



**FCC PART 15
TEST REPORT
No. 2013WLN0777**

for

TCT Mobile Limited

HSDPA/HSUPA/UMTS Tri bands / GSM quad bands/LTE 3 bands

mobile phone

Model name: Diablo HD LTE LATAM V1

Marketing Name: ONE TOUCH 6034M

With

FCC ID: RAD432

Hardware Version: PIO

Software Version: V1B2T

Issued Date: 2013-11-06



Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of TMC Beijing.

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1. TEST LATORATORY


1.1. Testing Location

Company Name: TMC Beijing, Telecommunication Metrology Center of MIIT
Address: No 52 Hua Yuanbei Road, Haidian District, Beijing, P.R.China
Postal Code: 100191
Telephone: 008610623046332046
Fax: 008610623046332063

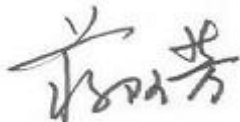
1.2. Project data

Testing Start Date: 2013-10-08
Testing End Date: 2013-10-13

1.3. Signature



Xu Zhongfei
(Prepared this test report)



Jiang Afang
(Reviewed this test report)



Xiao Li
Deputy Director of the laboratory
(Approved this test report)

2. CLIENT INFORMATION

2.1. Applicant Information

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Fax: 0086-21-61460602

2.2. Manufacturer Information

Company Name: TCT Mobile Limited
Address /Post: 5F, C building, No. 232, Liang Jing Road ZhangJiang High-Tech Park,
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Country: China
Contact Gong Zhizhou
Email zhizhou.gong @jrdcom.com
Telephone: 0086-21-61460890
Fax: 0086-21-61460602

3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY

EQUIPMENT(AE)

3.1. About EUT

| | |
|----------------------|--|
| Description | HSDPA/HSUPA/UMTS Tri bands / GSM quad bands/LTE 3 bands mobile phone |
| Model name | Diablo HD LTE LATAM V1 |
| Marketing name | ONE TOUCH 6034M |
| FCC ID | RAD432 |
| WLAN Frequency Range | ISM Bands: 5150MHz~5250MHz |
| Type of modulation | OFDM |
| Number of Channels | 4 |
| Antenna | Integral Antenna |
| MAX Conducted Power | 13.55dBm(OFDM) |
| GPRS Class | Class 10 |
| GPRS operation mode | Class B |
| Extreme Temperature | -20/+55°C |
| Normal Voltage | 3.9V |

3.2. Internal Identification of EUT used during the test

| EUT ID* | IMEI | HW Version | SW Version |
|---------|-----------------|------------|------------|
| EUT1 | 013913000100288 | PIO | V1B2T |
| EUT2 | 013913000100312 | PIO | V1B2T |

*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 | SN |
|--------|-------------|--------------|----|
| AE1 | Battery | CAC2000005C2 | / |
| AE2 | Charger | CBA3000AG0C1 | / |

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

3.4. General Description

Equipment Under Test (EUT) is a model of HSDPA/HSUPA/UMTS Tri bands / GSM quad bands/LTE 3 bands mobile phone with integrated antenna. It consists of normal options: Battery and Charger.

Manual and specifications of the EUT were provided to fulfil the test.

Samples undergoing test were selected by the Client.

Normal Accessory setting:

1. A microSD card was being installed in the device during the test;
2. Fully charged battery should be used during the test.

4. REFERENCE DOCUMENTS

4.1. Documents supplied by applicant

EUT feature information is supplied by the applicant 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.

| | | |
|------------------|--|--------------|
| FCC Part15 | Title 47 of the Code of Federal Regulations; Chapter I Part 15 - Radio frequency devices | Oct, 2010 |
| ANSI C63.4 | Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz | 2009 |
| UNII: KDB 789033 | Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E | 2011 |

5. LABORATORY ENVIRONMENT

Conducted RF performance testing is performed in shielding room.

EMC performance testing is performed in Semi-anechoic chamber.

6. SUMMARY OF TEST RESULTS

6.1. Summary of Test Results

| SUMMARY OF MEASUREMENT RESULTS | Sub-clause of Part15C | Sub-clause of IC | Verdict |
|---|-----------------------|------------------|----------|
| Maximum Peak Output Power | 15.407 | / | P |
| Power Spectral Density | 15.407 | / | P |
| Occupied 26dB Bandwidth | 15.407 | / | P |
| Band edge compliance | 15.407 | / | P |
| Transmitter spurious emissions radiated | 15.407 | / | P |
| Receiver spurious emissions radiated | 15.407 | / | P |
| Spurious emissions radiated < 30 MHz | 15.407 | / | P |
| Spurious emissions conducted < 30 MHz | 15.407 | / | P |

Please refer to **ANNEX A** for detail.

Terms used in Verdict column

| | |
|----|---|
| P | Pass, The EUT complies with the essential requirements in the standard. |
| NM | Not measured, The test was not measured by TMC |
| NA | Not Applicable, The test was not applicable |
| F | Fail, The EUT does not comply with the essential requirements in the |

| | |
|--|----------|
| | standard |
|--|----------|

6.2. Statements

TMC has evaluated the test cases requested by the client/manufacturer as listed in section 6.1 of this report for the EUT specified in section 3 according to the standards or reference documents listed in section 4.1.

6.3. Test Conditions

For this report, all the test cases are tested under normal temperature and normal voltage, and also under norm humidity, the specific condition is shown as follows:

| | |
|-------------|-------------------|
| Temperature | 26°C |
| Voltage | 3.9V (By battery) |
| Humidity | 44% |

7. TEST EQUIPMENTS UTILIZED

Conducted test system

| No. | Equipment | Model | Serial Number | Manufacturer | Calibration date | Calibration Due date |
|-----|------------------------|---------|---------------|-----------------|------------------|----------------------|
| 1 | Vector Signal Analyzer | FSQ40 | 200089 | Rohde & Schwarz | 2013-07-08 | 2014-07-07 |
| 2 | Test Receiver | ESS | 847151/015 | Rohde & Schwarz | 2012-12-29 | 2013-10-30 |
| 3 | LISN | ESH2-Z5 | 829991/012 | Rohde & Schwarz | 2013-4-15 | 2014-08-12 |
| 4 | Shielding Room | S81 | / | ETS-Lindgren | / | / |

Radiated emission test system

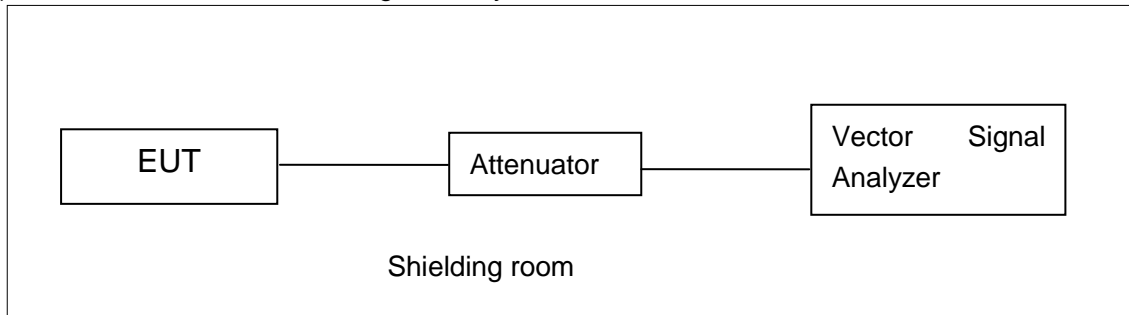
| No. | Equipment | Model | Serial Number | Manufacturer | Calibration date | Calibration Due date |
|-----|-----------------------------------|----------|---------------|------------------|------------------|----------------------|
| 1 | Test Receiver | ESU26 | 100376 | Rohde & Schwarz | 2012-11-8 | 2013-11-7 |
| 2 | BiLog Antenna | VULB9163 | 9163-514 | Schwarzbeck | 2011-11-11 | 2014-11-10 |
| 3 | Dual-Ridge Waveguide Horn Antenna | 3117 | 00119024 | ETS-Lindgren | 2011-2-2 | 2014-2-1 |
| 4 | Dual-Ridge Waveguide Horn Antenna | 3116 | 2661 | EMCO | 2011-7-1 | 2014-06-30 |
| 5 | Loop antenna | HFH2-Z2 | 829324/007 | Rohde & Schwarz | 2011-12-21 | 2014-12-20 |
| 6 | Semi-anechoic chamber | / | CT000332-1074 | Frankonia German | / | / |

ANNEX A: MEASUREMENT RESULTS

A.1. Measurement Method

A.1.1. Conducted Measurements

- 1). Connect the EUT to the test system correctly.
- 2). Set the EUT to the required work mode.
- 3). Set the EUT to the required channel.
- 4). Set the spectrum analyzer to start measurement.
- 5). Record the values. Vector Signal Analyzer

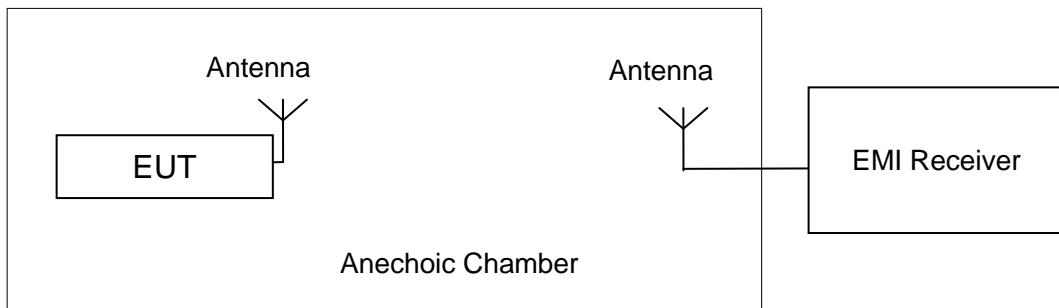


A.1.2. Radiated Emission Measurements

In the case of radiated emission, the used settings are as follows,

Sweep frequency from 30 MHz to 1GHz, RBW = 100 kHz, VBW = 300 kHz;

Sweep frequency from 1 GHz to 26GHz, RBW = 1MHz, VBW = 10Hz;



The measurement is made according to KDB 789033

The radiated emission test is performed in semi-anechoic chamber. The distance from the EUT to the reference point of measurement antenna is 3m. The test is carried out on both vertical and horizontal polarization and only maximization result of both polarizations is kept. During the test, the turntable is rotated 360° and the measurement antenna is moved from 1m to 4m to get the maximization result.

A.2. Maximum Average Output Power

Measurement Limit and Method:

| Standard | Frequency (MHz) | Limit (dBm) |
|------------------------|-----------------|-------------------|
| FCC CRF Part 15.407(a) | 5150MHz~5250MHz | 17dBm or 4+10logB |

Limit use the less value, and B is the 26dB bandwidth.

The measurement method SA-1 is made according to KDB 789033

Measurement Results:

802.11a mode

| Mode | Data Rate (Mbps) | Test Result (dBm) | | |
|---------|------------------|-------------------|----------------|----------------|
| | | 5180MHz (Ch36) | 5200MHz (Ch40) | 5240MHz (Ch48) |
| 802.11a | 6 | 13.55 | 13.26 | 12.88 |
| | 9 | 13.53 | / | / |
| | 12 | 13.53 | / | / |
| | 18 | 13.52 | / | / |
| | 24 | 13.47 | / | / |
| | 36 | 13.44 | / | / |
| | 48 | 13.41 | / | / |
| | 54 | 13.40 | / | / |

The data rate 6Mbps is selected as worse condition, and the following cases are performed with this condition.

802.11n-HT20 mode

| Mode | Data Rate (Index) | Test Result (dBm) | | |
|-----------------|-------------------|-------------------|----------------|----------------|
| | | 5180MHz (Ch36) | 5200MHz (Ch40) | 5240MHz (Ch48) |
| 802.11n (20MHz) | MCS0 | 12.65 | 12.38 | 12.01 |
| | MCS1 | 12.63 | / | / |
| | MCS2 | 12.62 | / | / |
| | MCS3 | 12.58 | / | / |
| | MCS4 | 12.54 | / | / |
| | MCS5 | 12.51 | / | / |
| | MCS6 | 12.48 | / | / |
| | MCS7 | 12.47 | / | / |

The data rate MCS0 is selected as worse condition, and the following cases are performed with this condition.

802.11n-HT40 mode

| Mode | Data Rate (Index) | Test Result (dBm) | |
|-----------------|-------------------|-------------------|----------------|
| | | 5190MHz (Ch38) | 5230MHz (Ch46) |
| 802.11n (40MHz) | MCS0 | 12.44 | 12.08 |
| | MCS1 | 12.43 | / |
| | MCS2 | 12.41 | / |
| | MCS3 | 12.36 | / |
| | MCS4 | 12.33 | / |
| | MCS5 | 12.32 | / |
| | MCS6 | 12.30 | / |
| | MCS7 | 12.31 | / |

The data rate MCS0 is selected as worse condition, and the following cases are performed with this condition.

Measurement Uncertainty:

| | |
|-------------------------|--------|
| Measurement Uncertainty | 0.75dB |
|-------------------------|--------|

A.3. Peak Power Spectral Density - Conducted

Measurement Limit:

| Standard | Frequency (MHz) | Limit (dBm/MHz) |
|------------------------|-----------------|-----------------|
| FCC CRF Part 15.407(a) | 5150MHz~5250MHz | 4 |

The output power measurement method SA-1 is made according to KDB 789033

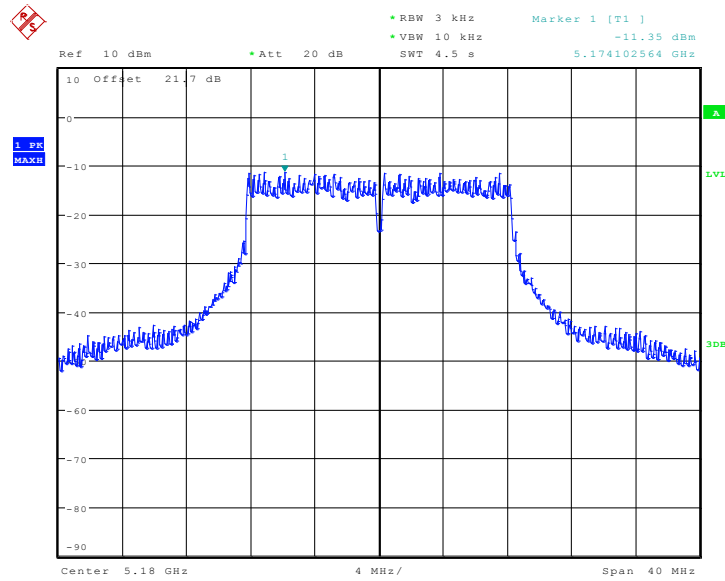
Measurement Uncertainty:

| | |
|-------------------------|--------|
| Measurement Uncertainty | 0.75dB |
|-------------------------|--------|

Measurement Results:

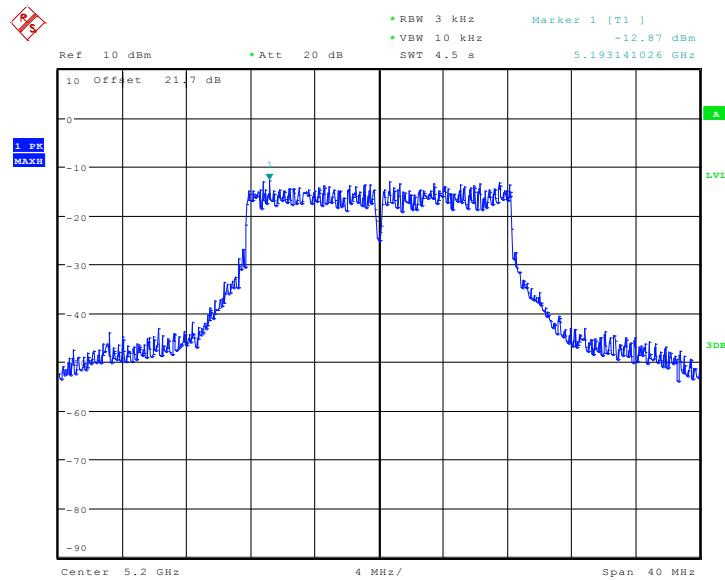
| Mode | Channel | Power Spectral Density (dBm/MHz) | | Conclusion |
|--------------|----------|----------------------------------|--------|------------|
| 802.11a | 5180 MHz | Fig.1 | -11.35 | P |
| | 5200 MHz | Fig.2 | -12.87 | P |
| | 5240 MHz | Fig.3 | -12.34 | P |
| 802.11n HT20 | 5180 MHz | Fig.4 | -13.67 | P |
| | 5200 MHz | Fig.5 | -13.63 | P |
| | 5240 MHz | Fig.6 | -13.12 | P |
| 802.11n HT40 | 5190 MHz | Fig.7 | -14.46 | P |
| | 5230 MHz | Fig.8 | -15.32 | P |

Conclusion: PASS



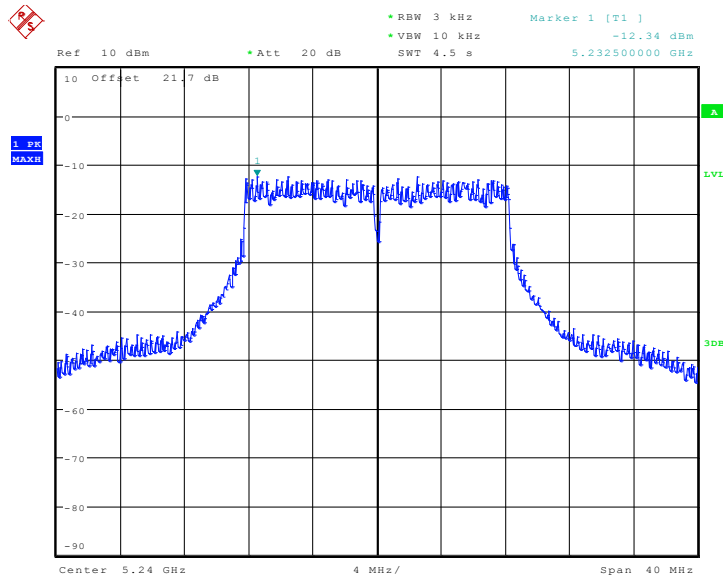
Date: 12.OCT.2013 17:59:48

Fig. 1 Power Spectral Density (802.11a, Ch 36)



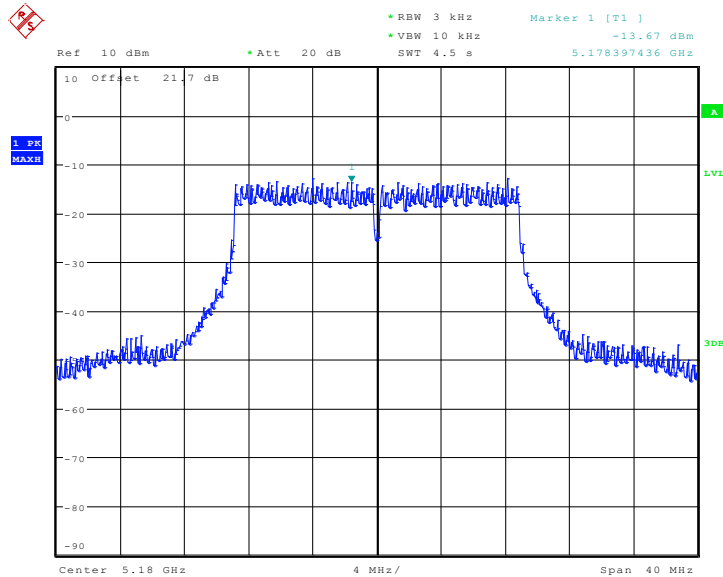
Date: 12.OCT.2013 18:00:48

Fig. 2 Power Spectral Density (802.11a, Ch 40)



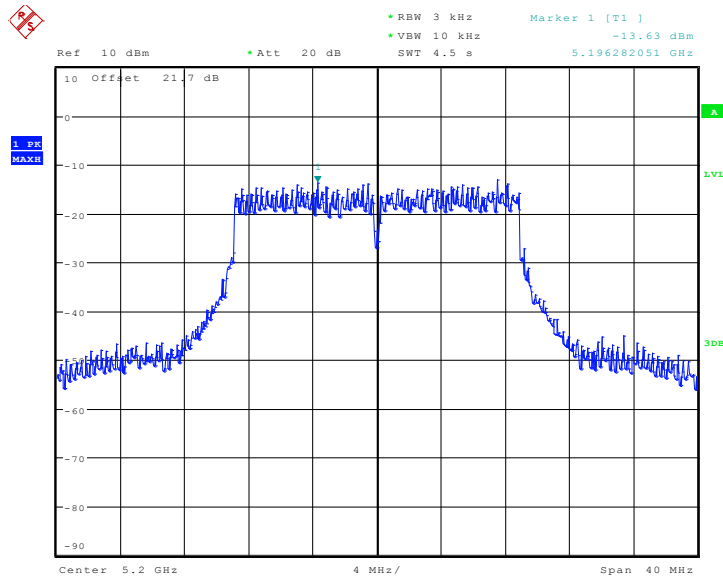
Date: 12.OCT.2013 17:56:31

Fig. 3 Power Spectral Density (802.11a, Ch 48)



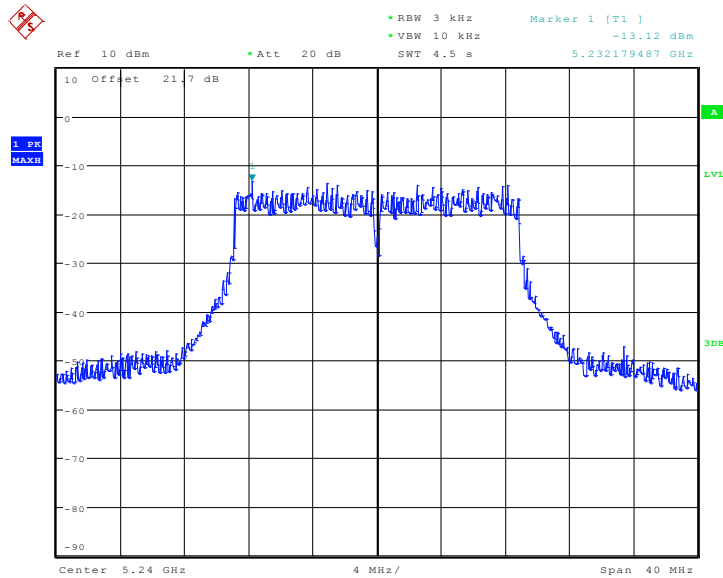
Date: 12.OCT.2013 17:49:15

Fig. 4 Power Spectral Density (802.11n-HT20, Ch 36)



