



TEST REPORT

No. I19D00082-SRD03

For

Client: Shanghai Sunmi Technology Co.,Ltd.

Production: Handheld Wireless Terminal

Model Name: T8A01

Brand Name: SUNMI

FCC ID : 2AH25T8A01

Hardware Version: V1.01

Software Version: L2K_V1.8_20190426

Issued date: 2019-08-13

NOTE

1. The test results in this test report relate only to the devices specified in this report.
2. This report shall not be reproduced except in full without the written approval of East China Institute of Telecommunications.
3. KDB558074 has not been accredited by A2LA.
4. For the test results, the uncertainty of measurement is not taken into account when judging the compliance with specification, and the results of measurement or the average value of measurement results are taken as the criterion of the compliance with specification directly.

Test Laboratory:

East China Institute of Telecommunications

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Revision Version

| Report Number | Revision | Date | Memo |
|-----------------|----------|------------|---------------------------------|
| I19D00082-SRD03 | 00 | 2019-07-25 | Initial creation of test report |
| I19D00082-SRD03 | 01 | 2019-08-13 | second creation of test report |

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1. Test Laboratory

1.1. Testing Location

| | |
|---------------------|------------------------------------------------------------|
| Company Name | East China Institute of Telecommunications |
| Address | 7-8/F., Area G, No.668, Beijing East Road, Shanghai, China |
| Postal Code | 200001 |
| Telephone | +86 21 63843300 |
| Fax | +86 21 63843301 |
| FCC registration No | 958356 |

1.2. Testing Environment

| | |
|--------------------|---------|
| Normal Temperature | 15℃-35℃ |
| Relative Humidity | 20%-75% |

1.3. Project Data

| | |
|--------------------|------------|
| Project Leader | Zhou Yan |
| Testing Start Date | 2019-06-12 |
| Testing End Date | 2019-06-15 |

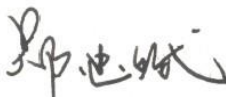
1.4. Signature



Wang Liang
(Prepared this test report)



Fan Songyan
(Reviewed this test report)



Zheng Zhongbin
(Approved this test report)

2. Client Information

2.1.Applicant Information

| | |
|--------------|--------------------------------------------------------------------------------------|
| Company Name | Shanghai Sunmi Technology Co.,Ltd. |
| Address | Room 605, Block 7, KIC Plaza, No.388 Song Hu Road, Yang Pu District, Shanghai, China |
| Telephone | 18721763396 |
| Postcode | / |

2.2.Manufacturer Information

| | |
|--------------|--------------------------------------------------------------------------------------|
| Company Name | Shanghai Sunmi Technology Co.,Ltd. |
| Address | Room 605, Block 7, KIC Plaza, No.388 Song Hu Road, Yang Pu District, Shanghai, China |
| Telephone | 18721763396 |
| Postcode | / |

3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

| | |
|-----------------------------------|--------------------------------------------------------------|
| Production | Handheld Wireless Terminal |
| Model name | T8A01 |
| WLAN Frequency(2.4G) | 2412MHz-2462MHz |
| WLAN Channel(2.4G) | Channel1-Channel11 |
| WLAN type of modulation | 802.11b:DSSS 802.11g/n: OFDM |
| Additional Communication Function | BT/BLE/2.4G WLAN 802.11 b/g/n20/n40/5G WLAN 802.11 a/n20/n40 |
| Extreme Temperature | -20/+60℃ |
| Nominal Voltage | 3.8V |
| Extreme High Voltage | 4.35V |
| Extreme Low Voltage | 3.45V |
| Maximum of Antenna Gain | WIFI2.4Ghz: 0.78dBi |

Note:

- Photographs of EUT are shown in ANNEX A of this test report.
- The value of the antenna gain is provided by the customer. For specific antenna information, please check the antenna specifications of the customer.

3.2. Internal Identification of EUT used during the test

| EUT ID* | Model Name | SN or IMEI | HW Version | SW Version | Date of receipt |
|---------|------------|-----------------|------------|-------------------|-----------------|
| N05 | T8A01 | 863036040001745 | V1.01 | L2K_V1.8_20190426 | 2019-06-10 |
| N07 | T8A01 | 863036040001653 | V1.01 | L2K_V1.8_20190426 | 2019-06-10 |

*EUT ID: is used to identify the test sample in the lab internally.

3.3. Internal Identification of AE used during the test

| AE ID* | Description | Type | Manufacturer |
|--------|-------------|------|--------------|
| AE1 | RF cable | --- | AE1 |

*AE ID: is used to identify the test sample in the lab internally.

4. Reference Documents

4.1. Documents supplied by applicant

All technical documents are supplied by the client or manufacturer, which is the basis of testing.

4.2. Reference Documents for testing

The following documents listed in this section are referred for testing.

| Reference | Title | Version |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| FCC Part15 | FCC CFR 47, Part 15, Subpart C: 15.205 Restricted bands of operation; 15.209 Radiated emission limits, general requirements; 15.247 Operation within the bands 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz. | 2018-10-01 |
| ANSI 63.10 | American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices | 2013 |
| KDB558074 | Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247 | v05r02 |

5. Test Results

5.1. Summary of Test Results

| Measurement Items | Sub-clause of Part15C | Sub-clause of IC | Verdict |
|-----------------------------------------|-----------------------|------------------|---------|
| Maximum Peak Output Power | 15.247(a) | / | P |
| Peak Power Spectral Density | 15.247(e) | / | P |
| Occupied 6dB Bandwidth | 15.247(d) | / | P |
| Band Edges Compliance | 15.247(b) | / | P |
| Transmitter Spurious Emission-Conducted | 15.247 | / | P |
| Transmitter Spurious Emission-Radiated | 15.247,15.209, | / | P |
| AC Powerline Conducted Emission | 15.107,15.207 | / | P |

Note: please refer to Annex A in this test report for the detailed test results.

Please refer to part 5 for detail.

The measurements are according to Public notice KDB558074 and ANSI C63.10.

Terms used in Verdict column

The following terms are used in the above table.

| | |
|----|--------------------------------------------------------------------------------|
| P | Pass, the EUT complies with the essential requirements in the standard. |
| NP | Not Perform, the test was not performed by ECIT. |
| NA | Not Applicable, the test was not applicable. |
| F | Fail, the EUT does not comply with the essential requirements in the standard. |

Test Conditions

| | |
|------|--------------------|
| Tnom | Normal Temperature |
| Tmin | Low Temperature |
| Tmax | High Temperature |
| Vnom | Normal Voltage |
| Vmin | Low Voltage |
| Vmax | High Voltage |
| Hnom | Norm Humidity |
| Anom | Norm Air Pressure |

For this report, all the test case listed above are tested under Normal Temperature and Normal Voltage, and also under norm humidity, the specific conditions as following:

| | | |
|--------------|------|---------|
| Temperature | Tnom | 25℃ |
| Voltage | Vnom | 3.8V |
| Humidity | Hnom | 48% |
| Air Pressure | Anom | 1010hPa |

5.2.Statements

The T8A01 is an initial product for testing.

ECIT only performed test cases which identified with P/NP/NA/F results in Annex A.

ECIT has verified that the compliance of the tested device specified in section 3 of this test report is successfully evaluated according to the procedure and test methods as defined in type certification requirement listed in section 4 of this test report.

6. Test Equipments Utilized

6.1. Conducted Test System

| Item | Instrument Name | Type | SN | Manufacturer | Cal. Date | Cal. interval |
|------|------------------------|----------|----------------------|--------------|------------|---------------|
| 1 | Vector Signal Analyzer | FSQ26 | 101091 | R&S | 2019-05-10 | 1 year |
| 2 | DC Power Supply | ZUP60-14 | LOC-220Z0 06-0007 | TDL-Lambda | 2019-05-10 | 1 year |

6.2. Radiated Emission Test System

| Item | Instrument Name | Type | Serial Number | Manufacturer | Cal. Date | Cal. interval |
|------|--------------------------------------|----------|---------------|--------------|------------|---------------|
| 1 | Universal Radio Communication Tester | CMU200 | 123123 | R&S | 2019-05-10 | 1 year |
| 2 | EMI Test Receiver | ESU40 | 100307 | R&S | 2019-05-10 | 1 year |
| 3 | TRILOG Broadband Antenna | VULB9163 | VULB9163-515 | Schwarzbeck | 2017-02-25 | 3 years |
| 4 | Double- ridged Waveguide Antenna | ETS-3117 | 00135890 | ETS | 2017-01-11 | 3 years |
| 5 | 2-Line V-Network | ENV216 | 101380 | R&S | 2019-05-10 | 1 year |

Anechoic chamber

Fully anechoic chamber by ETS

7. Measurement Uncertainty

Measurement uncertainty for all the testing in this report are within the limit specified in ECIT documents .
The detailed measurement uncertainty is defined in ECIT documents.

| Measurement Items | Range | Confidence Level | Calculated Uncertainty |
|----------------------------------------|--------------------|------------------|------------------------|
| Peak Output Power-Conducted | 2412MHz-2462MHz | 95% | $\pm 0.544\text{dB}$ |
| Peak Power Spectral Density | 2412MHz-2462MHz | 95% | $\pm 0.544\text{dB}$ |
| Occupied 6dB Bandwidth | 2412MHz-2462MHz | 95% | $\pm 62.04\text{Hz}$ |
| Frequency Band Edges-Conducted | 2412MHz-2462MHz | 95% | $\pm 0.544\text{dB}$ |
| Conducted Emission | 30MHz-2GHz | 95% | $\pm 0.90\text{dB}$ |
| Conducted Emission | 2GHz-3.6GHz | 95% | $\pm 0.88\text{dB}$ |
| Conducted Emission | 3.6GHz-8GHz | 95% | $\pm 0.96\text{dB}$ |
| Conducted Emission | 8GHz-20GHz | 95% | $\pm 0.94\text{dB}$ |
| Conducted Emission | 20GHz-22GHz | 95% | $\pm 0.88\text{dB}$ |
| Conducted Emission | 22GHz-26GHz | 95% | $\pm 0.86\text{dB}$ |
| Transmitter Spurious Emission-Radiated | 9KHz-30MHz | 95% | $\pm 5.66\text{dB}$ |
| Transmitter Spurious Emission-Radiated | 30MHz-1000MHz | 95% | $\pm 4.98\text{dB}$ |
| Transmitter Spurious Emission-Radiated | 1000MHz -18000MHz | 95% | $\pm 5.06\text{dB}$ |
| Transmitter Spurious Emission-Radiated | 18000MHz -40000MHz | 95% | $\pm 5.20\text{dB}$ |
| AC Power line Conducted Emission | 0.15MHz-30MHz | 95% | $\pm 3.66\text{ dB}$ |

8. Test Environment

Shielding Room1 (6.0 meters×3.0 meters×2.7 meters) did not exceed following limits along the conducted RF performance testing:

| | |
|--------------------------|----------------------------|
| Temperature | Min. = 15 °C, Max. = 35 °C |
| Relative humidity | Min. = 20 %, Max. = 75 % |
| Shielding effectiveness | > 100 dB |
| Ground system resistance | < 0.5 Ω |

Control room did not exceed following limits along the EMC testing:

| | |
|--------------------------|----------------------------|
| Temperature | Min. = 15 °C, Max. = 35 °C |
| Relative humidity | Min. = 30 %, Max. = 60 % |
| Shielding effectiveness | > 100 dB |
| Electrical insulation | > 10 kΩ |
| Ground system resistance | < 0.5 Ω |

Fully-anechoic chamber1 (6.9 meters×10.9 meters×5.4 meters) did not exceed following limits along the EMC testing:

| | |
|------------------------------|--------------------------------------------|
| Temperature | Min. = 15 °C, Max. = 35 °C |
| Relative humidity | Min. = 25 %, Max. = 75 % |
| Shielding effectiveness | > 100 dB |
| Electrical insulation | > 10 kΩ |
| Ground system resistance | < 0.5 Ω |
| VSWR | Between 0 and 6 dB, from 1GHz to 18GHz |
| Site Attenuation Deviation | Between -4 and 4 dB, 30MHz to 1GHz |
| Uniformity of field strength | Between 0 and 6 dB, from 80MHz to 3000 MHz |

ANNEX A. Detailed Test Results

ANNEX A.1. Output Power-Conducted

A.1.1 Measurement Limit and method:

| Standard | Limit(dBm) |
|-------------------|------------|
| FCC CRF 15.247(b) | <30 |

A.1.2 Test procedure

The measurement is according to ANSI C63.10 clause 11.2

1. The output power of EUT was connected to the spectrum analyzer. The path loss was compensated to the results for each measurement.
2. Enable EUT transmitter maximum power continuously.
3. Set RBW \geq OBW(1MHz), VBW \geq 3RBW(3MHz).
4. Span : 80MHz
5. Detector : Peak/RMS.
6. Trace mode: Max Hold
7. Spectrum Analyzer setting : Meas—channel PWR ACP—CP/ACP Config—channel bandwidth—20/40MHz

A.1.3 Maximum Peak Output Power-conducted

Measurement Results:

802.11b/g mode

| Mode | Data Rate(Mbps) | Teat Result(dBm) | | |
|---------|-----------------|------------------|--------------|---------------|
| | | 2412MHz(Ch1) | 2437MHz(Ch6) | 2462MHz(Ch11) |
| 802.11b | 1 | / | / | 18.32 |
| | 2 | / | / | 18.76 |
| | 5.5 | / | / | 19.45 |
| | 11 | 19.03 | 19.06 | 19.63 |
| 802.11g | 6 | / | / | 19.34 |
| | 9 | / | / | 19.35 |
| | 12 | / | / | 19.35 |
| | 18 | / | / | 19.31 |
| | 24 | / | / | 19.75 |

| | | | | |
|--|----|-------|-------|-------|
| | 36 | / | / | 19.63 |
| | 48 | / | / | 19.74 |
| | 54 | 18.70 | 19.01 | 19.77 |

The data rate 11 Mbps and 54 Mbps are selected as worse condition, and the following cases are performed with this condition.

802.11n mode

| Mode | Data Rate(Index) | Teat Result(dBm) | | |
|----------------|------------------|------------------|--------------|---------------|
| | | 2412MHz(Ch1) | 2437MHz(Ch6) | 2462MHz(Ch11) |
| 802.11n(20MHz) | MCS0 | / | / | 18.22 |
| | MCS1 | / | / | 18.41 |
| | MCS2 | / | / | 18.43 |
| | MCS3 | 18.64 | 18.08 | 18.77 |
| | MCS4 | / | / | 18.52 |
| | MCS5 | / | / | 17.79 |
| | MCS6 | / | / | 18.73 |
| | MCS7 | / | / | 18.71 |
| Mode | Data Rate(Index) | Teat Result(dBm) | | |
| | | 2422MHz(Ch3) | 2437MHz(Ch6) | 2452MHz(Ch9) |
| 802.11n(40MHz) | MCS0 | / | / | 18.90 |
| | MCS1 | / | / | 19.01 |
| | MCS2 | / | / | 19.00 |
| | MCS3 | 18.75 | 18.43 | 19.26 |
| | MCS4 | / | / | 19.12 |
| | MCS5 | / | / | 19.19 |
| | MCS6 | / | / | 19.20 |
| | MCS7 | / | / | 19.24 |

The data rate MCS3 for 802.11n(20M) and MCS3 for 802.11n(40M) are selected as worse condition, and

the following case are performed with this condition.

A.1.4 Maximum Average Output Power-conducted

802.11b/g mode

| Mode | Test Result(dBm) | | |
|---------|------------------|------------------|-------------------|
| | 2412MHz (Ch1) | 2437MHz (Ch6) | 2462MHz (Ch11) |
| 802.11b | 19.03 | 19.06 | 19.63 |
| 802.11g | 18.70 | 19.01 | 19.77 |

802.11n mode

| Mode | Test Result(dBm) | | |
|------------------------|------------------|------------------|-------------------|
| | 2412MHz (Ch1) | 2437MHz (Ch6) | 2462MHz (Ch11) |
| 802.11n (20MHz) | 18.64 | 18.08 | 18.77 |
| Mode | Test Result(dBm) | | |
| | 2422MHz (Ch3) | 2437MHz (Ch6) | 2452MHz (Ch9) |
| 802.11n (40MHz) | 18.75 | 18.43 | 19.26 |

Conclusion: PASS

ANNEX A.2. Peak Power Spectral Density

A.2.1 Measurement Limit:

| Standard | Limit |
|------------------------|--------------|
| FCC CFR Part 15.247(e) | < 8dBm/3 KHz |

A.2.2 Test procedures

The measurement is according to ANSI C63.10 clause 11.10.

1. The output power of EUT was connected to the spectrum analyzer. The path loss was compensated to the results for each measurement.
2. Enable EUT transmitter maximum power continuously.
3. Set analyzer center frequency to DTS channel center frequency.
4. Set the span to 1.5 times the DTS bandwidth.
5. Set the RBW to $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
6. Set the VBW $\geq [3 \times \text{RBW}]$.
7. Detector = peak.
8. Sweep time = auto couple.
9. Trace mode = max hold.
10. Allow trace to fully stabilize.
11. Use the peak marker function to determine the maximum amplitude level within the RBW.
12. If measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat.

Measurement Results:

802.11b/g mode

| Mode | Channel | Power Spectral Density(dBm/3kHz) | | Conclusion |
|---------|---------|----------------------------------|--------|------------|
| 802.11b | 1 | Fig 1. | 0.103 | P |
| | 6 | Fig 2. | -0.285 | P |
| | 11 | Fig 3. | -0.053 | P |
| 802.11g | 1 | Fig 4. | -6.906 | P |
| | 6 | Fig 5. | -6.058 | P |
| | 11 | Fig 6. | -5.734 | P |

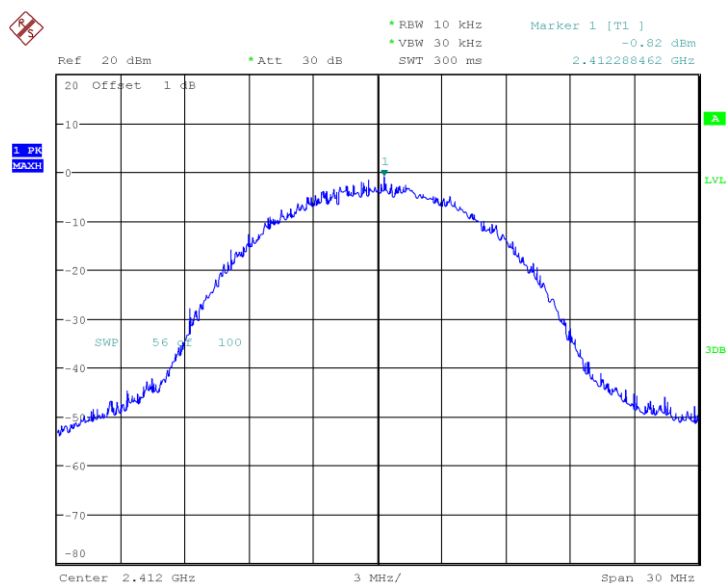
802.11n mode

| Mode | Channel | Power Spectral Density(dBm/3kHz) | | Conclusion |
|----------------|---------|----------------------------------|--------|------------|
| 802.11n(20MHz) | 1 | Fig 7. | -6.410 | P |

| | | | | |
|----------------|----|---------|---------|---|
| 802.11n(40MHz) | 6 | Fig 8. | -5.642 | P |
| | 11 | Fig 9. | -7.665 | P |
| | 3 | Fig 10. | -10.393 | P |
| | 6 | Fig 11. | -10.885 | P |
| | 9 | Fig 12. | -10.240 | P |

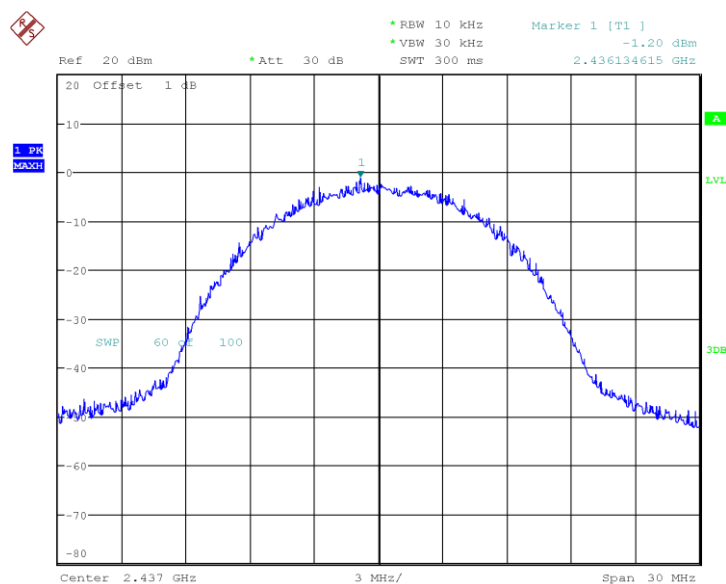
Conclusion: PASS

Test graphs as below:



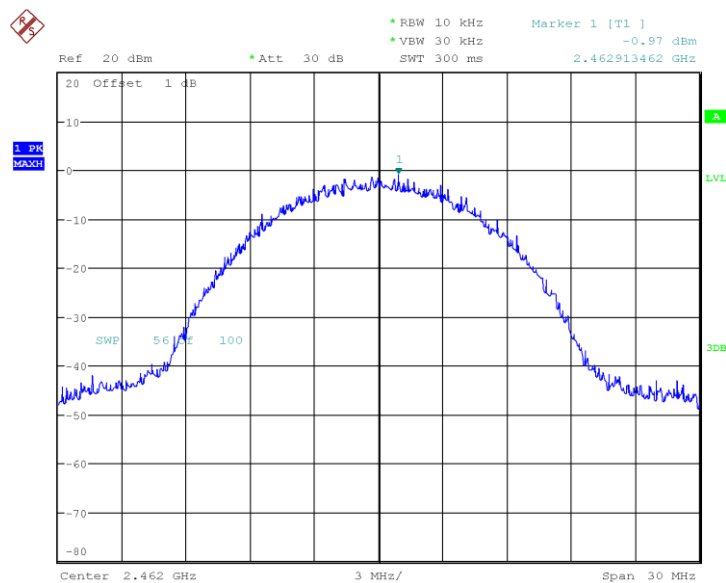
Date: 13.JUN.2019 08:31:51

Fig 1. Power Spectral Density (802.11b,Ch1)



