# TEST REPORT

## FCC ID: R8HYM-S1

| | | |
|---|---|---|
| Applicant | : | Shenzhen XinHuaMei Electronics Limited Company |
| Address | : | Bldg 5, Taifeng Industrial Park, No.10, Jianan Road, Shajing Sub-district, Baoan District, Shenzhen, China |

**Equipment Under Test (EUT):**

| | | |
|---|---|---|
| Name | : | Bluetooth speaker with selfie function |
| Model | : | Logiix Blue Piston Nomad (YM-S1) |
| Trade Name | | N/A |

**Standards** : FCC PART 15, SUBPART C : 2014 (Section 15.247)
**Report No** : T1850708 01
**Date of Test** : June 26- July 04, 2015
**Date of Issue** : July 06, 2015

**Tset Result** : **PASS**

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

(Mark Zhu)
Manager

The manufacture should ensure that all the products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of Shenzhen Alpha Product Testing Co., Ltd. Or test done by Shenzhen Alpha Product Testing Co., Ltd. Approvals in connection with, distribution or use of the product described in this report must be approved by Shenzhen Alpha Product Testing Co., Ltd. Approvals in writing.

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# 1. General Information

## 1.1. Description of Device (EUT)

| | | |
|---|---|---|
| EUT | : | Bluetooth speaker with selfie function |
| Model No. | : | Logiix Blue Piston Nomad (YM-S1) |
| DIFF | | N/A |
| Trade mark | : | N/A |
| Power supply | : | DC3.7V from internal battery or DC 5V From USB port |
| Radio Technology | : | Bluetooth 3.0+EDR |
| Operation frequency | : | 2402-2480MHz |
| Modulation | : | GFSK, π /4 DQPSK,8- DPSK |
| Antenna Type | : | Integrated Antenna, max gain 0dBi. |
| Adapter | : | N/A |
| Applicant | : | Shenzhen XinHuaMei Electronics Limited Company |
| Address | : | Bldg 5, Taifeng Industrial Park, No.10, Jianan Road, Shajing Sub-district, Baoan District, Shenzhen, China |
| Manufacturer | : | Shenzhen XinHuaMei Electronics Limited Company |
| Address | : | Bldg 5, Taifeng Industrial Park, No.10, Jianan Road, Shajing Sub-district, Baoan District, Shenzhen, China |

## 1.2. Accessories of device (EUT)

| | | |
|---|---|---|
| Accessories | : | NIL |
| Type | : | NIL |

## 1.3. Test Lab information

Shenzhen Alpha Product Testing 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.: 203110

# 2. Summary of test

## 2.1. Summary of test result

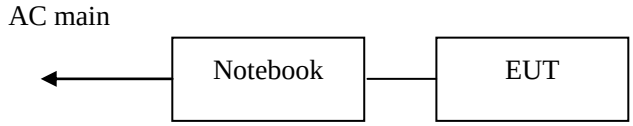
| Description of Test Item | Standard | Results |
|---|---|---|
| Maximum Peak Output Power | FCC Part 15: 15.247(b)(1)<br>ANSI C63.4 :2014 | PASS |
| Bandwidth | FCC Part 15: 15.215<br>ANSI C63.4 :2014 | PASS |
| Carrier Frequency Separation | FCC Part 15: 15.247(a)(1)<br>ANSI C63.4 :2014 | PASS |
| Number Of Hopping Channel | FCC Part 15: 15.247(a)(1)(iii)<br>ANSI C63.4 :2014 | PASS |
| Dwell Time | FCC Part 15: 15.247(a)(1)(iii)<br>ANSI C63.4 :2014 | PASS |
| Radiated Emission | FCC Part 15: 15.209<br>FCC Part 15: 15.247(d)<br>ANSI C63.4 :2014 | PASS |
| Band Edge Compliance | FCC Part 15: 15.247(d)<br>ANSI C63.4 :2014 | PASS |
| Power Line Conducted Emissions | FCC Part 15: 15.207<br>ANSI C63.4 :2014 | PASS |
| Antenna requirement | FCC Part 15: 15.203 | PASS |
| Note: Test with the test procedure Bluetool. | | |

## 2.2. Assistant equipment used for test

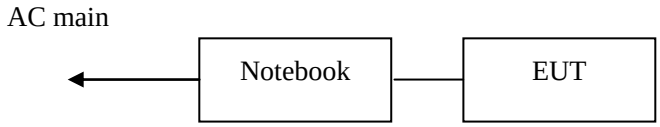
| | | |
|---|---|---|
| Description | : | Notebook |
| Manufacturer | : | ACER |
| Model No. | : | ZQT |
| Remark: FCC DOC approved | | |

## 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 AppoTech RF Control Kit.exe software before test.




2, For Power Line Conducted Emissions Test: EUT was connected to notebook by 0.6m USB line




## 2.4. Test mode

The test software "AppoTech RF Control Kit.exe" 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) |
| GFSK | Low :CH1 | 2402 |
| | Middle: CH40 | 2441 |
| | High: CH79 | 2480 |

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

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

## 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 (below 30MHz) | 2.13 dB | Polarize: V |
| | 2.57dB | Polarize: H |
| 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. | Cal. Due day | Cal Interval |
|---|---|---|---|---|---|
| 3m Semi-Anechoic | ETS-LINDGREN | N/A | SEL0017 | 2016.01.19 | 1Year |
| Spectrum analyzer | Agilent | E4407B | MY49510055 | 2016.01.19 | 1Year |
| Receiver | R&S | ESCI | 101165 | 2016.01.19 | 1Year |
| Bilog Antenna | SCHWARZBECK | VULB 9168 | 9168-438 | 2017.01.21 | 2Year |
| Horn Antenna | SCHWARZBECK | BBHA 9120 D | BBHA 9120 D(1201) | 2017.01.21 | 2Year |
| Horn Antenna | SCHWARZBECK | BBHA 9170 | BBHA 9170 D(1432) | 2017.01.21 | 2Year |
| Active Loop Antenna | Beijing Daze | ZN30900A | SEL0097 | 2016.01.19 | 1Year |
| Cable | Resenberger | SUCOFLEX 104 | MY6562/4 | 2016.01.19 | 1Year |
| Cable | Resenberger | SUCOFLEX 104 | 309972/4 | 2016.01.19 | 1Year |
| Cable | Resenberger | SUCOFLEX 104 | 329112/4 | 2016.01.19 | 1Year |
| L.I.S.N.#1 | Schwarzbeck | NSLK8126 | 8126466 | 2016.01.19 | 1Year |
| L.I.S.N.#2 | ROHDE&SCHWARZ | ENV216 | 101043 | 2016.01.19 | 1 Year |
| Power Meter | Anritsu | ML2487A | 6K00001491 | 2016.01.19 | 1Year |
| Power sensor | Anritsu | ML2491A | 32516 | 2016.01.19 | 1Year |
| Pre-amplifier | SCHWARZBECK | BBV9743 | 9743-019 | 2016.01.19 | 1Year |
| Pre-amplifier | Quietek | AP-180C | CHM-0602012 | 2016.01.19 | 1Year |

# 3. Maximum Peak Output power

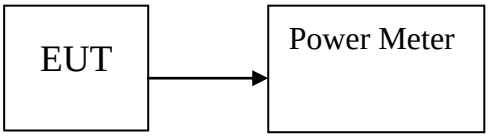
## 3.1. Limit

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: Bluetooth speaker with selfie function (YM-S1) M/N: Logiix Blue Piston Nomad | | | | | |
|---|---|---|---|---|---|
| Test date: 2015-07-04 | | Test site: RF site | Tested by: Store | | |
| Mode | Freq (MHz) | PK Output Power (dBm) | PK Output Power (mW) | Limit (dBm) | |
| GFSK | 2402 | -3.46 | 0.451 | 21 | |
| | 2441 | -3.28 | 0.470 | 21 | |
| | 2480 | -3.46 | 0.451 | 21 | |
| π /4 DQPSK, | 2402 | -4.21 | 0.379 | 21 | |
| | 2441 | -4.37 | 0.366 | 21 | |
| | 2480 | -4.55 | 0.351 | 21 | |
| 8- DPSK | 2402 | -5.95 | 0.254 | 21 | |
| | 2441 | -5.76 | 0.265 | 21 | |
| | 2480 | -6.03 | 0.249 | 21 | |
| Conclusion: PASS | | | | | |

# 4. 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

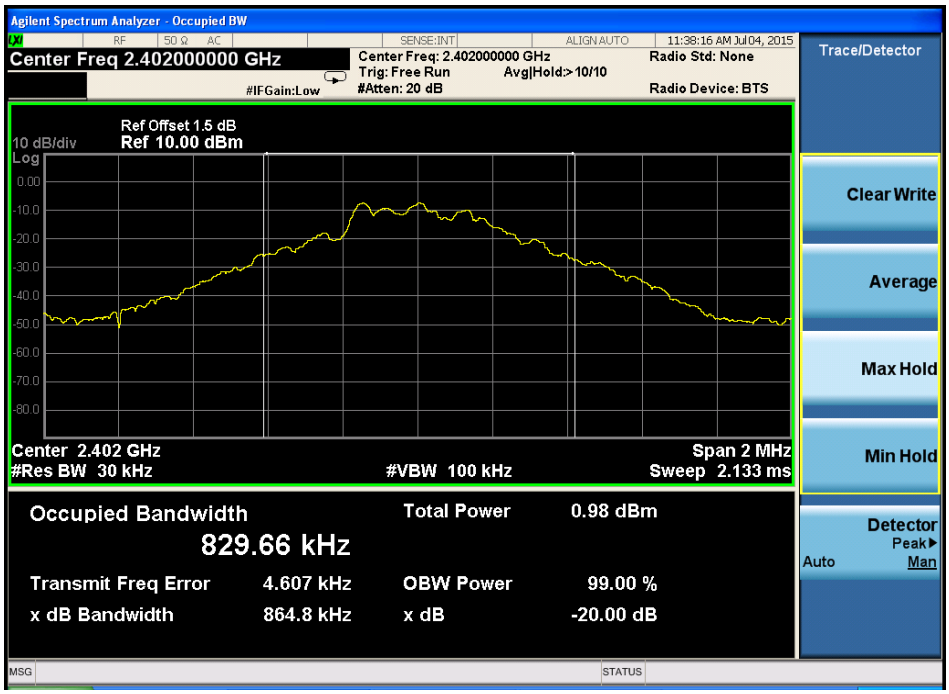
The transmitter output was coupled to a spectrum analyzer via a antenna. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 30kHz RBW and 100kHz VBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

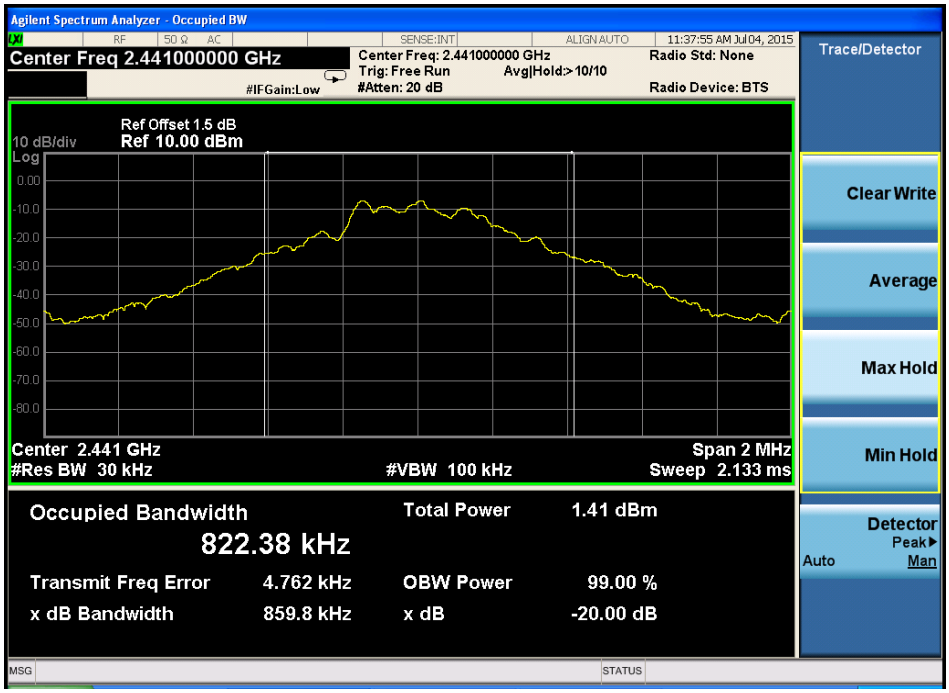
## 4.3. Test Result

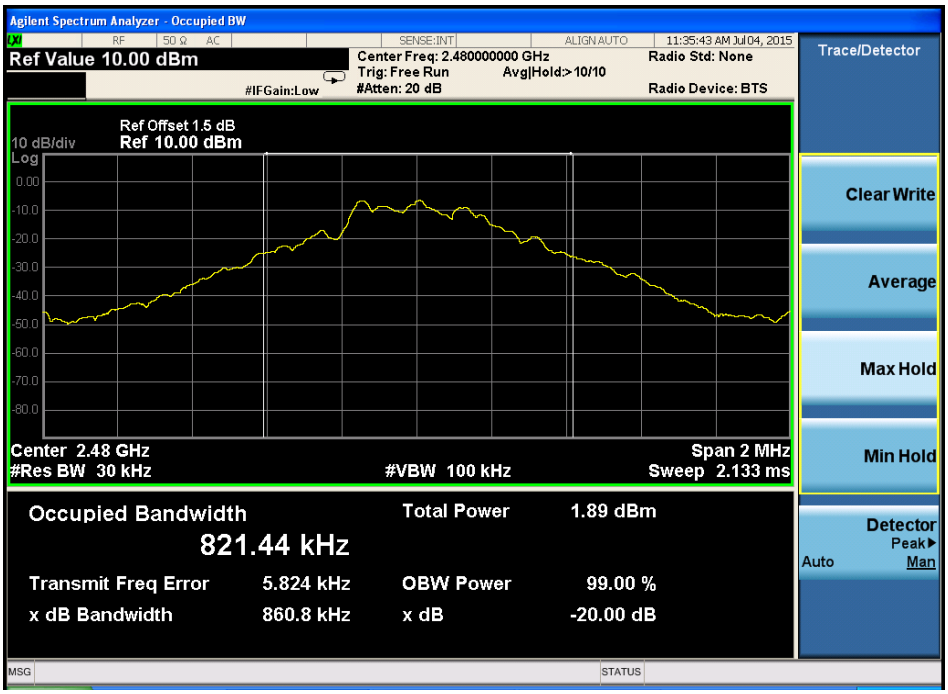
| EUT: Bluetooth speaker with selfie function M/N: Logiix Blue Piston Nomad (YM-S1) | | | | |
|---|---|---|---|---|
| Test date: 2015-07-04 | | Test site: RF site | Tested by: Store | |
| Mode | Freq (MHz) | 20dB Bandwidth (KHz) | Limit (kHz) | Conclusion |
| GFSK | 2402 | 864.8 | / | PASS |
| | 2441 | 859.8 | / | PASS |
| | 2480 | 860.8 | / | PASS |
| π /4 DQPSK | 2402 | 1219 | / | PASS |
| | 2441 | 1239 | / | PASS |
| | 2480 | 1219 | / | PASS |
| 8- DPSK | 2402 | 1211 | / | PASS |
| | 2441 | 1212 | / | PASS |
| | 2480 | 1212 | / | PASS |

Orginal Test data For 20dB bandwidth

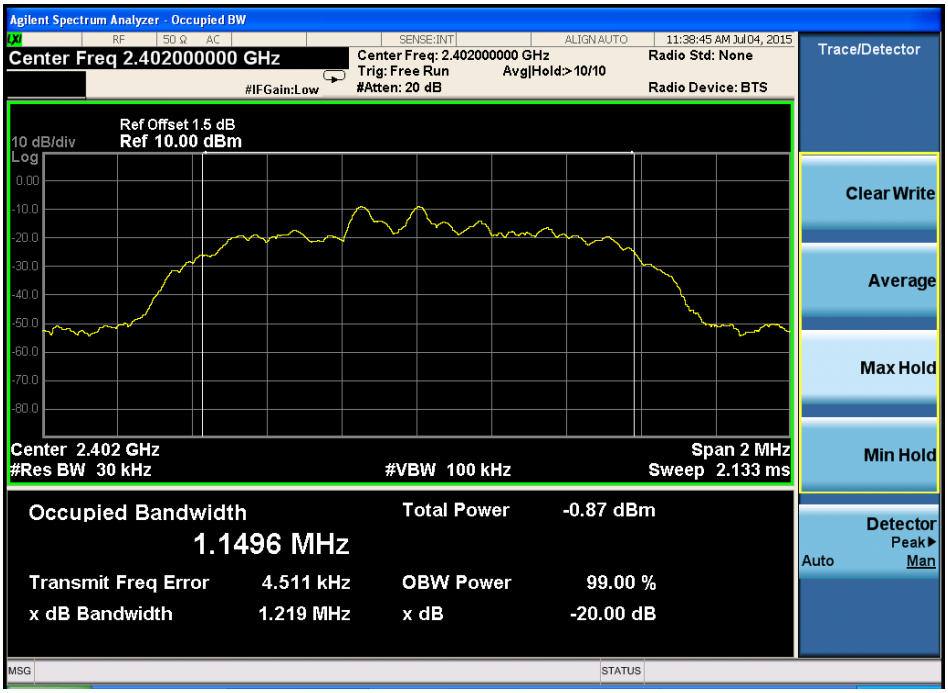
GFSK:

