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FCC RADIO TEST REPORT

| | |
|------------------------|-------------------------------------------------|
| Applicant's company | TRENDnet, Inc. |
| Applicant Address | 20675 Manhattan Place, Torrance, CA 90501,U.S.A |
| FCC ID | XU8TEW715APO |
| Manufacturer's company | TRENDnet, Inc. |
| Manufacturer Address | 20675 Manhattan Place, Torrance, CA 90501,U.S.A |

| | |
|------------------|----------------------------------------|
| Product Name | N150 Wireless Outdoor PoE Access Point |
| Brand Name | TRENDnet |
| Model Name | TEW-715APO |
| Test Rule | 47 CFR FCC Part 15 Subpart C § 15.247 |
| Test Freq. Range | 2400 ~ 2483.5MHz |
| Received Date | Oct. 12, 2009 |
| Final Test Date | Oct. 23, 2012 |
| Submission Type | Original Equipment |



Statement

Test result included in this report is for the IEEE 802.11n and IEEE 802.11b/g part of the product.

The test result in this report refers exclusively to the presented test model / sample.

Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.10-2009** and **47 CFR FCC Part 15 Subpart C**.

The test equipment used to perform the test is calibrated and traceable to NML/ROC.



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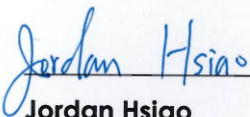
History of This Test Report

| REPORT NO. | VERSION | DESCRIPTION | ISSUED DATE |
|-------------|---------|--------------------------------------------------------------------------------------------------------------------------|---------------|
| FR9O1410 | Rev. 01 | Initial issue of report | Oct. 27, 2009 |
| FR9O1410-11 | Rev. 01 | Removed one FAIRWAY WRG15F-120A adapter. Added one adapter , Brand: DVE DSA-12PFA-15 FUS 150080 (Adapter 2) | Jul. 17, 2012 |
| FR9O1410-14 | Rev. 01 | Add POE Injector , respectively Foshan POE and BLUEMAX POE | Sep. 27, 2012 |
| FR9O1410-15 | Rev. 01 | Change model number | Oct. 18, 2012 |
| FR9O1410-15 | Rev. 02 | According to KDB 558074, measured to verify the new entry contains the Power Spectral Density and 6dB pectrum Bandwidth. | Oct. 31, 2012 |
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1. CERTIFICATE OF COMPLIANCE

Product Name : N150 Wireless Outdoor PoE Access Point
Brand Name : TRENDnet
Model Name : TEW-715APO
Applicant : TRENDnet, Inc.
Test Rule Part(s) : 47 CFR FCC Part 15 Subpart C § 15.247

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Oct. 12, 2009 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.



Jordan Hsiao

SPORTON INTERNATIONAL INC.

2. SUMMARY OF THE TEST RESULT

| Applied Standard: 47 CFR FCC Part 15 Subpart C | | | | |
|------------------------------------------------|--------------|-----------------------------------|----------|-------------|
| Part | Rule Section | Description of Test | Result | Under Limit |
| 4.1 | 15.207 | AC Power Line Conducted Emissions | Complies | 11.71 dB |
| 4.2 | 15.247(b)(3) | Maximum Conducted Output Power | Complies | 0.85 dB |
| 4.3 | 15.247(e) | Power Spectral Density | Complies | 7.79 dB |
| 4.4 | 15.247(a)(2) | 6dB Spectrum Bandwidth | Complies | - |
| 4.5 | 15.247(d) | Radiated Emissions | Complies | 0.71 dB |
| 4.6 | 15.247(d) | Band Edge Emissions | Complies | 0.03 dB |
| 4.7 | 15.203 | Antenna Requirements | Complies | - |

| Test Items | Uncertainty | Remark |
|---------------------------------------------|-----------------------|--------------------------|
| AC Power Line Conducted Emissions | ±2.3dB | Confidence levels of 95% |
| Maximum Conducted Output Power | ±0.8dB | Confidence levels of 95% |
| Power Spectral Density | ±0.5dB | Confidence levels of 95% |
| 6dB Spectrum Bandwidth | ±8.5×10 ⁻⁸ | Confidence levels of 95% |
| Radiated Emissions (9kHz~30MHz) | ±0.8dB | Confidence levels of 95% |
| Radiated Emissions (30MHz~1000MHz) | ±1.9dB | Confidence levels of 95% |
| Radiated / Band Edge Emissions (1GHz~18GHz) | ±1.9dB | Confidence levels of 95% |
| Radiated Emissions (18GHz~40GHz) | ±1.9dB | Confidence levels of 95% |
| Temperature | ±0.7°C | Confidence levels of 95% |
| Humidity | ±3.2% | Confidence levels of 95% |
| DC / AC Power Source | ±1.4% | Confidence levels of 95% |

3. GENERAL INFORMATION

3.1. Product Details

IEEE 802.11n

| Items | Description |
|--------------------------|---------------------------------------------------|
| Product Type | IEEE 802.11n: WLAN (1TX, 1RX) |
| Radio Type | Intentional Transceiver |
| Power Type | From POE |
| Modulation | see the below table for IEEE 802.11n |
| Data Modulation | OFDM (BPSK / QPSK / 16QAM / 64QAM) |
| Data Rate (Mbps) | see the below table for IEEE 802.11n |
| Frequency Range | 2400 ~ 2483.5MHz |
| Channel Number | 11 for 20MHz bandwidth ; 7 for 40MHz bandwidth |
| Channel Band Width (99%) | MCS0 (20MHz): 17.76 MHz ; MCS0 (40MHz): 36.48 MHz |
| Conducted Output Power | MCS0 (20MHz): 23.92 dBm ; MCS0 (40MHz): 21.01 dBm |
| Carrier Frequencies | Please refer to section 3.4 |
| Antenna | Please refer to section 3.3 |

IEEE 802.11b/g

| Items | Description |
|--------------------------|---------------------------------------------------------------|
| Product Type | 802.11b/g:WLAN (1TX, 1RX) |
| Radio Type | Intentional Transceiver |
| Power Type | From POE |
| Modulation | DSSS for IEEE 802.11b ; OFDM for IEEE 802.11g |
| Data Modulation | DSSS (BPSK / QPSK / CCK) ; OFDM (BPSK / QPSK / 16QAM / 64QAM) |
| Data Rate (Mbps) | DSSS (1/ 2/ 5.5/11) ; OFDM (6/9/12/18/24/36/48/54) |
| Frequency Range | 2400 ~ 2483.5MHz |
| Channel Number | 11 |
| Channel Band Width (99%) | 11b: 15.76 MHz ; 11g: 16.64 MHz |
| Conducted Output Power | 11b: 25.46 dBm ; 11g: 23.69 dBm |
| Carrier Frequencies | Please refer to section 3.4 |
| Antenna | Please refer to section 3.3 |

Antenna & Band width

| Antenna | Single (TX) | |
|-----------------|-------------|--------|
| | 20 MHz | 40 MHz |
| Band width Mode | 20 MHz | 40 MHz |
| IEEE 802.11b | V | X |
| IEEE 802.11g | V | X |
| IEEE 802.11n | V | V |

IEEE 802.11n spec

| MCS Index | Nss | Modulation | R | NBPS | NCBPS | | NDBPS | | Datarate(Mbps) | | | |
|-----------|-----|------------|-----|------|-------|-------|-------|-------|----------------|-------|---------|-------|
| | | | | | 20MHz | 40MHz | 20MHz | 40MHz | 800nsGI | | 400nsGI | |
| | | | | | | | | | 20MHz | 40MHz | 20MHz | 40MHz |
| 0 | 1 | BPSK | 1/2 | 1 | 52 | 108 | 26 | 54 | 6.5 | 13.5 | 7.200 | 15 |
| 1 | 1 | QPSK | 1/2 | 2 | 104 | 216 | 52 | 108 | 13.0 | 27.0 | 14.400 | 30 |
| 2 | 1 | QPSK | 3/4 | 2 | 104 | 216 | 78 | 162 | 19.5 | 40.5 | 21.700 | 45 |
| 3 | 1 | 16-QAM | 1/2 | 4 | 208 | 432 | 104 | 216 | 26.0 | 54.0 | 28.900 | 60 |
| 4 | 1 | 16-QAM | 3/4 | 4 | 208 | 432 | 156 | 324 | 39.0 | 81.0 | 43.300 | 90 |
| 5 | 1 | 64-QAM | 2/3 | 6 | 312 | 648 | 208 | 432 | 52.0 | 108.0 | 57.800 | 120 |
| 6 | 1 | 64-QAM | 3/4 | 6 | 312 | 648 | 234 | 486 | 58.5 | 121.5 | 65.000 | 135 |
| 7 | 1 | 64-QAM | 5/6 | 6 | 312 | 648 | 260 | 540 | 65.0 | 135.0 | 72.200 | 150 |

| Symbol | Explanation |
|--------|-----------------------------------------|
| NSS | Number of spatial streams |
| R | Code rate |
| NBPS | Number of coded bits per single carrier |
| NCBPS | Number of coded bits per symbol |
| NDBPS | Number of data bits per symbol |
| GI | guard interval |

3.2. Accessories

| Power | Brand | Model | Rating |
|-----------|---------|----------------------------|---------------------------------------------------------|
| Adapter 1 | DVE | DSA-12G-12 FUS 120120 | Input: 100-240VAC, 50-60Hz, 0.3A Output: 12VDC, 1.0A |
| Adapter 2 | DVE | DSA-12PFA-15 FUS 150080 | Input: 100-240VAC, 50-60Hz, 0.5A Output: 15VDC, 0.8A |
| Power | Brand | Model | |
| POE | Foshan | GRT-XHCQ | |
| POE | BLUEMAX | B133-169 | |

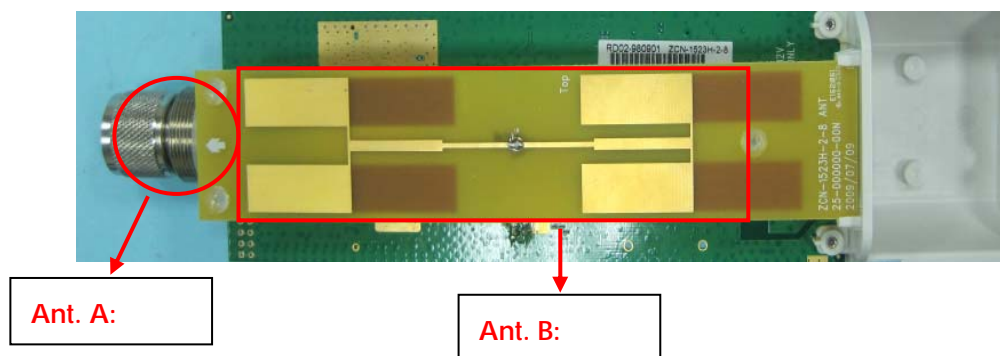
3.3. Table for Filed Antenna

| Ant. | Brand | Model Name | Antenna Type | Connector | Gain (dBi) | Remark |
|------|-------|---------------|----------------|-----------|------------|--------------|
| A | ZCOM | WS-120 | Dipole Antenna | N Type | 2 | TX / RX Ant. |
| B | ZCOM | ZCN-1523H-2-8 | PCB Antenna | N/A | 8.45 | TX / RX Ant. |

Note: The EUT has two types of antennas (1TX, 1RX).

Ant. A and Ant. B can be used as transmitting/receiving antenna.

These two antennas will be not transmitting simultaneously.



3.4. Table for Carrier Frequencies

There are two bandwidth systems for IEEE 802.11n.

For both 20MHz bandwidth systems, use Channel 1~Channel 11.

For both 40MHz bandwidth systems, use Channel 3~Channel 9.

| Frequency Band | Channel No. | Frequency | Channel No. | Frequency |
|----------------|-------------|-----------|-------------|-----------|
| 2400~2483.5MHz | 1 | 2412 MHz | 7 | 2442 MHz |
| | 2 | 2417 MHz | 8 | 2447 MHz |
| | 3 | 2422 MHz | 9 | 2452 MHz |
| | 4 | 2427 MHz | 10 | 2457 MHz |
| | 5 | 2432 MHz | 11 | 2462 MHz |
| | 6 | 2437 MHz | - | - |

3.5. Table for Test Modes

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

| Test Items | Mode | Data Rate | Channel | Antenna |
|------------------------------------------------------|-------------|-----------|---------|---------|
| AC Power Line Conducted Emissions | Normal Link | - | - | - |
| Maximum Peak Conducted Output Power | MCS0/20MHz | 6.5 Mbps | 1/6/11 | A / B |
| | MCS0/40MHz | 13.5 Mbps | 3/6/9 | A / B |
| | 11b/BPSK | 1 Mbps | 1/6/11 | A / B |
| | 11g/BPSK | 6 Mbps | 1/6/11 | A / B |
| Power Spectral Density 6dB Spectrum Bandwidth | MCS0/20MHz | 6.5 Mbps | 1/6/11 | A / B |
| | MCS0/40MHz | 13.5 Mbps | 3/6/9 | A / B |
| | 11b/BPSK | 1 Mbps | 1/6/11 | A / B |
| | 11g/BPSK | 6 Mbps | 1/6/11 | A / B |
| Radiated Emissions 9kHz~1GHz | Normal Link | - | - | - |
| Radiated Emissions 1GHz~10 th Harmonic | MCS0/20MHz | 6.5 Mbps | 1/6/11 | A / B |
| | MCS0/40MHz | 13.5 Mbps | 3/6/9 | A / B |
| | 11b/BPSK | 1 Mbps | 1/6/11 | A / B |
| | 11g/BPSK | 6 Mbps | 1/6/11 | A / B |
| Band Edge Emissions | MCS0/20MHz | 6.5 Mbps | 1/11 | A / B |
| | MCS0/40MHz | 13.5 Mbps | 3/9 | A / B |
| | 11b/BPSK | 1 Mbps | 1/11 | A / B |
| | 11g/BPSK | 6 Mbps | 1/11 | A / B |

NOTE:

<For Conducted Emissions Test>:

Test Mode 1: EUT Horizontal + 12V adapter + Black POE

Test Mode 2: EUT Horizontal + 12V adapter + White POE

Test Mode 3: EUT Horizontal + 15V adapter + Black POE

Test Mode 4: EUT Horizontal + 15V adapter + White POE

Mode 3 performed as worse case, it was recorded in this report.

<For Radiated Emissions Test>:

Test Mode 1: EUT Horizontal + 12V adapter + Black POE

Test Mode 2: EUT Horizontal + 12V adapter + White POE

Test Mode 3: EUT Horizontal + 15V adapter + Black POE

Test Mode 4: EUT Horizontal + 15V adapter + White POE

For Radiated Emission test below 1GHz

Mode 3 performed as worse case, it was recorded in this report

3.6. Table for Testing Locations

<For Original Mode>

| Test Site No. | Site Category | Location | FCC Reg. No. | IC File No. |
|---------------|---------------|----------|--------------|-------------|
| 03CH01-CB | SAC | Hsin Chu | 262045 | IC 4086D |
| CO01-CB | Conduction | Hsin Chu | 262045 | IC 4086D |
| TH01-CB | OVEN Room | Hsin Chu | - | - |

Open Area Test Site (OATS); Semi Anechoic Chamber (SAC); Fully Anechoic Chamber (FAC).

Please refer section 6 for Test Site Address.

3.7. Table for Supporting Units

| Support Unit | Brand | Model | FCC ID |
|--------------|-------|-------------|--------------|
| Notebook | DELL | M1330 | E2KWM3945ABG |
| Notebook | ASUS | EEPC8G-W001 | PPD-AR5BXB63 |

3.8. Table for Parameters of Test 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.

<For Ant. A – Dipole Antenna>:

Power Parameters of IEEE 802.11n MCS0 20MHz Ant. A

| Test Software Version | Revision 0.9 BUILD #9 ART_11n | | |
|---------------------------|-------------------------------|----------|----------|
| Frequency | 2412 MHz | 2437 MHz | 2462 MHz |
| IEEE 802.11n 20MHz Ant. A | 17.5 | 21.5 | 18.5 |

Power Parameters of IEEE 802.11n MCS0 40MHz Ant. A

| Test Software Version | Revision 0.9 BUILD #9 ART_11n | | |
|---------------------------|-------------------------------|----------|----------|
| Frequency | 2422 MHz | 2437 MHz | 2452 MHz |
| IEEE 802.11n 40MHz Ant. A | 15 | 20 | 15.5 |

Power Parameters of IEEE 802.11b/g Ant. A

| Test Software Version | Revision 0.9 BUILD #9 ART_11n | | |
|-----------------------|-------------------------------|----------|----------|
| Frequency | 2412 MHz | 2437 MHz | 2462 MHz |
| IEEE 802.11b Ant. A | 22.5 | 24.5 | 24 |
| IEEE 802.11g Ant. A | 18 | 21 | 19.5 |

<For Ant. B – PCB Antenna>:

Power Parameters of IEEE 802.11n MCS0 20MHz Ant. B

| Test Software Version | Revision 0.9 BUILD #9 ART_11n | | |
|---------------------------|-------------------------------|----------|----------|
| Frequency | 2412 MHz | 2437 MHz | 2462 MHz |
| IEEE 802.11n 20MHz Ant. B | 16 | 18 | 16 |

Power Parameters of IEEE 802.11n MCS0 40MHz Ant. B

| Test Software Version | Revision 0.9 BUILD #9 ART_11n | | |
|---------------------------|-------------------------------|----------|----------|
| Frequency | 2422 MHz | 2437 MHz | 2452 MHz |
| IEEE 802.11n 40MHz Ant. B | 13.5 | 18 | 13 |

Power Parameters of IEEE 802.11b/g Ant. B

| Test Software Version | Revision 0.9 BUILD #9 ART_11n | | |
|-----------------------|-------------------------------|----------|----------|
| Frequency | 2412 MHz | 2437 MHz | 2462 MHz |
| IEEE 802.11b Ant. B | 21.5 | 23 | 21.5 |
| IEEE 802.11g Ant. B | 16.5 | 18.5 | 16.5 |

During the test, the following programs under WIN XP were executed:

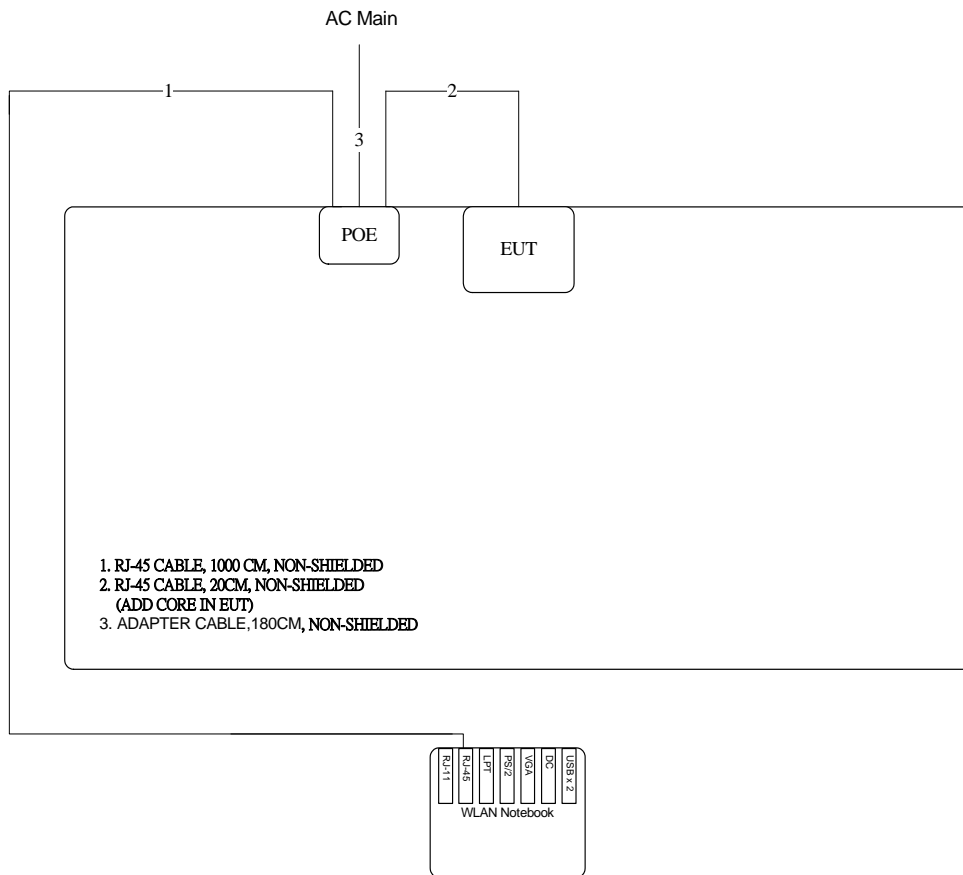
At the same time, "Revision 0.9 BUILD #9 ART_11n" was executed the test program to control the EUT continuously transmit RF signal.

