# FCC Test Report

| | | |
|---|---|---|
| Equipment | : | AirStation |
| Trade Name | : | BUFFALO INC. |
| Model No. | : | WHR-600D |
| FCC ID | : | FDI000000011 |
| Standard | : | 47 CFR FCC Part 15.247 |
| Operating Band | : | 2400 MHz – 2483.5 MHz |
| Equipment Class | : | DTS |
| Applicant<br>Manufacturer | : | BUFFALO INC.<br>Akamon-dori Bldg, 30-20, Ohsu 3-chome,<br>Naka-ku, Nagoya 460-8315, Japan |

The product sample received on Mar. 01, 2013 and completely tested on Mar. 19, 2013. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2009 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:

Wayne Hsu / Assistant Manager

Testing Laboratory
1190

# Table of Contents

# Summary of Test Result

| Conformance Test Specifications | | | | | |
|---|---|---|---|---|---|
| **Report Clause** | **Ref. Std. Clause** | **Description** | **Measured** | **Limit** | **Result** |
| 1.1.2 | 15.203 | Antenna Requirement | Antenna connector mechanism complied | FCC 15.203 | Complied |
| 3.1 | 15.207 | AC Power-line Conducted Emissions | [dBuV]: 0.3811300MHz 34.95 (Margin 13.30dB) - AV 39.00 (Margin 19.25dB) - QP | FCC 15.207 | Complied |
| 3.2 | 15.247(a) | 6dB Bandwidth | 6dB Bandwidth Unit [MHz] 20M: 17.68 / 40M: 36.87 | ≥500kHz | Complied |
| 3.3 | 15.247(b) | RF Output Power (Maximum Peak Conducted Output Power) | Power [dBm]: 27.27 | Power [dBm]: 30 | Complied |
| 3.4 | 15.247(d) | Power Spectral Density | PSD [dBm/3kHz]: -5.11 | PSD [dBm/3kHz]: 8 | Complied |
| 3.5 | 15.247(c) | Transmitter Radiated Bandedge Emissions | Non-Restricted Bands: 2398.68MHz: 28.99dB Restricted Bands [dBuV/m at 3m]: 2483.50MHz 73.00 (Margin 1.00dB) - PK 53.00 (Margin 1.00dB) - AV | Non-Restricted Bands: > 20 dBc Restricted Bands: FCC 15.209 | Complied |
| 3.6 | 15.247(c) | Transmitter Radiated Unwanted Emissions | Restricted Bands [dBuV/m at 3m]: 4824.00MHz 53.00 (Margin 1.00dB) - AV | Non-Restricted Bands: > 20 dBc Restricted Bands: FCC 15.209 | Complied |

# Revision History

| Report No. | Version | Description | Issued Date |
|---|---|---|---|
| FR330516AC | Rev. 01 | Initial issue of report | Mar. 25, 2013 |
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# 1 General Description

## 1.1 Information

### 1.1.1 RF General Information

| RF General Information | | | | | | |
|---|---|---|---|---|---|---|
| **Frequency Range (MHz)** | **IEEE Std. 802.11** | **Ch. Freq. (MHz)** | **Channel Number** | **Transmit Chains ($N_{TX}$)** | **RF Output Power (dBm)** | **Co-location** |
| 2400-2483.5 | b | 2412-2462 | 1-11 [11] | 2 | 24.57 | Yes |
| 2400-2483.5 | g | 2412-2462 | 1-11 [11] | 2 | 27.27 | Yes |
| 2400-2483.5 | n (HT-20) | 2412-2462 | 1-11 [11] | 2 | 27.21 | Yes |
| 2400-2483.5 | n (HT-40) | 2422-2452 | 3-9 [7] | 2 | 24.55 | Yes |

Note 1: RF output power specifies that Maximum Peak Conducted Output Power.
Note 2: 802.11b uses a combination of DSSS-DBPSK, DQPSK, CCK modulation.
Note 3: 802.11g/n uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
Note 4: Co-location, Co-location is generally defined as simultaneously transmitting (co-transmitting) antennas within 20 cm of each other. (i.e., EUT has simultaneously co-transmitting that operating 2.4GHz and 5GHz.)

### 1.1.2 Antenna Information

| Antenna Category | |
|---|---|
| ☐ | Equipment placed on the market without antennas |
| ☒ | Integral antenna (antenna permanently attached) |
| | ☒ Temporary RF connector provided |
| | ☐ No temporary RF connector provided<br>Transmit chains bypass antenna and soldered temporary RF connector provided for connected measurement. In case of conducted measurements the transmitter shall be connected to the measuring equipment via a suitable attenuator and correct for all losses in the RF path. |
| ☐ | External antenna (dedicated antennas) |
| | ☐ Single power level with corresponding antenna(s). |
| | ☐ Multiple power level and corresponding antenna(s). |
| | ☐ RF connector provided |
| | ☐ Unique antenna connector. (e.g., MMCX, U.FL, IPX, and RP-SMA, RP-N type…) |
| | ☐ Standard antenna connector. (e.g., SMA, N, BNC, and TNC type…) |

| Antenna General Information | | | |
|---|---|---|---|
| **No.** | **Ant. Cat.** | **Ant. Type** | **Gain (dBi)** |
| 1 | Integral | Dipole | 3.88 |
| 2 | Integral | PIFA | 3.25 |

### 1.1.3 Type of EUT

| Identify EUT | |
|---|---|
| EUT Serial Number | N/A |
| Presentation of Equipment | ☐ Production ; ☒ Pre-Production ; ☐ Prototype |

| Type of EUT | |
|---|---|
| ☒ | Stand-alone |
| ☐ | Combined (EUT where the radio part is fully integrated within another device)<br>Combined Equipment - Brand Name / Model No.: … |
| ☐ | Plug-in radio (EUT intended for a variety of host systems)<br>Host System - Brand Name / Model No.: … |
| ☐ | Other: |

### 1.1.4 Test Signal Duty Cycle

| Operated Mode for Worst Duty Cycle | |
|---|---|
| ☐ Operated normally mode for worst duty cycle | |
| ☒ Operated test mode for worst duty cycle | |
| **Test Signal Duty Cycle (x)** | **Power Duty Factor [dB] – (10 log 1/x)** |
| ☒ 100% - IEEE 802.11b | 0 |
| ☒ 100% - IEEE 802.11g | 0 |
| ☒ 100% - IEEE 802.11n (HT-20) | 0 |
| ☒ 100% - IEEE 802.11n (HT-40) | 0 |

### 1.1.5 EUT Operational Condition

| | | | |
|---|---|---|---|
| **Supply Voltage** | ☒ AC mains | ☐ DC | |
| **Type of DC Source** | ☐ Internal DC supply | ☒ External DC adapter | ☐ Battery |

## 1.2 Accessories and Support Equipment

| Accessories | | | | |
|---|---|---|---|---|
| **No.** | **Equipment** | **Brand Name** | **Model Name** | **Serial No.** |
| 1 | Adapter | APD | WA-12M12FU | - |

| Support Equipment<br>AC Line Conducted Emission | | | | |
|---|---|---|---|---|
| **No.** | **Equipment** | **Brand Name** | **Model Name** | **Serial No.** |
| 1 | Notebook | DELL | E5430 | DoC |
| 2 | Notebook | DELL | E5430 | DoC |
| 3 | Load | - | - | - |

| Support Equipment<br>Radiated Below 1GHz Test | | | | |
|---|---|---|---|---|
| **No.** | **Equipment** | **Brand Name** | **Model Name** | **Serial No.** |
| 1 | Notebook | DELL | E5420 | DoC |
| 2 | Notebook | DELL | E5420 | DoC |
| 3 | Load | - | - | - |

| Support Equipment<br>Radiated Above 1GHz Test | | | | |
|---|---|---|---|---|
| **No.** | **Equipment** | **Brand Name** | **Model Name** | **Serial No.** |
| 1 | Notebook | DELL | E5420 | DoC |

## 1.3 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR FCC Part 15
- ANSI C63.10-2009
- FCC KDB 558074
- FCC KDB 662911
- FCC KDB 412172

## 1.4 Testing Location Information

| Testing Location | | | | | |
|---|---|---|---|---|---|
| ☒ | HWA YA | ADD : No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.<br>TEL : 886-3-327-3456 FAX : 886-3-327-0973 | | | |
| **Test Condition** | | **Test Site No.** | **Test Engineer** | **Test Environment** | **Test Date** |
| RF Conducted | | TH01-HY | Ian Du | 22.5°C / 62% | 19-Mar-2013 |
| AC Conduction | | CO04-HY | Bill Hsiao | 21°C / 53% | 18-Mar-2013 |
| Radiated Emission | | 03CH05-HY | Daniel Hsu | 25°C / 65% | 01-Mar-2013 ~ 15-Mar-2013 |
| Test site registered number [643075] with FCC.<br>Test site registered number [4086B-1] with IC. | | | | | |

## 1.5 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)

| Measurement Uncertainty | | | |
|---|---|---|---|
| **Test Item** | | **Uncertainty** | **Limit** |
| AC power-line conducted emissions | | ±2.26 dB | N/A |
| Emission bandwidth, 6dB bandwidth | | ±1.42 % | N/A |
| RF output power, conducted | | ±0.63 dB | N/A |
| Power density, conducted | | ±0.81 dB | N/A |
| Unwanted emissions, conducted | 30 – 1000 MHz | ±0.51 dB | N/A |
| | 1 – 18 GHz | ±0.67 dB | N/A |
| | 18 – 40 GHz | ±0.83 dB | N/A |
| | 40 – 200 GHz | N/A | N/A |
| All emissions, radiated | 30 – 1000 MHz | ±2.56 dB | N/A |
| | 1 – 18 GHz | ±3.59 dB | N/A |
| | 18 – 40 GHz | ±3.82 dB | N/A |
| | 40 – 200 GHz | N/A | N/A |
| Temperature | | ±0.8 °C | N/A |
| Humidity | | ±3 % | N/A |
| DC and low frequency voltages | | ±3 % | N/A |
| Time | | ±1.42 % | N/A |
| Duty Cycle | | ±1.42 % | N/A |

# 2 Test Configuration of EUT

## 2.1 The Worst Case Modulation Configuration

| Worst Modulation Used for Conformance Testing | | | | |
|---|---|---|---|---|
| **Modulation Mode** | **Transmit Chains ($N_{TX}$)** | **Data Rate / MCS** | **Worst Data Rate / MCS** | **RF Output Power (dBm)** |
| 11b,1-11Mbps | 2 | 1-11 Mbps | 1 Mbps | 24.57 |
| 11g,6-54Mbps | 2 | 6-54 Mbps | 6 Mbps | 27.27 |
| HT-20 | 2 | M0-15 | MCS 0 | 27.21 |
| HT-40 | 2 | M0-15 | MCS 0 | 24.55 |

Note 1: IEEE Std. 802.11n modulation consists of HT-20 and HT-40 (HT: High Throughput). Then EUT support HT-20 and HT-40.
Note 2: Modulation modes consist below configuration:
11b: IEEE 802.11b, 11g: IEEE 802.11g, HT-20/HT-40: IEEE 802.11n
Note 3: RF output power specifies that Maximum Peak Conducted Output Power.

## 2.2 Test Channel Frequencies Configuration

| Test Channel Frequencies Configuration | |
|---|---|
| **IEEE Std. 802.11** | **Test Channel Frequencies (MHz)** |
| b, g, n (HT-20) | 2412-(F1), 2437-(F2), 2462-(F3) |
| n (HT-40) | 2422-(F4), 2437-(F5), 2452-(F6) |

## 2.3 The Worst Case Power Setting Parameter

| The Worst Case Power Setting Parameter (2400-2483.5MHz band) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Test Software Version** | Ralink QA 1.0.4.2 | | | | | | |
| **Modulation Mode** | **$N_{TX}$** | **Test Frequency (MHz)** | | | | | |
| | | **NCB: 20MHz** | | | **NCB: 40MHz** | | |
| | | **2412** | **2437** | **2462** | **2422** | **2437** | **2452** |
| 11b | 2 | 04,05 | 0C,0D | 0B,0C | - | - | - |
| 11g | 2 | 04,04 | 14,14 | 0F,0D | - | - | - |
| HT-20,M0-15 | 2 | 03,04 | 15,15 | 0F,0E | - | - | - |
| HT-40,M0-15 | 2 | - | - | - | 04,06 | 08,08 | 09,09 |

## 2.4 The Worst Case Measurement Configuration

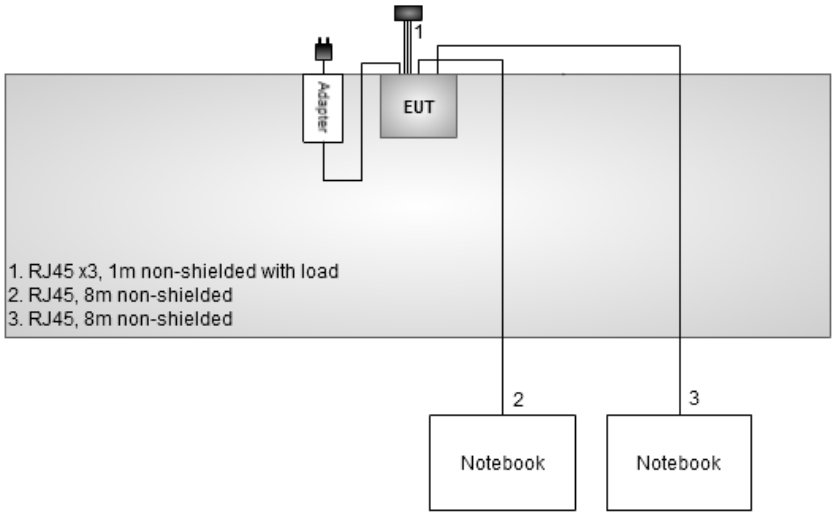
| The Worst Case Mode for Following Conformance Tests | |
|---|---|
| **Tests Item** | AC power-line conducted emissions |
| **Condition** | AC power-line conducted measurement for line and neutral<br>Test Voltage: 120Vac / 60Hz |
| **Operating Mode** | Operating Mode Description |
| 1 | Radio link (WLAN) |

| The Worst Case Mode for Following Conformance Tests | |
|---|---|
| **Tests Item** | RF Output Power, Power Spectral Density, 6 dB Bandwidth |
| **Test Condition** | Conducted measurement at transmit chains |
| **Modulation Mode** | 11b, 11g, HT-20, HT-40 |

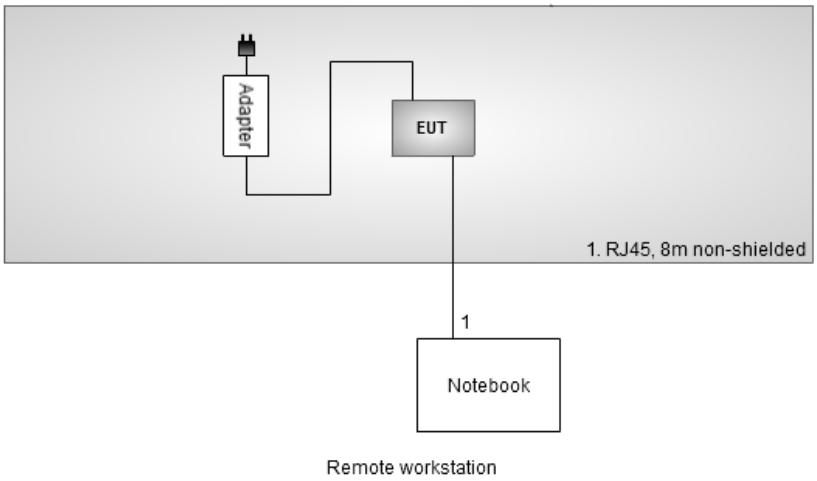
| The Worst Case Mode for Following Conformance Tests | | | |
|---|---|---|---|
| **Tests Item** | Transmitter Radiated Unwanted Emissions<br>Transmitter Radiated Bandedge Emissions | | |
| **Test Condition** | Radiated measurement<br>If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type. | | |
| **User Position** | ☒ EUT will be placed in fixed position. | | |
| | ☐ EUT will be placed in mobile position and operating multiple positions. EUT shall be performed two orthogonal planes. The worst planes is Y. | | |
| | ☐ EUT will be a hand-held or body-worn battery-powered devices and operating multiple positions. EUT shall be performed two or three orthogonal planes. | | |
| **Operating Mode < 1GHz** | ☒ 1. Radio link (WLAN) | | |
| **Modulation Mode** | 11b, 11g, HT-20, HT-40 | | |
| **Orthogonal Planes of EUT** | **X Plane** | **Y Plane** | **Z Plane** |
| |  |  |  |

## 2.5 Test Setup Diagram

| Test Setup Diagram – AC Line Conducted Emission And Radiated Below 1GHz Test | |
|---|---|
| **Operating Mode 1** | Radio link (WLAN) |




| Test Setup Diagram - Radiated Above 1GHz Test | |
|---|---|
| **Operating Mode 1** | Radio link (WLAN) |



# 3 Transmitter Test Result

## 3.1 AC Power-line Conducted Emissions

### 3.1.1 AC Power-line Conducted Emissions Limit

| AC Power-line Conducted Emissions Limit | | |
|---|---|---|
| **Frequency Emission (MHz)** | **Quasi-Peak** | **Average** |
| 0.15-0.5 | 66 - 56 * | 56 - 46 * |
| 0.5-5 | 56 | 46 |
| 5-30 | 60 | 50 |
| Note 1: * Decreases with the logarithm of the frequency. | | |

### 3.1.2 Measuring Instruments

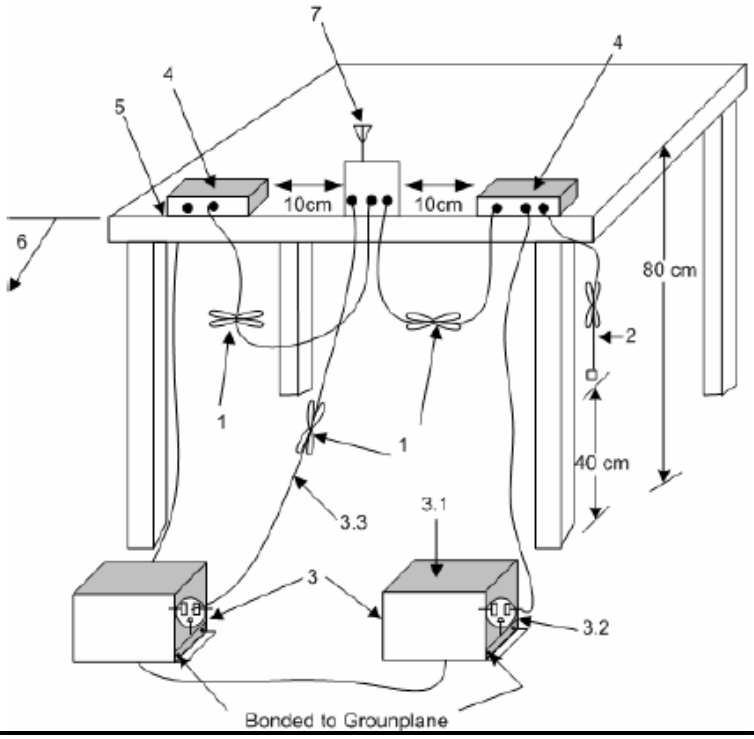
Refer a test equipment and calibration data table in this test report.