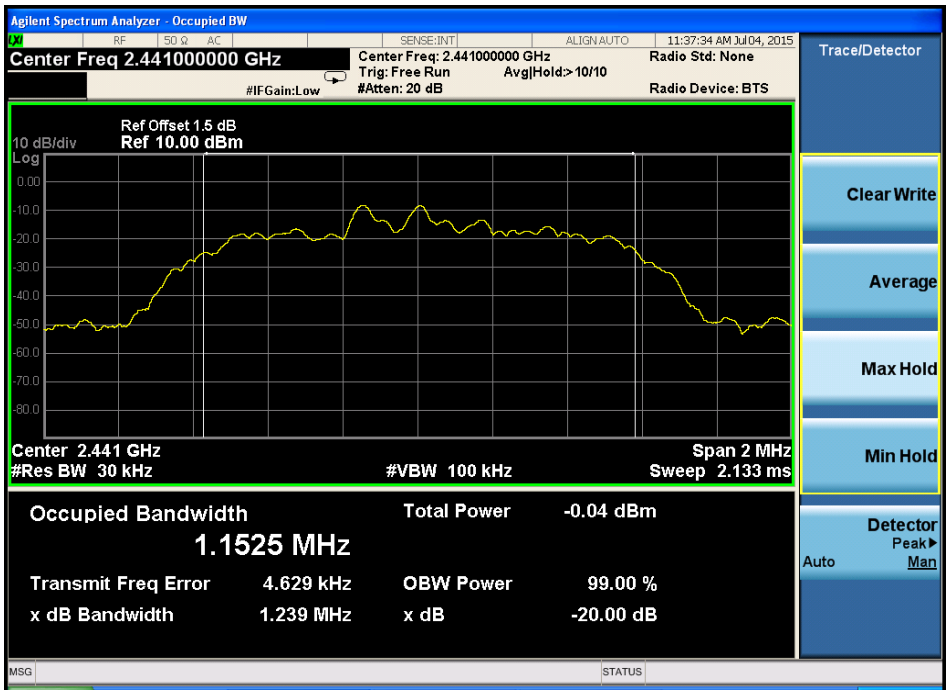


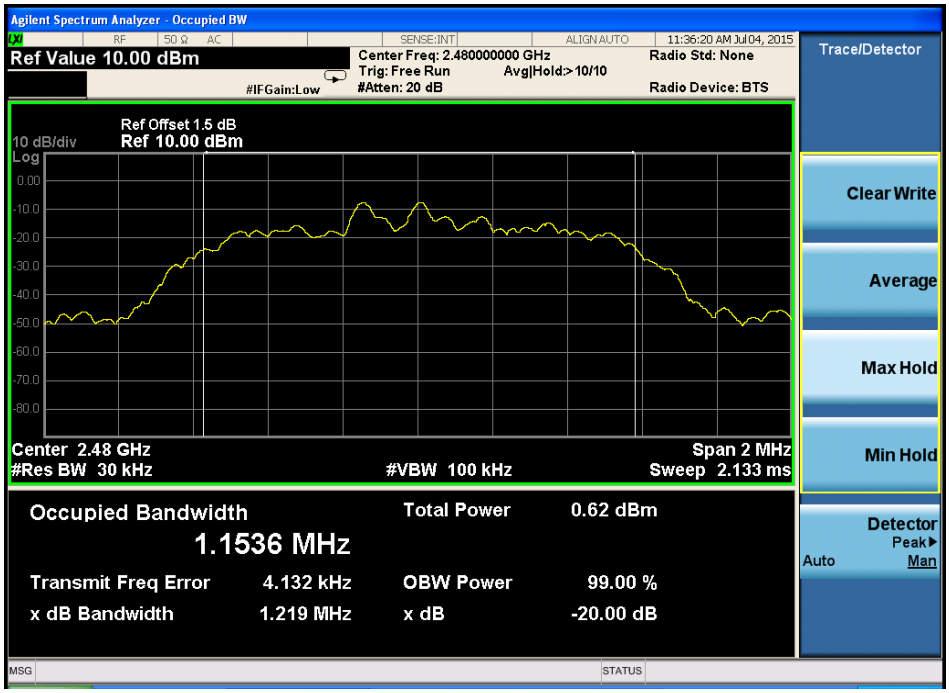




Agilent Spectrum Analyzer - Occupied BW
Ref Value 10.00 dBm
Center Freq: 2.480000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 20 dB
Radio Std: None
Radio Device: BTS
11:35:43 AM Jul 04, 2015
Trace/Detector
Ref Offset 1.5 dB
10 dB/div
Ref 10.00 dBm
Log
Clear Write
Average
Max Hold
Min Hold
Center 2.48 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2 MHz
Sweep 2.133 ms
Occupied Bandwidth
821.44 kHz
Total Power 1.89 dBm
Transmit Freq Error 5.824 kHz
OBW Power 99.00 %
x dB Bandwidth 860.8 kHz
x dB -20.00 dB
Detector
Peak
Auto
Man
MSG
STATUS

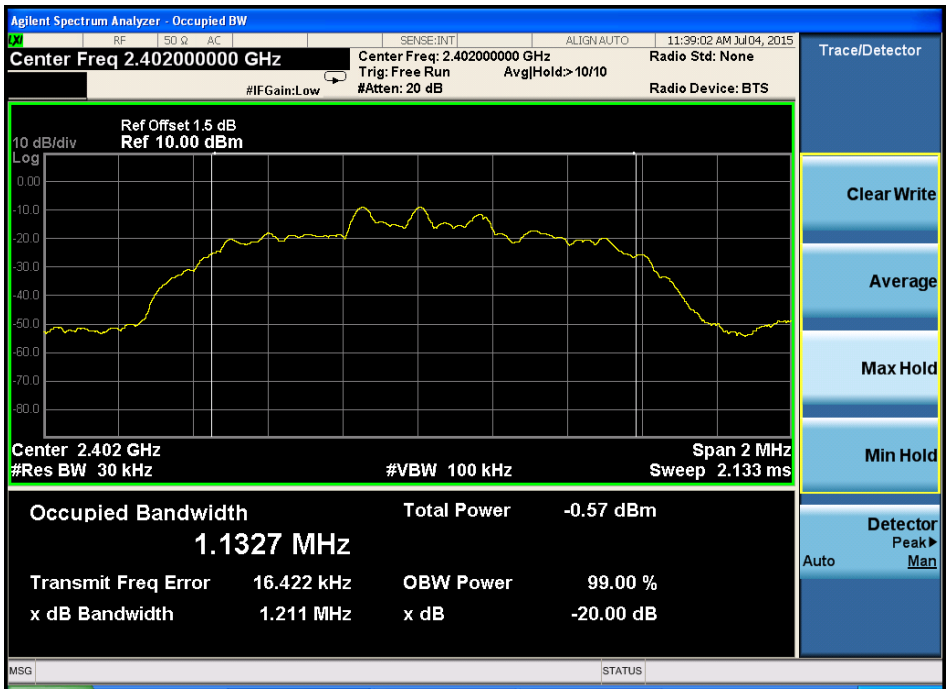
π /4 DQPSK

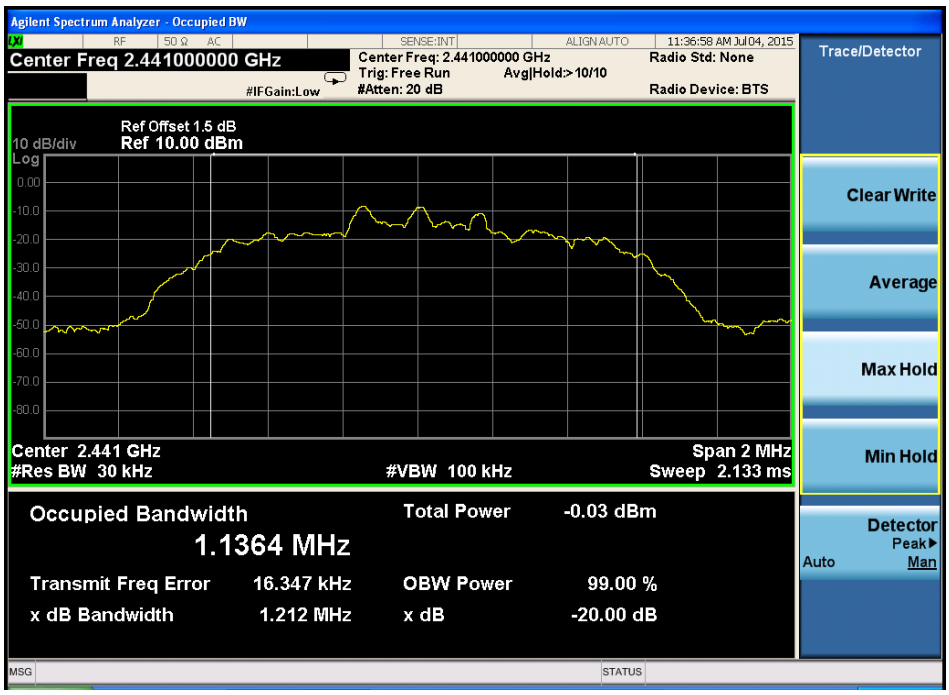

Agilent Spectrum Analyzer - Occupied BW
Center Freq 2.402000000 GHz
Center Freq: 2.402000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 20 dB
Radio Std: None
Radio Device: BTS
11:38:45 AM Jul 04, 2015
Trace/Detector
Ref Offset 1.5 dB
10 dB/div
Ref 10.00 dBm
Log
Clear Write
Average
Max Hold
Min Hold
Center 2.402 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2 MHz
Sweep 2.133 ms
Occupied Bandwidth
1.1496 MHz
Total Power -0.87 dBm
Transmit Freq Error 4.511 kHz
OBW Power 99.00 %
x dB Bandwidth 1.219 MHz
x dB -20.00 dB
Detector
Peak
Auto
Man
MSG
STATUS

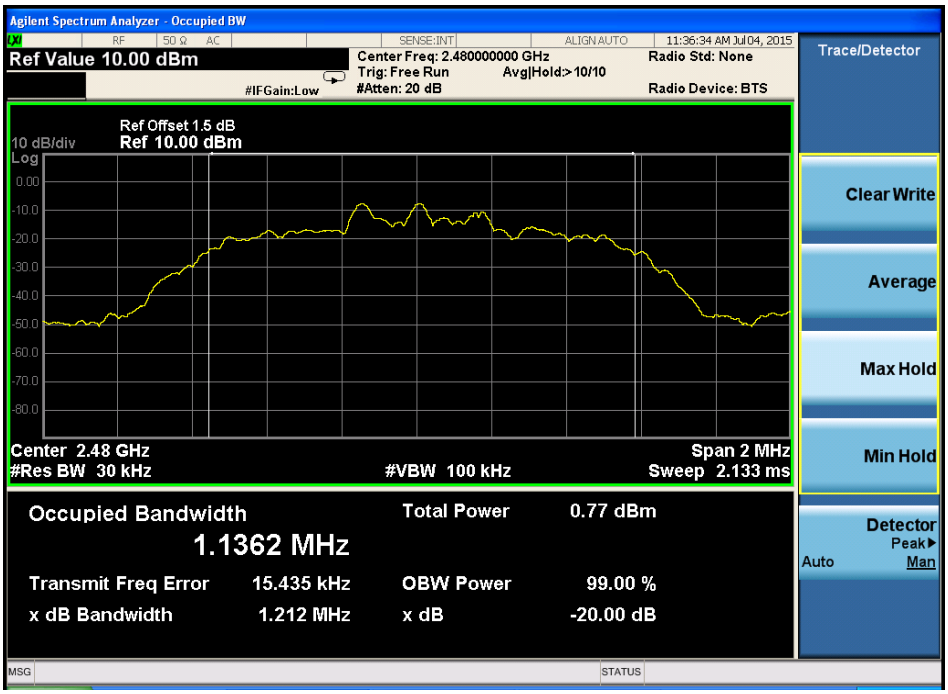

Agilent Spectrum Analyzer - Occupied BW
Center Freq 2.441000000 GHz
Center Freq: 2.441000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 20 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
11:37:34 AM Jul 04, 2015
Trace/Detector
Ref Offset 1.5 dB
10 dB/div
Ref 10.00 dBm
Log
Clear Write
Average
Max Hold
Min Hold
Center 2.441 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2 MHz
Sweep 2.133 ms
Occupied Bandwidth
1.1525 MHz
Total Power -0.04 dBm
Transmit Freq Error 4.629 kHz
OBW Power 99.00 %
x dB Bandwidth 1.239 MHz
x dB -20.00 dB
Detector
Peak
Auto
Man
MSG
STATUS


Agilent Spectrum Analyzer - Occupied BW
Ref Value 10.00 dBm
Center Freq: 2.480000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 20 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
11:36:20 AM Jul 04, 2015
Trace/Detector
Ref Offset 1.5 dB
10 dB/div
Ref 10.00 dBm
Log
Clear Write
Average
Max Hold
Min Hold
Center 2.48 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2 MHz
Sweep 2.133 ms
Occupied Bandwidth
1.1536 MHz
Total Power 0.62 dBm
Transmit Freq Error 4.132 kHz
OBW Power 99.00 %
x dB Bandwidth 1.219 MHz
x dB -20.00 dB
Detector
Peak
Auto
Man
MSG
STATUS

8- DPSK


Agilent Spectrum Analyzer - Occupied BW
Center Freq 2.402000000 GHz
Center Freq: 2.402000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 20 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
11:39:02 AM Jul 04, 2015
Trace/Detector
Ref Offset 1.5 dB
10 dB/div
Ref 10.00 dBm
Log
Clear Write
Average
Max Hold
Min Hold
Center 2.402 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2 MHz
Sweep 2.133 ms
Occupied Bandwidth
1.1327 MHz
Total Power -0.57 dBm
Transmit Freq Error 16.422 kHz
OBW Power 99.00 %
x dB Bandwidth 1.211 MHz
x dB -20.00 dB
Detector
Peak
Auto
Man
MSG
STATUS


Agilent Spectrum Analyzer - Occupied BW
Center Freq 2.441000000 GHz
Center Freq: 2.441000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 20 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
11:36:58 AM Jul 04, 2015
Trace/Detector
Ref Offset 1.5 dB
10 dB/div
Ref 10.00 dBm
Log
Clear Write
Average
Max Hold
Min Hold
Center 2.441 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2 MHz
Sweep 2.133 ms
Occupied Bandwidth
1.1364 MHz
Total Power -0.03 dBm
Transmit Freq Error 16.347 kHz
OBW Power 99.00 %
x dB Bandwidth 1.212 MHz
x dB -20.00 dB
Detector
Peak
Auto
Man
MSG
STATUS


Agilent Spectrum Analyzer - Occupied BW
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
11:36:34 AM Jul 04, 2015
Ref Value 10.00 dBm
#IFGain:Low
Center Freq: 2.480000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 20 dB
Radio Std: None
Radio Device: BTS
Trace/Detector
Ref Offset 1.5 dB
10 dB/div
Ref 10.00 dBm
Log
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Center 2.48 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2 MHz
Sweep 2.133 ms
Clear Write
Average
Max Hold
Min Hold
Occupied Bandwidth
1.1362 MHz
Total Power 0.77 dBm
Transmit Freq Error 15.435 kHz
OBW Power 99.00 %
x dB Bandwidth 1.212 MHz
x dB -20.00 dB
Detector
Peak
Auto
Man
MSG
STATUS

# 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: Bluetooth speaker with selfie function M/N: Logiix Blue Piston Nomad (YM-S1) | | | | |
|---|---|---|---|---|
| Test date: 2015-07-04 | | Test site: RF site | Tested by: Store | |
| Mode/Channel | Channel separation (KHz) | 20dB Bandwidth (KHz) | Limit (KHz) 2/3 20dB bandwidth | Conclusion |
| GFSK | 1002 | 859.8 | 573.200 | PASS |
| π /4 DQPSK | 1011 | 1239.0 | 826.000 | PASS |
| 8- DPSK | 1002 | 1212.0 | 808.000 | PASS |

Orginal test data for channel separation

GFSK

$\pi$ /4 DQPSK

8- DPSK

Agilent Spectrum Analyzer - Swept SA
Marker 1 Δ 1.002000000 MHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
10:35:53 AM Jul 04, 2015
Ref Offset 1.5 dB
10 dB/div
Ref 10.00 dBm
Log
ΔMkr1 1.002 MHz
0.132 dB
1Δ2
Center 2.441500 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 3.000 MHz
Sweep 3.200 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

# 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

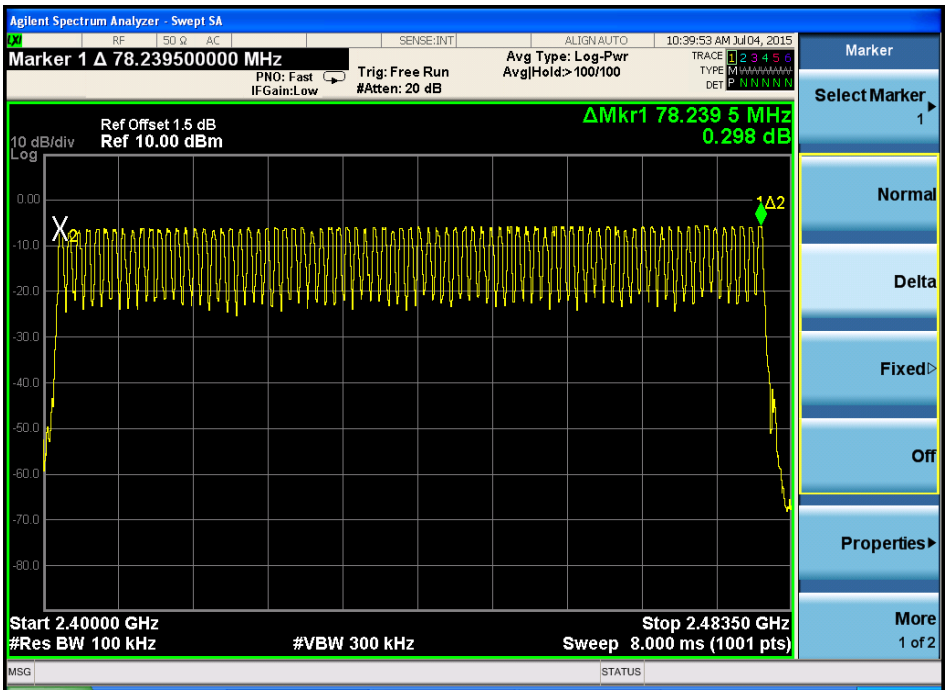
The transmitter output was coupled to a spectrum analyzer via a antenna. The number of hopping channel was measured by spectrum analyzer with 300kHz RBW and 1MHz VBW.