3.9. Test Configurations

3.9.1. Radiation Emissions Test Configuration

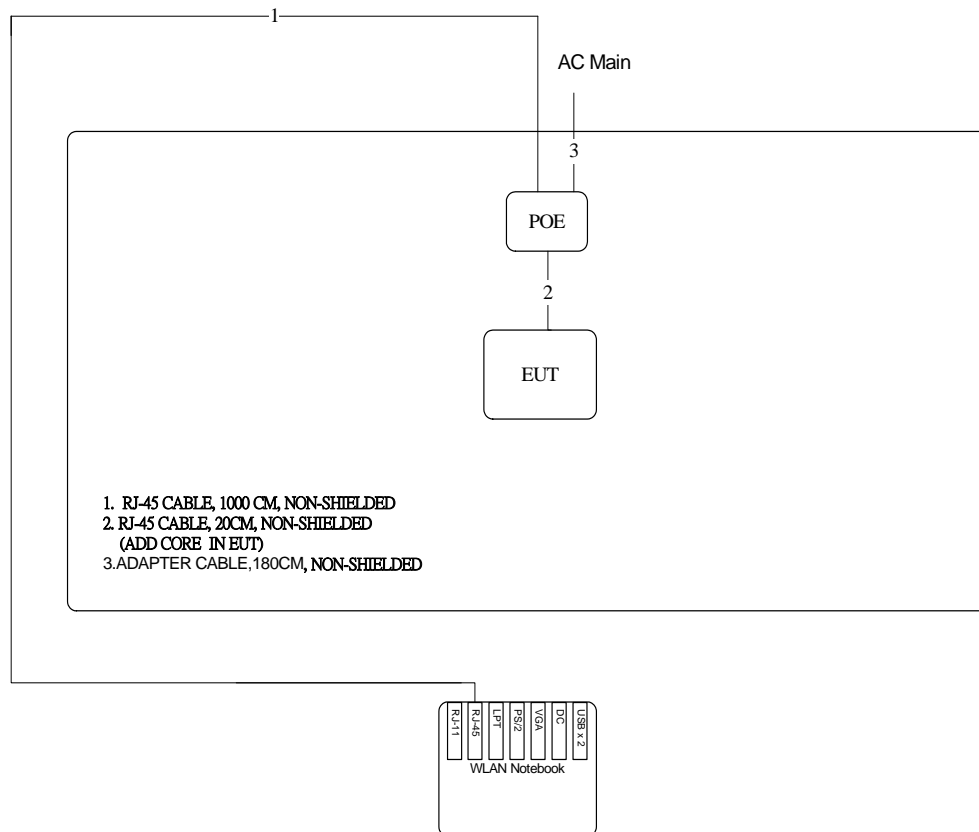
Test Configuration: 9KHz~1GHz

Test Mode: Mode 3



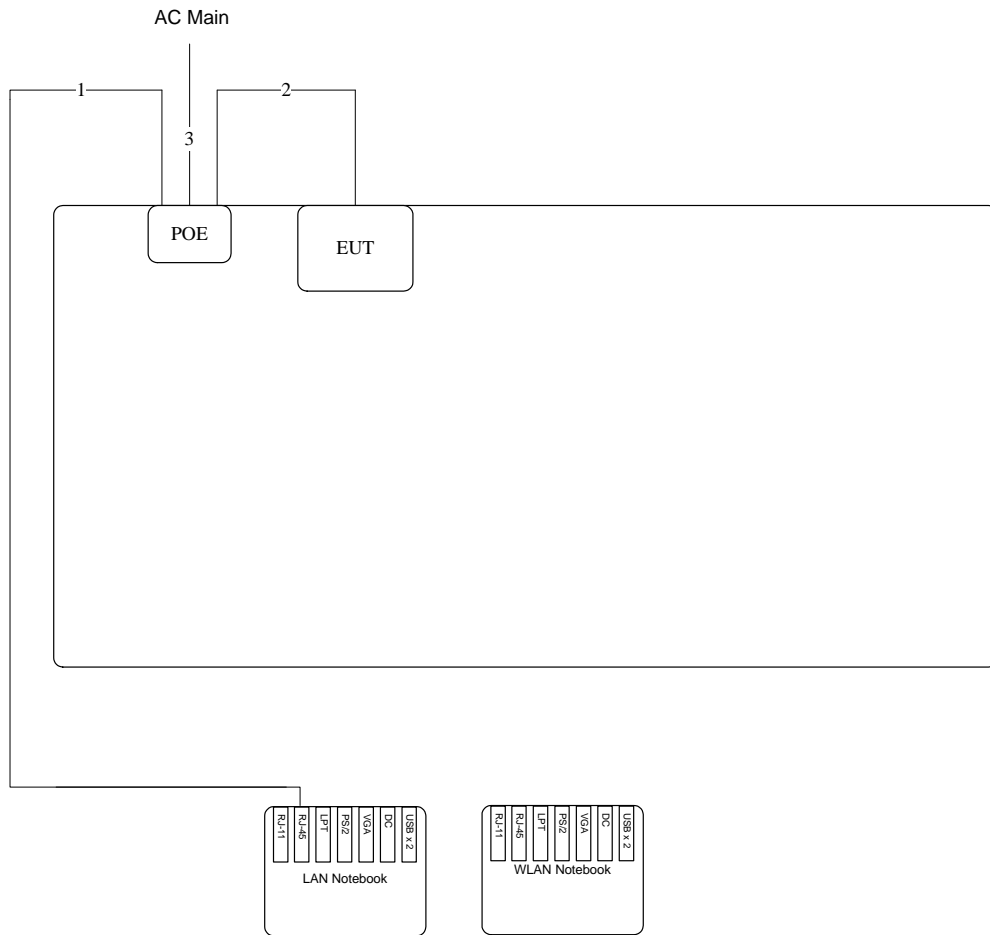
Test Configuration: above 1GHz

Test Mode: Mode 3



3.9.2. AC Power Line Conduction Emissions Test Configuration

Test Mode: Mode 3



| Item | Connection | Shield | Length |
|------|-------------|--------|--------|
| 1 | RJ45 Cable | No | 10M |
| 2 | RJ45 Cable | No | 1M |
| 3 | Power Cable | No | 1.5M |

4. TEST RESULT

4.1. AC Power Line Conducted Emissions Measurement

4.1.1. Limit

For this product which is designed to be connected to the AC power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed below limits table.

| Frequency (MHz) | QP Limit (dBuV) | AV Limit (dBuV) |
|-----------------|-----------------|-----------------|
| 0.15~0.5 | 66~56 | 56~46 |
| 0.5~5 | 56 | 46 |
| 5~30 | 60 | 50 |

4.1.2. Measuring Instruments and Setting

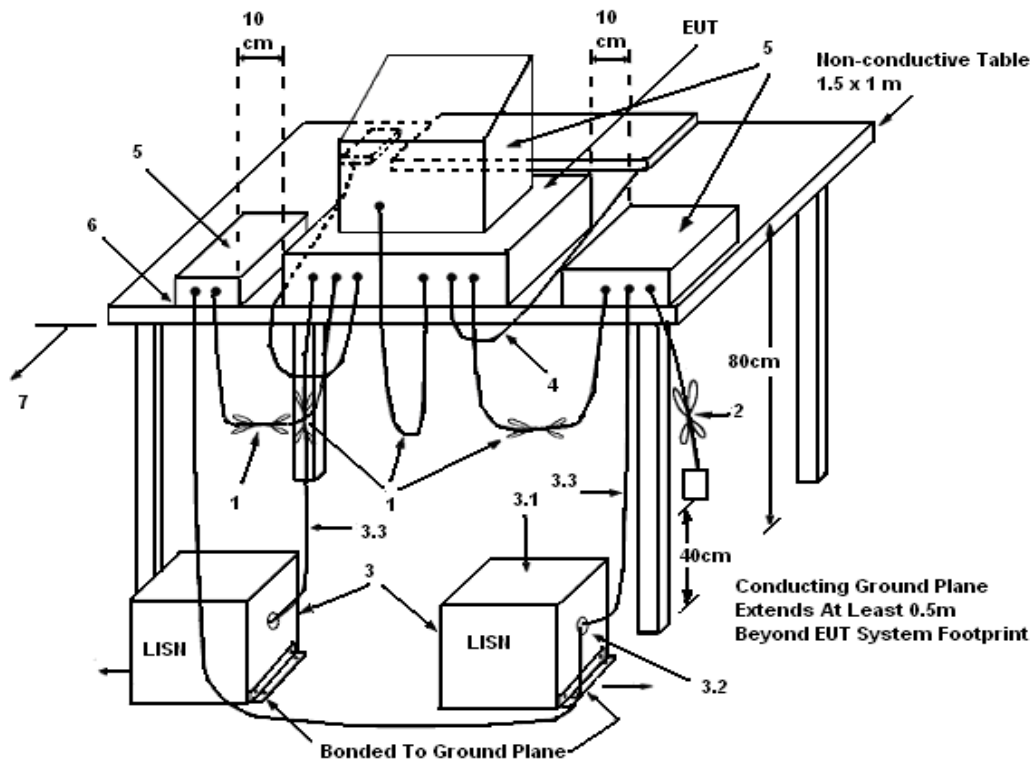
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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

4.1.3. Test Procedures

1. Configure the EUT according to ANSI C63.4. The EUT or host of EUT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT or host of EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connected to the other LISNs. The LISN should provide 50uH/50ohms coupling impedance.
4. The frequency range from 150 KHz to 30 MHz was searched.
5. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. The measurement has to be done between each power line and ground at the power terminal.

4.1.4. Test Setup Layout



LEGEND:

- (1) 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.
- (2) 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.
- (3) EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω . LISN can be placed on top of, or immediately beneath, reference ground plane.
 - (3.1) All other equipment powered from additional LISN(s).
 - (3.2) Multiple outlet strip can be used for multiple power cords of non-EUT equipment.
 - (3.3) LISN at least 80 cm from nearest part of EUT chassis.
- (4) Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use.
- (5) Non-EUT components of EUT system being tested.
- (6) Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop.
- (7) Rear of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.

4.1.5. Test Deviation

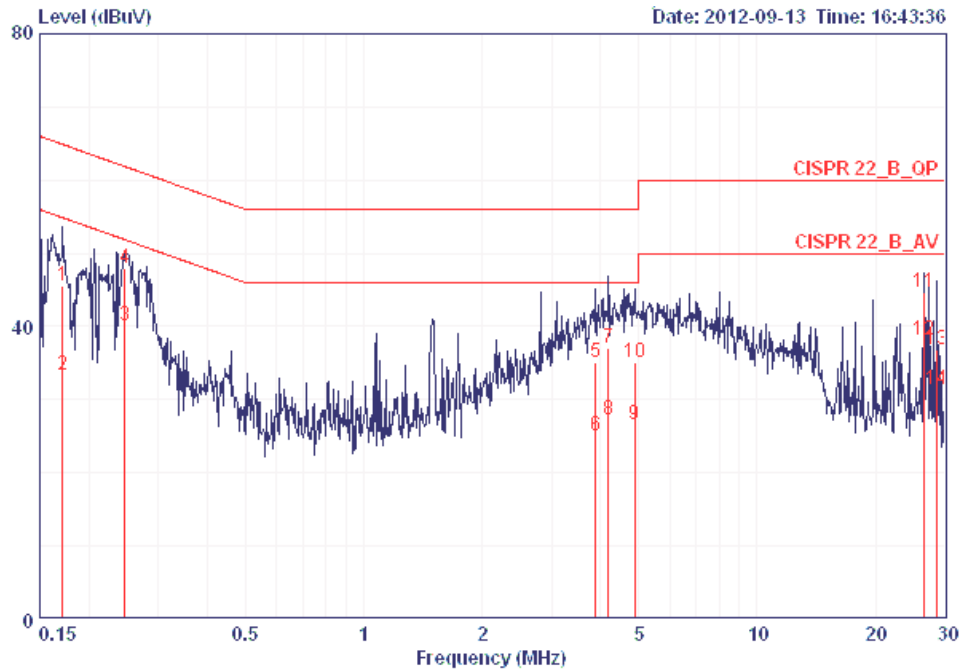
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

The EUT was placed on the test table and programmed in normal function.

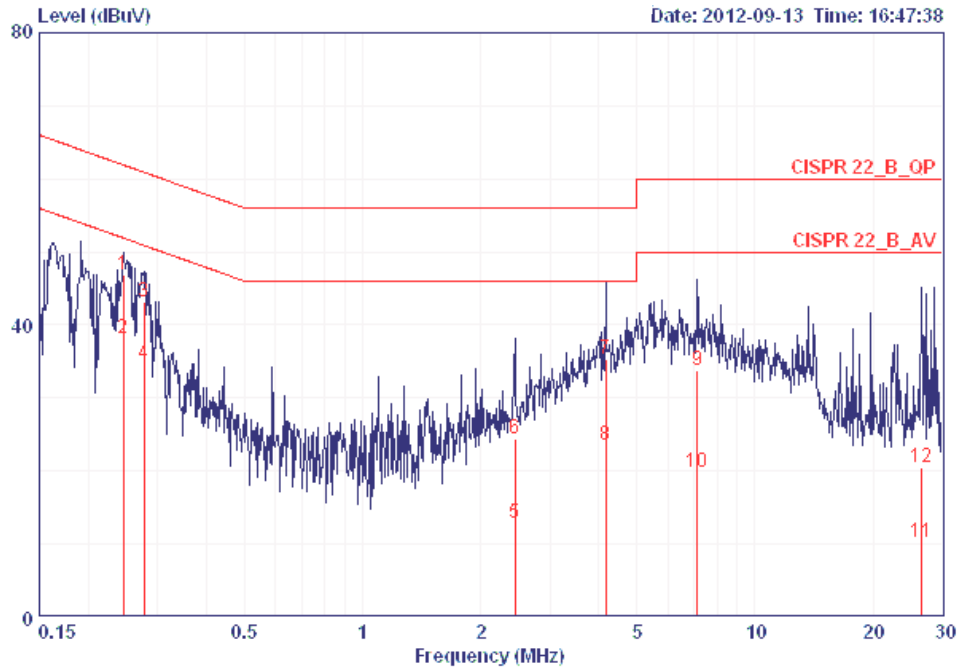
4.1.7. Results of AC Power Line Conducted Emissions Measurement

| | | | |
|---------------|----------------------|----------|------|
| Temperature | 24°C | Humidity | 64% |
| Test Engineer | Ryo Fan | Phase | Line |
| Configuration | Normal Link / Mode 3 | | |



| | Freq | Level | Over | Limit | Read | LISN | Cable | | |
|----|---------|-------|--------|-------|-------|--------|-------|-----------|---------|
| | MHz | dBuV | Limit | Line | Level | Factor | Loss | Pol/Phase | Remark |
| | | | dB | dBuV | dBuV | dB | dB | | |
| 1 | 0.17125 | 45.49 | -19.41 | 64.90 | 45.33 | 0.16 | 0.00 | LINE | QP |
| 2 | 0.17125 | 33.35 | -21.55 | 54.90 | 33.19 | 0.16 | 0.00 | LINE | AVERAGE |
| 3 | 0.24682 | 40.15 | -11.71 | 51.86 | 40.00 | 0.15 | 0.00 | LINE | AVERAGE |
| 4 | 0.24682 | 47.90 | -13.96 | 61.86 | 47.75 | 0.15 | 0.00 | LINE | QP |
| 5 | 3.881 | 35.01 | -20.99 | 56.00 | 34.79 | 0.22 | 0.00 | LINE | QP |
| 6 | 3.881 | 24.98 | -21.02 | 46.00 | 24.76 | 0.22 | 0.00 | LINE | AVERAGE |
| 7 | 4.180 | 37.04 | -18.96 | 56.00 | 36.82 | 0.22 | 0.00 | LINE | QP |
| 8 | 4.180 | 27.23 | -18.77 | 46.00 | 27.01 | 0.22 | 0.00 | LINE | AVERAGE |
| 9 | 4.874 | 26.62 | -19.38 | 46.00 | 26.38 | 0.24 | 0.00 | LINE | AVERAGE |
| 10 | 4.874 | 35.18 | -20.82 | 56.00 | 34.94 | 0.24 | 0.00 | LINE | QP |
| 11 | 26.546 | 44.60 | -15.40 | 60.00 | 43.98 | 0.62 | 0.00 | LINE | QP |
| 12 | 26.546 | 38.21 | -11.79 | 50.00 | 37.59 | 0.62 | 0.00 | LINE | AVERAGE |
| 13 | 28.746 | 36.73 | -23.27 | 60.00 | 36.07 | 0.66 | 0.00 | LINE | QP |
| 14 | 28.746 | 31.39 | -18.61 | 50.00 | 30.73 | 0.66 | 0.00 | LINE | AVERAGE |

| | | | |
|---------------|----------------------|----------|---------|
| Temperature | 24°C | Humidity | 64% |
| Test Engineer | Ryo Fan | Phase | Neutral |
| Configuration | Normal Link / Mode 3 | | |



| | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Pol/Phase | Remark |
|----|---------|-------|------------|------------|------------|-------------|------------|-----------|---------|
| | MHz | dBuV | dB | dBuV | dBuV | dB | dB | | |
| 1 | 0.24552 | 46.83 | -15.08 | 61.91 | 46.75 | 0.08 | 0.00 | NEUTRAL | QP |
| 2 | 0.24552 | 38.12 | -13.79 | 51.91 | 38.04 | 0.08 | 0.00 | NEUTRAL | AVERAGE |
| 3 | 0.27734 | 43.24 | -17.66 | 60.90 | 43.16 | 0.08 | 0.00 | NEUTRAL | QP |
| 4 | 0.27734 | 34.71 | -16.19 | 50.90 | 34.63 | 0.08 | 0.00 | NEUTRAL | AVERAGE |
| 5 | 2.448 | 12.81 | -33.19 | 46.00 | 12.70 | 0.11 | 0.00 | NEUTRAL | AVERAGE |
| 6 | 2.448 | 24.35 | -31.65 | 56.00 | 24.24 | 0.11 | 0.00 | NEUTRAL | QP |
| 7 | 4.158 | 35.27 | -20.73 | 56.00 | 35.14 | 0.13 | 0.00 | NEUTRAL | QP |
| 8 | 4.158 | 23.47 | -22.53 | 46.00 | 23.34 | 0.13 | 0.00 | NEUTRAL | AVERAGE |
| 9 | 7.137 | 33.86 | -26.14 | 60.00 | 33.67 | 0.19 | 0.00 | NEUTRAL | QP |
| 10 | 7.137 | 19.91 | -30.09 | 50.00 | 19.72 | 0.19 | 0.00 | NEUTRAL | AVERAGE |
| 11 | 26.558 | 10.14 | -39.86 | 50.00 | 9.62 | 0.52 | 0.00 | NEUTRAL | AVERAGE |
| 12 | 26.558 | 20.45 | -39.55 | 60.00 | 19.93 | 0.52 | 0.00 | NEUTRAL | QP |

Note:

Level = Read Level + LISN Factor + Cable Loss.

4.2. Maximum Conducted Output Power Measurement

4.2.1. Limit

For systems using digital modulation in the 2400-2483.5MHz, the limit for peak output power is 30dBm. The limited has to be reduced by the amount in dB that the gain of the antenna exceed 6dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

4.2.2. Measuring Instruments and Setting

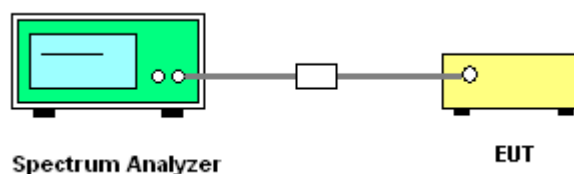
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

| Spectrum Parameter | Setting |
|--------------------|--------------------------------------------------------------|
| Attenuation | Auto |
| Span Frequency | Encompass the entire emissions bandwidth (EBW) of the signal |
| RB | 1MHz |
| VB | 3MHz |
| Detector | RMS |
| Trace | Max Hold |
| Sweep Time | Auto |

4.2.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Test was performed in accordance with Measurement of Digital Transmission Systems Operating under Section 15.247 March 23, 2005.

4.2.4. Test Setup Layout



4.2.5. Test Deviation

There is no deviation with the original standard.

