



Title: Fluke Networks Sensor4 Wireless Client
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: AMGT14-U1 Rev B
Issue Date: 20th June 2012
Page: 176 of 342

Specification

Peak Power Spectral Density Limits

§15.247(e) 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

RSS-210 §A8.2(2) The transmitter power spectral density (into the antenna) shall not be greater than +8 dBm in any 3 kHz band during any time interval of continuous transmission or over 1.0 second if the transmission exceeds 1.0 second duration.

Laboratory Measurement Uncertainty for Spectral Density

| | |
|-------------------------|----------|
| Measurement uncertainty | ±1.33 dB |
|-------------------------|----------|

Traceability

| Method | Test Equipment Used |
|---|--|
| Measurements were made per work instruction WI-01 'Measuring RF Output Power' | 0158, 0287, 0252, 0313, 0314, 0070, 0116, 0117 |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

5.1.4. Maximum Permissible Exposure

FCC, Part 15 Subpart C §15.247(i)

Industry Canada RSS-Gen §5.5

Calculations for Maximum Permissible Exposure Levels

$$\text{Power Density} = P_d \text{ (mW/cm}^2\text{)} = \text{EIRP}/(4\pi d^2)$$

$$\text{EIRP} = P * G$$

P = Peak output power (mW)

G = Antenna numeric gain (numeric)

d = Separation distance (cm)

$$\text{Numeric Gain} = 10 ^ (G \text{ (dB)} / 10)$$

The Fluke Networks Sensor4 has three transmitters operating in each band. It also has two similar radio's. The peak power in the table below is calculated by assuming a worst case scenario where all transmitters are operating simultaneously in the same channel and x2 the maximum power found in Section 5.1.2 Peak Output Power to take into account the two radio modules operating simultaneously in the same band.

Because the EUT belongs to the General Population/Uncontrolled Exposure the limit of power density is 1.0 mW/cm²

The following table uses the highest antenna gain for each band.

| Freq. Band (MHz) | Antenna Gain (dBi) | Numeric Gain (numeric) | Peak Output Power (dBm) | Peak Output Power x 2 (mW) | Power Density (S) @ 20cm mW/cm ² |
|------------------|--------------------|------------------------|-------------------------|----------------------------|---|
| 2.4 | External 2.0 | 1.58 | +25.23 | 666.9 | 0.21 |
| 5.8 | Integral 4.8 | 3.02 | +21.12 | 263.7 | 0.16 |

Note: for mobile or fixed location transmitters the minimum separation distance is 20cm, even if calculations indicate the MPE distance to be less.

Specification

Maximum Permissible Exposure Limits

§15.247(i) 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 levels in excess of the Commission's guidelines.

FCC §1.1310 Limit = 1mW / cm² from 1.310 Table 1

RSS-Gen §5.5 Before equipment certification is granted, the applicable requirements of RSS-102 shall be met

Laboratory Measurement Uncertainty for Power Measurements

| | |
|-------------------------|----------|
| Measurement uncertainty | ±1.33 dB |
|-------------------------|----------|

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

5.1.5. Conducted Spurious Emissions

FCC, Part 15 Subpart C §15.247(d); 15.205; 15.209

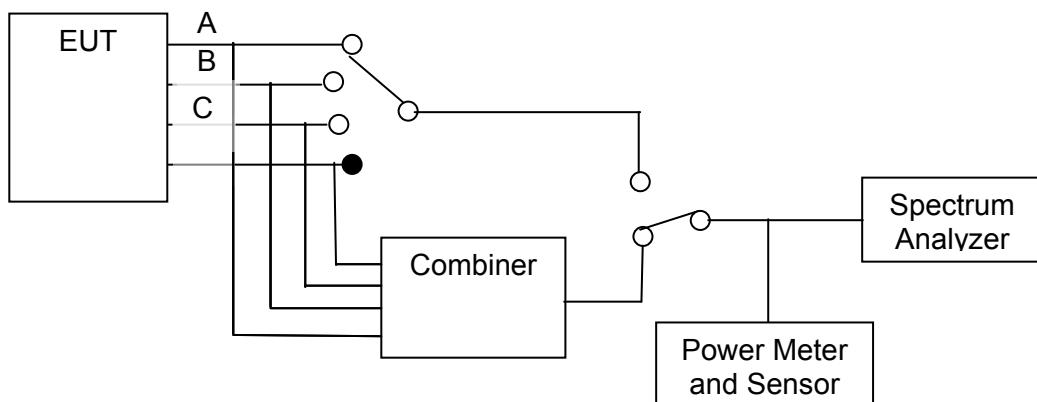
Industry Canada RSS-210 §A8.5, §2.2

Industry Canada RSS-Gen 4.7

Test Procedure

Conducted emissions were measured at a limit of 20 dB below the highest in-band spectral density measured with a spectrum analyzer connected to the antenna terminal. Emissions at the band edge were measured and recorded. Measurements were made while EUT was operating in transmit mode of operation at the appropriate center frequency.

Test Measurement Set up



Band-edge measurement test configuration

Measurement Results of Conducted Spurious Emissions

Ambient conditions.

Temperature: 17 to 23 °C Relative humidity: 31 to 57 % Pressure: 999 to 1012 mbar

Radio Parameters

Duty Cycle: 100%

Output: Modulated Carrier

Power: Maximum Default Power

NOTE: KDB 662911 was implemented for Out-of-Band measurements. Where necessary Option (2) Measure and add 10 log (N) dB was implemented

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

Conducted Spurious Emission Results

Measurements were performed with the transmitter tuned to the channel closest to the band-edge being measured. All emissions were maximized during measurement. Limits which were derived from the band-edge measurements provided below are drawn on each plot.

TABLE OF RESULTS – 802.11b – Legacy

| | | | | | |
|--------------------------|---------------|----------------------------|-----|-----|------|
| Test Conditions: | 15.247 (a)(2) | Rel. Humidity (%): | 35 | to | 42 |
| Variant: | 802.11b | Ambient Temp. (°C): | 19 | to | 22 |
| TPC: | HIGH | Pressure (mBars): | 998 | to | 1003 |
| Modulation: | ON | Duty Cycle (%): | 100 | | |
| Beam Forming Gain | N/A dB | Antenna Gain: | N/A | dBi | |
| Applied Voltage: | 48.00 Vdc | Antenna Ports (N): | | | |
| Notes 1: | | | | | |
| Notes 2: | | | | | |

Conducted Spurious Measurement

| Test Freq. | Start Freq. | Stop Freq. | Port A | | Port B | | Port C | | Port D | |
|------------|-------------|------------|--------|-------|--------|-----------|--------|-----------|--------|-----------|
| | | | MHz | MHz | SE dBm | Limit dBm | SE dBm | Limit dBm | SE dBm | Limit dBm |
| 2412.000 | 30.00 | 26000.00 | -43.45 | -7.81 | -42.86 | -8.91 | -43.21 | -8.45 | | |
| 2437.000 | 30.00 | 26000.00 | -43.84 | -8.31 | -43.42 | -8.50 | -43.23 | -7.80 | | |
| 2462.000 | 30.00 | 26000.00 | -43.78 | -9.85 | -43.21 | -9.30 | -42.15 | -8.19 | | |

SE: Maximum spurious emission found

Band-edge Measurement

| Test Freq. | Band-edge freq. | Port A | | Port B | | Port C | | Port D | |
|------------|-----------------|--------|-------|--------|-----------|--------|-----------|--------|-----------|
| | | MHz | MHz | BE dBm | Limit dBm | BE dBm | Limit dBm | BE dBm | Limit dBm |
| 2412.000 | 2400.00 | -30.06 | -7.61 | -31.64 | -8.38 | -32.21 | -7.78 | | |
| 2462.000 | 2483.50 | -34.53 | -8.51 | -34.76 | -8.24 | -34.16 | -7.37 | | |

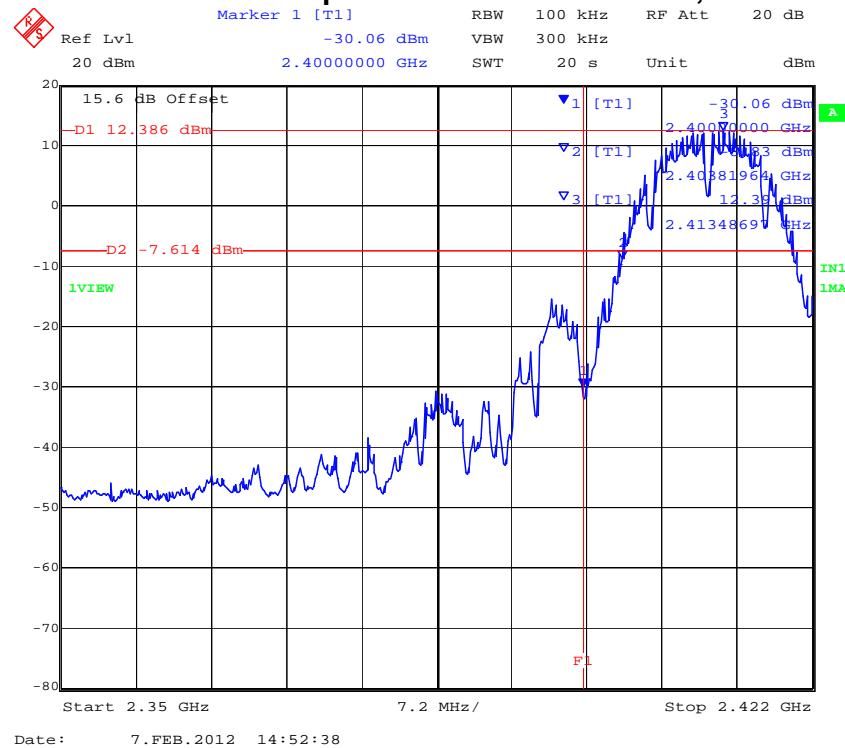
BE: Maximum Band edge emission found

| | |
|--------------------------|----------|
| Measurement uncertainty: | ±2.81 dB |
|--------------------------|----------|

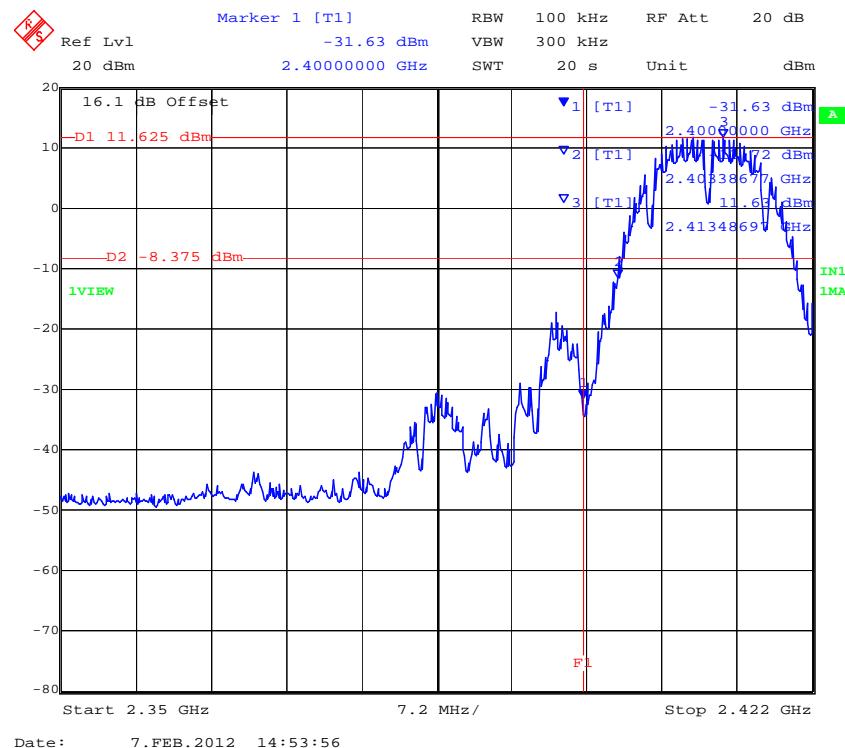
Note: Limit is based on 20dB down from fundamental emission

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11b - Conducted Spurious Emissions at the 2,400 MHz Band Edge

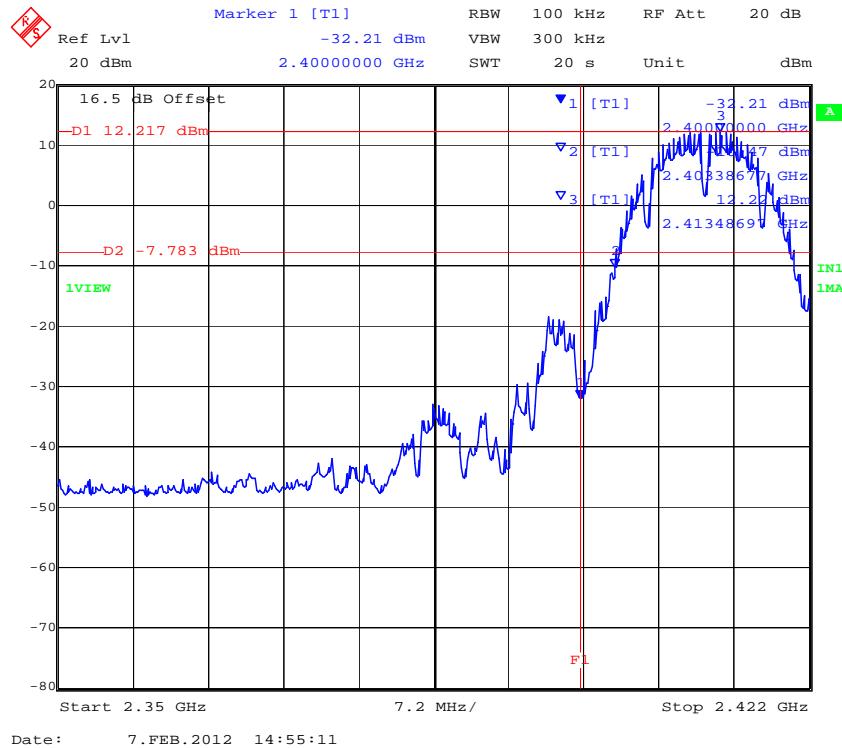


PORT B 802.11b - Conducted Spurious Emissions at the 2,400 MHz Band Edge

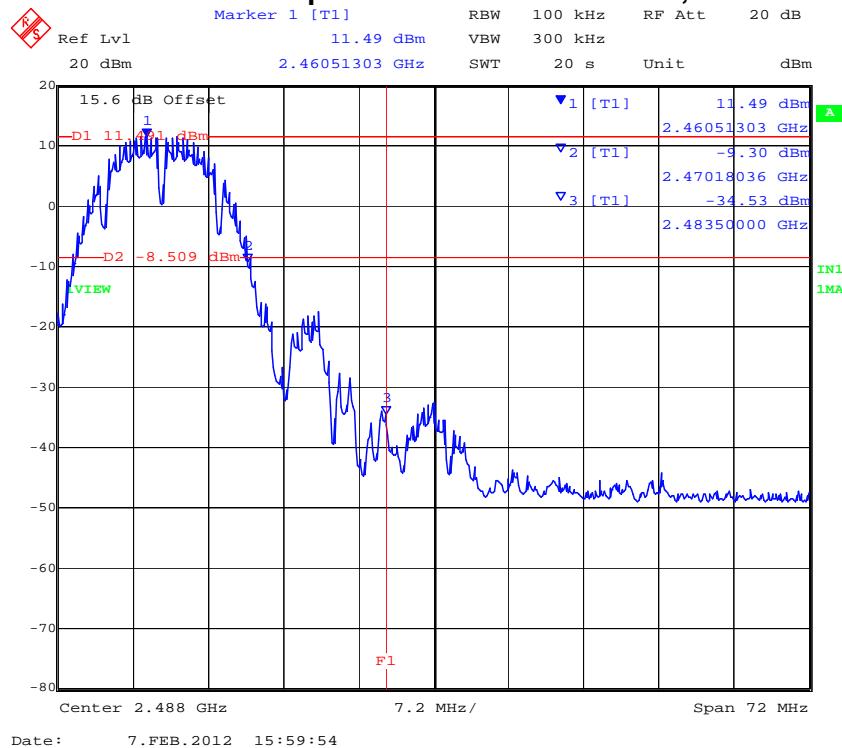


This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT C 802.11b - Conducted Spurious Emissions at the 2,400 MHz Band Edge

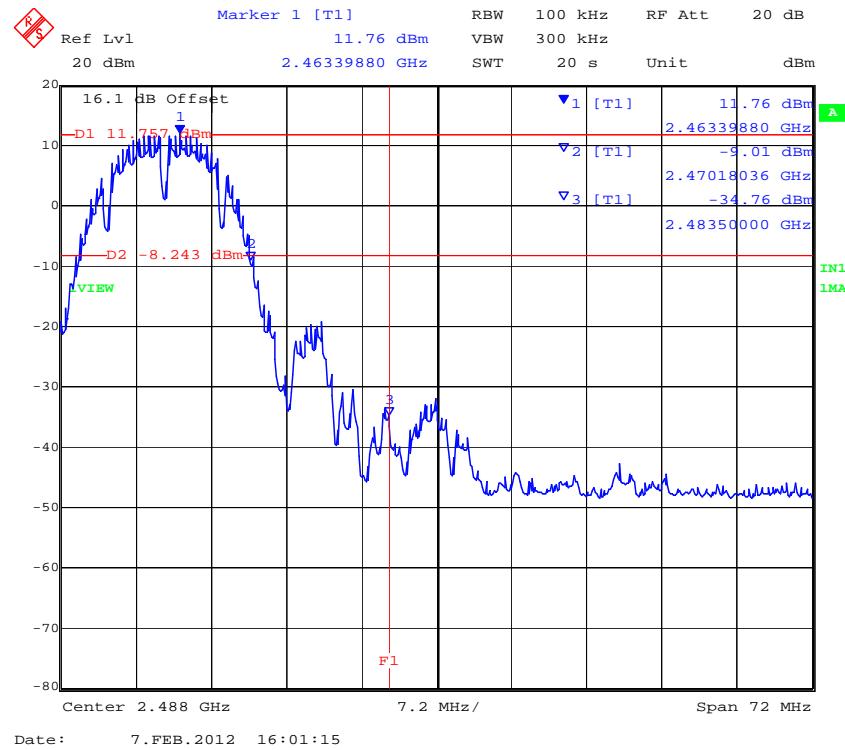


PORT A 802.11b - Conducted Spurious Emissions at the 2,483.5 MHz Band Edge

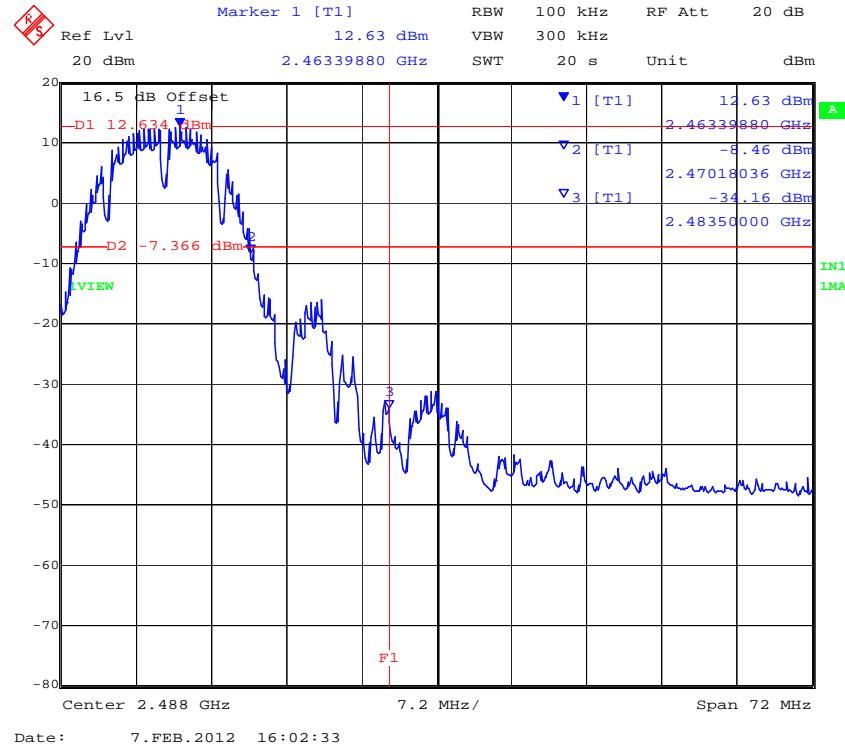


This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT B 802.11b - Conducted Spurious Emissions at the 2,483.5 MHz Band Edge

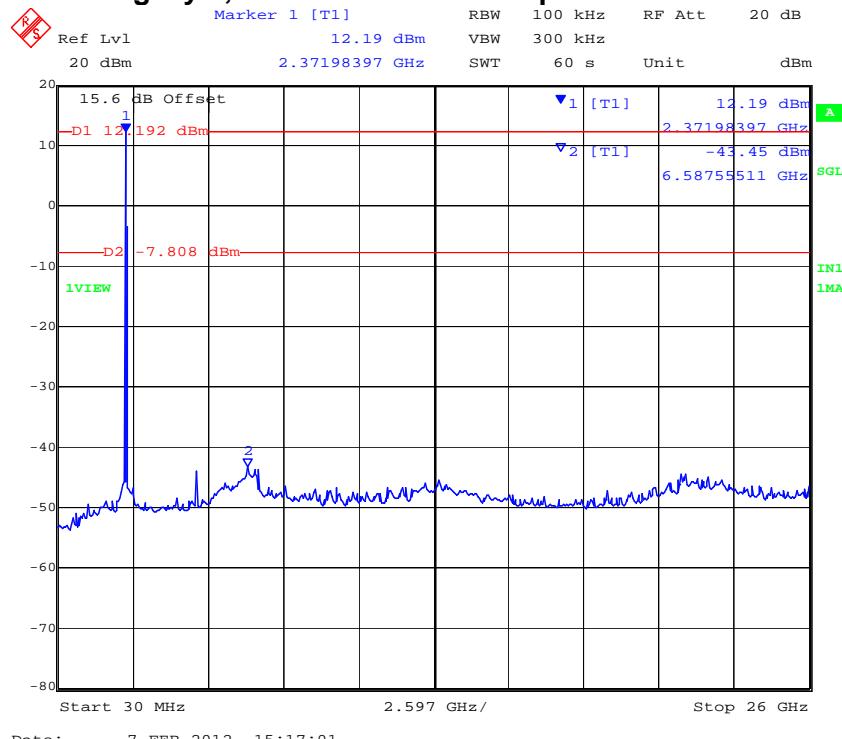


PORT C 802.11b - Conducted Spurious Emissions at the 2,483.5 MHz Band Edge

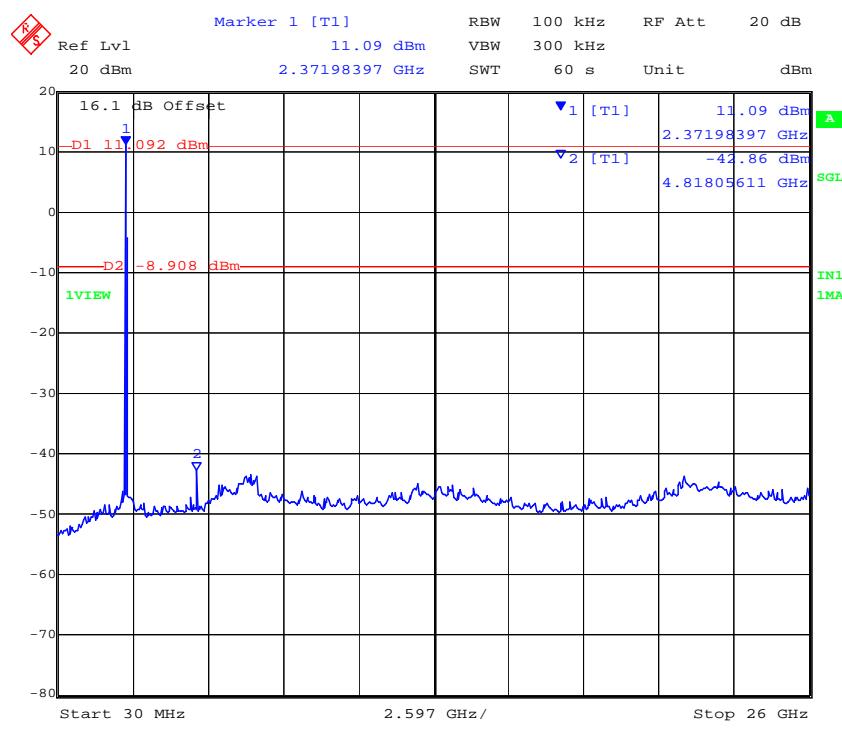


This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11b-Legacy 2,412 MHz Conducted Spurious Emissions 0.30 to 26 GHz

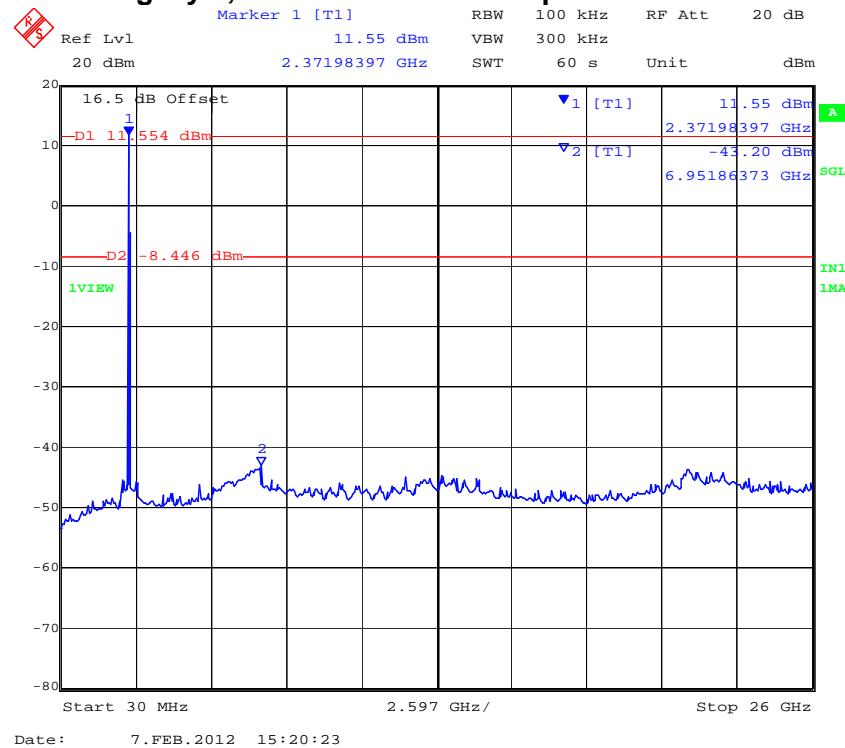


PORT B 802.11b-Legacy 2,412 MHz Conducted Spurious Emissions 0.30 to 26 GHz



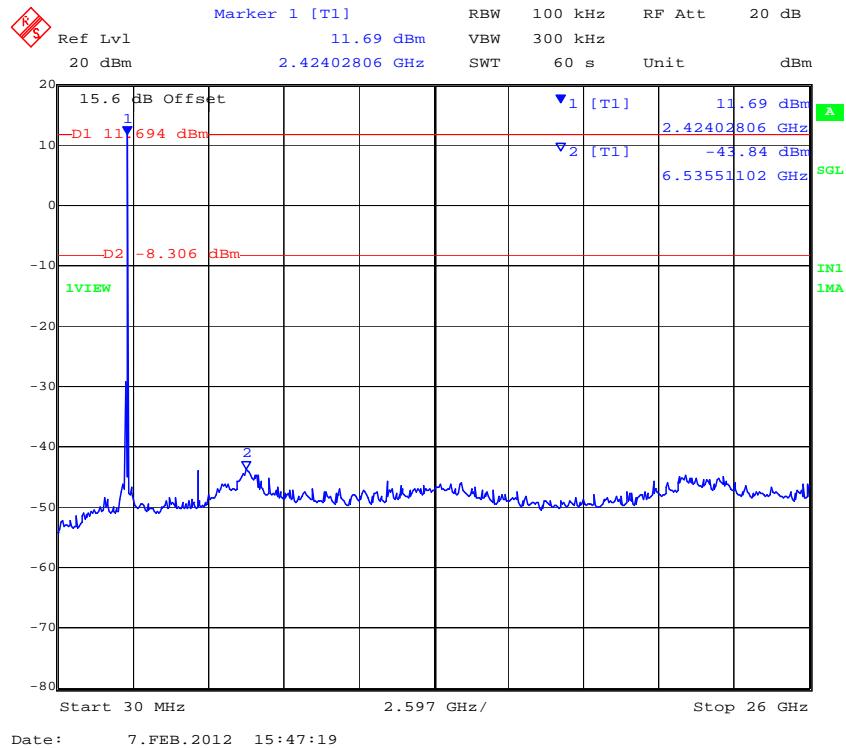
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT C 802.11b-Legacy 2,412 MHz Conducted Spurious Emissions 0.30 to 26 GHz

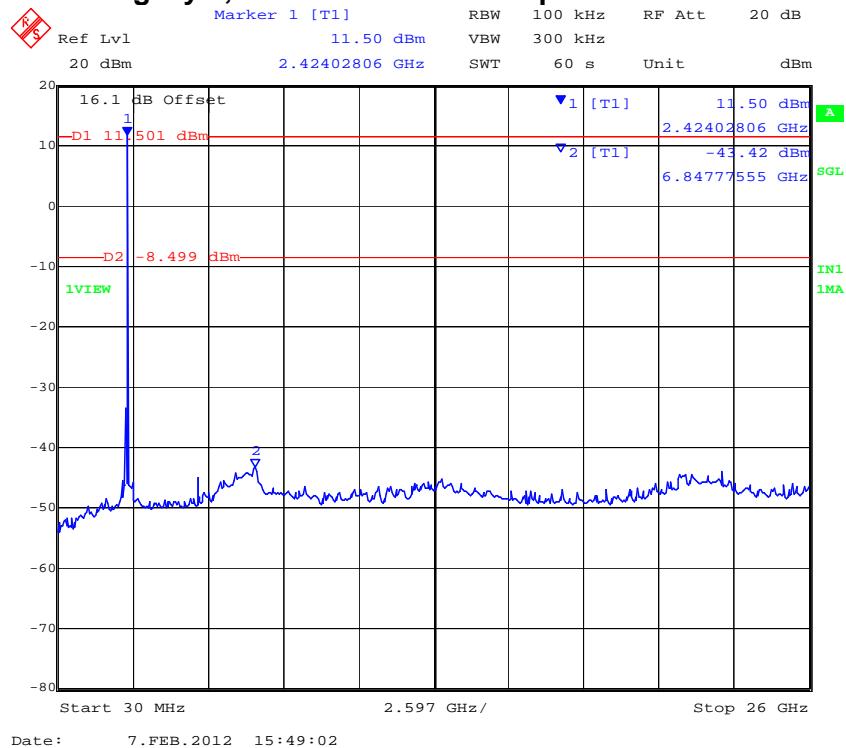


This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11b-Legacy 2,437 MHz Conducted Spurious Emissions 0.30 to 26 GHz

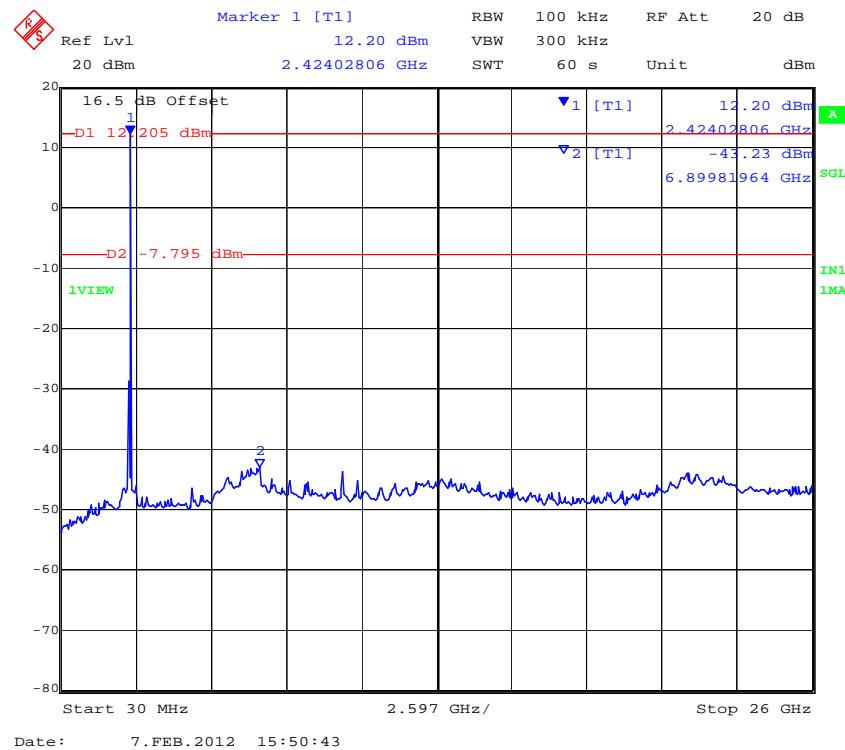


PORT B 802.11b-Legacy 2,437 MHz Conducted Spurious Emissions 0.30 to 26 GHz



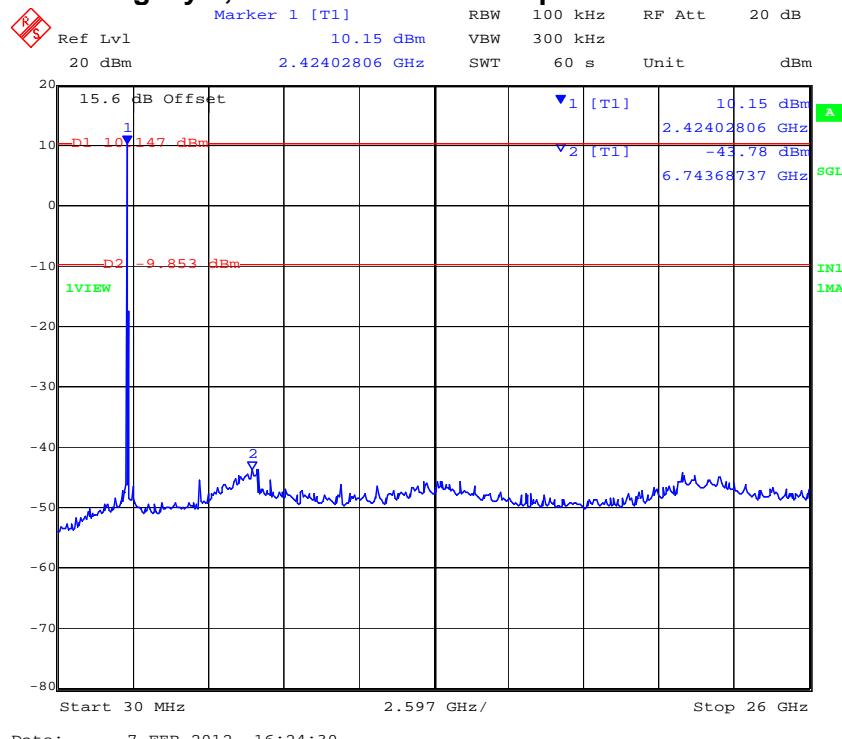
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT C 802.11b-Legacy 2,437 MHz Conducted Spurious Emissions 0.30 to 26 GHz

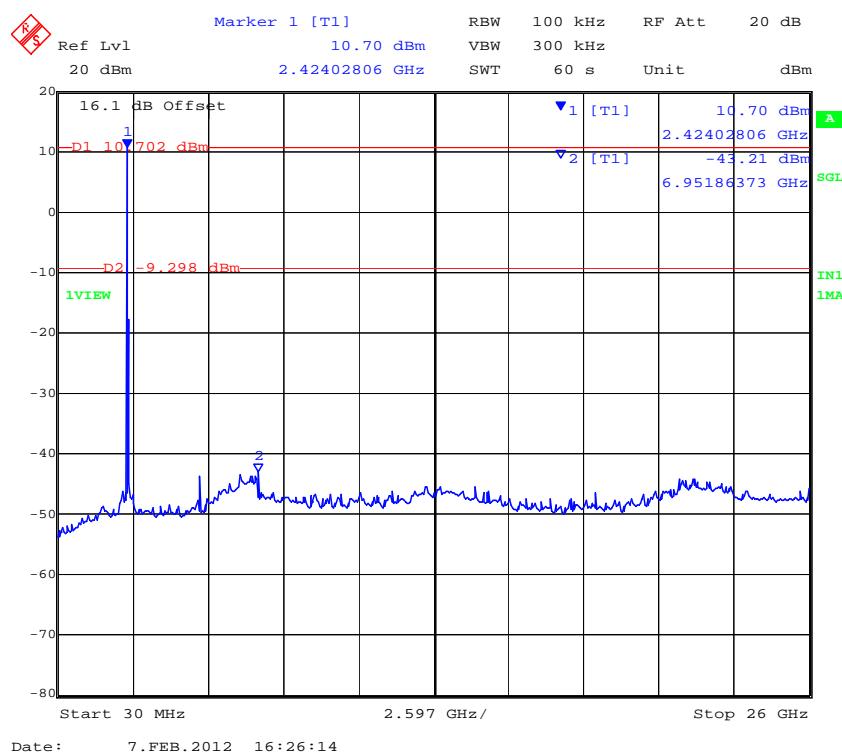


This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11b-Legacy 2,462 MHz Conducted Spurious Emissions 0.30 to 26 GHz

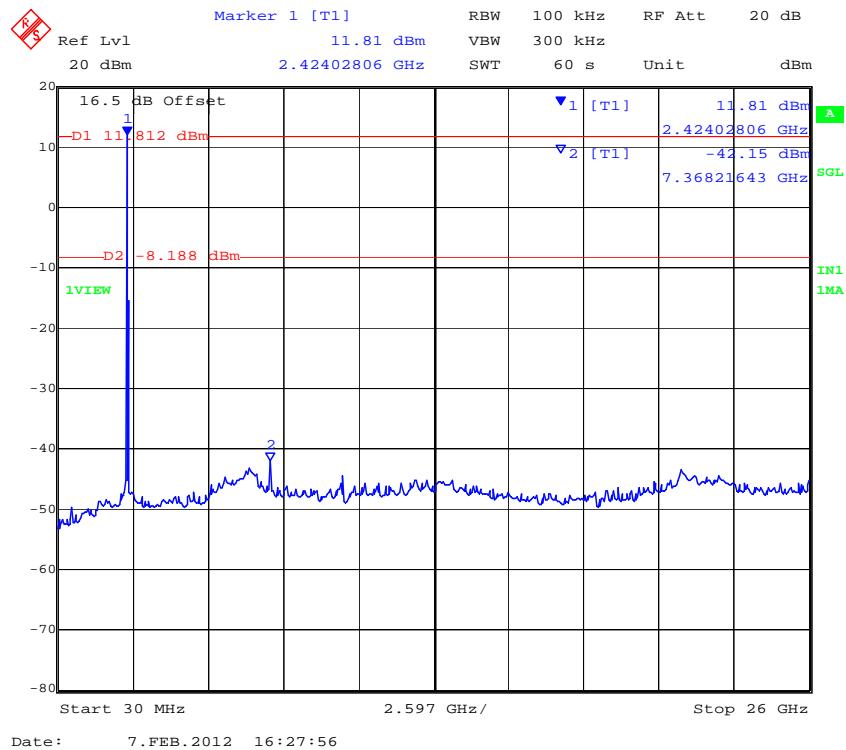


PORT B 802.11b-Legacy 2,462 MHz Conducted Spurious Emissions 0.30 to 26 GHz



This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT C 802.11b-Legacy 2,462 MHz Conducted Spurious Emissions 0.30 to 26 GHz



This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.



Title: Fluke Networks Sensor4 Wireless Client
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: AMGT14-U1 Rev B
Issue Date: 20th June 2012
Page: 189 of 342

Conducted Spurious Emission Results

TABLE OF RESULTS – 802.11g Legacy

| | | | |
|--------------------------|---------------|----------------------------|-------------|
| Test Conditions: | 15.247 (a)(2) | Rel. Humidity (%): | 35 to 42 |
| Variant: | 802.11g | Ambient Temp. (°C): | 19 to 22 |
| TPC: | HIGH | Pressure (mBars): | 998 to 1003 |
| Modulation: | ON | Duty Cycle (%): | 100 |
| Beam Forming Gain | N/A dB | Antenna Gain: | N/A dBi |
| Applied Voltage: | 48.00 Vdc | Antenna Ports (N): | |
| Notes 1: | | | |
| Notes 2: | | | |

Conducted Spurious Measurement

| Test Freq. | Start Freq. | Stop Freq. | Port A | | Port B | | Port C | | Port D | |
|------------|-------------|------------|--------|--------|--------|-----------|--------|-----------|--------|-----------|
| | | | MHz | MHz | SE dBm | Limit dBm | SE dBm | Limit dBm | SE dBm | Limit dBm |
| 2412.000 | 30.00 | 26000.00 | -44.04 | -12.86 | -43.40 | -12.65 | -43.42 | -11.45 | | |
| 2437.000 | 30.00 | 26000.00 | -43.46 | -12.92 | -43.26 | -14.04 | -42.61 | -14.21 | | |
| 2462.000 | 30.00 | 26000.00 | -44.34 | -13.60 | -43.60 | -13.06 | -42.81 | -12.74 | | |

SE: Maximum spurious emission found

Band-edge Measurement

| Test Freq. | Band-edge freq. | Port A | | Port B | | Port C | | Port D | |
|------------|-----------------|--------|--------|--------|-----------|--------|-----------|--------|-----------|
| | | MHz | MHz | BE dBm | Limit dBm | BE dBm | Limit dBm | BE dBm | Limit dBm |
| 2412.000 | 2400.00 | -14.40 | -11.99 | -16.81 | -12.09 | -15.39 | -10.82 | | |
| 2462.000 | 2483.50 | -28.96 | -13.04 | -27.40 | -12.73 | -25.65 | -11.28 | | |

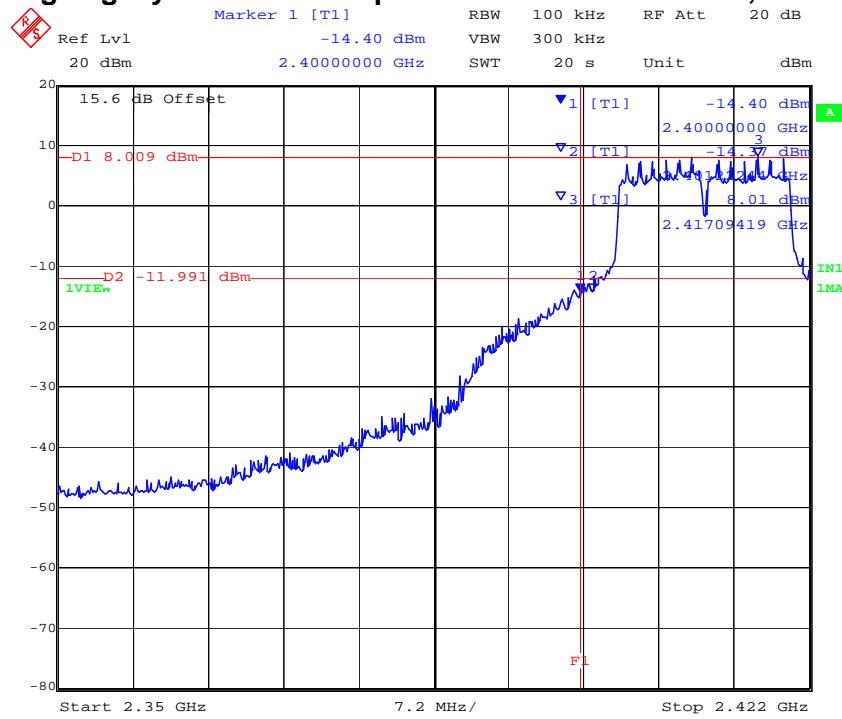
BE: Maximum Band edge emission found

| | |
|---------------------------------|----------|
| Measurement uncertainty: | ±2.81 dB |
|---------------------------------|----------|

Note: Limit is based on 20dB down from fundamental emission

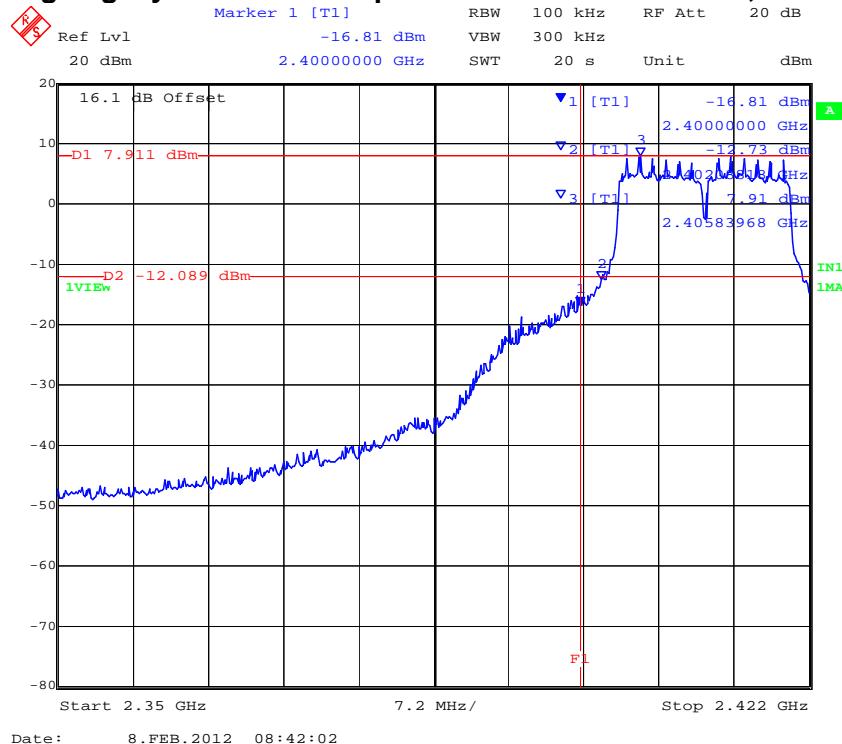
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11g Legacy - Conducted Spurious Emissions at the 2,400 MHz Band Edge



Date: 8.FEB.2012 08:40:43

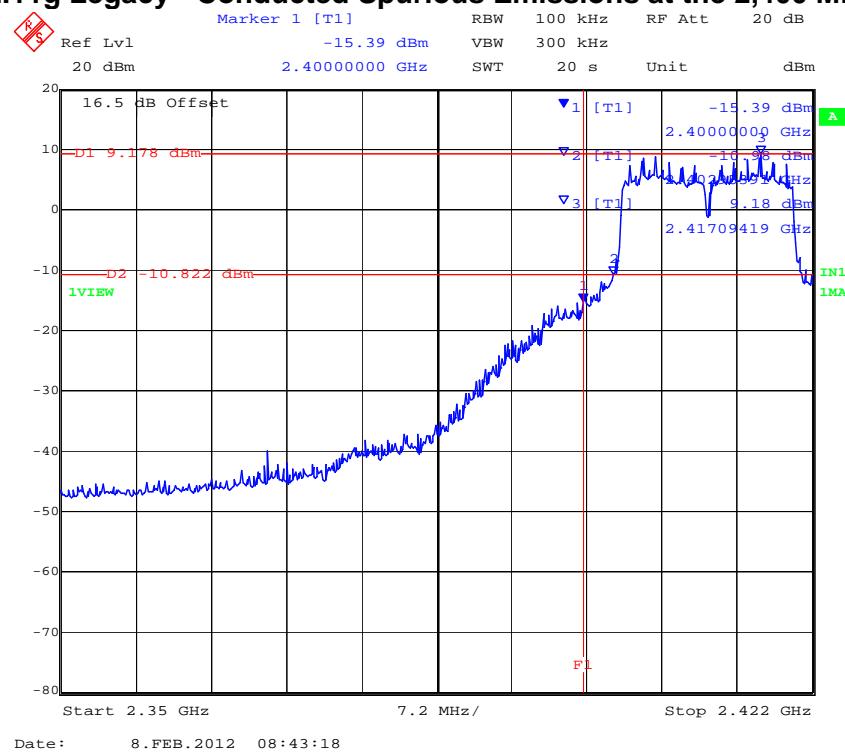
PORT B 802.11g Legacy - Conducted Spurious Emissions at the 2,400 MHz Band Edge



Date: 8.FEB.2012 08:42:02

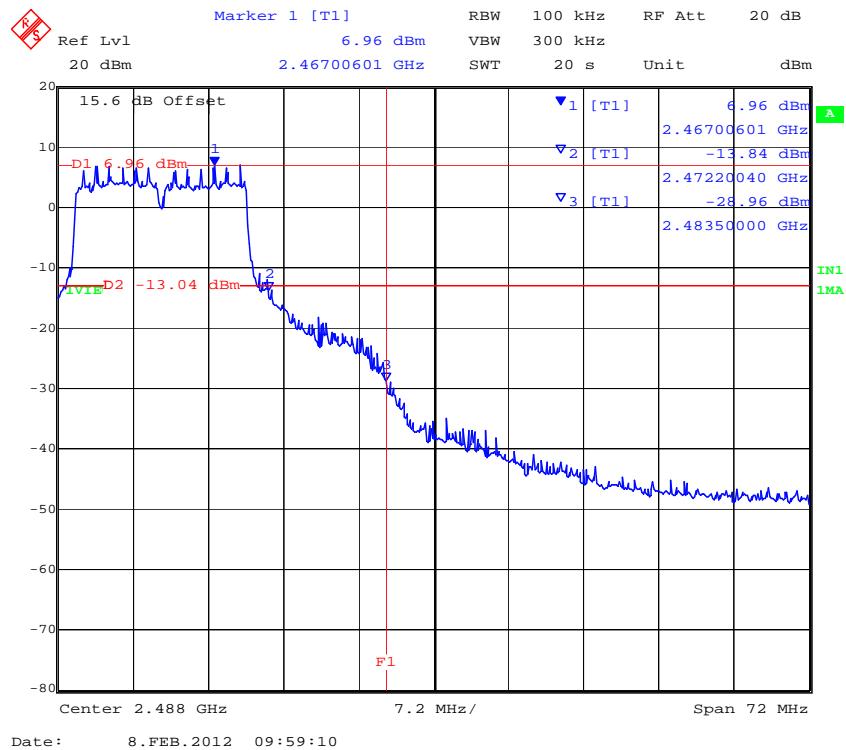
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT C 802.11g Legacy - Conducted Spurious Emissions at the 2,400 MHz Band Edge

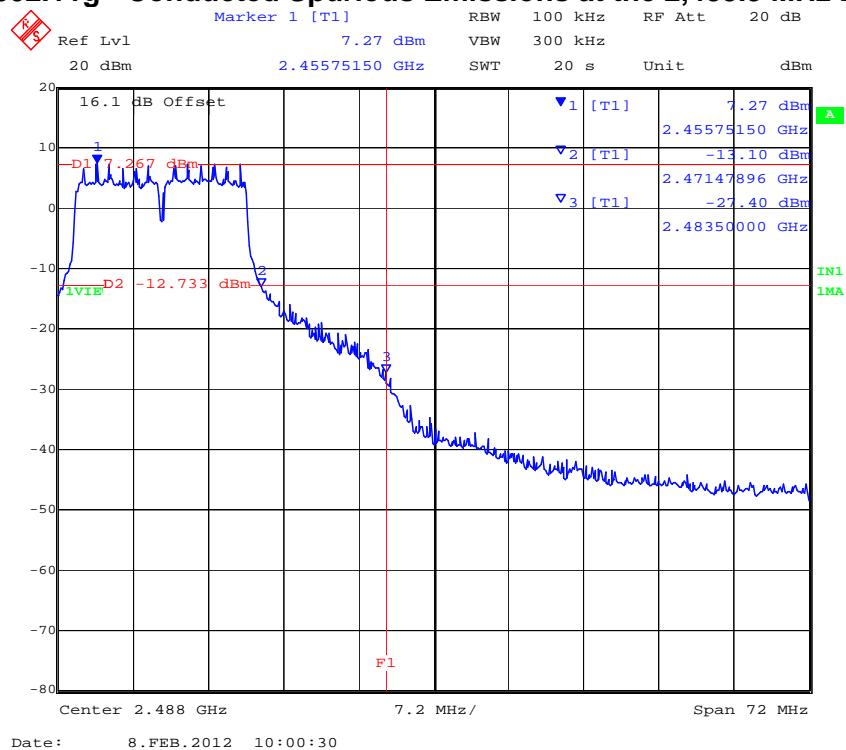


This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11g - Conducted Spurious Emissions at the 2,483.5 MHz Band Edge

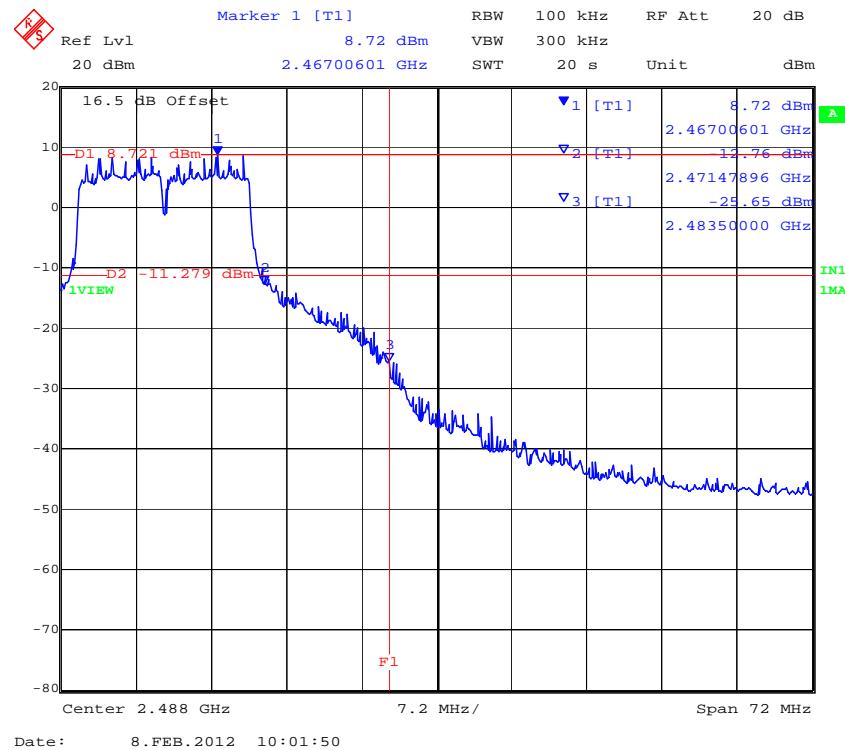


PORT B 802.11g - Conducted Spurious Emissions at the 2,483.5 MHz Band Edge



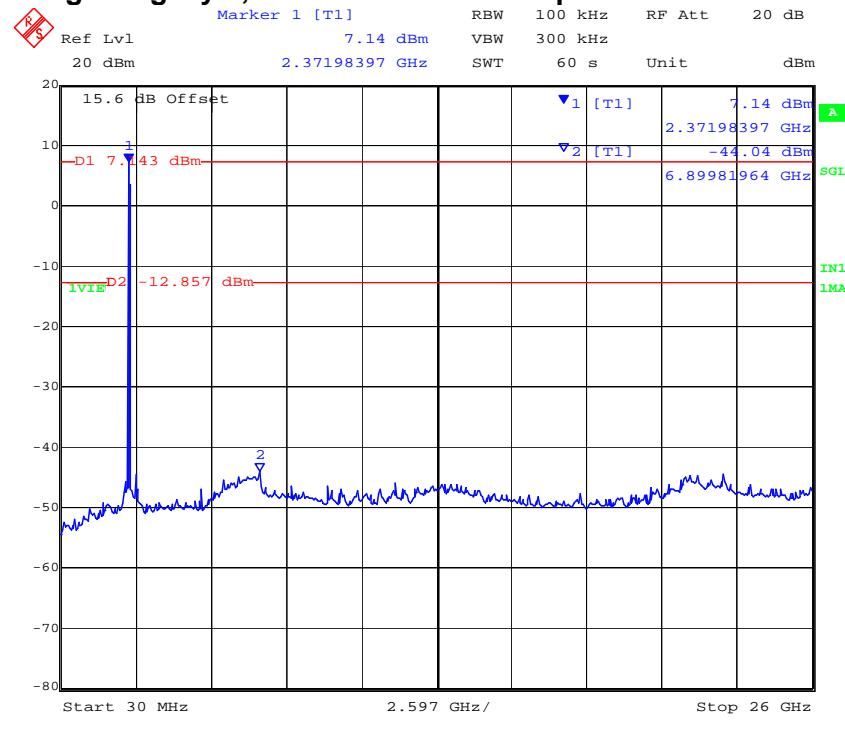
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT C 802.11g - Conducted Spurious Emissions at the 2,483.5 MHz Band Edge

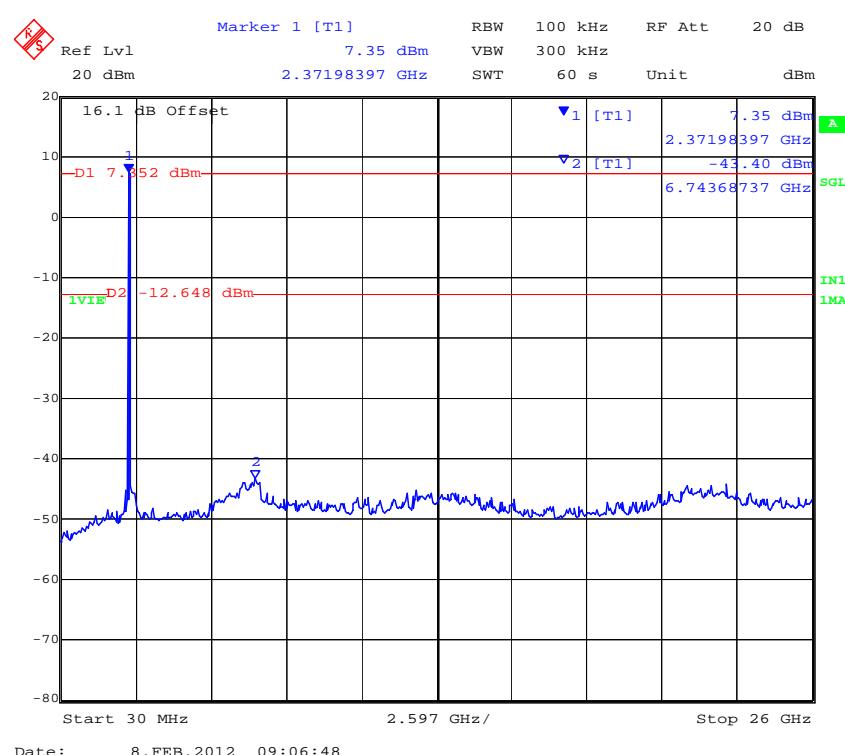


This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11g – Legacy 2,412 MHz Conducted Spurious Emissions 0.03 – 26 GHz

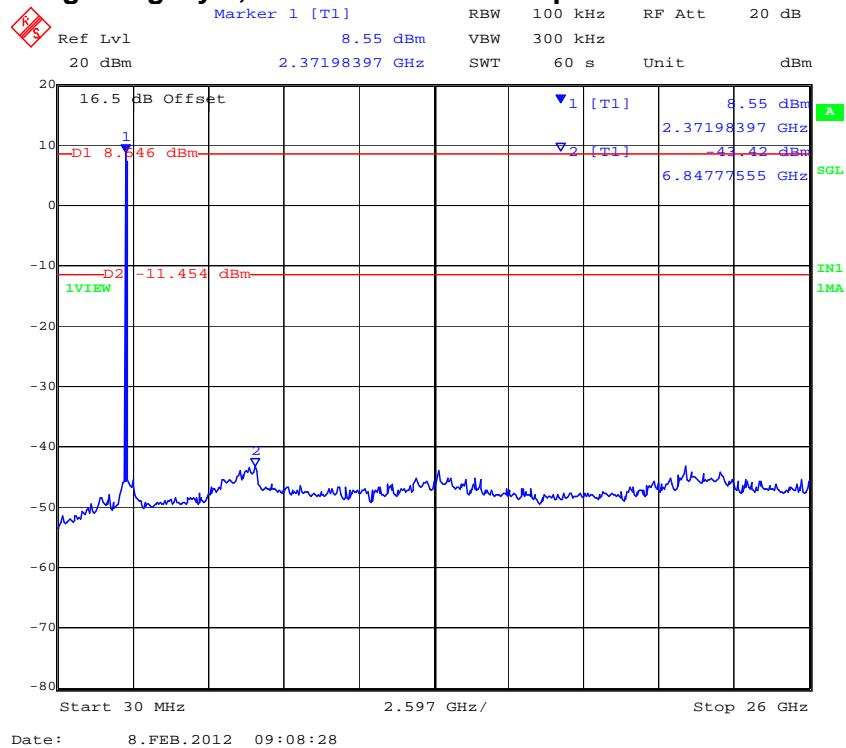


PORT B 802.11g – Legacy 2,412 MHz Conducted Spurious Emissions 0.03 – 26 GHz



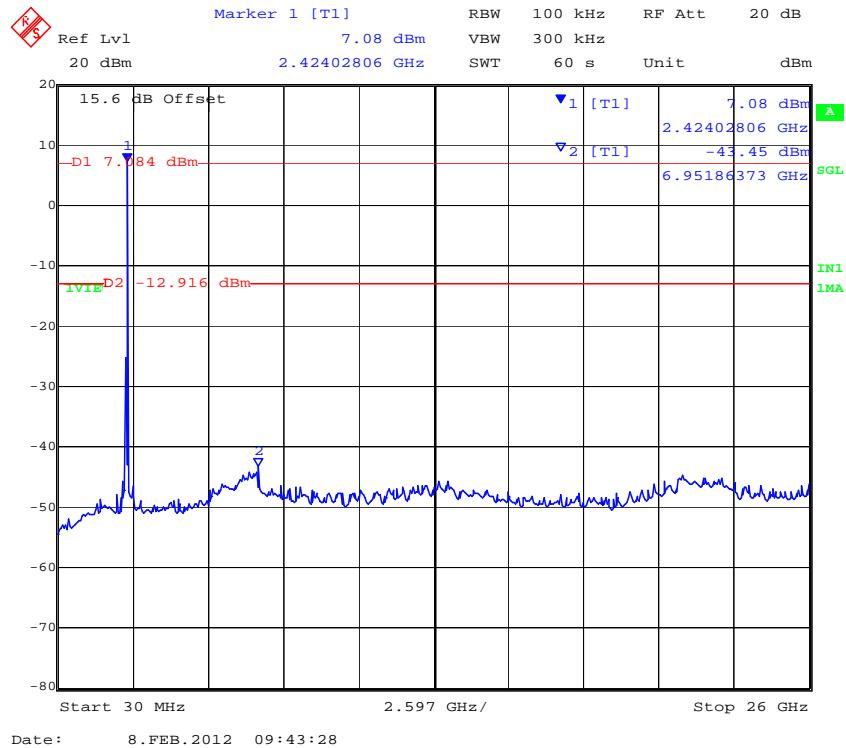
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT C 802.11g – Legacy 2,412 MHz Conducted Spurious Emissions 0.03 – 26 GHz

