




WIFI Test Report

Application Purpose : Original grant
Applicant Name: : TECNO MOBILE LIMITED
FCC ID : 2ADYY-Y4
Equipment Type : Mobile Phone
Model Name : Y4
Report Number : FCC15016703-4
Standard(S) : FCC Part 15 Subpart C
Date Of Receipt : January 19, 2015
Date Of Issue : January 28, 2015

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REPORT REVISE RECORD

| Report Version | Revise Time | Issued Date | Valid Version | Notes |
|----------------|-------------|------------------|---------------|-----------------|
| V1.0 | / | January 28, 2015 | Valid | Original Report |

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1. GENERAL INFORMATION

GENERAL DESCRIPTION OF EUT

| | |
|--------------------------|--|
| Test Model | Y4 |
| Applicant | TECNO MOBILE LIMITED |
| Address | RMS 05-15, 13A/F., SOUTH TOWER, WORLD FINANCE CTR, HARBOUR CITY, KLN, HK. |
| Manufacturer | SHENZHEN SMARTTEL CO., LTD. |
| Address | 6th Floor, Block 15, shatoujiao Free TRADE Zone, Shenyang Road, Yantian District, Shenzhen, Guangdong, P.R.China |
| Equipment Type | Mobile Phone |
| Brand Name | TECNO |
| Hardware version: | G220_MAIN_PCB_V1.0 |
| Software version: | Y4-G220-A1-KK |
| Extreme Temp. Tolerance | -10°C to +50°C |
| Battery information: | Model: BL-18CT Voltage: 3.8V Capacity: 1800mAh |
| Adapter Information: | Model: US-AH-1000 Input: AC 100–240 V, 50-60 Hz, 0.2A Output: DC 5.0 V 1A |
| Operating Frequency | 2412-2462MHz |
| Channels | 13 |
| Channel Spacing | 5MHz |
| Modulation Type | CCK for IEEE 802.11b OFDM for IEEE 802.11g/n HT-20/n HT-40 |
| Antenna Type: | Integral Antenna |
| Antenna gain: | 1.55dBi |
| Data of receipt | January 19, 2015 |
| Date of test | January 19, 2015 to January 27, 2015 |
| Deviation | None |
| Condition of Test Sample | Normal |

We hereby certify that:

All measurement facilities used to collect the measurement data are located at Building A, Baoshi Science & Technology Park, Baoshi Road, Bao'an District, Shenzhen, Guangdong, China

The data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C 63.4:2009. The sample tested as described in this report is in compliance with the FCC Rules Part15 Subpart C.

The test results of this report relate only to the tested sample identified in this report.

2. TEST DESCRIPTION

2.1 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately **95 %**.

| No. | Item | Uncertainty |
|-----|-------------------------------|---------------------------|
| 1 | Conducted Emission Test | $\pm 3.2\text{dB}$ |
| 2 | RF power, conducted | $\pm 0.16\text{dB}$ |
| 3 | Spurious emissions, conducted | $\pm 0.21\text{dB}$ |
| 4 | All emissions, radiated(<1G) | $\pm 4.7\text{dB}$ |
| 5 | All emissions, radiated(>1G) | $\pm 4.7\text{dB}$ |
| 6 | Temperature | $\pm 0.5^{\circ}\text{C}$ |
| 7 | Humidity | $\pm 2\%$ |

2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

| Pretest Mode | Description |
|--------------|------------------------|
| Mode 1 | 802.11b |
| Mode 2 | 802.11g |
| Mode 3 | 802.11n20 |
| Mode 4 | 802.11n40 |
| Mode 5 | Keep WIFI Transmitting |

| For Conducted Emission | |
|------------------------|------------------------|
| Final Test Mode | Description |
| Mode 5 | Keep WIFI Transmitting |

| For Radiated Emission | |
|-----------------------|------------------------|
| Final Test Mode | Description |
| Mode 1 | 802.11b |
| Mode 2 | 802.11g |
| Mode 3 | 802.11n20 |
| Mode 4 | 802.11n40 |
| Mode 5 | Keep WIFI Transmitting |

Note:

- (1) The measurements are performed at the highest, middle, lowest available channels.**
- (2) Record the worst case of each test item in this report.**
- (3) The EUT was programmed to be in continuously transmitting mode and the transmit duty cycle is not less than 98%**
- (4)Keep WIFI Transmitting is that the EUT was controlled by fixed-frequency software.**

2.3 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

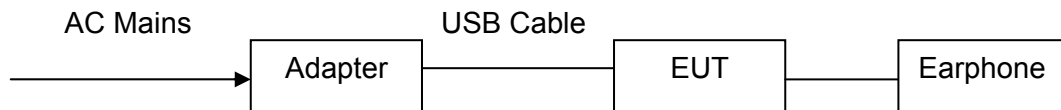
During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of DSSS.

The wifi power control level, channel, bandwidth and transmitter rate are controlled by fix-frequency software.

| | |
|-----------------------|------------|
| Test software Version | N/A |
| Test program | *#3646633# |

| | | | |
|--------------------------|----------|----------|----------|
| Frequency(802.11b/g/n20) | 2412 MHz | 2437 MHz | 2462 MHz |
| Frequency(802.11n40) | 2422 MHz | 2437 MHz | 2452 MHz |

2.4 CONFIGURATION OF SYSTEM UNDER TEST



(EUT: Mobile Phone)

| I/O Port of EUT | | | |
|-----------------|------|-------------------------------|-------------|
| I/O Port Type | Q'TY | Cable | Tested with |
| USB port | 1 | 0.8m USB cable, unshielded | 1 |
| Earphone | 1 | 1m | 1 |

2.5 DESCRIPTION OF SUPPORT UNITS (CONDUCTED MODE)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| Item | Equipment | Mfr/Brand | Model/Type No. | Series No. | Note |
|------|-----------|-----------|----------------|------------|------|
| 1 | / | / | / | / | / |

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) During test, the power level, channel, bandwidth and rate of WIFI transmitting are controlled by fixed-frequency software.

3. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

| FCC Part15 (15.247) , Subpart C | | | |
|---------------------------------|--|----------|----------|
| Standard Section | Test Item | Judgment | Remark |
| 15.107 & 15.207 | Conducted Emission Test | PASS | Complies |
| 15.247(a)(2) Limit | Spectrum bandwidth of a Orthogonal Frequency Division Multiplex System Limit: 6dB bandwidth>500kHz | PASS | Complies |
| 15.247(b) | Maximum peak outputpower Limit: max. 30dBm | PASS | Complies |
| 15.109,15.205 & 15.209 | Transmitter Radiated Emission Limit: Table 15.209 | PASS | Complies |
| 15.247(e) | Power Spectral Density Limit: max. 8dBm | PASS | Complies |
| 15.247(d) | Out of Band Emission and Restricted Band Radiation Limit: 20dB less than peak value of fundamental frequency Restricted band limit: Table 15.209 | PASS | Complies |

NOTE:

(1)" N/A" denotes test is not applicable in this test report.

4. MEASUREMENT INSTRUMENTS

| NAME OF EQUIPMENT | MANUFACTURER | MODEL | SERIAL NUMBER | Calibration Date | Calibration Due. |
|--------------------------------------|------------------------|--------------|---------------|------------------|------------------|
| EMI Test Receiver | R&S | ESCI | 100005 | 08/19/2014 | 08/18/2015 |
| ESPI Test Receiver | ROHDE&SCHWARZ | ESPI | 101139 | 08/19/2014 | 08/18/2015 |
| LISN | AFJ | LS16 | 16010222119 | 08/19/2014 | 08/18/2015 |
| LISN(EUT) | Mestec | AN3016 | 04/10040 | 08/19/2014 | 08/18/2015 |
| Universal Radio Communication Tester | R&S | CMU 200 | 1100.0008.02 | 08/19/2014 | 08/18/2015 |
| Coaxial cable | Megalon | LMR400 | N/A | 08/12/2014 | 08/11/2015 |
| GPIB cable | Megalon | GPIB | N/A | 08/12/2014 | 08/11/2015 |
| Spectrum Analyzer | R&S | FSU | 100114 | 08/19/2014 | 08/18/2015 |
| Pre Amplifier | H.P. | HP8447E | 2945A02715 | 10/13/2014 | 10/12/2015 |
| Pre-Amplifier | CDSI | PAP-1G18-38 | -- | 10/13/2014 | 10/12/2015 |
| Bi-log Antenna | SUNOL Sciences | JB3 | A021907 | 09/13/2014 | 09/12/2015 |
| 9*6*6 Anechoic | -- | -- | -- | 08/21/2014 | 08/20/2015 |
| Horn Antenna | COMPLIANCE ENGINEERING | CE18000 | -- | 09/13/2014 | 09/12/2015 |
| Horn Antenna | SCHWARZBECK | BBHA9120D | 9120D-631 | 08/23/2014 | 08/22/2015 |
| Cable | TIME MICROWAVE | LMR-400 | N-TYPE04 | 04/25/2014 | 04/24/2015 |
| System-Controller | CCS | N/A | N/A | N.C.R | N.C.R |
| Turn Table | CCS | N/A | N/A | N.C.R | N.C.R |
| Antenna Tower | CCS | N/A | N/A | N.C.R | N.C.R |
| RF cable | Murata | MXHQ87WA3000 | - | 08/21/2014 | 08/20/2015 |
| Loop Antenna | EMCO | 6502 | 00042960 | 08/22/2014 | 08/21/2015 |
| Horn Antenna | SCHWARZBECK | BBHA 9170 | 1123 | 08/19/2014 | 08/18/2015 |
| Power meter | Anritsu | ML2487A | 6K00003613 | 08/23/2014 | 08/22/2015 |
| Power sensor | Anritsu | MX248XD | -- | 08/19/2014 | 08/18/2015 |

5. EMC EMISSION TEST

5.1 CONDUCTED EMISSION MEASUREMENT

5.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

| FREQUENCY (MHz) | Class A (dBuV) | | Class B (dBuV) | | Standard |
|-----------------|----------------|---------|----------------|-----------|----------|
| | Quasi-peak | Average | Quasi-peak | Average | |
| 0.15 -0.5 | 79.00 | 66.00 | 66 - 56 * | 56 - 46 * | FCC |
| 0.50 -5.0 | 73.00 | 60.00 | 56.00 | 46.00 | FCC |
| 5.0 -30.0 | 73.00 | 60.00 | 60.00 | 50.00 | FCC |

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

| Receiver Parameters | Setting |
|---------------------|----------|
| Attenuation | 10 dB |
| Start Frequency | 0.15 MHz |
| Stop Frequency | 30 MHz |
| IF Bandwidth | 9 kHz |

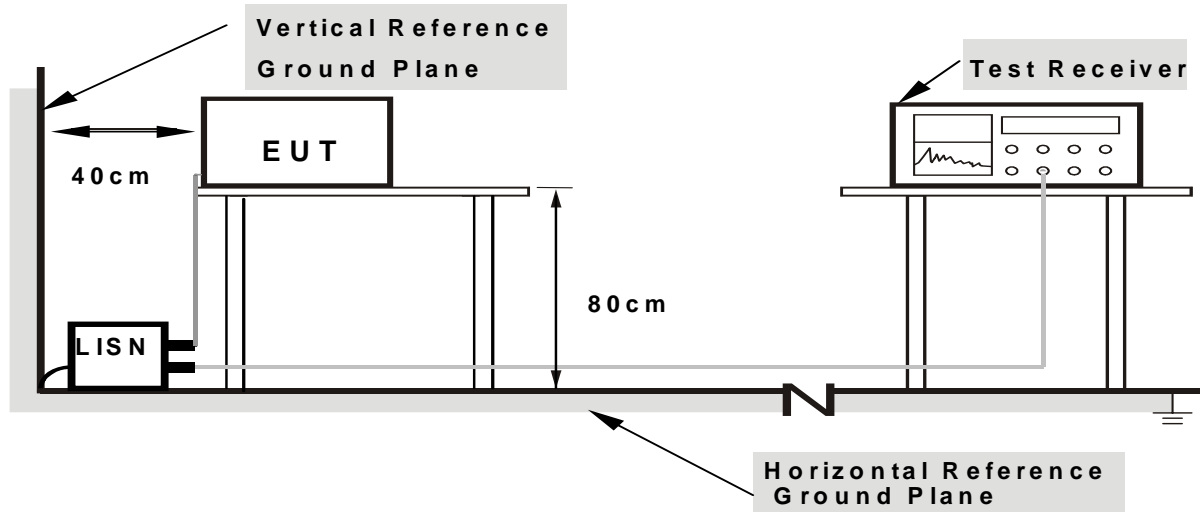
5.1.2 TEST PROCEDURE

- The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- LISN at least 80 cm from nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

5.1.3 DEVIATION FROM TEST STANDARD

No deviation

5.1.4 TEST SETUP



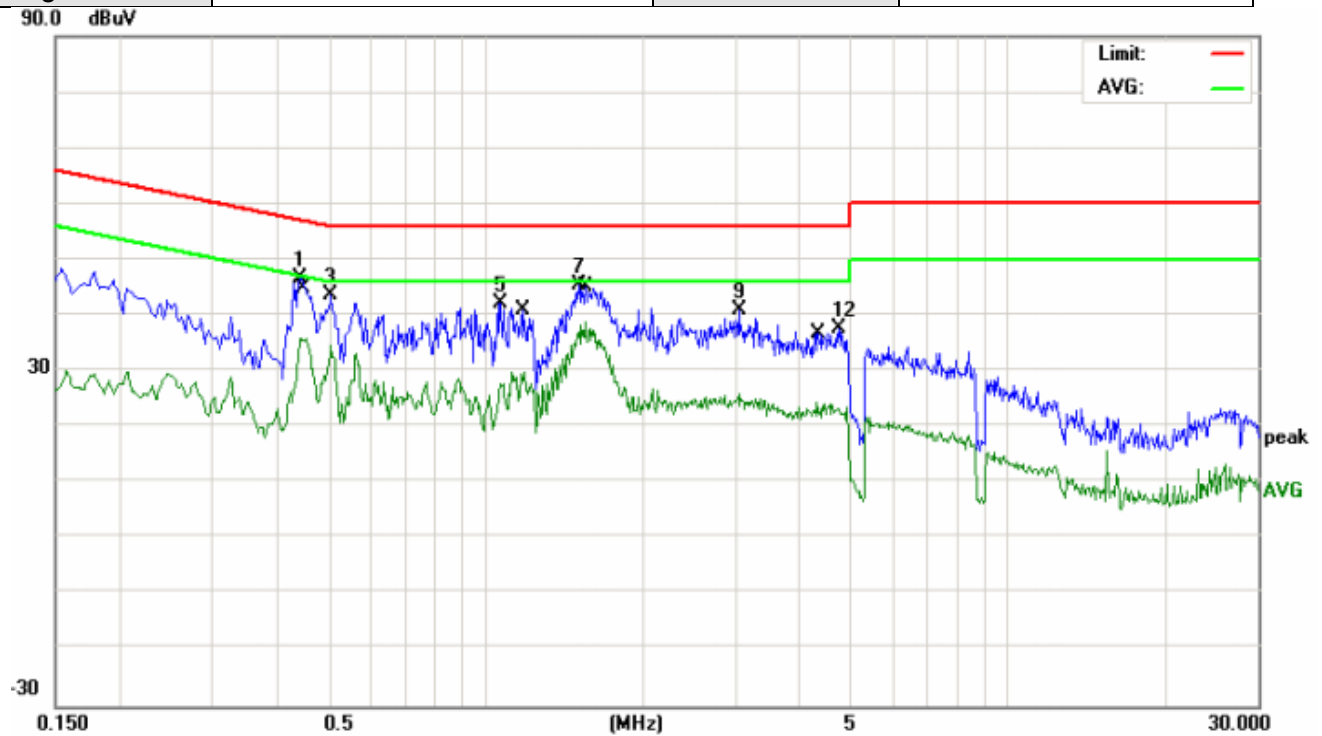
Note: 1.Support units were connected to second LISN .
 2.Both of LISNs (AMN) are 80 cm from EUT and at least 80
 from other units and other metal planes

5.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

5.1.6 TEST RESULTS

| | | | |
|-------------|------------------|-------------------|------------------------|
| EUT | Mobile Phone | Model Name | Y4 |
| Temperature | 26 °C | Relative Humidity | 54% |
| Pressure | 1010hPa | Phase | L |
| Test Date | January 19, 2015 | Test Mode | Keep WIFI Transmitting |
| Voltage | 120V/60Hz | | |

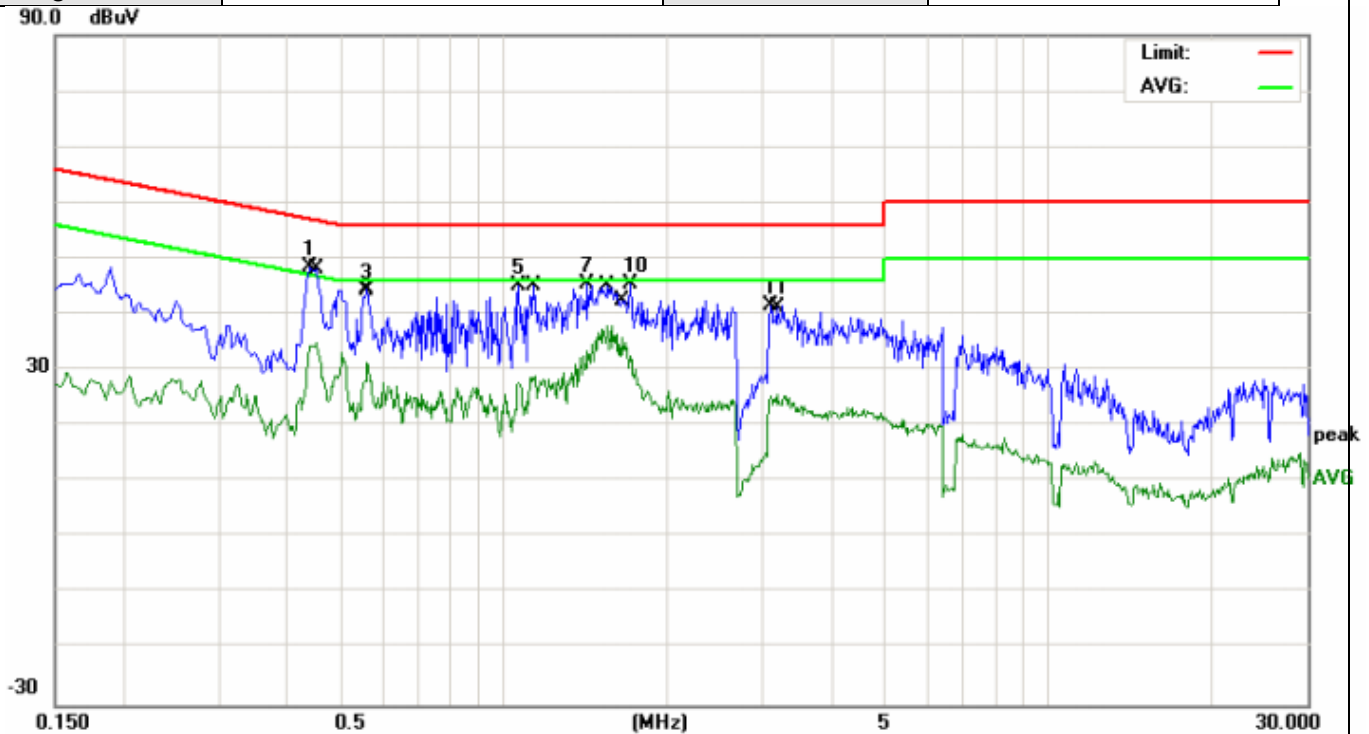


| No. | Mk. | Freq. MHz | Reading Level dBuV | Correct Factor dB | Measure- ment dBuV | Limit dBuV | Over dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|--------------------------|---------------|------------|----------|---------|
| 1 | | 0.4420 | 36.33 | 10.46 | 46.79 | 57.02 | -10.23 | peak | |
| 2 | | 0.4540 | 25.50 | 10.45 | 35.95 | 46.80 | -10.85 | AVG | |
| 3 | | 0.5060 | 33.17 | 10.42 | 43.59 | 56.00 | -12.41 | peak | |
| 4 | | 0.5060 | 24.19 | 10.42 | 34.61 | 46.00 | -11.39 | AVG | |
| 5 | | 1.0700 | 31.63 | 10.57 | 42.20 | 56.00 | -13.80 | peak | |
| 6 | | 1.1860 | 19.24 | 10.58 | 29.82 | 46.00 | -16.18 | AVG | |
| 7 | | 1.5060 | 34.92 | 10.59 | 45.51 | 56.00 | -10.49 | peak | |
| 8 | * | 1.5500 | 28.18 | 10.59 | 38.77 | 46.00 | -7.23 | AVG | |
| 9 | | 3.0420 | 30.45 | 10.63 | 41.08 | 56.00 | -14.92 | peak | |
| 10 | | 3.0420 | 15.41 | 10.63 | 26.04 | 46.00 | -19.96 | AVG | |
| 11 | | 4.3060 | 13.66 | 10.67 | 24.33 | 46.00 | -21.67 | AVG | |
| 12 | | 4.7460 | 26.84 | 10.68 | 37.52 | 56.00 | -18.48 | peak | |

Remark: All the modes have been investigated, and only worst mode is presented in this report.

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| | | | |
|-------------|------------------|-------------------|------------------------|
| EUT | Mobile Phone | Model Name | Y4 |
| Temperature | 26 °C | Relative Humidity | 54% |
| Pressure | 1010hPa | Phase | N |
| Test Date | January 19, 2015 | Test Mode | Keep WIFI Transmitting |
| Voltage | 120V/60Hz | | |



| No. | Mk. | Freq. MHz | Reading Level dBuV | Correct Factor dB | Measure- ment dBuV | Limit dBuV | Over dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|--------------------------|---------------|------------|----------|---------|
| 1 | | 0.4420 | 38.01 | 10.46 | 48.47 | 57.02 | -8.55 | peak | |
| 2 | | 0.4540 | 24.45 | 10.45 | 34.90 | 46.80 | -11.90 | AVG | |
| 3 | | 0.5620 | 33.81 | 10.59 | 44.40 | 56.00 | -11.60 | peak | |
| 4 | | 0.5620 | 20.69 | 10.59 | 31.28 | 46.00 | -14.72 | AVG | |
| 5 | | 1.0660 | 34.71 | 10.57 | 45.28 | 56.00 | -10.72 | peak | |
| 6 | | 1.1420 | 18.25 | 10.57 | 28.82 | 46.00 | -17.18 | AVG | |
| 7 | | 1.4299 | 34.95 | 10.58 | 45.53 | 56.00 | -10.47 | peak | |
| 8 | * | 1.5540 | 27.44 | 10.59 | 38.03 | 46.00 | -7.97 | AVG | |
| 9 | | 1.6500 | 25.14 | 10.59 | 35.73 | 46.00 | -10.27 | AVG | |
| 10 | | 1.7100 | 34.93 | 10.59 | 45.52 | 56.00 | -10.48 | peak | |
| 11 | | 3.0980 | 30.99 | 10.63 | 41.62 | 56.00 | -14.38 | peak | |
| 12 | | 3.1740 | 14.95 | 10.64 | 25.59 | 46.00 | -20.41 | AVG | |

Remark: All the modes have been investigated, and only worst mode is presented in this report.

5.2 RADIATED EMISSION MEASUREMENT

5.2.1 RADIATED EMISSION LIMITS (Frequency Range 9kHz-1000MHz)

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

| Frequencies (MHz) | Field Strength (micorvolts/meter) | Measurement Distance (meters) |
|-------------------|-----------------------------------|-------------------------------|
| 0.009~0.490 | 2400/F(KHz) | 300 |
| 0.490~1.705 | 24000/F(KHz) | 30 |
| 1.705~30.0 | 30 | 30 |
| 30~88 | 100 | 3 |
| 88~216 | 150 | 3 |
| 216~960 | 200 | 3 |
| Above 960 | 500 | 3 |

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

| FREQUENCY (MHz) | Limit (dBuV/m) (at 3M) | |
|-----------------|------------------------|---------|
| | PEAK | AVERAGE |
| Above 1000 | 74 | 54 |

Notes:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

| Spectrum Parameter | Setting |
|---------------------------------------|--|
| Attenuation | Auto |
| Start Frequency | 1000 MHz |
| Stop Frequency | 10th carrier harmonic |
| RB / VB (emission in restricted band) | 1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average |

| Receiver Parameter | Setting |
|------------------------|----------------------------------|
| Attenuation | Auto |
| Start ~ Stop Frequency | 9kHz~150kHz / RB 200Hz for QP |
| Start ~ Stop Frequency | 150kHz~30MHz / RB 9kHz for QP |
| Start ~ Stop Frequency | 30MHz~1000MHz / RB 120kHz for QP |

5.2.2 TEST PROCEDURE

- a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.

- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

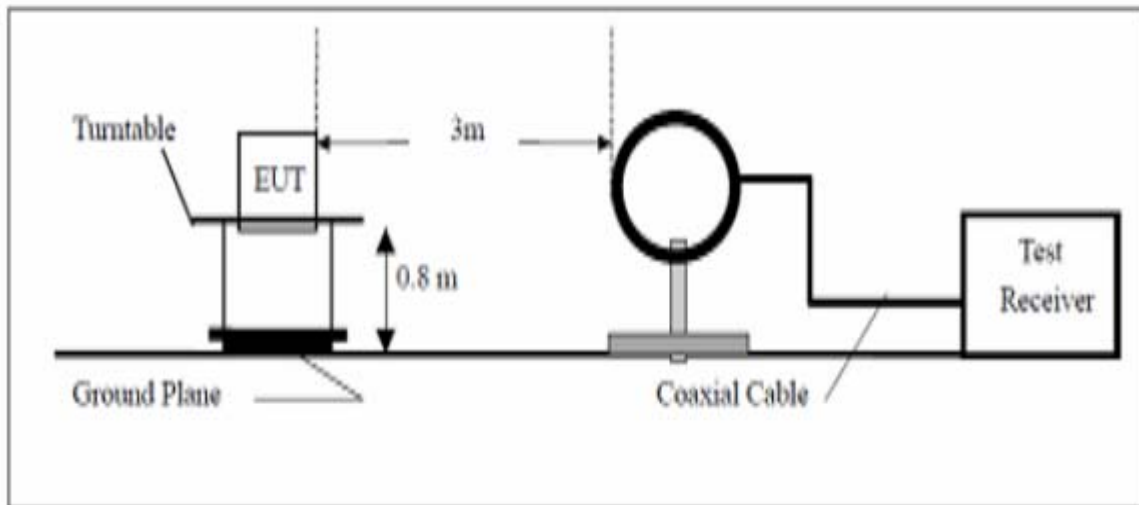
***Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported***

5.2.3 DEVIATION FROM TEST STANDARD

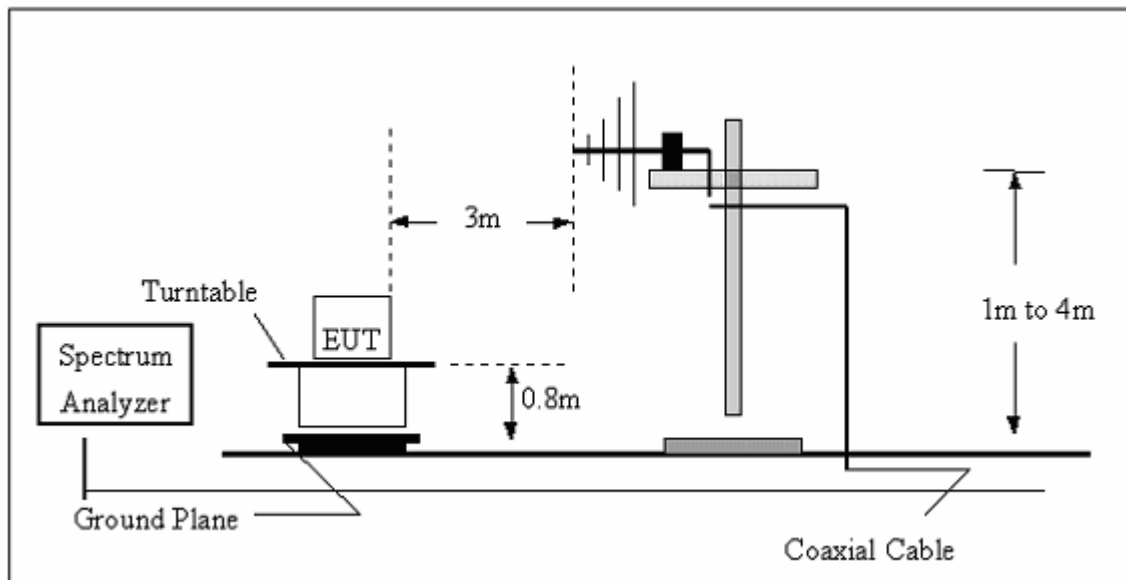
No deviation

5.2.4 TEST SETUP

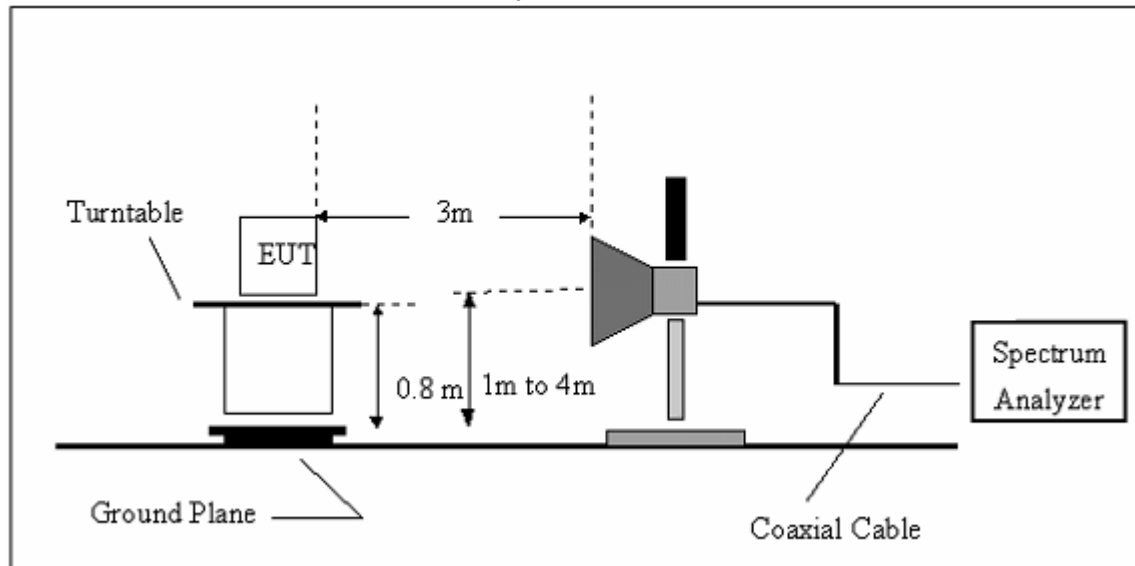
(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz

**5.2.5 EUT OPERATING CONDITIONS**

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

5.2.5.1 RESULTS (BELOW 30 MHZ)

| | | | |
|-------------|------------------------|-------------------|------------------|
| EUT | Mobile Phone | Model Name | Y4 |
| Temperature | 20 °C | Relative Humidity | 48% |
| Pressure | 1010 hPa | Polarization | --- |
| Test Mode | Keep WIFI Transmitting | Test Date | January 19, 2015 |

| Freq. | Reading | Limit | Margin | State |
|-------|----------|----------|--------|-------|
| (MHz) | (dBuV/m) | (dBuV/m) | (dB) | P/F |
| -- | -- | -- | -- | P |
| -- | -- | -- | -- | P |

NOTE:

No result in this part for margin above 20dB.

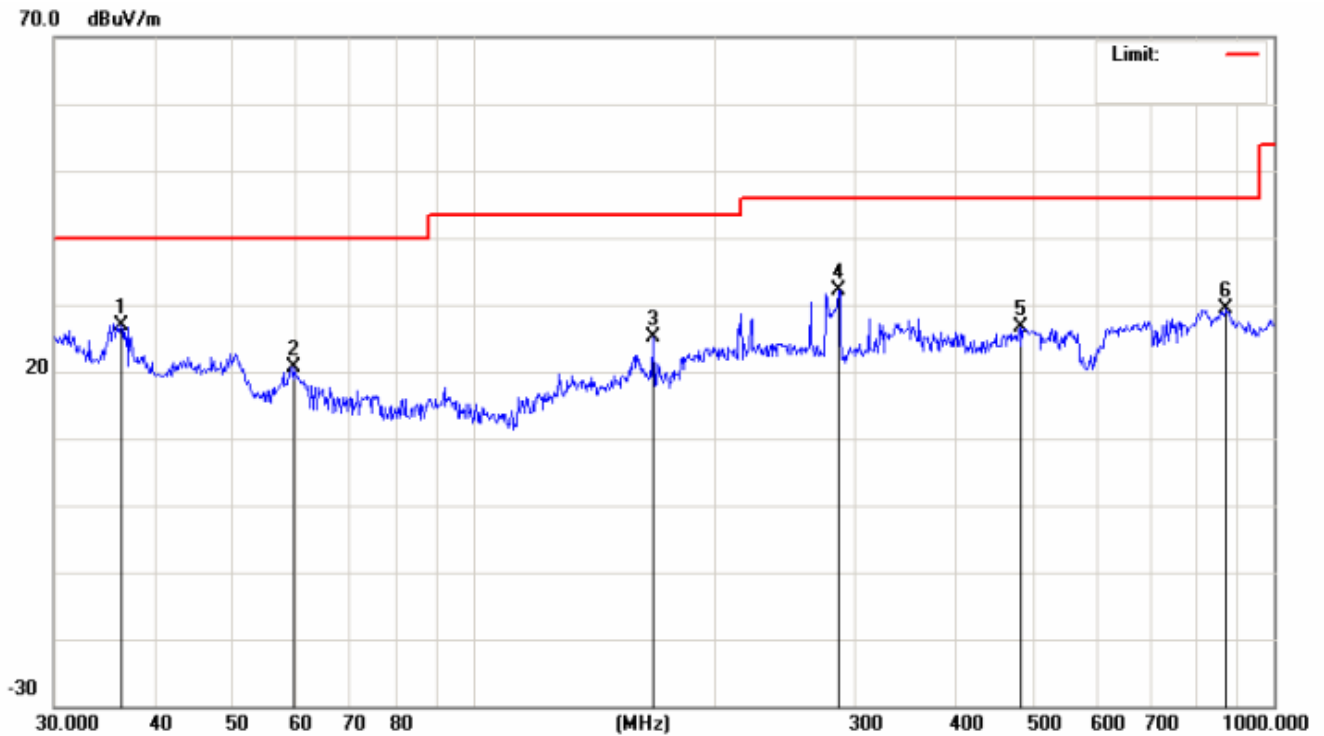
Distance extrapolation factor = $20 \log (\text{specific distance/test distance})(\text{dB})$;

Limit line = specific limits(dBuV) + distance extrapolation factor.

All the x/y/z orientation has been investigated, and only worst case is presented in this report.

5.2.5.2 TEST RESULTS (BETWEEN 30M – 1000 MHZ)

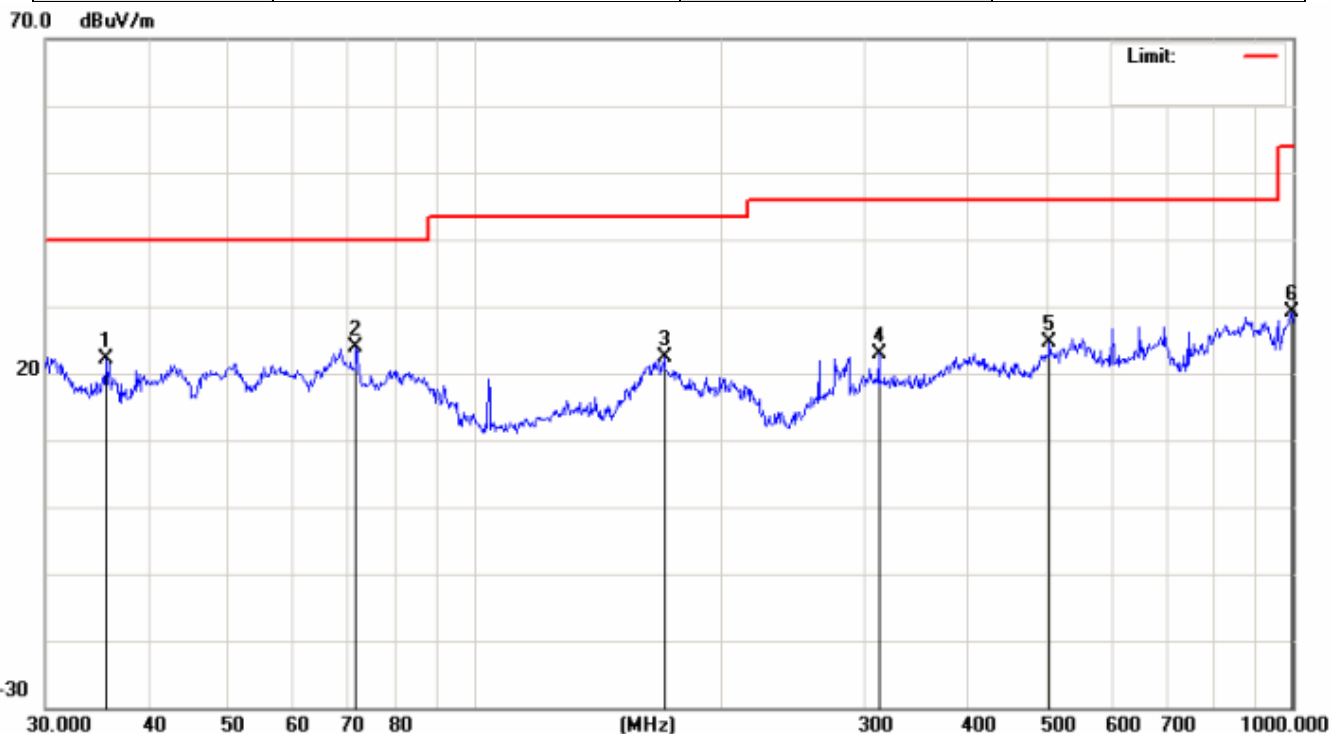
| | | | |
|-------------|------------------------|-------------------|------------------|
| EUT | Mobile Phone | Model Name | Y4 |
| Temperature | 20 °C | Relative Humidity | 48% |
| Pressure | 1010 hPa | Polarization : | Horizontal |
| Test Mode | Keep WIFI Transmitting | Test Date | January 19, 2015 |



| No. | Mk. | Freq. | Reading | Correct | Measure- | Limit | Over | Antenna |
|-----|-----|----------|---------|---------|----------|--------|--------|----------|
| | | MHz | Level | Factor | ment | | | Height |
| | | | dBuV | dB | dBuV/m | dBuV/m | dB | Detector |
| | | | | | | | | cm |
| 1 | * | 36.3813 | 27.44 | -0.47 | 26.97 | 40.00 | -13.03 | peak |
| 2 | | 59.6492 | 33.52 | -12.87 | 20.65 | 40.00 | -19.35 | peak |
| 3 | | 167.8240 | 32.11 | -6.98 | 25.13 | 43.50 | -18.37 | peak |
| 4 | | 285.9778 | 35.04 | -2.86 | 32.18 | 46.00 | -13.82 | peak |
| 5 | | 482.2155 | 27.87 | -1.32 | 26.55 | 46.00 | -19.45 | peak |
| 6 | | 872.1832 | 24.90 | 4.43 | 29.33 | 46.00 | -16.67 | peak |

Remark: All the modes have been investigated, and only worst mode is presented in this report.

| | | | |
|-------------|------------------------|-------------------|------------------|
| EUT | Mobile Phone | Model Name | Y4 |
| Temperature | 20 °C | Relative Humidity | 48% |
| Pressure | 1010 hPa | Polarization : | Vertical |
| Test Mode | Keep WIFI Transmitting | Test Date | January 19, 2015 |



| No. | Mk. | Freq. MHz | Reading Level dBuV | Correct Factor dB | Measure- ment dBuV/m | Limit dBuV/m | Over dB | Antenna Height cm |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|-------------------------|
| | | | | | | | Detector | |
| 1 | | 35.6240 | 31.35 | -9.27 | 22.08 | 40.00 | -17.92 | peak |
| 2 | * | 71.8319 | 37.16 | -13.23 | 23.93 | 40.00 | -16.07 | peak |
| 3 | | 170.7923 | 28.00 | -5.72 | 22.28 | 43.50 | -21.22 | peak |
| 4 | | 312.1792 | 26.49 | -3.69 | 22.80 | 46.00 | -23.20 | peak |
| 5 | | 504.7062 | 25.87 | -1.32 | 24.55 | 46.00 | -21.45 | peak |
| 6 | | 996.4995 | 22.06 | 6.95 | 29.01 | 54.00 | -24.99 | peak |

Remark: All the modes have been investigated, and only worst mode is presented in this report.

5.2.5.3 TEST RESULTS(1GHZ TO 25GHZ)

Note: *the worst case is 1Mbps(GFSK)mode as result in this part.*

| | | | |
|-------------|------------------|-------------------|-----------|
| EUT | Mobile Phone | Model Name | Y4 |
| Temperature | 20 °C | Relative Humidity | 48% |
| Pressure | 1010 hPa | Test Mode | Mode 1 TX |
| Test Date | January 19, 2015 | Frequency | 2412MHz |

| Freq. (MHz) | Ant. Pol. | Emission Level(dBuV) | | Limit 3m(dBuV/m) | | Over(dB) | |
|----------------|--------------|-------------------------|-------|---------------------|----|----------|--------|
| | H/V | PK | AV | PK | AV | PK | AV |
| 4824 | V | PK | AV | PK | AV | PK | AV |
| 7236 | V | 60.61 | 39.62 | 74 | 54 | -13.39 | -14.38 |
| 4824 | H | 59.84 | 39.37 | 74 | 54 | -14.16 | -14.63 |
| 7236 | H | 59.85 | 39.46 | 74 | 54 | -14.15 | -14.54 |

Remark:

All emissions not reported were more than 20dB below the specified limit or in the noise floor.
All the x/y/z orientation has been investigated, and only worst case is presented in this report.

| | | | |
|-------------|------------------|-------------------|-----------|
| EUT | Mobile Phone | Model Name | Y4 |
| Temperature | 20 °C | Relative Humidity | 48% |
| Pressure | 1010 hPa | Test Mode | Mode 1 TX |
| Test Date | January 19, 2015 | Frequency | 2437MHz |

| Freq. (MHz) | Ant.Pol. | Emission Level(dBuV) | | Limit 3m(dBuV/m) | | Over(dB) | |
|----------------|----------|----------------------|-------|---------------------|----|----------|--------|
| | H/V | PK | AV | PK | AV | PK | AV |
| 4874 | V | 58.88 | 41.14 | 74 | 54 | -15.12 | -12.86 |
| 7311 | V | 59.87 | 40.27 | 74 | 54 | -14.13 | -13.73 |
| 4874 | H | 58.61 | 40.84 | 74 | 54 | -15.39 | -13.16 |
| 7311 | H | 59.14 | 40.14 | 74 | 54 | -14.86 | -13.86 |

Remark:

All emissions not reported were more than 20dB below the specified limit or in the noise floor.
All the x/y/z orientation has been investigated, and only worst case is presented in this report.

| | | | |
|-------------|------------------|-------------------|-----------|
| EUT | Mobile Phone | Model Name | Y4 |
| Temperature | 20 °C | Relative Humidity | 48% |
| Pressure | 1010 hPa | Test Mode | Mode 1 TX |
| Test Date | January 19, 2015 | Frequency | 2462MHz |

| Freq. (MHz) | Ant. Pol | Emission Level(dBuV) | | Limit 3m(dBuV/m) | | Over(dB) | |
|----------------|----------|----------------------|-------|---------------------|----|----------|--------|
| | | PK | AV | PK | AV | PK | AV |
| 4924 | V | 60.17 | 41.18 | 74 | 54 | -13.83 | -12.82 |
| 7386 | V | 58.86 | 39.54 | 74 | 54 | -15.14 | -14.46 |
| 4924 | H | 59.75 | 40.94 | 74 | 54 | -14.25 | -13.06 |
| 7386 | H | 59.79 | 40.79 | 74 | 54 | -14.21 | -13.21 |

Remark:

All emissions not reported were more than 20dB below the specified limit or in the noise floor.
All the x/y/z orientation has been investigated, and only worst case is presented in this report.

| | | | |
|-------------|------------------|-------------------|----------|
| EUT | Mobile Phone | Model Name | Y4 |
| Temperature | 20 °C | Relative Humidity | 48% |
| Pressure | 1010 hPa | Test Mode | Mode2 TX |
| Test Date | January 19, 2015 | Frequency | 2412MHz |

| Freq. (MHz) | Ant. Pol. | Emission Level(dBuV) | | Limit 3m(dBuV/m) | | Over(dB) | |
|----------------|-----------|----------------------|-------|---------------------|----|----------|--------|
| | | PK | AV | PK | AV | PK | AV |
| 4824 | V | 59.44 | 39.67 | 74 | 54 | -14.56 | -14.33 |
| 7236 | V | 58.33 | 40.60 | 74 | 54 | -15.67 | -13.40 |
| 4824 | H | 59.04 | 40.25 | 74 | 54 | -14.96 | -13.75 |
| 7236 | H | 59.52 | 40.52 | 74 | 54 | -14.48 | -13.48 |

| | | | |
|-------------|------------------|-------------------|-----------|
| EUT | Mobile Phone | Model Name | Y4 |
| Temperature | 20 °C | Relative Humidity | 48% |
| Pressure | 1010 hPa | Test Mode | Mode 2 TX |
| Test Date | January 19, 2015 | Frequency | 2437MHz |

| Freq. (MHz) | Ant.Pol. | Emission Level(dBuV) | | Limit 3m(dBuV/m) | | Over(dB) | |
|----------------|----------|----------------------|-------|---------------------|----|----------|--------|
| | | PK | AV | PK | AV | PK | AV |
| 4874 | V | 58.16 | 39.27 | 74 | 54 | -15.84 | -14.73 |
| 7311 | V | 59.87 | 39.23 | 74 | 54 | -14.13 | -14.77 |
| 4874 | H | 58.89 | 40.41 | 74 | 54 | -15.11 | -13.59 |
| 7311 | H | 58.58 | 39.58 | 74 | 54 | -15.42 | -14.42 |

Remark:

All emissions not reported were more than 20dB below the specified limit or in the noise floor.
All the x/y/z orientation has been investigated, and only worst case is presented in this report.

| | | | |
|-------------|------------------|-------------------|-----------|
| EUT | Mobile Phone | Model Name | Y4 |
| Temperature | 20 °C | Relative Humidity | 48% |
| Pressure | 1010 hPa | Test Mode | Mode 2 TX |
| Test Date | January 19, 2015 | Frequency | 2462MHz |

| Freq. (MHz) | Ant.Pol. | Emission Level(dBuV) | | Limit 3m(dBuV/m) | | Over(dB) | |
|----------------|----------|----------------------|-------|---------------------|----|----------|--------|
| | | PK | AV | PK | AV | PK | AV |
| 4924 | V | 58.22 | 39.11 | 74 | 54 | -15.78 | -14.89 |
| 7386 | V | 59.44 | 39.10 | 74 | 54 | -14.56 | -14.90 |
| 4924 | H | 59.23 | 40.84 | 74 | 54 | -14.77 | -13.16 |
| 7386 | H | 58.14 | 39.14 | 74 | 54 | -15.86 | -14.86 |

Remark:

All emissions not reported were more than 20dB below the specified limit or in the noise floor.
All the x/y/z orientation has been investigated, and only worst case is presented in this report.