4.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.2.7. Test Result of Maximum Conducted Output Power

<For Ant. A - Dipole Antenna>:

| | | | |
|---------------|---------|----------------|----------------------|
| Temperature | 23°C | Humidity | 60% |
| Test Engineer | Beck Wu | Configurations | IEEE 802.11n, Ant. A |

Configuration IEEE 802.11n MCS0 20MHz Ant. A

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 1 | 2412 MHz | 19.30 | 30.00 | Complies |
| 6 | 2437 MHz | 23.92 | 30.00 | Complies |
| 11 | 2462 MHz | 20.00 | 30.00 | Complies |

Configuration IEEE 802.11n MCS0 40MHz Ant. A

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 3 | 2422 MHz | 15.70 | 30.00 | Complies |
| 6 | 2437 MHz | 21.01 | 30.00 | Complies |
| 9 | 2452 MHz | 16.22 | 30.00 | Complies |

| | | | |
|---------------|---------|----------------|------------------------|
| Temperature | 23°C | Humidity | 60% |
| Test Engineer | Beck Wu | Configurations | IEEE 802.11b/g, Ant. A |

Configuration IEEE 802.11b Ant. A

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 1 | 2412 MHz | 23.28 | 30.00 | Complies |
| 6 | 2437 MHz | 25.46 | 30.00 | Complies |
| 11 | 2462 MHz | 24.77 | 30.00 | Complies |

Configuration IEEE 802.11g Ant. A

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 1 | 2412 MHz | 20.38 | 30.00 | Complies |
| 6 | 2437 MHz | 23.69 | 30.00 | Complies |
| 11 | 2462 MHz | 21.13 | 30.00 | Complies |

<For Ant. B - PCB Antenna>:

| | | | |
|---------------|---------|----------------|----------------------|
| Temperature | 23°C | Humidity | 60% |
| Test Engineer | Beck Wu | Configurations | IEEE 802.11n, Ant. B |

Configuration IEEE 802.11n MCS0 20MHz Ant. B

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 1 | 2412 MHz | 18.50 | 27.55 | Complies |
| 6 | 2437 MHz | 20.56 | 27.55 | Complies |
| 11 | 2462 MHz | 18.72 | 27.55 | Complies |

Configuration IEEE 802.11n MCS0 40MHz Ant. B

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 3 | 2422 MHz | 14.99 | 27.55 | Complies |
| 6 | 2437 MHz | 19.73 | 27.55 | Complies |
| 9 | 2452 MHz | 14.45 | 27.55 | Complies |

| | | | |
|---------------|---------|----------------|------------------------|
| Temperature | 23°C | Humidity | 60% |
| Test Engineer | Beck Wu | Configurations | IEEE 802.11b/g, Ant. A |

Configuration IEEE 802.11b Ant. B

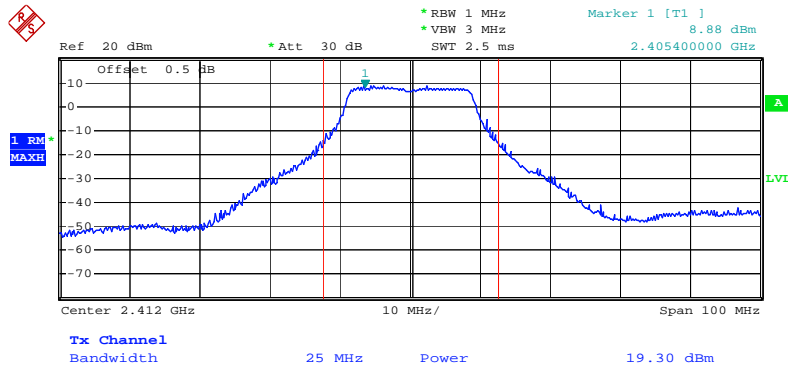
| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 1 | 2412 MHz | 22.68 | 27.55 | Complies |
| 6 | 2437 MHz | 24.29 | 27.55 | Complies |
| 11 | 2462 MHz | 22.93 | 27.55 | Complies |

Configuration IEEE 802.11g Ant. B

| Channel | Frequency | Conducted Power (dBm) | Max. Limit (dBm) | Result |
|---------|-----------|-----------------------|------------------|----------|
| 1 | 2412 MHz | 19.87 | 27.55 | Complies |
| 6 | 2437 MHz | 21.80 | 27.55 | Complies |
| 11 | 2462 MHz | 19.82 | 27.55 | Complies |

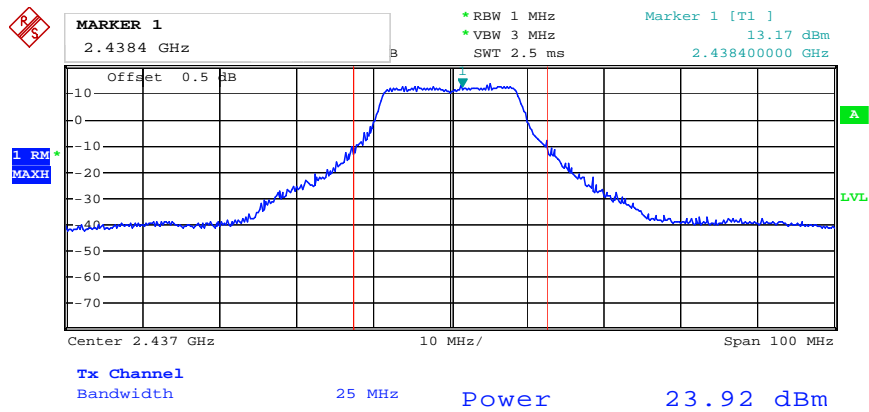
<For Ant. A -Dipole Antenna>:

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 20MHz Ant. A / 2412 MHz



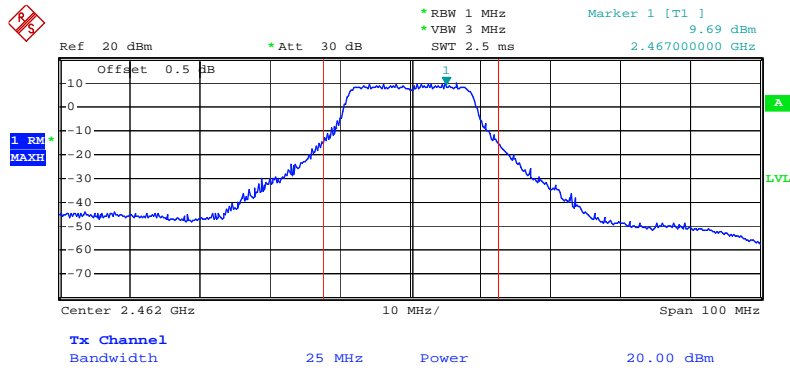
Date: 19.OCT.2009 23:19:09

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 20MHz Ant. A / 2437 MHz



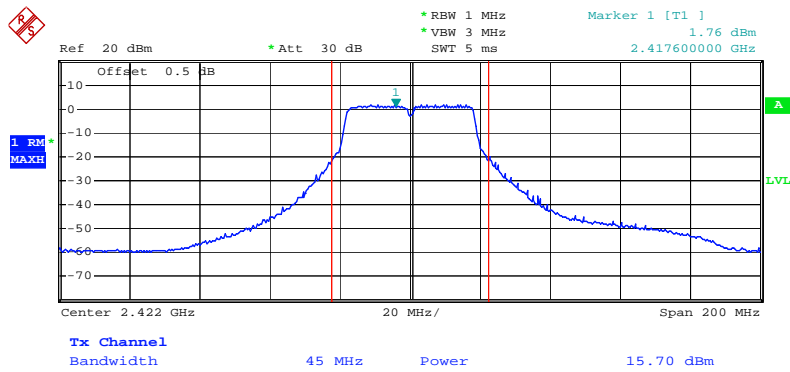
Date: 15.OCT.2009 19:50:06

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 20MHz Ant. A / 2462 MHz



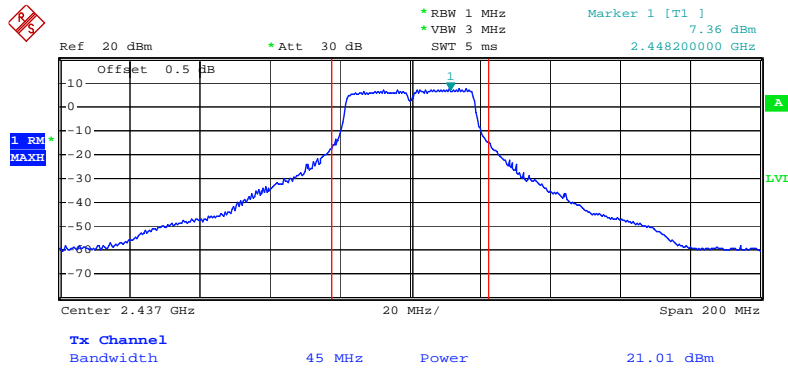
Date: 19.OCT.2009 22:35:07

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 40MHz Ant. A / 2422 MHz



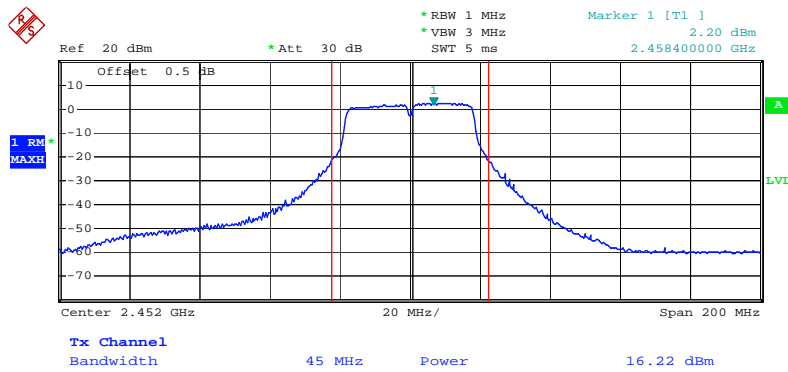
Date: 19.OCT.2009 22:39:30

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 40MHz Ant. A / 2437 MHz



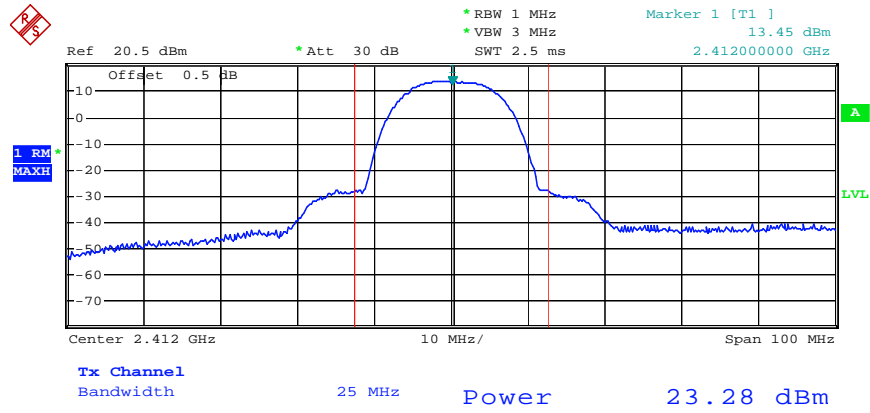
Date: 19.OCT.2009 22:40:46

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 40MHz Ant. A / 2452 MHz



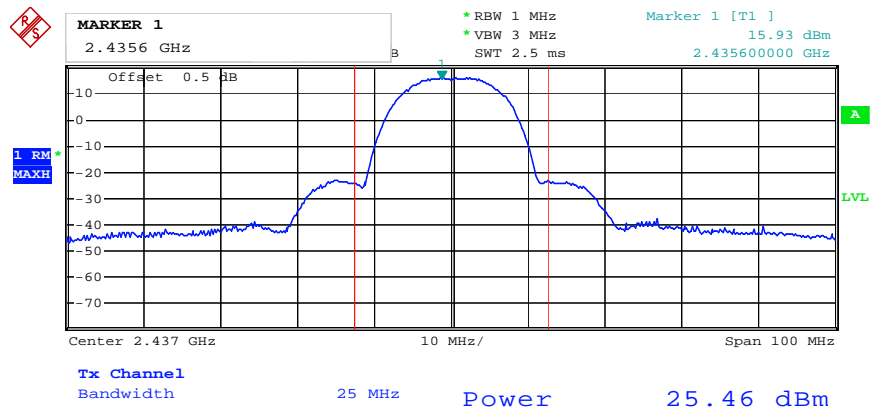
Date: 19.OCT.2009 22:41:55

Conducted Output Power Plot on Configuration IEEE 802.11b Ant. A / 2412 MHz



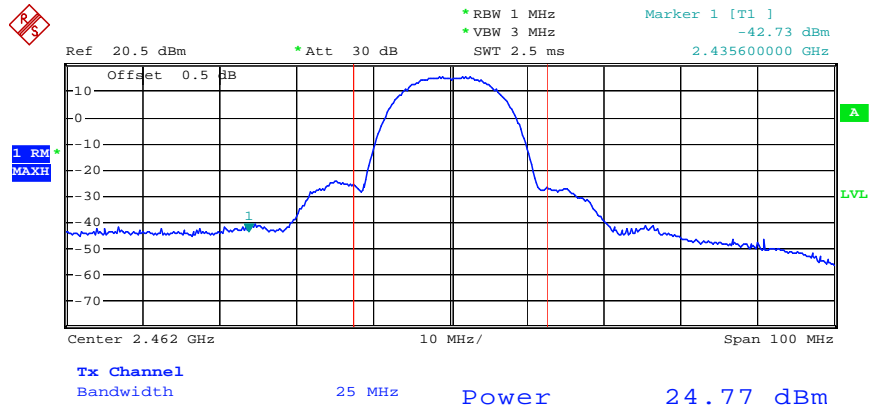
Date: 15.OCT.2009 18:19:18

Conducted Output Power Plot on Configuration IEEE 802.11b Ant. A / 2437 MHz



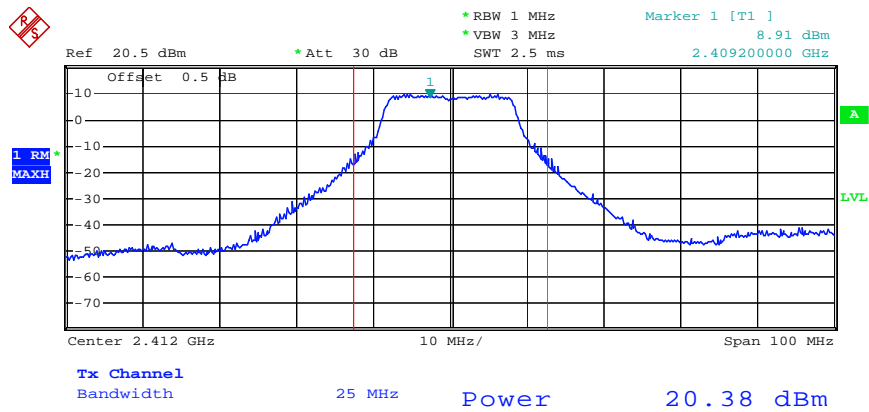
Date: 15.OCT.2009 18:20:45

Conducted Output Power Plot on Configuration IEEE 802.11b Ant. A / 2462 MHz



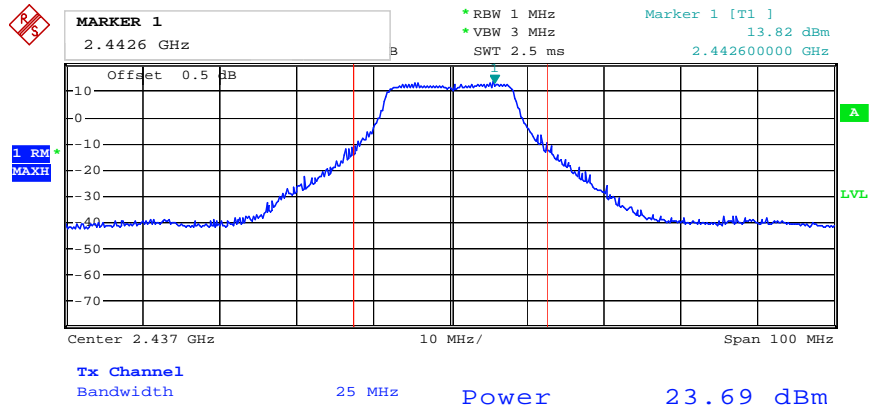
Date: 15.OCT.2009 18:21:31

Conducted Output Power Plot on Configuration IEEE 802.11g Ant. A / 2412 MHz



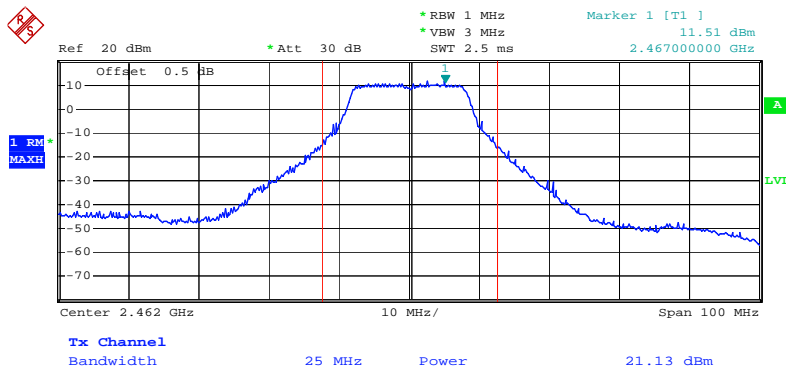
Date: 15.OCT.2009 18:46:04

Conducted Output Power Plot on Configuration IEEE 802.11g Ant. A / 2437 MHz



Date: 15.OCT.2009 18:48:21

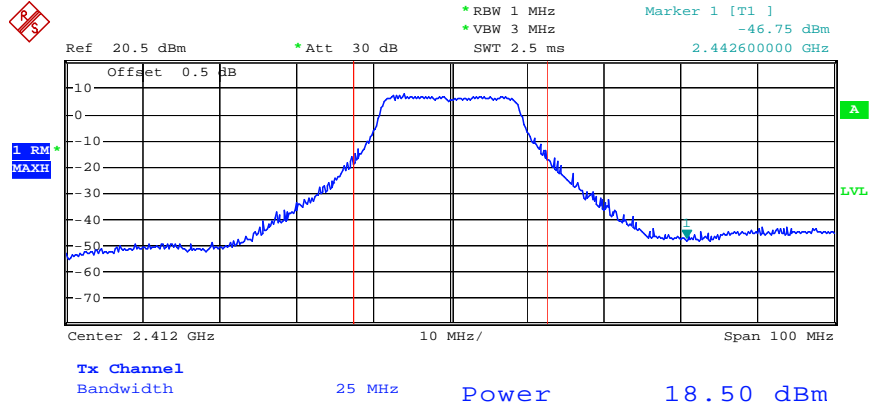
Conducted Output Power Plot on Configuration IEEE 802.11g Ant. A / 2462 MHz



Date: 19.OCT.2009 22:32:44

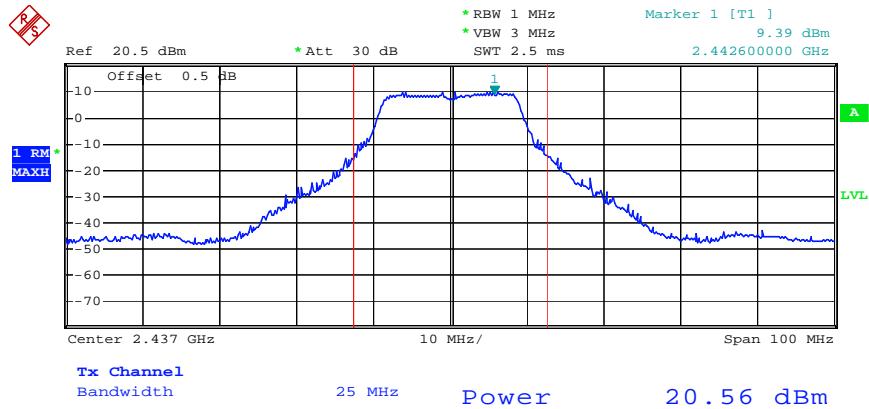
<For Ant. B - PCB Antenna>:

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 20MHz Ant. B / 2412 MHz



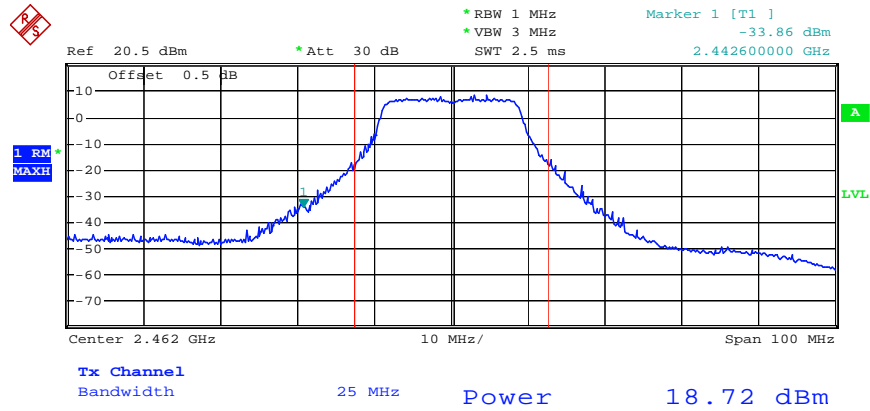
Date: 15.OCT.2009 20:10:55

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 20MHz Ant. B / 2437 MHz



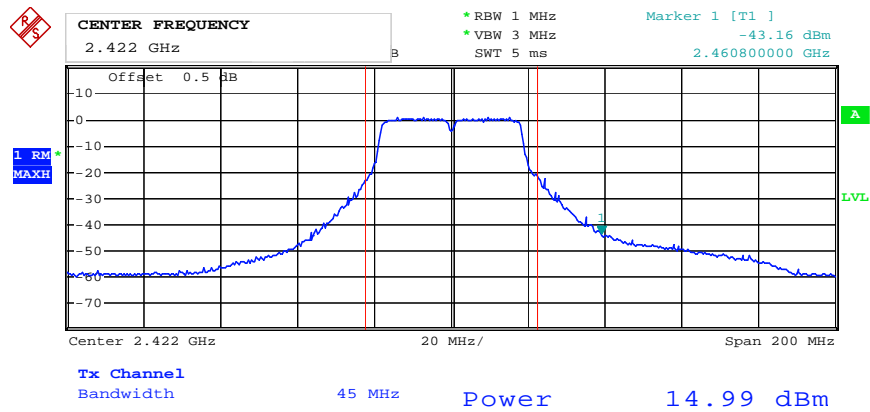
Date: 15.OCT.2009 20:09:48

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 20MHz Ant. B / 2462 MHz



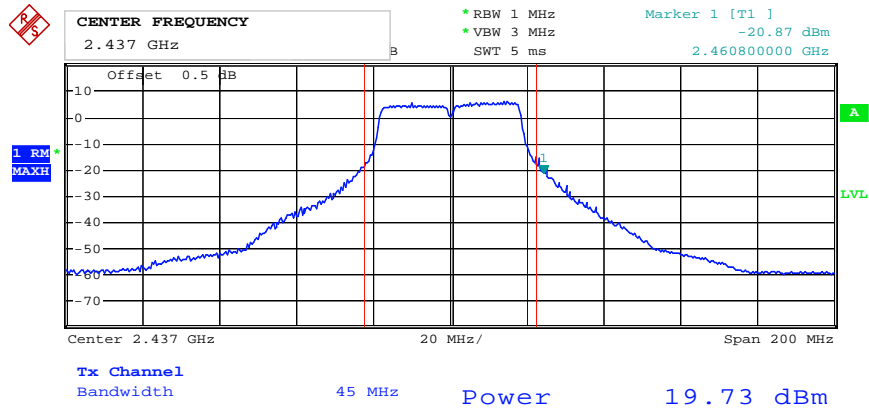
Date: 15.OCT.2009 20:12:06

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 40MHz Ant. B / 2422 MHz



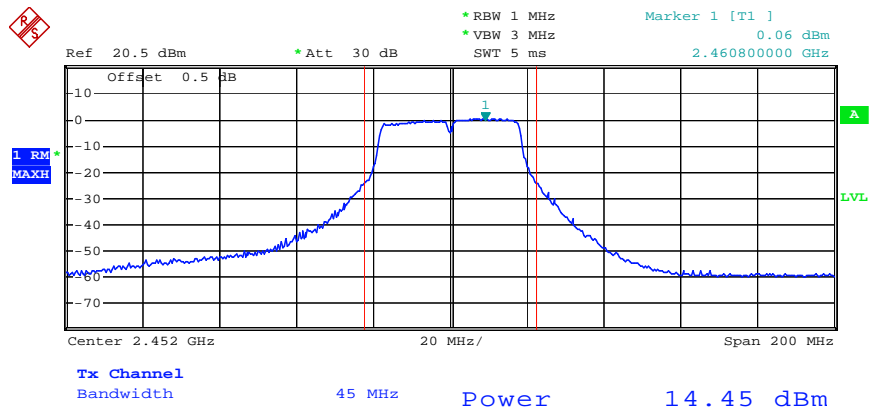
Date: 15.OCT.2009 20:05:50

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 40MHz Ant. B / 2437 MHz



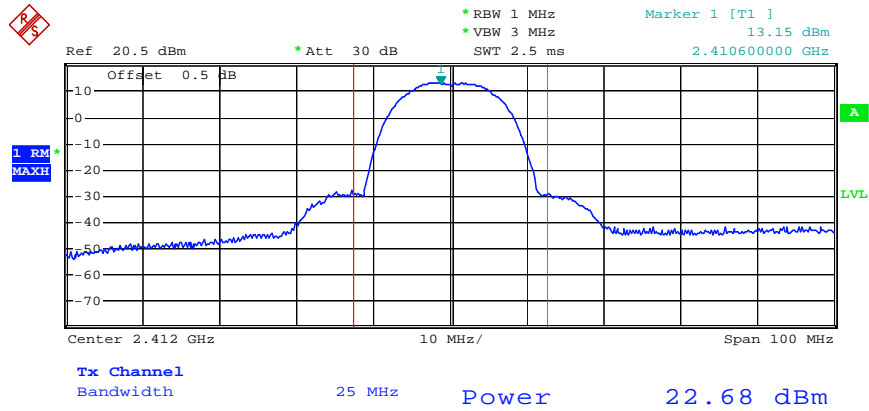
Date: 15.OCT.2009 20:08:02

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 40MHz Ant. B / 2452 MHz



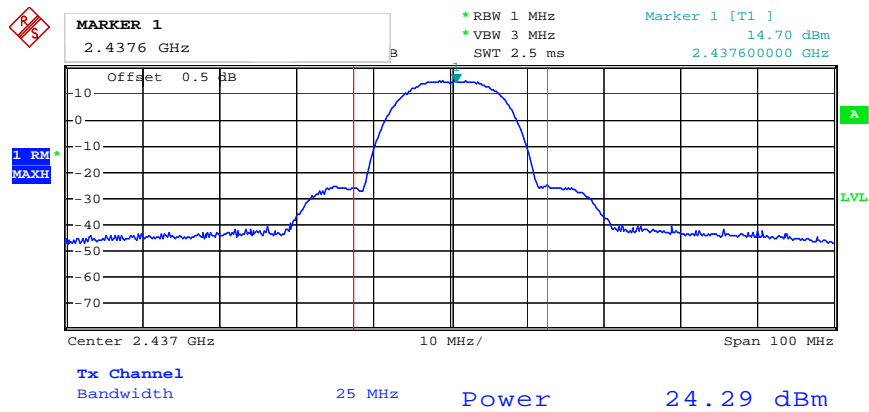
Date: 15.OCT.2009 20:04:33

Conducted Output Power Plot on Configuration IEEE 802.11b Ant. B / 2412 MHz



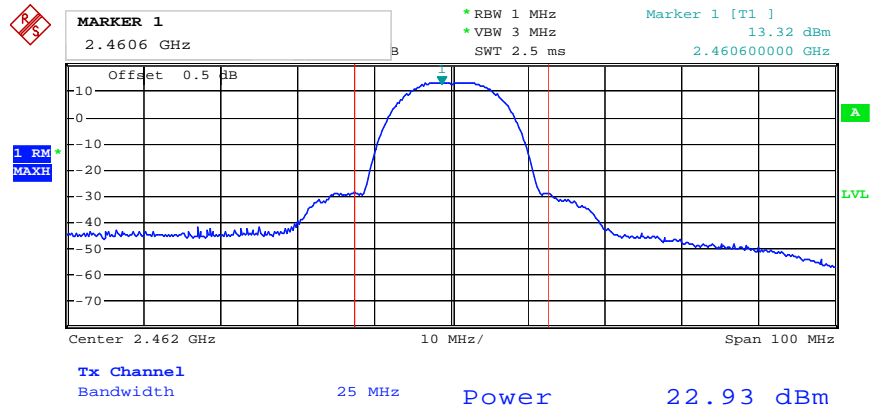
Date: 15.OCT.2009 20:20:11

Conducted Output Power Plot on Configuration IEEE 802.11b Ant. B / 2437 MHz



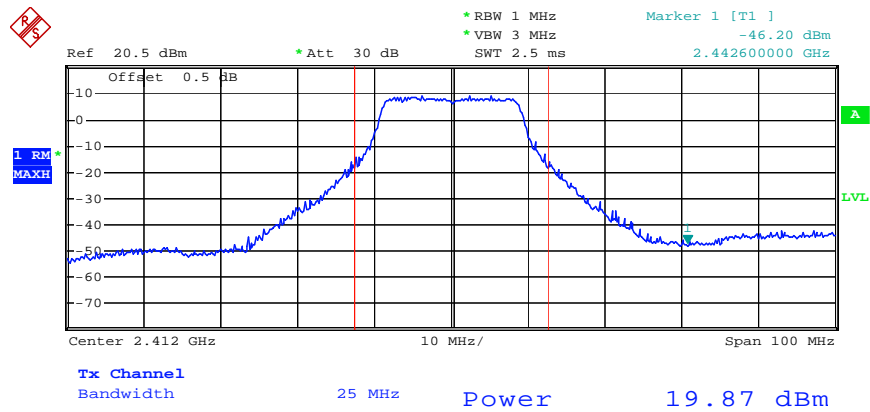
Date: 15.OCT.2009 20:21:39

Conducted Output Power Plot on Configuration IEEE 802.11b Ant. B / 2462 MHz



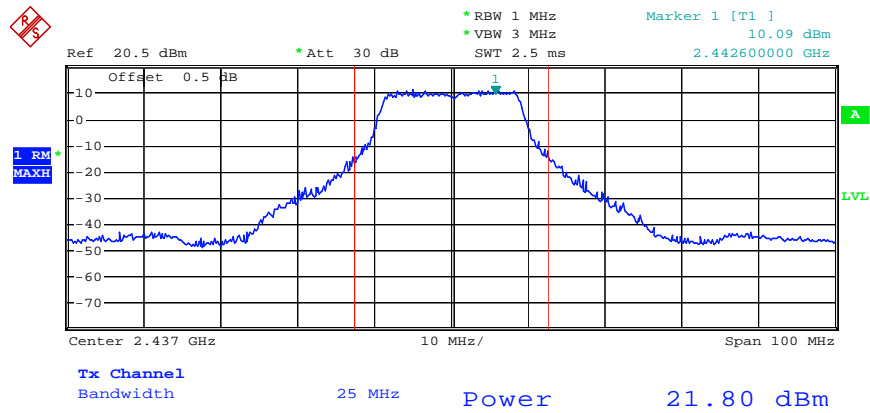
Date: 15.OCT.2009 20:22:30

Conducted Output Power Plot on Configuration IEEE 802.11g Ant. B / 2412 MHz



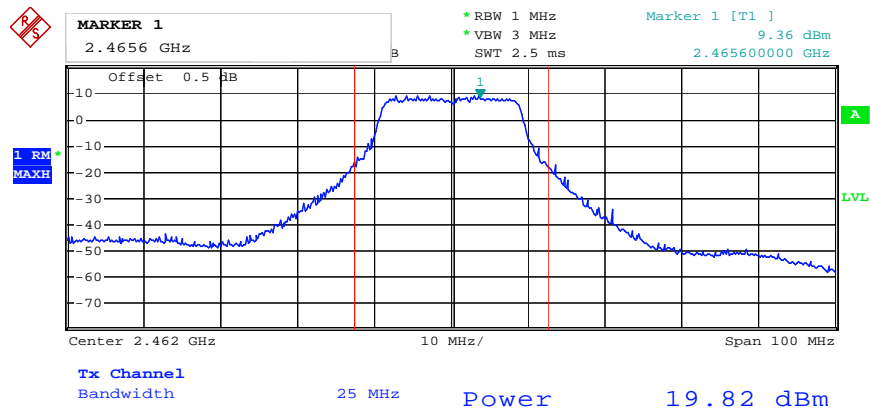
Date: 15.OCT.2009 20:17:23

Conducted Output Power Plot on Configuration IEEE 802.11g Ant. B / 2437 MHz



Date: 15.OCT.2009 20:15:46

Conducted Output Power Plot on Configuration IEEE 802.11g Ant. B / 2462 MHz



Date: 15.OCT.2009 20:13:51

4.3. Power Spectral Density Measurement

4.3.1. Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

4.3.2. Measuring Instruments and Setting

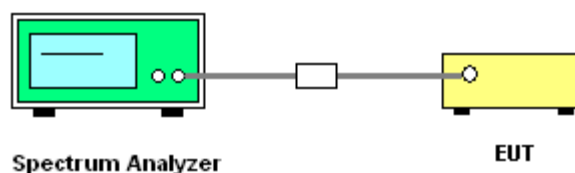
Please refer to section 5 of equipments list in this report. The following table is the setting of Spectrum Analyzer.

| Spectrum Parameter | Setting |
|--------------------|------------------------------------------------------|
| Attenuation | Auto |
| Span Frequency | Set the analyzer span to 5-30% greater than the EBW. |
| RB | 100 kHz |
| VB | 300 kHz |
| Detector | PEAK |
| Trace | MAX HOLD |
| Sweep Time | AUTO |

4.3.3. Test Procedures

1. Use this procedure when the maximum conducted output power in the fundamental emission is used to demonstrate compliance. The EUT must be configured to transmit continuously at full power over the measurement duration.
2. Ensure that the number of measurement points in the sweep $\geq 2 \times \text{span}/\text{RBW}$ (use of a greater number of measurement points than this minimum requirement is recommended).
3. Use the peak marker function to determine the maximum level in any 100 kHz band segment within the fundamental EBW.
4. Scale the observed power level to an equivalent level in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where: $\text{BWCF} = 10\log(3 \text{ kHz}/100 \text{ kHz} = -15.2 \text{ dB})$.
5. The resulting PSD level must be $\leq 8 \text{ dBm}$.
6. When measuring power spectral density with multiple antenna systems, add every result of the values by mathematic formula.

4.3.4. Test Setup Layout



4.3.5. Test Deviation

There is no deviation with the original standard.

4.3.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.3.7. Test Result of Power Spectral Density

<For Ant. A - Dipole Antenna>:

| | | | |
|---------------|---------|----------------|----------------------|
| Temperature | 23°C | Humidity | 60% |
| Test Engineer | Beck Wu | Configurations | IEEE 802.11n, Ant. A |

Configuration IEEE 802.11n MCS0 20MHz Ant. A

| Channel | Frequency | Power Density (dBm/100kHz) | BWCF factor (100kHz to 3kHz) | Power Density (dBm/3kHz) | Max. Limit (dBm/3kHz) | Result |
|---------|-----------|----------------------------|------------------------------|--------------------------|-----------------------|----------|
| 1 | 2412 MHz | 7.18 | -15.23 | -8.05 | 8.00 | Complies |
| 6 | 2437 MHz | 11.40 | -15.23 | -3.83 | 8.00 | Complies |
| 11 | 2462 MHz | 7.53 | -15.23 | -7.70 | 8.00 | Complies |

Configuration IEEE 802.11n MCS0 40MHz Ant. A

| Channel | Frequency | Power Density (dBm/100kHz) | BWCF factor (100kHz to 3kHz) | Power Density (dBm/3kHz) | Max. Limit (dBm/3kHz) | Result |
|---------|-----------|----------------------------|------------------------------|--------------------------|-----------------------|----------|
| 3 | 2422 MHz | 1.87 | -15.23 | -13.36 | 8.00 | Complies |
| 6 | 2437 MHz | 7.35 | -15.23 | -7.88 | 8.00 | Complies |
| 9 | 2452 MHz | 1.83 | -15.23 | -13.40 | 8.00 | Complies |

| | | | |
|---------------|---------|----------------|------------------------|
| Temperature | 23°C | Humidity | 60% |
| Test Engineer | Beck Wu | Configurations | IEEE 802.11b/g, Ant. A |

Configuration IEEE 802.11b Ant. A

| Channel | Frequency | Power Density (dBm/100kHz) | BWCF factor (100KHz to 3KHz) | Power Density (dBm/3kHz) | Max. Limit (dBm/3kHz) | Result |
|---------|-----------|----------------------------|------------------------------|--------------------------|-----------------------|----------|
| 1 | 2412 MHz | 13.64 | -15.23 | -1.59 | 8.00 | Complies |
| 6 | 2437 MHz | 15.44 | -15.23 | 0.21 | 8.00 | Complies |
| 11 | 2462 MHz | 14.67 | -15.23 | -0.56 | 8.00 | Complies |

Configuration IEEE 802.11g Ant. A

| Channel | Frequency | Power Density (dBm/100kHz) | BWCF factor (100KHz to 3KHz) | Power Density (dBm/3kHz) | Max. Limit (dBm/3kHz) | Result |
|---------|-----------|----------------------------|------------------------------|--------------------------|-----------------------|----------|
| 1 | 2412 MHz | 7.42 | -15.23 | -7.81 | 8.00 | Complies |
| 6 | 2437 MHz | 10.67 | -15.23 | -4.56 | 8.00 | Complies |
| 11 | 2462 MHz | 8.50 | -15.23 | -6.73 | 8.00 | Complies |

<For Ant. B - PCB Antenna>:

| | | | |
|---------------|---------|----------------|----------------------|
| Temperature | 23°C | Humidity | 60% |
| Test Engineer | Beck Wu | Configurations | IEEE 802.11n, Ant. B |

Configuration IEEE 802.11n MCS0 20MHz Ant. B

| Channel | Frequency | Power Density (dBm/100k Hz) | BWCF factor (100KHz to 3KHz) | Power Density (dBm/3kHz) | Max. Limit (dBm/3kHz) | Result |
|---------|-----------|-----------------------------|------------------------------|--------------------------|-----------------------|----------|
| 1 | 2412 MHz | 5.65 | -15.23 | -9.58 | 8.00 | Complies |
| 6 | 2437 MHz | 7.51 | -15.23 | -7.72 | 8.00 | Complies |
| 11 | 2462 MHz | 5.25 | -15.23 | -9.98 | 8.00 | Complies |

Configuration IEEE 802.11n MCS0 40MHz Ant. B

| Channel | Frequency | Power Density (dBm/100k Hz) | BWCF factor (100KHz to 3KHz) | Power Density (dBm/3kHz) | Max. Limit (dBm/3kHz) | Result |
|---------|-----------|-----------------------------|------------------------------|--------------------------|-----------------------|----------|
| 3 | 2422 MHz | 0.11 | -15.23 | -15.12 | 8.00 | Complies |
| 6 | 2437 MHz | 4.18 | -15.23 | -11.05 | 8.00 | Complies |
| 9 | 2452 MHz | -1.03 | -15.23 | -16.26 | 8.00 | Complies |

| | | | |
|---------------|---------|----------------|------------------------|
| Temperature | 23°C | Humidity | 60% |
| Test Engineer | Beck Wu | Configurations | IEEE 802.11b/g, Ant. B |

Configuration IEEE 802.11b Ant. B

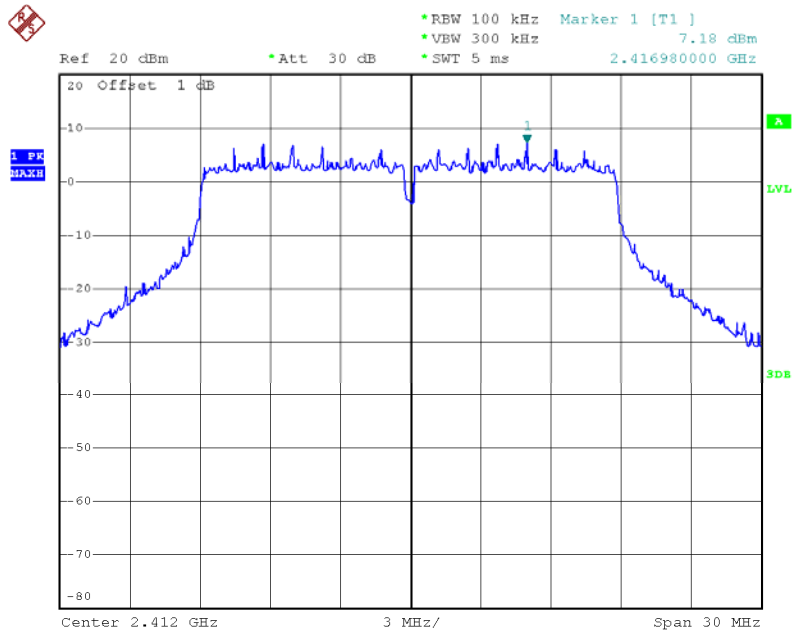
| Channel | Frequency | Power Density (dBm/100k Hz) | BWCF factor (100KHz to 3KHz) | Power Density (dBm/3kHz) | Max. Limit (dBm/3kHz) | Result |
|---------|-----------|-----------------------------|------------------------------|--------------------------|-----------------------|----------|
| 1 | 2412 MHz | 12.83 | -15.23 | -2.40 | 8.00 | Complies |
| 6 | 2437 MHz | 13.87 | -15.23 | -1.36 | 8.00 | Complies |
| 11 | 2462 MHz | 12.19 | -15.23 | -3.04 | 8.00 | Complies |

Configuration IEEE 802.11g Ant. B

| Channel | Frequency | Power Density (dBm/100k Hz) | BWCF factor (100KHz to 3KHz) | Power Density (dBm/3kHz) | Max. Limit (dBm/3kHz) | Result |
|---------|-----------|-----------------------------|------------------------------|--------------------------|-----------------------|----------|
| 1 | 2412 MHz | 6.26 | -15.23 | -8.97 | 8.00 | Complies |
| 6 | 2437 MHz | 7.77 | -15.23 | -7.46 | 8.00 | Complies |
| 11 | 2462 MHz | 5.87 | -15.23 | -9.36 | 8.00 | Complies |

