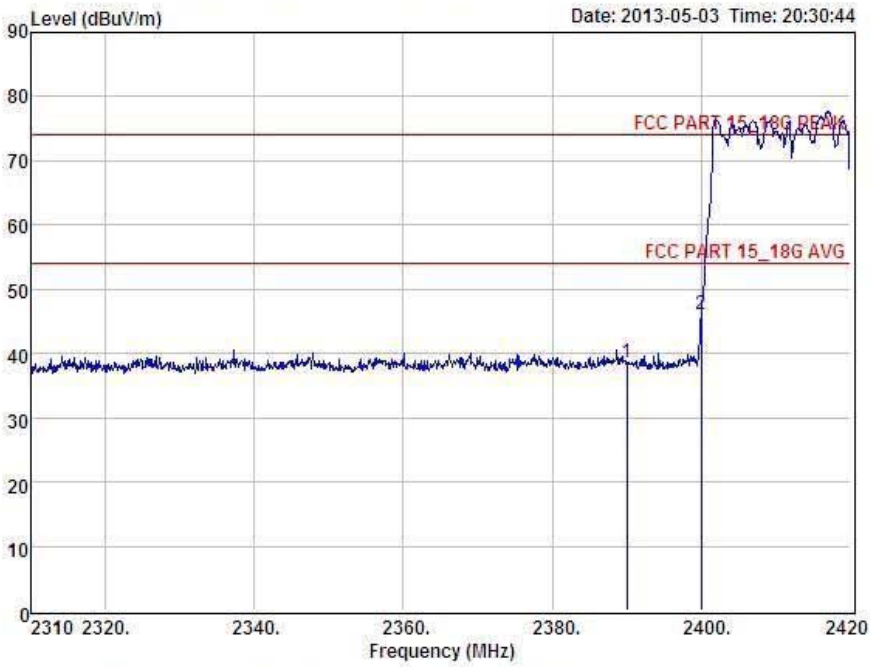


```
Condition      : FCC PART 15_18G PEAK 3m       POL: HORIZONTAL
EUT            : Speaker
Model No       : ROCK05BT
Test Mode      : GFSK TX Hopping
Power          : DC 5V From PC with AC 120V/60Hz adapter
Test Engineer  : Anna
Remark         :
Temp           :
Hum            :
```

| Item | Freq | Read Level | Antenna Factor | Preamp Factor | Cable Loss | Level | Limit | Margin | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dB | dB | dBuV | dBuV | dBuV | |
| 1 | 2390.00 | 41.98 | 27.62 | 34.97 | 3.92 | 38.55 | 74.00 | -35.45 | Peak |
| 2 | 2400.00 | 49.52 | 27.62 | 34.97 | 3.94 | 46.11 | 74.00 | -27.89 | Peak |

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

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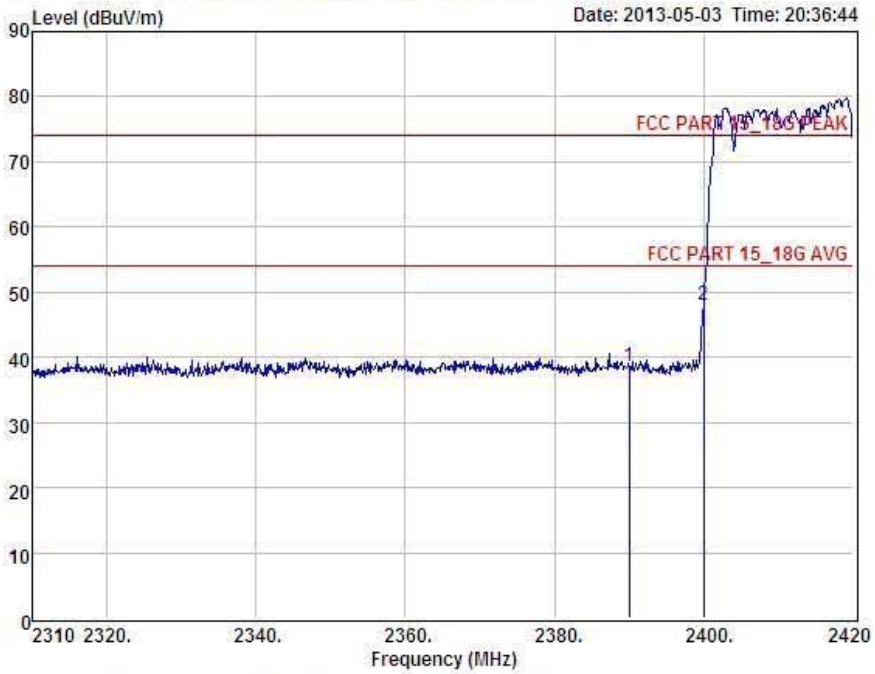


Condition : FCC PART 15_18G PEAK 3m POL: VERTICAL
EUT : Speaker
Model No : ROCK05BT
Test Mode : GFSK TX Hopping
Power : DC 5V From PC with AC 120V/60Hz adapter
Test Engineer : Anna
Remark :
Temp :
Hum :

| Item | Freq | Read Level | Antenna Factor | Preamp Factor | Cable Loss | Level | Limit | Margin | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dB | dB | dBuV | dBuV | dBuV | |
| 1 | 2390.00 | 42.03 | 27.62 | 34.97 | 3.92 | 38.60 | 74.00 | -35.40 | Peak |
| 2 | 2400.00 | 51.47 | 27.62 | 34.97 | 3.94 | 48.06 | 74.00 | -25.94 | Peak |

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

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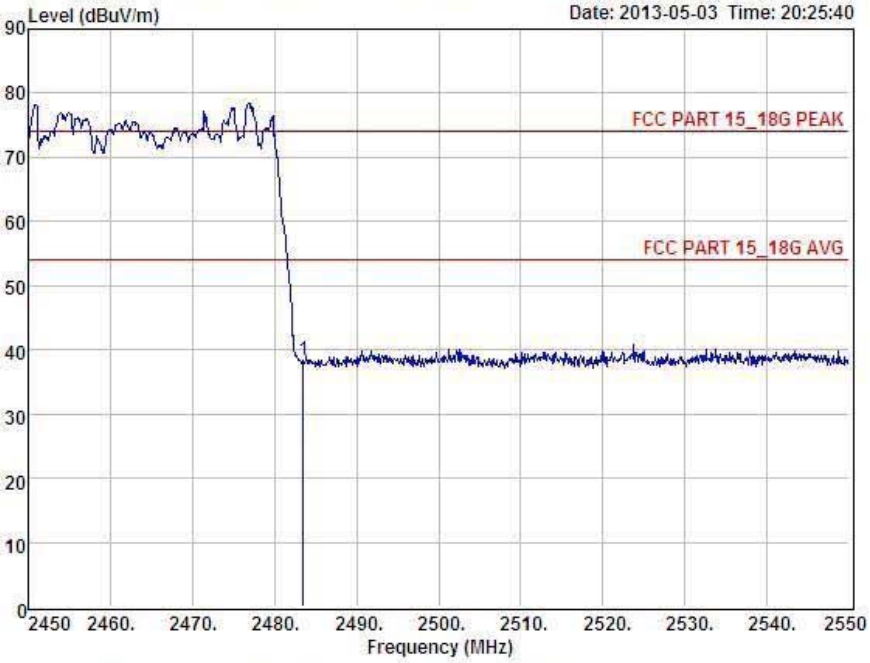
Website: http://www.cessz.com Email: Service@cessz.com




Condition : FCC PART 15_18G PEAK 3m POL: HORIZONTAL
EUT : Speaker
Model No : ROCK05BT
Test Mode : GFSK TX Hopping
Power : DC 5V From PC with AC 120V/60Hz adapter
Test Engineer : Anna
Remark :
Temp :
Hum :

| Item | Freq | Read Level | Antenna Factor | Preamp Factor | Cable Loss | Level | Limit | Margin | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dB | dB | dBuV | dBuV | dBuV | |
| 1 | 2483.50 | 41.67 | 27.59 | 34.97 | 4.00 | 38.29 | 74.00 | -35.71 | Peak |