| | | | |
|-------------|------------------|-------------------|----------|
| EUT | Mobile Phone | Model Name | Y4 |
| Temperature | 20 °C | Relative Humidity | 48% |
| Pressure | 1010 hPa | Test Mode | Mode3 TX |
| Test Date | January 19, 2015 | Frequency | 2412MHz |

| Freq. (MHz) | Ant. Pol. | Emission Level(dBuV) | | Limit 3m(dBuV/m) | | Over(dB) | |
|----------------|--------------|-------------------------|----|---------------------|--------|----------|-------|
| | | PK | AV | PK | AV | PK | AV |
| 60.32 | 39.18 | 74 | 54 | -13.68 | -14.82 | 60.32 | 39.18 |
| 59.76 | 40.43 | 74 | 54 | -14.24 | -13.57 | 59.76 | 40.43 |
| 59.65 | 39.53 | 74 | 54 | -14.35 | -14.47 | 59.65 | 39.53 |
| 58.46 | 39.46 | 74 | 54 | -15.54 | -14.54 | 58.46 | 39.46 |

Remark:

All emissions not reported were more than 20dB below the specified limit or in the noise floor.
All the x/y/z orientation has been investigated, and only worst case is presented in this report.

| | | | |
|-------------|------------------|-------------------|-----------|
| EUT | Mobile Phone | Model Name | Y4 |
| Temperature | 20 °C | Relative Humidity | 48% |
| Pressure | 1010 hPa | Test Mode | Mode 3 TX |
| Test Date | January 19, 2015 | Frequency | 2437MHz |

| Freq. (MHz) | Ant.Pol. | Emission Level(dBuV) | | Limit 3m(dBuV/m) | | Over(dB) | |
|----------------|----------|----------------------|-------|---------------------|----|----------|--------|
| | | PK | AV | PK | AV | PK | AV |
| 4874 | V | 58.49 | 39.78 | 74 | 54 | -15.51 | -14.22 |
| 7311 | V | 58.11 | 39.12 | 74 | 54 | -15.89 | -14.88 |
| 4874 | H | 58.54 | 40.24 | 74 | 54 | -15.46 | -13.76 |
| 7311 | H | 59.69 | 40.69 | 74 | 54 | -14.31 | -13.31 |

Remark:

All emissions not reported were more than 20dB below the specified limit or in the noise floor.
All the x/y/z orientation has been investigated, and only worst case is presented in this report.

| | | | |
|-------------|------------------|-------------------|-----------|
| EUT | Mobile Phone | Model Name | Y4 |
| Temperature | 20 °C | Relative Humidity | 48% |
| Pressure | 1010 hPa | Test Mode | Mode 2 TX |
| Test Date | January 19, 2015 | Frequency | 2462MHz |

| Freq. (MHz) | Ant. Pol . | Emission Level(dBuV) | | Limit 3m(dBuV/m) | | Over(dB) | |
|----------------|---------------|----------------------|-------|---------------------|----|----------|--------|
| | | PK | AV | PK | AV | PK | AV |
| 4924 | V | 58.44 | 39.07 | 74 | 54 | -15.56 | -14.93 |
| 7386 | V | 59.33 | 40.70 | 74 | 54 | -14.67 | -13.30 |
| 4924 | H | 58.37 | 40.44 | 74 | 54 | -15.63 | -13.56 |
| 7386 | H | 59.22 | 40.22 | 74 | 54 | -14.78 | -13.78 |

Remark:

All emissions not reported were more than 20dB below the specified limit or in the noise floor.
All the x/y/z orientation has been investigated, and only worst case is presented in this report.

| | | | |
|-------------|------------------|-------------------|----------|
| EUT | Mobile Phone | Model Name | Y4 |
| Temperature | 20 °C | Relative Humidity | 48% |
| Pressure | 1010 hPa | Test Mode | Mode4 TX |
| Test Date | January 19, 2015 | Frequency | 2422MHz |

| Freq. (MHz) | Ant. Pol . | Emission Level(dBuV) | | Limit 3m(dBuV/m) | | Over(dB) | |
|----------------|---------------|----------------------|-------|---------------------|----|----------|--------|
| | | PK | AV | PK | AV | PK | AV |
| 4844 | V | 58.58 | 41.45 | 74 | 54 | -15.42 | -12.55 |
| 7266 | V | 58.96 | 39.24 | 74 | 54 | -15.04 | -14.76 |
| 4844 | H | 59.04 | 40.53 | 74 | 54 | -14.96 | -13.47 |
| 7266 | H | 59.77 | 40.77 | 74 | 54 | -14.23 | -13.23 |

| | | | |
|-------------|------------------|-------------------|-----------|
| EUT | Mobile Phone | Model Name | Y4 |
| Temperature | 20 °C | Relative Humidity | 48% |
| Pressure | 1010 hPa | Test Mode | Mode 4 TX |
| Test Date | January 19, 2015 | Frequency | 2437MHz |

| Freq. (MHz) | Ant.Pol. | Emission Level(dBuV) | | Limit 3m(dBuV/m) | | Over(dB) | |
|----------------|----------|----------------------|-------|---------------------|----|----------|--------|
| | | PK | AV | PK | AV | PK | AV |
| 4874 | V | 58.33 | 39.61 | 74 | 54 | -15.67 | -14.39 |
| 7311 | V | 58.00 | 40.04 | 74 | 54 | -16.00 | -13.96 |
| 4874 | H | 58.66 | 40.64 | 74 | 54 | -15.34 | -13.36 |
| 7311 | H | 58.80 | 39.80 | 74 | 54 | -15.20 | -14.20 |

Remark:

All emissions not reported were more than 20dB below the specified limit or in the noise floor.
All the x/y/z orientation has been investigated, and only worst case is presented in this report.

| | | | |
|-------------|------------------|-------------------|-----------|
| EUT | Mobile Phone | Model Name | Y4 |
| Temperature | 20 °C | Relative Humidity | 48% |
| Pressure | 1010 hPa | Test Mode | Mode 4 TX |
| Test Date | January 19, 2015 | Frequency | 2452MHz |

| Freq. (MHz) | Ant.Pol. | Emission Level(dBuV) | | Limit 3m(dBuV/m) | | Over(dB) | |
|----------------|----------|----------------------|-------|---------------------|----|----------|--------|
| | | PK | AV | PK | AV | PK | AV |
| 4904 | V | 59.85 | 41.76 | 74 | 54 | -14.15 | -12.24 |
| 7356 | V | 59.70 | 39.75 | 74 | 54 | -14.30 | -14.25 |
| 4904 | H | 59.98 | 40.65 | 74 | 54 | -14.02 | -13.35 |
| 7356 | H | 58.03 | 39.03 | 74 | 54 | -15.97 | -14.97 |

Remark:

All emissions not reported were more than 20dB below the specified limit or in the noise floor.
All the x/y/z orientation has been investigated, and only worst case is presented in this report.

6. ANTENNA PORT CONDUCTED EMISSION

6.1 Antenna requirement

The EUT'S antenna is met the requirement of FCC part 15C section 15.203 and 15.247

FCC part 15C section 15.247 requirements: Systems operating in the 2412-2462MHz band that are used exclusively for fixed.

6.2 Test Procedure

1. The EUT was connected to spectrum analyzer with RF cable.
2. Keep wifi transmitting at low channel of 802.11b.
3. Set the start frequency=1GHz, stop frequency = 25GHz, RBW =1MHz, VBW =3MHz, allow the trace to stabilize, mark the max value, and mark a line which the value reduce 20dBm, mark the max value under the line.
4. Detector = Peak.
5. Trace mode = max hold.
6. Sweep point = 20001.
7. Hold the line, change the start frequency=30MHz, stop frequency=1GHz, RBW =100 kHz, VBW =300 kHz, mark the max value, and record.
8. Repeat all of the above steps until the middle channel, the high channel of 802.11b, 802.11g, 802.11n20 and 802.11n40 are done.
9. Record all the result.

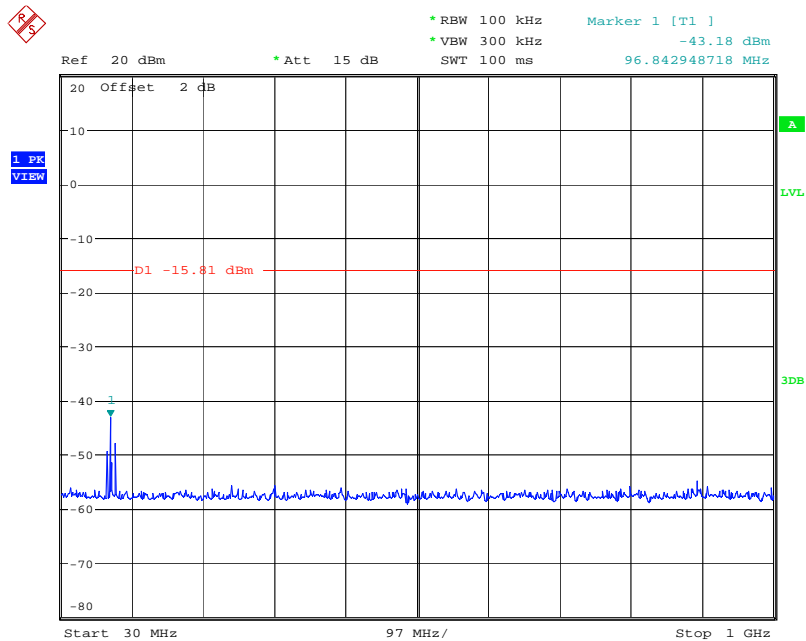
6.3 Result

The antenna's gain is 1.55dBi and meets the requirement.

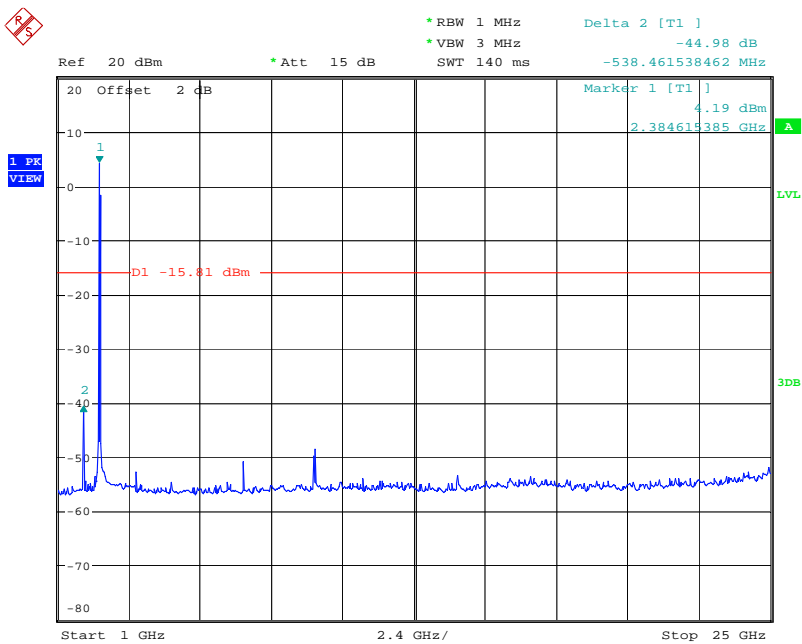
Antenna port conducted spurious emissions

802.11b:

Low channel

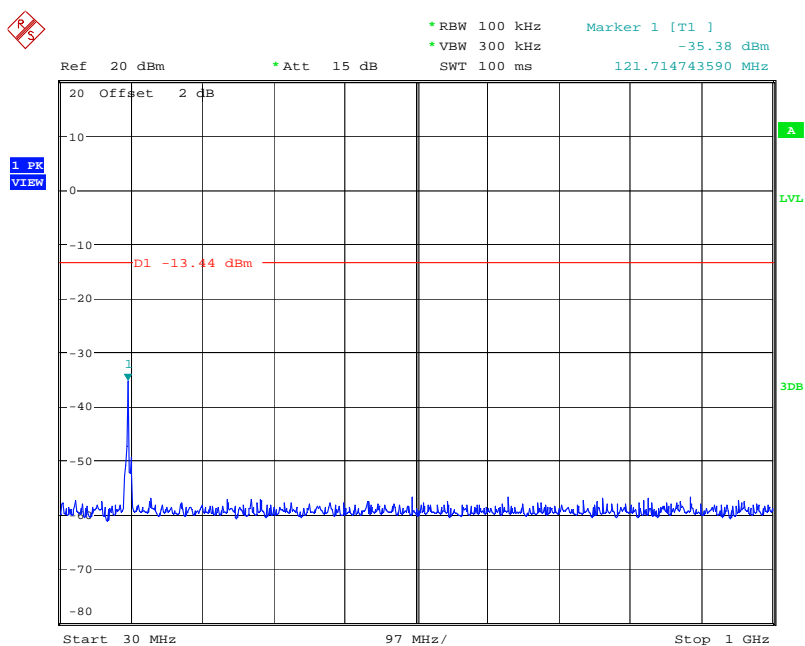


Sweep points = 20001

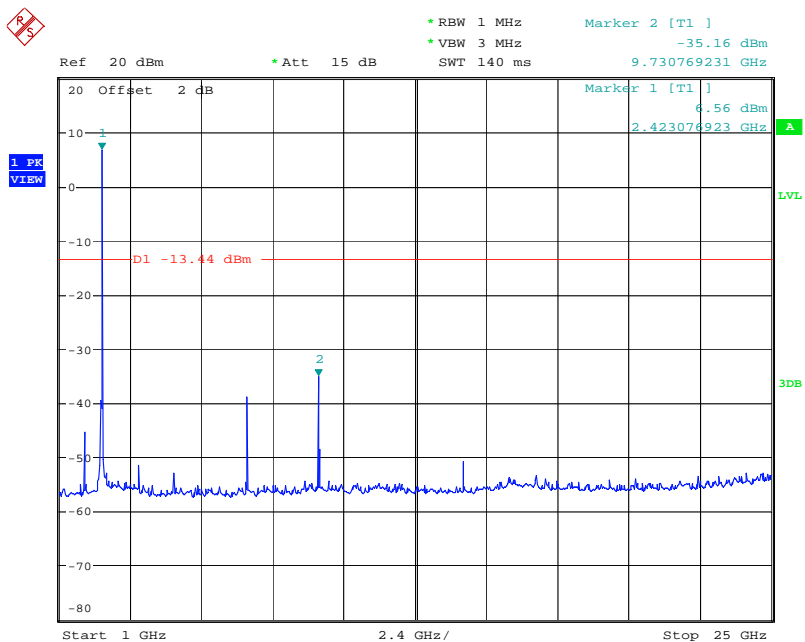


Sweep points = 20001

Middle channel

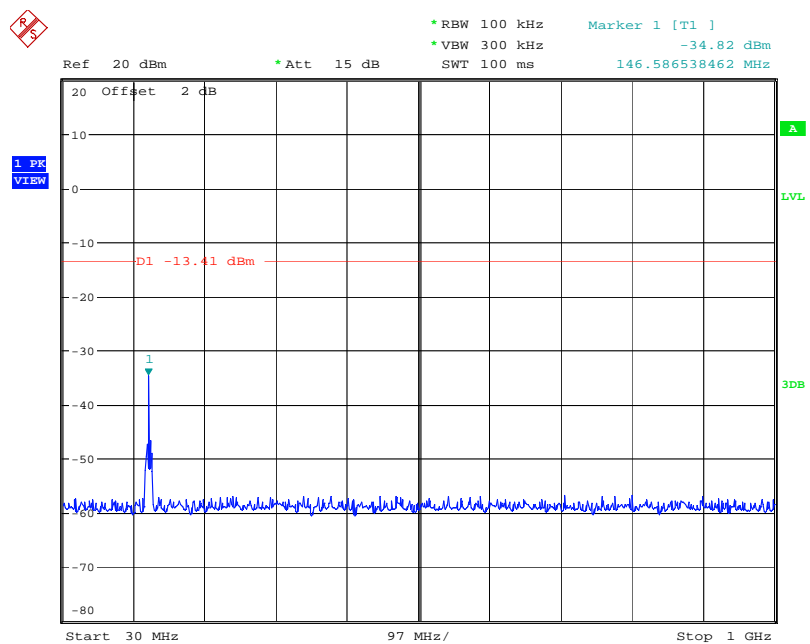


Sweep points = 20001

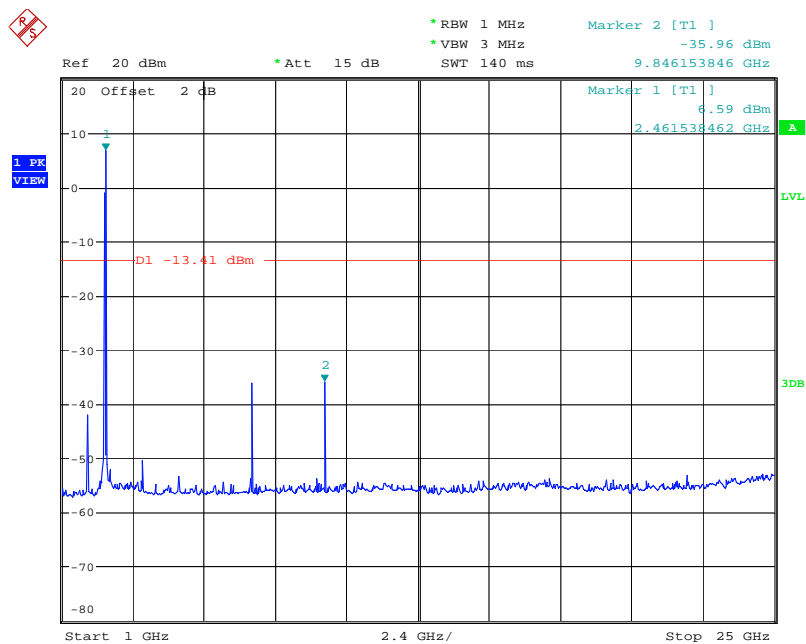


Sweep points = 20001

High channel



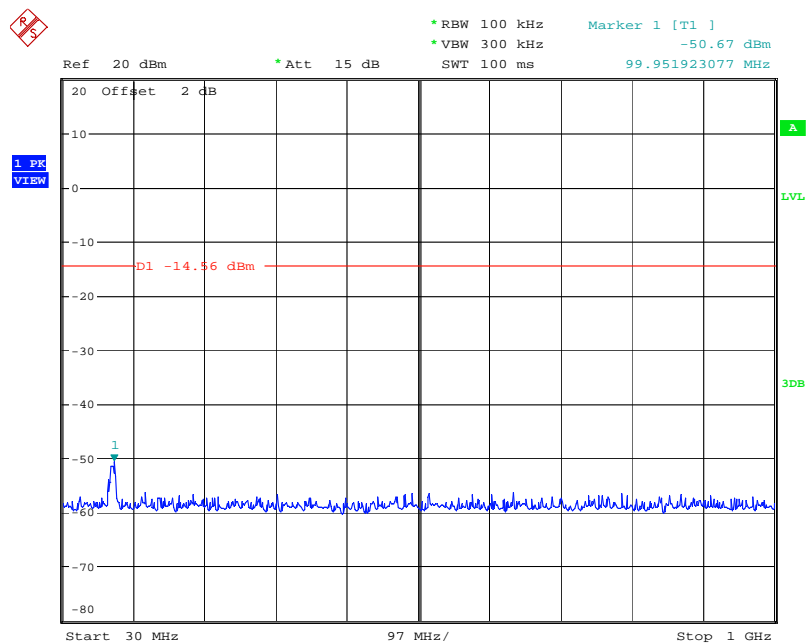
Sweep points = 20001



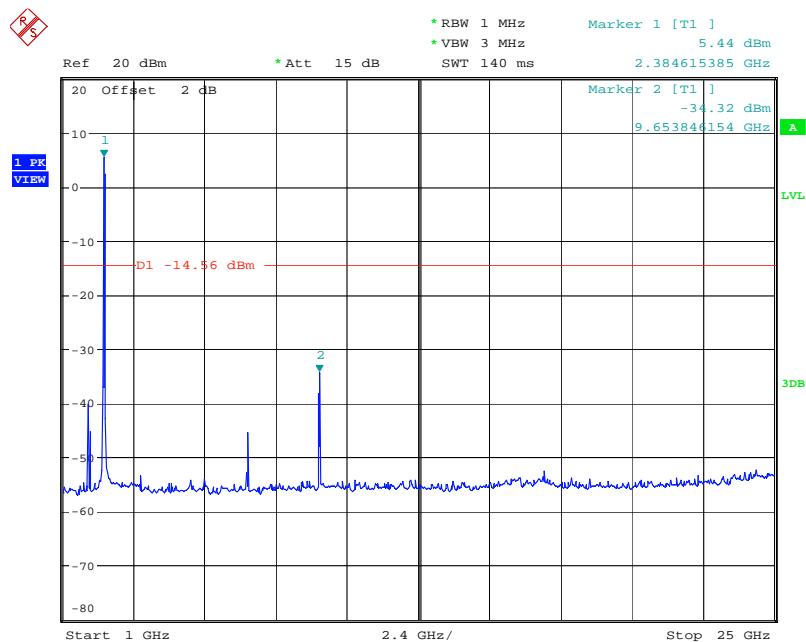
Sweep points = 20001

802.11g:

Low channel

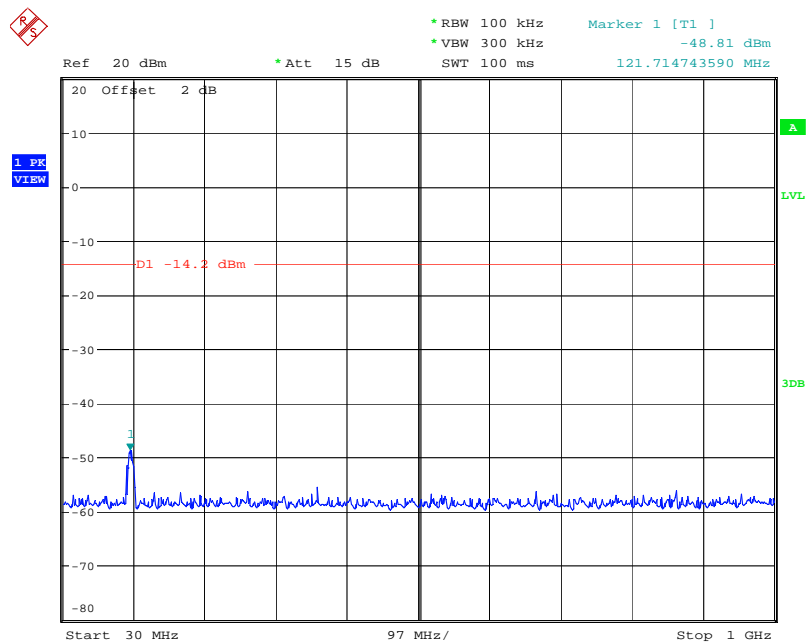


Sweep points = 20001

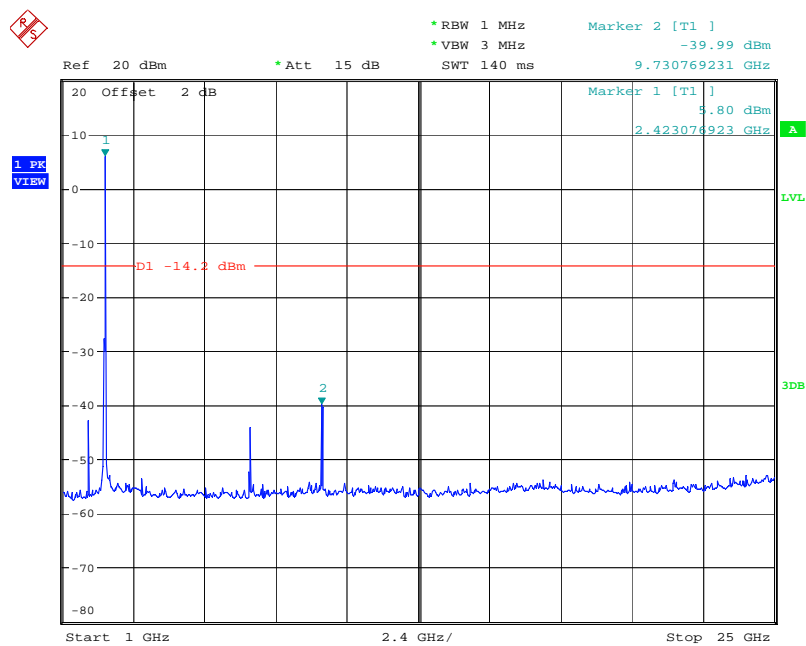


Sweep points = 20001

Middle channel

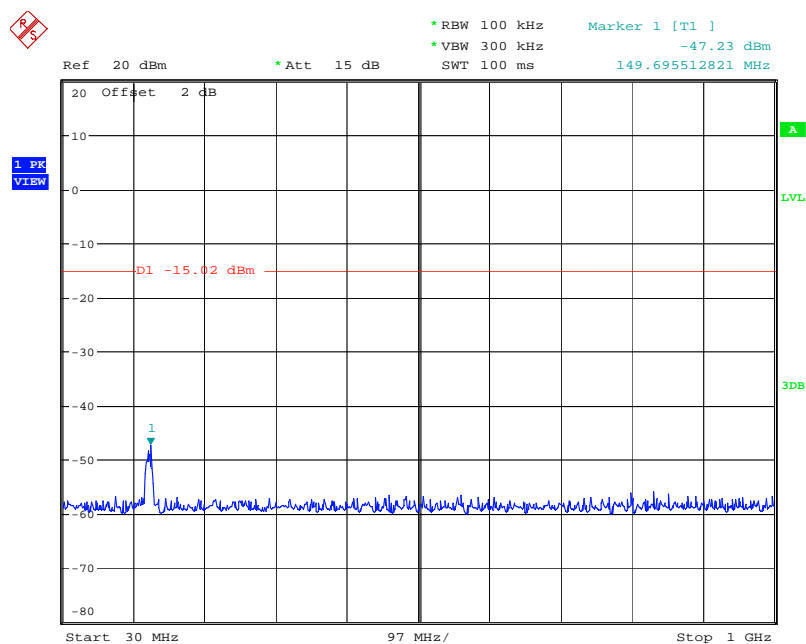


Sweep points = 20001

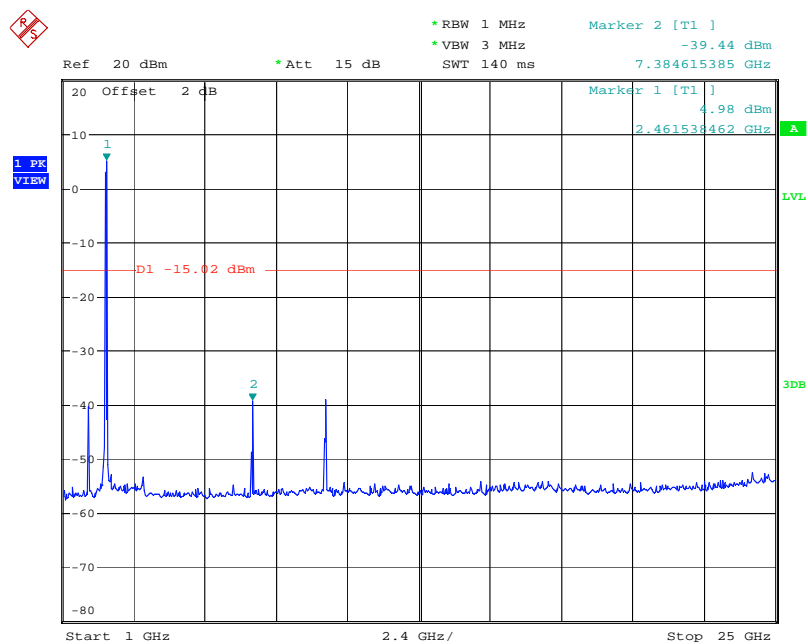


Sweep points = 20001

High channel



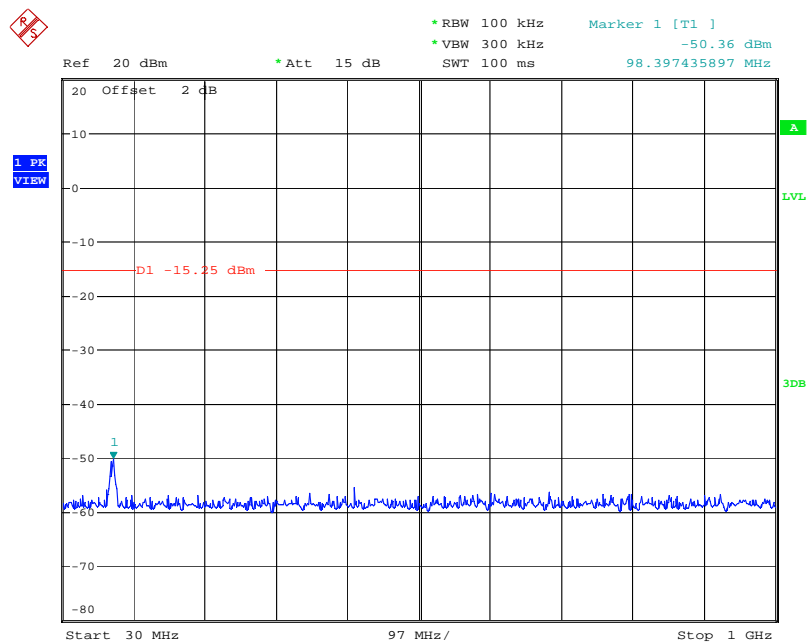
Sweep points = 20001



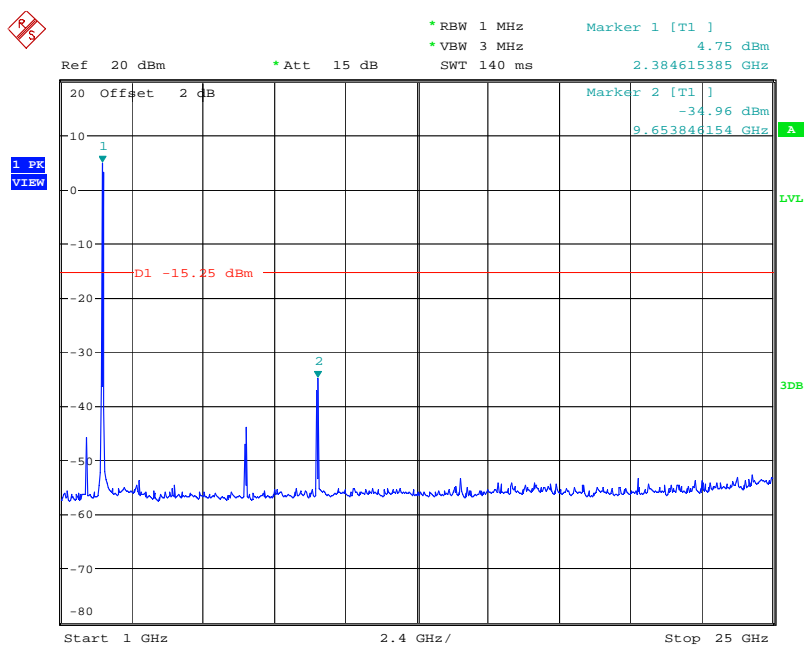
Sweep points = 20001

802.11n HT20:

Low channel

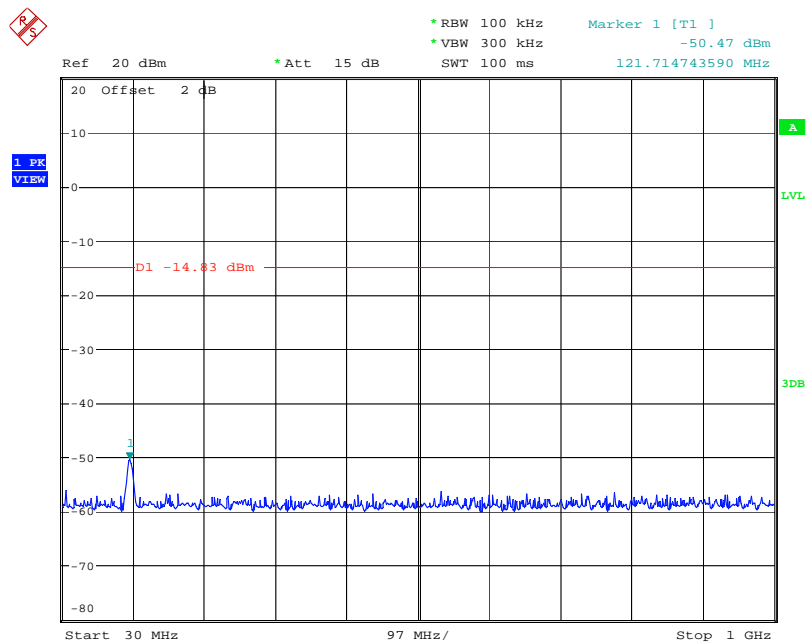


Sweep points = 20001

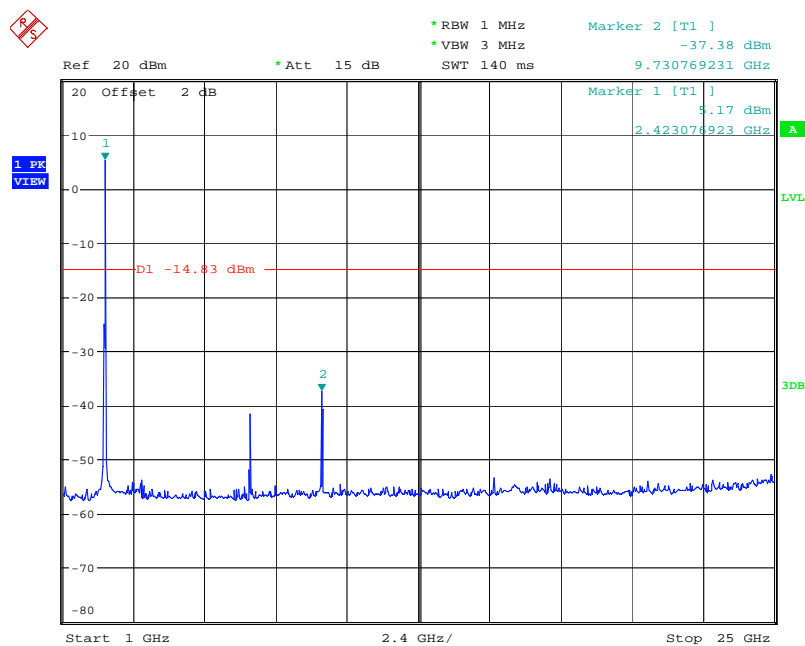


Sweep points = 20001

Middle channel

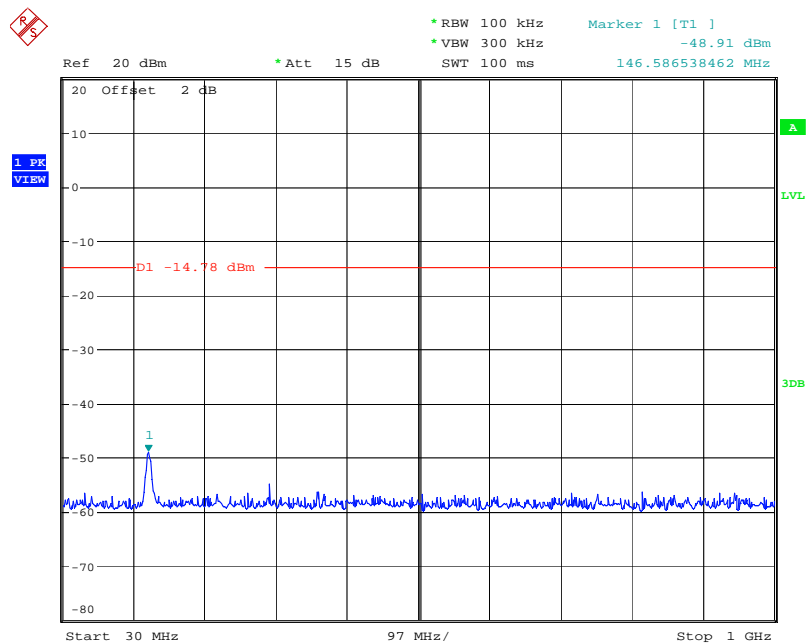


Sweep points = 20001

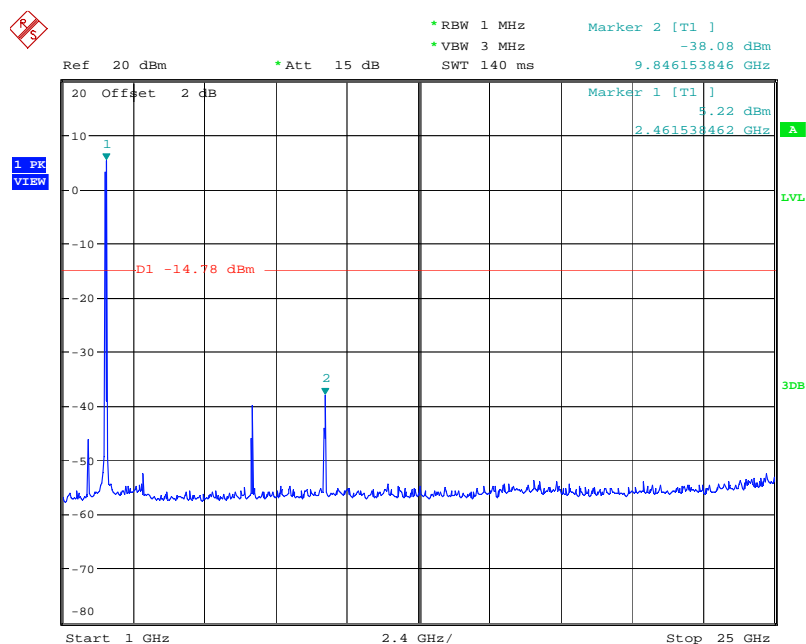


Sweep points = 20001

High channel



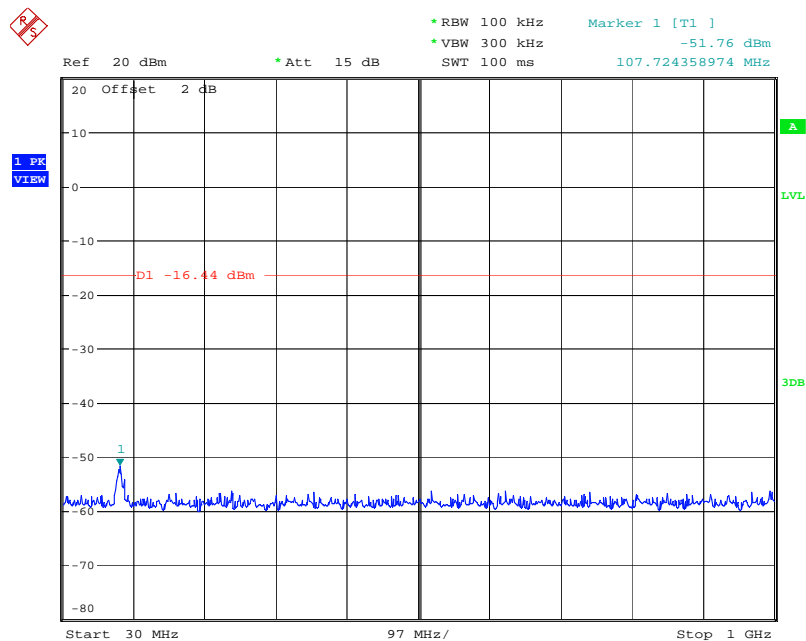
Sweep points = 20001



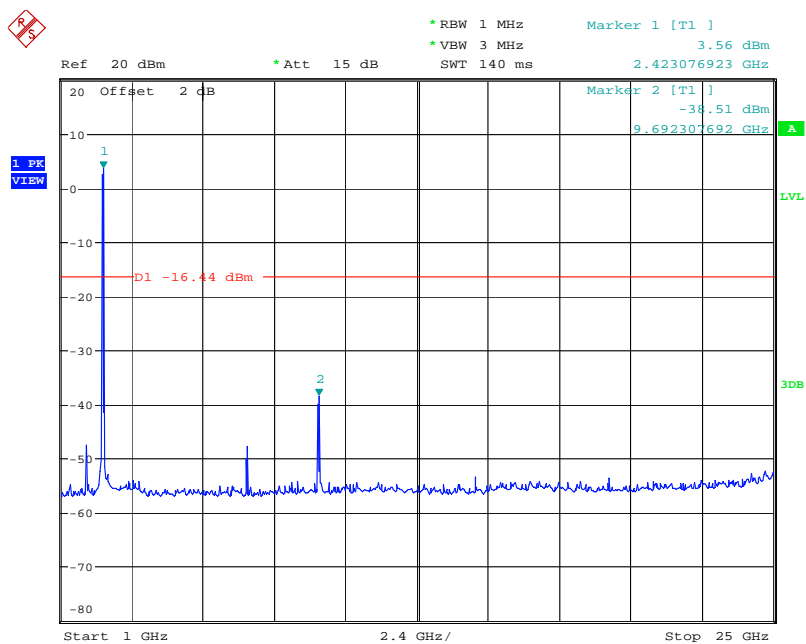
Sweep points = 20001

802.11n HT40:

Low channel

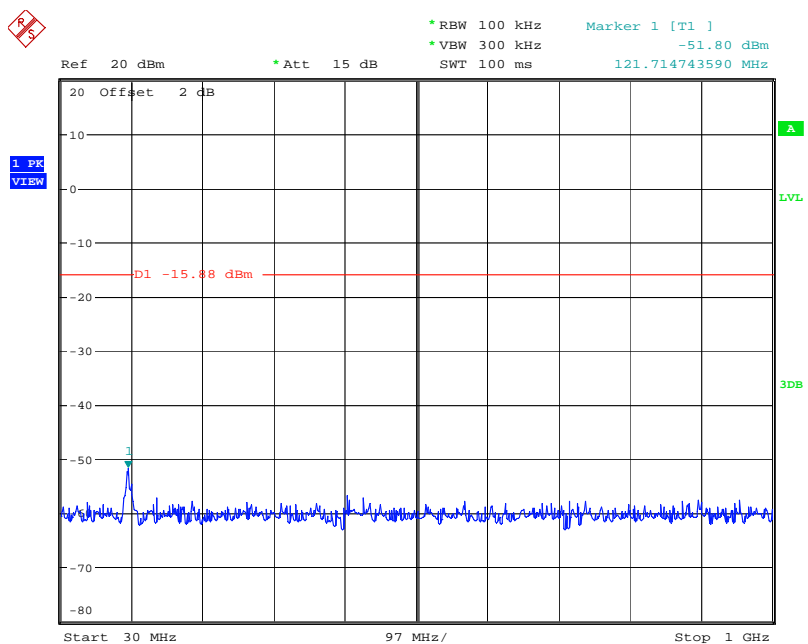


Sweep points = 20001

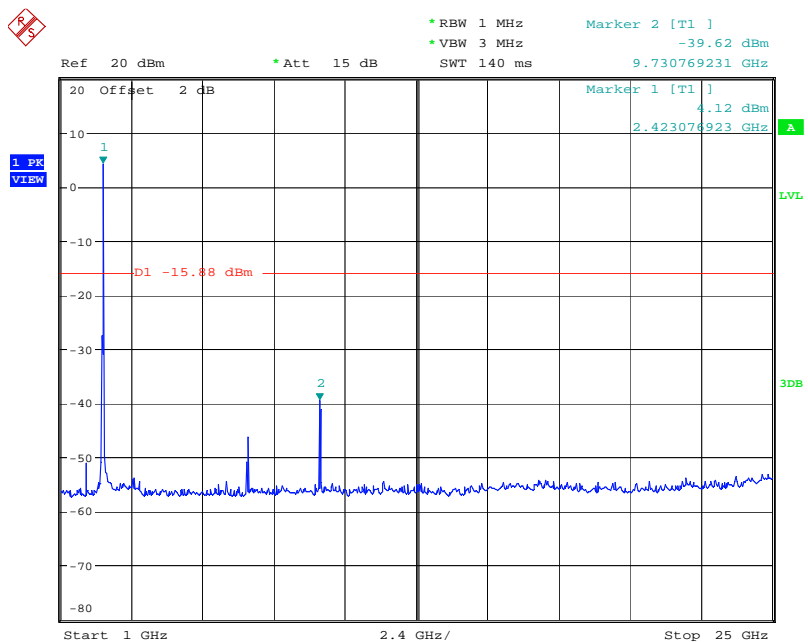


Sweep points = 20001

Middle channel

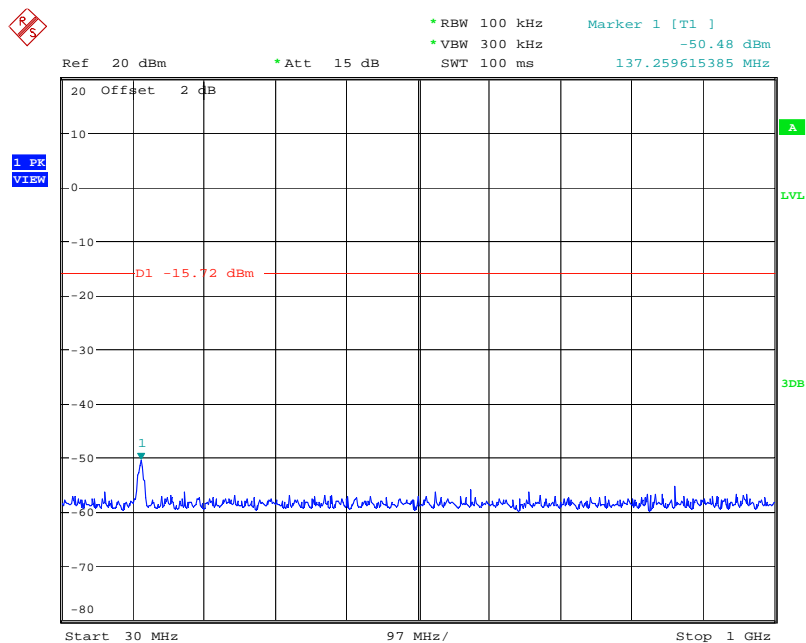


Sweep points = 20001

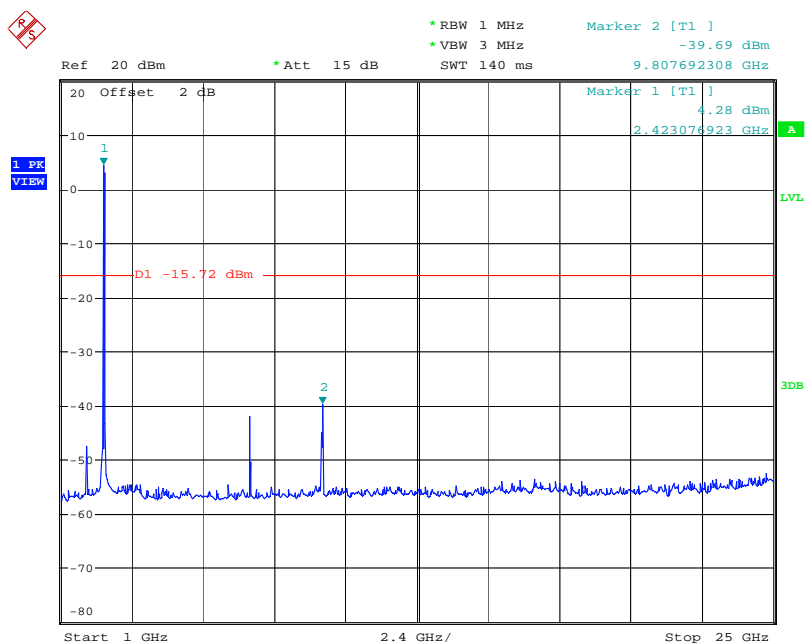


Sweep points = 20001

High channel



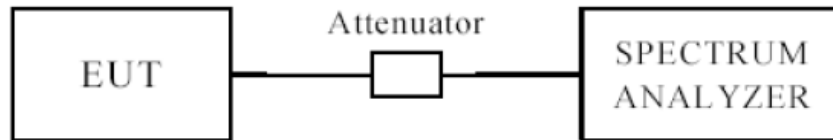
Sweep points = 20001



Sweep points = 20001

7.0. 6DB BANDWIDTH MEASUREMENT

7.1 TEST SETUP



7.2 LIMITS OF 6DB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is >500 kHz

7.3 TEST PROCEDURE

1. Set resolution bandwidth (RBW) = 100 kHz
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

7.4 TEST RESULT

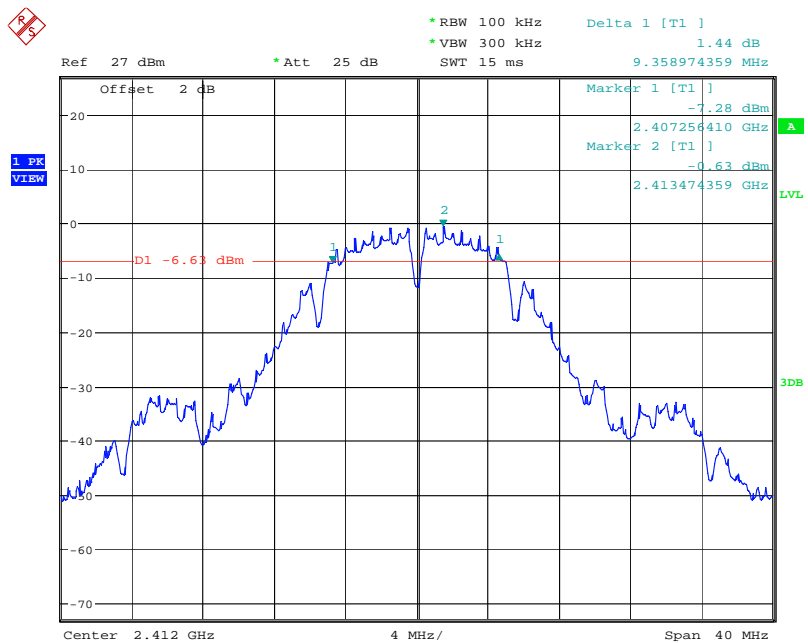
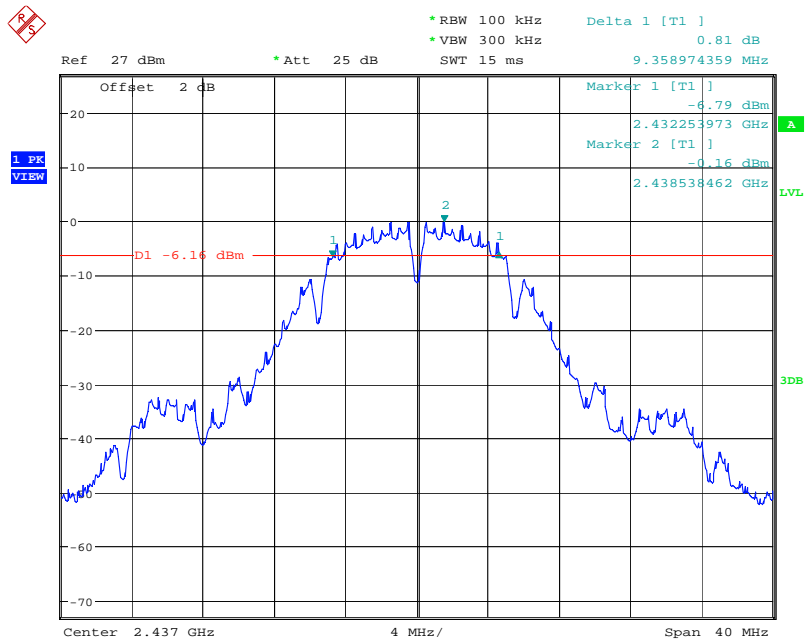
6dB Occupied Bandwidth

