

UNI-TREND TECHNOLOGY (CHINA) CO.,LTD.

TEST REPORT

SCOPE OF WORK EMC TESTING–UTi384H

REPORT NUMBER 220923108GZU-001

ISSUE DATE

[REVISED DATE]

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25-November-2022

PAGES 97

DOCUMENT CONTROL NUMBER FCC ISED WIFI-b © 2021 INTERTEK



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| Applicant Name & | : | UNI-TREND TECHNOLOGY (CHINA) CO.,LTD. |
|---------------------|---|--|
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| | | Industrial Development Zone, Dongguan, Guangdong Province, China |
| Manufacturing Site | : | Same as applicant |
| Intertek Report No: | | 220923108GZU-001 |
| FCC ID: | | 2APMK-3841713H |
| | | |

Test standards 47 CFR PART 15 Subpart C: 2020 section 15.247 Sample Description

| Product | : | Professional Thermal Imager |
|-------------------|---|---|
| Model No. | : | UTi384H |
| Electrical Rating | : | Powered by 3.7V rechargeable Li-ion battery |
| Serial No. | : | Not Labeled |
| Date Received | : | 23 September 2022 |
| Date Test | : | 10 October 2022-25 November 2022 |
| Conducted | | |

Prepared and Checked By

Approved By:

Richard Liu

Richard Liu Engineer

en, Lm

Dean Liu Project Engineer

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Intertek Testing Services Shenzhen Ltd. Guangzhou Branch

Room 02, & 101/E201/E301/E401/E501/E601/E701/E801 of Room 01 1-8/F., No. 7-2. Caipin Road, Science City, GETDD, Guangzhou,

Guangdong, China

Version: 20 September 2021

FCC ISED WIFI-b



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1.0 TEST RESULT SUMMARY

| Test Item | Test Requirement | Test Method | Result | |
|---|--|---|--------|--|
| Antenna Requirement | FCC PART 15 C section 15.247 (c) and Section 15.203 | FCC PART 15 C section 15.247 (c) and Section 15.203 | PASS | |
| 6 dB Bandwidth (DTS bandwidth) | FCC PART 15 C section 15.247 (a)(2) | ANSI C63.10: Clause 11.8 | PASS | |
| Duty Cycle | FCC KDB 558074 D01 15.247 Meas Guidance v05r02, Clause 6 | ANSI C63.10: Clause 11.6 | PASS | |
| Maximum Average Conducted Output Power | FCC PART 15 C clause 5.247(b)(3) | ANSI C63.10: Clause 11.9.2.3.1 | PASS | |
| Peak Power Spectral Density | FCC PART 15 C section 15.247(e) | ANSI C63.10: Clause 11.10.2 | PASS | |
| Out of Band Conducted Emissions | FCC PART 15 C section 15.209 &15.247(d) | ANSI C63.10: Clause 11.11 | PASS | |
| Out of Band Radiated Emission | FCC PART 15 C section 15.209 &15.247(d) | ANSI C63.10: Clause 11.11, 6.4, 6.5 and 6.6 | N/A | |
| Radiated Emissions in Restricted Bands | FCC PART 15 C section 15.209 &15.247(d) | ANSI C63.10: Clause 11.12.1, 6.4, 6.5 and 6.6 | PASS | |
| Band Edges Measurement | FCC PART 15 C section 15.247 (d) &15.205 | ANSI C63.10: Clause 11.11 and 11.13 | PASS | |
| Conducted Emissions at Mains Terminals | FCC PART 15 C section 15.207 | ANSI C63.10: Clause 6.2 | PASS | |
| Remark: N/A: not applicable. Refer to the relative section for the details. EUT: In this whole report EUT means Equipment Under Test. Tx: In this whole report Tx (or tx) means Transmitter. Rx: In this whole report Rx (or rx) means Receiver. RF: In this whole report RF means Radio Frequency. ANSI C63.10: the detail version is ANSI C63.10:2013 in the whole report | | | | |



2.0 General Description

2.1 **Product Description**

| Operating Frequency: | 2412 MHz to 2462 MHz for 802.11b/g/n(HT20) 2422 MHz to 2452 MHz for 802.11n(HT40) |
|-------------------------|---|
| Type of Modulation: | 802.11b: DSSS(CCK/QPSK/BPSK) |
| | 802.11g: OFDM(BPSK/QPSK/16QAM/64QAM) |
| | 802.11n: MIMO OFDM (BPSK/QPSK/16QAM/64QAM) |
| Transmit Data Rate: | 802.11b :1/2/5.5/11 Mbps |
| | 802.11g :6/9/12/18/24/36/48/54 Mbps |
| | 802.11n(HT20): 6.5/13/19.5/26/39/52/58.5/65 Mbps/72.2Mbps |
| | 802.11n(HT40): 13.5/27/40.5/54/81/108/121.5/135/150 Mbps |
| Number of Channels | 11 Channels for 802.11b/g/n(HT20) |
| | 7 Channels for 802.11n(HT40) |
| Channel Separation: | 5 MHz |
| Antenna Type | The wire antenna that uses a unique coupling to the intentional radiator |
| Function: | Professional Thermal Imager with 2.4 GHz WIFI |
| EUT Power Supply: | DC 3.7V battery |
| Power cord: | |

EUT channels and frequencies list:

For 802.11b/g/n(HT20): test frequencies are lowest channel 1: 2412 MHz, middle channel 6: 2437 MHz and highest channel 11: 2462 MHz.

For 802.11n(HT40): test frequencies are lowest channel 3: 2422 MHz, middle channel 6: 2437 MHz and highest channel 9: 2452 MHz.

| Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---------|--------------------|---------|--------------------|
| 1 | 2412 | 7 | 2442 |
| 2 | 2417 | 8 | 2447 |
| 3 | 2422 | 9 | 2452 |
| 4 | 2427 | 10 | 2457 |
| 5 | 2432 | 11 | 2462 |
| 6 | 2437 | / | |



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2.2 Related Submittal(s) Grants

This is an application for certification of: DTS- Part 15 Digital Transmission Systems (WIFI transmitter portion)

Remaining portions are subject to the following procedures:1. Receiver portion of WIFI: exempt from technical requirement of this Part.2. The USB function: FCC SDOC requirement.

2.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.10. Radiated emission measurement was performed in semi-anechoic chamber and conducted emission measurement was performed in shield room. For radiated emission measurement, preliminary scans and final tests were performed in the semi-anechoic chamber to determine the worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise.

2.4 Test Facility

All tests were performed at: Intertek Testing Services Shenzhen Ltd. Guangzhou Branch Room102/104, No 203, KeZhu Road, Science City, GETDD Guangzhou, China Except Conducted Emissions was performed at: Room 02, & 101/E201/E301/E401/E501/E601/E701/E801 of Room 01 1-8/F., No. 7-2. Caipin Road, Science City, GETDD, Guangzhou, Guangdong, China

A2LA Certificate Number 0078.10

Intertek Testing Services Shenzhen Ltd. Guangzhou Branch is accredited by A2LA and Listed in FCC website. FCC accredited test labs may perform both Certification testing under Parts 15 and 18 and Declaration of Conformity testing.

3.0 System Test Configuration

3.1 Justification

For emissions testing, the equipment under test (EUT) setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing. During testing, AC power line was manipulated to produce worst case emissions. It was powered by AC 120V/60Hz supply.



The signal is maximized through rotation and placement in the three orthogonal axes. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters. Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance.

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. The spurious emissions more than 20 dB below the permissible value are not reported.

For an intentional radiator, the spectrum shall be investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to at least the frequency shown in the following table:

Frequency range of radiated emission measurements

| Lowest frequency generated in the device | Upper frequency range of measurement | |
|--|--|--|
| 9 kHz to below 10 GHz | 10th harmonic of highest fundamental frequency or to 40 GHz, whichever is lower | |
| At or above 10 GHz to below | 5th harmonic of highest fundamental frequency or to | |
| 30 GHz | 100 GHz, whichever is lower 5th harmonic of highest fundamental frequency or to | |
| At or above 30 GHz | 200 GHz, whichever is lower, unless otherwise specified | |

Number of fundamental frequencies to be tested in EUT transmit band

| Frequency range in which device | Number of | Location in frequency |
|---------------------------------|-------------|---|
| operates | frequencies | range of operation |
| 1 MHz or less | 1 | Middle |
| 1 MHz to 10 MHz | 2 | 1 near top and 1 near bottom |
| More than 10 MHz | 3 | 1 near top, 1 near middle and 1 near bottom |

3.2 EUT Exercising Software

| Description | Manufacturer | Model No. | SN/Version | Supplied by |
|----------------------|--------------|--------------|---------------|-------------|
| For normal operation | НР | Compaq 6710b | SN:CNU8240LF9 | Intertek |
| For fixing frequency | | Teraterm | Version:4.9 | Applicant |

3.3 Special Accessories

No special accessories used.



3.4 Measurement Uncertainty

| No. | Item | Measurement Uncertainty |
|-----|--|-------------------------|
| | 20 dB Bandwidth | |
| 1 | 6dB Bandwidth | 2.3% |
| | 99% Bandwidth | |
| 2 | Carrier Frequencies Separated | 2.3% |
| 3 | Dwell Time | 1.2% |
| 4 | Maximum Peak Conducted Output Power | 1.5dB |
| 5 | Peak Power Spectral Density | 1.5dB |
| 6 | Out of Band Conducted Emissions | 1.5dB |
| 7 | Band edges measurement | 1.5dB |
| | | 4.7 dB (25 MHz-1 GHz) |
| 8 | Radiated Emissions | 4.8 dB (1 GHz-18 GHz) |
| 0 | | 5.21dB (18GZH-26GHz) |
| 9 | Conducted Emissions at Mains Terminals | 2.58dB |
| 10 | Temperature | 0.5 °C |
| 11 | Humidity | 0.4 % |
| 12 | Time | 1.2% |

The measurement uncertainty describes the overall uncertainty of the given measured value during the operation of the EUT.

Measurement uncertainty is calculated in accordance with ETSI TR 100 028-2001. The measurement uncertainty is given with a confidence of 95%, k=2.

When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

Uncertainty and Compliance – Unless the standard specifically states that measured values are to be extended by the measurement uncertainty in determining compliance, all compliance determinations are based on the actual measured value

3.5 Equipment Modification

Any modifications installed previous to testing by UNI-TREND TECHNOLOGY (CHINA) CO.,LTD. will be incorporated in each production model sold / leased in the United States.

No modifications were installed by Intertek Testing Services Shenzhen Ltd. Guangzhou Branch.



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3.6 Support Equipment List and Description

This product was tested with corresponding support equipment as below:

Support Equipment

| Description | Manufacturer | Model No. | SN/Version | Supplied by |
|---------------|--------------|--------------|---------------|-------------|
| NoteBook | НР | Compaq 6710b | SN:CNU8240LF9 | Intertek |
| Control board | Applicant | | Version:2.6 | Applicant |
| Adapter | | S065TV200325 | 1948Z | Intertek |

Cable

| Description | Model No. | Connector type | Cable length/type | Supplied by |
|--------------------|-----------|----------------|-------------------|-------------|
| Antenna cable | RF-01 | SMA | 0.2 m(shielded) | Intertek |
| USB extension cord | USB-01 | USB | 1.0 m(shielded) | WIK |



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4.0 Measurement Results

4.1 Antenna Requirement

Standard requirement:

15.203 requirement:

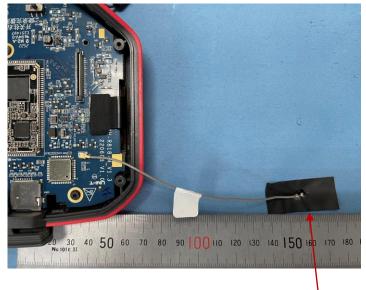
For intentional device. According to 15.203 an intentional radiator shall be designed to Ensure that no antenna other than that furnished by the responsible party shall be used with the device.

15.247(c) (1)(i) requirement:

(i) Systems operating in the 2400-2483.5 MHz bands that are used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

EUT Antenna

The antenna is an integral antenna and no consideration of replacement. The best case gain of the antenna is 1.87 dBi as declared by applicant.

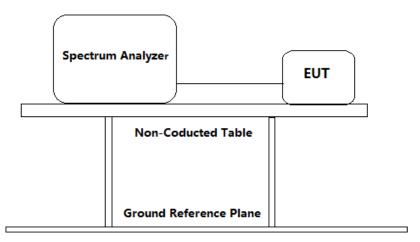




4.2 6 dB Bandwidth (DTS bandwidth)

| Test Requirement: | FCC Part 15 C section 15.247 (a)(2)Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5MHz, and 5725- 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz. |
|-------------------|--|
| Test Method: | ANSI C63.10: Clause 11.8 |
| Test Status: | Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below. |

Test Configuration:



Test Procedure:

- 1. Remove the antenna from the EUT and then connect a low attention attenuation RF cable (cable loss =1 dB, with a 10dB attenuator) from the antenna port to the spectrum.
- 2. Set the spectrum analyzer:
 - a) Set RBW = 100 kHz
 - b) Set the VBW \geq [3 × RBW]
 - c) Detector = peak.
 - d) Trace mode = max hold.
 - e) Sweep = auto couple
 - f) Allow the trace to stabilize.

g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.
 h) Span=2*BW~5*BW

3. Repeat until all the test status is investigated.



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4. Report the worst case.

Used Test Equipment List

Spectrum Analyzer. Refer to Clause 5 Test Equipment List for details.

6 dB bandwidth

| Channel No. | Frequency (MHz) | Mode | Data Rate | Measured 6dB bandwidth (MHz) | Limit | Result |
|----------------|--------------------|---------|-----------|---------------------------------------|----------|--------|
| 1 | 2412 | | 1 Mbps | 9.10 | | Pass |
| 6 | 2437 | 802.11b | 1 Mbps | 8.58 | | Pass |
| 11 | 2462 | | 1 Mbps | 9.32 | | Pass |
| 1 | 2412 | | 6 Mbps | 16.50 | | Pass |
| 6 | 2437 | 802.11g | 6 Mbps | 16.32 | | Pass |
| 11 | 2462 | | 6 Mbps | 16.44 | | Pass |
| 1 | 2412 | 802.11n | 6.5 Mbps | 16.85 | ≥500KHz | Pass |
| 6 | 2437 | (HT20) | 6.5 Mbps | 16.90 | | Pass |
| 11 | 2462 | | 6.5 Mbps | 17.48 | | Pass |
| 3 | 2422 | 802.11n | 13.5 Mbps | 34.50 | | Pass |
| 6 | 2437 | (HT40) | 13.5 Mbps | 34.62 | | Pass |
| 9 | 2452 | | 13.5 Mbps | 34.04 | <u> </u> | Pass |

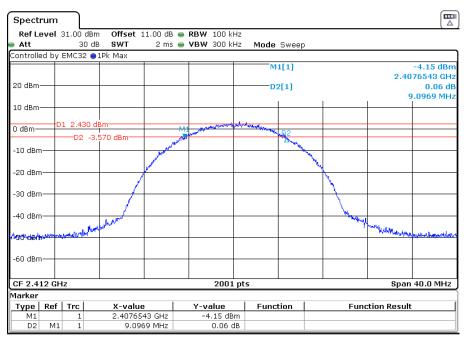


Result plot as follows:

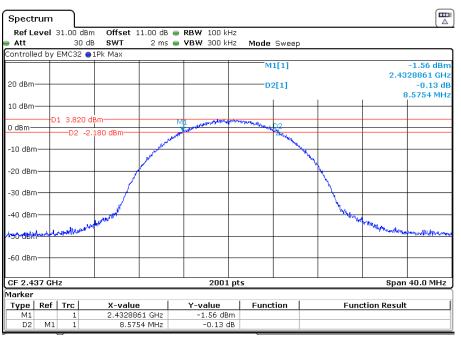
6dB bandwidth:

802.11b mode with 1Mbps data rate

Channel 1: 2.412GHz



Channel 6: 2.437GHz:

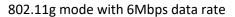




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Channel 11: 2.462GHz:

| | | | | | \$ |
|------------------------|-------------------------|--|--|-----------|---------------------------|
| Spectrum | Spectrum 2 | Spectrum 3 | Spectru | ım 4 🛛 🗶 | |
| Ref Level 31.0(Att | | .00 dB 👄 RBW 100 kł 4.8 μs 👄 VBW 300 kł | | -т | |
| Controlled by EMC | 32 🔵 1Pk Max | 1 1 | | | |
| | | | M1[1] | | 0.85 dBm 2.4574269 GHz |
| 20 dBm | | | D2[1] | | 0.26 dB |
| | | | | | 9.3198 MHz |
| 10 dBm | 570 dBm | | | | |
| | 2 0.670 dBm | M1 | D2 | | |
| | 2 0.070 000 | A Martin Contraction | and the second s | | |
| -10 dBm | | John Martin and Martin | ~ | ₩ | |
| | y y | | | N. | |
| -20 dBm | | | | 1 | |
| -30 dBm | | | | | |
| -30 0011 | | | | | |
| -40 dBm | man | | | | 4~ |
| | | | | · · · · · | manhamman |
| -50 dBm | | | | | |
| -60 dBm | | | | | |
| oo abiii | | | | | |
| CF 2.462 GHz | | 691 | pts | | Span 40.0 MHz |
| Marker | | | • | | i |
| Type Ref Tro | | Y-value | Function | Func | tion Result |
| | 1 2.4574269 1 9.3198 | | | | |
| | 1 9.3198 | MHZ 0,26 0 | | | |



Channel 1: 2.412GHz:

| | | | | | | | |
|------------------|--------|--------------------------|------------------|--|-----------------------------------|------------|--|
| Spectrum | | Spectrum 2 | X | Spectrum 3 | Speci | trum 4 🛛 🗴 | |
| Ref Level Att | | dBm Offset OdB SWT | | RBW 100 kH; VBW 300 kH; | | FFT | (-) |
| Controlled by | у ЕМСЗ | 2 😑 1Pk Max | , | | | | |
| 20 dBm | | | | | D2[1] | | -1.19 dB 16.4978 MHz -10.56 dBm 2.4037800 GHz |
| 10 dBm | | | | | | | |
| 0 dBm | | | | | | | |
| -10 dBm | | 230 dBm 2 -11.230 dBm | the film | happerlachory | and and the approximately and the | www.uhlan | |
| -20 dBm | | 1 | | | | | |
| -30 dBm | | - Connect | | | | | |
| -40 dBm | لسليم | um (| | | | , | municonner |
| -60 dBm | | | | | | | |
| CF 2.412 G | Hz | | | 691 p | ts | | Span 40.0 MHz |
| Marker | | | | | | | |
| Type Ref | F Trc | X-valu | e | <u>Y-value</u> -10.56 dBm | Function | Fun | ction Result |
| D2 M | | | 78 GHZ 78 MHZ | -10.56 dBm -1.19 dB | | | |



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Channel 6: 2.437GHz:

| | | | | | R | | | |
|---|-----------------|--|-------------------|--------------|---------------------------------------|--|--|--|
| Spectrum | Spectrum 2 🛞 | Spectrum 3 | Spectrur | n 4 🛛 🗴 | Ē | | | |
| Ref Level 31.00 | | RBW 100 kHz VBW 300 kHz | Mode Auto FF | г | | | | |
| Controlled by EMC: | 32 🔵 1 Pk Max | | | | | | | |
| 20 dBm | | | M1[1] | | -8.81 dBm 2.4288958 GHz 1.38 dB | | | |
| 10 dBm | | | | | 16.3242 MHz | | | |
| 0 dBm | 470 dBm | | ð 8 1. ð | 102 | | | | |
| - 10 dBm D | 2 -9.470 dBm | the part who for the | <u>NAMI NAVAN</u> | <u>, Mgc</u> | | | | |
| -20 dBm | | | | | | | | |
| -30 dBm | www | | | - Very | | | | |
| -40 UBIII | nu da | | | <u> </u> | mounder | | | |
| -60 dBm | | | | | | | | |
| CF 2.437 GHz | | | | | | | | |
| Marker Type Ref Trc | X-value | Y-value | Function | Fund | tion Result | | | |
| Type Ref Trc M1 1 1 D2 M1 1 | . 2.4288958 GHz | -8.81 dBm 1.38 dB | runcuon | Func | | | | |

Channel 11: 2.462GHz:

| Spectrum | n S p | pectrum 2 | X | Spectru | m 3 | ⊂ X ĭ s | pectrun | n4 🙁 | | |
|--------------------|--------------|-----------------|----------|-------------|----------|---------|------------|----------------------|--------------|------------------------|
| Ref Level | 31.00 dBr | m Offset 1 | 1.00 dB | ● RBW : | 100 kHz | | | | | |
| Att | 30 d | | 94.8 µs | e VBW 3 | 300 kHz | Mode | Auto FFT | | | |
| Controlled by | у ЕМСЗ2 🧲 | 1Pk Max | | | | | | | | |
| | | | | | | D | 2[1] | | | 4.87 dB |
| 20 dBm | | | | | | | | | | .4399 MHz |
| 20 ubiii | | | | | | IVI. | 1[1] | | | 10.19 dBm 37221 GHz |
| 10 dBm | | | | | | | | | 1 | UTZZI UTZ |
| 10 0.0 | | | | | | | | | | |
| 0 dBm | | | | | | | | | | |
| | D1 -2.010 | dBm .010 dBm | As has | WI who | Mr. M | Andreas | mmsha | .₩2 | | |
| -10 dBm- | D2 -8 | .010 dBm | an han a | 1-1-1-20000 | <u> </u> | | 0.00.00000 | <u> </u> | | |
| | | 1 1 | | | ľ | | | - 11 | | |
| -20 dBm | | <u> </u> | | | | | | | | |
| | | . w | | | | | | Nu. | | |
| -30 dBm | | - Way | | | | | | - ^{- 76} 6, | | |
| | | July 1 | | | | | | "Under | | |
| -40 dBm | | n l | | | | | | | | |
| -So dBm | marren | 1 | | | | | | | mune | mound |
| -50 aBm | | | | | | | | | | |
| -60 dBm | | | | | | | | | | |
| -00 0811 | | | | | | | | | | |
| 05.0.460.0 | | | | | 601 mt | _ | | | 0 | 40.0 MU- |
| CF 2.462 G | HZ | | | | 691 pt | 5 | | | span | 40.0 MHz |
| Marker Type Ref | Trc | X-value | . 1 | Y-val | | Fund | tion | E | ction Result | 1 |
| M1 | 1 | 2.45372 | | | 19 dBm | Func | uon | Fun | LIGH RESUL | |
| D2 M | | | 99 MHz | | 1.87 dB | | | | | |
| | 2.6 | | | | | | | | | |