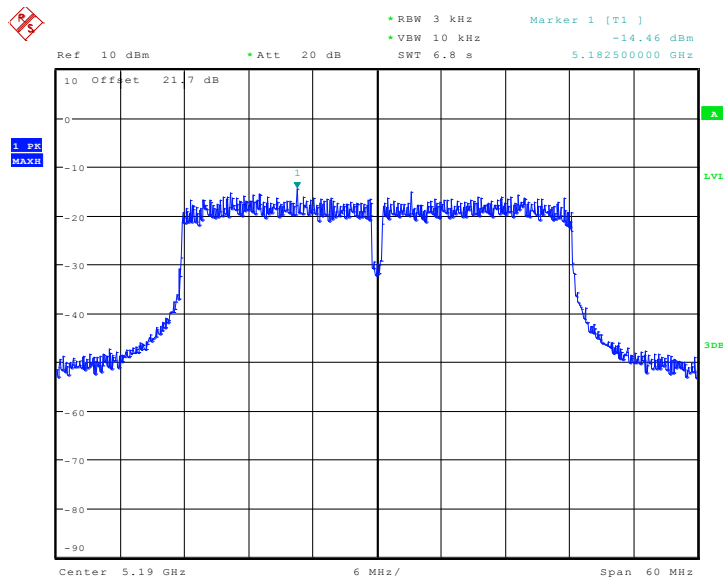
Date: 12.OCT.2013 17:49:57

Fig. 5 Power Spectral Density (802.11n-HT20, Ch 40)



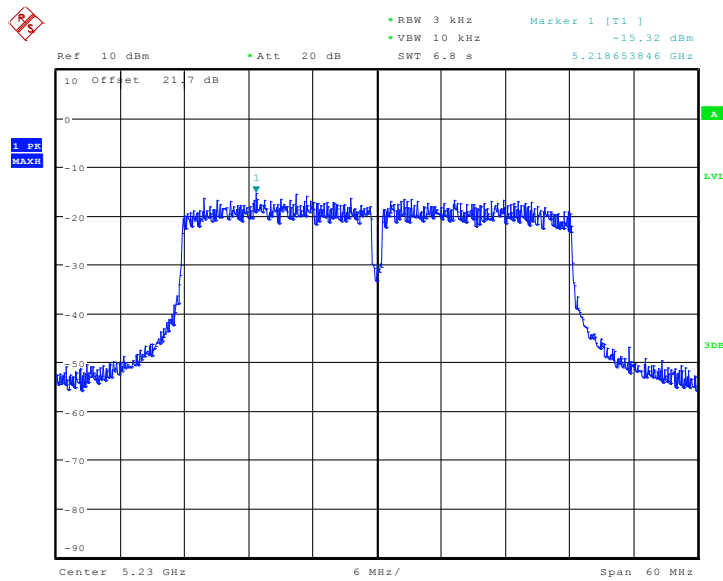
Date: 12.OCT.2013 17:54:15

Fig. 6 Power Spectral Density (802.11n-HT20, Ch 48)



Date: 12.OCT.2013 17:45:36

Fig. 7 Power Spectral Density (802.11n-HT40, Ch 38)



Date: 12.OCT.2013 17:47:41

Fig. 8 Power Spectral Density (802.11n-HT40, Ch 46)

A.4. Occupied 26dB Bandwidth(conducted)

Measurement Limit:

| Standard | Limit (kHz) |
|----------------------------|-------------|
| FCC 47 CFR Part 15.247 (a) | / |

The measurement is made according to KDB 789033

Measurement Uncertainty:

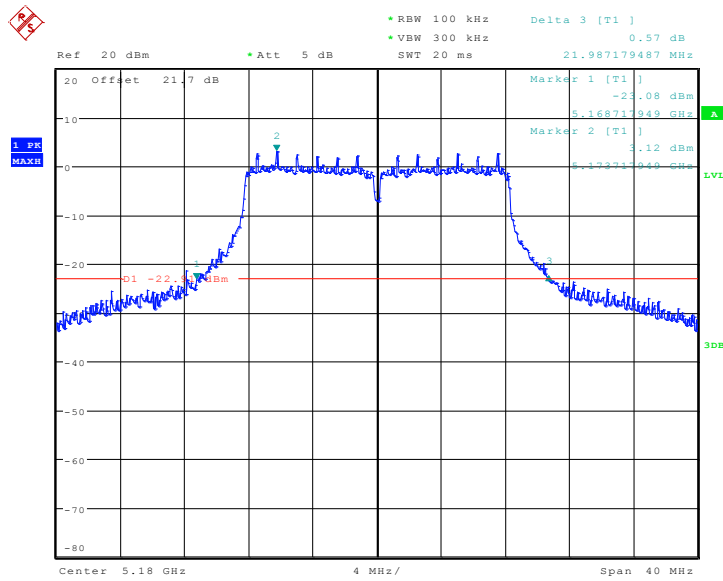
| | |
|-------------------------|---------|
| Measurement Uncertainty | 60.80Hz |
|-------------------------|---------|

Measurement Result:

| Mode | Channel | Occupied 26dB Bandwidth (kHz) | | conclusion |
|-----------------|----------|--------------------------------|-------|------------|
| 802.11a | 5180 MHz | Fig.9 | 21987 | P |
| | 5200 MHz | Fig.10 | 22243 | P |
| | 5240 MHz | Fig.11 | 22628 | P |
| 802.11n HT20 | 5180 MHz | Fig.12 | 22051 | P |
| | 5200 MHz | Fig.13 | 21987 | P |
| | 5240 MHz | Fig.14 | 21794 | P |
| 802.11n HT40 | 5190 MHz | Fig.15 | 40897 | P |
| | 5230 MHz | Fig.16 | 40000 | P |

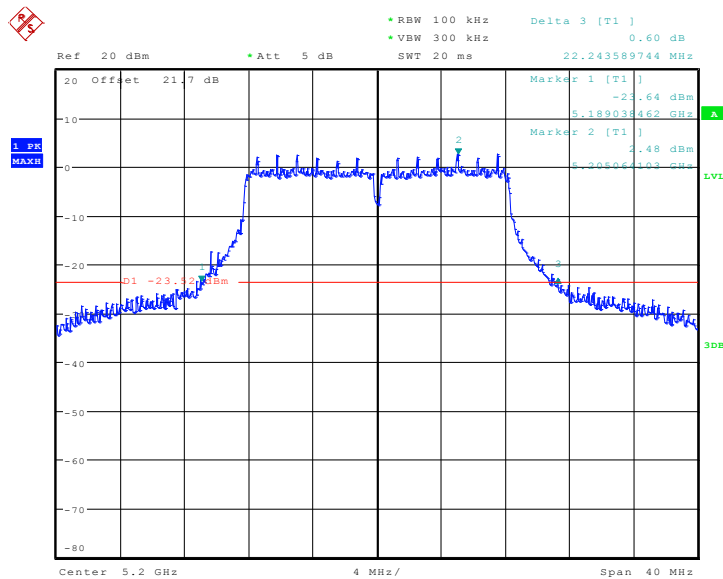
Conclusion: PASS

Test graphs as below:



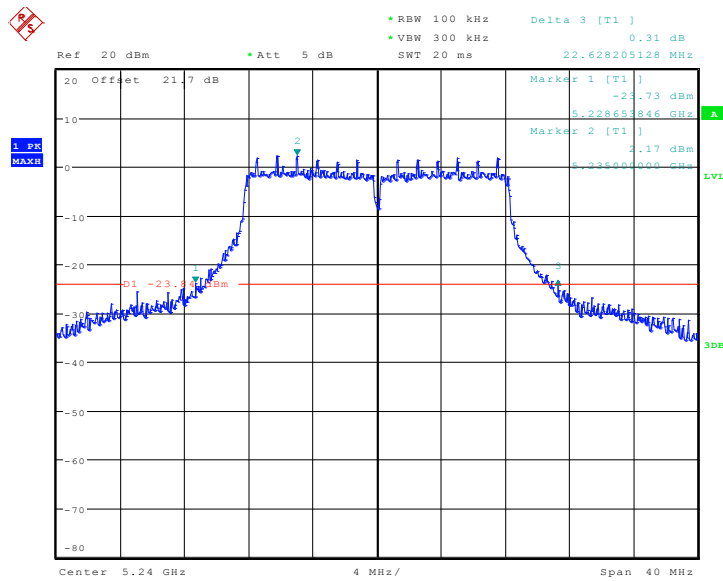
Date: 12.OCT.2013 18:04:02

Fig. 9 Occupied 26dB Bandwidth (802.11a, 5180MHz)



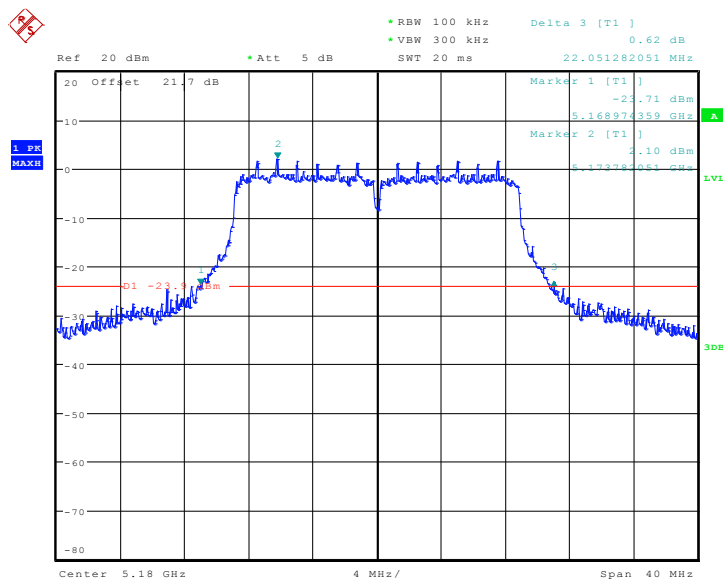
Date: 12.OCT.2013 18:05:54

Fig. 10 Occupied 26dB Bandwidth (802.11a, 5200MHz)



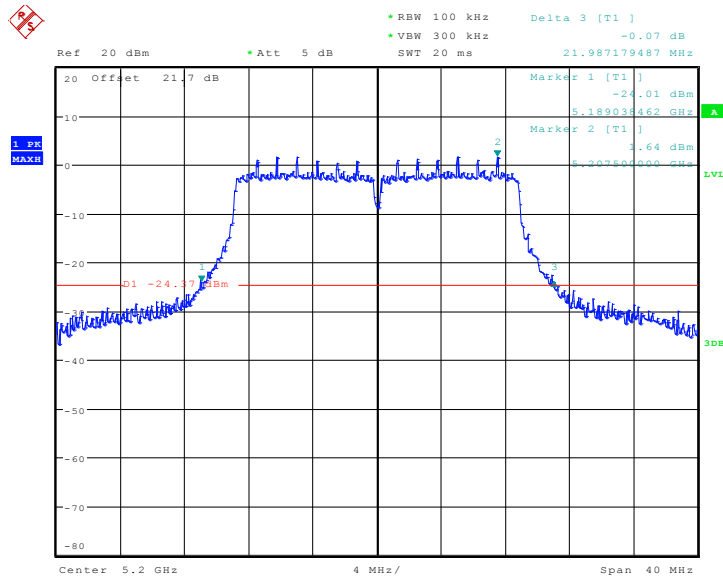
Date: 12.OCT.2013 18:07:45

Fig. 11 Occupied 26dB Bandwidth (802.11a, 5240MHz)



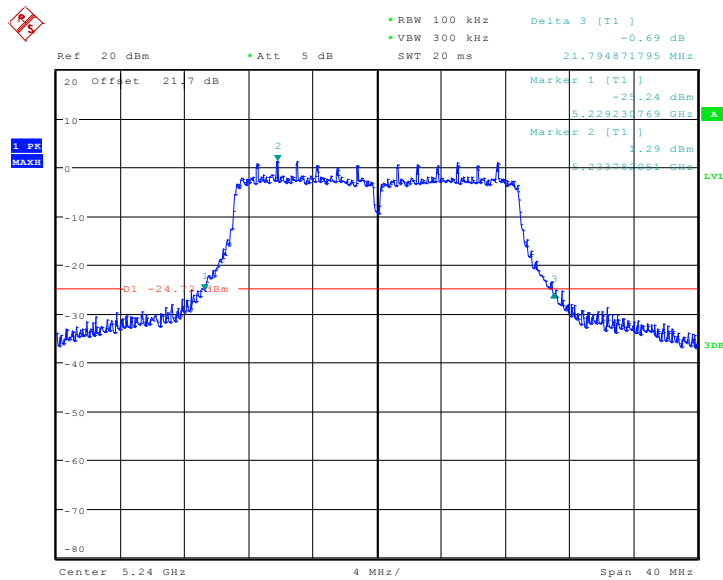
Date: 12.OCT.2013 18:10:19

Fig. 12 Occupied 26dB Bandwidth (802.11n-HT20, 5180MHz)



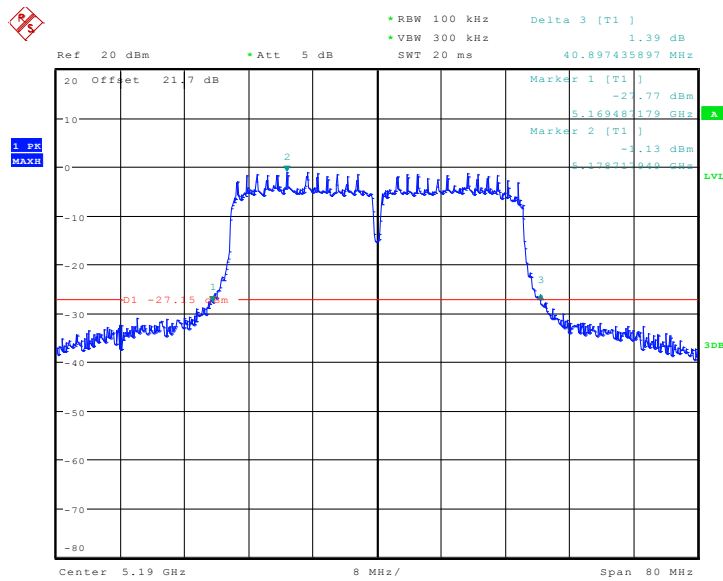
Date: 12.OCT.2013 18:12:02

Fig. 13 Occupied 26dB Bandwidth (802.11n-HT20, 5200MHz)



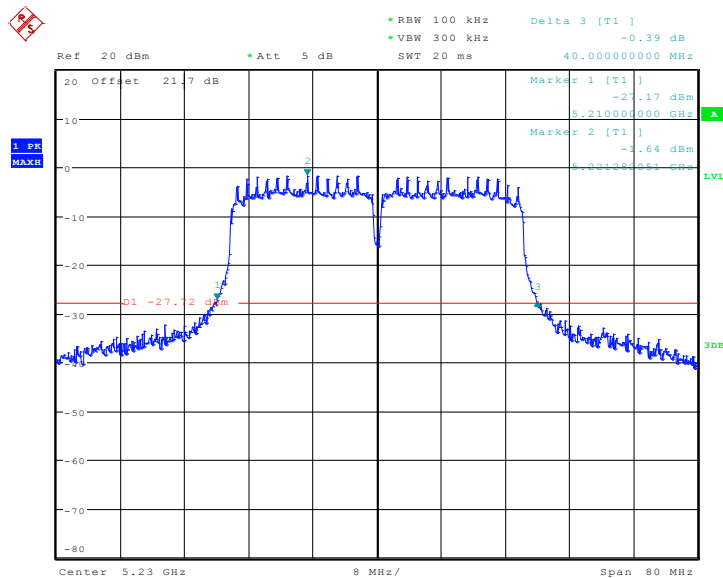
Date: 12.OCT.2013 18:14:04

Fig. 14 Occupied 26dB Bandwidth (802.11n-HT20, 5240MHz)



Date: 12.OCT.2013 18:16:14

Fig. 15 Occupied 26dB Bandwidth (802.11n-HT40, 5190MHz)



Date: 12.OCT.2013 18:17:40

Fig. 16 Occupied 26dB Bandwidth (802.11n-HT40, 5230MHz)

A.5. Band Edges Compliance

A5.1 Band Edges - conducted

Measurement Limit:

| Standard | Limit (dBc) |
|------------------------|-------------|
| FCC 47 CFR Part 15.407 | > 20 |

The measurement is made according to KDB 789033

Measurement Uncertainty:

| | |
|-------------------------|--------|
| Measurement Uncertainty | 0.75dB |
|-------------------------|--------|

Measurement Result:

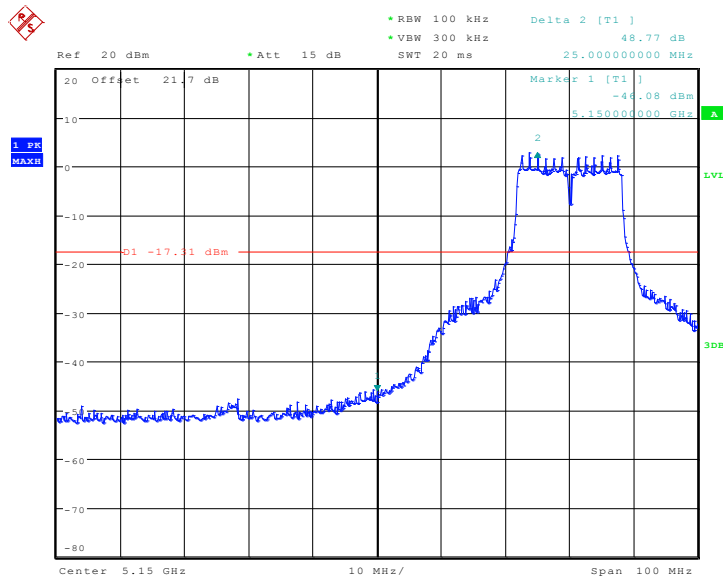
| Mode | Channel | Test Results | Conclusion |
|--------------|----------|--------------|------------|
| 802.11a | 5180 MHz | Fig.17 | P |
| 802.11n-HT20 | 5180 MHz | Fig.18 | P |
| 802.11n-HT40 | 5190 MHz | Fig.19 | P |

Note:

- 1) A/N-HT20 mode: the highest supported frequency (center frequency: 5240MHz, bandwidth: 20MHz), is far away from the high band edge (5350MHz), so it meet the requirement.
- 2) N-HT40 mode: the highest supported frequency (center frequency: 5230MHz, bandwidth: 30MHz), is far away from the high band edge (5350MHz), so it meet the requirement.

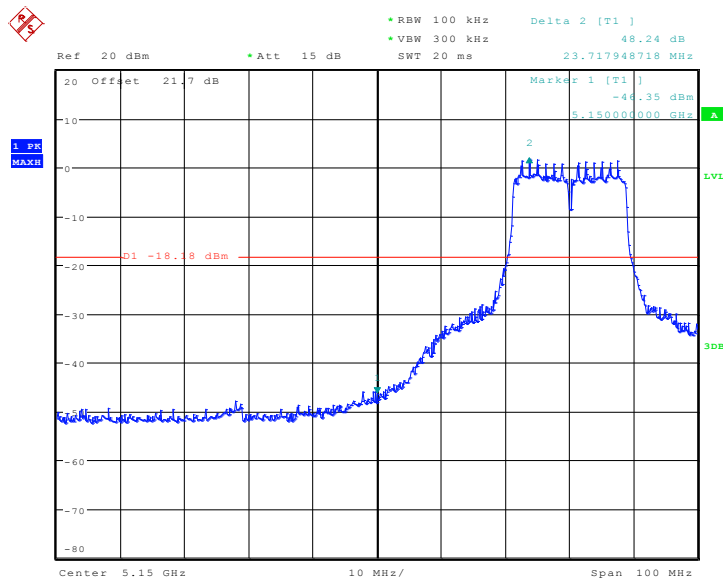
Conclusion: PASS

Test graphs as below:



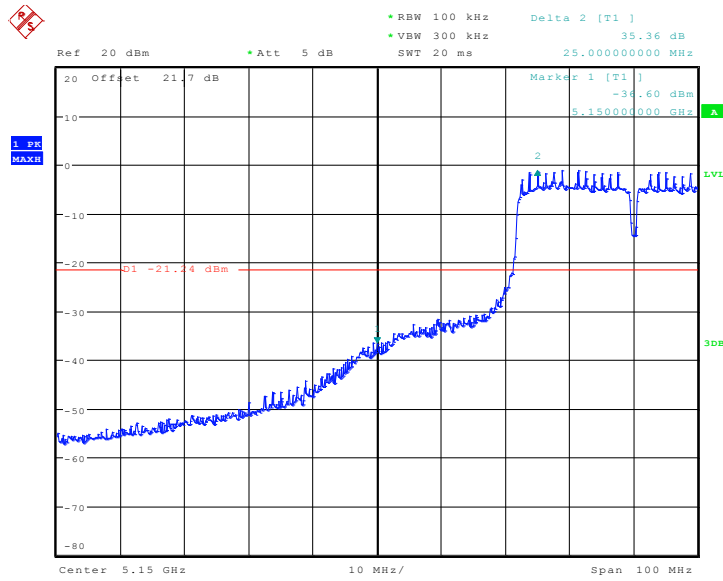
Date: 12.OCT.2013 18:24:53

Fig. 17 Band Edges (802.11a, 5180MHz)



Date: 12.OCT.2013 18:27:53

Fig. 18 Band Edges (802.11n-HT20, 5180MHz)



Date: 12.OCT.2013 18:21:49

Fig. 19 Band Edges (802.11n-HT40, 5190MHz)

A5.2 Band Edges - Radiated

Measurement Limit:

| Standard | Limit (dBc) |
|------------------------|-------------|
| FCC 47 CFR Part 15.407 | > 20 |

The measurement is made according to KDB 789033

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

Measurement Uncertainty:

| | |
|-------------------------|--------|
| Measurement Uncertainty | 0.75dB |
|-------------------------|--------|

Measurement Result:

| Mode | Channel | Test Results | Conclusion |
|-----------------|----------|--------------|------------|
| 802.11a | 5180 MHz | Fig.20 | P |
| 802.11n HT20 | 5180 MHz | Fig.21 | P |
| 802.11n HT40 | 5190 MHz | Fig.22 | P |

Note:

- 1) A/N-HT20 mode: the highest supported frequency (center frequency: 5240MHz, bandwidth: 20MHz), is far away from the high band edge (5350MHz), so it meet the requirement.
- 2) N-HT40 mode: the highest supported frequency (center frequency: 5230MHz, bandwidth: 30MHz), is far away from the high band edge (5350MHz), so it meet the requirement.