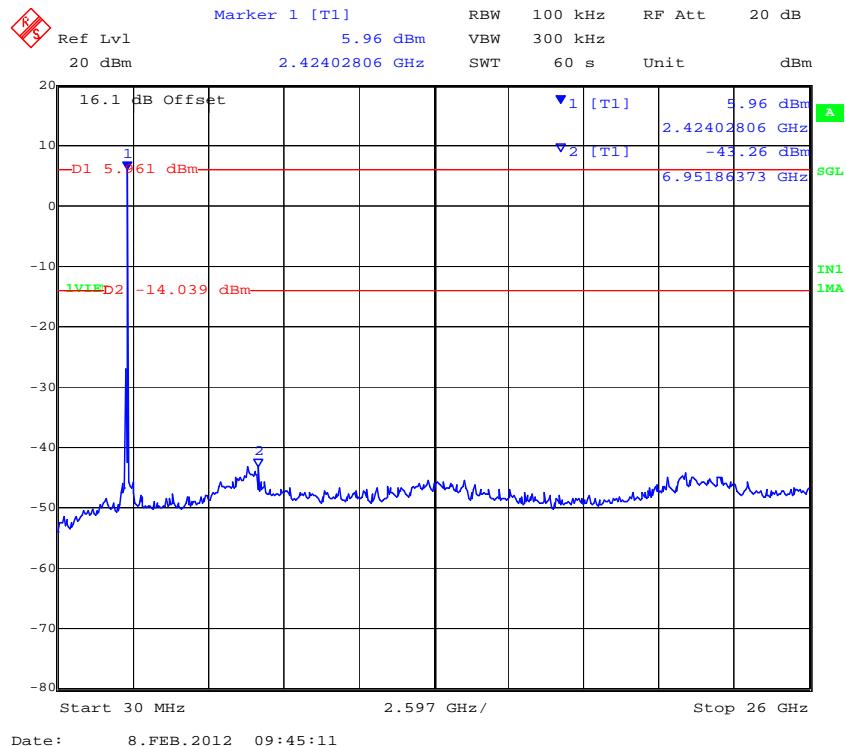


This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11g-Legacy 2,437 MHz Conducted Spurious Emissions 0.03 – 26 GHz

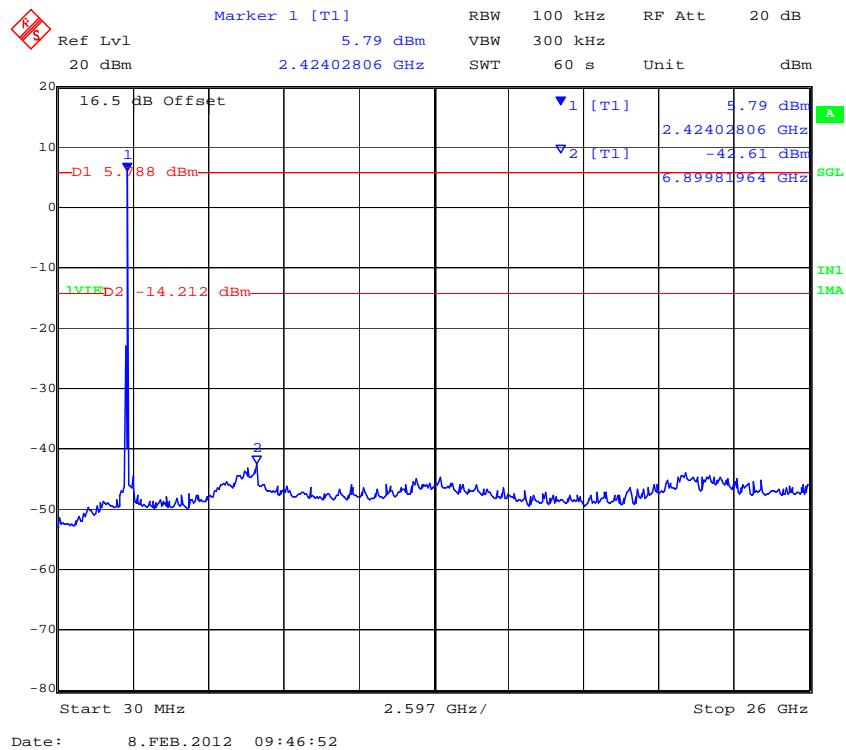


PORT B 802.11g-Legacy 2,437 MHz Conducted Spurious Emissions 0.03 – 26 GHz



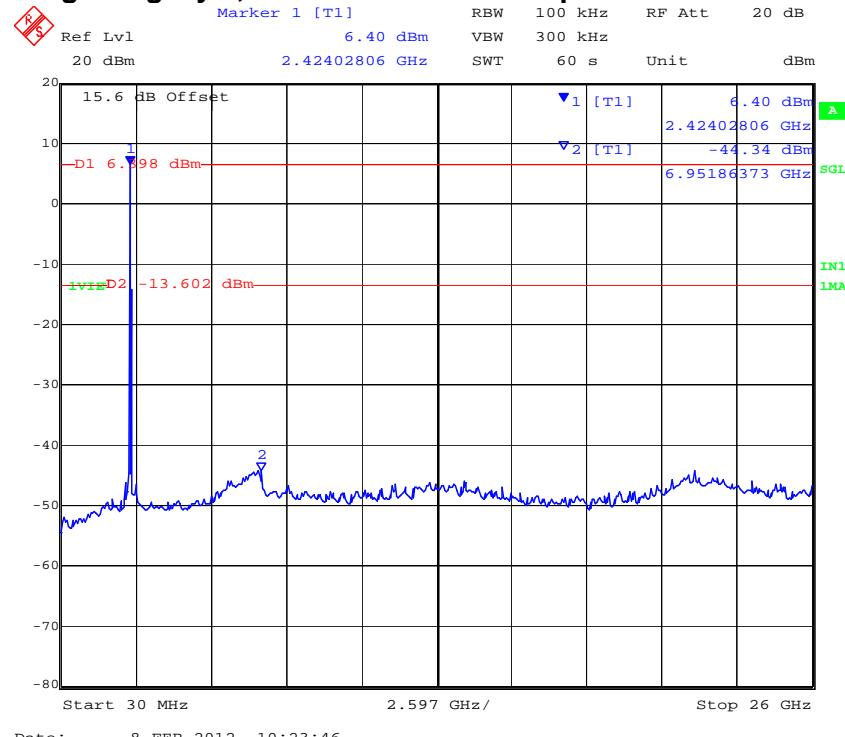
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT C 802.11g-Legacy 2,437 MHz Conducted Spurious Emissions 0.03 – 26 GHz

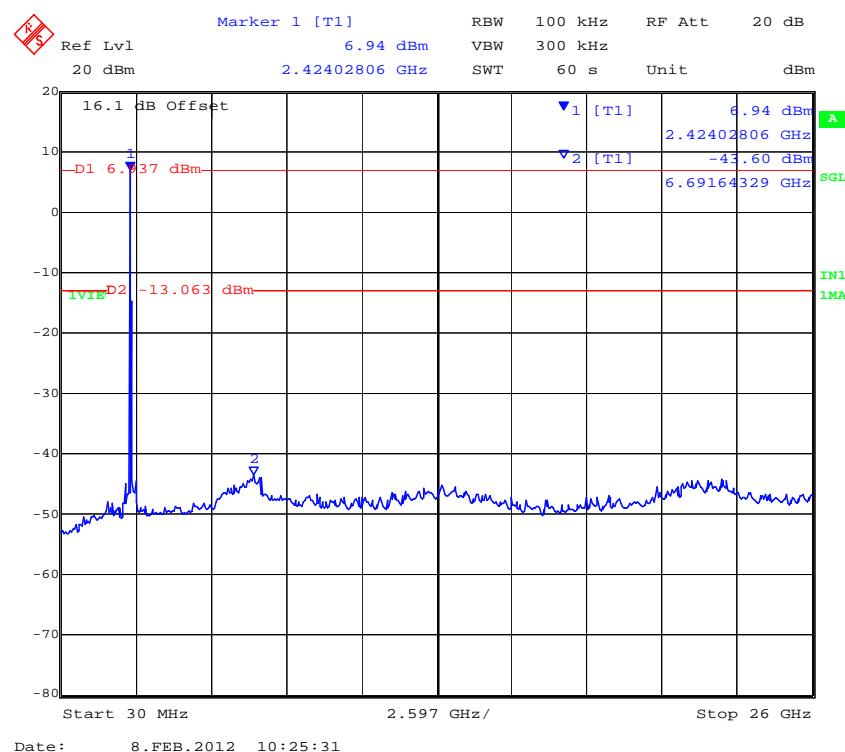


This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11g – Legacy 2,462 MHz Conducted Spurious Emissions 0.03 – 26 GHz

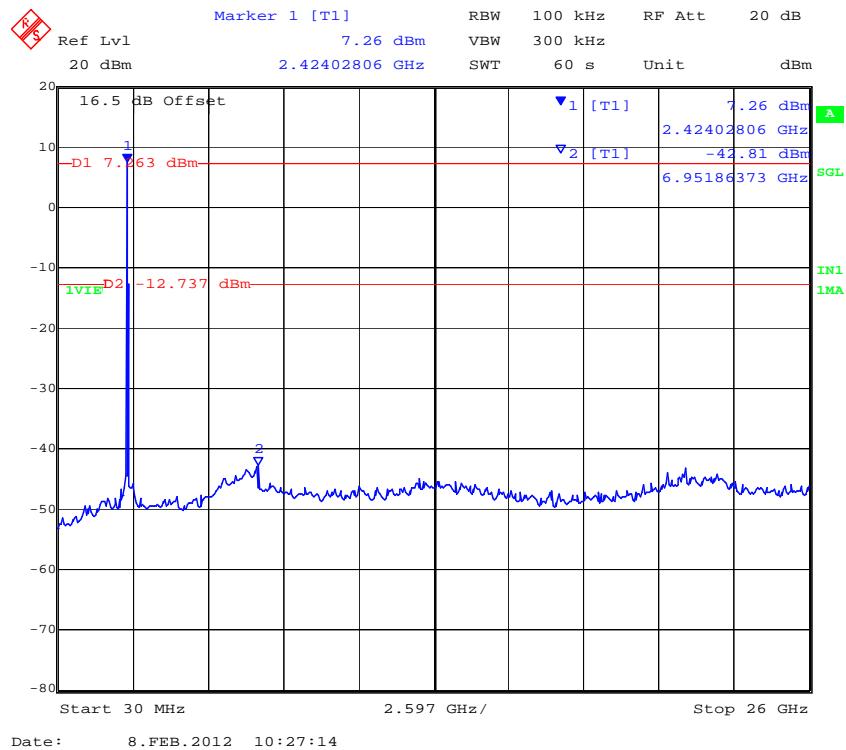


PORT B 802.11g – Legacy 2,462 MHz Conducted Spurious Emissions 0.03 – 26 GHz



This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT C 802.11g – Legacy 2,462 MHz Conducted Spurious Emissions 0.03 – 26 GHz



This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.



Title: Fluke Networks Sensor4 Wireless Client
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: AMGT14-U1 Rev B
Issue Date: 20th June 2012
Page: 200 of 342

Conducted Spurious Emission Results

TABLE OF RESULTS – 802.11n HT-20

| | | | | | |
|--------------------------|---------------|----------------------------|-----|-----|------|
| Test Conditions: | 15.247 (a)(2) | Rel. Humidity (%): | 35 | to | 42 |
| Variant: | 802.11n HT-20 | Ambient Temp. (°C): | 19 | to | 22 |
| TPC: | HIGH | Pressure (mBars): | 998 | to | 1003 |
| Modulation: | ON | Duty Cycle (%): | 100 | | |
| Beam Forming Gain | N/A dB | Antenna Gain: | N/A | dBi | |
| Applied Voltage: | 48.00 Vdc | Antenna Ports (N): | | | |
| Notes 1: | | | | | |
| Notes 2: | | | | | |

Conducted Spurious Measurement

| Test Freq. | Start Freq. | Stop Freq. | Port A | | Port B | | Port C | | Port D | |
|------------|-------------|------------|--------|--------|--------|-----------|--------|-----------|--------|-----------|
| | | | MHz | MHz | SE dBm | Limit dBm | SE dBm | Limit dBm | SE dBm | Limit dBm |
| 2412.000 | 30.00 | 26000.00 | -43.79 | -15.23 | -43.84 | -13.21 | -43.12 | -11.23 | | |
| 2437.000 | 30.00 | 26000.00 | -42.73 | -12.52 | -42.22 | -12.00 | -42.98 | -14.86 | | |
| 2462.000 | 30.00 | 26000.00 | -44.43 | -14.25 | -42.86 | -12.56 | -42.76 | -14.97 | | |

SE: Maximum spurious emission found

Band-edge Measurement

| Test Freq. | Band-edge freq. | Port A | | Port B | | Port C | | Port D | | | |
|------------|-----------------|--------|--------|--------|-----------|--------|-----------|--------|-----------|--------|-----------|
| | | MHz | MHz | BE dBm | Limit dBm |
| 2412.000 | 2400.00 | -14.40 | -12.32 | -14.67 | -12.07 | -15.62 | -11.23 | | | | |
| 2462.000 | 2483.50 | -23.97 | -12.72 | -25.56 | -12.31 | -23.63 | -11.04 | | | | |

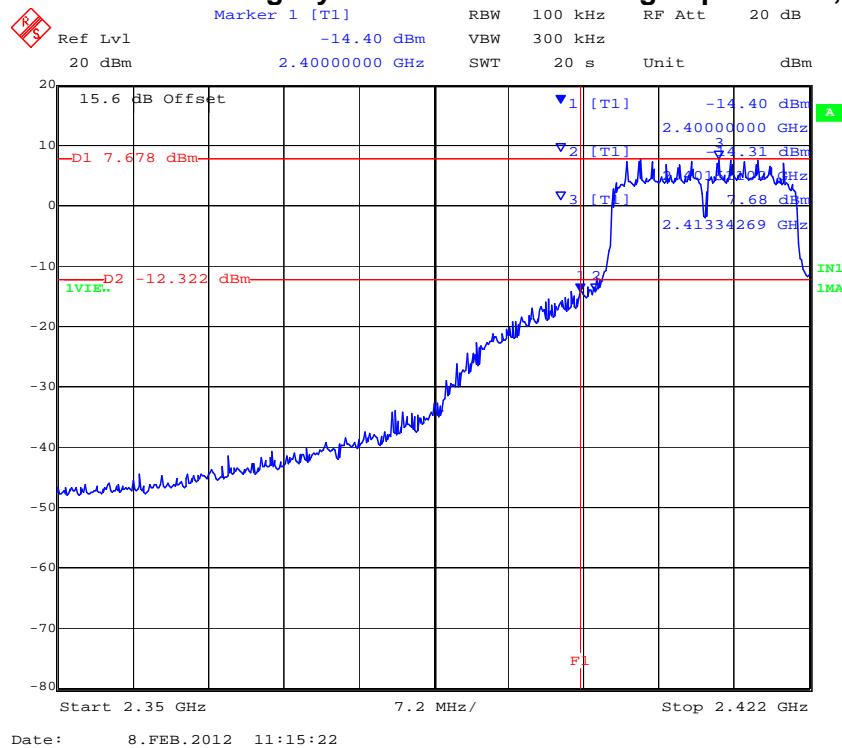
BE: Maximum Band edge emission found

| | |
|--------------------------|----------|
| Measurement uncertainty: | ±2.81 dB |
|--------------------------|----------|

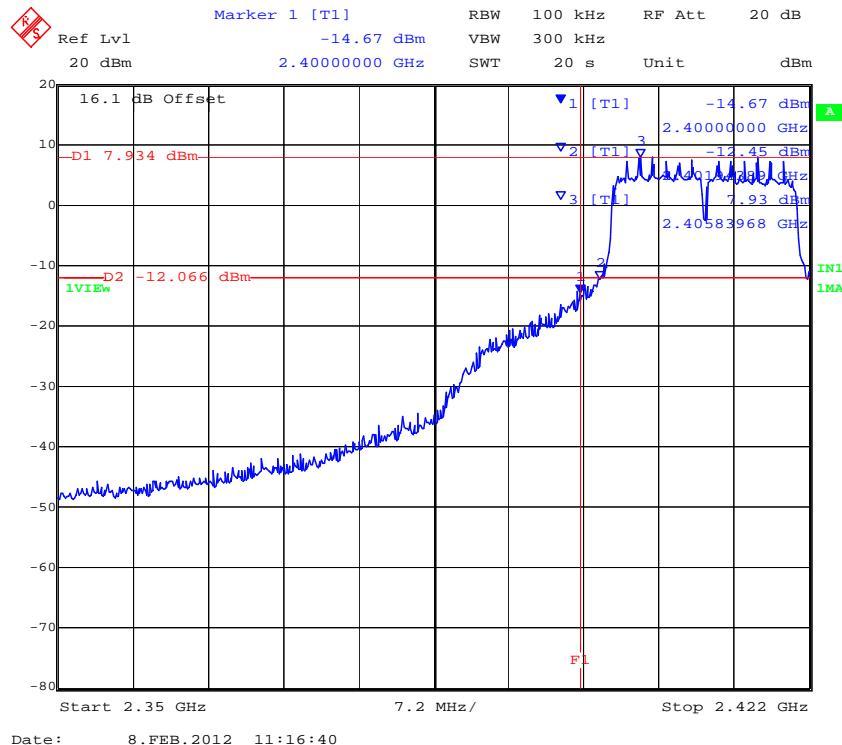
Note: Limit is based on 20dB down from fundamental emission

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11n HT-20 Legacy - Conducted Band Edge Spurious 2,400 MHz

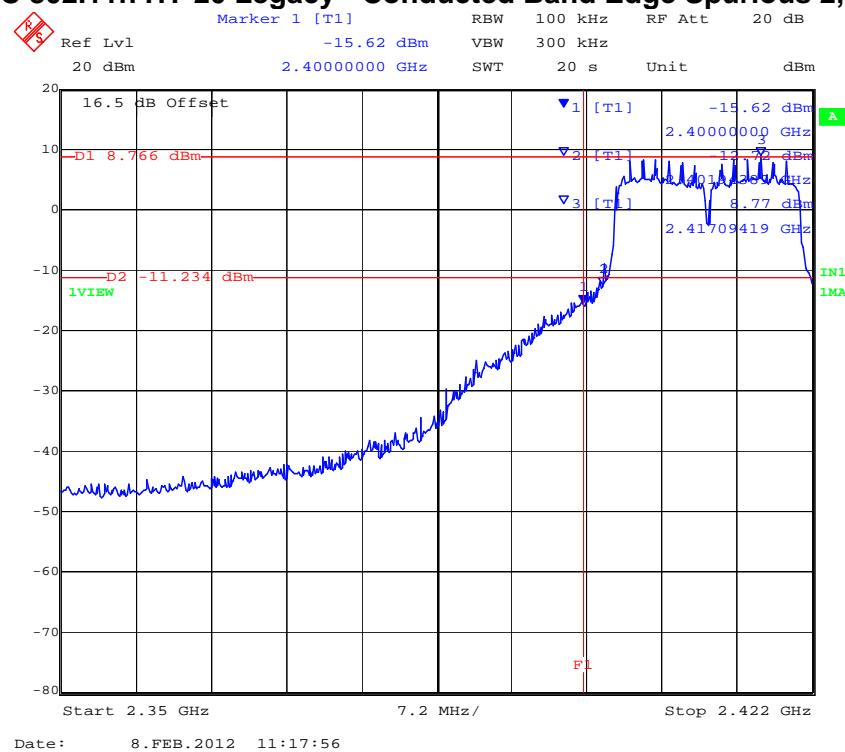


PORT B 802.11n HT-20 Legacy - Conducted Band Edge Spurious 2,400 MHz



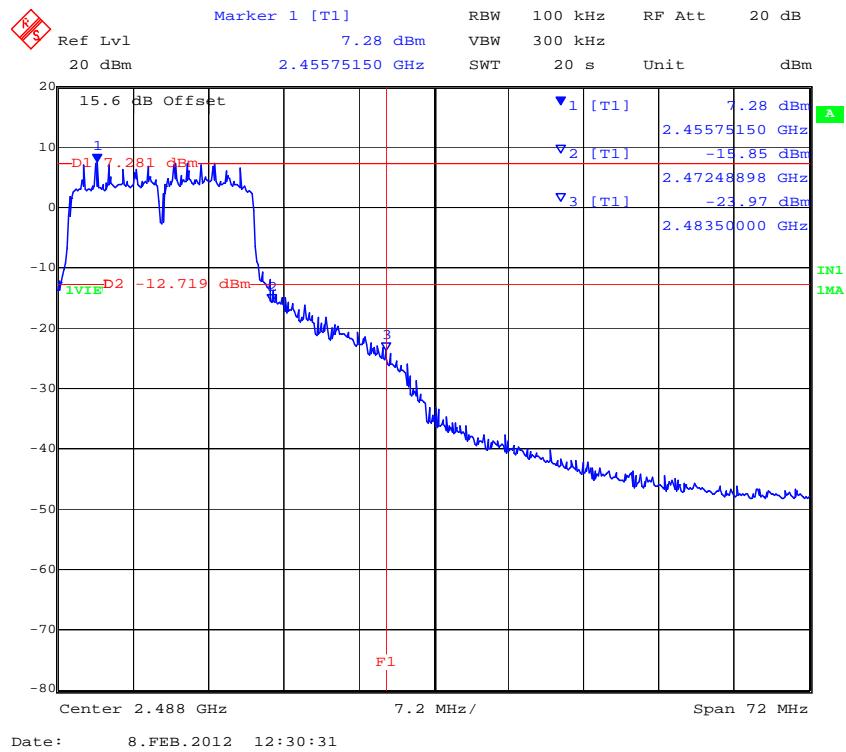
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT C 802.11n HT-20 Legacy - Conducted Band Edge Spurious 2,400 MHz

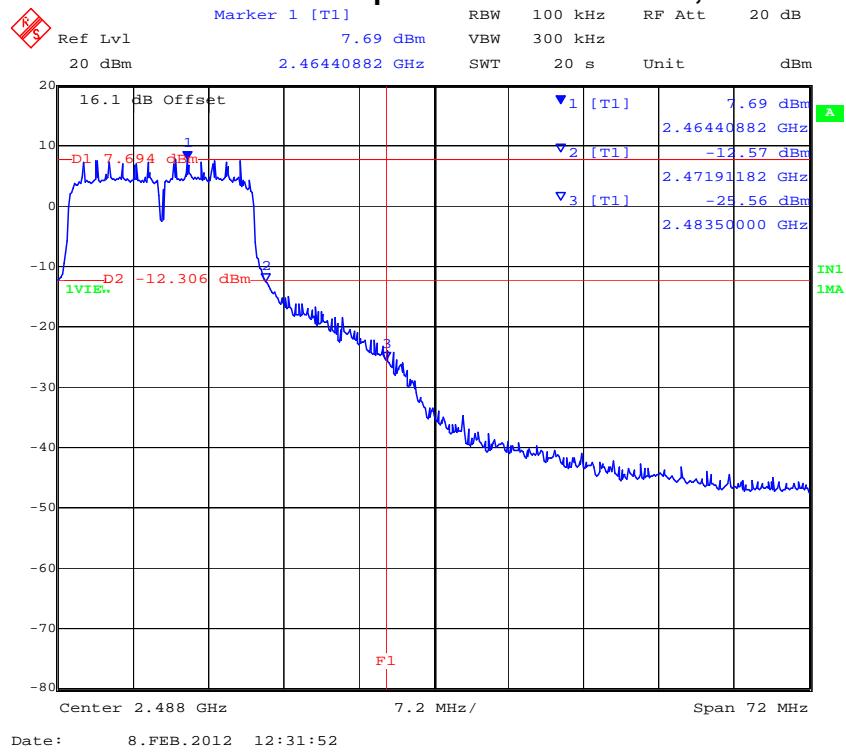


This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11n HT-20 Conducted Spurious Emissions at 2,483.5 MHz Band Edge

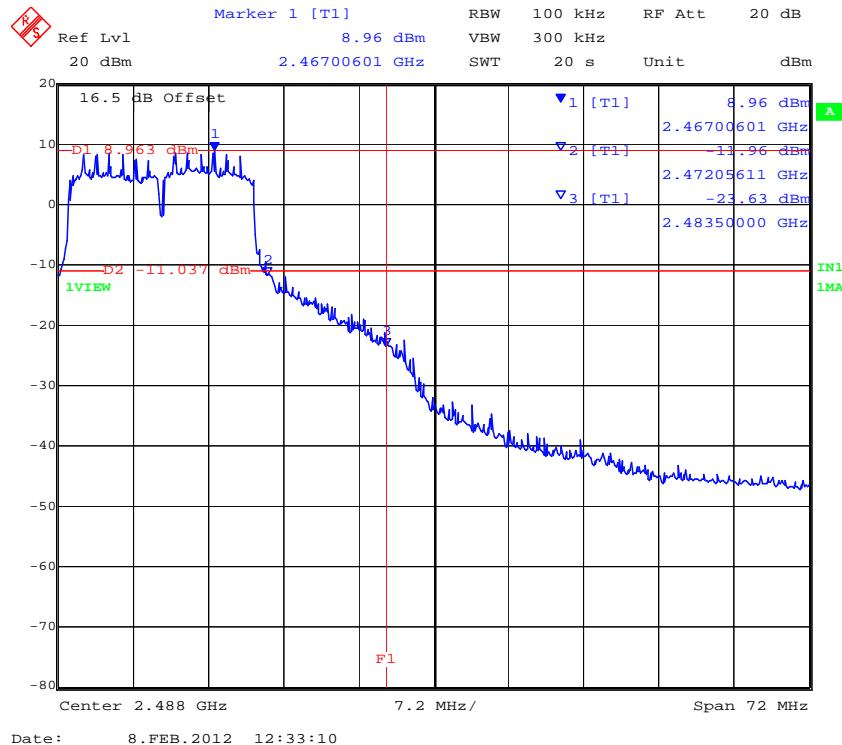


PORT B 802.11n HT-20 Conducted Spurious Emissions at 2,483.5 MHz Band Edge



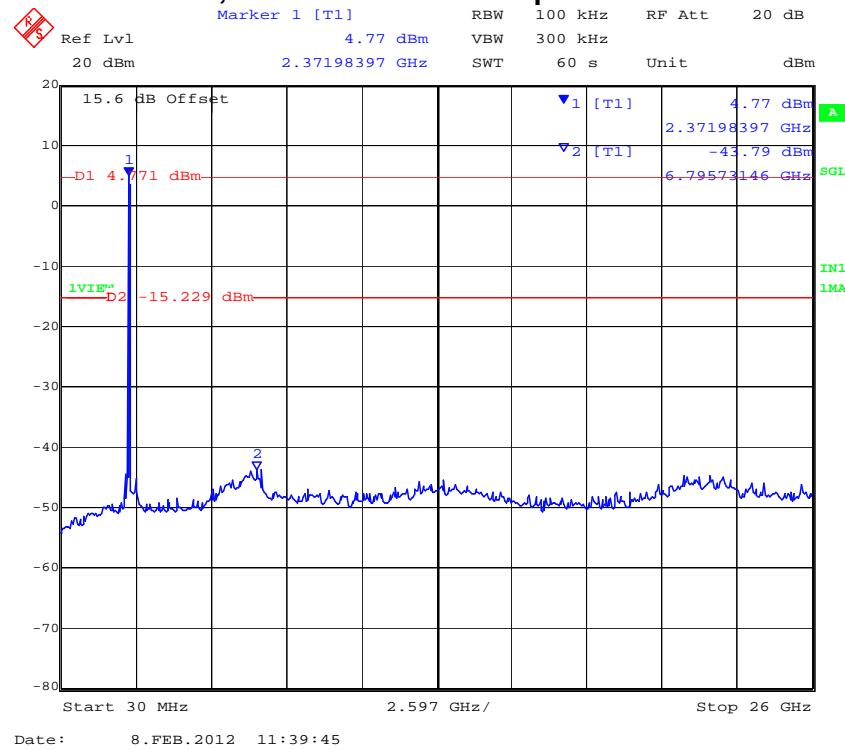
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT C 802.11n HT-20 Conducted Spurious Emissions at 2,483.5 MHz Band Edge

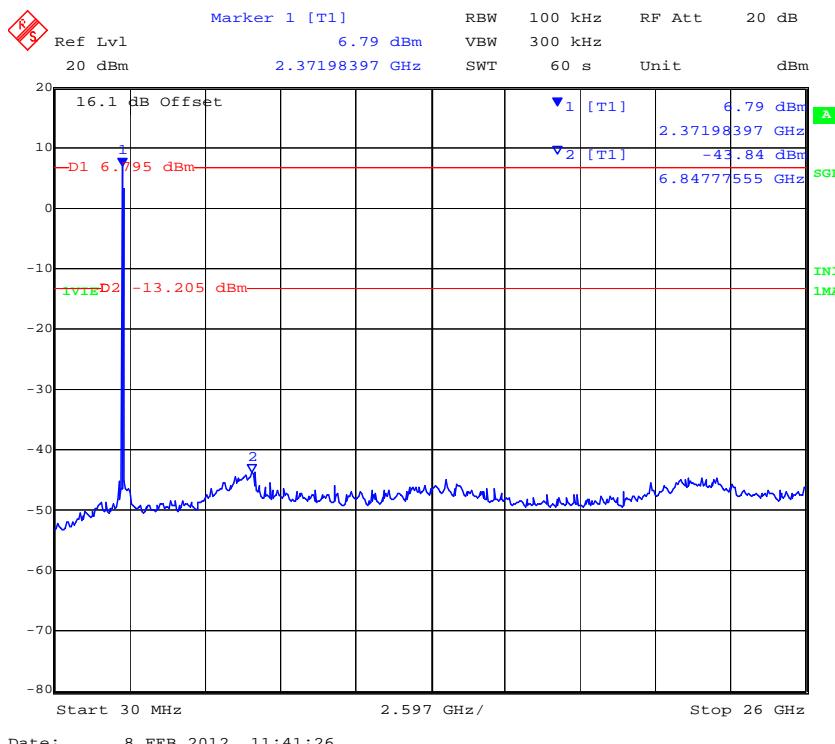


This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11n HT-20 2,412 MHz Conducted Spurious Emissions 0.03 – 26 GHz

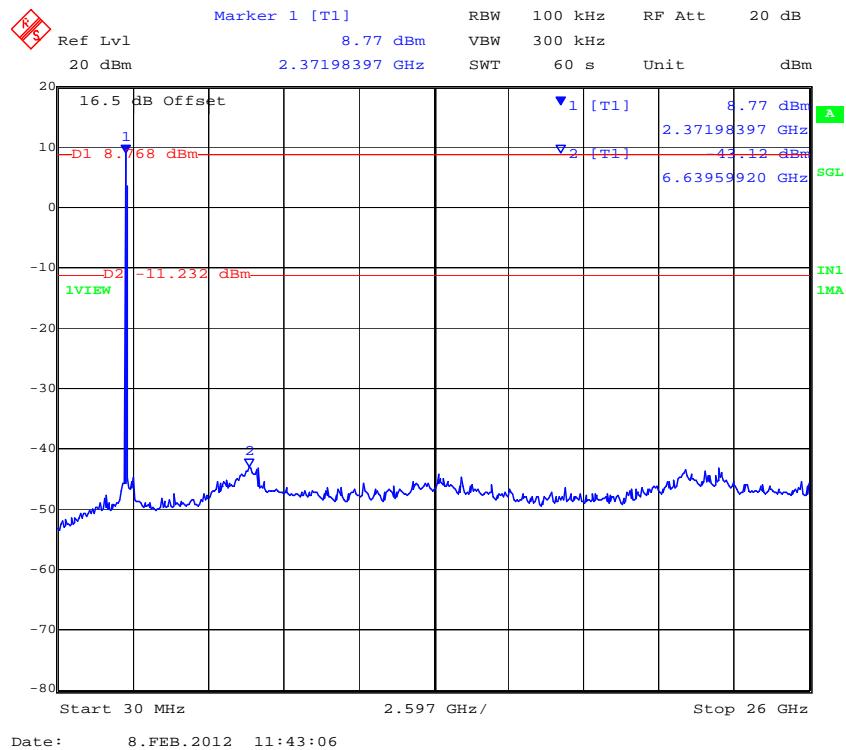


PORT B 802.11n HT-20 2,412 MHz Conducted Spurious Emissions 0.03 – 26 GHz



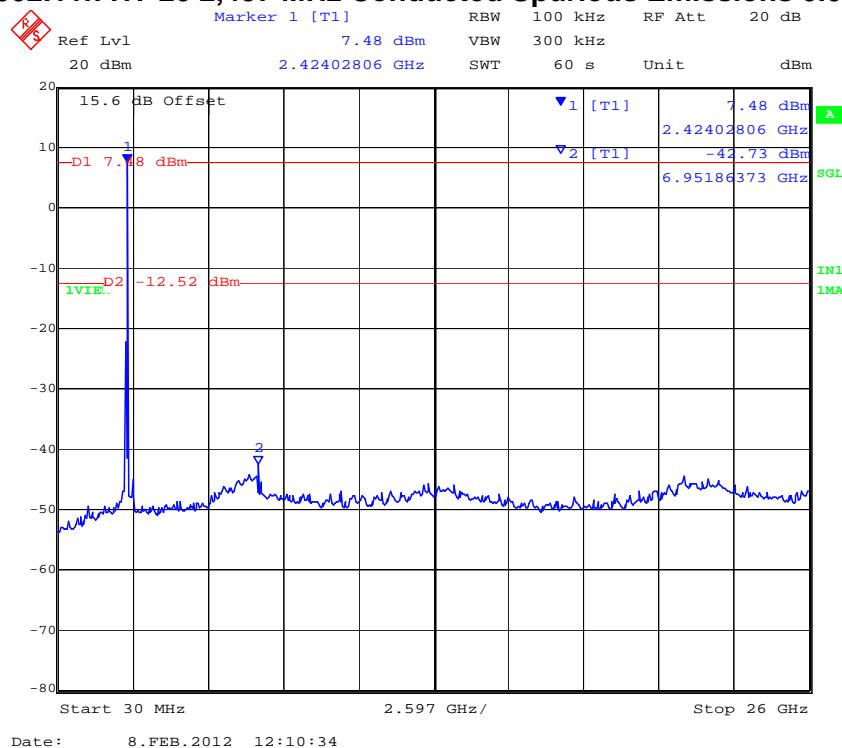
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT C 802.11n HT-20 2,412 MHz Conducted Spurious Emissions 0.03 – 26 GHz

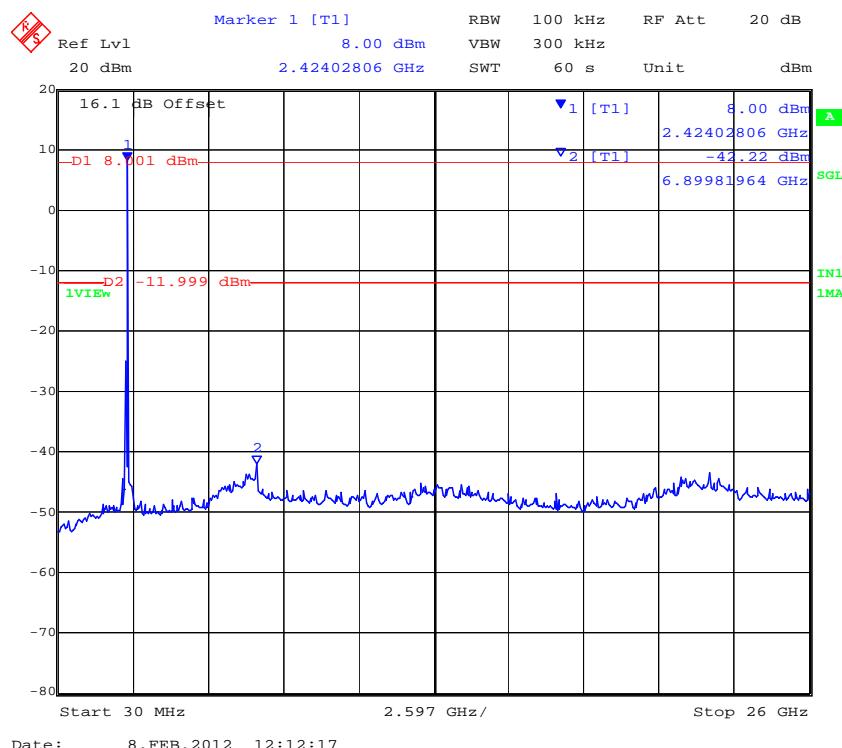


This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11n HT-20 2,437 MHz Conducted Spurious Emissions 0.03 – 26 GHz

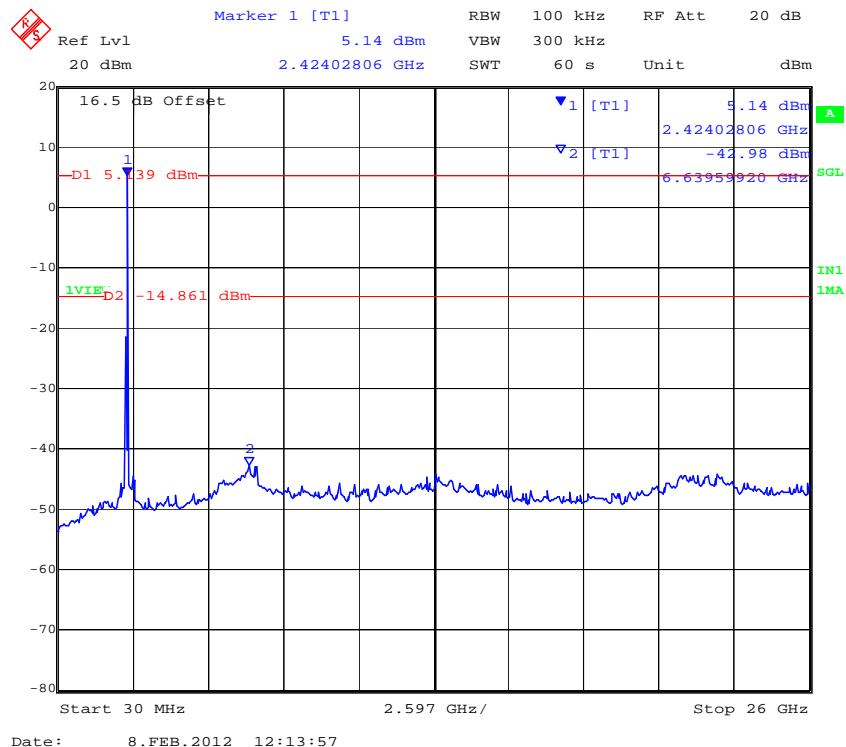


PORT B 802.11n HT-20 2,437 MHz Conducted Spurious Emissions 0.03 – 26 GHz



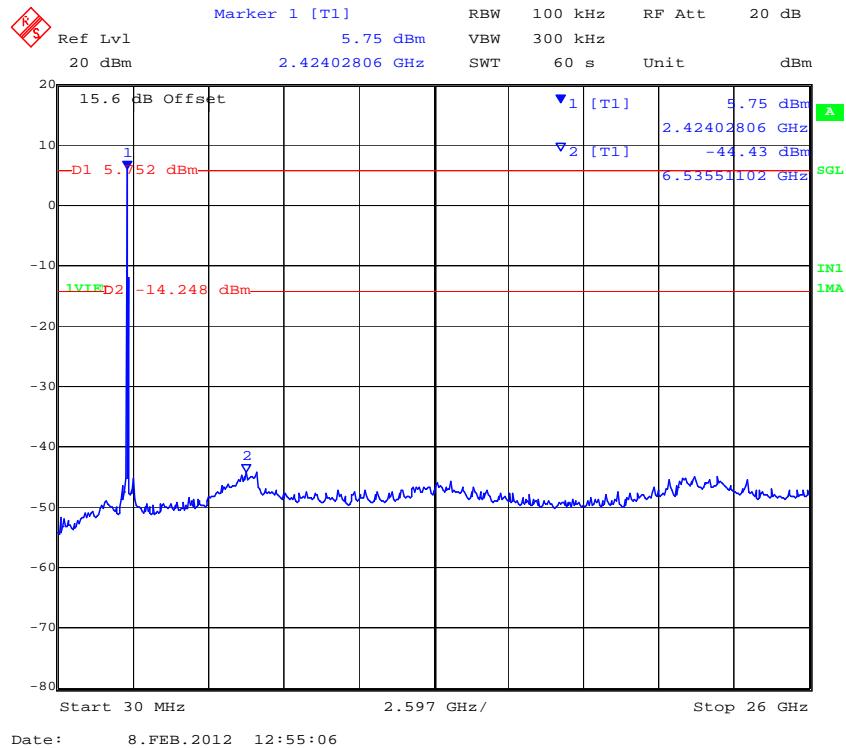
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT C 802.11n HT-20 2,437 MHz Conducted Spurious Emissions 0.03 – 26 GHz

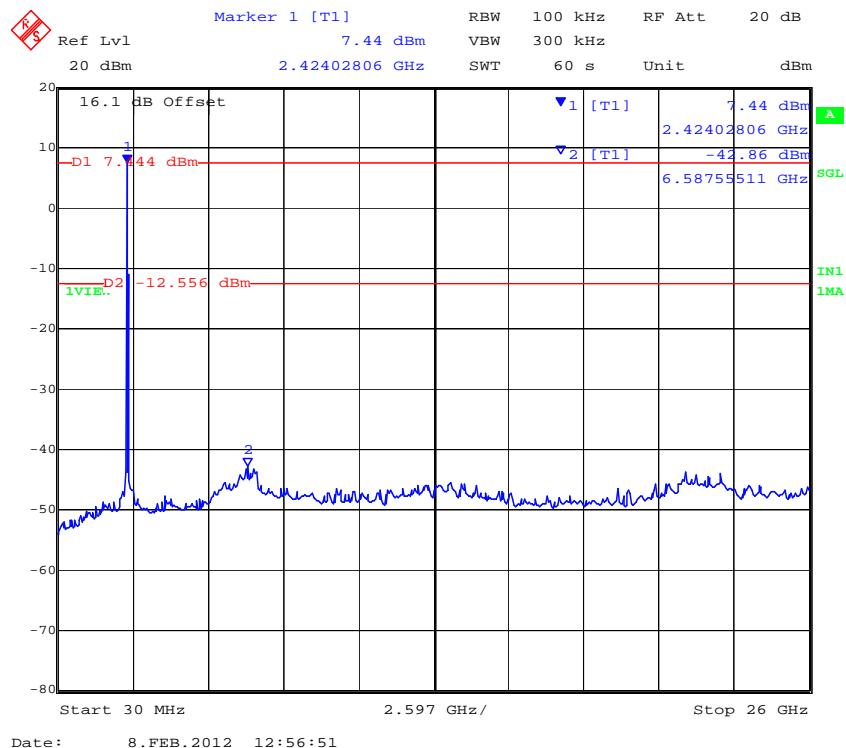


This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11n HT-20 2,462 MHz Conducted Spurious Emissions 0.03 – 26 GHz

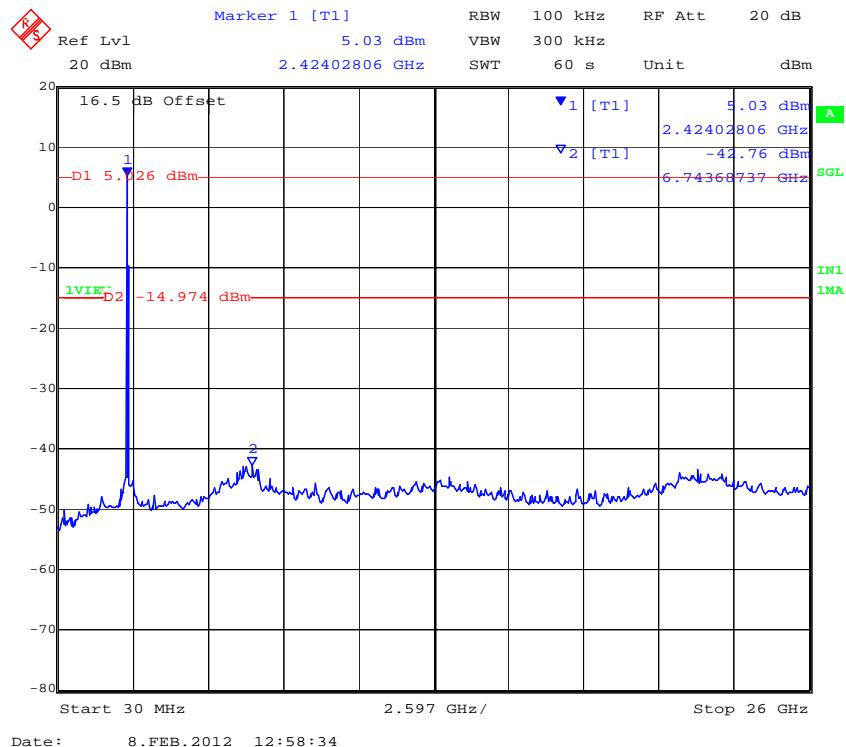


PORT B 802.11n HT-20 2,462 MHz Conducted Spurious Emissions 0.03 – 26 GHz



This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT C 802.11n HT-20 2,462 MHz Conducted Spurious Emissions 0.03 – 26 GHz



This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.



Title: Fluke Networks Sensor4 Wireless Client
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: AMGT14-U1 Rev B
Issue Date: 20th June 2012
Page: 211 of 342

Conducted Spurious Emission Results

TABLE OF RESULTS – 802.11n HT-40

.

| | | | | | |
|--------------------------|---------------|----------------------------|-----|-----|------|
| Test Conditions: | 15.247 (a)(2) | Rel. Humidity (%): | 35 | to | 42 |
| Variant: | 802.11n HT-40 | Ambient Temp. (°C): | 19 | to | 22 |
| TPC: | HIGH | Pressure (mBars): | 998 | to | 1003 |
| Modulation: | ON | Duty Cycle (%): | 100 | | |
| Beam Forming Gain | N/A dB | Antenna Gain: | N/A | dBi | |
| Applied Voltage: | 48.00 Vdc | Antenna Ports (N): | | | |
| Notes 1: | | | | | |
| Notes 2: | | | | | |

Conducted Spurious Measurement

| Test Freq. | Start Freq. | Stop Freq. | Port A | | Port B | | Port C | | Port D | |
|------------|-------------|------------|--------|--------|--------|-----------|--------|-----------|--------|-----------|
| | | | MHz | MHz | SE dBm | Limit dBm | SE dBm | Limit dBm | SE dBm | Limit dBm |
| 2422.000 | 30.00 | 26000.00 | -44.10 | -14.66 | -43.64 | -14.79 | -42.76 | -14.49 | | |
| 2437.000 | 30.00 | 26000.00 | -44.13 | -14.65 | -43.27 | -14.71 | -42.33 | -14.58 | | |
| 2452.000 | 30.00 | 26000.00 | -44.35 | -14.90 | -43.28 | -14.97 | -42.67 | -14.15 | | |

SE: Maximum spurious emission found

Band-edge Measurement

| Test Freq. | Band-edge freq. | Port A | | Port B | | Port C | | Port D | |
|------------|-----------------|--------|--------|--------|-----------|--------|-----------|--------|-----------|
| | | MHz | MHz | BE dBm | Limit dBm | BE dBm | Limit dBm | BE dBm | Limit dBm |
| 2422.000 | 2400.00 | -18.89 | -14.49 | -17.44 | -14.78 | -16.64 | -14.19 | | |
| 2452.000 | 2483.50 | -19.95 | -14.87 | -22.45 | -14.68 | -20.17 | -13.79 | | |

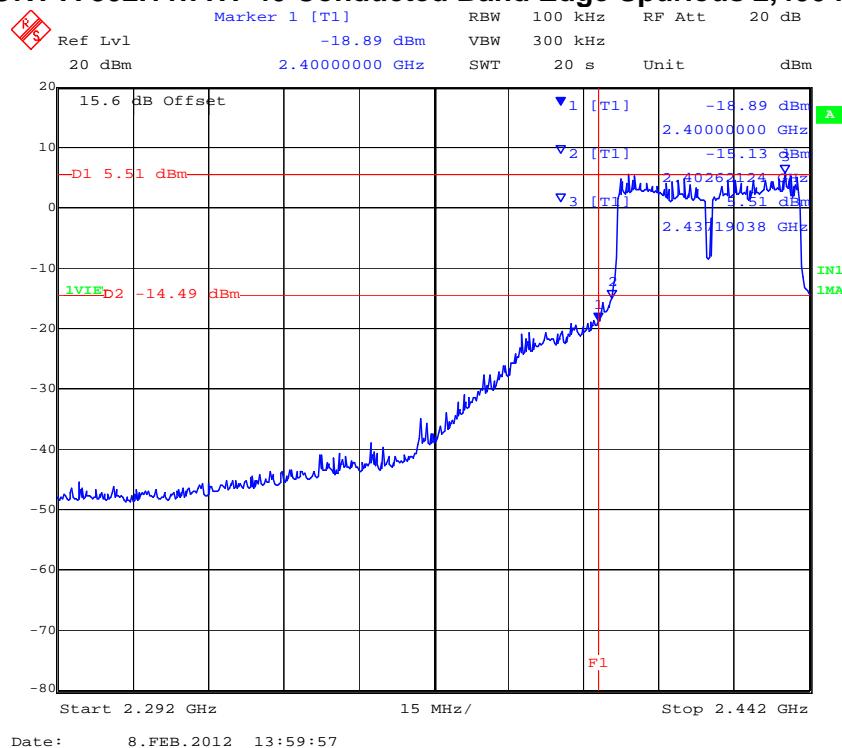
BE: Maximum Band edge emission found

| | |
|---------------------------------|----------|
| Measurement uncertainty: | ±2.81 dB |
|---------------------------------|----------|

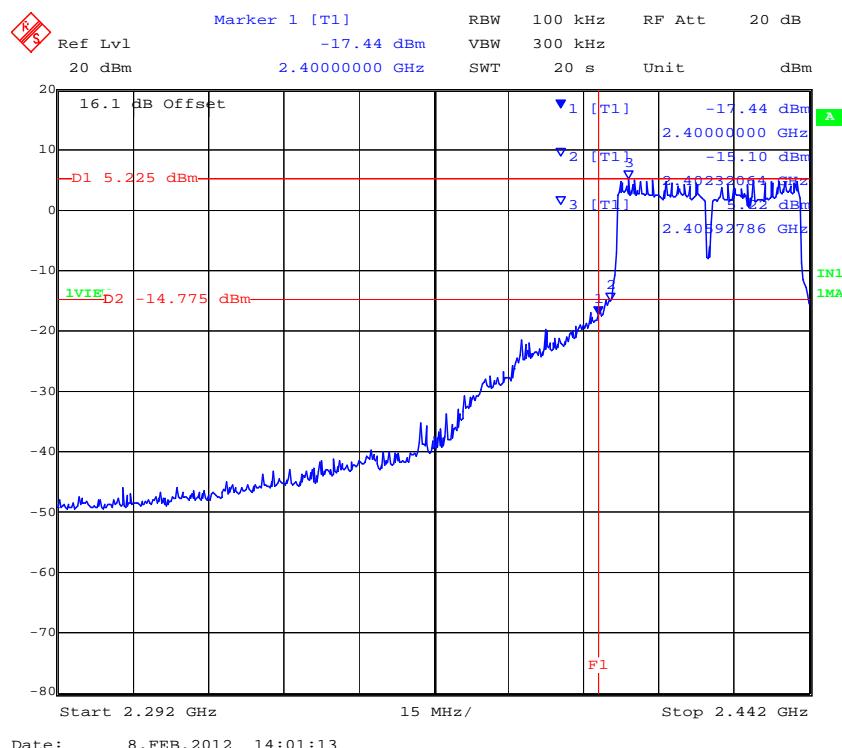
Note: Limit is based on 20dB down from fundamental emission

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11n HT-40 Conducted Band Edge Spurious 2,400 MHz

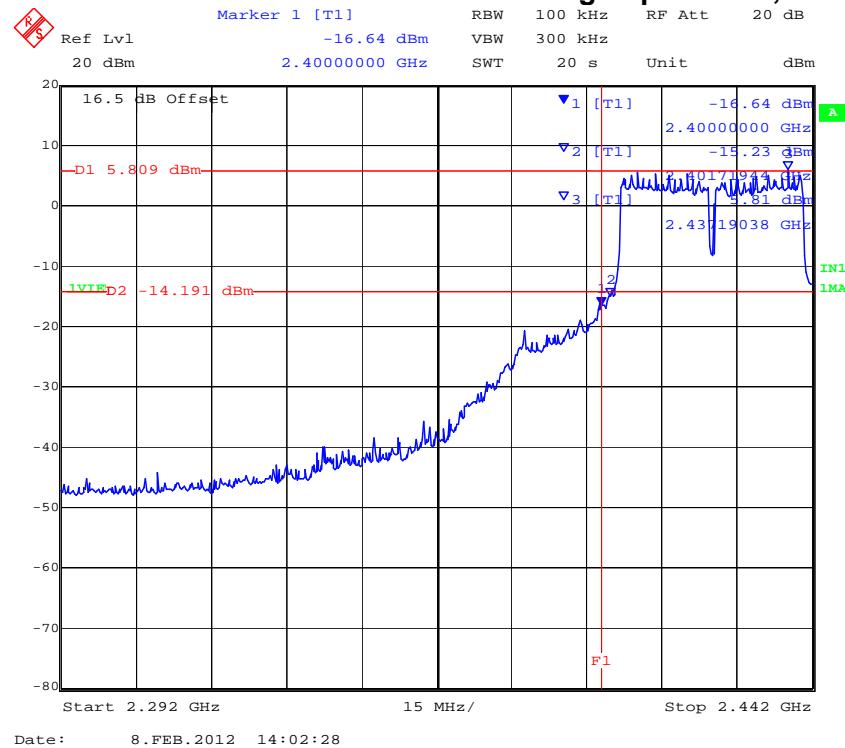


PORT B 802.11n HT-40 Conducted Band Edge Spurious 2,400 MHz



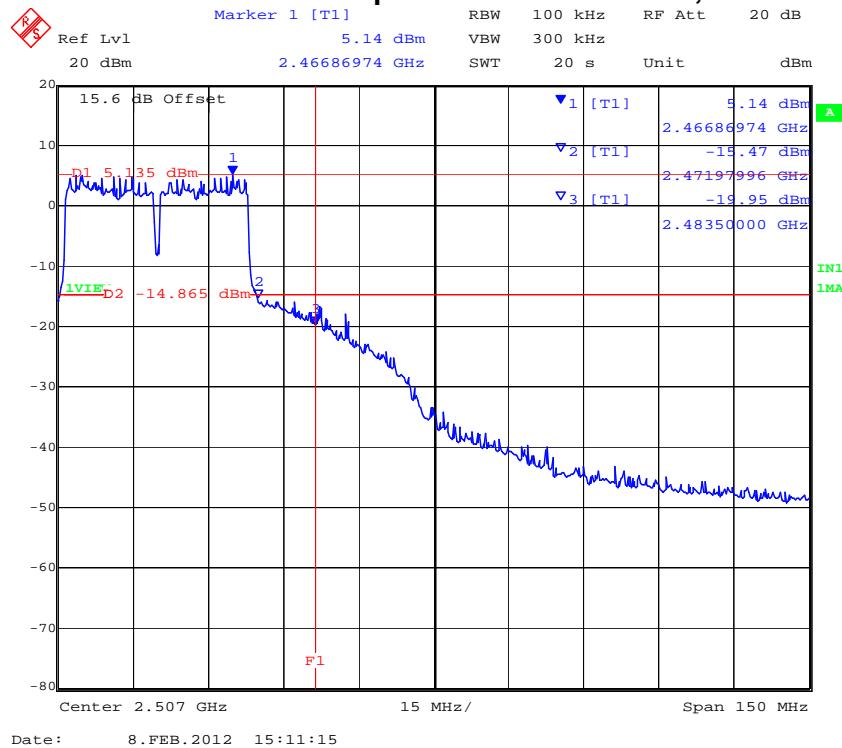
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT C 802.11n HT-40 Conducted Band Edge Spurious 2,400 MHz

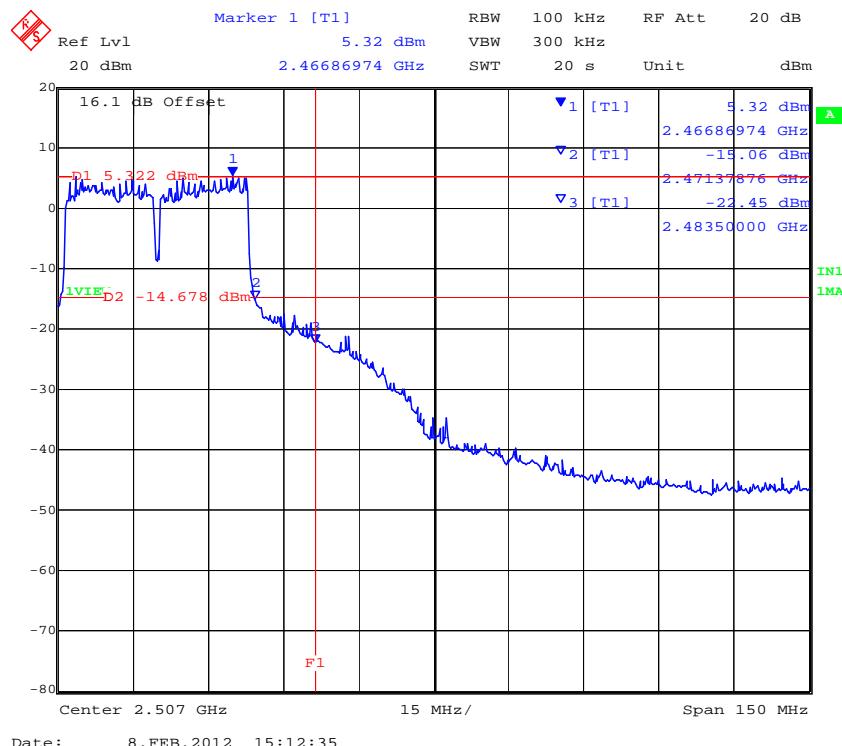


This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11n HT-40 Conducted Spurious Emissions at 2,483.5 MHz Band Edge

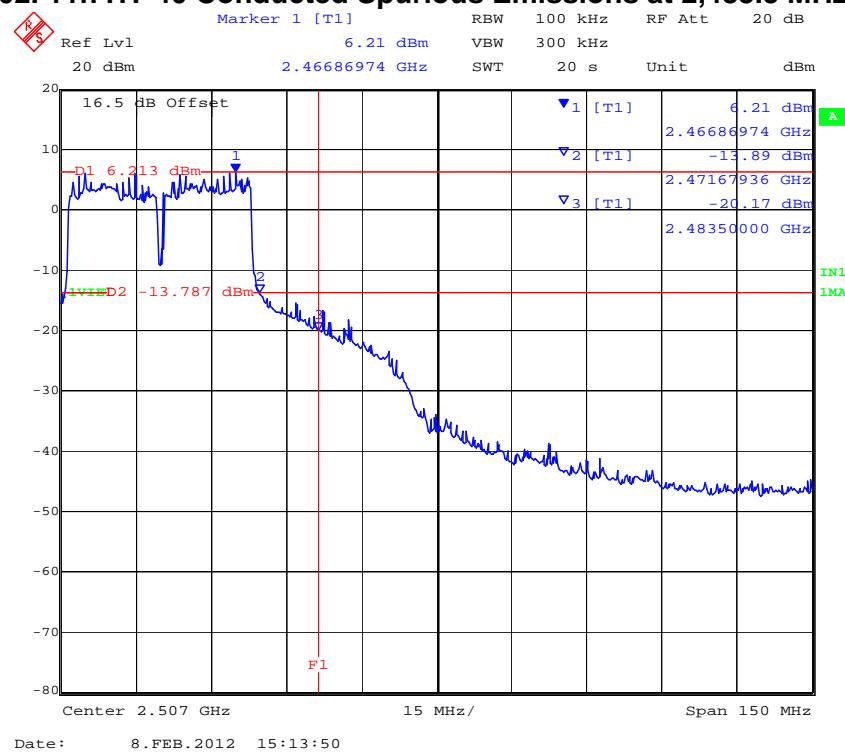


PORT B 802.11n HT-40 Conducted Spurious Emissions at 2,483.5 MHz Band Edge



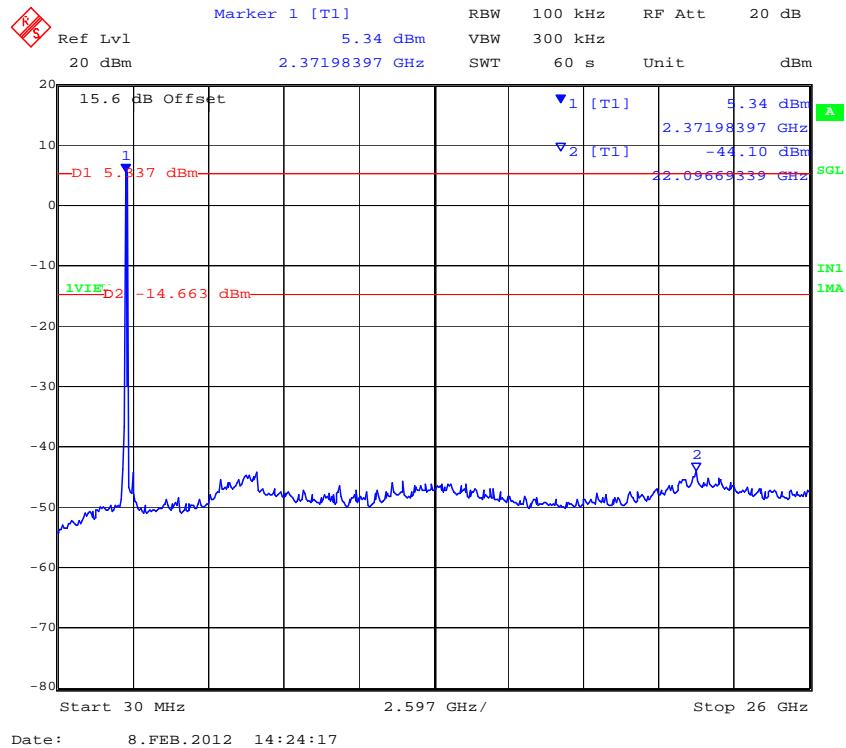
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT C 802.11n HT-40 Conducted Spurious Emissions at 2,483.5 MHz Band Edge