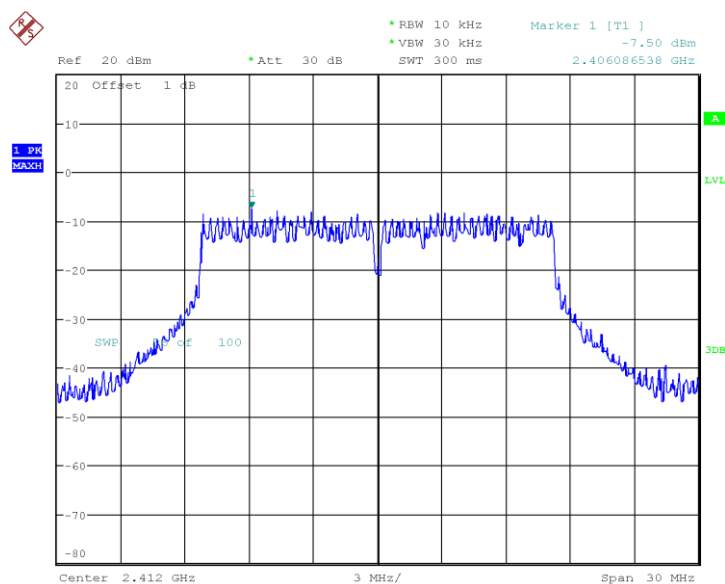
Date: 13.JUN.2019 08:33:04

Fig 2. Power Spectral Density (802.11b,Ch6)



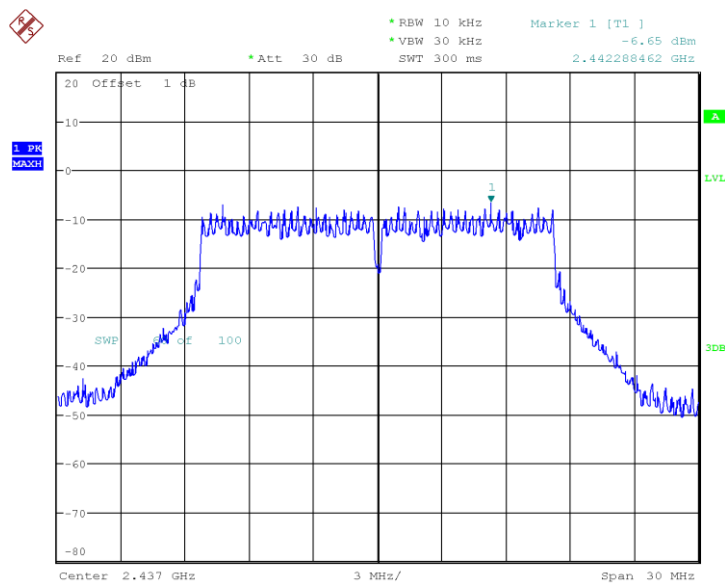
Date: 13.JUN.2019 08:41:35

Fig 3. Power Spectral Density (802.11b,Ch11)



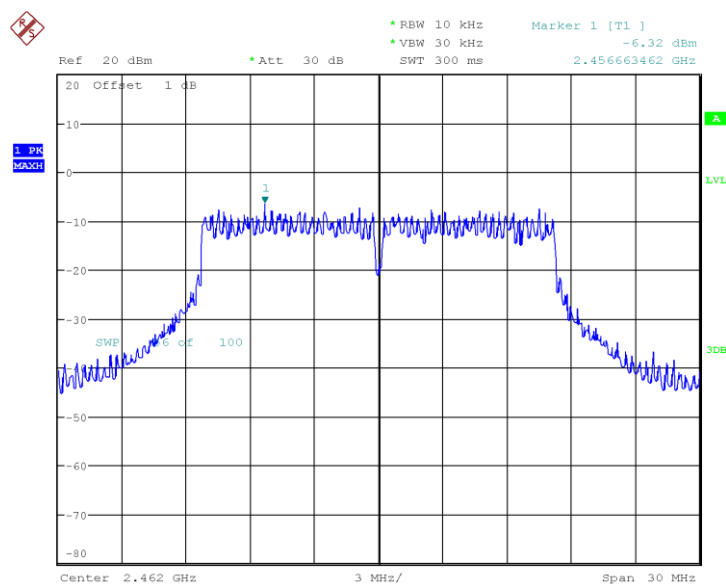
Date: 13.JUN.2019 08:43:20

Fig 4. Power Spectral Density (802.11g,Ch1)



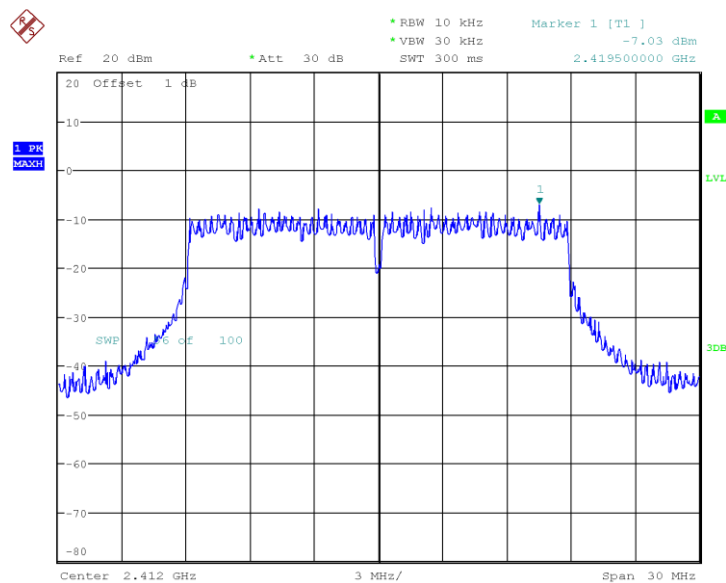
Date: 13.JUN.2019 08:46:41

Fig 5. Power Spectral Density (802.11g,Ch6)



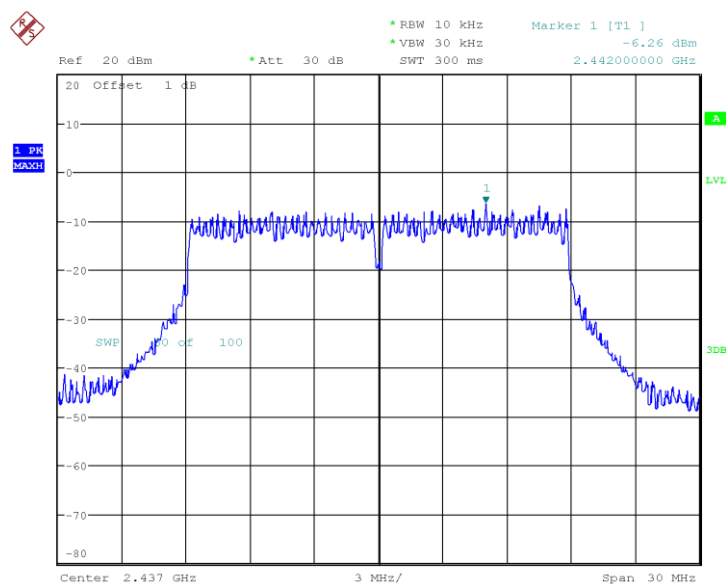
Date: 13.JUN.2019 08:48:17

Fig 6. Power Spectral Density (802.11g,Ch11)



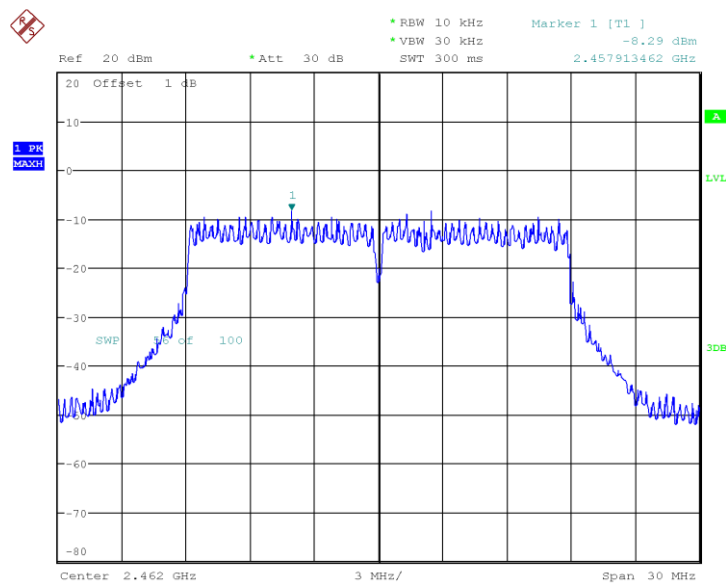
Date: 13.JUN.2019 08:49:41

Fig 7. Power Spectral Density (802.11n-20MHz,Ch1)



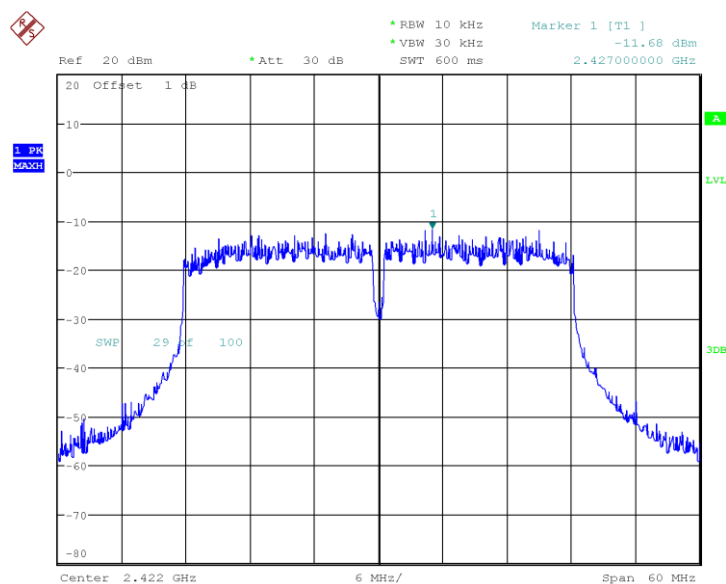
Date: 13.JUN.2019 08:50:51

Fig 8. Power Spectral Density (802.11n-20MHz,Ch6)



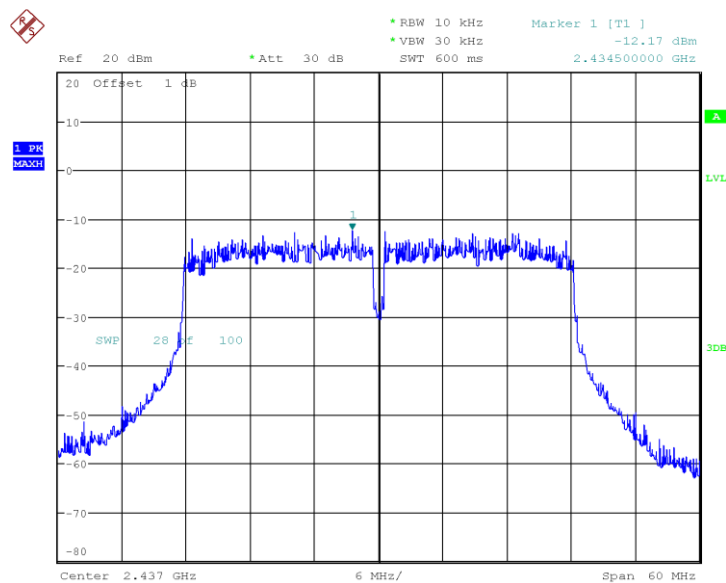
Date: 13.JUN.2019 08:52:10

Fig 9. Power Spectral Density (802.11n-20MHz,Ch11)



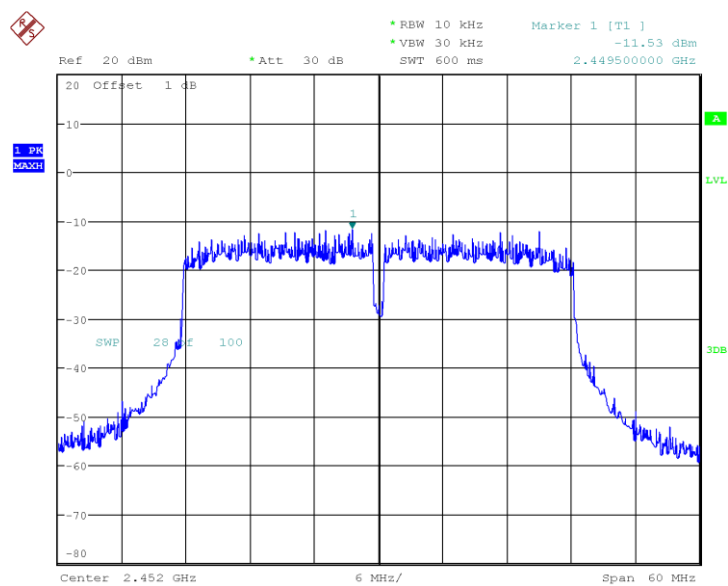
Date: 13.JUN.2019 08:53:34

Fig 10. Power Spectral Density (802.11n-40MHz,Ch3)



Date: 13.JUN.2019 08:55:23

Fig 11. Power Spectral Density (802.11n-40MHz,Ch6)



Date: 13.JUN.2019 08:56:29

Fig 12. Power Spectral Density (802.11n-40MHz,Ch9)

ANNEX A.3. Occupied 6dB Bandwidth

A.3.1 Measurement Limit:

| Standard | Limit(KHz) |
|---------------------------|------------|
| FCC 47 CFR Part 15.247(a) | ≥500 |

A.3.2 Test procedure

The measurement is according to ANSI C63.10 clause 11.8.

1. The output power of EUT was connected to the spectrum analyzer. The path loss was compensated to the results for each measurement.
2. Enable EUT transmitter maximum power continuously.
3. Set RBW = 100 kHz.
4. Set the VBW $\geq [3 \times \text{RBW}]$.
5. Detector = peak.
6. Trace mode = max hold.
7. Sweep = auto couple.
8. Allow the trace to stabilize.
9. 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.

Measurement Result:

802.11b/g mode

| Mode | Channel | Occupied 6dB Bandwidth(MHz) | | Conclusion |
|---------|---------|-----------------------------|-------|------------|
| 802.11b | 1 | Fig 13. | 9.81 | P |
| | 6 | Fig 14. | 9.30 | P |
| | 11 | Fig 15. | 10.26 | P |
| 802.11g | 1 | Fig 16. | 16.54 | P |
| | 6 | Fig 17. | 16.54 | P |
| | 11 | Fig 18. | 16.54 | P |

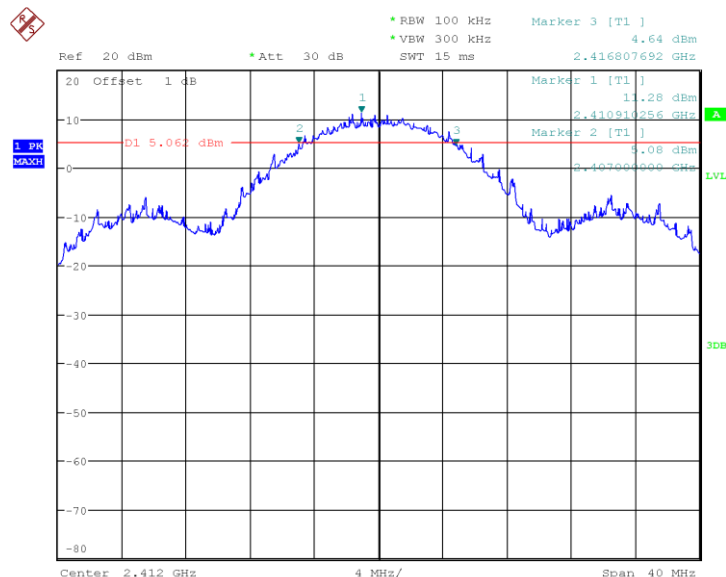
802.11n mode

| Mode | Channel | Occupied 6dB Bandwidth(MHz) | | Conclusion |
|----------------|---------|-----------------------------|-------|------------|
| 802.11n(20MHz) | 1 | Fig 19. | 17.69 | P |
| | 6 | Fig 20. | 17.69 | P |
| | 11 | Fig 21. | 17.44 | P |

| | | | | |
|----------------|---|---------|-------|---|
| 802.11n(40MHz) | 3 | Fig 22. | 36.03 | P |
| | 6 | Fig 23. | 35.38 | P |
| | 9 | Fig 24. | 35.13 | P |

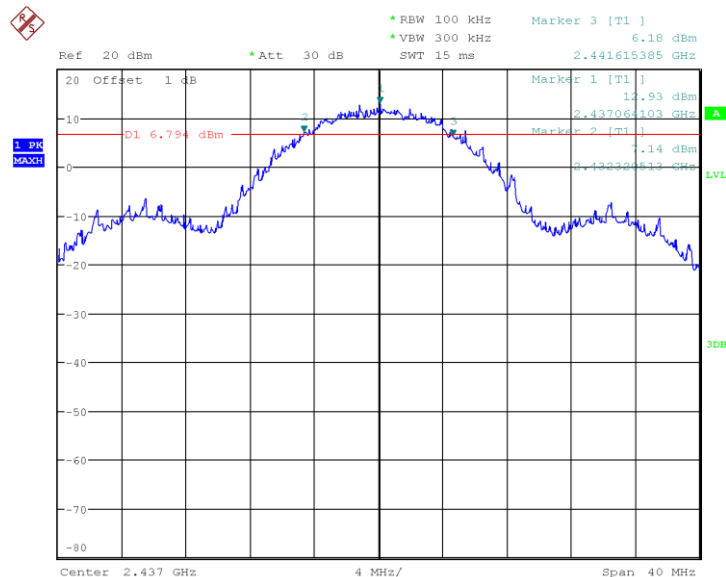
Conclusion: PASS

Test graphs as below:



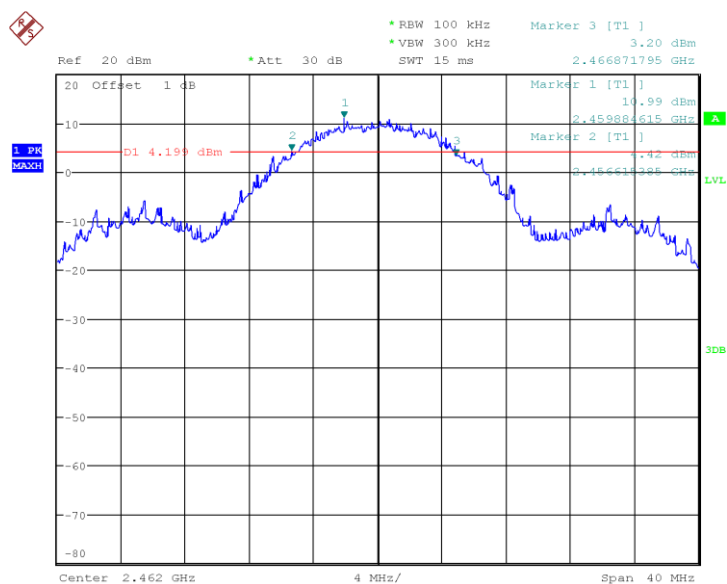
Date: 12.JUN.2019 08:14:01

Fig 13. Occupied 6dB Bandwidth (802.11b, Ch1)



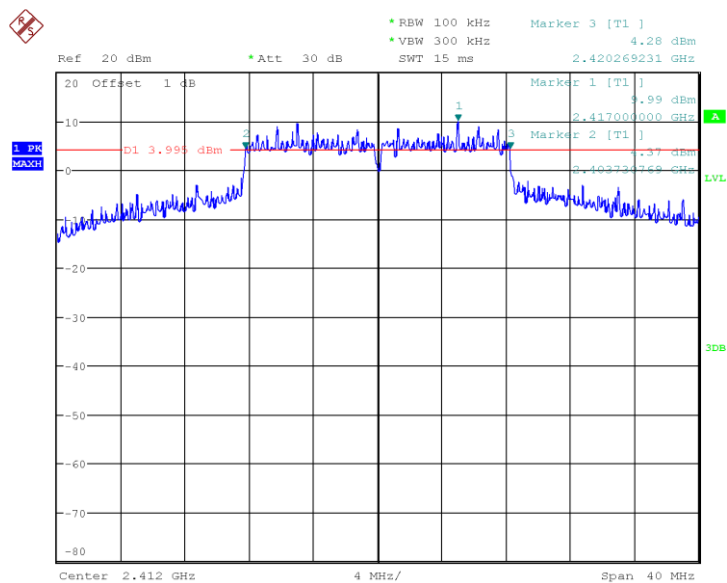
Date: 12.JUN.2019 08:15:18

Fig 14. Occupied 6dB Bandwidth (802.11b, Ch6)



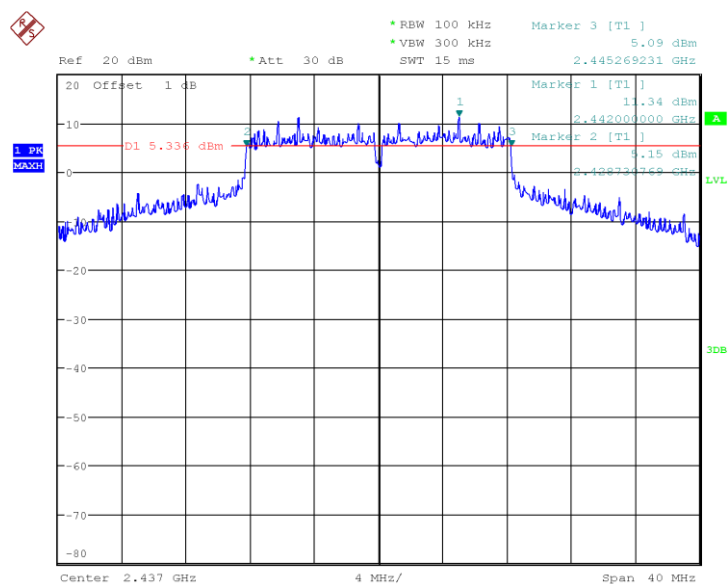
Date: 12.JUN.2019 08:16:34

Fig 15. Occupied 6dB Bandwidth (802.11b, Ch11)



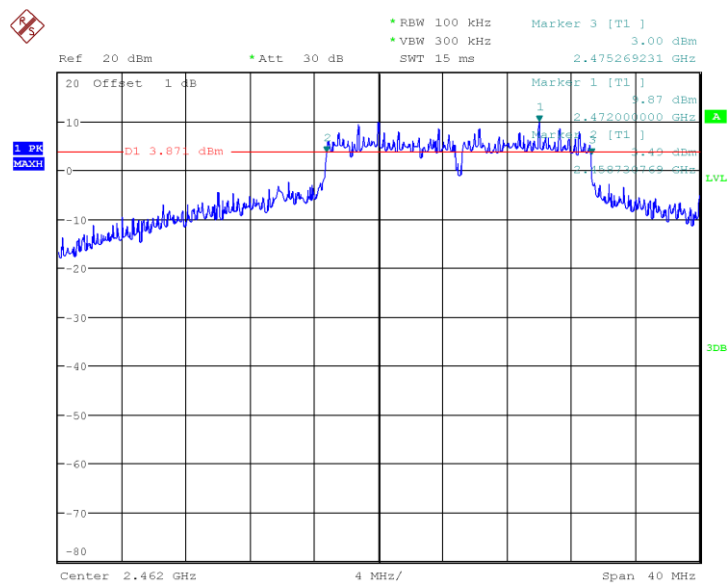
Date: 12.JUN.2019 08:18:02

Fig 16. Occupied 6dB Bandwidth (802.11g, Ch1)



