| | | | | |
|---|---|---|---|---|
| **Prüfbericht-Nr.:** *Test Report No.*: | 50275681 001 | **Auftrags-Nr.:** *Order No.*: | 158113850 | **Seite 1 von 22** *Page 1 of 22* |
| **Kunden-Referenz-Nr.:** *Client Reference No.*: | N/A | **Auftragsdatum:** *Order date*: | 23.07.2018 | |

| | |
|---|---|
| **Auftraggeber:** *Client*: | Binatone Electronics International Ltd.<br>Floor 23A, 9 Des Voeux Road West, Sheung Wan, Hong Kong, China |
| **Prüfgegenstand:** *Test item*: | Wi-Fi® Home Video Camera |
| **Bezeichnung / Typ-Nr.:** *Identification / Type No.*: | PEEKABOO (refer to page 4 for additional models) |
| **Auftrags-Inhalt:** *Order content*: | US FCC Certification; ISED Canada Certification |
| **Prüfgrundlage:** *Test specification*: | FCC Part 15 Subpart C<br>RSS-247 Issue 2<br>ANSI C63.10-2013 |

| | |
|---|---|
| **Wareneingangsdatum:** *Date of receipt*: | 23.07.2019 |
| **Prüfmuster-Nr.:** *Test sample No.*: | A000970581-001 |
| **Prüfzeitraum:** *Testing period*: | 23.07.2019 - 03.08.2019 |
| **Ort der Prüfung:** *Place of testing*: | TÜV Rheinland Hong Kong Ltd. |
| **Prüflaboratorium:** *Testing laboratory*: | TÜV Rheinland Hong Kong Ltd. |
| **Prüfergebnis*:** *Test result**: | Pass |

**geprüft von /** *tested by*:

| **Datum** *Date* | **Name / Stellung** *Name / Position* | **Unterschrift** *Signature* |
|---|---|---|
| 08.08.2019 | Benny Lau / Senior Project Manager | |

**kontrolliert von /** *reviewed by*:

| **Datum** *Date* | **Name / Stellung** *Name / Position* | **Unterschrift** *Signature* |
|---|---|---|
| 08.08.2019 | Sharon Li / Unit Senior Manager | |

**Sonstiges /** *Other*: FCC ID: VLJ-PEEKABOO
IC: 4522A-PEEKABOO

**Zustand des Prüfgegenstandes bei Anlieferung:** Prüfmuster vollständig und unbeschädigt
*Condition of the test item at delivery*: *Test item complete and undamaged*

| | | | | | |
|---|---|---|---|---|---|
| * Legende: | 1 = sehr gut | 2 = gut | 3 = befriedigend | 4 = ausreichend | 5 = mangelhaft |
| | P(ass) = entspricht o.g. Prüfgrundlage(n) | | F(ail) = entspricht nicht o.g. Prüfgrundlage(n) | N/A = nicht anwendbar | N/T = nicht getestet |
| *Legend:* | *1 = very good* | *2 = good* | *3 = satisfactory* | *4 = sufficient* | *5 = poor* |
| | *P(ass) = passed a.m. test specification(s)* | | *F(ail) = failed a.m. test specification(s)* | *N/A = not applicable* | *N/T = not tested* |

# Table of Content

Page

# Product information

## Manufacturers declarations

| | WIFI Transceiver |
|---|---|
| Operating frequency range | 2412 - 2462 MHz |
| Type of modulation | 802.11b: DSSS (DBPSK/DQPSK/CCK)<br>802.11g: OFDM (BPSK/QPSK/16-QAM)<br>802.11n: OFDM (BPSK/QPSK/16QAM/64QAM) |
| Number of channels | 11 |
| Bandwidth | 20MHz and 40MHz |
| Channel separation | 5 MHz |
| Type of antenna | Integral Antenna |
| Antenna gain | 2.5 dBi |
| Professional installation | Yes |
| Power level | fix |
| Type of equipment | stand alone radio device |
| Connection to public utility power line | Yes |
| Nominal voltage | 100-240VAC |
| Independent Operation Modes | Transmitting |

## Product function and intended use

The equipment under test (EUT) is a Home Video Camera with 2.4GHz Wi-Fi connectivity. It is powered by 100-240VAC.

The manufacturer declares that the models as listed below are all identical in electrical, PCB layout, components used except the color of the enclosure and the model number only. Due to the manufacturer declaration of equivalence, the model PEEKABOO is selected by the applicant as a representative for testing and construction photo taking.

FCC ID: VLJ-PEEKABOO/ IC: 4522A-PEEKABOO

| Models | Product description |
|---|---|
| PEEKABOO (Tested Model)<br>PEEKABOO-2, PEEKABOO-3, PEEKABOO-4,<br>PEEKABOO-W, PEEKABOO-W2, PEEKABOO-W3,<br>PEEKABOO-W4, PEEKABOO TWIN, PEEKABOO TRIPLE,<br>PEEKABOO QUAD | Wi-Fi® Home Video Camera |

## Submitted documents

Circuit Diagram
Block Diagram
Technical Description
User manual
Label

## Independent Operation Modes

The basic operation modes are:

- Transmitting mode.