Conclusion: PASS

Test graphs as below:

RE - Power-5.125GHz-5.175GHz

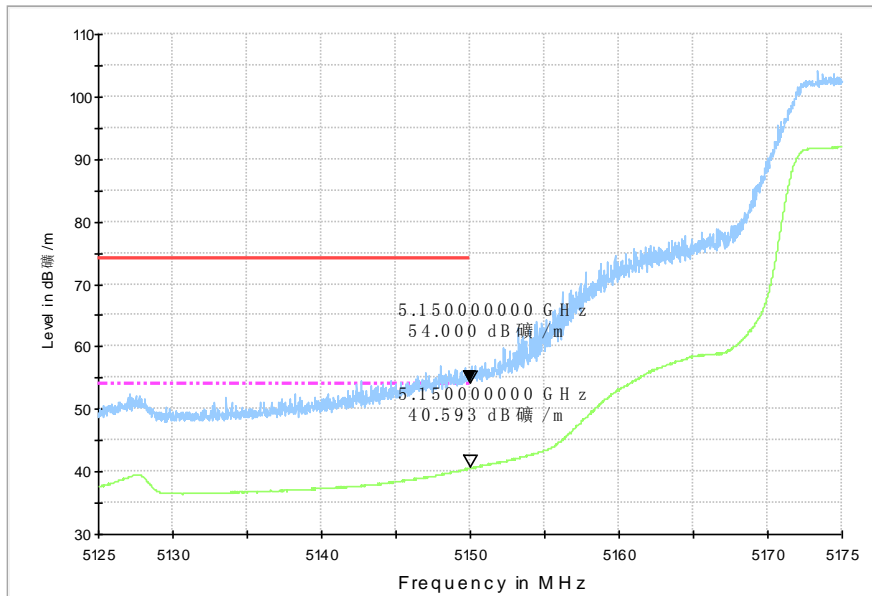


Fig. 20 Band Edges (802.11a, 5180MHz)

RE - Power-5.125GHz-5.175GHz

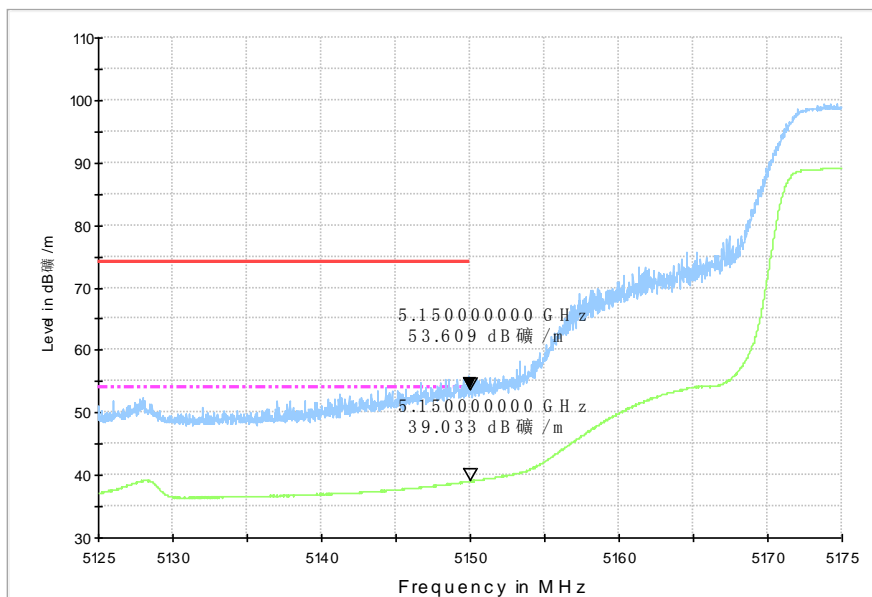


Fig. 21 Band Edges (802.11n-HT20, 5180MHz)

RE - Power-5.125GHz-5.175GHz

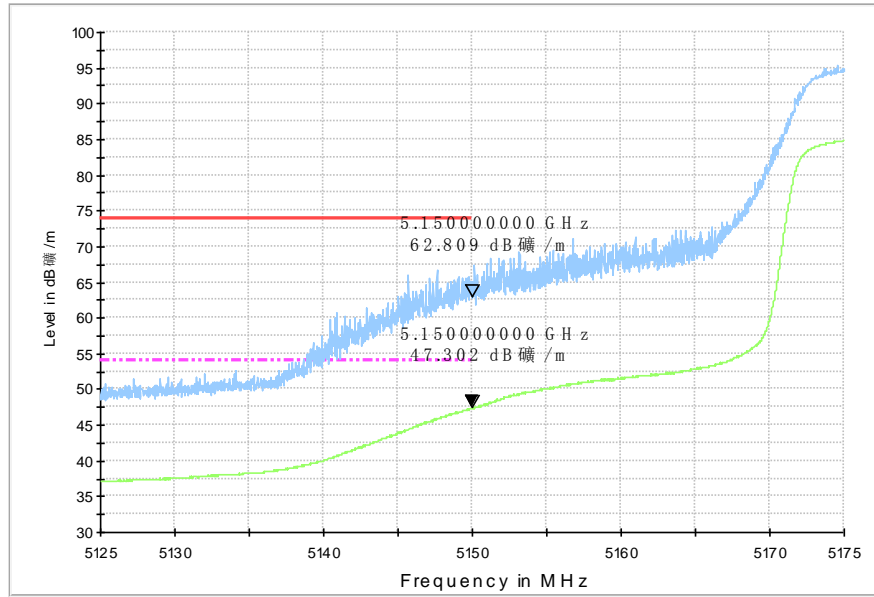


Fig. 22 Band Edges (802.11n-HT40, 5190MHz)

A.6. Transmitter Spurious Emission

Measurement Limit:

| Standard | Limit |
|------------------------|-------------|
| FCC 47 CFR Part 15.407 | -27 dBm/MHz |

The measurement is made according to KDB 789033

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

Limit in restricted band:

| Frequency of emission (MHz) | Field strength(dBμV/m) | Measurement distance(m) |
|-----------------------------|------------------------|-------------------------|
| 30-88 | 40.0 | 3 |
| 88-216 | 43.5 | 3 |
| 216-960 | 46.0 | 3 |
| Above 960 | 54.0 | 3 |

Measurement Uncertainty:

| Frequency Range | Uncertainty(dB) |
|----------------------|-----------------|
| $f \leq 1\text{GHz}$ | 3.9 |
| $f > 1\text{GHz}$ | 4.3 |

Measurement Results:

802.11a mode

| Mode | Channel | Frequency Range | Test Results | Conclusion |
|---------|-------------|-------------------|--------------|------------|
| 802.11a | 36(5180MHz) | 30 MHz ~1 GHz | Fig.23 | P |
| | | 1 GHz ~ 3 GHz | Fig.24 | P |
| | | 3 GHz ~ 6 GHz | Fig.25 | P |
| | | 6 GHz ~ 18 GHz | Fig.26 | P |
| | | 18 GHz ~ 26.5 GHz | Fig.27 | P |
| | | 26.5 GHz ~ 40 GHz | Fig.28 | P |
| | 40(5200MHz) | 30 MHz ~1 GHz | Fig.29 | P |
| | | 1 GHz ~ 3 GHz | Fig.30 | P |
| | | 3 GHz ~ 6 GHz | Fig.31 | P |
| | | 6 GHz ~ 18 GHz | Fig.32 | P |
| | | 18 GHz ~ 26.5 GHz | Fig.33 | P |
| | | 26.5 GHz ~ 40 GHz | Fig.34 | P |
| | 48(5240MHz) | 30 MHz ~1 GHz | Fig.35 | P |
| | | 1 GHz ~ 3 GHz | Fig.36 | P |
| | | 3 GHz ~ 6 GHz | Fig.37 | P |
| | | 6 GHz ~ 18 GHz | Fig.38 | P |
| | | 18 GHz ~ 26.5 GHz | Fig.39 | P |
| | | 26.5 GHz ~ 40 GHz | Fig.40 | P |

802.11n-HT20 mode

| Mode | Channel | Frequency Range | Test Results | Conclusion |
|-----------------|-------------|-------------------|--------------|------------|
| 802.11n HT20 | 36(5180MHz) | 30 MHz ~1 GHz | Fig.41 | P |
| | | 1 GHz ~ 3 GHz | Fig.42 | P |
| | | 3 GHz ~ 6 GHz | Fig.43 | P |
| | | 6 GHz ~ 18 GHz | Fig.44 | P |
| | | 18 GHz ~ 26.5 GHz | Fig.45 | P |
| | | 26.5 GHz ~ 40 GHz | Fig.46 | P |
| | 40(5200MHz) | 30 MHz ~1 GHz | Fig.47 | P |
| | | 1 GHz ~ 3 GHz | Fig.48 | P |
| | | 3 GHz ~ 6 GHz | Fig.49 | P |
| | | 6 GHz ~ 18 GHz | Fig.50 | P |
| | | 18 GHz ~ 26.5 GHz | Fig.51 | P |
| | | 26.5 GHz ~ 40 GHz | Fig.52 | P |
| | 48(5240MHz) | 30 MHz ~1 GHz | Fig.53 | P |
| | | 1 GHz ~ 3 GHz | Fig.54 | P |
| | | 3 GHz ~ 6 GHz | Fig.55 | P |
| | | 6 GHz ~ 18 GHz | Fig.56 | P |
| | | 18 GHz ~ 26.5 GHz | Fig.57 | P |
| | | 26.5 GHz ~ 40 GHz | Fig.58 | P |

802.11n-HT40 mode

| Mode | Channel | Frequency Range | Test Results | Conclusion |
|-----------------|-------------|-------------------|--------------|------------|
| 802.11n HT40 | 38(5190MHz) | 30 MHz ~1 GHz | Fig.59 | P |
| | | 1 GHz ~ 3 GHz | Fig.60 | P |
| | | 3 GHz ~ 6 GHz | Fig.61 | P |
| | | 6 GHz ~ 18 GHz | Fig.62 | P |
| | | 18 GHz ~ 26.5 GHz | Fig.63 | P |
| | | 26.5 GHz ~ 40 GHz | Fig.64 | P |
| | 46(5230MHz) | 30 MHz ~1 GHz | Fig.65 | P |
| | | 1 GHz ~ 3 GHz | Fig.66 | P |
| | | 3 GHz ~ 6 GHz | Fig.67 | P |
| | | 6 GHz ~ 18 GHz | Fig.68 | P |
| | | 18 GHz ~ 26.5 GHz | Fig.69 | P |
| | | 26.5 GHz ~ 40 GHz | Fig.70 | P |

Conclusion: PASS

Test graphs as below:

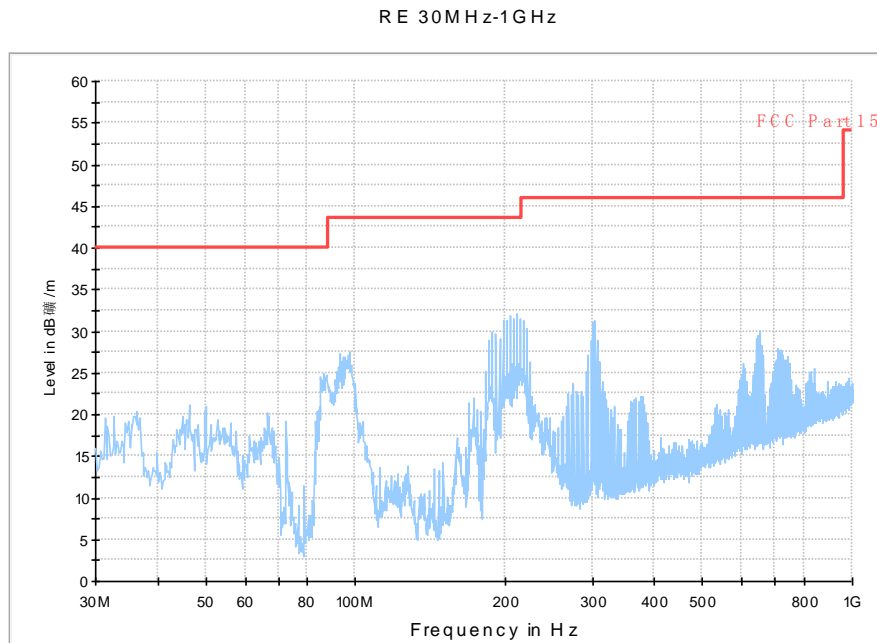


Fig. 23 Radiated Spurious Emission (802.11a, ch36, 30 MHz-1 GHz)

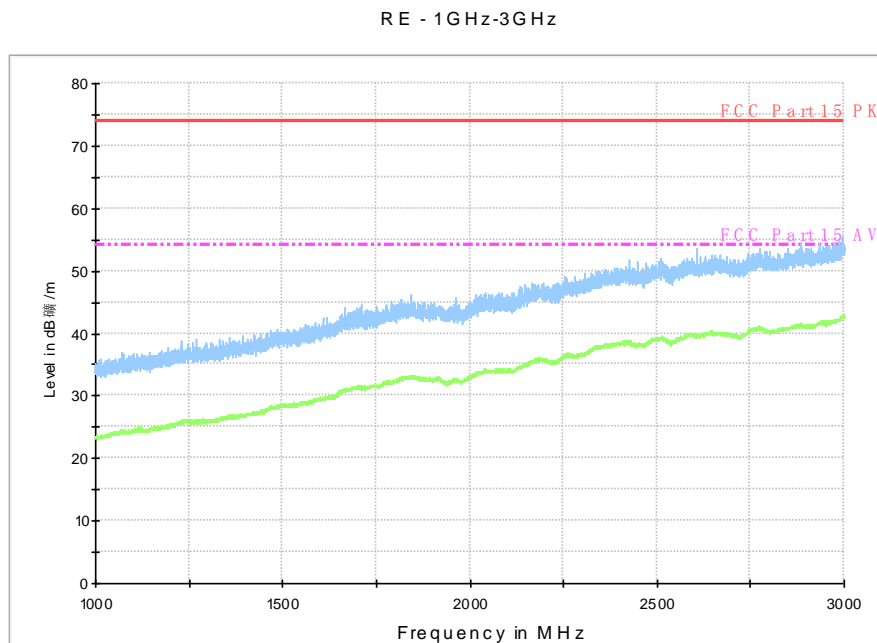


Fig. 24 Radiated Spurious Emission (802.11a, ch36, 1 GHz-3 GHz)

RE - 3GHz-6GHz

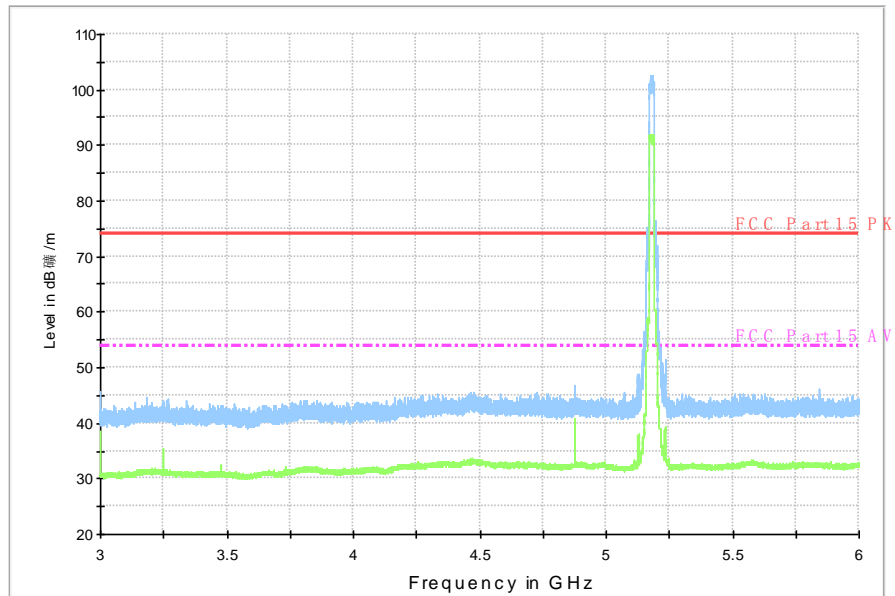


Fig. 25 Radiated Spurious Emission (802.11a, ch36, 3 GHz-6 GHz)

RE - 6GHz-18GHz

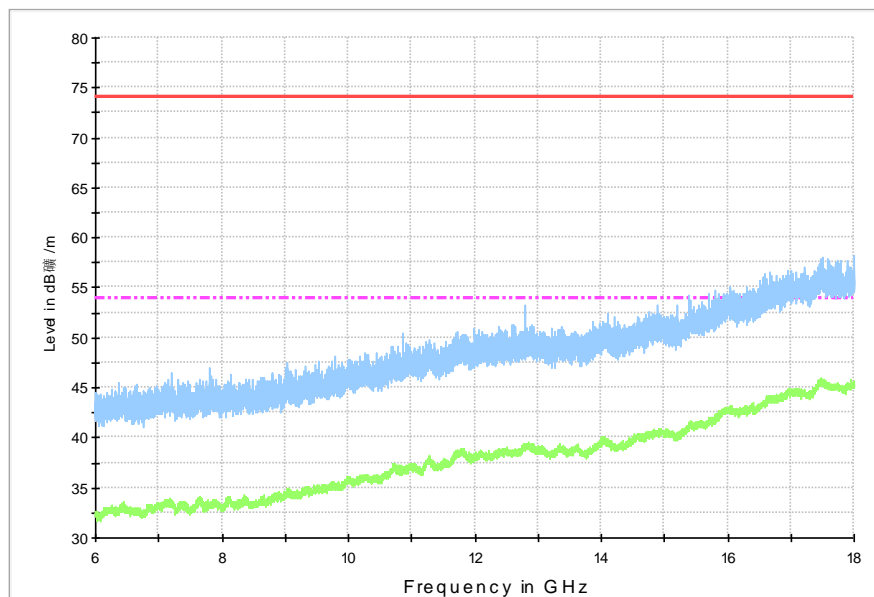


Fig. 26 Radiated Spurious Emission (802.11a, ch36, 6 GHz-18 GHz)

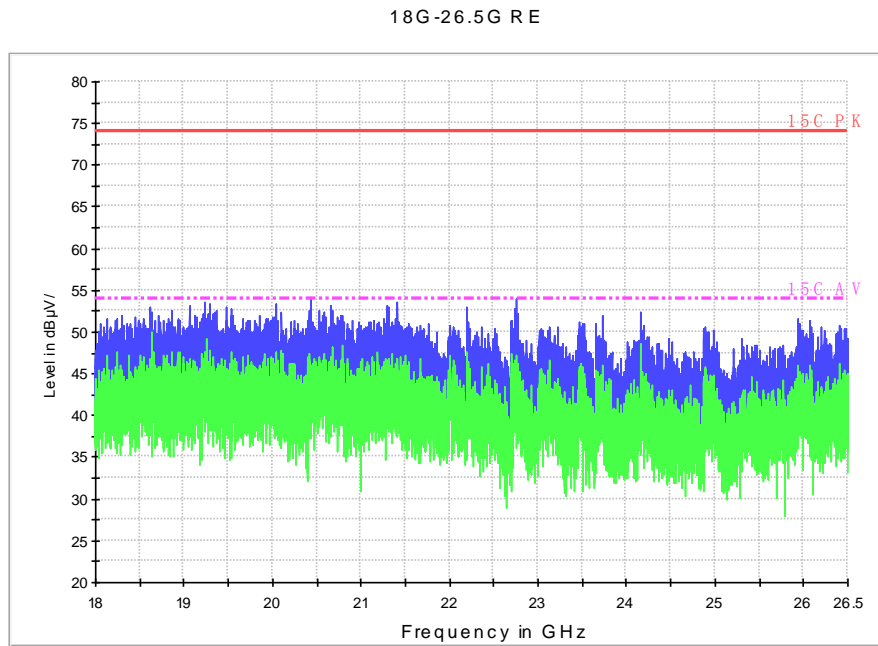


Fig. 27 Radiated Spurious Emission (802.11a, ch36, 18 GHz-26.5 GHz)

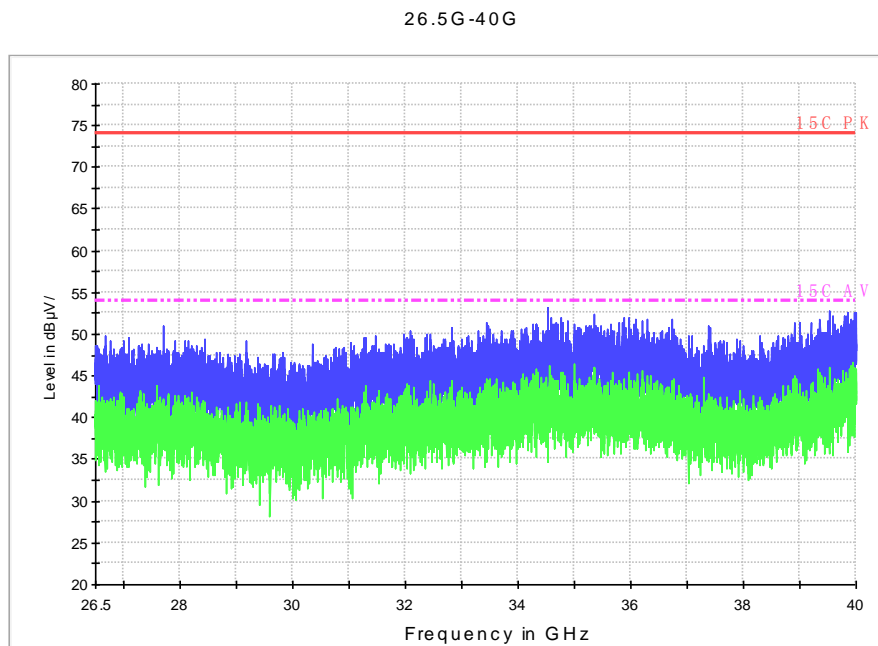


Fig. 28 Radiated Spurious Emission (802.11a, ch36, 26.5 GHz-40 GHz)

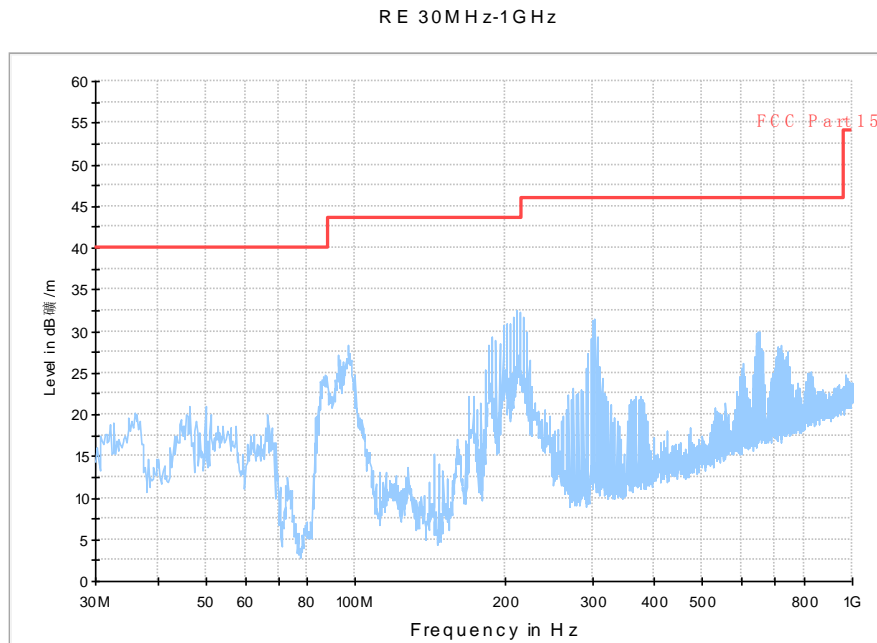


Fig. 29 Radiated Spurious Emission (802.11a, ch40, 30 MHz-1 GHz)