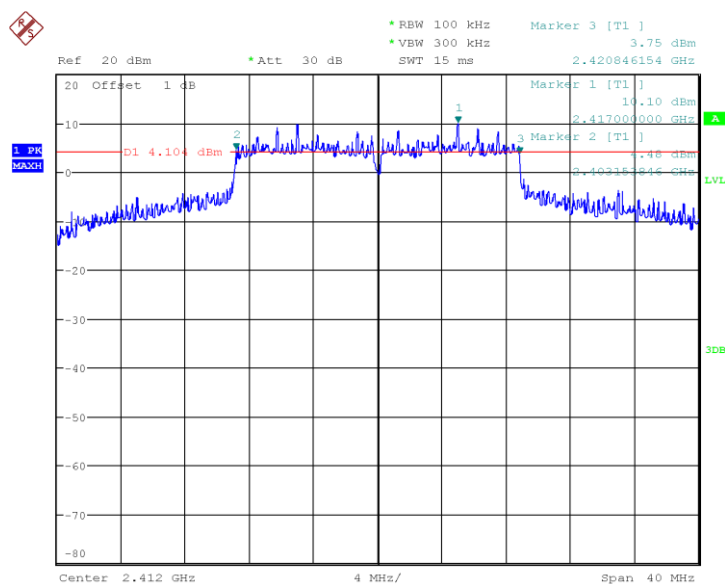
Date: 12.JUN.2019 08:19:10

Fig 17. Occupied 6dB Bandwidth (802.11g, Ch6)



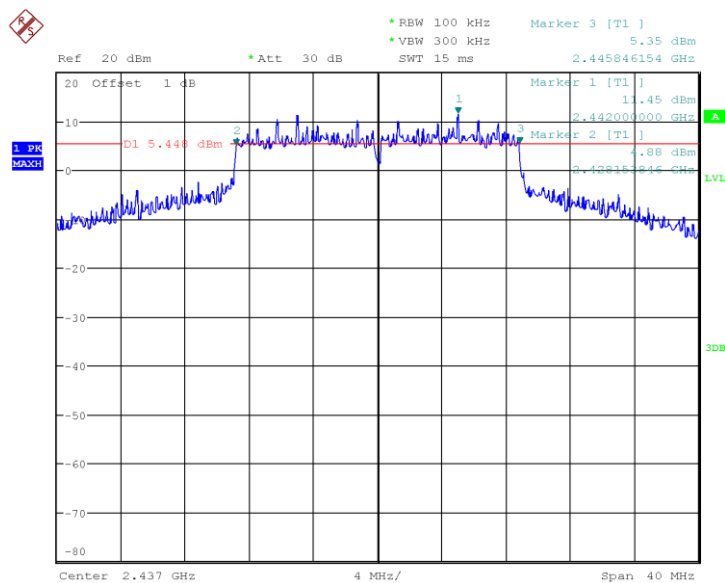
Date: 12.JUN.2019 08:20:21

Fig 18. Occupied 6dB Bandwidth (802.11g, Ch11)



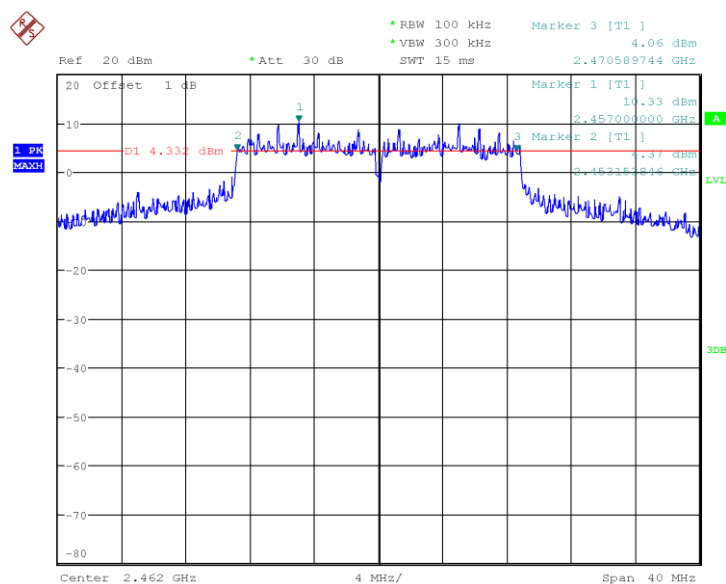
Date: 12.JUN.2019 08:31:19

Fig 19. Occupied 6dB Bandwidth (802.11n-20MHz, Ch1)



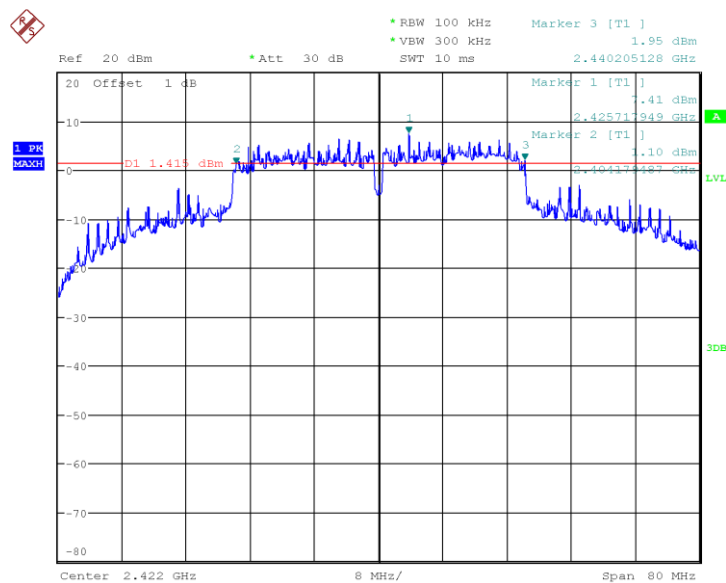
Date: 12.JUN.2019 08:32:18

Fig 20. Occupied 6dB Bandwidth (802.11n-20MHz, Ch6)



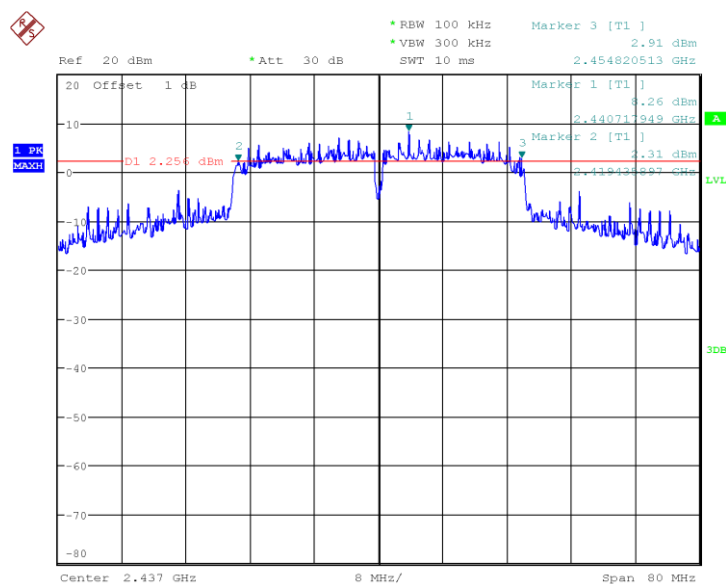
Date: 12.JUN.2019 08:33:26

Fig 21. Occupied 6dB Bandwidth (802.11n-20MHz, Ch11)



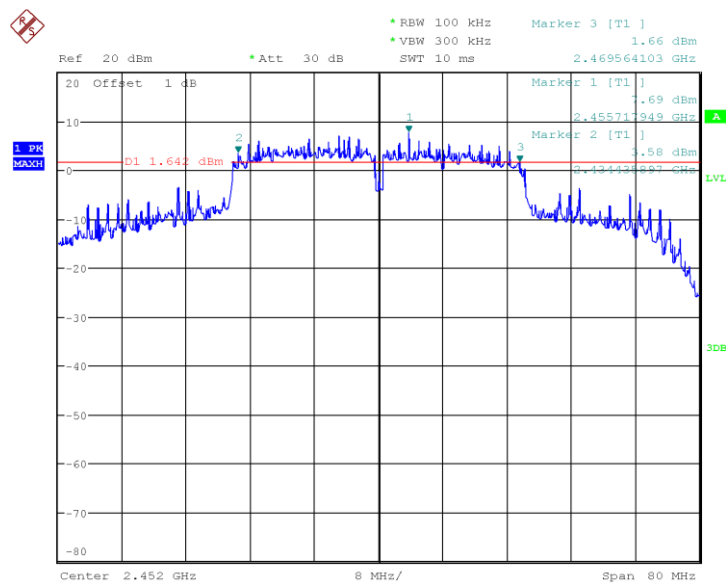
Date: 12.JUN.2019 08:35:52

Fig 22. Occupied 6dB Bandwidth (802.11n-40MHz, Ch3)



Date: 12.JUN.2019 08:37:02

Fig 23. Occupied 6dB Bandwidth (802.11n-40MHz, Ch6)



Date: 12.JUN.2019 08:38:35

Fig 24. Occupied 6dB Bandwidth (802.11n-40MHz, Ch9)

ANNEX A.4. Band Edges Compliance

A.4.1 Measurement Limit:

| Standard | Limited(dBc) |
|---------------------------|--------------|
| FCC 47 CFR Part 15.247(d) | >20 |

A.4.2 Test procedures

The measurement is according to ANSI C63.10 clause 11.13.

1. The output power of EUT was connected to the spectrum analyzer. The path loss was compensated to the results for each measurement.
2. Enable EUT transmitter maximum power continuously.
3. Set instrument center frequency to the frequency of the emission to be measured (must be within 2MHz of the authorized band edge).
4. Set span to 2 MHz.
5. RBW = 100 kHz.
6. VBW \geq [3 \times RBW].
7. Detector = peak.
8. Sweep time = auto.
9. Trace mode = max hold.
10. Allow sweep to continue until the trace stabilizes

Measurement results

802.11b/g mode

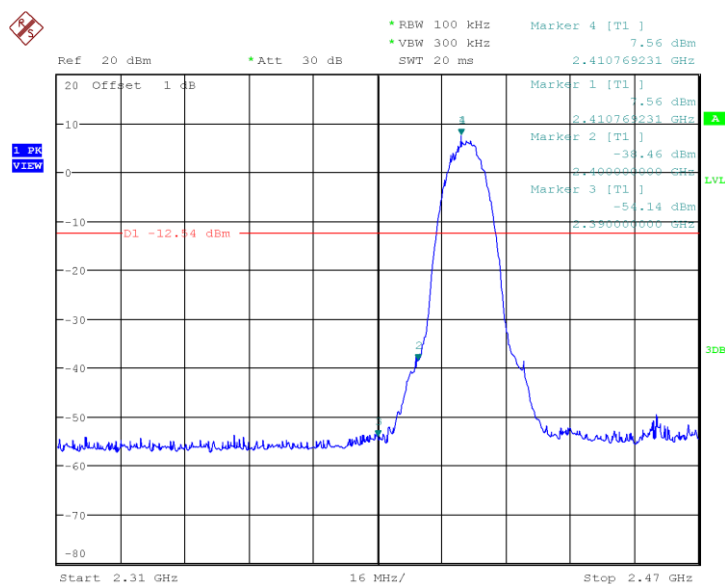
| Mode | Channel | Test Results | Conclusion |
|---------|---------|--------------|------------|
| 802.11b | 1 | Fig 25. | P |
| | 11 | Fig 26. | P |
| 802.11g | 1 | Fig 27. | P |
| | 11 | Fig 28. | P |

802.11n mode

| Mode | Channel | Test Results | Conclusion |
|----------------|---------|--------------|------------|
| 802.11n(20MHz) | 1 | Fig 29. | P |
| | 11 | Fig 30. | P |
| 802.11n(40MHz) | 3 | Fig 31. | P |
| | 9 | Fig 32. | P |

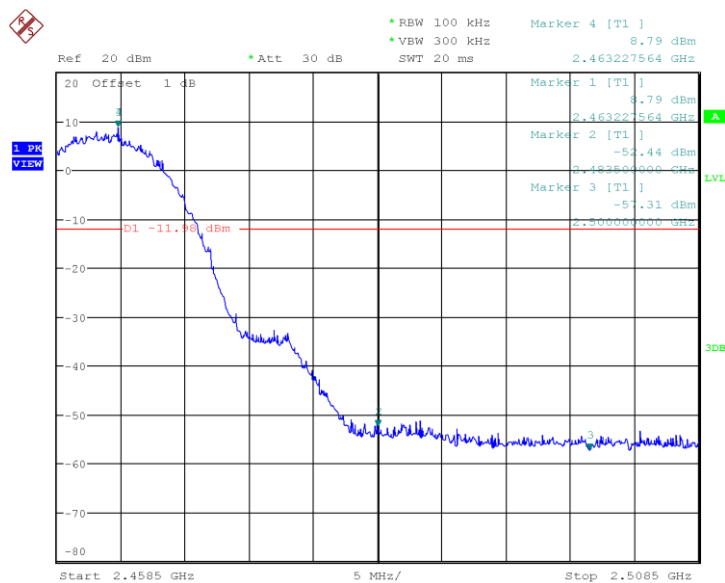
Conclusion: PASS

Test graphs as blew:



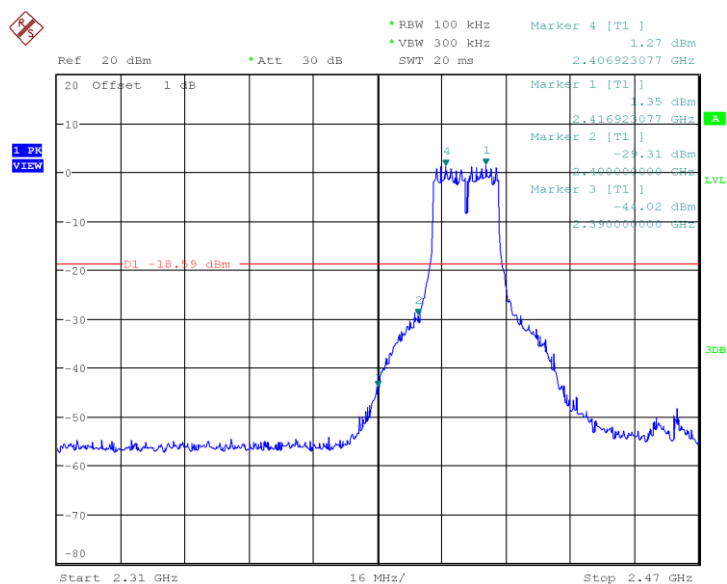
Date: 15.JUN.2019 01:35:11

Fig 25. Band Edges (802.11b, Ch1)



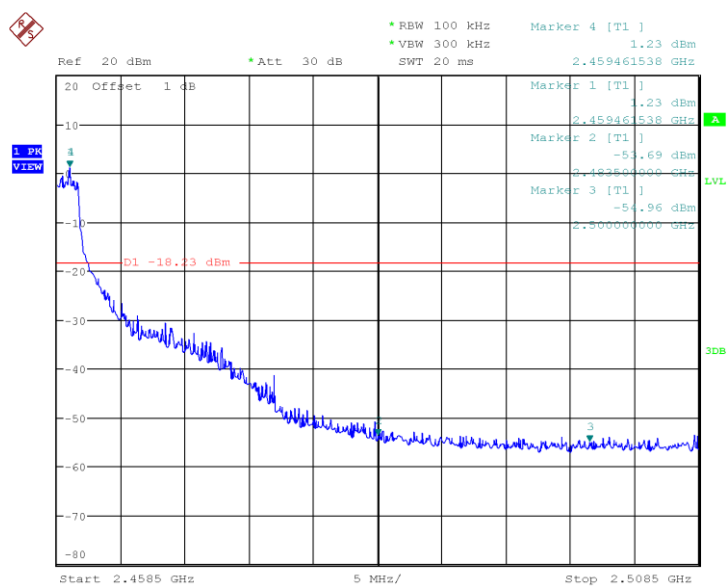
Date: 15.JUN.2019 01:39:47

Fig 26. Band Edges (802.11b, Ch11)



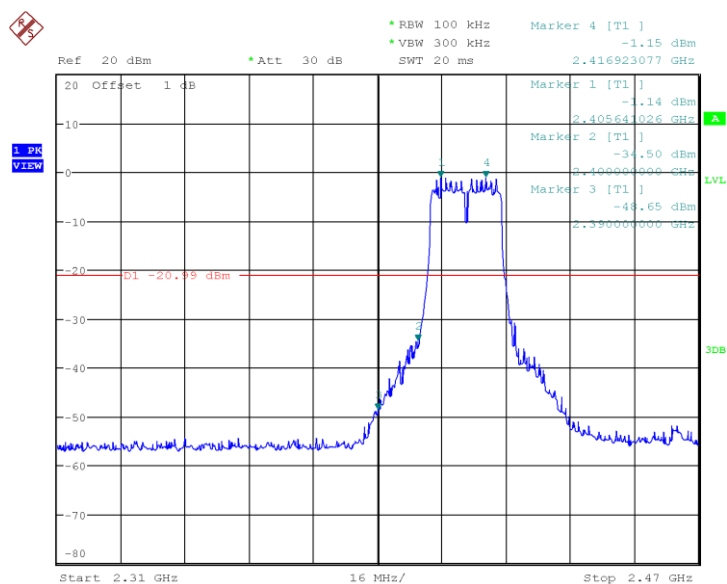
Date: 15.JUN.2019 01:42:24

Fig 27. Band Edges (802.11g, Ch1)



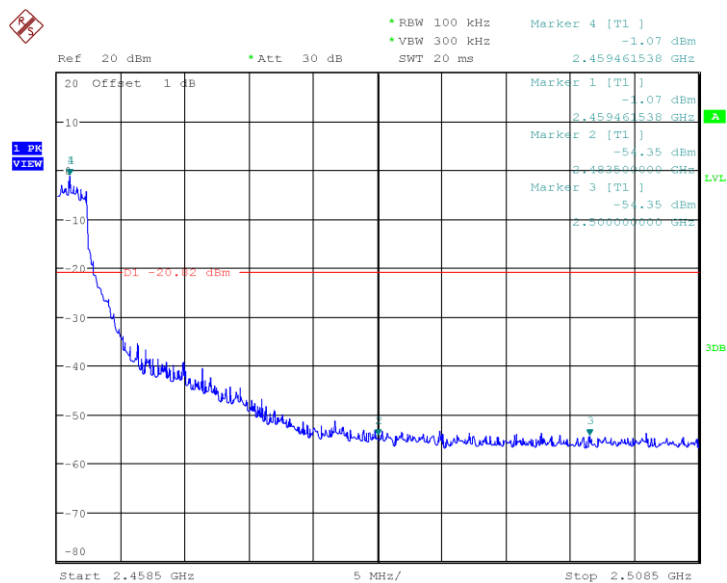
Date: 15.JUN.2019 01:46:49

Fig 28. Band Edges (802.11g, Ch11)



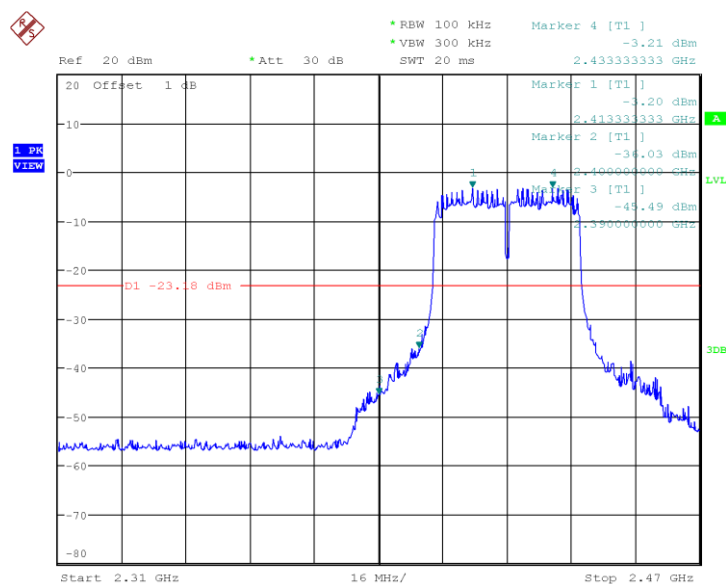
Date: 15.JUN.2019 01:49:21

Fig 29. Band Edges (802.11n-20MHz, Ch1)



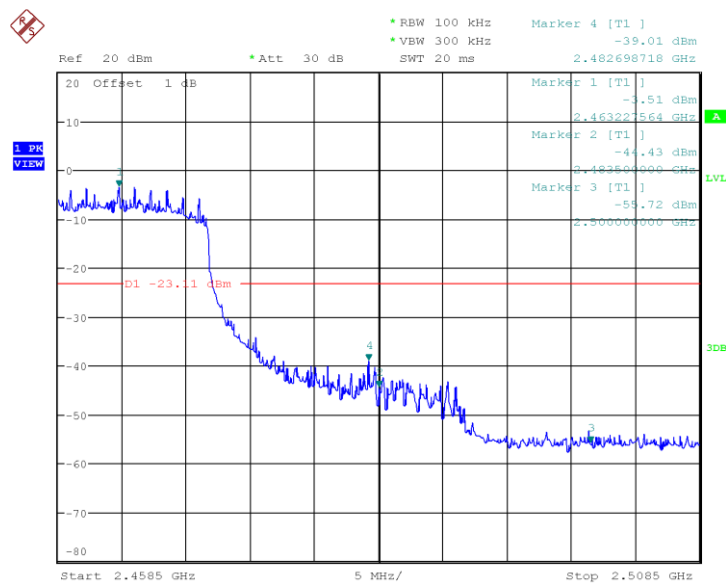
Date: 15.JUN.2019 01:55:51

Fig 30. Band Edges (802.11n-20MHz, Ch11)



Date: 15.JUN.2019 01:58:41

Fig 31. Band Edges (802.11n-40MHz, Ch3)



Date: 15.JUN.2019 02:04:37

Fig 32. Band Edges (802.11n-40MHz, Ch9)

ANNEX A.5. Transmitter Spurious Emission-conducted

A.5.1 Measurement Limit:

| Standard | Limit |
|---------------------------|--------------------------------------------------|
| FCC 47 CFR Part 15.247(d) | 20dB below peak output power in 100KHz bandwidth |

A.5.2 Test procedures

This measurement is according to ANSI C63.10 clause 11.11.

1. The output power of EUT was connected to the spectrum analyzer. The path loss was compensated to the results for each measurement.
2. Enable EUT transmitter maximum power continuously.

Reference level measurement

3. Set instrument center frequency to DTS channel center frequency.
4. Set the span to ≥ 1.5 times the DTS bandwidth.
5. Set the RBW = 100 kHz.
6. Set the VBW $\geq [3 \times \text{RBW}]$.
7. Detector = peak.
8. Sweep time = auto couple.
9. Trace mode = max hold.
10. Allow trace to fully stabilize.
11. Use the peak marker function to determine the maximum PSD level.