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

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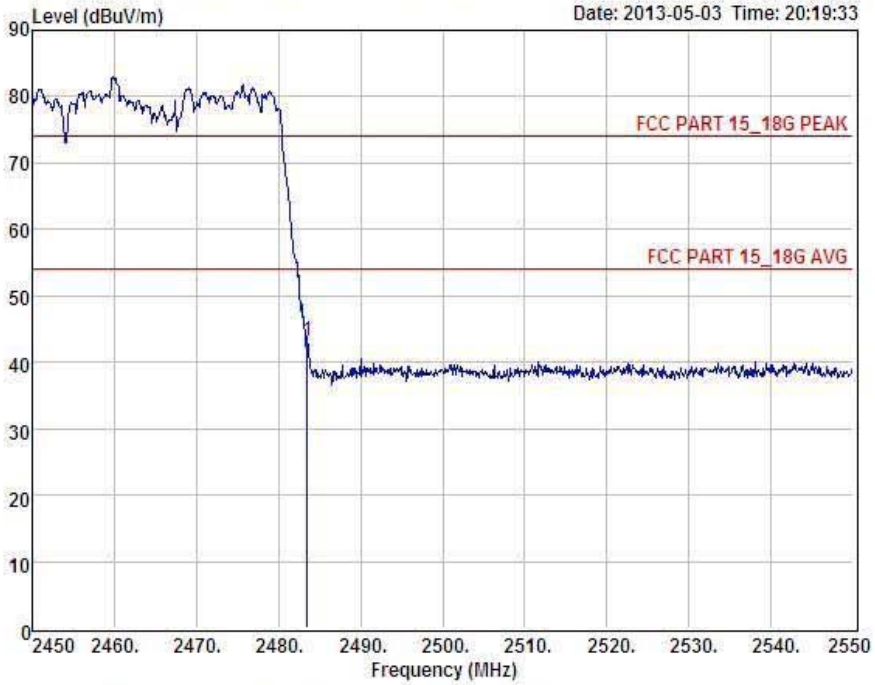


Condition : FCC PART 15_18G PEAK 3m POL: VERTICAL
EUT : Speaker
Model No : ROCK05BT
Test Mode : GFSK TX Hopping
Power : DC 5V From PC with AC 120V/60Hz adapter
Test Engineer : Anna
Remark :
Temp :
Hum :

| Item | Freq | Read Level | Antenna Factor | Preamp Factor | Cable Loss | Level | Limit | Margin | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dB | dB | dBuV | dBuV | dBuV | |
| 1 | 2483.50 | 46.62 | 27.59 | 34.97 | 4.00 | 43.24 | 74.00 | -30.76 | Peak |

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

**8-DPSK**
CH LOW :

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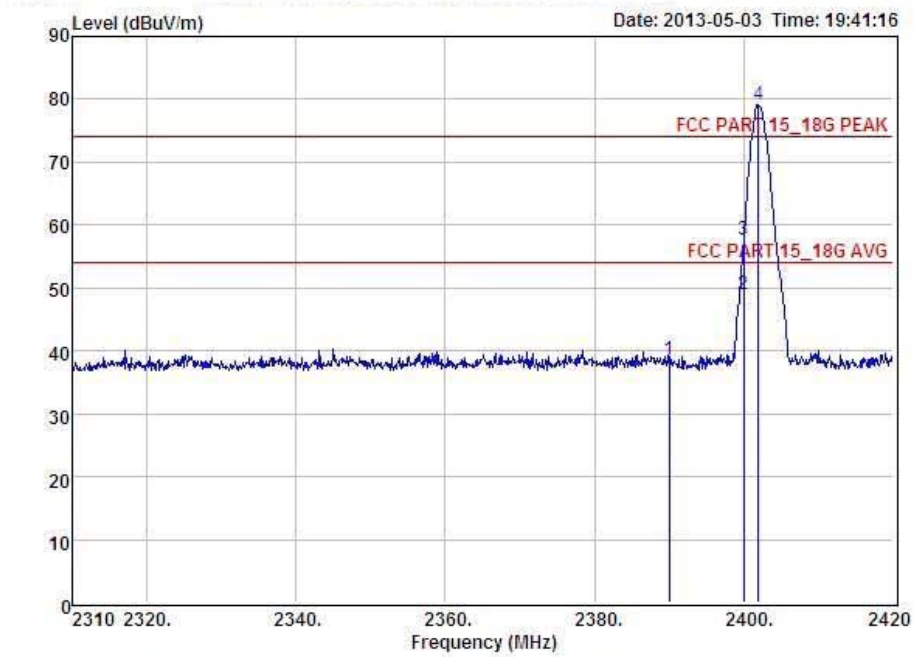


Condition : FCC PART 15_18G PEAK 3m POL: HORIZONTAL
EUT : Speaker
Model No : ROCK05BT
Test Mode : DPSK TX 2402MHz
Power : DC 5V From PC with AC 120V/60Hz adapter
Test Engineer : Anna
Remark :
Temp :
Hum :

| Item | Freq | Read Level | Antenna Factor | Preamp Factor | Cable Loss | Level | Limit | Margin | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dB | dB | dBuV | dBuV | dBuV | |
| 1 | 2390.00 | 42.08 | 27.62 | 34.97 | 3.92 | 38.65 | 74.00 | -35.35 | Peak |
| 2 | 2400.00 | 52.36 | 27.62 | 34.97 | 3.94 | 48.95 | 54.00 | -5.05 | Average |
| 3 | 2400.00 | 61.01 | 27.62 | 34.97 | 3.94 | 57.60 | 74.00 | -16.40 | Peak |
| 4 | 2402.00 | 82.65 | 27.62 | 34.97 | 3.94 | 79.24 | 74.00 | 5.24 | Peak |

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

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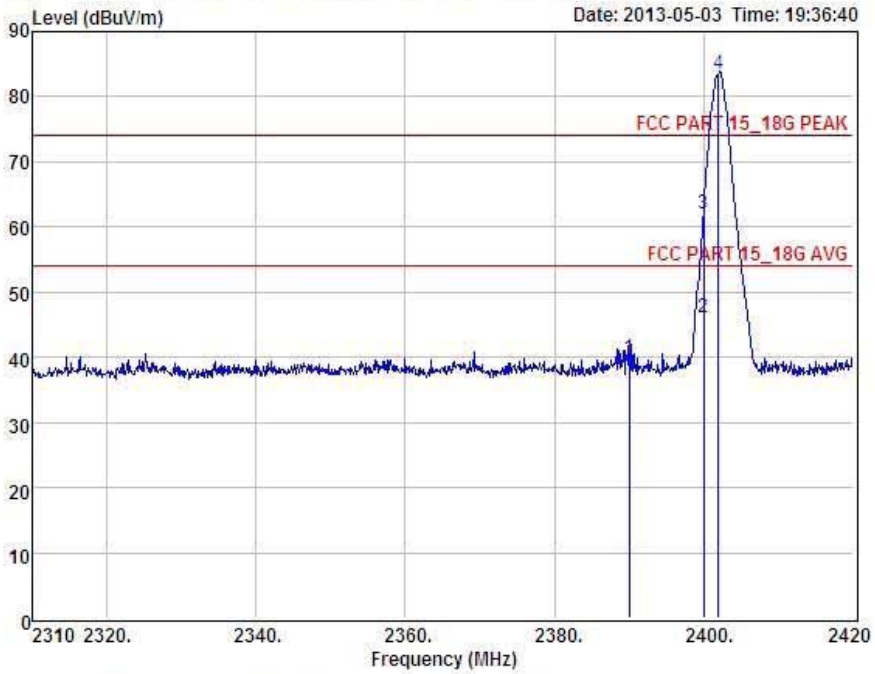
Website: http://www.cessz.com Email: Service@cessz.com




Condition : FCC PART 15_18G PEAK 3m POL: VERTICAL
EUT : Speaker
Model No : ROCK05BT
Test Mode : DPSK TX 2402MHz
Power : DC 5V From PC with AC 120V/60Hz adapter
Test Engineer : Anna
Remark :
Temp :
Hum :

| Item | Freq | Read Level | Antenna Factor | Preamp Factor | Cable Loss | Level | Limit | Margin | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dB | dB | dBuV | dBuV | dBuV | |
| 1 | 2390.00 | 43.19 | 27.62 | 34.97 | 3.92 | 39.76 | 74.00 | -34.24 | Peak |
| 2 | 2400.00 | 49.38 | 27.62 | 34.97 | 3.94 | 45.97 | 54.00 | -8.03 | Average |
| 3 | 2400.00 | 65.46 | 27.62 | 34.97 | 3.94 | 62.05 | 74.00 | -11.95 | Peak |
| 4 | 2402.00 | 86.94 | 27.62 | 34.97 | 3.94 | 83.53 | 74.00 | 9.53 | Peak |

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

CH High :