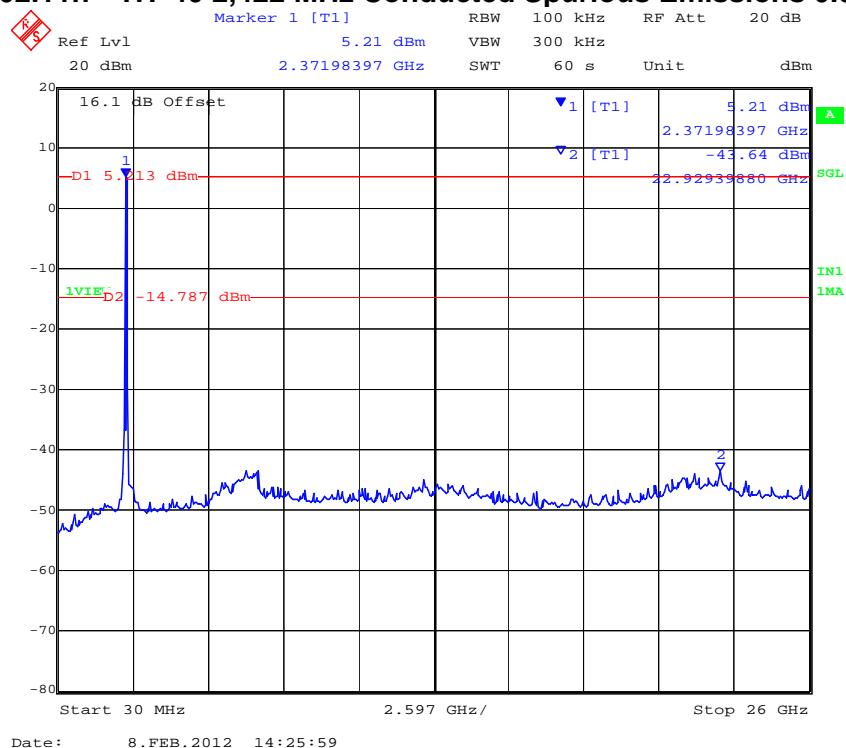


This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11n – HT-40 2,422 MHz Conducted Spurious Emissions 0.03 – 26 GHz

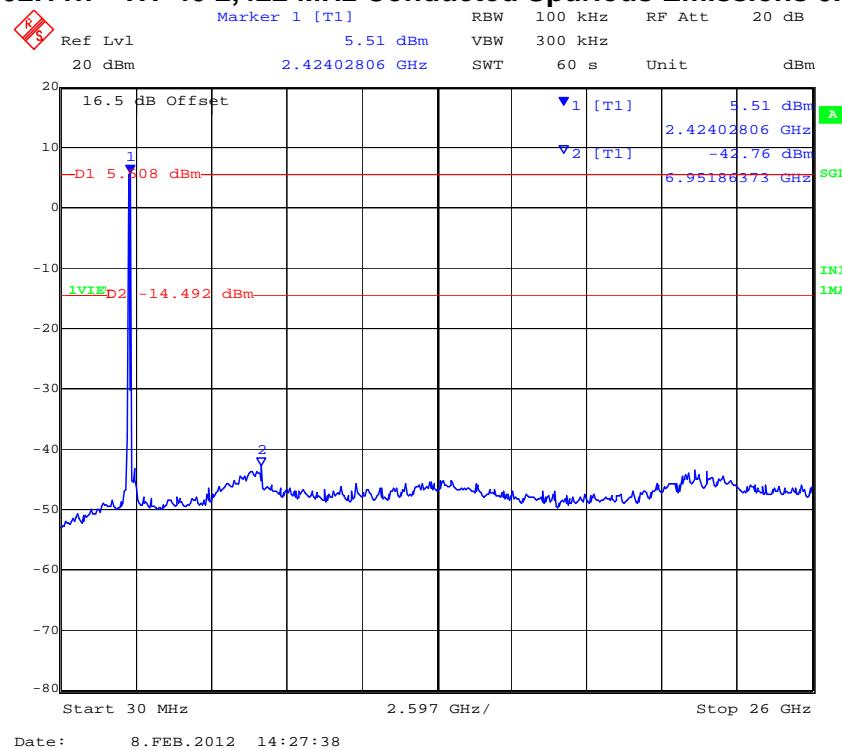


PORT B 802.11n – HT-40 2,422 MHz Conducted Spurious Emissions 0.03 – 26 GHz



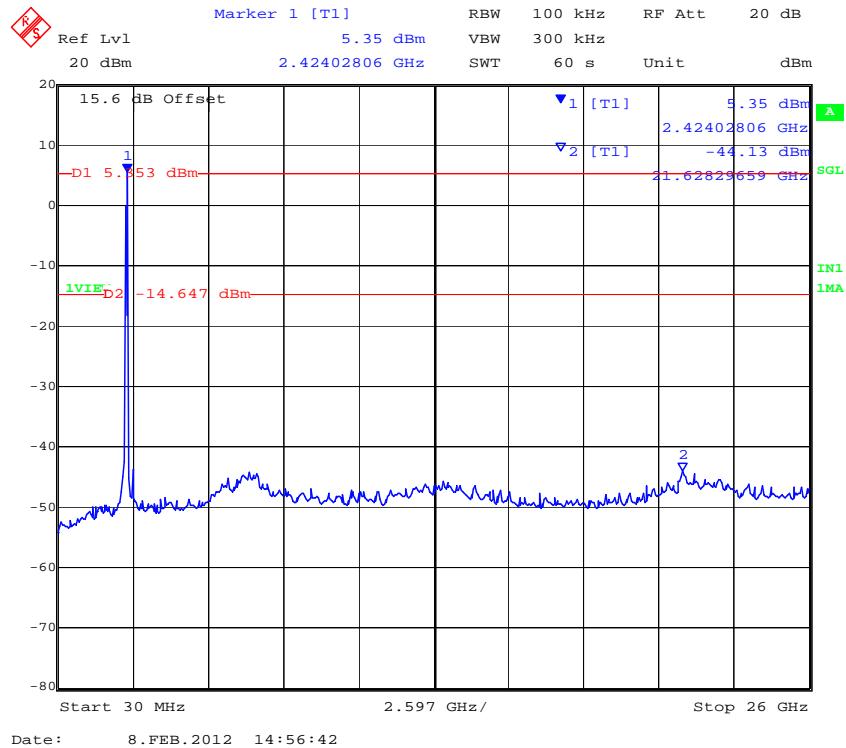
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT C 802.11n – HT-40 2,422 MHz Conducted Spurious Emissions 0.03 – 26 GHz

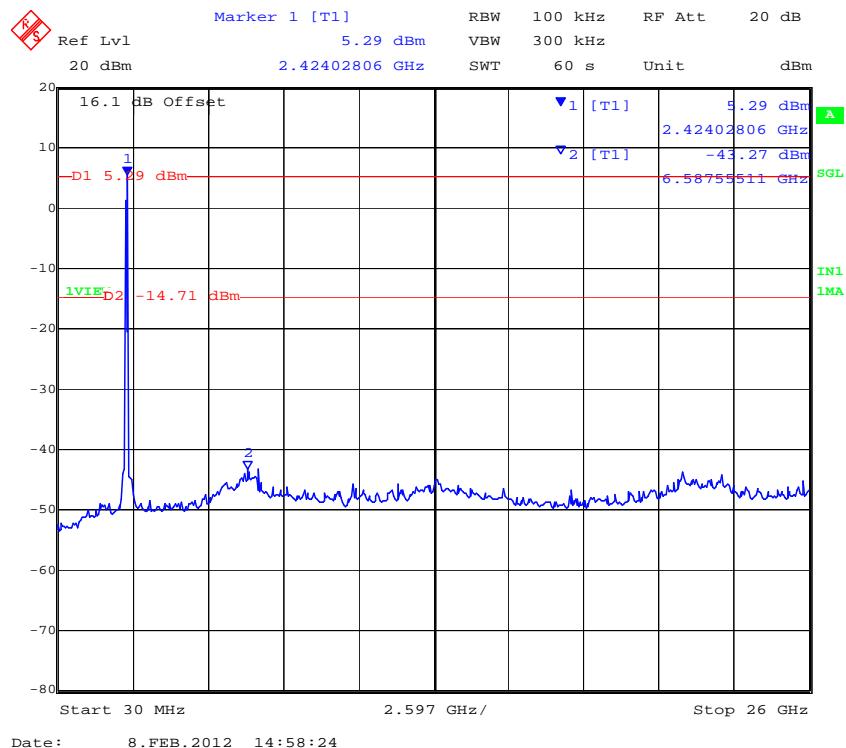


This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11n HT-40 2,437 MHz Conducted Spurious Emissions 0.03 – 26 GHz

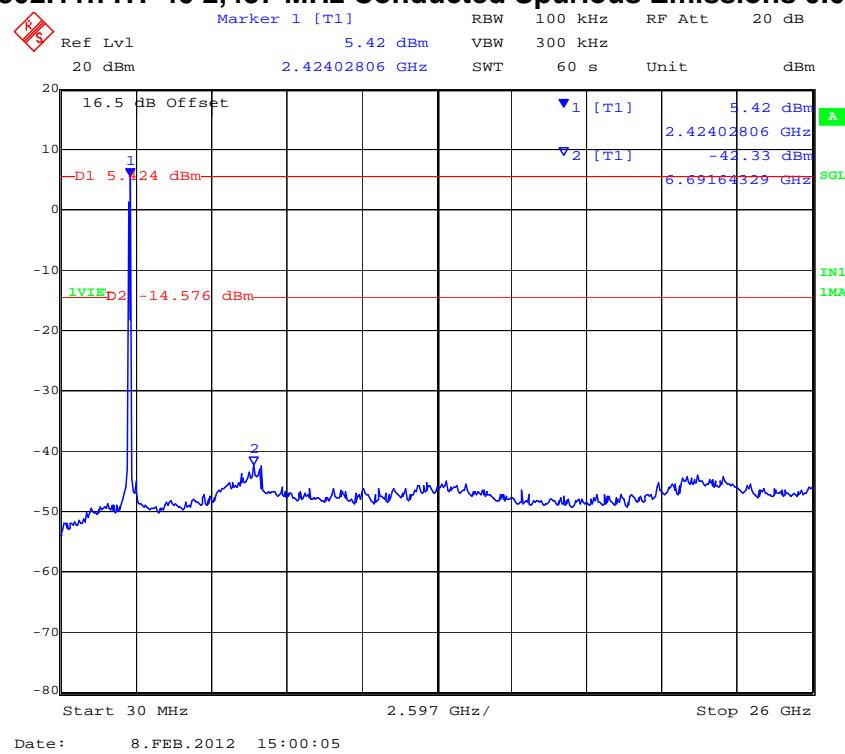


PORT B 802.11n HT-40 2,437 MHz Conducted Spurious Emissions 0.03 – 26 GHz



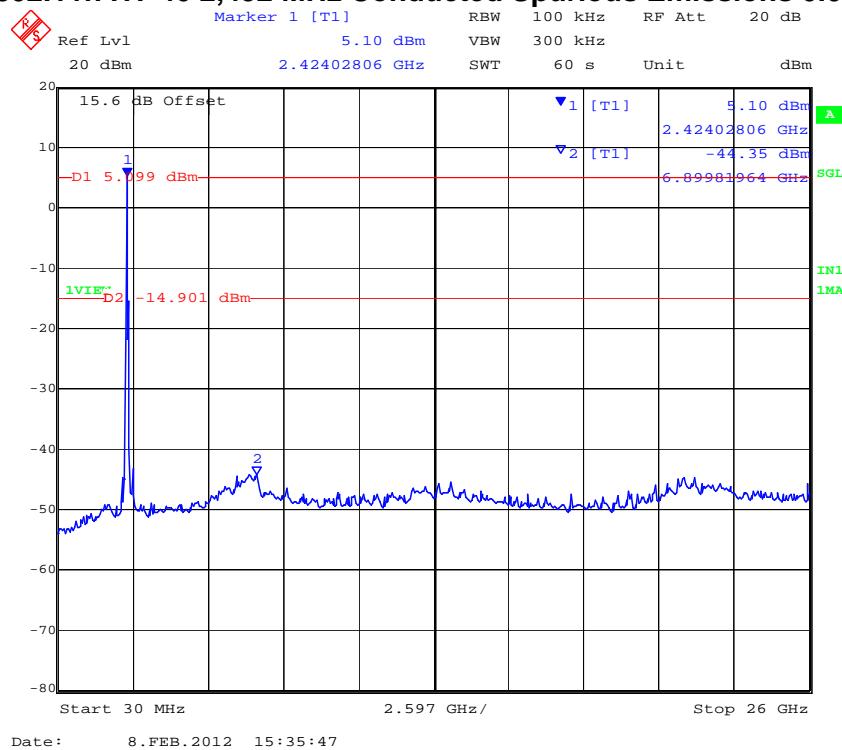
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT C 802.11n HT-40 2,437 MHz Conducted Spurious Emissions 0.03 – 26 GHz

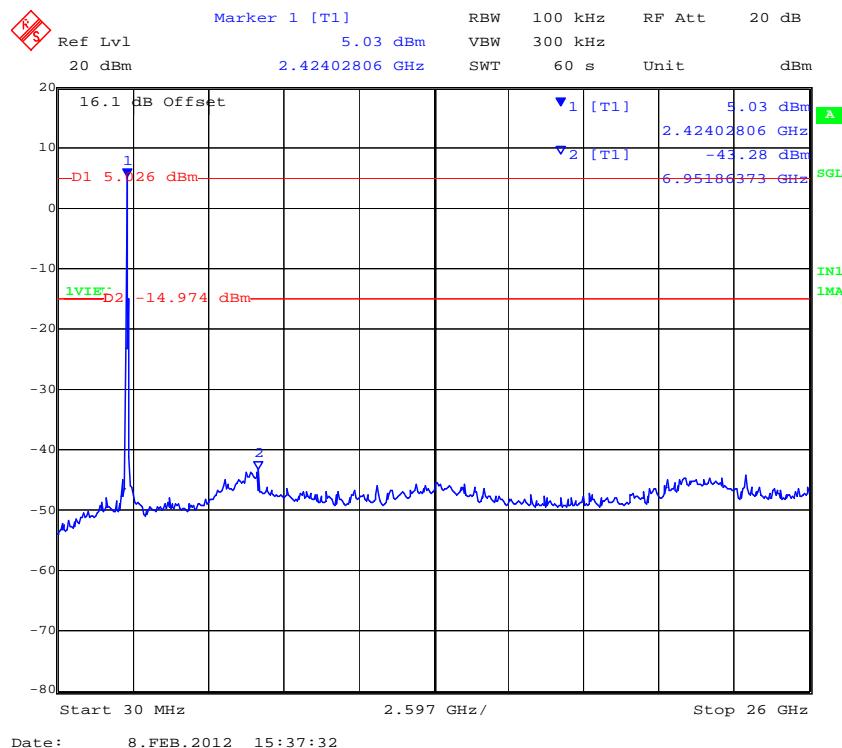


This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11n HT-40 2,452 MHz Conducted Spurious Emissions 0.03 – 26 GHz

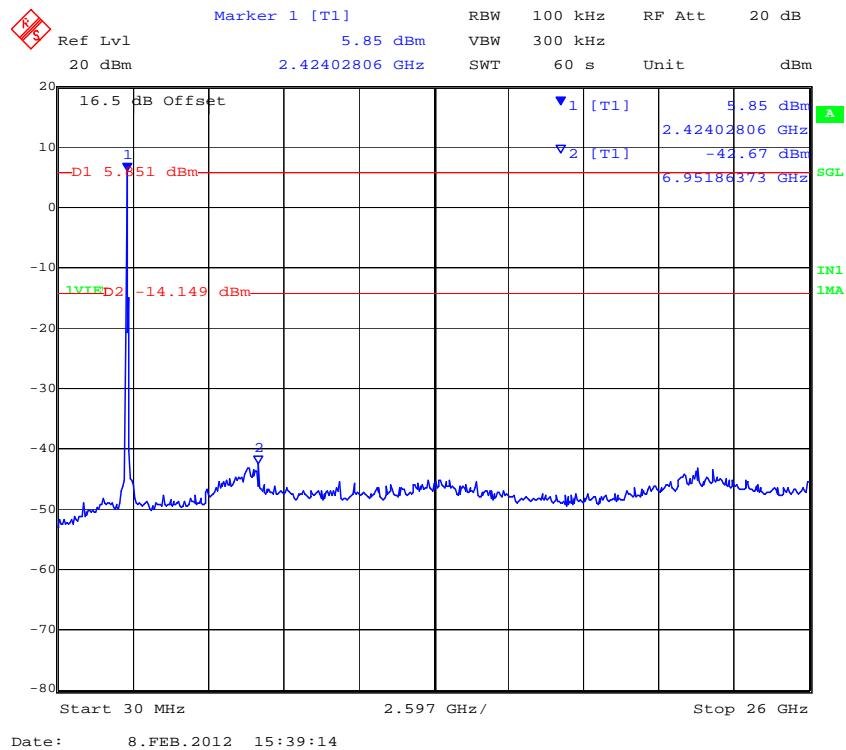


PORT B 802.11n HT-40 2,452 MHz Conducted Spurious Emissions 0.03 – 26 GHz



This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11n HT-40 2,452 MHz Conducted Spurious Emissions 0.03 – 26 GHz



This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.



Title: Fluke Networks Sensor4 Wireless Client
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: AMGT14-U1 Rev B
Issue Date: 20th June 2012
Page: 222 of 342

Conducted Spurious Emission Results

TABLE OF RESULTS – 802.11a Legacy

| | | | | | |
|--------------------------|---------------|----------------------------|-----|-----|------|
| Test Conditions: | 15.247 (a)(2) | Rel. Humidity (%): | 35 | to | 42 |
| Variant: | 802.11a | Ambient Temp. (°C): | 19 | to | 22 |
| TPC: | HIGH | Pressure (mBars): | 998 | to | 1003 |
| Modulation: | ON | Duty Cycle (%): | 100 | | |
| Beam Forming Gain | N/A dB | Antenna Gain: | N/A | dBi | |
| Applied Voltage: | 48.00 Vdc | Antenna Ports (N): | | | |
| Notes 1: | | | | | |
| Notes 2: | | | | | |

Conducted Spurious Measurement

| Test Freq. | Start Freq. | Stop Freq. | Port A | | Port B | | Port C | | Port D | |
|-------------------|--------------------|-------------------|---------------|------------|---------------|------------------|---------------|------------------|---------------|------------------|
| | | | MHz | MHz | SE dBm | Limit dBm | SE dBm | Limit dBm | SE dBm | Limit dBm |
| 5745.000 | 30.00 | 26000.00 | -42.01 | -15.67 | -42.18 | -13.92 | -47.36 | -14.71 | | |
| 5785.000 | 30.00 | 26000.00 | -42.17 | -17.39 | -42.56 | -12.77 | -45.49 | -15.26 | | |
| 5825.000 | 30.00 | 26000.00 | -41.74 | -16.29 | -42.88 | -13.63 | -46.41 | -14.56 | | |

SE: Maximum spurious emission found

Band-edge Measurement

| Test Freq. | Band-edge freq. | Port A | | Port B | | Port C | | Port D | | | |
|-------------------|------------------------|---------------|------------|---------------|------------------|---------------|------------------|---------------|------------------|---------------|------------------|
| | | MHz | MHz | BE dBm | Limit dBm |
| 5745.000 | 5725.00 | -29.02 | -15.26 | -19.17 | -12.11 | -27.50 | -14.82 | | | | |
| 5825.000 | 5850.00 | -37.61 | -15.32 | -24.42 | -12.83 | -29.56 | -14.17 | | | | |

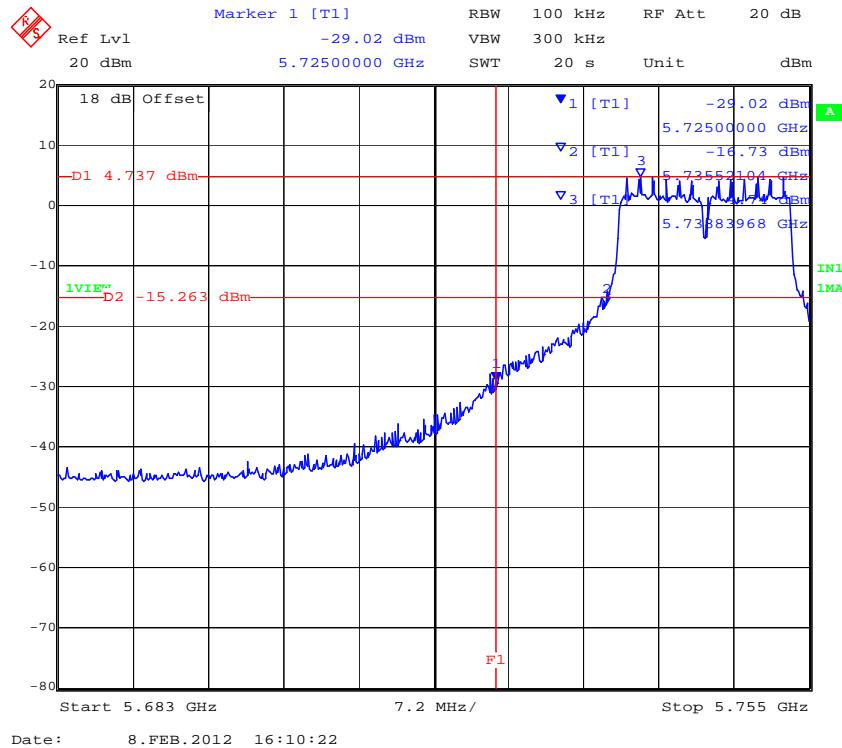
BE: Maximum Band edge emission found

| | |
|---------------------------------|----------|
| Measurement uncertainty: | ±2.81 dB |
|---------------------------------|----------|

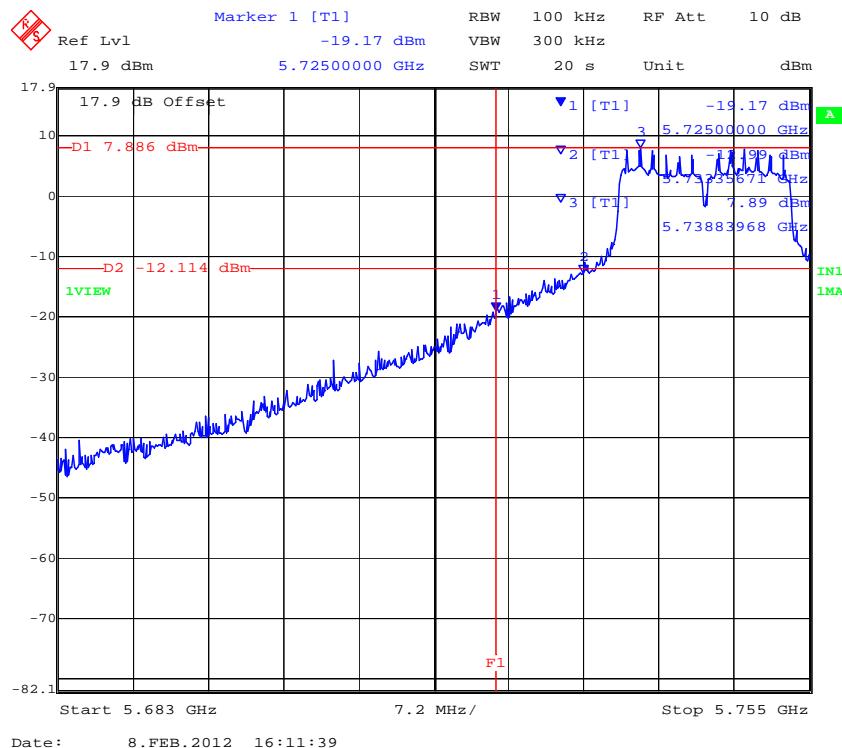
Note: Limit is based on 20dB down from fundamental emission

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11a Legacy - Conducted Band Edge Spurious 5,725 MHz

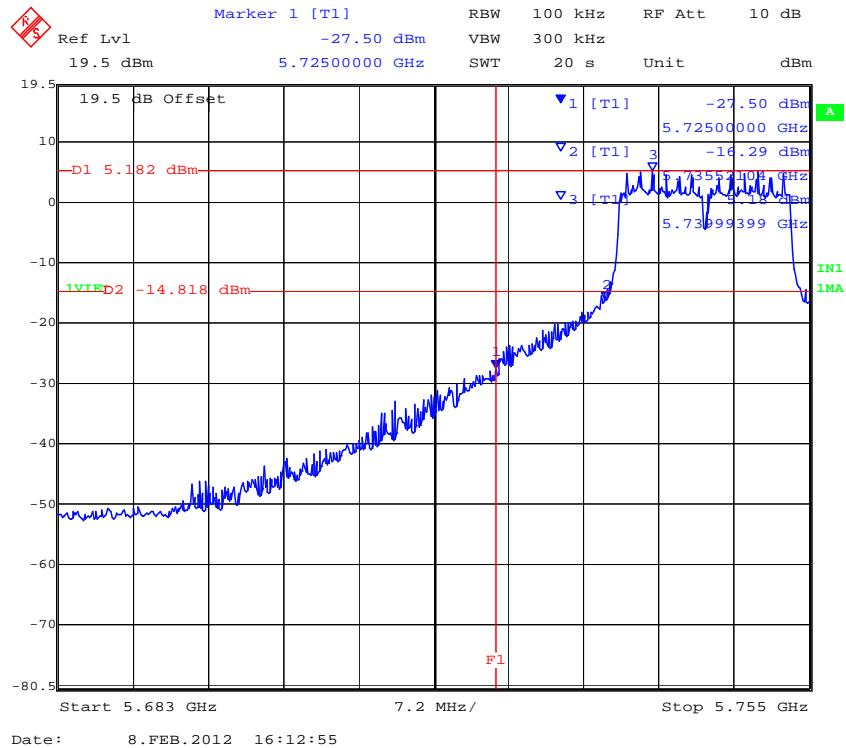


PORT B 802.11a Legacy - Conducted Band Edge Spurious 5,725 MHz



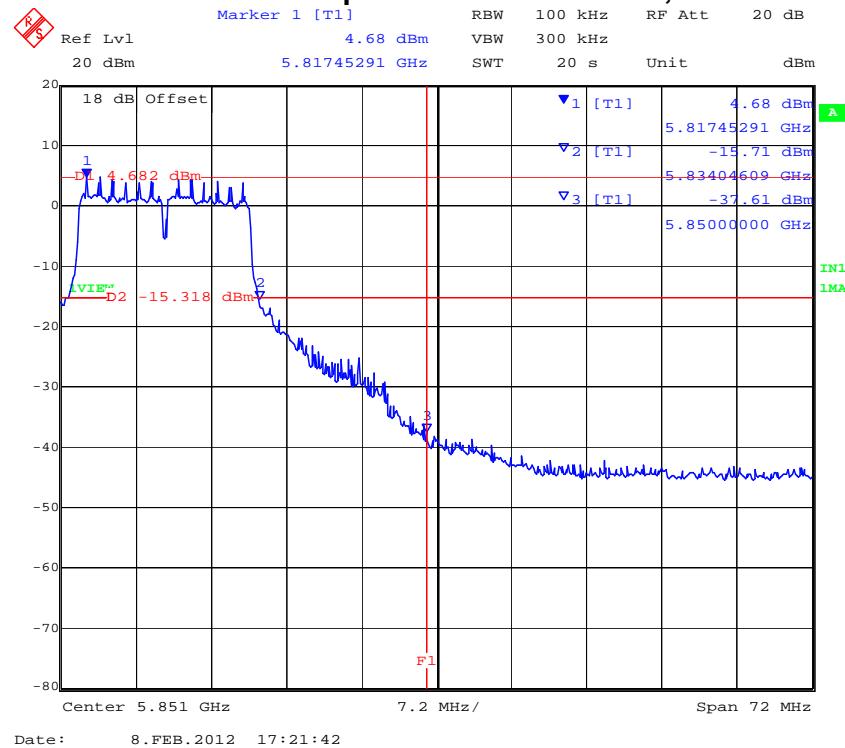
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT C 802.11a Legacy - Conducted Band Edge Spurious 5,725 MHz

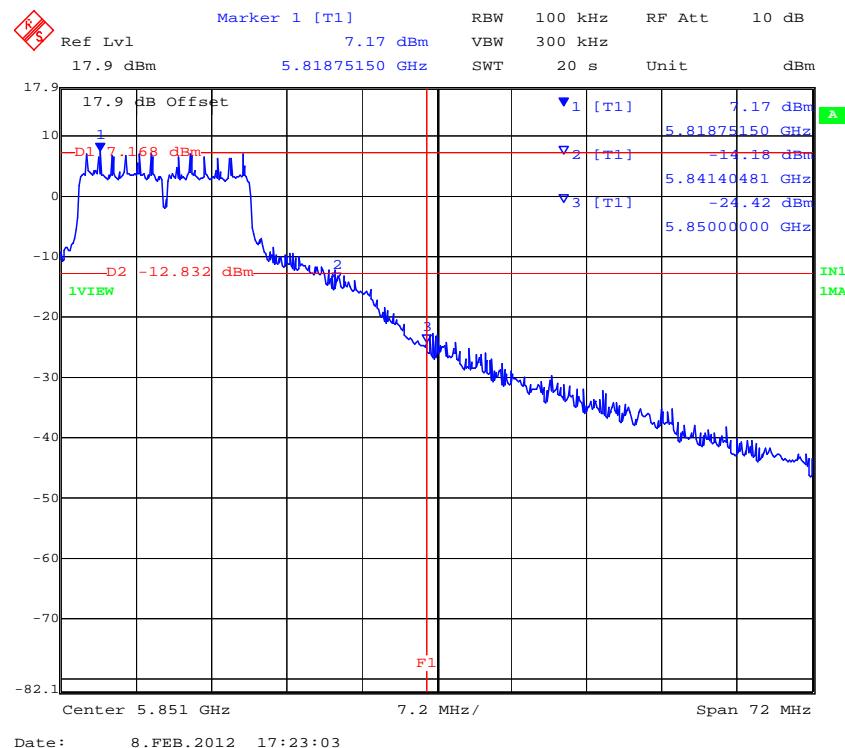


This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11a Conducted Spurious Emissions at 5,850 MHz Band Edge

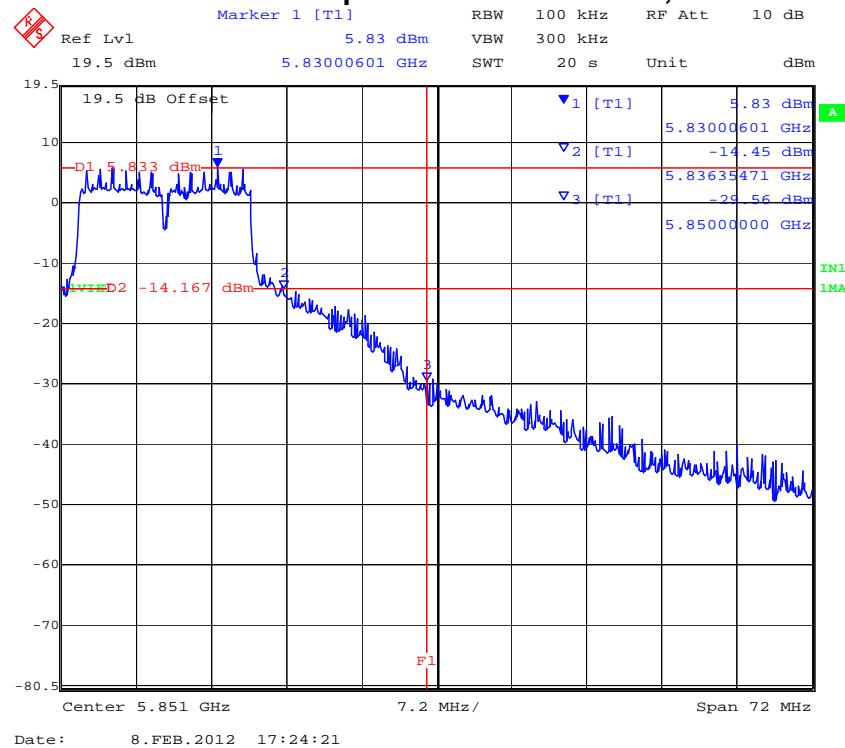


PORT B 802.11a Conducted Spurious Emissions at 5,850 MHz Band Edge



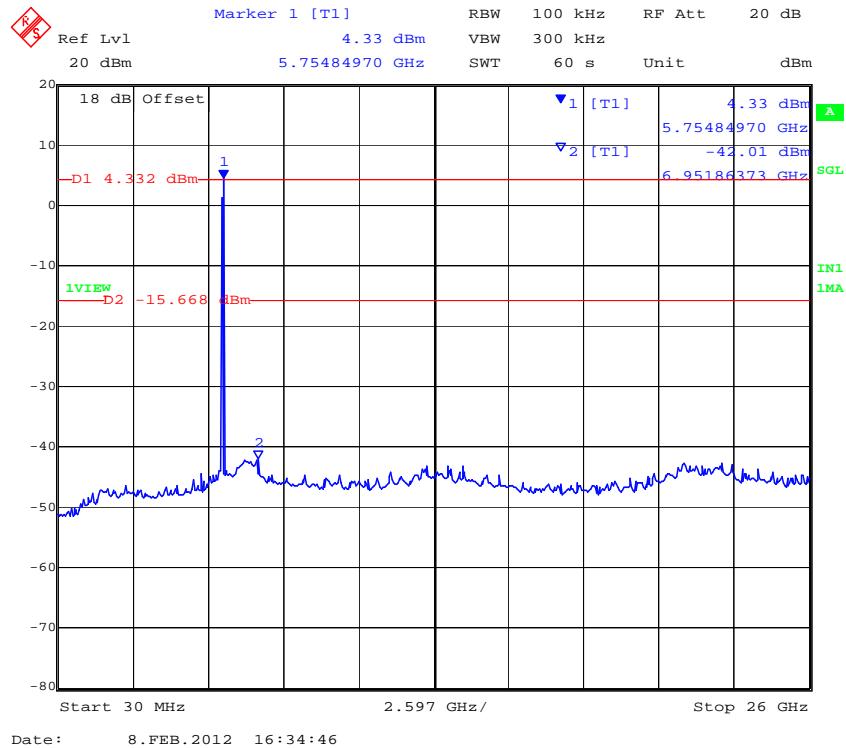
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT C 802.11a Conducted Spurious Emissions at 5,850 MHz Band Edge

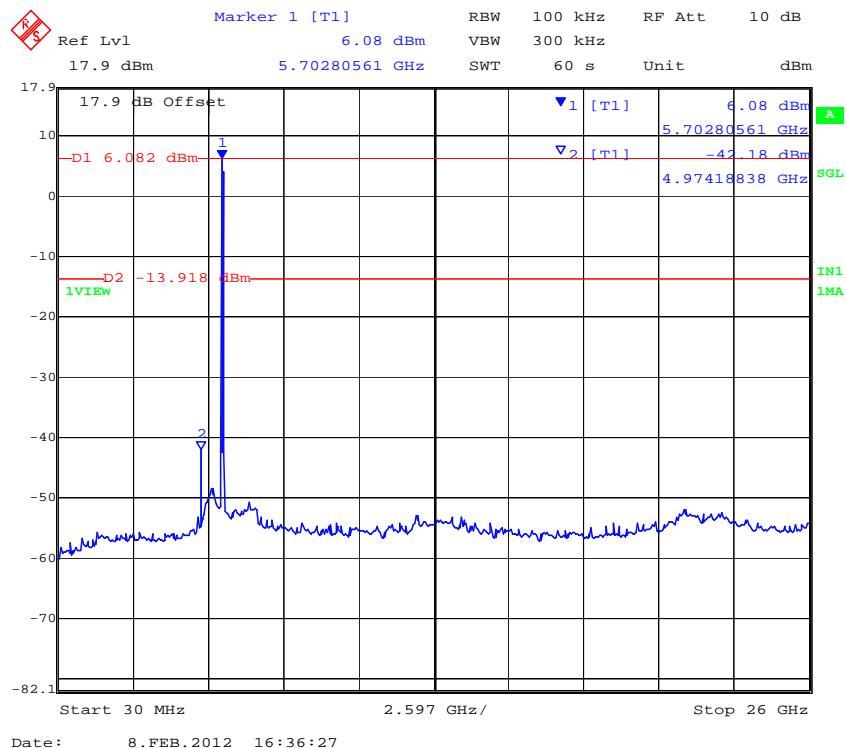


This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11a – Legacy 5,745 MHz Conducted Spurious Emissions 0.03 – 40 GHz

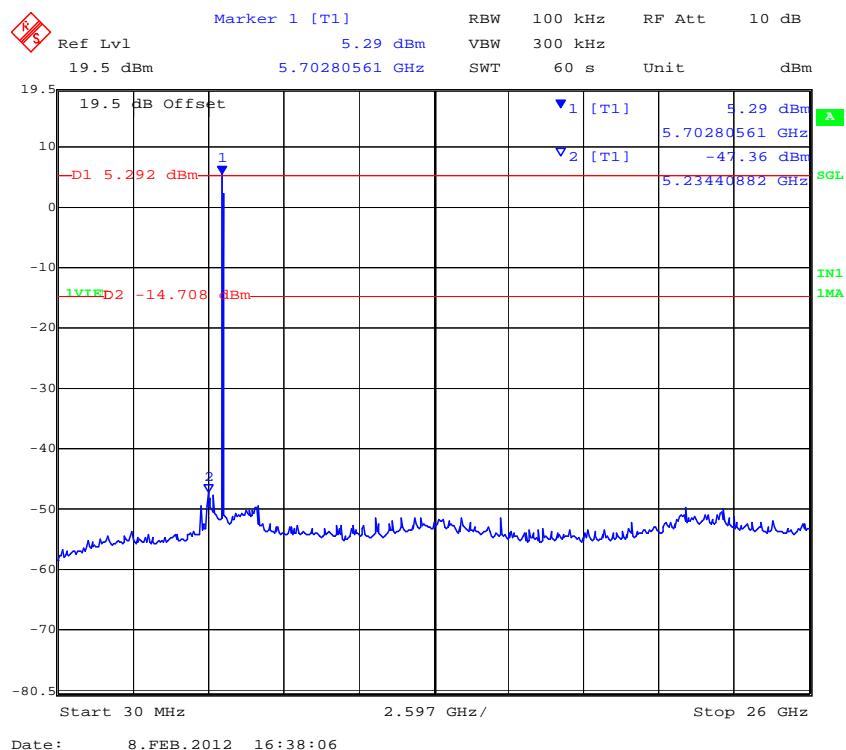


PORT B 802.11a – Legacy 5,745 MHz Conducted Spurious Emissions 0.03 – 40 GHz



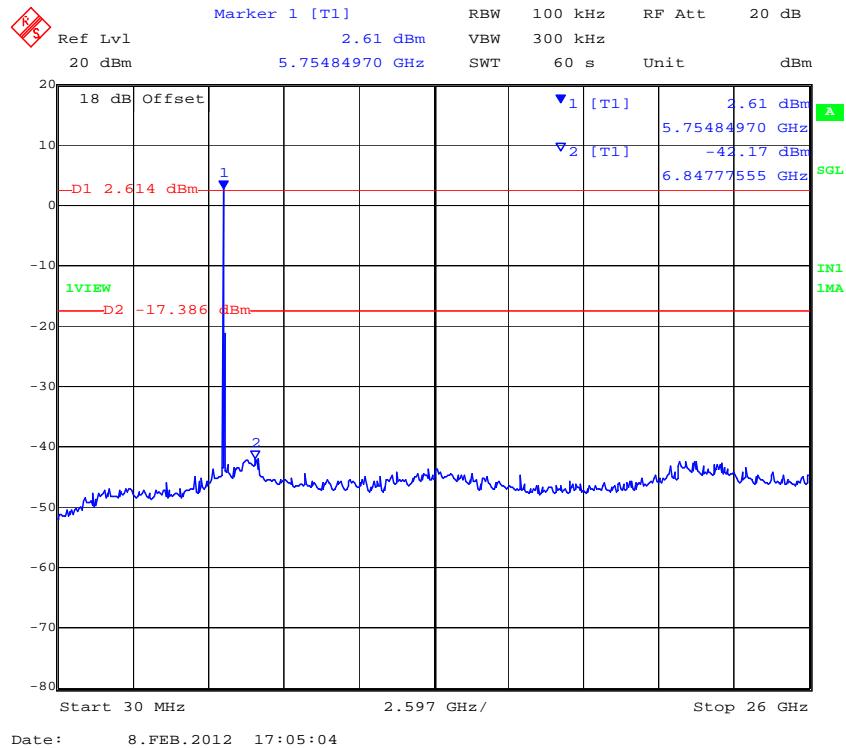
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT C 802.11a – Legacy 5,745 MHz Conducted Spurious Emissions 0.03 – 40 GHz

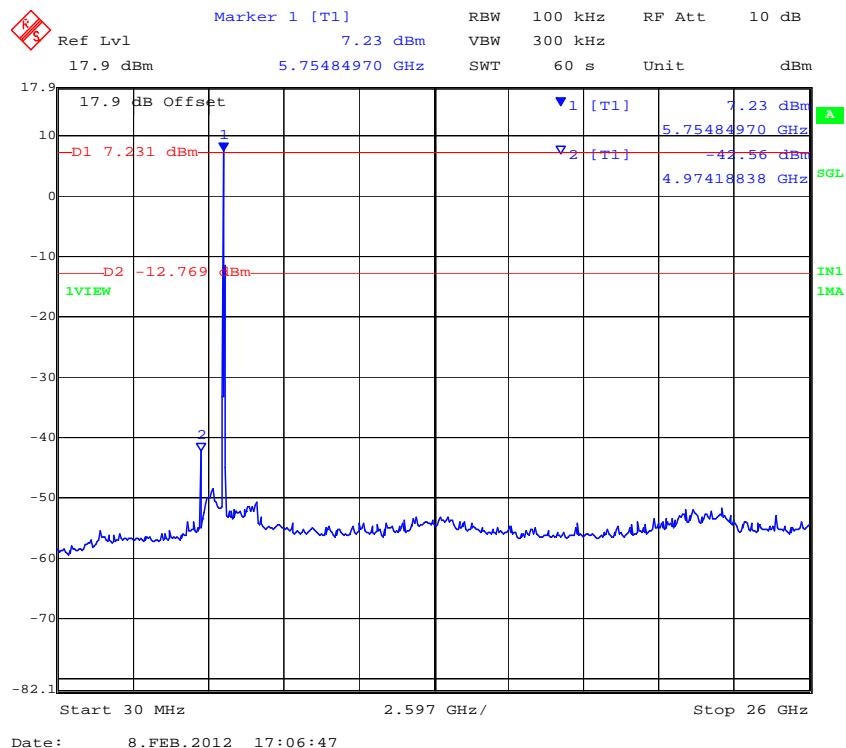


This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11a – Legacy 5,785 MHz Conducted Spurious Emissions 0.03 – 40 GHz

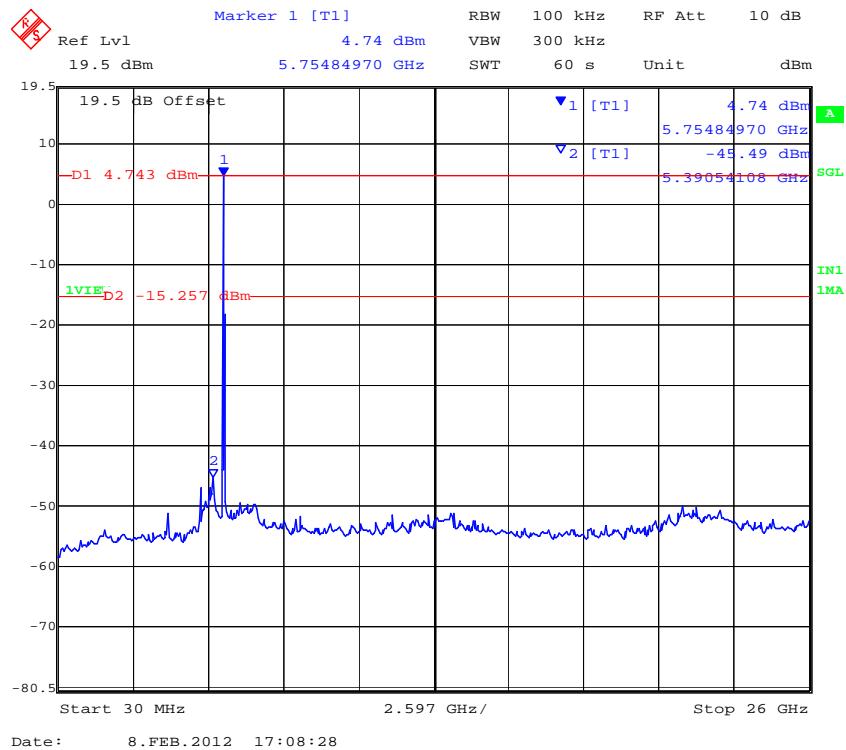


PORT B 802.11a – Legacy 5,785 MHz Conducted Spurious Emissions 0.03 – 40 GHz



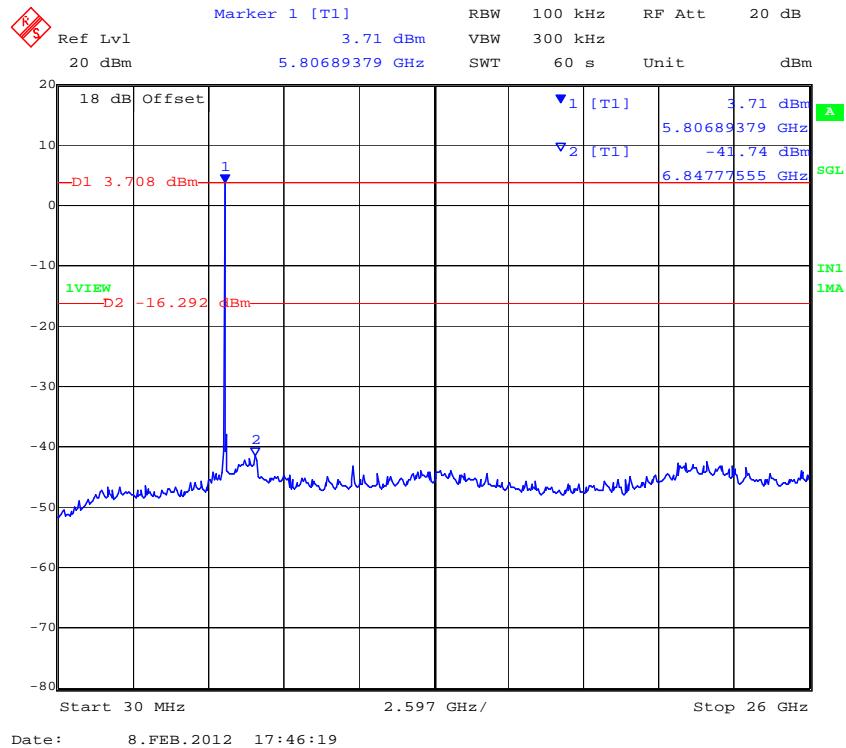
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT C 802.11a – Legacy 5,785 MHz Conducted Spurious Emissions 0.03 – 40 GHz

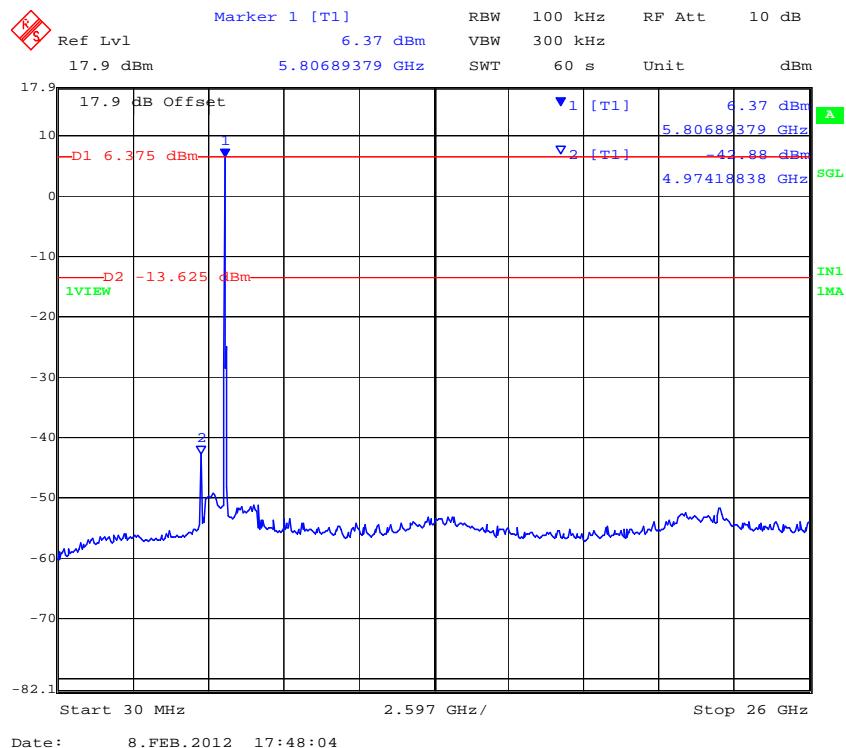


This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11a – Legacy 5,825 MHz Conducted Spurious Emissions 0.03 – 40 GHz

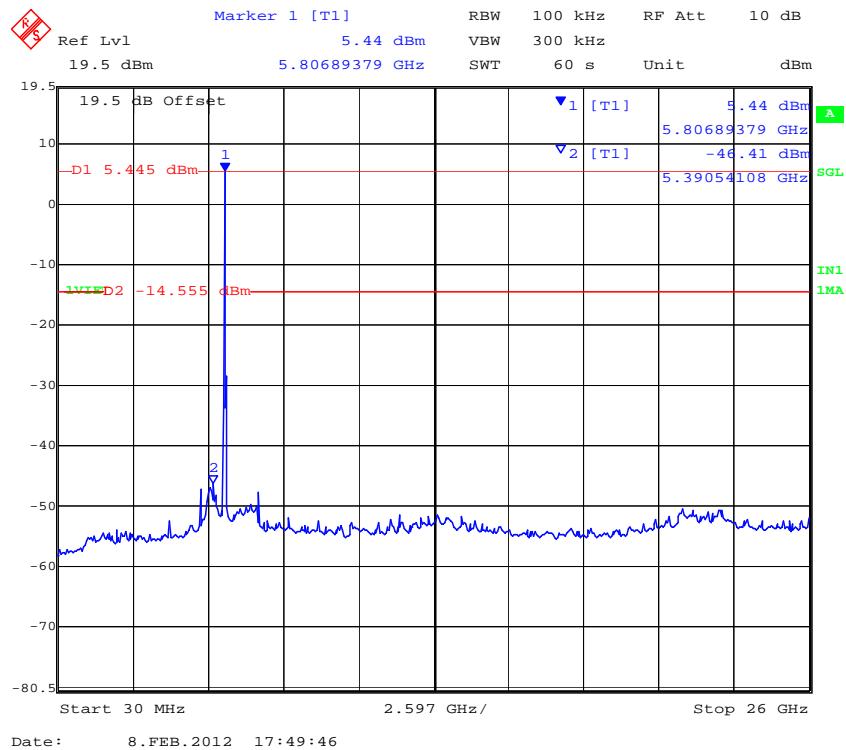


PORT B 802.11a – Legacy 5,825 MHz Conducted Spurious Emissions 0.03 – 40 GHz



This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT C 802.11a – Legacy 5,825 MHz Conducted Spurious Emissions 0.03 – 40 GHz



This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.



Title: Fluke Networks Sensor4 Wireless Client
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: AMGT14-U1 Rev B
Issue Date: 20th June 2012
Page: 233 of 342

Conducted Spurious Emission Results

TABLE OF RESULTS – 802.11n HT-20

| | | | | | |
|--------------------------|---------------|----------------------------|-----|----|------|
| Test Conditions: | 15.247 (a)(2) | Rel. Humidity (%): | 35 | to | 42 |
| Variant: | 802.11n HT-20 | Ambient Temp. (°C): | 19 | to | 22 |
| TPC: | HIGH | Pressure (mBars): | 998 | to | 1003 |
| Modulation: | ON | Duty Cycle (%): | 100 | | |
| Beam Forming Gain | N/A dB | Antenna Gain: | N/A | dB | |
| Applied Voltage: | 48.00 Vdc | Antenna Ports (N): | | | |
| Notes 1: | | | | | |
| Notes 2: | | | | | |

Conducted Spurious Measurement

| Test Freq. | Start Freq. | Stop Freq. | Port A | | Port B | | Port C | | Port D | |
|------------|-------------|------------|--------|--------|--------|-----------|--------|-----------|--------|-----------|
| | | | MHz | MHz | SE dBm | Limit dBm | SE dBm | Limit dBm | SE dBm | Limit dBm |
| 5745.000 | 30.00 | 26000.00 | -42.13 | -16.64 | -45.29 | -13.40 | -46.12 | -15.53 | | |
| 5785.000 | 30.00 | 26000.00 | -41.92 | -15.46 | -42.53 | -13.07 | -46.31 | -14.74 | | |
| 5825.000 | 30.00 | 26000.00 | -41.27 | -16.25 | -42.01 | -13.76 | -46.68 | -15.45 | | |

SE: Maximum spurious emission found

Band-edge Measurement

| Test Freq. | Band-edge freq. | Port A | | Port B | | Port C | | Port D | | | |
|------------|-----------------|--------|--------|--------|-----------|--------|-----------|--------|-----------|--------|-----------|
| | | MHz | MHz | BE dBm | Limit dBm |
| 5745.000 | 5725.00 | -28.19 | -15.61 | -19.84 | -12.42 | -27.35 | -15.02 | | | | |
| 5825.000 | 5850.00 | -35.33 | -15.22 | -21.88 | -12.48 | -28.90 | -14.25 | | | | |

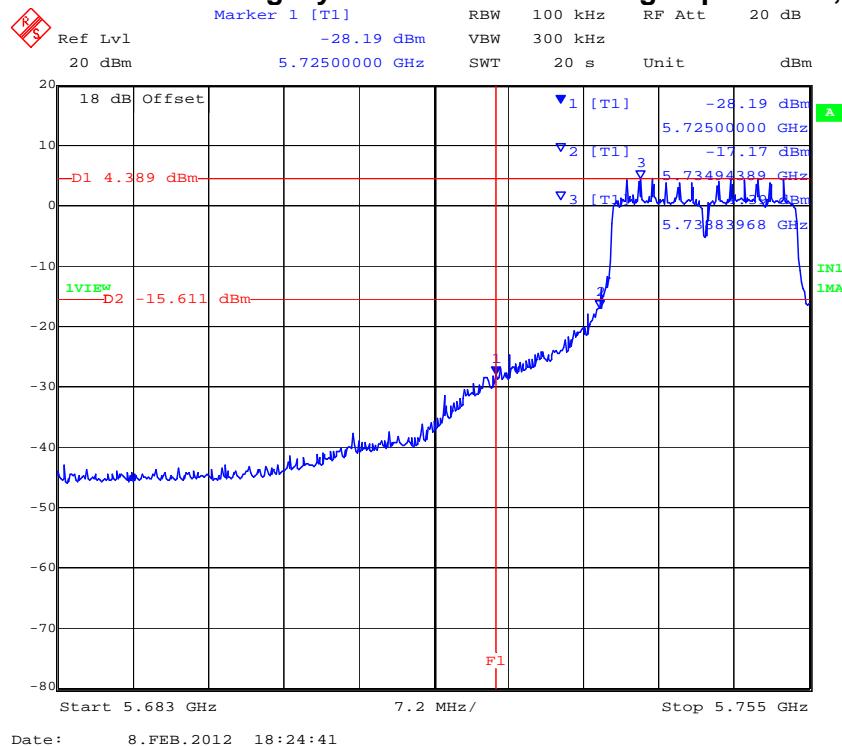
BE: Maximum Band edge emission found

| | |
|---------------------------------|----------|
| Measurement uncertainty: | ±2.81 dB |
|---------------------------------|----------|

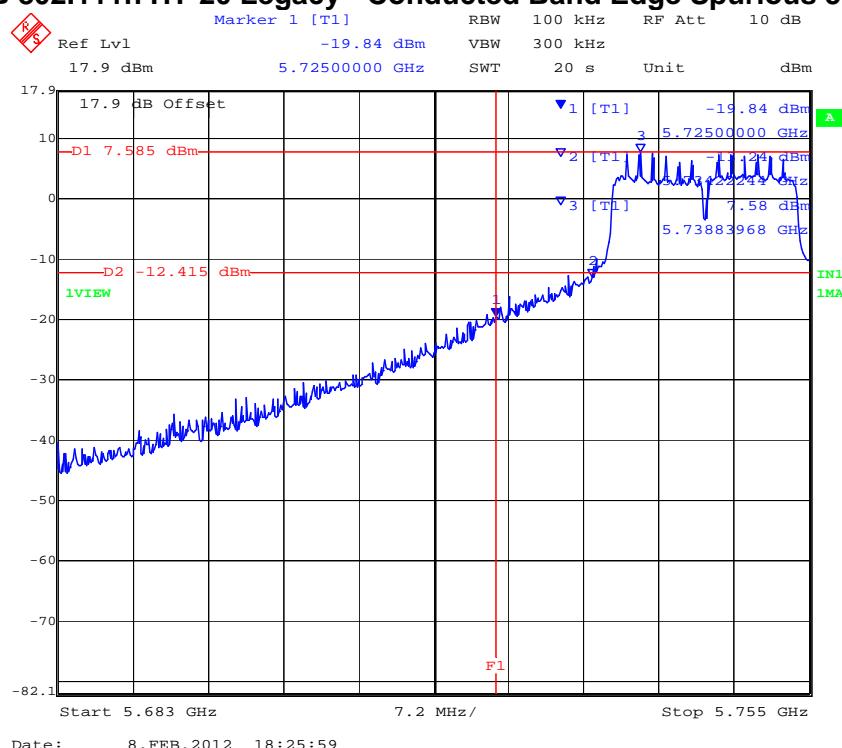
Note: Limit is based on 20dB down from fundamental emission

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11n HT-20 Legacy - Conducted Band Edge Spurious 5,725 MHz

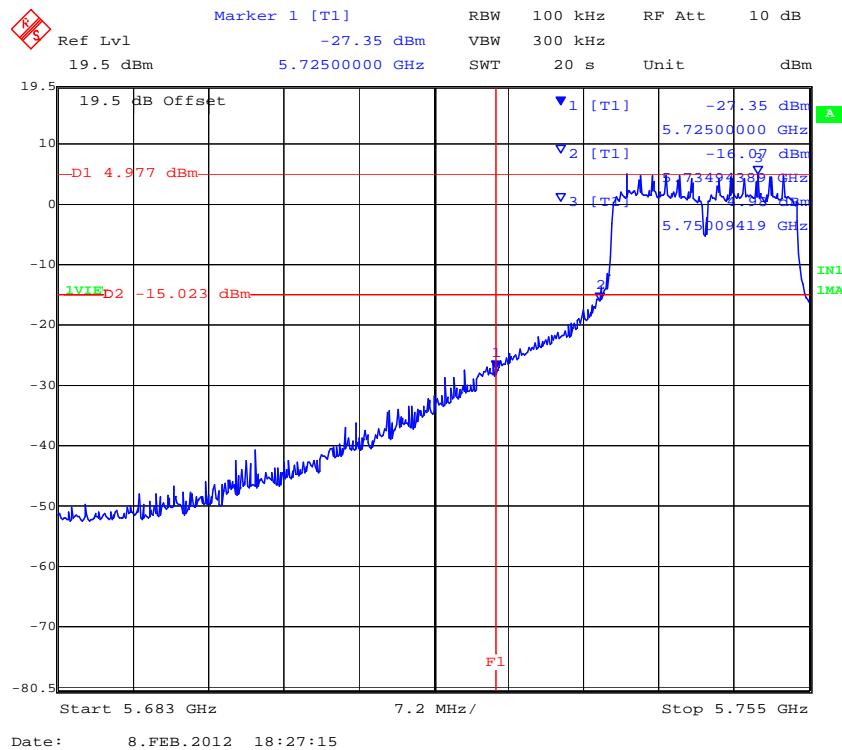


PORT B 802.11n HT-20 Legacy - Conducted Band Edge Spurious 5,725 MHz



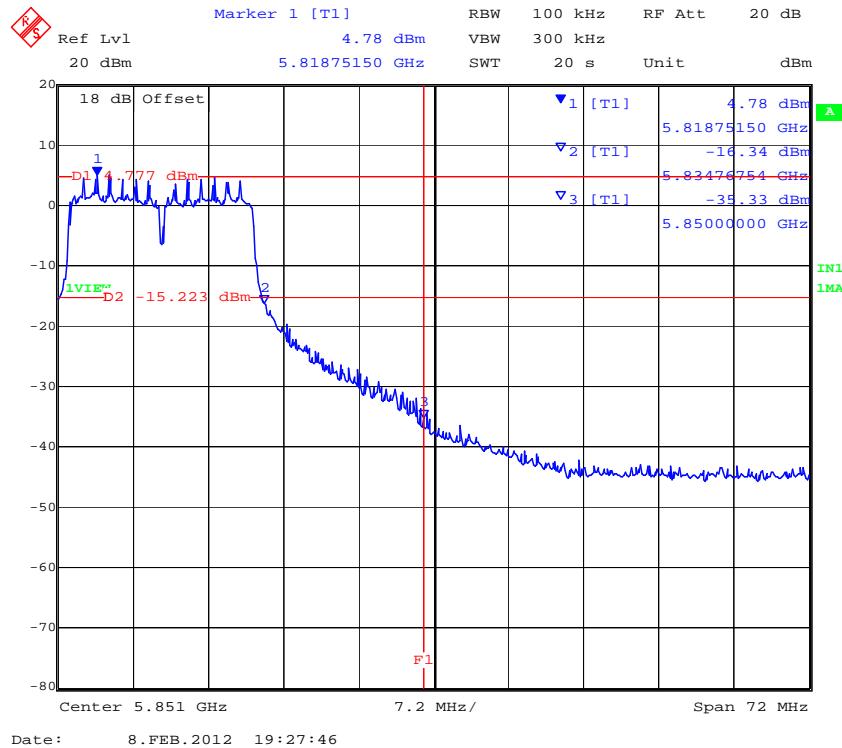
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT C 802.11n HT-20 Legacy - Conducted Band Edge Spurious 5,725 MHz

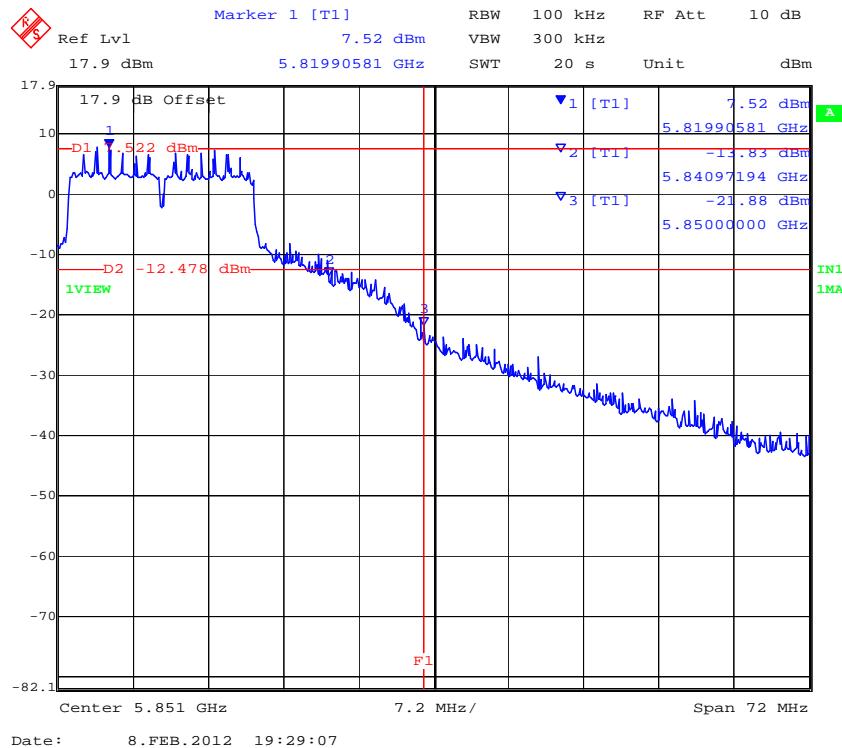


This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11n HT-20 Conducted Spurious Emissions at 5,850 MHz Band Edge