### 3.1.3 Test Procedures

| Test Method |
|---|
| ☒ Refer as ANSI C63.10-2009, clause 6.2 for AC power-line conducted emissions. |

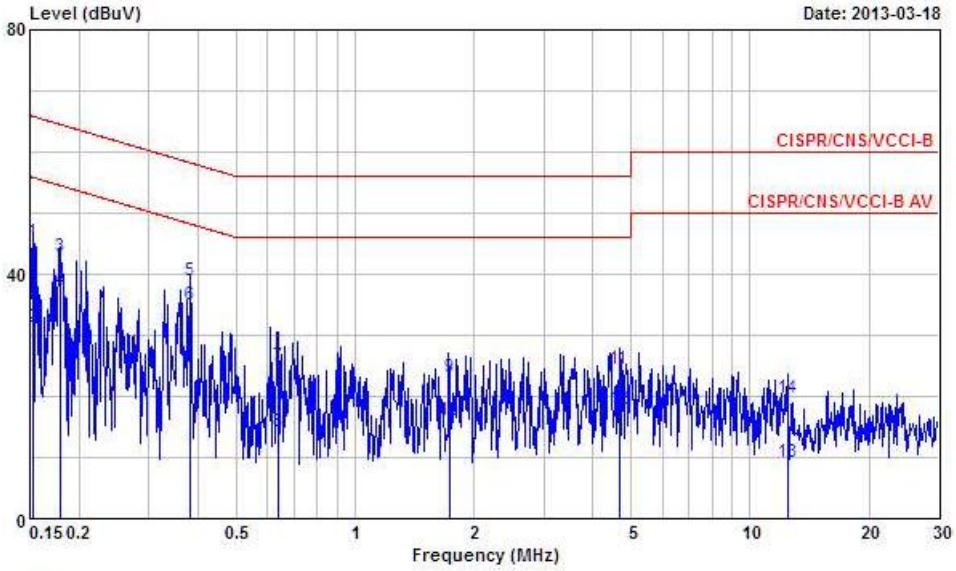
### 3.1.4 Test Setup

**AC Power-line Conducted Emissions**



### 3.1.5 Test Result of AC Power-line Conducted Emissions

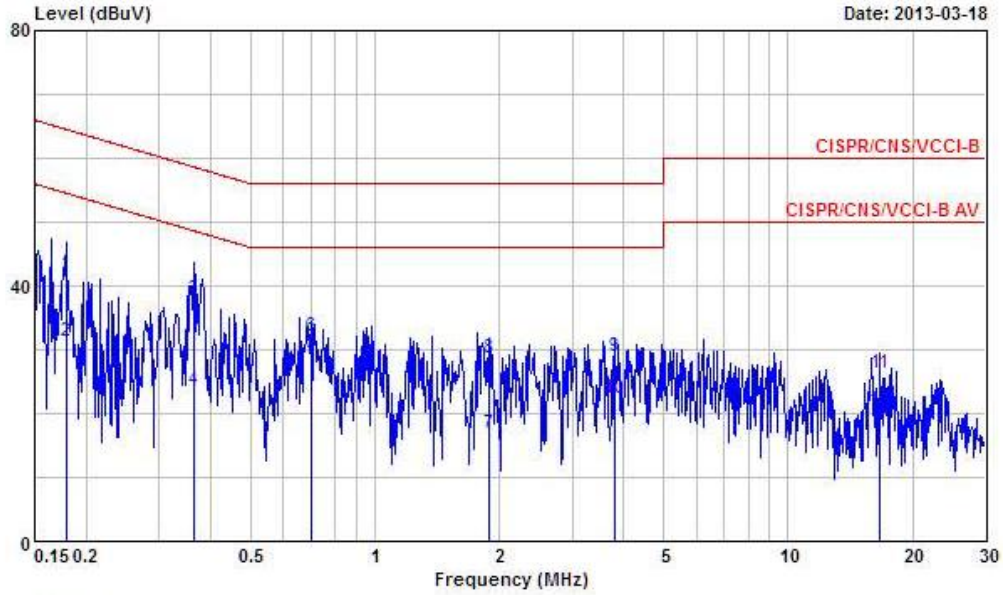
| AC Power-line Conducted Emissions Result | | | |
|---|---|---|---|
| **Operating Mode** | 1 | **Power Phase** | Neutral |
| **Operating Function** | Radio link (WLAN) | | |




| | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dBuV | dBuV | dB | dB | |
| 1 | @0.1532130 | 45.22 | -20.60 | 65.82 | 44.65 | 0.11 | 0.46 | QP |
| 2 | 0.1532130 | 31.20 | -24.62 | 55.82 | 30.63 | 0.11 | 0.46 | Average |
| 3 | 0.1786590 | 43.03 | -21.52 | 64.55 | 42.55 | 0.11 | 0.37 | QP |
| 4 | @0.1786590 | 37.28 | -17.27 | 54.55 | 36.80 | 0.11 | 0.37 | Average |
| 5 | @0.3811300 | 39.00 | -19.25 | 58.25 | 38.51 | 0.10 | 0.39 | QP |
| 6 | @0.3811300 | 34.95 | -13.30 | 48.25 | 34.46 | 0.10 | 0.39 | Average |
| 7 | 0.6405800 | 24.93 | -31.07 | 56.00 | 24.47 | 0.11 | 0.35 | QP |
| 8 | 0.6405800 | 14.10 | -31.90 | 46.00 | 13.64 | 0.11 | 0.35 | Average |
| 9 | 1.730 | 23.20 | -32.80 | 56.00 | 22.69 | 0.13 | 0.38 | QP |
| 10 | 1.730 | 15.93 | -30.07 | 46.00 | 15.42 | 0.13 | 0.38 | Average |
| 11 | 4.670 | 24.40 | -31.60 | 56.00 | 23.93 | 0.17 | 0.30 | QP |
| 12 | 4.670 | 17.97 | -28.03 | 46.00 | 17.50 | 0.17 | 0.30 | Average |
| 13 | 12.450 | 9.34 | -40.66 | 50.00 | 8.73 | 0.26 | 0.35 | Average |
| 14 | 12.450 | 19.73 | -40.27 | 60.00 | 19.12 | 0.26 | 0.35 | QP |

Note 1: “>20dB” means emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found emissions (No emissions were detected.)

| AC Power-line Conducted Emissions Result | | | |
|---|---|---|---|
| **Operating Mode** | 1 | **Power Phase** | Line |
| **Operating Function** | Radio link (WLAN) | | |




| | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dBuV | dBuV | dB | dB | |
| 1 | 0.1786590 | 41.96 | -22.59 | 64.55 | 41.36 | 0.23 | 0.37 | QP |
| 2 | 0.1786590 | 31.25 | -23.30 | 54.55 | 30.65 | 0.23 | 0.37 | Average |
| 3 | 0.3633820 | 37.83 | -20.82 | 58.65 | 37.22 | 0.22 | 0.39 | QP |
| 4 | 0.3633820 | 23.66 | -24.99 | 48.65 | 23.05 | 0.22 | 0.39 | Average |
| 5 | @0.7009560 | 29.54 | -16.46 | 46.00 | 28.97 | 0.23 | 0.34 | Average |
| 6 | 0.7009560 | 32.10 | -23.90 | 56.00 | 31.53 | 0.23 | 0.34 | QP |
| 7 | 1.890 | 16.93 | -29.07 | 46.00 | 16.29 | 0.25 | 0.39 | Average |
| 8 | 1.890 | 28.68 | -27.32 | 56.00 | 28.04 | 0.25 | 0.39 | QP |
| 9 | 3.800 | 29.07 | -26.93 | 56.00 | 28.47 | 0.29 | 0.31 | QP |
| 10 | 3.800 | 22.34 | -23.66 | 46.00 | 21.74 | 0.29 | 0.31 | Average |
| 11 | 16.660 | 26.33 | -33.67 | 60.00 | 25.48 | 0.52 | 0.33 | QP |
| 12 | 16.660 | 20.50 | -29.50 | 50.00 | 19.65 | 0.52 | 0.33 | Average |

Note 1: “>20dB” means emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found emissions (No emissions were detected.)

# 3.2 6dB Bandwidth

## 3.2.1 6dB Bandwidth Limit

| 6dB Bandwidth Limit |
|---|
| **Systems using digital modulation techniques:** |
| ☒ 6 dB bandwidth ≥ 500 kHz. |

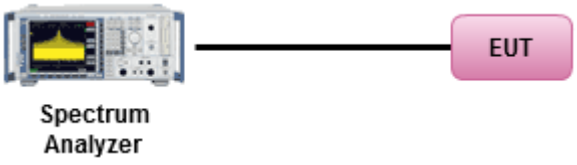
## 3.2.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

## 3.2.3 Test Procedures

| Test Method | | |
|---|---|---|
| ☒ | For the emission bandwidth shall be measured using one of the options below: | |
| | ☒ | Refer as FCC KDB 558074, clause 7.1 Option 1 for 6 dB bandwidth measurement. |
| | ☐ | Refer as FCC KDB 558074, clause 7.2 Option 2 for 6 dB bandwidth measurement. |
| | ☐ | Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing. |
| ☒ | For conducted measurement. | |
| | ☐ | The EUT supports single transmit chain and measurements performed on this transmit chain. |
| | ☐ | The EUT supports diversity transmitting and the results on transmit chain port 1 is the worst case. |
| | ☒ | The EUT supports multiple transmit chains using options given below: |
| | | ☐ Option 1: Multiple transmit chains measurements need to be performed on one of the active transmit chains (antenna outputs). All measurement had be performed on transmit chains 1. |
| | | ☒ Option 2: Multiple transmit chains measurements need to be performed on each transmit chains individually (antenna outputs). All measurement had be performed on all transmit chains. |

## 3.2.4 Test Setup

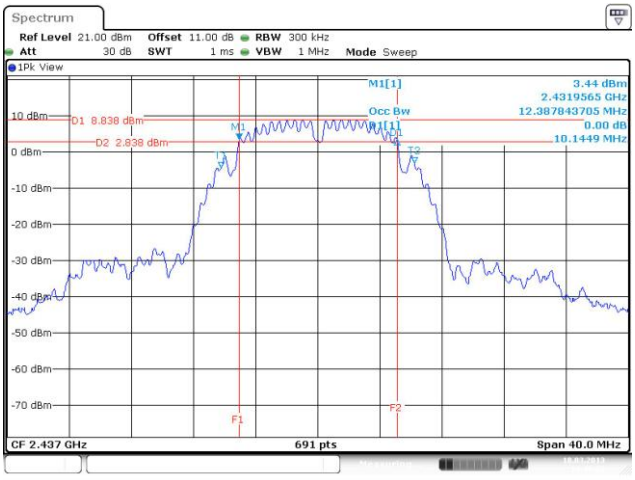
| Emission Bandwidth |
|---|
|   |

### 3.2.5 Test Result of Emission Bandwidth

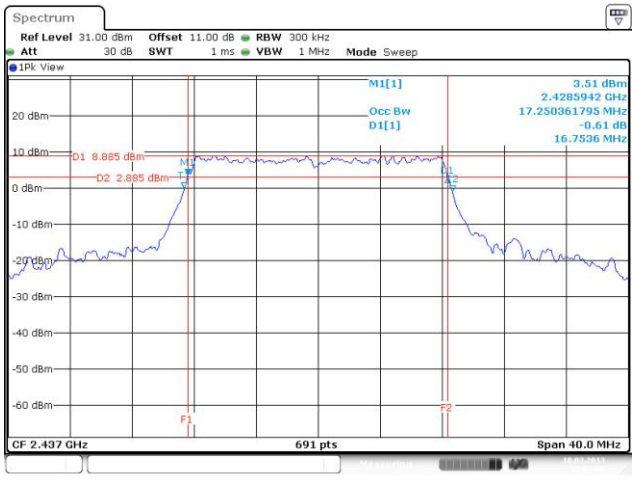
| Emission Bandwidth Result | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Condition | | | Emission Bandwidth (MHz) | | | | | | | |
| Modulation Mode | $N_{TX}$ | Freq. (MHz) | 99% Bandwidth | | | | 6dB Bandwidth | | | |
| | | | Chain-Port 1 | Chain-Port 2 | Chain-Port 3 | - | Chain-Port 1 | Chain-Port 2 | Chain-Port 3 | - |
| 11b | 2 | 2412 | 12.27 | 12.33 | - | | 10.14 | 10.14 | - | |
| 11b | 2 | 2437 | 12.27 | 12.39 | - | | 10.09 | 10.14 | - | |
| 11b | 2 | 2462 | 13.33 | 12.39 | - | | 10.14 | 10.14 | - | |
| 11g | 2 | 2412 | 16.96 | 16.96 | - | | 16.70 | 16.64 | - | |
| 11g | 2 | 2437 | 17.25 | 17.25 | - | | 16.70 | 16.75 | - | |
| 11g | 2 | 2462 | 17.19 | 17.19 | - | | 16.70 | 16.64 | - | |
| HT-20 | 2 | 2412 | 17.71 | 17.71 | - | | 17.62 | 17.68 | - | |
| HT-20 | 2 | 2437 | 18.06 | 18.00 | - | | 17.68 | 17.68 | - | |
| HT-20 | 2 | 2462 | 17.71 | 17.77 | - | | 17.62 | 17.68 | - | |
| HT-40 | 2 | 2422 | 37.05 | 37.05 | - | | 36.52 | 36.87 | - | |
| HT-40 | 2 | 2437 | 37.16 | 37.05 | - | | 36.36 | 36.75 | - | |
| HT-40 | 2 | 2452 | 36.93 | 37.05 | - | | 36.52 | 36.75 | - | |
| Limit | | | N/A | | | | ≥500 kHz | | | |
| Result | | | Complied | | | | | | | |
| Note 1: $N_{TX}$ = Number of Transmit Chains | | | | | | | | | | |

## Worst Emission Bandwidth Plots

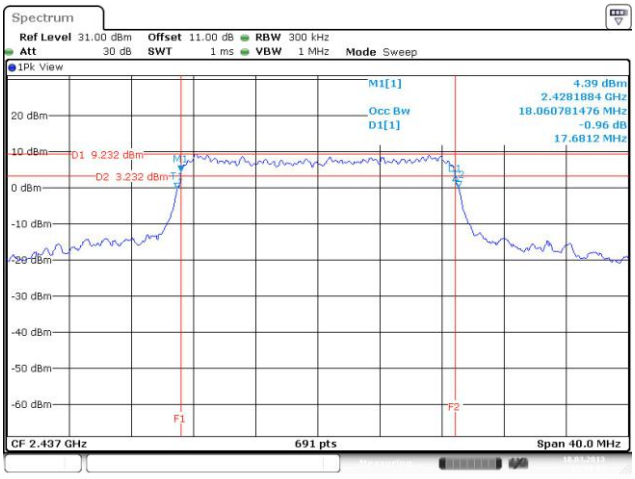
### 11b



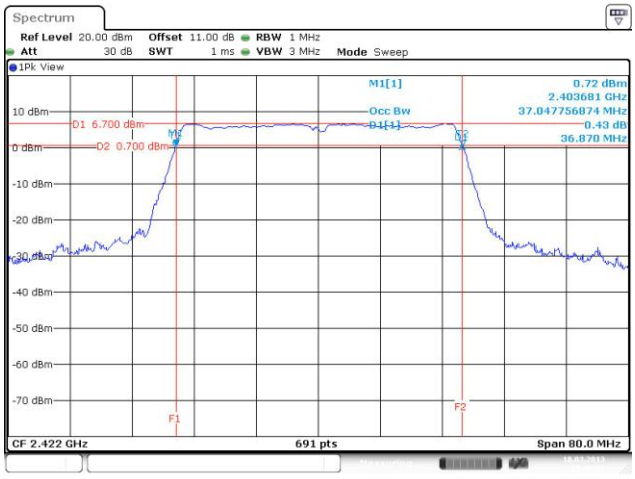

### 11g




### HT-20




### HT-40



## 3.3 RF Output Power

### 3.3.1 RF Output Power Limit

| RF Output Power Limit | | | |
|---|---|---|---|
| **Maximum Peak Conducted Output Power or Maximum Conducted Output Power Limit** | | | |
| ☒ | 2400-2483.5 MHz Band: | | |
| | ☒ | If $G_{TX}$ ≤ 6 dBi, then $P_{Out}$ ≤ 30 dBm (1 W) | |
| | ☒ | Point-to-multipoint systems (P2M): If $G_{TX}$ > 6 dBi, then $P_{Out}$ = 30 – ($G_{TX}$ – 6) dBm | |
| | ☐ | Point-to-point systems (P2P): If $G_{TX}$ > 6 dBi, then $P_{Out}$ = 30 – ($G_{TX}$ – 6)/3 dBm | |
| | ☐ | Smart antenna system (SAS): | |
| | | ☐ | Single beam: If $G_{TX}$ > 6 dBi, then $P_{Out}$ = 30 – ($G_{TX}$ – 6)/3 dBm |
| | | ☐ | Overlap beam: If $G_{TX}$ > 6 dBi, then $P_{Out}$ = 30 – ($G_{TX}$ – 6)/3 dBm |
| | | ☐ | Aggregate power on all beams: If $G_{TX}$ > 6 dBi, then $P_{Out}$ = 30 – ($G_{TX}$ – 6)/3 + 8dB dBm |
| **e.i.r.p. Power Limit:** | | | |
| ☒ | 2400-2483.5 MHz Band | | |
| | ☒ | Point-to-multipoint systems (P2M): $P_{eirp}$ ≤ 36 dBm (4 W) | |
| | ☐ | Point-to-point systems (P2P): $P_{eirp}$ ≤ MAX(36, [$P_{Out}$ + $G_{TX}$]) dBm | |
| | ☐ | Smart antenna system (SAS) | |
| | | ☐ | Single beam: $P_{eirp}$ ≤ MAX(36, $P_{Out}$ + $G_{TX}$) dBm |
| | | ☐ | Overlap beam: $P_{eirp}$ ≤ MAX(36, $P_{Out}$ + $G_{TX}$) dBm |
| | | ☐ | Aggregate power on all beams: $P_{eirp}$ ≤ MAX(36, [$P_{Out}$ + $G_{TX}$ + 8]) dBm |
| **$P_{Out}$** = maximum peak conducted output power or maximum conducted output power in dBm,<br>**$G_{TX}$** = the maximum transmitting antenna directional gain in dBi.<br>**$P_{eirp}$** = e.i.r.p. Power in dBm. | | | |

### 3.3.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

### 3.3.3 Test Procedures

| Test Method | |
|---|---|
| ☒ | Maximum Peak Conducted Output Power |
| | ☐ Refer as FCC KDB 558074, clause 8.1.1 Option 1 (RBW ≥ EBW method). |
| | ☐ Refer as FCC KDB 558074, clause 8.1.2 Option 2 (integrated band power method). |
| | ☒ Refer as FCC KDB 558074, clause 8.1.3 Option 2 (peak power meter for VBW ≥ DTS BW) |
| ☒ | Maximum Conducted (Average) Output Power |
| | ☐ Refer as FCC KDB 558074, clause 8.2.1 Option 1 (spectral trace averaging). |
| | ☐ Refer as FCC KDB 558074, clause 8.2.2 Option 2 (slow sweep speed). |
| | ☒ Refer as FCC KDB 558074, clause 8.2.3 Option 3 (average power meter). |
| ☒ | For conducted measurement. |
| | ☒ The EUT supports single transmit chain and measurements performed on this transmit chain. |
| | ☒ The EUT supports diversity transmitting and the results on transmit chain port 1 is the worst case. |
| | ☒ The EUT supports multiple transmit chains using options given below:<br>Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them. |
| | ☒ If multiple transmit chains, EIRP calculation could be following as methods:<br>$P_{total} = P_1 + P_2 + \ldots + P_n$<br>(calculated in linear unit [mW] and transfer to log unit [dBm])<br>$EIRP_{total} = P_{total} + DG$ |

### 3.3.4 Test Setup

| RF Output Power (Power meter) |
|---|
|  <br>Power Meter |

### 3.3.5 Directional Gain for Power Measurement

| Directional Gain (DG) Result | | | | | |
|---|---|---|---|---|---|
| **Transmit Chains No.** | | 1 | 2 | - | - |
| **Maximum $G_{ANT}$ (dBi)** | | 3.88 | 3.25 | - | - |
| **Modulation Mode** | **DG (dBi)** | **$N_{TX}$** | **$N_{SS}$** | **STBC** | **Array Gain (dB)** |
| 11b,1-11Mbps | 3.88 | 2 | 1 | - | - |
| 11g,6-54Mbps | 3.88 | 2 | 1 | - | - |
| HT-20,M0-M7 | 3.88 | 2 | 1 | - | - |
| HT-20,M8-M15 | 3.88 | 2 | 2 | - | - |
| HT-40,M0-M7 | 3.88 | 2 | 1 | - | - |
| HT-40,M8-M15 | 3.88 | 2 | 2 | - | - |