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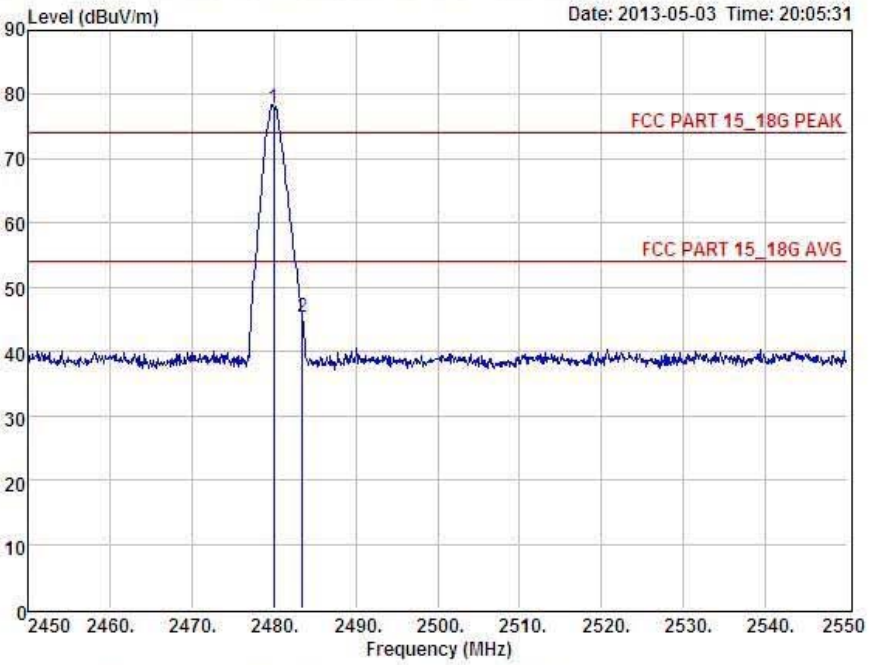


Condition : FCC PART 15_18G PEAK 3m POL: HORIZONTAL
EUT : Speaker
Model No : ROCK05BT
Test Mode : DPSK TX 2480MHz
Power : DC 5V From PC with AC 120V/60Hz adapter
Test Engineer : Anna
Remark :
Temp :
Hum :

| Item | Freq | Read Level | Antenna Factor | Preamp Factor | Cable Loss | Level | Limit | Margin | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dB | dB | dBuV | dBuV | dBuV | |
| 1 | 2480.00 | 81.40 | 27.59 | 34.97 | 4.00 | 78.02 | 74.00 | 4.02 | Peak |
| 2 | 2483.50 | 48.67 | 27.59 | 34.97 | 4.00 | 45.29 | 74.00 | -28.71 | Peak |

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

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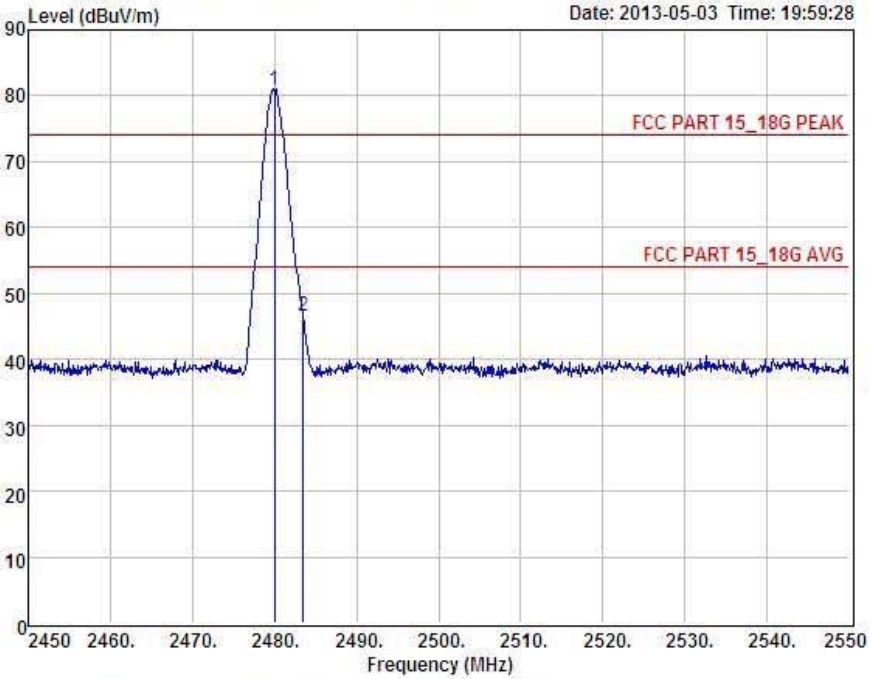
Website: http://www.cessz.com Email: Service@cessz.com




Condition : FCC PART 15_18G PEAK 3m POL: VERTICAL
EUT : Speaker
Model No : ROCK05BT
Test Mode : DPSK TX 2480MHz
Power : DC 5V From PC with AC 120V/60Hz adapter
Test Engineer : Anna
Remark :
Temp :
Hum :

| Item | Freq | Read Level | Antenna Factor | Preamp Factor | Cable Loss | Level | Limit | Margin | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dB | dB | dBuV | dBuV | dBuV | |
| 1 | 2480.00 | 84.11 | 27.59 | 34.97 | 4.00 | 80.73 | 74.00 | 6.73 | Peak |
| 2 | 2483.50 | 49.86 | 27.59 | 34.97 | 4.00 | 46.48 | 74.00 | -27.52 | Peak |

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

Hopping mode:

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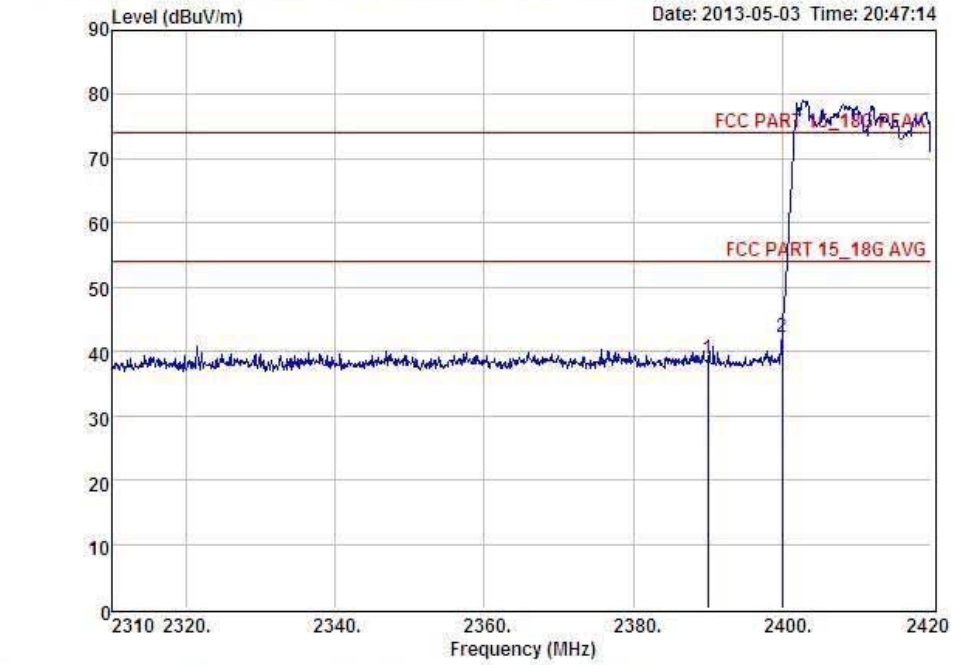
2F, Building B, East Area of Nanchang Second Industrial Zone,
Gushu 2nd Road, Bao'an District, Shenzhen 518126, P.R. China
Tel: 4006786199 FAX: +86-755-26736857
Website: http://www.cessz.com Email: Service@cessz.com




Condition : FCC PART 15_18G PEAK 3m POL: HORIZONTAL
EUT : Speaker
Model No : ROCK05BT
Test Mode : DPSK TX Hopping
Power : DC 5V From PC with AC 120V/60Hz adapter
Test Engineer : Anna
Remark :
Temp :
Hum :

| Item | Freq | Read Level | Antenna Factor | Preamp Factor | Cable Loss | Level | Limit | Margin | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dB | dB | dBuV | dBuV | dBuV | |
| 1 | 2390.00 | 42.16 | 27.62 | 34.97 | 3.92 | 38.73 | 74.00 | -35.27 | Peak |
| 2 | 2400.00 | 45.71 | 27.62 | 34.97 | 3.94 | 42.30 | 74.00 | -31.70 | Peak |

