## 10.7 Peak excursion measurements

**Description:**

Peak to average value.

**Measurement:**

| Measurement parameter | |
|---|---|
| Detector: | Peak |
| Sweep time: | 60 s / 120 s |
| Resolution bandwidth: | 1 MHz |
| Video bandwidth: | ≥ 3 MHz |
| Span: | > Complete signal |
| Trace-Mode: | Max hold |

**Limits:**

| Peak excursion value |
|---|
| Does not exceed 13 dB. |

**Results:**

| Modulation OFDM / a – mode | Peak excursion value | | |
|---|---|---|---|
| Channel | 5180 MHz | -/- | 5240 MHz |
| RMS | -3.74 | -/- | -3.93 |
| Peak | 5.01 | -/- | 4.81 |
| Peak excursion value | 8.75 | -/- | 8.74 |
| Channel | 5260 MHz | -/- | 5320 MHz |
| RMS | -4.31 | -/- | -3.98 |
| Peak | 4.27 | -/- | 4.59 |
| Peak excursion value | 8.58 | -/- | 8.57 |
| Channel | 5500 MHz | 5600 MHz | 5700 MHz |
| RMS | -4.62 | -3.85 | -3.73 |
| Peak | 3.96 | 4.74 | 4.77 |
| Peak excursion value | 8.58 | 8.59 | 8.50 |
| Measurement uncertainty | ± 1 dB | | |

**Result:** **Passed**

**Results:**

| Modulation OFDM / ac – mode HT20 | Peak excursion value | | |
|---|---|---|---|
| Channel | 5180 MHz | -/- | 5240 MHz |
| RMS | -4.15 | -/- | -4.37 |
| Peak | 5.87 | -/- | 6.63 |
| Peak excursion value | 10.02 | -/- | 11.00 |
| Channel | 5260 MHz | -/- | 5320 MHz |
| RMS | -4.90 | -/- | -4.59 |
| Peak | 5.40 | -/- | 6.00 |
| Peak excursion value | 10.30 | -/- | 10.59 |
| Channel | 5500 MHz | 5600 MHz | 5700 MHz |
| RMS | -5.32 | -4.46 | -4.25 |
| Peak | 4.63 | 5.65 | 6.20 |
| Peak excursion value | 9.95 | 10.11 | 10.45 |
| Measurement uncertainty | ± 1 dB | | |

**Result:** **Passed**

**Results:**

| Modulation OFDM / ac – mode HT40 | Peak excursion value | | |
|---|---|---|---|
| Channel | 5190 MHz | 5230 MHz | 5270 MHz |
| RMS | -7.90 | -7.48 | -8.49 |
| Peak | 2.53 | 2.77 | 1.85 |
| Peak excursion value | 10.43 | 10.25 | 10.34 |
| Channel | 5310 MHz | 5510 MHz | 5590 MHz |
| RMS | -8.05 | -8.13 | -7.38 |
| Peak | 2.53 | 2.41 | 3.00 |
| Peak excursion value | 10.58 | 10.54 | 10.38 |
| Channel | 5670 MHz | -/- | -/- |
| RMS | -7.54 | -/- | -/- |
| Peak | 2.84 | -/- | -/- |
| Peak excursion value | 10.38 | -/- | -/- |
| Measurement uncertainty | ± 1 dB | | |

**Result:** **Passed**

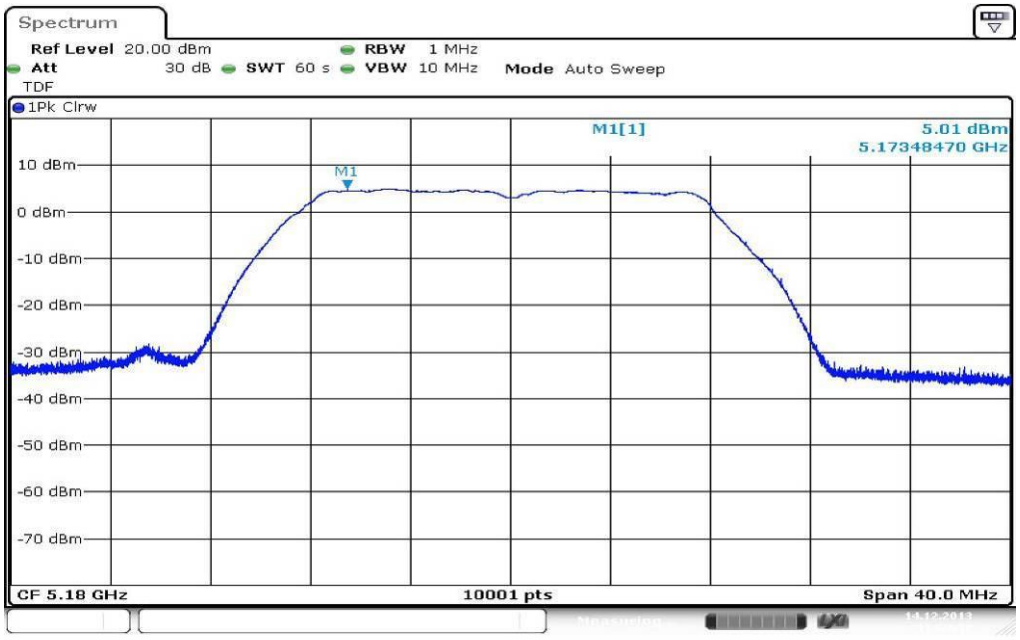
**Results:**

| Modulation OFDM / ac – mode HT80 | Peak excursion value | | |
|---|---|---|---|
| Channel | 5210 MHz | 5290 MHz | 5530 MHz |
| RMS | -10.14 | -10.96 | -11.35 |
| Peak | 0.27 | -0.57 | -1.25 |
| Peak excursion value | 10.41 | 10.39 | 10.10 |
| Channel | 5610 MHz | -/- | -/- |
| RMS | -10.91 | -/- | -/- |
| Peak | -0.51 | -/- | -/- |
| Peak excursion value | 10.40 | -/- | -/- |
| Measurement uncertainty | ± 1 dB | | |