Note 1: For all transmitter outputs with equal antenna gains, directional gain is to be computed as follows:
Any transmit signals are correlated, Directional Gain = $G_{ANT} + 10 \log(N_{TX})$
All transmit signals are completely uncorrelated, Directional Gain = $G_{ANT}$
Note 2: For all transmitter outputs with unequal antenna gains, directional gain is to be computed as follows:
Any transmit signals are correlated, Directional Gain =$10 \log[(10^{G1/20} + \ldots + 10^{GN/20})^2 / N_{TX}]$
All transmit signals are completely uncorrelated, Directional Gain = $10 \log[(10^{G1/10} + \ldots + 10^{GN/10})/N_{TX}]$
Note 3: For Spatial Multiplexing, Directional Gain (DG) = $G_{ANT} + 10 \log(N_{TX}/N_{SS})$,
where Nss = the number of independent spatial streams data.
Note 4: For CDD transmissions, directional gain is calculated as power measurements:
Directional Gain (DG) = $G_{ANT}$ + Array Gain, where Array Gain is as follows:
Array Gain = 0 dB (i.e., no array gain) for $N_{TX} \leq 4$;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any $N_{TX}$;

### 3.3.6 Test Result of Maximum Peak Conducted Output Power

| Maximum Peak Conducted Output Power Result | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Condition | | | RF Output Power (dBm) | | | | | | | | |
| Modulation Mode | $N_{TX}$ | Freq. (MHz) | Chain Port 1 | Chain Port 2 | Chain Port 3 | - | Sum Chain | Power Limit | DG (dBi) | EIRP Power | EIRP Limit |
| 11b | 2 | 2412 | 19.18 | 18.80 | - | | 22.00 | 30 | 3.88 | 25.88 | 36 |
| 11b | 2 | 2437 | 21.49 | 21.63 | - | | 24.57 | 30 | 3.88 | 28.45 | 36 |
| 11b | 2 | 2462 | 21.52 | 21.42 | - | | 24.48 | 30 | 3.88 | 28.36 | 36 |
| 11g | 2 | 2412 | 21.76 | 21.34 | - | | 24.57 | 30 | 3.88 | 28.45 | 36 |
| 11g | 2 | 2437 | 23.99 | 24.52 | - | | 27.27 | 30 | 3.88 | 31.15 | 36 |
| 11g | 2 | 2462 | 23.54 | 23.98 | - | | 26.78 | 30 | 3.88 | 30.66 | 36 |
| HT-20 | 2 | 2412 | 20.55 | 20.44 | - | | 23.51 | 30 | 3.88 | 27.39 | 36 |
| HT-20 | 2 | 2437 | 23.86 | 24.51 | - | | 27.21 | 30 | 3.88 | 31.09 | 36 |
| HT-20 | 2 | 2462 | 23.16 | 23.55 | - | | 26.37 | 30 | 3.88 | 30.25 | 36 |
| HT-40 | 2 | 2422 | 18.83 | 19.12 | - | | 21.99 | 30 | 3.88 | 25.87 | 36 |
| HT-40 | 2 | 2437 | 21.55 | 21.53 | - | | 24.55 | 30 | 3.88 | 28.43 | 36 |
| HT-40 | 2 | 2452 | 21.12 | 21.57 | - | | 24.36 | 30 | 3.88 | 28.24 | 36 |
| Result | | | Complied | | | | | | | | |

### 3.3.7 Test Result of Maximum Conducted Output Power

| Maximum Conducted Output Power | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Condition | | | RF Output Power (dBm) | | | | | | | | |
| Modulation Mode | $N_{TX}$ | Freq. (MHz) | Chain Port 1 | Chain Port 2 | Chain Port 3 | - | Sum Chain | Power Limit | DG (dBi) | EIRP Power | EIRP Limit |
| 11b | 2 | 2412 | 15.72 | 15.40 | - | | 18.57 | 30 | 3.88 | 22.45 | 36 |
| 11b | 2 | 2437 | 18.27 | 18.17 | - | | 21.23 | 30 | 3.88 | 25.11 | 36 |
| 11b | 2 | 2462 | 18.01 | 18.38 | - | | 21.21 | 30 | 3.88 | 25.09 | 36 |
| 11g | 2 | 2412 | 13.34 | 12.58 | - | | 15.99 | 30 | 3.88 | 19.87 | 36 |
| 11g | 2 | 2437 | 18.18 | 18.35 | - | | 21.28 | 30 | 3.88 | 25.16 | 36 |
| 11g | 2 | 2462 | 15.94 | 15.90 | - | | 18.93 | 30 | 3.88 | 22.81 | 36 |
| HT-20 | 2 | 2412 | 12.47 | 12.09 | - | | 15.29 | 30 | 3.88 | 19.17 | 36 |
| HT-20 | 2 | 2437 | 18.31 | 18.33 | - | | 21.33 | 30 | 3.88 | 25.21 | 36 |
| HT-20 | 2 | 2462 | 16.25 | 16.17 | - | | 19.22 | 30 | 3.88 | 23.10 | 36 |
| HT-40 | 2 | 2422 | 10.24 | 10.79 | - | | 13.53 | 30 | 3.88 | 17.41 | 36 |
| HT-40 | 2 | 2437 | 13.39 | 13.70 | - | | 16.56 | 30 | 3.88 | 20.44 | 36 |
| HT-40 | 2 | 2452 | 13.51 | 13.66 | - | | 16.60 | 30 | 3.88 | 20.48 | 36 |
| Result | | | Complied | | | | | | | | |

# 3.4 Power Spectral Density

## 3.4.1 Power Spectral Density Limit

| Power Spectral Density Limit |
|---|
| ☒ Power Spectral Density (PSD) ≤ 8 dBm/3kHz |

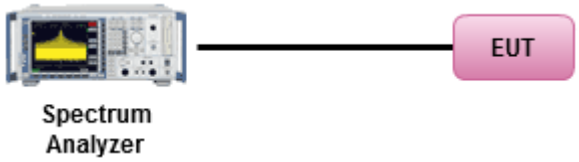
## 3.4.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

## 3.4.3 Test Procedures

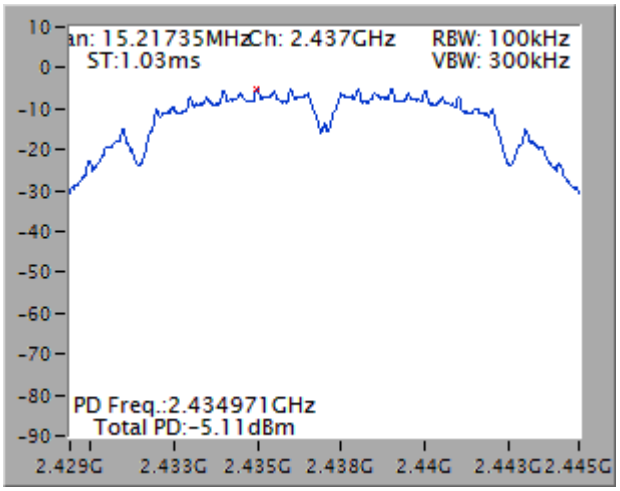
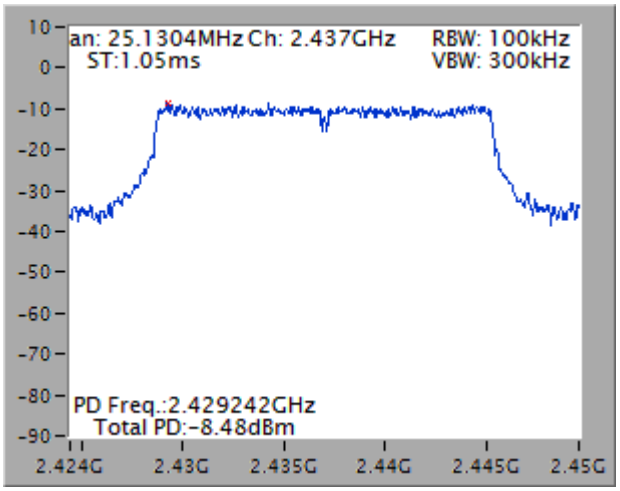
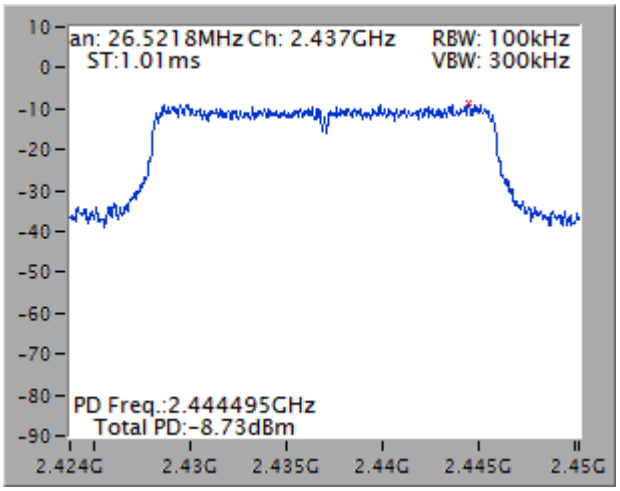
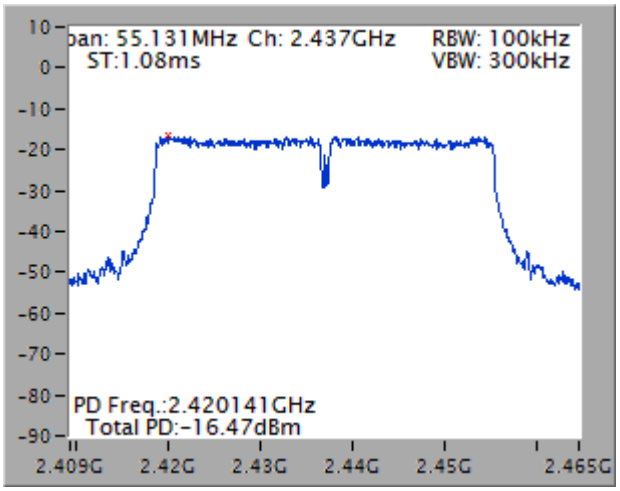
| Test Method | | | |
|---|---|---|---|
| ☒ | Power spectral density procedures that the same method as used to determine the conducted output power shall be used to determine the power spectral density. In addition, the use of a peak PSD procedure will always result in a “worst-case” measured level for comparison to the limit. Therefore, whenever the DTS bandwidth exceeds 500 kHz, it is acceptable to utilize the peak PSD procedure to demonstrate compliance to the PSD limit, regardless of how the fundamental output power was measured. For the power spectral density shall be measured using below options: | | |
| | ☒ | Refer as FCC KDB 558074, clause 9.1 Option 1 - (RBW≥3kHz; sweep=auto, detector=peak). | |
| | ☐ | Refer as FCC KDB 558074, clause 9.2 Option 2 - (RBW≥3kHz; sweep=auto, average=100). | |
| | ☐ | Refer as FCC KDB 558074, clause 9.3 Option 3 - (RBW≥3kHz; slow sweep speed). | |
| | ☐ | Refer as FCC KDB 558074, clause 9.4 Alternative 1 (average PSD; Add 10log (1/duty cycle). | |
| | ☒ | RBW>3kHz, add the bandwidth correction factor (BWCF) adjusting in PSD per 3kHz. | |
| ☒ | For conducted measurement. | | |
| | ☐ | The EUT supports single transmit chain and measurements performed on this transmit chain. | |
| | ☐ | The EUT supports diversity transmitting and the results on transmit chain port 1 is the worst case. | |
| | ☒ | The EUT supports multiple transmit chains using options given below: | |
| | | ☒ | Option 1: Measure and sum the spectra across the outputs. Refer as FCC KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the $N_{TX}$ output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace. |
| | | ☐ | Option 2: Measure and add 10 log(N) dB, where N is the number of transmit chains. Refer as FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains and each transmit chains shall be compared with the limit have been reduced with 10 log(N). Or each transmit chains shall be add 10 log(N) to compared with the limit. |

### 3.4.4 Test Setup

| Power Spectral Density |
|---|
|   |

### 3.4.5 Test Result of Power Spectral Density

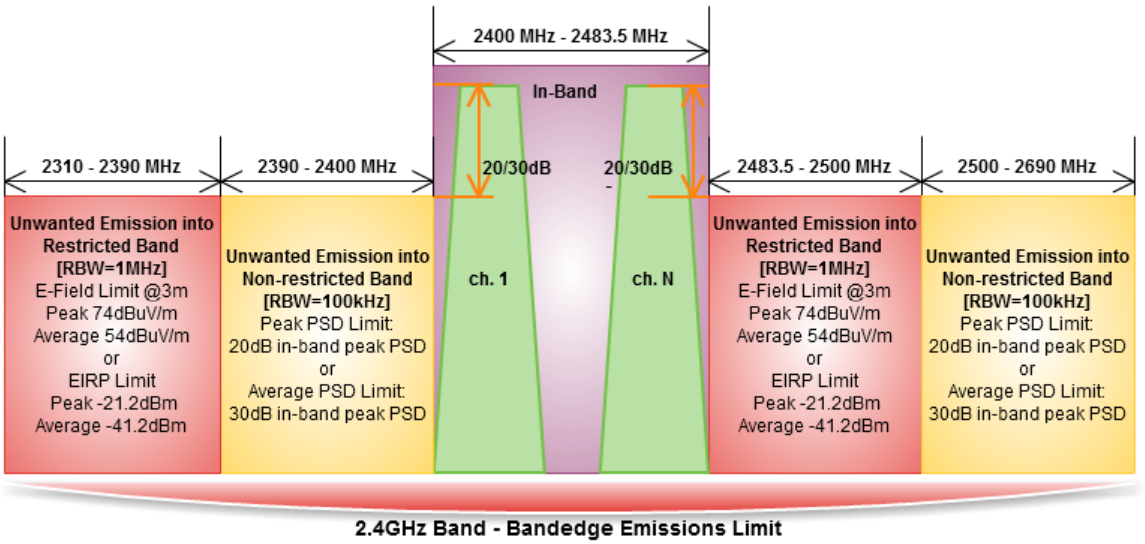
| Power Spectral Density Result | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Condition | | | Power Spectral Density (dBm/3kHz) | | | | | |
| Modulation Mode | $N_{TX}$ | Freq. (MHz) | Sum Chain | - | - | - | - | Power Limit |
| 11b | 2 | 2412 | -7.63 | - | - | - | - | 8 |
| 11b | 2 | 2437 | -5.11 | - | - | - | - | 8 |
| 11b | 2 | 2462 | -5.23 | - | - | - | - | 8 |
| 11g | 2 | 2412 | -13.57 | - | - | - | - | 8 |
| 11g | 2 | 2437 | -8.48 | - | - | - | - | 8 |
| 11g | 2 | 2462 | -11.31 | - | - | - | - | 8 |
| HT-20 | 2 | 2412 | -14.71 | - | - | - | - | 8 |
| HT-20 | 2 | 2437 | -8.73 | - | - | - | - | 8 |
| HT-20 | 2 | 2462 | -10.97 | - | - | - | - | 8 |
| HT-40 | 2 | 2422 | -19.15 | - | - | - | - | 8 |
| HT-40 | 2 | 2437 | -16.47 | - | - | - | - | 8 |
| HT-40 | 2 | 2452 | -17.00 | - | - | - | - | 8 |
| Result | | | Complied | | | | | |
| Note 1: PSD [dBm/3kHz] = sum each transmit chains by bin-to-bin PSD [dBm/100kHz] + BWFC [-15.2 dB] | | | | | | | | |

| Worst Power Spectral Density Plots | |
|---|---|
| **11b [Sum All Chains]** | **11g [Sum All Chains]** |
|  |  |
| **HT-20 [Sum All Chains]** | **HT-40 [Sum All Chains]** |
|  |  |

# 3.5 Transmitter Radiated Bandedge Emissions

## 3.5.1 Transmitter Radiated Bandedge Emissions Limit

**Transmitter Radiated Bandedge Emissions Limit**



### 3.5.2 Measuring Instruments

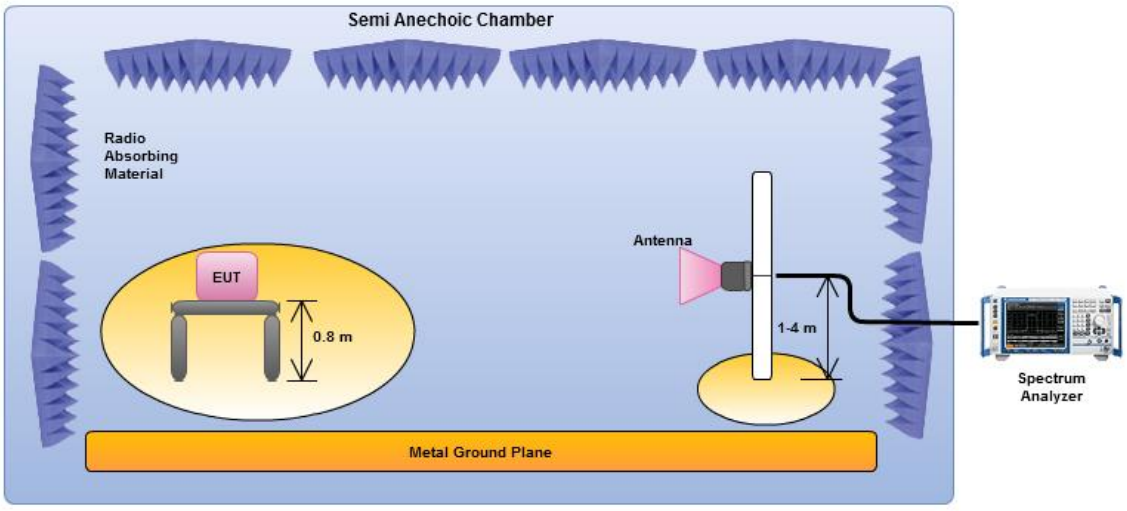
Refer a test equipment and calibration data table in this test report.

### 3.5.3 Test Procedures

| Test Method | | |
|---|---|---|
| ☒ | The average emission levels shall be measured in [duty cycle ≥ 98 or duty factor]. | |
| ☒ | Refer as ANSI C63.10, clause 6.9.2.2 bandedge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band. | |
| ☒ | For the transmitter unwanted emissions shall be measured using following options below: | |
| | ☒ | Refer as FCC KDB 558074, clause 10.1 for unwanted emissions into non-restricted bands. |
| | ☒ | Refer as FCC KDB 558074, clause 10.2 for unwanted emissions into restricted bands. |
| | | ☐ Refer as FCC KDB 558074, clause 10.2.3.3 and 8.2.1 Option 1 (spectral trace averaging) |
| | | ☐ Refer as FCC KDB 558074, clause 10.2.3.3 and 8.2.1 Option 2 (slow sweep speed). |
| | | ☒ Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW). |
| | | ☐ Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions. |
| | | ☒ Refer as FCC KDB 558074, clause 10.2.3.2 and 8.1.1 measurement procedure peak limit. |
| ☒ | For the transmitter bandedge emissions shall be measured using following options below: | |
| | ☐ | Refer as FCC KDB 558074, clause 10.2.5.2 for narrower resolution bandwidth using the band power and summing the spectral levels (i.e., 100 kHz or 1 MHz). |
| | ☒ | Refer as ANSI C63.10, clause 6.9.2 for band-edge testing. |
| | ☐ | Refer as ANSI C63.10, clause 6.9.3 for marker-delta method for band-edge measurements. |
| ☒ | For radiated measurement, refer as FCC KDB 558074, clause 10.2.1. | |
| ☐ | For conducted measurement, refer as FCC KDB 558074, clause 10.2.2. | |

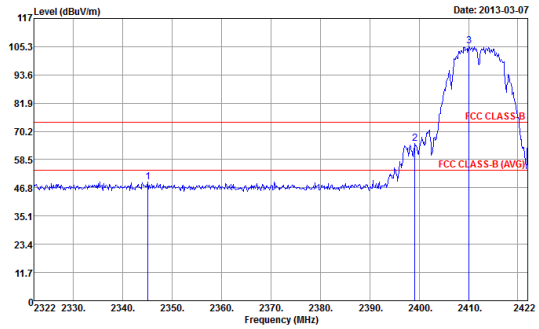
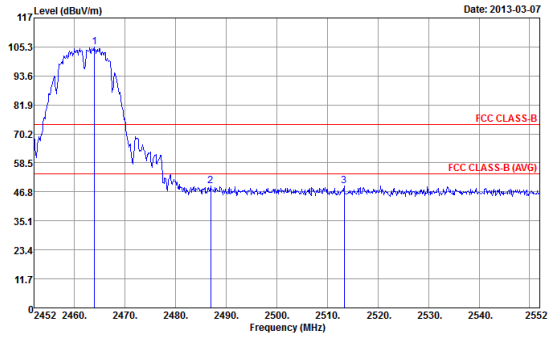
### 3.5.4 Test Setup

**Transmitter Radiated Bandedge Emissions**




Electric field tests shall be performed in transmitter bandedge emissions using a calibrated horn antenna.

