

Applicant: Nanjing Magewell Electronics CO., Ltd.

Product: Capture Box

Model No.: USB Fusion, USB Fusion HDMI

Trademark: N/A

Test Standards: FCC Part 15.247

Test Result:

It is herewith confirmed and found to comply with the

requirements set up by ANSI C63.10, FCC Part 15.247 for the

evaluation of electromagnetic compatibility

Approved By

Term long

Terry Tang

Manager

Dated: January 10, 2023

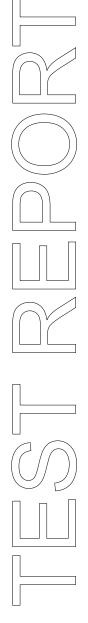
Results appearing herein relate only to the sample tested

The technical reports is issued errors and omissions exempt and is subject to withdrawal at

SHENZHEN TIMEWAY TESTING LABORATORIES

Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China

Tel (755) 83448688, Fax (755) 83442996, E-Mail:info@timeway-lab.com



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Special Statement:

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meet with ISO/IEC-17025 requirements, which is approved by CNAL. This approval result is accepted by MRA of APLAC.

Our test facility is recognized, certified, or accredited by the following organizations:

CNAS-LAB Code: L2292

The EMC Laboratory has been assessed and in compliance with CNAS-CL01 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:2017 General Requirements) for the Competence of testing Laboratories.

FCC-Registration No.: 744189

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 744189.

Industry Canada (IC) — Registration No.:5205A

The EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 5205A.

A2LA (Certification Number:5013.01)

The EMC Laboratory has been accredited by the American Association for Laboratory Accreditation (A2LA). Certification Number:5013.01

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Test Report Conclusion

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1.0 General Details

1.1 Test Lab Details

Name: SHENZHEN TIMEWAY TESTING LABORATORIES.

Address: Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le

Village, Nanshan District, Shenzhen, China

Telephone: (755) 83448688 Fax: (755) 83442996

Site Listed with Federal Communications commission (FCC)

Registration Number:744189 For 3m Anechoic Chamber

Site Listed with Industry Canada of Ottawa, Canada

Registration Number: IC: 5205A

For 3m Anechoic Chamber

1.2 Applicant Details

Applicant: Nanjing Magewell Electronics CO., Ltd.

Address: 14th Floor, Building 3, No.89 Shengli Road, Jiangning Economic and Technological

Development Zone, Nanjing, China.

Telephone: -Fax: --

1.3 Description of EUT

Product: Capture Box

Manufacturer: Nanjing Magewell Electronics CO., Ltd.

Address: 14th Floor, Building 3, No.89 Shengli Road, Jiangning Economic and

Technological Development Zone, Nanjing, China.

Trademark: N/A

Model Number: USB Fusion

Additional Model Number: USB Fusion HDMI

Serial No.: A506220808317

Type of Modulation IEEE 802.11b: DSSS (CCK, QPSK, DBPSK)

IEEE 802.11g/n (HT20, HT40): OFDM (64QAM, 16QAM, QPSK, BPSK)

Frequency range IEEE 802.11b/g/n (HT20): 2412-2462MHz; 802.11n HT40: 2422-2452MHz

Channel Spacing 5MHz for IEEE 802.11b/g/n HT20, HT40

Air Data Rate IEEE 802.11b: 11, 5.5, 2, 1 Mbps

IEEE 802.11g: 54, 48,36, 24, 18, 12, 9, 6 Mbps

IEEE 802.11n HT20/HT40: mcs0-mcs7

Frequency Selection By software

Channel Number IEEE 802.11b/g/n (HT20): 11 Channels; EEE 802.11n (HT40): 7 Channels;

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Antenna: Two FPC Antennas used. The gain of the antennas is 4.7dBi Max for each (Get from

the antenna specification)

Rating: Input: DC12, 1.5A, 24W Switching Adapter: Model: PA1015-120IB150

Input: 100-240V~, 50-60Hz, 0.4A; Output: 12V, 1.5A, 18W Max

1.4 Submitted Sample: 2 Samples

1.5 Test Duration: 2022-10-12 to 2023-01-10

1.6 Test Uncertainty

Conducted Emissions Uncertainty = 3.6dB

Radiated Emissions below 1GHz Uncertainty =4.7dB

Radiated Emissions above 1GHz Uncertainty =6.0dB

Conducted Power Uncertainty =6.0dB

Occupied Channel Bandwidth Uncertainty =5%

Note: The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.

1.7 Test Engineer

The sample tested by

Print Name: Andy Xing

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| 2.0 Test Equipment | 2.0 Test Equipment | | | | | |
|--------------------|--------------------|--------------|--------------|--------------|------------|--|
| Instrument Type | Manufacturer | Model | Serial No. | Date of Cal. | Due Date | |
| ESPI Test Receiver | R&S | ESPI 3 | 100379 | 2022-07-15 | 2023-07-14 | |
| LISN | R&S | EZH3-Z5 | 100294 | 2022-07-18 | 2023-07-17 | |
| LISN | R&S | EZH3-Z5 | 100253 | 2022-07-18 | 2023-07-17 | |
| Impuls-Begrenzer | R&S | ESH3-Z2 | 100281 | 2022-07-18 | 2023-07-17 | |
| Loop Antenna | EMCO | 6507 | 00078608 | 2022-07-18 | 2025-07-17 | |
| Spectrum | R&S | FSIQ26 | 100292 | 2022-07-15 | 2023-07-14 | |
| Horn Antenna | A-INFO | LB-180400-KF | J211060660 | 2022-07-18 | 2025-07-17 | |
| Horn Antenna | R&S | BBHA 9120D | 9120D-631 | 2022-07-18 | 2024-07-17 | |
| Power meter | Anritsu | ML2487A | 6K00003613 | 2022-07-18 | 2023-07-17 | |
| Power sensor | Anritsu | MA2491A | 32263 | 2022-07-18 | 2023-07-17 | |
| Bilog Antenna | Schwarebeck | VULB9163 | 9163/340 | 2022-07-18 | 2025-07-17 | |
| 9*6*6 Anechoic | | | N/A | 2022-07-26 | 2025-07-25 | |
| EMI Test Receiver | RS | ESVB | 826156/011 | 2022-07-15 | 2023-07-14 | |
| EMI Test Receiver | RS | ESCS 30 | 834115/006 | 2022-07-15 | 2023-07-14 | |
| Spectrum | HP/Agilent | E4407B | MY50441392 | 2022-07-15 | 2023-07-14 | |
| Spectrum | RS | FSP | 1164.4391.38 | 2022-07-15 | 2023-07-14 | |
| RF Cable | Zhengdi | ZT26-NJ-NJ-8 | | 2022-07-15 | 2023-07-14 | |
| KI Caule | Zileligui | M/FA | | | | |
| RF Cable | Zhengdi | 7m | | 2022-07-15 | 2023-07-14 | |
| Pre-Amplifier | Schwarebeck | BBV9743 | #218 | 2022-07-15 | 2023-07-14 | |
| Pre-Amplifier | HP/Agilent | 8449B | 3008A00160 | 2022-07-15 | 2023-07-14 | |
| LISN | SCHAFFNER | NNB42 | 00012 | 2022-08-18 | 2023-07-17 | |
| ESPI Test Receiver | R&S | ESPI 3 | 100379 | 2022-07-15 | 2023-07-14 | |
| LISN | R&S | EZH3-Z5 | 100294 | 2022-07-18 | 2023-07-17 | |
| LISN | R&S | EZH3-Z5 | 100253 | 2022-07-18 | 2023-07-17 | |

2.2 Automation Test Software

For Conducted Emission Test

| Tor Conducted Emission 1000 | |
|---|-------------------|
| Name | Version |
| EZ-EMC | Ver.EMC-CON 3A1.1 |
| For Radiated Emissions | |
| Name | Version |
| EMI Test Software BL410-EV18.91 | V18.905 |
| EMI Test Software BL410-EV18.806 High Frequency | V18.06 |

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3. DESCRIPTION OF TEST MODES

IEEE 802.11b, 802.11g, 802.11n (HT20) mode

The EUT had been tested under operating condition. There are three channels have been tested as following:

| Channel | Frequency (MHz) |
|---------|-----------------|
| Low | 2412 |
| Middle | 2437 |
| High | 2462 |

IEEE 802.11b mode: 1Mbps data rate (worst case) was chosen for full testing. IEEE 802.11g mode: 6Mbps data rate (worst case) was chosen for full testing. IEEE 802.11n (HT20) mode: mcs0 (worst case) were chosen for full testing

IEEE 802.11n (HT40) mode

The EUT had been tested under operating condition. There are three channels have been tested as following:

| Channel | Frequency (MHz) |
|---------|-----------------|
| Low | 2422 |
| Middle | 2437 |
| High | 2452 |

IEEE 802.11n (HT40) mode: mcs0 data rate (worst case) were chosen for full testing

Note: 1. during the test, the duty cycle was set up to 100%.

2. For Radiated spurious emission, 802.11b/11g test at SISO mode, ANT J8 and ANT J9 all have been tested, only worse case J8 is reported; 802.11nH20, 802.11nH40 test at MIMO mode.

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3.0 **Technical Details**

3.1 **Summary of test results**

| Standard | Test Type | Result | Notes |
|---|--|--------|----------|
| ECC Part 15, Paragraph 15.107 & 15.207 | Conducted Emission Test | Pass | Complies |
| FCC Part 15 Subpart C Paragraph 15.247(a)(2) Limit | Spectrum bandwidth of a Orthogonal Frequency Division Multiplex System Limit: 6dB bandwidth>500kHz | Pass | Complies |
| FCC Part 15, Paragraph 15.247(b) | Maximum peak output power Limit: max. 30dBm | Pass | Complies |
| FCC Part 15, Paragraph 15.109,15.205 & 15.209 | Transmitter Radiated Emission Limit: Table 15.209 | Pass | Complies |
| FCC Part 15, Paragraph 15.247(e) | Power Spectral Density Limit: max. 8dBm | Pass | Complies |
| FCC Part 15, Paragraph 15.247(d) | Out of Band Emission and Restricted Band Radiation Limit: 20dB less than peak value of fundamental frequency Restricted band limit: Table 15.209 | Pass | Complies |

3.2 **Test Standards**

FCC Part 15 Subpart & Subpart C, Paragraph 15.247

EUT Modification 4.0

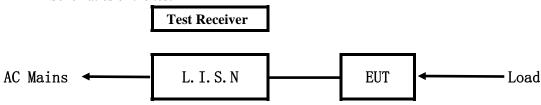
No modification by SHENZHEN TIMEWAY TESTING LABORATORIES.

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5.0 Power Line Conducted Emission Test

5.1 Schematics of the test

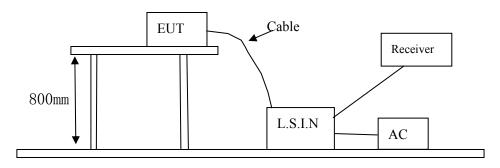


EUT: Equipment Under Test

5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.10-2013. The Frequency spectrum from 0.15 MHz to 30MHz was investigated. The LISN used was 50 ohm/50 uH as specified by section 5.1 of ANSI C63.10 -2013.

Test Voltage: 120V~, 60Hz Block diagram of Test setup



5.3 Configuration of the EUT

The EUT was configured according to ANSI C63.10-2013. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

A. EUT

| Device | Manufacturer | Model | FCC ID |
|-------------|-----------------------|-----------------|-----------------------|
| Comtuna Day | Nanjing Magewell | USB Fusion, | 2 A DAW CA DTUDE 2504 |
| Capture Box | Electronics CO., Ltd. | USB Fusion HDMI | 2AP6W-CAPTURE3506 |

B. Internal Device

| Device | Device Manufacturer | | FCC ID/DOC |
|--------|-----------------------|--|------------|
| N/A | | | |

C. Peripherals

| Device | Manufacturer | Model | Rating |
|--------|--------------|-------|--------|
| N/A | | | |

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5.4 EUT Operating Condition

Operating condition is according to ANSI C63.10-2013.

- A Setup the EUT and simulators as shown on follow
- B Enable AF signal and confirm EUT active to normal condition

5.5 Power line conducted Emission Limit according to Paragraph 15.207

| Frequency | Limits (dB µ V) | | | |
|------------------|------------------|---------------|--|--|
| (MHz) | Quasi-peak Level | Average Level | | |
| $0.15 \sim 0.50$ | 66.0~56.0* | 56.0~46.0* | | |
| $0.50 \sim 5.00$ | 56.0 | 46.0 | | |
| 5.00 ~ 30.00 | 60.0 | 50.0 | | |

Notes:

- 1. *Decreasing linearly with logarithm of frequency.
- 2. The tighter limit shall apply at the transition frequencies

5.6 Test Results

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

Note: All modulations have been tested, only worse case is reported

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A: Conducted Emission on Live Terminal (150kHz to 30MHz)

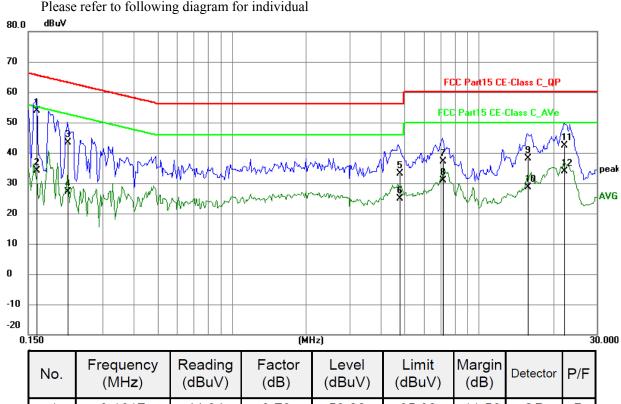
EUT Operating Environment

Temperature: 26°C Humidity: 65%RH Atmospheric Pressure: 101 kPa

EUT set Condition: Keep WIFI Transmitting

Results: Pass

Please refer to following diagram for individual



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector | P/F |
|-----|--------------------|-------------------|----------------|-----------------|-----------------|----------------|----------|-----|
| 1 | 0.1617 | 44.04 | 9.78 | 53.82 | 65.38 | -11.56 | QP | Р |
| 2 | 0.1617 | 24.37 | 9.78 | 34.15 | 55.38 | -21.23 | AVG | Р |
| 3 | 0.2163 | 33.71 | 9.75 | 43.46 | 62.96 | -19.50 | QP | Р |
| 4 | 0.2163 | 17.38 | 9.75 | 27.13 | 52.96 | -25.83 | AVG | Р |
| 5 | 4.7969 | 23.29 | 9.92 | 33.21 | 56.00 | -22.79 | QP | Р |
| 6 | 4.7969 | 14.96 | 9.92 | 24.88 | 46.00 | -21.12 | AVG | Р |
| 7 | 7.1457 | 27.07 | 10.02 | 37.09 | 60.00 | -22.91 | QP | Р |
| 8 | 7.1457 | 20.81 | 10.02 | 30.83 | 50.00 | -19.17 | AVG | Р |
| 9 | 15.7335 | 27.70 | 10.42 | 38.12 | 60.00 | -21.88 | QP | Р |
| 10 | 15.7335 | 18.29 | 10.42 | 28.71 | 50.00 | -21.29 | AVG | Р |
| 11 | 22.1646 | 31.61 | 10.81 | 42.42 | 60.00 | -17.58 | QP | Р |
| 12 | 22.1646 | 23.15 | 10.81 | 33.96 | 50.00 | -16.04 | AVG | Р |

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B: Conducted Emission on Neutral Terminal (150kHz to 30MHz)