Emission level measurement

12. Set the center frequency and span to encompass frequency range to be measured.
13. Set the RBW = 100 kHz.
14. Set the VBW $\geq [3 \times \text{RBW}]$.
15. Detector = peak.
16. Sweep time = auto couple.
17. Trace mode = max hold.
18. Allow trace to fully stabilize.
19. Use the peak marker function to determine the maximum amplitude level.

Measurement Result:

802.11b/g mode

| Mode | Channel | Frequency Range | Test Results | Conclusion |
|---------|---------|-----------------|--------------|------------|
| 802.11b | 1 | 2.412GHz | Fig 33. | P |
| | | 30MHz~26GHz | Fig 34. | P |
| | 6 | 2.437GHz | Fig 35. | P |
| | | 30MHz~26GHz | Fig 36. | P |

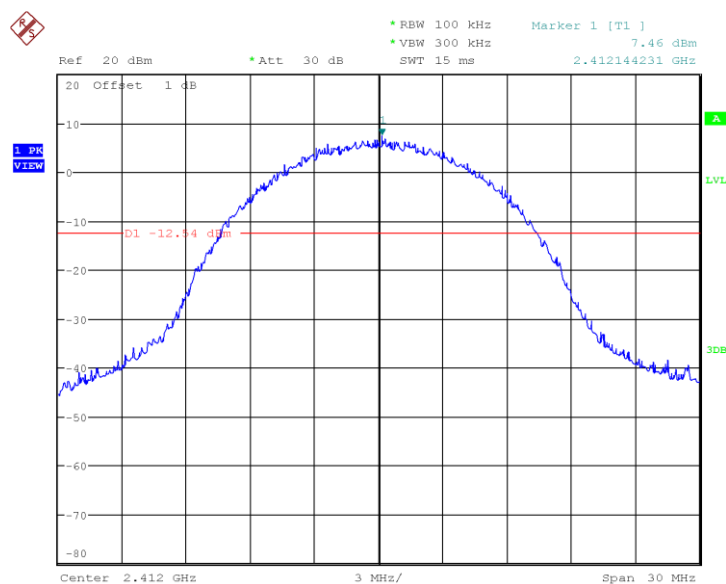
| | | | | |
|---------|----|-------------|---------|---|
| | 11 | 2.462GHz | Fig 37. | P |
| | | 30MHz~26GHz | Fig 38. | P |
| 802.11g | 1 | 2.412GHz | Fig 39. | P |
| | | 30MHz~26GHz | Fig 40. | P |
| | 6 | 2.437GHz | Fig 41. | P |
| | | 30MHz~26GHz | Fig 42. | P |
| | 11 | 2.462GHz | Fig 43. | P |
| | | 30MHz~26GHz | Fig 44. | P |

802.11n mode

| Mode | Channel | Frequency Range | Test Results | Conclusion |
|----------------|---------|-----------------|--------------|------------|
| 802.11n(20MHz) | 1 | 2.412GHz | Fig 45. | P |
| | | 30MHz~26GHz | Fig 46. | P |
| | 6 | 2.437GHz | Fig 47. | P |
| | | 30MHz~26GHz | Fig 48. | P |
| | 11 | 2.462GHz | Fig 49. | P |
| | | 30MHz~26GHz | Fig 50. | P |
| 802.11n(40MHz) | 3 | 2.422GHz | Fig 51. | P |
| | | 30MHz~26GHz | Fig 52. | P |
| | 6 | 2.437GHz | Fig 53. | P |
| | | 30MHz~26GHz | Fig 54. | P |
| | 9 | 2.452GHz | Fig 55. | P |
| | | 30MHz~26GHz | Fig 56. | P |

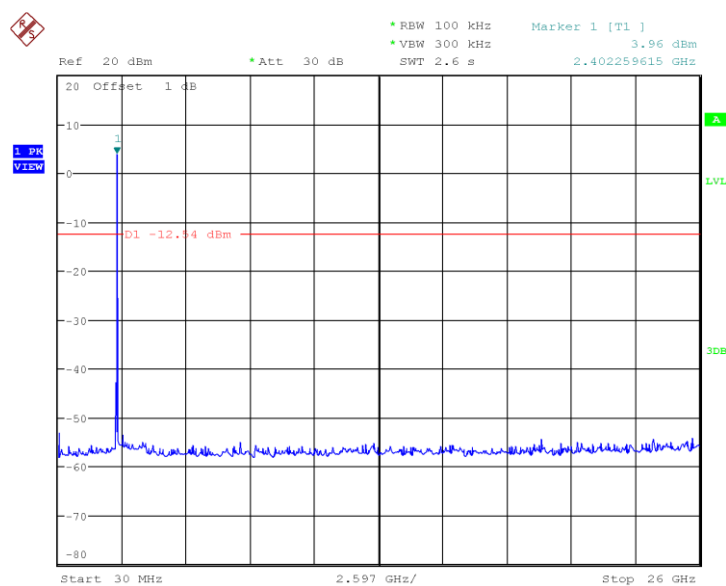
Conclusion: PASS

Test graphs as below:



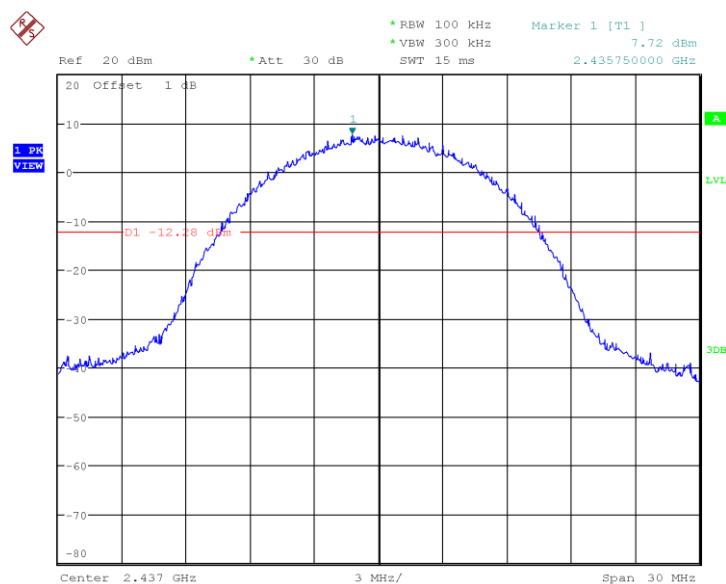
Date: 15.JUN.2019 01:34:34

Fig 33. Conducted Spurious Emission (802.11b, Ch1)



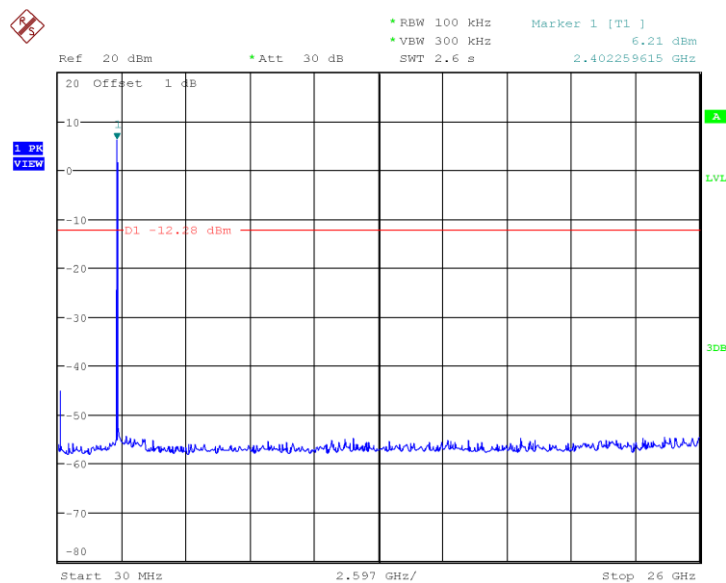
Date: 15.JUN.2019 01:35:44

Fig 34. Conducted Spurious Emission (802.11b, Ch1, 30MHz~26GHz)



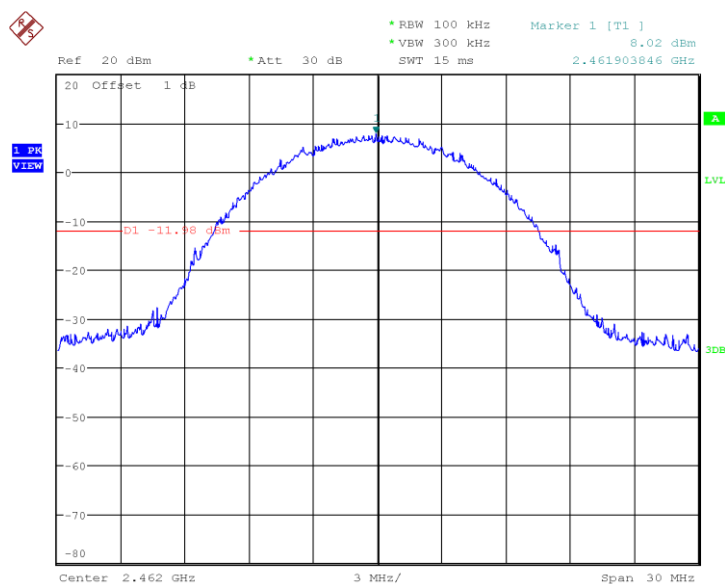
Date: 15.JUN.2019 01:36:52

Fig 35. Conducted Spurious Emission (802.11b, Ch6)



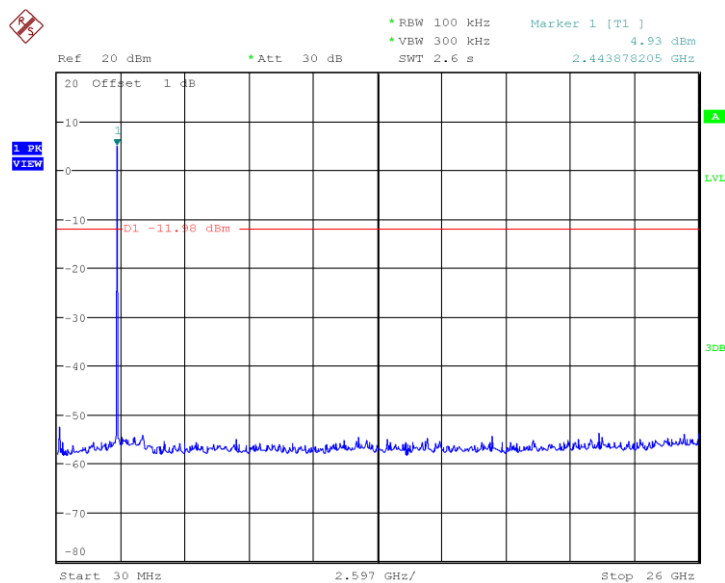
Date: 15.JUN.2019 01:38:09

Fig 36. Conducted Spurious Emission (802.11b, Ch6, 30MHz~26GHz)



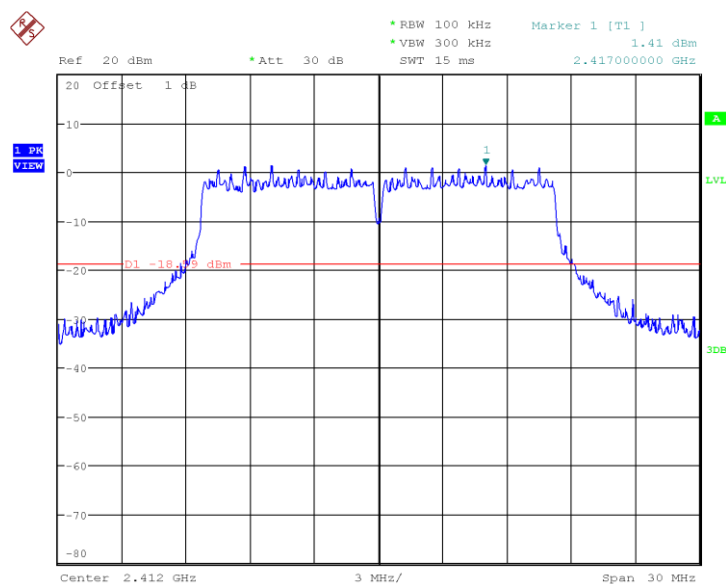
Date: 15.JUN.2019 01:39:10

Fig 37. Conducted Spurious Emission (802.11b, Ch11)



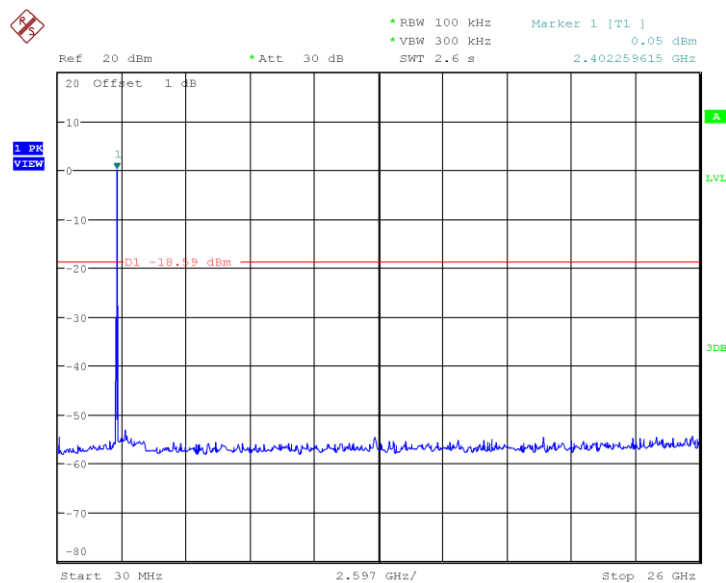
Date: 15.JUN.2019 01:40:21

Fig 38. Conducted Spurious Emission (802.11b, Ch11, 30MHz~26GHz)



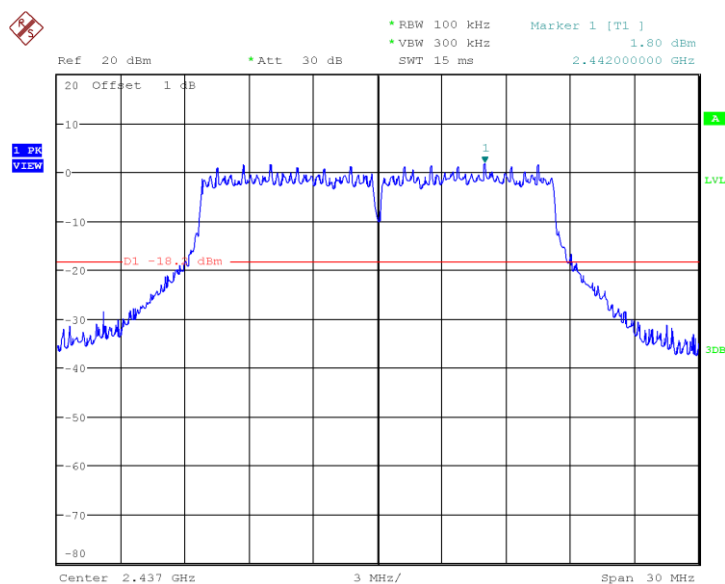
Date: 15.JUN.2019 01:41:47

Fig 39. Conducted Spurious Emission (802.11g, Ch1)



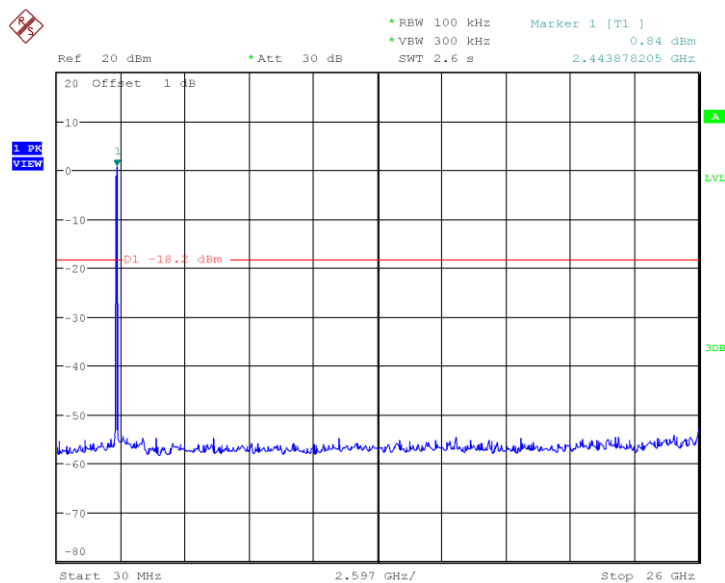
Date: 15.JUN.2019 01:42:58

Fig 40. Conducted Spurious Emission (802.11g, Ch1, 30MHz~26GHz)



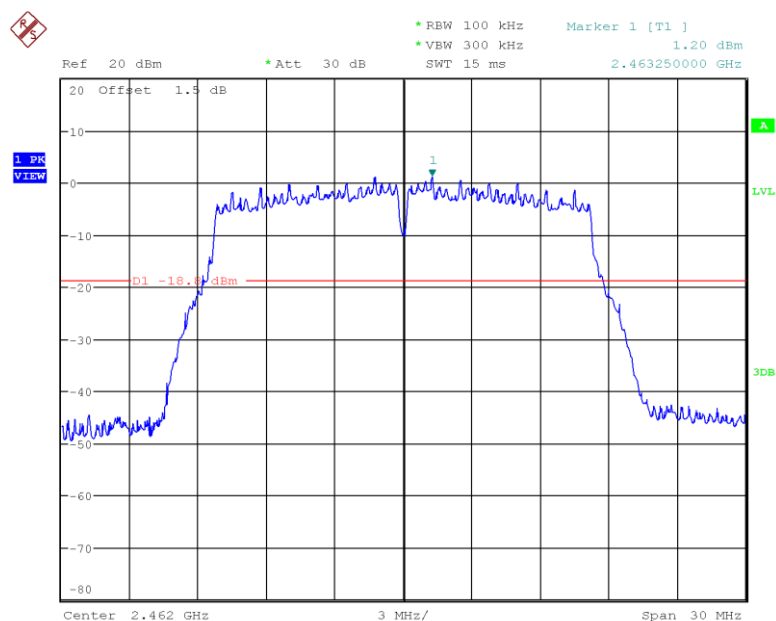
Date: 15.JUN.2019 01:43:57

Fig 41. Conducted Spurious Emission (802.11g, Ch6)



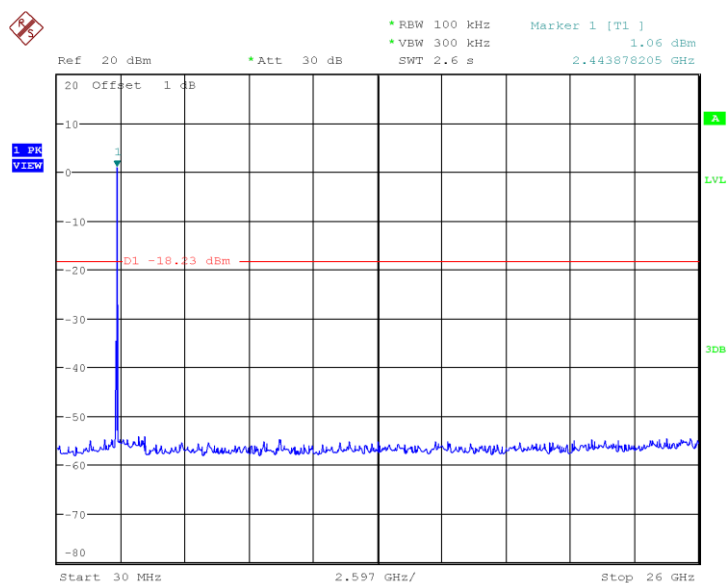
Date: 15.JUN.2019 01:45:14

Fig 42. Conducted Spurious Emission (802.11g, Ch6, 30MHz~26GHz)



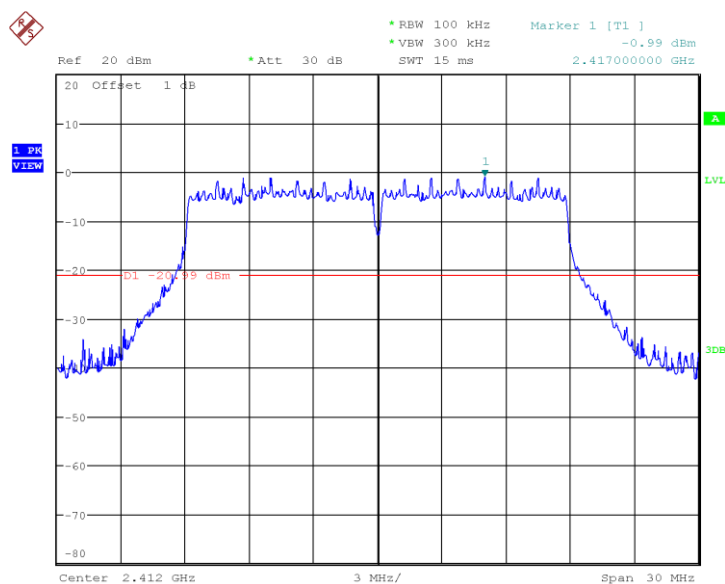
Date: 23.MAY.2019 09:58:30

Fig 43. Conducted Spurious Emission (802.11g, Ch11)



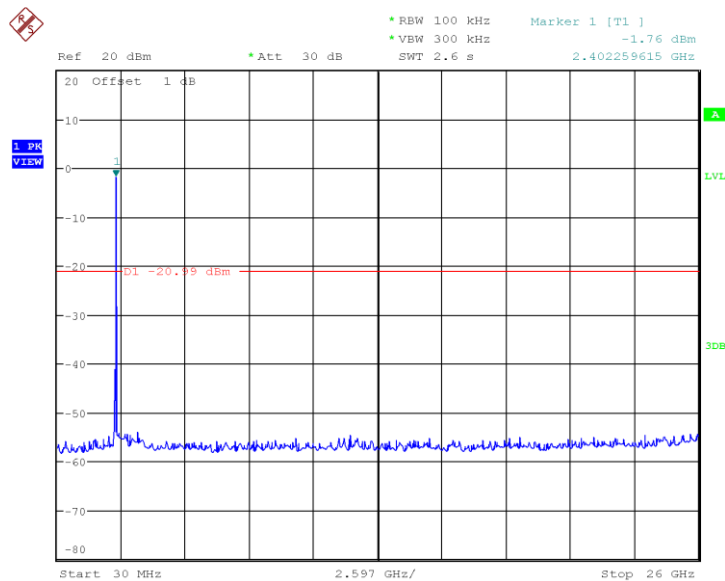
Date: 15.JUN.2019 01:47:23

Fig 44. Conducted Spurious Emission (802.11g, Ch11, 30MHz~26GHz)