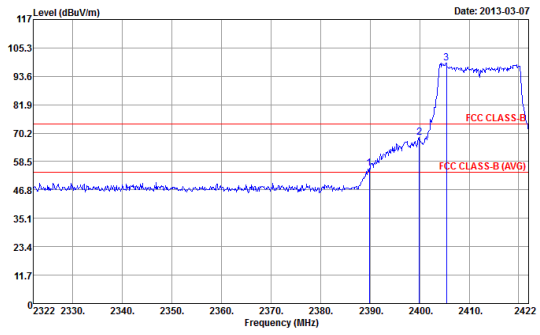
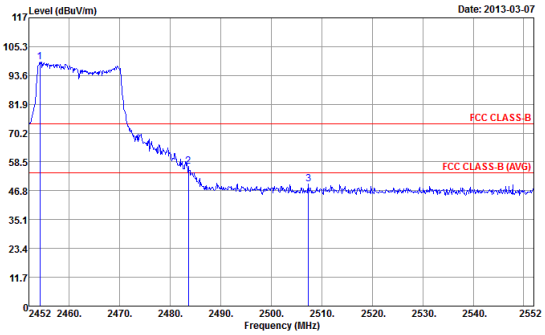
### 3.5.5 Test Result of Transmitter Radiated Bandedge Emissions

| Transmitter Radiated Bandedge Emissions Result | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Modulation** | 11b | | | **$N_{TX}$** | 2 | | | |
| **Non-restricted Band (MHz)** | **Test Ch. Freq. (MHz)** | **In-band PSD [i] (dBuV/100kHz)** | **NBE Freq. (MHz)** | **Out-band PSD [o] (dBuV/100kHz)** | **[i] – [o] (dB)** | **Limit (dB)** | **Level Type** | **Pol. note 1** |
| 2390-2400 | 2412 | 105.47 | 2399.15 | 65.09 | 40.38 | 20 | PK | V |
| 2500-2690 | 2462 | 105.16 | 2513.30 | 49.13 | 56.03 | 20 | PK | V |
| **Low Bandedge** | | | | **Up Bandedge** | | | | |
|  | | | |  | | | | |
| Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical) | | | | | | | | |





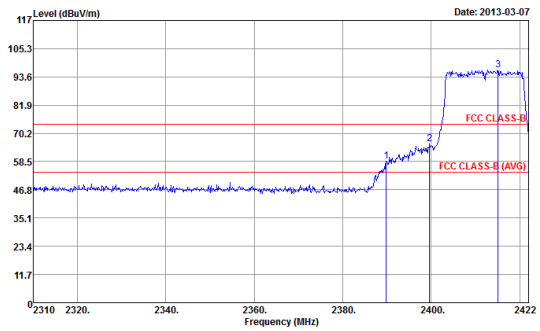
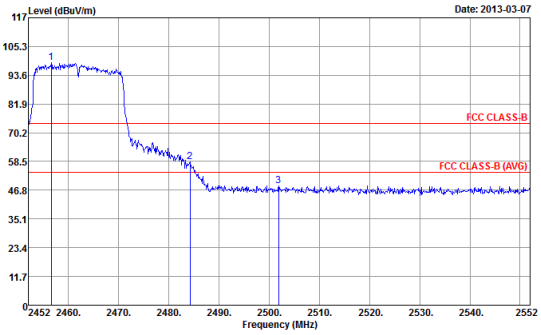
| Transmitter Radiated Bandedge Emissions Result | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Modulation** | 11b | | | **$N_{TX}$** | 2 | | | |
| **Restricted Band (MHz)** | **Test Ch. Freq. (MHz)** | **In-band PSD [i] (dBuV/1MHz)** | **RBE Freq. (MHz)** | **Measure Distance (m)** | **Out-Band Level (dBuV/m)** | **Limit (dBuV/m)** | **Level Type** | **Pol. note 1** |
| 2310-2390 | 2412 | 108.28 | 2329.26 | 3 | 58.86 | 74 | PK | V |
| 2310-2390 | 2412 | 106.85 | 2389.07 | 3 | 46.53 | 54 | AV | V |
| 2483.5-2500 | 2462 | 109.13 | 2484.30 | 3 | 58.84 | 74 | PK | V |
| 2483.5-2500 | 2462 | 106.55 | 2486.60 | 3 | 46.50 | 54 | AV | V |
| Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical). | | | | | | | | |

| Transmitter Radiated Bandedge Emissions Result | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Modulation** | 11g | | | **$N_{TX}$** | 2 | | | |
| **Non-restricted Band (MHz)** | **Test Ch. Freq. (MHz)** | **In-band PSD [i] (dBuV/100kHz)** | **NBE Freq. (MHz)** | **Out-band PSD [o] (dBuV/100kHz)** | **[i] – [o] (dB)** | **Limit (dB)** | **Level Type** | **Pol. note 1** |
| 2390-2400 | 2412 | 99 | 2399.94 | 68.55 | 30.45 | 20 | PK | V |
| 2500-2690 | 2462 | 99.18 | 2507.40 | 49.43 | 49.75 | 20 | PK | V |
| **Low Bandedge** | | | | **Up Bandedge** | | | | |
|  | | | |  | | | | |
| Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical) | | | | | | | | |



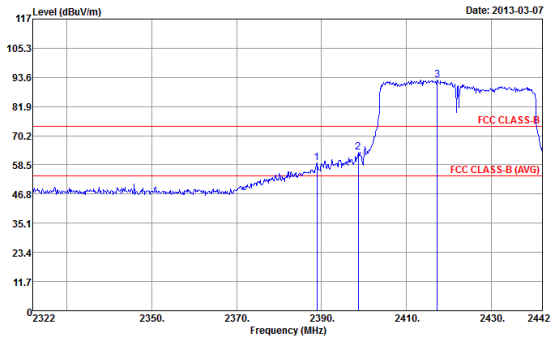
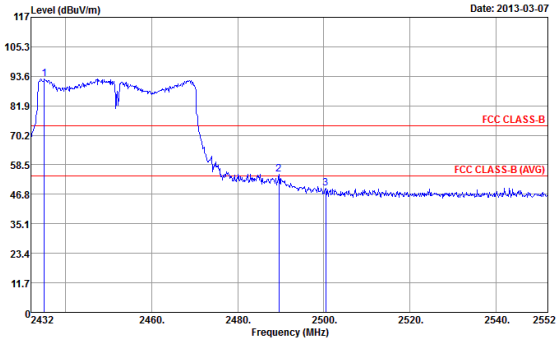


| Transmitter Radiated Bandedge Emissions Result | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Modulation** | 11g | | | **$N_{TX}$** | 2 | | | |
| **Restricted Band (MHz)** | **Test Ch. Freq. (MHz)** | **In-band PSD [i] (dBuV/1MHz)** | **RBE Freq. (MHz)** | **Measure Distance (m)** | **Out-Band Level (dBuV/m)** | **Limit (dBuV/m)** | **Level Type** | **Pol. note 1** |
| 2310-2390 | 2412 | 108.53 | 2389.97 | 3 | 70.53 | 74 | PK | V |
| 2310-2390 | 2412 | 98.72 | 2389.97 | 3 | 52.82 | 54 | AV | V |
| 2483.5-2500 | 2462 | 108.87 | 2483.50 | 3 | 72.98 | 74 | PK | V |
| 2483.5-2500 | 2462 | 99.70 | 2483.50 | 3 | 53.00 | 54 | AV | V |
| Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical). | | | | | | | | |

| Transmitter Radiated Bandedge Emissions Result | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Modulation** | HT-20 | | | **$N_{TX}$** | 2 | | | |
| **Non-restricted Band (MHz)** | **Test Ch. Freq. (MHz)** | **In-band PSD [i] (dBuV/100kHz)** | **NBE Freq. (MHz)** | **Out-band PSD [o] (dBuV/100kHz)** | **[i] – [o] (dB)** | **Limit (dB)** | **Level Type** | **Pol. note 1** |
| 2390-2400 | 2412 | 96.6 | 2399.60 | 65.79 | 30.81 | 20 | PK | V |
| 2500-2690 | 2462 | 98.59 | 2501.90 | 48.61 | 49.98 | 20 | PK | V |
| **Low Bandedge** | | | | **Up Bandedge** | | | | |
|  | | | |  | | | | |
| Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical) | | | | | | | | |



| Transmitter Radiated Bandedge Emissions Result | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Modulation** | HT-20 | | | **$N_{TX}$** | 2 | | | |
| **Restricted Band (MHz)** | **Test Ch. Freq. (MHz)** | **In-band PSD [i] (dBuV/1MHz)** | **RBE Freq. (MHz)** | **Measure Distance (m)** | **Out-Band Level (dBuV/m)** | **Limit (dBuV/m)** | **Level Type** | **Pol. note 1** |
| 2310-2390 | 2412 | 105.49 | 2390.00 | 3 | 72.85 | 74 | PK | V |
| 2310-2390 | 2412 | 96.12 | 2389.97 | 3 | 52.82 | 54 | AV | V |
| 2483.5-2500 | 2462 | 107.50 | 2483.50 | 3 | 73.00 | 74 | PK | V |
| 2483.5-2500 | 2462 | 97.98 | 2483.50 | 3 | 53.00 | 54 | AV | V |
| Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical). | | | | | | | | |

| Transmitter Radiated Bandedge Emissions Result | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Modulation** | HT-40 | | | **$N_{TX}$** | 2 | | | |
| **Non-restricted Band (MHz)** | **Test Ch. Freq. (MHz)** | **In-band PSD [i] (dBuV/100kHz)** | **NBE Freq. (MHz)** | **Out-band PSD [o] (dBuV/100kHz)** | **[i] – [o] (dB)** | **Limit (dB)** | **Level Type** | **Pol. note 1** |
| 2390-2400 | 2412 | 92.63 | 2398.68 | 63.64 | 28.99 | 20 | PK | V |
| 2500-2690 | 2462 | 92.69 | 2500.40 | 49.27 | 43.42 | 20 | PK | V |
| **Low Bandedge** | | | | **Up Bandedge** | | | | |
|  | | | |  | | | | |
| Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical) | | | | | | | | |





| Transmitter Radiated Bandedge Emissions Result | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Modulation** | HT-40 | | | **$N_{TX}$** | 2 | | | |
| **Restricted Band (MHz)** | **Test Ch. Freq. (MHz)** | **In-band PSD [i] (dBuV/1MHz)** | **RBE Freq. (MHz)** | **Measure Distance (m)** | **Out-Band Level (dBuV/m)** | **Limit (dBuV/m)** | **Level Type** | **Pol. note 1** |
| 2310-2390 | 2412 | 101.62 | 2388.84 | 3 | 69.40 | 74 | PK | V |
| 2310-2390 | 2412 | 91.87 | 2389.08 | 3 | 53.00 | 54 | AV | V |
| 2483.5-2500 | 2462 | 102.17 | 2487.68 | 3 | 65.96 | 74 | PK | V |
| 2483.5-2500 | 2462 | 94.38 | 2483.50 | 3 | 52.61 | 54 | AV | V |
| Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical). | | | | | | | | |

# 3.6 Transmitter Radiated Unwanted Emissions

## 3.6.1 Transmitter Radiated Unwanted Emissions Limit

| Restricted Band Emissions Limit | | | |
|---|---|---|---|
| **Frequency Range (MHz)** | **Field Strength (uV/m)** | **Field Strength (dBuV/m)** | **Measure Distance (m)** |
| 0.009~0.490 | 2400/F(kHz) | 48.5 - 13.8 | 300 |
| 0.490~1.705 | 24000/F(kHz) | 33.8 - 23 | 30 |
| 1.705~30.0 | 30 | 29 | 30 |
| 30~88 | 100 | 40 | 3 |
| 88~216 | 150 | 43.5 | 3 |
| 216~960 | 200 | 46 | 3 |
| Above 960 | 500 | 54 | 3 |

Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

| Un-restricted Band Emissions Limit | |
|---|---|
| **RF output power procedure** | **Limit (dB)** |
| Peak output power procedure | 20 |
| Average output power procedure | 30 |

Note 1: If the peak output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum measured in-band peak PSD level.

Note 2: If the average output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the power in any 100 kHz outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum measured in-band average PSD level.

## 3.6.2 Measuring Instruments

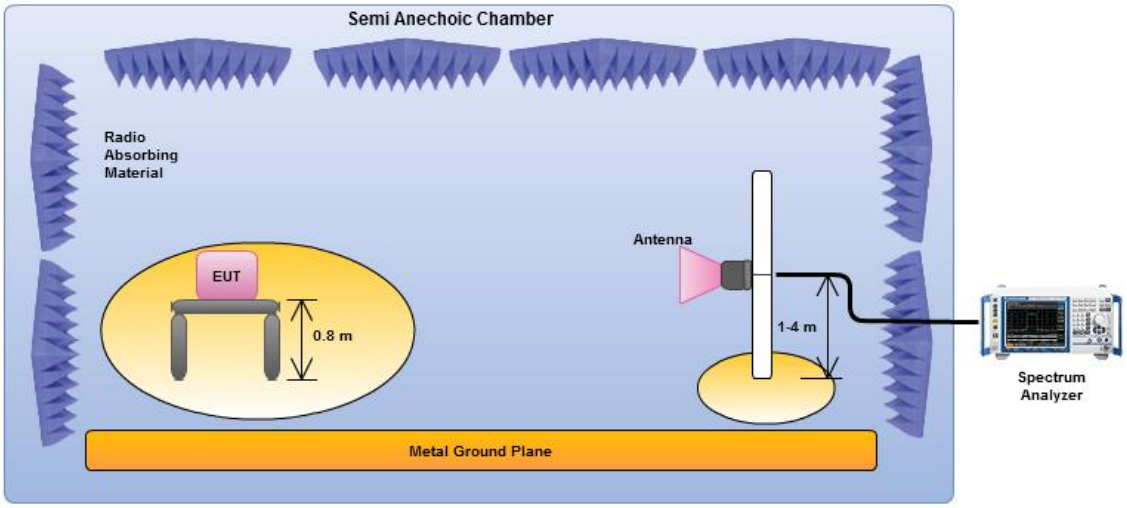
Refer a test equipment and calibration data table in this test report.

### 3.6.3 Test Procedures

| Test Method | | | |
|---|---|---|---|
| ☒ | Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements). | | |
| | ☒ | Measurements in the frequency range 10 GHz - 18GHz are typically made at a closer distance 1m, because the instrumentation noise floor is typically close to the radiated emission limit. | |
| | ☒ | Measurements in the frequency range above 18 GHz - 25GHz are typically made at a closer distance 0.5m, because the instrumentation noise floor is typically close to the radiated emission limit. | |
| ☒ | The average emission levels shall be measured in [duty cycle ≥ 98 or duty factor]. | | |
| ☒ | For the transmitter unwanted emissions shall be measured using following options below: | | |
| | ☒ | Refer as FCC KDB 558074, clause 10.1 for unwanted emissions into non-restricted bands. | |
| | ☒ | Refer as FCC KDB 558074, clause 10.2 for unwanted emissions into restricted bands. | |
| | | ☐ | Refer as FCC KDB 558074, clause 10.2.3.3 and 8.2.1 Option 1 (spectral trace averaging) |
| | | ☐ | Refer as FCC KDB 558074, clause 10.2.3.3 and 8.2.1 Option 2 (slow sweep speed). |
| | | ☒ | Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW) – Duty cycle ≥ 98%. |
| | | ☐ | Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions. |
| | | ☒ | Refer as FCC KDB 558074, clause 10.2.3.2 and 8.1.1 measurement procedure peak limit. |
| | | ☐ | Refer as FCC KDB 558074, clause 10.2.3.1 measurement procedure Quasi-Peak limit. |
| ☒ | For radiated measurement, refer as FCC KDB 558074, clause 10.2.1. | | |
| | ☒ | Refer as ANSI C63.10, clause 6.4 for radiated emissions from below 30 MHz. | |
| | ☒ | Refer as ANSI C63.10, clause 6.5 for radiated emissions from 30 MHz to 1000 MHz. | |
| | ☒ | Refer as ANSI C63.10, clause 6.6 for radiated emissions from above 1 GHz. | |
| ☐ | For conducted and cabinet radiation measurement, refer as FCC KDB 558074, clause 10.2.2. | | |
| | ☐ | For conducted unwanted emissions into non-restricted bands (relative emission limits).<br>Devices with multiple transmit chains:<br>Refer as FCC KDB 662911, when testing out-of-band and spurious emissions against relative emission limits, tests may be performed on each output individually without summing or adding 10 log(N) if the measurements are made relative to the in-band emissions on the individual outputs. | |
| | ☐ | For conducted unwanted emissions into restricted bands (absolute emission limits).<br>Devices with multiple transmit chains using options given below:<br>(1) Measure and sum the spectra across the outputs or<br>(2) Measure and add 10 log(N) dB | |

### 3.6.4 Test Setup

**Transmitter Radiated Unwanted Emissions**



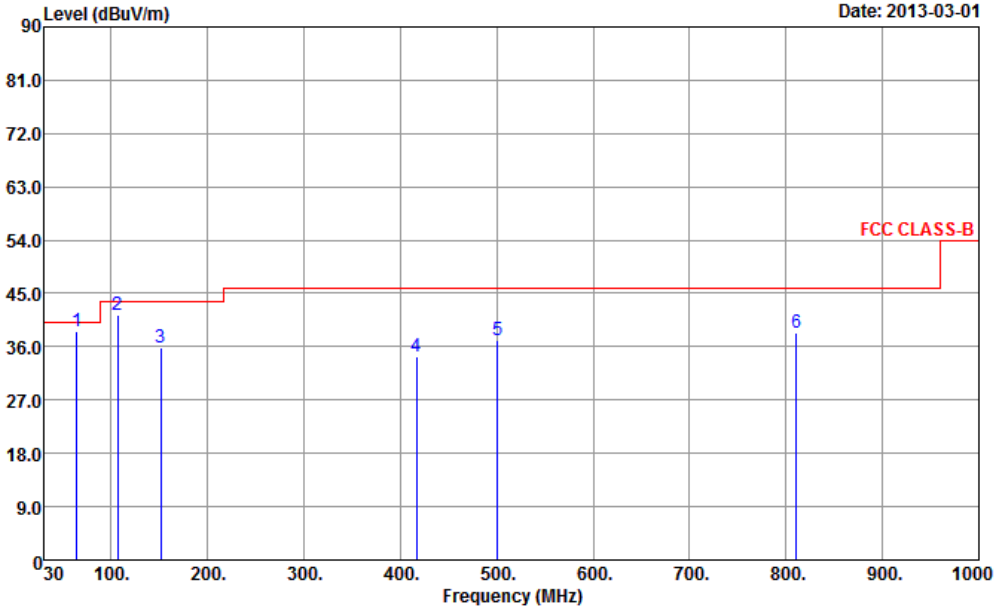

Magnetic field tests shall be performed in the frequency range of 9 kHz to 30 MHz using a calibrated loop antenna. Electric field tests shall be performed in the frequency range of 30 MHz to 1000 MHz using a calibrated bi-log antenna and the frequency range of 1 GHz to 40 GHz using a calibrated horn antenna.