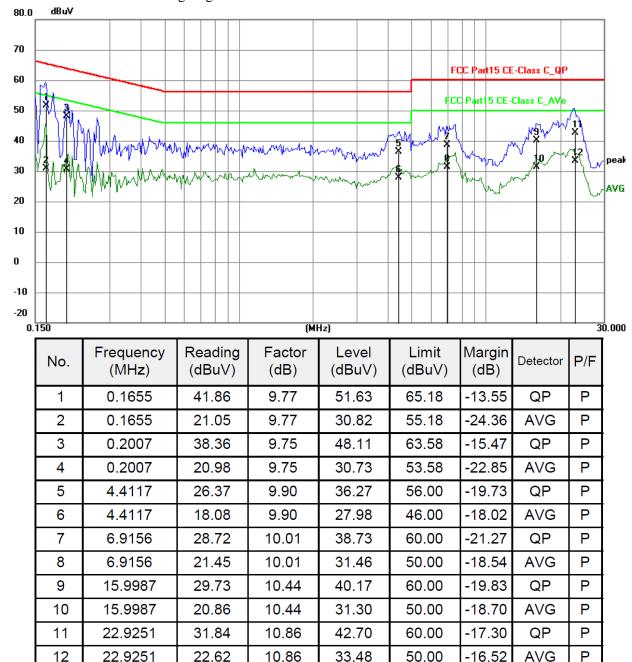
EUT Operating Environment

Temperature: 26°C Humidity: 65%RH Atmospheric Pressure: 101 kPa

EUT set Condition: Keep WIFI Transmitting

Results: Pass

Please refer to following diagram for individual



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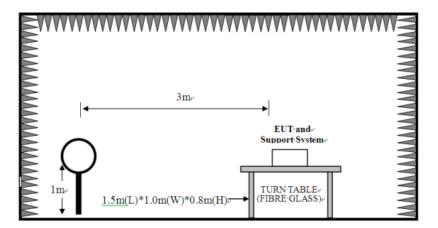


6 Radiated Emission Test

- 6.1 Test Method and test Procedure:
- (1) The EUT was tested according to ANSI C63.10-2013. The radiated test was performed at Timeway EMC Laboratory. This site is on file with the FCC laboratory division, Registration No. 744189
- (2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.10-2013.
- (3) The frequency spectrum from 30 MHz to 25 GHz was investigated. All readings from 30 MHz to 1 GHz are Quasi-peak values with a resolution bandwidth of 120 kHz. F For measurement above 1GHz, peak values with RBW=1MHz VBW=3MHz and PK detector. AV value with RBW=1MHz, VBW=3MHz and RMS detector. Measurements were made at 3 meters.
- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "QP" in the data table.
- (6) The antenna polarization: Vertical polarization and Horizontal polarization.

Block diagram of Test setup

For radiated emissions from 9kHz to 30MHz



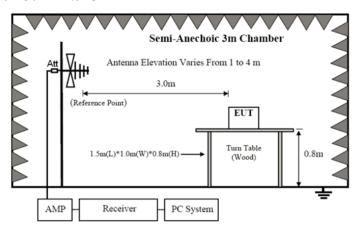
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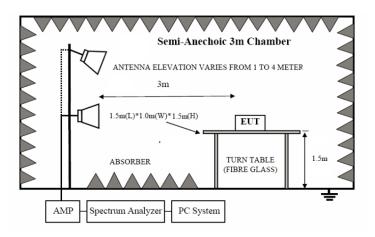
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For radiated emissions from 30MHz to1GHz



For radiated emissions above 1GHz



- 6.2 Configuration of The EUT
 Same as section 5.3 of this report
- 6.3 EUT Operating Condition

 Same as section 5.4 of this report.
- 6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

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Frequencies in restricted band are complied to limit on Paragraph 15.209

| | _ | |
|-----------------------|--------------|-------------------------------|
| Frequency Range (MHz) | Distance (m) | Field strength (dB μ V/m) |
| 30-88 | 3 | 40.0 |
| 88-216 | 3 | 43.5 |
| 216-960 | 3 | 46.0 |
| Above 960 | 3 | 54.0 |

Note:

- 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
- 2. In the Above Table, the higher limit applies at the band edges.
- 3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT
- 4. All modulations have been tested. Worse case was recorded in the test report. 802.11b J8 mode was the worst case

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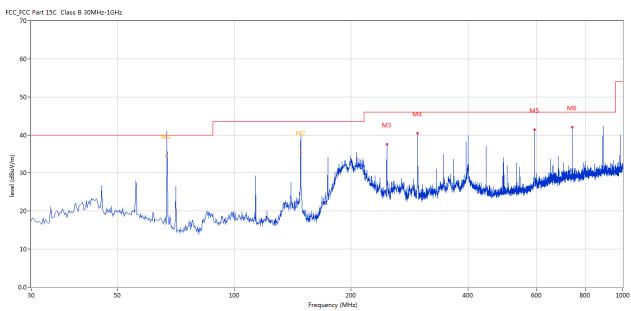


Test result General Radiated Emission Data and Harmonics Radiated Emission Data

Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: **Keep Transmitting**

Results: Pass



| No. | Frequency | Results | Factor | Limit | Over Limit | Detector | Table | Height | ANT | Verdict |
|-----|-----------|----------|--------|----------|------------|----------|--------|--------|------------|---------|
| | (MHz) | (dBuV/m) | (dB) | (dBuV/m) | (dB) | | (o) | (cm) | | |
| 1* | 66.849 | 34.48 | -14.32 | 40.0 | -5.52 | QP | 190.00 | 114 | Horizontal | Pass |
| 2* | 148.237 | 35.42 | -17.16 | 43.5 | -8.08 | QP | 133.00 | 191 | Horizontal | Pass |
| 3 | 246.983 | 37.63 | -12.11 | 46.0 | -8.37 | Peak | 240.00 | 100 | Horizontal | Pass |
| 4 | 296.441 | 40.51 | -11.05 | 46.0 | -5.49 | Peak | 159.00 | 100 | Horizontal | Pass |
| 5 | 592.944 | 41.40 | -5.19 | 46.0 | -4.60 | Peak | 0.00 | 200 | Horizontal | Pass |
| 6 | 741.075 | 42.04 | -3.45 | 46.0 | -3.96 | Peak | 17.00 | 100 | Horizontal | Pass |

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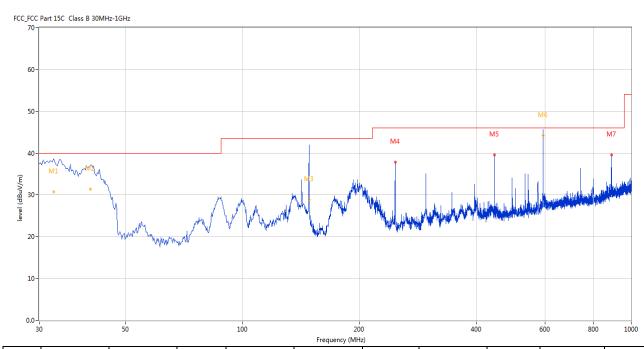


Test result General Radiated Emission Data and Harmonics Radiated Emission Data

Radiated Emission In Vertical (30MHz----1000MHz)

EUT set Condition: **Keep Transmitting**

Results: Pass



| No. | Frequency | Results | Factor | Limit | Over Limit | Detector | Table (o) | Height | ANT | Verdict |
|-----|-----------|----------|--------|----------|------------|----------|-----------|--------|----------|---------|
| | (MHz) | (dBuV/m) | (dB) | (dBuV/m) | (dB) | | | (cm) | | |
| 1* | 32.648 | 30.71 | -14.45 | 40.0 | -9.29 | QP | 293.00 | 101 | Vertical | Pass |
| 2* | 40.556 | 31.44 | -12.19 | 40.0 | -8.56 | QP | 284.00 | 102 | Vertical | Pass |
| 3* | 148.237 | 28.81 | -17.16 | 43.5 | -14.69 | QP | 319.00 | 102 | Vertical | Pass |
| 4 | 246.983 | 37.83 | -12.11 | 46.0 | -8.17 | Peak | 55.00 | 100 | Vertical | Pass |
| 5 | 444.814 | 39.58 | -7.98 | 46.0 | -6.42 | Peak | 302.00 | 100 | Vertical | Pass |
| 6* | 592.948 | 44.22 | -5.19 | 46.0 | -1.78 | QP | 266.00 | 102 | Vertical | Pass |
| 7 | 889.448 | 39.52 | -1.91 | 46.0 | -6.48 | Peak | 0.00 | 200 | Vertical | Pass |

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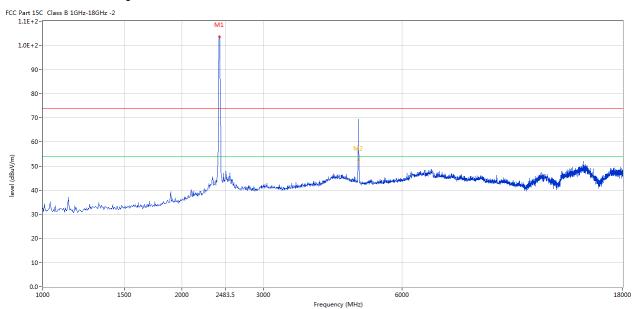
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Please refer to the following test plots for details:

CH01 for 11b at 1Mbps: Horizontal



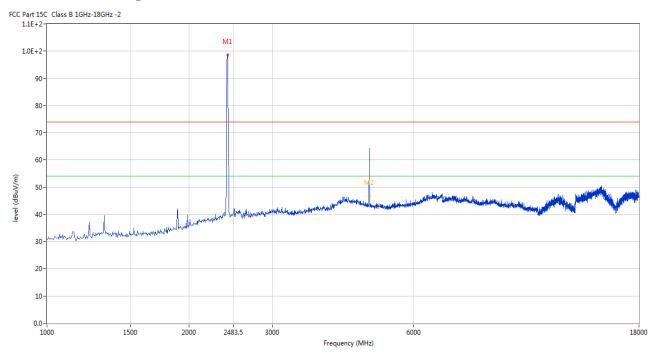
| No. | Frequency | Results | Factor | Limit | Over | Detector | Table | Height | ANT | Verdict |
|-----|-----------|----------|--------|----------|------------|----------|--------|--------|------------|---------|
| | (MHz) | (dBuV/m) | (dB) | (dBuV/m) | Limit (dB) | | (o) | (cm) | | |
| 1 | 2410.647 | 103.51 | -3.57 | 74.0 | 29.51 | Peak | 263.00 | 100 | Horizontal | N/A |
| 2 | 4824.044 | 69.47 | 3.14 | 74.0 | -4.53 | Peak | 263.00 | 100 | Horizontal | Pass |
| 2** | 4824.044 | 52.36 | 3.14 | 54.0 | -1.64 | AV | 263.00 | 100 | Horizontal | Pass |

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CH01 for 11b at 1Mbps: Vertical



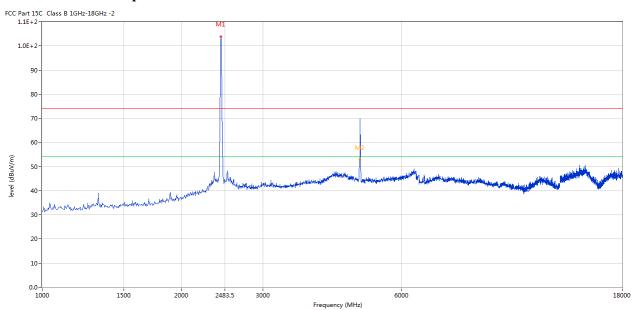
| No. | Frequency | Results | Factor | Limit | Over Limit | Detector | Table (o) | Height | ANT | Verdict |
|-----|-----------|----------|--------|----------|------------|----------|-----------|--------|----------|---------|
| | (MHz) | (dBuV/m) | (dB) | (dBuV/m) | (dB) | | | (cm) | | |
| 1 | 2414.896 | 98.66 | -3.57 | 74.0 | 24.66 | Peak | 180.00 | 100 | Vertical | N/A |
| 2 | 4824.044 | 64.24 | 3.14 | 74.0 | -9.76 | Peak | 204.00 | 100 | Vertical | Pass |
| 2** | 4824.044 | 46.53 | 3.14 | 54.0 | -7.47 | AV | 204.00 | 100 | Vertical | Pass |

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CH06 for 11b at 1Mbps: Horizontal



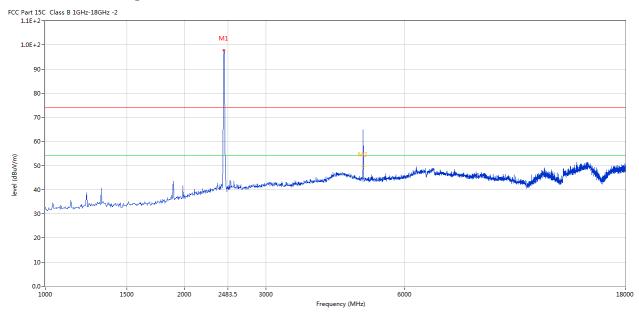
| No. | Frequency | Results | Factor | Limit | Over | Detector | Table | Height | ANT | Verdict |
|-----|-----------|----------|--------|----------|------------|----------|--------|--------|------------|---------|
| | (MHz) | (dBuV/m) | (dB) | (dBuV/m) | Limit (dB) | | (o) | (cm) | | |
| 1 | 2436.141 | 103.72 | -3.57 | 74.0 | 29.72 | Peak | 259.00 | 100 | Horizontal | N/A |
| 2 | 4875.031 | 69.88 | 3.19 | 74.0 | -4.12 | Peak | 259.00 | 100 | Horizontal | Pass |
| 2** | 4875.031 | 52.73 | 3.19 | 54.0 | -1.27 | AV | 259.00 | 100 | Horizontal | Pass |

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CH06 for 11b at 1Mbps: Vertical



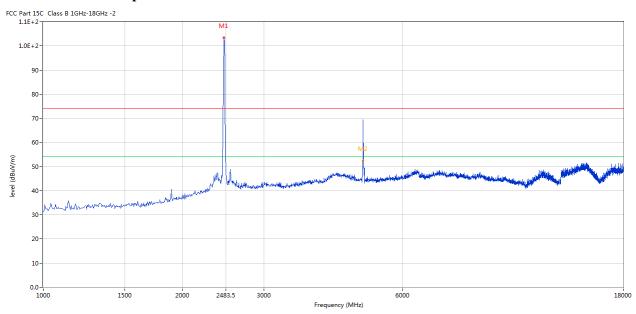
| No. | Frequency | Results | Factor | Limit | Over Limit | Detector | Table | Height | ANT | Verdict |
|-----|-----------|----------|--------|----------|------------|----------|--------|--------|----------|---------|
| | (MHz) | (dBuV/m) | (dB) | (dBuV/m) | (dB) | | (o) | (cm) | | |
| 1 | 2436.141 | 97.72 | -3.57 | 74.0 | 23.72 | Peak | 199.00 | 100 | Vertical | N/A |
| 2 | 4875.031 | 66.92 | 3.19 | 74.0 | -7.08 | Peak | 183.00 | 100 | Vertical | Pass |
| 2** | 4875.031 | 49.74 | 3.19 | 54.0 | -4.26 | AV | 183.00 | 100 | Vertical | Pass |

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CH11 for 11b at 1Mbps: Horizontal



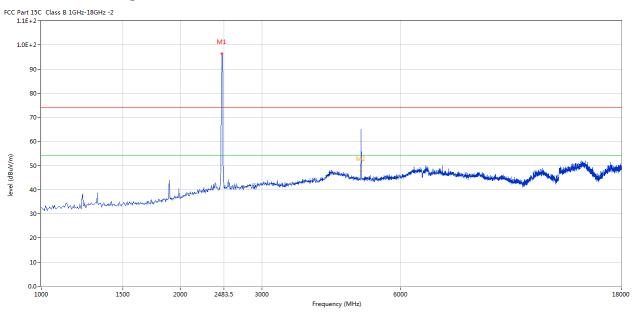
| No. | Frequency | Results | Factor | Limit | Over | Detector | Table | Height | ANT | Verdict |
|-----|-----------|----------|--------|----------|------------|----------|--------|--------|------------|---------|
| | (MHz) | (dBuV/m) | (dB) | (dBuV/m) | Limit (dB) | | (o) | (cm) | | |
| 1 | 2461.635 | 103.31 | -3.57 | 74.0 | 29.31 | Peak | 260.00 | 100 | Horizontal | N/A |
| 2 | 4921.770 | 69.46 | 3.27 | 74.0 | -4.54 | Peak | 260.00 | 100 | Horizontal | Pass |
| 2** | 4921.770 | 52.42 | 3.27 | 54.0 | -1.58 | AV | 260.00 | 100 | Horizontal | Pass |

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CH11 for 11b at 1Mbps: Vertical



| No. | Frequency | Results | Factor | Limit | Over Limit | Detector | Table | Height | ANT | Verdict |
|-----|-----------|----------|--------|----------|------------|----------|--------|--------|----------|---------|
| | (MHz) | (dBuV/m) | (dB) | (dBuV/m) | (dB) | | (o) | (cm) | | |
| 1 | 2461.635 | 96.38 | -3.57 | 74.0 | 22.38 | Peak | 167.00 | 100 | Vertical | N/A |
| 2 | 4921.770 | 64.98 | 3.27 | 74.0 | -9.02 | Peak | 188.00 | 100 | Vertical | Pass |
| 2** | 4921.770 | 47.95 | 3.27 | 54.0 | -6.05 | AV | 188.00 | 100 | Vertical | Pass |

Note: 1. Result Level = Reading + Factor

- 2. Factor= AF + Cable Loss- Preamp
- 3. Margin = Result– Limit
- 4. For radiated Emissions from 18-25GHz and below 30MHz, it is only the floor noise.
- 5. The peak value less than the AV limit, no necessary to take down the AV measurement result.