**Result:** **Passed**

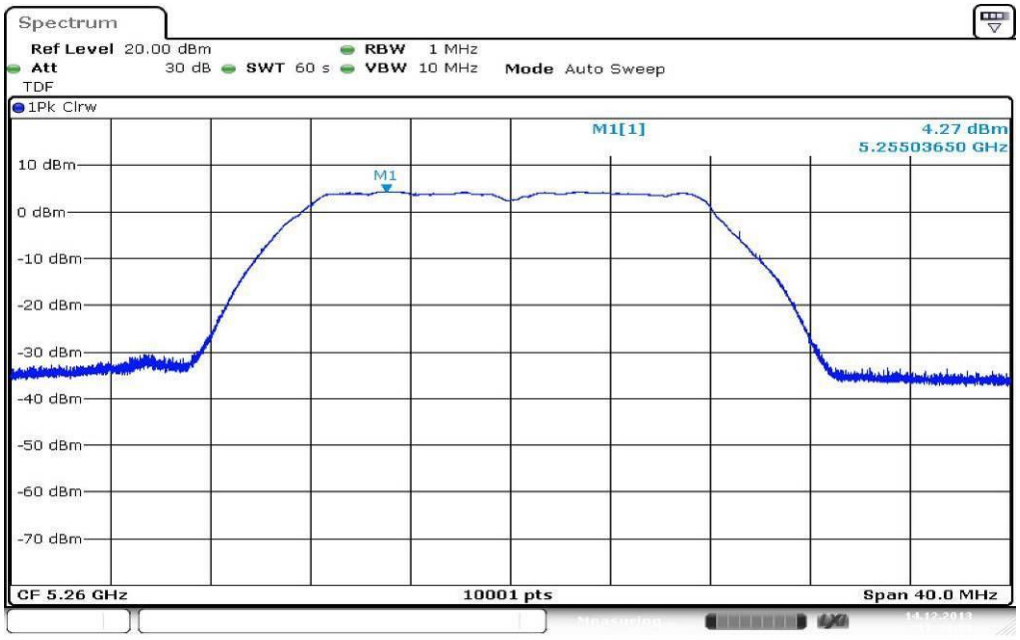
**Plots: OFDM / a – mode**

**Plot 1:** 5180 MHz



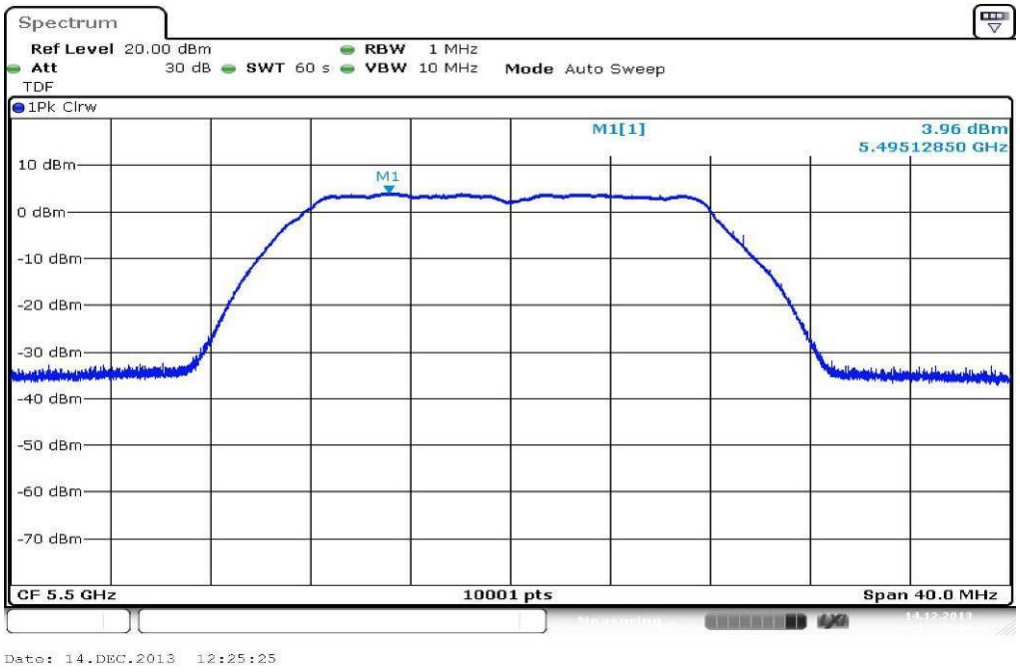

**Plot 2:** 5240 MHz

**Plot 3:** 5260 MHz

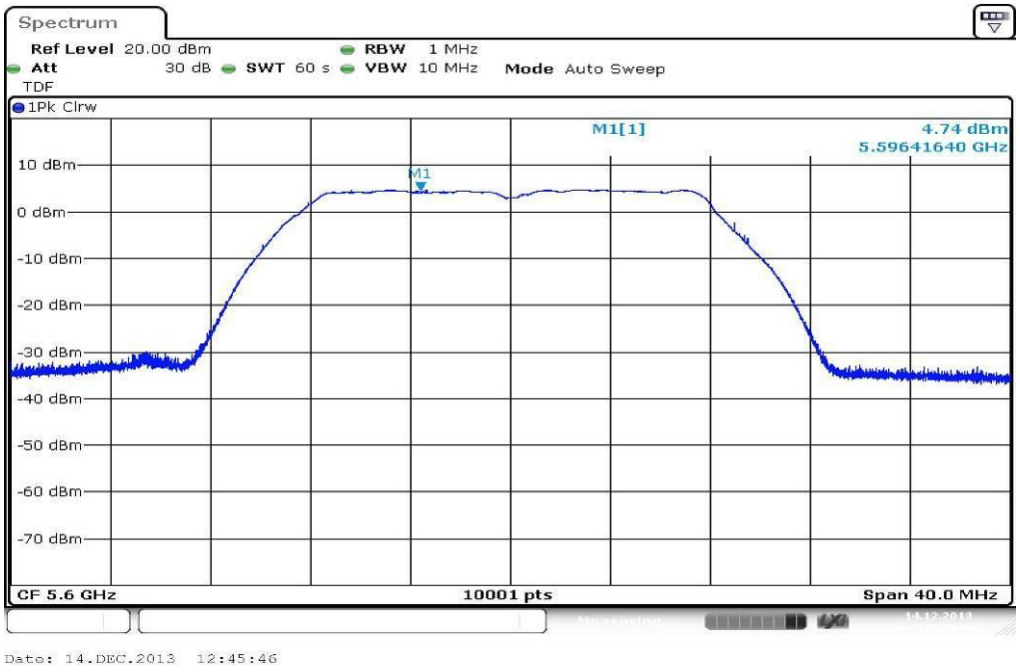



**Plot 4:** 5320 MHz

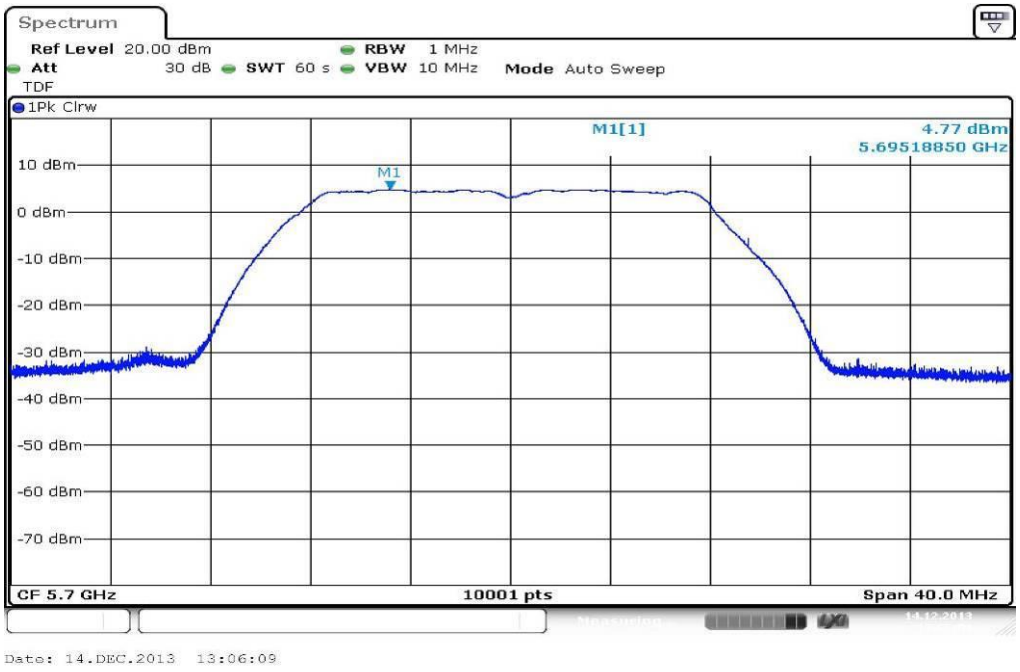
**Plot 5:** 5500 MHz




**Plot 6:** 5600 MHz

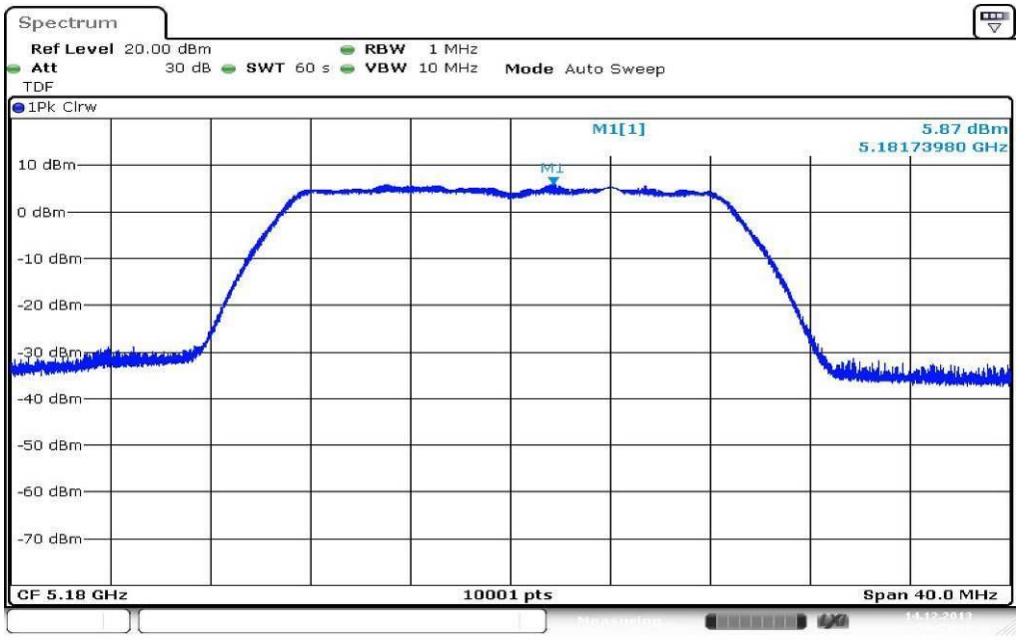


**Plot 7:** 5700 MHz

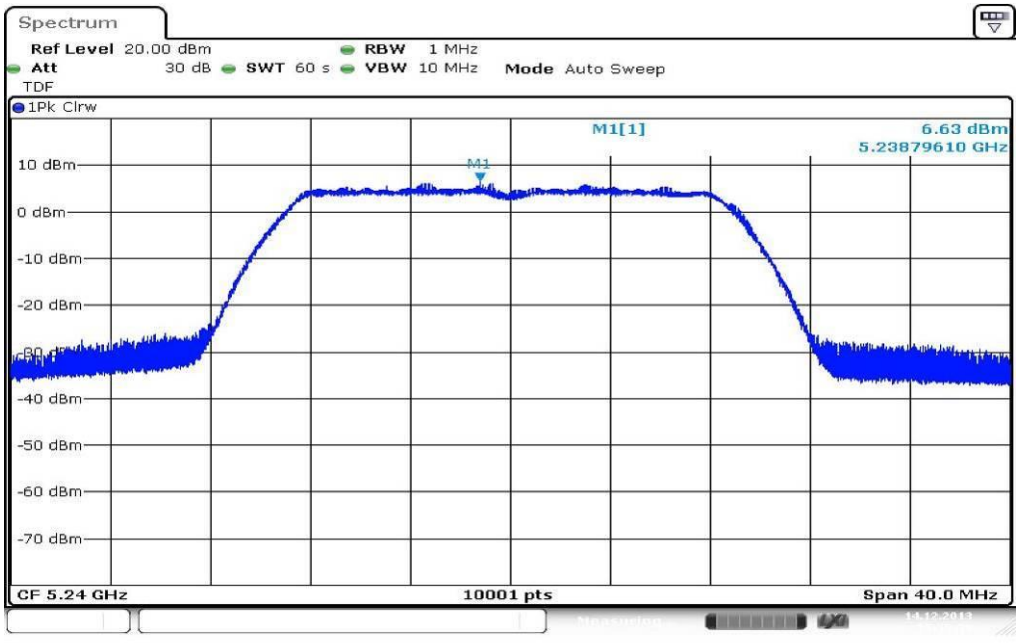


**Plots: OFDM / ac – mode HT20**

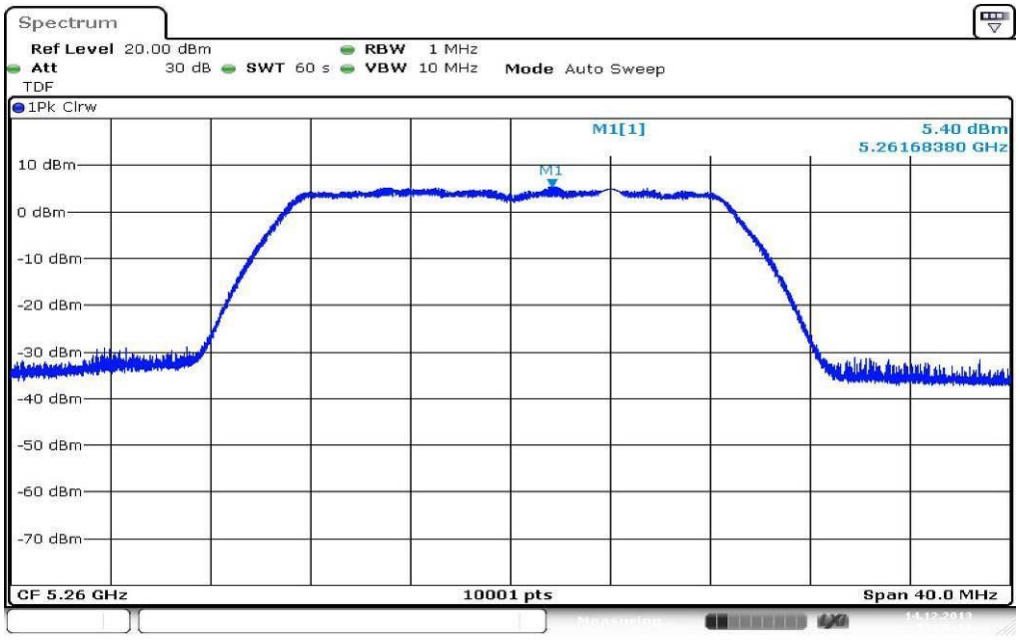
**Plot 1:** 5180 MHz



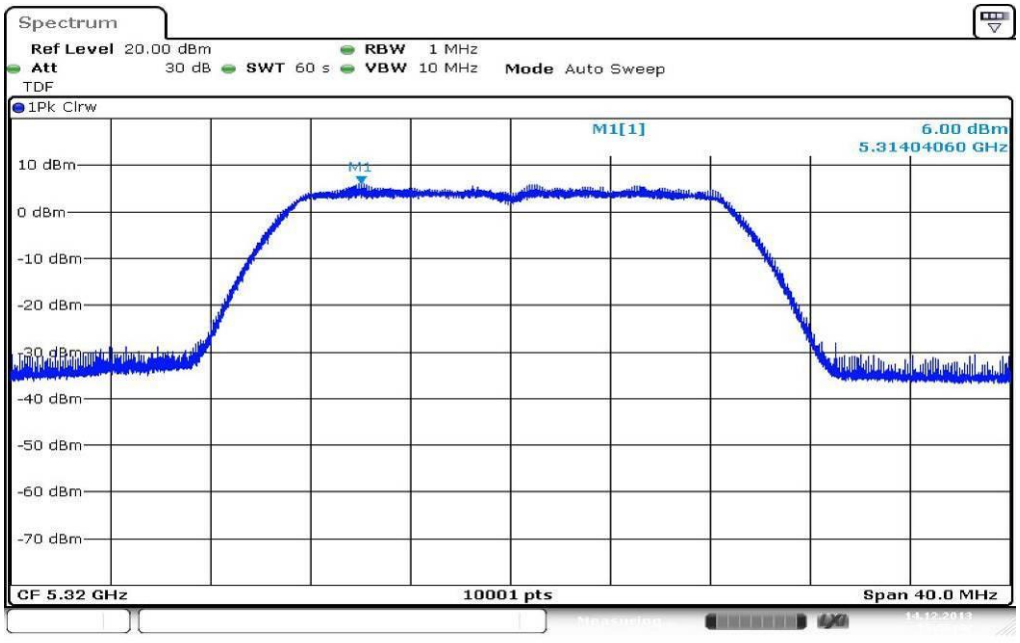

**Plot 2:** 5240 MHz



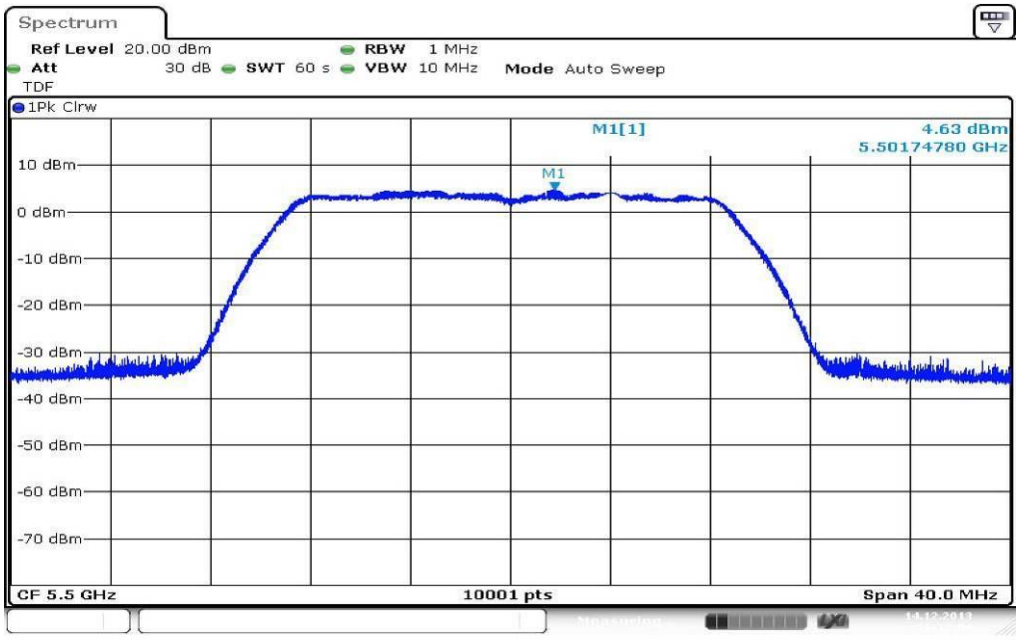
**Plot 3:** 5260 MHz



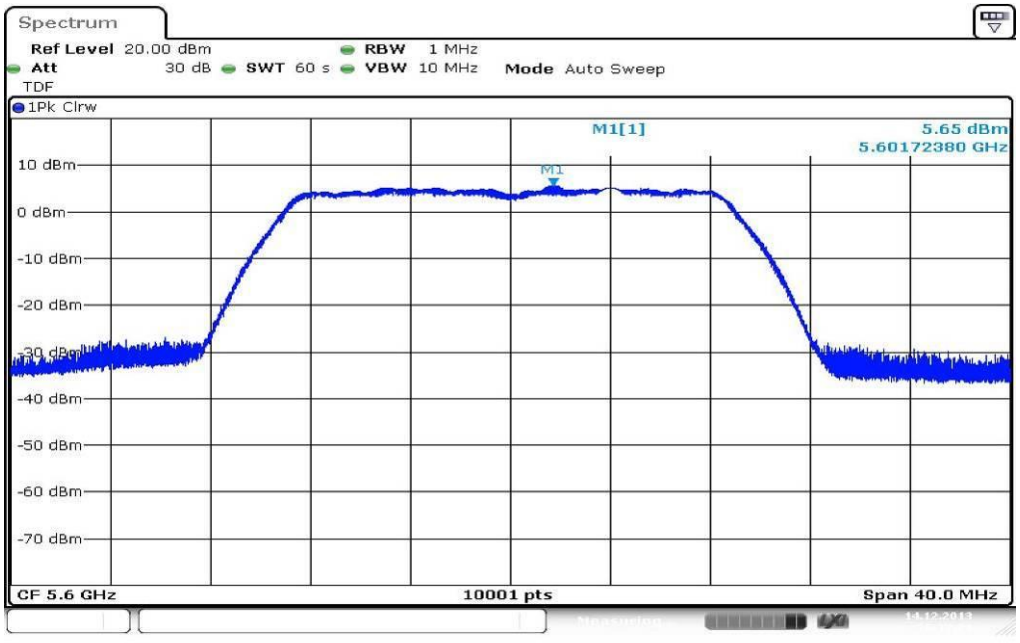

**Plot 4:** 5320 MHz



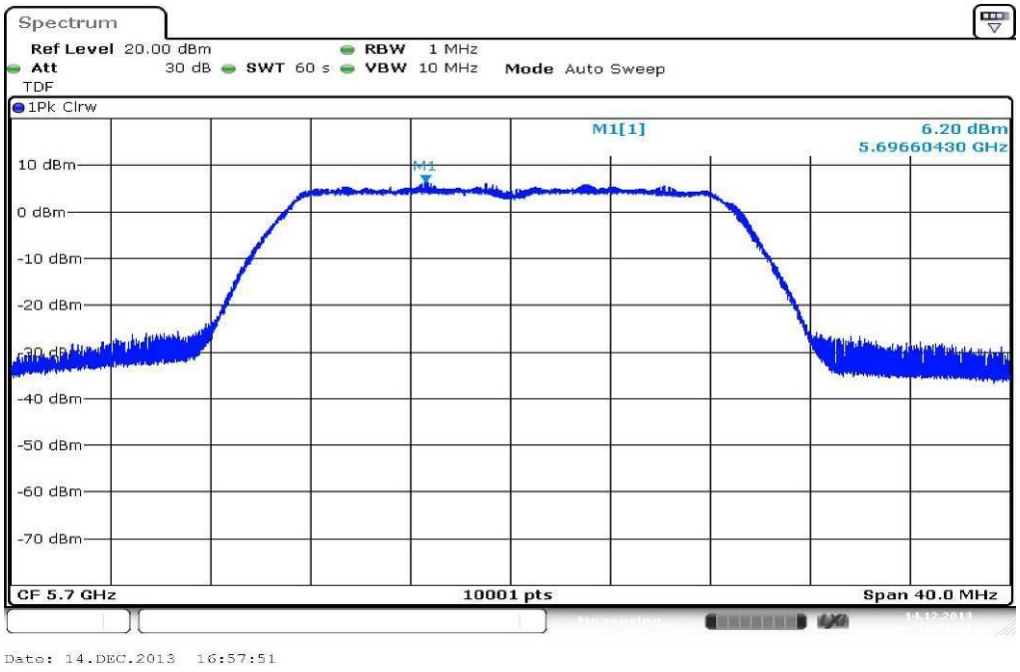
**Plot 5:** 5500 MHz




**Plot 6:** 5600 MHz

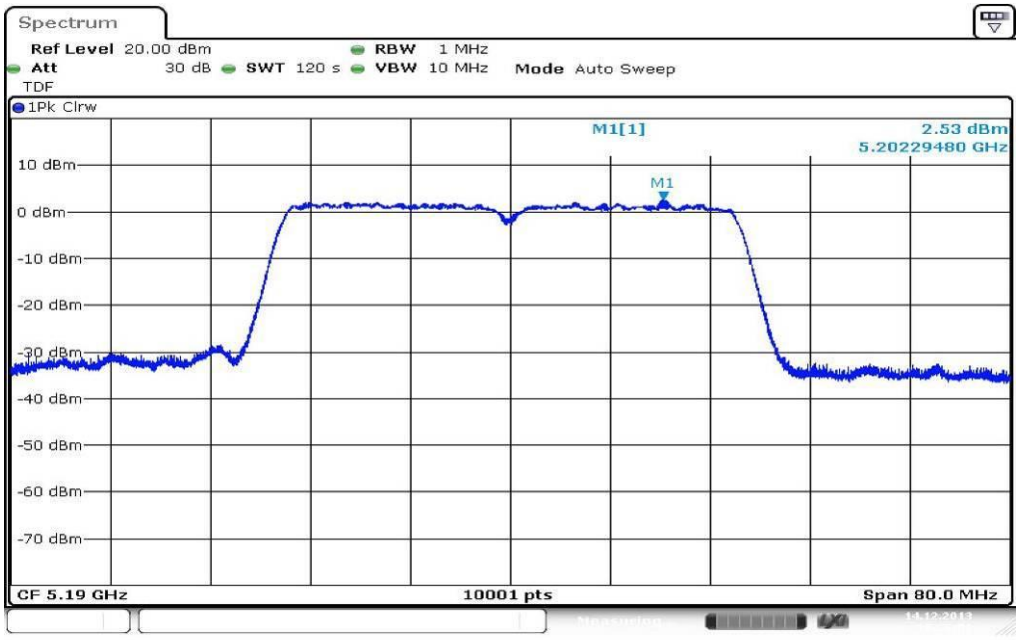


**Plot 7:** 5700 MHz

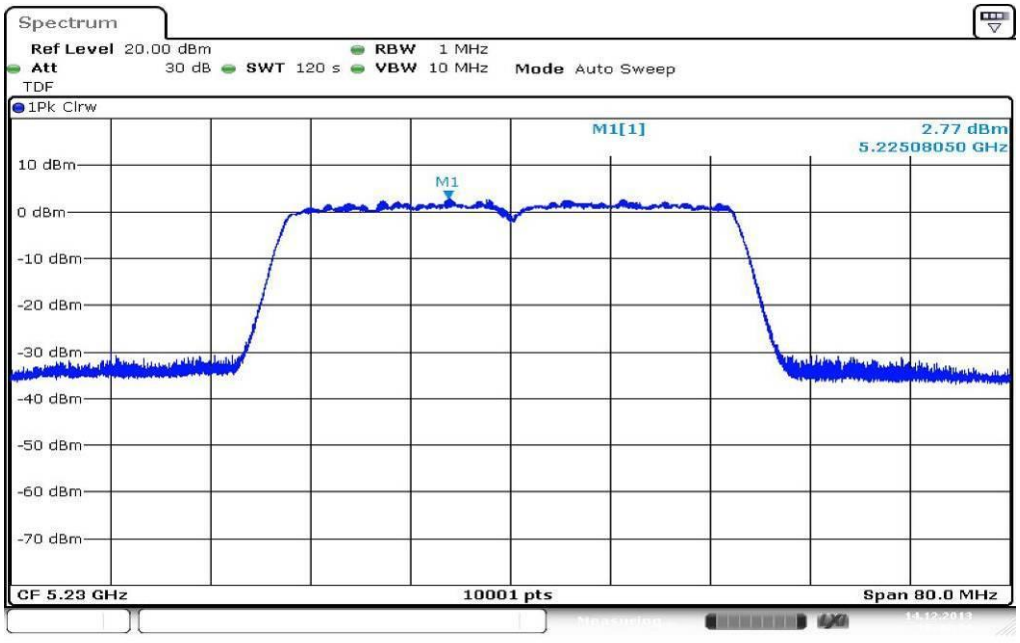


**Plots: OFDM / ac – mode HT40**

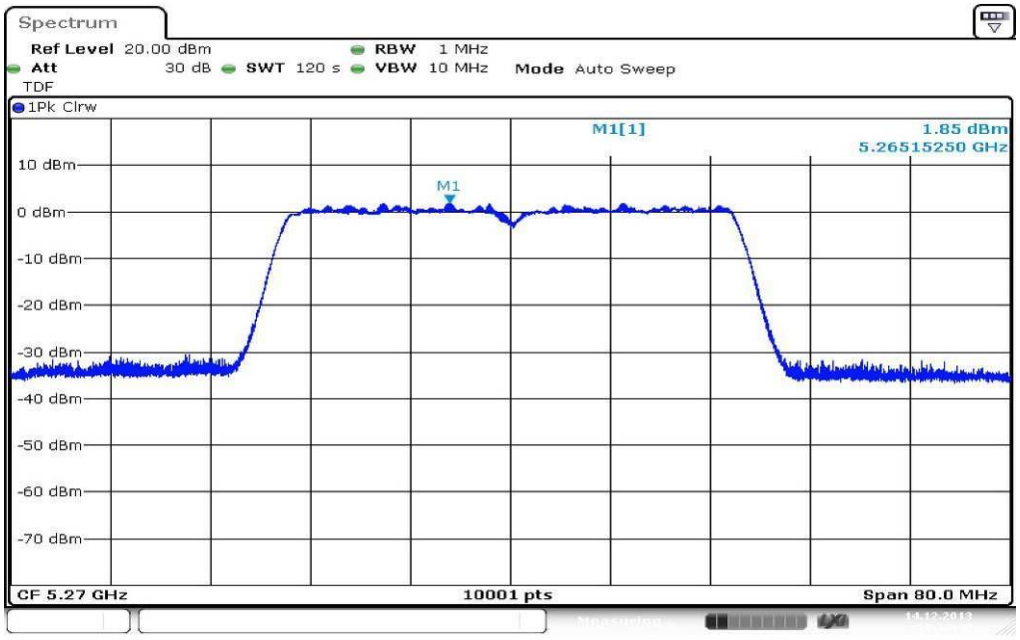
**Plot 1:** 5190 MHz



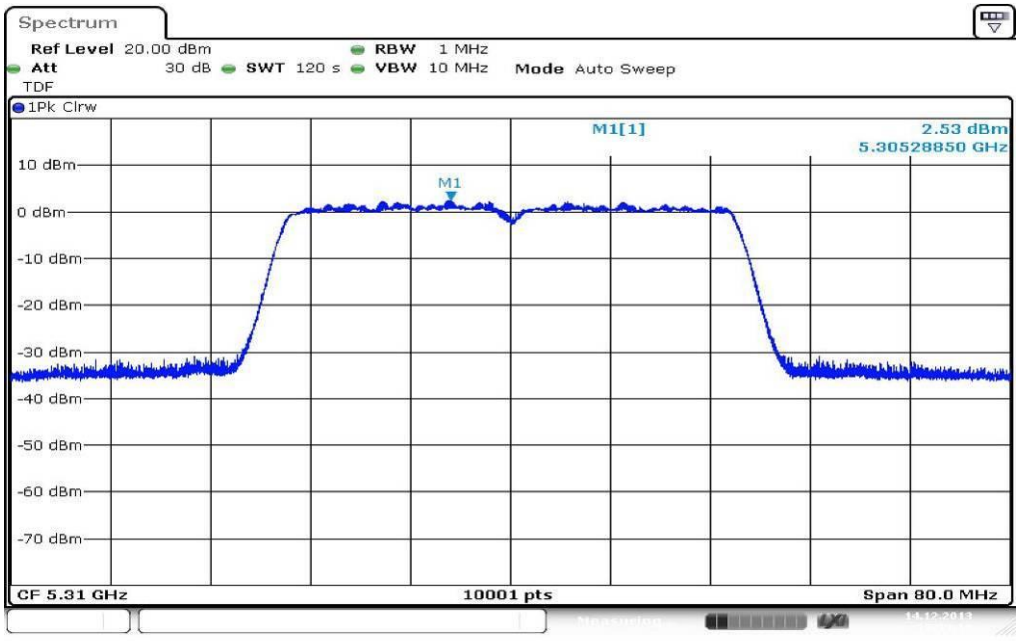

**Plot 2:** 5230 MHz



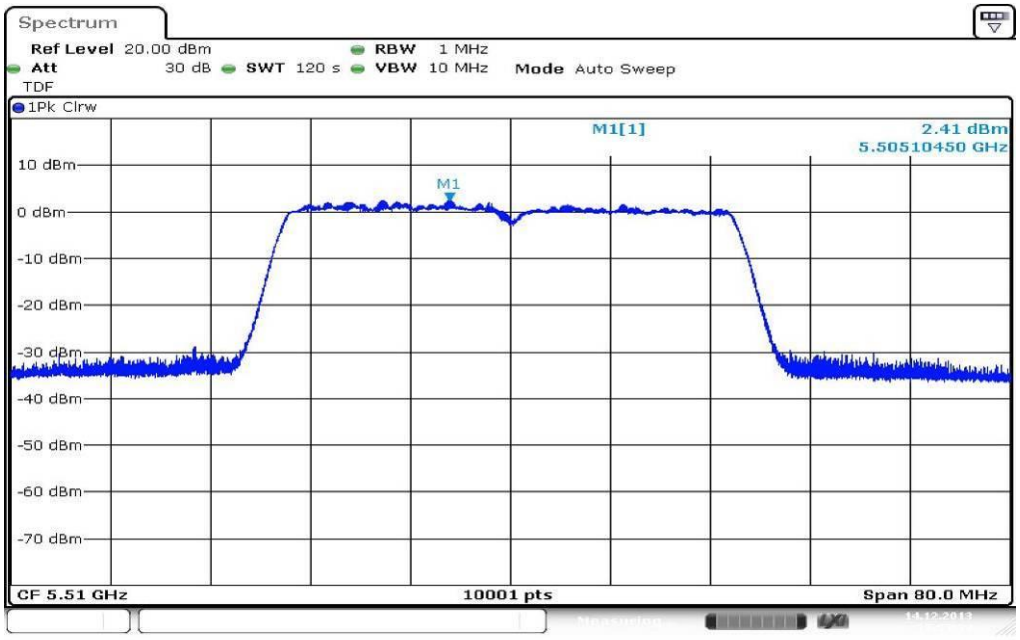
**Plot 3:** 5270 MHz



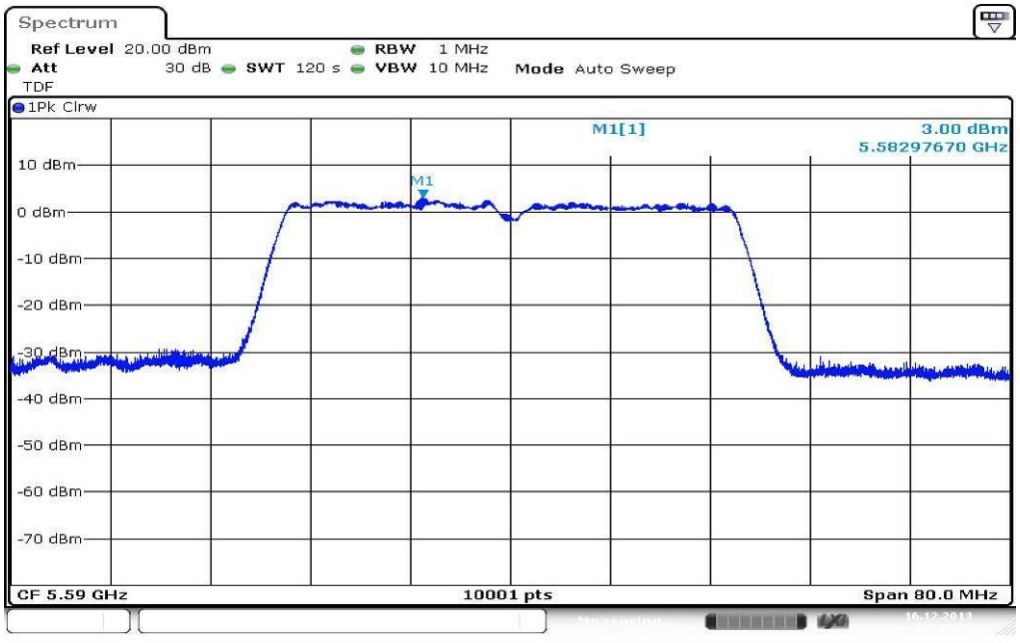

**Plot 4:** 5310 MHz



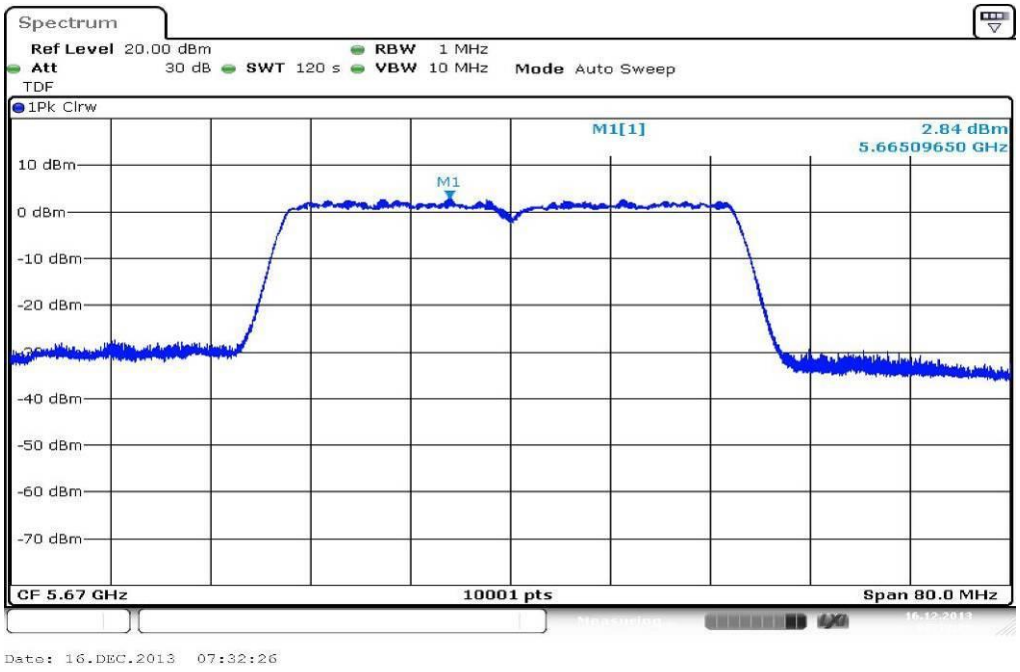
**Plot 5:** 5510 MHz




**Plot 6:** 5590 MHz

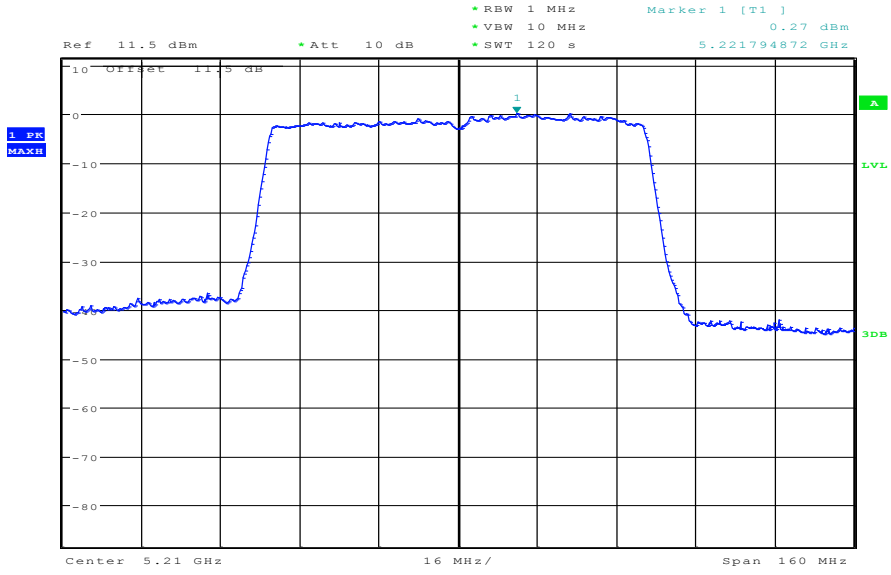


**Plot 7:** 5670 MHz



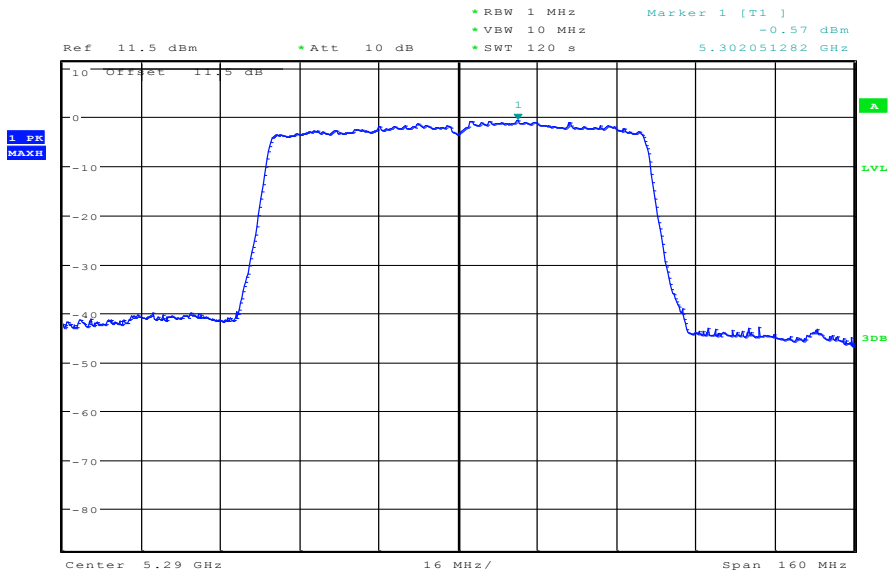
## Plots: OFDM / ac – mode HT80

**Plot 1:** 5210 MHz



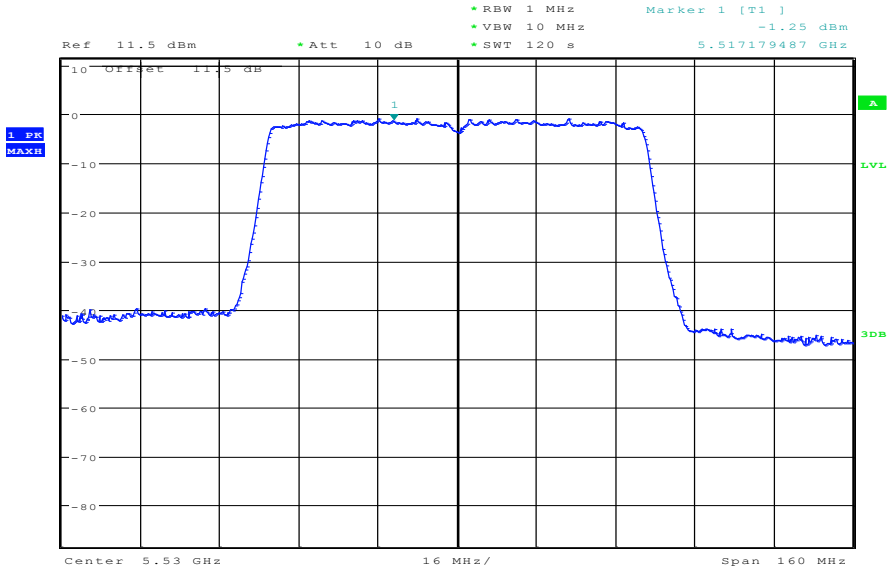

Date: 20.DEC.2013 10:40:37

**Plot 2:** 5290 MHz



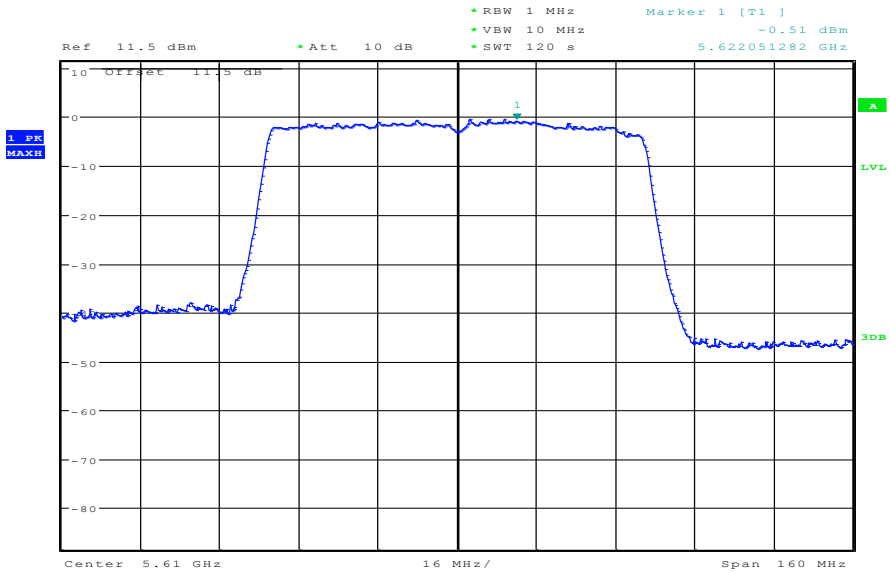

Date: 20.DEC.2013 10:45:32

**Plot 3:** 5530 MHz




Date: 20.DEC.2013 10:50:40

**Plot 4:** 5610 MHz




Date: 20.DEC.2013 10:57:41

## 10.8 Band edge compliance radiated

**Description:**

Measurement of the radiated band edge compliance. The EUT is turned in the position that results in the maximum level at the band edge. Then a sweep over the corresponding restricted band is performed. The EUT is set to the lowest channel for the lower restricted band and to the highest channel for the upper restricted band. Measurement distance is 3m.

**Measurement:**

| Measurement parameter | |
|---|---|
| Detector: | Peak / RMS |
| Sweep time: | Auto |
| Resolution bandwidth: | 1 MHz |
| Video bandwidth: | 10 Hz / 1 MHz |
| Span: | See plots! |
| Trace-Mode: | Max Hold |

**Limits:**

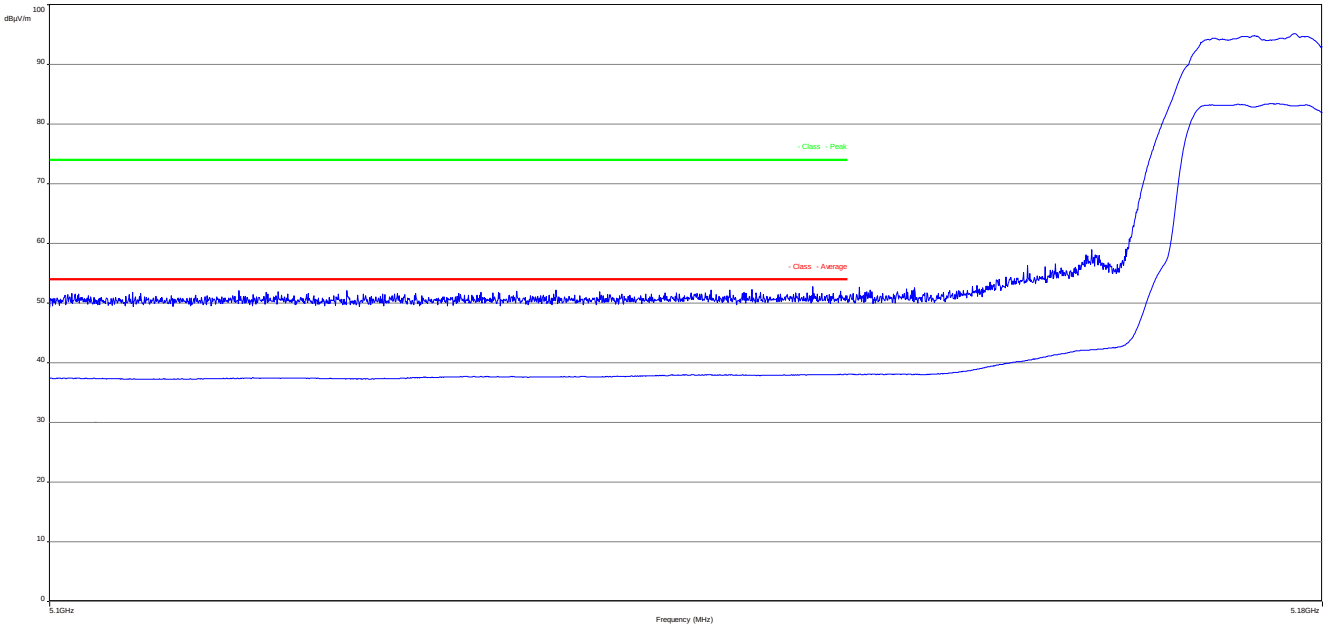
| Band Edge Compliance Radiated |
|---|
| In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 5.205(c)). |
| 74 dBµV/m PEAK<br>54 dBµV/m AVG |

**Result:**

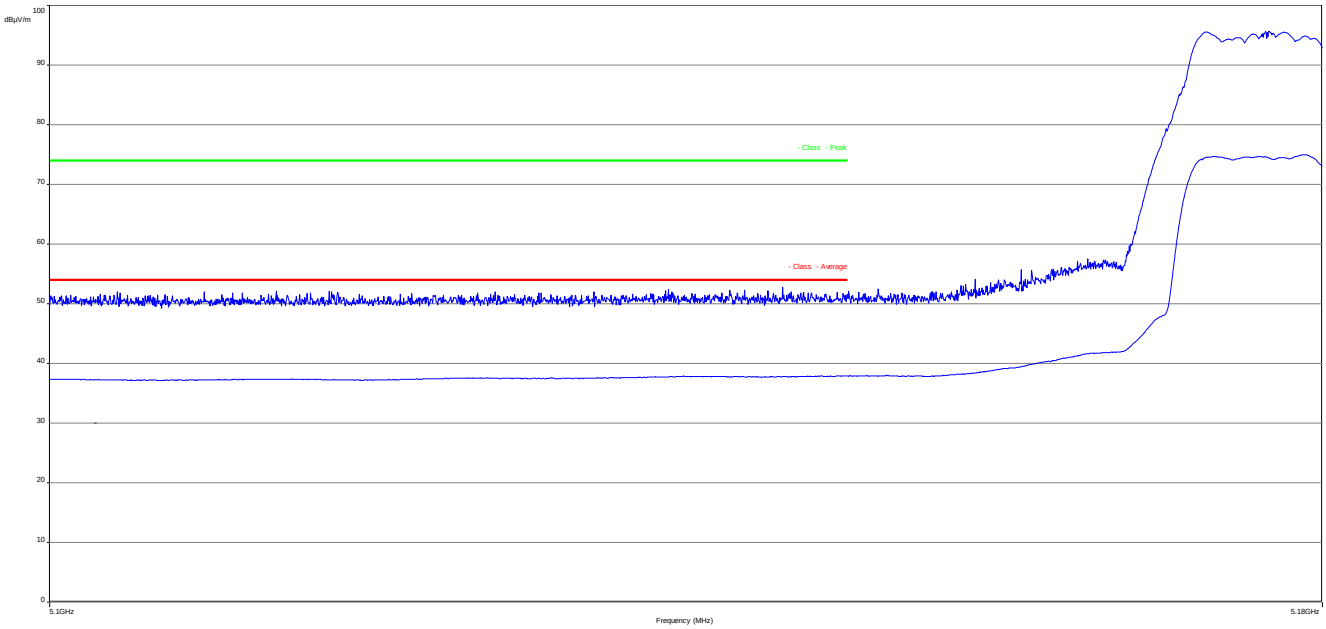
| Scenario | Band Edge Compliance Radiated [dBµV/m] |
|---|---|
| band edge | < 74 dBµV/m (AVG)<br>< 54 dBµV/m (PEAK) |
| Measurement uncertainty | ± 3 dB |

**Plots:**

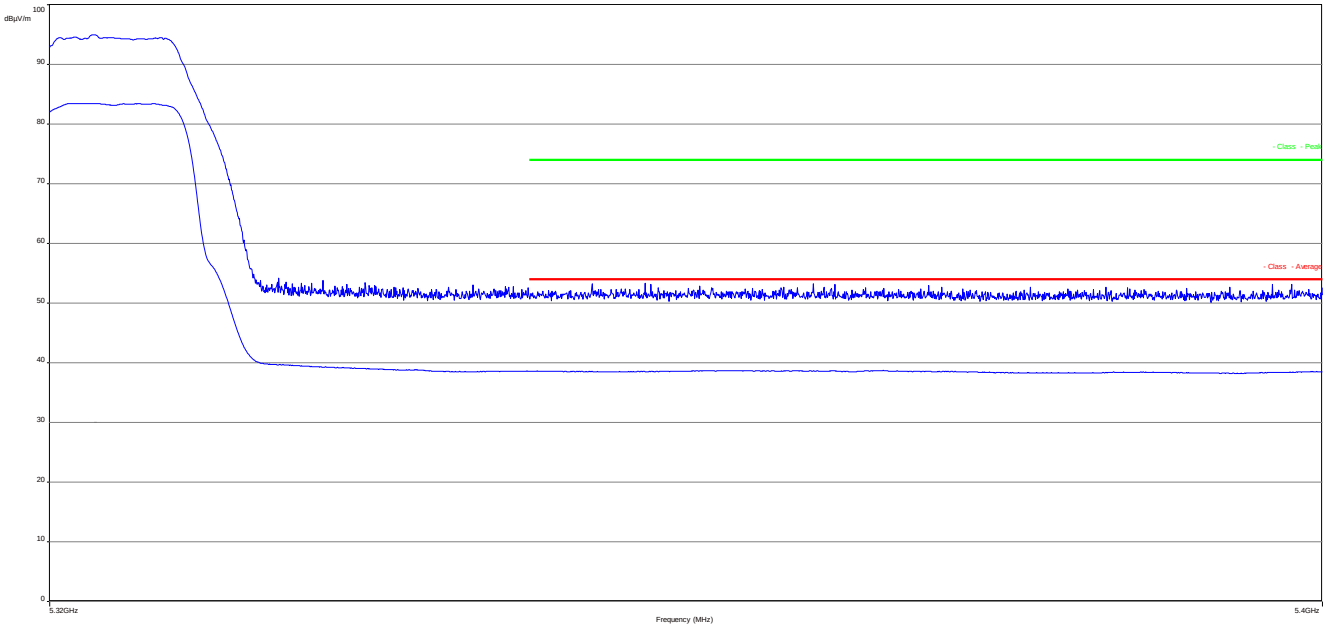
**Plot 1:** lower band edge, vertical & horizontal polarization (a mode), channel 36, low data rate