For further information refer to User Manual

## Related Submittal(s) Grants

This is a single application for certification of the WIFI transmitter.
Others digital function is authorized under SDOC procedure. Please refer to test report 50276653 001 issued by TÜV Rheinland Hong Kong Ltd.

## Remark

The test results in this test report are only relevant to the tested sample and does not involve any assessment in the production.

# Test Set-up and Operation Mode

## Principle of Configuration Selection

**Emission:** The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

## Test Operation and Test Software

Test operation should refer to test methodology.

- During test, Channel & Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power was selected according to the instruction given by the manufacturer (i.e. 802.11b: “30”; 802.11g: “40”; 802.11n: “40”) . The setting of the RF output power expected by the customer shall be fixed on the firmware of the final end product.

## Special Accessories and Auxiliary Equipment

The product has been tested together with the following additional accessories:

- AC-DC adaptor Model: HS06-0501000US Input: 100-240 VAC 50/60 Hz 200mA Output: 5.0VDC 1000mA) (Provided by the applicant)

## Countermeasures to achieve EMC Compliance

- None

# Test Methodology

## Radiated Emission

The radiated emission measurements of the transmitter part were performed according to the procedures in ANSI C63.10-2013.

For measurement below 1GHz - the equipment under test (EUT) was placed at the middle of the 80 cm height turntable. For measurement above 1GHz - the EUT was placed at the middle of the 1.5 m height turntable and RF absorbing material was placed on ground plane between turntable and measuring antenna. During the testing, the EUT was operated standalone and arranged for maximum emissions. The EUT was tested in three orthogonal planes.

The investigation is performed with the EUT rotated 360 ° , the antenna height scanned between 1m and 4m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations. Repeat the measurement steps until the maximum emissions were obtained.

All radiated tests were performed at an antenna to EUT with 3 meters distance, unless stated otherwise in particular parts of this test report.

## Field Strength Calculation

The field strength at 3 m was established by adding the meter reading of the spectrum analyzer to the factors associated with antenna correction factor, cable loss, preamplifiers and filter attenuation.

The equation is expressed as follow:

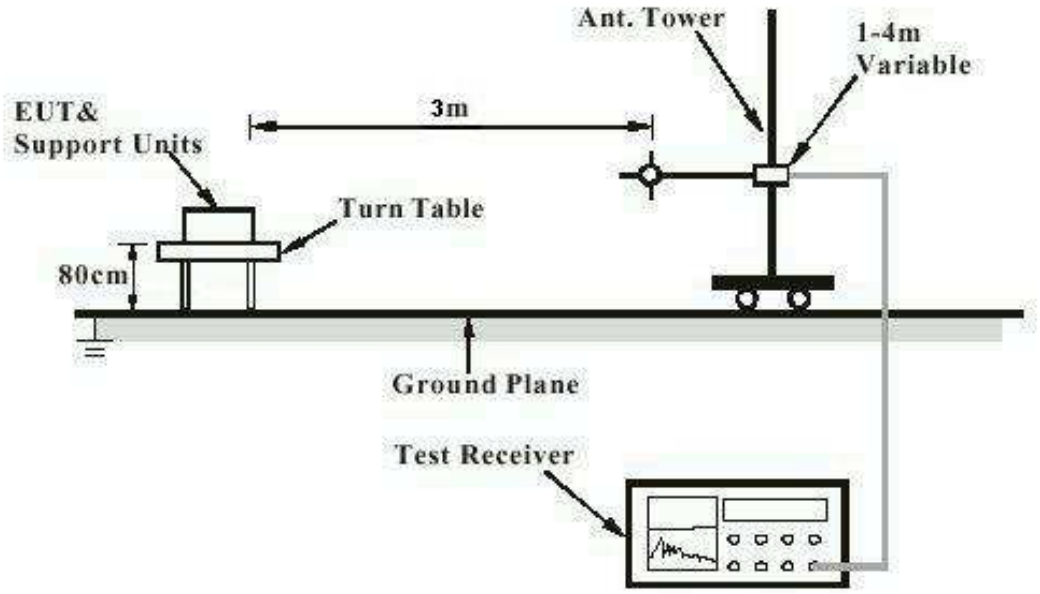
FS = R + AF + CF + FA – PA

Where FS = Field Strength in dBuV/m at 3 meters.
R = Reading of Spectrum Analyzer in dBuV.
AF = Antenna Factor in dB.
CF = Cable Attenuation Factor in dB.
FA = Filter Attenuation Factor in dB.
PA = Preamplifier Factor in dB.