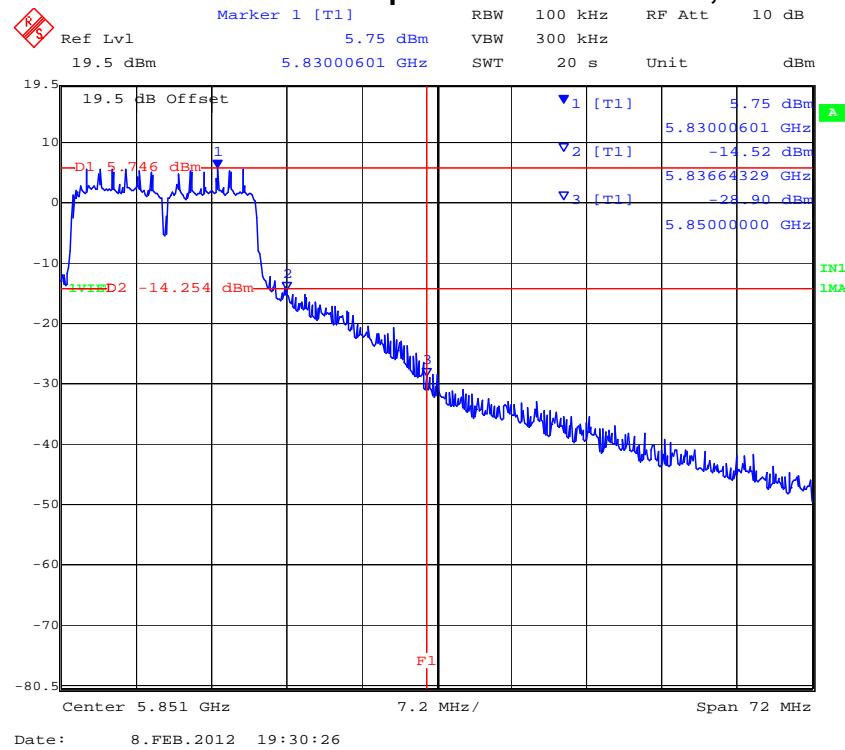


PORT B 802.11n HT-20 Conducted Spurious Emissions at 5,850 MHz Band Edge



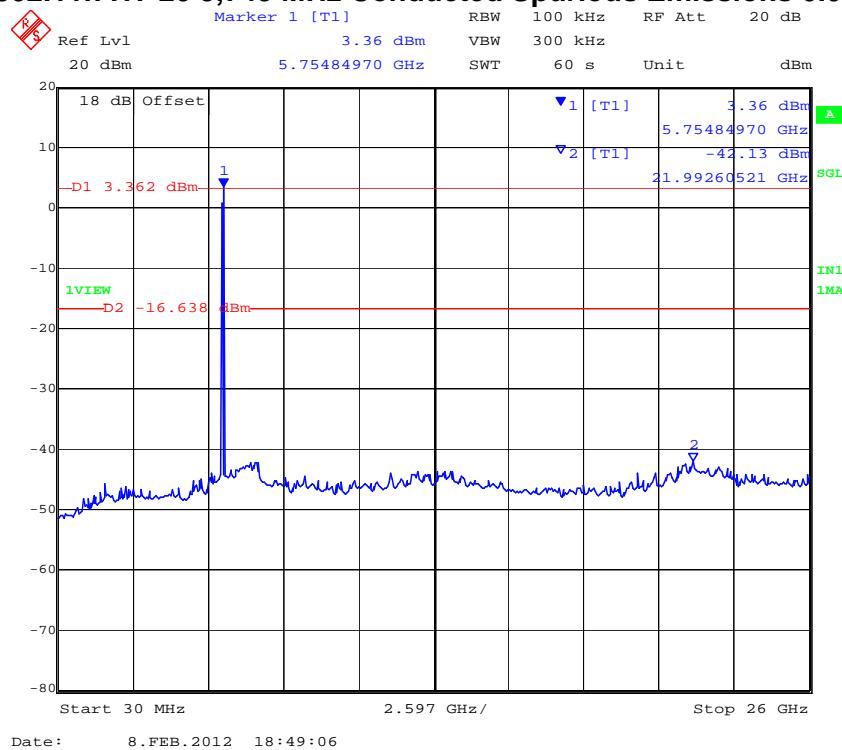
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT C 802.11n HT-20 Conducted Spurious Emissions at 5,850 MHz Band Edge

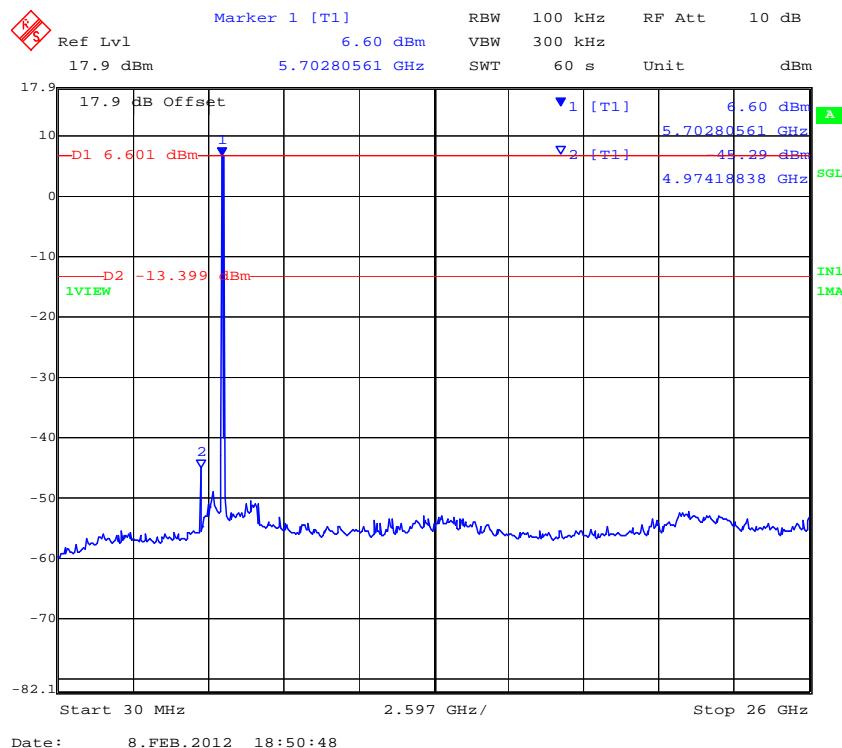


This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11n HT-20 5,745 MHz Conducted Spurious Emissions 0.03 – 26 GHz

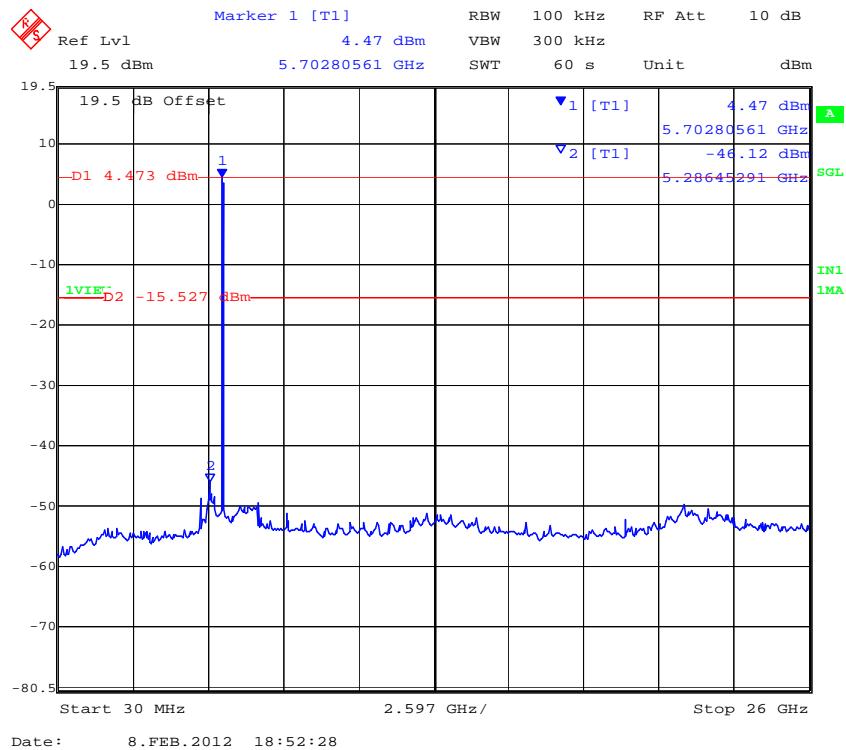


PORT B 802.11n HT-20 5,745 MHz Conducted Spurious Emissions 0.03 – 26 GHz



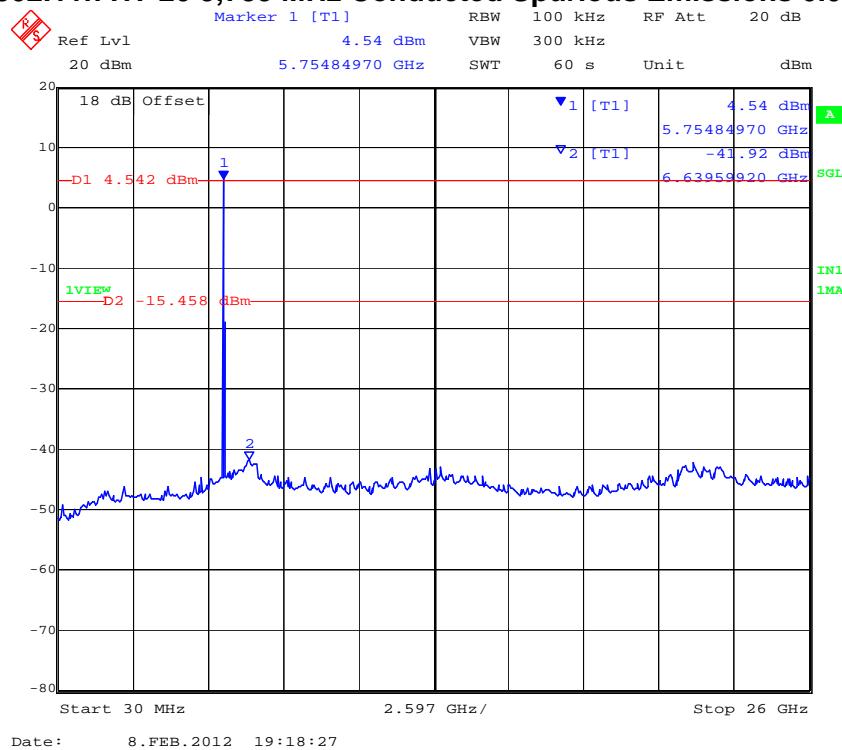
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT C 802.11n HT-20 5,745 MHz Conducted Spurious Emissions 0.03 – 26 GHz

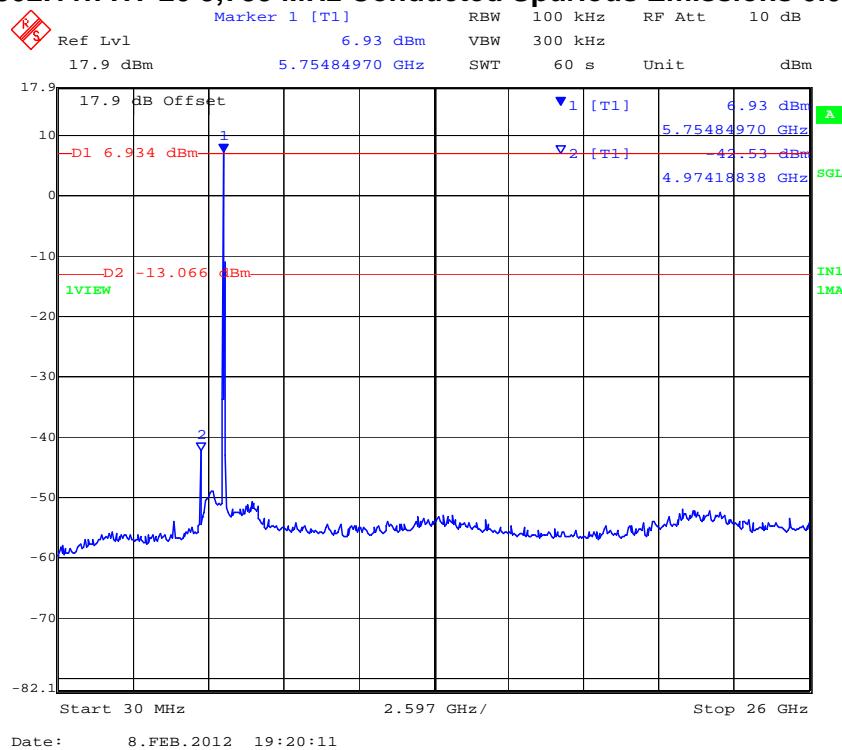


This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11n HT-20 5,785 MHz Conducted Spurious Emissions 0.03 – 26 GHz

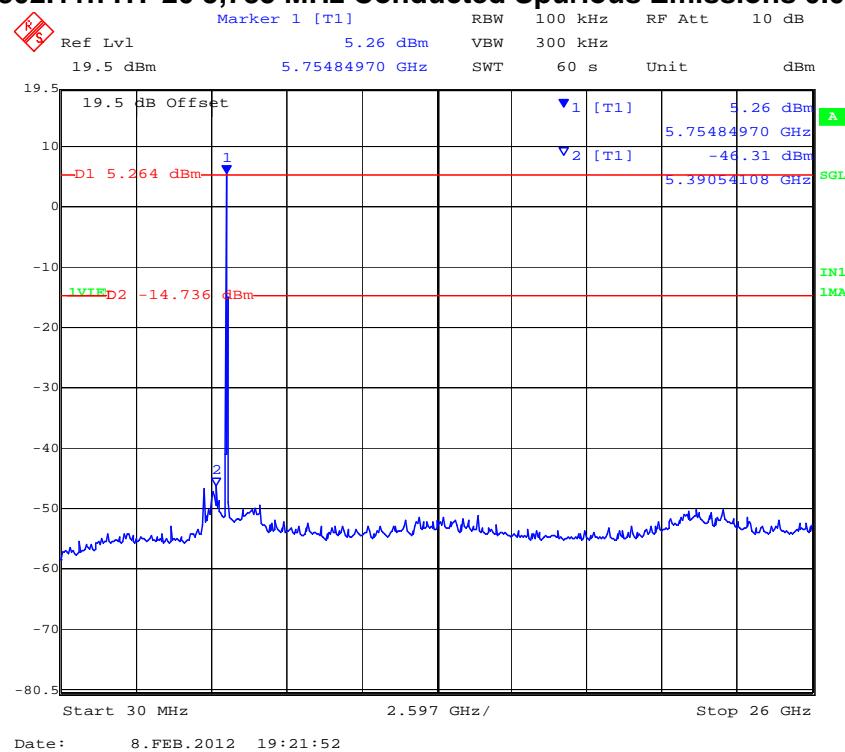


PORT B 802.11n HT-20 5,785 MHz Conducted Spurious Emissions 0.03 – 26 GHz



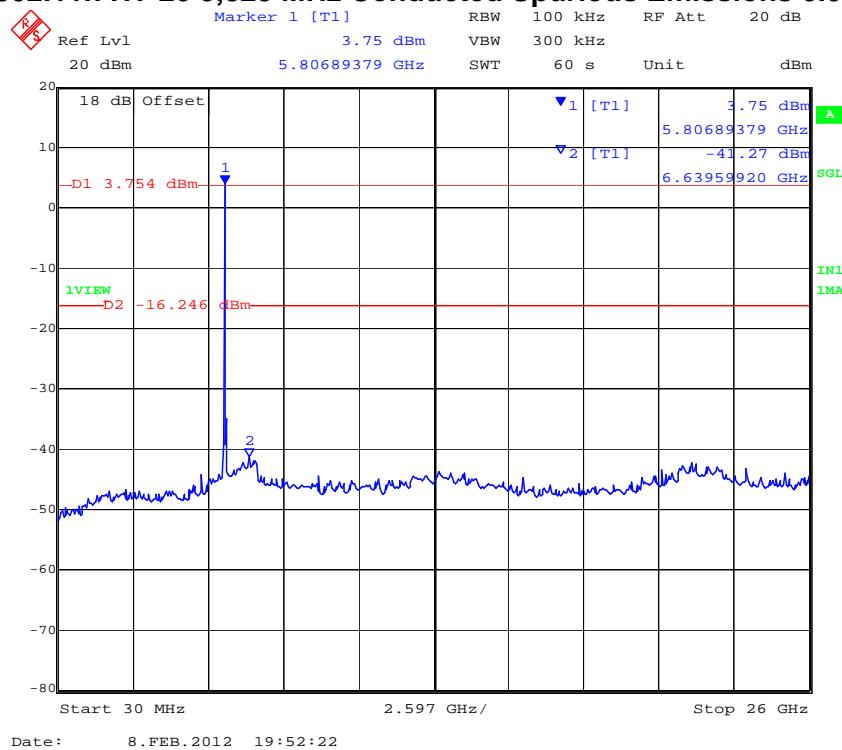
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT C 802.11n HT-20 5,785 MHz Conducted Spurious Emissions 0.03 – 26 GHz

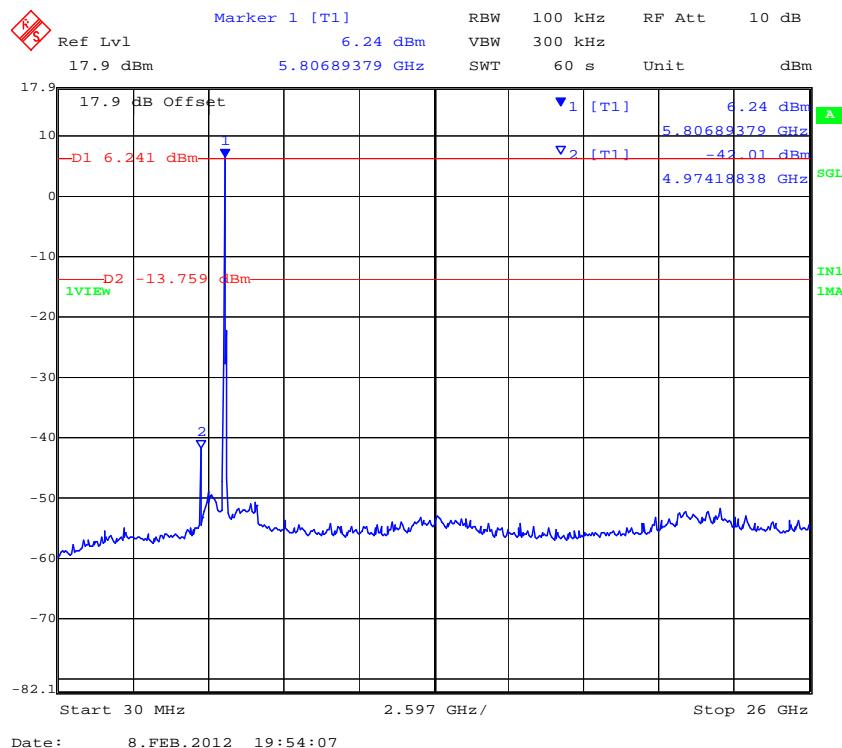


This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11n HT-20 5,825 MHz Conducted Spurious Emissions 0.03 – 26 GHz

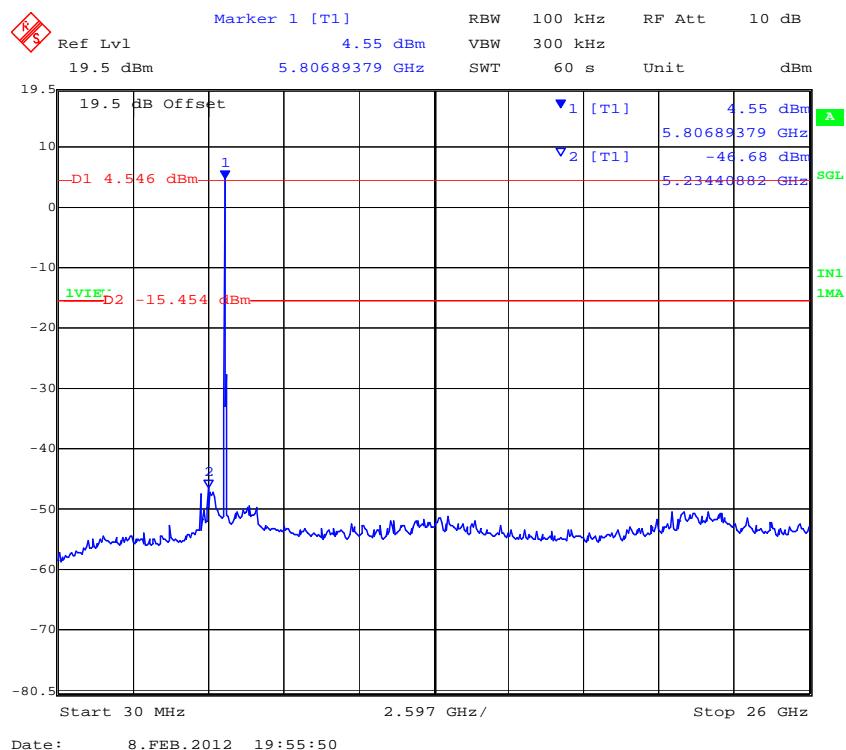


PORT B 802.11n HT-20 5,825 MHz Conducted Spurious Emissions 0.03 – 26 GHz



This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT C 802.11n HT-20 5,825 MHz Conducted Spurious Emissions 0.03 – 26 GHz



This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.



Title: Fluke Networks Sensor4 Wireless Client
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: AMGT14-U1 Rev B
Issue Date: 20th June 2012
Page: 244 of 342

Conducted Spurious Emission Results

TABLE OF RESULTS – 802.11n HT-40

| | | | | | |
|--------------------------|---------------|----------------------------|-----|----|------|
| Test Conditions: | 15.247 (a)(2) | Rel. Humidity (%): | 35 | to | 42 |
| Variant: | 802.11n HT-40 | Ambient Temp. (°C): | 19 | to | 22 |
| TPC: | HIGH | Pressure (mBars): | 998 | to | 1003 |
| Modulation: | ON | Duty Cycle (%): | 100 | | |
| Beam Forming Gain | N/A dB | Antenna Gain: | N/A | dB | |
| Applied Voltage: | 48.00 Vdc | Antenna Ports (N): | | | |
| Notes 1: | | | | | |
| Notes 2: | | | | | |

Conducted Spurious Measurement

| Test Freq. | Start Freq. | Stop Freq. | Port A | | Port B | | Port C | | Port D | | |
|------------|-------------|------------|--------|--------|--------|--------|-----------|--------|-----------|--------|-----------|
| | | | MHz | MHz | MHz | SE dBm | Limit dBm | SE dBm | Limit dBm | SE dBm | Limit dBm |
| 5755.000 | 30.00 | 26000.00 | -41.24 | -19.13 | -45.44 | -17.08 | -45.89 | -18.89 | | | |
| | | | | | | | | | | | |
| 5795.000 | 30.00 | 26000.00 | -41.31 | -19.53 | -42.26 | -15.60 | -45.44 | -17.82 | | | |

SE: Maximum spurious emission found

Band-edge Measurement

| Test Freq. | Band-edge freq. | Port A | | Port B | | Port C | | Port D | |
|------------|-----------------|--------|--------|--------|-----------|--------|-----------|--------|-----------|
| | | MHz | MHz | BE dBm | Limit dBm | BE dBm | Limit dBm | BE dBm | Limit dBm |
| 5755.000 | 5725.00 | -28.26 | -18.62 | -20.33 | -15.15 | -24.77 | -17.71 | | |
| 5795.000 | 5850.00 | -41.08 | -17.88 | -29.40 | -15.40 | -39.84 | -17.05 | | |

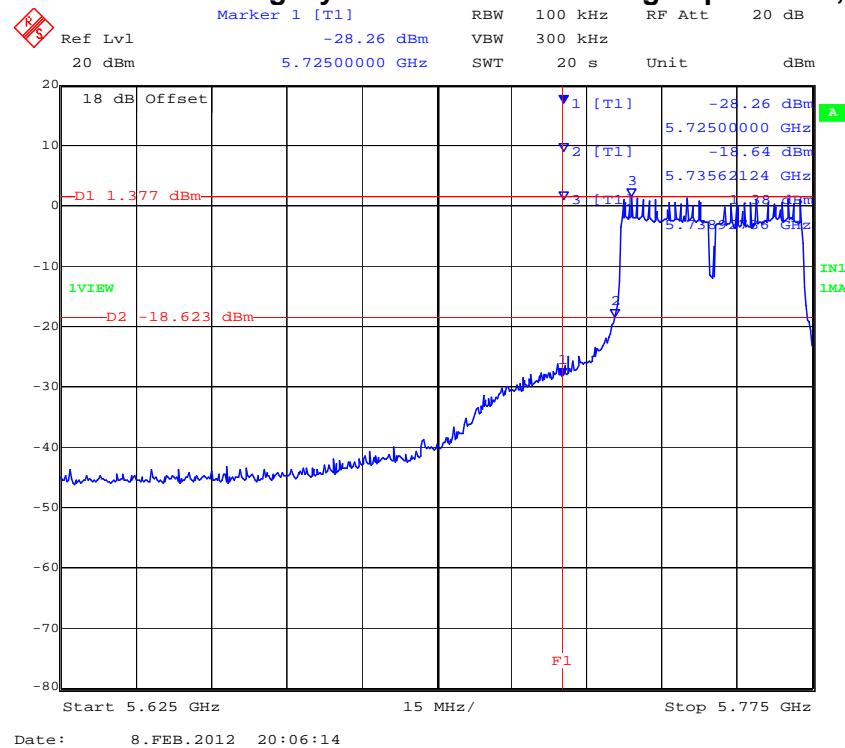
BE: Maximum Band edge emission found

| | |
|---------------------------------|----------|
| Measurement uncertainty: | ±2.81 dB |
|---------------------------------|----------|

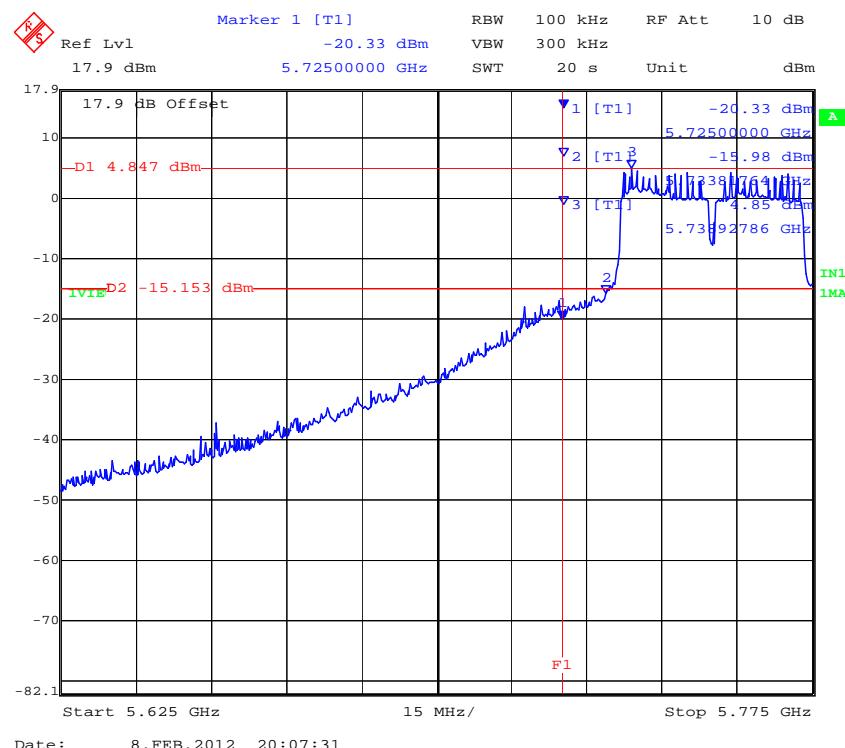
Note: Limit is based on 20dB down from fundamental emission

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11n HT-40 Legacy - Conducted Band Edge Spurious 5,725 MHz

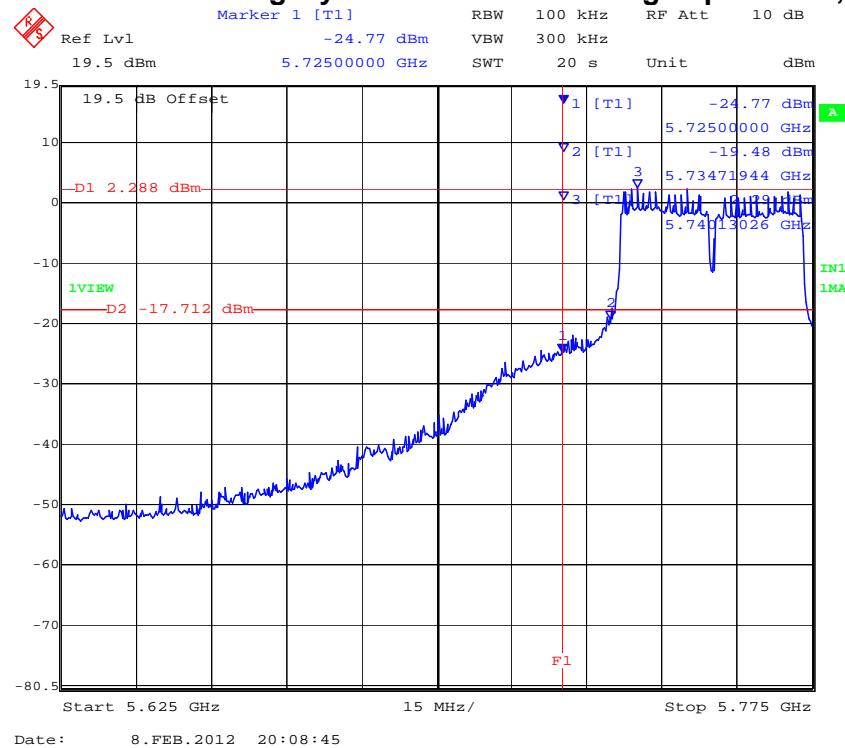


PORT B 802.11n HT-40 Legacy - Conducted Band Edge Spurious 5,725 MHz



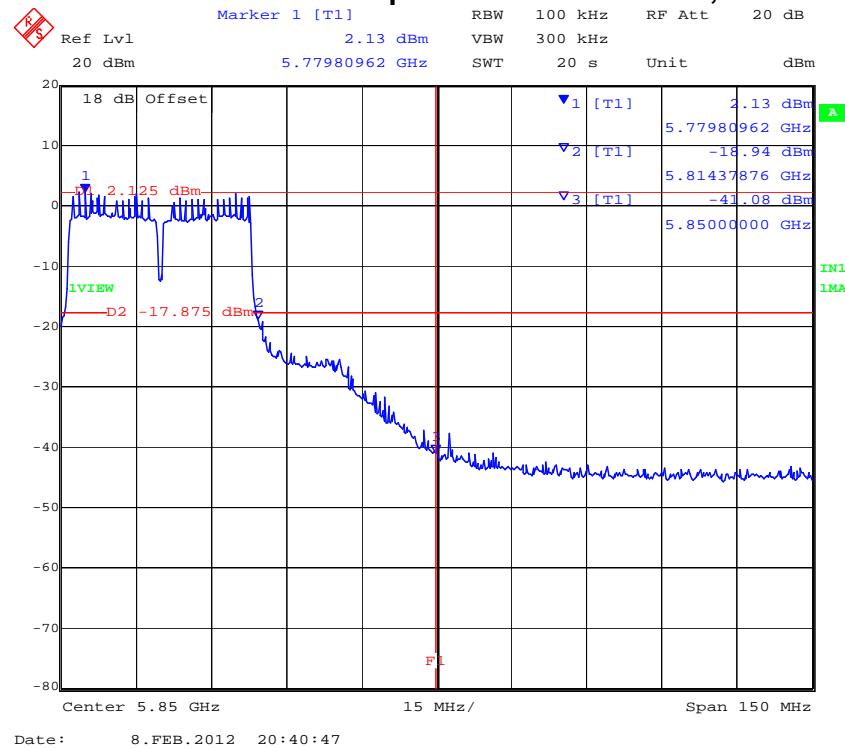
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT C 802.11n HT-40 Legacy - Conducted Band Edge Spurious 5,725 MHz

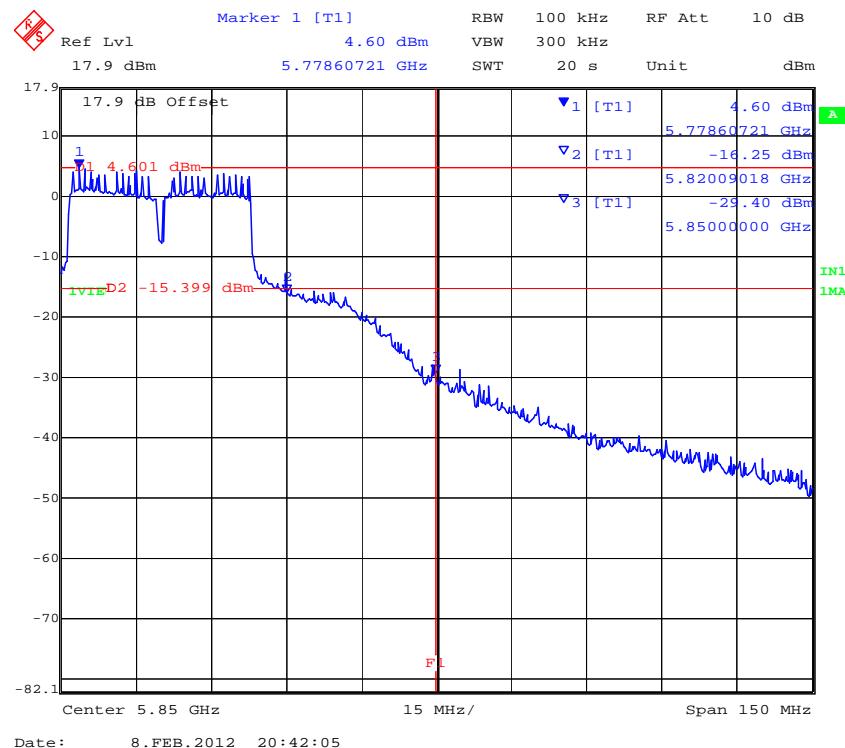


This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11n HT-40 Conducted Spurious Emissions at 5,850 MHz Band Edge

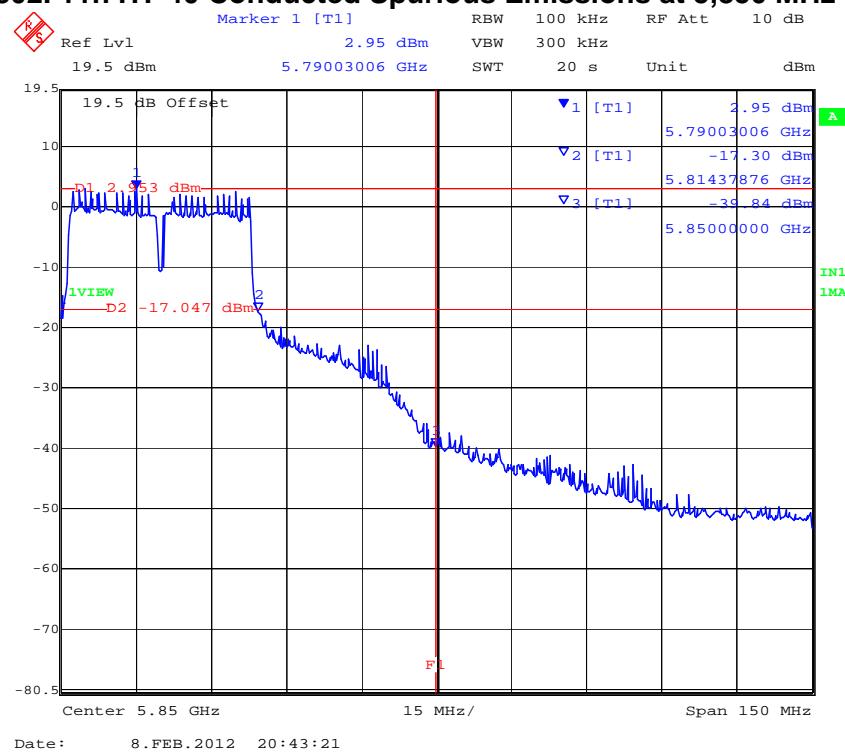


PORT B 802.11n HT-40 Conducted Spurious Emissions at 5,850 MHz Band Edge



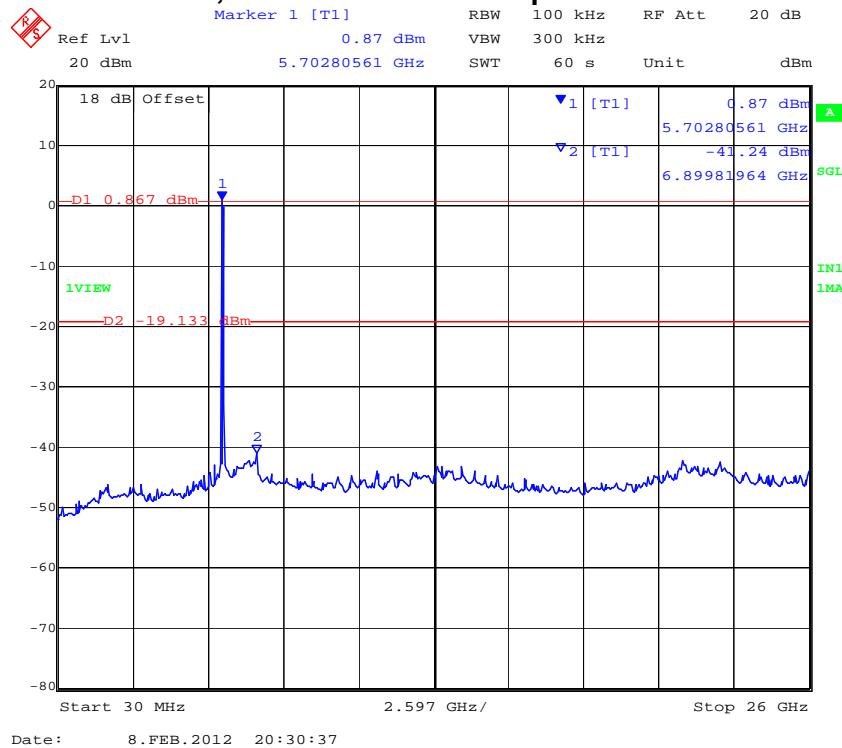
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT C 802.11n HT-40 Conducted Spurious Emissions at 5,850 MHz Band Edge

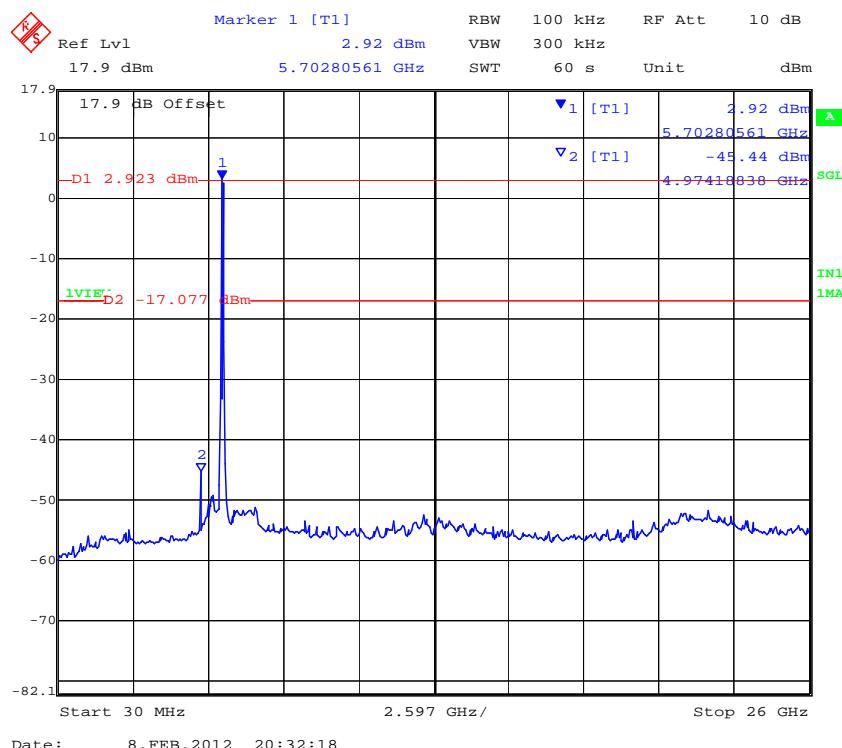


This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11n HT-40 5,755 MHz Conducted Spurious Emissions 0.03 – 26 GHz

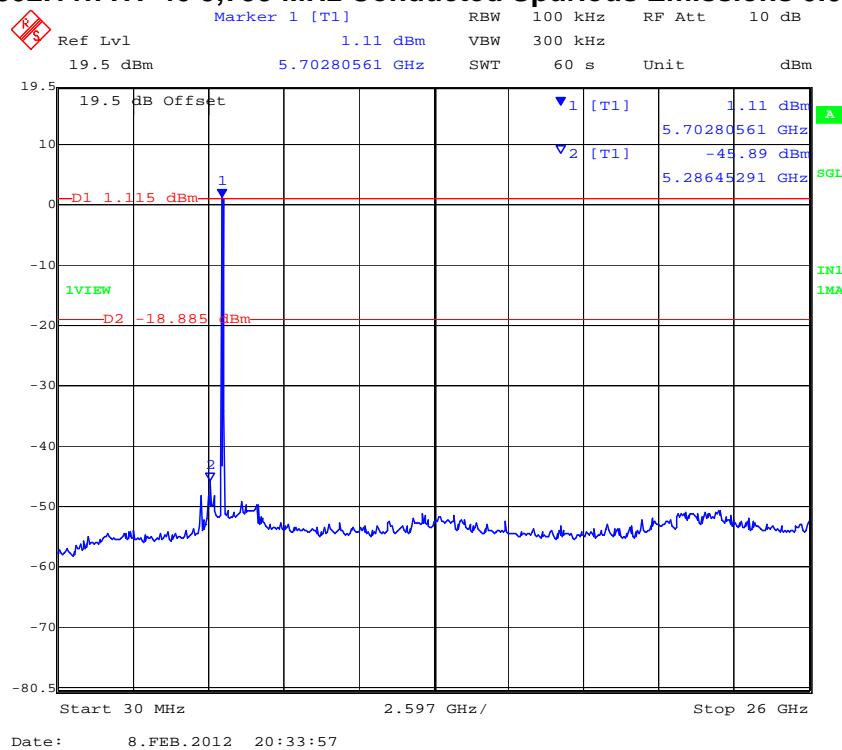


PORT B 802.11n HT-40 5,755 MHz Conducted Spurious Emissions 0.03 – 26 GHz



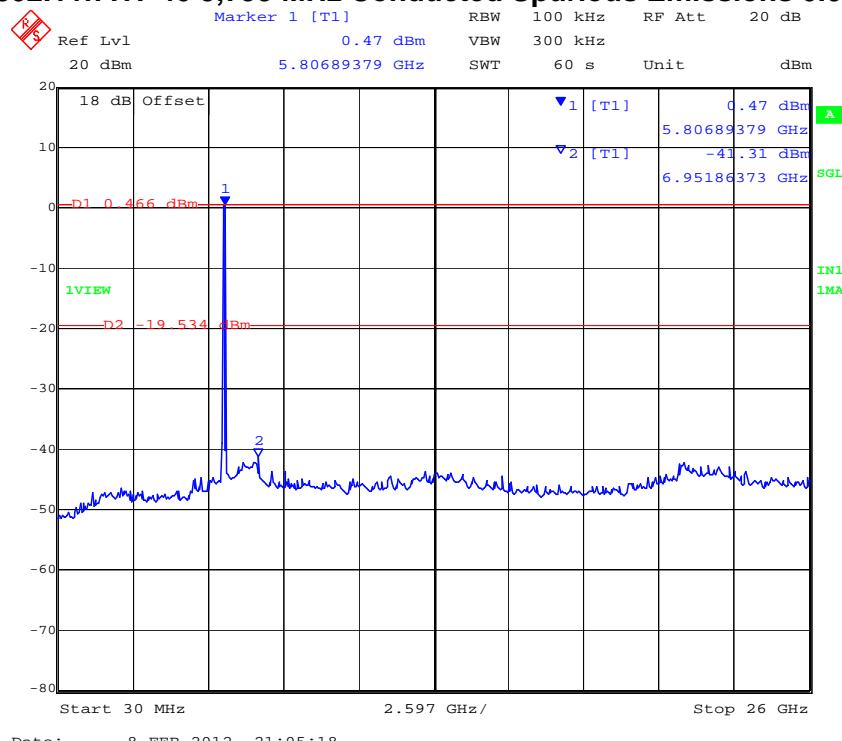
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT C 802.11n HT-40 5,755 MHz Conducted Spurious Emissions 0.03 – 26 GHz

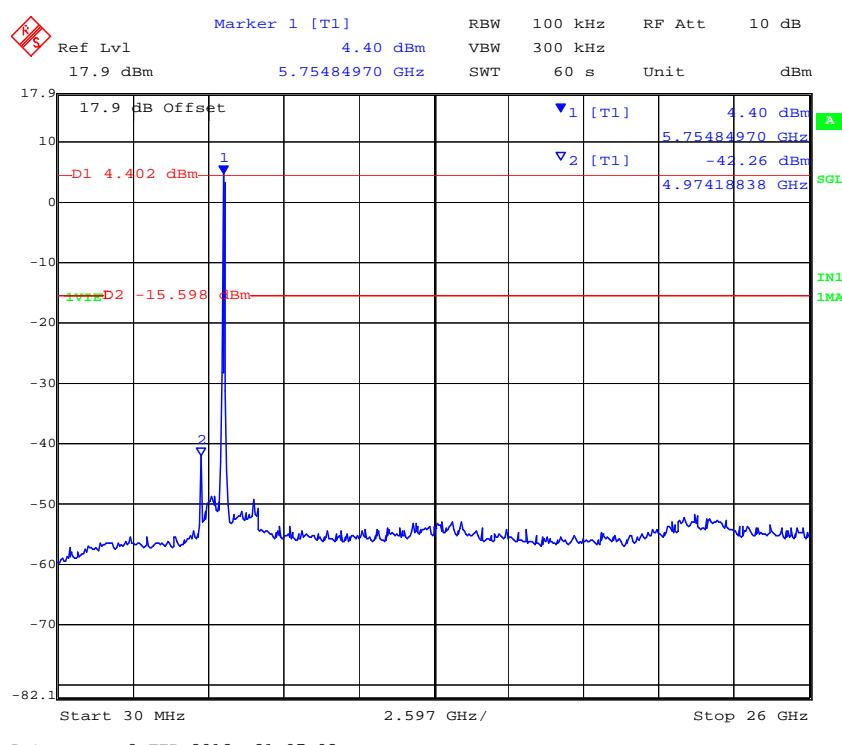


This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT A 802.11n HT-40 5,795 MHz Conducted Spurious Emissions 0.03 – 26 GHz

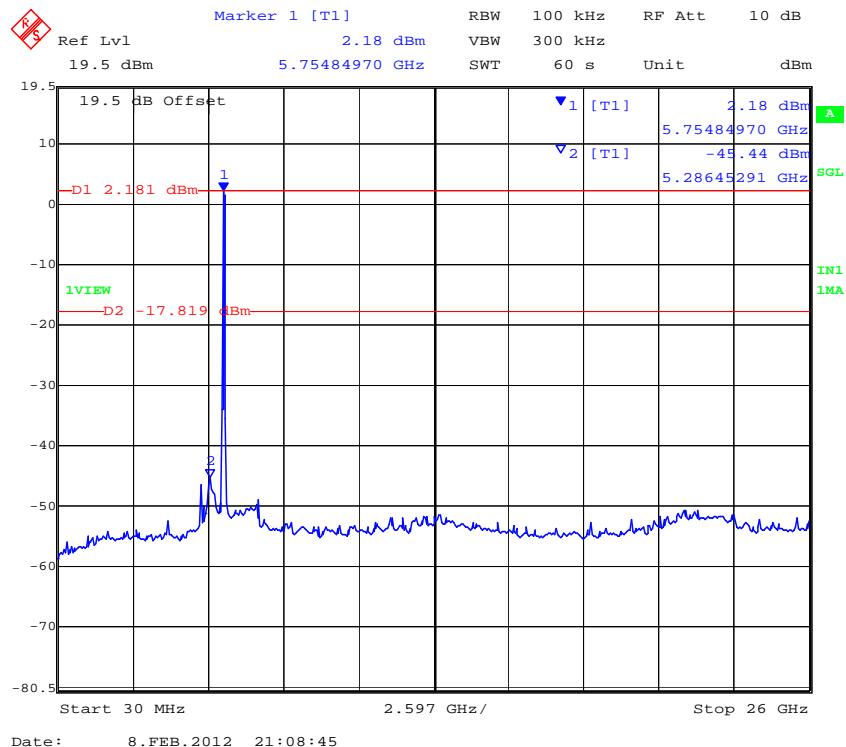


PORT B 802.11n HT-40 5,795 MHz Conducted Spurious Emissions 0.03 – 26 GHz



This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PORT C 802.11n HT-40 5,795 MHz Conducted Spurious Emissions 0.03 – 26 GHz



This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

Specification

Limits Band-Edge

| Lower Limit Band-edge | Upper Limit Band-edge | Limit below highest level of desired power |
|--------------------------|--------------------------|---|
| 2,400 MHz | 2,483.5 MHz | ≥ 20 dB |
| 5725 MHz | 5850 MHz | |

§15.247(d) and RSS-210 §A8.5 In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

§15.247(d)

If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section §15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(a)).

RSS-210 §A8.5 If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under section A8.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Tables 2 and 3 is not required. In addition, radiated emissions which fall in the restricted bands of Table 1 must also comply with the radiated emission limits specified in Tables 2 and 3.

RSS-Gen §4.7

The search for unwanted emissions shall be from the lowest frequency internally generated or used in the device (local oscillator, intermediate of carrier frequency), or from 30 MHz, whichever is the lowest frequency, to the 5th harmonic of the highest frequency generated without exceeding 40 GHz.

Laboratory Measurement Uncertainty for Conducted Spurious Emissions

| | |
|-------------------------|----------|
| Measurement uncertainty | ±2.37 dB |
|-------------------------|----------|

Traceability

| Method | Test Equipment Used |
|---|---|
| Measurements were made per work instruction WI-05 'Measurement of Spurious Emissions' | 0088, 0158, 0287, 0252, 0313, 0314, 0070, 0116, 0117. |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

5.1.6. Radiated Emissions

Transmitter Radiated Spurious Emissions (above 1 GHz); Peak Field Strength Measurements; and Radiated Band Edge Measurements – Restricted Bands

FCC, Part 15 Subpart C §15.247(d) 15.205; 15.209

Industry Canada RSS-210 §A8.5, §2.2, §2.6

Industry Canada RSS-Gen §4.7

Test Procedure

Radiated emissions above 1 GHz are measured in the anechoic chamber at a 3-meter distance on every azimuth in both horizontal and vertical polarities. The emissions are recorded and maximized as a function of azimuth by rotation through 360° with a spectrum analyzer in peak hold mode. Depending on the frequency band spanned a notch filter and waveguide filter was used to remove the fundamental frequency. The highest emissions relative to the limit are listed for each frequency spanned.

All measurements on any frequency or frequencies over 1 MHz are based on the use of measurement instrumentation employing an average detector function. All measurements above 1 GHz were performed using a minimum resolution bandwidth of 1 MHz.

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Loss, and subtracting Amplifier Gain from the measured reading. All factors are included in the reported data.

$$FS = R + AF + CORR - FO$$

where: FS = Field Strength

R = Measured Spectrum analyzer Input Amplitude

AF = Antenna Factor

CORR = Correction Factor = CL – AG + NFL

CL = Cable Loss

AG = Amplifier Gain

FO = Distance Falloff Factor

NFL = Notch Filter Loss or Waveguide Loss

For example:

Given receiver input reading of 51.5 dB μ V; Antenna Factor of 8.5 dB; Cable Loss of 1.3 dB; Falloff Factor of 0 dB, an Amplifier Gain of 26 dB and Notch Filter Loss of 1 dB. The Field Strength of the measured emission is:

$$FS = 51.5 + 8.5 + 1.3 - 26.0 + 1 = 36.3 \text{ dB}\mu\text{V/m}$$

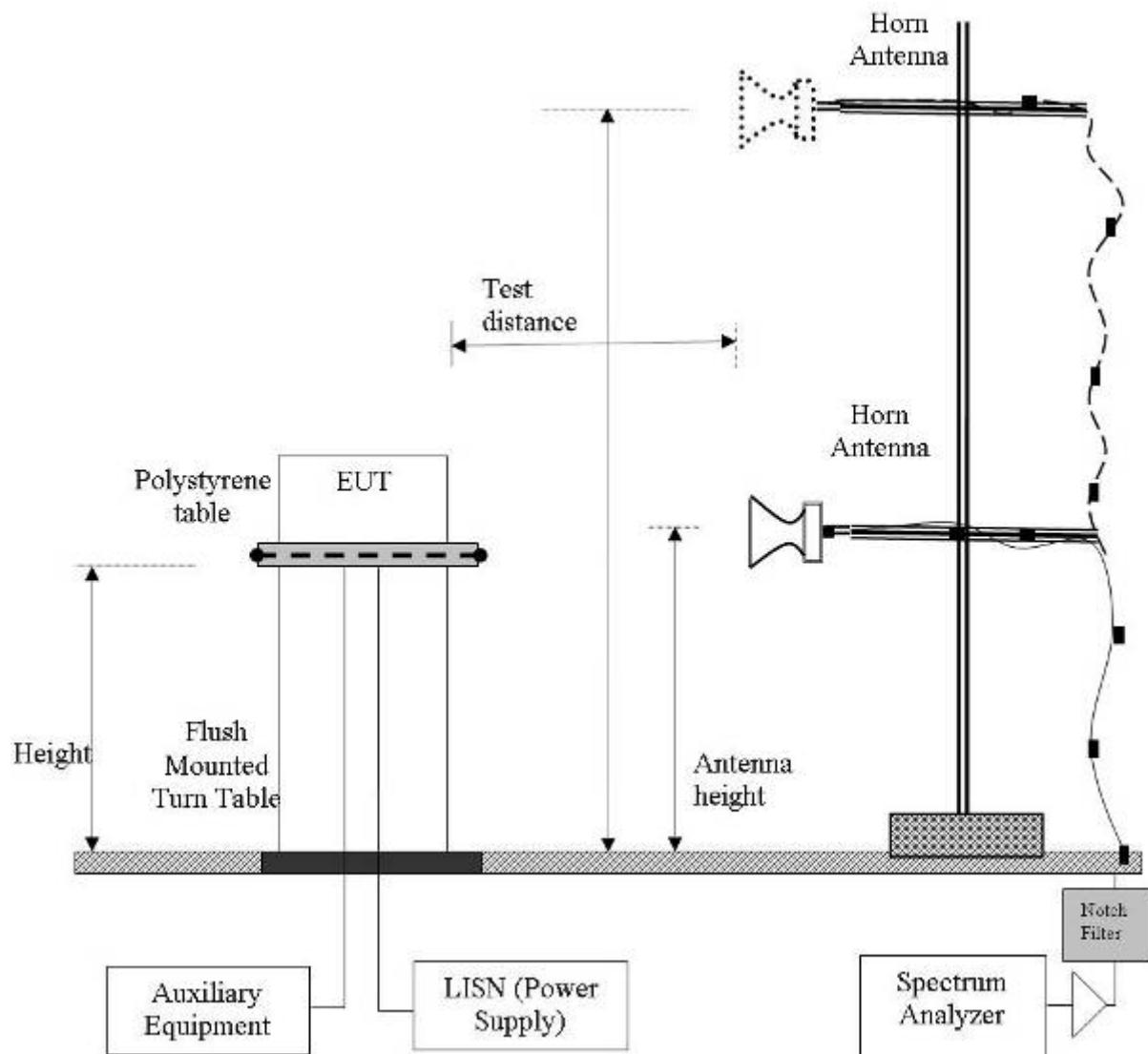
Conversion between dB μ V/m (or dB μ V) and μ V/m (or μ V) are done as:

$$\text{Level (dB}\mu\text{V/m)} = 20 * \text{Log} (\text{level (}\mu\text{V/m)})$$

$$40 \text{ dB}\mu\text{V/m} = 100 \mu\text{V/m}$$

$$48 \text{ dB}\mu\text{V/m} = 250 \mu\text{V/m}$$

Radiated Emission Measurement Setup – Above 1 GHz

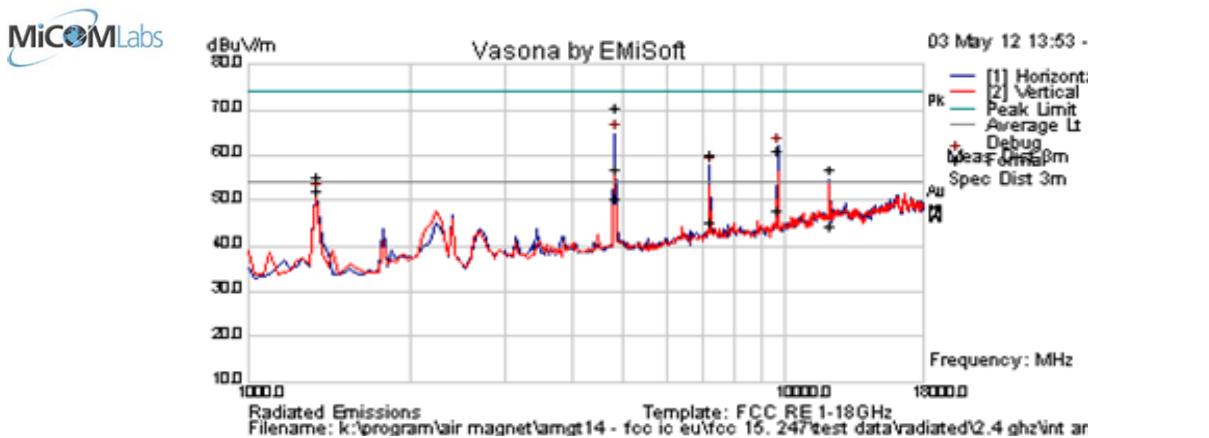


NOTE: KDB 662911 was implemented for Out-of-Band measurements. Where necessary Option (2) Measure and add $10 \log (N)$ dB was implemented

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

5.1.6.1. 2.4 GHz Integral Antenna

| | | | |
|----------------------|---|-----------------------|------|
| Test Freq. | 2412 MHz | Engineer | SB |
| Variant | 802.11b; 1 Mbs | Temp (°C) | 22 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 33 |
| Power Setting | 17 reduced to 14 | Press. (mBars) | 1010 |
| Antenna | integral | Duty Cycle (%) | 100 |
| Test Notes 1 | antenna positions inside chassis were moved | | |
| Test Notes 2 | | | |

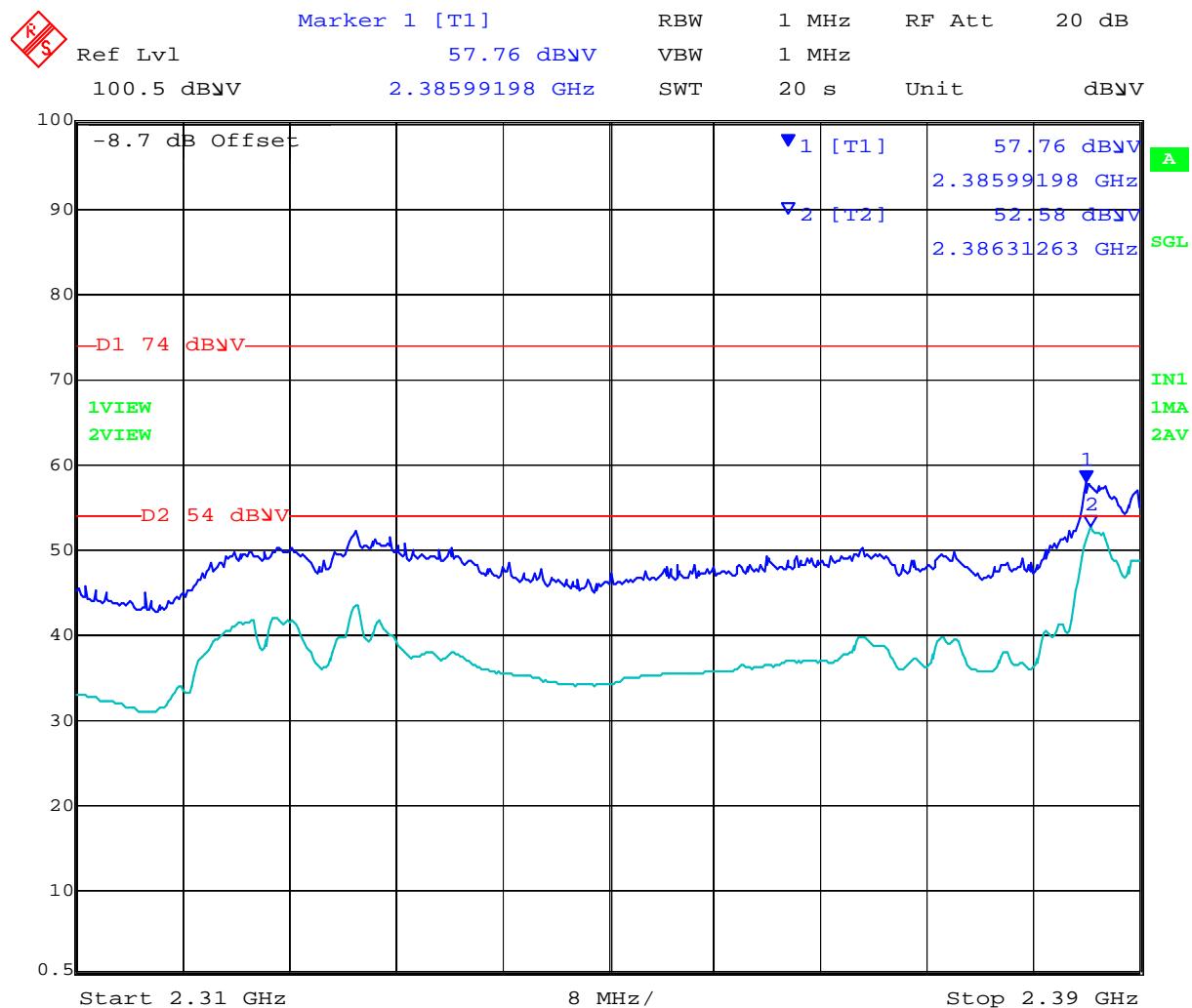


Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 9648.056 | 58.1 | 6.3 | -3.5 | 60.9 | Peak Max | H | 102 | 225 | 74.0 | -13.2 | Pass | NRB |
| 4824.008 | 75.9 | 4.5 | -9.7 | 70.7 | Peak Max | H | 116 | 176 | 74.0 | -3.4 | Pass | RB |
| 7234.629 | 60.4 | 5.4 | -5.8 | 60.0 | Peak Max | H | 106 | 163 | 74.0 | -14.0 | Pass | NRB |
| 12061.883 | 52.5 | 6.9 | -2.5 | 56.9 | Peak Max | H | 98 | 188 | 74.0 | -17.1 | Pass | RB |
| 1349.960 | 66.9 | 2.3 | -14.0 | 55.2 | Peak Max | H | 98 | 27 | 74 | -18.8 | Pass | RB |
| 4824.078 | 55.4 | 4.5 | -9.7 | 50.2 | Average Max | H | 116 | 176 | 54 | -3.8 | Pass | RB |
| 1349.960 | 63.6 | 2.3 | -14.0 | 51.9 | Average Max | H | 98 | 27 | 54.0 | -2.1 | Pass | RB |
| 7234.629 | 45.5 | 5.4 | -5.8 | 45.1 | Average Max | H | 106 | 163 | 54.0 | -9.0 | Pass | NRB |
| 12061.883 | 39.7 | 6.9 | -2.5 | 44.2 | Average Max | H | 98 | 188 | 54.0 | -9.8 | Pass | RB |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak | | | | | | | | | | | | |

