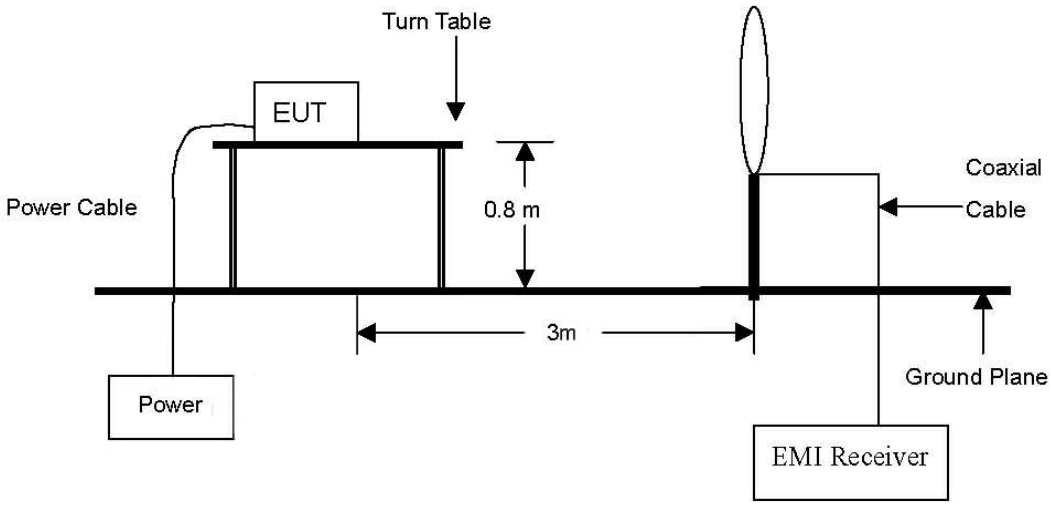
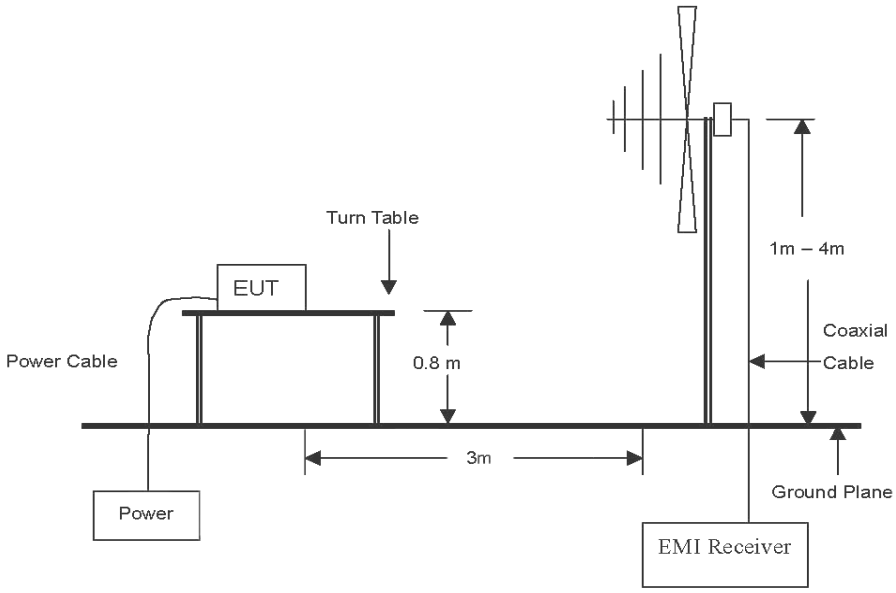
## 3.6. Radiated restricted band and emissions

**Test setup**

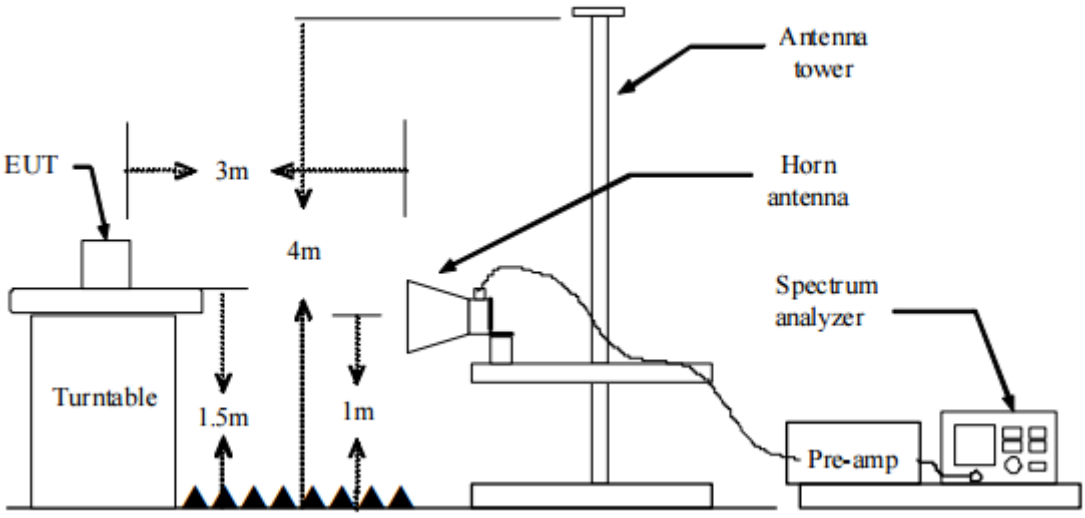
The diagram below shows the test setup that is utilized to make the measurements for emission from 9 ㎑ to 30 ㎒ Emissions.




The diagram below shows the test setup that is utilized to make the measurements for emission from 30 ㎒ to 1 ㎓ emissions.



The diagram below shows the test setup that is utilized to make the measurements for emission from 1 ㎓ to the tenth harmonic of the highest fundamental frequency or to 40 ㎓ emissions, whichever is lower.




**Test procedure below 30 ㎒**

1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter anechoic chamber test site. The table was rotated 360 degrees to determine the position of the highest radiation.
2. Then antenna is a loop antenna is fixed at one meter above the ground to determine the maximum value of the field strength. Both parallel and perpendicular of the antenna are set to make the measurement.
3. For each suspected emission, the EUT was arranged to its worst case and then the table was turned from 0 degrees to 360 degrees to find the maximum reading.
4. The test-receiver system was set to average or quasi peak detect function and Specified Bandwidth with Maximum hold mode.

**Test procedure above 30 ㎒**

1. Spectrum analyzer settings for $f$ < 1 ㎓:
   ① Span = wide enough to fully capture the emission being measured
   ② RBW = 120 ㎑
   ③ VBW ≥ RBW
   ④ Detector = quasi peak
   ⑤ Sweep time = auto
   ⑥ Trace = max hold
2. Spectrum analyzer settings for $f$ ≥1 ㎓: Peak
   ① Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
   ② RBW = 1 ㎒
   ③ VBW = 3 ㎒ (≥ 3 x RBW)
   ④ Detector = peak
   ⑤ Sweep time = auto
   ⑥ Trace = max hold
   ⑦ Trace was allowed to stabilize

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3. Spectrum analyzer settings for $f \geq 1$ GHz: Average
   ① Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
   ② RBW = 1 MHz
   ③ VBW ≥ 3 × RBW
   ④ Detector = RMS, if span/(# of points in sweep) ≤ (RBW/2). Satisfying this condition may require increasing the number of points in the sweep or reducing the span. If this condition cannot be satisfied, then the detector mode shall be set to peak.
   ⑤ Averaging type = power(i.e., RMS)
      1) As an alternative, the detector and averaging type may be set for linear voltage averaging.
      2) Some instruments require linear display mode in order to use linear voltage averaging. Log or dB averaging shall not be used.
   ⑥ Sweep = auto
   ⑦ Trace = max hold
   ⑧ Perform a trace average of at least 100 traces.
   ⑨ A correction factor shall be added to the measurement results prior to comparing to the emission limit in order to compute the emission level that would have been measured had the test been performed at 100 percent duty cycle. The correction factor is computed as follows:

      1) If power averaging (RMS) mode was used in step ⑤, then the applicable correction factor is 10 log(1/x), where x is the duty cycle.
      2) If linear voltage averaging mode was used in step ⑤, then the applicable correction factor is 20 log(1/x), where x is the duty cycle.
      3) If a specific emission is demonstrated to be continuous (≥ 98 percent duty cycle) rather than turning on and off with the transmit cycle, then no duty cycle correction is required for that emission.

**Note.**

1. $f$<30 MHz, extrapolation factor of 40 dB/decade of distance. $F_d = 40\log(D_m/Ds)$
   $f \geq 30$ MHz, extrapolation factor of 20 dB/decade of distance. $F_d = 20\log(D_m/Ds)$
   Where:
   $F_d$ = Distance factor in dB
   $D_m$ = Measurement distance in meters
   $D_s$ = Specification distance in meters
2. CF(Correction factors(dB)) = Antenna factor(dB/m) + Cable loss(dB) + or Amp. gain(dB) + or $F_d$(dB)
4. Field strength(dBμV/m) = Level(dBμV) + CF (dB) + or DCF(dB)
5. Margin(dB) = Limit(dBμV/m) - Field strength(dBμV/m)
6. Emissions below 18 GHz were measured at a 3 meter test distance while emissions above 18 GHz were measured at a 1 meter test distance with the application of a distance correction factor.
7. The fundamental of the EUT was investigated in three orthogonal orientations X, Y and Z, it was determined that **X orientation** was worst-case orientation; therefore, all final radiated testing was performed with the EUT in **X orientation.**
8. The worst-case emissions are reported however emissions whose levels were not within 20 dB of respective limits were not reported.
9. All channels, modes (e.g. 802.11a, 802.11n (20 MHz/40 MHz BW), 802.11ac (20 MHz/40 MHz /80 MHz)), and modulations/data rates were investigated among all UNII bands. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

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10. According to exploratory test no any obvious emission were detected from 9 ㎑ to 30 ㎒. Although these tests were performed other than open field site, adequate comparison measurements were confirmed against 30 m open field site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.

**Limit**

According to 15.209(a), for an intentional radiator devices, the general required of field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values：

| Frequency (㎒) | Distance (Meters) | Radiated (㎶/m) |
|---|---|---|
| 0.009 ~ 0.490 | 300 | 2400/F(㎑) |
| 0.490 ~ 1.705 | 30 | 24000/F(㎑) |
| 1.705 ~ 30.0 | 30 | 30 |
| 30 ~ 88 | 3 | 100** |
| 88 ~ 216 | 3 | 150** |
| 216 ~ 960 | 3 | 200** |
| Above 960 | 3 | 500 |

**Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54 ~ 72 ㎒, 76 ~ 88 ㎒, 174 ~ 216 ㎒ or 470 ~ 806 ㎒. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

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According to 15.407(b), (b) Undesirable emission limits: Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) For transmitters operating in the 5.15–5.25 ㎓ band: all emissions outside of the 5.15–5.35 ㎓ band shall not exceed an e.i.r.p of –27 ㏈m/㎒.
(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
(4) For transmitters operating in the 5.725-5.85 GHz band:
i) All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
ii) Devices certified before March 2, 2017 with antenna gain greater than 10 dBi may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease by March 2, 2018. Devices certified before March 2, 2018 with antenna gain of 10 dBi or less may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease before March 2, 2020.
(5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 ㎒.
A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 ㎒.
(6) Unwanted emissions below 1 ㎓ must comply with the general field strength limits set forth in § 15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in § 15.207.
(7) The provisions of §15.205 apply to intentional radiators operating under this section.
(8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits.

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**Duty cycle**

Regarding to KDB 789033 D02 v02r01, B)2)b), the maximum duty cycles of all modes were investigated and set the spectrum analyzer as below.

Set RBW ≥ OBW if possible; otherwise, set RBW to the largest available value. Set detector = peak or average. The zero-span measurement method shall not be used unless both RBW and VBW are > 50/T, where T is defined in II.B.1.a), and the number of sweep points across duration T exceeds 100.

For the band 5.15-5.25 ㎓

| Test mode | $T_{on}$ time (㎳) | Period (㎳) | Duty cycle (Linear) | Duty cycle (%) | Duty cycle correction factor (dB) |
|---|---|---|---|---|---|
| 802.11n_VHT20 | 0.206 | 0.299 | 0.689 | 68.90 | 1.62 |
| 802.11n_VHT40 | 0.120 | 0.248 | 0.484 | 48.39 | 3.15 |
| 802.11n_VHT80 | 0.078 | 0.172 | 0.453 | 45.35 | 3.43 |

For the band 5.250-5.350 ㎓

| Test mode | $T_{on}$ time (㎳) | Period (㎳) | Duty cycle (Linear) | Duty cycle (%) | Duty cycle correction factor (dB) |
|---|---|---|---|---|---|
| 802.11n_VHT20 | 0.206 | 0.255 | 0.808 | 80.78 | 0.93 |
| 802.11n_VHT40 | 0.117 | 0.257 | 0.455 | 45.53 | 3.42 |
| 802.11n_VHT80 | 0.078 | 0.245 | 0.318 | 31.84 | 4.97 |

For the band 5.470-5.725 ㎓

| Test mode | $T_{on}$ time (㎳) | Period (㎳) | Duty cycle (Linear) | Duty cycle (%) | Duty cycle correction factor (dB) |
|---|---|---|---|---|---|
| 802.11n_VHT20 | 0.206 | 0.345 | 0.597 | 59.71 | 2.24 |
| 802.11n_VHT40 | 0.117 | 0.258 | 0.453 | 45.35 | 3.43 |
| 802.11n_VHT80 | 0.078 | 0.183 | 0.426 | 42.62 | 3.70 |

For the band 5.725-5.85 ㎓

| Test mode | $T_{on}$ time (㎳) | Period (㎳) | Duty cycle (Linear) | Duty cycle (%) | Duty cycle correction factor (dB) |
|---|---|---|---|---|---|
| 802.11n_VHT20 | 0.207 | 0.351 | 0.590 | 58.97 | 2.29 |
| 802.11n_VHT40 | 0.125 | 0.236 | 0.530 | 52.97 | 2.76 |
| 802.11n_VHT80 | 0.078 | 0.178 | 0.438 | 43.82 | 3.58 |

**Note:**

Duty cycle (Linear) = $T_{on}$ time/Period

DCF(Duty cycle correction factor (㏈)) = 10log(1/duty cycle)

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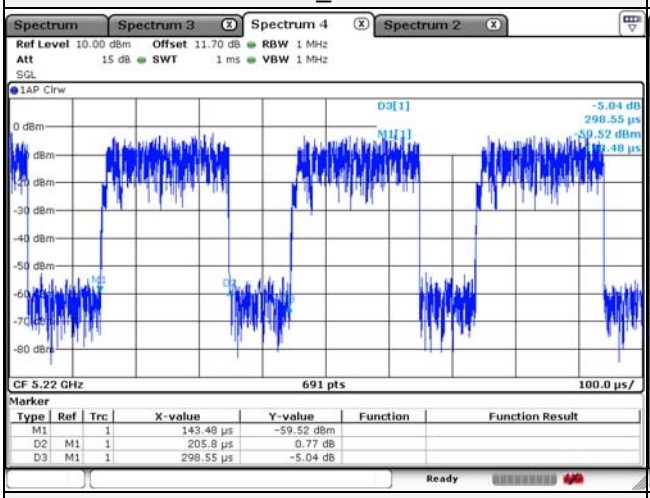
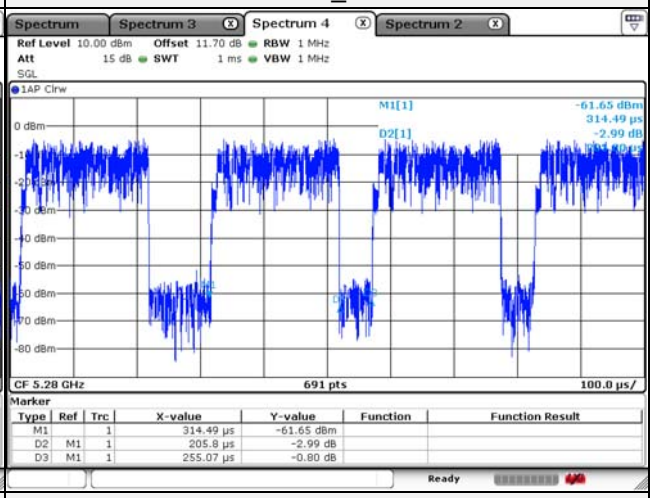
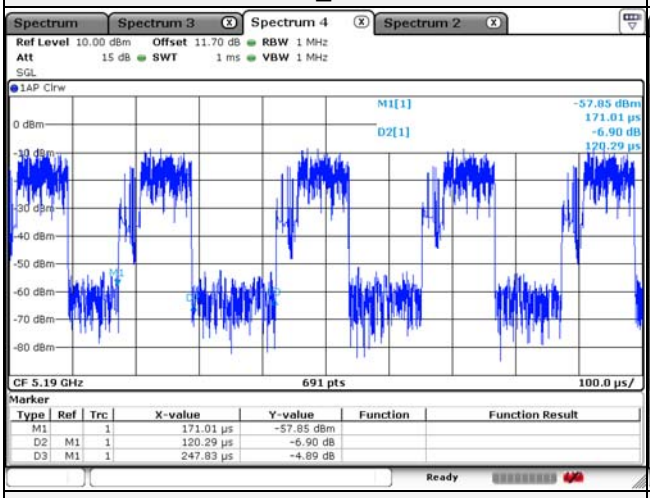
## UNII-1_VHT20



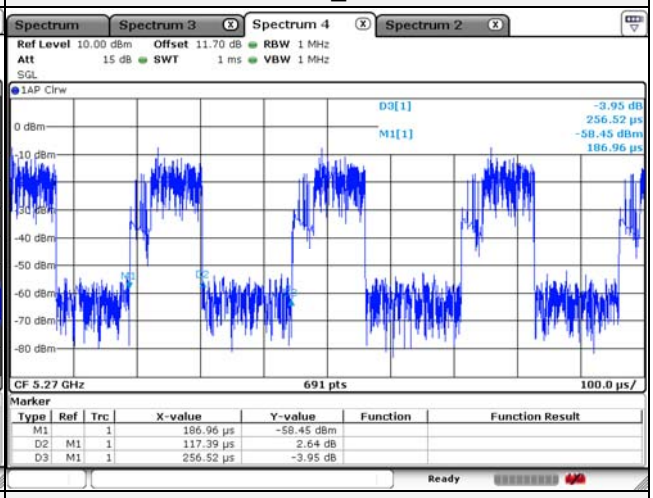

## UNII-2A _VHT20



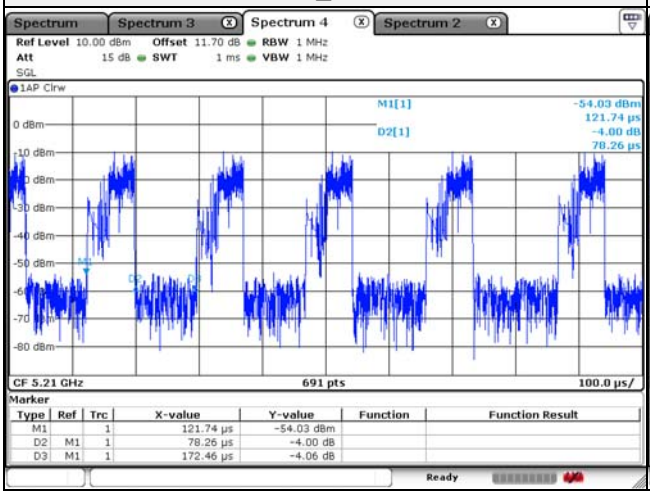

## UNII-1_VHT40



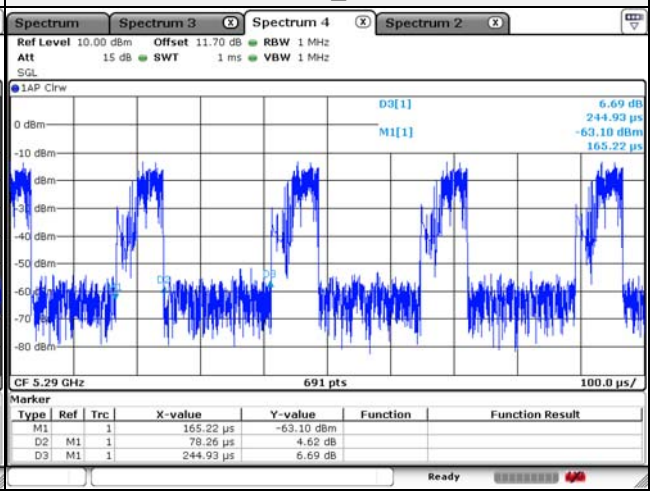

## UNII-2A _VHT40




## UNII-1_VHT80




## UNII-2A _VHT80

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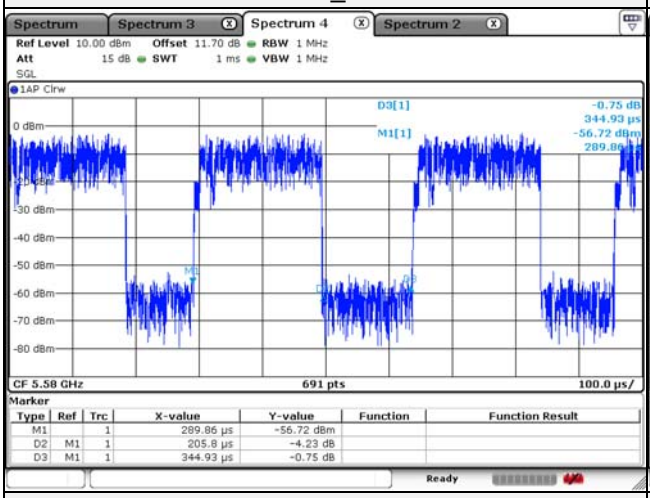
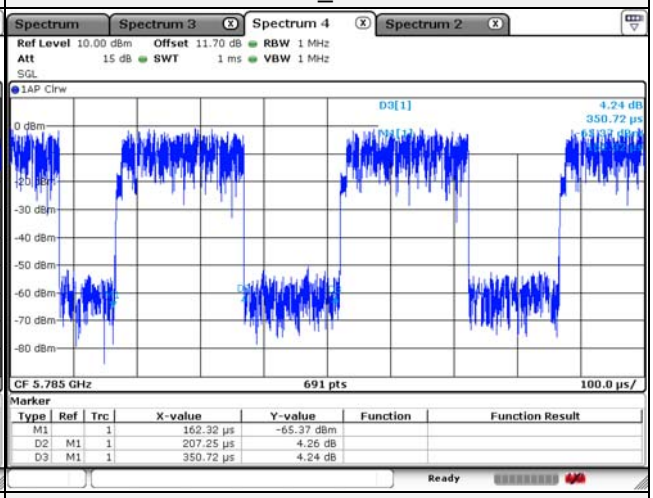
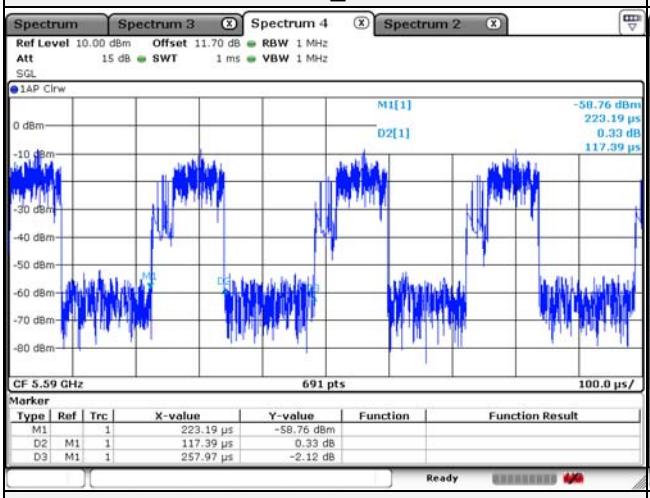
## UNII-2C _VHT20