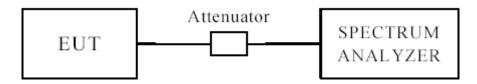
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7.0 6dB Bandwidth Measurement

7.1 Test Setup



7.2 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is >500 kHz

7.3 Test Procedure

- 1. Set resolution bandwidth (RBW) = 100 kHz
- 2. Set the video bandwidth (VBW) \geq 3 x RBW.
- 3. Detector = Peak.
- 4. Trace mode = max hold.
- 5. Sweep = auto couple.
- 6. Allow the trace to stabilize.
- 7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

7.4 Test Result

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6dB Occupied Bandwidth

| EUT | | Caj | pture Box | | Mod | lel | USB | Fusion |
|----------|-------------------------|------------|---------------------------|-------------------------|-----------|------------------------|--------|------------|
| Mode | | 8 | 302.11b | | Input Vol | tage | 120 | 0V~ |
| Temperat | ure | 24 deg. C, | | | Humidity | | 56% RH | |
| Channel | Channel Frequency (MHz) | | Data Transfer Rate (Mbps) | 6 dB Bandwidth (MHz) | | Minimum Limit (MHz) | | Pass/ Fail |
| 1 | | 2412 | 1 | 10.16 | | | 0.5 | Pass |
| 6 | | 2437 | 1 | 10 | .16 | | 0.5 | Pass |
| 11 | | 2462 | 1 | 10 | .16 | | 0.5 | Pass |
| 1 | | 2412 | 11 11 | | .30 | | 0.5 | Pass |
| 6 | | 2437 11 | | 11 | .30 | | 0.5 | Pass |
| 11 | 2462 | | 11 | 11.30 | | 0.5 | | Pass |

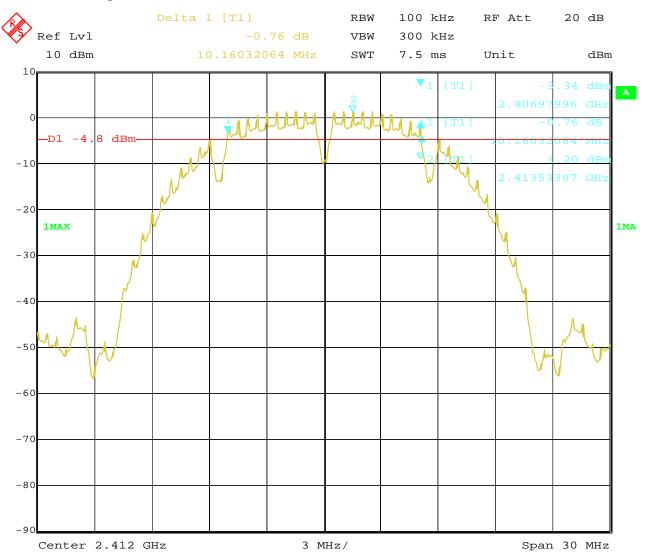
Note: Two antennas (J8 and J9) were tested and only the worst cased was recorded in the test report. J8 was the worst case.

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1. 802.11b at 1Mbps of CH01

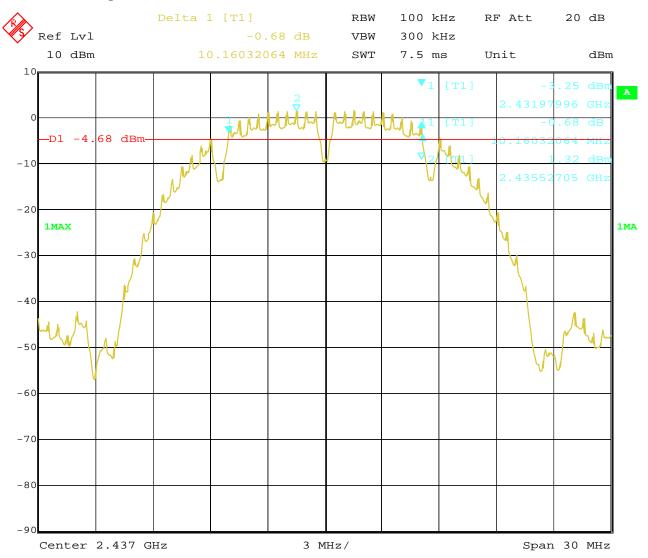


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2. 802.11b at 1Mbps of CH06

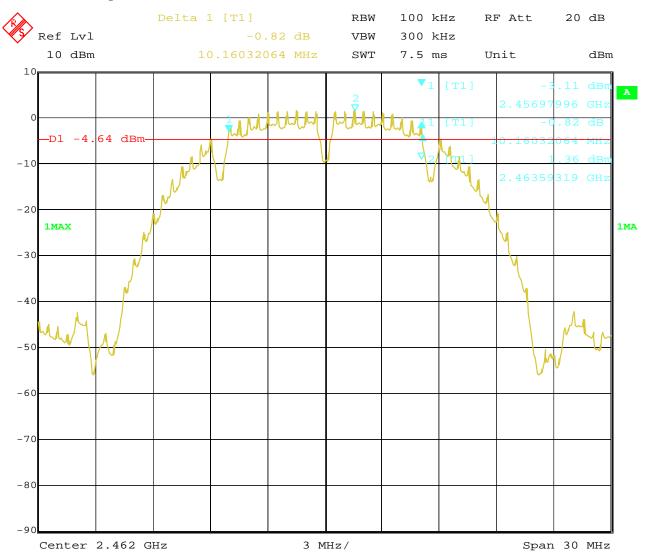


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3. 802.11b at 1Mbps of CH11

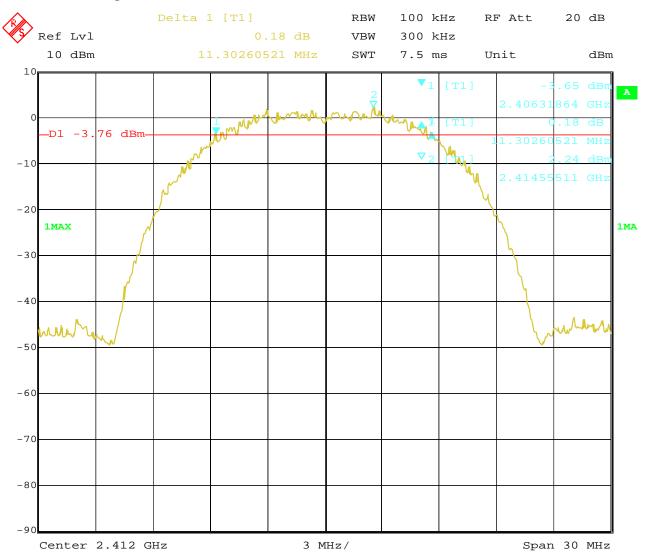


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4. 802.11b at 11Mbps of CH01

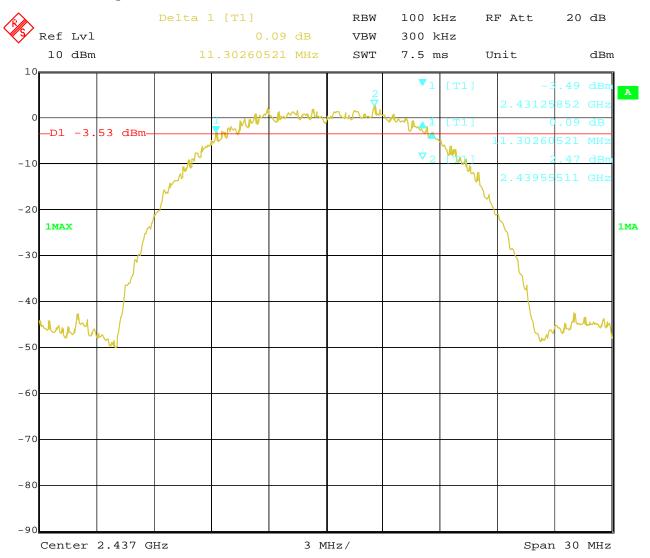


Date: 17.NOV.2022 15:15:32 Report No.: TW2210083E Page 30 of 104

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5. 802.11b at 11Mbps of CH06

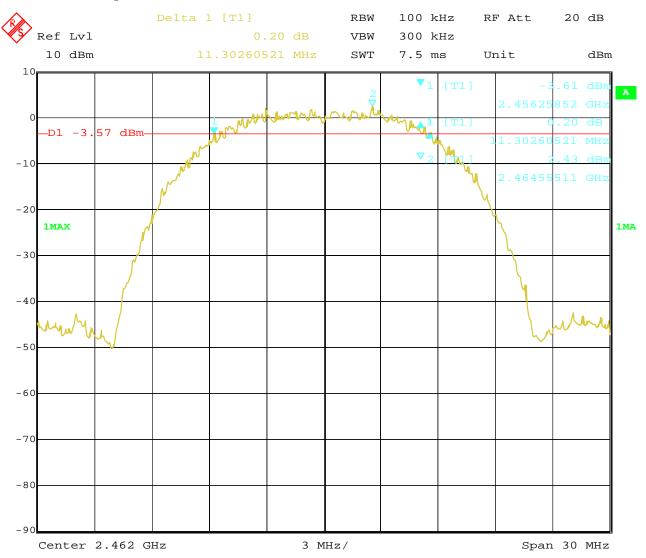


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6. 802.11b at 11Mbps of CH11



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Date: 2023-01-10



6dB Occupied Bandwidth

| EUT | | Caj | pture Box | | Mod | lel | US | B Fusion | |
|-------------|---------|-----------------------|---------------------------|-------|----------------|-----------------------|-------|------------|--|
| Mode | | 8 | 302.11g | | Input Voltage | | 120V~ | | |
| Temperature | | 24 deg. C, | | | Humidity | | | 56% RH | |
| Channel | | el Frequency (MHz) | Data Transfer Rate (Mbps) | | ndwidth Hz) | h Minimum Limit (MHz) | | Pass/ Fail | |
| 1 | | 2412 | 6 | 16.35 | | | 0.5 | Pass | |
| 6 | | 2437 | 6 | 16 | .35 | | 0.5 | Pass | |
| 11 | 11 2462 | | 6 | 16 | .35 | 0.5 | | Pass | |

Note: Two antennas (J8 and J9) were tested and only the worst cased was recorded in the test report. J8 was the worst case.

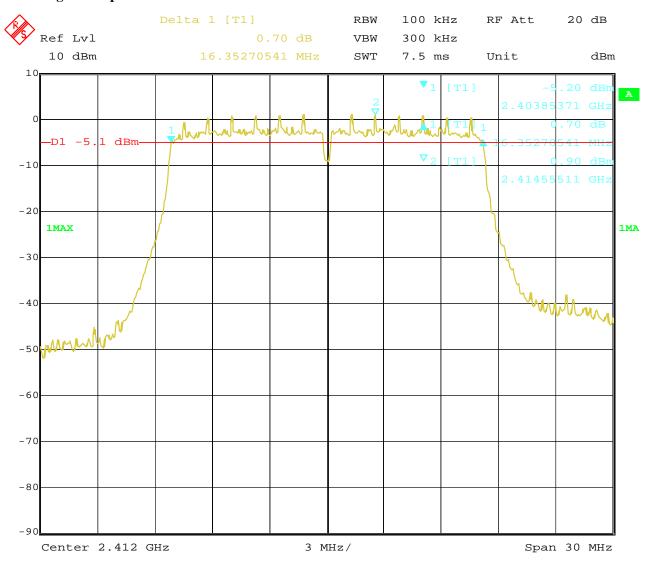
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Test Plots:

1. 802.11g at 6Mbps of CH01



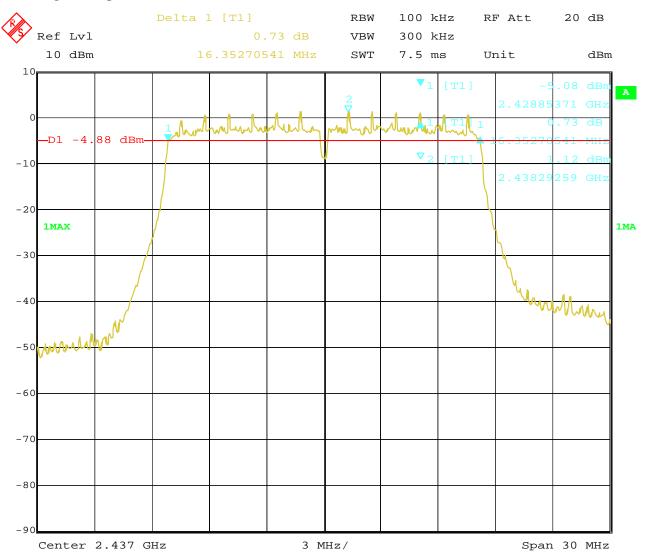
17.NOV.2022 15:01:53 Date:

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2. 802.11g at 6Mbps of CH06

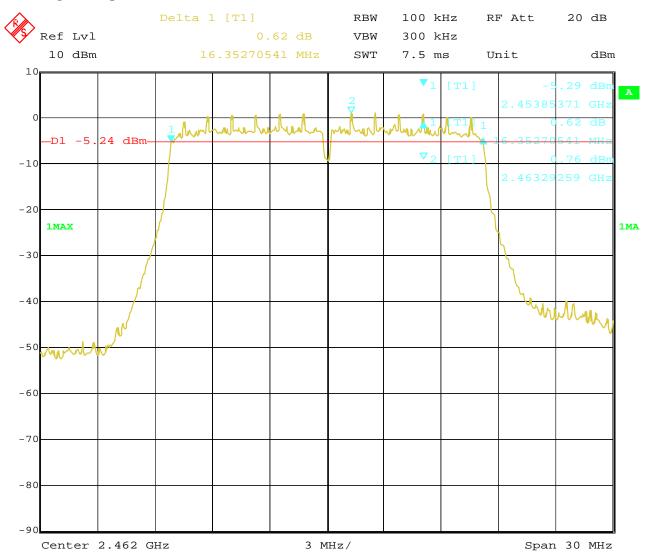


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3. 802.11g at 6Mbps of CH11



Date: 17.NOV.2022 14:44:12

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Date: 2023-01-10



6dB Occupied Bandwidth

| EUT | | Ca | pture Box | | Mod | lel | USB | Fusion |
|-------------|-------------------------|------------|---------------------------|-------|-------------------------|-----|-------------------|------------|
| Mode | | 802 | .11n HT20 | | Input Voltage | | 120V~ | |
| Temperature | | 24 deg. C, | | | Humidity | | | 6 RH |
| Channel | Channel Frequency (MHz) | | Data Transfer Rate (Mbps) | | 6 dB Bandwidth (MHz) | | mum Limit MHz) | Pass/ Fail |
| 1 | | 2412 | mcs0 | 17 | .63 | | 0.5 | Pass |
| 6 | 2437 | | mcs0 | 17.62 | | | 0.5 | Pass |
| 11 | 2462 | | mcs0 | 17 | .62 | | 0.5 | Pass |

Note: Two antennas (J8 and J9) were tested and only the worst cased was recorded in the test report. J8 was the worst case.

