







ISO/IEC17025Accredited Lab.

Report No: FCC 1211062-01 File reference No: 2012-11-15

Applicant: J&W TECHNOLOGY LIMITED

Product: Media hub for Android

Model No: MINIX NEO X5, MINIX NEO X4, MINIX NEO X6

Trademark: MINIXTM

Test Standards: FCC Part 15 Subpart C, Paragraph 15.247

Test result:

It is herewith confirmed and found to comply with the

requirements set up by ANSI C63.4 and FCC Part 15 Subpart C, Paragraph 15.247 regulations for the evaluation of

electromagnetic compatibility

Approved By

Jack Chung

Jack Chung Manager

Dated: Nov 15, 2012

Results appearing herein relate only to the sample tested The technical reports is issued errors and omissions exempt and is subject to withdrawal at

SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO., LTD

5/F,Block 4, Anhua Industrial Zone.,No.8 TaiRan Rd.CheGongMiao,FuTian District, Shenzhen,CHINA.

Tel (755) 83448688 Fax (755) 83442996

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Special Statement:

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meet with ISO/IEC-17025 requirements, which is approved by CNAL. This approval result is accepted by MRA of APLAC.

Our test facility is recognized, certified, or accredited by the following organizations:

CNAL-LAB Code: L2292

The EMC Laboratory has been assessed and in compliance with CNAL/AC01:2002 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:1999 General Requirements) for the Competence of testing Laboratories.

FCC-Registration No.: 899988

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 899988.

IC-Registration No.: IC5205A-02

The EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration IC No.: 5205A-02.

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Test Report Conclusion

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1.0 General Details

Date: 2012-11-15

1.1 Test Lab Details

Name: SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO., LTD

Address: 5/F,Block 4, Anhua Industrial Zone.,No.8 TaiRan Rd.CheGongMiao,FuTian District,

Shenzhen, CHINA.

Telephone: (755) 83448688 Fax: (755) 83442996

Site on File with the Federal Communications Commission – United Sates

Registration Number: 899988

For 3m & 10 m OATS

Site Listed with Industry Canada of Ottawa, Canada

Registration Number: IC: 5205A-01

For 3m & 10 m OATS

1.2 Applicant Details

Applicant: J&W TECHNOLOGY LIMITED

Address: 13/F, Block B, Haisong Edifice, Tairan 9th Road, Futian District, Shenzhen, China.

Telephone: 075586642923

Fax: --

1.3 Description of EUT

Product: Media hub for Android

Manufacturer: J&W TECHNOLOGY LIMITED

Address: 13/F, Block B, Haisong Edifice, Tairan 9th Road, Futian District, Shenzhen,

China.

Brand Name: MINIXTM

Model Number: MINIX NEO X5

Additional Model Number: MINIX NEO X4, MINIX NEO X6

Power Adapter Model: YS03-050300U

Input:100-240V~, 50-60Hz, 0.5A Max; Output: 5V, 3000mA

Type of Modulation IEEE 802.11b : DSSS (CCK, QPSK, DBPSK)

IEEE 802.11g/n (HT20/HT40) : OFDM(64QAM, 16QAM, QPSK, BPSK)

Frequency range IEEE 802.11b/g/n (HT20) : 2412-2462MHz;

IEEE 802.11n HT40 : 2422MHz-2452MHz

Channel Spacing IEEE 802.11b/g/n (HT20/40) : 5MHz
Air Data Rate IEEE 802.11b : 11, 5.5, 2, 1 Mbps

IEEE 802.11g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps

IEEE 802.11n HT20: 150, 117, 104, 78, 65, 58.5, 52, 39, 26, 19.5, 13, 6 Mbps IEEE 802.11n HT40: 150, 117, 104, 78, 65, 58.5, 52, 39, 26, 19.5, 13, 6 Mbps

The report refers only to the sample tested and does not apply to the bulk.

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TIMEWAY TO STORY AND THE STORY

Frequency Selection By software

Channel Number IEEE 802.11b/g/n (HT20): 11 Channels

IEEE 802.11n HT40: 7 Channels

Antenna: Integral Antenna with maximum gain 2.0dBi

1.4 Submitted Sample: 1 Samples

1.5 Test Duration

Date: 2012-11-15

2012-11-08 to 2012-11-15

1.6 Test Uncertainty

Conducted Emissions Uncertainty = 3.6dB Radiated Emissions Uncertainty = 4.7dB

1.7 Test Engineer

Terry Tang

The sample tested by

Print Name: Terry Tang

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| 2.0 | | Test Equip | ments | | |
|------------------------|---------------|------------|-----------------------|--------------|------------|
| Instrument Type | Manufacturer | Model | Serial No. | Date of Cal. | Due Date |
| ESPI Test Receiver | ROHDE&SCHWARZ | ESPI 3 | 100379 | 2012-04-21 | 2013-04-20 |
| TWO Line-V-NETW | ROHDE&SCHWARZ | EZH3-Z5 | 100294 | 2012-04-21 | 2013-04-20 |
| TWO Line-V-NETW | ROHDE&SCHWARZ | EZH3-Z5 | 100253 | 2012-04-21 | 2013-04-20 |
| Ultra Broadband ANT | ROHDE&SCHWARZ | HL562 | 100157 | 2012-04-21 | 2013-04-20 |
| ESDV Test Receiver | ROHDE&SCHWARZ | ESDV | 100008 | 2012-04-21 | 2013-04-20 |
| Impuls-Begrenzer | ROHDE&SCHWARZ | ESH3-Z2 | 100281 | 2012-04-21 | 2013-04-20 |
| System Controller | CT | SC100 | - | | |
| Printer | EPSON | РНОТО ЕХЗ | CFNH234850 | | |
| Computer | IBM | 8434 | 1S8434KCE99BLXL O* | - | - |
| Loop Antenna | EMCO | 6502 | 00042960 | 2012-04-21 | 2013-04-20 |
| ESPI Test Receiver | ROHDE&SCHWARZ | ESI26 | 838786/013 | 2012-04-21 | 2013-04-20 |
| 3m OATS | | | N/A | 2012-04-21 | 2013-04-20 |
| Horn Antenna | SCHWARZBECK | BBHA 9170 | BBHA9170265 | 2012-04-21 | 2013-04-20 |
| Horn Antenna | SCHWARZBECK | BBHA 9120D | 9120D-631 | 2012-04-21 | 2013-04-20 |
| Power meter | Anritsu | ML2487A | 6K00003613 | 2012-04-21 | 2013-04-20 |
| Power sensor | Anritsu | MA2491A | 32263 | 2012-04-21 | 2013-04-20 |
| Bilog Antenna | Schwarebeck | VULB9163 | 9163/340 | 2012-04-21 | 2013-04-20 |
| LISN | AFJ | LS16C | 10010947251 | 2012-04-21 | 2013-04-20 |
| LISN (Three Phase) | Schwarebeck | NSLK 8126 | 8126453 | 2012-04-21 | 2013-04-20 |
| 9*6*6 Anechoic | | | N/A | 2012-04-21 | 2013-04-20 |
| EMI Test Receiver | RS | ESCS30 | 100139 | 2012-04-21 | 2013-04-20 |
| LISN | AFJ | LS16C | 10010947251 | 2012-04-21 | 2013-04-20 |
| LISN (Three Phase) | Schwarebeck | NSLK 8126 | 8126453 | 2012-04-21 | 2013-04-20 |

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2.1 **Auxiliary Equipment**

Date: 2012-11-15

| Name | Model No. | Serial No. | Manufacturer | Cable | FCC ID/DOC |
|-------------|-----------|------------|--------------|------------|------------|
| USB | | | Kingston | - | DOC |
| | | | | AC input | |
| LCD Monitor | P2450 | | SAMSUNG | cable 1.5m | |
| | | | | of length | |

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3. DESCRIPTION OF TEST MODES

IEEE 802.11b, 802.11g, 802.11n (HT20) mode

The EUT had been tested under operating condition. There are three channels have been tested as following:

| Channel | Frequency (MHz) |
|---------|-----------------|
| Low | 2412 |
| Middle | 2437 |
| High | 2462 |

IEEE 802.11b mode: 11Mbps data rate (worst case) was chosen for full testing. IEEE 802.11g mode: 6Mbps data rate (worst case) was chosen for full testing. IEEE 802.11n (HT20) mode: 65Mbps data rate (worst case) were chosen for full testing

IEEE 802.11n HT40

The EUT had been tested under operating condition. There are three channels have been tested as following:

| Channel | Frequency (MHz) |
|---------|-----------------|
| Low | 2422 |
| Mid | 2437 |
| High | 2452 |

IEEE 802.11n HT40 mode: 65Mbps data rate (worst case) was chosen for full testing.

The worst-case data rates are determined according to the description above, based on the investigations by measuring the PSD and average power across all the data rates, bandwidths, modulations and spatial stream modes.

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3.0 **Technical Details**

3.1 **Summary of test results**

| Standard | Test Type | Result | Notes |
|---|--|--------|----------|
| CC Part 15, Paragraph 15.107 & 15.207 | Conducted Emission Test | PASS | Complies |
| FCC Part 15 Subpart C Paragraph 15.247(a)(2) Limit | Spectrum bandwidth of a Orthogonal Frequency Division Multiplex System Limit: 6dB bandwidth>500kHz | PASS | Complies |
| FCC Part 15, Paragraph 15.247(b) | Maximum peak output power Limit: max. 30dBm | PASS | Complies |
| FCC Part 15, Paragraph 15.109,15.205 & 15.209 | Transmitter Radiated Emission Limit: Table 15.209 | PASS | Complies |
| FCC Part 15, Paragraph 15.247(e) | Power Spectral Density Limit: max. 8dBm | PASS | Complies |
| FCC Part 15, Paragraph 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 |

3.2 **Test Standards**

FCC Part 15 Subpart & Subpart C, Paragraph 15.247

EUT Modification 4.0

No modification by Shenzhen Timeway Technology Consulting Co., Ltd

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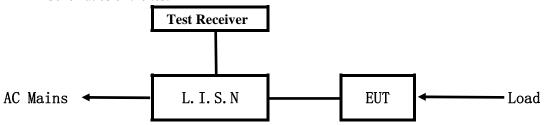
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5. Power Line Conducted Emission Test

5.1 Schematics of the test

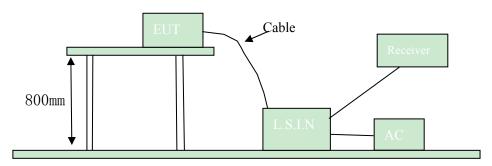


EUT: Equipment Under Test

5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.4-2003. The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.4 –2003.

Test Voltage: 120V~, 60Hz Block diagram of Test setup



5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.4-2003. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

A. EUT

| Device | Manufacturer | Model | FCC ID |
|---------------|------------------------|-----------------------------|-------------|
| Media hub for | J&W TECHNOLOGY LIMITED | MINIX NEO X5, MINIX NEO X4, | WMFNEOX5 |
| Android | | MINIX NEO X6 | WIVIFINEUAS |

B. Internal Device

| Device | Manufacturer | Model | FCC ID/DOC |
|--------|--------------|-------|------------|
| N/A | | | |

The report refers only to the sample tested and does not apply to the bulk.

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C. Peripherals

| Device | Manufacturer | Model | FCC ID/DOC | Cable |
|--------|--------------|-------|------------|-------|
| N/A | | | | |

5.4 EUT Operating Condition

Operating condition is according to ANSI C63.4 -2003.

- A Setup the EUT and simulators as shown on follow
- B Enable AF signal and confirm EUT active to normal condition

5.5 Power line conducted Emission Limit according to Paragraph 15.207.

| Frequency | | Class A Lim | its (dB µ V) | Class B Limits (dB µ V) | | |
|-----------|-------------------|------------------|---------------|-------------------------|---------------|--|
| | (MHz) | Quasi-peak Level | Average Level | Quasi-peak Level | Average Level | |
| | $0.15 \sim 0.50$ | 79.0 | 66.0 | 66.0~56.0* | 56.0~46.0* | |
| | $0.50 \sim 5.00$ | 73.0 | 60.0 | 56.0 | 46.0 | |
| | $5.00 \sim 30.00$ | 73.0 | 60.0 | 60.0 | 50.0 | |

Notes:

- 1. *Decreasing linearly with logarithm of frequency.
- 2. The tighter limit shall apply at the transition frequencies

5.6 Test Results

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

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A: Conducted Emission on Live Terminal (150kHz to 30MHz)

EUT Operating Environment

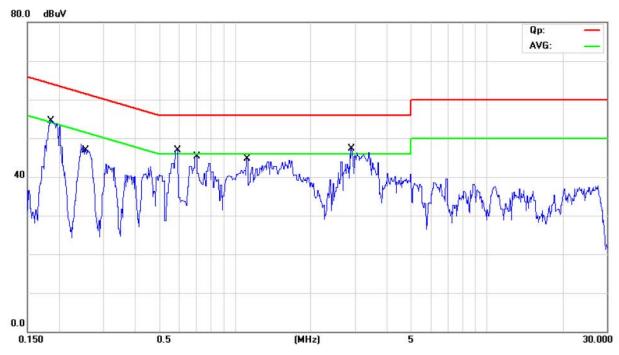
Temperature: 26°C Humidity: 65%RH Atmospheric Pressure: 101 KPa

EUT set Condition: Normal Operation

Equipment Level: Class B

Results: PASS

Please refer to following diagram for individual



| Frequency | Lina | Reading(dBμV) | | Limit(dBµV) | |
|-----------|------|---------------|---------|-------------|---------|
| (MHz) | Line | Quasi-peak | Average | Quasi-peak | Average |
| 0.184 | Live | 54.61 | 36.09 | 64.30 | 54.30 |
| 0.591 | Live | 46.39 | 31.91 | 56.00 | 46.00 |
| 0.694 | Live | 47.05 | 30.23 | 56.00 | 46.00 |
| 1.128 | Live | 45.95 | 35.58 | 56.00 | 46.00 |
| 2.904 | Live | 44.95 | 29.87 | 56.00 | 46.00 |
| 0.254 | Live | 46.49 | 24.46 | 61.60 | 51.60 |

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B: Conducted Emission on Neutral Terminal (150kHz to 30MHz)

EUT Operating Environment

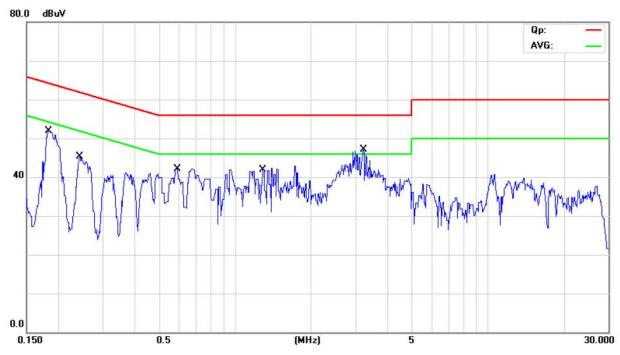
Temperature: 26°C Humidity: 65%RH Atmospheric Pressure: 101 KPa

EUT set Condition: Normal Operation

Equipment Level: Class B

Results: Pass

Please refer to following diagram for individual



| Frequency | Lina | Line Reading(dBµV) | | Limit(dBµV) | |
|-----------|---------|--------------------|---------|-------------|---------|
| (MHz) | Line | Quasi-peak | Average | Quasi-peak | Average |
| 0.184 | Neutral | 47.64 | 32.14 | 64.27 | 54.27 |
| 0.245 | Neutral | 44.90 | 22.31 | 61.97 | 51.97 |
| 0.586 | Neutral | 43.13 | 32.70 | 56.00 | 46.00 |
| 1.288 | Neutral | 44.71 | 30.07 | 56.00 | 46.00 |
| 3.222 | Neutral | 47.36 | 25.81 | 56.00 | 46.00 |

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6 Radiated Emission Test

- 6.1 Test Method and test Procedure:
- (1) The EUT was tested according to ANSI C63.4 –2003. The radiated test was performed at Timeway Laboratory. This site is on file with the FCC laboratory division, Registration No.899988
- (2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.4-2003.
- (3) The frequency spectrum from 30 MHz to 25 GHz was investigated. All readings from 30 MHz to 1 GHz are Quasi-peak values with a resolution bandwidth of 120 kHz. For measurement above 1GHz, peak values with RBW=VBW=1MHz and PK detector. AV value with RBW=1MHz, VBW=10Hz and PK detector. Measurements were made at 3 meters.
- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "QP" in the data table.
- (6) The antenna polarization : Vertical polarization and Horizontal polarization.