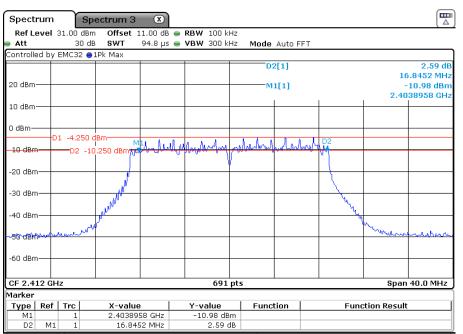
B



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802.11n(HT20) mode with 6.5Mbps data rate

Channel 1: 2.412GHz:



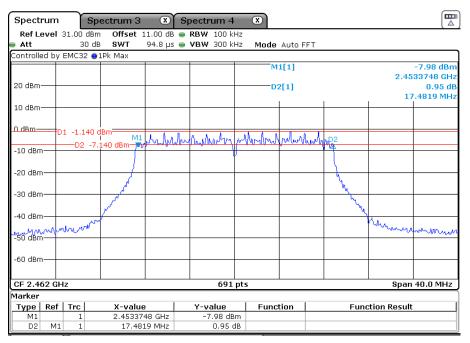
Channel 6: 2.437GHz:

| Spectr | um | | Spe | ctrum 3 | X | Spe | ctrum 4 | 1 | × | | | | | |
|-----------------------|---|--------|-------------|-------------------|-----------------|--------|------------------|--------|----------|--------|-------|----------------|-------------|------------------------|
| Ref Le | evel | | dBm 0 dB | | | | | | Mada | Auto F | | | | |
| | ● Att 30 dB SWT 94.8 µs ● VBW 300 kHz Mode Auto FFT Controlled by EMC32 ●1Pk Max | | | | | | | | | | | | | |
| | | 2 | | i iii | | | | \top | D | 2[1] | | | 1 | -0.10 dB 5.9030 MHz |
| 20 dBm- | | | | | | | | + | M | 1[1] | | | | -8.33 dBm 87221 GHz |
| 10 dBm- | | | + | | | | | + | | | | | | |
| 0 dBm— | | 1 -2.5 | 60 dB | m | | | | + | | | | | | |
| -10 dBm | _ | D2 | -8.56 | i0 dBm | Marter | ylande | Martin | fred | halso | whw | Lowlo | R ² | | |
| -20 dBm | | | - | | | | | - | | | | | | |
| -30 dBm | _ | | | NVVVV | | | | - | | | | | | |
| -40 dBm | | | word | <u>"</u> М | | | | + | | | | <u>\</u> | b July and | |
| ~ . aq,asu | un h | mun | · · · · | | | | | + | | | | | | non |
| -60 dBm | | | + | | | + | | + | | | | | | |
| CF 2.43 | 37 GH | łz | | | | | 691 | l pts | | | | | l Spar | 40.0 MHz |
| Marker | | | | | | | | | | | | | | |
| Туре | Ref | Trc | | X-value | | ١ | r-value | | Function | | | Fund | tion Result | t |
| M1 D2 | M1 | 1 | | 2.428722 16.90 | 21 GHz 3 MHz | | -8.33 d -0.10 | | | | | | | |



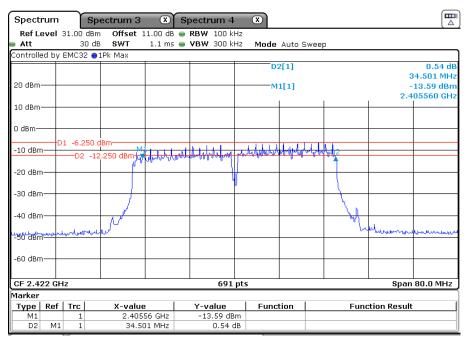
TEST REPORT

Channel 11: 2.462GHz:



802.11n(HT40) mode with 13.5Mbps data rate

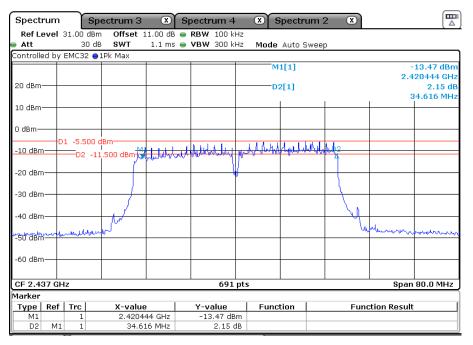
Channel 3: 2.422GHz:





TEST REPORT

Channel 6: 2.437GHz:



Channel 9: 2.452GHz:

| Spectrum | Sp | ectrum 3 | X | Spectrum 4 | x s | pectri | um 2 🛛 🕱 | | |
|--|--------------------|------------------|-----------------|--|----------|-----------|---|--------------|------------------------|
| Ref Level Att | 31.00 dBr 30 dI | | | RBW 100 kH VBW 300 kH | | Auto S | weep | | |
| Controlled by | EMC32 🔵 | 1Pk Max | | | | | | | |
| | | | | | D | 2[1] | | 3 | 0.39 dB 4.038 MHz |
| 20 dBm | | | | | M | 1[1] | | | 11.56 dBm 35907 GHz |
| 10 dBm | | | | | | | | | |
| 0 dBm | 1 -4.610 | dBm | | | | | | | |
| -10 dBm | | 0.610 dBm | 1 John Marker | -14 Autor Autor | pmhddidd | 4 pipping | www. | | |
| -20 dBm | | | | | | | | | |
| -30 dBm | | | | | | | <u> </u> | | |
| -40 dBm | | hour | | | | | <u> </u> | 1 | |
| -50 dBm | mount | un | | | | | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | whenton | Munner |
| -60 dBm | | | | | | | | | |
| CF 2.452 GHz 691 pts Span 80.0 MHz | | | | | | | | | |
| Marker | | | | | | | | | |
| Type Ref | | X-value | | Y-value | Func | tion | Fun | ction Result | |
| M1 D2 M1 | 1 | 2.43590 34.03 | 17 GHz 8 MHz | -11.56 dBi 0.39 d | | | | | |



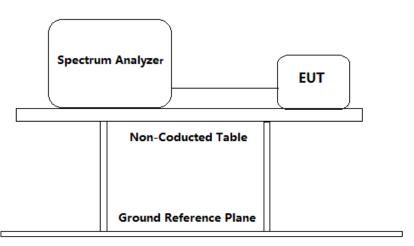
TEST REPORT

4.3 Duty Cycle

| Test Requirement: | FCC KDB 558074 D01 15.247 Meas Guidance v05r02, Clause 6 |
|-------------------|---|
| Test Method: | ANSI C63.10: Clause 11.6 |
| Test Status: | Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was |

(were) selected for the final test as listed below.

Test Configuration:



Test Procedure:

- 1. Remove the antenna from the EUT and then connect a low attention attenuation RF cable (cable loss =1dB, with a 10dB attenuator) from the antenna port to the spectrum.
- 2. Set the spectrum analyser:
 - a) Set the center frequency of the instrument to the center frequency of the transmission. Set the VBW \geq [3 x RBW]
 - b) Set RBW ≥OBW if possible; otherwise, set RBW to the largest available value. Span = Zero span
 - c) Set VBW \geq RBW. Set detector = peak or average. Trace mode = Free run
- 3. Report the worst case.

Used Test Equipment List

Spectrum Analyzer. Refer to Clause 5 Test Equipment List for details.



TEST REPORT

Test result:

| Channel No. | Frequency (MHz) | Mode | On time (ms) | Period (ms) | Duty Cycle (%) |
|-------------|--------------------|----------------|-----------------|----------------|-------------------|
| 1 | 2412 | 802.11b | 1.29 | 1.41 | 91.49 |
| 1 | 2412 | 802.11g | 0.24 | 0.42 | 57.14 |
| 1 | 2412 | 802.11n (HT20) | 0.22 | 0.38 | 57.89 |
| 1 | 2422 | 802.11n (HT40) | 0.12 | 0.23 | 52.17 |

Result plot as follows:

802.11b mode

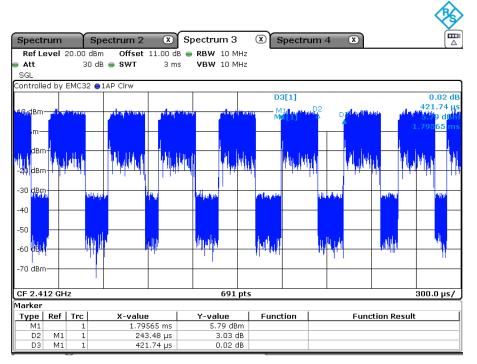
Channel 1: 2412 MHz:

| Specti | | | | | | | | | | |
|-----------|-------|--------|--------------------|---|----------------------------------|------|----------|------|--------------|---------------|
| Ref Le | | L | diam Offe | at 11.00 db | 😑 RBW 10 M | 115 | | | | |
| Att | ver a | | 0 dB 👄 SW1 | | : - VBW 10 M | | | | | |
| - | | 3 | 0 08 - 5 WI | 10 ms | S - ARM TO W | HZ | | | | |
| SGL | | | | | | | | | | |
| Controlle | dby | EMC3: | 2 😑 1 Pk Clrw | | | | | | | |
| | | | | | | D | 3[1] | | | -0.79 dB |
| 20 dBm- | | | | | | | | | | 0580 ms |
| 20 00111 | | | | M1 | D3 | м | 1[1] | | | .05 dBm |
| 10 dBm | | ****** | | and | - State and any mountain falling | | | | | 6 377s |
| 10 0.0111 | | | | | | | | | | |
| 0 dBm- | | | | | | | | | | |
| | | | | | | | | | | |
| -10 dBm | | | | | | | | | | |
| | | | | | | | | | | |
| -20 dBm | | | | | | | \vdash | | | |
| | | | | | | | | | | |
| -30 dBm | | | | | | | | | | |
| | r i | | 40 | M | ** | ſ | W | 8× | ' | * |
| -40 dBm | _ | | | | | | | | | |
| | | | | | | | | | | |
| -50 dBm | | | | | | | | | | |
| | | | | | | | | | | |
| -60 dBm | _ | | | | | | | | | |
| | | | | | | | | | | |
| CF 2.41 | 2 GH | 7 | | I | 2001 | nts | | | 1 | .0 ms/ |
| Marker | | - | | | 2001 | P | | | | |
| Type | Ref | Tre | X-va | ا مىل | Y-value | Func | tion | Eup | ction Result | - |
| M1 | Kel | 1 | | 46377 ms | 13.05 dB | | cion | Full | cion Result | |
| D2 | M1 | 1 | | 115.94 µs | -0.52 c | | | | | |
| D3 | M1 | 1 | | 1.4058 ms | -0.79 c | | | | | |
| | | - | 1 | | 0.119 0 | · , | | | | |

802.11g mode Channel 1: 2412 MHz:

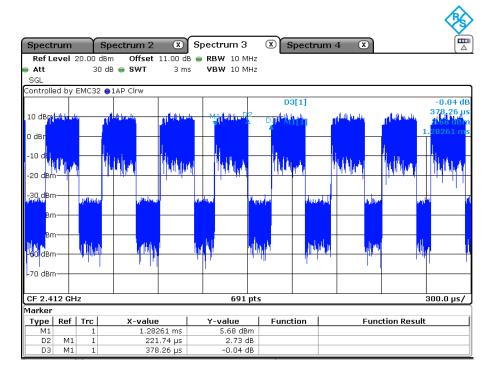


TEST REPORT



802.11n(HT 20) mode

Channel 1: 2412 MHz:

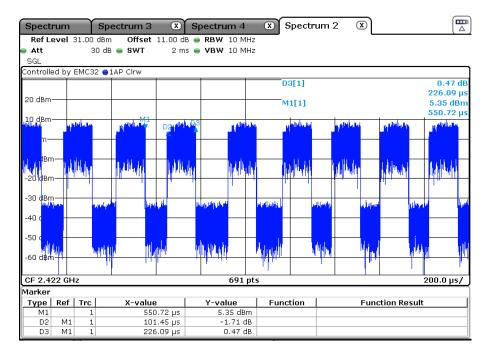


802.11n(HT 40) mode Channel 1: 2422 MHz:

Version: 20 September 2021



TEST REPORT

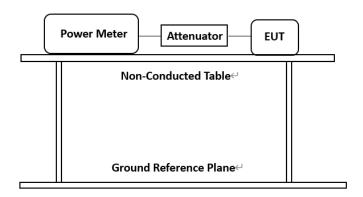




4.4 Maximum Average Conducted Output Power

| Test Requirement: | FCC Part 15 C section 15.247 Section 15.247: (b)(3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. Clause 5.4(d): For DTSs employing digital modulation techniques |
|---------------------|--|
| | operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1W. The e.i.r.p. shall not exceed 4 W. |
| | Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the |
| | conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b) (1), (b) (2), and (b) (3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi. |
| Test Method: | ANSI C63.10: Clause 11.9.2.3.1 |
| Test Status: | Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below. |
| Test Configurations | |

Test Configuration:



Test Procedure:

- 1. Remove the antenna from the EUT and then connect a low attention attenuation RF cable (cable loss =1 dB, with a 10dB attenuator) from the antenna port to the power meter.
- 2. The EUT is configured to transmit continuously or to transmit with a constant duty cycle.
- 3. If the EUT is transmitting at all times, it must be transmitting at its maximum power control level.
- 4. If the EUT does not transmit continuously, measure the duty cycle and adjust the



TEST REPORT

measurement in dBm by adding $10\log(1/x)$ where x is the duty cycle of transmitter output signal. This measurement is an average over both the ON and OFF periods of the transmitter.

5. Report the worst case.

Used Test Equipment List

Power meter. Refer to Clause 5 Test Equipment List for details.

| Channel No. | Frequency (MHz) | Mode | Data Rate | Measur ed | e.i.r.p (dBm) | Limi | t | Result |
|----------------|--------------------|---------|--------------|----------------|------------------|------------------------------|---------|--------|
| | | | | Power (dBm) | | Measured Channel Power | e.i.r.p | |
| 1 | 2412 | | 1 Mbps | 14.11 | 15.98 | | | Pass |
| 6 | 2437 | 802.11b | 1 Mbps | 15.33 | 17.20 | | | Pass |
| 11 | 2462 | | 1 Mbps | 16.40 | 18.27 | | | Pass |
| 1 | 2412 | | 6 Mbps | 8.40 | 10.27 | | | Pass |
| 6 | 2437 | 802.11g | 6 Mbps | 8.86 | 10.73 | | | Pass |
| 11 | 2462 | | 6 Mbps | 9.89 | 11.76 | 1W | 4W | Pass |
| 1 | 2412 | 802.11n | 6.5 Mbps | 8.09 | 9.96 | (30dBm) | (36dBm) | Pass |
| 6 | 2437 | (HT20) | 6.5 Mbps | 8.53 | 10.40 | - | | Pass |
| 11 | 2462 | (1120) | 6.5 Mbps | 10.08 | 11.95 | | | Pass |
| 3 | 2422 | | 13.5 Mbps | 6.86 | 8.73 | | | Pass |
| 6 | 2437 | 802.11n | 13.5 | 7.81 | 9.68 | | | Pass |
| 0 | 2437 | (HT40) | Mbps | 1.01 | 5.00 | | | rass |
| 9 | 2452 | | 13.5 Mbps | 8.21 | 10.08 | | | Pass |

Test result:

Remark:

The measured power in the table has considered the compensation of duty cycle.

cable lose=1dB

Antenna gain=1.87 dBi

e.i.r.p=output power + antenna gain

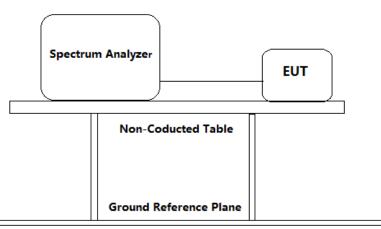


TEST REPORT

4.4 Peak Power Spectral Density

| Test Requirement: | FCC Part 15 C section 15.247 RSS-247 Clause 5.2(b) |
|-------------------|--|
| | (e) For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. |
| | This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density. |
| Test Method: | ANSI C63.10: Clause 11.10.2 |
| Test Status: | Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below. |
| | |

Test Configuration:



Test Procedure:

- 1. Remove the antenna from the EUT and then connect a low attention attenuation RF cable(cable loss =1 dB, with a 10dB attenuator) from the antenna port to the spectrum analyzer or power meter.
- 2. Set the spectrum analyzer:
 - a) Set analyzer center frequency to DTS channel center frequency.
 - b) Set the span= 1.5 × DTS bandwidth.
 - c) Set the RBW to 3 kHz \leqslant RBW \leqslant 100 kHz.
 - d) Set the VBW \geq [3 × RBW].
 - e) Detector = peak.
 - f) Sweep time = auto couple.
 - g) Trace mode = max hold.
 - h) Allow trace to fully stabilize.



TEST REPORT

- i) Use the peak marker function to determine the maximum amplitude level within the RBW.
- j) If measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat.
- 3. Measure the Power Spectral Density of the test frequency with special test status.
- 4. Repeat until all the test status is investigated.
- 5. Report the worst case.

Used Test Equipment List

Spectrum Analyzer. Refer to Clause 5 Test Equipment List for details.

Test result:

| Channel No. | Frequency (MHz) | Mode | Data Rate | Measured Peak Power Spectral Density (dBm/3kHz) | Limit | Result |
|----------------|--------------------|---------|-----------|---|-------|--------|
| 1 | 2412 | | 1 Mbps | -10.20 | | Pass |
| 6 | 2437 | 802.11b | 1 Mbps | -7.69 | | Pass |
| 11 | 2462 | | 1 Mbps | -6.11 | | Pass |
| 1 | 2412 | | 6 Mbps | -20.80 | | Pass |
| 6 | 2437 | 802.11g | 6 Mbps | -17.99 | | Pass |
| 11 | 2462 | | 6 Mbps | -17.28 | 8dBm/ | Pass |
| 1 | 2412 | 802.11n | 6.5 Mbps | -20.70 | 3 KHz | Pass |
| 6 | 2437 | (HT20) | 6.5 Mbps | -16.60 | - | Pass |
| 11 | 2462 | (1120) | 6.5 Mbps | -16.60 | | Pass |
| 3 | 2422 | 802.11n | 13.5 Mbps | -20.51 | 1 | Pass |
| 6 | 2437 | (HT40) | 13.5 Mbps | -20.52 | 1 | Pass |
| 9 | 2452 | | 13.5 Mbps | -18.41 | | Pass |



TEST REPORT

Result plot as follows:

802.11b mode with 1Mbps data rate Channel 1: 2.412GHz:

| | | | |
|--|---|---|-----------------------------|
| Spectrum | Spectrum 2 🗶 Spe | ctrum 3 🛛 🛪 Spectrum 4 | × × |
| Ref Level 20.0 | 0 dBm Offset 11.00 dB 👄 RI 30 dB SWT 2.5 ms 👄 VI | | · |
| Controlled by EMC | 32 🔵 1 Pk Max | | |
| | | M1[1] | -10.20 dBm 2.4102680 GHz |
| 10 dBm | | | |
| 0 dBm | | | |
| -10 dBm | M1 | a status da series de la series d | |
| an dam daa ^M | MI | working when relationships and write he | able and hand stored rach |
| and with the state of the state | | | and the weat the |
| -30 dBm | | | |
| -40 dBm | | | |
| -50 dBm | | | |
| -60 dBm | | | |
| | | | |
| -70 dBm | | | |
| CF 2.412 GHz | | 691 pts | Span 13.6 MHz |

Channel 6: 2.437GHz:

| Spectrum | | | | | | | | | |
|-------------|-------------|----------|-------------------|--|-------------|-----------|-------------|--------------|------------------------|
| Ref Level | | Offset 1 | .1.00 dB 👄 | RBW 3 kH | z | | | | |
| Att 🗧 | 30 dB | SWT | 1.9 ms 👄 | VBW 10 kH | z Mode / | Auto FFT | | | |
| ⊖1Pk Max | | | | | | | | | |
| | | | | | м | 1[1] | | | -7.69 dBm 60500 GHz |
| 10 dBm | | | | | | | | | |
| | | | | | | | | | |
| 0 dBm | | | | M1 | | | | | |
| -10 dBm | | | No. Marker Market | and the last of th | Maramakanaa | Autor and | | | |
| -10 dBm | mannewedler | howand | | | | | terreturnet | whether have | dan . |
| r-20-adeth | | | | | | | | | - munture |
| | | | | | | | | | |
| -30 dBm | | | | | | | | | |
| -40 dBm | | | | | | | | | |
| | | | | | | | | | |
| -50 dBm | | | | | | | | | |
| -60 dBm | | | | | | | | | |
| -oo ubili | | | | | | | | | |
| -70 dBm | | | | | | | | | |
| | | | | | | | | | |
| CF 2.437 GH | Iz | | | 691 | pts | | I | Span 1 | 2.87 MHz |



 $\mathbf{\wedge}$

TEST REPORT

Channel 11: 2.462GHz:

| | | | | (\$\$) |
|------------------------|---|-------------------|---------------------------|------------------------------|
| Spectrum | Spectrum 2 🛛 🗴 | Spectrum 3 🛛 🛞 | Spectrum 4 🛞 | |
| Ref Level 20.00 (| | | • Auto FFT | · · · · |
| Controlled by EMC32 | e 1Pk Max | | | |
| | | | M1[1] | -6.11 dBm 2.4612520 GHz |
| 10 dBm | | | | |
| 0 dBm | | | | |
| o ubin | | M1 | | |
| -10 dBm | and a start a start a start a start a start a start | manus have marile | marken marken Marken Mark | where where where a sheether |
| 20 de the we we de the | www | | | malas lever when an |
| -20 GDH1-4 | | | | and the second |
| -30 dBm | | | | |
| 10 -0 | | | | |
| -40 dBm | | | | |
| -50 dBm | | | | |
| co dou | | | | |
| -60 dBm | | | | |
| -70 dBm | | | | |
| | | | | |
| CF 2.462 GHz | | 691 pts | 1 | Span 13.978 MHz |