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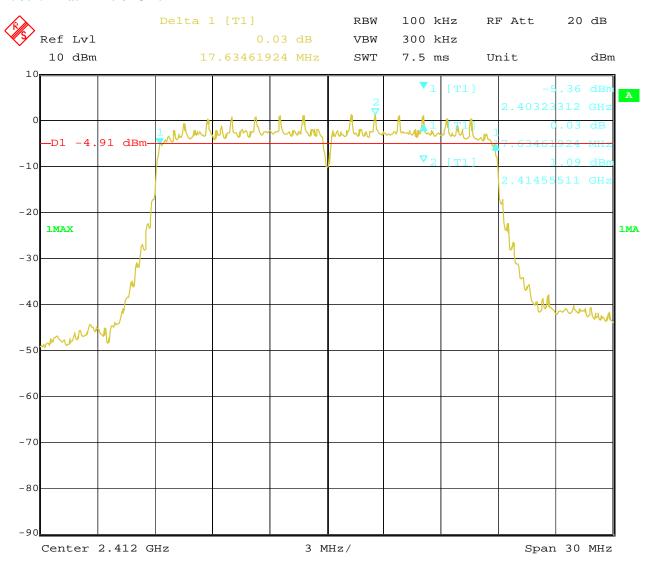
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Test Plots:

1. 802.11n at HT20 of CH01



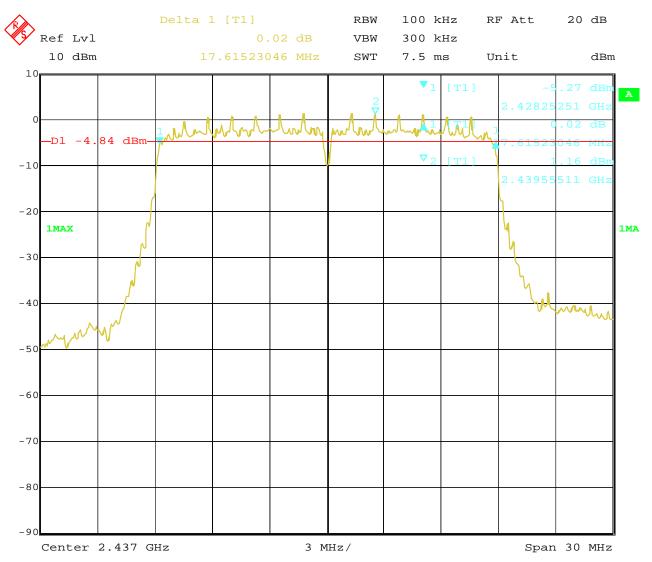
17.NOV.2022 14:27:40 Date:

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2. 802.11n at HT20 of CH06

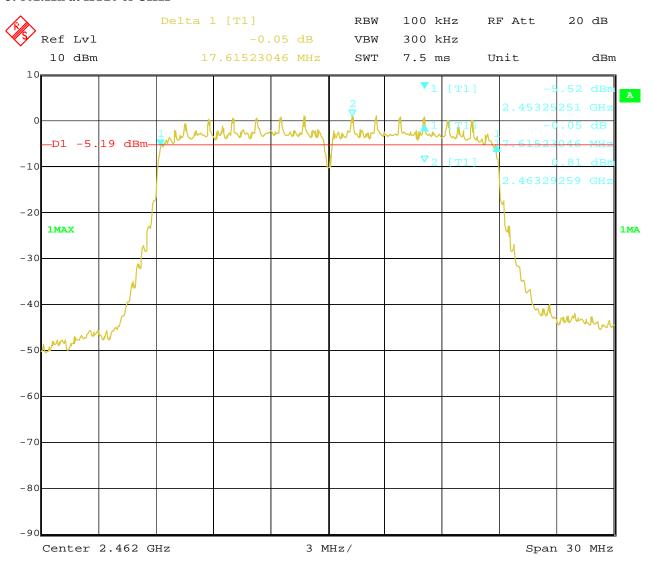


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3. 802.11n at HT20 of CH11



Date: 17.NOV.2022 14:39:52 Report No.: TW2210083E Page 40 of 104

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6dB Occupied Bandwidth

| EUT | | Ca | pture Box | | Mod | lel | USB | Fusion |
|----------|---------|-----------------------|---------------------------|----|----------------|------------------------|-----|------------|
| Mode | | 802 | .11n HT40 | | Input Volt | tage | 120 | 0V~ |
| Temperat | ure | 24 | 4 deg. C, | | Humidity | | 56% | 6 RH |
| Channel | | el Frequency (MHz) | Data Transfer Rate (Mbps) | | ndwidth Hz) | Minimum Limit (MHz) | | Pass/ Fail |
| 3 | | 2422 | mcs0 | 35 | .87 | | 0.5 | Pass |
| 6 | | 2437 | mcs0 | 36 | .02 | | 0.5 | Pass |
| 9 | 2452 mc | | mcs0 | 36 | .05 | | 0.5 | Pass |

Note: Two antennas (J8 and J9) were tested and only the worst cased was recorded in the test report. J8 was the worst case.

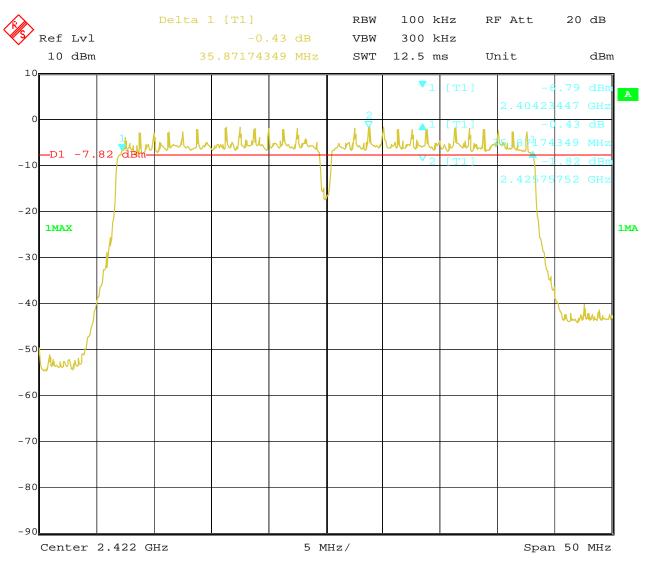
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Test Plots:

1. 802.11n at HT40 of CH03



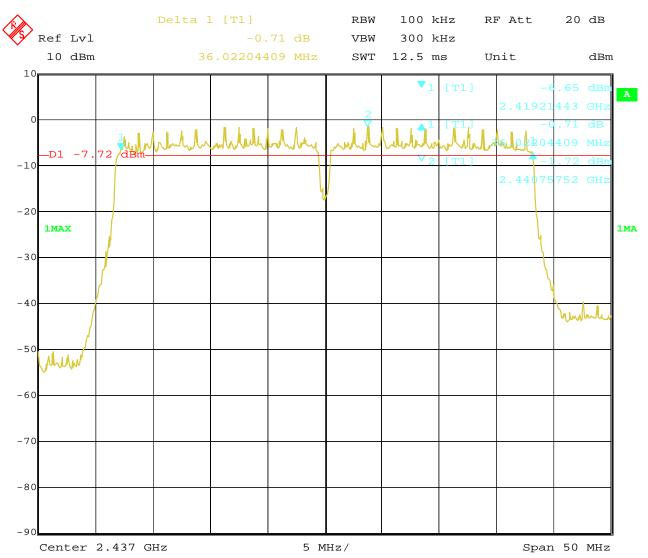
17.NOV.2022 15:27:08 Date:

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2. 802.11n at HT40 of CH06

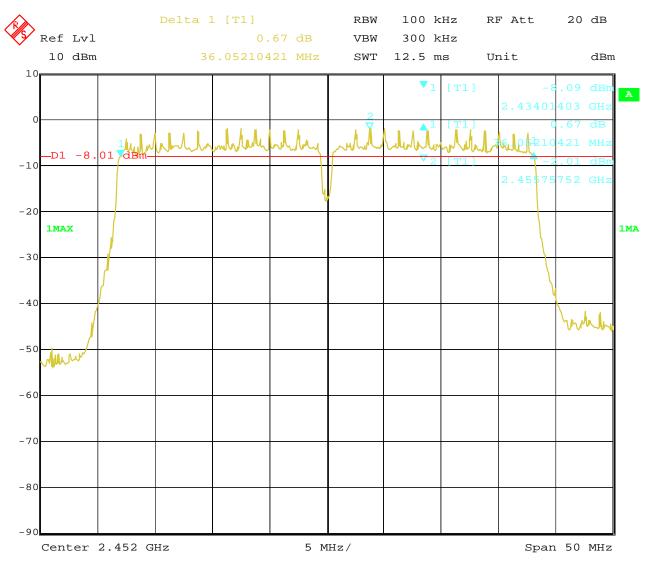


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3. 802.11n at HT40 of CH09



Date: 17.NOV.2022 15:33:16 Report No.: TW2210083E

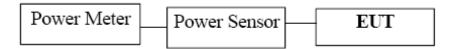
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8. Maximum Output Power

8.1 Test Setup



8.2 Limits of Maximum Output Power

The Maximum Output Power Measurement is 30dBm.

8.3 Test Procedure

The RF power output was measured with a Power meter connected to the RF Antenna connector (conducted measurement) while EUT was operating in transmit mode at the appropriate centre frequency.

Note: The Peak power was measured

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8.4Test Results

| EUT | | | C | apture B | ox | | | Model | USE | 3 Fusion |
|----------|--------------|-----------|---------|-----------|----------|-------|---|--------------|-----|------------|
| Mode | | | 802.11b | | | | | Test Voltage | | 20V~ |
| Temperat | ure | | 2 | 24 deg. C | Ξ, | | | Humidity | 56 | % RH |
| Channel | Frequ (MH | uency | • | | J9 Power | | | Power Li | | Pass/ Fail |
| | (IVIII | <i>L)</i> | dBm | mW | dBm | mW | 7 | (dDill) | | |
| 1 | 2412 | | 15.50 | 35.48 | 15.21 | 33.19 |) | 30 | | Pass |
| 6 | 2437 | | 15.56 | 35.97 | 15.27 | 33.65 | 5 | 30 | | Pass |
| 11 | 2462 | | 15.71 | 37.24 | 15.53 | 35.73 | 3 | 30 | | Pass |

Note: 1. At finial test to get the worst-case emission at 11Mbps for CH01, CH06 and CH11

2. The result basic equation calculation as follow:Power Output = Power Reading + Cable loss + Attenuator

3. The worse case was recorded

| EUT | | Capture Box Model | | | Iodel | USB F | usion | | |
|----------|---------------|-------------------|-------|---------|-------|-------|---------|-------------------|------------|
| Mode | | | 80 | 02.11g | | Test | Voltage | 120 | V~ |
| Temperat | ure | | 24 | deg. C, | | Hu | midity | 56% | RH |
| Channel | Frequ (MH: | uency | J8 P | Power | J9 P | ower | | ver Limit dBm) | Pass/ Fail |
| | (10111. | <i>L)</i> | dBm | mW | dBm | mW | (| ubiii) | |
| 1 | 2412 | | 17.99 | 62.95 | 17.76 | 59.70 | | 30 | Pass |
| 6 | 2437 | | 18.16 | 65.46 | 18.01 | 63.24 | | 30 | Pass |
| 11 | 2462 | | 17.84 | 60.81 | 17.63 | 57.94 | | 30 | Pass |

Note: 1. At finial test to get the worst-case emission at 6Mbps for CH01, CH06 and CH11

2. The result basic equation calculation as follow:

Power Output = Power Reading + Cable loss + Attenuator

3. The worse case was recorded

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| EUT | | Capture Box | | | N | Model | | USB Fusion | | | |
|----------|--------------|----------------|-------|----------|-------|-------|------------------------|------------|----------------|------------|--|
| Mode | | | 802.1 | ln (HT20 |) | Test | Voltage | 120V~ | | | |
| Temperat | ure | | 24 | deg. C, | | Hu | midity | | 56% RH | | |
| Channel | Frequ (MH | uency J8 Power | | ower | J9 Po | ower | Total Max Power Out | | Power Limit | Pass/ Fail | |
| | (IVIII | Z) | dBm | mW | dBm | mW | -MIMO (dl | 3m) | (dBm) | | |
| 1 | 2412 | | 18.18 | 65.77 | 17.93 | 62.09 | 21.07 | | 30 | Pass | |
| 6 | 2437 | | 18.31 | 67.76 | 18.16 | 65.46 | 21.25 | | 30 | Pass | |
| 11 | 2462 | | 18.18 | 65.77 | 17.95 | 62.37 | 21.08 | · | 30 | Pass | |

Note: 1. At finial test to get the worst-case emission at mcs0 of 11n HT20 for CH01, CH06 and CH11

2. The result basic equation calculation as follow: Power Output = Power Reading + Cable loss + Attenuator

3. The worse case was recorded

| EUT | | Capture Box | | | | Model | | USB Fusion | | |
|----------|------------|-------------|-------|------------|-------|------------|--------------------------------|------------|-------------------------|------------|
| Mode | | | 802. | 11n (HT4 | 0) | Tes | t Voltage | | 120 | V~ |
| Temperat | ure | | 24 | 4 deg. C, | | Н | umidity | 56% RH | | |
| Channel | Freque (MH | uency z) | J8 P | ower mW | J9 Po | ower mW | Total Ma Power Output-MI (dBm) | | Power Limit (dBm) | Pass/ Fail |
| 3 | 2422 | | 18.58 | 72.11 | 18.32 | 67.92 | 21.46 | | 30 | Pass |
| 6 | 2437 | | 18.74 | 74.82 | 18.54 | 71.45 | 21.65 | | 30 | Pass |
| 9 | 2452 | | 18.36 | 68.55 | 18.10 | 64.57 | 21.24 | | 30 | Pass |

Note: 1. At finial test to get the worst-case emission at mcs0 of 11n HT40 for CH03, CH06 and CH09

2. The result basic equation calculation as follow: Power Output = Power Reading + Cable loss + Attenuator

3. The worse case was recorded

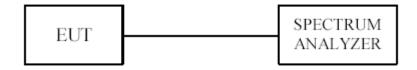
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9. Power Spectral Density Measurement

9.1 Test Setup



9.2 Limits of Power Spectral Density Measurement

The Maximum Power Spectral Density Measurement is 8dBm/3kHz.

9.3 Test Procedure

- 1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
- 2. Set the RBW = 10 kHz.
- 3. Set the VBW \geq 30 kHz.
- 4. Set the span to 1.5 times the DTS channel bandwidth.
- 5. Detector = peak.
- 6. Sweep time = auto couple.
- 7. Trace mode = max hold.
- 8. Allow trace to fully stabilize.
- 9. Use the peak marker function to determine the maximum amplitude level.
- 10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.
- 11. The resulting peak PSD level must be $\leq 8 \text{ dBm/3kHz}$.