Block diagram of Test setup Distance = 3m Computer Pre -Amplifier Furn-table Receiver

- 6.2 Configuration of The EUT
 Same as section 5.3 of this report
- 6.3 EUT Operating Condition
 Same as section 5.4 of this report.

The report refers only to the sample tested and does not apply to the bulk.

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6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

Frequencies in restricted band are complied to limit on Paragraph 15.209

| Frequency Range (MHz) | Distance (m) | Field strength (dB µ V/m) |
|-----------------------|--------------|---------------------------|
| 30-88 | 3 | 40.0 |
| 88-216 | 3 | 43.5 |
| 216-960 | 3 | 46.0 |
| Above 960 | 3 | 54.0 |

Note:

- 1. RF Voltage $(dBuV) = 20 \log RF \text{ Voltage } (uV)$
- 2. In the Above Table, the higher limit applies at the band edges.
- 3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT

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Test result

General Radiated Emission Data and Harmonics Radiated Emission Data

Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Normal Operation

Results: Pass

| Frequency (MHz) | Level@3m (dB \u03b4 V/m) | Antenna Polarity | Limit@3m (dB \u03b4 V/m) |
|-----------------|--------------------------|------------------|--------------------------|
| 73.650 | 35.77 | Н | 40.00 |
| 97.900 | 31.83 | Н | 43.50 |
| 170.650 | 38.53 | Н | 43.50 |
| 219.150 | 38.15 | Н | 46.00 |
| 267.650 | 40.09 | Н | 46.00 |
| 604.725 | 40.47 | Н | 46.00 |
| 73.650 | 28.87 | V | 40.00 |
| 170.650 | 36.10 | V | 43.50 |
| 510.150 | 38.36 | V | 46.00 |
| 531.975 | 40.35 | V | 46.00 |
| 556.225 | 40.90 | V | 46.00 |
| 604.725 | 42.35 | V | 46.00 |

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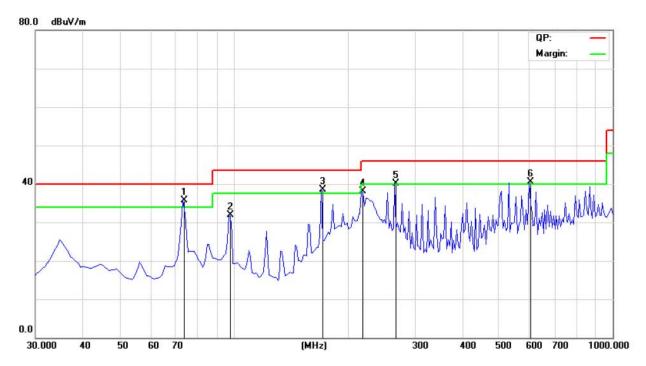
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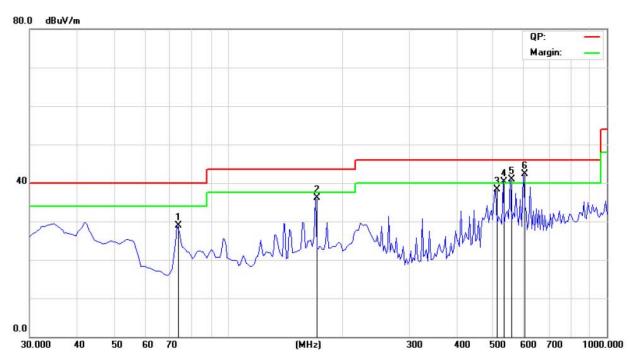
Test Figure:

Н



Test Figure:

V



The report refers only to the sample tested and does not apply to the bulk.

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Operation Mode: Transmitting & Receiving under CH01 for 11g at 54Mbps

| Frequency (MHz) | Level@3m (dB \u03b4 V/m) | Antenna Polarity | Limit@3m (dB \mu V/m) |
|-----------------|--------------------------|------------------|-----------------------|
| 2412.00 | 94.39 (PK) | Н | Fundamental Frequency |
| 2412.00 | 94.42 (PK) | V | Fundamental Frequency |
| 4824.00 | (PK) | Н | 74(Peak)/ 54(AV) |
| 4824.00 | 48.71 (PK) | V | 74(Peak)/ 54(AV) |
| 7236.00 | | H/V | 74(Peak)/ 54(AV) |
| 9648.00 | | H/V | 74(Peak)/ 54(AV) |
| 12060 | | H/V | 74(Peak)/ 54(AV) |
| 14472 | | H/V | 74(Peak)/ 54(AV) |
| 16884 | | H/V | 74(Peak)/ 54(AV) |
| 19296 | | H/V | 74(Peak)/ 54(AV) |
| 21708 | | H/V | 74(Peak)/ 54(AV) |
| 24120 | | H/V | 74(Peak)/ 54(AV) |
| | | | |

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11g mode 54Mbps

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Operation Mode: Transmitting & Receiving under CH06 for 11g at 54Mbps

| | 0 0 | | |
|-----------------|--------------------------|------------------|--------------------------|
| Frequency (MHz) | Level@3m (dB \u03b4 V/m) | Antenna Polarity | Limit@3m (dB \u03b4 V/m) |
| 2437.00 | 92.36 (PK) | Н | Eundamental Eragueney |
| 2437.00 | 93.41 (PK) | V | Fundamental Frequency |
| 4874.00 | (PK) | Н | 74(Peak)/ 54(AV) |
| 4874.00 | 49.02 (PK) | V | 74(Peak)/ 54(AV) |
| 7311.00 | - | H/V | 74(Peak)/ 54(AV) |
| 9748.00 | - | H/V | 74(Peak)/ 54(AV) |
| 12185 | - | H/V | 74(Peak)/ 54(AV) |
| 14622 | • | H/V | 74(Peak)/ 54(AV) |
| 17059 | - | H/V | 74(Peak)/ 54(AV) |
| 19496 | - | H/V | 74(Peak)/ 54(AV) |
| 21933 | - | H/V | 74(Peak)/ 54(AV) |
| 24370 | | H/V | 74(Peak)/ 54(AV) |
| | | | |

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11g mode 54 Mbps

Operation Mode: Transmitting & Receiving under CH11 for 11g at 54Mbps

| Frequency (MHz) | Level@3m (dB \u03b4 V/m) | Antenna Polarity | Limit@3m (dB \(\mu \)V/m) |
|-----------------|--------------------------|------------------|----------------------------|
| 2462.00 | 95.84 (PK) | Н | Fundamental Frequency |
| 2462.00 | 93.86 (PK) | V | Fundamental Frequency |
| 4924 | 49.08 (PK) | Н | 74(Peak)/ 54(AV) |
| 4924 | (PK) | V | 74(Peak)/ 54(AV) |
| 7368 | - | H/V | 74(Peak)/ 54(AV) |
| 9848 | 1 | H/V | 74(Peak)/ 54(AV) |
| 12310 | - | H/V | 74(Peak)/ 54(AV) |
| 14772 | - | H/V | 74(Peak)/ 54(AV) |
| 17234 | - | H/V | 74(Peak)/ 54(AV) |
| 19696 | - | H/V | 74(Peak)/ 54(AV) |
| 22158 | | H/V | 74(Peak)/ 54(AV) |
| 24650 | | H/V | 74(Peak)/ 54(AV) |

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11g mode at 54 Mbps

The report refers only to the sample tested and does not apply to the bulk.

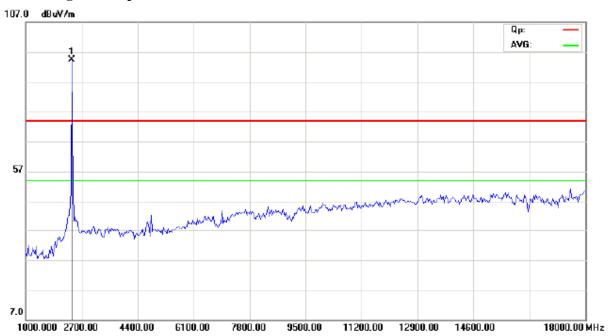
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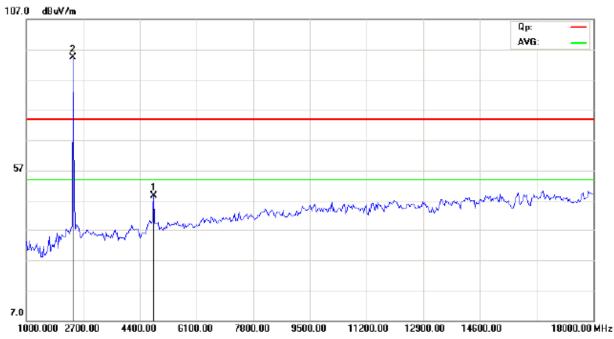


Please refer to the following test plots for details:

CH01 for 11g at 54Mbps: Horizontal



CH01 for 11g at 54Mbps: Vertical



The report refers only to the sample tested and does not apply to the bulk.

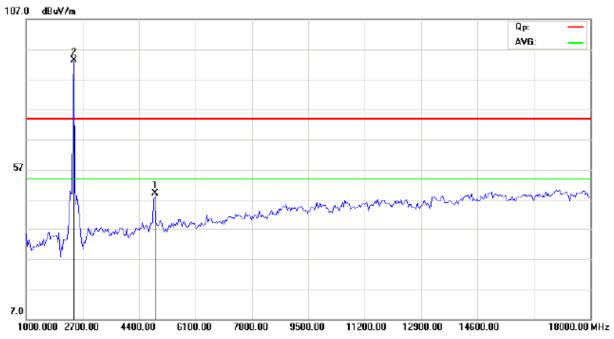
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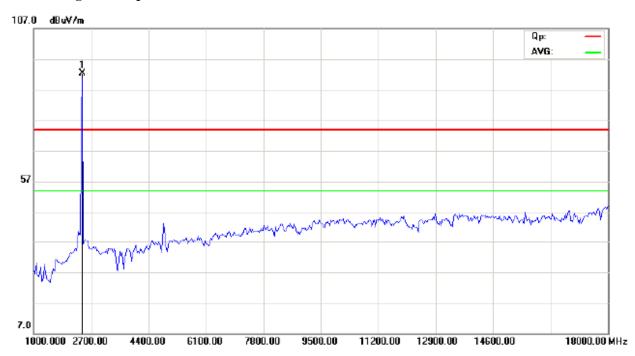
Date: 2012-11-15



CH06 for 11g at 54Mbps: Vertical



CH06 for 11g at 54Mbps: Horizontal



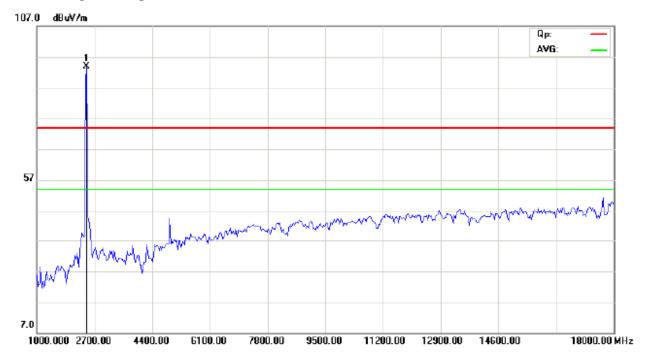
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Report No: 1211062-01

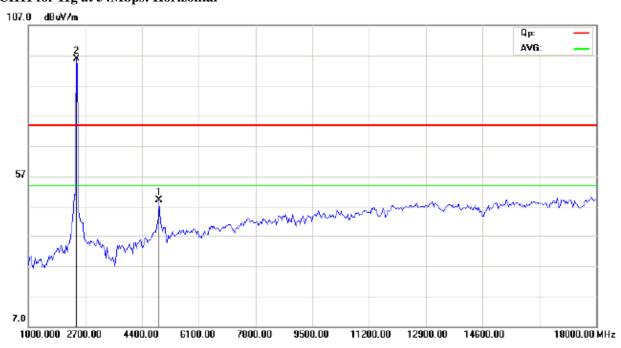
Date: 2012-11-15



CH11 for 11g at 54Mbps: Vertical



CH11 for 11g at 54Mbps: Horizontal



Note: For radiated Emissions from 18-25GHz, it is only the floor noise.

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Operation Mode: Transmitting & Receiving under CH01 for 11b at 11Mbps

| | 0 0 | | _ |
|-----------------|--------------------------|------------------|-----------------------|
| Frequency (MHz) | Level@3m (dB \u03b4 V/m) | Antenna Polarity | Limit@3m (dB \mu V/m) |
| 2412.00 | 93.68 (PK) | V | Eundamental Eragueney |
| 2412.00 | 94.86 (PK) | Н | Fundamental Frequency |
| 4824.00 | 45.85 (PK) | Н | 74(Peak)/ 54(AV) |
| 4824.00 | 44.16 (PK) | V | 74(Peak)/ 54(AV) |
| 7236.00 | | H/V | 74(Peak)/ 54(AV) |
| 9648.00 | | H/V | 74(Peak)/ 54(AV) |
| 12060 | | H/V | 74(Peak)/ 54(AV) |
| 14472 | - | H/V | 74(Peak)/ 54(AV) |
| 16684 | | H/V | 74(Peak)/ 54(AV) |
| 19296 | | H/V | 74(Peak)/ 54(AV) |
| 21708 | | H/V | 74(Peak)/ 54(AV) |
| 24120 | | H/V | 74(Peak)/ 54(AV) |
| | | | |

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11b mode 11Mbps

Operation Mode: Transmitting & Receiving under CH06 for 11b at 11Mbps

| Frequency (MHz) | Level@3m (dB \u03bc V/m) | Antenna Polarity | Limit@3m (dB \(\mu \)V/m) |
|-----------------|--------------------------|------------------|----------------------------|
| 2437.00 | 90.63 (PK) | Н | Fundamental Frequency |
| 2437.00 | 93.89 (PK) | V | Fundamental Frequency |
| 4874.00 | 43.51 (PK) | Н | 74(Peak)/ 54(AV) |
| 4874.00 | (PK) | V | 74(Peak)/ 54(AV) |
| 7311.00 | | H/V | 74(Peak)/ 54(AV) |
| 9748.00 | | H/V | 74(Peak)/ 54(AV) |
| 12185 | - | H/V | 74(Peak)/ 54(AV) |
| 14622 | - | H/V | 74(Peak)/ 54(AV) |
| 17059 | | H/V | 74(Peak)/ 54(AV) |
| 19496 | | H/V | 74(Peak)/ 54(AV) |
| 21933 | | H/V | 74(Peak)/ 54(AV) |
| 24370 | | H/V | 74(Peak)/ 54(AV) |

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11b mode 11Mbps

The report refers only to the sample tested and does not apply to the bulk.