| | | | | | | | |
|-------------|-------------------------|---------------------------|----------------------|---------------------|------------|--------|--|
| EUT | | Mobile Phone | | Model | | Y4 | |
| Mode | | 802.11b | | Humidity | | 56% RH | |
| Temperature | | 24 deg. C, | | | | | |
| Channel | Channel Frequency (MHz) | Data Transfer Rate (Mbps) | 6 dB Bandwidth (kHz) | Minimum Limit (MHz) | Pass/ Fail | | |
| 1 | 2412 | 1 | 9359.0 | 0.5 | Pass | | |
| 6 | 2437 | 1 | 9359.0 | 0.5 | Pass | | |
| 11 | 2462 | 1 | 9359.0 | 0.5 | Pass | | |

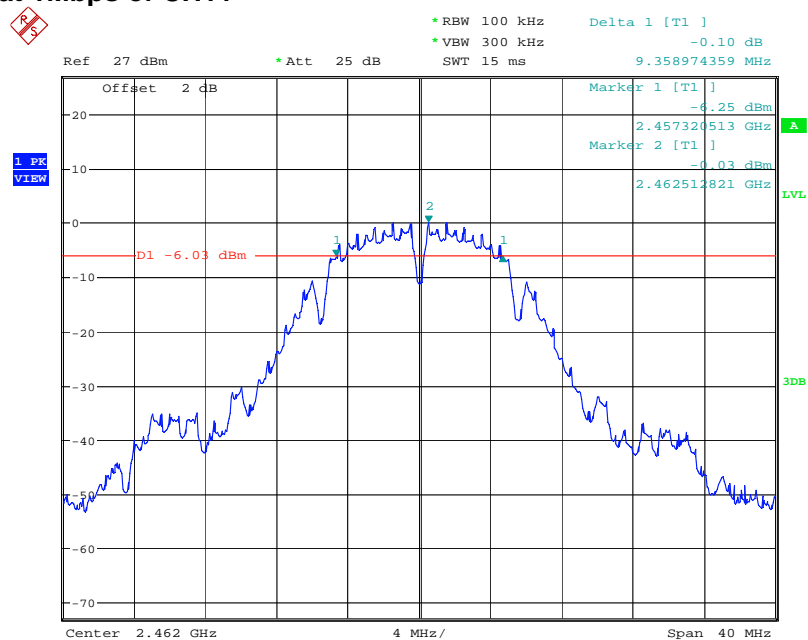
| | | | | | | | |
|-------------|-------------------------|---------------------------|----------------------|---------------------|------------|--------|--|
| EUT | | Mobile Phone | | Model | | Y4 | |
| Mode | | 802.11g | | Humidity | | 56% RH | |
| Temperature | | 24 deg. C, | | | | | |
| Channel | Channel Frequency (MHz) | Data Transfer Rate (Mbps) | 6 dB Bandwidth (kHz) | Minimum Limit (MHz) | Pass/ Fail | | |
| 1 | 2412 | 6 | 16410.3 | 0.5 | Pass | | |
| 6 | 2437 | 6 | 16474.4 | 0.5 | Pass | | |
| 11 | 2462 | 6 | 16474.4 | 0.5 | Pass | | |

| | | | | | | | |
|-------------|-------------------------|---------------------------|----------------------|---------------------|------------|--------|--|
| EUT | | Mobile Phone | | Model | | Y4 | |
| Mode | | 802.11n20 | | Humidity | | 56% RH | |
| Temperature | | 24 deg. C, | | | | | |
| Channel | Channel Frequency (MHz) | Data Transfer Rate (Mbps) | 6 dB Bandwidth (kHz) | Minimum Limit (MHz) | Pass/ Fail | | |
| 1 | 2412 | 6.5 | 17628.2 | 0.5 | Pass | | |
| 6 | 2437 | 6.5 | 17628.2 | 0.5 | Pass | | |
| 11 | 2462 | 6.5 | 17692.3 | 0.5 | Pass | | |

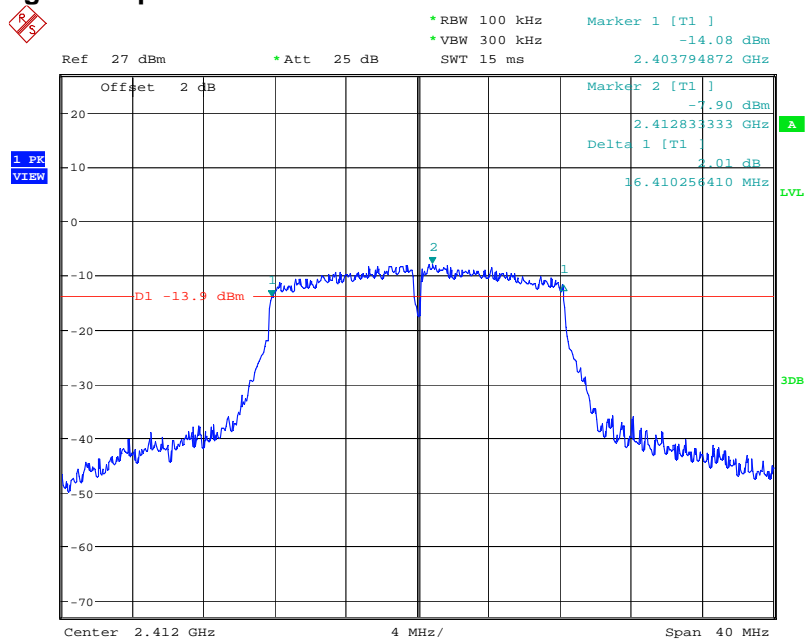
| | | | | | | | |
|-------------|-------------------------|---------------------------|----------------------|---------------------|------------|--------|--|
| EUT | | Mobile Phone | | Model | | Y4 | |
| Mode | | 802.11n40 | | Humidity | | 56% RH | |
| Temperature | | 24 deg. C, | | | | | |
| Channel | Channel Frequency (MHz) | Data Transfer Rate (Mbps) | 6 dB Bandwidth (kHz) | Minimum Limit (MHz) | Pass/ Fail | | |
| 3 | 2422 | 13.5 | 36442.3 | 0.5 | Pass | | |
| 6 | 2437 | 13.5 | 36280.0 | 0.5 | Pass | | |
| 9 | 2452 | 13.5 | 36250.0 | 0.5 | Pass | | |

802.11b at 1Mbps of CH1**802.11b at 1Mbps of CH6**

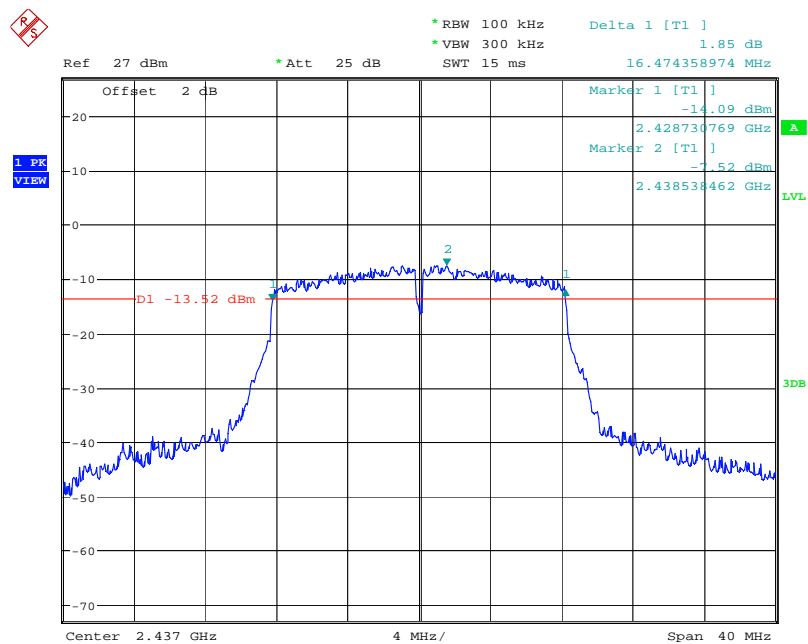
802.11b at 1Mbps of CH11



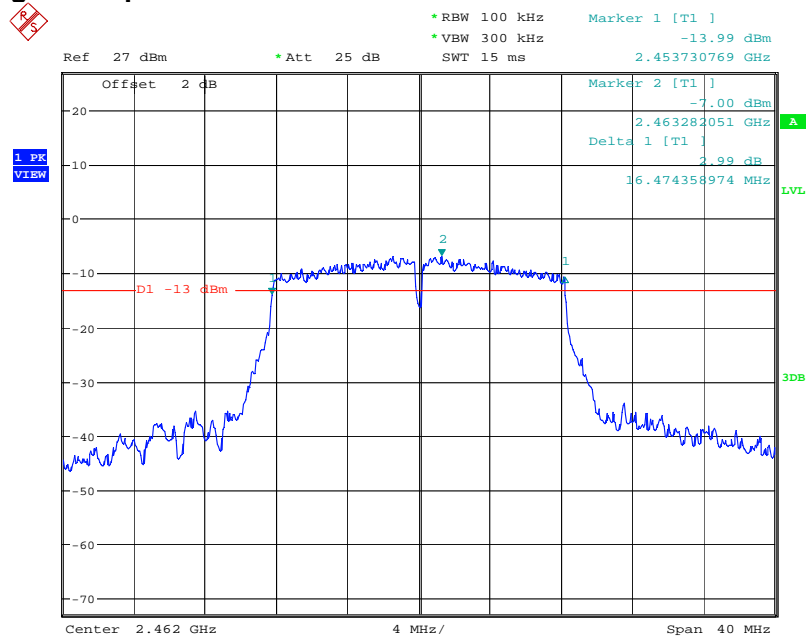
802.11g at 6Mbps of CH1



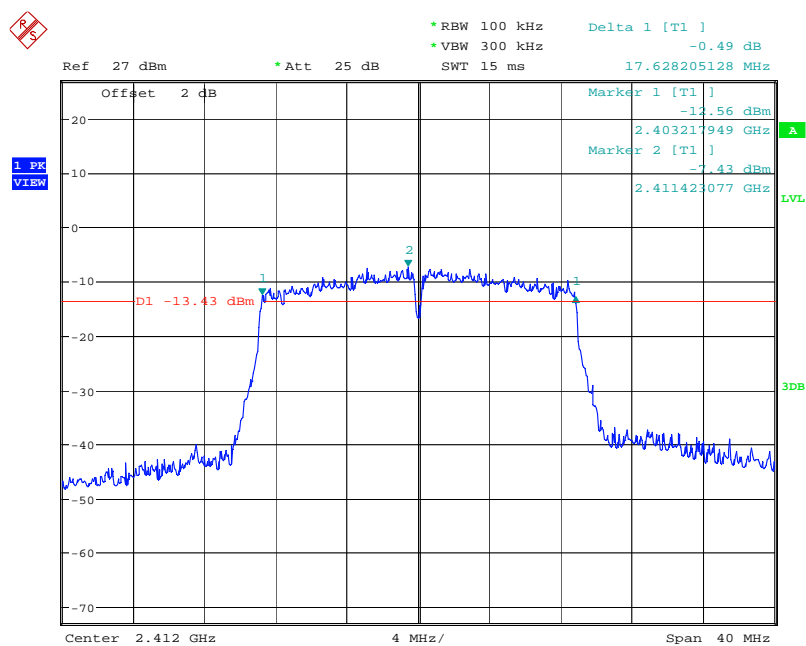
802.11g at 6Mbps of CH6



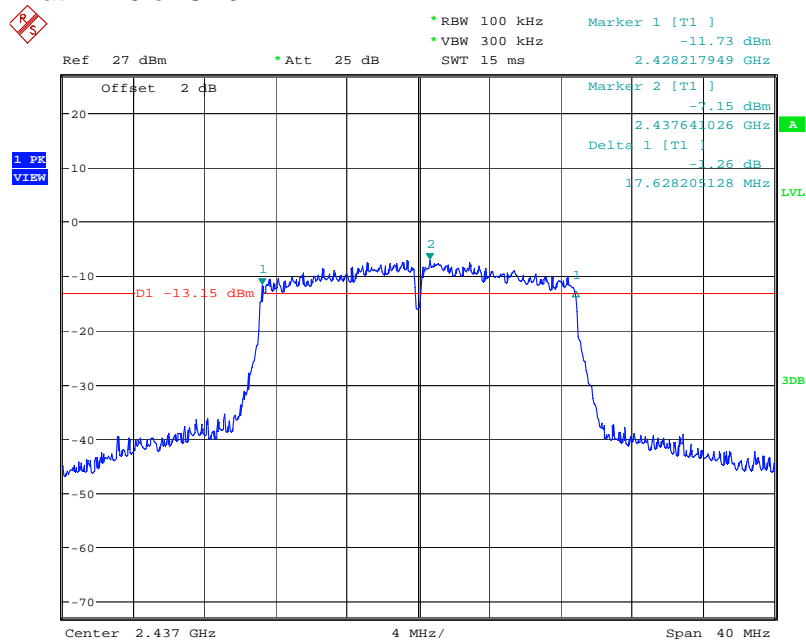
802.11g at 6Mbps of CH11



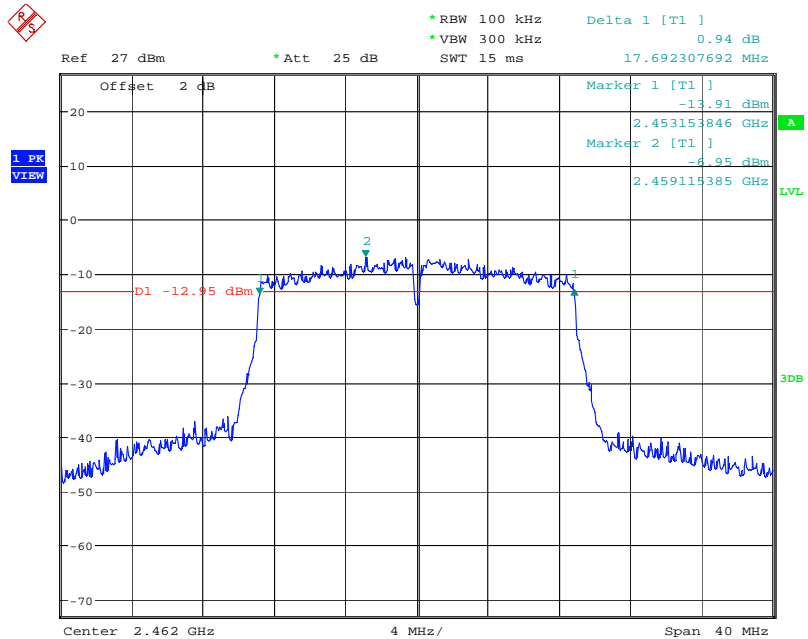
802.11n at HT20 of CH1



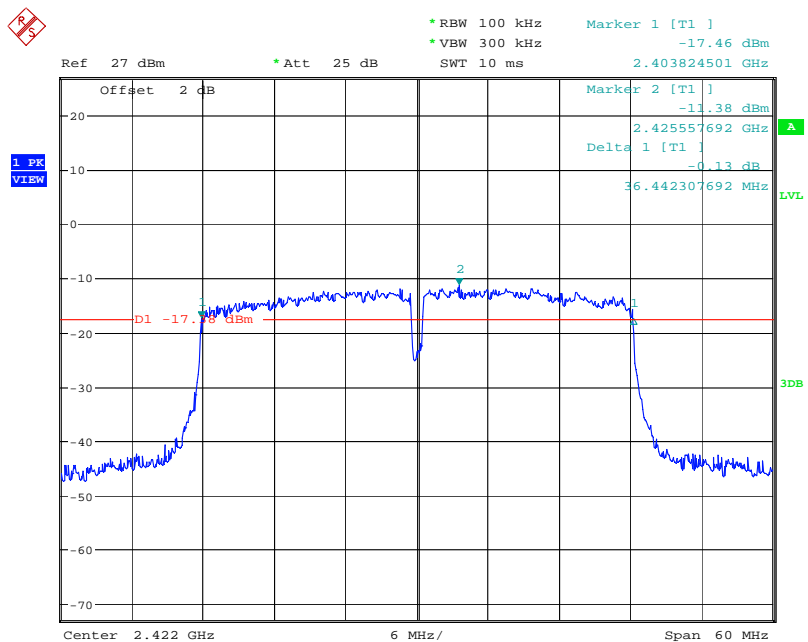
802.11n at HT20 of CH6



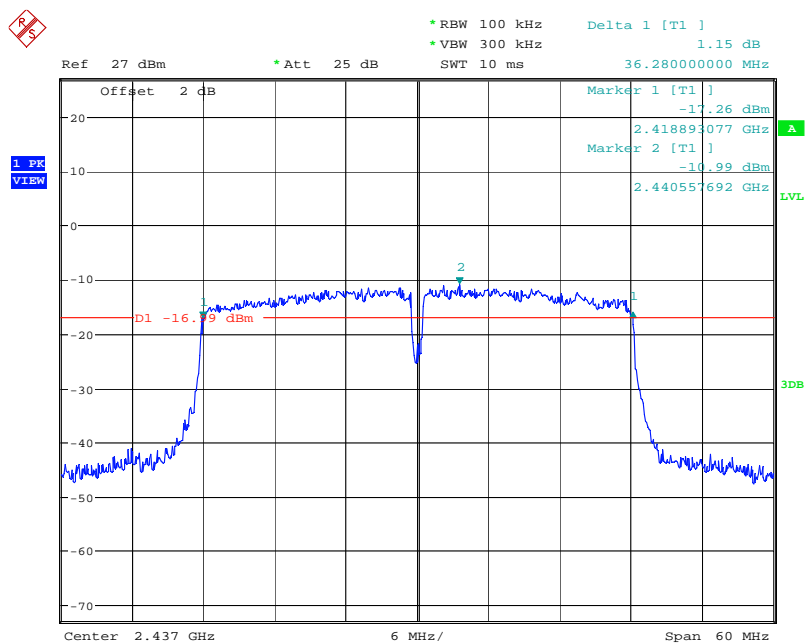
802.11n at HT20 of CH11



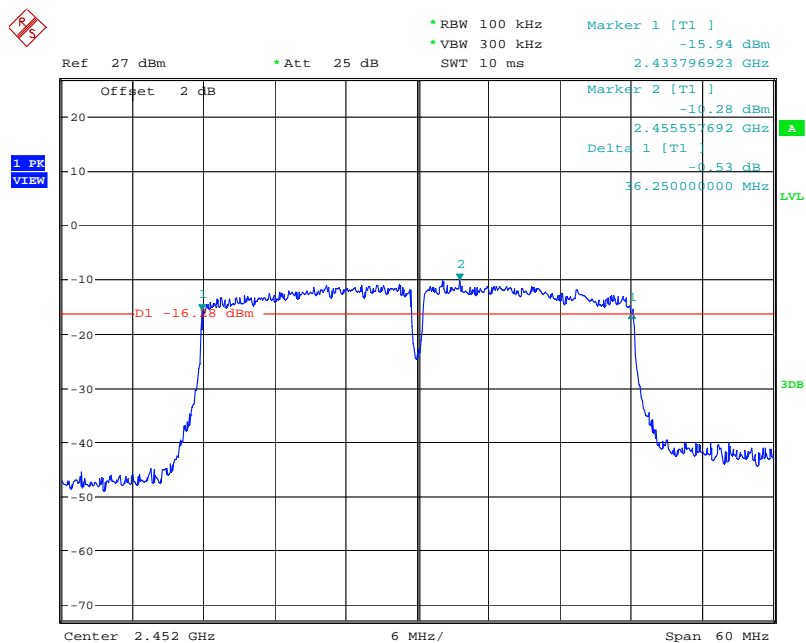
802.11n at HT40 of CH3



802.11n at HT40 of CH6



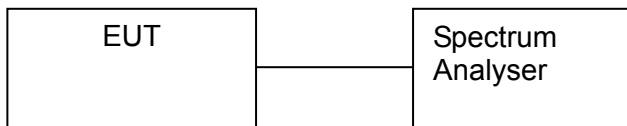
802.11n at HT40 of CH9



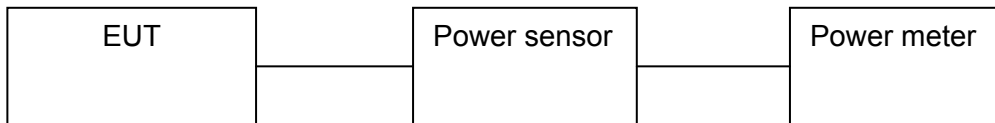
8.0. MAXIMUM PEAK OUTPUT POWER

8.1 TEST SETUP

Peak power



Average power



8.2 LIMITS OF MAXIMUM PEAK OUTPUT POWER

The Maximum Peak Output Power Measurement is 30dBm.