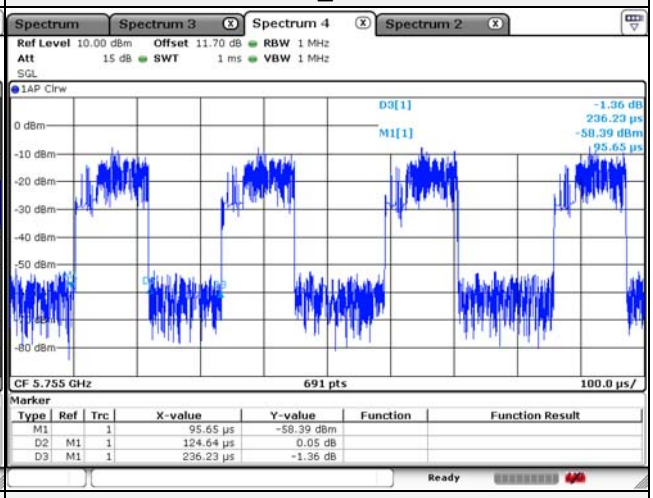

## UNII-3_VHT20



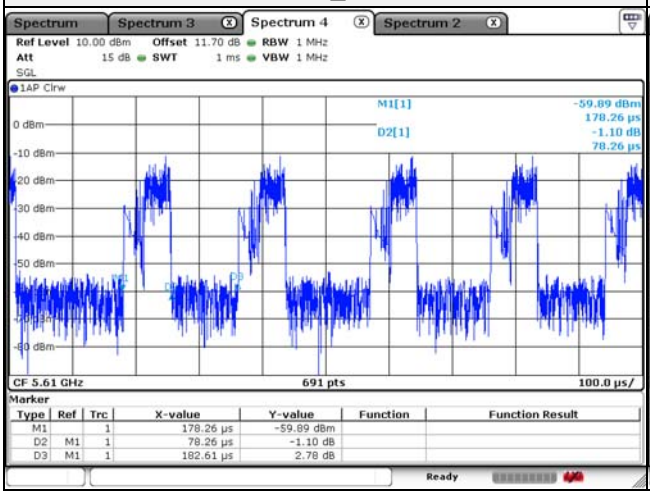

## UNII-2C _VHT40



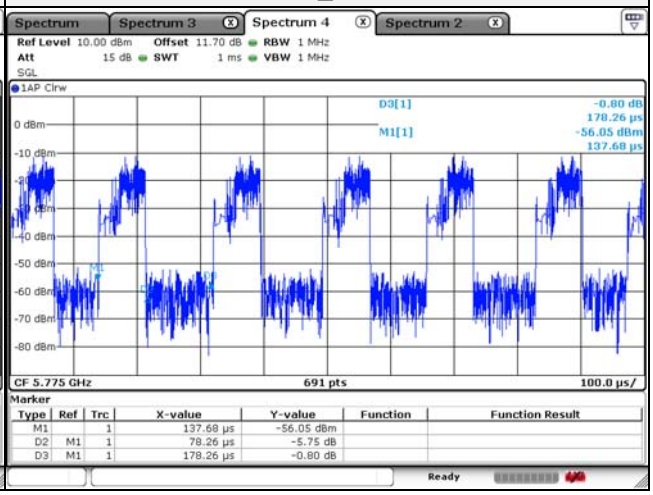

## UNII-3_VHT40




## UNII-2C _VHT80




## UNII-3_VHT80

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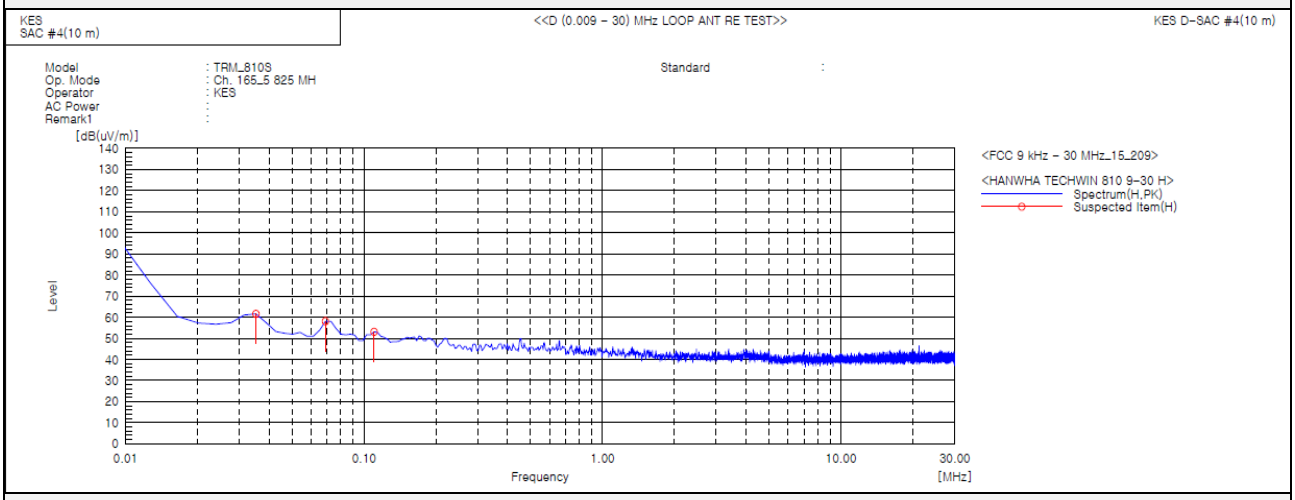
**Test results (Below 30 ㎒) – Worst case**

Mode: UNII-3

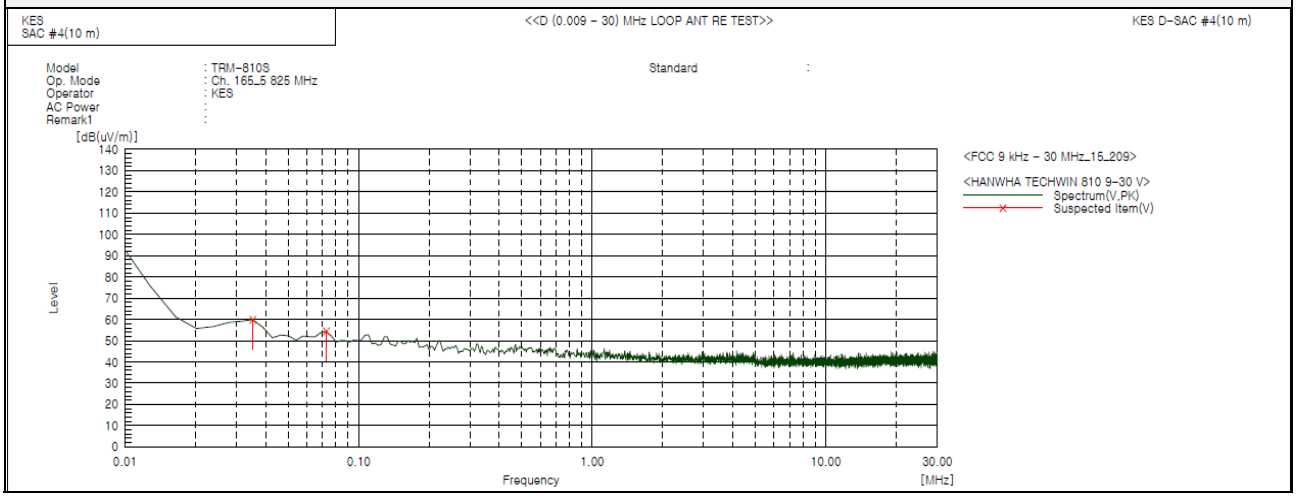
Distance of measurement: 3 meter

Channel: 165(worst case)

**Horizontal**




**Vertical**




| Frequency (㎒) | Level (dBμV) | Ant. Pol. (H/V) | CF (dB) | Distance factor (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| 0.035 | 42.10 | H | 19.50 | -80 | -18.40 | 36.70 | 55.10 |
| 0.069 | 38.40 | H | 19.70 | -80 | -21.90 | 3080 | 52.70 |
| 0.110 | 33.40 | H | 19.70 | -80 | -26.90 | 26.80 | 53.70 |
| 0.035 | 40.30 | V | 19.50 | -80 | -20.20 | 36.70 | 56.90 |
| 0.073 | 34.60 | V | 19.70 | -80 | -25.70 | 30.40 | 56.10 |

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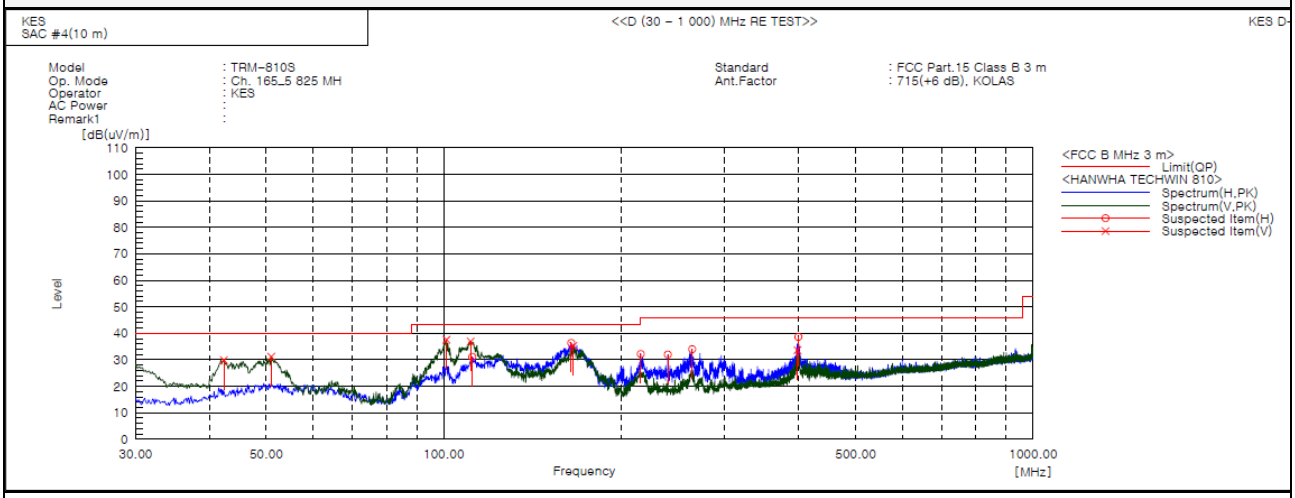
**Test results (Below 1 000 ㎒) – Worst case**

Mode: UNII-3

Distance of measurement: 3 meter

Channel: 165(worst case)

**Horizontal // Vertical**




| No. | Frequency [MHz] | (P) | Reading [dB(uV)] | c.f [dB(1/m)] | Result PK [dB(uV/m)] | Limit QP [dB(uV/m)] | Margin QP [dB] | Height [cm] | Angle [deg] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 111.844 | H | 54.8 | -23.7 | 31.1 | 43.5 | 12.4 | 200.0 | 151.0 | |
| 2 | 164.588 | H | 62.1 | -25.7 | 36.4 | 43.5 | 7.1 | 200.0 | 290.0 | |
| 3 | 215.998 | H | 54.1 | -21.9 | 32.2 | 43.5 | 11.3 | 100.0 | 138.0 | |
| 4 | 240.005 | H | 53.3 | -21.3 | 32.0 | 46.0 | 14.0 | 100.0 | 178.0 | |
| 5 | 264.013 | H | 55.0 | -21.0 | 34.0 | 46.0 | 12.0 | 100.0 | 82.0 | |
| 6 | 399.691 | H | 55.4 | -16.7 | 38.7 | 46.0 | 7.3 | 200.0 | 87.0 | |
| 7 | 42.368 | V | 52.8 | -22.9 | 29.9 | 40.0 | 10.1 | 100.0 | 181.0 | |
| 8 | 50.976 | V | 53.2 | -22.0 | 31.2 | 40.0 | 8.8 | 100.0 | 185.0 | |
| 9 | 101.053 | V | 60.9 | -23.3 | 37.6 | 43.5 | 5.9 | 100.0 | 169.0 | |
| 10 | 111.116 | V | 60.6 | -23.6 | 37.0 | 43.5 | 6.5 | 100.0 | 70.0 | |
| 11 | 165.921 | V | 60.9 | -25.6 | 35.3 | 43.5 | 8.2 | 100.0 | 265.0 | |
| 12 | 398.358 | V | 50.4 | -16.7 | 33.7 | 46.0 | 12.3 | 100.0 | 98.0 | |

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**Test results (Above 1 000 ㎒)**

Mode: UNII-1(VHT20)

Distance of measurement: 3 meter

Channel: 36

- **Spurious**

| Frequency (㎒) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 1 061.50 | 53.96 | Peak | H | -8.29 | - | 45.67 | 74.00 | 28.33 |
| 1 517.40 | 49.04 | Peak | H | -5.51 | - | 43.53 | 74.00 | 30.47 |
| 1 843.00 | 46.49 | Peak | H | -2.42 | - | 44.07 | 68.20 | 24.13 |
| 1 061.50 | 56.22 | Peak | V | -8.29 | - | 47.93 | 74.00 | 26.07 |
| 1 524.60 | 51.20 | Peak | V | -5.45 | - | 45.75 | 74.00 | 28.25 |
| 2 125.20 | 47.12 | Peak | V | -0.67 | - | 46.45 | 68.20 | 21.75 |

- **Band edge**

| Frequency (㎒) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 4 812.50 | 46.83 | Peak | H | 7.06 | - | 53.89 | 74.00 | 20.11 |
| 4 804.50 | 46.12 | Peak | V | 7.00 | - | 53.12 | 74.00 | 20.88 |

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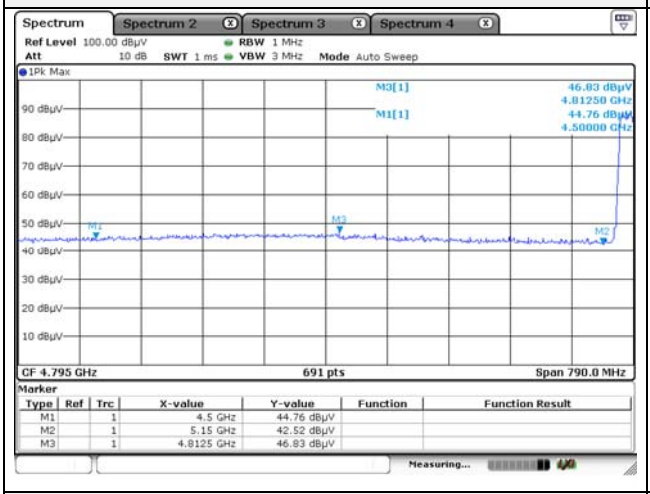
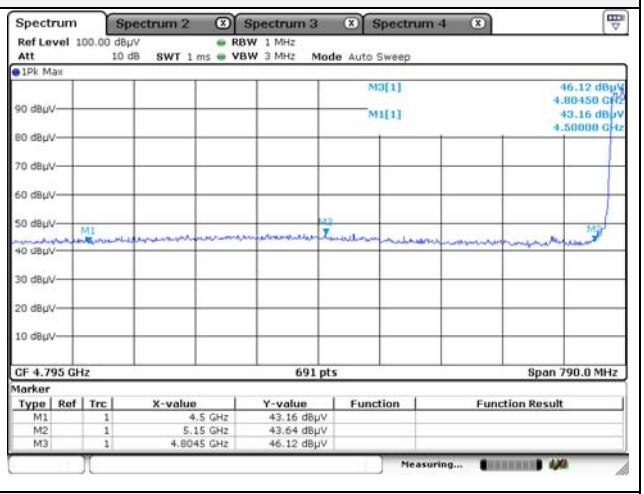
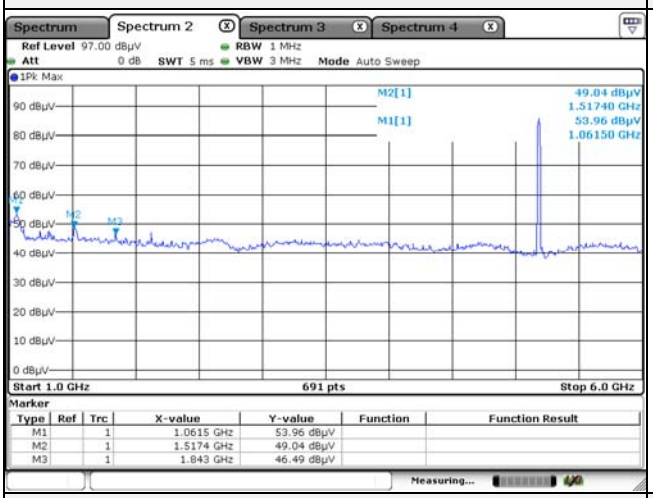
**Restricted band // Horizontal // Peak**



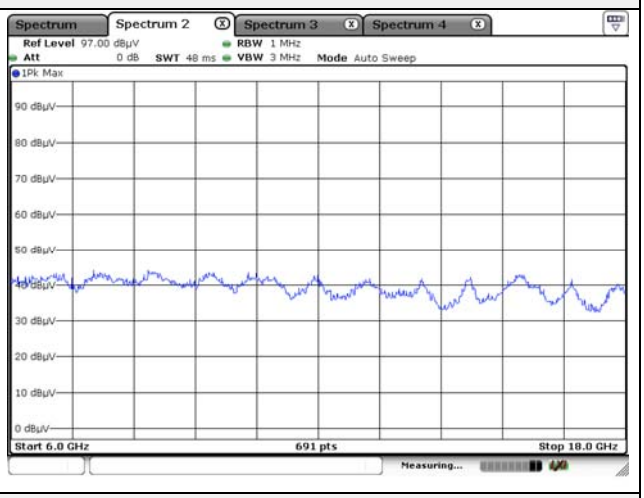

**Restricted band // Vertical // Peak**



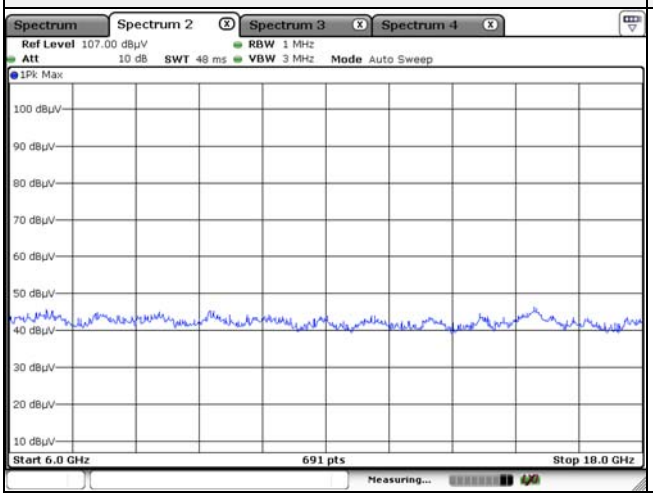

**Horizontal // Peak for 1 ㎓ to 6 ㎓**



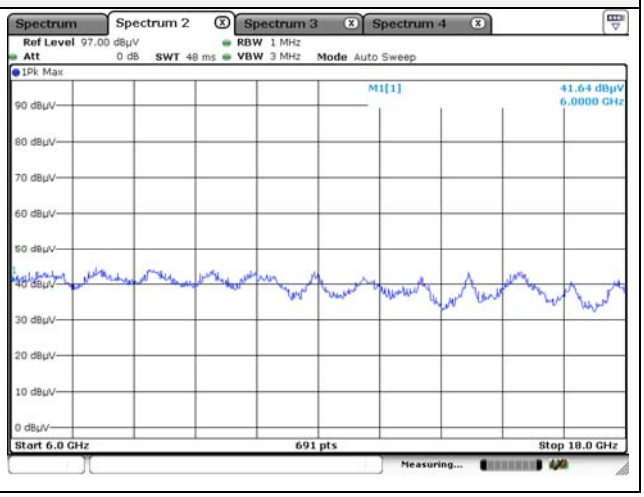

**Vertical // Peak for 1 ㎓ to 6 ㎓**




**Horizontal // Peak for 6 ㎓ to 18 ㎓**




**Vertical // Peak for 6 ㎓ to 18 ㎓**




Note.

1. No spurious emission were detected above 6 ㎓.

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Mode: UNII-1(VHT20)

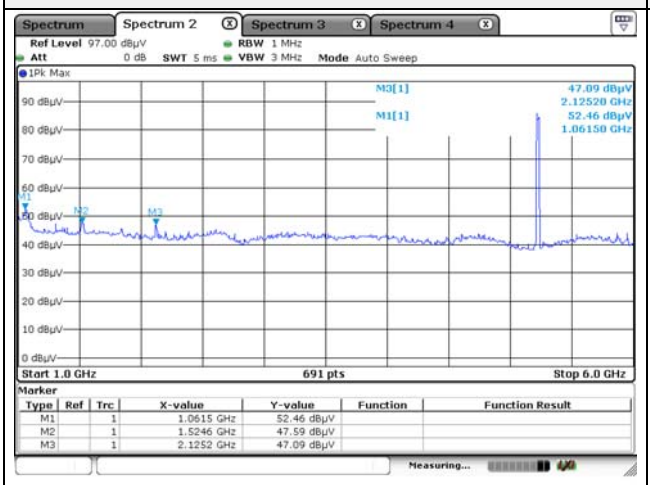
Distance of measurement: 3 meter

Channel: 44

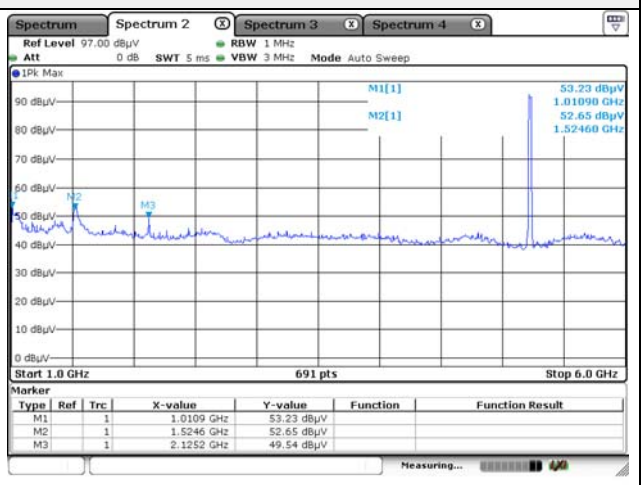
- **Spurious**

| Frequency (㎒) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 1 061.50 | 52.46 | Peak | H | -8.29 | - | 44.17 | 74.00 | 29.83 |
| 1 524.60 | 47.59 | Peak | H | -5.45 | - | 42.14 | 74.00 | 31.86 |
| 2 125.20 | 47.09 | Peak | H | -0.67 | - | 46.42 | 68.20 | 21.78 |
| 1 010.90 | 53.23 | Peak | V | -8.58 | - | 44.65 | 74.00 | 29.35 |
| 1 524.60 | 52.65 | Peak | V | -5.45 | - | 47.20 | 74.00 | 26.80 |
| 2 125.20 | 49.54 | Peak | V | -0.67 | - | 48.87 | 68.20 | 19.33 |

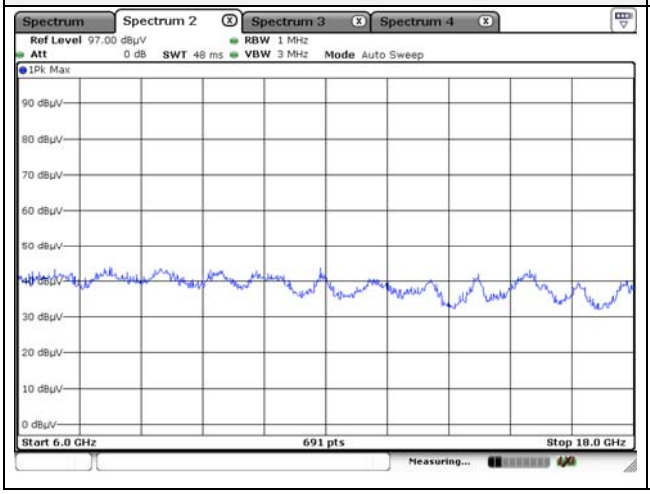
**Horizontal // Peak for 1 ㎓ to 6 ㎓**



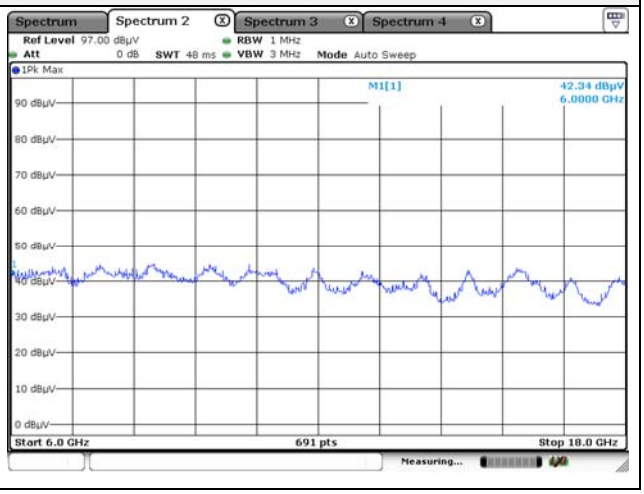

**Vertical // Peak for 1 ㎓ to 6 ㎓**




**Horizontal // Peak for 6 ㎓ to 18 ㎓**




**Vertical // Peak for 6 ㎓ to 18 ㎓**




Note.