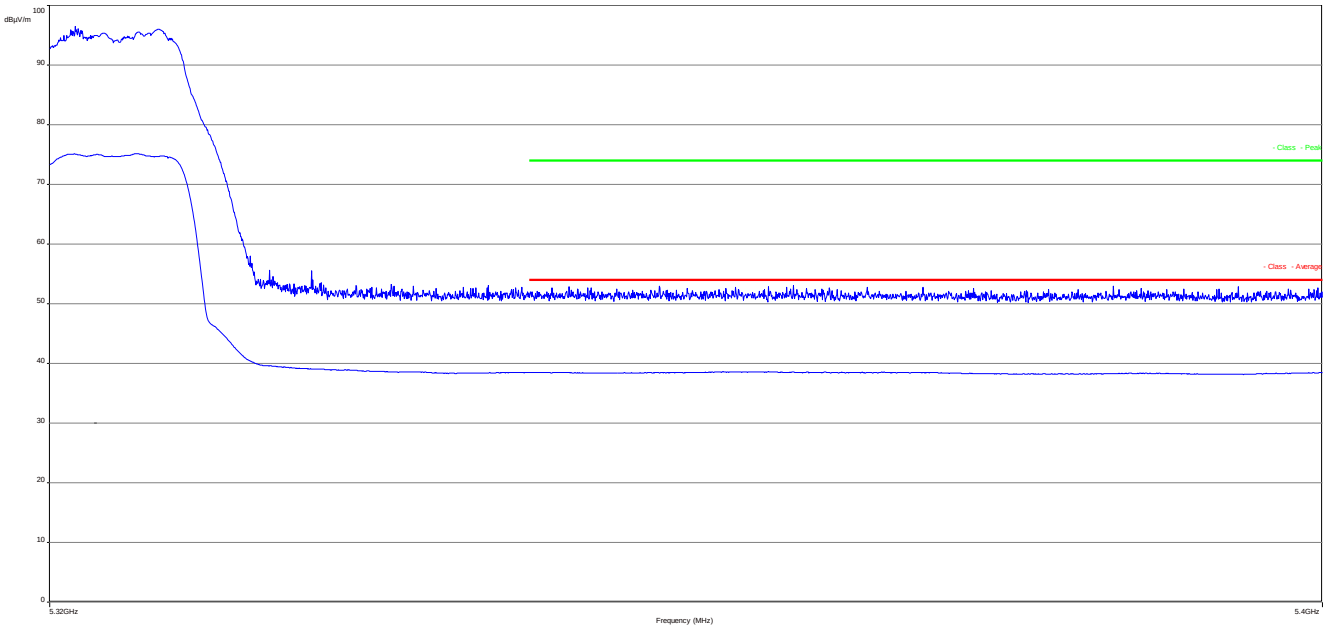

**Plot 2:** lower band edge, vertical & horizontal polarization (a mode), channel 36, high data rate



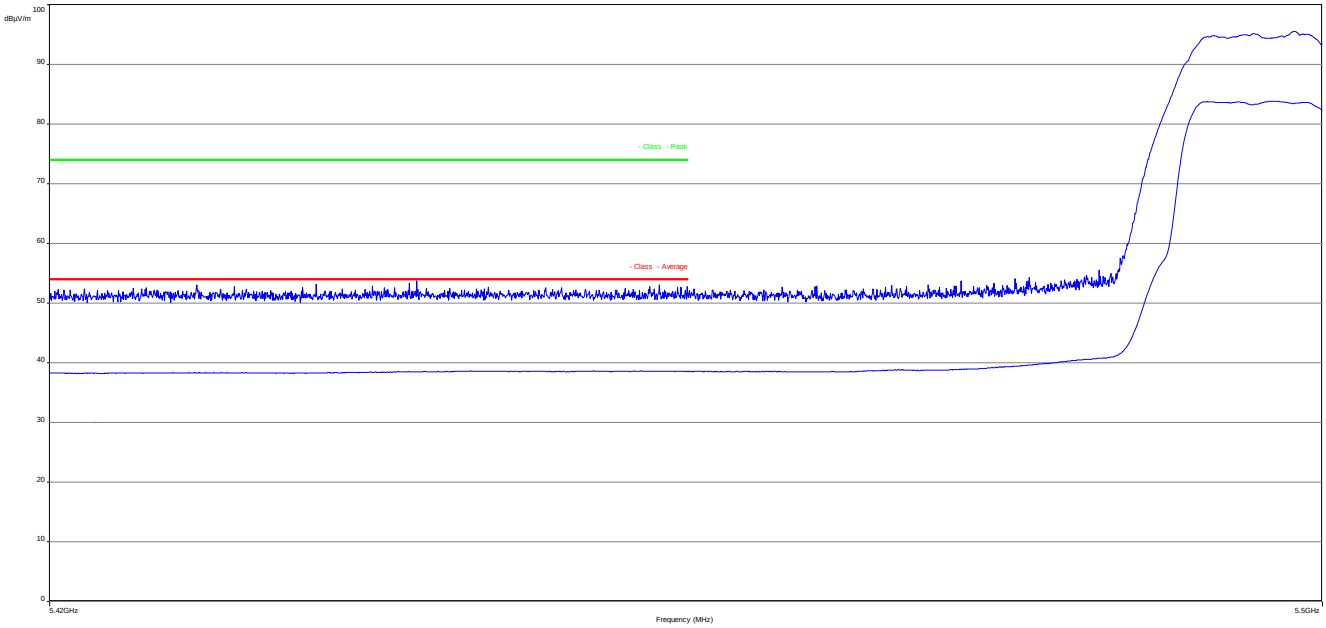
**Plot 3:** upper band edge, vertical & horizontal polarization (a mode), channel 64, low data rate



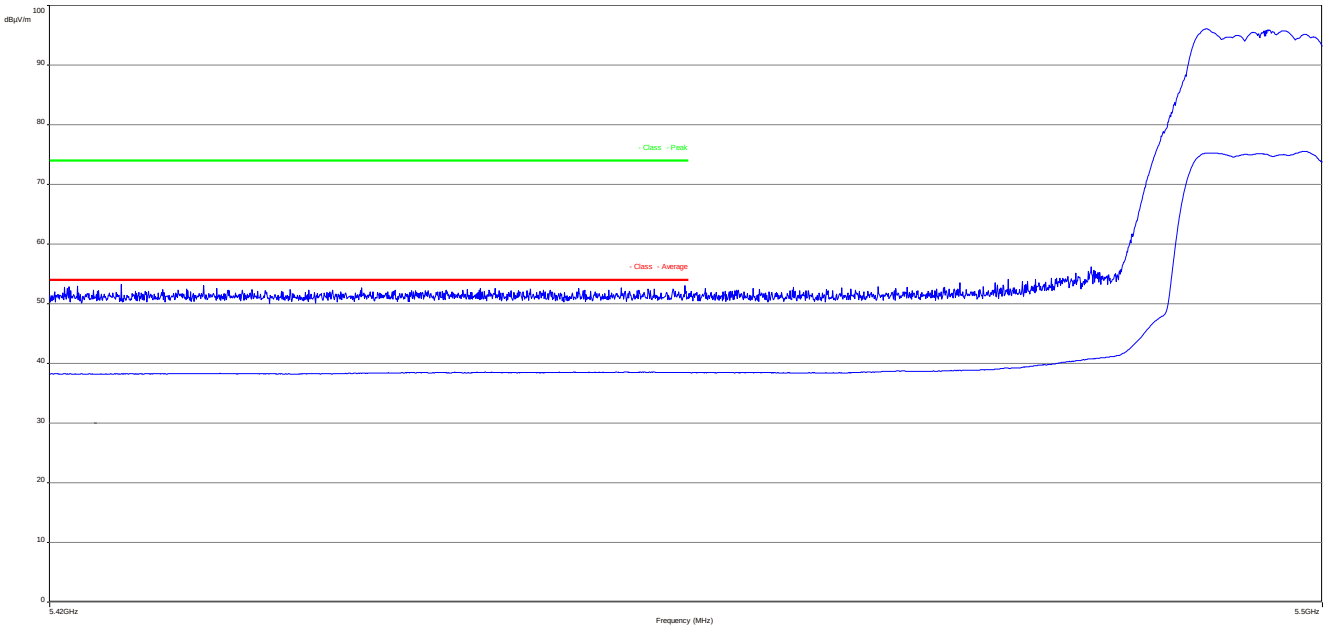

**Plot 4:** upper band edge, vertical & horizontal polarization (a mode), channel 64, high data rate



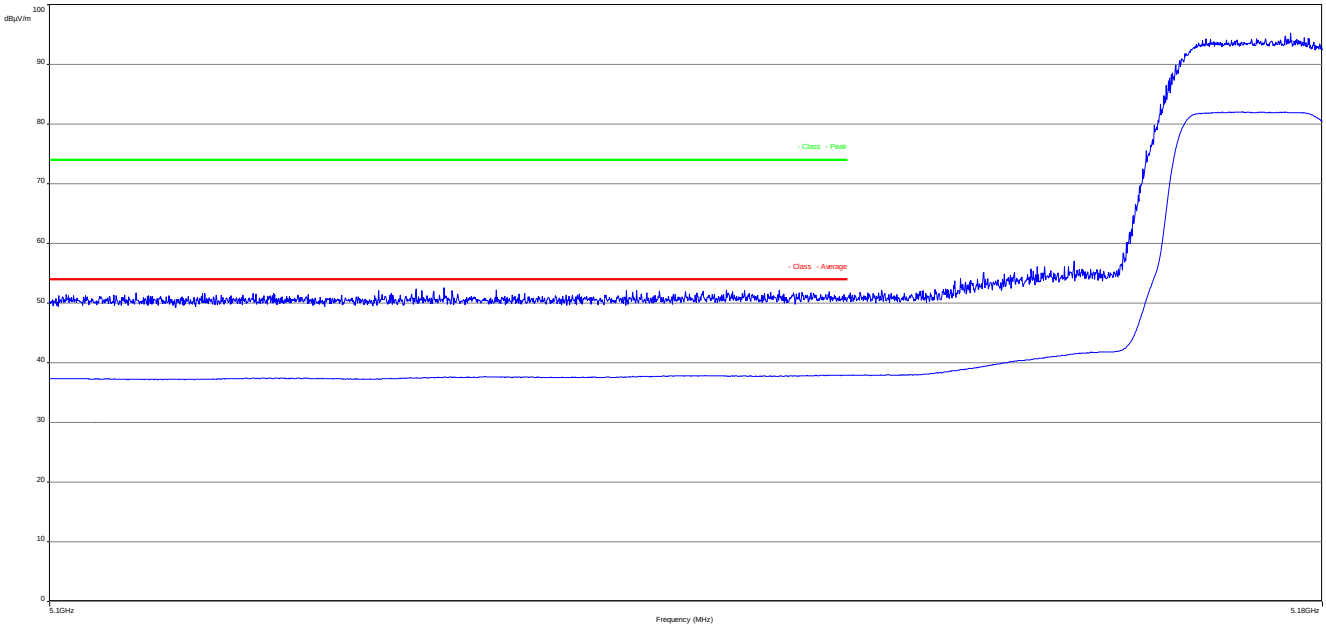
**Plot 5:** lower band edge, vertical & horizontal polarization (a mode), channel 100, low data rate



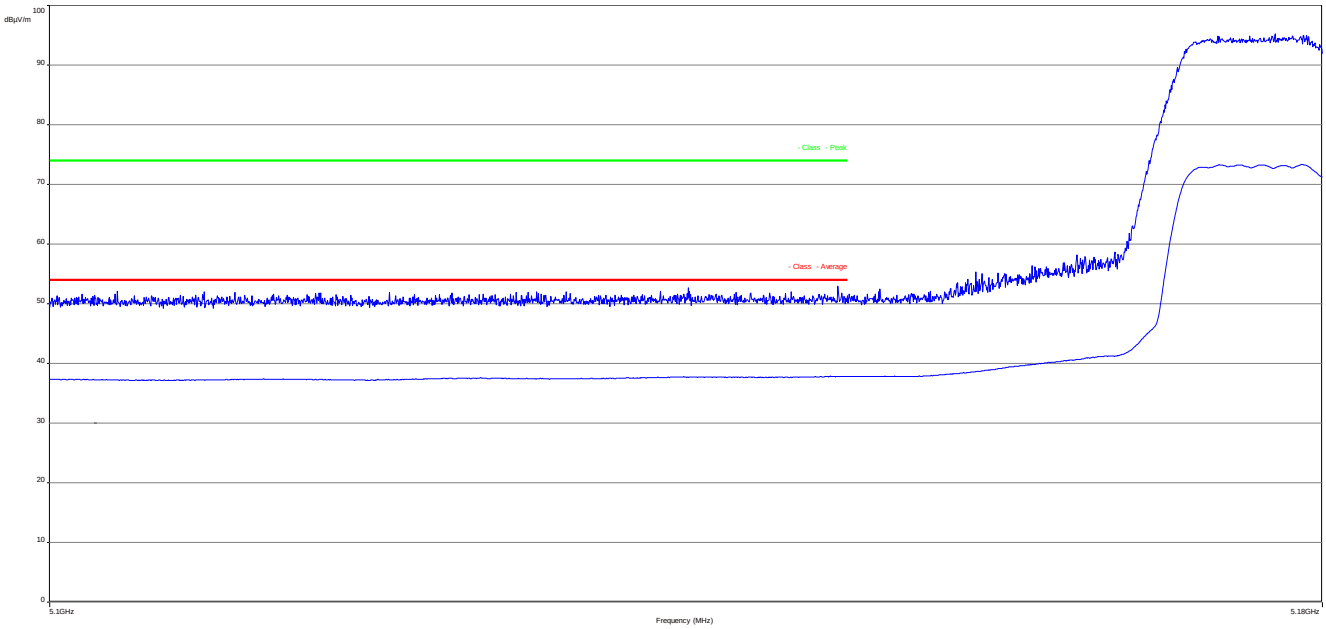

**Plot 6:** lower band edge, vertical & horizontal polarization (a mode), channel 100, high data rate



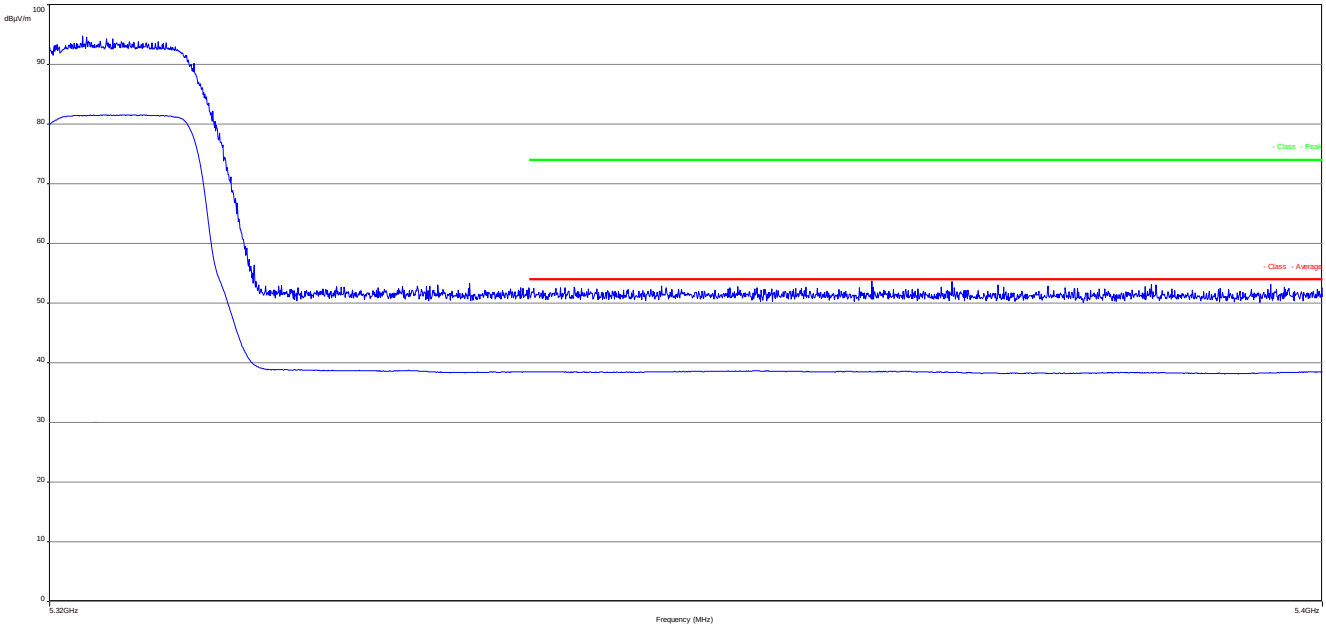
**Plot 7:** lower band edge, vertical & horizontal polarization (ac HT 20 mode), channel 36, low data rate



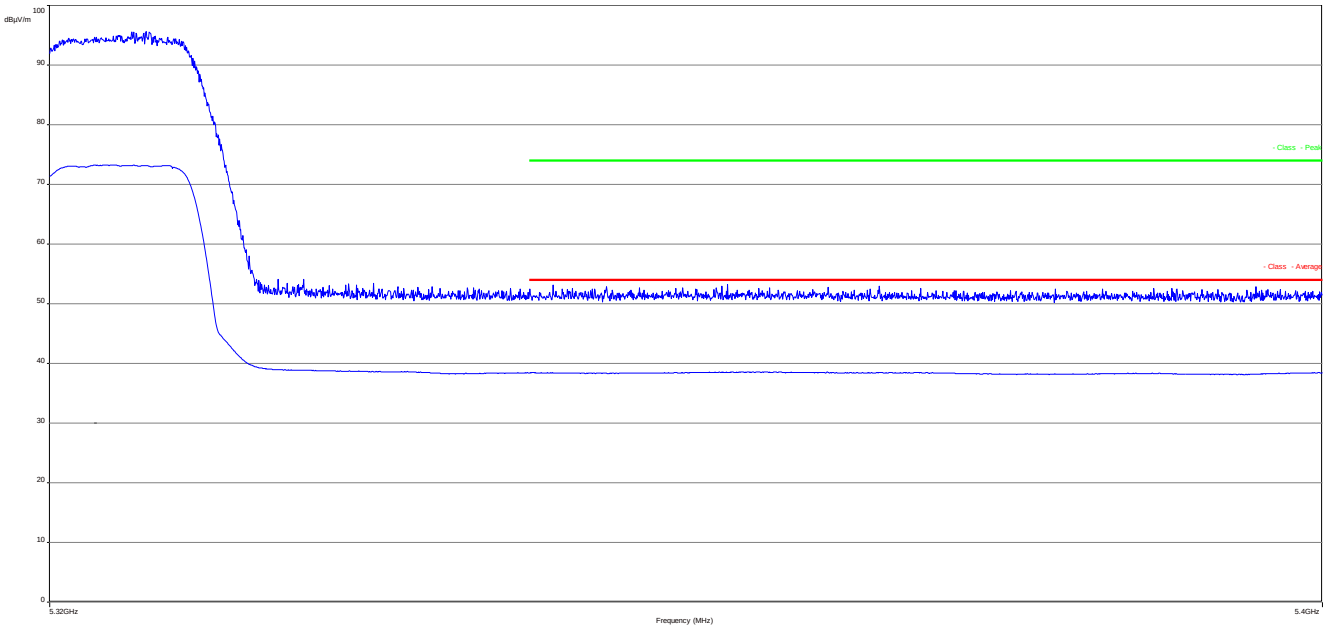

**Plot 8:** lower band edge, vertical & horizontal polarization (ac HT 20 mode), channel 36, high data rate



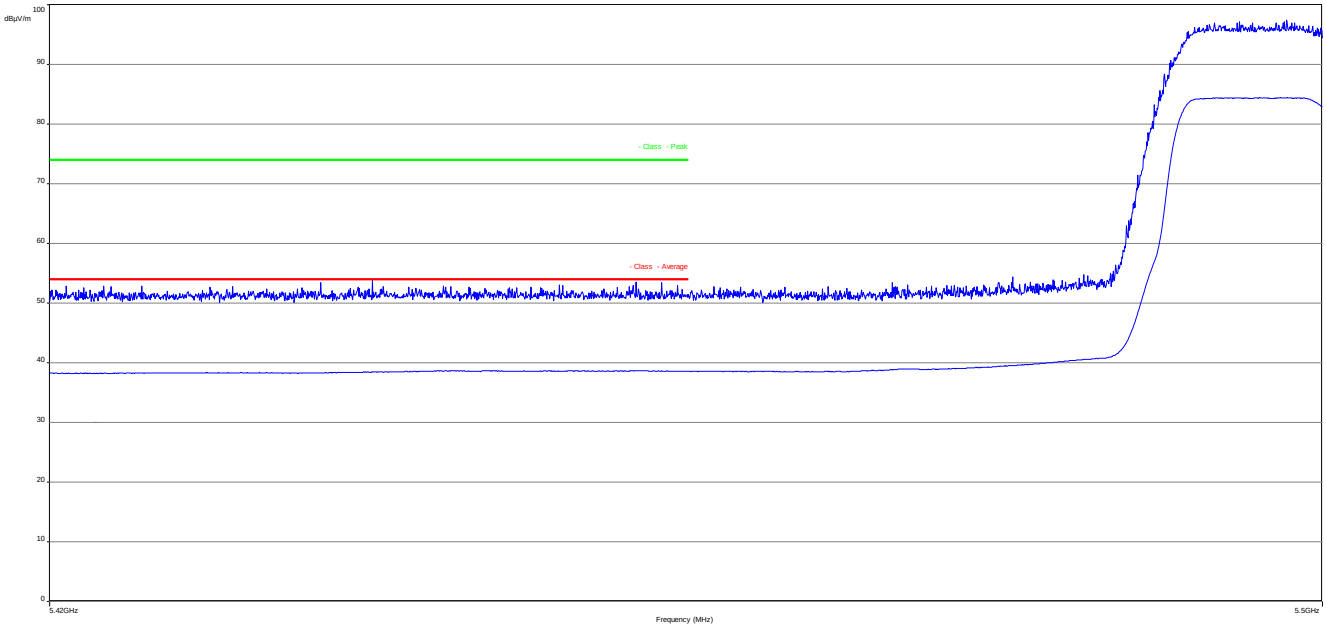
**Plot 9:** upper band edge, vertical & horizontal polarization (ac HT 20 mode), channel 64, low data rate



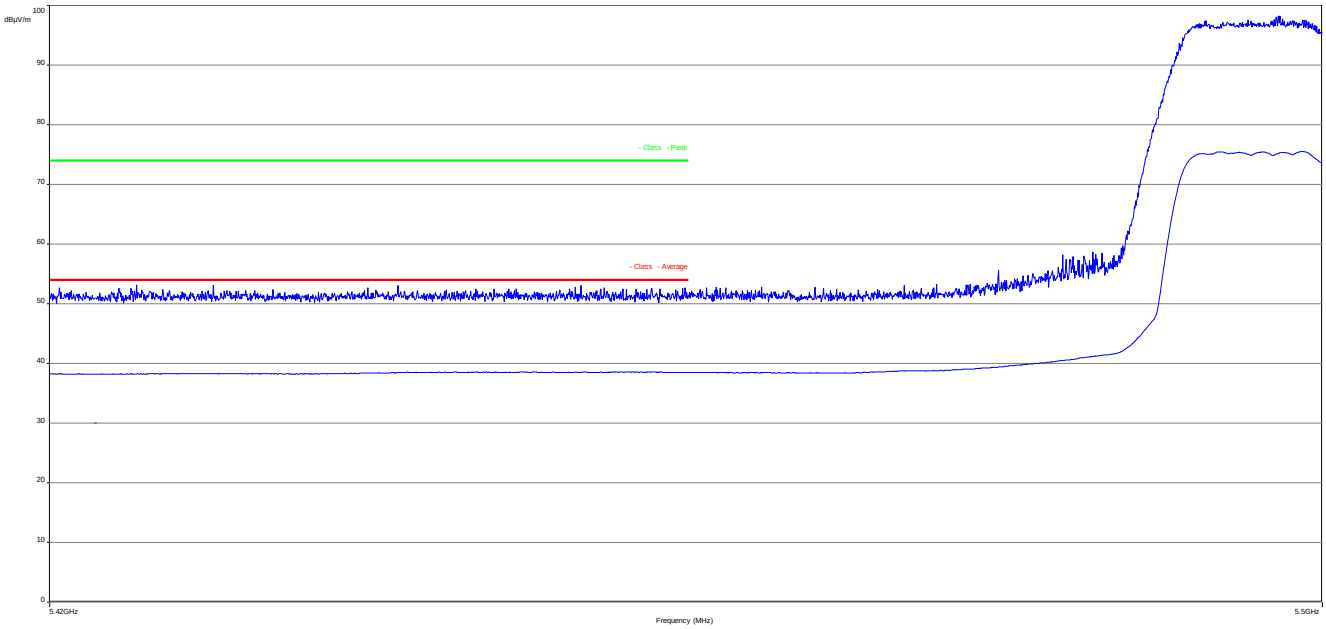

**Plot 10:** upper band edge, vertical & horizontal polarization (ac HT 20 mode), channel 64, high data rate



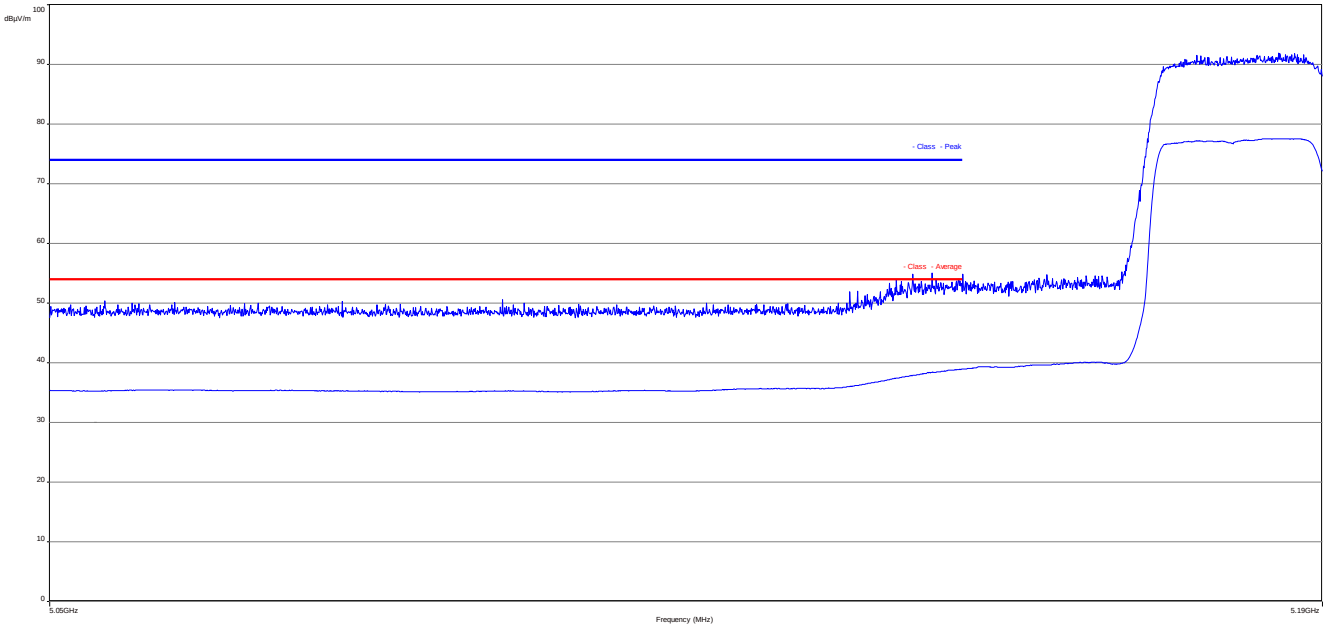
**Plot 11:** lower band edge, vertical & horizontal polarization (ac HT 20 mode), channel 100, low data rate



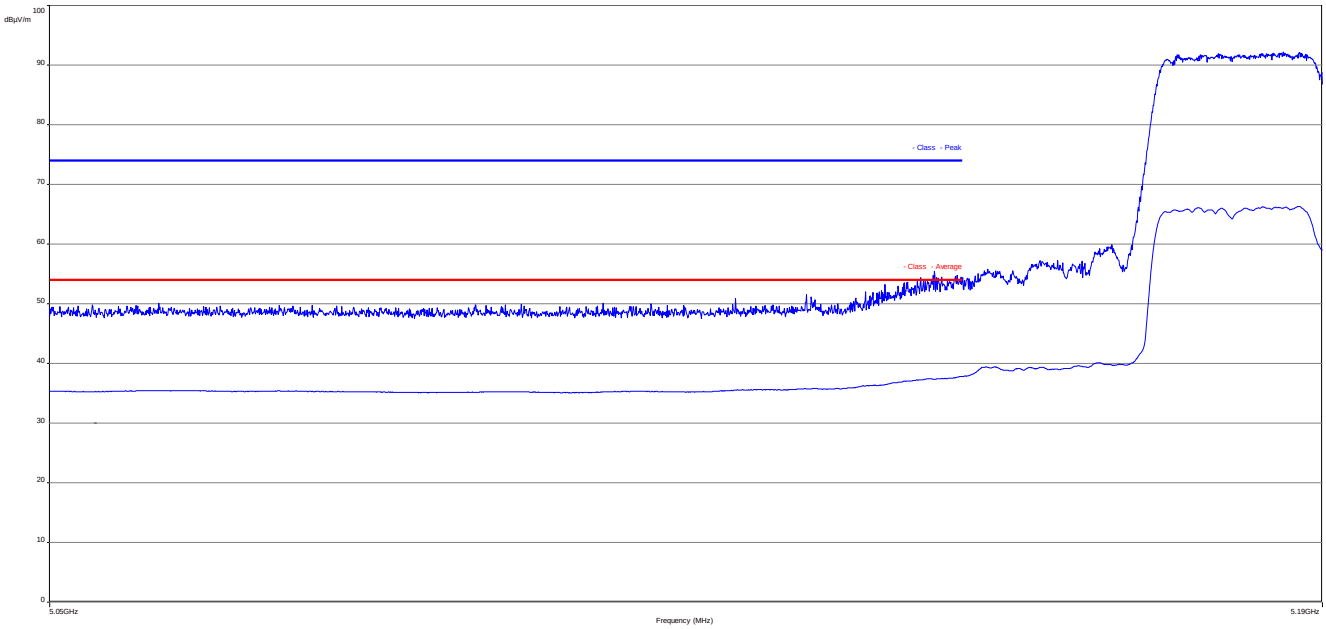

**Plot 12:** lower band edge, vertical & horizontal polarization (ac HT 20 mode), channel 100, high data rate



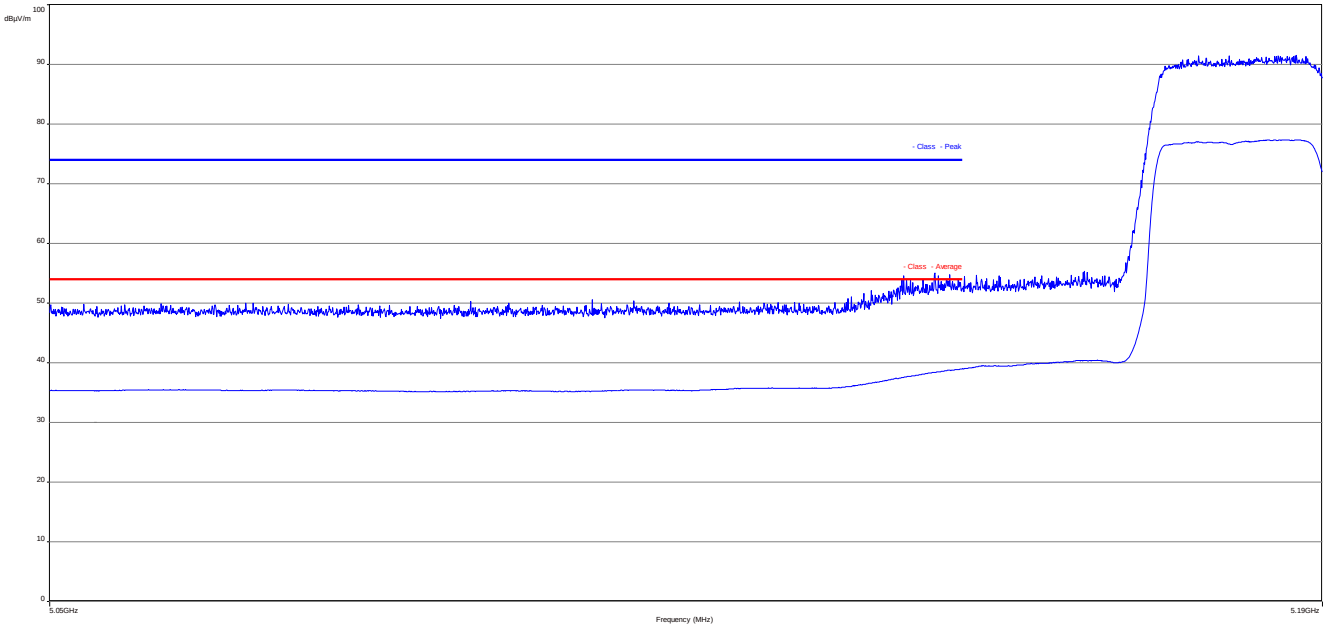
**Plot 13:** lower band edge, vertical & horizontal polarization (ac HT 40 mode), channel 38, low data rate