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9.4Test Result

| EUT | | | Capture Box | Model | | USB Fusi | on |
|----------|-----|----------------|------------------|-----------------------|--------|------------------|------------|
| Mode | | 802.11b 11Mbps | | Test Voltage | | 120V~ | |
| Temperat | ure | | 24 deg. C, | Humidity | 56% RH | | I |
| Channel | - | uency IHz) | J8 Power Spectra | l Density (dBm/10kHz) | | Limit (dBm/3kHz) | Pass/ Fail |
| 1 | 24 | 412 | | -9.05 | | 8 | Pass |
| 6 | 24 | 437 | | -8.86 | | 8 | Pass |
| 11 | 24 | 462 | | -8.70 | | 8 | Pass |

Note: J8 and J9 were tested and J8 was the worst case

| EUT | | | Capture Box | Model | USB Fus | sion | |
|----------|------|-------|----------------------|---------------------|------------|------------|--|
| Mode | | | 802.11b 1Mbps | Test Voltage | 120V | ~ | |
| Temperat | ure | | 24 deg. C, | Humidity | 56% RH | | |
| Channel | Freq | uency | Ant 2 Power Spectral | Density (dBm/10kHz) | Limit | Pass/ Fail | |
| | (M | (Hz) | | | (dBm/3kHz) | | |
| 1 | 24 | 112 | -10 | .13 | 8 | Pass | |
| 6 | 24 | 137 | -10 | .30 | 8 | Pass | |
| 11 | 24 | 162 | - 9. | 89 | 8 | Pass | |

Note: J8 and J9 were tested and J8 was the worst case

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| STING LAD | |
|-----------|---|
| | 1 |
| | |
| | |

| EUT | | | Capture Box | Model | | USB Fusio | n |
|----------|------|---------------|---------------------|-----------------------|--------|------------|------------|
| Mode | | 802.11g 6Mbps | | Test Voltage | | 120V~ | |
| Temperat | ure | | 24 deg. C, | Humidity | 56% RH | | |
| Channel | Freq | uency | Ant 2 Power Spectra | l Density (dBm/10kHz) | | Limit | Pass/ Fail |
| | (M | IHz) | | | | (dBm/3kHz) | |
| 1 | 24 | 412 | -] | 10.38 | | 8 | Pass |
| 6 | 24 | 437 | -] | 10.33 | | 8 | Pass |
| 11 | 24 | 162 | -1 | 10.40 | | 8 | Pass |

Note: J8 and J9 were tested and J8 was the worst case

| EUT | | | Capture Box | | | Model | | USB Fus | ion |
|----------|------------|-------------------|------------------------------|--------|--------------|--|-------|---------------------|------------|
| Mode | ; | 802.11n HT20 mcs0 | | | Test Voltage | | 120V~ | | |
| Temperat | ture | | 24 deg. C, | | | Humidity | | 56% RI | H |
| Channel | Freque (MF | - | J8 Power Spectral Density | Factor | • | Total Power Spectra Density-MIMO (dBm/10kHz) | al | Limit (dBm/3kHz) | Pass/ Fail |
| 1 | 241 | 12 | -11.06 | 3.01 | | -8.05 | | 8 | Pass |
| 6 | 243 | 37 | -11.00 | 3.01 | | -7.99 | | 8 | Pass |
| 11 | 246 | 62 | -11.26 | 3.01 | | -8.25 | | 8 | Pass |

Note: 1. Total Power Spectral Density = J8 Power Spectral Density + Factor

^{2.} Factor=10log2=3.01

^{3.} J8 and J9 were tested and J8 was the worst case

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| EUT | | | Capture Box | | Model | | USB Fusio | n |
|----------|------|-------------------|---------------------------------|--------|--|---|---------------------|------------|
| Mode | ; | 802.11n HT40 mcs0 | | s0 | Test Voltage | | 120V~ | |
| Temperat | ture | | 24 deg. C, | | Humidity | | 56% RH | |
| Channel | _ | uency Hz) | Ant 2 Power Spectral Density | Factor | Total Power Spe Density-MIM (dBm/10kHz | O | Limit (dBm/3kHz) | Pass/ Fail |
| 3 | 24 | 122 | -14.51 | 3.01 | -11.50 | | 8 | Pass |
| 6 | 24 | 137 | -13.78 | 3.01 | -10.77 | | 8 | Pass |
| 9 | 24 | 152 | -14.52 | 3.01 | -11.51 | | 8 | Pass |

Note: 1. Total Power Spectral Density = J8 Power Spectral Density + Factor

^{2.} Factor=10log2=3.01

^{3.} J8 and J9 were tested and J8 was the worst case

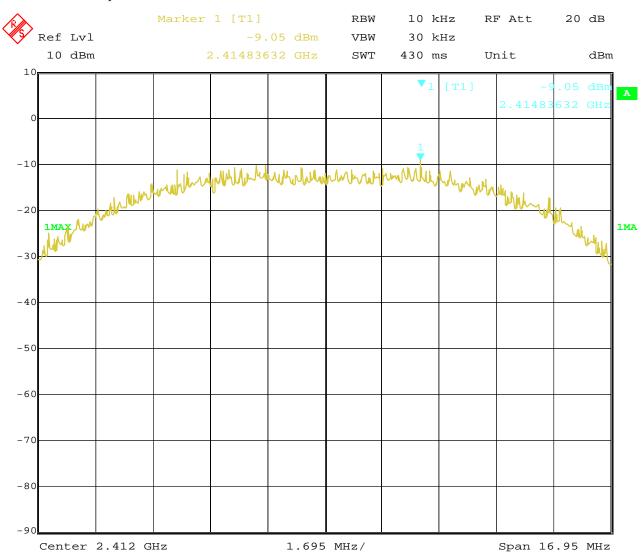
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9.5 Photo of Power Spectral Density Measurement

1.802.11b at 11Mbps of CH01



17.NOV.2022 16:55:57 Date:

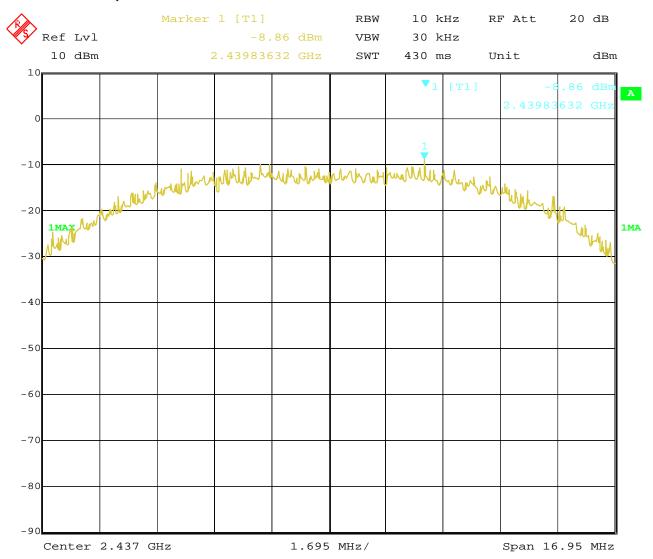
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2. 802.11b at 11Mbps at CH06



Date: 17.NOV.2022 16:57:32

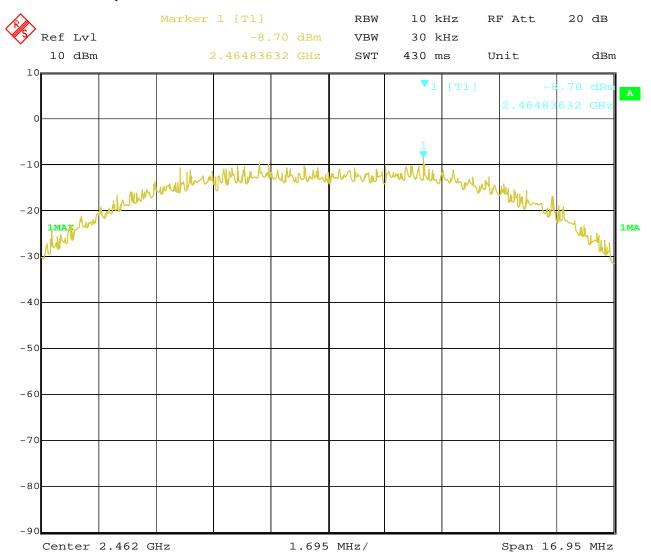
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3. 802.11b at 11Mbps of CH11



Date: 17.NOV.2022 16:59:40

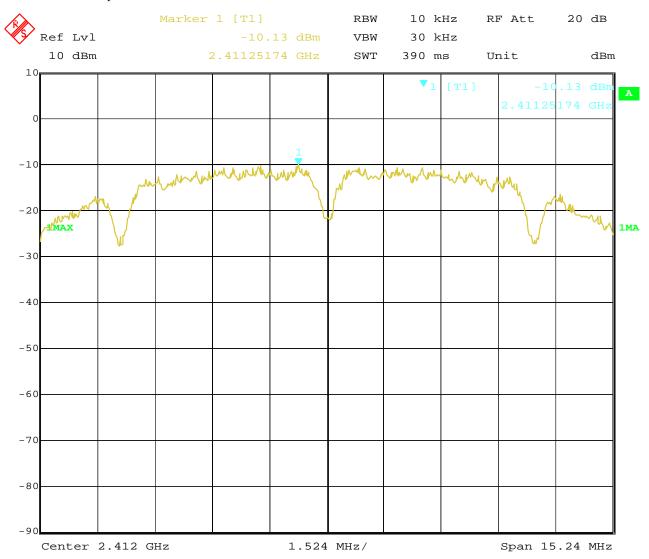
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4. 802.11b at 1Mbps of CH1



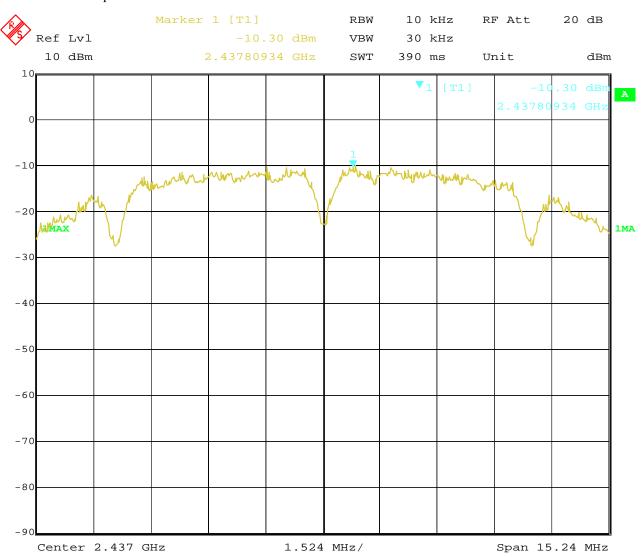
Date: 17.NOV.2022 16:53:36 Page 55 of 104

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5. 802.11b at 1Mbps of CH6

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Date: 17.NOV.2022 16:52:48

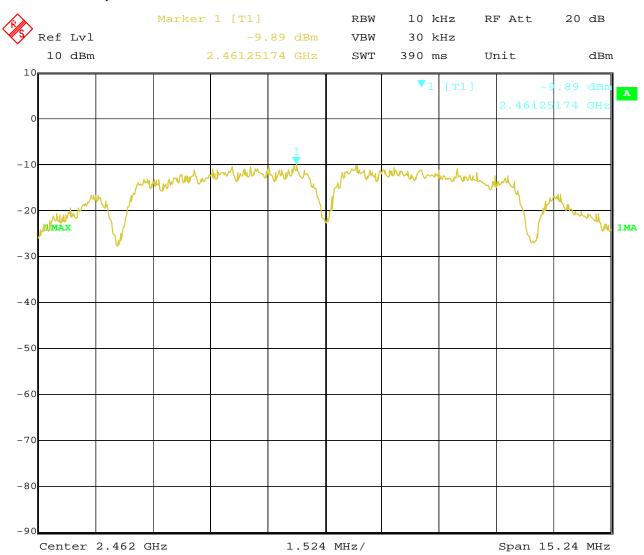
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6. 802.11b at 1Mbps of CH11



Date: 17.NOV.2022 16:52:15

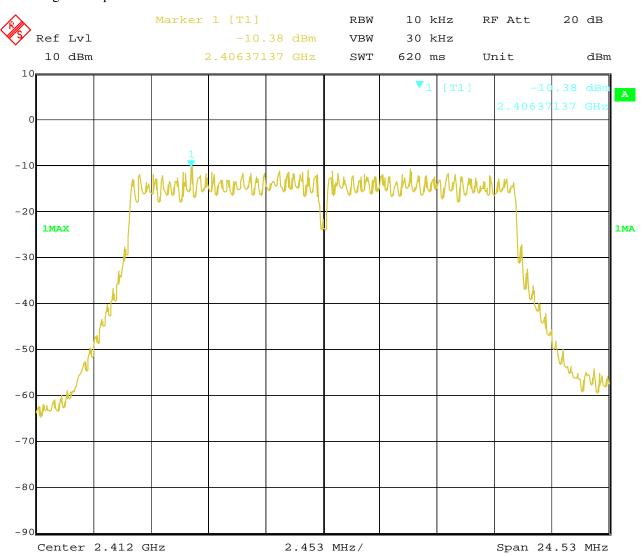
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7. 802.11g at 6Mbps of CH1



Date: 17.NOV.2022 17:06:54

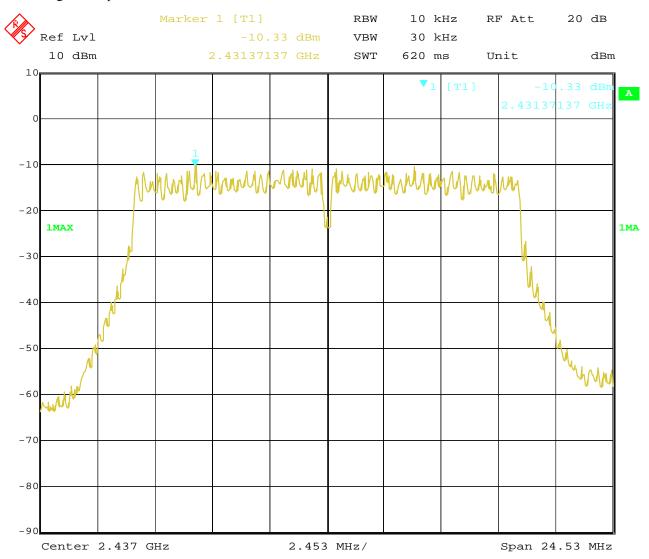
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8. 802.11g at 6Mbps of CH6



Date: 17.NOV.2022 17:05:15

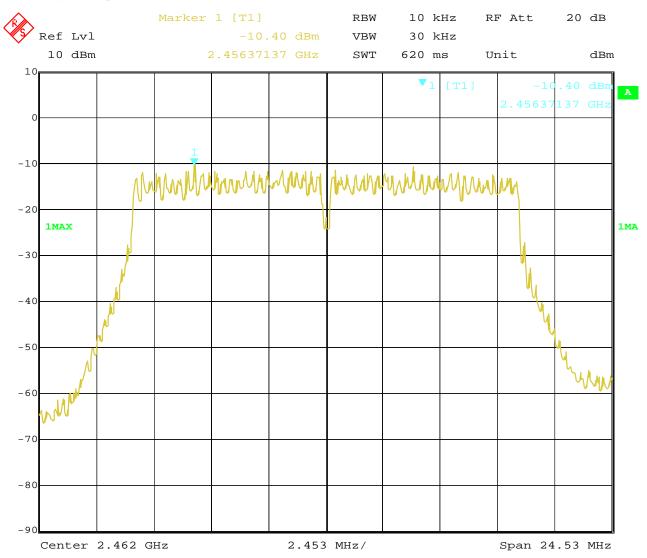
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9. 802.11g at 6Mbps of CH11