1. No spurious emission were detected above 6 ㎓.

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Mode: UNII-1(VHT20)

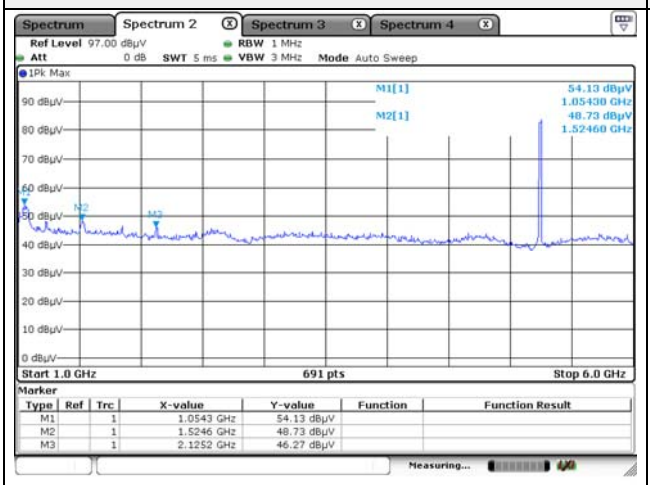
Distance of measurement: 3 meter

Channel: 48

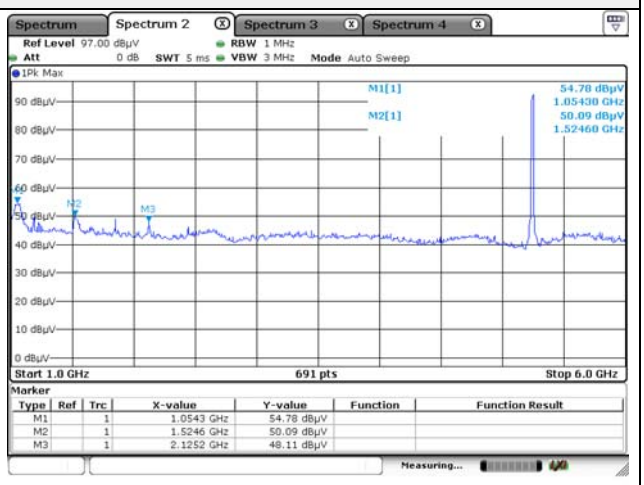
- **Spurious**

| Frequency (㎒) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 1 054.30 | 54.13 | Peak | H | -8.33 | - | 45.80 | 74.00 | 28.20 |
| 1 524.60 | 48.73 | Peak | H | -5.45 | - | 43.28 | 74.00 | 30.72 |
| 2 125.20 | 46.27 | Peak | H | -0.67 | - | 45.60 | 68.20 | 22.60 |
| 1 054.30 | 54.78 | Peak | V | -8.33 | - | 46.45 | 74.00 | 27.55 |
| 1 524.60 | 50.09 | Peak | V | -5.45 | - | 44.64 | 74.00 | 29.36 |
| 2 125.20 | 48.11 | Peak | V | -0.67 | - | 47.44 | 68.20 | 20.76 |

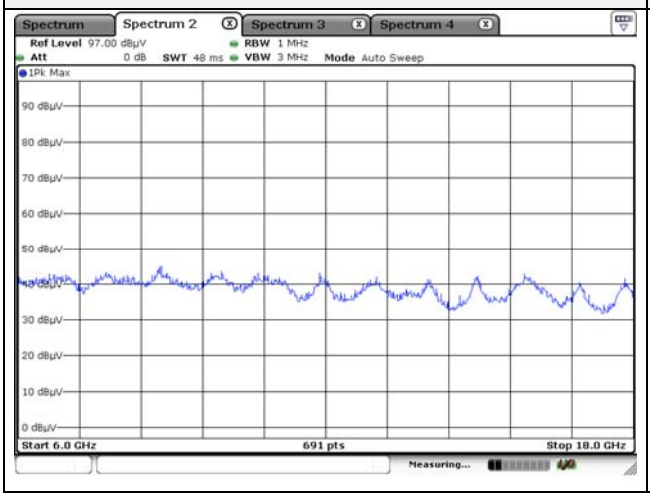
**Horizontal // Peak for 1 ㎓ to 6 ㎓**



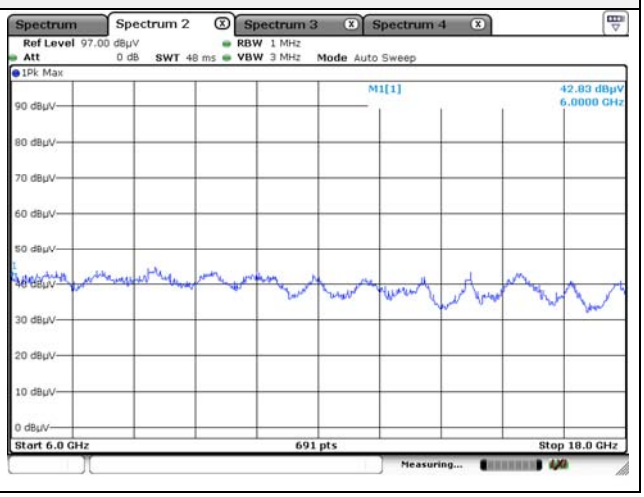

**Vertical // Peak for 1 ㎓ to 6 ㎓**




**Horizontal // Peak for 6 ㎓ to 18 ㎓**




**Vertical // Peak for 6 ㎓ to 18 ㎓**




Note.

1. No spurious emission were detected above 6 ㎓.

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Mode: UNII-2A(VHT20)

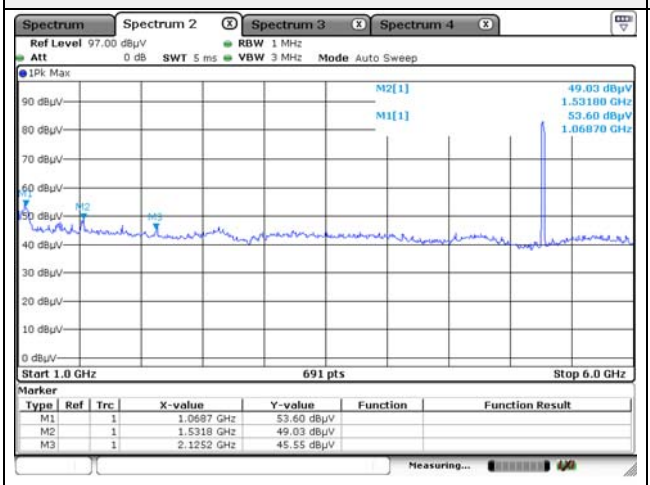
Distance of measurement: 3 meter

Channel: 52

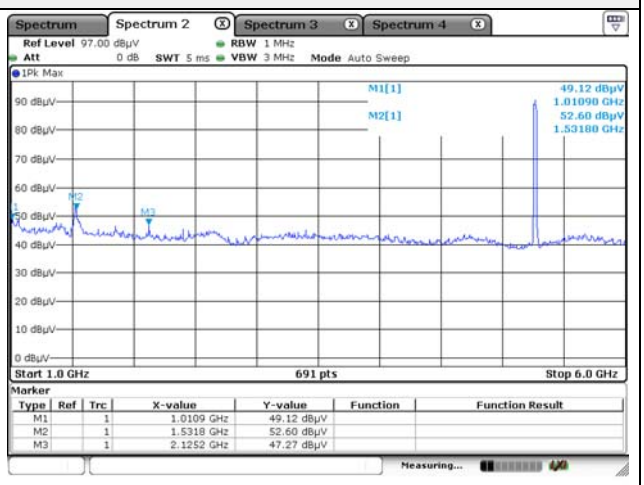
- **Spurious**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 1 068.70 | 53.60 | Peak | H | -8.25 | - | 45.35 | 74.00 | 28.65 |
| 1 531.80 | 49.03 | Peak | H | -5.38 | - | 43.65 | 74.00 | 30.35 |
| 2 125.20 | 45.55 | Peak | H | -0.67 | - | 44.88 | 68.20 | 22.65 |
| 1 010.90 | 49.12 | Peak | V | -8.58 | - | 40.54 | 74.00 | 33.46 |
| 1 531.80 | 52.60 | Peak | V | -5.38 | - | 47.22 | 74.00 | 26.78 |
| 2 125.20 | 47.27 | Peak | V | -0.67 | - | 46.60 | 68.20 | 20.93 |

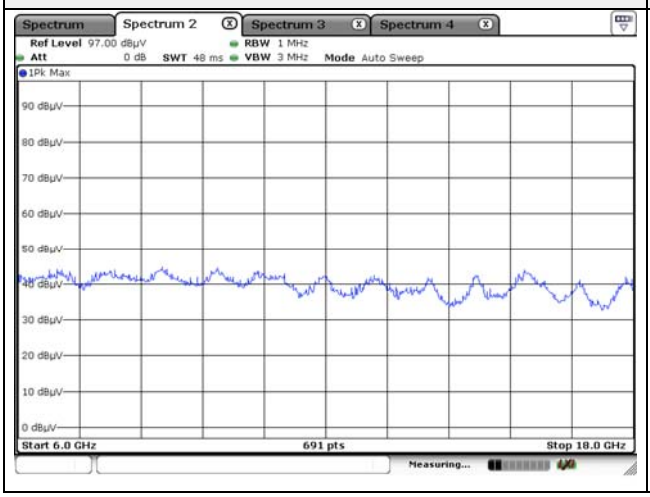
**Horizontal // Peak for 1 GHz to 6 GHz**



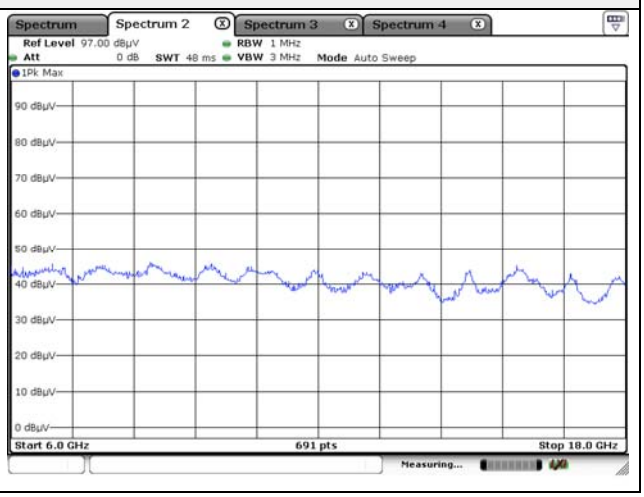

**Vertical // Peak for 1 GHz to 6 GHz**




**Horizontal // Peak for 6 GHz to 18 GHz**




**Vertical // Peak for 6 GHz to 18 GHz**




Note.

1. No spurious emission were detected above 6 GHz.

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Mode: UNII-2A(VHT20)

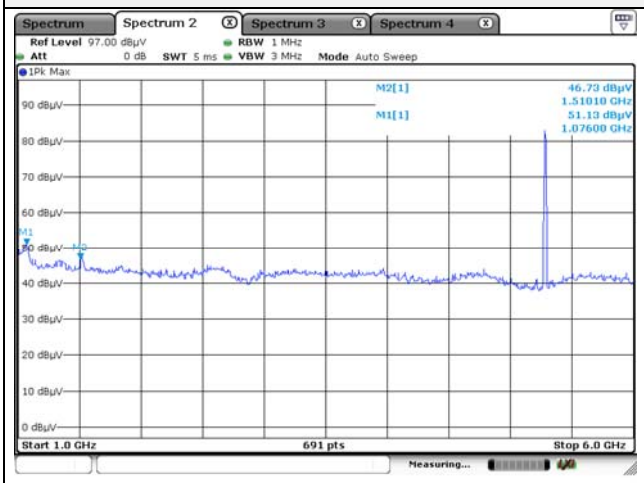
Distance of measurement: 3 meter

Channel: 56

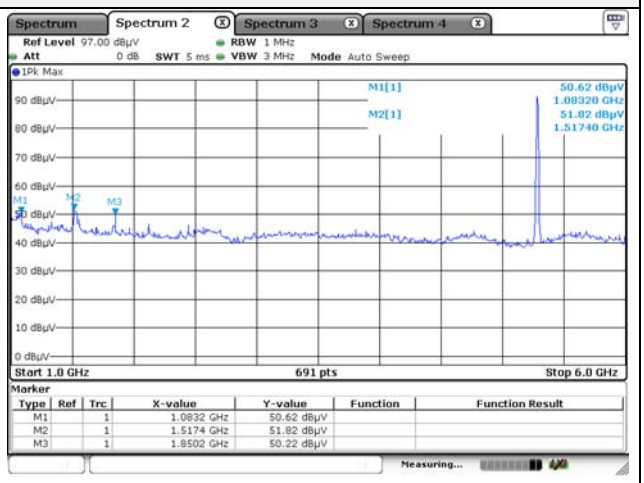
- **Spurious**

| Frequency (㎒) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 1 076.00 | 51.13 | Peak | H | -8.21 | - | 42.92 | 74.00 | 31.08 |
| 1 510.10 | 46.73 | Peak | H | -5.58 | - | 41.15 | 74.00 | 32.85 |
| 1 083.20 | 50.62 | Peak | V | -8.17 | - | 42.45 | 74.00 | 31.55 |
| 1 517.40 | 51.82 | Peak | V | -5.51 | - | 46.31 | 74.00 | 27.69 |
| 1 850.20 | 50.22 | Peak | V | -2.35 | - | 47.87 | 68.20 | 20.33 |

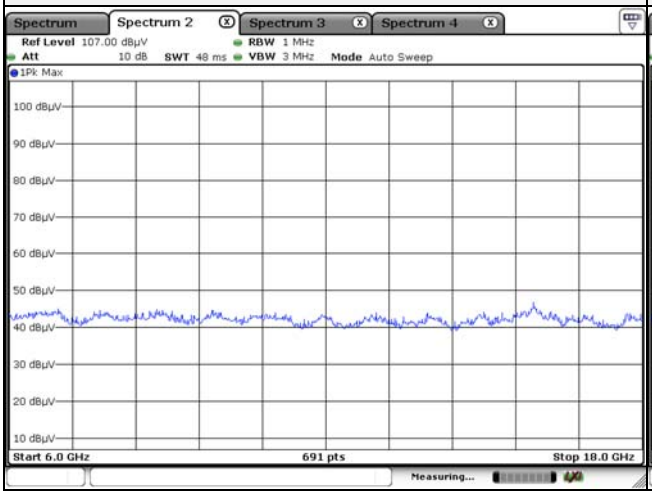
**Horizontal // Peak for 1 ㎓ to 6 ㎓**



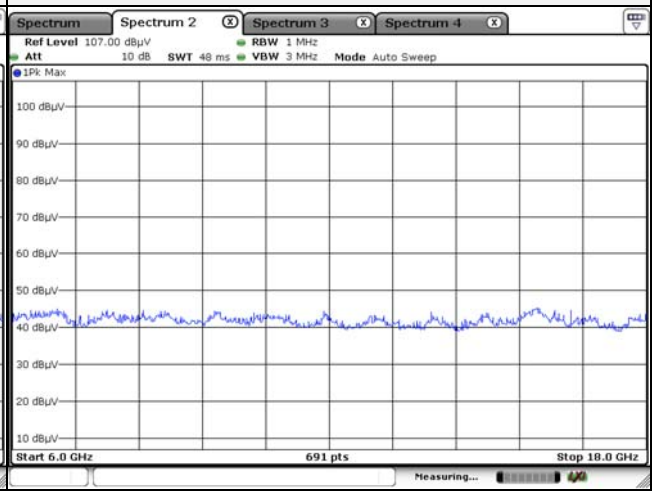

**Vertical // Peak for 1 ㎓ to 6 ㎓**




**Horizontal // Peak for 6 ㎓ to 18 ㎓**




**Vertical // Peak for 6 ㎓ to 18 ㎓**




Note.

1. No spurious emission were detected above 6 ㎓.

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Mode: UNII-2A(VHT20)

Distance of measurement: 3 meter

Channel: 64

- **Spurious**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 1 039.80 | 54.64 | Peak | H | -8.42 | - | 46.22 | 74.00 | 27.78 |
| 1 531.80 | 48.88 | Peak | H | -5.38 | - | 43.50 | 74.00 | 30.50 |
| 2 125.20 | 45.86 | Peak | H | -0.67 | - | 45.19 | 68.20 | 23.01 |
| 1 068.70 | 55.06 | Peak | V | -8.25 | - | 46.81 | 74.00 | 27.19 |
| 1 524.60 | 50.23 | Peak | V | -5.45 | - | 44.78 | 74.00 | 29.22 |
| 2 125.20 | 47.19 | Peak | V | -0.67 | - | 46.52 | 68.20 | 21.68 |

- **Band edge**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 5 387.92 | 45.12 | Peak | H | 7.90 | - | 50.70 | 74.00 | 23.30 |
| 5 394.17 | 46.34 | Peak | V | 7.89 | - | 55.30 | 74.00 | 18.70 |
| 5 400.19 | 35.26 | Average | V | 7.88 | 0.93 | 46.61 | 54.00 | 7.39 |

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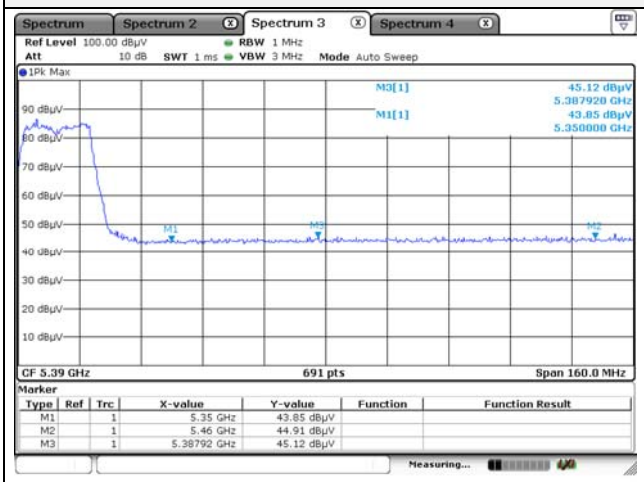
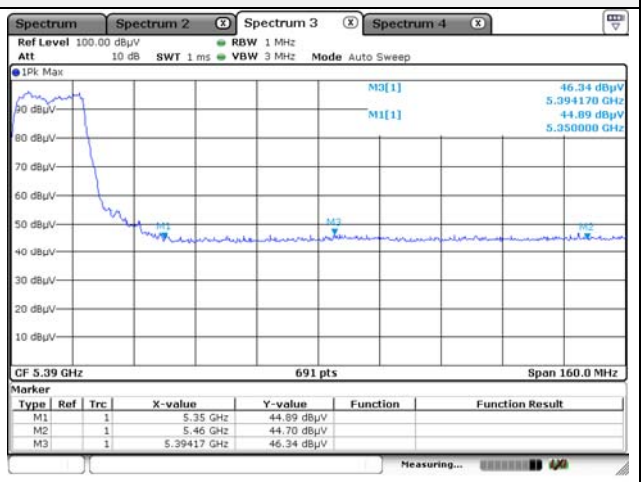
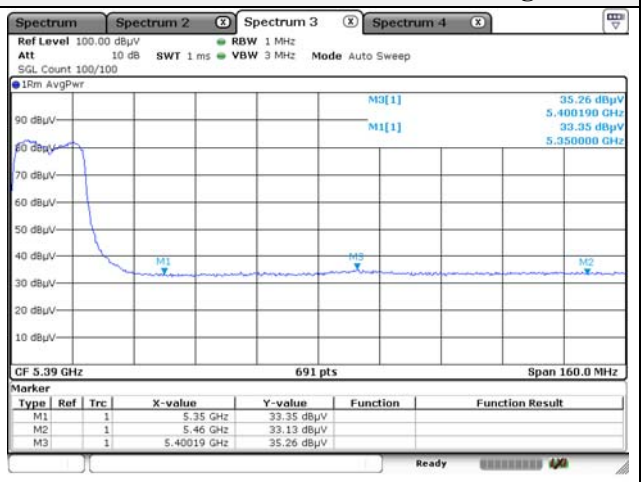
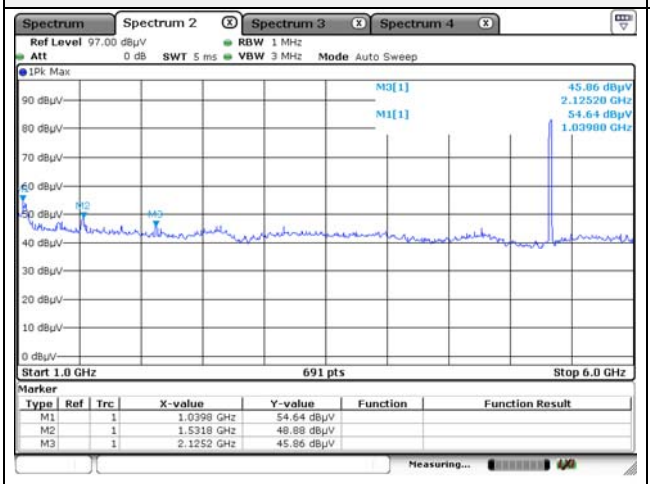
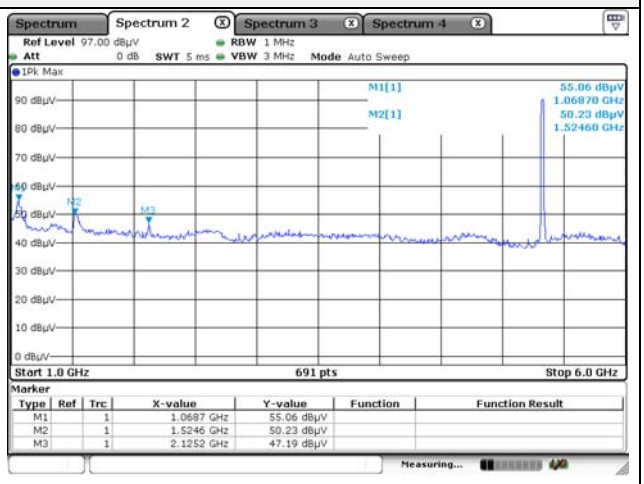
| Restricted band // Horizontal // Peak | Restricted band // Vertical // Peak |
|---|---|
|  |  |
| **Restricted band // Horizontal // Average** | **Restricted band // Vertical // Average** |
| Blank |  |

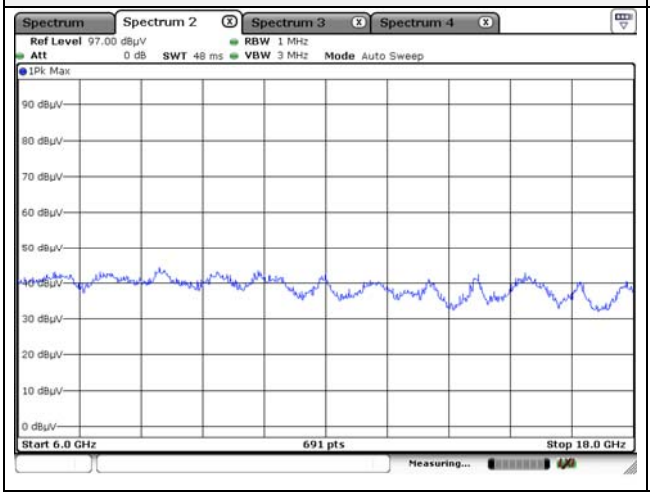
**Horizontal // Peak for 1 ㎓ to 6 ㎓**



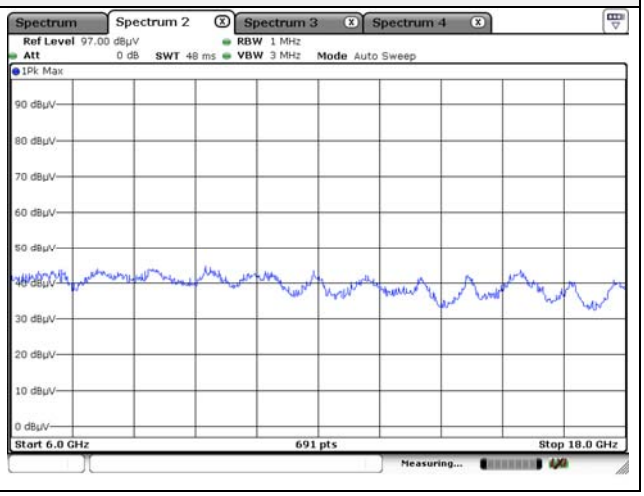

**Vertical // Peak for 1 ㎓ to 6 ㎓**




**Horizontal // Peak for 6 ㎓ to 18 ㎓**




**Vertical // Peak for 6 ㎓ to 18 ㎓**




Note.
1. No spurious emission were detected above 6 ㎓.
2. Average test would be performed if the peak result were greater than the average limit.