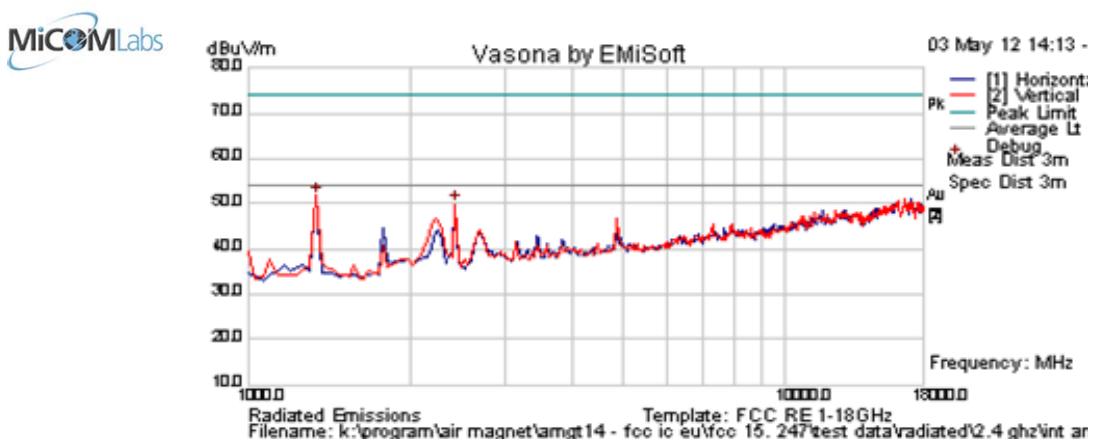
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

Band Edge



This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|---|-----------------------|------|
| Test Freq. | 2437 MHz | Engineer | SB |
| Variant | 802.11b; 1 Mbs | Temp (°C) | 22 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 33 |
| Power Setting | 20 | Press. (mBars) | 1010 |
| Antenna | integral | Duty Cycle (%) | 100 |
| Test Notes 1 | antenna positions inside chassis were moved | | |
| Test Notes 2 | | | |

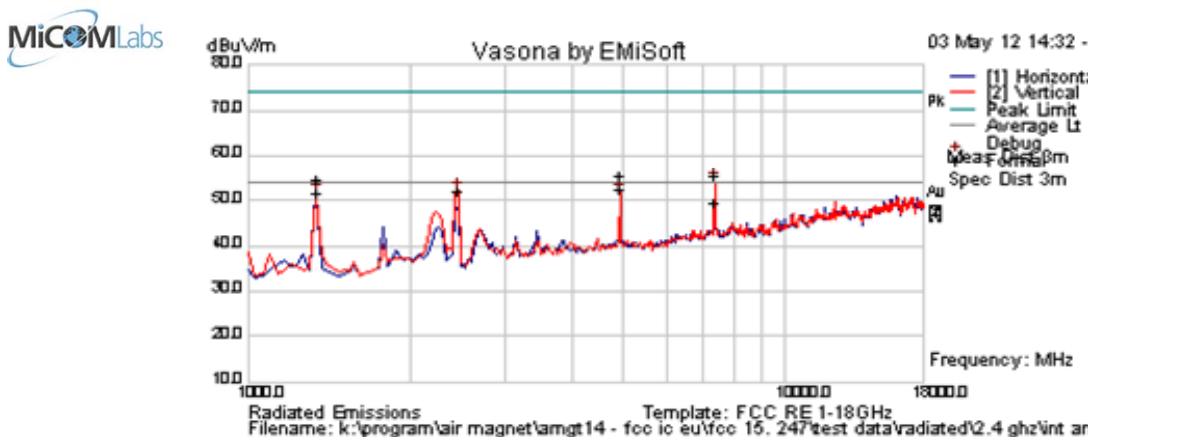


Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---------------|--|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 1349.960 | 66.9 | 2.3 | -14.0 | 55.2 | Peak Max | H | 98 | 27 | 74 | -18.8 | Pass | RB |
| 1349.960 | 63.6 | 2.3 | -14.0 | 51.9 | Average Max | H | 98 | 27 | 54.0 | -2.1 | Pass | RB |
| 2430.862 | 58.5 | 3.0 | -11.6 | 49.9 | Peak [Scan] | V | 150 | 0 | | | | FUND |
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak | | | | | | | | | | | |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|---|-----------------------|------|
| Test Freq. | 2462 MHz | Engineer | SB |
| Variant | 802.11b; 1 Mbs | Temp (°C) | 22 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 33 |
| Power Setting | 17 | Press. (mBars) | 1010 |
| Antenna | integral | Duty Cycle (%) | 100 |
| Test Notes 1 | antenna positions inside chassis were moved | | |
| Test Notes 2 | | | |

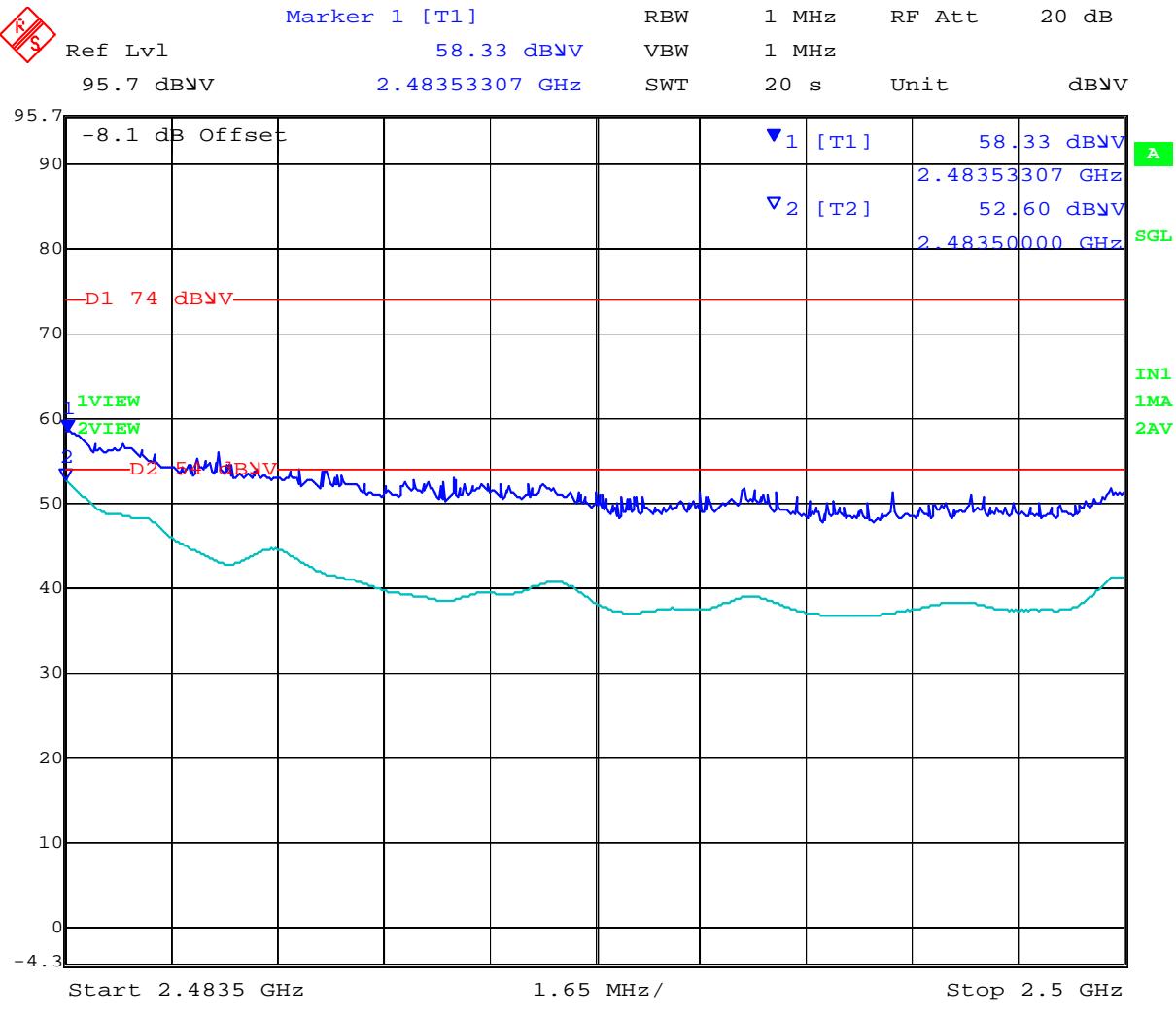


Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 7387.255 | 55.4 | 5.5 | -5.5 | 55.4 | Peak Max | V | 142 | 265 | 74 | -18.6 | Pass | RB |
| 4924.128 | 60.5 | 4.6 | -9.8 | 55.3 | Peak Max | V | 151 | 190 | 74.0 | -18.7 | Pass | RB |
| 1350.020 | 66.2 | 2.3 | -14.0 | 54.5 | Peak Max | H | 100 | 23 | 74.0 | -19.5 | Pass | RB |
| 7387.255 | 49.5 | 5.5 | -5.5 | 49.5 | Average Max | V | 142 | 265 | 54.0 | -4.5 | Pass | RB |
| 4924.128 | 57.6 | 4.6 | -9.8 | 52.4 | Average Max | V | 151 | 190 | 54.0 | -1.6 | Pass | RB |
| 1350.020 | 63.2 | 2.3 | -14.0 | 51.5 | Average Max | H | 100 | 23 | 54 | -2.5 | Pass | RB |
| 2464.930 | 60.6 | 3.0 | -11.5 | 52.1 | Peak [Scan] | V | 100 | 0 | | | | FUND |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak | | | | | | | | | | | | |

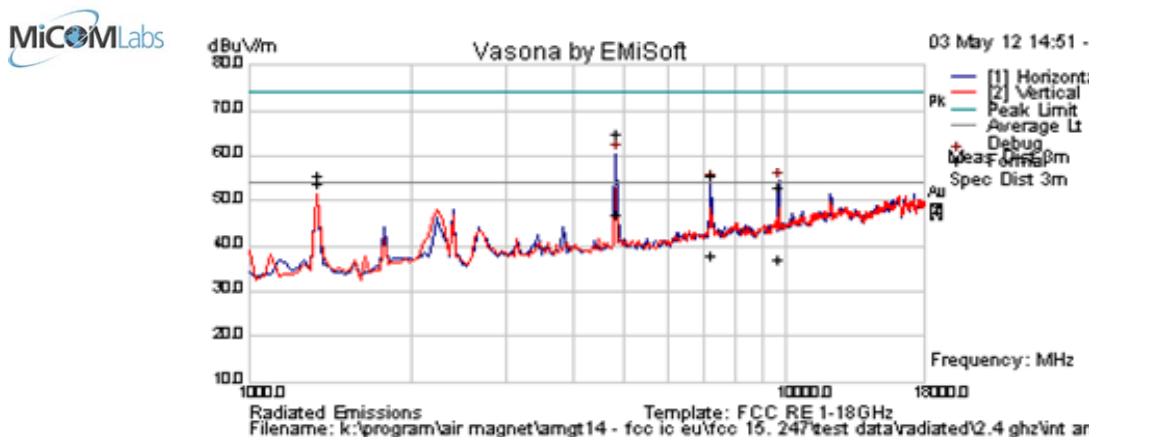
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

Band Edge



This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|----------------------|-----------------------|------|
| Test Freq. | 2412 MHz | Engineer | SB |
| Variant | 802.11g; 6 Mbs | Temp (°C) | 22 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 33 |
| Power Setting | 13 | Press. (mBars) | 1010 |
| Antenna | integral | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |

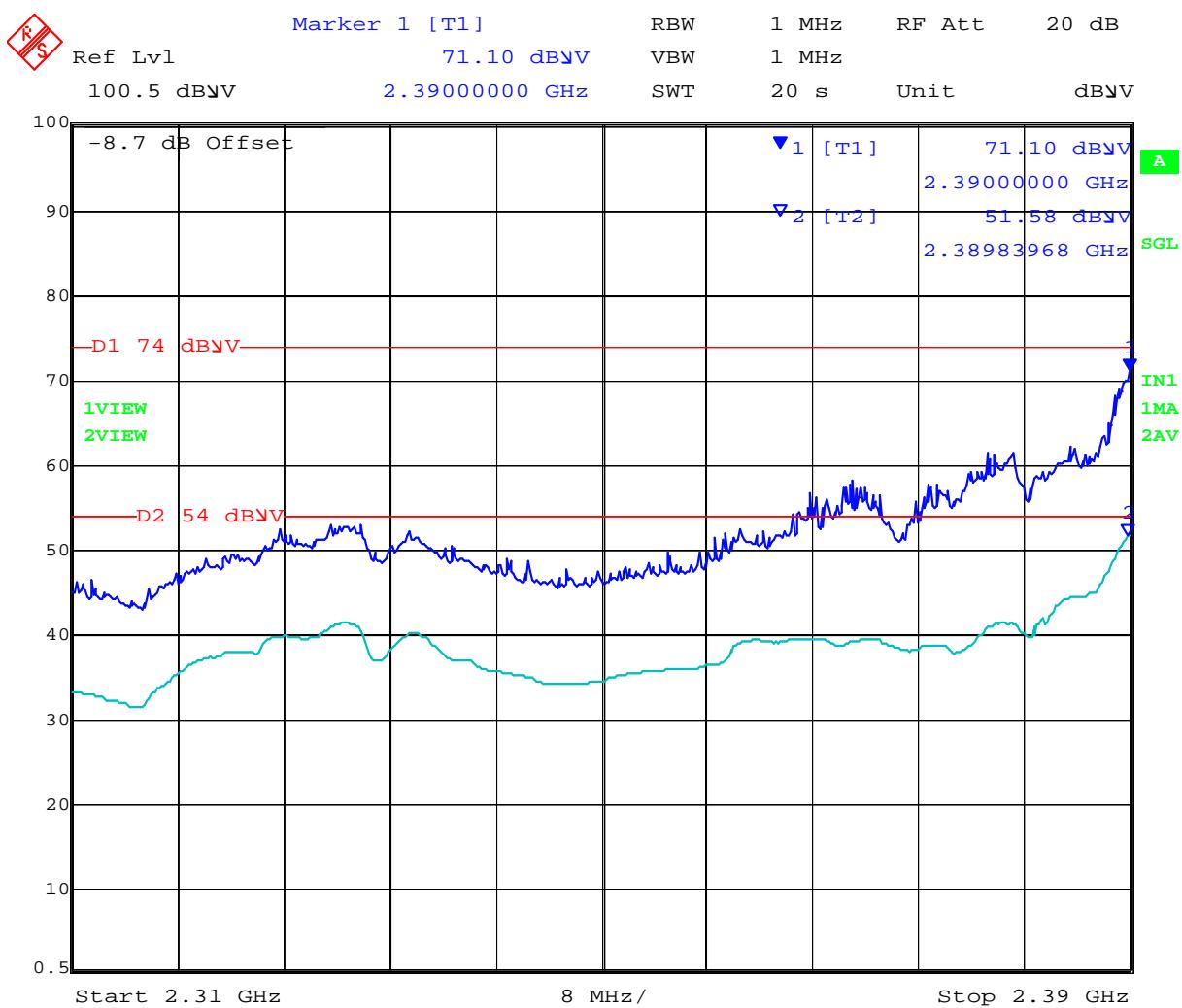


Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|--|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 4826.693 | 70.0 | 4.5 | -9.7 | 64.8 | Peak Max | H | 115 | 232 | 74.0 | -9.2 | Pass | RB |
| 9656.192 | 50.2 | 6.3 | -3.6 | 53.0 | Peak Max | H | 119 | 238 | 74.0 | -21.0 | Pass | RB |
| 7241.122 | 56.1 | 5.4 | -5.8 | 55.7 | Peak Max | H | 142 | 192 | 74.0 | -18.3 | Pass | RB |
| 1349.920 | 67.4 | 2.3 | -14.0 | 55.7 | Peak Max | V | 111 | 42 | 74.0 | -18.3 | Pass | RB |
| 4826.693 | 52.1 | 4.5 | -9.7 | 46.9 | Average Max | H | 115 | 232 | 54.0 | -7.1 | Pass | RB |
| 9656.192 | 34.3 | 6.3 | -3.6 | 37.1 | Average Max | H | 119 | 238 | 54.0 | -16.9 | Pass | RB |
| 7241.122 | 38.2 | 5.4 | -5.8 | 37.8 | Average Max | H | 142 | 192 | 54.0 | -16.2 | Pass | RB |
| 1349.920 | 65.6 | 2.3 | -14.0 | 53.9 | Average Max | V | 111 | 42 | 54.0 | -0.1 | Pass | RB |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak | | | | | | | | | | | | |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

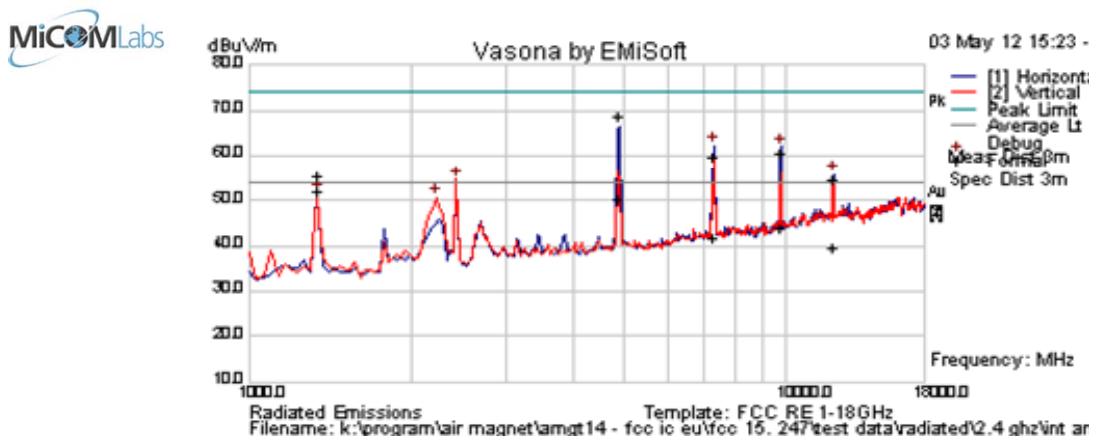
Band Edge



Output power reduction required (Power = 13)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|----------------------|-----------------------|------|
| Test Freq. | 2437 MHz | Engineer | SB |
| Variant | 802.11g; 6 Mbs | Temp (°C) | 22 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 33 |
| Power Setting | 20 to 17 | Press. (mBars) | 1010 |
| Antenna | integral | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |

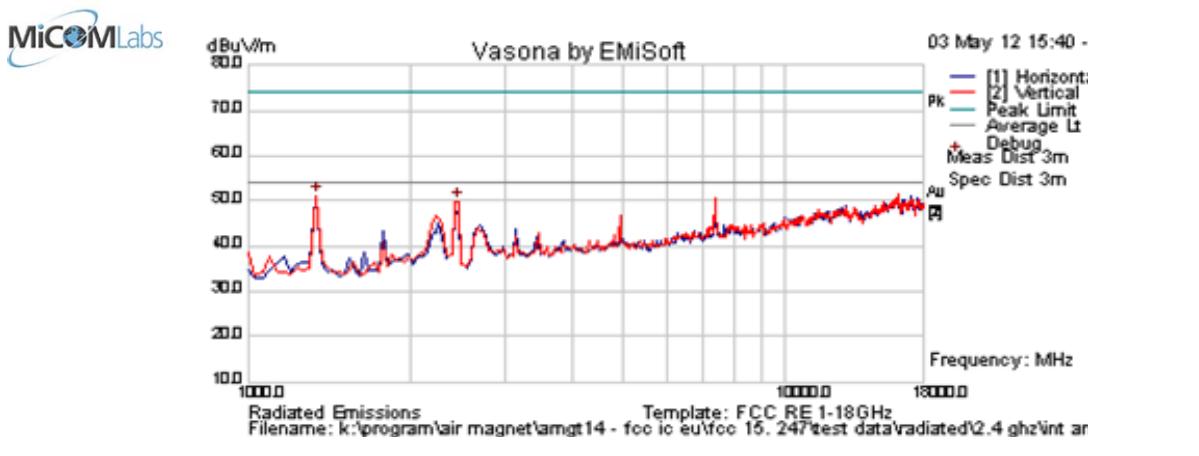


Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 4871.583 | 74.1 | 4.5 | -9.7 | 68.9 | Peak Max | H | 170 | 182 | 74 | -5.1 | Pass | RB |
| 7309.820 | 60.2 | 5.4 | -5.7 | 60.0 | Peak Max | H | 98 | 216 | 74 | -14.1 | Pass | RB |
| 9753.908 | 58.2 | 6.4 | -3.7 | 60.8 | Peak Max | H | 119 | 161 | 74 | -13.2 | Pass | RB |
| 12182.445 | 49.9 | 7.0 | -2.2 | 54.7 | Peak Max | H | 130 | 189 | 74 | -19.3 | Pass | RB |
| 1350.000 | 67.4 | 2.3 | -14.0 | 55.7 | Peak Max | H | 94 | 22 | 74 | -18.3 | Pass | RB |
| 4871.583 | 55.4 | 4.5 | -9.7 | 50.2 | Average Max | H | 170 | 182 | 54 | -3.8 | Pass | RB |
| 7309.820 | 42.2 | 5.4 | -5.7 | 41.9 | Average Max | H | 98 | 216 | 54 | -12.1 | Pass | RB |
| 9753.908 | 41.3 | 6.4 | -3.7 | 43.9 | Average Max | H | 119 | 161 | 54 | -10.1 | Pass | RB |
| 12182.445 | 34.7 | 7.0 | -2.2 | 39.5 | Average Max | H | 130 | 189 | 54 | -14.5 | Pass | RB |
| 1350.000 | 63.8 | 2.3 | -14.0 | 52.1 | Average Max | H | 94 | 22 | 54 | -1.9 | Pass | RB |
| 2430.862 | 63.5 | 3.0 | -11.6 | 54.9 | Peak [Scan] | V | 150 | 0 | | | | FUND |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak | | | | | | | | | | | | |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|----------------------|-----------------------|------|
| Test Freq. | 2462 MHz | Engineer | SB |
| Variant | 802.11g; 6 Mbs | Temp (°C) | 22 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 33 |
| Power Setting | 13 | Press. (mBars) | 1010 |
| Antenna | integral | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |

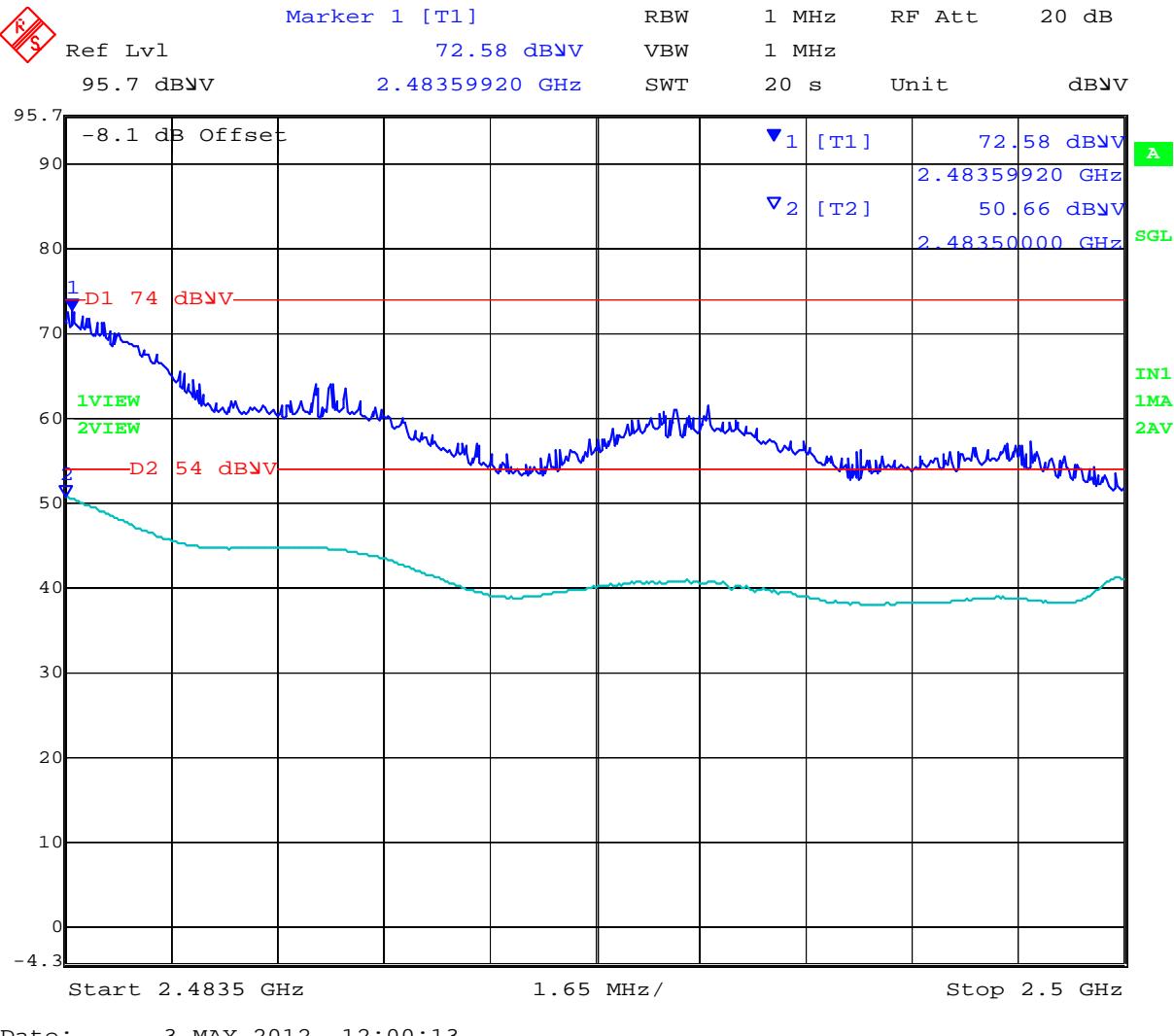


Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---------------|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|---|
| 1349.960 | 66.9 | 2.3 | -14.0 | 55.2 | Peak Max | H | 98 | 27 | 74 | -18.8 | Pass | RB |
| 1349.960 | 63.6 | 2.3 | -14.0 | 51.9 | Average Max | H | 98 | 27 | 54.0 | -2.1 | Pass | RB |
| 2464.930 | 58.4 | 3.0 | -11.5 | 49.9 | Peak [Scan] | V | 150 | 0 | | | | FUND |
| Legend: | | | | | | | | | | | | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | | | | | | | | | | | | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

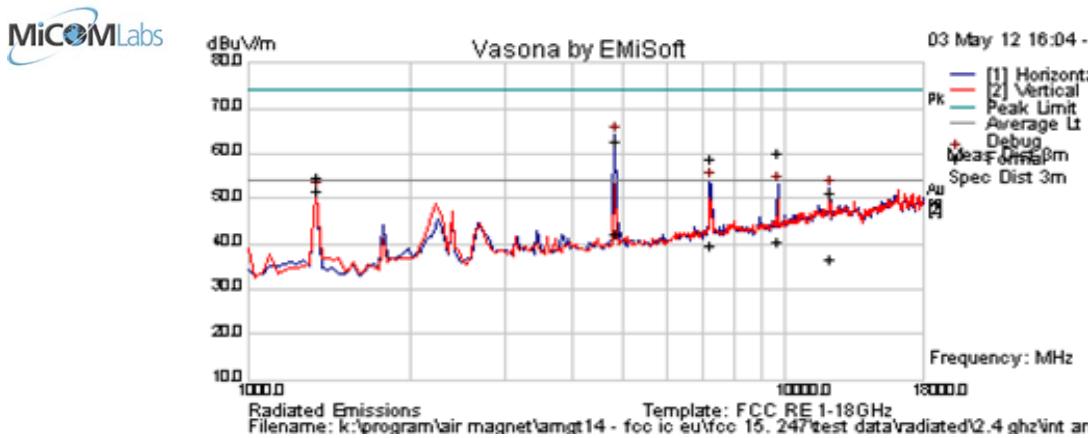
Band Edge



Output power reduction required (Power = 13)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|-------------------------|-----------------------|------|
| Test Freq. | 2412 MHz | Engineer | SB |
| Variant | 802.11n; HT-20; 6.5 MCS | Temp (°C) | 22 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 33 |
| Power Setting | 14 | Press. (mBars) | 1010 |
| Antenna | integral | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |



Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 4827.335 | 67.9 | 4.5 | -9.7 | 62.7 | Peak Max | H | 98 | 194 | 74.0 | -11.3 | Pass | RB |
| 7246.012 | 59.5 | 5.4 | -5.8 | 59.1 | Peak Max | H | 99 | 175 | 74.0 | -14.9 | Pass | RB |
| 9666.132 | 57.6 | 6.3 | -3.6 | 60.3 | Peak Max | H | 100 | 148 | 74.0 | -13.7 | Pass | RB |
| 12087.134 | 46.6 | 7.0 | -2.5 | 51.1 | Peak Max | H | 124 | 306 | 74.0 | -22.9 | Pass | RB |
| 1350.000 | 66.4 | 2.3 | -14.0 | 54.7 | Peak Max | H | 98 | 27 | 74.0 | -19.3 | Pass | RB |
| 4827.335 | 47.6 | 4.5 | -9.7 | 42.4 | Average Max | H | 98 | 194 | 54.0 | -11.6 | Pass | RB |
| 7246.012 | 39.8 | 5.4 | -5.8 | 39.4 | Average Max | H | 99 | 175 | 54.0 | -14.6 | Pass | RB |
| 9666.132 | 37.7 | 6.3 | -3.6 | 40.5 | Average Max | H | 100 | 148 | 54.0 | -13.6 | Pass | RB |
| 12087.134 | 32.2 | 7.0 | -2.5 | 36.7 | Average Max | H | 124 | 306 | 54.0 | -17.3 | Pass | RB |
| 1350.000 | 63.2 | 2.3 | -14.0 | 51.5 | Average Max | H | 98 | 27 | 54.0 | -2.5 | Pass | RB |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| * Evaluated as 1600 MHz, RB Emission See Evaluation | | | | | | | | | | | | |
| RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak | | | | | | | | | | | | |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

Band Edge

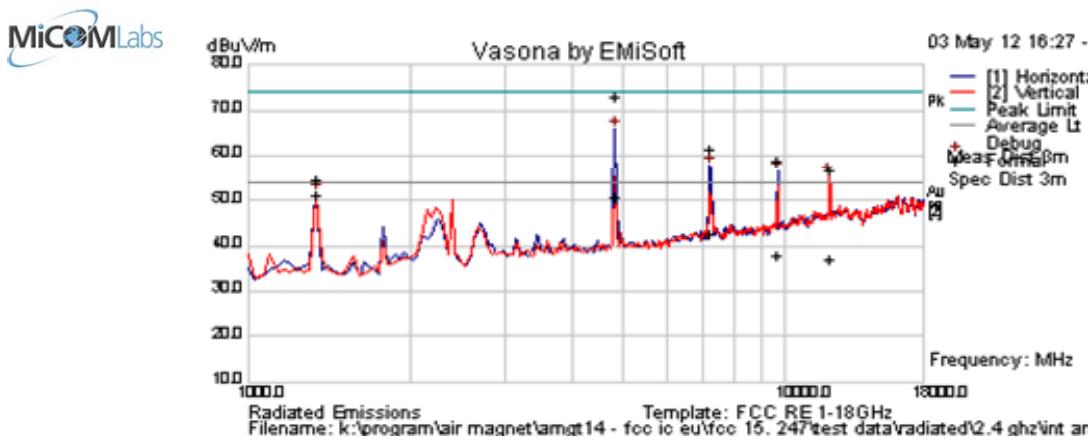


Date: 3.MAY.2012 11:43:29

Output power reduction required (Power = 14)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|-------------------------|-----------------------|------|
| Test Freq. | 2437 MHz | Engineer | SB |
| Variant | 802.11n; HT-20; 6.5 MCS | Temp (°C) | 22 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 33 |
| Power Setting | 20 to 17 | Press. (mBars) | 1010 |
| Antenna | integral | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |



Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---------------|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 4827.174 | 78.1 | 4.5 | -9.7 | 72.9 | Peak Max | H | 142 | 199 | 74 | -1.1 | Pass | RB |
| 7238.557 | 61.8 | 5.4 | -5.8 | 61.4 | Peak Max | H | 98 | 167 | 74 | -12.6 | Pass | RB |
| 9672.224 | 56.3 | 6.3 | -3.6 | 59.0 | Peak Max | H | 170 | 163 | 74 | -15.0 | Pass | RB |
| 12094.669 | 52.1 | 7.0 | -2.4 | 56.6 | Peak Max | V | 130 | 249 | 74 | -17.4 | Pass | RB |
| 1349.960 | 66.2 | 2.3 | -14.0 | 54.5 | Peak Max | H | 99 | 19 | 74 | -19.5 | Pass | RB |
| 4827.174 | 56.1 | 4.5 | -9.7 | 50.9 | Average Max | H | 142 | 199 | 54 | -3.1 | Pass | RB |
| 7238.557 | 42.9 | 5.4 | -5.8 | 42.5 | Average Max | H | 98 | 167 | 54 | -11.5 | Pass | RB |
| 9672.224 | 35.1 | 6.3 | -3.6 | 37.8 | Average Max | H | 170 | 163 | 54 | -16.2 | Pass | RB |
| 12094.669 | 32.4 | 7.0 | -2.4 | 36.9 | Average Max | V | 130 | 249 | 54 | -17.1 | Pass | RB |
| 1349.960 | 62.9 | 2.3 | -14.0 | 51.2 | Average Max | H | 99 | 19 | 54 | -2.8 | Pass | RB |

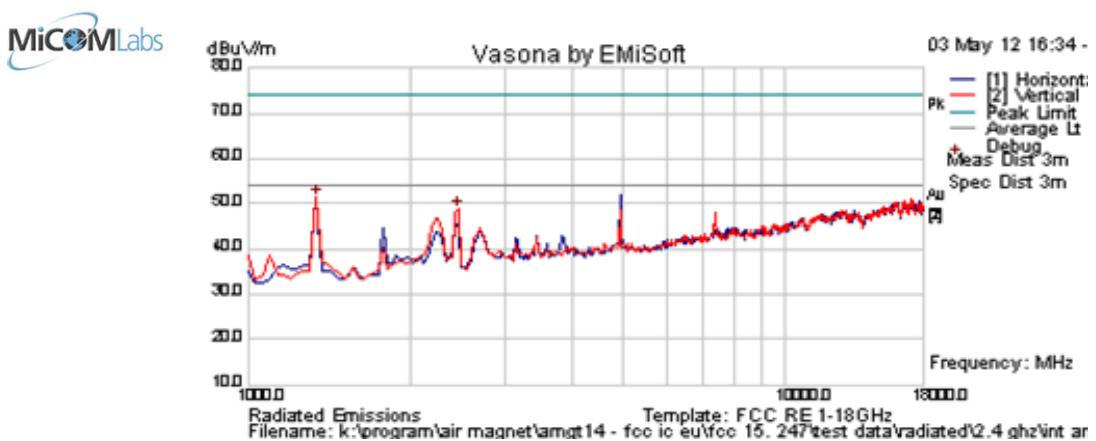
Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission

* Evaluated as 1600 MHz, RB Emission See Evaluation

RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|-------------------------|-----------------------|------|
| Test Freq. | 2462 MHz | Engineer | SB |
| Variant | 802.11n; HT-20; 6.5 MCS | Temp (°C) | 22 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 33 |
| Power Setting | 12 | Press. (mBars) | 1010 |
| Antenna | integral | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |

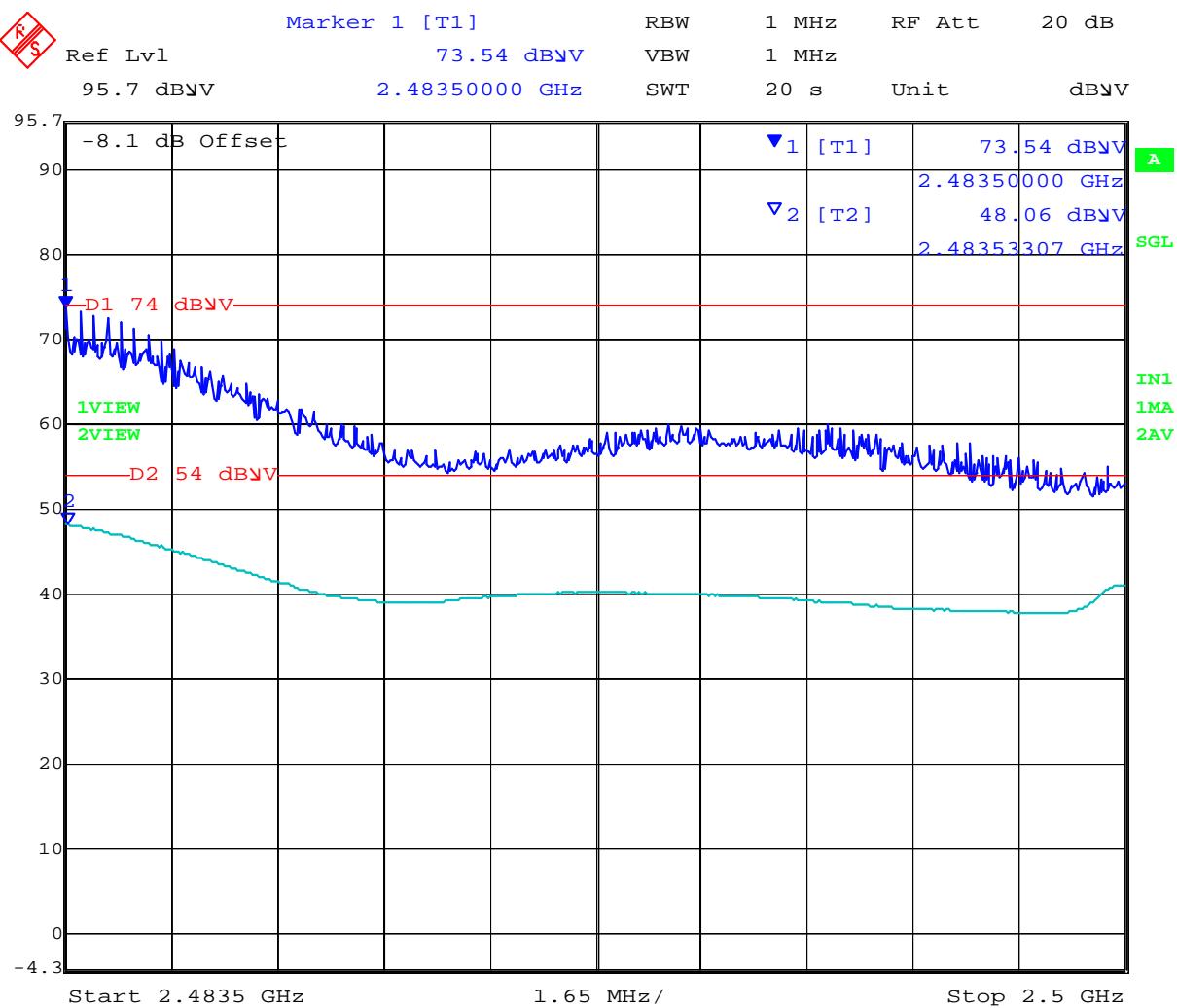


Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 1349.960 | 66.9 | 2.3 | -14.0 | 55.2 | Peak Max | H | 98 | 27 | 74 | -18.8 | Pass | RB |
| 1349.960 | 63.6 | 2.3 | -14.0 | 51.9 | Average Max | H | 98 | 27 | 54.0 | -2.1 | Pass | RB |
| 2464.930 | 57.2 | 3.0 | -11.5 | 48.7 | Peak [Scan] | V | 200 | 0 | | | | FUND |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission * Evaluated as 1600 MHz, RB Emission See Evaluation RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak | | | | | | | | | | | | |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

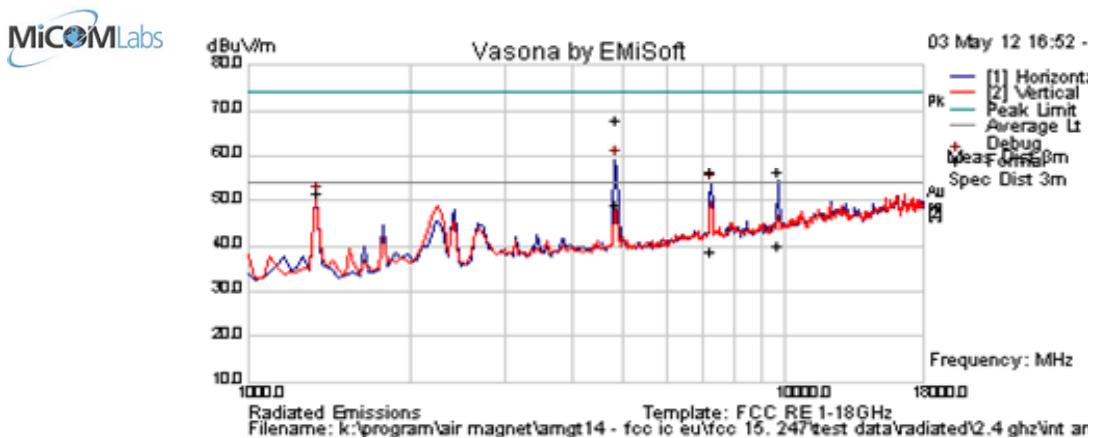
Band Edge



Output power reduction required (Power = 12)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|--------------------------|-----------------------|------|
| Test Freq. | 2422 MHz | Engineer | SB |
| Variant | 802.11n; HT-40; 13.5 MCS | Temp (°C) | 22 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 33 |
| Power Setting | 14 | Press. (mBars) | 1010 |
| Antenna | integral | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |



Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 4837.435 | 73.3 | 4.5 | -9.7 | 68.1 | Peak Max | H | 133 | 191 | 74.0 | -5.9 | Pass | RB |
| 9678.717 | 53.7 | 6.3 | -3.6 | 56.4 | Peak Max | H | 99 | 146 | 74.0 | -17.6 | Pass | RB |
| 7274.790 | 56.5 | 5.4 | -5.8 | 56.1 | Peak Max | H | 98 | 156 | 74.0 | -17.9 | Pass | RB |
| 4837.435 | 54.1 | 4.5 | -9.7 | 48.9 | Average Max | H | 133 | 191 | 54.0 | -5.1 | Pass | RB |
| 9678.717 | 37.3 | 6.3 | -3.6 | 40.0 | Average Max | H | 99 | 146 | 54.0 | -14.0 | Pass | RB |
| 7274.790 | 39.3 | 5.4 | -5.8 | 39.0 | Average Max | H | 98 | 156 | 54.0 | -15.0 | Pass | RB |
| 1340.681 | 63.0 | 2.3 | -13.9 | 51.4 | Peak [Scan] | H | 100 | 0 | 54.0 | -2.6 | Pass | RB |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| * Evaluated as 1600 MHz, RB Emission See Evaluation | | | | | | | | | | | | |
| RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak | | | | | | | | | | | | |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

Band Edge

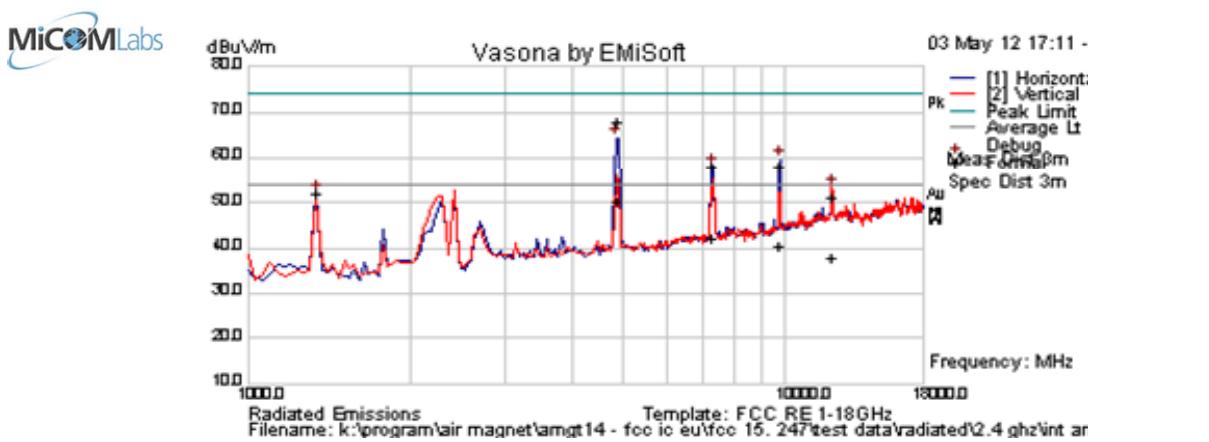


Date: 3.MAY.2012 11:21:36

Output power reduction required (Power = 14)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|--------------------------|-----------------------|------|
| Test Freq. | 2437 MHz | Engineer | SB |
| Variant | 802.11n; HT-40; 13.5 MCS | Temp (°C) | 22 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 33 |
| Power Setting | 20 | Press. (mBars) | 1010 |
| Antenna | integral | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |

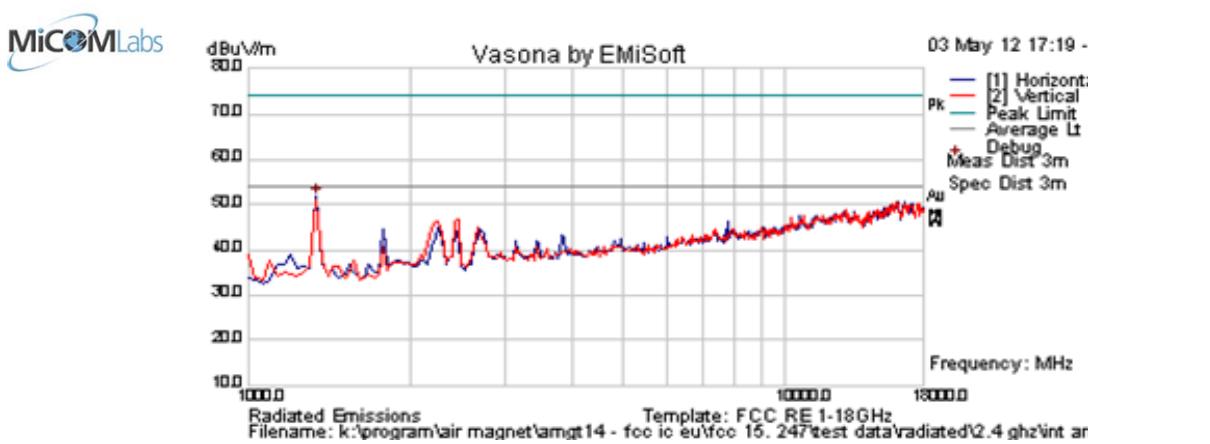


Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 4868.136 | 73.2 | 4.5 | -9.7 | 68.0 | Peak Max | H | 102 | 185 | 74 | -6.1 | Pass | RB |
| 9753.267 | 55.2 | 6.4 | -3.7 | 57.9 | Peak Max | H | 114 | 153 | 74 | -16.1 | Pass | RB |
| 7319.118 | 58.3 | 5.4 | -5.7 | 58.1 | Peak Max | H | 106 | 148 | 74 | -15.9 | Pass | RB |
| 12177.555 | 46.6 | 7.0 | -2.2 | 51.4 | Peak Max | V | 124 | 88 | 74 | -22.6 | Pass | RB |
| 4868.136 | 55.6 | 4.5 | -9.7 | 50.5 | Average Max | H | 102 | 185 | 54 | -3.6 | Pass | RB |
| 9753.267 | 37.7 | 6.4 | -3.7 | 40.3 | Average Max | H | 114 | 153 | 54 | -13.7 | Pass | RB |
| 7319.118 | 42.3 | 5.4 | -5.7 | 42.1 | Average Max | H | 106 | 148 | 54 | -11.9 | Pass | RB |
| 12177.555 | 33.0 | 7.0 | -2.2 | 37.8 | Average Max | V | 124 | 88 | 54 | -16.2 | Pass | RB |
| 1340.681 | 63.8 | 2.3 | -13.9 | 52.2 | Peak [Scan] | H | 100 | 0 | 54 | -1.8 | Pass | RB |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| * Evaluated as 1600 MHz, RB Emission See Evaluation | | | | | | | | | | | | |
| RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak | | | | | | | | | | | | |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|--------------------------|-----------------------|------|
| Test Freq. | 2452 MHz | Engineer | SB |
| Variant | 802.11n; HT-40; 13.5 MCS | Temp (°C) | 22 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 33 |
| Power Setting | 12 | Press. (mBars) | 1010 |
| Antenna | integral | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |

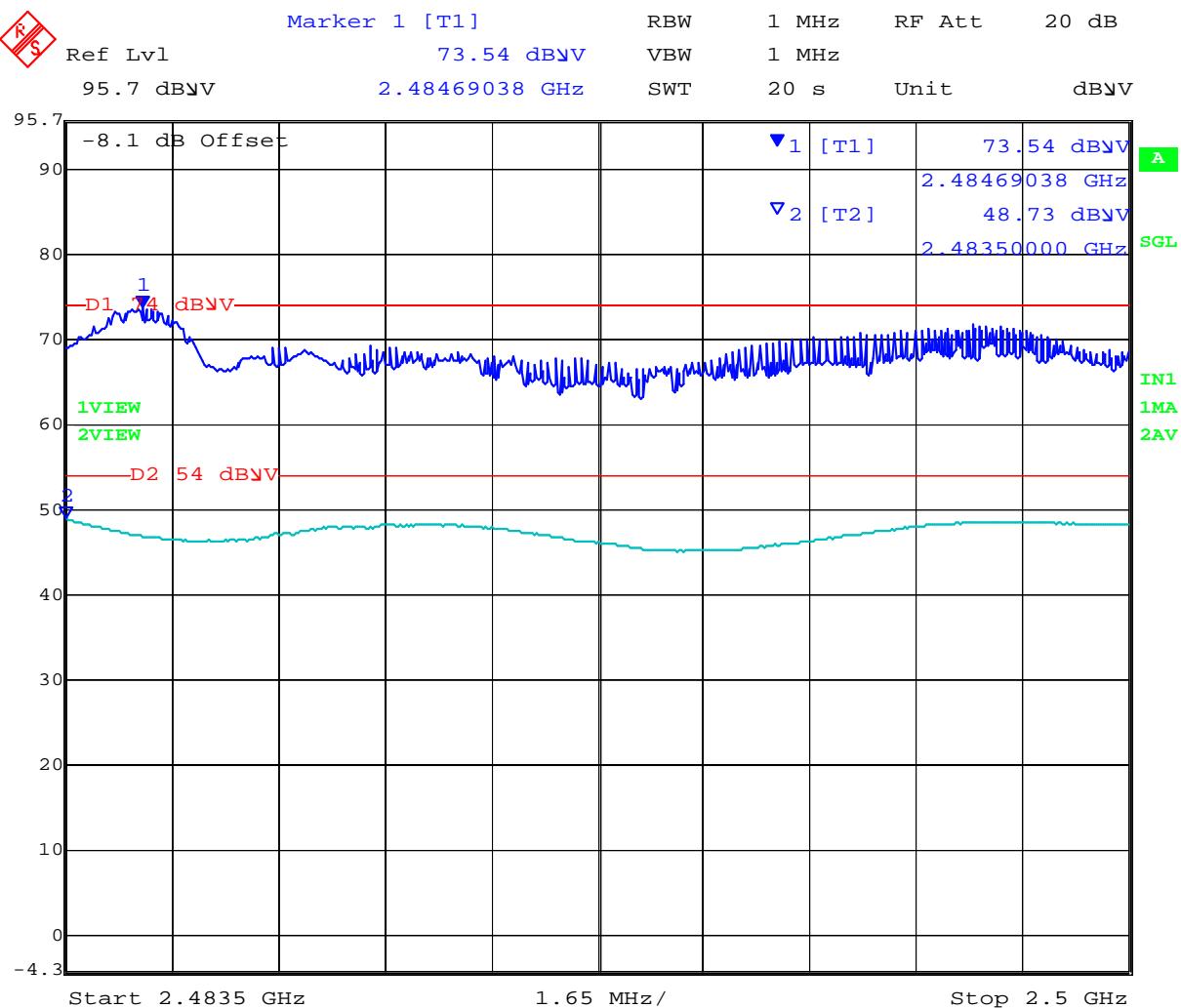


Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---------------|---|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 1349.960 | 66.9 | 2.3 | -14.0 | 55.2 | Peak Max | H | 98 | 27 | 74 | -18.8 | Pass | RB |
| 1349.960 | 63.6 | 2.3 | -14.0 | 51.9 | Average Max | H | 98 | 27 | 54.0 | -2.1 | Pass | RB |
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak | | | | | | | | | | | |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

Band Edge

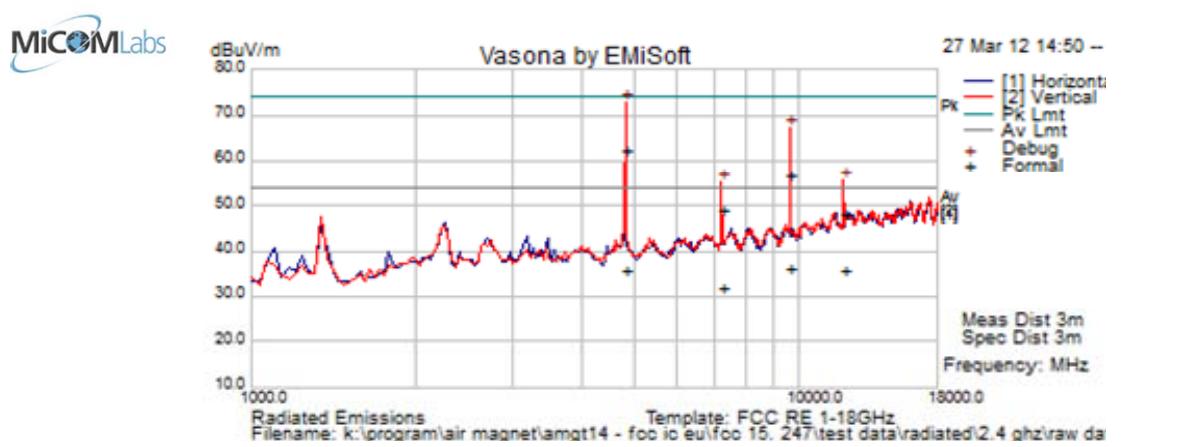


Output power reduction required (Power = 12)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

5.1.6.2. 2.4 GHz External Antenna

| | | | |
|----------------------|----------------------|-----------------------|------|
| Test Freq. | 2412 MHz | Engineer | SB |
| Variant | 802.11b; 1 Mbs | Temp (°C) | 22 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 33 |
| Power Setting | 14 reduced to 13 | Press. (mBars) | 1010 |
| Antenna | external | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |



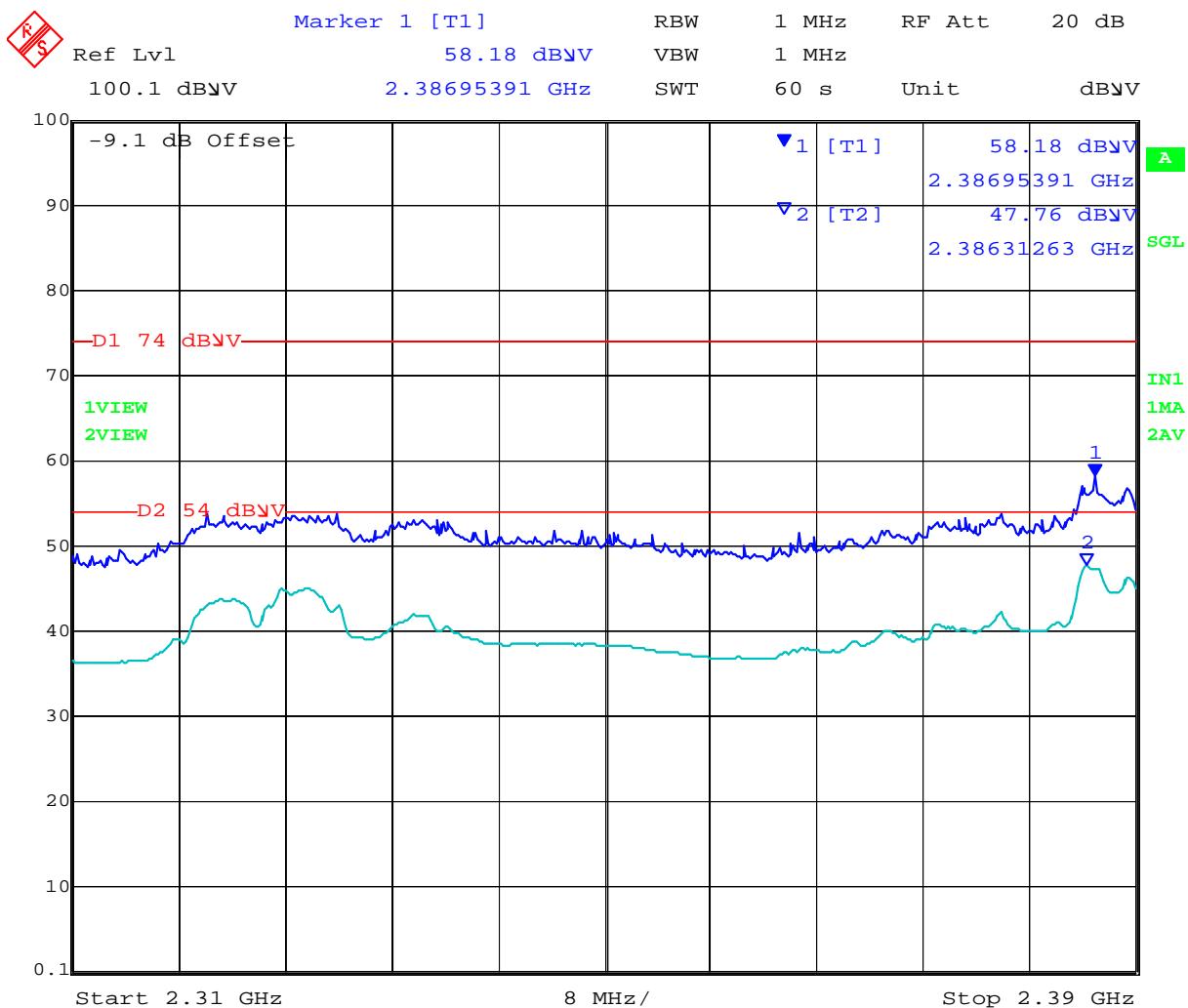
Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 4823.998 | 67.6 | 4.5 | -9.7 | 62.4 | Peak Max | V | 103 | -2 | 74.0 | -11.6 | Pass | RB |
| 9647.996 | 53.8 | 6.3 | -3.5 | 56.6 | Peak Max | V | 152 | 0 | 74.0 | -17.4 | Pass | NRB |
| 12057.114 | 44.0 | 6.9 | -2.5 | 48.4 | Peak Max | V | 194 | 332 | 74.0 | -25.6 | Pass | RB |
| 7236.673 | 49.6 | 5.4 | -5.8 | 49.2 | Peak Max | V | 178 | 179 | 74.0 | -24.8 | Pass | RB |
| 4823.998 | 40.9 | 4.5 | -9.7 | 35.7 | Average Max | V | 103 | -2 | 54.0 | -18.3 | Pass | RB |
| 9647.996 | 33.5 | 6.3 | -3.5 | 36.3 | Average Max | V | 152 | 0 | 54.0 | -17.7 | Pass | NRB |
| 12057.114 | 31.3 | 6.9 | -2.5 | 35.7 | Average Max | V | 194 | 332 | 54.0 | -18.3 | Pass | RB |
| 7236.673 | 32.2 | 5.4 | -5.8 | 31.8 | Average Max | V | 178 | 179 | 54.0 | -22.2 | Pass | RB |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak | | | | | | | | | | | | |

Note: The scan peak above was set for power = 14 which was to high. Reduction to power = 13 saw a drop in emission amplitude by approximately 10 dB.