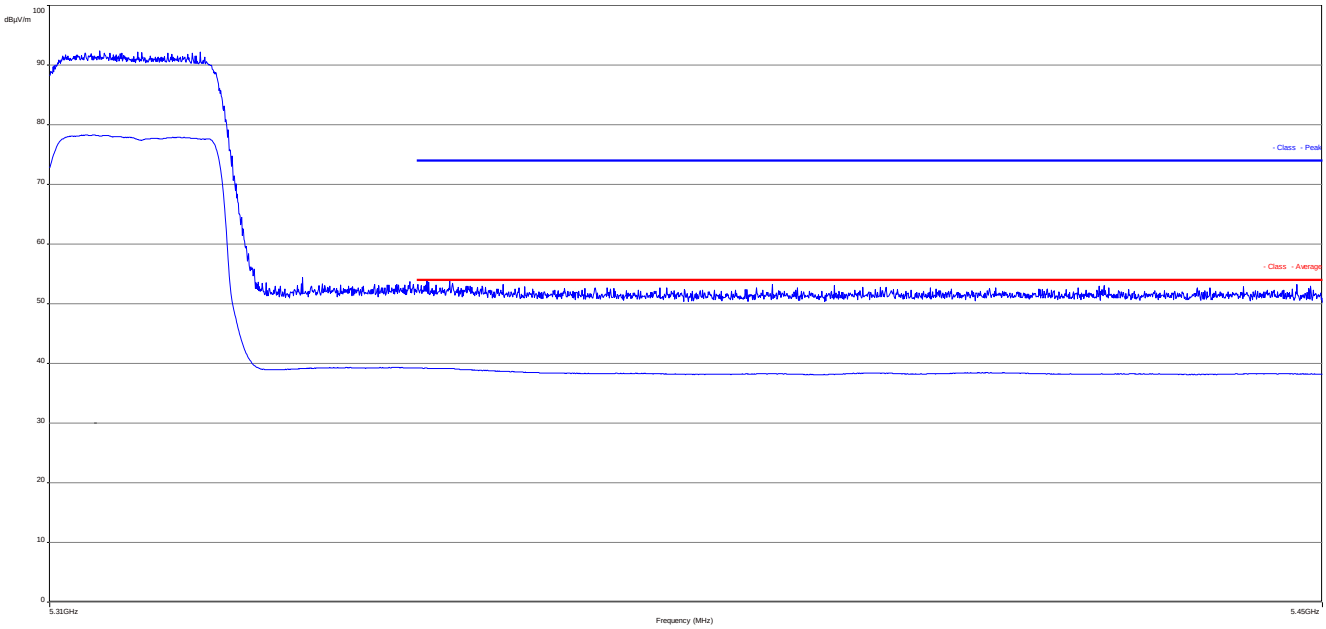

**Plot 14:** lower band edge, vertical & horizontal polarization (ac HT 40 mode), channel 38, high data rate



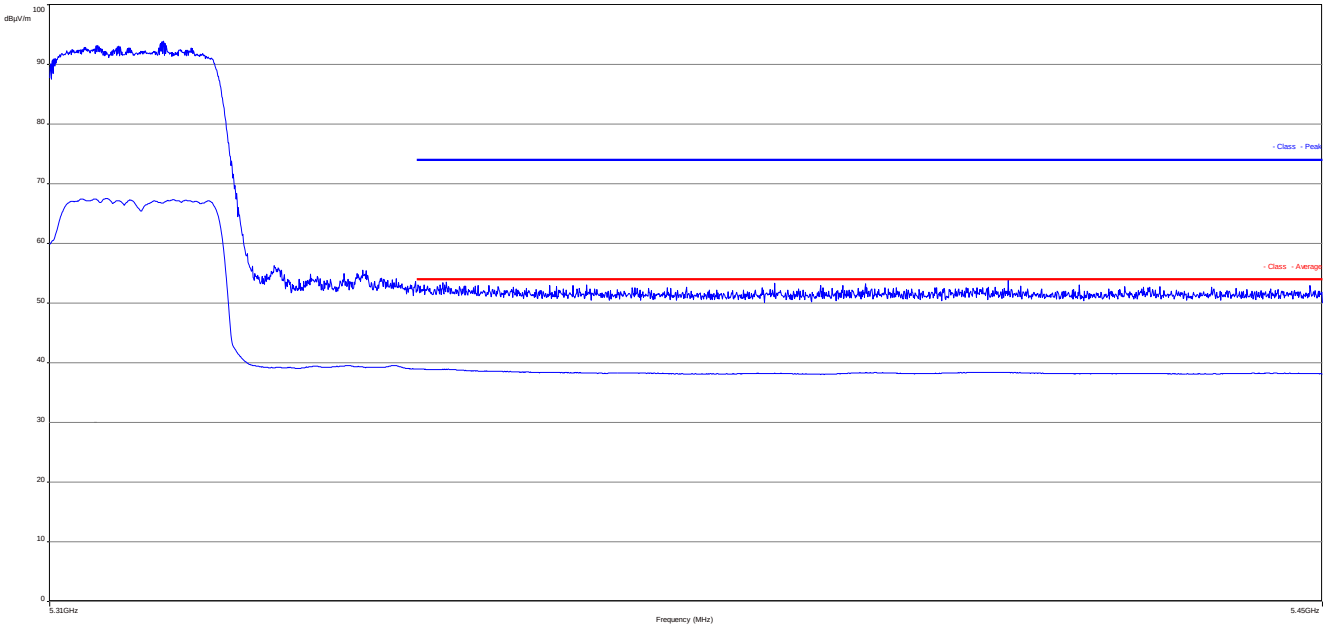
**Plot 15:** lower band edge, vertical & horizontal polarization (ac HT 40 mode), channel 38, highest power d. r.



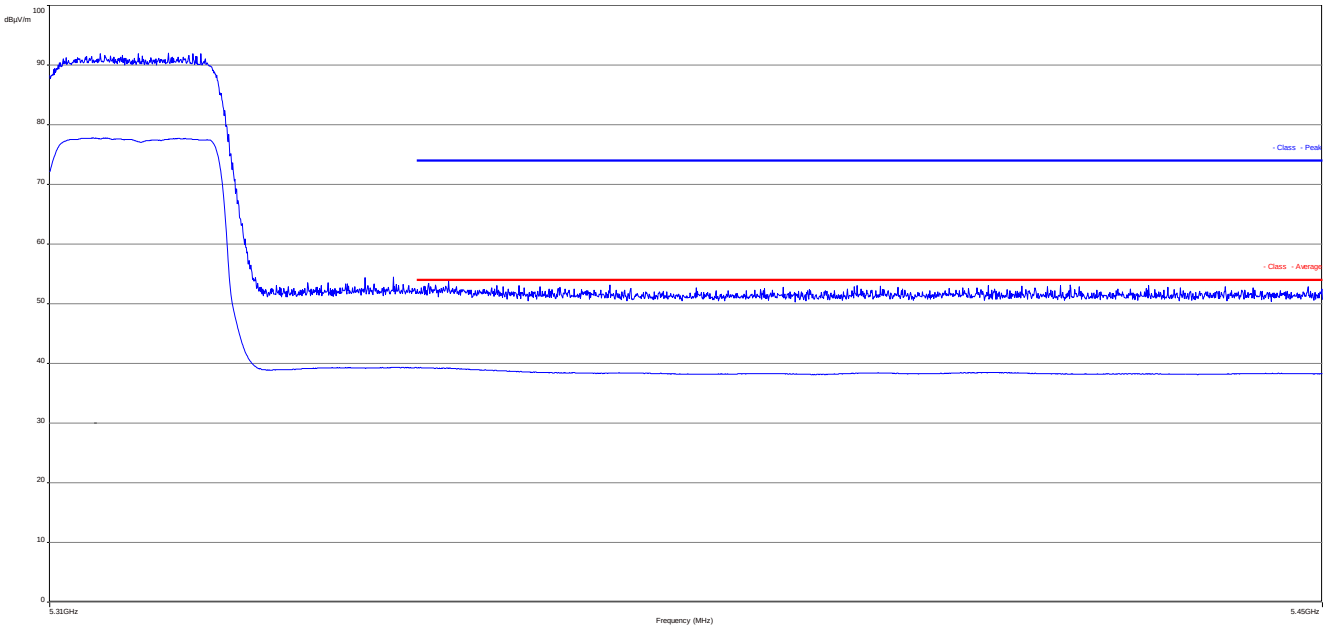

**Plot 16:** upper band edge, vertical & horizontal polarization (ac HT 40 mode), channel 62, low data rate



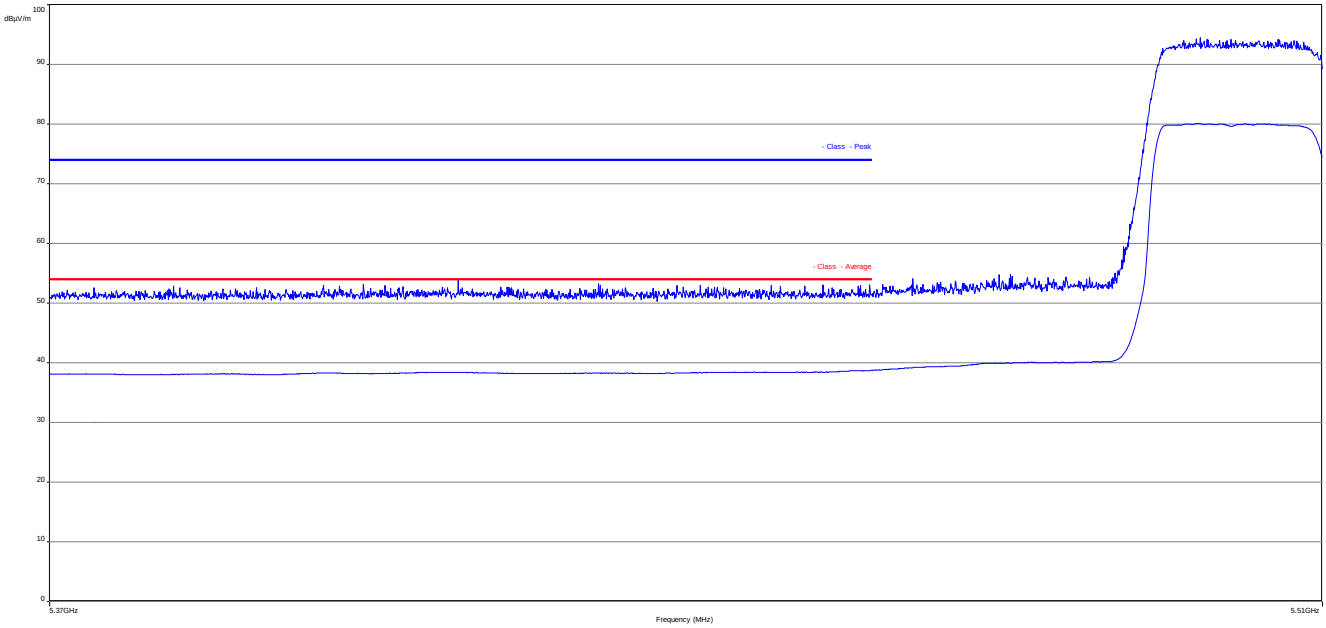
**Plot 17:** upper band edge, vertical & horizontal polarization (ac HT 40 mode), channel 62, high data rate



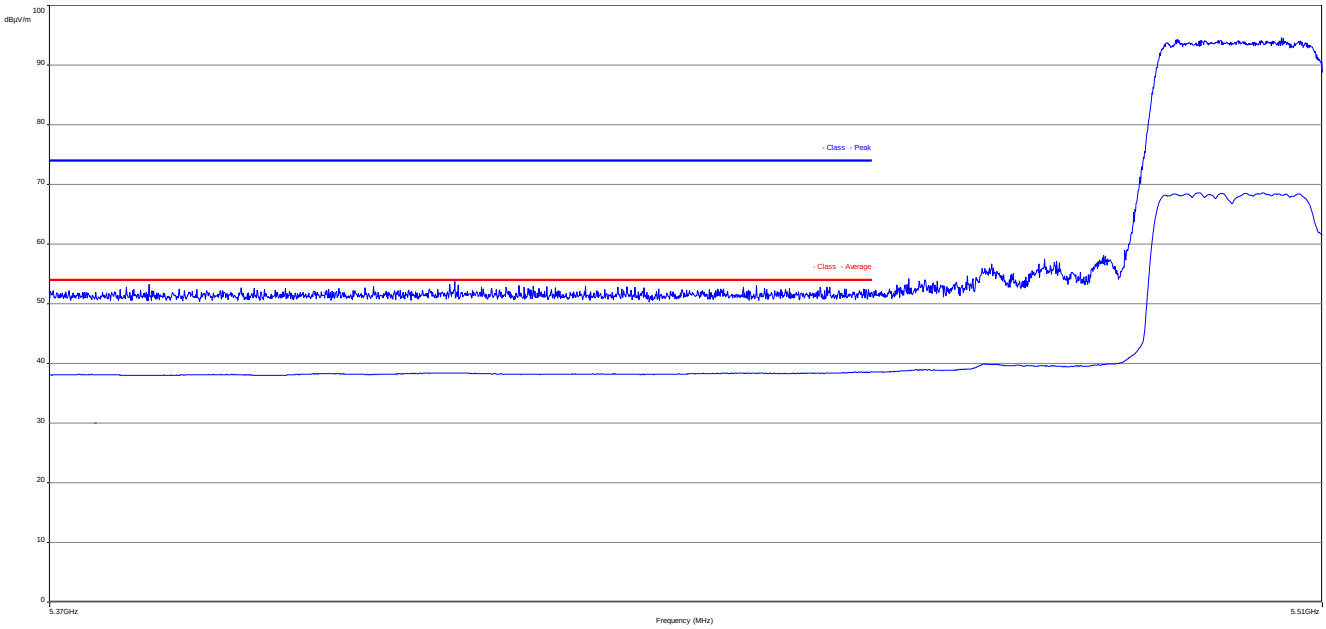

**Plot 18:** upper band edge, vertical & horizontal polarization (ac HT 40 mode), channel 62, highest power d. r.



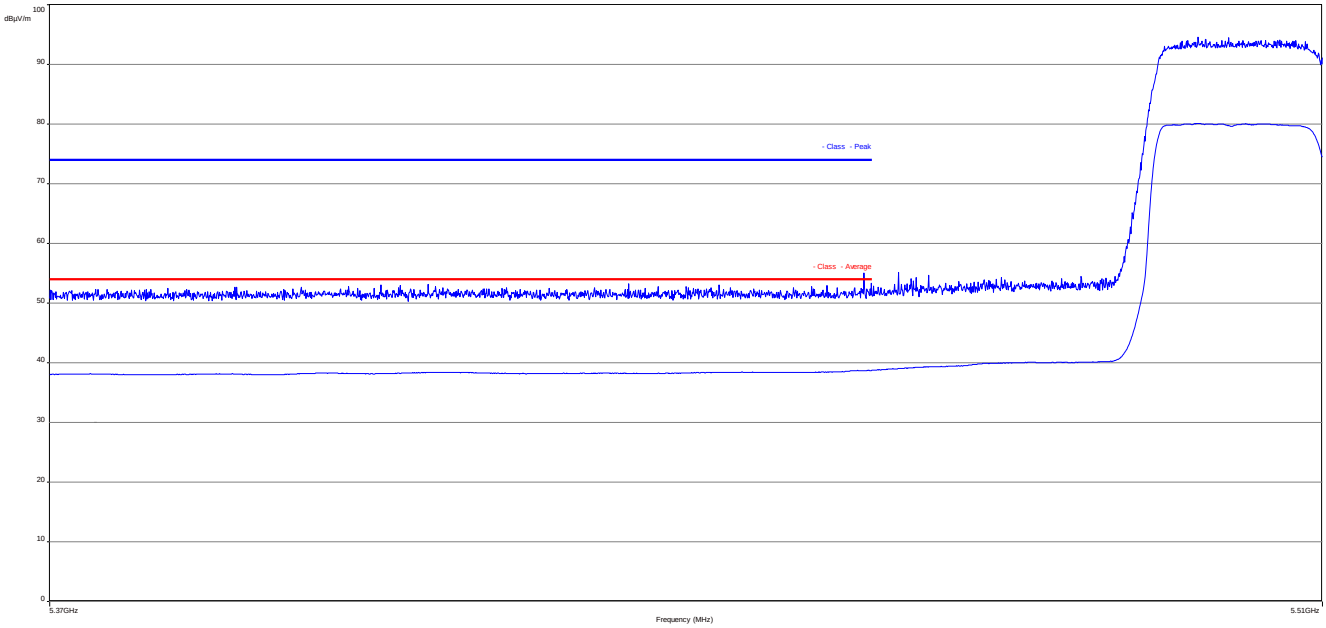
**Plot 19:** lower band edge, vertical & horizontal polarization (ac HT 40 mode), channel 102, low data rate



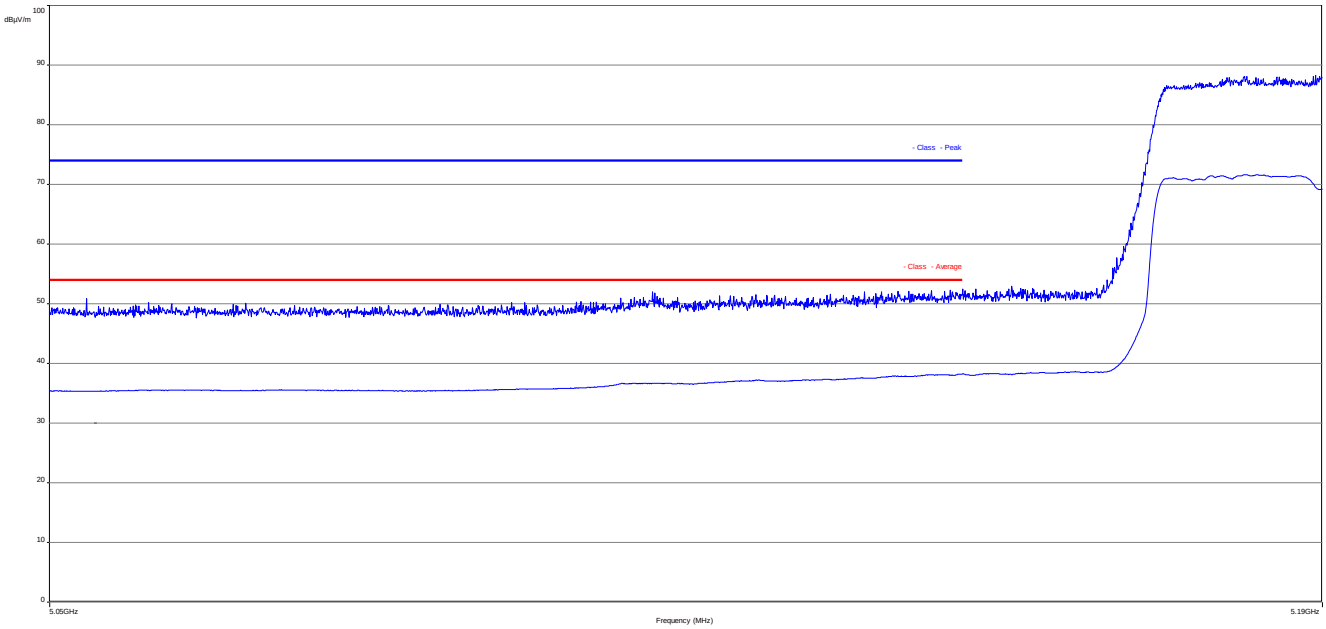

**Plot 20:** lower band edge, vertical & horizontal polarization (ac HT 40 mode), channel 102, high data rate



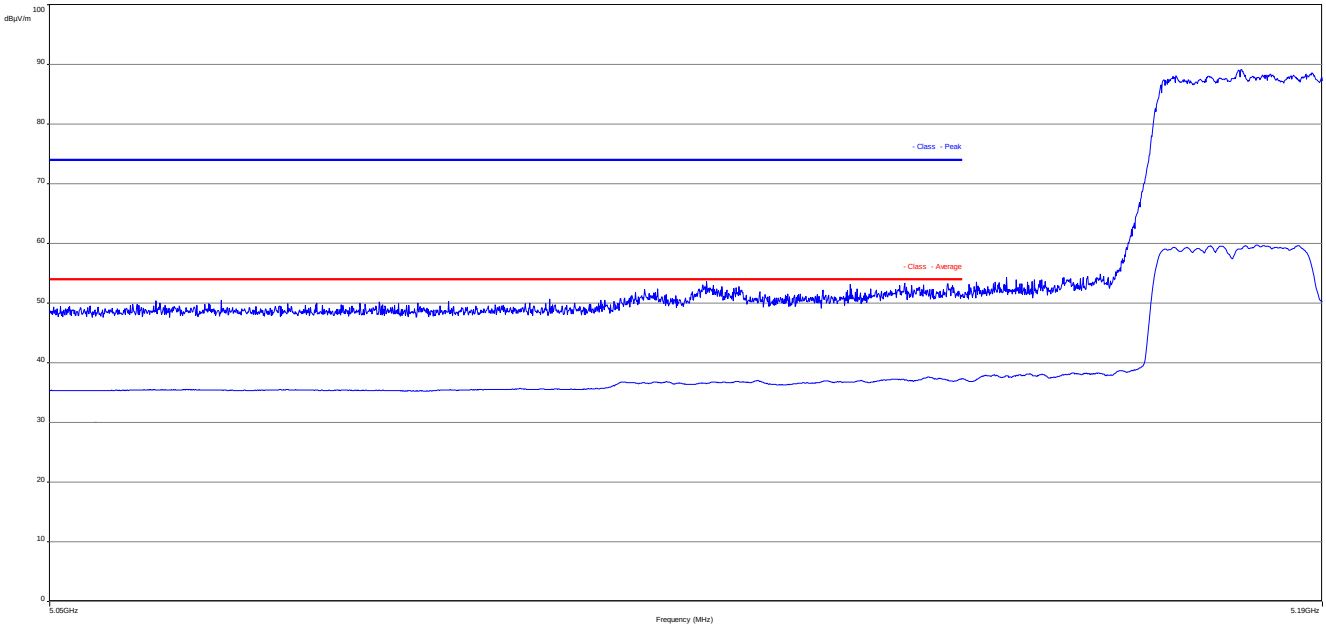
**Plot 21:** lower band edge, vertical & horizontal polarization (ac HT 40 mode), channel 102, highest power d. r.



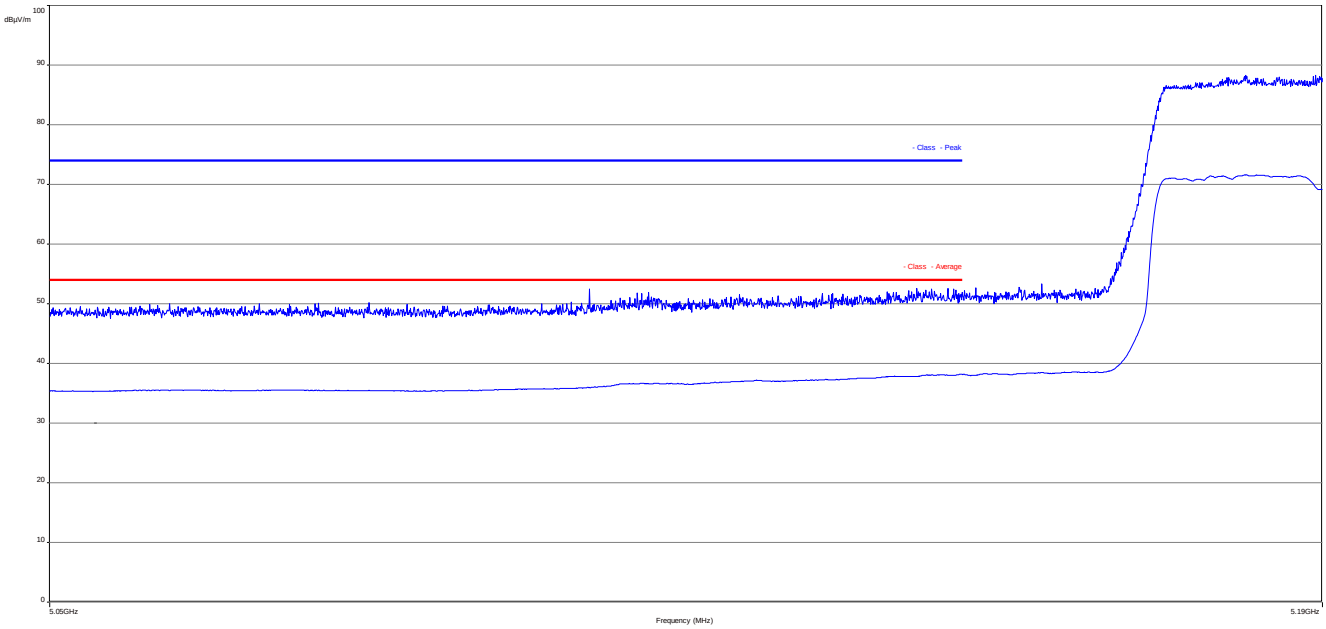

**Plot 22:** lower band edge, vertical & horizontal polarization (ac HT 80 mode), channel 42, low data rate



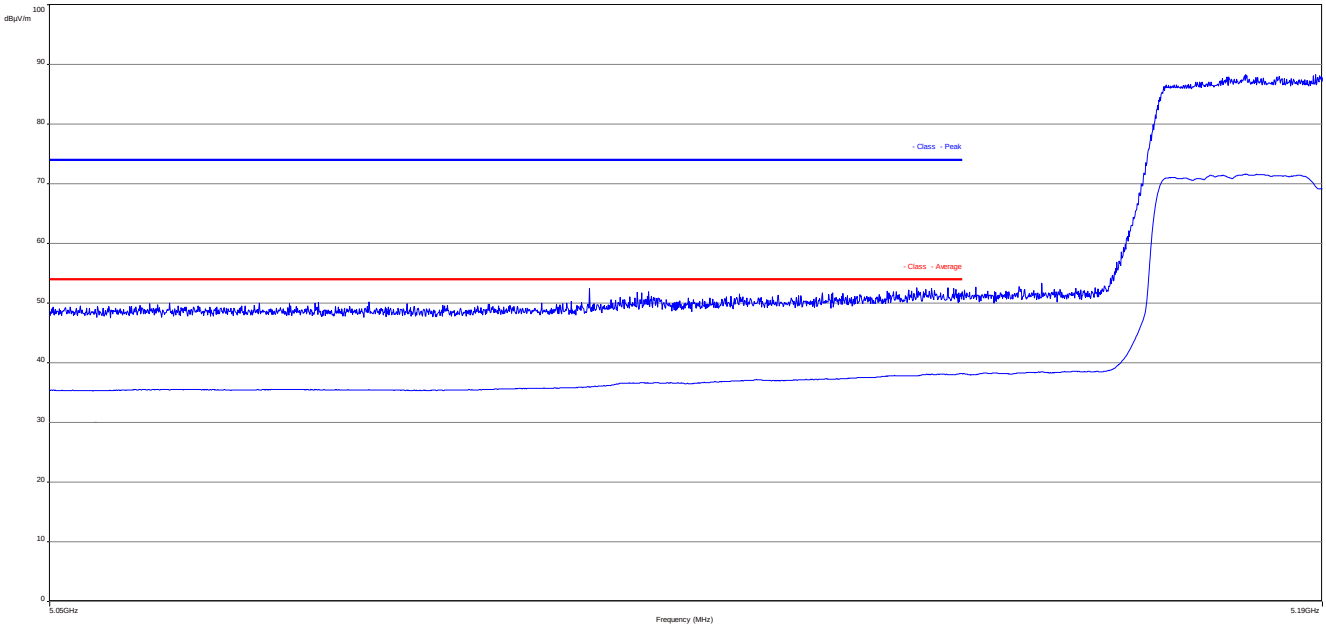
**Plot 23:** lower band edge, vertical & horizontal polarization (ac HT 80 mode), channel 42, high data rate



