# RADIO TEST REPORT

## Test Report No.: 32KE0045-SH-04-B

| | | |
|---|---|---|
| **Applicant** | : | **RICOH COMPANY, LTD.** |
| **Type of Equipment** | : | **Wireless LAN Module** |
| **Model No.** | : | **LBWB1ZZWU6** |
| **FCC ID** | : | **BBP-WLALT01** |
| **Test regulation** | : | **FCC Part15 Subpart E: 2012** |
| **Test result** | : | **Complied** |

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2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the limits of the above regulation.
4. The test results in this test report are traceable to the national or international standards.
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6. The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan has been accredited.

**Date of test:** July 30 to August 19, 2012

**Tested by:**

Tatsuya Arai
Engineer of WiSE Japan,
UL Verification Service

**Approved by :**

Toyokazu Imamura
Leader of WiSE Japan,
UL Verification Service

☐ The testing in which "Non-accreditation" is displayed is outside the accreditation scopes in UL Japan.
☒ There is no testing item of "Non-accreditation".

JAB Testing RTL02610

**UL Japan, Inc.**
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## Contents

# REVISION HISTORY

## Original Test Report No.: 32KE0045-SH-04-B

| Revision | Test report No. | Date | Page revised | Contents |
|---|---|---|---|---|
| - (Original) | 32KE0045-SH-04-B | September 13, 2012 | - | - |
| 1 | 32KE0045-SH-04-B | September 21, 2012 | P11 | Addition: method of average detection above1GHz |
| | | | P66 | Correction: clerical error in the table of Outside of the restricted band |
| | | | P153 - 158 | Correction: clerical error in the table |

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# SECTION 1: Customer information

| | | |
|---|---|---|
| Company Name | : | RICOH COMPANY, LTD. |
| Address | : | 810, Shimo-imaizumi, Ebina-shi, Kanagawa, 243-0460 Japan |
| Telephone Number | : | +81-46-249-8490 |
| Facsimile Number | : | +81-3-6673-4366 |
| Contact Person | : | Yoshiaki Nishikawa |

# SECTION 2: Equipment under test (E.U.T.)

## 2.1 Identification of E.U.T.

| | | |
|---|---|---|
| Type of Equipment | : | Wireless LAN Module |
| Model Number | : | LBWB1ZZWU6 |
| Serial Number | : | 1 |
| Rating | : | DC 3.6V |
| Country of Mass-production | : | China |
| Condition of EUT | : | Production prototype<br>(Not for Sale: This sample is equivalent to mass-produced items.) |
| Receipt Date of Sample | : | July 30, 2012 |
| Modification of EUT | : | No modification by the test lab. |

## 2.2 Product description

Model: LBWB1ZZWU6 (referred to as the EUT in this report) is a Wireless LAN Module.

Clock frequency(ies) in the system : 37.4MHz

<Radio part>

| | | | |
|---|---|---|---|
| Equipment type | : | Transceiver | |
| Frequency of operation *1) | : | 2.4GHz: | 2412-2462MHz (IEEE 802.11b, 11g, 11n-HT20) |
| | | W52: | 5180-5240MHz (IEEE 802.11a, 11n-HT20) |
| | | | 5190-5230MHz (IEEE 802.11n-HT40) |
| | | W53: | 5260-5320MHz (IEEE 802.11a, 11n-HT20) |
| | | | 5270-5310MHz (IEEE 802.11n-HT40) |
| | | W56: | 5500-5700MHz (IEEE 802.11a, 11n-HT20) |
| | | | 5510-5670MHz (except 5600-5650MHz) (IEEE 802.11n-HT40) |
| | | W58: | 5745-5825MHz (IEEE 802.11a, 11n-HT20) |
| | | | 5755-5795MHz (IEEE 802.11n-HT40) |
| Bandwidth | : | 20MHz | |
| Channel spacing | : | 5MHz (2.4GHz), 20MHz (5GHz) | |
| Type of modulation | : | DSSS (IEEE 802.11b), OFDM (IEEE 802.11a/g/n) | |
| Antenna type | : | Chip dielectric | |
| Antenna connector type | : | JSC | |
| Antenna gain with cable loss | : | 2.4GHz: -0.5 dBi | |
| | | W52/53: -0.3dBi, W56: -1.2dBi, W58: -1.7dBi | |
| ITU code | : | D1D, G1D | |
| Operation temperature range | : | 0 to +80 deg.C | |

*1) Refer to the test report 32KE0045-SH-04-A for FCC 15.247.

FCC 15.31 (e) / 212
The host device provides stable voltage (DC3.6V) constantly to the EUT regardless of input voltage. Therefore, the EUT complies with the requirement.

FCC 15.203 / 212
The EUT has a unique coupling/antenna connector. Therefore the equipment complies with the requirement.

# SECTION 3: Test specification, procedures & results

## 3.1 Test specification

Test specification : FCC Part 15 Subpart E: 2012, final revised on August 13, 2012 and effective September 12, 2012
Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators
Section 15.207 Conducted limits
Section 15.209 Radiated emission limits, general requirements
Section 15.407 General technical requirements

* The revision on August 13, 2012 does not affect the test specification applied to the EUT.

## 3.2 Procedures & Results

| Item | Test Procedure *1) | Specification | Remarks | Deviation | Worst Margin | Results |
|---|---|---|---|---|---|---|
| Conducted emission | ANSI C63.4:2009 7. AC powerline conducted emission measurements | FCC 15.407 (b)(6) & 15.207 | - | N/A | 5.0dB<br>Freq.: 0.15200MHz<br>Detector: Quasi-Peak<br>Phase: N<br>Mode: Tx 5270MHz, IEEE 802.11n (40HT)<br>Freq.: 0.15200MHz<br>Detector: Quasi-Peak<br>Phase: N<br>Mode: Tx 5670MHz, IEEE 802.11n (40HT) | Complied |
| 26dB & 20dB emission bandwidth | ANSI C63.4:2009 13. Measurement of intentional radiators | FCC 15.407 (a)(1)(2)(3) FCC 15.215 (c) | Conducted | N/A | See data | - |
| Maximum peak output power | ANSI C63.4:2009 13. Measurement of intentional radiators | FCC 15.407 (a)(1)(2)(3) | Conducted | N/A | | Complied |
| Peak power spectral density | ANSI C63.4:2009 13. Measurement of intentional radiators | FCC 15.407 (a)(1)(2)(3) | Conducted | N/A | | Complied |
| Peak excursion ratio | ANSI C63.4:2009 13. Measurement of intentional radiators | FCC 15.407 (a)(6) | Conducted | N/A | | Complied |
| Spurious emission & Restricted band edges | ANSI C63.4:2009 13. Measurement of intentional radiators | FCC 15.109, 15.407 (b), 15.205 & 15.209 | Conducted / Radiated | N/A | 1.8dB<br>Freq.: 7346.661MHz<br>Detector: Average<br>Polarization: Horizontal<br>Mode: Tx 5510MHz, IEEE 802.11n (40HT) | Complied |
| Dynamic frequency selection | FCC 06-96 APPENDIX | FCC 15.407 (h) | Conducted | *2) | N/A | N/A |

*1) *These tests were also referred to KDB 789033 (FCC), "Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E".
*2) Refer to the test report 32KE0045-SH-04-C.
Note: UL Japan's Work Procedures No. 13-EM-W0420 and 13-EM-W0422

### 3.3 Addition to standard

| Item | Test Procedure | Specification | Remarks | Worst Margin | Results |
|---|---|---|---|---|---|
| Occupied Bandwidth (99%) | ANSI C63.4:2009 13. Measurement of intentional radiators, RSS-Gen 4.6.1 | - | Conducted | - | - |
| Note: UL Japan's Work Procedures No. 13-EM-W0420 and 13-EM-W0422 | | | | | |

* Other than above, no addition, exclusion nor deviation has been made from the standard.

### 3.4 Uncertainty

The following uncertainties have been calculated to provide a confidence level of 95% using a coverage factor k=2.

| Item | Frequency range | No.1 SAC*1/SR*2 (±) | No.2 SAC/SR (±) | No.3 SAC/SR (±) |
|---|---|---|---|---|
| **Conducted emission (AC Mains) LISN** | 150kHz-30MHz | 3.6 dB | 3.6 dB | 3.5 dB |
| **Radiated emission (Measurement distance: 3m)** | 9kHz-30MHz | 3.7 dB | 3.7 dB | 3.6 dB |
| | 30MHz-300MHz | 4.9 dB | 5.1 dB | 4.9 dB |
| | 300MHz-1GHz | 5.0 dB | 5.2 dB | 4.9 dB |
| | 1GHz-15GHz | 4.8 dB | 4.8 dB | 4.9 dB |
| **Radiated emission (Measurement distance: 1m)** | 15GHz-18GHz | 5.6 dB | 5.6 dB | 5.6 dB |
| | 18GHz-40GHz | 4.6 dB | 4.3 dB | 4.4 dB |

*1: SAC=Semi-Anechoic Chamber
*2: SR= Shielded Room is applied besides radiated emission

**Conducted emission test**

The data listed in this test report has enough margin, more than the site margin.

**Radiated emission test**

The data listed in this test report meets the limits unless the uncertainty is taken into consideration.

**Antenna port conducted test**

Power measurement uncertainty above 1GHz for this test was: (±) 1.5dB
Spurious emission (Conducted) measurement (below 1GHz) uncertainty for this test was: (±) 1.7dB
Spurious emission (Conducted) measurement (1G-3GHz) uncertainty for this test was: (±) 2.3dB
Spurious emission (Conducted) measurement (3G-18GHz) uncertainty for this test was: (±) 3.0dB
Spurious emission (Conducted) measurement (18G-26.5GHz) uncertainty for this test was: (±) 2.9dB
Spurious emission (Conducted) measurement (26.5G-50GHz) uncertainty for this test was: (±) 2.8dB
Bandwidth measurement uncertainty for this test was: (±) 5.4%

### 3.5 Test location

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JAB Accreditation No. : RTL02610

| | FCC Registration No. | IC Registration No. | Width x Depth x Height (m) | Size of reference ground plane (m) / horizontal conducting plane | Maximum measurement distance |
|---|---|---|---|---|---|
| ☐ No.1 semi-anechoic chamber | 697847 | 2973D-1 | 20.6 x 11.3 x 7.65 | 20.6 x 11.3 | 10m |
| ☐ No.2 semi-anechoic chamber | 697847 | 2973D-2 | 20.6 x 11.3 x 7.65 | 20.6 x 11.3 | 10m |
| ☒ No.3 semi-anechoic chamber | 697847 | 2973D-3 | 12.7 x 7.7 x 5.35 | 12.7 x 7.7 | 5m |
| ☐ No.4 semi-anechoic chamber | - | - | 8.1 x 5.1 x 3.55 | 8.1 x 5.1 | - |
| ☐ No.1 shielded room | - | - | 6.8 x 4.1 x 2.7 | 6.8 x 4.1 | - |
| ☐ No.2 shielded room | - | - | 6.8 x 4.1 x 2.7 | 6.8 x 4.1 | - |
| ☒ No.3 shielded room | - | - | 6.3 x 4.7 x 2.7 | 6.3 x 4.7 | - |
| ☐ No.4 shielded room | - | - | 4.4 x 4.7 x 2.7 | 4.4 x 4.7 | - |
| ☒ No.5 shielded room | - | - | 7.8 x 6.4 x 2.7 | 7.8 x 6.4 | - |
| ☐ No.6 shielded room | - | - | 7.8 x 6.4 x 2.7 | 7.8 x 6.4 | - |

### 3.6 Test setup, Data of EMI & Test instruments

Refer to APPENDIX 3 to 3.

# SECTION 4: Operation of E.U.T. during testing

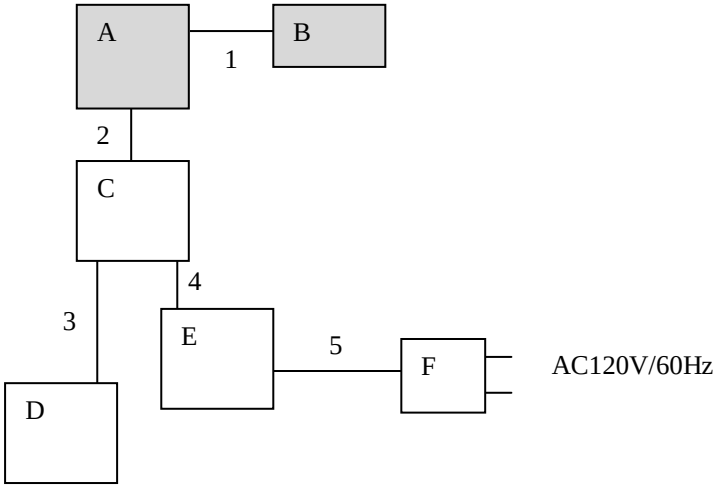
## 4.1 Operating mode

| Test item | Mode | Tested frequency | Power setting *1) | Worst data rate *2) |
|---|---|---|---|---|
| Conducted emission<br>Radiated emission (below 1GHz) *3) | Transmitting IEEE 802.11n-40 | 5270MHz | 13dBm | MCS0, PN9 |
| | Transmitting IEEE 802.11n-40 | 5670MHz | 13dBm | MCS0, PN9 |
| Other items | Transmitting IEEE 802.11a | 5180MHz, 5220MHz, 5240MHz | 13dBm | 6Mbps, PN9 |
| | | 5260MHz, 5300MHz, 5320MHz | | |
| | | 5500MHz, 5580MHz, 5700MHz | | |
| | Transmitting IEEE 802.11n-20 | 5180MHz, 5220MHz, 5240MHz | 13dBm | MCS0, PN9 |
| | | 5260MHz, 5300MHz, 5320MHz | | |
| | | 5500MHz, 5580MHz, 5700MHz | | |
| | Transmitting IEEE 802.11n-40 | 5190MHz, 5230MHz | 13dBm | MCS0, PN9 |
| | | 5270MHz, 5310MHz | | |
| | | 5510MHz, 5550MHz, 5670MHz | | |

*1) Software: Tera Term ver: 4.71, Wl.exe ver:1.0
*2) The worst condition was determined based on the test result of Maximum Peak Output Power.
*3) Test operating mode was determined as follows according to "Section 1 of 6 802.11 a/b/g/n testing- Managing Complex Regulatory Approvals - "of TCB Council Workshop October 2009.

**Justification:** The system was configured in typical fashion (as customer would normally use it) for testing.

### 4.2 Configuration and peripherals




* Test data was taken under worse case conditions.

**Description of EUT and support equipment**

| No. | Item | Model number | Serial number | Manufacturer | Remarks |
|---|---|---|---|---|---|
| A | Wireless LAN Module | LBWB1ZZWU6 | 1 | RICOH | EUT |
| B | Antenna | ANCM22G44DAA179RB4 | - | RICOH | EUT |
| C | Network Board | NETWORK: ALT-1 | #59 | RICOH | - |
| D | Power Supply Board | EXCHANGE: NW | #13 | RICOH | - |
| E | Debug Board | SOL_NW: DBG | #44 | RICOH | - |
| F | AC Adapter | US112-3312 | 807-0357371 | BUFFALO | - |

**List of cables used**

| No. | Cable Name | Length (m) | Shield | | Remark |
|---|---|---|---|---|---|
| | | | Cable | Connector | |
| 1 | Antenna | 0.05 | Shielded | Shielded | - |
| 2 | Flat | 0.10 | Unshielded | Unshielded | - |
| 3 | Flat | 0.15 | Unshielded | Unshielded | - |
| 4 | Flat | 0.05 | Unshielded | Unshielded | - |
| 5 | DC | 1.8 | Unshielded | Unshielded | |

# SECTION 5: Conducted emission

## 5.1 Operating environment

Test place : See test data (APPENDIX 1)
Temperature : See test data (APPENDIX 1)
Humidity : See test data (APPENDIX 1)

## 5.2 Test configuration

EUT was placed on a platform of nominal size, 1m by 1.5m, raised 0.8m above the conducting ground plane.
The table is made of Styrofoam and covered with polyvinyl chloride. That has very low permittivity.
The rear of tabletop was located 40cm to the vertical conducting plane. The rear of EUT, including peripherals was aligned and was flushed with rear of tabletop. All other surfaces of tabletop were at least 80cm from any other grounded conducting surface. EUT was located 80cm from LISN.
Each EUT current-carrying power lead, except the ground (safety) lead, was individually connected through a LISN to the input power source. All unused 50ohm connectors of the LISN were resistively terminated in 50ohm when not connected to the measuring equipment.
Photographs of the set up are shown in APPENDIX 3.

## 5.3 Test conditions

Frequency range : 0.15 - 30MHz
EUT position : Table top

## 5.4 Test procedure

The AC Mains Terminal Continuous disturbance Voltage had been measured with the EUT via AC adapter within a Shielded room. The EUT was connected to a Line Impedance Stabilization Network (LISN) via AC adapter.
An overview sweep with peak detection has been performed.
The measurements had been performed with a quasi-peak detector and if required, an average detector.
The conducted emission measurements were made with the following detection of the test receiver.

Detection Type : Quasi-Peak/ Average
IF Bandwidth : 9kHz

## 5.5 Results

Summary of the test results : Pass
Refer to APPENDIX 1

# SECTION 6: Radiated emission

## 6.1 Operating environment

Test place : See test data (APPENDIX 1)
Temperature : See test data (APPENDIX 1)
Humidity : See test data (APPENDIX 1)

## 6.2 Test configuration

EUT was placed on a urethane platform of nominal size, 0.5m by 0.5m, raised 0.8m above the conducting ground plane. The rear of EUT was aligned and flushed with rear of tabletop.
Photographs of the set up are shown in APPENDIX 3.

## 6.3 Test conditions

Frequency range : 30MHz - 40GHz
EUT position : Table top

## 6.4 Test procedure

The Radiated Electric Field Strength intensity has been measured on a semi-anechoic chamber with a ground plane and at a distance of 3m (below 15GHz) / 1m (above 15GHz) (Refer to Figure 1). Measurements were performed with quasi-peak, peak and average detector. The measuring antenna height was varied between 1 and 4m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity. The measurements were performed for both vertical and horizontal antenna polarization.

The radiated emission measurements were made with the following detection of the test instrument.

| Frequency | 30-1000MHz | 1-40GHz | |
|---|---|---|---|
| Detection type | Quasi-Peak | Peak | Average *1) *2) |
| IF Bandwidth | 120kHz | RBW: 1MHz<br>VBW: 3MHz | RBW: 1MHz<br>VBW: 3MHz<br>Detector: RMS |

*1) When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.
*2) The test method was referred to Section G)6)c) Method AD (Average Detection) of FCC KDB 789033 D01 "Guidelines for Compliance Testing of unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E"

Detector and averaging type set for linear voltage averaging.

Below 1GHz
The result also satisfied with the general limits specified in FCC 15.209 (a).

Above 1GHz
Inside of restricted bands (FCC 15.205): Limit in FCC 15.209 (a)
Outside of the restricted bands: Limit 68.2dBuV/m (-27dBm e.i.r.p.*) in FCC 15.407(b)(1)(2)(3)

Restricted band edge: Limit in FCC 15.209(a)
Since this limit is severer than the limit of the inside of restricted bands.

*Electric Field Strength to e.i.r.p. conversion
P [dBm] = E [dBuV/m] -95.2 [dB]
P [dBm] = 10 x LOG ( ({ 10 ^ ( E [dBuV/m] / 20 ) * 10 ^ (-6) * (Distance = 3[m]) ) ^ 2 } / 30) x 10^3) (uV/m):
P is the e.i.r.p. (Watts)

* Distance Factor for the measurement at 1m: 20 x log (3.0m/1.0m) = 9.5dB

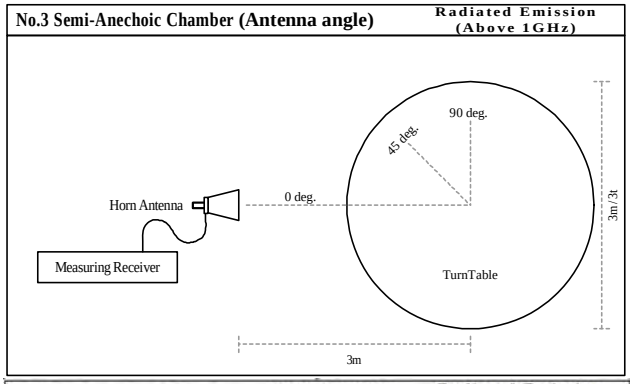
The carrier level and noise levels were confirmed at each position of X, Y and Z axes of EUT to see the position of maximum noise, and the test was made at the position that has the maximum noise.

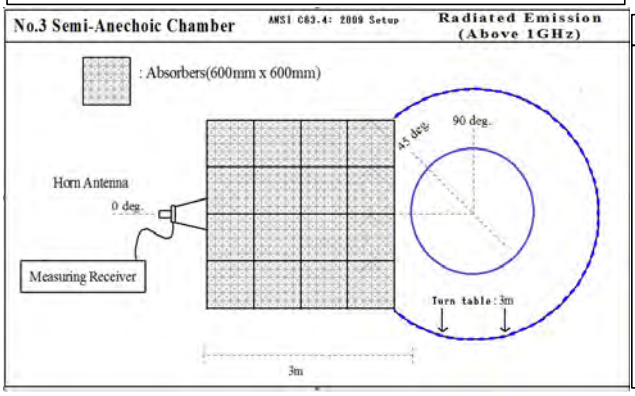
**Combinations of the worst case**
**5GHz band (W52/W53)**

| | Antenna polarization | Carrier (Band edge) | Spurious | | | |
|---|---|---|---|---|---|---|
| | | | Below 1GHz | 1-15GHz | 15-18GHz | 18-40GHz |
| Module | Horizontal | X | X | X | Y | X |
| Antenna | | X | X | X | Z | X |
| Module | Vertical | X | X | X | Z | X |
| Antenna | | Z | X | X | Y | X |

**5GHz band (W56)**

| | Antenna polarization | Carrier (Band edge) | Spurious | | | |
|---|---|---|---|---|---|---|
| | | | Below 1GHz | 1-15GHz | 15-18GHz | 18-40GHz |
| Module | Horizontal | X | X | X | Z | X |
| Antenna | | X | X | X | Z | X |
| Module | Vertical | X | X | X | Z | X |
| Antenna | | Z | X | X | Z | X |



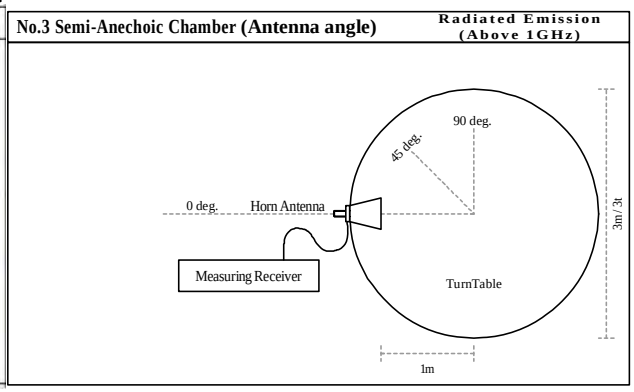




**Figure 1. Antenna angle**

## 6.5 Band edge

Band edge level at 5150MHz and 5350MHz is below the limits of FCC 15.209. Refer to the data.

## 6.6 Results

Summary of the test results : Pass
* No noise was detected above the 3rd order harmonics.

Refer to APPENDIX 1

## SECTION 7: Antenna terminal conducted tests

**Test Procedure**
The tests were made with below setting connected to the antenna port with the test instrument.

| Test | Span | RBW | VBW | Sweep time | Detector | Trace | Instrument used and Test method |
|---|---|---|---|---|---|---|---|
| 26dB bandwidth | 30MHz (11a, 11n-20)<br>60MHz (11n-40) | Close to 1% of EBW | Greater than RBW | Auto | Peak | Max Hold | Spectrum Analyzer |
| 99% occupied bandwidth | Enough width to display 20dB Bandwidth | Close to 1% of Span | Three times of RBW | Auto | Peak | Max Hold | Spectrum Analyzer |
| 20dB bandwidth | 40MHz (11a, 11n-20)<br>80MHz (11n-40) | Close to 1% of Span | Three times of RBW | Auto | Peak | Max Hold | Spectrum Analyzer |
| Maximum peak output power *1) | - | - | - | - | Average | - | Power Meter method PM |
| Peak power spectral density *2) | 26MHz (11a, 11n-20)<br>40MHz (11n-40) | 1MHz | 3MHz | Auto | Sample<br>Power Averaging (100 times) | Clear Write | Spectrum Analyzer method SA-2 |
| Peak excursion ratio | 26MHz (11a, 11n-20)<br>40MHz (11n-40) | 1MHz | 3MHz | Auto | Peak<br>Sample<br>Power Averaging (100 times) | Max Hold<br>Clear Write | Spectrum Analyzer method SA-2 |
| Conducted spurious emission *4) (below 1GHz) *3) | 9kHz to 150kHz, 150kHz to 30MHz, 30MHz to 1GHz | 100kHz | 300kHz | Auto | Peak | Max Hold | Spectrum Analyzer |
| Conducted spurious emission *4) (above 1GHz) | Less or equal to 5GHz (Range: 1GHz-40GHz) | 1MHz | 3MHz | Auto | Peak | Max Hold | Spectrum Analyzer |

*EBW: Enough width to display Bandwidth

*1) Maximum Peak Output Power was measured based on Method PM.
*2) PSD was measured based on Method SA-2 of "Guidance for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E".
*3) In the frequency range below 30MHz, RBW was narrowed to separate the noise contents.
Then, wide-band noise near the limit was checked separately, however the noise was low enough as shown in the chart (9kHz-150kHz: RBW=200Hz, 150kHz-30MHz: RBW=10kHz). Since the margin is more than about 40dB, the EUT complies with the limit of FCC15.209 if the measurement is performed with RBW=100kHz.
*4) The conducted measurement is reference data and the radiated emission measurement is the data for the compliance.

The test results and limit are rounded off to two decimals place, so some differences might be observed.

Summary of the test results : Pass

Refer to APPENDIX 1

## Contents of APPENDIXES

# DATA OF CONDUCTED EMISSION TEST

UL Japan,Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2012/08/18

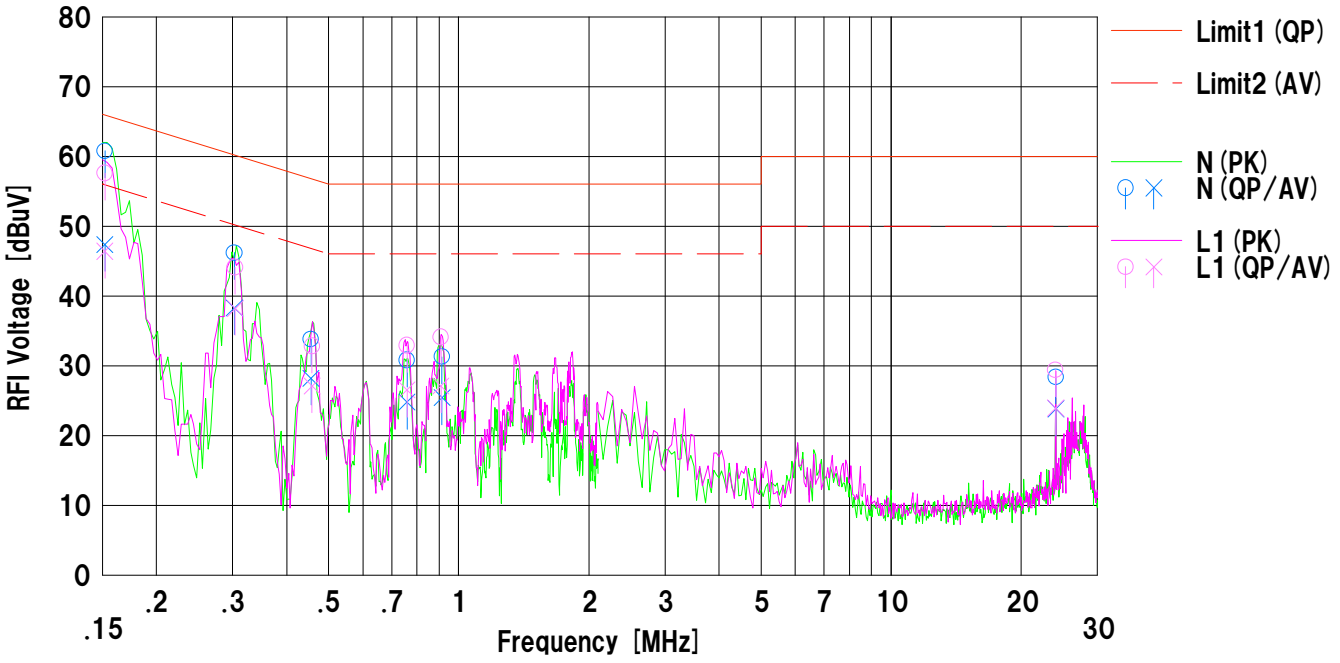
Company : RICOH COMPANY,LTD.
Kind of EUT : Wireless LAN Module
Model No. : LBWB1ZZWU6
Serial No. : 1

Mode : Tx 11n-40HT 5270MHz
Report No. : 32KE0045-SH-04-B
Power : AC 120V / 60Hz
Temp./Humi. : 23deg.C. / 60%RH

Remarks : -

Limit1 : FCC 15C(15.207) QP
Limit2 : FCC 15C(15.207) AV

Engineer : Tatsuya Arai




| No. | Freq. | Reading <QP> | Reading <AV> | C.Fac | Results <QP> | Results <AV> | Limit <QP> | Limit <AV> | Margin <QP> | Margin <AV> | Phase | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | [MHz] | [dBuV] | [dBuV] | [dB] | [dBuV] | [dBuV] | [dBuV] | [dBuV] | [dB] | [dB] | | |
| 1 | 0.15200 | 48.1 | 34.7 | 12.7 | 60.8 | 47.4 | 65.8 | 55.8 | 5.0 | 8.4 | N | |
| 2 | 0.30300 | 33.5 | 25.6 | 12.7 | 46.2 | 38.3 | 60.1 | 50.1 | 13.9 | 11.8 | N | |
| 3 | 0.45500 | 21.1 | 15.5 | 12.7 | 33.8 | 28.2 | 56.7 | 46.7 | 22.9 | 18.5 | N | |
| 4 | 0.75900 | 18.1 | 12.1 | 12.7 | 30.8 | 24.8 | 56.0 | 46.0 | 25.2 | 21.2 | N | |
| 5 | 0.91400 | 18.6 | 12.7 | 12.7 | 31.3 | 25.4 | 56.0 | 46.0 | 24.7 | 20.6 | N | |
| 6 | 24.01720 | 14.7 | 10.1 | 13.7 | 28.4 | 23.8 | 60.0 | 50.0 | 31.6 | 26.2 | N | |
| 7 | 0.15200 | 44.9 | 33.7 | 12.7 | 57.6 | 46.4 | 65.8 | 55.8 | 8.2 | 9.4 | L1 | |
| 8 | 0.30400 | 31.4 | 25.5 | 12.7 | 44.1 | 38.2 | 60.1 | 50.1 | 16.0 | 11.9 | L1 | |
| 9 | 0.45800 | 20.1 | 14.4 | 12.7 | 32.8 | 27.1 | 56.7 | 46.7 | 23.9 | 19.6 | L1 | |
| 10 | 0.75900 | 20.2 | 13.8 | 12.7 | 32.9 | 26.5 | 56.0 | 46.0 | 23.1 | 19.5 | L1 | |
| 11 | 0.91000 | 21.4 | 14.4 | 12.7 | 34.1 | 27.1 | 56.0 | 46.0 | 21.9 | 18.9 | L1 | |
| 12 | 24.00000 | 15.7 | 10.2 | 13.7 | 29.4 | 23.9 | 60.0 | 50.0 | 30.6 | 26.1 | L1 | |

Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+ATT) [dB]
LISN:SLS-05

# DATA OF CONDUCTED EMISSION TEST

UL Japan,Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2012/08/18

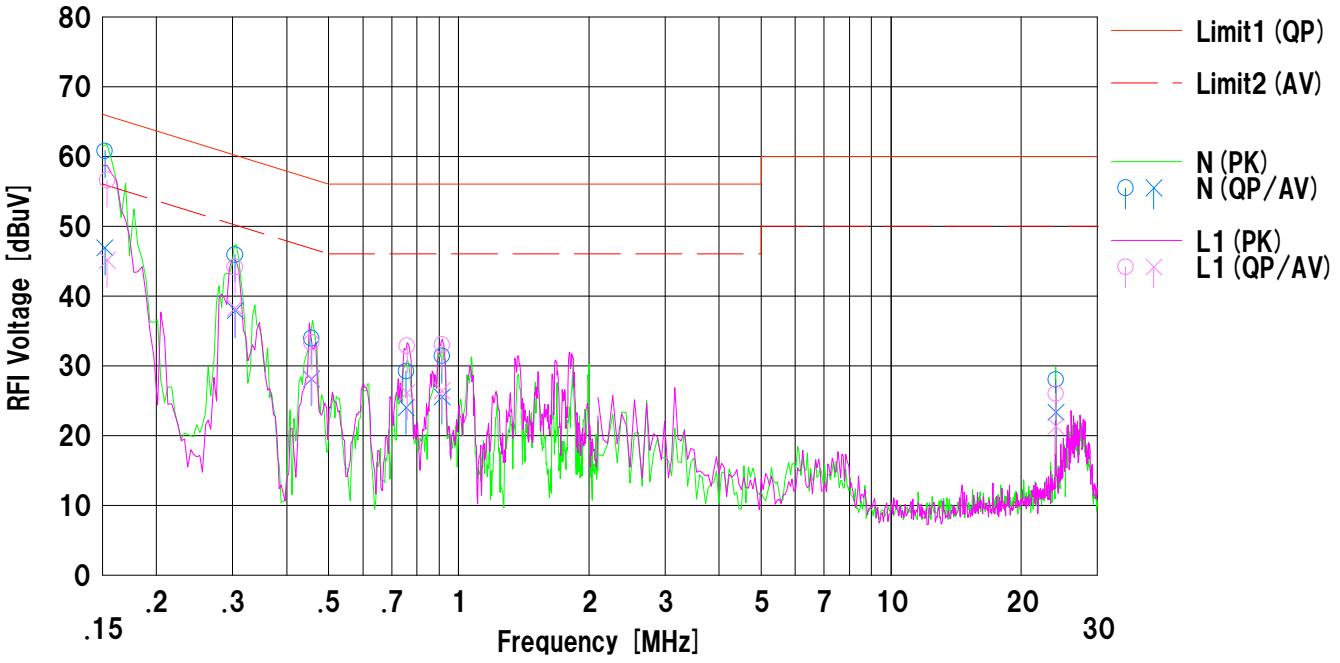
Company : RICOH COMPANY,LTD.
Kind of EUT : Wireless LAN Module
Model No. : LBWB1ZZWU6
Serial No. : 1

Mode : Tx 11n-40HT 5670MHz
Report No. : 32KE0045-SH-04-B
Power : AC 120V / 60Hz
Temp./Humi. : 23deg.C. / 60%RH

Remarks : -

Limit1 : FCC 15C(15.207) QP
Limit2 : FCC 15C(15.207) AV

Engineer : Tatsuya Arai




| No. | Freq. | Reading <QP> | Reading <AV> | C.Fac | Results <QP> | Results <AV> | Limit <QP> | Limit <AV> | Margin <QP> | Margin <AV> | Phase | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | [MHz] | [dBuV] | [dBuV] | [dB] | [dBuV] | [dBuV] | [dBuV] | [dBuV] | [dB] | [dB] | | |
| 1 | 0.15200 | 48.1 | 34.2 | 12.7 | 60.8 | 46.9 | 65.8 | 55.8 | 5.0 | 8.9 | N | |
| 2 | 0.30400 | 33.2 | 25.2 | 12.7 | 45.9 | 37.9 | 60.1 | 50.1 | 14.2 | 12.2 | N | |
| 3 | 0.45600 | 21.2 | 15.4 | 12.7 | 33.9 | 28.1 | 56.7 | 46.7 | 22.8 | 18.6 | N | |
| 4 | 0.75600 | 16.5 | 11.3 | 12.7 | 29.2 | 24.0 | 56.0 | 46.0 | 26.8 | 22.0 | N | |
| 5 | 0.91400 | 18.7 | 12.8 | 12.7 | 31.4 | 25.5 | 56.0 | 46.0 | 24.6 | 20.5 | N | |
| 6 | 24.01842 | 14.3 | 9.6 | 13.7 | 28.0 | 23.3 | 60.0 | 50.0 | 32.0 | 26.7 | N | |
| 7 | 0.15400 | 43.9 | 32.4 | 12.7 | 56.6 | 45.1 | 65.7 | 55.7 | 9.1 | 10.6 | L1 | |
| 8 | 0.30400 | 31.4 | 25.6 | 12.7 | 44.1 | 38.3 | 60.1 | 50.1 | 16.0 | 11.8 | L1 | |
| 9 | 0.45700 | 20.6 | 15.5 | 12.7 | 33.3 | 28.2 | 56.7 | 46.7 | 23.4 | 18.5 | L1 | |
| 10 | 0.76000 | 20.1 | 13.4 | 12.7 | 32.8 | 26.1 | 56.0 | 46.0 | 23.2 | 19.9 | L1 | |
| 11 | 0.91400 | 20.3 | 13.7 | 12.7 | 33.0 | 26.4 | 56.0 | 46.0 | 23.0 | 19.6 | L1 | |
| 12 | 24.01842 | 12.3 | 7.6 | 13.7 | 26.0 | 21.3 | 60.0 | 50.0 | 34.0 | 28.7 | L1 | |

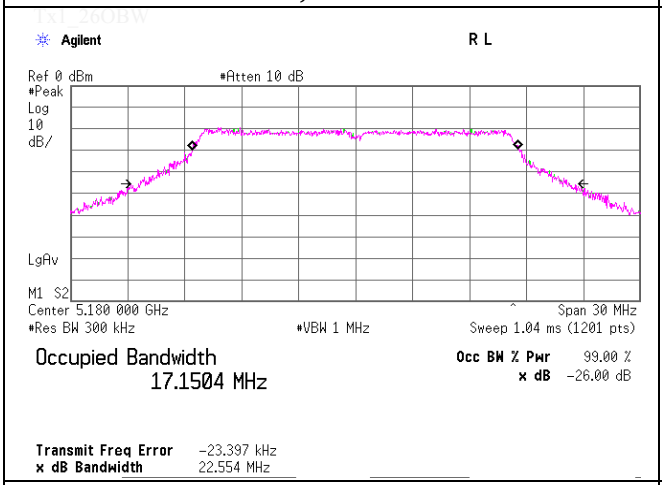
Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+ATT) [dB]
LISN:SLS-05

# -26dB Bandwidth

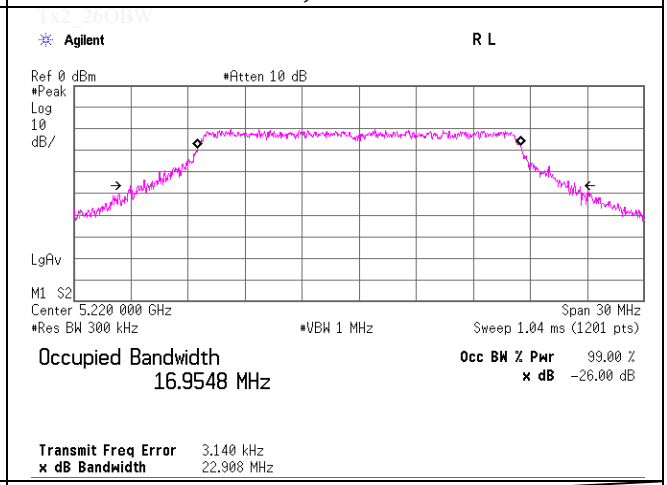
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 2, 2012 | |
| Temperature / Humidity | 26deg.C , 50%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11a (W52), PN9, worst data mode 6Mbps | |

| Freq. [MHz] | -26dB Bandwidth [MHz] |
|---|---|
| 5180.0000 | 22.554 |
| 5220.0000 | 22.908 |
| 5240.0000 | 22.889 |

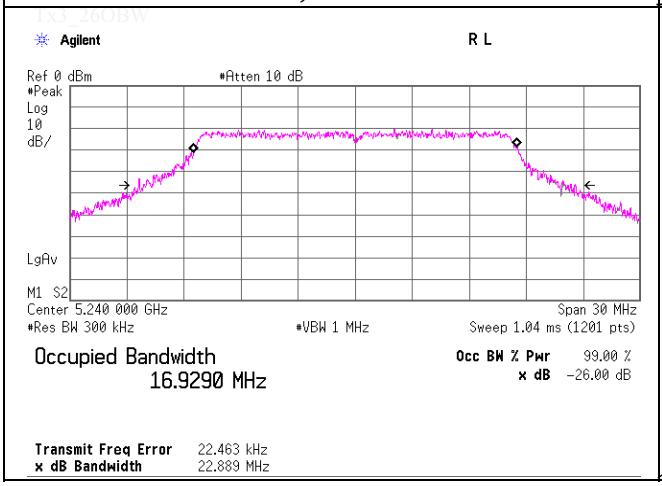
**Tx, 5180MHz**




**Tx, 5220MHz**




**Tx, 5240MHz**




**UL Japan, Inc.**
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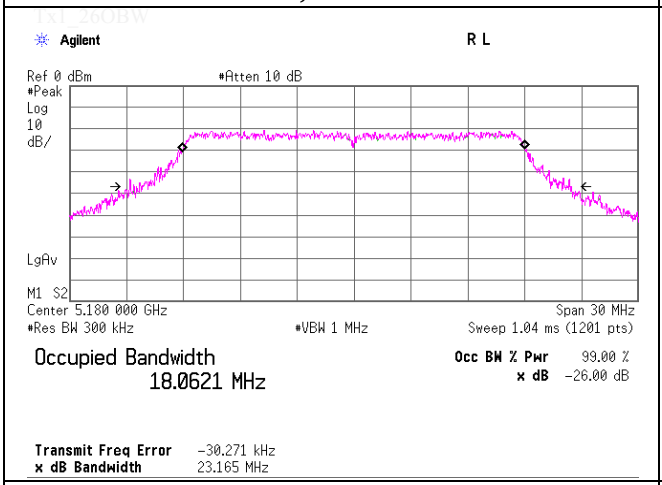
**1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN**
**Telephone : +81 463 50 6400**
**Facsimile : +81 463 50 6401**

# -26dB Bandwidth

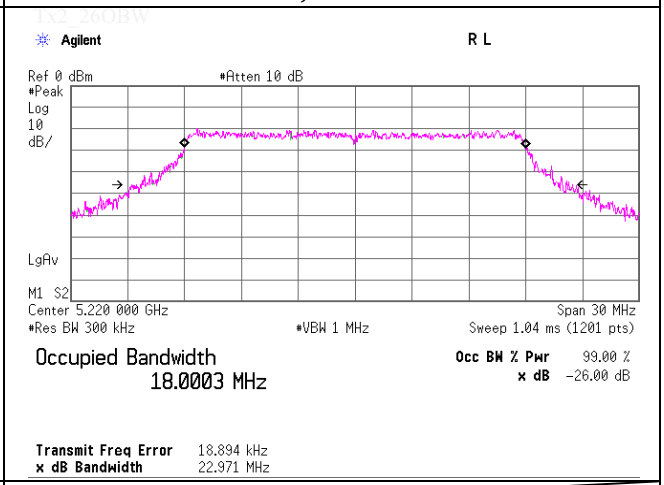
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11n (HT20) (W52), PN9, worst data mode 0(MCS) | |

| Freq. [MHz] | -26dB Bandwidth [MHz] |
|---|---|
| 5180.0000 | 23.165 |
| 5220.0000 | 22.971 |
| 5240.0000 | 23.060 |

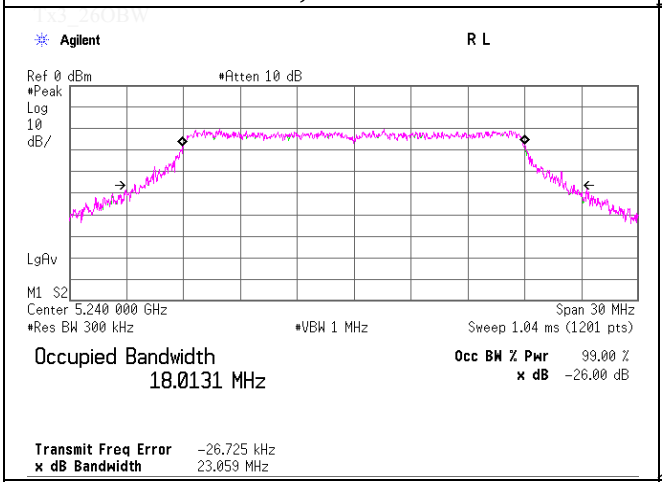
**Tx, 5180MHz**




**Tx, 5220MHz**




**Tx, 5240MHz**

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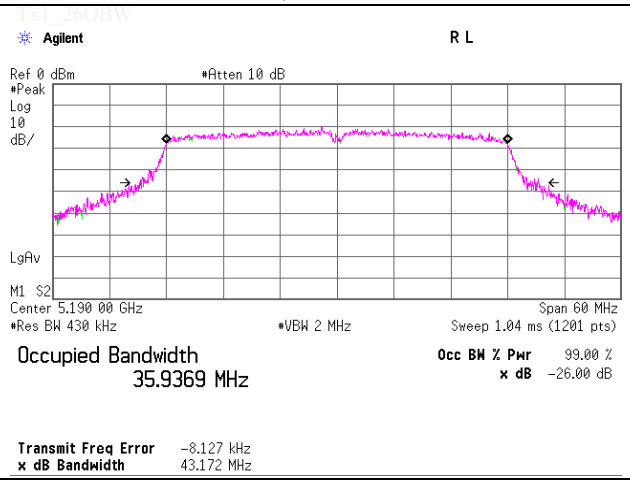
**Facsimile : +81 463 50 6401**

# -26dB Bandwidth

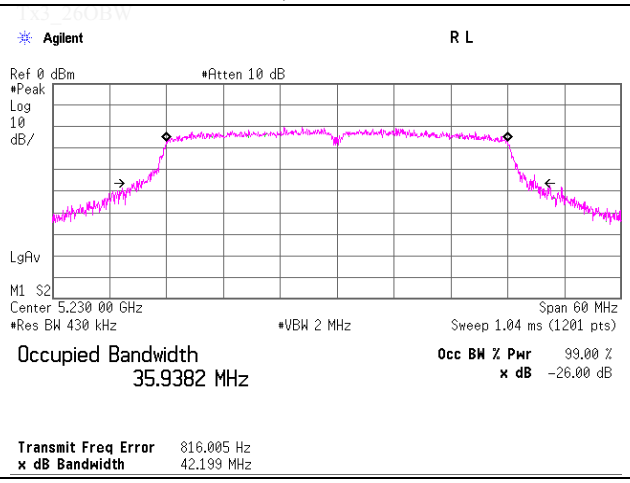
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11n (HT40) (W52), PN9, worst data mode 0(MCS) | |

| Freq. [MHz] | -26dB Bandwidth [MHz] |
|---|---|
| 5190.0000 | 43.172 |
| | |
| 5230.0000 | 42.199 |

**Tx, 5190MHz**




**Tx, 5230MHz**

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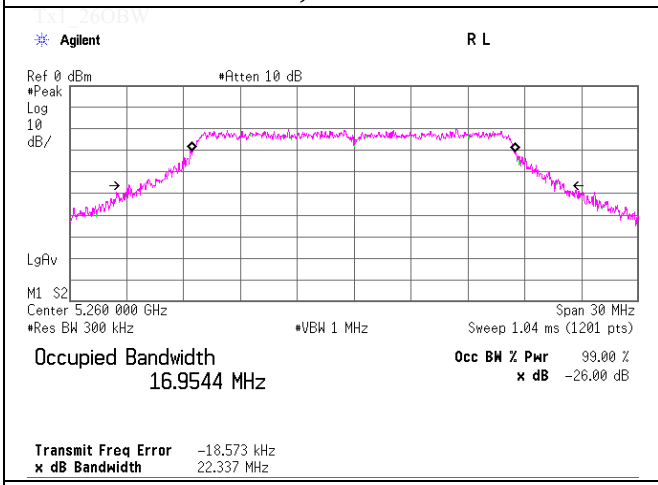
# -26dB Bandwidth

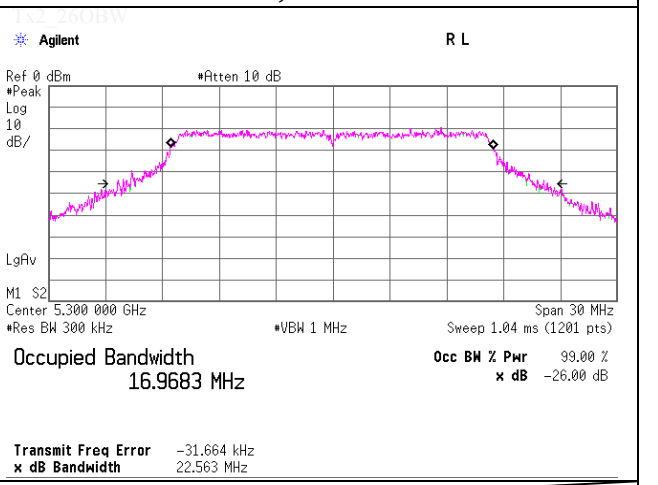
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11a (W53), PN9, worst data mode 6Mbps | |

| Freq. [MHz] | -26dB Bandwidth [MHz] |
|---|---|
| 5260.0000 | 22.337 |
| 5300.0000 | 22.563 |
| 5320.0000 | 23.017 |

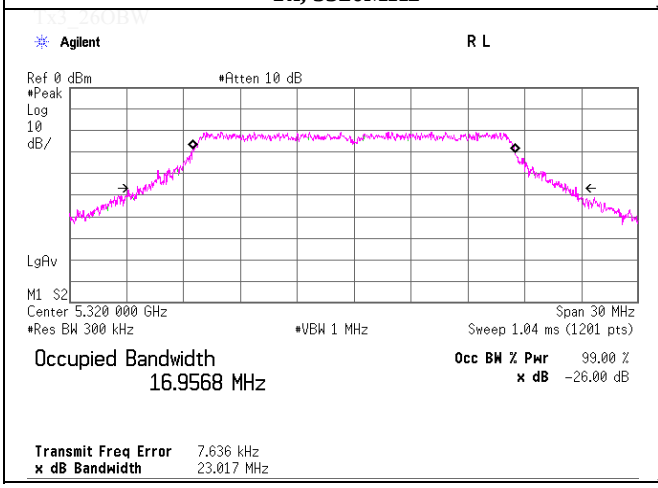
**Tx, 5260MHz**




**Tx, 5300MHz**




**Tx, 5320MHz**

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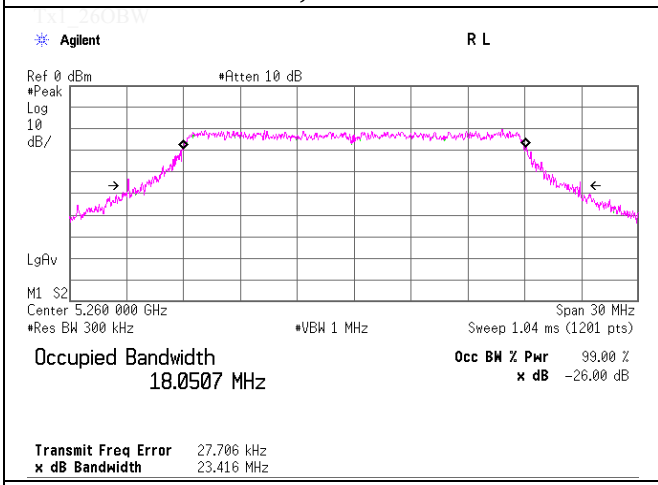
# -26dB Bandwidth

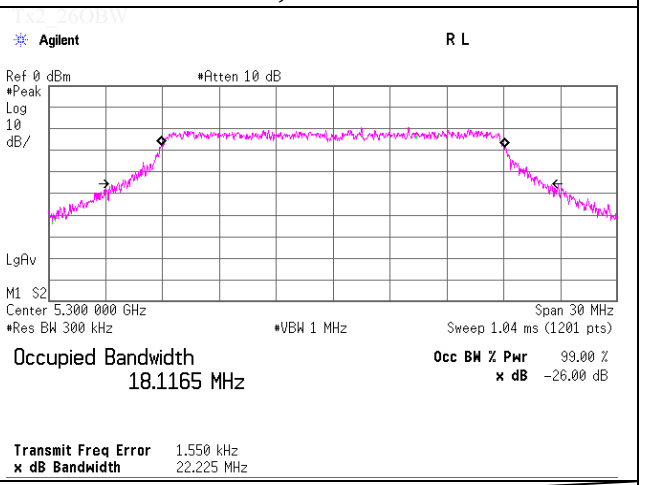
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11n (HT20) (W53), PN9, worst data mode 0(MCS) | |

| Freq. [MHz] | -26dB Bandwidth [MHz] |
|---|---|
| 5260.0000 | 23.416 |
| 5300.0000 | 22.225 |
| 5320.0000 | 22.519 |

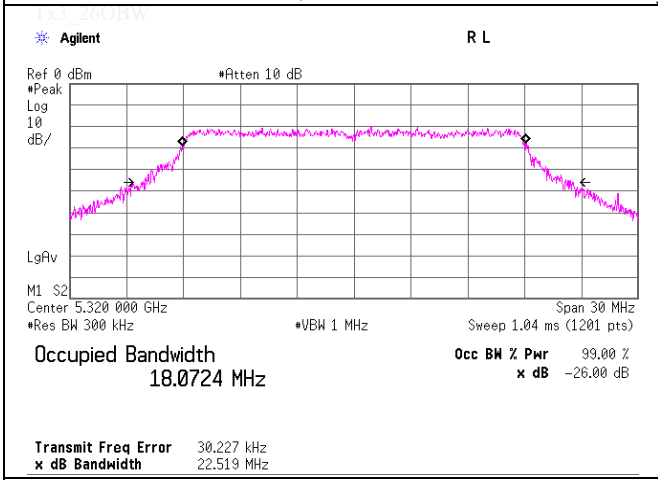
**Tx, 5260MHz**




**Tx, 5300MHz**




**Tx, 5320MHz**

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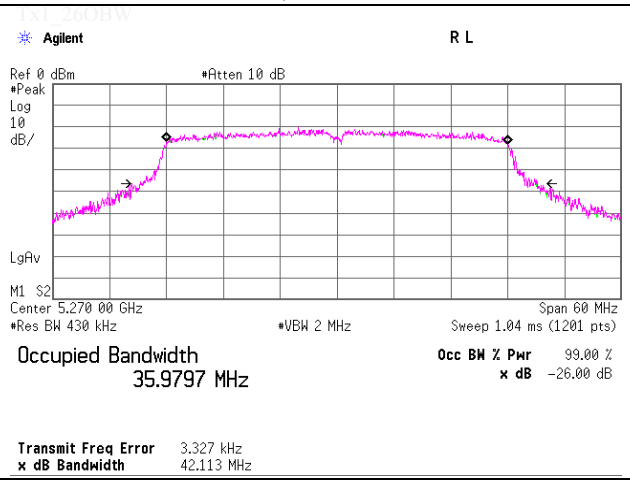
# -26dB Bandwidth

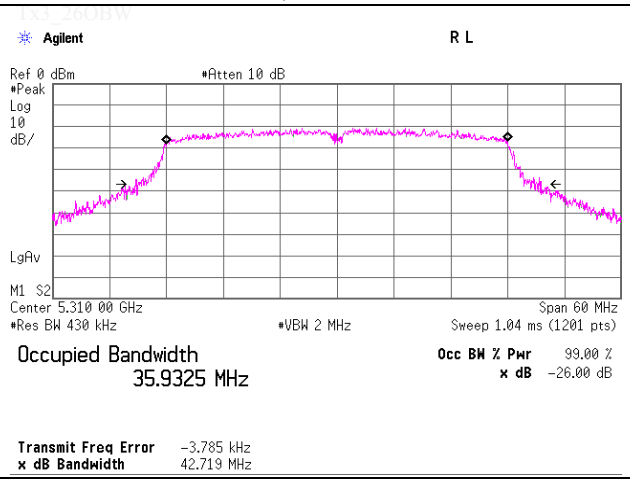
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11n (HT40) (W53), PN9, worst data mode 0(MCS) | |

| Freq. [MHz] | -26dB Bandwidth [MHz] |
|---|---|
| 5270.0000 | 42.113 |
| | |
| 5310.0000 | 42.719 |

**Tx, 5270MHz**




**Tx, 5310MHz**

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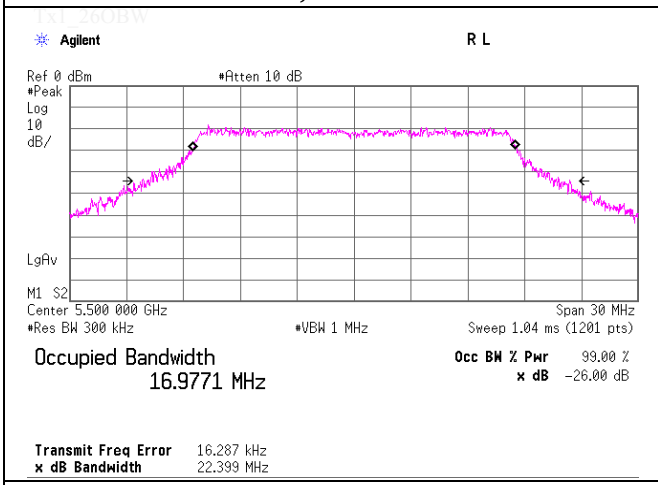
# -26dB Bandwidth

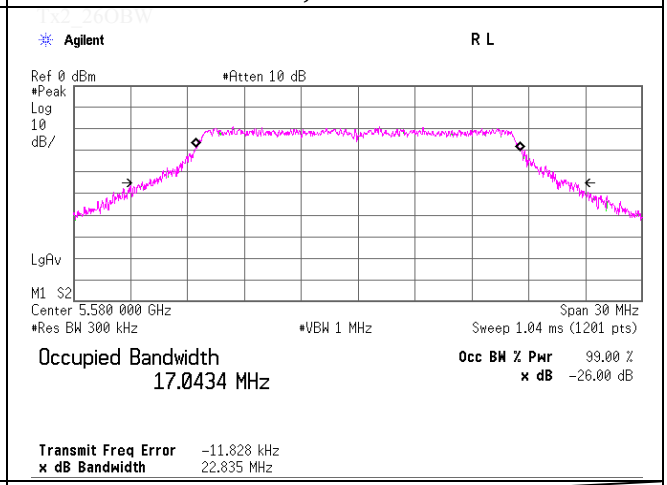
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11a (W56), PN9, worst data mode 6Mbps | |

| Freq. [MHz] | -26dB Bandwidth [MHz] |
|---|---|
| 5500.0000 | 22.399 |
| 5580.0000 | 22.835 |
| 5700.0000 | 22.472 |

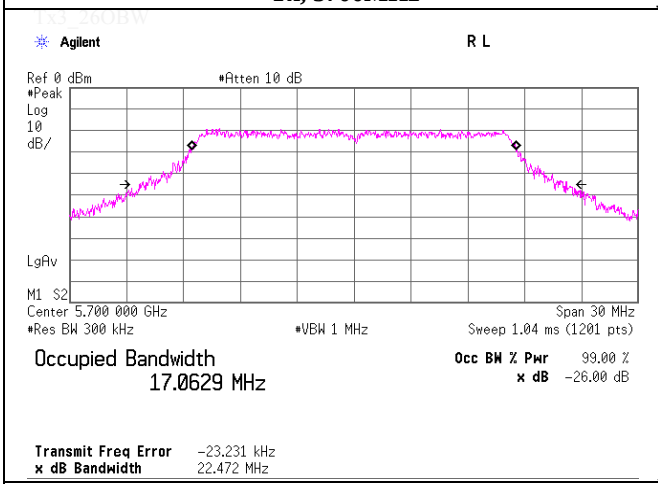
**Tx, 5500MHz**




**Tx, 5580MHz**




**Tx, 5700MHz**

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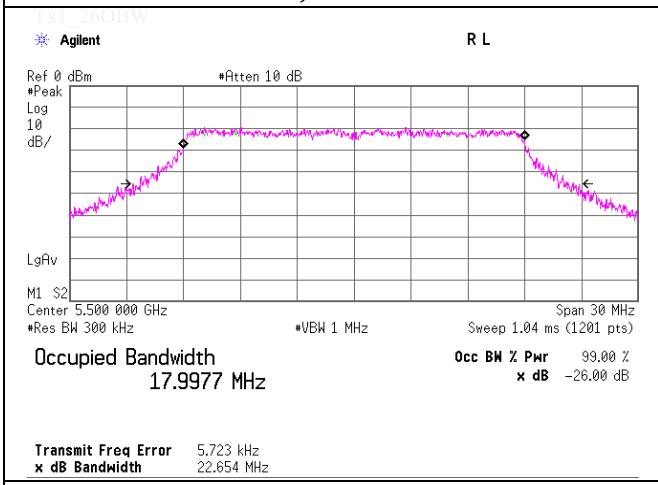
# -26dB Bandwidth

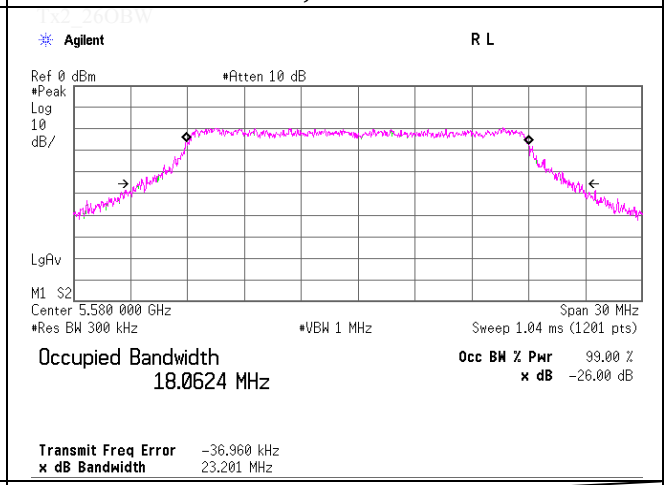
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11n (HT20) (W56), PN9, worst data mode 0(MCS) | |

| Freq. [MHz] | -26dB Bandwidth [MHz] |
|---|---|
| 5500.0000 | 22.654 |
| 5580.0000 | 23.201 |
| 5700.0000 | 23.120 |

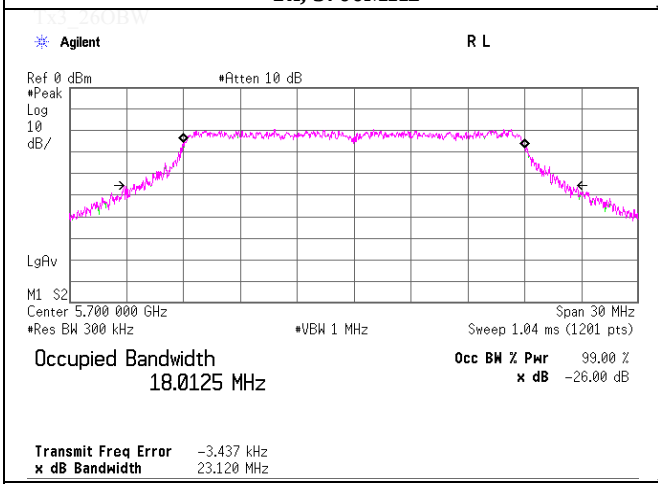
**Tx, 5500MHz**




**Tx, 5580MHz**




**Tx, 5700MHz**

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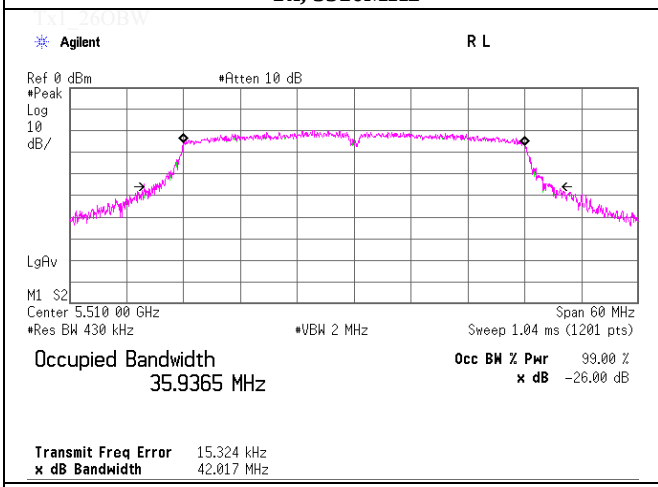
**1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN**
**Telephone : +81 463 50 6400**
**Facsimile : +81 463 50 6401**

# -26dB Bandwidth

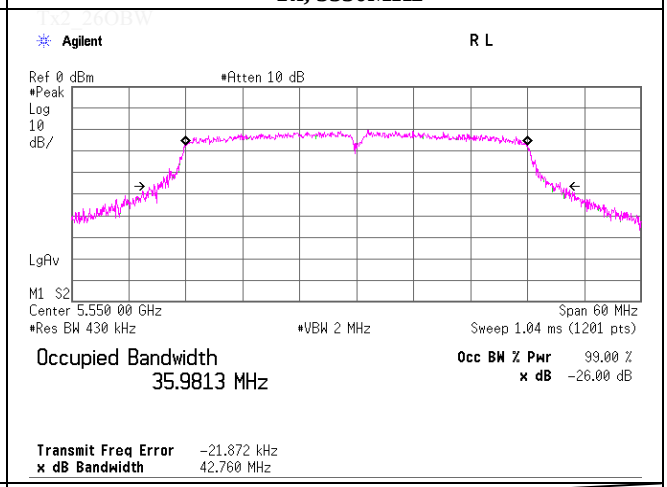
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11n (HT40) (W56), PN9, worst data mode 0(MCS) | |

| Freq. [MHz] | -26dB Bandwidth [MHz] |
|---|---|
| 5510.0000 | 42.017 |
| 5550.0000 | 42.760 |
| 5670.0000 | 42.451 |

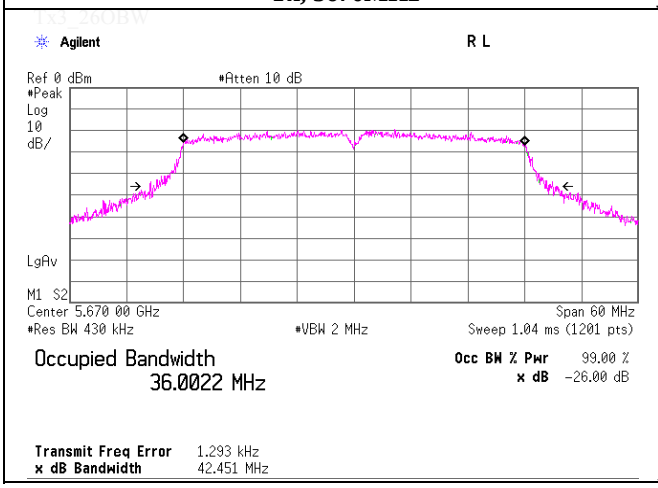
**Tx, 5510MHz**




**Tx, 5550MHz**




**Tx, 5670MHz**




**UL Japan, Inc.**
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**1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN**
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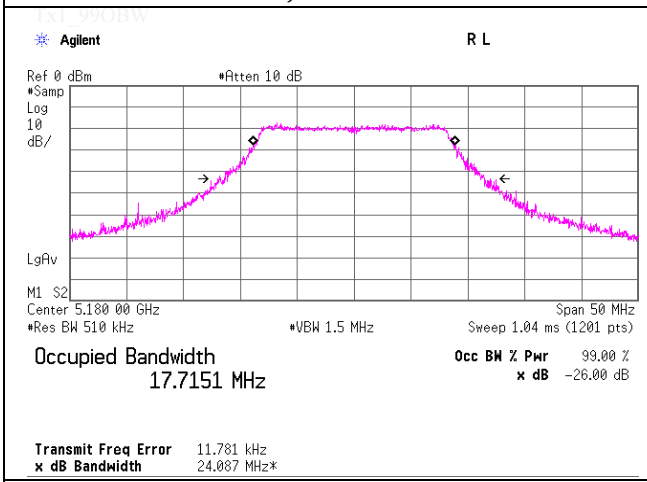
**Facsimile : +81 463 50 6401**

# 99% Occupied Bandwidth

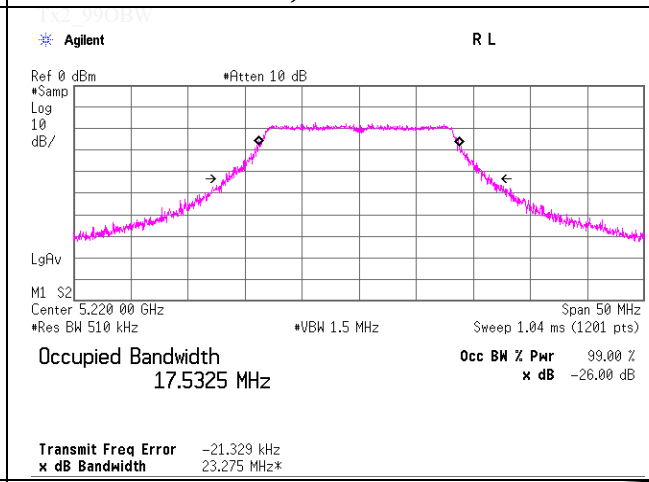
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 2, 2012 | |
| Temperature / Humidity | 26deg.C , 50%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11a (W52), PN9, worst data mode 6Mbps | |

| Freq. [MHz] | 99% Occupied Bandwidth [MHz] |
|---|---|
| 5180.0000 | 17.715 |
| 5220.0000 | 17.533 |
| 5240.0000 | 17.619 |

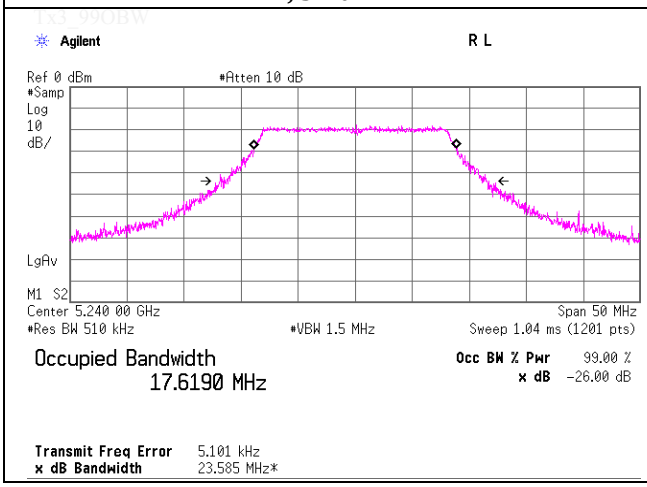
**Tx, 5180MHz**




**Tx, 5220MHz**




**Tx, 5240MHz**

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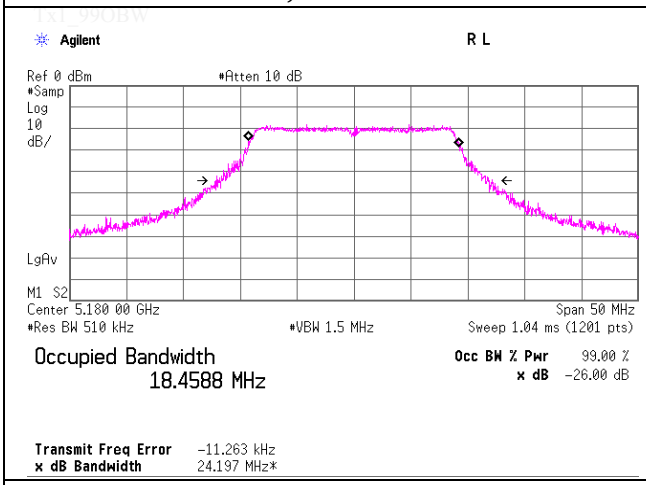
**Telephone : +81 463 50 6400**
**Facsimile : +81 463 50 6401**

# 99% Occupied Bandwidth

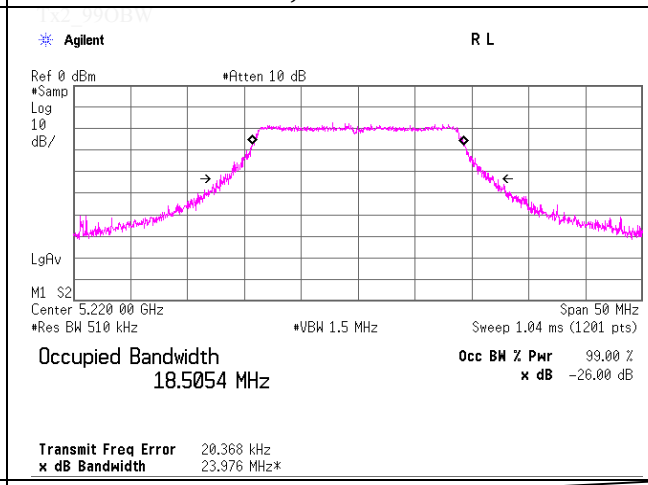
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11n (HT20) (W52), PN9, worst data mode 0(MCS) | |

| Freq. [MHz] | 99% Occupied Bandwidth [MHz] |
|---|---|
| 5180.0000 | 18.459 |
| 5220.0000 | 18.505 |
| 5240.0000 | 18.519 |

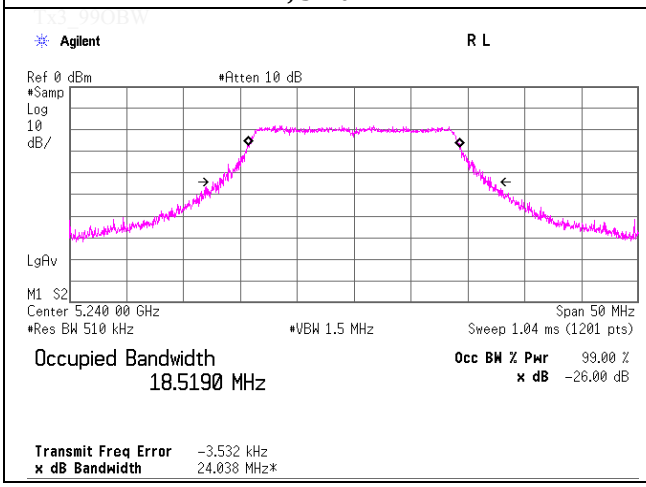
**Tx, 5180MHz**




**Tx, 5220MHz**




**Tx, 5240MHz**

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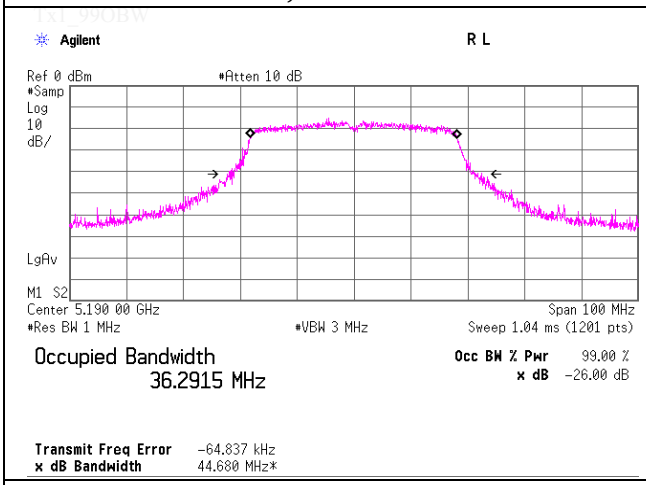
**Facsimile : +81 463 50 6401**

# 99% Occupied Bandwidth

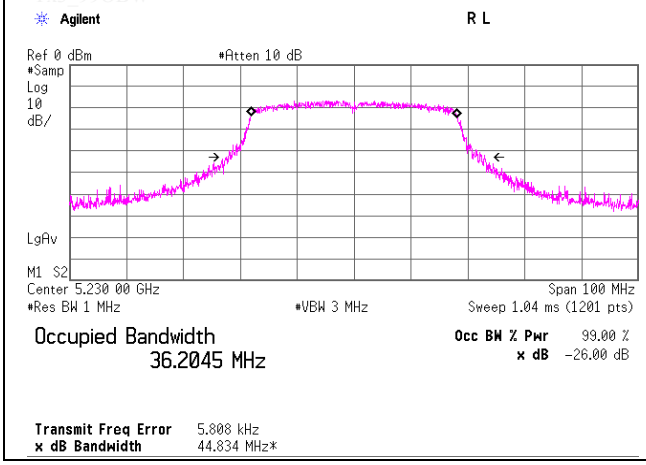
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11n (HT40) (W52), PN9, worst data mode 0(MCS) | |

| Freq. [MHz] | 99% Occupied Bandwidth [MHz] |
|---|---|
| 5190.0000 | 36.292 |
| | |
| 5230.0000 | 36.205 |