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Mode: UNII-2C(VHT20)

Distance of measurement: 3 meter

Channel: 100

- **Spurious**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 1 039.80 | 50.36 | Peak | H | -8.42 | - | 41.94 | 74.00 | 32.06 |
| 1 539.10 | 45.83 | Peak | H | -5.31 | - | 40.52 | 74.00 | 33.48 |
| 1 039.80 | 49.87 | Peak | V | -8.42 | - | 41.45 | 74.00 | 32.55 |
| 1 300.30 | 53.85 | Peak | V | -6.87 | - | 46.98 | 74.00 | 27.02 |
| 1 531.80 | 53.28 | Peak | V | -5.38 | - | 47.90 | 74.00 | 26.10 |

- **Band edge**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 5 394.49 | 45.53 | Peak | H | 7.89 | - | 53.42 | 74.00 | 20.58 |
| 5 420.33 | 45.89 | Peak | V | 7.86 | - | 53.75 | 74.00 | 20.25 |

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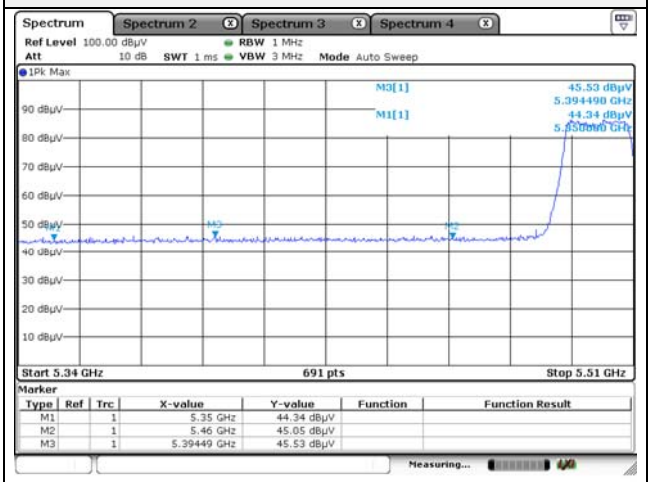
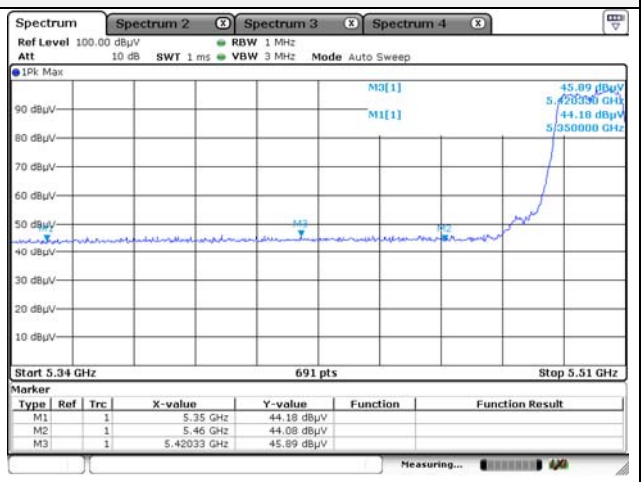
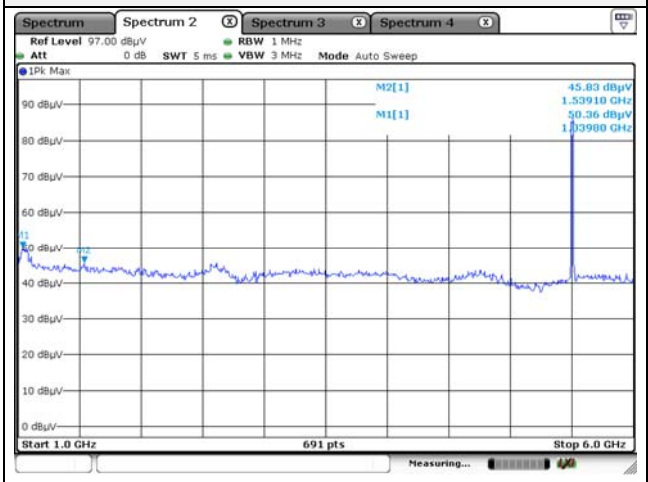
**Restricted band // Horizontal // Peak**



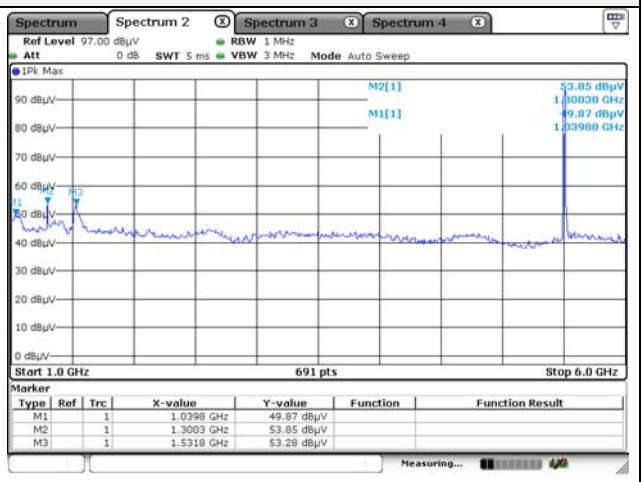

**Restricted band // Vertical // Peak**



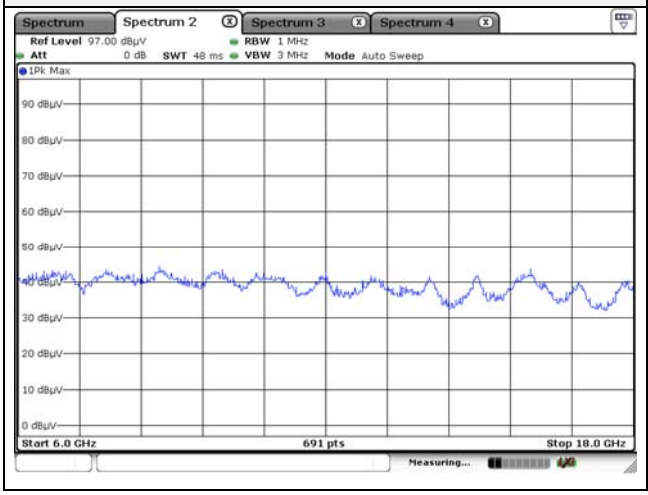

**Horizontal // Peak for 1 GHz to 6 GHz**



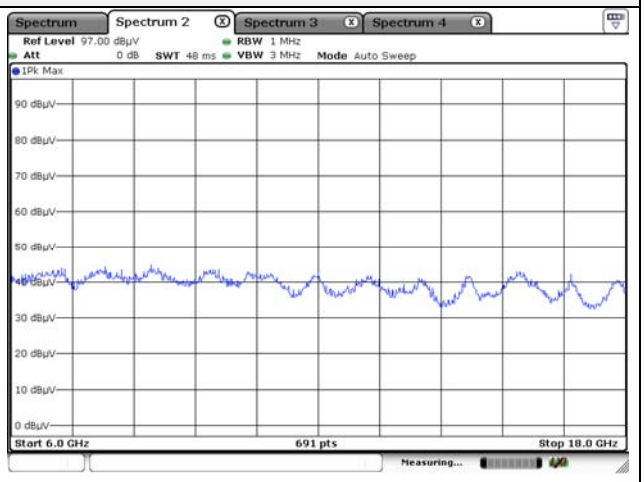

**Vertical // Peak for 1 GHz to 6 GHz**




**Horizontal // Peak for 6 GHz to 18 GHz**




**Vertical // Peak for 6 GHz to 18 GHz**




Note.
1. No spurious emission were detected above 6 GHz.

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Mode: UNII-2C(VHT20)

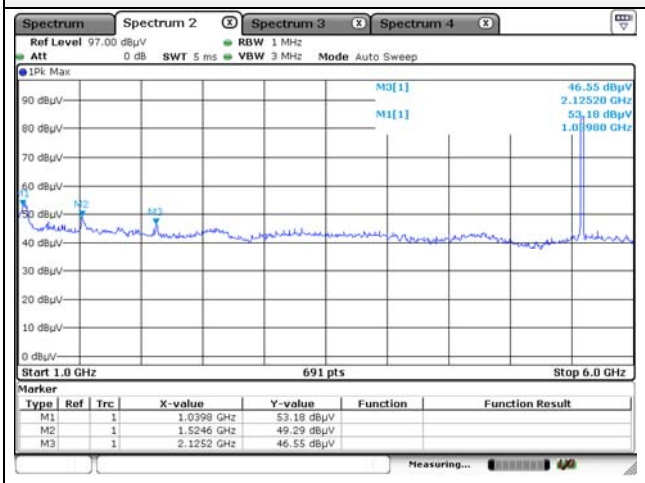
Distance of measurement: 3 meter

Channel: 120

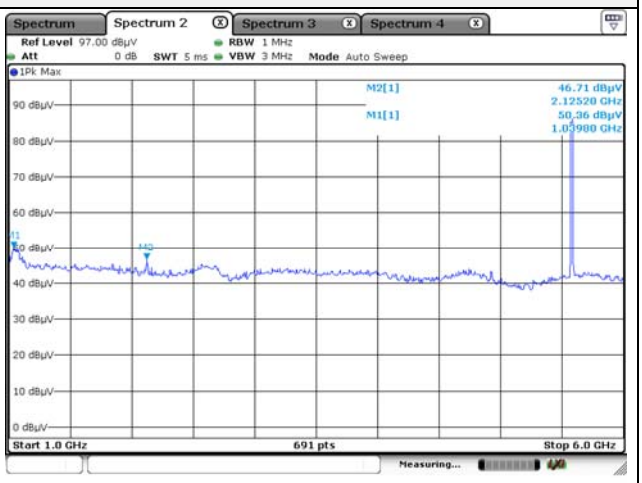
- **Spurious**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 1 039.80 | 53.18 | Peak | H | -8.42 | - | 44.76 | 74.00 | 29.24 |
| 1 524.60 | 49.29 | Peak | H | -5.45 | - | 43.84 | 74.00 | 30.16 |
| 2 125.20 | 46.55 | Peak | H | -0.67 | - | 45.88 | 68.20 | 22.32 |
| 1 039.80 | 50.36 | Peak | V | -8.42 | - | 41.94 | 74.00 | 32.06 |
| 2 125.20 | 46.71 | Peak | V | -0.67 | - | 46.04 | 68.20 | 22.16 |

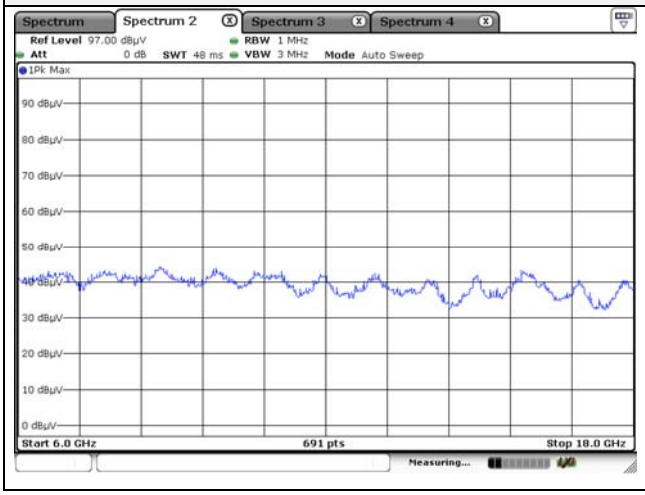
**Horizontal // Peak for 1 GHz to 6 GHz**



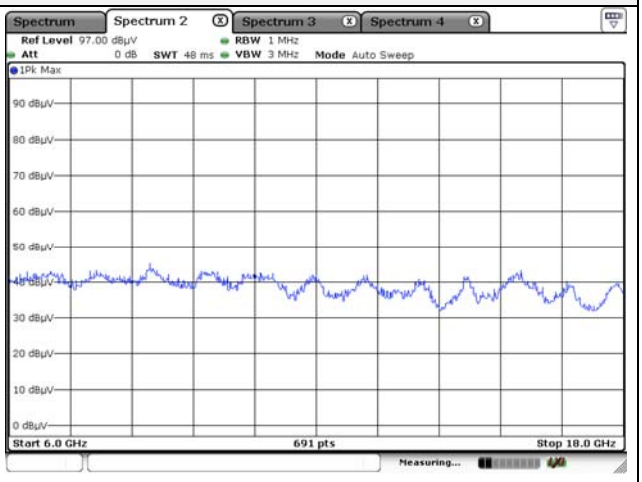

**Vertical // Peak for 1 GHz to 6 GHz**




**Horizontal // Peak for 6 GHz to 18 GHz**




**Vertical // Peak for 6 GHz to 18 GHz**




Note.
1. No spurious emission were detected above 6 GHz.

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Mode: UNII-2C(VHT20)

Distance of measurement: 3 meter

Channel: 140

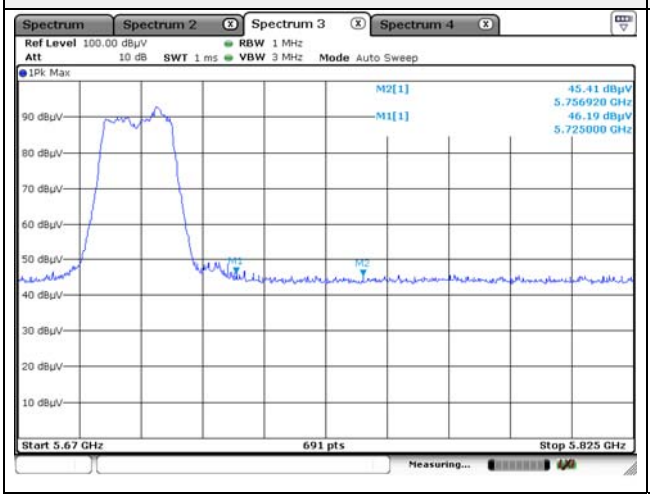
- **Spurious**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 1 068.70 | 53.72 | Peak | H | -8.25 | - | 45.47 | 74.00 | 28.53 |
| 1 495.70 | 47.67 | Peak | H | -5.69 | - | 41.98 | 74.00 | 32.02 |
| 2 117.90 | 45.74 | Peak | H | -0.69 | - | 45.05 | 68.20 | 23.15 |
| 1 061.50 | 56.65 | Peak | V | -8.29 | - | 48.36 | 74.00 | 25.64 |
| 1 495.70 | 49.39 | Peak | V | -5.69 | - | 43.70 | 74.00 | 30.30 |
| 2 125.20 | 48.04 | Peak | V | -0.67 | - | 47.37 | 68.20 | 20.83 |

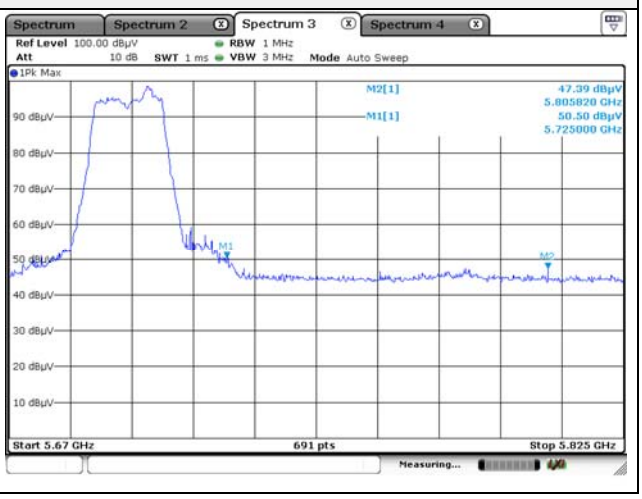
- **Band edge**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 5 725.00 | 46.19 | Peak | H | 8.77 | - | 54.96 | 68.20 | 13.24 |
| 5 756.92 | 45.41 | Peak | H | 8.93 | - | 54.34 | 68.20 | 13.86 |
| 5 725.00 | 50.50 | Peak | V | 8.77 | - | 59.27 | 68.20 | 8.93 |
| 5 805.82 | 47.39 | Peak | V | 9.15 | - | 56.54 | 68.20 | 11.66 |

**Restricted band // Horizontal // Peak**




**Restricted band // Vertical // Peak**

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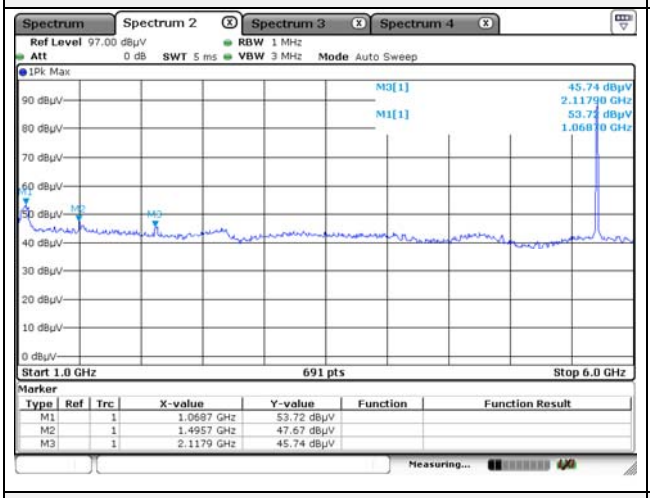
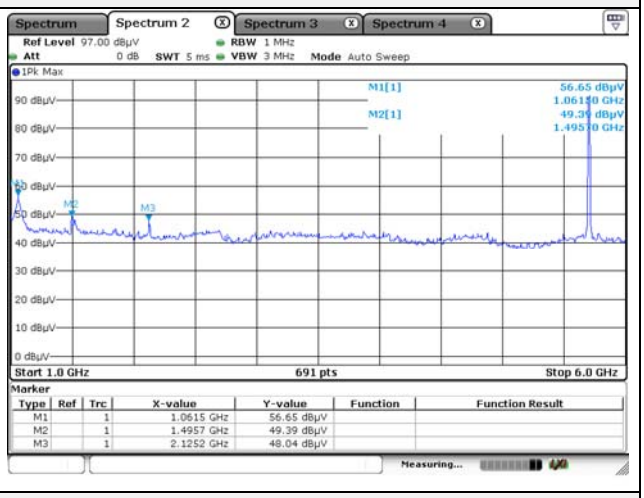
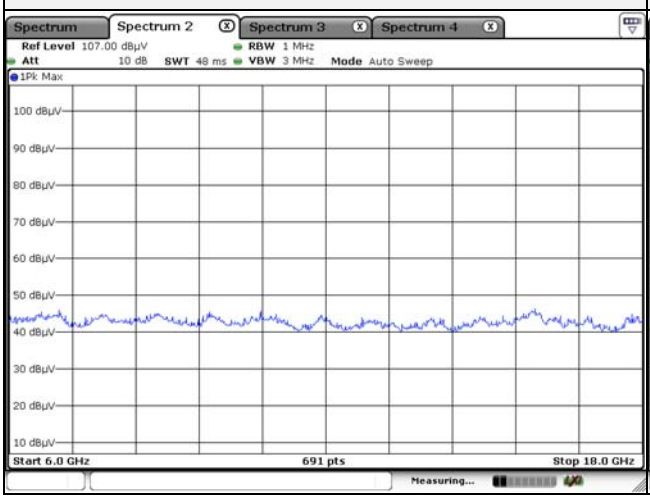
**Horizontal // Peak for 1 ㎓ to 6 ㎓**



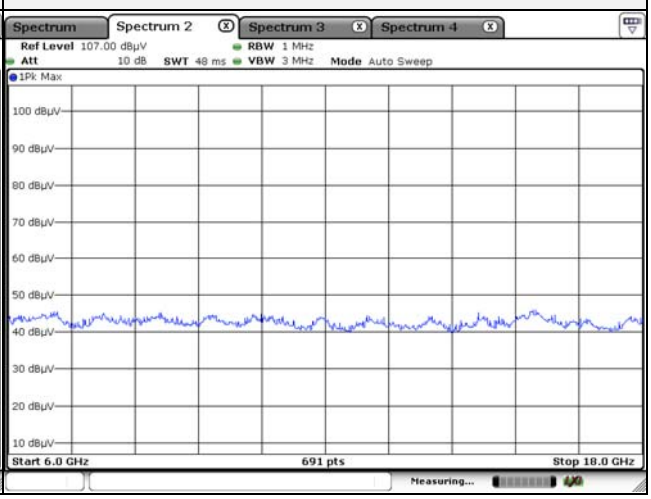

**Vertical // Peak for 1 ㎓ to 6 ㎓**




**Horizontal // Peak for 6 ㎓ to 18 ㎓**




**Vertical // Peak for 6 ㎓ to 18 ㎓**




Note.
1. No spurious emission were detected above 6 ㎓.
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Mode: UNII-2C(VHT20)

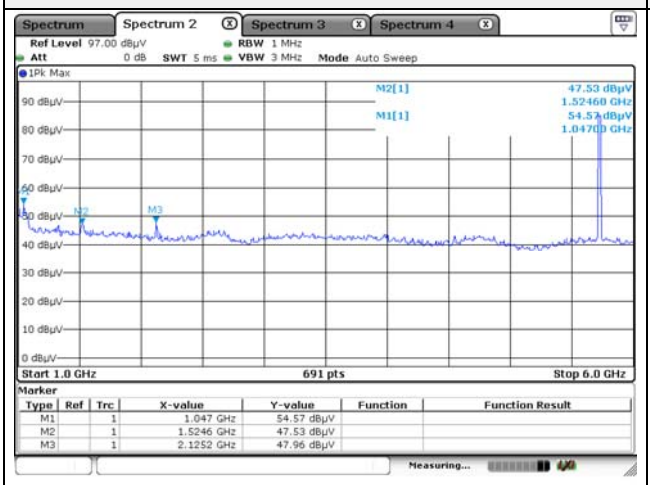
Distance of measurement: 3 meter

Channel: 144

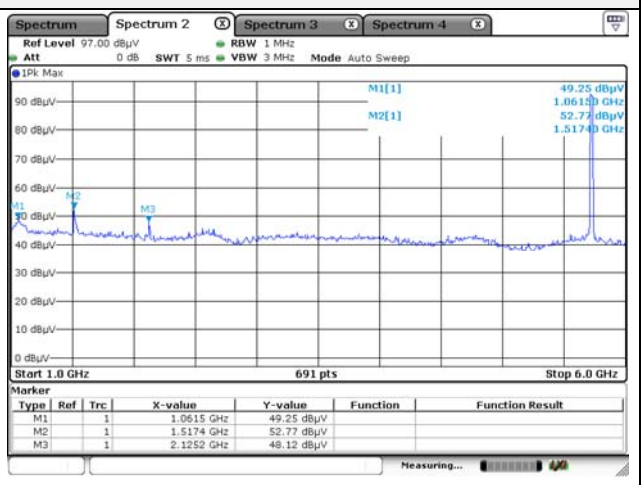
- **Spurious**

| Frequency (㎒) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 1047.00 | 54.57 | Peak | H | -8.37 | - | 46.20 | 74.00 | 27.80 |
| 1524.60 | 47.53 | Peak | H | -5.45 | - | 42.08 | 74.00 | 31.92 |
| 2125.20 | 47.96 | Peak | H | -0.67 | - | 47.29 | 68.20 | 20.91 |
| 1061.50 | 49.25 | Peak | V | -8.29 | - | 40.96 | 74.00 | 33.04 |
| 1517.40 | 52.77 | Peak | V | -5.51 | - | 47.26 | 74.00 | 26.74 |
| 2125.20 | 48.12 | Peak | V | -0.67 | - | 47.45 | 68.20 | 20.75 |

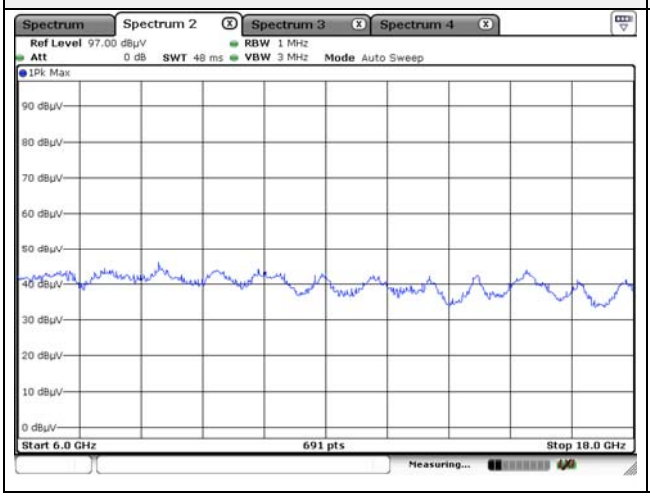
**Horizontal // Peak for 1 ㎓ to 6 ㎓**



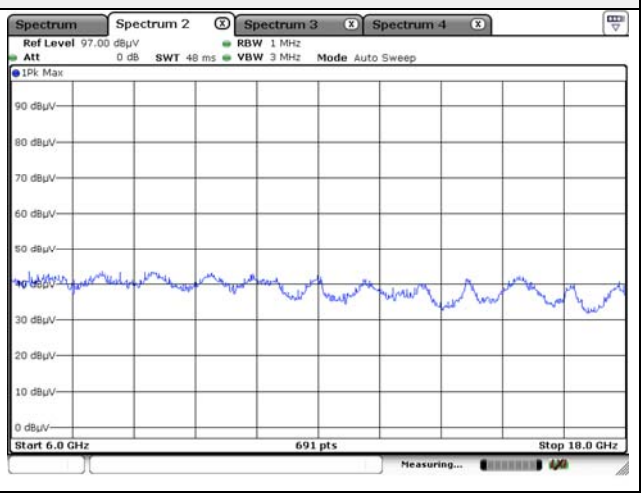

**Vertical // Peak for 1 ㎓ to 6 ㎓**




**Horizontal // Peak for 6 ㎓ to 18 ㎓**




**Vertical // Peak for 6 ㎓ to 18 ㎓**




Note.