FA and PA are only be used for the measuring frequency above 1 GHz.

## Test Setup Diagram

**Diagram of Measurement Configuration for Radiation Test**




**Note: Measurements above 1 GHz are done with a table height of 1.5m. In addition, there is RF absorbing material on the floor of the test site for above 1GHz measurement.**

**Diagram of Measurement Equipment Configuration for Mains Conduction Measurement (if applicable)**

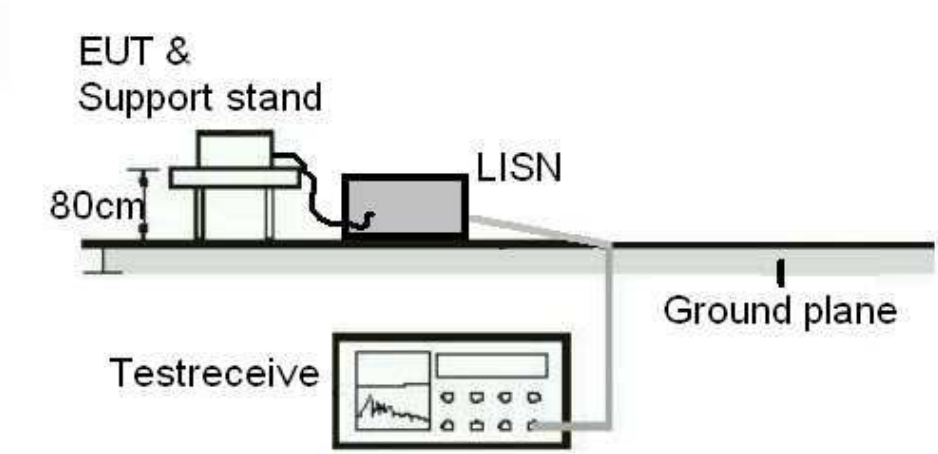
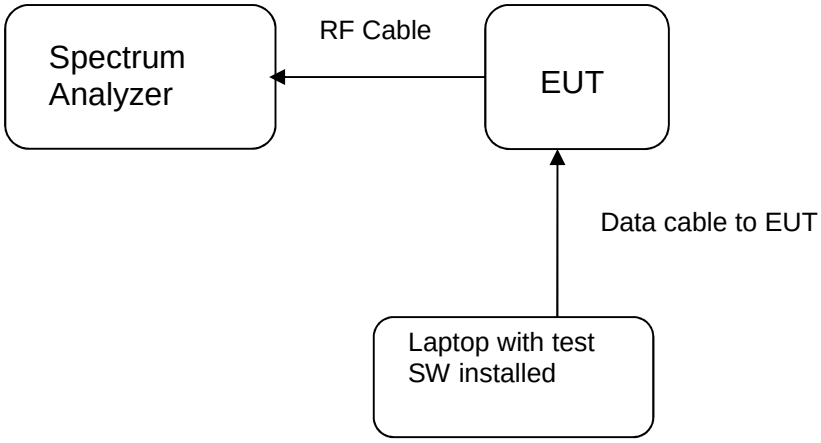


**Diagram of Equipment Configuration for Antenna-port Conducted Measurement (if applicable)**



# Test Facility

## Test Laboratory Information

TÜV Rheinland Hong Kong Ltd.
Address: 3-4, 11/F., Fou Wah Industrial Building, 10-16 Pun Shan Street, Tsuen Wan, N.T., Hong Kong·
Tel.: +852 2192 1000
Fax: +852 2192 1001
Email service-gc@tuv.com
Web: www.tuv.com

The test facility is recognized or accredited by the following organizations:

**FCC**

| | | |
|---|---|---|
| Type | : | Accredited Test Firm |
| Designation Number | : | HK0013 |
| Test Firm Registration Number | : | 371735 |
| Scope | : | Intentional Radiators |

**ISED**

The 10m Semi-anechoic chamber used by TÜV Rheinland Hong Kong Ltd at Hong Kong Productivity Council has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