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

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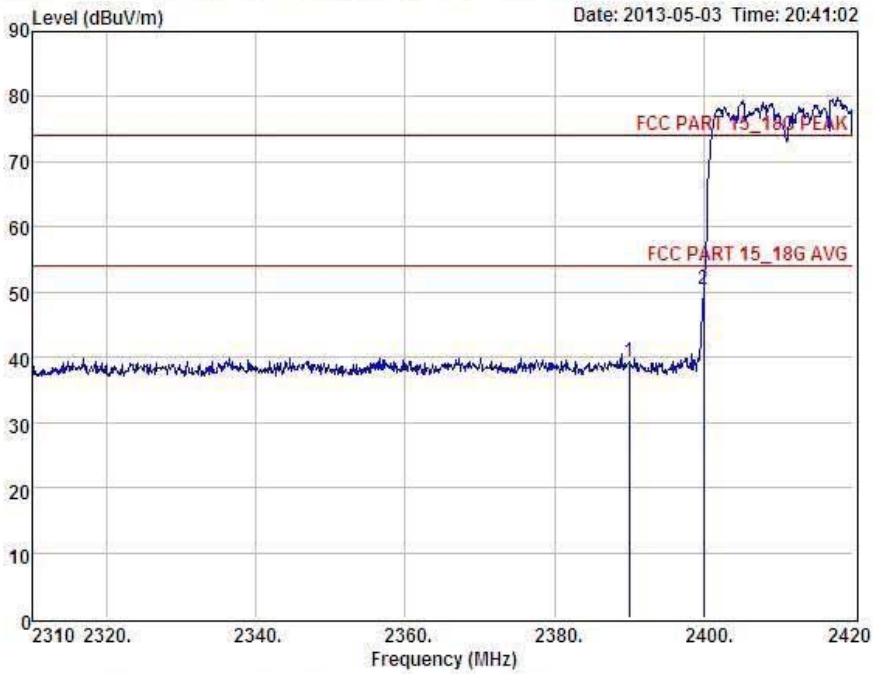
Website: http://www.cessz.com Email: Service@cessz.com




Condition : FCC PART 15_18G PEAK 3m POL: VERTICAL
EUT : Speaker
Model No : ROCK05BT
Test Mode : DPSK TX Hopping
Power : DC 5V From PC with AC 120V/60Hz adapter
Test Engineer : Anna
Remark :
Temp :
Hum :

| Item | Freq | Read Level | Antenna Factor | Preamp Factor | Cable Loss | Level | Limit | Margin | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dB | dB | dBuV | dBuV | dBuV | |
| 1 | 2390.00 | 42.75 | 27.62 | 34.97 | 3.92 | 39.32 | 74.00 | -34.68 | Peak |
| 2 | 2400.00 | 53.89 | 27.62 | 34.97 | 3.94 | 50.48 | 74.00 | -23.52 | Peak |

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

Shenzhen Certification Technology Service Co., Ltd.
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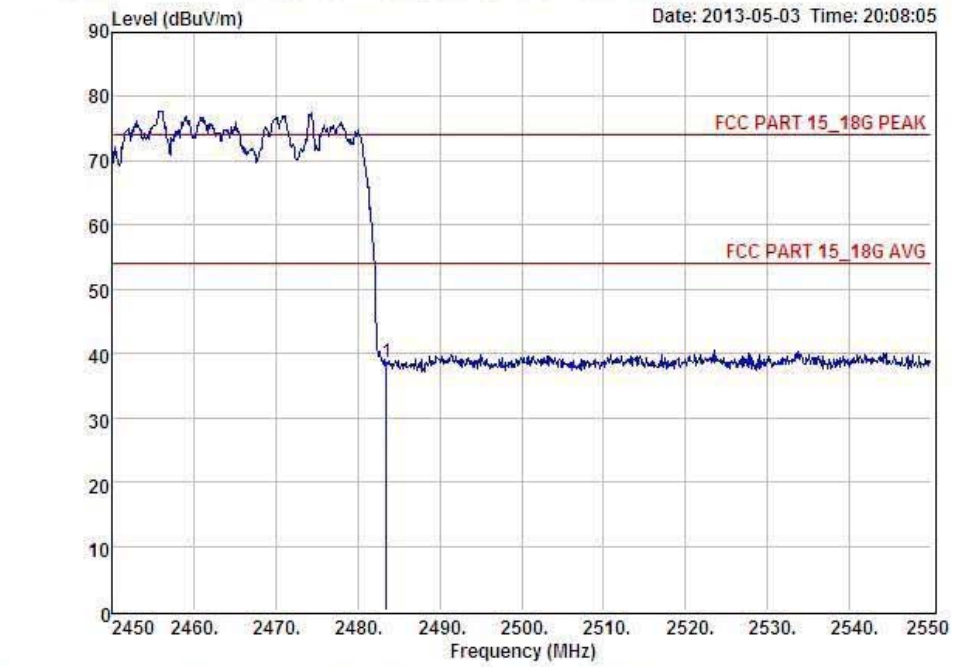
Website: http://www.cessz.com Email: Service@cessz.com




Condition : FCC PART 15_18G PEAK 3m POL: HORIZONTAL
EUT : Speaker
Model No : ROCK05BT
Test Mode : DPSK TX Hopping
Power : DC 5V From PC with AC 120V/60Hz adapter
Test Engineer : Anna
Remark :
Temp :
Hum :

| Item | Freq | Read Level | Antenna Factor | Preamp Factor | Cable Loss | Level | Limit | Margin | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dB | dB | dBuV | dBuV | dBuV | |
| 1 | 2483.50 | 41.91 | 27.59 | 34.97 | 4.00 | 38.53 | 74.00 | -35.47 | Peak |

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

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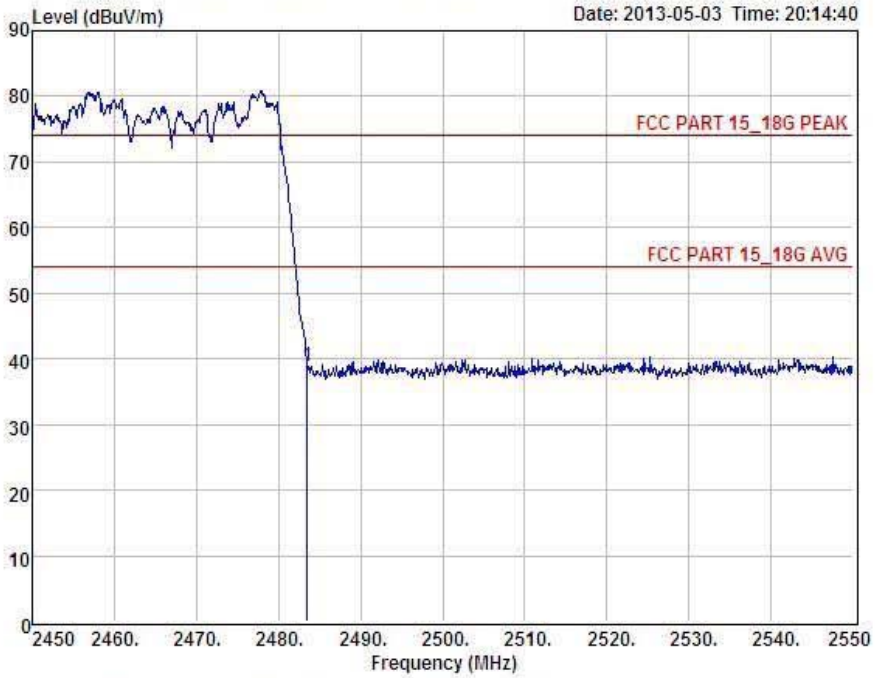


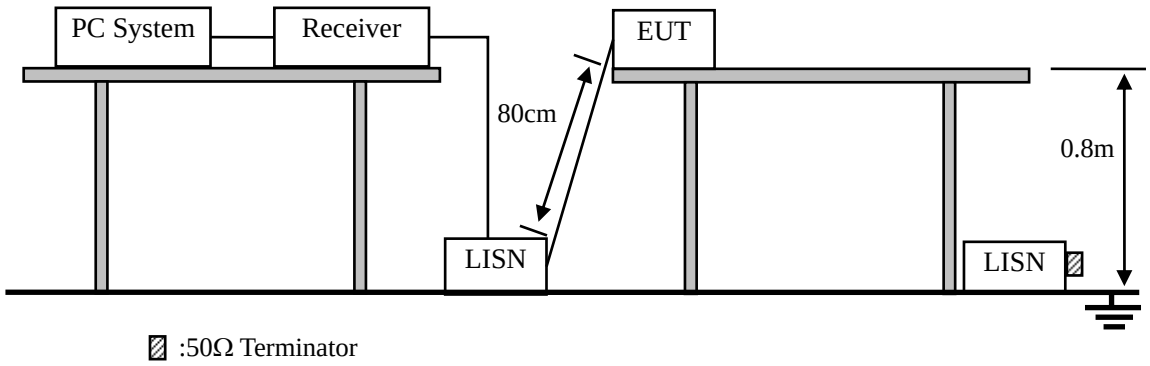

Condition : FCC PART 15_18G PEAK 3m POL: VERTICAL
EUT : Speaker
Model No : ROCK05BT
Test Mode : DPSK TX Hopping
Power : DC 5V From PC with AC 120V/60Hz adapter
Test Engineer : Anna
Remark :
Temp :
Hum :

| Item | Freq | Read Level | Antenna Factor | Preamp Factor | Cable Loss | Level | Limit | Margin | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dB | dB | dBuV | dBuV | dBuV | |
| 1 | 2483.50 | 42.14 | 27.59 | 34.97 | 4.00 | 38.76 | 74.00 | -35.24 | Peak |