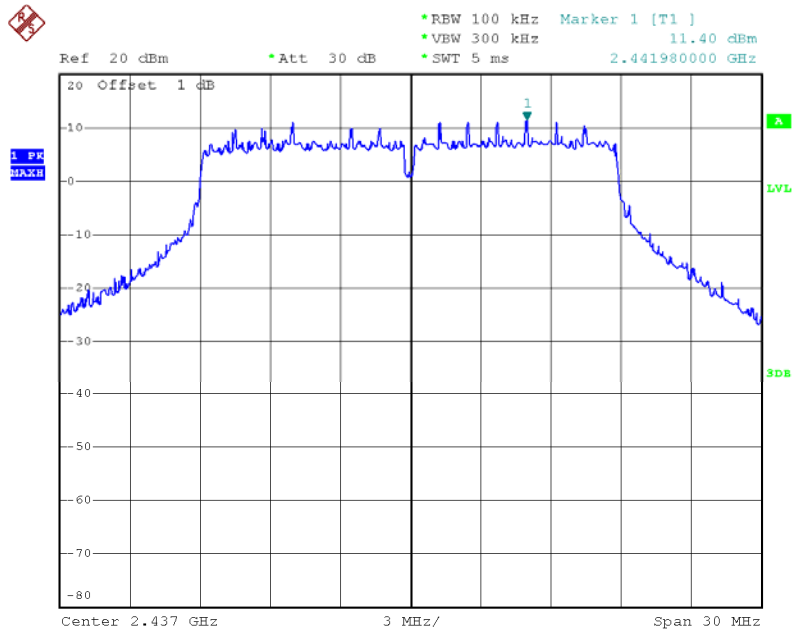
<For Ant. A - Dipole Antenna>

Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz Ant. A / 2412 MHz



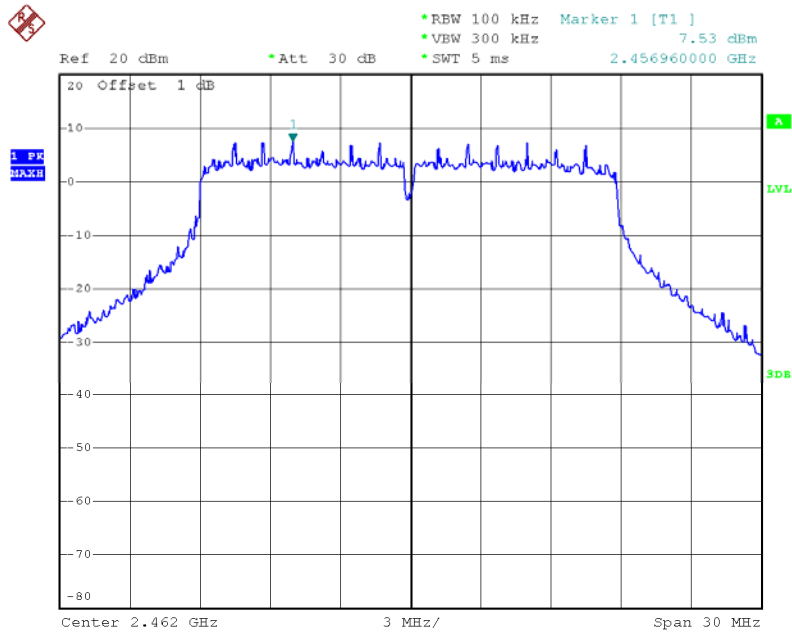
Date: 23.OCT.2012 01:08:50

Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz Ant. A / 2437 MHz



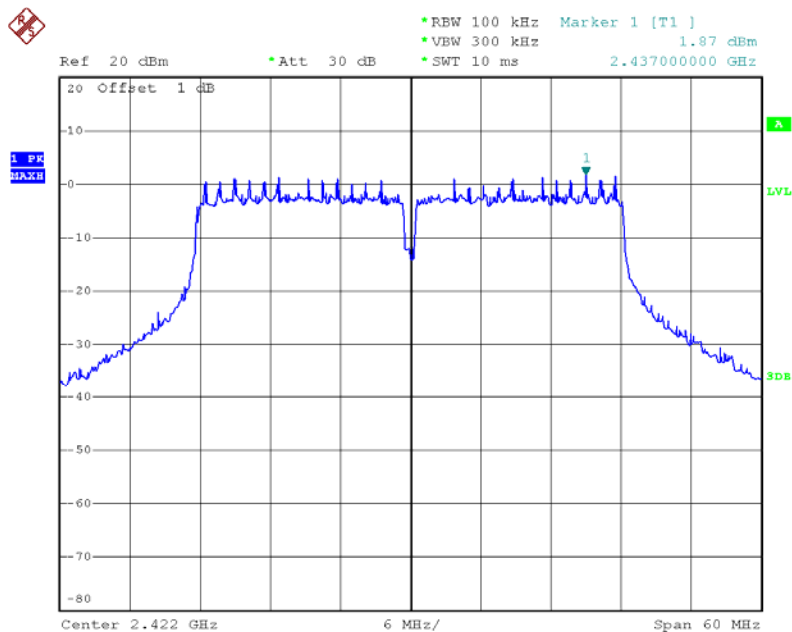
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Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz Ant. A / 2462 MHz



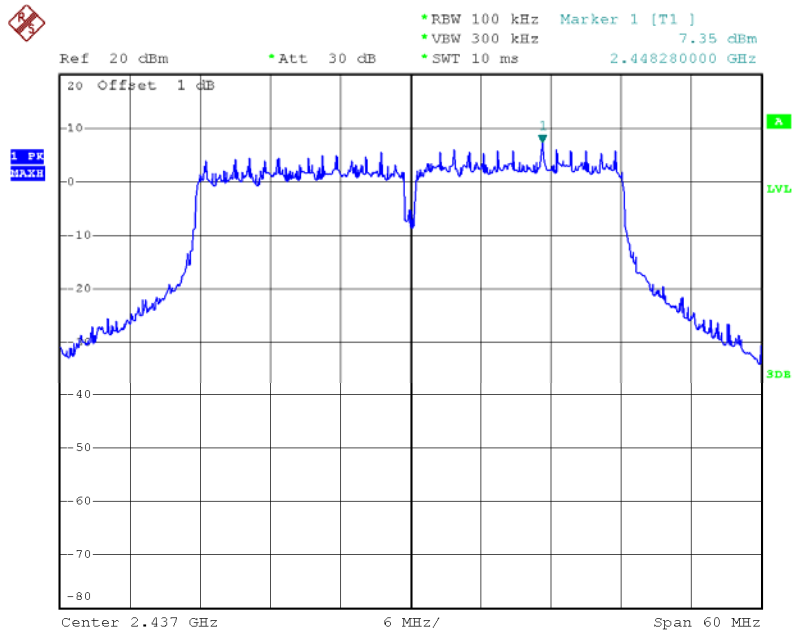
Date: 23.OCT.2012 01:11:17

Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz Ant. A / 2422 MHz



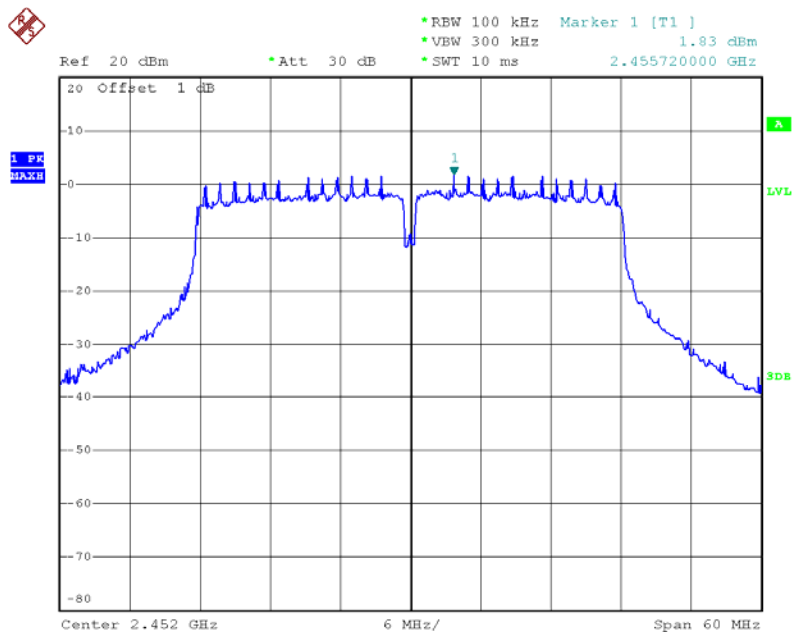
Date: 23.OCT.2012 01:16:54

Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz Ant. A / 2437 MHz



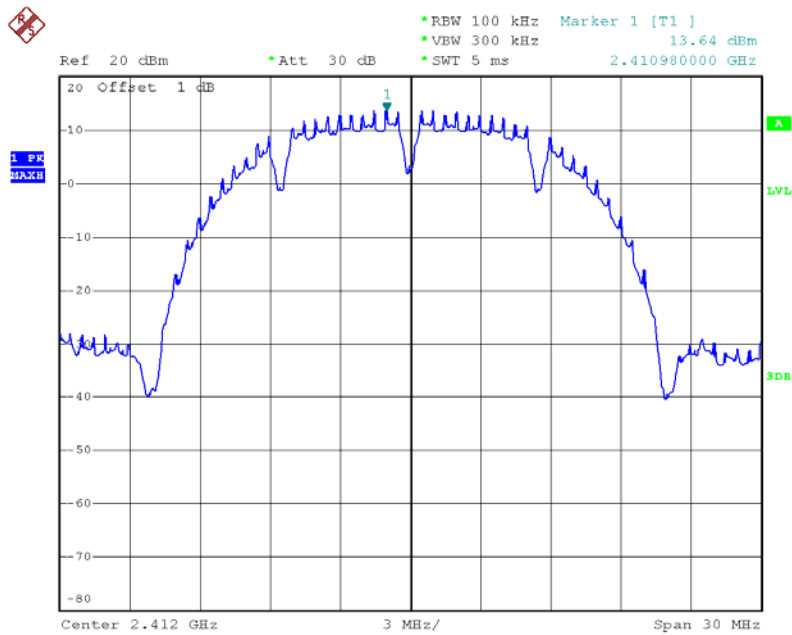
Date: 23.OCT.2012 01:15:58

Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz Ant. A / 2452 MHz



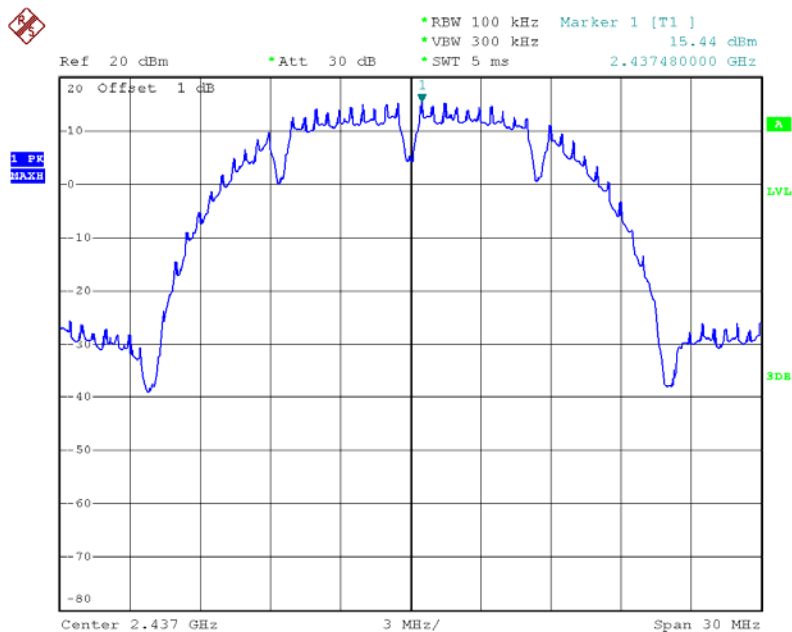
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Power Density Plot on Configuration IEEE 802.11b Ant. A / 2412 MHz



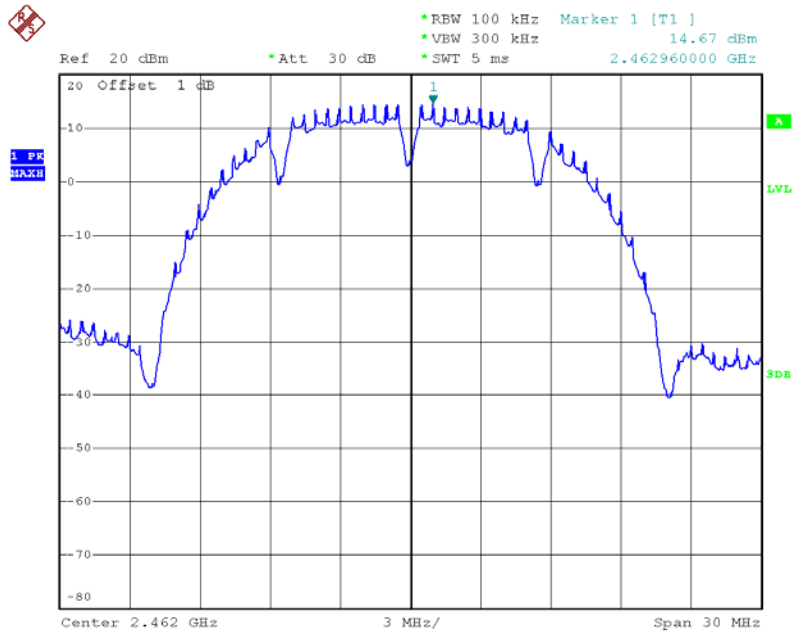
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Power Density Plot on Configuration IEEE 802.11b Ant. A / 2437 MHz



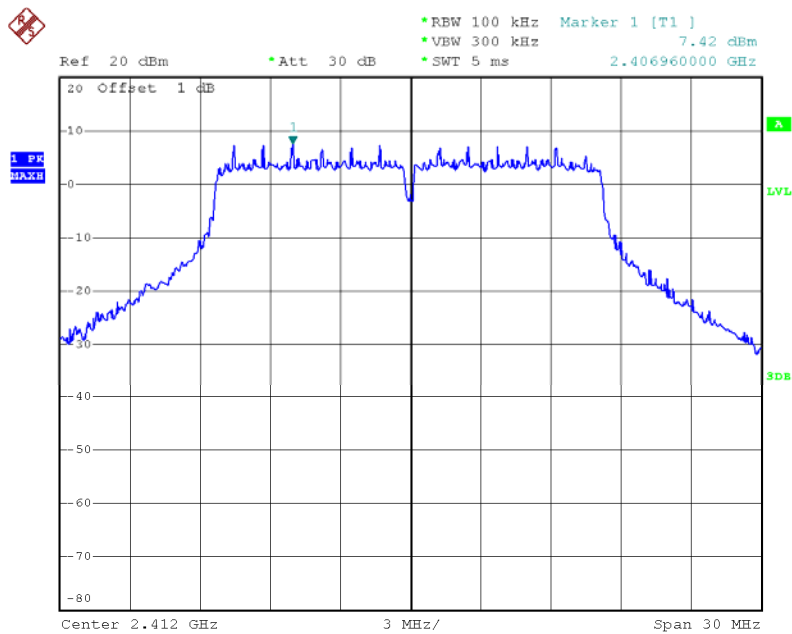
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Power Density Plot on Configuration IEEE 802.11b Ant. A / 2462 MHz



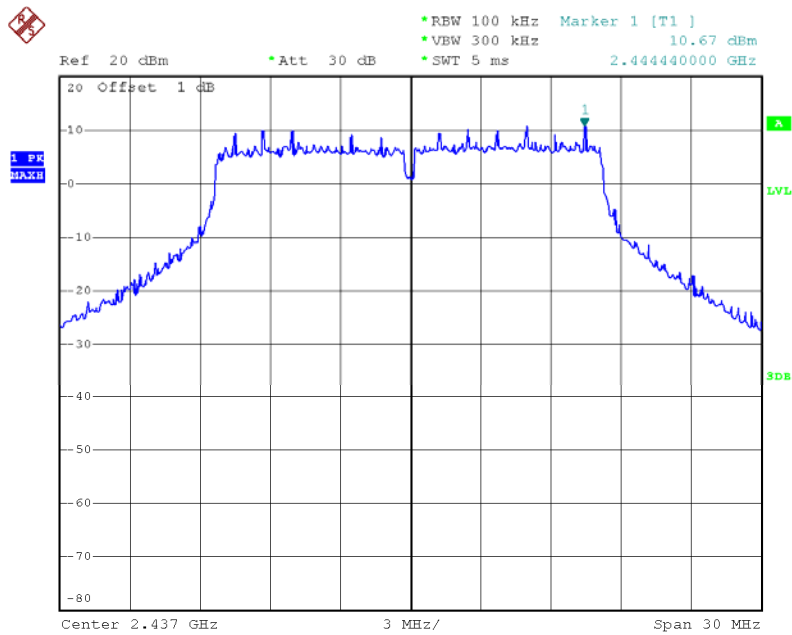
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Power Density Plot on Configuration IEEE 802.11g Ant. A / 2412 MHz



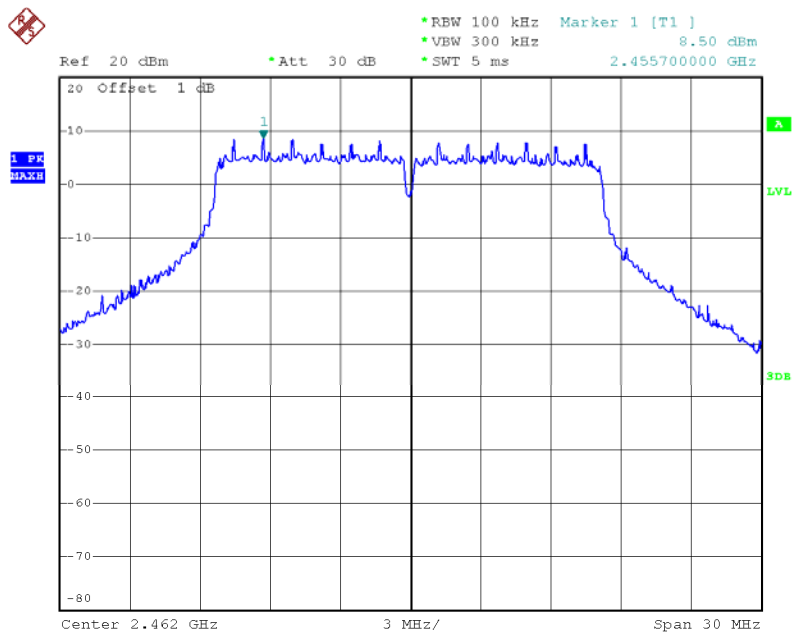
Date: 23.OCT.2012 01:06:34

Power Density Plot on Configuration IEEE 802.11g Ant. A / 2437 MHz



Date: 23.OCT.2012 01:05:41

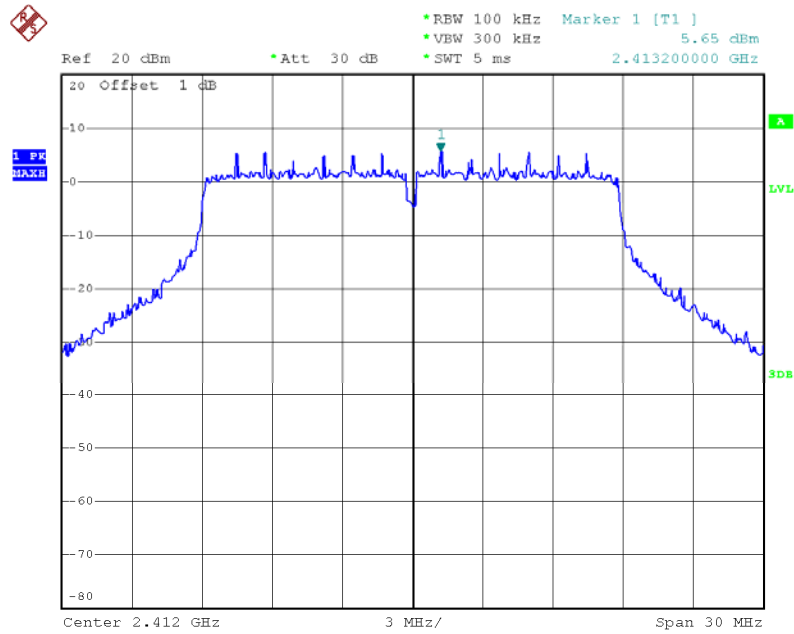
Power Density Plot on Configuration IEEE 802.11g Ant. A / 2462 MHz



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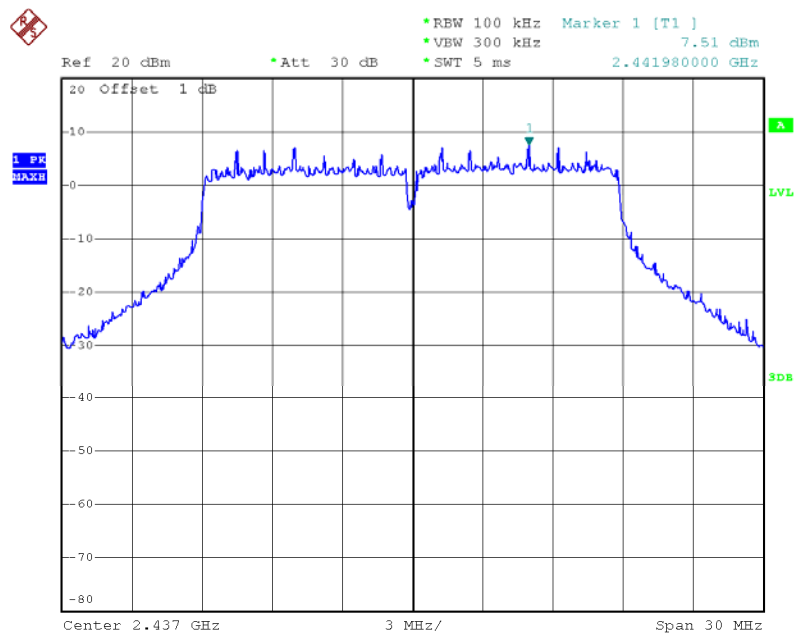
<For Ant. B - PCB Antenna>

Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz Ant. B / 2412 MHz



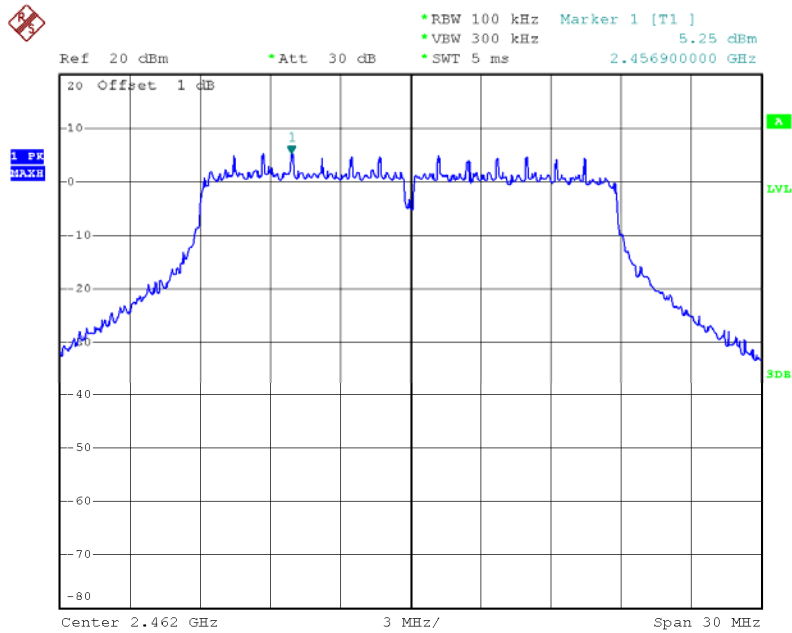
Date: 23.OCT.2012 01:08:20

Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz Ant. B / 2437 MHz



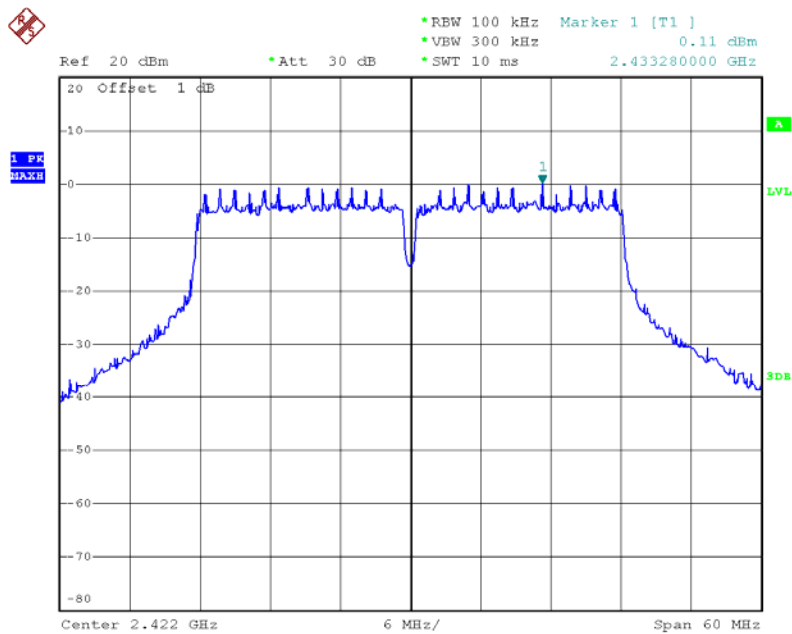
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Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz Ant. B / 2462 MHz



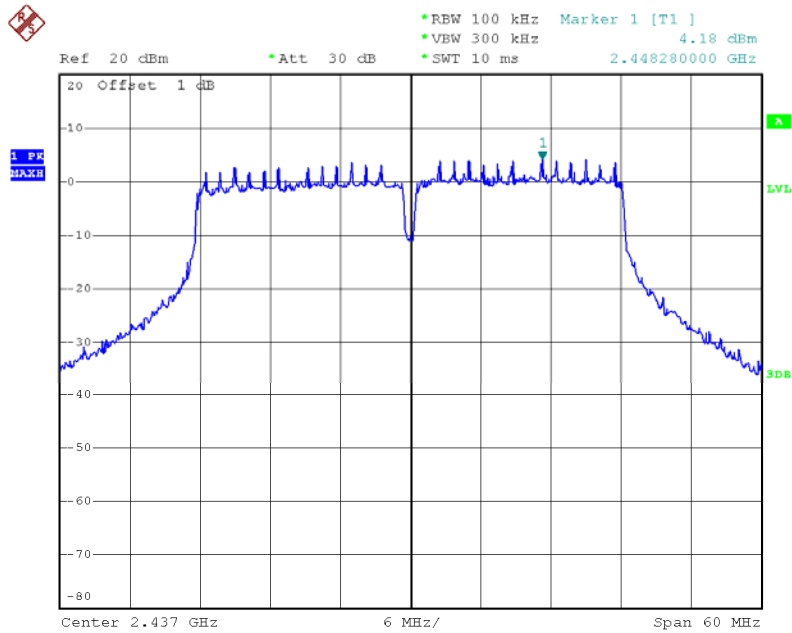
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Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz Ant. B / 2422 MHz



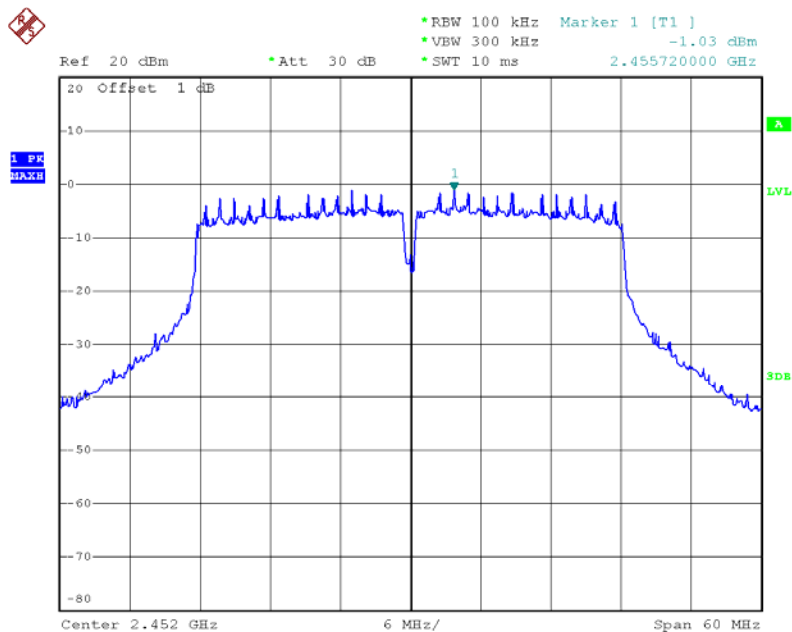
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Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz Ant. B / 2437 MHz



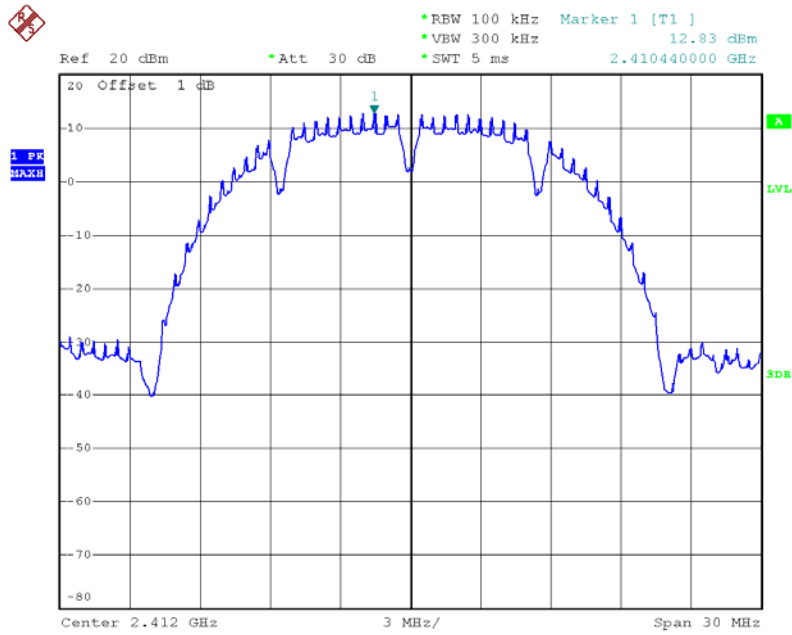
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Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz Ant. B / 2452 MHz



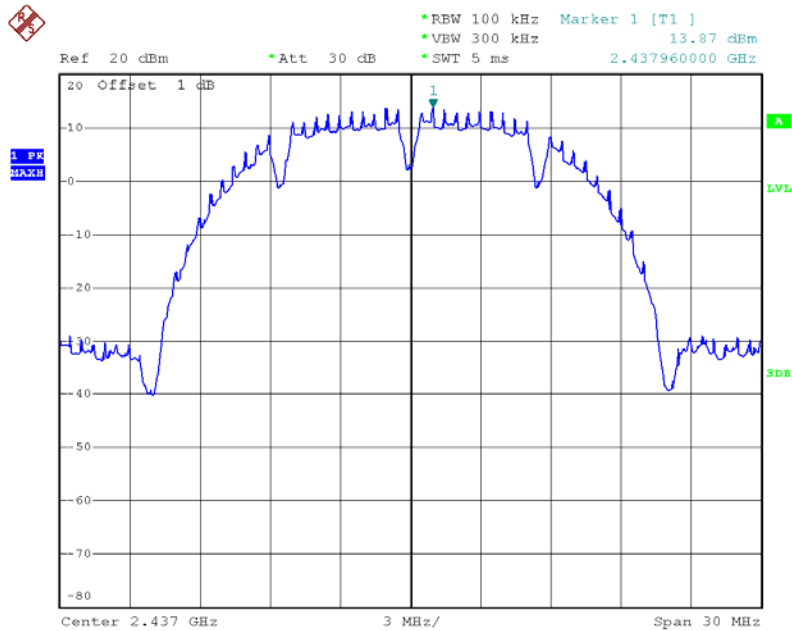
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Power Density Plot on Configuration IEEE 802.11b Ant. B / 2412 MHz



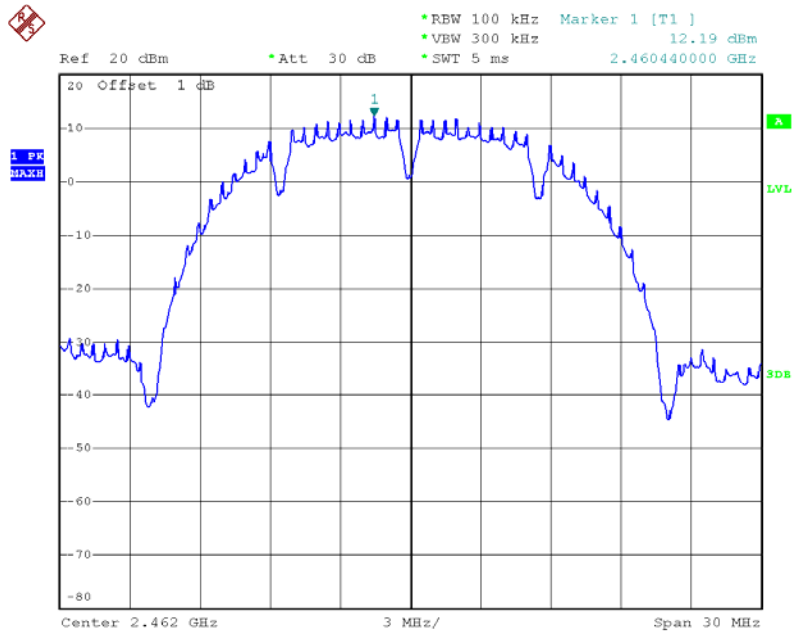
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Power Density Plot on Configuration IEEE 802.11b Ant. B / 2437 MHz



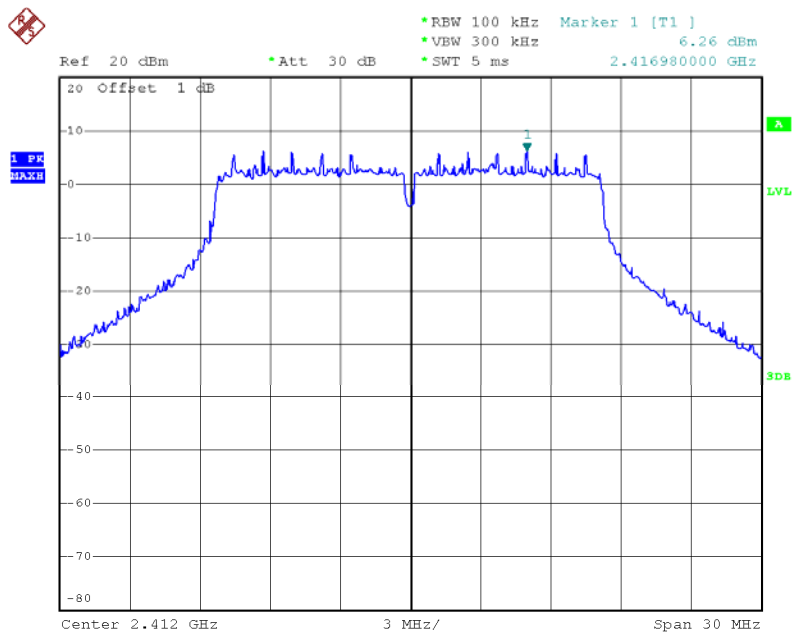
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Power Density Plot on Configuration IEEE 802.11b Ant. B / 2462 MHz



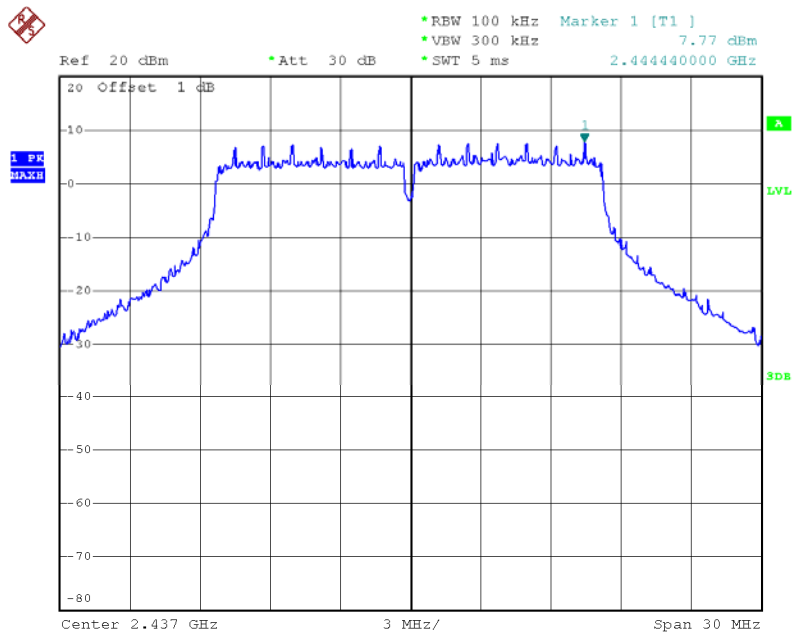
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Power Density Plot on Configuration IEEE 802.11g Ant. B / 2412 MHz



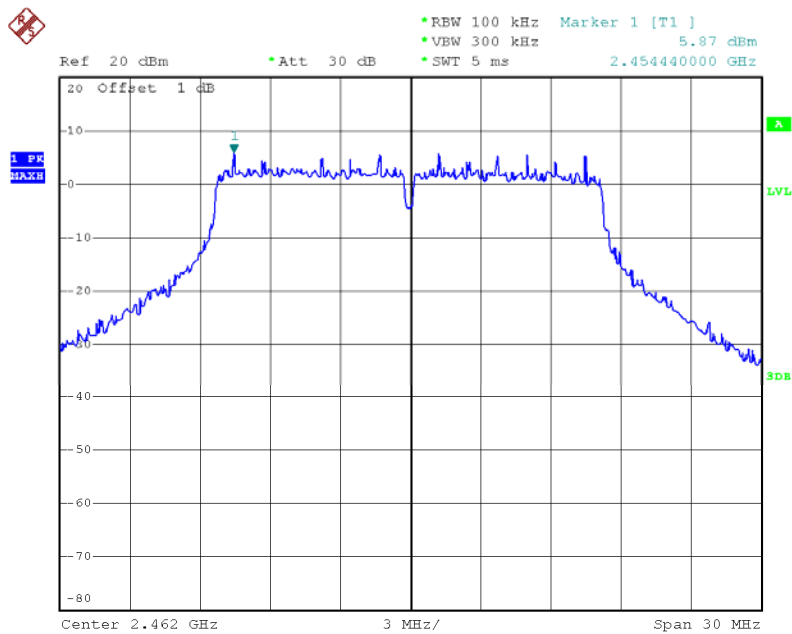
Date: 23.OCT.2012 01:07:16

Power Density Plot on Configuration IEEE 802.11g Ant. B / 2437 MHz



Date: 23.OCT.2012 01:05:07

Power Density Plot on Configuration IEEE 802.11g Ant. B / 2462 MHz



Date: 23.OCT.2012 01:04:13

4.4. 6dB Spectrum Bandwidth Measurement

4.4.1. Limit

For digital modulation systems, the minimum 6 dB bandwidth shall be at least 500 kHz.

4.4.2. Measuring Instruments and Setting

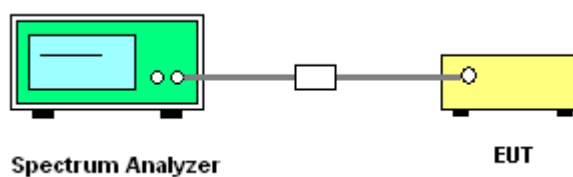
Please refer to section 5 of equipments list in this report. The following table is the setting of spectrum analyzer.

| Spectrum Parameters | Setting |
|---------------------|---------------------------------------|
| Attenuation | Auto |
| Span Frequency | > 6dB Bandwidth |
| RB | 1-5 % of the emission bandwidth (EBW) |
| VB | $\geq 3 \times \text{RBW}$ |
| Detector | Peak |
| Trace | Max Hold |
| Sweep Time | Auto |

4.4.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer in peak hold mode.
2. The resolution bandwidth of 100 kHz and the video bandwidth of 100 kHz were used.
3. Measured the spectrum width with power higher than 6dB below carrier.

4.4.4. Test Setup Layout



4.4.5. Test Deviation

There is no deviation with the original standard.