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Operation Mode: Transmitting & Receiving under CH11 for 11b at 11Mbps

| Frequency (MHz) | Level@3m (dB \u03b4 V/m) | Antenna Polarity | Limit@3m (dB \mu V/m) |
|-----------------|--------------------------|------------------|-----------------------|
| 2462.00 | 93.91 (PK) | Н | Fundamental Frequency |
| 2462.00 | 92.42 (PK) | V | Fundamental Frequency |
| 4924 | 45.86 (PK) | Н | 74(Peak)/ 54(AV) |
| 4924 | 47.78 (PK) | V | 74(Peak)/ 54(AV) |
| 7368 | | H/V | 74(Peak)/ 54(AV) |
| 9848 | | H/V | 74(Peak)/ 54(AV) |
| 12310 | | H/V | 74(Peak)/ 54(AV) |
| 14772 | | H/V | 74(Peak)/ 54(AV) |
| 17234 | | H/V | 74(Peak)/ 54(AV) |
| 19696 | | H/V | 74(Peak)/ 54(AV) |
| 22158 | | H/V | 74(Peak)/ 54(AV) |
| 24650 | | H/V | 74(Peak)/ 54(AV) |
| | | | |

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11b mode at 11Mbps

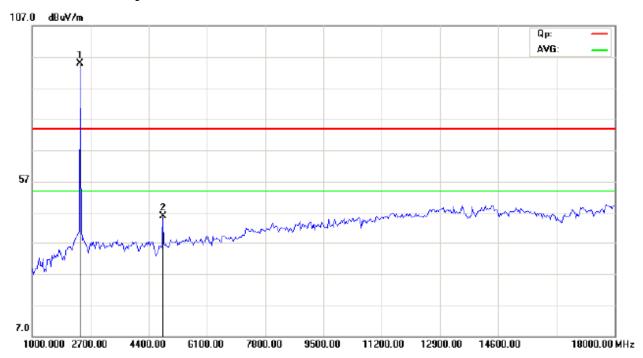
Report No: 1211062-01

Date: 2012-11-15

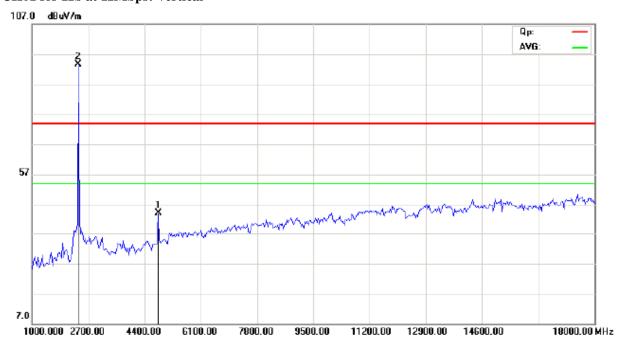


Please refer to the following test plots for details:

CH01 for 11b at 11Mbps: Horizontal



CH01 for 11b at 11Mbps: Vertical



The report refers only to the sample tested and does not apply to the bulk.

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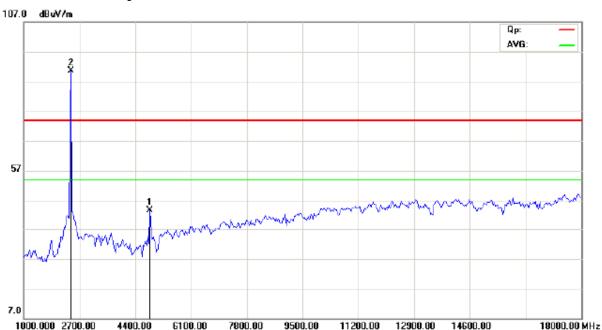
Date: 2012-11-15



CH06 for 11b at 11Mbps: Vertical



CH06 for 11b at 11Mbps: Horizontal



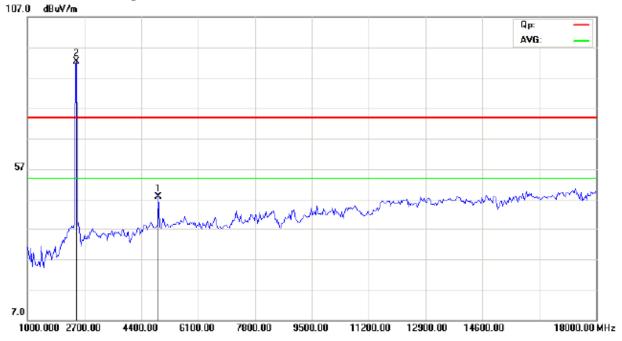
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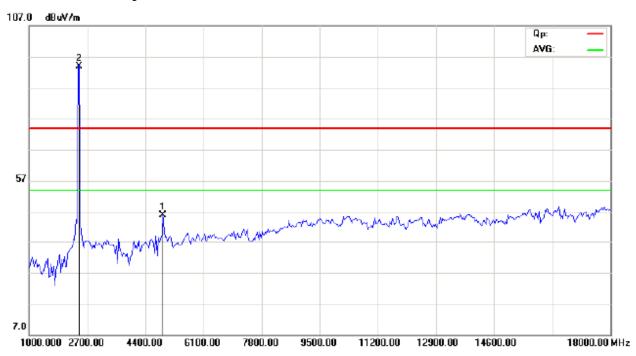
Date: 2012-11-15



CH11 for 11b at 11Mbps: Vertical



CH11 for 11b at 11Mbps: Horizontal



Note: For radiated Emissions from 18-25GHz, it is only the floor noise.

Date: 2012-11-15



Operation Mode: Transmitting & Receiving under CH01 for 11n HT20 at 65Mbps

| Frequency (MHz) | Level@3m (dB \u03ba V/m) | Antenna Polarity | Limit@3m (dB \(\mu \)V/m) |
|-----------------|--------------------------|------------------|----------------------------|
| 2412.00 | 90.36 (PK) | Н | Fundamental Frequency |
| 2412.00 | 89.98 (PK) | V | Fundamental Frequency |
| 4824.00 | 48.35 (PK) | Н | 74(Peak)/ 54(AV) |
| 4824.00 | 46.59 (PK) | V | 74(Peak)/ 54(AV) |
| 7236.00 | | H/V | 74(Peak)/ 54(AV) |
| 9648.00 | | H/V | 74(Peak)/ 54(AV) |
| 12060 | | H/V | 74(Peak)/ 54(AV) |
| 14472 | - | H/V | 74(Peak)/ 54(AV) |
| 16684 | | H/V | 74(Peak)/ 54(AV) |
| 19296 | | H/V | 74(Peak)/ 54(AV) |
| 21708 | | H/V | 74(Peak)/ 54(AV) |
| 24120 | | H/V | 74(Peak)/ 54(AV) |
| | | | |

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11n (HT20) mode 65Mbps

Operation Mode: Transmitting & Receiving under CH06 for 11n HT20 at 65Mbps

| Frequency (MHz) | Level@3m (dB \u03bc V/m) | Antenna Polarity | Limit@3m (dB \(\mu \)V/m) |
|-----------------|--------------------------|------------------|----------------------------|
| 2437.00 | 93.05 (PK) | Н | Fundamental Frequency |
| 2437.00 | 91.55 (PK) | V | Fundamental Frequency |
| 4874.00 | 43.54 (PK) | Н | 74(Peak)/ 54(AV) |
| 4874.00 | 42.82 (PK) | V | 74(Peak)/ 54(AV) |
| 7311.00 | | H/V | 74(Peak)/ 54(AV) |
| 9748.00 | | H/V | 74(Peak)/ 54(AV) |
| 12185 | - | H/V | 74(Peak)/ 54(AV) |
| 14622 | | H/V | 74(Peak)/ 54(AV) |
| 17059 | - | H/V | 74(Peak)/ 54(AV) |
| 19496 | - | H/V | 74(Peak)/ 54(AV) |
| 21933 | | H/V | 74(Peak)/ 54(AV) |
| 24370 | | H/V | 74(Peak)/ 54(AV) |

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11n (HT20) mode 65Mbps

The report refers only to the sample tested and does not apply to the bulk.

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Operation Mode: Transmitting & Receiving under CH11 for 11n HT20 at 65Mbps

| | 0 0 | | <u> </u> |
|-----------------|--------------------------|------------------|-----------------------|
| Frequency (MHz) | Level@3m (dB \u03b4 V/m) | Antenna Polarity | Limit@3m (dB \mu V/m) |
| 2462.00 | 93.62 (PK) | Н | Fundamental Frequency |
| 2462.00 | 94.67 (PK) | V | Fundamental Frequency |
| 4924 | 45.23 (PK) | Н | 74(Peak)/ 54(AV) |
| 4924 | 45.68 (PK) | V | 74(Peak)/ 54(AV) |
| 7368 | | H/V | 74(Peak)/ 54(AV) |
| 9848 | | H/V | 74(Peak)/ 54(AV) |
| 12310 | | H/V | 74(Peak)/ 54(AV) |
| 14772 | | H/V | 74(Peak)/ 54(AV) |
| 17234 | | H/V | 74(Peak)/ 54(AV) |
| 19696 | | H/V | 74(Peak)/ 54(AV) |
| 22158 | | H/V | 74(Peak)/ 54(AV) |
| 24650 | | H/V | 74(Peak)/ 54(AV) |

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11n (HT20) mode 65Mbps

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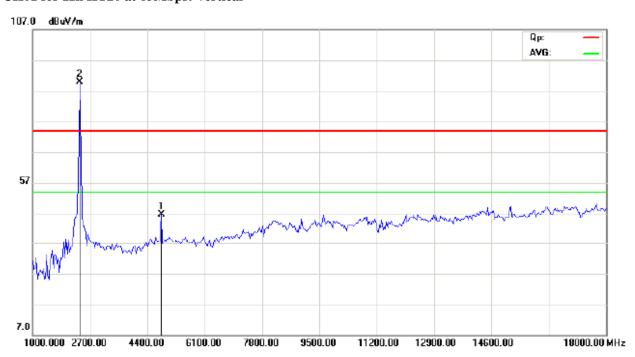


Please refer to the following test plots for details:

CH01 for 11n HT20 at 65Mbps: Horizontal



CH01 for 11n HT20 at 65Mbps: Vertical



The report refers only to the sample tested and does not apply to the bulk.

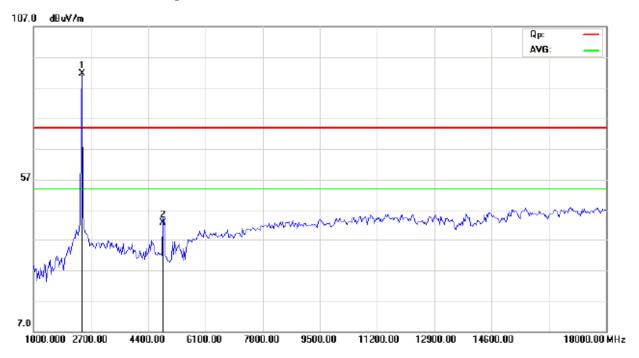
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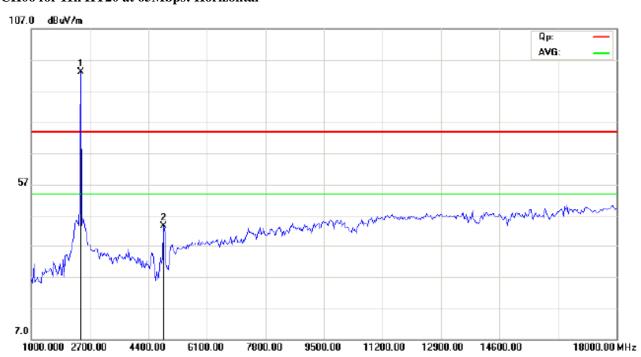
Date: 2012-11-15



CH06 for 11n HT20 at 65Mbps: Vertical



CH06 for 11n HT20 at 65Mbps: Horizontal



The report refers only to the sample tested and does not apply to the bulk.

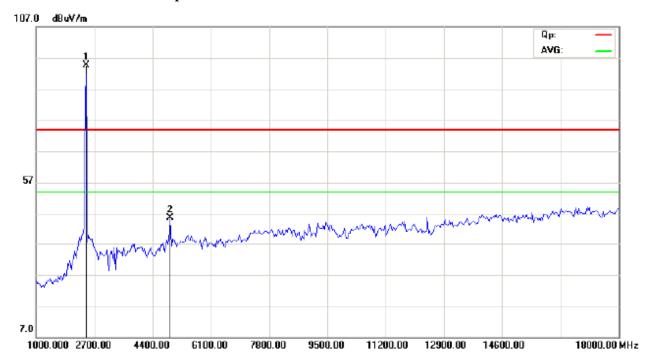
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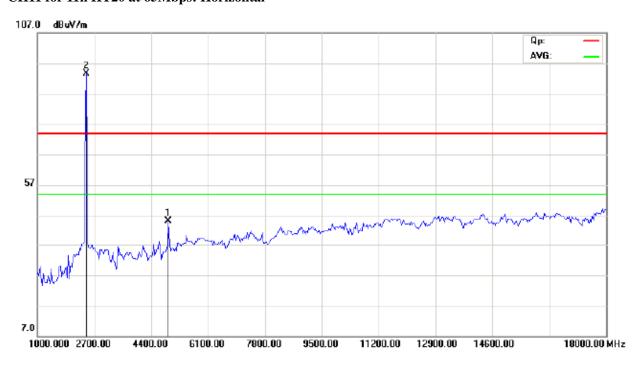
Date: 2012-11-15



CH11 for 11n HT20 at 65Mbps: Vertical



CH11 for 11n HT20 at 65Mbps: Horizontal



Note: For radiated Emissions from 18-25GHz, it is only the floor noise.

The report refers only to the sample tested and does not apply to the bulk.

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Operation Mode: Transmitting & Receiving under CH01 for 11n HT40 at 65Mbps

| | 8 8 | | |
|-----------------|--------------------------|------------------|-----------------------|
| Frequency (MHz) | Level@3m (dB \u03b4 V/m) | Antenna Polarity | Limit@3m (dB \mu V/m) |
| 2422.00 | 94.67 (PK) | V | Fundamental Frequency |
| 2422.00 | 94.99 (PK) | Н | Fundamental Frequency |
| 4844.00 | 51.77 (PK) | V | 74(Peak)/ 54(AV) |
| 4844.00 | (PK) | Н | 74(Peak)/ 54(AV) |
| 7266.00 | | H/V | 74(Peak)/ 54(AV) |
| 9688.00 | | H/V | 74(Peak)/ 54(AV) |
| 12110 | | H/V | 74(Peak)/ 54(AV) |
| 14532 | | H/V | 74(Peak)/ 54(AV) |
| 16954 | | H/V | 74(Peak)/ 54(AV) |
| 19376 | | H/V | 74(Peak)/ 54(AV) |
| 21798 | | H/V | 74(Peak)/ 54(AV) |
| 24220 | | H/V | 74(Peak)/ 54(AV) |
| | | | |

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11n (HT40) mode 65Mbps

Operation Mode: Transmitting & Receiving under CH04 for 11n HT40 at 65Mbps

| Frequency (MHz) | Level@3m (dB μ V/m) | Antenna Polarity | Limit@3m (dB \(\mu \)V/m) |
|-----------------|---------------------|------------------|----------------------------|
| | <u> </u> | , | Ellint(@5lll (dB F V/lll) |
| 2437.00 | 94.71 (PK) | Н | Fundamental Frequency |
| 2437.00 | 93.89 (PK) | V | |
| 4874.00 | 46.59 (PK) | Н | 74(Peak)/ 54(AV) |
| 4874.00 | 44.17 (PK) | V | 74(Peak)/ 54(AV) |
| 7311.00 | | H/V | 74(Peak)/ 54(AV) |
| 9748.00 | | H/V | 74(Peak)/ 54(AV) |
| 12185 | - | H/V | 74(Peak)/ 54(AV) |
| 14622 | - | H/V | 74(Peak)/ 54(AV) |
| 17059 | | H/V | 74(Peak)/ 54(AV) |
| 19496 | | H/V | 74(Peak)/ 54(AV) |
| 21933 | | H/V | 74(Peak)/ 54(AV) |
| 24370 | | H/V | 74(Peak)/ 54(AV) |

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11n (HT40) mode 65Mbps

The report refers only to the sample tested and does not apply to the bulk.