### 3.6.5 Transmitter Radiated Unwanted Emissions (Below 30MHz)

All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

## 3.6.6 Radiated Emissions (Below 1GHz)

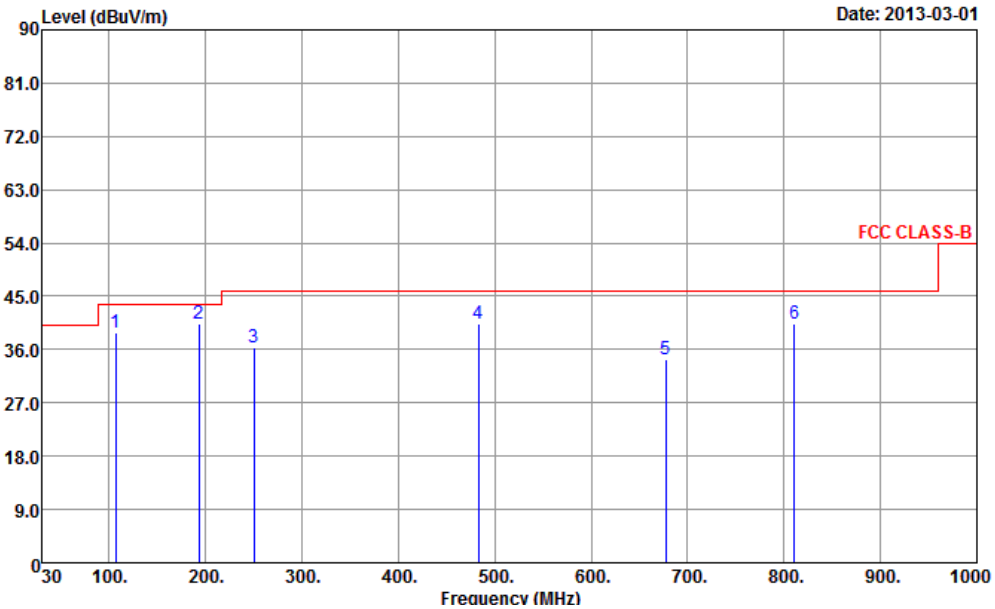
| Radiated Emissions (Below 1GHz) | | | |
|---|---|---|---|
| **Operating Mode** | 1 | **Polarization** | V |
| **Operating Function** | Radio link (WLAN) | | |




| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | |
| 1 | 63.95 | 38.62 | -1.38 | 40.00 | 63.38 | 5.92 | 0.87 | 31.55 | --- | --- | QP |
| 2 | 106.63 | 41.43 | -2.07 | 43.50 | 60.94 | 10.86 | 1.14 | 31.51 | --- | --- | QP |
| 3 | 151.25 | 35.78 | -7.72 | 43.50 | 54.64 | 11.12 | 1.27 | 31.25 | --- | --- | Peak |
| 4 | 417.03 | 34.40 | -11.60 | 46.00 | 46.82 | 16.51 | 2.15 | 31.08 | --- | --- | Peak |
| 5 | 500.45 | 37.21 | -8.79 | 46.00 | 47.27 | 18.10 | 2.42 | 30.58 | --- | --- | Peak |
| 6 | 810.85 | 38.45 | -7.55 | 46.00 | 43.13 | 22.23 | 2.87 | 29.78 | --- | --- | Peak |

Note 1: “>20dB” means emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found emissions (No emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

| Radiated Emissions (Below 1GHz) | | | |
|---|---|---|---|
| **Operating Mode** | 1 | **Polarization** | H |
| **Operating Function** | Radio link (WLAN) | | |

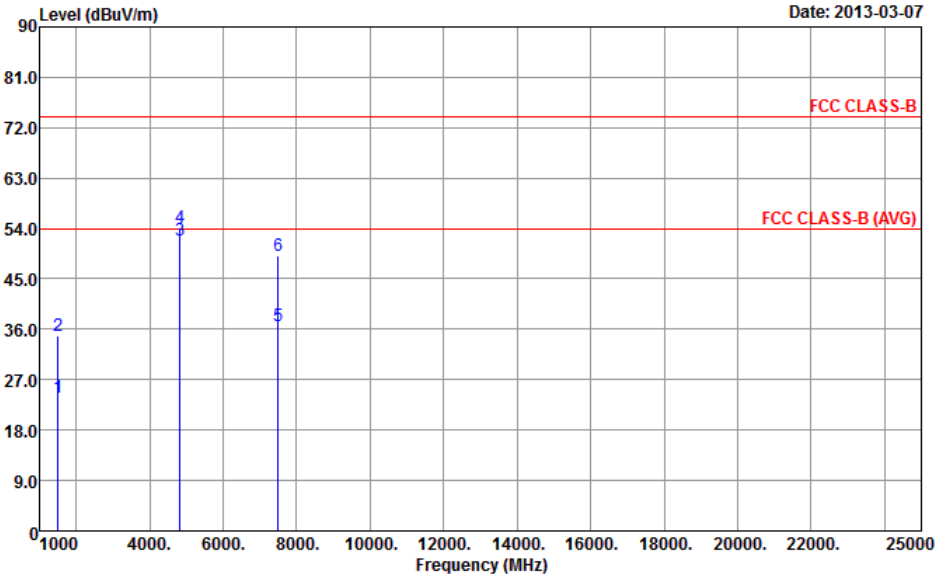



| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | |
| 1 | 106.63 | 38.74 | -4.76 | 43.50 | 58.25 | 10.86 | 1.14 | 31.51 | --- | --- | Peak |
| 2 | 192.96 | 40.41 | -3.09 | 43.50 | 61.32 | 8.76 | 1.44 | 31.11 | --- | --- | QP |
| 3 | 250.19 | 36.32 | -9.68 | 46.00 | 52.99 | 12.62 | 1.61 | 30.90 | --- | --- | Peak |
| 4 | 482.99 | 40.26 | -5.74 | 46.00 | 50.87 | 17.76 | 2.31 | 30.68 | --- | --- | Peak |
| 5 | 676.99 | 34.40 | -11.60 | 46.00 | 41.65 | 20.37 | 2.54 | 30.16 | --- | --- | Peak |
| 6 | 810.85 | 40.36 | -5.64 | 46.00 | 45.04 | 22.23 | 2.87 | 29.78 | --- | --- | Peak |

Note 1: “>20dB” means emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found emissions (No emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

## 3.6.7 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 11b

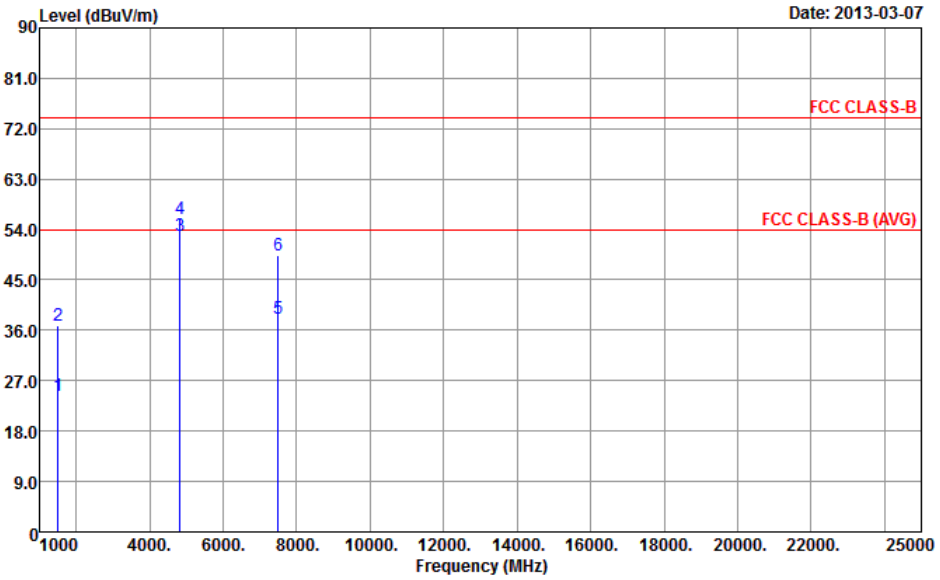
| Transmitter Radiated Unwanted Emissions (Above 1GHz) | | | |
|---|---|---|---|
| **Modulation Mode** | 11b | **Test Freq. (FX)** | F1 |
| **$N_{TX}$** | 2 | **Polarization** | V |




| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | |
| 1 | 1500.00 | 23.70 | -30.30 | 54.00 | 28.95 | 28.00 | 3.55 | 36.80 | --- | --- | Average |
| 2 | 1500.00 | 34.83 | -39.17 | 74.00 | 40.08 | 28.00 | 3.55 | 36.80 | --- | --- | Peak |
| 3 | 4824.00 | 51.85 | -2.15 | 54.00 | 46.04 | 34.26 | 6.51 | 34.96 | --- | --- | Average |
| 4 | 4824.00 | 54.08 | -19.92 | 74.00 | 48.27 | 34.26 | 6.51 | 34.96 | --- | --- | Peak |
| 5 | 7500.00 | 36.71 | -17.29 | 54.00 | 27.05 | 36.00 | 8.76 | 35.10 | --- | --- | Average |
| 6 | 7500.00 | 49.11 | -24.89 | 74.00 | 39.45 | 36.00 | 8.76 | 35.10 | --- | --- | Peak |

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 2 and 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

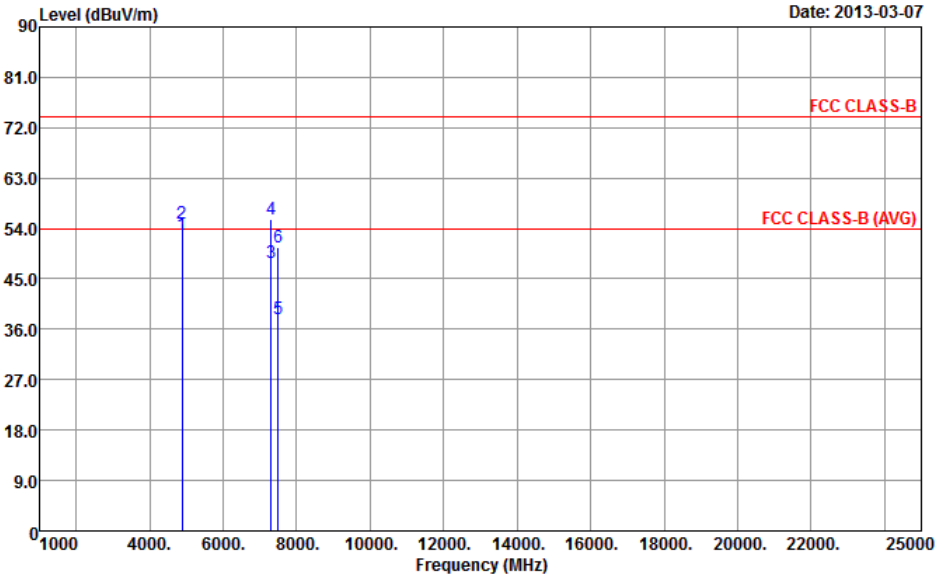
| Transmitter Radiated Unwanted Emissions (Above 1GHz) | | | |
|---|---|---|---|
| **Modulation Mode** | 11b | **Test Freq. (FX)** | F1 |
| **$N_{TX}$** | 2 | **Polarization** | H |




| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | |
| 1 | 1500.00 | 24.20 | -29.80 | 54.00 | 29.45 | 28.00 | 3.55 | 36.80 | --- | --- | Average |
| 2 | 1500.00 | 36.93 | -37.07 | 74.00 | 42.18 | 28.00 | 3.55 | 36.80 | --- | --- | Peak |
| 3 | 4824.00 | 53.00 | -1.00 | 54.00 | 47.19 | 34.26 | 6.51 | 34.96 | --- | --- | Average |
| 4 | 4824.00 | 55.81 | -18.19 | 74.00 | 50.00 | 34.26 | 6.51 | 34.96 | --- | --- | Peak |
| 5 | 7500.00 | 38.20 | -15.80 | 54.00 | 28.54 | 36.00 | 8.76 | 35.10 | --- | --- | Average |
| 6 | 7500.00 | 49.44 | -24.56 | 74.00 | 39.78 | 36.00 | 8.76 | 35.10 | --- | --- | Peak |

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 2 and 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

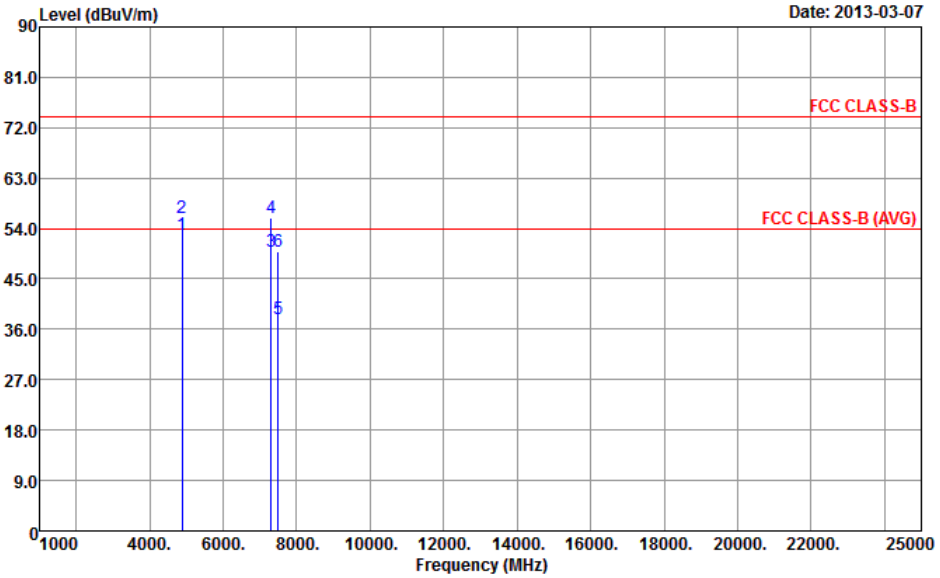
| Transmitter Radiated Unwanted Emissions (Above 1GHz) | | | |
|---|---|---|---|
| **Modulation Mode** | 11b | **Test Freq. (FX)** | F2 |
| **$N_{TX}$** | 2 | **Polarization** | V |




| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | |
| 1 | 4874.00 | 52.99 | -1.01 | 54.00 | 47.16 | 34.27 | 6.53 | 34.97 | --- | --- | Average |
| 2 | 4874.00 | 54.86 | -19.14 | 74.00 | 49.03 | 34.27 | 6.53 | 34.97 | --- | --- | Peak |
| 3 | 7311.00 | 47.76 | -6.24 | 54.00 | 38.34 | 36.04 | 8.40 | 35.02 | --- | --- | Average |
| 4 | 7311.00 | 55.69 | -18.31 | 74.00 | 46.27 | 36.04 | 8.40 | 35.02 | --- | --- | Peak |
| 5 | 7500.00 | 37.87 | -16.13 | 54.00 | 28.21 | 36.00 | 8.76 | 35.10 | --- | --- | Average |
| 6 | 7500.00 | 50.54 | -23.46 | 74.00 | 40.88 | 36.00 | 8.76 | 35.10 | --- | --- | Peak |

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 3) hall be attenuated by at least 20 dB relative to the maximum measured in-band level.

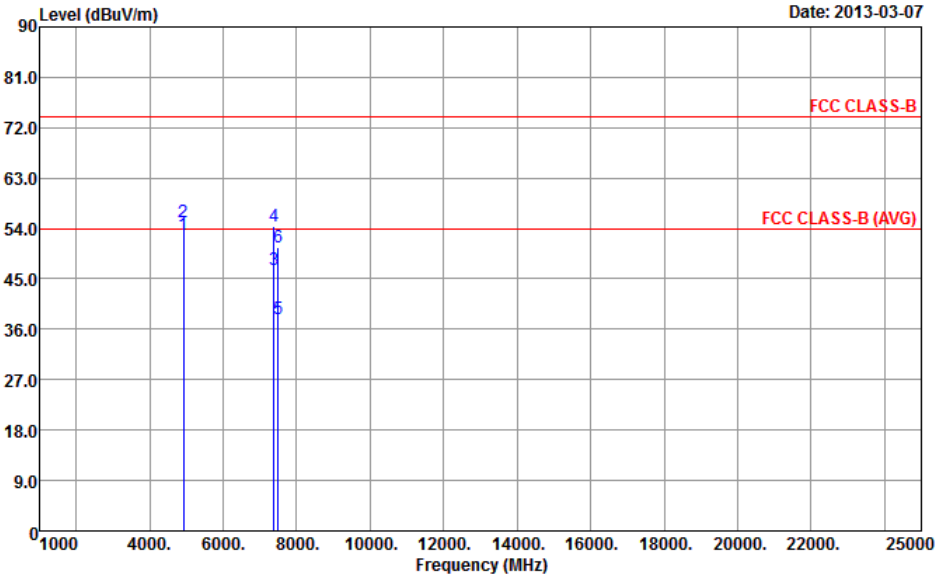
| Transmitter Radiated Unwanted Emissions (Above 1GHz) | | | |
|---|---|---|---|
| **Modulation Mode** | 11b | **Test Freq. (FX)** | F2 |
| **$N_{TX}$** | 2 | **Polarization** | H |




| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | |
| 1 | 4874.00 | 53.00 | -1.00 | 54.00 | 47.17 | 34.27 | 6.53 | 34.97 | --- | --- | Average |
| 2 | 4874.00 | 55.89 | -18.11 | 74.00 | 50.06 | 34.27 | 6.53 | 34.97 | --- | --- | Peak |
| 3 | 7311.00 | 50.00 | -4.00 | 54.00 | 40.58 | 36.04 | 8.40 | 35.02 | --- | --- | Average |
| 4 | 7311.00 | 55.94 | -18.06 | 74.00 | 46.52 | 36.04 | 8.40 | 35.02 | --- | --- | Peak |
| 5 | 7500.00 | 37.87 | -16.13 | 54.00 | 28.21 | 36.00 | 8.76 | 35.10 | --- | --- | Average |
| 6 | 7500.00 | 49.97 | -24.03 | 74.00 | 40.31 | 36.00 | 8.76 | 35.10 | --- | --- | Peak |

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

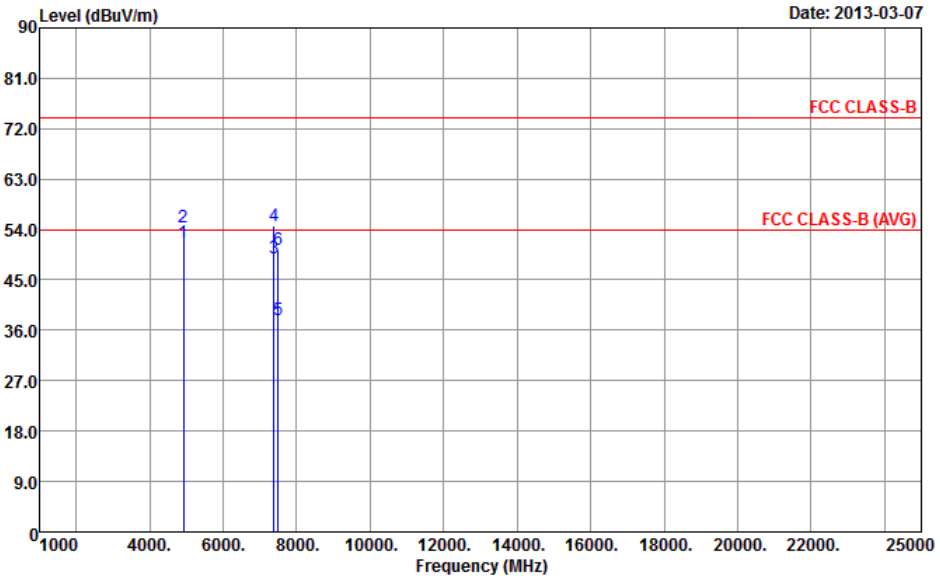
| Transmitter Radiated Unwanted Emissions (Above 1GHz) | | | |
|---|---|---|---|
| **Modulation Mode** | 11b | **Test Freq. (FX)** | F3 |
| **$N_{TX}$** | 2 | **Polarization** | V |




| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | |
| 1 | 4924.00 | 53.00 | -1.00 | 54.00 | 47.15 | 34.28 | 6.55 | 34.98 | --- | --- | Average |
| 2 | 4924.00 | 55.22 | -18.78 | 74.00 | 49.37 | 34.28 | 6.55 | 34.98 | --- | --- | Peak |
| 3 | 7386.00 | 46.56 | -7.44 | 54.00 | 37.03 | 36.02 | 8.56 | 35.05 | --- | --- | Average |
| 4 | 7386.00 | 54.28 | -19.72 | 74.00 | 44.75 | 36.02 | 8.56 | 35.05 | --- | --- | Peak |
| 5 | 7500.00 | 37.86 | -16.14 | 54.00 | 28.20 | 36.00 | 8.76 | 35.10 | --- | --- | Average |
| 6 | 7500.00 | 50.68 | -23.32 | 74.00 | 41.02 | 36.00 | 8.76 | 35.10 | --- | --- | Peak |