| | | |
|---|---|---|
| Test Site Registration Number | : | 4780A-1 |

# List of Test and Measurement Instruments

**Radiated Emission**

| Equipment | Manufacturer | Type | Cal. Date | Due Date |
|---|---|---|---|---|
| Semi-anechoic Chamber | Frankonia | Nil | 23 Apr 2019 | 23 Apr 2020 |
| Test Receiver | R & S | ESU26 | 11 Jun 2019 | 11 Jun 2020 |
| Bi-conical Antenna | R & S | HK116 | 21 Mar 2018 | 21 Mar 2020 |
| Log Periodic Antenna | R & S | HL223 | 22 Mar 2018 | 22 Mar 2020 |
| Cable with I-Joint Conector | Huber+Suhner | CNM-NMCMILX800-473 | 04 Oct 2018 | 04 Oct 2020 |
| Active Loop Antenna | EMCO | 6502 | 25 Oct 2018 | 25 Oct 2019 |
| Double-Ridged Waveguide Horn | EMCO | 3116 | 05 Oct 2018 | 05 Oct 2019 |
| Double-Ridged Waveguide Horn | EMCO | 3117 | 30 Aug 2018 | 30 Aug 2020 |
| Cable with I-Joint Conector | Huber+Suhner | CNM-NMCMILX800-473 | 04 Oct 2018 | 04 Oct 2020 |
| Microwave Preamplifier | COM-POWER Corporation | PAM-118A | 25 Jun 2019 | 25 Jun 2020 |
| Preamplifier 18GHz to 40GHz with cable (EMC656) | A.H. Systems, Inc. | PAM-1840VH | 30 Jan 2019 | 30 Jan 2020 |
| High Pass Filter (cutoff freq. =1000MHz) | Trilithic | 23042 | 30 Oct 2017 | 30 Oct 2019 |
| High Frequency Cable | Pasternack | PE3VNA4001-3M | 29 Jan 2019 | 29 Jan 2020 |
| Horn Antenna | EMCO | 3115 | 28 Mar 2018 | 28 Mar 2020 |

**AC Mains Conducted Emission**

| Equipment | Manufacturer | Type | Cal. Date | Due Date |
|---|---|---|---|---|
| Test Receiver | R & S | ESU26 | 11 Jun 2019 | 11 Jun 2020 |
| LISN | R&S | ENV216 | 31 Jul 2018 | 31 Jul 2019 |

**Radio Test**

| Equipment | Manufacturer | Type | Cal. Date | Due Date |
|---|---|---|---|---|
| Spectrum Analyzer | R & S | FSP30 | 26 Jun 2019 | 26 Jun 2020 |

# Measurement Uncertainty

The estimated combined standard uncertainty for power-line conducted emissions measurements is ±2.42dB.

The estimated combined standard uncertainty for radiated emissions measurements is ±4.81dB (9kHz to 30MHz) and ±4.62dB (30MHz to 200MHz) and ±5.67dB (200MHz to 1000MHz) and is ±5.07dB (1GHz to 8.2GHz) and ±4.58dB (8.2GHz to 12.4GHz) and ±4.78dB (12.4GHz to 18GHz)

The estimated combined standard uncertainty for antenna conducted emission is ±2.1dB

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor of k=2, which for the level of confidence is approximately 95%.

# Results FCC Part 15 – Subpart C / RSS-247 Issue 2

| FCC 15.203 – Antenna Requirement 1 | N/A |
|---|---|
| **FCC Requirement:** | No antenna other than that furnished by the responsible party shall be used with the device |
| **Results:** | This requirement does not apply to intentional radiators that must be professionally installed. |
| **Verdict:** | Pass |

| FCC 15.204 – Antenna Requirement 2 | Pass |
|---|---|
| **FCC Requirement:** | An intentional radiator may be operated only with the antenna with which it is authorized. If an antenna is marketed with the intentional radiator, it shall be of a type which is authorized with the intentional radiator. |
| **Results:** | The EUT must be professionally installed. Only the tested antenna will be used with the EUT. |
| **Verdict:** | N/A |

| RSS-Gen 6.3 – External Control | Pass |
|---|---|
| **IC Requirement:** | The device shall not have any external controls accessible to the user that enable it to be adjusted, selected or programmed to operate in violation of the limits prescribed in the applicable RSS. |
| **Results:** | The device does not have any transmitter external controls accessible to the user that can be adjusted and operated in violation of the limits of this standard. |
| **Verdict:** | Pass |

| RSS-Gen 8.3 – Antenna Requirement | Pass |
|---|---|
| **IC Requirement:** | When a measurement at the antenna connector is used to determine RF output power, the effective gain of the device's antenna shall be stated, based on measurement or on data from the antenna manufacturer. |
| **Results:** | a) Antenna type: Integral Chip antenna<br>b) Manufacturer N/A<br>c) model no N/A<br>d) Gain with reference to an isotropic radiator: 2.5 dBi |
| **Verdict:** | Pass |

| FCC 15.207/ RSS-Gen 8.8 – Conducted Emission on AC Mains | Pass |
|---|---|

Test Specification : ANSI C63.10-2013
Test date : 23.07.2019
Mode of operation : WIFI ON
Supply voltage : 120Vac 60Hz
Temperature : 23ºC
Humidity : 50%

Requirement: 15.207(a)/ RSS-Gen 8.8

**Results:** For test Results plots refer to Appendix 1

**Live measurement**

| Frequency range (MHz) | Frequency (MHz) | Quasi-peak dBµV | Average dBµV | Limit QP (dBµV) | Limit AV (dBµV) | Verdict |
|---|---|---|---|---|---|---|
| 0,15 – 0,5 | 0.150 | 34.7 | 29.9 | 66 - 56 | 56 - 46 | Pass |
| > 0,5 - 5 | 0.555 | 36.4 | 20.9 | 56 | 46 | Pass |
| > 5 - 30 | 29.148 | 26.2 | 13.4 | 60 | 50 | Pass |