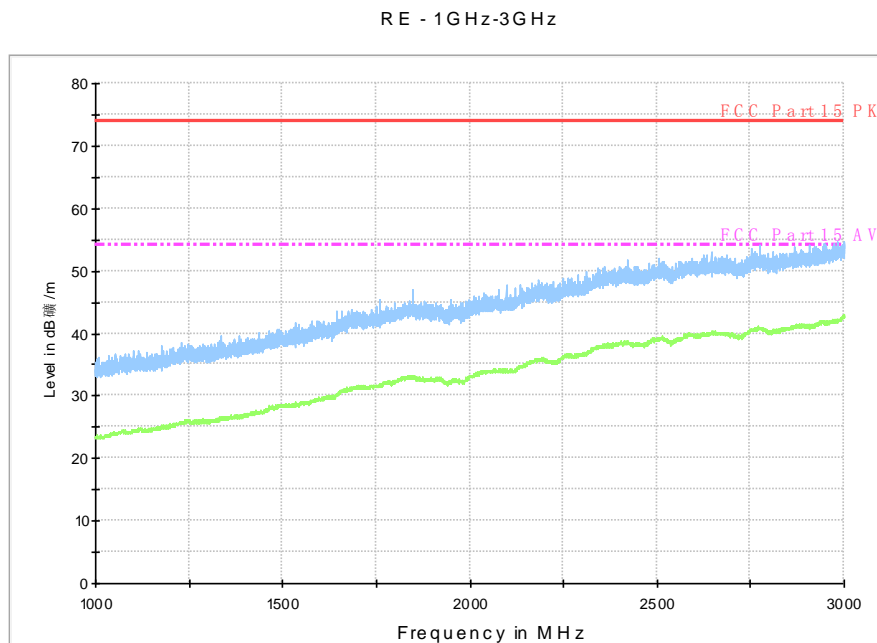


Fig. 30 Radiated Spurious Emission (802.11a, ch40, 1 GHz-3 GHz)

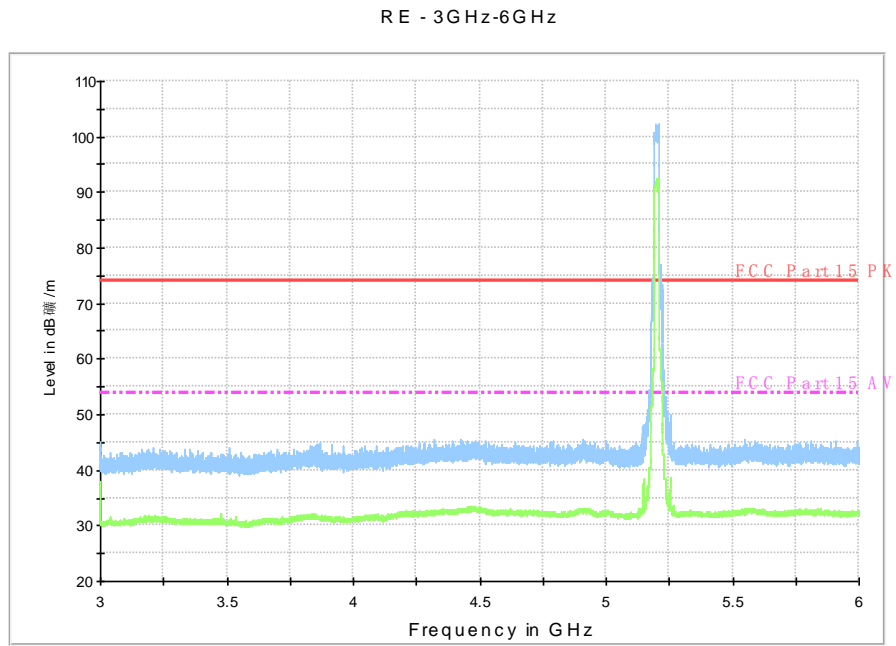


Fig. 31 Radiated Spurious Emission (802.11a, ch40, 3 GHz-6 GHz)

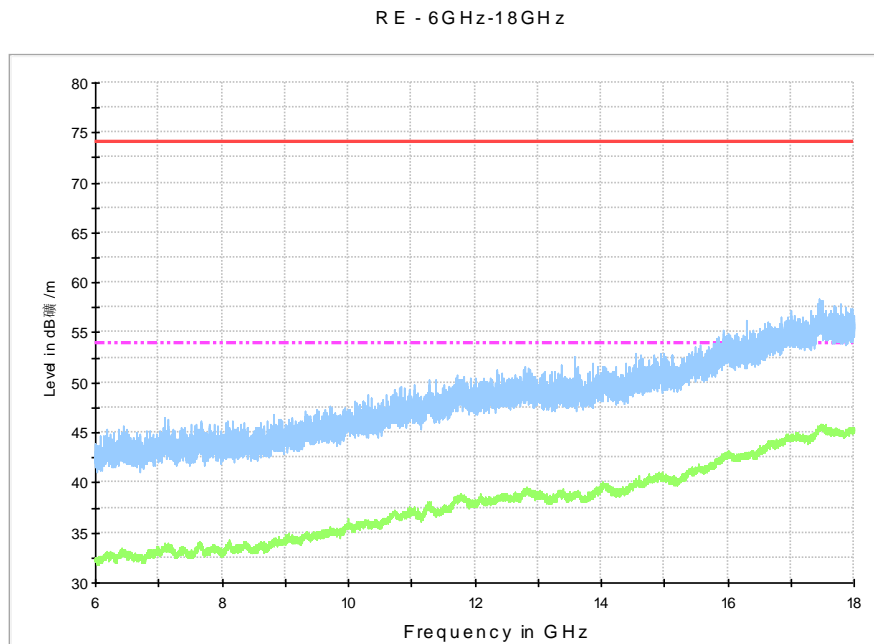


Fig. 32 Radiated Spurious Emission (802.11a, ch40, 6 GHz-18 GHz)

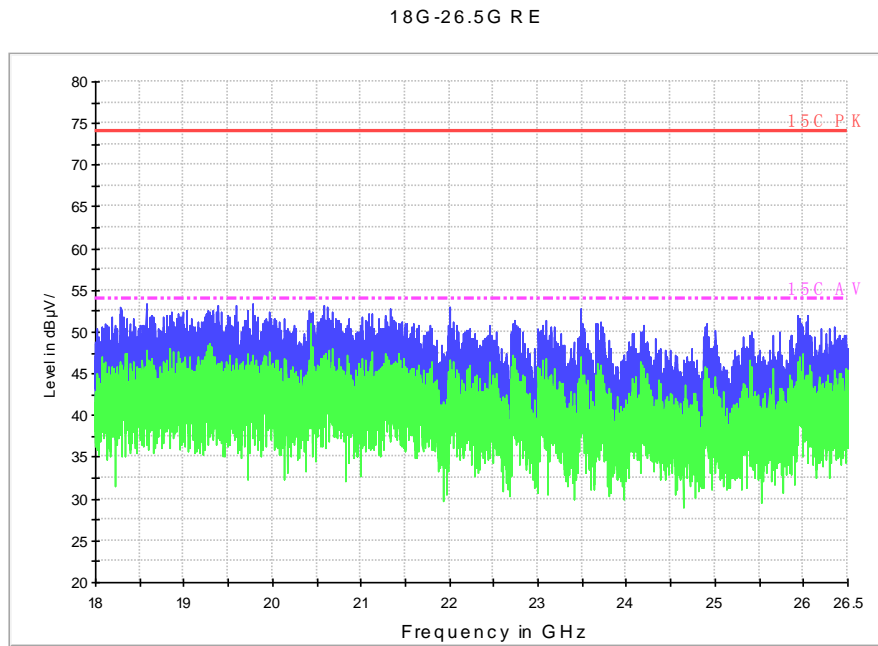


Fig. 33 Radiated Spurious Emission (802.11a, ch40, 18 GHz-26.5 GHz)

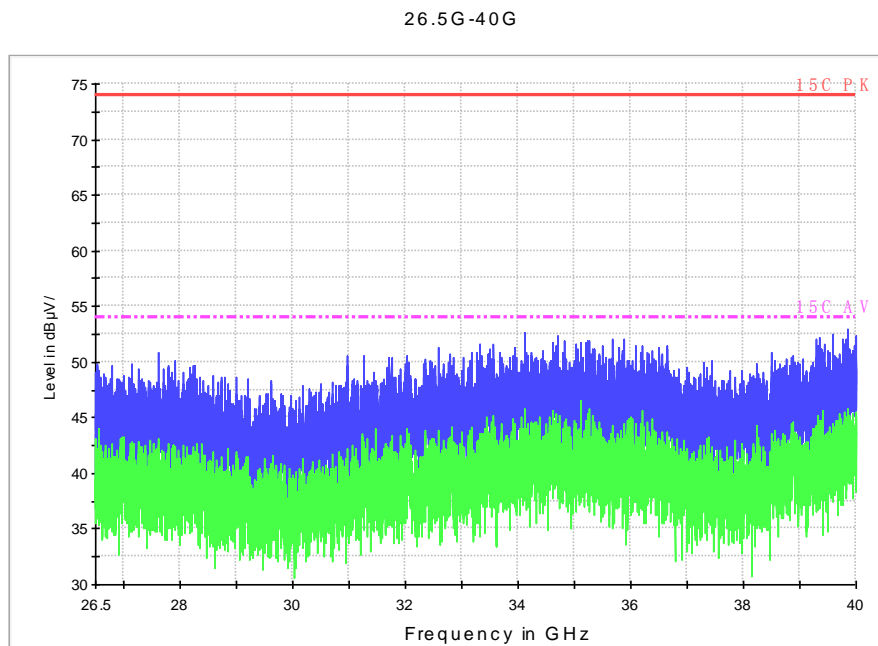


Fig. 34 Radiated Spurious Emission (802.11a, ch40, 26.5 GHz-40 GHz)

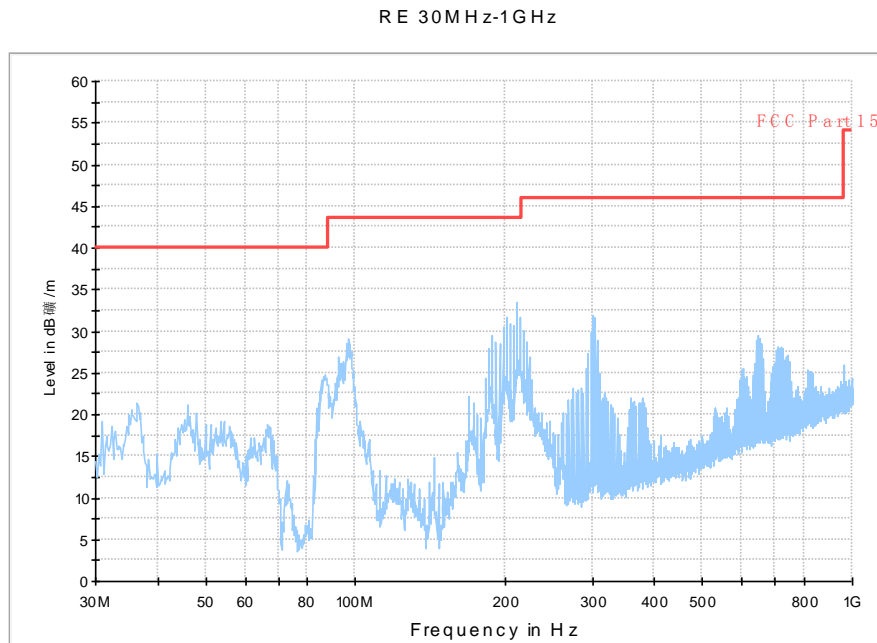


Fig. 35 Radiated Spurious Emission (802.11a, ch48, 30 MHz-1 GHz)

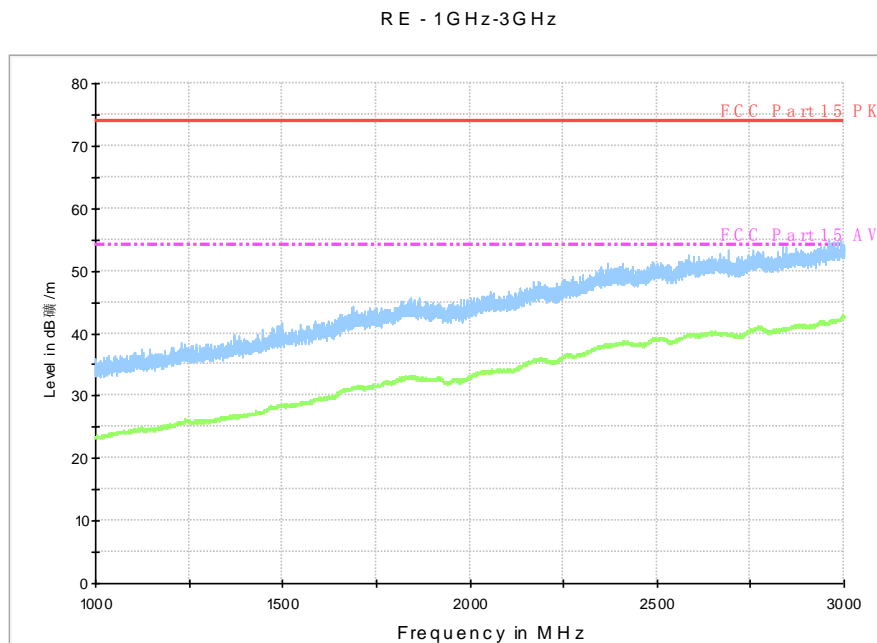


Fig. 36 Radiated Spurious Emission (802.11a, ch48, 1 GHz-3 GHz)

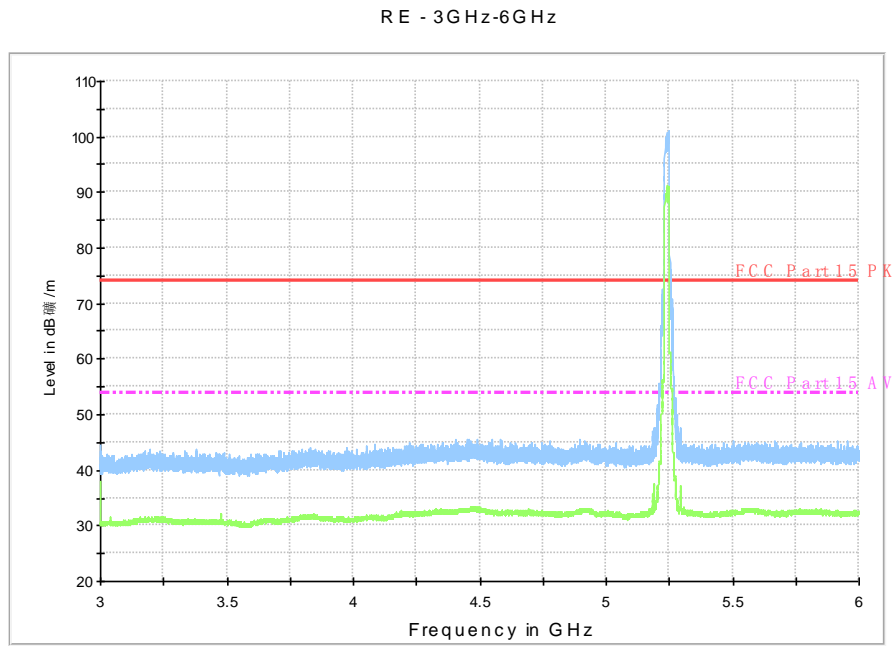


Fig. 37 Radiated Spurious Emission (802.11a, ch48, 3 GHz-6 GHz)

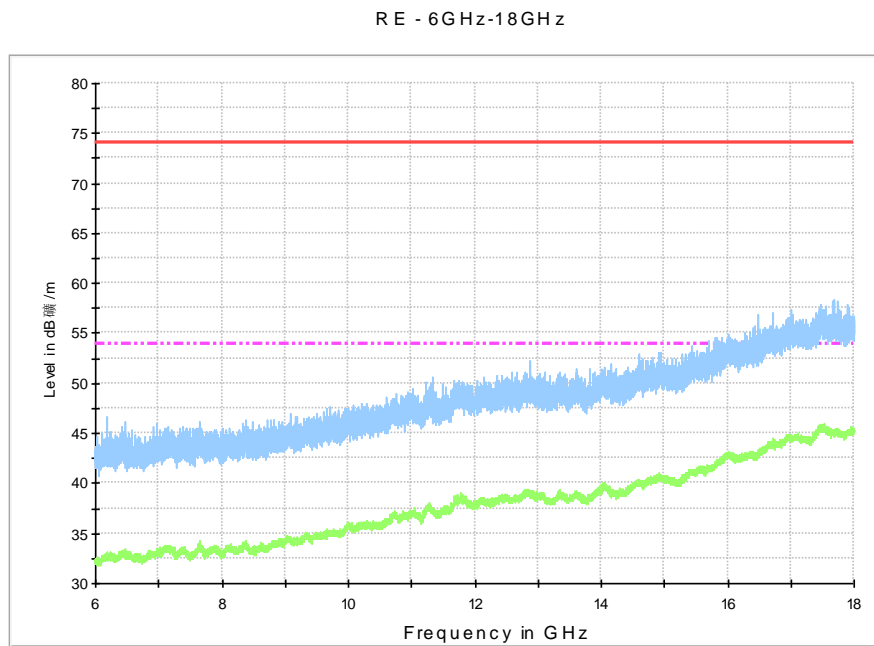


Fig. 38 Radiated Spurious Emission (802.11a, ch48, 6 GHz-18 GHz)

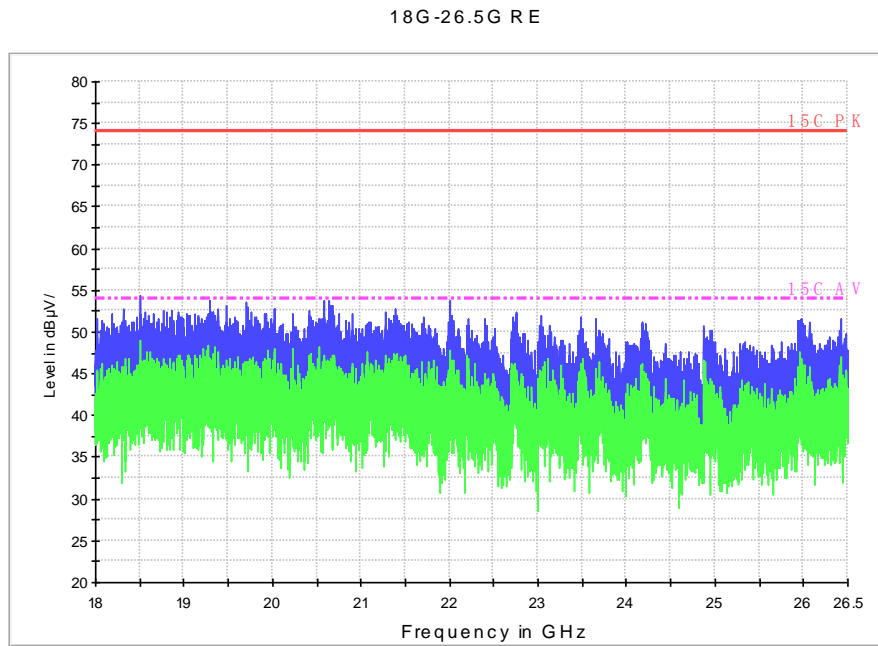


Fig. 39 Radiated Spurious Emission (802.11a, ch48, 18 GHz-26.5 GHz)

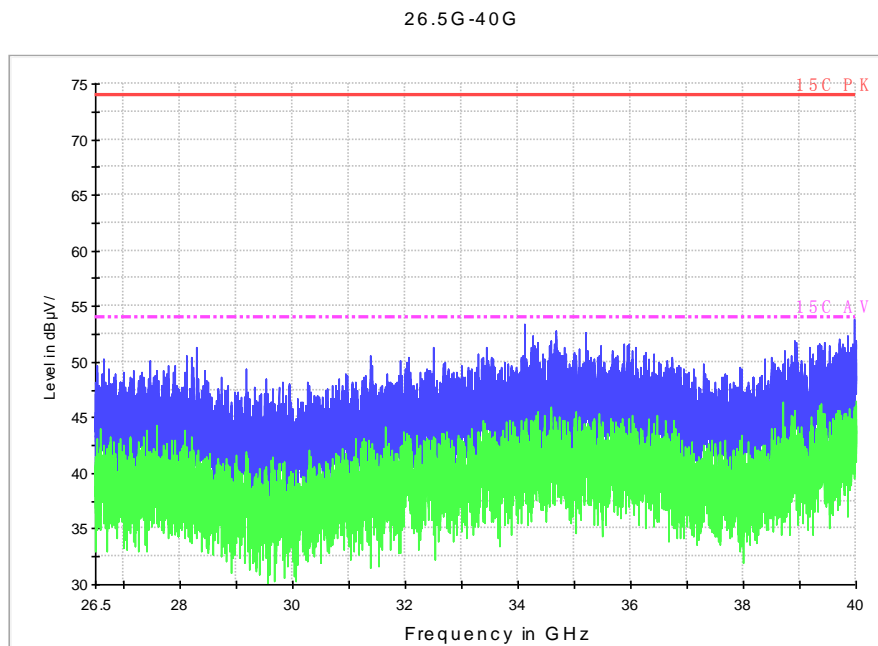


Fig. 40 Radiated Spurious Emission (802.11a, ch48, 26.5 GHz-40 GHz)

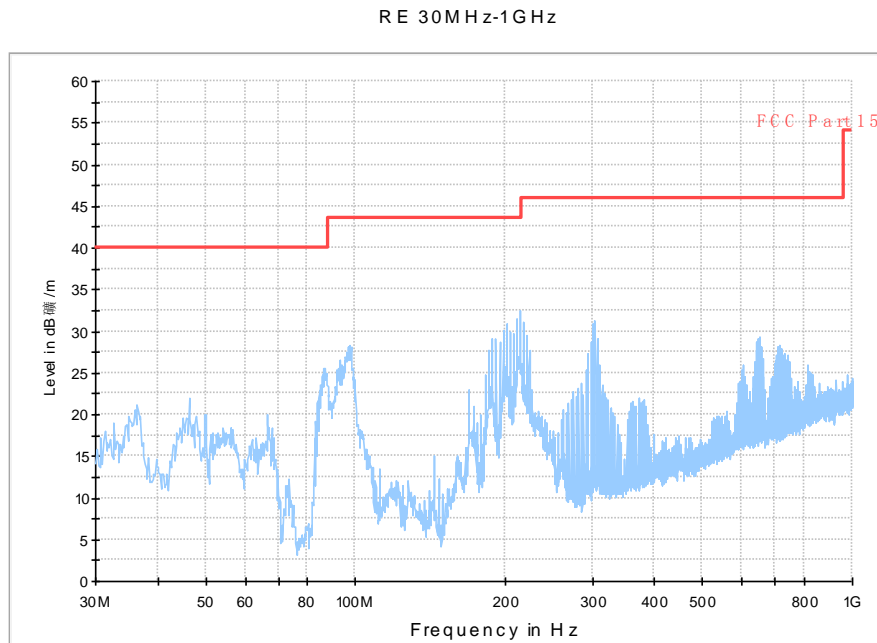


Fig. 41 Radiated Spurious Emission (802.11n-HT20, ch36, 30 MHz-1 GHz)