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

# 10. Power Line Conducted Emissions

## 10.1. Block Diagram of Test Setup




## 10.2. Limit

| Frequency | Maximum RF Line Voltage | |
|---|---|---|
| | Quasi-Peak Level dB(μV) | Average Level dB(μV) |
| 150kHz ~ 500kHz | 66 ~ 56* | 56 ~ 46* |
| 500kHz ~ 5MHz | 56 | 46 |
| 5MHz ~ 30MHz | 60 | 50 |

Notes: 1. * Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

## 10.3. Test Procedure

(1) The EUT was placed on a non-metallic table, 80cm above the ground plane.
(2) Setup the EUT and simulator as shown in 10.1
(3) The EUT Power connected to the power mains through a power adapter and a line impedance stabilization network (L.I.S.N1). The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N2), this provided a 50-ohm coupling impedance for the EUT (Please refer to the block diagram of the test setup and photographs). Both sides of power line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.4 2003 on conducted Emission test.
(4) The bandwidth of test receiver is set at 10KHz.
(5) The frequency range from 150 KHz to 30MHz is checked.

## 10.4. Test Result

PASS. (See below detailed test data)

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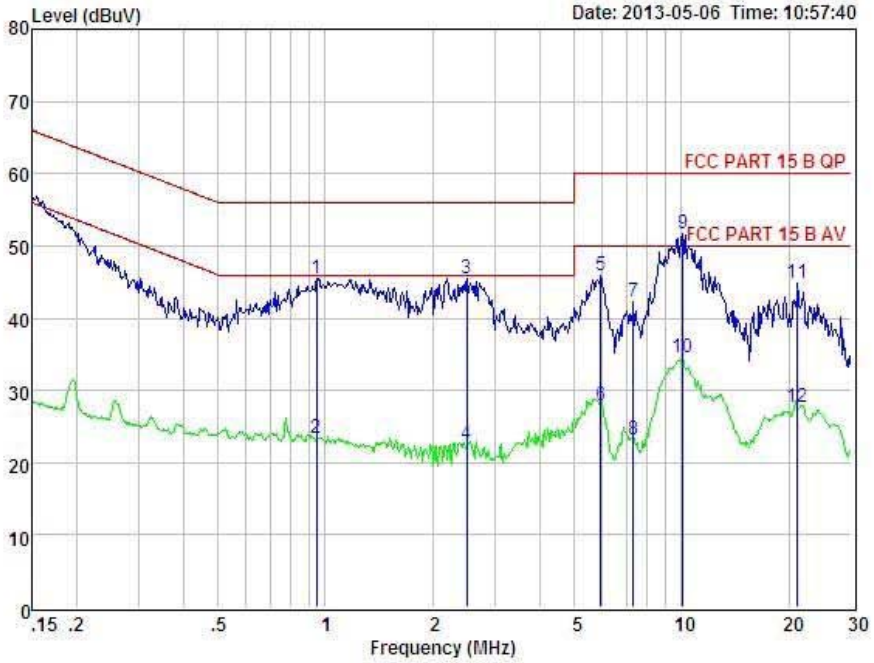
Website: http://www.cessz.com Email:Service@cessz.com




Condition : FCC PART 15 B QP POL: LINE Temp:24 ℃ Hum:56 %
EUT : Speaker
Model No : ROCK05BT
Test Mode : Link mode
Power : DC 5V From PC with AC 120V/60Hz adapter
Test Engineer: Anna
Remark : STE130429063

| Item | Freq | Read | AUX Factor | Cable Lose | Level | Limit | Margin | Remark |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuA | dB | dB | dBuA | dBuA | dBuA | |
| 1 | 0.943 | 35.63 | 0.00 | 0.10 | 45.48 | 56.00 | -10.52 | QP |
| 2 | 0.943 | 13.63 | 0.00 | 0.10 | 23.48 | 46.00 | -22.52 | Average |
| 3 | 2.500 | 35.65 | 0.00 | 0.11 | 45.52 | 56.00 | -10.48 | QP |
| 4 | 2.500 | 12.65 | 0.00 | 0.11 | 22.52 | 46.00 | -23.48 | Average |
| 5 | 5.929 | 35.96 | 0.00 | 0.14 | 45.83 | 60.00 | -14.17 | QP |
| 6 | 5.929 | 17.96 | 0.00 | 0.14 | 27.83 | 50.00 | -22.17 | Average |
| 7 | 7.329 | 32.39 | 0.00 | 0.15 | 42.19 | 60.00 | -17.81 | QP |
| 8 | 7.329 | 13.39 | 0.00 | 0.15 | 23.19 | 50.00 | -26.81 | Average |
| 9 | 10.072 | 41.68 | 0.00 | 0.21 | 51.59 | 60.00 | -8.41 | QP |
| 10 | 10.072 | 24.68 | 0.00 | 0.21 | 34.59 | 50.00 | -15.41 | Average |
| 11 | 21.147 | 34.52 | 0.00 | 0.37 | 44.75 | 60.00 | -15.25 | QP |
| 12 | 21.147 | 17.52 | 0.00 | 0.37 | 27.75 | 50.00 | -22.25 | Average |

Remarks: Level = Read + AUX Factor + Cable loss

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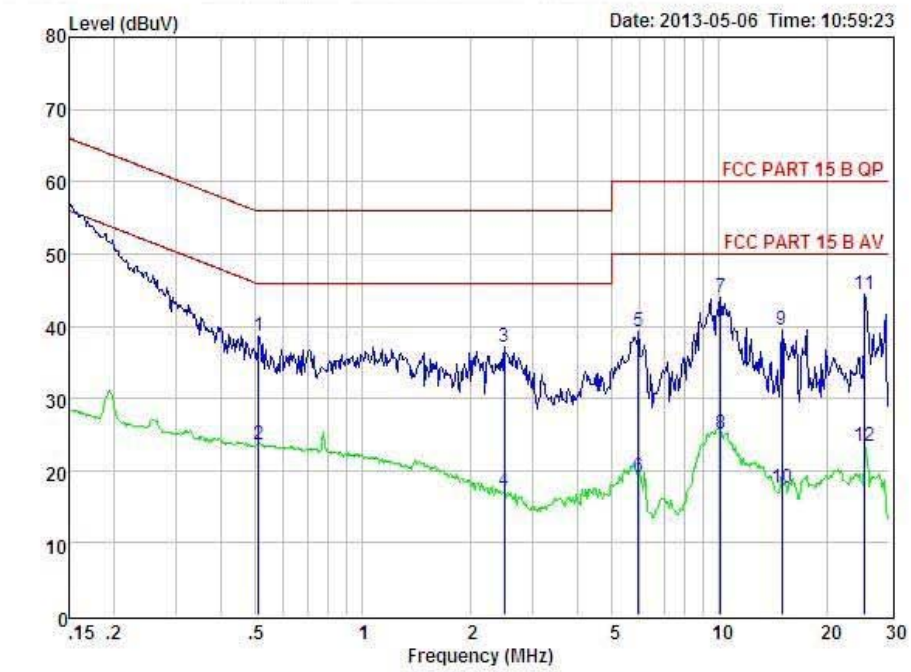