**Tx, 5190MHz**




**Tx, 5230MHz**

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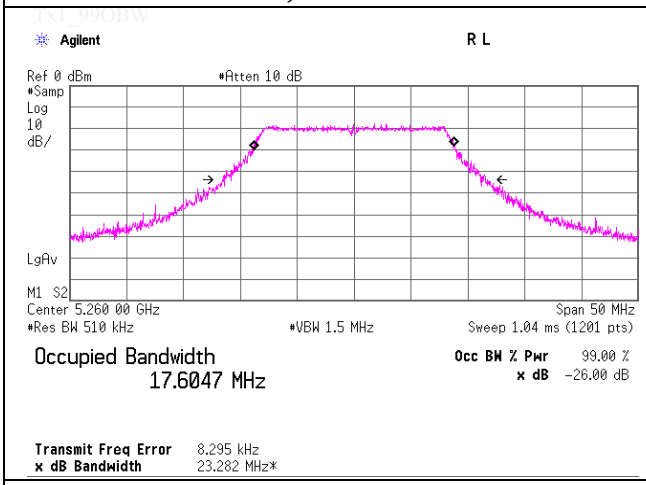
# 99% Occupied Bandwidth

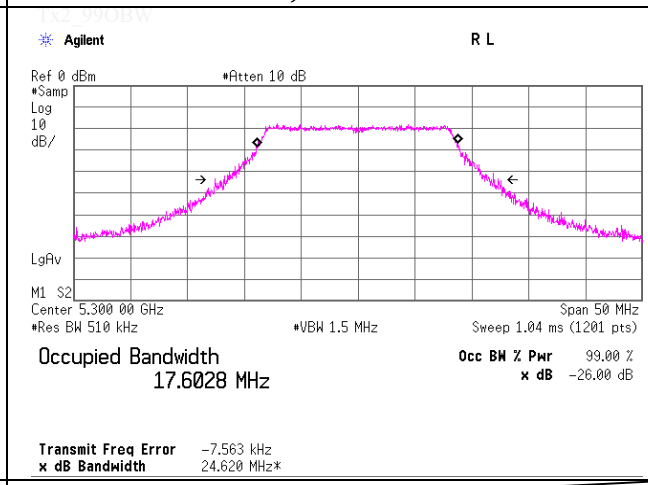
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11a (W53), PN9, worst data mode 6Mbps | |

| Freq. [MHz] | 99% Occupied Bandwidth [MHz] |
|---|---|
| 5260.0000 | 17.605 |
| 5300.0000 | 17.603 |
| 5320.0000 | 17.542 |

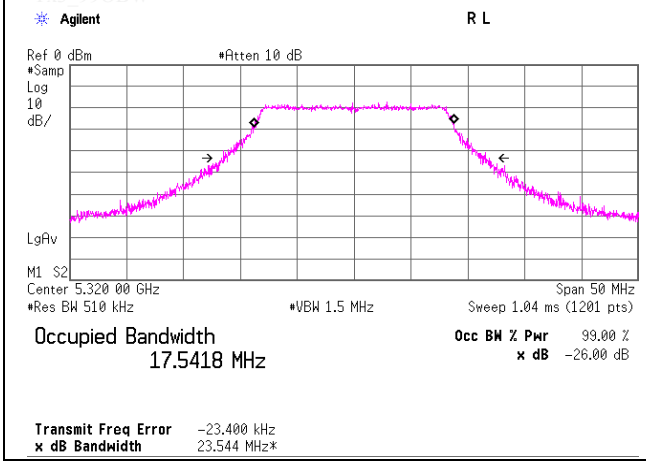
**Tx, 5260MHz**




**Tx, 5300MHz**




**Tx, 5320MHz**

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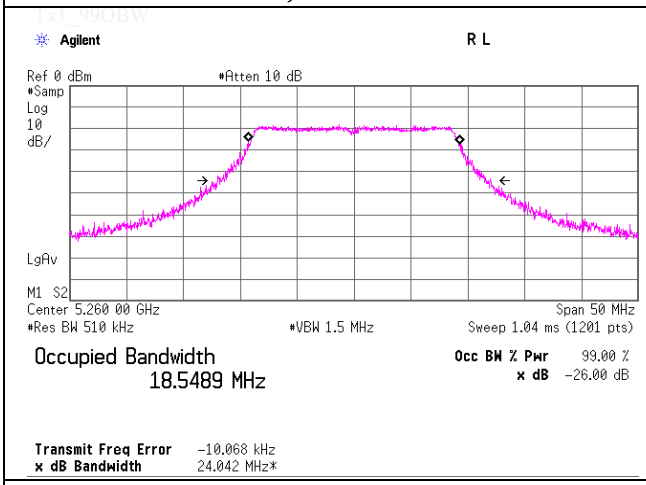
# 99% Occupied Bandwidth

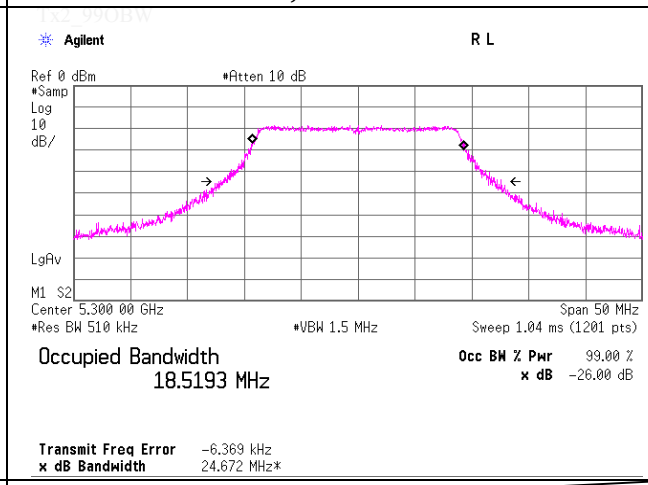
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11n (HT20) (W53), PN9, worst data mode 0(MCS) | |

| Freq. [MHz] | 99% Occupied Bandwidth [MHz] |
|---|---|
| 5260.0000 | 18.549 |
| 5300.0000 | 18.519 |
| 5320.0000 | 18.516 |

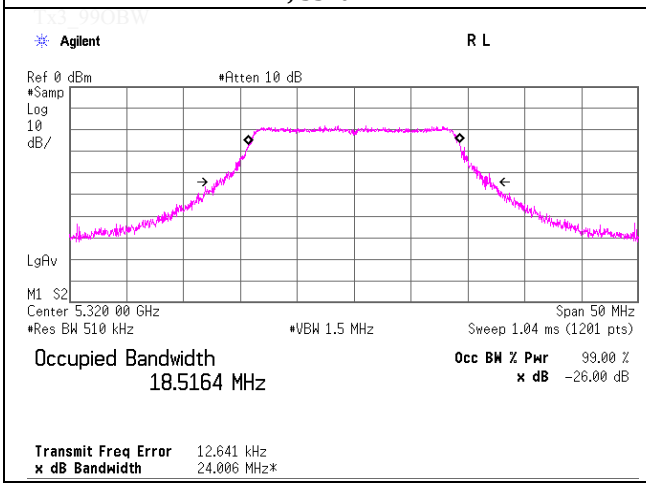
**Tx, 5260MHz**




**Tx, 5300MHz**




**Tx, 5320MHz**

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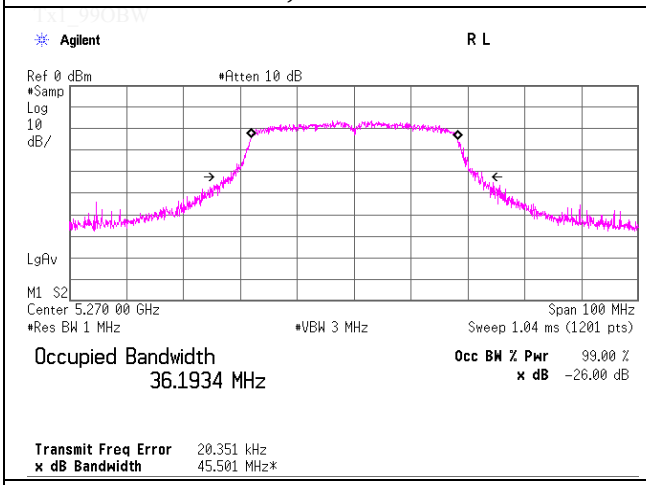
# 99% Occupied Bandwidth

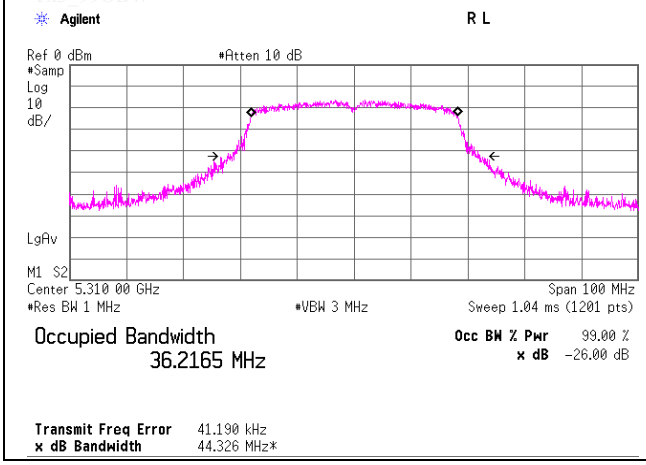
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11n (HT40) (W53), PN9, worst data mode 0(MCS) | |

| Freq. [MHz] | 99% Occupied Bandwidth [MHz] |
|---|---|
| 5270.0000 | 36.193 |
| | |
| 5310.0000 | 36.217 |

**Tx, 5270MHz**




**Tx, 5310MHz**

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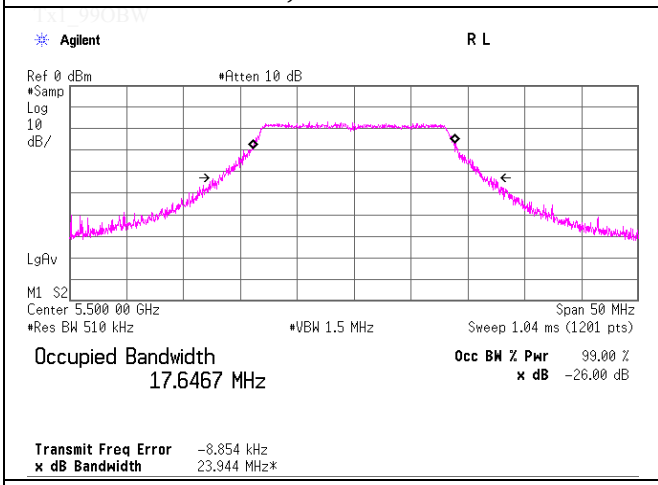
# 99% Occupied Bandwidth

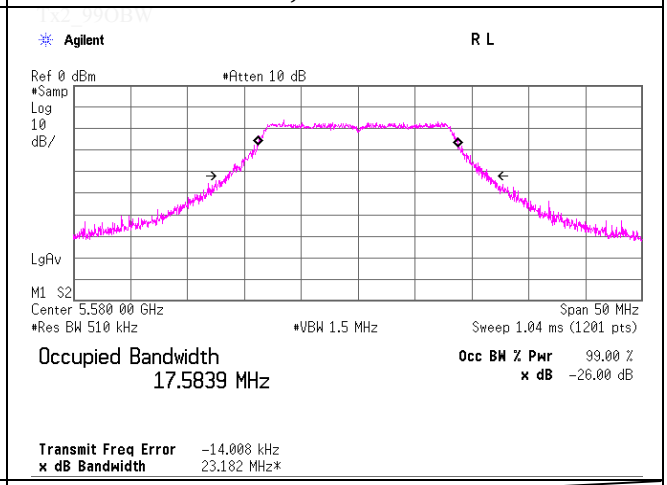
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11a (W56), PN9, worst data mode 6Mbps | |

| Freq. [MHz] | 99% Occupied Bandwidth [MHz] |
|---|---|
| 5500.0000 | 17.647 |
| 5580.0000 | 17.584 |
| 5700.0000 | 17.673 |

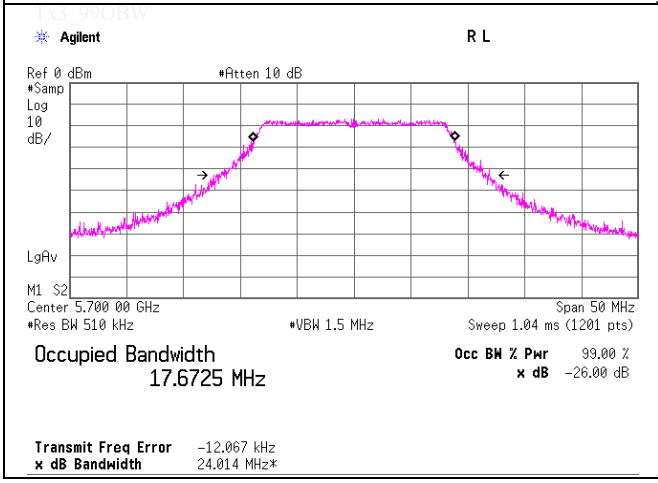
**Tx, 5500MHz**




**Tx, 5580MHz**




**Tx, 5700MHz**

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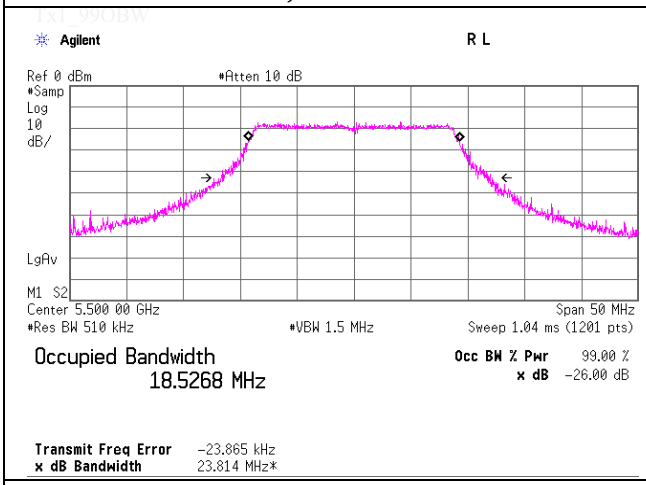
# 99% Occupied Bandwidth

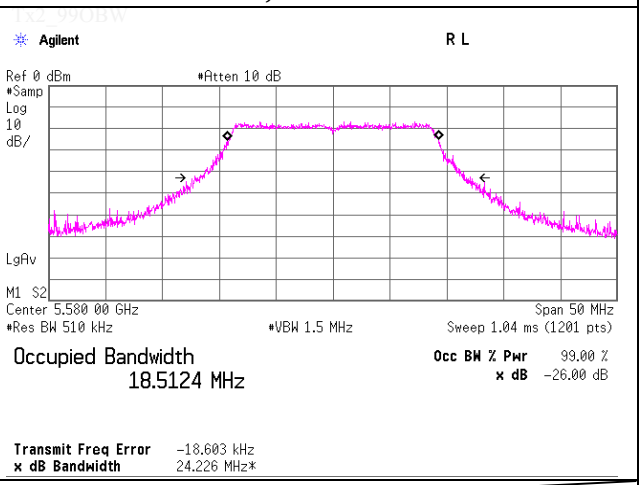
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11n (HT20) (W56), PN9, worst data mode 0(MCS) | |

| Freq. [MHz] | 99% Occupied Bandwidth [MHz] |
|---|---|
| 5500.0000 | 18.527 |
| 5580.0000 | 18.512 |
| 5700.0000 | 18.514 |

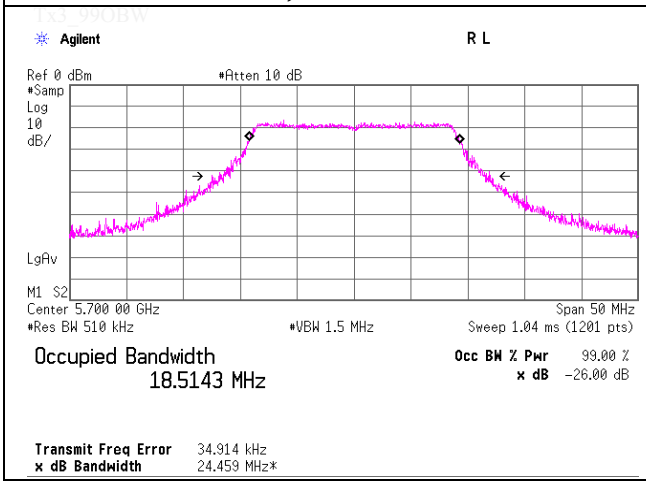
**Tx, 5500MHz**




**Tx, 5580MHz**




**Tx, 5700MHz**

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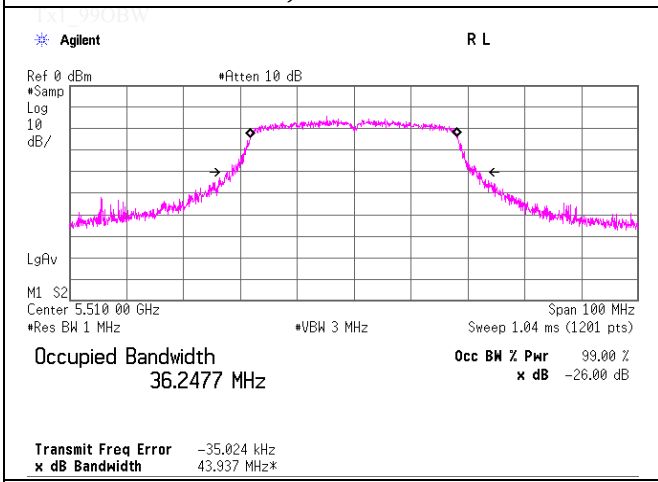
# 99% Occupied Bandwidth

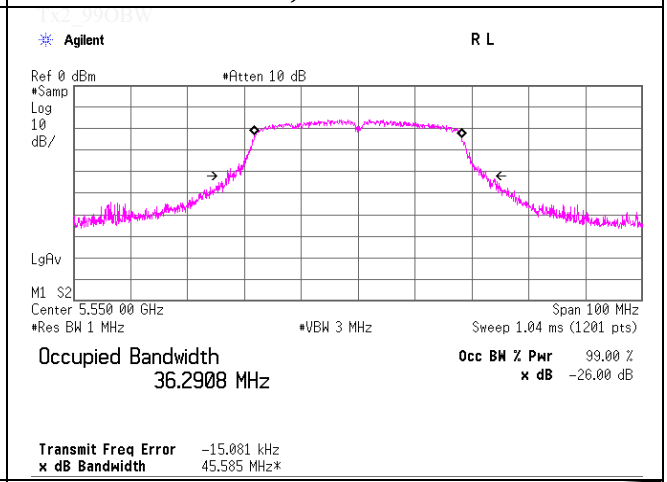
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11n (HT40) (W56), PN9, worst data mode 0(MCS) | |

| Freq. [MHz] | 99% Occupied Bandwidth [MHz] |
|---|---|
| 5510.0000 | 36.248 |
| 5550.0000 | 36.291 |
| 5670.0000 | 36.252 |

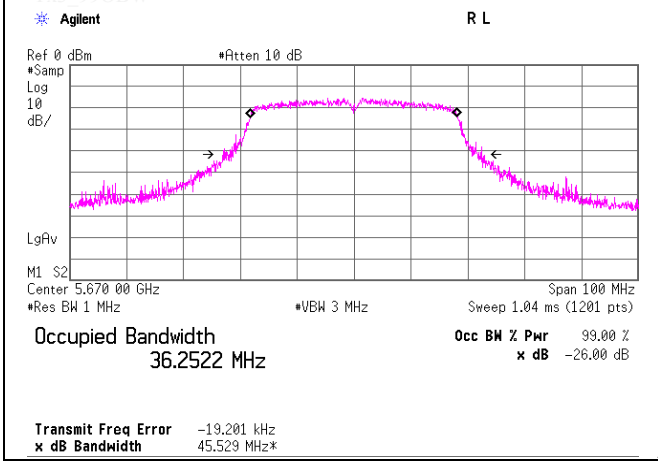
**Tx, 5510MHz**




**Tx, 5550MHz**




**Tx, 5670MHz**

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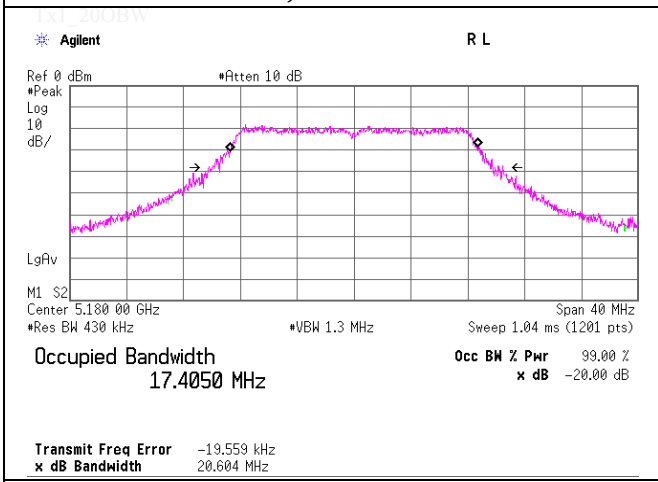
# -20dB Bandwidth

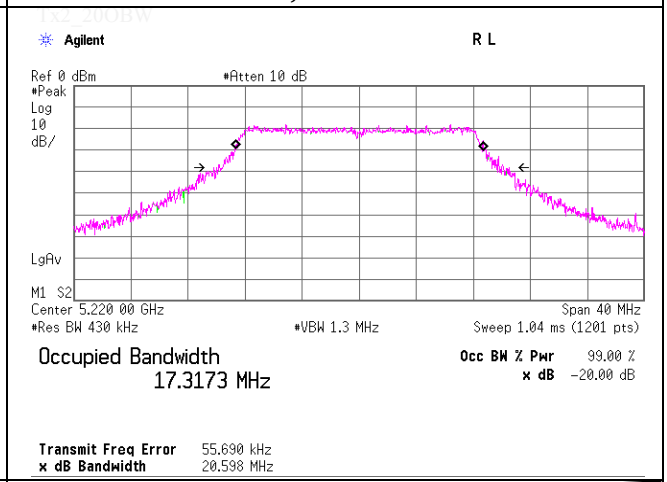
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 2, 2012 | |
| Temperature / Humidity | 26deg.C , 50%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11a (W52), PN9, worst data mode 6Mbps | |

| Freq. [MHz] | -20dB Bandwidth [MHz] |
|---|---|
| 5180.0000 | 20.604 |
| 5220.0000 | 20.598 |
| 5240.0000 | 20.329 |

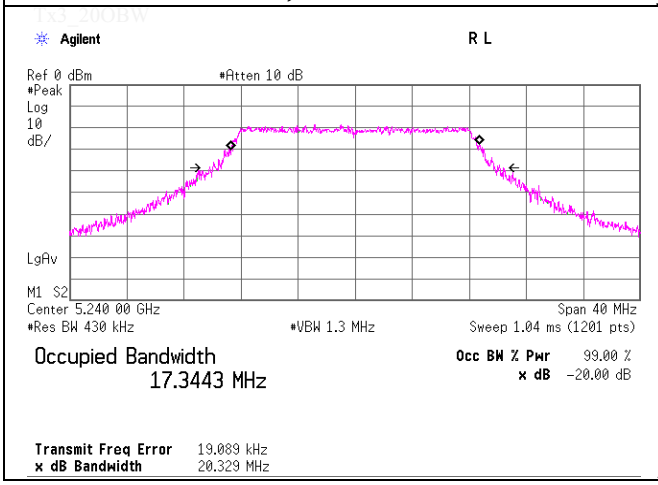
**Tx, 5180MHz**




**Tx, 5220MHz**




**Tx, 5240MHz**

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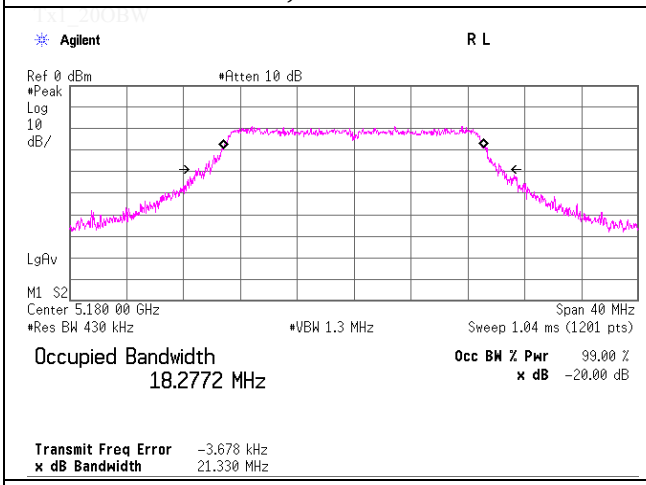
# -20dB Bandwidth

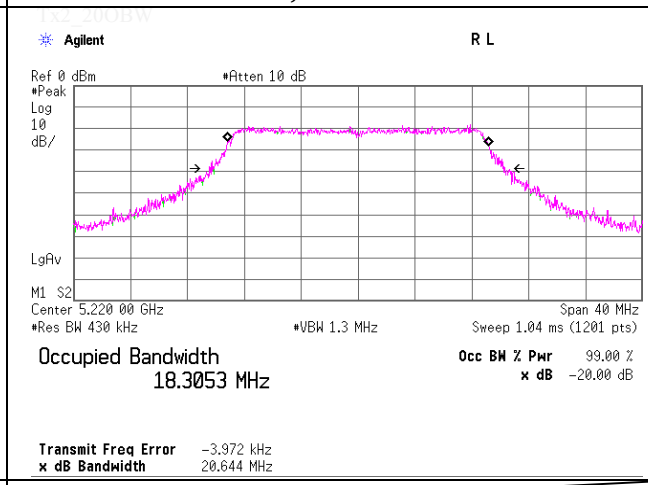
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11n (HT20) (W52), PN9, worst data mode 0(MCS) | |

| Freq. [MHz] | -20dB Bandwidth [MHz] |
|---|---|
| 5180.0000 | 21.330 |
| 5220.0000 | 20.644 |
| 5240.0000 | 21.177 |

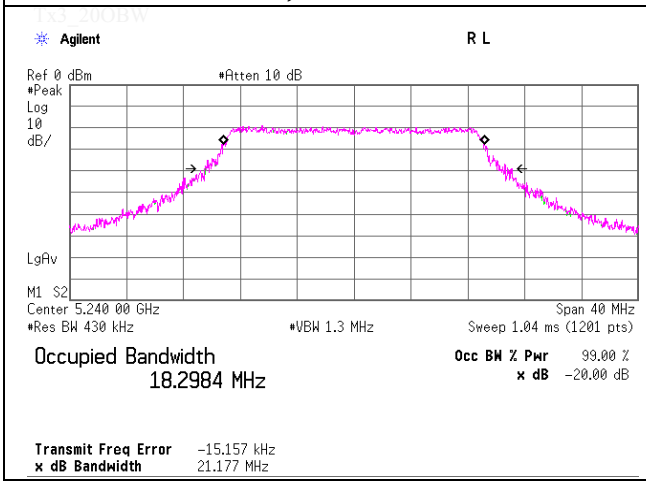
**Tx, 5180MHz**




**Tx, 5220MHz**




**Tx, 5240MHz**

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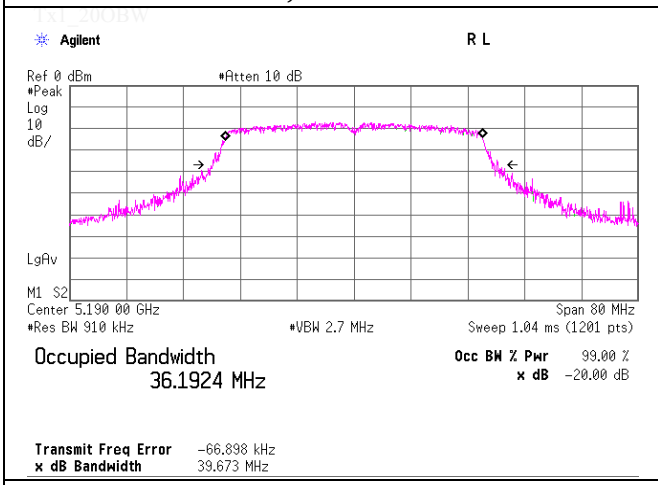
# -20dB Bandwidth

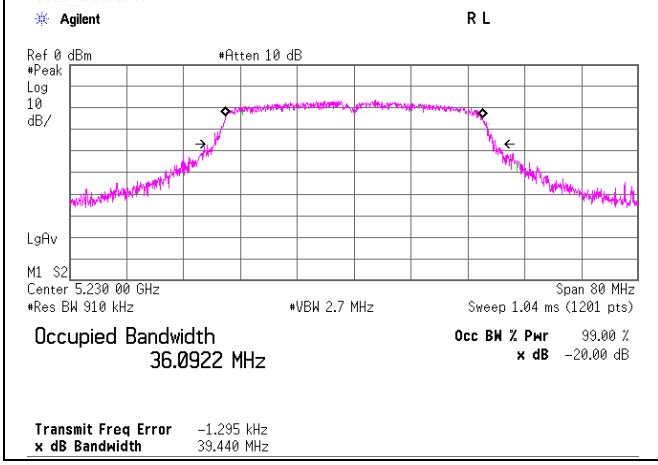
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11n (HT40) (W52), PN9, worst data mode 0(MCS) | |

| Freq. [MHz] | -20dB Bandwidth [MHz] |
|---|---|
| 5190.0000 | 39.673 |
| | |
| 5230.0000 | 39.440 |

**Tx, 5190MHz**




**Tx, 5230MHz**

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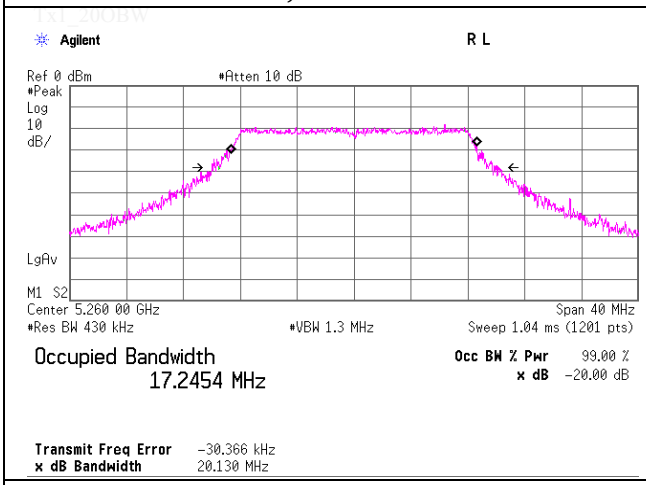
# -20dB Bandwidth

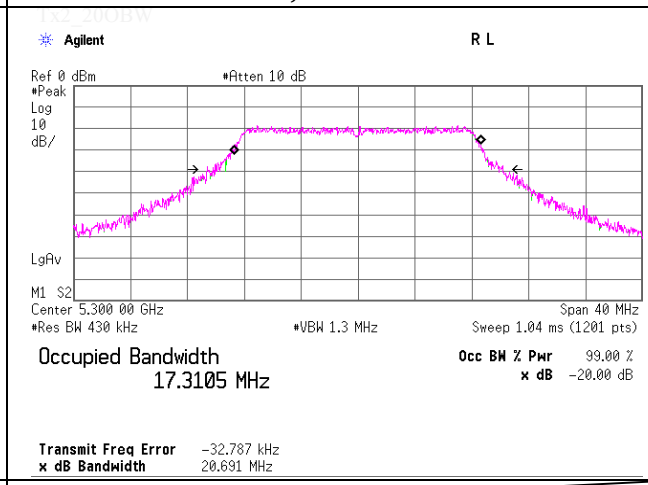
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11a (W53), PN9, worst data mode 6Mbps | |

| Freq. [MHz] | -20dB Bandwidth [MHz] |
|---|---|
| 5260.0000 | 20.130 |
| 5300.0000 | 20.691 |
| 5320.0000 | 20.185 |

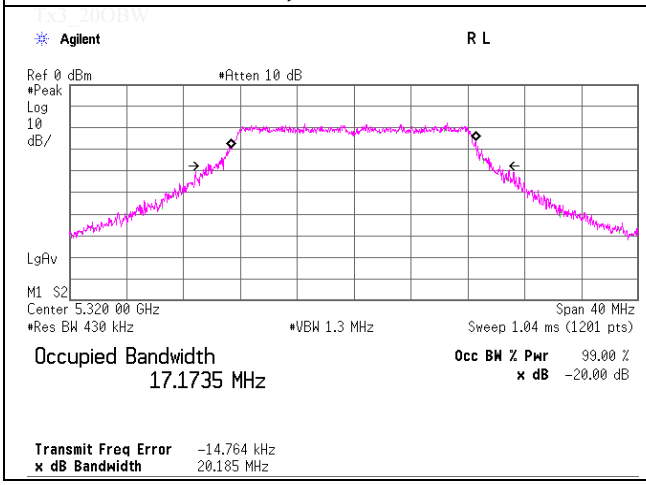
**Tx, 5260MHz**




**Tx, 5300MHz**




**Tx, 5320MHz**

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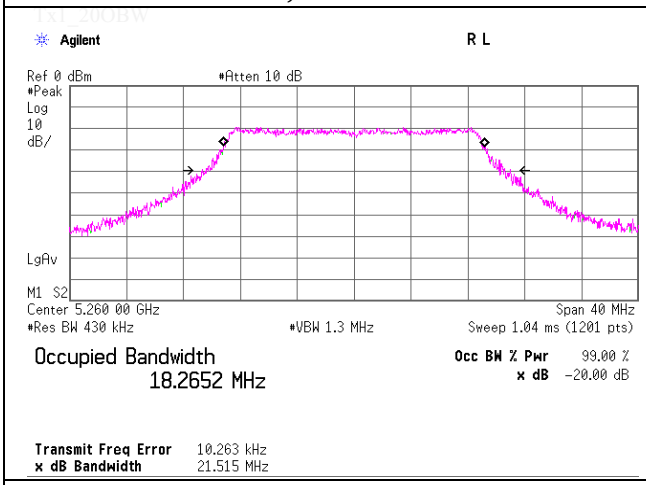
# -20dB Bandwidth

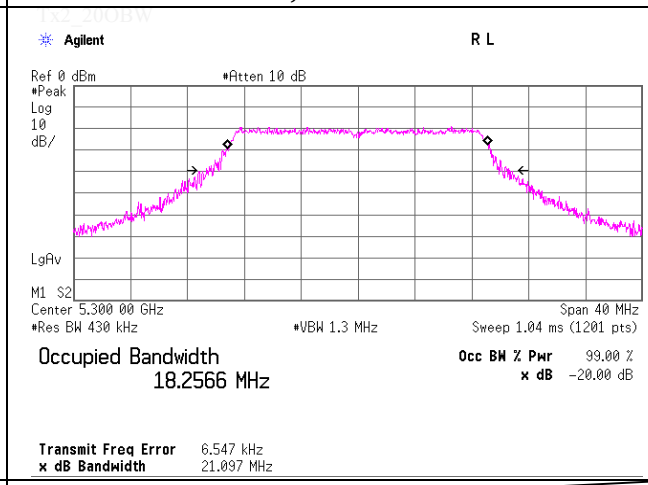
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11n (HT20) (W53), PN9, worst data mode 0(MCS) | |

| Freq. [MHz] | -20dB Bandwidth [MHz] |
|---|---|
| 5260.0000 | 21.515 |
| 5300.0000 | 21.097 |
| 5320.0000 | 20.943 |

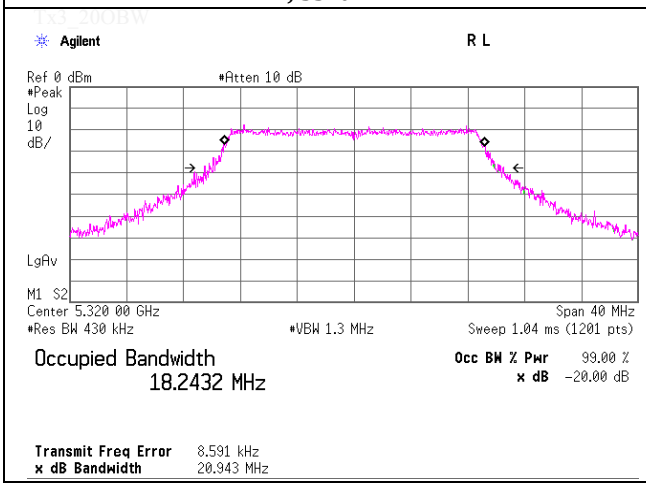
**Tx, 5260MHz**




**Tx, 5300MHz**




**Tx, 5320MHz**

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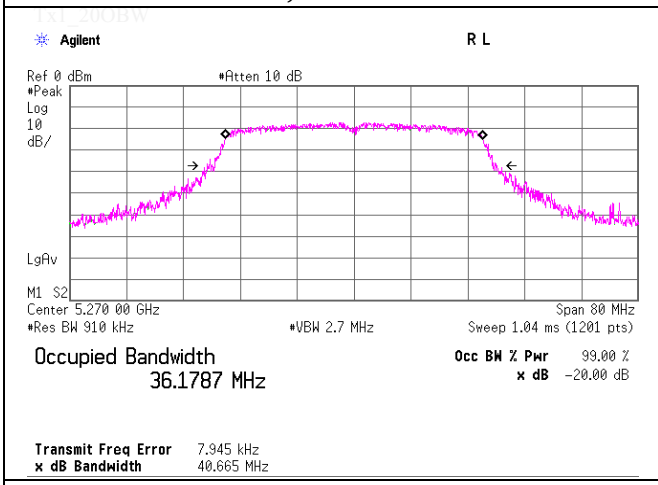
# -20dB Bandwidth

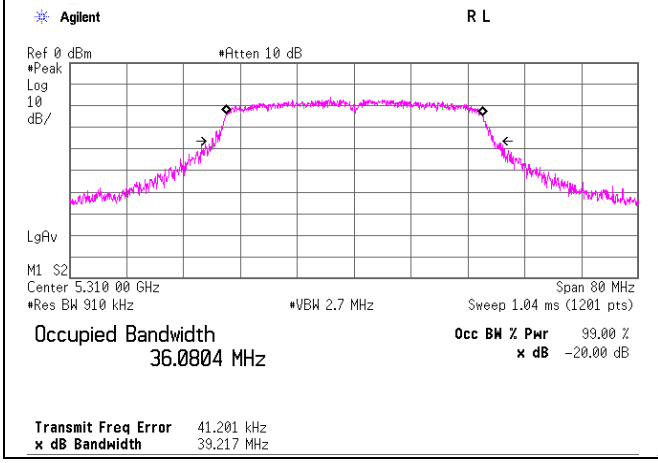
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11n (HT40) (W53), PN9, worst data mode 0(MCS) | |

| Freq. [MHz] | -20dB Bandwidth [MHz] |
|---|---|
| 5270.0000 | 40.665 |
| | |
| 5310.0000 | 39.217 |

**Tx, 5270MHz**




**Tx, 5310MHz**

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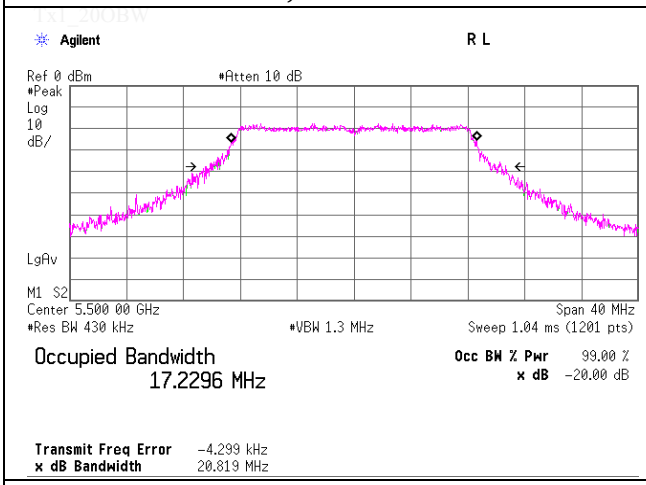
# -20dB Bandwidth

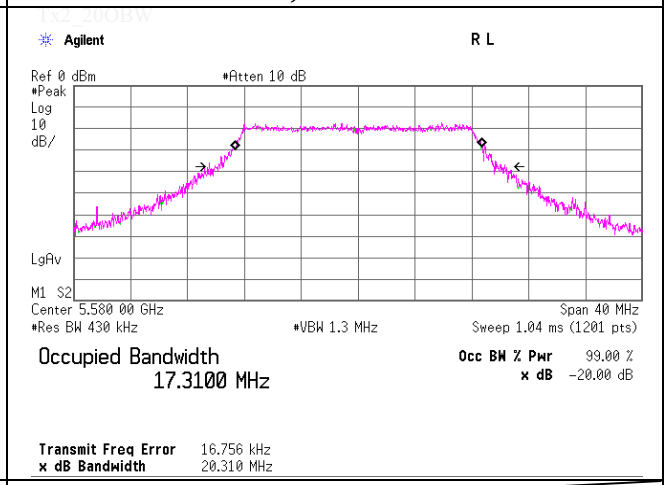
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11a (W56), PN9, worst data mode 6Mbps | |

| Freq. [MHz] | -20dB Bandwidth [MHz] |
|---|---|
| 5500.0000 | 20.819 |
| 5580.0000 | 20.310 |
| 5700.0000 | 20.234 |

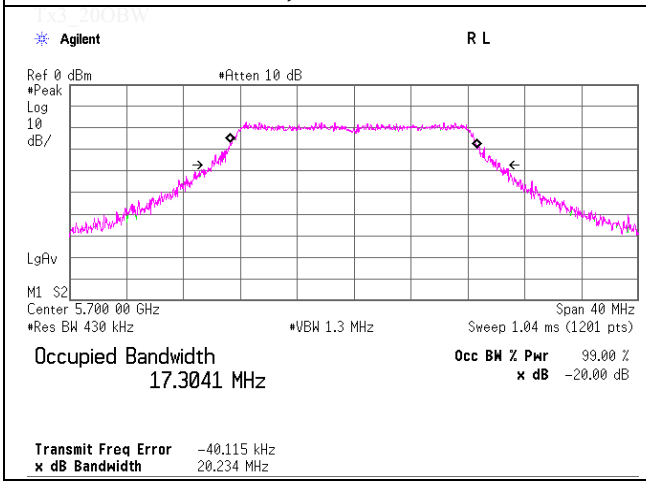
**Tx, 5500MHz**




**Tx, 5580MHz**




**Tx, 5700MHz**

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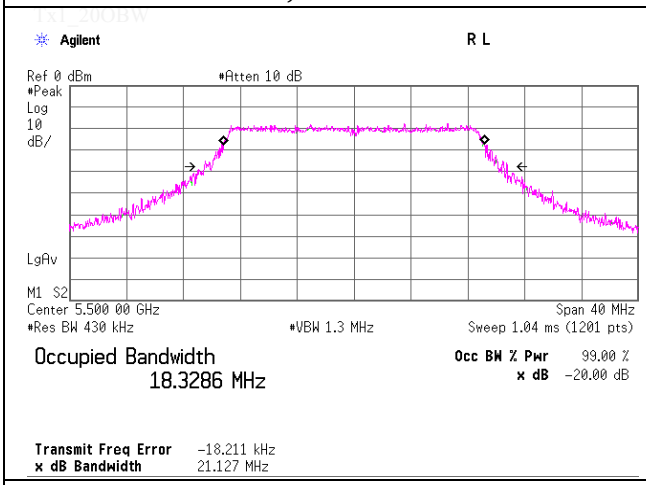
# -20dB Bandwidth

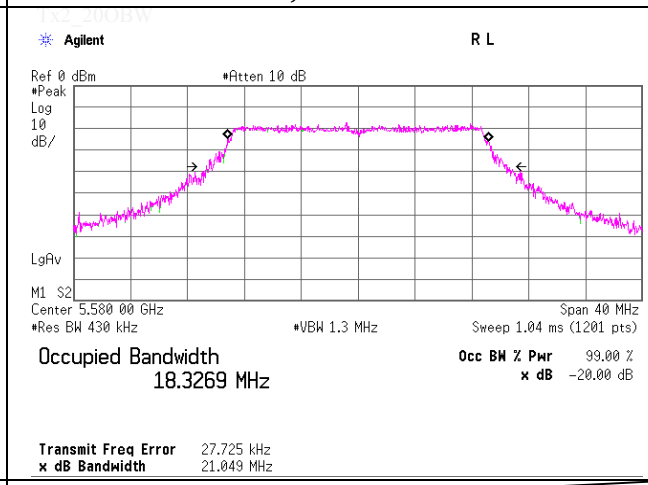
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11n (HT20) (W56), PN9, worst data mode 0(MCS) | |

| Freq. [MHz] | -20dB Bandwidth [MHz] |
|---|---|
| 5500.0000 | 21.127 |
| 5580.0000 | 21.049 |
| 5700.0000 | 21.063 |

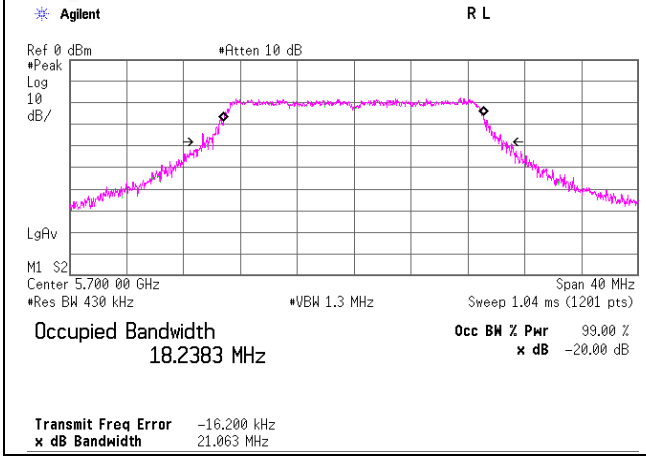
**Tx, 5500MHz**




**Tx, 5580MHz**




**Tx, 5700MHz**

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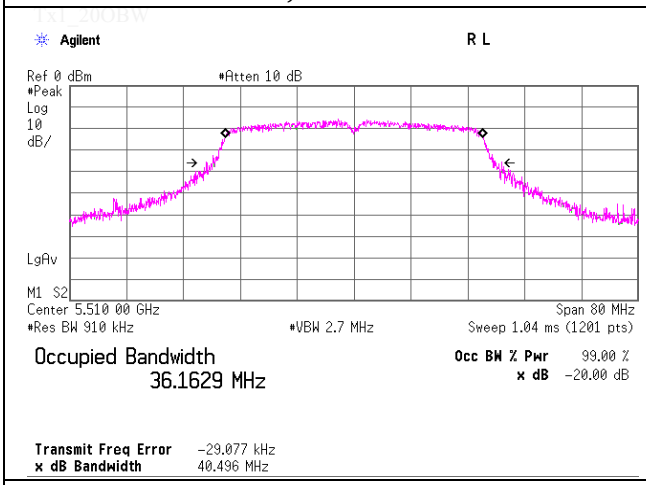
# -20dB Bandwidth

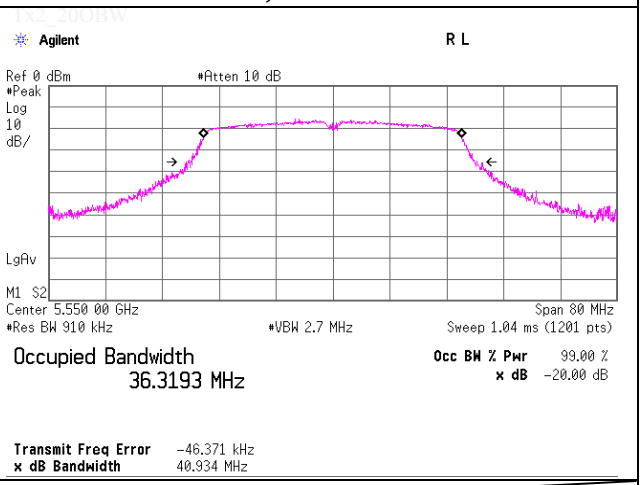
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11n (HT40) (W56), PN9, worst data mode 0(MCS) | |

| Freq. [MHz] | -20dB Bandwidth [MHz] |
|---|---|
| 5510.0000 | 40.496 |
| 5550.0000 | 40.934 |
| 5670.0000 | 40.313 |

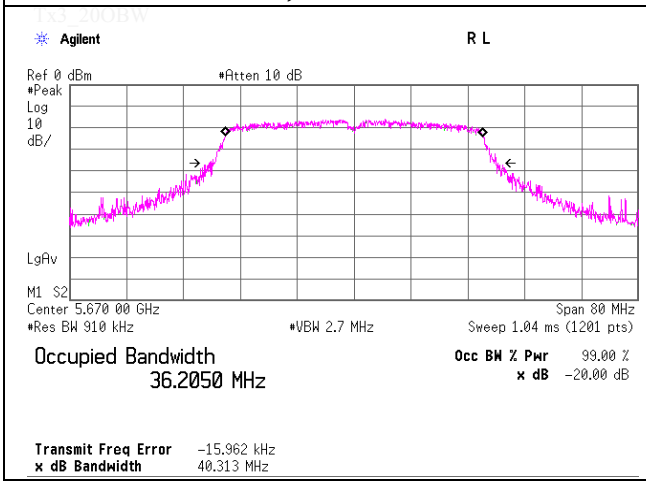
**Tx, 5510MHz**




**Tx, 5550MHz**




**Tx, 5670MHz**

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# Maximum Conducted Output Power (Conducted)

| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.5 Shielded Room |
| Date | July 30, 2012 | |
| Temperature / Humidity | 26deg.C , 64%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11a (W52), PN9, | worst data mode : 6 Mbps |

**Antena terminal power** (* P/M: Power Meter with power senser, AV: Average)

| Ch | Freq. [MHz] | P/M (AV) Reading [dBm] | Cable Loss [dB] | Atten. Loss [dB] | Duty factor [dB] | | Result [dBm] | Result [mW] | Limit [dBm] | Limit [mW] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Low | 5180.0 | -9.97 | 1.32 | 20.28 | 0.08 | | 11.71 | 14.82 | 16.99 | 50.00 | 5.28 |
| Mid | 5220.0 | -10.00 | 1.32 | 20.27 | 0.08 | | 11.67 | 14.69 | 16.99 | 50.00 | 5.32 |
| High | 5240.0 | -10.07 | 1.32 | 20.26 | 0.08 | | 11.59 | 14.42 | 16.99 | 50.00 | 5.40 |

Sample Calculation: Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor

**EIRP** (* P/M: Power Meter with power senser, AV: Average) **Reference Data**

| Ch | Freq. [MHz] | P/M (AV) Reading [dBm] | Cable Loss [dB] | Atten. Loss [dB] | Duty factor [dB] | Antenna Gain [dBi] | Result (e.i.r.p.) [dBm] | Result (e.i.r.p.) [mW] | Limit (e.i.r.p.) [dBm] | Limit (e.i.r.p.) [mW] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Low | 5180.0 | -9.97 | 1.32 | 20.28 | 0.08 | -0.30 | 11.41 | 13.83 | - | - | - |
| Mid | 5220.0 | -10.00 | 1.32 | 20.27 | 0.08 | -0.30 | 11.37 | 13.71 | - | - | - |
| High | 5240.0 | -10.07 | 1.32 | 20.26 | 0.08 | -0.30 | 11.29 | 13.46 | - | - | - |

Sample Calculation: Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor + Antenna Gain

**[Pre check]**

**Antenna** (SCC-G11)(SAT20-03)

| | Data rate [Mbps] | Freq. [MHz] | P/M (AV) Reading [dBm] | Cable Loss [dB] | Atten. Loss [dB] | Duty factor [dB] | Result [dBm] | |
|---|---|---|---|---|---|---|---|---|
| | 6 | 5220.0 | -10.00 | 1.32 | 20.27 | 0.08 | 11.67 | **Worst** |
| | 9 | 5220.0 | -10.05 | 1.32 | 20.27 | 0.11 | 11.65 | |
| | 12 | 5220.0 | -10.13 | 1.32 | 20.27 | 0.15 | 11.61 | |
| | 18 | 5220.0 | -10.20 | 1.32 | 20.27 | 0.15 | 11.54 | |
| | 24 | 5220.0 | -10.25 | 1.32 | 20.27 | 0.20 | 11.54 | |
| | 36 | 5220.0 | -10.31 | 1.32 | 20.27 | 0.28 | 11.56 | |
| | 48 | 5220.0 | -10.35 | 1.32 | 20.27 | 0.35 | 11.59 | |
| | 54 | 5220.0 | -10.47 | 1.32 | 20.27 | 0.38 | 11.50 | |

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# Maximum Conducted Output Power (Conducted)

| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.5 Shielded Room |
| Date | July 30, 2012 | |
| Temperature / Humidity | 26deg.C , 64%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11n (HT20) (W52), PN9, | worst data mode : 0 (MCS) |

**Antena terminal power** (* P/M: Power Meter with power senser, AV: Average)

| Ch | Freq. [MHz] | P/M (AV) Reading [dBm] | Cable Loss [dB] | Atten. Loss [dB] | Duty factor [dB] | | Result [dBm] | Result [mW] | Limit [dBm] | Limit [mW] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Low | 5180.0 | -9.93 | 1.32 | 20.28 | 0.08 | | 11.75 | 14.97 | 16.99 | 50.00 | 5.24 |
| Mid | 5220.0 | -9.97 | 1.32 | 20.27 | 0.08 | | 11.70 | 14.80 | 16.99 | 50.00 | 5.29 |
| High | 5240.0 | -10.02 | 1.32 | 20.26 | 0.08 | | 11.64 | 14.59 | 16.99 | 50.00 | 5.35 |

Sample Calculation: Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor

**EIRP** (* P/M: Power Meter with power senser, AV: Average) **Reference Data**

| Ch | Freq. [MHz] | P/M (AV) Reading [dBm] | Cable Loss [dB] | Atten. Loss [dB] | Duty factor [dB] | Antenna Gain [dBi] | Result (e.i.r.p.) [dBm] | Result (e.i.r.p.) [mW] | Limit (e.i.r.p.) [dBm] | Limit (e.i.r.p.) [mW] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Low | 5180.0 | -9.93 | 1.32 | 20.28 | 0.08 | -0.30 | 11.45 | 13.97 | - | - | - |
| Mid | 5220.0 | -9.97 | 1.32 | 20.27 | 0.08 | -0.30 | 11.40 | 13.81 | - | - | - |
| High | 5240.0 | -10.02 | 1.32 | 20.26 | 0.08 | -0.30 | 11.34 | 13.62 | - | - | - |

Sample Calculation: Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor + Antenna Gain

**[Pre check]**

**Antenna** (SCC-G11)(SAT20-03)

| | Mode (MCS) | Freq. [MHz] | P/M (AV) Reading [dBm] | Cable Loss [dB] | Atten. Loss [dB] | Duty factor [dB] | Result [dBm] | |
|---|---|---|---|---|---|---|---|---|
| | 0 | 5220.0 | -9.97 | 1.32 | 20.27 | 0.08 | 11.70 | **Worst** |
| | 1 | 5220.0 | -10.01 | 1.32 | 20.27 | 0.11 | 11.69 | |
| | 2 | 5220.0 | -10.17 | 1.32 | 20.27 | 0.16 | 11.58 | |
| | 3 | 5220.0 | -10.13 | 1.32 | 20.27 | 0.20 | 11.66 | |
| | 4 | 5220.0 | -10.23 | 1.32 | 20.27 | 0.27 | 11.63 | |
| | 5 | 5220.0 | -10.33 | 1.32 | 20.27 | 0.34 | 11.60 | |
| | 6 | 5220.0 | -10.34 | 1.32 | 20.27 | 0.38 | 11.63 | |
| | 7 | 5220.0 | -10.41 | 1.32 | 20.27 | 0.41 | 11.59 | |

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# Maximum Conducted Output Power (Conducted)

| | | | |
|---|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.5 Shielded Room | |
| Date | July 30, 2012 | | |
| Temperature / Humidity | 26deg.C , 64%RH | | |
| Engineer | Kenichi Adachi | | |
| Mode | Tx, IEEE802.11n (HT40) (W52), PN9, | worst data mode : | 0 (MCS) |

**Antena terminal power** (* P/M: Power Meter with power senser, AV: Average)

| Ch | Freq. | P/M (AV) Reading | Cable Loss | Atten. Loss | Duty factor | | Result | | Limit | | Margin |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | [MHz] | [dBm] | [dB] | [dB] | [dB] | | [dBm] | [mW] | [dBm] | [mW] | [dB] |
| Low | 5190.0 | -9.53 | 1.32 | 20.27 | 0.10 | | 12.16 | 16.46 | 16.99 | 50.00 | 4.83 |
| Mid | | | | | | | | | 16.99 | 50.00 | |
| High | 5230.0 | -9.71 | 1.32 | 20.26 | 0.10 | | 11.97 | 15.75 | 16.99 | 50.00 | 5.02 |

Sample Calculation: Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor

**EIRP** (* P/M: Power Meter with power senser, AV: Average) **Reference Data**

| Ch | Freq. | P/M (AV) Reading | Cable Loss | Atten. Loss | Duty factor | Antenna Gain | Result (e.i.r.p.) | (e.i.r.p.) | Limit (e.i.r.p.) | (e.i.r.p.) | Margin |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | [MHz] | [dBm] | [dB] | [dB] | [dB] | [dBi] | [dBm] | [mW] | [dBm] | [mW] | [dB] |
| Low | 5190.0 | -9.53 | 1.32 | 20.27 | 0.10 | -0.30 | 11.86 | 15.36 | - | - | - |
| Mid | | | | | | | | | - | - | - |
| High | 5230.0 | -9.71 | 1.32 | 20.26 | 0.10 | -0.30 | 11.67 | 14.70 | - | - | - |

Sample Calculation: Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor + Antenna Gain

**[Pre check]**

**Antenna** (SCC-G11)(SAT20-03)

| | Mode | Freq. | P/M (AV) Reading | Cable Loss | Atten. Loss | Duty factor | Result | |
|---|---|---|---|---|---|---|---|---|
| | (MCS) | [MHz] | [dBm] | [dB] | [dB] | [dB] | [dBm] | |
| | 0 | 5190.0 | -9.53 | 1.32 | 20.27 | 0.10 | 12.16 | **Worst** |
| | 1 | 5190.0 | -9.65 | 1.32 | 20.27 | 0.20 | 12.14 | |
| | 2 | 5190.0 | -9.78 | 1.32 | 20.27 | 0.27 | 12.08 | |
| | 3 | 5190.0 | -9.82 | 1.32 | 20.27 | 0.34 | 12.11 | |
| | 4 | 5190.0 | -9.97 | 1.32 | 20.27 | 0.48 | 12.10 | |
| | 5 | 5190.0 | -10.02 | 1.32 | 20.27 | 0.56 | 12.13 | |
| | 6 | 5190.0 | -10.07 | 1.32 | 20.27 | 0.60 | 12.12 | |
| | 7 | 5190.0 | -10.17 | 1.32 | 20.27 | 0.64 | 12.06 | |

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# Maximum Conducted Output Power (Conducted)

| | | | |
|---|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.5 Shielded Room | |
| Date | July 31, 2012 | | |
| Temperature / Humidity | 26 deg.C , 54 %RH | | |
| Engineer | Kenichi Adachi | | |
| Mode | Tx, IEEE802.11a (W53), PN9, | worst data mode : | 6 Mbps |

**Antena terminal power** (* P/M: Power Meter with power senser, AV: Average)

| Ch | Freq. | P/M (AV) Reading | Cable Loss | Atten. Loss | Duty factor | | Result | | Limit | | Margin |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | [MHz] | [dBm] | [dB] | [dB] | [dB] | | [dBm] | [mW] | [dBm] | [mW] | [dB] |
| Low | 5260.0 | -9.94 | 1.32 | 20.26 | 0.05 | | 11.69 | 14.76 | 23.98 | 250.00 | 12.29 |
| Mid | 5300.0 | -10.03 | 1.33 | 20.25 | 0.05 | | 11.60 | 14.45 | 23.98 | 250.00 | 12.38 |
| High | 5320.0 | -9.97 | 1.33 | 20.24 | 0.05 | | 11.65 | 14.62 | 23.98 | 250.00 | 12.33 |

Sample Calculation: Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor

**EIRP** (* P/M: Power Meter with power senser, AV: Average) **Reference Data**

| Ch | Freq. | P/M (AV) Reading | Cable Loss | Atten. Loss | Duty factor | Antenna Gain | Result | | Limit | | Margin |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | (e.i.r.p.) | (e.i.r.p.) | (e.i.r.p.) | (e.i.r.p.) | |
| | [MHz] | [dBm] | [dB] | [dB] | [dB] | [dBi] | [dBm] | [mW] | [dBm] | [mW] | [dB] |
| Low | 5260.0 | -9.94 | 1.32 | 20.26 | 0.05 | -0.30 | 11.39 | 13.77 | - | - | - |
| Mid | 5300.0 | -10.03 | 1.33 | 20.25 | 0.05 | -0.30 | 11.30 | 13.49 | - | - | - |
| High | 5320.0 | -9.97 | 1.33 | 20.24 | 0.05 | -0.30 | 11.35 | 13.65 | - | - | - |

Sample Calculation: Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor + Antenna Gain

# Maximum Conducted Output Power (Conducted)

| | | | |
|---|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.5 Shielded Room | |
| Date | July 31, 2012 | | |
| Temperature / Humidity | 26 deg.C , 54 %RH | | |
| Engineer | Kenichi Adachi | | |
| Mode | Tx, IEEE802.11n (HT20) (W53), PN9, | worst data mode : | 0 (MCS) |

**Antena terminal power** (* P/M: Power Meter with power senser, AV: Average)

| Ch | Freq. | P/M (AV) Reading | Cable Loss | Atten. Loss | Duty factor | | Result | | Limit | | Margin |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | [MHz] | [dBm] | [dB] | [dB] | [dB] | | [dBm] | [mW] | [dBm] | [mW] | [dB] |
| Low | 5260.0 | -9.92 | 1.32 | 20.26 | 0.06 | | 11.72 | 14.86 | 23.98 | 250.00 | 12.26 |
| Mid | 5300.0 | -10.01 | 1.33 | 20.25 | 0.06 | | 11.63 | 14.55 | 23.98 | 250.00 | 12.35 |
| High | 5320.0 | -10.03 | 1.33 | 20.24 | 0.06 | | 11.60 | 14.45 | 23.98 | 250.00 | 12.38 |

Sample Calculation: Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor

**EIRP** (* P/M: Power Meter with power senser, AV: Average) **Reference Data**

| Ch | Freq. | P/M (AV) Reading | Cable Loss | Atten. Loss | Duty factor | Antenna Gain | Result | | Limit | | Margin |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | (e.i.r.p.) | (e.i.r.p.) | (e.i.r.p.) | (e.i.r.p.) | |
| | [MHz] | [dBm] | [dB] | [dB] | [dB] | [dBi] | [dBm] | [mW] | [dBm] | [mW] | [dB] |
| Low | 5260.0 | -9.92 | 1.32 | 20.26 | 0.06 | -0.30 | 11.42 | 13.87 | - | - | - |
| Mid | 5300.0 | -10.01 | 1.33 | 20.25 | 0.06 | -0.30 | 11.33 | 13.58 | - | - | - |
| High | 5320.0 | -10.03 | 1.33 | 20.24 | 0.06 | -0.30 | 11.30 | 13.49 | - | - | - |

Sample Calculation: Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor + Antenna Gain

# Maximum Conducted Output Power (Conducted)

| | | | |
|---|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.5 Shielded Room | |
| Date | July 31, 2012 | | |
| Temperature / Humidity | 26 deg.C , 54 %RH | | |
| Engineer | Kenichi Adachi | | |
| Mode | Tx, IEEE802.11n (HT40) (W53), PN9, | worst data mode : | 0 (MCS) |

**Antena terminal power** (* P/M: Power Meter with power senser, AV: Average)

| Ch | Freq. | P/M (AV) Reading | Cable Loss | Atten. Loss | Duty factor | | Result | | Limit | | Margin |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | [MHz] | [dBm] | [dB] | [dB] | [dB] | | [dBm] | [mW] | [dBm] | [mW] | [dB] |
| Low | 5270.0 | -9.50 | 1.33 | 20.26 | 0.11 | | 12.20 | 16.60 | 23.98 | 250.00 | 11.78 |
| Mid | | | | | | | | | 23.98 | 250.00 | |
| High | 5310.0 | -9.62 | 1.33 | 20.25 | 0.11 | | 12.07 | 16.11 | 23.98 | 250.00 | 11.91 |

Sample Calculation: Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor

**EIRP** (* P/M: Power Meter with power senser, AV: Average) **Reference Data**

| Ch | Freq. | P/M (AV) Reading | Cable Loss | Atten. Loss | Duty factor | Antenna Gain | Result | | Limit | | Margin |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | (e.i.r.p.) | (e.i.r.p.) | (e.i.r.p.) | (e.i.r.p.) | |
| | [MHz] | [dBm] | [dB] | [dB] | [dB] | [dBi] | [dBm] | [mW] | [dBm] | [mW] | [dB] |
| Low | 5270.0 | -9.50 | 1.33 | 20.26 | 0.11 | -0.30 | 11.90 | 15.49 | - | - | - |
| Mid | | | | | | | | | - | - | - |
| High | 5310.0 | -9.62 | 1.33 | 20.25 | 0.11 | -0.30 | 11.77 | 15.03 | - | - | - |

Sample Calculation: Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor + Antenna Gain

# Maximum Conducted Output Power (Conducted)

| | | | |
|---|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.5 Shielded Room | |
| Date | July 31, 2012 | | |
| Temperature / Humidity | 26 deg.C , 54 %RH | | |
| Engineer | Kenichi Adachi | | |
| Mode | Tx, IEEE802.11a (W56), PN9, | worst data mode : | 6 Mbps |

**Antena terminal power** (* P/M: Power Meter with power senser, AV: Average)

| Ch | Freq. | P/M (AV) Reading | Cable Loss | Atten. Loss | Duty factor | | Result | | Limit | | Margin |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | [MHz] | [dBm] | [dB] | [dB] | [dB] | | [dBm] | [mW] | [dBm] | [mW] | [dB] |
| Low | 5500.0 | -8.96 | 1.35 | 20.20 | 0.06 | | 12.65 | 18.41 | 23.98 | 250.00 | 11.33 |
| Mid | 5580.0 | -8.90 | 1.36 | 20.20 | 0.06 | | 12.72 | 18.71 | 23.98 | 250.00 | 11.26 |
| High | 5700.0 | -8.83 | 1.36 | 20.21 | 0.06 | | 12.80 | 19.05 | 23.98 | 250.00 | 11.18 |

Sample Calculation: Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor

**EIRP** (* P/M: Power Meter with power senser, AV: Average) **Reference Data**

| Ch | Freq. | P/M (AV) Reading | Cable Loss | Atten. Loss | Duty factor | Antenna Gain | Result | | Limit | | Margin |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | (e.i.r.p.) | (e.i.r.p.) | (e.i.r.p.) | (e.i.r.p.) | |
| | [MHz] | [dBm] | [dB] | [dB] | [dB] | [dBi] | [dBm] | [mW] | [dBm] | [mW] | [dB] |
| Low | 5500.0 | -8.96 | 1.35 | 20.20 | 0.06 | -1.20 | 11.45 | 13.96 | - | - | - |
| Mid | 5580.0 | -8.90 | 1.36 | 20.20 | 0.06 | -1.20 | 11.52 | 14.19 | - | - | - |
| High | 5700.0 | -8.83 | 1.36 | 20.21 | 0.06 | -1.20 | 11.60 | 14.45 | - | - | - |

Sample Calculation: Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor + Antenna Gain

# Maximum Conducted Output Power (Conducted)

| | | | |
|---|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.5 Shielded Room | |
| Date | July 31, 2012 | | |
| Temperature / Humidity | 26 deg.C , 54 %RH | | |
| Engineer | Kenichi Adachi | | |
| Mode | Tx, IEEE802.11n (HT20) (W56), PN9, | worst data mode : | 0 (MCS) |

**Antena terminal power** (* P/M: Power Meter with power senser, AV: Average)

| Ch | Freq. | P/M (AV) Reading | Cable Loss | Atten. Loss | Duty factor | | Result | | Limit | | Margin |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | [MHz] | [dBm] | [dB] | [dB] | [dB] | | [dBm] | [mW] | [dBm] | [mW] | [dB] |
| Low | 5500.0 | -8.94 | 1.35 | 20.20 | 0.06 | | 12.67 | 18.49 | 23.98 | 250.00 | 11.31 |
| Mid | 5580.0 | -8.84 | 1.36 | 20.20 | 0.06 | | 12.78 | 18.97 | 23.98 | 250.00 | 11.20 |
| High | 5700.0 | -8.75 | 1.36 | 20.21 | 0.06 | | 12.88 | 19.41 | 23.98 | 250.00 | 11.10 |

Sample Calculation: Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor

**EIRP** (* P/M: Power Meter with power senser, AV: Average) **Reference Data**

| Ch | Freq. | P/M (AV) Reading | Cable Loss | Atten. Loss | Duty factor | Antenna Gain | Result (e.i.r.p.) | Result (e.i.r.p.) | Limit (e.i.r.p.) | Limit (e.i.r.p.) | Margin |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | [MHz] | [dBm] | [dB] | [dB] | [dB] | [dBi] | [dBm] | [mW] | [dBm] | [mW] | [dB] |
| Low | 5500.0 | -8.94 | 1.35 | 20.20 | 0.06 | -1.20 | 11.47 | 14.03 | - | - | - |
| Mid | 5580.0 | -8.84 | 1.36 | 20.20 | 0.06 | -1.20 | 11.58 | 14.39 | - | - | - |
| High | 5700.0 | -8.75 | 1.36 | 20.21 | 0.06 | -1.20 | 11.68 | 14.72 | - | - | - |

Sample Calculation: Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor + Antenna Gain

# Maximum Conducted Output Power (Conducted)

| | | | |
|---|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.5 Shielded Room | |
| Date | July 31, 2012 | | |
| Temperature / Humidity | 26 deg.C , 54 %RH | | |
| Engineer | Kenichi Adachi | | |
| Mode | Tx, IEEE802.11n (HT40) (W56), PN9, | worst data mode : | 0 (MCS) |

**Antena terminal power** (* P/M: Power Meter with power senser, AV: Average)

| Ch | Freq. | P/M (AV) Reading | Cable Loss | Atten. Loss | Duty factor | | Result | | Limit | | Margin |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | [MHz] | [dBm] | [dB] | [dB] | [dB] | | [dBm] | [mW] | [dBm] | [mW] | [dB] |
| Low | 5510.0 | -8.55 | 1.35 | 20.20 | 0.10 | | 13.10 | 20.42 | 23.98 | 250.00 | 10.88 |
| Mid | 5550.0 | -8.68 | 1.35 | 20.20 | 0.10 | | 12.97 | 19.83 | 23.98 | 250.00 | 11.01 |
| High | 5670.0 | -8.48 | 1.35 | 20.21 | 0.10 | | 13.18 | 20.81 | 23.98 | 250.00 | 10.80 |

Sample Calculation: Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor

**EIRP** (* P/M: Power Meter with power senser, AV: Average) **Reference Data**

| Ch | Freq. | P/M (AV) Reading | Cable Loss | Atten. Loss | Duty factor | Antenna Gain | Result (e.i.r.p.) | Result (e.i.r.p.) | Limit (e.i.r.p.) | Limit (e.i.r.p.) | Margin |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | [MHz] | [dBm] | [dB] | [dB] | [dB] | [dBi] | [dBm] | [mW] | [dBm] | [mW] | [dB] |
| Low | 5510.0 | -8.55 | 1.35 | 20.20 | 0.10 | -1.20 | 11.90 | 15.49 | - | - | - |
| Mid | 5550.0 | -8.68 | 1.35 | 20.20 | 0.10 | -1.20 | 11.77 | 15.05 | - | - | - |
| High | 5670.0 | -8.48 | 1.35 | 20.21 | 0.10 | -1.20 | 11.98 | 15.79 | - | - | - |

Sample Calculation: Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor + Antenna Gain

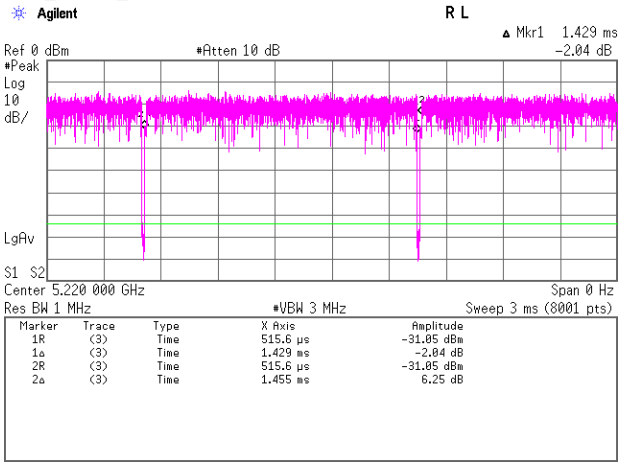
# Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

**Tx, IEEE802.11a, (Tx 5220MHz)**

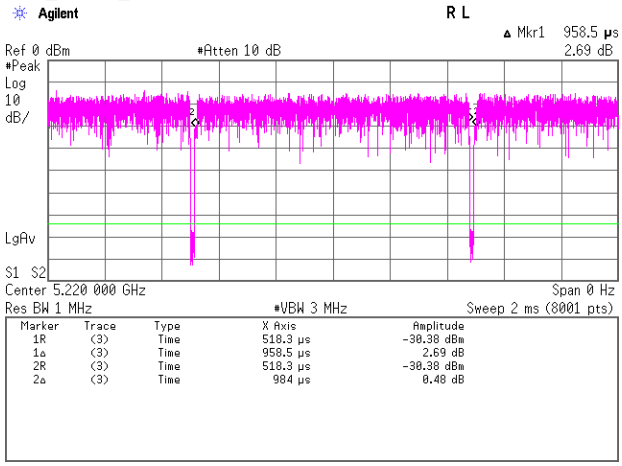
**6Mbps**

duty factor [dB] = 10 x log ( 1.46[ms] / 1.43[ms] ) = 0.079 [dB]



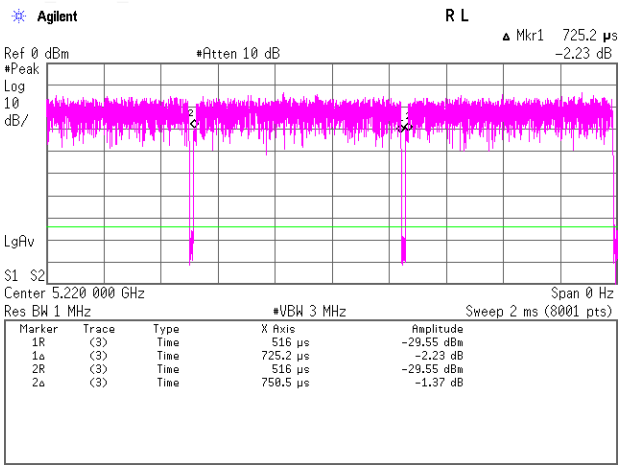

**9Mbps**

duty factor [dB] = 10 x log ( 0.98[ms] / 0.96[ms] ) = 0.114 [dB]



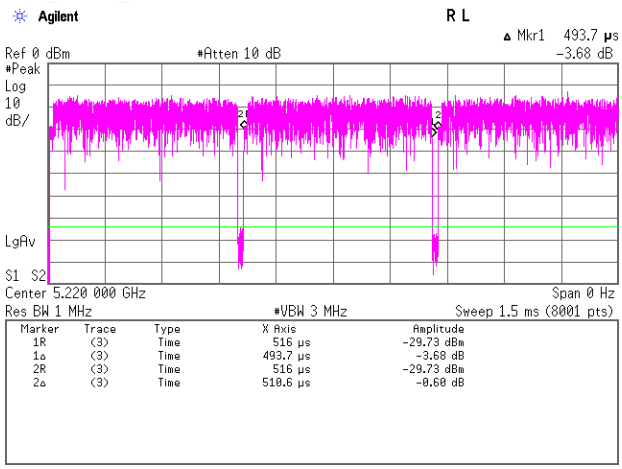

**12Mbps**

duty factor [dB] = 10 x log ( 0.75[ms] / 0.73[ms] ) = 0.149 [dB]




**18Mbps**

duty factor [dB] = 10 x log ( 0.51[ms] / 0.49[ms] ) = 0.146 [dB]