**Neutral measurement**

| Frequency range (MHz) | Frequency (MHz) | Quasi-peak dBµV | Average dBµV | Limit QP (dBµV) | Limit AV (dBµV) | Verdict |
|---|---|---|---|---|---|---|
| 0,15 – 0,5 | 0.172 | 33.5 | 19.0 | 66 - 56 | 56 - 46 | Pass |
| > 0,5 - 5 | 0.534 | 35.3 | 26.4 | 56 | 46 | Pass |
| > 5 - 30 | 28.389 | 29.0 | 16.3 | 60 | 50 | Pass |

**Remark:** Pre-scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and data rate.

**FCC 15.247 (a)(2) / RSS-247 5.2 – 6dB Bandwidth Measurement** **Pass**

**FCC/ IC Requirement:** Systems using digital modulation techniques may operate in the 902 – 928 MHz, 2400 – 2483.5 MHz, and 5725 – 5850 MHz bands. The minimum 6dB bandwidth shall be at least 500kHz.

Test Specification : ANSI C63.10 – 2013
Test date : 23.07.2018
Mode of operation : Tx mode
Port of testing : Temporary antenna port
Supply voltage : 120VAC 60Hz
Temperature : 23ºC
Humidity : 50%

**Results:** For test protocols please refer to Appendix 1

**802.11b**

| Channel frequency (MHz) | 6dB bandwidth (kHz) | Limit (kHz) | Verdict |
|---|---|---|---|
| 2412 | 9080 | 500 | Pass |
| 2437 | 9120 | 500 | Pass |
| 2462 | 9120 | 500 | Pass |

**802.11g**

| Channel frequency (MHz) | 6dB bandwidth (kHz) | Limit (kHz) | Verdict |
|---|---|---|---|
| 2412 | 16480 | 500 | Pass |
| 2437 | 16640 | 500 | Pass |
| 2462 | 16640 | 500 | Pass |

**802.11n-HT20**

| Channel frequency (MHz) | 6dB bandwidth (kHz) | Limit (kHz) | Verdict |
|---|---|---|---|
| 2412 | 17840 | 500 | Pass |
| 2437 | 17760 | 500 | Pass |
| 2462 | 17800 | 500 | Pass |

**802.11n-HT40**

| Channel frequency (MHz) | 6dB bandwidth (kHz) | Limit (kHz) | Verdict |
|---|---|---|---|
| 2422 | 36500 | 500 | Pass |
| 2437 | 36600 | 500 | Pass |
| 2452 | 36700 | 500 | Pass |

**Remark:** Nil

**FCC 15.247(b)(3) / RSS-247 5.4 – Maximum Conducted (average) Output Power** **Pass**

**FCC/ IC Requirement:** For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850MHz bands: 1 Watt (30dBm)

Test Specification : ANSI C63.10 – 2013
Test date : 23.07.2019
Mode of operation : Tx mode
Port of testing : Temporary antenna port
Supply voltage : 120VAC 60Hz
Temperature : 23ºC
Humidity : 50%

**Results:** For test protocols please refer to Appendix 1

**802.11b**

| Frequency (MHz) | Cable loss (dB) | Measured Output Power (dBm) | Limit (W/dBm) | Verdict |
|---|---|---|---|---|
| 2412 | 0.8 | 9.20 | 30.0 | Pass |
| 2437 | 0.8 | 10.12 | 30.0 | Pass |
| 2462 | 0.8 | 10.77 | 30.0 | Pass |

**802.11g**

| Frequency (MHz) | Cable loss (dB) | Measured Output Power (dBm) | Limit (dBm) | Verdict |
|---|---|---|---|---|
| 2412 | 0.8 | 8.83 | 30.0 | Pass |
| 2437 | 0.8 | 9.79 | 30.0 | Pass |
| 2462 | 0.8 | 10.67 | 30.0 | Pass |

**802.11n-HT20**

| Frequency (MHz) | Cable loss (dB) | Measured Output Power (dBm) | Limit (dBm) | Verdict |
|---|---|---|---|---|
| 2412 | 0.8 | 8.32 | 30.0 | Pass |
| 2437 | 0.8 | 9.61 | 30.0 | Pass |
| 2462 | 0.8 | 10.46 | 30.0 | Pass |

**802.11n-HT40**

| Frequency (MHz) | Cable loss (dB) | Measured Output Power (dBm) | Limit (dBm) | Verdict |
|---|---|---|---|---|
| 2422 | 0.8 | 8.96 | 30.0 | Pass |
| 2437 | 0.8 | 9.88 | 30.0 | Pass |
| 2452 | 0.8 | 10.30 | 30.0 | Pass |

