

FCC Test Report

Part 15 subpart C

Client Information:

Applicant : SHENZHEN BEST SHINE TECHNOLOGY CO., LTD
Applicant add.: 4/F,Building D,HongWanBang Technology Industrial Zone,
TongFuTun Industrial Park,ShiAo,Dalang Village,LongHua Town,ShenZhen,P.R.C.

EUT Information:

EUT Name : BLUETOOTH SPEAKER
Model No. : Q5, 7003-47
Brand Name : N/A
FCC ID : 2AFELQ5

Prepared By:

Shenzhen ECT Testing Technology Co., Ltd.
Add. : Room 1106, Era Innovation Center, Xixiang gushu second road,
Baoan district, Shenzhen city, China
Date of Receipt: Jun. 08, 2015 Date of Test: Jun. 09~ 16, 2015
Date of Issue: Jun. 17, 2015 Test Result: **Pass**

Test procedure used: ANSI C63.4-2009

This device described above has been tested by Shenzhen ECT Testing Technology Co., Ltd., and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

*This test report must not be used by the client to claim product endorsement by any agency of the U.S. government.

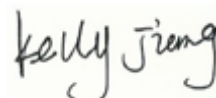
Reviewed by:



Nancy Xu



Approved by:



kelly Jiang

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2 Test Summary

2.1 Compliance with FCC Part 15 subpart C

| Test | Test Requirement | Standard Paragraph | Result |
|-------------------------------|--------------------|----------------------------|-------------|
| Antenna Requirement | FCC Part 15 C:2013 | Section 15.247(c) | PASS |
| Conduction Emissions | FCC Part 15 C:2013 | Section 15.207(a) | PASS |
| Radiated Emissions | FCC Part 15 C:2013 | Section 15.247(d) | PASS |
| Carrier Frequencies Separated | FCC Part 15 C:2013 | Section 15.247(a)(1) | PASS |
| Hopping Channel Number | FCC Part 15 C:2013 | Section 15.247(a)(1) (iii) | PASS |
| Dwell Time | FCC Part 15 C:2013 | Section 15.247(a)(1) (iii) | PASS |
| Maximum Peak Output Power | FCC Part 15 C:2013 | Section 15.247(b) | PASS |
| Band edge | FCC Part 15 C:2013 | Section 15.247(d) | PASS |
| Conducted Spurious Emissions | FCC Part 15 C:2013 | Section 15.247(d) | PASS |

2.2 Measurement Uncertainty

All measurements involve certain levels of uncertainties, The following measurements uncertainty Levels have estimated based on ANSI C63.4:2009, the maximum value of the uncertainty as below

| No. | Item | Uncertainty |
|-----|-------------------------|---------------------|
| 1 | Conducted Emission Test | $\pm 1.38\text{dB}$ |
| 2 | Radiated Emission Test | $\pm 3.57\text{dB}$ |

3 General Information

3.1 General Description of EUT

| | |
|---|---|
| Manufacturer: | SHENZHEN BEST SHINE TECHNOLOGY CO., LTD |
| Manufacturer add: | 4/F,Building D,HongWanBang Technology Industrial Zone,TongFuTun Industrial Park,ShiAo,Dalang Village,LongHua Town,ShenZhen,P.R.C. |
| EUT Name: | BLUETOOTH SPEAKER |
| Model No: | Q5 |
| Serial No: | 7003-47 |
| Brand Name: | N/A |
| Operation frequency: | 2402MHz to 2480MHz |
| Channel Number: | 79 |
| Modulation Technology: | GFSK, ($\pi/4$)DQPSK, 8DPSK |
| AntennaType: | Integral |
| Antenna Gain: | 0 dBi |
| Power Supply Range: | DC 5V from Host unit DC 3.7V from Battery |
| Power Supply: | DC 5V from Host unit DC 3.7V from Battery |
| Power Cord: | 0.5m x 2 wires unscreened USB cable |
| Effective Isotropic Radiated Power(max): | 0.46dBm |

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2.

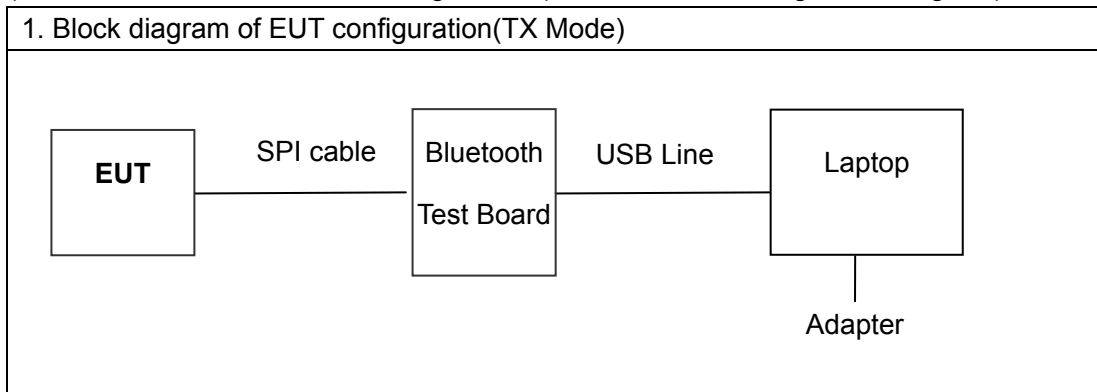
| Channel List | | | | | |
|--------------|-----------------|---------|-----------------|---------|-----------------|
| Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| 00 | 2402 | 27 | 2429 | 54 | 2456 |
| 01 | 2403 | 28 | 2430 | 55 | 2457 |
| 02 | 2404 | 29 | 2431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

3. The USB cable only can connect to PC for charging. It can't transfer data.

4. According to the declaration of the applicant, the electrical circuit design, layout, components used and internal wiring were identical for above models, with only difference being the model no.. Therefore, only one model **Q5** was tested in this report.

3.2 Description of Test conditions

- (1) EUT was tested in normal configuration (Please See following Block diagram)



- (2) E.U.T. test conditions:

15.31(e): For intentional radiators, measurements of the variation of the input power or the adiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. For battery operated equipment, the equipment tests shall be performed using a new battery.

- (3) Test frequencies:

According to the 15.31(m) Measurements on intentional radiators or receivers, other than TV broadcast receivers, shall be performed and. If required reported for each band in which the device can be operated with the device operating at the number of frequencies in each band specified in the following table:

| Frequency range over which device operates | Number of frequencies | Location in the range of operation |
|--|-----------------------|---|
| 1 MHz or less | 1 | Middle |
| 1 to 10 MHz | 2 | 1 near top and 1 near bottom |
| More than 10 MHz | 3 | 1 near top, 1 near middle and 1 near bottom |

- (4) Frequency range of radiated measurements:

According to the 15.33, The test range will be up to the tenth harmonic of the highest fundamental frequency .

3.3 EUT Peripheral List

| No. | Equipment | Manufacturer | Model No. | Serial No. | Power cord | signal cable |
|-----|-------------|--------------|-----------|------------|--------------------------------|--------------|
| 1 | USB cable | N/A | N/A | N/A | 0.5m/unshielded /detachable | N/A |
| 2 | Audio cable | N/A | N/A | N/A | 0.5m/unshielded /detachable | N/A |

3.4 Test Peripheral List

| No. | Equipment | Manufacturer | EMC Compliance | Model No. | Serial No. | Power cord | signal cable |
|-----|----------------------|--------------|-------------------|---------------|---------------------------|------------------------------------|--------------|
| 1 | Laptop | ASUA | FCC | X401A | X401A-081BB820 | N/A | N/A |
| 2 | Adapter (Laptop) | Enertronix | FCC | EXA0703 YH | 04G2660047L2222 022854 | 1.5m/ unshielded/ detachable | N/A |

4 Equipments List for All Test Items

| No | Test Equipment | Manufacturer | Model No | Serial No | Cal. Date | Cal. Due Date |
|----|-------------------------------------|-----------------|------------------|------------|------------|---------------|
| 1 | Spectrum Analyzer | ADVANTEST | R3182 | 150900201 | 2014.10.16 | 2015.10.15 |
| 2 | EMI Measuring Receiver | Schaffner | SCR3501 | 235 | 2014.10.16 | 2015.10.15 |
| 3 | Low Noise Pre Amplifier | Tsj | MLA-10K01-B01-27 | 1205323 | 2014.09.08 | 2015.09.07 |
| 4 | Low Noise Pre Amplifier | Tsj | MLA-0120-A02-34 | 2648A04738 | 2015.04.08 | 2016.04.07 |
| 5 | TRILOG Super Broadband test Antenna | SCHWARZBECK | VULB9160 | 9160-3206 | 2014.07.05 | 2015.07.04 |
| 6 | Broadband Horn Antenna | SCHWARZBECK | BBHA9120A | 451 | 2014.07.05 | 2015.07.04 |
| 7 | 50Ω Coaxial Switch | Anritsu | MP59B | 6200264416 | 2014.09.08 | 2015.09.07 |
| 8 | EMI Test Receiver | R&S | ESCI | 100124 | 2014.12.29 | 2015.12.28 |
| 9 | LISN | Kyoritsu | KNW-242 | 8-837-4 | 2015.04.08 | 2016.04.07 |
| 10 | LISN | Kyoritsu | KNW-407 | 8-1789-3 | 2015.04.08 | 2016.04.07 |
| 11 | 50Ω Coaxial Switch | Anritsu | MP59B | 6200264417 | 2015.04.08 | 2016.04.07 |
| 12 | Loop Antenna | ARA | PLA-1030/B | 1029 | 2015.04.08 | 2016.04.07 |
| 13 | Power Meter | R&S | NRVS | 101336 | 2015.04.08 | 2016.04.07 |
| 14 | EMI Test Receiver | Rohde & Schwarz | ESIB26 | 100394 | 2015.04.08 | 2016.04.07 |

5 Test Result

5.1 Antenna Requirement

5.1.1 Standard requirement

15.203 requirement: For intentional device, according to 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.

15.247(c) (1)(i) requirement: (i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

5.1.2 EUT Antenna

The antenna is integrated on the main PCB and no consideration of replacement. Antenna gain is max 0 dBi from 2.4GHz to 2.5GHz.

5.2 Conduction Emissions Measurement

5.2.1 Applied procedures / Limit

| Frequency of Emission (MHz) | Conducted Limit (dB μ V) | |
|-----------------------------|------------------------------|------------|
| | Quasi-peak | Average |
| 0.15-0.5 | 66 to 56 * | 56 to 46 * |
| 0.5-5 | 56 | 46 |
| 5-30 | 60 | 50 |

Note: Decreases with the logarithm of the frequency.

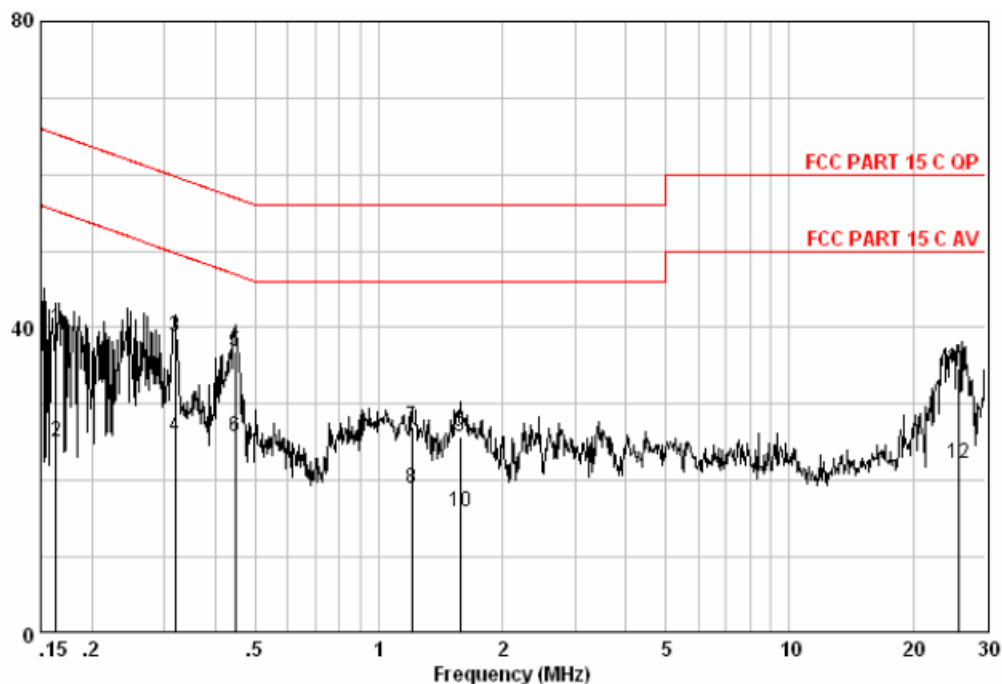
5.2.2 Test procedure

EUT was placed upon a wooden test table 0.8m above the horizontal metal reference plane and 0.4m from the vertical ground plane, and it was connected to an AMN. The closest distance between the boundary of the EUT and the surface of the AMN is 0.8m. All peripherals were connected to another AMN, and placed at a distance of 10cm from each other. A spectrum and receiver was connected to the RF output port of the AMN. Both average and quasi-peak value were detected.

5.2.3 Test results

| | | | |
|-----------------------|----------------------|--------------------|------------|
| EUT: | BLUETOOTH SPEAKER | Model Name. : | Q5 |
| Temperature: | 26 °C | Relative Humidity: | 54% |
| Pressure: | 1010hPa | Test Date : | 2015-06-11 |
| Test Mode: | TX | Phase : | Line |
| Test Voltage : | DC 5V from Host unit | | |

Level(dBμV)

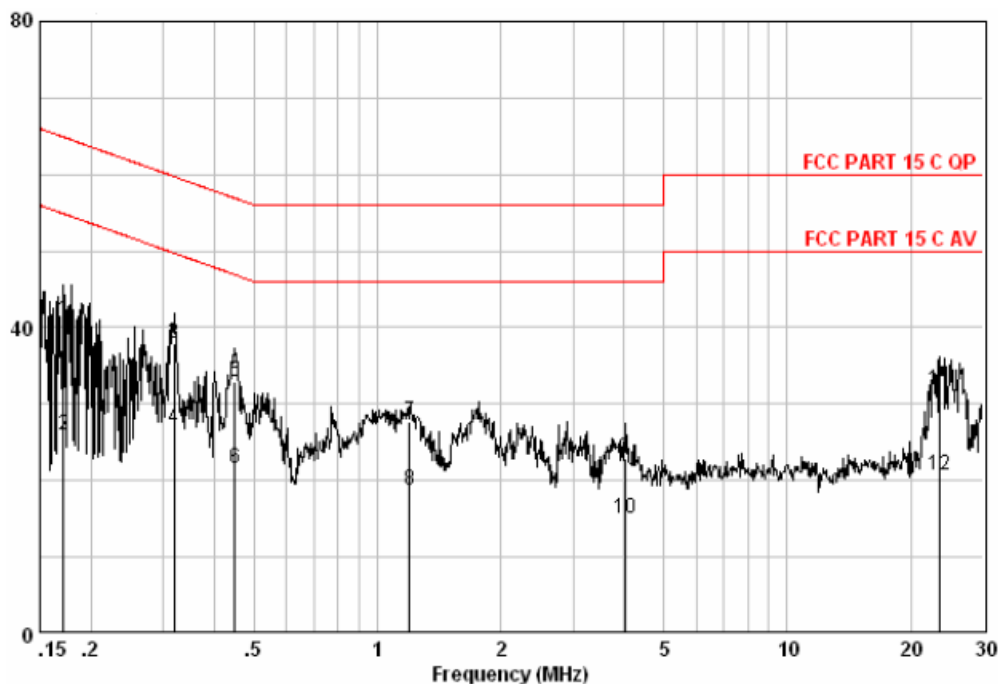


Measure data:

| Freq | Read Level | Cable Loss | LISN Factor | Level | Limit Line | Over Limit | Remark |
|--------|------------|------------|-------------|-------|------------|------------|---------|
| MHz | dBμV | dB | dB | dBμV | dBμV | dB | |
| 0.163 | 30.08 | 0.08 | 9.65 | 39.81 | 65.30 | -25.49 | QP |
| 0.163 | 15.30 | 0.08 | 9.65 | 25.03 | 55.30 | -30.27 | AVERAGE |
| 0.318 | 29.20 | 0.07 | 9.63 | 38.90 | 59.75 | -20.85 | QP |
| 0.318 | 16.10 | 0.07 | 9.63 | 25.80 | 49.75 | -23.95 | AVERAGE |
| 0.447 | 27.20 | 0.04 | 9.65 | 36.90 | 56.93 | -20.04 | QP |
| 0.447 | 15.96 | 0.04 | 9.65 | 25.66 | 46.93 | -21.28 | AVERAGE |
| 1.203 | 17.28 | 0.03 | 9.69 | 27.00 | 56.00 | -29.00 | QP |
| 1.203 | 9.17 | 0.03 | 9.69 | 18.89 | 46.00 | -27.11 | AVERAGE |
| 1.577 | 15.98 | 0.05 | 9.71 | 25.73 | 56.00 | -30.27 | QP |
| 1.577 | 6.24 | 0.05 | 9.71 | 15.99 | 46.00 | -30.01 | AVERAGE |
| 25.727 | 23.72 | 0.36 | 10.67 | 34.75 | 60.00 | -25.25 | QP |
| 25.727 | 11.10 | 0.36 | 10.67 | 22.13 | 50.00 | -27.87 | AVERAGE |

| | | | |
|-----------------------|----------------------|--------------------|------------|
| EUT: | BLUETOOTH SPEAKER | Model Name. : | Q5 |
| Temperature: | 26 °C | Relative Humidity: | 54% |
| Pressure: | 1010hPa | Test Date : | 2015-06-11 |
| Test Mode: | TX | Phase : | Neutral |
| Test Voltage : | DC 5V from Host unit | | |

Level(dBμV)



Measure result:

| Freq | Read | Cable | LISN | Level | Limit | Over | Remark |
|--------|-------|-------|--------|-------|-------|--------|---------|
| MHz | dBμV | Loss | Factor | dBμV | Line | Limit | |
| | | dB | dB | | dBμV | dB | |
| 0.171 | 31.26 | 0.09 | 9.63 | 40.98 | 64.90 | -23.92 | QP |
| 0.171 | 16.30 | 0.09 | 9.63 | 26.02 | 54.90 | -28.88 | AVERAGE |
| 0.318 | 28.24 | 0.07 | 9.64 | 37.95 | 59.75 | -21.80 | QP |
| 0.318 | 17.03 | 0.07 | 9.64 | 26.74 | 49.75 | -23.01 | AVERAGE |
| 0.449 | 23.24 | 0.05 | 9.63 | 32.92 | 56.89 | -23.98 | QP |
| 0.449 | 11.96 | 0.05 | 9.63 | 21.64 | 46.89 | -25.26 | AVERAGE |
| 1.197 | 17.94 | 0.03 | 9.64 | 27.61 | 56.00 | -28.39 | QP |
| 1.197 | 9.10 | 0.03 | 9.64 | 18.77 | 46.00 | -27.23 | AVERAGE |
| 4.006 | 13.04 | 0.14 | 9.73 | 22.91 | 56.00 | -33.09 | QP |
| 4.006 | 5.10 | 0.14 | 9.73 | 14.97 | 46.00 | -31.03 | AVERAGE |
| 23.636 | 21.16 | 0.27 | 10.43 | 31.86 | 60.00 | -28.14 | QP |
| 23.636 | 10.10 | 0.27 | 10.43 | 20.80 | 50.00 | -29.20 | AVERAGE |

Remark:

This test item was transferred to Asia Institute Technology (Dongguan) Limited which was confirmed to have enough capacity to perform this subcontract work. The FCC Registration No. of Asia Institute Technology (Dongguan) Limited is 248337.