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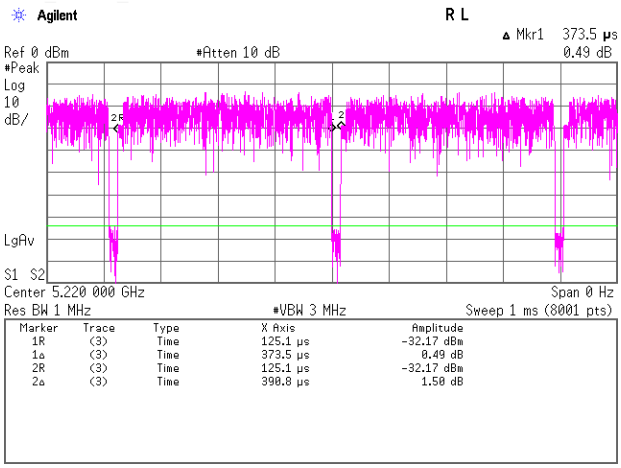
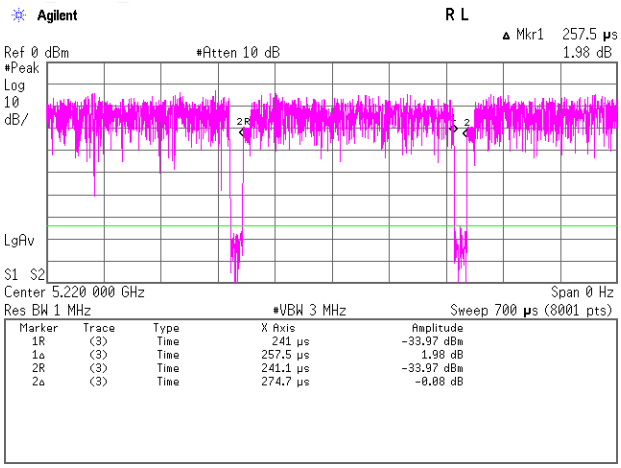
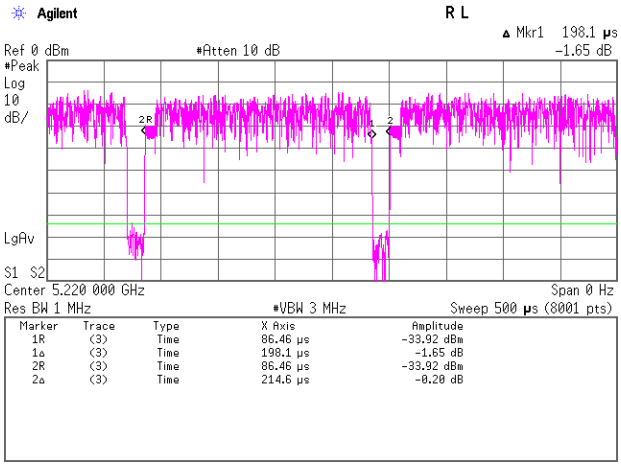
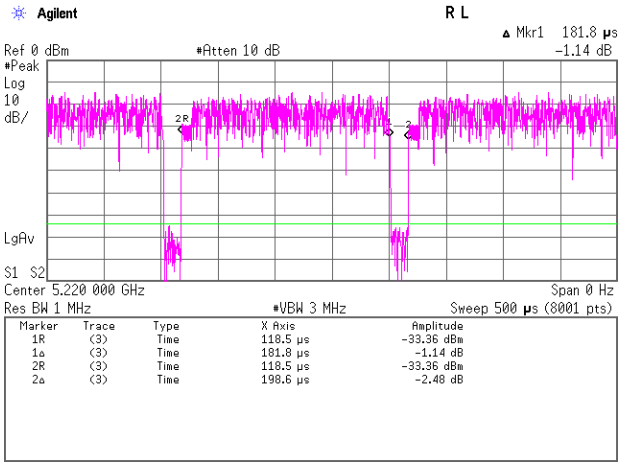
# Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

| Tx, IEEE802.11a, (Tx 5220MHz) | |
|---|---|
| **24Mbps** | **36Mbps** |
| duty factor [dB] = 10 x log ( 0.39[ms] / 0.37[ms] ) = 0.196 [dB] | duty factor [dB] = 10 x log ( 0.27[ms] / 0.26[ms] ) = 0.28 [dB] |
|  |  |
| **48Mbps** | **54Mbps** |
| duty factor [dB] = 10 x log ( 0.21[ms] / 0.2[ms] ) = 0.347 [dB] | duty factor [dB] = 10 x log ( 0.2[ms] / 0.18[ms] ) = 0.383 [dB] |
|  |  |









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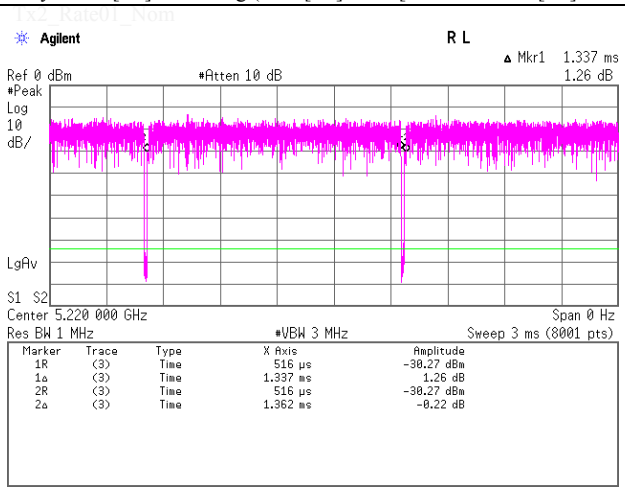
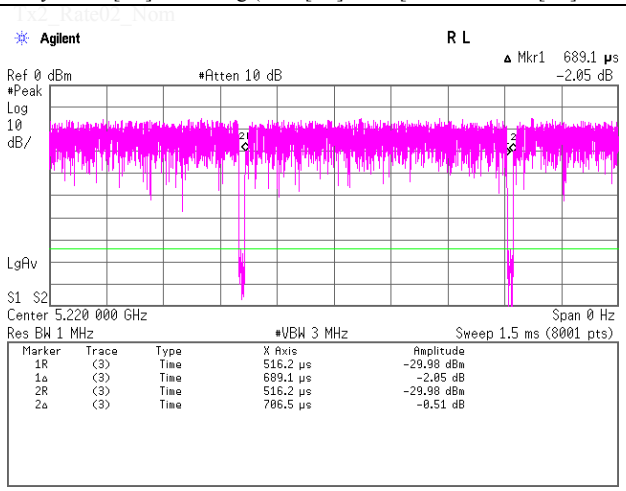
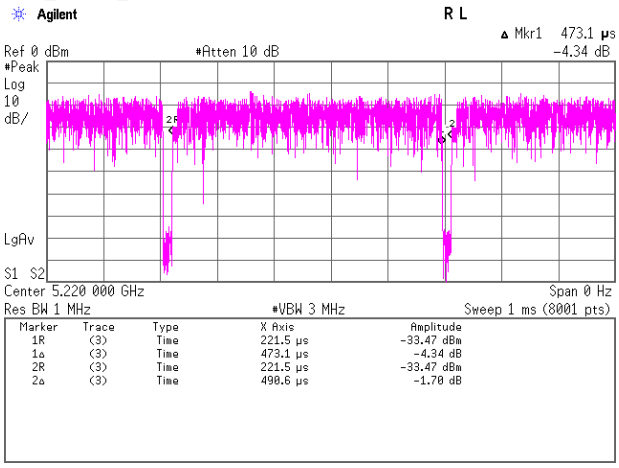
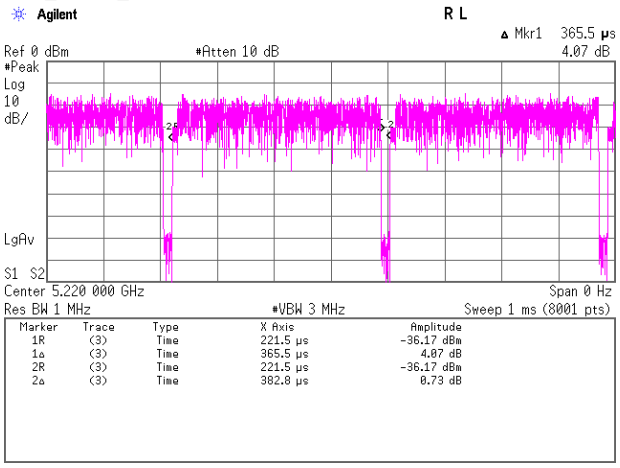
# Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

**Tx, IEEE802.11n (HT20), (Tx 5220MHz)**

| MCS0 | MCS1 |
|---|---|
| duty factor [dB] = 10 x log ( 1.36[ms] / 1.34[ms 0.082 [dB] | duty factor [dB] = 10 x log ( 0.71[ms] / 0.69[ms 0.109 [dB] |
|  |  |
| **MCS2** | **MCS3** |
| duty factor [dB] = 10 x log ( 0.49[ms] / 0.47[ms 0.158 [dB] | duty factor [dB] = 10 x log ( 0.38[ms] / 0.37[ms 0.2 [dB] |
|  |  |









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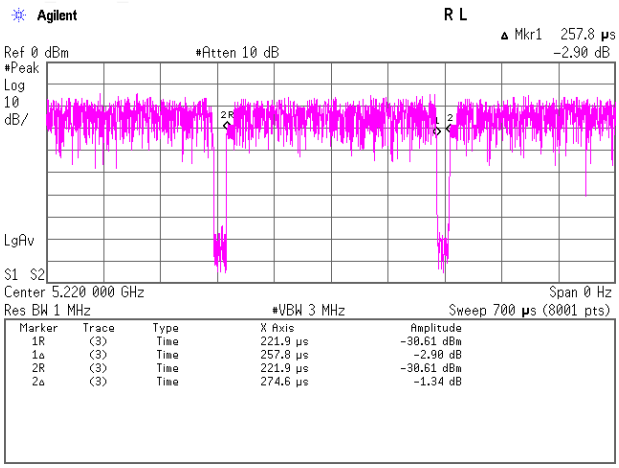
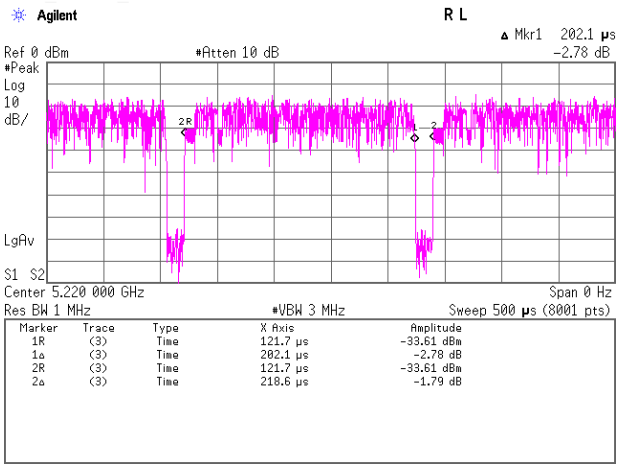
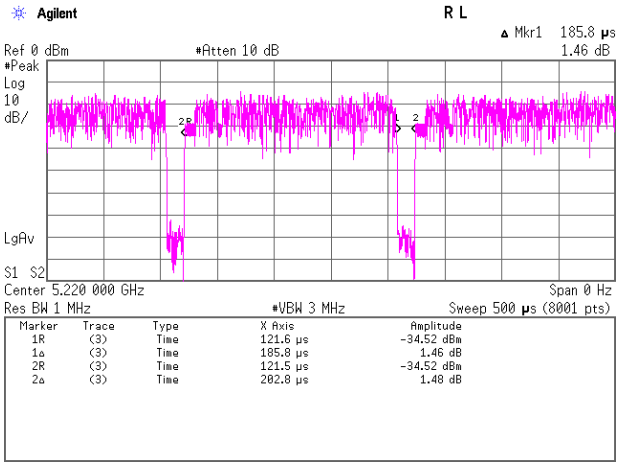
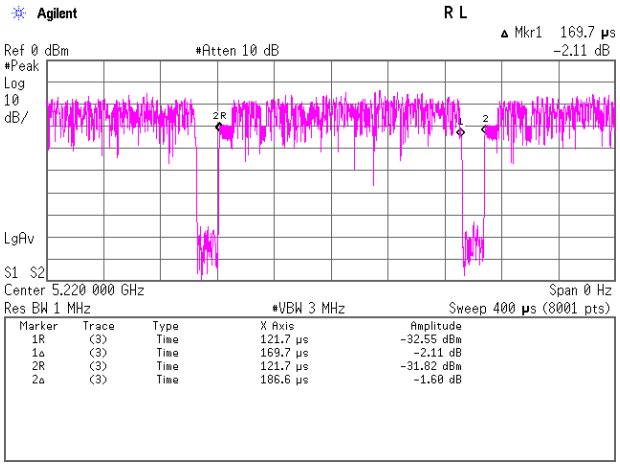
# Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

| Tx, IEEE802.11n (HT20), (Tx 5220MHz) | |
|---|---|
| **MCS4** | **MCS5** |
| duty factor [dB] = 10 x log ( 0.27[ms] / 0.26[ms 0.274 [dB] | duty factor [dB] = 10 x log ( 0.22[ms] / 0.2[ms] 0.342 [dB] |
|  |  |
| **MCS6** | **MCS7** |
| duty factor [dB] = 10 x log ( 0.2[ms] / 0.19[ms] 0.38 [dB] | duty factor [dB] = 10 x log ( 0.19[ms] / 0.17[ms 0.411 [dB] |
|  |  |









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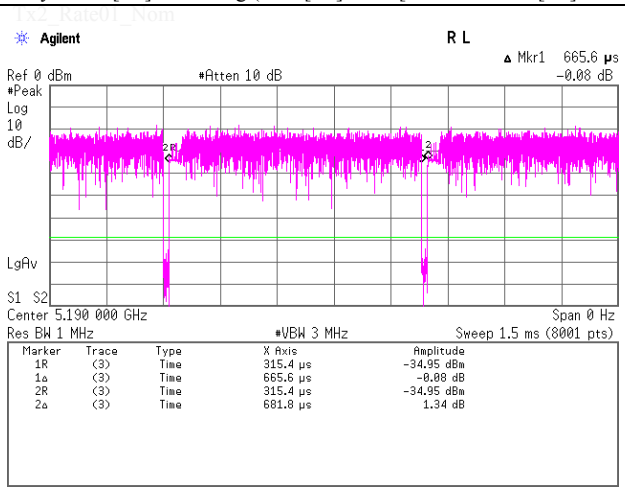
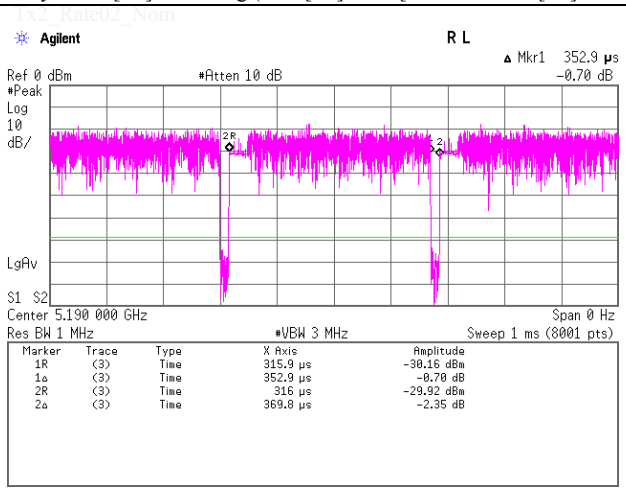
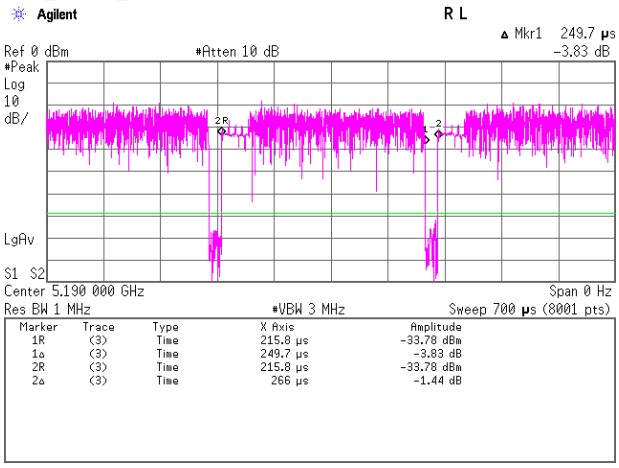
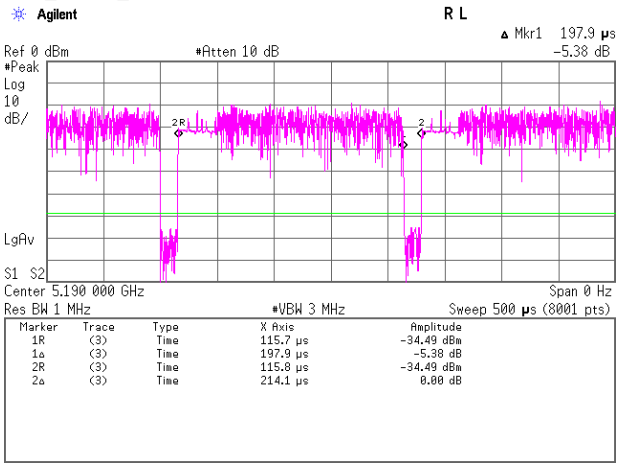
# Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

**Tx, IEEE802.11n (HT40), (Tx 5190MHz)**

| MCS0 | MCS1 |
|---|---|
| duty factor [dB] = 10 x log ( 0.68[ms] / 0.67[ms 0.104 [dB] | duty factor [dB] = 10 x log ( 0.37[ms] / 0.35[ms 0.203 [dB] |
|  |  |
| **MCS2** | **MCS3** |
| duty factor [dB] = 10 x log ( 0.27[ms] / 0.25[ms 0.274 [dB] | duty factor [dB] = 10 x log ( 0.21[ms] / 0.2[ms] 0.341 [dB] |
|  |  |









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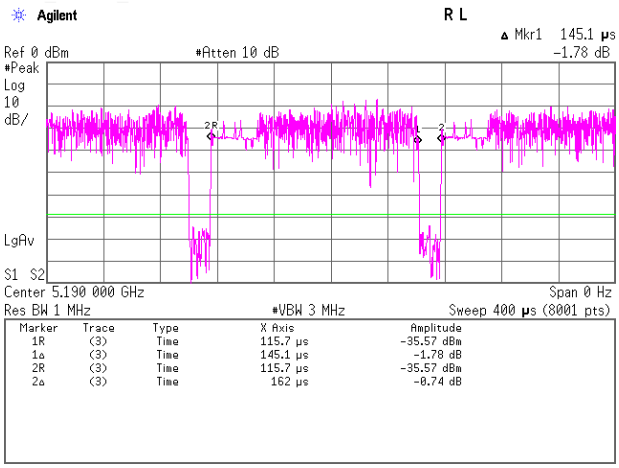
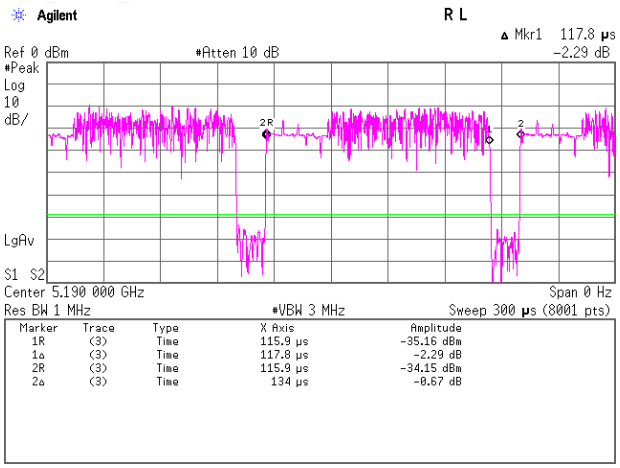
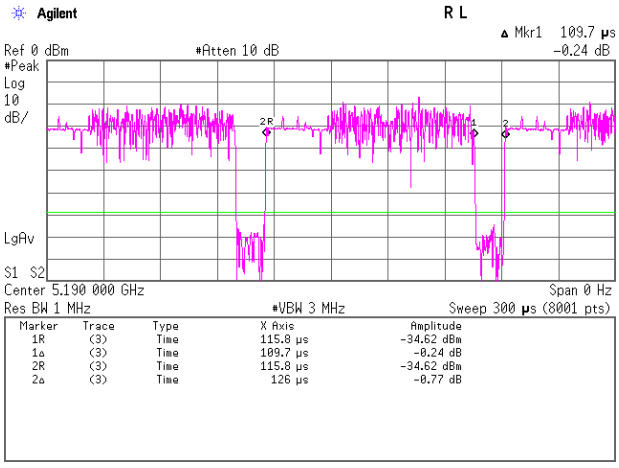
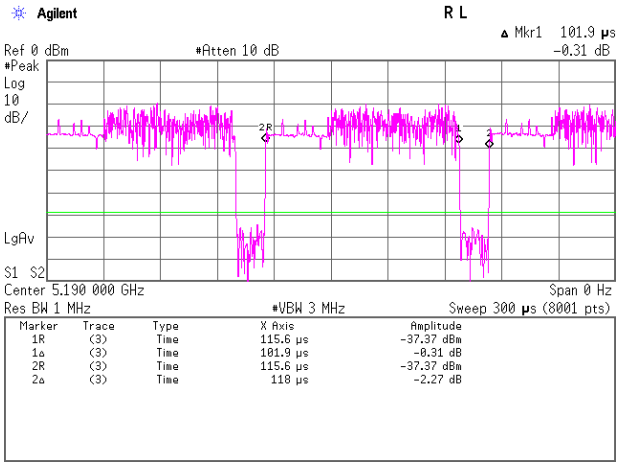
# Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

**Tx, IEEE802.11n (HT40), (Tx 5190MHz)**

| MCS4 | MCS5 |
|---|---|
| duty factor [dB] = 10 x log ( 0.16[ms] / 0.15[ms 0.477 [dB] | duty factor [dB] = 10 x log ( 0.13[ms] / 0.12[ms 0.561 [dB] |
|  |  |
| **MCS6** | **MCS7** |
| duty factor [dB] = 10 x log ( 0.13[ms] / 0.11[ms 0.603 [dB] | duty factor [dB] = 10 x log ( 0.12[ms] / 0.1[ms] 0.638 [dB] |
|  |  |









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# Radiated Emission

| | | | | |
|---|---|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | | No.3 Semi Anechoic Chamber | |
| Date | 2012/8/9 | 2012/8/11 | 2012/8/12 | 2012/8/19 |
| Temperature / Humidity | 23 deg.C , 44 %RH | 22 deg.C , 41 %RH | 23 deg.C , 51 %RH | 21 deg.C , 49 %RH |
| Engineer | Takahiro Suzuki | Wataru Kojima | Wataru Kojima | Tatsuya Arai |
| Mode | Tx, 5180 MHz | | | |
| | Tx, IEEE802.11a, PN9, worst data mode 6Mbps | | | |

## (above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5150.000 | PK | 45.6 | 31.6 | 16.4 | 40.6 | 53 | 73.9 | 20.9 | 100 | 34 | |
| Hori. | 15540.000 | PK | 42.1 | 40.1 | 1.9 | 39.2 | 44.9 | 73.9 | 29.0 | 100 | 115 | |
| Hori. | 5150.000 | AV | 37.2 | 31.6 | 16.4 | 40.6 | 44.6 | 53.9 | 9.3 | 100 | 34 | |
| Hori. | 15540.000 | AV | 32.9 | 40.1 | 1.9 | 39.2 | 35.7 | 53.9 | 18.2 | 100 | 115 | |
| Vert. | 5150.000 | PK | 47.3 | 31.6 | 16.4 | 40.6 | 54.7 | 73.9 | 19.2 | 100 | 185 | |
| Vert. | 15540.000 | PK | 42.5 | 40.1 | 1.9 | 39.2 | 45.3 | 73.9 | 28.6 | 100 | 251 | |
| Vert. | 5150.000 | AV | 40 | 31.6 | 16.4 | 40.6 | 47.4 | 53.9 | 6.5 | 100 | 185 | |
| Vert. | 15540.000 | AV | 33.5 | 40.1 | 1.9 | 39.2 | 36.3 | 53.9 | 17.6 | 100 | 251 | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The Duty Factor was included in Loss.

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

## (Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 6906.660 | PK | 56.1 | 35.8 | 7.8 | 41.2 | 58.5 | -36.73 | -27.00 | 9.7 | 100 | 0 | |
| Hori. | 10360.000 | PK | 43.3 | 39.4 | 9.4 | 38.7 | 53.4 | -41.83 | -27.00 | 14.8 | 100 | 192 | |
| Vert. | 6906.660 | PK | 50.5 | 35.8 | 7.8 | 41.2 | 52.9 | -42.33 | -27.00 | 15.3 | 100 | 3 | |
| Vert. | 10360.000 | PK | 43.1 | 39.4 | 9.4 | 38.7 | 53.2 | -42.03 | -27.00 | 15.0 | 100 | 251 | |

Result[dBuV/m] = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

Resrult(EIRP[dBm])=10*LOG（{ 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) * 10 ^ (-6) * Distance:3[m] ) ^ 2 } / 30) *10^3)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

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# Radiated Emission

| | | | | |
|---|---|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | | No.3 Semi Anechoic Chamber | |
| Date | 2012/8/9 | 2012/8/11 | 2012/8/12 | 2012/8/19 |
| Temperature / Humidity | 23 deg.C , 44 %RH | 22 deg.C , 41 %RH | 23 deg.C , 51 %RH | 21 deg.C , 49 %RH |
| Engineer | Takahiro Suzuki | Wataru Kojima | Wataru Kojima | Tatsuya Arai |
| Mode | Tx, 5260 MHz | | | |
| | Tx, IEEE802.11a, PN9, worst data mode 6Mbps | | | |

## (above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 15780.000 | PK | 45.1 | 39.6 | 1.8 | 39.2 | 47.3 | 73.9 | 26.6 | 100 | 65 | |
| Hori. | 15780.000 | AV | 34.1 | 39.6 | 1.8 | 39.2 | 36.3 | 53.9 | 17.6 | 100 | 65 | |
| Vert. | 15780.000 | PK | 44.3 | 39.6 | 1.8 | 39.2 | 46.5 | 73.9 | 27.4 | 100 | 72 | |
| Vert. | 15780.000 | AV | 33.6 | 39.6 | 1.8 | 39.2 | 35.8 | 53.9 | 18.1 | 100 | 72 | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The Duty Factor was included in Loss.

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

## (Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 7013.297 | PK | 52.8 | 36.1 | 7.8 | 41.3 | 55.4 | -39.83 | -27.00 | 12.8 | 100 | 0 | |
| Hori. | 10520.000 | PK | 43.9 | 39.6 | 9.4 | 38.7 | 54.2 | -41.03 | -27.00 | 14.0 | 100 | 56 | |
| Vert. | 7013.297 | PK | 49.5 | 36.1 | 7.8 | 41.3 | 52.1 | -43.13 | -27.00 | 16.1 | 100 | 19 | |
| Vert. | 10520.000 | PK | 43.4 | 39.6 | 9.4 | 38.7 | 53.7 | -41.53 | -27.00 | 14.5 | 100 | 118 | |

Result[dBuV/m] = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

Resrult(EIRP[dBm])=10*LOG（{ 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) * 10 ^ (-6) * Distance:3[m] ) ^ 2 } / 30) *10^3)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

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# Radiated Emission

| | | | | |
|---|---|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | | No.3 Semi Anechoic Chamber | |
| Date | 2012/8/9 | 2012/8/11 | 2012/8/12 | 2012/8/19 |
| Temperature / Humidity | 23 deg.C , 44 %RH | 22 deg.C , 41 %RH | 23 deg.C , 51 %RH | 21 deg.C , 49 %RH |
| Engineer | Takahiro Suzuki | Wataru Kojima | Wataru Kojima | Tatsuya Arai |
| Mode | Tx, 5320 MHz | | | |
| | Tx, IEEE802.11a, PN9, worst data mode 6Mbps | | | |

## (above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5350.000 | PK | 46.5 | 31.8 | 16.5 | 40.3 | 54.5 | 73.9 | 19.4 | 100 | 34 | |
| Hori. | 10640.000 | PK | 44.1 | 39.8 | 9.5 | 38.8 | 54.6 | 73.9 | 19.3 | 100 | 132 | |
| Hori. | 15960.000 | PK | 43.5 | 39.2 | 1.9 | 39.3 | 45.3 | 73.9 | 28.6 | 100 | 73 | |
| Hori. | 5350.000 | AV | 39.5 | 31.8 | 16.5 | 40.3 | 47.5 | 53.9 | 6.4 | 100 | 34 | |
| Hori. | 10640.000 | AV | 36 | 39.8 | 9.5 | 38.8 | 46.5 | 53.9 | 7.4 | 100 | 132 | |
| Hori. | 15960.000 | AV | 32.3 | 39.2 | 1.9 | 39.3 | 34.1 | 53.9 | 19.8 | 100 | 73 | |
| Vert. | 5350.000 | PK | 47.1 | 31.8 | 16.5 | 40.3 | 55.1 | 73.9 | 18.8 | 100 | 239 | |
| Vert. | 10640.000 | PK | 43.6 | 39.8 | 9.5 | 38.8 | 54.1 | 73.9 | 19.8 | 100 | 174 | |
| Vert. | 15960.000 | PK | 42.9 | 39.2 | 1.9 | 39.3 | 44.7 | 73.9 | 29.2 | 100 | 222 | |
| Vert. | 5350.000 | AV | 39.3 | 31.8 | 16.5 | 40.3 | 47.3 | 53.9 | 6.6 | 100 | 239 | |
| Vert. | 10640.000 | AV | 35.6 | 39.8 | 9.5 | 38.8 | 46.1 | 53.9 | 7.8 | 100 | 174 | |
| Vert. | 15960.000 | AV | 31.9 | 39.2 | 1.9 | 39.3 | 33.7 | 53.9 | 20.2 | 100 | 222 | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The Duty Factor was included in Loss.

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

## (Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 7093.326 | PK | 51.8 | 36.3 | 7.9 | 41.3 | 54.7 | -40.53 | -27.00 | 13.5 | 100 | 0 | |
| Vert. | 7093.326 | PK | 47.9 | 36.3 | 7.9 | 41.3 | 50.8 | -44.43 | -27.00 | 17.4 | 100 | 12 | |

Result[dBuV/m] = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

Resrult(EIRP[dBm])=10*LOG（{ 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) * 10 ^ (-6) * Distance:3[m] ) ^ 2 } / 30) *10^3)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

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**Facsimile : +81 463 50 6401**

# Radiated Emission

| | | | | |
|---|---|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | | No.3 Semi Anechoic Chamber | |
| Date | 2012/8/9 | 2012/8/11 | 2012/8/12 | 2012/8/19 |
| Temperature / Humidity | 23 deg.C , 44 %RH | 22 deg.C , 41 %RH | 23 deg.C , 51 %RH | 21 deg.C , 49 %RH |
| Engineer | Takahiro Suzuki | Wataru Kojima | Wataru Kojima | Tatsuya Arai |
| Mode | Tx, 5180 MHz | | | |
| | Tx, IEEE802.11n HT20, PN9, worst data rate MCS0 | | | |

## (above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5150.000 | PK | 48.3 | 31.6 | 16.4 | 40.6 | 55.7 | 73.9 | 18.2 | 100 | 25 | |
| Hori. | 15540.000 | PK | 42.6 | 40.1 | 1.9 | 39.2 | 45.4 | 73.9 | 28.5 | 100 | 98 | |
| Hori. | 5150.000 | AV | 38.1 | 31.6 | 16.4 | 40.6 | 45.5 | 53.9 | 8.4 | 100 | 25 | |
| Hori. | 15540.000 | AV | 32.8 | 40.1 | 1.9 | 39.2 | 35.6 | 53.9 | 18.3 | 100 | 98 | |
| Vert. | 5150.000 | PK | 48 | 31.6 | 16.4 | 40.6 | 55.4 | 73.9 | 18.5 | 100 | 200 | |
| Vert. | 15540.000 | PK | 44.3 | 40.1 | 1.9 | 39.2 | 47.1 | 73.9 | 26.8 | 100 | 280 | |
| Vert. | 5150.000 | AV | 38.7 | 31.6 | 16.4 | 40.6 | 46.1 | 53.9 | 7.8 | 100 | 200 | |
| Vert. | 15540.000 | AV | 32.1 | 40.1 | 1.9 | 39.2 | 34.9 | 53.9 | 19.0 | 100 | 280 | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The Duty Factor was included in Loss.

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

## (Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 6906.660 | PK | 56.1 | 35.8 | 7.8 | 41.2 | 58.5 | -36.73 | -27.00 | 9.7 | 100 | 0 | |
| Hori. | 10360.000 | PK | 45.2 | 39.4 | 9.4 | 38.7 | 55.3 | -39.93 | -27.00 | 12.9 | 100 | 158 | |
| Vert. | 6906.660 | PK | 51.5 | 35.8 | 7.8 | 41.2 | 53.9 | -41.33 | -27.00 | 14.3 | 100 | 1 | |
| Vert. | 10360.000 | PK | 45.4 | 39.4 | 9.4 | 38.7 | 55.5 | -39.73 | -27.00 | 12.7 | 100 | 239 | |

Result[dBuV/m] = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

Resrult(EIRP[dBm])=10*LOG（{ 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) * 10 ^ (-6) * Distance:3[m] ) ^ 2 } / 30) *10^3)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

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# Radiated Emission

| | | | | |
|---|---|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | | No.3 Semi Anechoic Chamber | |
| Date | 2012/8/9 | 2012/8/11 | 2012/8/12 | 2012/8/19 |
| Temperature / Humidity | 23 deg.C , 44 %RH | 22 deg.C , 41 %RH | 23 deg.C , 51 %RH | 21 deg.C , 49 %RH |
| Engineer | Takahiro Suzuki | Wataru Kojima | Wataru Kojima | Tatsuya Arai |
| Mode | Tx, 5260 MHz | | | |
| | Tx, IEEE802.11n HT20, PN9, worst data rate MCS0 | | | |

## (above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 15780.000 | PK | 43.1 | 39.6 | 1.8 | 39.2 | 45.3 | 73.9 | 28.6 | 100 | 84 | |
| Hori. | 15780.000 | AV | 32.4 | 39.6 | 1.8 | 39.2 | 34.6 | 53.9 | 19.3 | 100 | 84 | |
| Vert. | 15780.000 | PK | 43 | 39.6 | 1.8 | 39.2 | 45.2 | 73.9 | 28.7 | 100 | 99 | |
| Vert. | 15780.000 | AV | 31.7 | 39.6 | 1.8 | 39.2 | 33.9 | 53.9 | 20.0 | 100 | 99 | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The Duty Factor was included in Loss.

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

## (Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 7013.297 | PK | 53.5 | 36.1 | 7.8 | 41.3 | 56.1 | -39.13 | -27.00 | 12.1 | 100 | 0 | |
| Hori. | 10520.000 | PK | 43.3 | 39.6 | 9.4 | 38.7 | 53.6 | -41.63 | -27.00 | 14.6 | 100 | 98 | |
| Vert. | 7013.297 | PK | 49.6 | 36.1 | 7.8 | 41.3 | 52.2 | -43.03 | -27.00 | 16.0 | 100 | 234 | |
| Vert. | 10520.000 | PK | 43.3 | 39.6 | 9.4 | 38.7 | 53.6 | -41.63 | -27.00 | 14.6 | 100 | 128 | |

Result[dBuV/m] = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

Resrult(EIRP[dBm])=10*LOG（{ 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) * 10 ^ (-6) * Distance:3[m] ) ^ 2 } / 30) *10^3)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

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# Radiated Emission

| | | | | |
|---|---|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | | No.3 Semi Anechoic Chamber | |
| Date | 2012/8/9 | 2012/8/11 | 2012/8/12 | 2012/8/19 |
| Temperature / Humidity | 23 deg.C , 44 %RH | 22 deg.C , 41 %RH | 23 deg.C , 51 %RH | 21 deg.C , 49 %RH |
| Engineer | Takahiro Suzuki | Wataru Kojima | Wataru Kojima | Tatsuya Arai |
| Mode | Tx, 5320 MHz | | | |
| | Tx, IEEE802.11n HT20, PN9, worst data rate MCS0 | | | |

## (above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5350.000 | PK | 45.2 | 31.8 | 16.5 | 40.3 | 53.2 | 73.9 | 20.7 | 100 | 21 | |
| Hori. | 10640.000 | PK | 44.3 | 39.8 | 9.5 | 38.8 | 54.8 | 73.9 | 19.1 | 100 | 222 | |
| Hori. | 15960.000 | PK | 42.5 | 39.2 | 1.9 | 39.3 | 44.3 | 73.9 | 29.6 | 100 | 155 | |
| Hori. | 5350.000 | AV | 38.5 | 31.8 | 16.5 | 40.3 | 46.5 | 53.9 | 7.4 | 100 | 21 | |
| Hori. | 10640.000 | AV | 37.3 | 39.8 | 9.5 | 38.8 | 47.8 | 53.9 | 6.1 | 100 | 222 | |
| Hori. | 15960.000 | AV | 31.9 | 39.2 | 1.9 | 39.3 | 33.7 | 53.9 | 20.2 | 100 | 155 | |
| Vert. | 5350.000 | PK | 48.3 | 31.8 | 16.5 | 40.3 | 56.3 | 73.9 | 17.6 | 100 | 328 | |
| Vert. | 10640.000 | PK | 42.1 | 39.8 | 9.5 | 38.8 | 52.6 | 73.9 | 21.3 | 100 | 252 | |
| Vert. | 15960.000 | PK | 42.4 | 39.2 | 1.9 | 39.3 | 44.2 | 73.9 | 29.7 | 100 | 75 | |
| Vert. | 5350.000 | AV | 39.4 | 31.8 | 16.5 | 40.3 | 47.4 | 53.9 | 6.5 | 100 | 328 | |
| Vert. | 10640.000 | AV | 35.8 | 39.8 | 9.5 | 38.8 | 46.3 | 53.9 | 7.6 | 100 | 252 | |
| Vert. | 15960.000 | AV | 31.5 | 39.2 | 1.9 | 39.3 | 33.3 | 53.9 | 20.6 | 100 | 75 | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The Duty Factor was included in Loss.

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

## (Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 7093.326 | PK | 52.2 | 36.3 | 7.9 | 41.3 | 55.1 | -40.13 | -27.00 | 13.1 | 100 | 0 | |
| Vert. | 7093.326 | PK | 47.7 | 36.3 | 7.9 | 41.3 | 50.6 | -44.63 | -27.00 | 17.6 | 100 | 19 | |

Result[dBuV/m] = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

Resrult(EIRP[dBm])=10*LOG（{ 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) * 10 ^ (-6) * Distance:3[m] ) ^ 2 } / 30) *10^3)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

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# Radiated Emission

| | | | | |
|---|---|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | | No.3 Semi Anechoic Chamber | |
| Date | 2012/8/9 | 2012/8/11 | 2012/8/12 | 2012/8/19 |
| Temperature / Humidity | 23 deg.C , 44 %RH | 22 deg.C , 41 %RH | 23 deg.C , 51 %RH | 21 deg.C , 49 %RH |
| Engineer | Takahiro Suzuki | Wataru Kojima | Wataru Kojima | Tatsuya Arai |
| Mode | Tx, 5190 MHz | | | |
| | Tx, IEEE802.11n HT40, PN9, worst data rate MCS0 | | | |

## (above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5150.000 | PK | 46.5 | 31.6 | 16.4 | 40.6 | 53.9 | 73.9 | 20.0 | 100 | 55 | |
| Hori. | 15570.000 | PK | 42.5 | 40.1 | 1.9 | 39.2 | 45.3 | 73.9 | 28.6 | 100 | 80 | |
| Hori. | 5150.000 | AV | 38.7 | 31.6 | 16.4 | 40.6 | 46.1 | 53.9 | 7.8 | 100 | 55 | |
| Hori. | 15570.000 | AV | 32.9 | 40.1 | 1.9 | 39.2 | 35.7 | 53.9 | 18.2 | 100 | 80 | |
| Vert. | 5150.000 | PK | 54.2 | 31.6 | 16.4 | 40.6 | 61.6 | 73.9 | 12.3 | 100 | 178 | |
| Vert. | 15570.000 | PK | 43.3 | 40.1 | 1.9 | 39.2 | 46.1 | 73.9 | 27.8 | 100 | 277 | |
| Vert. | 5150.000 | AV | 43.1 | 31.6 | 16.4 | 40.6 | 50.5 | 53.9 | 3.4 | 100 | 178 | |
| Vert. | 15570.000 | AV | 32.3 | 40.1 | 1.9 | 39.2 | 35.1 | 53.9 | 18.8 | 100 | 277 | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The Duty Factor was included in Loss.

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

## (Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 6920.000 | PK | 55.9 | 35.8 | 7.8 | 41.2 | 58.3 | -36.93 | -27.00 | 9.9 | 100 | 0 | |
| Hori. | 10380.000 | PK | 44 | 39.4 | 9.4 | 38.7 | 54.1 | -41.13 | -27.00 | 14.1 | 100 | 128 | |
| Vert. | 6920.000 | PK | 53.1 | 35.8 | 7.8 | 41.2 | 55.5 | -39.73 | -27.00 | 12.7 | 100 | 210 | |
| Vert. | 10380.000 | PK | 42.7 | 39.4 | 9.4 | 38.7 | 52.8 | -42.43 | -27.00 | 15.4 | 100 | 225 | |

Result[dBuV/m] = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

Resrult(EIRP[dBm])=10*LOG（{ 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) * 10 ^ (-6) * Distance:3[m] ) ^ 2 } / 30) *10^3)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

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**Telephone : +81 463 50 6400**
**Facsimile : +81 463 50 6401**

# Radiated Emission

| | | | | |
|---|---|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | | No.3 Semi Anechoic Chamber | |
| Date | 2012/8/9 | 2012/8/11 | 2012/8/12 | 2012/8/19 |
| Temperature / Humidity | 23 deg.C , 44 %RH | 22 deg.C , 41 %RH | 23 deg.C , 51 %RH | 21 deg.C , 49 %RH |
| Engineer | Takahiro Suzuki | Wataru Kojima | Wataru Kojima | Tatsuya Arai |
| Mode | Tx, 5270 MHz | | | |

Tx, IEEE802.11n HT40, PN9, worst data rate MCS0

## (above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 406.125 | QP | 41.2 | 16.4 | 9 | 32 | 34.6 | 46 | 11.4 | 110 | 321 | |
| Hori. | 454.140 | QP | 47.9 | 17.1 | 9.3 | 32 | 42.3 | 46 | 3.7 | 100 | 352 | |
| Hori. | 466.552 | QP | 40 | 17.3 | 9.3 | 32 | 34.6 | 46 | 11.4 | 100 | 151 | |
| Hori. | 15810.000 | PK | 42.9 | 39.6 | 1.9 | 39.2 | 45.2 | 73.9 | 28.7 | 100 | 160 | |
| Hori. | 15810.000 | AV | 32.2 | 39.6 | 1.9 | 39.2 | 34.5 | 53.9 | 19.4 | 100 | 160 | |
| Vert. | 268.664 | QP | 44.2 | 17.9 | 8.4 | 32 | 38.5 | 46 | 7.5 | 100 | 358 | |
| Vert. | 292.395 | QP | 41.2 | 18.8 | 8.5 | 32 | 36.5 | 46 | 9.5 | 100 | 57 | |
| Vert. | 406.126 | QP | 48.1 | 16.4 | 9 | 32 | 41.5 | 46 | 4.5 | 100 | 203 | |
| Vert. | 416.818 | QP | 47.6 | 16.6 | 9.1 | 32 | 41.3 | 46 | 4.7 | 104 | 165 | |
| Vert. | 15810.000 | PK | 42 | 39.6 | 1.9 | 39.2 | 44.3 | 73.9 | 29.6 | 100 | 284 | |
| Vert. | 15810.000 | AV | 31.4 | 39.6 | 1.9 | 39.2 | 33.7 | 53.9 | 20.2 | 100 | 284 | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The Duty Factor was included in Loss.

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

## (Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 7026.677 | PK | 53.8 | 36.1 | 7.8 | 41.3 | 56.4 | -38.83 | -27.00 | 11.8 | 100 | 187 | |
| Hori. | 10540.000 | PK | 43.7 | 39.6 | 9.4 | 38.7 | 54 | -41.23 | -27.00 | 14.2 | 100 | 67 | |
| Vert. | 7026.677 | PK | 51.1 | 36.1 | 7.8 | 41.3 | 53.7 | -41.53 | -27.00 | 14.5 | 100 | 39 | |
| Vert. | 10540.000 | PK | 44.2 | 39.6 | 9.4 | 38.7 | 54.5 | -40.73 | -27.00 | 13.7 | 100 | 185 | |

Result[dBuV/m] = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

Resrult(EIRP[dBm])=10*LOG（{ 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) * 10 ^ (-6) * Distance:3[m] ) ^ 2 } / 30) *10^3)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

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**Facsimile : +81 463 50 6401**

# Radiated Emission

| | | | | |
|---|---|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | | No.3 Semi Anechoic Chamber | |
| Date | 2012/8/9 | 2012/8/11 | 2012/8/12 | 2012/8/19 |
| Temperature / Humidity | 23 deg.C , 44 %RH | 22 deg.C , 41 %RH | 23 deg.C , 51 %RH | 21 deg.C , 49 %RH |
| Engineer | Takahiro Suzuki | Wataru Kojima | Wataru Kojima | Tatsuya Arai |
| Mode | Tx, 5310 MHz | | | |
| | Tx, IEEE802.11n HT40, PN9, worst data rate MCS0 | | | |

## (above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5350.000 | PK | 46.9 | 31.8 | 16.5 | 40.3 | 54.9 | 73.9 | 19.0 | 100 | 28 | |
| Hori. | 10620.000 | PK | 42.8 | 39.8 | 9.5 | 38.8 | 53.3 | 73.9 | 20.6 | 100 | 241 | |
| Hori. | 15930.000 | PK | 42.2 | 39.3 | 1.9 | 39.3 | 44.1 | 73.9 | 29.8 | 100 | 83 | |
| Hori. | 5350.000 | AV | 37.2 | 31.8 | 16.5 | 40.3 | 45.2 | 53.9 | 8.7 | 100 | 28 | |
| Hori. | 10620.000 | AV | 36.3 | 39.8 | 9.5 | 38.8 | 46.8 | 53.9 | 7.1 | 100 | 241 | |
| Hori. | 15930.000 | AV | 31.9 | 39.3 | 1.9 | 39.3 | 33.8 | 53.9 | 20.1 | 100 | 83 | |
| Vert. | 5350.000 | PK | 51.8 | 31.8 | 16.5 | 40.3 | 59.8 | 73.9 | 14.1 | 100 | 84 | |
| Vert. | 10620.000 | PK | 43.9 | 39.8 | 9.5 | 38.8 | 54.4 | 73.9 | 19.5 | 100 | 185 | |
| Vert. | 15930.000 | PK | 43.6 | 39.3 | 1.9 | 39.3 | 45.5 | 73.9 | 28.4 | 100 | 282 | |
| Vert. | 5350.000 | AV | 42.8 | 31.8 | 16.5 | 40.3 | 50.8 | 53.9 | 3.1 | 100 | 84 | |
| Vert. | 10620.000 | AV | 36.4 | 39.8 | 9.5 | 38.8 | 46.9 | 53.9 | 7.0 | 100 | 185 | |
| Vert. | 15930.000 | AV | 31.4 | 39.3 | 1.9 | 39.3 | 33.3 | 53.9 | 20.6 | 100 | 282 | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The Duty Factor was included in Loss.

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

## (Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 7079.993 | PK | 52.6 | 36.2 | 7.9 | 41.3 | 55.4 | -39.83 | -27.00 | 12.8 | 100 | 0 | |
| Vert. | 7079.993 | PK | 49.7 | 36.2 | 7.9 | 41.3 | 52.5 | -42.73 | -27.00 | 15.7 | 100 | 37 | |

Result[dBuV/m] = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

Resrult(EIRP[dBm])=10*LOG（{ 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) * 10 ^ (-6) * Distance:3[m] ) ^ 2 } / 30) *10^3)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

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**Facsimile : +81 463 50 6401**

# Radiated Emission

| | | | | |
|---|---|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. No.1 and No.3 Semi Anechoic Chamber | | | |
| Date | 2012/8/9 | 2012/8/11 | 2012/8/12 | 2012/8/19 |
| Temperature / Humidity | 23 deg.C , 44 %RH | 22 deg.C , 41 %RH | 23 deg.C , 51 %RH | 21 deg.C , 49 %RH |
| Engineer | Takahiro Suzuki | Wataru Kojima | Wataru Kojima | Tatsuya Arai |
| Mode | Tx, 5500 MHz | | | |
| | Tx, IEEE802.11a, PN9, worst data mode 6Mbps | | | |

## (above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5460.000 | PK | 48.6 | 32 | 16.2 | 40.5 | 56.3 | 73.9 | 17.6 | 100 | 199 | |
| Hori. | 7333.321 | PK | 52.8 | 36.2 | 7.6 | 41.3 | 55.3 | 73.9 | 18.6 | 148 | 137 | |
| Hori. | 11000.000 | PK | 44.9 | 40.4 | 9 | 40.1 | 54.2 | 73.9 | 19.7 | 100 | 100 | |
| Hori. | 5460.000 | AV | 39.5 | 32 | 16.2 | 40.5 | 47.2 | 53.9 | 6.7 | 100 | 199 | |
| Hori. | 7333.321 | AV | 47.7 | 36.2 | 7.6 | 41.3 | 50.2 | 53.9 | 3.7 | 148 | 137 | |
| Hori. | 11000.000 | AV | 37.5 | 40.4 | 9 | 40.1 | 46.8 | 53.9 | 7.1 | 100 | 100 | |
| Vert. | 5460.000 | PK | 47.2 | 32 | 16.2 | 40.5 | 54.9 | 73.9 | 19.0 | 100 | 153 | |
| Vert. | 7333.321 | PK | 47.3 | 36.2 | 7.6 | 41.3 | 49.8 | 73.9 | 24.1 | 180 | 69 | |
| Vert. | 11000.000 | PK | 46 | 40.4 | 9 | 40.1 | 55.3 | 73.9 | 18.6 | 100 | 215 | |
| Vert. | 5460.000 | AV | 39.1 | 32 | 16.2 | 40.5 | 46.8 | 53.9 | 7.1 | 100 | 153 | |
| Vert. | 7333.321 | AV | 43.1 | 36.2 | 7.6 | 41.3 | 45.6 | 53.9 | 8.3 | 180 | 69 | |
| Vert. | 11000.000 | AV | 38.2 | 40.4 | 9 | 40.1 | 47.5 | 53.9 | 6.4 | 100 | 215 | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The Duty Factor was included in Loss.

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

## (Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5470.000 | PK | 48.4 | 32 | 16.2 | 40.5 | 56.1 | -39.13 | -27.00 | 12.1 | 100 | 69 | |
| Hori. | 16500.000 | PK | 43.1 | 40.7 | 2.1 | 39.6 | 46.3 | -48.93 | -27.00 | 21.9 | 100 | 65 | |
| Vert. | 5470.000 | PK | 47.7 | 32 | 16.2 | 40.5 | 55.4 | -39.83 | -27.00 | 12.8 | 100 | 17 | |
| Vert. | 16500.000 | PK | 42.7 | 40.7 | 2.1 | 39.6 | 45.9 | -49.33 | -27.00 | 22.3 | 100 | 98 | |

Result[dBuV/m] = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

Resrult(EIRP[dBm])=10*LOG（{ 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) * 10 ^ (-6) * Distance:3[m] ) ^ 2 } / 30) *10^3)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

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# Radiated Emission

| | | | | |
|---|---|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | | No.1 and No.3 Semi Anechoic Chamber | |
| Date | 2012/8/9 | 2012/8/11 | 2012/8/12 | 2012/8/19 |
| Temperature / Humidity | 23 deg.C , 44 %RH | 22 deg.C , 41 %RH | 23 deg.C , 51 %RH | 21 deg.C , 49 %RH |
| Engineer | Takahiro Suzuki | Wataru Kojima | Wataru Kojima | Tatsuya Arai |
| Mode | Tx, 5580 MHz | | | |
| | Tx, IEEE802.11a, PN9, worst data mode 6Mbps | | | |

## (above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 7439.996 | PK | 49.9 | 36.3 | 7.7 | 41.3 | 52.6 | 73.9 | 21.3 | 159 | 109 | |
| Hori. | 11160.000 | PK | 47.9 | 40.3 | 9.1 | 40.1 | 57.2 | 73.9 | 16.7 | 100 | 67 | |
| Hori. | 7439.996 | AV | 45.6 | 36.3 | 7.7 | 41.3 | 48.3 | 53.9 | 5.6 | 159 | 109 | |
| Hori. | 11160.000 | AV | 38.5 | 40.3 | 9.1 | 40.1 | 47.8 | 53.9 | 6.1 | 100 | 67 | |
| Vert. | 7439.996 | PK | 45.8 | 36.3 | 7.7 | 41.3 | 48.5 | 73.9 | 25.4 | 100 | 183 | |
| Vert. | 11160.000 | PK | 46.8 | 40.3 | 9.1 | 40.1 | 56.1 | 73.9 | 17.8 | 100 | 248 | |
| Vert. | 7439.996 | AV | 37.7 | 36.3 | 7.7 | 41.3 | 40.4 | 53.9 | 13.5 | 100 | 183 | |
| Vert. | 11160.000 | AV | 38.9 | 40.3 | 9.1 | 40.1 | 48.2 | 53.9 | 5.7 | 100 | 248 | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The Duty Factor was included in Loss.

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

## (Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 16740.000 | PK | 43.5 | 41.5 | 2.4 | 39.5 | 47.9 | -47.33 | -27.00 | 20.3 | 100 | 71 | |
| Vert. | 16740.000 | PK | 43.3 | 41.5 | 2.4 | 39.5 | 47.7 | -47.53 | -27.00 | 20.5 | 100 | 347 | |

Result[dBuV/m] = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

Resrult(EIRP[dBm])=10*LOG（{ 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) * 10 ^ (-6) * Distance:3[m] ) ^ 2 } / 30) *10^3)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

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# Radiated Emission

| | | | | |
|---|---|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | | No.1 and No.3 Semi Anechoic Chamber | |
| Date | 2012/8/9 | 2012/8/11 | 2012/8/12 | 2012/8/19 |
| Temperature / Humidity | 23 deg.C , 44 %RH | 22 deg.C , 41 %RH | 23 deg.C , 51 %RH | 21 deg.C , 49 %RH |
| Engineer | Takahiro Suzuki | Wataru Kojima | Wataru Kojima | Tatsuya Arai |
| Mode | Tx, 5700 MHz | | | |
| | Tx, IEEE802.11a, PN9, worst data mode 6Mbps | | | |

## (above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 7599.990 | PK | 52 | 36.8 | 7.8 | 41.2 | 55.4 | 73.9 | 18.5 | 127 | 132 | |
| Hori. | 11400.000 | PK | 45.9 | 40.2 | 9.5 | 40 | 55.6 | 73.9 | 18.3 | 100 | 215 | |
| Hori. | 5725.000 | AV | 38.7 | 32.3 | 16.3 | 40.5 | 46.8 | 53.9 | 7.1 | 100 | 303 | |
| Hori. | 7599.990 | AV | 46.7 | 36.8 | 7.8 | 41.2 | 50.1 | 53.9 | 3.8 | 127 | 132 | |
| Hori. | 11400.000 | AV | 36.8 | 40.2 | 9.5 | 40 | 46.5 | 53.9 | 7.4 | 100 | 215 | |
| Vert. | 5725.000 | PK | 45.4 | 32.3 | 16.3 | 40.5 | 53.5 | 73.9 | 20.4 | 100 | 17 | |
| Vert. | 7599.990 | PK | 49.3 | 36.8 | 7.8 | 41.2 | 52.7 | 73.9 | 21.2 | 175 | 74 | |
| Vert. | 11400.000 | PK | 46.6 | 40.2 | 9.5 | 40 | 56.3 | 73.9 | 17.6 | 100 | 114 | |
| Vert. | 5725.000 | AV | 38.8 | 32.3 | 16.3 | 40.5 | 46.9 | 53.9 | 7.0 | 100 | 17 | |
| Vert. | 7599.990 | AV | 40.7 | 36.8 | 7.8 | 41.2 | 44.1 | 53.9 | 9.8 | 175 | 74 | |
| Vert. | 11400.000 | AV | 37.5 | 40.2 | 9.5 | 40 | 47.2 | 53.9 | 6.7 | 100 | 114 | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The Duty Factor was included in Loss.

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

## (Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5725.000 | PK | 49.1 | 32.3 | 16.3 | 40.5 | 57.2 | -38.03 | -27.00 | 11.0 | 100 | 303 | |
| Hori. | 17100.000 | PK | 43.1 | 43.1 | 2.8 | 39.5 | 49.5 | -45.73 | -27.00 | 18.7 | 100 | 97 | |
| Vert. | 5725.000 | PK | 45.4 | 32.3 | 16.3 | 40.5 | 53.5 | -41.73 | -27.00 | 14.7 | 100 | 17 | |
| Vert. | 17100.000 | PK | 42.3 | 43.1 | 2.8 | 39.5 | 48.7 | -46.53 | -27.00 | 19.5 | 100 | 0 | |

Result[dBuV/m] = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

Resrult(EIRP[dBm])=10*LOG（{ 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) * 10 ^ (-6) * Distance:3[m] ) ^ 2 } / 30) *10^3)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

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**Telephone : +81 463 50 6400**
**Facsimile : +81 463 50 6401**

# Radiated Emission

| | | | | |
|---|---|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | | No.1 and No.3 Semi Anechoic Chamber | |
| Date | 2012/8/9 | 2012/8/11 | 2012/8/12 | 2012/8/19 |
| Temperature / Humidity | 23 deg.C , 44 %RH | 22 deg.C , 41 %RH | 23 deg.C , 51 %RH | 21 deg.C , 49 %RH |
| Engineer | Takahiro Suzuki | Wataru Kojima | Wataru Kojima | Tatsuya Arai |
| Mode | Tx, 5500 MHz | | | |
| | Tx, IEEE802.11n HT20, PN9, worst data rate MCS0 | | | |

## (above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5460.000 | PK | 47.7 | 32 | 16.2 | 40.5 | 55.4 | 73.9 | 18.5 | 100 | 165 | |
| Hori. | 7333.321 | PK | 52.1 | 36.2 | 7.6 | 41.3 | 54.6 | 73.9 | 19.3 | 143 | 128 | |
| Hori. | 11000.000 | PK | 45.4 | 40.4 | 9 | 40.1 | 54.7 | 73.9 | 19.2 | 100 | 129 | |
| Hori. | 5460.000 | AV | 39.2 | 32 | 16.2 | 40.5 | 46.9 | 53.9 | 7.0 | 100 | 165 | |
| Hori. | 7333.321 | AV | 48.2 | 36.2 | 7.6 | 41.3 | 50.7 | 53.9 | 3.2 | 143 | 128 | |
| Hori. | 11000.000 | AV | 37.3 | 40.4 | 9 | 40.1 | 46.6 | 53.9 | 7.3 | 100 | 129 | |
| Vert. | 5460.000 | PK | 46.8 | 32 | 16.2 | 40.5 | 54.5 | 73.9 | 19.4 | 100 | 142 | |
| Vert. | 7333.321 | PK | 47.5 | 36.2 | 7.6 | 41.3 | 50 | 73.9 | 23.9 | 164 | 10 | |
| Vert. | 11000.000 | PK | 45.7 | 40.4 | 9 | 40.1 | 55 | 73.9 | 18.9 | 100 | 187 | |
| Vert. | 5460.000 | AV | 38.8 | 32 | 16.2 | 40.5 | 46.5 | 53.9 | 7.4 | 100 | 142 | |
| Vert. | 7333.321 | AV | 41.2 | 36.2 | 7.6 | 41.3 | 43.7 | 53.9 | 10.2 | 164 | 10 | |
| Vert. | 11000.000 | AV | 38 | 40.4 | 9 | 40.1 | 47.3 | 53.9 | 6.6 | 100 | 187 | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The Duty Factor was included in Loss.

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

## (Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5470.000 | PK | 49 | 32 | 16.2 | 40.5 | 56.7 | -38.53 | -27.00 | 11.5 | 100 | 54 | |
| Hori. | 16500.000 | PK | 43.8 | 40.7 | 2.1 | 39.6 | 47 | -48.23 | -27.00 | 21.2 | 100 | 67 | |
| Vert. | 5470.000 | PK | 47.1 | 32 | 16.2 | 40.5 | 54.8 | -40.43 | -27.00 | 13.4 | 100 | 49 | |
| Vert. | 16500.000 | PK | 42.8 | 40.7 | 2.1 | 39.6 | 46 | -49.23 | -27.00 | 22.2 | 100 | 64 | |

Result[dBuV/m] = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

Resrult(EIRP[dBm])=10*LOG（{ 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) * 10 ^ (-6) * Distance:3[m] ) ^ 2 } / 30) *10^3)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

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# Radiated Emission

| | | | | |
|---|---|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | | No.1 and No.3 Semi Anechoic Chamber | |
| Date | 2012/8/9 | 2012/8/11 | 2012/8/12 | 2012/8/19 |
| Temperature / Humidity | 23 deg.C , 44 %RH | 22 deg.C , 41 %RH | 23 deg.C , 51 %RH | 21 deg.C , 49 %RH |
| Engineer | Takahiro Suzuki | Wataru Kojima | Wataru Kojima | Tatsuya Arai |
| Mode | Tx, 5580 MHz | | | |
| | Tx, IEEE802.11n HT20, PN9, worst data rate MCS0 | | | |

## (above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 7439.996 | PK | 52.2 | 36.3 | 7.7 | 41.3 | 54.9 | 73.9 | 19.0 | 141 | 124 | |
| Hori. | 11160.000 | PK | 45.3 | 40.3 | 9.1 | 40.1 | 54.6 | 73.9 | 19.3 | 100 | 94 | |
| Hori. | 7439.996 | AV | 46.8 | 36.3 | 7.7 | 41.3 | 49.5 | 53.9 | 4.4 | 141 | 124 | |
| Hori. | 11160.000 | AV | 37.6 | 40.3 | 9.1 | 40.1 | 46.9 | 53.9 | 7.0 | 100 | 94 | |
| Vert. | 7439.996 | PK | 46 | 36.3 | 7.7 | 41.3 | 48.7 | 73.9 | 25.2 | 100 | 162 | |
| Vert. | 11160.000 | PK | 46.4 | 40.3 | 9.1 | 40.1 | 55.7 | 73.9 | 18.2 | 100 | 205 | |
| Vert. | 7439.996 | AV | 37.5 | 36.3 | 7.7 | 41.3 | 40.2 | 53.9 | 13.7 | 100 | 162 | |
| Vert. | 11160.000 | AV | 38.3 | 40.3 | 9.1 | 40.1 | 47.6 | 53.9 | 6.3 | 100 | 205 | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The Duty Factor was included in Loss.

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

## (Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 16740.000 | PK | 43.7 | 41.5 | 2.4 | 39.5 | 48.1 | -47.13 | -27.00 | 20.1 | 100 | 70 | |
| Vert. | 16740.000 | PK | 42.7 | 41.5 | 2.4 | 39.5 | 47.1 | -48.13 | -27.00 | 21.1 | 100 | 59 | |

Result[dBuV/m] = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

Resrult(EIRP[dBm])=10*LOG（{ 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) * 10 ^ (-6) * Distance:3[m] ) ^ 2 } / 30) *10^3)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

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# Radiated Emission

| | | | | |
|---|---|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | | No.1 and No.3 Semi Anechoic Chamber | |
| Date | 2012/8/9 | 2012/8/11 | 2012/8/12 | 2012/8/19 |
| Temperature / Humidity | 23 deg.C , 44 %RH | 22 deg.C , 41 %RH | 23 deg.C , 51 %RH | 21 deg.C , 49 %RH |
| Engineer | Takahiro Suzuki | Wataru Kojima | Wataru Kojima | Tatsuya Arai |
| Mode | Tx, 5700 MHz | | | |
| | Tx, IEEE802.11n HT20, PN9, worst data rate MCS0 | | | |

## (above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 7599.990 | PK | 52.4 | 36.8 | 7.8 | 41.2 | 55.8 | 73.9 | 18.1 | 168 | 130 | |
| Hori. | 11400.000 | PK | 45.7 | 40.2 | 9.5 | 40 | 55.4 | 73.9 | 18.5 | 100 | 194 | |
| Hori. | 7599.990 | AV | 46.9 | 36.8 | 7.8 | 41.2 | 50.3 | 53.9 | 3.6 | 168 | 130 | |
| Hori. | 11400.000 | AV | 36.6 | 40.2 | 9.5 | 40 | 46.3 | 53.9 | 7.6 | 100 | 194 | |
| Vert. | 7599.990 | PK | 49.1 | 36.8 | 7.8 | 41.2 | 52.5 | 73.9 | 21.4 | 100 | 172 | |
| Vert. | 11400.000 | PK | 46.3 | 40.2 | 9.5 | 40 | 56 | 73.9 | 17.9 | 100 | 103 | |
| Vert. | 7599.990 | AV | 40.5 | 36.8 | 7.8 | 41.2 | 43.9 | 53.9 | 10.0 | 100 | 172 | |
| Vert. | 11400.000 | AV | 37.4 | 40.2 | 9.5 | 40 | 47.1 | 53.9 | 6.8 | 100 | 103 | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The Duty Factor was included in Loss.

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

## (Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5725.000 | PK | 48.8 | 32.3 | 16.3 | 40.5 | 56.9 | -38.33 | -27.00 | 11.3 | 100 | 286 | |
| Hori. | 17100.000 | PK | 44.5 | 43.1 | 2.8 | 39.5 | 50.9 | -44.33 | -27.00 | 17.3 | 100 | 96 | |
| Vert. | 5725.000 | PK | 45.1 | 32.3 | 16.3 | 40.5 | 53.2 | -42.03 | -27.00 | 15.0 | 100 | 58 | |
| Vert. | 17100.000 | PK | 42.9 | 43.1 | 2.8 | 39.5 | 49.3 | -45.93 | -27.00 | 18.9 | 100 | 87 | |

Result[dBuV/m] = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

Resrult(EIRP[dBm])=10*LOG（{ 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) * 10 ^ (-6) * Distance:3[m] ) ^ 2 } / 30) *10^3)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

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# Radiated Emission

| | | | | |
|---|---|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | | No.1 and No.3 Semi Anechoic Chamber | |
| Date | 2012/8/9 | 2012/8/11 | 2012/8/12 | 2012/8/19 |
| Temperature / Humidity | 23 deg.C , 44 %RH | 22 deg.C , 41 %RH | 23 deg.C , 51 %RH | 21 deg.C , 49 %RH |
| Engineer | Takahiro Suzuki | Wataru Kojima | Wataru Kojima | Tatsuya Arai |
| Mode | Tx, 5510 MHz | | | |
| | Tx, IEEE802.11n HT40, PN9, worst data rate MCS0 | | | |

## (above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5460.000 | PK | 52.4 | 32 | 16.2 | 40.5 | 60.1 | 73.9 | 13.8 | 100 | 149 | |
| Hori. | 7346.661 | PK | 53.8 | 36.2 | 7.6 | 41.3 | 56.3 | 73.9 | 17.6 | 121 | 131 | |
| Hori. | 11020.000 | PK | 46.3 | 40.3 | 9 | 40.1 | 55.5 | 73.9 | 18.4 | 100 | 245 | |
| Hori. | 5460.000 | AV | 40.8 | 32 | 16.2 | 40.5 | 48.5 | 53.9 | 5.4 | 100 | 149 | |
| Hori. | 7346.661 | AV | 49.6 | 36.2 | 7.6 | 41.3 | 52.1 | 53.9 | 1.8 | 121 | 131 | |
| Hori. | 11020.000 | AV | 37.4 | 40.3 | 9 | 40.1 | 46.6 | 53.9 | 7.3 | 100 | 245 | |
| Vert. | 5460.000 | PK | 46.2 | 32 | 16.2 | 40.5 | 53.9 | 73.9 | 20.0 | 100 | 123 | |
| Vert. | 7346.661 | PK | 48.4 | 36.2 | 7.6 | 41.3 | 50.9 | 73.9 | 23.0 | 160 | 65 | |
| Vert. | 11020.000 | PK | 46.3 | 40.3 | 9 | 40.1 | 55.5 | 73.9 | 18.4 | 100 | 158 | |
| Vert. | 5460.000 | AV | 38.3 | 32 | 16.2 | 40.5 | 46 | 53.9 | 7.9 | 100 | 123 | |
| Vert. | 7346.661 | AV | 43.1 | 36.2 | 7.6 | 41.3 | 45.6 | 53.9 | 8.3 | 160 | 65 | |
| Vert. | 11020.000 | AV | 37.4 | 40.3 | 9 | 40.1 | 46.6 | 53.9 | 7.3 | 100 | 158 | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The Duty Factor was included in Loss.

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

## (Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5470.000 | PK | 52.5 | 32 | 16.2 | 40.5 | 60.2 | -35.03 | -27.00 | 8.0 | 100 | 81 | |
| Hori. | 16530.000 | PK | 43.5 | 40.8 | 2.1 | 39.6 | 46.8 | -48.43 | -27.00 | 21.4 | 100 | 64 | |
| Vert. | 5470.000 | PK | 47.7 | 32 | 16.2 | 40.5 | 55.4 | -39.83 | -27.00 | 12.8 | 100 | 85 | |
| Vert. | 16530.000 | PK | 42.6 | 40.8 | 2.1 | 39.6 | 45.9 | -49.33 | -27.00 | 22.3 | 100 | 58 | |

Result[dBuV/m] = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

Resrult(EIRP[dBm])=10*LOG（{ 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) * 10 ^ (-6) * Distance:3[m] ) ^ 2 } / 30) *10^3)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

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# Radiated Emission

| | | | | |
|---|---|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | | No.1 and No.3 Semi Anechoic Chamber | |
| Date | 2012/8/9 | 2012/8/11 | 2012/8/12 | 2012/8/19 |
| Temperature / Humidity | 23 deg.C , 44 %RH | 22 deg.C , 41 %RH | 23 deg.C , 51 %RH | 21 deg.C , 49 %RH |
| Engineer | Takahiro Suzuki | Wataru Kojima | Wataru Kojima | Tatsuya Arai |
| Mode | Tx, 5550 MHz | | | |
| | Tx, IEEE802.11n HT40, PN9, worst data rate MCS0 | | | |

## (above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 7399.970 | PK | 52.6 | 36.3 | 8.2 | 41.5 | 55.6 | 73.9 | 18.3 | 127 | 124 | |
| Hori. | 11100.000 | PK | 45.2 | 39.5 | 9.6 | 39.3 | 55 | 73.9 | 18.9 | 100 | 74 | |
| Hori. | 7399.970 | AV | 47.9 | 36.3 | 8.2 | 41.5 | 50.9 | 53.9 | 3.0 | 127 | 124 | |
| Hori. | 11100.000 | AV | 37.8 | 39.5 | 9.6 | 39.3 | 47.6 | 53.9 | 6.3 | 100 | 74 | |
| Vert. | 7399.970 | PK | 46.9 | 36.3 | 8.2 | 41.5 | 49.9 | 73.9 | 24.0 | 100 | 144 | |
| Vert. | 11100.000 | PK | 45.7 | 39.5 | 9.6 | 39.3 | 55.5 | 73.9 | 18.4 | 100 | 241 | |
| Vert. | 7399.970 | AV | 37.8 | 36.3 | 8.2 | 41.5 | 40.8 | 53.9 | 13.1 | 100 | 144 | |
| Vert. | 11100.000 | AV | 38 | 39.5 | 9.6 | 39.3 | 47.8 | 53.9 | 6.1 | 100 | 241 | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The Duty Factor was included in Loss.

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

## (Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 16650.000 | PK | 44 | 41.2 | 2.3 | 39.6 | 47.9 | -47.33 | -27.00 | 20.3 | 100 | 70 | |
| Vert. | 16650.000 | PK | 45 | 41.2 | 2.3 | 39.6 | 48.9 | -46.33 | -27.00 | 19.3 | 100 | 85 | |

Result[dBuV/m] = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

Resrult(EIRP[dBm])=10*LOG（{ 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) * 10 ^ (-6) * Distance:3[m] ) ^ 2 } / 30) *10^3)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

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# Radiated Emission

| | | | | |
|---|---|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | | No.1 and No.3 Semi Anechoic Chamber | |
| Date | 2012/8/9 | 2012/8/11 | 2012/8/12 | 2012/8/19 |
| Temperature / Humidity | 23 deg.C , 44 %RH | 22 deg.C , 41 %RH | 23 deg.C , 51 %RH | 21 deg.C , 49 %RH |
| Engineer | Takahiro Suzuki | Wataru Kojima | Wataru Kojima | Tatsuya Arai |
| Mode | Tx, 5670 MHz | | | |
| | Tx, IEEE802.11n HT40, PN9, worst data rate MCS0 | | | |

## (above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 406.125 | QP | 41 | 16.4 | 9 | 32 | 34.4 | 46 | 11.6 | 108 | 320 | |
| Hori. | 454.141 | QP | 47.5 | 17.1 | 9.3 | 32 | 41.9 | 46 | 4.1 | 100 | 351 | |
| Hori. | 466.551 | QP | 40.5 | 17.3 | 9.3 | 32 | 35.1 | 46 | 10.9 | 100 | 149 | |
| Hori. | 7559.986 | PK | 52.9 | 36.6 | 7.8 | 41.3 | 56 | 73.9 | 17.9 | 122 | 129 | |
| Hori. | 11340.000 | PK | 45.5 | 40.2 | 9.4 | 40 | 55.1 | 73.9 | 18.8 | 100 | 163 | |
| Hori. | 7559.986 | AV | 47.1 | 36.6 | 7.8 | 41.3 | 50.2 | 53.9 | 3.7 | 122 | 129 | |
| Hori. | 11340.000 | AV | 36.5 | 40.2 | 9.4 | 40 | 46.1 | 53.9 | 7.8 | 100 | 163 | |
| Vert. | 268.664 | QP | 44.1 | 17.9 | 8.4 | 32 | 38.4 | 46 | 7.6 | 100 | 356 | |
| Vert. | 292.395 | QP | 41 | 18.8 | 8.5 | 32 | 36.3 | 46 | 9.7 | 100 | 60 | |
| Vert. | 406.125 | QP | 48.2 | 16.4 | 9 | 32 | 41.6 | 46 | 4.4 | 100 | 209 | |
| Vert. | 416.817 | QP | 47.3 | 16.6 | 9.1 | 32 | 41 | 46 | 5.0 | 106 | 165 | |
| Vert. | 7559.986 | PK | 48.3 | 36.6 | 7.8 | 41.3 | 51.4 | 73.9 | 22.5 | 100 | 175 | |
| Vert. | 11340.000 | PK | 46.5 | 40.2 | 9.4 | 40 | 56.1 | 73.9 | 17.8 | 100 | 76 | |
| Vert. | 7559.986 | AV | 40.1 | 36.6 | 7.8 | 41.3 | 43.2 | 53.9 | 10.7 | 100 | 175 | |
| Vert. | 11340.000 | AV | 37.7 | 40.2 | 9.4 | 40 | 47.3 | 53.9 | 6.6 | 100 | 76 | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The Duty Factor was included in Loss.