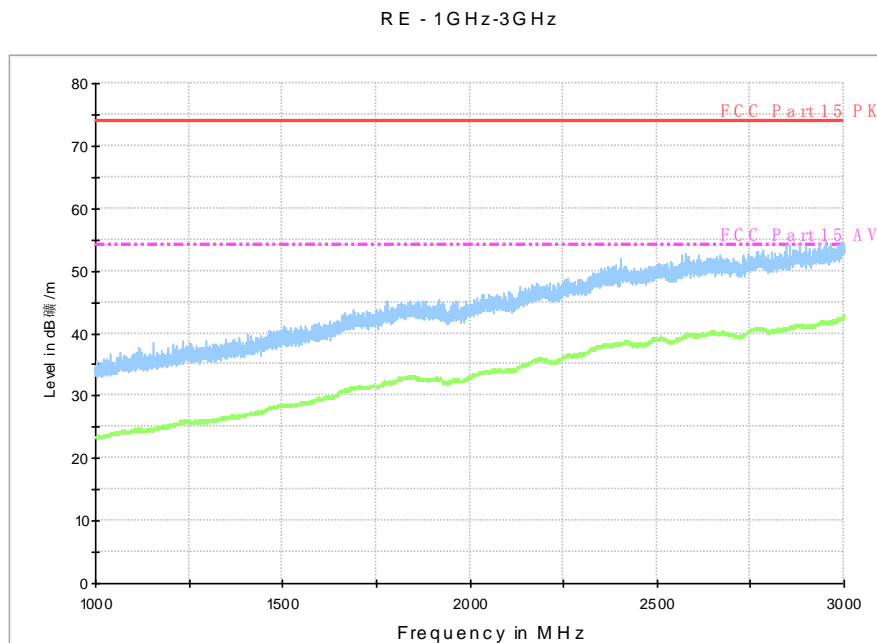


Fig. 42 Radiated Spurious Emission (802.11n-HT20, ch36, 1 GHz-3 GHz)

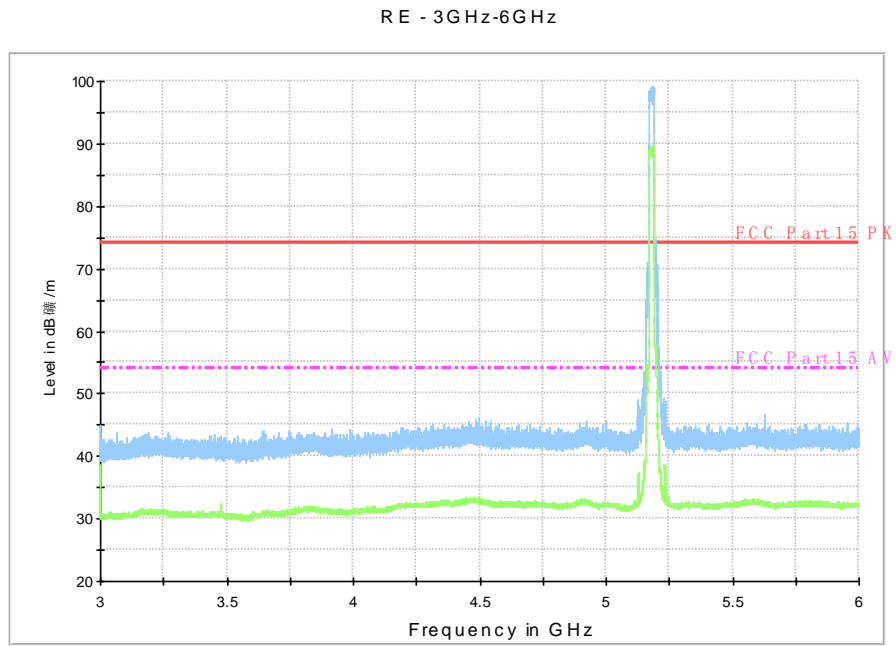


Fig. 43 Radiated Spurious Emission (802.11n-HT20, ch36, 3 GHz-6 GHz)

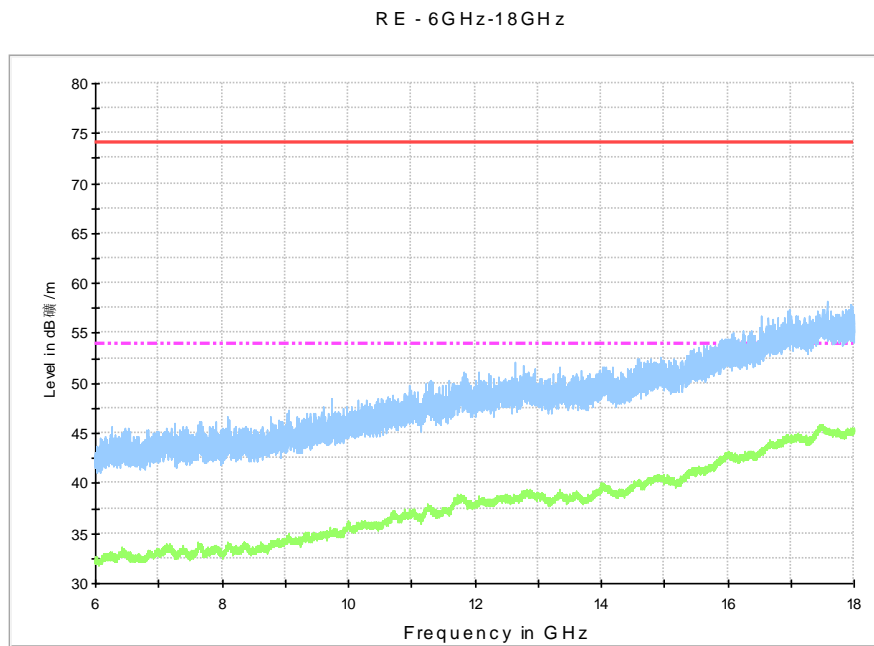


Fig. 44 Radiated Spurious Emission (802.11n-HT20, ch36, 6 GHz-18 GHz)

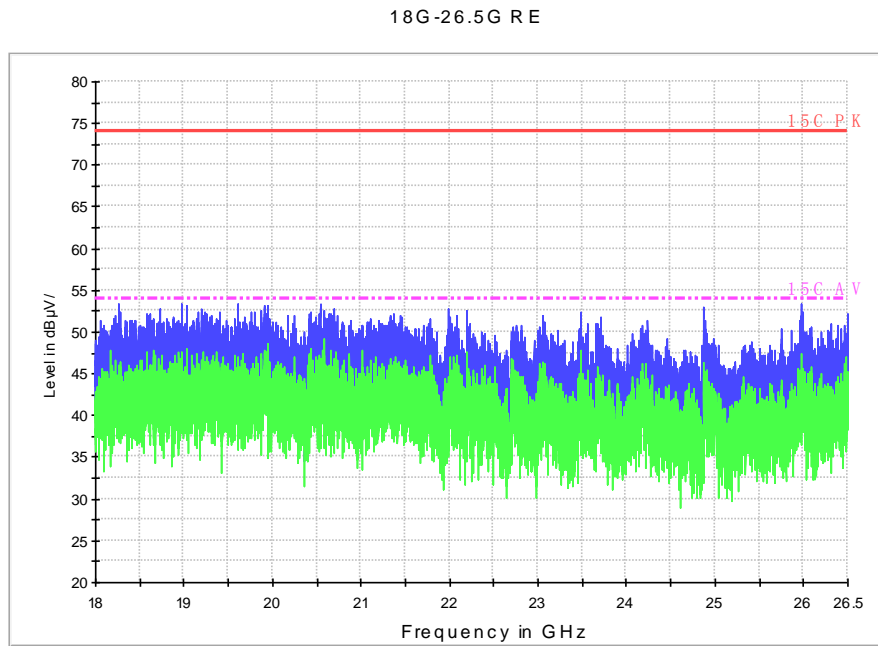


Fig. 45 Radiated Spurious Emission (802.11n-HT20, ch36, 18 GHz-26.5 GHz)

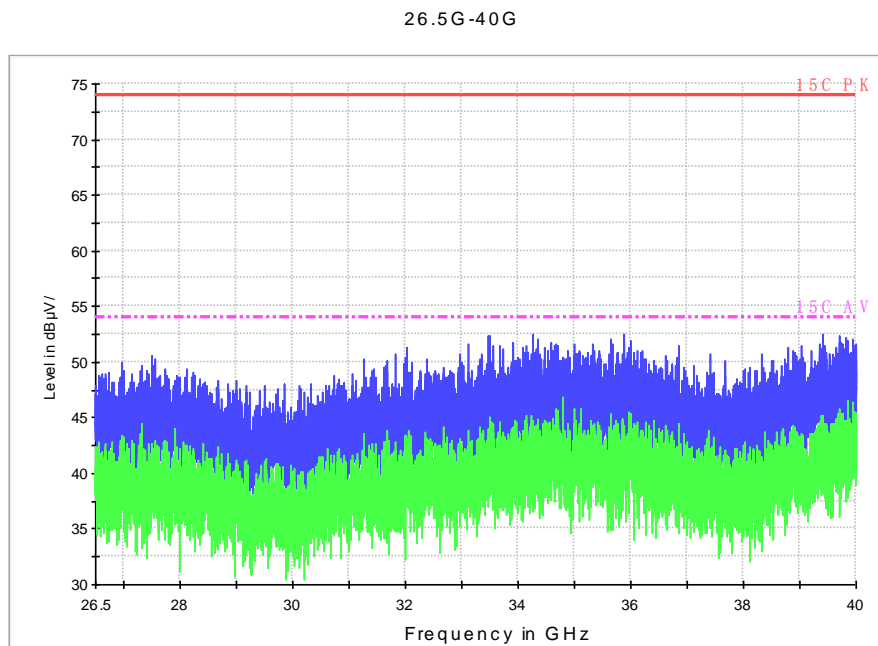


Fig. 46 Radiated Spurious Emission (802.11n-HT20, ch36, 26.5 GHz-40 GHz)

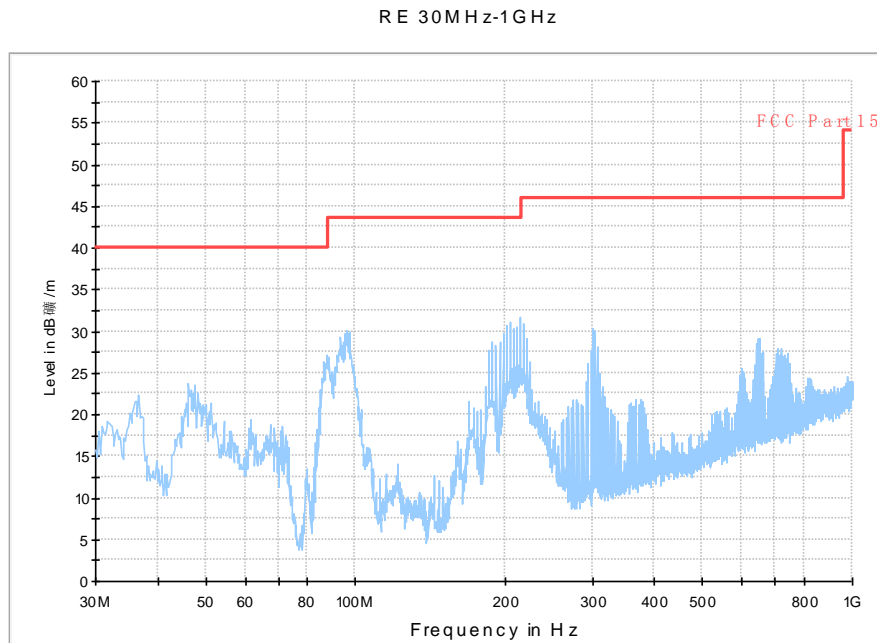


Fig. 47 Radiated Spurious Emission (802.11n-HT20, ch40, 30 MHz-1 GHz)

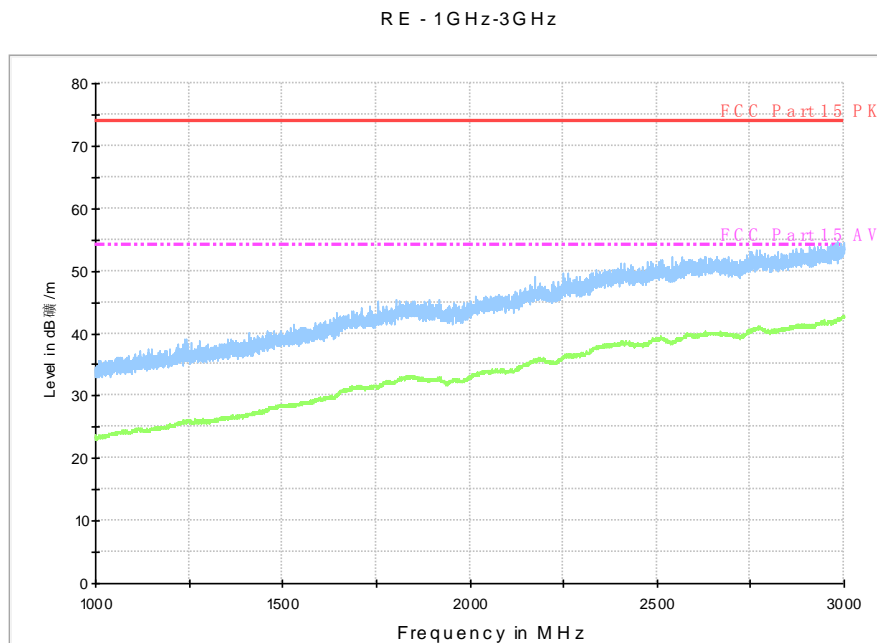


Fig. 48 Radiated Spurious Emission (802.11n-HT20, ch40, 1 GHz-3 GHz)

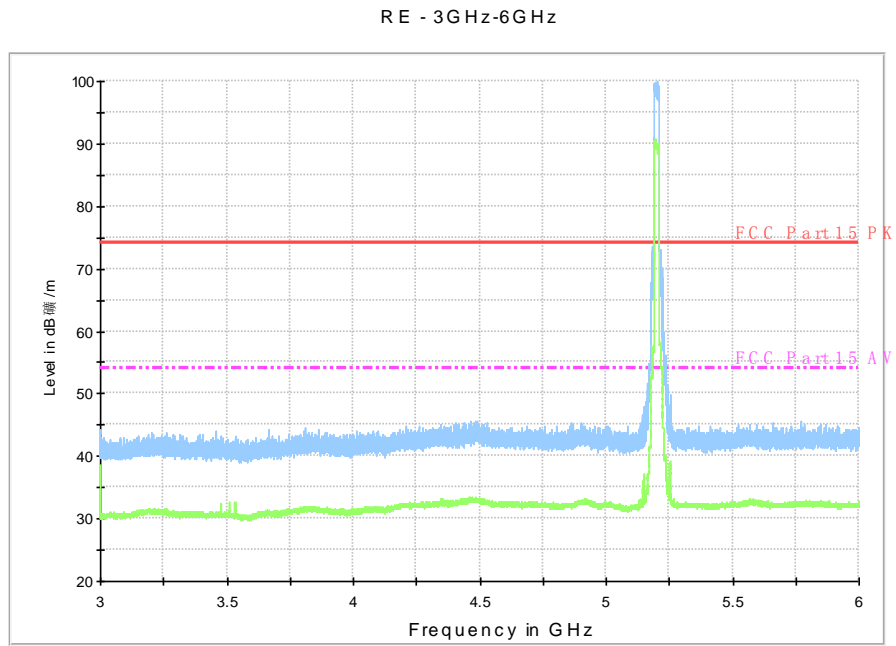


Fig. 49 Radiated Spurious Emission (802.11n-HT20, ch40, 3 GHz-6 GHz)

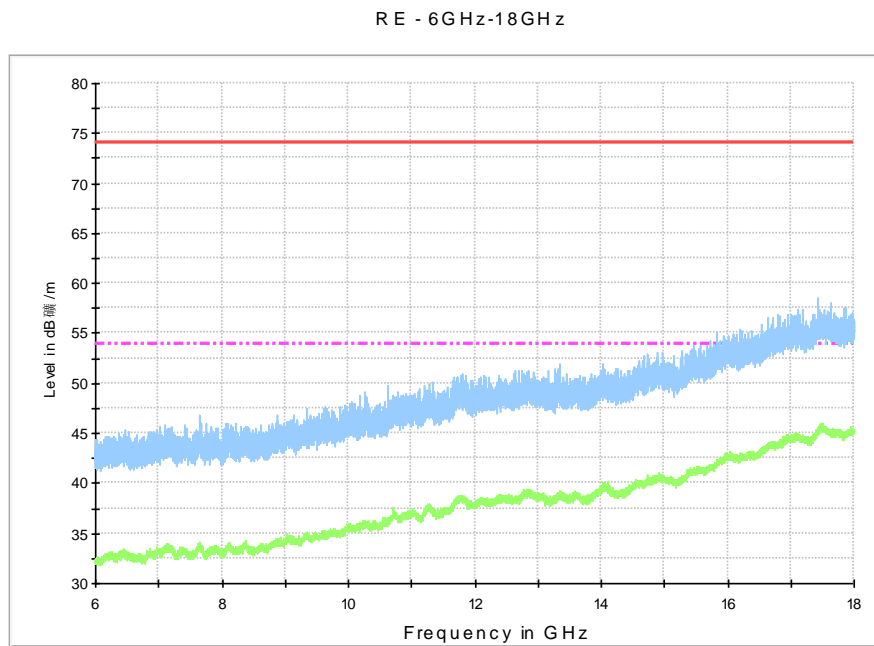


Fig. 50 Radiated Spurious Emission (802.11n-HT20, ch40, 6 GHz-18 GHz)

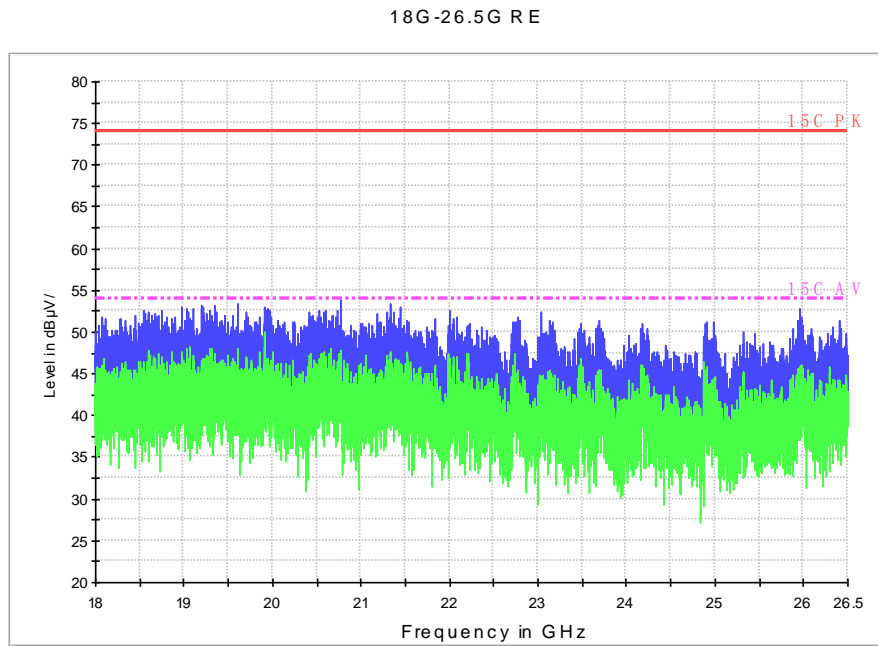


Fig. 51 Radiated Spurious Emission (802.11n-HT20, ch40, 18 GHz-26.5 GHz)

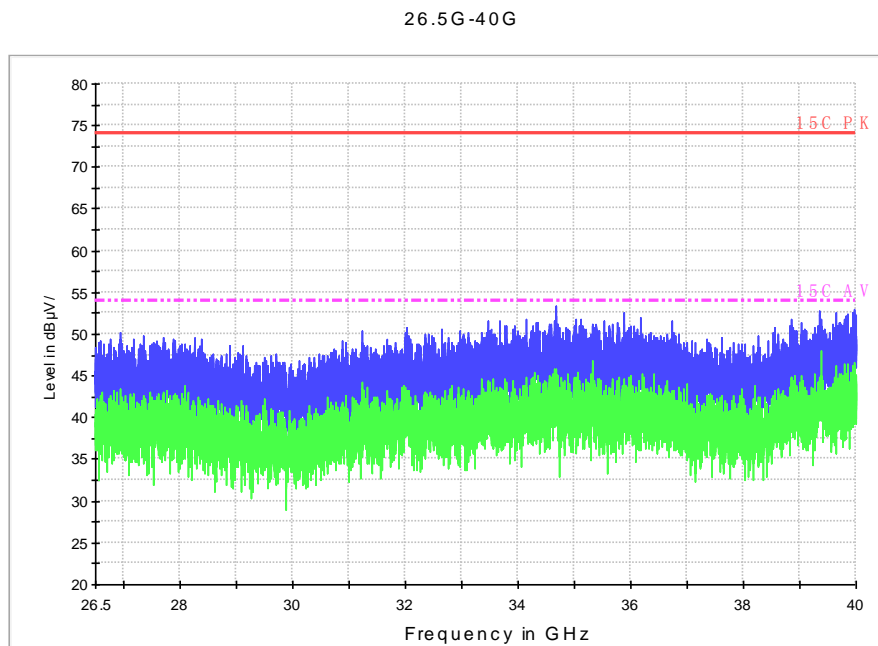


Fig. 52 Radiated Spurious Emission (802.11n-HT20, ch40, 26.5 GHz-40 GHz)