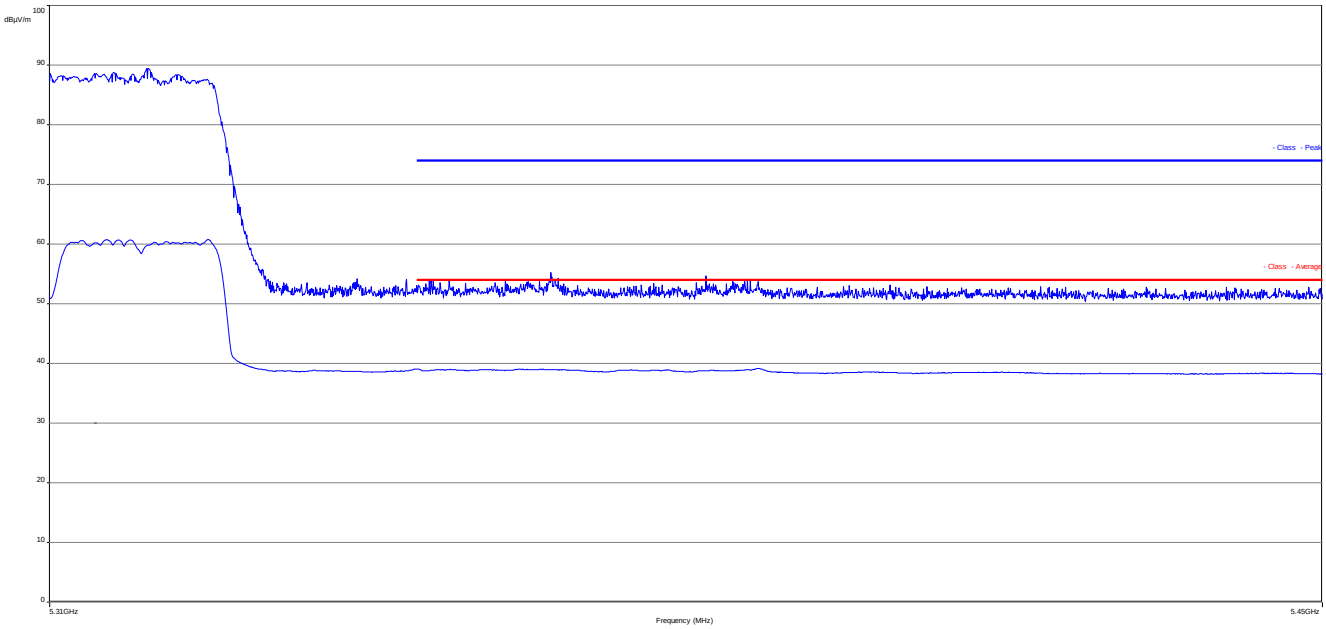

**Plot 24:** lower band edge, vertical & horizontal polarization (ac HT 80 mode), channel 42, highest power d. r.



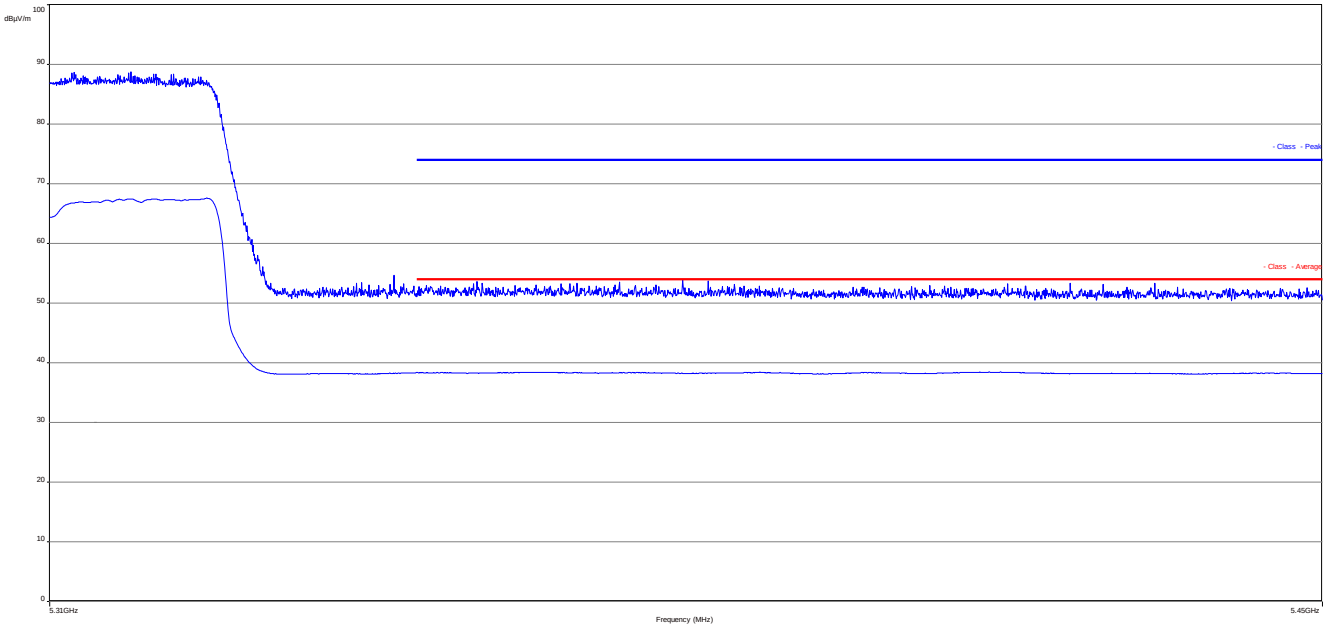
**Plot 25:** upper band edge, vertical & horizontal polarization (ac HT 80 mode), channel 58, low data rate



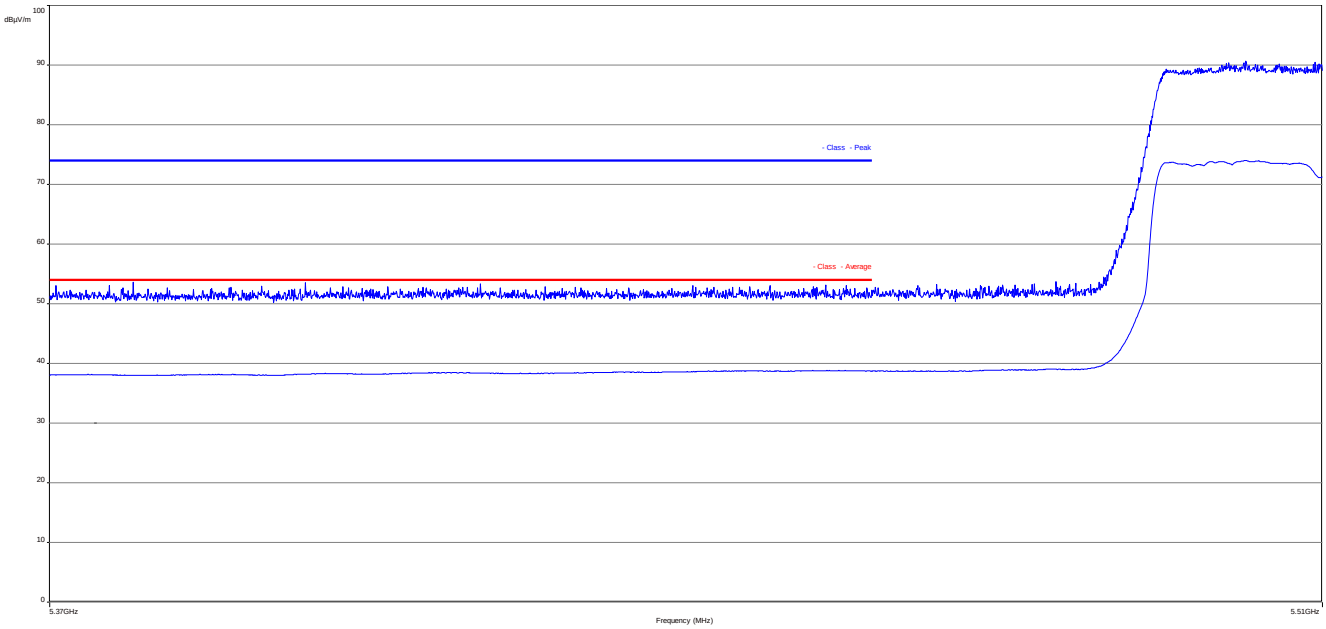

**Plot 26:** upper band edge, vertical & horizontal polarization (ac HT 80 mode), channel 58, high data rate



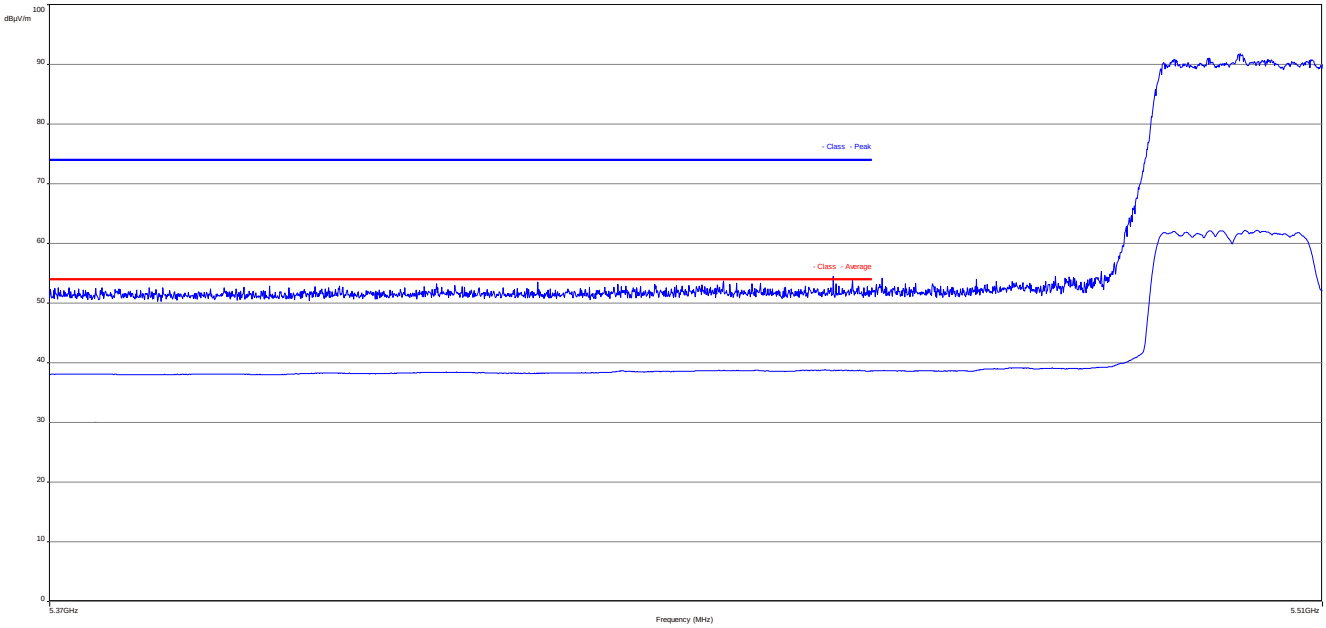
**Plot 27:** upper band edge, vertical & horizontal polarization (ac HT 80 mode), channel 58, highest power d. r.



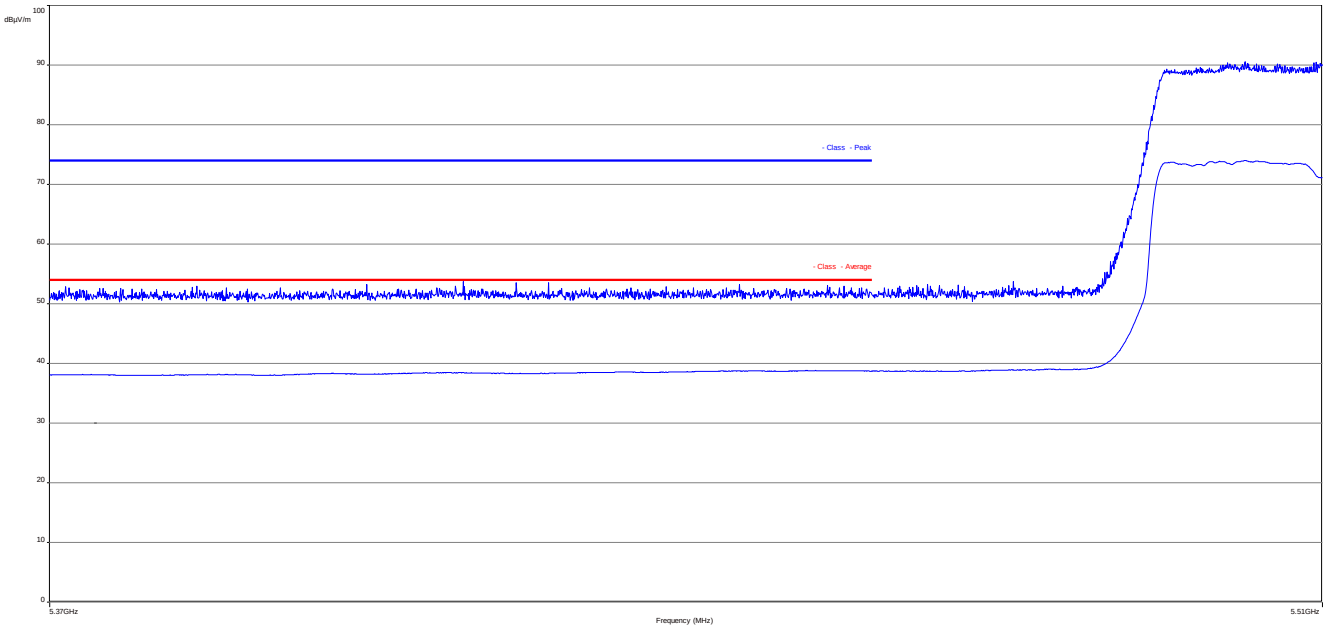

**Plot 28:** lower band edge, vertical & horizontal polarization (ac HT 80 mode), channel 106, low data rate



**Plot 29:** lower band edge, vertical & horizontal polarization (ac HT 80 mode), channel 106, high data rate




**Plot 30:** lower band edge, vertical & horizontal polarization (ac HT 80 mode), channel 106, highest power d. r.




**Result:** **Passed**

## 10.9 TX spurious emissions radiated

**Description:**

Measurement of the radiated spurious emissions in transmit mode. The measurement is performed at lowest, middle and highest channel.

**Measurement:**

| Measurement parameter | |
|---|---|
| Detector: | Quasi Peak below 1 GHz<br>(alternative Peak)<br><br>Peak above 1 GHz / RMS |
| Sweep time: | Auto |
| Resolution bandwidth: | F < 1 GHz: 100 kHz<br>F > 1 GHz: 1 MHz |
| Video bandwidth: | F < 1 GHz: 100 kHz<br>F > 1 GHz: ≥ 3 MHz /10 Hz |
| Span: | 30 MHz to 40 GHz |
| Trace-Mode: | Max Hold / Average with 100 counts + 20 log (1 / X) for duty cycle lower than 100 % |

**Limits:**

| TX Spurious Emissions Radiated | | |
|---|---|---|
| §15.209 | | |
| Frequency (MHz) | Field Strength (dBµV/m) | Measurement distance |
| 30 - 88 | 30.0 | 10 |
| 88 – 216 | 33.5 | 10 |
| 216 – 960 | 36.0 | 10 |
| Above 960 | 54.0 | 3 |
| §15.407 | | |
| Outside the restricted bands! | -27 dBm / MHz | |

**Results: OFDM / a – mode**

| TX Spurious Emissions Radiated [dBµV/m] / dBm | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OFDM a – mode | | | | | | | | |
| Lowest 5180 MHz | | | -/- | | | Highest 5240 MHz | | |
| F [MHz] | Detector | Level [dBµV/m] | F [MHz] | Detector | Level [dBµV/m] | F [MHz] | Detector | Level [dBµV/m] |
| For emissions below 1 GHz, please take a look at the table below the 1 GHz plot. | | | -/- | | | For emissions below 1 GHz, please take a look at the table below the 1 GHz plot. | | |
| All detected peaks are below the average limit! | | | | | | All detected peaks are below the average limit! | | |
| | | | | | | | | |
| Measurement uncertainty | | | ± 3 dB | | | | | |

| TX Spurious Emissions Radiated [dBµV/m] / dBm | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OFDM a – mode | | | | | | | | |
| Lowest 5260 MHz | | | -/- | | | Highest 5320 MHz | | |
| F [MHz] | Detector | Level [dBµV/m] | F [MHz] | Detector | Level [dBµV/m] | F [MHz] | Detector | Level [dBµV/m] |
| For emissions below 1 GHz, please take a look at the table below the 1 GHz plot. | | | -/- | | | For emissions below 1 GHz, please take a look at the table below the 1 GHz plot. | | |
| All detected peaks are below the average limit! | | | | | | All detected peaks are below the average limit! | | |
| | | | | | | | | |
| Measurement uncertainty | | | ± 3 dB | | | | | |

| TX Spurious Emissions Radiated [dBµV/m] / dBm | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OFDM a – mode | | | | | | | | |
| Lowest 5500 MHz | | | Middle 5600 MHz | | | Highest 5700 MHz | | |
| F [MHz] | Detector | Level [dBµV/m] | F [MHz] | Detector | Level [dBµV/m] | F [MHz] | Detector | Level [dBµV/m] |
| For emissions below 1 GHz, please take a look at the table below the 1 GHz plot. | | | For emissions below 1 GHz, please take a look at the table below the 1 GHz plot. | | | For emissions below 1 GHz, please take a look at the table below the 1 GHz plot. | | |
| All detected peaks are below the average limit! | | | All detected peaks are below the average limit! | | | All detected peaks are below the average limit! | | |
| | | | | | | | | |
| Measurement uncertainty | | | ± 3 dB | | | | | |

**Result:** **Passed**

**Results: OFDM / ac – modeHT20**

| TX Spurious Emissions Radiated [dBµV/m] / dBm | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OFDM ac – mode HT20 | | | | | | | | |
| Lowest 5180 MHz | | | -/- | | | Highest 5240 MHz | | |
| F [MHz] | Detector | Level [dBµV/m] | F [MHz] | Detector | Level [dBµV/m] | F [MHz] | Detector | Level [dBµV/m] |
| For emissions below 1 GHz, please take a look at the table below the 1 GHz plot. | | | -/- | | | For emissions below 1 GHz, please take a look at the table below the 1 GHz plot. | | |
| All detected peaks are below the average limit! | | | | | | All detected peaks are below the average limit! | | |
| | | | | | | | | |
| Measurement uncertainty | | | ± 3 dB | | | | | |

| TX Spurious Emissions Radiated [dBµV/m] / dBm | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OFDM ac – mode HT20 | | | | | | | | |
| Lowest 5260 MHz | | | -/- | | | Highest 5320 MHz | | |
| F [MHz] | Detector | Level [dBµV/m] | F [MHz] | Detector | Level [dBµV/m] | F [MHz] | Detector | Level [dBµV/m] |
| For emissions below 1 GHz, please take a look at the table below the 1 GHz plot. | | | -/- | | | For emissions below 1 GHz, please take a look at the table below the 1 GHz plot. | | |
| All detected peaks are below the average limit! | | | | | | All detected peaks are below the average limit! | | |
| | | | | | | | | |
| Measurement uncertainty | | | ± 3 dB | | | | | |

| TX Spurious Emissions Radiated [dBµV/m] / dBm | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OFDM ac – mode HT20 | | | | | | | | |
| Lowest 5500 MHz | | | Middle 5600 MHz | | | Highest 5700 MHz | | |
| F [MHz] | Detector | Level [dBµV/m] | F [MHz] | Detector | Level [dBµV/m] | F [MHz] | Detector | Level [dBµV/m] |
| For emissions below 1 GHz, please take a look at the table below the 1 GHz plot. | | | For emissions below 1 GHz, please take a look at the table below the 1 GHz plot. | | | For emissions below 1 GHz, please take a look at the table below the 1 GHz plot. | | |
| All detected peaks are below the average limit! | | | All detected peaks are below the average limit! | | | All detected peaks are below the average limit! | | |
| | | | | | | | | |
| Measurement uncertainty | | | ± 3 dB | | | | | |

**Result:** **Passed**

**Results: OFDM / ac – modeHT40**

| TX Spurious Emissions Radiated [dBµV/m] / dBm | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OFDM ac – mode HT40 | | | | | | | | |
| Lowest 5190 MHz | | | -/- | | | Highest 5270 MHz | | |
| F [MHz] | Detector | Level [dBµV/m] | F [MHz] | Detector | Level [dBµV/m] | F [MHz] | Detector | Level [dBµV/m] |
| For emissions below 1 GHz, please take a look at the table below the 1 GHz plot. | | | -/- | | | For emissions below 1 GHz, please take a look at the table below the 1 GHz plot. | | |
| All detected peaks are below the average limit! | | | | ! | | All detected peaks are below the average limit | | |
| | | | | | | | | |
| Measurement uncertainty | | | ± 3 dB | | | | | |

| TX Spurious Emissions Radiated [dBµV/m] / dBm | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OFDM ac – mode HT40 | | | | | | | | |
| Lowest 5310 MHz | | | -/- | | | Highest 5590 MHz | | |
| F [MHz] | Detector | Level [dBµV/m] | F [MHz] | Detector | Level [dBµV/m] | F [MHz] | Detector | Level [dBµV/m] |
| For emissions below 1 GHz, please take a look at the table below the 1 GHz plot. | | | -/- | | | For emissions below 1 GHz, please take a look at the table below the 1 GHz plot. | | |
| All detected peaks are below the average limit! | | | | | | All detected peaks are below the average limit! | | |
| | | | | | | | | |
| Measurement uncertainty | | | ± 3 dB | | | | | |

| TX Spurious Emissions Radiated [dBµV/m] / dBm | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OFDM ac – mode HT40 | | | | | | | | |
| Lowest 5670 MHz | | | Middle 5765 MHz | | | Highest 5795 MHz | | |
| F [MHz] | Detector | Level [dBµV/m] | F [MHz] | Detector | Level [dBµV/m] | F [MHz] | Detector | Level [dBµV/m] |
| For emissions below 1 GHz, please take a look at the table below the 1 GHz plot. | | | For emissions below 1 GHz, please take a look at the table below the 1 GHz plot. | | | For emissions below 1 GHz, please take a look at the table below the 1 GHz plot. | | |
| All detected peaks are below the average limit! | | | All detected peaks are below the average limit! | | | All detected peaks are below the average limit! | | |
| | | | | | | | | |
| Measurement uncertainty | | | ± 3 dB | | | | | |

**Result:** **Passed**

**Results: OFDM / ac – modeHT80**

| TX Spurious Emissions Radiated [dBµV/m] / dBm | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OFDM ac – mode HT80 | | | | | | | | |
| Lowest 5210 MHz | | | -/- | | | Highest 5290 MHz | | |
| F [MHz] | Detector | Level [dBµV/m] | F [MHz] | Detector | Level [dBµV/m] | F [MHz] | Detector | Level [dBµV/m] |
| For emissions below 1 GHz, please take a look at the table below the 1 GHz plot. | | | -/- | | | For emissions below 1 GHz, please take a look at the table below the 1 GHz plot. | | |
| All detected peaks are below the average limit! | | | | | | All detected peaks are below the average limit! | | |
| | | | | | | | | |
| Measurement uncertainty | | | ± 3 dB | | | | | |

| TX Spurious Emissions Radiated [dBµV/m] / dBm | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OFDM ac – mode HT80 | | | | | | | | |
| Lowest 5530 MHz | | | -/- | | | Highest 5610 MHz | | |
| F [MHz] | Detector | Level [dBµV/m] | F [MHz] | Detector | Level [dBµV/m] | F [MHz] | Detector | Level [dBµV/m] |
| For emissions below 1 GHz, please take a look at the table below the 1 GHz plot. | | | -/- | | | For emissions below 1 GHz, please take a look at the table below the 1 GHz plot. | | |
| All detected peaks are below the average limit! | | | | | | All detected peaks are below the average limit! | | |
| | | | | | | | | |
| Measurement uncertainty | | | ± 3 dB | | | | | |

**Result:** **Passed**

**Note:** The limit was recalculated with 20 dB / decade (Part 15.31) for all radiated spurious emissions 30 MHz to 1 GHz from 3 meter limit to a 10 meter distance. (40dB/decade for emissions < 30MHz)

**Plots:** OFDM / a – mode

**Plot 1:** 30 MHz to 1 GHz, 5180 MHz, vertical & horizontal polarization

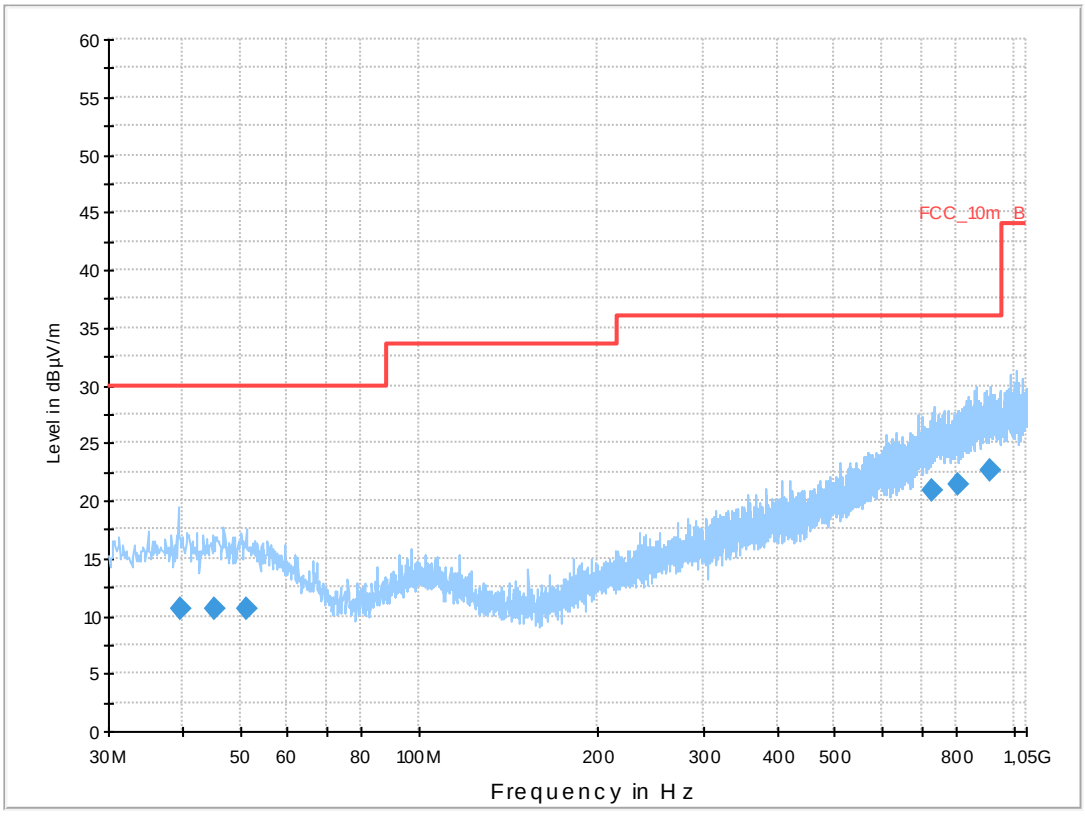
## Common Information

| | |
|---|---|
| EUT: | TM-0040-BV |
| Serial Number: | CB51267Q67 |
| Test Description: | FCC part 15 class B @ 10 m |
| Operating Conditions: | w-lan a-mode tx ch 36 |
| Operator Name: | Hennemann |
| Comment: | battery powered |

## Scan Setup: STAN_Fin [EMI radiated]

| | |
|---|---|
| Hardware Setup: | Electric Field (NOS) |
| Receiver: | [ESCI 3] |
| Level Unit: | dBµV/m |

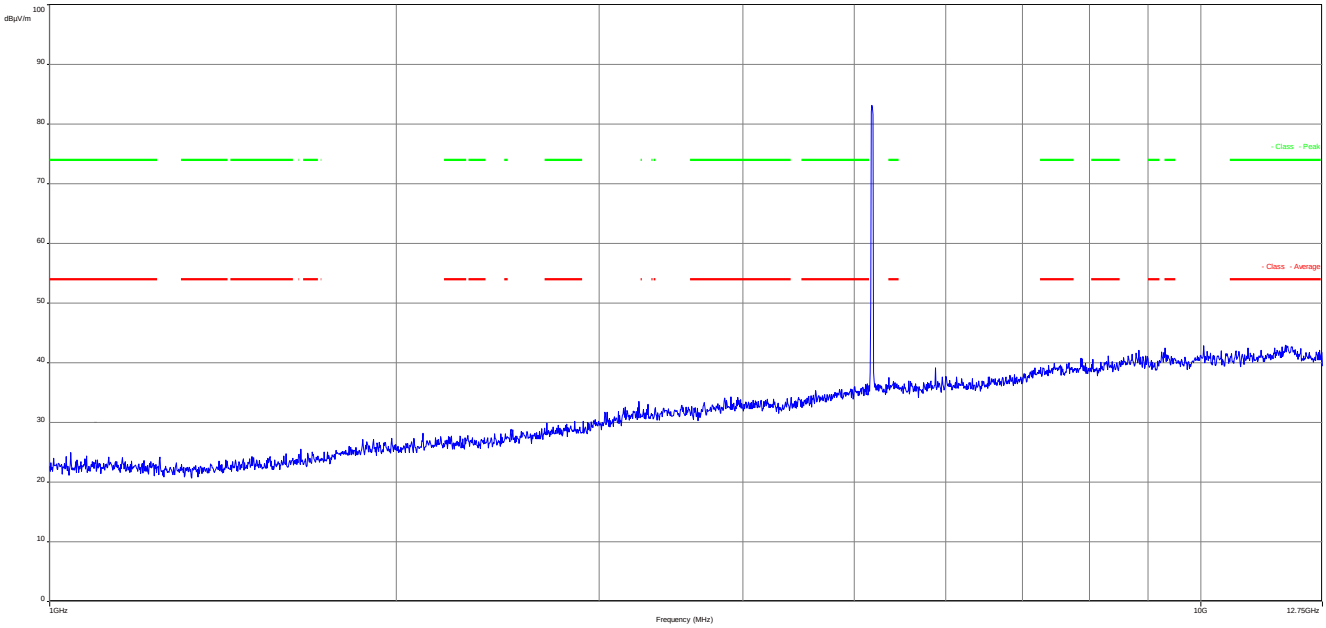
| Subrange | Step Size | Detectors | IF BW | Meas. Time | Preamp |
|---|---|---|---|---|---|
| 30 MHz - 2 GHz | 60 kHz | QPK | 120 kHz | 1 s | 20 dB |