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

## (Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Result (EIRP) [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hori. | 5725.000 | PK | 48.4 | 32.3 | 16.3 | 40.5 | 56.5 | -38.73 | -27.00 | 11.7 | 100 | 262 | |
| Hori. | 17010.000 | PK | 44.2 | 42.3 | 2.8 | 39.5 | 49.8 | -45.43 | -27.00 | 18.4 | 100 | 91 | |
| Vert. | 5725.000 | PK | 44.8 | 32.3 | 16.3 | 40.5 | 52.9 | -42.33 | -27.00 | 15.3 | 100 | 79 | |
| Vert. | 17010.000 | PK | 43 | 42.3 | 2.8 | 39.5 | 48.6 | -46.63 | -27.00 | 19.6 | 100 | 85 | |

Result[dBuV/m] = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amprifier)

Resrult(EIRP[dBm])=10*LOG（{ 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) * 10 ^ (-6) * Distance:3[m] ) ^ 2 } / 30) *10^3)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

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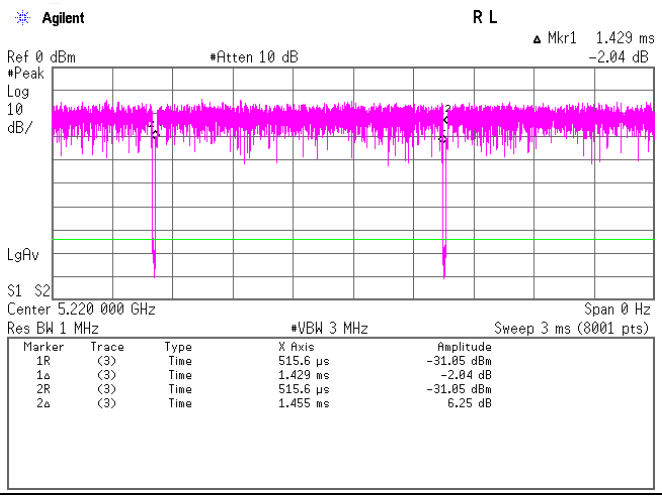
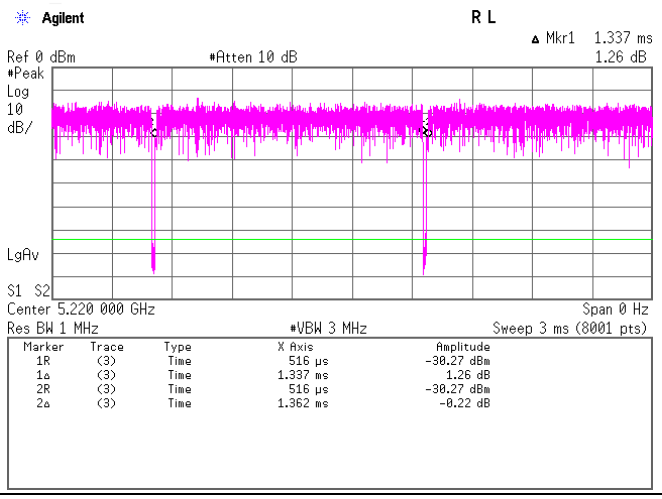
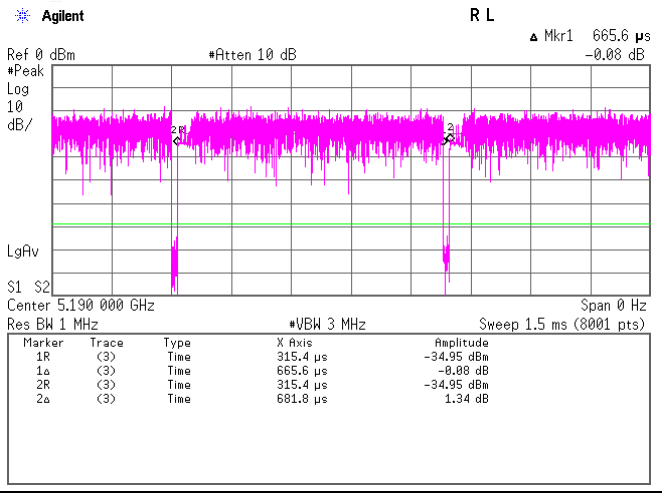
# Burst rate confirmation

| Tx, IEEE802.11a, worst data mode 6Mbps | Tx, IEEE802.11n-HT20, worst data mode MCS0 |
|---|---|
| Duty Cycle = 1.429 / 1.455 = 98.2%<br>Duty factor = 20log(1.455/1.429) = 0.16 | Duty Cycle = 1.337 / 1.362 = 98.2%<br>Duty factor = 20log(1.362/1.337) = 0.16 |
|  |  |





| Tx, IEEE802.11n-HT40, worst data mode MCS0 | |
|---|---|
| Duty Cycle = 665.6 / 681.8 = 97.6%<br>Duty factor = 20log(681.8/665.6) = 0.21 | |
|  | |



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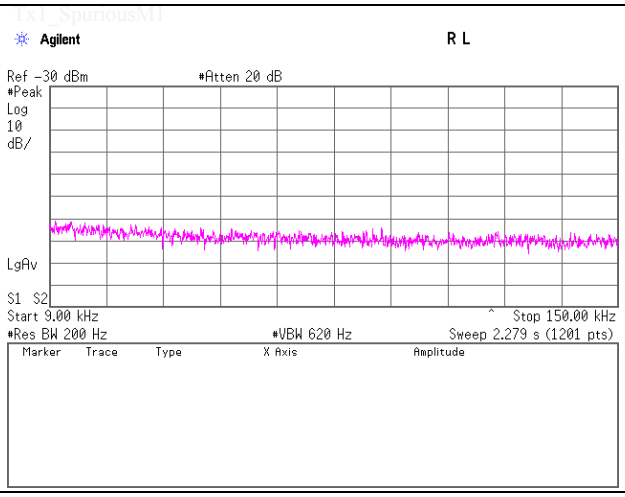
# (Reference) Spurious emission (Conducted)

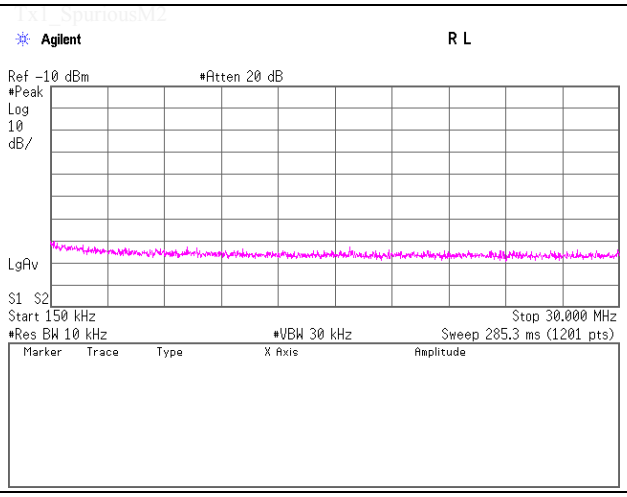
**Tx, IEEE802.11a (W52), PN9, worst data mode 6Mbps**

**Tx, 5180MHz (below 1GHz)**

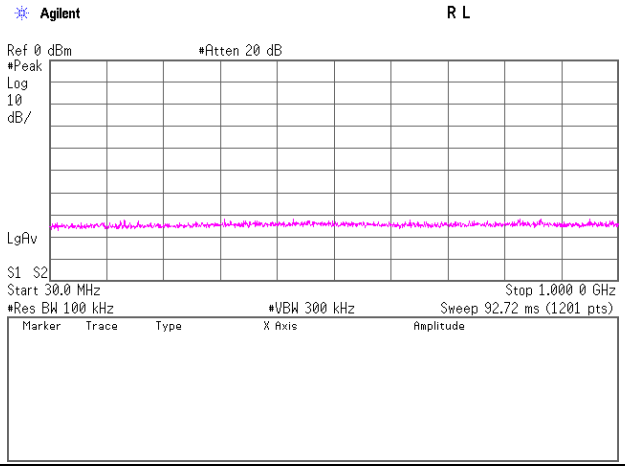
**9kHz - 150kHz**




**150kHz - 30MHz**




**30MHz - 1GHz**

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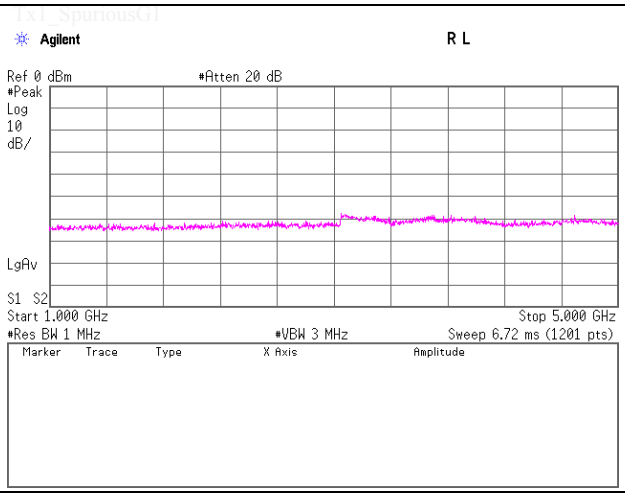
# (Reference) Spurious emission (Conducted)

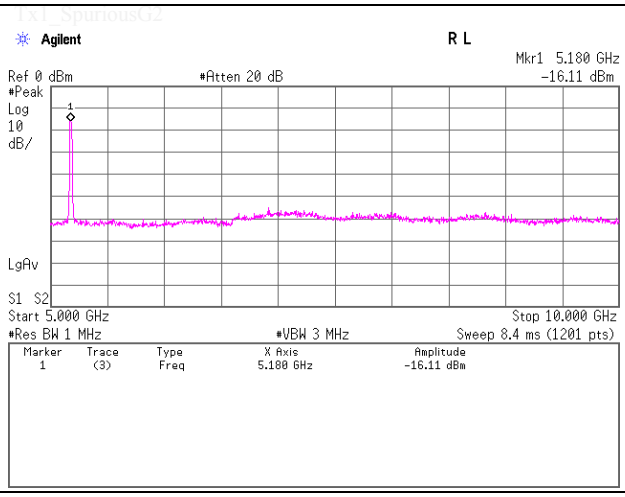
**Tx, IEEE802.11a (W52), PN9, worst data mode 6Mbps**

**Tx, 5180MHz (above 1GHz)(1/2)**

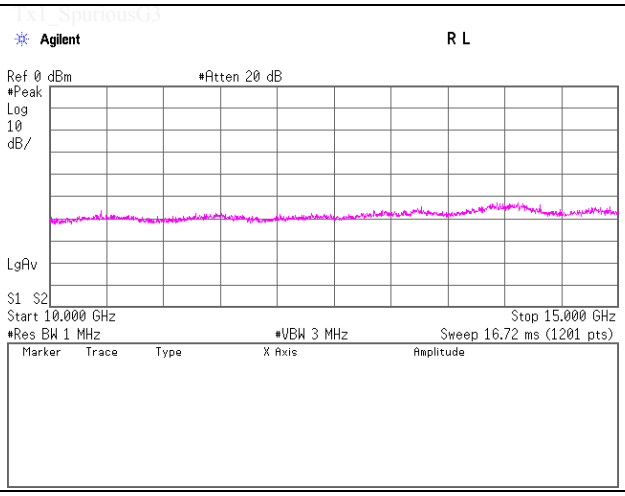
**1GHz - 5GHz**



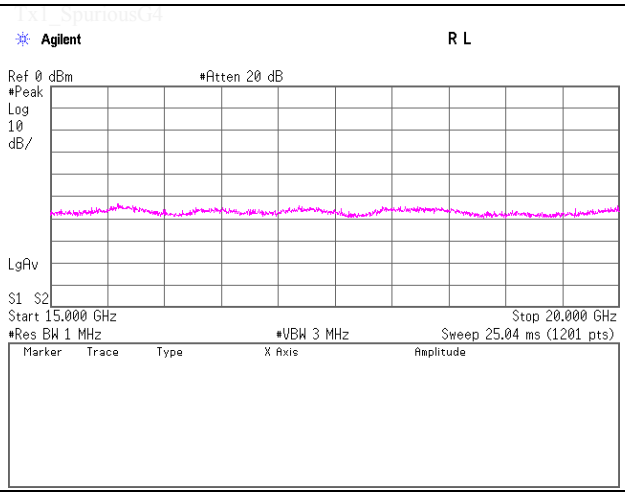

**5GHz - 10GHz**



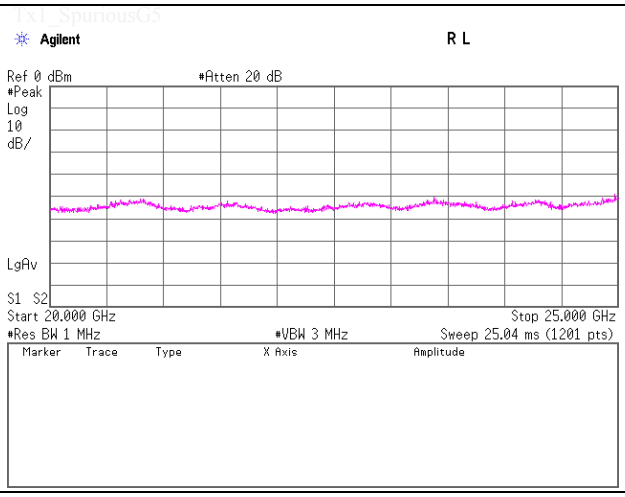

**10GHz - 15GHz**



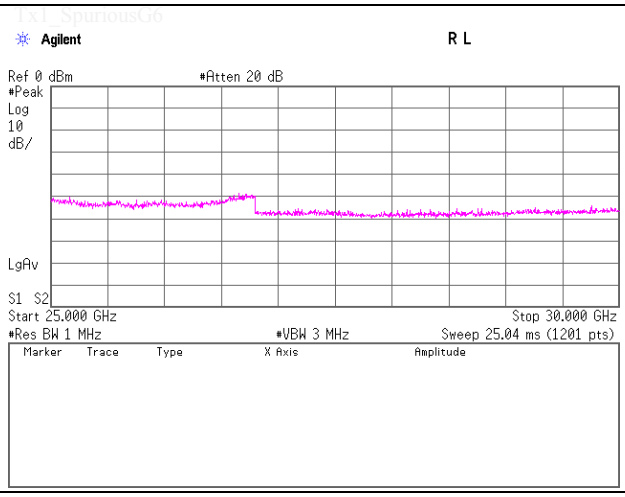

**15GHz - 20GHz**




**20GHz - 25GHz**




**25GHz - 30GHz**

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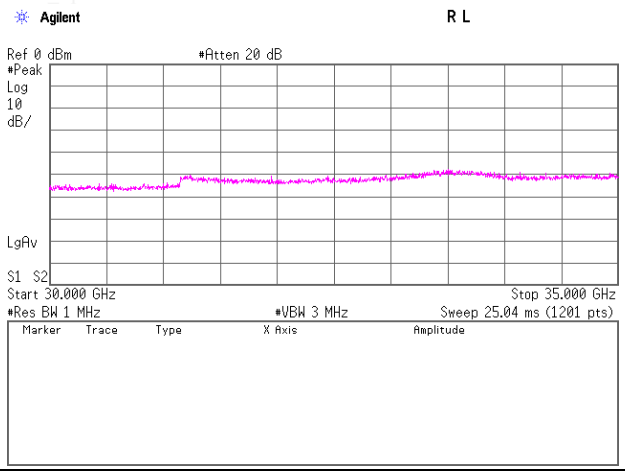
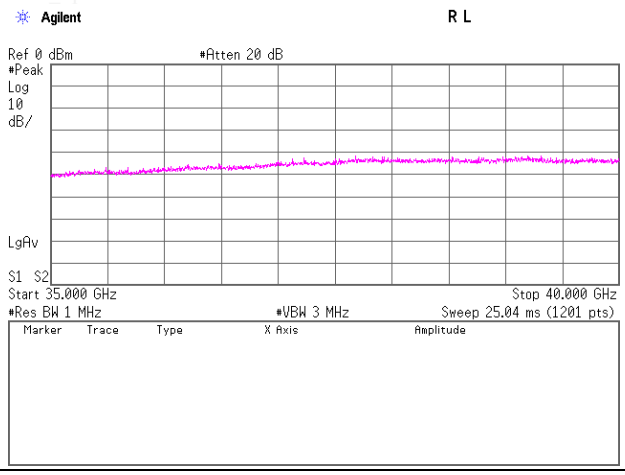
# (Reference) Spurious emission (Conducted)

**Tx, IEEE802.11a (W52), PN9, worst data mode 6Mbps**

| Tx, 5180MHz (above 1GHz)(2/2) | |
|---|---|
| **30GHz - 35GHz** | **35GHz - 40GHz** |
| TXT_SpuriousC17 | TXT_SpuriousC18 |
|  |  |
| | |
| | |
| | |

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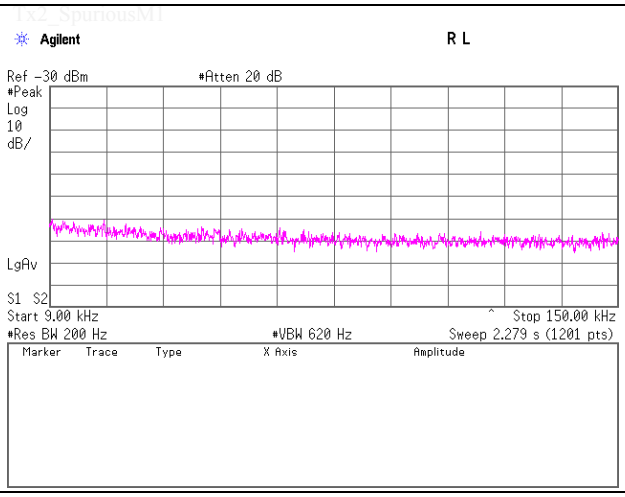
# (Reference) Spurious emission (Conducted)

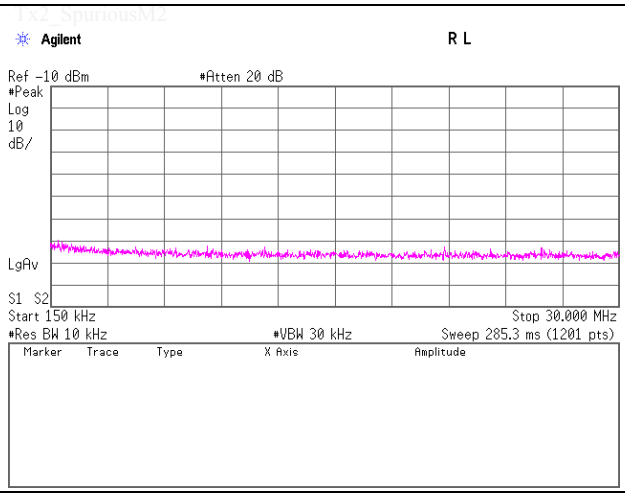
**Tx, IEEE802.11a (W52), PN9, worst data mode 6Mbps**

**Tx, 5220MHz (below 1GHz)**

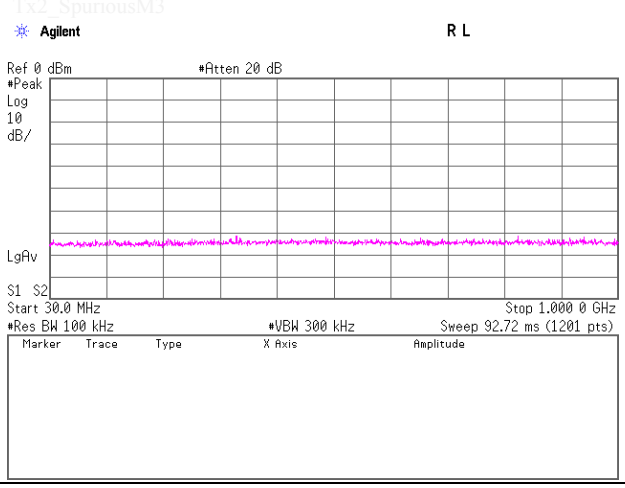
**9kHz - 150kHz**




**150kHz - 30MHz**




**30MHz - 1GHz**

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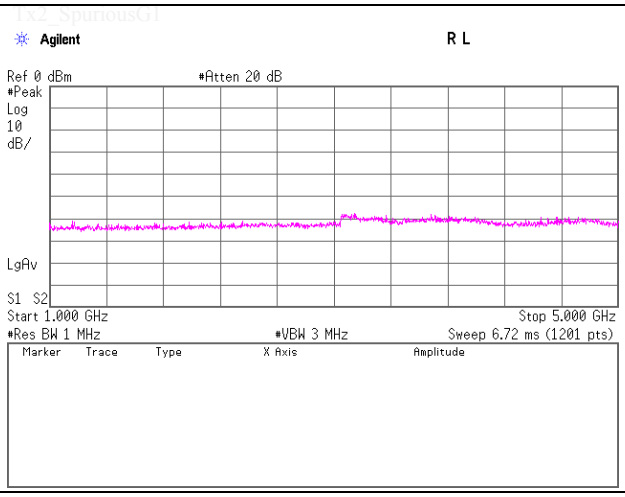
# (Reference) Spurious emission (Conducted)

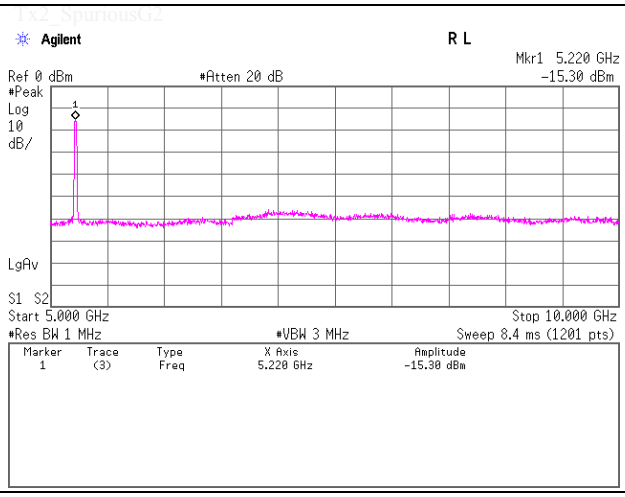
**Tx, IEEE802.11a (W52), PN9, worst data mode 6Mbps**

**Tx, 5220MHz (above 1GHz)(1/2)**

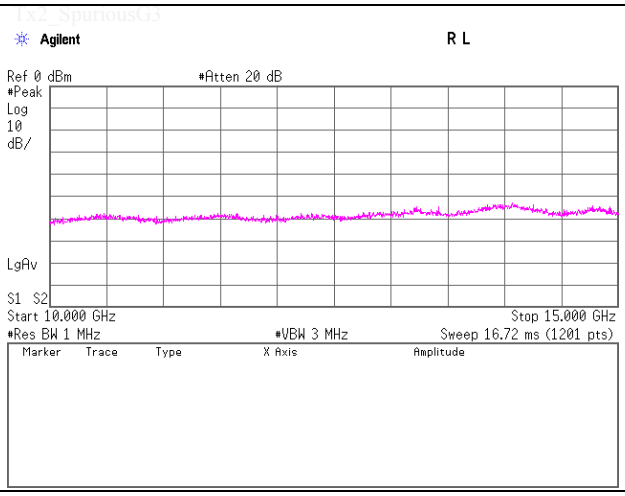
**1GHz - 5GHz**



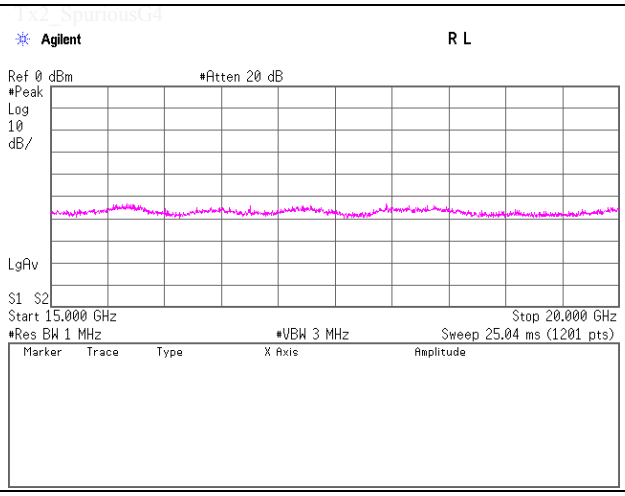

**5GHz - 10GHz**



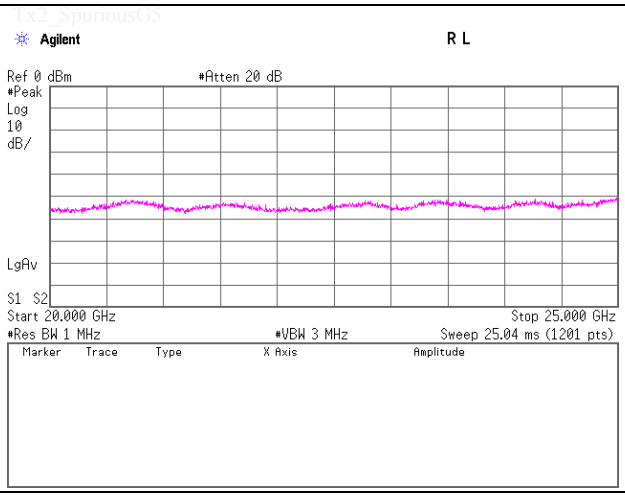

**10GHz - 15GHz**



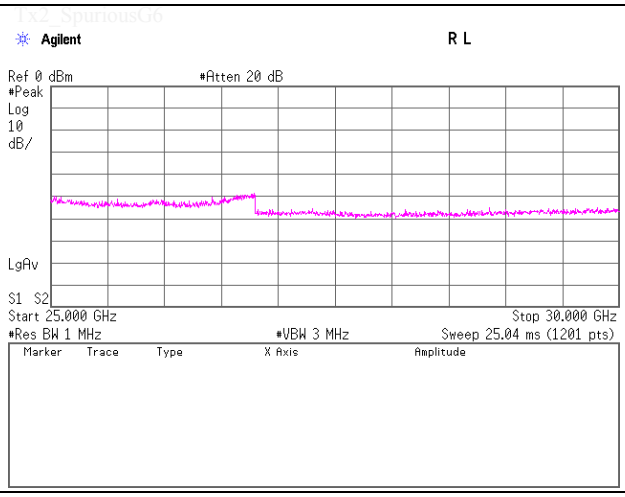

**15GHz - 20GHz**




**20GHz - 25GHz**




**25GHz - 30GHz**

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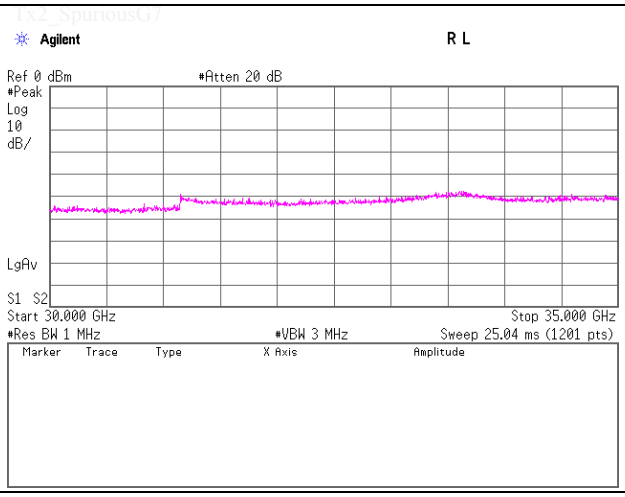
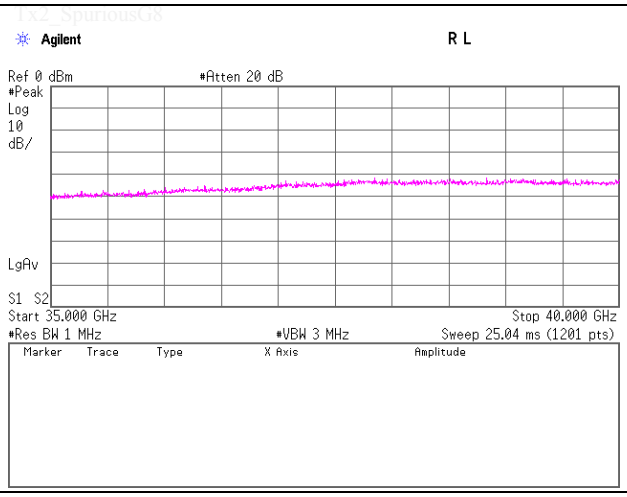
# (Reference) Spurious emission (Conducted)

**Tx, IEEE802.11a (W52), PN9, worst data mode 6Mbps**

| Tx, 5220MHz (above 1GHz)(2/2) | |
|---|---|
| **30GHz - 35GHz** | **35GHz - 40GHz** |
|  |  |

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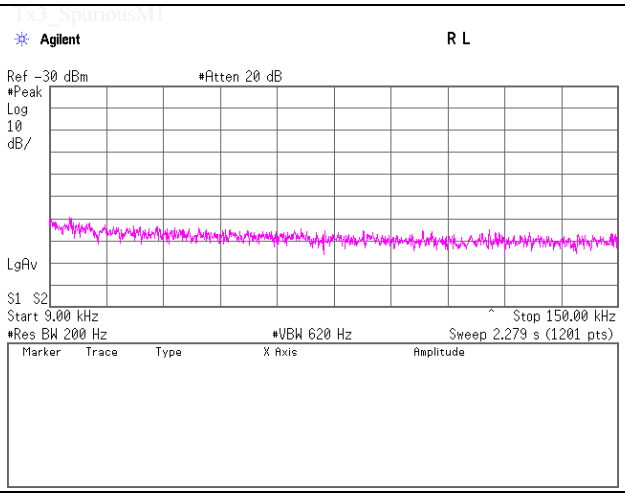
# (Reference) Spurious emission (Conducted)

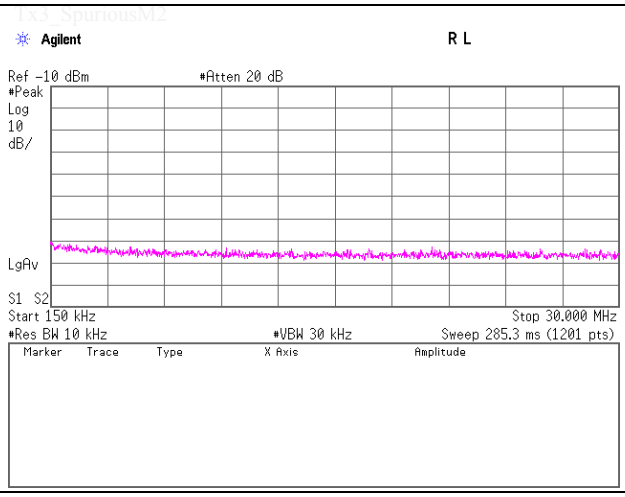
**Tx, IEEE802.11a (W52), PN9, worst data mode 6Mbps**

**Tx, 5240MHz (below 1GHz)**

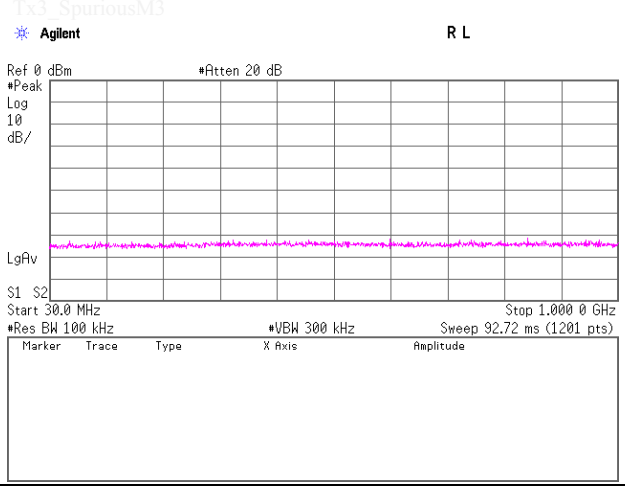
**9kHz - 150kHz**




**150kHz - 30MHz**




**30MHz - 1GHz**

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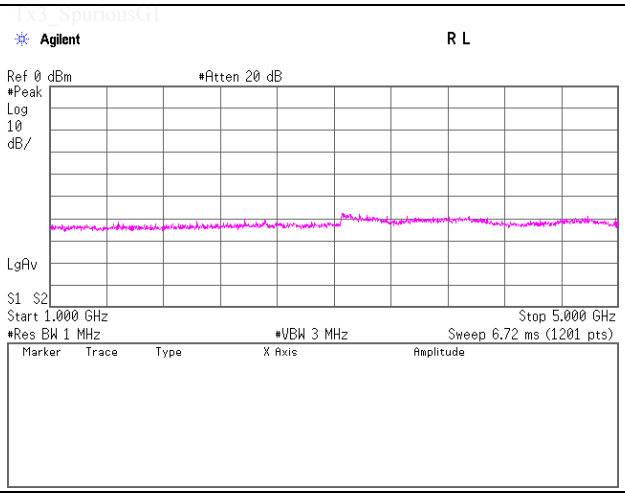
# (Reference) Spurious emission (Conducted)

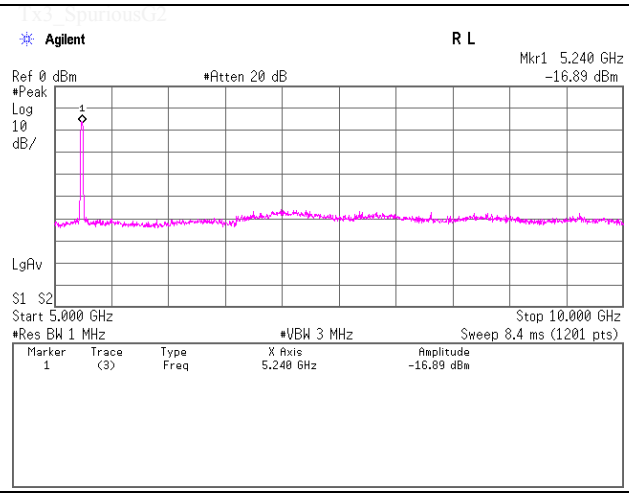
**Tx, IEEE802.11a (W52), PN9, worst data mode 6Mbps**

**Tx, 5240MHz (above 1GHz)(1/2)**

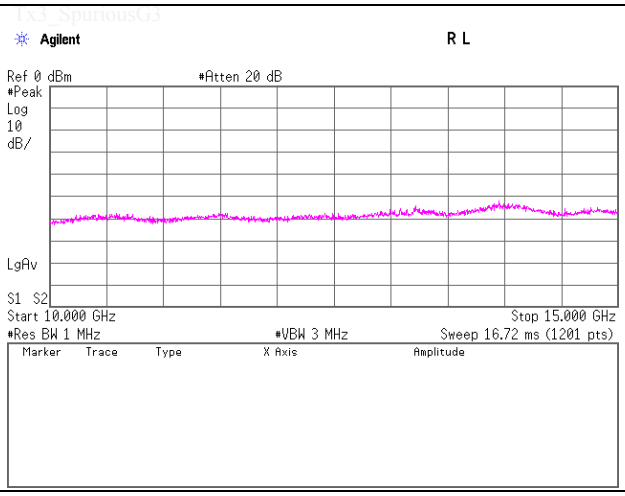
**1GHz - 5GHz**



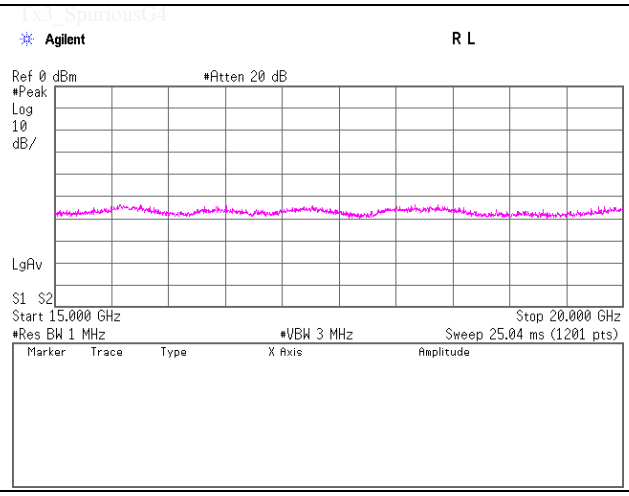

**5GHz - 10GHz**



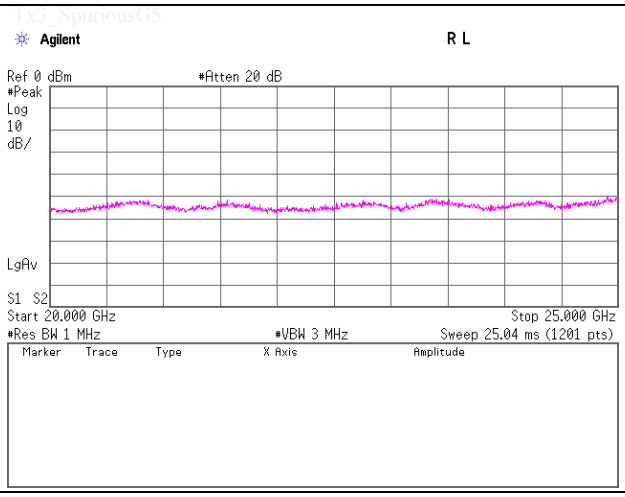

**10GHz - 15GHz**



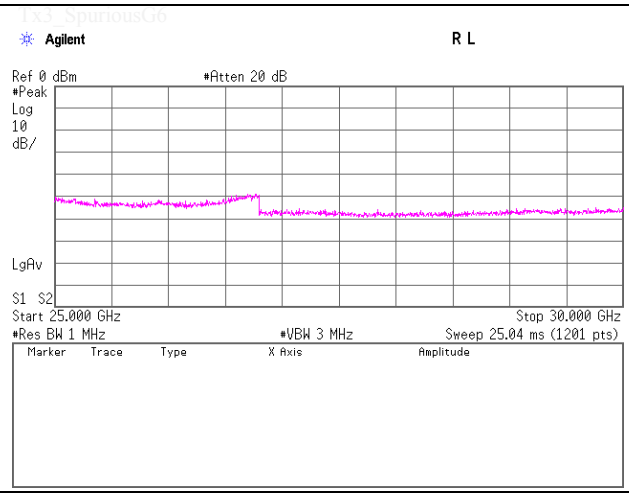

**15GHz - 20GHz**




**20GHz - 25GHz**




**25GHz - 30GHz**

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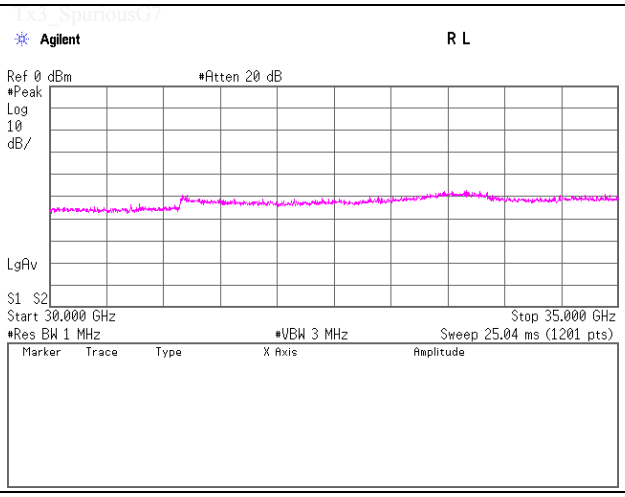
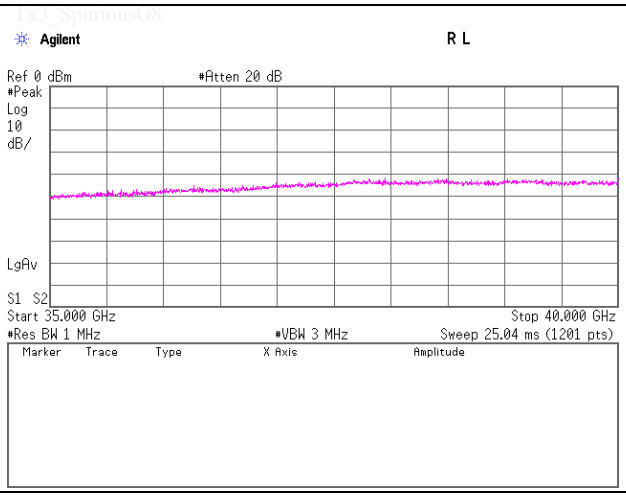
# (Reference) Spurious emission (Conducted)

**Tx, IEEE802.11a (W52), PN9, worst data mode 6Mbps**

| Tx, 5240MHz (above 1GHz)(2/2) | |
|---|---|
| **30GHz - 35GHz** | **35GHz - 40GHz** |
|  |  |





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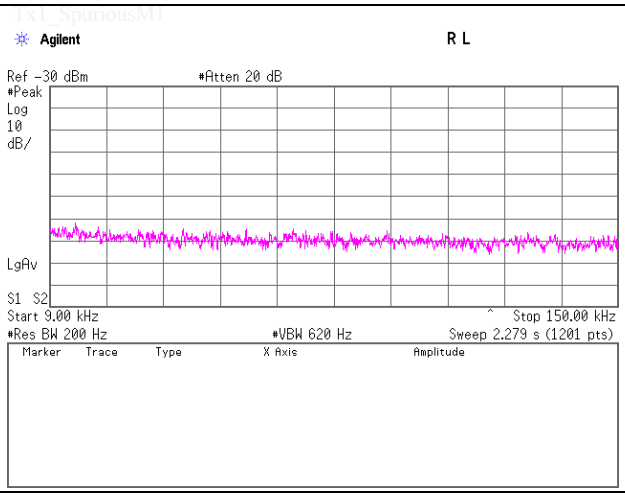
# (Reference) Spurious emission (Conducted)

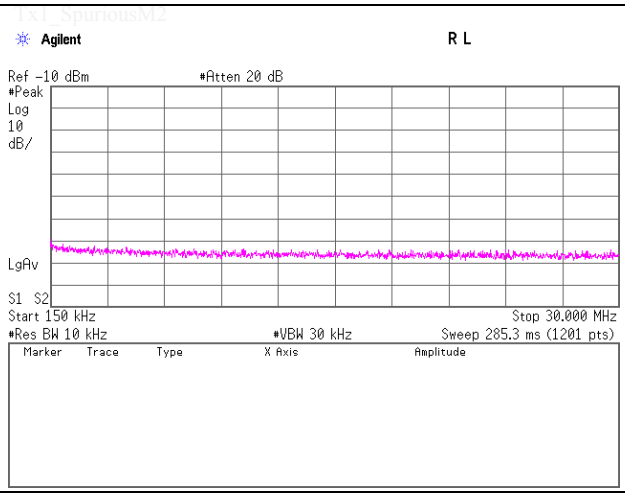
**Tx, IEEE802.11n (HT20) (W52), PN9, worst data mode 0(MCS)**

**Tx, 5180MHz (below 1GHz)**

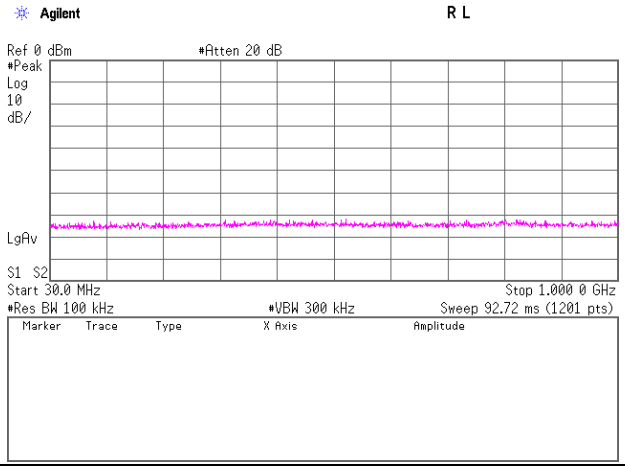
**9kHz - 150kHz**




**150kHz - 30MHz**




**30MHz - 1GHz**

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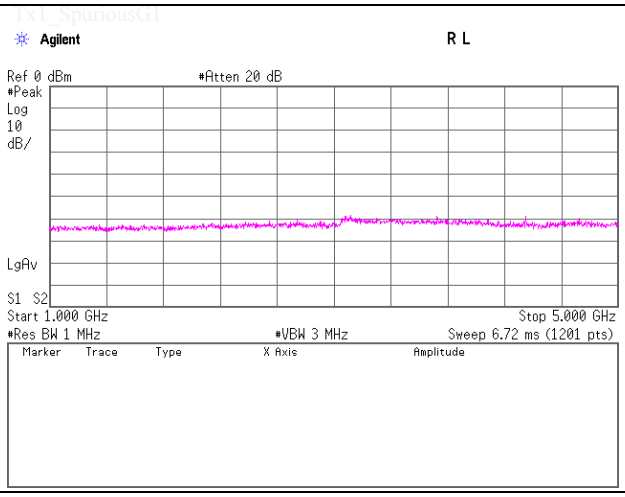
# (Reference) Spurious emission (Conducted)

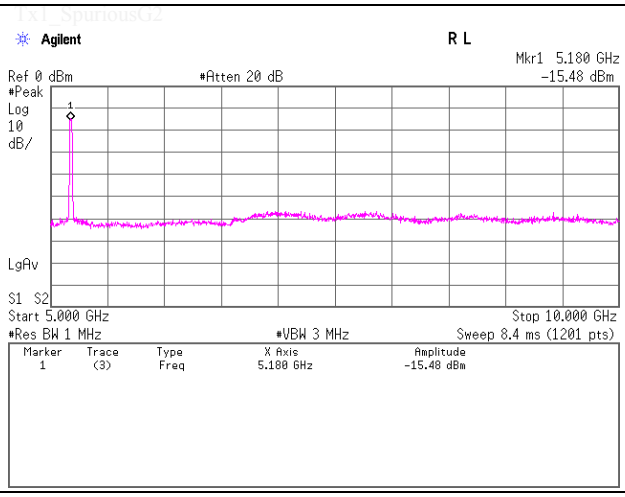
**Tx, IEEE802.11n (HT20) (W52), PN9, worst data mode 0(MCS)**

**Tx, 5180MHz (above 1GHz)(1/2)**

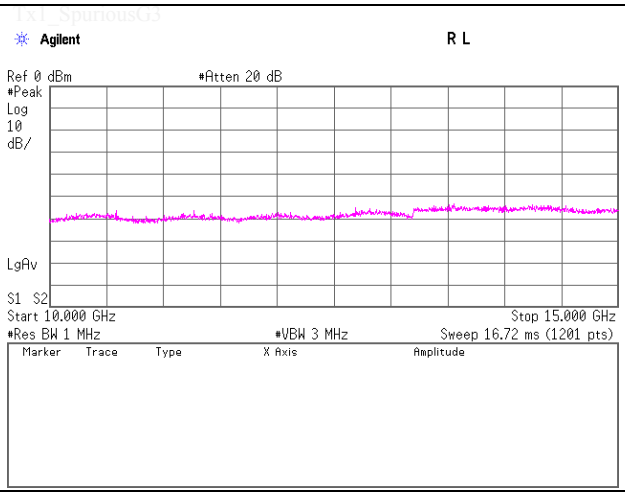
**1GHz - 5GHz**



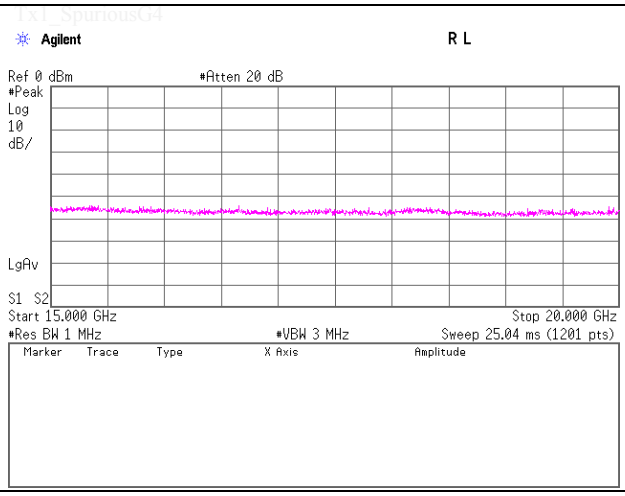

**5GHz - 10GHz**



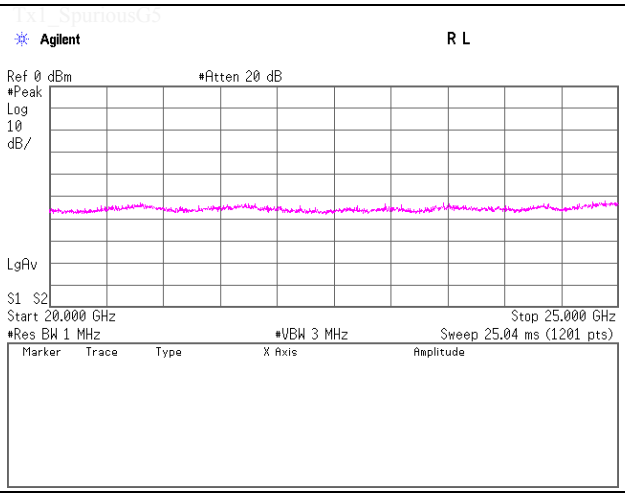

**10GHz - 15GHz**



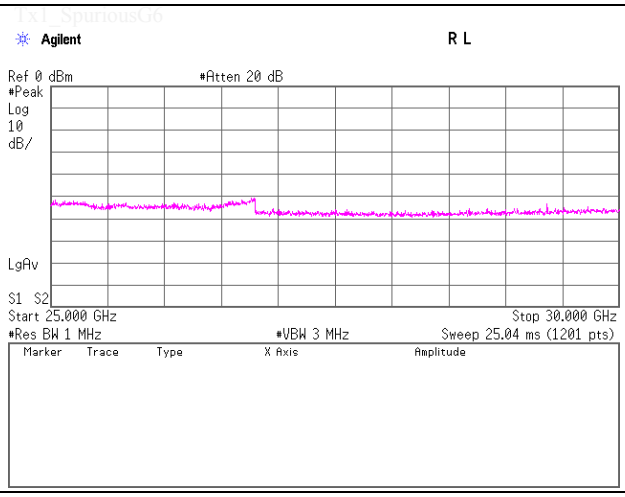

**15GHz - 20GHz**




**20GHz - 25GHz**




**25GHz - 30GHz**

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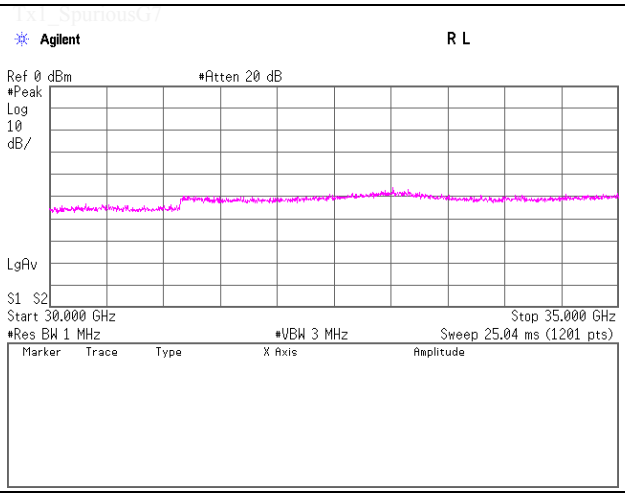
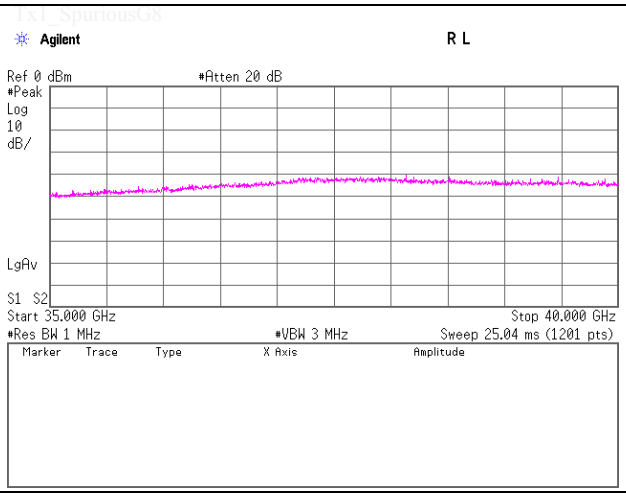
# (Reference) Spurious emission (Conducted)

**Tx, IEEE802.11n (HT20) (W52), PN9, worst data mode 0(MCS)**

| Tx, 5180MHz (above 1GHz)(2/2) | |
|---|---|
| **30GHz - 35GHz** | **35GHz - 40GHz** |
|  |  |
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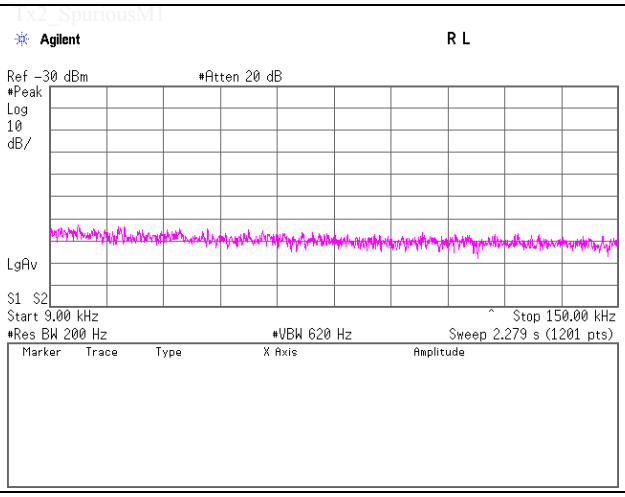
# (Reference) Spurious emission (Conducted)

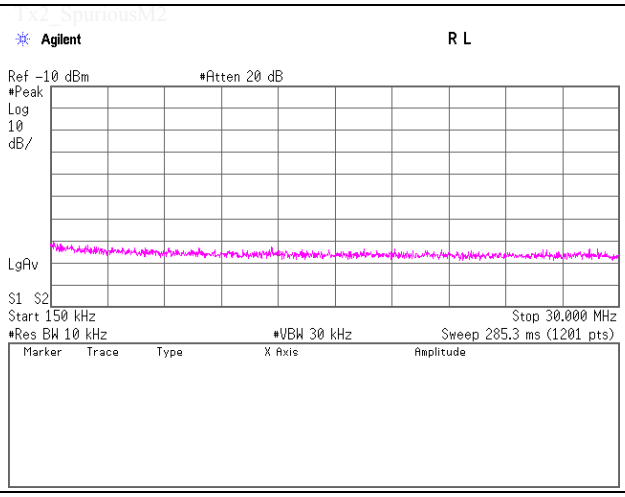
**Tx, IEEE802.11n (HT20) (W52), PN9, worst data mode 0(MCS)**

**Tx, 5220MHz (below 1GHz)**

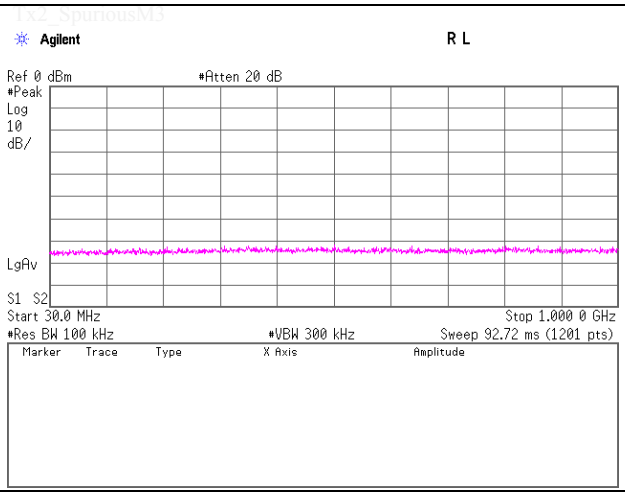
**9kHz - 150kHz**




**150kHz - 30MHz**




**30MHz - 1GHz**

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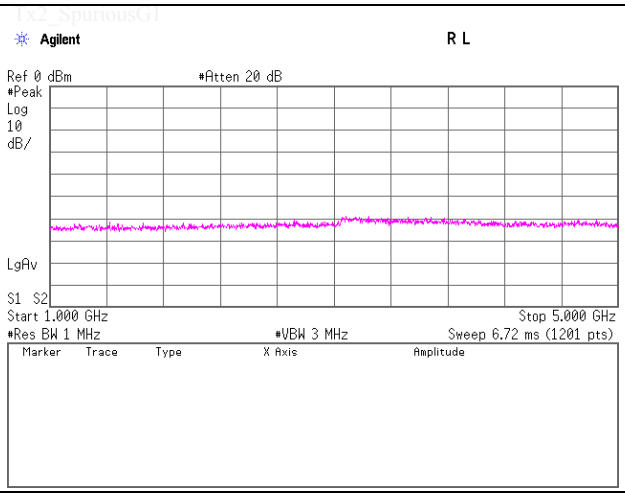
# (Reference) Spurious emission (Conducted)

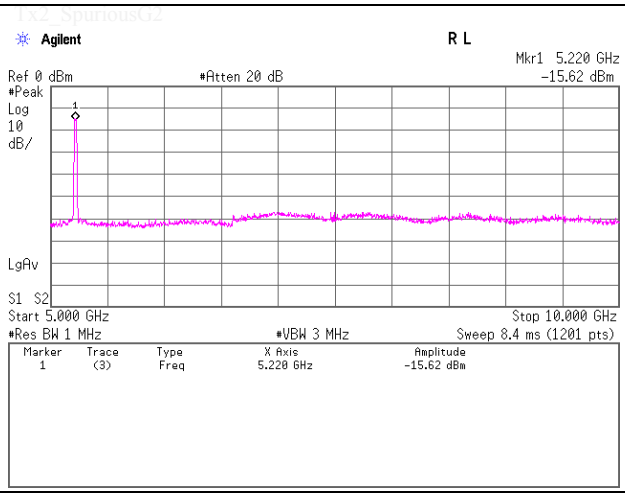
**Tx, IEEE802.11n (HT20) (W52), PN9, worst data mode 0(MCS)**

**Tx, 5220MHz (above 1GHz)(1/2)**

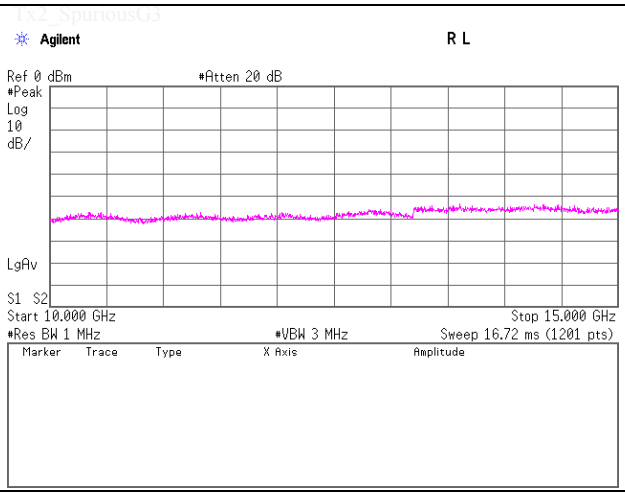
**1GHz - 5GHz**



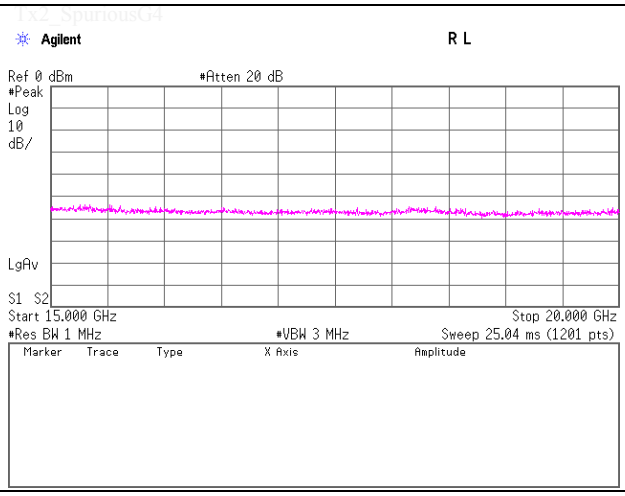

**5GHz - 10GHz**



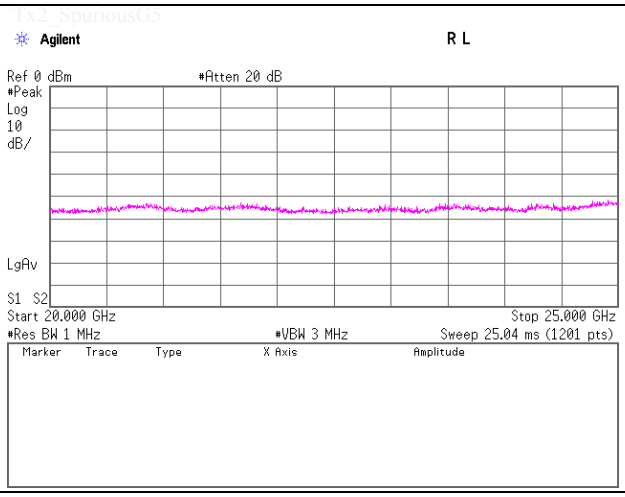

**10GHz - 15GHz**



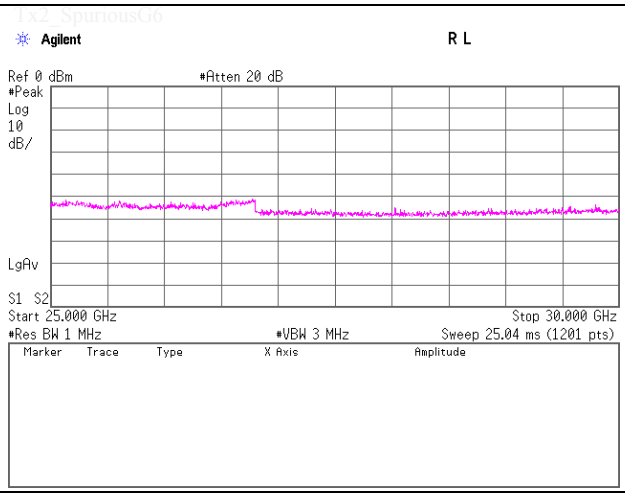

**15GHz - 20GHz**




**20GHz - 25GHz**




**25GHz - 30GHz**

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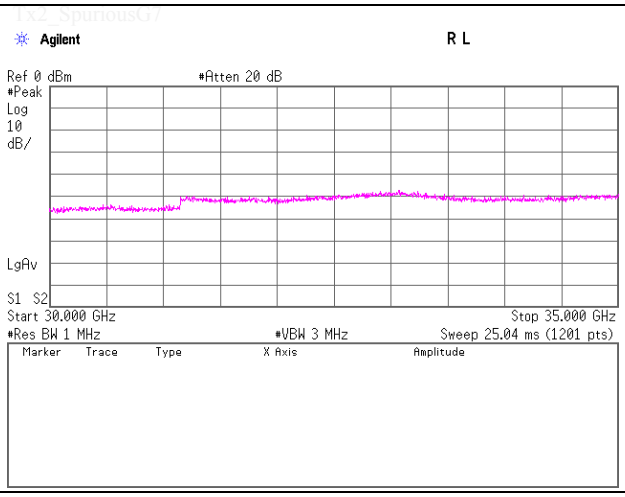
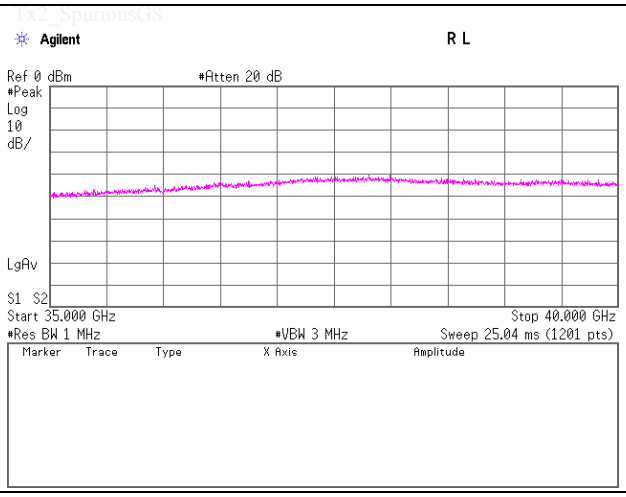
# (Reference) Spurious emission (Conducted)

**Tx, IEEE802.11n (HT20) (W52), PN9, worst data mode 0(MCS)**

| Tx, 5220MHz (above 1GHz)(2/2) | |
|---|---|
| **30GHz - 35GHz** | **35GHz - 40GHz** |
|  |  |
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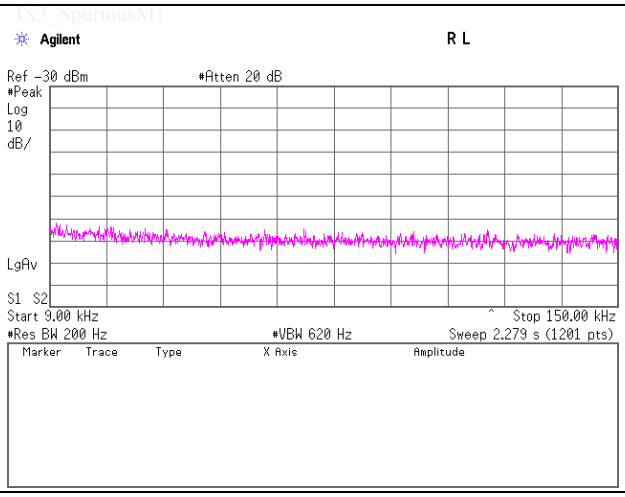
# (Reference) Spurious emission (Conducted)

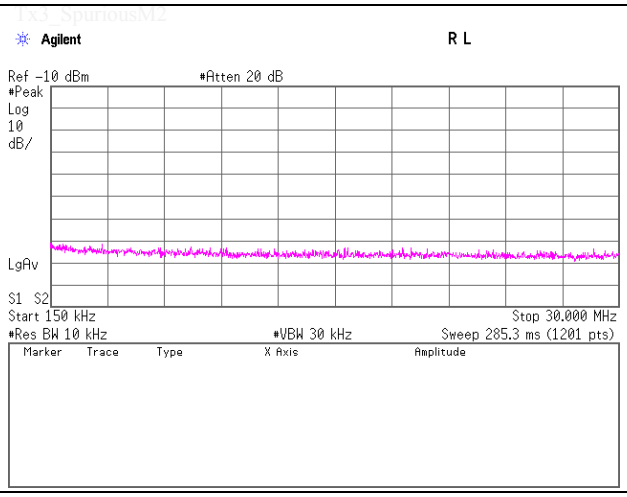
**Tx, IEEE802.11n (HT20) (W52), PN9, worst data mode 0(MCS)**

**Tx, 5240MHz (below 1GHz)**

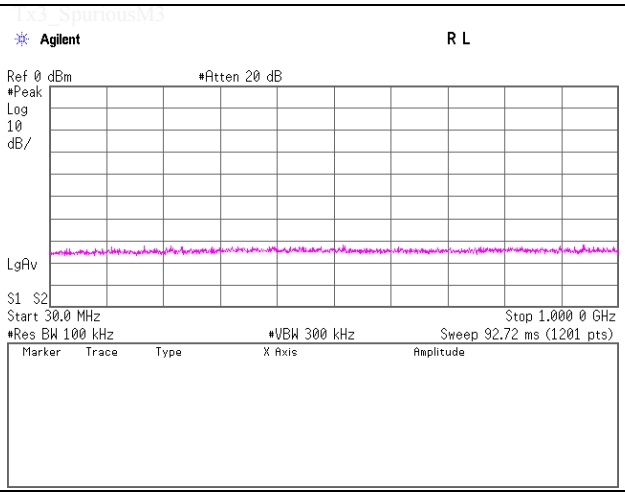
**9kHz - 150kHz**




**150kHz - 30MHz**




**30MHz - 1GHz**

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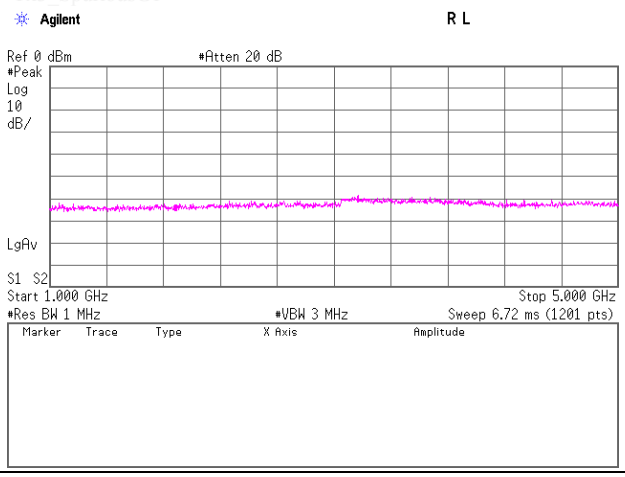
# (Reference) Spurious emission (Conducted)

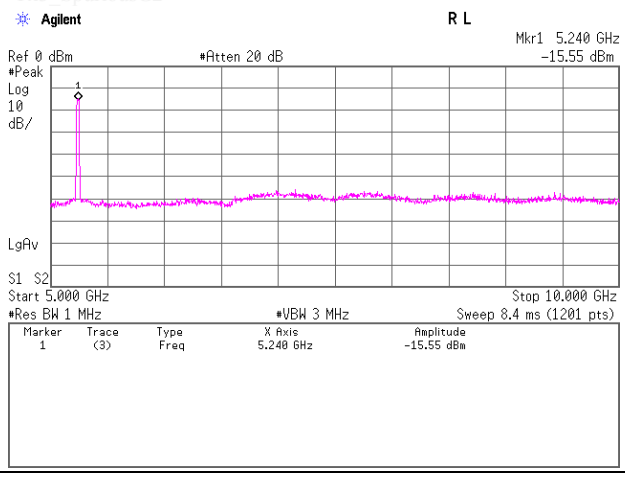
**Tx, IEEE802.11n (HT20) (W52), PN9, worst data mode 0(MCS)**

**Tx, 5240MHz (above 1GHz)(1/2)**

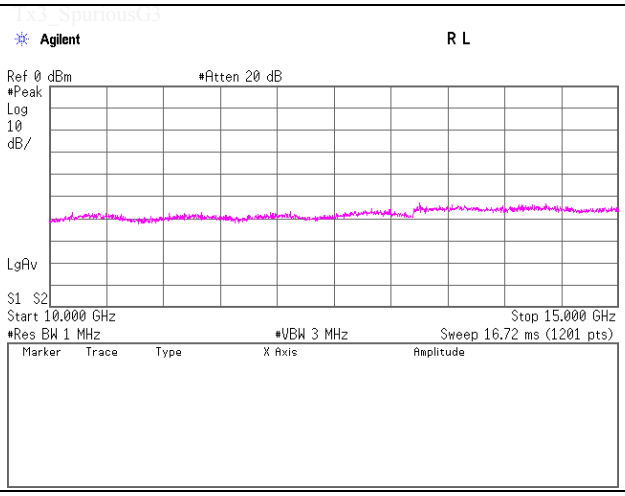
**1GHz - 5GHz**



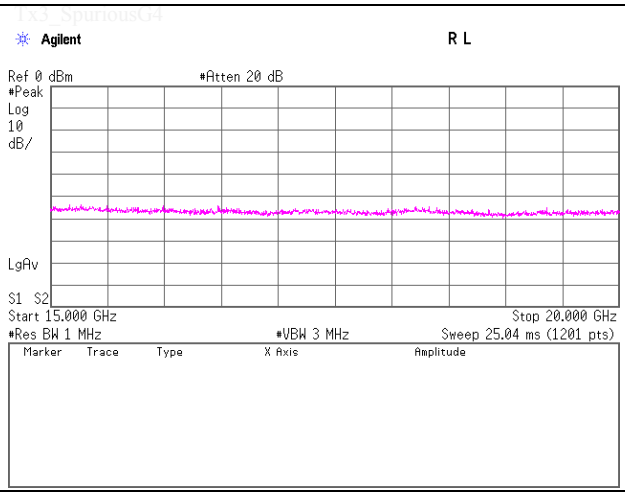

**5GHz - 10GHz**



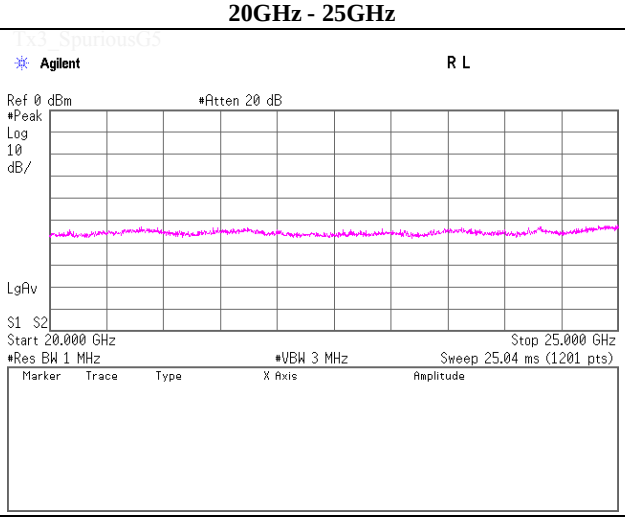

**10GHz - 15GHz**



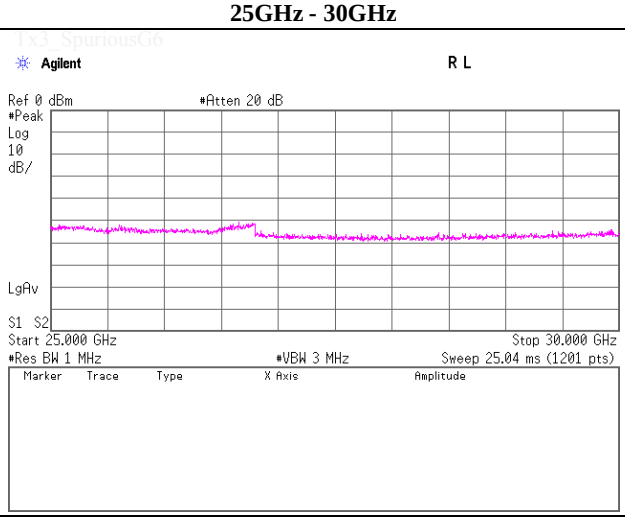

**15GHz - 20GHz**




**20GHz - 25GHz**




**25GHz - 30GHz**

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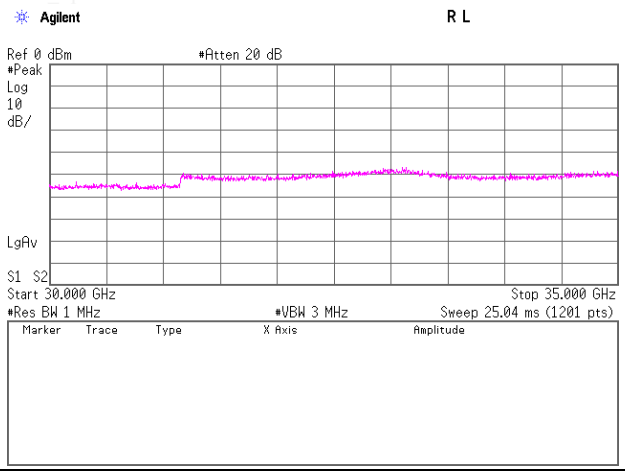
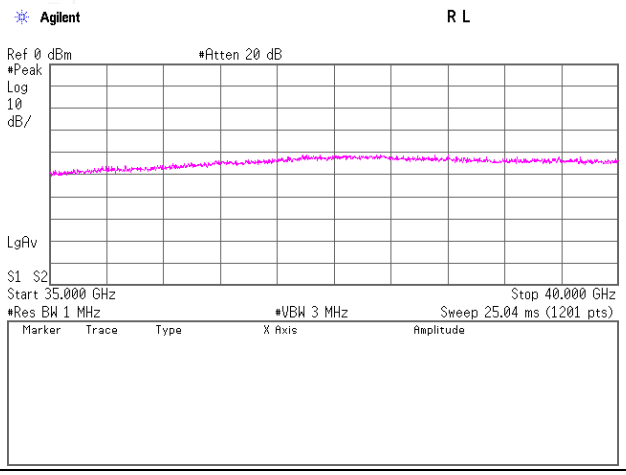
# (Reference) Spurious emission (Conducted)

**Tx, IEEE802.11n (HT20) (W52), PN9, worst data mode 0(MCS)**

| Tx, 5240MHz (above 1GHz)(2/2) | |
|---|---|
| **30GHz - 35GHz** | **35GHz - 40GHz** |
|  |  |
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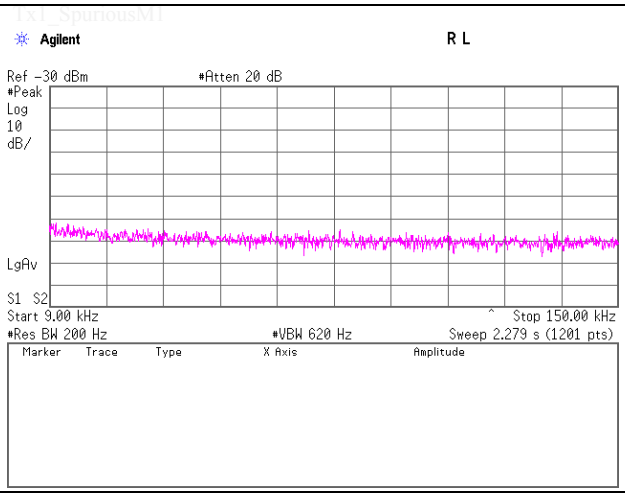
# (Reference) Spurious emission (Conducted)

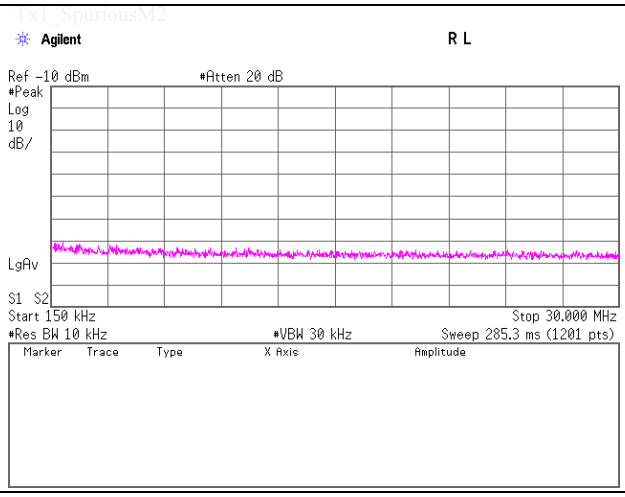
**Tx, IEEE802.11n (HT40) (W52), PN9, worst data mode 0(MCS)**

**Tx, 5190MHz (below 1GHz)**

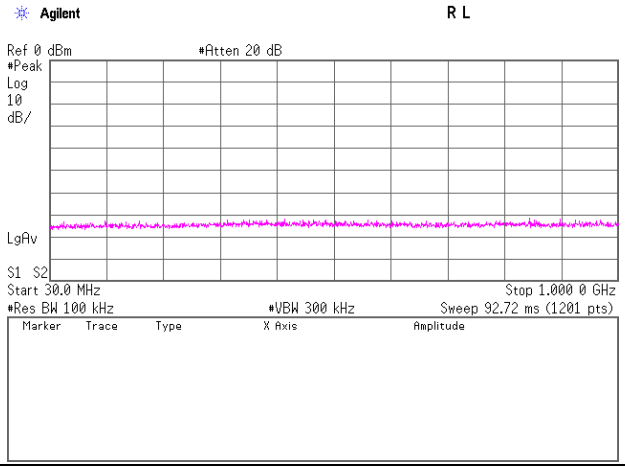
**9kHz - 150kHz**




**150kHz - 30MHz**




**30MHz - 1GHz**

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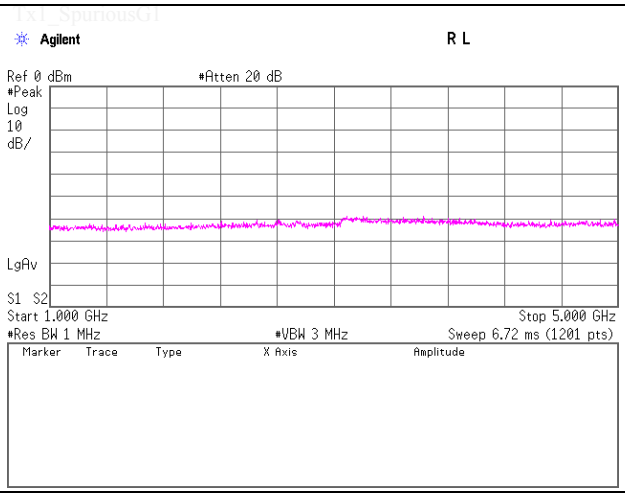
# (Reference) Spurious emission (Conducted)