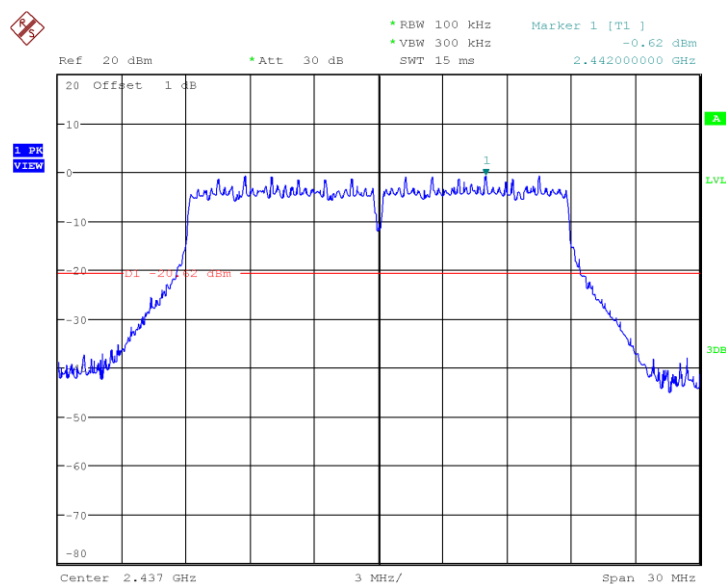
Date: 15.JUN.2019 01:48:44

Fig 45. Conducted Spurious Emission (802.11n-20MHz, Ch1)



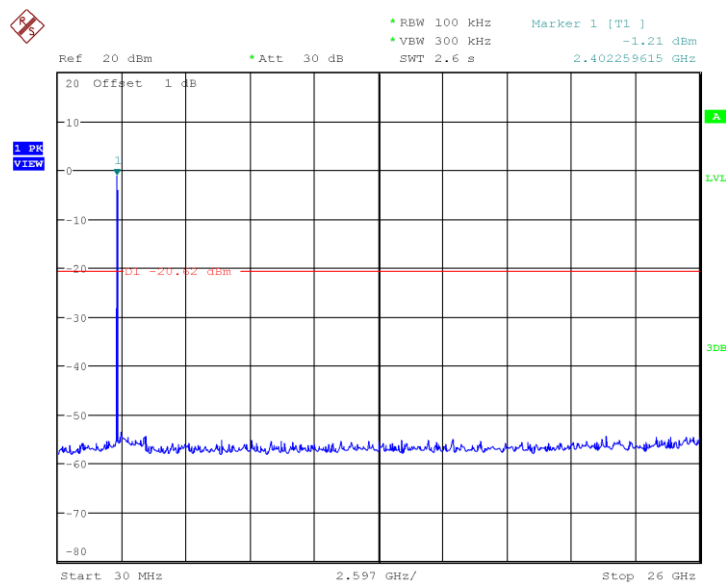
Date: 15.JUN.2019 01:49:55

Fig 46. Conducted Spurious Emission (802.11n-20MHz, Ch1, 30MHz~26GHz)



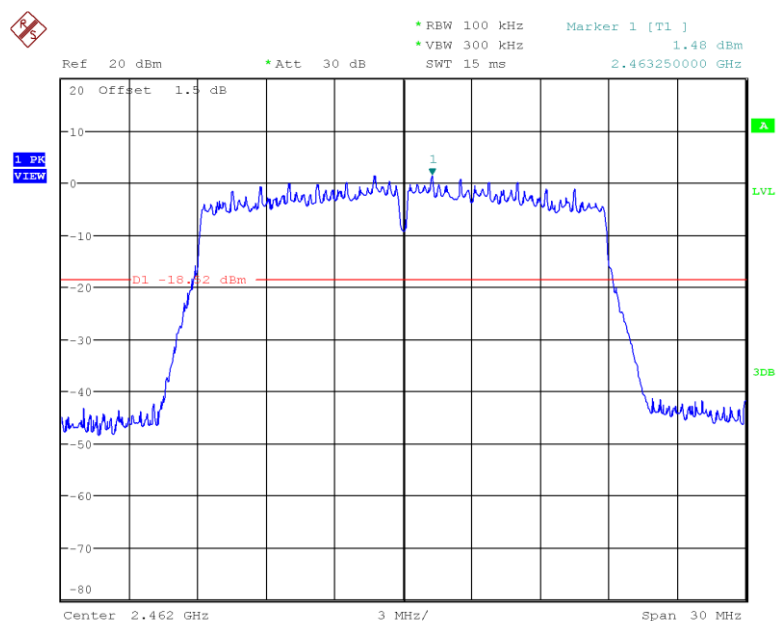
Date: 15.JUN.2019 01:52:23

Fig 47. Conducted Spurious Emission (802.11n-20MHz, Ch6)



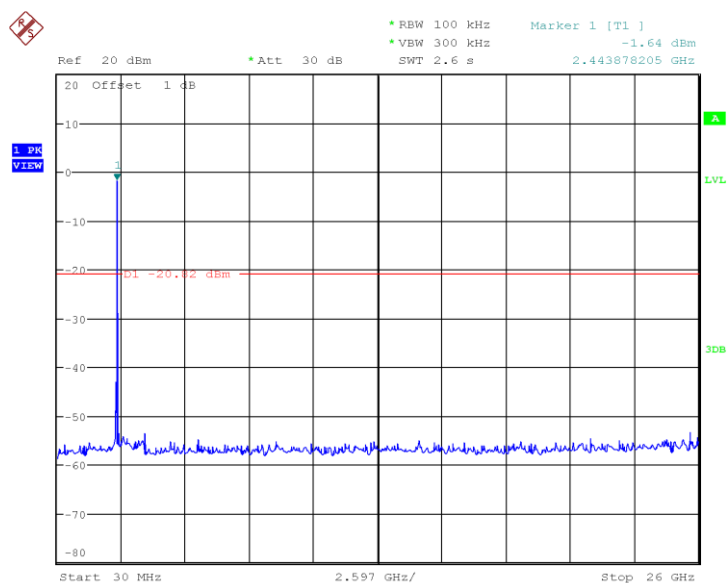
Date: 15.JUN.2019 01:53:40

Fig 48. Conducted Spurious Emission (802.11n-20MHz, Ch6, 30MHz~26GHz)



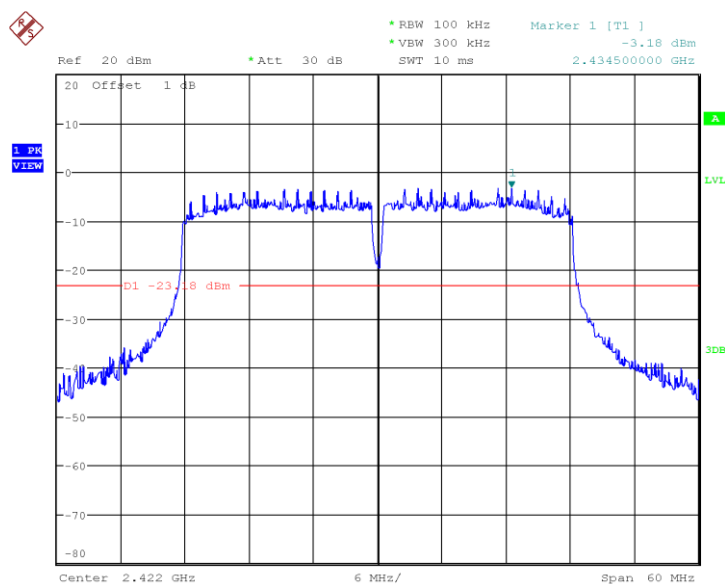
Date: 23.MAY.2019 10:04:44

Fig 49. Conducted Spurious Emission (802.11n-20MHz, Ch11)



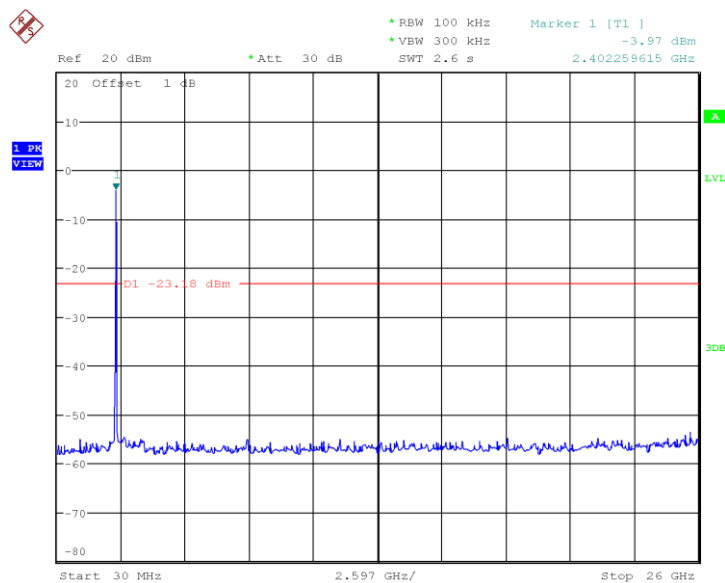
Date: 15.JUN.2019 01:56:26

Fig 50. Conducted Spurious Emission (802.11n-20MHz, Ch11, 30MHz~26GHz)



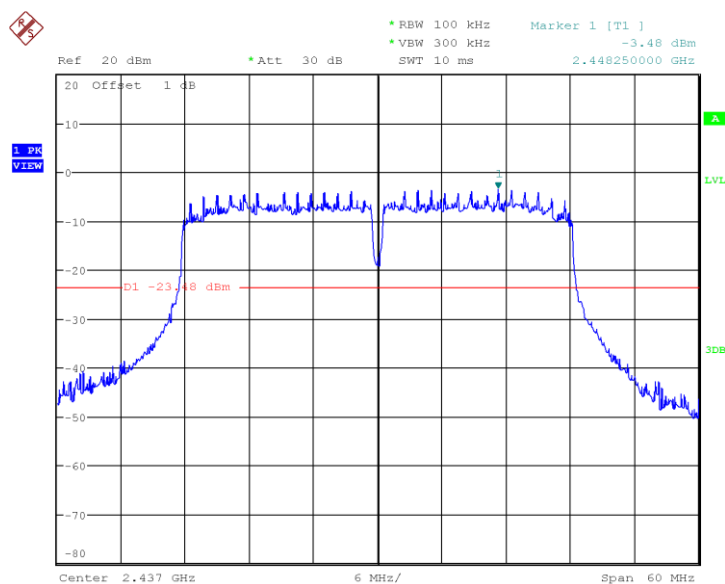
Date: 15.JUN.2019 01:58:04

Fig 51. Conducted Spurious Emission (802.11n-40MHz, Ch3)



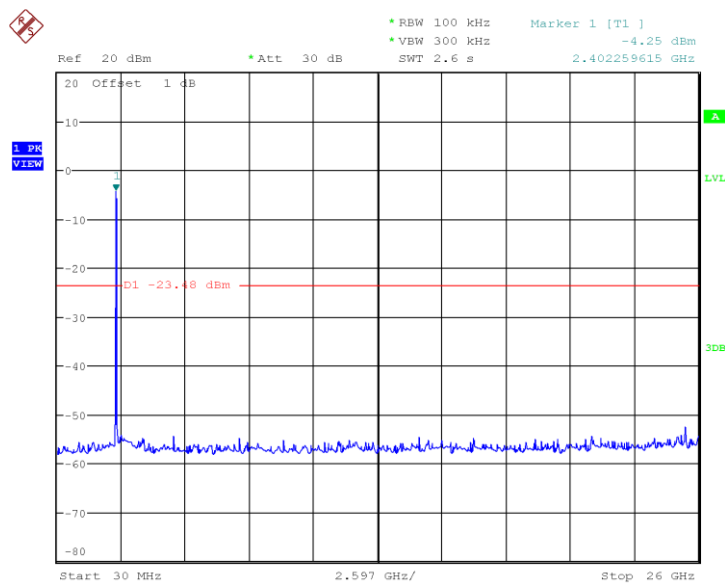
Date: 15.JUN.2019 01:59:15

Fig 52. Conducted Spurious Emission (802.11n-40MHz, Ch3, 30MHz~26GHz)



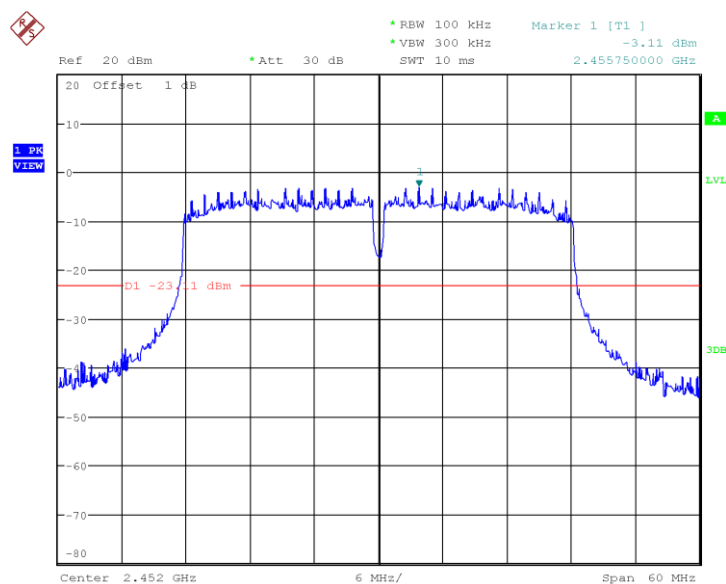
Date: 15.JUN.2019 02:01:39

Fig 53. Conducted Spurious Emission (802.11n-40MHz, Ch6)



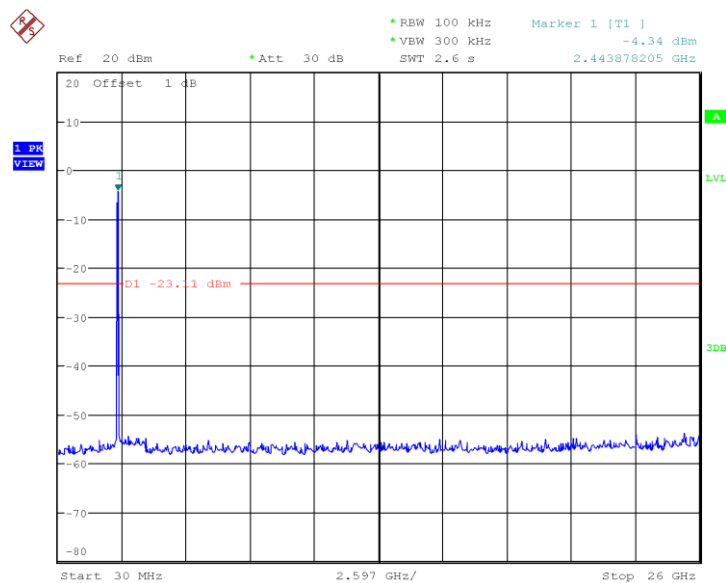
Date: 15.JUN.2019 02:02:59

Fig 54. Conducted Spurious Emission (802.11n-40MHz, Ch6, 30MHz~26GHz)



Date: 15.JUN.2019 02:04:01

Fig 55. Conducted Spurious Emission (802.11n-40MHz, Ch9)



Date: 15.JUN.2019 02:05:11

Fig 56. Conducted Spurious Emission (802.11n-40MHz, Ch9, 30MHz~26GHz)

ANNEX A.6. Transmitter Spurious Emission-Radiated

A.6.1 Measurement Limit:

| Standard | Limit |
|----------|-------|
|----------|-------|

| | |
|--------------------------------------|------------------------------|
| FCC 47 CFR Part 15.247,15.205,15.209 | 20dB below peak output power |
|--------------------------------------|------------------------------|

In addition, radiated emissions which fall in the restricted bands, as defined in 25.205(a), must also comply with the radiated emission limits specified in 15.209(a)(see 15.205(c)).

The measurement is according to ANSI C63.10 clause 11.11 and 11.12.

A.6.2 Limit in restricted band:

| Frequency of emission(MHz) | Field strength(uV/m) | Field strength(dBuV/m) |
|----------------------------|----------------------|------------------------|
| 30~88 | 100 | 40 |
| 88~216 | 150 | 43.5 |
| 216~960 | 200 | 46 |
| Above 960 | 500 | 54 |

A.6.3 Test procedures

Portable, small, lightweight, or modular devices that may be handheld, worn on the body, or placed on a table during operation shall be positioned on a nonconducting platform, the top of which is 80 cm above the reference ground plane. The preferred area occupied by the EUT arrangement is 1 m by 1.5 m, but it may be larger or smaller to accommodate various sized EUTs. For testing purposes, ceiling- and wall-mounted devices also shall be positioned on a tabletop (see also ANSI C63.4-2013 section 6.3.4 and 6.3.5). In making any tests involving handheld, body-worn, or ceiling-mounted equipment, it is essential to recognize that the measured levels may be dependent on the orientation (attitude) of the three orthogonal axes of the EUT. Thus, exploratory tests as specified in 8.3.1 shall be carried out for various axes orientations to determine the attitude having maximum or near-maximum emission level.

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 meters from the EUT. During testing, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emission from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

| Frequency of emission (MHz) | RBW/VBW | Sweep Times (s) |
|-----------------------------|---------------|-----------------|
| 30~1000 | 100KHz/300KHz | 5 |
| 1000~4000 | 1MHz/3MHz | 15 |
| 4000~18000 | 1MHz/3MHz | 40 |
| 18000~26500 | 1MHz/3MHz | 20 |

802.11b/g mode

| Mode | Channel | Frequency Range | Test Results | Conclusion |
|------|---------|-----------------|--------------|------------|
|------|---------|-----------------|--------------|------------|

| | | | | |
|---------|-----------------|----------------|---------|---|
| 802.11b | Bandedge (low) | 2.31GHz~2.5GHz | Fig 57. | P |
| | Bandedge (high) | 2.31GHz~2.5GHz | Fig 58. | P |
| | 11 | 30MHz~1GHz | Fig 59. | P |
| | | 1GHz~3GHz | Fig 60. | P |
| | | 3GHz~18GHz | Fig 61. | P |
| 802.11g | Bandedge (low) | 2.31GHz~2.5GHz | Fig 62. | P |
| | Bandedge (high) | 2.31GHz~2.5GHz | Fig 63. | P |
| | 11 | 30MHz~1GHz | Fig 64. | P |
| | | 1GHz~3GHz | Fig 65. | P |
| | | 3GHz~18GHz | Fig 66. | P |

802.11n mode

| Mode | Channel | Frequency Range | Test Results | Conclusion |
|----------------|-----------------|-----------------|--------------|------------|
| 802.11n(20MHz) | Bandedge (low) | 2.31GHz~2.5GHz | Fig 67. | P |
| | Bandedge (high) | 2.31GHz~2.5GHz | Fig 68. | P |
| | 11 | 30MHz~1GHz | Fig 69. | P |
| | | 1GHz~3GHz | Fig 70. | P |
| | | 3GHz~18GHz | Fig 71. | P |
| 802.11n(40MHz) | Bandedge (low) | 2.31GHz~2.5GHz | Fig 72. | P |
| | Bandedge (high) | 2.31GHz~2.5GHz | Fig 73. | P |
| | 9 | 30MHz~1GHz | Fig 74. | P |
| | | 1GHz~3GHz | Fig 75. | P |
| | | 3GHz~18GHz | Fig 76. | P |

Conclusion: PASS

Note:

A "reference path loss" is established and A_{Rpi} is the attenuation of "reference path loss", and including the gain of receive antenna, the gain of the preamplifier, the cable loss.

P_{Mea} is the field strength recorded from the instrument.

The measurement results are obtained as described below:

AR_{pi} = Cable loss + Antenna Gain-Preamplifier gain

Result = P_{Mea} + Cable loss + Antenna Gain-Preamplifier gain = $P_{Mea} + AR_{pi}$.

802.11b mode

Ch11 30MHz~1GHz

| Frequency(MHz) | Result(dBuV/m) | ARpl (dB) | PMea(dBuV/m) | Polarity |
|----------------|----------------|-----------|--------------|----------|
| 35.0 | 16.51 | -27.5 | 44.01 | V |
| 104.1 | 15.35 | -27.4 | 42.75 | V |
| 179.8 | 15.92 | -28.6 | 44.52 | H |
| 264.6 | 15.65 | -26.6 | 42.25 | H |
| 419.6 | 16.59 | -23.2 | 39.79 | V |
| 922.6 | 23.4 | -13.8 | 37.2 | V |

Ch11 1GHz~3GHz(Peak)

| Frequency(MHz) | Result(dBuV/m) | ARpl (dB) | PMea(dBuV/m) | Polarity |
|----------------|----------------|-----------|--------------|----------|
| 2549.9 | 54.13 | 3.5 | 50.63 | H |
| 2628.1 | 54.58 | 4.1 | 50.48 | V |
| 2704.6 | 54.69 | 4.6 | 50.09 | V |
| 2805.7 | 54.55 | 4.5 | 50.05 | V |
| 2912.8 | 56.33 | 5.7 | 50.63 | V |
| 2985.3 | 55.03 | 5.5 | 49.53 | V |

Ch11 1GHz~3GHz(Average)

| Frequency(MHz) | Result(dBuV/m) | ARpl (dB) | PMea(dBuV/m) | Polarity |
|----------------|----------------|-----------|--------------|----------|
| 2549.9 | 41.55 | 3.5 | 38.05 | H |
| 2628.1 | 41.96 | 4.1 | 37.86 | V |
| 2704.6 | 42.56 | 4.6 | 37.96 | V |
| 2805.7 | 42.37 | 4.5 | 37.87 | V |

| | | | | |
|--------|-------|-----|-------|---|
| 2912.8 | 43.28 | 5.7 | 37.58 | V |
|--------|-------|-----|-------|---|

Ch11 3GHz~18GHz(Peak)

| Frequency(MHz) | Result(dBuV/m) | ARpl (dB) | PMea(dBuV/m) | Polarity |
|----------------|----------------|-----------|--------------|----------|
| 12886.9 | 52.49 | 16.9 | 35.59 | V |
| 13783.3 | 52.84 | 18.4 | 34.44 | H |
| 14721.0 | 54.67 | 21 | 33.67 | H |
| 15433.1 | 55.8 | 22.7 | 33.1 | H |
| 16318.9 | 59.17 | 25.8 | 33.37 | V |
| 17605.7 | 60.02 | 27.7 | 32.32 | V |

Ch11 3GHz~18GHz(Average)

| Frequency(MHz) | Result(dBuV/m) | ARpl (dB) | PMea(dBuV/m) | Polarity |
|----------------|----------------|-----------|--------------|----------|
| 14721.0 | 42.91 | 21 | 21.91 | H |
| 15433.1 | 44.05 | 22.7 | 21.35 | H |
| 16318.9 | 46.29 | 25.8 | 20.49 | V |
| 17605.7 | 47.83 | 27.7 | 20.13 | V |
| 14721.0 | 42.91 | 21 | 21.91 | H |

802.11g
Ch11 30MHz~1GHz

| Frequency(MHz) | Result(dBuV/m) | ARpl (dB) | PMea(dBuV/m) | Polarity |
|----------------|----------------|-----------|--------------|----------|
| 35.0 | 16.22 | -27.5 | 43.72 | V |
| 104.8 | 13.08 | -27.4 | 40.48 | V |
| 179.8 | 15.88 | -28.6 | 44.48 | H |
| 265.2 | 14.38 | -26.6 | 40.98 | V |
| 431.5 | 18.01 | -23 | 41.01 | V |
| 867.4 | 22.41 | -14.7 | 37.11 | V |