802.11g mode with 6Mbps data rate Channel 1: 2.412GHz:

| Spectrum | Spectrum 2 | Spectrum | 3 🗴 Spectrum | 4 🗵 | |
|-------------------|------------------|---|--------------|------------|---|
| | 30 dB SWT | .1.00 dB 👄 RBW 3 k 3.8 ms 👄 VBW 10 k | | | \ |
| Controlled by EMC | 32 😑 1Pk Max | | M1[1] | | -20.80 dB |
| | | | MILI | | -20.80 dB 2.4144710 GF |
| 10 dBm | | | | | |
| 0 dBm | | | | | |
| -10 dBm | | | | | |
| -20 dBm | | | M1 | lasing 114 | 1 |
| -30 dBm | MANNIN | NPM MANUM | Manana | MANA | ¥ |
| -40 dBm | | | | | |
| | U | | | | Why he is |
| -50 dBm | | | | | Will have been and the second |
| -60°48m | | | | | V |
| -70 dBm | | | | | |
| CF 2.412 GHz | | 69 | 1 pts | | Span 24.75 MH: |

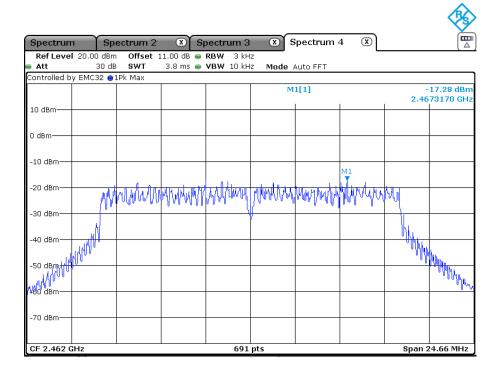


TEST REPORT

Channel 6: 2.437GHz:

| Spectrum | Spectrum 2 | Spectrum | 3 X S | pectrum 4 | x | | |
|----------------------|-----------------------------|---------------------------------------|------------------------|-----------|-----|------------------|------------------------|
| RefLevel 20.0 Att | 0 dBm Offset 1 30 dB SWT | 11.00 dB 👄 RBW 3 3.8 ms 👄 VBW 10 | Hz Hz Mode A | uto FFT | | | |
| Controlled by EMC | 32 🔵 1 Pk Max | | | | | | |
| | | | M1 | 1[1] | | | 17.99 dBm 44780 GHz |
| 10 dBm | | | | | | | |
| 0 dBm | | | | | | | |
| -10 dBm | | | | | | | |
| -20 dBm | | المعالية والمعالية | haul | | | 11 Y N I W | |
| -30 dBm | MANANAMA | nannanna | 1 Naurour | www.www | WWW | M | |
| -40 dBm | | | W | | | N | |
| . m Martin | N . | | | | | "Hu | lu - |
| -50 dBm | | | | | | | Marth Martin |
| dBm | | | | | | | ~bull |
| -70 dBm | | | | | | | |
| 05.0.407.011- | | 6 | 1 == == | | | | 4 40 MU- |
| CF 2.437 GHz | | 69 | 1 pts | | | span 2 | 4.49 MHz |

Channel 11: 2.462GHz:



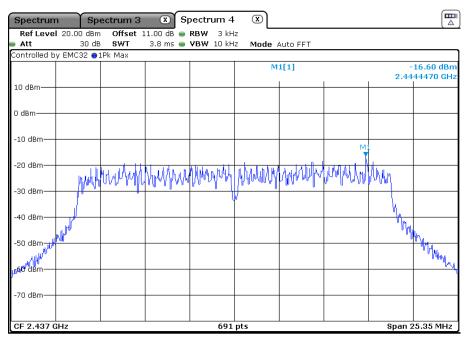


TEST REPORT

802.11n(HT20) mode with 6.5Mbps data rate Channel 1: 2.412GHz:

| Spectrum | n Spe | ectrum 3 | 🗶 SI | pectrum 4 | × | | | | |
|---------------|----------------|------------|---|------------------|-------------|-----------------|----------------|------------|------------------|
| | 20.00 dBm | | | RBW 3 kH | | | | | |
| Att | 30 dB | SWT | 3.8 ms 👄 | VBW 10 kH | z Mode / | Auto FFT | | | |
| Controlled by | y EMC32 🔵 1 | .Pk Max | | | | | | | |
| | | | | | M | 1[1] | | | 20.70 dBm |
| 10 dBm | | | | | | I | I | 2.41 | 94970 GHz |
| TO OBIN- | | | | | | | | | |
| | | | | | | | | | |
| 0 dBm | | | | | | | | | |
| | | | | | | | | | |
| -10 dBm | | | | | | | | | |
| | | | | | | | | | |
| -20 dBm | | | | | | | м | - | |
| | | ի նվակեստե | Lond M. C. | and that | Anthony | بالمارا المرابع | it ha fUlimite | UAA.J | |
| -30 dBm | MAN | YUUPMAN | MAMA | (MANA) | Than A Mail | WWWWW | odrad kaska | P(FY)/ | |
| 00 00 | | ľ | , in the second s | • \ | | Ť | | | |
| -40 dBm | | | | | ļ | | | 4 . | |
| -40 aBm | | | | | | | | 4 | |
| | M ^r | | | | | | | N Wu | ki - |
| -50 dBm | /* | | | | | | | | Mu. |
| M | | | | | | | | | TADO TO THE TADO |
| u do dBm | | | | | | | | | - Mill |
| • | | | | | | | | | |
| -70 dBm | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| CF 2.412 G | Hz | | | 691 | pts | | | Span 2 | 5.27 MHz |

Channel 6: 2.437GHz:





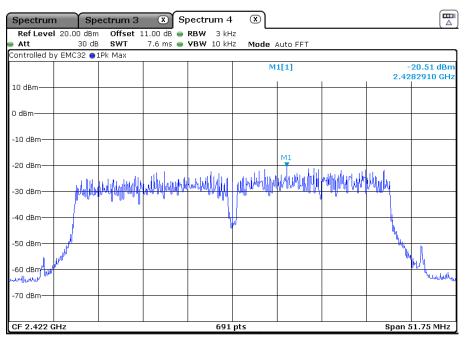
TEST REPORT

Channel 11: 2.462GHz:

| Spectrum | Spe | ectrum 3 | ×s | pectrum 4 | × | | | | |
|---------------|-------------|----------|------------|-------------------|----------|----------|---------|--------|------------------------|
| Ref Level | 20.00 dBm | Offset 1 | L1.00 dB 👄 | RBW 3 kH | z | | | | |
| Att | 30 dB | | 3.8 ms 👄 | VBW 10 kH | z Mode / | Auto FFT | | | |
| Controlled by | / EMC32 🔵 1 | .Pk Max | | | | | | | |
| | | | | | М | 1[1] | | | 16.60 dBm 79400 GHz |
| 10 dBm | | | | | | | | | |
| 0 dBm | | | | | | | | | |
| -10 dBm | | | M1 | | | | | | |
| -20 dBm | 144V | nun thun | tunikan | al har faller and | maliti | Authory | unMtrat | Mi | |
| -30 dBm | h | | | | | | | | |
| -50 dBm | war | | | | | | | W | M. |
| HED dBm | | | | | | | | | YHYYYYYY |
| r | | | | | | | | | UA. |
| -70 dBm | | | | | | | | | |
| CF 2.462 G | Hz | | · | 691 | pts | · | | Span 2 | 6.22 MHz |

802.11n(HT40) mode with 13.5Mbps data rate

Channel 3: 2.422GHz:





TEST REPORT

Channel 6: 2.437GHz:

| Spectrum | n Spi | ectrum 3 | 🗴 Sp | ectrum 4 | x s | pectrum : | 2 🗶 | | |
|---------------|--------------------|-----------|------------|-----------|-------------|------------------|-------------|--------|------------------------|
| | 20.00 dBm | | 1.00 dB 😑 | | | | | | |
| Att | 30 dB | | 7.6 ms 😑 | VBW 10 kH | z Mode / | Auto FFT | | | |
| Controlled by | y EMC32 🔵 1 | LPk Max | | | | | | | |
| | | | | | м | 1[1] | | | 20.52 dBm 20270 GHz |
| 10 dBm | | | | | | | | | |
| 0 dBm | | | | | | | | | |
| -10 dBm | | | | | | | | | |
| -20 dBm | | 1 | . he m | n n ll | | ا م ا ما ما ما . | MI Muran | | |
| -30 dBm | - populy | Nrthhurth | alle flere | hadababa | HIPM WAT WI | manahah | huhhulturla | 111111 | |
| -40 dBm | | | | | ļ . | | | | |
| -50 dBm | | | | | | | | K. | |
| -60 dBm | all ^{ulu} | | | | | | | y. | 161 |
| worddor | | | | | | | | | Vordhuley |
| -70 dBm | | | | | | | | | |
| CF 2.437 G | Hz | | | 691 | pts | I | I | Span : | 51.92 MHz |

Channel 9: 2.452GHz:

| Spectrum | n Spe | ectrum 3 | × s | pectrum 4 | . 🔊 E | Spectrum (| 2 🗴 | | |
|---------------|-------------|-------------|--------------|-------------|-------------|------------|--------------|----------|------------------------|
| | 20.00 dBm | | 11.00 dB 👄 | | | | | | |
| Att | 30 dB | | 7.6 ms 👄 | VBW 10 kH | z Mode | Auto FFT | | | |
| Controlled by | y EMC32 🔵 1 | LPK Max | | 1 | | | | | 10.11.10 |
| | | | | | I INI | 1[1] | | | 18.41 dBm 60400 GHz |
| 10 dBm | | | | | | | | | |
| | | | | | | | | | |
| 0 dBm | | | | | | | | | |
| | | | | | | | | | |
| -10 dBm | | | | | | | | | |
| | | | | | | | M1 | | |
| -20 dBm | | | | | | | T. | | |
| | يا يان | lashinin da | a data Mampa | ALL MARKAGE | Hildhinku | AN ALANA | NMUN MMM | HUM I | |
| -30 dBm | | WINNE | Assanth M | PA TANA | Wallin . n. | | d als dolla. | | |
| | U | | | | | | | | |
| -40 dBm | | | | 1 | / | | | ļ (| |
| | JU I | | | | | | | <u> </u> | |
| -50 dBm | 1 | | | | | | | <u> </u> | |
| a./ | √ " | | | | | | | 1 | M., |
| -60 dBr | | | | | | | | | WY L |
| www.www.ww | | | | | | | | | Whiteh |
| -70 dBm | | | | | | | | | |
| | | | | | | | | | |
| CF 2.452 G | :Hz | | | 691 | nts | | | Snan 5 | 51.06 MHz |



TEST REPORT

4.5 Out of Band Conducted Emissions

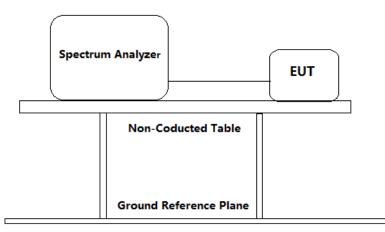
Test Requirement: FCC Part 15 C section 15.247

(d) 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. Provided the transmitter demonstrates compliance with the peak conducted power limits.

Test Method: ANSI C63.10: Clause 11.11

Test Status: Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.

Test Configuration:



Test Procedure:

- 1. Remove the antenna from the EUT and then connect a low RF cable (cable loss =1dB, with a 10dB attenuator) from the antenna port to the spectrum analyzer or power meter.
- 2. Establish a reference level by using the following procedure:
 - a) Set instrument center frequency to DTS channel center frequency.
 - b) Set the span to \geqslant 1.5 imes DTS bandwidth.
 - c) Set the RBW = 100 kHz.
 - d) Set the VBW \geq [3 × RBW].
 - e) Detector = peak.
 - f) Sweep time = auto couple.
 - g) Trace mode = max hold.
 - h) Allow trace to fully stabilize.
 - i) Use the peak marker function to determine the maximum PSD level.



TEST REPORT

Note that the channel found to contain the maximum PSD level can be used to establish the reference level

3. Emission level measurement

a) Set the center frequency and span to encompass frequency range to be measured.

- b) Set the RBW = 100 kHz.
- c) Set the VBW \geq [3 × RBW].
- d) Detector = peak.
- e) Sweep time = auto couple.
- f) Trace mode = max hold.
- g) Allow trace to fully stabilize.
- h) Use the peak marker function to determine the maximum amplitude level.
- 4. Measure the Conducted unwanted Emissions of the test frequency with special test status.
- 5. Repeat until all the test status is investigated.
- 6. Report the worst case.

Used Test Equipment List

Spectrum Analyzer. Refer to Clause 5 Test Equipment List for details.

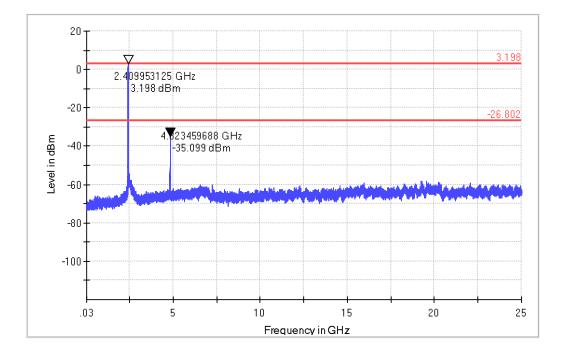
Result plot as follows:

802.11b mode with 1Mbps data rate Channel 1: 2.412GHz:

| Spectrum | Spectrum 3 | Spectrum 4 | Spectrum : | 2 🗴 | |
|-----------------|---|--|--|---|--|
| DC | | B e RBW 100 kHz s e VBW 300 kHz | | | · |
| 1Rm Max | | | | | |
| 0 dBm D1 3.: | 198 dBm — — — - | | M1[1] | | -67.93 dBm 20.030650 MHz |
| -10 dBm | | | | | |
| -20 dBm | | | | | |
| -30 dBm | 2 -35.099 dBm | | | | |
| -40 dBm | 2 -33.099 0611 | | | | |
| -50 dBm | | | | | |
| -60 dBm | | | M1 | | |
| d dBm at hi mai | an a | AND | an last and struktore struktore till black | ¹¹ նալ հեղորիսլ (եկ) որ, լ | teristic militian alerta da padatiti kan damat |
| -80 dBm | and and a paper part of the second | ihiheen konteger planta par ster | and the second | ^{ali} tt papa legaritpileary attac | in and the line of the state of |
| -90 dBm | | | | | |

 \land



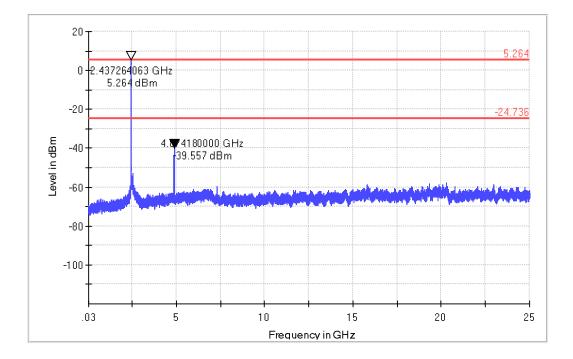


In any 100kHz bandwidth, the Conducted Spurious Emissions from 30 MHz to 25 GHz were greater than 20dB below the peak emission within the band that contains the highest level of the desired power.

Channel 6: 2.437GHz:

| Spectrum | Spectrum 3 | × Si | ectrum 4 | | Spectrum 2 | 2 🛛 | | |
|--|--|-------------------------|--|---|---------------------------|-----------------------|-----------------------|-------------------------------------|
| - | - | 0 - | | 0 | spectrum | | | (A |
| Ref Level 10.0 | | | (BW 100 kH /BW 300 kH | | | | | |
| DC | 20 UB 3141 . | 52.1 1115 🔲 🕯 | DW SUUKH | z Mode | Sweep | | | |
| 1Rm Max | | | | | | | | |
| - | | | | M | 1[1] | | - | 65.79 dBn |
| D1 5. | 264 dBm | | | | | | | 41.030 kHz |
| 0 dBm | | | | | | | | |
| | | | | | | | | |
| -10 dBm | | | | | | | | |
| | | | | | | | | |
| -20 dBm | | | | | | | | |
| D | 2 -24.736 dBm- | | | | | | | |
| -30 dBm | | | | | | | | |
| | | | | | | | | |
| -40 dBm | | | | | | | | |
| -+0 0011 | | | | | | | | |
| -50 dBm | | | | | | | | |
| -50 UBIII | | | | | | | | |
| | | | | | | | | |
| -60 dBm | | | | | | | | |
| and a set of | | | | | 1.1 | | | |
| dia na dia mandri dia m | Terrori "Territori fatori da | 1. S. 1. K. A. L. M. K. | out ^h theorem | Roman Profess | namp' mit i far | باللي ويعالمه المرابع | والالاس مطولهما اللاط | المعطابة المراجع |
| a state of the second | a series a second second second second | and all distances | A Designation of the second | and the second secon | Configuration of the last | and the second second | And the state of the | the first and a print of the little |
| -80 dBm | | | | | | | | |
| | | | | | | | | |
| CF 15.0045 MHz | | | 32001 | | | | | 9.991 MHz |



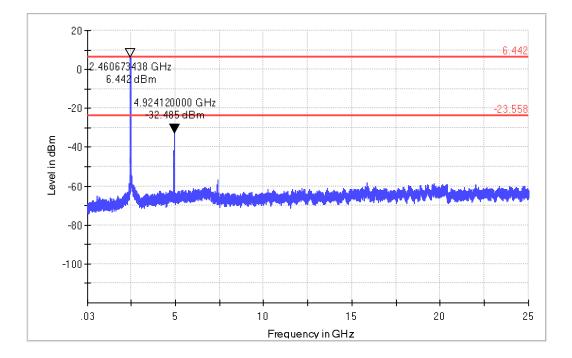


In any 100kHz bandwidth, the Conducted Spurious Emissions from 30 MHz to 25 GHz were greater than 20dB below the peak emission within the band that contains the highest level of the desired power.

Channel 11:2.462 GHz:

| | | | | | |
|--------------------------------|--|---|---|---|--|
| Spectrum | Spectrum 3 | Spectrum 4 | Spectrum | 2 🗴 | |
| RefLevel 10.00 Att : DC | | .00 dB ● RBW 100 kH 2.1 ms ● VBW 300 kH | | | |
| 1Rm Max D1 6.4 | 142 dBm | | M1[1] | | -68.22 dBm 978.520 kHz |
| 0 dBm | | | | | 576.020 KHZ |
| -10 dBm | | | | | |
| -20 dBm | 2 -23.558 dBm | | | | |
| -30 dBm | | | | | |
| -40 dBm | | | | | |
| -50 dBm | | | | | |
| -60 dBm | | | | | |
| -1.9 Determine the property on | n de la tra Million de Constana para na sector parte de Cardon de C | di kacali dali yaka di walini ka ipi ka pera Mikerati Alimina yipi wasili na paninyani y | la para ang ang batakan ng pang pang pang ^{ang ang ang ang ang ang ang ang ang ang} | an and a state of the design | n ha ha maga katala <mark>da ja da kana kada sa sa</mark> . Manga katala kata nga mata tang mana kata sa sa |
| -80 dBm | | | | A STATE OF THE OWNER | on and an original sector of the sector of t |
| CF 15.0045 MHz | | 3200 | 1 pts | | Span 29.991 MHz |





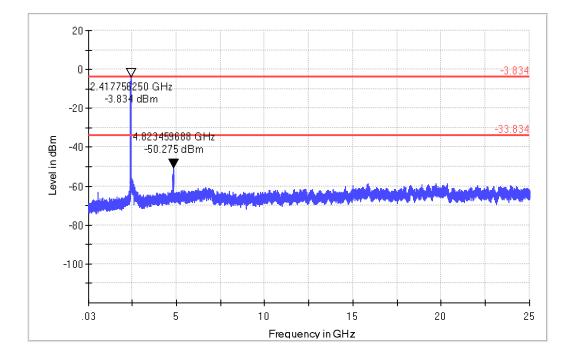
In any 100kHz bandwidth, the Conducted Spurious Emissions from 30 MHz to 25 GHz were greater than 20dB below the peak emission within the band that contains the highest level of the desired power.

802.11g mode with 6Mbps data rate

Channel 1: 2.412GHz:

| | | | | |
|-----------------------------|--|---|---|--|
| Spectrum | Spectrum 3 | Spectrum 4 🛛 🗴 | Spectrum 2 🛛 🗶 | |
| RefLevel 10.00 Att DC | | dB @ RBW 100 kHz ms @ VBW 300 kHz Mo | de Sweep | |
| ∋1Rm Max | | | | |
| | | | M1[1] | -68.91 dBm 2.693580 MHz |
| 0 dBm | 834 dBm | | | |
| -10 dBm | | | | |
| -20 dBm | | | | |
| -30 dBm | 2 -33.834 dBm— — | | | |
| -40 dBm | | | | |
| -50 dBm | | | | |
| -60 dBm | | | | |
| 20 dBm life | lation of the state of the stat | and any second state of the fact second state of the | Charles and States and States | لار الإسلام الحريق المراجع الم |
| -80 dBm | nyé hana na manana panén na mana panén k | alley here and prover a product or a participation of the second s | an fan fan fan de fa In fan fan fan fan de | la canda di ponisi na cilina poli alla finita data di plac |
| CF 15.0045 MHz | | 32001 pts | | Span 29.991 MHz |



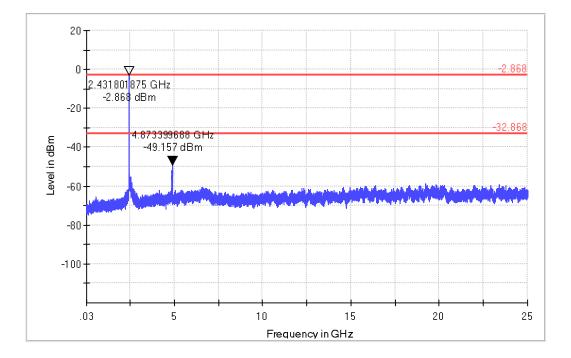


In any 100kHz bandwidth, the Conducted Spurious Emissions from 30 MHz to 25 GHz were greater than 20dB below the peak emission within the band that contains the highest level of the desired power.