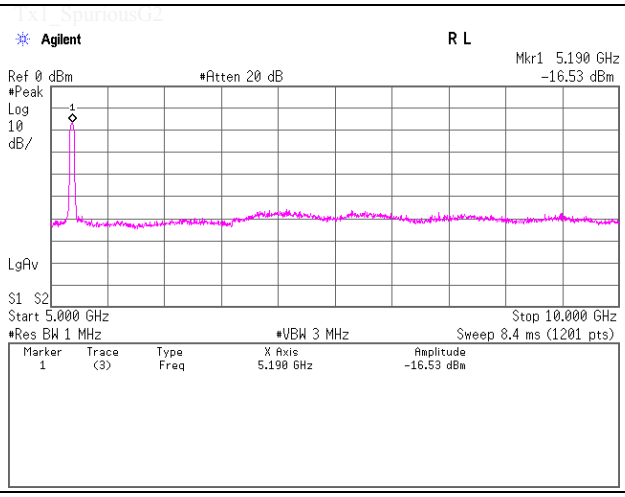
**Tx, IEEE802.11n (HT40) (W52), PN9, worst data mode 0(MCS)**

**Tx, 5190MHz (above 1GHz)(1/2)**

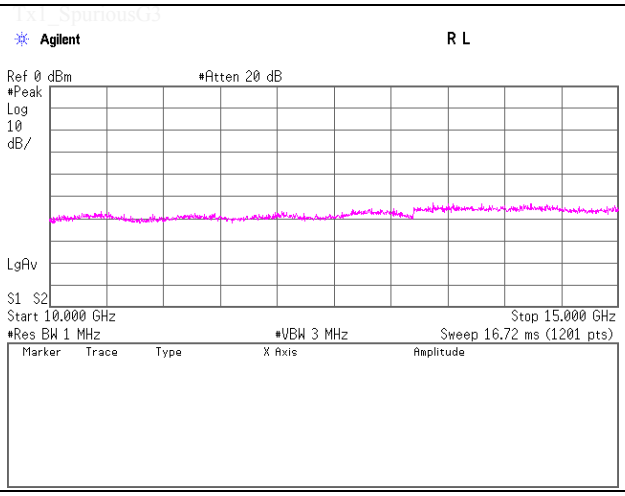
**1GHz - 5GHz**



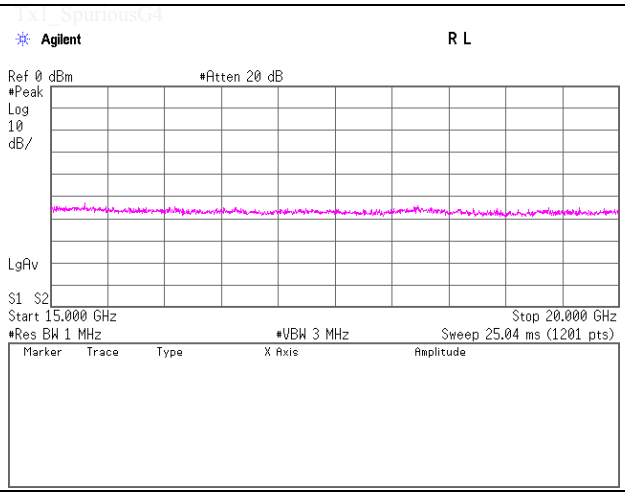

**5GHz - 10GHz**



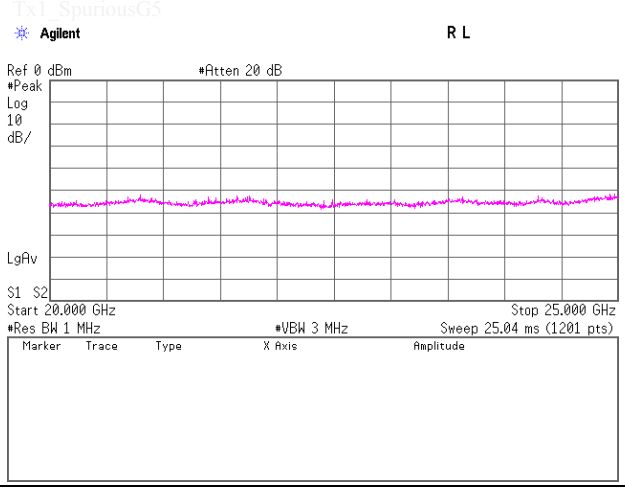

**10GHz - 15GHz**



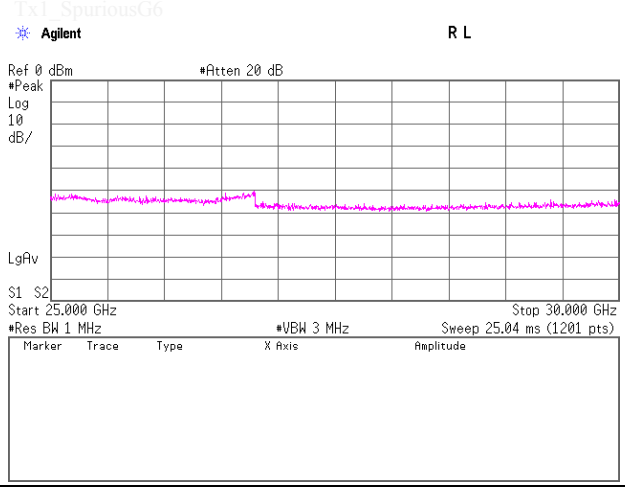

**15GHz - 20GHz**




**20GHz - 25GHz**




**25GHz - 30GHz**

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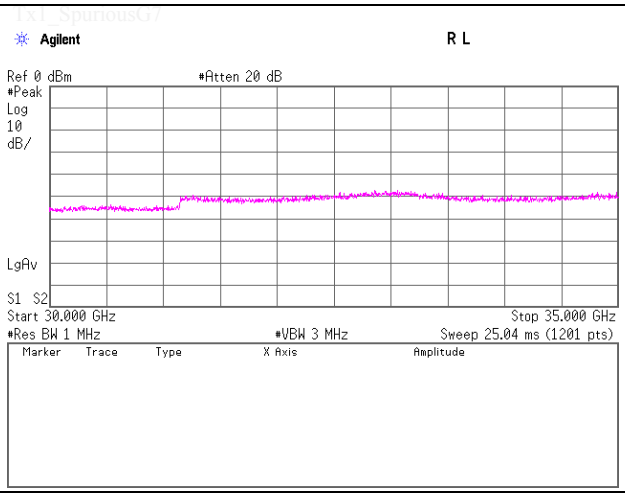
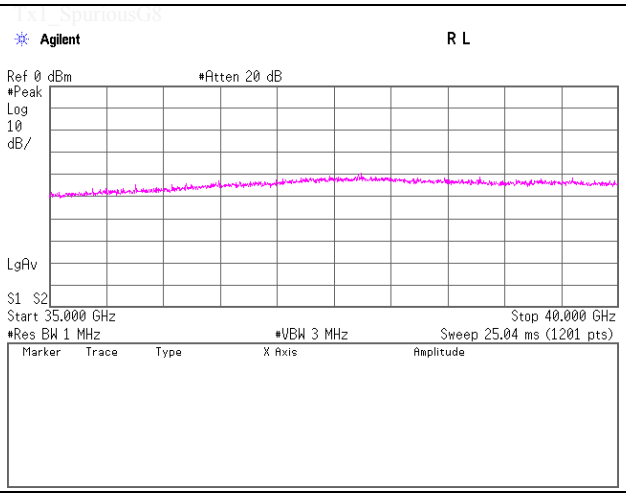
# (Reference) Spurious emission (Conducted)

**Tx, IEEE802.11n (HT40) (W52), PN9, worst data mode 0(MCS)**

| Tx, 5190MHz (above 1GHz)(2/2) | |
|---|---|
| **30GHz - 35GHz** | **35GHz - 40GHz** |
|  |  |
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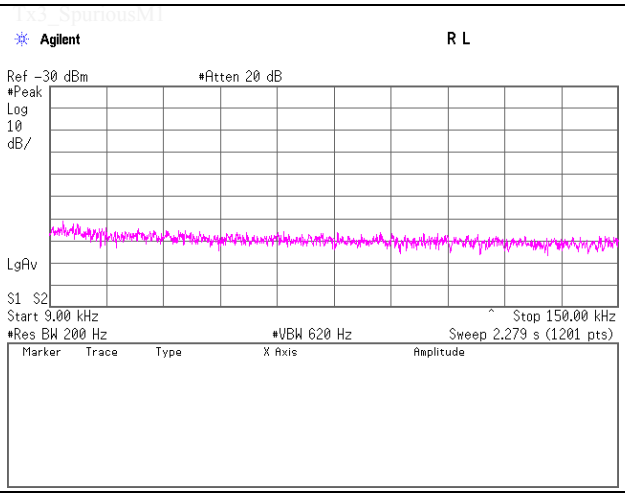
# (Reference) Spurious emission (Conducted)

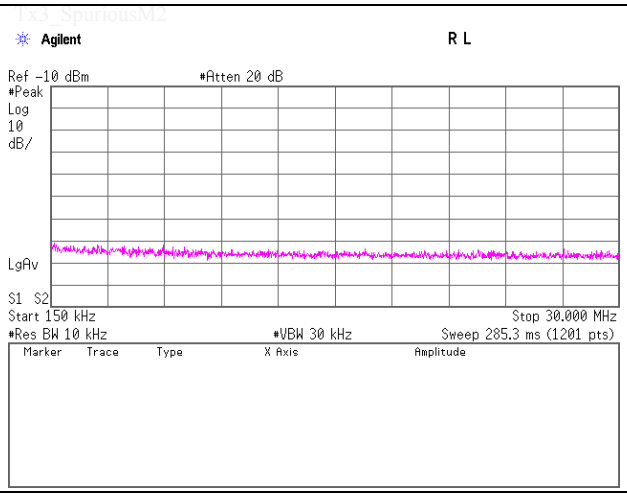
**Tx, IEEE802.11n (HT40) (W52), PN9, worst data mode 0(MCS)**

**Tx, 5230MHz (below 1GHz)**

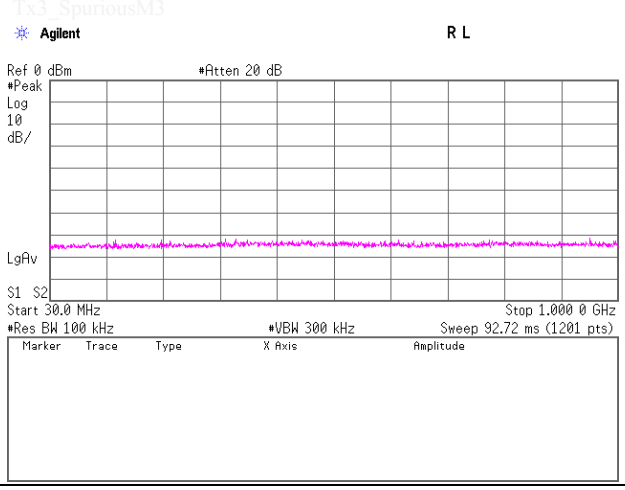
**9kHz - 150kHz**




**150kHz - 30MHz**




**30MHz - 1GHz**

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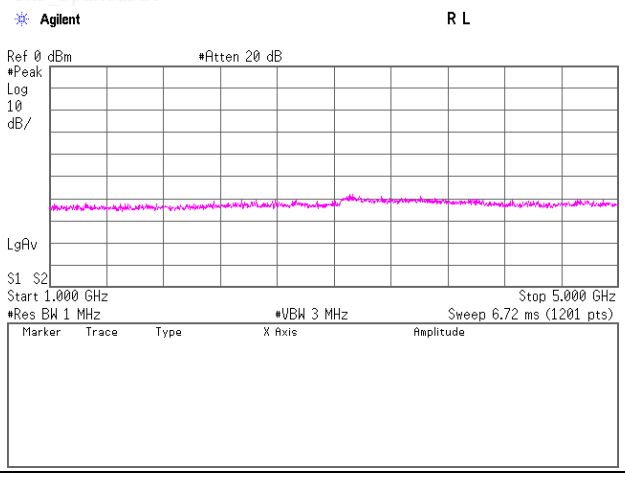
# (Reference) Spurious emission (Conducted)

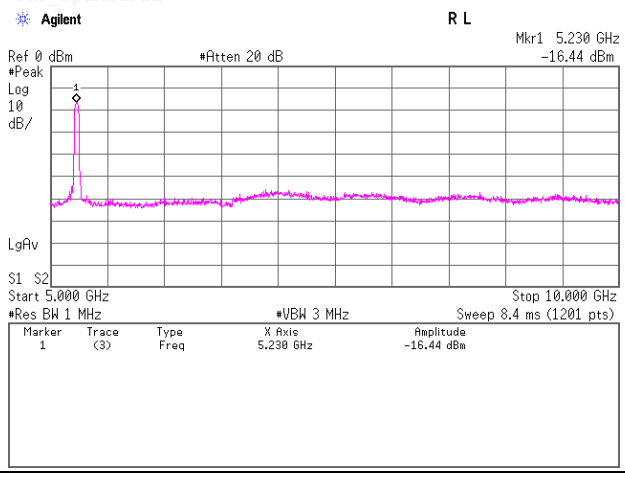
**Tx, IEEE802.11n (HT40) (W52), PN9, worst data mode 0(MCS)**

**Tx, 5230MHz (above 1GHz)(1/2)**

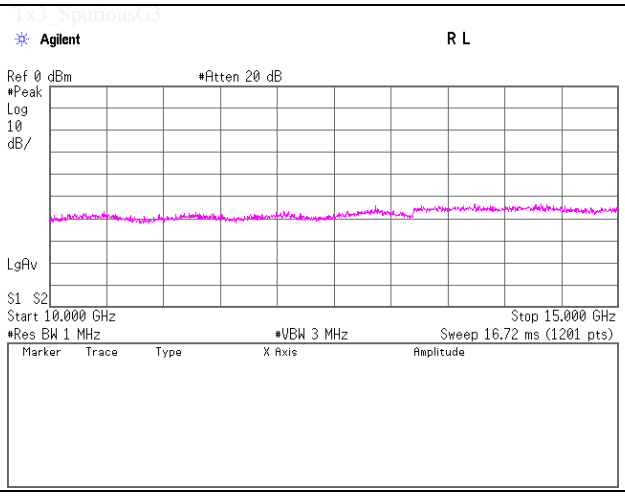
**1GHz - 5GHz**



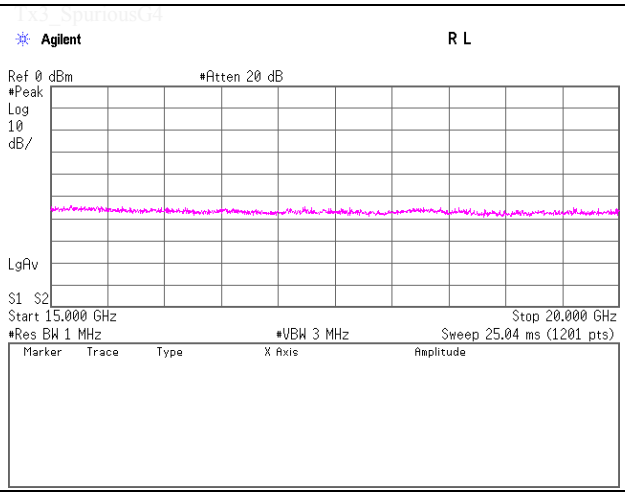

**5GHz - 10GHz**



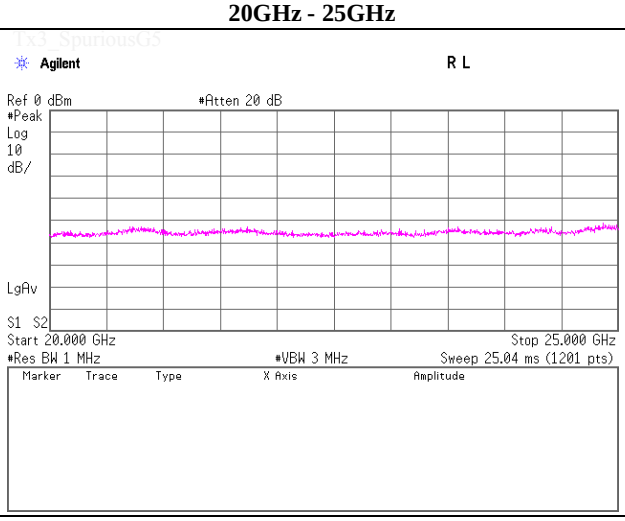

**10GHz - 15GHz**



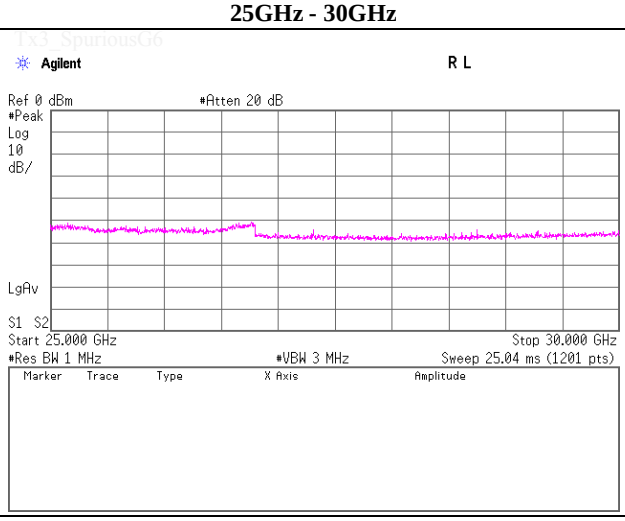

**15GHz - 20GHz**




**20GHz - 25GHz**




**25GHz - 30GHz**

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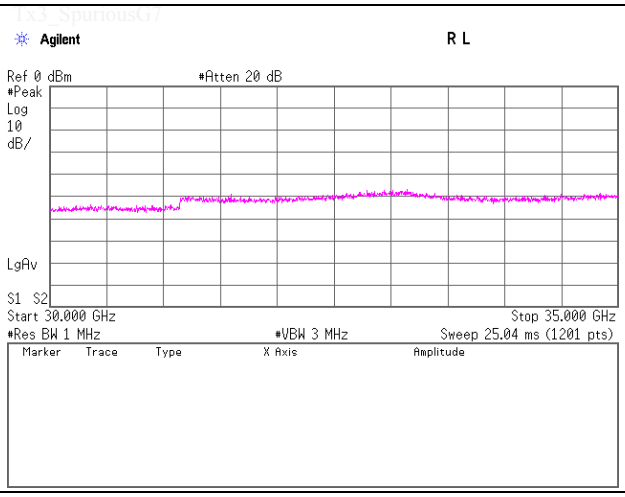
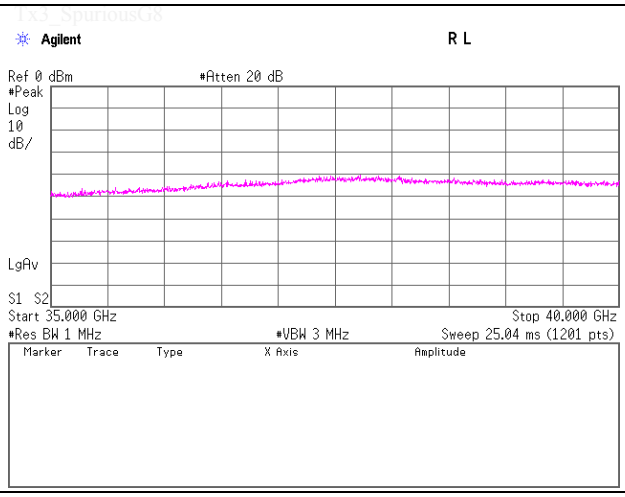
# (Reference) Spurious emission (Conducted)

**Tx, IEEE802.11n (HT40) (W52), PN9, worst data mode 0(MCS)**

| Tx, 5230MHz (above 1GHz)(2/2) | |
|---|---|
| **30GHz - 35GHz** | **35GHz - 40GHz** |
|  |  |

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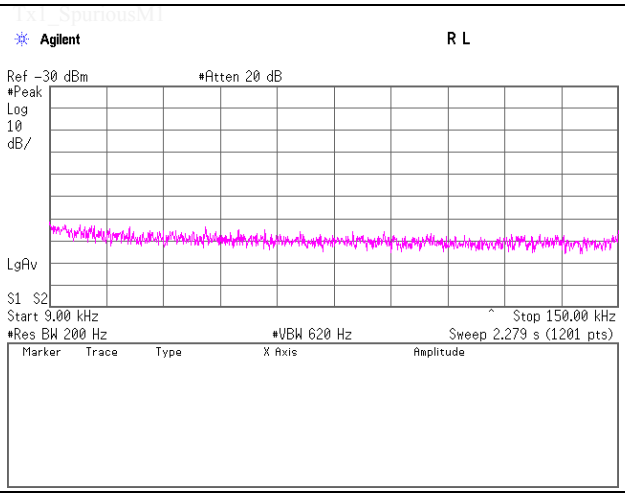
# (Reference) Spurious emission (Conducted)

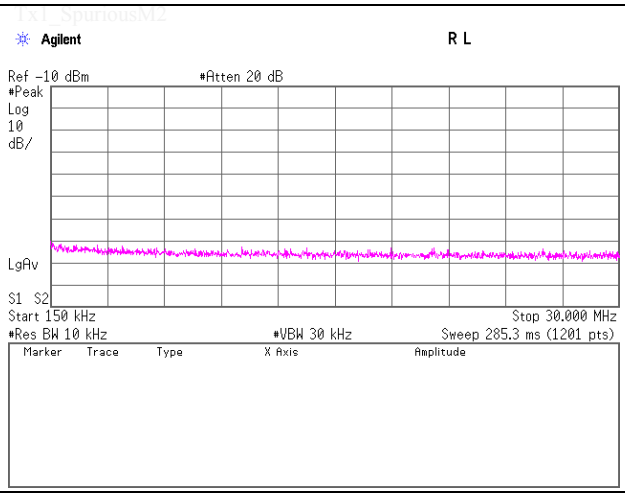
**Tx, IEEE802.11a (W53), PN9, worst data mode 6Mbps**

**Tx, 5260MHz (below 1GHz)**

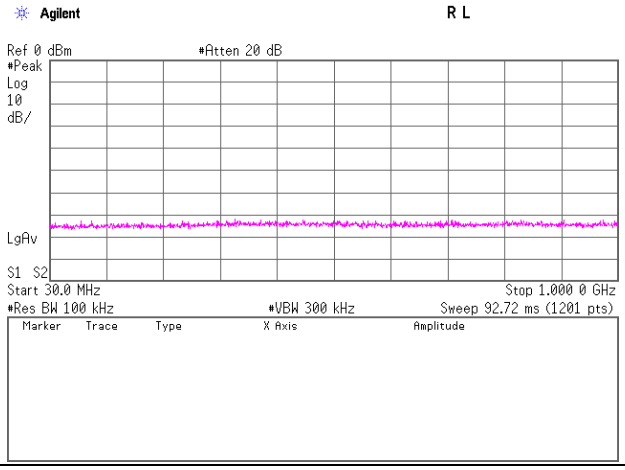
**9kHz - 150kHz**




**150kHz - 30MHz**




**30MHz - 1GHz**

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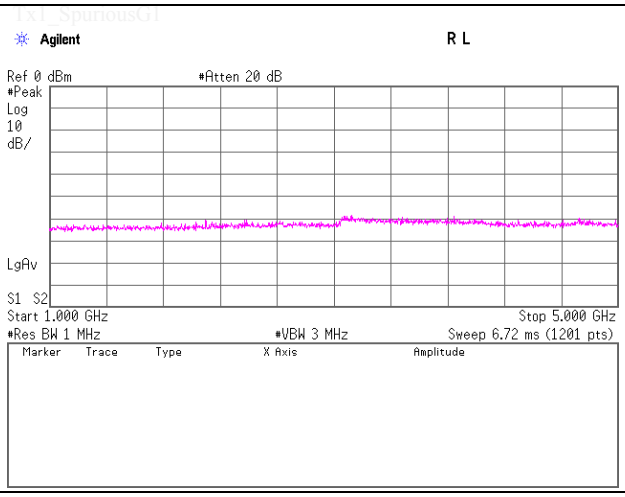
# (Reference) Spurious emission (Conducted)

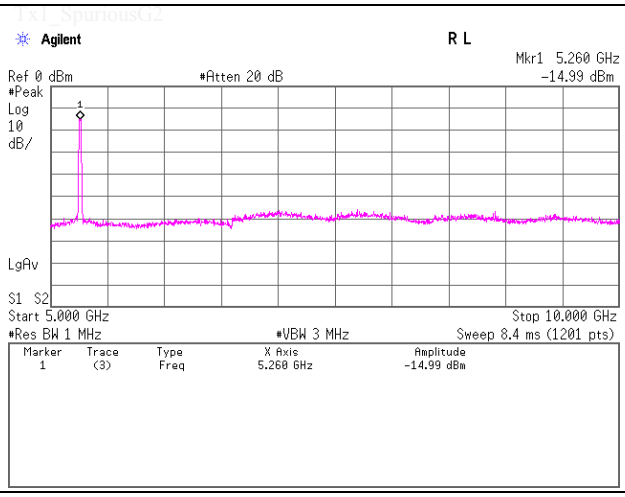
**Tx, IEEE802.11a (W53), PN9, worst data mode 6Mbps**

**Tx, 5260MHz (above 1GHz)(1/2)**

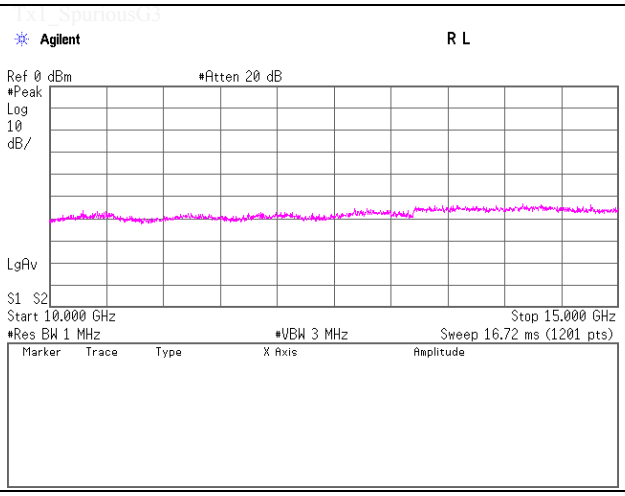
**1GHz - 5GHz**



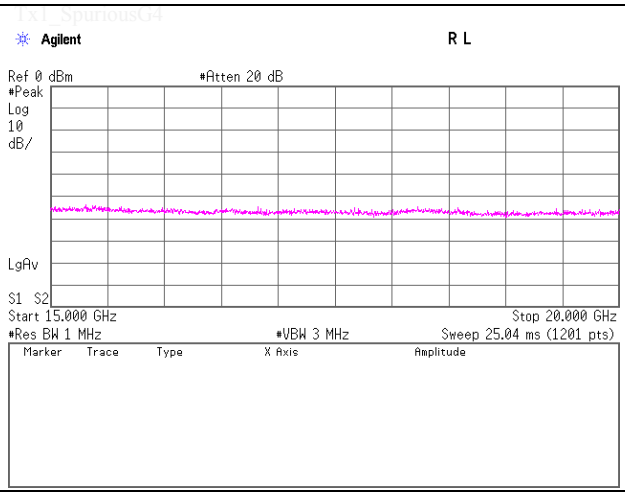

**5GHz - 10GHz**



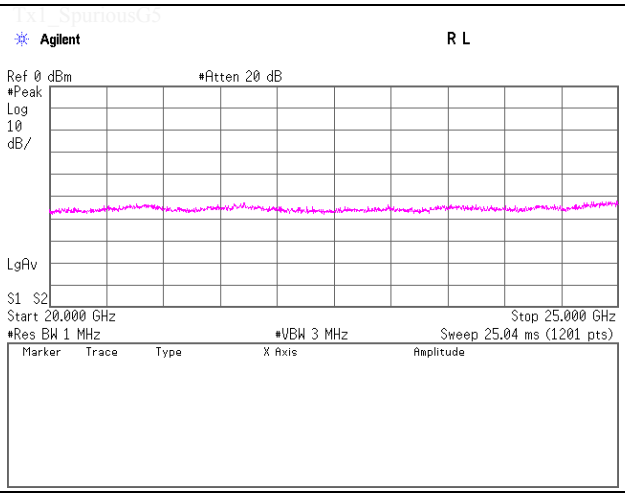

**10GHz - 15GHz**



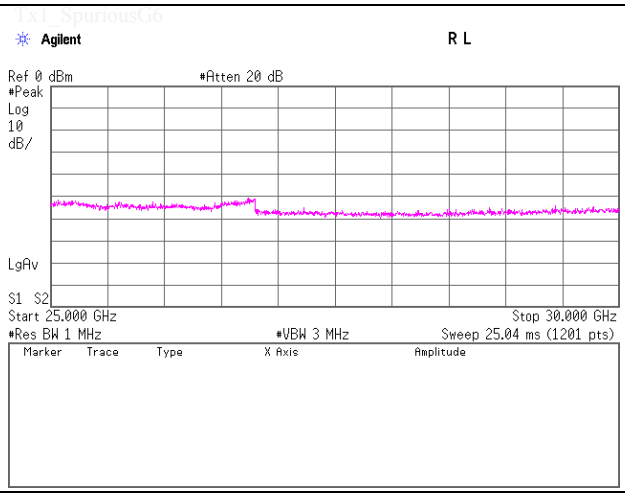

**15GHz - 20GHz**




**20GHz - 25GHz**




**25GHz - 30GHz**

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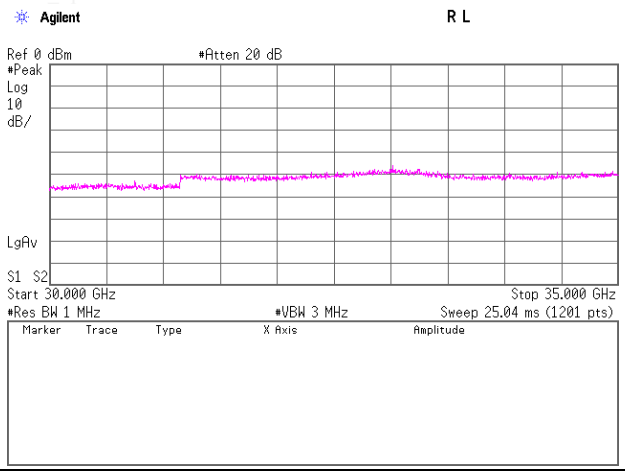
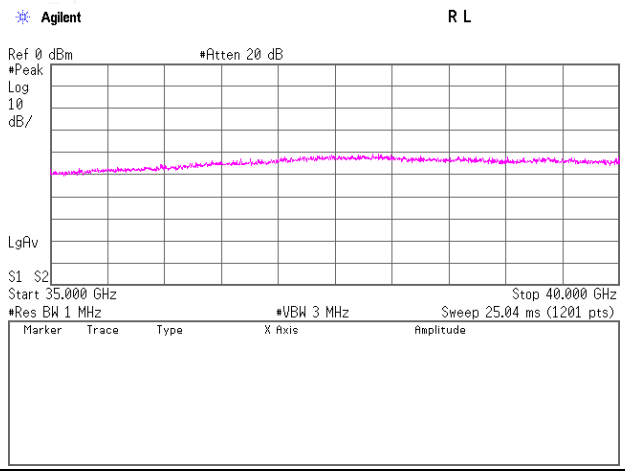
# (Reference) Spurious emission (Conducted)

**Tx, IEEE802.11a (W53), PN9, worst data mode 6Mbps**

| Tx, 5260MHz (above 1GHz)(2/2) | |
|---|---|
| **30GHz - 35GHz** | **35GHz - 40GHz** |
|  |  |

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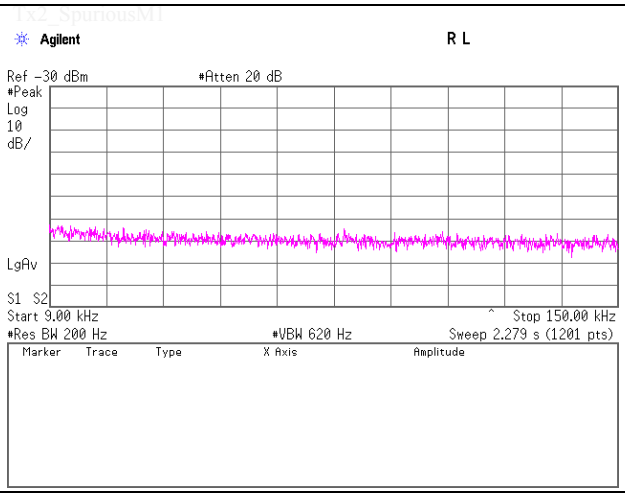
# (Reference) Spurious emission (Conducted)

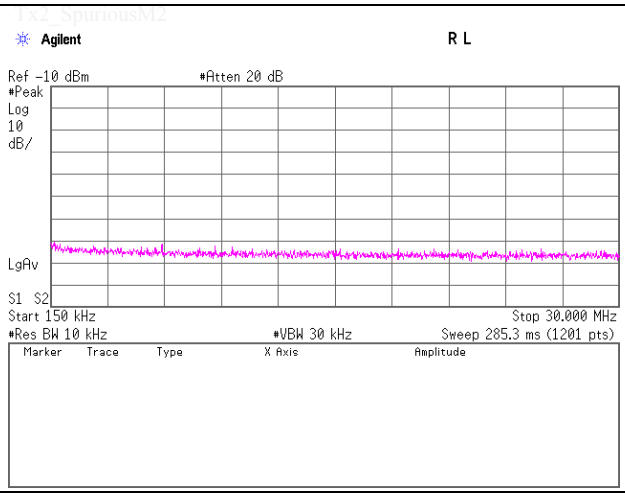
**Tx, IEEE802.11a (W53), PN9, worst data mode 6Mbps**

**Tx, 5300MHz (below 1GHz)**

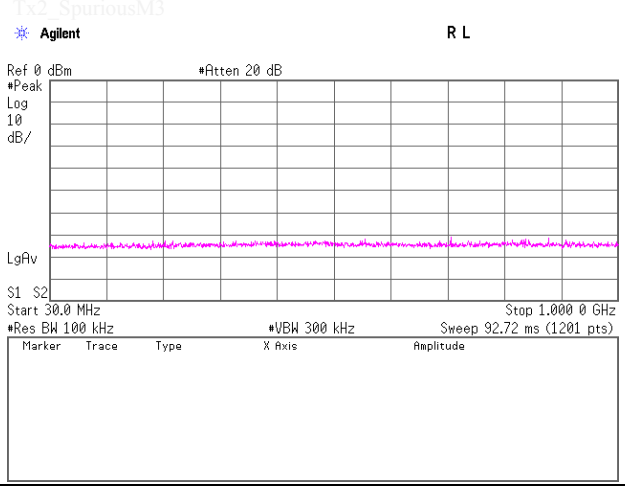
**9kHz - 150kHz**




**150kHz - 30MHz**




**30MHz - 1GHz**

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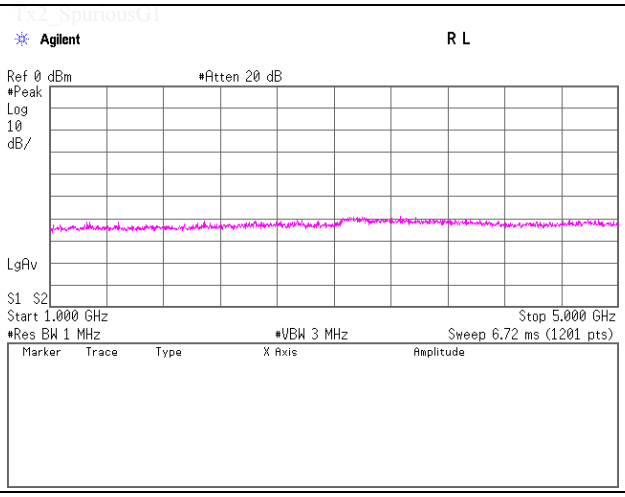
# (Reference) Spurious emission (Conducted)

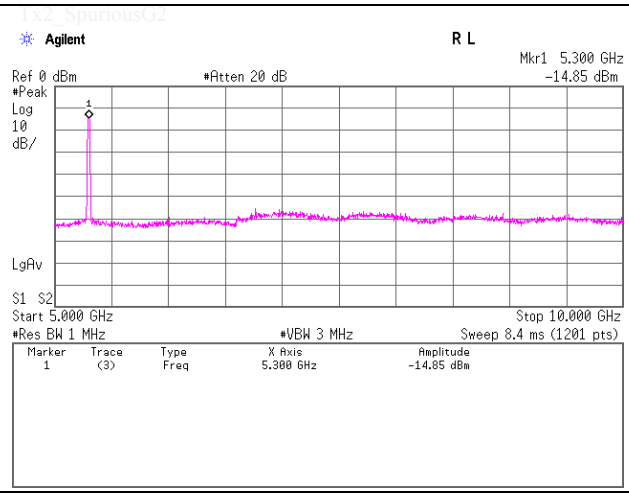
**Tx, IEEE802.11a (W53), PN9, worst data mode 6Mbps**

**Tx, 5300MHz (above 1GHz)(1/2)**

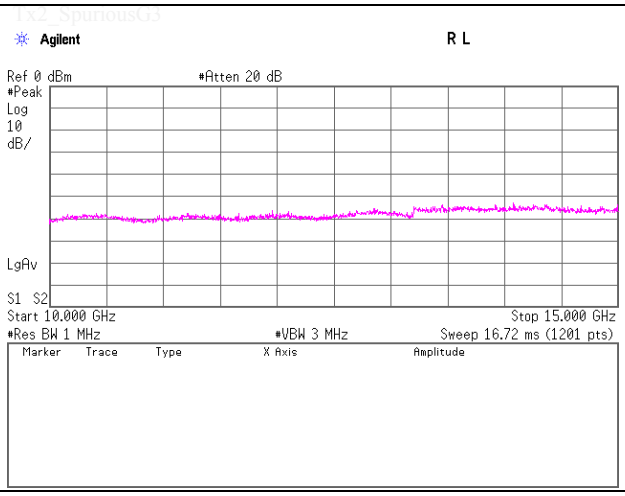
**1GHz - 5GHz**



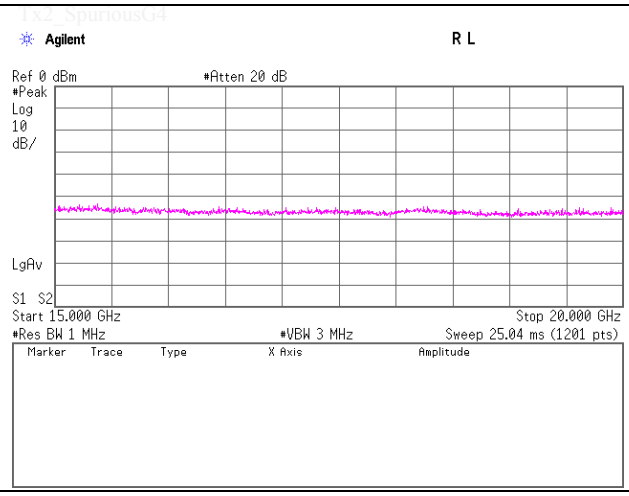

**5GHz - 10GHz**



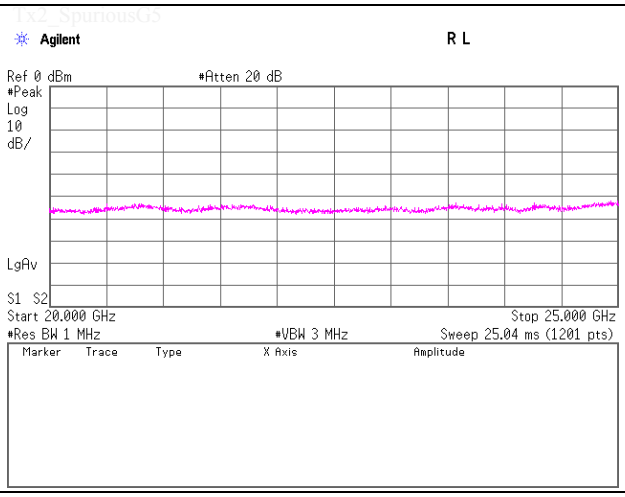

**10GHz - 15GHz**



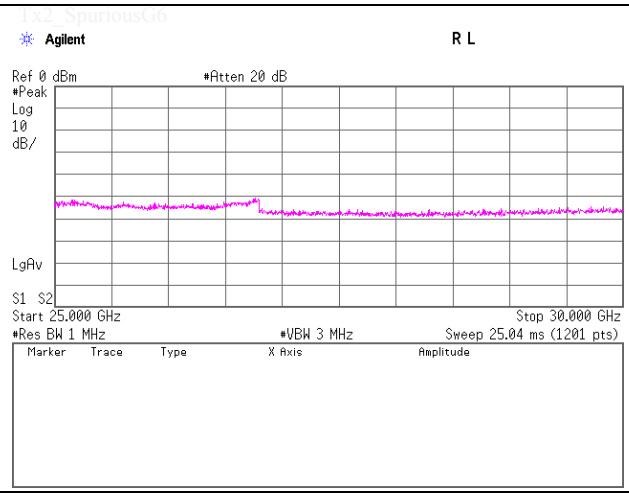

**15GHz - 20GHz**




**20GHz - 25GHz**




**25GHz - 30GHz**

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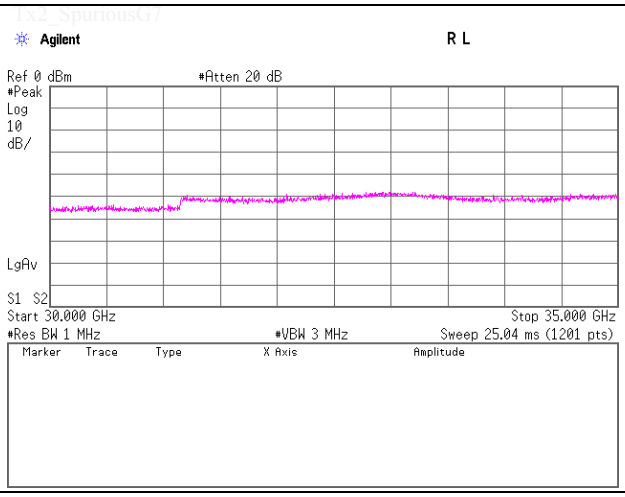
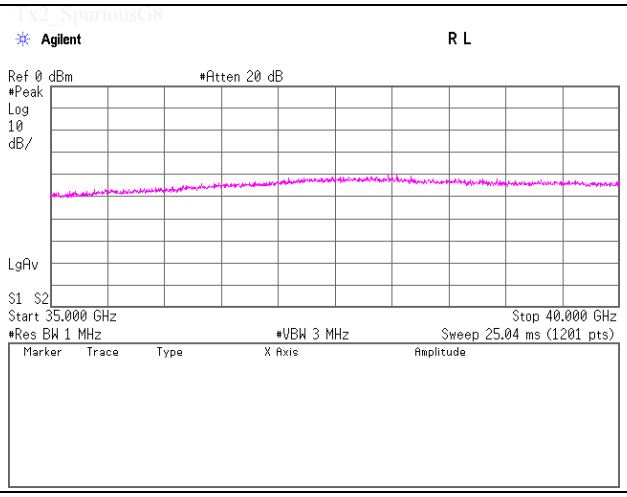
# (Reference) Spurious emission (Conducted)

**Tx, IEEE802.11a (W53), PN9, worst data mode 6Mbps**

| Tx, 5300MHz (above 1GHz)(2/2) | |
|---|---|
| **30GHz - 35GHz** | **35GHz - 40GHz** |
|  |  |

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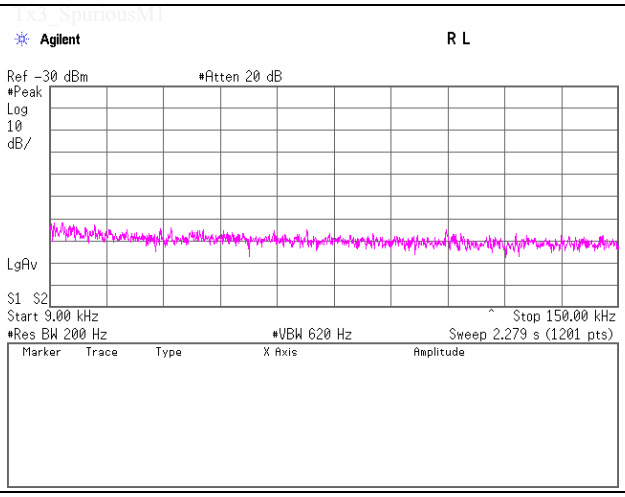
# (Reference) Spurious emission (Conducted)

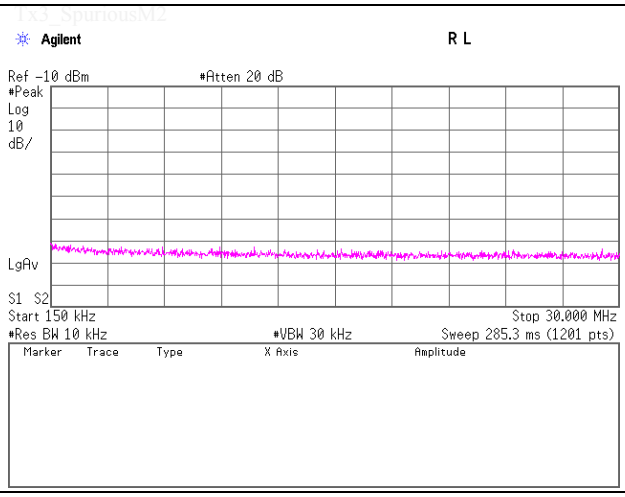
**Tx, IEEE802.11a (W53), PN9, worst data mode 6Mbps**

**Tx, 5320MHz (below 1GHz)**

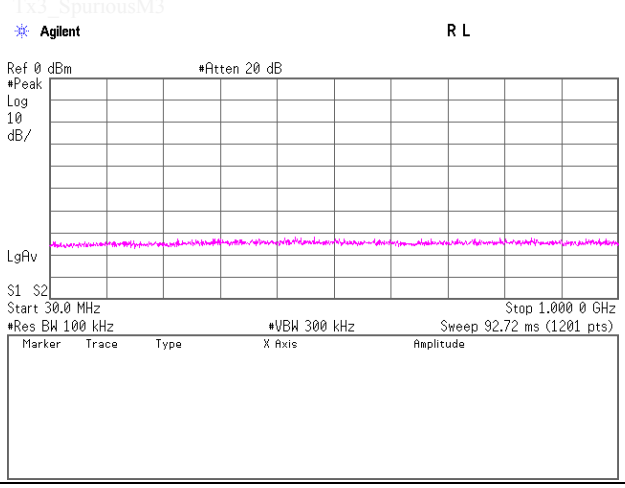
**9kHz - 150kHz**




**150kHz - 30MHz**




**30MHz - 1GHz**

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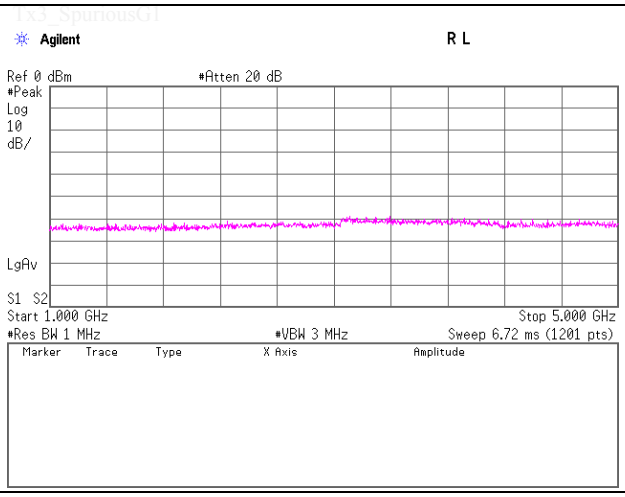
# (Reference) Spurious emission (Conducted)

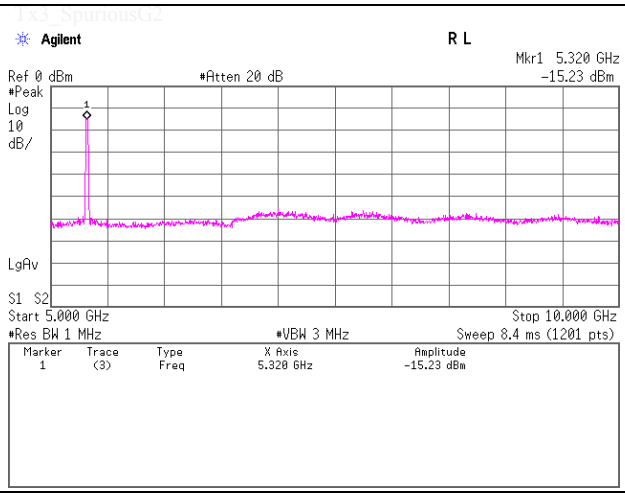
**Tx, IEEE802.11a (W53), PN9, worst data mode 6Mbps**

**Tx, 5320MHz (above 1GHz)(1/2)**

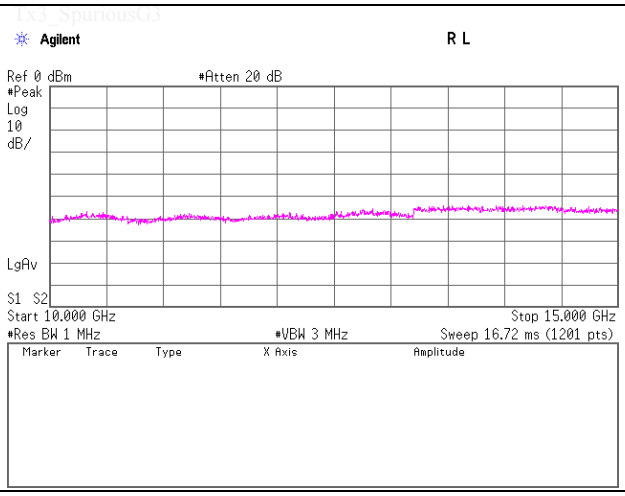
**1GHz - 5GHz**



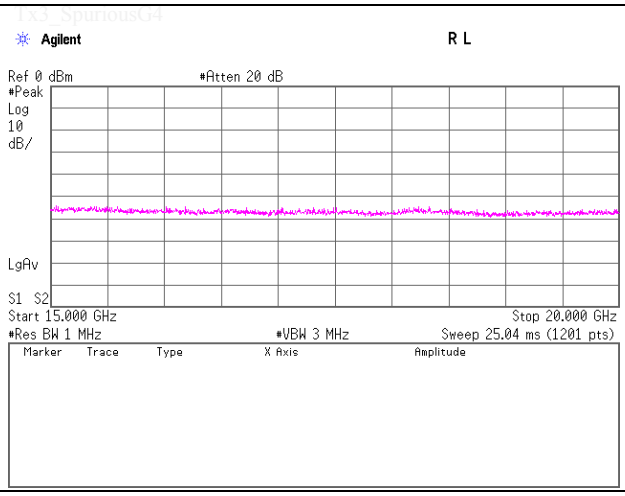

**5GHz - 10GHz**



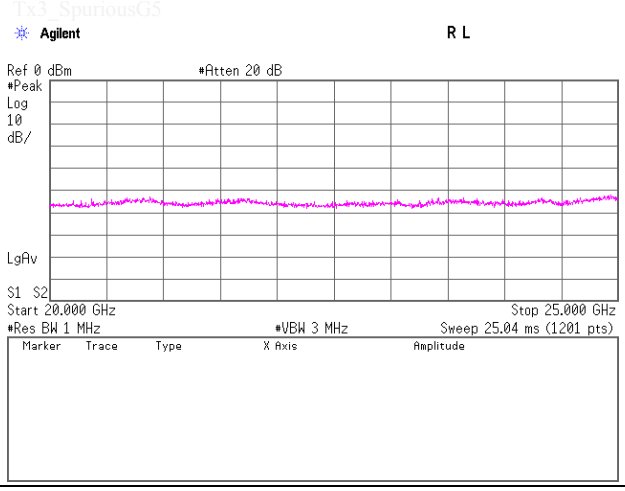

**10GHz - 15GHz**



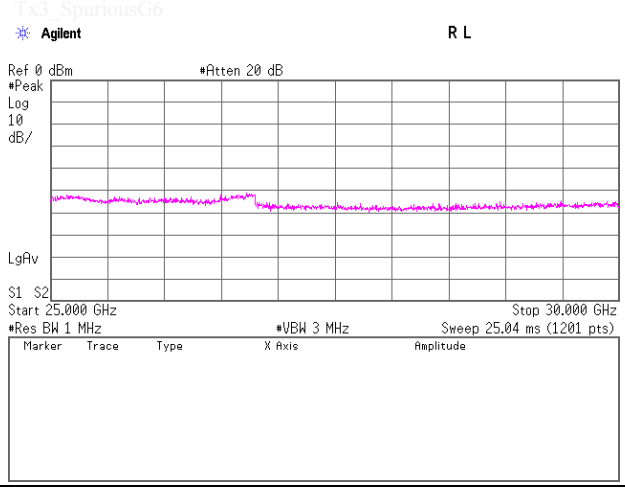

**15GHz - 20GHz**




**20GHz - 25GHz**




**25GHz - 30GHz**

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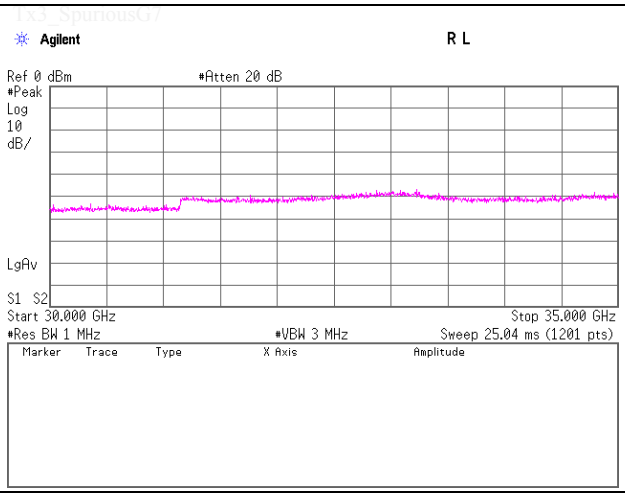
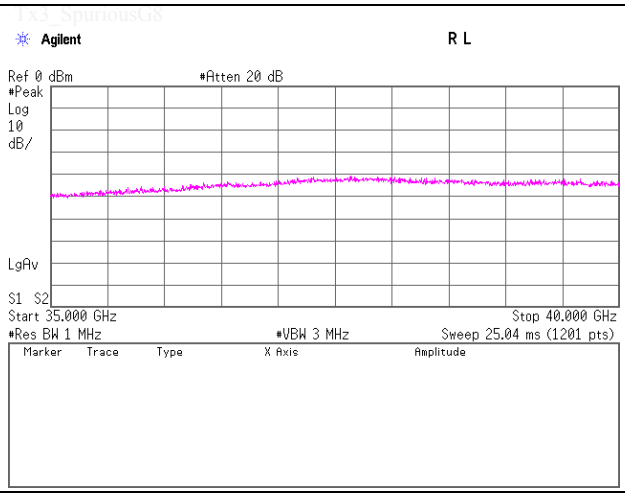
# (Reference) Spurious emission (Conducted)

**Tx, IEEE802.11a (W53), PN9, worst data mode 6Mbps**

| Tx, 5320MHz (above 1GHz)(2/2) | |
|---|---|
| **30GHz - 35GHz** | **35GHz - 40GHz** |
|  |  |

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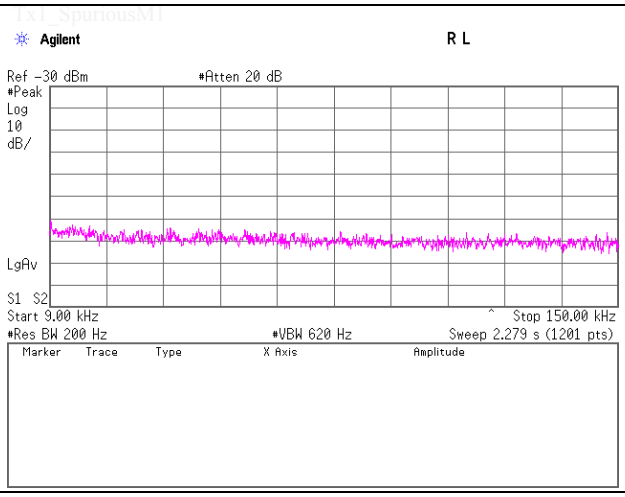
# (Reference) Spurious emission (Conducted)

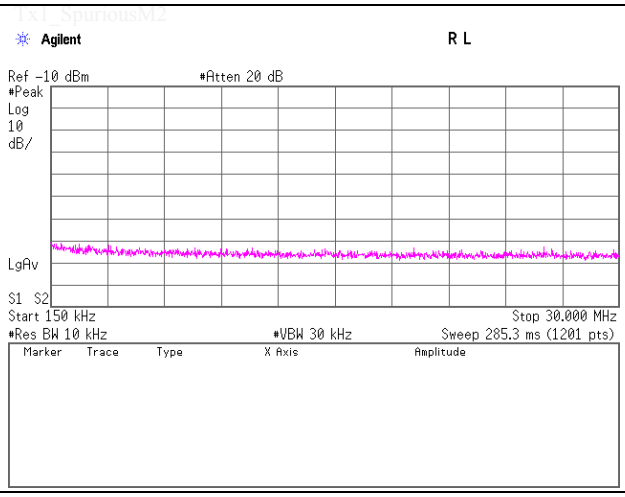
**Tx, IEEE802.11n (HT20) (W53), PN9, worst data mode 0(MCS)**

**Tx, 5260MHz (below 1GHz)**

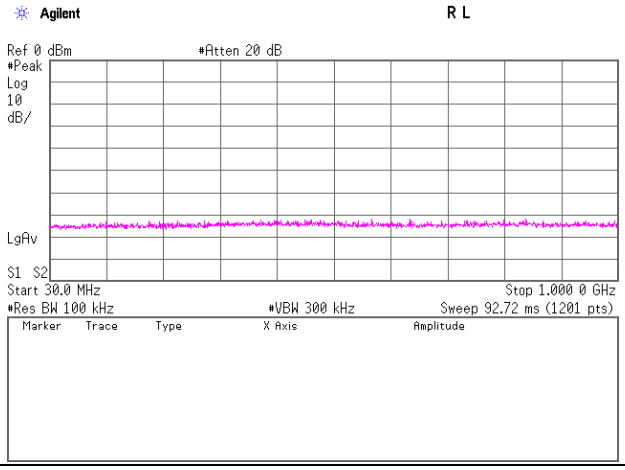
**9kHz - 150kHz**




**150kHz - 30MHz**




**30MHz - 1GHz**

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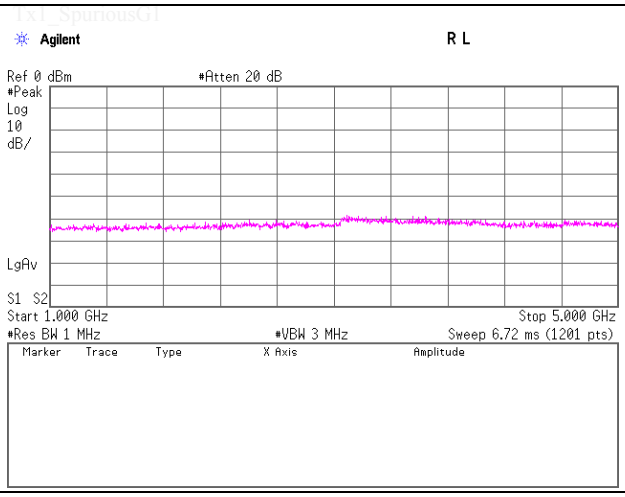
# (Reference) Spurious emission (Conducted)

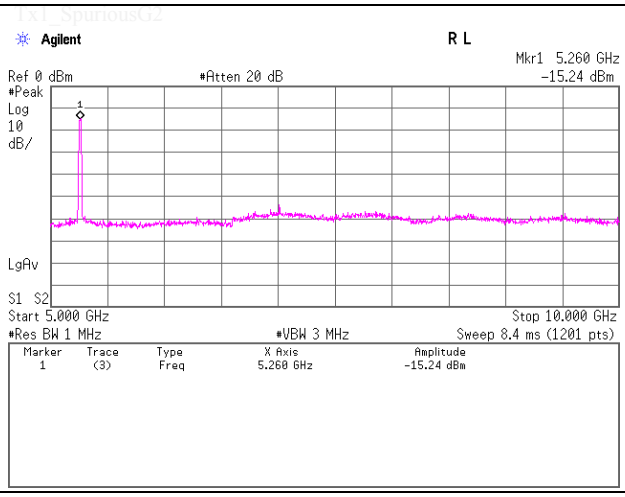
**Tx, IEEE802.11n (HT20) (W53), PN9, worst data mode 0(MCS)**

**Tx, 5260MHz (above 1GHz)(1/2)**

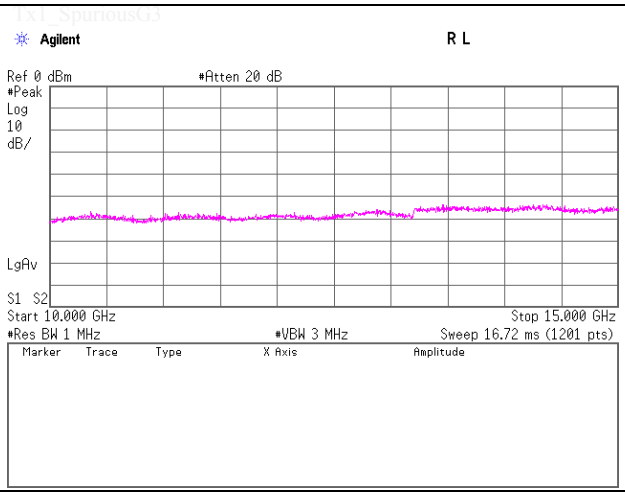
**1GHz - 5GHz**



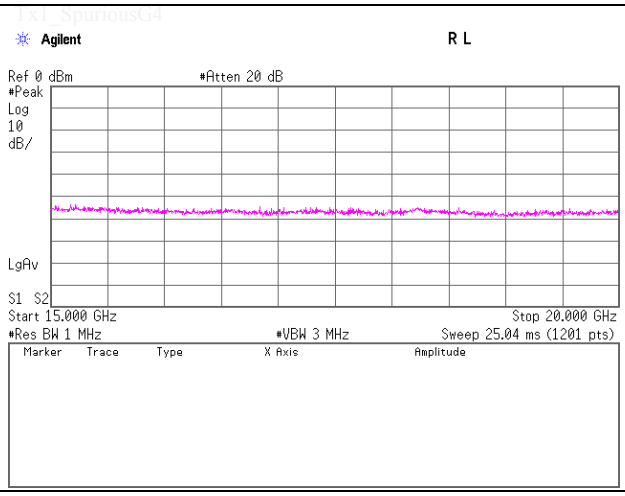

**5GHz - 10GHz**



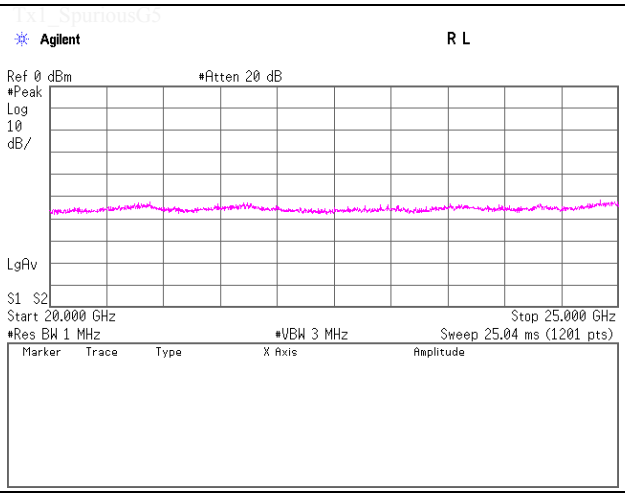

**10GHz - 15GHz**



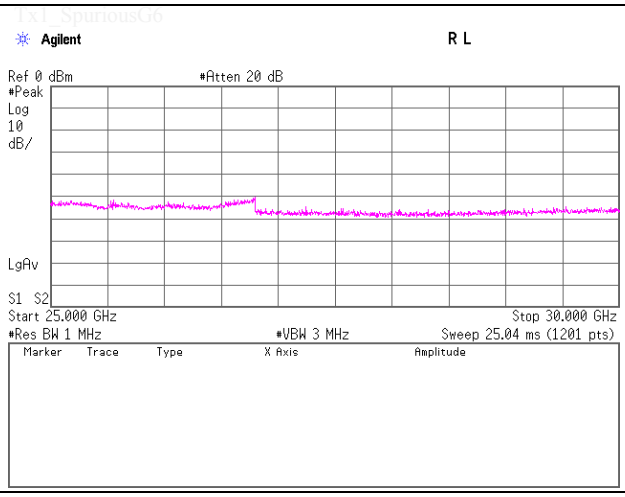

**15GHz - 20GHz**




**20GHz - 25GHz**




**25GHz - 30GHz**

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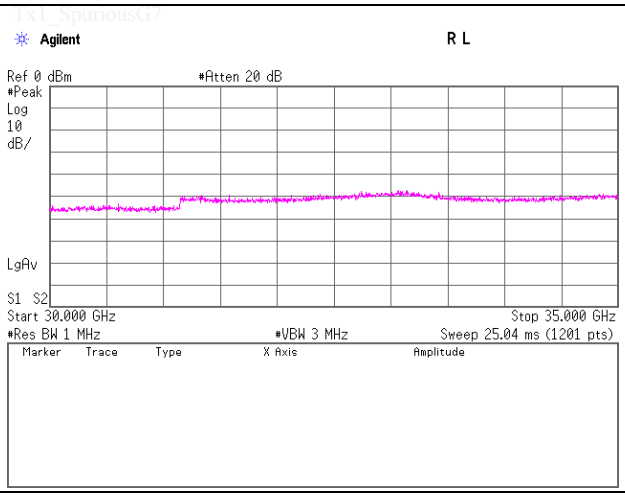
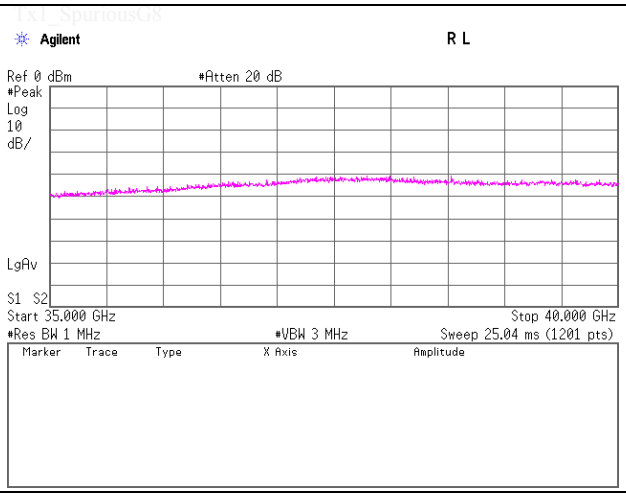
# (Reference) Spurious emission (Conducted)

**Tx, IEEE802.11n (HT20) (W53), PN9, worst data mode 0(MCS)**

| Tx, 5260MHz (above 1GHz)(2/2) | |
|---|---|
| **30GHz - 35GHz** | **35GHz - 40GHz** |
|  |  |
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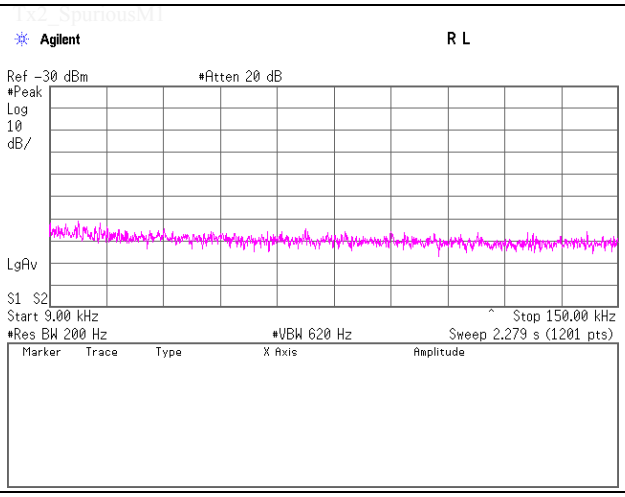
# (Reference) Spurious emission (Conducted)

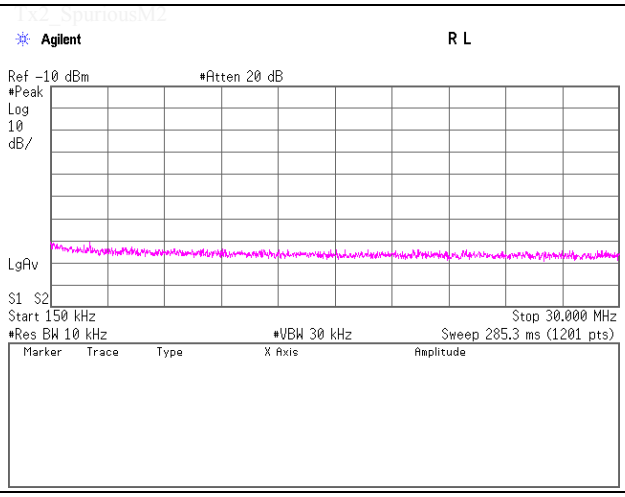
**Tx, IEEE802.11n (HT20) (W53), PN9, worst data mode 0(MCS)**

**Tx, 5300MHz (below 1GHz)**

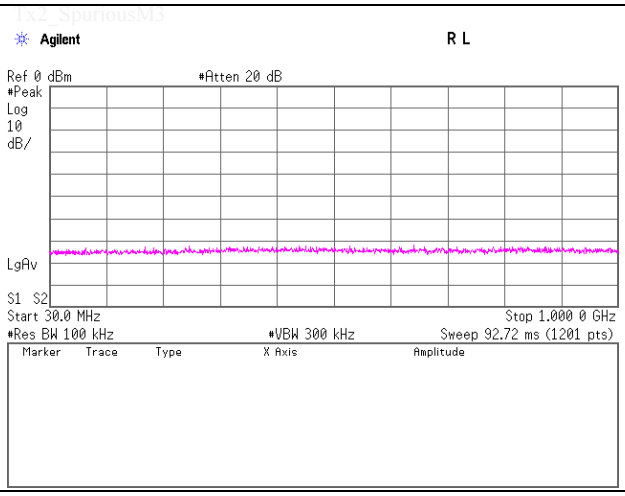
**9kHz - 150kHz**




**150kHz - 30MHz**




**30MHz - 1GHz**

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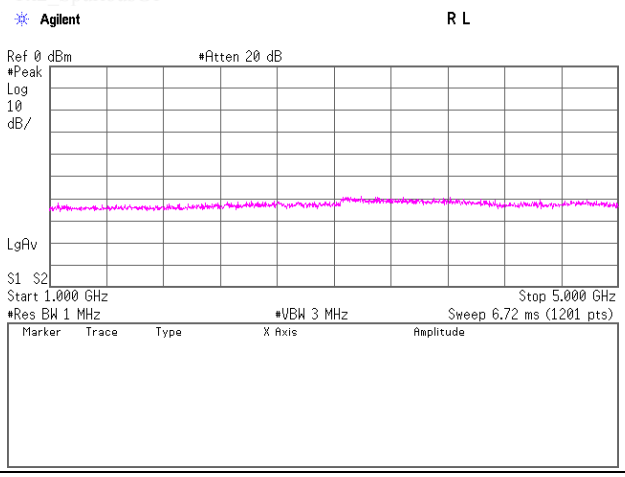
# (Reference) Spurious emission (Conducted)

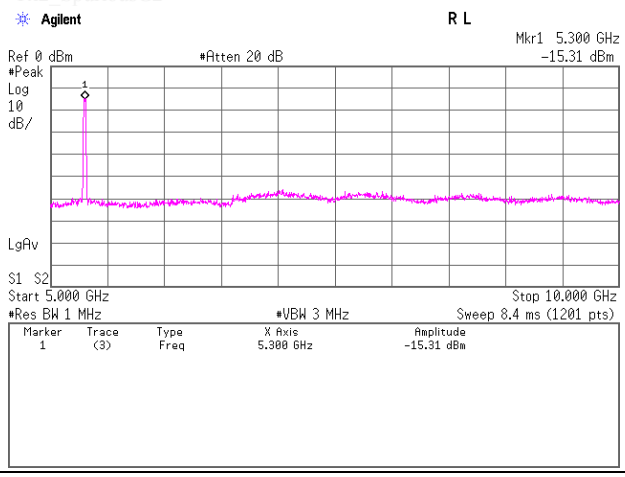
**Tx, IEEE802.11n (HT20) (W53), PN9, worst data mode 0(MCS)**

**Tx, 5300MHz (above 1GHz)(1/2)**

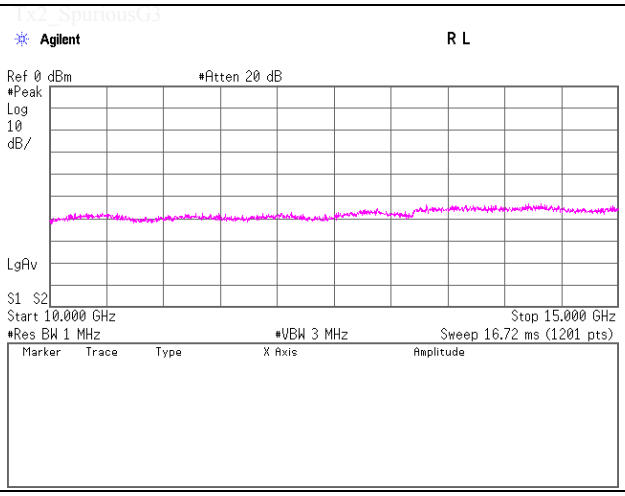
**1GHz - 5GHz**



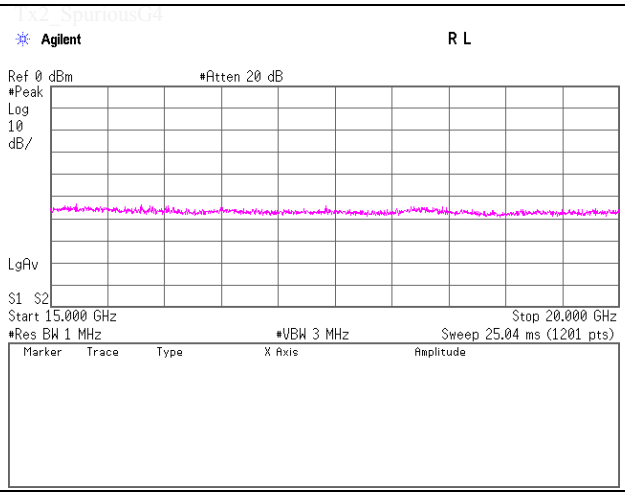

**5GHz - 10GHz**



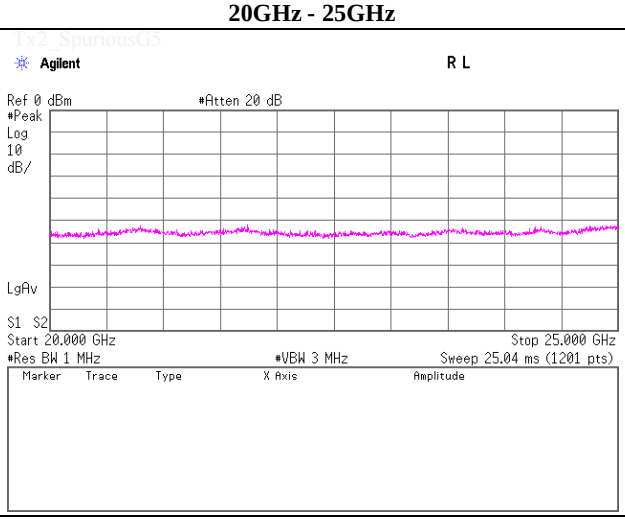

**10GHz - 15GHz**



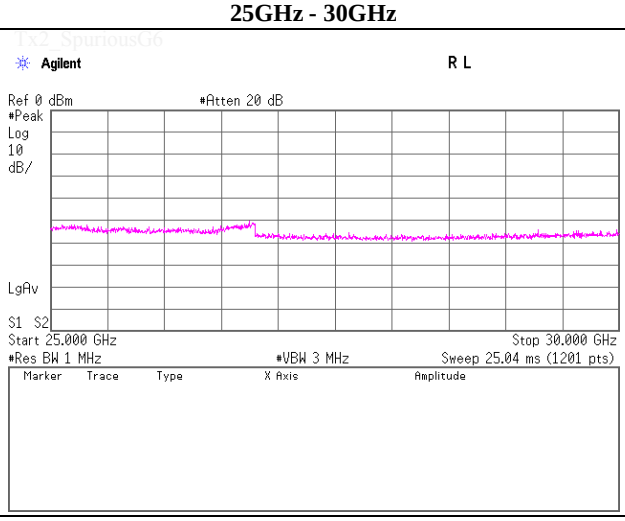

**15GHz - 20GHz**




**20GHz - 25GHz**




**25GHz - 30GHz**

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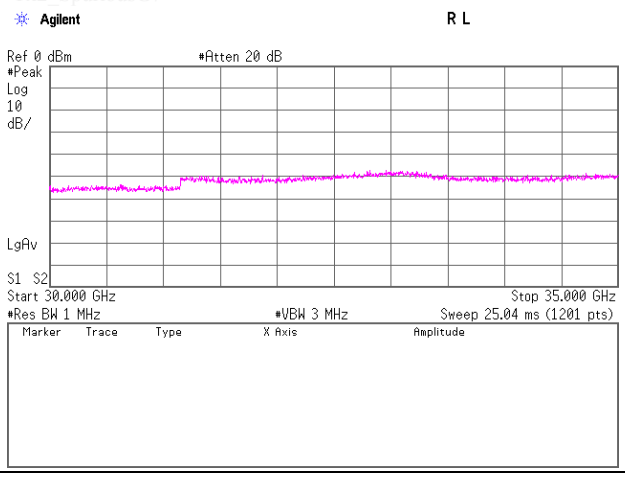
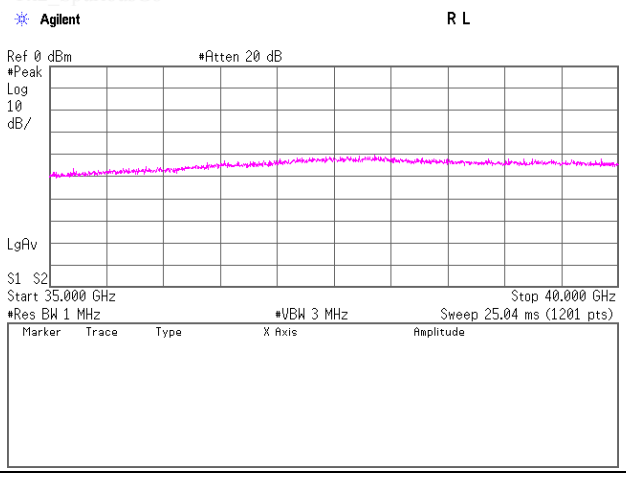
# (Reference) Spurious emission (Conducted)