Date: 17.NOV.2022 17:02:20

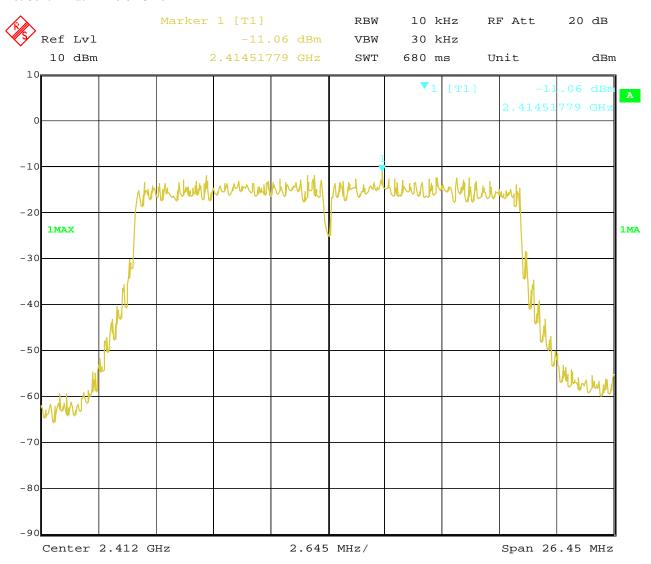
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10. 802.11n at HT20 of CH01

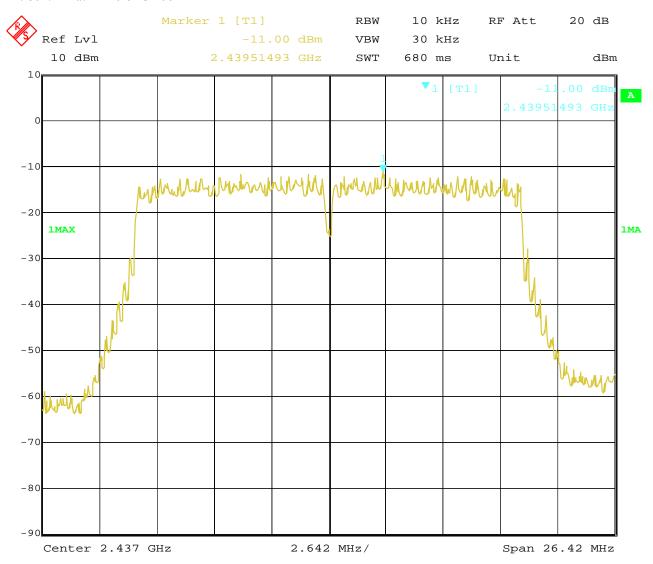


Date: 17.NOV.2022 16:43:33 Report No.: TW2210083E Page 61 of 104

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11. 802.11n at HT20 of CH06

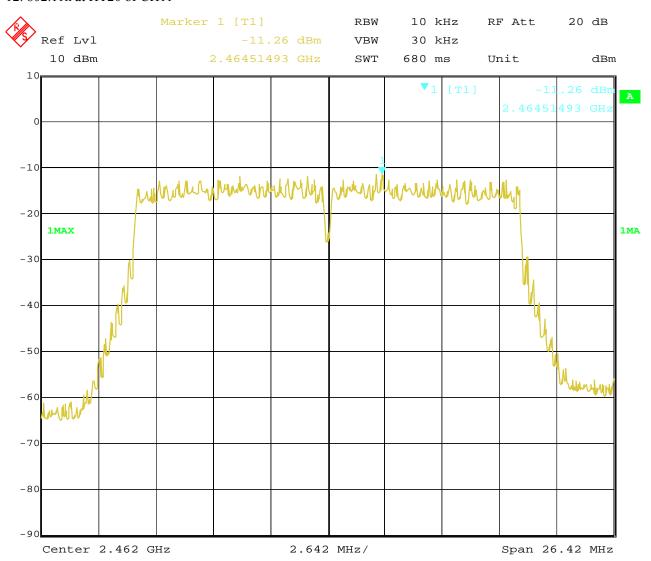


Date: 17.NOV.2022 16:47:14 Report No.: TW2210083E Page 62 of 104

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12. 802.11n at HT20 of CH11

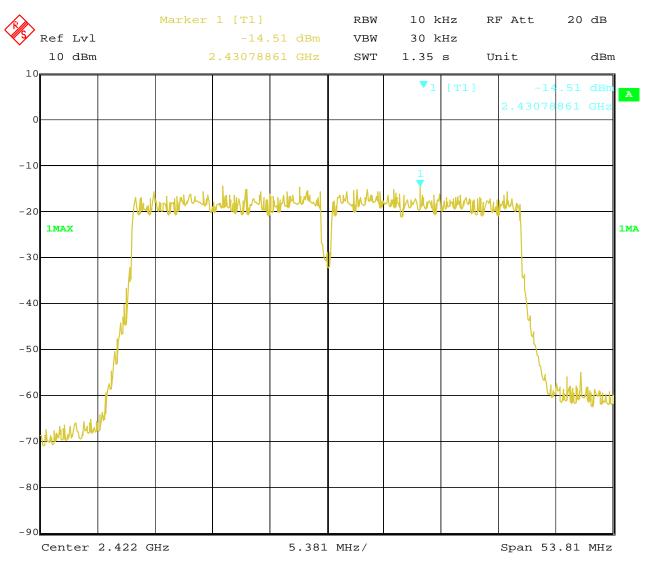


Date: 17.NOV.2022 16:51:22 Report No.: TW2210083E Page 63 of 104

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13. 802.11n at HT40 of CH03



Date: 17.NOV.2022 17:08:54

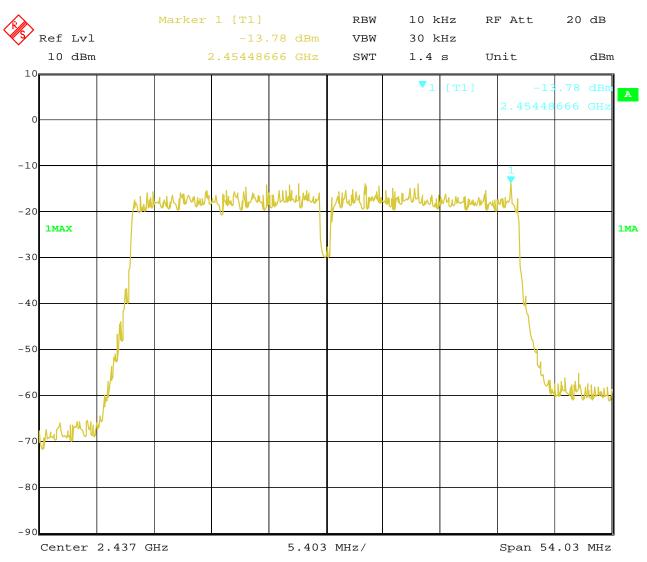
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14. 802.11n at HT40 of CH06



Date: 17.NOV.2022 17:09:51

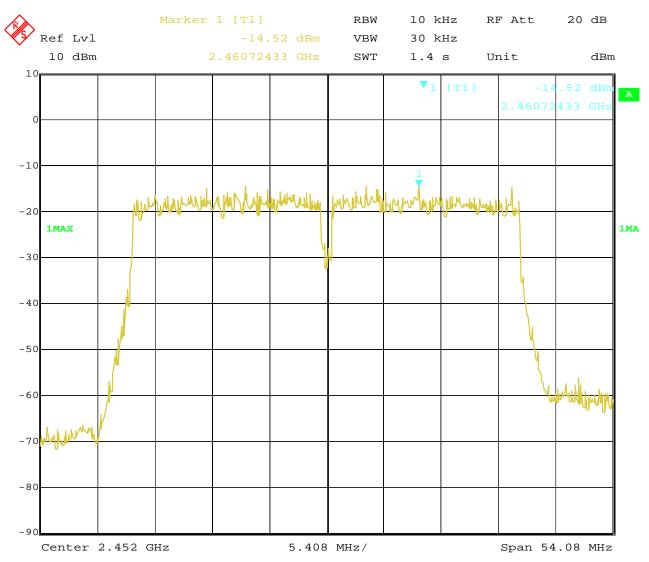
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15. 802.11n at HT40 of CH09

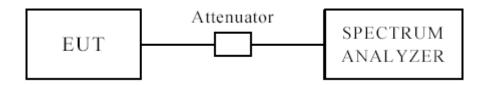


Date: 17.NOV.2022 17:10:39 Report No.: TW2210083E Page 66 of 104

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10 Out of Band Measurement 10.1 Test Setup for band edge



The restricted band requirement based on radiated emission test; please see the clause 6 for the test setup

10.2 Limits of Out of Band Emissions Measurement

- 1. Below –20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).
- 2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.

10.3 Test Procedure

For signals in the restricted bands above and below the 2.4-2.483GHz allocated band a measurement was made of radiated emission test. (Peak values with RBW=VBW=1MHz and PK detector. AV value with RBW=1MHz, VBW=10Hz and PK detector)

For bandage test, the spectrum set as follows: RBW=100, VBW=300 kHz. A conducted measurement used

10.4 Test Result

Please see next pages

Note: 1. For band-edge measurement, the frequency from 30MHz-25GHz was tested. And It met the FCC rule.

2. Two antennas were tested and only the worst cased was recorded in the test report. Antenna J8 was the worst case.

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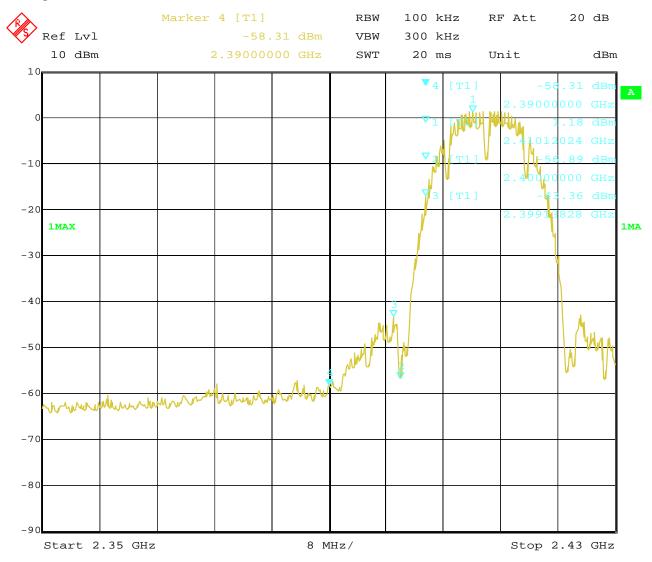
For 802.11b mode

CH01 at 1Mbps

10.4 Band-edge Measurement

| EUT | Capture Box | Model | USB Fusion |
|--------------|----------------------|---------------|------------|
| Mode | Keeping Transmitting | Input Voltage | 120V~ |
| Temperature | 24 deg. C, | Humidity | 56% RH |
| Test Result: | Pass | Detector | PK |

Test Figure:



17.NOV.2022 17:13:25 Date:

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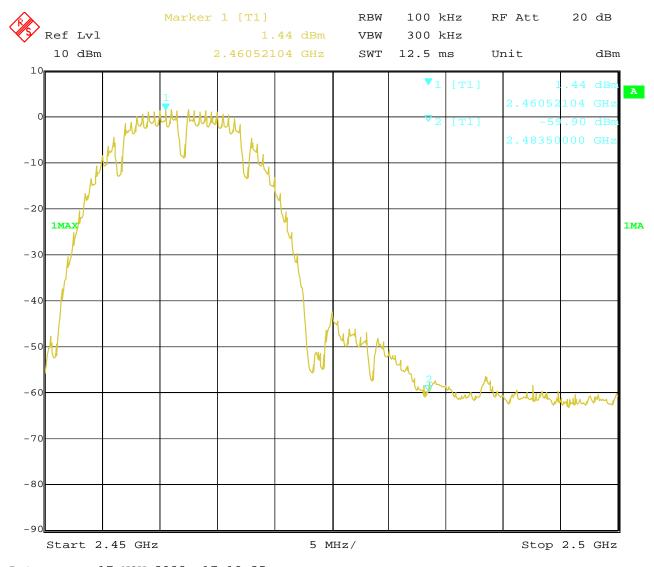


CH11 at 1Mbps

10.4 Band-edge Measurement

| EUT | Capture Box | Model | USB Fusion |
|--------------|----------------------|---------------|------------|
| Mode | Keeping Transmitting | Input Voltage | 120V~ |
| Temperature | 24 deg. C, | Humidity | 56% RH |
| Test Result: | Pass | Detector | PK |

Test Figure:



17.NOV.2022 17:19:35 Date:

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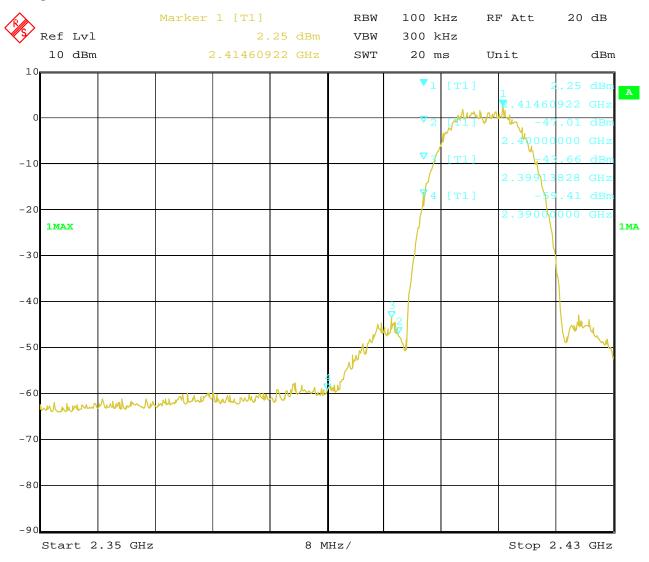
For 802.11b mode

CH01 at 11Mbps

Band-edge Measurement 10.4

| EUT | Capture Box | Model | USB Fusion |
|--------------|----------------------|---------------|------------|
| Mode | Keeping Transmitting | Input Voltage | 120V~ |
| Temperature | 24 deg. C, | Humidity | 56% RH |
| Test Result: | Pass | Detector | PK |

Test Figure:



Date: 17.NOV.2022 17:14:16

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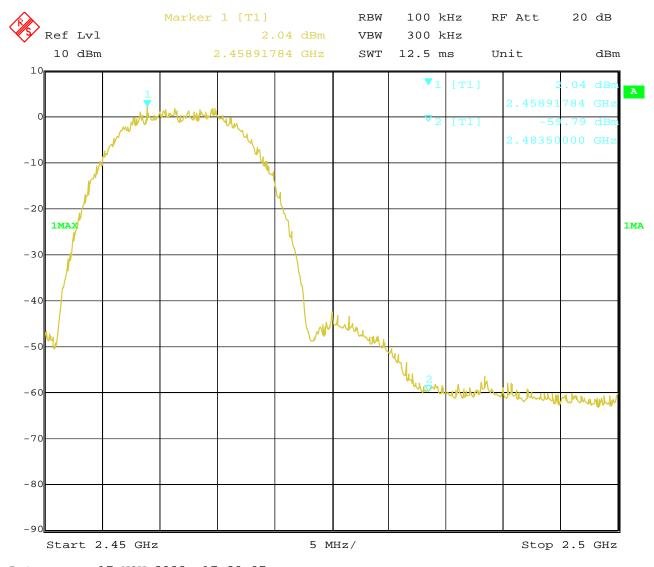