## 6.3. Test Result

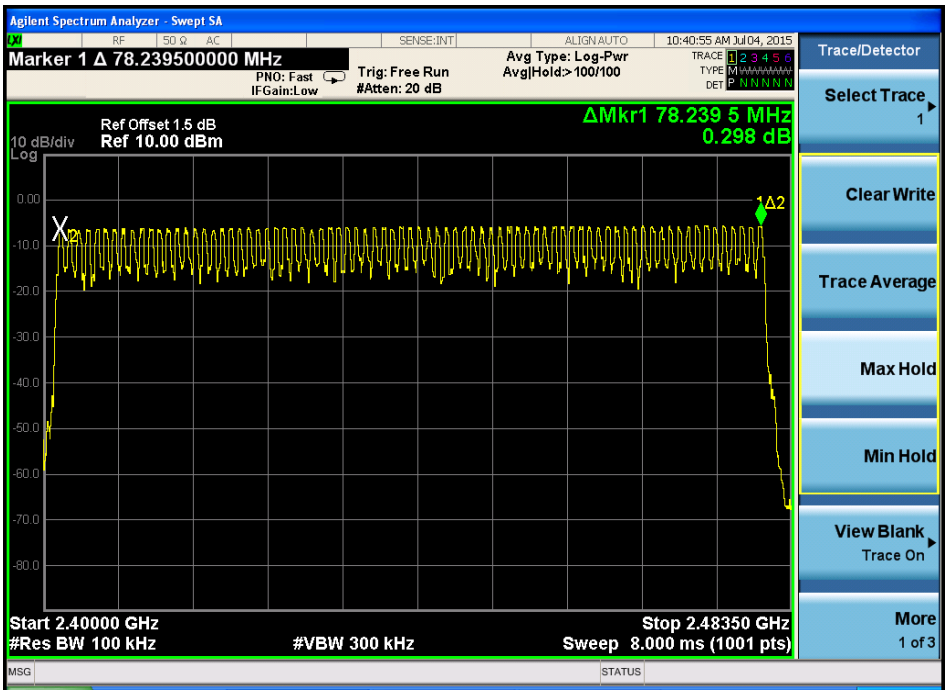
| EUT: Bluetooth speaker with selfie function (YM-S1) | | M/N: Logiix Blue Piston Nomad | |
|---|---|---|---|
| Test date: 2015-07-04 | Test site: RF site | Tested by: Store | |
| Mode | Number of hopping channel | Limit | Conclusion |
| GFSK | 79 | >15 | PASS |
| $\pi$ /4 DQPSK | 79 | >15 | PASS |
| 8- DPSK | 79 | >15 | PASS |

Original test data for hopping channel number

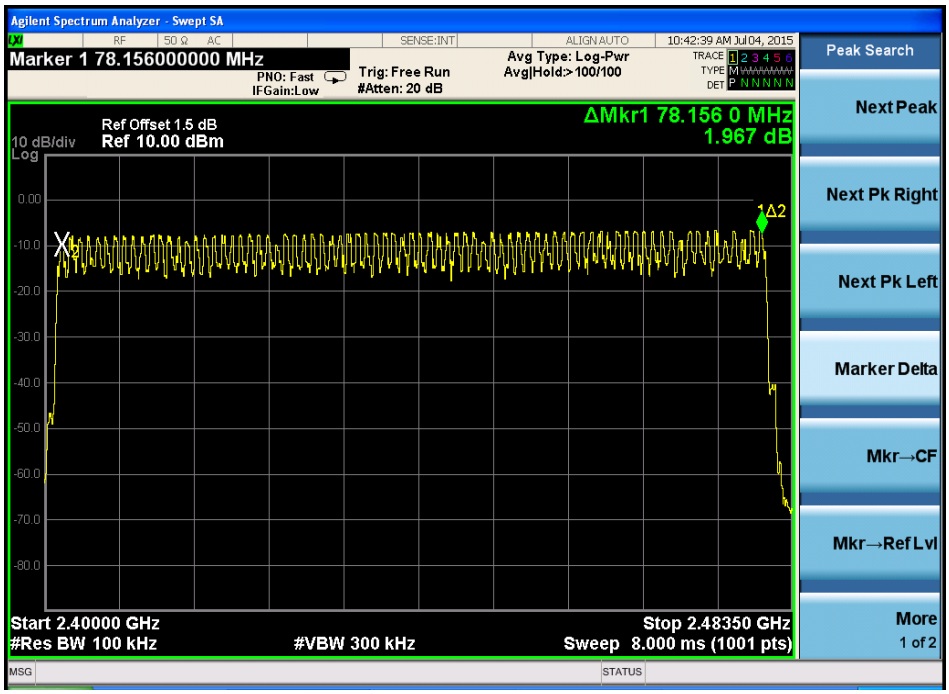
GFSK




$\pi$ /4 DQPSK



8- DPSK


Agilent Spectrum Analyzer - Swept SA
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
10:42:39 AM Jul 04, 2015
Marker 1 78.156000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Ref Offset 1.5 dB
10 dB/div
Ref 10.00 dBm
Log
ΔMkr1 78.156 0 MHz
1.967 dB
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
1Δ2
Start 2.40000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.48350 GHz
Sweep 8.000 ms (1001 pts)
MSG
STATUS
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

# 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

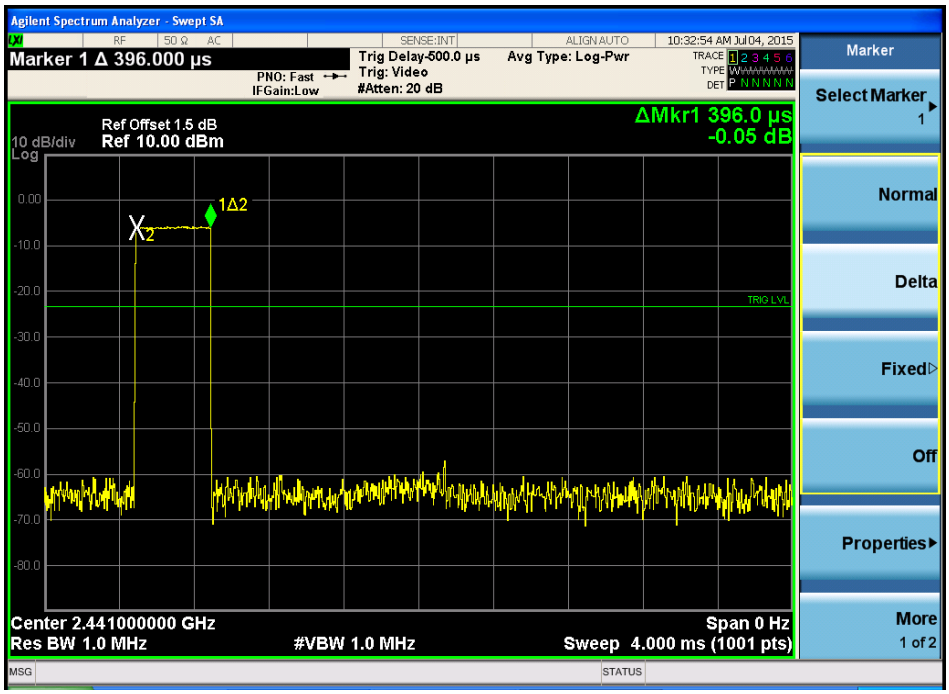
PASS.

Detailed information please see the following page.

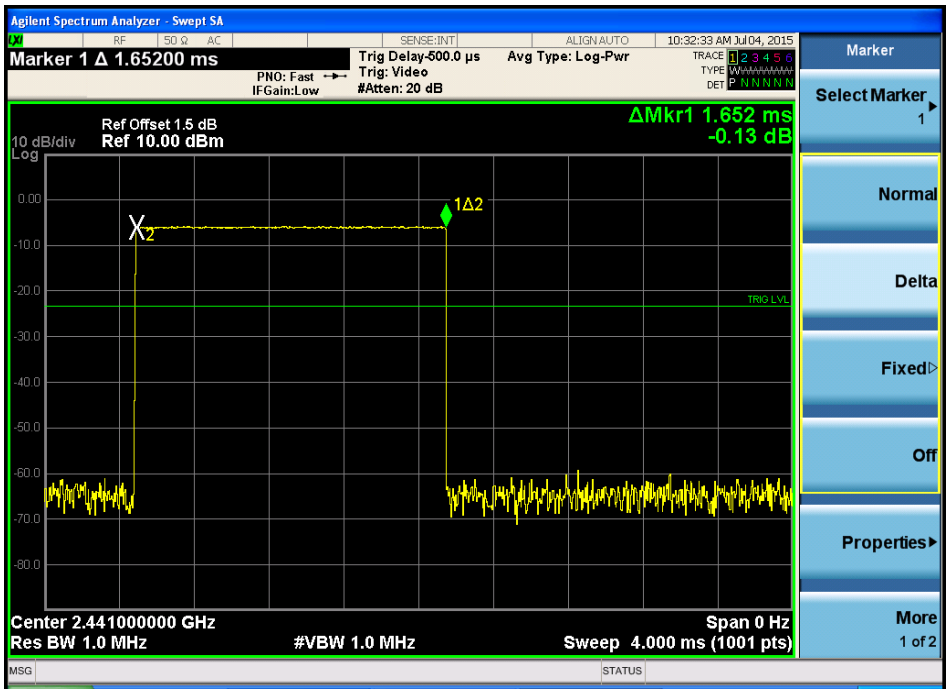
| EUT: Bluetooth speaker with selfie function M/N: Logiix Blue Piston Nomad (YM-S1) | | | | | | |
|---|---|---|---|---|---|---|
| Test date: 2015-07-04 | | Test site: RF site Tested by: Store | | | | |
| Mode | Data Packet | Frequency (MHz) | Pulse Duration (ms) | Dwell Time (s) | Limit (s) | Conclusion |
| GFSK | DH1 | 2441 | 0.396 | 0.253 | <0.4 | PASS |
| | DH3 | 2441 | 1.652 | 0.352 | <0.4 | PASS |
| | DH5 | 2441 | 2.904 | 0.372 | <0.4 | PASS |
| π /4 DQPSK | DH1 | 2441 | 0.408 | 0.261 | <0.4 | PASS |
| | DH3 | 2441 | 1.660 | 0.354 | <0.4 | PASS |
| | DH5 | 2441 | 2.908 | 0.372 | <0.4 | PASS |
| 8- DPSK | DH1 | 2441 | 0.408 | 0.261 | <0.4 | PASS |
| | DH3 | 2441 | 1.660 | 0.354 | <0.4 | PASS |
| | DH5 | 2441 | 2.908 | 0.372 | <0.4 | PASS |
| Note: 1 A period time = 0.4 (s) * 79 = 31.6(s)<br>2 DH1 time slot = Pulse Duration * (1600/(1*79)) * A period time<br>DH3 time slot = Pulse Duration * (1600/(3*79)) * A period time<br>DH5 time slot = Pulse Duration * (1600/(5*79)) * A period time | | | | | | |

GFSK

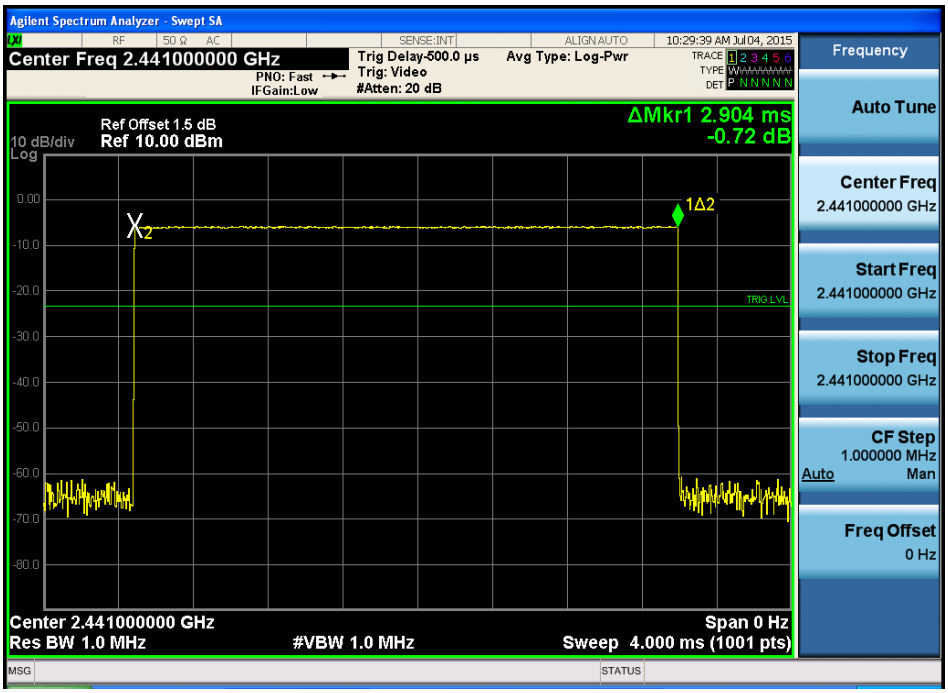
DH1:


Agilent Spectrum Analyzer - Swept SA
Marker 1 Δ 396.000 µs
Trig Delay-500.0 µs
Trig: Video
#Atten: 20 dB
Avg Type: Log-Pwr
10:32:54 AM Jul 04, 2015
PNO: Fast
IFGain:Low
Ref Offset 1.5 dB
10 dB/div
Ref 10.00 dBm
ΔMkr1 396.0 µs
-0.05 dB
1Δ2
Center 2.441000000 GHz
Res BW 1.0 MHz
#VBW 1.0 MHz
Span 0 Hz
Sweep 4.000 ms (1001 pts)
Marker
Select Marker
Normal
Delta
Fixed
Off
Properties
More
1 of 2

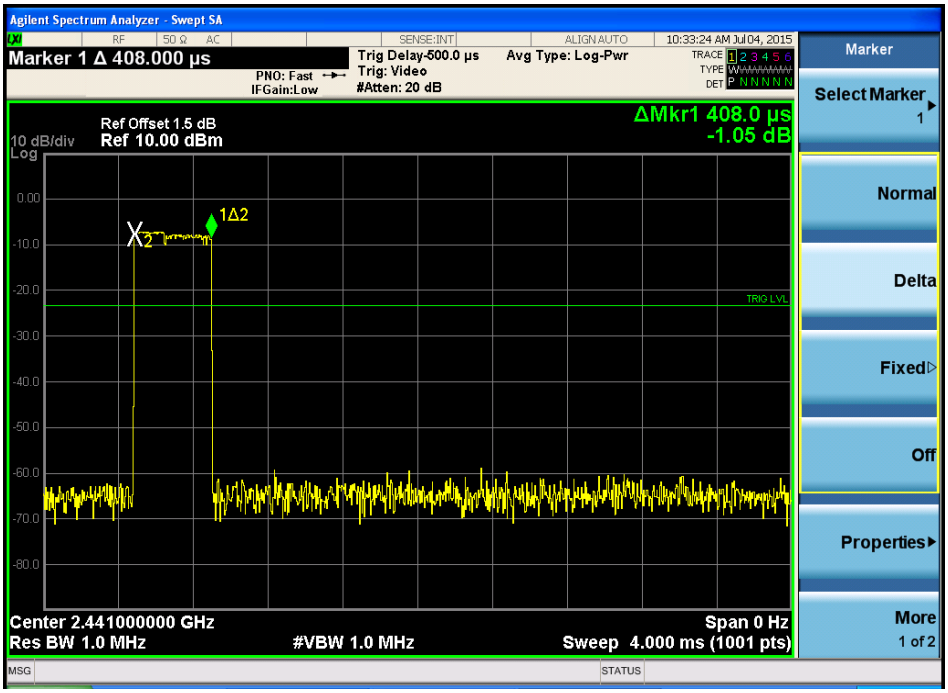
DH3:


Agilent Spectrum Analyzer - Swept SA
Marker 1 Δ 1.65200 ms
Trig Delay-500.0 µs
Trig: Video
#Atten: 20 dB
Avg Type: Log-Pwr
10:32:33 AM Jul 04, 2015
PNO: Fast
IFGain:Low
Ref Offset 1.5 dB
10 dB/div
Ref 10.00 dBm
ΔMkr1 1.652 ms
-0.13 dB
1Δ2
Center 2.441000000 GHz
Res BW 1.0 MHz
#VBW 1.0 MHz
Span 0 Hz
Sweep 4.000 ms (1001 pts)
Marker
Select Marker
Normal
Delta
Fixed
Off
Properties
More
1 of 2