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Operation Mode: Transmitting & Receiving under CH7 for 11n HT40 at 65Mbps

| Frequency (MHz) | Level@3m (dB \u03b4 V/m) | Antenna Polarity | Limit@3m (dB \(\mu \)V/m) |
|-----------------|--------------------------|------------------|----------------------------|
| 2452.00 | 90.66 (PK) | Н | Fundamental Frequency |
| 2452.00 | 92.06 (PK) | V | |
| 4904 | 47.78 (PK) | Н | 74(Peak)/ 54(AV) |
| 4904 | (PK) | V | 74(Peak)/ 54(AV) |
| 7356 | | H/V | 74(Peak)/ 54(AV) |
| 9808 | | H/V | 74(Peak)/ 54(AV) |
| 12260 | | H/V | 74(Peak)/ 54(AV) |
| 14712 | | H/V | 74(Peak)/ 54(AV) |
| 17164 | | H/V | 74(Peak)/ 54(AV) |
| 19616 | | H/V | 74(Peak)/ 54(AV) |
| 22068 | | H/V | 74(Peak)/ 54(AV) |
| 24520 | | H/V | 74(Peak)/ 54(AV) |
| | | | |

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11n (HT40) mode 65Mbps

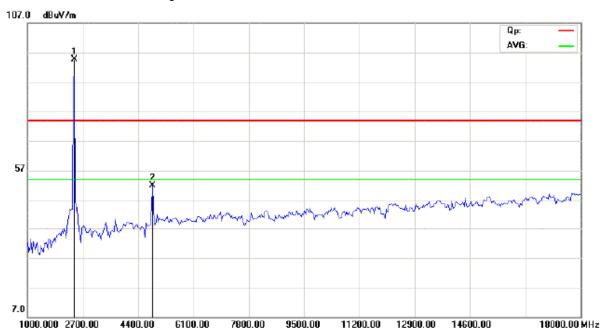
Report No: 1211062-01

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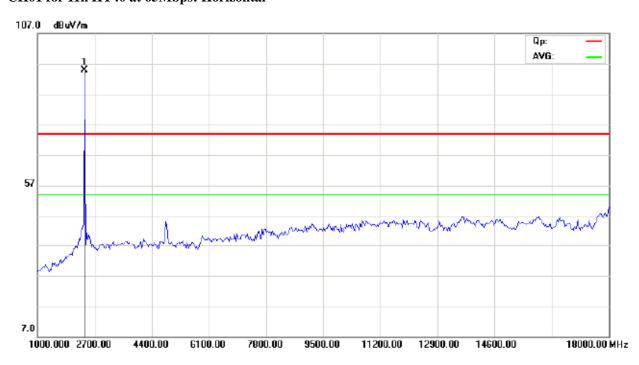


Please refer to the following test plots for details:

CH01 for 11n HT40 at 65Mbps: Vertical



CH01 for 11n HT40 at 65Mbps: Horizontal



The report refers only to the sample tested and does not apply to the bulk.

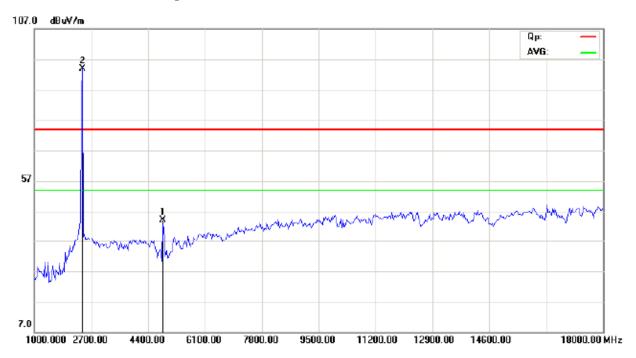
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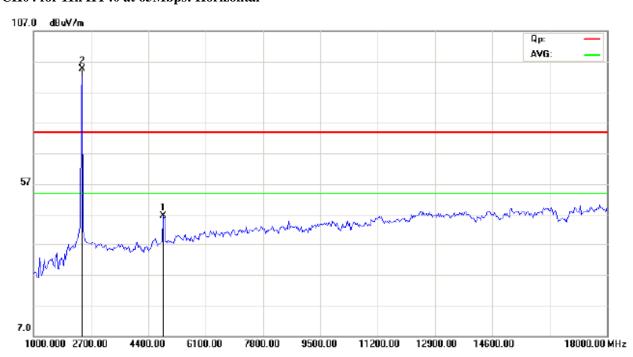
Date: 2012-11-15



CH04 for 11n HT40 at 65Mbps: Vertical



CH04 for 11n HT40 at 65Mbps: Horizontal



The report refers only to the sample tested and does not apply to the bulk.

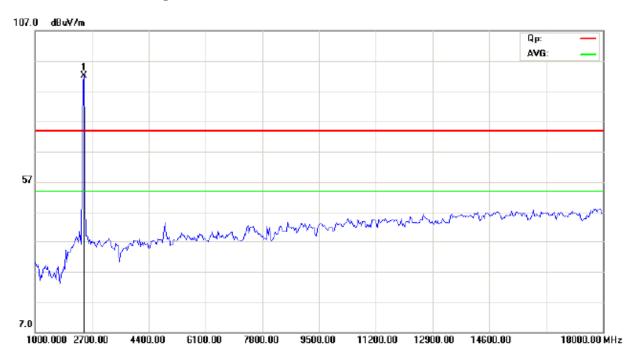
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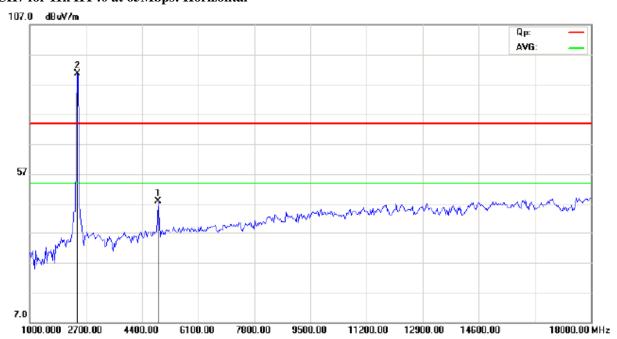
Date: 2012-11-15



CH7 for 11n HT40 at 65Mbps: Vertical



CH7 for 11n HT40 at 65Mbps: Horizontal



Note: For radiated Emissions from 18-25GHz, it is only the floor noise.

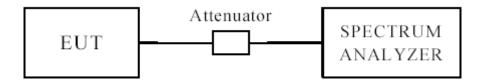
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7.0 6dB Bandwidth Measurement

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 x 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

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6dB Occupied Bandwidth

| EUT | Media | a hub for Android | Model | | MINIX NEO X5, MINIX NEO X4, MINIX NEO X6 | | |
|-------------|-------------------------------|------------------------------|----------------------------|---------------------------|---|--|--|
| Mode | | 802.11b | Input Voltage | | AC 120V | | |
| Temperature | | 24 deg. C, | Humidity | | 56% RH | | |
| Channel | Channel Frequency (MHz) | Data Transfer Rate (Mbps) | 6 dB Bandwidth (MHz) | Minimum Limit (MHz) | Pass/ Fail | | |
| 1 | 2412 | 1 | 10.08 | 0.5 | Pass | | |
| 6 | 2437 | 1 | 10.08 | 0.5 | Pass | | |
| 11 | 2462 | 1 | 10.08 | 0.5 | Pass | | |
| 1 | 2412 | 11 | 10.02 | 0.5 | Pass | | |
| 6 | 2437 | 11 | 10.02 | 0.5 | Pass | | |
| 11 | 2462 | 11 | 9.96 | 0.5 | Pass | | |

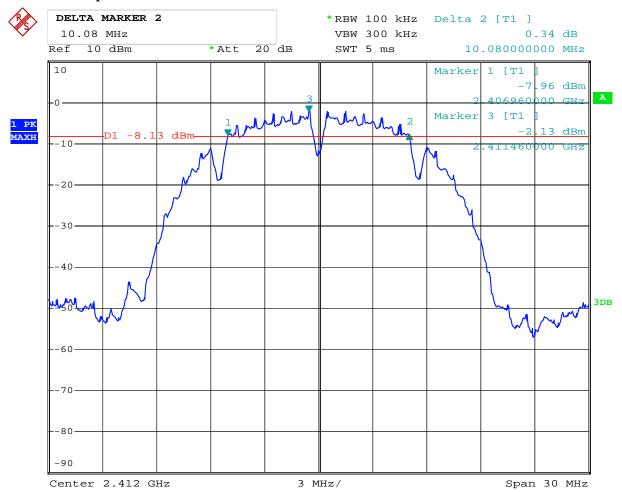
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1. 802.11b at 1Mbps of CH01



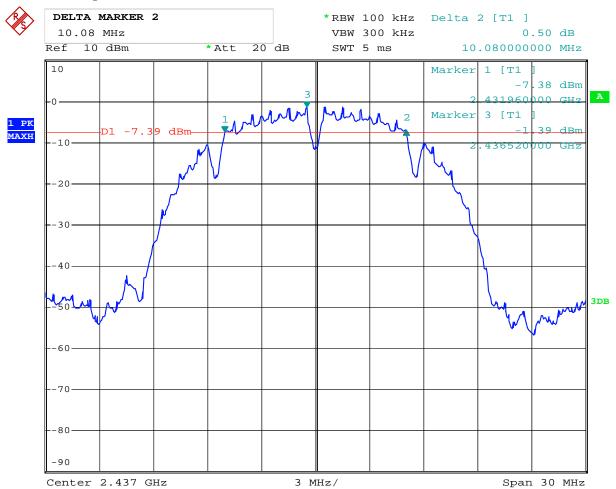
Date: 12.NOV.2012 10:06:23

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2. 802.11b at 1Mbps of CH06



Date: 12.NOV.2012 10:07:36

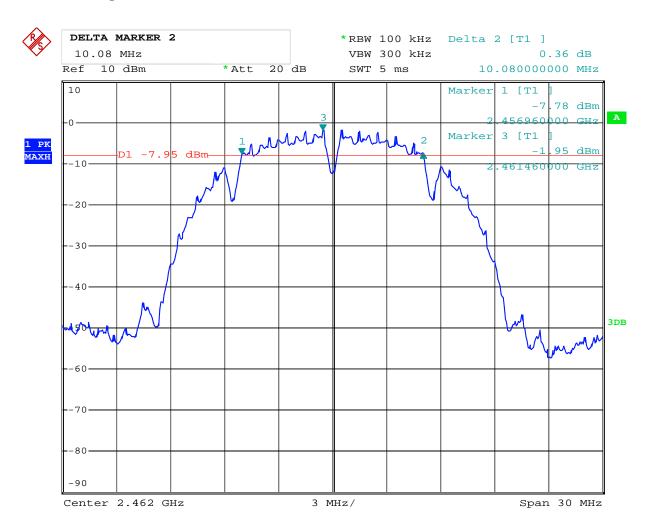
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Date: 2012-11-15



3. 802.11b at 1Mbps of CH11



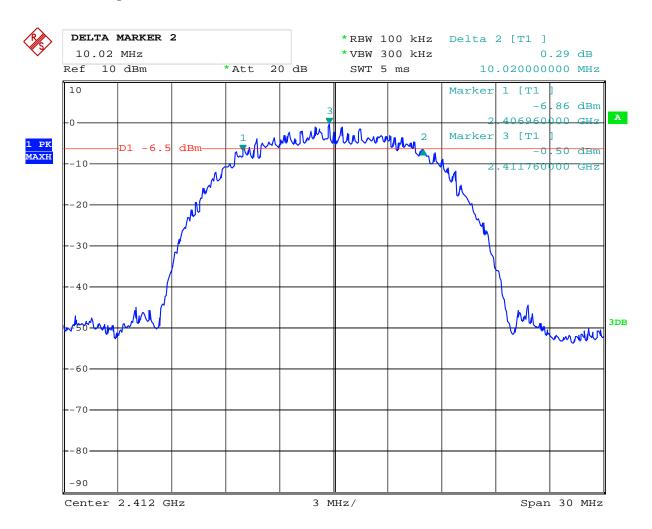
Date: 12.NOV.2012 10:08:37

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Date: 2012-11-15



4. 802.11b at 11Mbps of CH01



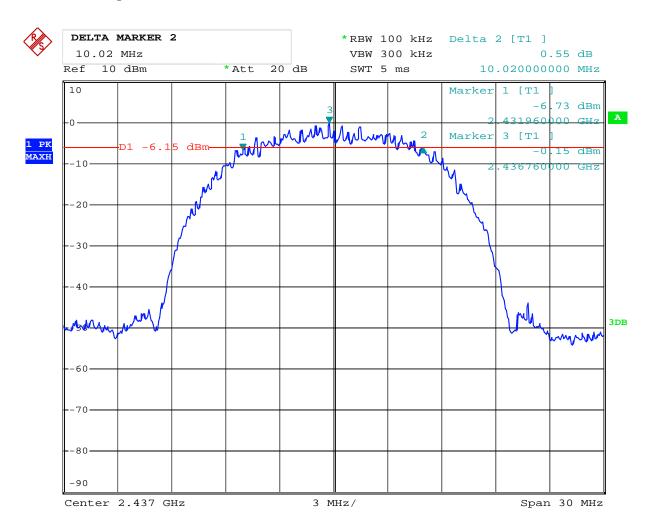
Date: 12.NOV.2012 10:23:46

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Date: 2012-11-15



5. 802.11b at 11Mbps of CH06



Date: 12.NOV.2012 10:14:48

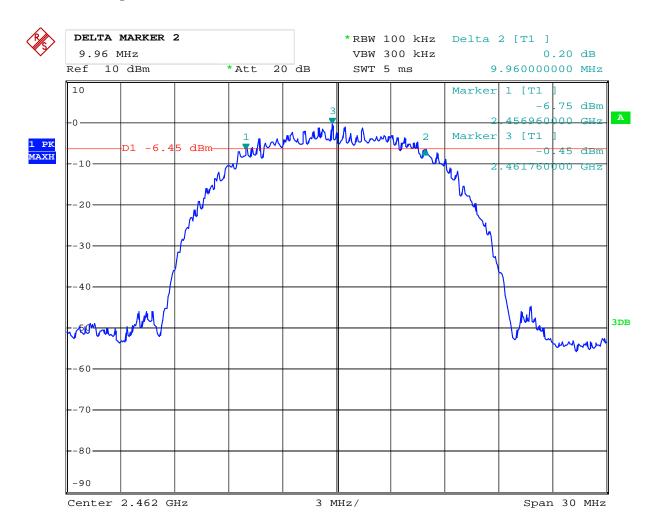
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6. 802.11b at 11Mbps of CH11



Date: 12.NOV.2012 10:16:12

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Date: 2012-11-15



6dB Occupied Bandwidth

| EUT | Media hu | b for Andro | id | Model | | | X5, MINIX NEO X4, INIX NEO X6 |
|-----------|----------------------------|---------------------------|----|-----------------|------|---------------------|----------------------------------|
| Mode | 80 | 02.11g | | Input Vol | tage | | AC 120V |
| Temperate | ure 24 | deg. C, | | Humidity | | | 56% RH |
| Channel | Channel Frequency (MHz) | Data Transfer Rate (Mbps) | | andwidth Hz) | Min | imum Limit (MHz) | Pass/ Fail |
| 1 | 2412 | 6 | 16 | .62 | | 0.5 | Pass |
| 6 | 2437 | 6 | 16 | .62 | | 0.5 | Pass |
| 11 | 2462 | 6 | 16 | .62 | | 0.5 | Pass |