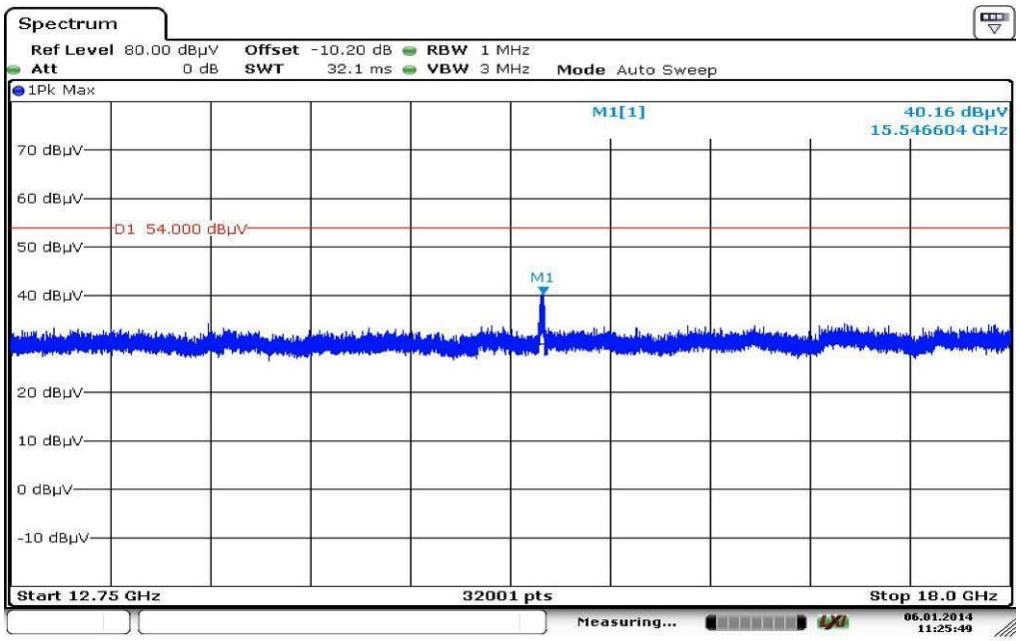

## Final Result 1

| Frequency (MHz) | QuasiPeak (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Polarization | Azimuth (deg) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) | Comment |
|---|---|---|---|---|---|---|---|---|---|---|
| 39.807600 | 10.6 | 1000.0 | 120.000 | 170.0 | V | 190.0 | 13.4 | 19.4 | 30.0 | |
| 45.358800 | 10.6 | 1000.0 | 120.000 | 170.0 | H | -10.0 | 13.3 | 19.4 | 30.0 | |
| 51.081450 | 10.6 | 1000.0 | 120.000 | 111.0 | V | 88.0 | 13.3 | 19.4 | 30.0 | |
| 731.799000 | 20.8 | 1000.0 | 120.000 | 170.0 | H | 88.0 | 23.2 | 15.2 | 36.0 | |
| 806.678100 | 21.3 | 1000.0 | 120.000 | 170.0 | H | 10.0 | 23.9 | 14.7 | 36.0 | |
| 909.720750 | 22.7 | 1000.0 | 120.000 | 161.0 | H | 190.0 | 25.2 | 13.3 | 36.0 | |

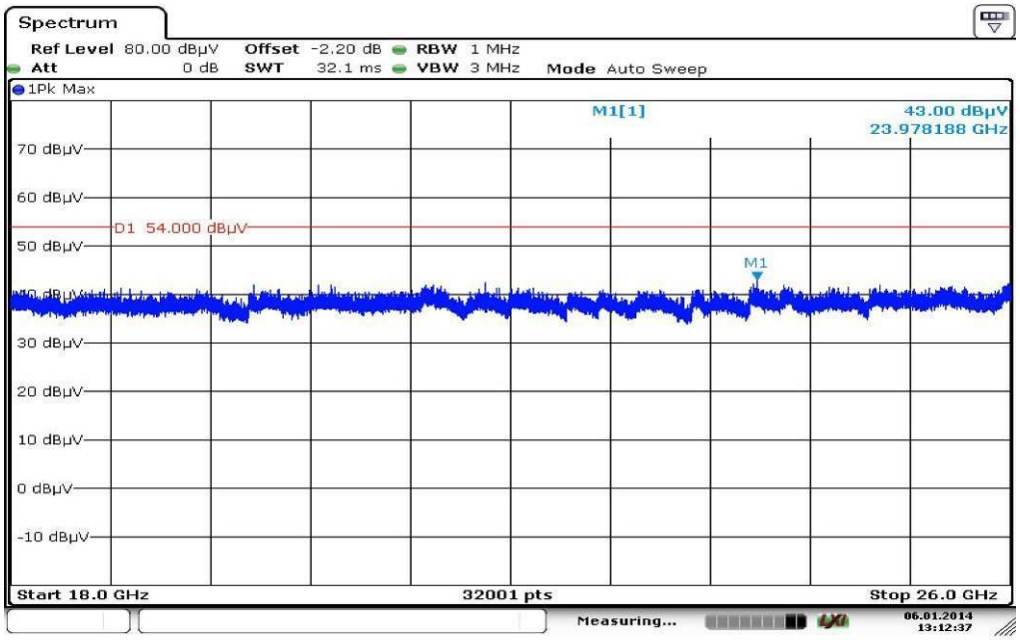
**Plot 2:** 1 GHz to 12.75 GHz, 5180 MHz, vertical & horizontal polarization



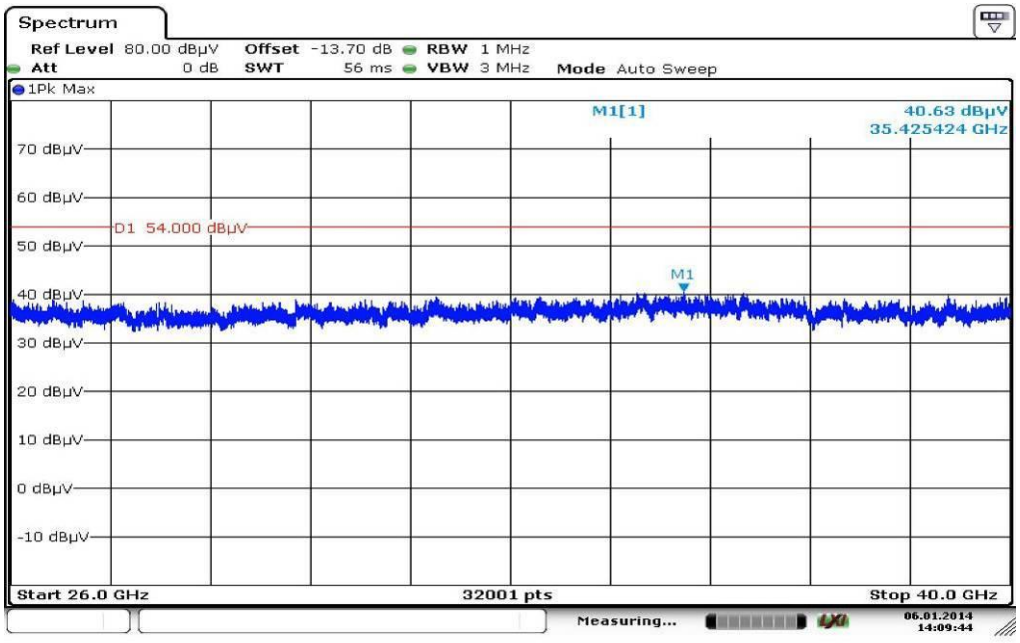

**Plot 3:** 12 GHz to 18 GHz, 5180 MHz, vertical & horizontal polarization



**Plot 4:** 18 GHz to 26 GHz, 5180 MHz, vertical & horizontal polarization




**Plot 5:** 26 GHz to 40 GHz, 5180 MHz, vertical & horizontal polarization



**Plot 6:** 30 MHz to 1 GHz, 5240 MHz, vertical & horizontal polarization

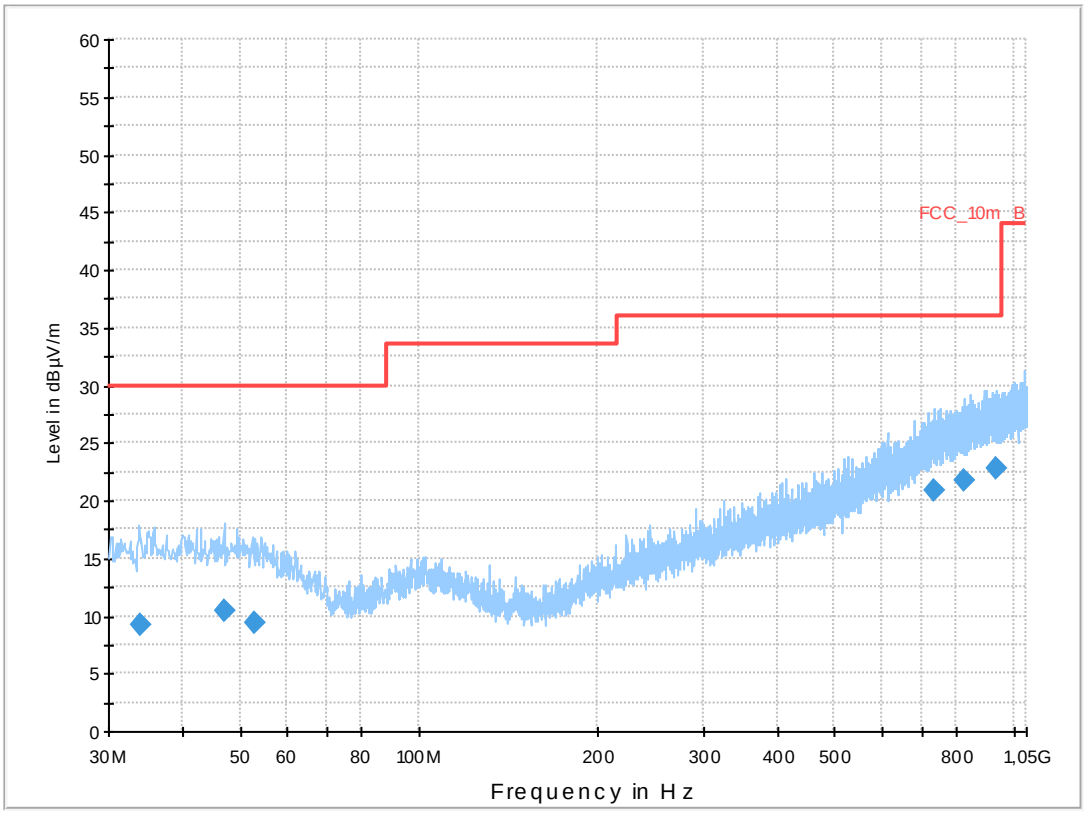
## Common Information

| | |
|---|---|
| EUT: | TM-0040-BV |
| Serial Number: | CB51267Q67 |
| Test Description: | FCC part 15 class B @ 10 m |
| Operating Conditions: | w-lan a-mode tx ch 48 |
| Operator Name: | Hennemann |
| Comment: | battery powered |

## Scan Setup: STAN_Fin [EMI radiated]

| | |
|---|---|
| Hardware Setup: | Electric Field (NOS) |
| Receiver: | [ESCI 3] |
| Level Unit: | dBµV/m |

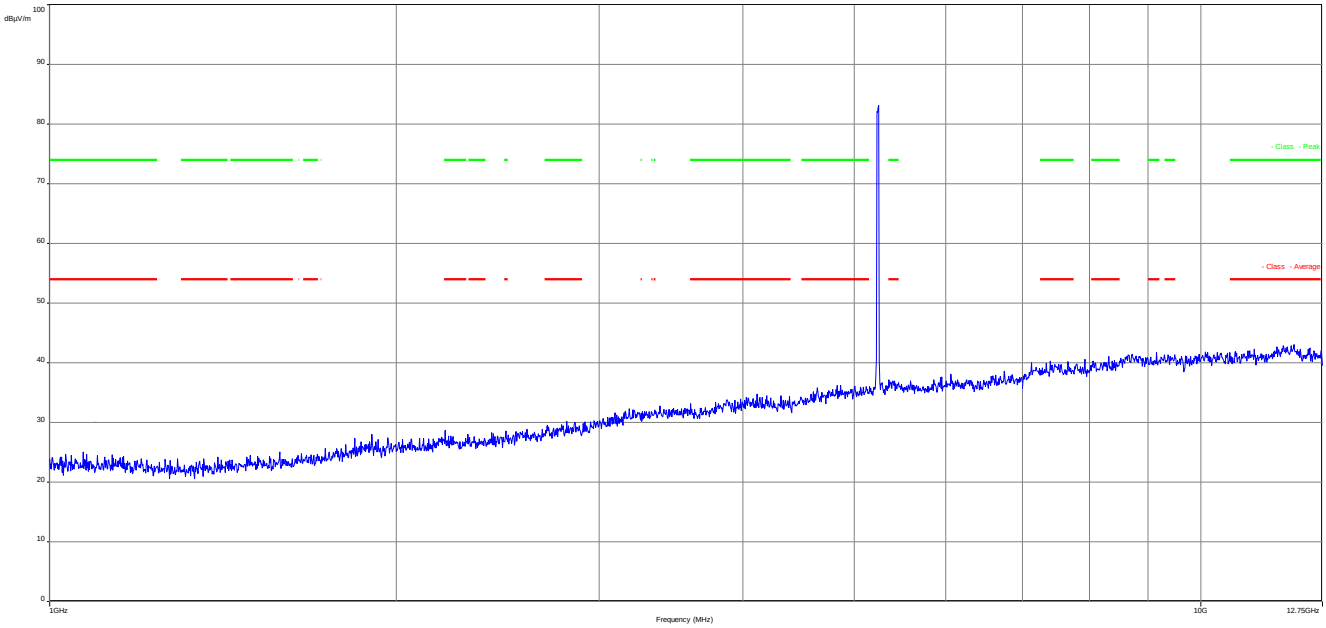
| Subrange | Step Size | Detectors | IF BW | Meas. Time | Preamp |
|---|---|---|---|---|---|
| 30 MHz - 2 GHz | 60 kHz | QPK | 120 kHz | 1 s | 20 dB |



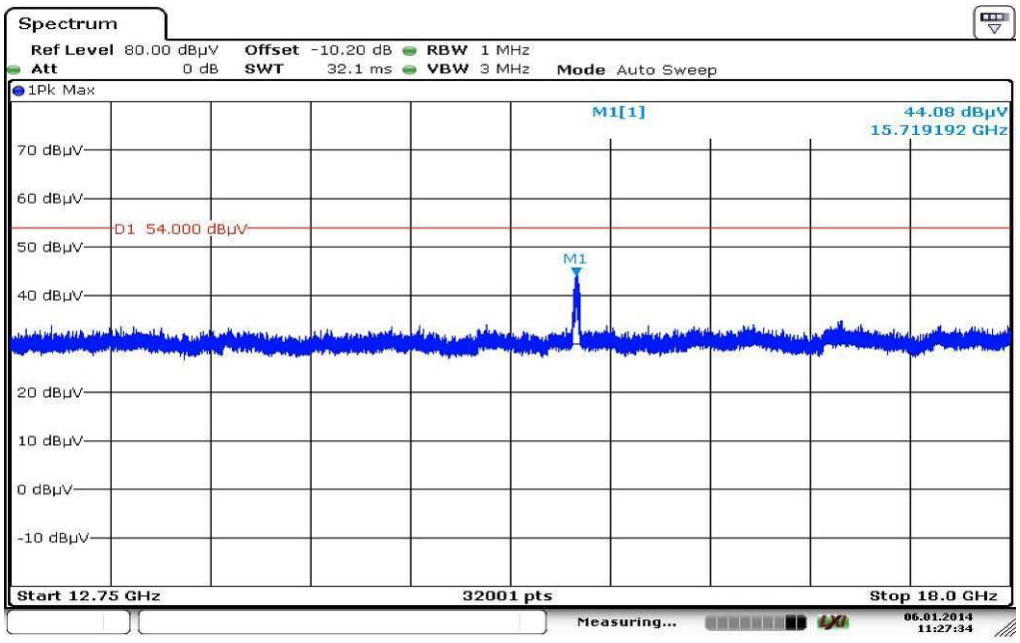

## Final Result 1

| Frequency (MHz) | QuasiPeak (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Polarization | Azimuth (deg) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) | Comment |
|---|---|---|---|---|---|---|---|---|---|---|
| 33.925650 | 9.3 | 1000.0 | 120.000 | 98.0 | H | 100.0 | 12.9 | 20.7 | 30.0 | |
| 46.887450 | 10.4 | 1000.0 | 120.000 | 111.0 | V | 270.0 | 13.3 | 19.6 | 30.0 | |
| 52.867800 | 9.4 | 1000.0 | 120.000 | 170.0 | H | 100.0 | 13.1 | 20.6 | 30.0 | |
| 735.162300 | 20.9 | 1000.0 | 120.000 | 98.0 | V | 272.0 | 23.3 | 15.1 | 36.0 | |
| 826.775400 | 21.7 | 1000.0 | 120.000 | 170.0 | H | 100.0 | 24.2 | 14.3 | 36.0 | |
| 932.493150 | 22.7 | 1000.0 | 120.000 | 170.0 | H | 190.0 | 25.3 | 13.3 | 36.0 | |

**Plot 7:** 1 GHz to 12.75 GHz, 5240 MHz, vertical & horizontal polarization




**Plot 8:** 12 GHz to 18 GHz, 5240 MHz, vertical & horizontal polarization

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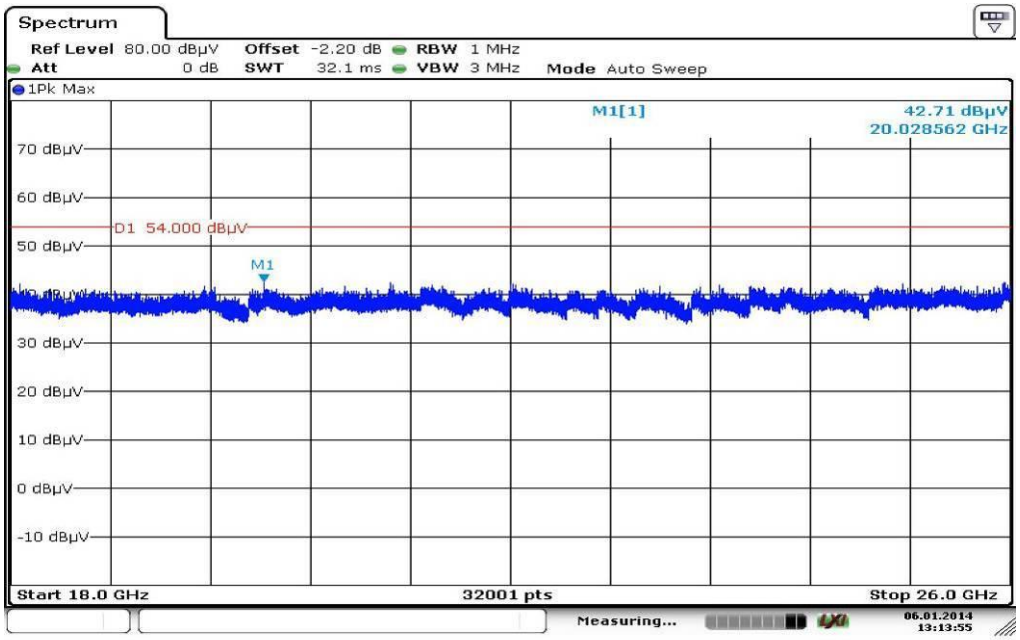
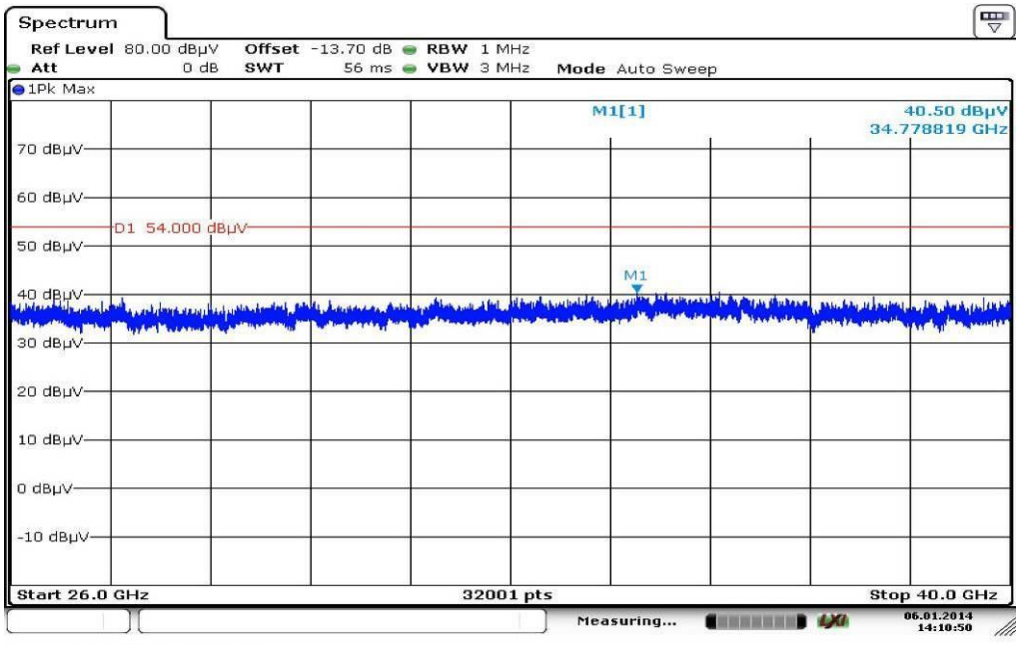
**Plot 9:** 18 GHz to 26 GHz, 5240 MHz, vertical & horizontal polarization




**Plot 10:** 26 GHz to 40 GHz, 5240 MHz, vertical & horizontal polarization



**Plot 11:** 30 MHz to 1 GHz, 5260 MHz, vertical & horizontal polarization

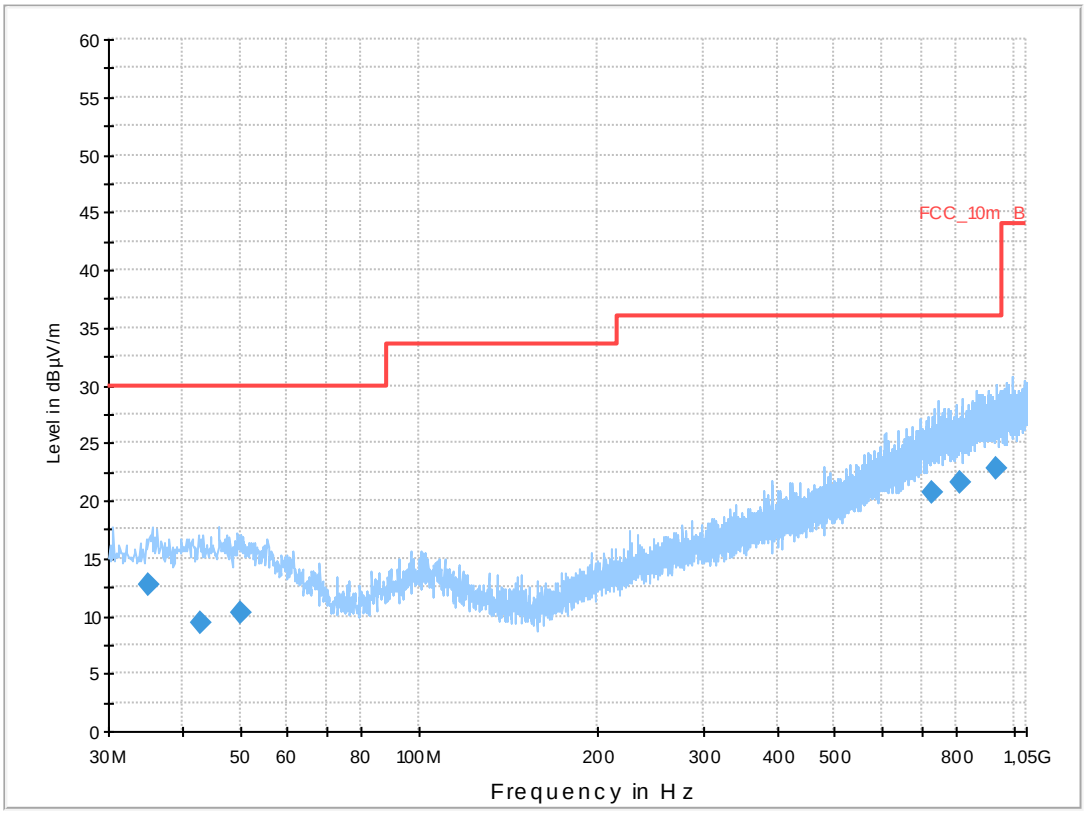
## Common Information

| | |
|---|---|
| EUT: | TM-0040-BV |
| Serial Number: | CB51267Q67 |
| Test Description: | FCC part 15 class B @ 10 m |
| Operating Conditions: | w-lan a-mode tx ch 52 |
| Operator Name: | Hennemann |
| Comment: | battery powered |

## Scan Setup: STAN_Fin [EMI radiated]

| | |
|---|---|
| Hardware Setup: | Electric Field (NOS) |
| Receiver: | [ESCI 3] |
| Level Unit: | dBµV/m |

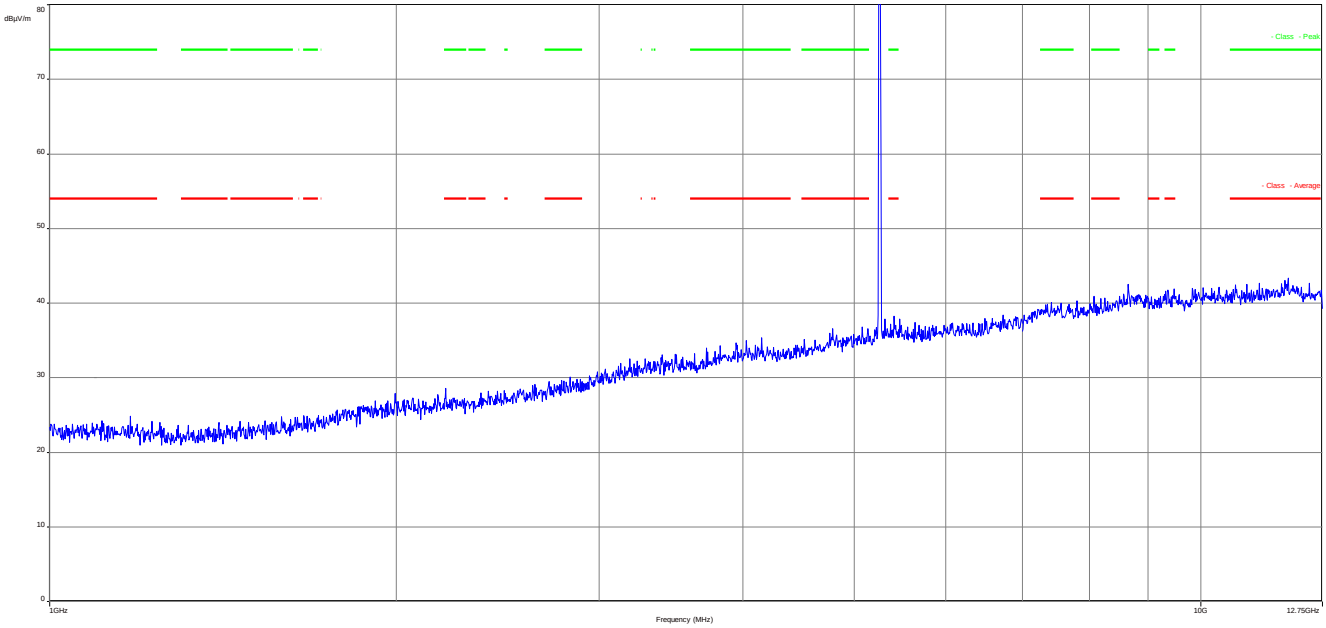
| Subrange | Step Size | Detectors | IF BW | Meas. Time | Preamp |
|---|---|---|---|---|---|
| 30 MHz - 2 GHz | 60 kHz | QPK | 120 kHz | 1 s | 20 dB |



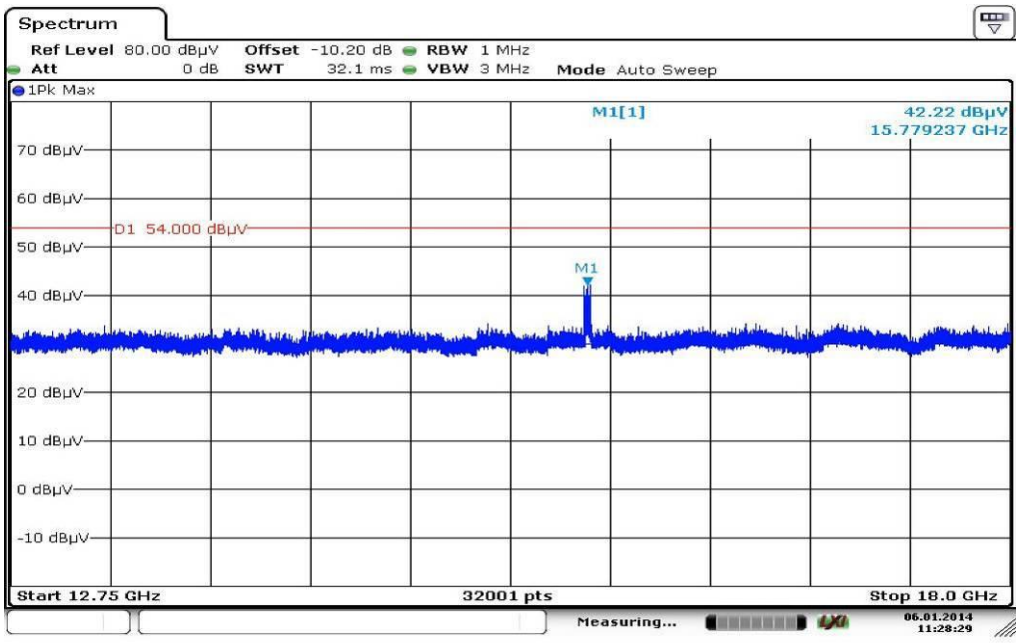

## Final Result 1

| Frequency (MHz) | QuasiPeak (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Polarization | Azimuth (deg) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) | Comment |
|---|---|---|---|---|---|---|---|---|---|---|
| 35.002950 | 12.7 | 1000.0 | 120.000 | 120.0 | V | 80.0 | 13.0 | 17.4 | 30.0 | |
| 42.869100 | 9.4 | 1000.0 | 120.000 | 170.0 | H | 100.0 | 13.3 | 20.6 | 30.0 | |
| 49.914600 | 10.2 | 1000.0 | 120.000 | 170.0 | V | 280.0 | 13.4 | 19.8 | 30.0 | |
| 731.244750 | 20.7 | 1000.0 | 120.000 | 170.0 | V | 265.0 | 23.2 | 15.3 | 36.0 | |
| 815.622000 | 21.5 | 1000.0 | 120.000 | 142.0 | V | 2.0 | 24.0 | 14.5 | 36.0 | |
| 932.273250 | 22.7 | 1000.0 | 120.000 | 98.0 | V | 270.0 | 25.3 | 13.3 | 36.0 | |