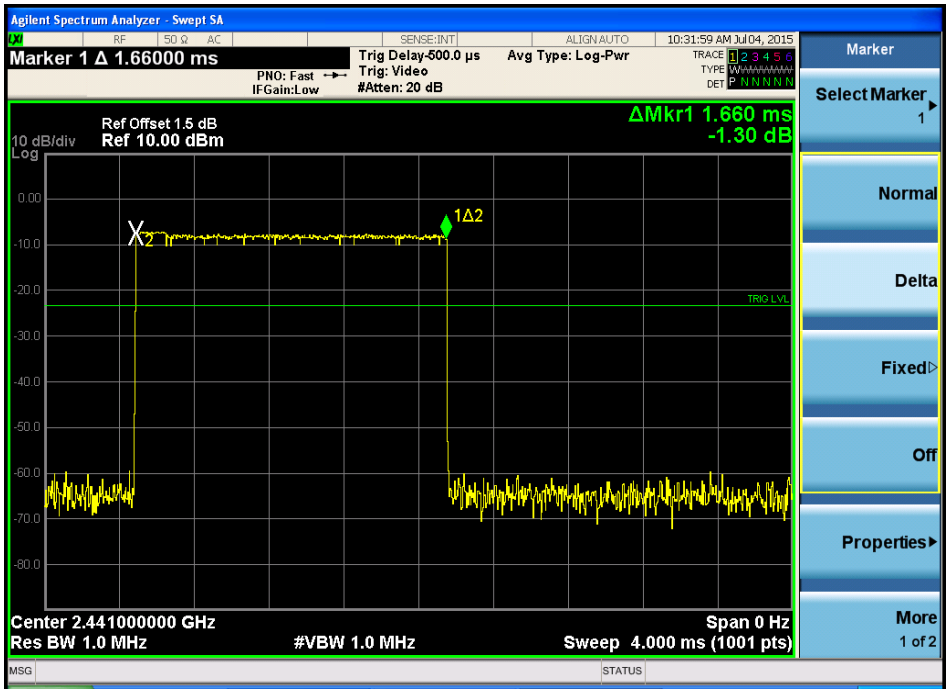
DH5



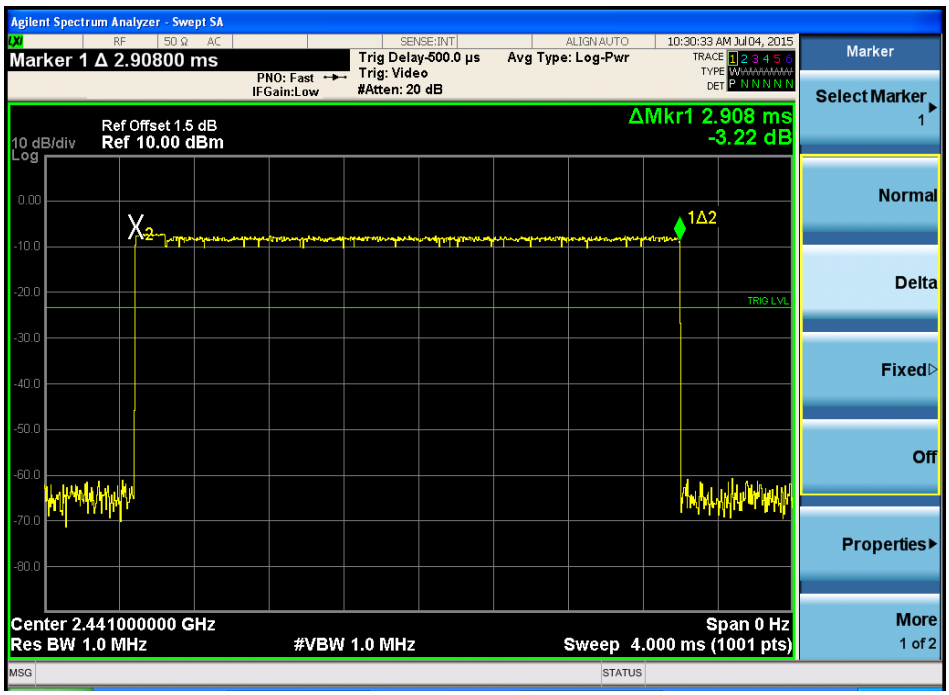

$\pi$ /4 DQPSK
DH1



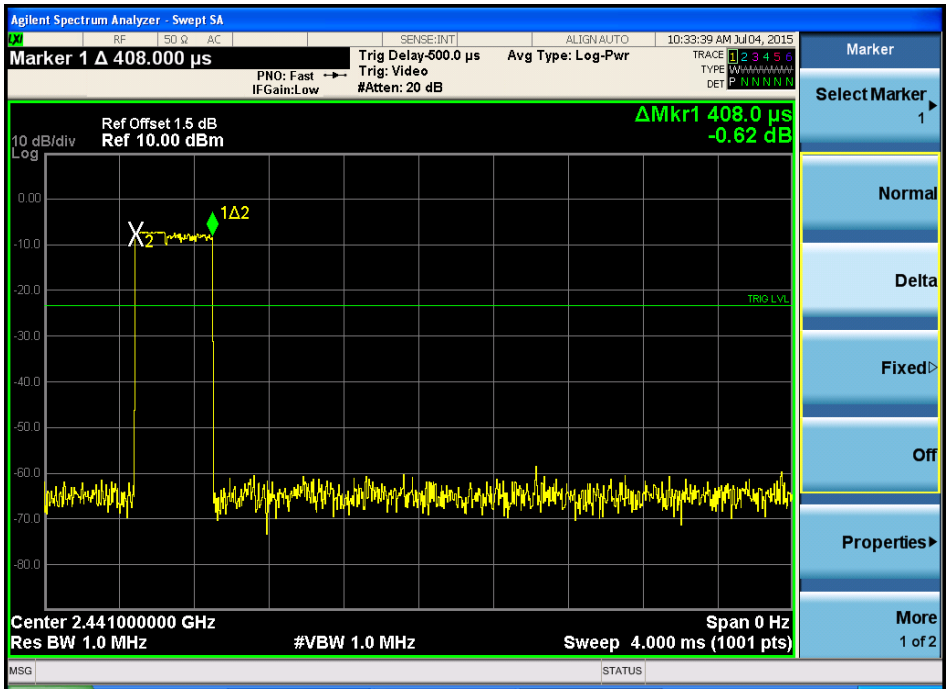
DH3

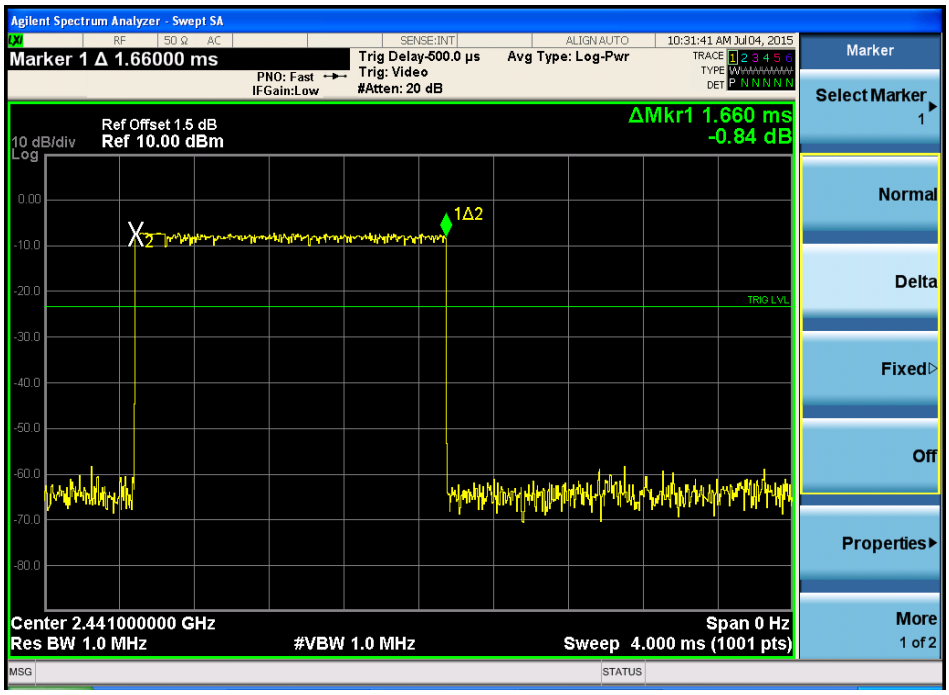

Agilent Spectrum Analyzer - Swept SA
Marker 1 Δ 1.66000 ms
PNO: Fast
IFGain:Low
Trig Delay-500.0 µs
Trig: Video
#Atten: 20 dB
Avg Type: Log-Pwr
10:31:59 AM Jul 04, 2015
Ref Offset 1.5 dB
10 dB/div
Ref 10.00 dBm
ΔMkr1 1.660 ms
-1.30 dB
1Δ2
Center 2.441000000 GHz
Res BW 1.0 MHz
#VBW 1.0 MHz
Span 0 Hz
Sweep 4.000 ms (1001 pts)
Marker
Select Marker
Normal
Delta
Fixed
Off
Properties
More
1 of 2

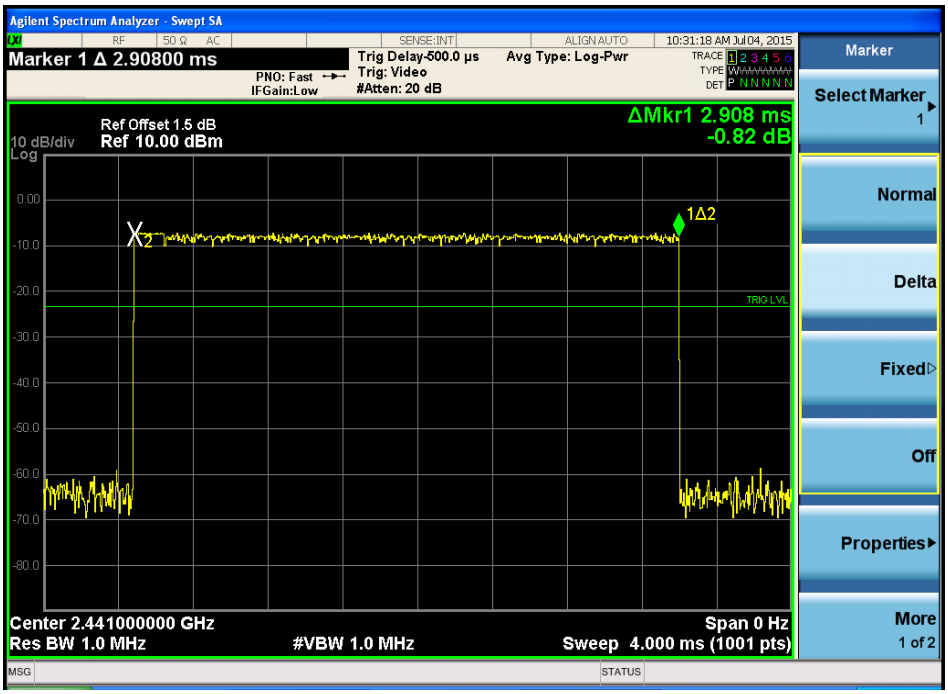
DH5


Agilent Spectrum Analyzer - Swept SA
Marker 1 Δ 2.90800 ms
PNO: Fast
IFGain:Low
Trig Delay-500.0 µs
Trig: Video
#Atten: 20 dB
Avg Type: Log-Pwr
10:30:33 AM Jul 04, 2015
Ref Offset 1.5 dB
10 dB/div
Ref 10.00 dBm
ΔMkr1 2.908 ms
-3.22 dB
1Δ2
Center 2.441000000 GHz
Res BW 1.0 MHz
#VBW 1.0 MHz
Span 0 Hz
Sweep 4.000 ms (1001 pts)
Marker
Select Marker
Normal
Delta
Fixed
Off
Properties
More
1 of 2

8- DPSK:


Agilent Spectrum Analyzer - Swept SA
Marker 1 Δ 408.000 µs
Trig Delay-500.0 µs
Avg Type: Log-Pwr
Trig: Video
#Atten: 20 dB
PNO: Fast
IFGain:Low
10:33:39 AM Jul 04, 2015
Ref Offset 1.5 dB
10 dB/div
Ref 10.00 dBm
ΔMkr1 408.0 µs
-0.62 dB
1Δ2
Center 2.441000000 GHz
Res BW 1.0 MHz
#VBW 1.0 MHz
Span 0 Hz
Sweep 4.000 ms (1001 pts)
Marker
Select Marker
Normal
Delta
Fixed
Off
Properties
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 Δ 1.66000 ms
Trig Delay-500.0 µs
Avg Type: Log-Pwr
Trig: Video
#Atten: 20 dB
PNO: Fast
IFGain:Low
10:31:41 AM Jul 04, 2015
Ref Offset 1.5 dB
10 dB/div
Ref 10.00 dBm
ΔMkr1 1.660 ms
-0.84 dB
1Δ2
Center 2.441000000 GHz
Res BW 1.0 MHz
#VBW 1.0 MHz
Span 0 Hz
Sweep 4.000 ms (1001 pts)
Marker
Select Marker
Normal
Delta
Fixed
Off
Properties
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
10:31:18 AM Jul 04, 2015
Marker 1 Δ 2.90800 ms
PNO: Fast
IFGain:Low
Trig Delay-500.0 µs
Trig: Video
#Atten: 20 dB
Avg Type: Log-Pwr
TRACE 1 2 3 4 5 6
TYPE
DET P N N N N N
Ref Offset 1.5 dB
10 dB/div
Ref 10.00 dBm
Log
ΔMkr1 2.908 ms
-0.82 dB
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
1Δ2
TRIG LVL
Center 2.441000000 GHz
Res BW 1.0 MHz
#VBW 1.0 MHz
Span 0 Hz
Sweep 4.000 ms (1001 pts)
Marker
Select Marker
1
Normal
Delta
Fixed
Off
Properties
More
1 of 2
MSG
STATUS

# 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

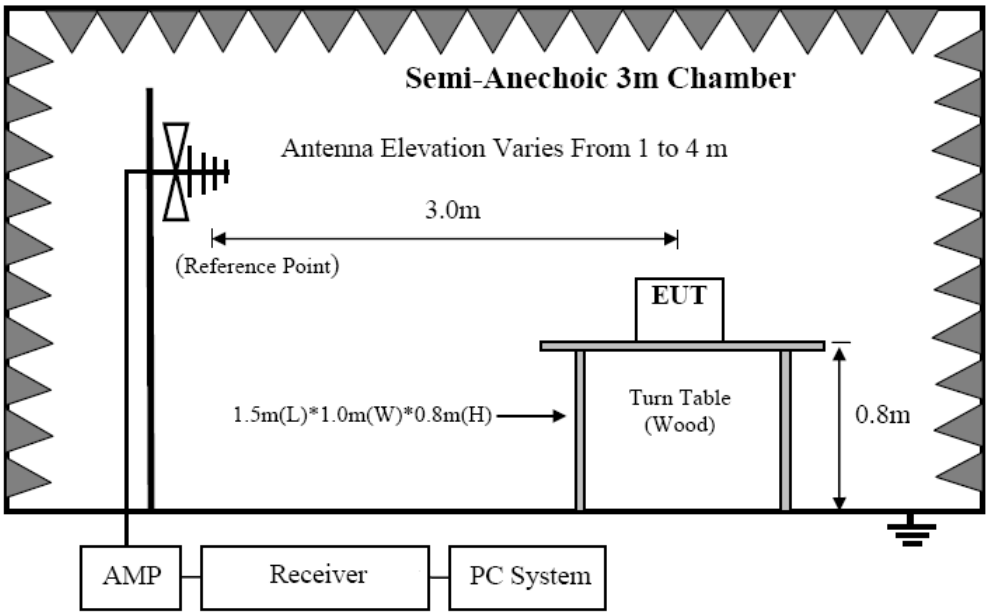
| MHz | MHz | MHz | GHz |
|---|---|---|---|
| 0.090 - 0.110 | 16.42 - 16.423 | 399.9 - 410 | 4.5 - 5.15 |
| [1]0.495 - 0.505 | 16.69475 - 16.69525 | 608 - 614 | 5.35 - 5.46 |
| 2.1735 - 2.1905 | 16.80425 - 16.80475 | 960 - 1240 | 7.25 - 7.75 |
| 4.125 - 4.128 | 25.5 - 25.67 | 1300 - 1427 | 8.025 - 8.5 |
| 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

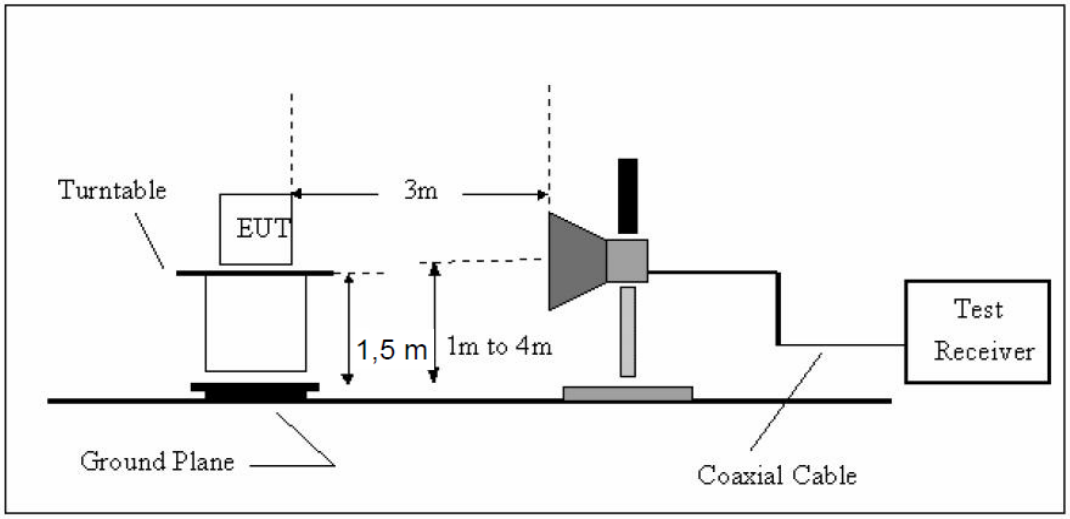
| FREQUENCY MHz | DISTANCE Meters | FIELD STRENGTHS LIMIT | |
|---|---|---|---|
| | | μV/m | dB(μV)/m |
| 0.009-0.490 | 300 | 2400/F(KHz) | / |
| 0.490-1.705 | 30 | 24000/F(KHz) | / |
| 1.705-30 | 30 | 30 | 29.5 |
| 30 ~ 88 | 3 | 100 | 40.0 |
| 88 ~ 216 | 3 | 150 | 43.5 |
| 216 ~ 960 | 3 | 200 | 46.0 |
| 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) 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 2014 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. Peak detector is for both.

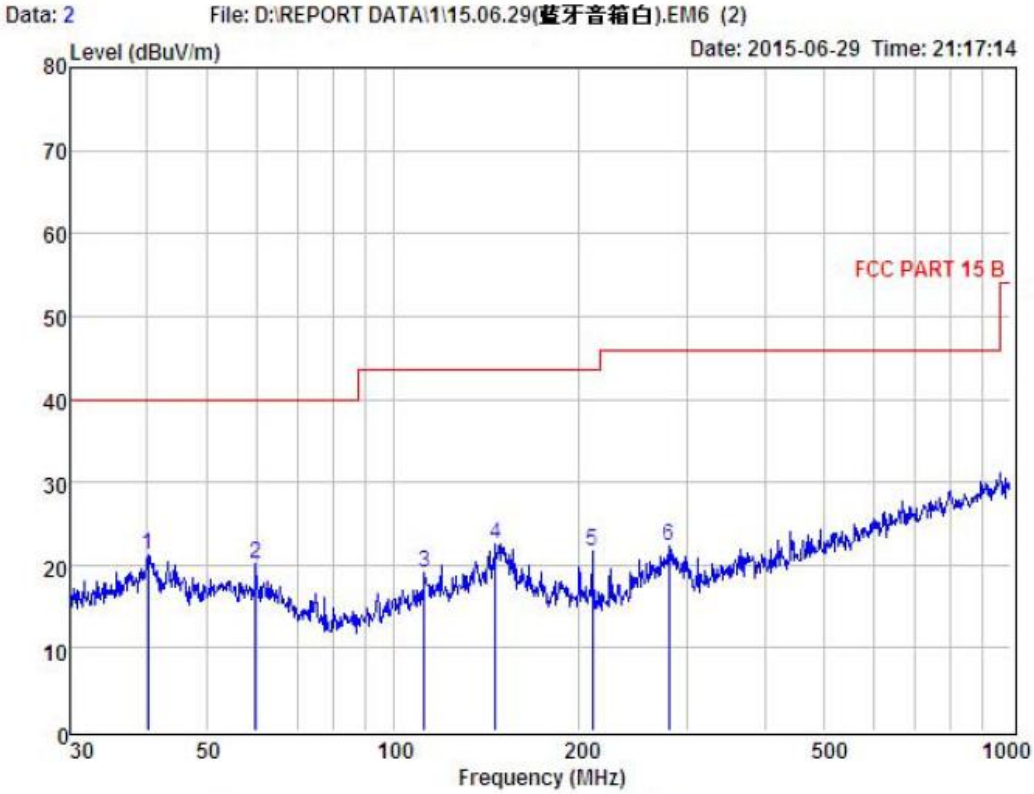
## 8.4. Test Result

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.