Channel 6: 2.437GHz:

| Spectrum | Spectrum 3 | Spectrum 4 🛛 S | pectrum 2 🛛 🗴 | |
|----------------|---|---|--|--|
| DC | | B • RBW 100 kHz s • VBW 300 kHz Mode : | Sweep | |
| ●1Rm Max | | м | 1[1] | -67.56 dBm 926.040 kHz |
| 0 dBm | 868 dBm | | | |
| -10 dBm | | | | |
| -20 dBm | | | | |
| -30 dBm | 2 -32.868 dBm | | | |
| -40 dBm | | | | |
| -50 dBm | | | | |
| -60 dBm | | | | |
| th dBmatter | and a faither of a diff. In | Harrison and the local as a product of product of the test of | | lindek stat kisat i jing as sedara ta ta daki |
| -80 dBm | uterand period of the left of | Consects Sector Distances and Distances | it and construction into an international states and and the second states of the second stat | n belans der eller i Lytheologing schrieben enser at performen |
| CF 15.0045 MHz | | 32001 pts | | Span 29.991 MHz |



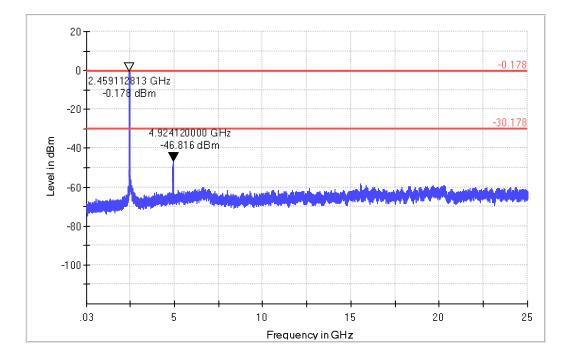


In any 100kHz bandwidth, the Conducted Spurious Emissions from 30 MHz to 25 GHz were greater than 20dB below the peak emission within the band that contains the highest level of the desired power.

Channel 11: 2.462 GHz:

| | | | | × |
|------------------------|--|--|--|--|
| Spectrum | Spectrum 3 | Spectrum 4 S | Spectrum 2 🛛 🗴 | |
| Ref Level 10.04 Att | | dB 🖷 RBW 100 kHz ms 🖷 VBW 300 kHz Mode | Sweep | (|
| 1Rm Max | | | | |
| | | M | 1[1] | -67.72 dBn 905.420 kH |
| 0 dBm D1 -0 | .178 dBm | | | |
| -10 dBm | | | | |
| -20 dBm | | | | |
| -30-dBmD | 2 -30.178 dBm | | | |
| -40 dBm | | | | |
| -50 dBm | | | | |
| -60 dBm | | | | |
| M1 TridBm | | | day diam'r ffiniad | |
| | | الم المراجع المراجع المراجع والمراجع عن من المراجع المراجع المراجع المراجع ومراجع الألي من المراجع المراجع المراجع والمراجع والمراجع ومن المراجع والمراجع والمراجع والمراجع المراجع والمراجع المراجع وا | and the state of t | out, states topolo, as possibly as a |
| -80 dBm | an or random second of a difference of the | an and the second states in the second states in the second states and the second states in the second states and th | heightenplyssing | ինչերնեն ու ենթանի հեն ու նկերություն։ |
| CF 15.0045 MHz | | 32001 pts | | Span 29.991 MHz |



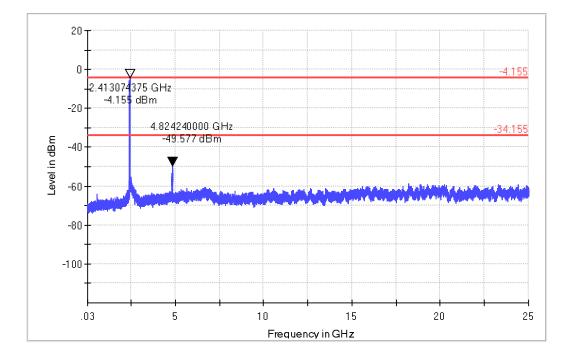


In any 100kHz bandwidth, the Conducted Spurious Emissions from 30 MHz to 25 GHz were greater than 20dB below the peak emission within the band that contains the highest level of the desired power.

802.11n(HT20) mode with 6.5Mbps data rate Channel 1: 2.412GHz:

| | | | | | |
|-------------------------------|---|--------------------------------------|--|--|--|
| Spectrum | Spectrum 3 | Spectrum 4 | Spectrum 2 | 2 🕱 | (The second seco |
| RefLevel 10.00 Att : DC | | dB 💿 RBW 100 kHz ns 💿 VBW 300 kHz | | | |
| ●1Rm Max | | | M1[1] | | -67.47 dBm 660.820 kHz |
| | 155 dBm | | | | |
| -10 dBm | | | | | |
| -30 dBm | | | | | |
| -40 dBm | 2 -34.155 dBm | | | | |
| -50 dBm | | | | | |
| -60 dBm | | | | | |
| and an an an and the stand | danagen <mark>billing bilang big bagan biga</mark> Ing mengang billing bilang bing panak dal | | ha ga da ya katif () tana a ta an da yi kuta katif tina na Manana katina katif yi katif ya katif yi katif yi katif yi katif yi katif ya katif ya katif ya katif ya katif y | ^{da} (karadiki Markada julika ^{Ma} rada markada julika julika | in face, the former of the forme |
| -oo ubiii | | | | | |
| CF 15.0045 MHz | | 32001 | pts | | Span 29.991 MHz |



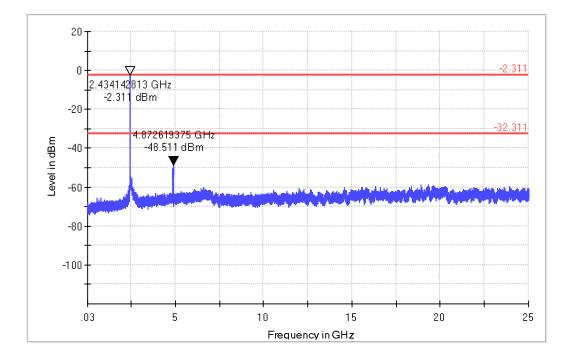


In any 100kHz bandwidth, the Conducted Spurious Emissions from 30 MHz to 25 GHz were greater than 20dB below the peak emission within the band that contains the highest level of the desired power.

Channel 6: 2.437GHz:

| Spectrum | Spectrum 3 | Spectrum 4 | Spectrum : | 2 🗶 | | |
|--|--|--|---|---------|---|---|
| Ref Level 10.00 Att DC | | 00 dB ● RBW 100 kH 2.1 ms ● VBW 300 kH | | | | (= |
| €1Rm Max | | | | | | |
| | | | M1[1] | | | 67.28 dBm 29190 MHz |
| 0 dBm | .311 dBm | | | | | |
| -10 dBm | | | | | | |
| 20 dBm | | | | | | |
| -30 dBmD | 2 -32.311 dBm | | | | | |
| -40 dBm | | | | | | |
| -50 dBm | | | | | | |
| -60 dBm | | | | | | |
| | an tradicional distantia da constitu | - India di Andra da ang kanangana ang | International States | he sult | | |
| and the second states in the second sec | success of the second states o | Standard Construction of the State of the St | الموسط والمور والمسترك ومسمق والرواسي والمعر والمراجع | | lighter of a literation data for an about the literation | Sity for the standard of the Count of the standard of the st |
| -80 dBm | | | | | | |
| CF 15.0045 MHz | | 3200 | 1 pts | I | Span 29 | 0.991 MHz |



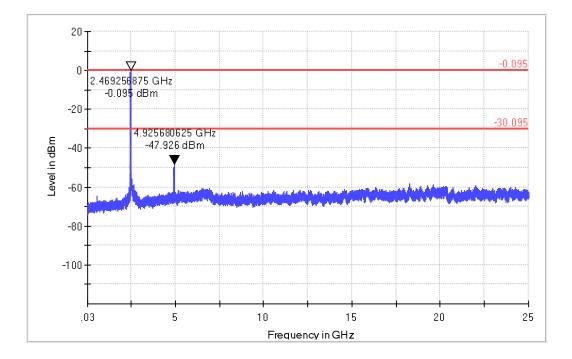


In any 100kHz bandwidth, the Conducted Spurious Emissions from 30 MHz to 25 GHz were greater than 20dB below the peak emission within the band that contains the highest level of the desired power.

Channel 11:2.462 GHz:

| Spectrum | Spectrum 3 | 🗴 Sp | ectrum 4 | × s | pectrum | 2 X | | |
|--------------------------|--|------------------------------|--------------------------|--|--------------------|-----------------|--|---------------------------|
| Ref Level 10.00 Att : | | 00 dB 🛑 RI 2.1 ms 🛑 V | | | Sweep | | | |
| ●1Rm Max●2Pk M | ax | | | | | | | |
| | | | | М | 1[1] | | | 66.61 dBm 18.540 kHz |
| 0 dBmD1 -0. | 095 dBm | | | | | | | |
| -10 dBm | | | | | | | | |
| -20 dBm | | | | | | | | |
| | 2 -30.095 dBm | | | | | | | |
| -40 dBm | | | | | | | | |
| -50 dBm | | | | | | | | |
| -60 dBm | | | | | | | | |
| Malater and Angle and | hands the providence of | Martin Martin | ulula (parti land | Alley He glaran | | Martine Automat | and a strategy light | and the production |
| -80 dBm | ى يەلغا (لەي يەر بىلەيتە يىلەيلىغ قىيار. 1 | and the second second second | n an an gan da gan da sa | and the second | ha seditar a se an | | an a | Aland bolindi (1996-1944) |
| CF 15.0045 MHz | | | 3200 | 1 pts | | | Span 29 | 9.991 MHz |



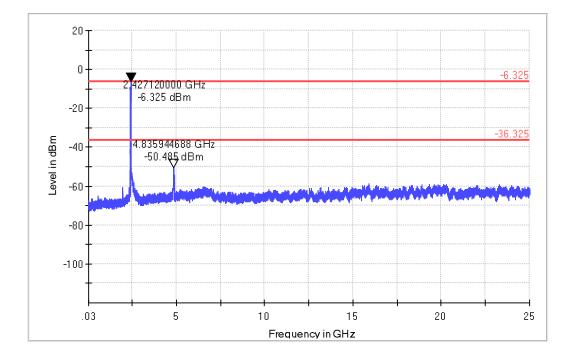


In any 100kHz bandwidth, the Conducted Spurious Emissions from 30 MHz to 25 GHz were greater than 20dB below the peak emission within the band that contains the highest level of the desired power.

802.11n(HT40) mode with 13.5Mbps data rate Channel 3: 2.422GHz:

| Spectrum | Spectrum 3 🛛 🗴 | Spectrum 4 | Spectrum 2 🛛 🔊 | |
|------------------------------|---|--|----------------|--|
| RefLevel 4.00 Att 2 DC | | | de Sweep | |
| ●1Rm Max | | | | |
| 0 dBm | | | M1[1] | -67.11 dBm 3.505190 MHz |
| -10 dBm | .325 dBm | | | |
| -20 dBm | | | | |
| -30 dBm | | | | |
| -40 dBm | 2 -36.325 dBm | | | |
| -50 dBm | | | | |
| -60 dBm | | | | |
| he dem to the d | hadalah di sana di pata pada di sa ta | والمارو يقار والمراجع والمراجع والمراجع والمراجع | | I the officient and the state of the state o |
| -80 dBm | tydy atolicy skops of this tradicise in a first position. | an a | | alf the fidge attraction of the fitter of the state of the |
| -90 dBm | | | | |
| CF 15.0045 MHz | 1 | 32001 pts | | Span 29.991 MHz |



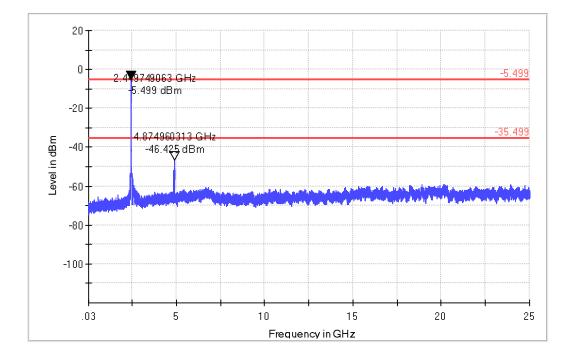


In any 100kHz bandwidth, the Conducted Spurious Emissions from 30 MHz to 25 GHz were greater than 20dB below the peak emission within the band that contains the highest level of the desired power.

Channel 6: 2.437GHz:

| | | | | | | | | - |
|-------------------|---|-------------------|--|--|-----------------|----------------------------|---|--|
| Spectrum | Spectrum 3 | × SI | ectrum 4 | × s | pectrum : | 2 🗶 | | |
| Ref Level 4.00 | dBm Offset 1. | 00 dB 🔵 RE | 3W 100 kHz | | | | | |
| Att 2 DC | 0 dB SWT 32 | 2.1 ms 👄 VI | 3W 300 kHz | Mode S | weep | | | |
| ∋1Rm Max | | - | | - | | | | |
| 0 dBm | | | | M | 1[1] | | | 68.18 dBm 75.430 kHz |
| -10 dBm | 499 dBm | | | | | | | |
| -20 dBm | | | | | | | | |
| -30 dBm | | | | | | | | |
| -40 dBm | 2 -35.499 dBm | | | | | | | |
| -50 dBm | | | | | | | | |
| -60 dBm | | | | | | | | |
| M1 MidBm-Maria | and the shelf of the state of the | s di sulla i s | ate catility of a | LIN DUNIE | the thread to a | u | | |
| -80 dBm | anian (againta la angaintean angain) Ing panangan ang pang pang pang pang pang | ingelangen gerief | ing a supervision of the subscript of the supervision of the supervisi | adala di suma di suma Adala di superiori di superiori | A STREET OF | alanda panah Manuarpané | el huerre de herre plans Gebre angere en gegreie | alayddallyganayd (dina. Ynganariganayaaniya |
| | | | | | | | | |
| -90 dBm | | | | | | | | |
| CF 15.0045 MHz | | | 3200 | 1 pts | | | Span 29 | 9.991 MHz |



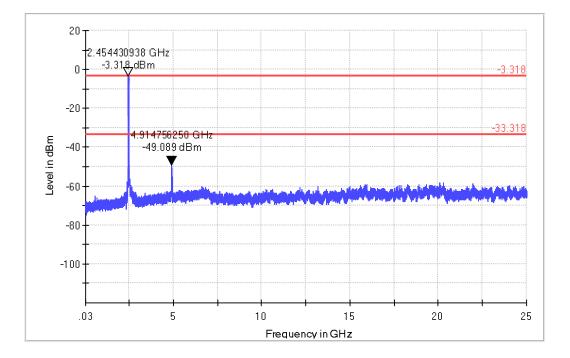


In any 100kHz bandwidth, the Conducted Spurious Emissions from 30 MHz to 25 GHz were greater than 20dB below the peak emission within the band that contains the highest level of the desired power.

Spectrum X Spectrum 3 Spectrum 4 Spectrum 2 Ref Level 4.00 dBm Att 20 dB Mode Sweep DC ⊖1Rm Max -67.27 dBm /39.540 kHz M1[1] 0 dBm D1 -2.318 dBm -10 dBm -20 dBm--30 dBm--D2 -32.318 dBm--40 dBm -50 dBm -60 dBm the following -80 dBm -90 dBm 32001 pts Span 29.991 MHz CF 15.0045 MHz

Channel 9: 2.452 GHz:





In any 100kHz bandwidth, the Conducted Spurious Emissions from 30 MHz to 25 GHz were greater than 20dB below the peak emission within the band that contains the highest level of the desired power.

4.6 Out of Band Radiated Emissions

For out of band radiated emissions into Non-Restricted Frequency Bands were performed at a 3m separation distance to determine whether these emissions complied with the 20dB attenuation requirement.

- [×] Not required, since all emissions are more than 20dB below fundamental
- [] See attached data sheet

4.7 Radiated Emissions in Restricted Bands

| Test Requirement: | FCC Part 15 C section 15.247 | | | | |
|-------------------|--|--|--|--|--|
| | section 15.247: (d) In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)). | | | | |
| | Clause 5.5: Category I licence-exempt equipment is required to comply with the provisions in RSS-Gen with respect to emissions falling within restricted frequency bands. These restricted | | | | |



Intertek Report No.: 220923108GZU-001

TEST REPORT

| | frequency bands are listed in RSS-Gen. |
|-----------------------------|--|
| Test Method: | ANSI C63.10: Clause 11.12.1, 6.4, 6.5 and 6.6 |
| Test Status: Test site: | Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below. Measurement Distance: 3m (Semi-Anechoic Chamber) |
| Limit: | |
| | 40.0 dBμV/m between 30MHz & 88MHz; |
| | 43.5 dB μ V/m between 88MHz & 216MHz; |
| | 46.0 dBμV/m between 216MHz & 960MHz; |
| Detector: | 54.0 dB μ V/m above 960MHz. For Peak and Quasi-Peak value: RBW = 1 MHz for f \ge 1 GHz, 200 Hz for 9 kHz to 150 kHz |
| | 9 kHz for 150 kHz to 30 MHz 120 kHz for 30 MHz to 1GHz VBW \ge RBW |
| | Sweep = auto |
| | Detector function = peak for $f \ge 1$ GHz, QP for $f < 1$ GHz Trace = max hold |
| | For AV value: RBW = 1 MHz for f \geq 1 GHz, 100 kHz for f < 1 GHz |
| | VBW=10 Hz |
| | Sweep = auto |
| Field Strength Calculation: | Trace = max hold |
| Tield Strength Calculation. | The field strength is calculated by adding the reading on the |
| | Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below: FS = RA + AF + CF - AG + PD + AV FS = RA + Correct Factor + AV |
| Where: | FS = Field Strength in dBμV/m RA = Receiver Amplitude (including preamplifier) in dBμV AF = Antenna Factor in dB CF = Cable Attenuation Factor in dB AG = Amplifier Gain in dB PD = Pulse Desensitization in dB AV = Average Factor in –dB Correct Factor = AF + CF – AG + PD |
| | In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example |



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of the calculations, where the reading does not reflect the preamplifier gain, follows: FS = RA + AF + CF - AG + PD + AVAssume a receiver reading of 62.0 dBµV is obtained. The antenna factor of 7.4 dB/m and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted. The pulse desensitization factor of the spectrum analyzer was 0 dB, and the resultant average factor was -10 dB. The net field strength for comparison to the appropriate emission limit is $32 \text{ dB}\mu\text{V/m}$. $RA = 62.0 dB\mu V$ AF = 7.4 dB/mCF = 1.6 dB AG = 29.0 dB PD = 0 dBAV = -10 dBCorrect Factor = 7.4 + 1.6 - 29.0 + 0 = -20 dB $FS = 62 + (-20) + (-10) = 32 dB\mu V/m$

Section 15.205 Restricted bands of operation.

(a) Except as shown in paragraph (d) of this section. Only spurious emissions are permitted in any of the frequency bands listed below:

| FCC | Part | 15 | C | section | 15 247 |
|-----|------|-----|---|---------|--------|
| FUU | rait | TO. | L | Section | 13.247 |

| MHz | MHz | MHz | GHz |
|---|---|---|--|
| $\begin{array}{c} 0.090 - 0.110 \\ 10.495 - 0.505 \\ 2.1735 - 2.1905 \\ 4.125 - 4.128 \\ 4.17725 - 4.17775 \\ 4.20725 - 4.20775 \\ 6.215 - 6.218 \\ 6.26775 - 6.26825 \\ 6.31175 - 6.31225 \\ 8.291 - 8.294 \\ 8.362 - 8.366 \\ 8.37625 - 8.38675 \\ 8.41425 - 8.41475 \\ 12.29 - 12.293 \\ 12.51975 - 12.52025 \\ 12.57675 - 12.57725 \\ 13.36 - 13.41 \\ \end{array}$ | 16.42 - 16.423 $16.69475 - 16.69525$ $16.80425 - 16.80475$ $25.5 - 25.67$ $37.5 - 38.25$ $73 - 74.6$ $74.8 - 75.2$ $108 - 121.94$ $123 - 138$ $149.9 - 150.05$ $156.52475 -$ $156.52475 -$ 156.52525 $156.7 - 156.9$ $162.0125 - 167.17$ $167.72 - 173.2$ $240 - 285$ $322 - 335.4$ | 399.9 - 410 608 - 614 960 - 1240 1300 - 1427 1435 - 1626.5 1645.5 - 1646.5 1660 - 1710 1718.8 - 1722.2 2200 - 2300 2310 - 2390 2483.5 - 2500 2655 - 2900 3260 - 3267 3332 - 3339 3345.8 - 3358 3600 - 4400 | $\begin{array}{r} 4.5 - 5.15\\ 5.35 - 5.46\\ 7.25 - 7.75\\ 8.025 - 8.5\\ 9.0 - 9.2\\ 9.3 - 9.5\\ 10.6 - 12.7\\ 13.25 - 13.4\\ 14.47 - 14.5\\ 15.35 - 16.2\\ 17.7 - 21.4\\ 22.01 - 23.12\\ 23.6 - 24.0\\ 31.2 - 31.8\\ 36.43 - 36.5\end{array}$ |



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RSS-247 Clause 5.5

| MHz |
|---------------------|
| 0.090 - 0.110 |
| 0.495 - 0.505 |
| 2.1735 - 2.1905 |
| 3.020 - 3.026 |
| 4.125 - 4.128 |
| 4.17725 - 4.17775 |
| 4.20725 - 4.20775 |
| 5.677 - 5.683 |
| 6.215 - 6.218 |
| 6.26775 - 6.26825 |
| 6.31175 - 6.31225 |
| 8.291 - 8.294 |
| 8.362 - 8.366 |
| 8.37625 - 8.38675 |
| 8.41425 - 8.41475 |
| 12.29 - 12.293 |
| 12.51975 - 12.52025 |
| 12.57675 - 12.57725 |
| 13.36 - 13.41 |
| 16.42 - 16.423 |
| 16.69475 - 16.69525 |
| 16.80425 - 16.80475 |
| 25.5 - 25.67 |
| 37.5 - 38.25 |
| 73 - 74.6 |
| 74.8 - 75.2 |
| 108 - 138 |

| MHz |
|-----------------------|
| 149.9 - 150.05 |
| 156.52475 - 156.52525 |
| 156.7 - 156.9 |
| 162.0125 - 167.17 |
| 167.72 - 173.2 |
| 240 - 285 |
| 322 - 335.4 |
| 399.9 - 410 |
| 608 - 614 |
| 960 - 1427 |
| 1435 - 1626.5 |
| 1645.5 - 1646.5 |
| 1660 - 1710 |
| 1718.8 - 1722.2 |
| 2200 - 2300 |
| 2310 - 2390 |
| 2483.5 - 2500 |
| 2655 - 2900 |
| 3260 - 3267 |
| 3332 - 3339 |
| 3345.8 - 3358 |
| 3500 - 4400 |
| 4500 - 5150 |
| 5350 - 5460 |
| 7250 - 7750 |
| 8025 - 8500 |
| |

| GHz | | | | | | |
|---------------|--|--|--|--|--|--|
| 9.0 - 9.2 | | | | | | |
| 9.3 - 9.5 | | | | | | |
| 10.6 - 12.7 | | | | | | |
| 13.25 - 13.4 | | | | | | |
| 14.47 - 14.5 | | | | | | |
| 15.35 - 16.2 | | | | | | |
| 17.7 - 21.4 | | | | | | |
| 22.01 - 23.12 | | | | | | |
| 23.6 - 24.0 | | | | | | |
| 31.2 - 31.8 | | | | | | |
| 36.43 - 36.5 | | | | | | |
| Above 38.6 | | | | | | |

* Certain frequency bands listed in table 7 and in bands above 38.6 GHz are designated for licenceexempt applications. These frequency bands and the requirements that apply to related devices are set out in the 200 and 300 series of RSSs.