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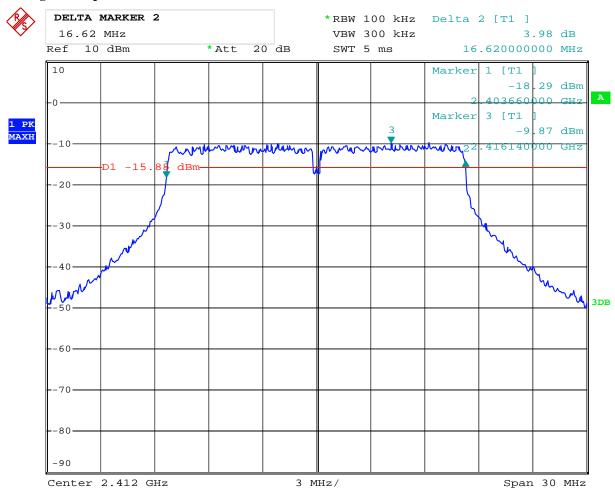
Report No: 1211062-01

Date: 2012-11-15



Test Plots:

1. 802.11g at 6Mbps of CH01



Date: 12.NOV.2012 10:12:25

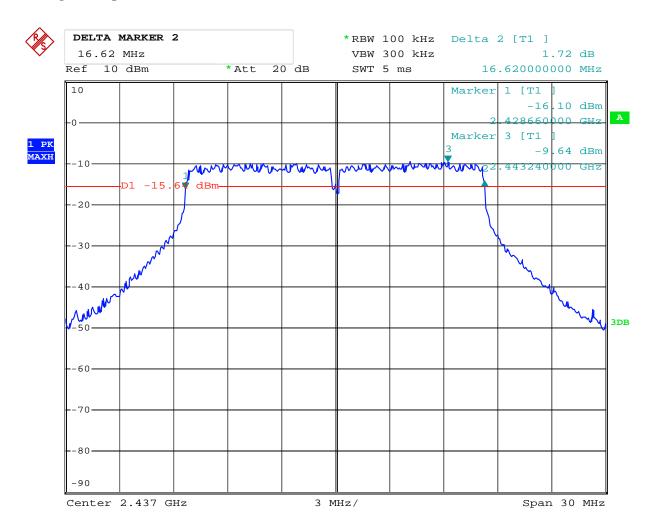
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2. 802.11g at 6Mbps of CH06



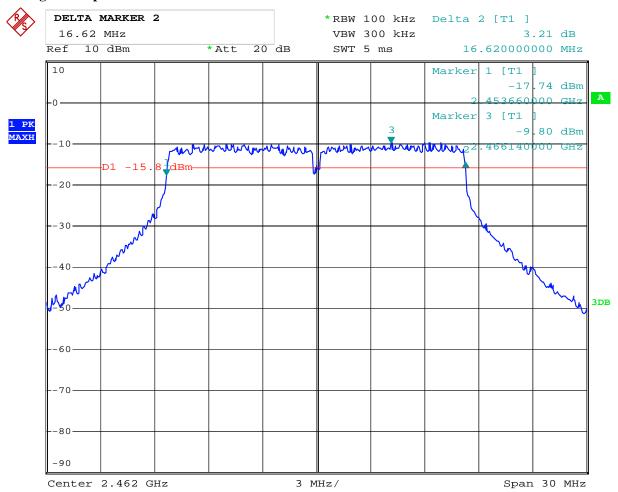
Date: 12.NOV.2012 10:11:24

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3. 802.11g at 6Mbps of CH11



Date: 12.NOV.2012 10:10:04

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6dB Occupied Bandwidth

| EUT | Med | a hub for Ar | ndroid | Model | | | O X5, MINIX NEO X4, MINIX NEO X6 |
|-----------|-------------------------------|---------------------------|-------------------|-----------|------------------------|-----|-------------------------------------|
| Mode | | 802.11n | | Input Vol | tage | | AC 120V |
| Temperatu | ıre | 24 deg. C, | | Humidity | ī | | 56% RH |
| Channel | Channel Frequency (MHz) | Data Transfer Rate (Mbps) | 6 dB Band (MHz | | Minimum Limit (MHz) | | Pass/ Fail |
| 1 | 2412 | HT20 | 17.77 | 9 0 | | 0.5 | Pass |
| 6 | 2437 | HT20 | 17.64 | 1 | | 0.5 | Pass |
| 11 | 2462 | HT20 | 17.67 | 7 | | 0.5 | Pass |
| 1 | 2422 | HT40 | 36.50 |) | | 0.5 | Pass |
| 4 | 2437 | HT40 | 36.41 | L | | 0.5 | Pass |
| 7 | 2452 | HT40 | 36.37 | 7 | | 0.5 | Pass |

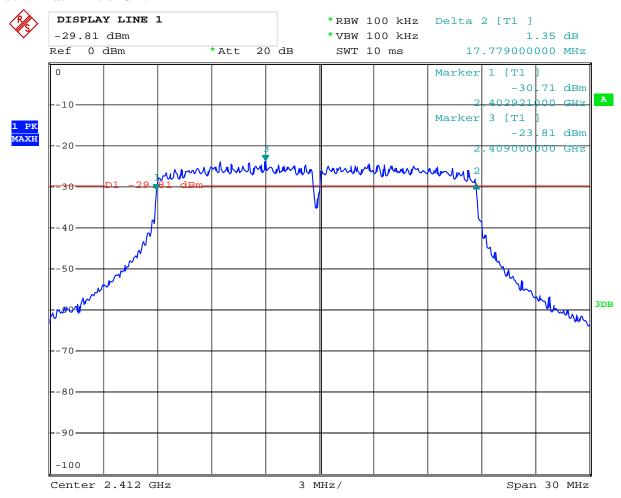
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Test Plots:

1. 802.11n at HT20 of CH01



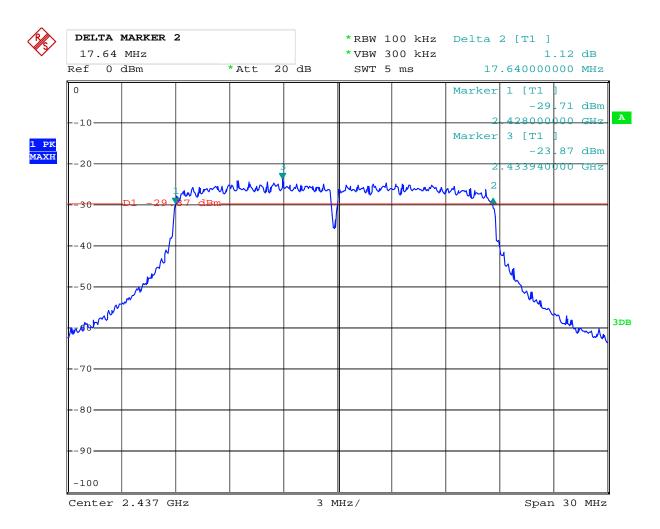
Date: 12.NOV.2012 15:59:13

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2. 802.11n at HT20 of CH06



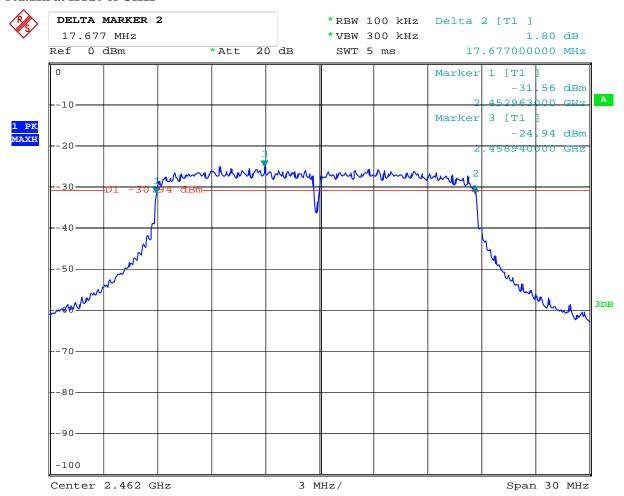
Date: 12.NOV.2012 16:17:48

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3. 802.11n at HT20 of CH11



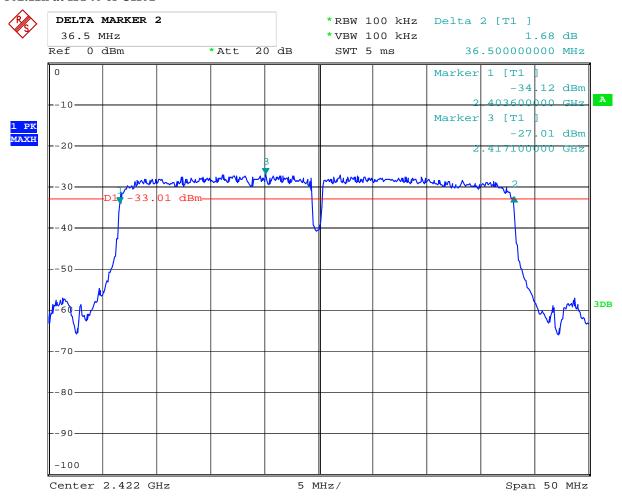
Date: 12.NOV.2012 15:49:40

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4. 802.11n at HT40 of CH01



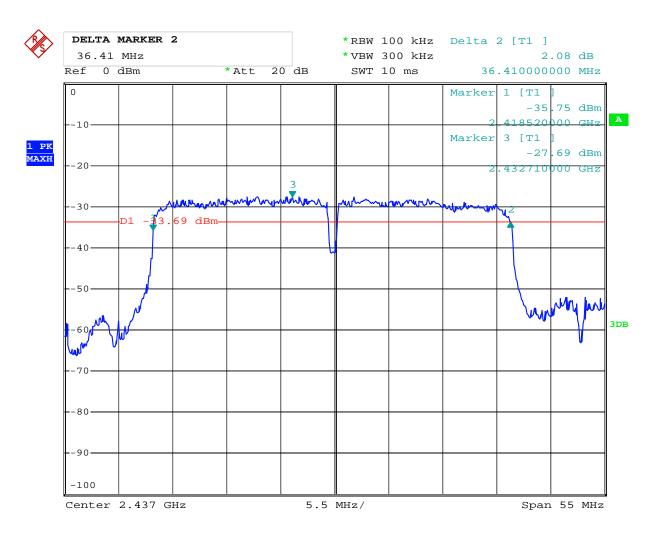
Date: 12.NOV.2012 16:01:15

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5. 802.11n at HT40 of CH04



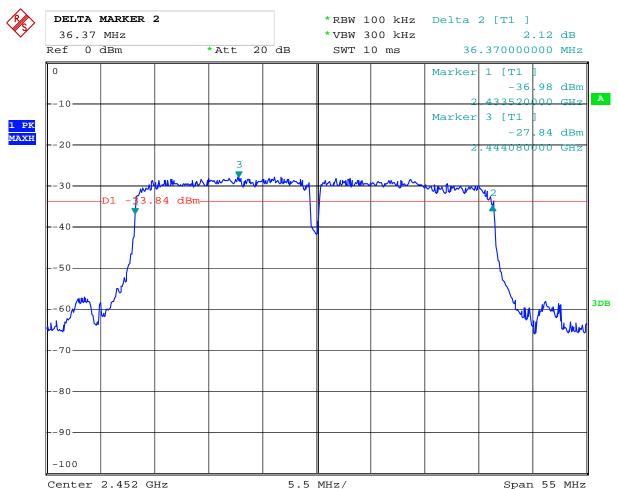
Date: 12.NOV.2012 16:06:10

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6. 802.11n at HT40 of CH07



Date: 12.NOV.2012 16:08:57

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8. Maximum Peak Output Power

8.1 Test Setup



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 (conducted measurement) while EUT was operating in transmit mode at the appropriate centre frequency.

Note: the peak power was measured

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8.4Test Results

| EUT | | Media hub | o for Android Model | | odel | MINIX NEO X5, MINIX NEO X4 MINIX NEO X6 | |
|-----------|----|---------------------------|-------------------------|-----|----------------------|--|------------|
| Mode | | 802 | 802.11b Input Voltage | | See Below | | |
| Temperatu | re | 24 d | eg. C, | Hui | midity | | 56% RH |
| Channel | Cł | nannel Frequency (MHz) | Peak Power Output (dBm) | | Peak P Lin (dB | nit | Pass/ Fail |
| 1 | | 2412 | 16.65 | | 30 | | Pass |
| 6 | | 2437 | 16.81 | | 30 | | Pass |
| 11 | | 2462 | 16.62 | | 30 |) | Pass |

Note: 1. At finial test to get the worst-case emission at 11Mbps for CH01, CH06 and CH11

The result basic equation calculation as follow:
 Peak Power Output = Peak Power Reading + Cable loss + Attenuator

3. The worse case was recorded

| EUT | | Media hub | for Android | Model | | MINIX | X NEO X5, MINIX NEO X4, MINIX NEO X6 |
|-----------|-----|-----------------------|-------------------|---------------|------------------------|-------|---|
| Mode | | 802 | 2.11g | Input Voltage | | | See Below |
| Temperati | ure | 24 d | leg. C, | Hur | Humidity | | 56% RH |
| Channel | Cha | annel Frequency (MHz) | Peak Power Output | | Peak Power Limit (dBm) | | Pass/ Fail |
| 1 | | 2412 | 14.58 | | 30 | | Pass |
| 6 | | 2437 | 14.83 | | 30 | | Pass |
| 11 | | 2462 | 14.51 | | 30 |) | Pass |

Note: 1. At finial test to get the worst-case emission at 6Mbps for CH01, CH06 and CH11

- The result basic equation calculation as follow:
 Peak Power Output = Peak Power Reading + Cable loss + Attenuator
- 3. The worse case was recorded

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| EUT | | Media hub | for Android | M | Model MINI | | X NEO X5, MINIX NEO X4, MINIX NEO X6 |
|-----------|-------------------------|-----------|-------------------------|----------------|-----------------------|-------------|---|
| Mode | | 802.111 | n (HT20) | (HT20) Input V | | e See Below | |
| Temperati | ure | 24 d | eg. C, | Hu | Iumidity | | 56% RH |
| Channel | Channel Frequency (MHz) | | Peak Power Output (dBm) | | Peak P Lin (dB: | nit | Pass/ Fail |
| 1 | | 2412 | 9.21 | | 30 | | Pass |
| 6 | 5 2437 9.36 | | 9.36 | | 30 |) | Pass |
| 11 | | 2462 | 9.35 | | 30 |) | Pass |

Note: 1. At finial test to get the worst-case emission at 11n HT20 for CH01, CH06 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 | | Media hub | for Android | Model | | MINIX | X NEO X5, MINIX NEO X4, MINIX NEO X6 | |
|-----------|-----|--|-------------|-------|------------------------------|-------|---|--|
| Mode | | 802.111 | n (HT40) | Input | Voltage | | See Below | |
| Temperati | ure | 24 d | leg. C, | Hur | nidity | | 56% RH | |
| Channel | Cha | annel Frequency (MHz) Peak Power Output | | (dBm) | Peak Power Limit (dBm) | | Pass/ Fail | |
| 1 | | 2422 | 8.42 | | 30 | | Pass | |
| 4 | | 2437 | 8.50 | | 30 | | Pass | |
| 7 | | 2452 | 8.36 | | 30 |) | Pass | |

Note: 1. At finial test to get the worst-case emission at 11n HT40 for CH01, CH04 and CH07

2. The result basic equation calculation as follow:

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

3. The worse case was recorded

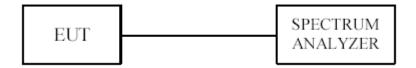
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9. Power Spectral Density Measurement

9.1 Test Setup



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 = 10 kHz.
- 3. Set the VBW \geq 30 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.