Condition : FCC PART 15 B QP POL: NEUTRAL Temp:24 ℃ Hum:56 %
EUT : Speaker
Model No : ROCK05BT
Test Mode : Link mode
Power : DC 5V From PC with AC 120V/60Hz adapter
Test Engineer: Anna
Remark : STE130429063

| Item | Freq | Read | AUX Factor | Cable Lose | Level | Limit | Margin | Remark |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuA | dB | dB | dBuA | dBuA | dBuA | |
| 1 | 0.510 | 28.76 | 0.00 | 0.10 | 38.61 | 56.00 | -17.39 | QP |
| 2 | 0.510 | 13.76 | 0.00 | 0.10 | 23.61 | 46.00 | -22.39 | Average |
| 3 | 2.500 | 27.19 | 0.00 | 0.11 | 37.06 | 56.00 | -18.94 | QP |
| 4 | 2.500 | 7.19 | 0.00 | 0.11 | 17.06 | 46.00 | -28.94 | Average |
| 5 | 5.929 | 29.29 | 0.00 | 0.14 | 39.16 | 60.00 | -20.84 | QP |
| 6 | 5.929 | 9.29 | 0.00 | 0.14 | 19.16 | 50.00 | -30.84 | Average |
| 7 | 10.072 | 34.13 | 0.00 | 0.21 | 44.04 | 60.00 | -15.96 | QP |
| 8 | 10.072 | 15.13 | 0.00 | 0.21 | 25.04 | 50.00 | -24.96 | Average |
| 9 | 14.986 | 29.66 | 0.00 | 0.23 | 39.51 | 60.00 | -20.49 | QP |
| 10 | 14.986 | 7.66 | 0.00 | 0.23 | 17.51 | 50.00 | -32.49 | Average |
| 11 | 25.591 | 33.82 | 0.00 | 0.50 | 44.40 | 60.00 | -15.60 | QP |
| 12 | 25.591 | 12.82 | 0.00 | 0.50 | 23.40 | 50.00 | -26.60 | Average |

Remarks: Level = Read + AUX Factor + Cable loss



Note: If QP Result comply with AV limit, AV Result is deemed to comply with AV limit

# 11. Antenna Requirements

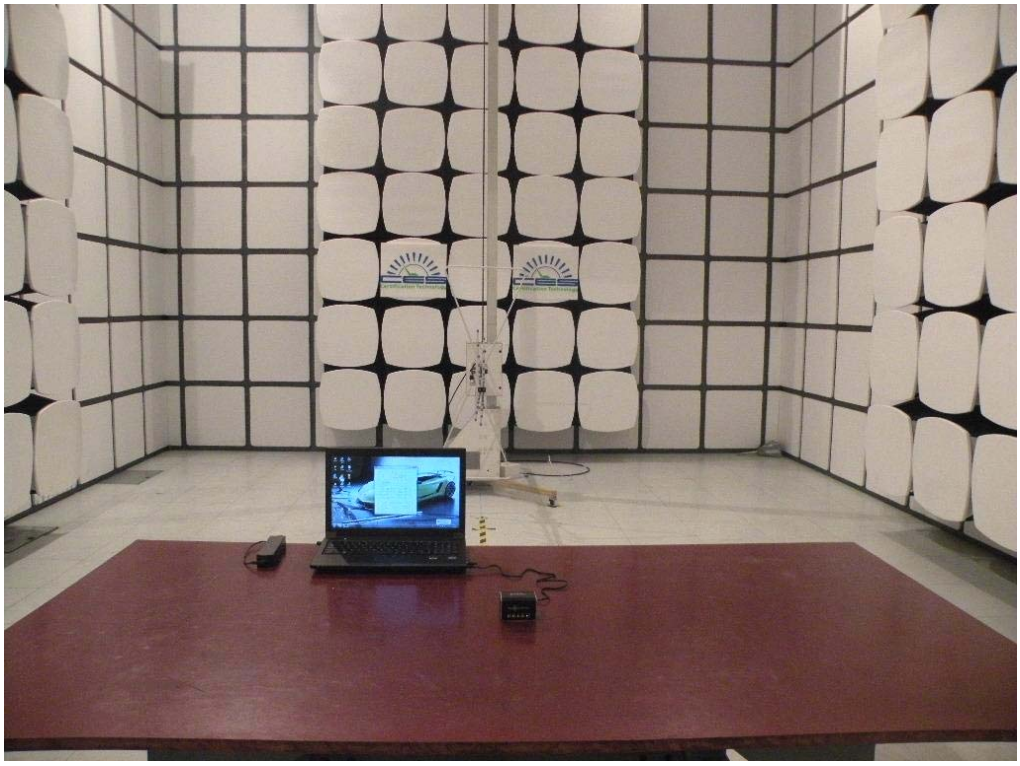
## 11.1. Limit

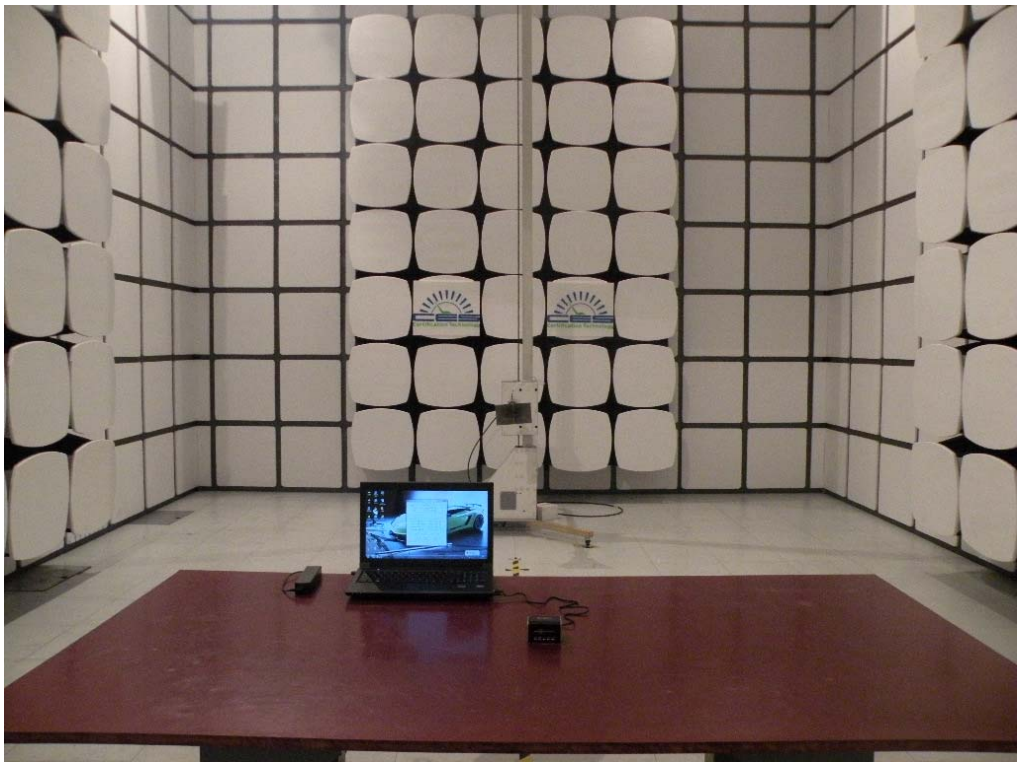
For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

## 11.2. Result

The antennas used for this product are PCB Antenna and that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is only 2dBi.