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

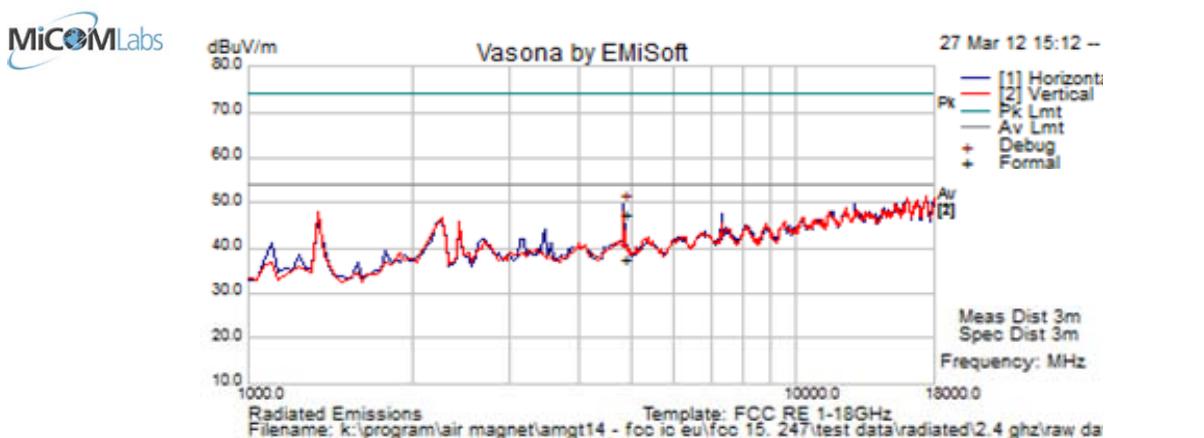
Band-Edge



Date: 26.MAR.2012 14:59:21

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|----------------------|-----------------------|------|
| Test Freq. | 2437 MHz | Engineer | SB |
| Variant | 802.11b; 1 Mbs | Temp (°C) | 22 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 33 |
| Power Setting | 18 | Press. (mBars) | 1010 |
| Antenna | external | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |

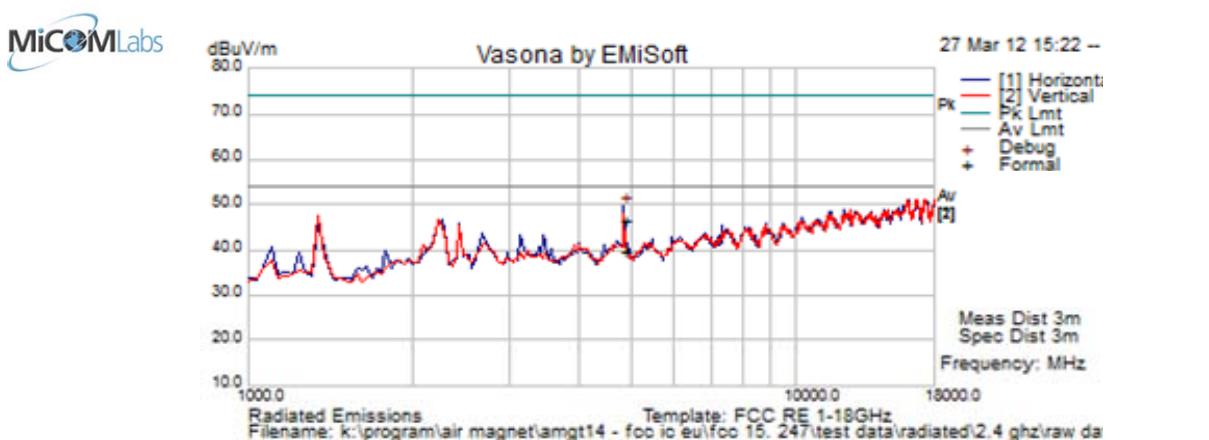


Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---------------|---|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 4873.998 | 52.4 | 4.5 | -9.7 | 47.3 | Peak Max | H | 99 | 332 | 74 | -26.8 | Pass | RB |
| 4873.998 | 42.8 | 4.5 | -9.7 | 37.6 | Average Max | H | 99 | 332 | 54 | -16.4 | Pass | RB |
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak | | | | | | | | | | | |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|----------------------|-----------------------|------|
| Test Freq. | 2462 MHz | Engineer | SB |
| Variant | 802.11b; 1 Mbs | Temp (°C) | 22 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 33 |
| Power Setting | 17 | Press. (mBars) | 1010 |
| Antenna | external | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |

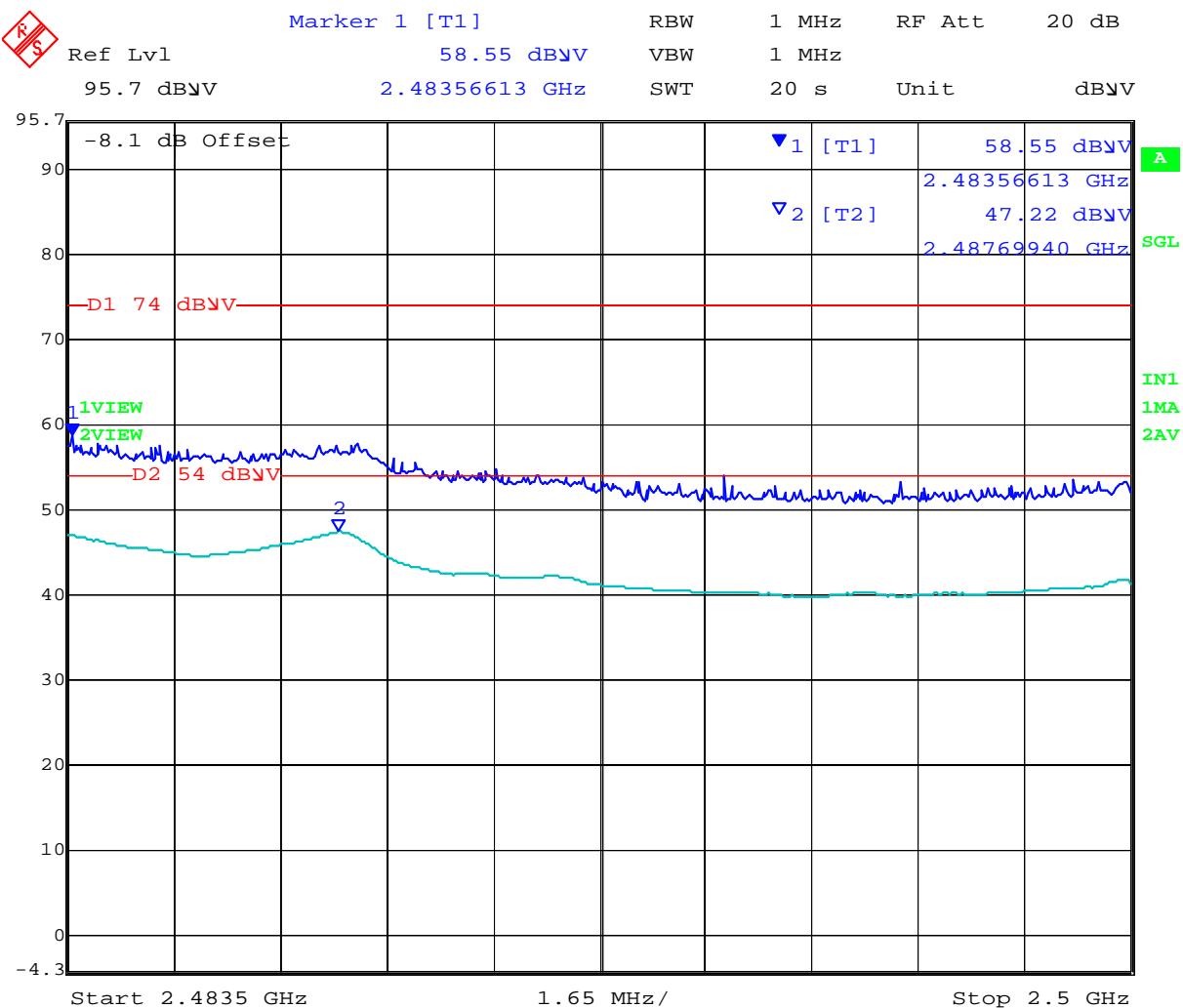


Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 4873.967 | 51.8 | 4.5 | -9.7 | 46.6 | Peak Max | H | 99 | 188 | 74 | -27.4 | Pass | RB |
| 4873.967 | 44.9 | 4.5 | -9.7 | 39.7 | Average Max | H | 99 | 188 | 54.0 | -14.4 | Pass | RB |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak | | | | | | | | | | | | |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

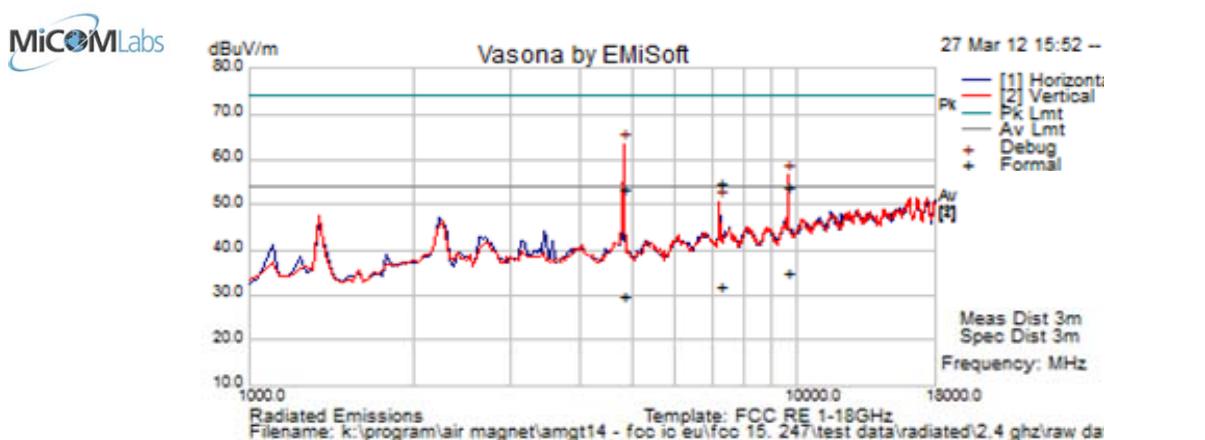
Band-edge



Date: 26.MAR.2012 15:59:18

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

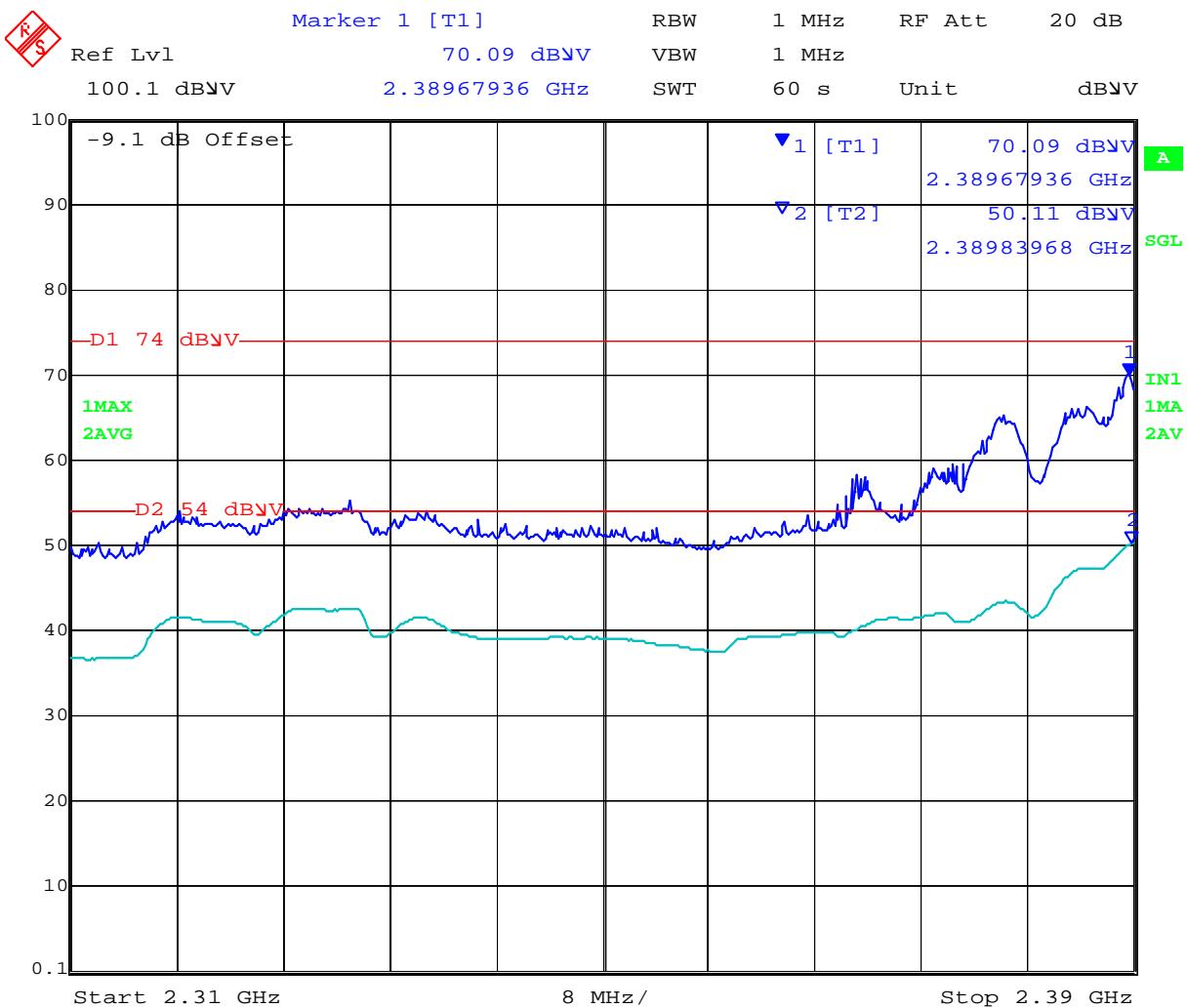
| | | | |
|----------------------|----------------------|-----------------------|------|
| Test Freq. | 2412 MHz | Engineer | SB |
| Variant | 802.11g; 6 Mbs | Temp (°C) | 22 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 33 |
| Power Setting | 13 | Press. (mBars) | 1010 |
| Antenna | ext ant | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |



Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|--|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 4821.643 | 58.5 | 4.5 | -9.7 | 53.2 | Peak Max | V | 201 | 75 | 74.0 | -20.8 | Pass | RB |
| 9650.501 | 50.8 | 6.3 | -3.5 | 53.6 | Peak Max | V | 100 | 0 | 74.0 | -20.4 | Pass | NRB |
| 7233.868 | 55.0 | 5.4 | -5.8 | 54.6 | Peak Max | H | 153 | 0 | 74.0 | -19.4 | Pass | RB |
| 4821.643 | 35.0 | 4.5 | -9.7 | 29.8 | Average Max | V | 201 | 75 | 54.0 | -24.2 | Pass | RB |
| 9650.501 | 31.9 | 6.3 | -3.5 | 34.7 | Average Max | V | 100 | 0 | 54.0 | -19.3 | Pass | NRB |
| 7233.868 | 32.4 | 5.4 | -5.8 | 32.0 | Average Max | H | 153 | 0 | 54.0 | -22.0 | Pass | RB |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak | | | | | | | | | | | | |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

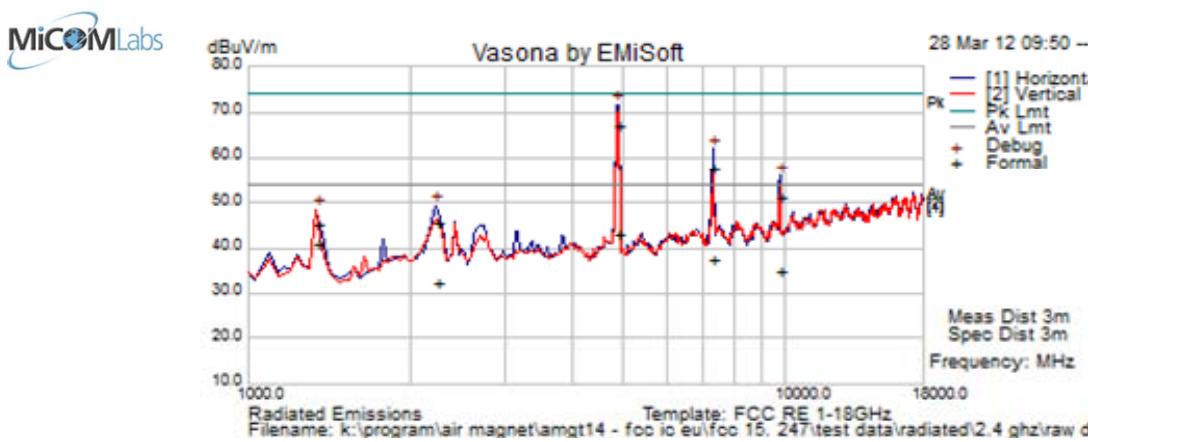


Date: 26.MAR.2012 13:42:09

Output power reduction required (Power = 13)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|----------------------|-----------------------|------|
| Test Freq. | 2437 MHz | Engineer | SB |
| Variant | 802.11g; 6 Mbs | Temp (°C) | 22 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 33 |
| Power Setting | 15 | Press. (mBars) | 1010 |
| Antenna | ext ant | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |

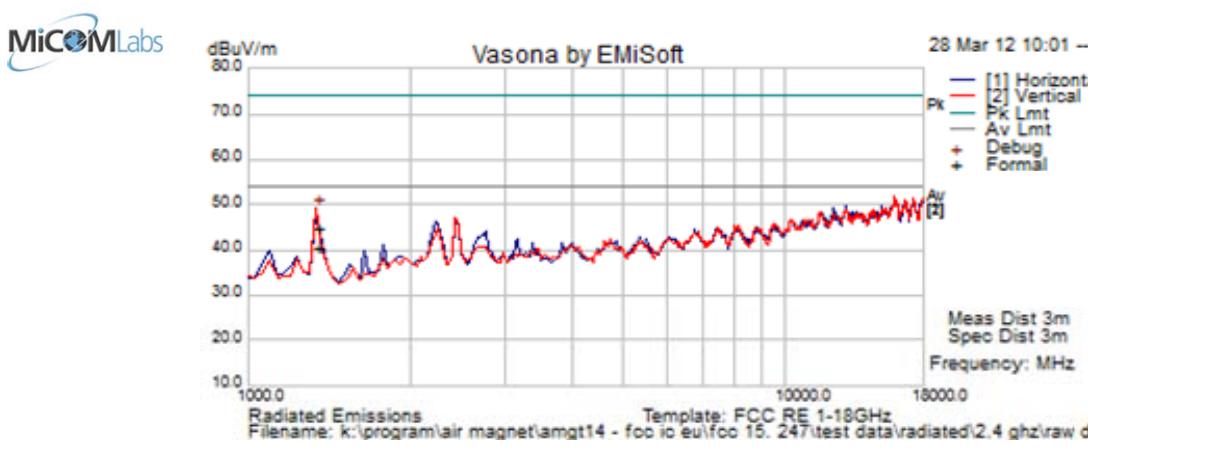


Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 4872.445 | 72.3 | 4.5 | -9.7 | 67.1 | Peak Max | H | 127 | 0 | 74 | -7.0 | Pass | RB |
| 7309.820 | 58.0 | 5.4 | -5.7 | 57.8 | Peak Max | H | 190 | 70 | 74 | -16.2 | Pass | RB |
| 9758.717 | 48.5 | 6.4 | -3.7 | 51.1 | Peak Max | H | 162 | 150 | 74 | -22.9 | Pass | NRB |
| 2243.287 | 54.5 | 2.9 | -11.8 | 45.5 | Peak Max | H | 192 | 0 | 74 | -28.5 | Pass | RB |
| 1350.088 | 57.0 | 2.3 | -14.0 | 45.3 | Peak Max | V | 116 | 209 | 74 | -28.7 | Pass | RB |
| 4872.445 | 48.3 | 4.5 | -9.7 | 43.1 | Average Max | H | 127 | 0 | 54 | -11.0 | Pass | RB |
| 7309.820 | 37.7 | 5.4 | -5.7 | 37.4 | Average Max | H | 190 | 70 | 54 | -16.6 | Pass | RB |
| 9758.717 | 32.4 | 6.4 | -3.7 | 35.0 | Average Max | H | 162 | 150 | 54 | -19.0 | Pass | NRB |
| 2243.287 | 41.3 | 2.9 | -11.8 | 32.3 | Average Max | H | 192 | 0 | 54 | -21.7 | Pass | RB |
| 1350.088 | 52.6 | 2.3 | -14.0 | 40.9 | Average Max | V | 116 | 209 | 54 | -13.1 | Pass | RB |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak | | | | | | | | | | | | |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

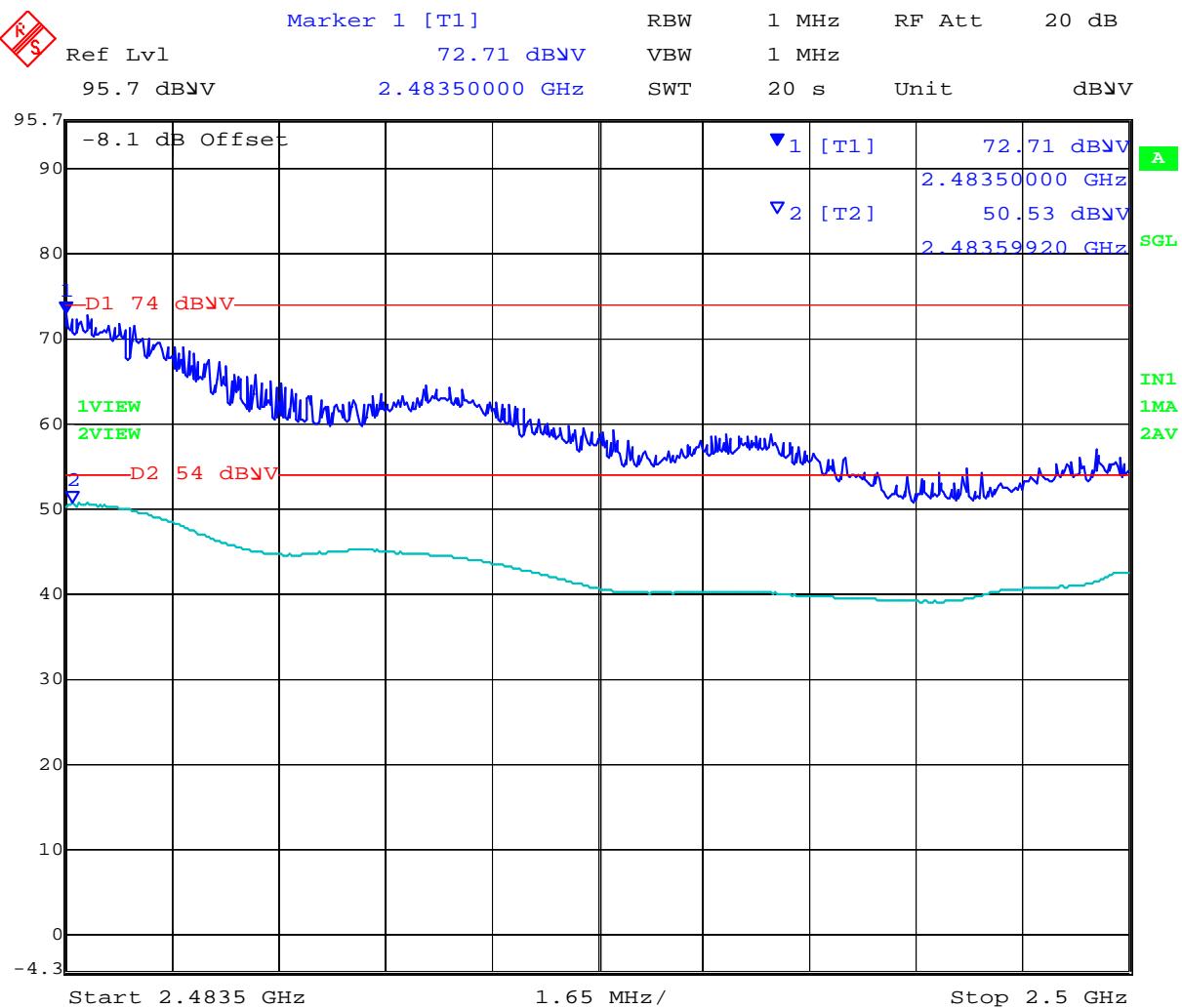
| | | | |
|----------------------|----------------------|-----------------------|------|
| Test Freq. | 2462 MHz | Engineer | SB |
| Variant | 802.11g; 6 Mbs | Temp (°C) | 22 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 33 |
| Power Setting | 13 | Press. (mBars) | 1010 |
| Antenna | ext ant | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |



Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---------------|---|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 1350.050 | 56.6 | 2.3 | -14.0 | 44.9 | Peak Max | V | 117 | 209 | 74 | -29.1 | Pass | RB |
| 1350.050 | 52.1 | 2.3 | -14.0 | 40.4 | Average Max | V | 117 | 209 | 54.0 | -13.6 | Pass | RB |
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak | | | | | | | | | | | |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

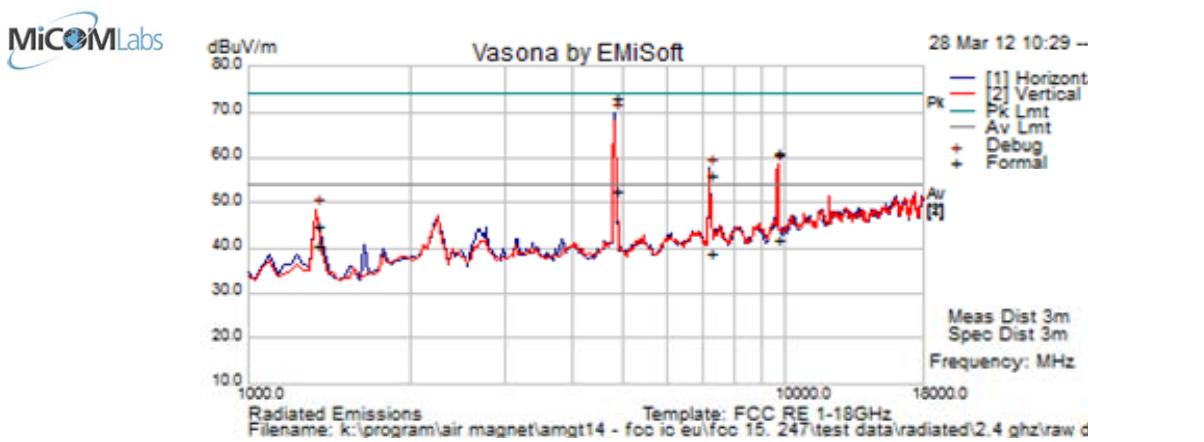


Date: 26.MAR.2012 15:32:02

Output power reduction required (Power = 13)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|-------------------------|-----------------------|------|
| Test Freq. | 2412 MHz | Engineer | SB |
| Variant | 802.11n; HT-20; 6.5 MCS | Temp (°C) | 22 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 33 |
| Power Setting | 14 | Press. (mBars) | 1010 |
| Antenna | ext ant | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |

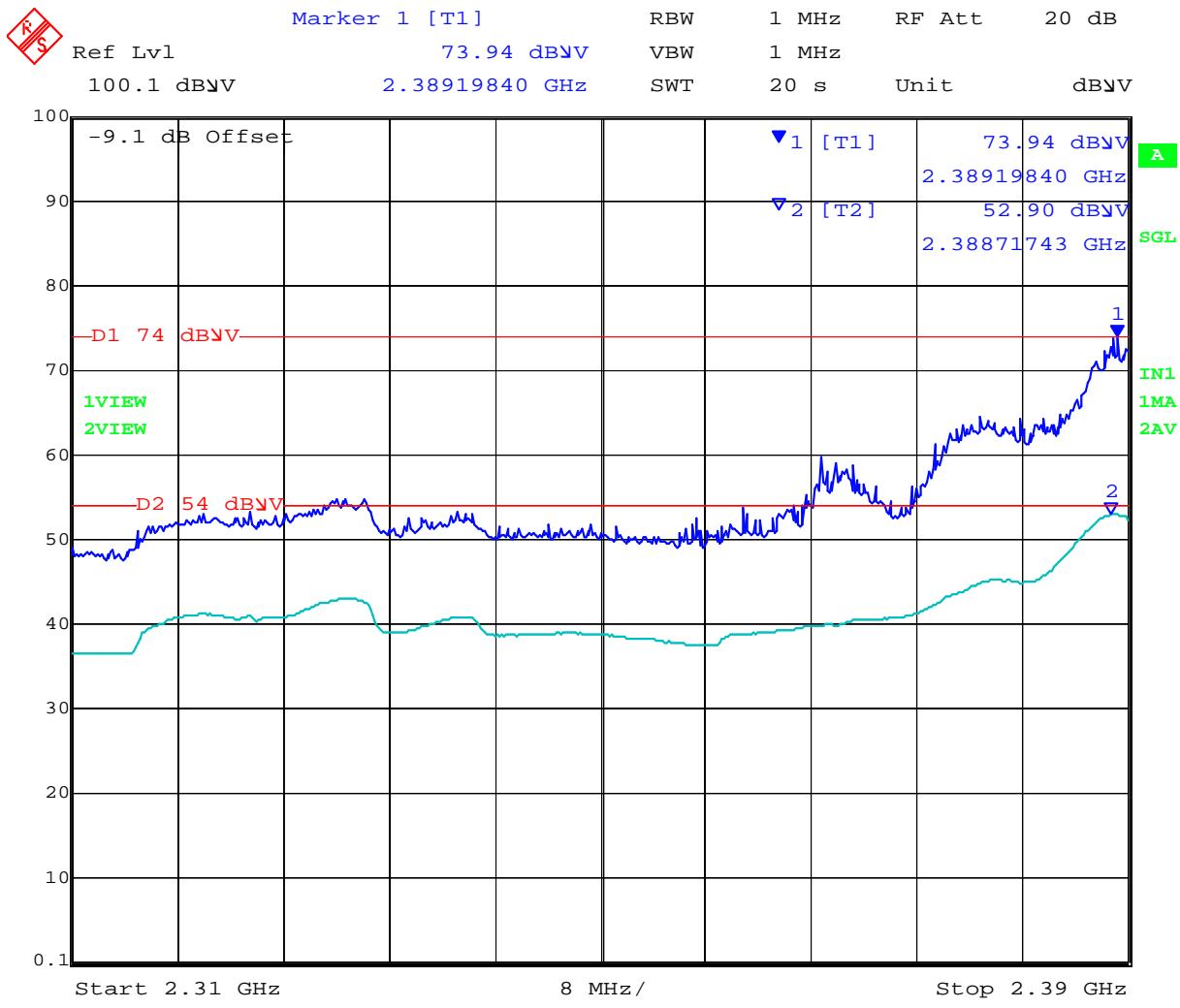


Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 4832.365 | 78.4 | 4.5 | -9.7 | 73.2 | Peak Max | H | 118 | 192 | 74.0 | -0.8 | Pass | RB |
| 9653.307 | 58.1 | 6.3 | -3.5 | 60.9 | Peak Max | V | 118 | 268 | 74.0 | -13.2 | Pass | NRB |
| 7231.363 | 56.3 | 5.4 | -5.8 | 55.9 | Peak Max | H | 146 | 360 | 74.0 | -18.1 | Pass | RB |
| 1349.931 | 56.6 | 2.3 | -14.0 | 44.9 | Peak Max | V | 116 | 211 | 74.0 | -29.1 | Pass | RB |
| 4832.365 | 57.6 | 4.5 | -9.7 | 52.4 | Average Max | H | 118 | 192 | 54.0 | -1.6 | Pass | RB |
| 9653.307 | 39.0 | 6.3 | -3.5 | 41.8 | Average Max | V | 118 | 268 | 54.0 | -12.2 | Pass | NRB |
| 7231.363 | 39.3 | 5.4 | -5.8 | 38.9 | Average Max | H | 146 | 360 | 54.0 | -15.1 | Pass | RB |
| 1349.931 | 52.3 | 2.3 | -14.0 | 40.6 | Average Max | V | 116 | 211 | 54.0 | -13.4 | Pass | RB |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| * Evaluated as 1600 MHz, RB Emission See Evaluation | | | | | | | | | | | | |
| RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak | | | | | | | | | | | | |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

Band-Edge

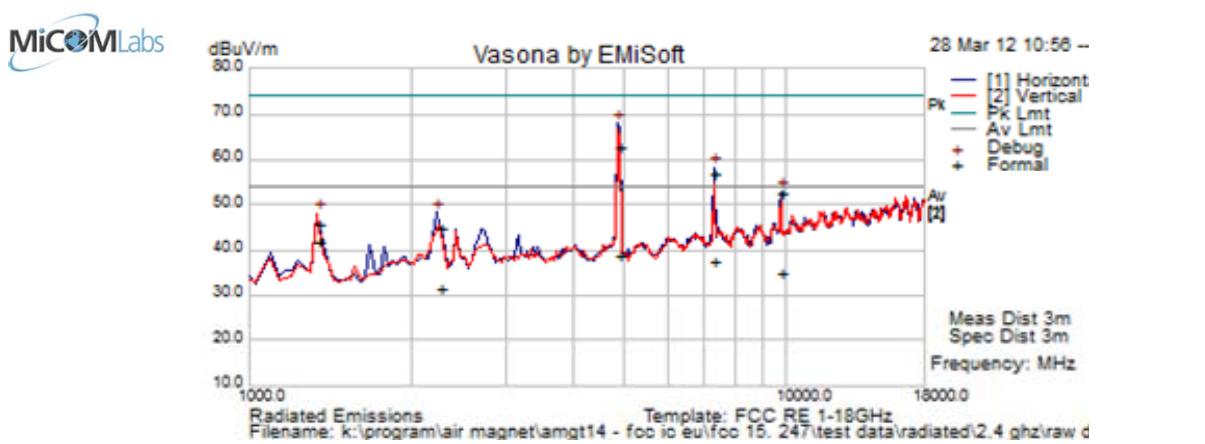


Date: 26.MAR.2012 15:03:50

Output power reduction required (Power = 14)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|-------------------------|-----------------------|------|
| Test Freq. | 2437 MHz | Engineer | SB |
| Variant | 802.11n; HT-20; 6.5 MCS | Temp (°C) | 22 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 33 |
| Power Setting | 16 | Press. (mBars) | 1010 |
| Antenna | ext ant | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |

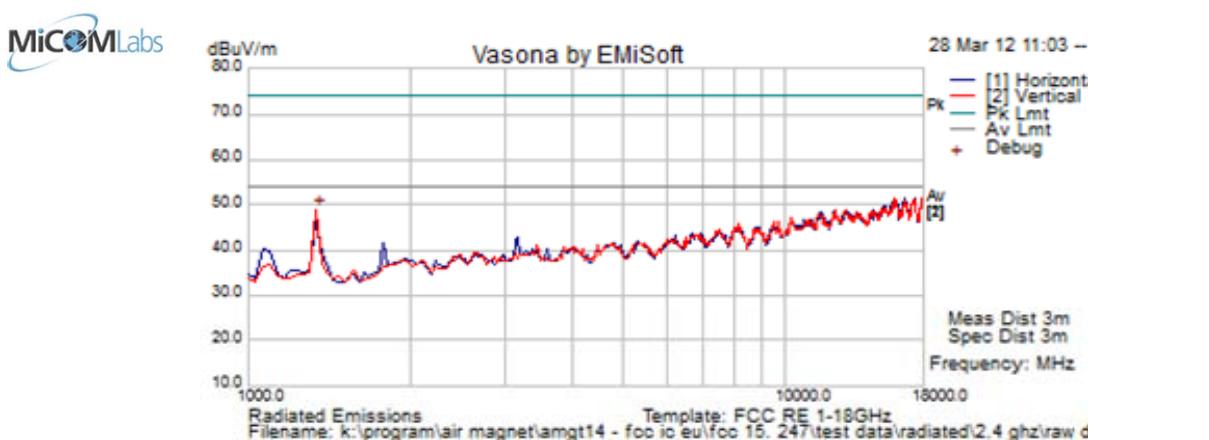


Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 4882.966 | 68.0 | 4.5 | -9.7 | 62.8 | Peak Max | H | 98 | 0 | 74 | -11.2 | Pass | RB |
| 7321.042 | 56.9 | 5.4 | -5.7 | 56.7 | Peak Max | H | 98 | -2 | 74 | -17.3 | Pass | RB |
| 9766.132 | 49.9 | 6.4 | -3.7 | 52.6 | Peak Max | H | 144 | 296 | 74 | -21.5 | Pass | NRB |
| 2270.341 | 53.7 | 2.9 | -11.8 | 44.8 | Peak Max | H | 111 | 335 | 74 | -29.2 | Pass | RB |
| 1350.050 | 57.3 | 2.3 | -14.0 | 45.6 | Peak Max | V | 116 | 208 | 74 | -28.4 | Pass | RB |
| 4882.966 | 43.8 | 4.5 | -9.7 | 38.6 | Average Max | H | 98 | 0 | 54 | -15.4 | Pass | RB |
| 7321.042 | 37.7 | 5.4 | -5.7 | 37.5 | Average Max | H | 98 | -2 | 54 | -16.5 | Pass | RB |
| 9766.132 | 32.4 | 6.4 | -3.7 | 35.0 | Average Max | H | 144 | 296 | 54 | -19.0 | Pass | NRB |
| 2270.341 | 40.4 | 2.9 | -11.8 | 31.5 | Average Max | H | 111 | 335 | 54 | -22.5 | Pass | RB |
| 1350.050 | 53.4 | 2.3 | -14.0 | 41.7 | Average Max | V | 116 | 208 | 54 | -12.3 | Pass | RB |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| * Evaluated as 1600 MHz, RB Emission See Evaluation | | | | | | | | | | | | |
| RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak | | | | | | | | | | | | |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|-------------------------|-----------------------|------|
| Test Freq. | 2462 MHz | Engineer | SB |
| Variant | 802.11n; HT-20; 6.5 MCS | Temp (°C) | 22 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 33 |
| Power Setting | 14 | Press. (mBars) | 1010 |
| Antenna | ext ant | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |

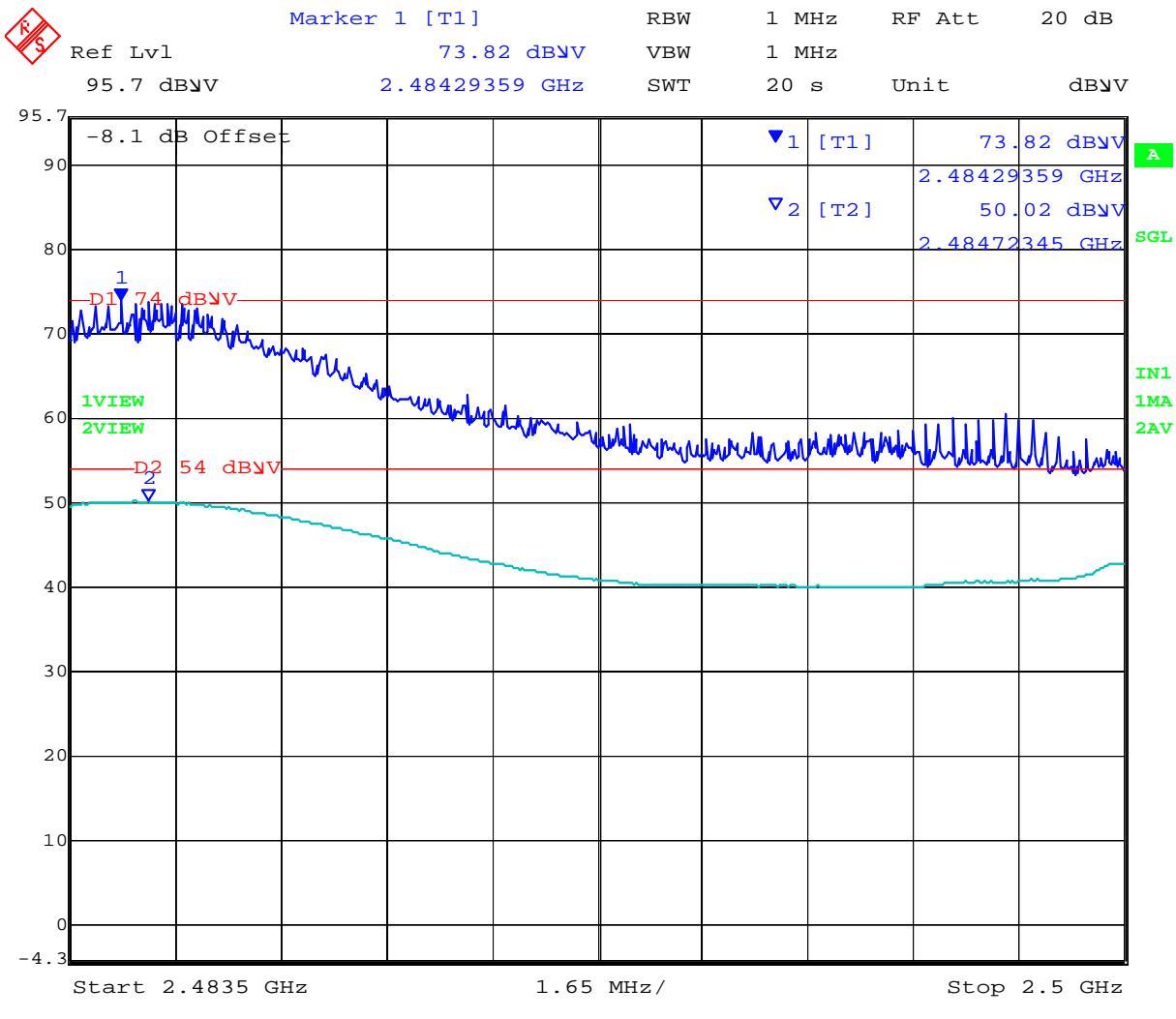


Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 1350.088 | 57.0 | 2.3 | -14.0 | 45.3 | Peak Max | V | 116 | 209 | 74 | -28.7 | Pass | RB |
| 1350.088 | 52.6 | 2.3 | -14.0 | 40.9 | Average Max | V | 116 | 209 | 54 | -13.1 | Pass | RB |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| * Evaluated as 1600 MHz, RB Emission See Evaluation | | | | | | | | | | | | |
| RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak | | | | | | | | | | | | |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

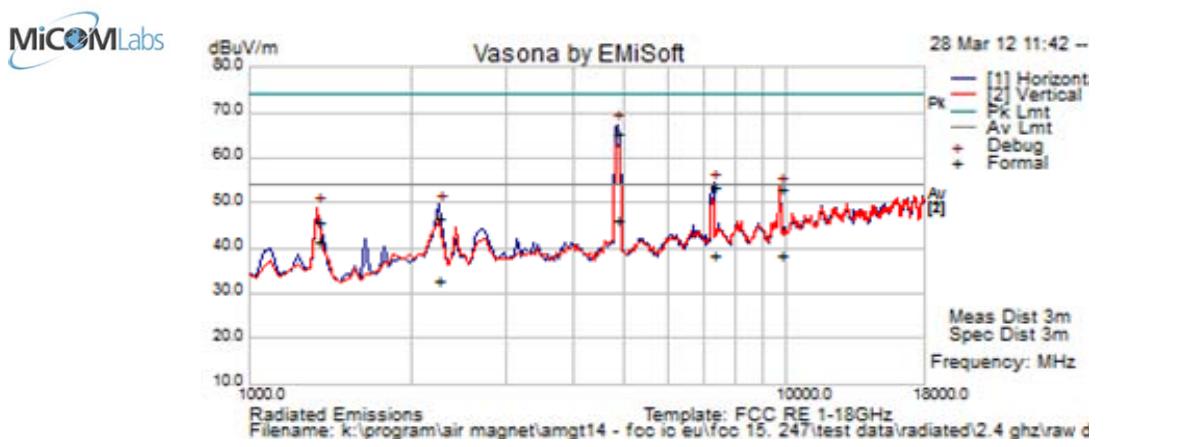
Band-Edge



Output power reduction required (Power = 13)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|--------------------------|-----------------------|------|
| Test Freq. | 2422 MHz | Engineer | SB |
| Variant | 802.11n; HT-40; 13.5 MCS | Temp (°C) | 22 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 33 |
| Power Setting | 13 | Press. (mBars) | 1010 |
| Antenna | ext ant | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |

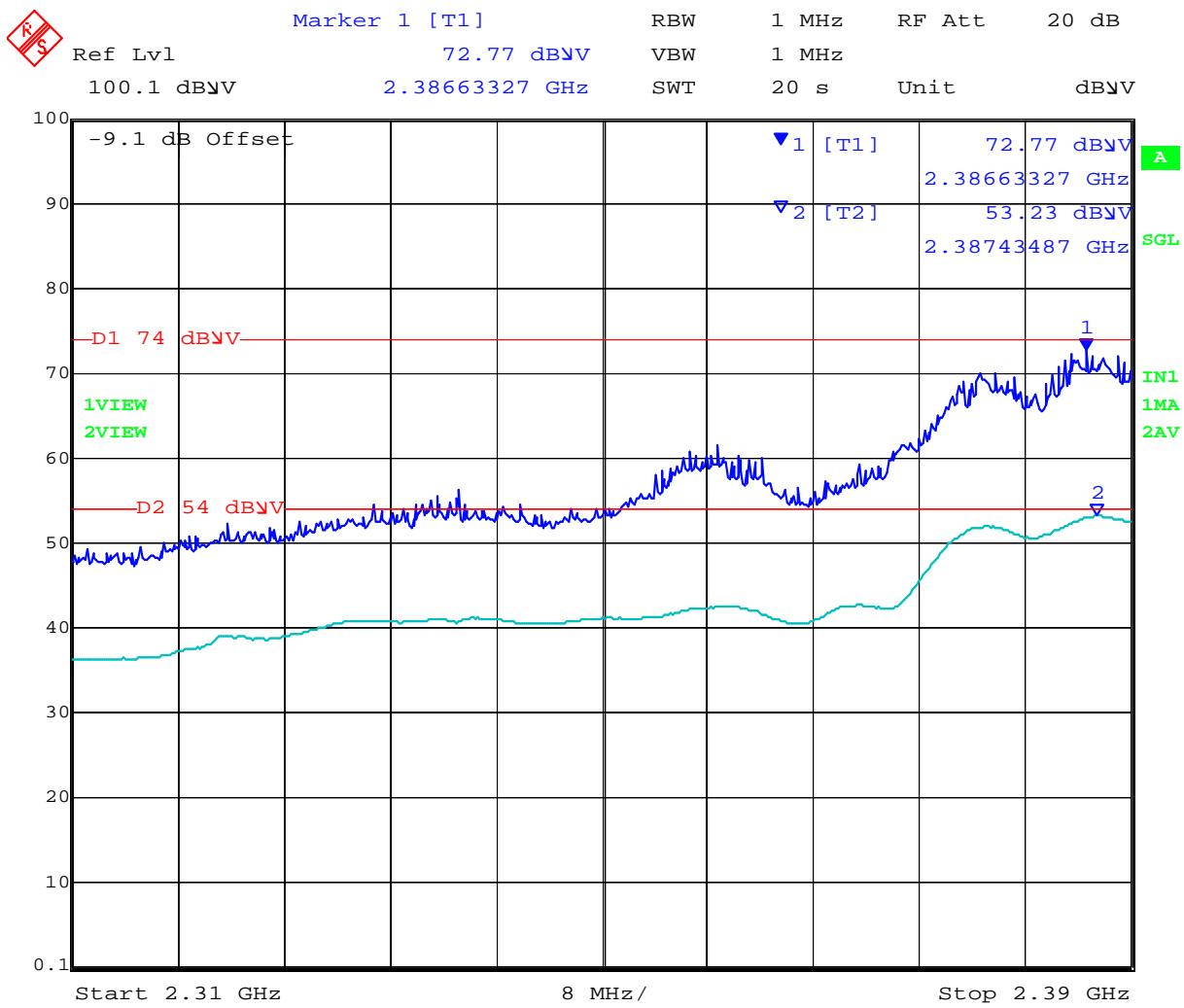


Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 4849.599 | 70.4 | 4.5 | -9.7 | 65.2 | Peak Max | H | 201 | 203 | 74.0 | -8.8 | Pass | RB |
| 7278.958 | 53.5 | 5.4 | -5.8 | 53.2 | Peak Max | H | 183 | -1 | 74.0 | -20.8 | Pass | RB |
| 9721.443 | 50.4 | 6.3 | -3.7 | 53.0 | Peak Max | V | 99 | 0 | 74.0 | -21.0 | Pass | NRB |
| 2249.900 | 55.4 | 2.9 | -11.8 | 46.5 | Peak Max | H | 113 | 0 | 74.0 | -27.5 | Pass | RB |
| 1349.962 | 57.1 | 2.3 | -14.0 | 45.4 | Peak Max | V | 116 | 209 | 74.0 | -28.6 | Pass | RB |
| 4849.599 | 51.3 | 4.5 | -9.7 | 46.2 | Average Max | H | 201 | 203 | 54.0 | -7.9 | Pass | RB |
| 7278.958 | 38.8 | 5.4 | -5.8 | 38.5 | Average Max | H | 183 | -1 | 54.0 | -15.5 | Pass | RB |
| 9721.443 | 35.8 | 6.3 | -3.7 | 38.5 | Average Max | V | 99 | 0 | 54.0 | -15.5 | Pass | NRB |
| 2249.900 | 41.6 | 2.9 | -11.8 | 32.7 | Average Max | H | 113 | 0 | 54 | -21.3 | Pass | RB |
| 1349.962 | 53.2 | 2.3 | -14.0 | 41.5 | Average Max | V | 116 | 209 | 54 | -12.6 | Pass | RB |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| * Evaluated as 1600 MHz, RB Emission See Evaluation | | | | | | | | | | | | |
| RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak | | | | | | | | | | | | |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

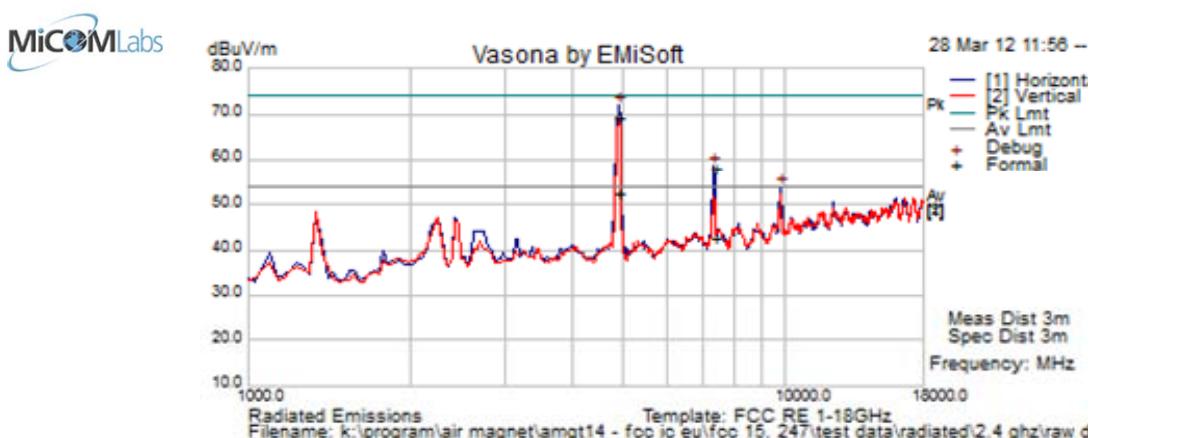
Band-Edge



Output power reduction required (Power = 13)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|--------------------------|-----------------------|------|
| Test Freq. | 2437 MHz | Engineer | SB |
| Variant | 802.11n; HT-40; 13.5 MCS | Temp (°C) | 22 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 33 |
| Power Setting | 16 | Press. (mBars) | 1010 |
| Antenna | ext ant | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |



Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---------------|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 4885.972 | 74.2 | 4.5 | -9.7 | 69.0 | Peak Max | H | 201 | 79 | 74 | -5.0 | Pass | RB |
| 7352.505 | 58.2 | 5.5 | -5.6 | 58.1 | Peak Max | H | 158 | -2 | 74 | -15.9 | Pass | RB |
| 4885.972 | 57.7 | 4.5 | -9.7 | 52.5 | Average Max | H | 201 | 79 | 54 | -1.6 | Pass | RB |
| 7352.505 | 42.7 | 5.5 | -5.6 | 42.5 | Average Max | H | 158 | -2 | 54 | -11.5 | Pass | RB |
| 9755.511 | 51.0 | 6.4 | -3.7 | 53.7 | Peak [Scan] | H | 100 | 0 | | | | NRB |

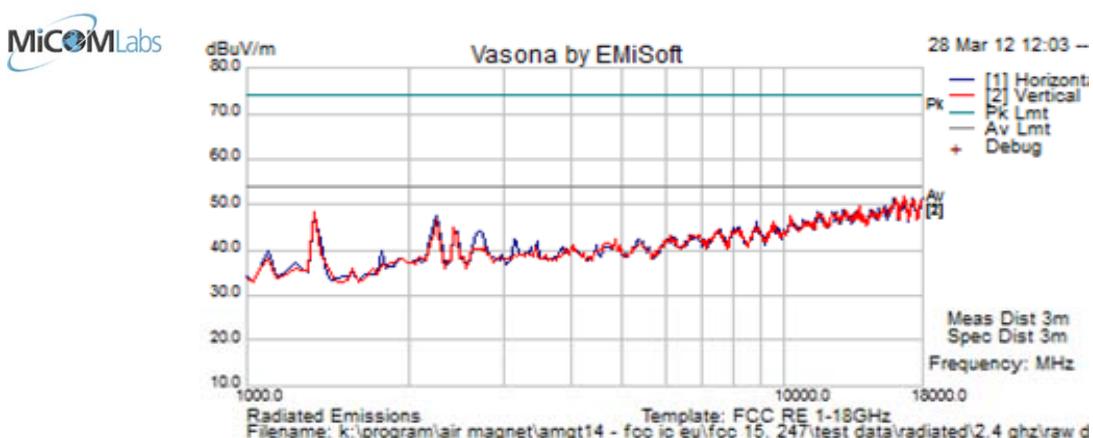
Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission

* Evaluated as 1600 MHz, RB Emission See Evaluation

RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|--------------------------|-----------------------|------|
| Test Freq. | 2452 MHz | Engineer | SB |
| Variant | 802.11n; HT-40; 13.5 MCS | Temp (°C) | 22 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 33 |
| Power Setting | 13 | Press. (mBars) | 1010 |
| Antenna | ext ant | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |

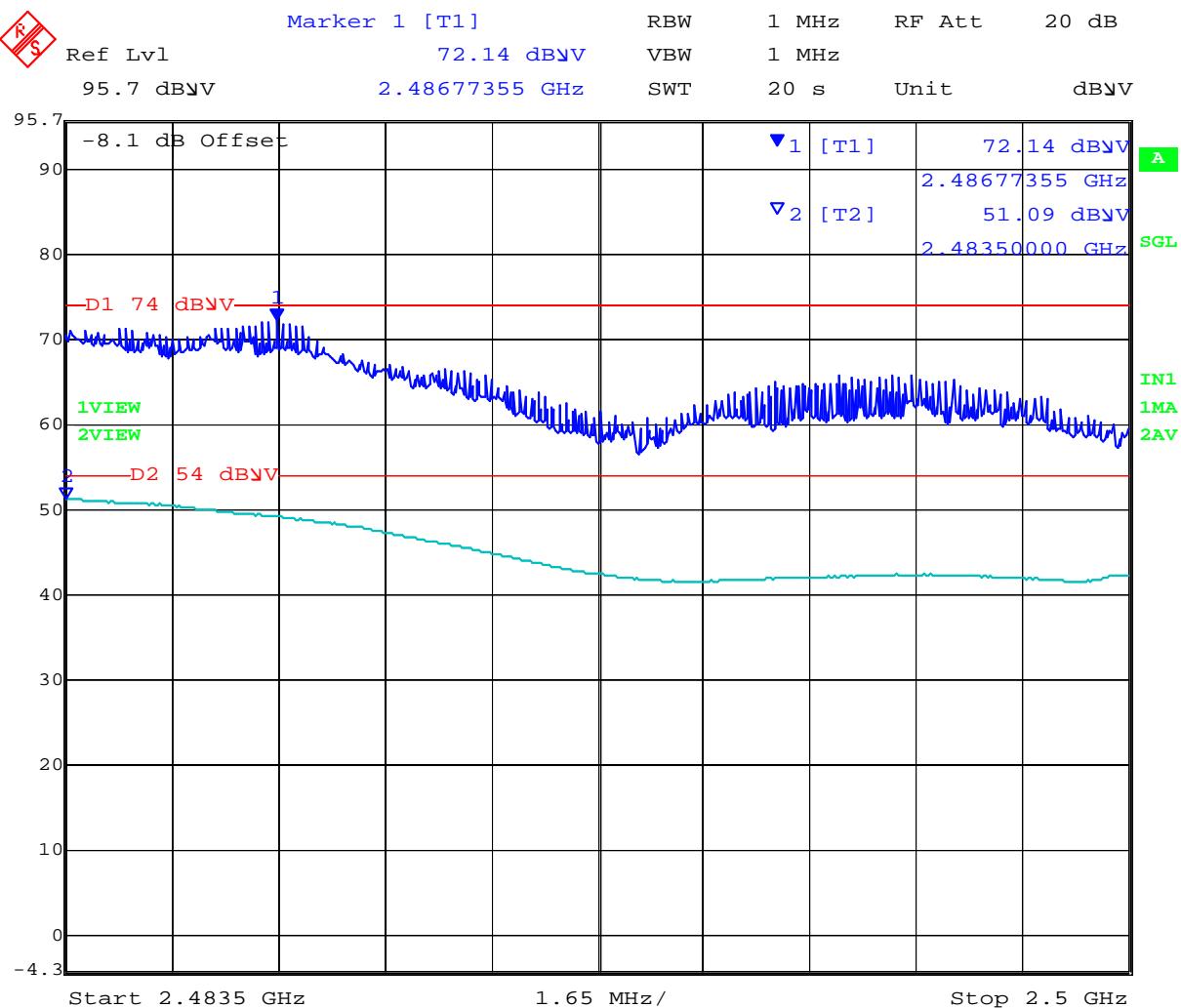


Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|--|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak | | | | | | | | | | | | |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

Band-Edge

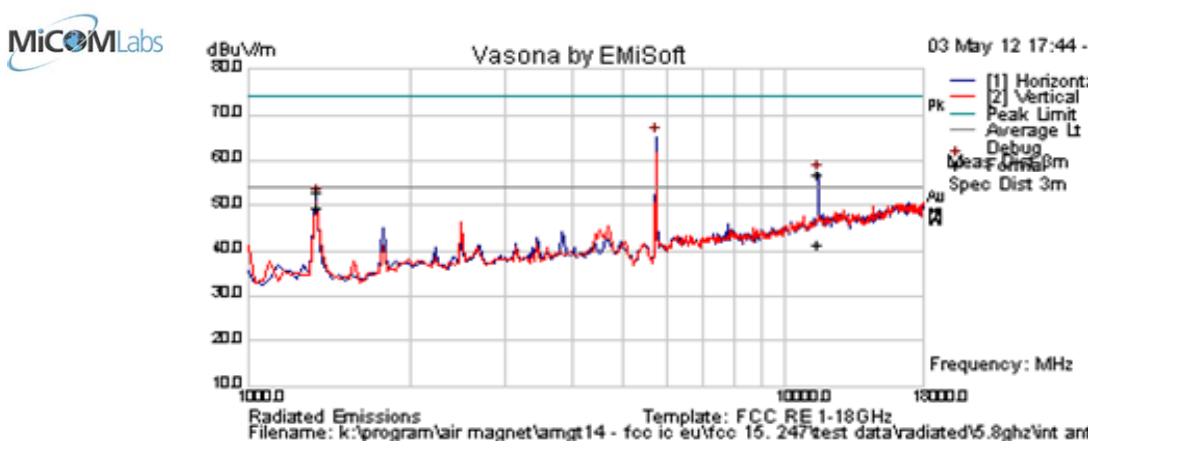


Output power reduction required (Power = 13)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

5.1.6.3. 5.8 GHz Integral Antenna

| | | | |
|----------------------|----------------------|-----------------------|------|
| Test Freq. | 5745 MHz | Engineer | SB |
| Variant | 802.11a; 6.0 Mbs | Temp (°C) | 22.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 36 |
| Power Setting | 20 | Press. (mBars) | 1004 |
| Antenna | integral | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |

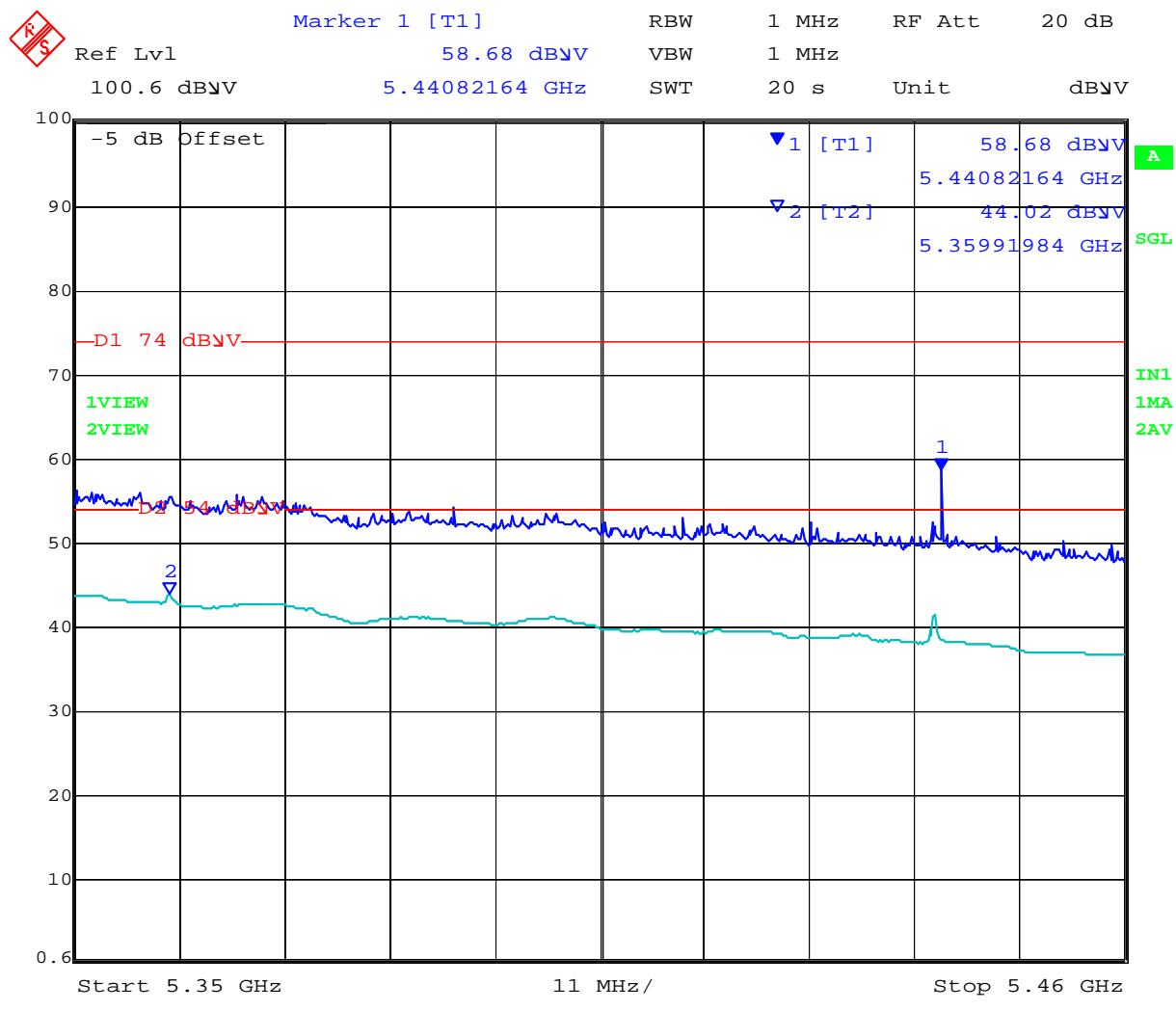


Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|--|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 11492.425 | 51.9 | 6.8 | -2.0 | 56.7 | Peak Max | H | 106 | 361 | 74.0 | -17.3 | Pass | RB |
| 1349.96 | 64.7 | 2.3 | -14.0 | 53.0 | Peak Max | H | 104 | 17 | 74.0 | -21.0 | Pass | RB |
| 11492.425 | 36.7 | 6.8 | -2.0 | 41.5 | Average Max | H | 106 | 361 | 54 | -12.5 | Pass | RB |
| 1349.960 | 61.1 | 2.3 | -14.0 | 49.4 | Average Max | H | 104 | 17 | 54 | -4.6 | Pass | RB |
| 5735.471 | 70.1 | 4.8 | -9.5 | 65.3 | Peak [Scan] | H | 150 | 0 | | | | FUND |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak | | | | | | | | | | | | |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