CH11 at 11Mbps

10.4 Band-edge Measurement

| EUT | Capture Box | Model | USB Fusion |
|--------------|----------------------|---------------|------------|
| Mode | Keeping Transmitting | Input Voltage | 120V~ |
| Temperature | 24 deg. C, | Humidity | 56% RH |
| Test Result: | Pass | Detector | PK |

Test Figure:



17.NOV.2022 17:20:07 Date:

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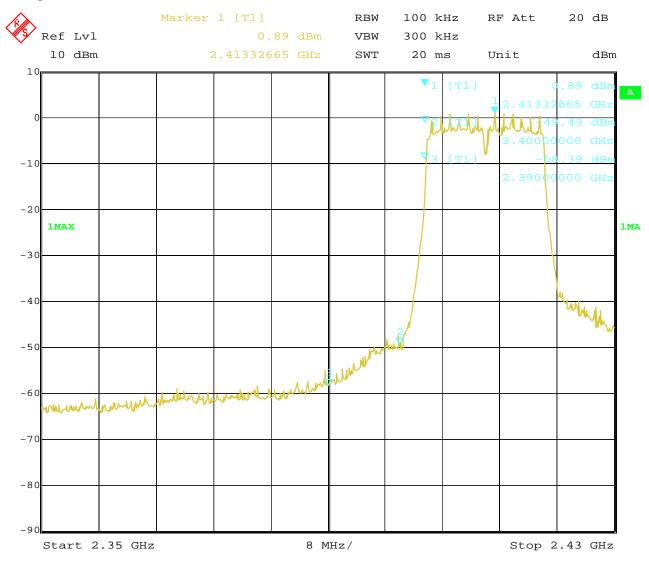
For 802.11g mode

CH01 at 6Mbps

10.4 Band-edge Measurement

| EUT | Capture Box | Model | USB Fusion |
|--------------|----------------------|---------------|------------|
| Mode | Keeping Transmitting | Input Voltage | 120V~ |
| Temperature | 24 deg. C, | Humidity | 56% RH |
| Test Result: | Pass | Detector | PK |

Test Figure:



17.NOV.2022 17:14:48 Date:

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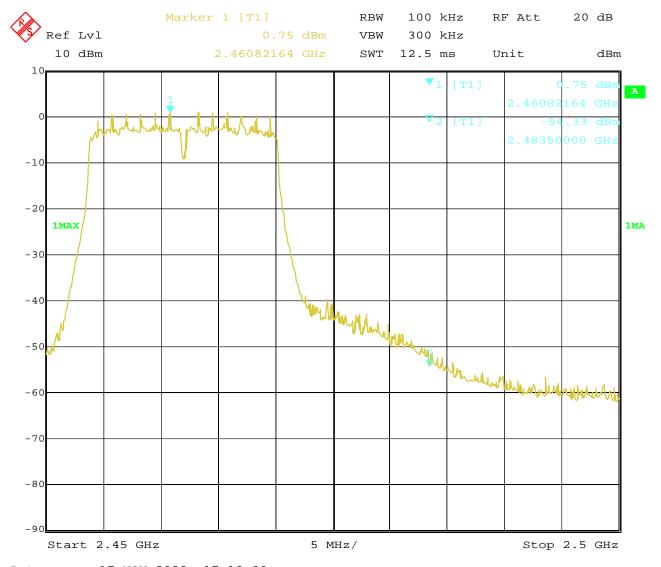


CH11 at 6Mbps

10.4 Band-edge Measurement

| EUT | Capture Box | Model | USB Fusion |
|--------------|----------------------|---------------|------------|
| Mode | Keeping Transmitting | Input Voltage | 120V~ |
| Temperature | 24 deg. C, | Humidity | 56% RH |
| Test Result: | Pass | Detector | PK |

Test Figure:



Date: 17.NOV.2022 17:19:00

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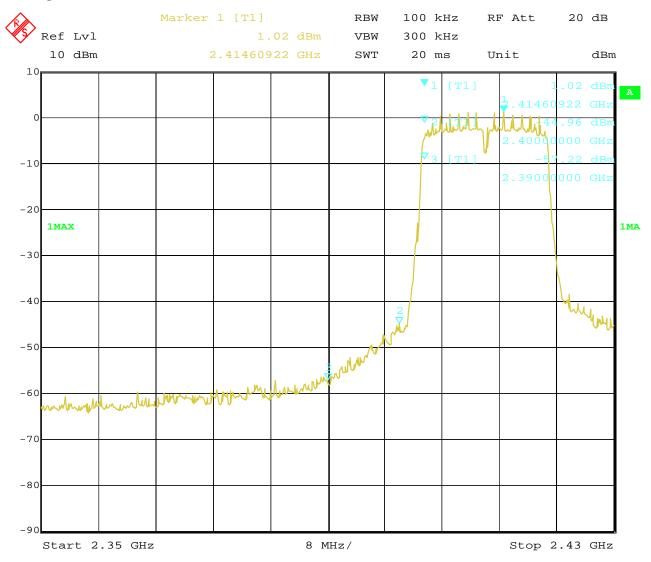
For 802.11n (HT20) mode

CH01 at mcs0

10.4 Band-edge Measurement

| EUT | Capture Box | Model | USB Fusion |
|--------------|----------------------|---------------|------------|
| Mode | Keeping Transmitting | Input Voltage | 120V~ |
| Temperature | 24 deg. C, | Humidity | 56% RH |
| Test Result: | Pass | Detector | PK |

Test Figure:



Date: 17.NOV.2022 17:15:26

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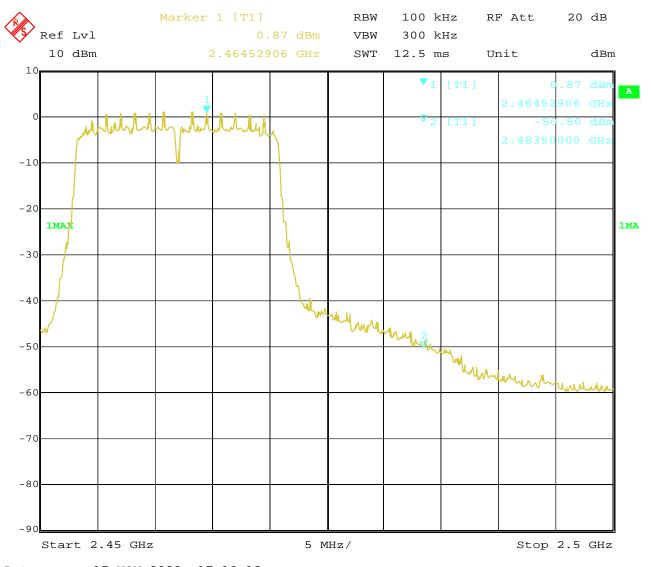


CH11 at mcs0

10.4 Band-edge Measurement

| EUT | Capture Box | Model | USB Fusion |
|--------------|----------------------|---------------|------------|
| Mode | Keeping Transmitting | Input Voltage | 120V~ |
| Temperature | 24 deg. C, | Humidity | 56% RH |
| Test Result: | Pass | Detector | PK |

Test Figure:



17.NOV.2022 17:18:13 Date:

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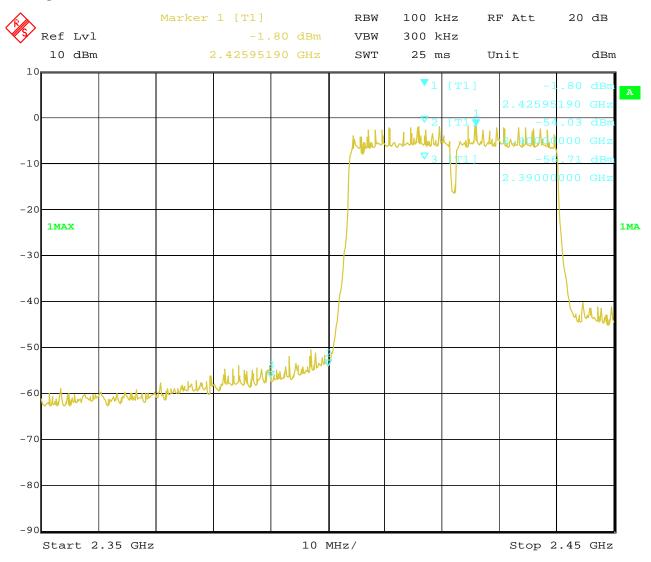
For 802.11n (HT40) mode

CH03 at mcs0

10.4 Band-edge and Restricted band Measurement

| EUT | Capture Box | Model | USB Fusion |
|--------------|----------------------|---------------|------------|
| Mode | Keeping Transmitting | Input Voltage | 120V~ |
| Temperature | 24 deg. C, | Humidity | 56% RH |
| Test Result: | Pass | Detector | PK |

Test Figure:



Date: 17.NOV.2022 17:12:31

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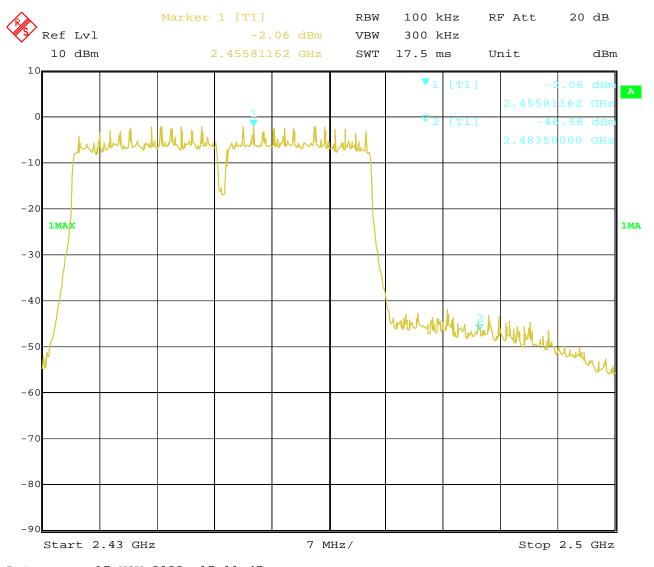


CH09 at mcs0

10.4 Band-edge and Restricted band Measurement

| EUT | Capture Box | Model | USB Fusion |
|--------------|----------------------|---------------|------------|
| Mode | Keeping Transmitting | Input Voltage | 120V~ |
| Temperature | 24 deg. C, | Humidity | 56% RH |
| Test Result: | Pass | Detector | PK |

Test Figure:



Date: 17.NOV.2022 17:11:47

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10.5 Restricted band Measurement

| EUT | Capture Box | | | | del | USB Fusion | |
|---------------------------------------|-------------|--------------------|----------|----------|---------|-----------------|--|
| Mode | Kee | eping Transmitting | | Test V | oltage/ | 120V~ | |
| Temperature | | 24 deg. C, | | Hun | nidity | 56% RH | |
| Test Result: | | Pass | | | ector | PK | |
| 802.11b mode, Low Channel, Horizontal | | | | | | | |
| 2390 | PK (dBμV/m) | 46.18 | т:. | :4 | | $74(dB\mu V/m)$ | |
| | AV (dBμV/m) | | LII | imit | | $54(dB\mu V/m)$ | |
| | | 802.11b mode, Low | Channel, | Vertical | | | |
| 2390 | PK (dBμV/m) | 40.87 | Limit | | | 74(dBµV/m) | |
| | AV (dBμV/m) | | LII | IIII | | $54(dB\mu V/m)$ | |

Restricted band Measurement 10.5

| EUT | | Capture Box | | | | USB Fusion | |
|--------------|-----------------------------------|----------------------|------------|---------|---------|-----------------|--|
| Mode | Ke | Keeping Transmitting | | | Voltage | 120V~ | |
| Temperature | | 24 deg. C, | | Hur | nidity | 56% RH | |
| Test Result: | | Pass | | | tector | PK | |
| | 802.11b, High Channel, Horizontal | | | | | | |
| 2483.5 | PK (dBμV/m) | 50.65 | т :: | ., | | $74(dB\mu V/m)$ | |
| | AV (dBμV/m) | | Limi | IT | | $54(dB\mu V/m)$ | |
| | | 802.11b mode, High | Channel, V | ertical | | | |
| 2483.5 | PK (dBμV/m) | 43.09 | Limi | Limit | | 74(dBµV/m) | |
| | AV (dBμV/m) | | | ll | | 54(dBµV/m) | |

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10.5 Restricted band Measurement

| EUT | Capture Box | | | Mo | del | USB Fusion | |
|---------------------------------------|-------------|--------------------|----------|----------|---------|-----------------|--|
| Mode | Kee | eping Transmitting | | Test V | oltage/ | 120V~ | |
| Temperature | | 24 deg. C, | | Hun | nidity | 56% RH | |
| Test Result: | | Pass | | | ector | PK | |
| 802.11g mode, Low Channel, Horizontal | | | | | | | |
| 2390 | PK (dBµV/m) | 50.86 | т:. | :4 | | $74(dB\mu V/m)$ | |
| | AV (dBμV/m) | | Lu | Limit | | $54(dB\mu V/m)$ | |
| | | 802.11g mode, Low | Channel, | Vertical | | | |
| 2390 | PK (dBμV/m) | 41.29 | Limit | | | 74(dBμV/m) | |
| | AV (dBμV/m) | | LII | mit | | $54(dB\mu V/m)$ | |

Restricted band Measurement 10.5

| EUT | Capture Box | | | M | odel | USB Fusion | |
|--------------|-----------------------------------|----------------------|------------|---------|-----------------|-----------------|--|
| Mode | Ke | Keeping Transmitting | | | Voltage | 120V~ | |
| Temperature | | 24 deg. C, | | Hur | nidity | 56% RH | |
| Test Result: | | Pass | | | tector | PK | |
| | 802.11g, High Channel, Horizontal | | | | | | |
| 2483.5 | PK (dBµV/m) | 57.65 | т :: | ., | | $74(dB\mu V/m)$ | |
| | AV (dBμV/m) | 38.19 | Limit | | $54(dB\mu V/m)$ | | |
| | | 802.11g mode, High | Channel, V | ertical | | | |
| 2483.5 | PK (dBμV/m) | 45.63 | Limi | Limit | | 74(dBµV/m) | |
| | AV (dBμV/m) | | LIIII | ll | | 54(dBµV/m) | |

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10.5 Restricted band Measurement

| EUT | Capture Box | | | Mo | del | USB Fusion | |
|--|-------------|-----------------------|----------|-------------|------------|-----------------|--|
| Mode | Kee | eping Transmitting | | Test V | oltage/ | 120V~ | |
| Temperature | | 24 deg. C, | | Hun | nidity | 56% RH | |
| Test Result: | | Pass | | Dete | ector | PK | |
| 802.11n HT20 mode, Low Channel, Horizontal | | | | | | | |
| 2390 | PK (dBμV/m) | 53.29 | т:. | :4 | 74(dBμV/m) | | |
| | AV (dBμV/m) | 36.51 | LII | nit | | $54(dB\mu V/m)$ | |
| | | 802.11n HT20 mode, Lo | ow Chanr | nel, Vertic | al | | |
| 2390 | PK (dBμV/m) | 41.80 | Limit | | | 74(dBµV/m) | |
| | AV (dBμV/m) | | | IIIt | | $54(dB\mu V/m)$ | |

Restricted band Measurement 10.5

| | ··· | | | | | | | |
|---|-------------|-----------------------|------------|----------|-----------------|-----------------|--|--|
| EUT | Capture Box | | | Model | | USB Fusion | | |
| Mode | Ke | Keeping Transmitting | | | Voltage | 120V~ | | |
| Temperature | | 24 deg. C, | | Hur | nidity | 56% RH | | |
| Test Result: | | Pass | | | tector | PK | | |
| 802.11n HT20 mode, High Channel, Horizontal | | | | | | | | |
| 2483.5 | PK (dBµV/m) | 60.08 | т :: | ., | | $74(dB\mu V/m)$ | | |
| | AV (dBμV/m) | 41.16 | Limit | | $54(dB\mu V/m)$ | | | |
| | 8 | 302.11n HT20 mode, Hi | igh Channe | l, Verti | cal | | | |
| 2483.5 | PK (dBμV/m) | 47.03 | Limi | | | 74(dBµV/m) | | |
| | AV (dBμV/m) | | LIIII | ll | | 54(dBµV/m) | | |