1. No spurious emission were detected above 6 ㎓.

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Mode: UNII-3(VHT20)

Distance of measurement: 3 meter

Channel: 149

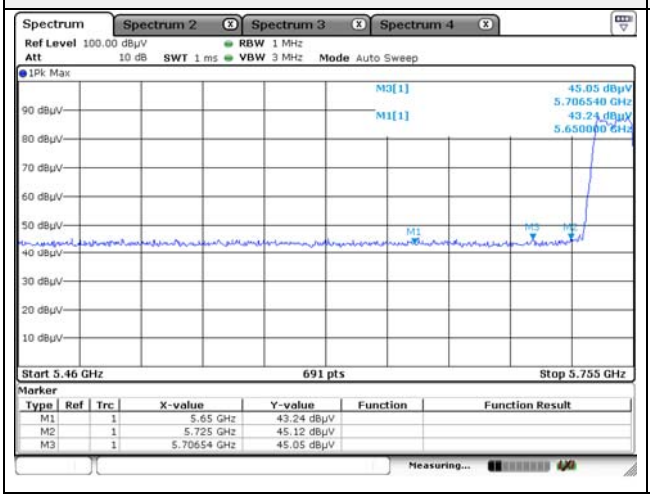
- **Spurious**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 1 061.50 | 54.09 | Peak | H | -8.29 | - | 45.80 | 74.00 | 28.20 |
| 1 517.40 | 48.56 | Peak | H | -5.51 | - | 43.05 | 74.00 | 30.95 |
| 2 125.20 | 47.87 | Peak | H | -0.67 | - | 47.20 | 68.20 | 21.00 |
| 1 524.60 | 53.08 | Peak | V | -5.45 | - | 47.63 | 74.00 | 26.37 |
| 1 850.20 | 51.14 | Peak | V | -2.35 | - | 48.79 | 68.20 | 19.41 |
| 2 125.20 | 49.37 | Peak | V | -0.67 | - | 48.70 | 68.20 | 19.50 |

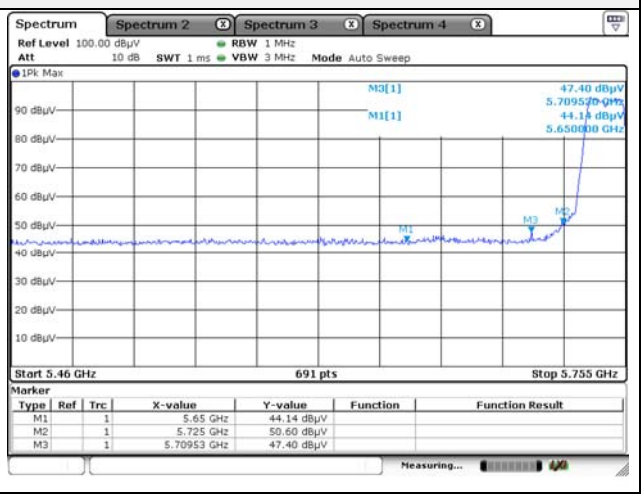
- **Band edge**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 5 706.54 | 45.05 | Peak | H | 8.69 | - | 53.74 | 107.03 | 53.29 |
| 5 725.00 | 45.12 | Peak | H | 8.77 | - | 53.89 | 122.20 | 68.31 |
| 5 709.53 | 47.40 | Peak | V | 8.70 | - | 56.10 | 107.87 | 51.77 |
| 5 725.00 | 50.60 | Peak | V | 8.77 | - | 59.37 | 122.20 | 62.83 |

**Restricted band // Horizontal // Peak**




**Restricted band // Vertical // Peak**

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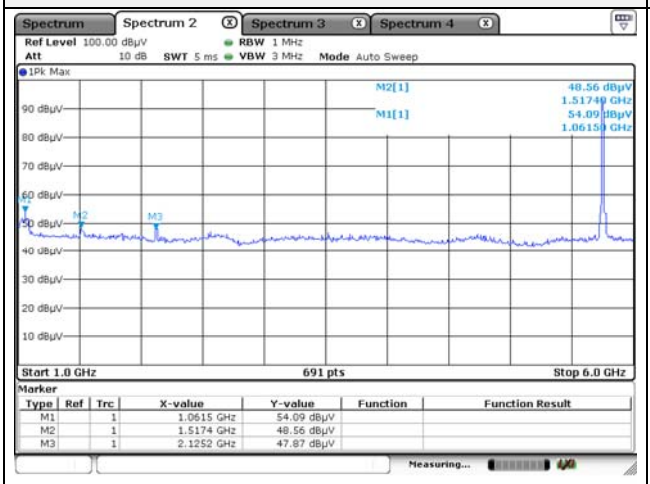
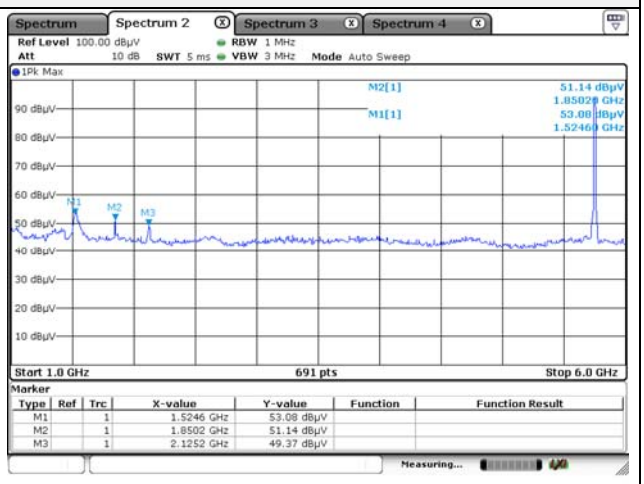
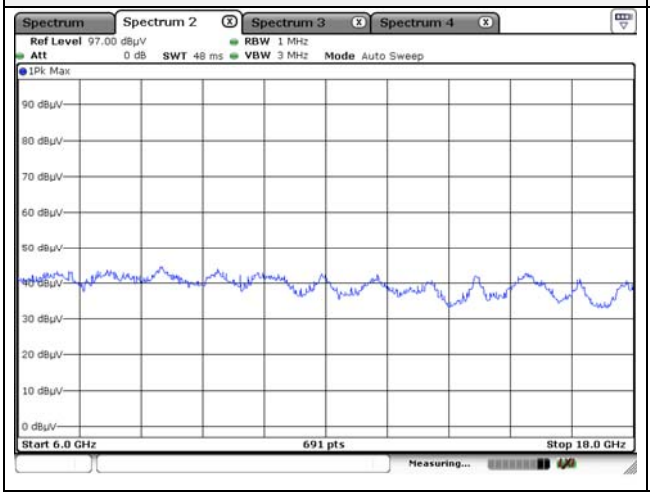
**Horizontal // Peak for 1 ㎓ to 6 ㎓**



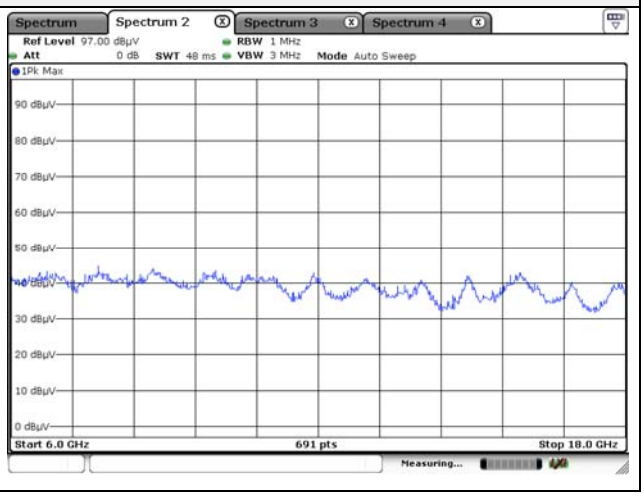

**Vertical // Peak for 1 ㎓ to 6 ㎓**




**Horizontal // Peak for 6 ㎓ to 18 ㎓**




**Vertical // Peak for 6 ㎓ to 18 ㎓**




Note.
1. No spurious emission were detected above 6 ㎓.

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Mode: UNII-3(VHT20)

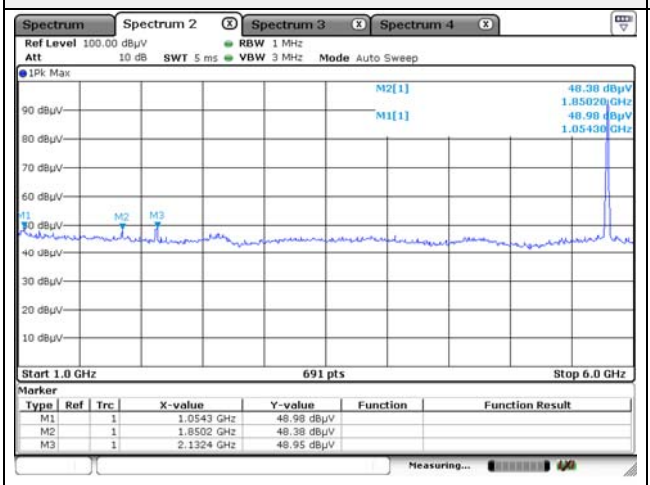
Distance of measurement: 3 meter

Channel: 157

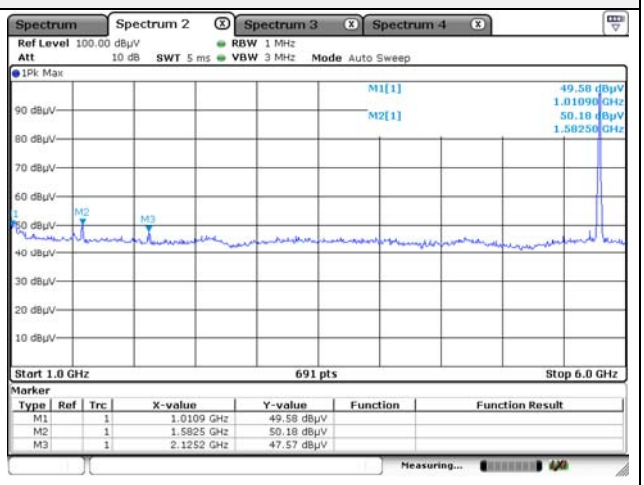
- **Spurious**

| Frequency (㎒) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 1 054.30 | 48.98 | Peak | H | -8.33 | - | 40.65 | 74.00 | 33.35 |
| 1 850.20 | 48.38 | Peak | H | -2.35 | - | 46.03 | 68.20 | 22.17 |
| 2 132.40 | 48.95 | Peak | H | -0.66 | - | 48.29 | 68.20 | 19.91 |
| 1 010.90 | 49.58 | Peak | V | -8.58 | - | 41.00 | 74.00 | 33.00 |
| 1 582.50 | 50.18 | Peak | V | -4.92 | - | 45.26 | 74.00 | 28.74 |
| 2 125.20 | 47.57 | Peak | V | -0.67 | - | 46.90 | 68.20 | 21.30 |

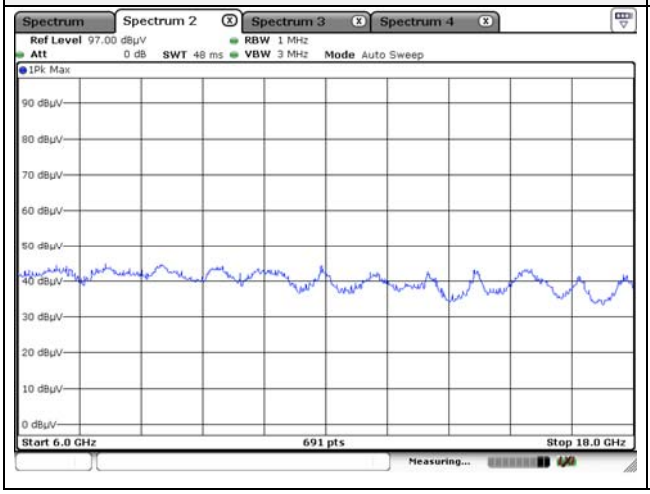
**Horizontal // Peak for 1 ㎓ to 6 ㎓**



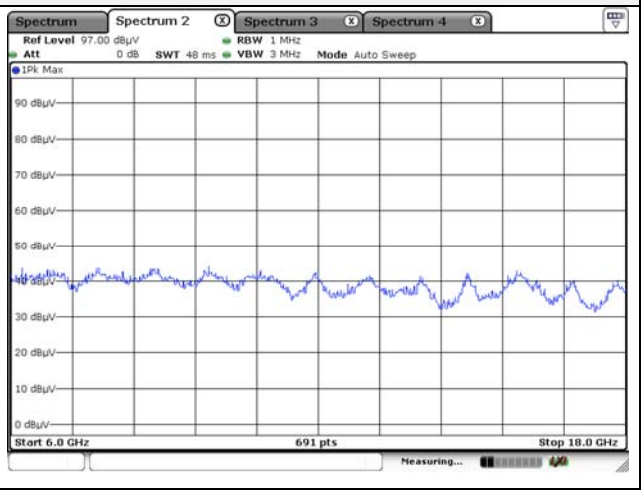

**Vertical // Peak for 1 ㎓ to 6 ㎓**




**Horizontal // Peak for 6 ㎓ to 18 ㎓**




**Vertical // Peak for 6 ㎓ to 18 ㎓**




Note.

1. No spurious emission were detected above 6 ㎓.

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Mode: UNII-3(VHT20)

Distance of measurement: 3 meter

Channel: 165

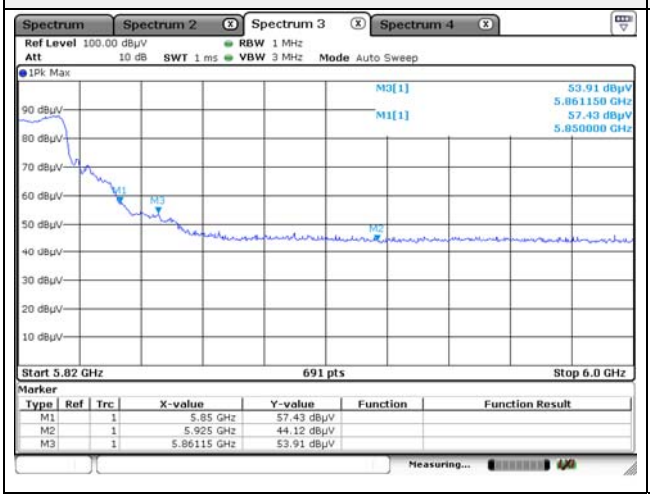
- **Spurious**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 1 061.50 | 51.04 | Peak | H | -8.29 | - | 42.75 | 74.00 | 31.25 |
| 1 517.40 | 48.51 | Peak | H | -5.51 | - | 43.00 | 74.00 | 31.00 |
| 2 125.20 | 49.54 | Peak | H | -0.67 | | 48.87 | 68.20 | 19.33 |
| 1 054.30 | 51.27 | Peak | V | -8.33 | | 42.94 | 74.00 | 31.06 |
| 1 531.80 | 51.20 | Peak | V | -5.38 | | 45.82 | 74.00 | 28.18 |
| 2 117.90 | 49.26 | Peak | V | -0.69 | | 48.57 | 68.20 | 19.63 |

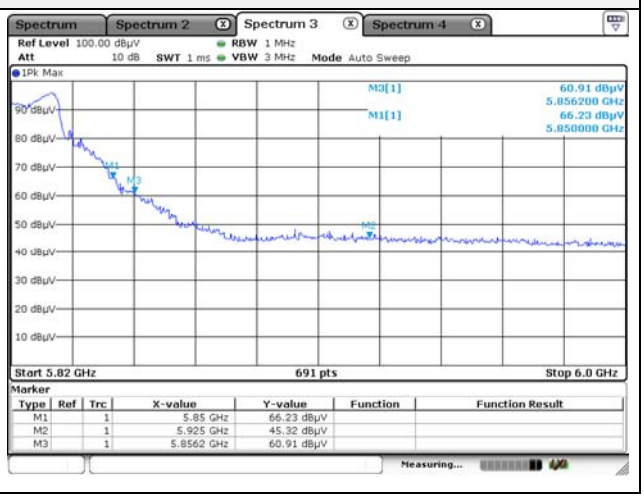
- **Band edge**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 5 850.00 | 57.43 | Peak | H | 9.32 | - | 66.75 | 122.20 | 55.45 |
| 5 861.15 | 53.91 | Peak | H | 9.36 | - | 63.27 | 109.08 | 45.81 |
| 5 850.00 | 66.23 | Peak | V | 9.32 | - | 75.55 | 122.20 | 46.65 |
| 5 856.20 | 60.91 | Peak | V | 9.34 | - | 70.25 | 110.46 | 40.21 |

**Restricted band // Horizontal // Peak**




**Restricted band // Vertical // Peak**

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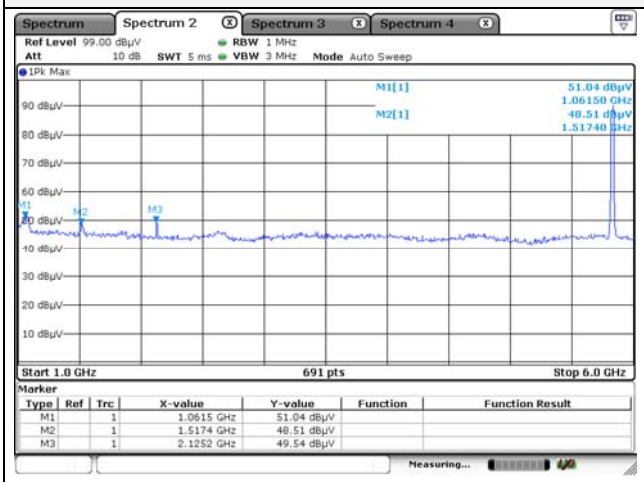
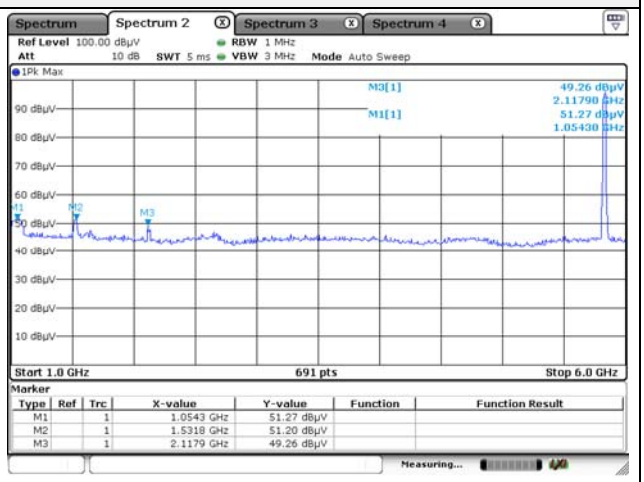
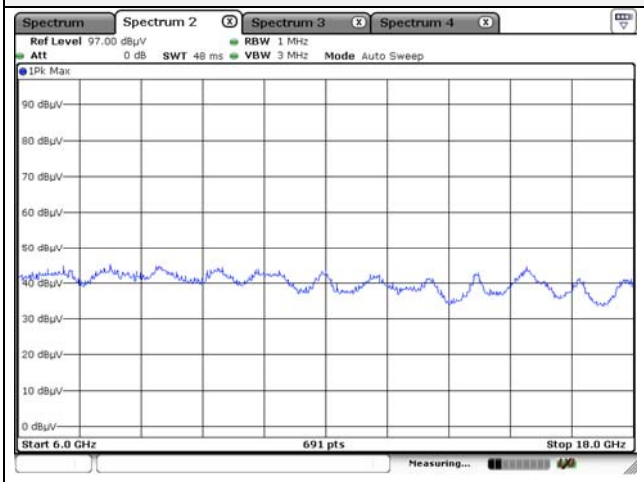
**Horizontal // Peak for 1 ㎓ to 6 ㎓**



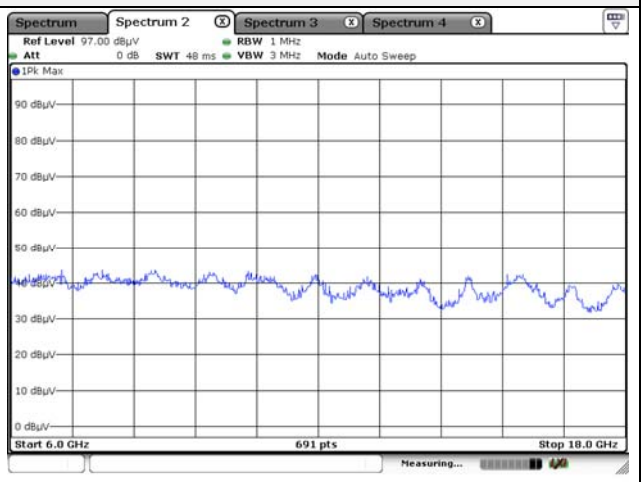

**Vertical // Peak for 1 ㎓ to 6 ㎓**




**Horizontal // Peak for 6 ㎓ to 18 ㎓**




**Vertical // Peak for 6 ㎓ to 18 ㎓**




Note.
1. No spurious emission were detected above 6 ㎓.

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Mode: UNII-1(VHT40)

Distance of measurement: 3 meter

Channel: 38

- **Spurious**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 1 076.00 | 52.32 | Peak | H | -8.21 | - | 44.11 | 74.00 | 29.89 |
| 1 531.80 | 48.27 | Peak | H | -5.38 | - | 42.89 | 74.00 | 31.11 |
| 1 835.70 | 48.88 | Peak | H | -2.48 | - | 46.40 | 68.20 | 21.80 |
| 1 039.80 | 52.31 | Peak | V | -8.42 | - | 43.89 | 74.00 | 30.11 |
| 1 517.40 | 49.83 | Peak | V | -5.51 | - | 44.32 | 74.00 | 29.68 |
| 1 850.20 | 50.88 | Peak | V | -2.35 | - | 48.53 | 68.20 | 19.67 |

- **Band edge**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 4 755.00 | 45.92 | Peak | H | 6.62 | - | 52.54 | 74.00 | 21.46 |
| 4 729.80 | 45.21 | Peak | V | 6.43 | - | 51.64 | 74.00 | 22.36 |

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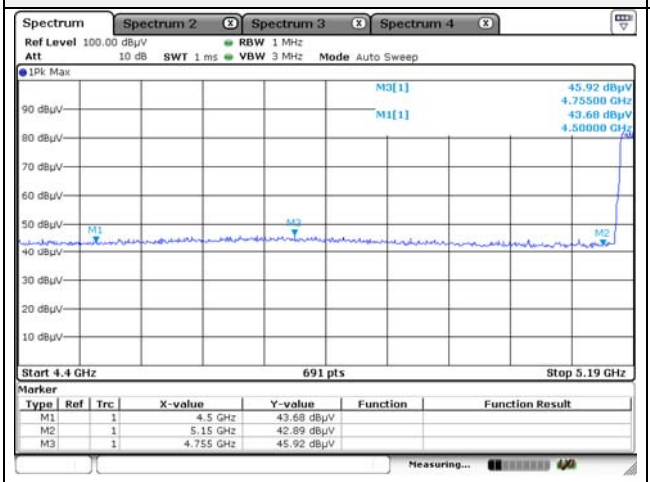
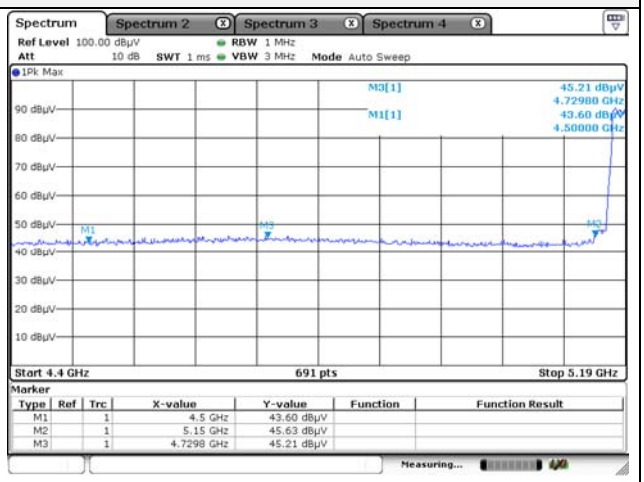
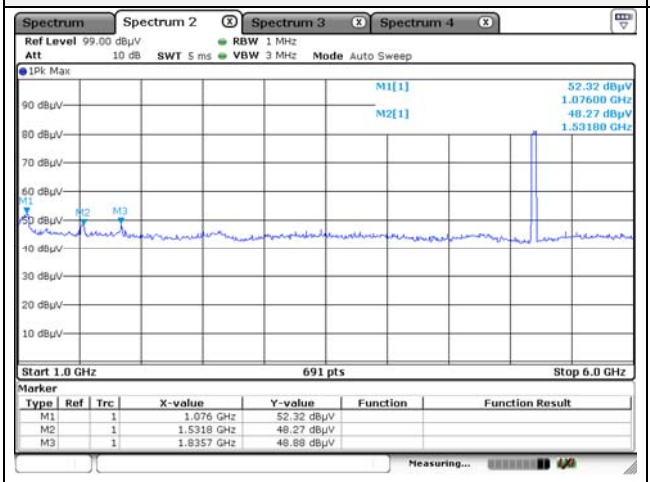
**Restricted band // Horizontal // Peak**



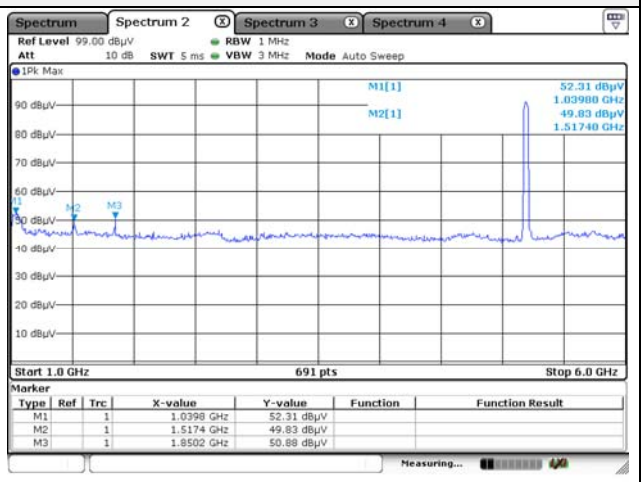

**Restricted band // Vertical // Peak**



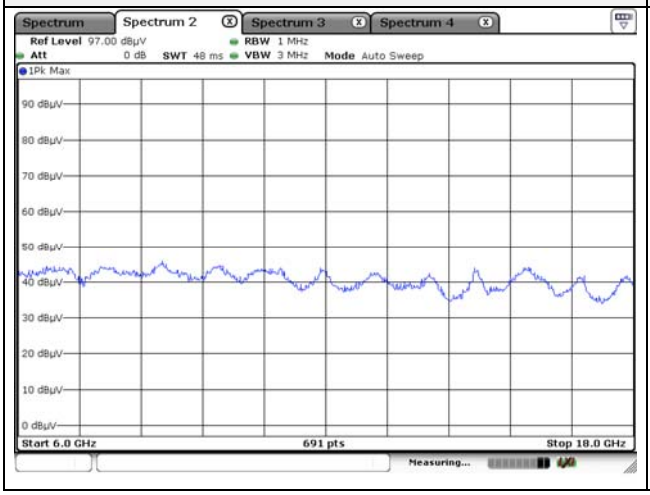

**Horizontal // Peak for 1 ㎓ to 6 ㎓**



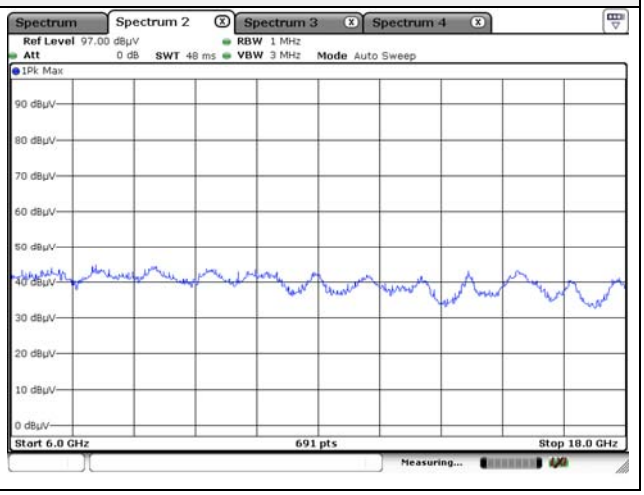

**Vertical // Peak for 1 ㎓ to 6 ㎓**




**Horizontal // Peak for 6 ㎓ to 18 ㎓**




**Vertical // Peak for 6 ㎓ to 18 ㎓**




Note.