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9.4Test Result

| EUT | | Media hub for Android Model | | MINIX NEO X5, MINIX NEO X4 MINIX NEO X6 | | | |
|-----------|-----|-----------------------------|---------------------------------|--|----------------|---|------------|
| Mode | | 802.111 | o 11Mbps | Input | Voltage | | AC 120V |
| Temperati | ure | 24 d | leg. C, | Hur | nidity | | 56% RH |
| Channel | Cha | annel Frequency (MHz) | Final RF Power I 3kHz BW (dB | | Maximui (dB | - | Pass/ Fail |
| | | | 11N | Лbps | | | |
| 1 | | 2412 | -10.44 | | 8 | | Pass |
| 6 | | 2437 | -10.50 | | 8 | | Pass |
| 11 | | 2462 | -10.79 | | 8 | | Pass |

| EUT | | Media hub | for Android | N | Iodel | MINIX | X NEO X5, MINIX NEO X4, | |
|-----------|-------------------|-----------|----------------------|------|---------------|--------------|-------------------------|--|
| | | | | | | MINIX NEO X6 | | |
| Mode | | 802.11 | b 1Mbps | Inpu | Voltage | | AC 120V | |
| Temperati | ure | 24 d | eg. C, | Hu | midity | | 56% RH | |
| Channel | Channel Frequency | | Final RF Power Level | | Maximum Limit | | Pass/ Fail | |
| Chamie | | (MHz) | in 3kHz BW (dB | sm) | (dB | m) | | |
| | | | | | | | | |
| | | | 1Mt | ps | | | | |
| 1 | 1 2412 - | | -14.36 | | 8 | | Pass | |
| 6 | | 2437 | -14.46 | | 8 | | Pass | |
| 11 | | 2462 | -14.76 | | 8 | | Pass | |

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| EUT | | Media hub | for Android | Model | | MINIX | X NEO X5, MINIX NEO X4, MINIX NEO X6 | |
|-----------|-----|--------------------------|---|-------|------------|-------|---|--|
| Mode | | 802.11 | g 6Mbps | | nput | | AC 120V | |
| Temperati | ure | 24 d | eg. C, | Н | Humidity | | 56% RH | |
| Channel | Cha | annel Frequency (MHz) | Final RF Power Level in 3kHz BV (dBm) | | Maximum Li | | Pass/ Fail | |
| | | | 6Mb _l | os | | | | |
| 1 | | 2412 | -17.55 | | 8 | | Pass | |
| 6 | | 2437 | -16.96 | | 8 | | Pass | |
| 11 | | 2462 | -16.83 | | 8 | | Pass | |

| EUT | | Media hub | for Android | M | odel | MINIX | X NEO X5, MINIX NEO X4, |
|----------|-----|-----------------|------------------|-----------------|-------------------|---------|-------------------------|
| | | | | | | | MINIX NEO X6 |
| Mode | | 802.11 | n HT20 | 0 Input Voltage | | AC 120V | |
| Temperat | ure | 24 d | leg. C, | Hur | midity | | 56% RH |
| Channel | Cha | annel Frequency | Final RF Power I | Level in | evel in Maximum I | | Pass/ Fail |
| Chamilei | | (MHz) | 3kHz BW (dB | m) | (dB | m) | |
| | | | H | Γ20 | | | |
| 1 | | 2412 | -31.23 | | 8 | | Pass |
| 6 | | 2437 | -31.69 | | | | Pass |
| 11 | | 2462 | -32.66 | | 8 | | Pass |

| EUT | EUT Media hub for Android | | for Android | M | odel | MINIX | X NEO X5, MINIX NEO X4, |
|-----------|---------------------------|-----------------|------------------------------|----------------------|---------------|-------|-------------------------|
| | | | | | | | MINIX NEO X6 |
| Mode | | 802.11 | n HT40 | n HT40 Input Voltage | | | AC 120V |
| Temperati | ure | 24 d | leg. C, | Hur | nidity | | 56% RH |
| Channel | Cha | annel Frequency | l Frequency Final RF Power L | | Maximum Limit | | Pass/ Fail |
| Chamie | | (MHz) | 3kHz BW (dB | m) | (dB | m) | |
| | | | НТ | 740 | | | |
| 1 | | 2422 | -34.62 | | 8 | | Pass |
| 6 | | 2437 | -33.90 | | 8 | | Pass |
| 11 | | 2452 | -34.75 | • | 8 | • | Pass |

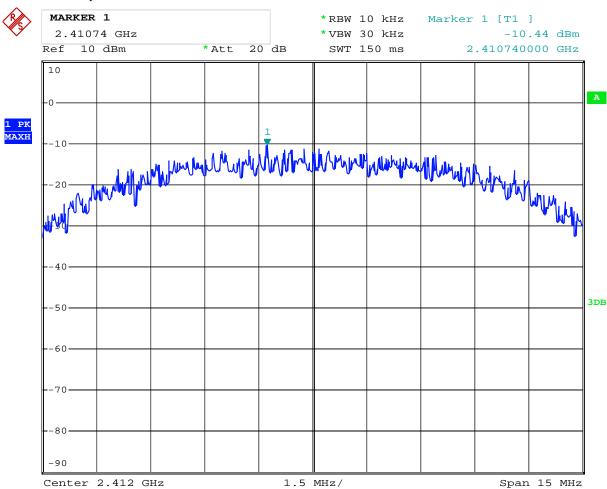
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9.5 Photo of Power Spectral Density Measurement

1.802.11b at 11Mbps of CH01



Date: 12.NOV.2012 10:20:00

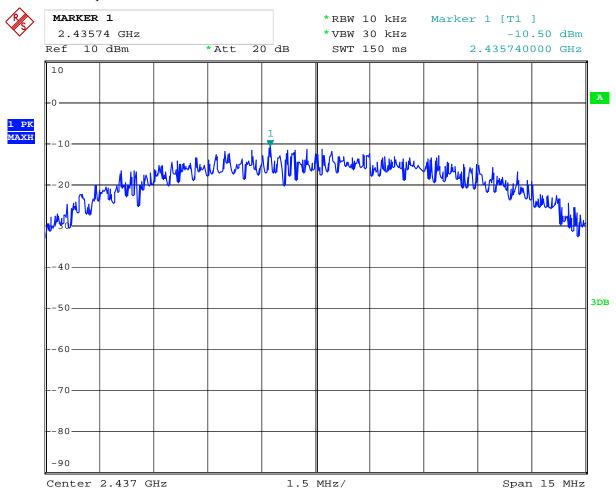
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2. 802.11b at 11Mbps at CH06



Date: 12.NOV.2012 10:19:19

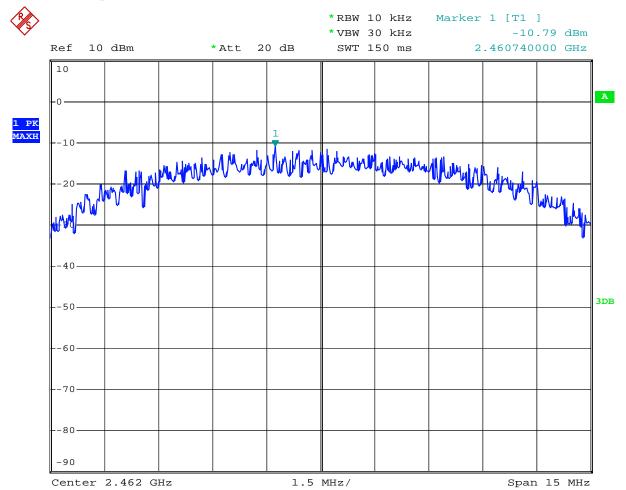
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3. 802.11b at 11Mbps of CH11



Date: 12.NOV.2012 10:17:18

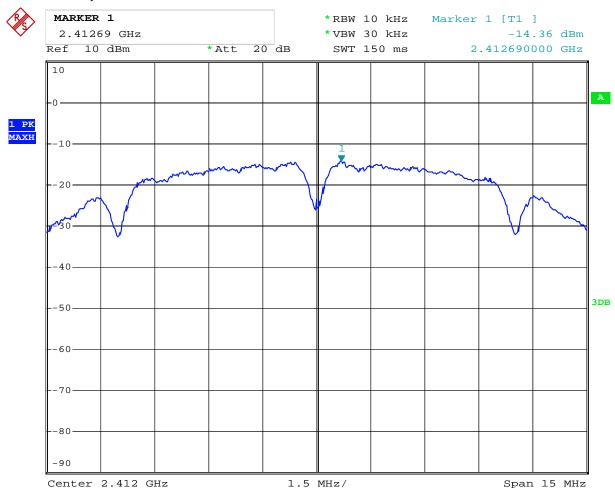
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4. 802.11b at 1Mbps of CH1



Date: 12.NOV.2012 10:20:45

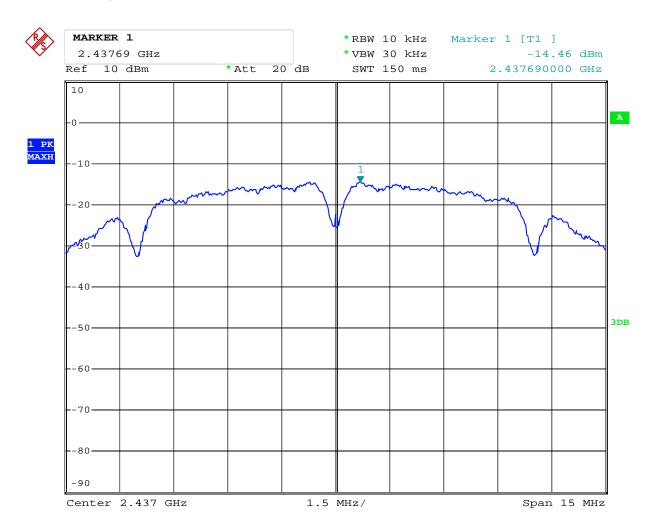
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5. 802.11b at 1Mbps of CH6



Date: 12.NOV.2012 10:21:26

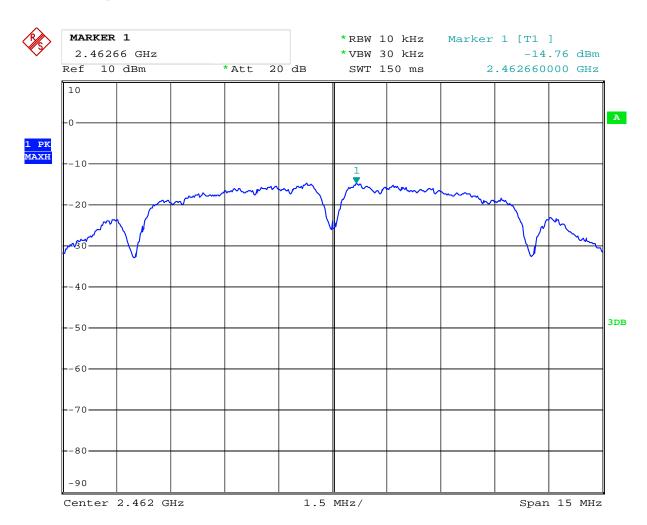
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6. 802.11b at 1Mbps of CH11



Date: 12.NOV.2012 10:22:15

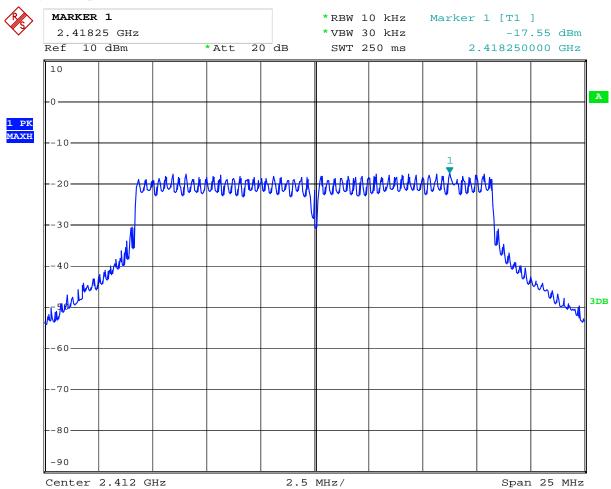
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7. 802.11g at 6Mbps of CH1



Date: 12.NOV.2012 10:24:54

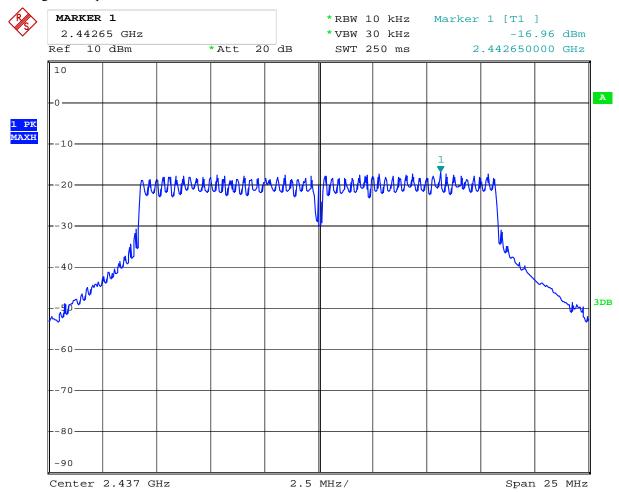
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8. 802.11g at 6 Mbps of CH6



Date: 12.NOV.2012 10:25:40

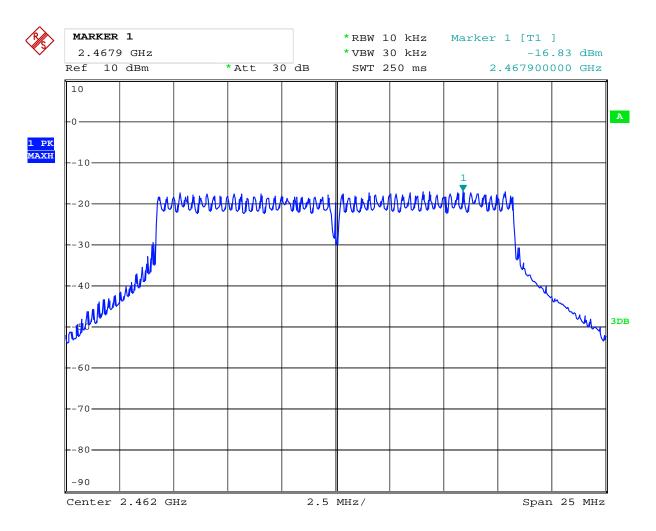
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9. 802.11g at 6 Mbps of CH11



Date: 12.NOV.2012 10:26:46

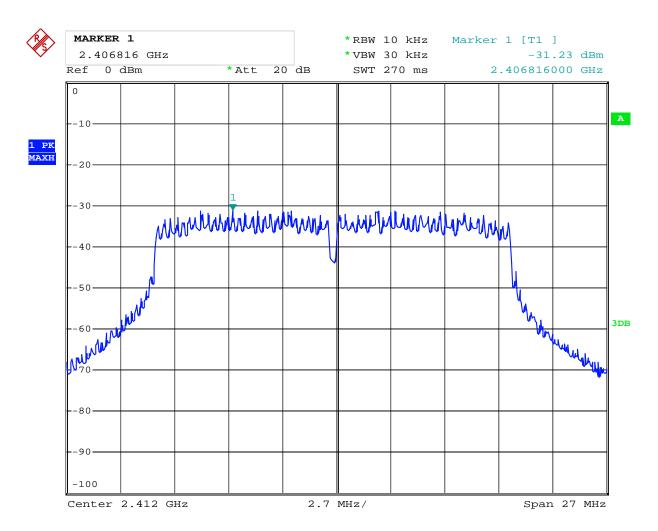
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10. 802.11n at HT20 of CH01