**Remark:** 1) Pre-scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and data rate.

**FCC 15.247(e) / RSS-247 5.2 – Power Spectral Density** **Pass**

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

Test Specification : ANSI C63.10 – 2013
Test date : 23.07.2019
Mode of operation : Tx mode
Port of testing : Temporary antenna port
Supply voltage : 120VAC 60Hz
Temperature : 23ºC
Humidity : 50%

**Results:** For test protocols please refer to Appendix 1.

**802.11b**

| Operating frequency (MHz) | Cable loss (dB) | Power density (dBm) | Limit (dBm) | Verdict |
|---|---|---|---|---|
| 2412 | 0.8 | 6.54 | 8.0 | Pass |
| 2437 | 0.8 | 7.92 | 8.0 | Pass |
| 2462 | 0.8 | 5.50[2)] | 8.0 | Pass |

**802.11g**

| Operating frequency (MHz) | Cable loss (dB) | Power density (dBm) | Limit (dBm) | Verdict |
|---|---|---|---|---|
| 2412 | 0.8 | -6.20 | 8.0 | Pass |
| 2437 | 0.8 | -4.50 | 8.0 | Pass |
| 2462 | 0.8 | -3.80 | 8.0 | Pass |

**802.11n-HT20**

| Operating frequency (MHz) | Cable loss (dB) | Power density (dBm) | Limit (dBm) | Verdict |
|---|---|---|---|---|
| 2412 | 0.8 | -6.55 | 8.0 | Pass |
| 2437 | 0.8 | -4.83 | 8.0 | Pass |
| 2462 | 0.8 | -3.50 | 8.0 | Pass |

**802.11n-HT40**

| Operating frequency (MHz) | Cable loss (dB) | Power density (dBm) | Limit (dBm) | Verdict |
|---|---|---|---|---|
| 2422 | 0.8 | -7.56 | 8.0 | Pass |
| 2437 | 0.8 | -7.32 | 8.0 | Pass |
| 2452 | 0.8 | -6.94 | 8.0 | Pass |

**Remark:** 1) Pre-scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and data rate.
2) RBW=30kHz

**FCC 15.247(d) / RSS-247 5.5 – Spurious Conducted Emissions** **Pass**

Test Specification : ANSI C63.10 – 2013
Test date : 23.07.2019
Mode of operation : Tx mode
Port of testing : Temporary antenna port
Supply voltage : 120VAC 60Hz
Temperature : 23ºC
Humidity : 50%

**FCC/ IC Requirement:** In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

**Results:** Only the worst cases is shown below. For test protocols refer to Appendix 1

**802.11b**

| Operating frequency (MHz) | Spurious frequency (MHz) | Spurious Level (dBm) | Reference value (dBm) | Delta (dB) | Verdict |
|---|---|---|---|---|---|
| 2412 | 2397.5 | -36.17 | 5.74 | 41.91 | Pass |
| 2437 | 4860.0 | -33.48 | 7.12 | 40.60 | Pass |
| 2462 | 4920.0 | -31.49 | 7.88 | 39.37 | Pass |

**802.11g**

| Operating frequency (MHz) | Spurious frequency (MHz) | Spurious Level (dBm) | Reference value (dBm) | Delta (dB) | Verdict |
|---|---|---|---|---|---|
| 2412 | 2400.0 | -44.61 | -7.0 | 37.61 | Pass |
| 2437 | 7940.0 | -42.64 | -5.3 | 37.34 | Pass |
| 2462 | 2484.1 | -48.44 | -4.6 | 43.84 | Pass |

**802.11n-HT20**

| Operating frequency (MHz) | Spurious frequency (MHz) | Spurious Level (dBm) | Reference value (dBm) | Delta (dB) | Verdict |
|---|---|---|---|---|---|
| 2412 | 2400.0 | -42.71 | -7.35 | 35.36 | Pass |
| 2437 | 9260.0 | -43.15 | -5.63 | 37.52 | Pass |
| 2462 | 2483.6 | -47.72 | -4.30 | 43.42 | Pass |

**802.11n-HT40**

| Operating frequency (MHz) | Spurious frequency (MHz) | Spurious Level (dBm) | Reference value (dBm) | Delta (dB) | Verdict |
|---|---|---|---|---|---|
| 2422 | 2400.0 | -42.54 | -8.36 | 34.18 | Pass |
| 2437 | 7420.0 | -42.86 | -8.12 | 34.74 | Pass |
| 2452 | 2483.5 | -47.11 | -7.74 | 39.37 | Pass |

**Remark:** 1) Pre-scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and data rate.

**FCC 15.205/ RSS-Gen 8.9 – Radiated Emissions in Restricted Frequency Bands** **Pass**

Test Specification : ANSI C63.10 – 2013
Test Date : 23.07.2019
Mode of operation : Tx mode
Port of testing : Enclosure
Frequency range : 9kHz – 25GHz
Supply voltage : 120VAC 60Hz
Temperature : 23ºC
Humidity : 50%

**FCC/ IC Requirement:** In any 100kHz bandwidth outside the frequency band at least 20dB below the highest level of the desired power. In addition, radiated emissions which fall in the restricted bands must also comply with the radiated emission general limits.