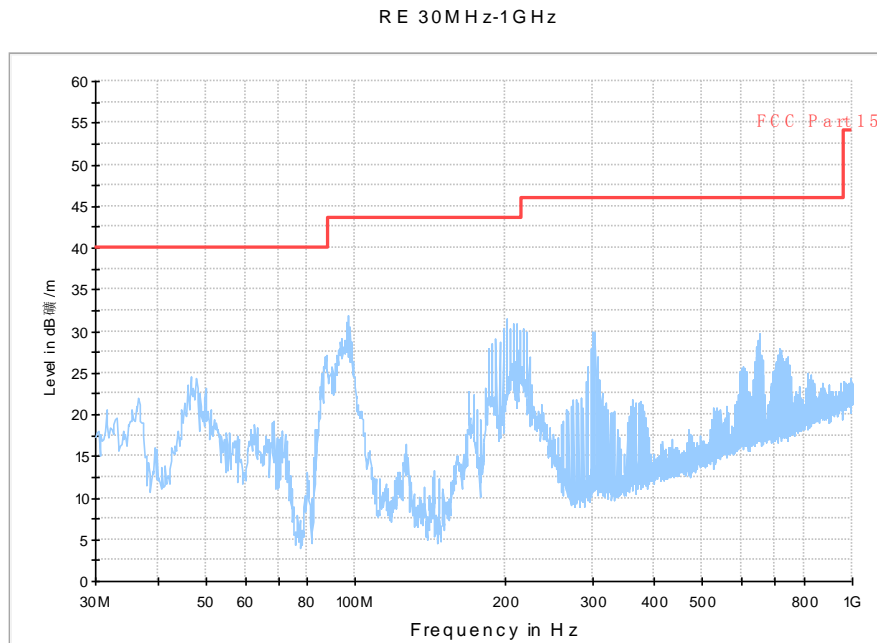


Fig. 53 Radiated Spurious Emission (802.11n-HT20, ch48, 30 MHz-1 GHz)

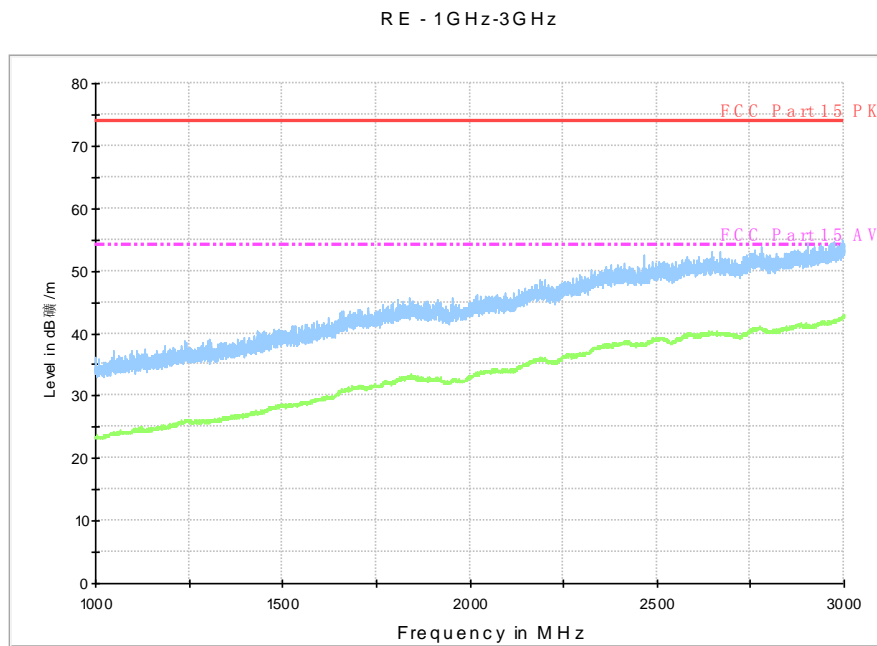


Fig. 54 Radiated Spurious Emission (802.11n-HT20, ch48, 1 GHz-3 GHz)

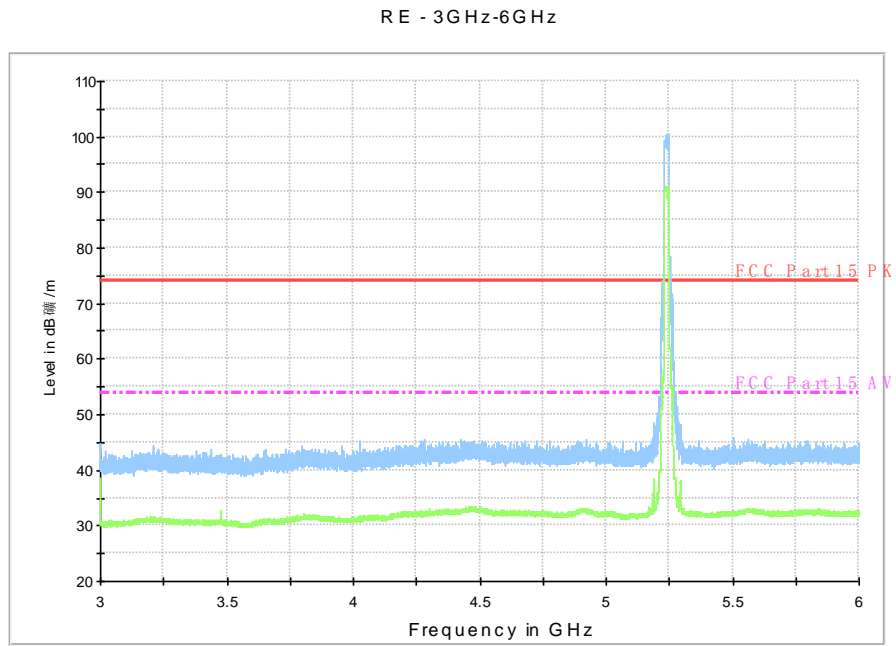


Fig. 55 Radiated Spurious Emission (802.11n-HT20, ch48, 3 GHz-6 GHz)

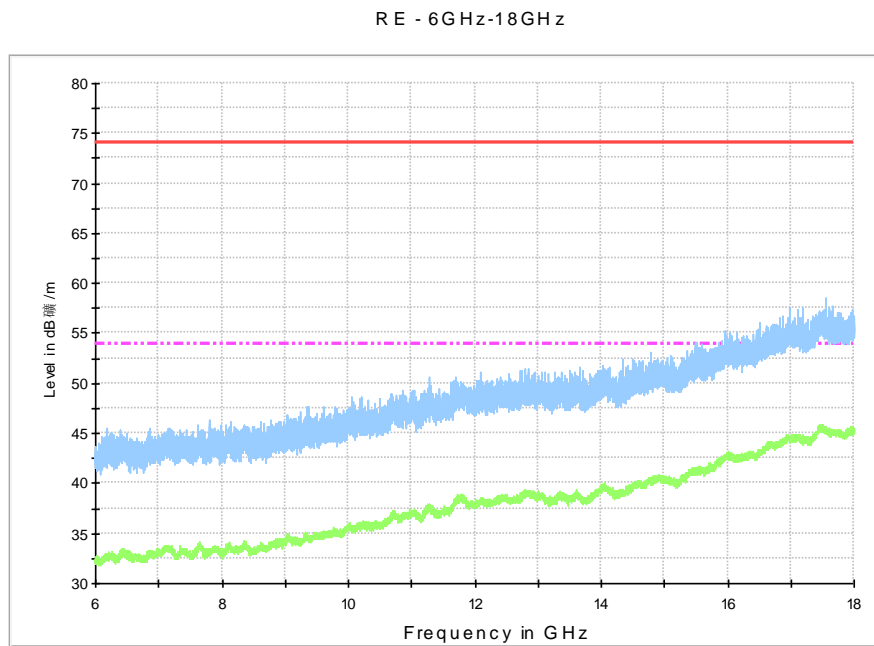


Fig. 56 Radiated Spurious Emission (802.11n-HT20, ch48, 6 GHz-18 GHz)

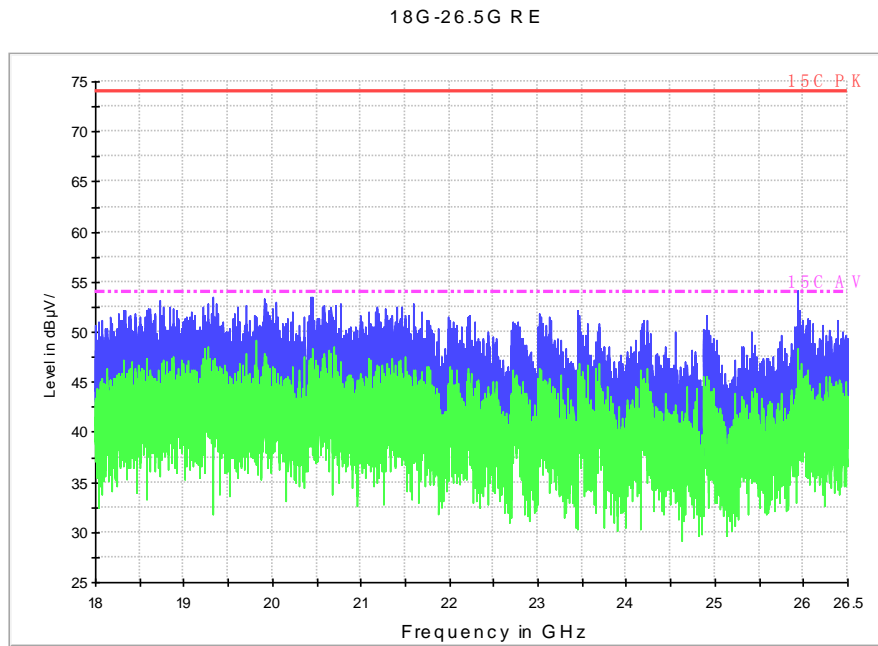


Fig. 57 Radiated Spurious Emission (802.11n-HT20, ch48, 18 GHz-26.5 GHz)

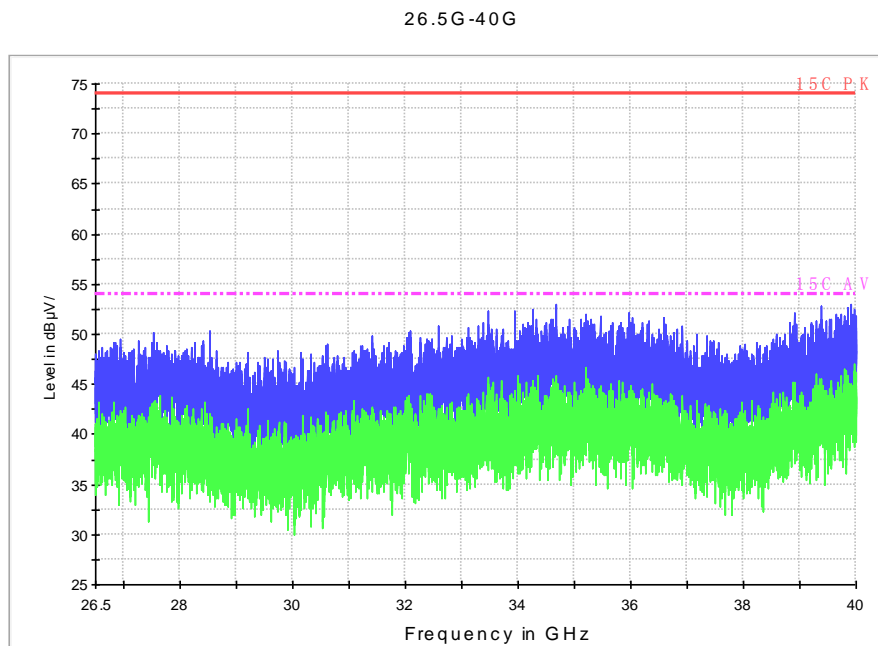


Fig. 58 Radiated Spurious Emission (802.11n-HT20, ch48, 26.5 GHz-40 GHz)

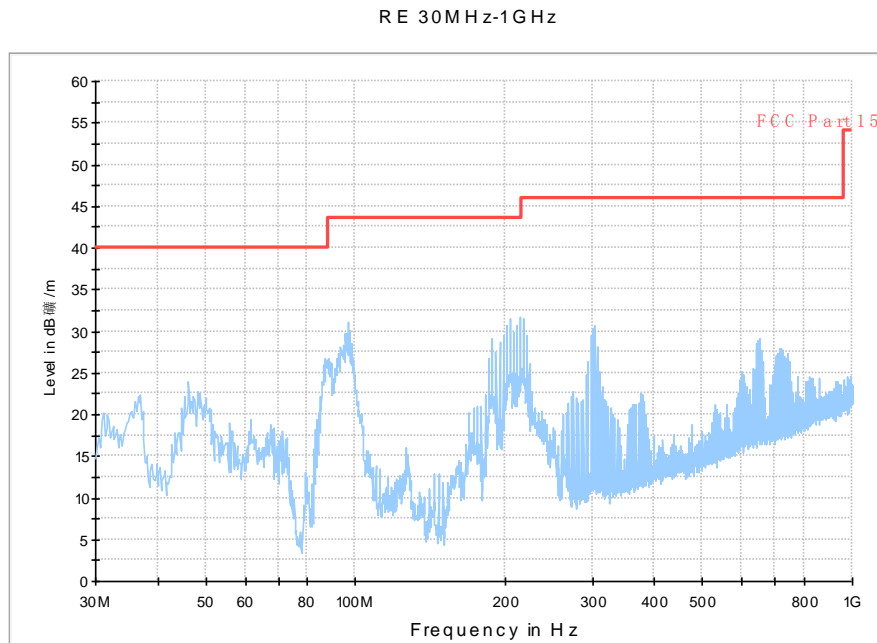


Fig. 59 Radiated Spurious Emission (802.11n-HT40, ch38, 30 MHz-1 GHz)

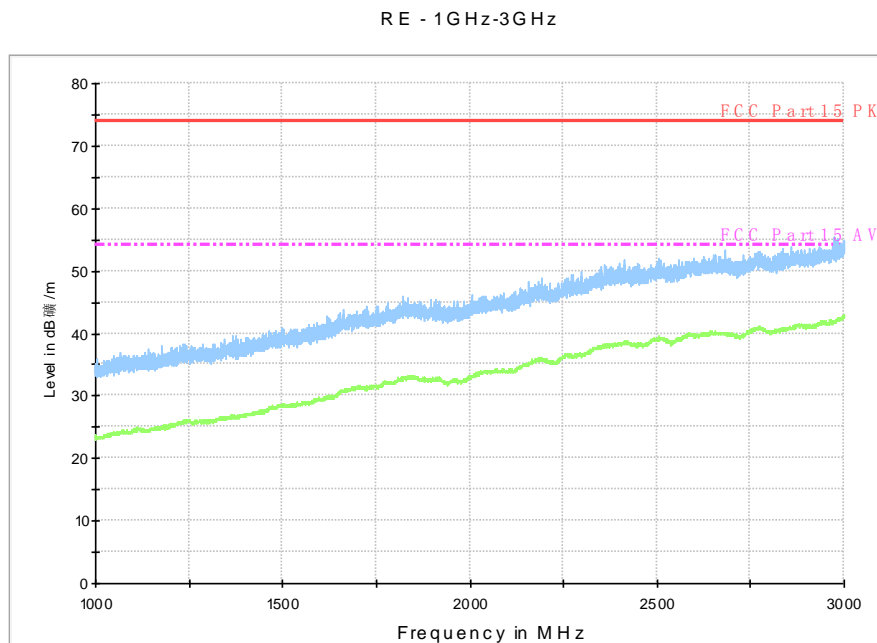


Fig. 60 Radiated Spurious Emission (802.11n-HT40, ch38, 1 GHz-3 GHz)

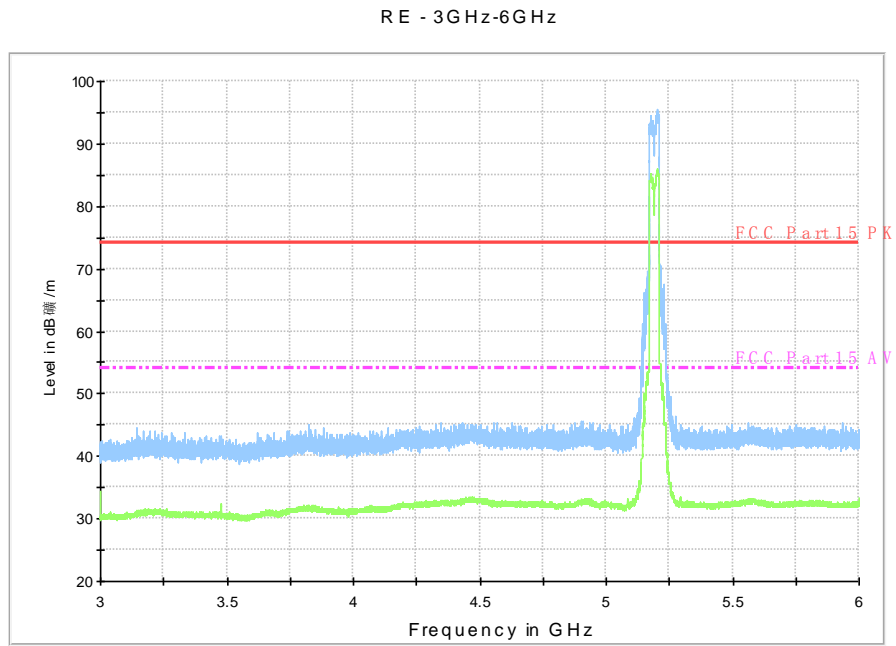


Fig. 61 Radiated Spurious Emission (802.11n-HT40, ch38, 3 GHz-6 GHz)

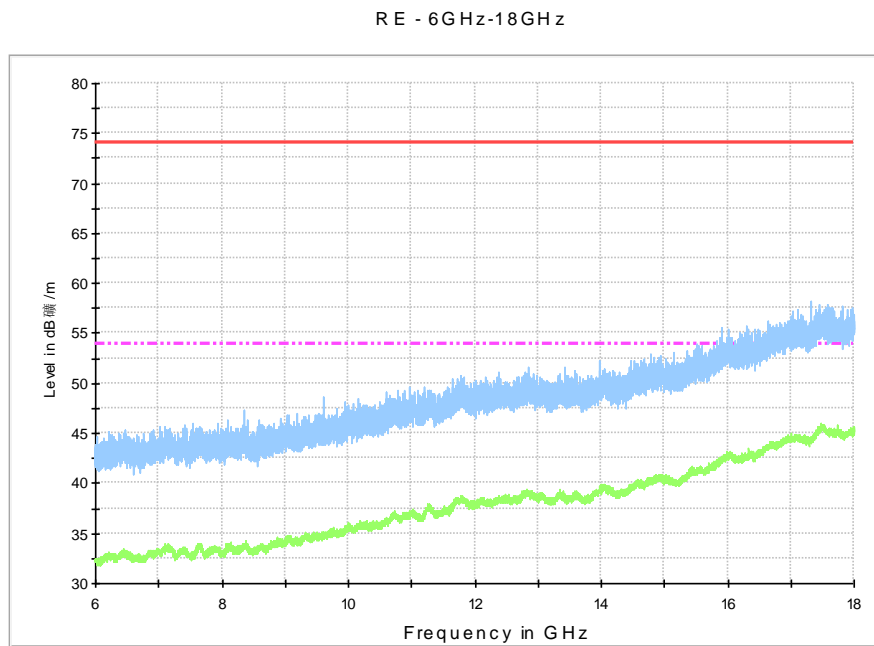


Fig. 62 Radiated Spurious Emission (802.11n-HT40, ch38, 6 GHz-18 GHz)

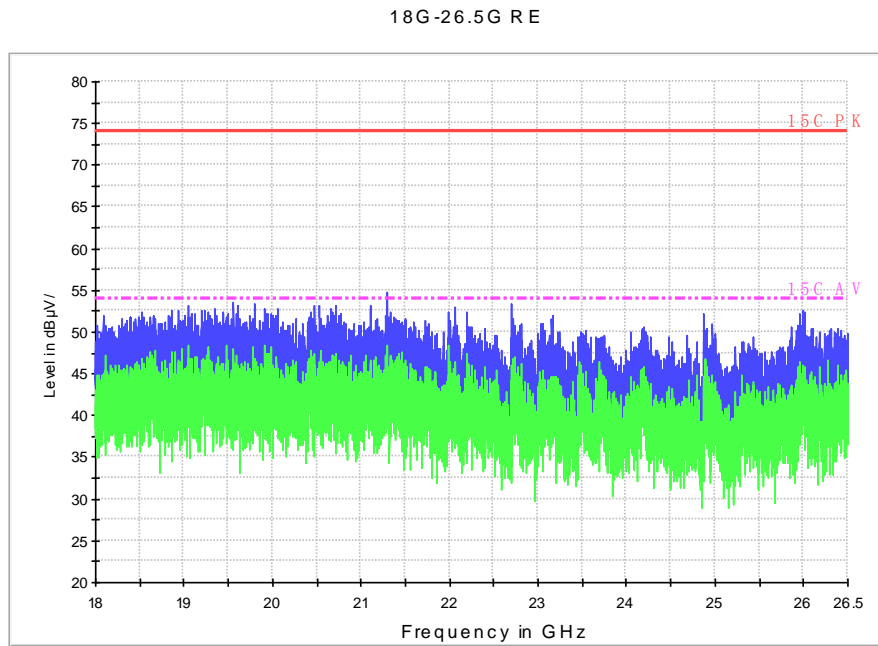


Fig. 63 Radiated Spurious Emission (802.11n-HT40, ch38, 18 GHz-26.5 GHz)

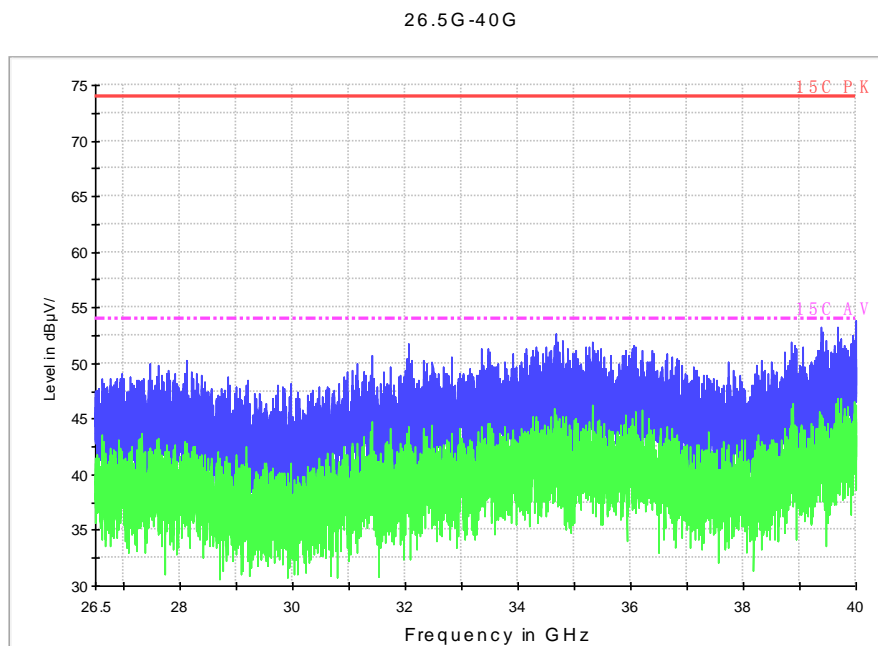


Fig. 64 Radiated Spurious Emission (802.11n-HT40, ch38, 26.5 GHz-40 GHz)