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

| Transmitter Radiated Unwanted Emissions (Above 1GHz) | | | |
|---|---|---|---|
| **Modulation Mode** | 11b | **Test Freq. (FX)** | F3 |
| **$N_{TX}$** | 2 | **Polarization** | H |

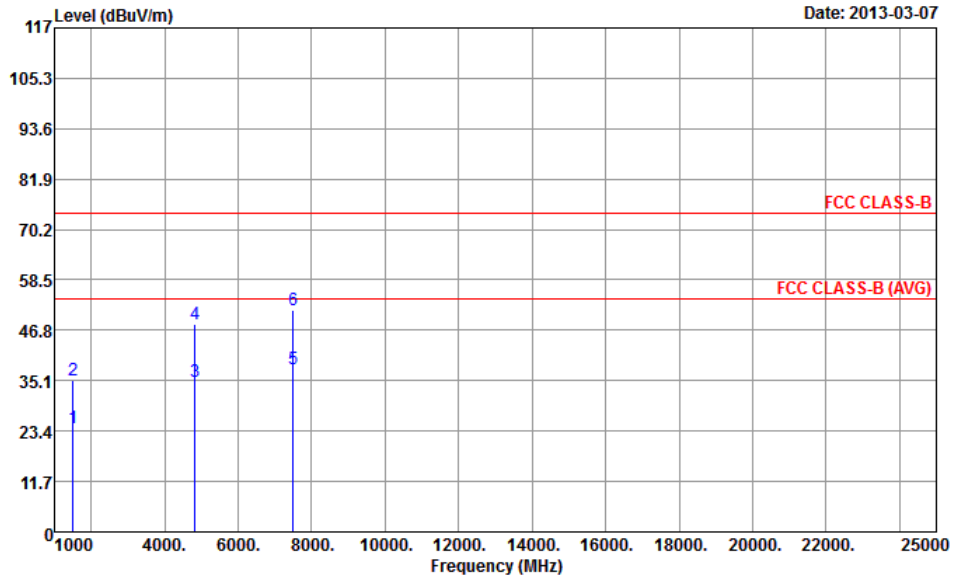



| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | |
| 1 | 4924.00 | 51.73 | -2.27 | 54.00 | 45.88 | 34.28 | 6.55 | 34.98 | --- | --- | Average |
| 2 | 4924.00 | 54.34 | -19.66 | 74.00 | 48.49 | 34.28 | 6.55 | 34.98 | --- | --- | Peak |
| 3 | 7386.00 | 49.00 | -5.00 | 54.00 | 39.47 | 36.02 | 8.56 | 35.05 | --- | --- | Average |
| 4 | 7386.00 | 54.76 | -19.24 | 74.00 | 45.23 | 36.02 | 8.56 | 35.05 | --- | --- | Peak |
| 5 | 7500.00 | 37.75 | -16.25 | 54.00 | 28.09 | 36.00 | 8.76 | 35.10 | --- | --- | Average |
| 6 | 7500.00 | 50.43 | -23.57 | 74.00 | 40.77 | 36.00 | 8.76 | 35.10 | --- | --- | Peak |

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

## 3.6.8 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 11g

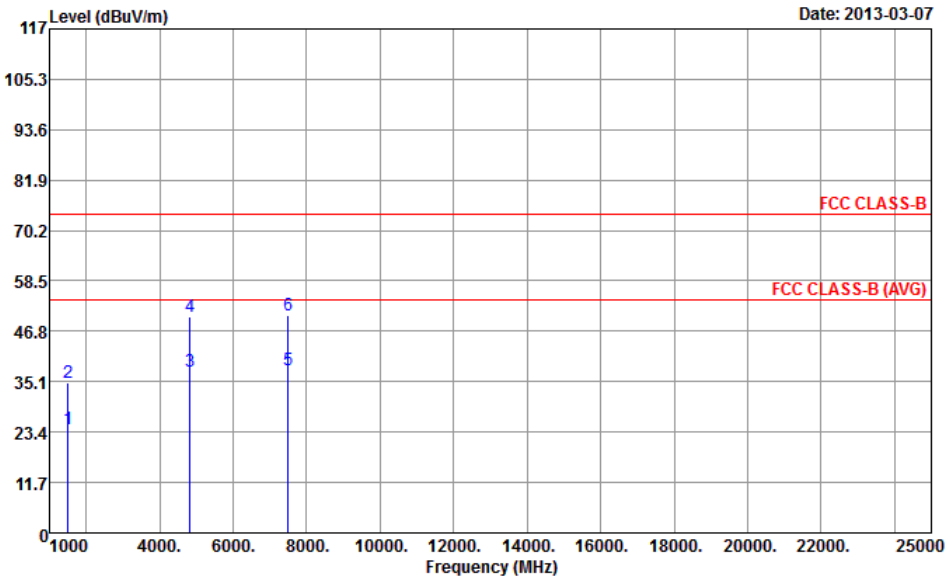
| Transmitter Radiated Unwanted Emissions (Above 1GHz) | | | |
|---|---|---|---|
| **Modulation Mode** | 11g | **Test Freq. (FX)** | F1 |
| **$N_{TX}$** | 2 | **Polarization** | V |




| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | |
| 1 | 1500.00 | 24.22 | -29.78 | 54.00 | 29.47 | 28.00 | 3.55 | 36.80 | --- | --- | Average |
| 2 | 1500.00 | 35.27 | -38.73 | 74.00 | 40.52 | 28.00 | 3.55 | 36.80 | --- | --- | Peak |
| 3 | 4824.00 | 34.93 | -19.07 | 54.00 | 29.12 | 34.26 | 6.51 | 34.96 | --- | --- | Average |
| 4 | 4824.00 | 48.36 | -25.64 | 74.00 | 42.55 | 34.26 | 6.51 | 34.96 | --- | --- | Peak |
| 5 | 7500.00 | 37.91 | -16.09 | 54.00 | 28.25 | 36.00 | 8.76 | 35.10 | --- | --- | Average |
| 6 | 7500.00 | 51.37 | -22.63 | 74.00 | 41.71 | 36.00 | 8.76 | 35.10 | --- | --- | Peak |

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 2 and 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

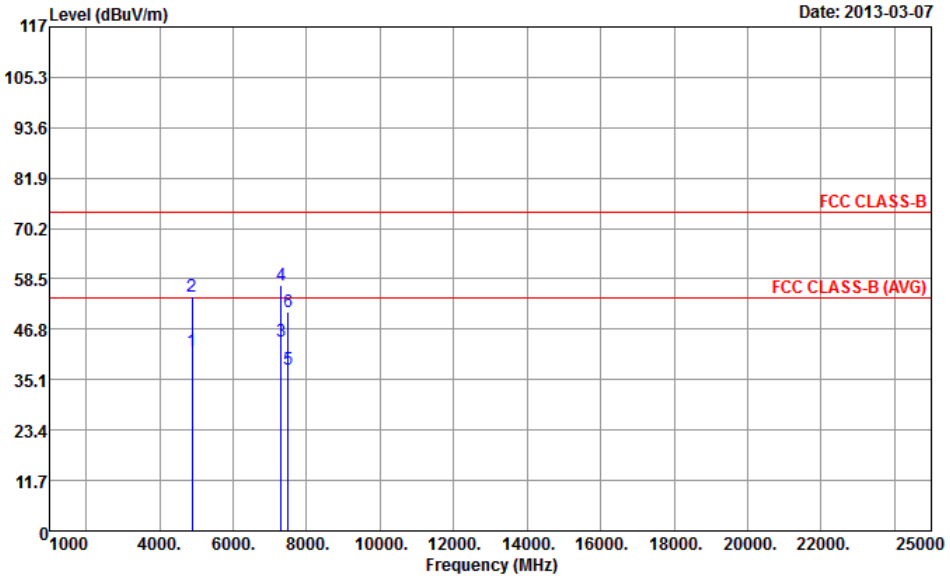
| Transmitter Radiated Unwanted Emissions (Above 1GHz) | | | |
|---|---|---|---|
| **Modulation Mode** | 11g | **Test Freq. (FX)** | F1 |
| **$N_{TX}$** | 2 | **Polarization** | H |




| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | |
| 1 | 1500.00 | 24.21 | -29.79 | 54.00 | 29.46 | 28.00 | 3.55 | 36.80 | --- | --- | Average |
| 2 | 1500.00 | 34.99 | -39.01 | 74.00 | 40.24 | 28.00 | 3.55 | 36.80 | --- | --- | Peak |
| 3 | 4824.00 | 37.41 | -16.59 | 54.00 | 31.60 | 34.26 | 6.51 | 34.96 | --- | --- | Average |
| 4 | 4824.00 | 50.15 | -23.85 | 74.00 | 44.34 | 34.26 | 6.51 | 34.96 | --- | --- | Peak |
| 5 | 7500.00 | 37.82 | -16.18 | 54.00 | 28.16 | 36.00 | 8.76 | 35.10 | --- | --- | Average |
| 6 | 7500.00 | 50.55 | -23.45 | 74.00 | 40.89 | 36.00 | 8.76 | 35.10 | --- | --- | Peak |

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 2 and 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

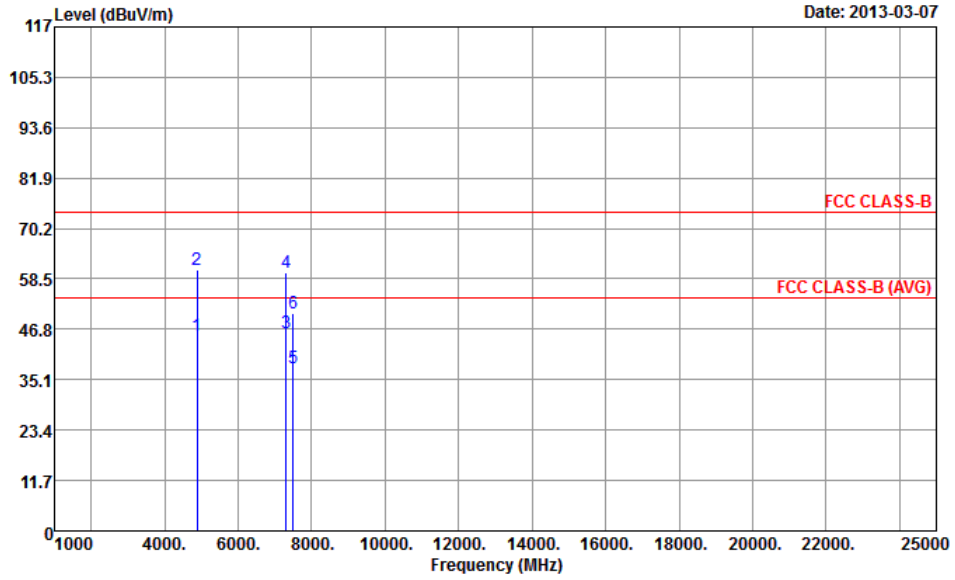
| Transmitter Radiated Unwanted Emissions (Above 1GHz) | | | |
|---|---|---|---|
| **Modulation Mode** | 11g | **Test Freq. (FX)** | F2 |
| **$N_{TX}$** | 2 | **Polarization** | V |




| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | |
| 1 | 4874.00 | 41.85 | -12.15 | 54.00 | 36.02 | 34.27 | 6.53 | 34.97 | --- | --- | Average |
| 2 | 4874.00 | 54.35 | -19.65 | 74.00 | 48.52 | 34.27 | 6.53 | 34.97 | --- | --- | Peak |
| 3 | 7311.00 | 44.11 | -9.89 | 54.00 | 34.69 | 36.04 | 8.40 | 35.02 | --- | --- | Average |
| 4 | 7311.00 | 57.12 | -16.88 | 74.00 | 47.70 | 36.04 | 8.40 | 35.02 | --- | --- | Peak |
| 5 | 7500.00 | 37.55 | -16.45 | 54.00 | 27.89 | 36.00 | 8.76 | 35.10 | --- | --- | Average |
| 6 | 7500.00 | 50.78 | -23.22 | 74.00 | 41.12 | 36.00 | 8.76 | 35.10 | --- | --- | Peak |

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

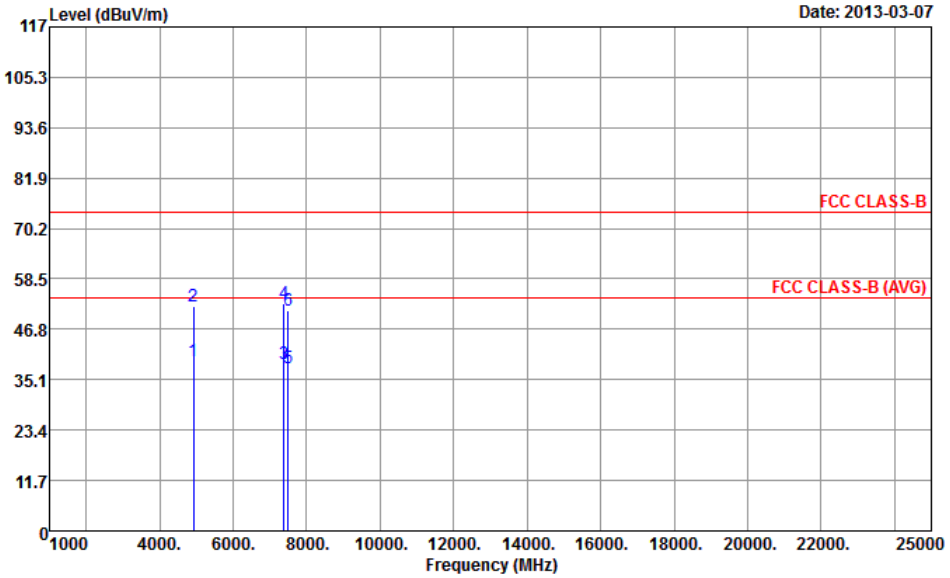
| Transmitter Radiated Unwanted Emissions (Above 1GHz) | | | |
|---|---|---|---|
| **Modulation Mode** | 11g | **Test Freq. (FX)** | F2 |
| **$N_{TX}$** | 2 | **Polarization** | H |




| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | |
| 1 | 4874.00 | 45.21 | -8.79 | 54.00 | 39.38 | 34.27 | 6.53 | 34.97 | --- | --- | Average |
| 2 | 4874.00 | 60.71 | -13.29 | 74.00 | 54.88 | 34.27 | 6.53 | 34.97 | --- | --- | Peak |
| 3 | 7311.00 | 45.82 | -8.18 | 54.00 | 36.40 | 36.04 | 8.40 | 35.02 | --- | --- | Average |
| 4 | 7311.00 | 59.99 | -14.01 | 74.00 | 50.57 | 36.04 | 8.40 | 35.02 | --- | --- | Peak |
| 5 | 7500.00 | 37.89 | -16.11 | 54.00 | 28.23 | 36.00 | 8.76 | 35.10 | --- | --- | Average |
| 6 | 7500.00 | 50.55 | -23.45 | 74.00 | 40.89 | 36.00 | 8.76 | 35.10 | --- | --- | Peak |

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

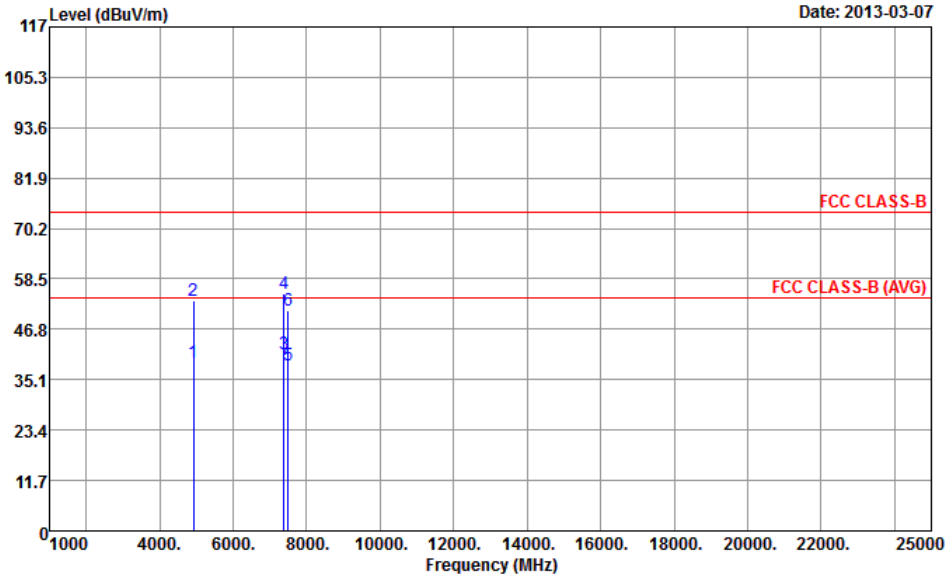
| Transmitter Radiated Unwanted Emissions (Above 1GHz) | | | |
|---|---|---|---|
| **Modulation Mode** | 11g | **Test Freq. (FX)** | F3 |
| **$N_{TX}$** | 2 | **Polarization** | V |




| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | |
| 1 | 4924.00 | 39.36 | -14.64 | 54.00 | 33.51 | 34.28 | 6.55 | 34.98 | --- | --- | Average |
| 2 | 4924.00 | 52.15 | -21.85 | 74.00 | 46.30 | 34.28 | 6.55 | 34.98 | --- | --- | Peak |
| 3 | 7386.00 | 38.94 | -15.06 | 54.00 | 29.41 | 36.02 | 8.56 | 35.05 | --- | --- | Average |
| 4 | 7386.00 | 52.74 | -21.26 | 74.00 | 43.21 | 36.02 | 8.56 | 35.05 | --- | --- | Peak |
| 5 | 7500.00 | 37.91 | -16.09 | 54.00 | 28.25 | 36.00 | 8.76 | 35.10 | --- | --- | Average |
| 6 | 7500.00 | 51.25 | -22.75 | 74.00 | 41.59 | 36.00 | 8.76 | 35.10 | --- | --- | Peak |

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

| Transmitter Radiated Unwanted Emissions (Above 1GHz) | | | |
|---|---|---|---|
| **Modulation Mode** | 11g | **Test Freq. (FX)** | F3 |
| **$N_{TX}$** | 2 | **Polarization** | H |

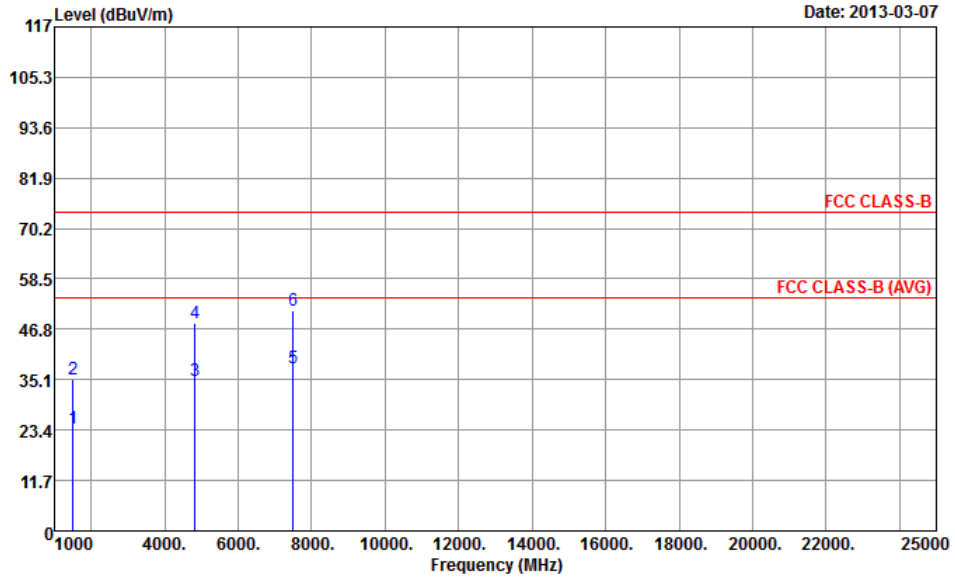



| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | |
| 1 | 4924.00 | 39.11 | -14.89 | 54.00 | 33.26 | 34.28 | 6.55 | 34.98 | --- | --- | Average |
| 2 | 4924.00 | 53.33 | -20.67 | 74.00 | 47.48 | 34.28 | 6.55 | 34.98 | --- | --- | Peak |
| 3 | 7386.00 | 41.21 | -12.79 | 54.00 | 31.68 | 36.02 | 8.56 | 35.05 | --- | --- | Average |
| 4 | 7386.00 | 54.99 | -19.01 | 74.00 | 45.46 | 36.02 | 8.56 | 35.05 | --- | --- | Peak |
| 5 | 7500.00 | 38.41 | -15.59 | 54.00 | 28.75 | 36.00 | 8.76 | 35.10 | --- | --- | Average |
| 6 | 7500.00 | 51.21 | -22.79 | 74.00 | 41.55 | 36.00 | 8.76 | 35.10 | --- | --- | Peak |