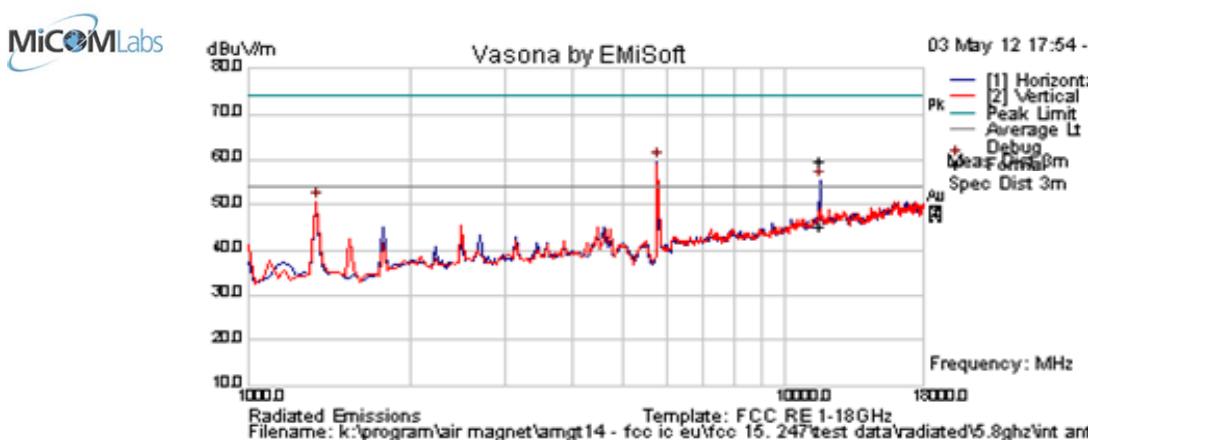
Band-Edge



Maximum output power (Power = 20)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|----------------------|-----------------------|------|
| Test Freq. | 5785 MHz | Engineer | SB |
| Variant | 802.11a; 6.0 Mbs | Temp (°C) | 22.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 36 |
| Power Setting | 20 | Press. (mBars) | 1004 |
| Antenna | integral | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |



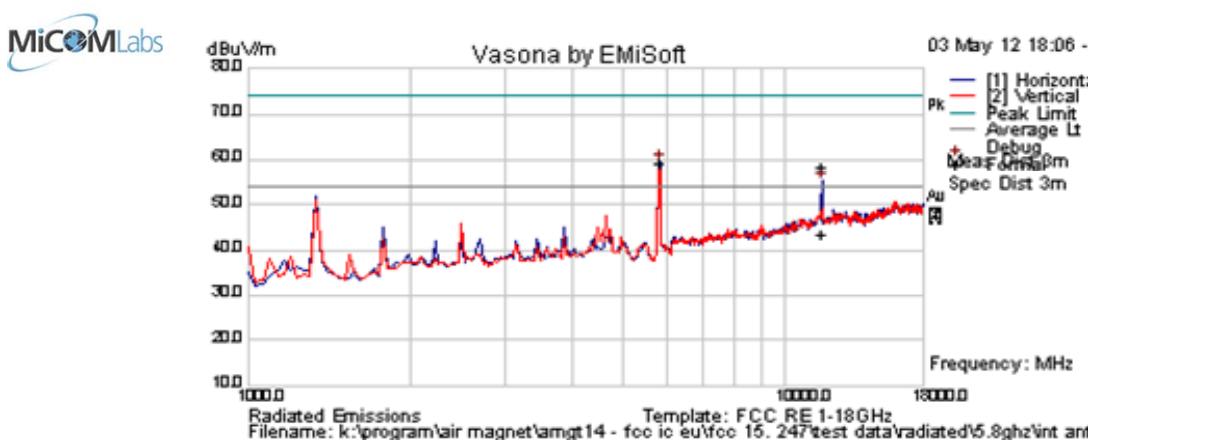
Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---------------|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 11570.260 | 55.1 | 6.8 | -2.0 | 59.9 | Peak Max | H | 136 | 361 | 74.0 | -14.1 | Pass | RB |
| 1349.76 | 64.7 | 2.3 | -14.0 | 53.0 | Peak Max | H | 104 | 17 | 74.0 | -21.0 | Pass | RB |
| 11570.26 | 40.2 | 6.8 | -2.0 | 45.0 | Average Max | H | 136 | 361 | 54.0 | -9.0 | Pass | RB |
| 1349.76 | 61.1 | 2.3 | -14.0 | 49.4 | Average Max | H | 104 | 17 | 54 | -4.6 | Pass | RB |
| 5769.539 | 64.4 | 4.8 | -9.5 | 59.7 | Peak [Scan] | H | 100 | 0 | | | | FUND |

Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
 RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|----------------------|-----------------------|------|
| Test Freq. | 5825 MHz | Engineer | SB |
| Variant | 802.11a; 6.0 Mbs | Temp (°C) | 22.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 36 |
| Power Setting | 20 | Press. (mBars) | 1004 |
| Antenna | integral | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |



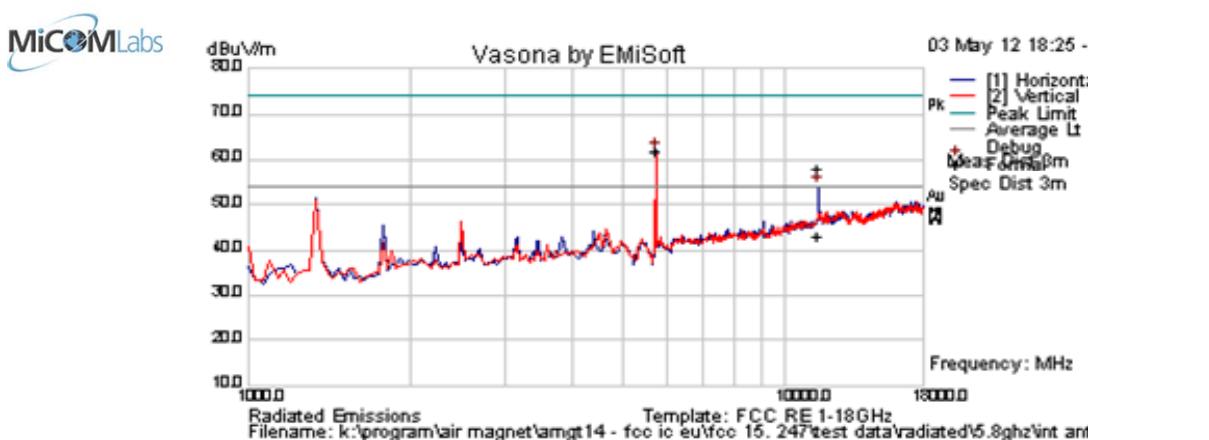
Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---------------|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 11650.822 | 53.8 | 6.8 | -2.3 | 58.4 | Peak Max | H | 114 | 312 | 74.0 | -15.6 | Pass | RB |
| 1350.96 | 64.7 | 2.3 | -14.0 | 53.0 | Peak Max | H | 104 | 17 | 74.0 | -21.0 | Pass | RB |
| 11650.822 | 38.9 | 6.8 | -2.3 | 43.5 | Average Max | H | 114 | 312 | 54.0 | -10.5 | Pass | RB |
| 1350.96 | 61.1 | 2.3 | -14.0 | 49.4 | Average Max | H | 104 | 17 | 54 | -4.6 | Pass | RB |
| 5837.675 | 63.8 | 4.8 | -9.3 | 59.4 | Peak [Scan] | H | 200 | 0 | | | | FUND |

Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
 RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|-------------------------|-----------------------|------|
| Test Freq. | 5745 MHz | Engineer | SB |
| Variant | 802.11n; HT-20; 6.5 MCS | Temp (°C) | 22.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 36 |
| Power Setting | 20 | Press. (mBars) | 1004 |
| Antenna | integral | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |



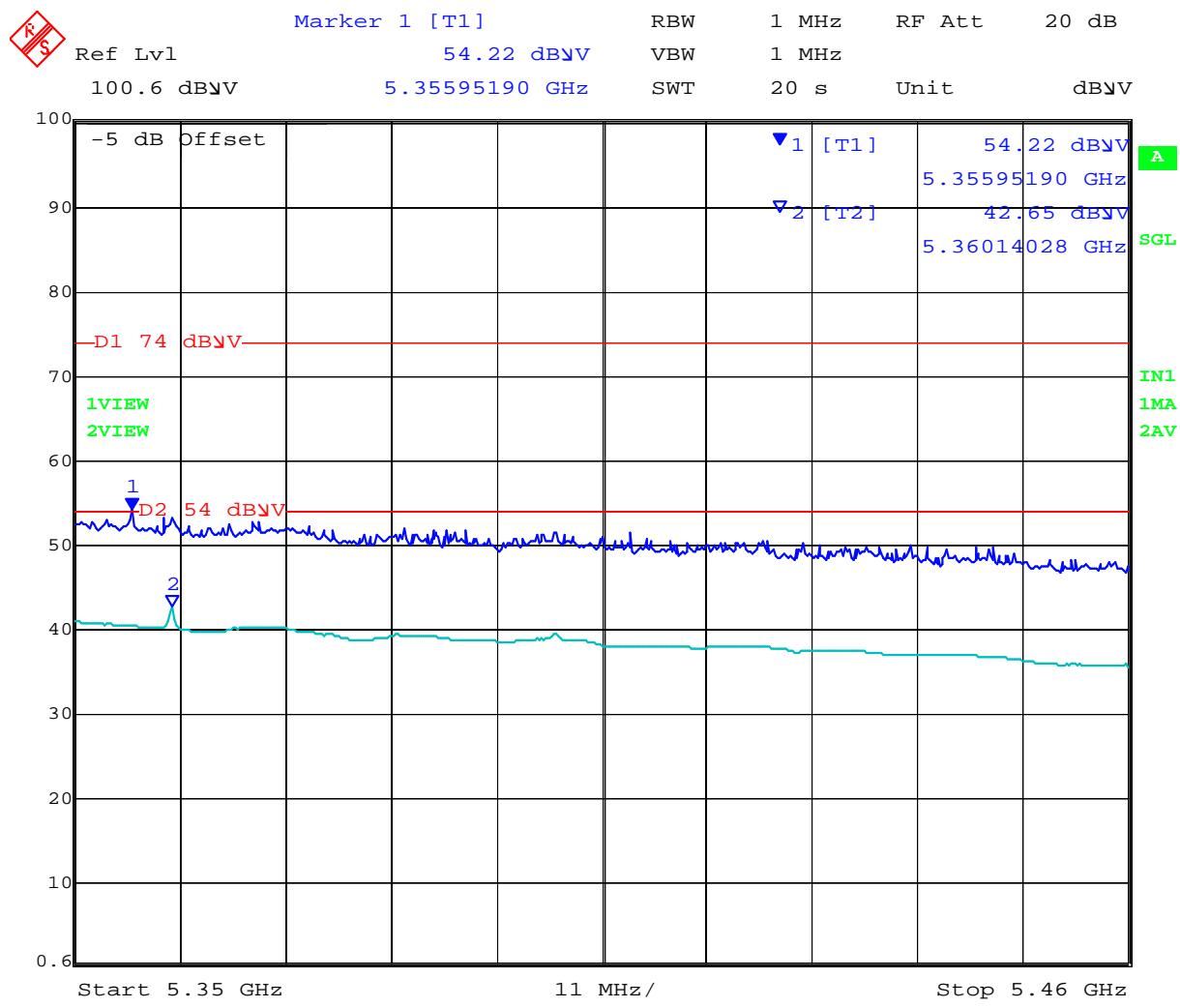
Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---------------|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 11493.467 | 53.3 | 6.8 | -2.0 | 58.1 | Peak Max | H | 128 | 0 | 74.0 | -15.9 | Pass | RB |
| 1347.96 | 64.7 | 2.3 | -14.0 | 53.0 | Peak Max | H | 104 | 17 | 74.0 | -21.0 | Pass | RB |
| 11493.467 | 38.2 | 6.8 | -2.0 | 43.1 | Average Max | H | 128 | 0 | 54.0 | -10.9 | Pass | RB |
| 1347.960 | 61.1 | 2.3 | -14.0 | 49.4 | Average Max | H | 104 | 17 | 54 | -4.6 | Pass | RB |
| 5735.471 | 66.8 | 4.8 | -9.5 | 62.0 | Peak [Scan] | H | 150 | 0 | | | | FUND |

Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
 RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

Band-Edge

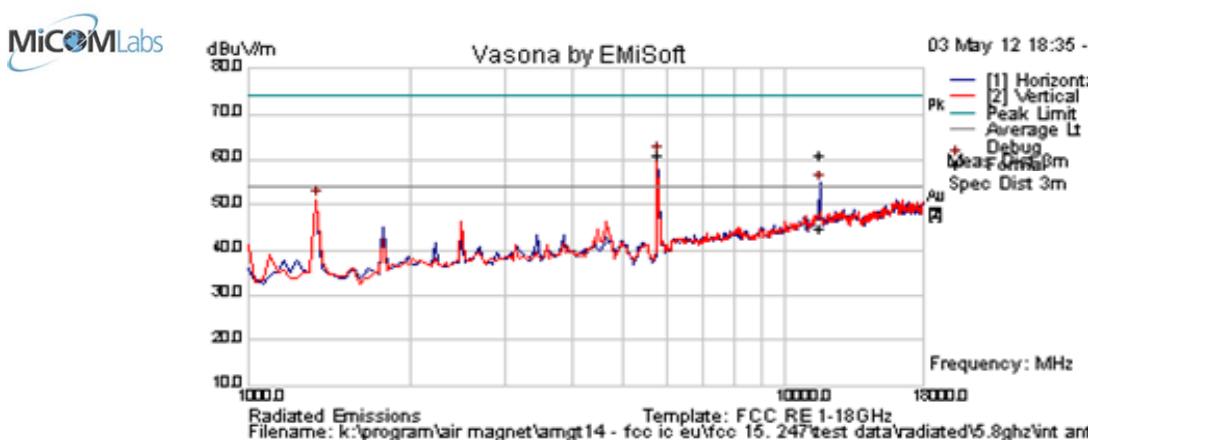


Date: 3.MAY.2012 12:26:48

Maximum output power (Power = 20)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|-------------------------|-----------------------|------|
| Test Freq. | 5785 MHz | Engineer | SB |
| Variant | 802.11n; HT-20; 6.5 MCS | Temp (°C) | 22.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 36 |
| Power Setting | 20 | Press. (mBars) | 1004 |
| Antenna | integral | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |



Formally measured emission peaks

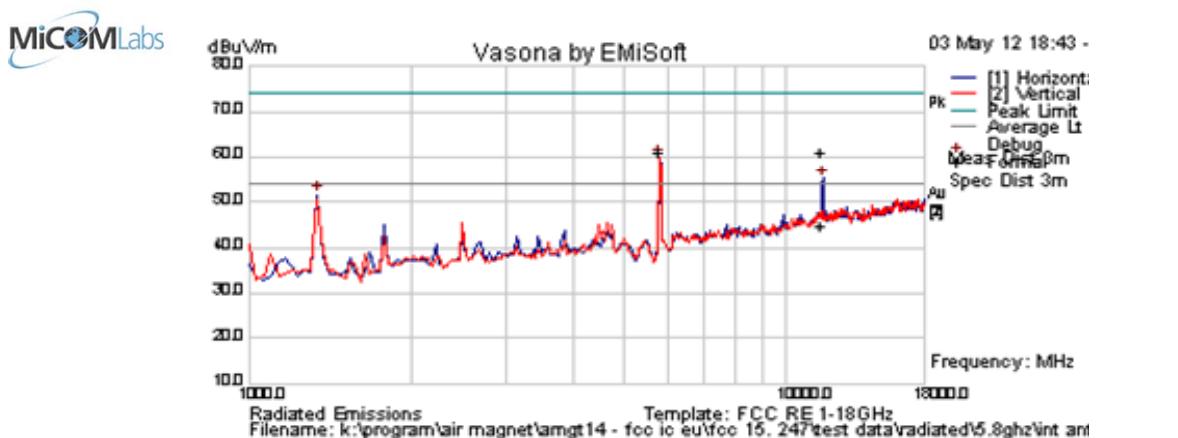
| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---------------|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 11569.699 | 56.1 | 6.8 | -2.0 | 60.9 | Peak Max | H | 99 | 1 | 74.0 | -13.1 | Pass | RB |
| 1348.96 | 64.7 | 2.3 | -14.0 | 53.0 | Peak Max | H | 104 | 17 | 74.0 | -21.0 | Pass | RB |
| 11569.699 | 39.9 | 6.8 | -2.0 | 44.7 | Average Max | H | 99 | 1 | 54.0 | -9.3 | Pass | RB |
| 1348.96 | 61.1 | 2.3 | -14.0 | 49.4 | Average Max | H | 104 | 17 | 54 | -4.6 | Pass | RB |
| 5769.539078 | 65.7 | 4.8 | -9.5 | 61.0 | Peak [Scan] | H | 200 | 0 | | | | FUND |

Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission

RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|-------------------------|-----------------------|------|
| Test Freq. | 5825 MHz | Engineer | SB |
| Variant | 802.11n; HT-20; 6.5 MCS | Temp (°C) | 22.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 36 |
| Power Setting | 20 | Press. (mBars) | 1004 |
| Antenna | integral | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |



Formally measured emission peaks

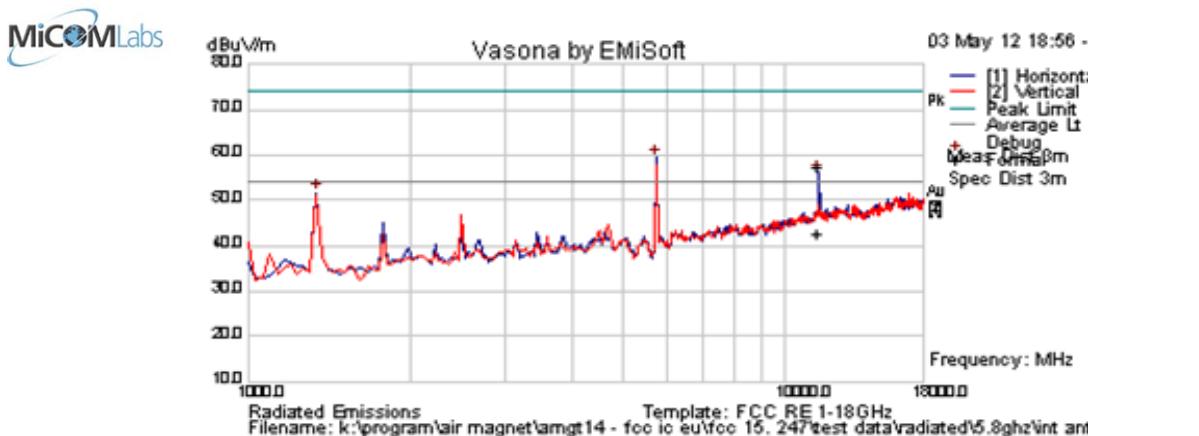
| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---------------|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 11651.822 | 53.8 | 6.8 | -2.3 | 58.4 | Peak Max | H | 114 | 312 | 74.0 | -15.6 | Pass | RB |
| 1350.96 | 64.7 | 2.3 | -14.0 | 53.0 | Peak Max | H | 104 | 17 | 74.0 | -21.0 | Pass | RB |
| 11651.822 | 38.9 | 6.8 | -2.3 | 43.5 | Average Max | H | 114 | 312 | 54.0 | -10.5 | Pass | RB |
| 1350.96 | 61.1 | 2.3 | -14.0 | 49.4 | Average Max | H | 104 | 17 | 54 | -4.6 | Pass | RB |
| 5803.607 | 64.4 | 4.8 | -9.4 | 59.8 | Peak [Scan] | V | 150 | 0 | | | | FUND |

Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission

RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|--------------------------|-----------------------|------|
| Test Freq. | 5755 MHz | Engineer | SB |
| Variant | 802.11n; HT-40; 13.5 MCS | Temp (°C) | 22.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 36 |
| Power Setting | 20 | Press. (mBars) | 1004 |
| Antenna | integral | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |



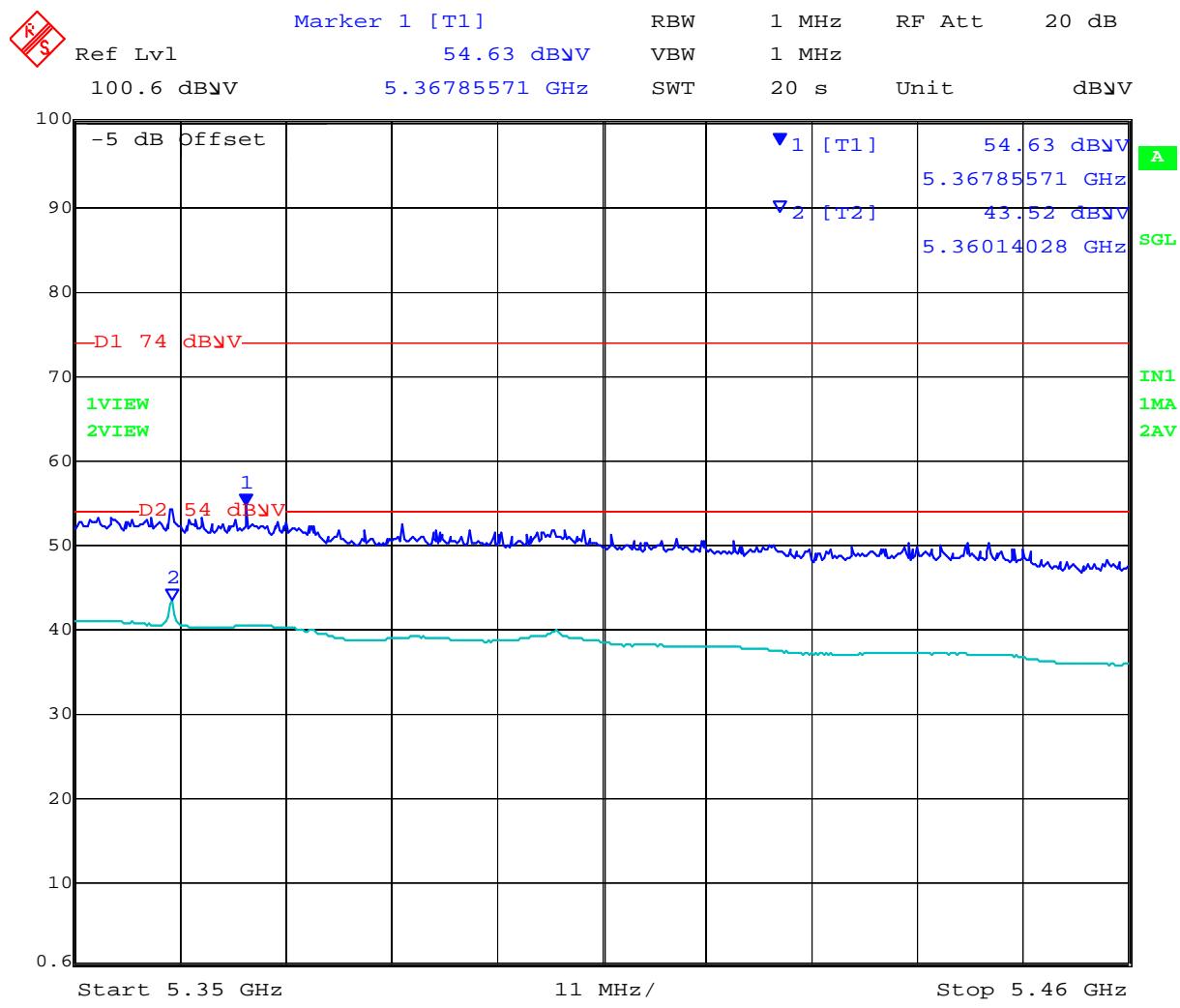
Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---------------|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 11509.900 | 52.1 | 6.8 | -1.9 | 57.0 | Peak Max | H | 117 | 360 | 74.0 | -17.0 | Pass | RB |
| 1347.77 | 64.7 | 2.3 | -14.0 | 53.0 | Peak Max | H | 104 | 17 | 74.0 | -21.0 | Pass | RB |
| 11509.9 | 37.7 | 6.8 | -1.9 | 42.6 | Average Max | H | 117 | 360 | 54.0 | -11.4 | Pass | RB |
| 1347.77 | 61.1 | 2.3 | -14.0 | 49.4 | Average Max | H | 104 | 17 | 54 | -4.6 | Pass | RB |
| 5735.471 | 64.3 | 4.8 | -9.5 | 59.5 | Peak [Scan] | H | 200 | 0 | | | | FUND |

Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
 RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

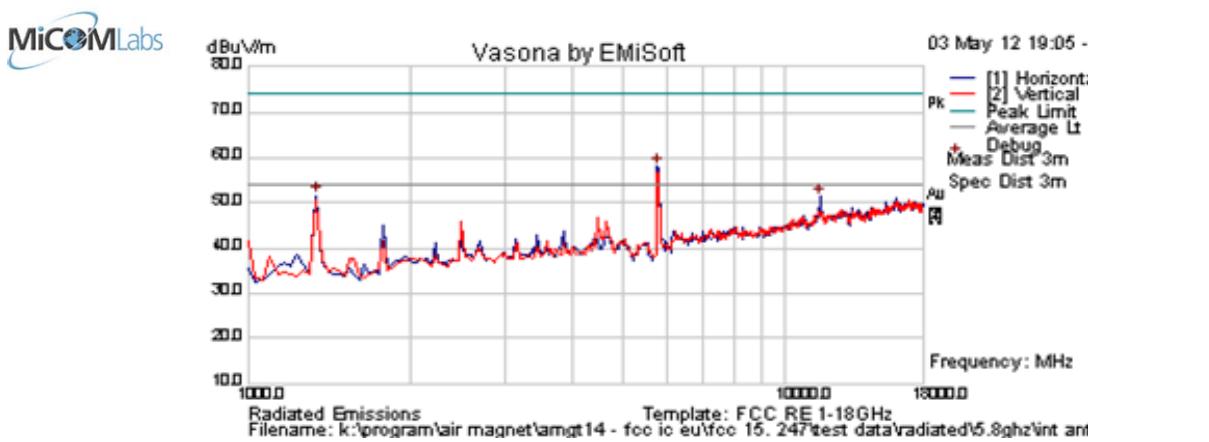
Band-Edge



Maximum output power (Power = 20)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|--------------------------|-----------------------|------|
| Test Freq. | 5795 MHz | Engineer | SB |
| Variant | 802.11n; HT-40; 13.5 MCS | Temp (°C) | 22.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 36 |
| Power Setting | 20 | Press. (mBars) | 1004 |
| Antenna | integral | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |



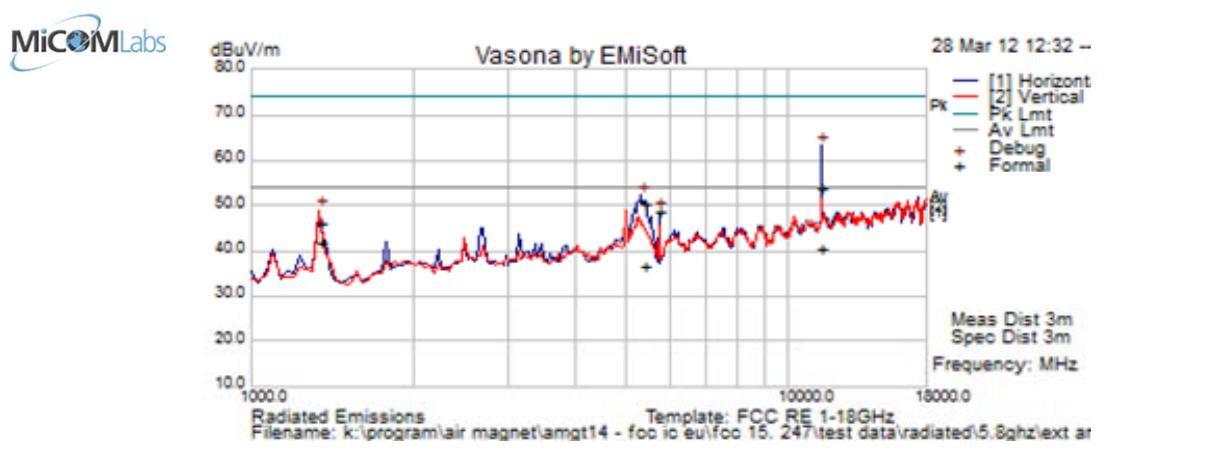
Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---------------|---|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 5769.539 | 62.8 | 4.8 | -9.5 | 58.1 | Peak [Scan] | H | 200 | 0 | | | | FUND |
| 1340.681363 | 63.2 | 2.3 | -13.9 | 51.6 | Peak [Scan] | H | 100 | 0 | 54.0 | -2.4 | Pass | RB |
| 11595.190 | 46.7 | 6.8 | -2.1 | 51.4 | Peak [Scan] | H | 100 | 0 | 54 | -2.6 | Pass | RB |
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak | | | | | | | | | | | |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

5.1.6.4. 5.8 GHz External Antenna

| | | | |
|----------------------|----------------------|-----------------------|------|
| Test Freq. | 5745 MHz | Engineer | SB |
| Variant | 802.11a; 6.0 Mbs | Temp (°C) | 22.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 36 |
| Power Setting | 20 | Press. (mBars) | 1004 |
| Antenna | ext ant | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |

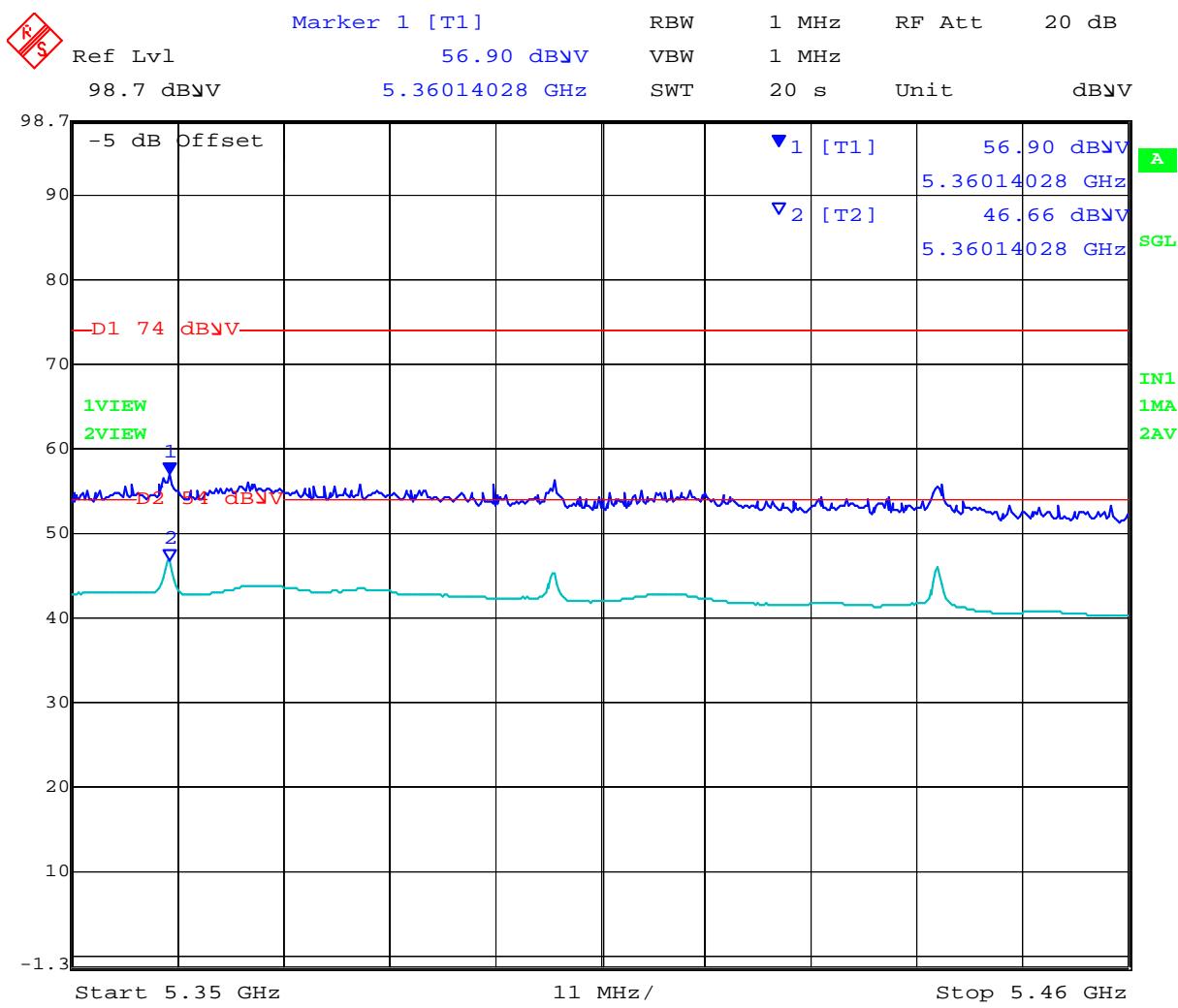


Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 11496.869 | 49.0 | 6.8 | -2.0 | 53.9 | Peak Max | H | 99 | 19 | 74.0 | -20.2 | Pass | RB |
| 5401.202 | 55.2 | 4.6 | -9.6 | 50.2 | Peak Max | H | 99 | 223 | 74.0 | -23.8 | Pass | RB |
| 1349.944 | 57.9 | 2.3 | -14.0 | 46.2 | Peak Max | V | 99 | 211 | 74 | -27.8 | Pass | RB |
| 11496.869 | 35.5 | 6.8 | -2.0 | 40.4 | Average Max | H | 99 | 19 | 54 | -13.6 | Pass | RB |
| 5401.202 | 41.8 | 4.6 | -9.6 | 36.8 | Average Max | H | 99 | 223 | 54 | -17.2 | Pass | RB |
| 1349.944 | 53.6 | 2.3 | -14.0 | 42.0 | Average Max | V | 99 | 211 | 54 | -12.1 | Pass | RB |
| 5735.471 | 53.4 | 4.8 | -9.5 | 48.6 | Peak [Scan] | H | 100 | 0 | | | | FUND |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak | | | | | | | | | | | | |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

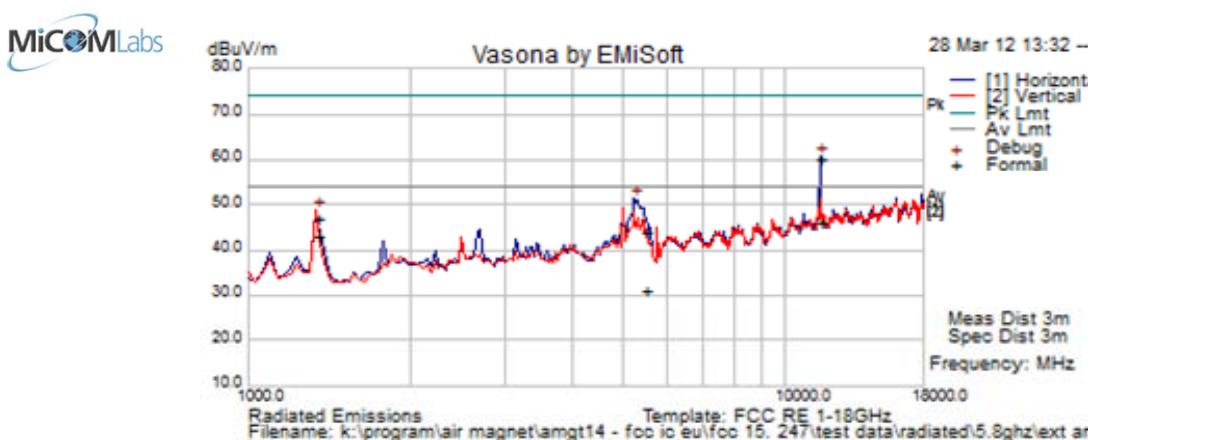
Band-Edge



Maximum output power (Power = 30)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|----------------------|-----------------------|------|
| Test Freq. | 5785 MHz | Engineer | SB |
| Variant | 802.11a; 6.0 Mbs | Temp (°C) | 22.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 36 |
| Power Setting | 20 | Press. (mBars) | 1004 |
| Antenna | ext ant | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |

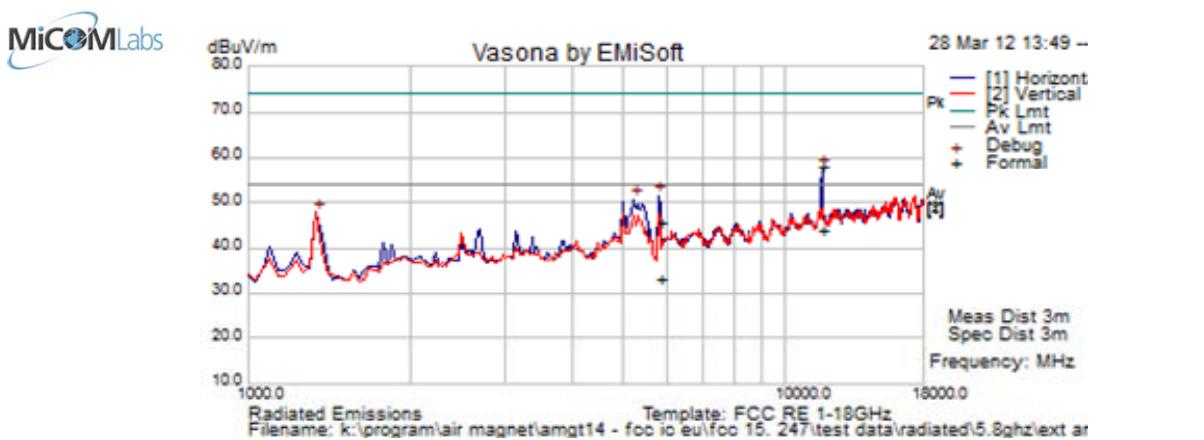


Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|--|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 11569.902 | 55.4 | 6.8 | -2.0 | 60.2 | Peak Max | H | 98 | 362 | 74.0 | -13.8 | Pass | RB |
| 5470.541 | 48.9 | 4.6 | -9.7 | 43.8 | Peak Max | H | 104 | 0 | 74.0 | -30.2 | Pass | RB |
| 1349.950 | 58.7 | 2.3 | -14.0 | 47.0 | Peak Max | V | 121 | 0 | 74 | -27.0 | Pass | RB |
| 11569.902 | 41.2 | 6.8 | -2.0 | 46.0 | Average Max | H | 98 | 362 | 54 | -8.0 | Pass | RB |
| 5470.541 | 36.0 | 4.6 | -9.7 | 30.9 | Average Max | H | 104 | 0 | 54 | -23.1 | Pass | RB |
| 1349.950 | 54.8 | 2.3 | -14.0 | 43.1 | Average Max | V | 121 | 0 | 54 | -10.9 | Pass | RB |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak | | | | | | | | | | | | |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|----------------------|-----------------------|------|
| Test Freq. | 5825 MHz | Engineer | SB |
| Variant | 802.11a; 6.0 Mbs | Temp (°C) | 22.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 36 |
| Power Setting | 20 | Press. (mBars) | 1004 |
| Antenna | ext ant | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |

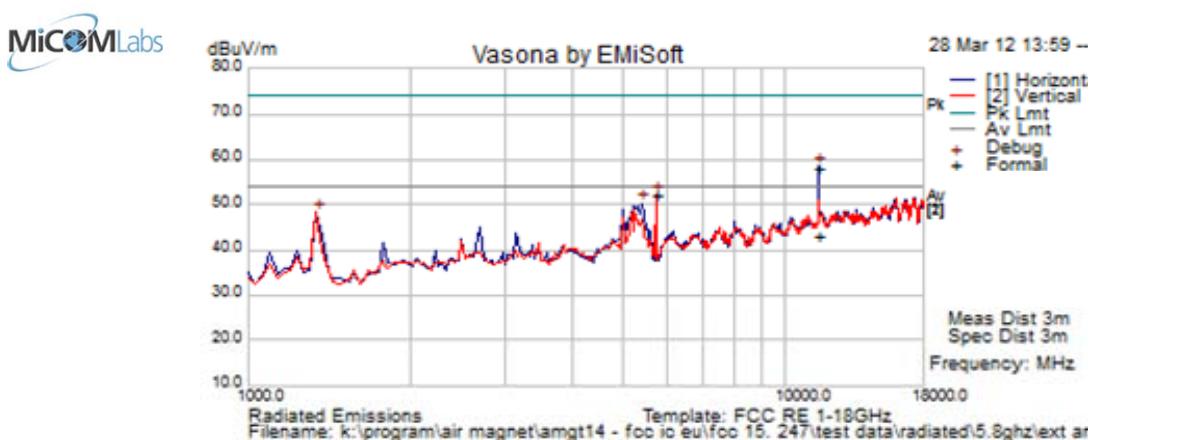


Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|--|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 11649.800 | 53.7 | 6.8 | -2.3 | 58.2 | Peak Max | H | 104 | 361 | 74.0 | -15.8 | Pass | RB |
| 5828.357 | 50.1 | 4.8 | -9.3 | 45.6 | Peak Max | H | 98 | 208 | 74.0 | -28.4 | Pass | RB |
| 1349.950 | 58.7 | 2.3 | -14.0 | 47.0 | Peak Max | V | 121 | 0 | 74 | -27.0 | Pass | RB |
| 11649.800 | 39.5 | 6.8 | -2.3 | 44.1 | Average Max | H | 104 | 361 | 54 | -9.9 | Pass | RB |
| 5828.357 | 37.9 | 4.8 | -9.3 | 33.4 | Average Max | H | 98 | 208 | 54 | -20.6 | Pass | RB |
| 1349.950 | 54.8 | 2.3 | -14.0 | 43.1 | Average Max | V | 121 | 0 | 54 | -10.9 | Pass | RB |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak | | | | | | | | | | | | |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|-------------------------|-----------------------|------|
| Test Freq. | 5745 MHz | Engineer | SB |
| Variant | 802.11n; HT-20; 6.5 MCS | Temp (°C) | 22.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 36 |
| Power Setting | 20 | Press. (mBars) | 1004 |
| Antenna | ext ant | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |

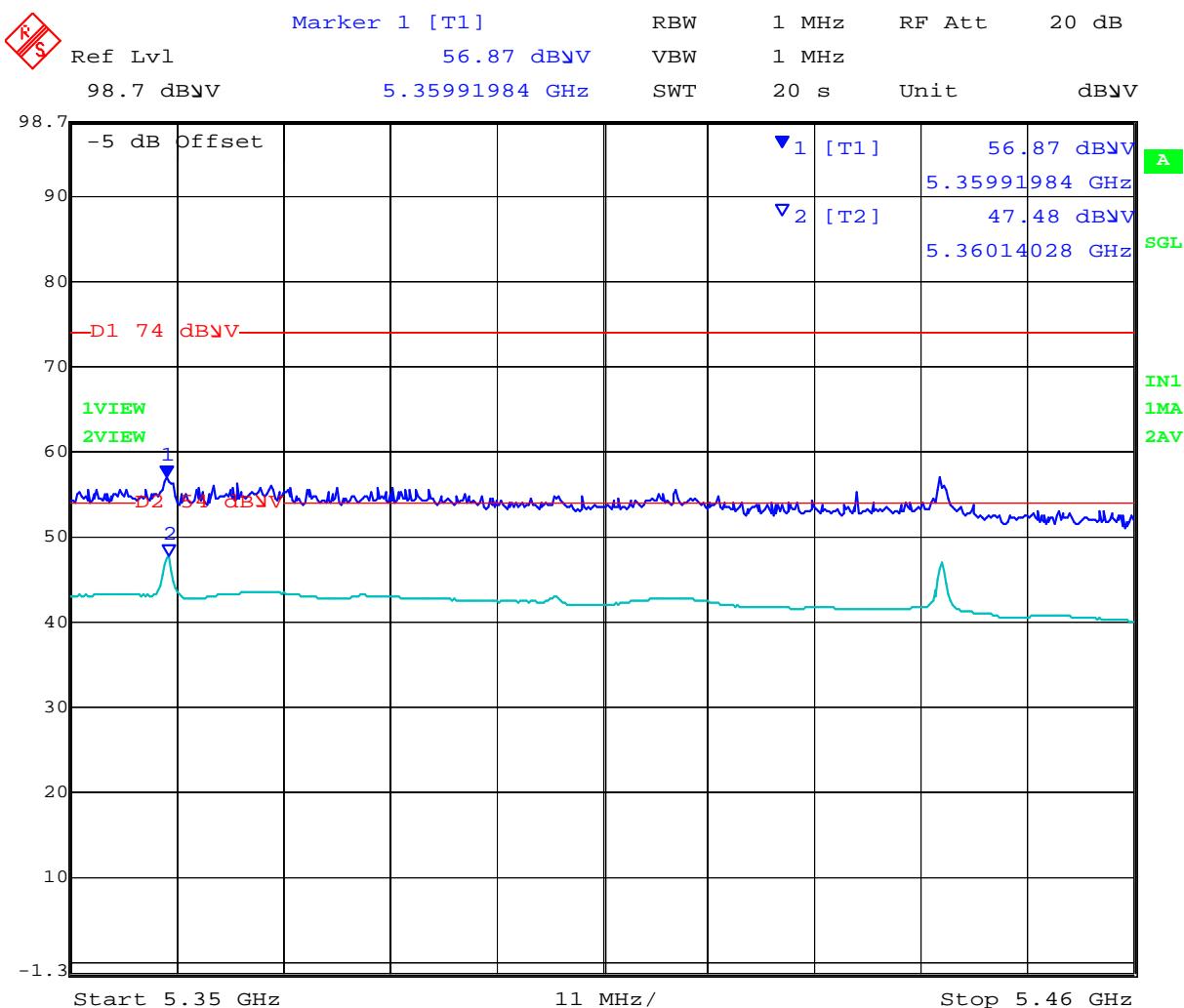


Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---------------|----------|---|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 11491.232 | 53.4 | 6.8 | -2.0 | 58.2 | Peak Max | H | 116 | 322 | 74.0 | -15.8 | Pass | RB |
| 5470.541 | 48.9 | 4.6 | -9.7 | 43.8 | Peak Max | H | 104 | 0 | 74.0 | -30.2 | Pass | RB |
| 1349.950 | 58.7 | 2.3 | -14.0 | 47.0 | Peak Max | V | 121 | 0 | 74 | -27.0 | Pass | RB |
| 11491.232 | 38.4 | 6.8 | -2.0 | 43.3 | Average Max | H | 116 | 322 | 54.0 | -10.8 | Pass | RB |
| 5470.541 | 36.0 | 4.6 | -9.7 | 30.9 | Average Max | H | 104 | 0 | 54 | -23.1 | Pass | RB |
| 1349.950 | 54.8 | 2.3 | -14.0 | 43.1 | Average Max | V | 121 | 0 | 54 | -10.9 | Pass | RB |
| 5735.471 | 57.0 | 4.8 | -9.5 | 52.2 | Peak [Scan] | H | 150 | 0 | | | | FUND |
| Legend: | | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | |
| | | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak | | | | | | | | | | |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

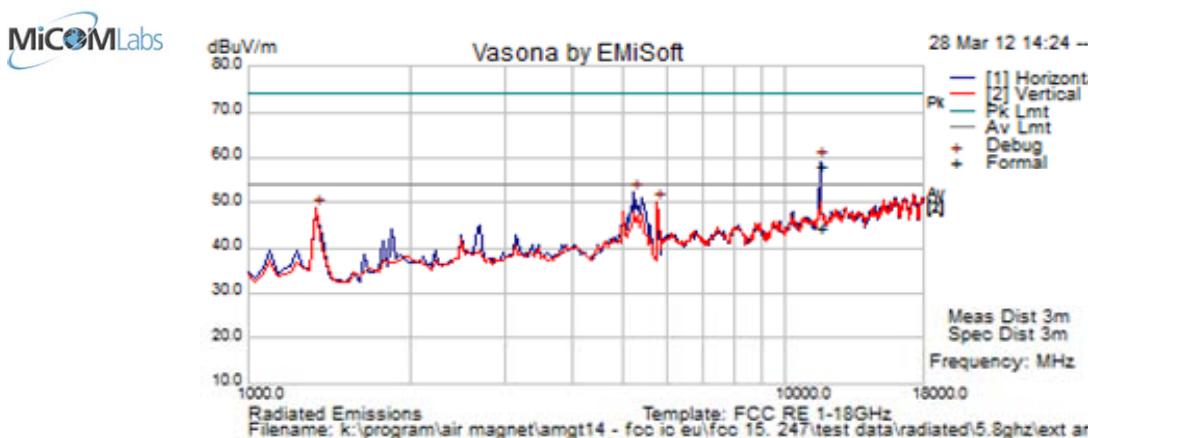
Band-Edge



Maximum output power (Power = 20)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|-------------------------|-----------------------|------|
| Test Freq. | 5785 MHz | Engineer | SB |
| Variant | 802.11n; HT-20; 6.5 MCS | Temp (°C) | 22.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 36 |
| Power Setting | 20 | Press. (mBars) | 1004 |
| Antenna | ext ant | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |



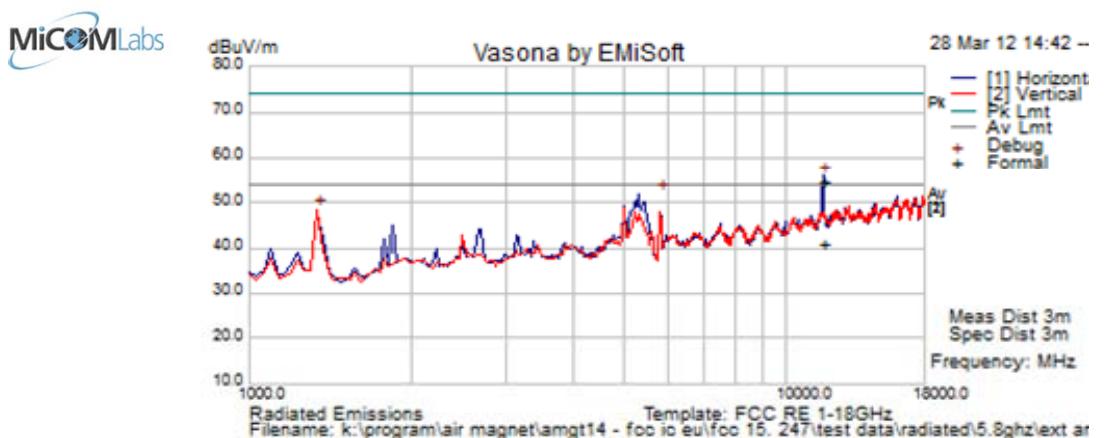
Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---------------|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 11572.269 | 53.3 | 6.8 | -2.0 | 58.1 | Peak Max | H | 98 | 360 | 74.0 | -16.0 | Pass | RB |
| 11572.269 | 39.4 | 6.8 | -2.0 | 44.2 | Average Max | H | 98 | 360 | 54.0 | -9.8 | Pass | RB |
| 5470.541 | 48.9 | 4.6 | -9.7 | 43.8 | Peak Max | H | 104 | 0 | 74.0 | -30.2 | Pass | RB |
| 1349.950 | 58.7 | 2.3 | -14.0 | 47.0 | Peak Max | V | 121 | 0 | 74 | -27.0 | Pass | RB |
| 11572.269 | 39.4 | 6.8 | -2.0 | 44.2 | Average Max | H | 98 | 360 | 54.0 | -9.8 | Pass | RB |
| 5470.541 | 36.0 | 4.6 | -9.7 | 30.9 | Average Max | H | 104 | 0 | 54 | -23.1 | Pass | RB |
| 1349.950 | 54.8 | 2.3 | -14.0 | 43.1 | Average Max | V | 121 | 0 | 54 | -10.9 | Pass | RB |
| 5769.539 | 54.7 | 4.8 | -9.5 | 50.0 | Peak [Scan] | V | 150 | 0 | | | | FUND |

Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
 RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|---------------|-------------------------|----------------|------|
| Test Freq. | 5825 MHz | Engineer | SB |
| Variant | 802.11n; HT-20; 6.5 MCS | Temp (°C) | 22.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 36 |
| Power Setting | 20 | Press. (mBars) | 1004 |
| Antenna | ext ant | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |

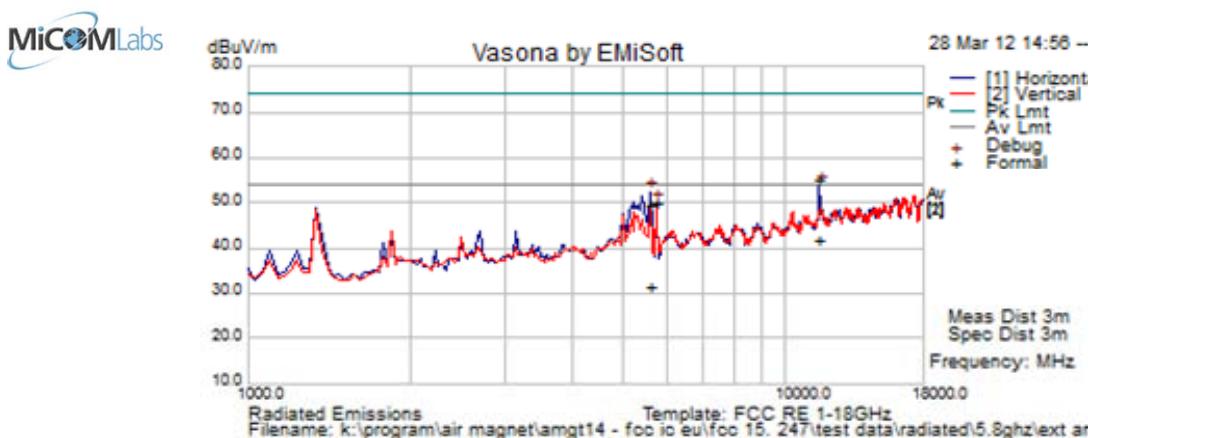


Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---------------|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 11652.806 | 50.1 | 6.8 | -2.3 | 54.6 | Peak Max | H | 149 | 0 | 74.0 | -19.4 | Pass | RB |
| 1349.950 | 58.7 | 2.3 | -14.0 | 47.0 | Peak Max | V | 121 | 0 | 74 | -27.0 | Pass | RB |
| 11652.806 | 36.2 | 6.8 | -2.3 | 40.8 | Average Max | H | 149 | 0 | 54.0 | -13.2 | Pass | RB |
| 1349.950 | 54.8 | 2.3 | -14.0 | 43.1 | Average Max | V | 121 | 0 | 54 | -10.9 | Pass | RB |
| 5823.246 | 56.5 | 4.8 | -9.3 | 52.0 | Peak [Scan] | H | 100 | 0 | | | | FUND |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|--------------------------|-----------------------|------|
| Test Freq. | 5755 MHz | Engineer | SB |
| Variant | 802.11n; HT-40; 13.5 MCS | Temp (°C) | 22.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 36 |
| Power Setting | 20 | Press. (mBars) | 1004 |
| Antenna | ext ant | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |



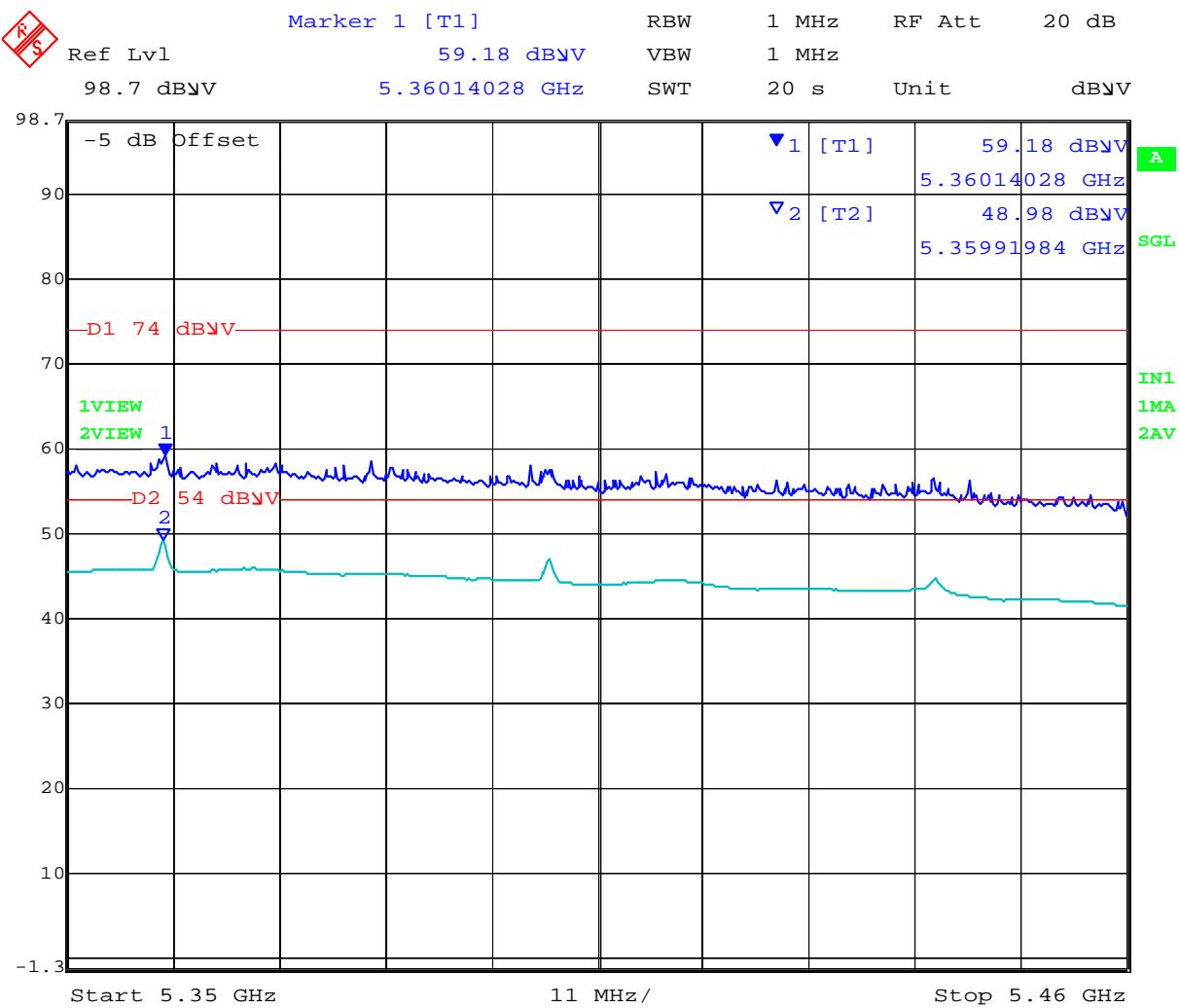
Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---------------|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 11511.272 | 50.2 | 6.8 | -1.9 | 55.1 | Peak Max | H | 98 | 361 | 74.0 | -18.9 | Pass | RB |
| 5591.784 | 54.7 | 4.7 | -9.7 | 49.7 | Peak Max | H | 173 | 86 | 74.0 | -24.4 | Pass | RB |
| 11511.272 | 36.7 | 6.8 | -1.9 | 41.5 | Average Max | H | 98 | 361 | 54 | -12.5 | Pass | RB |
| 5591.784 | 36.5 | 4.7 | -9.7 | 31.4 | Average Max | H | 173 | 86 | 54 | -22.6 | Pass | RB |
| 5735.471 | 54.9 | 4.8 | -9.5 | 50.1 | Peak [Scan] | V | 100 | 0 | | | | FUND |

Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
 RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

Band-Edge

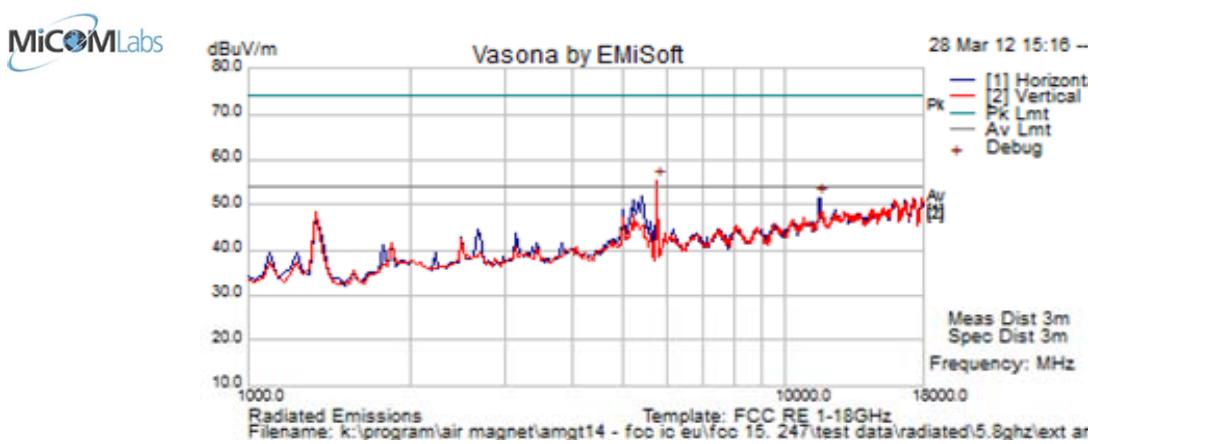


Date: 26.MAR.2012 16:14:56

Maximum output power (Power = 20)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|--------------------------|-----------------------|------|
| Test Freq. | 5795 MHz | Engineer | SB |
| Variant | 802.11n; HT-40; 13.5 MCS | Temp (°C) | 22.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 36 |
| Power Setting | 20 | Press. (mBars) | 1004 |
| Antenna | | Duty Cycle (%) | 100 |
| Test Notes 1 | | | |
| Test Notes 2 | | | |



Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---------------|---|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 5769.539 | 60.1 | 4.8 | -9.5 | 55.4 | Peak [Scan] | V | 150 | 0 | | | | FUND |
| 11561.122 | 46.8 | 6.8 | -2.0 | 51.6 | Peak [Scan] | H | 100 | 0 | 54.0 | -2.4 | Pass | RB |
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak | | | | | | | | | | | |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

Specification Limits

FCC §15.247(d) and RSS-210 §A8.5 In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

FCC §15.247(d)

If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section §15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(a)).