**Results:** All three transmit frequency modes comply with the field strength within the restricted bands. There is no spurious found below 30MHz.

Mode: 802.11b@2412MHz Vertical Polarization

| Freq MHz | Level dBuV/m | Limit/ Detector dBuV/m |
|---|---|---|
| 2390.000 | 37.5 | 74.0 / PK |
| 2390.000 | 23.3 | 54.0 / AV |
| 4824.030 | 49.4 | 74.0 / PK |
| 4824.030 | 45.3 | 54.0 / AV |

Mode: 802.11b@2412MHz Horizontal Polarization

| Freq MHz | Level dBuV/m | Limit/ Detector dBuV/m |
|---|---|---|
| 2390.000 | 36.9 | 74.0 / PK |
| 2390.000 | 23.3 | 54.0 / AV |
| 4824.030 | 48.8 | 74.0 / PK |
| 4824.030 | 44.8 | 54.0 / AV |

Mode: 802.11b@2437MHz Vertical Polarization

| Freq MHz | Level dBuV/m | Limit/ Detector dBuV/m |
|---|---|---|
| 4874.000 | 51.5 | 74.0 / PK |
| 4874.000 | 48.5 | 54.0 / AV |

Mode: 802.11b@2437MHz Horizontal Polarization

| Freq MHz | Level dBuV/m | Limit/ Detector dBuV/m |
|---|---|---|
| 4874.000 | 50.7 | 74.0 / PK |
| 4874.000 | 47.1 | 54.0 / AV |

Mode: 802.11b@2462MHz Vertical Polarization

| Freq MHz | Level dBuV/m | Limit/ Detector dBuV/m |
|---|---|---|
| 2483.500 | 37.3 | 74.0 / PK |
| 2483.500 | 23.8 | 54.0 / AV |
| 4923.999 | 51.2 | 74.0 / PK |
| 4923.999 | 47.9 | 54.0 / AV |

Mode: 802.11b@2462MHz Horizontal Polarization

| Freq | Level | Limit/ Detector |
|---|---|---|

| MHz | dBuV/m | dBuV/m |
|---|---|---|
| 2483.500 | 37.1 | 74.0 / PK |
| 2483.500 | 23.4 | 54.0 / AV |
| 4924.000 | 50.3 | 74.0 / PK |
| 4924.000 | 47.1 | 54.0 / AV |
| Mode: 802.11g@2412MHz | Vertical Polarization | |
| **Freq MHz** | **Level dBuV/m** | **Limit/ Detector dBuV/m** |
| 2390.000 | 38.0 | 74.0 / PK |
| 2390.000 | 23.9 | 54.0 / AV |
| 4824.000 | 53.1 | 74.0 / PK |
| 4824.000 | 41.8 | 54.0 / AV |
| Mode: 802.11g@2412MHz | Horizontal Polarization | |
| **Freq MHz** | **Level dBuV/m** | **Limit/ Detector dBuV/m** |
| 2390.000 | 37.5 | 74.0 / PK |
| 2390.000 | 23.4 | 54.0 / AV |
| 4824.000 | 54.9 | 74.0 / PK |
| 4824.000 | 43.9 | 54.0 / AV |
| Mode: 802.11g@2437MHz | Vertical Polarization | |
| **Freq MHz** | **Level dBuV/m** | **Limit/ Detector dBuV/m** |
| 4874.000 | 55.2 | 74.0 / PK |
| 4874.000 | 43.8 | 54.0 / AV |
| Mode: 802.11g@2437MHz | Horizontal Polarization | |
| **Freq MHz** | **Level dBuV/m** | **Limit/ Detector dBuV/m** |
| 4874.000 | 58.0 | 74.0 / PK |
| 4874.000 | 44.6 | 54.0 / AV |
| Mode: 802.11g@2462MHz | Vertical Polarization | |
| **Freq MHz** | **Level dBuV/m** | **Limit/ Detector dBuV/m** |
| 2483.500 | 49.5 | 74.0 / PK |
| 2483.500 | 29.5 | 54.0 / AV |
| 4924.000 | 56.5 | 74.0 / PK |
| 4924.000 | 45.6 | 54.0 / AV |
| Mode: 802.11g@2462MHz | Horizontal Polarization | |
| **Freq MHz** | **Level dBuV/m** | **Limit/ Detector dBuV/m** |
| 2483.500 | 46.9 | 74.0 / PK |
| 2483.500 | 27.7 | 54.0 / AV |
| 4924.000 | 55.7 | 74.0 / PK |
| 4924.000 | 44.9 | 54.0 / AV |
| Mode: 802.11n-HT20@2412MHz | Vertical Polarization | |
| **Freq MHz** | **Level dBuV/m** | **Limit/ Detector dBuV/m** |
| 2390.000 | 43.5 | 74.0 / PK |
| 2390.000 | 25.7 | 54.0 / AV |
| 4824.000 | 53.5 | 74.0 / PK |
| 4824.000 | 41.4 | 54.0 / AV |