4.4.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.4.7. Test Result of 6dB Spectrum Bandwidth

<For Ant. A – Dipole Antenna>:

| | | | |
|---------------|---------|----------------|----------------------|
| Temperature | 23°C | Humidity | 60% |
| Test Engineer | Beck Wu | Configurations | IEEE 802.11n, Ant. A |

Configuration IEEE 802.11n MCS0 20MHz Ant. A

| Channel | Frequency | 6dB Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) | Min. Limit (kHz) | Test Result |
|---------|-----------|---------------------|------------------------------|------------------|-------------|
| 1 | 2412 MHz | 17.84 | 17.76 | 500 | Complies |
| 6 | 2437 MHz | 17.60 | 17.76 | 500 | Complies |
| 11 | 2462 MHz | 17.20 | 17.76 | 500 | Complies |

Configuration IEEE 802.11n MCS0 40MHz Ant. A

| Channel | Frequency | 6dB Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) | Min. Limit (kHz) | Test Result |
|---------|-----------|---------------------|------------------------------|------------------|-------------|
| 3 | 2422 MHz | 36.48 | 36.48 | 500 | Complies |
| 6 | 2437 MHz | 35.84 | 36.48 | 500 | Complies |
| 9 | 2452 MHz | 35.20 | 36.48 | 500 | Complies |

| | | | |
|---------------|---------|----------------|------------------------|
| Temperature | 23°C | Humidity | 60% |
| Test Engineer | Beck Wu | Configurations | IEEE 802.11b/g, Ant. A |

Configuration IEEE 802.11b Ant. A

| Channel | Frequency | 6dB Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) | Min. Limit (kHz) | Test Result |
|---------|-----------|---------------------|------------------------------|------------------|-------------|
| 1 | 2412 MHz | 12.08 | 15.68 | 500 | Complies |
| 6 | 2437 MHz | 12.00 | 15.76 | 500 | Complies |
| 11 | 2462 MHz | 12.08 | 15.52 | 500 | Complies |

Configuration IEEE 802.11g Ant. A

| Channel | Frequency | 6dB Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) | Min. Limit (kHz) | Test Result |
|---------|-----------|---------------------|------------------------------|------------------|-------------|
| 1 | 2412 MHz | 16.40 | 16.56 | 500 | Complies |
| 6 | 2437 MHz | 16.56 | 16.64 | 500 | Complies |
| 11 | 2462 MHz | 16.40 | 16.56 | 500 | Complies |

<For Ant. B – PCB Antenna>:

| | | | |
|---------------|---------|----------------|----------------------|
| Temperature | 23°C | Humidity | 60% |
| Test Engineer | Beck Wu | Configurations | IEEE 802.11n, Ant. B |

Configuration IEEE 802.11n MCS0 20MHz Ant. B

| Channel | Frequency | 6dB Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) | Min. Limit (kHz) | Test Result |
|---------|-----------|---------------------|------------------------------|------------------|-------------|
| 1 | 2412 MHz | 17.60 | 17.68 | 500 | Complies |
| 6 | 2437 MHz | 17.60 | 17.72 | 500 | Complies |
| 11 | 2462 MHz | 17.60 | 17.68 | 500 | Complies |

Configuration IEEE 802.11n MCS0 40MHz Ant. B

| Channel | Frequency | 6dB Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) | Min. Limit (kHz) | Test Result |
|---------|-----------|---------------------|------------------------------|------------------|-------------|
| 3 | 2422 MHz | 36.48 | 36.48 | 500 | Complies |
| 6 | 2437 MHz | 35.84 | 36.48 | 500 | Complies |
| 9 | 2452 MHz | 35.52 | 36.32 | 500 | Complies |

| | | | |
|---------------|---------|----------------|------------------------|
| Temperature | 23°C | Humidity | 60% |
| Test Engineer | Beck Wu | Configurations | IEEE 802.11b/g, Ant. B |

Configuration IEEE 802.11b Ant. B

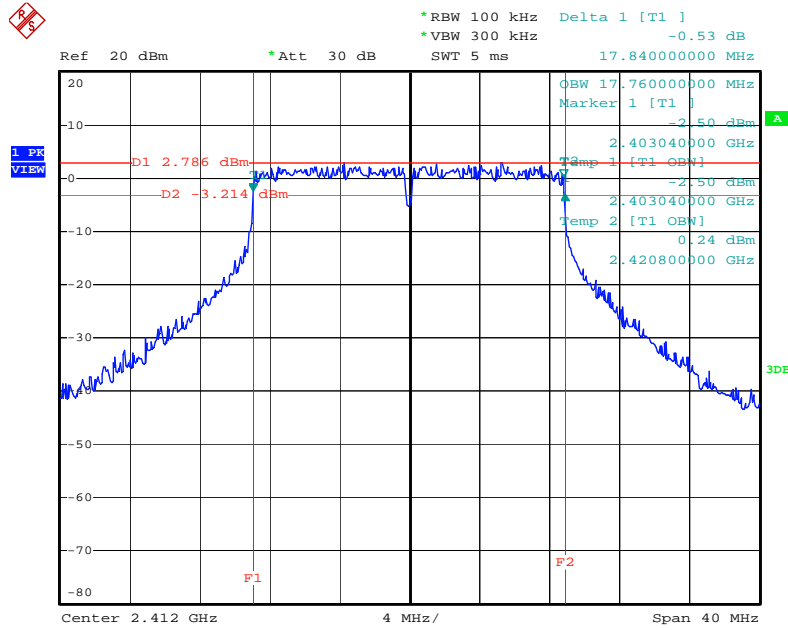
| Channel | Frequency | 6dB Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) | Min. Limit (kHz) | Test Result |
|---------|-----------|---------------------|------------------------------|------------------|-------------|
| 1 | 2412 MHz | 12.08 | 15.60 | 500 | Complies |
| 6 | 2437 MHz | 11.12 | 15.68 | 500 | Complies |
| 11 | 2462 MHz | 12.56 | 15.52 | 500 | Complies |

Configuration IEEE 802.11g Ant. B

| Channel | Frequency | 6dB Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) | Min. Limit (kHz) | Test Result |
|---------|-----------|---------------------|------------------------------|------------------|-------------|
| 1 | 2412 MHz | 16.32 | 16.56 | 500 | Complies |
| 6 | 2437 MHz | 16.32 | 16.64 | 500 | Complies |
| 11 | 2462 MHz | 16.40 | 16.56 | 500 | Complies |

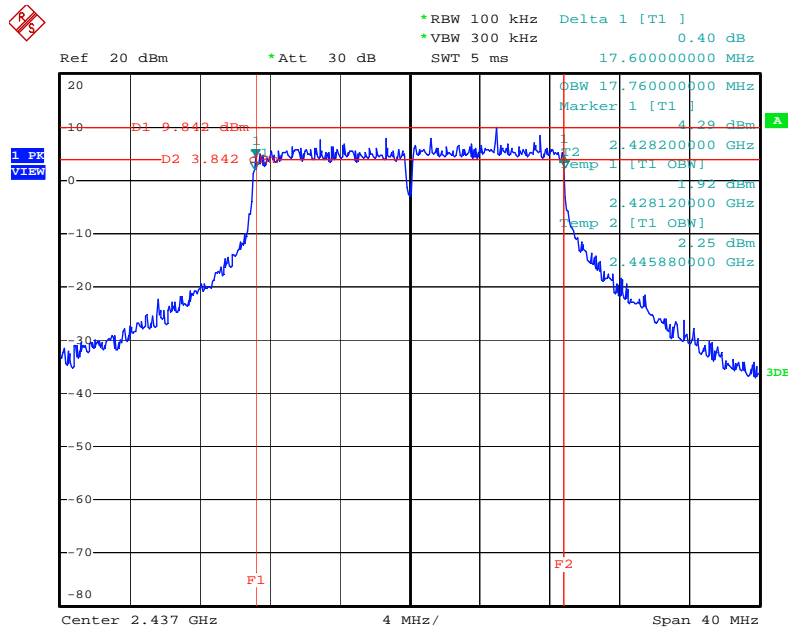
<For Ant. A – Dipole Antenna>:

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz Ant. A / 2412 MHz



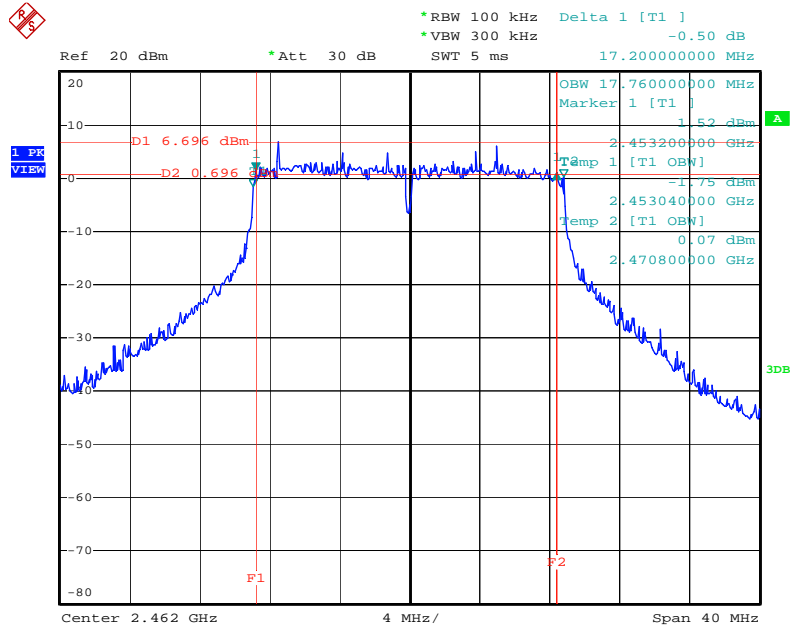
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6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz Ant. A / 2437 MHz



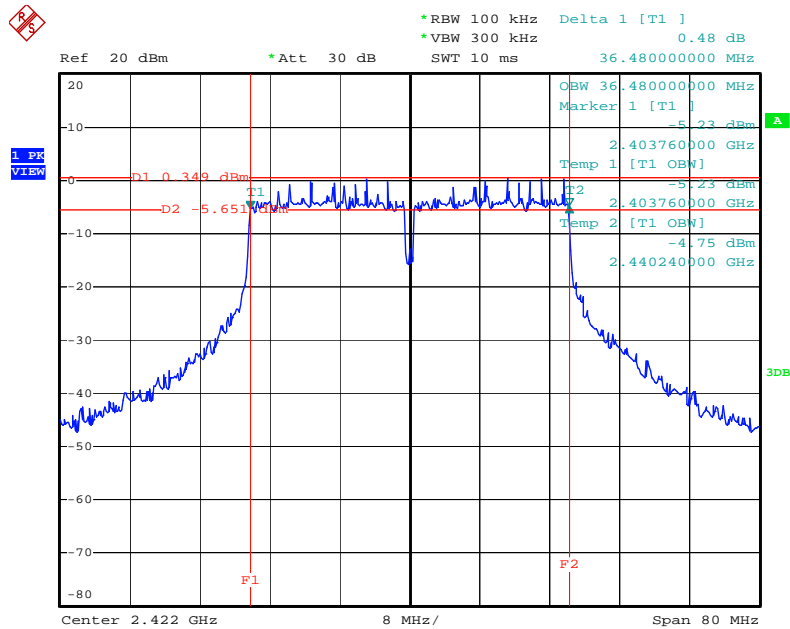
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6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz Ant. A / 2462 MHz



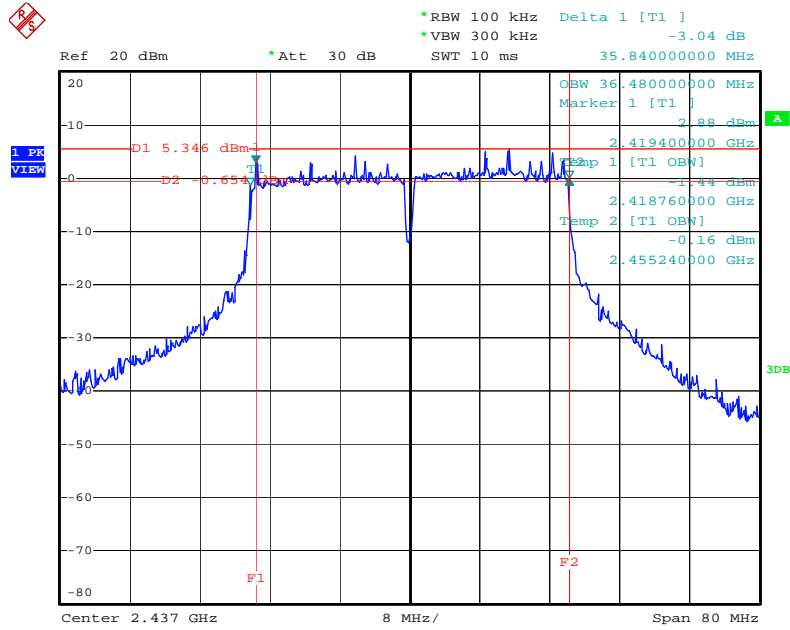
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6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz Ant. A / 2422 MHz



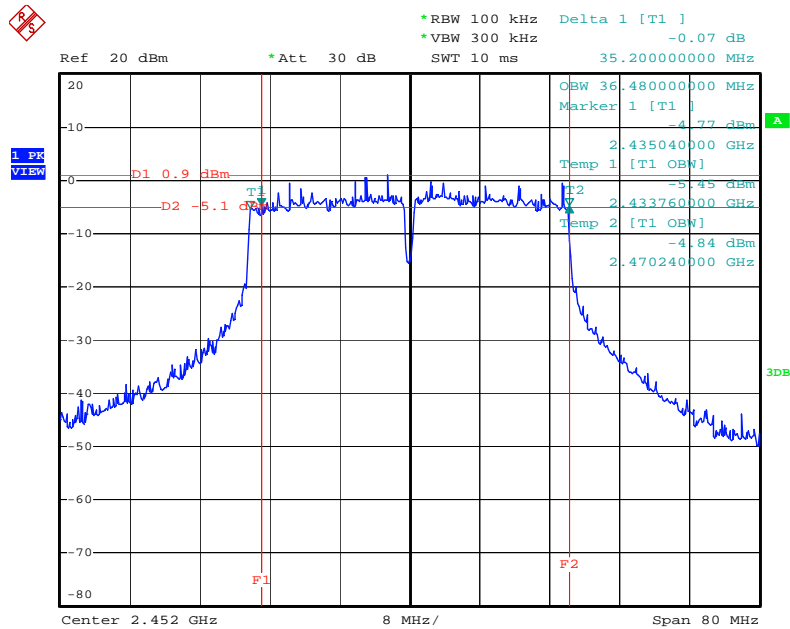
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6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz Ant. A / 2437 MHz



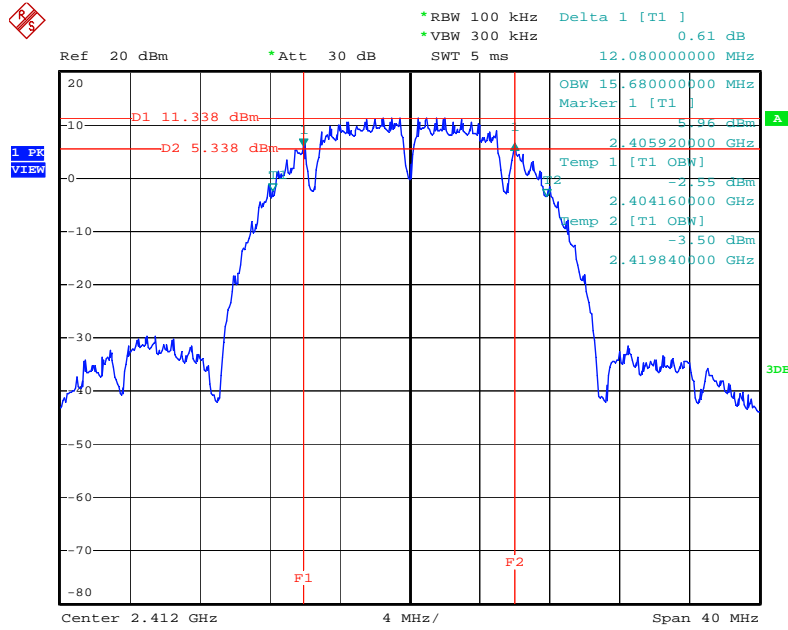
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6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz Ant. A / 2452 MHz



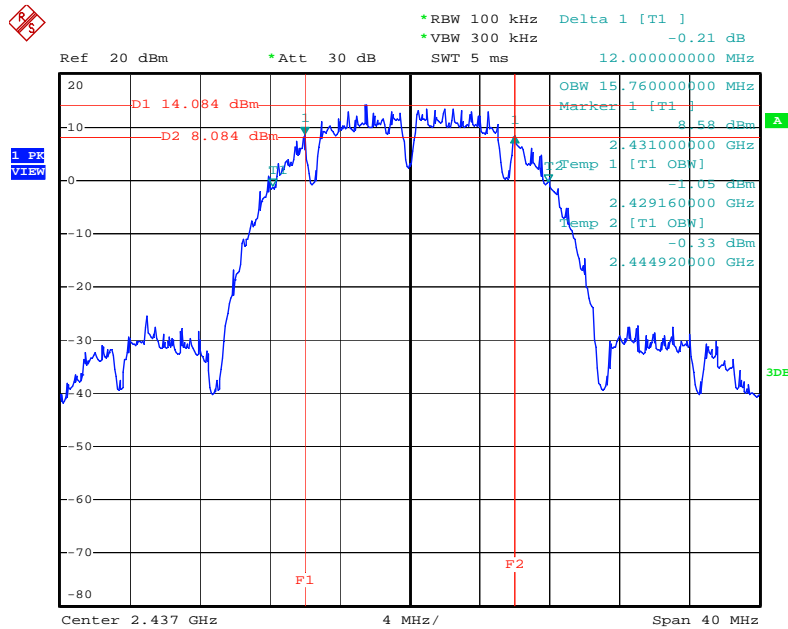
Date: 22.OCT.2012 23:54:21

6 dB Bandwidth Plot on Configuration IEEE 802.11b Ant. A / 2412 MHz



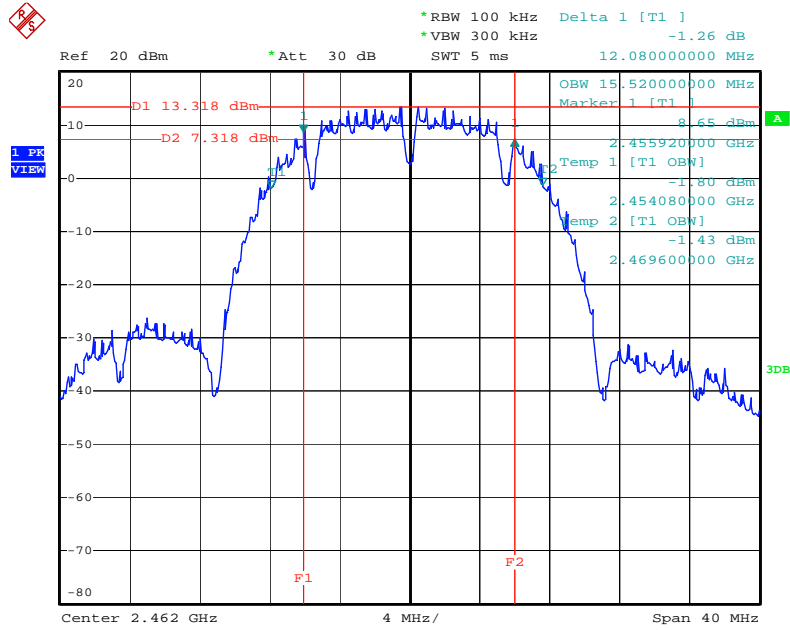
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6 dB Bandwidth Plot on Configuration IEEE 802.11b Ant. A / 2437 MHz



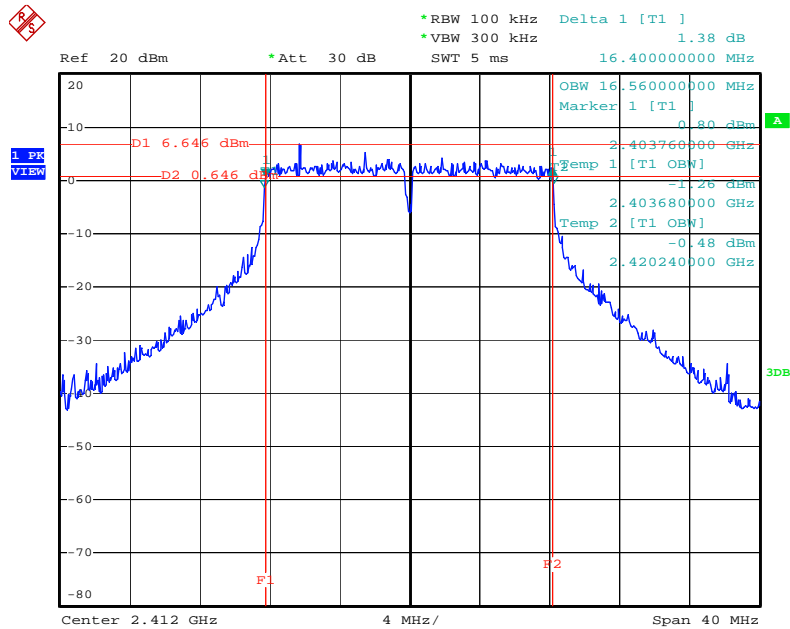
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6 dB Bandwidth Plot on Configuration IEEE 802.11b Ant. A / 2462 MHz



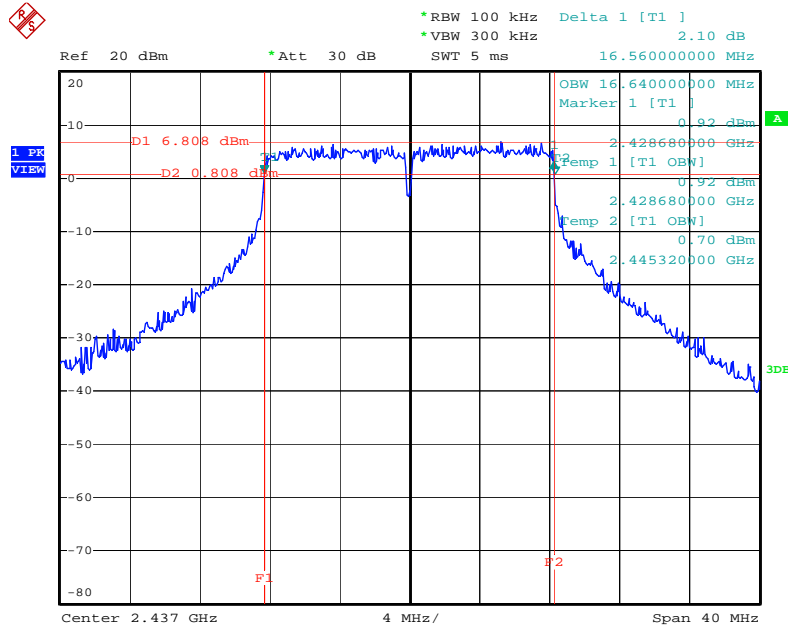
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6 dB Bandwidth Plot on Configuration IEEE 802.11g Ant. A / 2412 MHz



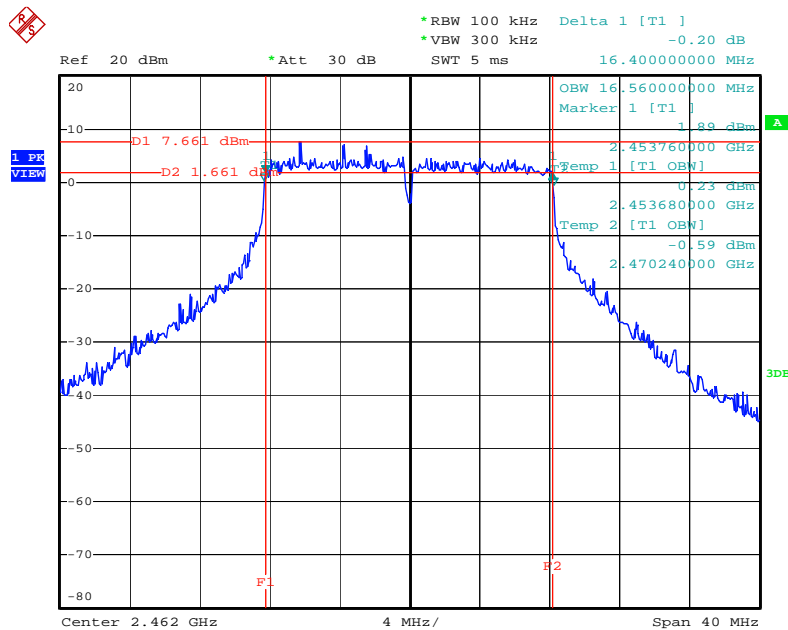
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6 dB Bandwidth Plot on Configuration IEEE 802.11g Ant. A / 2437 MHz