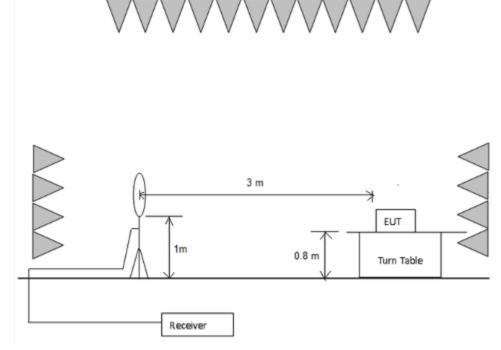


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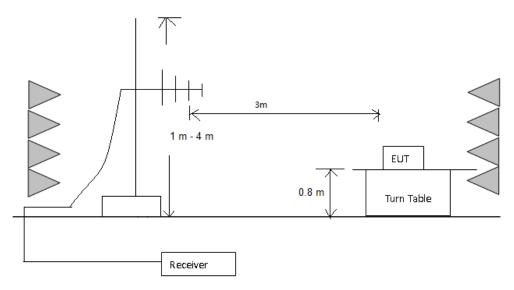
Test Configuration:

1) 9 kHz to 30 MHz emissions:



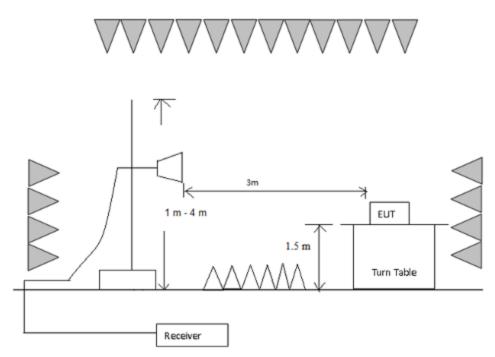
2) 30 MHz to 1 GHz emissions:





3) 1 GHz to 40 GHz emissions:





Test Procedure:

Test site with RF absorbing material covering the ground plane that met the site validation criterion called out in CISPR 16-1-4:2010 was used to perform radiated emission test above 1 GHz.

The receiver was scanned from 9 kHz to 25 GHz. When an emission was found, the table was rotated to produce the maximum signal strength. An initial pre-scan was performed for in peak detection mode using the receiver. The EUT was measured for both the Horizontal and Vertical polarities and performed a pre-test three orthogonal planes. For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. The worst case emissions were reported.

Used Test Equipment List:

3m Semi-Anechoic Chamber, EMI Test Receiver (9 kHz~7 GHz), Signal and Spectrum Analyzer (10 Hz~40 GHz), Loop antenna (9 kHz-30 MHz). TRILOG Super Broadband test Antenna(30 MHz-3 GHz) (RX), Bouble-Ridged Waveguide Horn Antenna (800 MHz-18 GHz)(RX) and High Frequency Antenna & preamplifier(18 GHz~26.5 GHz) (RX). Refer to Clause 5 Test Equipment List for details.

802.11b mode with 1Mbps data rate

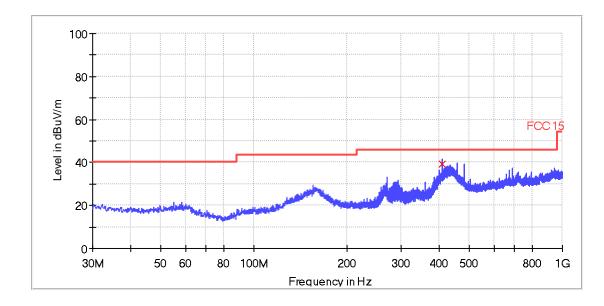
9 kHz~30 MHz Field Strength of Unwanted Emissions. Quasi-Peak Measurement The measurements with active loop antenna were greater than 20dB below the limit, so the test data were not recorded in the test report.

Test at Channel 1 (2.412 GHz) in transmitting status

30 MHz~1 GHz Spurious Emissions. Quasi-Peak Measurement



Vertical:



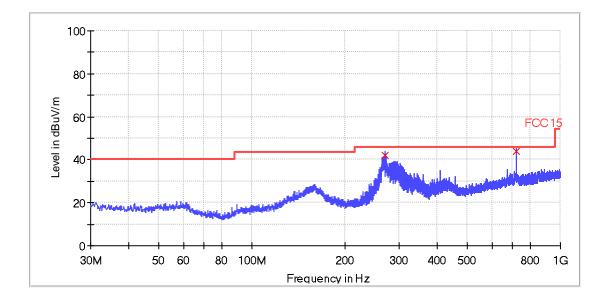
QP

| <u></u> | | | | | | |
|--------------------|-------------------------------|--------------------|-----|---------------|-------------------------|----------------------------|
| Frequency (MHz) | Quasi Peak (dBuV/ m) | Bandwidth (kHz) | Pol | Corr. (dB) | Margin - QPK (dB) | Limit - QPK (dBuV/m) |
| 408.000000 | 39.1 | 120.000 | ۷ | 17.8 | 6.9 | 46.0 |

Remark:

- 1. Corr. (dB) = Antenna Factor (dB) + Cable Loss (dB)
- 2. Quasi Peak ($dB\mu V/m$) = Corr. (dB) + Read Level ($dB\mu V$)
- 3. Margin (dB) = Limit QPK (dBµV/m) –Quasi Peak (dBµV/m)

Horizontal:





QP

| Frequency (MHz) | Quasi Peak (dBuV/ m) | Bandwidth (kHz) | Pol | Corr. (dB) | Margin - QPK (dB) | Limit - QPK (dBuV/m) |
|--------------------|-------------------------------|--------------------|-----|---------------|-------------------------|----------------------------|
| 269.960000 | 42.1 | 120.000 | н | 14.1 | 3.9 | 46.0 |
| 719.960000 | 43.9 | 120.000 | н | 23.8 | 2.1 | 46.0 |

Remark:

- 1. Corr. (dB) = Antenna Factor (dB) + Cable Loss (dB)
- 2. Quasi Peak (dBµV/m) = Corr. (dB) + Read Level (dBµV)
- 3. Margin (dB) = Limit QPK (dBµV/m) –Quasi Peak (dBµV/m)

1~25 GHz Radiated Emissions.

PK Measurement:

| Frequency | PK Reading Level | Correction factors | PK Emission Level | PK Limit | Antenna polarization |
|-----------|---------------------|-----------------------|----------------------|----------|-------------------------|
| (MHz) | (dBuV) | (dB) | (dBµV/m) | (dBµV/m) | |
| 1007.5 | 64.5 | -14.5 | 50.0 | 74 | V |
| 2110.0 | 56.5 | -9.2 | 47.3 | 74 | V |
| 4823.5 | 66.9 | -1.1 | 65.8 | 74 | V |
| 1007.5 | 63.1 | -14.5 | 48.6 | 74 | Н |
| 3167.5 | 53.6 | -5.3 | 48.3 | 74 | Н |
| 4823.5 | 64.6 | -1.1 | 63.5 | 74 | Н |

AV Measurement:

| Frequency | AV Reading Level | Correction factors | AV Emission Level | AV Limit | Antenna polarization |
|-----------|---------------------|-----------------------|----------------------|----------|-------------------------|
| (MHz) | (dBuV) | (dB) | (dBµV/m) | (dBµV/m) | |
| 1007.5 | - | -14.5 | - | 54 | V |
| 2110.0 | - | -9.2 | - | 54 | V |
| 4823.5 | 52.8 | -1.1 | 51.7 | 54 | V |
| 1007.5 | - | -14.5 | - | 54 | Н |
| 3167.5 | - | -5.3 | - | 54 | Н |
| 4823.5 | 51.6 | -1.1 | 50.5 | 54 | Н |

Remark: When Peak emission level was below AV limit, the AV emission level did not be recorded.



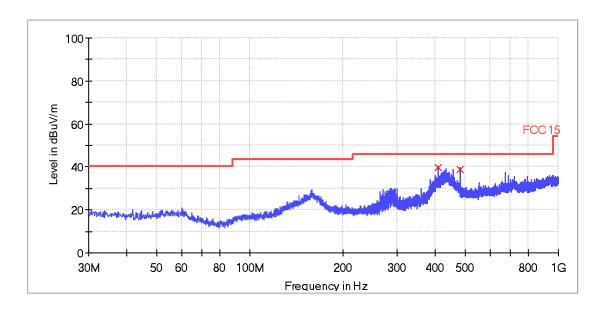
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Test at Channel 6 (2.437 GHz) in transmitting status

30 MHz~1 GHz Radiated Emissions. Quasi-Peak Measurement

Vertical



QP

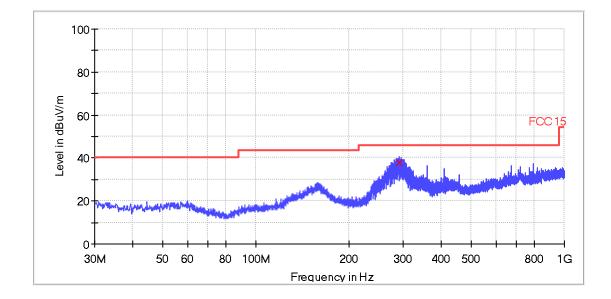
| Frequency (MHz) | Quasi Peak (dBuV/ m) | Bandwidth (kHz) | Pol | Corr. (dB) | Margin - QPK (dB) | Limit - QPK (dBuV/m) |
|--------------------|-------------------------------|--------------------|-----|---------------|-------------------------|----------------------------|
| 408.000000 | 39.6 | 120.000 | V | 17.8 | 6.4 | 46.0 |
| 480.000000 | 38.6 | 120.000 | V | 19.5 | 7.4 | 46.0 |

Remark:

- 1. Corr. (dB) = Antenna Factor (dB) + Cable Loss (dB)
- 2. Quasi Peak (dBµV/m) = Corr. (dB) + Read Level (dBµV)
- 3. Margin (dB) = Limit QPK (dBµV/m) –Quasi Peak (dBµV/m)



Horizontal



QP

| Frequency (MHz) | Quasi Peak | Bandwidth (kHz) | Pol | Corr. (dB) | Margin - QPK | Limit - QPK |
|--------------------|---------------|--------------------|-----|---------------|-----------------|----------------|
| () | (dBuV/ m) | () | | (42) | (dB) | (dBuV/m) |
| 291.720000 | 38.0 | 120.000 | Н | 14.9 | 8.0 | 46.0 |

Remark:

- 1. Corr. (dB) = Antenna Factor (dB) + Cable Loss (dB)
- 2. Quasi Peak ($dB\mu V/m$) = Corr. (dB) + Read Level ($dB\mu V$)
- 3. Margin (dB) = Limit QPK (dBµV/m) –Quasi Peak (dBµV/m)

1~25 GHz Radiated Emissions.

PK Measurement:

| Frequency | PK Reading Level | Correction factors | PK Emission Level PK Limit | | Antenna polarization |
|-----------|---------------------|-----------------------|-------------------------------|----------|----------------------|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 1007.5 | 64.2 | -14.5 | 49.7 | 74 | V |
| 3167.5 | 52.3 | -5.3 | 47.0 | 74 | V |
| 4874.5 | 62.9 | -1.0 | 61.9 | 74 | V |
| 1007.5 | 62.9 | -14.5 | 48.4 | 74 | Н |
| 3169.0 | 52.0 | -5.3 | 46.7 | 74 | Н |
| 4874.5 | 60.8 | -1.0 | 59.8 | 74 | Н |

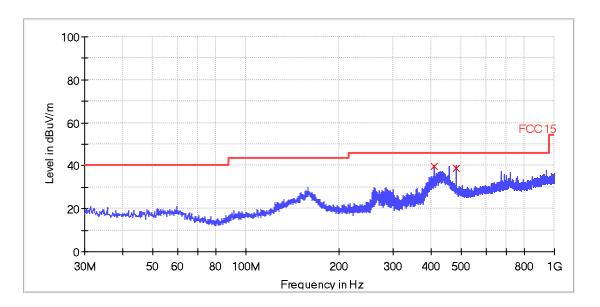


AV Measurement:

| Frequency | AV Reading Level | Correction factors | AV Emission Level | AV Limit | Antenna polarization |
|-----------|---------------------|-----------------------|----------------------|----------|-------------------------|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 1007.5 | - | -14.5 | - | 54 | V |
| 3167.5 | - | -5.3 | - | 54 | V |
| 4874.5 | 50.5 | -1.0 | 49.5 | 54 | V |
| 1007.5 | - | -14.5 | - | 54 | Н |
| 3169.0 | - | -5.3 | - | 54 | Н |
| 4874.5 | 50.2 | -1.0 | 49.2 | 54 | Н |

Remark: When Peak emission level was below AV limit, the AV emission level did not be recorded

Test at Channel 6 (2.462 GHz) in transmitting status 30 MHz~1 GHz Radiated Emissions .Quasi-Peak Measurement Vertical



QP

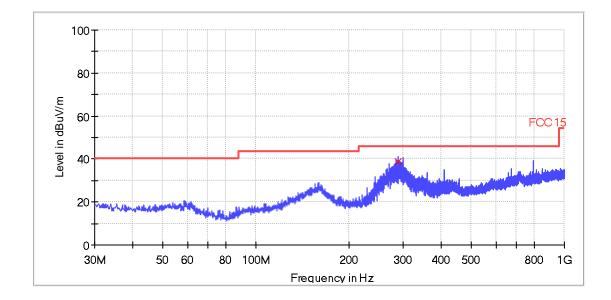
| Frequency (MHz) | Quasi Peak (dBuV/ m) | Bandwidth (kHz) | Pol | Corr. (dB) | Margin - QPK (dB) | Limit - QPK (dBuV/m) |
|--------------------|-------------------------------|--------------------|-----|---------------|-------------------------|----------------------------|
| 408.000000 | 39.5 | 120.000 | v | 17.8 | 6.5 | 46.0 |
| 480.000000 | 39.0 | 120.000 | ۷ | 19.5 | 7.0 | 46.0 |

Remark:

- 1. Corr. (dB) = Antenna Factor (dB) + Cable Loss (dB)
- 2. Quasi Peak (dBµV/m) = Corr. (dB) + Read Level (dBµV)
- 3. Margin (dB) = Limit QPK (dBµV/m) –Quasi Peak (dBµV/m)



Horizontal



QP

| Frequency (MHz) | Quasi Peak (dBuV/ | Bandwidth (kHz) | Pol | Corr. (dB) | Margin - QPK (dB) | Limit - QPK (dBuV/m) |
|--------------------|-------------------------|--------------------|-----|---------------|-------------------------|----------------------------|
| 288.880000 | m) 39.0 | 120.000 | н | 14.8 | 7.0 | 46.0 |
| 200.000000 | 39.0 | 120.000 | | 14.0 | 7.0 | 40.0 |

Remark:

- 1. Corr. (dB) = Antenna Factor (dB) + Cable Loss (dB)
- 2. Quasi Peak ($dB\mu V/m$) = Corr. (dB) + Read Level ($dB\mu V$)
- 3. Margin (dB) = Limit QPK (dBµV/m) –Quasi Peak (dBµV/m)

1~25 GHz Radiated Emissions.

PK Measurement:

| Frequency | PK Reading Level | Correction factors | PK Emission Level | PK Limit | Antenna polarization |
|-----------|---------------------|-----------------------|----------------------|----------|-------------------------|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 1007.5 | 63.5 | -14.5 | 49.0 | 74 | V |
| 3167.5 | 52.6 | -5.3 | 47.3 | 74 | V |
| 4924.0 | 62.2 | -0.9 | 61.3 | 74 | V |
| 1007.5 | 63.1 | -14.5 | 48.6 | 74 | Н |
| 3167.5 | 52.7 | -5.3 | 47.4 | 74 | Н |
| 4924.0 | 60.7 | -0.9 | 59.8 | 74 | Н |



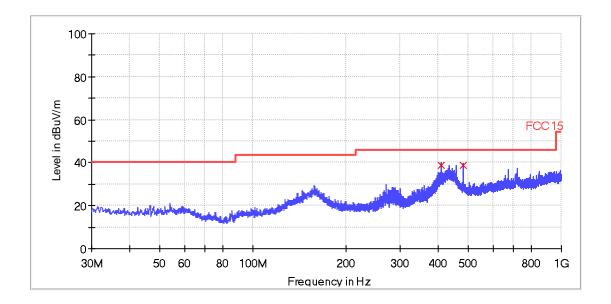
AV Measurement:

| Frequency | AV Reading Level | Correction factors | AV Emission Level | AV Limit | Antenna polarization |
|-----------|---------------------|-----------------------|----------------------|----------|-------------------------|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 1007.5 | - | -14.5 | - | 54 | V |
| 3167.5 | - | -5.3 | - | 54 | V |
| 4924.0 | 48.9 | -0.9 | 48.0 | 54 | V |
| 1007.5 | - | -14.5 | - | 54 | Н |
| 3167.5 | - | -5.3 | - | 54 | Н |
| 4924.0 | 49.1 | -0.9 | 48.2 | 54 | Н |

Remark: When Peak emission level was below AV limit, the AV emission level did not be recorded.

802.11g mode with 6Mbps data rateTest at Channel 1 (2.412 GHz) in transmitting status30 MHz~1 GHz Radiated Emissions .Quasi-Peak Measurement

Vertical



QP

| Frequency (MHz) | Quasi Peak (dBuV/ m) | Bandwidth (kHz) | Pol | Corr. (dB) | Margin - QPK (dB) | Limit - QPK (dBuV/m) |
|--------------------|-------------------------------|--------------------|-----|---------------|-------------------------|----------------------------|
| 408.000000 | 39.0 | 120.000 | V | 17.8 | 7.0 | 46.0 |
| 480.000000 | 38.7 | 120.000 | V | 19.5 | 7.3 | 46.0 |

Remark:

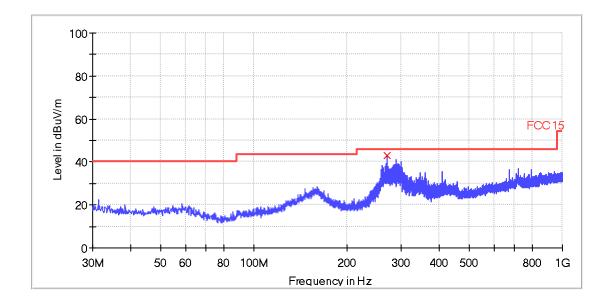
- 1. Corr. (dB) = Antenna Factor (dB) + Cable Loss (dB)
- 2. Quasi Peak (dBµV/m) = Corr. (dB) + Read Level (dBµV)
- 3. Margin (dB) = Limit QPK (dB μ V/m) –Quasi Peak (dB μ V/m)



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Horizontal



QP

| Frequency (MHz) | Quasi Peak (dBuV/ m) | Bandwidth (kHz) | Pol | Corr. (dB) | Margin - QPK (dB) | Limit - QPK (dBuV/m) |
|--------------------|-------------------------------|--------------------|-----|---------------|-------------------------|----------------------------|
| 269.960000 | 42.9 | 120.000 | н | 14.1 | 3.1 | 46.0 |

Remark:

- 1. Corr. (dB) = Antenna Factor (dB) + Cable Loss (dB)
- 2. Quasi Peak (dB μ V/m) = Corr. (dB) + Read Level (dB μ V)

3. Margin (dB) = Limit QPK (dBµV/m) –Quasi Peak (dBµV/m)

1~25 GHz Radiated Emissions.

PK Measurement:

| Frequency | PK Reading Level | Correction factors | PK Emission Level | PK Limit | Antenna polarization |
|-----------|---------------------|-----------------------|----------------------|----------|-------------------------|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 1007.5 | 64.4 | -14.5 | 49.9 | 74 | V |
| 3167.5 | 52.6 | -5.3 | 47.3 | 74 | V |
| 4822.0 | 53.1 | -1.1 | 52.0 | 74 | V |
| 1007.5 | 62.4 | -14.5 | 47.9 | 74 | Н |
| 3169.0 | 52.9 | -5.3 | 47.6 | 74 | Н |
| 4819.0 | 51.6 | -1.1 | 50.5 | 74 | Н |

AV Measurement:

| | Frequency | PK Reading | Correction | AV Emission | AV Limit | Antenna |
|--|-----------|------------|------------|-------------|----------|---------|
|--|-----------|------------|------------|-------------|----------|---------|

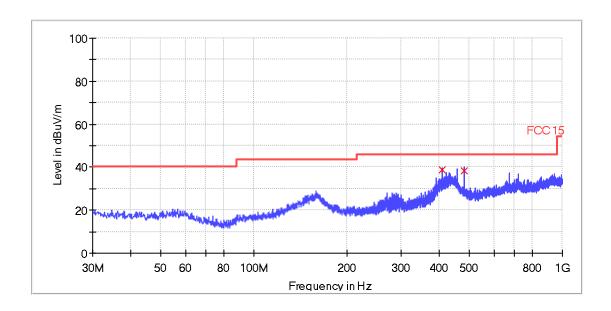


| | Level | factors | Level | | polarization |
|--------|--------|---------|----------|----------|--------------|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 1007.5 | - | -14.5 | - | 54 | V |
| 3167.5 | - | -5.3 | - | 54 | V |
| 4822.0 | - | -1.1 | - | 54 | V |
| 1007.5 | - | -14.5 | - | 54 | Н |
| 3169.0 | - | -5.3 | - | 54 | Н |
| 4819.0 | - | -1.1 | - | 54 | Н |

Remark: When Peak emission level was below AV limit, the AV emission level did not be recorded.