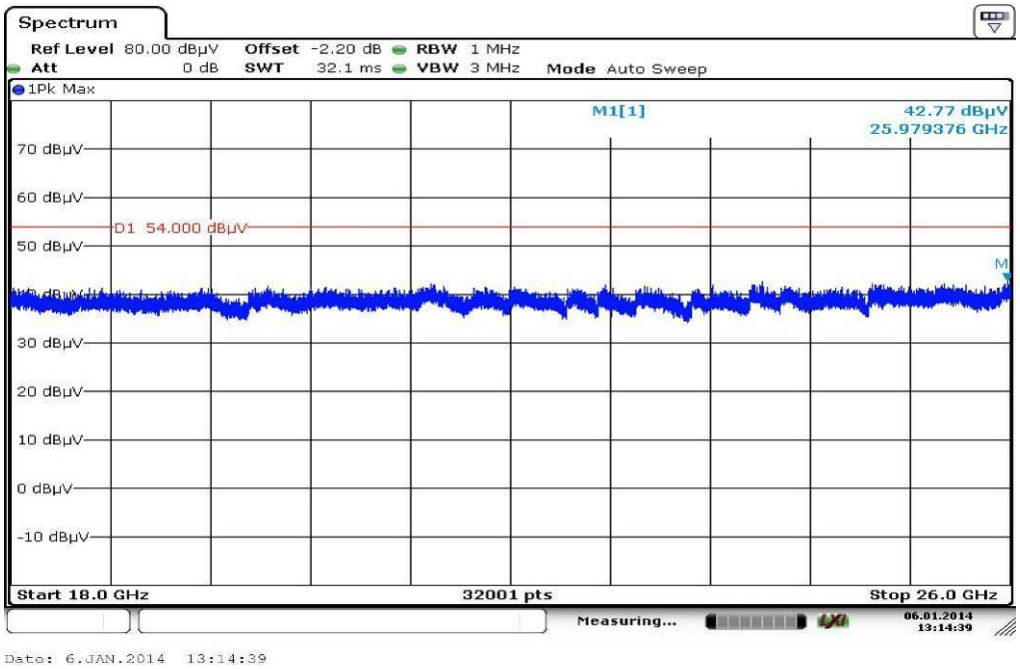
**Plot 12:** 1 GHz to 12.75 GHz, 5260 MHz, vertical & horizontal polarization



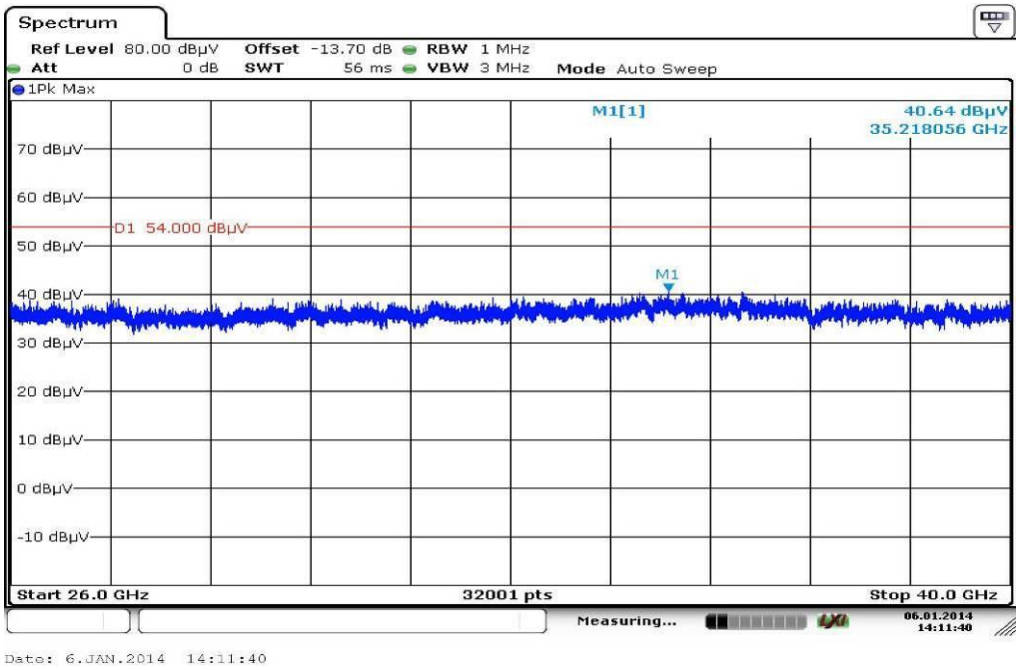

**Plot 13:** 12 GHz to 18 GHz, 5260 MHz, vertical & horizontal polarization



**Plot 14:** 18 GHz to 26 GHz, 5260 MHz, vertical & horizontal polarization




**Plot 15:** 26 GHz to 40 GHz, 5260 MHz, vertical & horizontal polarization



**Plot 16:** 30 MHz to 1 GHz, 5320 MHz, vertical & horizontal polarization

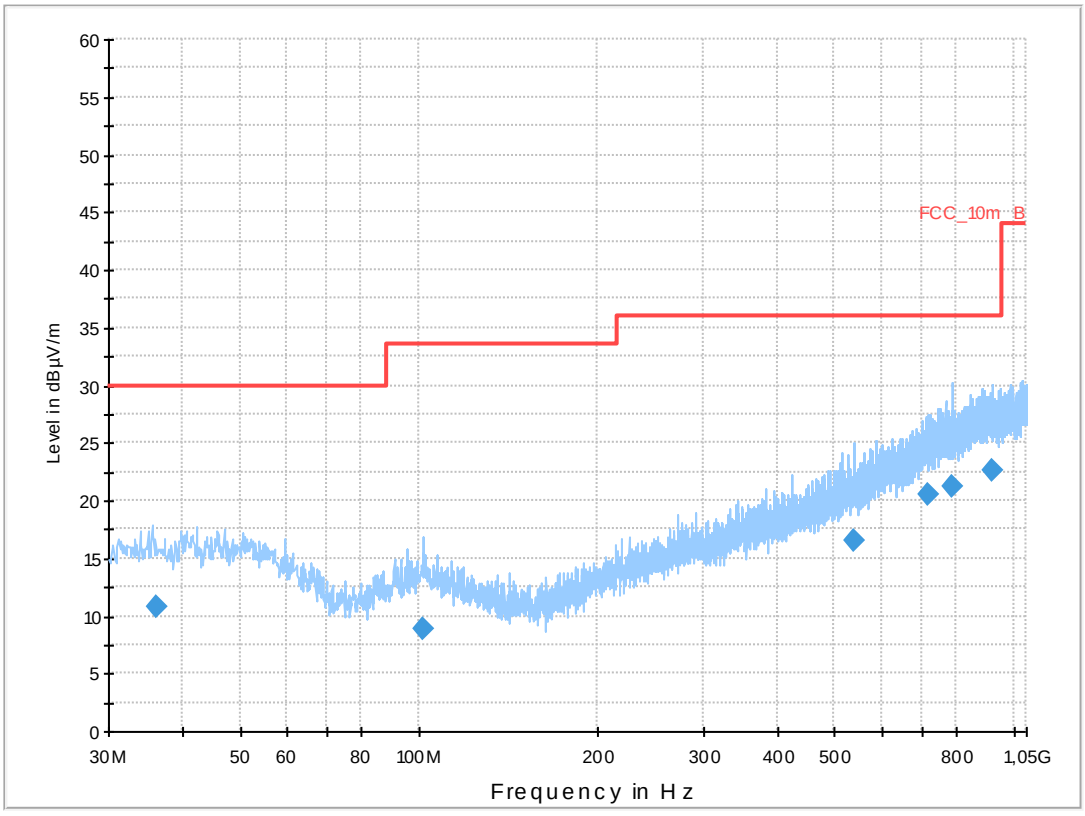
## Common Information

| | |
|---|---|
| EUT: | TM-0040-BV |
| Serial Number: | CB51267Q67 |
| Test Description: | FCC part 15 class B @ 10 m |
| Operating Conditions: | w-lan a-mode tx ch 64 |
| Operator Name: | Hennemann |
| Comment: | battery powered |

## Scan Setup: STAN_Fin [EMI radiated]

| | |
|---|---|
| Hardware Setup: | Electric Field (NOS) |
| Receiver: | [ESCI 3] |
| Level Unit: | dBµV/m |

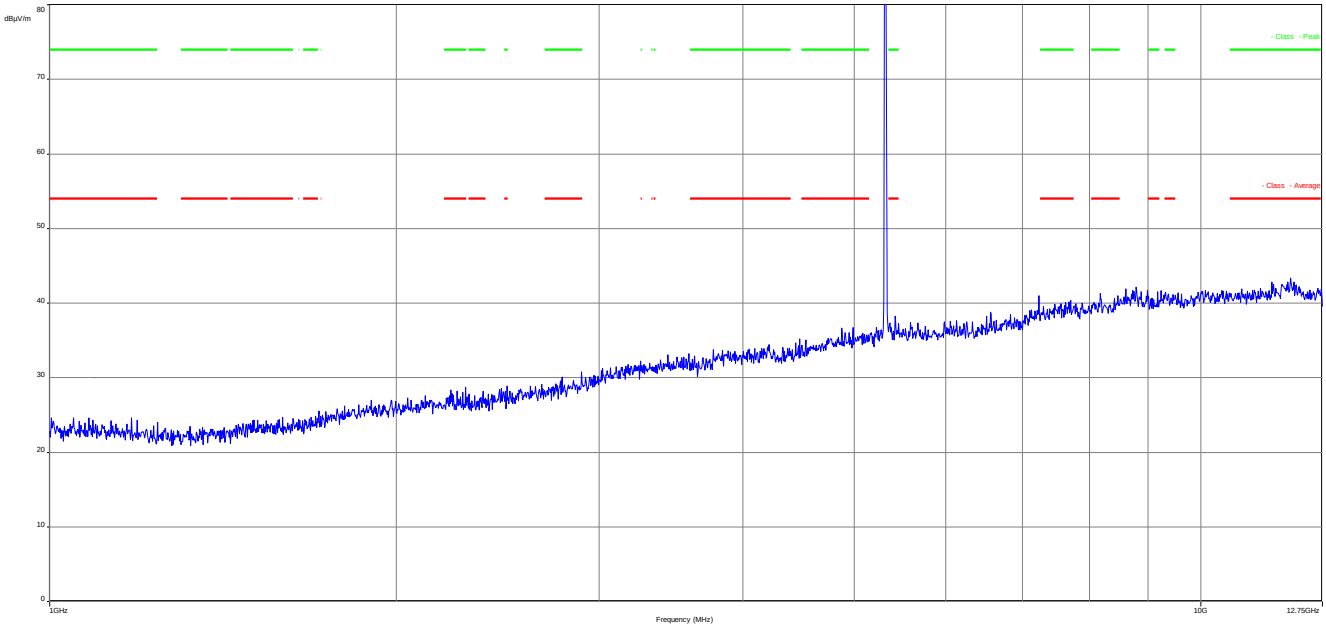
| Subrange | Step Size | Detectors | IF BW | Meas. Time | Preamp |
|---|---|---|---|---|---|
| 30 MHz - 2 GHz | 60 kHz | QPK | 120 kHz | 1 s | 20 dB |



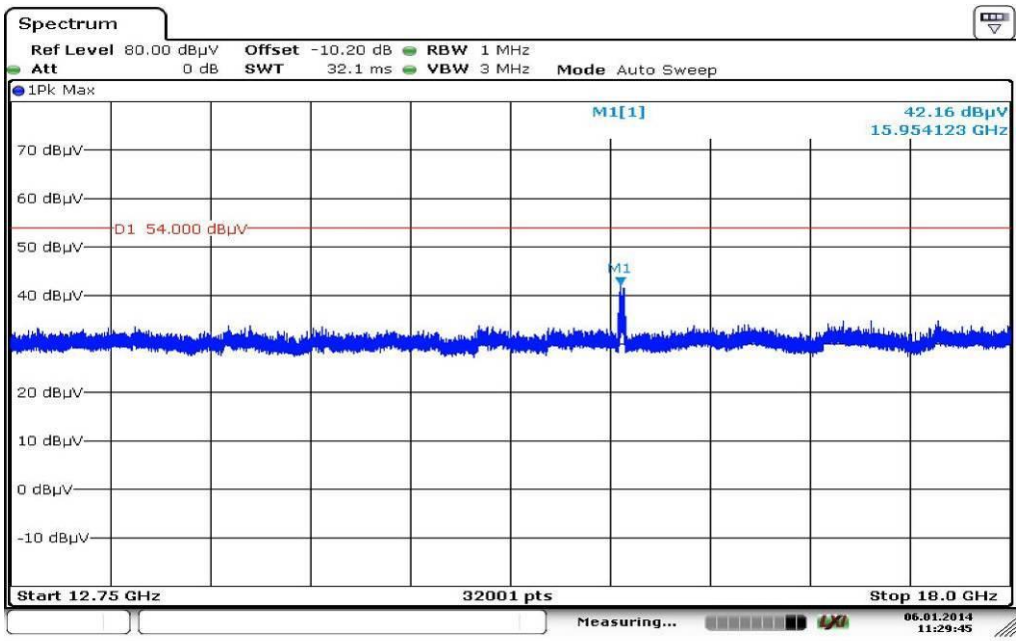

## Final Result 1

| Frequency (MHz) | QuasiPeak (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Polarization | Azimuth (deg) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) | Comment |
|---|---|---|---|---|---|---|---|---|---|---|
| 36.039900 | 10.8 | 1000.0 | 120.000 | 155.0 | V | 261.0 | 13.1 | 19.2 | 30.0 | |
| 101.722200 | 8.9 | 1000.0 | 120.000 | 170.0 | V | 190.0 | 11.7 | 24.6 | 33.5 | |
| 538.823400 | 16.5 | 1000.0 | 120.000 | 111.0 | H | 10.0 | 19.2 | 19.5 | 36.0 | |
| 719.757600 | 20.6 | 1000.0 | 120.000 | 170.0 | H | 10.0 | 23.0 | 15.4 | 36.0 | |
| 788.410050 | 21.2 | 1000.0 | 120.000 | 111.0 | V | 178.0 | 23.8 | 14.8 | 36.0 | |
| 919.756800 | 22.7 | 1000.0 | 120.000 | 170.0 | V | 81.0 | 25.3 | 13.3 | 36.0 | |

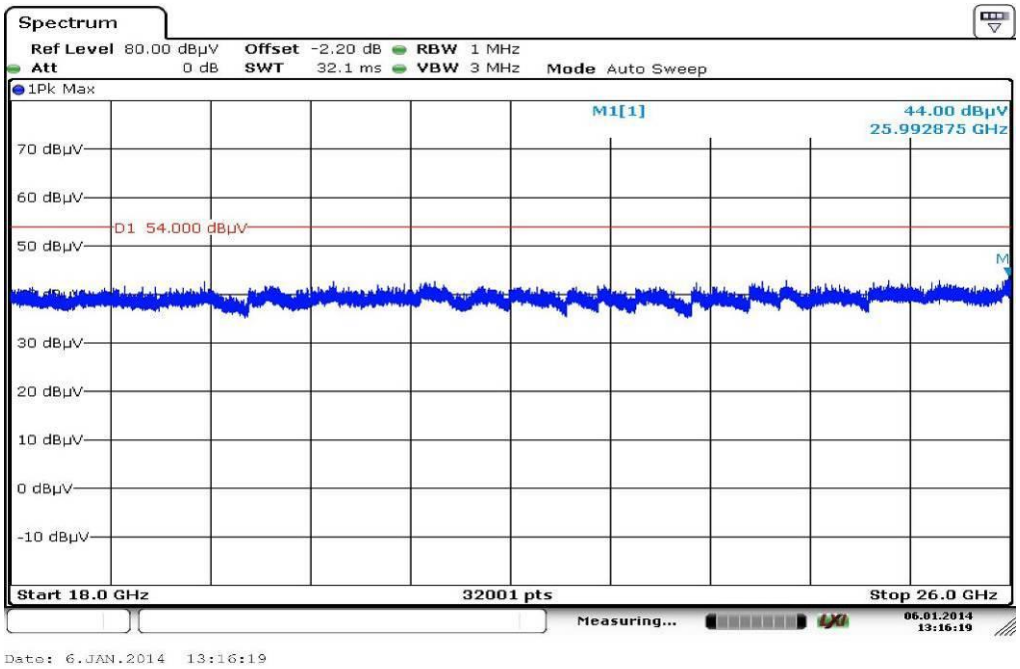
**Plot 17:** 1 GHz to 12.75 GHz, 5320 MHz, vertical & horizontal polarization



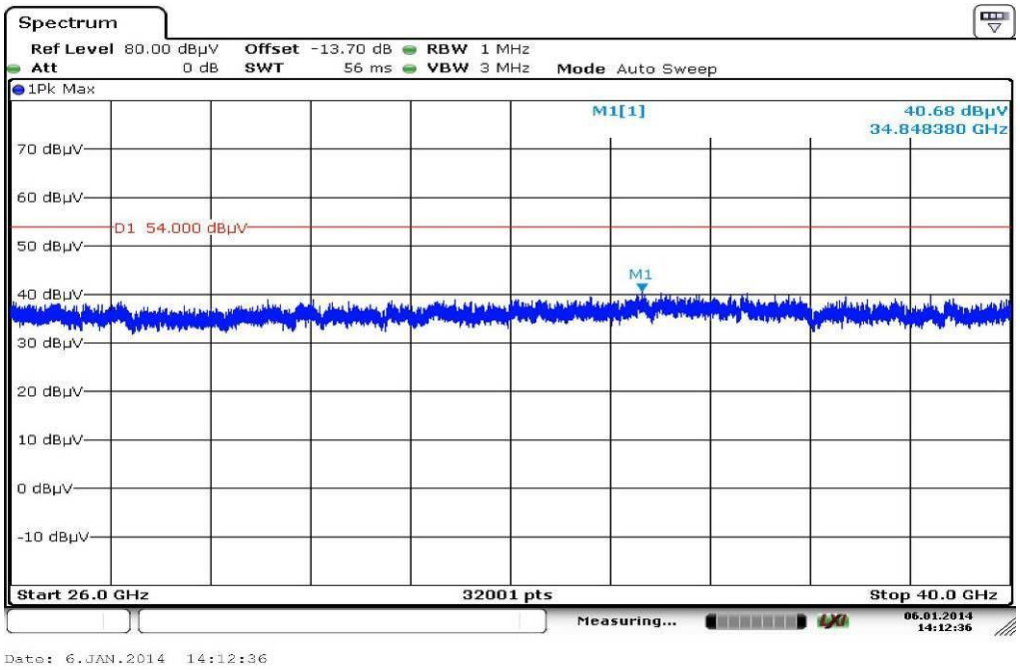

**Plot 18:** 12 GHz to 18 GHz, 5320 MHz, vertical & horizontal polarization



**Plot 19:** 18 GHz to 26 GHz, 5320 MHz, vertical & horizontal polarization




**Plot 20:** 26 GHz to 40 GHz, 5320 MHz, vertical & horizontal polarization



**Plot 21:** 30 MHz to 1 GHz, 5500 MHz, vertical & horizontal polarization

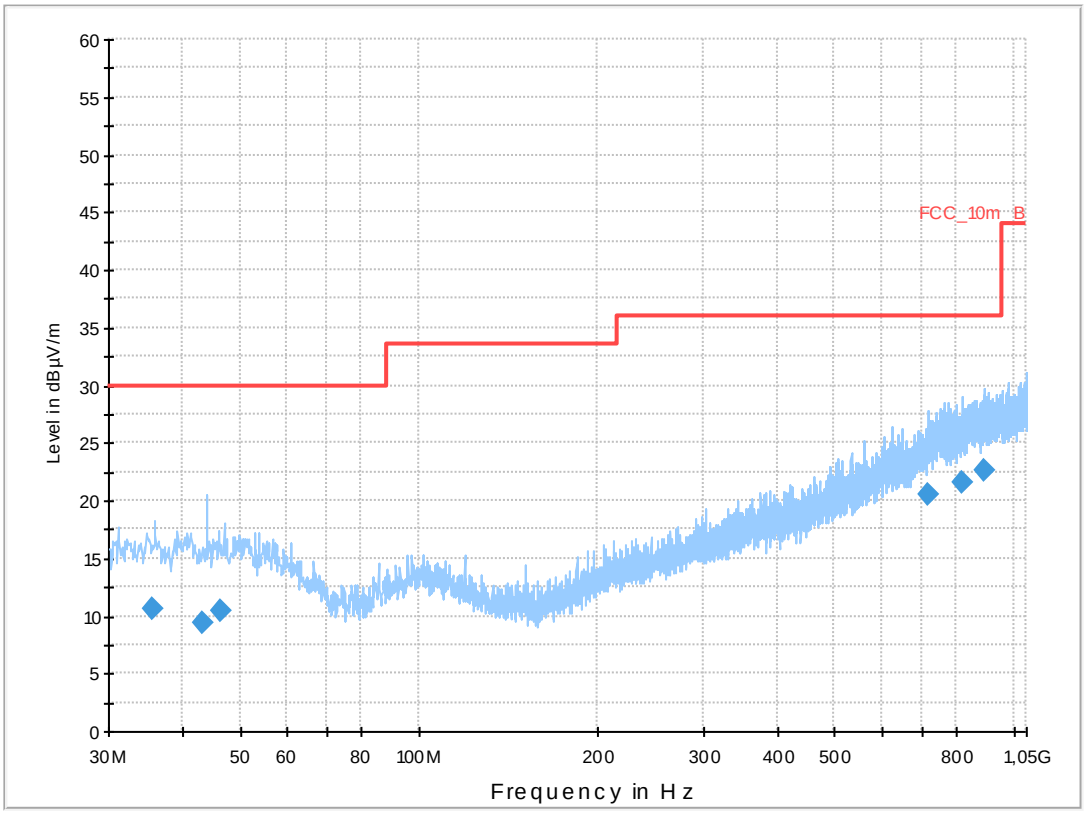
## Common Information

| | |
|---|---|
| EUT: | TM-0040-BV |
| Serial Number: | CB51267Q67 |
| Test Description: | FCC part 15 class B @ 10 m |
| Operating Conditions: | w-lan a-mode tx ch 100 |
| Operator Name: | Hennemann |
| Comment: | battery powered |

## Scan Setup: STAN_Fin [EMI radiated]

| | |
|---|---|
| Hardware Setup: | Electric Field (NOS) |
| Receiver: | [ESCI 3] |
| Level Unit: | dBµV/m |

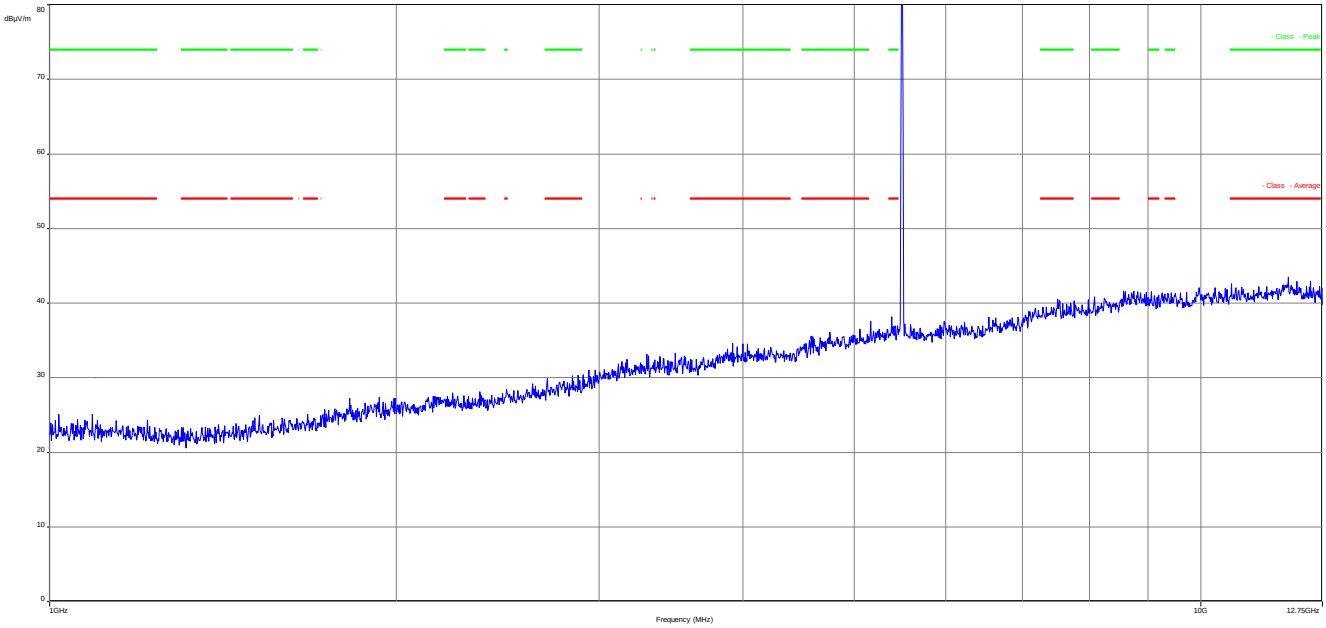
| Subrange | Step Size | Detectors | IF BW | Meas. Time | Preamp |
|---|---|---|---|---|---|
| 30 MHz - 2 GHz | 60 kHz | QPK | 120 kHz | 1 s | 20 dB |



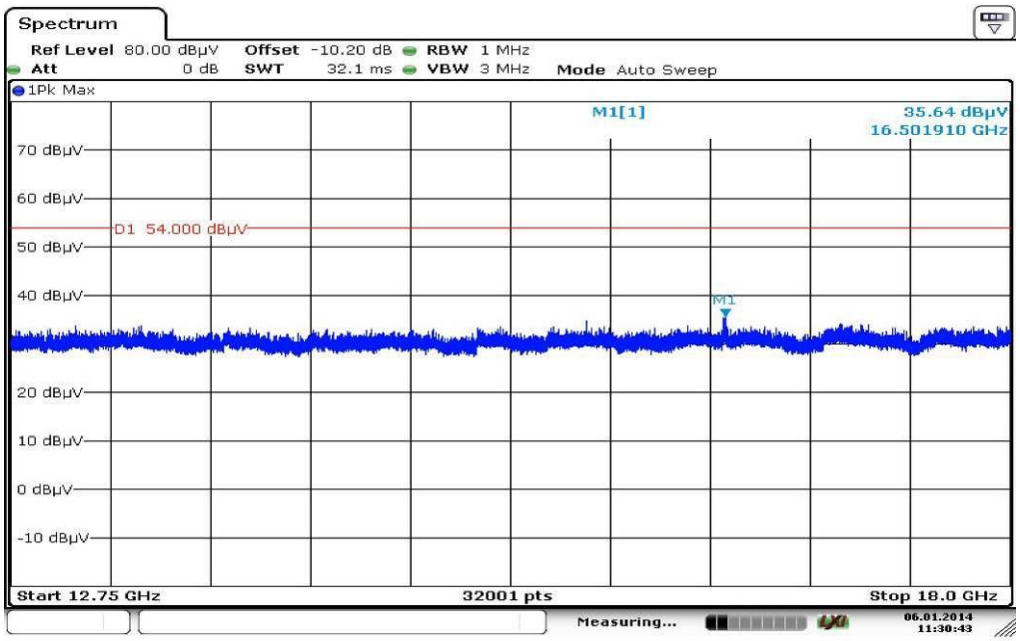

## Final Result 1

| Frequency (MHz) | QuasiPeak (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Polarization | Azimuth (deg) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) | Comment |
|---|---|---|---|---|---|---|---|---|---|---|
| 35.678250 | 10.7 | 1000.0 | 120.000 | 170.0 | H | 190.0 | 13.1 | 19.3 | 30.0 | |
| 43.345200 | 9.4 | 1000.0 | 120.000 | 112.0 | V | 190.0 | 13.3 | 20.6 | 30.0 | |
| 46.503000 | 10.5 | 1000.0 | 120.000 | 170.0 | H | 190.0 | 13.3 | 19.5 | 30.0 | |
| 719.086800 | 20.6 | 1000.0 | 120.000 | 135.0 | V | 190.0 | 22.9 | 15.4 | 36.0 | |
| 819.024300 | 21.6 | 1000.0 | 120.000 | 98.0 | V | 100.0 | 24.1 | 14.4 | 36.0 | |
| 892.898850 | 22.7 | 1000.0 | 120.000 | 170.0 | H | 10.0 | 25.1 | 13.3 | 36.0 | |