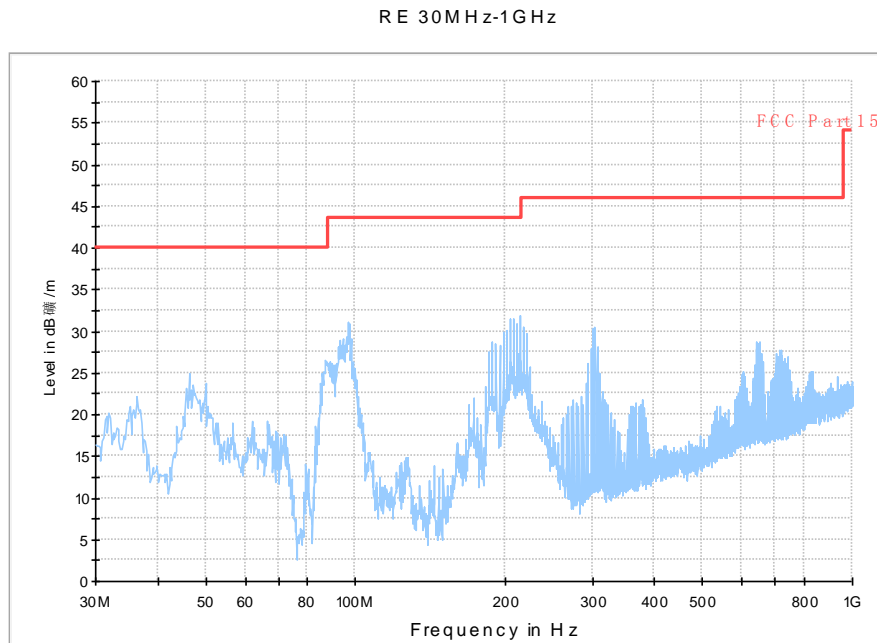


Fig. 65 Radiated Spurious Emission (802.11n-HT40, ch46, 30 MHz-1 GHz)

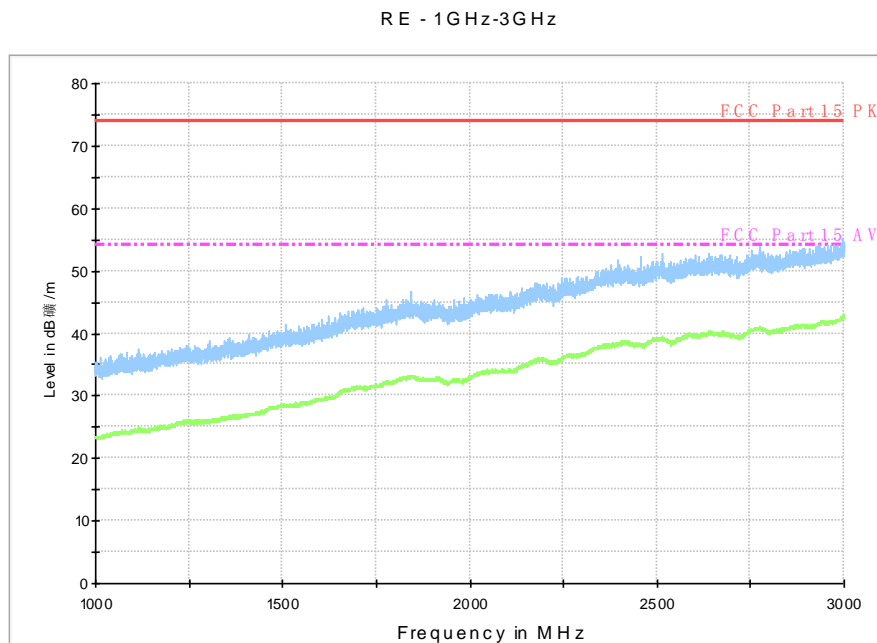


Fig. 66 Radiated Spurious Emission (802.11n-HT40, ch46, 1 GHz-3 GHz)

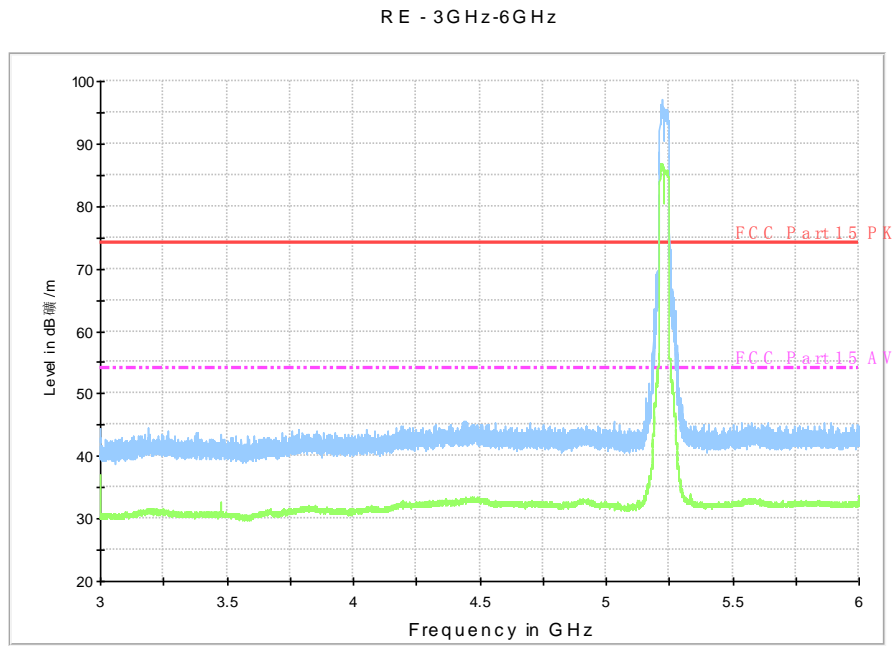


Fig. 67 Radiated Spurious Emission (802.11n-HT40, ch46, 3 GHz-6 GHz)

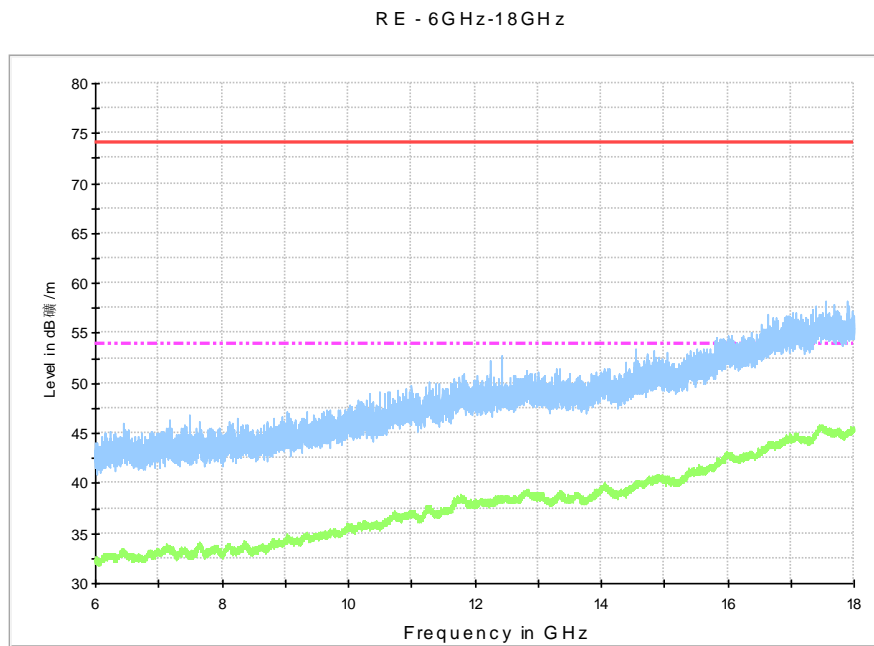


Fig. 68 Radiated Spurious Emission (802.11n-HT40, ch46, 6 GHz-18 GHz)

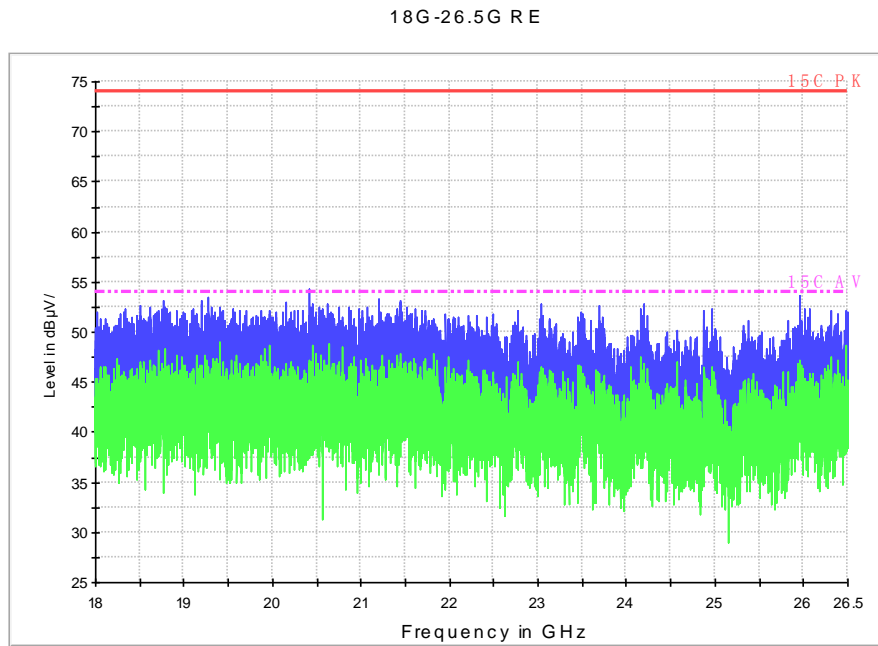


Fig. 69 Radiated Spurious Emission (802.11n-HT40, ch46, 18 GHz-26.5 GHz)

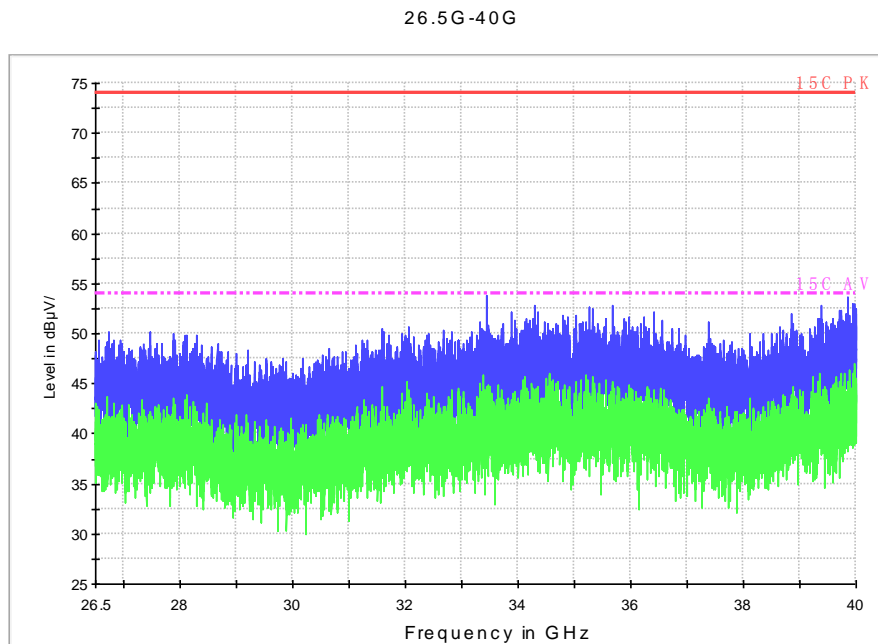


Fig. 70 Radiated Spurious Emission (802.11n-HT40, ch46, 26.5 GHz-40 GHz)

A.7. Spurious Emission Conducted < 30MHz

Test Condition:

| Voltage (V) | Frequency (Hz) |
|-------------|----------------|
| 110 | 60 |

Measurement uncertainty:

Expanded measurement uncertainty for this test item is U =3.2dB, k=2.

Measurement Result and limit:

WLAN (Quasi-peak Limit)

| Frequency range (MHz) | Quasi-peak Limit (dB μ V) | Result (dB μ V) | | Conclusion |
|-----------------------|-------------------------------|---------------------|---------|------------|
| | | With charger | | |
| | | 11a mode | Idle | |
| 0.15 to 0.5 | 66 to 56 | Fig. 71 | Fig. 72 | P |
| 0.5 to 5 | 56 | | | |
| 5 to 30 | 60 | | | |

NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

WLAN (Average Limit)

| Frequency range (MHz) | Average Limit (dB μ V) | Result (dB μ V) | | Conclusion |
|-----------------------|----------------------------|---------------------|--------|------------|
| | | With charger | | |
| | | 11a mode | Idle | |
| 0.15 to 0.5 | 56 to 46 | Fig.71 | Fig.72 | P |
| 0.5 to 5 | 46 | | | |
| 5 to 30 | 50 | | | |

NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

The measurement is made according to KDB 789033

Conclusion: PASS

Test graphs as below:

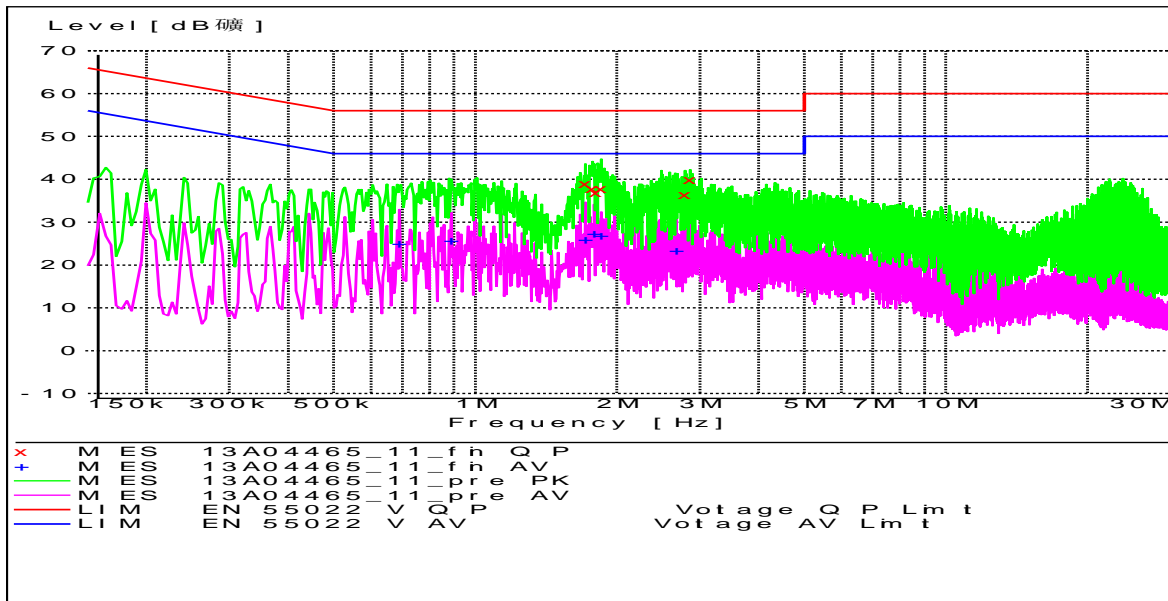


Fig. 71 Conducted Spurious Emission(802.11a, TX)

Measurement Result:

| Frequency (MHz) | Level (dB μ V) | Transd (dB) | Limit (dB μ V) | Margin (dB) | Line | PE |
|-----------------|--------------------|-------------|--------------------|-------------|------|-----|
| 1.716000 | 38.90 | 9.7 | 56 | 17.1 | L1 | GND |
| 1.774500 | 37.70 | 9.7 | 56 | 18.3 | N | GND |
| 1.806000 | 36.90 | 9.7 | 56 | 19.1 | L1 | GND |
| 1.855500 | 37.70 | 9.7 | 56 | 18.3 | N | GND |
| 2.792000 | 36.40 | 9.7 | 56 | 19.6 | N | GND |
| 2.864000 | 39.80 | 9.7 | 56 | 16.2 | L1 | GND |

Measurement Result:

| Frequency (MHz) | Level (dB μ V) | Transd (dB) | Limit (dB μ V) | Margin (dB) | Line | PE |
|-----------------|--------------------|-------------|--------------------|-------------|------|-----|
| 0.690000 | 25.00 | 9.8 | 46 | 21.0 | L1 | GND |
| 0.888000 | 25.70 | 9.8 | 46 | 20.3 | L1 | GND |
| 1.716000 | 25.80 | 9.7 | 46 | 20.2 | N | GND |
| 1.792500 | 27.20 | 9.7 | 46 | 18.8 | N | GND |
| 1.855500 | 26.90 | 9.7 | 46 | 19.1 | L1 | GND |
| 2.675000 | 23.30 | 9.7 | 46 | 22.7 | L1 | GND |

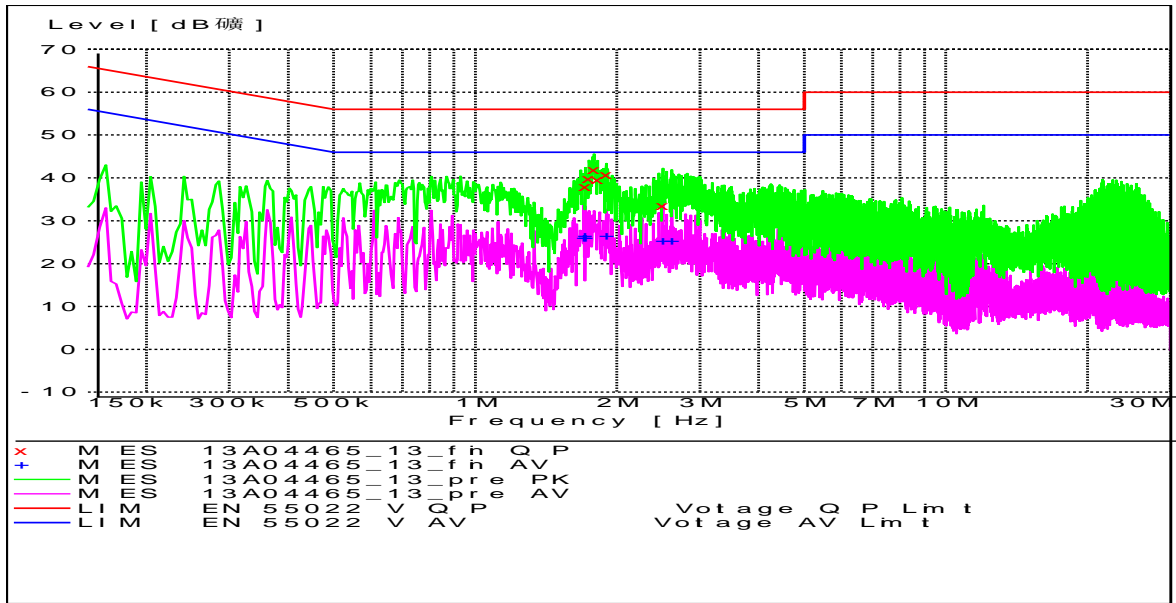


Fig. 72 Conducted Spurious Emission(802.11a, IDLE)

Measurement Result:

| Frequency (MHz) | Level (dB μ V) | Transd (dB) | Limit (dB μ V) | Margin (dB) | Line | PE |
|-----------------|--------------------|-------------|--------------------|-------------|------|-----|
| 1.716000 | 38.00 | 9.7 | 56 | 18.0 | L1 | GND |
| 1.743000 | 39.70 | 9.7 | 56 | 16.3 | N | GND |
| 1.788000 | 42.00 | 9.7 | 56 | 14.0 | L1 | GND |
| 1.819500 | 39.60 | 9.7 | 56 | 16.4 | N | GND |
| 1.896000 | 40.70 | 9.7 | 56 | 15.3 | L1 | GND |
| 2.504000 | 33.60 | 9.7 | 56 | 22.4 | N | GND |

Measurement Result:

| Frequency (MHz) | Level (dB μ V) | Transd (dB) | Limit (dB μ V) | Margin (dB) | Line | PE |
|-----------------|--------------------|-------------|--------------------|-------------|------|-----|
| 1.698000 | 26.10 | 9.7 | 46 | 19.9 | L1 | GND |
| 1.707000 | 26.40 | 9.7 | 46 | 19.6 | N | GND |
| 1.716000 | 26.00 | 9.7 | 46 | 20.0 | N | GND |
| 1.896000 | 26.40 | 9.7 | 46 | 19.6 | L1 | GND |
| 2.504000 | 25.30 | 9.7 | 46 | 20.7 | L1 | GND |
| 2.621000 | 25.40 | 9.7 | 46 | 20.6 | L1 | GND |

A.8. Peak Excursion

Measurement Limit:

| Standard | Limit (dB) |
|------------------------|------------|
| FCC 47 CFR Part 15.407 | 13 |

The measurement is made according to KDB 789033, the method SA-1 is used for PPSD measurement.