**Tx, IEEE802.11n (HT20) (W53), PN9, worst data mode 0(MCS)**

| Tx, 5300MHz (above 1GHz)(2/2) | |
|---|---|
| **30GHz - 35GHz** | **35GHz - 40GHz** |
|  |  |
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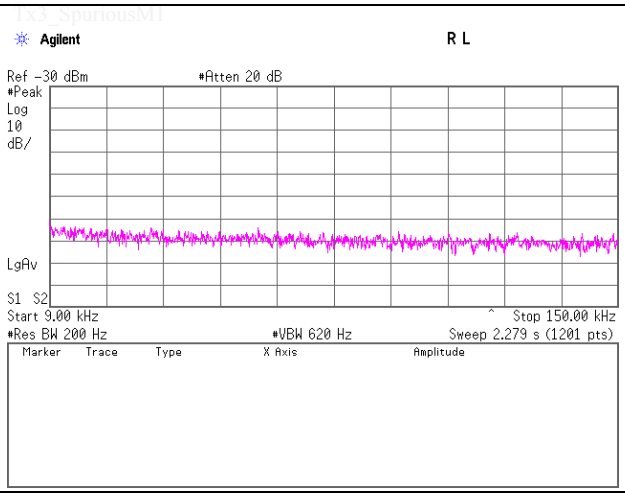
# (Reference) Spurious emission (Conducted)

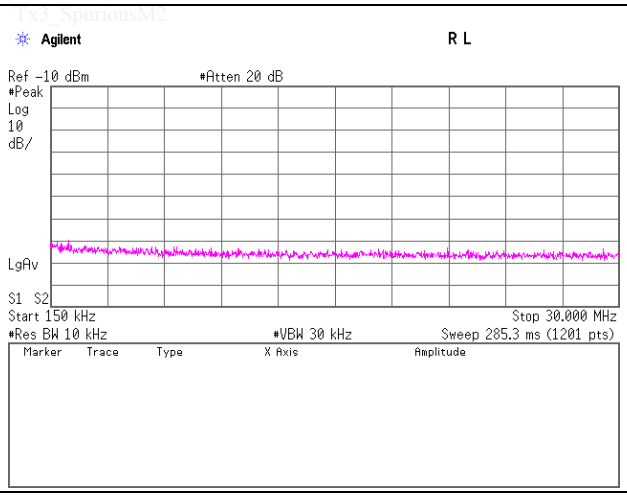
**Tx, IEEE802.11n (HT20) (W53), PN9, worst data mode 0(MCS)**

**Tx, 5320MHz (below 1GHz)**

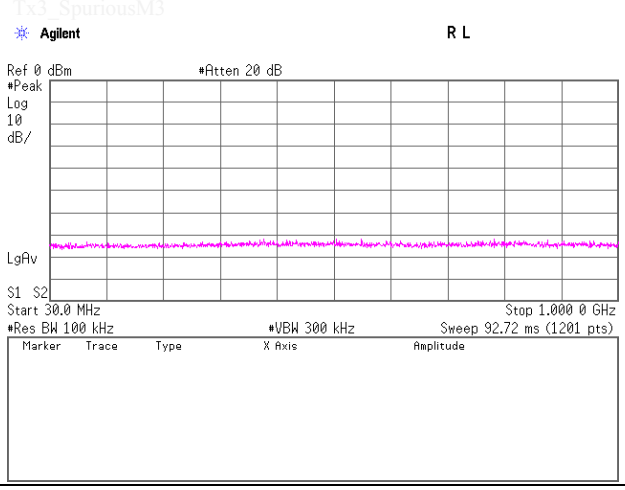
**9kHz - 150kHz**




**150kHz - 30MHz**




**30MHz - 1GHz**

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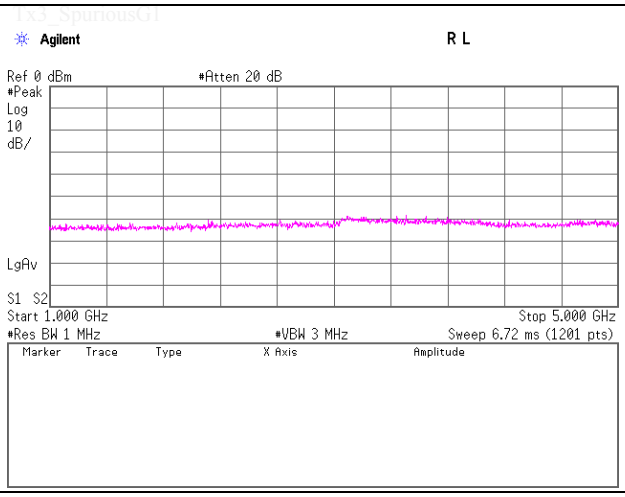
# (Reference) Spurious emission (Conducted)

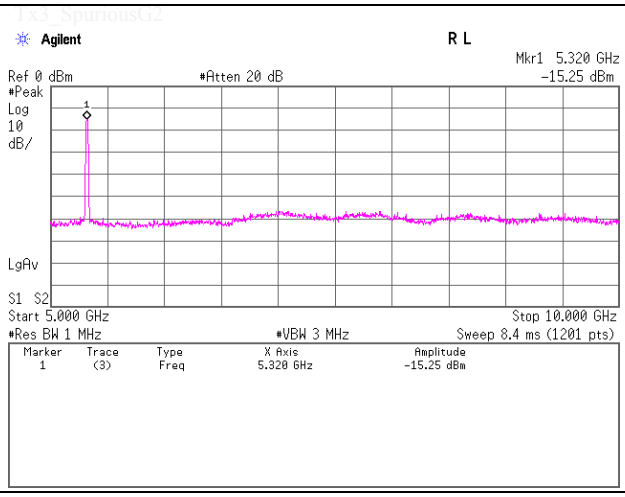
**Tx, IEEE802.11n (HT20) (W53), PN9, worst data mode 0(MCS)**

**Tx, 5320MHz (above 1GHz)(1/2)**

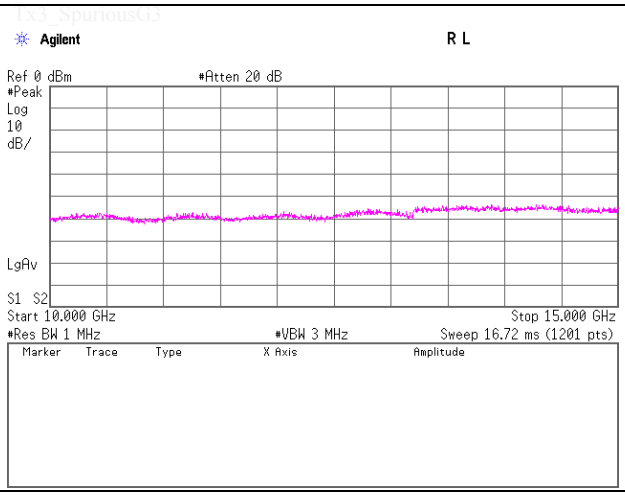
**1GHz - 5GHz**



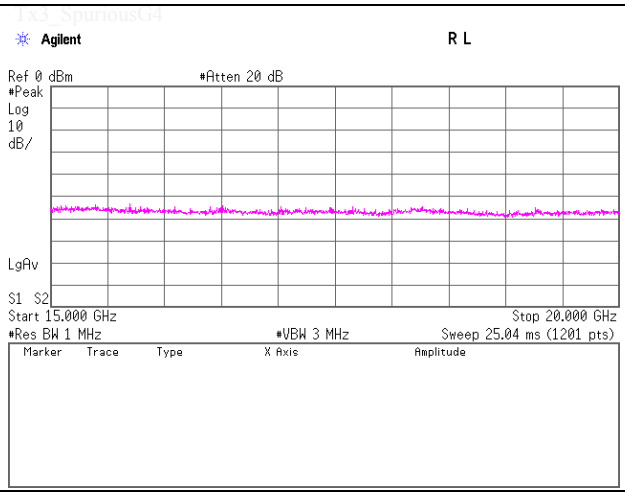

**5GHz - 10GHz**



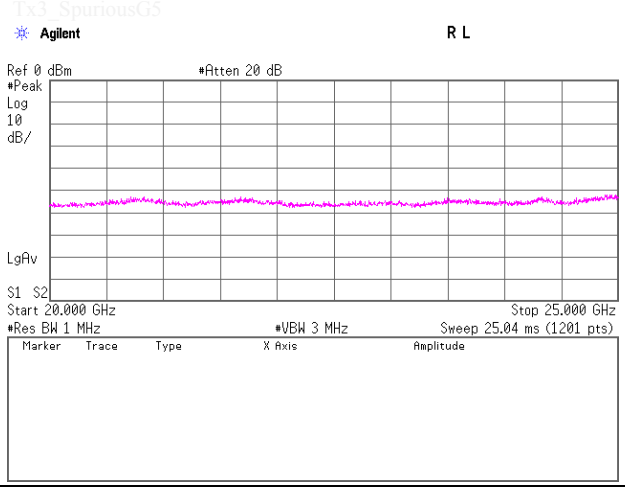

**10GHz - 15GHz**



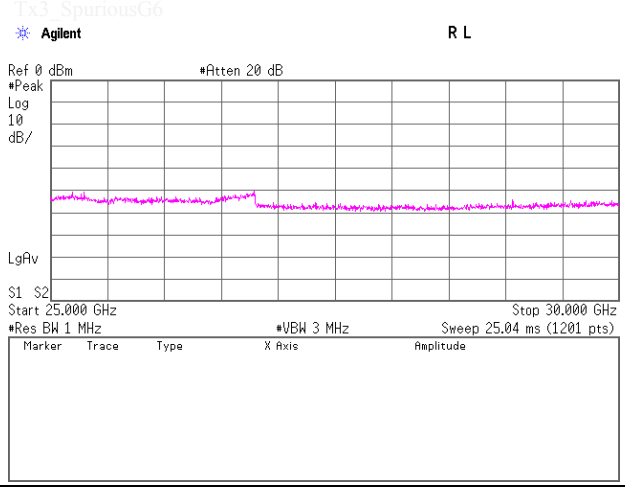

**15GHz - 20GHz**




**20GHz - 25GHz**




**25GHz - 30GHz**

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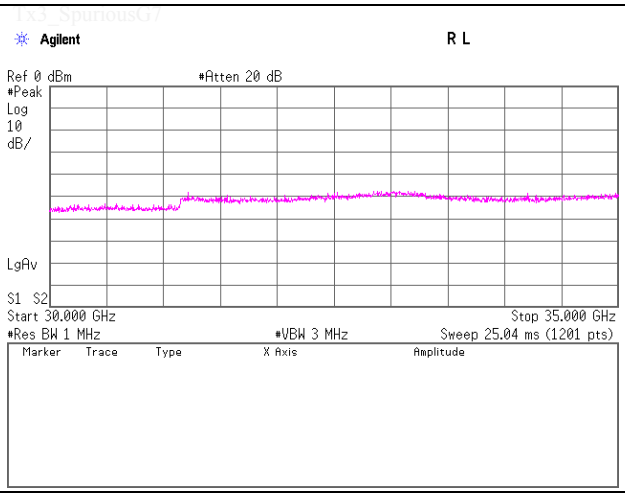
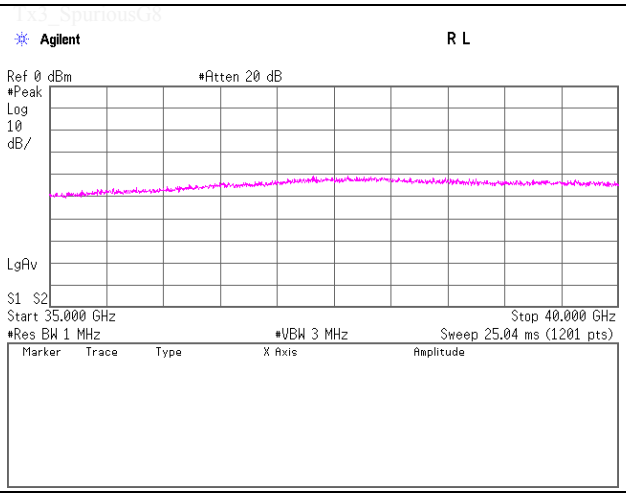
# (Reference) Spurious emission (Conducted)

**Tx, IEEE802.11n (HT20) (W53), PN9, worst data mode 0(MCS)**

| Tx, 5320MHz (above 1GHz)(2/2) | |
|---|---|
| **30GHz - 35GHz** | **35GHz - 40GHz** |
|  |  |
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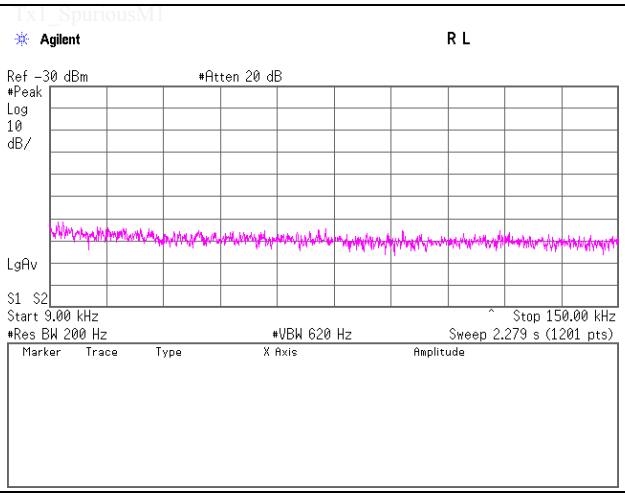
# (Reference) Spurious emission (Conducted)

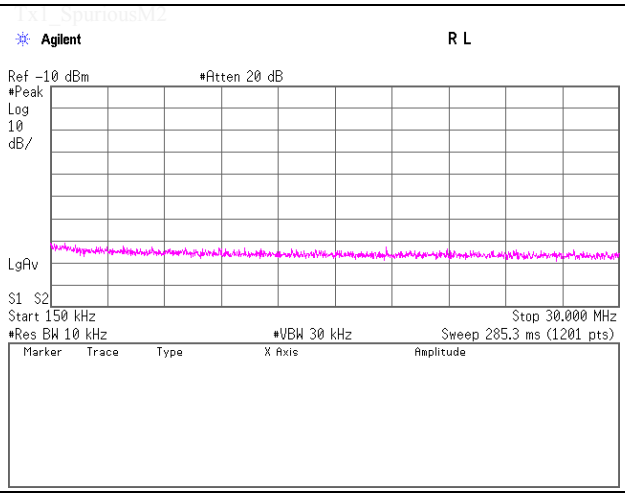
**Tx, IEEE802.11n (HT40) (W53), PN9, worst data mode 0(MCS)**

**Tx, 5270MHz (below 1GHz)**

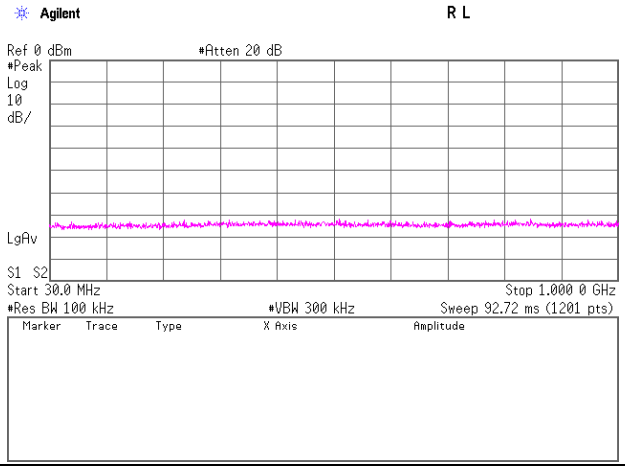
**9kHz - 150kHz**




**150kHz - 30MHz**




**30MHz - 1GHz**

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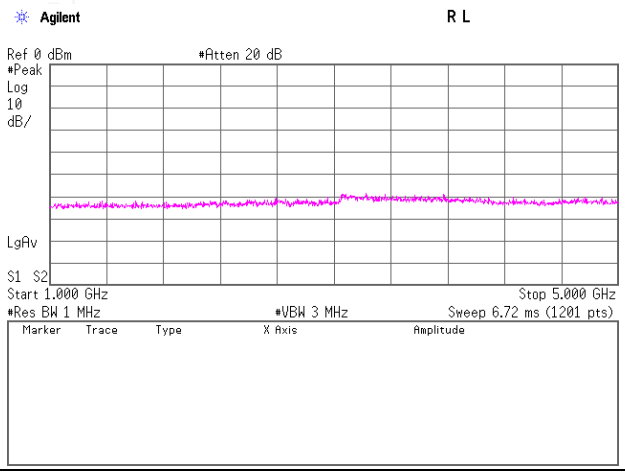
# (Reference) Spurious emission (Conducted)

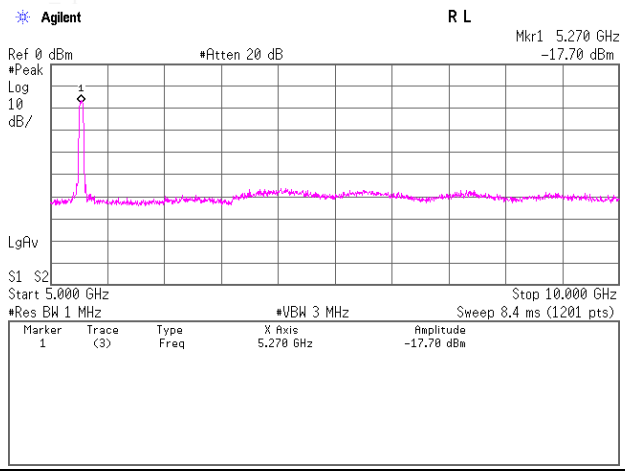
**Tx, IEEE802.11n (HT40) (W53), PN9, worst data mode 0(MCS)**

**Tx, 5270MHz (above 1GHz)(1/2)**

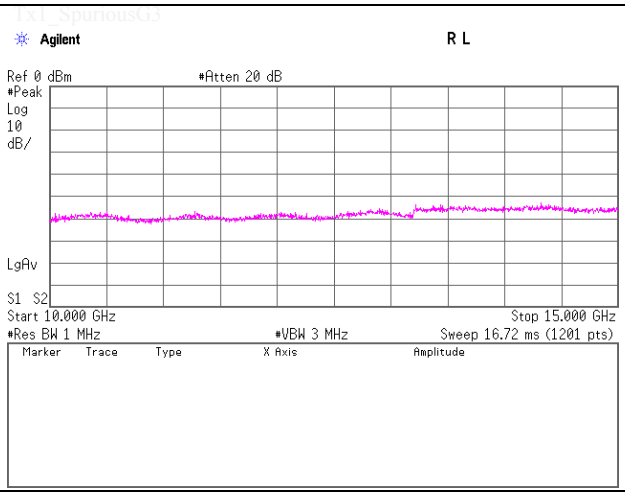
**1GHz - 5GHz**



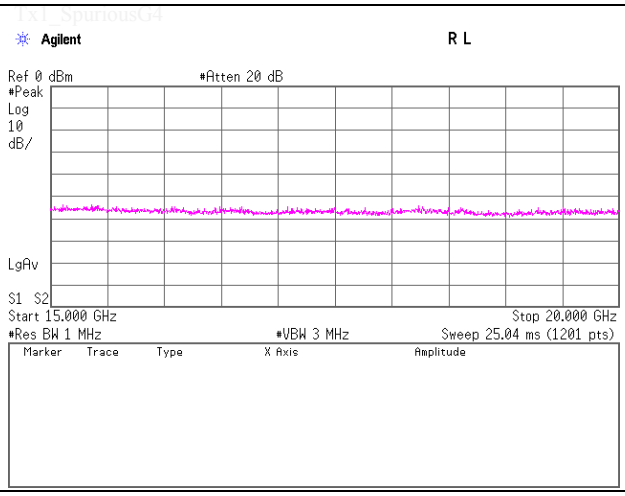

**5GHz - 10GHz**



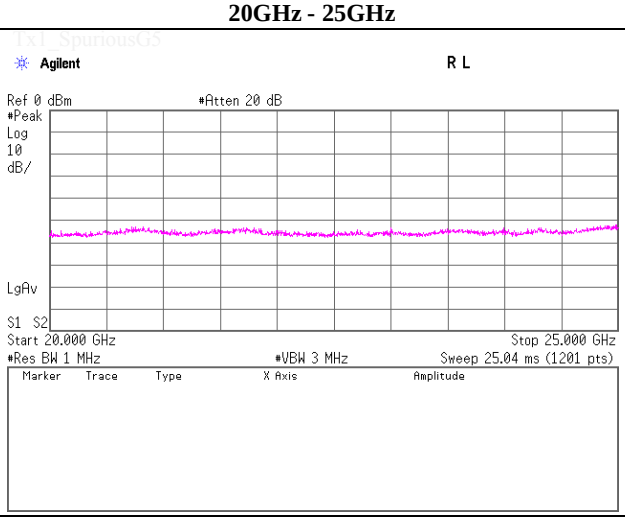

**10GHz - 15GHz**



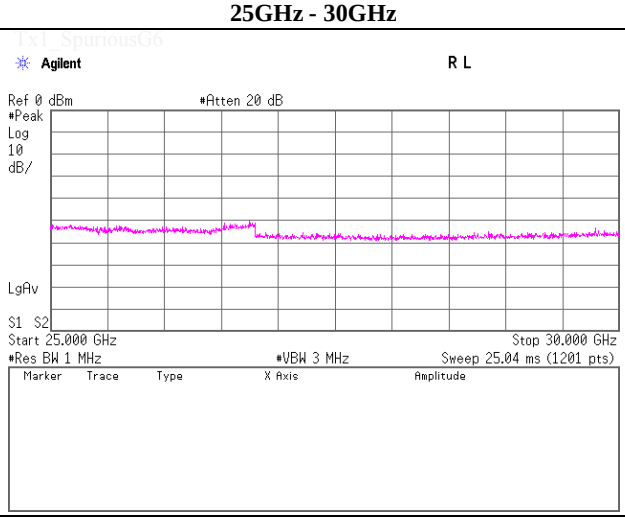

**15GHz - 20GHz**




**20GHz - 25GHz**




**25GHz - 30GHz**

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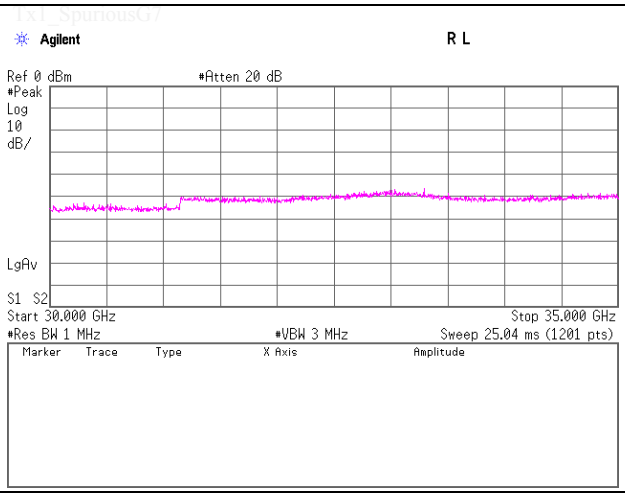
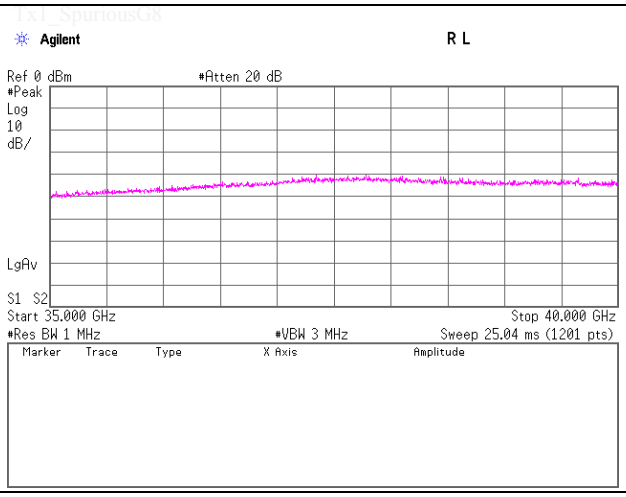
**Tx, IEEE802.11n (HT40) (W53), PN9, worst data mode 0(MCS)**

| Tx, 5270MHz (above 1GHz)(2/2) | |
|---|---|
| **30GHz - 35GHz** | **35GHz - 40GHz** |
|  |  |
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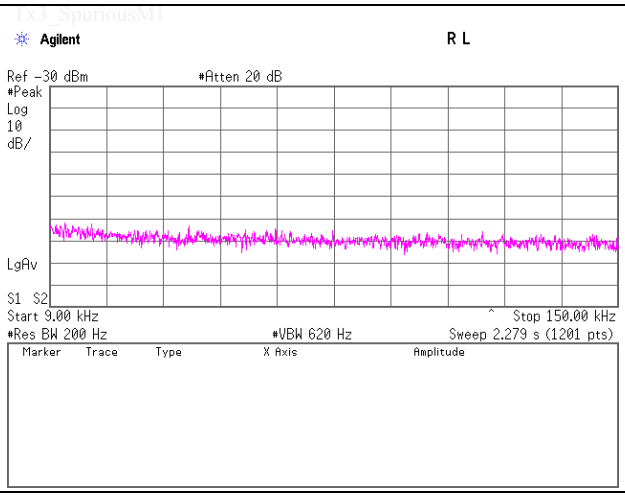
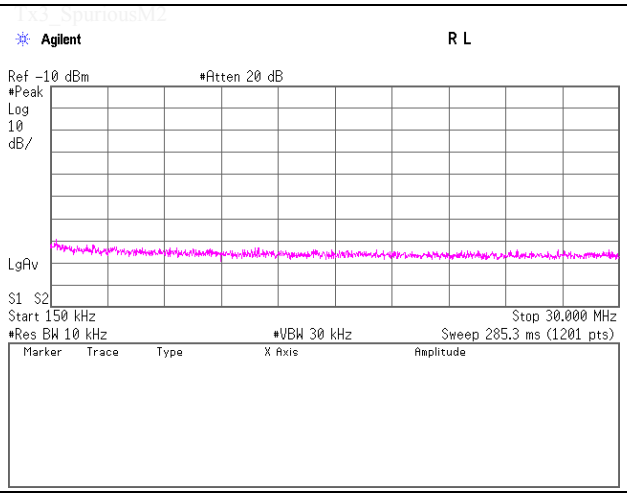
**Tx, IEEE802.11n (HT40) (W53), PN9, worst data mode 0(MCS)**

**Tx, 5310MHz (below 1GHz)**

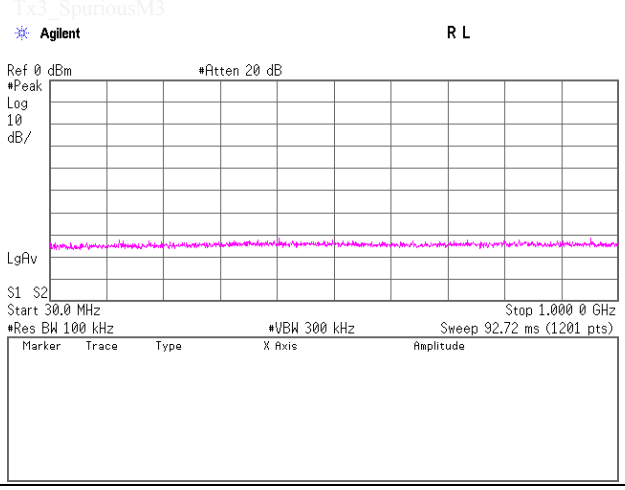
**9kHz - 150kHz**




**150kHz - 30MHz**




**30MHz - 1GHz**

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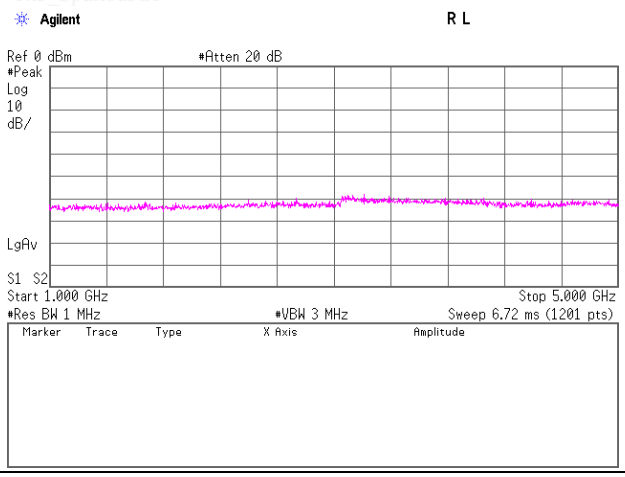
# (Reference) Spurious emission (Conducted)

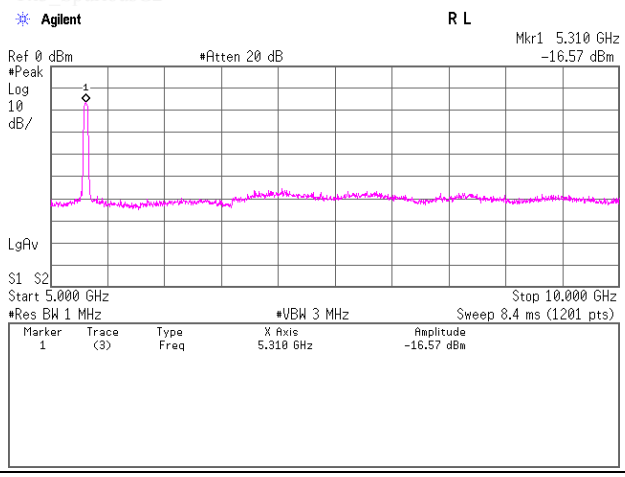
**Tx, IEEE802.11n (HT40) (W53), PN9, worst data mode 0(MCS)**

**Tx, 5310MHz (above 1GHz)(1/2)**

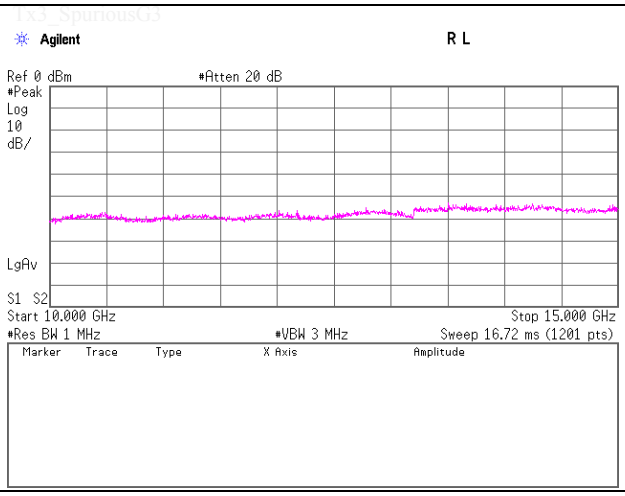
**1GHz - 5GHz**



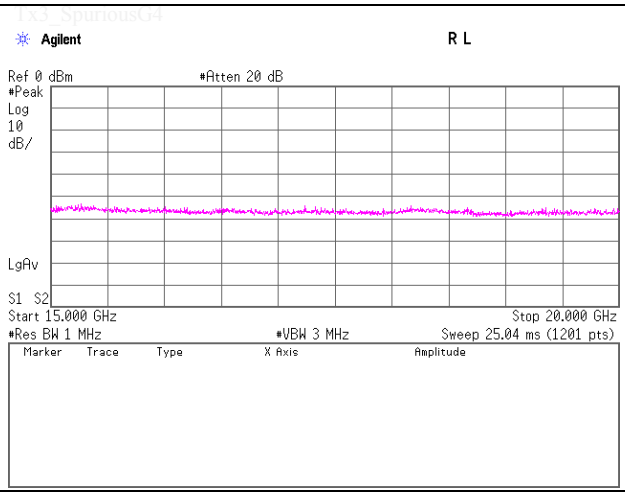

**5GHz - 10GHz**



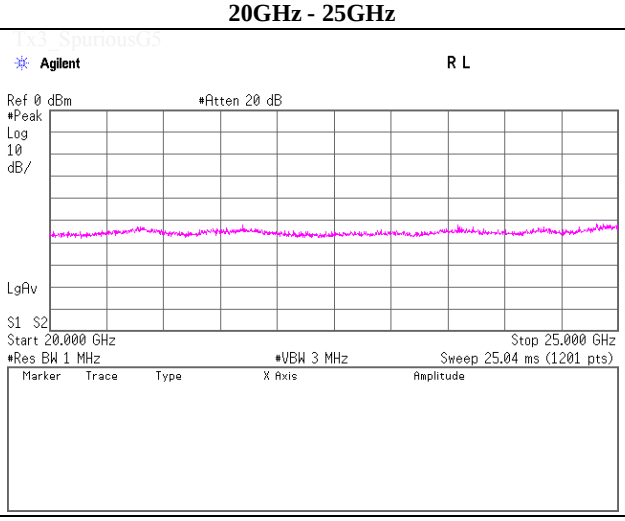

**10GHz - 15GHz**



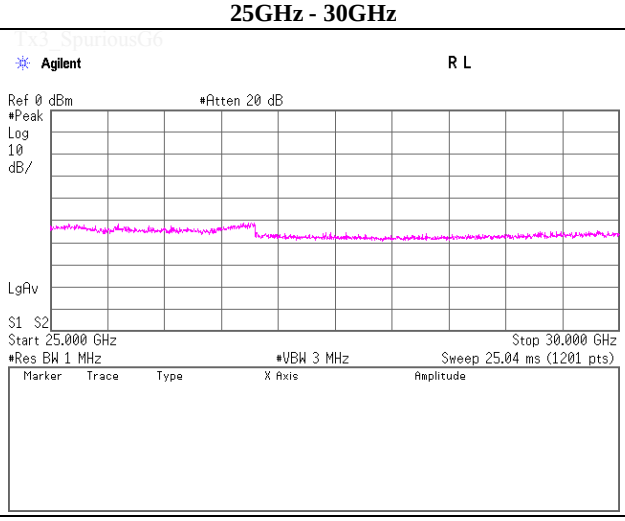

**15GHz - 20GHz**




**20GHz - 25GHz**




**25GHz - 30GHz**

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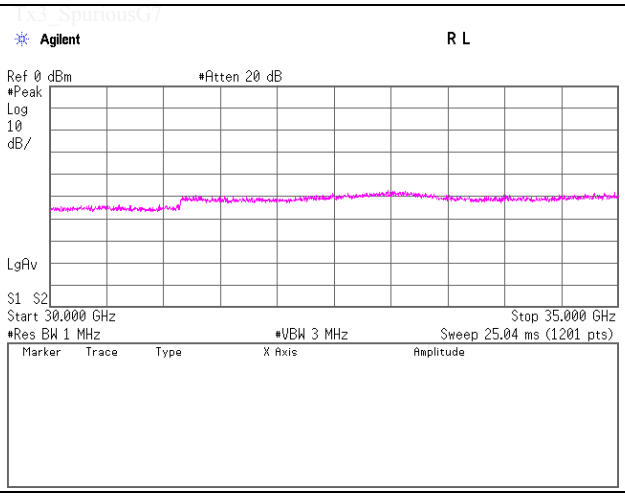
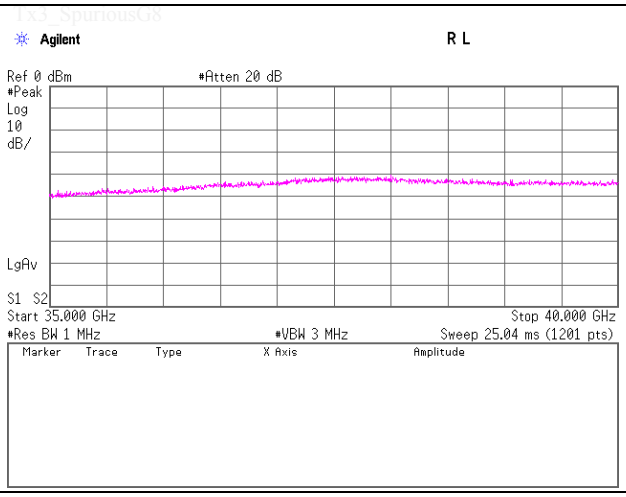
# (Reference) Spurious emission (Conducted)

**Tx, IEEE802.11n (HT40) (W53), PN9, worst data mode 0(MCS)**

| Tx, 5310MHz (above 1GHz)(2/2) | |
|---|---|
| **30GHz - 35GHz** | **35GHz - 40GHz** |
|  |  |
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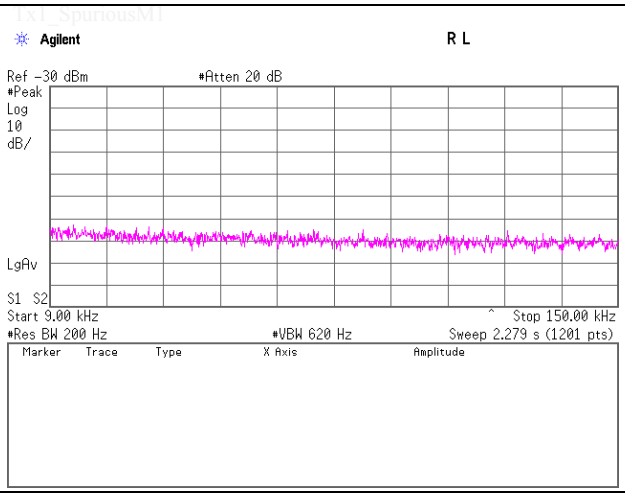
# (Reference) Spurious emission (Conducted)

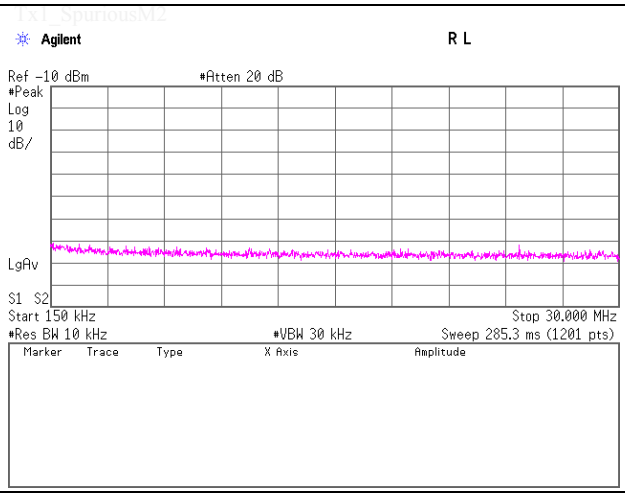
**Tx, IEEE802.11a (W56), PN9, worst data mode 6Mbps**

**Tx, 5500MHz (below 1GHz)**

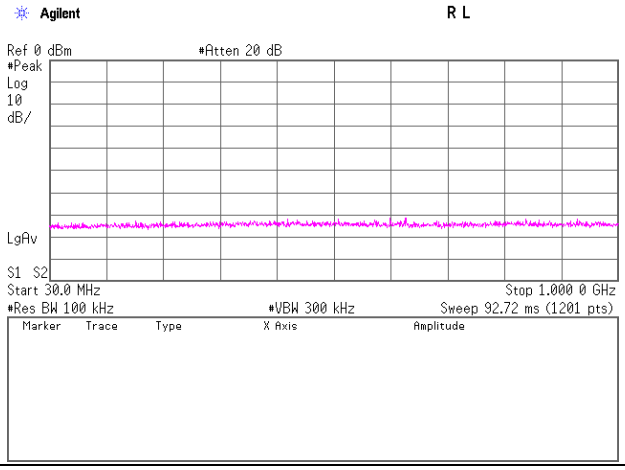
**9kHz - 150kHz**




**150kHz - 30MHz**




**30MHz - 1GHz**

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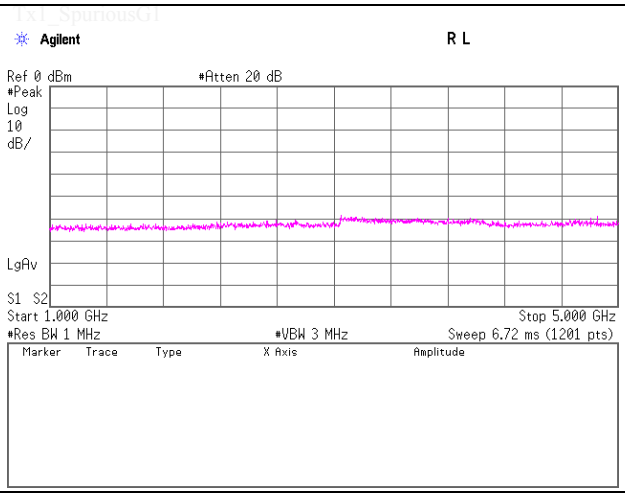
# (Reference) Spurious emission (Conducted)

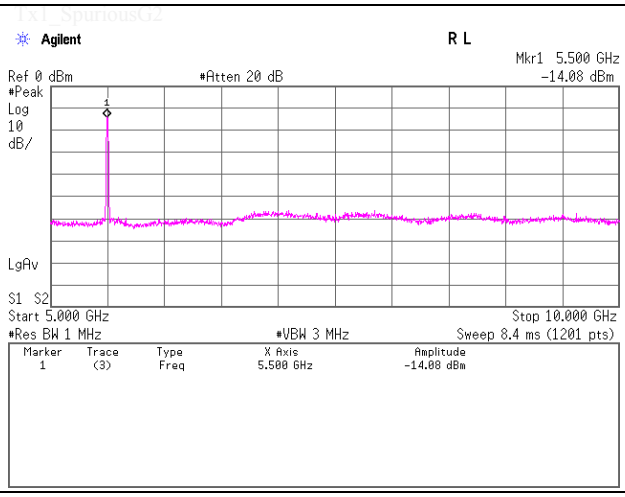
**Tx, IEEE802.11a (W56), PN9, worst data mode 6Mbps**

**Tx, 5500MHz (above 1GHz)(1/2)**

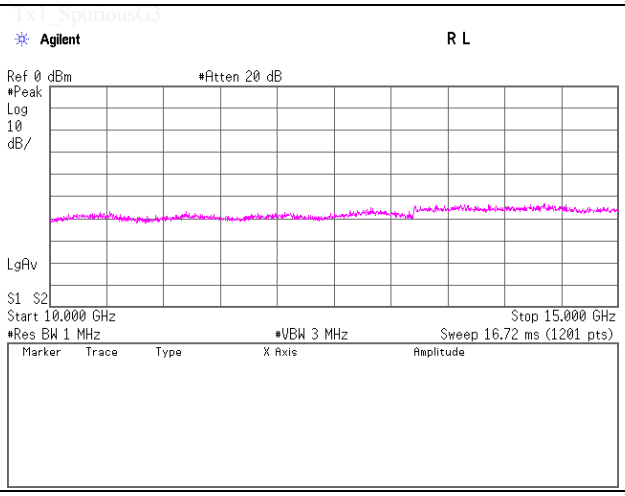
**1GHz - 5GHz**



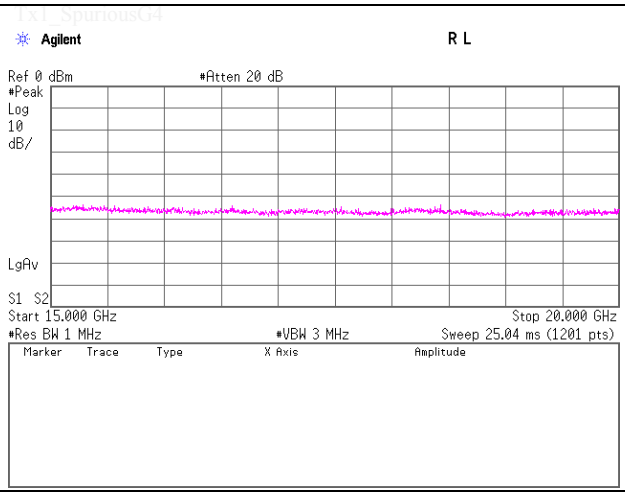

**5GHz - 10GHz**



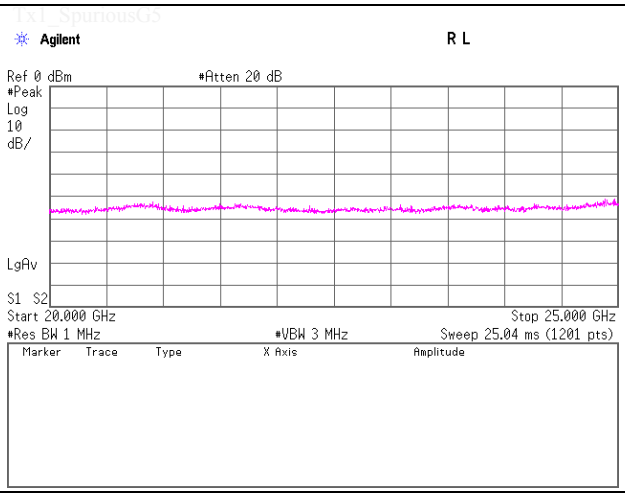

**10GHz - 15GHz**



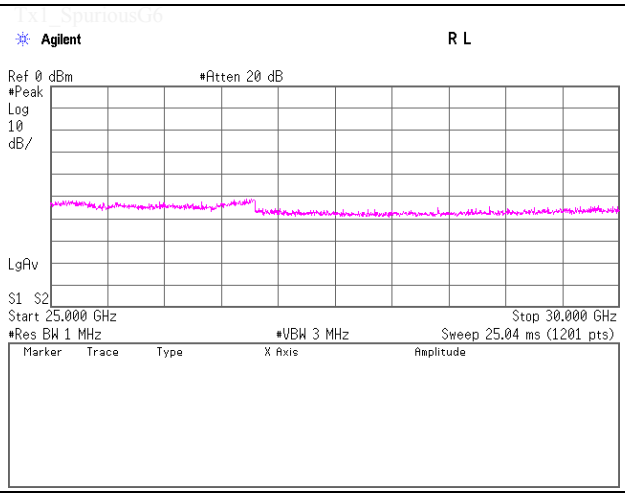

**15GHz - 20GHz**




**20GHz - 25GHz**




**25GHz - 30GHz**

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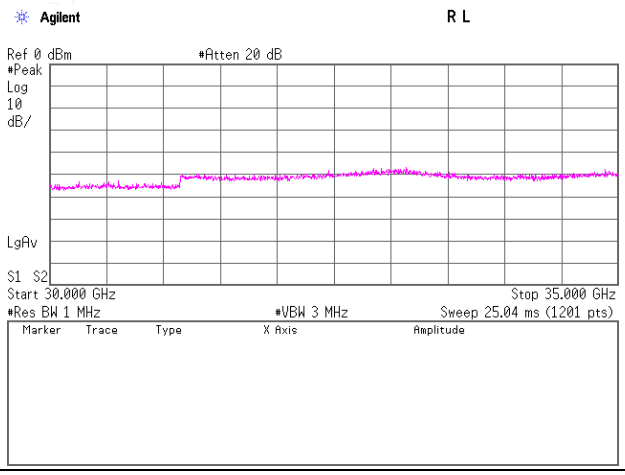
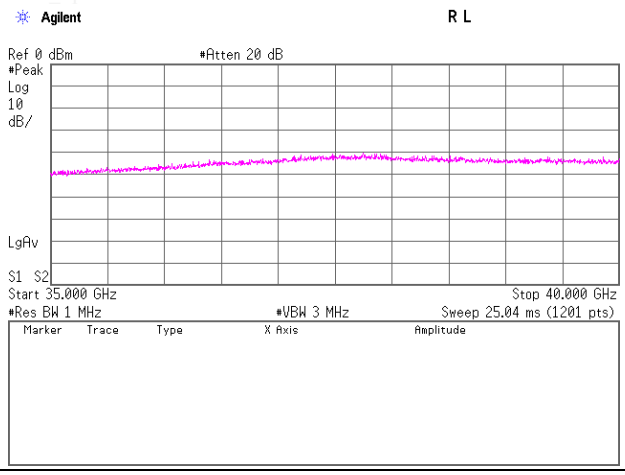
# (Reference) Spurious emission (Conducted)

**Tx, IEEE802.11a (W56), PN9, worst data mode 6Mbps**

| Tx, 5500MHz (above 1GHz)(2/2) | |
|---|---|
| **30GHz - 35GHz** | **35GHz - 40GHz** |
| TXT_SpuriousC17 | TXT_SpuriousC18 |
|  |  |
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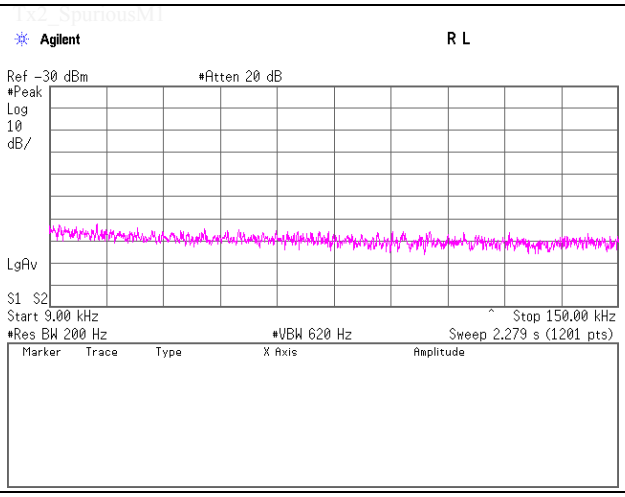
# (Reference) Spurious emission (Conducted)

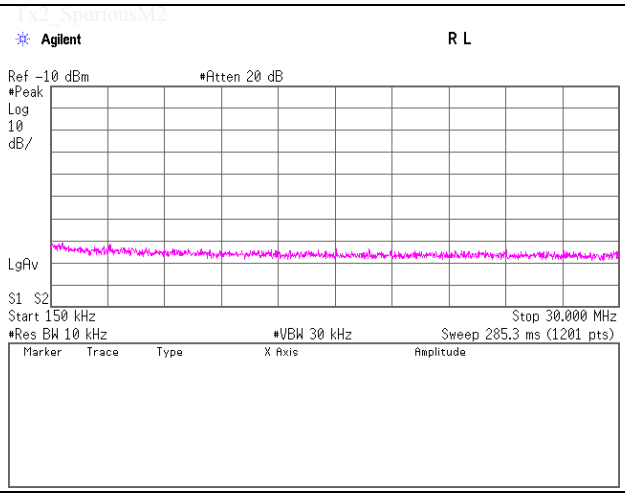
**Tx, IEEE802.11a (W56), PN9, worst data mode 6Mbps**

**Tx, 5580MHz (below 1GHz)**

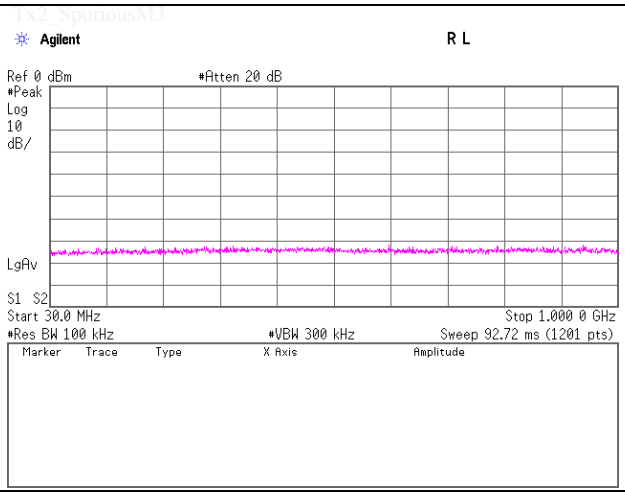
**9kHz - 150kHz**




**150kHz - 30MHz**




**30MHz - 1GHz**

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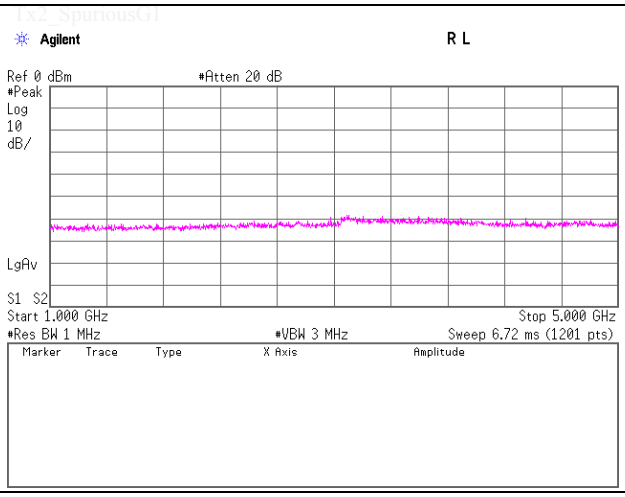
# (Reference) Spurious emission (Conducted)

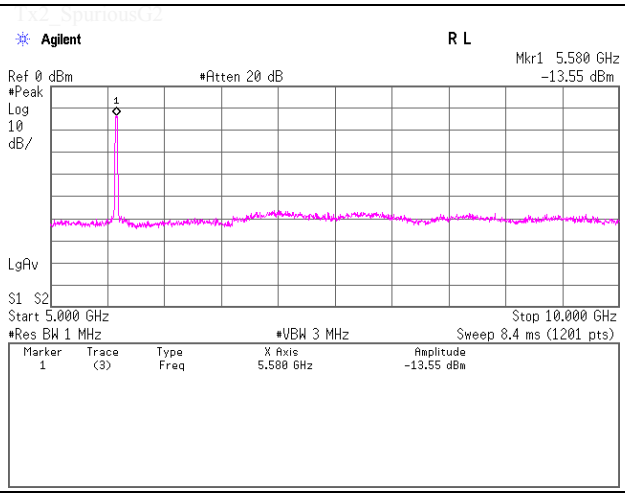
**Tx, IEEE802.11a (W56), PN9, worst data mode 6Mbps**

**Tx, 5580MHz (above 1GHz)(1/2)**

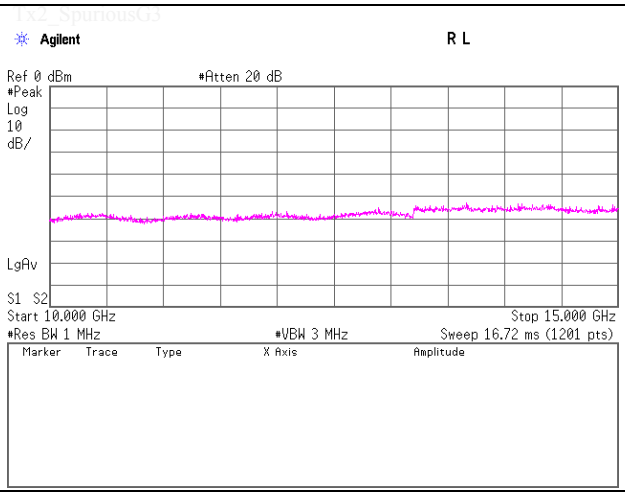
**1GHz - 5GHz**



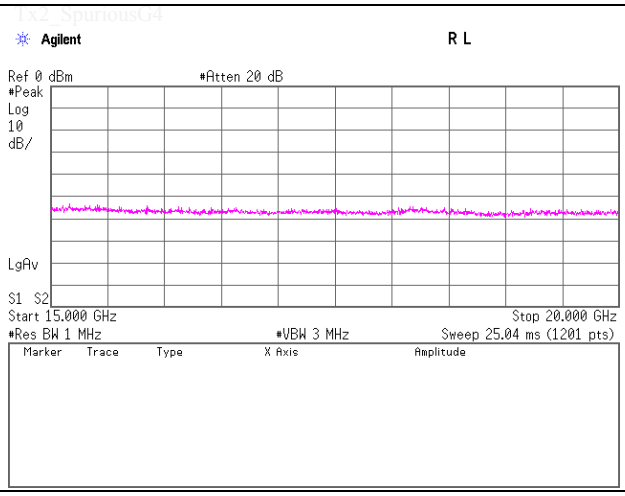

**5GHz - 10GHz**



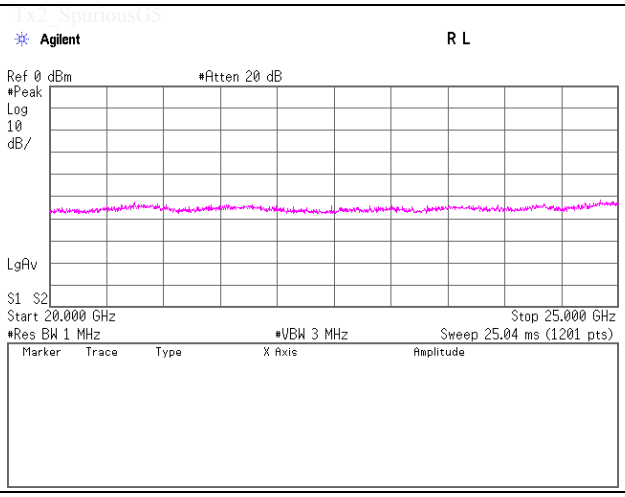

**10GHz - 15GHz**



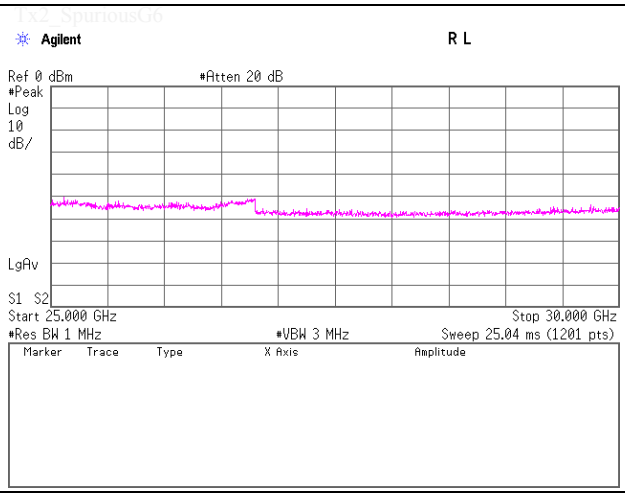

**15GHz - 20GHz**




**20GHz - 25GHz**




**25GHz - 30GHz**

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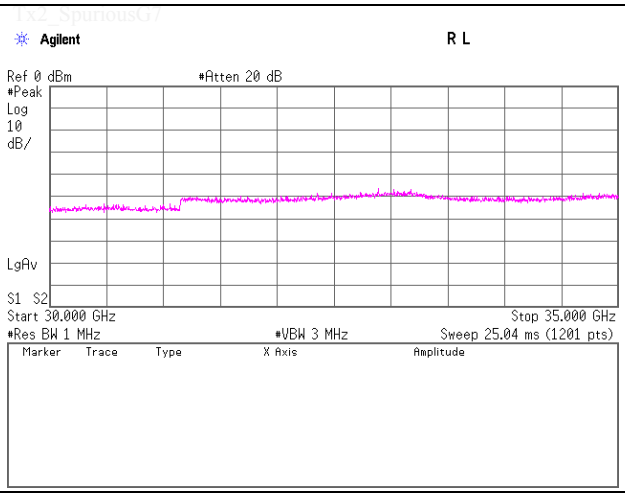
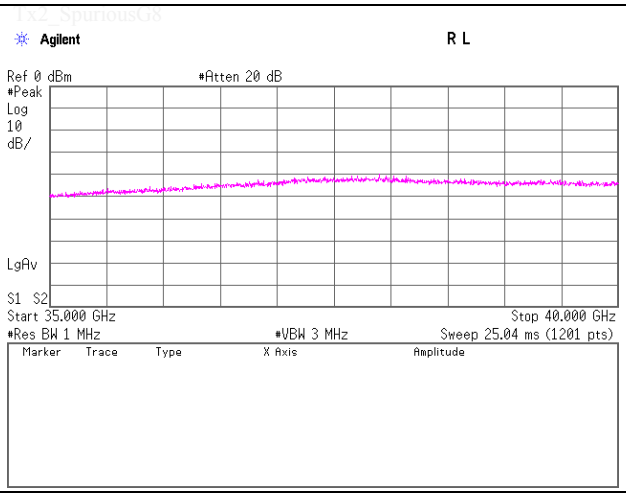
# (Reference) Spurious emission (Conducted)

**Tx, IEEE802.11a (W56), PN9, worst data mode 6Mbps**

**Tx, 5580MHz (above 1GHz)(2/2)**

| 30GHz - 35GHz | 35GHz - 40GHz |
|---|---|
|  |  |
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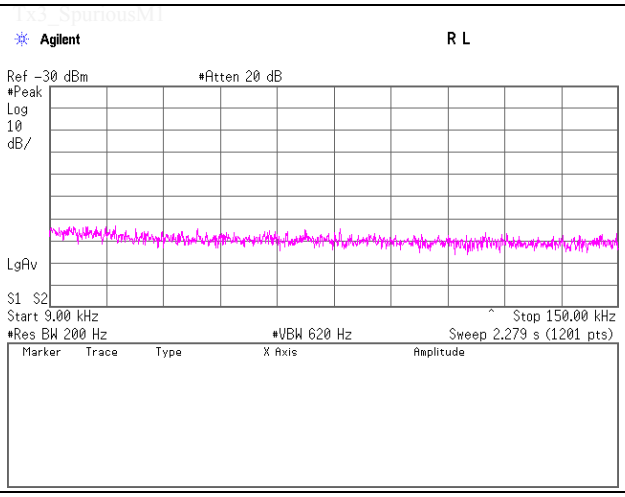
# (Reference) Spurious emission (Conducted)

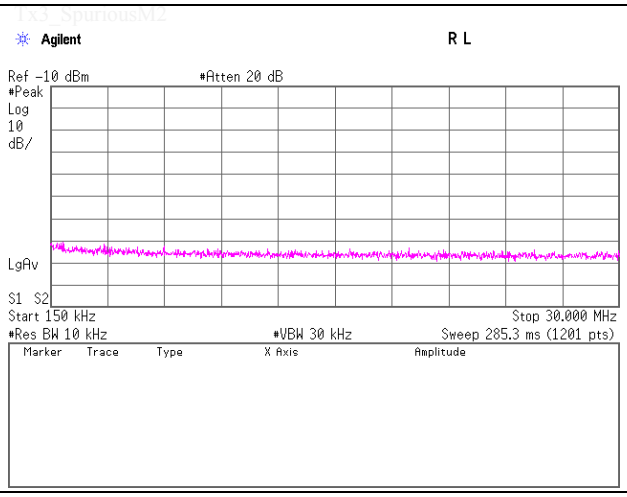
**Tx, IEEE802.11a (W56), PN9, worst data mode 6Mbps**

**Tx, 5700MHz (below 1GHz)**

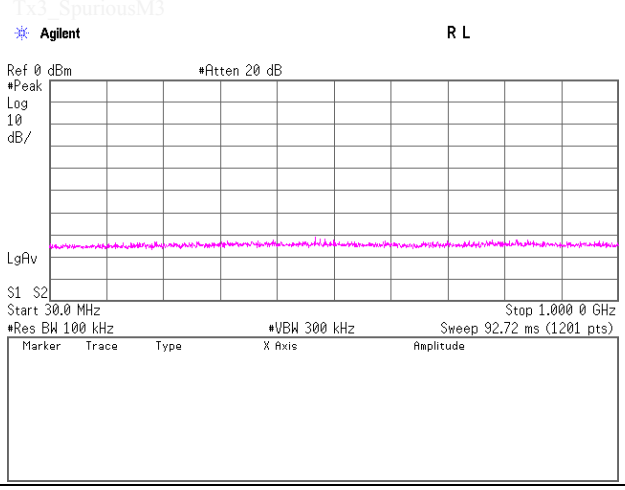
**9kHz - 150kHz**




**150kHz - 30MHz**




**30MHz - 1GHz**

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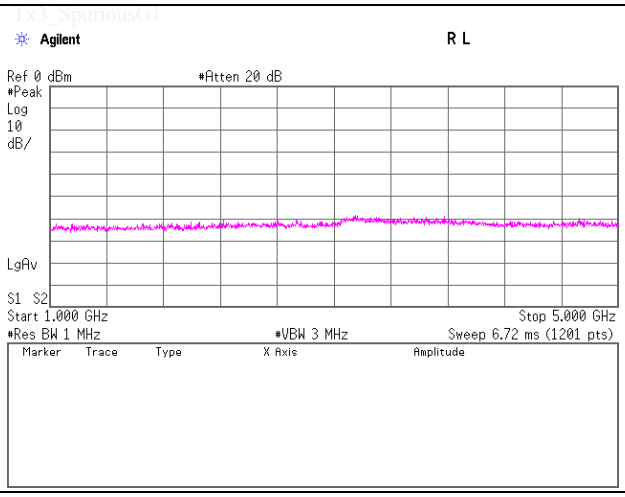
# (Reference) Spurious emission (Conducted)

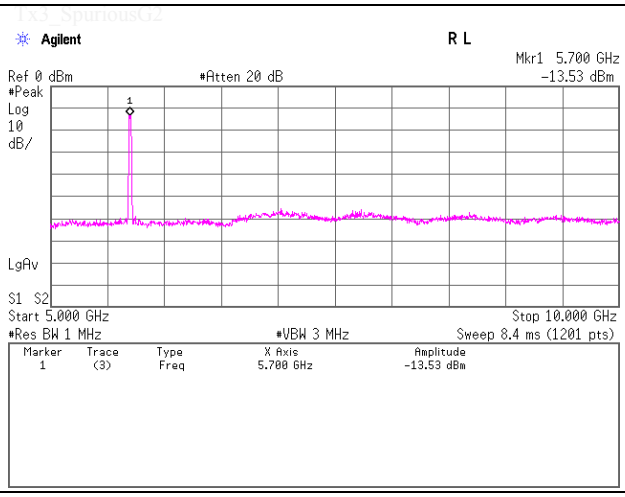
**Tx, IEEE802.11a (W56), PN9, worst data mode 6Mbps**

**Tx, 5700MHz (above 1GHz)(1/2)**

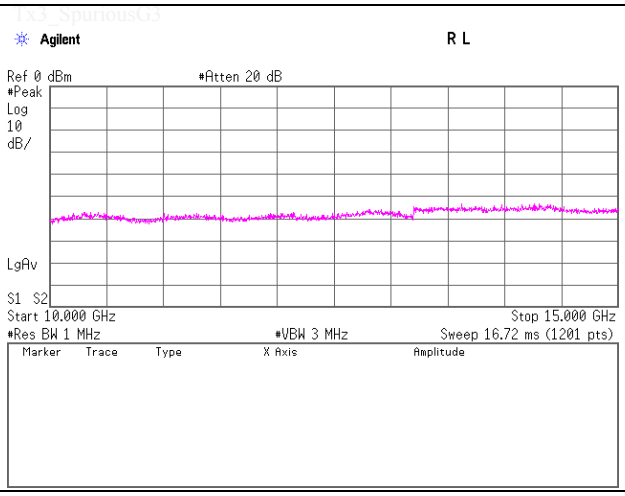
**1GHz - 5GHz**



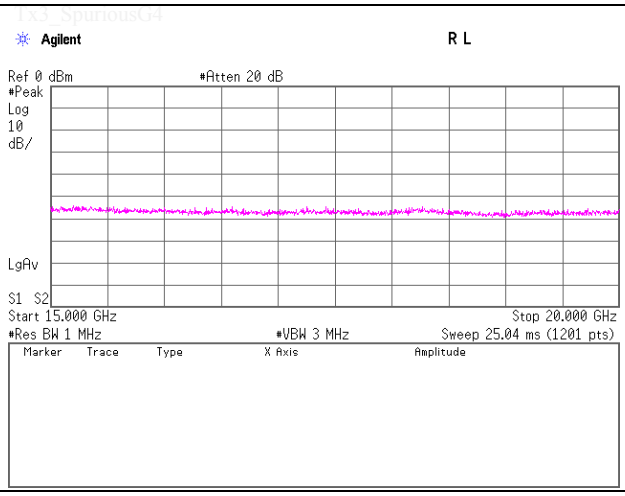

**5GHz - 10GHz**



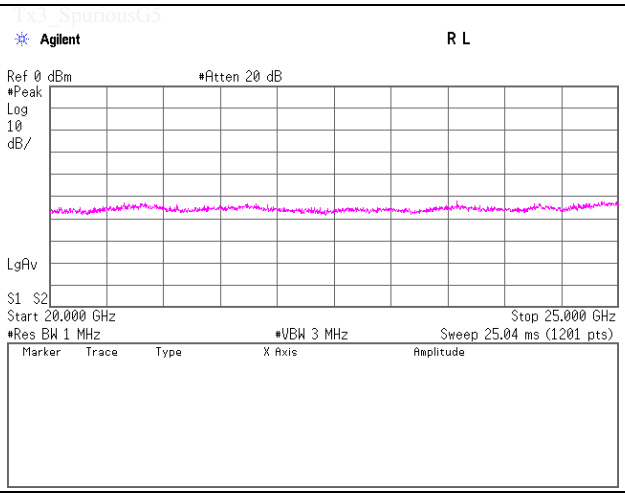

**10GHz - 15GHz**



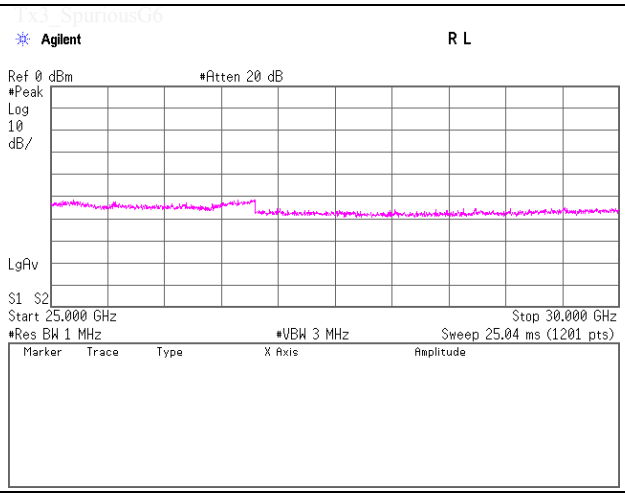

**15GHz - 20GHz**




**20GHz - 25GHz**




**25GHz - 30GHz**

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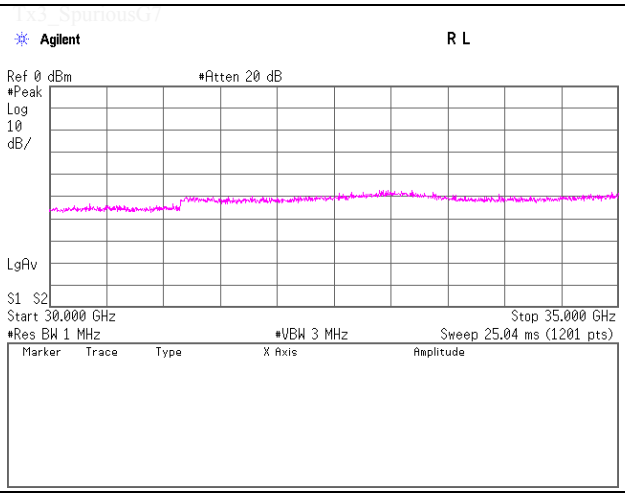
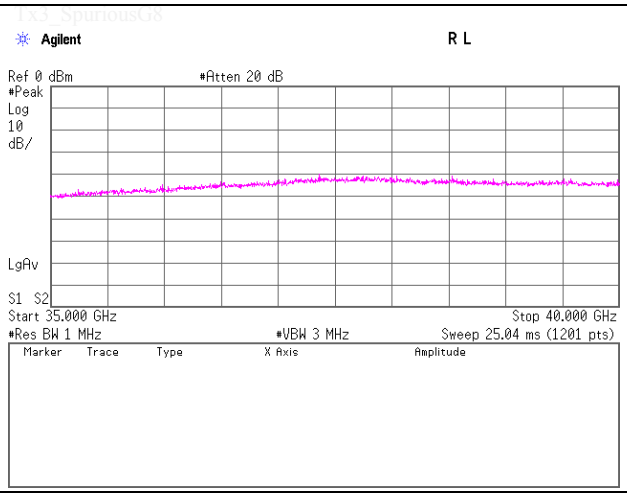
# (Reference) Spurious emission (Conducted)

**Tx, IEEE802.11a (W56), PN9, worst data mode 6Mbps**

| Tx, 5700MHz (above 1GHz)(2/2) | |
|---|---|
| **30GHz - 35GHz** | **35GHz - 40GHz** |
|  |  |

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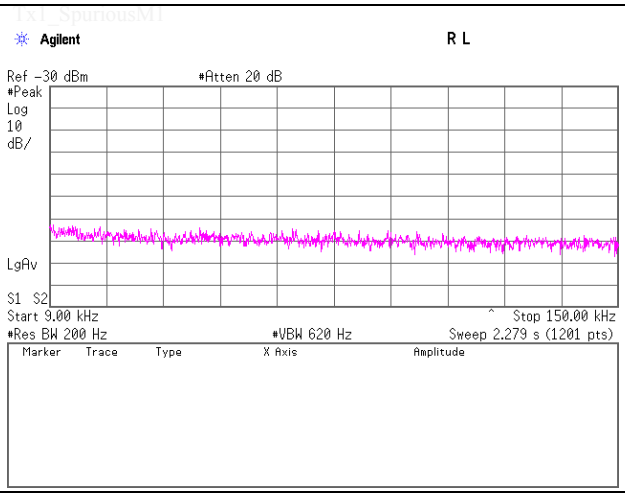
# (Reference) Spurious emission (Conducted)

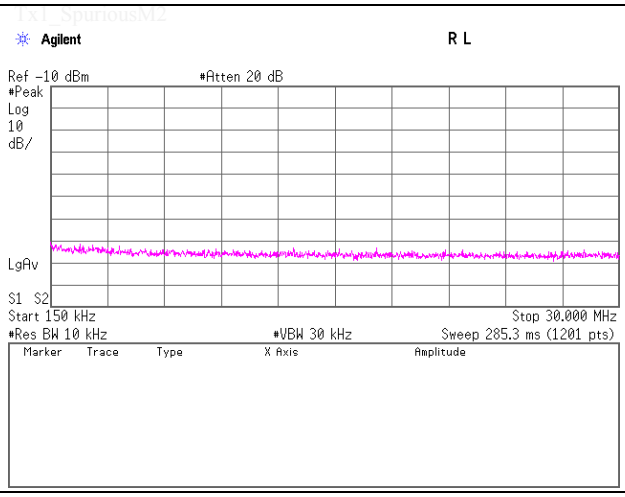
**Tx, IEEE802.11n (HT20) (W56), PN9, worst data mode 0(MCS)**

**Tx, 5500MHz (below 1GHz)**

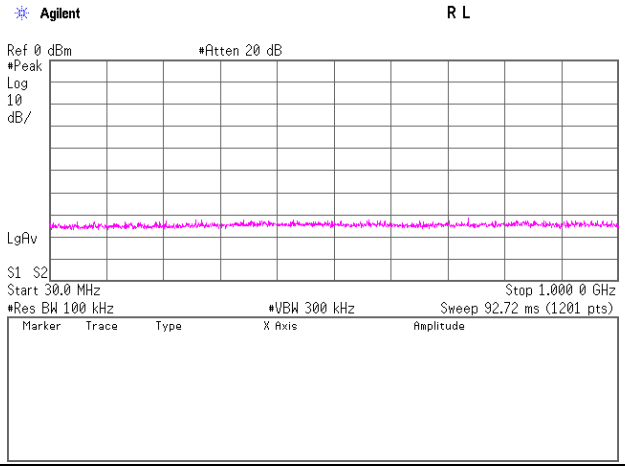
**9kHz - 150kHz**




**150kHz - 30MHz**




**30MHz - 1GHz**

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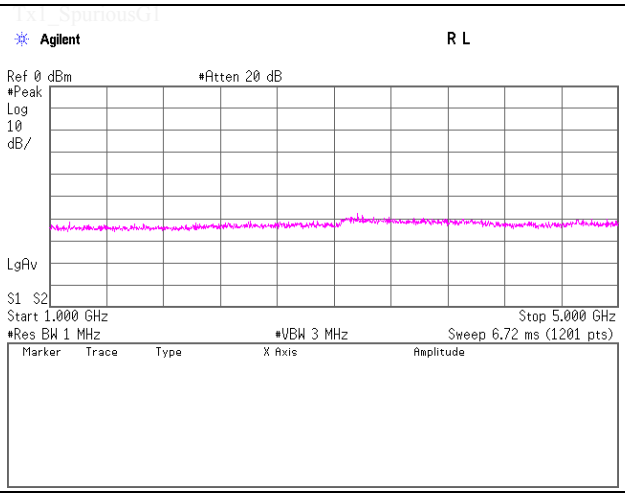
# (Reference) Spurious emission (Conducted)