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

### 3.6.9 Transmitter Radiated Unwanted Emissions (Above 1GHz) for HT-20

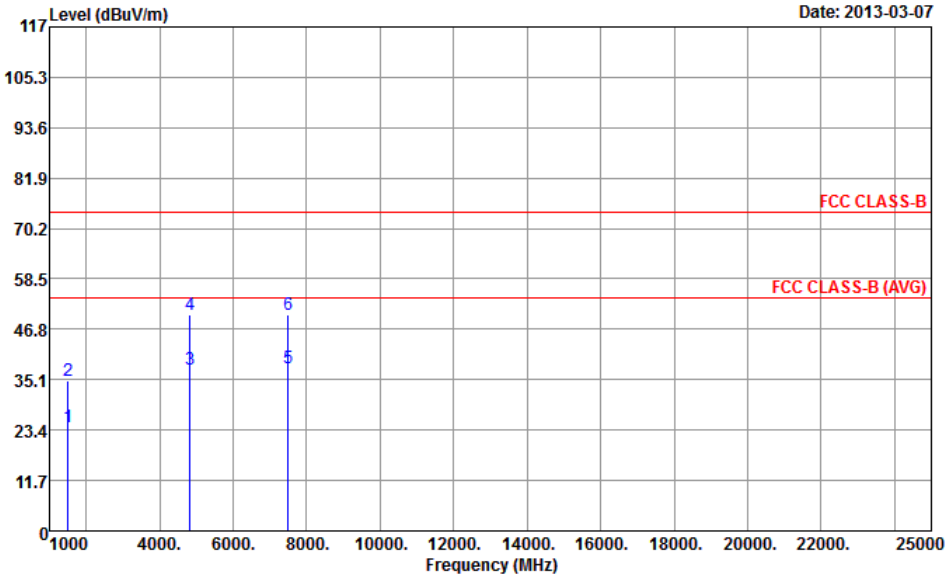
| Transmitter Radiated Unwanted Emissions (Above 1GHz) | | | |
|---|---|---|---|
| **Modulation Mode** | HT-20 | **Test Freq. (FX)** | F1 |
| **$N_{TX}$** | 2 | **Polarization** | V |




| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | |
| 1 | 1500.00 | 23.86 | -30.14 | 54.00 | 29.11 | 28.00 | 3.55 | 36.80 | --- | --- | Average |
| 2 | 1500.00 | 35.13 | -38.87 | 74.00 | 40.38 | 28.00 | 3.55 | 36.80 | --- | --- | Peak |
| 3 | 4824.00 | 34.86 | -19.14 | 54.00 | 29.05 | 34.26 | 6.51 | 34.96 | --- | --- | Average |
| 4 | 4824.00 | 48.08 | -25.92 | 74.00 | 42.27 | 34.26 | 6.51 | 34.96 | --- | --- | Peak |
| 5 | 7500.00 | 37.73 | -16.27 | 54.00 | 28.07 | 36.00 | 8.76 | 35.10 | --- | --- | Average |
| 6 | 7500.00 | 51.17 | -22.83 | 74.00 | 41.51 | 36.00 | 8.76 | 35.10 | --- | --- | Peak |

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 2 and 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

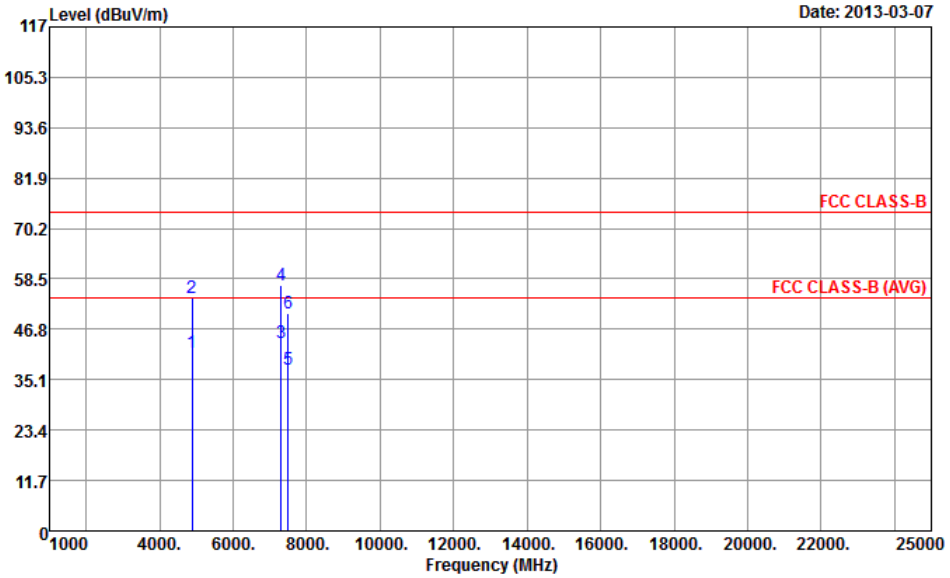
| Transmitter Radiated Unwanted Emissions (Above 1GHz) | | | |
|---|---|---|---|
| **Modulation Mode** | HT-20 | **Test Freq. (FX)** | F1 |
| **$N_{TX}$** | 2 | **Polarization** | H |




| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | |
| 1 | 1500.00 | 24.00 | -30.00 | 54.00 | 29.25 | 28.00 | 3.55 | 36.80 | --- | --- | Average |
| 2 | 1500.00 | 34.83 | -39.17 | 74.00 | 40.08 | 28.00 | 3.55 | 36.80 | --- | --- | Peak |
| 3 | 4824.00 | 37.36 | -16.64 | 54.00 | 31.55 | 34.26 | 6.51 | 34.96 | --- | --- | Average |
| 4 | 4824.00 | 50.05 | -23.95 | 74.00 | 44.24 | 34.26 | 6.51 | 34.96 | --- | --- | Peak |
| 5 | 7500.00 | 37.73 | -16.27 | 54.00 | 28.07 | 36.00 | 8.76 | 35.10 | --- | --- | Average |
| 6 | 7500.00 | 50.34 | -23.66 | 74.00 | 40.68 | 36.00 | 8.76 | 35.10 | --- | --- | Peak |

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 2 and 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

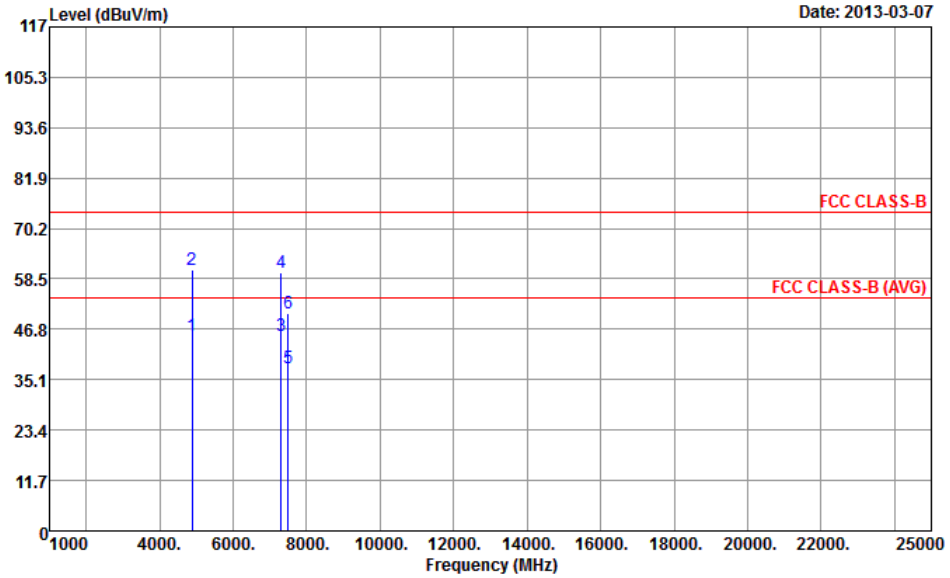
| Transmitter Radiated Unwanted Emissions (Above 1GHz) | | | |
|---|---|---|---|
| **Modulation Mode** | HT-20 | **Test Freq. (FX)** | F2 |
| **$N_{TX}$** | 2 | **Polarization** | V |




| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | |
| 1 | 4874.00 | 41.53 | -12.47 | 54.00 | 35.70 | 34.27 | 6.53 | 34.97 | --- | --- | Average |
| 2 | 4874.00 | 54.05 | -19.95 | 74.00 | 48.22 | 34.27 | 6.53 | 34.97 | --- | --- | Peak |
| 3 | 7311.00 | 43.53 | -10.47 | 54.00 | 34.11 | 36.04 | 8.40 | 35.02 | --- | --- | Average |
| 4 | 7311.00 | 57.01 | -16.99 | 74.00 | 47.59 | 36.04 | 8.40 | 35.02 | --- | --- | Peak |
| 5 | 7500.00 | 37.43 | -16.57 | 54.00 | 27.77 | 36.00 | 8.76 | 35.10 | --- | --- | Average |
| 6 | 7500.00 | 50.60 | -23.40 | 74.00 | 40.94 | 36.00 | 8.76 | 35.10 | --- | --- | Peak |

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

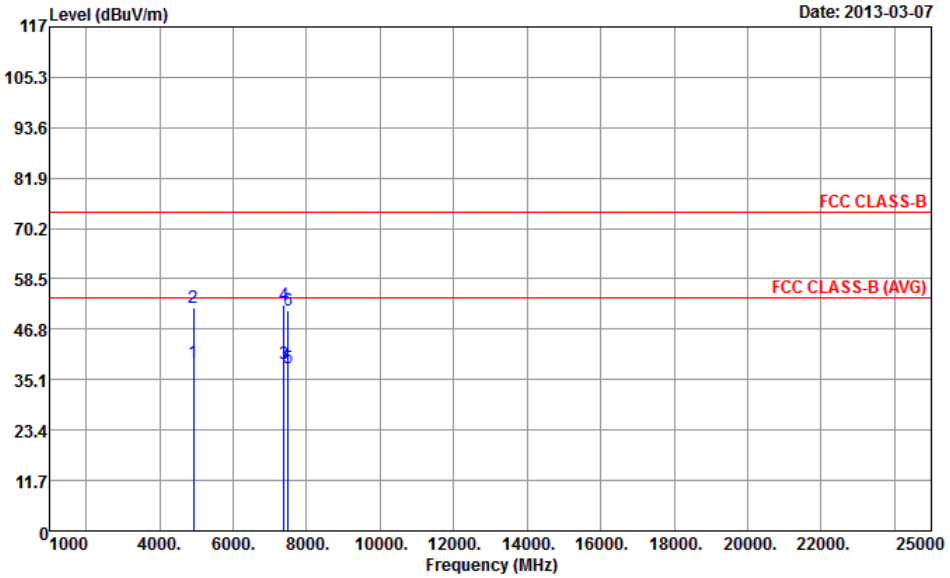
| Transmitter Radiated Unwanted Emissions (Above 1GHz) | | | |
|---|---|---|---|
| **Modulation Mode** | HT-20 | **Test Freq. (FX)** | F2 |
| **$N_{TX}$** | 2 | **Polarization** | H |




| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | |
| 1 | 4874.00 | 45.16 | -8.84 | 54.00 | 39.33 | 34.27 | 6.53 | 34.97 | --- | --- | Average |
| 2 | 4874.00 | 60.69 | -13.31 | 74.00 | 54.86 | 34.27 | 6.53 | 34.97 | --- | --- | Peak |
| 3 | 7311.00 | 45.46 | -8.54 | 54.00 | 36.04 | 36.04 | 8.40 | 35.02 | --- | --- | Average |
| 4 | 7311.00 | 59.91 | -14.09 | 74.00 | 50.49 | 36.04 | 8.40 | 35.02 | --- | --- | Peak |
| 5 | 7500.00 | 37.75 | -16.25 | 54.00 | 28.09 | 36.00 | 8.76 | 35.10 | --- | --- | Average |
| 6 | 7500.00 | 50.43 | -23.57 | 74.00 | 40.77 | 36.00 | 8.76 | 35.10 | --- | --- | Peak |

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

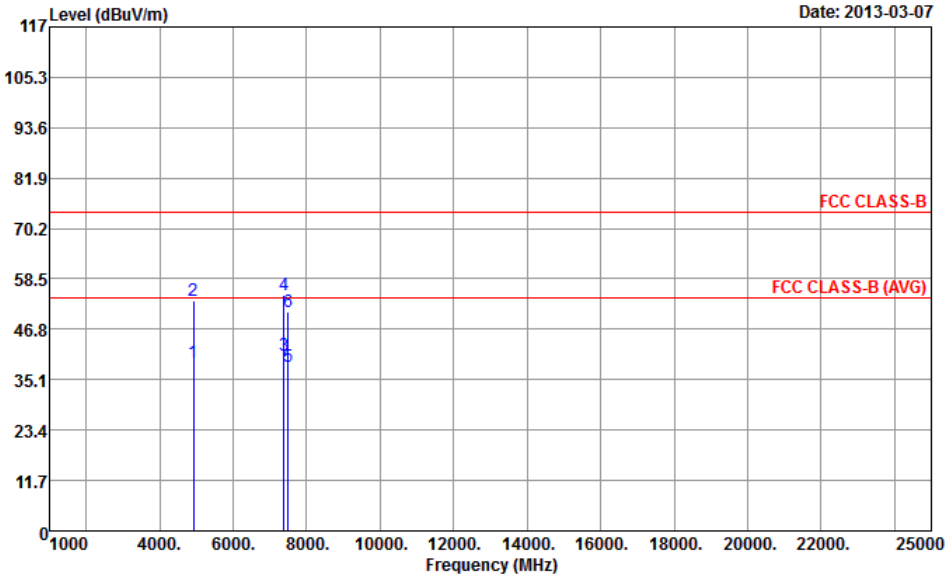
| Transmitter Radiated Unwanted Emissions (Above 1GHz) | | | |
|---|---|---|---|
| **Modulation Mode** | HT-20 | **Test Freq. (FX)** | F3 |
| **$N_{TX}$** | 2 | **Polarization** | V |




| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | |
| 1 | 4924.00 | 38.96 | -15.04 | 54.00 | 33.11 | 34.28 | 6.55 | 34.98 | --- | --- | Average |
| 2 | 4924.00 | 51.93 | -22.07 | 74.00 | 46.08 | 34.28 | 6.55 | 34.98 | --- | --- | Peak |
| 3 | 7386.00 | 38.83 | -15.17 | 54.00 | 29.30 | 36.02 | 8.56 | 35.05 | --- | --- | Average |
| 4 | 7386.00 | 52.55 | -21.45 | 74.00 | 43.02 | 36.02 | 8.56 | 35.05 | --- | --- | Peak |
| 5 | 7500.00 | 37.75 | -16.25 | 54.00 | 28.09 | 36.00 | 8.76 | 35.10 | --- | --- | Average |
| 6 | 7500.00 | 51.06 | -22.94 | 74.00 | 41.40 | 36.00 | 8.76 | 35.10 | --- | --- | Peak |

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

| Transmitter Radiated Unwanted Emissions (Above 1GHz) | | | |
|---|---|---|---|
| **Modulation Mode** | HT-20 | **Test Freq. (FX)** | F3 |
| **$N_{TX}$** | 2 | **Polarization** | H |

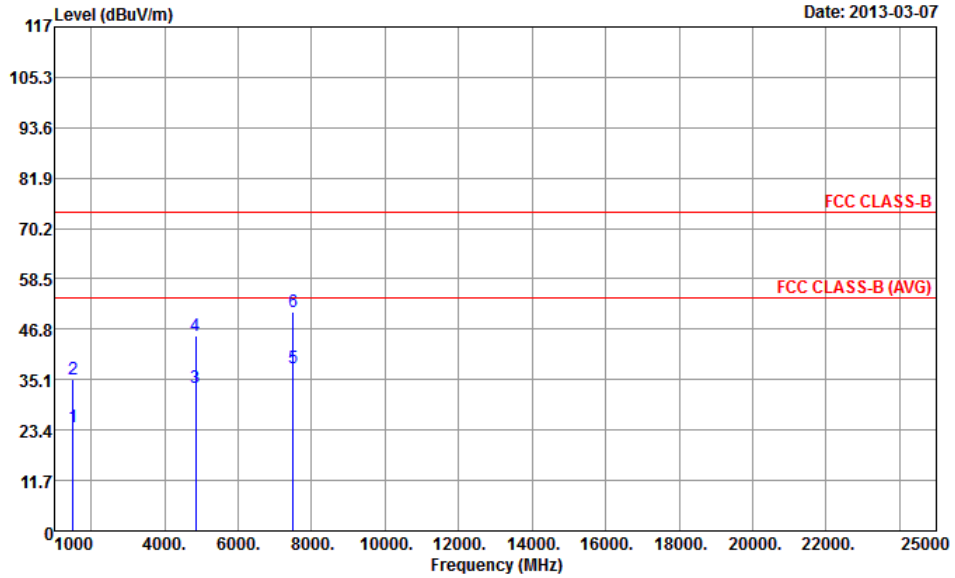



| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | |
| 1 | 4924.00 | 38.96 | -15.04 | 54.00 | 33.11 | 34.28 | 6.55 | 34.98 | --- | --- | Average |
| 2 | 4924.00 | 53.33 | -20.67 | 74.00 | 47.48 | 34.28 | 6.55 | 34.98 | --- | --- | Peak |
| 3 | 7386.00 | 40.88 | -13.12 | 54.00 | 31.35 | 36.02 | 8.56 | 35.05 | --- | --- | Average |
| 4 | 7386.00 | 54.72 | -19.28 | 74.00 | 45.19 | 36.02 | 8.56 | 35.05 | --- | --- | Peak |
| 5 | 7500.00 | 38.27 | -15.73 | 54.00 | 28.61 | 36.00 | 8.76 | 35.10 | --- | --- | Average |
| 6 | 7500.00 | 50.99 | -23.01 | 74.00 | 41.33 | 36.00 | 8.76 | 35.10 | --- | --- | Peak |