Test at Channel 6 (2.437GHz) in transmitting status 30 MHz~1 GHz Radiated Emissions .Quasi-Peak Measurement

Vertical

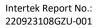


QP

| Frequency (MHz) | Quasi Peak (dBuV/ m) | Bandwidth (kHz) | Pol | Corr. (dB) | Margin - QPK (dB) | Limit - QPK (dBuV/m) |
|--------------------|-------------------------------|--------------------|-----|---------------|-------------------------|----------------------------|
| 408.000000 | 38.7 | 120.000 | V | 17.8 | 7.3 | 46.0 |
| 480.000000 | 38.4 | 120.000 | ۷ | 19.5 | 7.7 | 46.0 |

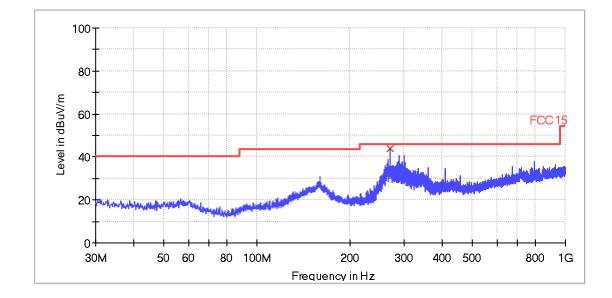
Remark:

- 1. Corr. (dB) = Antenna Factor (dB) + Cable Loss (dB)
- 2. Quasi Peak ($dB\mu V/m$) = Corr. (dB) + Read Level ($dB\mu V$)
- 3. Margin (dB) = Limit QPK (dBµV/m) –Quasi Peak (dBµV/m)





Horizontal



QP

| G I | | | | | | |
|--------------------|-------------------------------|--------------------|-----|---------------|-------------------------|----------------------------|
| Frequency (MHz) | Quasi Peak (dBuV/ m) | Bandwidth (kHz) | Pol | Corr. (dB) | Margin - QPK (dB) | Limit - QPK (dBuV/m) |
| 269.960000 | 43.8 | 120.000 | н | 14.1 | 2.2 | 46.0 |

Remark:

1. Corr. (dB) = Antenna Factor (dB) + Cable Loss (dB)

2. Quasi Peak (dBµV/m) = Corr. (dB) + Read Level (dBµV)

3. Margin (dB) = Limit QPK (dBµV/m) –Quasi Peak (dBµV/m)

PK Measurement:

| Frequency | PK Reading Level | Correction factors | PK Emission Level | PK Limit | Antenna polarization |
|-----------|---------------------|-----------------------|----------------------|----------|----------------------|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 1007.5 | 64.9 | -14.5 | 50.4 | 74 | V |
| 3167.5 | 51.1 | -5.3 | 45.8 | 74 | V |
| 4877.5 | 49.6 | -1.0 | 48.6 | 74 | V |
| 1007.5 | 62.1 | -14.5 | 47.6 | 74 | Н |
| 3167.5 | 53.6 | -5.3 | 48.3 | 74 | Н |
| 4873.0 | 52.3 | -1.0 | 51.3 | 74 | Н |

AV Measurement:

| Frequency | PK Reading Level | Correction factors | AV Emission Level | AV Limit | Antenna polarization |
|-----------|---------------------|-----------------------|----------------------|----------|----------------------|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 1007.5 | - | -14.5 | - | 54 | V |

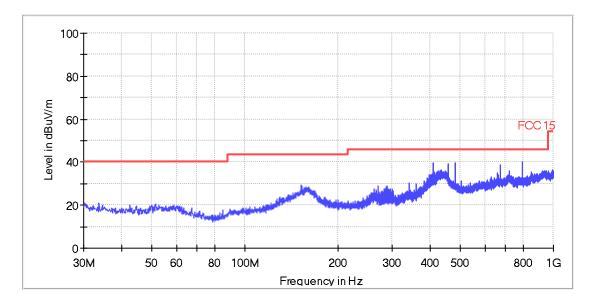


| 3167.5 | - | -5.3 | - | 54 | V |
|--------|---|-------|---|----|---|
| 4877.5 | - | -1.0 | - | 54 | V |
| 1007.5 | - | -14.5 | - | 54 | Н |
| 3167.5 | - | -5.3 | - | 54 | Н |
| 4873.0 | - | -1.0 | - | 54 | Н |

Remark: When Peak emission level was below AV limit, the AV emission level did not be recorded.

Test at Channel 11 (2.462 GHz) in transmitting status 30 MHz~1 GHz Radiated Emissions .Quasi-Peak Measurement

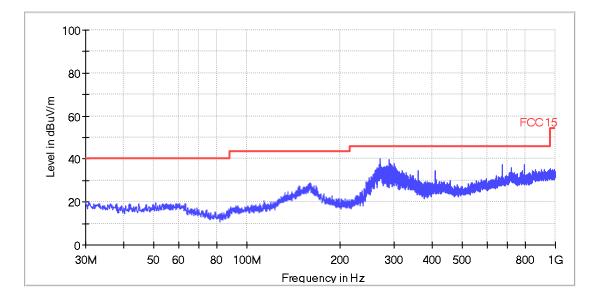
Vertical



All emission levels are more than 6 dB below the limit.



Horizontal



All emission levels are more than 6 dB below the limit.

1~25 GHz Radiated Emissions.

PK Measurement:

| Frequency | PK Reading Level | Correction factors | PK Emission Level | PK Limit | Antenna polarization |
|-----------|---------------------|-----------------------|----------------------|----------|-------------------------|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 1007.5 | 63.3 | -14.5 | 48.8 | 74 | V |
| 3167.5 | 54.0 | -5.3 | 48.7 | 74 | V |
| 4916.5 | 49.9 | -1.0 | 48.9 | 74 | V |
| 1007.5 | 62.4 | -14.5 | 47.9 | 74 | Н |
| 3167.5 | 51.8 | -5.3 | 46.5 | 74 | Н |
| 4925.5 | 47.8 | -0.9 | 46.9 | 74 | Н |

AV Measurement:

| Av weasureme | int: | | | | |
|--------------|---------------------|-----------------------|----------------------|----------|-------------------------|
| Frequency | PK Reading Level | Correction factors | AV Emission Level | AV Limit | Antenna polarization |
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 1007.5 | - | -14.5 | - | 54 | V |
| 3167.5 | - | -5.3 | - | 54 | V |
| 4916.5 | - | -1.0 | - | 54 | V |
| 1007.5 | - | -14.5 | - | 54 | Н |
| 3167.5 | - | -5.3 | - | 54 | Н |
| 4925.5 | - | -0.9 | - | 54 | Н |



Intertek Report No.: 220923108GZU-001

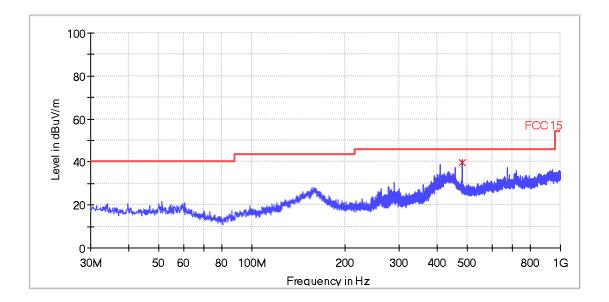
TEST REPORT

Remark: When Peak emission level was below AV limit, the AV emission level did not be recorded.

802.11n (HT20) mode with 6.5Mbps data rate Test at Channel 1 (2.412 GHz) in transmitting status

30 MHz~1 GHz Radiated Emissions .Quasi-Peak Measurement

Vertical



QP

| Frequency (MHz) | Quasi Peak (dBuV/ m) | Bandwidth (kHz) | Pol | Corr. (dB) | Margin - QPK (dB) | Limit - QPK (dBuV/m) |
|--------------------|-------------------------------|--------------------|-----|---------------|-------------------------|----------------------------|
| 480.000000 | 39.5 | 120.000 | ۷ | 19.5 | 6.5 | 46.0 |

Remark:

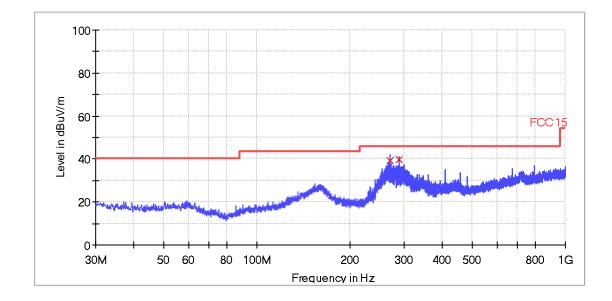
1. Corr. (dB) = Antenna Factor (dB) + Cable Loss (dB)

2. Quasi Peak ($dB\mu V/m$) = Corr. (dB) + Read Level ($dB\mu V$)

3. Margin (dB) = Limit QPK (dBµV/m) –Quasi Peak (dBµV/m)



Horizontal



QP

| Frequency (MHz) | Quasi Peak (dBuV/ m) | Bandwidth (kHz) | Pol | Corr. (dB) | Margin - QPK (dB) | Limit - QPK (dBuV/m) |
|--------------------|-------------------------------|--------------------|-----|---------------|-------------------------|----------------------------|
| 269.960000 | 39.4 | 120.000 | Н | 14.1 | 6.7 | 46.0 |
| 288.880000 | 39.6 | 120.000 | Н | 14.8 | 6.4 | 46.0 |

Remark:

- 1. Corr. (dB) = Antenna Factor (dB) + Cable Loss (dB)
- 2. Quasi Peak (dBµV/m) = Corr. (dB) + Read Level (dBµV)
- 3. Margin (dB) = Limit QPK (dBµV/m) –Quasi Peak (dBµV/m)

1~25 GHz Radiated Emissions.

PK Measurement:

| Frequency | PK Reading Level | Correction factors | PK Emission Level | PK Limit | Antenna polarization |
|-----------|---------------------|-----------------------|----------------------|----------|-------------------------|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 1007.5 | 63.5 | -14.5 | 49.0 | 74 | V |
| 3169.0 | 51.4 | -5.3 | 46.1 | 74 | V |
| 4825.0 | 50.3 | -1.1 | 49.2 | 74 | V |
| 1007.5 | 61.8 | -14.5 | 47.3 | 74 | Н |
| 3167.5 | 53.5 | -5.3 | 48.2 | 74 | Н |
| 4825.0 | 52.7 | -1.1 | 51.6 | 74 | Н |



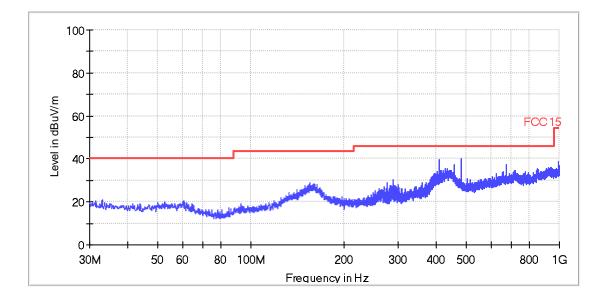
AV Measurement:

| Frequency | PK Reading Level | Correction factors | AV Emission Level | AV Limit | Antenna polarization |
|-----------|---------------------|-----------------------|----------------------|----------|----------------------|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 1007.5 | - | -14.5 | - | 54 | V |
| 3169.0 | - | -5.3 | - | 54 | V |
| 4825.0 | - | -1.1 | - | 54 | V |
| 1007.5 | - | -14.5 | - | 54 | Н |
| 3167.5 | - | -5.3 | - | 54 | Н |
| 4825.0 | - | -1.1 | - | 54 | Н |

Remark: When Peak emission level was below AV limit, the AV emission level did not be recorded.

Test at Channel 6 (2.437 GHz) in transmitting status 30 MHz~1 GHz Radiated Emissions .Quasi-Peak Measurement

Vertical

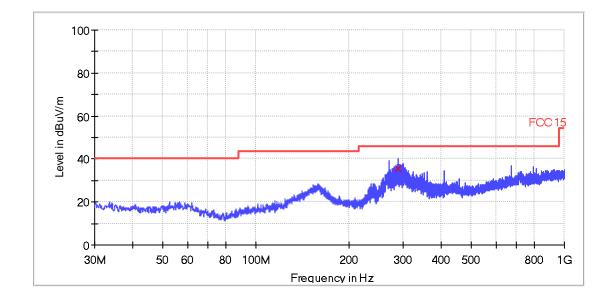


All emission levels are more than 6 dB below the limit.





Horizontal



QP

| Frequency (MHz) | Quasi Peak (dBuV/ | Bandwidth (kHz) | Pol | Corr. (dB) | Margin - QPK (dB) | Limit - QPK (dBuV/m) |
|--------------------|-------------------------|--------------------|-----|---------------|-------------------------|----------------------------|
| 288.800000 | m) 35.5 | 120.000 | Н | 14.7 | 10.5 | 46.0 |

Remark:

- 1. Corr. (dB) = Antenna Factor (dB) + Cable Loss (dB)
- 2. Quasi Peak ($dB\mu V/m$) = Corr. (dB) + Read Level ($dB\mu V$)
- 3. Margin (dB) = Limit QPK (dBµV/m) –Quasi Peak (dBµV/m)

1~25 GHz Radiated Emissions.

PK Measurement:

| Frequency | PK Reading Level | Correction factors | PK Emission Level | PK Limit | Antenna polarization |
|-----------|---------------------|-----------------------|----------------------|----------|----------------------|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 1007.5 | 63.9 | -14.5 | 49.4 | 74 | V |
| 3167.5 | 51.9 | -5.3 | 46.6 | 74 | V |
| 4873.0 | 52.4 | -1.0 | 51.4 | 74 | V |
| 1007.5 | 61.8 | -14.5 | 47.3 | 74 | Н |
| 3167.5 | 53.5 | -5.3 | 48.2 | 74 | Н |
| 4873.0 | 52.1 | -1.0 | 51.1 | 74 | Н |



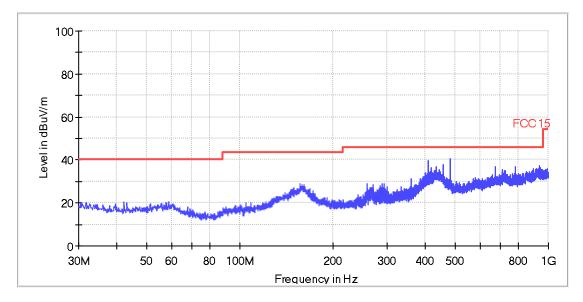
AV Measurement:

| Frequency | PK Reading Level | Correction factors | AV Emission Level | AV Limit | Antenna polarization |
|-----------|---------------------|-----------------------|----------------------|----------|----------------------|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 1007.5 | - | -14.5 | - | 54 | V |
| 3167.5 | - | -5.3 | - | 54 | V |
| 4873.0 | - | -1.0 | - | 54 | V |
| 1007.5 | - | -14.5 | - | 54 | Н |
| 3167.5 | - | -5.3 | - | 54 | Н |
| 4873.0 | - | -1.0 | - | 54 | Н |

Remark: When Peak emission level was below AV limit, the AV emission level did not be record.

Test at Channel 11 (2.462 GHz) in transmitting status 30 MHz~1 GHz Radiated Emissions .Quasi-Peak Measurement

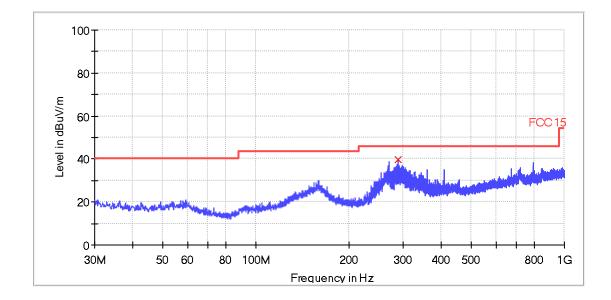
Vertical



All emission levels are more than 6 dB below the limit.



Horizontal



QP

| Frequency (MHz) | Quasi Peak (dBuV/ m) | Bandwidth (kHz) | Pol | Corr. (dB) | Margin - QPK (dB) | Limit - QPK (dBuV/m) |
|--------------------|-------------------------------|--------------------|-----|---------------|-------------------------|----------------------------|
| 288.880000 | 39.7 | 120.000 | н | 14.8 | 6.3 | 46.0 |

Remark:

- 1. Corr. (dB) = Antenna Factor (dB) + Cable Loss (dB)
- 2. Quasi Peak ($dB\mu V/m$) = Corr. (dB) + Read Level ($dB\mu V$)
- 3. Margin (dB) = Limit QPK (dBµV/m) –Quasi Peak (dBµV/m)

1~25 GHz Radiated Emissions.

PK Measurement:

| Frequency | PK Reading Level | Correction factors | PK Emission Level | PK Limit | Antenna polarization |
|-----------|---------------------|-----------------------|----------------------|----------|-------------------------|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 1007.5 | 64.1 | -14.5 | 49.6 | 74 | V |
| 3167.5 | 51.2 | -5.3 | 45.9 | 74 | V |
| 4930.0 | 48.3 | -0.9 | 47.4 | 74 | V |
| 1007.5 | 61.8 | -14.5 | 47.3 | 74 | Н |
| 3167.5 | 53.6 | -5.3 | 48.3 | 74 | Н |
| 4924.0 | 48.6 | -0.9 | 47.7 | 74 | Н |



AV Measurement:

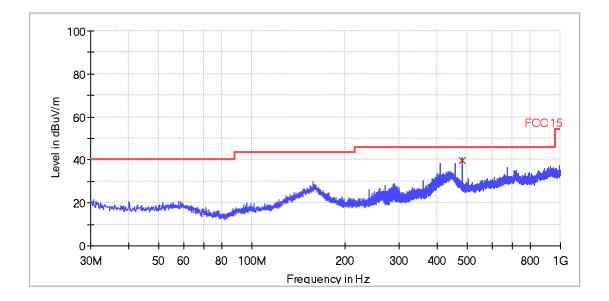
| Frequency | PK Reading Level | Correction factors | AV Emission Level | AV Limit | Antenna polarization |
|-----------|---------------------|-----------------------|----------------------|----------|-------------------------|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 1007.5 | - | -14.5 | - | 54 | V |
| 3167.5 | - | -5.3 | - | 54 | V |
| 4930.0 | - | -0.9 | - | 54 | V |
| 1007.5 | - | -14.5 | - | 54 | Н |
| 3167.5 | - | -5.3 | - | 54 | Н |
| 4924.0 | - | -0.9 | - | 54 | Н |

Remark: When Peak emission level was below AV limit, the AV emission level did not be recorded.

802.11n (HT40) mode with 13.5 Mbps data rate

Test at Channel 3 (2.422 GHz) in transmitting status 30 MHz~1 GHz Radiated Emissions .Quasi-Peak Measurement

Vertical



QP

| Frequency (MHz) | Quasi Peak (dBuV/ m) | Bandwidth (kHz) | Pol | Corr. (dB) | Margin - QPK (dB) | Limit - QPK (dBuV/m) |
|--------------------|-------------------------------|--------------------|-----|---------------|-------------------------|----------------------------|
| 480.000000 | 39.7 | 120.000 | ۷ | 19.5 | 6.3 | 46.0 |

Remark:

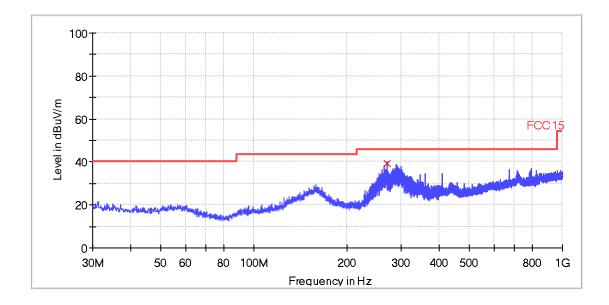
- 1. Corr. (dB) = Antenna Factor (dB) + Cable Loss (dB)
- 2. Quasi Peak (dBµV/m) = Corr. (dB) + Read Level (dBµV)
- 3. Margin (dB) = Limit QPK (dBµV/m) –Quasi Peak (dBµV/m)



Intertek Report No.: 220923108GZU-001

TEST REPORT

Horizontal



QP

| Frequency (MHz) | Quasi Peak (dBuV/ m) | Bandwidth (kHz) | Pol | Corr. (dB) | Margin - QPK (dB) | Limit - QPK (dBuV/m) |
|--------------------|-------------------------------|--------------------|-----|---------------|-------------------------|----------------------------|
| 269.960000 | 39.3 | 120.000 | Н | 14.1 | 6.7 | 46.0 |

Remark:

- 1. Corr. (dB) = Antenna Factor (dB) + Cable Loss (dB)
- 2. Quasi Peak (dB μ V/m) = Corr. (dB) + Read Level (dB μ V)

3. Margin (dB) = Limit QPK (dBµV/m) –Quasi Peak (dBµV/m)

1~25 GHz Radiated Emissions.

PK Measurement:

| Frequency | PK Reading Level | Correction factors | PK Emission Level | PK Limit | Antenna polarization |
|-----------|---------------------|-----------------------|----------------------|----------|-------------------------|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 1007.5 | 65.9 | -14.5 | 51.4 | 74 | V |
| 2969.5 | 54.1 | -6.1 | 48.0 | 74 | V |
| 4841.5 | 49.6 | -1.1 | 48.5 | 74 | V |
| 1007.5 | 61.8 | -14.5 | 47.3 | 74 | Н |
| 3169.0 | 51.8 | -5.3 | 46.5 | 74 | Н |
| 4835.5 | 49.5 | -1.1 | 48.4 | 74 | Н |



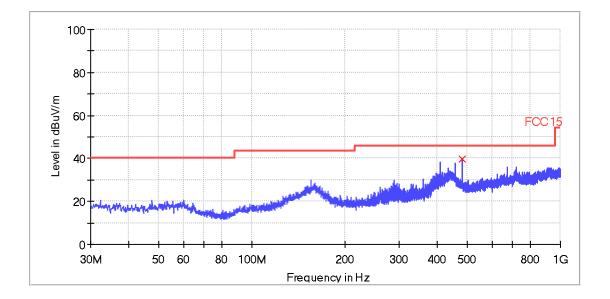
AV Measurement:

| Frequency | PK Reading Level | Correction factors | AV Emission Level | AV Limit | Antenna polarization |
|-----------|---------------------|-----------------------|----------------------|----------|----------------------|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 1007.5 | - | -14.5 | - | 54 | V |
| 2969.5 | - | -6.1 | - | 54 | V |
| 4841.5 | - | -1.1 | - | 54 | V |
| 1007.5 | - | -14.5 | - | 54 | Н |
| 3169.0 | - | -5.3 | - | 54 | Н |
| 4835.5 | - | -1.1 | - | 54 | Н |

Remark: When Peak emission level was below AV limit, the AV emission level did not be recorded.