1. No spurious emission were detected above 6 ㎓.

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Mode: UNII-1(VHT40)

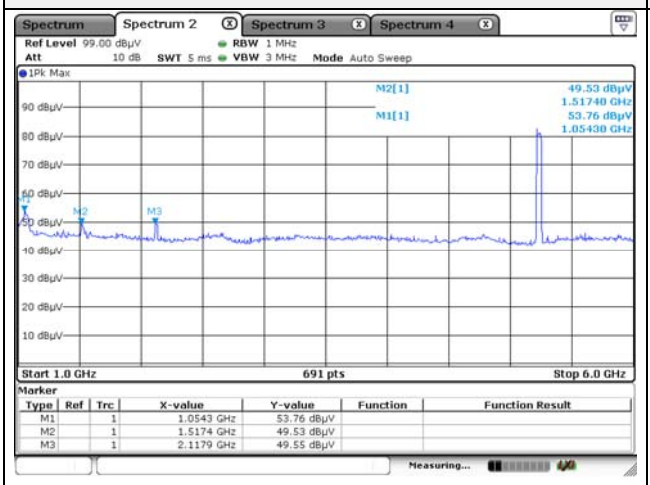
Distance of measurement: 3 meter

Channel: 46

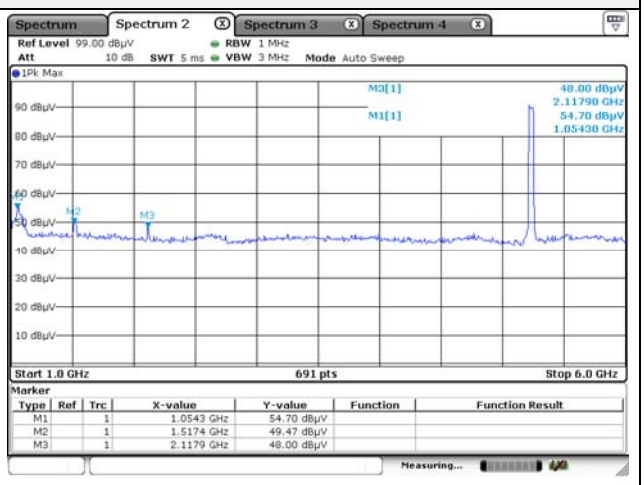
- **Spurious**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 1 054.30 | 53.76 | Peak | H | -8.33 | - | 45.43 | 74.00 | 28.57 |
| 1 517.40 | 49.53 | Peak | H | -5.51 | - | 44.02 | 74.00 | 29.98 |
| 2 117.90 | 49.55 | Peak | H | -0.69 | - | 48.86 | 68.20 | 19.34 |
| 1 054.30 | 54.70 | Peak | V | -8.33 | - | 46.37 | 74.00 | 27.63 |
| 1 517.40 | 49.47 | Peak | V | -5.51 | - | 43.96 | 74.00 | 30.04 |
| 2 117.90 | 48.00 | Peak | V | -0.69 | - | 47.31 | 68.20 | 20.89 |

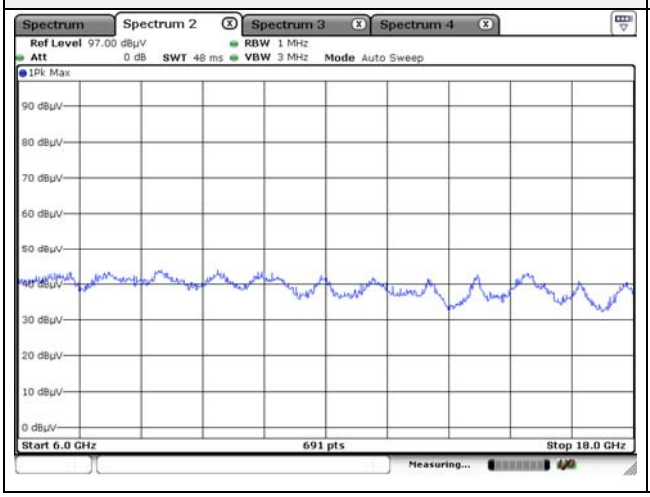
**Horizontal // Peak for 1 GHz to 6 GHz**



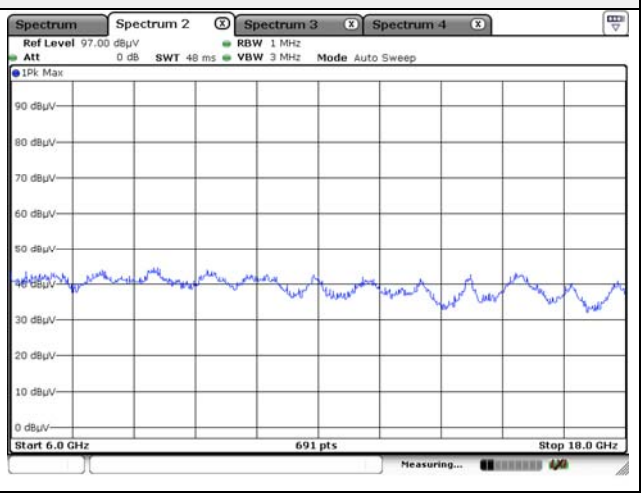

**Vertical // Peak for 1 GHz to 6 GHz**




**Horizontal // Peak for 6 GHz to 18 GHz**




**Vertical // Peak for 6 GHz to 18 GHz**




Note.

1. No spurious emission were detected above 6 GHz.

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Mode: UNII-2A(VHT40)

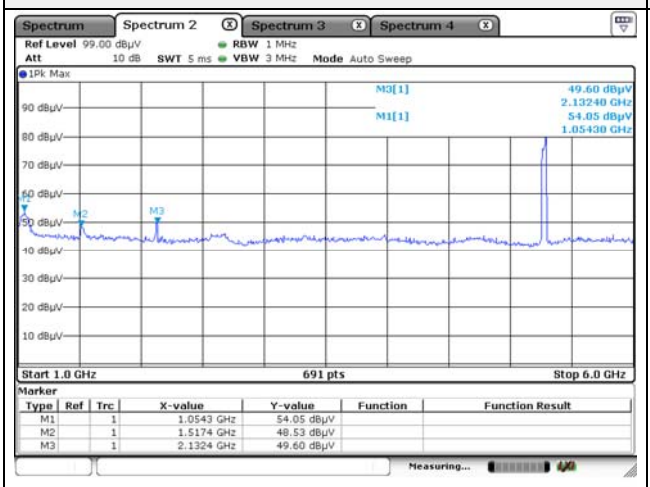
Distance of measurement: 3 meter

Channel: 54

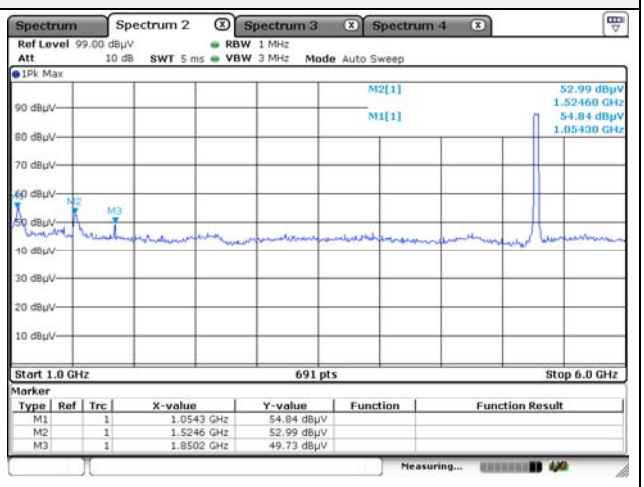
- **Spurious**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 1 054.30 | 54.05 | Peak | H | -8.33 | - | 45.72 | 74.00 | 28.28 |
| 1 517.40 | 48.53 | Peak | H | -5.51 | - | 43.02 | 74.00 | 30.98 |
| 2 132.40 | 49.60 | Peak | H | -0.66 | - | 48.94 | 68.20 | 19.26 |
| 1 054.30 | 54.84 | Peak | V | -8.33 | - | 46.51 | 74.00 | 27.49 |
| 1 524.60 | 52.99 | Peak | V | -5.45 | - | 47.54 | 74.00 | 26.46 |
| 1 850.20 | 49.73 | Peak | V | -2.35 | - | 47.38 | 68.20 | 20.82 |

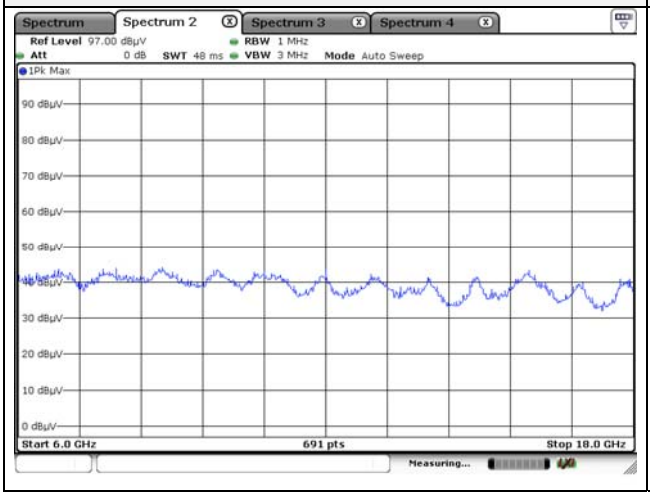
**Horizontal // Peak for 1 GHz to 6 GHz**



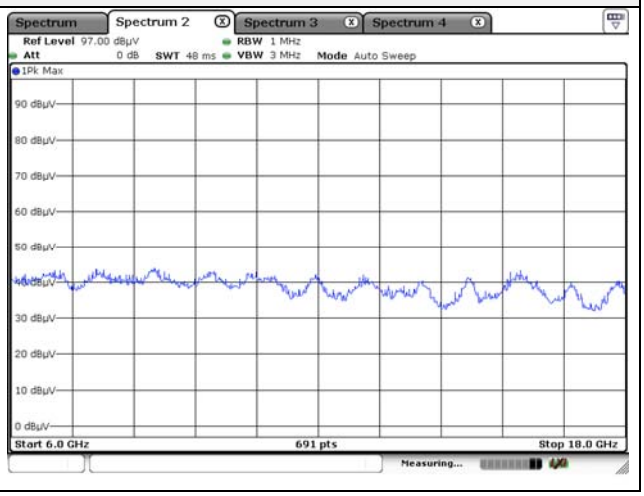

**Vertical // Peak for 1 GHz to 6 GHz**




**Horizontal // Peak for 6 GHz to 18 GHz**




**Vertical // Peak for 6 GHz to 18 GHz**




Note.

1. No spurious emission were detected above 6 GHz.

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Mode: UNII-2A(VHT40)

Distance of measurement: 3 meter

Channel: 62

- **Spurious**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 1 047.00 | 53.53 | Peak | H | -8.37 | - | 45.16 | 74.00 | 28.84 |
| 1 531.80 | 49.32 | Peak | H | -5.38 | - | 43.94 | 74.00 | 30.06 |
| 2 117.90 | 46.73 | Peak | H | -0.69 | - | 46.04 | 68.20 | 22.16 |
| 1 054.30 | 54.00 | Peak | V | -8.33 | - | 45.67 | 74.00 | 28.33 |
| 1 517.40 | 51.43 | Peak | V | -5.51 | - | 45.92 | 74.00 | 28.08 |
| 2 125.20 | 48.50 | Peak | V | -0.67 | - | 47.83 | 68.20 | 20.37 |

- **Band edge**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 5 377.03 | 46.00 | Peak | H | 7.91 | - | 53.91 | 74.00 | 20.09 |
| 5 350.00 | 46.31 | Peak | V | 7.95 | - | 54.26 | 74.00 | 19.74 |
| 5 352.49 | 48.51 | Peak | V | 7.94 | | 56.45 | 74.00 | 17.55 |
| 5 350.00 | 33.64 | Average | V | 7.95 | 3.42 | 45.01 | 54.00 | 8.99 |
| 5 387.22 | 33.88 | Average | V | 7.90 | 3.42 | 45.20 | 54.00 | 8.80 |

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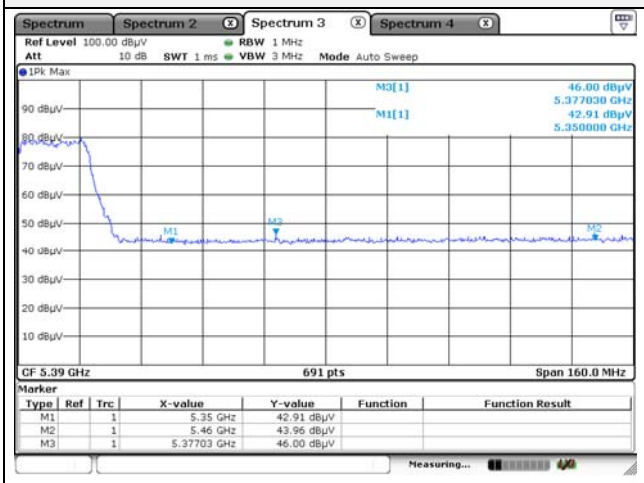
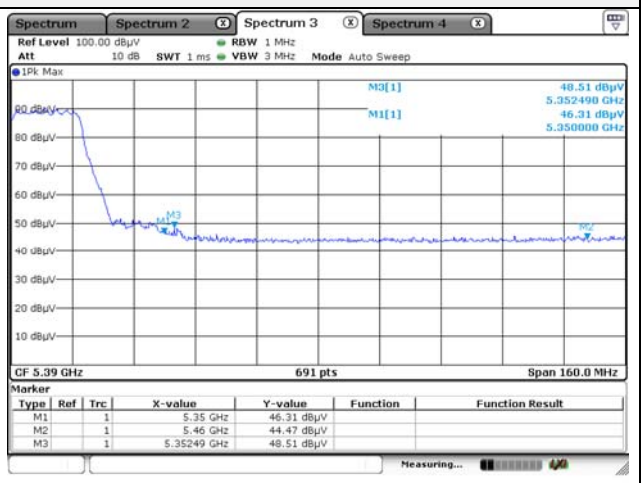
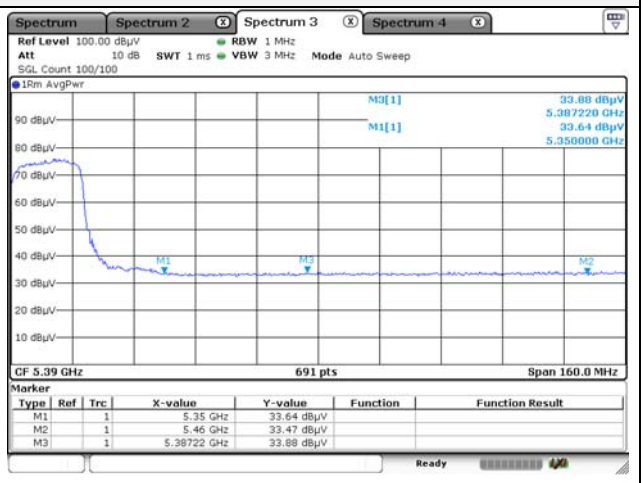
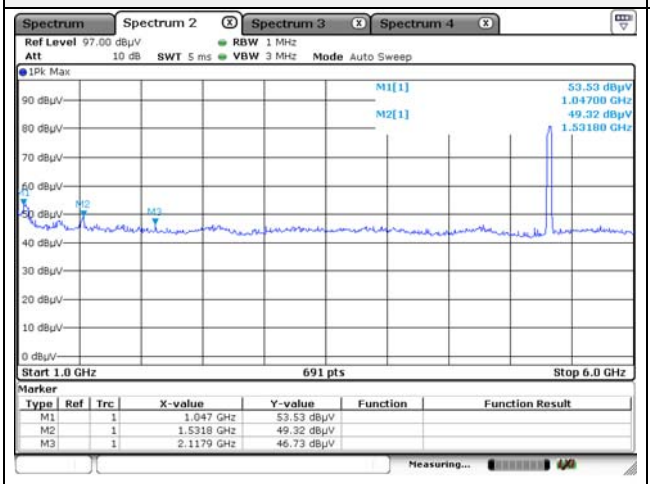
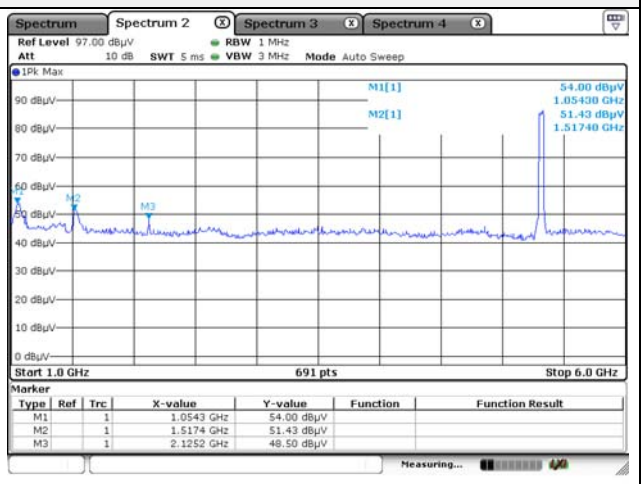
| Restricted band // Horizontal // Peak | Restricted band // Vertical // Peak |
|---|---|
|  |  |
| **Restricted band // Horizontal // Peak** | **Restricted band // Vertical // Peak** |
| Blank |  |

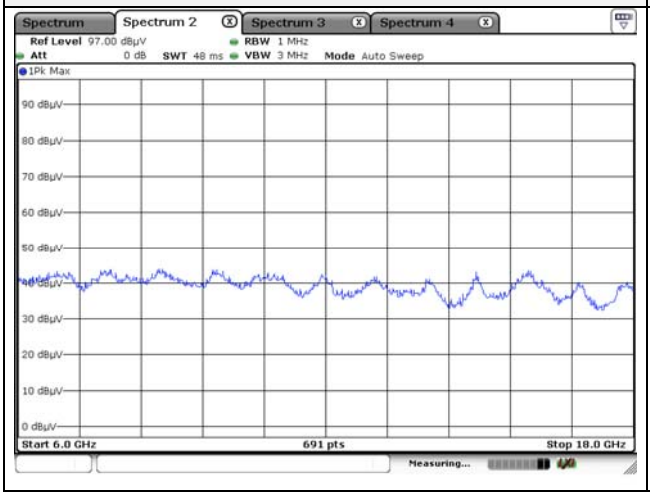
**Horizontal // Peak for 1 ㎓ to 6 ㎓**



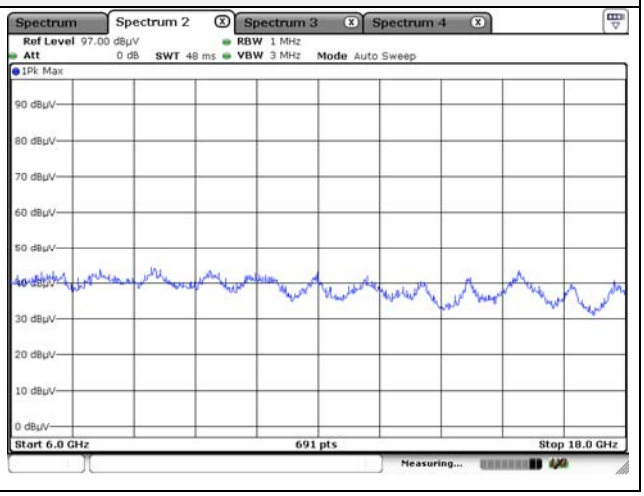

**Vertical // Peak for 1 ㎓ to 6 ㎓**




**Horizontal // Peak for 6 ㎓ to 18 ㎓**




**Vertical // Peak for 6 ㎓ to 18 ㎓**




Note.
1. No spurious emission were detected above 6 ㎓.
2. Average test would be performed if the peak result were greater than the average limit.