5.3 Radiated Emissions Measurement

5.3.1 Applied procedures / Limit

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

| Frequency of Emission (MHz) | Field Strength | | Measurement Distance (meters) |
|-----------------------------|-----------------|--------------------------|-------------------------------|
| | $\mu\text{V/m}$ | $\text{dB}\mu\text{V/m}$ | |
| 0.009-0.49 | 2400/F(kHz) | | 300 |
| 0.49-1.705 | 24000/F(kHz) | | 30 |
| 1.705-30 | 30 | | 30 |
| 30-88 | 100 | 40 | 3 |
| 88-216 | 150 | 43.5 | 3 |
| 216-960 | 200 | 46 | 3 |
| Above 960 | 500 | 54 | 3 |

5.3.2 Test procedure

EUT was placed upon a wooden test table which was placed on the turn table 0.8m above the horizontal metal ground plane, and operating in the mode as mentioned above. A receiving antenna was placed 3m away from the EUT. During testing, turn around the turn table and move the antenna from 1m to 4m to find the maximum field-strength reading. All peripherals were placed at a distance of 10cm between each other. Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported.

5.3.3 Test Result

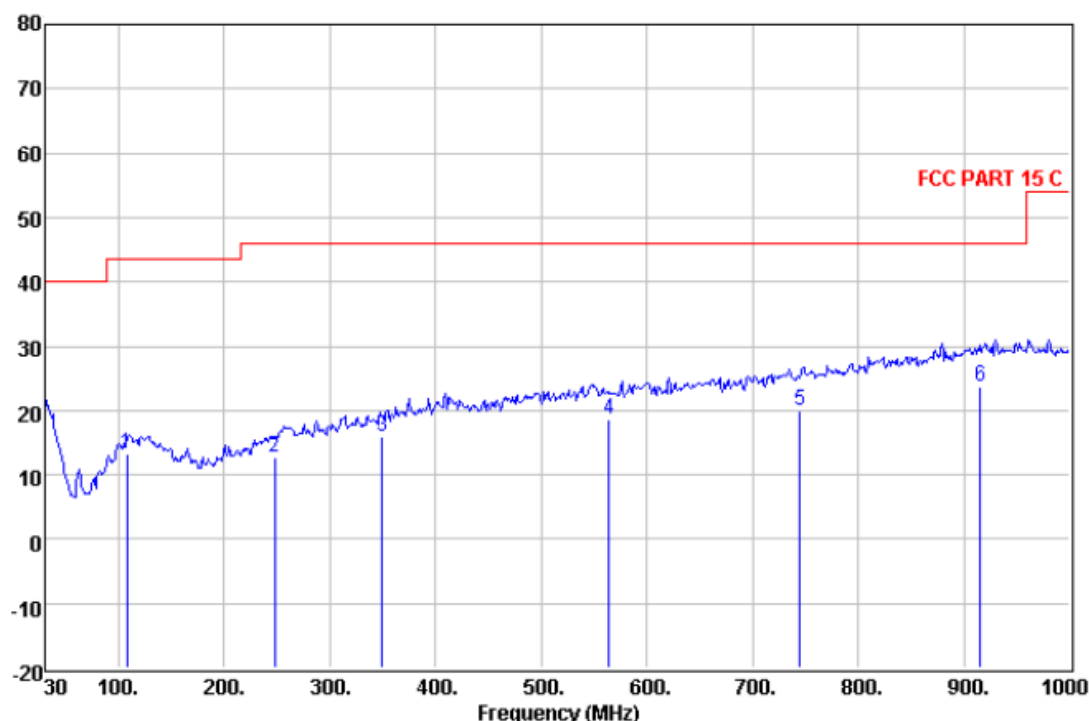
There is not detected blow 30MHz.

| | | | |
|----------------------|--|--------------------|----------------------|
| EUT: | BLUETOOTH SPEAKER | Model Name : | Q5 |
| Temperature: | 25 °C | Test Data | 2015-06-11 |
| Pressure: | 1010 hPa | Relative Humidity: | 60% |
| Test Mode : | TX | Test Voltage : | DC 3.7V from battery |
| Measurement Distance | 3 m | Frenqucy Range | 30MHz to 1GHz |
| RBW/VBW | 100KHz / 300KHz for spectrum, RBW=120KHz for receiver. | | |

(a) Antenna polarization: Horizontal

Peak scan

Level (dBμV/m)



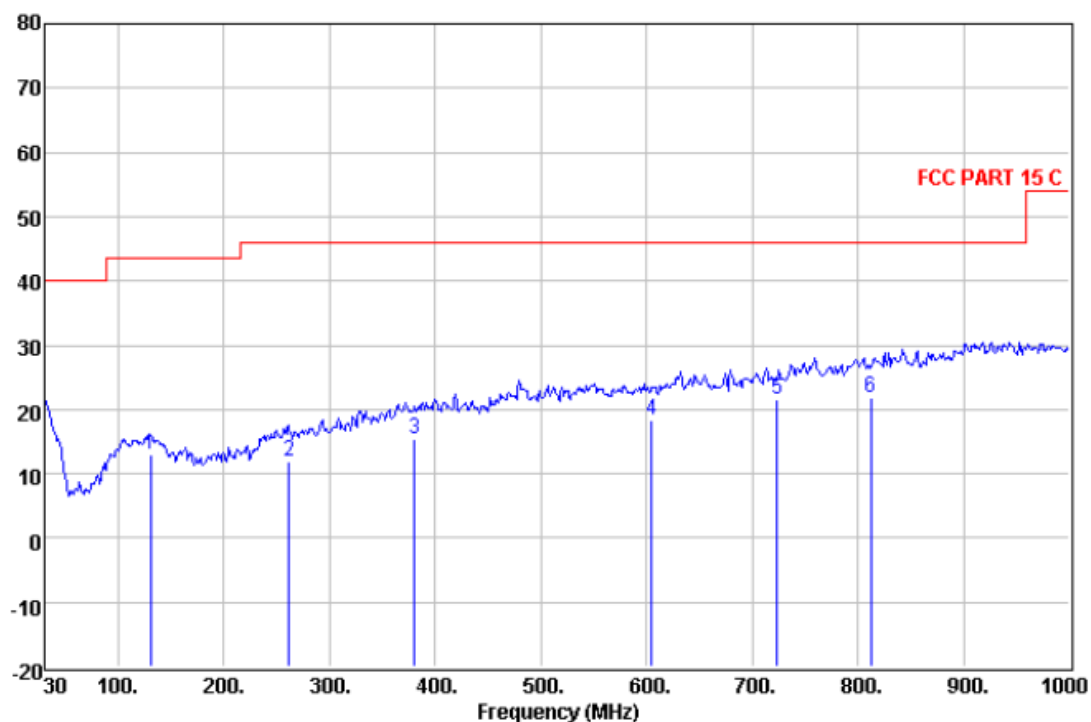
Quasi-peak measurement

| Freq | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Level | Over Limit | Limit Line | Remark |
|---------|----------------------|-------------------|---------------|------------------|--------|---------------|---------------|--------|
| MHz | dBμV | dB/m | dB | dB | dBμV/m | dB | dBμV/m | |
| 107.600 | 28.12 | 11.75 | 1.03 | 27.63 | 13.27 | -30.23 | 43.50 | QP |
| 247.280 | 26.71 | 11.45 | 1.59 | 27.15 | 12.60 | -33.40 | 46.00 | QP |
| 349.130 | 27.20 | 14.34 | 1.95 | 27.44 | 16.05 | -29.95 | 46.00 | QP |
| 564.470 | 25.99 | 18.40 | 2.54 | 28.27 | 18.66 | -27.34 | 46.00 | QP |
| 744.890 | 24.77 | 20.15 | 2.89 | 27.76 | 20.05 | -25.95 | 46.00 | QP |
| 915.610 | 25.86 | 20.97 | 3.53 | 26.76 | 23.60 | -22.40 | 46.00 | QP |

(b) Antenna polarization: vertical

Peak scan

Level (dBμV/m)



Quasi-peak measurement

| Freq | ReadAntenna | Cable | Preamp | Over | Limit | | |
|---------|-------------|--------|--------|--------|--------|--------|-------------|
| MHz | Level | Factor | Loss | Factor | Level | Limit | Line Remark |
| | dBuV | dB/m | dB | dB | dBuV/m | dB | dBuV/m |
| 130.880 | 27.35 | 11.95 | 1.13 | 27.51 | 12.92 | -30.58 | 43.50 QP |
| 261.830 | 25.05 | 12.42 | 1.65 | 27.13 | 11.99 | -34.01 | 46.00 QP |
| 380.170 | 25.57 | 15.50 | 2.04 | 27.65 | 15.46 | -30.54 | 46.00 QP |
| 605.210 | 25.55 | 18.62 | 2.62 | 28.34 | 18.45 | -27.55 | 46.00 QP |
| 723.550 | 27.14 | 19.50 | 2.84 | 27.82 | 21.66 | -24.34 | 46.00 QP |
| 812.790 | 25.83 | 20.30 | 3.15 | 27.51 | 21.77 | -24.23 | 46.00 QP |

Note: '*' means the worst case

Measurement Level = Reading Level + Factor

Factor=Ant Factor + Cable Loss-Preamp Factor

| | | | |
|----------------------|--|--------------------|----------------------|
| EUT: | BLUETOOTH SPEAKER | Model Name : | Q5 |
| Temperature: | 25 °C | Test Data | 2015-06-11 |
| Pressure: | 1010 hPa | Relative Humidity: | 60% |
| Test Mode : | 1Mbps(the worst case) | Test Voltage : | DC 3.7V from battery |
| Measurement Distance | 3 m | Frenqucy Range | 1GHz to 25GHz |
| RBW/VBW | 1MHz/1MHz for Peak, 1MHz/10Hz for Average. | | |

1~25 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

Vertical Measurement:

| Frequency (MHz) | Reading Level (dB μ V) | factor (dB) | Emission Level (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) | Antenna polarization |
|-----------------|----------------------------|-------------|-------------------------------|----------------------|-------------|----------------------|
| 4804.000 | 51.38 | 5.06 | 56.44 | 74.00 | -17.56 | peak |
| *4804.000 | 36.19 | 5.06 | 41.25 | 54.00 | -12.75 | AVG |
| 7206.000 | 45.68 | 7.03 | 52.71 | 74.00 | -21.29 | peak |
| 7206.000 | 31.37 | 7.03 | 38.40 | 54.00 | -15.60 | AVG |
| 9608.000 | 37.58 | 10.63 | 48.21 | 74.00 | -25.79 | peak |
| 9608.000 | 24.25 | 10.63 | 34.88 | 54.00 | -19.12 | AVG |

Horizontal Measurement:

| Frequency (MHz) | Reading Level (dB μ V) | factor (dB) | Emission Level (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) | Antenna polarization |
|-----------------|----------------------------|-------------|-------------------------------|----------------------|-------------|----------------------|
| 4804.000 | 52.01 | 5.06 | 57.07 | 74.00 | -16.93 | peak |
| *4804.000 | 37.19 | 5.06 | 42.25 | 54.00 | -11.75 | AVG |
| 7206.000 | 46.72 | 7.03 | 53.75 | 74.00 | -20.25 | peak |
| 7206.000 | 33.55 | 7.03 | 40.58 | 54.00 | -13.42 | AVG |
| 9608.000 | 38.39 | 10.63 | 49.02 | 74.00 | -24.98 | peak |
| 9608.000 | 24.68 | 10.63 | 35.31 | 54.00 | -18.69 | AVG |

Note: '*' means the worst case

Measurement Level = Reading Level + Factor

Factor=Ant Factor + Cable Loss-Preamp Factor

Low Channel 00: 2402 MHz

Data rate: 1Mbps

1~25 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

Vertical Measurement:

| Frequency (MHz) | Reading Level (dB μ V) | factor (dB) | Emission Level (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) | Antenna polarization |
|-----------------|----------------------------|-------------|-------------------------------|----------------------|-------------|----------------------|
| 4882.000 | 53.28 | 5.14 | 58.42 | 74.00 | -15.58 | peak |
| *4882.000 | 38.67 | 5.14 | 43.81 | 54.00 | -10.19 | AVG |
| 7323.000 | 45.34 | 7.54 | 52.88 | 74.00 | -21.12 | peak |
| 7323.000 | 31.89 | 7.54 | 39.43 | 54.00 | -14.57 | AVG |
| 9764.000 | 37.90 | 11.39 | 49.29 | 74.00 | -24.71 | peak |
| 9764.000 | 25.08 | 11.39 | 36.47 | 54.00 | -17.53 | AVG |

Horizontal Measurement:

| Frequency (MHz) | Reading Level (dB μ V) | factor (dB) | Emission Level (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) | Antenna polarization |
|-----------------|----------------------------|-------------|-------------------------------|----------------------|-------------|----------------------|
| 4882.000 | 52.96 | 5.14 | 58.10 | 74.00 | -15.90 | peak |
| *4882.000 | 38.52 | 5.14 | 43.66 | 54.00 | -10.34 | AVG |
| 7323.000 | 45.37 | 7.54 | 52.91 | 74.00 | -21.09 | peak |
| 7323.000 | 32.18 | 7.54 | 39.72 | 54.00 | -14.28 | AVG |
| 9764.000 | 36.90 | 11.39 | 48.29 | 74.00 | -25.71 | peak |
| 9764.000 | 24.37 | 11.39 | 35.76 | 54.00 | -18.24 | AVG |

Note: '*' means the worst case

Measurement Level = Reading Level + Factor

Factor=Ant Factor + Cable Loss-Preamp Factor

Middle Channel 39: 2441 MHz

Data rate: 1Mbps

1~25 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

Vertical Measurement:

| Frequency (MHz) | Reading Level (dB μ V) | factor (dB) | Emission Level (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) | Antenna polarization |
|-----------------|----------------------------|-------------|-------------------------------|----------------------|-------------|----------------------|
| 4960.000 | 51.58 | 5.22 | 56.80 | 74.00 | -17.20 | peak |
| *4960.000 | 37.75 | 5.22 | 42.97 | 54.00 | -11.03 | AVG |
| 7440.000 | 44.39 | 8.06 | 52.45 | 74.00 | -21.55 | peak |
| 7440.000 | 31.14 | 8.06 | 39.20 | 54.00 | -14.80 | AVG |
| 9920.000 | 36.38 | 12.10 | 48.48 | 74.00 | -25.52 | peak |
| 9920.000 | 24.23 | 12.10 | 36.33 | 54.00 | -17.67 | AVG |

Horizontal Measurement:

| Frequency (MHz) | Reading Level (dB μ V) | factor (dB) | Emission Level (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) | Antenna polarization |
|-----------------|----------------------------|-------------|-------------------------------|----------------------|-------------|----------------------|
| 4960.000 | 51.67 | 5.22 | 56.89 | 74.00 | -17.11 | peak |
| *4960.000 | 37.82 | 5.22 | 43.04 | 54.00 | -10.96 | AVG |
| 7440.000 | 45.05 | 8.06 | 53.11 | 74.00 | -20.89 | peak |
| 7440.000 | 32.14 | 8.06 | 40.20 | 54.00 | -13.80 | AVG |
| 9920.000 | 37.56 | 12.10 | 49.66 | 74.00 | -24.34 | peak |
| 9920.000 | 24.61 | 12.10 | 36.71 | 54.00 | -17.29 | AVG |

Note: '*' means the worst case

Measurement Level = Reading Level + Factor

Factor=Ant Factor + Cable Loss-Preamp Factor

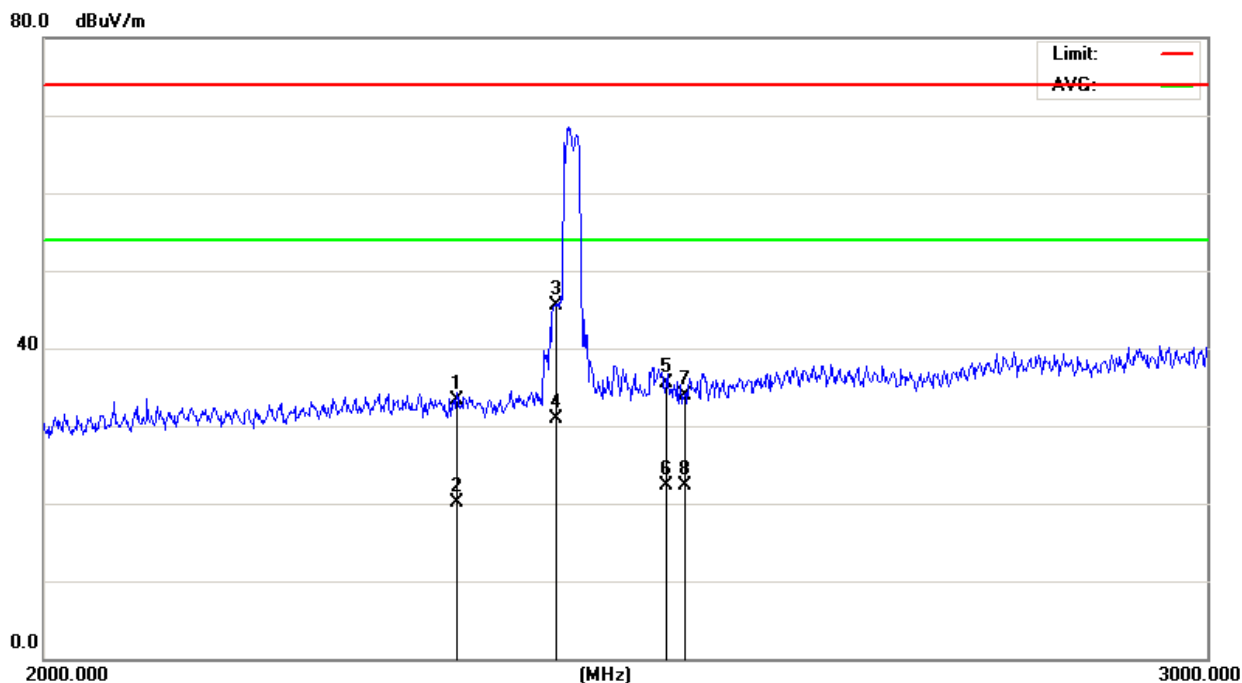
High Channel 78: 2480 MHz

Data rate: 1Mbps

5.3.4 TEST RESULTS (Restricted Bands Requirements)

1. Low Channel

Vertical:

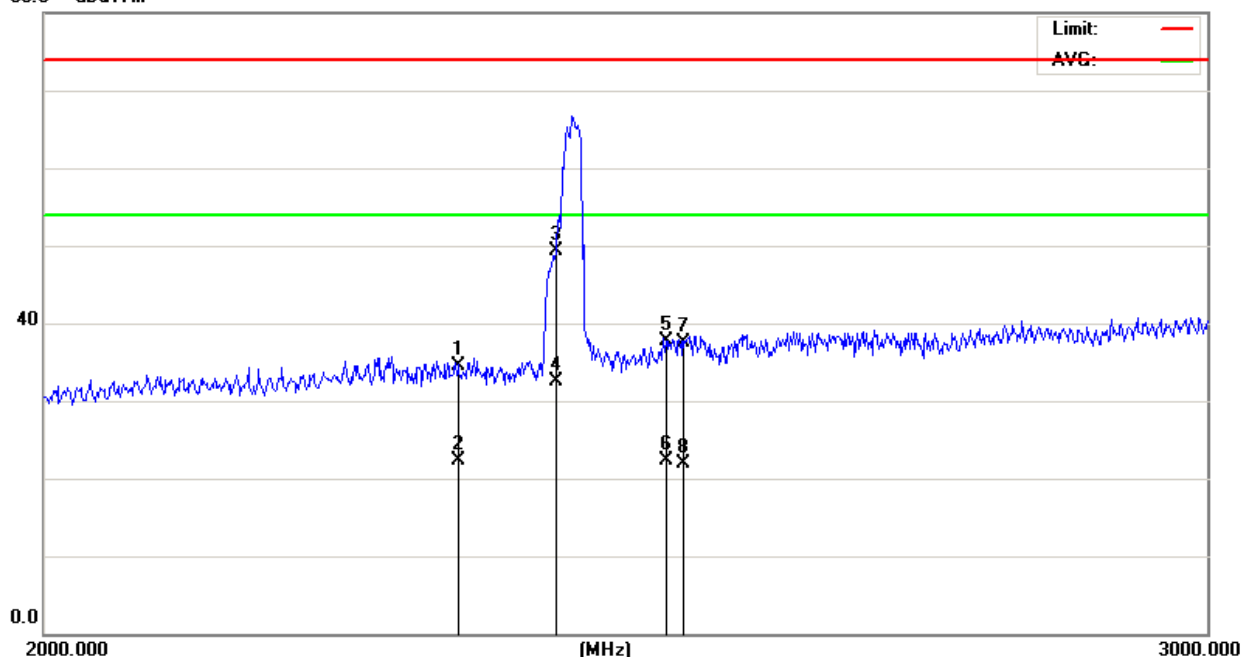


| No. | Mk. | Freq. MHz | Reading Level dBuV | Correct Factor dB | Measure- ment dBuV/m | Limit dBuV/m | Over dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|
| 1 | | 2310.000 | 39.72 | -6.42 | 33.30 | 74.00 | -40.70 | peak |
| 2 | | 2310.000 | 26.52 | -6.42 | 20.10 | 54.00 | -33.90 | AVG |
| 3 | | 2390.000 | 51.29 | -5.79 | 45.50 | 74.00 | -28.50 | peak |
| 4 | * | 2390.000 | 36.61 | -5.79 | 30.82 | 54.00 | -23.18 | AVG |
| 5 | | 2483.500 | 40.58 | -4.98 | 35.60 | 74.00 | -38.40 | peak |
| 6 | | 2483.500 | 27.28 | -4.98 | 22.30 | 54.00 | -31.70 | AVG |
| 7 | | 2500.000 | 38.83 | -4.83 | 34.00 | 74.00 | -40.00 | peak |
| 8 | | 2500.000 | 27.19 | -4.83 | 22.36 | 54.00 | -31.64 | AVG |

1. Low Channel

Horizontal:

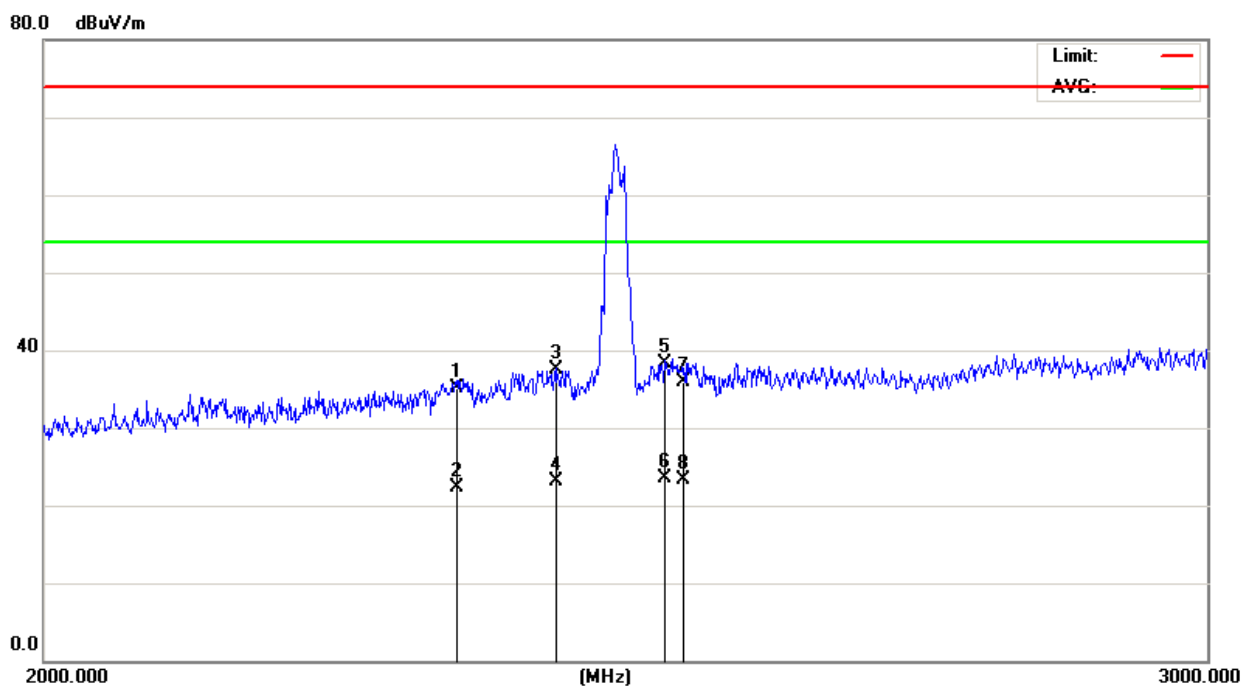
80.0 dBuV/m



| No. | Mk. | Freq. MHz | Reading Level dBuV | Correct Factor dB | Measure- ment dBuV/m | Limit dBuV/m | Over dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|
| 1 | | 2310.000 | 41.02 | -6.42 | 34.60 | 74.00 | -39.40 | peak |
| 2 | | 2310.000 | 28.72 | -6.42 | 22.30 | 54.00 | -31.70 | AVG |
| 3 | | 2390.000 | 55.09 | -5.79 | 49.30 | 74.00 | -24.70 | peak |
| 4 | * | 2390.000 | 38.34 | -5.79 | 32.55 | 54.00 | -21.45 | AVG |
| 5 | | 2483.500 | 42.68 | -4.98 | 37.70 | 74.00 | -36.30 | peak |
| 6 | | 2483.500 | 27.27 | -4.98 | 22.29 | 54.00 | -31.71 | AVG |
| 7 | | 2500.000 | 42.33 | -4.83 | 37.50 | 74.00 | -36.50 | peak |
| 8 | | 2500.000 | 26.82 | -4.83 | 21.99 | 54.00 | -32.01 | AVG |

2. Middle Channel

Vertical:

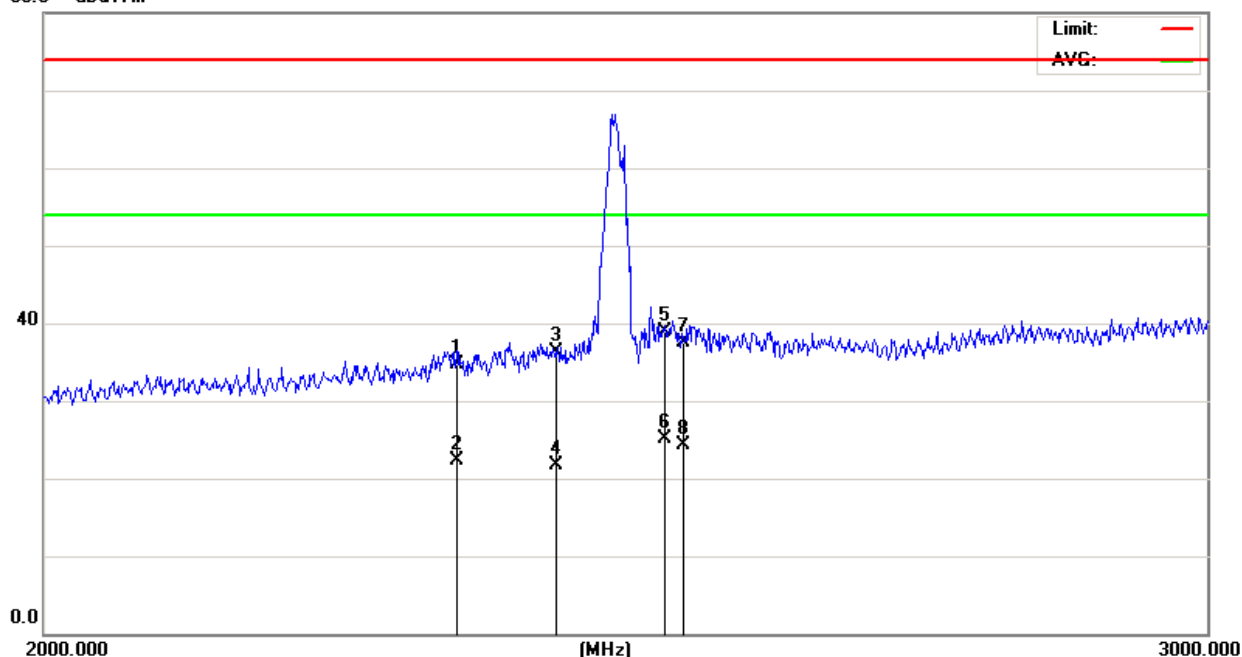


| No. | Mk. | Freq. MHz | Reading Level dBuV | Correct Factor dB | Measure- ment dBuV/m | Limit dBuV/m | Over dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|
| 1 | | 2310.000 | 41.52 | -6.42 | 35.10 | 74.00 | -38.90 | peak |
| 2 | | 2310.000 | 28.73 | -6.42 | 22.31 | 54.00 | -31.69 | AVG |
| 3 | | 2390.000 | 43.39 | -5.79 | 37.60 | 74.00 | -36.40 | peak |
| 4 | | 2390.000 | 28.94 | -5.79 | 23.15 | 54.00 | -30.85 | AVG |
| 5 | | 2483.500 | 43.28 | -4.98 | 38.30 | 74.00 | -35.70 | peak |
| 6 | * | 2483.500 | 28.58 | -4.98 | 23.60 | 54.00 | -30.40 | AVG |
| 7 | | 2500.000 | 40.83 | -4.83 | 36.00 | 74.00 | -38.00 | peak |
| 8 | | 2500.000 | 28.23 | -4.83 | 23.40 | 54.00 | -30.60 | AVG |

2. Middle Channel

Horizontal:

80.0 dBuV/m

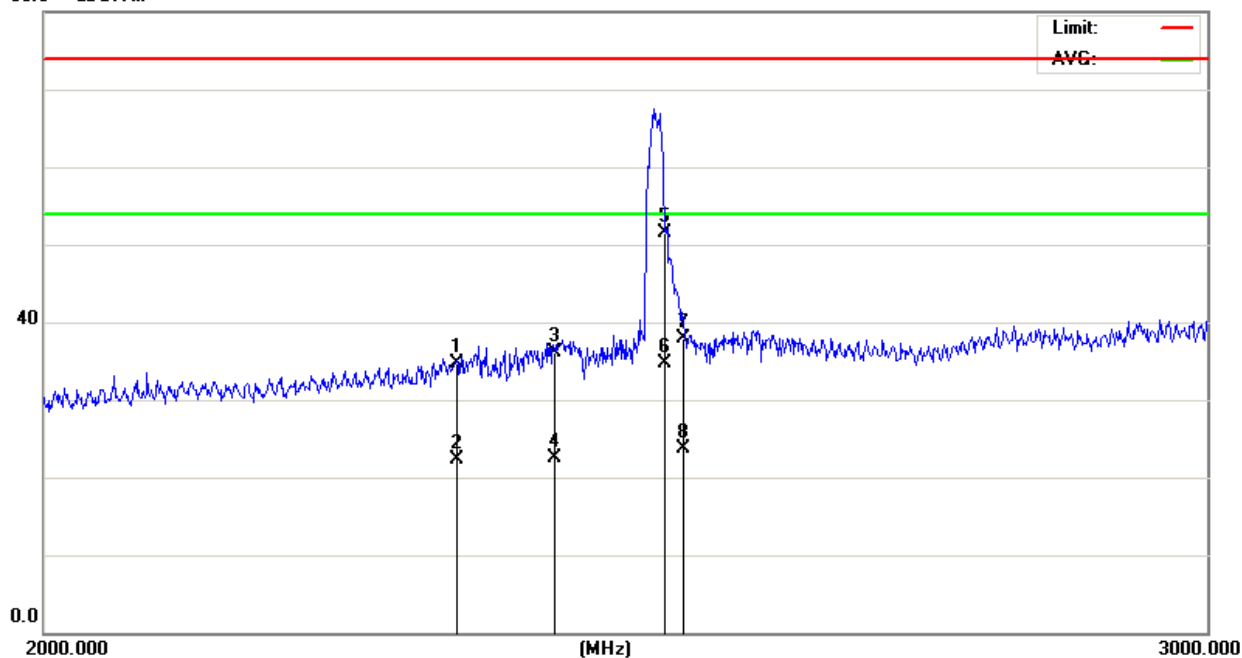


| No. | Mk. | Freq. MHz | Reading Level dBuV | Correct Factor dB | Measure- ment dBuV/m | Limit dBuV/m | Over dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|
| 1 | | 2310.000 | 41.22 | -6.42 | 34.80 | 74.00 | -39.20 | peak |
| 2 | | 2310.000 | 28.68 | -6.42 | 22.26 | 54.00 | -31.74 | AVG |
| 3 | | 2390.000 | 42.19 | -5.79 | 36.40 | 74.00 | -37.60 | peak |
| 4 | | 2390.000 | 27.55 | -5.79 | 21.76 | 54.00 | -32.24 | AVG |
| 5 | | 2483.500 | 43.98 | -4.98 | 39.00 | 74.00 | -35.00 | peak |
| 6 | * | 2483.500 | 30.03 | -4.98 | 25.05 | 54.00 | -28.95 | AVG |
| 7 | | 2500.000 | 42.43 | -4.83 | 37.60 | 74.00 | -36.40 | peak |
| 8 | | 2500.000 | 29.07 | -4.83 | 24.24 | 54.00 | -29.76 | AVG |

3. High Channel

Vertical:

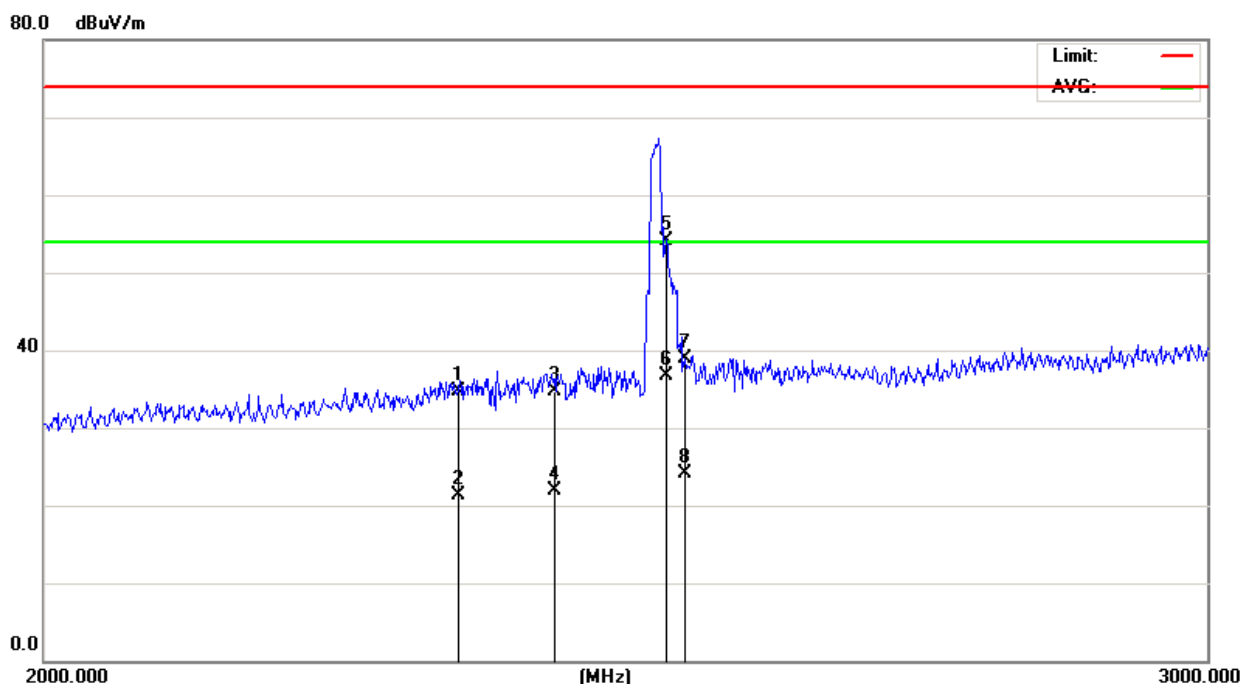
80.0 dBuV/m



| No. | Mk. | Freq. MHz | Reading Level dBuV | Correct Factor dB | Measure- ment dBuV/m | Limit dBuV/m | Over dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|
| 1 | | 2310.000 | 41.22 | -6.42 | 34.80 | 74.00 | -39.20 | peak |
| 2 | | 2310.000 | 28.64 | -6.42 | 22.22 | 54.00 | -31.78 | AVG |
| 3 | | 2390.000 | 41.99 | -5.79 | 36.20 | 74.00 | -37.80 | peak |
| 4 | | 2390.000 | 28.34 | -5.79 | 22.55 | 54.00 | -31.45 | AVG |
| 5 | | 2483.500 | 56.48 | -4.98 | 51.50 | 74.00 | -22.50 | peak |
| 6 | * | 2483.500 | 39.67 | -4.98 | 34.69 | 54.00 | -19.31 | AVG |
| 7 | | 2500.000 | 42.73 | -4.83 | 37.90 | 74.00 | -36.10 | peak |
| 8 | | 2500.000 | 28.49 | -4.83 | 23.66 | 54.00 | -30.34 | AVG |

3. High Channel

Horizontal:



| No. | Mk. | Freq. MHz | Reading Level dBuV | Correct Factor dB | Measure- ment dBuV/m | Limit dBuV/m | Over dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|
| 1 | | 2310.000 | 41.12 | -6.42 | 34.70 | 74.00 | -39.30 | peak |
| 2 | | 2310.000 | 27.76 | -6.42 | 21.34 | 54.00 | -32.66 | AVG |
| 3 | | 2390.000 | 40.49 | -5.79 | 34.70 | 74.00 | -39.30 | peak |
| 4 | | 2390.000 | 27.64 | -5.79 | 21.85 | 54.00 | -32.15 | AVG |
| 5 | | 2483.500 | 59.18 | -4.98 | 54.20 | 74.00 | -19.80 | peak |
| 6 | * | 2483.500 | 41.68 | -4.98 | 36.70 | 54.00 | -17.30 | AVG |
| 7 | | 2500.000 | 43.73 | -4.83 | 38.90 | 74.00 | -35.10 | peak |
| 8 | | 2500.000 | 28.94 | -4.83 | 24.11 | 54.00 | -29.89 | AVG |

Remark: No any other emission which falls in restricted bands can be detected and be reported.

This test item was transferred to Asia Institute Technology (Dongguan) Limited which was confirmed to have enough capacity to perform this subcontract work. The FCC Registration No. of Asia Institute Technology (Dongguan) Limited is 248337.

Test result: The unit does meet the FCC requirements.

5.4 BANDWIDTH TEST

5.4.1 Applied procedures / Limit

For frequency hopping system operating in the 2400-2483.5MHz, If the 20dB bandwidth of hopping channel is greater than 25kHz, two-thirds 20dB bandwidth of hopping channel shall be a minimum limit for the hopping channel separation.

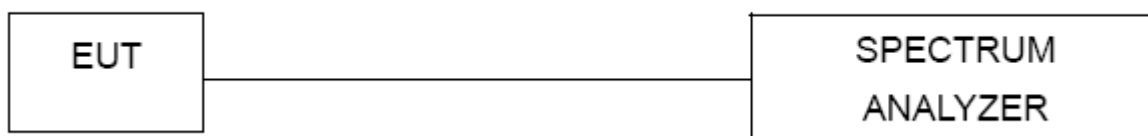
5.4.2 Test procedure

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. Spectrum Setting: RBW= 100KHz, VBW \geq RBW, Sweep time = Auto.

5.4.3 Deviation from standard

No deviation.

5.4.4 Test setup



5.4.5 Test results

| | | | |
|--------------|-------------------|--------------------|----------------------|
| EUT: | BLUETOOTH SPEAKER | Model Name : | Q5 |
| Temperature: | 26 °C | Relative Humidity: | 53% |
| Pressure: | 1010 hPa | Test Power : | DC 3.7V from battery |
| Test Mode : | TX 1Mbps\ 3Mbps | | |

Test result:

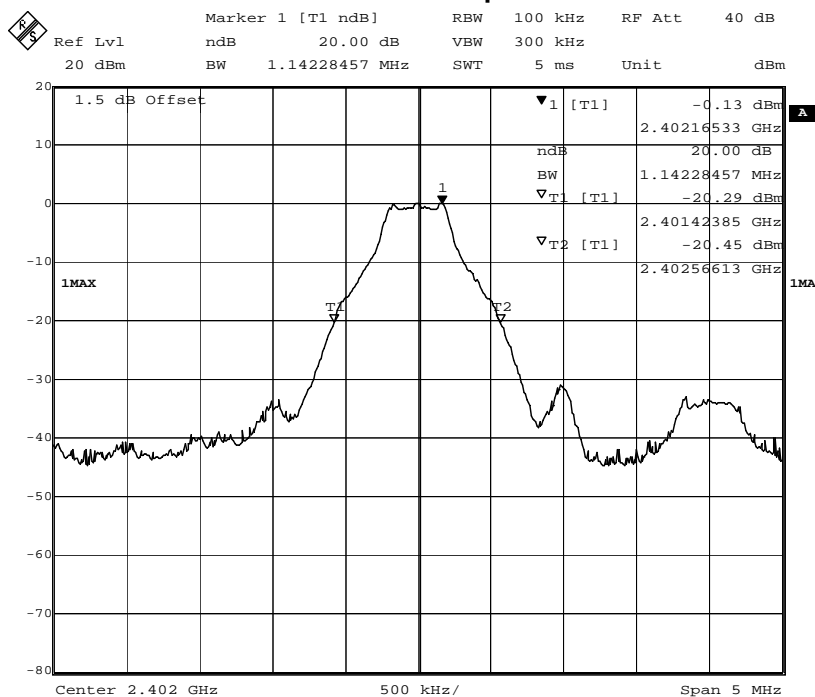
Normal mode:

| Test Channel | Bandwidth(MHz) | 2/3 bandwidth(MHz) |
|--------------|----------------|--------------------|
| Lowest | 1.142 | 0.761 |
| Middle | 1.132 | 0.755 |
| Highest | 1.130 | 0.753 |

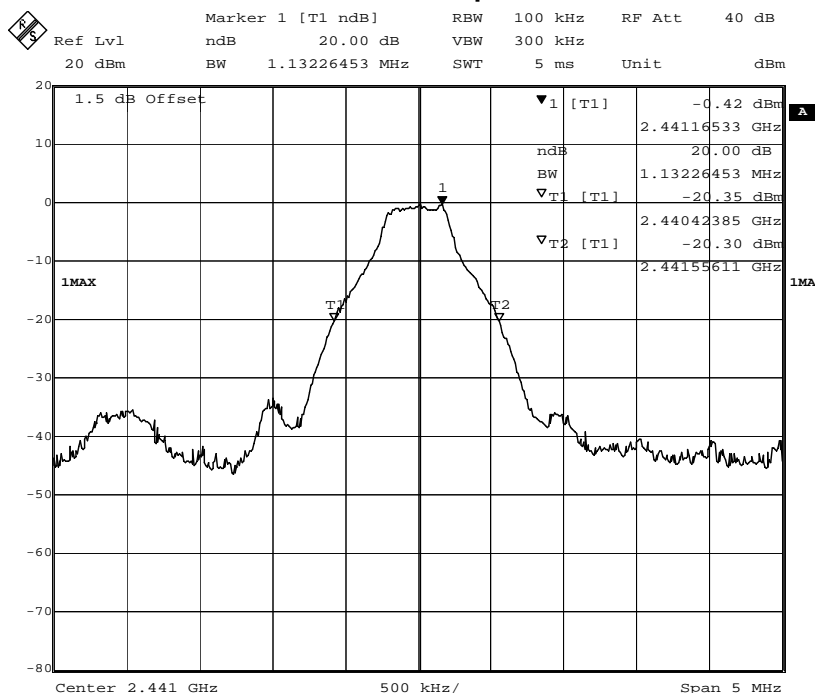
EDR mode:

| Test Channel | bandwidth | 2/3 bandwidth |
|--------------|-----------|---------------|
| Lowest | 1.383 | 0.922 |
| Middle | 1.403 | 0.935 |
| Highest | 1.383 | 0.922 |

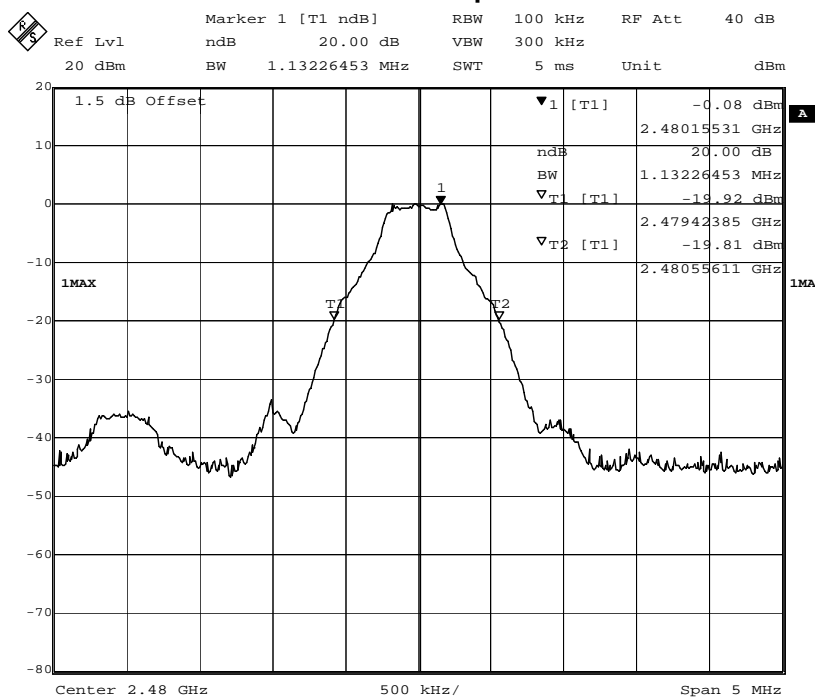
CH00-1Mbps



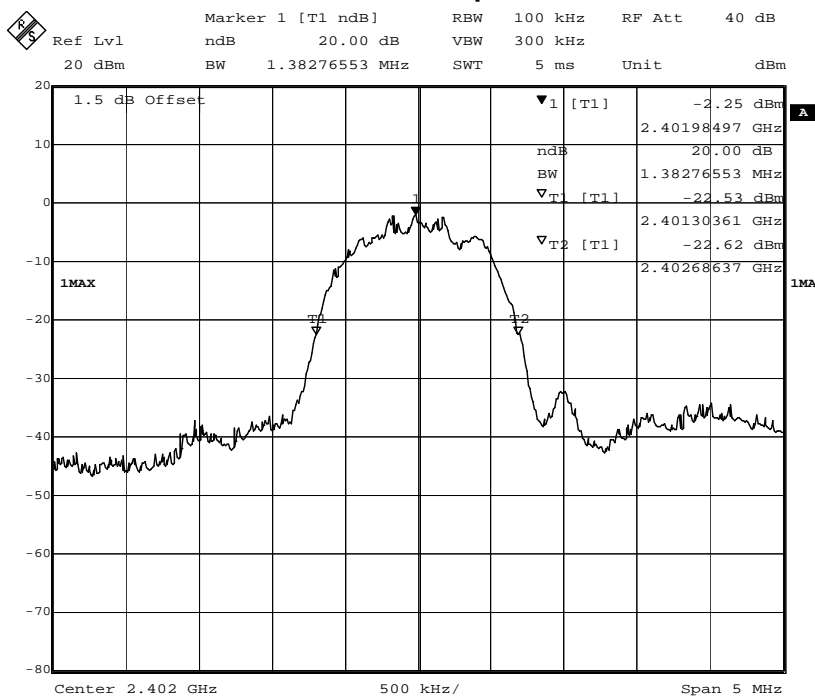
CH 39-1Mbps



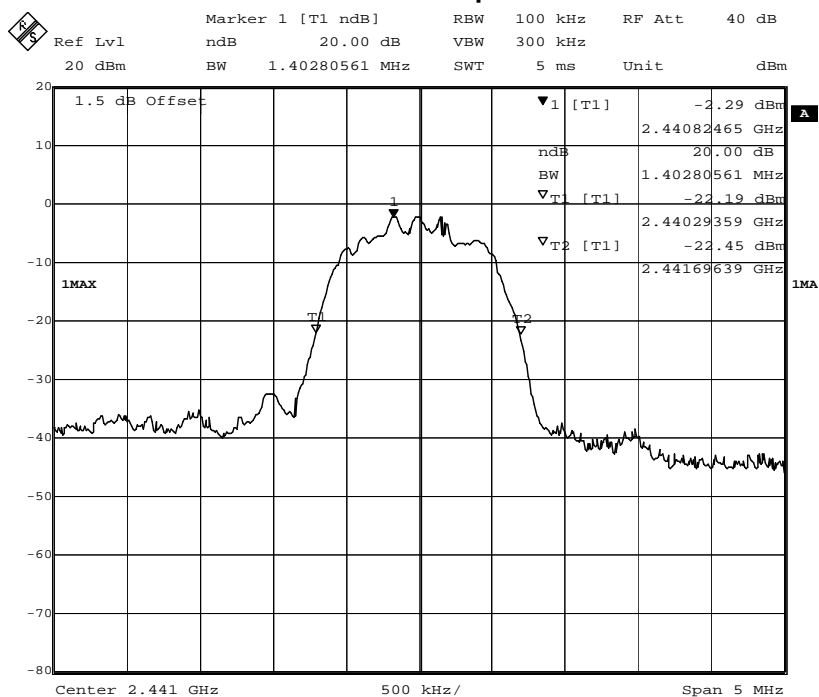
CH 78-1Mbps



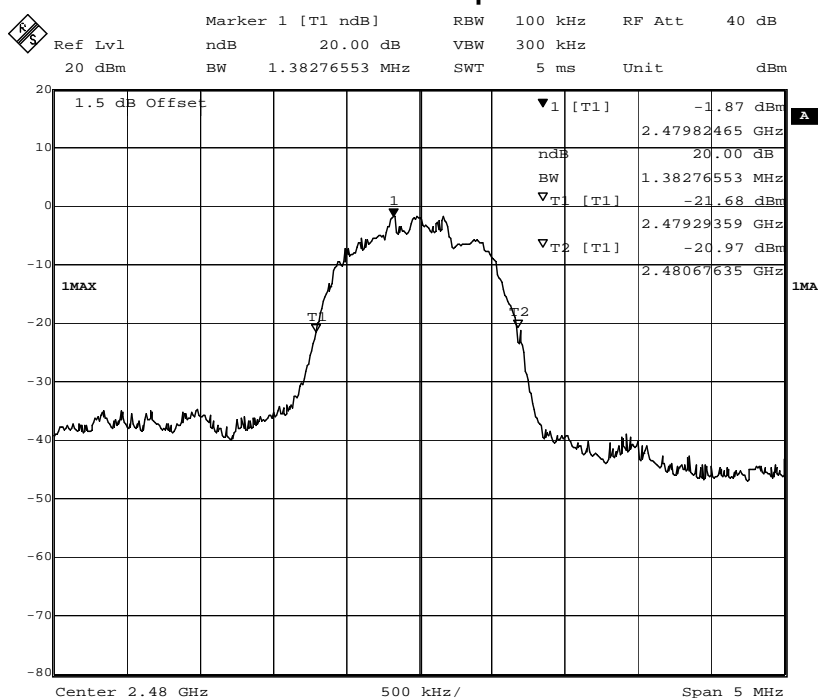
CH 00-3Mbps



CH 39-3Mbps



CH 78-3Mbps



5.5 Carrier Frequencies Separated

5.5.1 Applied procedures / Limit

15.247(a) (1) 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.

5.5.2 Test procedure

- (1) Connected the antenna port to the Spectrum Analyzer, set the Spectrum Analyzer as RBW=100kHz, VBW \geq RBW, Sweep time=Auto, Detector Function=Peak.
- (2) The EUT should be transmitting at its maximum data rate. Use the marker-delta function to determine the separation between the peaks of the adjacent channels.
- (3) The above procedure shall be repeated at the lowest, the middle, and the highest frequency of the stated frequency range with modulated mode. also shall be performed at different modes of operation.

5.5.3 Deviation from standard

No deviation.