Ch11 1GHz~3GHz(Peak)

| Frequency(MHz) | Result(dBuV/m) | ARpl (dB) | PMea(dBuV/m) | Polarity |
|----------------|----------------|-----------|--------------|----------|
| 13291.5 | 52.36 | 17.1 | 35.26 | V |
| 14311.3 | 55.8 | 20.6 | 35.2 | V |
| 14741.7 | 55.33 | 20.9 | 34.43 | V |
| 15405.5 | 55.4 | 22.7 | 32.7 | H |
| 16795.9 | 59.26 | 27.1 | 32.16 | H |
| 17794.1 | 60.52 | 28.4 | 32.12 | V |

Ch11 1GHz~3GHz(Average)

| Frequency(MHz) | Result(dBuV/m) | ARpl (dB) | PMea(dBuV/m) | Polarity |
|----------------|----------------|-----------|--------------|----------|
| 2675.6 | 42.45 | 4.5 | 37.95 | H |
| 2775.9 | 42.2 | 4.3 | 37.9 | H |
| 2870.9 | 43.21 | 5.4 | 37.81 | H |
| 2947.0 | 42.95 | 5.4 | 37.55 | V |

Ch11 3GHz~18GHz(Peak)

| Frequency(MHz) | Result(dBuV/m) | ARpl (dB) | PMea(dBuV/m) | Polarity |
|----------------|----------------|-----------|--------------|----------|
| 13291.5 | 52.36 | 17.1 | 35.26 | V |
| 14311.3 | 55.8 | 20.6 | 35.2 | V |
| 14741.7 | 55.33 | 20.9 | 34.43 | V |
| 15405.5 | 55.4 | 22.7 | 32.7 | H |
| 16795.9 | 59.26 | 27.1 | 32.16 | H |
| 17794.1 | 60.52 | 28.4 | 32.12 | V |

Ch11 3GHz~18GHz(Average)

| Frequency(MHz) | Result(dBuV/m) | ARpl (dB) | PMea(dBuV/m) | Polarity |
|----------------|----------------|-----------|--------------|----------|
| 14311.3 | 42.68 | 20.6 | 22.08 | V |
| 14741.7 | 42.78 | 20.9 | 21.88 | V |
| 15405.5 | 43.69 | 22.7 | 20.99 | H |

| | | | | |
|---------|-------|------|-------|---|
| 16795.9 | 47.29 | 27.1 | 20.19 | H |
|---------|-------|------|-------|---|

802.11n-20MHz
Ch11 30MHz~1GHz

| Frequency(MHz) | Result(dBuV/m) | ARpl (dB) | PMea(dBuV/m) | Polarity |
|----------------|----------------|-----------|--------------|----------|
| 34.4 | 15.6 | -27.5 | 43.1 | V |
| 105.2 | 12.37 | -27.3 | 39.67 | V |
| 179.9 | 18.52 | -28.6 | 47.12 | H |
| 267.4 | 13.97 | -26.6 | 40.57 | H |
| 419.1 | 17.17 | -23.2 | 40.37 | V |
| 867.5 | 22.35 | -14.7 | 37.05 | V |

Ch11 1GHz~3GHz(Peak)

| Frequency(MHz) | Result(dBuV/m) | ARpl (dB) | PMea(dBuV/m) | Polarity |
|----------------|----------------|-----------|--------------|----------|
| 2561.0 | 54.55 | 3.6 | 50.95 | H |
| 2624.7 | 53.56 | 4.1 | 49.46 | V |
| 2664.7 | 54.55 | 4.5 | 50.05 | H |
| 2791.0 | 54.2 | 4.4 | 49.8 | H |
| 2890.7 | 55.8 | 5.7 | 50.1 | H |
| 2950.7 | 54.45 | 5.3 | 49.15 | V |

Ch11 1GHz~3GHz(Average)

| Frequency(MHz) | Result(dBuV/m) | ARpl (dB) | PMea(dBuV/m) | Polarity |
|----------------|----------------|-----------|--------------|----------|
| 2561.0 | 41.63 | 3.6 | 38.03 | H |
| 2664.7 | 42.45 | 4.5 | 37.95 | H |
| 2791.0 | 42.23 | 4.4 | 37.83 | H |
| 2890.7 | 43.57 | 5.7 | 37.87 | H |
| 2950.7 | 42.97 | 5.3 | 37.67 | V |

Ch11 3GHz~18GHz(Peak)

| Frequency(MHz) | Result(dBuV/m) | ARpl (dB) | PMea(dBuV/m) | Polarity |
|----------------|----------------|-----------|--------------|----------|
| 12965.2 | 52.62 | 17.3 | 35.32 | H |
| 14302.9 | 54.45 | 20.8 | 33.65 | V |
| 15444.0 | 57.05 | 22.7 | 34.35 | V |
| 16111.1 | 58.87 | 24.8 | 34.07 | H |
| 16930.0 | 60.3 | 27.3 | 33 | V |
| 17792.0 | 60.43 | 28.4 | 32.03 | H |

Ch11 3GHz~18GHz(Average)

| Frequency(MHz) | Result(dBuV/m) | ARpl (dB) | PMea(dBuV/m) | Polarity |
|----------------|----------------|-----------|--------------|----------|
| 14302.9 | 42.84 | 20.8 | 22.04 | V |
| 15444.0 | 44 | 22.7 | 21.3 | V |
| 16111.1 | 46.38 | 24.8 | 21.58 | H |
| 16930.0 | 47.86 | 27.3 | 20.56 | V |
| 17792.0 | 48.26 | 28.4 | 19.86 | H |

802.11n-40MHz
Ch9 30MHz~1GHz

| Frequency(MHz) | Result(dBuV/m) | ARpl (dB) | PMea(dBuV/m) | Polarity |
|----------------|----------------|-----------|--------------|----------|
| 34.5 | 15.49 | -27.5 | 42.99 | V |
| 103.1 | 15.27 | -27.4 | 42.67 | V |
| 180.2 | 15.19 | -28.5 | 43.69 | H |
| 264.1 | 17.4 | -26.6 | 44 | V |
| 414.1 | 17.45 | -23.3 | 40.75 | V |
| 768.0 | 20.74 | -16.7 | 37.44 | H |

Ch9 1GHz~3GHz(Peak)

| Frequency(MHz) | Result(dBuV/m) | ARpl (dB) | PMea(dBuV/m) | Polarity |
|----------------|----------------|-----------|--------------|----------|
| 2561.0 | 54.55 | 3.6 | 50.95 | H |

| | | | | |
|--------|-------|-----|-------|---|
| 2624.7 | 53.56 | 4.1 | 49.46 | V |
| 2664.7 | 54.55 | 4.5 | 50.05 | H |
| 2791.0 | 54.2 | 4.4 | 49.8 | H |
| 2890.7 | 55.8 | 5.7 | 50.1 | H |
| 2950.7 | 54.45 | 5.3 | 49.15 | V |

Ch9 1GHz~3GHz(Average)

| Frequency(MHz) | Result(dBuV/m) | ARpl (dB) | PMea(dBuV/m) | Polarity |
|----------------|----------------|-----------|--------------|----------|
| 2561.0 | 41.63 | 3.6 | 38.03 | H |
| 2664.7 | 42.45 | 4.5 | 37.95 | H |
| 2791.0 | 42.23 | 4.4 | 37.83 | H |
| 2890.7 | 43.57 | 5.7 | 37.87 | H |
| 2950.7 | 42.97 | 5.3 | 37.67 | V |

Ch9 3GHz~18GHz(Peak)

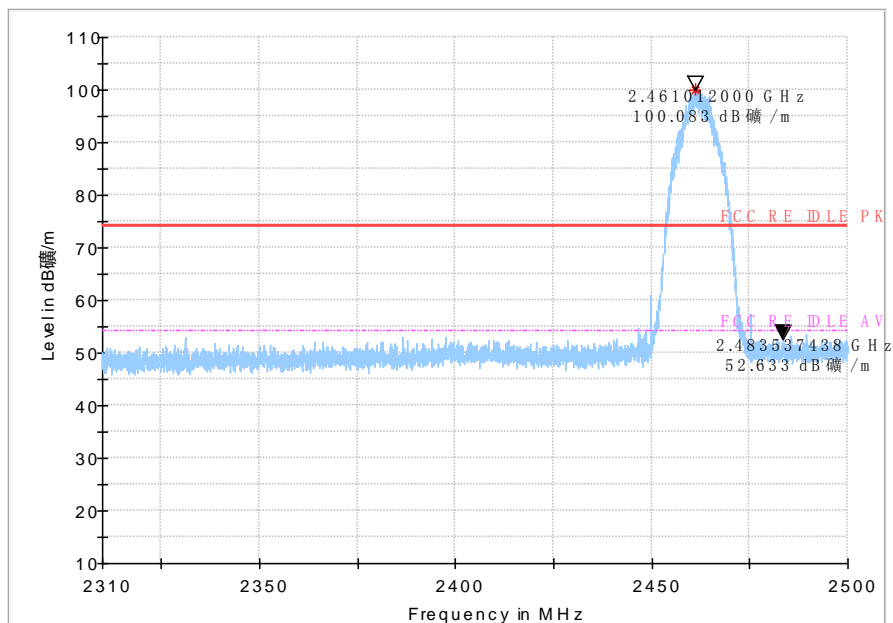
| Frequency(MHz) | Result(dBuV/m) | ARpl (dB) | PMea(dBuV/m) | Polarity |
|----------------|----------------|-----------|--------------|----------|
| 12965.2 | 52.62 | 17.3 | 35.32 | H |
| 14302.9 | 54.45 | 20.8 | 33.65 | V |
| 15444.0 | 57.05 | 22.7 | 34.35 | V |
| 16111.1 | 58.87 | 24.8 | 34.07 | H |
| 16930.0 | 60.3 | 27.3 | 33 | V |
| 17792.0 | 60.43 | 28.4 | 32.03 | H |

Ch9 3GHz~18GHz(Average)

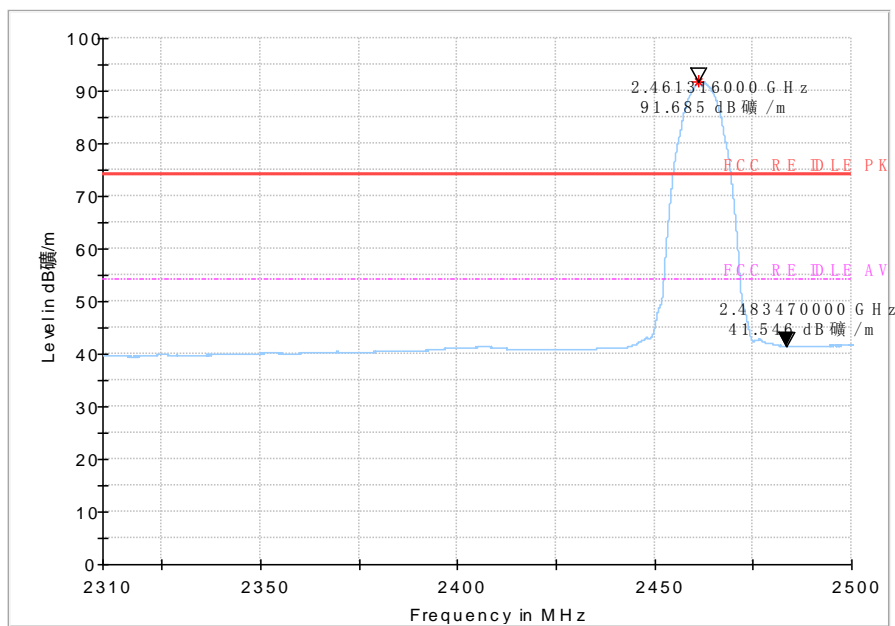
| Frequency(MHz) | Result(dBuV/m) | ARpl (dB) | PMea(dBuV/m) | Polarity |
|----------------|----------------|-----------|--------------|----------|
| 14302.9 | 42.84 | 20.8 | 22.04 | V |
| 15444.0 | 44 | 22.7 | 21.3 | V |
| 16111.1 | 46.38 | 24.8 | 21.58 | H |
| 16930.0 | 47.86 | 27.3 | 20.56 | V |

Note: Only the worst case is written in the report.

Test graphs as below:

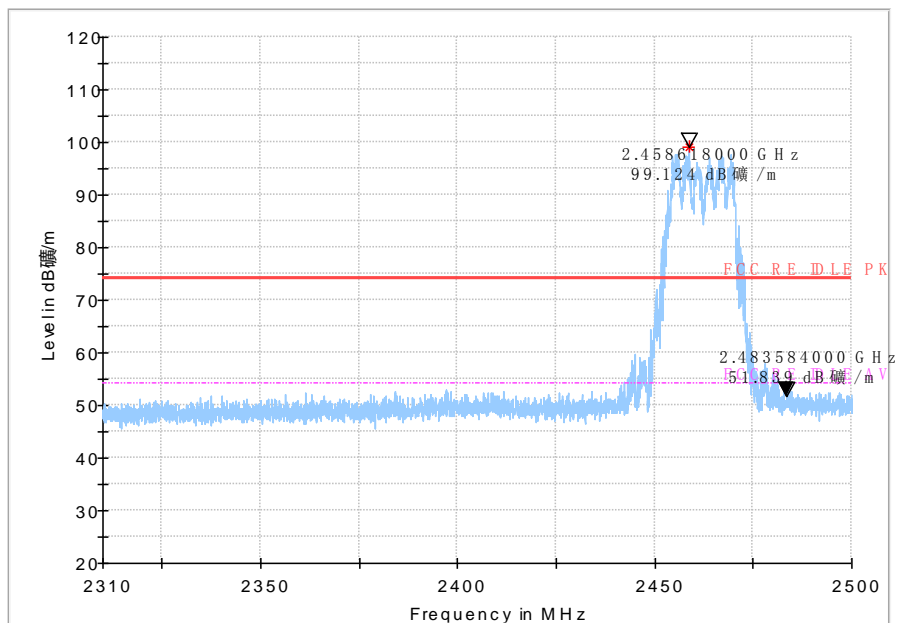


Peak detector

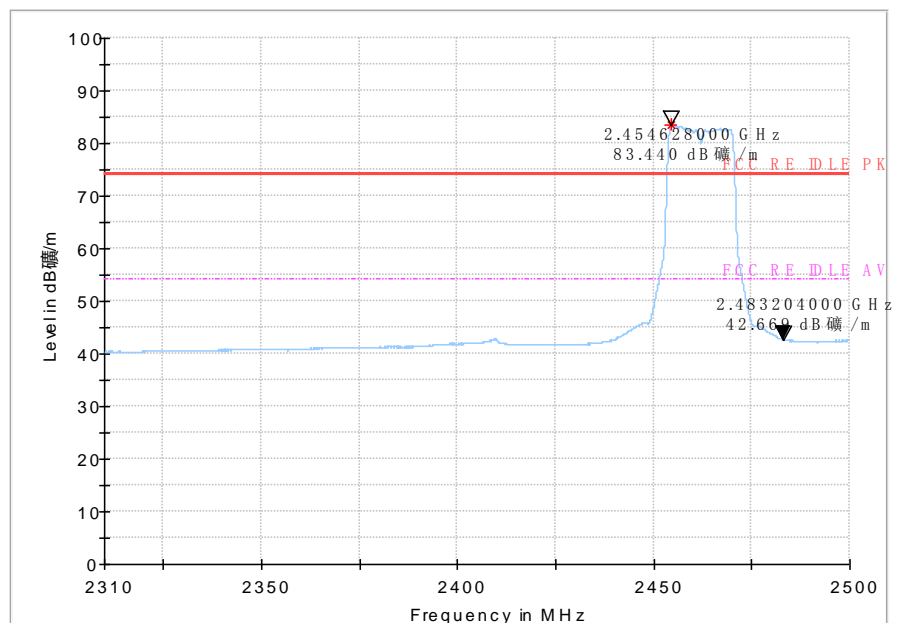


AV detector

Fig 57. Bandedge: 802.11b, low channel



Peak detector



AV detector

Fig 58. Bandedge: 802.11b, high channel

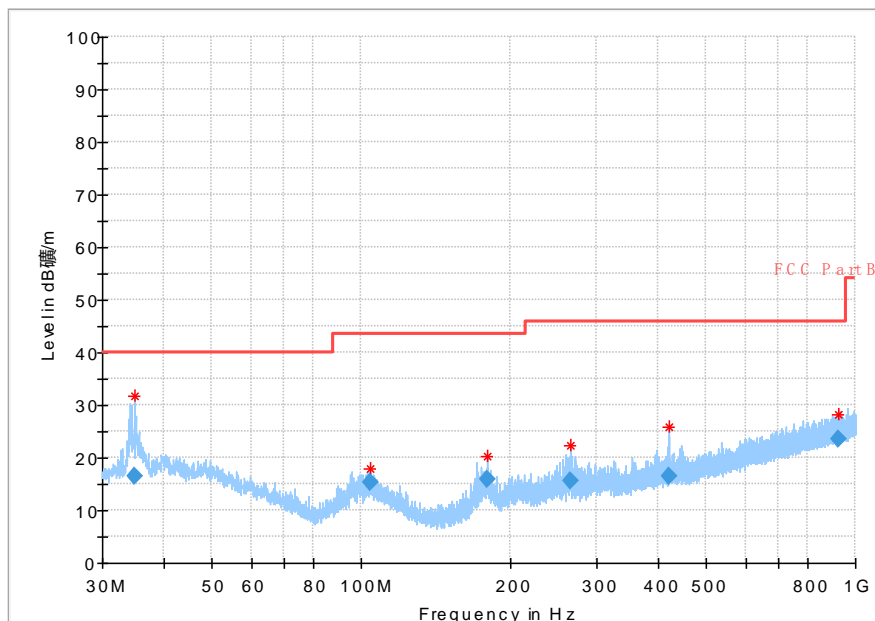


Fig 59. Radiated Spurious Emission (802.11b,Ch11,30MHz~1GHz)

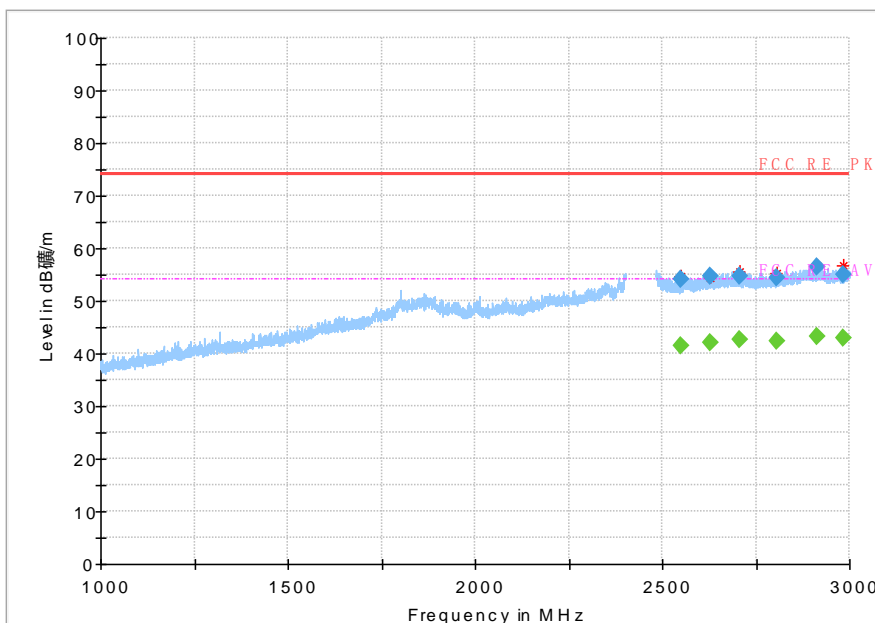


Fig 60. Radiated Spurious Emission (802.11b,Ch11,1GHz~3GHz)

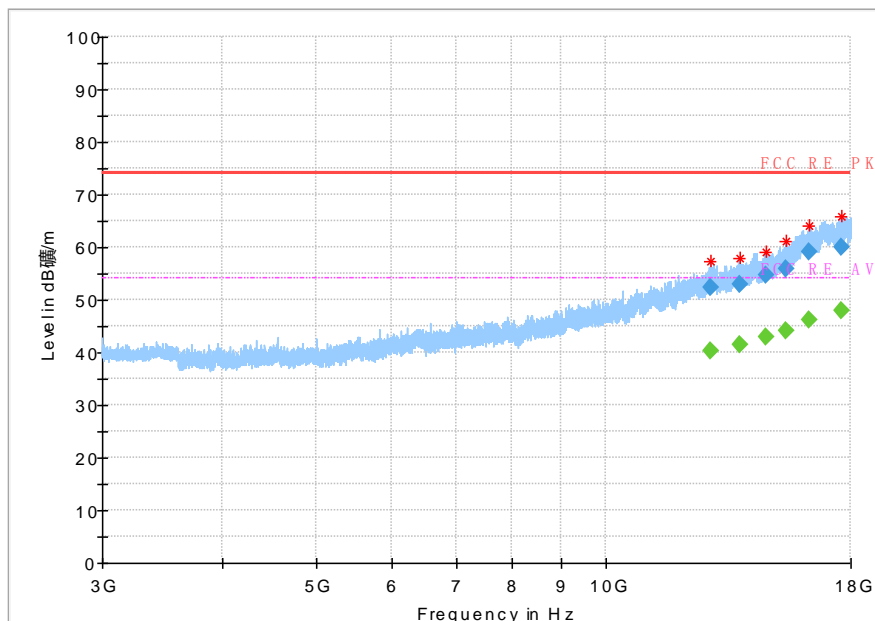
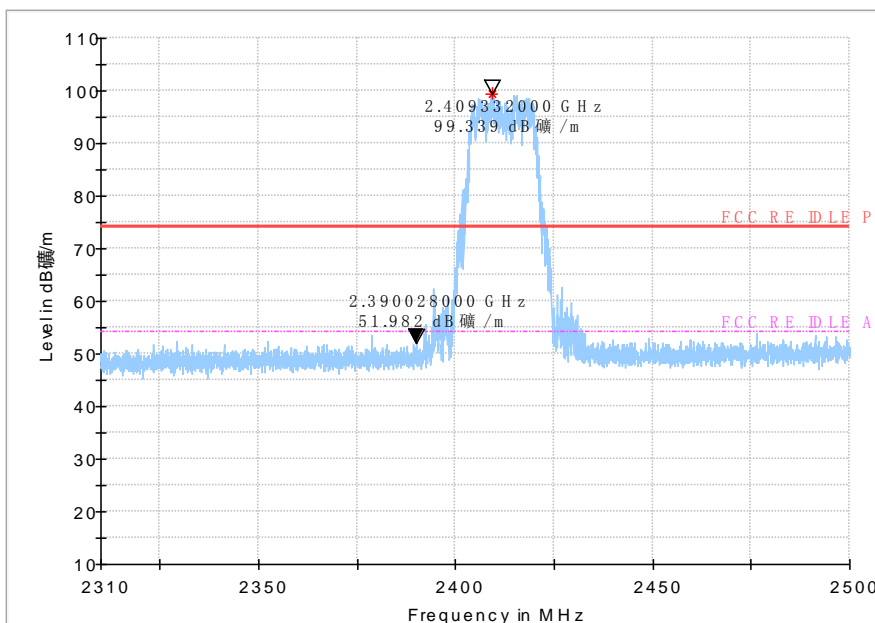
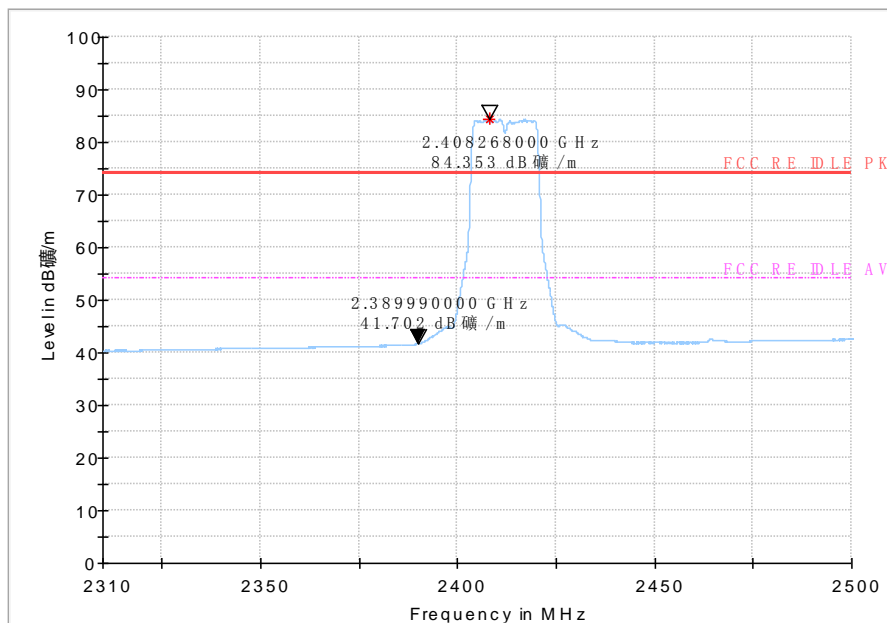