8.3 TEST PROCEDURE

The RF power output was measured with a Power meter connected to the RF Antenna connector measurement while EUT was operating in transmit mode at the appropriate centre frequency.

a. The EUT was directly connected to the power meter and antenna output port as show in the block diagram by the power sensor. The sample with a program test port is used to test.

b. Setting : RBW = 1MHz, VBW = 3MHz

Span \geq approximately 2 times the bandwidth for 802.11b/g/n20, and 1.5 times for 802.11n40, centered on a low channel, middle channel and high channel

Sweep = auto

Detector function = peak

Trace = max hold

Note: the peak power was measured.

8.4 TEST RESULTS

NOT RECESSARY

| | | | | |
|-------------|-------------------------|-------------------------|------------------------|------------|
| EUT | Mobile Phone | Model | Y4 | |
| Mode | 802.11b | Humidity | 56% RH | |
| Temperature | 24 deg. C, | | | |
| Channel | Channel Frequency (MHz) | Peak Power Output (dBm) | Peak Power Limit (dBm) | Pass/ Fail |
| 1 | 2412 | 16.15 | 30 | Pass |
| 6 | 2437 | 16.23 | 30 | Pass |
| 11 | 2462 | 16.25 | 30 | Pass |

Note: 1. At final test to get the worst-case emission at 1Mbps for CH1, CH6 and CH11

2. The result basic equation calculation as follow:

Peak Power Output = Peak Power Reading + Cable loss + Attenuator

3. The worse case was recorded

| | | | | | | | |
|-------------|-------------------------|--------------|-------------------------|----------|------------------------|--------|------------|
| EUT | | Mobile Phone | | Model | | Y4 | |
| Mode | | 802.11g | | Humidity | | 56% RH | |
| Temperature | | 24 deg. C, | | | | | |
| Channel | Channel Frequency (MHz) | | Peak Power Output (dBm) | | Peak Power Limit (dBm) | | Pass/ Fail |
| 1 | 2412 | | 14.27 | | 30 | | Pass |
| 6 | 2437 | | 14.93 | | 30 | | Pass |
| 11 | 2462 | | 15.59 | | 30 | | Pass |

Note: 1. At final test to get the worst-case emission at 6 Mbps for CH1, CH6 and CH11

2. The result basic equation calculation as follow:

Peak Power Output = Peak Power Reading + Cable loss + Attenuator

3. The worse case was recorded

| | | | | | | | |
|-------------|-------------------------|---------------|-------------------------|----------|------------------------|--------|------------|
| EUT | | Mobile Phone | | Model | | Y4 | |
| Mode | | 802.11n(HT20) | | Humidity | | 56% RH | |
| Temperature | | 24 deg. C, | | | | | |
| Channel | Channel Frequency (MHz) | | Peak Power Output (dBm) | | Peak Power Limit (dBm) | | Pass/ Fail |
| 1 | 2412 | | 14.95 | | 30 | | Pass |
| 6 | 2437 | | 15.37 | | 30 | | Pass |
| 11 | 2462 | | 15.69 | | 30 | | Pass |

Note: 1. At final test to get the worst-case emission at 6.5Mbps for CH1, CH6 and CH11

2. The result basic equation calculation as follow:

Peak Power Output = Peak Power Reading + Cable loss + Attenuator

3. The worse case was recorded

| | | | | | | | |
|-------------|-------------------------|----------------|-------------------------|----------|------------------------|--------|------------|
| EUT | | Mobile Phone | | Model | | Y4 | |
| Mode | | 802.11n (HT40) | | Humidity | | 56% RH | |
| Temperature | | 24 deg. C, | | | | | |
| Channel | Channel Frequency (MHz) | | Peak Power Output (dBm) | | Peak Power Limit (dBm) | | Pass/ Fail |
| 3 | 2422 | | 14.63 | | 30 | | Pass |
| 6 | 2437 | | 14.59 | | 30 | | Pass |
| 9 | 2452 | | 15.08 | | 30 | | Pass |

Note: 1. At final test to get the worst-case emission at 13.5Mbps for CH3, CH6 and CH9

2. The result basic equation calculation as follow:

Peak Power Output = Peak Power Reading + Cable loss + Attenuator

3. The worse case was recorded.

Ref 28 dBm * Att 25 dB * RBW 1 MHz * VBW 3 MHz SWT 2.5 ms Marker 1 [T1] 8.34 dBm 2.435589744 GHz

Offset 2 dB

1 PK VIEW

Center 2.437 GHz 4 MHz/ Span 40 MHz

Tx Channel Bandwidth 20 MHz Power 16.23 dBm

Ref 28 dBm * Att 25 dB * RBW 1 MHz * VBW 3 MHz Marker 1 [T1] 8.36 dBm
 SWT 2.5 ms 2.460589744 GHz

Offset 2 dB

1 PK VIEW

Center 2.462 GHz 4 MHz/ Span 40 MHz

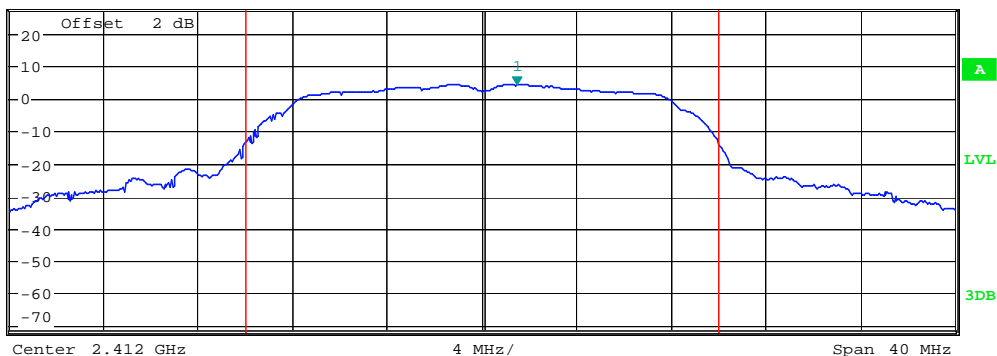
Tx Channel Bandwidth 20 MHz Power 16.25 dBm

3DB

802.11g at 6Mbps of CH1

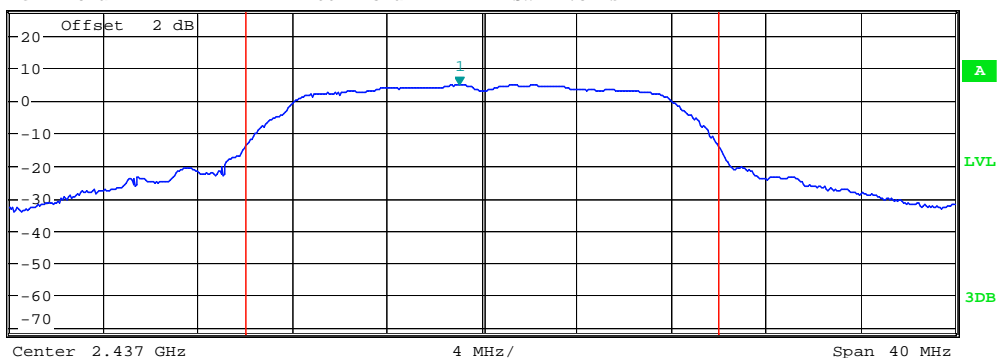
Ref 28 dBm * Att 25 dB * RBW 1 MHz Marker 1 [T1] 4.45 dBm
 * VBW 3 MHz 2.413474359 GHz
 SWT 2.5 ms

1 PK
VIEW

**802.11g at 6Mbps of CH6**

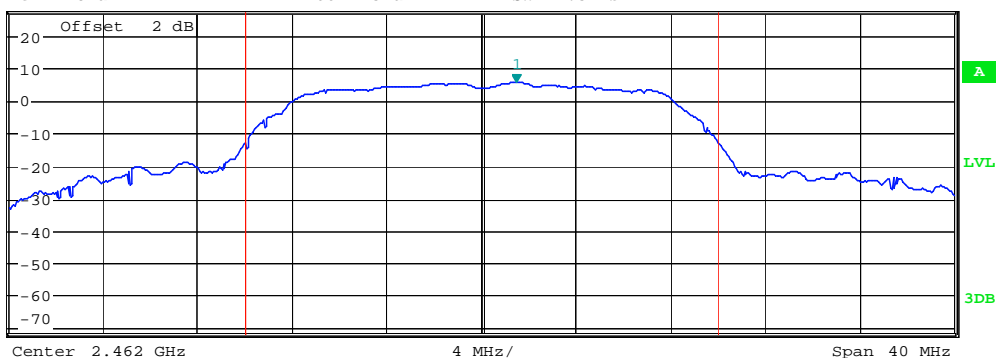
Ref 28 dBm * Att 25 dB * RBW 1 MHz Marker 1 [T1] 4.84 dBm
 * VBW 3 MHz 2.436038462 GHz
 SWT 2.5 ms

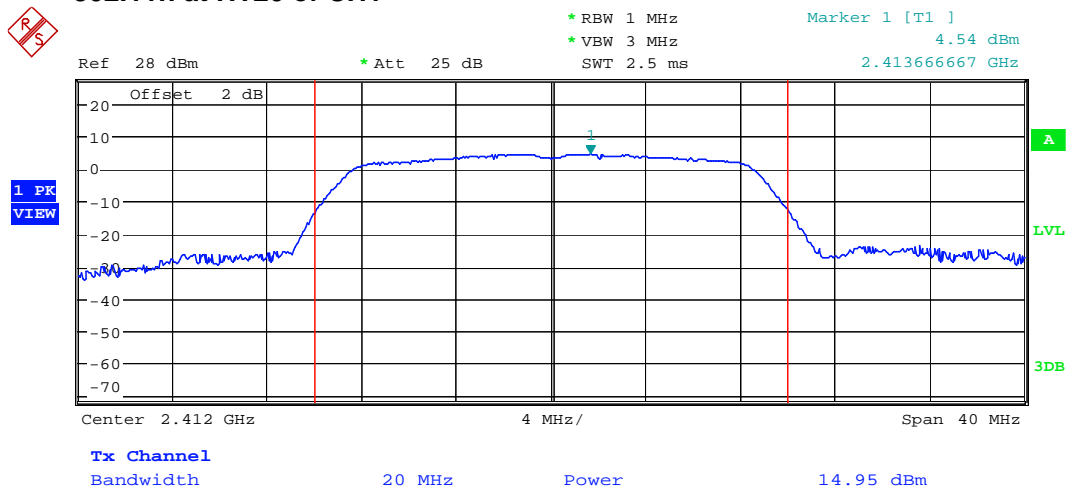
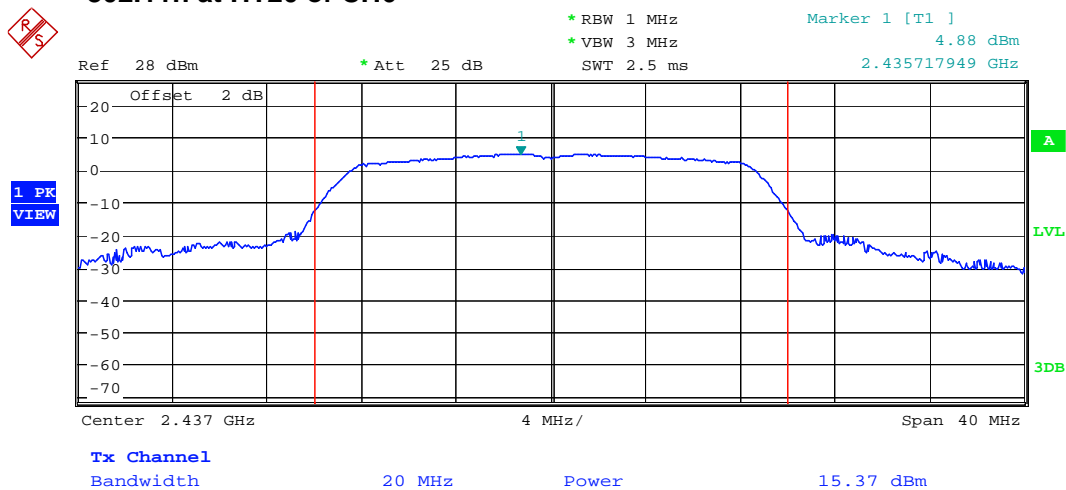
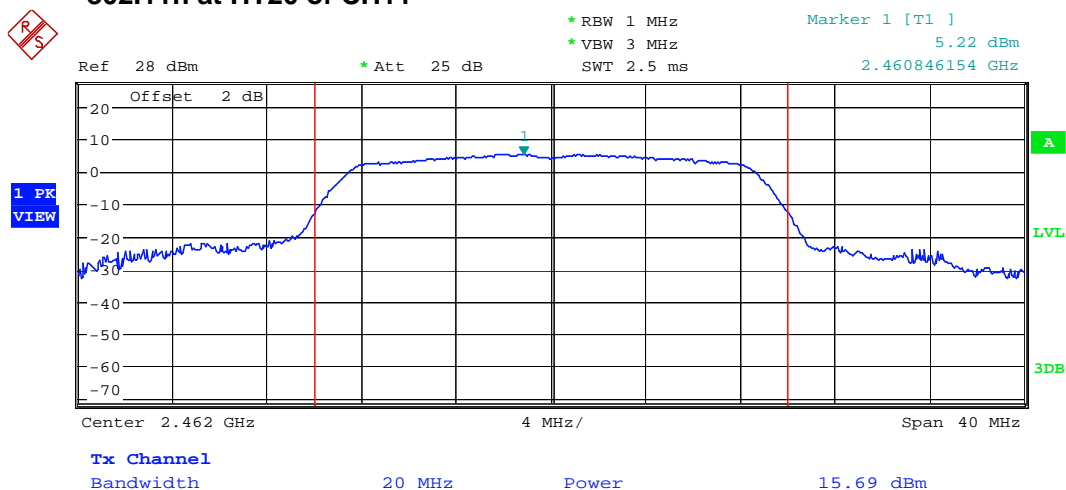
1 PK
VIEW

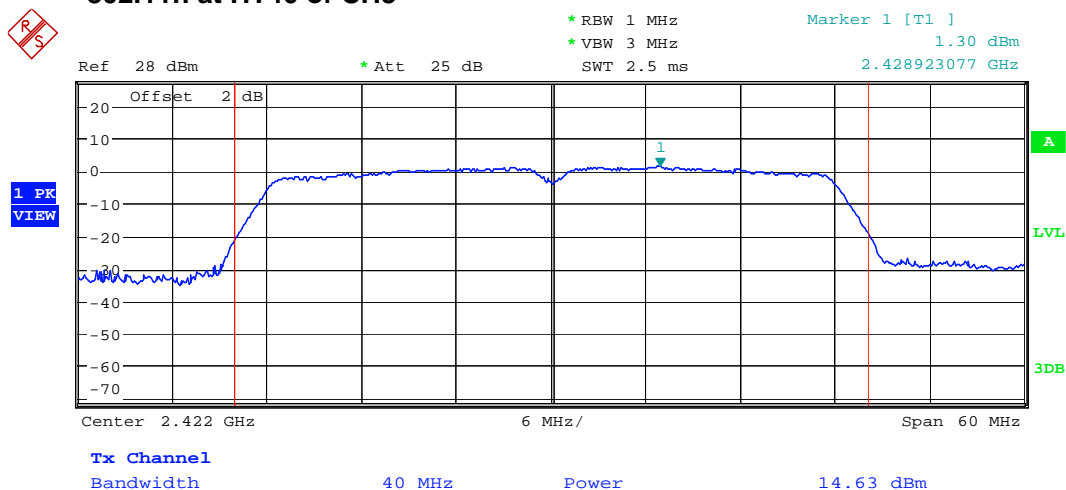
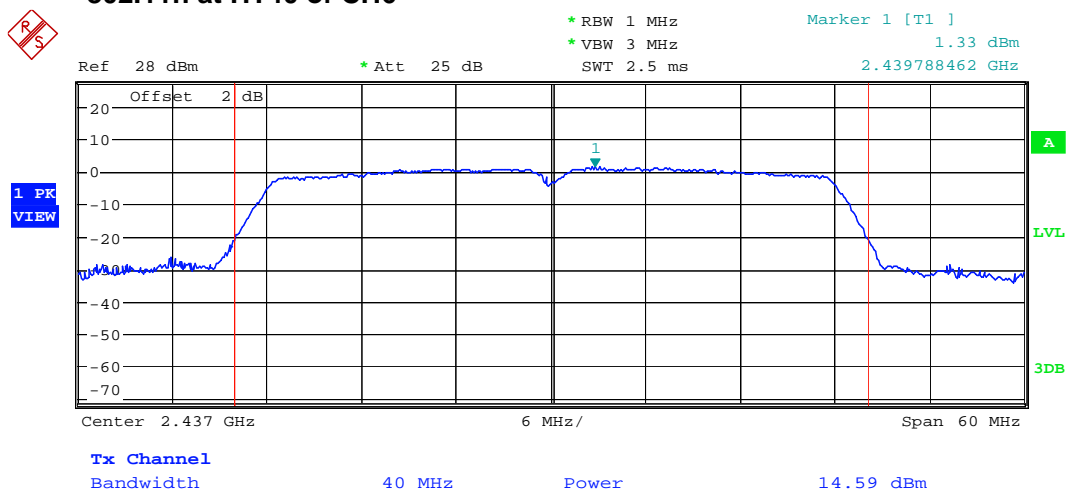
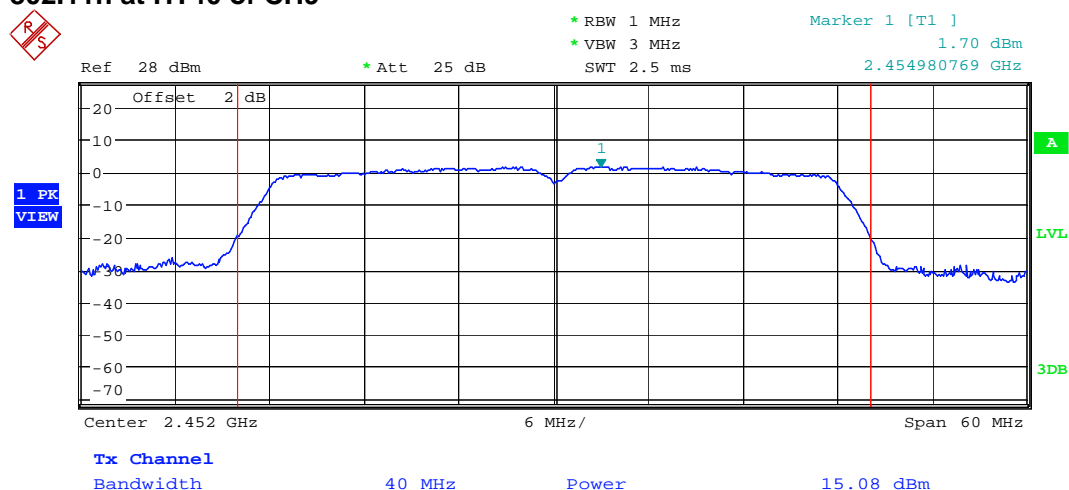
**802.11g at 6Mbps of CH11**

Ref 28 dBm * Att 25 dB * RBW 1 MHz Marker 1 [T1] 5.68 dBm
 * VBW 3 MHz 2.463474359 GHz
 SWT 2.5 ms

1 PK
VIEW



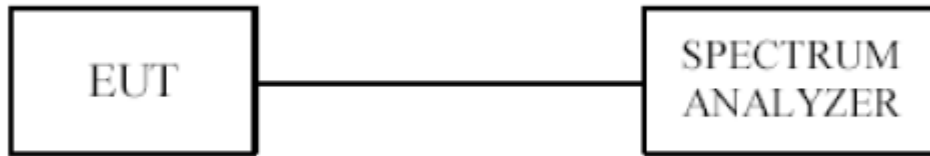
802.11n at HT20 of CH1**802.11n at HT20 of CH6****802.11n at HT20 of CH11**

802.11n at HT40 of CH3**802.11n at HT40 of CH6****802.11n at HT40 of CH9**

| Wi-Fi 2412-2462 MHz | Channel | Average Power (dBm) for Data Rates (Mbps) | | | | | | | |
|---------------------------|---------|---|-------|-------|-------|-------|-------|-------|-------|
| | | 1 | 2 | 5.5 | 11 | / | / | / | / |
| 802.11b | 1 | 14.15 | 14.21 | 14.19 | 14.09 | / | / | / | / |
| | 6 | 14.23 | 14.31 | 14.28 | 14.10 | / | / | / | / |
| | 11 | 14.25 | 14.34 | 14.32 | 14.11 | / | / | / | / |
| 802.11g | Channel | 6 | 9 | 12 | 18 | 24 | 36 | 48 | 54 |
| | 1 | 12.86 | 12.81 | 12.85 | 12.91 | 12.87 | 12.96 | 12.89 | 12.92 |
| | 6 | 12.83 | 12.92 | 13.01 | 13.03 | 12.90 | 12.98 | 12.95 | 12.98 |
| | 11 | 13.01 | 13.09 | 13.07 | 13.11 | 13.10 | 13.09 | 12.99 | 13.13 |
| 802.11n (20M) | Channel | 6.5 | 13 | 19.5 | 26 | 39 | 52 | 58.5 | 65 |
| | 1 | 12.95 | 13.04 | 13.05 | 13.10 | 12.98 | 13.08 | 13.10 | 12.99 |
| | 6 | 13.17 | 13.20 | 13.22 | 13.19 | 13.09 | 13.13 | 13.27 | 13.11 |
| | 11 | 13.19 | 13.22 | 13.30 | 13.24 | 13.10 | 13.26 | 13.26 | 13.30 |
| 802.11n (40M) | Channel | MCS0 | MCS1 | MCS2 | MCS3 | MCS4 | MCS5 | MCS6 | MCS7 |
| | 3 | 12.16 | 12.19 | 12.20 | 12.26 | 12.31 | 12.28 | 12.31 | 12.29 |
| | 6 | 12.19 | 12.26 | 12.29 | 12.32 | 12.36 | 12.37 | 12.35 | 12.26 |
| | 9 | 12.35 | 12.39 | 12.42 | 12.40 | 12.35 | 12.42 | 12.42 | 12.37 |

9. POWER SPECTRAL DENSITY MEASUREMENT

9.1 TEST SETUP



The sample with a test program port is used to test. The EUT test port and Spectrum Analyzer are connected by the RF Cable.

9.2 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum Power Spectral Density Measurement is 8dBm.

9.3 TEST PROCEDURE

1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
2. Set the RBW = 3 kHz.
3. Set the VBW = 10 kHz.
4. Set the span to 1.5 times the DTS channel bandwidth.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.
11. The resulting peak PSD level must be ≤ 8 dBm.