5.5.4 Test results

| | | | |
|--------------|--------------------------|--------------------|----------------------|
| EUT: | BLUETOOTH SPEAKER | Model Name : | Q5 |
| Temperature: | 22 °C | Relative Humidity: | 53% |
| Pressure: | 1010 hPa | Test Power : | DC 3.7V from battery |
| Test Mode : | TX 3Mbps(the worst case) | | |

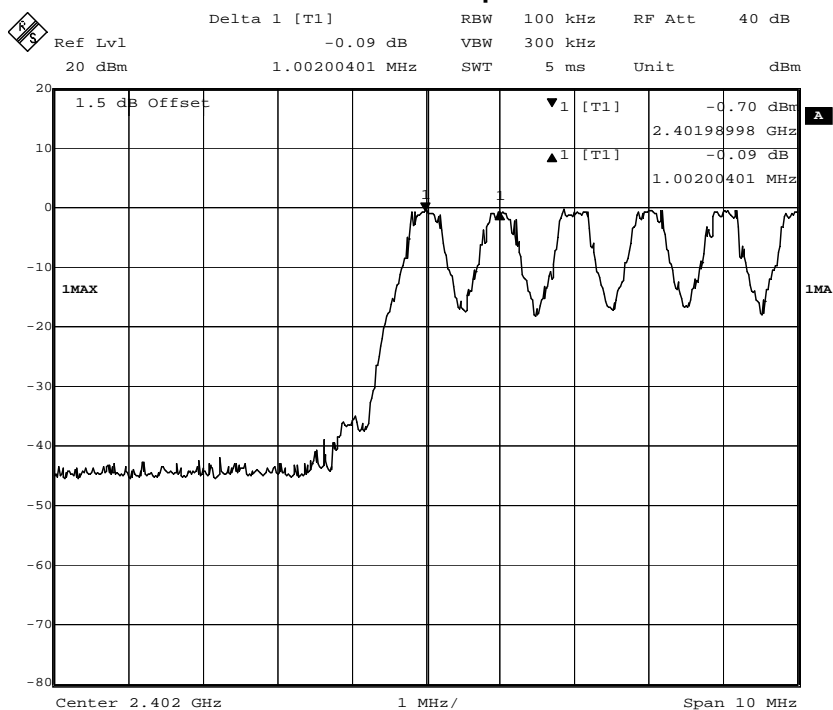
Test result:

| Test Channel | Carrier Frequencies Separated | Pass/Fail |
|--|-------------------------------|-----------|
| Lower Channels (channel 0 and channel 1) | 1.002MHz | Pass |
| Middle Channels (channel 39 and channel 40) | 1.002MHz | Pass |
| Upper Channels (channel 77 and channel 78) | 1.002MHz | Pass |

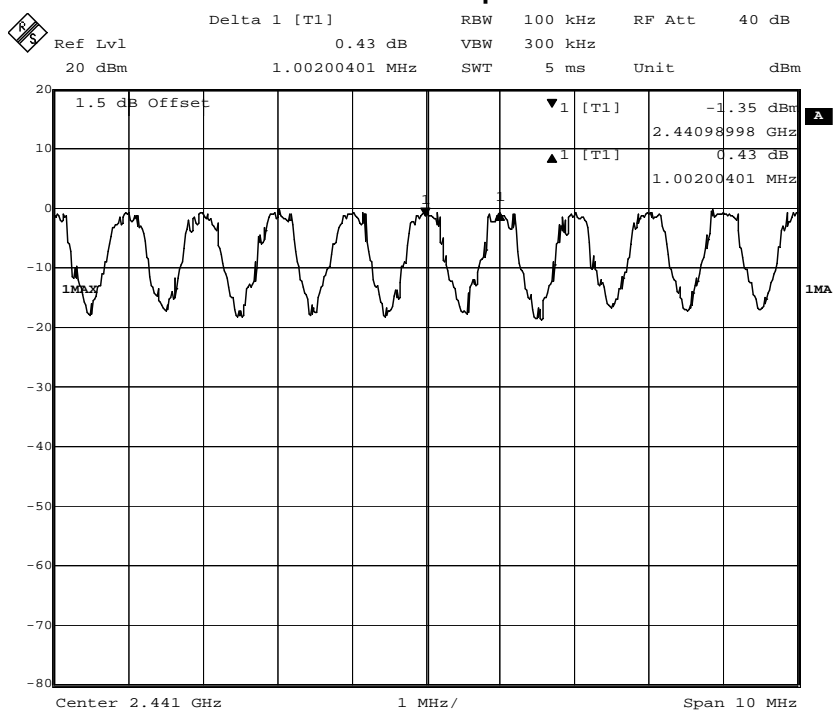
Remark:

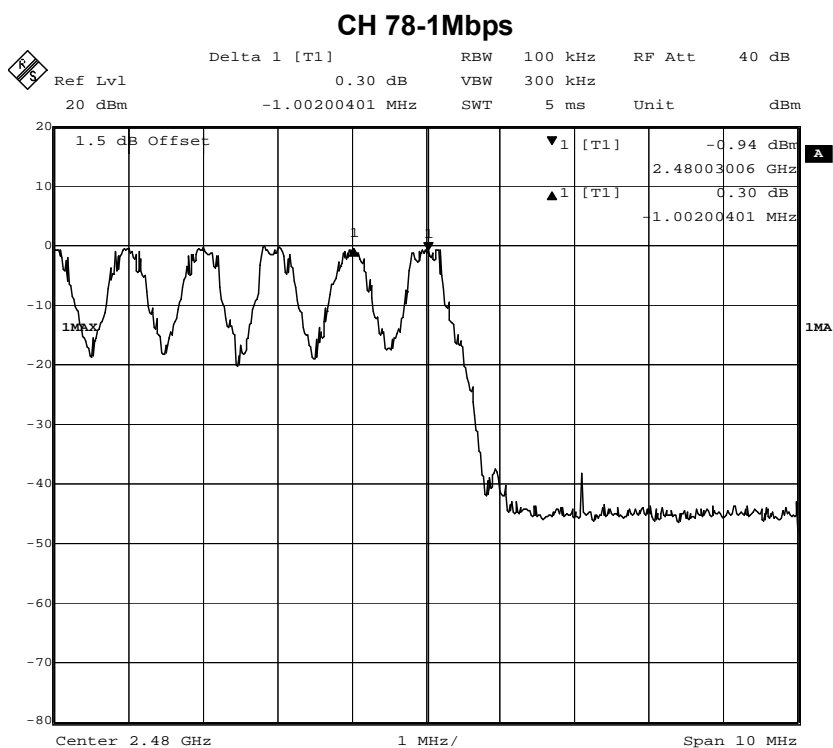
The limit is maximum two-thirds of the 20 dB bandwidth: 935 KHz.

CH 00-1Mbps



CH 39-1Mbps





Test result: The unit does meet the FCC requirements.

5.6 Hopping Channel Number

5.6.1 Applied procedures / Limit

15.247(a) (1) (iii) Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

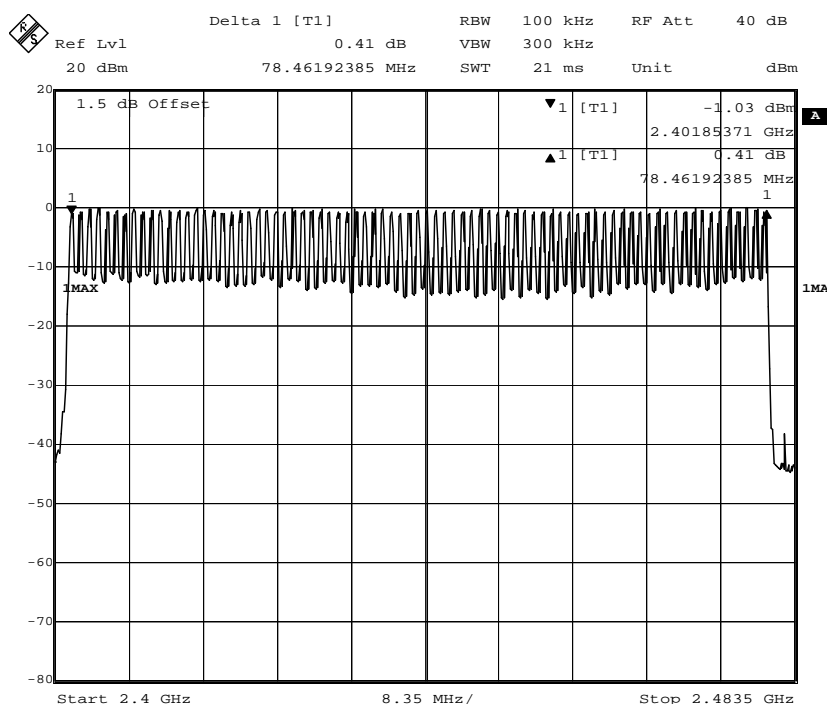
5.6.2 Test procedure

- (1) Connected the antenna port to the Spectrum Analyzer , set the Spectrum Analyzer as RBW=100kHz,VBW \geq RBW, Sweep time=Auto, Detector Function=Peak Trace=Maxhold.
- (2) The EUT should be have its hopping function enabled. Maxhold and record hopping channels It may prove necessary to break the span up to sections, in order to clearly show all of the hopping frequencies.

5.6.3 Test result

| Hopping Channel Number result | | |
|-----------------------------------|-------|----------------------|
| Operating Mode: 1Mbps\ 3Mbps Mode | | Test date:2015-06-11 |
| Result | Limit | Conclusion |
| 79 | 15 | Pass |

| | | | |
|--------------|-------------------|--------------------|----------------------|
| EUT: | BLUETOOTH SPEAKER | Model Name : | Q5 |
| Temperature: | 22 °C | Relative Humidity: | 53% |
| Pressure: | 1010 hPa | Test Power : | DC 3.7V from battery |
| Test Mode : | TX 1Mbps | | |



Test result: The unit does meet the FCC requirements.

5.7 Dwell time

5.7.1 Applied procedures / Limit

15.247(a) (1) (iii) Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

5.7.2 Test procedure

1. Remove the antenna from the EUT and then connect a low attenuation RF cable from the antenna port to the spectrum.
2. Set spectrum analyzer span = 0. centered on a hopping channel;
3. Set RBW = 1 MHz and VBW = 1 MHz. Sweep = as necessary to capture the entire dwell time per hopping channel. Detector Function = Peak. Trace = Max hold;
4. Use the marker-delta function to determine the dwell time. If this value varies with different modes of operation (e.g.. data rate. modulation format. etc.). Repeat this test for each variation. The limit is specified in one of the subparagraphs of this Section. Submit this plot(s). An oscilloscope may be used instead of a spectrum analyzer.

5.7.3 Test result

| | | | |
|--------------|-------------------|--------------------|----------------------|
| EUT: | BLUETOOTH SPEAKER | Model Name : | Q5 |
| Temperature: | 22 °C | Relative Humidity: | 53% |
| Pressure: | 1010 hPa | Test Power : | DC 3.7V from battery |
| Test Mode : | 3DH1/3DH3/3DH5 | | |

The test period: $T = 0.4 \text{ Second/Channel} \times 79 \text{ Channel} = 31.6 \text{ s}$

| | | | | | | | |
|--------------------------------|---|-------|------|---|----|---|--------------------------|
| 1. Channel 0: 2.402GHz | | | | | | | |
| 3DH1 time slot | = | 0.400 | (ms) | * | 33 | * | (31.6/3.16) = 132.000 ms |
| 3DH3 time slot | = | 1.661 | (ms) | * | 16 | * | (31.6/3.16) = 265.760 ms |
| 3DH5 time slot | = | 2.901 | (ms) | * | 11 | * | (31.6/3.16) = 319.110 ms |
| 2. Channel 39: 2.441GHz | | | | | | | |
| 3DH1 time slot | = | 0.408 | (ms) | * | 33 | * | (31.6/3.16) = 134.640 ms |
| 3DH3 time slot | = | 1.661 | (ms) | * | 16 | * | (31.6/3.16) = 265.760 ms |
| 3DH5 time slot | = | 2.910 | (ms) | * | 11 | * | (31.6/3.16) = 320.100 ms |
| 3. Channel 78: 2.480GHz | | | | | | | |
| 3DH1 time slot | = | 0.417 | (ms) | * | 33 | * | (31.6/3.16) = 137.610 ms |
| 3DH3 time slot | = | 1.661 | (ms) | * | 16 | * | (31.6/3.16) = 265.760 ms |
| 3DH5 time slot | = | 2.901 | (ms) | * | 11 | * | (31.6/3.16) = 319.110 ms |

The average time of occupancy in the specified 31.6 second period is equal to pulse width*(# of pulse in observation period)*(test period / observation period)

The results are not greater than 0.4 seconds.

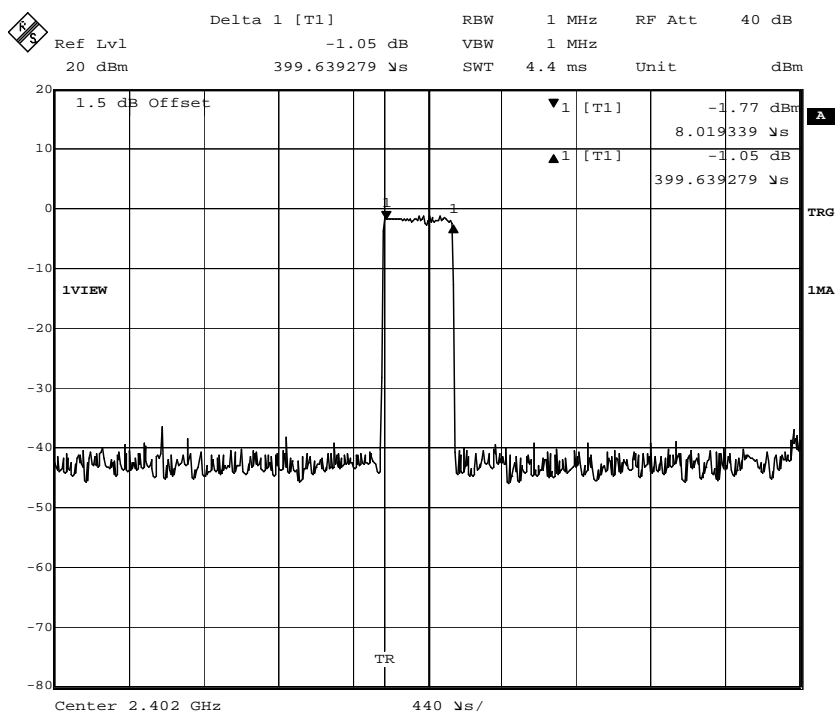
The unit does meet the FCC requirements.

Result plot as follows:

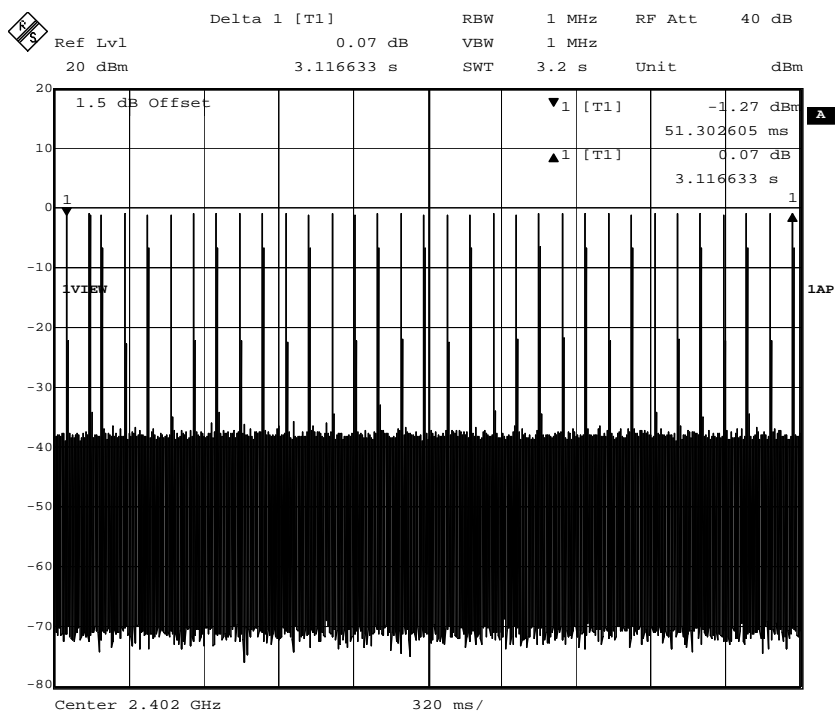
1. Lowest channel (2.402 GHz):

(1). 3DH1

Pulse Width:

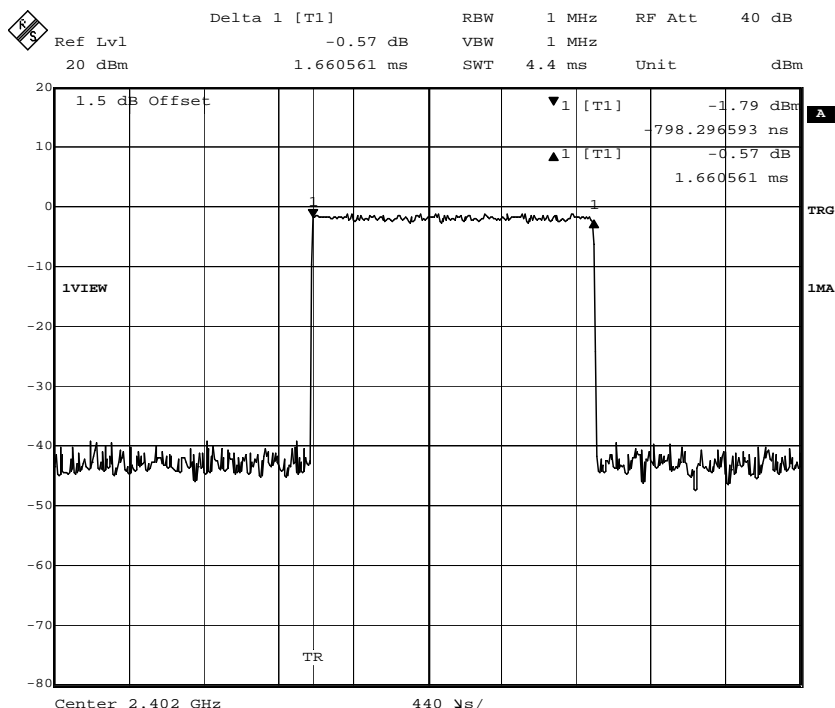


Number of Pulses in 3.16 S observation period:

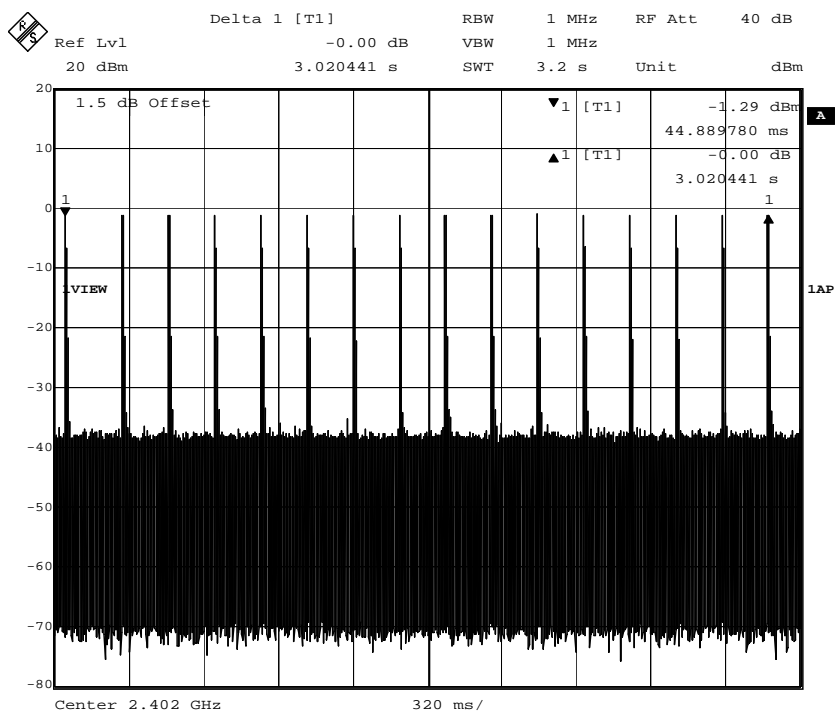


(2) 3DH3

Pulse Width:

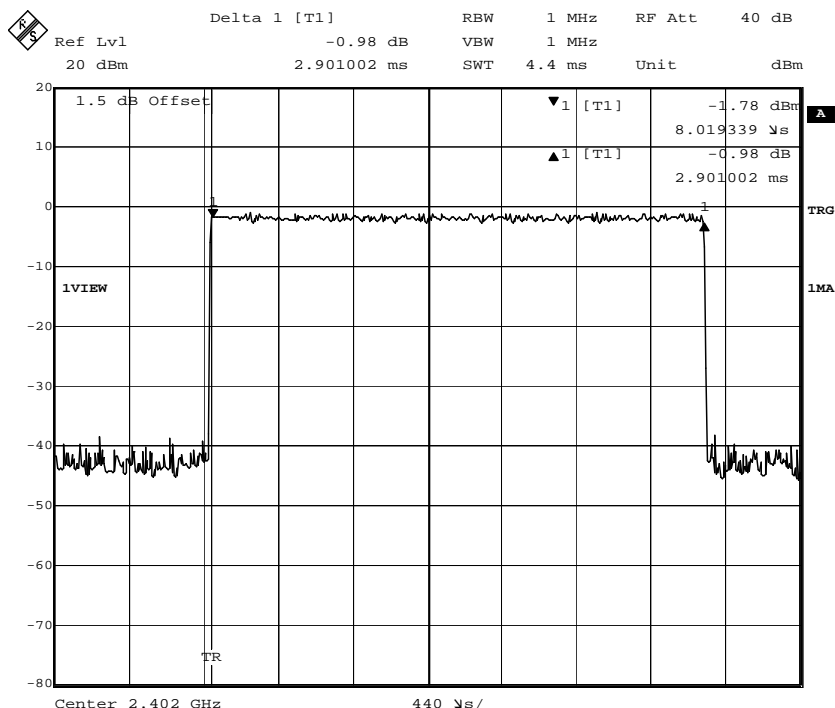


Number of Pulses in 3.16 S observation period:

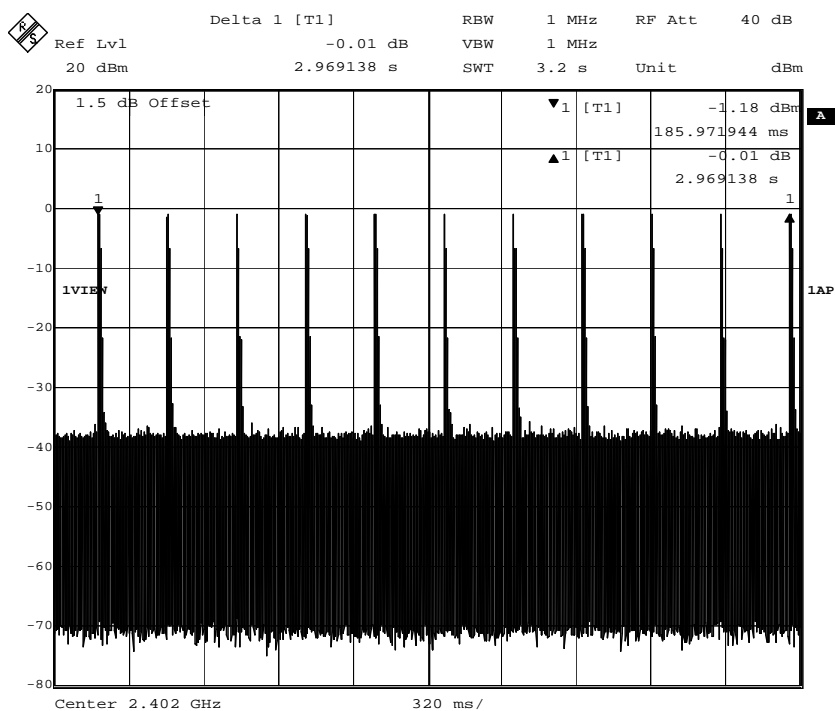


(3) 3DH5

Pulse Width:



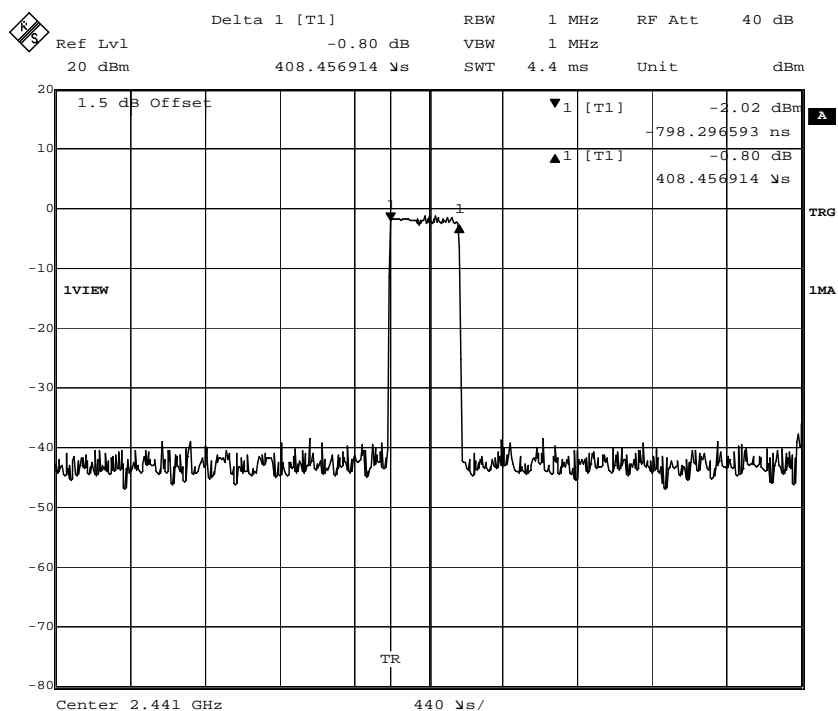
Number of Pulses in 3.16 S observation period:



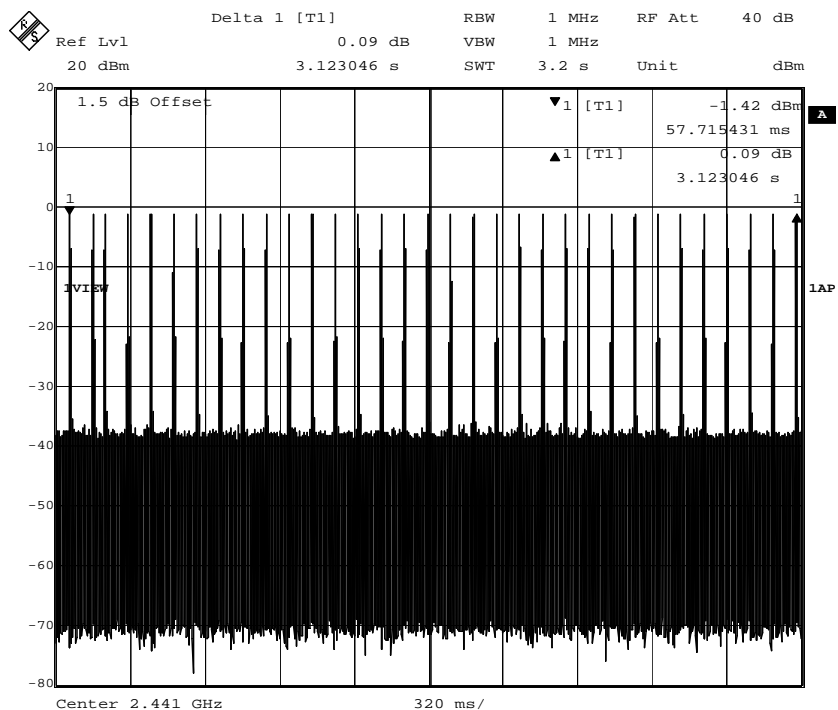
2. Middle Channel (2.441 GHz):

(1). 3DH1

Pulse Width:

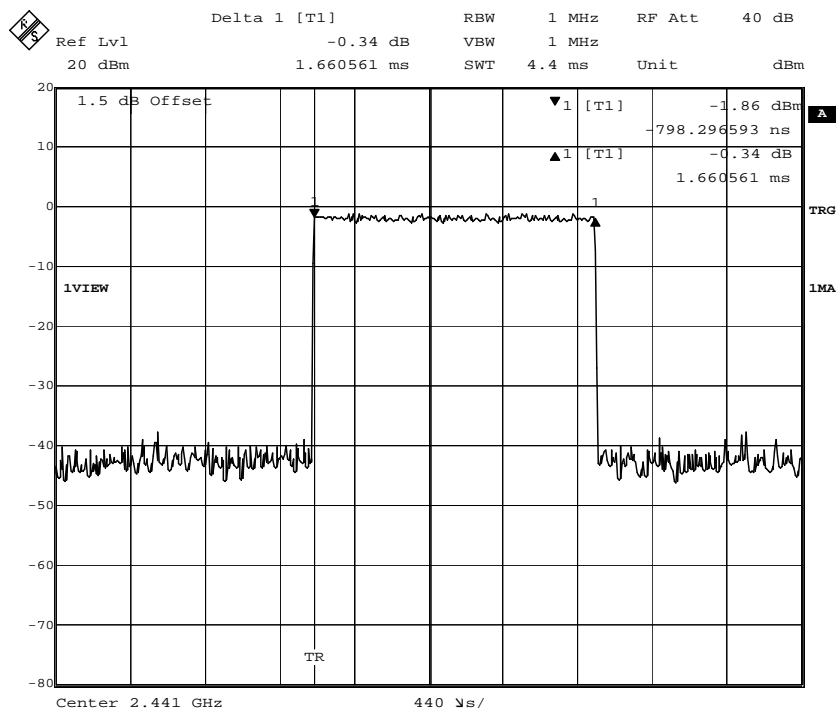


Number of Pulses in 3.16 S observation period:

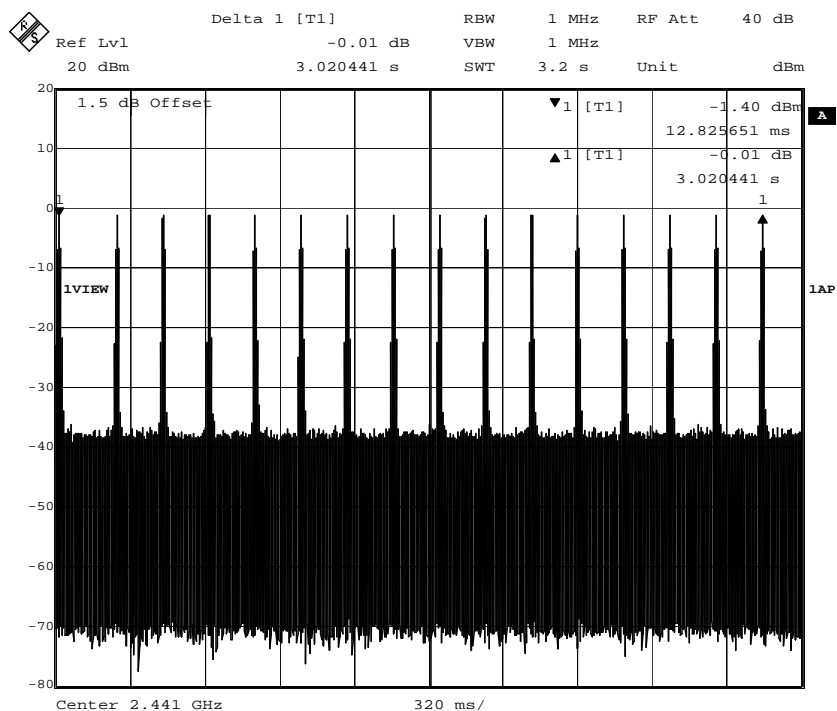


(2) 3DH3

Pulse Width:

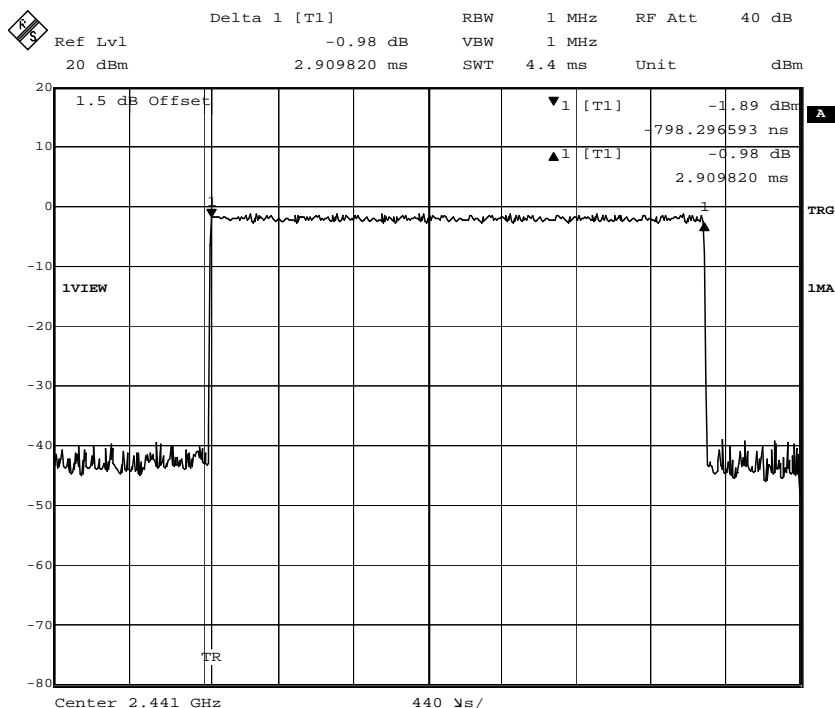


Number of Pulses in 3.16 S observation period:

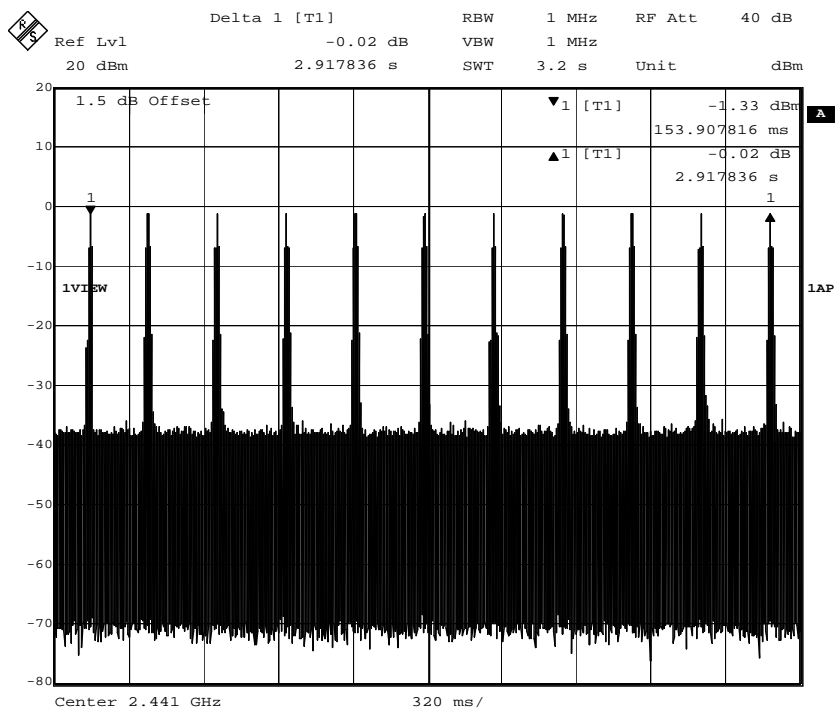


(3) 3DH5

Pulse Width:



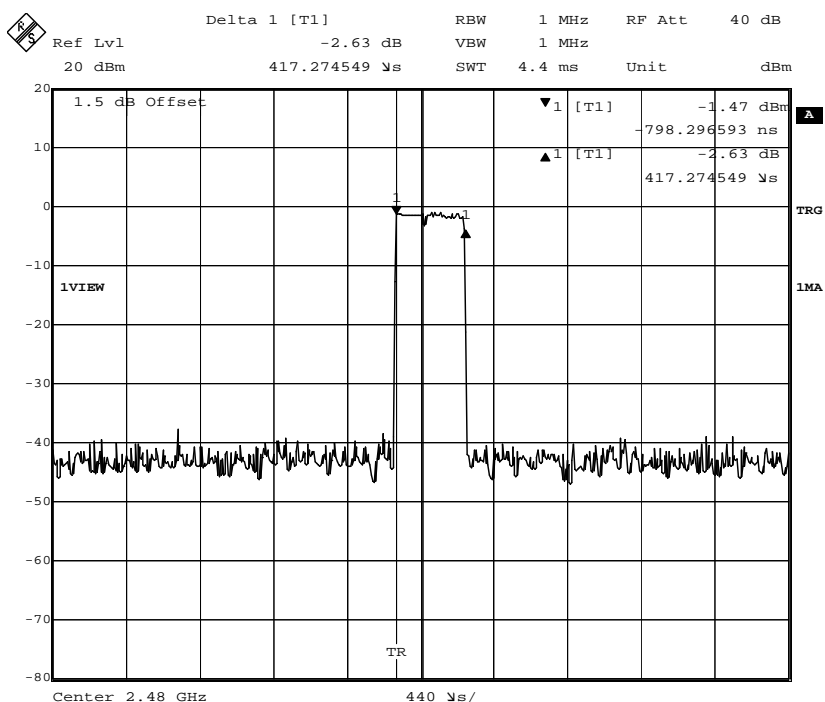
Number of Pulses in 3.16 S observation period:



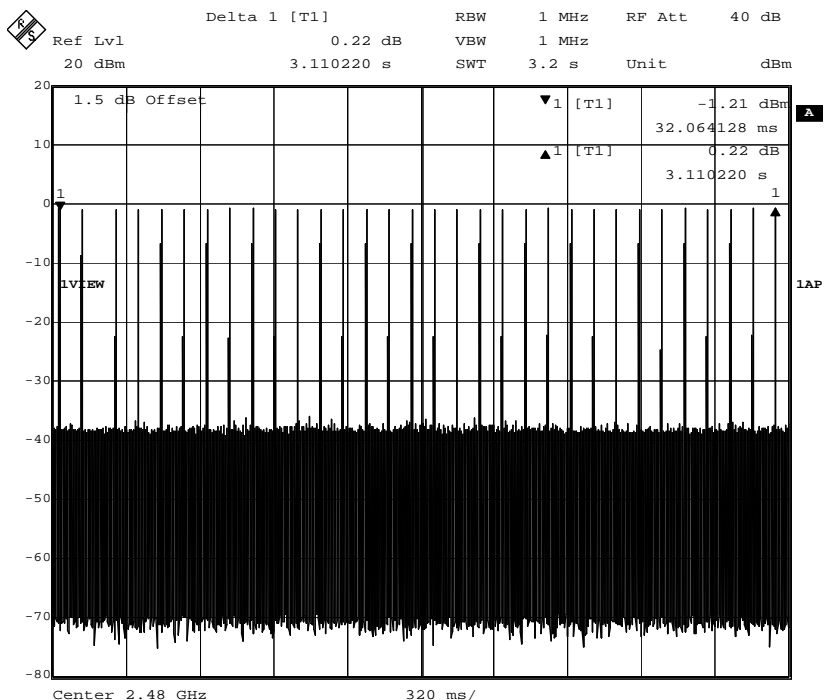
3. Highest Channel (2.480 GHz):

(1). 3DH1

Pulse Width:

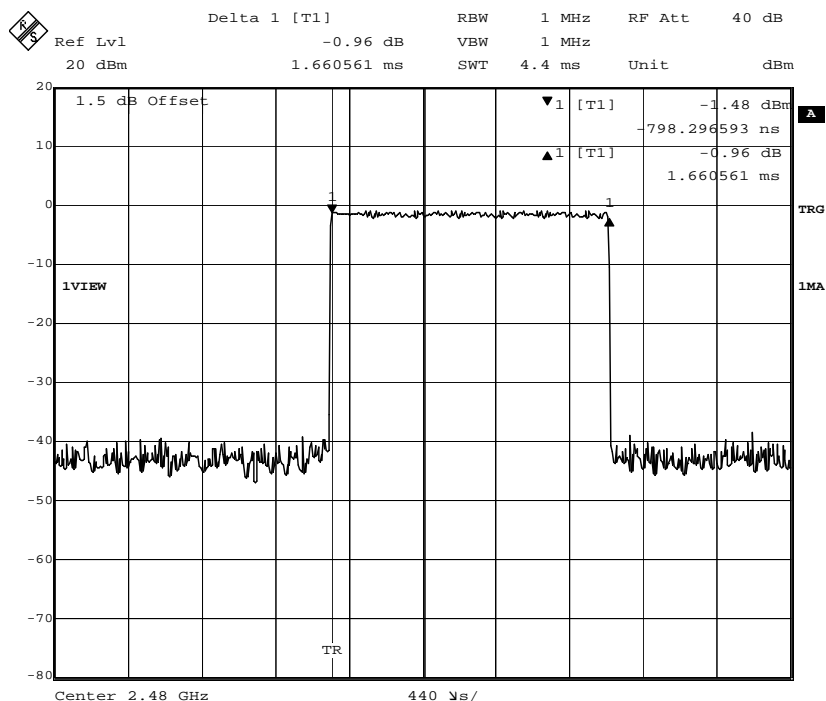


Number of Pulses in 3.16 S observation period:

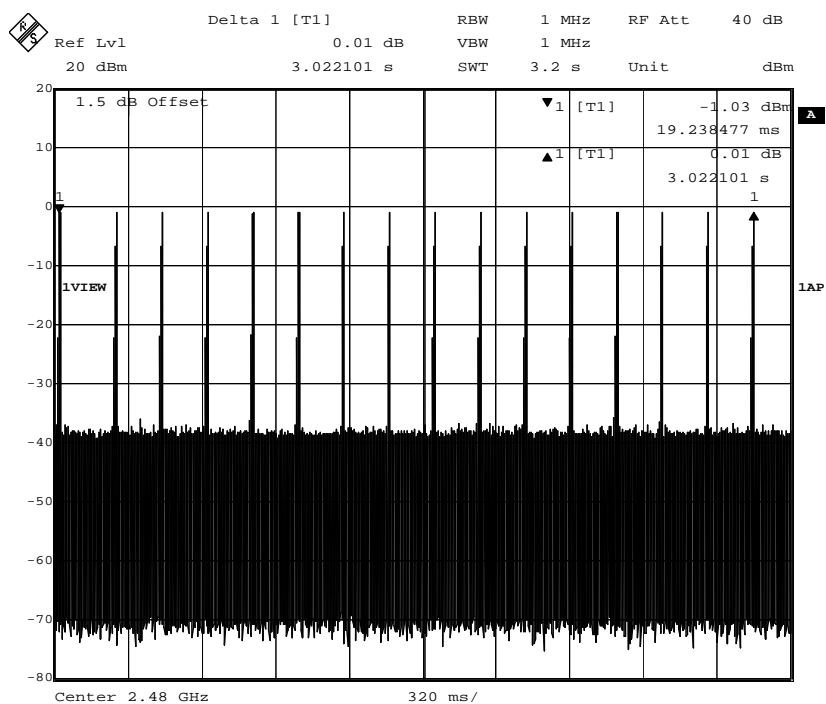


(2) 3DH3

Pulse Width:

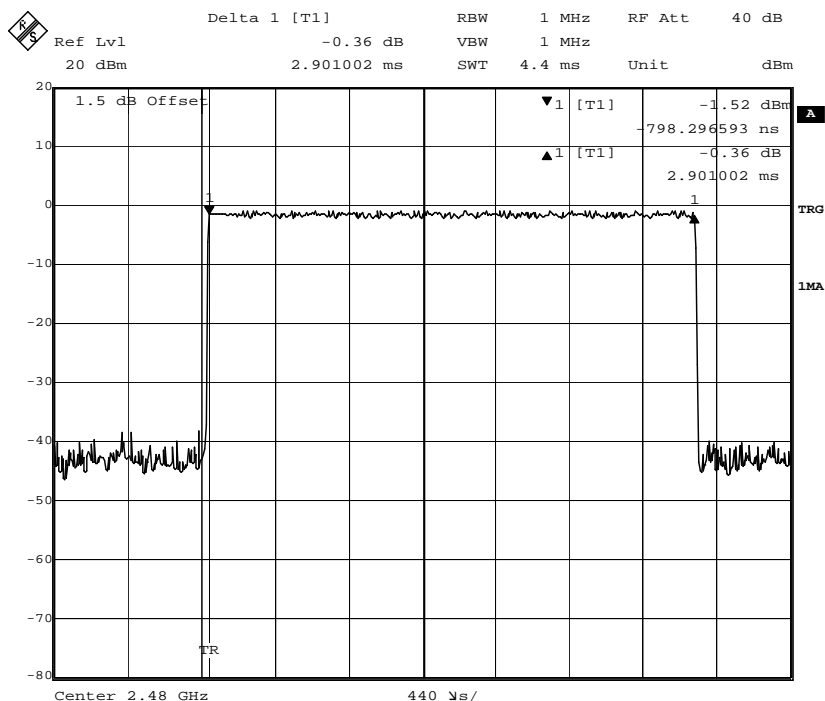


Number of Pulses in 3.16 S observation period:

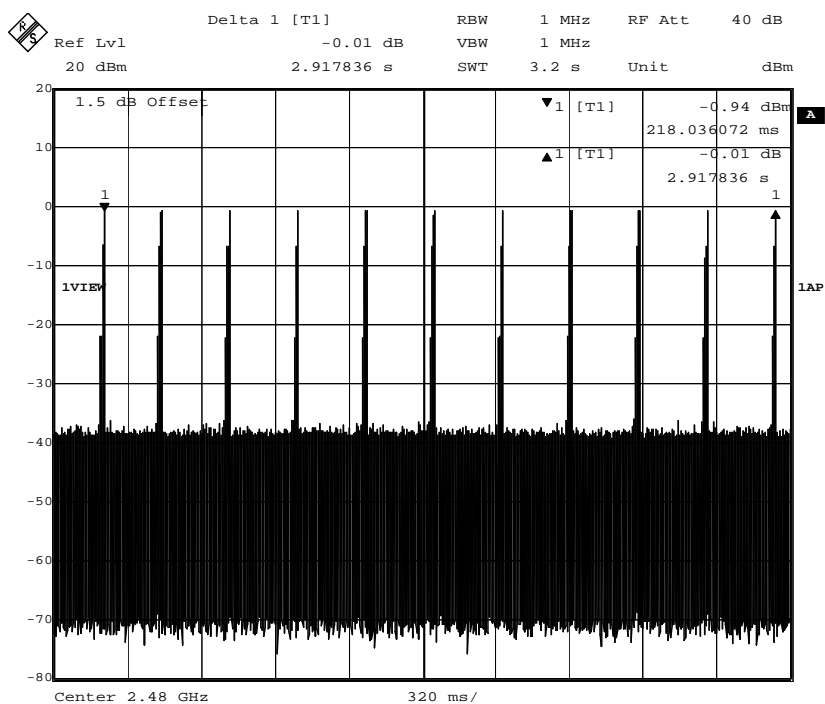


(3) 3DH5

Pulse Width:



Number of Pulses in 3.16 S observation period:



5.8 Maximum Peak Output Power

5.8.1 Applied procedures / Limit

15.247(b) (1) 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: 1watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

5.8.2 Test procedure

- (1) Connected the antenna port to the Spectrum Analyzer, set the Spectrum Analyzer as RBW=3MHz,VBW \geq RBW, Sweep time=Auto, Detector Function=Peak.
- (2) The EUT should be transmitting at its maximum data rate. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak output power.
- (3) The above procedure shall be repeated at the lowest, the middle, and the highest frequency of the stated frequency range with modulated mode. also shall be performed at different modes of operation.

5.8.3 Deviation from standard

No deviation.

5.8.4 Test setup

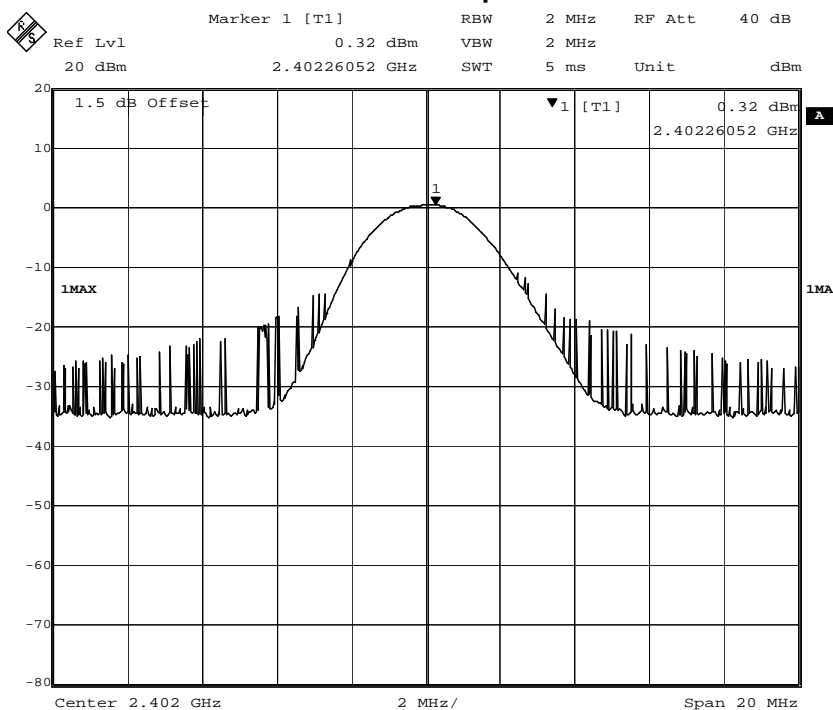


5.8.5 Test results

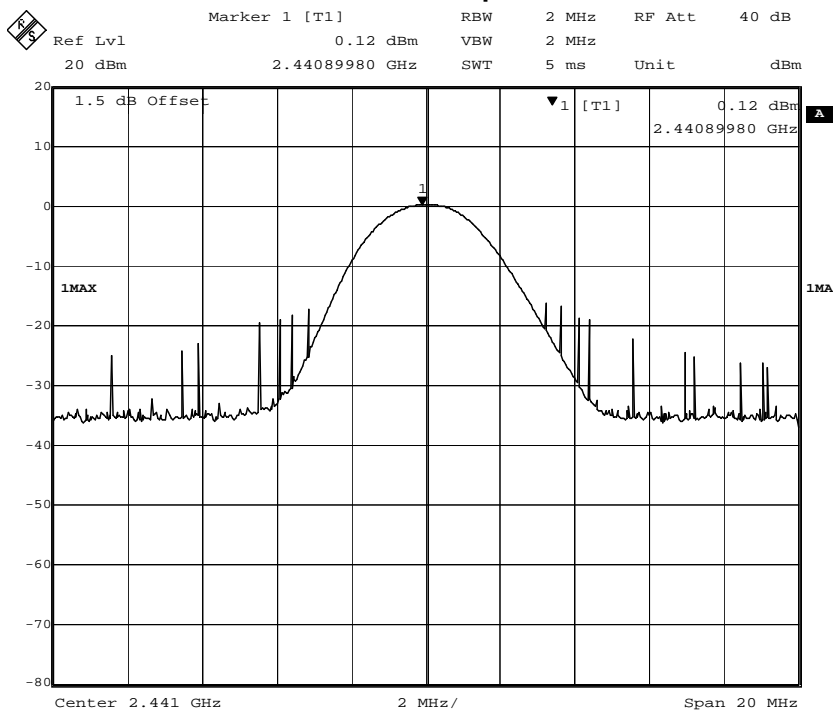
| | | | |
|--|-------------------|--------------------|----------------------|
| EUT: | BLUETOOTH SPEAKER | Model Name : | Q5 |
| Temperature: | 22 °C | Relative Humidity: | 60% |
| Pressure: | 1010 hPa | Test Voltage : | DC 3.7V from battery |
| Test Mode : | TX | | |
| Note: All the data rates have be tested and the worst-case as the table below. | | | |

| Test Result: | | | | |
|--|-----------------------------|--------------------|-------------|--------|
| Normal mode: | | | | |
| Test Channel | Fundamental Frequency (MHz) | Output Power (dBm) | Limit (dBm) | Result |
| Lowest | 2402 | 0.32 | 30.0 | Pass |
| Middle | 2441 | 0.12 | 30.0 | Pass |
| Highest | 2480 | 0.46 | 30.0 | Pass |
| EDR mode: | | | | |
| Test Channel | Fundamental Frequency (MHz) | Output Power (dBm) | Limit (dBm) | Result |
| Lowest | 2402 | -0.88 | 30.0 | Pass |
| Middle | 2441 | -1.00 | 30.0 | Pass |
| Highest | 2480 | -0.39 | 30.0 | Pass |
| Remark: cable lose=1.5 dB | | | | |
| Test result: The unit does meet the FCC requirements. | | | | |