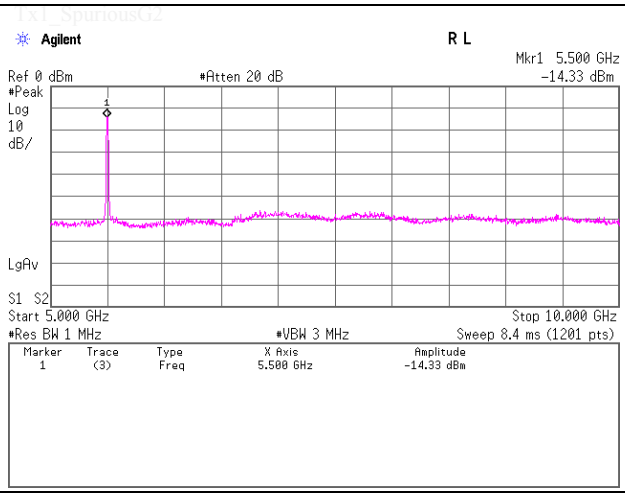
**Tx, IEEE802.11n (HT20) (W56), PN9, worst data mode 0(MCS)**

**Tx, 5500MHz (above 1GHz)(1/2)**

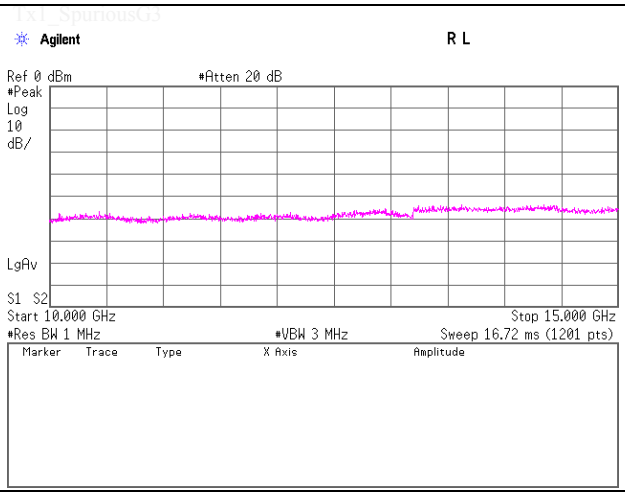
**1GHz - 5GHz**



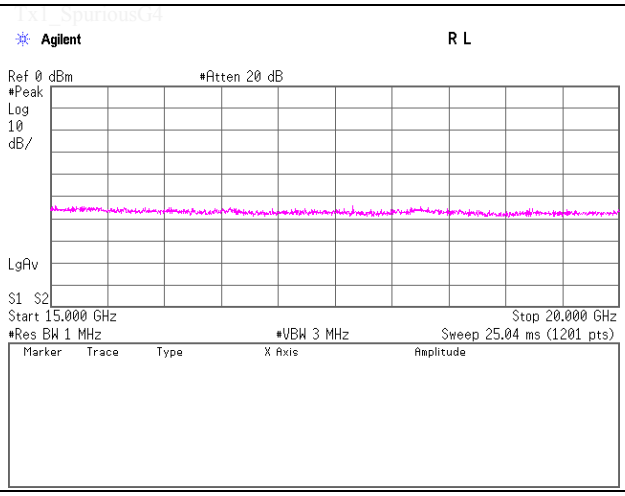

**5GHz - 10GHz**



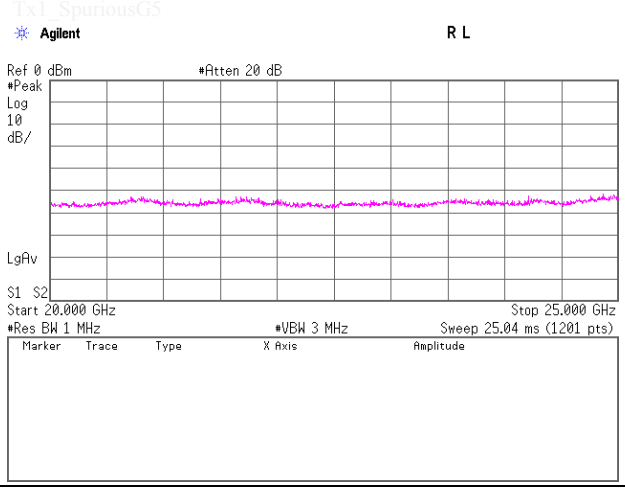

**10GHz - 15GHz**



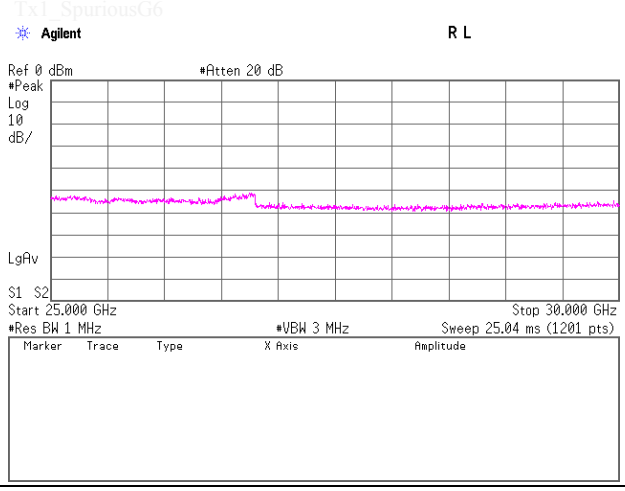

**15GHz - 20GHz**




**20GHz - 25GHz**




**25GHz - 30GHz**

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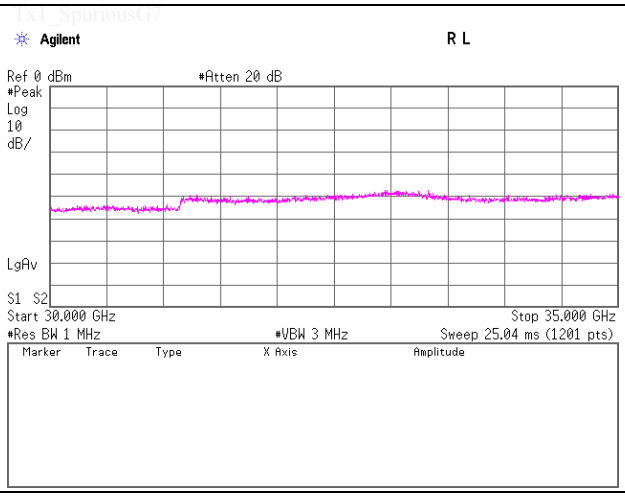
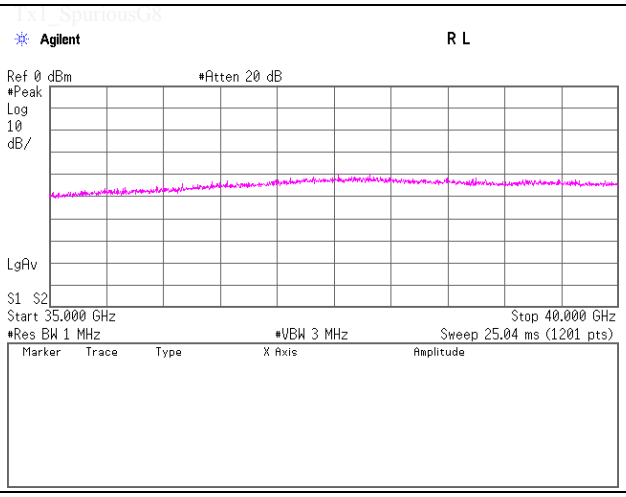
# (Reference) Spurious emission (Conducted)

**Tx, IEEE802.11n (HT20) (W56), PN9, worst data mode 0(MCS)**

| Tx, 5500MHz (above 1GHz)(2/2) | |
|---|---|
| **30GHz - 35GHz** | **35GHz - 40GHz** |
|  |  |
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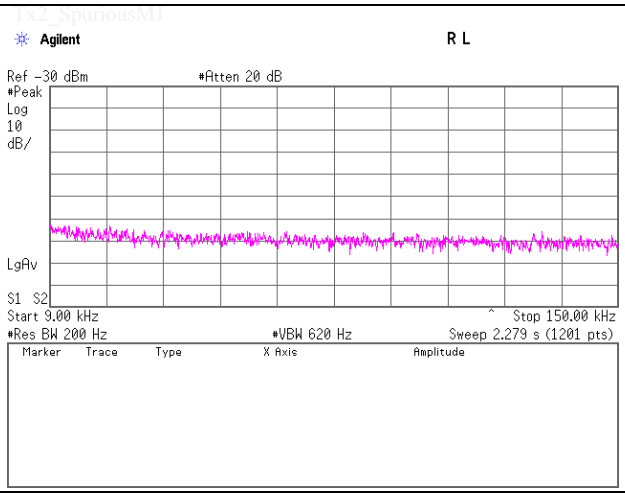
# (Reference) Spurious emission (Conducted)

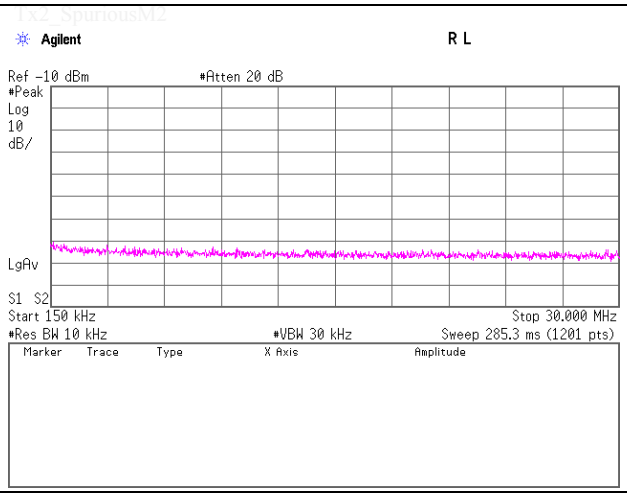
**Tx, IEEE802.11n (HT20) (W56), PN9, worst data mode 0(MCS)**

**Tx, 5580MHz (below 1GHz)**

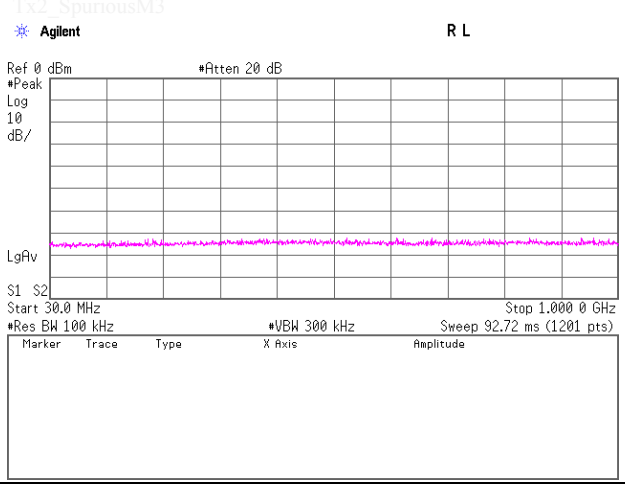
**9kHz - 150kHz**




**150kHz - 30MHz**




**30MHz - 1GHz**

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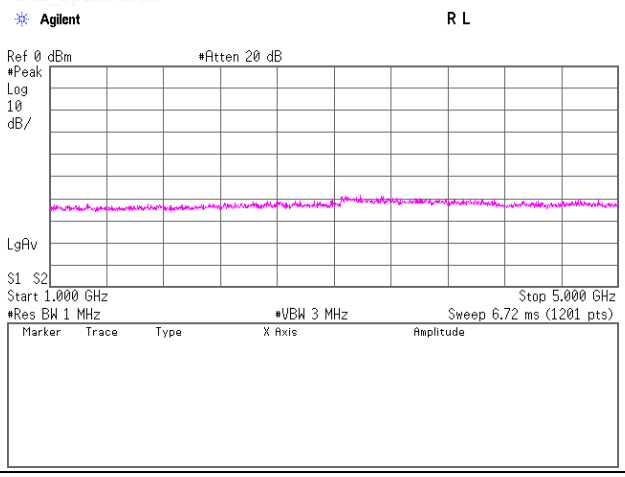
# (Reference) Spurious emission (Conducted)

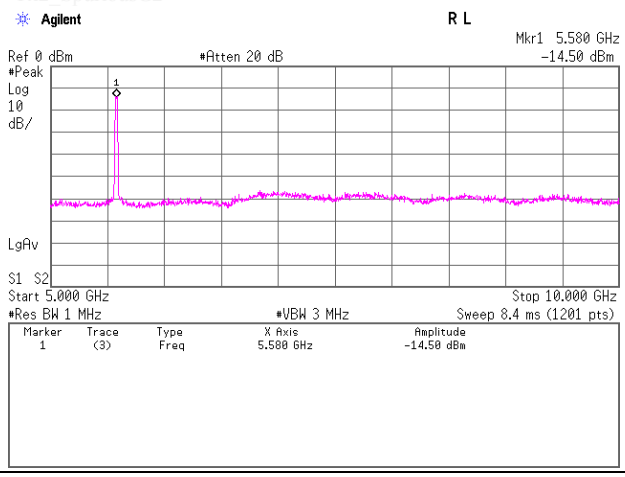
**Tx, IEEE802.11n (HT20) (W56), PN9, worst data mode 0(MCS)**

**Tx, 5580MHz (above 1GHz)(1/2)**

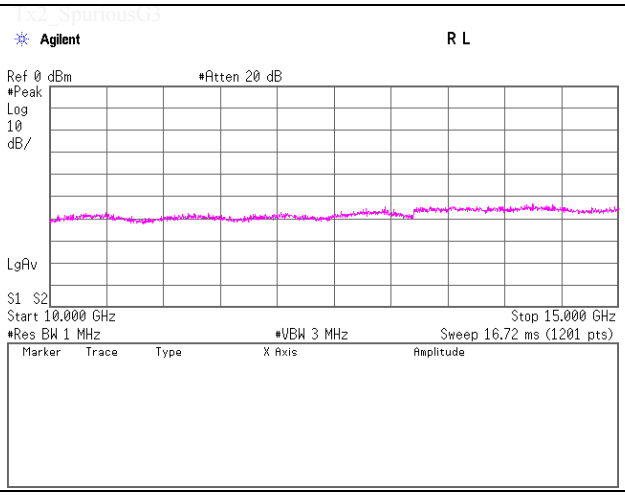
**1GHz - 5GHz**



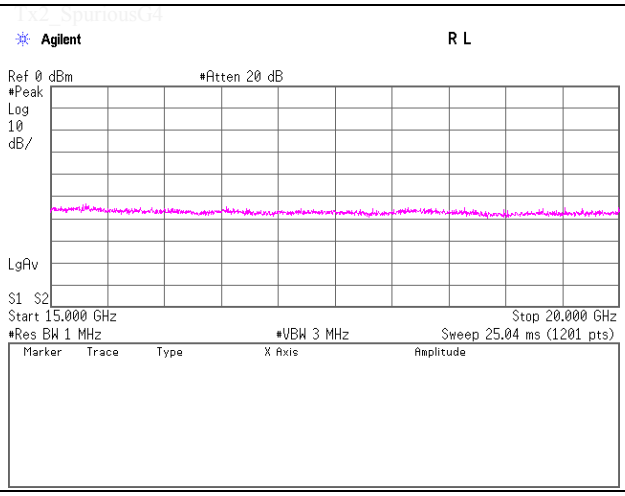

**5GHz - 10GHz**



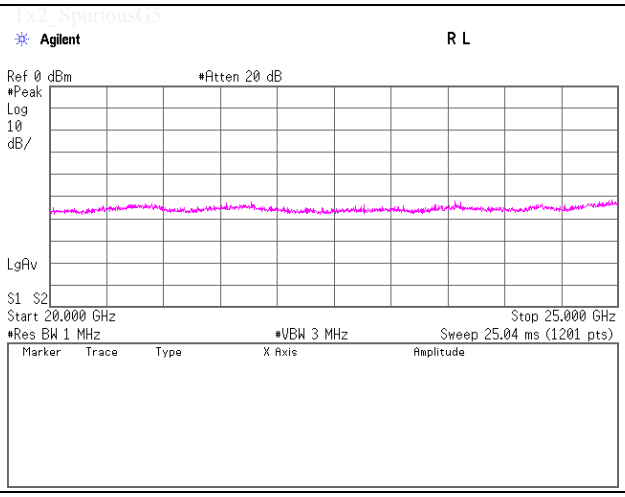

**10GHz - 15GHz**



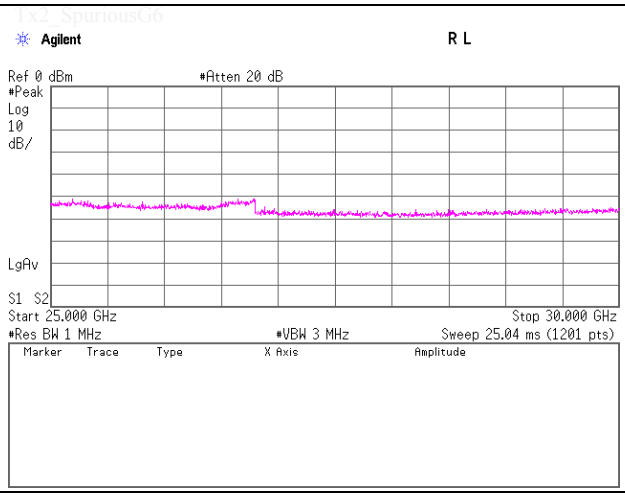

**15GHz - 20GHz**




**20GHz - 25GHz**




**25GHz - 30GHz**

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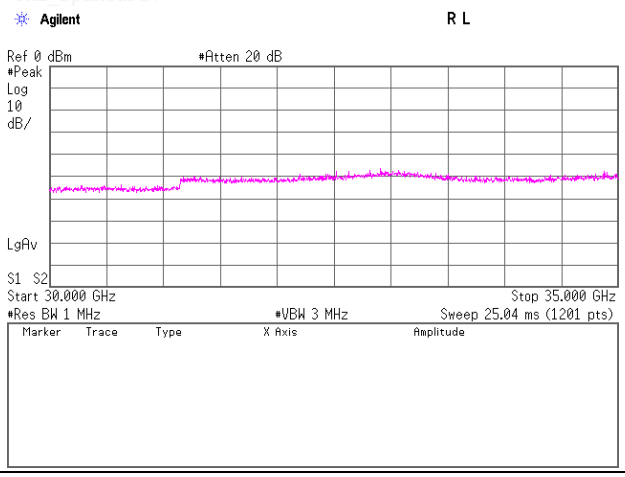
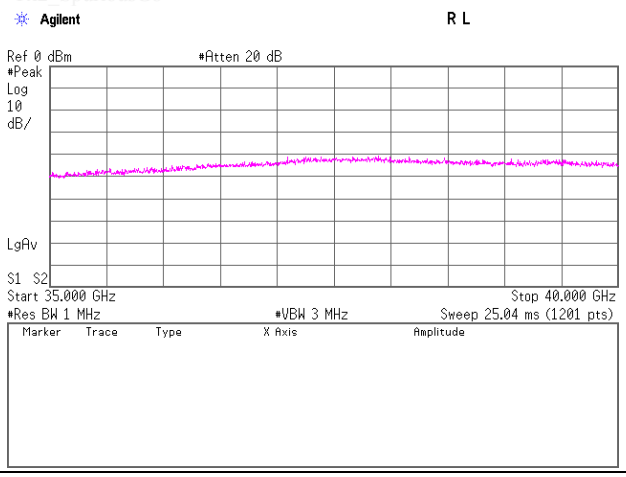
# (Reference) Spurious emission (Conducted)

**Tx, IEEE802.11n (HT20) (W56), PN9, worst data mode 0(MCS)**

| Tx, 5580MHz (above 1GHz)(2/2) | |
|---|---|
| **30GHz - 35GHz** | **35GHz - 40GHz** |
|  |  |
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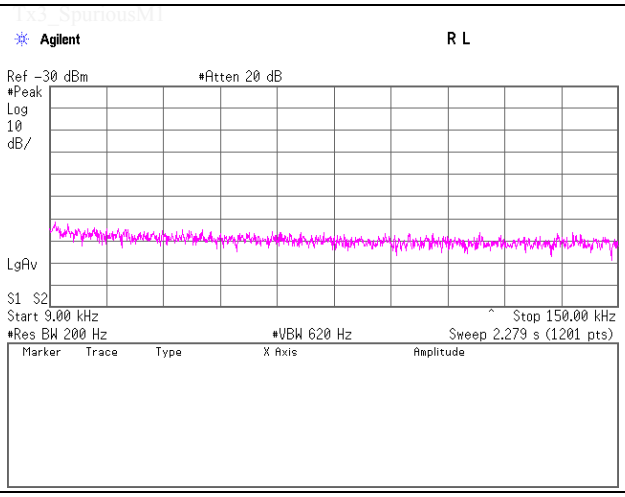
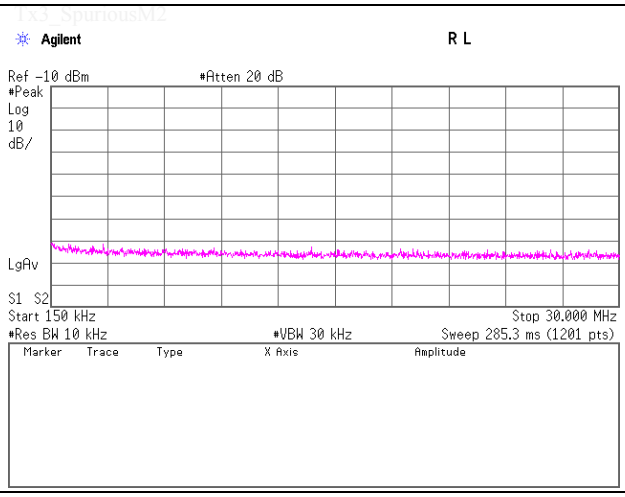
**Tx, IEEE802.11n (HT20) (W56), PN9, worst data mode 0(MCS)**

**Tx, 5700MHz (below 1GHz)**

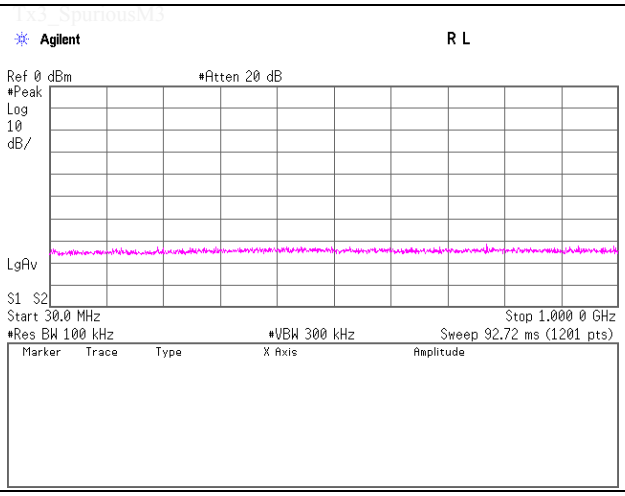
**9kHz - 150kHz**




**150kHz - 30MHz**




**30MHz - 1GHz**

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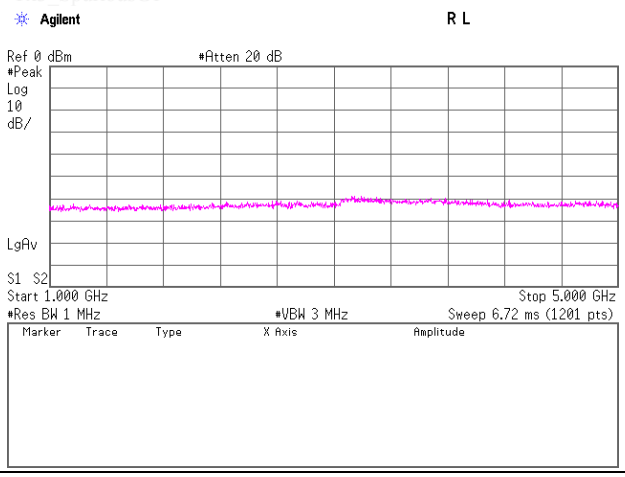
# (Reference) Spurious emission (Conducted)

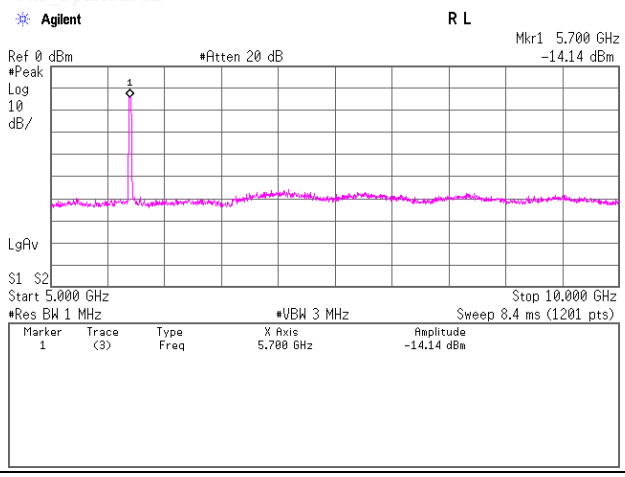
**Tx, IEEE802.11n (HT20) (W56), PN9, worst data mode 0(MCS)**

**Tx, 5700MHz (above 1GHz)(1/2)**

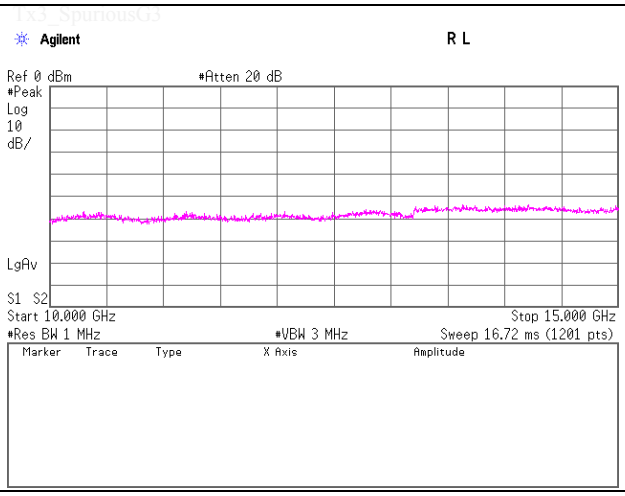
**1GHz - 5GHz**



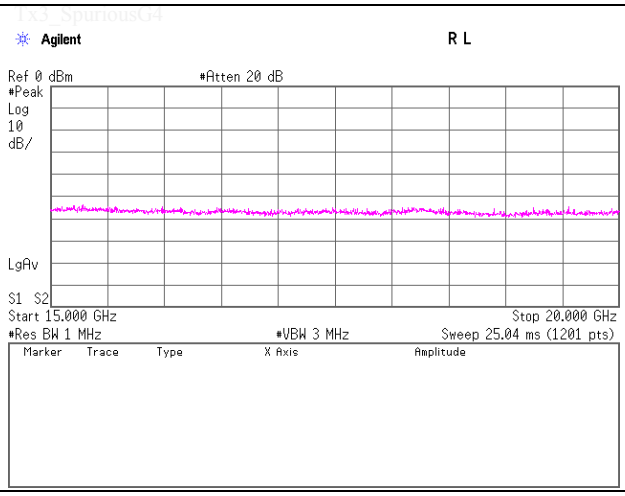

**5GHz - 10GHz**



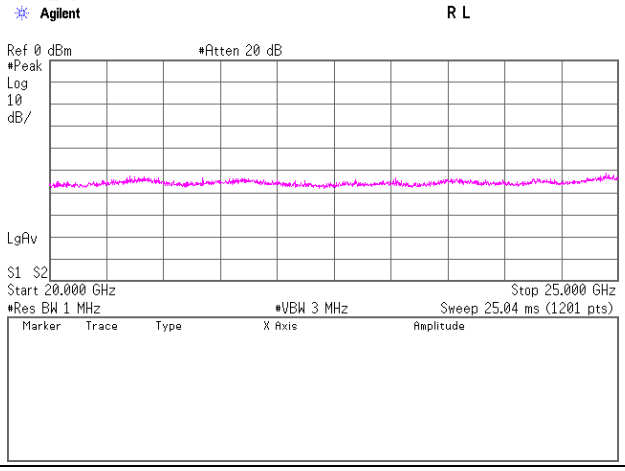

**10GHz - 15GHz**



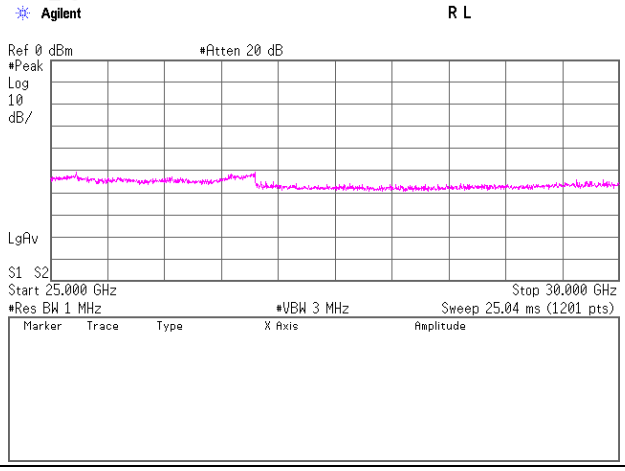

**15GHz - 20GHz**




**20GHz - 25GHz**




**25GHz - 30GHz**

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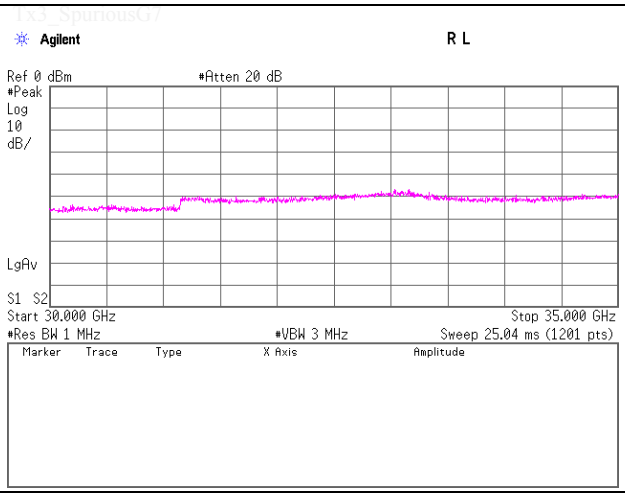
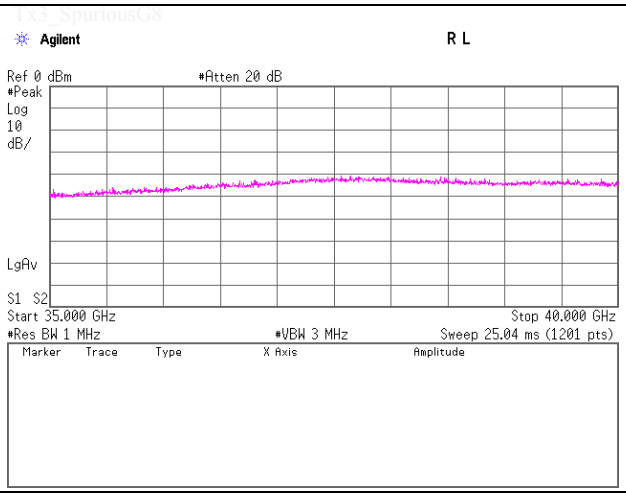
**Tx, IEEE802.11n (HT20) (W56), PN9, worst data mode 0(MCS)**

| Tx, 5700MHz (above 1GHz)(2/2) | |
|---|---|
| **30GHz - 35GHz** | **35GHz - 40GHz** |
|  |  |
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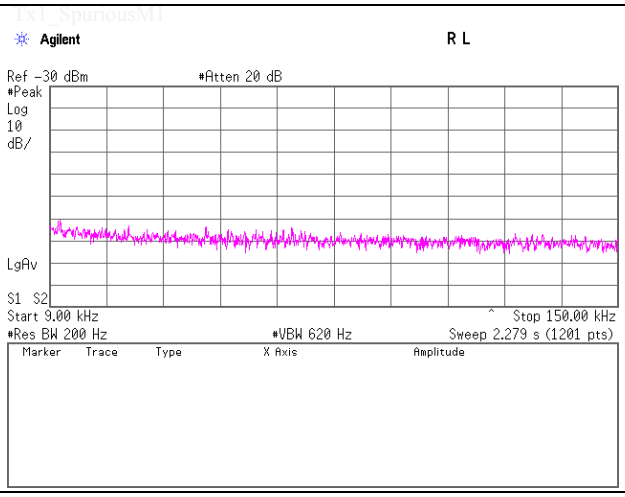
# (Reference) Spurious emission (Conducted)

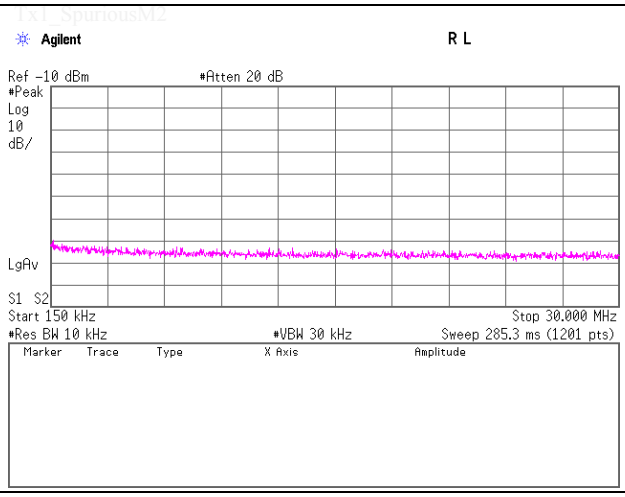
**Tx, IEEE802.11n (HT40) (W56), PN9, worst data mode 0(MCS)**

**Tx, 5510MHz (below 1GHz)**

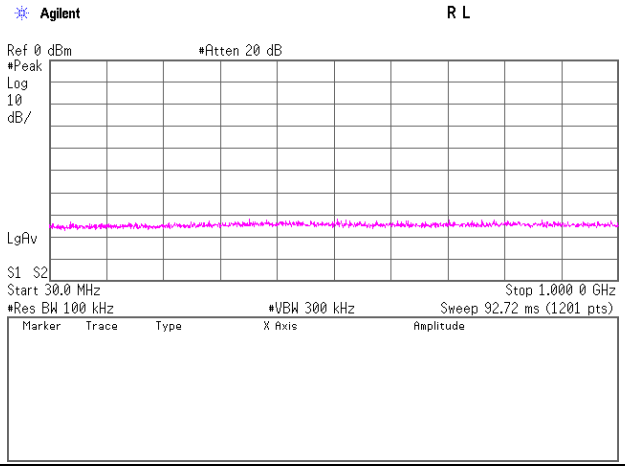
**9kHz - 150kHz**




**150kHz - 30MHz**




**30MHz - 1GHz**

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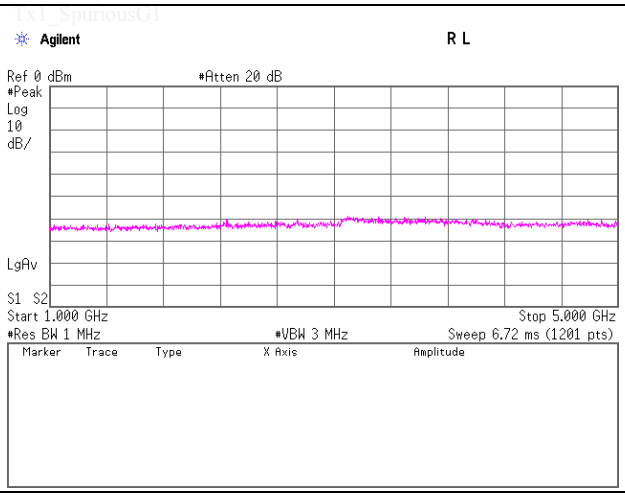
# (Reference) Spurious emission (Conducted)

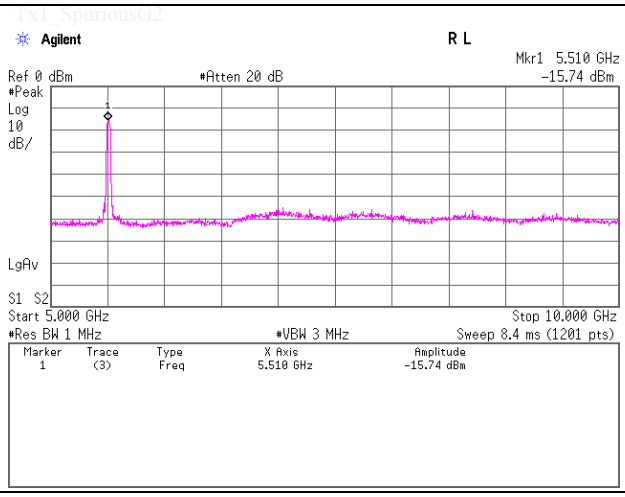
**Tx, IEEE802.11n (HT40) (W56), PN9, worst data mode 0(MCS)**

**Tx, 5510MHz (above 1GHz)(1/2)**

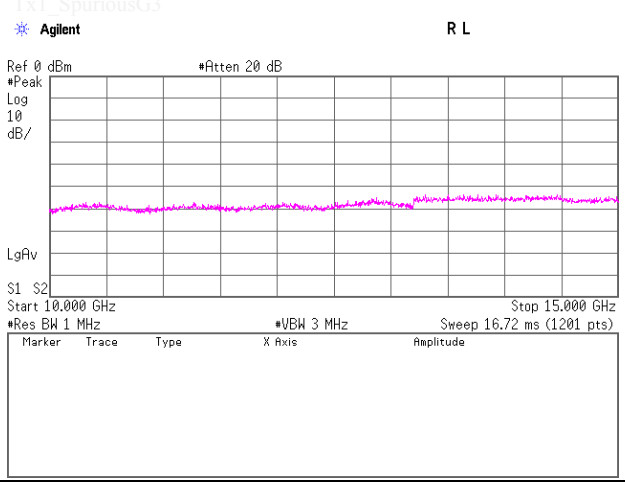
**1GHz - 5GHz**



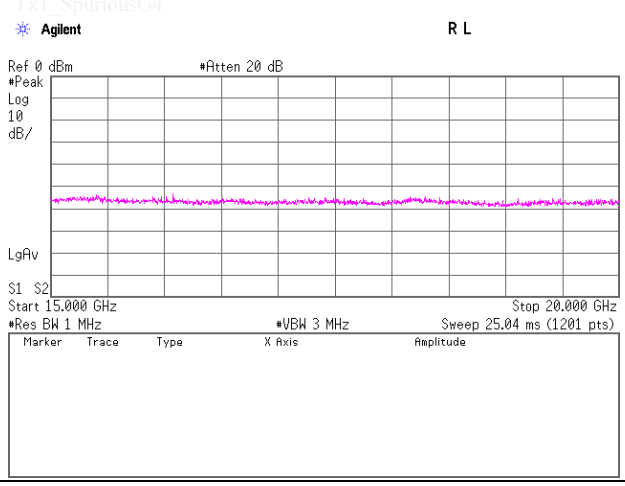

**5GHz - 10GHz**



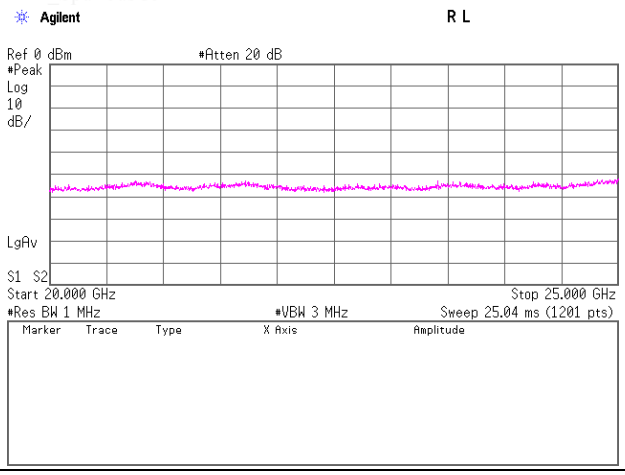

**10GHz - 15GHz**



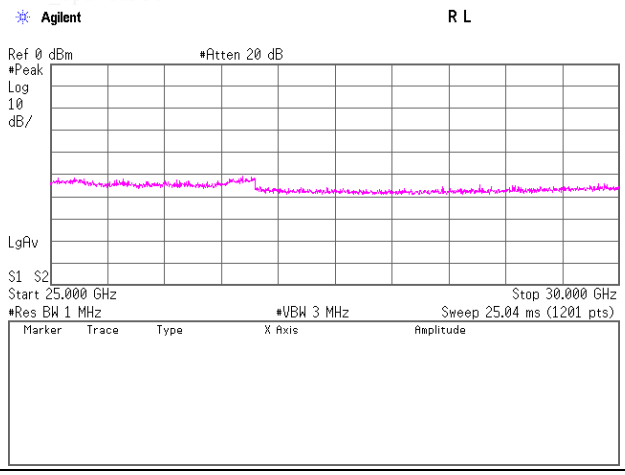

**15GHz - 20GHz**




**20GHz - 25GHz**




**25GHz - 30GHz**

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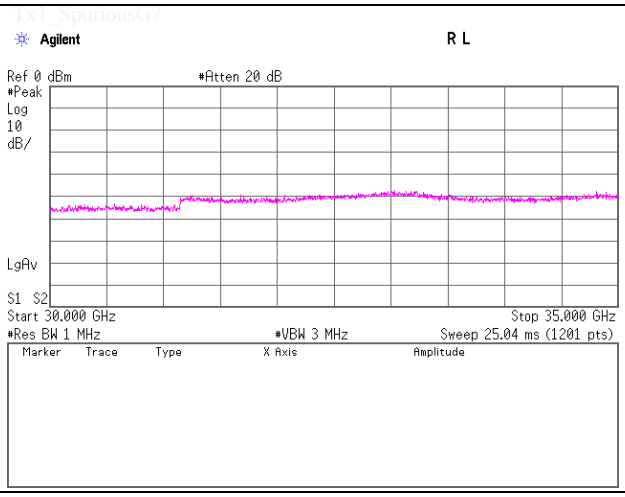
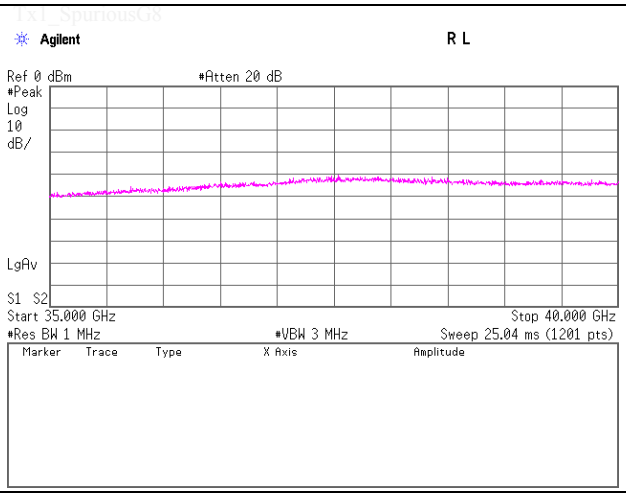
|---|---|
| **30GHz - 35GHz** | **35GHz - 40GHz** |
|  |  |
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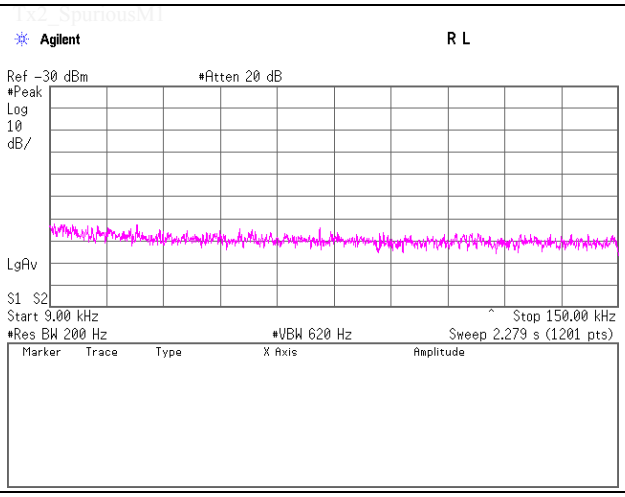
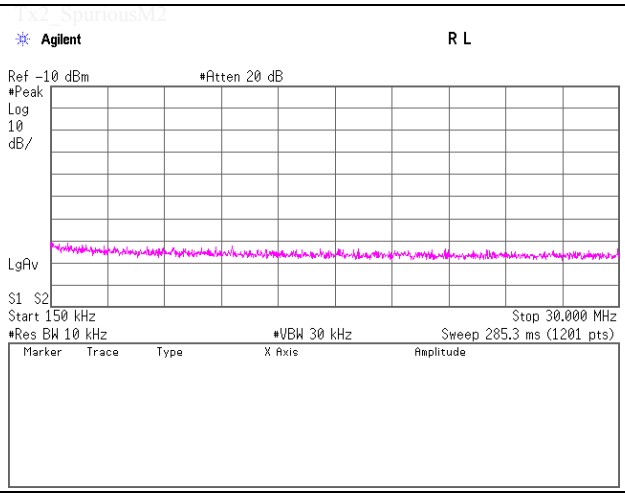
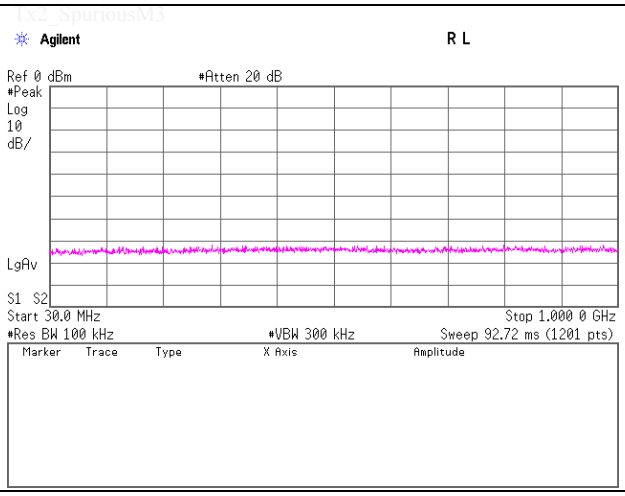
**9kHz - 150kHz**




**150kHz - 30MHz**




**30MHz - 1GHz**

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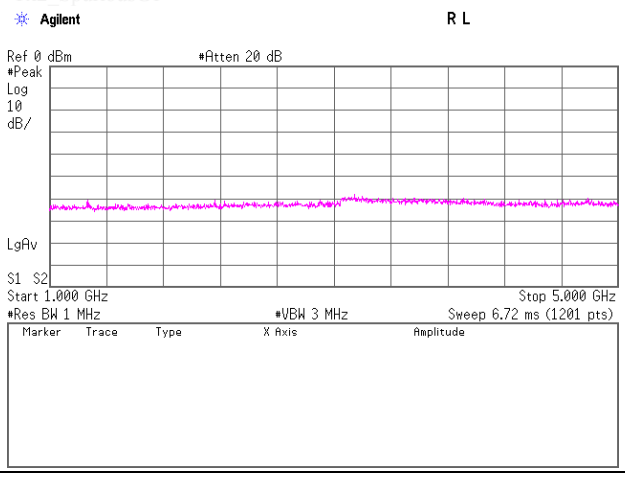
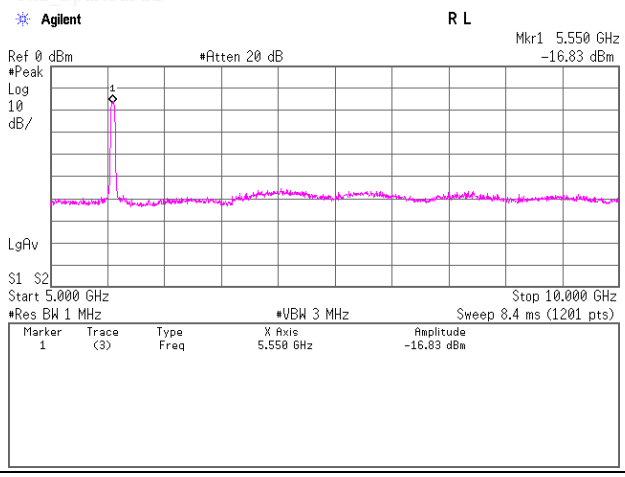
**Tx, 5550MHz (above 1GHz)(1/2)**

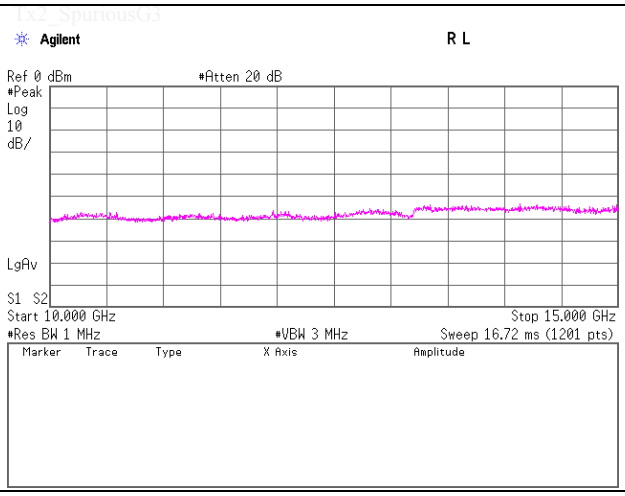
**1GHz - 5GHz**



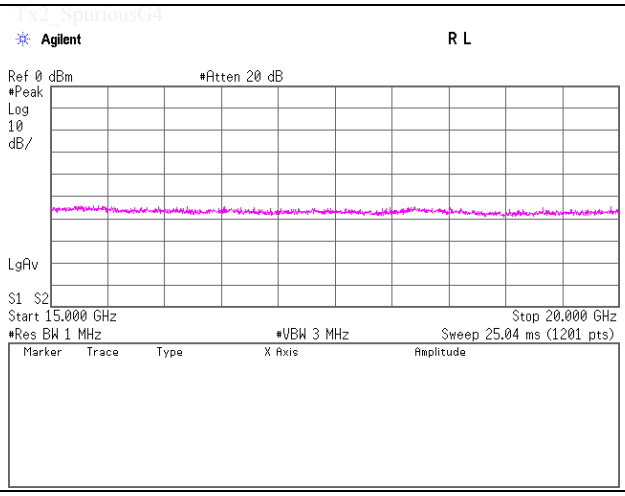

**5GHz - 10GHz**



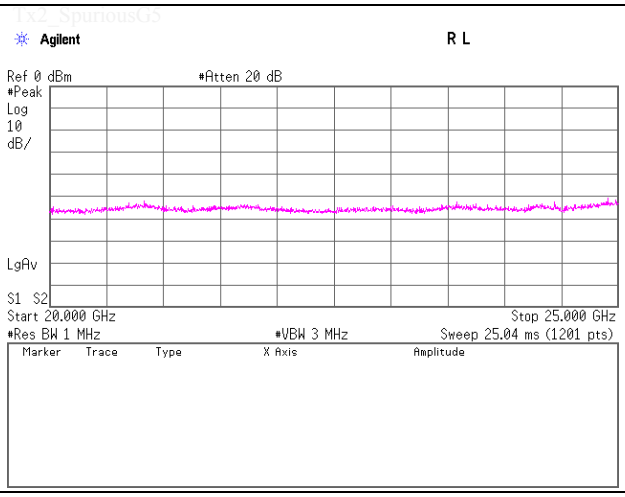

**10GHz - 15GHz**



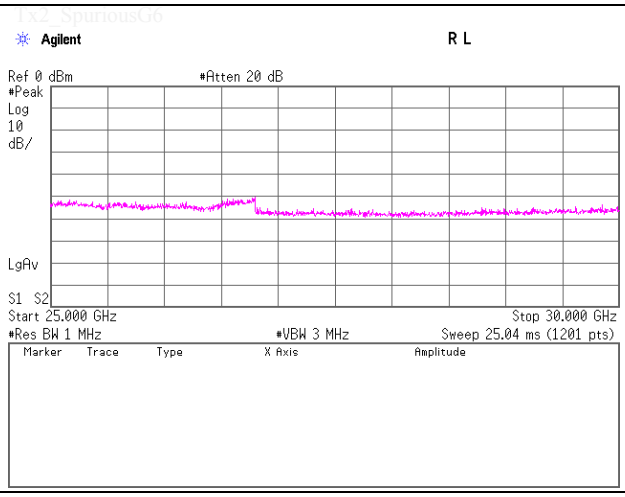

**15GHz - 20GHz**




**20GHz - 25GHz**




**25GHz - 30GHz**

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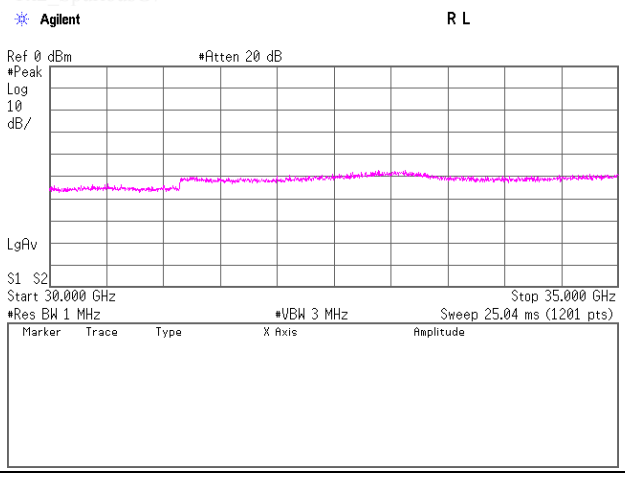
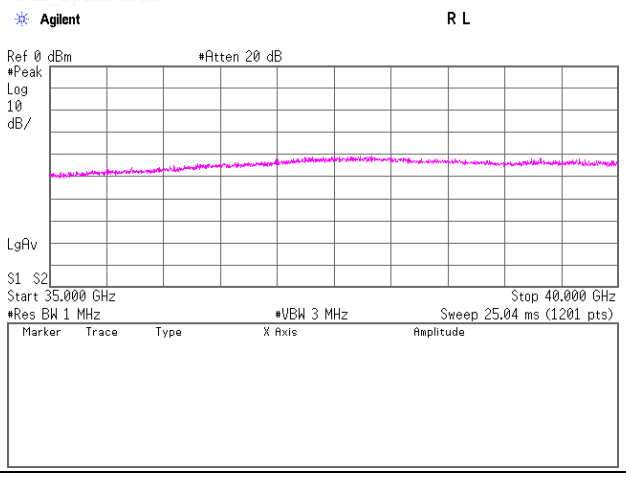
# (Reference) Spurious emission (Conducted)

**Tx, IEEE802.11n (HT40) (W56), PN9, worst data mode 0(MCS)**

| Tx, 5550MHz (above 1GHz)(2/2) | |
|---|---|
| **30GHz - 35GHz** | **35GHz - 40GHz** |
|  |  |
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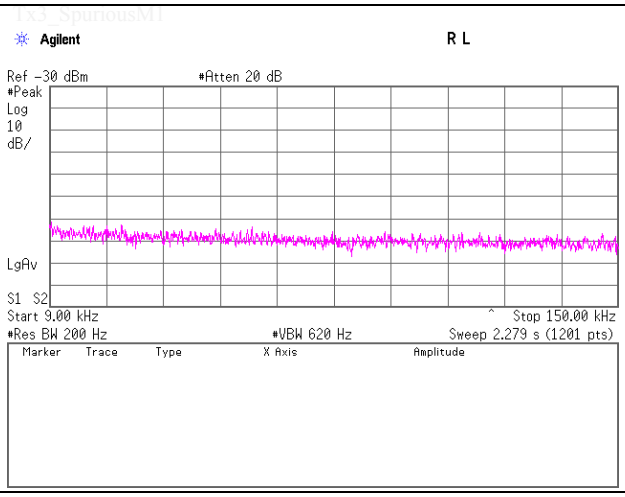
# (Reference) Spurious emission (Conducted)

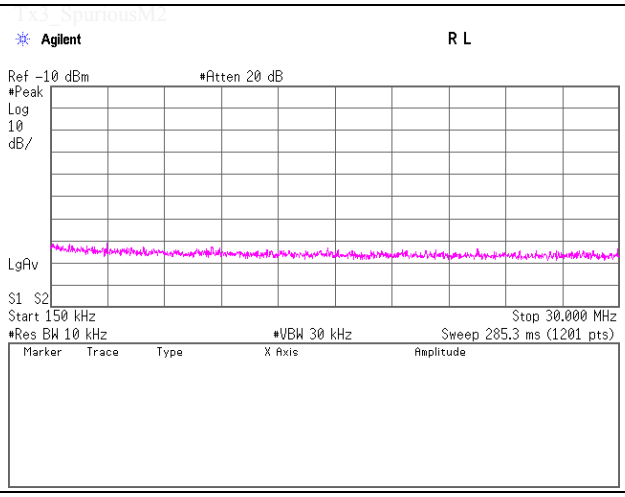
**Tx, IEEE802.11n (HT40) (W56), PN9, worst data mode 0(MCS)**

**Tx, 5670MHz (below 1GHz)**

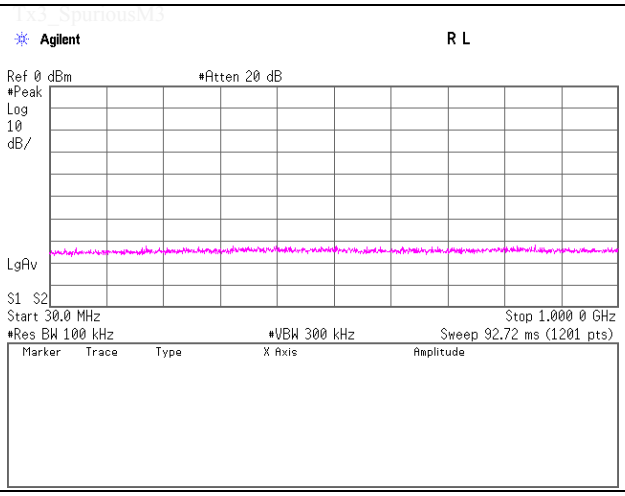
**9kHz - 150kHz**




**150kHz - 30MHz**




**30MHz - 1GHz**

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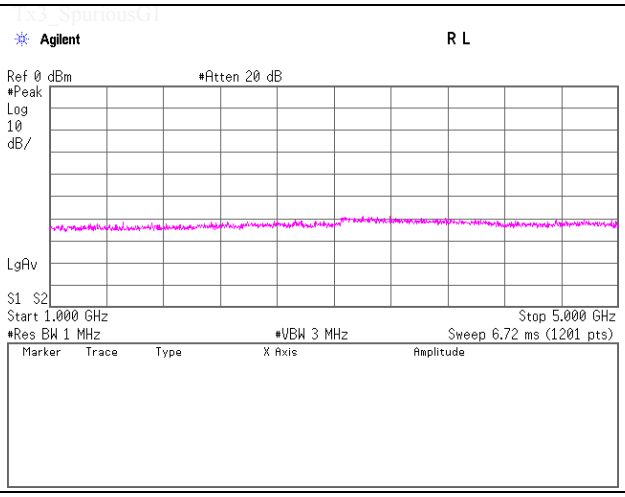
# (Reference) Spurious emission (Conducted)

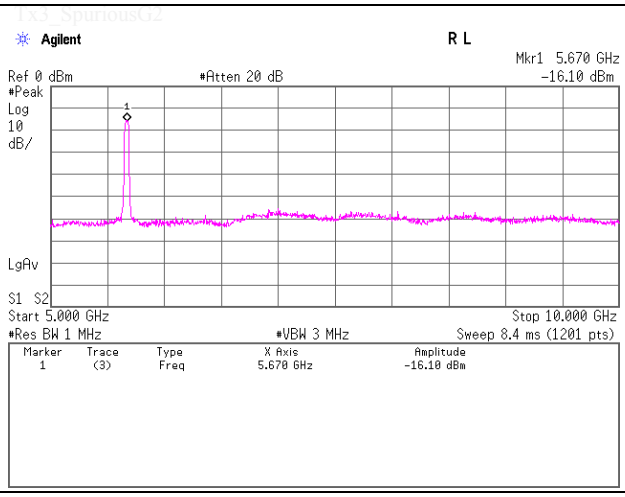
**Tx, IEEE802.11n (HT40) (W56), PN9, worst data mode 0(MCS)**

**Tx, 5670MHz (above 1GHz)(1/2)**

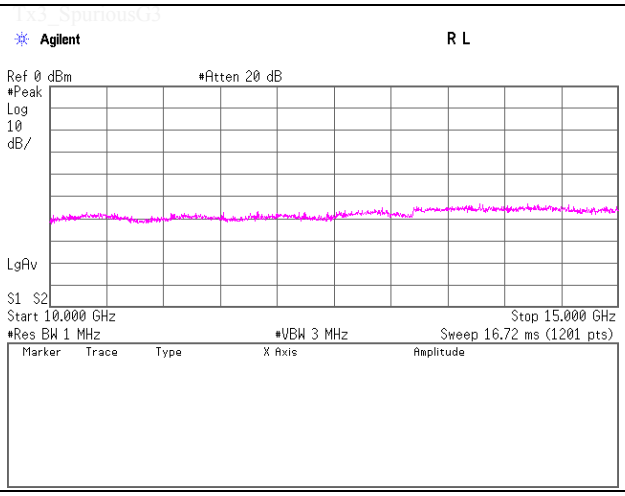
**1GHz - 5GHz**



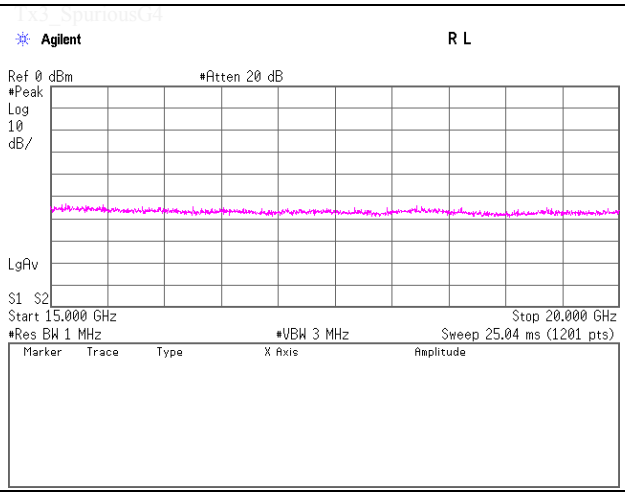

**5GHz - 10GHz**



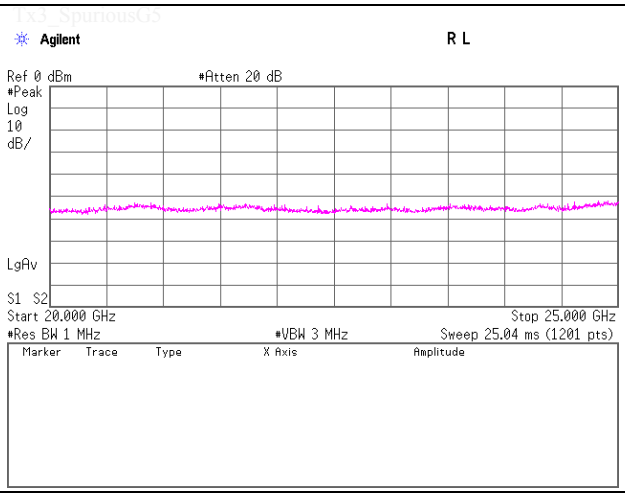

**10GHz - 15GHz**



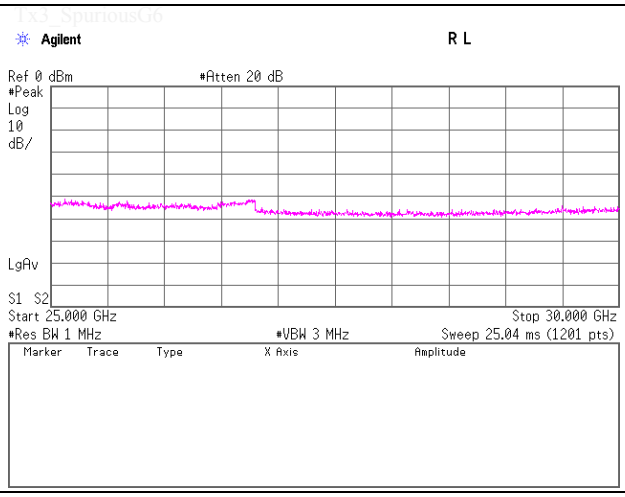

**15GHz - 20GHz**




**20GHz - 25GHz**




**25GHz - 30GHz**

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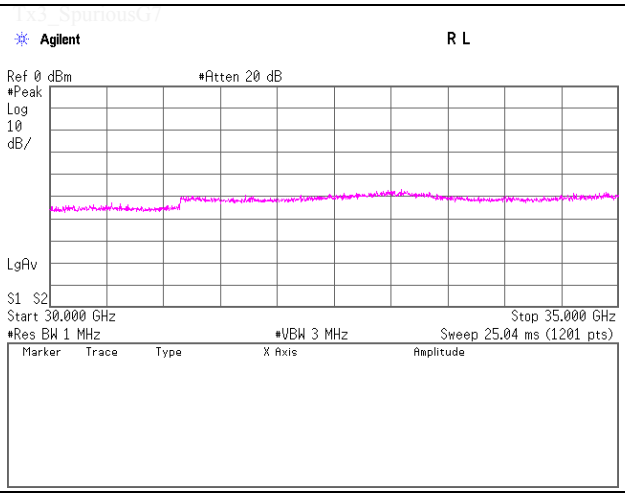
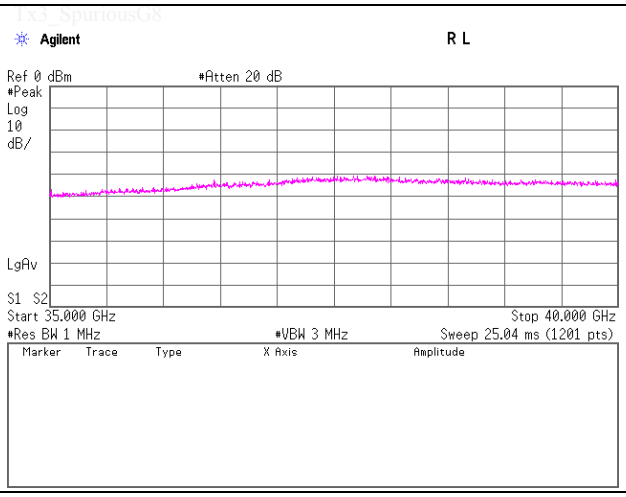
# (Reference) Spurious emission (Conducted)

**Tx, IEEE802.11n (HT40) (W56), PN9, worst data mode 0(MCS)**

| Tx, 5670MHz (above 1GHz)(2/2) | |
|---|---|
| **30GHz - 35GHz** | **35GHz - 40GHz** |
|  |  |
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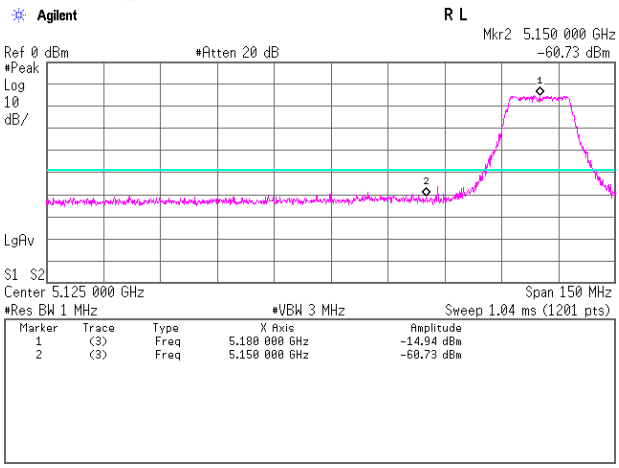
# Spurious emission (Conducted)

**Band Edge compliance**

**Tx, IEEE802.11a, worst data mode 6Mbps**

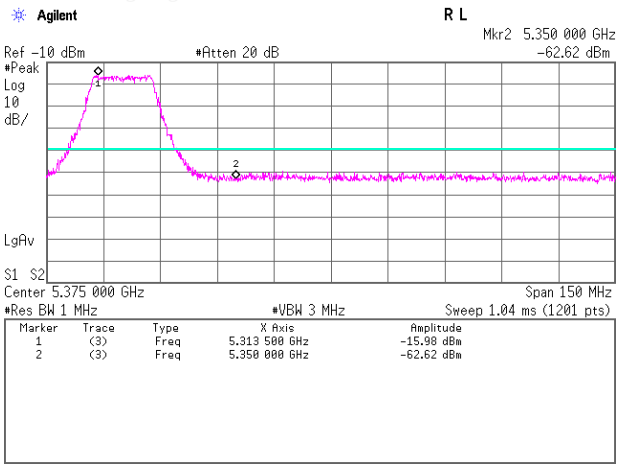
**Tx, 5180MHz**

TX1_BandEdgeLow




**Tx, 5320MHz**

TX5_BandEdgeHigh




Specified value in the Regulation - Cable Loss (including the cable(s) customer supplied) - Atten. Loss - Antenna Gain = Limit line

| FREQ [MHz] | Regulation [dBm] | Cable Loss [dB] | Atten. Loss [dB] | Antenna Gain [dBi] | Limit line [dBm] |
|---|---|---|---|---|---|
| 5150.00 | -27.00 | 2.64 | 19.99 | -0.30 | -49.33 |
| 5350.00 | -27.00 | 2.65 | 19.99 | -0.30 | -49.34 |

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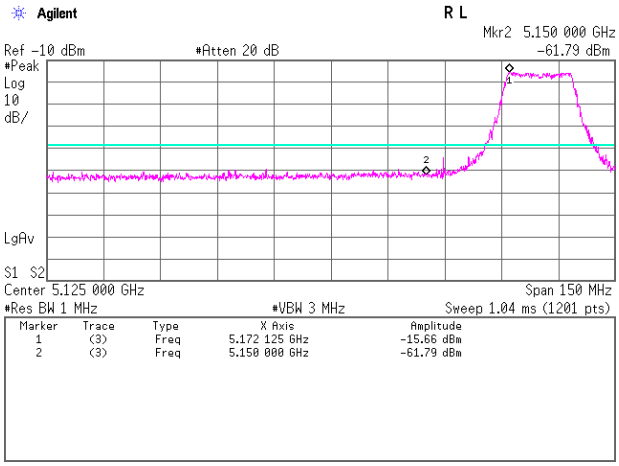
# Spurious emission (Conducted)

**Band Edge compliance**

**Tx, IEEE802.11n (HT20) , worst data mode 0(MCS)**

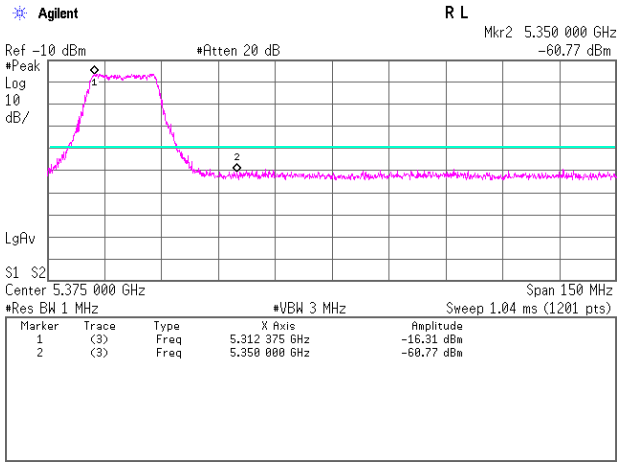
**Tx, 5180MHz**

TX1_BandEdgeLow




**Tx, 5320MHz**

TX5_BandEdgeHigh




Specified value in the Regulation - Cable Loss (including the cable(s) customer supplied) - Atten. Loss - Antenna Gain = Limit line

| FREQ [MHz] | Regulation [dBm] | Cable Loss [dB] | Atten. Loss [dB] | Antenna Gain [dBi] | Limit line [dBm] |
|---|---|---|---|---|---|
| 5150.00 | -27.00 | 2.64 | 19.99 | -0.30 | -49.33 |
| 5350.00 | -27.00 | 2.65 | 19.99 | -0.30 | -49.34 |

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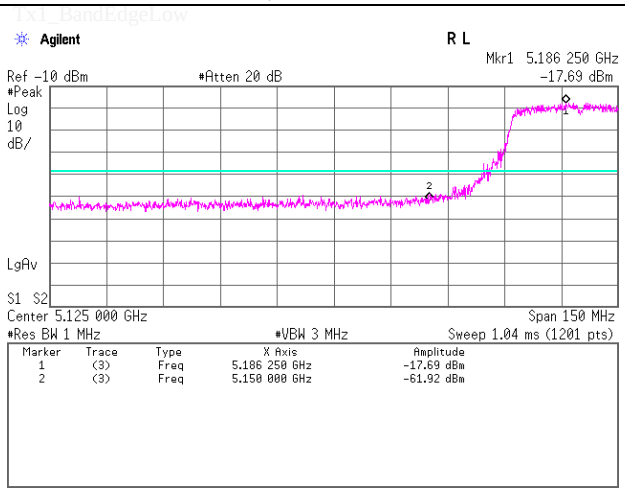
# Spurious emission (Conducted)

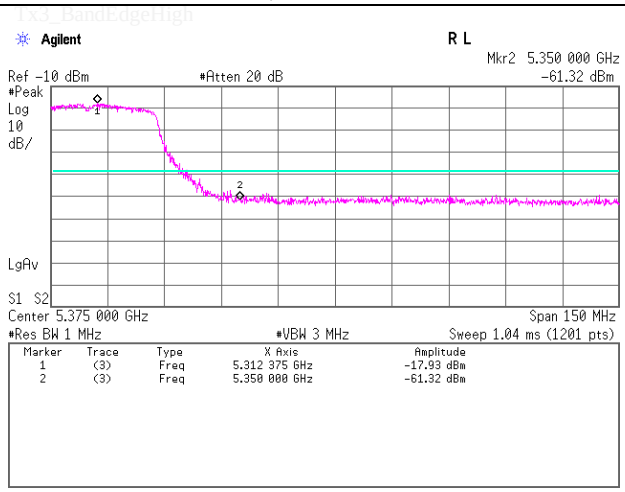
**Band Edge compliance**

**Tx, IEEE802.11n (HT40) , worst data mode 0(MCS)**

**Tx, 5190MHz**




**Tx, 5310MHz**




Specified value in the Regulation - Cable Loss (including the cable(s) customer supplied) - Atten. Loss - Antenna Gain = Limit line

| FREQ [MHz] | Regulation [dBm] | Cable Loss [dB] | Atten. Loss [dB] | Antenna Gain [dBi] | Limit line [dBm] |
|---|---|---|---|---|---|
| 5150.00 | -27.00 | 2.64 | 19.99 | -0.30 | -49.33 |
| 5350.00 | -27.00 | 2.65 | 19.99 | -0.30 | -49.34 |

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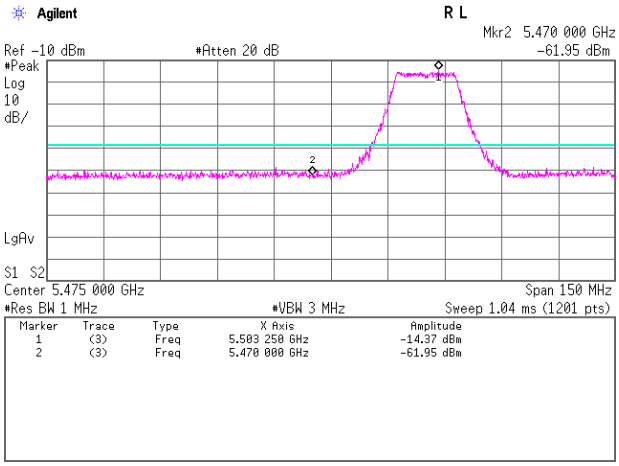
# Spurious emission (Conducted)