Date: 12.NOV.2012 15:57:17

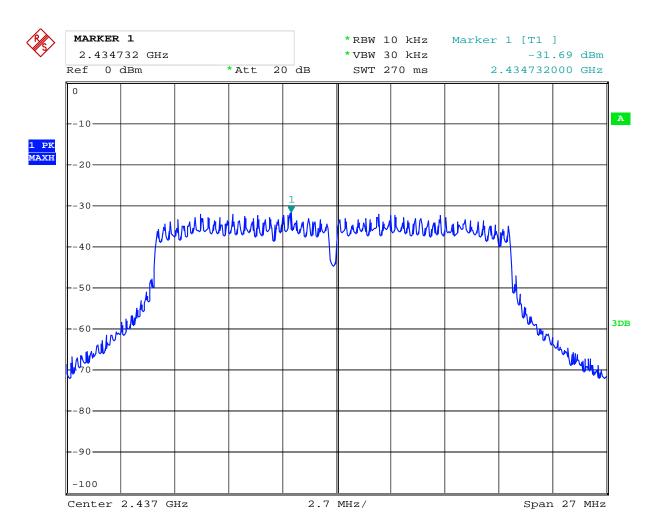
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11. 802.11n at HT20 of CH06



Date: 12.NOV.2012 16:18:47

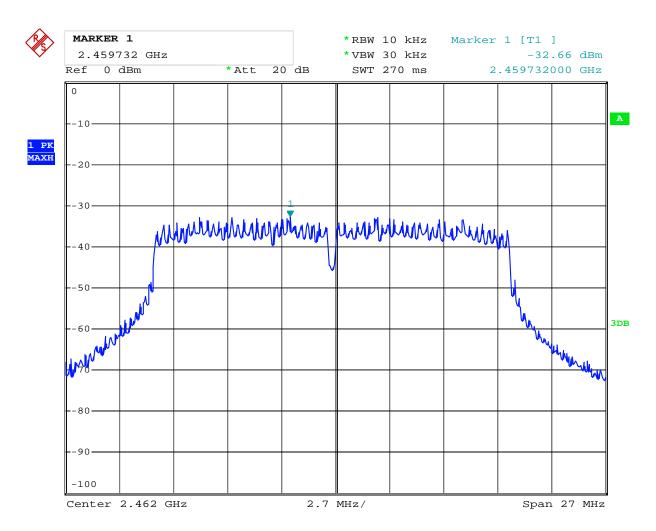
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12. 802.11n at HT20 of CH11



Date: 12.NOV.2012 15:51:07

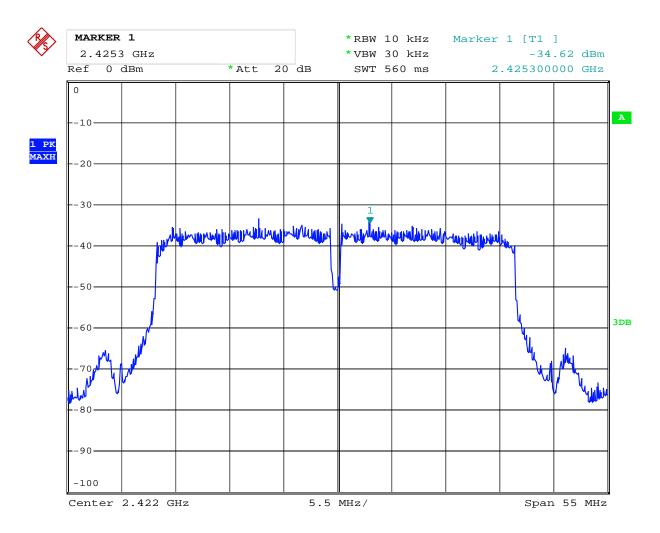
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13. 802.11n at HT40 of CH01



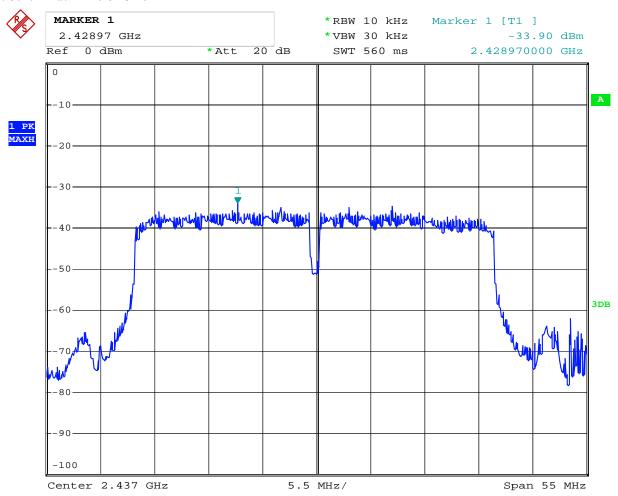
Date: 12.NOV.2012 16:03:15

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14. 802.11n at HT40 of CH04



Date: 12.NOV.2012 16:04:59

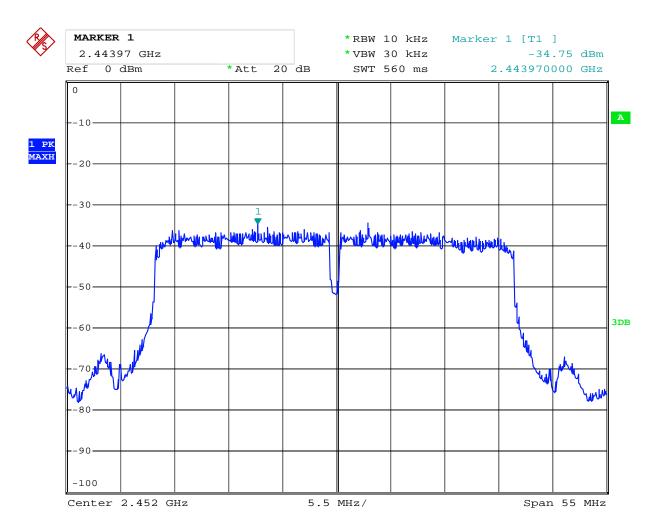
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15. 802.11n at HT40 of CH07



Date: 12.NOV.2012 16:09:51

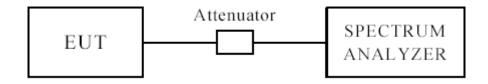
Date: 2012-11-15



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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 6 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

For signals in the restricted bands above and below the 2.4-2.483GHz allocated band a measurement was made of radiated emission test.(Peak values with RBW=VBW=1MHz and PK detector. AV value with RBW=1MHz, VBW=10Hz and PK detector)

For bandage test, the spectrum set as follows: RBW=VBW=100 kHz. A conducted measurement used

10.4 Test Result

Please see next pages

Note: The worse case was recorded

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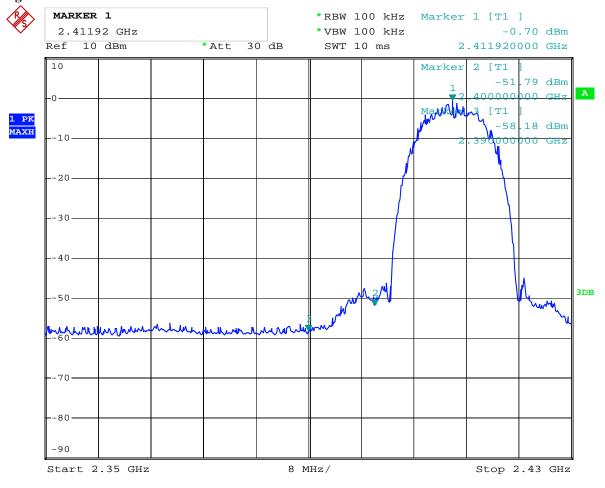
For 802.11b mode

CH01 at 11Mbps

10.4 Band-edge and Restricted band Measurement

| Product: | Media hub for Android | | Model: | MINIX NEO X6, MINIX NEO X4, | |
|--------------|-----------------------|-------|---------------|-----------------------------|--|
| Troduct. | | | Wiodei. | MINIX NEO X5 | |
| Mode | Keeping Transmitting | | Input Voltage | AC 120V | |
| Temperature | 24 deg. C, | | Humidity | 56% RH | |
| Test Result: | Pass | | Detector | PK | |
| 2400 | PK (dBµV/m) | 45.22 | T 114 | 74(dBμV/m) | |
| | AV (dBμV/m) | | Limit | 54(dBµV/m) | |
| 2390 | PK (dBµV/m) | 38.63 | Limit | 74(dBµV/m) | |
| | AV (dBμV/m) | | Limit | 54(dBµV/m) | |

Test Figure:



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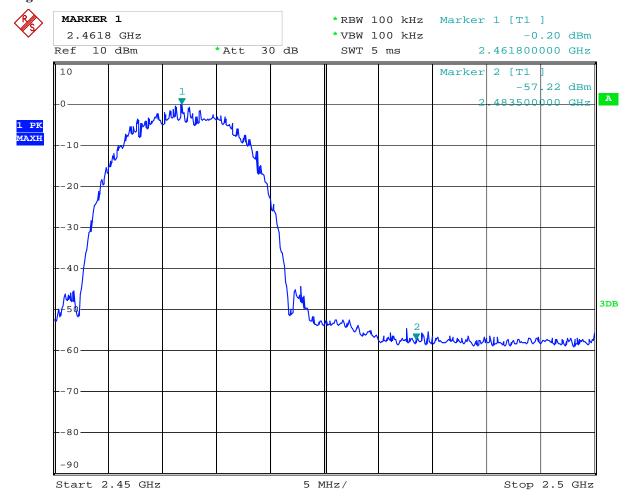


CH11 at 11Mbps

10.4 Band-edge and Restricted band Measurement

| Product: | Media hub for Android | | Model: | MINIX NEO X6, MINIX NEO X4, MINIX NEO X5 |
|--------------|-----------------------|-------|---------------|---|
| Mode | Keeping Transmitting | | Input Voltage | AC 120V |
| Temperature | 24 deg. C, | | Humidity | 56% RH |
| Test Result: | Pass | | Detector | PK |
| 2483.5 | PK (dBµV/m) | 39.71 | Limit | $74(dB\mu V/m)$ |
| | AV (dBμV/m) | | Limit | $54(dB\mu V/m)$ |

Test Figure:



Date: 12.NOV.2012 10:28:48

Date: 2012-11-15



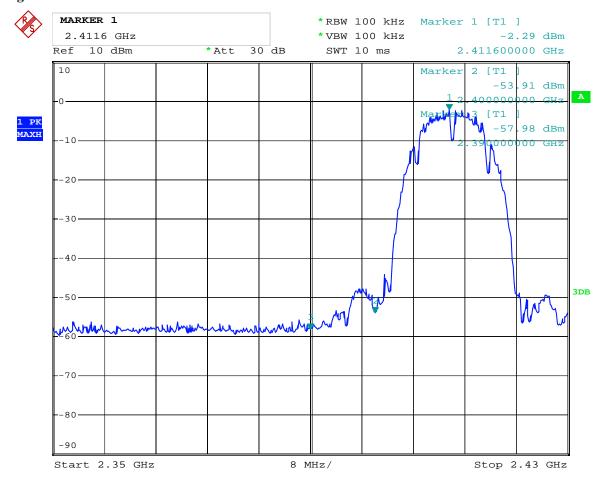
For 802.11b mode

CH01 at 1Mbps

10.4 Band-edge and Restricted band Measurement

| Decdust | Media hub for Android | | Model: | MINIX NEO X6, MINIX NEO X4, |
|--------------|-----------------------|-------|---------------|-----------------------------|
| Product: | | | Model. | MINIX NEO X5 |
| Mode | Keeping Transmitting | | Input Voltage | AC 120V |
| Temperature | 24 deg. C, | | Humidity | 56% RH |
| Test Result: | Pass | | Detector | PK |
| 2400 | PK (dBμV/m) | 43.28 | T ::4 | $74(dB\mu V/m)$ |
| | AV (dBμV/m) | | Limit | 54(dBμV/m) |
| 2390 | PK (dBμV/m) | 40.12 | Limit | 74(dBμV/m) |
| | AV (dBμV/m) | | Lillit | 54(dBμV/m) |

Test Figure:



Date: 12.NOV.2012 10:30:31

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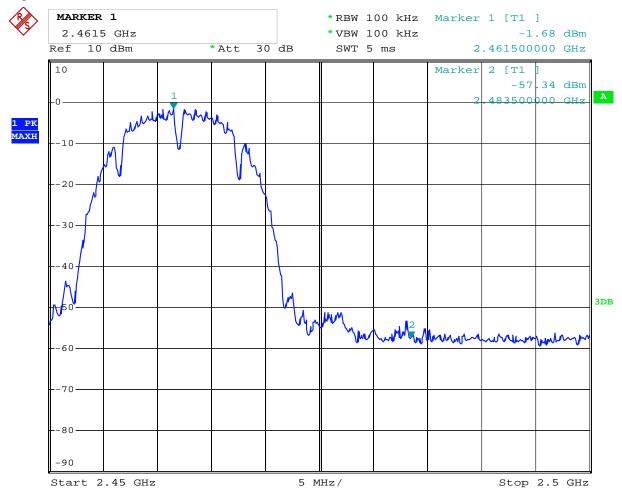


CH11 at 1Mbps

10.4 Band-edge and Restricted band Measurement

| Product: | Media hub for Android | | Model: | MINIX NEO X6, MINIX NEO X4, MINIX NEO X5 |
|--------------|-----------------------|-------|---------------|---|
| Mode | Keeping Transmitting | | Input Voltage | AC 120V |
| Temperature | 24 deg. C, | | Humidity | 56% RH |
| Test Result: | Pass | | Detector | PK |
| 2483.5 | PK (dBµV/m) | 40.27 | Limit | $74(dB\mu V/m)$ |
| | AV (dBμV/m) | | Limit | $54(dB\mu V/m)$ |

Test Figure:



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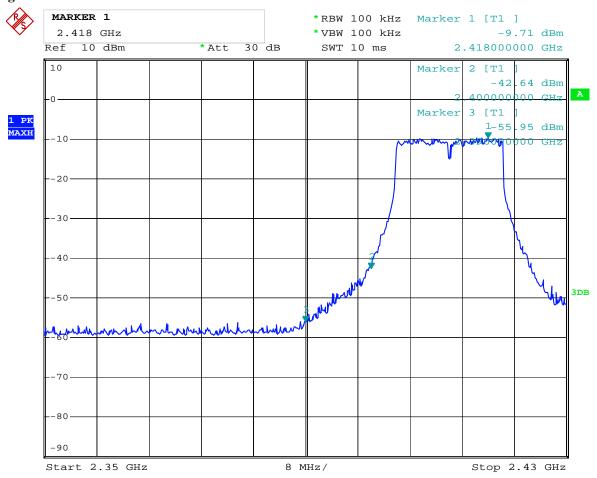
For 802.11g mode

CH01 at 6Mbps

10.4 Band-edge and Restricted band Measurement

| Deadwate | Media hub for Android | | Madalı | MINIX NEO X6, MINIX NEO X4, |
|--------------|-----------------------|-------|---------------|-----------------------------|
| Product: | | | Model: | MINIX NEO X5 |
| Mode | Keeping Transmitting | | Input Voltage | AC 120V |
| Temperature | 24 deg. C, | | Humidity | 56% RH |
| Test Result: | Pass | | Detector | PK |
| 2400 | PK (dBμV/m) | 53.25 | T ::4 | 74(dBμV/m) |
| | AV (dBμV/m) | 37.51 | Limit | $54(dB\mu V/m)$ |
| 2390 | PK (dBμV/m) | 42.18 | - Limit | $74(dB\mu V/m)$ |
| | AV (dBμV/m) | | Lillit | 54(dBμV/m) |