Measurement Uncertainty:

| | |
|-------------------------|---------|
| Measurement Uncertainty | 0.75 dB |
|-------------------------|---------|

Measurement Result:

11a mode

| Type | Peak Excursion | | | | | |
|--------------|-------------------|-------|-------------------|-------|-------------------|-------|
| | 5180MHz (Ch36) | | 5200MHz (Ch40) | | 5240MHz (Ch48) | |
| Peak (dBm) | Fig.73 | 11.92 | Fig.74 | 11.35 | Fig.75 | 10.92 |
| Average(dBm) | Fig.76 | 3.44 | Fig.77 | 3.11 | Fig.78 | 2.58 |
| Result (dB) | 8.48 | | 8.24 | | 8.34 | |

11n-HT20 mode

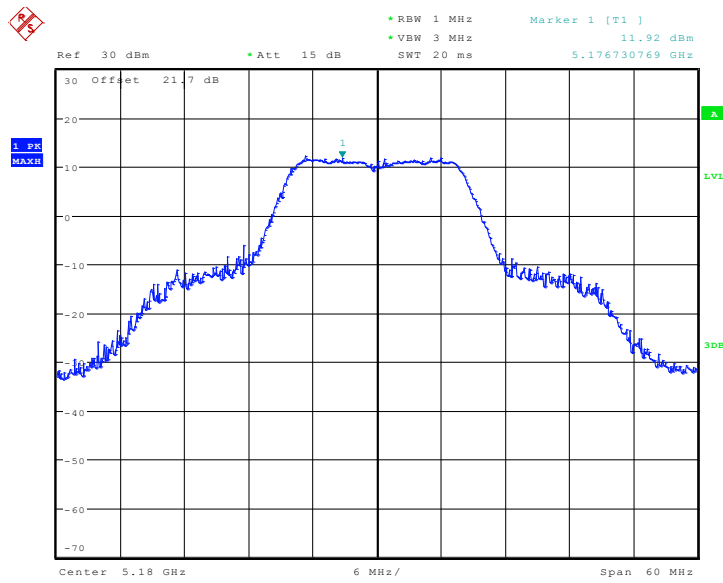
| Type | Peak Excursion | | | | | |
|--------------|-------------------|-------|-------------------|-------|-------------------|-------|
| | 5180MHz (Ch36) | | 5200MHz (Ch40) | | 5240MHz (Ch48) | |
| Peak (dBm) | Fig.79 | 10.75 | Fig.80 | 10.74 | Fig.81 | 10.13 |
| Average(dBm) | Fig.82 | 2.43 | Fig.83 | 1.93 | Fig.84 | 1.42 |
| Result (dB) | 8.32 | | 8.81 | | 8.71 | |

11n-HT40 mode

| Type | Peak Excursion | | | |
|--------------|-------------------|-------|-------------------|-------|
| | 5190MHz (Ch38) | | 5230MHz (Ch46) | |
| Peak (dBm) | Fig.85 | 7.80 | Fig.86 | 7.11 |
| Average(dBm) | Fig.87 | -0.55 | Fig.88 | -1.21 |
| Result (dB) | 8.35 | | 8.32 | |

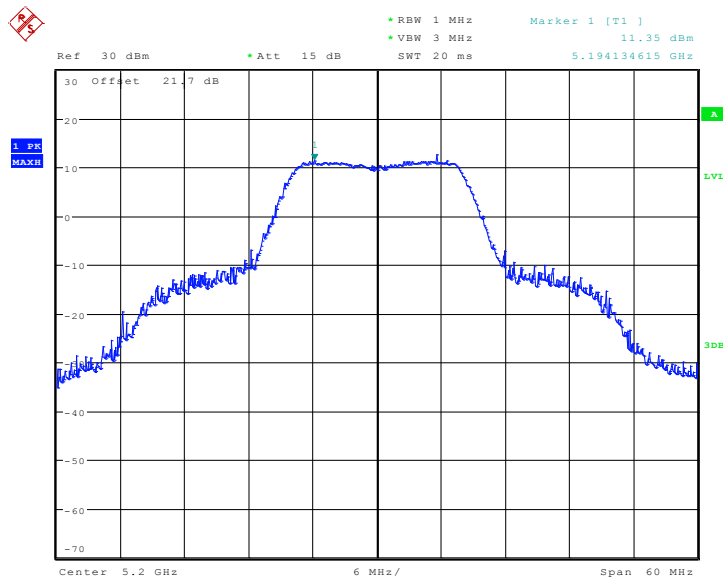
Conclusion: PASS

Test graphs as below:



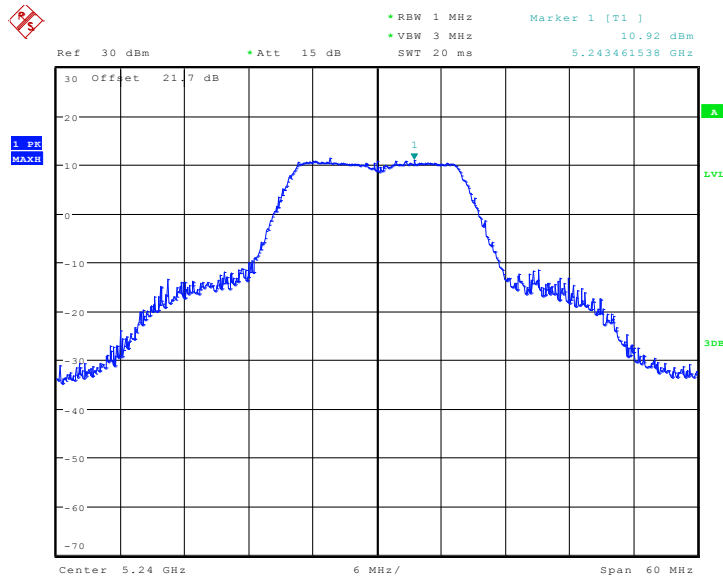
Date: 12.OCT.2013 18:39:18

Fig. 73 Peak Excursions (802.11a, ch36, peak)



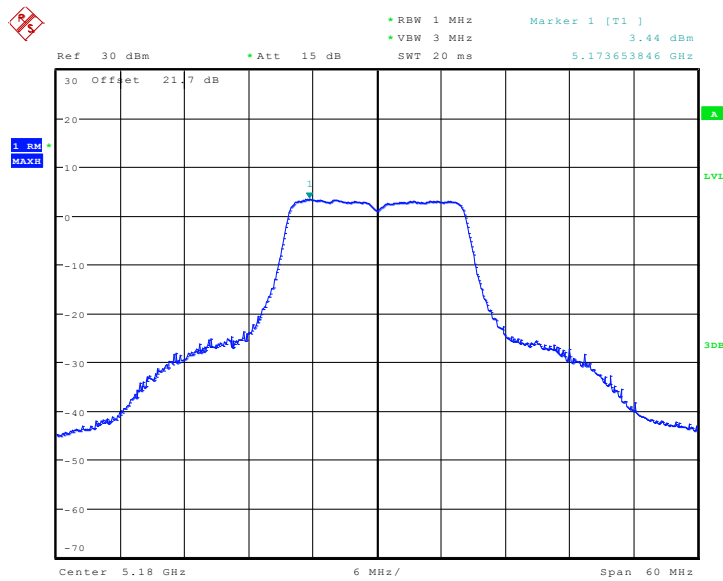
Date: 12.OCT.2013 18:46:02

Fig. 74 Peak Excursions (802.11a, ch40, peak)



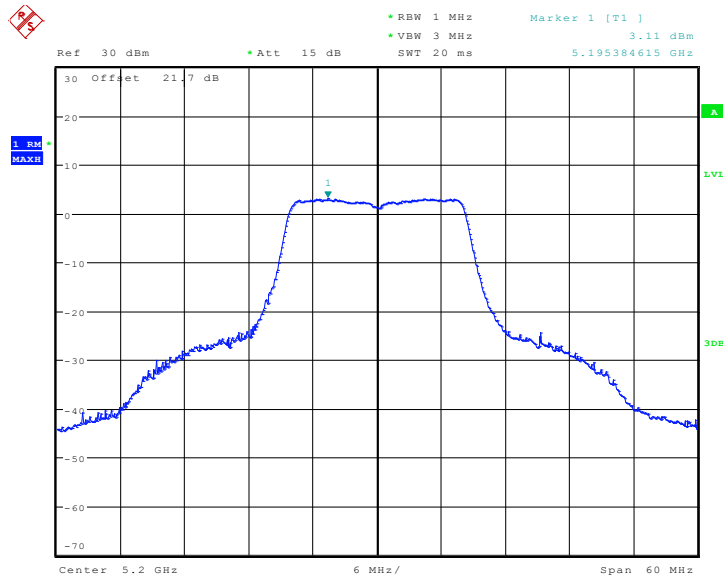
Date: 12.OCT.2013 18:46:33

Fig. 75 Peak Excursions (802.11a, ch48, peak)



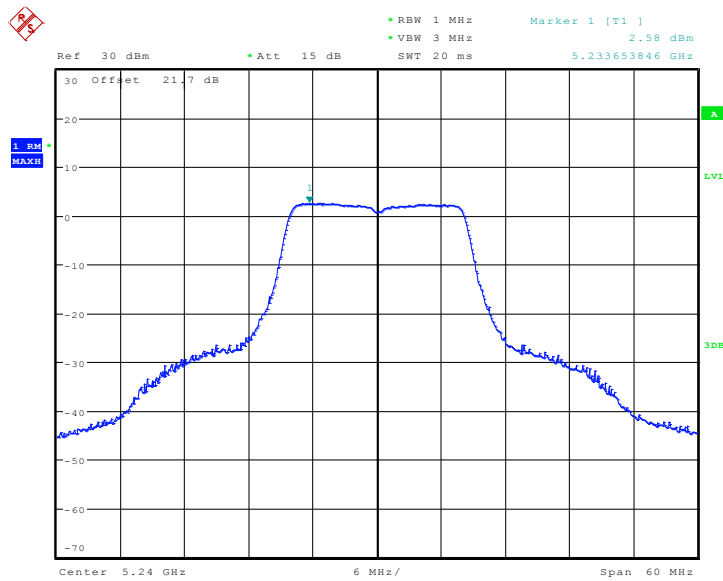
Date: 12.OCT.2013 18:39:52

Fig. 76 Peak Excursions (802.11a, ch36, average)



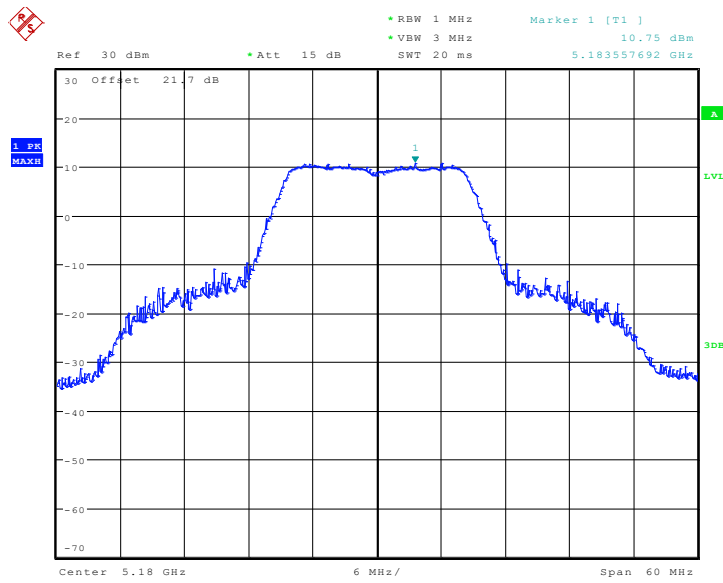
Date: 12.OCT.2013 18:45:19

Fig. 77 Peak Excursions (802.11a, ch40, average)



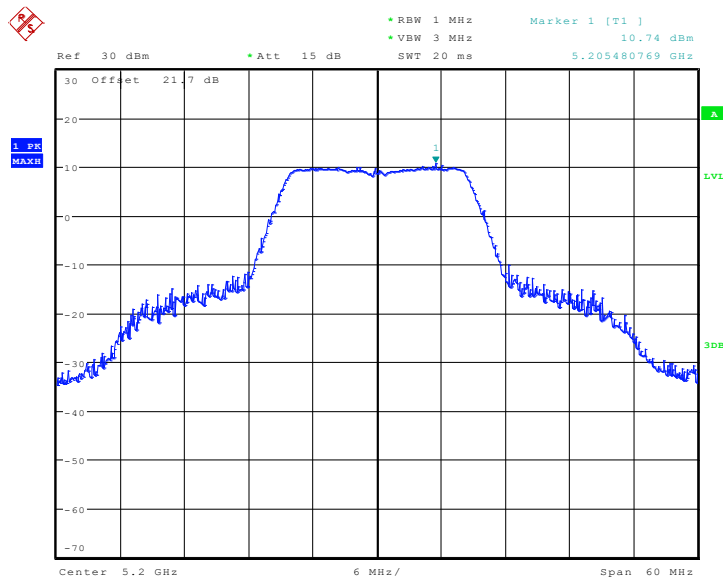
Date: 12.OCT.2013 18:46:52

Fig. 78 Peak Excursions (802.11a, ch48, average)



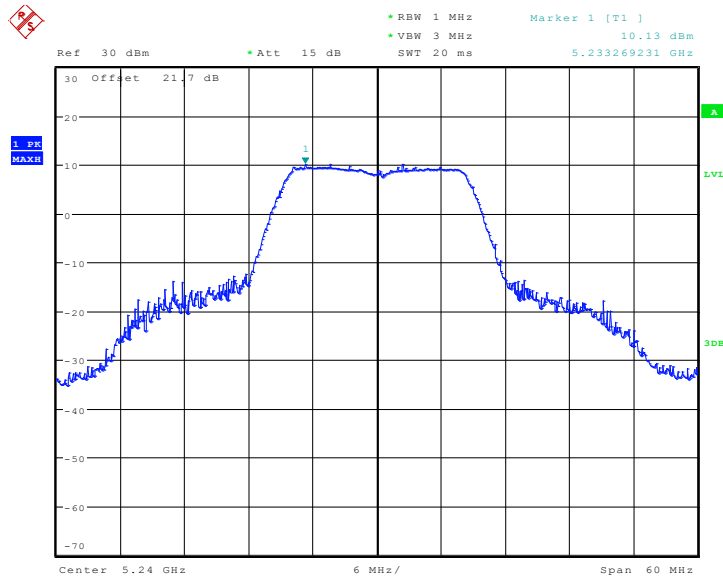
Date: 12.OCT.2013 18:48:49

Fig. 79 Peak Excursions (802.11n-HT20, ch36, peak)



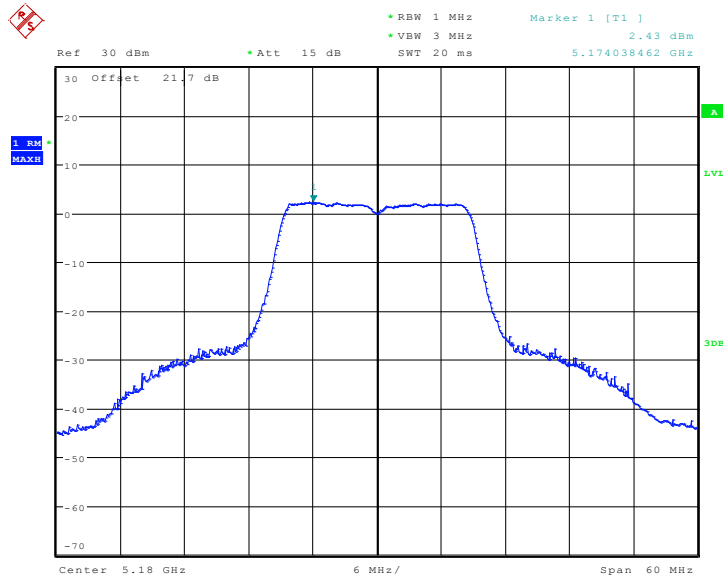
Date: 12.OCT.2013 18:49:26

Fig. 80 Peak Excursions (802.11n-HT20, ch40, peak)



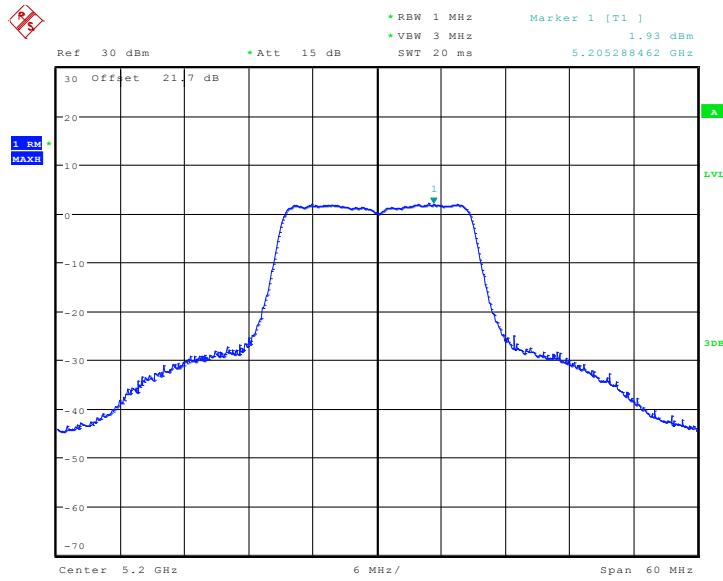
Date: 12.OCT.2013 18:51:05

Fig. 81 Peak Excursions (802.11n-HT20, ch48, peak)



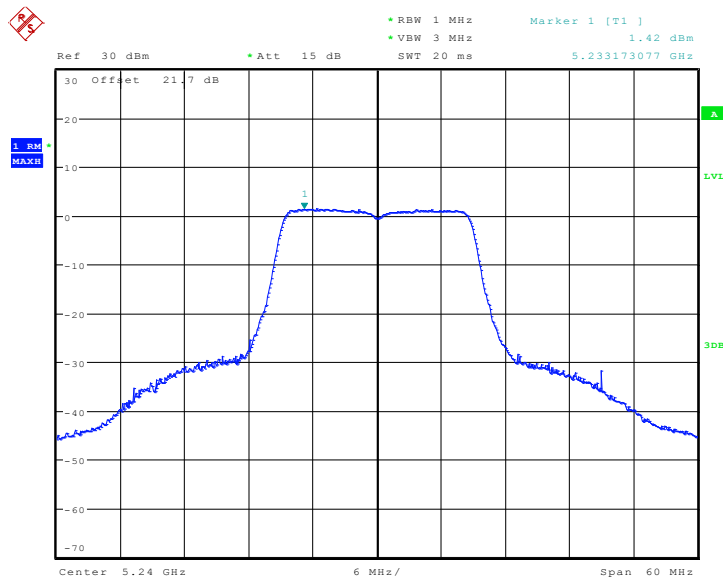
Date: 12.OCT.2013 18:48:24

Fig. 82 Peak Excursions (802.11n-HT20, ch36, average)



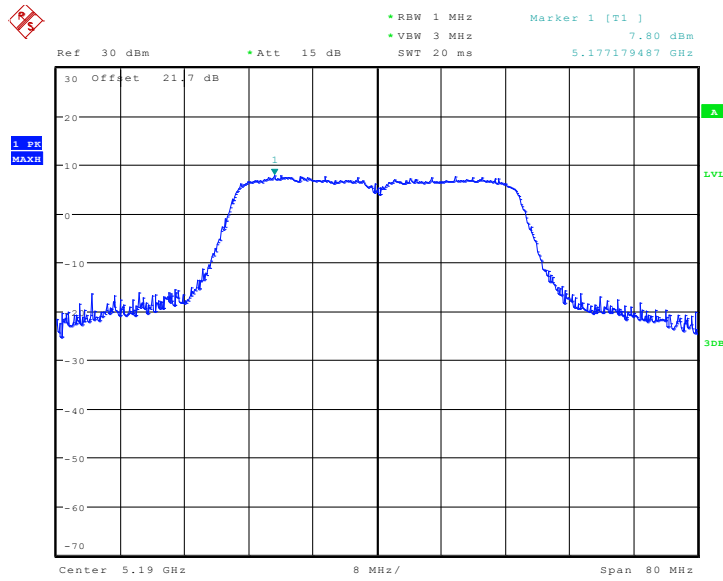
Date: 12.OCT.2013 18:50:04

Fig. 83 Peak Excursions (802.11n-HT20, ch40, average)



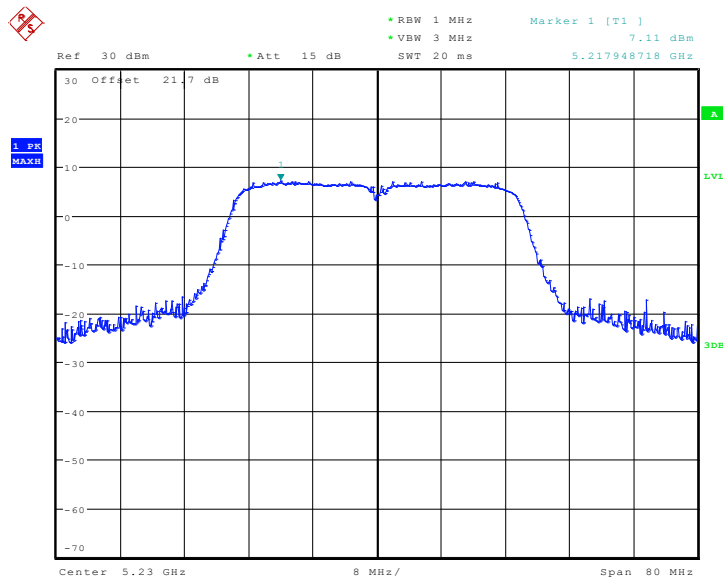
Date: 12.OCT.2013 18:50:31

Fig. 84 Peak Excursions (802.11n-HT20, ch48, average)



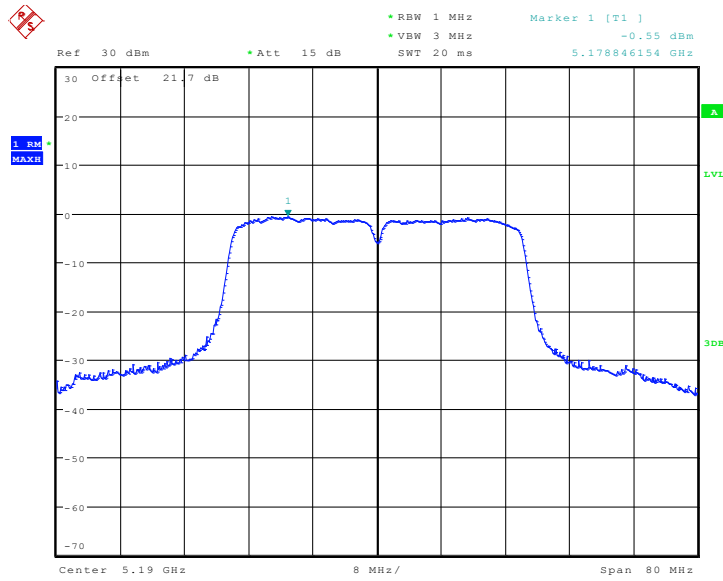
Date: 12.OCT.2013 18:52:16

Fig. 85 Peak Excursions (802.11n-HT40, ch38, peak)



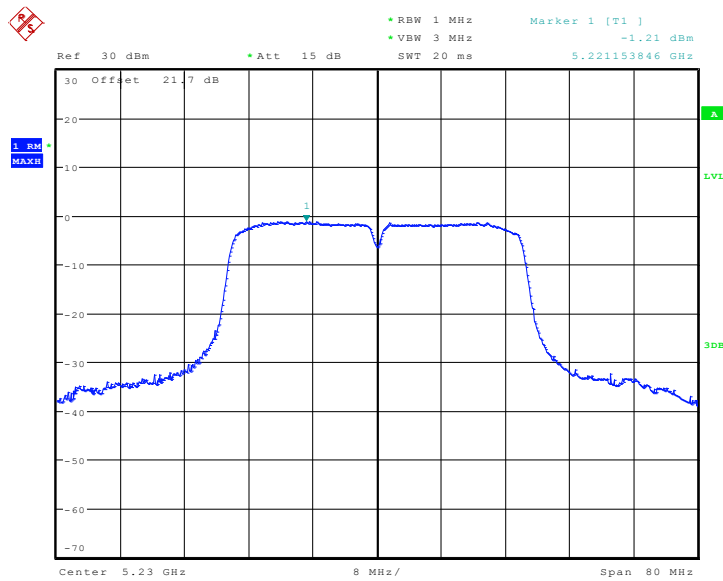
Date: 12.OCT.2013 18:54:01

Fig. 86 Peak Excursions (802.11n-HT40, ch46, peak)



Date: 12.OCT.2013 18:52:43

Fig. 87 Peak Excursions (802.11n-HT40, ch38, average)



Date: 12.OCT.2013 18:53:18

Fig. 88 Peak Excursions (802.11n-HT40, ch46, average)

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