IC RSS-210 §A8.5 If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under section A8.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Tables 2 and 3 is not required. In addition, radiated emissions which fall in the restricted bands of Table 1 must also comply with the radiated emission limits specified in Tables 2 and 3.

IC RSS-Gen §4.7

The search for unwanted emissions shall be from the lowest frequency internally generated or used in the device (local oscillator, intermediate of carrier frequency), or from 30 MHz , whichever is the lowest frequency, to the 5th harmonic of the highest frequency generated without exceeding 40 GHz.

FCC §15.205 (a) Except as shown in paragraph (d) of 15.205 (a), only spurious emissions are permitted in any of the frequency bands listed.

FCC §15.205 (a) Except as shown in paragraphs (d) and (e) of this section, the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

FCC §15.209 (a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table.

§15.209 (a) Limit Matrix

| Frequency(MHz) | Field Strength (μ V/m) | Field Strength (dB μ V/m) | Measurement Distance (meters) |
|----------------|--------------------------------|----------------------------------|----------------------------------|
| 30-88 | 100 | 40.0 | 3 |
| 88-216 | 150 | 43.5 | 3 |
| 216-960 | 200 | 46.0 | 3 |
| Above 960 | 500 | 54.0 | 3 |

Laboratory Measurement Uncertainty for Radiated Emissions

| | |
|-------------------------|---------------|
| Measurement uncertainty | +5.6/ -4.5 dB |
|-------------------------|---------------|

Traceability

| Method | Test Equipment Used |
|---|--|
| Measurements were made per work instruction WI-03 'Measurement of Radiated Emissions' | 0088, 0158, 0134, 0304, 0311, 0315, 0310, 0312 |

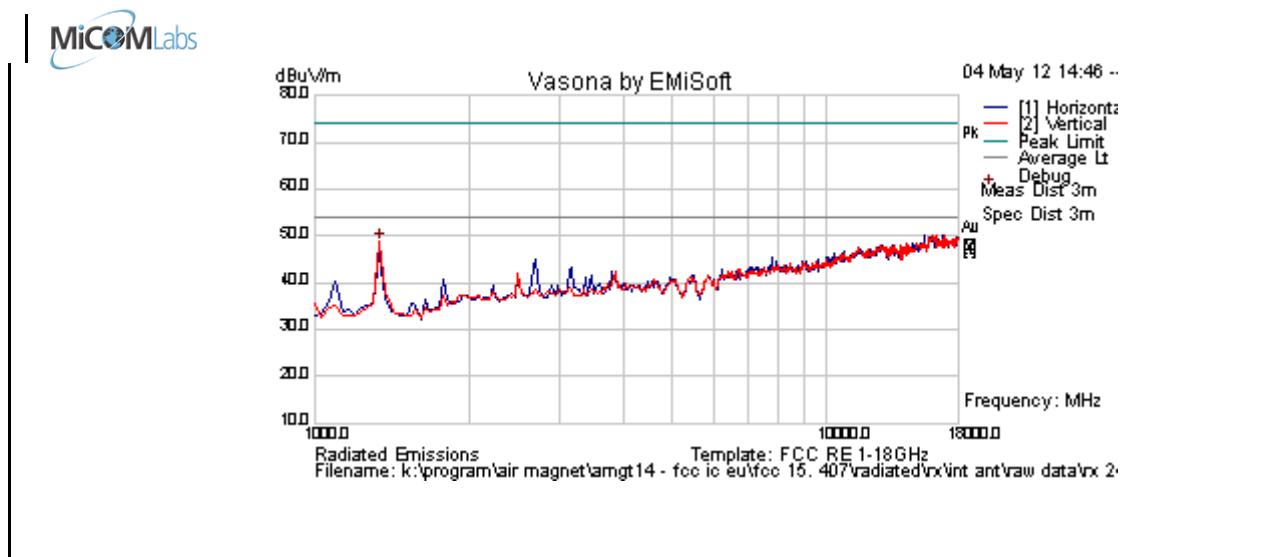
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

5.1.6.5. Receiver Radiated Emissions

2.4 GHz Operational Mode

Integral antenna

| | | | |
|---------------|--------------------------------|----------------|------|
| Test Freq. | 2437 MHz | Engineer | SB |
| Variant | Receive in Test Utility | Temp (°C) | 21 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 39 |
| Power Setting | Not Applicable in Receive Mode | Press. (mBars) | 1003 |
| Antenna | Integral antenna | | |
| Test Notes 1 | | | |
| Test Notes 2 | | | |



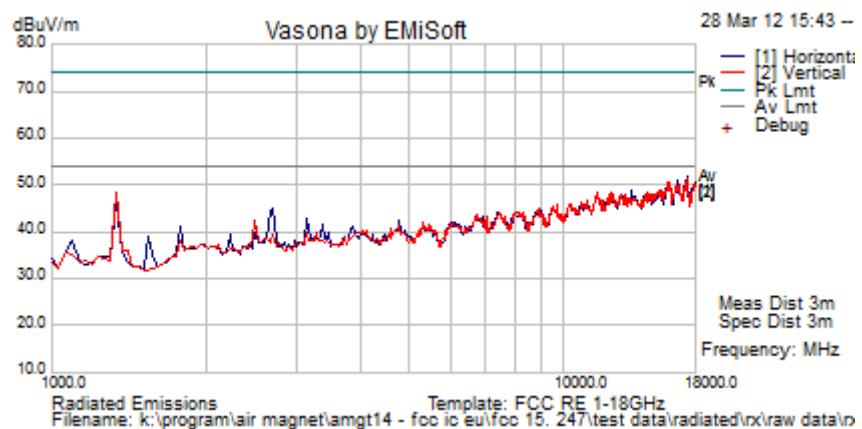
Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|--|----------|---|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 1340.681 | 60.4 | 2.3 | -13.9 | 48.8 | Peak [Scan] | V | 100 | 0 | 54 | -5.3 | Pass | |
| Legend: | | RB = Restricted Band; NRB = Non-Restricted Band; FUND = Fundamental Freq. | | | | | | | | | | |
| BE = Emission in Restricted Band Nearest Transmission Band Edge; | | | | | | | | | | | | |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

External antenna

| | | | |
|----------------------|--------------------------------|-----------------------|------|
| Test Freq. | 2412 MHz | Engineer | SB |
| Variant | Receive in Test Utility | Temp (°C) | 21 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 39 |
| Power Setting | Not Applicable in Receive Mode | Press. (mBars) | 1003 |
| Antenna | External Antenna | | |
| Test Notes 1 | | | |
| Test Notes 2 | | | |



Formally measured emission peaks

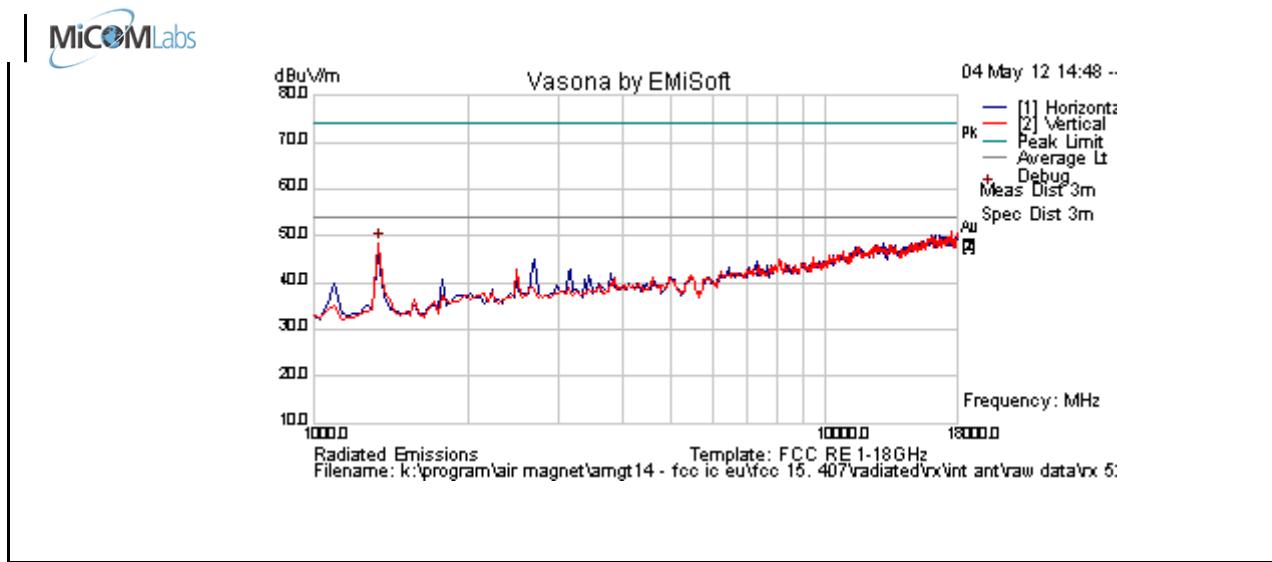
| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|--|----------|---|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| No Receiver Emissions Within 6dB of limit. | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Legend: | | RB = Restricted Band; NRB = Non-Restricted Band; FUND = Fundamental Freq. | | | | | | | | | | |
| | | BE = Emission in Restricted Band Nearest Transmission Band Edge; | | | | | | | | | | |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

5.8 GHz Operational Mode

Integral antenna

| | | | |
|----------------------|--------------------------------|-----------------------|------|
| Test Freq. | 5745 MHz | Engineer | SB |
| Variant | Receive in Test Utility | Temp (°C) | 21 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 39 |
| Power Setting | Not Applicable in Receive Mode | Press. (mBars) | 1003 |
| Antenna | Integral antenna | | |
| Test Notes 1 | | | |
| Test Notes 2 | | | |



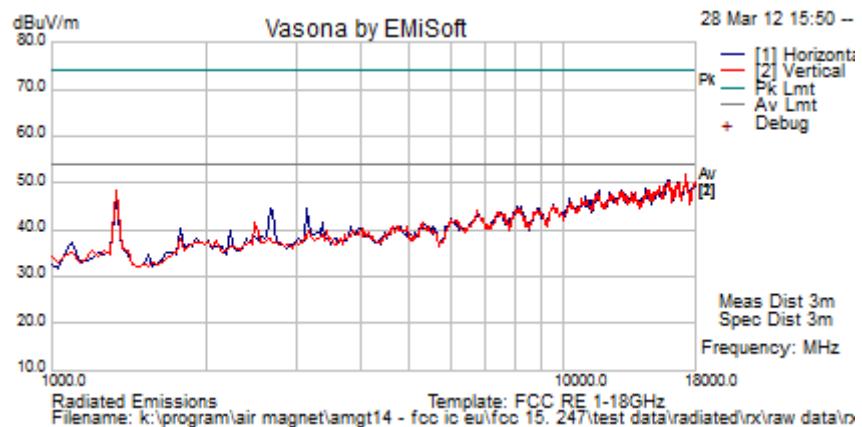
Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 1340.681 | 60.2 | 2.3 | -13.9 | 48.6 | Peak [Scan] | V | 100 | 0 | 54 | -5.4 | Pass | |
| Legend: RB = Restricted Band; NRB = Non-Restricted Band; FUND = Fundamental Freq. | | | | | | | | | | | | |
| BE = Emission in Restricted Band Nearest Transmission Band Edge; | | | | | | | | | | | | |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

External antenna

| | | | |
|----------------------|--------------------------------|-----------------------|------|
| Test Freq. | 5745 MHz | Engineer | SB |
| Variant | Receive in Test Utility | Temp (°C) | 21 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum. (%) | 39 |
| Power Setting | Not Applicable in Receive Mode | Press. (mBars) | 1003 |
| Antenna | External antenna | | |
| Test Notes 1 | | | |
| Test Notes 2 | | | |



Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|--|----------|---|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| No Receiver Emissions Within 6dB of limit. | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Legend: | | RB = Restricted Band; NRB = Non-Restricted Band; FUND = Fundamental Freq. | | | | | | | | | | |
| | | BE = Emission in Restricted Band Nearest Transmission Band Edge; | | | | | | | | | | |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

5.1.6.6. Radiated Spurious Emissions (30M-1 GHz)

FCC, Part 15 Subpart C §15.205/ §15.209
Industry Canada RSS-210 §2.2

Test Procedure

Testing 30M-1 GHz was performed in a 3-meter anechoic chamber using a CISPR compliant receiver. Preliminary radiated emissions were measured on every azimuth and with the receiving antenna in both horizontal and vertical polarizations. To further maximize emissions the receive antenna was varied between 1 and 4 meters. The emissions are recorded with receiver in peak hold mode. Emissions closest to the limits are measured in the quasi-peak mode with the tuned receiver using a bandwidth of 120 kHz. Only the highest emissions relative to the limit are listed. The anechoic chamber test set-up is identified in Section 6 Test Set-Up Photographs.

The EUT had two methods of powering on ac/dc converter and Power over Ethernet (POE). Both modes were tested for emissions below 1GHz.

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Loss, and subtracting Amplifier Gain from the measured reading. In this test facility, the Antenna Factor, Cable Loss, and Amplifier Gains are loaded into the Rohde & Schwarz Receiver and the corrected field strength can be read directly on the receiver.

$$FS = R + AF + CORR$$

where:

FS = Field Strength

R = Measured Receiver Input Amplitude

AF = Antenna Factor

CORR = Correction Factor = CL – AG + NFL

CL = Cable Loss

AG = Amplifier Gain

For example:

Given a Receiver input reading of 51.5dB μ V; Antenna Factor of 8.5dB; Cable Loss of 1.3dB; Falloff Factor of 0dB, an Amplifier Gain of 26dB and Notch Filter Loss of 1dB. The Field Strength of the measured emission is:

$$FS = 51.5 + 8.5 + 1.3 - 26.0 + 1 = 36.3dB\mu V/m$$

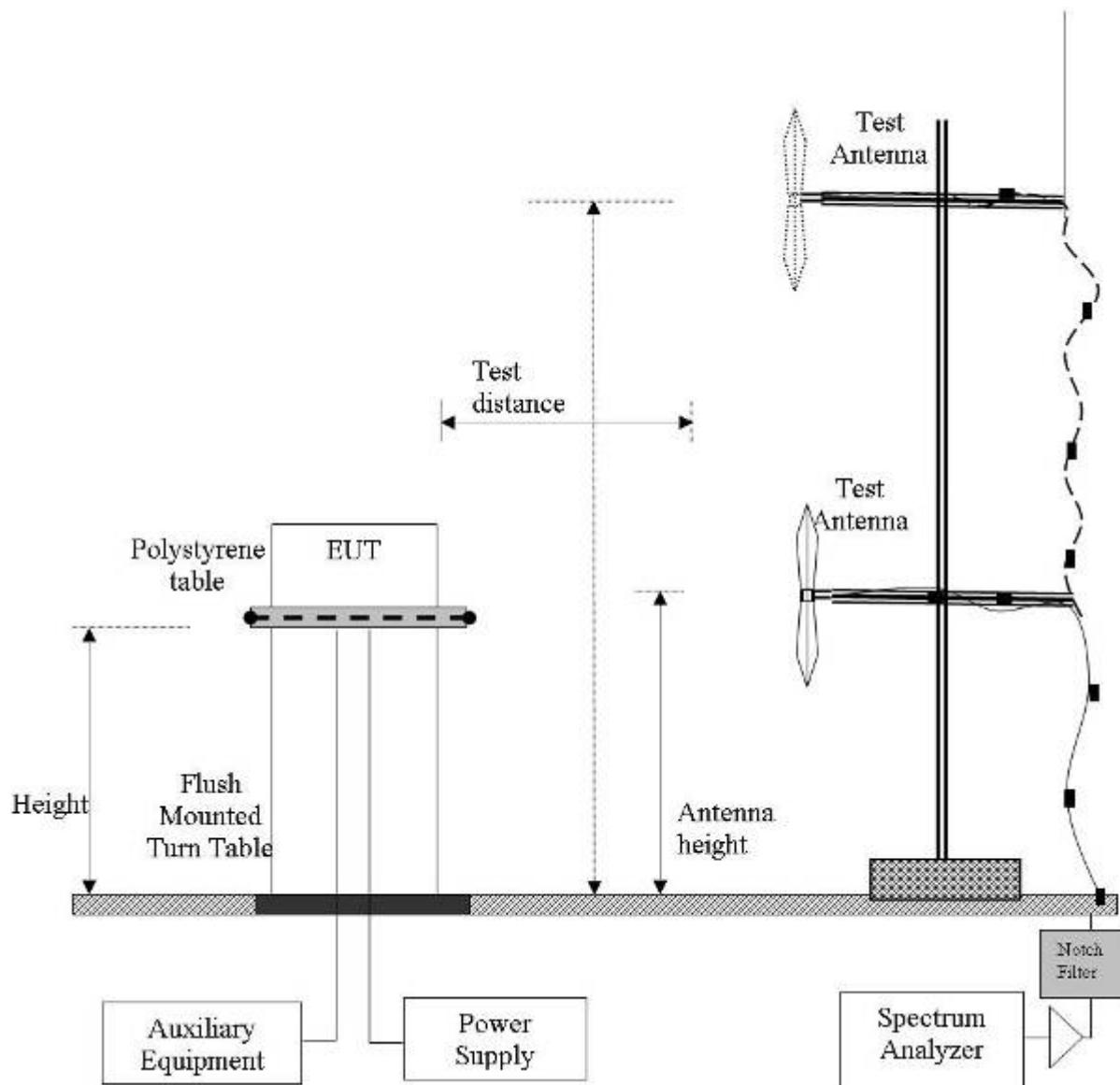
Conversion between dB μ V/m (or dB μ V) and μ V/m (or μ V) are done as:

$$\text{Level (dB}\mu\text{V/m)} = 20 * \text{Log} (\text{level} (\mu\text{V/m}))$$

$$40 \text{ dB}\mu\text{V/m} = 100\mu\text{V/m}$$

$$48 \text{ dB}\mu\text{V/m} = 250\mu\text{V/m}$$

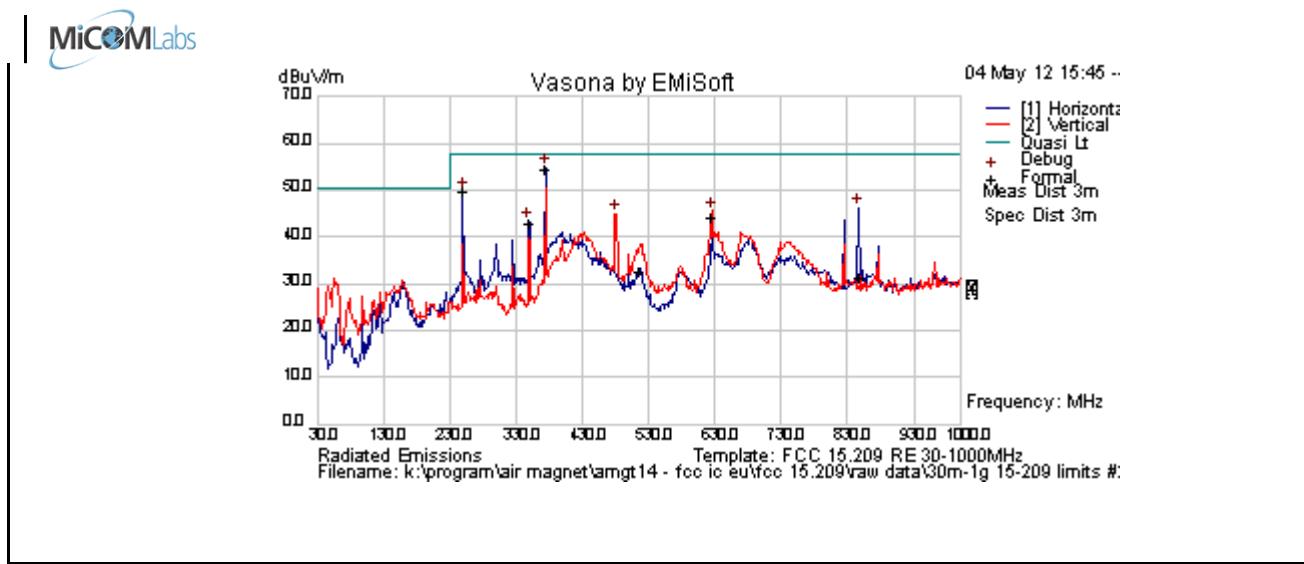
Radiated Emission Measurement Setup – Below 1 GHz



This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

Ferrites clamped-on antenna cables

| | | | |
|---------------|----------------------------|----------------|------|
| Test Freq. | 2437 MHz | Engineer | SB |
| Variant | Digital Emissions | Temp (°C) | 19.5 |
| Freq. Range | 30 MHz - 1000 MHz | Rel. Hum. (%) | 35 |
| Power Setting | 20 | Press. (mBars) | 1004 |
| Antenna | external ant | | |
| Test Notes 1 | | | |
| Test Notes 2 | ac/dc adaptor 110Vac 60 Hz | | |



Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---------------|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 375.020 | 64.5 | 5.4 | -15.4 | 54.5 | Quasi Max | H | 208 | 184 | 57.5 | -3.0 | Pass | |
| 249.984 | 64.0 | 4.9 | -19.0 | 49.8 | Quasi Max | H | 104 | 167 | 57.5 | -7.7 | Pass | |
| 850.080 | 32.8 | 7.0 | -8.3 | 31.5 | Quasi Max | H | 251 | 273 | 57.5 | -26.1 | Pass | |
| 624.985 | 49.1 | 6.3 | -11.0 | 44.4 | Quasi Max | V | 187 | 342 | 57.5 | -13.1 | Pass | |
| 516.381 | 39.6 | 5.9 | -12.7 | 32.8 | Quasi Max | V | 155 | 159 | 57.5 | -24.7 | Pass | |
| 350.016 | 53.3 | 5.3 | -15.7 | 42.8 | Quasi Max | H | 98 | 187 | 57.5 | -14.7 | Pass | |

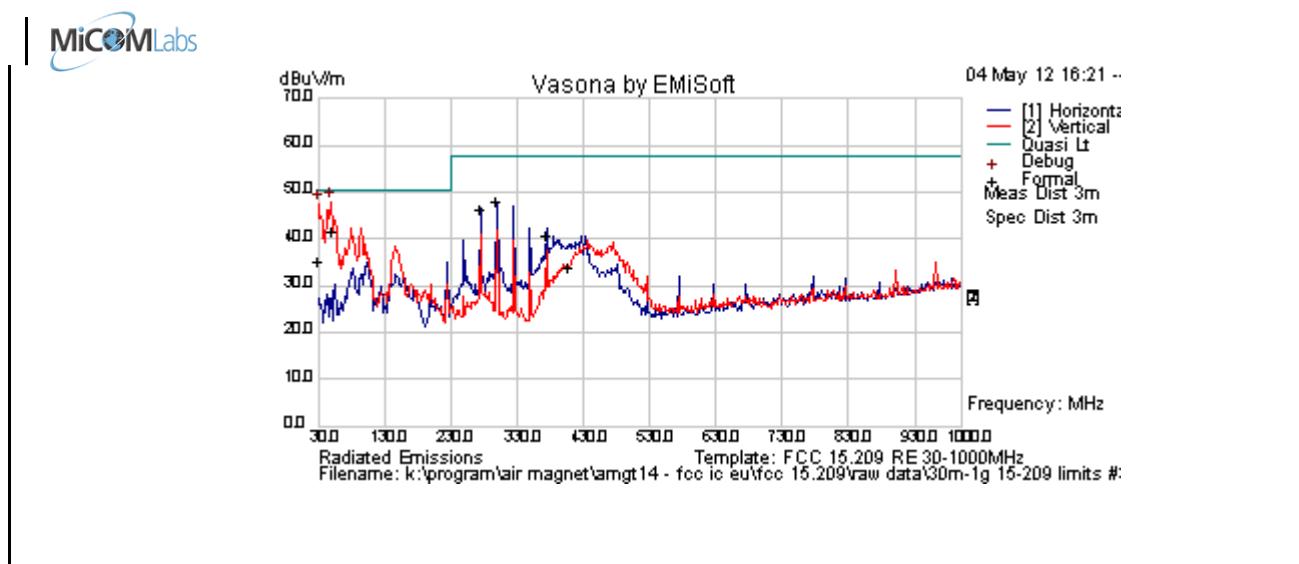
Legend: DIG = Digital Device Emission; TX = Transmitter Emission; FUND = Fundamental Frequency

NRB = Non-Restricted Band, Limit is 20 dB below Fundamental; RB = Restricted Band

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

Ferrites clamped-on antenna cables

| | | | |
|---------------|-------------------|----------------|------|
| Test Freq. | 2437 MHz | Engineer | SB |
| Variant | Digital Emissions | Temp (°C) | 19.5 |
| Freq. Range | 30 MHz - 1000 MHz | Rel. Hum. (%) | 35 |
| Power Setting | 20 | Press. (mBars) | 1004 |
| Antenna | external ant | | |
| Test Notes 1 | | | |
| Test Notes 2 | POE 110Vac 60 Hz | | |



Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---------------|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 49.816 | 61.1 | 3.7 | -23.1 | 41.7 | Quasi Max | V | 139 | 184 | 50.5 | -8.8 | Pass | |
| 30.001 | 41.5 | 3.5 | -9.7 | 35.3 | Quasi Max | V | 132 | 201 | 50.5 | -15.2 | Pass | |
| 299.982 | 59.9 | 5.1 | -17.2 | 47.8 | Quasi Max | H | 103 | 29 | 57.5 | -9.7 | Pass | |
| 274.980 | 58.8 | 5.0 | -17.4 | 46.4 | Quasi Max | H | 101 | 3 | 57.5 | -11.1 | Pass | |
| 374.979 | 50.6 | 5.4 | -15.4 | 40.6 | Quasi Max | H | 212 | 3 | 57.5 | -16.9 | Pass | |
| 409.043 | 42.9 | 5.5 | -14.5 | 33.9 | Quasi Max | H | 223 | 178 | 57.5 | -23.6 | Pass | |

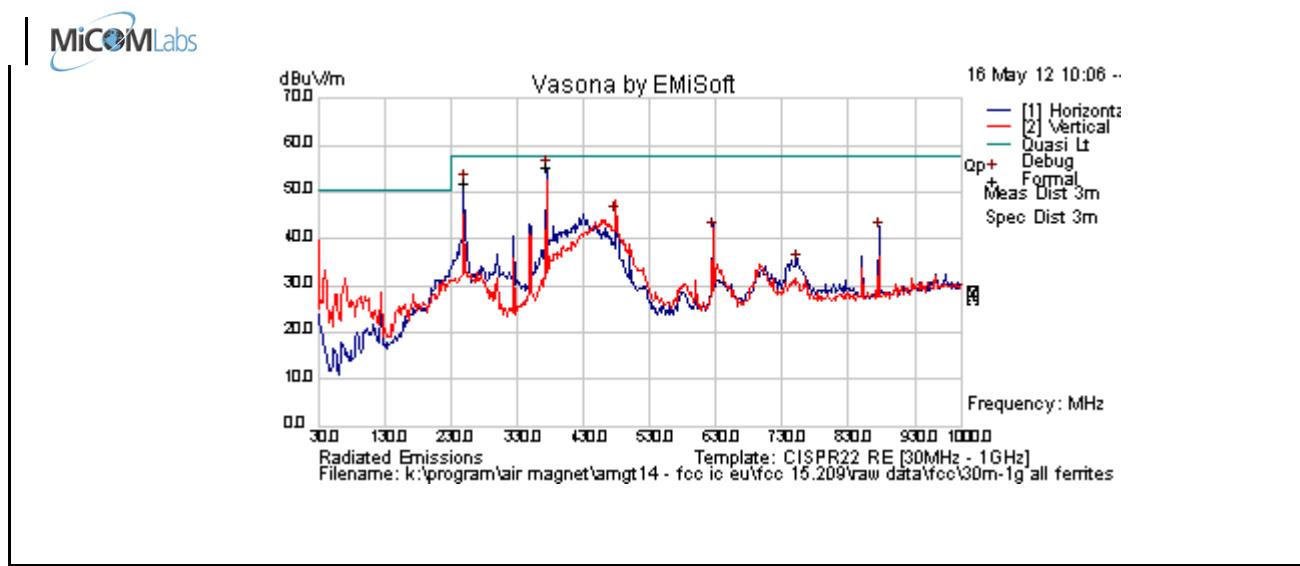
Legend: DIG = Digital Device Emission; TX = Transmitter Emission; FUND = Fundamental Frequency

NRB = Non-Restricted Band, Limit is 20 dB below Fundamental; RB = Restricted Band

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

Ferrites removed from antenna cables

| | | | |
|---------------|---|----------------|------|
| Test Freq. | 2437 MHz | Engineer | SB |
| Variant | Digital Emissions | Temp (°C) | 19.5 |
| Freq. Range | 30 MHz - 1000 MHz | Rel. Hum. (%) | 35 |
| Power Setting | 20 | Press. (mBars) | 1004 |
| Antenna | external ant | | |
| Test Notes 1 | All ferrites removed except for one which is located on the cable to the dedicated RX Ant | | |
| Test Notes 2 | ac/dc adaptor 110Vac 60 Hz | | |



Formally measured emission peaks

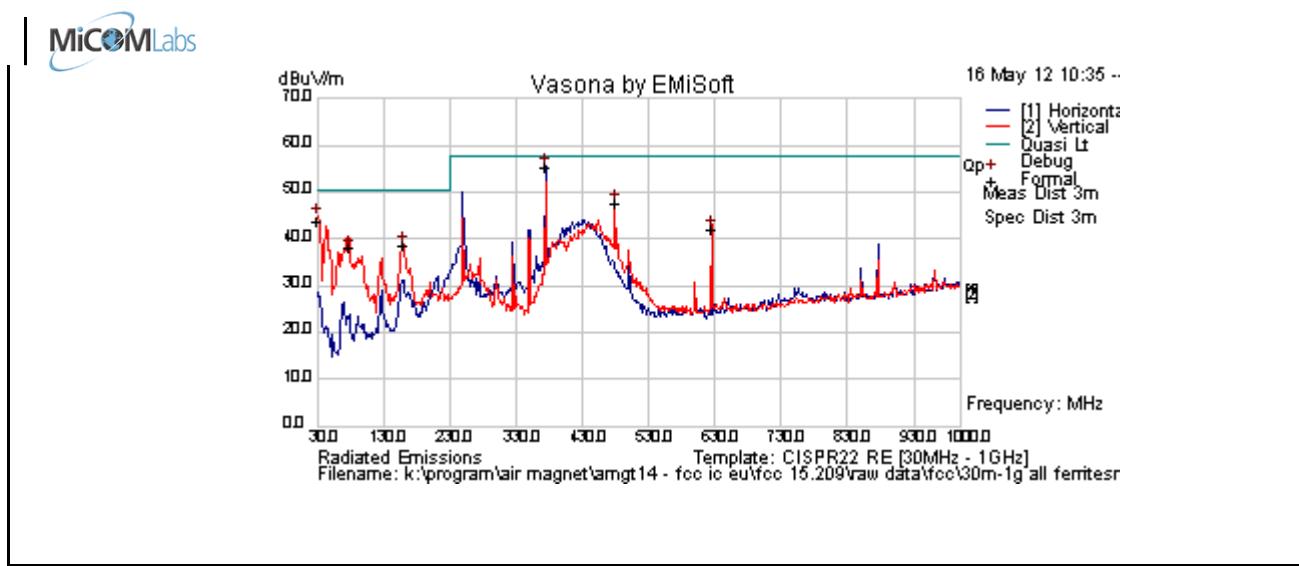
| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---------------|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 375.018 | 65.2 | 5.4 | -15.4 | 55.2 | Quasi Max | H | 208 | 12 | 57.5 | -2.3 | Pass | |
| 249.993 | 66.2 | 4.9 | -19.0 | 52.0 | Quasi Max | H | 122 | 178 | 57.5 | -5.5 | Pass | |
| 478.140 | 52.3 | 5.8 | -12.9 | 45.2 | Peak [Scan] | H | 122 | 178 | 57.5 | -12.3 | Pass | |
| 624.888 | 46.4 | 6.3 | -11.0 | 41.8 | Peak [Scan] | H | 122 | 178 | 57.5 | -15.8 | Pass | |
| 753.135 | 37.5 | 6.7 | -9.4 | 34.8 | Peak [Scan] | H | 122 | 178 | 57.5 | -22.7 | Pass | |
| 875.483 | 42.8 | 7.1 | -8.1 | 41.8 | Peak [Scan] | H | 122 | 178 | 57.5 | -15.7 | Pass | |

Legend: DIG = Digital Device Emission; TX = Transmitter Emission; FUND = Fundamental Frequency
 NRB = Non-Restricted Band, Limit is 20 dB below Fundamental; RB = Restricted Band

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

Ferrites removed from antenna cables

| | | | |
|---------------|---|----------------|------|
| Test Freq. | 2437 MHz | Engineer | SB |
| Variant | Digital Emissions | Temp (°C) | 19.5 |
| Freq. Range | 30 MHz - 1000 MHz | Rel. Hum. (%) | 35 |
| Power Setting | 20 | Press. (mBars) | 1004 |
| Antenna | external ant | | |
| Test Notes 1 | All ferrites removed except for one which is located on the cable to the dedicated RX Ant | | |
| Test Notes 2 | POE 110Vac 60 Hz | | |



Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---------------|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 375.006 | 65.2 | 5.4 | -15.4 | 55.3 | Quasi Max | H | 98 | 212 | 57.5 | -2.2 | Pass | |
| 30.628 | 50.6 | 3.5 | -10.3 | 43.8 | Quasi Max | V | 98 | 360 | 50.5 | -6.7 | Pass | |
| 479.055 | 54.5 | 5.8 | -12.9 | 47.5 | Peak [Scan] | V | 98 | 0 | 57.5 | -10.1 | Pass | |
| 624.709 | 46.6 | 6.3 | -11.0 | 41.9 | Peak [Scan] | V | 98 | 0 | 57.5 | -15.6 | Pass | |
| 79.470 | 57.6 | 3.9 | -23.5 | 38.0 | Peak [Scan] | V | 98 | 0 | 50.5 | -12.5 | Pass | |
| 160.950 | 53.0 | 4.4 | -18.8 | 38.6 | Peak [Scan] | V | 98 | 0 | 50.5 | -11.9 | Pass | |

Legend: DIG = Digital Device Emission; TX = Transmitter Emission; FUND = Fundamental Frequency

NRB = Non-Restricted Band, Limit is 20 dB below Fundamental; RB = Restricted Band

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

Specification

Limits

§15.205 (a) Except as shown in paragraph (d) of 15.205 (a), only spurious emissions are permitted in any of the frequency bands listed.

§15.205 (a) Except as shown in paragraphs (d) and (e) of this section, the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

§15.209 (a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table.

§15.209 (a) and RSS-Gen §2.2 Limit Matrix

| Frequency(MHz) | Field Strength (μ V/m) | Field Strength (dB μ V/m) | Measurement Distance (meters) |
|----------------|--------------------------------|----------------------------------|----------------------------------|
| 30-88 | 100 | 40.0 | 3 |
| 88-216 | 150 | 43.5 | 3 |
| 216-960 | 200 | 46.0 | 3 |
| Above 960 | 500 | 54.0 | 3 |

Laboratory Measurement Uncertainty for Radiated Emissions

| | |
|-------------------------|---------------|
| Measurement uncertainty | +5.6/ -4.5 dB |
|-------------------------|---------------|

Traceability

| Method | Test Equipment Used |
|---|--|
| Measurements were made per work instruction WI-03 'Measurement of Radiated Emissions' | 0088, 0158, 0134, 0304, 0311, 0315, 0310, 0312 |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

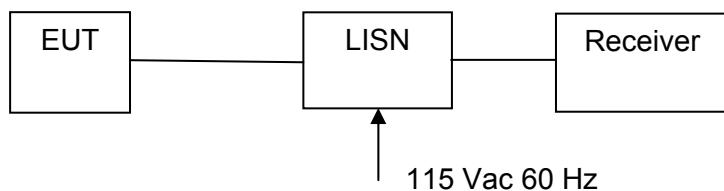
5.1.7. AC Wireline Conducted Emissions (150 kHz – 30 MHz)

FCC, Part 15 Subpart C §15.207
Industry Canada RSS-Gen §7.2.2

Test Procedure

The EUT is configured in accordance with ANSI C63.4. The conducted emissions are measured in a shielded room with a spectrum analyzer in peak hold in the first instance. Emissions closest to the limit are measured in the quasi-peak mode (QP) with the tuned receiver using a bandwidth of 9 kHz. The emissions are maximized further by cable manipulation. The highest emissions relative to the limit are listed.

Test Measurement Set up



Measurement set up for AC Wireline Conducted Emissions Test

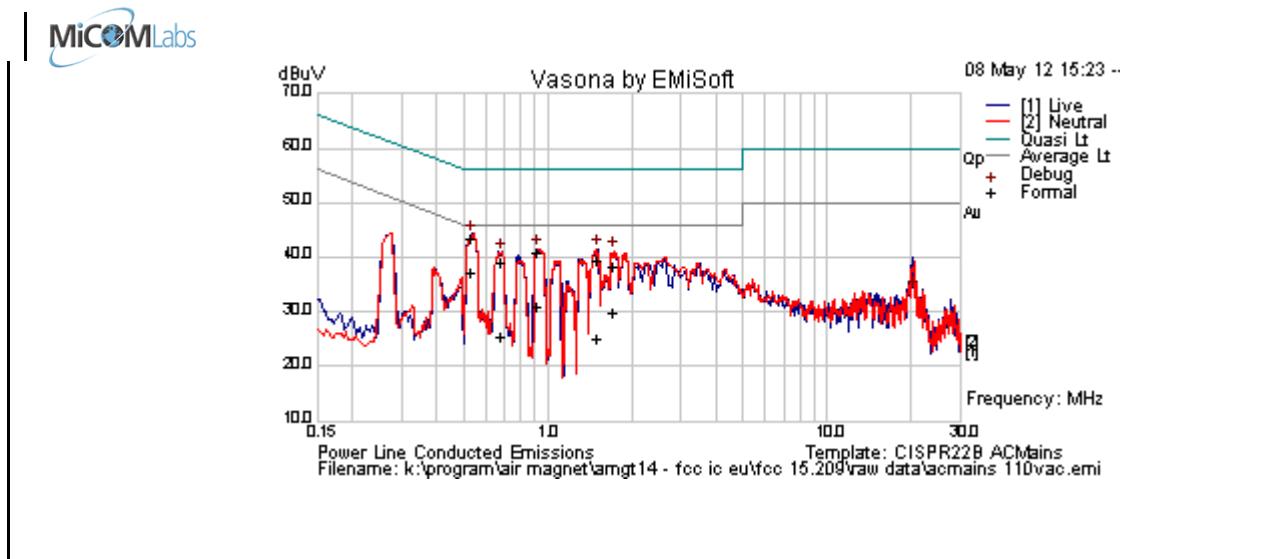
Measurement Results for AC Wireline Conducted Emissions (150 kHz – 30 MHz)

Ambient conditions.

Temperature: 17 to 23 °C Relative humidity: 31 to 57 % Pressure: 999 to 1012 mbar

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

| | | | |
|----------------------|-------------------------|-----------------------|------|
| Test Freq. | N/A | Engineer | SB |
| Variant | AC Line Emissions | Temp (°C) | 19.5 |
| Freq. Range | 0.150 MHz - 30 MHz | Rel. Hum.(%) | 35 |
| Power Setting | 20 | Press. (mBars) | 1004 |
| Antenna | N/A | | |
| Test Notes 1 | | | |
| Test Notes 2 | Ac adaptor 110Vac 60 Hz | | |



Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | Factors dB | Level dBuV | Measurement Type | Line | Limit dBuV | Margin dB | Pass /Fail | Comments |
|---------------|----------|------------|------------|------------|------------------|---------|------------|-----------|------------|----------|
| 0.535 | 33.4 | 9.9 | 0.1 | 43.4 | Quasi Peak | Neutral | 56 | -12.6 | Pass | |
| 1.502 | 29.4 | 10.0 | 0.1 | 39.5 | Quasi Peak | Neutral | 56 | -16.5 | Pass | |
| 0.926 | 30.8 | 9.9 | 0.1 | 40.8 | Quasi Peak | Neutral | 56 | -15.2 | Pass | |
| 1.734 | 28.4 | 10.0 | 0.1 | 38.5 | Quasi Peak | Neutral | 56 | -17.5 | Pass | |
| 0.686 | 29.2 | 10.0 | 0.1 | 39.2 | Quasi Peak | Neutral | 56 | -16.8 | Pass | |
| 0.535 | 27.2 | 9.9 | 0.1 | 37.2 | Average | Neutral | 46 | -8.8 | Pass | |
| 1.502 | 14.9 | 10.0 | 0.1 | 25.0 | Average | Neutral | 46 | -21.0 | Pass | |
| 0.926 | 20.9 | 9.9 | 0.1 | 30.9 | Average | Neutral | 46 | -15.1 | Pass | |
| 1.734 | 19.9 | 10.0 | 0.1 | 30.1 | Average | Neutral | 46 | -16.0 | Pass | |
| 0.686 | 15.6 | 10.0 | 0.1 | 25.6 | Average | Neutral | 46 | -20.4 | Pass | |
| 20.594 | 22.7 | 10.5 | 0.8 | 34.0 | Peak [Scan] | Neutral | 50 | -16.0 | Pass | |

Legend: DIG = Digital Device Emission; TX = Transmitter Emission; FUND = Fundamental Frequency
 NRB = Non-Restricted Band, Limit is 20 dB below Fundamental; RB = Restricted Band

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

Specification

Limit

§15.207 (a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (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 the limits in the following table, as measured using a 50 $\mu\Omega$ line impedance stabilization network (LISN), see §15.207 (a) matrix below. Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal.

RSS-Gen §7.2.2

The radio frequency voltage that is conducted back into the AC power lines in the frequency range of 0.15 MHz to 30 MHz shall not exceed the limits shown in the table below. The tighter limit applies at the frequency range boundaries.

§15.207 (a) and RSS-Gen §7.2.2 Limit Matrix

The lower limit applies at the boundary between frequency ranges

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

* Decreases with the logarithm of the frequency

Laboratory Measurement Uncertainty for Conducted Emissions

| | |
|-------------------------|---------------|
| Measurement uncertainty | ± 2.64 dB |
|-------------------------|---------------|

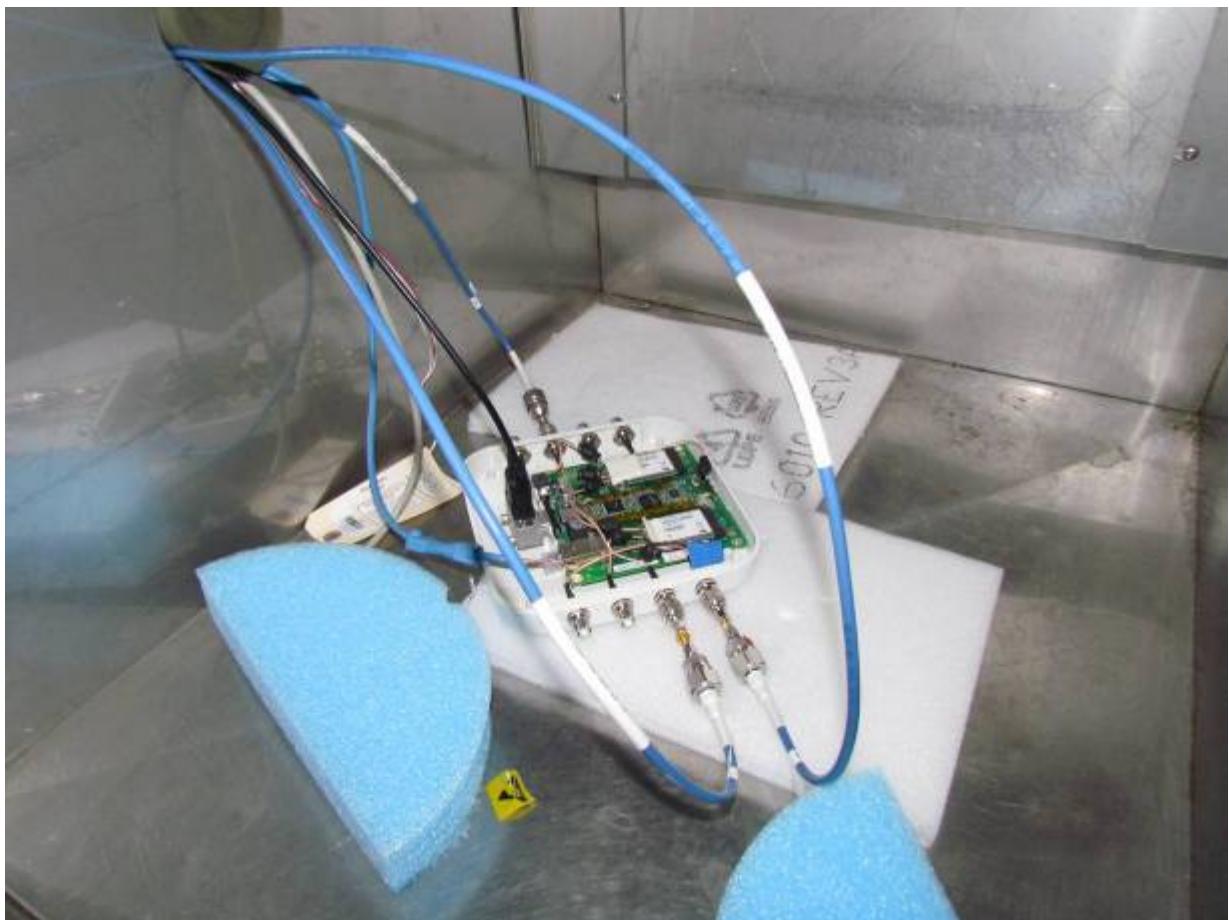
Traceability

| Method | Test Equipment Used |
|--|------------------------------------|
| Measurements were made per work instruction WI-EMC-01 'Measurement of Conducted Emissions' | 0158, 0184, 0287, 0190, 0293, 0307 |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

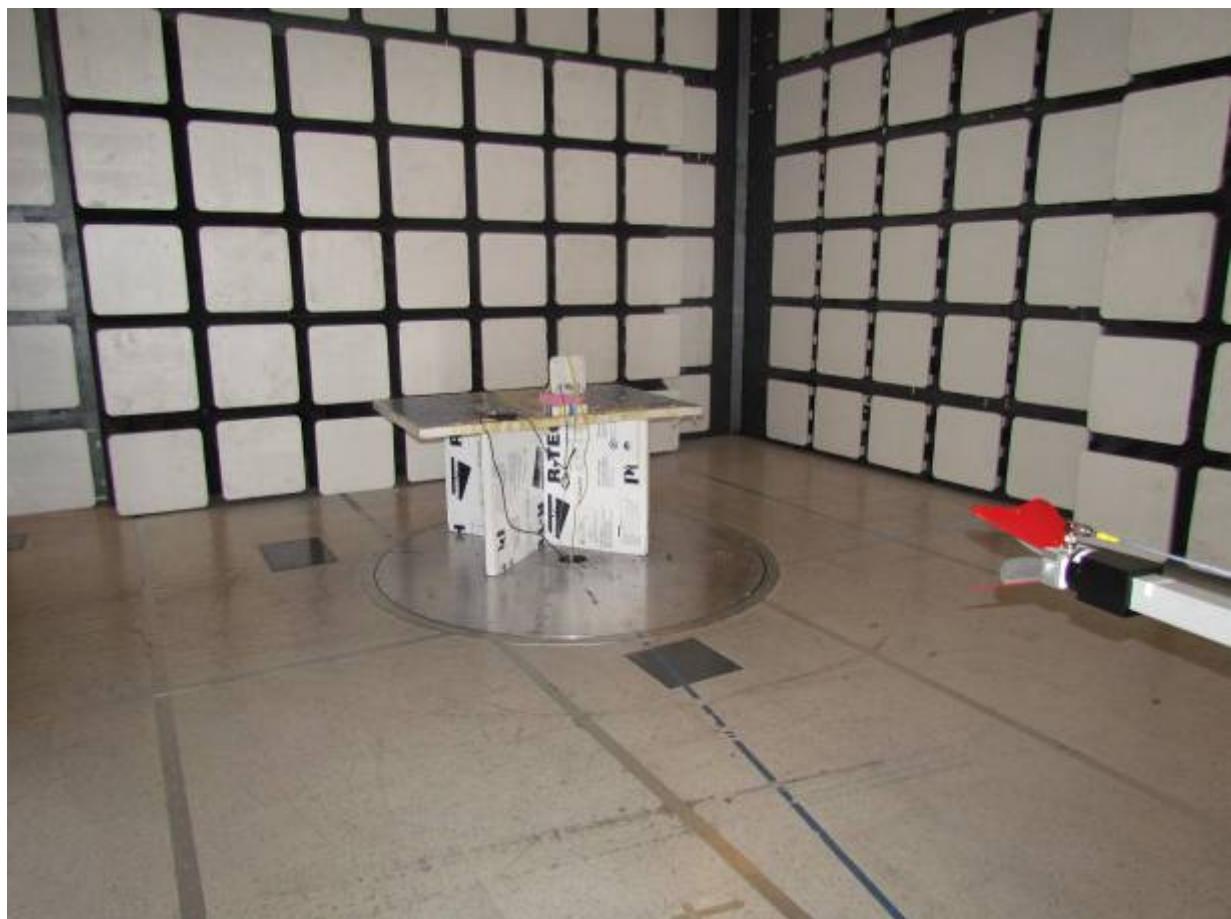
6. PHOTOGRAPHS

6.1. Conducted Test Setup



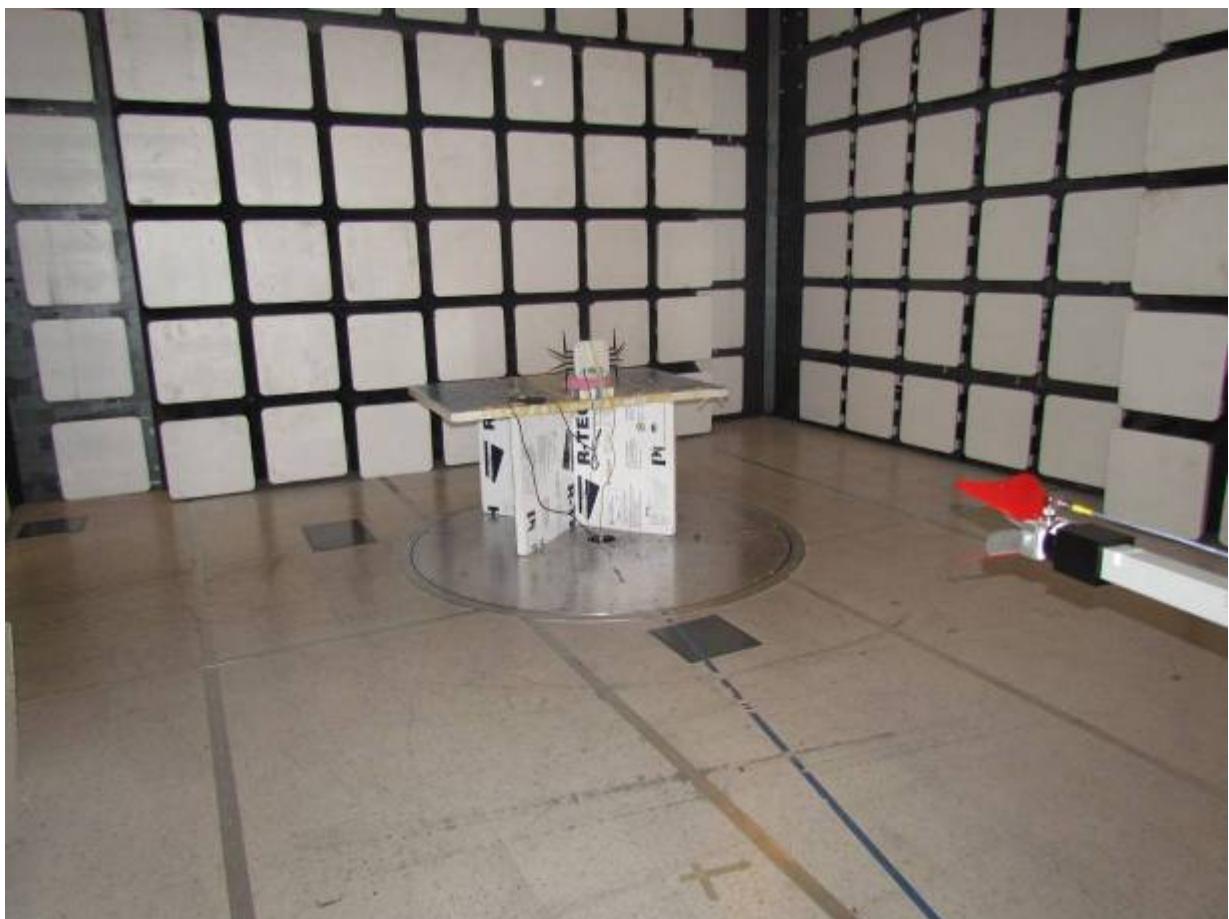
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

6.2. Radiated Test Setup > 1 GHz (Integral Antenna)



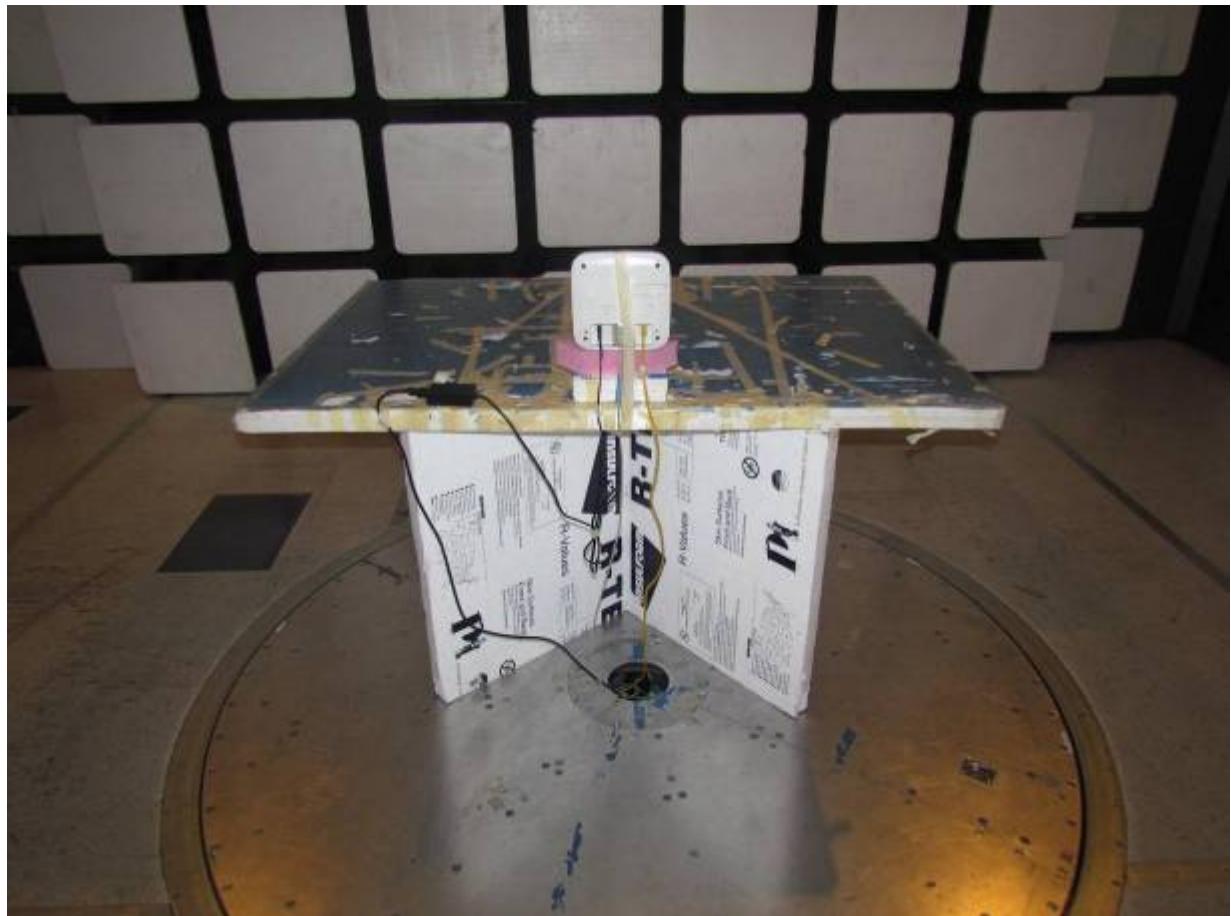
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

6.3. Radiated Test Setup > 1 GHz (External Antenna)



This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

6.4. Radiated Test Table-top Setup (Integral Antenna)



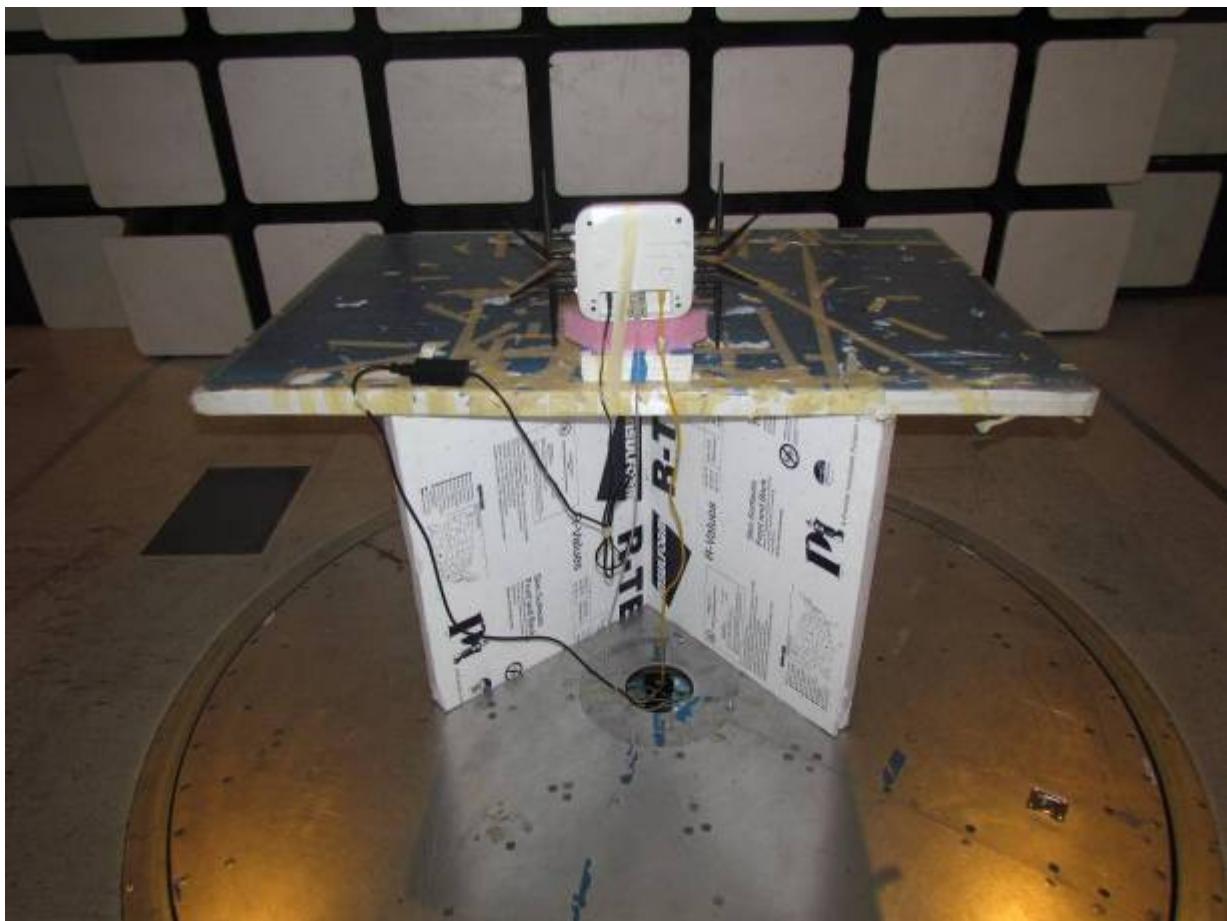
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

6.5. Radiated Test Setup < 1 GHz (External Antenna)



This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

6.6. Radiated Test Table-top Setup (External Antenna)



This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

6.7. ac Wireline Emissions



This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

7. TEST EQUIPMENT DETAILS

| Asset # | Instrument | Manufacturer | Part # | Serial # |
|---------|------------------------|------------------|-----------------------|-------------|
| 0088 | Spectrum Analyzer | Hewlett Packard | 8564E | 3410A00141 |
| 0134 | Amplifier | Com Power | PA 122 | 181910 |
| 0158 | Barometer /Thermometer | Control Co. | 4196 | E2846 |
| 0287 | EMI Receiver | Rhode & Schwartz | ESIB 40 | 100201 |
| 0252 | SMA Cable | Megaphase | Sucoflex 104 | None |
| 0310 | 2m SMA Cable | Micro-Coax | UFA210A-0-0787-3G03G0 | 209089-001 |
| 0312 | 3m SMA Cable | Micro-Coax | UFA210A-1-1181-3G0300 | 209092-001 |
| 0313 | Coupler | Hewlett Packard | 86205A | 3140A01285 |
| 0314 | 30dB N-Type Attenuator | ARRA | N9444-30 | 1623 |
| 0070 | Power Meter | Hewlett Packard | 437B | 3125U11552 |
| 0116 | Power Sensor | Hewlett Packard | 8485A | 3318A19694 |
| 0117 | Power Sensor | Hewlett Packard | 8487D | 3318A00371 |
| 0184 | Pulse Limiter | Rhode & Schwartz | ESH3Z2 | 357.8810.52 |
| 0190 | LISN | Rhode & Schwartz | ESH3Z5 | 836679/006 |
| 0293 | BNC Cable | Megaphase | 1689 1GVT4 | 15F50B001 |
| 0301 | 5.6 GHz Notch Filter | Micro-Tronics | RBC50704 | 001 |
| 0302 | 5.25 GHz Notch Filter | Micro-Tronics | BRC50703 | 002 |
| 0303 | 5.8 GHz Notch Filter | Micro-Tronics | BRC50705 | 003 |
| 0304 | 2.4GHzHz Notch Filter | Micro-Tronics | -- | 001 |
| 0307 | BNC Cable | Megaphase | 1689 1GVT4 | 15F50B002 |
| 0335 | 1-18GHz Horn Antenna | ETS- Lindgren | 3117 | 00066580 |
| 0337 | Amplifier | MiCOM Labs | -- | -- |
| 0338 | Antenna | Sunol Sciences | JB-3 | A052907 |

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.



440 Boulder Court, Suite 200
Pleasanton, CA 94566, USA

Tel: 1.925.462.0304

Fax: 1.925.462.0306

www.micomlabs.com