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Mode: UNII-2C(VHT40)

Distance of measurement: 3 meter

Channel: 102

- **Spurious**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 1 061.50 | 53.79 | Peak | H | -8.29 | - | 44.44 | 74.00 | 29.56 |
| 1 531.80 | 47.75 | Peak | H | -5.38 | - | 44.28 | 74.00 | 29.72 |
| 1 054.30 | 53.17 | Peak | V | -8.33 | - | 45.50 | 74.00 | 28.50 |
| 1 531.80 | 50.06 | Peak | V | -5.38 | - | 42.37 | 74.00 | 31.63 |
| 2 125.20 | 47.51 | Peak | V | -0.67 | - | 44.84 | 68.20 | 23.36 |

- **Band edge**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 5 447.39 | 46.02 | Peak | H | 7.83 | - | 53.85 | 74.00 | 20.15 |
| 5 451.82 | 45.92 | Peak | V | 7.82 | - | 53.74 | 74.00 | 20.26 |

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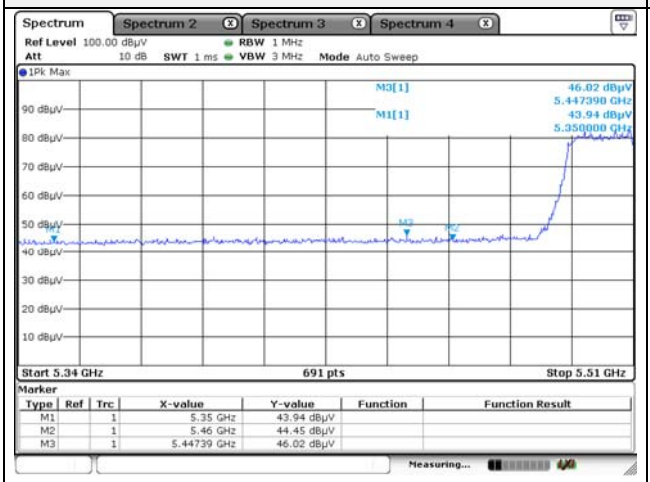
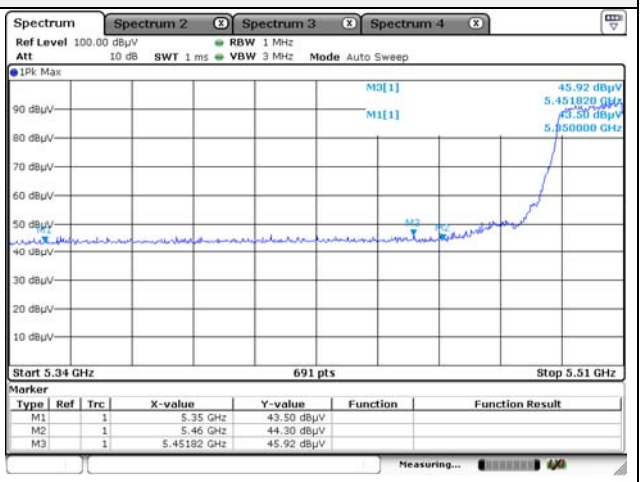
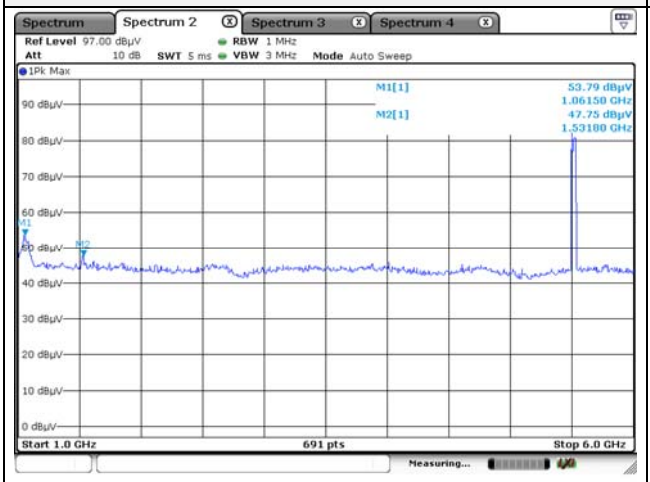
**Restricted band // Horizontal // Peak**



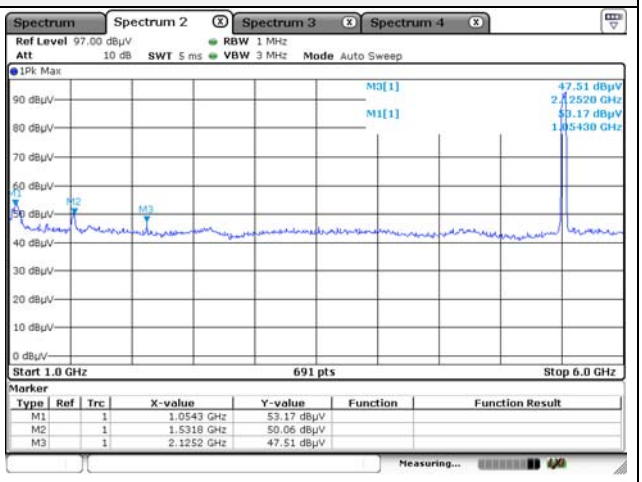

**Restricted band // Vertical // Peak**



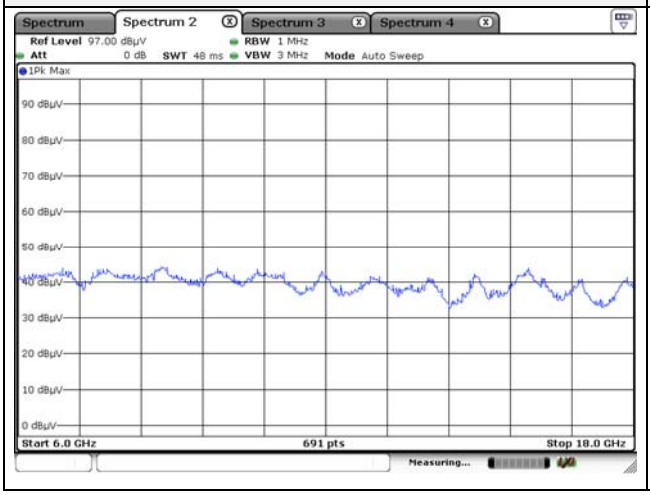

**Horizontal // Peak for 1 ㎓ to 6 ㎓**



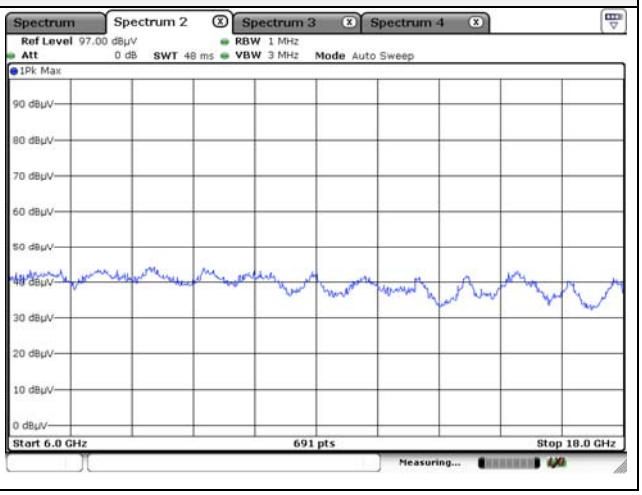

**Vertical // Peak for 1 ㎓ to 6 ㎓**




**Horizontal // Peak for 6 ㎓ to 18 ㎓**




**Vertical // Peak for 6 ㎓ to 18 ㎓**




Note.

1. No spurious emission were detected above 6 ㎓.

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Mode: UNII-2C(VHT40)

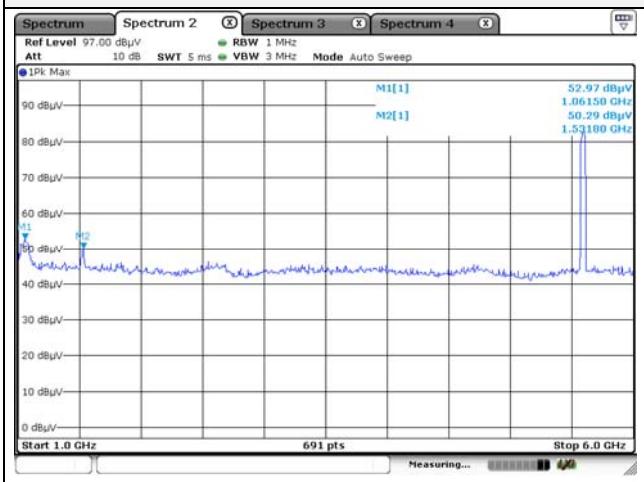
Distance of measurement: 3 meter

Channel: 118

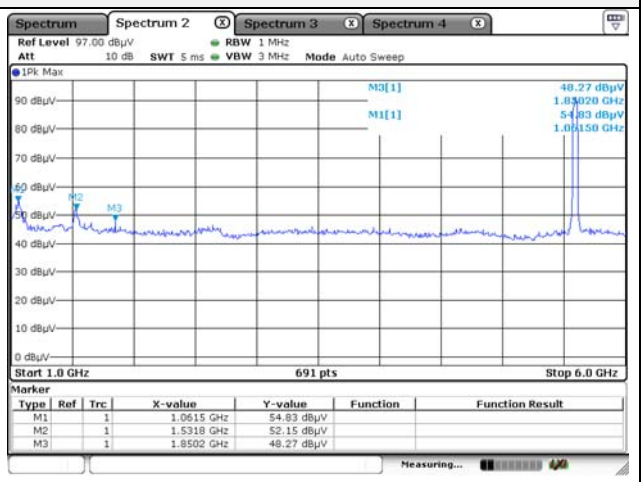
- **Spurious**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 1 061.50 | 52.97 | Peak | H | -8.29 | - | 44.68 | 74.00 | 29.32 |
| 1 531.80 | 50.29 | Peak | H | -5.38 | - | 44.91 | 74.00 | 29.09 |
| 1 061.50 | 54.83 | Peak | V | -8.29 | - | 46.54 | 74.00 | 27.46 |
| 1 531.80 | 52.15 | Peak | V | -5.38 | - | 46.77 | 74.00 | 27.23 |
| 1 850.20 | 48.27 | Peak | V | -2.35 | - | 45.92 | 68.20 | 22.28 |

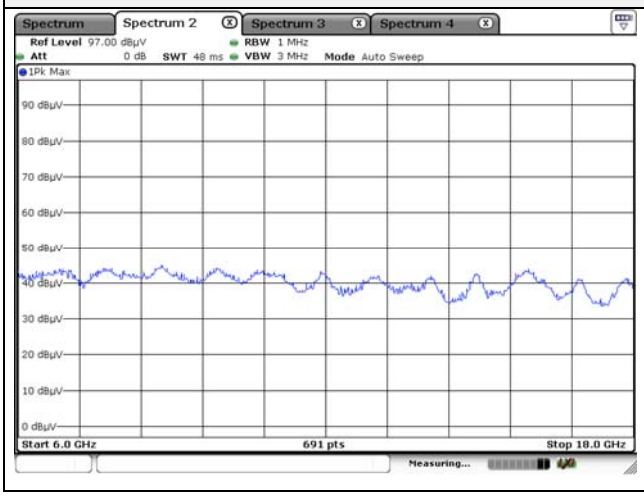
**Horizontal // Peak for 1 GHz to 6 GHz**



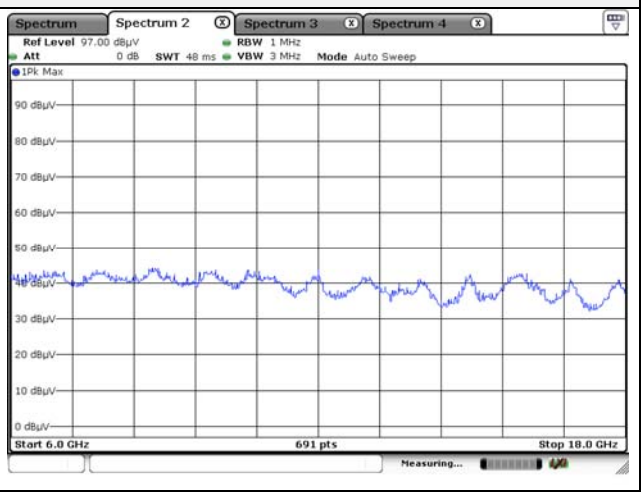

**Vertical // Peak for 1 GHz to 6 GHz**




**Horizontal // Peak for 6 GHz to 18 GHz**




**Vertical // Peak for 6 GHz to 18 GHz**




Note.
1. No spurious emission were detected above 6 GHz.

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Mode: UNII-2C(VHT40)

Distance of measurement: 3 meter

Channel: 134

- **Spurious**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 1 061.50 | 53.87 | Peak | H | -8.29 | - | 45.58 | 74.00 | 28.42 |
| 1 054.30 | 52.92 | Peak | V | -8.33 | - | 44.59 | 74.00 | 29.41 |
| 1 524.60 | 50.58 | Peak | V | -5.45 | - | 45.13 | 74.00 | 28.87 |

- **Band edge**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 5 727.90 | 46.75 | Peak | H | 8.79 | - | 55.54 | 68.20 | 12.66 |
| 5 763.00 | 45.86 | Peak | V | 8.95 | - | 54.81 | 68.20 | 13.39 |

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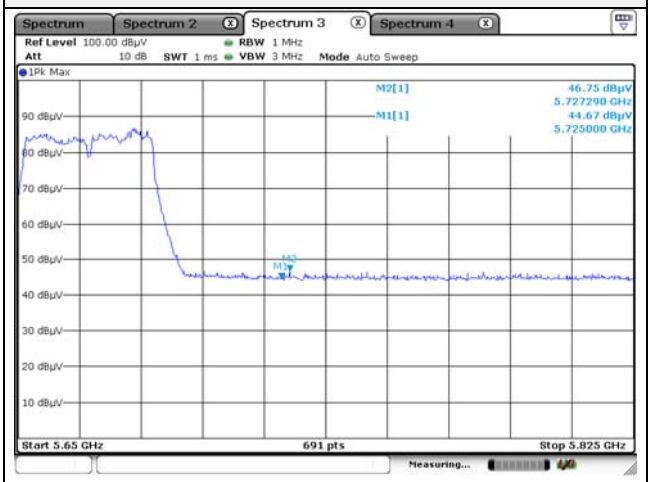
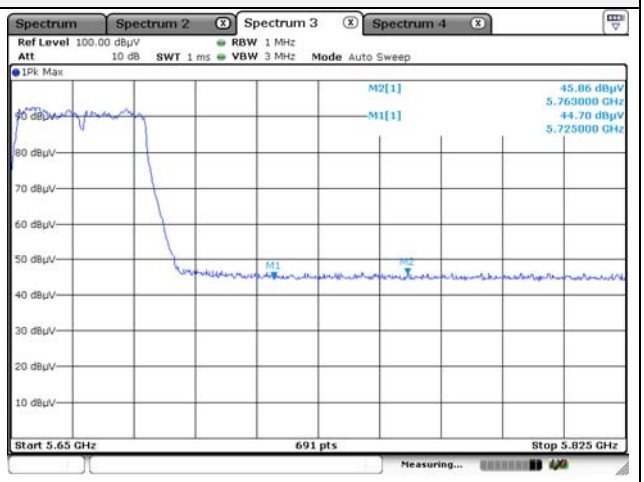
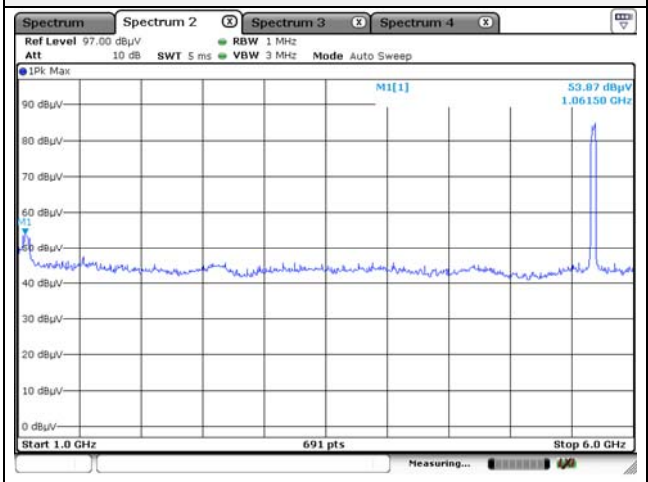
**Restricted band // Horizontal // Peak**



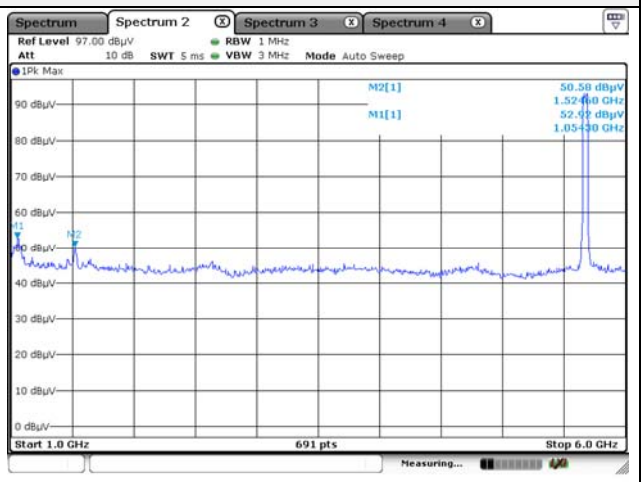

**Restricted band // Vertical // Peak**



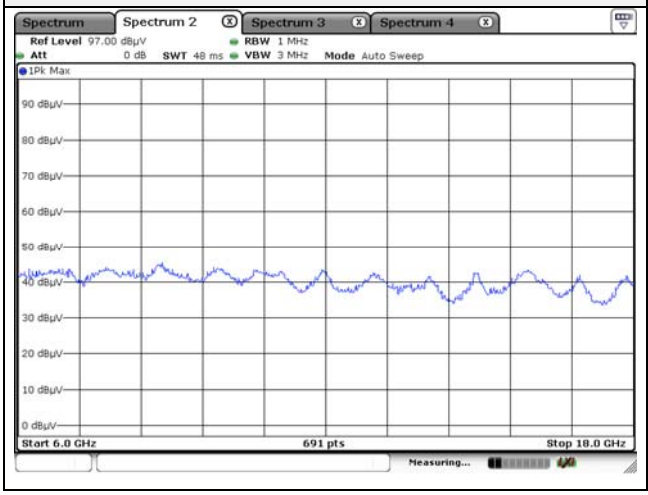

**Horizontal // Peak for 1 ㎓ to 6 ㎓**



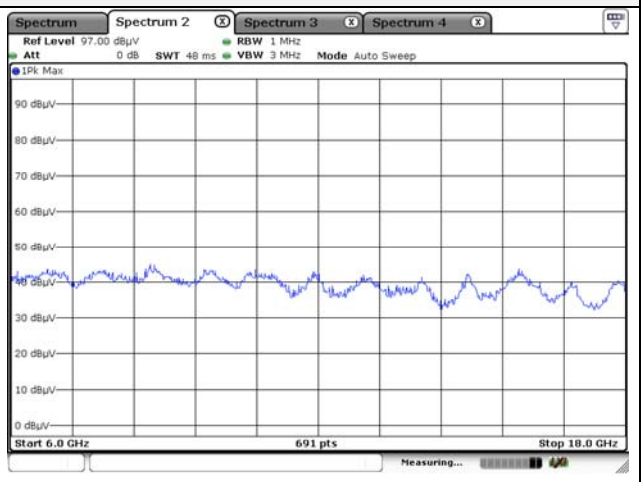

**Vertical // Peak for 1 ㎓ to 6 ㎓**




**Horizontal // Peak for 6 ㎓ to 18 ㎓**




**Vertical // Peak for 6 ㎓ to 18 ㎓**




Note.

1. No spurious emission were detected above 6 ㎓.

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Mode: UNII-2C(VHT40)

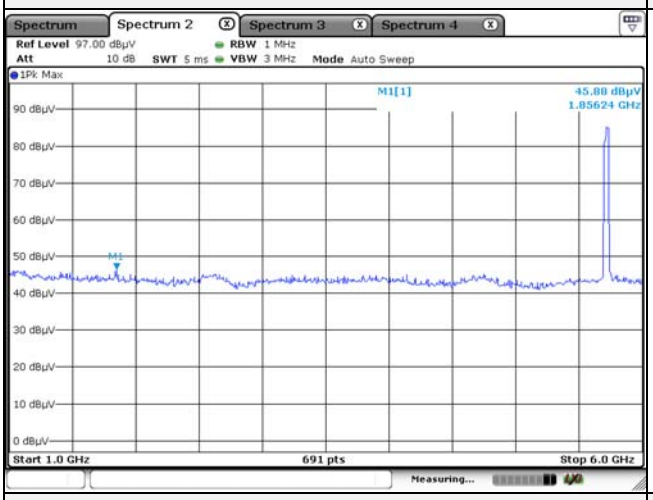
Distance of measurement: 3 meter

Channel: 142

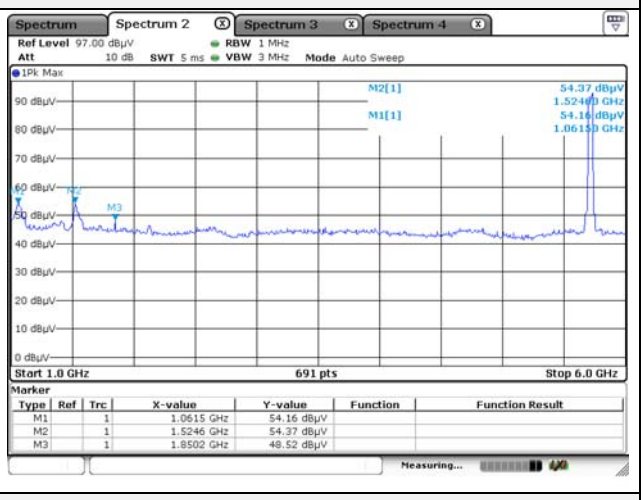
- **Spurious**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 1 856.40 | 45.88 | Peak | H | -2.29 | - | 43.59 | 68.20 | 24.61 |
| 1 061.50 | 54.16 | Peak | V | -8.29 | - | 45.87 | 74.00 | 28.13 |
| 1 524.60 | 54.37 | Peak | V | -5.45 | - | 48.92 | 74.00 | 25.08 |
| 1 850.20 | 48.52 | Peak | V | -2.35 | - | 46.17 | 68.20 | 22.03 |

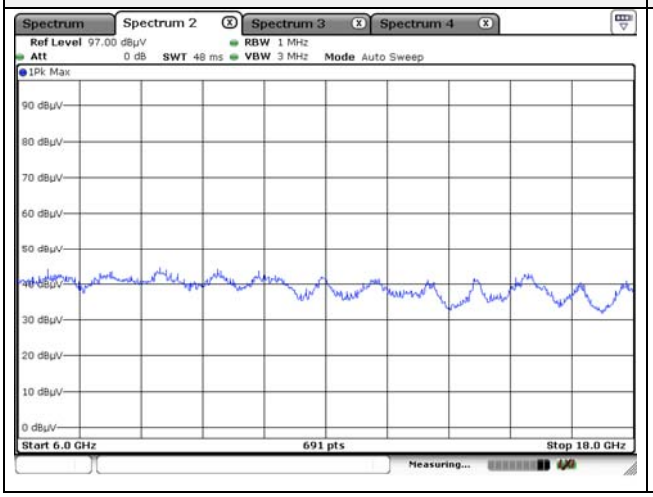
**Horizontal // Peak for 1 GHz to 6 GHz**



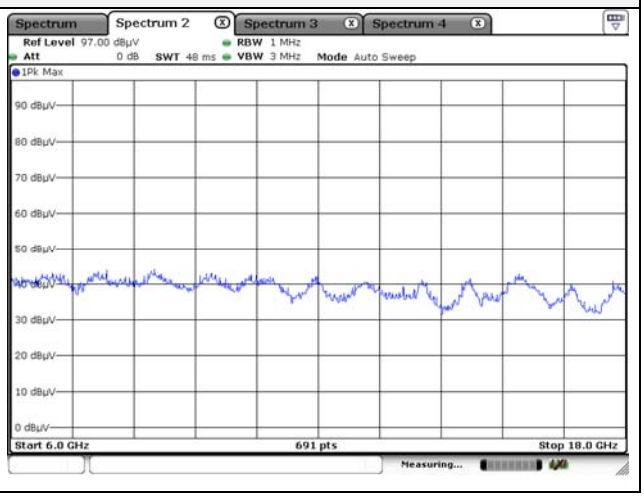

**Vertical // Peak for 1 GHz to 6 GHz**




**Horizontal // Peak for 6 GHz to 18 GHz**




**Vertical // Peak for 6 GHz to 18 GHz**




Note.
1. No spurious emission were detected above 6 GHz.