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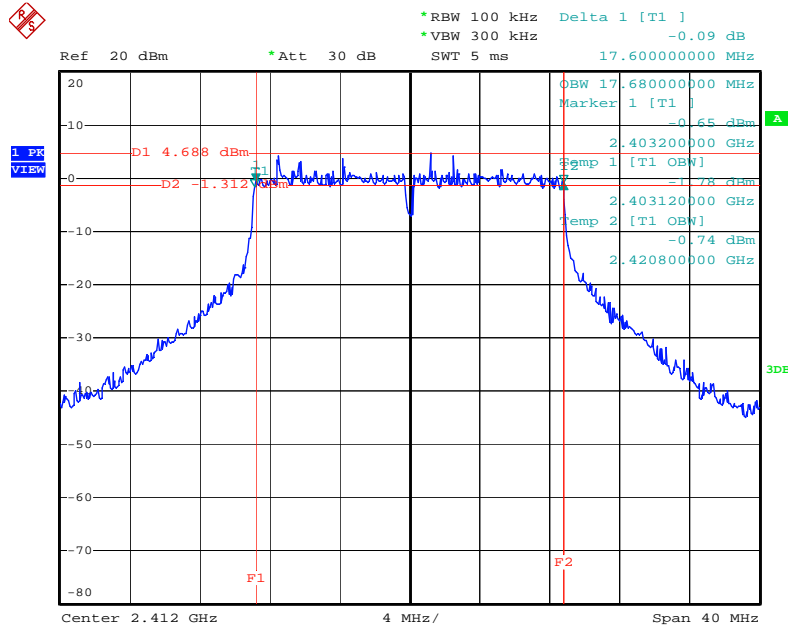
6 dB Bandwidth Plot on Configuration IEEE 802.11g Ant. A / 2462 MHz



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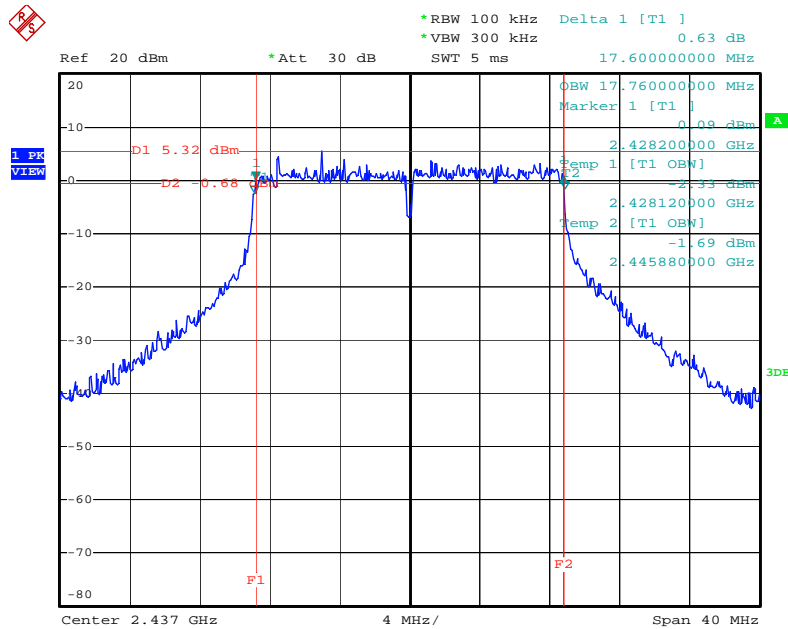
<For Ant. B – PCB Antenna>

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz Ant. B / 2412 MHz



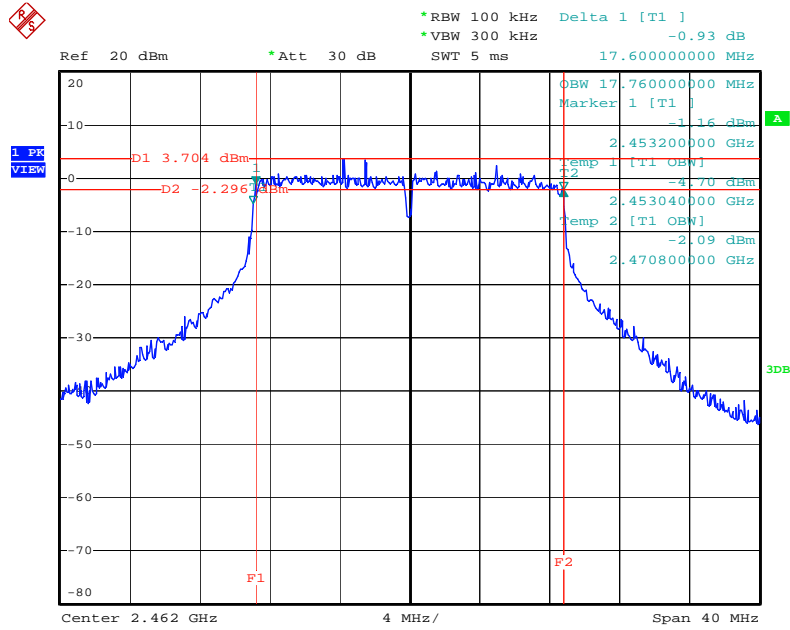
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6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz Ant. B / 2437 MHz



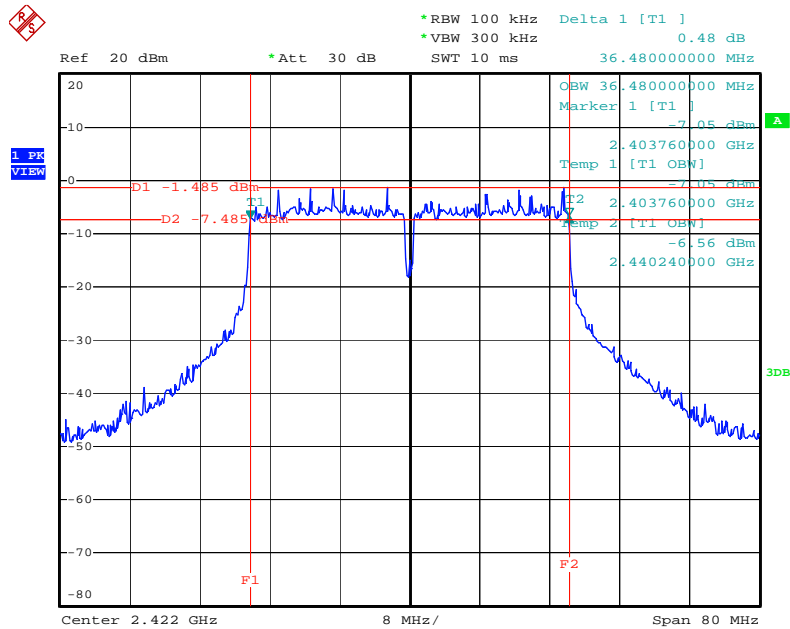
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6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz Ant. B / 2462 MHz



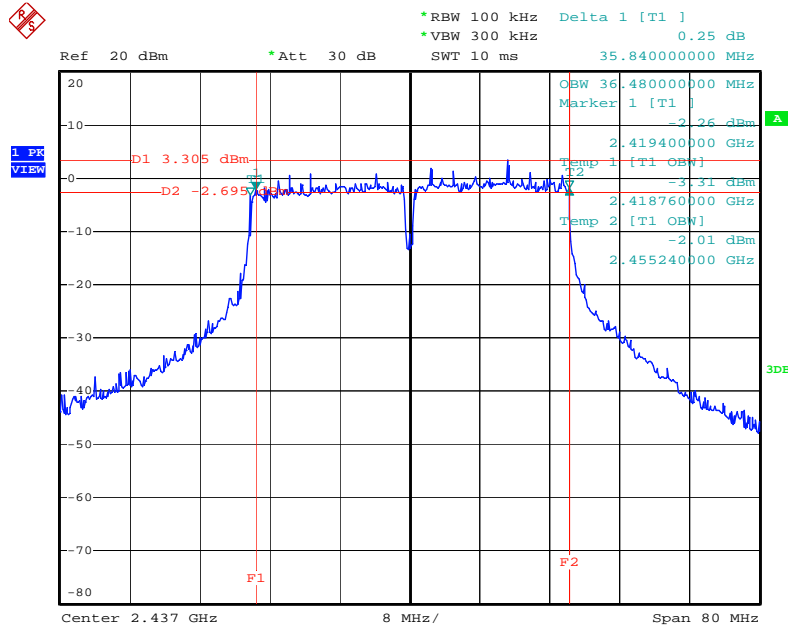
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6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz Ant. B / 2422 MHz



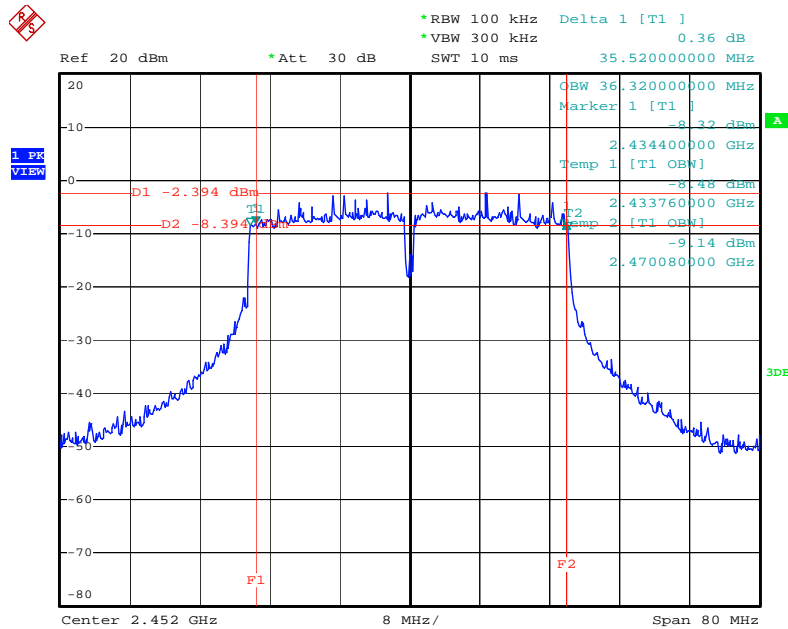
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6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz Ant. B / 2437 MHz



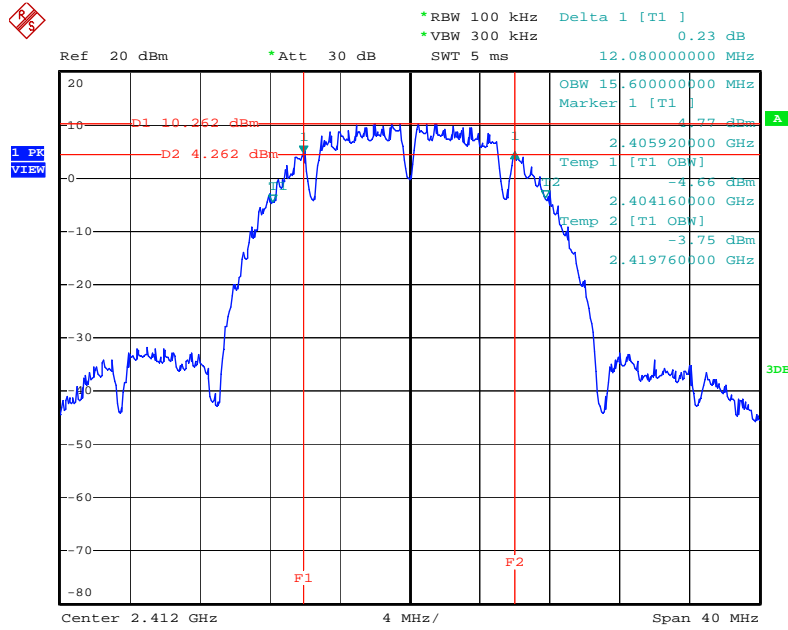
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6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz Ant. B / 2452 MHz



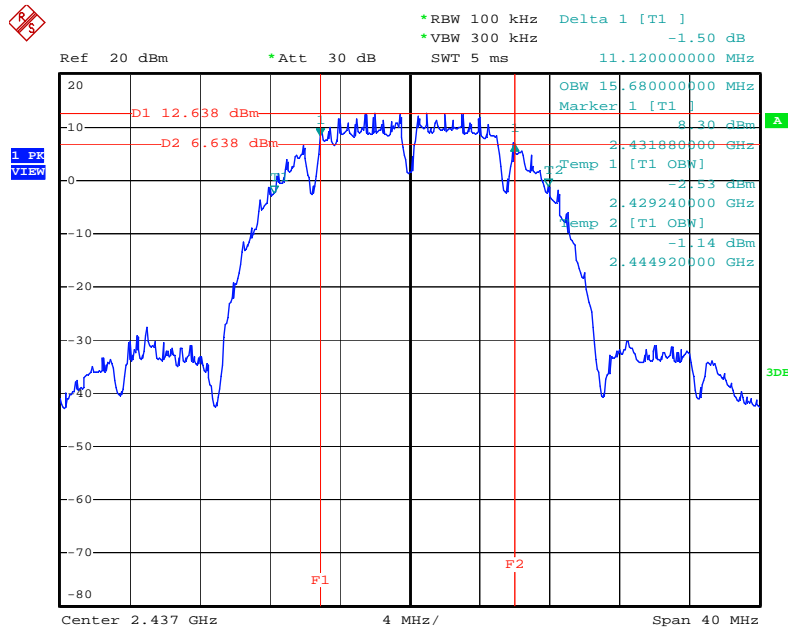
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6 dB Bandwidth Plot on Configuration IEEE 802.11b Ant. B / 2412 MHz



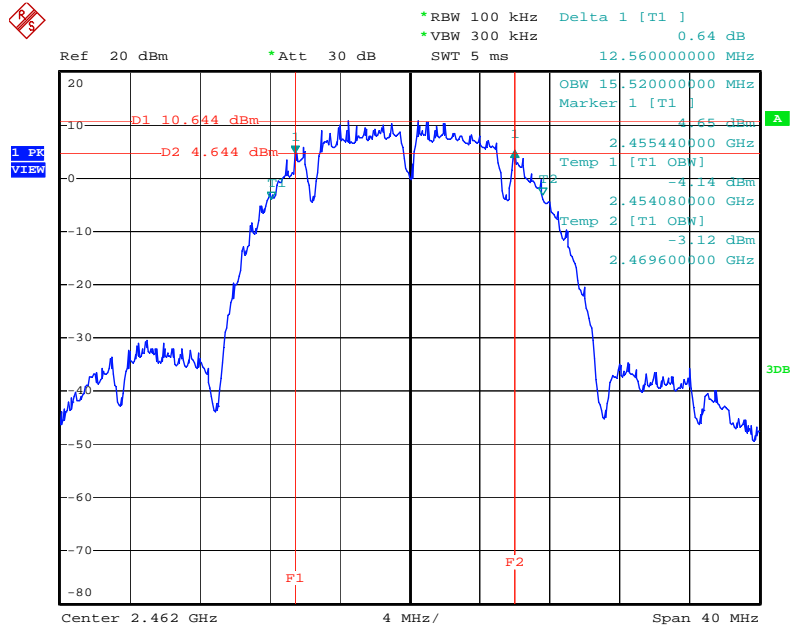
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6 dB Bandwidth Plot on Configuration IEEE 802.11b Ant. B / 2437 MHz



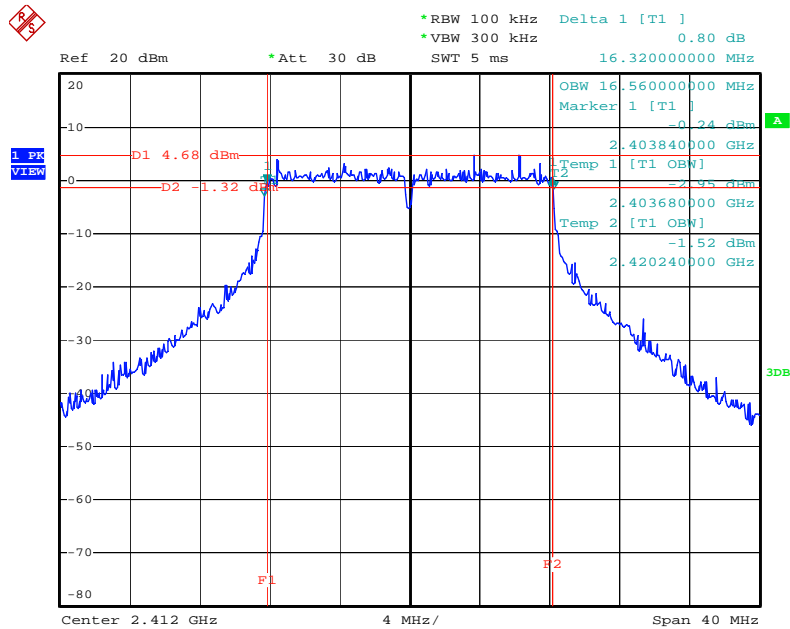
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6 dB Bandwidth Plot on Configuration IEEE 802.11b Ant. B / 2462 MHz



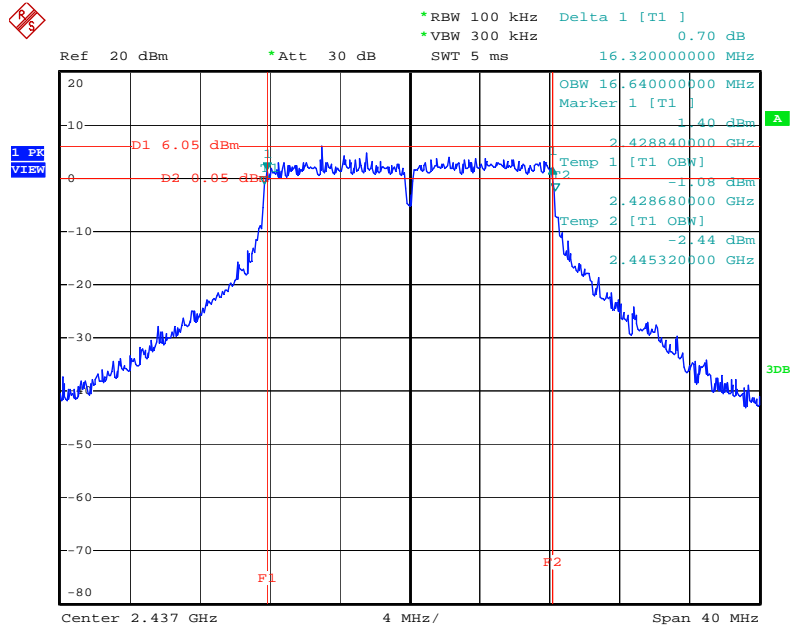
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6 dB Bandwidth Plot on Configuration IEEE 802.11g Ant. B / 2412 MHz



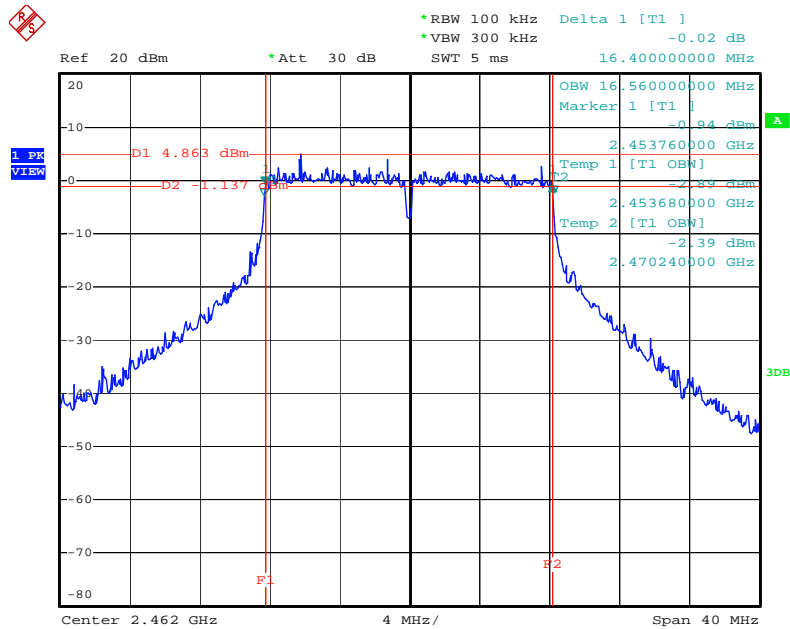
Date: 22.OCT.2012 23:43:14

6 dB Bandwidth Plot on Configuration IEEE 802.11g Ant. B / 2437 MHz



Date: 22.OCT.2012 23:43:55

6 dB Bandwidth Plot on Configuration IEEE 802.11g Ant. B / 2462 MHz



Date: 22.OCT.2012 23:44:35