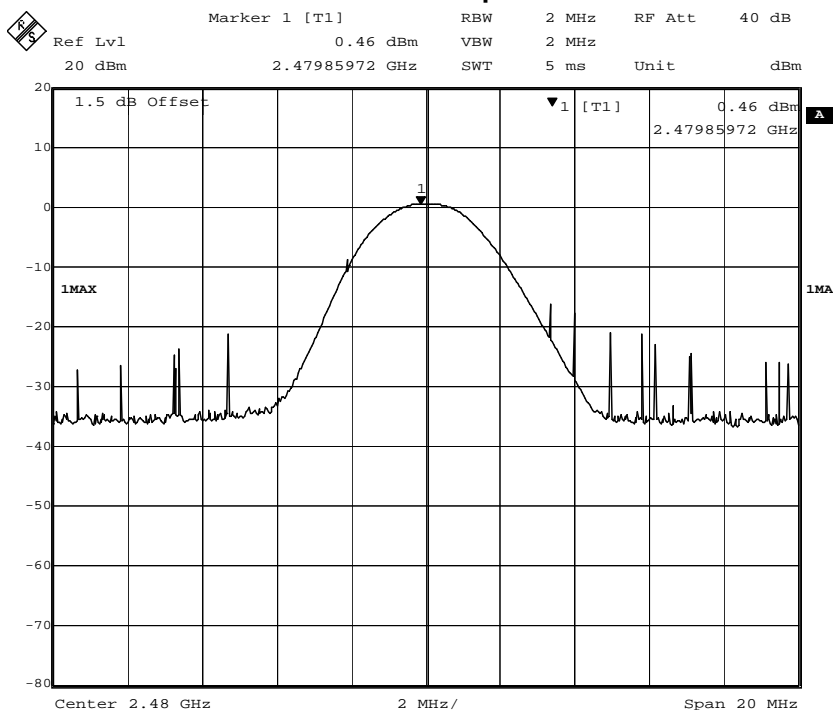
CH 00-1Mbps



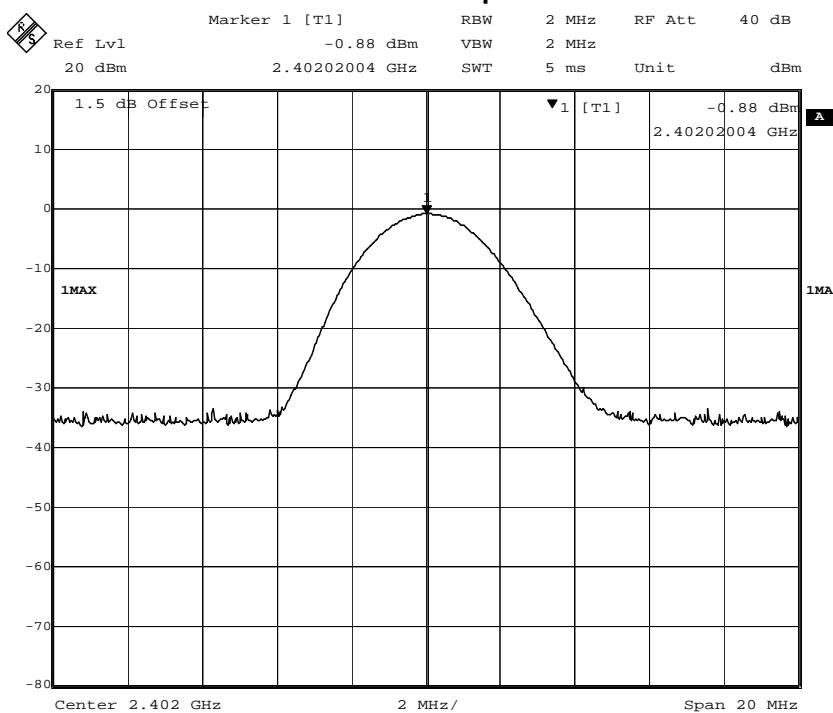
CH 39-1Mbps



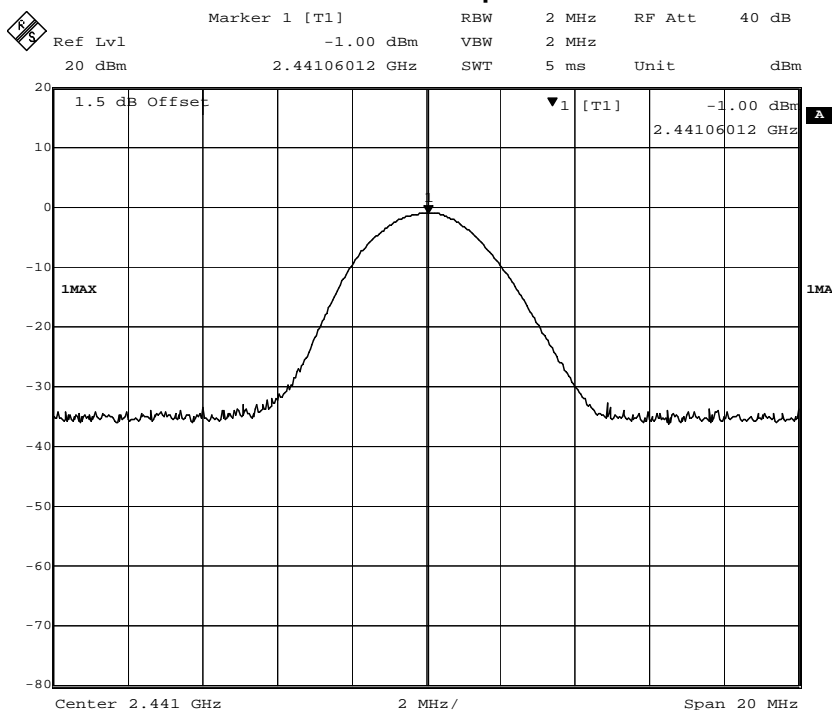
CH 78-1Mbps



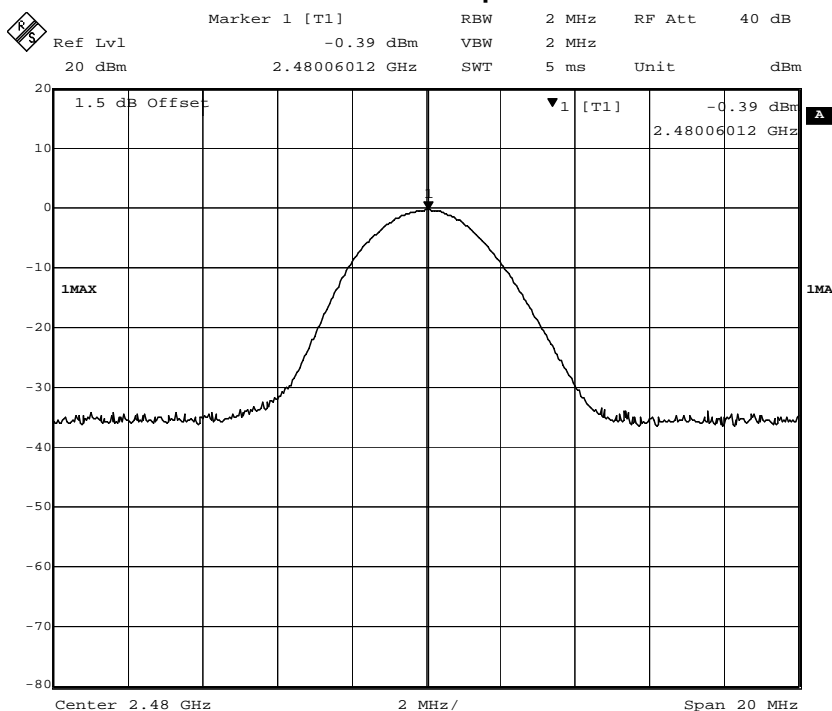
CH 00-3Mbps



CH 39-3Mbps



CH 78-3Mbps



5.9 Band edge

5.9.1 Applied procedures / Limit

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

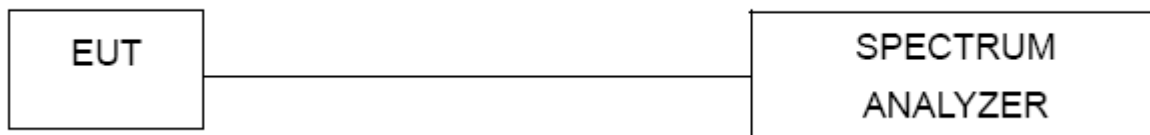
5.9.2 Test procedure

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. Spectrum Setting: RBW=100kHz, VBW \geq RBW, Sweep time=Auto, Detector Function=Peak.

5.9.3 Deviation from standard

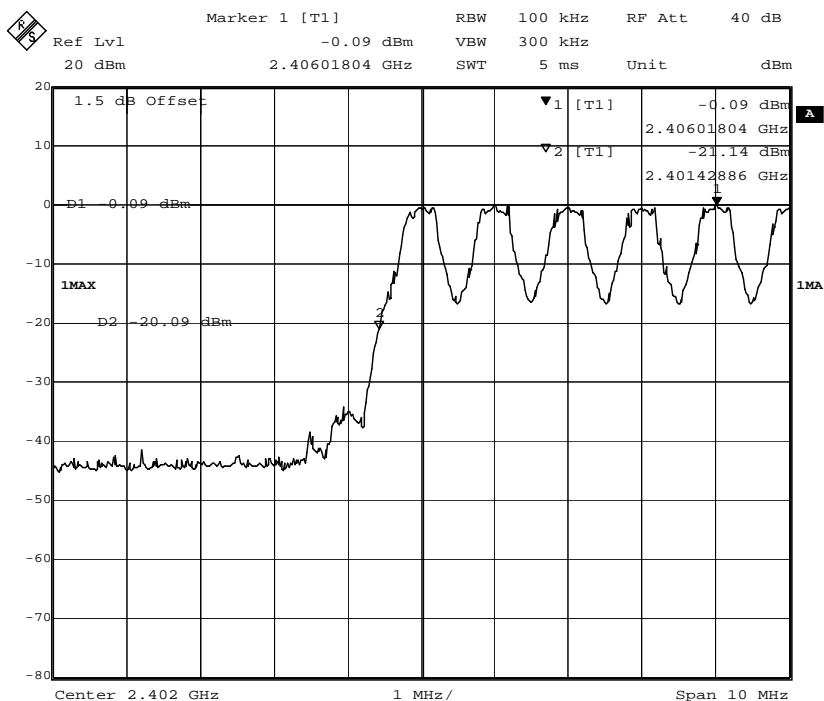
No deviation.

5.9.4 Test setup

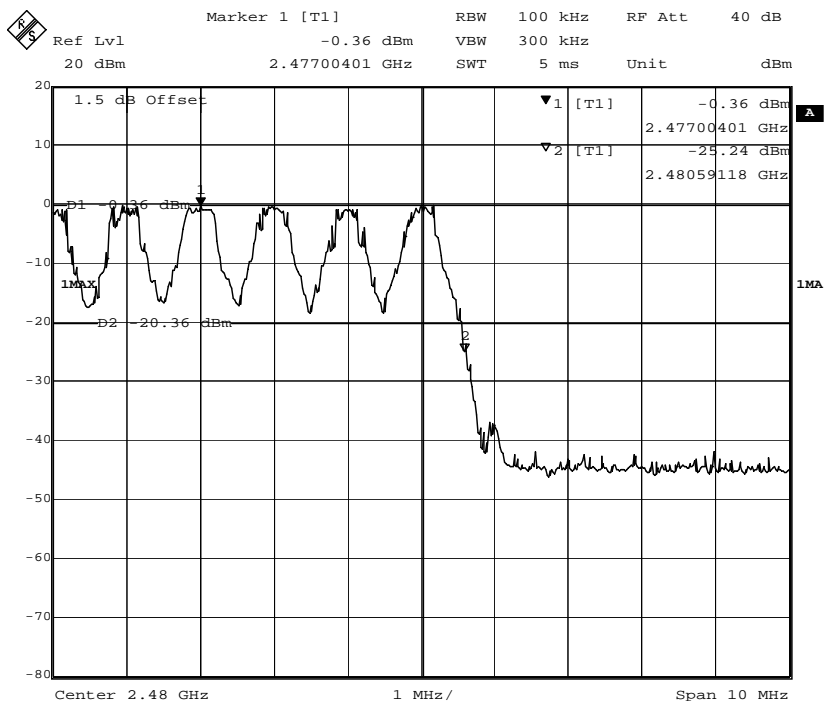


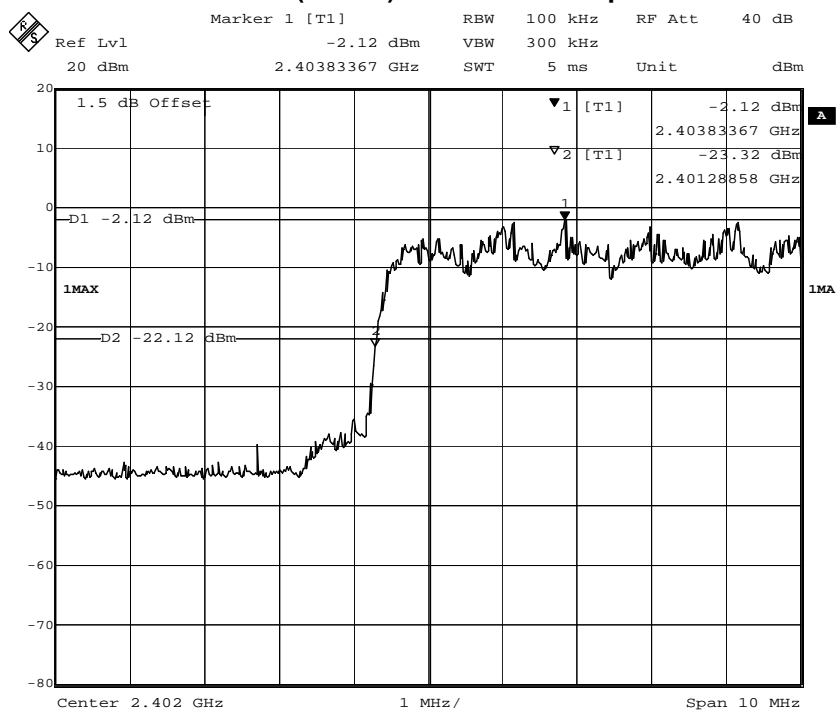
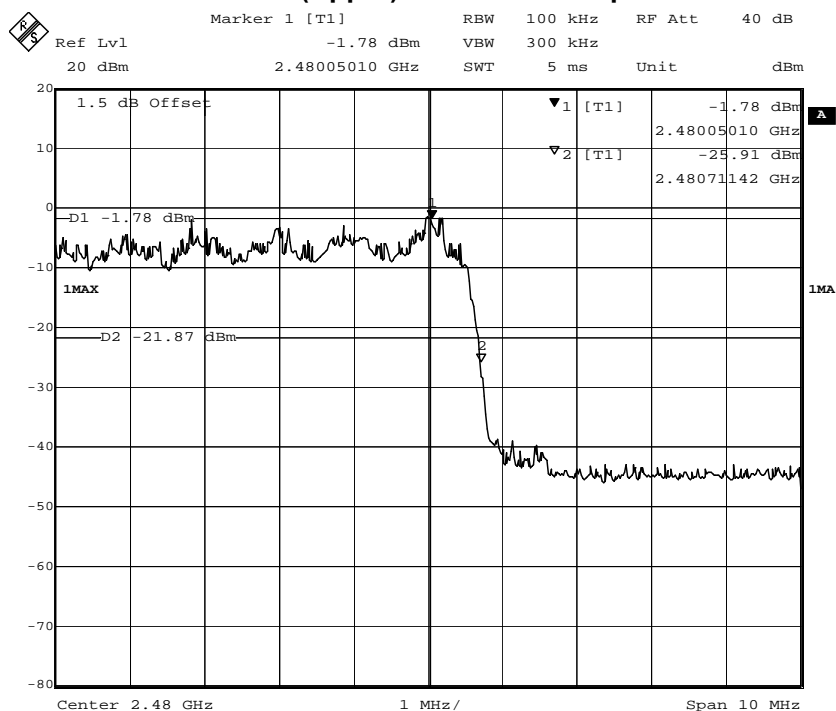
5.9.5 Test results

CH00 (Lower) Data rate 1Mbps



CH 78 (Upper) Data rate 1Mbps



CH00 (Lower) Data rate 3Mbps**CH 78 (Upper) Data rate 3Mbps**

5.10 Conducted Spurious Emissions

5.10.1 Applied procedures / Limit

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

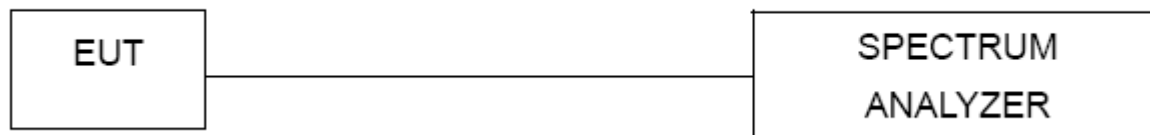
5.10.2 Test procedure

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. Spectrum Setting: RBW=100kHz, VBW \geq RBW, Sweep time=Auto, Detector Function=Peak.

5.10.3 Deviation from standard

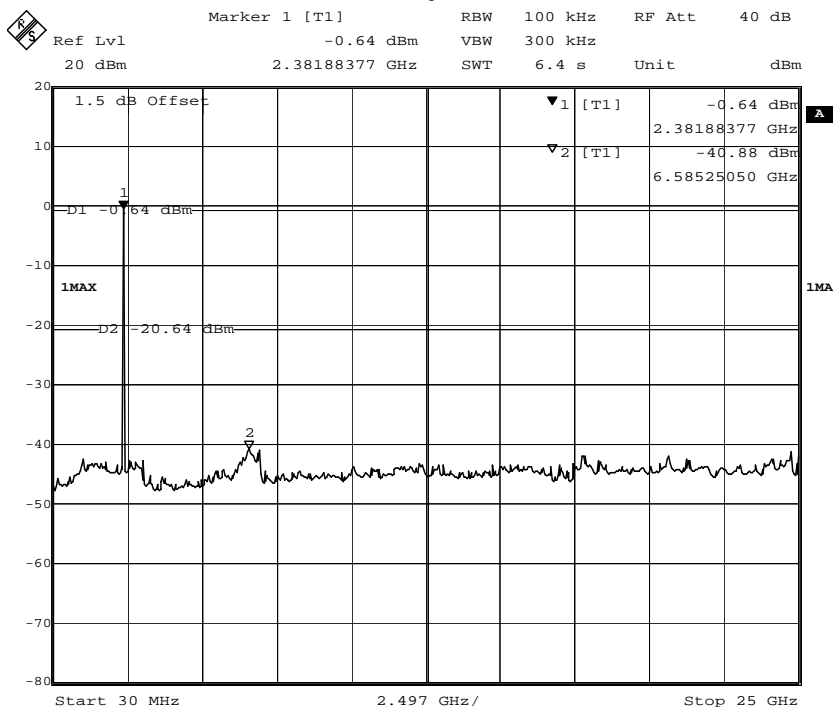
No deviation.

5.10.4 Test setup

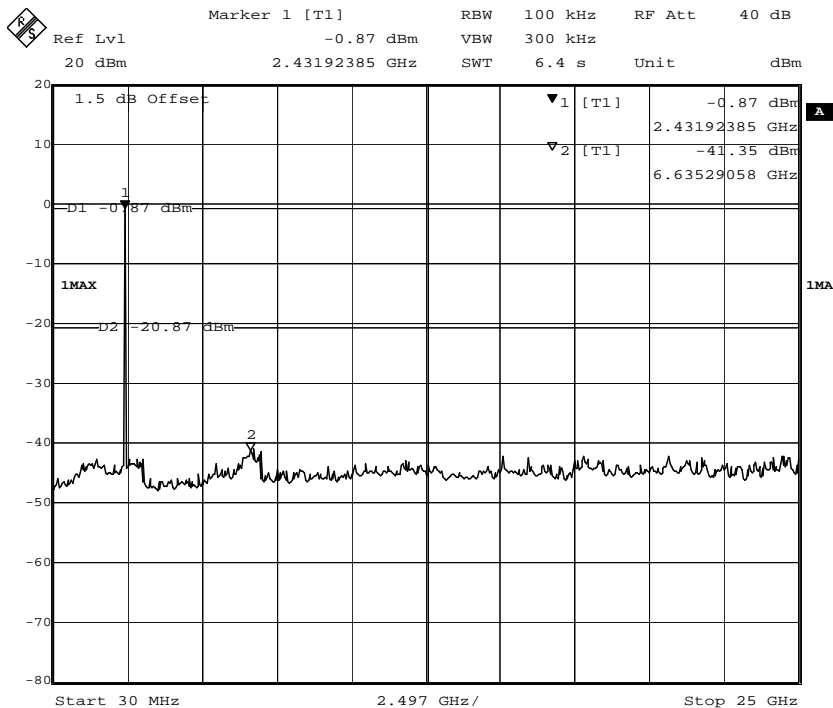


5.10.5 Test results

CH00 Data rate 1Mbps 30MHz to 25GHz



CH39 Data rate 1Mbps 30MHz to 25GHz



CH78 Data rate 1Mbps 30MHz to 25GHz