# 12. Test setup photo



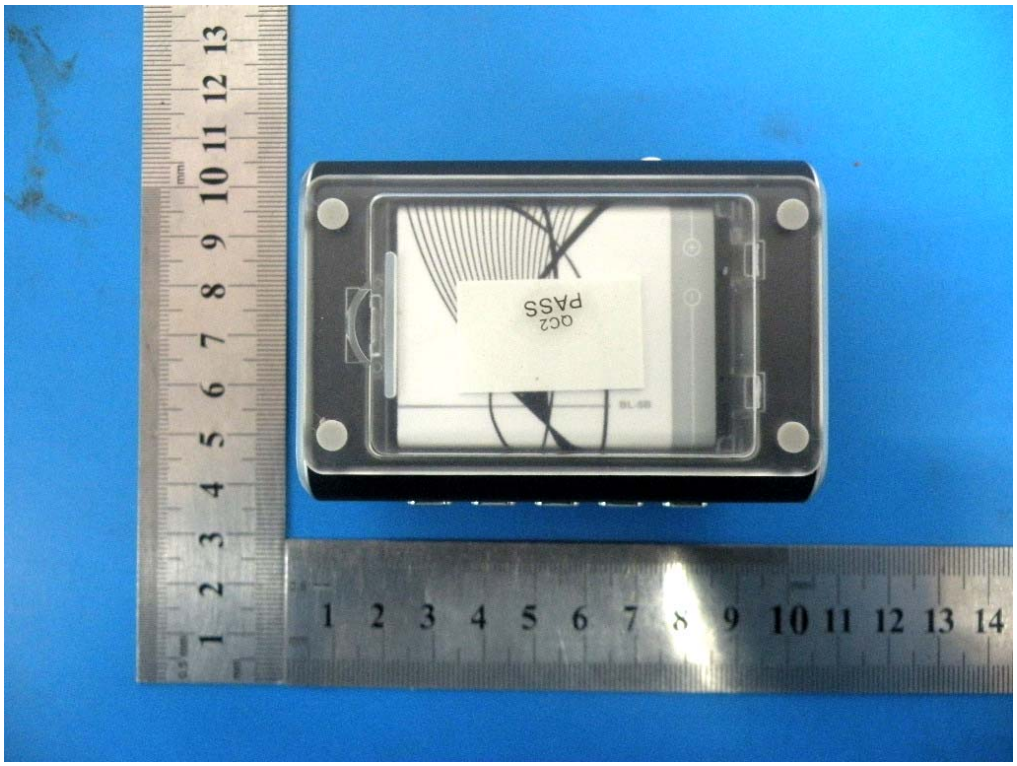


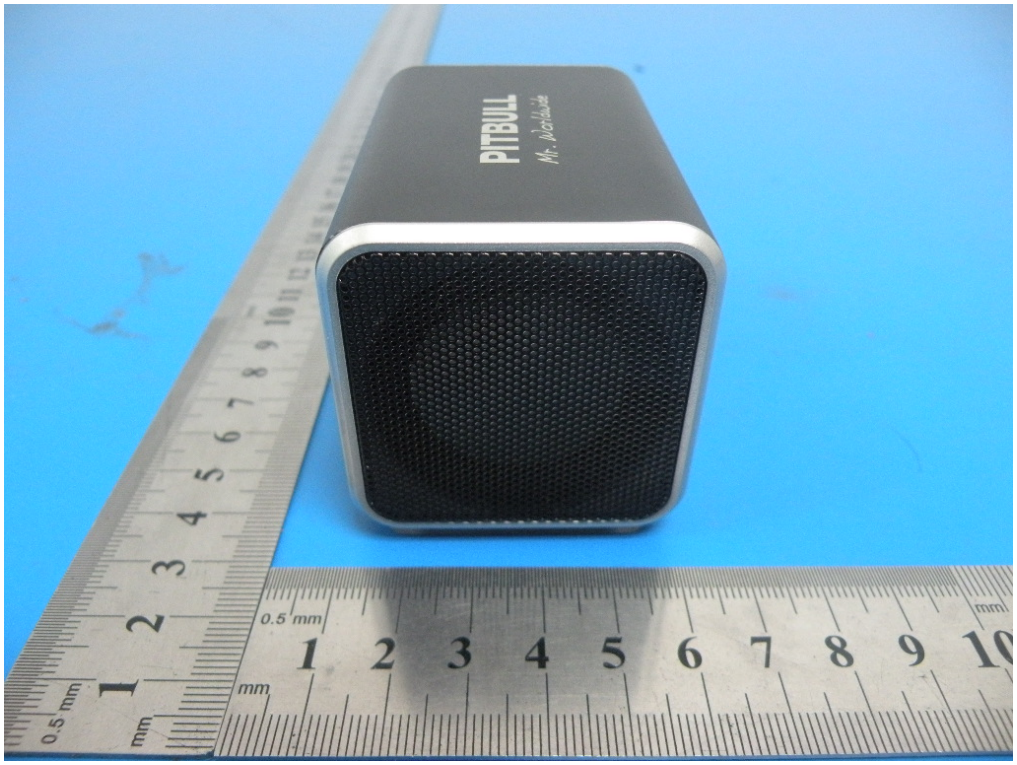
# 13. Photos of EUT

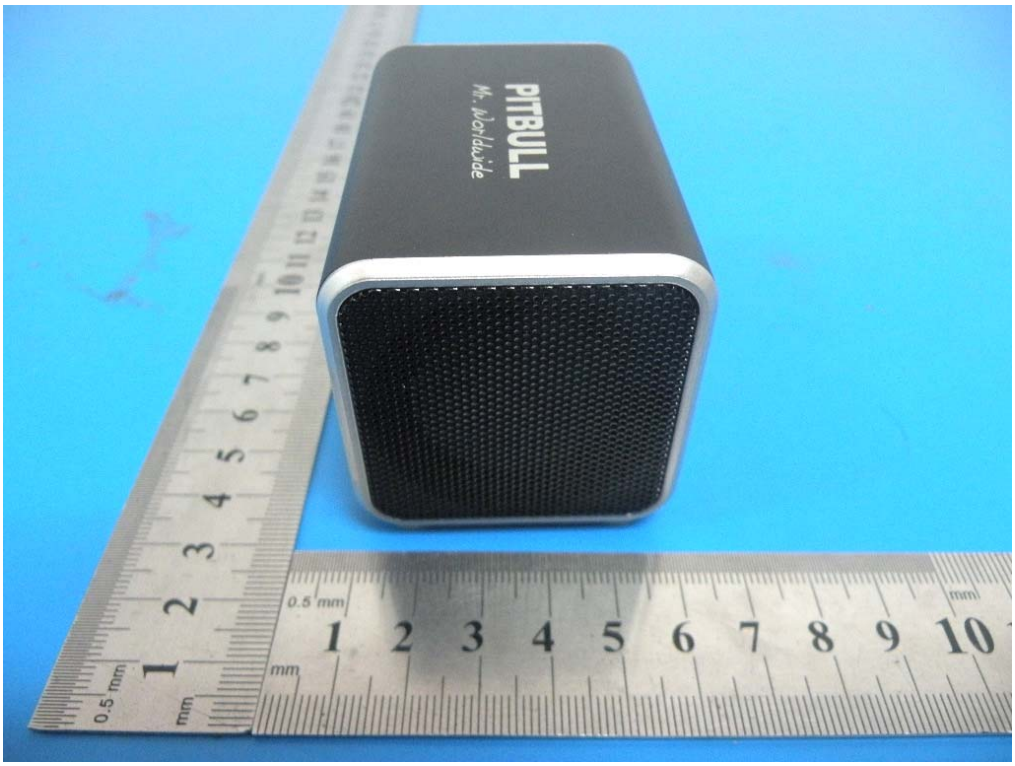


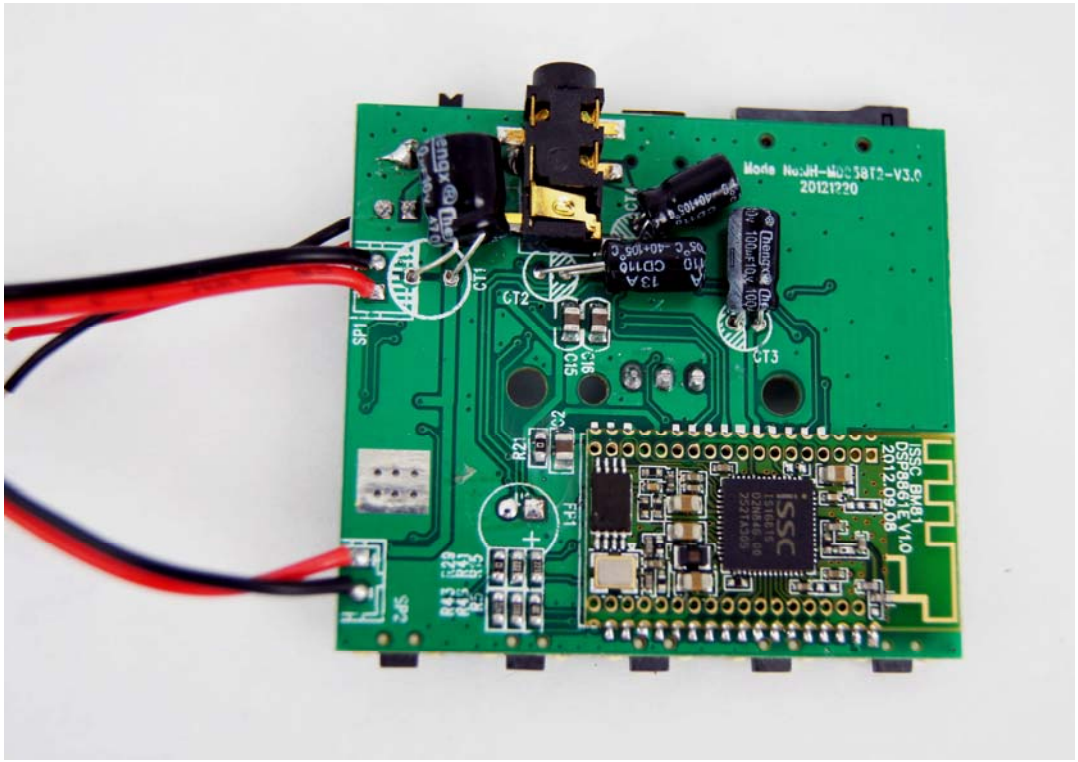
MICRO SD/TF
LINE IN
DC-5V
OFF ON