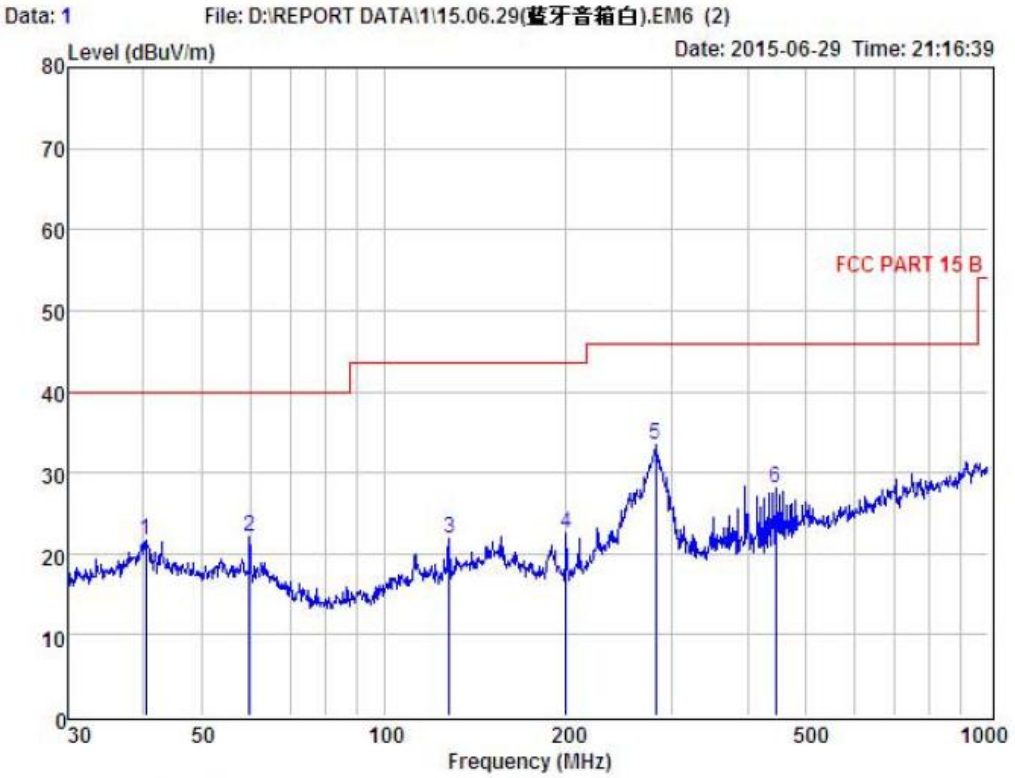
From 30MHz to 1000MHz: Conclusion: PASS




Condition : FCC PART 15 B 3m POL: HORIZONTAL
EUT :
Model No :
Test Mode :
Power : DC 5V From PC With AC 120V/60Hz
Test Engineer :
Remark :
Temp : 24.2℃
Hum : 54%

| Item | Freq MHz | Read Level dBuV | Antenna Factor dB | Preamp Factor dB | Cable Loss dB | Level dBuV | Limit dBuV | Margin dBuV | Remark |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 40.13 | 38.83 | 14.07 | 31.89 | 0.17 | 21.18 | 40.00 | -18.82 | Peak |
| 2 | 59.86 | 38.90 | 12.75 | 31.75 | 0.24 | 20.14 | 40.00 | -19.86 | Peak |
| 3 | 112.52 | 38.46 | 11.50 | 31.34 | 0.47 | 19.09 | 43.50 | -24.41 | Peak |
| 4 | 146.37 | 39.40 | 13.90 | 31.20 | 0.41 | 22.51 | 43.50 | -20.99 | Peak |
| 5 | 210.05 | 41.97 | 10.07 | 30.91 | 0.62 | 21.75 | 43.50 | -21.75 | Peak |
| 6 | 280.02 | 39.99 | 12.37 | 30.63 | 0.60 | 22.33 | 46.00 | -23.67 | Peak |

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




Condition : FCC PART 15 B 3m POL: VERTICAL
EUT :
Model No :
Test Mode :
Power : DC 5V From PC With AC 120V/60Hz
Test Engineer :
Remark :
Temp : 24.2℃
Hum : 54%

| Item | Freq MHz | Read Level dBuV | Antenna Factor dB | Preamp Factor dB | Cable Loss dB | Level dBuV | Limit dBuV | Margin dBuV | Remark |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 40.42 | 39.28 | 14.07 | 31.89 | 0.18 | 21.64 | 40.00 | -18.36 | Peak |
| 2 | 59.86 | 40.80 | 12.75 | 31.75 | 0.24 | 22.04 | 40.00 | -17.96 | Peak |
| 3 | 128.11 | 40.05 | 12.68 | 31.27 | 0.40 | 21.86 | 43.50 | -21.64 | Peak |
| 4 | 199.99 | 43.20 | 9.90 | 30.94 | 0.43 | 22.59 | 43.50 | -20.91 | Peak |
| 5 | 281.01 | 51.04 | 12.41 | 30.62 | 0.53 | 33.36 | 46.00 | -12.64 | Peak |
| 6 | 444.85 | 41.60 | 15.87 | 30.07 | 0.76 | 28.16 | 46.00 | -17.84 | Peak |

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

Remark: All modes have been tested, and only worst data of GFSK mode, Channel 2402MHz was listed in this report.

| 1GHz—25GHz Radiated emissison Test result | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| EUT: Bluetooth speaker with selfie function M/N: Logiix Blue Piston Nomad (YM-S1) | | | | | | | | | |
| Power: DC 5.0V From PC AC 120V/60Hz | | | | | | | | | |
| Test date: 2015-07-04 Test site: 3m Chamber Tested by: Store | | | | | | | | | |
| 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 | 42.52 | 33.95 | 10.18 | 34.26 | 52.39 | 74 | 21.61 | PK |
| 2 | 4804 | 34.84 | 33.95 | 10.18 | 34.26 | 44.71 | 54 | 9.29 | AV |
| 3 | 7206 | / | | | | | | | |
| 4 | 9608 | / | | | | | | | |
| 5 | 12010 | / | | | | | | | |
| Antenna Polarity: Horizontal | | | | | | | | | |
| 1 | 4804 | 42.83 | 33.95 | 10.18 | 34.26 | 52.7 | 74 | 21.3 | PK |
| 2 | 4804 | 34.4 | 33.95 | 10.18 | 34.26 | 44.27 | 54 | 9.73 | 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: Bluetooth speaker with selfie function M/N: Logiix Blue Piston Nomad (YM-S1) | | | | | | | | | |
| Power: DC 5.0V From PC AC 120V/60Hz | | | | | | | | | |
| Test date: 2015-07-04 Test site: 3m Chamber Tested by: Store | | | | | | | | | |
| 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 | 41.96 | 33.93 | 10.2 | 34.29 | 51.8 | 74 | 22.2 | PK |
| 2 | 4882 | 32.46 | 33.93 | 10.2 | 34.29 | 42.3 | 54 | 11.7 | AV |
| 3 | 7323 | / | | | | | | | |
| 4 | 9764 | / | | | | | | | |
| 5 | 12205 | / | | | | | | | |
| Antenna Polarity: Horizontal | | | | | | | | | |
| 1 | 4882 | 41.87 | 33.93 | 10.2 | 34.29 | 51.71 | 74 | 22.29 | PK |
| 2 | 4882 | 33.14 | 33.93 | 10.2 | 34.29 | 42.98 | 54 | 11.02 | 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: Bluetooth speaker with selfie function M/N: Logiix Blue Piston Nomad (YM-S1) | | | | | | | | | |
| Power: DC 5.0V From PC AC 120V/60Hz | | | | | | | | | |
| Test date: 2015-07-04 Test site: 3m Chamber Tested by: Store | | | | | | | | | |
| 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 | 42.91 | 33.98 | 10.22 | 34.25 | 52.86 | 74 | 21.14 | PK |
| 2 | 4960 | 33.73 | 33.98 | 10.22 | 34.25 | 43.68 | 54 | 10.32 | AV |
| 3 | 7440 | / | | | | | | | |
| 4 | 9920 | / | | | | | | | |
| 5 | 12400 | / | | | | | | | |
| Antenna Polarity: Horizontal | | | | | | | | | |
| 1 | 4960 | 42.96 | 33.98 | 10.22 | 34.25 | 52.91 | 74 | 21.09 | PK |
| 2 | 4960 | 32.43 | 33.98 | 10.22 | 34.25 | 42.38 | 54 | 11.62 | 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: Bluetooth speaker with selfie function M/N: Logiix Blue Piston Nomad (YM-S1) | | | | | | | | | |
| Power: DC 5.0V From PC AC 120V/60Hz | | | | | | | | | |
| Test date: 2015-07-04 Test site: 3m Chamber Tested by: Store | | | | | | | | | |
| Test mode: π /4 DQPSK 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 | 43.43 | 33.95 | 10.18 | 34.26 | 53.3 | 74 | 20.7 | PK |
| 2 | 4804 | 33.1 | 33.95 | 10.18 | 34.26 | 42.97 | 54 | 11.03 | AV |
| 3 | 7206 | / | | | | | | | |
| 4 | 9608 | / | | | | | | | |
| 5 | 12010 | / | | | | | | | |
| Antenna Polarity: Horizontal | | | | | | | | | |
| 1 | 4804 | 43.41 | 33.95 | 10.18 | 34.26 | 53.28 | 74 | 20.72 | PK |
| 2 | 4804 | 32.97 | 33.95 | 10.18 | 34.26 | 42.84 | 54 | 11.16 | 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: Bluetooth speaker with selfie function M/N: Logiix Blue Piston Nomad (YM-S1) | | | | | | | | | |
| Power: DC 5.0V From PC AC 120V/60Hz | | | | | | | | | |
| Test date: 2015-07-04 Test site: 3m Chamber Tested by: Store | | | | | | | | | |
| Test mode: π /4 DQPSK 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 | 43.08 | 33.93 | 10.2 | 34.29 | 52.92 | 74 | 21.08 | PK |
| 2 | 4882 | 33.79 | 33.93 | 10.2 | 34.29 | 43.63 | 54 | 10.37 | AV |
| 3 | 7323 | / | | | | | | | |
| 4 | 9764 | / | | | | | | | |
| 5 | 12205 | / | | | | | | | |
| Antenna Polarity: Horizontal | | | | | | | | | |
| 1 | 4882 | 43.5 | 33.93 | 10.2 | 34.29 | 53.34 | 74 | 20.66 | PK |
| 2 | 4882 | 33.05 | 33.93 | 10.2 | 34.29 | 42.89 | 54 | 11.11 | 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: Bluetooth speaker with selfie function M/N: Logiix Blue Piston Nomad (YM-S1) | | | | | | | | | |
| Power: DC 5.0V From PC AC 120V/60Hz | | | | | | | | | |
| Test date: 2015-07-04 Test site: 3m Chamber Tested by: Store | | | | | | | | | |
| Test mode: π /4 DQPSK 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 | 41.61 | 33.98 | 10.22 | 34.25 | 51.56 | 74 | 22.44 | PK |
| 2 | 4960 | 32.04 | 33.98 | 10.22 | 34.25 | 41.99 | 54 | 12.01 | AV |
| 3 | 7440 | / | | | | | | | |
| 4 | 9920 | / | | | | | | | |
| 5 | 12400 | / | | | | | | | |
| Antenna Polarity: Horizontal | | | | | | | | | |
| 1 | 4960 | 43.11 | 33.98 | 10.22 | 34.25 | 53.06 | 74 | 20.94 | PK |
| 2 | 4960 | 32.41 | 33.98 | 10.22 | 34.25 | 42.36 | 54 | 11.64 | 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. | | | | | | | | | |

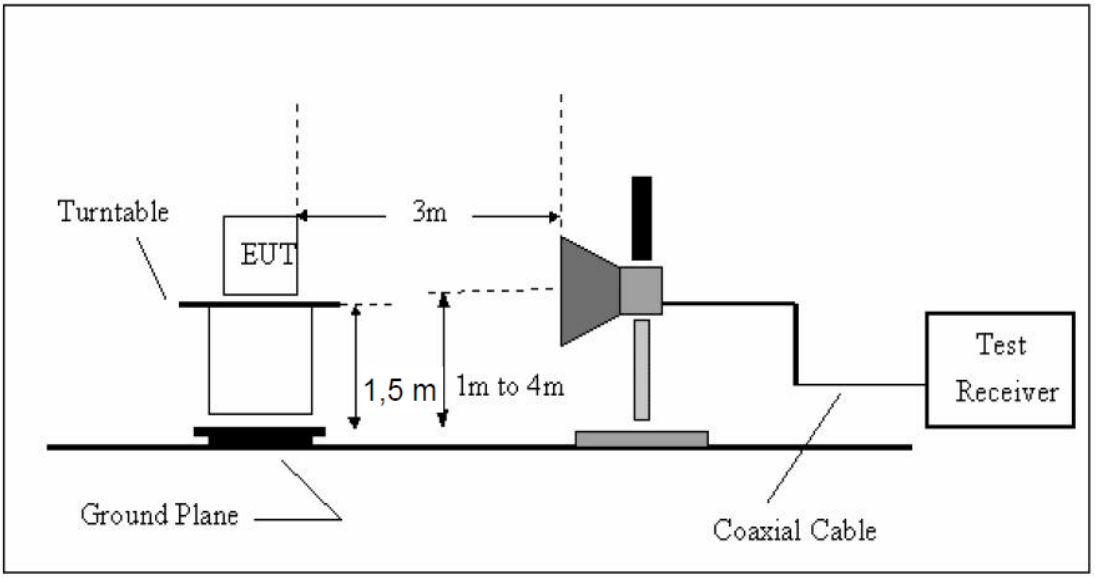
| 1GHz—25GHz Radiated emissison Test result | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| EUT: Bluetooth speaker with selfie function M/N: Logiix Blue Piston Nomad (YM-S1) | | | | | | | | | |
| Power: DC 5.0V From PC AC 120V/60Hz | | | | | | | | | |
| Test date: 2015-07-04 Test site: 3m Chamber Tested by: Peter | | | | | | | | | |
| Test mode: 8- DQPSK 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 | 43.04 | 33.95 | 10.18 | 34.26 | 52.91 | 74 | 21.09 | PK |
| 2 | 4804 | 31.91 | 33.95 | 10.18 | 34.26 | 41.78 | 54 | 12.22 | AV |
| 3 | 7206 | / | | | | | | | |
| 4 | 9608 | / | | | | | | | |
| 5 | 12010 | / | | | | | | | |
| Antenna Polarity: Horizontal | | | | | | | | | |
| 1 | 4804 | 40.54 | 33.95 | 10.18 | 34.26 | 50.41 | 74 | 23.59 | PK |
| 2 | 4804 | 31.79 | 33.95 | 10.18 | 34.26 | 41.66 | 54 | 12.34 | 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: Bluetooth speaker with selfie function M/N: Logiix Blue Piston Nomad (YM-S1) | | | | | | | | | |
| Power: DC 5.0V From PC AC 120V/60Hz | | | | | | | | | |
| Test date: 2015-07-04 Test site: 3m Chamber Tested by: Peter | | | | | | | | | |
| Test mode: 8- DQPSK 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 | 42.4 | 33.93 | 10.2 | 34.29 | 52.24 | 74 | 21.76 | PK |
| 2 | 4882 | 32.45 | 33.93 | 10.2 | 34.29 | 42.29 | 54 | 11.71 | AV |
| 3 | 7323 | / | | | | | | | |
| 4 | 9764 | / | | | | | | | |
| 5 | 12205 | / | | | | | | | |
| Antenna Polarity: Horizontal | | | | | | | | | |
| 1 | 4882 | 42.73 | 33.93 | 10.2 | 34.29 | 52.57 | 74 | 21.43 | PK |
| 2 | 4882 | 32.35 | 33.93 | 10.2 | 34.29 | 42.19 | 54 | 11.81 | 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: Bluetooth speaker with selfie function M/N: Logiix Blue Piston Nomad (YM-S1) | | | | | | | | | |
| Power: DC 5.0V From PC AC 120V/60Hz | | | | | | | | | |
| Test date: 2015-07-04 Test site: 3m Chamber Tested by: Peter | | | | | | | | | |
| Test mode: 8- DQPSK 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 | 41.49 | 33.98 | 10.22 | 34.25 | 51.44 | 74 | 22.56 | PK |
| 2 | 4960 | 31.88 | 33.98 | 10.22 | 34.25 | 41.83 | 54 | 12.17 | AV |
| 3 | 7440 | / | | | | | | | |
| 4 | 9920 | / | | | | | | | |
| 5 | 12400 | / | | | | | | | |
| Antenna Polarity: Horizontal | | | | | | | | | |
| 1 | 4960 | 42.49 | 33.98 | 10.22 | 34.25 | 52.44 | 74 | 21.56 | PK |
| 2 | 4960 | 32.25 | 33.98 | 10.22 | 34.25 | 42.2 | 54 | 11.8 | 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 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions outside operation shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

## 9.3. Test Procedure

All restriction band and non- restriction band have been tested ， only worse case is reported.