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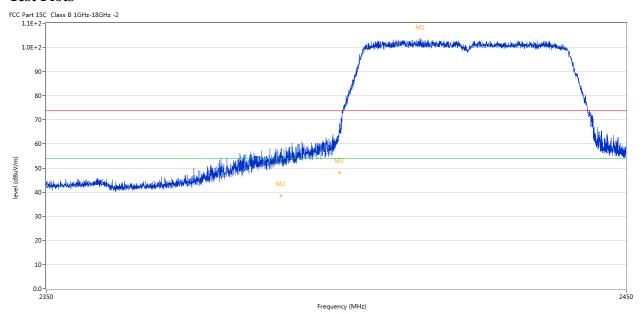
Date: 2023-01-10



10.5 Restricted band Measurement

| EUT | Capture Box | | | M | odel | USB Fusion | |
|--------------|------------------------|----------------------|---------|------------|------------|-----------------|--|
| Mode | Kee | eping Transmitting | | Test | Voltage | 120V~ | |
| Temperature | | 24 deg. C, | | Hur | nidity | 56% RH | |
| Test Result: | | Pass | | De | tector | PK | |
| | 802.11n HT40 mode, Low | | | | ntal | | |
| 2390 | PK (dBμV/m) | 55.60 | т. | | 74(dBμV/m) | | |
| | AV (dBμV/m) | 38.58 | Lli | nit | | 54(dBμV/m) | |
| | | 802.11n HT40 mode, L | ow Chan | nel Vertic | al | | |
| 2390 | PK (dBµV/m) | 41.94 | т.: | | | $74(dB\mu V/m)$ | |
| | AV (dBμV/m) | | Lli | nit | | 54(dBμV/m) | |

Test Plots



| No. | Frequency | Results | Factor | Limit | Over Limit | Detector | Table | Height | ANT | Verdict |
|-----|-----------|----------|--------|----------|------------|----------|--------|--------|------------|---------|
| | (MHz) | (dBuV/m) | (dB) | (dBuV/m) | (dB) | | (o) | (cm) | | |
| 1 | 2414.084 | 103.37 | -3.57 | 74.0 | 29.37 | Peak | 254.00 | 100 | Horizontal | N/A |
| 2 | 2390.000 | 55.60 | -3.53 | 74.0 | -18.40 | Peak | 259.00 | 100 | Horizontal | Pass |
| 2** | 2390.000 | 38.58 | -3.53 | 54.0 | -15.42 | AV | 259.00 | 100 | Horizontal | Pass |
| 3 | 2400.000 | 65.19 | -3.57 | 74.0 | -8.81 | Peak | 259.00 | 100 | Horizontal | Pass |
| 3** | 2400.000 | 48.13 | -3.57 | 54.0 | -5.87 | AV | 259.00 | 100 | Horizontal | Pass |

The report refers only to the sample tested and does not apply to the bulk.

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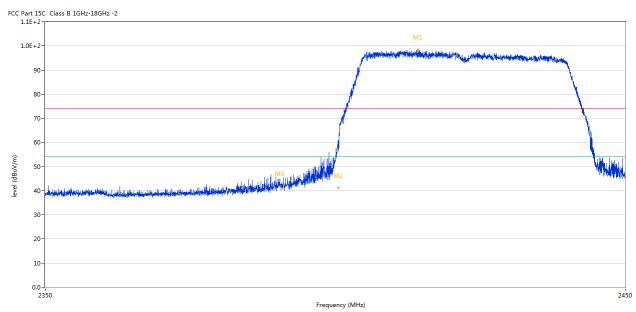
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| No. | Frequency | Results | Factor | Limit | Over Limit | Detector | Table | Height | ANT | Verdict |
|-----|-----------|----------|--------|----------|------------|----------|--------|--------|----------|---------|
| | (MHz) | (dBuV/m) | (dB) | (dBuV/m) | (dB) | | (o) | (cm) | | |
| 1 | 2413.759 | 98.45 | -3.57 | 74.0 | 24.45 | Peak | 205.00 | 100 | Vertical | N/A |
| 2 | 2400.000 | 58.43 | -3.57 | 74.0 | -15.57 | Peak | 194.50 | 100 | Vertical | Pass |
| 2** | 2400.000 | 41.31 | -3.57 | 54.0 | -12.69 | AV | 194.50 | 100 | Vertical | Pass |
| 3 | 2390.000 | 41.94 | -3.53 | 74.0 | -32.06 | Peak | 193.00 | 100 | Vertical | Pass |

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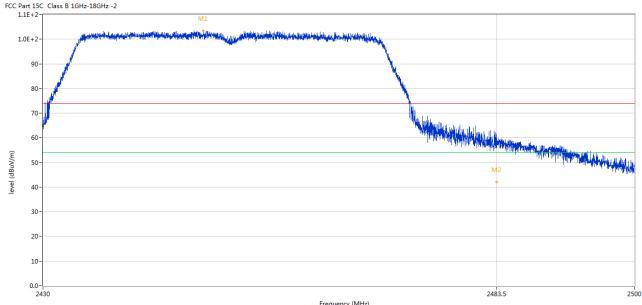
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10.5 Restricted band Measurement

| EUT | | Capture Box | N | /lodel | USB Fusion | | | | | |
|---|-------------|---------------------|-------|---------|------------|-----------------|--|--|--|--|
| Mode | Ke | eeping Transmitting | Test | Voltage | 120V~ | | | | | |
| Temperature | | 24 deg. C, | Hu | midity | 56% RH | | | | | |
| Test Result: | | Pass | De | etector | PK | | | | | |
| 802.11n HT40 mode, High Channel, Horizontal | | | | | | | | | | |
| 2483.5 | PK (dBµV/m) | 62.15 | т | •, | | $74(dB\mu V/m)$ | | | | |
| | AV (dBμV/m) | 42.63 | Lim | nit | | $54(dB\mu V/m)$ | | | | |
| 802.11n HT40 mode, High Channel, Vertical | | | | | | | | | | |
| 2483.5 | PK (dBμV/m) | 47.58 | т : | :4 | | 74(dBμV/m) | | | | |
| | AV (dBμV/m) | | Limit | | | $54(dB\mu V/m)$ | | | | |



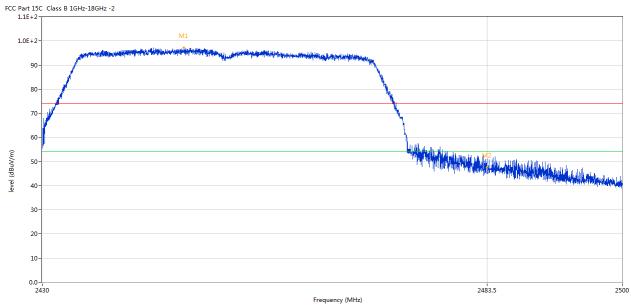
| | | | | | Frequency (MHz) | | | | | |
|-----|-----------|----------|--------|----------|-----------------|----------|--------|--------|------------|---------|
| No. | Frequency | Results | Factor | Limit | Over Limit | Detector | Table | Height | ANT | Verdict |
| | (MHz) | (dBuV/m) | (dB) | (dBuV/m) | (dB) | | (o) | (cm) | | |
| 1 | 2448.790 | 103.35 | -3.57 | 74.0 | 29.35 | Peak | 255.00 | 100 | Horizontal | N/A |
| 2 | 2483.500 | 62.15 | -3.57 | 74.0 | -11.85 | Peak | 271.00 | 100 | Horizontal | Pass |
| 2** | 2483.500 | 42.63 | -3.57 | 54.0 | -11.37 | AV | 271.00 | 100 | Horizontal | Pass |

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| No. | Frequency | Results | Factor | Limit | Over Limit | Detector | Table | Height | ANT | Verdict |
|-----|-----------|----------|--------|----------|------------|----------|--------|--------|----------|---------|
| | (MHz) | (dBuV/m) | (dB) | (dBuV/m) | (dB) | | (o) | (cm) | | |
| 1 | 2446.936 | 97.08 | -3.57 | 74.0 | 23.08 | Peak | 6.00 | 100 | Vertical | N/A |
| 2 | 2483.500 | 47.58 | -3.57 | 74.0 | -26.42 | Peak | 194.44 | 100 | Vertical | Pass |

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11.0 Antenna Requirement

11.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 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.

And according to FCC 47 CFR Section 15.247 (b), if transmitter antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the mount in dB that the directional gain of the antenna exceeds 6 dBi.

11.2 Antenna Connected construction

Two FPC antennas used. The gain of the antenna is 4.7dBi for each one.

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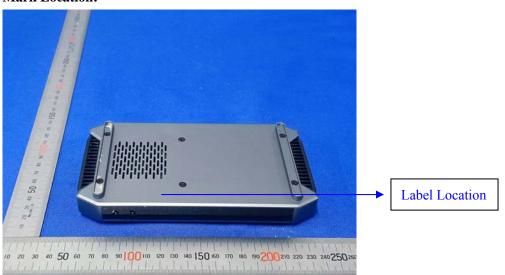
12.0 FCC ID Label

FCC ID: 2AP6W-CAPTURE3506

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

Mark Location:



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13.0 Photo of testing

Conducted Emission Test Setup:



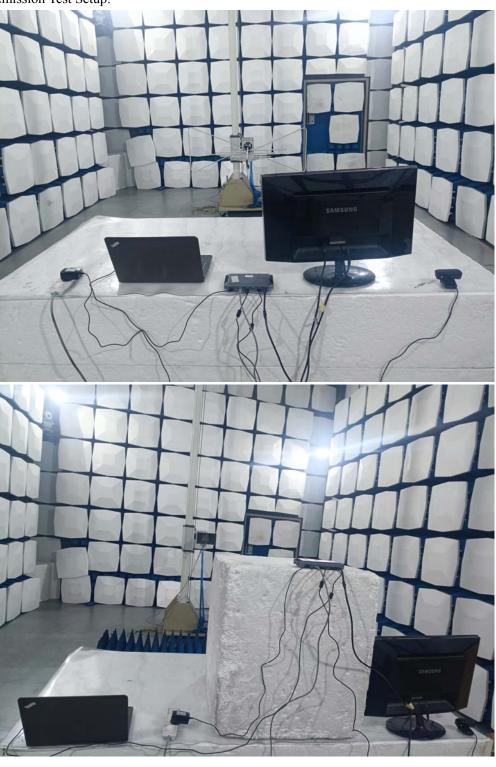
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Radiated Emission Test Setup:



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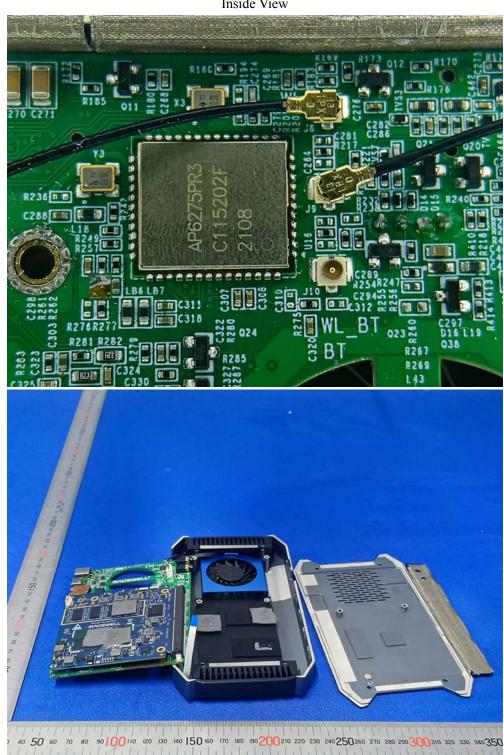
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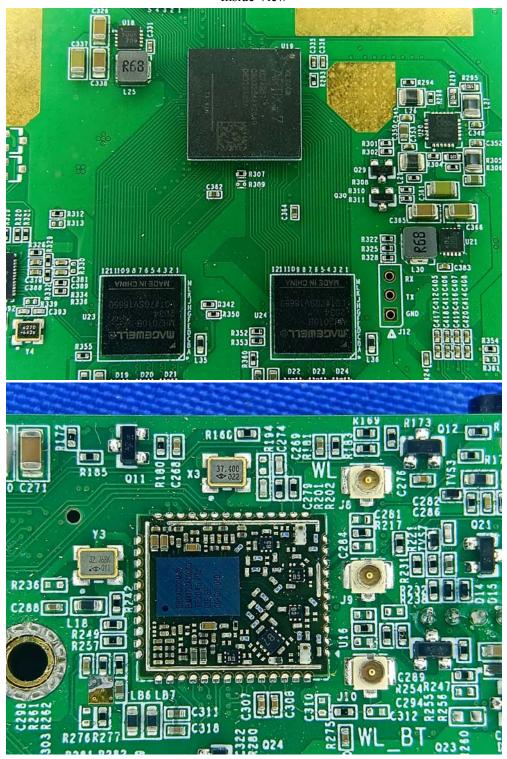
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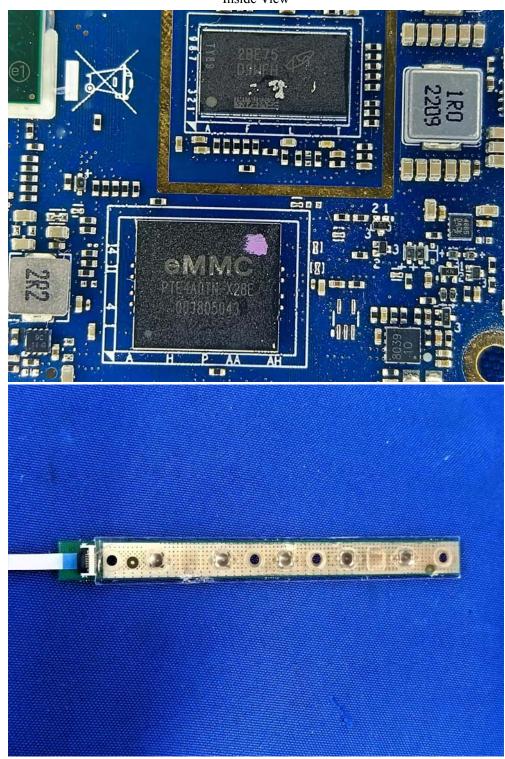
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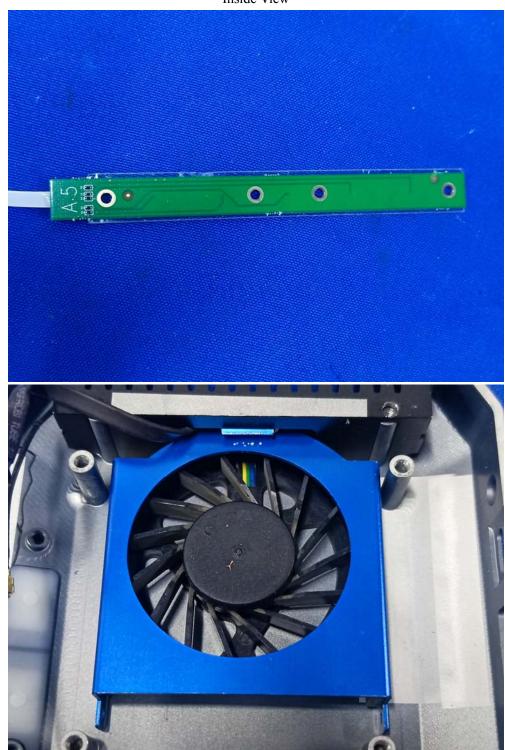
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End of the report