| Mode: 802.11n-HT20@2412MHz | Horizontal Polarization | |
|---|---|---|
| **Freq MHz** | **Level dBuV/m** | **Limit/ Detector dBuV/m** |
| 2390.000 | 41.8 | 74.0 / PK |
| 2390.000 | 25.0 | 54.0 / AV |
| 4824.000 | 53.5 | 74.0 / PK |
| 4824.000 | 40.8 | 54.0 / AV |
| Mode: 802. 11n-HT20@2437MHz | Vertical Polarization | |
| **Freq MHz** | **Level dBuV/m** | **Limit/ Detector dBuV/m** |
| 4874.000 | 54.6 | 74.0 / PK |
| 4874.000 | 42.1 | 54.0 / AV |
| Mode: 802. 11n-HT20@2437MHz | Horizontal Polarization | |
| **Freq MHz** | **Level dBuV/m** | **Limit/ Detector dBuV/m** |
| 4874.000 | 54.8 | 74.0 / PK |
| 4874.000 | 42.2 | 54.0 / AV |
| Mode: 802. 11n-HT20@2462MHz | Vertical Polarization | |
| **Freq MHz** | **Level dBuV/m** | **Limit/ Detector dBuV/m** |
| 2483.500 | 51.7 | 74.0 / PK |
| 2483.500 | 33.8 | 54.0 / AV |
| 4924.000 | 55.9 | 74.0 / PK |
| 4924.000 | 43.5 | 54.0 / AV |
| Mode: 802. 11n-HT20@2462MHz | Horizontal Polarization | |
| **Freq MHz** | **Level dBuV/m** | **Limit/ Detector dBuV/m** |
| 2483.500 | 51.3 | 74.0 / PK |
| 2483.500 | 32.9 | 54.0 / AV |
| 4924.000 | 54.8 | 74.0 / PK |
| 4924.000 | 42.4 | 54.0 / AV |
| Mode: 802.11n-HT40@2422MHz | Vertical Polarization | |
| **Freq MHz** | **Level dBuV/m** | **Limit/ Detector dBuV/m** |
| 2390.000 | 41.5 | 74.0 / PK |
| 2390.000 | 26.5 | 54.0 / AV |
| 4844.000 | 49.3 | 74.0 / PK |
| 4844.00 | 37.4 | 54.0 / AV |
| Mode: 802.11n-HT40@2422MHz | Horizontal Polarization | |
| **Freq MHz** | **Level dBuV/m** | **Limit/ Detector dBuV/m** |
| 2390.000 | 41.9 | 74.0 / PK |
| 2390.000 | 27.3 | 54.0 / AV |
| 4844.000 | 48.6 | 74.0 / PK |
| 4844.000 | 36.4 | 54.0 / AV |
| Mode: 802.11n-HT40@2437MHz | Vertical Polarization | |
| **Freq MHz** | **Level dBuV/m** | **Limit/ Detector dBuV/m** |
| 4897.495 | 50.1 | 74.0 / PK |

| | | |
|---|---|---|
| 4897.495 | 38.0 | 54.0 / AV |
| Mode: 802.11n-HT40@2437MHz | Horizontal Polarization | |
| **Freq MHz** | **Level dBuV/m** | **Limit/ Detector dBuV/m** |
| 4874.000 | 47.3 | 74.0 / PK |
| 4874.000 | 35.5 | 54.0 / AV |
| Mode: 802.11n-HT40@2452MHz | Vertical Polarization | |
| **Freq MHz** | **Level dBuV/m** | **Limit/ Detector dBuV/m** |
| 2483.500 | 46.1 | 74.0 / PK |
| 2483.500 | 29.5 | 54.0 / AV |
| 4904.000 | 49.8 | 74.0 / PK |
| 4904.000 | 37.6 | 54.0 / AV |
| Mode: 802.11n-HT40@2452MHz | Horizontal Polarization | |
| **Freq MHz** | **Level dBuV/m** | **Limit/ Detector dBuV/m** |
| 2483.500 | 47.1 | 74.0 / PK |
| 2483.500 | 29.6 | 54.0 / AV |
| 4904.000 | 47.5 | 74.0 / PK |
| 4904.000 | 35.3 | 54.0 / AV |
| **Remark:** 1) Pre-scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and data rate. | | |