## 9.4. Test Result

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

## Radiated Method

GFSK ( CH Low )

| Band Edge Test result | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| EUT: Bluetooth speaker with selfie function M/N: Logiix Blue Piston Nomad (YM-S1) | | | | | | | | |
| Power: DC 3.7V From battery | | | | | | | | |
| Test date: 2015-07-04 Test site: 3m Chamber Tested by: Store | | | | | | | | |
| Test mode: Tx CH Low 2402MHz | | | | | | | | |
| Antenna polarity: Vertical | | | | | | | | |
| 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 |
| 2390 | 41.74 | 27.62 | 3.92 | 34.97 | 38.31 | 74 | 35.69 | **PK** |
| 2390 | -- | 27.62 | 3.92 | 34.97 | -- | 54 | -- | AV |
| 2400 | 42.51 | 27.62 | 3.94 | 34.97 | 39.1 | 74 | 34.9 | **PK** |
| 2400 | -- | 27.62 | 3.94 | 34.97 | -- | 54 | -- | AV |
| | | | | | | | | |
| Antenna Polarity: Horizontal | | | | | | | | |
| 2390 | 42.23 | 27.62 | 3.92 | 34.97 | 38.8 | 74 | 35.2 | **PK** |
| 2390 | -- | 27.62 | 3.92 | 34.97 | -- | 54 | -- | AV |
| 2400 | 42.86 | 27.62 | 3.94 | 34.97 | 39.45 | 74 | 34.55 | **PK** |
| 2400 | -- | 27.62 | 3.94 | 34.97 | -- | 54 | -- | AV |
| | | | | | | | | |
| Note:<br>1, 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. | | | | | | | | |

GFSK (CH High)

| Band Edge Test result | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| EUT: Bluetooth speaker with selfie function M/N: Logiix Blue Piston Nomad (YM-S1) | | | | | | | | |
| Power: DC 3.7V From battery | | | | | | | | |
| Test date: 2015-07-04 Test site: 3m Chamber Tested by: Store | | | | | | | | |
| Test mode: Tx CH High 2480MHz | | | | | | | | |
| Antenna polarity: Vertical | | | | | | | | |
| 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 |
| 2483.5 | 41.47 | 27.89 | 4 | 34.97 | 38.39 | 74 | 35.61 | **PK** |
| 2483.5 | | -- | -- | -- | -- | 54 | -- | AV |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| Antenna Polarity: Horizontal | | | | | | | | |
| 2483.5 | 42.23 | 27.89 | 4 | 34.97 | 39.15 | 74 | 34.85 | **PK** |
| 2483.5 | | -- | -- | -- | -- | 54 | -- | AV |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| Note:<br>1, 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. | | | | | | | | |

GFSK ( Hopping Low)

| Band Edge Test result | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| EUT: Bluetooth speaker with selfie function M/N: Logiix Blue Piston Nomad (YM-S1) | | | | | | | | |
| Power: DC 3.7V From battery | | | | | | | | |
| Test date: 2015-07-04 Test site: 3m Chamber Tested by: Store | | | | | | | | |
| Test mode: Tx | | | | | | | | |
| Antenna polarity: Vertical | | | | | | | | |
| 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 |
| 2390 | 42.26 | 27.62 | 3.92 | 34.97 | 38.83 | 74 | 35.17 | **PK** |
| 2390 | | 27.62 | 3.92 | 34.97 | -- | 54 | -- | AV |
| 2400 | 43.15 | 27.62 | 3.94 | 34.97 | 39.74 | 74 | 34.26 | **PK** |
| 2400 | -- | 27.62 | 3.94 | 34.97 | -- | 54 | -- | AV |
| | | | | | | | | |
| Antenna Polarity: Horizontal | | | | | | | | |
| 2390 | 42.68 | 27.62 | 3.92 | 34.97 | 39.25 | 74 | 34.75 | **PK** |
| 2390 | -- | 27.62 | 3.92 | 34.97 | -- | 54 | -- | AV |
| 2400 | 43.29 | 27.62 | 3.94 | 34.97 | 39.88 | 74 | 34.12 | **PK** |
| 2400 | -- | 27.62 | 3.94 | 34.97 | -- | 54 | -- | AV |
| | | | | | | | | |
| Note:<br>1, 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. | | | | | | | | |

GFSK ( Hopping High)

| Band Edge Test result | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| EUT: Bluetooth speaker with selfie function M/N: Logiix Blue Piston Nomad (YM-S1) | | | | | | | | |
| Power: DC 3.7V From battery | | | | | | | | |
| Test date: 2015-07-04 Test site: 3m Chamber Tested by: Store | | | | | | | | |
| Test mode: Tx | | | | | | | | |
| Antenna polarity: Vertical | | | | | | | | |
| 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 |
| 2483.5 | 42.05 | 27.89 | 4 | 34.97 | 38.97 | 74 | 35.03 | **PK** |
| 2483.5 | | -- | -- | -- | -- | 54 | -- | AV |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| Antenna Polarity: Horizontal | | | | | | | | |
| 2483.5 | 43.11 | 27.89 | 4 | 34.97 | 40.03 | 74 | 33.97 | **PK** |
| 2483.5 | | -- | -- | -- | -- | 54 | -- | AV |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Note:
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK
3, Result = Read level + Antenna factor + cable loss-Amp factor
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

π /4 DQPSK ( CH Low )

| Band Edge Test result | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| EUT: Bluetooth speaker with selfie function M/N: Logiix Blue Piston Nomad (YM-S1) | | | | | | | | |
| Power: DC 3.7V From battery | | | | | | | | |
| Test date: 2015-07-04 Test site: 3m Chamber Tested by: Store | | | | | | | | |
| Test mode: Tx CH Low 2402MHz | | | | | | | | |
| Antenna polarity: Vertical | | | | | | | | |
| 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 |
| 2390 | 42.17 | 27.62 | 3.92 | 34.97 | 38.74 | 74 | 35.26 | **PK** |
| 2390 | -- | 27.62 | 3.92 | 34.97 | -- | 54 | -- | AV |
| 2400 | 43.22 | 27.62 | 3.94 | 34.97 | 39.81 | 74 | 34.19 | **PK** |
| 2400 | -- | 27.62 | 3.94 | 34.97 | -- | 54 | -- | AV |
| | | | | | | | | |
| Antenna Polarity: Horizontal | | | | | | | | |
| 2390 | 43.06 | 27.62 | 3.92 | 34.97 | 39.63 | 74 | 34.37 | **PK** |
| 2390 | -- | 27.62 | 3.92 | 34.97 | -- | 54 | -- | AV |
| 2400 | 43.74 | 27.62 | 3.94 | 34.97 | 40.33 | 74 | 33.67 | **PK** |
| 2400 | -- | 27.62 | 3.94 | 34.97 | -- | 54 | -- | AV |
| | | | | | | | | |
| Note:<br>1, 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. | | | | | | | | |

π /4 DQPSK ( CH High )

| Band Edge Test result | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| EUT: Bluetooth speaker with selfie function M/N: Logiix Blue Piston Nomad (YM-S1) | | | | | | | | |
| Power: DC 3.7V From battery | | | | | | | | |
| Test date: 2015-07-04 Test site: 3m Chamber Tested by: Store | | | | | | | | |
| Test mode: Tx CH High 2480MHz | | | | | | | | |
| Antenna polarity: Vertical | | | | | | | | |
| 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 |
| 2483.5 | 41.26 | 27.89 | 4 | 34.97 | 38.18 | 74 | 35.82 | PK |
| 2483.5 | | -- | -- | -- | -- | 54 | -- | AV |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| Antenna Polarity: Horizontal | | | | | | | | |
| 2483.5 | 42.56 | 27.89 | 4 | 34.97 | 39.48 | 74 | 34.52 | PK |
| 2483.5 | | -- | -- | -- | -- | 54 | -- | AV |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| Note:<br>1, 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. | | | | | | | | |

π /4 DQPSK ( Hopping Low)

| Band Edge Test result | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| EUT: Bluetooth speaker with selfie function M/N: Logiix Blue Piston Nomad (YM-S1) | | | | | | | | |
| Power: DC 3.7V From battery | | | | | | | | |
| Test date: 2015-07-04 Test site: 3m Chamber Tested by: Store | | | | | | | | |
| Test mode: | | | | | | | | |
| Antenna polarity: Vertical | | | | | | | | |
| 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 |
| 2390 | 42.33 | 27.62 | 3.92 | 34.97 | 38.9 | 74 | 35.1 | **PK** |
| 2390 | -- | 27.62 | 3.92 | 34.97 | -- | 54 | -- | AV |
| 2400 | 43.15 | 27.62 | 3.94 | 34.97 | 39.74 | 74 | 34.26 | **PK** |
| 2400 | -- | 27.62 | 3.94 | 34.97 | -- | 54 | -- | AV |
| | | | | | | | | |
| Antenna Polarity: Horizontal | | | | | | | | |
| 2390 | 42.78 | 27.62 | 3.92 | 34.97 | 39.35 | 74 | 34.65 | **PK** |
| 2390 | -- | 27.62 | 3.92 | 34.97 | -- | 54 | -- | AV |
| 2400 | 42.99 | 27.62 | 3.94 | 34.97 | 39.58 | 74 | 34.42 | **PK** |
| 2400 | -- | 27.62 | 3.94 | 34.97 | -- | 54 | -- | AV |
| | | | | | | | | |
| Note:<br>1, 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. | | | | | | | | |

$\pi$ /4 DQPSK (Hopping High )

| Band Edge Test result | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| EUT: Bluetooth speaker with selfie function M/N: Logiix Blue Piston Nomad (YM-S1) | | | | | | | | |
| Power: DC 3.7V From battery | | | | | | | | |
| Test date: 2015-07-04 Test site: 3m Chamber Tested by: Store | | | | | | | | |
| Test mode: Tx | | | | | | | | |
| Antenna polarity: Vertical | | | | | | | | |
| 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 |
| 2483.5 | 41.59 | 27.89 | 4 | 34.97 | 38.51 | 74 | 35.49 | PK |
| 2483.5 | | -- | -- | -- | -- | 54 | -- | AV |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| Antenna Polarity: Horizontal | | | | | | | | |
| 2483.5 | 42.37 | 27.89 | 4 | 34.97 | 39.29 | 74 | 34.71 | PK |
| 2483.5 | | -- | -- | -- | -- | 54 | -- | AV |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| Note:<br>1, 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. | | | | | | | | |

8- DPSK ( CH Low )

| Band Edge Test result | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| EUT: Bluetooth speaker with selfie function M/N: Logiix Blue Piston Nomad (YM-S1) | | | | | | | | |
| Power: DC 3.7V From battery | | | | | | | | |
| Test date: 2015-07-04 Test site: 3m Chamber Tested by: Store | | | | | | | | |
| Test mode: Tx CH Low 2402MHz | | | | | | | | |
| Antenna polarity: Vertical | | | | | | | | |
| 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 |
| 2390 | 42.85 | 27.62 | 3.92 | 34.97 | 39.42 | 74 | 34.58 | **PK** |
| 2390 | -- | 27.62 | 3.92 | 34.97 | -- | 54 | -- | AV |
| 2400 | 42.96 | 27.62 | 3.94 | 34.97 | 39.55 | 74 | 34.45 | **PK** |
| 2400 | -- | 27.62 | 3.94 | 34.97 | -- | 54 | -- | AV |
| | | | | | | | | |
| Antenna Polarity: Horizontal | | | | | | | | |
| 2390 | 42.51 | 27.62 | 3.92 | 34.97 | 39.08 | 74 | 34.92 | **PK** |
| 2390 | -- | 27.62 | 3.92 | 34.97 | -- | 54 | -- | AV |
| 2400 | 42.68 | 27.62 | 3.94 | 34.97 | 39.27 | 74 | 34.73 | **PK** |
| 2400 | -- | 27.62 | 3.94 | 34.97 | -- | 54 | -- | AV |
| | | | | | | | | |

Note:
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK
3, Result = Read level + Antenna factor + cable loss-Amp factor
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

8- DPSK ( CH High )

| Band Edge Test result | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| EUT: Bluetooth speaker with selfie function M/N: Logiix Blue Piston Nomad (YM-S1) | | | | | | | | |
| Power: DC 3.7V From battery | | | | | | | | |
| Test date: 2015-07-04 Test site: 3m Chamber Tested by: Store | | | | | | | | |
| Test mode: Tx CH High 2480MHz | | | | | | | | |
| Antenna polarity: Vertical | | | | | | | | |
| 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 |
| 2483.5 | 41.59 | 27.89 | 4 | 34.97 | 38.51 | 74 | 35.49 | **PK** |
| 2483.5 | | -- | -- | -- | -- | 54 | -- | AV |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| Antenna Polarity: Horizontal | | | | | | | | |
| 2483.5 | 42.47 | 27.89 | 4 | 34.97 | 39.39 | 74 | 34.61 | **PK** |
| 2483.5 | | -- | -- | -- | -- | 54 | -- | AV |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| Note:<br>1, 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. | | | | | | | | |

8- DPSK ( Hopping Low)

| Band Edge Test result | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| EUT: Bluetooth speaker with selfie function M/N: Logiix Blue Piston Nomad (YM-S1) | | | | | | | | |
| Power: DC 3.7V From battery | | | | | | | | |
| Test date: 2015-07-04 Test site: 3m Chamber Tested by: Store | | | | | | | | |
| Test mode: Tx | | | | | | | | |
| Antenna polarity: Vertical | | | | | | | | |
| 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 |
| 2390 | 42.15 | 27.62 | 3.92 | 34.97 | 38.72 | 74 | 35.28 | **PK** |
| 2390 | -- | 27.62 | 3.92 | 34.97 | -- | 54 | -- | AV |
| 2400 | 43.61 | 27.62 | 3.94 | 34.97 | 40.2 | 74 | 33.8 | **PK** |
| 2400 | -- | 27.62 | 3.94 | 34.97 | -- | 54 | -- | AV |
| | | | | | | | | |
| Antenna Polarity: Horizontal | | | | | | | | |
| 2390 | 42.59 | 27.62 | 3.92 | 34.97 | 39.16 | 74 | 34.84 | **PK** |
| 2390 | -- | 27.62 | 3.92 | 34.97 | -- | 54 | -- | AV |
| 2400 | 43.62 | 27.62 | 3.94 | 34.97 | 40.21 | 74 | 33.79 | **PK** |
| 2400 | -- | 27.62 | 3.94 | 34.97 | -- | 54 | -- | AV |
| | | | | | | | | |
| Note:<br>1, 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. | | | | | | | | |

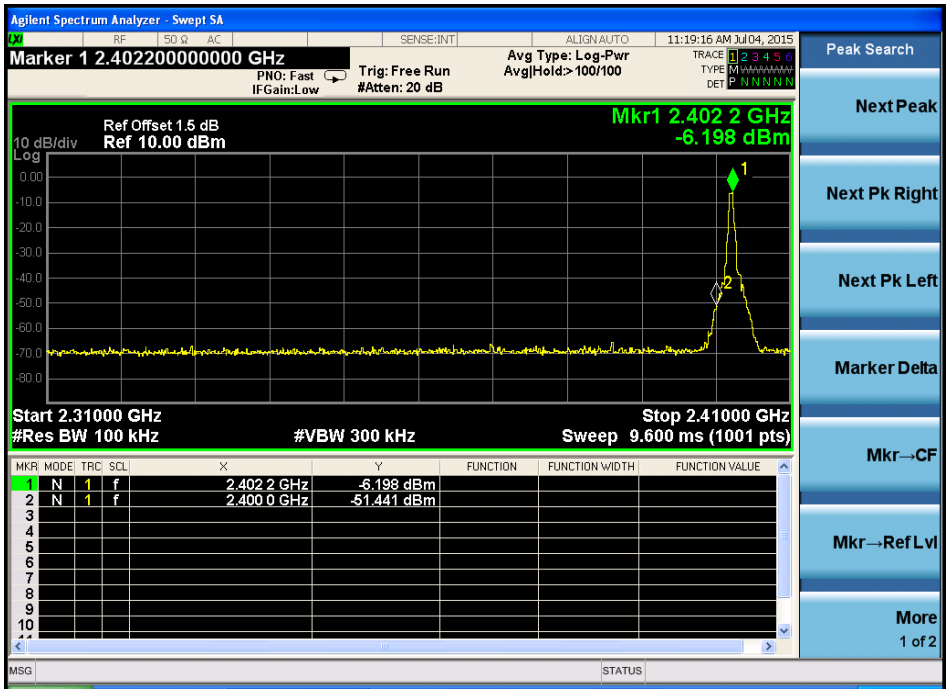
8- DPSK (Hopping High )

| Band Edge Test result | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| EUT: Bluetooth speaker with selfie function M/N: Logiix Blue Piston Nomad (YM-S1) | | | | | | | | |
| Power: DC 3.7V From battery | | | | | | | | |
| Test date: 2015-07-04 Test site: 3m Chamber Tested by: Store | | | | | | | | |
| Test mode: Tx | | | | | | | | |
| Antenna polarity: Vertical | | | | | | | | |
| 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 |
| 2483.5 | 41.84 | 27.89 | 4 | 34.97 | 38.76 | 74 | 35.24 | PK |
| 2483.5 | | -- | -- | -- | -- | 54 | -- | AV |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| Antenna Polarity: Horizontal | | | | | | | | |
| 2483.5 | 42.65 | 27.89 | 4 | 34.97 | 39.57 | 74 | 34.43 | PK |
| 2483.5 | | -- | -- | -- | -- | 54 | -- | AV |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| Note:<br>1, 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. | | | | | | | | |

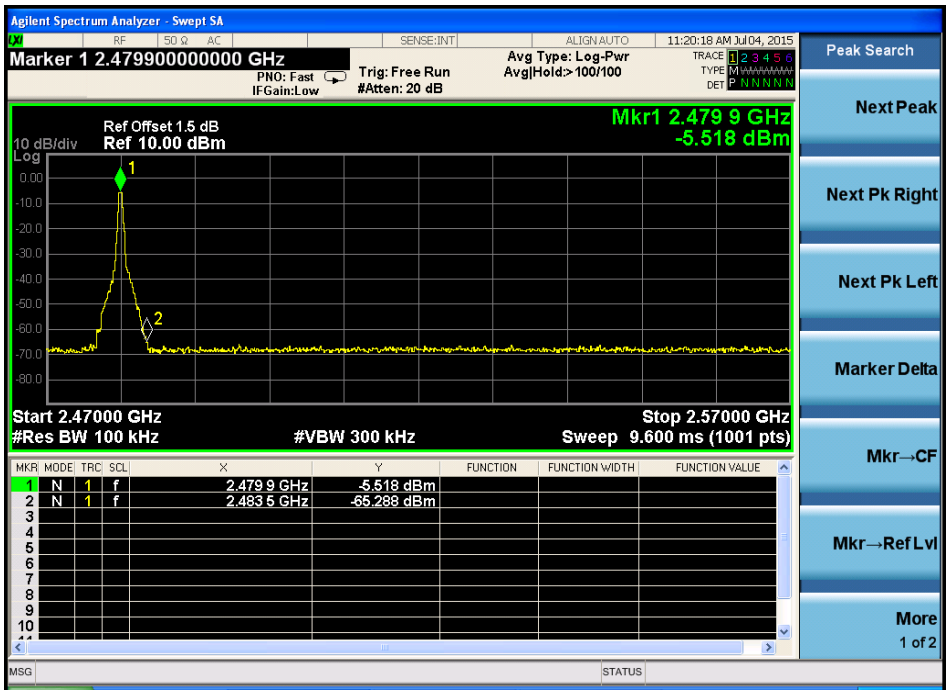
Conducted Method

GFSK

CH LOW :