Fig 61. Radiated Spurious Emission (802.11b,Ch11,3GHz~18GHz)

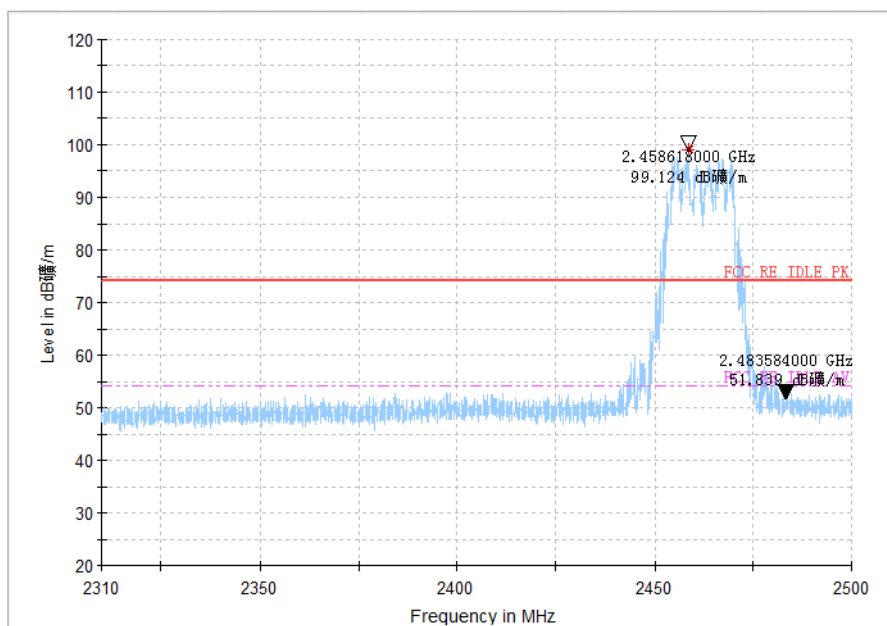


Peak detector

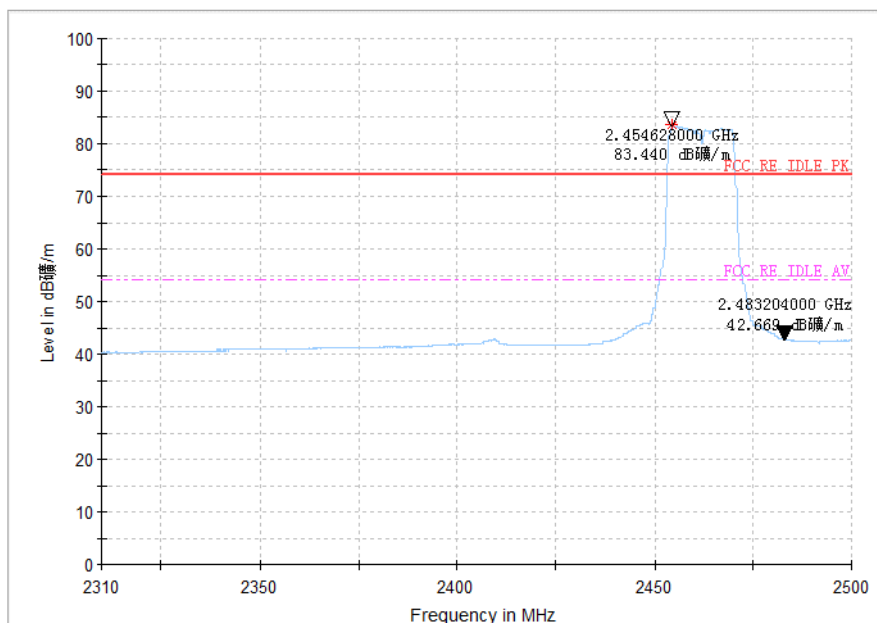


AV detector

Fig 62. Bandedge: 802.11g, low channel



Peak detector



AV detector

Fig 63. Bandedge: 802.11g, high channel

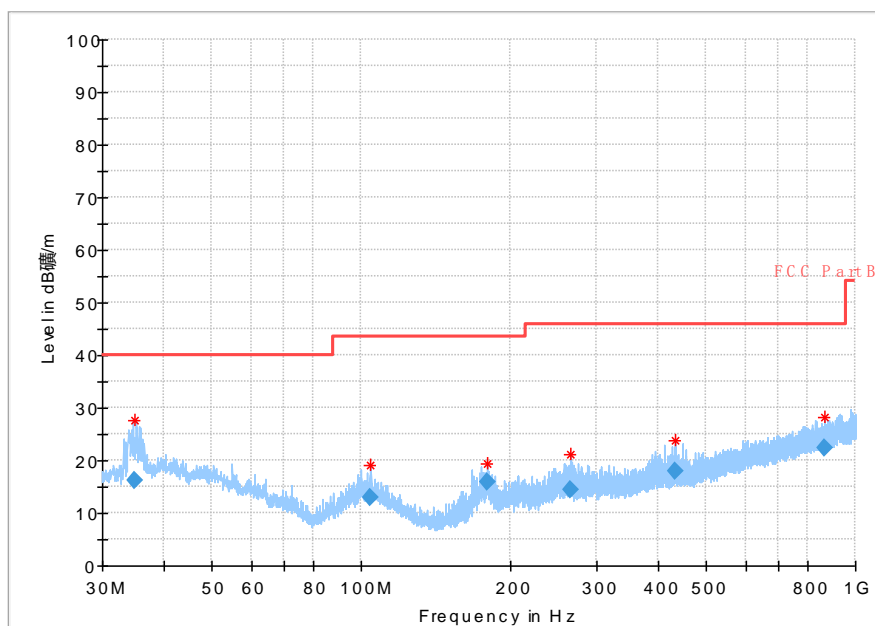


Fig 64. Radiated Spurious Emission (802.11g, Ch11, 30MHz~1GHz)

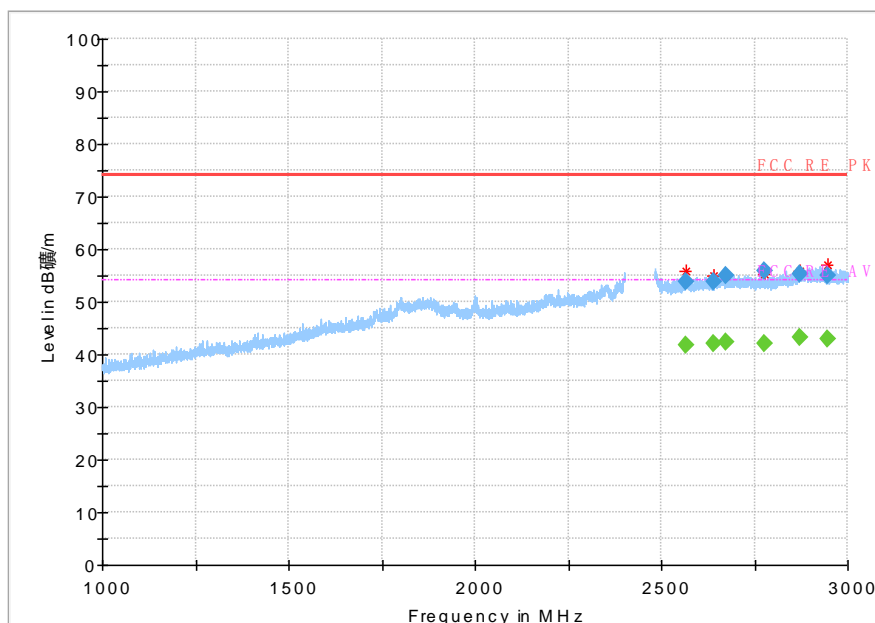


Fig 65. Radiated Spurious Emission (802.11g,Ch11,1GHz~3GHz)

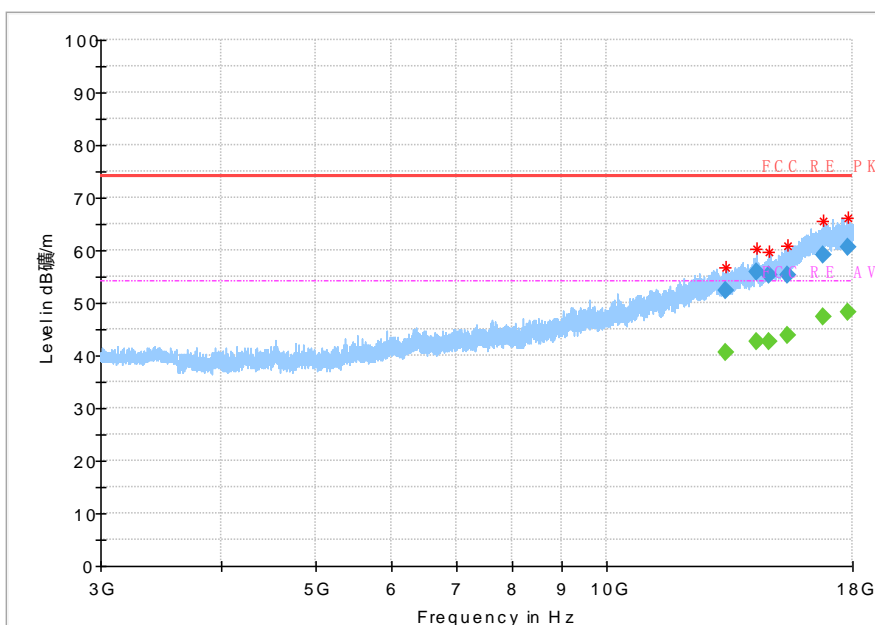
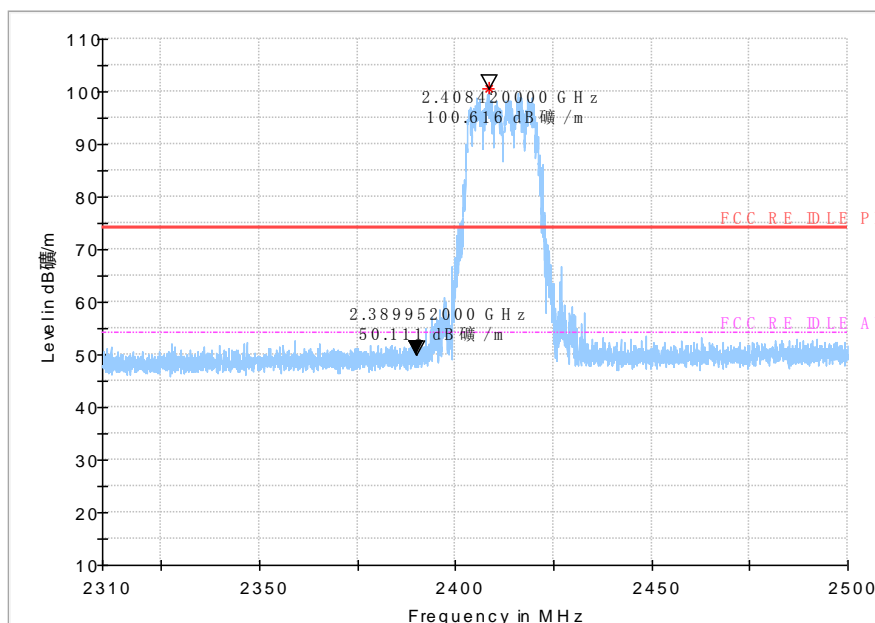
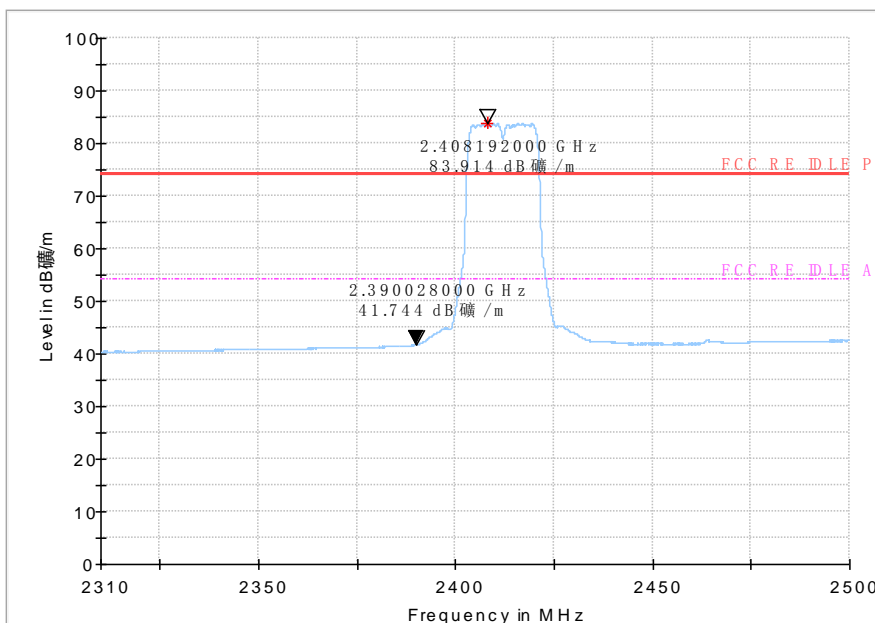


Fig 66. Radiated Spurious Emission (802.11g,Ch11,3GHz~18GHz)

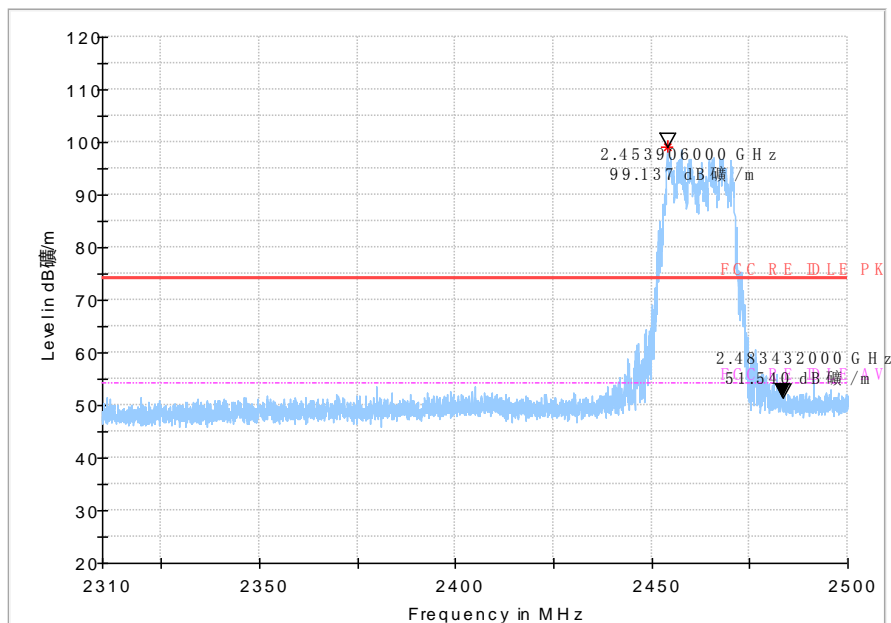


Peak detector

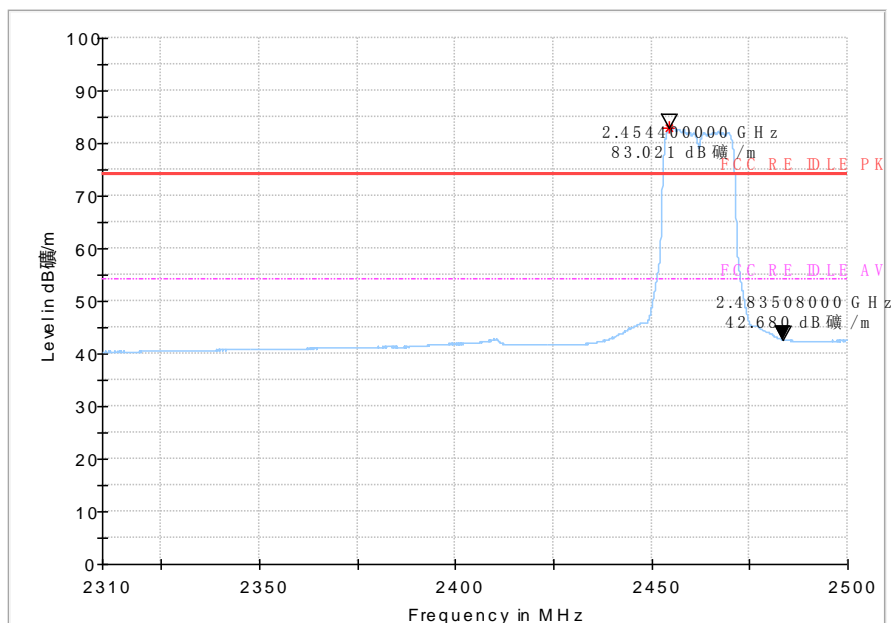


AV detector

Fig 67. Bandedge: 802.11 n-20MHz, low channel



Peak detector



AV detector

Fig 68. Bandedge: 802.11 n-20MHz, high channel

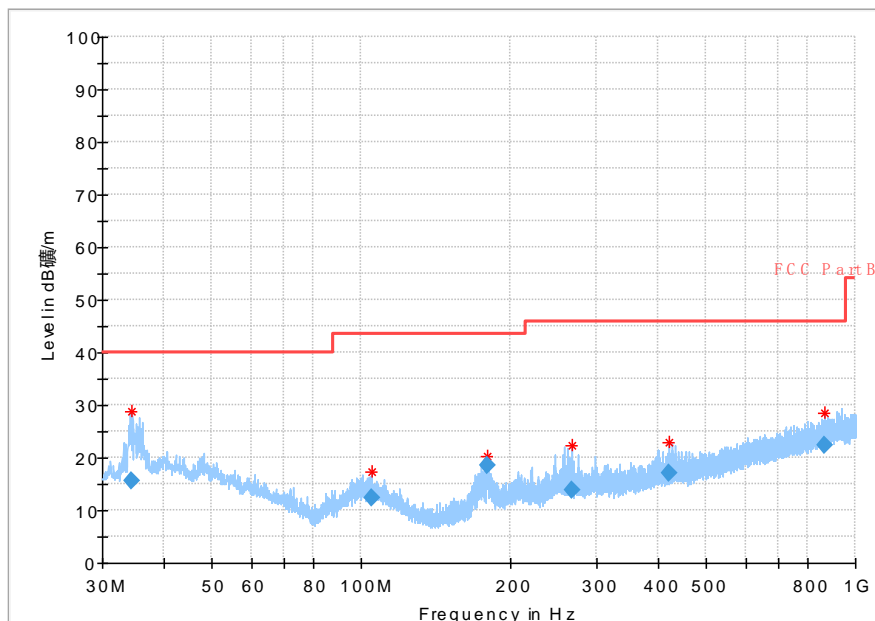


Fig 69. Radiated Spurious Emission (802.11 n-20MHz,Ch11,30MHz~1GHz)

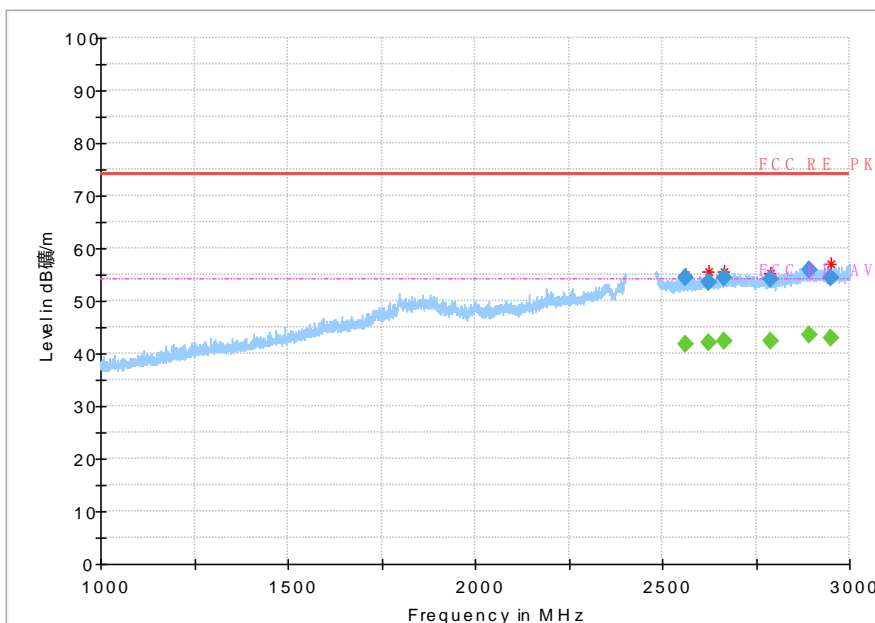


Fig 70. Radiated Spurious Emission (802.11 n-20MHz,Ch11, 1GHz~3GHz)