Test at Channel 6 (2.437 GHz) in transmitting status 30 MHz~1 GHz Radiated Emissions .Quasi-Peak Measurement

Vertical



QP

| Frequency (MHz) | Quasi Peak (dBuV/ m) | Bandwidth (kHz) | Pol | Corr. (dB) | Margin - QPK (dB) | Limit - QPK (dBuV/m) |
|--------------------|-------------------------------|--------------------|-----|---------------|-------------------------|----------------------------|
| 480.000000 | 39.7 | 120.000 | v | 19.5 | 6.3 | 46.0 |

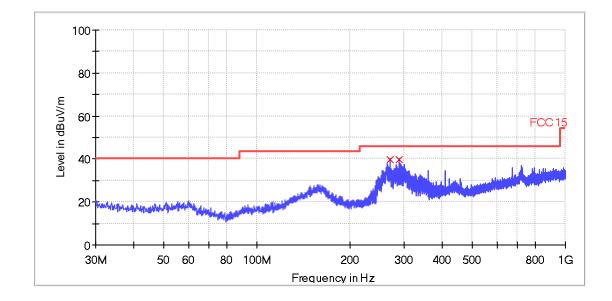
Remark:

- 1. Corr. (dB) = Antenna Factor (dB) + Cable Loss (dB)
- 2. Quasi Peak (dBµV/m) = Corr. (dB) + Read Level (dBµV)
- 3. Margin (dB) = Limit QPK (dBµV/m) –Quasi Peak (dBµV/m)





Horizontal



QP

| Frequency (MHz) | Quasi Peak (dBuV/ m) | Bandwidth (kHz) | Pol | Corr. (dB) | Margin - QPK (dB) | Limit - QPK (dBuV/m) |
|--------------------|-------------------------------|--------------------|-----|---------------|-------------------------|----------------------------|
| 269.960000 | 39.8 | 120.000 | Н | 14.1 | 6.2 | 46.0 |
| 288.880000 | 39.5 | 120.000 | Н | 14.8 | 6.5 | 46.0 |

Remark:

- 1. Corr. (dB) = Antenna Factor (dB) + Cable Loss (dB)
- 2. Quasi Peak (dBµV/m) = Corr. (dB) + Read Level (dBµV)
- 3. Margin (dB) = Limit QPK (dBµV/m) –Quasi Peak (dBµV/m)

1~25 GHz Radiated Emissions.

| Frequency | PK Reading Level | Correction factors | PK Emission Level | PK Limit | Antenna polarization |
|-----------|---------------------|-----------------------|----------------------|----------|----------------------|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 1007.5 | 65.9 | -14.5 | 51.4 | 74 | V |
| 2968.0 | 52.6 | -6.1 | 46.5 | 74 | V |
| 4873.0 | 48.8 | -1.0 | 47.8 | 74 | V |
| 1007.5 | 61.8 | -14.5 | 47.3 | 74 | Н |
| 3167.5 | 49.9 | -5.3 | 44.6 | 74 | Н |
| 4865.5 | 46.7 | -1.0 | 45.7 | 74 | Н |



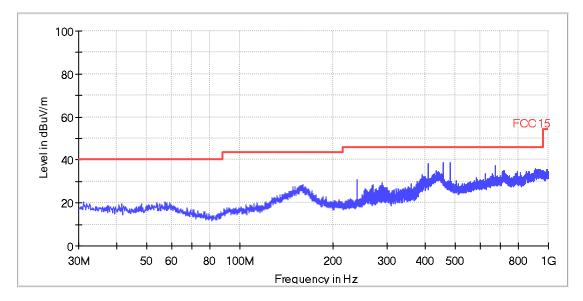
AV Measurement:

| Frequency | PK Reading Level | Correction factors | AV Emission Level | AV Limit | Antenna polarization |
|-----------|---------------------|-----------------------|----------------------|----------|----------------------|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 1007.5 | - | -14.5 | - | 54 | V |
| 2968.0 | - | -6.1 | - | 54 | V |
| 4873.0 | - | -1.0 | - | 54 | V |
| 1007.5 | - | -14.5 | - | 54 | Н |
| 3167.5 | - | -5.3 | - | 54 | Н |
| 4865.5 | - | -1.0 | - | 54 | Н |

Remark: When Peak emission level was below AV limit, the AV emission level did not be record.

Test at Channel 11 (2.452 GHz) in transmitting status 30 MHz~1 GHz Radiated Emissions .Quasi-Peak Measurement

Vertical

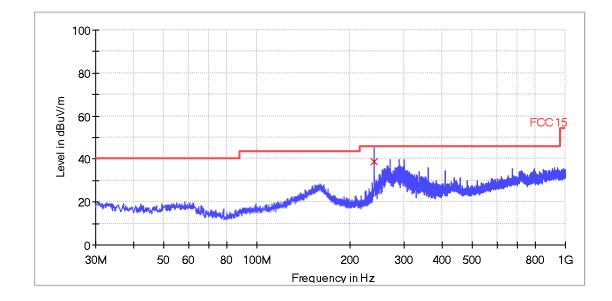


All emission levels are more than 6 dB below the limit.





Horizontal



QP

| Frequency (MHz) | Quasi Peak (dBuV/ m) | Bandwidth (kHz) | Pol | Corr. (dB) | Margin - QPK (dB) | Limit - QPK (dBuV/m) |
|--------------------|-------------------------------|--------------------|-----|---------------|-------------------------|----------------------------|
| 239.920000 | 38.8 | 120.000 | н | 13.4 | 7.3 | 46.0 |

Remark:

- 1. Corr. (dB) = Antenna Factor (dB) + Cable Loss (dB)
- 2. Quasi Peak ($dB\mu V/m$) = Corr. (dB) + Read Level ($dB\mu V$)
- 3. Margin (dB) = Limit QPK (dBµV/m) –Quasi Peak (dBµV/m)

1~25 GHz Radiated Emissions.

| Frequency | PK Reading Level | Correction factors | PK Emission Level | PK Limit | Antenna polarization |
|-----------|---------------------|-----------------------|----------------------|----------|----------------------|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 1007.5 | 63.2 | -14.5 | 48.7 | 74 | V |
| 3167.5 | 51.3 | -5.3 | 46.0 | 74 | V |
| 4894.0 | 47.5 | -1.0 | 46.5 | 74 | V |
| 1007.5 | 62.2 | -14.5 | 47.7 | 74 | Н |
| 1231.0 | 58.6 | -13.3 | 45.3 | 74 | Н |
| 4903.0 | 48.1 | -1.0 | 47.1 | 74 | Н |



AV Measurement:

| Frequency | PK Reading Level | Correction factors | AV Emission Level | AV Limit | Antenna polarization |
|-----------|---------------------|-----------------------|----------------------|----------|----------------------|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 1007.5 | - | -14.5 | - | 54 | V |
| 3167.5 | - | -5.3 | - | 54 | V |
| 4894.0 | - | -1.0 | - | 54 | V |
| 1007.5 | - | -14.5 | - | 54 | Н |
| 1231.0 | - | -13.3 | - | 54 | Н |
| 4903.0 | - | -1.0 | - | 54 | Н |

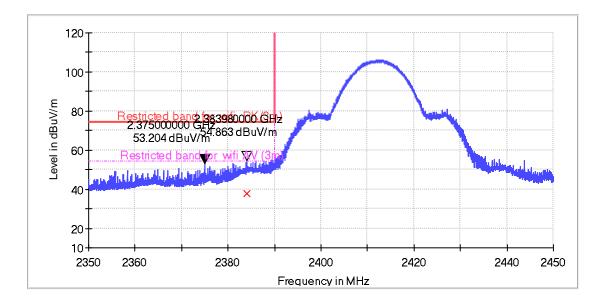
Remark: When Peak emission level was below AV limit, the AV emission level did not be record.

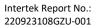
Band Edges Emission

802.11b mode with 1Mbps data rate

Test at Channel 1 (2.412 GHz) in transmitting status

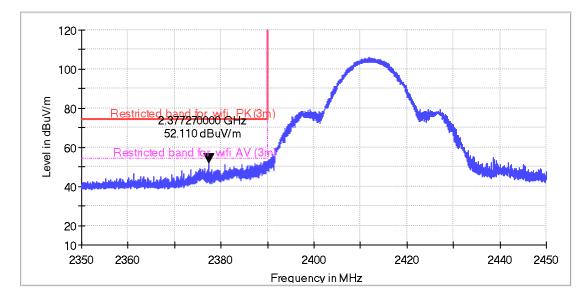
Vertical







Horizontal



PK Measurement:

| Frequency | PK Reading Level | Correction factors | PK Emission Level | PK Limit | Antenna polarization |
|-----------|---------------------|-----------------------|----------------------|----------|----------------------|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 2377.3 | 60.3 | -8.2 | 52.1 | 74 | Н |
| 2375.0 | 61.4 | -8.2 | 53.2 | 74 | V |
| 2384.0 | 63.1 | -8.2 | 54.9 | 74 | V |

AV Measurement:

| Frequency | AV Reading Level | Correction factors | AV Emission Level | AV Limit | Antenna polarization |
|-----------|---------------------|-----------------------|----------------------|----------|-------------------------|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 2377.3 | - | -8.2 | - | 54 | Н |
| 2375.0 | - | -8.2 | - | 54 | V |
| 2384.0 | 46.2 | -8.2 | 38.0 | 54 | V |

Remark:

1. When Peak emission level was below AV limit, the AV emission level did not be recorded.

2. Corr. (dB) = Antenna Factor (dB) + Cable Loss (dB)

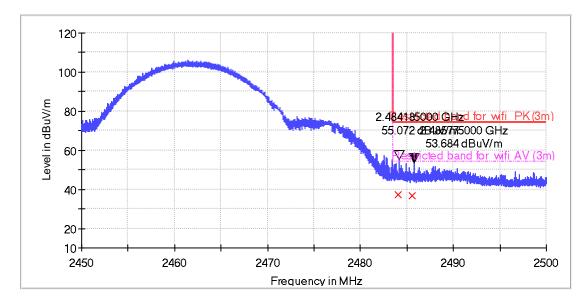
3. Peak/Aveage (dB μ V/m) = Corr. (dB) + Read Level (dB μ V)



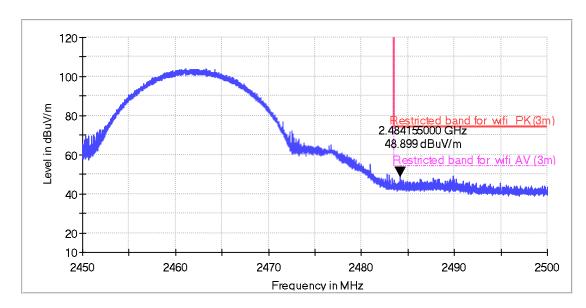
TEST REPORT

Test at Channel 11 (2.462 GHz) in transmitting status

Vertical



Horizontal



| Frequency | PK Reading Level | Correction factors | PK Emission Level | PK Limit | Antenna polarization |
|-----------|---------------------|-----------------------|----------------------|----------|-------------------------|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | • |
| 2484.2 | 56.7 | -7.8 | 48.9 | 74 | Н |
| 2484.2 | 62.9 | -7.8 | 55.1 | 74 | V |
| 2485.8 | 61.5 | -7.8 | 53.7 | 74 | V |



AV Measurement:

| Frequency | AV Reading Level | Correction factors | AV Emission Level | AV Limit | Antenna polarization |
|-----------|---------------------|-----------------------|----------------------|----------|-------------------------|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 2484.2 | - | -7.8 | - | 54 | Н |
| 2484.2 | 45.0 | -7.8 | 37.2 | 54 | V |
| 2485.8 | - | -7.8 | - | 54 | V |

Remark:

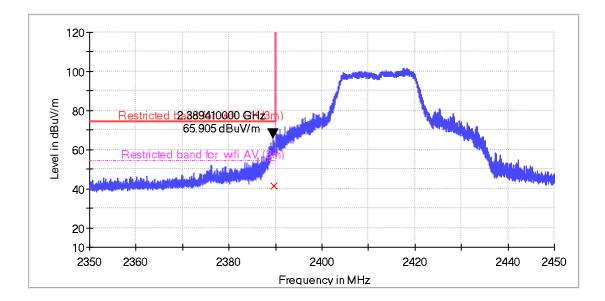
1. When Peak emission level was below AV limit, the AV emission level did not be recorded.

2. Corr. (dB) = Antenna Factor (dB) + Cable Loss (dB)

3. Peak/Aveage (dBµV/m) = Corr. (dB) + Read Level (dBµV)

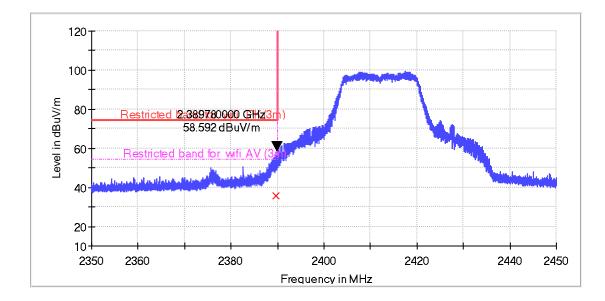
802.11g mode with 6Mbps data rate Test at Channel 1 (2.412 GHz) in transmitting status

Vertical





Horizontal



PK Measurement:

| Frequency | PK Reading Level | Correction factors | PK Emission Level | PK Limit | Antenna polarization |
|-----------|---------------------|-----------------------|----------------------|----------|-------------------------|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 2389.8 | 66.8 | -8.2 | 58.6 | 74 | Н |
| 2389.4 | 74.1 | -8.2 | 65.9 | 74 | V |

AV Measurement:

| Frequency | AV Reading Level | Correction factors | AV Emission Level | AV Limit | Antenna polarization |
|-----------|---------------------|-----------------------|----------------------|----------|----------------------|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 2389.8 | 43.7 | -8.2 | 35.5 | 54 | Н |
| 2389.4 | 49.5 | -8.2 | 41.3 | 54 | V |

Remark:

1. When Peak emission level was below AV limit, the AV emission level did not be recorded.

2. Corr. (dB) = Antenna Factor (dB) + Cable Loss (dB)

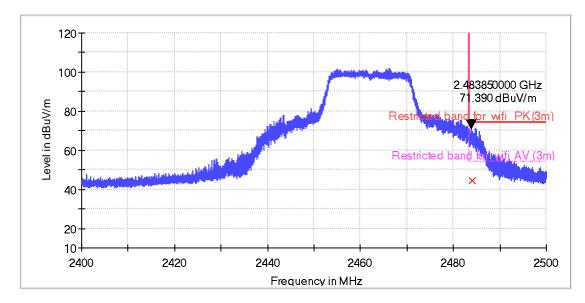
3. Peak/Aveage (dB μ V/m) = Corr. (dB) + Read Level (dB μ V)



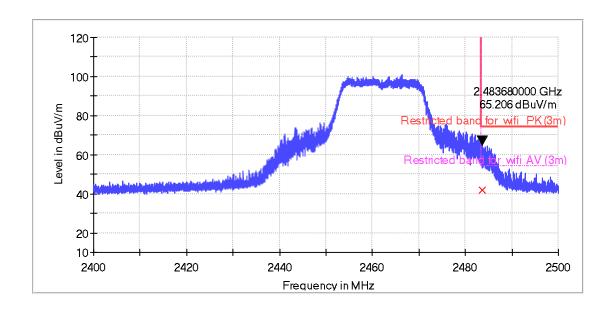
TEST REPORT

Test at Channel 11 (2.462 GHz) in transmitting status

Vertical



Horizontal



| Frequency | PK Reading Level | Correction factors | PK Emission Level | PK Limit | Antenna polarization |
|-----------|---------------------|-----------------------|----------------------|----------|-------------------------|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 2483.7 | 73.0 | -7.8 | 65.2 | 74 | Н |
| 2483.9 | 79.2 | -7.8 | 71.4 | 74 | V |



AV Measurement:

| Frequency | AV Reading Level | Correction factors | AV Emission Level | AV Limit | Antenna polarization |
|-----------|---------------------|-----------------------|----------------------|----------|-------------------------|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 2483.7 | 49.5 | -7.8 | 41.7 | 54 | Н |
| 2483.9 | 52.1 | -7.8 | 44.3 | 54 | V |

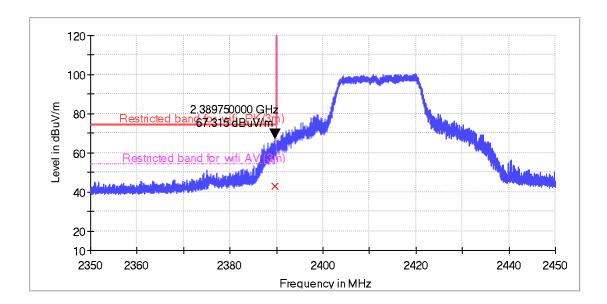
Remark:

1. When Peak emission level was below AV limit, the AV emission level did not be recorded.

2. Corr. (dB) = Antenna Factor (dB) + Cable Loss (dB)

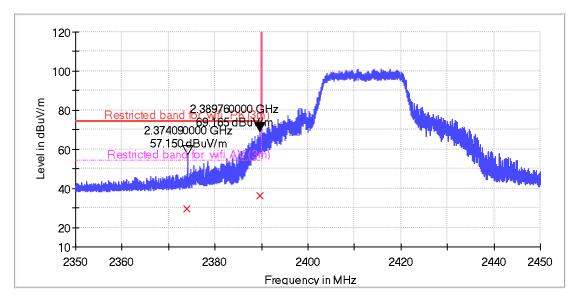
3. Peak/Aveage (dBµV/m) = Corr. (dB) + Read Level (dBµV)

802.11n (HT20) mode with 6.5 Mbps data rate Test at Channel 1 (2.412 GHz) in transmitting status Vertical





Horizontal



PK Measurement:

| Frequency | PK Reading Level | Correction factors | PK Emission Level | PK Limit | Antenna polarization |
|-----------|---------------------|-----------------------|----------------------|----------|----------------------|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 2374.0 | 65.4 | -8.2 | 57.2 | 74 | Н |
| 2389.8 | 77.4 | -8.2 | 69.2 | 74 | Н |
| 2389.8 | 75.5 | -8.2 | 67.3 | 74 | V |

AV Measurement:

| Frequency | AV Reading Level | Correction factors | AV Emission Level | AV Limit | Antenna polarization |
|-----------|---------------------|-----------------------|----------------------|----------|-------------------------|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 2374.0 | 37.9 | -8.2 | 29.7 | 54 | Н |
| 2389.8 | 46.0 | -8.2 | 37.8 | 54 | Н |
| 2389.8 | 50.9 | -8.2 | 42.7 | 54 | V |

Remark:

1. When Peak emission level was below AV limit, the AV emission level did not be recorded.

2. Corr. (dB) = Antenna Factor (dB) + Cable Loss (dB)

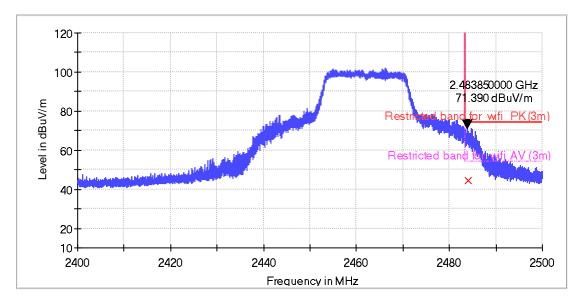
3. Peak/Aveage (dB μ V/m) = Corr. (dB) + Read Level (dB μ V)



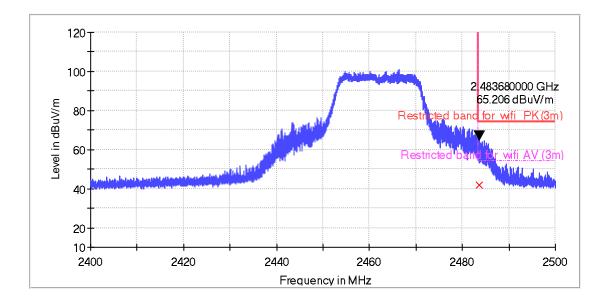
TEST REPORT

Test at Channel 11 (2.462 GHz) in transmitting status

Vertical



Horizontal



| Frequency | PK Reading | Correction | PK Emission | PK Limit | Antenna |
|-----------|------------|------------|-------------|----------|--------------|
| Frequency | Level | factors | Level | | polarization |
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 2483.7 | 73.0 | -7.8 | 65.2 | 74 | Н |
| 2483.9 | 79.2 | -7.8 | 71.4 | 74 | V |



AV Measurement:

| Frequency | AV Reading Level | Correction factors | AV Emission Level | AV Limit | |
|-----------|---------------------|-----------------------|----------------------|----------|---|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 2483.7 | 49.5 | -7.8 | 41.7 | 54 | Н |
| 2483.9 | 52.1 | -7.8 | 44.3 | 54 | V |

Remark:

1. When Peak emission level was below AV limit, the AV emission level did not be recorded.

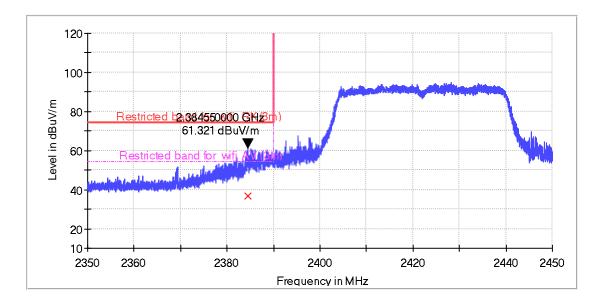
2. Corr. (dB) = Antenna Factor (dB) + Cable Loss (dB)

3. Peak/Aveage (dBµV/m) = Corr. (dB) + Read Level (dBµV)

802.11n (HT40) mode with 13.5 Mbps data rate

Test at Channel 1 (2.422 GHz) in transmitting status

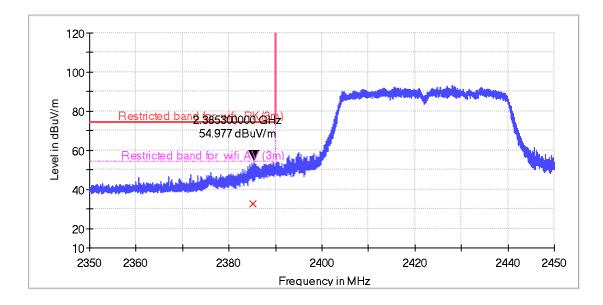
Vertical





TEST REPORT

Horizontal



PK Measurement:

| Frequency | PK Reading Level | Correction factors | PK Emission Level | PK Limit | |
|-----------|----------------------|-----------------------|----------------------|----------|---|
| (MHz) | (dBuV) (dB) (dBuV/m) | | (dBuV/m) | | |
| 2385.3 | 63.2 | -8.2 | 55.0 | 74 | Н |
| 2384.6 | 69.5 | -8.2 | 61.3 | 74 | V |