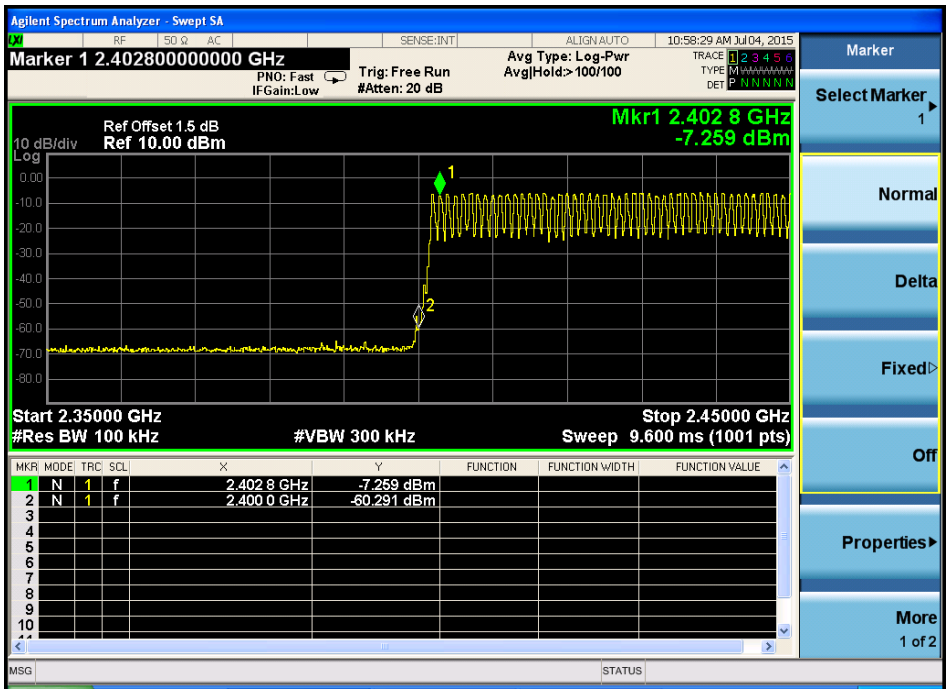



CH High :

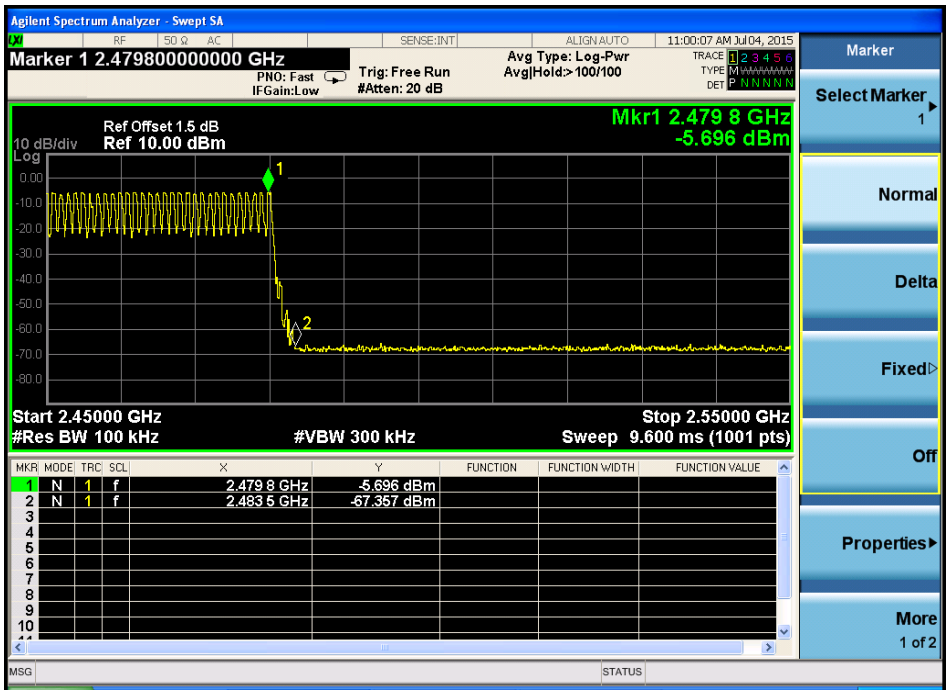


Hopping

Low

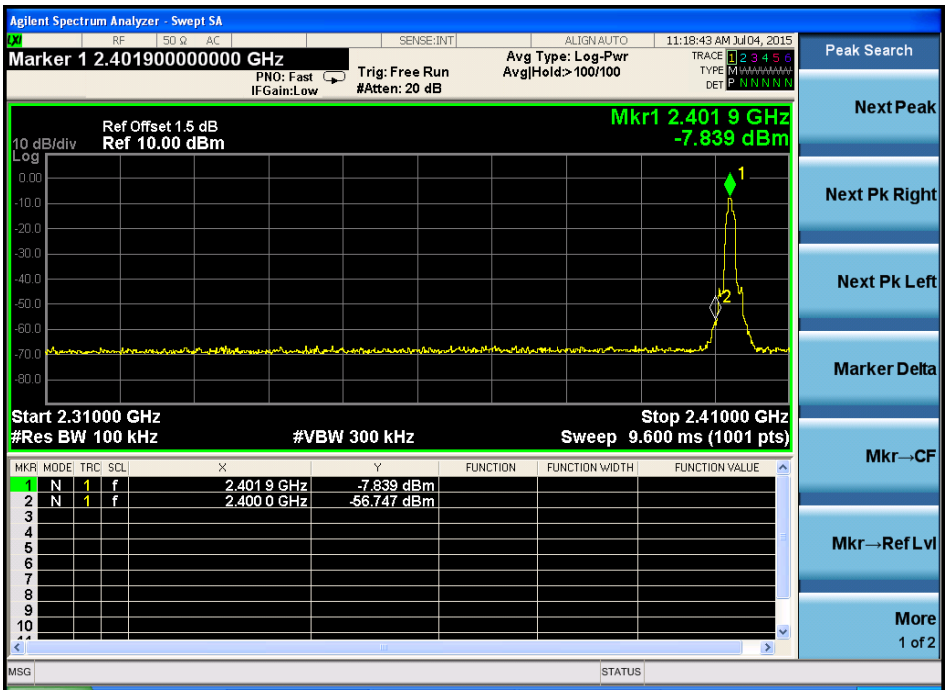



High

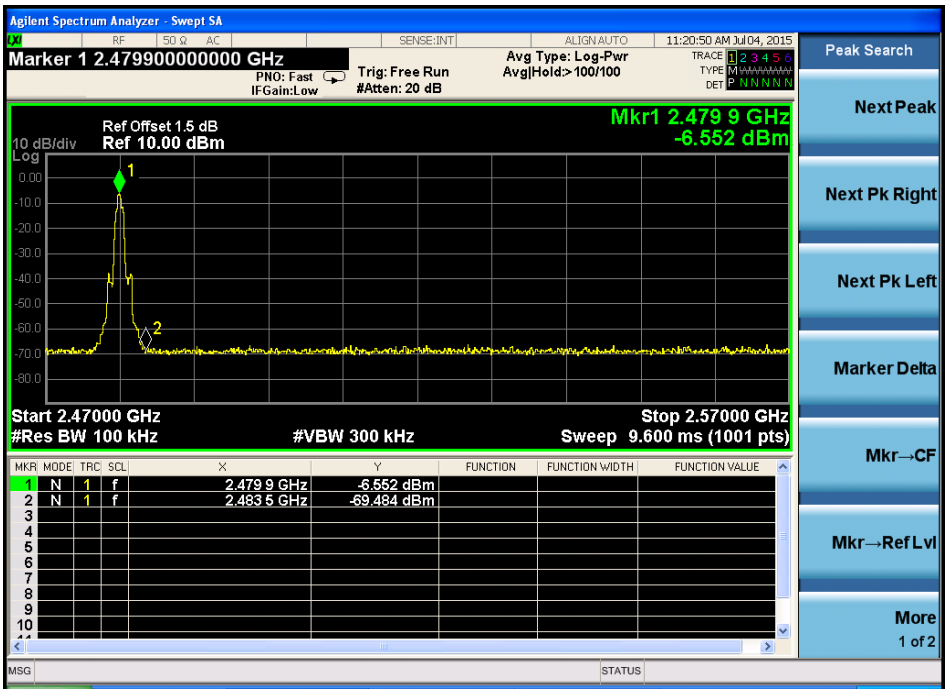


π /4 DQPSK

Low

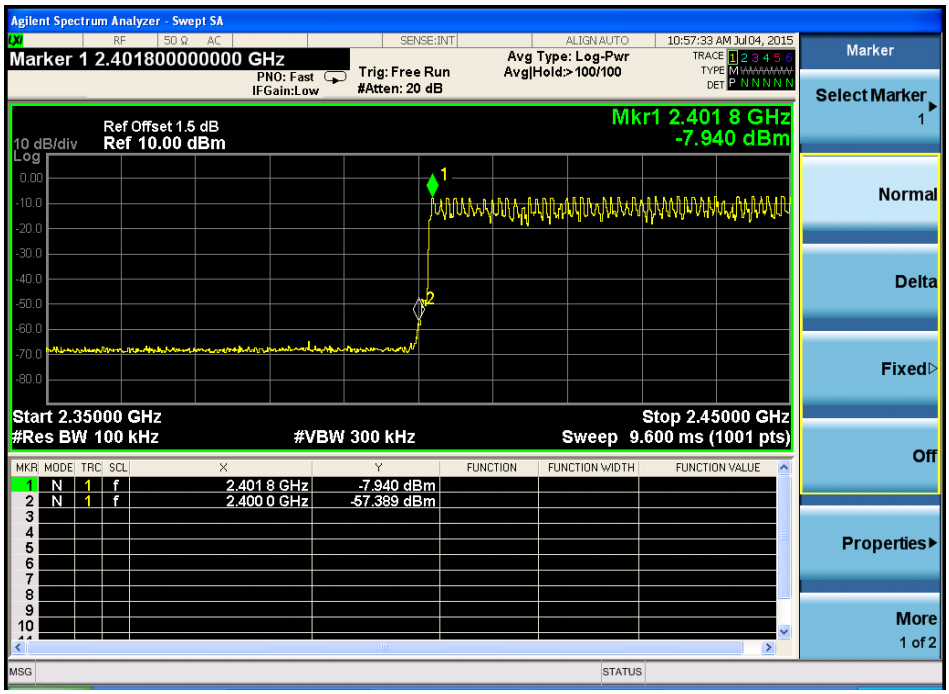



High

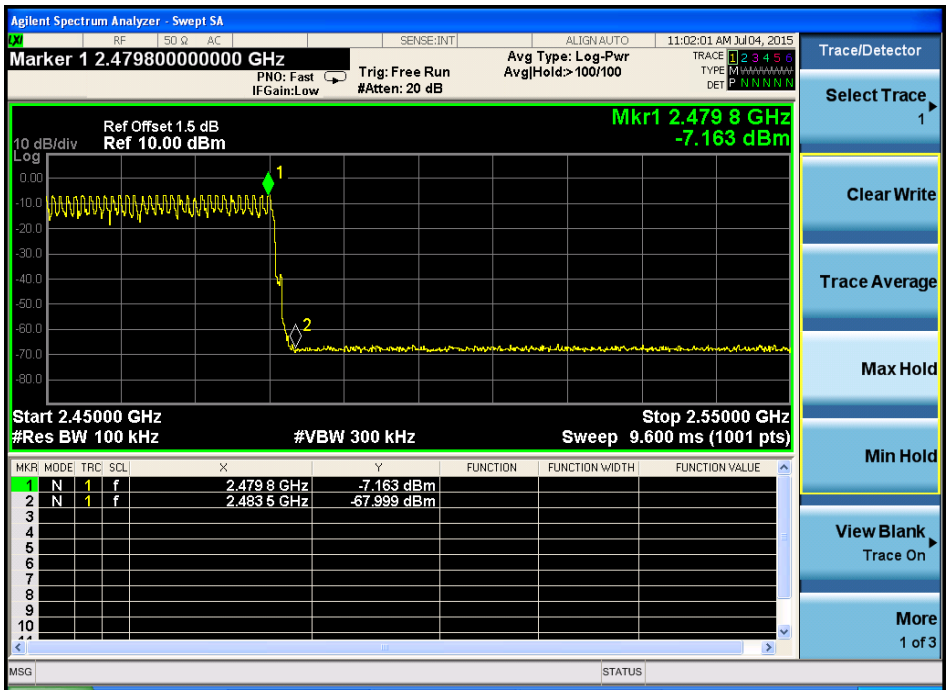


Hopping

Low

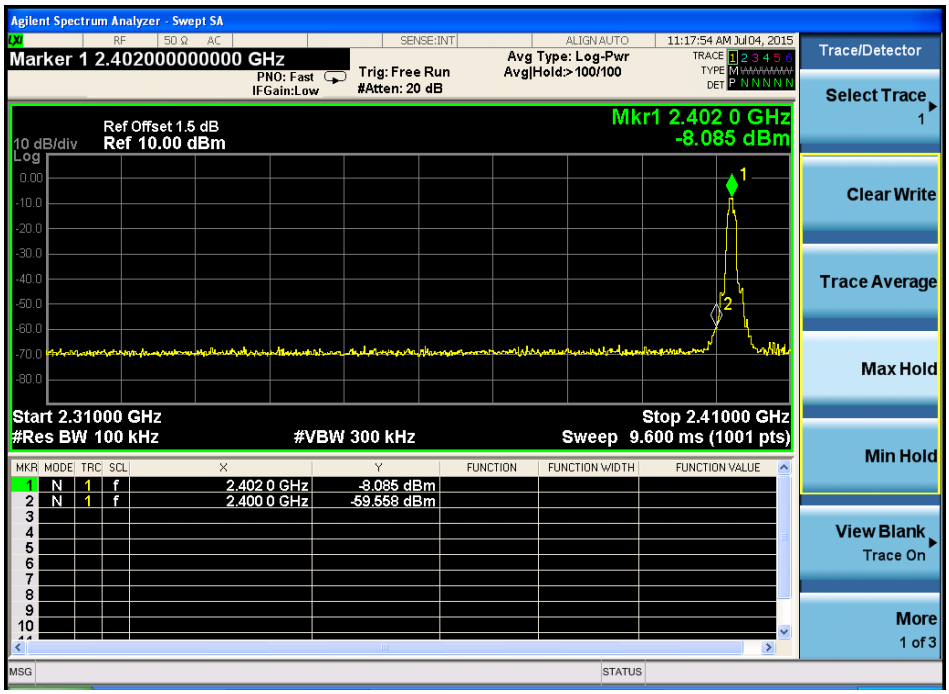



High

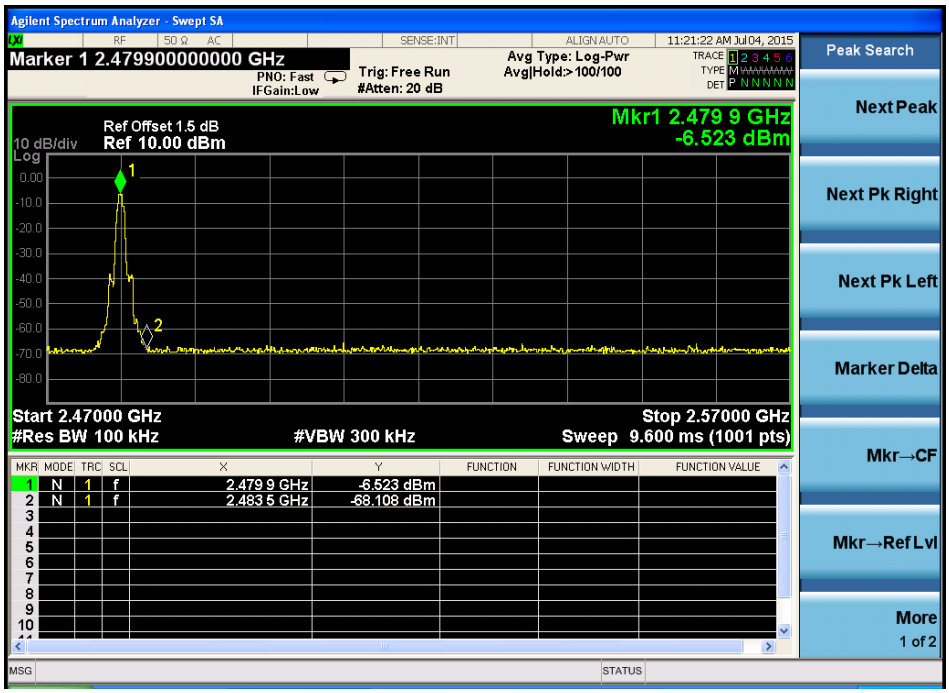


8- DPSK:

Low

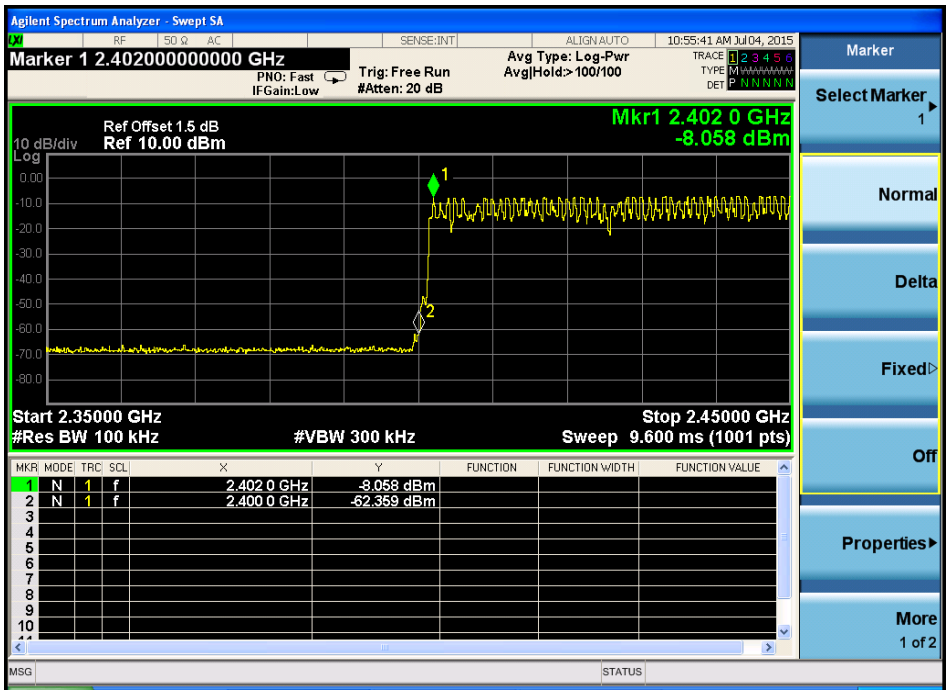



High

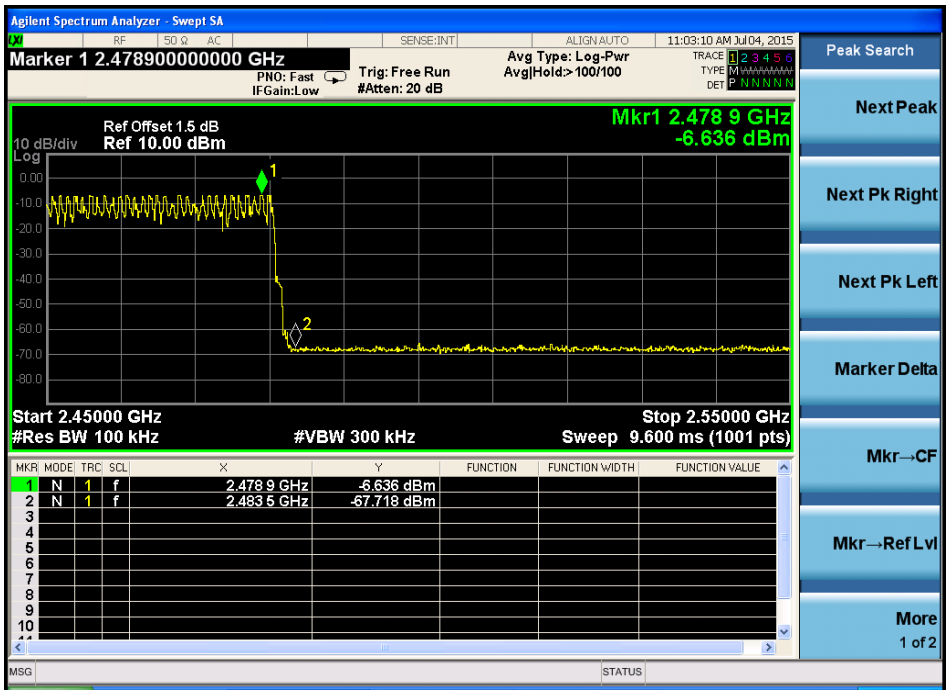


Hopping

Low

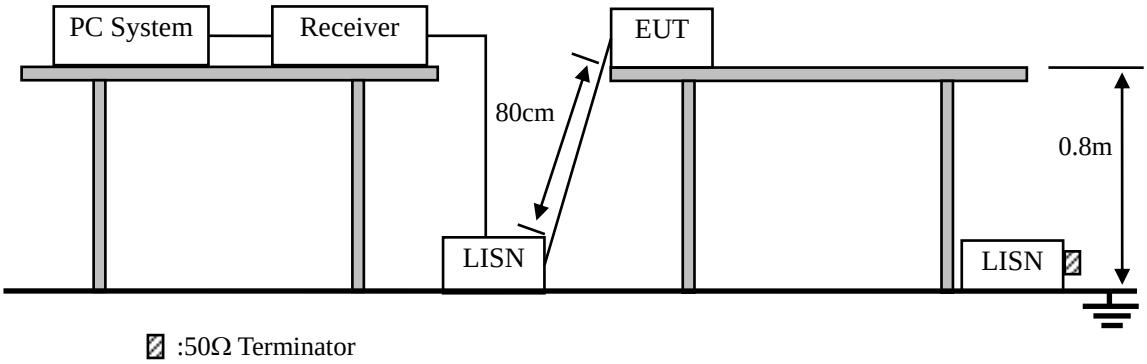



High



# 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 |

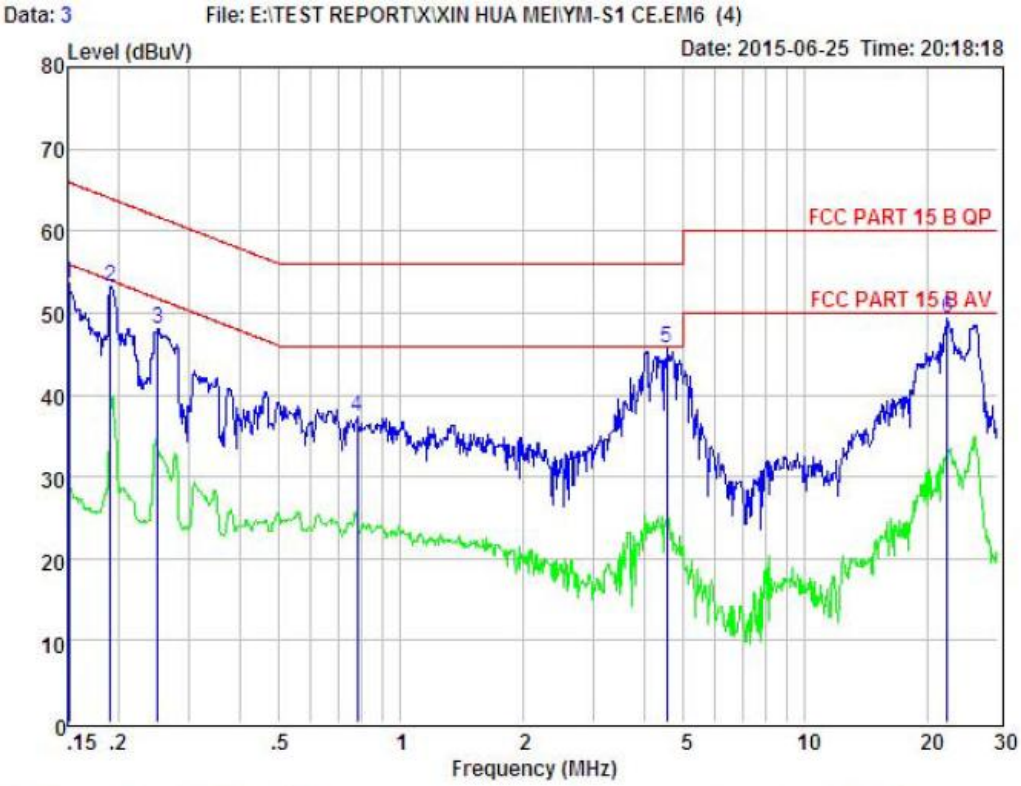
Notes: 1. * Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

## 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 2014 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

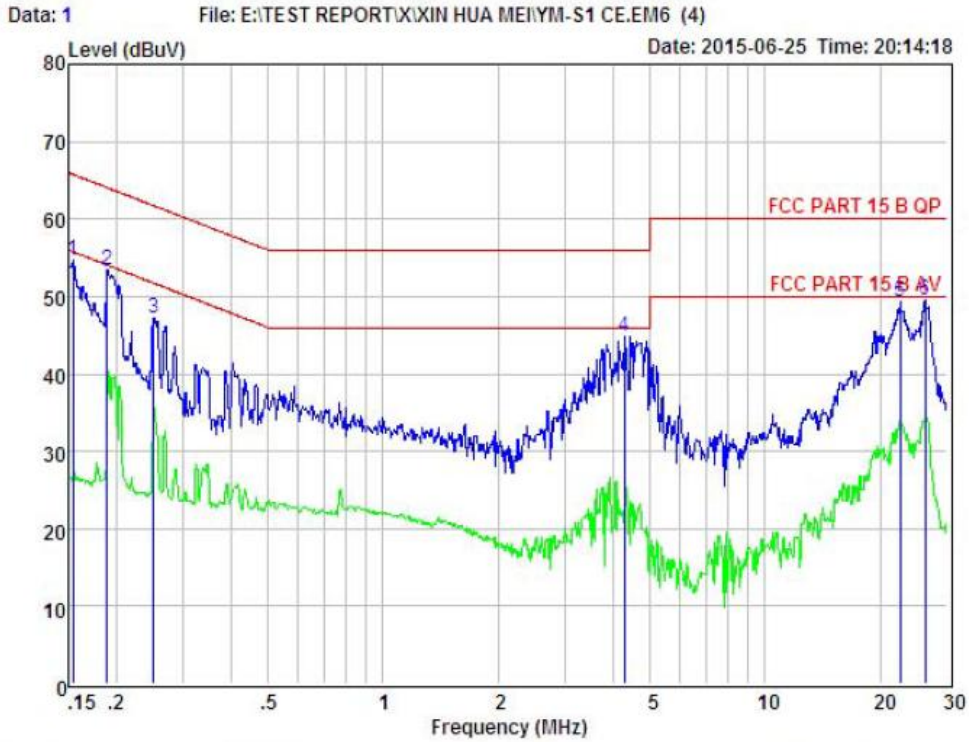
PASS. (See below detailed test data)




Condition : FCC PART 15 B QP POL: LINE Temp:25 ℃ Hum:51 %
EUT :
Model No : YM-S1
Test Mode :
Power : DC 5V from PC with AC 120V/60Hz
Test Engineer:
Remark :

| Item | Freq MHz | Read dBuV | LISN Factor dB | Preamp Factor dB | Cable Lose dB | Level dBuV | Limit dBuV | Margin dBuV | Remark |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.151 | 43.82 | 0.03 | -9.72 | 0.10 | 53.67 | 65.96 | -12.29 | Peak |
| 2 | 0.191 | 43.38 | 0.03 | -9.72 | 0.10 | 53.23 | 63.98 | -10.75 | Peak |
| 3 | 0.251 | 38.09 | 0.03 | -9.72 | 0.10 | 47.94 | 61.73 | -13.79 | Peak |
| 4 | 0.779 | 27.40 | 0.00 | -9.71 | 0.10 | 37.21 | 56.00 | -18.79 | Peak |
| 5 | 4.549 | 35.73 | 0.09 | -9.68 | 0.12 | 45.62 | 56.00 | -10.38 | Peak |
| 6 | 22.535 | 38.87 | 0.41 | -9.54 | 0.41 | 49.23 | 60.00 | -10.77 | Peak |

Remarks: Level = Read + LISN Factor - Preamp Factor + Cable loss




Condition : FCC PART 15 B QP POL: NEUTRAL Temp:25 ℃ Hum:51 %
EUT :
Model No : YM-S1
Test Mode :
Power : DC 5V from PC with AC 120V/60Hz
Test Engineer:
Remark :

| Item | Freq MHz | Read dBuV | LISN Factor dB | Preamp Factor dB | Cable Lose dB | Level dBuV | Limit dBuV | Margin dBuV | Remark |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.154 | 44.75 | 0.03 | -9.72 | 0.10 | 54.60 | 65.78 | -11.18 | Peak |
| 2 | 0.189 | 43.52 | 0.03 | -9.72 | 0.10 | 53.37 | 64.06 | -10.69 | Peak |
| 3 | 0.251 | 37.41 | 0.03 | -9.72 | 0.10 | 47.26 | 61.73 | -14.47 | Peak |
| 4 | 4.292 | 35.00 | 0.09 | -9.69 | 0.12 | 44.90 | 56.00 | -11.10 | Peak |
| 5 | 22.655 | 38.93 | 0.41 | -9.54 | 0.42 | 49.30 | 60.00 | -10.70 | Peak |
| 6 | 26.278 | 38.80 | 0.46 | -9.65 | 0.53 | 49.44 | 60.00 | -10.56 | Peak |

Remarks: Level = Read + LISN Factor - Preamp 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

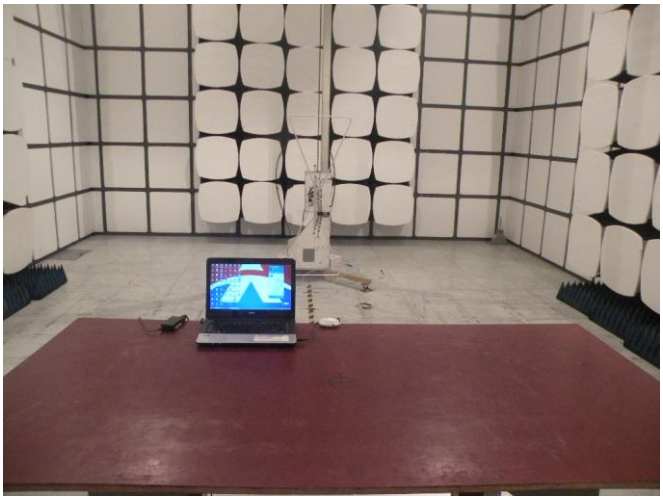
For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional 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

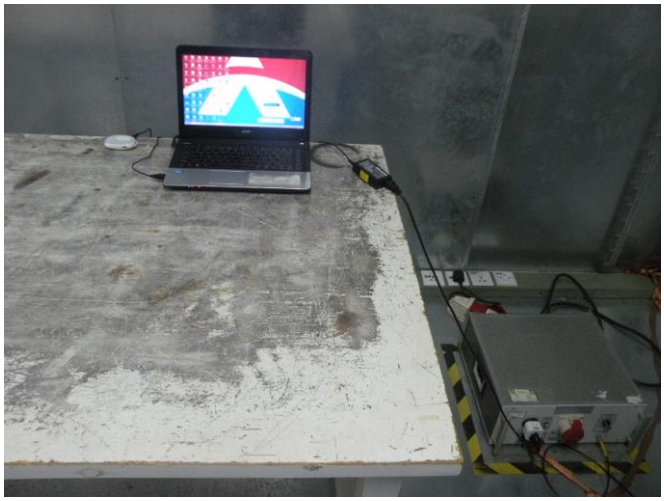
The antennas used for this product are PCB Antenna for Bluetooth, no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is only 0dBi for Bluetooth.

# 12. Test setup photo

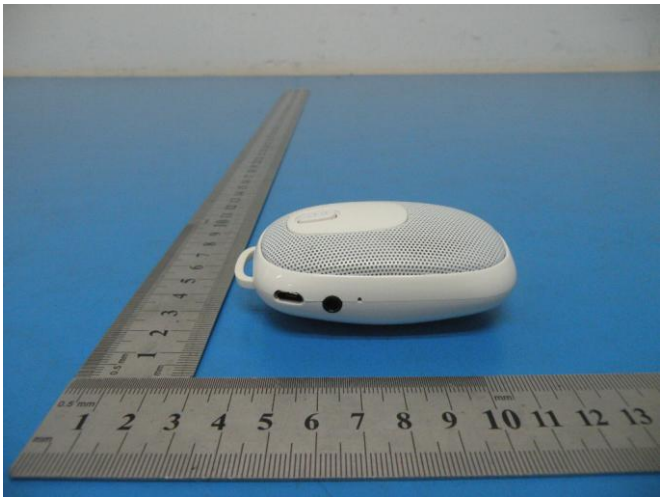
## 12.1. Photos of Radiated emission

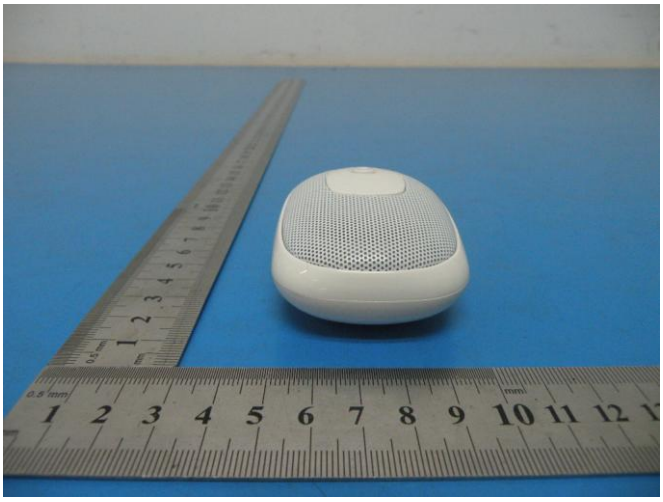


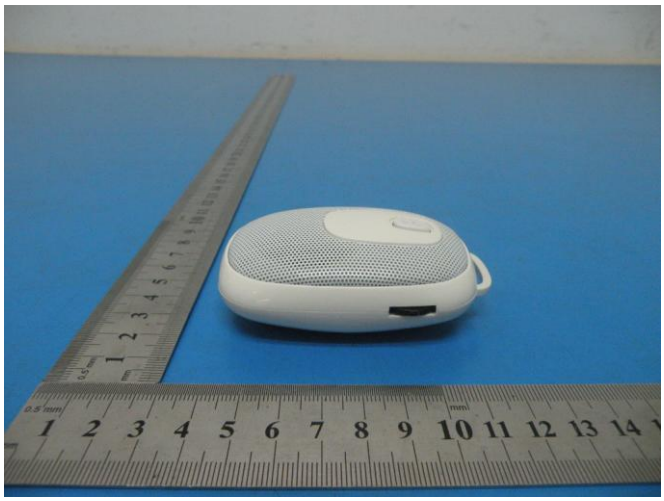
## 12.2.Photos of Conducted Emission test

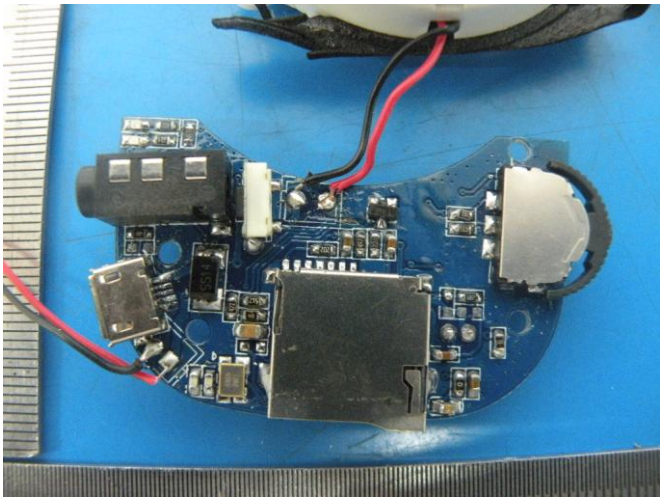


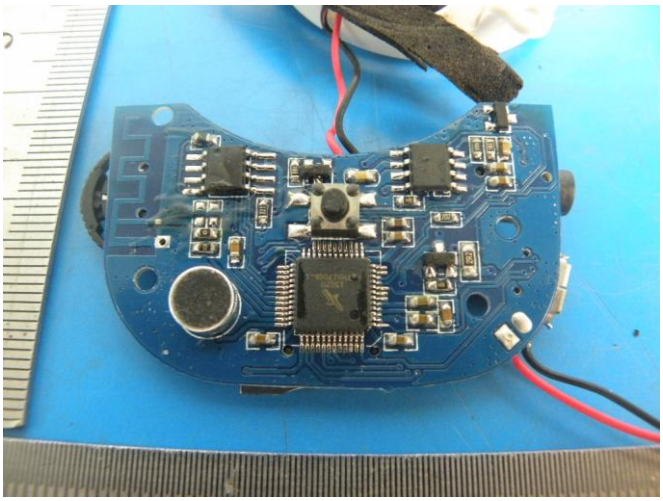
# 13. Photos of EUT











**---------END OF THE REPORT-------**