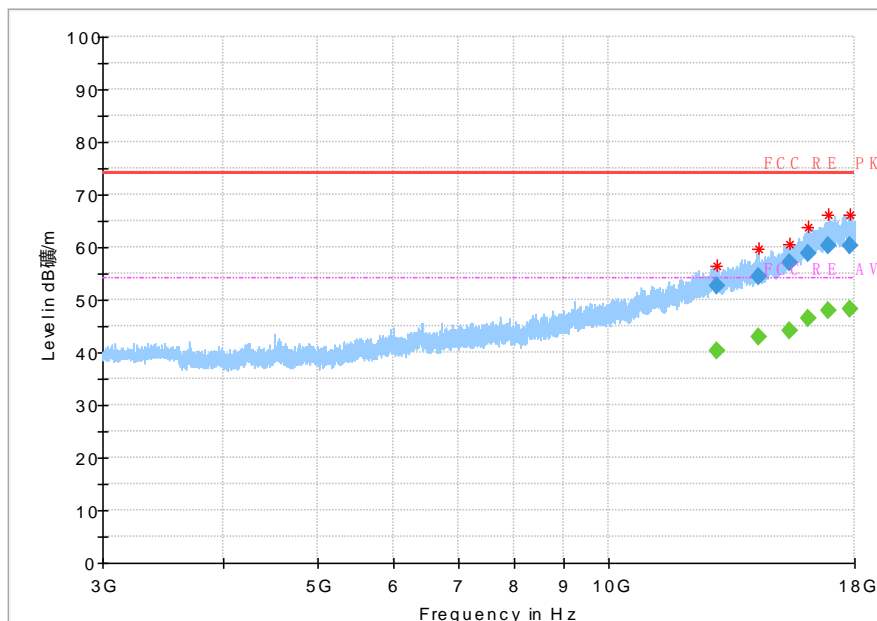
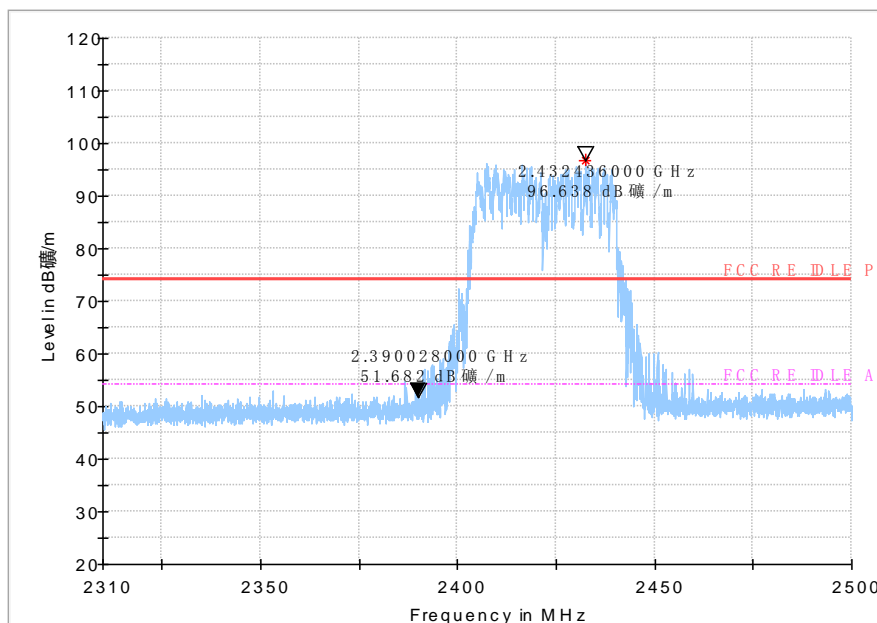
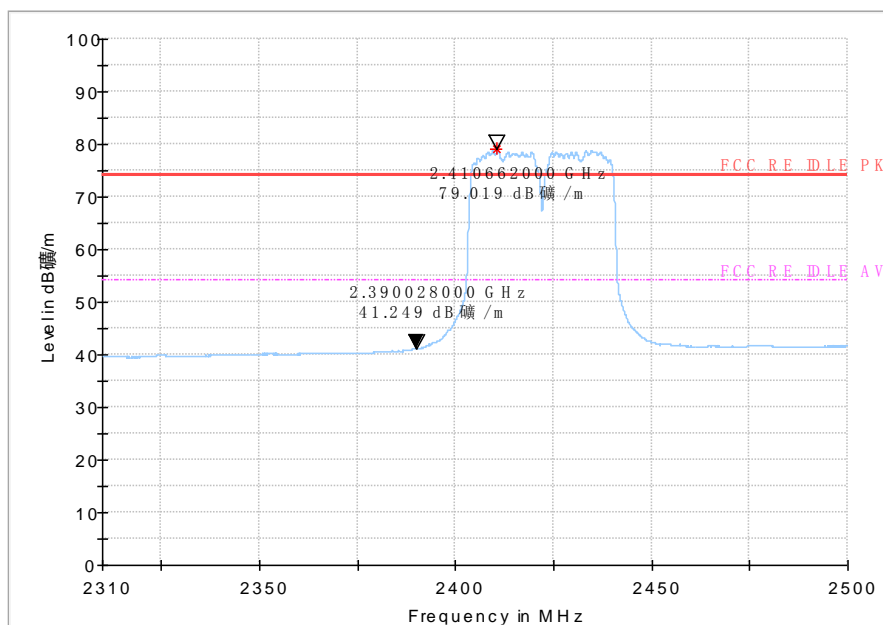


Fig 71. Radiated Spurious Emission (802.11 n-20MHz,Ch11, 3GHz~18GHz)

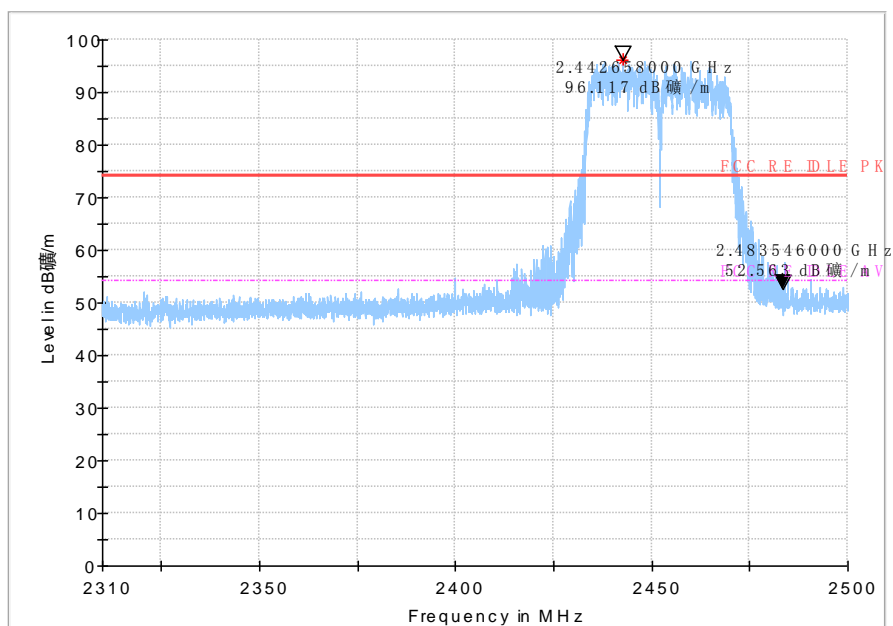


Peak detector

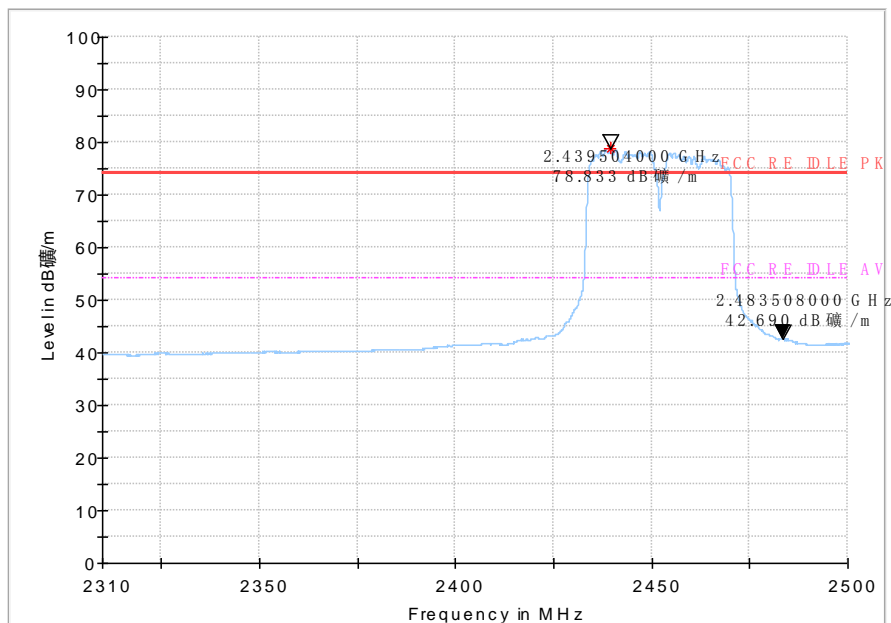


Average detector

Fig 72. Bandedge: 802.11 n-40MHz, low channel



Peak detector



Average detector

Fig 73. Bandedge: 802.11 n-40MHz, high channel

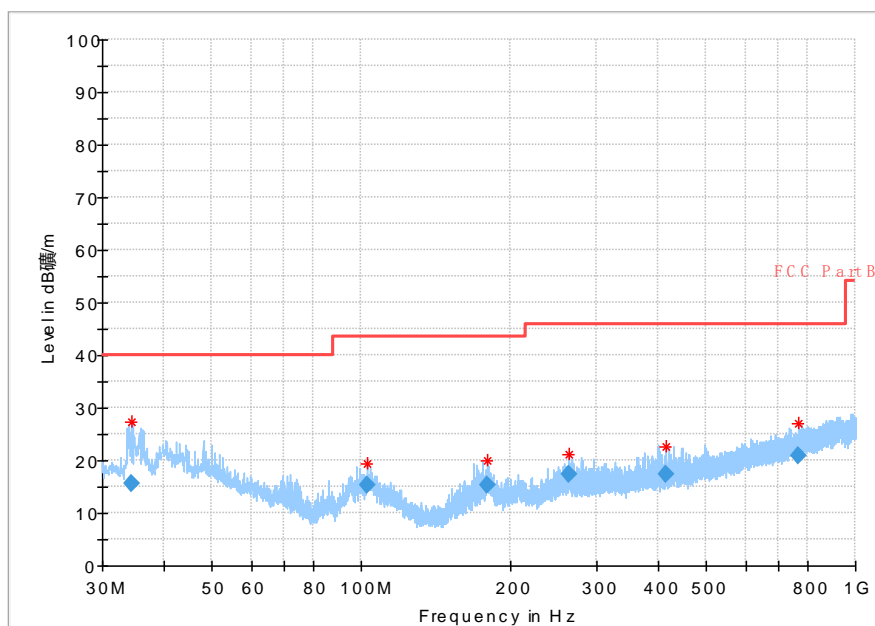


Fig 74. Radiated Spurious Emission (802.11 n-40MHz,Ch9,30MHz~1GHz)

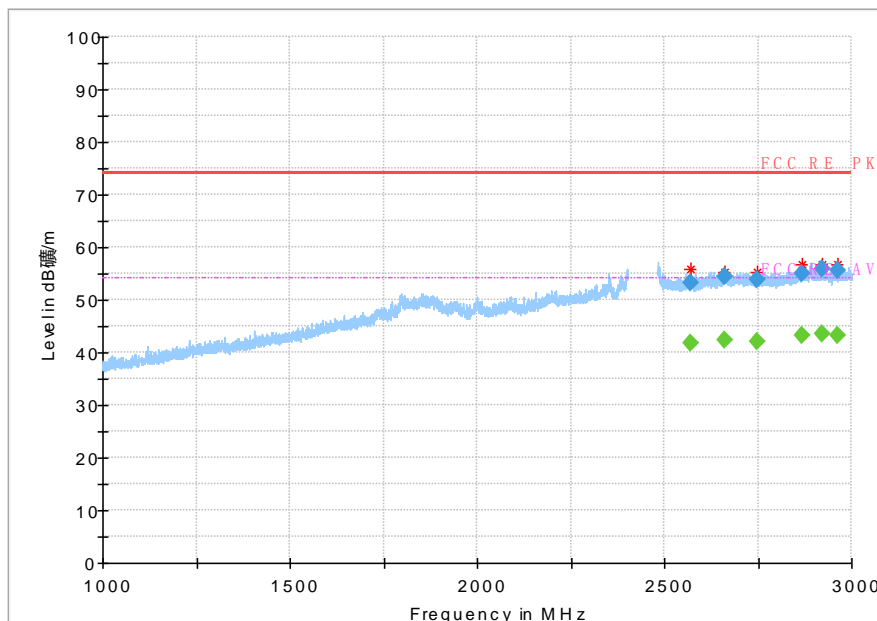


Fig 75. Radiated Spurious Emission (802.11 n-40MHz,Ch9, 1GHz~3GHz)

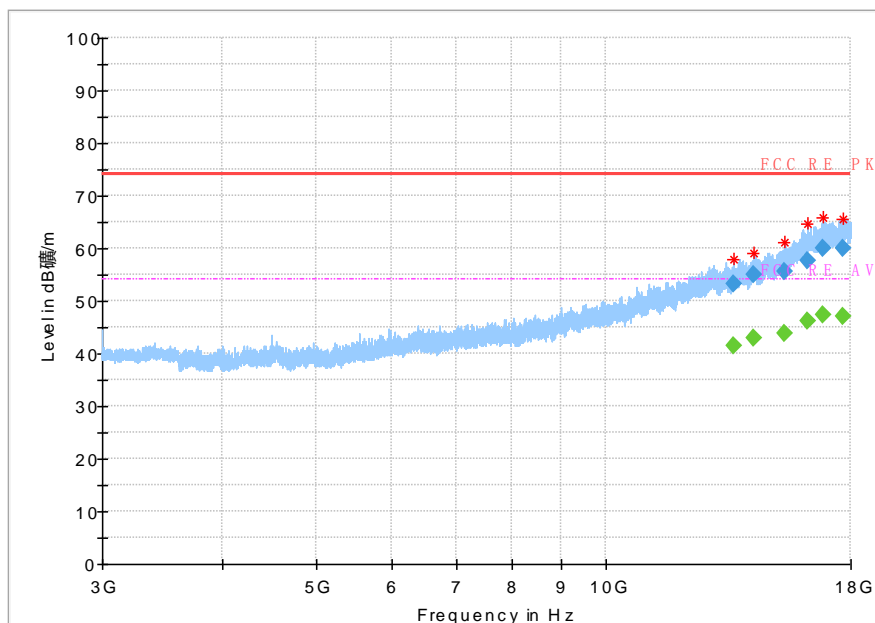
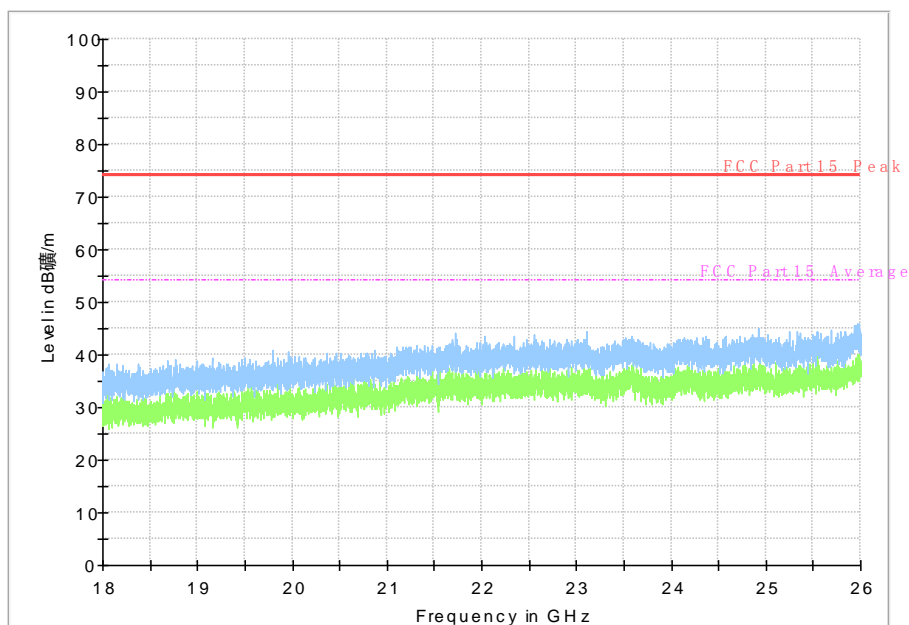


Fig 76. Radiated Spurious Emission (802.11 n-40MHz,Ch9, 3GHz~18GHz)



All Channel

ANNEX A.7. AC Powerline Conducted Emission

Method of Measurement: See ANSI C63.10 clause 6.2

- 1 The one EUT cable configuration and arrangement and mode of operation that produced the emission with the highest amplitude relative to the limit is selected for the final measurement, while applying the appropriate modulating signal to the EUT.
- 2 If the EUT is relocated from an exploratory test site to a final test site, the highest emissions shall be remaximized at the final test location before final ac power-line conducted emission measurements are performed.
- 3 The final test on all current-carrying conductors of all of the power cords to the equipment that comprises the EUT (but not the cords associated with other non-EUT equipment in the system) is then performed for the full frequency range for which the EUT is being tested for compliance without further variation of the EUT arrangement, cable positions, or EUT mode of operation.
- 4 If the EUT is comprised of equipment units that have their own separate ac power connections, e.g., floor-standing equipment with independent power cords for each shelf that are able to connect directly to the ac power network, each current-carrying conductor of one unit is measured while the other units are connected to a second (or more) LISN(s). All units shall be separately measured. If a power strip is provided by the manufacturer, to supply all of the units making up the EUT, only the conductors in the power cord of the power strip shall be measured.

If the EUT uses a detachable antenna, these measurements shall be made with a suitable dummy load connected to the antenna output terminals; otherwise, the tests shall be made with the antenna connected and, if adjustable, fully extended. When measuring the ac conducted emissions from a device that operates between 150 kHz and 30 MHz a non-detachable antenna may be replaced with a dummy load for the measurements within the fundamental emission band of the transmitter, but only for those measurements.³⁶ Record the six highest EUT emissions relative to the limit of each of the current-carrying conductors of the power cords of the equipment that comprises the EUT over the frequency range specified by the procuring or regulatory agency. Diagram or photograph the test setup that was used. See Clause 8 for full reporting requirements.

Test Condition:

| Voltage (V) | Frequency (Hz) |
|-------------|----------------|
| 120 | 60 |

Measurement Result and limit:

(Quasi-peak-average Limit)

| Frequency range (MHz) | Quasi-peak Limit (dBμV) | Average Limit (dBμV) | Result (dBμV) | Conclusion |
|----------------------------------------------------------------------------------------------------------|----------------------------|-------------------------|---------------|------------|
| | | | With charger | |
| | | | 802.11b | |
| 0.15 to 0.5 | 66 to 56 | 56 to 46 | Fig 77. | P |
| 0.5 to 5 | 56 | 46 | | |
| 5 to 30 | 60 | 50 | | |
| NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz. | | | | |

Conclusion: Pass

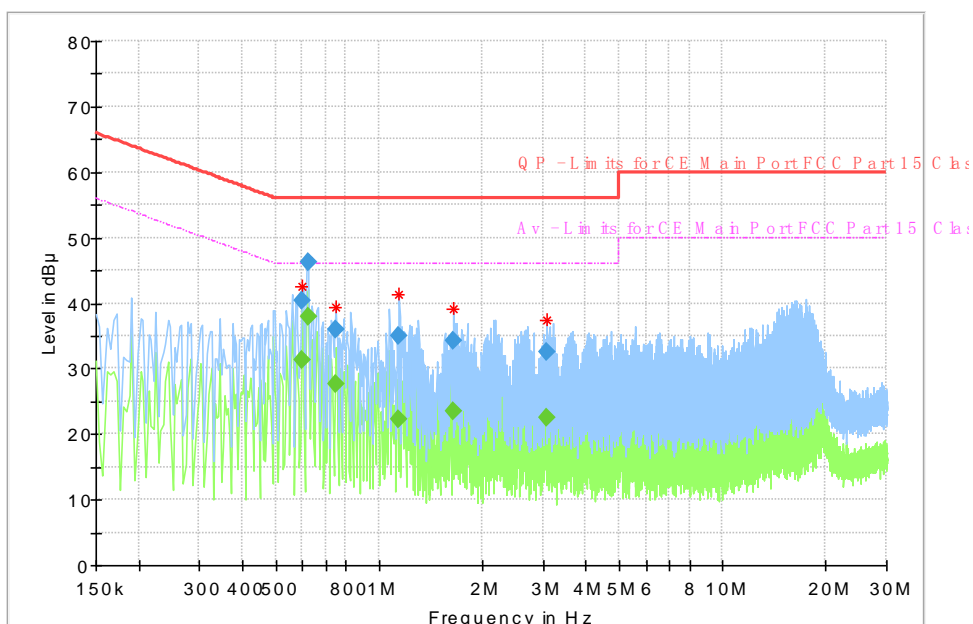


Fig 77. AC Powerline Conducted Emission

| Frequency (MHz) | QuasiPeak (dBμV) | Average (dBμV) | Limit (dBμV) | Margin (dB) | Meas. Time | Bandwidth (kHz) | Line | Filter | Corr. (dB) |
|-----------------|------------------|----------------|--------------|-------------|-------------|-----------------|------|--------|------------|
| 0.597750 | --- | 31.29 | 46.00 | 14.71 | 1500 0.0 | 9.000 | L1 | ON | 9.8 |
| 0.597750 | 40.44 | --- | 56.00 | 15.56 | 1500 | 9.000 | L1 | ON | 9.8 |
| 0.620138 | --- | 37.93 | 46.00 | 8.07 | 1500 | 9.000 | L1 | ON | 9.8 |
| 0.620138 | 46.28 | --- | 56.00 | 9.72 | 1500 0.0 | 9.000 | L1 | ON | 9.8 |
| 0.747000 | --- | 27.62 | 46.00 | 18.38 | 1500 | 9.000 | L1 | ON | 9.8 |
| 0.747000 | 36.04 | --- | 56.00 | 19.96 | 1500 0.0 | 9.000 | L1 | ON | 9.8 |
| 1.146244 | --- | 22.34 | 46.00 | 23.66 | 1500 | 9.000 | L1 | ON | 9.9 |
| 1.146244 | 34.98 | --- | 56.00 | 21.02 | 1500 | 9.000 | L1 | ON | 9.9 |
| 1.649963 | --- | 23.57 | 46.00 | 22.43 | 1500 | 9.000 | L1 | ON | 9.9 |
| 1.649963 | 34.37 | --- | 56.00 | 21.63 | 1500 | 9.000 | L1 | ON | 9.9 |
| 3.090225 | --- | 22.39 | 46.00 | 23.61 | 1500 | 9.000 | L1 | ON | 10.1 |
| 3.090225 | 32.65 | --- | 56.00 | 23.35 | 1500 | 9.000 | L1 | ON | 10.1 |

ANNEX B. Accreditation Certificate



*****End of the Report*****