**Plot 22:** 1 GHz to 12.75 GHz, 5500 MHz, vertical & horizontal polarization




**Plot 23:** 12 GHz to 18 GHz, 5500 MHz, vertical & horizontal polarization

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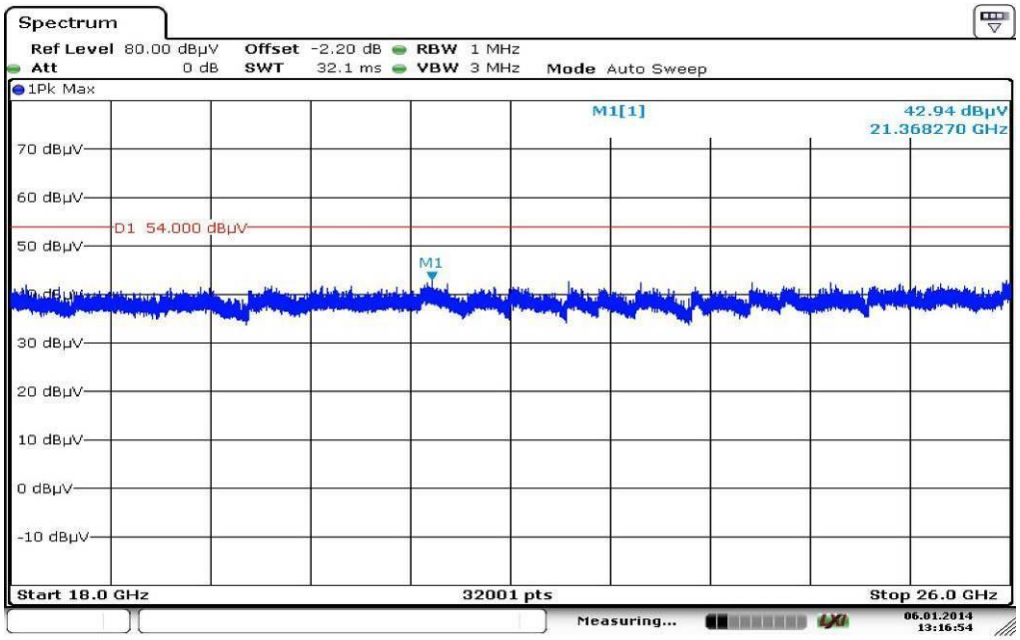
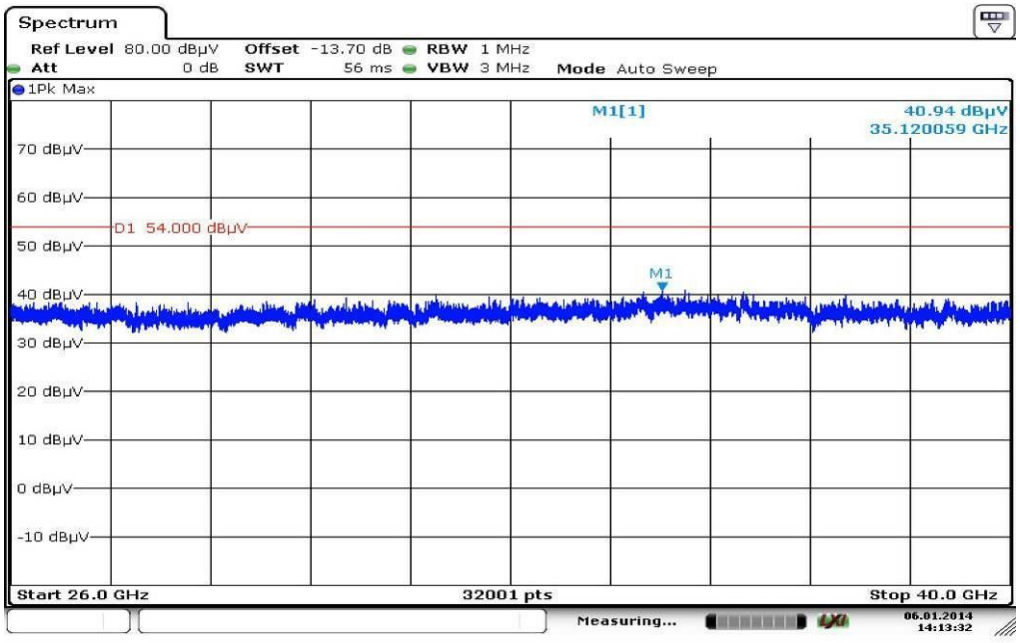
**Plot 24:** 18 GHz to 26 GHz, 5500 MHz, vertical & horizontal polarization




**Plot 25:** 26 GHz to 40 GHz, 5500 MHz, vertical & horizontal polarization



**Plot 26:** 30 MHz to 1 GHz, 5600 MHz, vertical & horizontal polarization

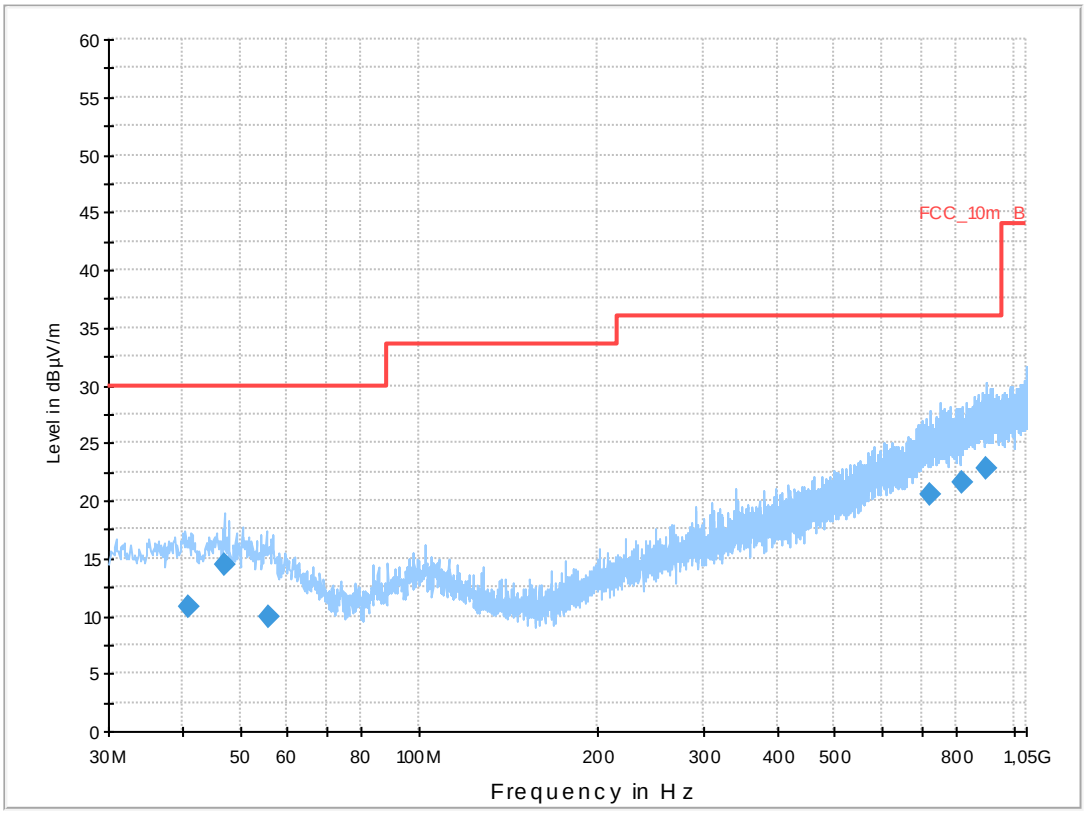
## Common Information

| | |
|---|---|
| EUT: | TM-0040-BV |
| Serial Number: | CB51267Q67 |
| Test Description: | FCC part 15 class B @ 10 m |
| Operating Conditions: | w-lan a-mode tx ch 120 |
| Operator Name: | Hennemann |
| Comment: | battery powered |

## Scan Setup: STAN_Fin [EMI radiated]

| | |
|---|---|
| Hardware Setup: | Electric Field (NOS) |
| Receiver: | [ESCI 3] |
| Level Unit: | dBµV/m |

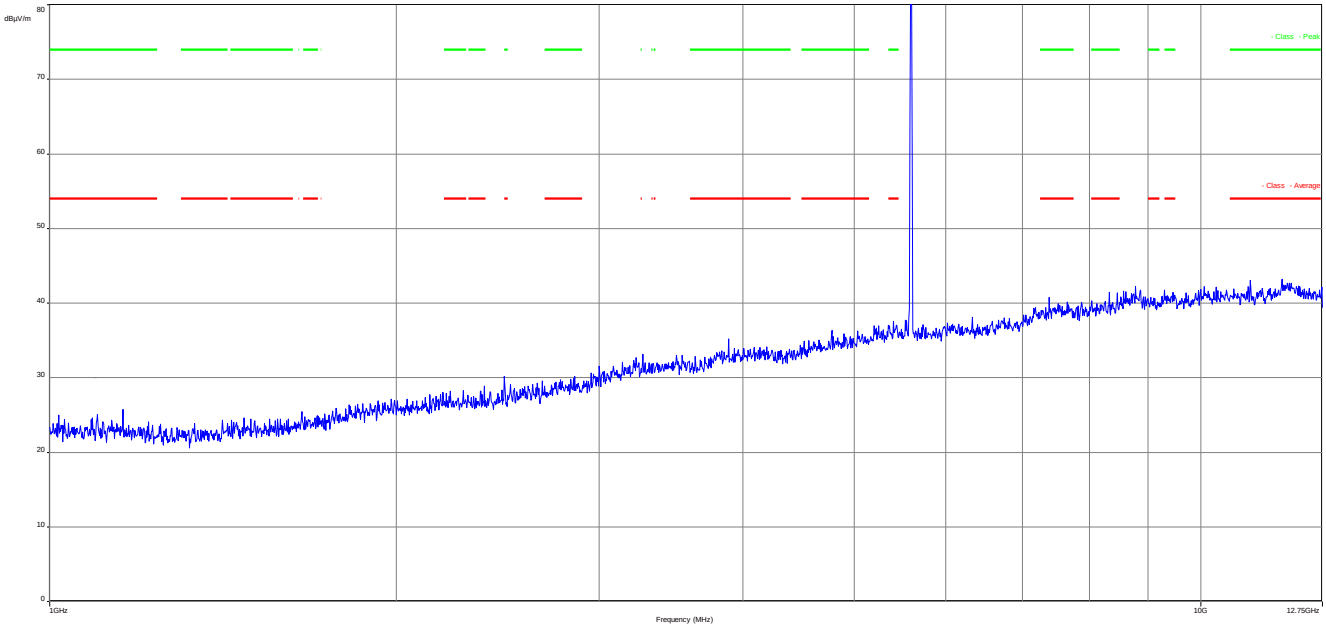
| Subrange | Step Size | Detectors | IF BW | Meas. Time | Preamp |
|---|---|---|---|---|---|
| 30 MHz - 2 GHz | 60 kHz | QPK | 120 kHz | 1 s | 20 dB |



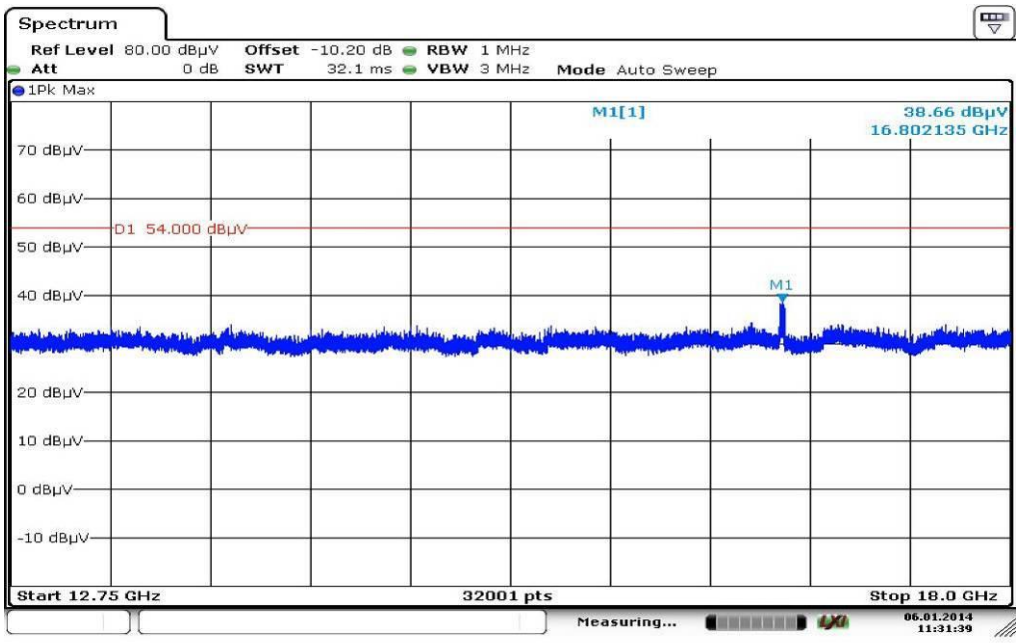

## Final Result 1

| Frequency (MHz) | QuasiPeak (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Polarization | Azimuth (deg) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) | Comment |
|---|---|---|---|---|---|---|---|---|---|---|
| 40.942800 | 10.8 | 1000.0 | 120.000 | 153.0 | H | 190.0 | 13.4 | 19.2 | 30.0 | |
| 47.013900 | 14.4 | 1000.0 | 120.000 | 105.0 | V | 178.0 | 13.3 | 15.6 | 30.0 | |
| 55.816200 | 9.9 | 1000.0 | 120.000 | 146.0 | H | 170.0 | 12.7 | 20.1 | 30.0 | |
| 724.034550 | 20.6 | 1000.0 | 120.000 | 170.0 | V | 261.0 | 23.1 | 15.4 | 36.0 | |
| 816.286800 | 21.5 | 1000.0 | 120.000 | 170.0 | H | 270.0 | 24.0 | 14.5 | 36.0 | |
| 899.902050 | 22.7 | 1000.0 | 120.000 | 144.0 | V | 81.0 | 25.2 | 13.3 | 36.0 | |

**Plot 27:** 1 GHz to 12.75 GHz, 5600 MHz, vertical & horizontal polarization




**Plot 28:** 12 GHz to 18 GHz, 5600 MHz, vertical & horizontal polarization

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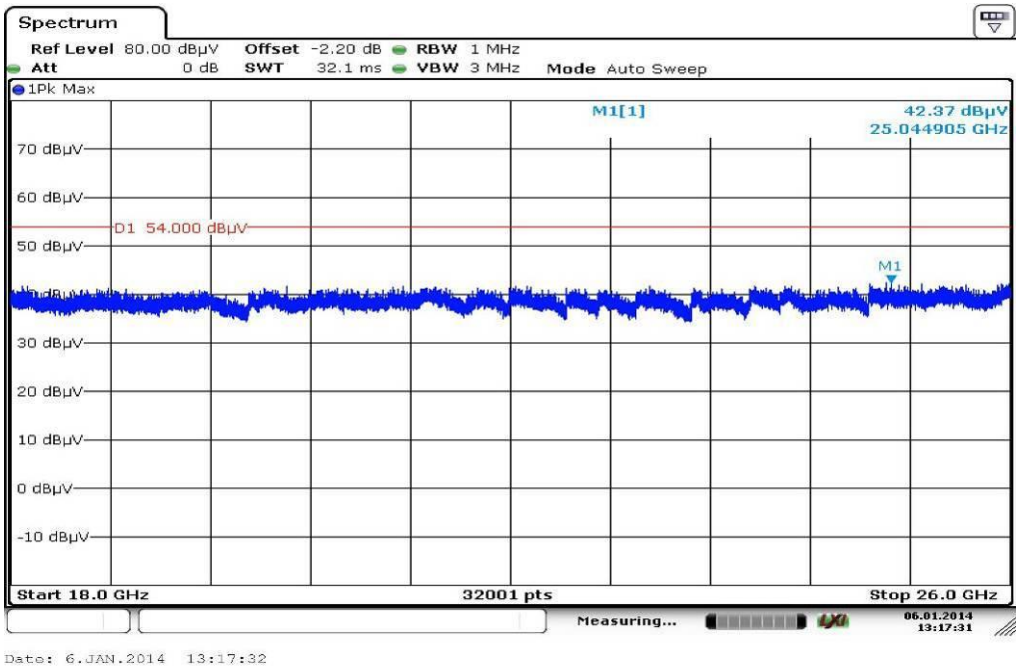
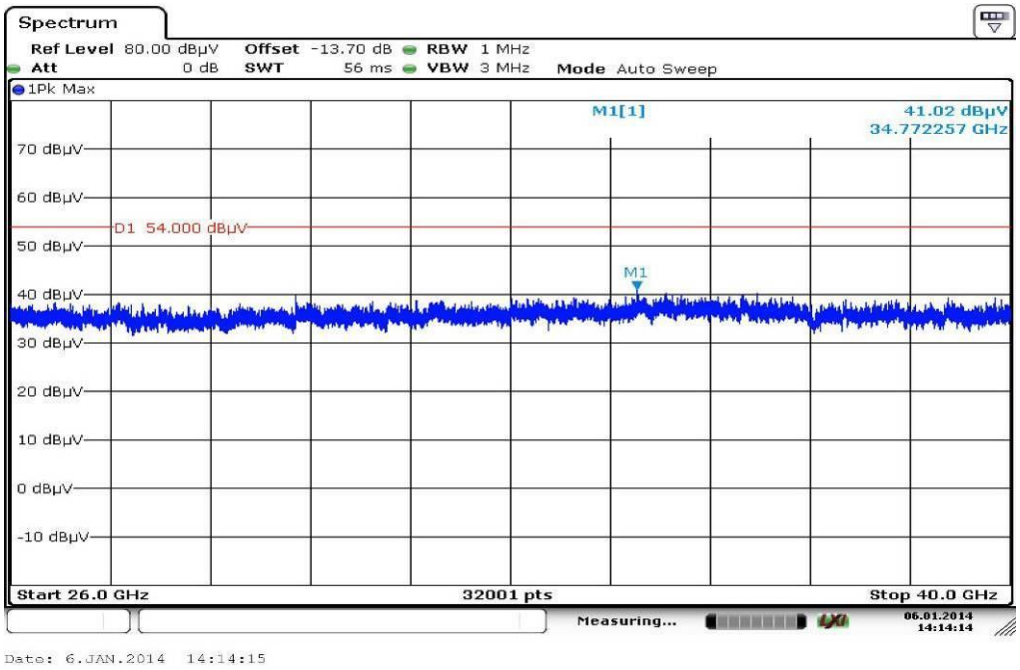
**Plot 29:** 18 GHz to 26 GHz, 5600 MHz, vertical & horizontal polarization




**Plot 30:** 26 GHz to 40 GHz, 5600 MHz, vertical & horizontal polarization



**Plot 31:** 30 MHz to 1 GHz, 5700 MHz, vertical & horizontal polarization

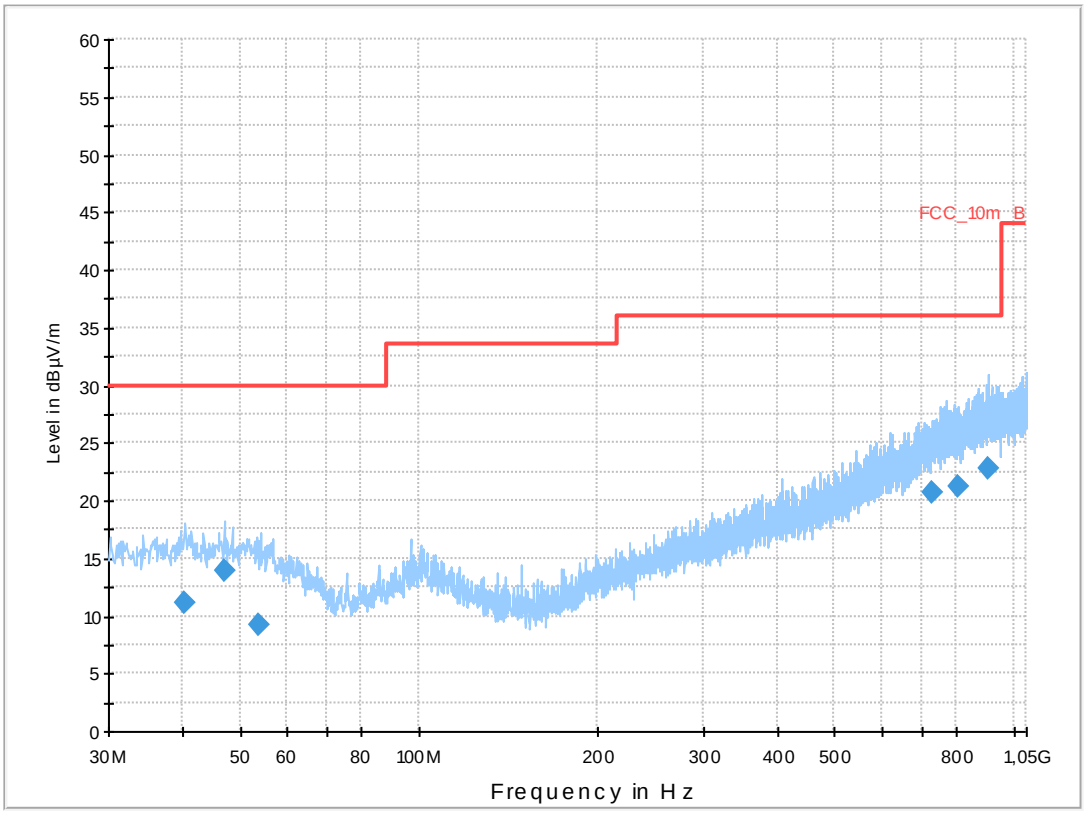
## Common Information

| | |
|---|---|
| EUT: | TM-0040-BV |
| Serial Number: | CB51267Q67 |
| Test Description: | FCC part 15 class B @ 10 m |
| Operating Conditions: | w-lan a-mode tx ch 140 |
| Operator Name: | Hennemann |
| Comment: | battery powered |

## Scan Setup: STAN_Fin [EMI radiated]

| | |
|---|---|
| Hardware Setup: | Electric Field (NOS) |
| Receiver: | [ESCI 3] |
| Level Unit: | dBµV/m |

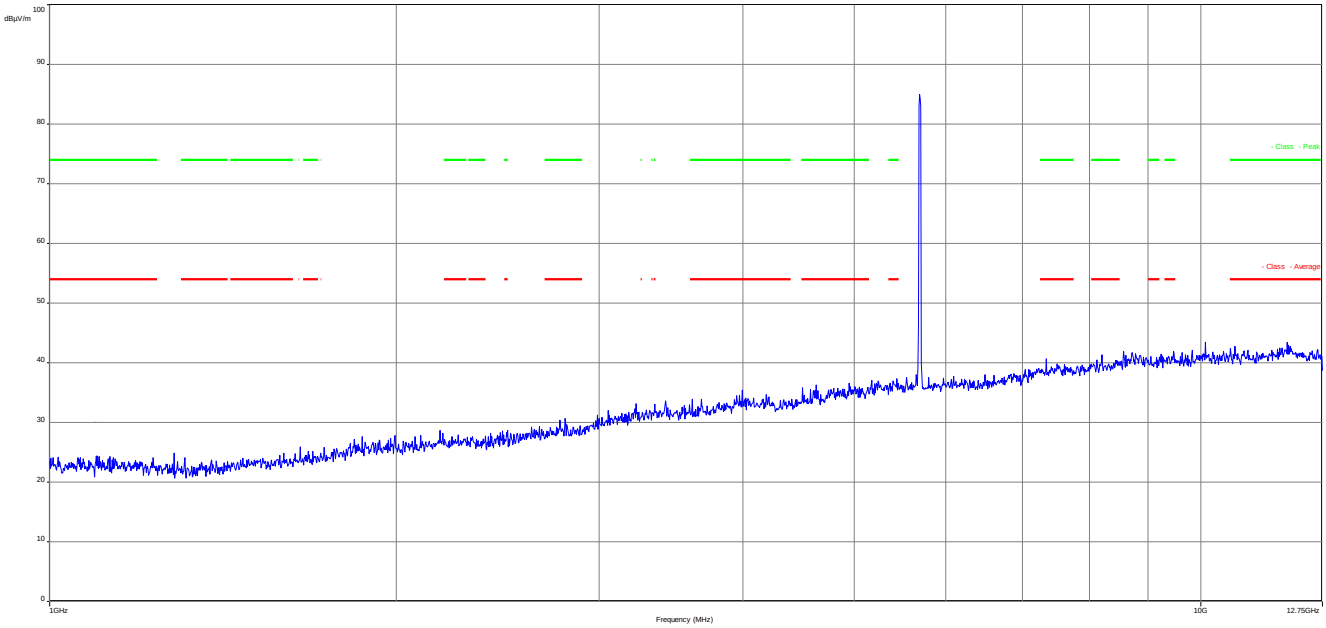
| Subrange | Step Size | Detectors | IF BW | Meas. Time | Preamp |
|---|---|---|---|---|---|
| 30 MHz - 2 GHz | 60 kHz | QPK | 120 kHz | 1 s | 20 dB |



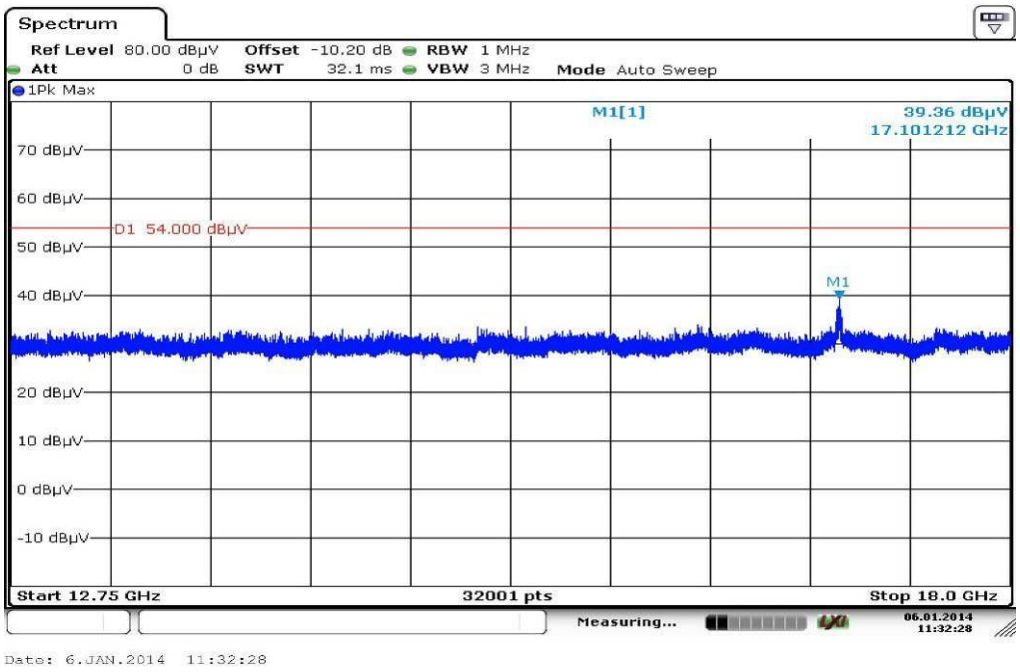

## Final Result 1

| Frequency (MHz) | QuasiPeak (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Polarization | Azimuth (deg) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) | Comment |
|---|---|---|---|---|---|---|---|---|---|---|
| 40.330050 | 11.0 | 1000.0 | 120.000 | 170.0 | V | 81.0 | 13.4 | 19.0 | 30.0 | |
| 47.030550 | 13.9 | 1000.0 | 120.000 | 98.0 | V | 180.0 | 13.3 | 16.1 | 30.0 | |
| 53.583000 | 9.2 | 1000.0 | 120.000 | 98.0 | H | 190.0 | 13.0 | 20.8 | 30.0 | |
| 726.663750 | 20.7 | 1000.0 | 120.000 | 170.0 | H | 268.0 | 23.1 | 15.3 | 36.0 | |
| 805.246500 | 21.3 | 1000.0 | 120.000 | 170.0 | V | 2.0 | 23.9 | 14.7 | 36.0 | |
| 903.104100 | 22.8 | 1000.0 | 120.000 | 170.0 | V | 280.0 | 25.2 | 13.2 | 36.0 | |

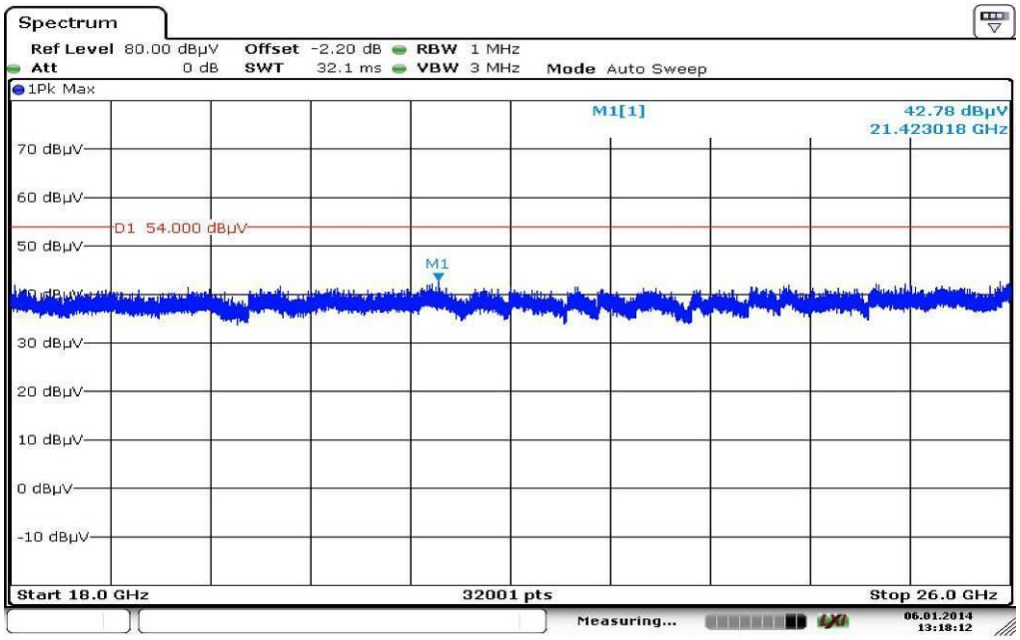
**Plot 32:** 1 GHz to 12.75 GHz, 5700 MHz, vertical & horizontal polarization




**Plot 33:** 12 GHz to 18 GHz, 5700 MHz, vertical & horizontal polarization



**Plot 34:** 18 GHz to 26 GHz, 5700 MHz, vertical & horizontal polarization




**Plot 35:** 26 GHz to 40 GHz, 5700 MHz, vertical & horizontal polarization