9.4 TEST RESULT

| | | | | | | | |
|-------------|-------------------------|--------------|------------------------------------|----------|--------------------------|--------|------------|
| EUT | | Mobile Phone | | Model | | Y4 | |
| Mode | | 802.11b | | Humidity | | 56% RH | |
| Temperature | | 24 deg. C, | | | | | |
| Channel | Channel Frequency (MHz) | | Final RF Power Level in (dBm/3KHz) | | Maximum Limit (dBm/3KHz) | | Pass/ Fail |
| 1Mbps | | | | | | | |
| 1 | 2412 | | -19.27 | | 8 | | Pass |
| 6 | 2437 | | -18.60 | | 8 | | Pass |
| 11 | 2462 | | -18.58 | | 8 | | Pass |

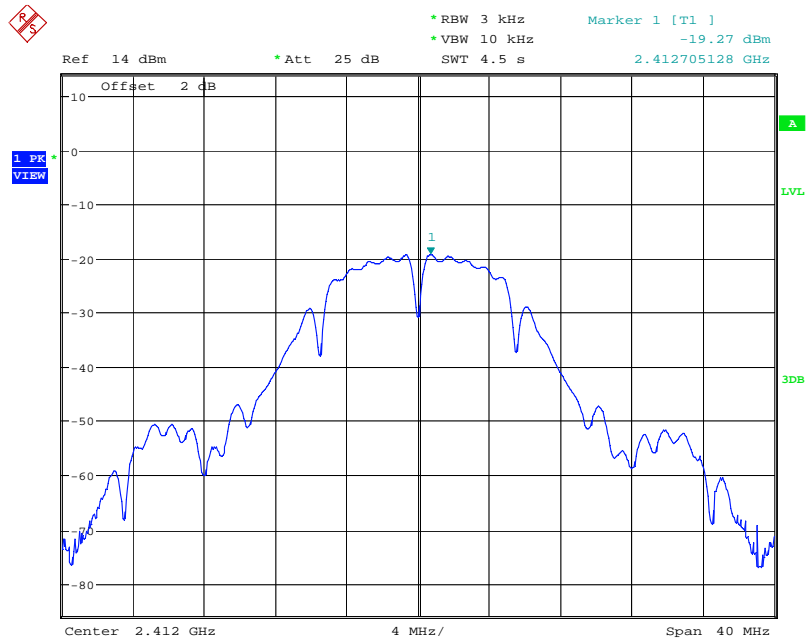
| | | | | | | | |
|-------------|-------------------------|--------------|------------------------------------|----------|--------------------------|--------|------------|
| EUT | | Mobile Phone | | Model | | Y4 | |
| Mode | | 802.11g | | Humidity | | 56% RH | |
| Temperature | | 24 deg. C, | | | | | |
| Channel | Channel Frequency (MHz) | | Final RF Power Level in (dBm/3KHz) | | Maximum Limit (dBm/3KHz) | | Pass/ Fail |
| 6Mbps | | | | | | | |
| 1 | 2412 | | -21.15 | | 8 | | Pass |
| 6 | 2437 | | -20.66 | | 8 | | Pass |
| 11 | 2462 | | -19.94 | | 8 | | Pass |

| | | | | | | | |
|-------------|-------------------------|--------------|------------------------------------|----------|--------------------------|--------|------------|
| EUT | | Mobile Phone | | Model | | Y4 | |
| Mode | | 802.11n HT20 | | Humidity | | 56% RH | |
| Temperature | | 24 deg. C, | | | | | |
| Channel | Channel Frequency (MHz) | | Final RF Power Level in (dBm/3KHz) | | Maximum Limit (dBm/3KHz) | | Pass/ Fail |
| 6.5Mbps | | | | | | | |
| 1 | 2412 | | -20.76 | | 8 | | Pass |
| 6 | 2437 | | -19.85 | | 8 | | Pass |
| 11 | 2462 | | -19.91 | | 8 | | Pass |

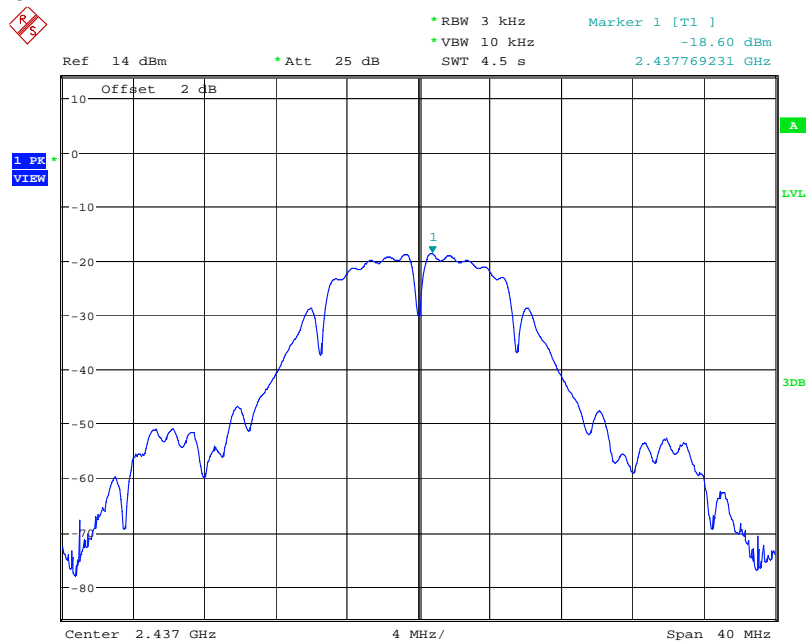
| | | | | | | | |
|-------------|-------------------------|--------------|------------------------------------|--------------------------|--|------------|--|
| EUT | | Mobile Phone | | Model | | Y4 | |
| Mode | | 802.11n HT40 | | Humidity | | 56% RH | |
| Temperature | | 24 deg. C, | | | | | |
| Channel | Channel Frequency (MHz) | | Final RF Power Level in (dBm/3KHz) | Maximum Limit (dBm/3KHz) | | Pass/ Fail | |
| 13.5Mbps | | | | | | | |
| 3 | 2422 | | -24.67 | 8 | | Pass | |
| 6 | 2437 | | -24.13 | 8 | | Pass | |
| 9 | 2452 | | -23.64 | 8 | | Pass | |

Remark: All of the modes have been investigated, and only worst mode is presented in this report.

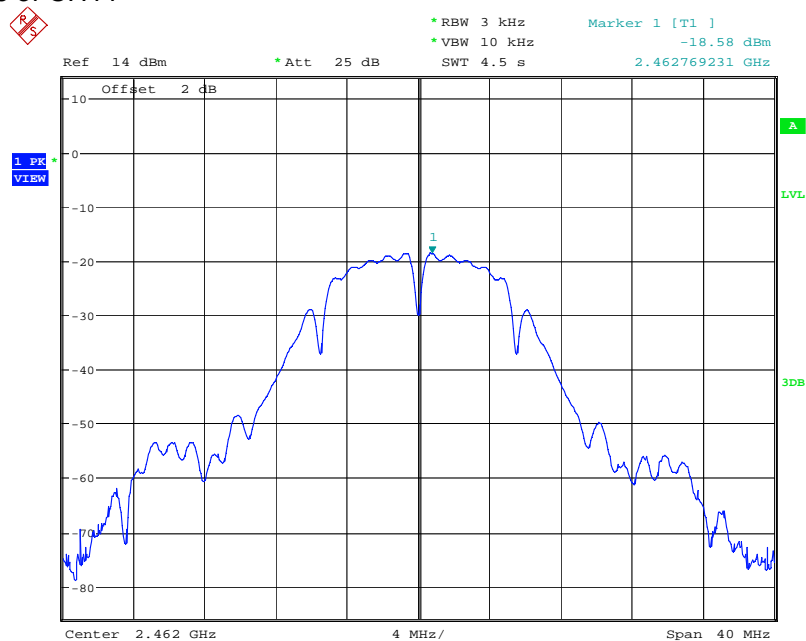
802.11b at 1Mbps of CH1



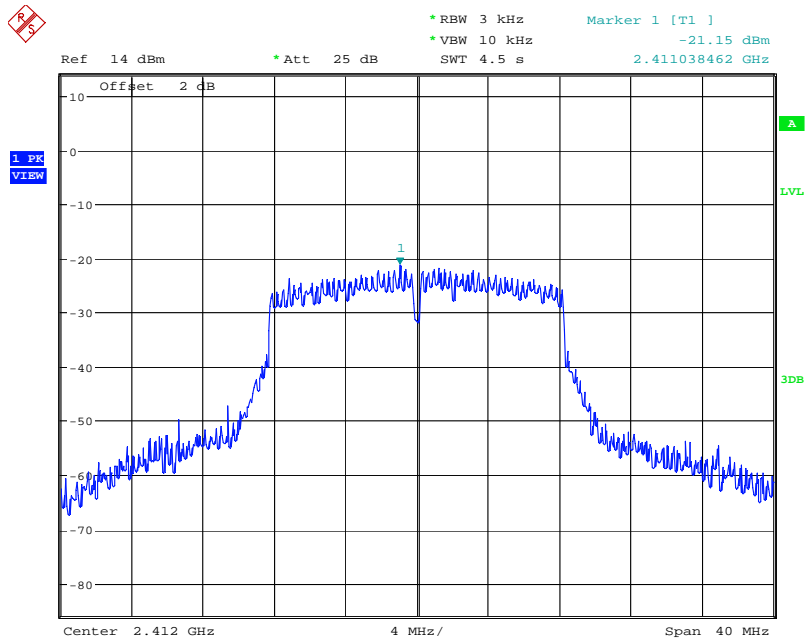
802.11b at 1Mbps at CH6



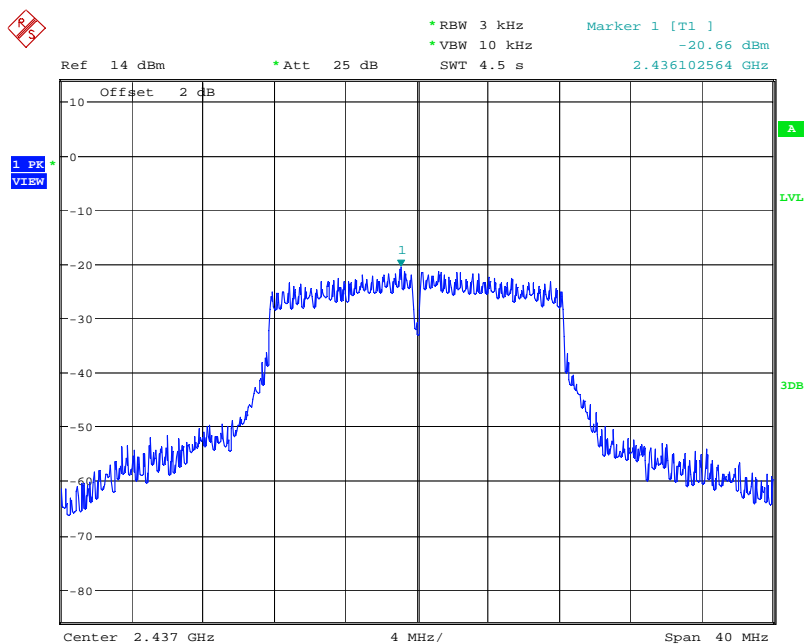
802.11b at 1Mbps of CH11



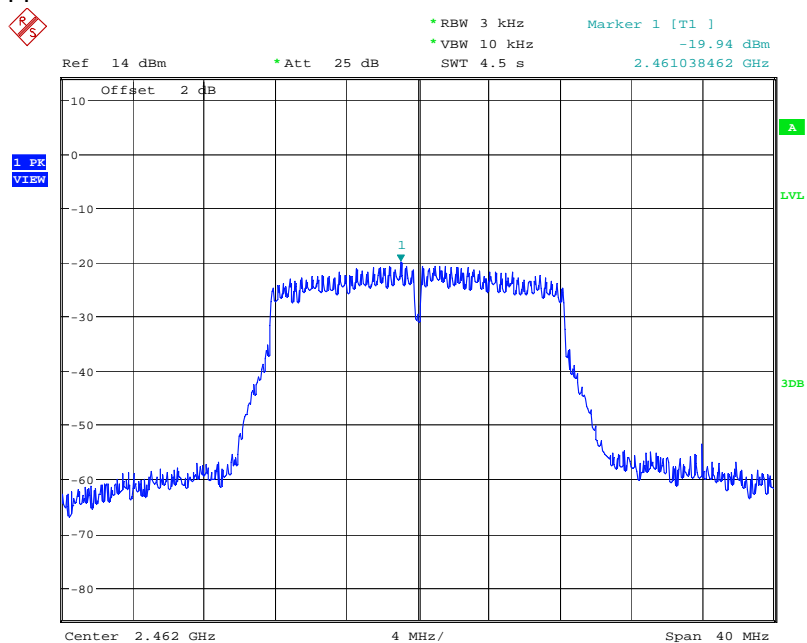
802.11g at 6Mbps of CH1



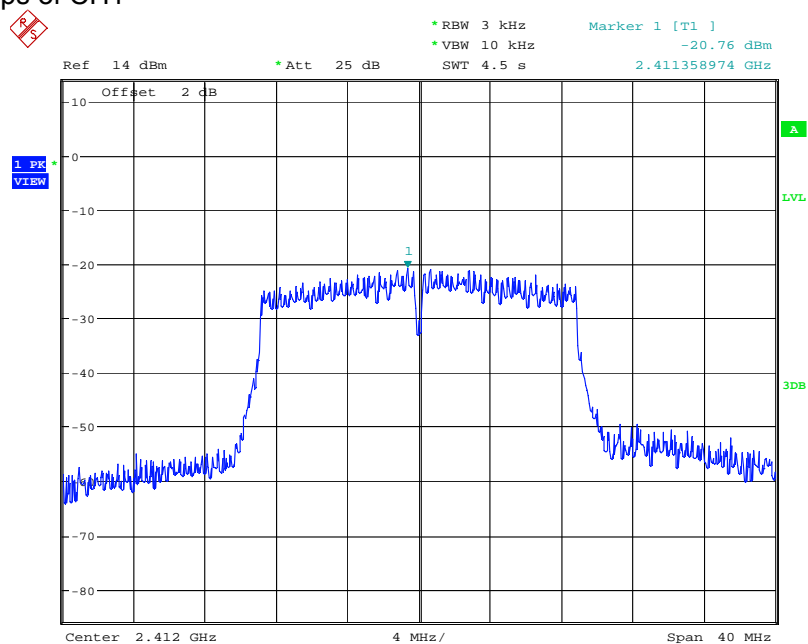
802.11g at 6Mbps of CH6



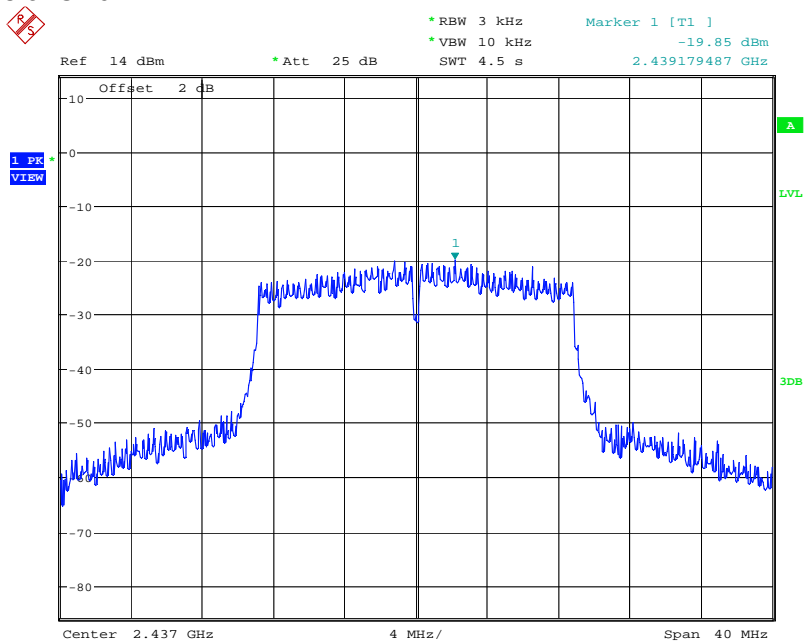
802.11g at 6Mbps of CH11



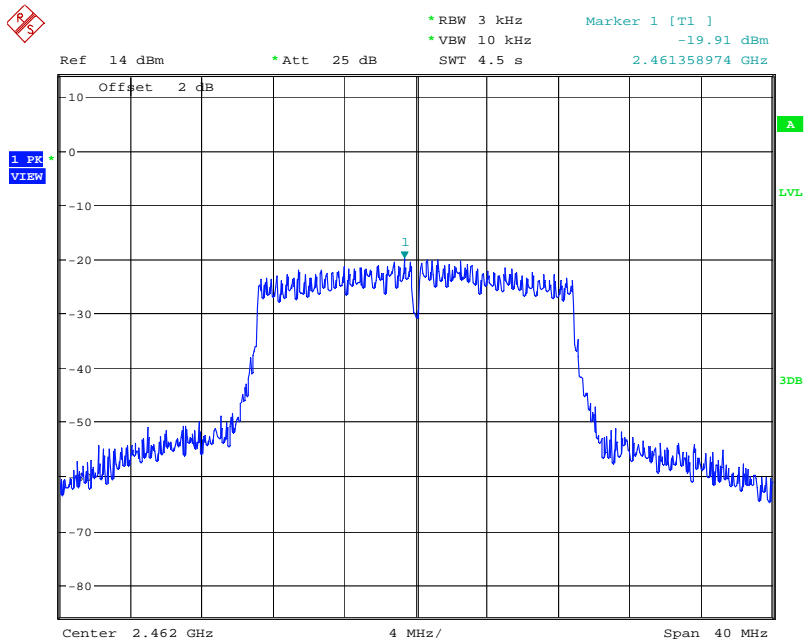
802.11n HT20 at 6.5Mbps of CH1



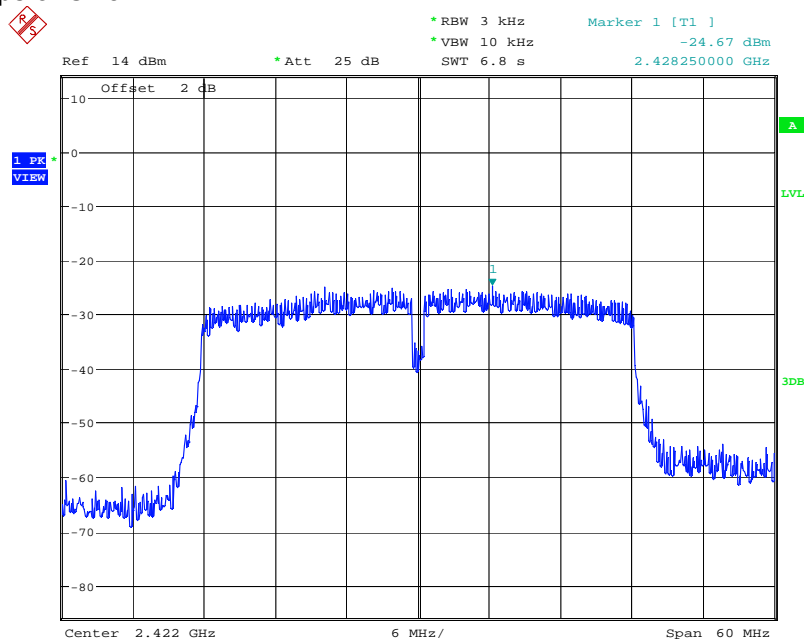
802.11n HT20 at 6.5Mbps of CH6



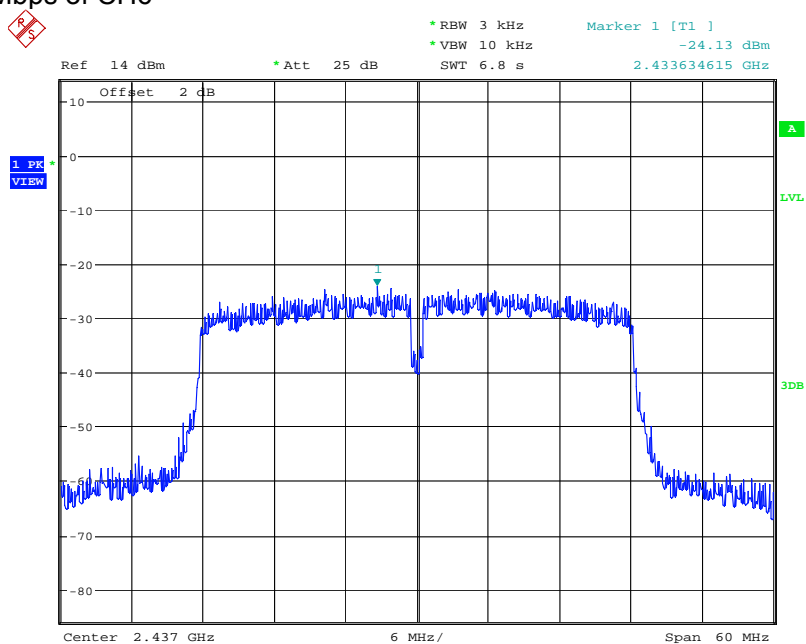
802.11n HT20 at 6.5Mbps of CH11



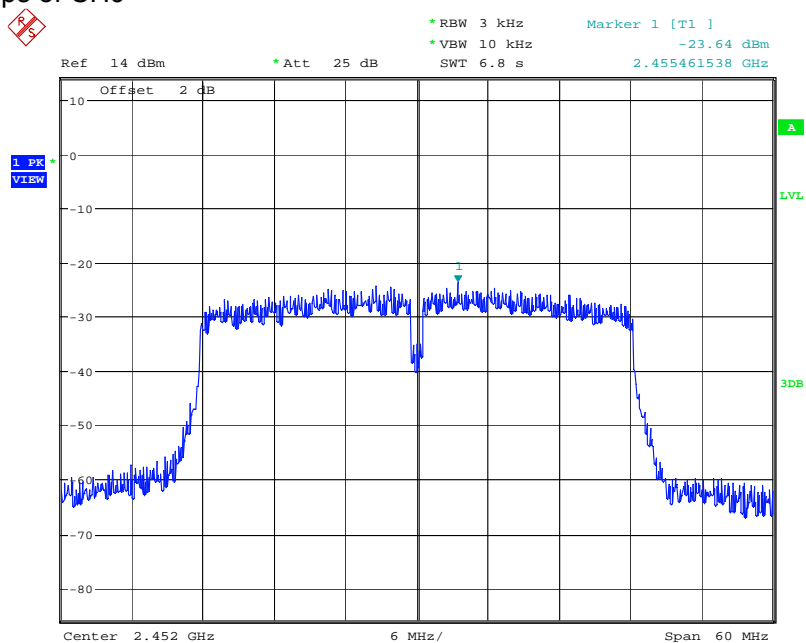
802.11n HT40 at 13.5Mbps of CH3



802.11n HT40 at 13.5Mbps of CH6



802.11n HT40 at 13.5Mbps of CH9



10. OUT OF BAND MEASUREMENT

10.1 TEST SETUP FOR BAND EDGE

The restricted band requirement based on radiated emission test; please see the clause 5.2 for the test setup

10.2 LIMITS OF OUT OF BAND EMISSIONS MEASUREMENT

1. Below –20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).
2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.

10.3 TEST PROCEDURE

- a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

10.4 TEST RESULT

Please see next pages

Note: This is a handheld device. The radiated emissions should be tested under 3-axes position (Lying, Stand), After pre-test. It was found that the worse radiated emission was get at the lying position.

Radiated measurement:**802.11b**

| Indicated | | result (PK/AV) | Antenna Polar (H/V) | Correction Factor | | | FCC Part 15.247 | | |
|------------------------|---------------------------------|-------------------|---------------------------|--------------------------|-----------------------|--------------------------|---------------------------|-------------------|----------------|
| Frequency (MHz) | Receiver Reading (dBμV/m) | | | Ant. Factor (dB/m) | Cable Loss (dB) | Pre-Amp. Gain (dB) | Cord. Amp. (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
| Low Channel (2412MHz) | | | | | | | | | |
| 2390 | 41.18 | AV | V | 30.3 | 4.1 | 33.1 | 42.48 | 54 | 11.52 |
| 2390 | 38.91 | AV | H | 30.3 | 4.1 | 33.1 | 40.21 | 54 | 13.79 |
| 2390 | 57.58 | PK | V | 30.3 | 4.1 | 33.1 | 58.88 | 74 | 15.12 |
| 2390 | 61.88 | PK | H | 30.3 | 4.1 | 33.1 | 63.18 | 74 | 10.82 |
| High Channel (2462MHz) | | | | | | | | | |
| 2483.5 | 39.76 | AV | V | 31 | 4.4 | 32.7 | 42.46 | 54 | 11.54 |
| 2483.5 | 38.04 | AV | H | 31 | 4.4 | 32.7 | 40.74 | 54 | 13.26 |
| 2483.5 | 58.42 | PK | V | 31 | 4.4 | 32.7 | 61.12 | 74 | 12.88 |
| 2483.5 | 57.86 | PK | H | 31 | 4.4 | 32.7 | 60.56 | 74 | 13.44 |

802.11g

| Indicated | | result (PK/AV) | Antenna Polar (H/V) | Correction Factor | | | FCC Part 15.247 | | |
|------------------------|---------------------------------|-------------------|---------------------------|--------------------------|-----------------------|--------------------------|---------------------------|-------------------|----------------|
| Frequency (MHz) | Receiver Reading (dBμV/m) | | | Ant. Factor (dB/m) | Cable Loss (dB) | Pre-Amp. Gain (dB) | Cord. Amp. (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
| Low Channel (2412MHz) | | | | | | | | | |
| 2390 | 38.60 | AV | V | 30.3 | 4.1 | 33.1 | 39.90 | 54 | 14.10 |
| 2390 | 39.32 | AV | H | 30.3 | 4.1 | 33.1 | 40.62 | 54 | 13.38 |
| 2390 | 61.64 | PK | V | 30.3 | 4.1 | 33.1 | 62.94 | 74 | 11.06 |
| 2390 | 58.66 | PK | H | 30.3 | 4.1 | 33.1 | 59.96 | 74 | 14.04 |
| High Channel (2462MHz) | | | | | | | | | |
| 2483.5 | 40.04 | AV | V | 31 | 4.4 | 32.7 | 42.74 | 54 | 11.26 |
| 2483.5 | 38.01 | AV | H | 31 | 4.4 | 32.7 | 40.71 | 54 | 13.29 |
| 2483.5 | 60.06 | PK | V | 31 | 4.4 | 32.7 | 62.76 | 74 | 11.24 |
| 2483.5 | 58.40 | PK | H | 31 | 4.4 | 32.7 | 61.10 | 74 | 12.90 |

Note: The BAND EDGE RESTRICTED BANDS emission is too low at least 20dB to the Fundamental.