AV Measurement:

| Frequency | AV Reading Level | Correction factors | AV Emission Level | AV Limit | Antenna polarization |
|-----------|---------------------|-----------------------|----------------------|----------|----------------------|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 2385.3 | 40.8 | -8.2 | 32.6 | 54 | Н |
| 2384.6 | 44.7 | -8.2 | 36.5 | 54 | V |

Remark:

1. When Peak emission level was below AV limit, the AV emission level did not be recorded.

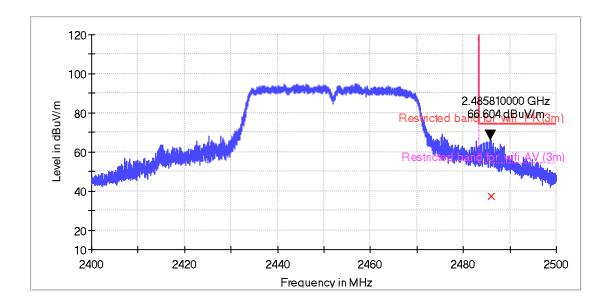
2. Corr. (dB) = Antenna Factor (dB) + Cable Loss (dB)

3. Peak/Aveage (dB μ V/m) = Corr. (dB) + Read Level (dB μ V)



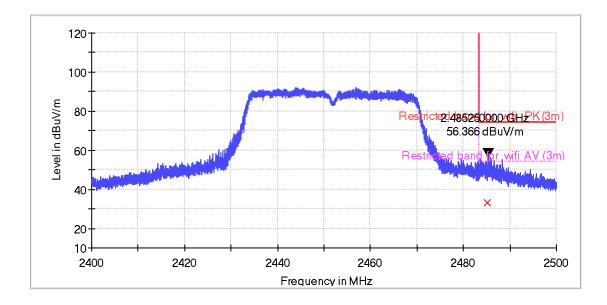
TEST REPORT

Test at Channel 11 (2.452 GHz) in transmitting status Vertical





Horizontal



PK Measurement:

| Frequency | PK Reading Level | Correction factors | PK Emission Level PK Limit p | | Antenna polarization |
|-----------|---------------------|-----------------------|---------------------------------|----------|----------------------|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 2485.3 | 64.2 | -7.8 | 56.4 | 74 | Н |
| 2485.8 | 74.4 | -7.8 | 66.6 | 74 | V |

AV Measurement:

| Frequency | AV Reading Level | Correction factors | AV Emission Level | AV Limit | |
|-----------|---------------------|-----------------------|----------------------|----------|---|
| (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | |
| 2485.3 | 41.2 | -7.8 | 33.4 | 54 | Н |
| 2485.8 | 45.1 | -7.8 | 37.3 | 54 | V |

Remark:

1. When Peak emission level was below AV limit, the AV emission level did not be recorded.

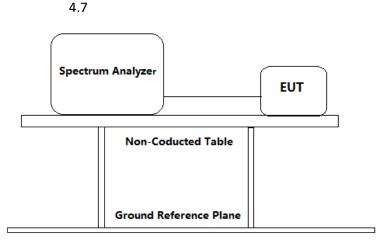
2. Corr. (dB) = Antenna Factor (dB) + Cable Loss (dB)

3. Peak/Aveage (dBµV/m) = Corr. (dB) + Read Level (dBµV)



4.8 Band Edges Requirement

| Test Requirement: | FCC Part 15 C section 15.247 |
|---------------------|--|
| | (d) 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. Provided the transmitter demonstrates compliance with the peak conducted power limits. |
| Frequency Band: | 2400 MHz to 2483.5 MHz |
| Test Method: | ANSI C63.10: Clause 11.11 and 11.13 |
| Test Status: | Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below. |
| Test Configuration: | For Band Edges Emission in Radiated mode, please refer to clause |



Test Procedure: For Band Edges Emission in Radiated mode, Please refer to clause 4.7

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum analyzer.

a) Set instrument center frequency to the frequency of the emission to be measured (must be within 2 MHz of the authorized band edge).

b) Set the center frequency and span to encompass frequency range to be measured.

- c) RBW = 100 kHz.
- d) VBW \geq [3 × RBW].
- e) Detector = peak.
- f) Sweep time = auto.
- g) Trace mode = max hold.



TEST REPORT

- h) Allow sweep to continue until the trace stabilizes (required measurement time may increase for low-duty-cycle applications).
- i) For radiated Band-edge emissions within a restricted band and within 2 MHz of an authorized band edge, integration method is considered.
- 2. Repeat until all the test status is investigated.
- 3. Report the worst case.

Used Test Equipment List:

3m Semi-Anechoic Chamber, EMI Test Receiver (9 kHz~7 GHz), Signal and Spectrum Analyzer (10 Hz~40 GHz), Loop antenna (9 kHz-30 MHz). TRILOG Super Broadband test Antenna(30 MHz-3 GHz) (RX), Bouble-Ridged Waveguide Horn Antenna (800 MHz-18 GHz)(RX) and High Frequency Antenna & preamplifier(18 GHz~26.5 GHz) (RX). Refer to Clause 5 Test Equipment List for details.

Test result with plots as follows: For conduct mode:

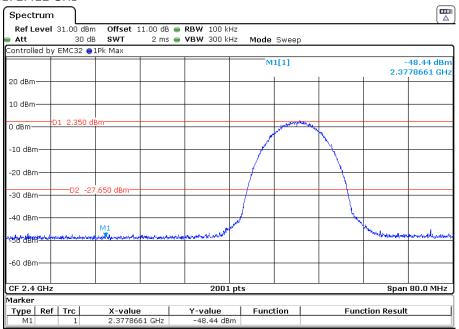
The band edges was measured and recorded Result:

The Lower Edges attenuated more than 20dB.

The Upper Edges attenuated more than 20dB.

Result plots as follows:

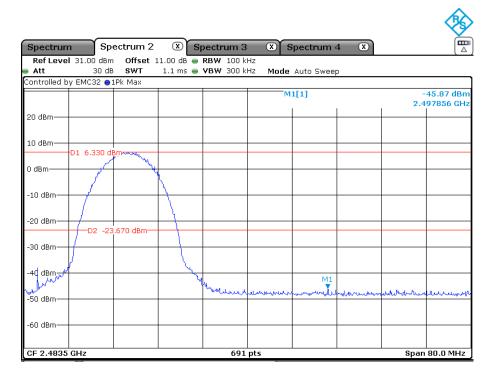
802.11b mode with 1 Mbps data rate Channel1: 2.412 GHz



Channel 11: 2.462 GHz

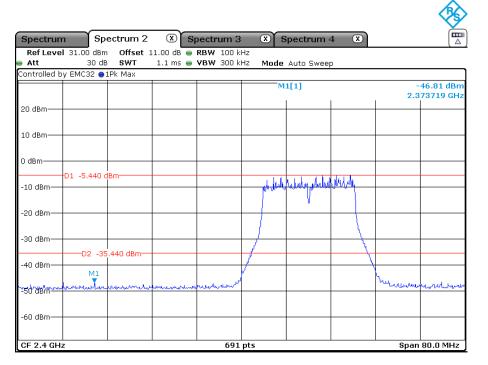


TEST REPORT



802.11g mode with 6 Mbps data rate

Channel1: 2.412 GHz



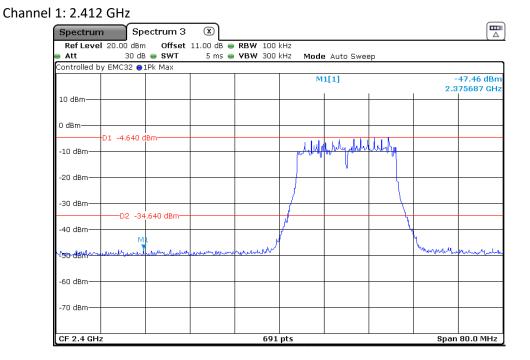


TEST REPORT

Channel 11: 2.462 GHz

| Spectrun | n Sp | ectrum 2 | 🗴 SI | bectrum 3 | × | Spectrum - | 4 🗶 | | |
|-------------------|-------------|-------------|------------|------------------|---------|--------------|--------|---------------|------------------------|
| Ref Leve | 31.00 dBm | Offset | 11.00 dB 🔵 | RBW 100 k | Hz | | | | |
| Att | 30 dE | | 1.1 ms 👄 | VBW 300 k | Hz Mode | Auto Swee | p | | |
| Controlled b | у ЕМСЗ2 😑 | 1Pk Max | | | | | | | |
| | | | | | м | 1[1] | | | 46.38 dBm 86394 GHz |
| 20 dBm | | | | | | | | 2.1 | 00051 0112 |
| | | | | | | | | | |
| 10 dBm | | | | | | | | | |
| 0 40 | | | | | | | | | |
| 0 dBm | D1 -2.100 a | Bm | ALI N | | | | | | |
| -10 dBm | philupsu | Mandlanmala | 1906-19 | | | | | | |
| 10 000 | | U | | | | | | | |
| -20 dBm— | | | + | | | | | | |
| -30 dBm | 1 | | L L | | | | | | |
| -50 abin | D2 -32 | .100 dBm— | 1 | | | | | | |
| -40 dBm 🕇 | | | <u> </u> | | | | | | |
| al and the second | | | Wa | monder | M1 | | | | |
| -50 dBm | | | | willing | Manuli | Allowhermore | hannan | - in manually | mohumulun |
| | | | | | | | | | |
| -60 dBm | | | | | | | | | |
| | | | | | | | | | |
| CF 2.4835 | GHz | | | 691 | pts | | | Span | 80.0 MHz |

802.11n(HT20) mode with 6.5Mbps data rate





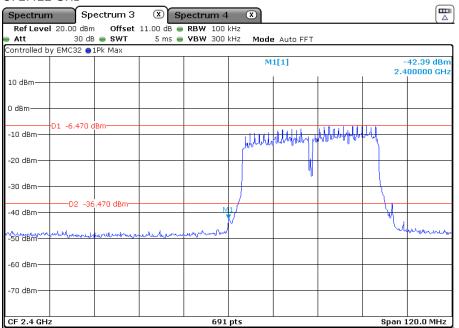
TEST REPORT

| Channel | 11: | 2.462 | GHz |
|---------|-----|-------|------|
| Chunner | | 2.402 | 0112 |

| Spectrum Spectrum 3 | Spectrum 4 | x | |
|-------------------------------|-----------------------|--------------------------------------|----------------------------|
| Ref Level 20.00 dBm Offset | 11.00 dB 🔵 RBW 100 | kHz | X |
| Att 30 dB 👄 SWT | 5 ms 👄 VBW 300 | kHz – Mode Auto Swee | ib. |
| Controlled by EMC32 🔵 1Pk Max | | | |
| | | M1[1] | -46.23 dBm 2.490215 GHz |
| 10 dBm | | | |
| | | | |
| D1 -1.330 dBm | 1kiAo | | |
| -10 dBm | | | |
| -20 dBm | | | |
| -30 dBmD2 -31,330 dBm | | | |
| -40 dBm | <u> </u> | | |
| and the work | "have well | M1 | |
| -50 dBm | a connorm | and work and the work and the second | ihumaniumonanullunanana |
| | | | |
| -60 dBm- | | | |
| -70 dBm | | | |
| | | | |
| CF 2.4835 GHz | 691 | pts | Span 80.0 MHz |

802.11n(HT40) mode with 13.5Mbps data rate

Channel 3: 2.422 GHz





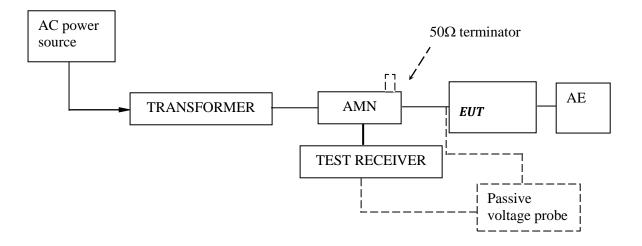
TEST REPORT

Channel 9: 2.452 GHz

| Spectrum Spectrum 3 | Spectrum 4 | 1 🗴 Spectrum 2 | 8 |
|--|---|----------------------|------------------------------|
| RefLevel 20.00 dBm Offset Att 30 dB SWT | 11.00 dB RBW 100 5 ms VBW 300 | | |
| Controlled by EMC32 	1Pk Max | 5 ms 🖶 VBW 300 | kHz Mode Auto FFT | |
| | | M1[1] | -34.84 dBm 2.473775 GHz |
| 10 dBm | | | |
| 0 dBm | | | |
| | blood Welling | | |
| -20 dBm | | | |
| -30 dBm | M1 | | |
| um/ -50 dBm | Vilinow | www.www.www.www.www. | - My downly washing have not |
| -60 dBm | | | |
| -70 dBm | | | |
| CF 2.4835 GHz | 691 | l pts | Span 120.0 MHz |

4.9 Conducted Emission Test

Test Configuration:



Test Setup and Procedure:

Test was performed according to ANSI C63.10 Clause 6.2. The EUT was set to achieve the maximum emission level. The mains terminal disturbance voltage was measured with the EUT in a shielded room. The EUT was connected to AC power source through an Artificial Mains



TEST REPORT

Network which provides a 50Ω linear impedance Artificial hand is used if appropriate (for handheld apparatus). The load/control terminal disturbance voltage was measured with passive voltage probe if appropriate.

The table-top EUT was placed on a 0.8m high non-metallic table above earthed ground plane (Ground Reference Plane). And for floor standing EUT, was placed on a 0.1m high non-metallic supported on GRP. The EUT keeps a distance of at least 0.8m from any other of the metallic surface. The Artificial Mains Network is situated at a distance of 0.8m from the EUT.

During the test, mains lead of EUT excess 0.8m was folded back and forth parallel to the lead so as to form a horizontal bundle with a length between 0.3m and 0.4m

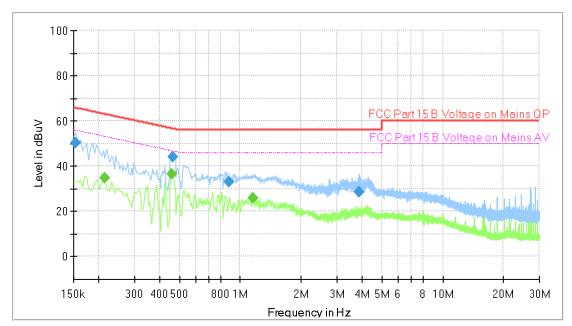
The bandwidth of test receiver was set at 9 kHz. The frequency range from 150 kHz to 30MHz was checked.

Test Data and Curve

At main terminal: Pass

Tested Wire: Live

Operation Mode: transmitting mode



Full Spectrum

Final_Result

| Frequency (MHz) | QuasiPeak (dBuV) | CAverage (dBuV) | Limit (dBuV) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Line | Filter | Corr. (dB) |
|--------------------|---------------------|--------------------|-----------------|----------------|-----------------------|--------------------|------|--------|---------------|
| 0.154000 | 50.43 | | 65.78 | 15.35 | 1000.0 | 9.000 | L1 | ON | 9.6 |
| 0.214000 | | 34.86 | 53.05 | 18.19 | 1000.0 | 9.000 | L1 | ON | 9.6 |
| 0.458000 | | 36.43 | 46.73 | 10.30 | 1000.0 | 9.000 | L1 | ON | 9.6 |
| 0.466000 | 43.95 | | 56.59 | 12.64 | 1000.0 | 9.000 | L1 | ON | 9.6 |
| 0.878000 | 33.15 | | 56.00 | 22.85 | 1000.0 | 9.000 | L1 | ON | 9.6 |
| 1.150000 | | 25.91 | 46.00 | 20.09 | 1000.0 | 9.000 | L1 | ON | 9.6 |
| 3.854000 | 28.75 | | 56.00 | 27.25 | 1000.0 | 9.000 | L1 | ON | 9.7 |



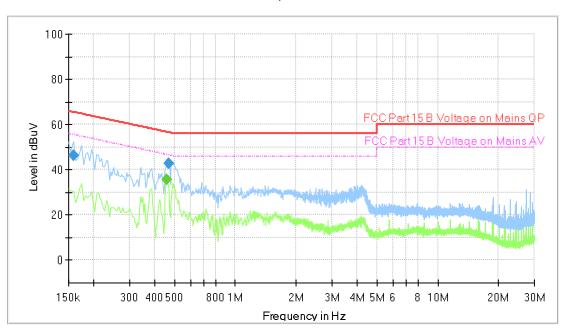
TEST REPORT

Remark:

- 1. Corr. (dB) = LISN Factor (dB) + Cable Loss (dB)
- 2. Level (dB μ V) = Corr. (dB) + Read Level (dB μ V)
- 3. Delta Limit (dB) = Level (dB μ V)-Limit (dB μ V)

Tested Wire: Neutral

Operation Mode: transmitting mode



Full Spectrum

Final_Result

| Frequency (MHz) | QuasiPeak (dBuV) | CAverage (dBuV) | Limit (dBuV) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Line | Filter | Corr. (dB) |
|--------------------|---------------------|--------------------|-----------------|----------------|-----------------------|--------------------|------|--------|---------------|
| 0.158000 | 46.41 | | 65.57 | 19.16 | 1000.0 | 9.000 | L1 | ON | 9.6 |
| 0.458000 | | 35.55 | 46.73 | 11.18 | 1000.0 | 9.000 | L1 | ON | 9.6 |
| 0.470000 | 42.58 | | 56.51 | 13.93 | 1000.0 | 9.000 | L1 | ON | 9.6 |

Remark:

- 1. Corr. (dB) = LISN Factor (dB) + Cable Loss (dB)
- 2. Level (dBµV) = Corr. (dB) + Read Level (dBµV)
- 3. Delta Limit (dB) = Level (dB μ V)-Limit (dB μ V)



TEST REPORT

5.0 Test Equipment List

Radiated Emission/Radio

| Equipment No. | Equipment | Model | Manufacturer | Cal. Due date (YYYY-MM-DD) | Calibration Interval |
|----------------|---|----------------------|--|-------------------------------|-------------------------|
| EM030-04 | 3m Semi-Anechoic Chamber | 9×6×6 m ³ | ETS• LINDGRE N | 2023-04-07 | 1Y |
| EM031-02 | EMI Test Receiver (9 kHz~7 GHz) | R&S ESR7 | R&S | 2023-11-15 | 1Y |
| EM031-03 | Signal and Spectrum Analyzer (10 Hz~40 GHz) | R&S FSV40 | R&S | 2023-11-15 | 1Y |
| EM011-04 | Loop antenna (9 kHz-30 MHz) | HFH2-Z2 | R&S | 2023-06-27 | 1Y |
| EM061-03 | TRILOG Super Broadband test Antenna (30 MHz-1.5 GHz) (TX) | VULB 9161 | SCHWARZBECK | 2023-06-26 | 1Y |
| EM033-01 | TRILOG Super Broadband test Antenna(30 MHz-3 GHz) (RX) | VULB 9163 | SCHWARZBECK | 2023-10-25 | 1Y |
| EM033-02 | Bouble-Ridged Waveguide Horn Antenna (800 MHz-18 GHz)(RX) | R&S HF907 | R&S | 2023-06-26 | 1Y |
| EM033-03 | High Frequency Antenna & preamplifier(18 GHz~26.5 GHz) (RX) | R&S SCU-26 | R&S | 2023-04-16 | 1Y |
| EM033-04 | High Frequency Antenna & preamplifier (26 GHz-40 GHz) | R&S SCU-40 | R&S | 2023-04-16 | 1Y |
| EM031-02-01 | Coaxial cable(9 kHz-1 GHz) | N/A | R&S | 2023-04-08 | 1Y |
| EM033-02-02 | Coaxial cable(1 GHz-18 GHz) | N/A | R&S | 2023-04-08 | 1Y |
| EM033-04-02 | Coaxial cable(18 GHz~40 GHz) | N/A | R&S | 2023-04-15 | 1Y |
| EM031-01 | Signal Generator (9 kHz~6 GHz) | SMB100A | R&S | 2023-07-17 | 1Y |
| EM040-01 | Band Reject/Notch Filter | WRHFV | Wainwright | N/A | 1Y |
| EM040-02 | Band Reject/Notch Filter | WRCGV | Wainwright | N/A | 1Y |
| EM040-03 | Band Reject/Notch Filter | WRCGV | Wainwright | N/A | 1Y |
| EM022-03 | 2.45 GHz Filter | BRM50702 | Micro-Tronics | 2023-05-06 | 1Y |
| SA016-29 | Climatic Test Chamber | MHU-80L | JIANQIAO | 2023-01-20 | 1Y |
| SA012-74 | Digital Multimeter | FLUKE175 | FLUKE | 2023-10-07 | 1Y |
| EM010-01 | Regulated DC Power supply | PAB-3003A | GUANHUA | N/A | 1Y |
| SA040-22 | Regulated DC Power supply | IT6721 | ITECH | 2023-09-04 | 1Y |
| EM084-06 | Audio Analyzer | 8903B | HP | 2023-04-11 | 1Y |
| EM046-05 | Power meter | NPR6A | R&S | 2023-04-20 | 1Y |
| EM046-06 | Power meter | NPR6A | R&S | 2023-04-20 | 1Y |
| EM045-01-01 | EMC32 software (RE/RS) | V10.01.00 | R&S | N/A | N/A |
| EM045-01-09 | EMC32 software (328/893) | V9.26.01 | R&S | N/A | N/A |
| Conducted emis | ssion at the mains terminals | | | | |
| Equipment No. | Equipment | Model | Manufacturer | Cal. Due date | |
| | | | and the second | (YYYY-MM-DD) | Interval |

| Equipment No. | Equipment | Model | Manufacturer | Cal. Due date (YYYY-MM-DD) | |
|---------------|-----------------|----------|--------------|-------------------------------|----|
| EM080-05 | EMI receiver | ESCI | R&S | 2023-06-08 | 1Y |
| EM006-05 | LISN | ENV216 | R&S | 2023-06-05 | 1Y |
| EM006-06 | LISN | ENV216 | R&S | 2023-09-05 | 1Y |
| EM006-06-01 | Coaxial cable | / | R&S | 2023-04-08 | 1Y |
| EM004-04 | EMC shield Room | 8m×3m×3m | Zhongyu | 2023-01-06 | 1Y |