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

## 3.6.10 Transmitter Radiated Unwanted Emissions (Above 1GHz) for HT-40

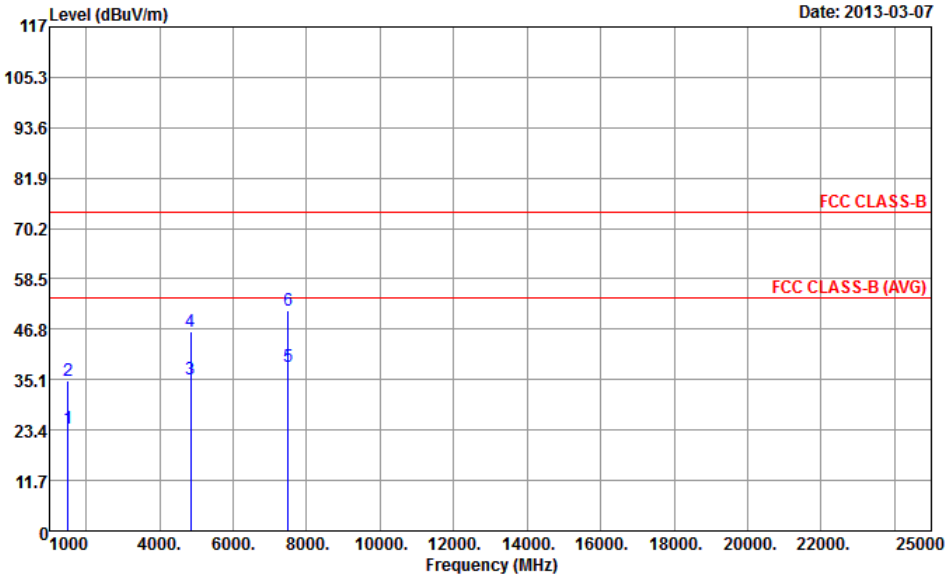
| Transmitter Radiated Unwanted Emissions (Above 1GHz) | | | |
|---|---|---|---|
| **Modulation Mode** | HT-40 | **Test Freq. (FX)** | F4 |
| **$N_{TX}$** | 2 | **Polarization** | V |




| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | |
| 1 | 1500.00 | 24.00 | -30.00 | 54.00 | 29.25 | 28.00 | 3.55 | 36.80 | --- | --- | Average |
| 2 | 1500.00 | 35.29 | -38.71 | 74.00 | 40.54 | 28.00 | 3.55 | 36.80 | --- | --- | Peak |
| 3 | 4844.00 | 33.12 | -20.88 | 54.00 | 27.30 | 34.27 | 6.52 | 34.97 | --- | --- | Average |
| 4 | 4844.00 | 45.32 | -28.68 | 74.00 | 39.50 | 34.27 | 6.52 | 34.97 | --- | --- | Peak |
| 5 | 7500.00 | 37.88 | -16.12 | 54.00 | 28.22 | 36.00 | 8.76 | 35.10 | --- | --- | Average |
| 6 | 7500.00 | 50.69 | -23.31 | 74.00 | 41.03 | 36.00 | 8.76 | 35.10 | --- | --- | Peak |

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

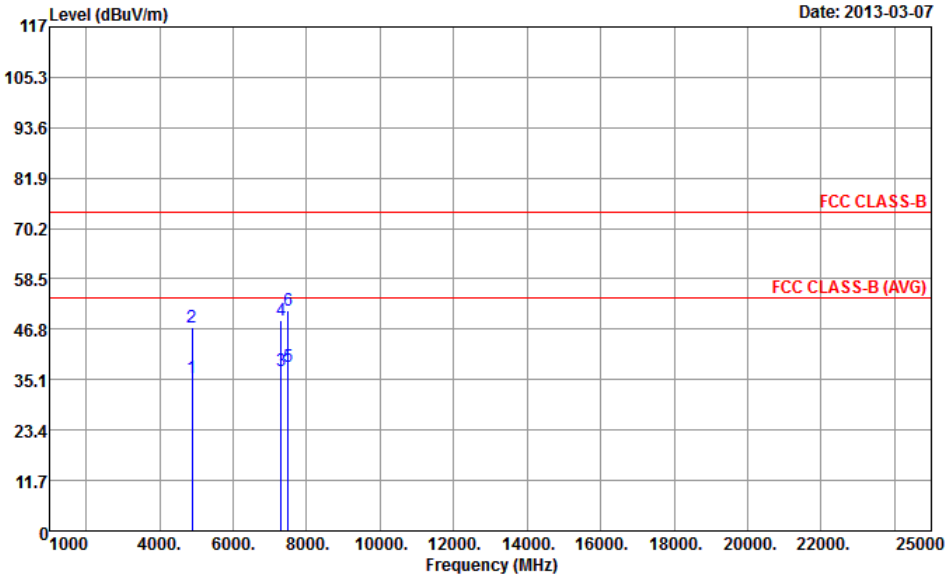
| Transmitter Radiated Unwanted Emissions (Above 1GHz) | | | |
|---|---|---|---|
| **Modulation Mode** | HT-40 | **Test Freq. (FX)** | F4 |
| **$N_{TX}$** | 2 | **Polarization** | H |




| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | |
| 1 | 1500.00 | 23.86 | -30.14 | 54.00 | 29.11 | 28.00 | 3.55 | 36.80 | --- | --- | Average |
| 2 | 1500.00 | 34.83 | -39.17 | 74.00 | 40.08 | 28.00 | 3.55 | 36.80 | --- | --- | Peak |
| 3 | 4844.00 | 35.12 | -18.88 | 54.00 | 29.30 | 34.27 | 6.52 | 34.97 | --- | --- | Average |
| 4 | 4844.00 | 46.18 | -27.82 | 74.00 | 40.36 | 34.27 | 6.52 | 34.97 | --- | --- | Peak |
| 5 | 7500.00 | 37.98 | -16.02 | 54.00 | 28.32 | 36.00 | 8.76 | 35.10 | --- | --- | Average |
| 6 | 7500.00 | 51.28 | -22.72 | 74.00 | 41.62 | 36.00 | 8.76 | 35.10 | --- | --- | Peak |

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

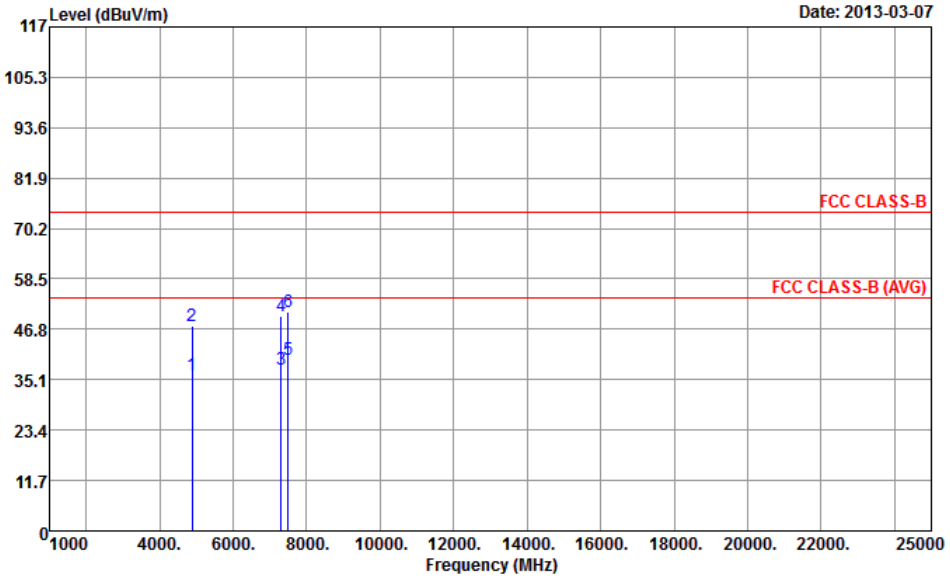
| Transmitter Radiated Unwanted Emissions (Above 1GHz) | | | |
|---|---|---|---|
| **Modulation Mode** | HT-40 | **Test Freq. (FX)** | F5 |
| **$N_{TX}$** | 2 | **Polarization** | V |




| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | |
| 1 | 4874.00 | 35.41 | -18.59 | 54.00 | 29.58 | 34.27 | 6.53 | 34.97 | --- | --- | Average |
| 2 | 4874.00 | 47.38 | -26.62 | 74.00 | 41.55 | 34.27 | 6.53 | 34.97 | --- | --- | Peak |
| 3 | 7311.00 | 37.04 | -16.96 | 54.00 | 27.62 | 36.04 | 8.40 | 35.02 | --- | --- | Average |
| 4 | 7311.00 | 48.94 | -25.06 | 74.00 | 39.52 | 36.04 | 8.40 | 35.02 | --- | --- | Peak |
| 5 | 7500.00 | 37.97 | -16.03 | 54.00 | 28.31 | 36.00 | 8.76 | 35.10 | --- | --- | Average |
| 6 | 7500.00 | 51.01 | -22.99 | 74.00 | 41.35 | 36.00 | 8.76 | 35.10 | --- | --- | Peak |

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

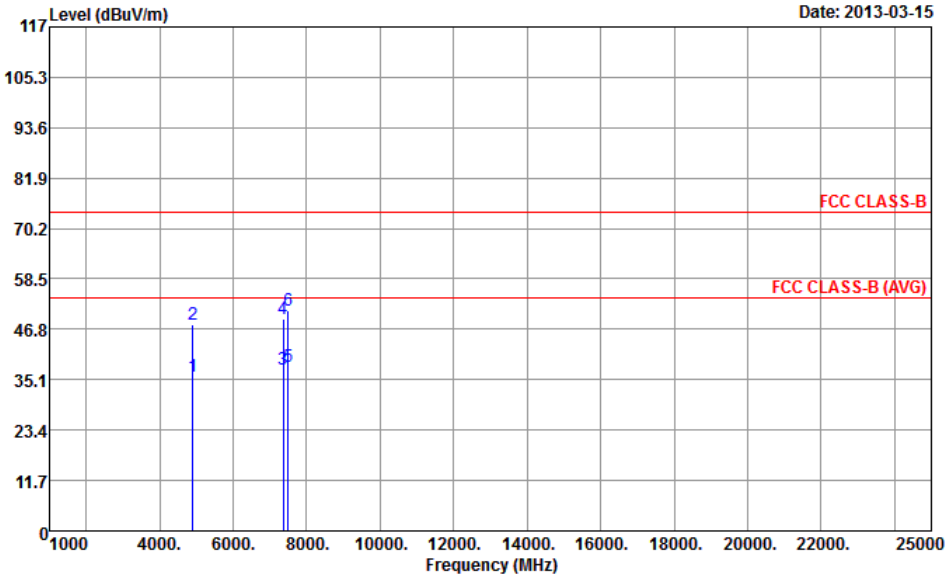
| Transmitter Radiated Unwanted Emissions (Above 1GHz) | | | |
|---|---|---|---|
| **Modulation Mode** | HT-40 | **Test Freq. (FX)** | F5 |
| **$N_{TX}$** | 2 | **Polarization** | H |




| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | |
| 1 | 4874.00 | 36.29 | -17.71 | 54.00 | 30.46 | 34.27 | 6.53 | 34.97 | --- | --- | Average |
| 2 | 4874.00 | 47.56 | -26.44 | 74.00 | 41.73 | 34.27 | 6.53 | 34.97 | --- | --- | Peak |
| 3 | 7311.00 | 37.47 | -16.53 | 54.00 | 28.05 | 36.04 | 8.40 | 35.02 | --- | --- | Average |
| 4 | 7311.00 | 50.02 | -23.98 | 74.00 | 40.60 | 36.04 | 8.40 | 35.02 | --- | --- | Peak |
| 5 | 7500.00 | 39.77 | -14.23 | 54.00 | 30.11 | 36.00 | 8.76 | 35.10 | --- | --- | Average |
| 6 | 7500.00 | 50.98 | -23.02 | 74.00 | 41.32 | 36.00 | 8.76 | 35.10 | --- | --- | Peak |

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

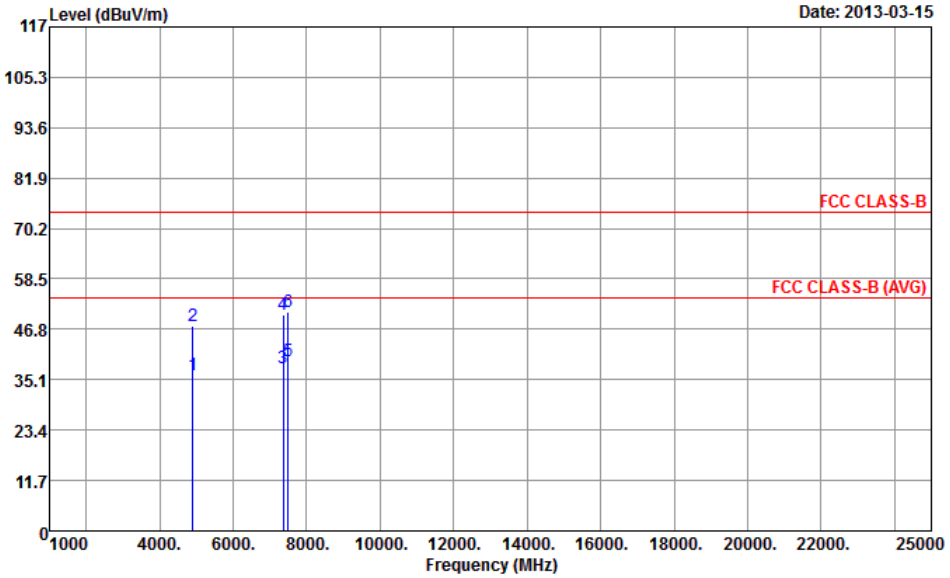
| Transmitter Radiated Unwanted Emissions (Above 1GHz) | | | |
|---|---|---|---|
| **Modulation Mode** | HT-40 | **Test Freq. (FX)** | F6 |
| **$N_{TX}$** | 2 | **Polarization** | V |




| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | |
| 1 | 4904.00 | 35.81 | -18.19 | 54.00 | 29.97 | 34.28 | 6.54 | 34.98 | --- | --- | Average |
| 2 | 4904.00 | 47.88 | -26.12 | 74.00 | 42.04 | 34.28 | 6.54 | 34.98 | --- | --- | Peak |
| 3 | 7356.00 | 37.61 | -16.39 | 54.00 | 28.12 | 36.03 | 8.50 | 35.04 | --- | --- | Average |
| 4 | 7356.00 | 49.21 | -24.79 | 74.00 | 39.72 | 36.03 | 8.50 | 35.04 | --- | --- | Peak |
| 5 | 7500.00 | 38.26 | -15.74 | 54.00 | 28.60 | 36.00 | 8.76 | 35.10 | --- | --- | Average |
| 6 | 7500.00 | 51.23 | -22.77 | 74.00 | 41.57 | 36.00 | 8.76 | 35.10 | --- | --- | Peak |

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

| Transmitter Radiated Unwanted Emissions (Above 1GHz) | | | |
|---|---|---|---|
| **Modulation Mode** | HT-40 | **Test Freq. (FX)** | F6 |
| **$N_{TX}$** | 2 | **Polarization** | H |




| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | |
| 1 | 4904.00 | 36.33 | -17.67 | 54.00 | 30.49 | 34.28 | 6.54 | 34.98 | --- | --- | Average |
| 2 | 4904.00 | 47.68 | -26.32 | 74.00 | 41.84 | 34.28 | 6.54 | 34.98 | --- | --- | Peak |
| 3 | 7356.00 | 37.68 | -16.32 | 54.00 | 28.19 | 36.03 | 8.50 | 35.04 | --- | --- | Average |
| 4 | 7356.00 | 50.11 | -23.89 | 74.00 | 40.62 | 36.03 | 8.50 | 35.04 | --- | --- | Peak |
| 5 | 7500.00 | 39.41 | -14.59 | 54.00 | 29.75 | 36.00 | 8.76 | 35.10 | --- | --- | Average |
| 6 | 7500.00 | 50.77 | -23.23 | 74.00 | 41.11 | 36.00 | 8.76 | 35.10 | --- | --- | Peak |

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions (item 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

# 4 Test Equipment and Calibration Data

| Instrument | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Date | Remark |
|---|---|---|---|---|---|---|
| EMC Receiver | R&S | ESCS 30 | 100174 | 9kHz ~ 2.75GHz | Mar. 23, 2012 | Conduction (CO04-HY) |
| LISN | SCHWARZBECK MESS-ELEKTRONIK | NSLK 8127 | 8127-477 | 9kHz ~ 30MHz | Jan. 21, 2013 | Conduction (CO04-HY) |
| LISN (Support Unit) | EMCO | 3810/2NM | 9703-1839 | 9kHz ~ 30MHz | Apr. 20, 2012 | Conduction (CO04-HY) |
| RF Cable-CON | HUBER+SUHNER | RG213/U | CB049 | 9kHz ~ 30MHz | Apr. 25, 2012 | Conduction (CO04-HY) |
| EMI Filter | LINDGREN | LRE-2030 | 2651 | < 450 Hz | N/A | Conduction (CO04-HY) |

Note: Calibration Interval of instruments listed above is one year.

| Instrument | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Date | Remark |
|---|---|---|---|---|---|---|
| Spectrum Analyzer | R&S | FSP 40 | 100305 | 9KHz ~ 40GHz | Apr. 27, 2012 | Conducted (TH01-HY) |
| DC Power Source | G.W. | GPC-6030D | C671845 | DC 1V ~ 60V | Jun. 19, 2012 | Conducted (TH01-HY) |
| AC Power Source | G.W | APS-9102 | EL920581 | AC 0V ~ 300V | Jul. 02, 2012 | Conducted (TH01-HY) |
| Temp. and Humidity Chamber | Giant Force | GTH-225-20-SP-SD | MAA1112-007 | -20 ~ 100℃ | Nov. 21, 2012 | Conducted (TH01-HY) |
| Signal Generator | R&S | SMR40 | 100116 | 10MHz ~ 40GHz | Jun. 26, 2012 | Conducted (TH01-HY) |
| Power Sensor | Anritsu | MA2411B | 0917017 | 300MHz ~ 40GHz | Feb. 02, 2013 | Conducted (TH01-HY) |
| Power Meter | Anritsu | ML2495A | 0949003 | 300MHz ~ 40GHz | Feb. 02, 2013 | Conducted (TH01-HY) |
| RF Cable-2m | HUBER+SUHNER | SUCOFLEX_104 | SN 345675/4 | 1GHz ~ 26.5GHz | NA | Conducted (TH01-HY) |
| RF Cable-3m | HUBER+SUHNER | SUCOFLEX_104 | SN 345669/4 | 1GHz ~ 26.5GHz | NA | Conducted (TH01-HY) |

Note: Calibration Interval of instruments listed above is one year.

| Instrument | Manufacturer | Model No. | Serial No. | Spec. | Calibration Date | Remark |
|---|---|---|---|---|---|---|
| Spectrum Analyzer | R&S | FSP | 100055 | 9Kz – 40GHz | Jun. 06, 2012 | Radiation (03CH05-HY) |
| Receiver | R&S | ESIB26 | 100337 | 20Hz – 26.5GHz | Jun.21, 2012 | Radiation (03CH05-HY) |
| 3m Semi Anechoic Chamber | TDK | SAC-3M | 03CH05-HY | 30 MHz - 1 GHz 3m | N/A | Radiation (03CH05-HY) |
| Amplifier | COM-POWER | PA-103 | 161050 | 1 MHz ~ 1 GHz | Mar. 20, 2012 | Radiation (03CH05-HY) |
| Amplifier | Agilent | 8449B | 3008A02665 | 1GHz – 26.5 GHz | Aug. 28, 2012 | Radiation (03CH05-HY) |
| Horn Antenna | ETS-LINDGREN | 3117 | 66584 | 1GHz~18GHz | Aug. 09, 2012 | Radiation (03CH05-HY) |
| Horn Antenna | SCHWARZBECK | BBHA9170 | BBHA9170154 | 15GHz ~ 40GHz | Jan. 08, 2013 | Radiation (03CH05-HY |
| RF Cable-R03m | Jye Bao | RG142 | 03CH05-HY | 30 MHz - 1 GHz | Oct. 14, 2012 | Radiation (03CH05-HY) |
| RF Cable-HIGH | SUHNER | SUCOFLEX104 | 03CH05-HY | 1GHz~40GHz | Oct. 14, 2012 | Radiation (03CH05-HY) |
| Bilog Antenna | SCHAFFNER | CBL6111C | 2725 | 30 MHz - 1 GHz | Oct. 06, 2012 | Radiation (03CH05-HY) |
| Turn Table | HD | HD100 | 420/611 | 0 - 360 degree | N/A | Radiation (03CH05-HY) |
| Antenna Mast | HD | HD100 | 240/666 | 1 m - 4 m | N/A | Radiation (03CH05-HY) |

Note: Calibration Interval of instruments listed above is one year.

| Instrument | Manufacturer | Model No. | Serial No. | Spec. | Calibration Date | Remark |
|---|---|---|---|---|---|---|
| Loop Antenna | R&S | HFH2-Z2 | 860004/0001 | 9 kHz - 30 MHz | Jul. 03, 2012 | Radiation (03CH05-HY) |
| Amplifier | MITEQ | AMF-6F-260400 | 9121372 | 26.5GHz ~ 40GHz | Apr. 19, 2011 | Radiation (03CH05-HY) |

Note: Calibration Interval of instruments listed above is two year.