802.11n HT20

| Indicated | | result (PK/AV) | Antenna Polar (H/V) | Correction Factor | | | FCC Part 15.247 | | |
|------------------------|---------------------------------|-------------------|---------------------------|--------------------------|-----------------------|--------------------------|---------------------------|-------------------|----------------|
| Frequency (MHz) | Receiver Reading (dBμV/m) | | | Ant. Factor (dB/m) | Cable Loss (dB) | Pre-Amp. Gain (dB) | Cord. Amp. (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
| Low Channel (2412MHz) | | | | | | | | | |
| 2390 | 38.81 | AV | V | 30.3 | 4.1 | 33.1 | 40.11 | 54 | 13.89 |
| 2390 | 38.99 | AV | H | 30.3 | 4.1 | 33.1 | 40.29 | 54 | 13.71 |
| 2390 | 60.71 | PK | V | 30.3 | 4.1 | 33.1 | 62.01 | 74 | 11.99 |
| 2390 | 57.19 | PK | H | 30.3 | 4.1 | 33.1 | 58.49 | 74 | 15.51 |
| High Channel (2462MHz) | | | | | | | | | |
| 2483.5 | 37.30 | AV | V | 31 | 4.4 | 32.7 | 40.00 | 54 | 14.00 |
| 2483.5 | 37.81 | AV | H | 31 | 4.4 | 32.7 | 40.51 | 54 | 13.49 |
| 2483.5 | 57.70 | PK | V | 31 | 4.4 | 32.7 | 60.40 | 74 | 13.60 |
| 2483.5 | 59.72 | PK | H | 31 | 4.4 | 32.7 | 62.42 | 74 | 11.58 |

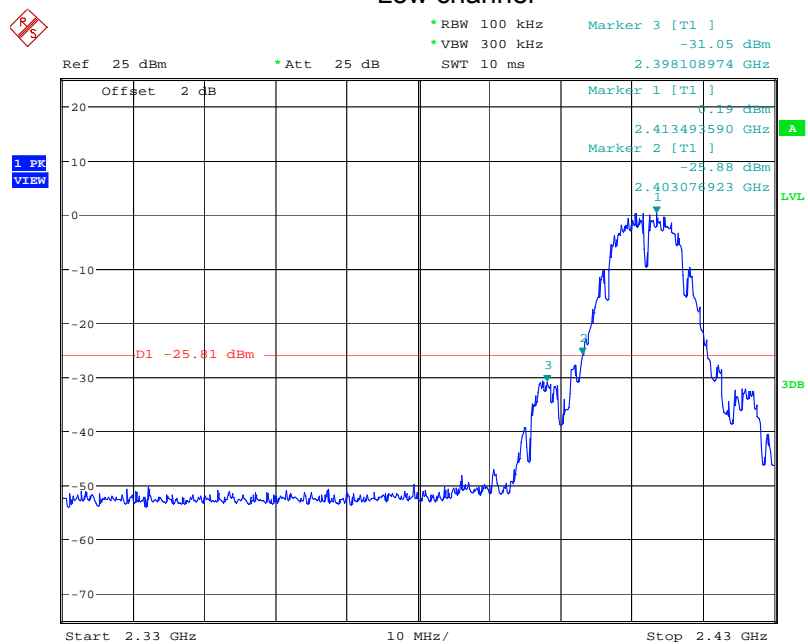
802.11n HT40

| Indicated | | result (PK/AV) | Antenna Polar (H/V) | Correction Factor | | | FCC Part 15.247 | | |
|------------------------|---------------------------------|-------------------|---------------------------|--------------------------|-----------------------|--------------------------|---------------------------|-------------------|----------------|
| Frequency (MHz) | Receiver Reading (dBμV/m) | | | Ant. Factor (dB/m) | Cable Loss (dB) | Pre-Amp. Gain (dB) | Cord. Amp. (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
| Low Channel (2422MHz) | | | | | | | | | |
| 2390 | 38.63 | AV | V | 30.3 | 4.1 | 33.1 | 39.93 | 54 | 14.07 |
| 2390 | 38.14 | AV | H | 30.3 | 4.1 | 33.1 | 39.44 | 54 | 14.56 |
| 2390 | 58.77 | PK | V | 30.3 | 4.1 | 33.1 | 60.07 | 74 | 13.93 |
| 2390 | 60.65 | PK | H | 30.3 | 4.1 | 33.1 | 61.95 | 74 | 12.05 |
| High Channel (2452MHz) | | | | | | | | | |
| 2483.5 | 39.47 | AV | V | 31 | 4.4 | 32.7 | 42.17 | 54 | 11.83 |
| 2483.5 | 40.14 | AV | H | 31 | 4.4 | 32.7 | 42.84 | 54 | 11.16 |
| 2483.5 | 59.21 | PK | V | 31 | 4.4 | 32.7 | 61.91 | 74 | 12.09 |
| 2483.5 | 58.87 | PK | H | 31 | 4.4 | 32.7 | 61.57 | 74 | 12.43 |

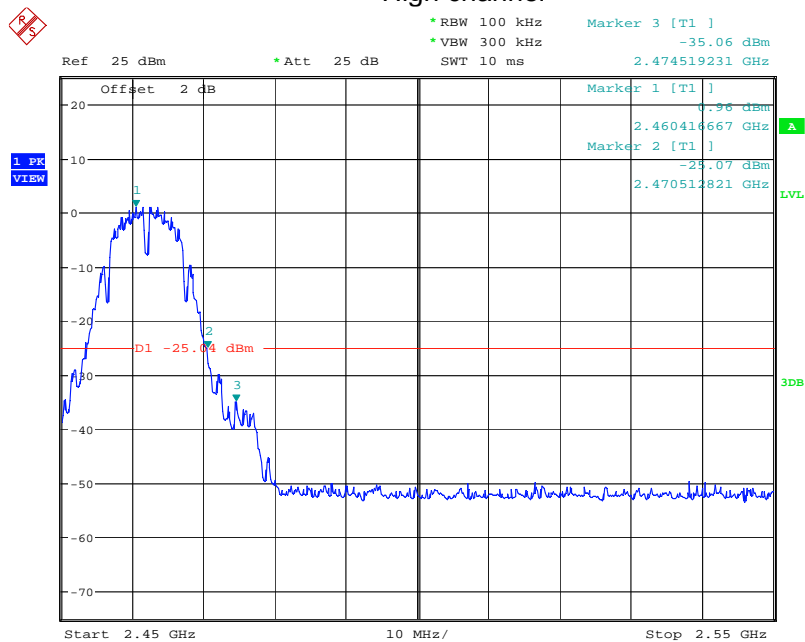
Note: The BAND EDGE RESTRICTED BANDS emission is too low at least 20dB to the Fundamental.

802.11b:

Low channel

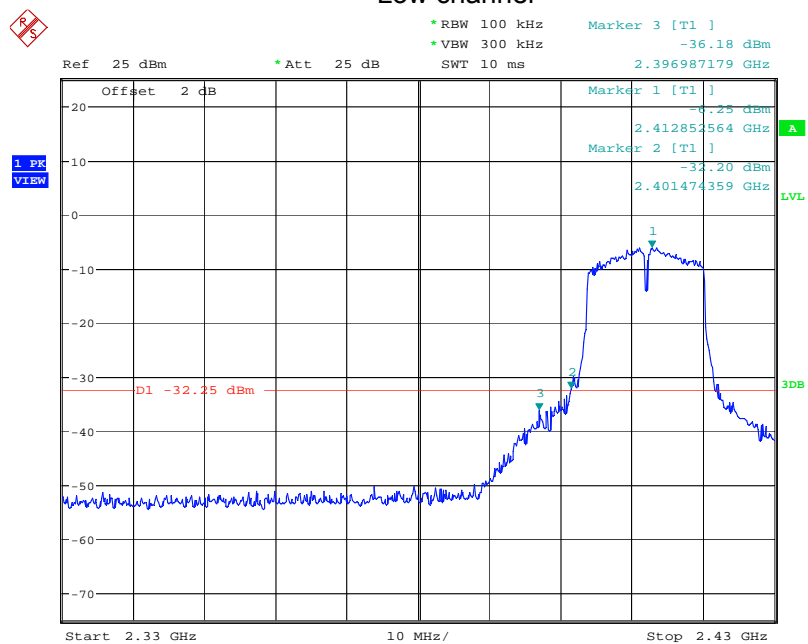


High channel

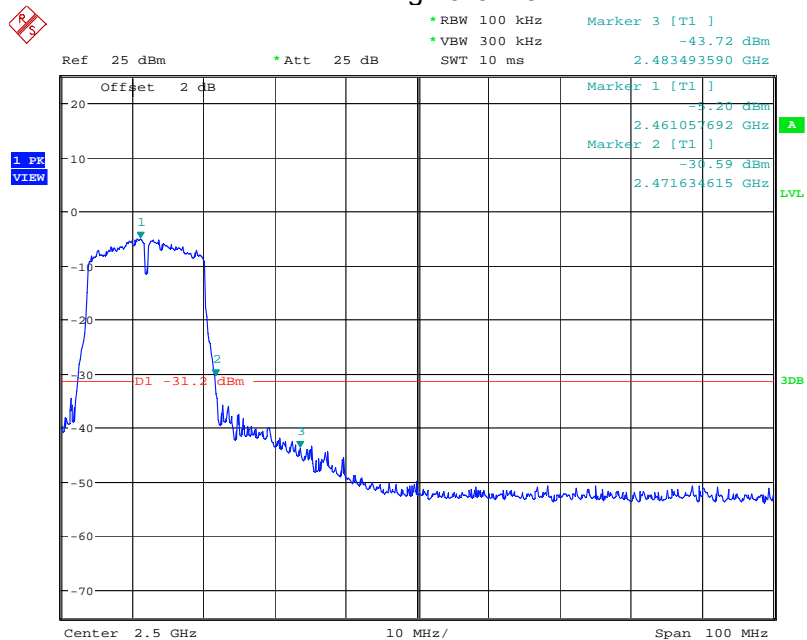


802.11g:

Low channel

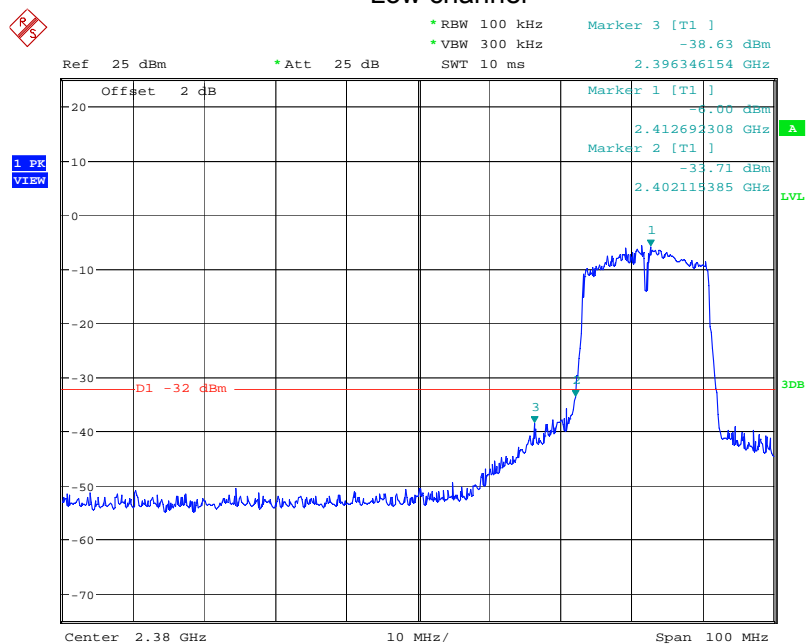


High channel

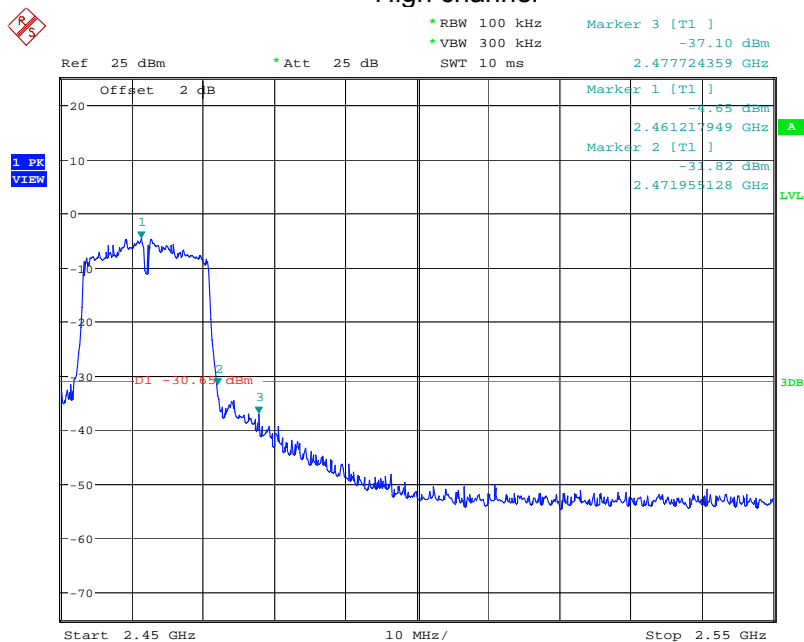


802.11n HT20:

Low channel

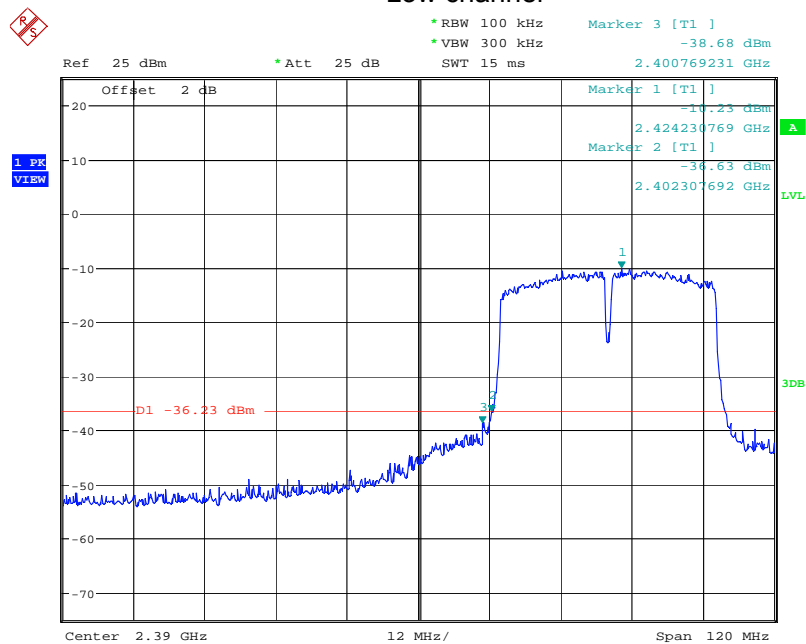


High channel

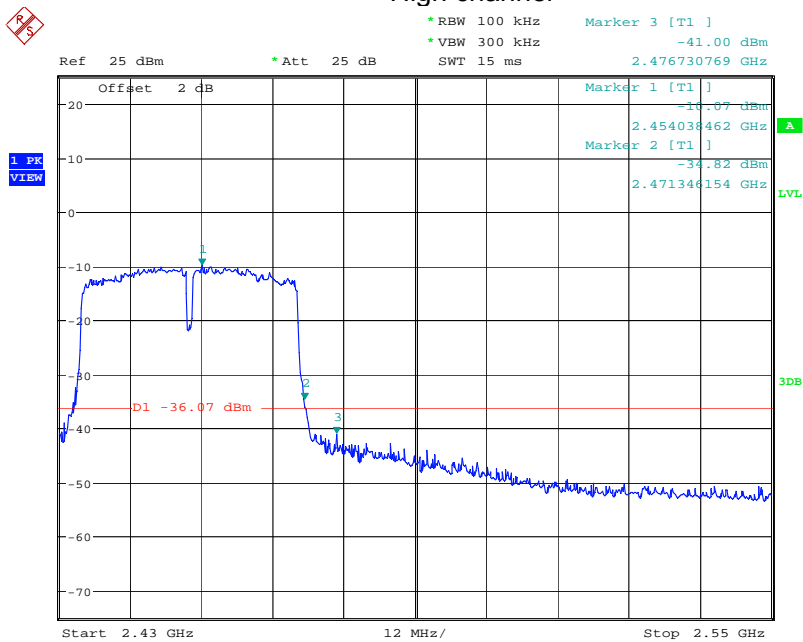


802.11n HT40:

Low channel



High channel

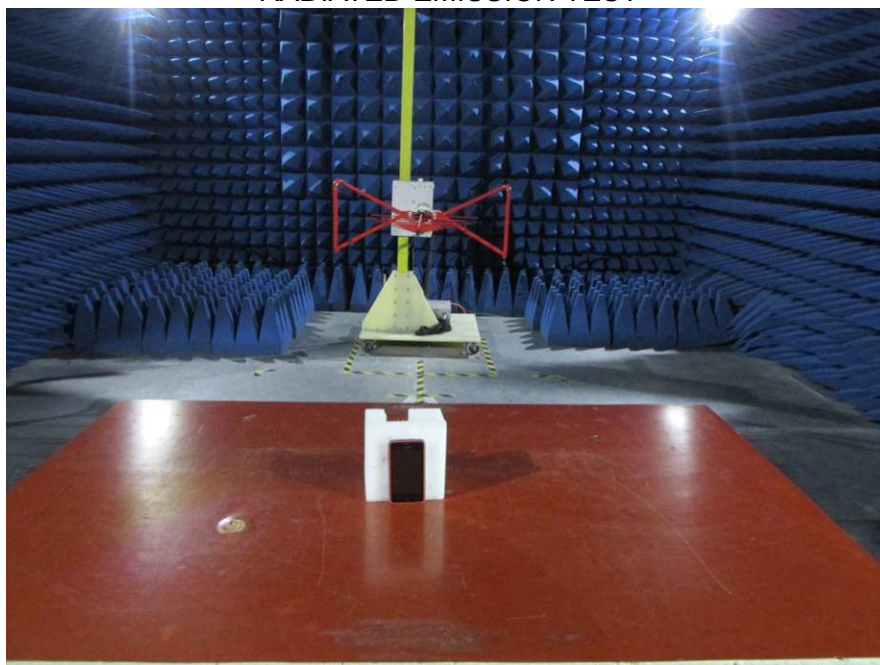


11. EUT TEST PHOTO

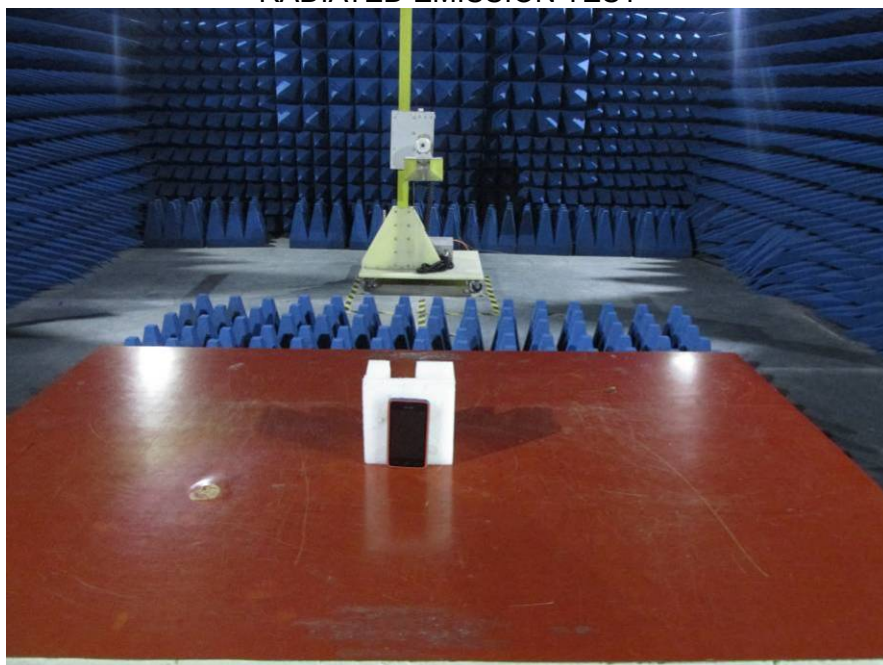
CONDUCTED EMISSION TEST



RADIATED EMISSION TEST



RADIATED EMISSION TEST



12. PHOTOGRAPHS OF EUT

Appearance photograph of EUT



Appearance photograph of EUT



Appearance photograph of EUT



Appearance photograph of EUT



Appearance photograph of EUT



Appearance photograph of EUT



Appearance photograph of EUT



Appearance photograph of EUT



Internal photograph of EUT



Internal photograph of EUT



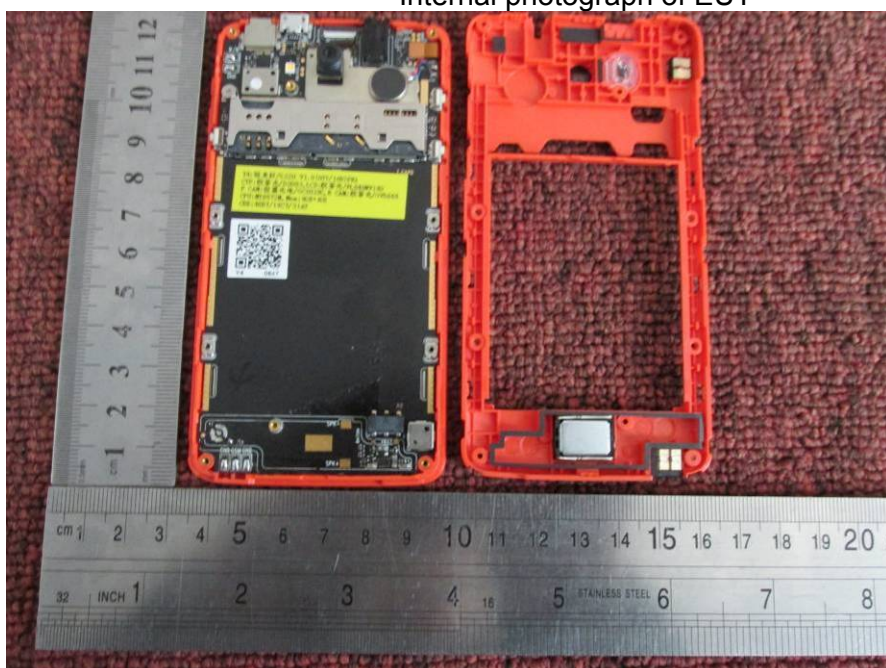
Internal photograph of EUT



Internal photograph of EUT



Internal photograph of EUT



Internal photograph of EUT