Test Figure:



Date: 12.NOV.2012 10:32:00

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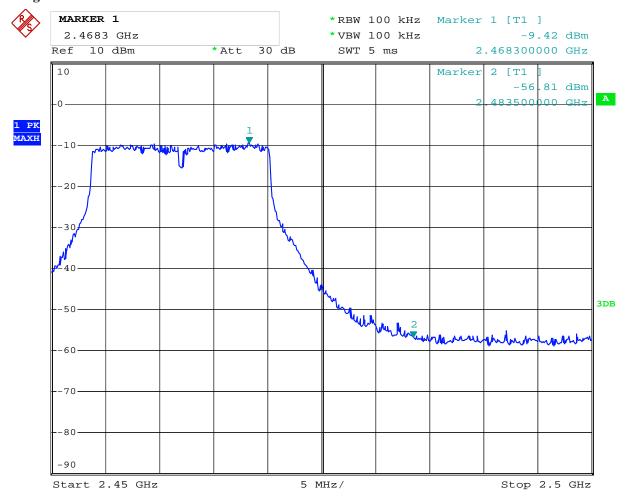


CH11 at 6Mbps

10.4 Band-edge and Restricted band Measurement

| Product: | Media h | ub for Android | Model: | | MINIX NEO X6, MINIX NEO X4, |
|--------------|----------------------|----------------|---------|------------|-----------------------------|
| | | | | | MINIX NEO X5 |
| Mode | Keeping Transmitting | | Input V | oltage | AC 120V |
| Temperature | 24 deg. C, | | Humi | dity | 56% RH |
| Test Result: | Pass | | Detec | ctor | PK |
| 2483.5 | PK (dBµV/m) | 42.07 | T ::4 | 74(dBµV/m) | |
| | AV (dBμV/m) | | Limit | 54(dBμV/m) | |

Test Figure:



Date: 12.NOV.2012 10:28:05

Date: 2012-11-15



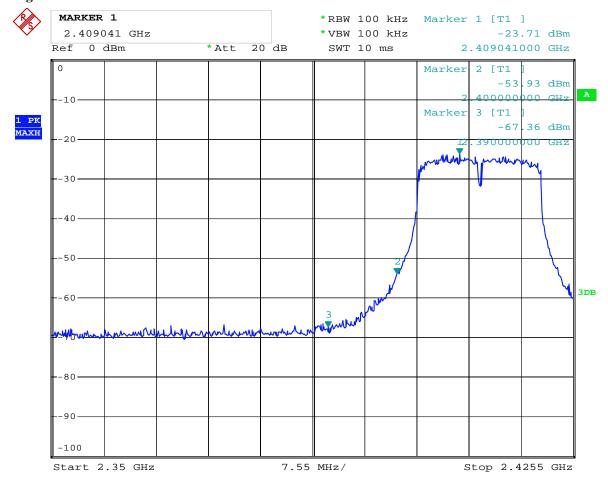
For 802.11n (HT20) mode

CH01 at 65Mbps

10.4 Band-edge and Restricted band Measurement

| Product: | Media hub for Android | | Model | MINIX NEO X6, MINIX NEO X4, | |
|--------------|-----------------------|-------|---------------|-----------------------------|--|
| Product. | | | Model: | MINIX NEO X5 | |
| Mode | Keeping Transmitting | | Input Voltage | AC 120V | |
| Temperature | 24 deg. C, | | Humidity | 56% RH | |
| Test Result: | Pass | | Detector | PK | |
| 2400 | PK (dBμV/m) | 51.88 | T ::4 | $74(dB\mu V/m)$ | |
| | AV (dBμV/m) | 37.02 | Limit | $54(dB\mu V/m)$ | |
| 2390 | PK (dBμV/m) | 41.73 | Limit | $74(dB\mu V/m)$ | |
| | AV (dBμV/m) | | Lillit | 54(dBμV/m) | |

Test Figure:



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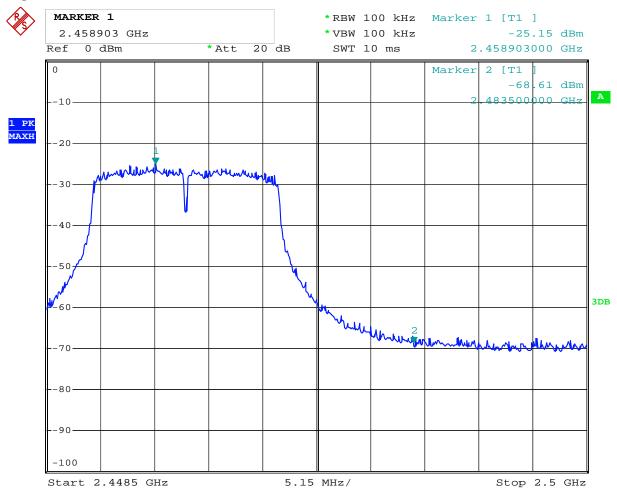


CH11 at 65Mbps

10.4 Band-edge and Restricted band Measurement

| Product: | Media hub for Android | | Model: | MINIX NEO X6, MINIX NEO X4, MINIX NEO X5 |
|--------------|-----------------------|-------|---------------|--|
| Mode | Keeping Transmitting | | Input Voltage | AC 120V |
| Temperature | 24 deg. C, | | Humidity | 56% RH |
| Test Result: | Pass | | Detector | PK |
| 2483.5 | PK (dBµV/m) | 41.36 | Limit | $74(dB\mu V/m)$ |
| | AV (dBμV/m) | | Limit | 54(dBμV/m) |

Test Figure:



Date: 12.NOV.2012 15:51:43

Date: 2012-11-15



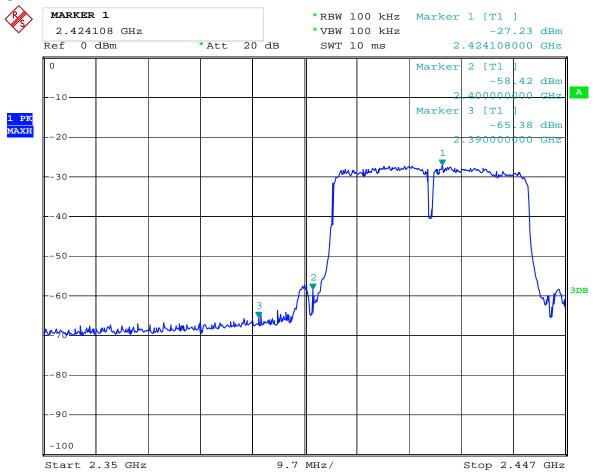
For 802.11n (HT40) mode

CH01 at 65Mbps

10.4 Band-edge and Restricted band Measurement

| Product: | Media hub for Android | | Model: | MINIX NEO X6, MINIX NEO X4, |
|--------------|-----------------------|-------|---------------|-----------------------------|
| Product. | | | | MINIX NEO X5 |
| Mode | Keeping Transmitting | | Input Voltage | AC 120V |
| Temperature | 24 deg. C, | | Humidity | 56% RH |
| Test Result: | Pass | | Detector | PK |
| 2400 | PK (dBμV/m) | 45.15 | T ::4 | $74(dB\mu V/m)$ |
| | AV (dBμV/m) | | Limit | $54(dB\mu V/m)$ |
| 2390 | PK (dBμV/m) | 40.52 | Limit | 74(dBμV/m) |
| | AV (dBμV/m) | | Lillit | $54(dB\mu V/m)$ |

Test Figure:



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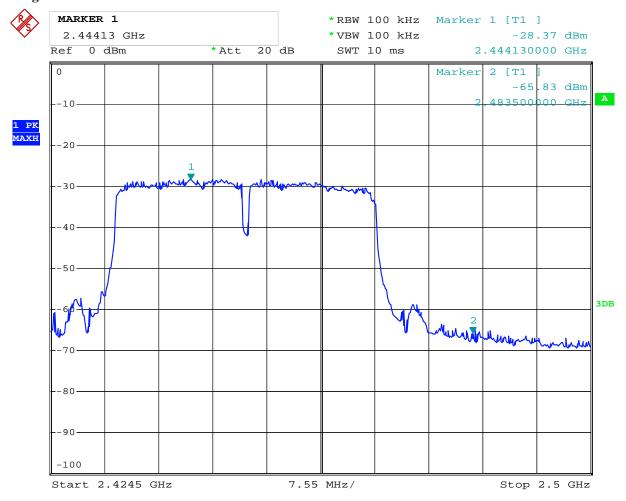


CH7 at 65Mbps

10.4 Band-edge and Restricted band Measurement

| Product: | Media hub for Android | | Model: | MINIX NEO X6, MINIX NEO X4, MINIX NEO X5 |
|--------------|-----------------------|-------|---------------|---|
| Mode | Keeping Transmitting | | Input Voltage | AC 120V |
| Temperature | 24 deg. C, | | Humidity | 56% RH |
| Test Result: | Pass | | Detector | PK |
| 2483.5 | PK (dBµV/m) | 42.85 | Limit | $74(dB\mu V/m)$ |
| | AV (dBμV/m) | | Limit | $54(dB\mu V/m)$ |

Test Figure:



Date: 12.NOV.2012 16:14:13

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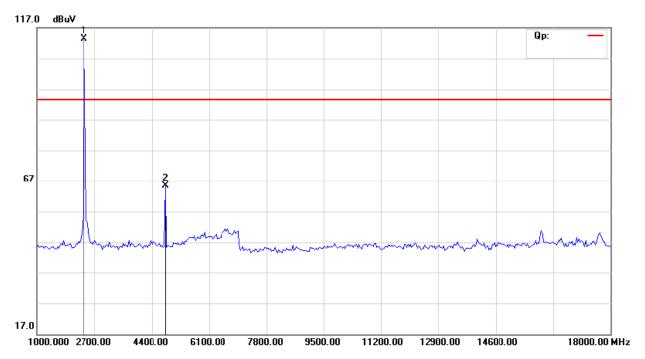
Date: 2012-11-15



10.4 Conducted Spurious Emissions

| Product: | Media hub for Android | Model: | MINIX NEO X6, MINIX NEO X4, MINIX NEO X5 |
|--------------|-----------------------|---------------|---|
| Mode | Keeping Transmitting | Input Voltage | AC 120V |
| Temperature | 24 deg. C | Humidity | 56% RH |
| Test Result: | Pass | Detector | PK |

Test Figure: 802.11b ch1



Note: the worse case war recorded

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11.0 Antenna Requirement

11.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if transmitter antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the mount in dB that the directional gain of the antenna exceeds 6 dBi.

11.2 Antenna Connected construction

Integral antenna used. The maximum Gain of the antennas is 2.0dBi.

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12.0 RF Exposure

Applicable Standard

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2m normally can be maintained between the user and the device.

(a) Limits for Occupational / Controlled Exposure

| (a) Emilio for overpunomi / Commond Emposito | | | | | | | |
|--|---|-----------------------------------|---|---|--|--|--|
| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/cm ²) | Averaging Times $ E ^{2}, H ^{2}$ or S (minutes) | | | |
| 0.3-3.0 | 614 | 1.63 | (100)* | 6 | | | |
| 3.0-30 | 1842/f | 4.89/f | (900/f)* | 6 | | | |
| 30-300 | 61.4 | 0.163 | 1.0 | 6 | | | |
| 300-1500 | | | F/300 | 6 | | | |
| 1500-100000 | | | 5 | 6 | | | |

(b) Limits for General Population / Uncontrolled Exposure

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/cm ²) | Averaging Times $ E ^2, H ^2 $ or S (minutes) |
|-----------------------|---|---|---|---|
| 0.3-1.34 | 614 | 1.63 | (100)* | 30 |
| 1.34-30 | 824/f | 2.19/f | (180/f)* | 30 |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 |
| 300-1500 | | | F/1500 | 30 |
| 1500-100000 | | | 1.0 | 30 |

Note: f=frequency in MHz; *Plane-wave equivalent power density

MPE Calculation Method

 $E(V/m) = (30*P*G)^{0.5}/d$

Power Density: Pd $(W/m^2) = E^2/377$

 $\mathbf{E} = \text{Electric Field (V/m)}$

 \mathbf{P} = Peak RF output Power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = (30*P*G) / (377*d^2)$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained.

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Calculated Result and Limit

| Antenna Gain (Numeric) | Peak Output Power (dBm) | Peak Output Power (mW) | Power Density (S) (mW/cm²) | Limit of Power Density (S) (mW/cm²) | Test Result |
|------------------------------|----------------------------|---------------------------|----------------------------|-------------------------------------|----------------|
| 1.585 | 16.81 | 47.97 | 0.0151 | 1 | Compiles |

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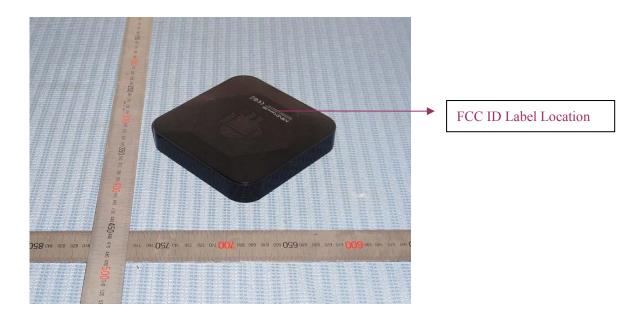
13.0 FCC ID Label

FCC ID: WMFNEOX5

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

Mark Location:



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14.0 **Photo of testing**

Conducted Emission Test Setup:



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Radiated Emission Test Setup:





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Photographs - EUT

Outside view





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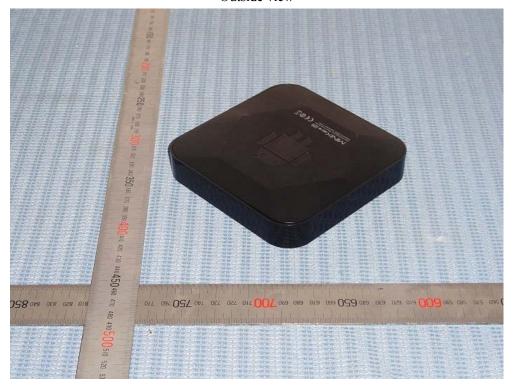
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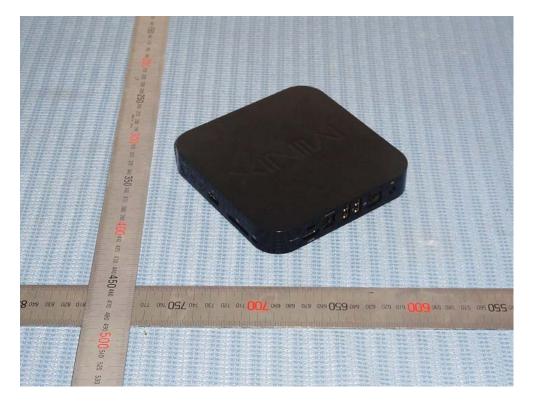
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Outside view





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Inside view





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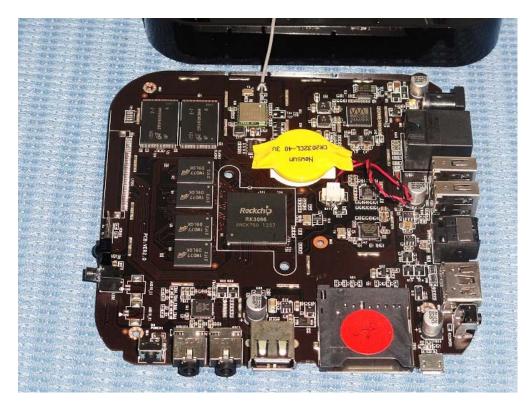
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Inside view





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Inside view





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Power Supply





End of the report

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