**Band Edge compliance**

**Tx, IEEE802.11a (W56), PN9, worst data mode 6Mbps**

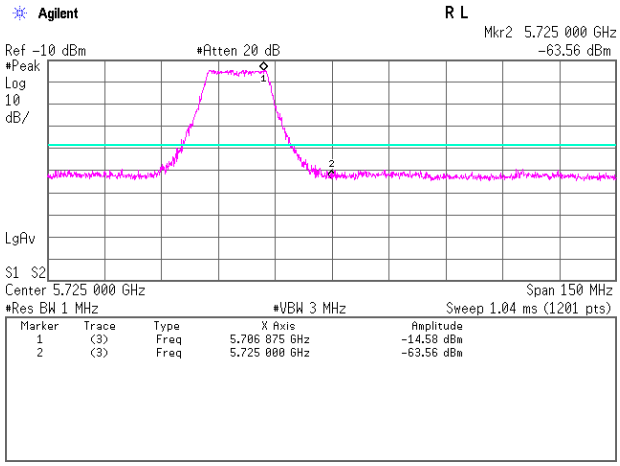
**Tx, 5500MHz**

TX1_BandEdgeLow




**Tx, 5700MHz**

TX5_BandEdgeHigh




Specified value in the Regulation - Cable Loss (including the cable(s) customer supplied) - Atten. Loss - Antenna Gain = Limit line

| FREQ [MHz] | Regulation [dBm] | Cable Loss [dB] | Atten. Loss [dB] | Antenna Gain [dBi] | Limit line [dBm] |
|---|---|---|---|---|---|
| 5740.00 | -27.00 | 2.73 | 19.95 | -1.20 | -48.48 |
| 5725.00 | -27.00 | 2.79 | 19.95 | -1.20 | -48.54 |

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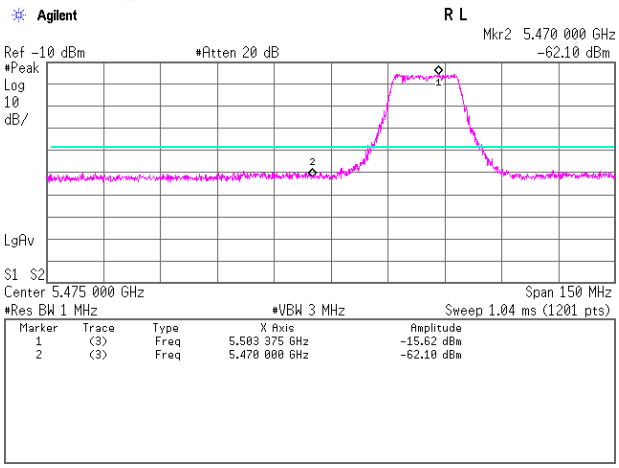
# Spurious emission (Conducted)

**Band Edge compliance**

**Tx, IEEE802.11n (HT20) (W56), PN9, worst data mode 0(MCS)**

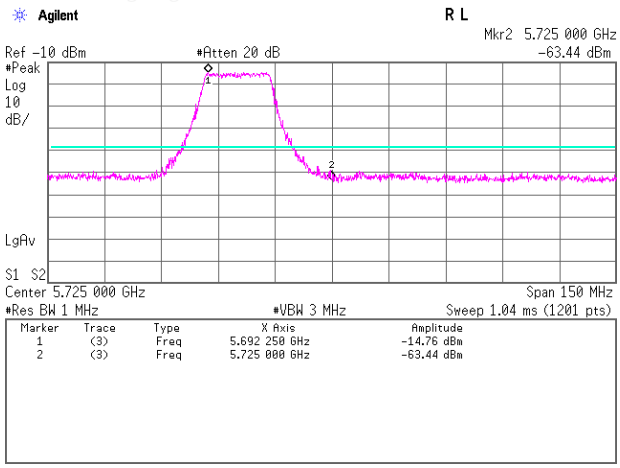
**Tx, 5500MHz**

TX1_BandEdgeLow




**Tx, 5700MHz**

TX5_BandEdgeHigh




Specified value in the Regulation - Cable Loss (including the cable(s) customer supplied) - Atten. Loss - Antenna Gain = Limit line

| FREQ [MHz] | Regulation [dBm] | Cable Loss [dB] | Atten. Loss [dB] | Antenna Gain [dBi] | Limit line [dBm] |
|---|---|---|---|---|---|
| 5740.00 | -27.00 | 2.73 | 19.95 | -1.20 | -48.48 |
| 5725.00 | -27.00 | 2.79 | 19.95 | -1.20 | -48.54 |

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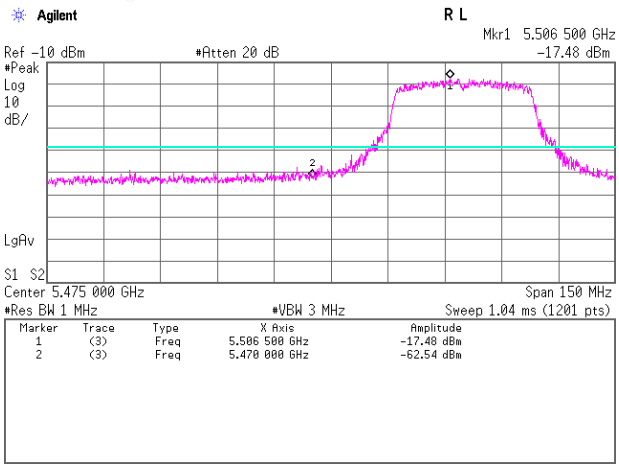
# Spurious emission (Conducted)

**Band Edge compliance**

**Tx, IEEE802.11n (HT40) (W56), PN9, worst data mode 0(MCS)**

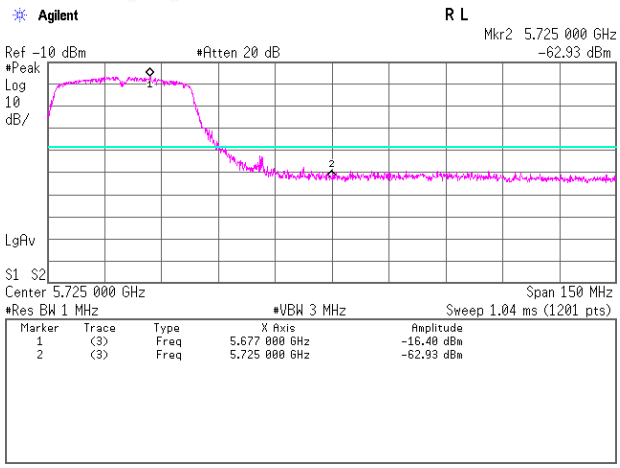
**Tx, 5510MHz**

TX1_BandEdgeLow




**Tx, 5670MHz**

TX5_BandEdgeHigh




Specified value in the Regulation - Cable Loss (including the cable(s) customer supplied) - Atten. Loss - Antenna Gain = Limit line

| FREQ [MHz] | Regulation [dBm] | Cable Loss [dB] | Atten. Loss [dB] | Antenna Gain [dBi] | Limit line [dBm] |
|---|---|---|---|---|---|
| 5740.00 | -27.00 | 2.73 | 19.95 | -1.20 | -48.48 |
| 5725.00 | -27.00 | 2.77 | 19.95 | -1.20 | -48.52 |

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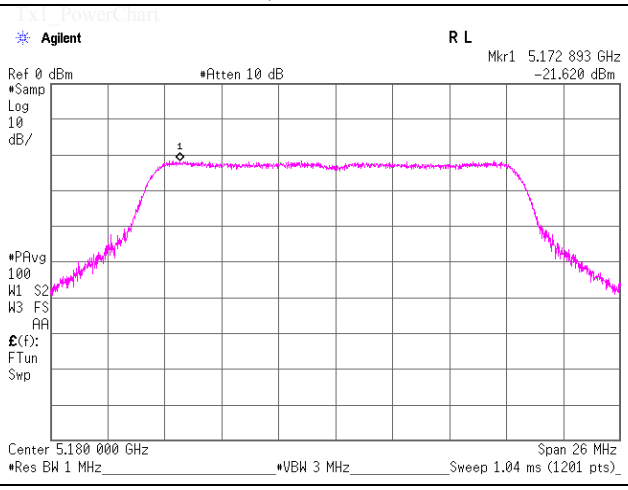
# Power Density

| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 2, 2012 | |
| Temperature / Humidity | 26deg.C , 50%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11a (W52), PN9, worst data mode 6Mbps | |

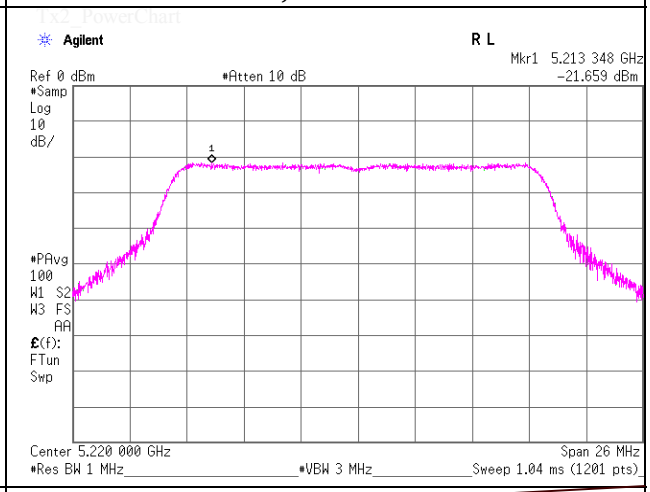
| Ch. Freq. [MHz] | Freq. Reading [MHz] | Reading [dBm/MHz] | Cable Loss [dB] | Atten. Loss [dB] | Duty factor [dB] | | Result [dBm/MHz] | Limit [dBm] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|
| 5180.0000 | 5172.89 | -21.62 | 2.64 | 19.99 | 0.08 | | 1.09 | 4.00 | 2.91 |
| 5220.0000 | 5213.35 | -21.66 | 2.64 | 19.99 | 0.08 | | 1.05 | 4.00 | 2.95 |
| 5240.0000 | 5232.81 | -21.74 | 2.65 | 19.99 | 0.08 | | 0.98 | 4.00 | 3.02 |

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten.Loss + Duty factor

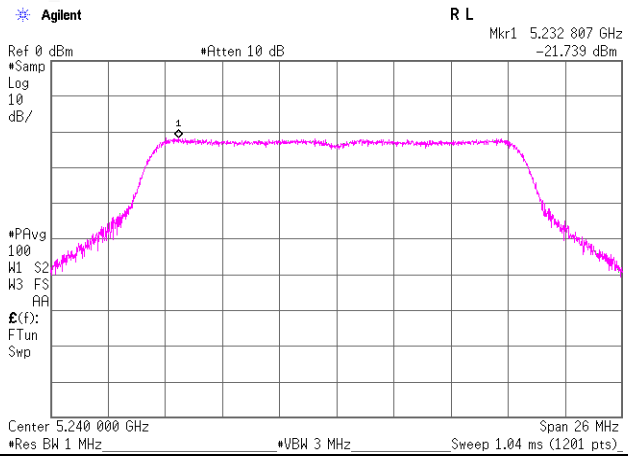
**Tx, 5180MHz**




**Tx, 5220MHz**




**Tx, 5240MHz**

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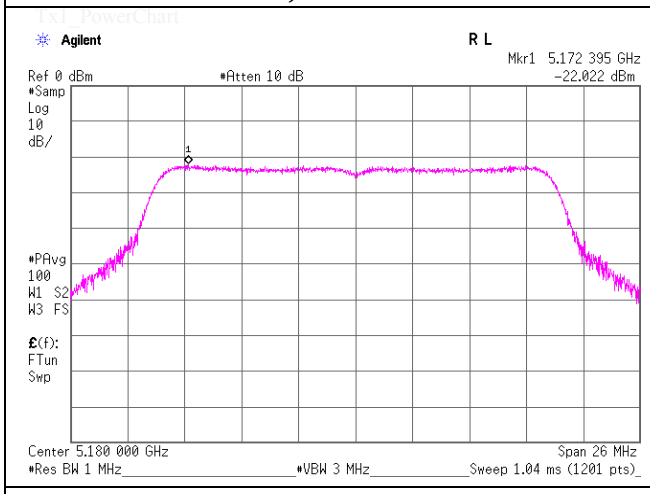
# Power Density

| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11n (HT20) (W52), PN9, worst data mode 0(MCS) | |

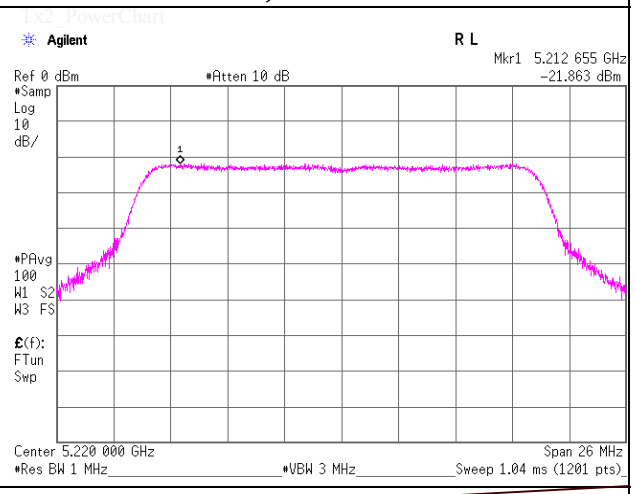
| Ch. Freq. [MHz] | Freq. Reading [MHz] | Reading [dBm/MHz] | Cable Loss [dB] | Atten. Loss [dB] | Duty factor [dB] | | Result [dBm/MHz] | Limit [dBm] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|
| 5180.0000 | 5172.40 | -22.02 | 2.64 | 19.99 | 0.08 | | 0.69 | 4.00 | 3.31 |
| 5220.0000 | 5212.66 | -21.86 | 2.64 | 19.99 | 0.08 | | 0.85 | 4.00 | 3.15 |
| 5240.0000 | 5248.10 | -22.08 | 2.65 | 19.99 | 0.08 | | 0.64 | 4.00 | 3.36 |

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten.Loss + Duty factor

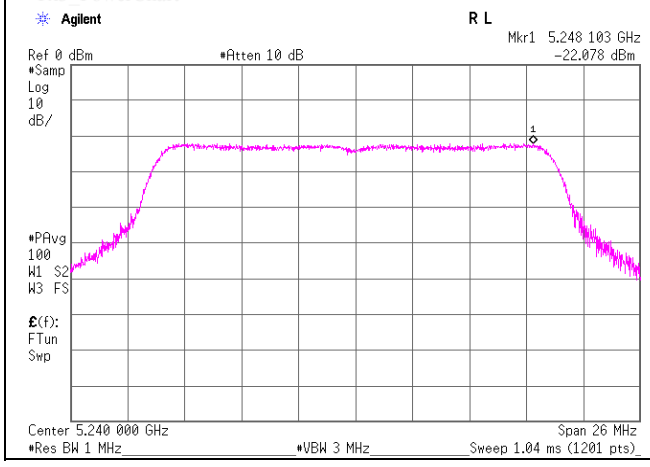
**Tx, 5180MHz**




**Tx, 5220MHz**




**Tx, 5240MHz**

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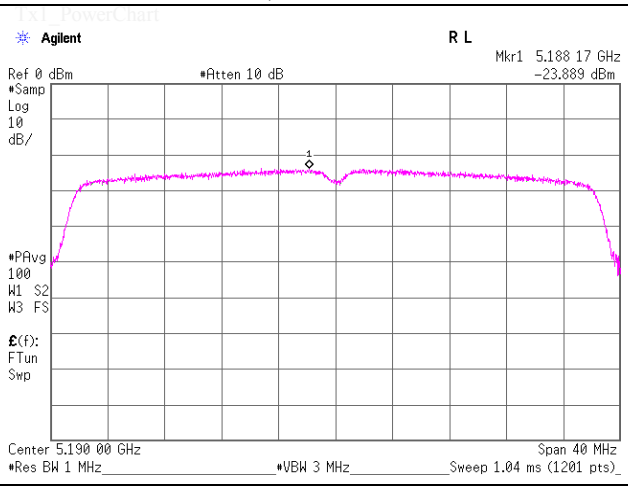
# Power Density

| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11n (HT40) (W52), PN9, worst data mode 0(MCS) | |

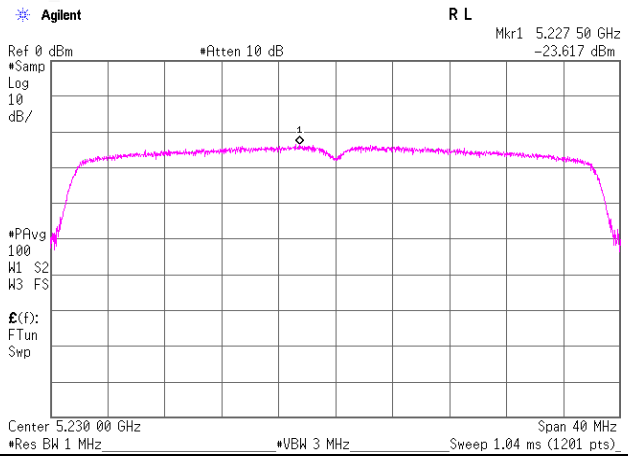
| Ch. Freq. [MHz] | Freq. Reading [MHz] | Reading [dBm/MHz] | Cable Loss [dB] | Atten. Loss [dB] | Duty factor [dB] | | Result [dBm/MHz] | Limit [dBm] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|
| 5190.0000 | 5188.17 | -23.89 | 2.64 | 19.99 | 0.10 | | -1.15 | 4.00 | 5.15 |
| | | | | | | | - | 4.00 | - |
| 5230.0000 | 5227.50 | -23.62 | 2.65 | 19.99 | 0.10 | | -0.88 | 4.00 | 4.88 |

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten.Loss + Duty factor

**Tx, 5190MHz**




**Tx, 5230MHz**

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**1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN**
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**Facsimile : +81 463 50 6401**

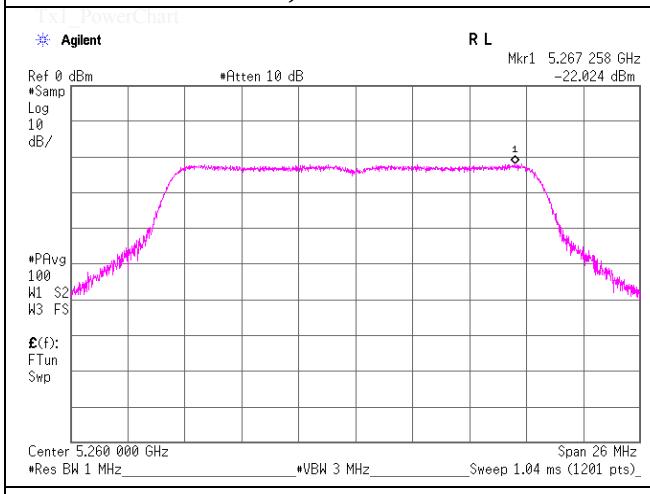
# Power Density

| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11a (W53), PN9, worst data mode 6Mbps | |

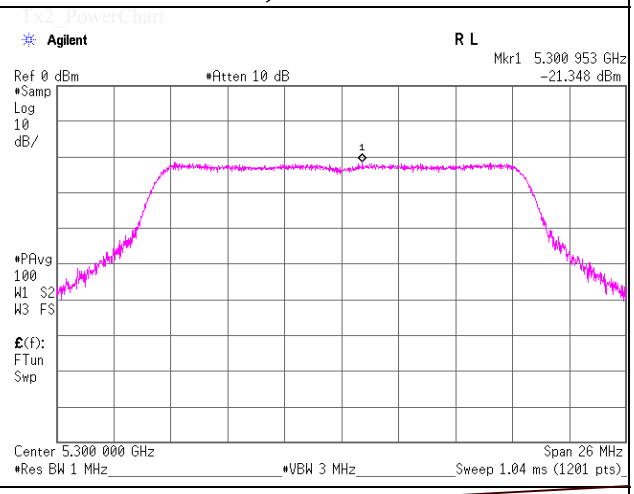
| Ch. Freq. [MHz] | Freq. Reading [MHz] | Reading [dBm/MHz] | Cable Loss [dB] | Atten. Loss [dB] | Duty factor [dB] | | Result [dBm/MHz] | Limit [dBm] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|
| 5260.0000 | 5267.26 | -22.02 | 2.65 | 19.98 | 0.05 | | 0.66 | 11.00 | 10.34 |
| 5300.0000 | 5300.95 | -21.35 | 2.67 | 19.98 | 0.05 | | 1.35 | 11.00 | 9.65 |
| 5320.0000 | 5312.70 | -21.50 | 2.67 | 19.98 | 0.05 | | 1.20 | 11.00 | 9.80 |

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten.Loss + Duty factor

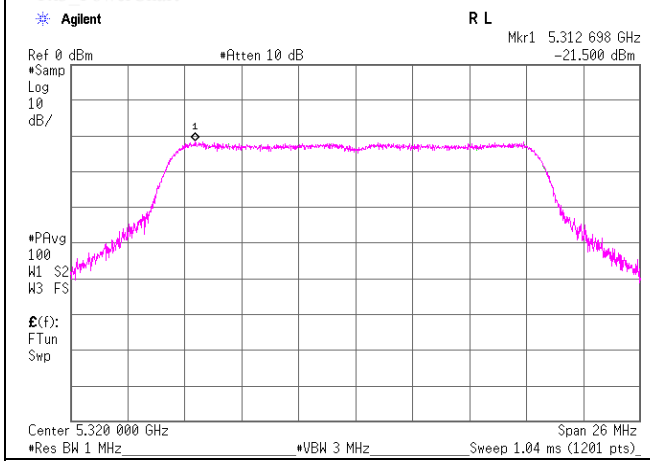
**Tx, 5260MHz**




**Tx, 5300MHz**




**Tx, 5320MHz**

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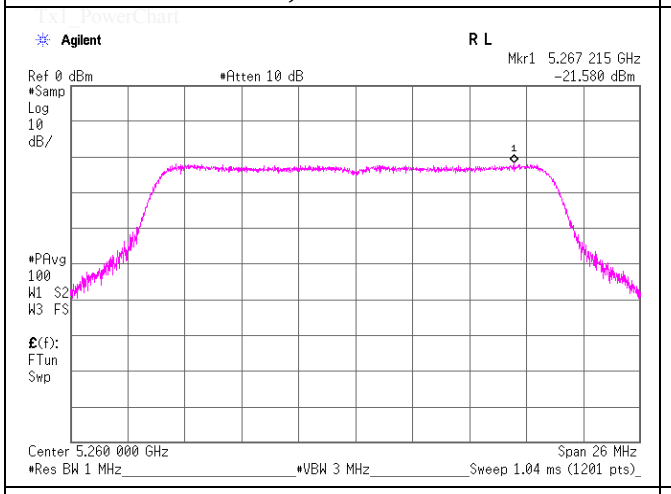
# Power Density

| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11n (HT20) (W53), PN9, worst data mode 0(MCS) | |

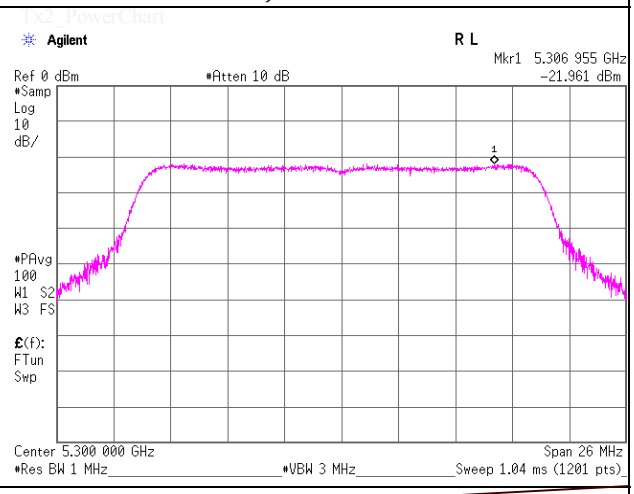
| Ch. Freq. [MHz] | Freq. Reading [MHz] | Reading [dBm/MHz] | Cable Loss [dB] | Atten. Loss [dB] | Duty factor [dB] | | Result [dBm/MHz] | Limit [dBm] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|
| 5260.0000 | 5267.22 | -21.58 | 2.65 | 19.98 | 0.06 | | 1.11 | 11.00 | 9.89 |
| 5300.0000 | 5306.96 | -21.96 | 2.67 | 19.98 | 0.06 | | 0.75 | 11.00 | 10.25 |
| 5320.0000 | 5312.18 | -21.78 | 2.67 | 19.98 | 0.06 | | 0.92 | 11.00 | 10.08 |

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten.Loss + Duty factor

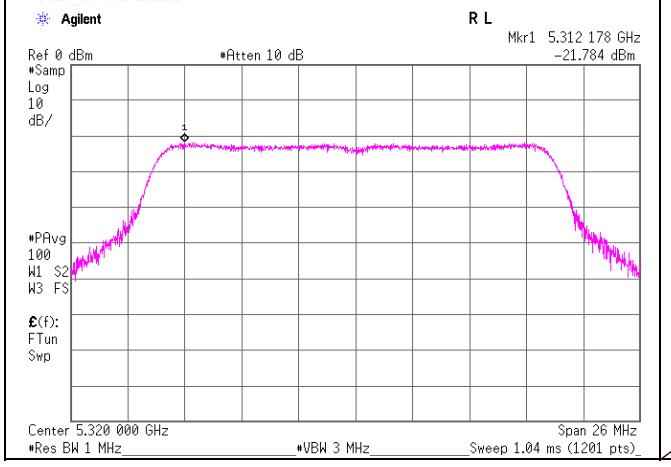
**Tx, 5260MHz**




**Tx, 5300MHz**




**Tx, 5320MHz**

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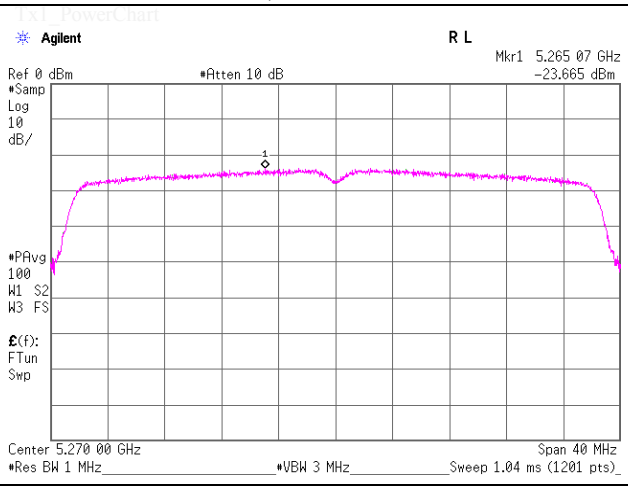
# Power Density

| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11n (HT40) (W53), PN9, worst data mode 0(MCS) | |

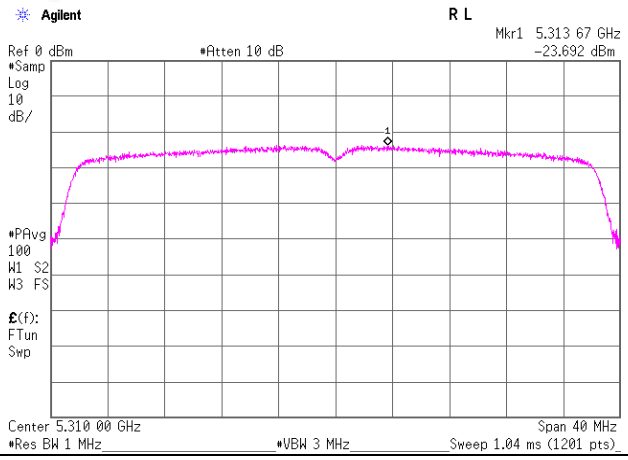
| Ch. Freq. [MHz] | Freq. Reading [MHz] | Reading [dBm/MHz] | Cable Loss [dB] | Atten. Loss [dB] | Duty factor [dB] | | Result [dBm/MHz] | Limit [dBm] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|
| 5270.0000 | 5265.07 | -23.67 | 2.66 | 19.98 | 0.11 | | -0.91 | 11.00 | 11.91 |
| | | | | | | | - | 11.00 | - |
| 5310.0000 | 5313.67 | -23.69 | 2.67 | 19.98 | 0.11 | | -0.94 | 11.00 | 11.94 |

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten.Loss + Duty factor

**Tx, 5270MHz**




**Tx, 5310MHz**

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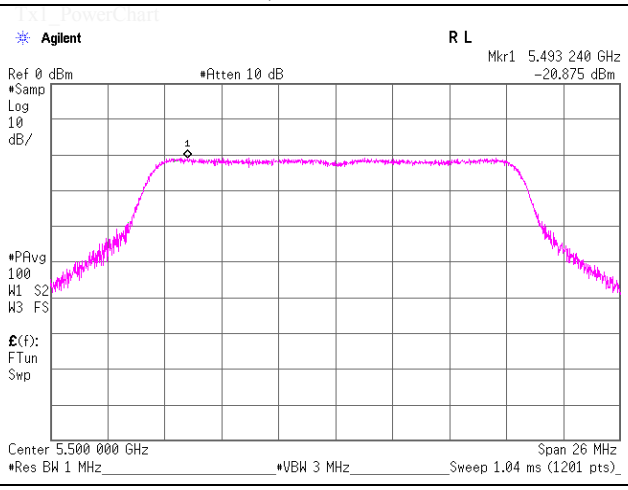
# Power Density

| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11a (W56), PN9, worst data mode 6Mbps | |

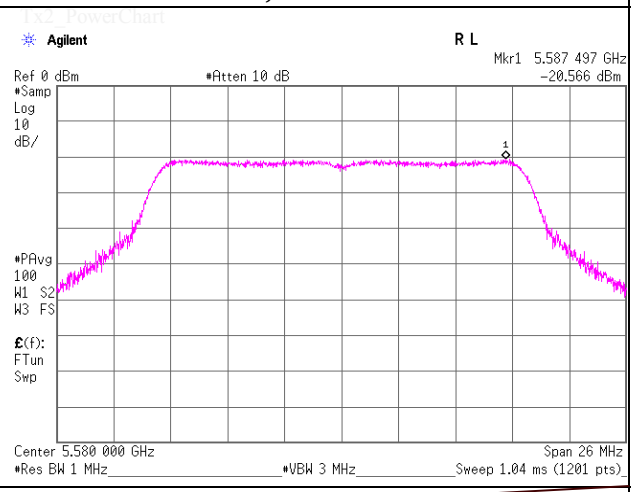
| Ch. Freq. [MHz] | Freq. Reading [MHz] | Reading [dBm/MHz] | Cable Loss [dB] | Atten. Loss [dB] | Duty factor [dB] | | Result [dBm/MHz] | Limit [dBm] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|
| 5500.0000 | 5493.24 | -20.88 | 2.73 | 19.95 | 0.06 | | 1.87 | 11.00 | 9.14 |
| 5580.0000 | 5587.50 | -20.57 | 2.75 | 19.95 | 0.06 | | 2.19 | 11.00 | 8.81 |
| 5700.0000 | 5693.13 | -20.47 | 2.79 | 19.95 | 0.06 | | 2.33 | 11.00 | 8.67 |

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten.Loss + Duty factor

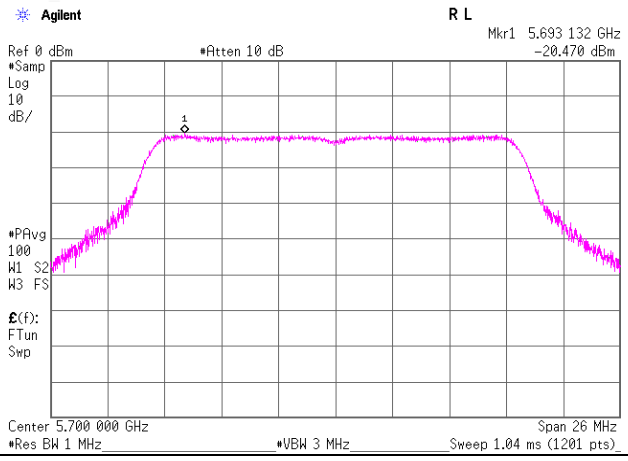
**Tx, 5500MHz**




**Tx, 5580MHz**




**Tx, 5700MHz**

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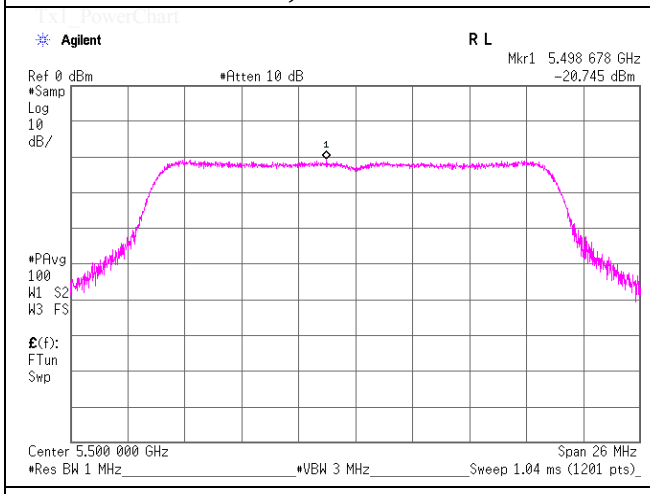
# Power Density

| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11n (HT20) (W56), PN9, worst data mode 0(MCS) | |

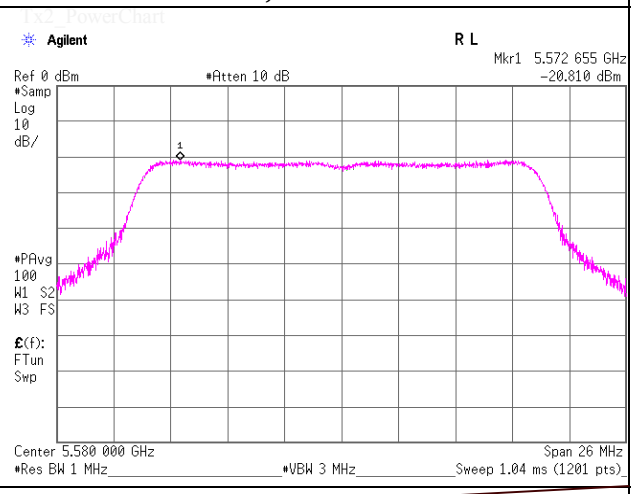
| Ch. Freq. [MHz] | Freq. Reading [MHz] | Reading [dBm/MHz] | Cable Loss [dB] | Atten. Loss [dB] | Duty factor [dB] | | Result [dBm/MHz] | Limit [dBm] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|
| 5500.0000 | 5498.68 | -20.75 | 2.73 | 19.95 | 0.06 | | 2.00 | 11.00 | 9.01 |
| 5580.0000 | 5572.66 | -20.81 | 2.75 | 19.95 | 0.06 | | 1.95 | 11.00 | 9.05 |
| 5700.0000 | 5692.11 | -20.75 | 2.79 | 19.95 | 0.06 | | 2.05 | 11.00 | 8.95 |

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten.Loss + Duty factor

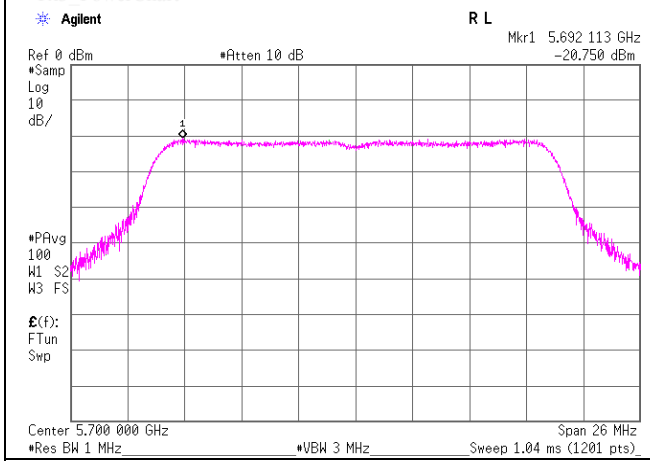
**Tx, 5500MHz**




**Tx, 5580MHz**




**Tx, 5700MHz**

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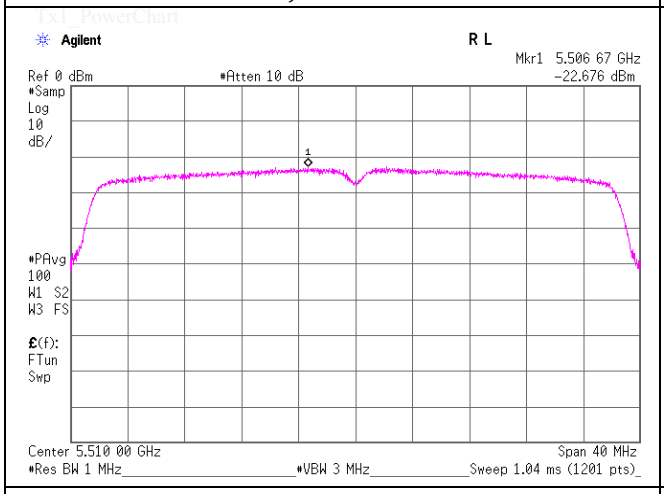
# Power Density

| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11n (HT40) (W56), PN9, worst data mode 0(MCS) | |

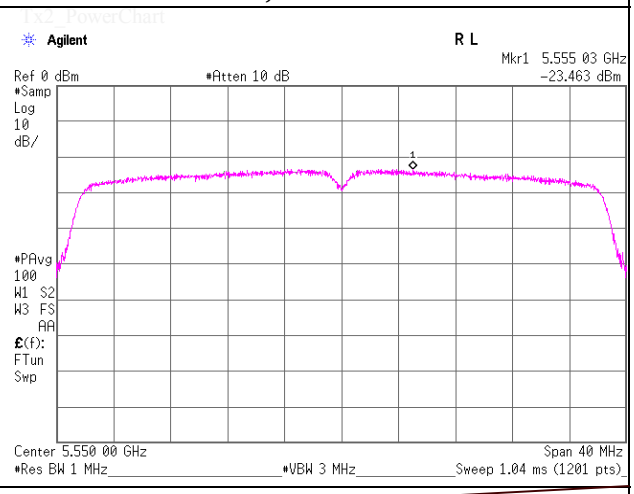
| Ch. Freq. [MHz] | Freq. Reading [MHz] | Reading [dBm/MHz] | Cable Loss [dB] | Atten. Loss [dB] | Duty factor [dB] | | Result [dBm/MHz] | Limit [dBm] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|
| 5510.0000 | 5506.67 | -22.68 | 2.73 | 19.95 | 0.10 | | 0.10 | 11.00 | 10.90 |
| 5550.0000 | 5555.03 | -23.46 | 2.74 | 19.95 | 0.10 | | -0.67 | 11.00 | 11.67 |
| 5670.0000 | 5667.57 | -22.94 | 2.77 | 19.95 | 0.10 | | -0.11 | 11.00 | 11.11 |

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten.Loss + Duty factor

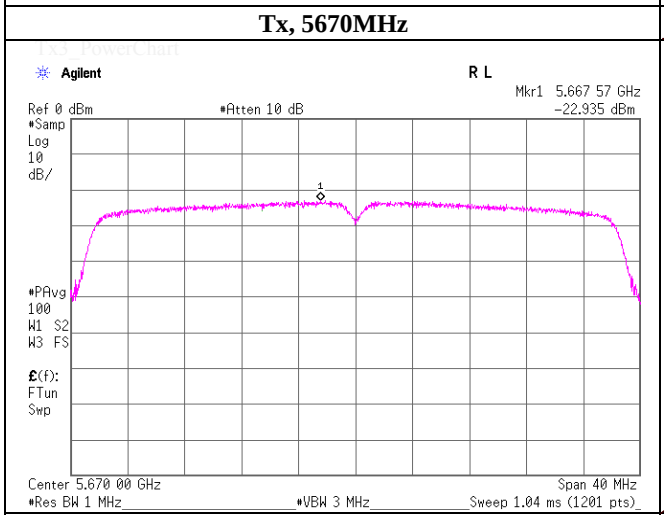
**Tx, 5510MHz**




**Tx, 5550MHz**




**Tx, 5670MHz**

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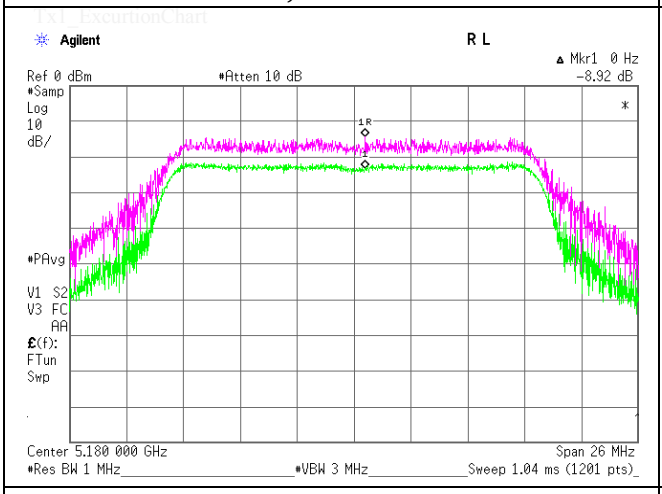
# Peak Excursion Ratio

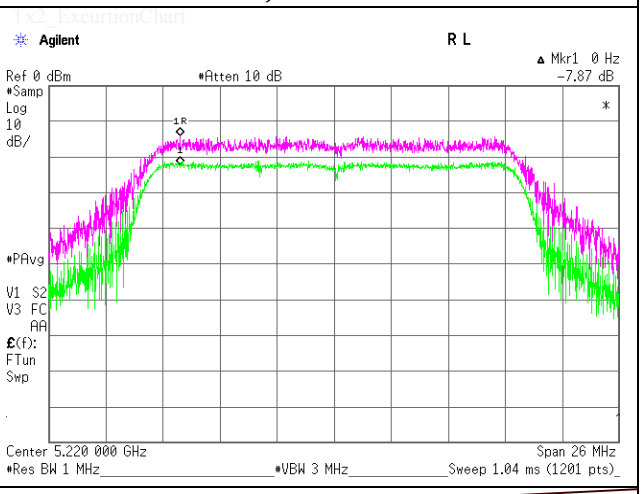
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 2, 2012 | |
| Temperature / Humidity | 26deg.C , 50%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11a (W52), PN9, worst data mode 6Mbps | |

| Ch. Freq. [MHz] | Peak Power Excursion [dB] | Limit [dB] | Margin [dB] |
|---|---|---|---|
| 5180.0000 | 8.92 | =<13.0 | 4.08 |
| 5220.0000 | 7.87 | =<13.0 | 5.13 |
| 5240.0000 | 9.19 | =<13.0 | 3.81 |

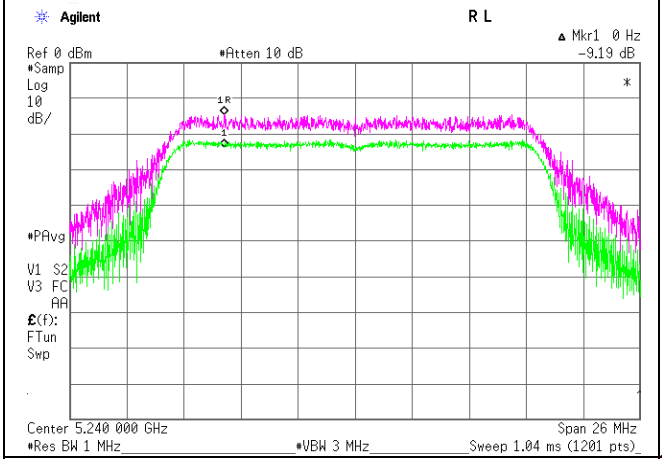
**Tx, 5180MHz**




**Tx, 5220MHz**




**Tx, 5240MHz**

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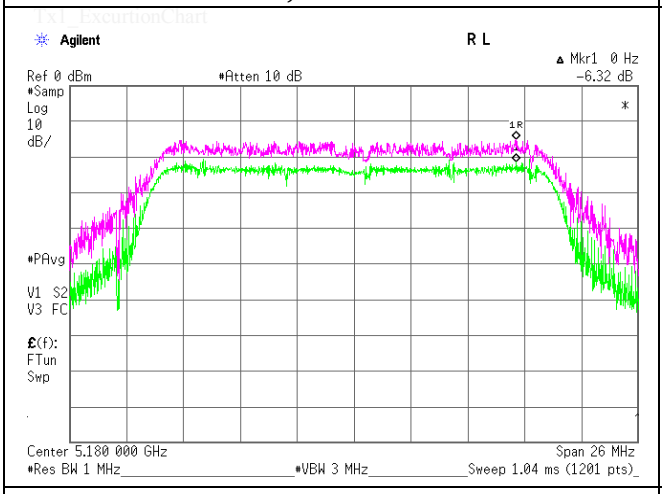
# Peak Excursion Ratio

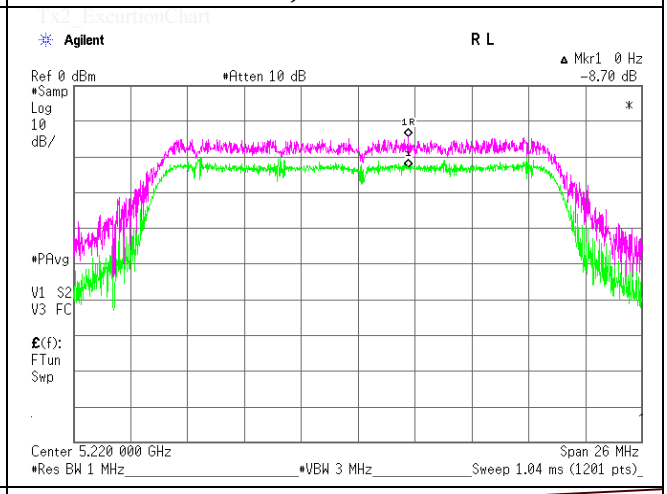
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11n (HT20) (W52), PN9, worst data mode 0(MCS) | |

| Ch. Freq. [MHz] | Peak Power Excursion [dB] | Limit [dB] | Margin [dB] |
|---|---|---|---|
| 5180.0000 | 6.32 | =<13.0 | 6.68 |
| 5220.0000 | 8.70 | =<13.0 | 4.30 |
| 5240.0000 | 8.57 | =<13.0 | 4.43 |

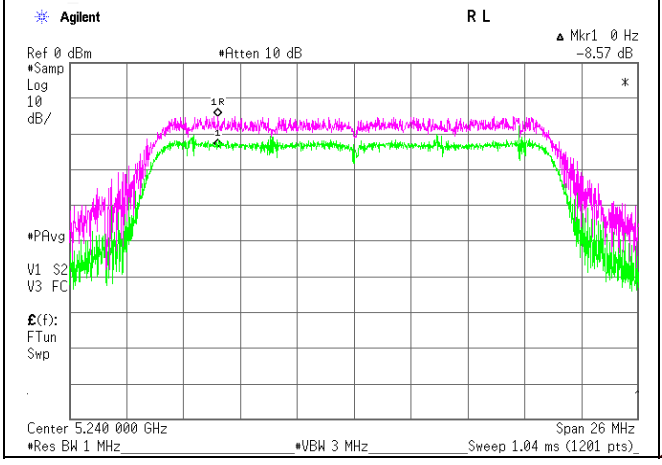
**Tx, 5180MHz**




**Tx, 5220MHz**




**Tx, 5240MHz**

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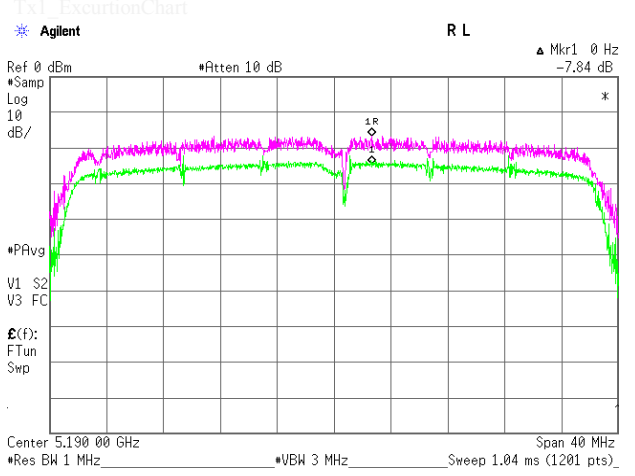
# Peak Excursion Ratio

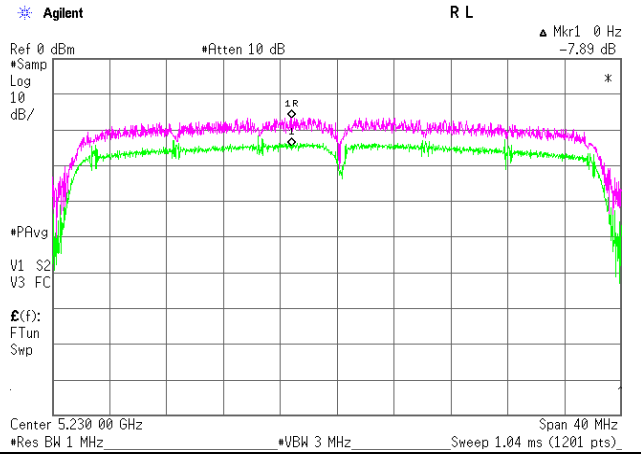
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11n (HT40) (W52), PN9, worst data mode 0(MCS) | |

| Ch. Freq. [MHz] | Peak Power Excursion [dB] | Limit [dB] | Margin [dB] |
|---|---|---|---|
| 5190.0000 | 7.84 | =<13.0 | 5.16 |
| | | =<13.0 | - |
| 5230.0000 | 7.89 | =<13.0 | 5.11 |

**Tx, 5190MHz**




**Tx, 5230MHz**

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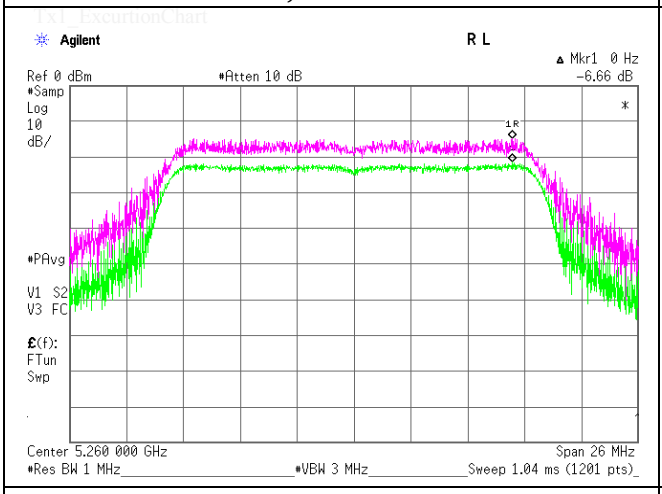
# Peak Excursion Ratio

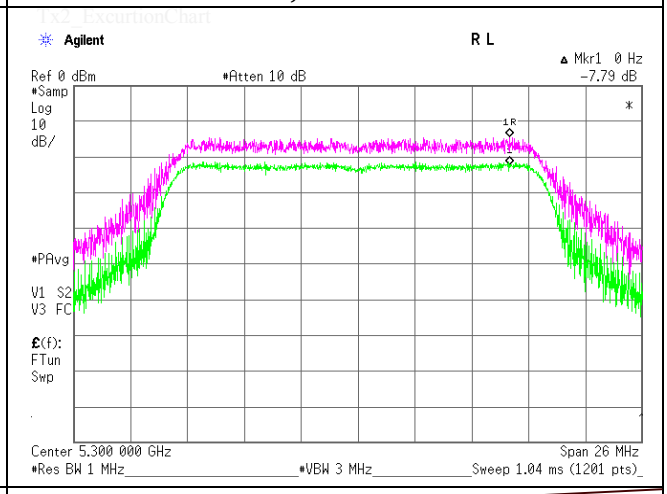
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11a (W53), PN9, worst data mode 6Mbps | |

| Ch. Freq. [MHz] | Peak Power Excursion [dB] | Limit [dB] | Margin [dB] |
|---|---|---|---|
| 5260.0000 | 6.66 | =<13.0 | 6.35 |
| 5300.0000 | 7.79 | =<13.0 | 5.21 |
| 5320.0000 | 9.57 | =<13.0 | 3.43 |

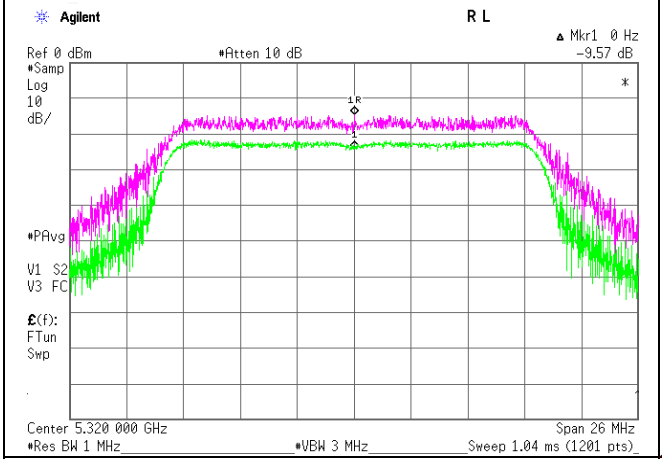
**Tx, 5260MHz**




**Tx, 5300MHz**




**Tx, 5320MHz**




**UL Japan, Inc.**
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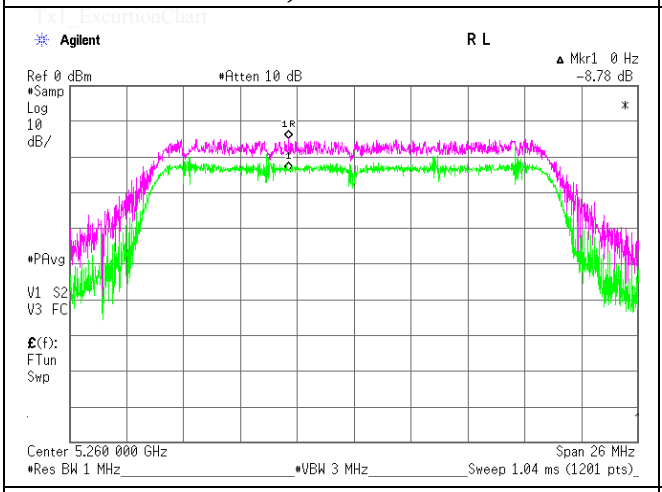
# Peak Excursion Ratio

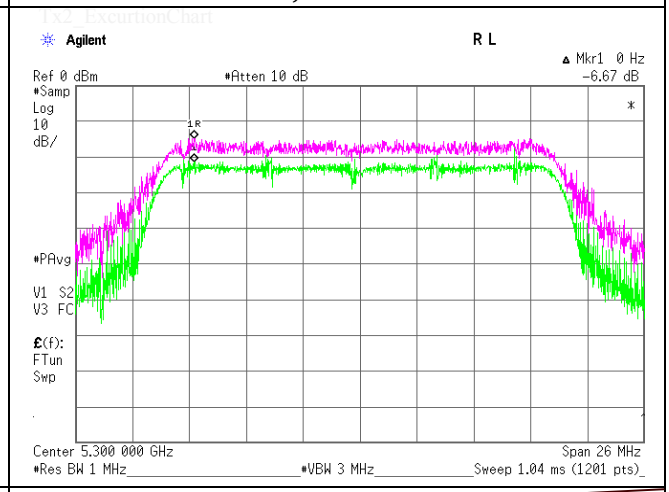
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11n (HT20) (W53), PN9, worst data mode 0(MCS) | |

| Ch. Freq. [MHz] | Peak Power Excursion [dB] | Limit [dB] | Margin [dB] |
|---|---|---|---|
| 5260.0000 | 8.78 | =<13.0 | 4.22 |
| 5300.0000 | 6.67 | =<13.0 | 6.33 |
| 5320.0000 | 6.68 | =<13.0 | 6.32 |

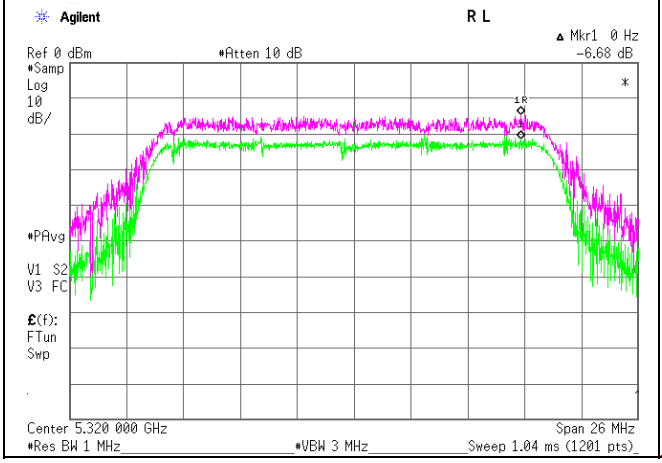
**Tx, 5260MHz**




**Tx, 5300MHz**




**Tx, 5320MHz**

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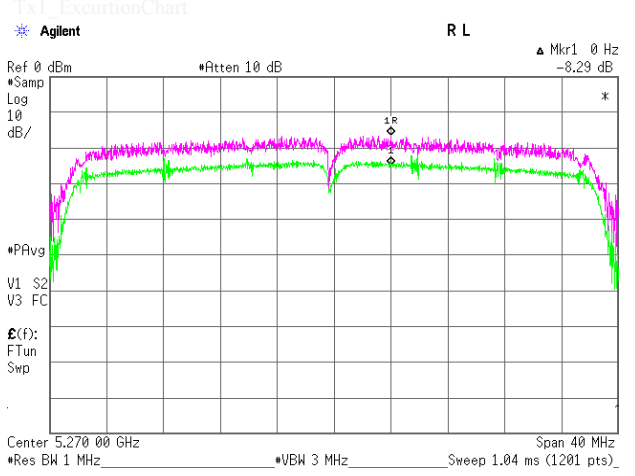
# Peak Excursion Ratio

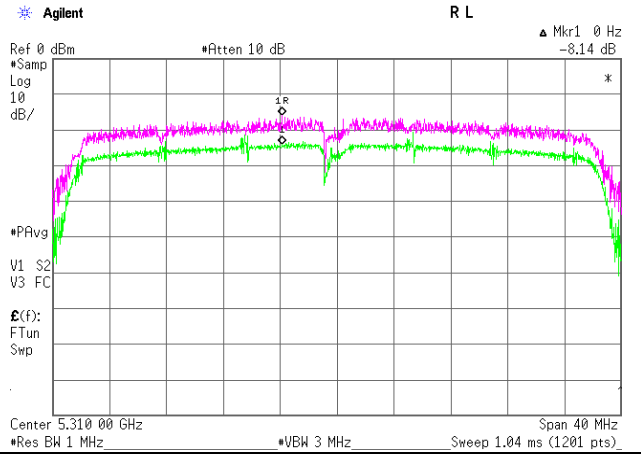
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11n (HT40) (W53), PN9, worst data mode 0(MCS) | |

| Ch. Freq. [MHz] | Peak Power Excursion [dB] | Limit [dB] | Margin [dB] |
|---|---|---|---|
| 5270.0000 | 8.29 | =<13.0 | 4.71 |
| | | =<13.0 | - |
| 5310.0000 | 8.14 | =<13.0 | 4.86 |

**Tx, 5270MHz**




**Tx, 5310MHz**

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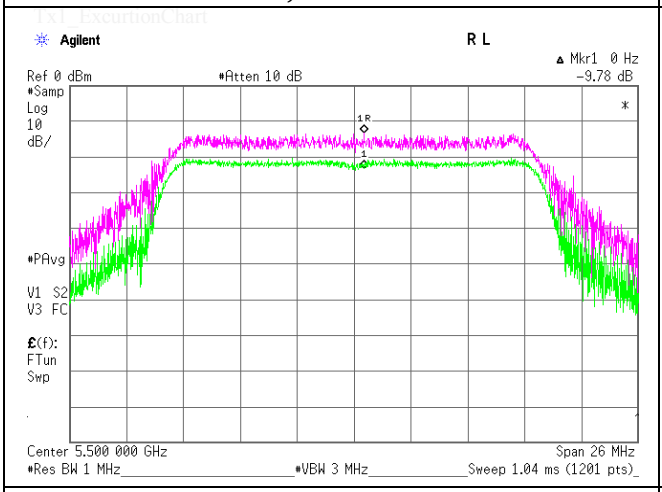
# Peak Excursion Ratio

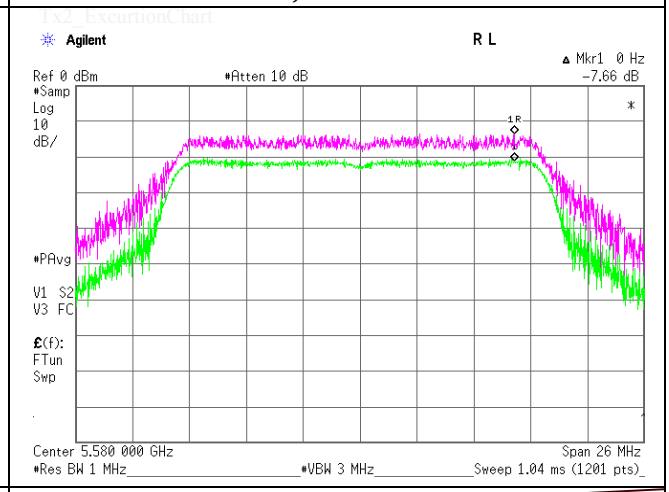
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11a (W56), PN9, worst data mode 6Mbps | |

| Ch. Freq. [MHz] | Peak Power Excursion [dB] | Limit [dB] | Margin [dB] |
|---|---|---|---|
| 5500.0000 | 9.78 | =<13.0 | 3.22 |
| 5580.0000 | 7.66 | =<13.0 | 5.34 |
| 5700.0000 | 7.47 | =<13.0 | 5.53 |

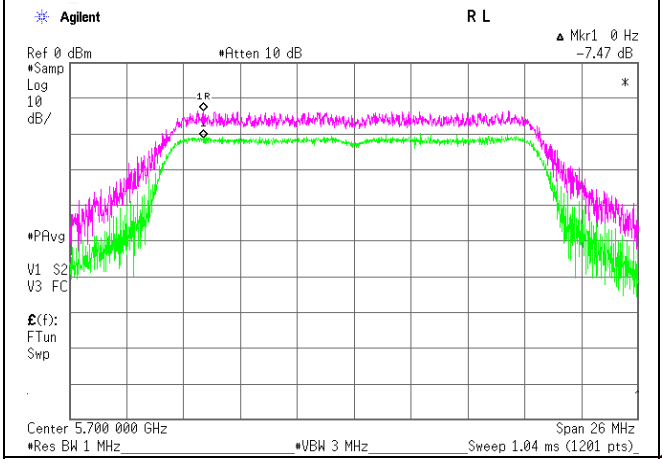
**Tx, 5500MHz**




**Tx, 5580MHz**




**Tx, 5700MHz**

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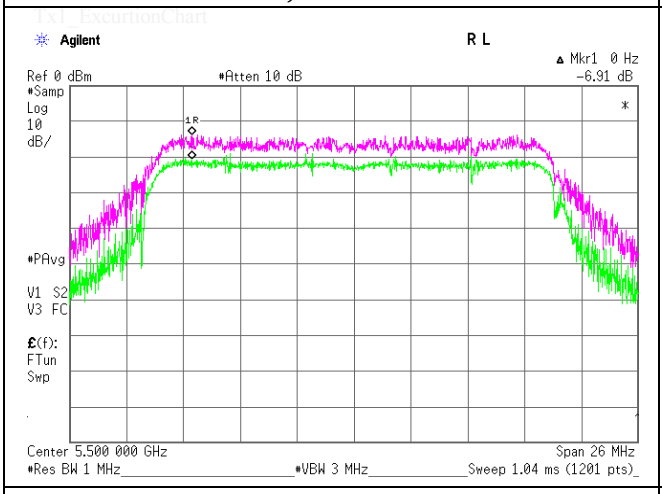
# Peak Excursion Ratio

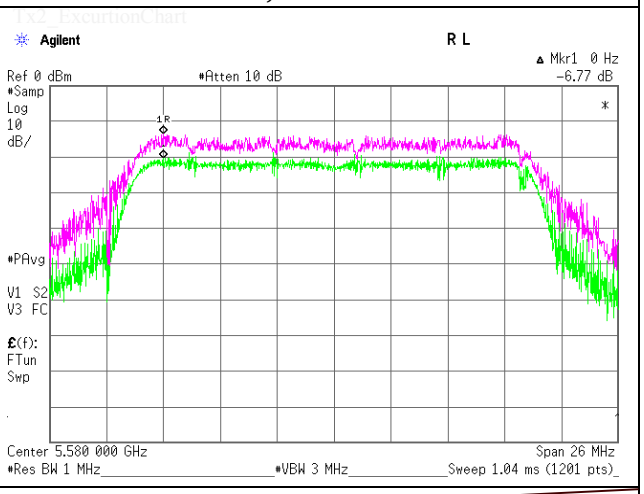
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11n (HT20) (W56), PN9, worst data mode 0(MCS) | |

| Ch. Freq. [MHz] | Peak Power Excursion [dB] | Limit [dB] | Margin [dB] |
|---|---|---|---|
| 5500.0000 | 6.91 | =<13.0 | 6.10 |
| 5580.0000 | 6.77 | =<13.0 | 6.23 |
| 5700.0000 | 6.05 | =<13.0 | 6.95 |

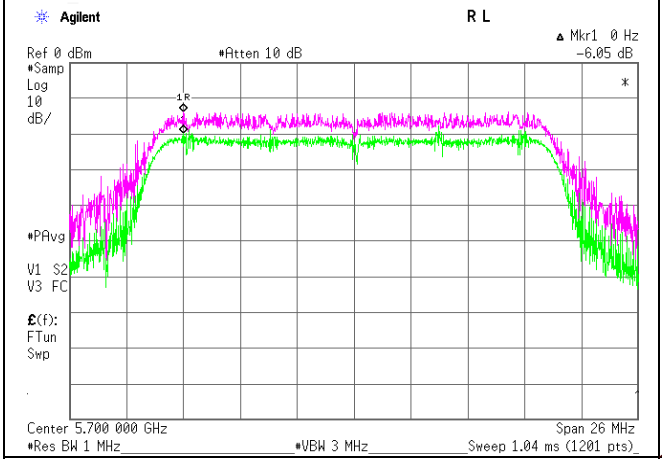
**Tx, 5500MHz**




**Tx, 5580MHz**




**Tx, 5700MHz**

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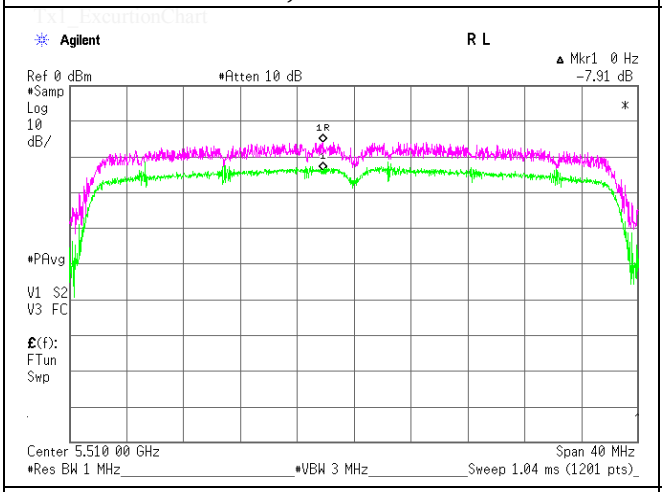
# Peak Excursion Ratio

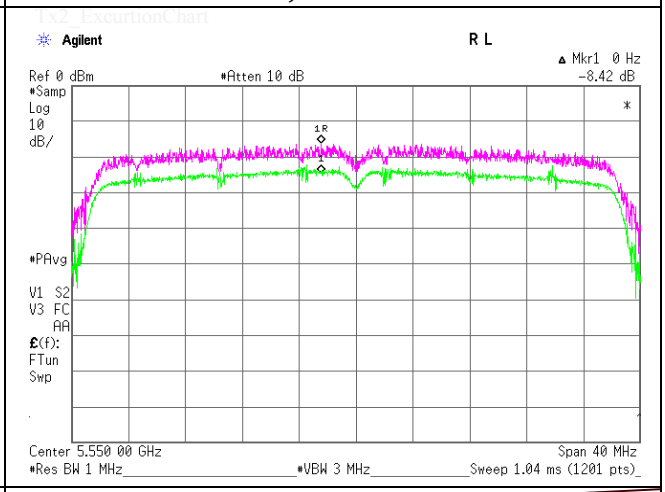
| | | |
|---|---|---|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.3 Shielded Room |
| Date | August 3, 2012 | |
| Temperature / Humidity | 25deg.C , 65%RH | |
| Engineer | Kenichi Adachi | |
| Mode | Tx, IEEE802.11n (HT40) (W56), PN9, worst data mode 0(MCS) | |

| Ch. Freq. [MHz] | Peak Power Excursion [dB] | Limit [dB] | Margin [dB] |
|---|---|---|---|
| 5510.0000 | 7.91 | =<13.0 | 5.09 |
| 5550.0000 | 8.42 | =<13.0 | 4.58 |
| 5670.0000 | 8.31 | =<13.0 | 4.69 |

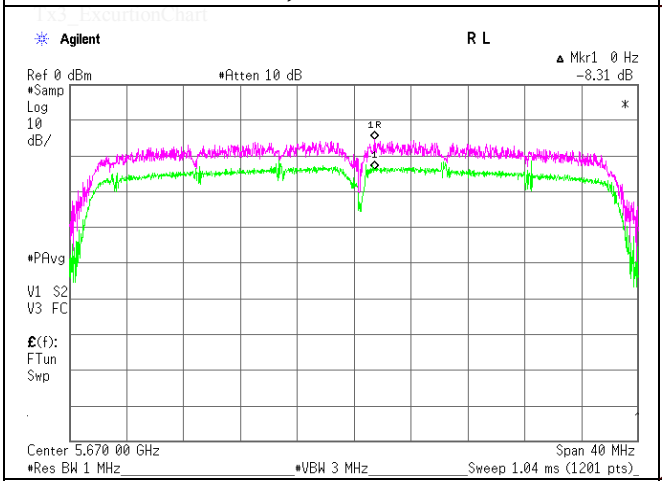
**Tx, 5510MHz**




**Tx, 5550MHz**




**Tx, 5670MHz**

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## APPENDIX 2
## Test Instruments

### EMI test equipment

| Control No. | Instrument | Manufacturer | Model No | Serial No | Test Item | Calibration Date * Interval(month) |
|---|---|---|---|---|---|---|
| SPM-06 | Power Meter | Anritsu | ML2495A | 0850009 | AT | 2012/04/19 * 12 |
| SPSS-03 | Power sensor | Anritsu | MA2411B | 0917063 | AT | 2012/04/19 * 12 |
| KSA-08 | Spectrum Analyzer | Agilent | E4446A | MY46180525 | AT | 2012/02/16 * 12 |
| SAT20-03 | Attenuator | Agilent | 8493C-020 | 74891 | AT | 2012/03/12 * 12 |
| SCC-G11 | Coaxial Cable | Suhner | SUCOFLEX 102 | 31595/2 | AT | 2012/03/12 * 12 |
| SOS-09 | Humidity Indicator | A&D | AD-5681 | 4061484 | AT | 2012/03/26 * 12 |
| SSA-02 | Spectrum Analyzer | Agilent | E4448A | MY48250106 | AT | 2012/03/16 * 12 |
| SAT20-06 | Attenuator | Weinschel Corp. | 54A-20 | 31506 | AT | 2012/04/06 * 12 |
| SCC-G14 | Coaxial Cable | Suhner | SUCOFLEX 102 | 31600/2 | AT | 2012/03/12 * 12 |
| SOS-06 | Humidity Indicator | A&D | AD-5681 | 4062118 | AT | 2012/03/26 * 12 |
| SAEC-03(NSA) | Semi-Anechoic Chamber | TDK | SAEC-03(NSA) | 3 | RE | 2011/09/23 * 12 |
| SAF-06 | Pre Amplifier | TOYO Corporation | TPA0118-36 | 1440491 | RE | 2012/07/18 * 12 |
| SCC-G03 | Coaxial Cable | Suhner | SUCOFLEX 104A | 46499/4A | RE | 2012/04/10 * 12 |
| SCC-G23 | Coaxial Cable | Suhner | SUCOFLEX 104 | 297342/4 | RE | 2012/05/22 * 12 |
| SHA-03 | Horn Antenna | Schwarzbeck | BBHA9120D | 9120D-739 | RE | 2011/08/28 * 12 |
| SOS-05 | Humidity Indicator | A&D | AD-5681 | 4062518 | RE | 2012/02/06 * 12 |
| STR-03 | Test Receiver | Rohde & Schwarz | ESI40 | 100054/040 | RE/CE | 2012/06/14 * 12 |
| SJM-10 | Measure | PROMART | SEN1935 | - | RE | - |
| COTS-SEMI-1 | EMI Software | TSJ | TEPTO-DV(RE,CE, RFI,MF) | - | RE/CE | - |
| KSA-08 | Spectrum Analyzer | Agilent | E4446A | MY46180525 | RE | 2012/02/16 * 12 |
| SFL-03 | Highpass Filter | MICRO-TRONICS | HPM50112 | 028 | RE | 2011/12/27 * 12 |
| SAT10-05 | Attenuator(above1GHz) | Agilent | 8493C-010 | 74864 | RE | 2011/12/27 * 12 |
| SAEC-01(NSA) | Semi-Anechoic Chamber | TDK | SAEC-01(NSA) | 1 | RE | 2011/09/01 * 12 |
| SAF-04 | Pre Amplifier | TOYO Corporation | TPA0118-36 | 1440489 | RE | 2012/03/12 * 12 |
| SCC-G01 | Coaxial Cable | Suhner | SUCOFLEX 104A | 46497/4A | RE | 2012/04/10 * 12 |
| SCC-G21 | Coaxial Cable | Suhner | SUCOFLEX 104 | 296169/4 | RE | 2012/05/22 * 12 |
| SHA-01 | Horn Antenna | Schwarzbeck | BBHA9120D | 9120D-725 | RE | 2011/08/11 * 12 |
| SOS-01 | Humidity Indicator | A&D | AD-5681 | 4062555 | RE | 2012/02/06 * 12 |
| SSA-02 | Spectrum Analyzer | Agilent | E4448A | MY48250106 | RE | 2012/03/16 * 12 |
| SJM-12 | Measure | PROMART | SEN1935 | - | RE | - |
| SHA-RS01 | Horn Antenna | Schwarzbeck | BBHA9120D | 770 | RE | 2011/08/11 * 12 |
| SSA-03 | Spectrum Analyzer | Agilent | E4448A | MY48250152 | RE | 2011/12/05 * 12 |
| SHA-06 | Horn Antenna | ETS LINDGREN | 3160-10 | LM3459 | RE | 2012/03/30 * 12 |
| SAF-10 | Pre Amplifier | TOYO Corporation | HAP26-40W | 00000010 | RE | 2012/03/12 * 12 |
| SCC-G19 | Coaxial Cable | Suhner | SUCOFLEX 102A | 1188/2A | RE | 2012/03/12 * 12 |
| | | | | | | |
| | | | | | | |

The expiration date of the calibration is the end of the expired month .
As for some calibrations performed after the tested dates , those test equipment have been controlled by means of an unbroken chains of calibrations .

All equipment is calibrated with valid calibrations . Each measurement data is traceable to the national or international standards .
Test Item :
RE: Radiated emission,
AT: Antenna terminal conducted test

## APPENDIX 2
## Test Instruments

### EMI test equipment

| Control No. | Instrument | Manufacturer | Model No | Serial No | Test Item | Calibration Date * Interval(month) |
|---|---|---|---|---|---|---|
| SAF-03 | Pre Amplifier | SONOMA | 310N | 290213 | RE | 2012/02/10 * 12 |
| SAT6-03 | Attenuator | JFW | 50HF-006N | - | RE | 2012/02/10 * 12 |
| SBA-03 | Biconical Antenna | Schwarzbeck | BBA9106 | 91032666 | RE | 2011/10/23 * 12 |
| SCC-C1/C2/C3/C4/C5/C10/SRSE-03 | Coaxial Cable&RF Selector | Fujikura/Fujikura/Suhner/Suhner/Suhner/TOYO | 8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906 | -/0901-271(RF Selector) | RE | 2012/04/10 * 12 |
| SLA-03 | Logperiodic Antenna | Schwarzbeck | UHALP9108A | UHALP 9108-A 0901 | RE | 2011/10/23 * 12 |
| SOS-05 | Humidity Indicator | A&D | AD-5681 | 4062518 | RE | 2012/02/06 * 12 |
| SJM-10 | Measure | PROMART | SEN1935 | - | RE/CE | - |
| SCC-C9/C10/SRSE-03 | Coaxial Cable&RF Selector | Suhner/Suhner/TOYO | RG223U/141PE/NS4906 | -/0901-271(RF Selector) | CE | 2012/04/10 * 12 |
| SLS-05 | LISN | Rohde & Schwarz | ENV216 | 100516 | CE(EUT) | 2012/02/23 * 12 |
| SAT3-06 | Attenuator | JFW | 50HF-003N | - | CE | 2012/02/17 * 12 |
| STR-03 | Test Receiver | Rohde & Schwarz | ESI40 | 100054/040 | CE | 2012/06/14 * 12 |
| | | | | | | |
| | | | | | | |

The expiration date of the calibration is the end of the expired month .
As for some calibrations performed after the tested dates , those test equipment have been controlled by means of an unbroken chains of calibrations .
All equipment is calibrated with valid calibrations . Each measurement data is traceable to the national or international standards.
Test Item :
CE: Conducted emission,
RE: Radiated emission