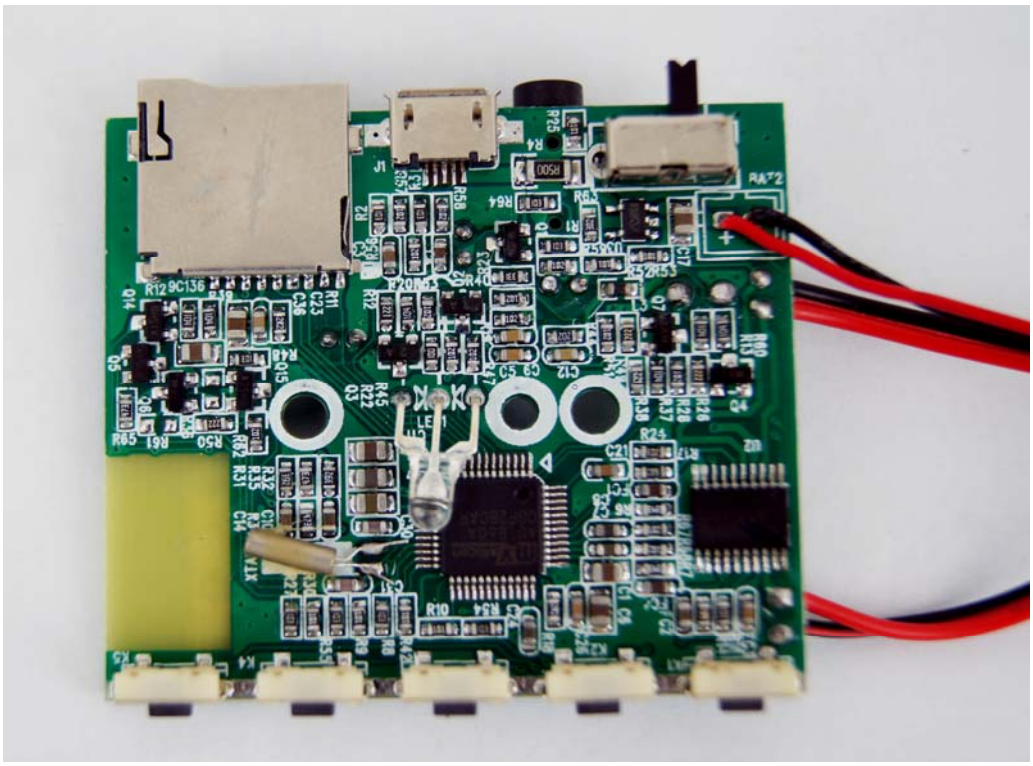

PITBULL
Mr. Worldwide

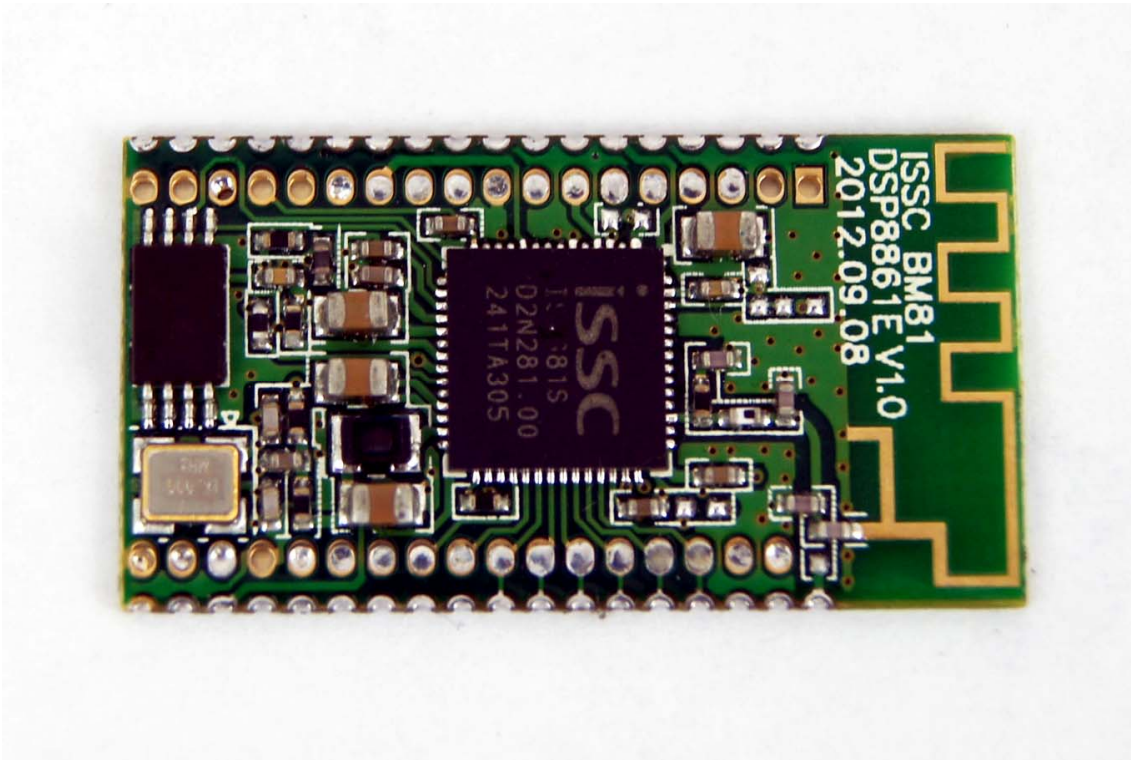

QC2
PASS

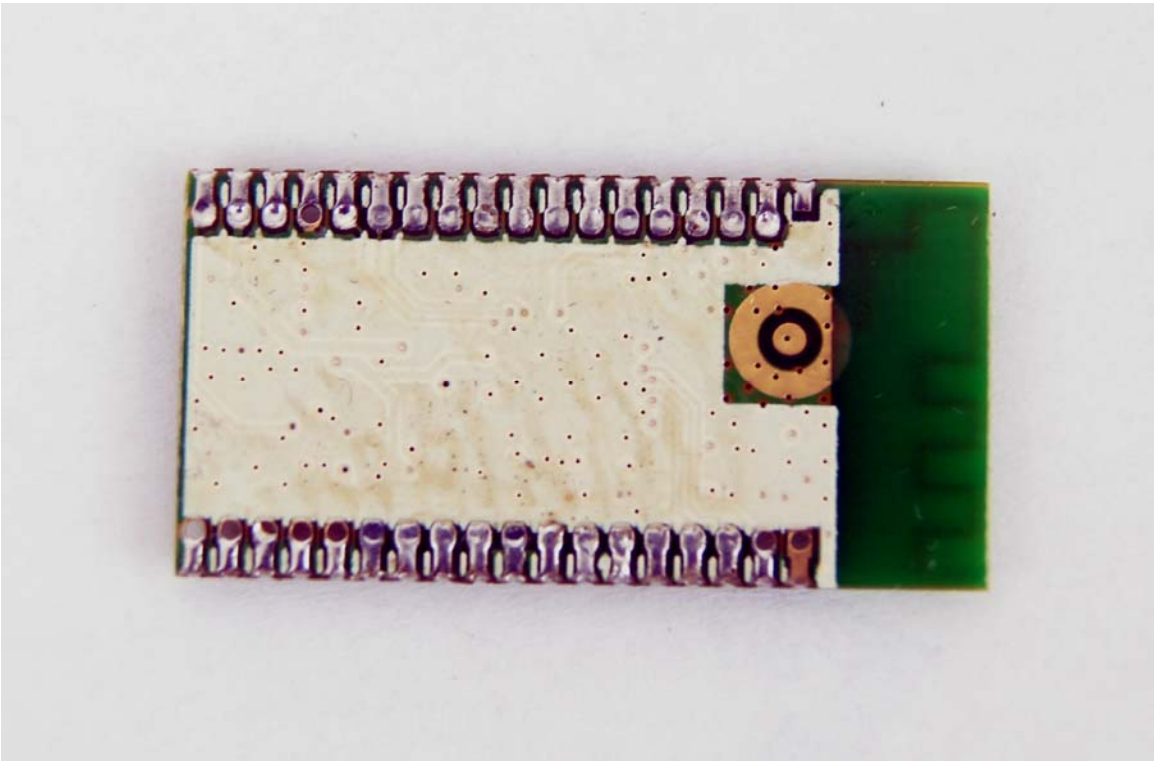

PITBULL


PITBULL
Mr. Worldwide






ISSC BM81
DSP8861E V1.0
2012.09.08
ISSC



END OF THE REPORT