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Mode: UNII-3(VHT40)

Distance of measurement: 3 meter

Channel: 151

- **Spurious**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 1 061.50 | 52.42 | Peak | H | -8.29 | - | 44.13 | 74.00 | 29.87 |
| 1 517.40 | 49.24 | Peak | H | -5.51 | - | 43.73 | 74.00 | 30.27 |
| 1 061.50 | 53.25 | Peak | V | -8.29 | - | 44.96 | 74.00 | 29.04 |
| 1 517.40 | 49.89 | Peak | V | -5.51 | - | 44.38 | 74.00 | 29.62 |
| 2 125.20 | 49.01 | Peak | V | -0.67 | - | 48.34 | 68.20 | 19.86 |

- **Band edge**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 5 715.94 | 43.01 | Peak | H | 8.73 | - | 51.74 | 109.66 | 57.92 |
| 5 725.00 | 41.95 | Peak | H | 8.77 | - | 50.72 | 122.20 | 71.48 |
| 5 708.68 | 42.60 | Peak | V | 8.70 | - | 51.30 | 107.63 | 56.33 |
| 5 725.00 | 46.53 | Peak | V | 8.77 | - | 55.30 | 122.20 | 66.90 |

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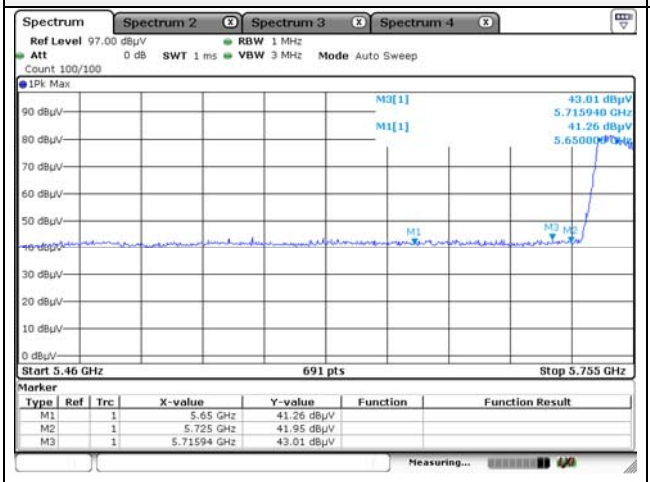
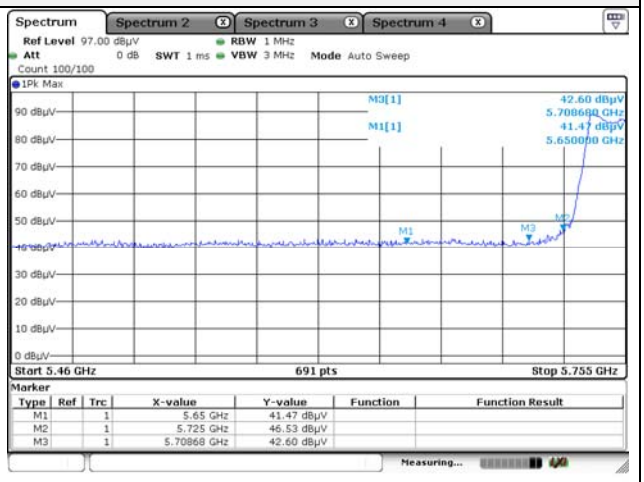
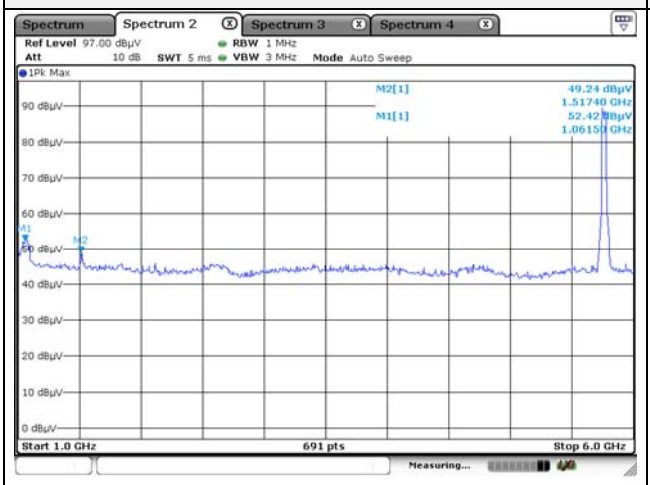
**Restricted band // Horizontal // Peak**



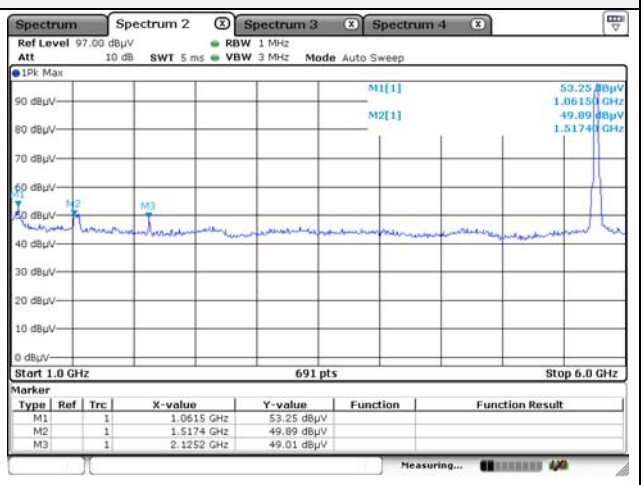

**Restricted band // Vertical // Peak**



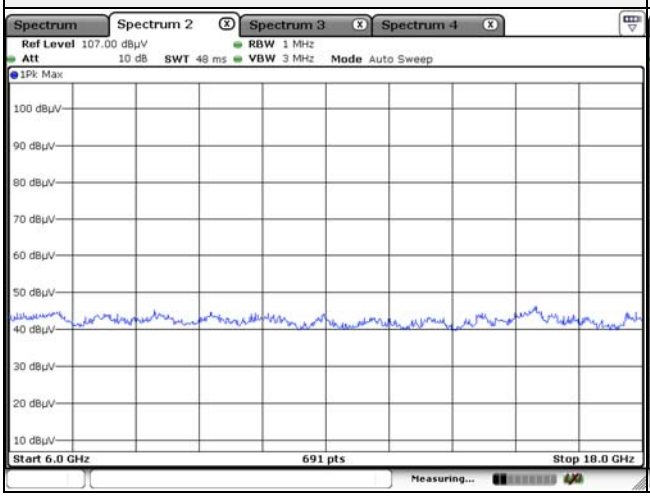

**Horizontal // Peak for 1 ㎓ to 6 ㎓**



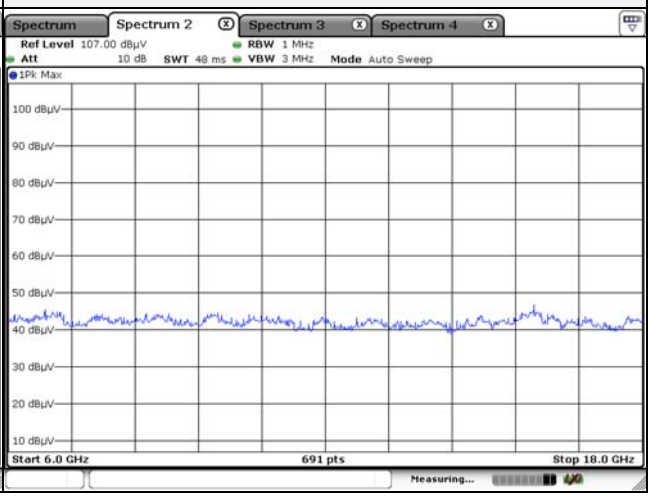

**Vertical // Peak for 1 ㎓ to 6 ㎓**




**Horizontal // Peak for 6 ㎓ to 18 ㎓**




**Vertical // Peak for 6 ㎓ to 18 ㎓**




Note.

1. No spurious emission were detected above 6 ㎓.

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Mode: UNII-3(VHT40)

Distance of measurement: 3 meter

Channel: 159

- **Spurious**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 1 068.70 | 50.43 | Peak | H | -8.25 | - | 42.18 | 74.00 | 31.82 |
| 1 539.10 | 47.25 | Peak | H | -5.31 | - | 41.94 | 74.00 | 32.06 |
| 1 068.70 | 53.97 | Peak | V | -8.25 | - | 45.72 | 74.00 | 28.28 |
| 1 589.70 | 51.30 | Peak | V | -4.85 | - | 46.45 | 74.00 | 27.55 |
| 1 850.20 | 49.04 | Peak | V | -2.35 | - | 46.69 | 68.20 | 21.51 |

- **Band edge**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 5 850.00 | 49.06 | Peak | H | 9.32 | - | 58.38 | 122.20 | 63.82 |
| 5 851.98 | 48.31 | Peak | H | 9.33 | - | 57.64 | 117.69 | 60.05 |
| 5 850.00 | 43.97 | Peak | V | 9.32 | - | 53.29 | 122.20 | 68.91 |
| 5 853.90 | 51.16 | Peak | V | 9.33 | - | 60.49 | 113.31 | 52.82 |

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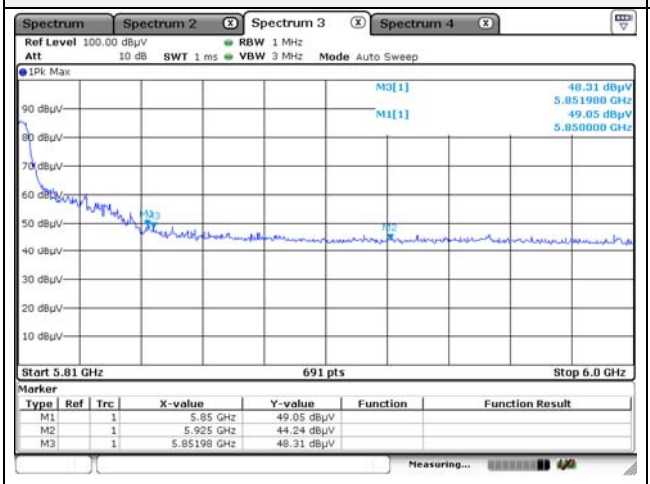
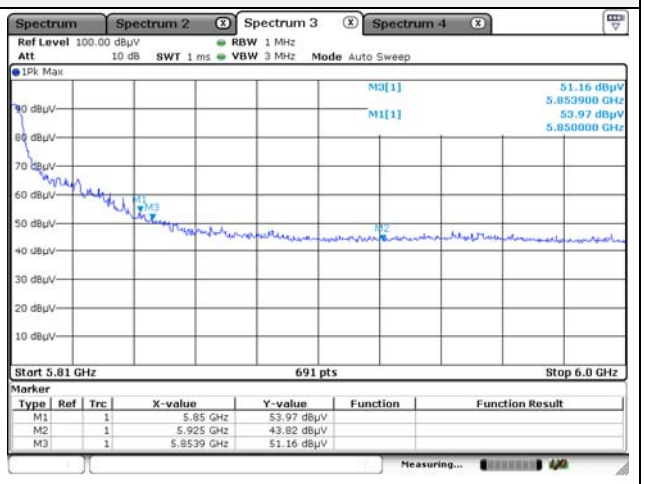
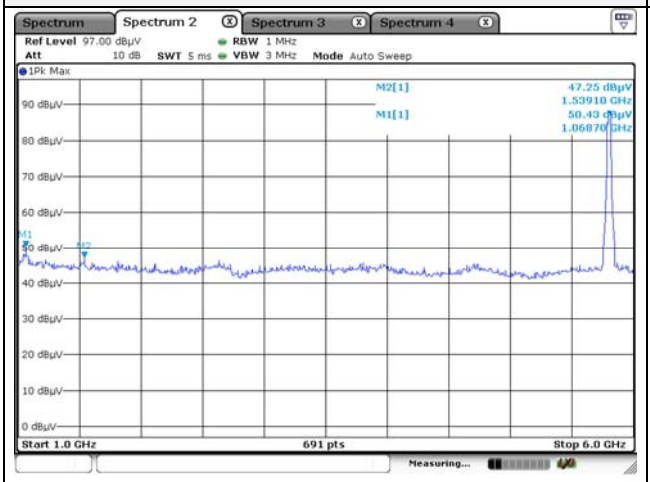
**Restricted band // Horizontal // Peak**



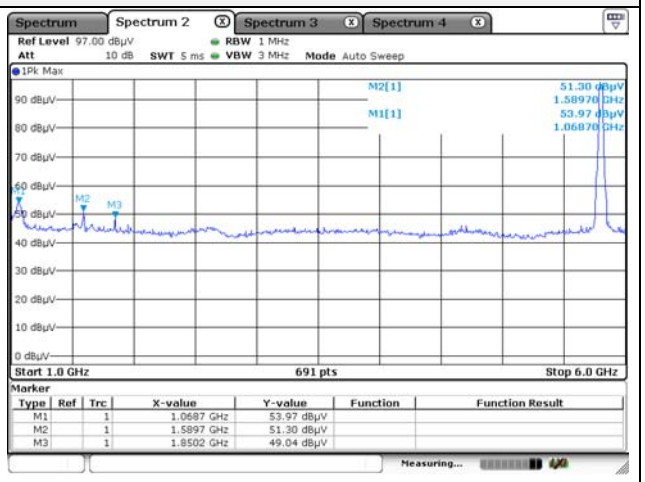

**Restricted band // Vertical // Peak**



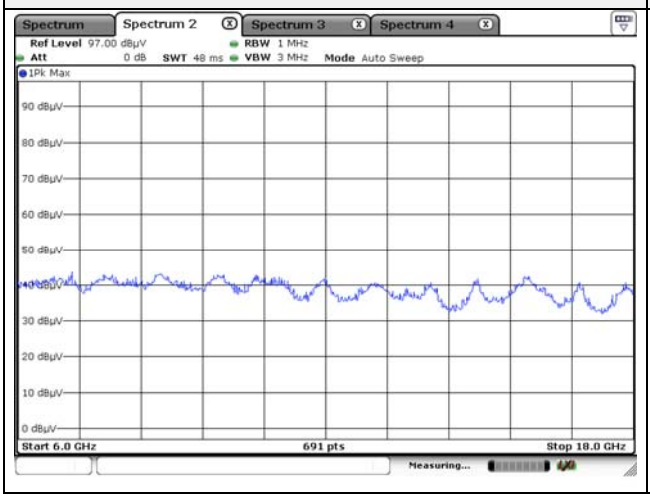

**Horizontal // Peak for 1 ㎓ to 6 ㎓**



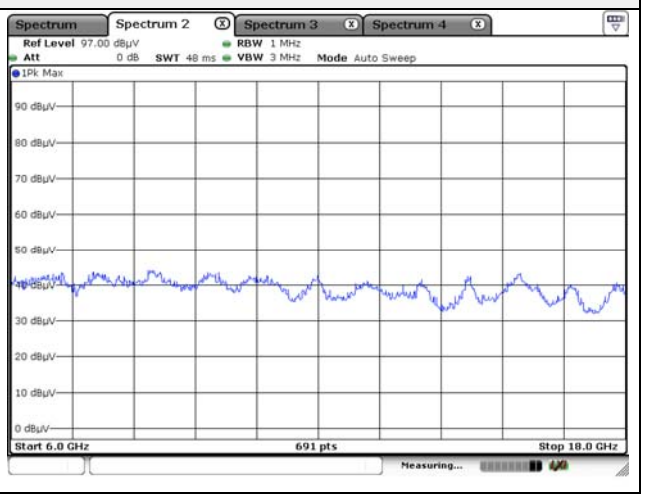

**Vertical // Peak for 1 ㎓ to 6 ㎓**




**Horizontal // Peak for 6 ㎓ to 18 ㎓**




**Vertical // Peak for 6 ㎓ to 18 ㎓**




Note.

1. No spurious emission were detected above 6 ㎓.

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Mode: UNII-1(VHT80)

Distance of measurement: 3 meter

Channel: 42

- **Spurious**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 1 068.70 | 51.08 | Peak | H | -8.25 | - | 42.83 | 74.00 | 31.17 |
| 1 517.40 | 47.39 | Peak | H | -5.51 | - | 41.88 | 74.00 | 32.12 |
| 1 814.00 | 48.05 | Peak | H | -2.68 | - | 45.37 | 68.20 | 22.83 |
| 1 061.50 | 55.35 | Peak | V | -8.29 | - | 47.06 | 74.00 | 26.94 |
| 1 517.40 | 48.63 | Peak | V | -5.51 | - | 43.12 | 74.00 | 30.88 |
| 1 850.20 | 47.94 | Peak | V | -2.35 | - | 45.59 | 68.20 | 22.61 |

- **Band edge**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 4 646.40 | 46.22 | Peak | H | 5.79 | - | 52.01 | 74.00 | 21.99 |
| 5 123.10 | 50.49 | Peak | V | 8.26 | - | 58.75 | 74.00 | 15.25 |
| 5 150.00 | 47.78 | Peak | V | 8.22 | - | 56.00 | 74.00 | 18.00 |
| 5 115.10 | 34.09 | Average | V | 8.27 | 3.43 | 45.79 | 54.00 | 8.21 |
| 5 150.00 | 33.00 | Average | V | 8.22 | 3.43 | 44.65 | 54.00 | 9.35 |

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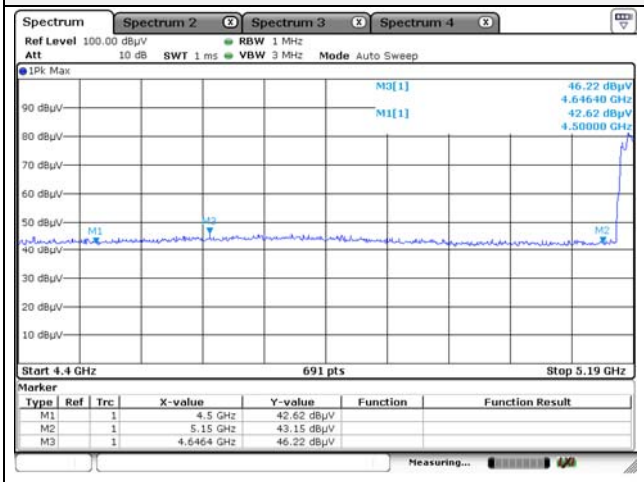
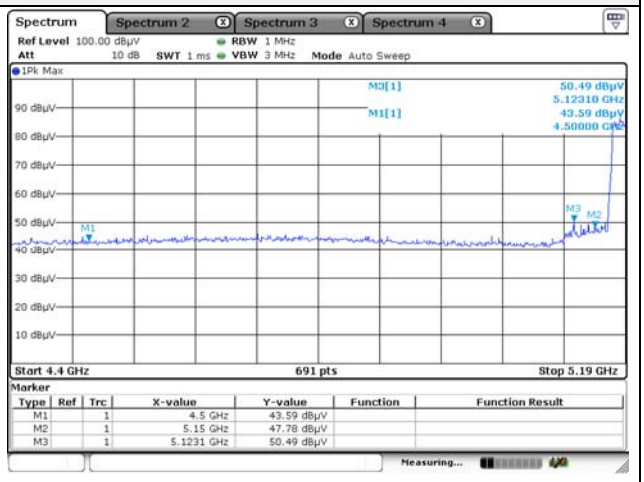
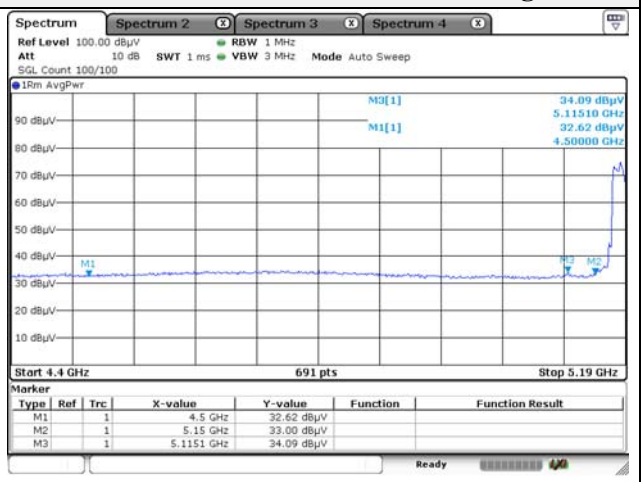
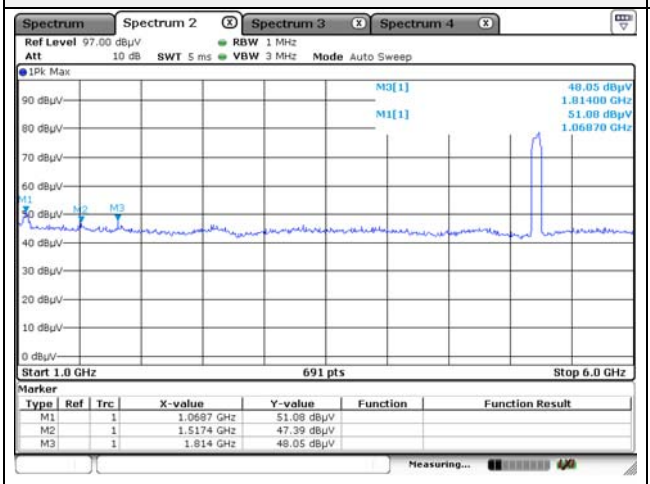
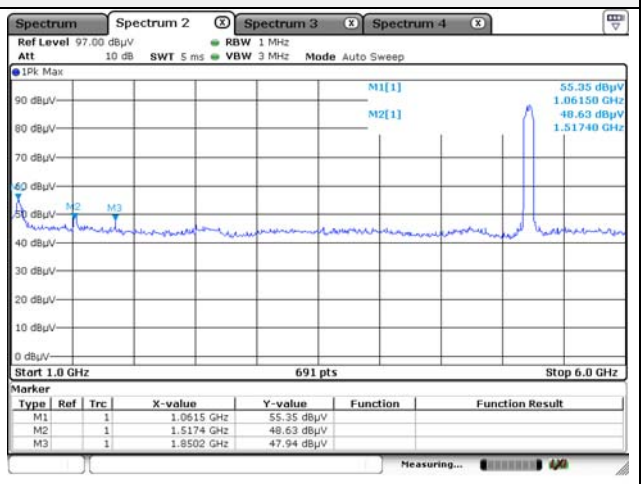
| Restricted band // Horizontal // Peak | Restricted band // Vertical // Peak |
|---|---|
|  |  |
| **Restricted band // Horizontal // Average** | **Restricted band // Vertical // Average** |
| Blank |  |

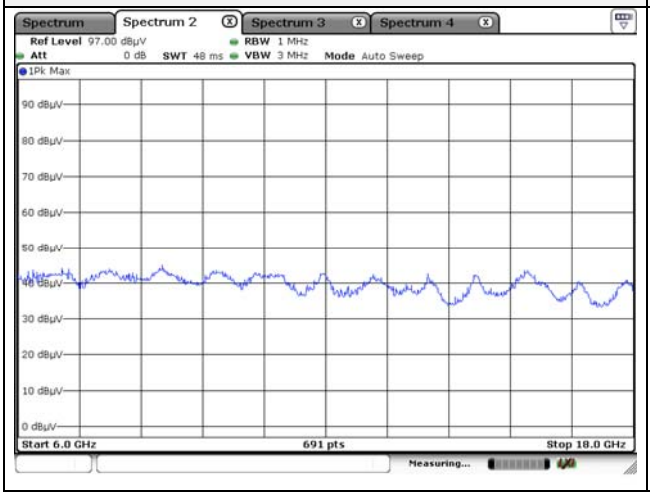
**Horizontal // Peak for 1 ㎓ to 6 ㎓**



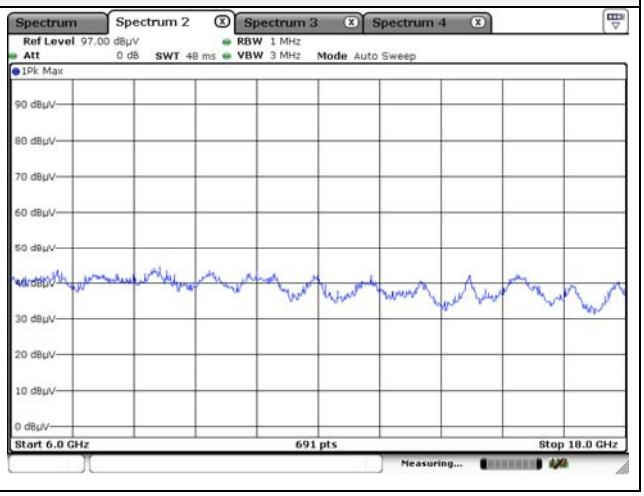

**Vertical // Peak for 1 ㎓ to 6 ㎓**




**Horizontal // Peak for 6 ㎓ to 18 ㎓**




**Vertical // Peak for 6 ㎓ to 18 ㎓**




Note.
1. No spurious emission were detected above 6 ㎓.
2. Average test would be performed if the peak result were greater than the average limit.

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Mode: UNII-2A(VHT80)

Distance of measurement: 3 meter

Channel: 58

- **Spurious**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 1 054.30 | 52.94 | Peak | H | -8.33 | - | 44.61 | 74.00 | 29.39 |
| 1 517.40 | 49.03 | Peak | H | -5.51 | - | 43.52 | 74.00 | 30.48 |
| 1 025.30 | 49.20 | Peak | V | -8.50 | - | 40.70 | 74.00 | 33.30 |
| 1 517.40 | 49.28 | Peak | V | -5.51 | - | 43.77 | 74.00 | 30.23 |
| 1 843.00 | 47.95 | Peak | V | -2.42 | - | 45.53 | 68.20 | 22.67 |

- **Band edge**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 5 364.07 | 45.18 | Peak | H | 7.93 | - | 53.11 | 74.00 | 20.89 |
| 5 352.49 | 49.46 | Peak | V | 7.94 | - | 57.40 | 74.00 | 16.60 |
| 5 352.26 | 35.15 | Average | V | 7.94 | 4.97 | 48.06 | 54.00 | 5.94 |

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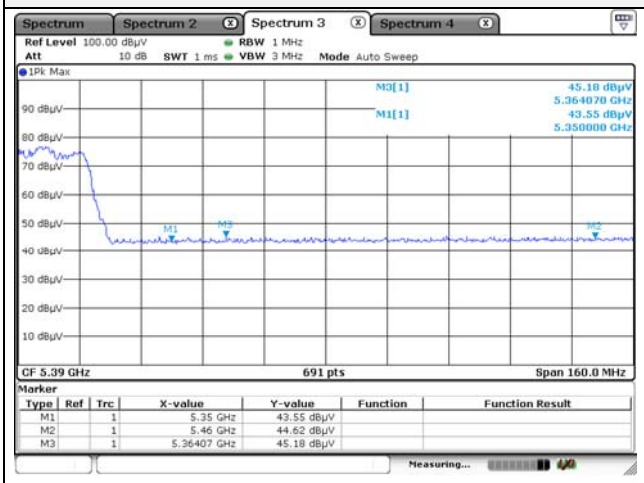
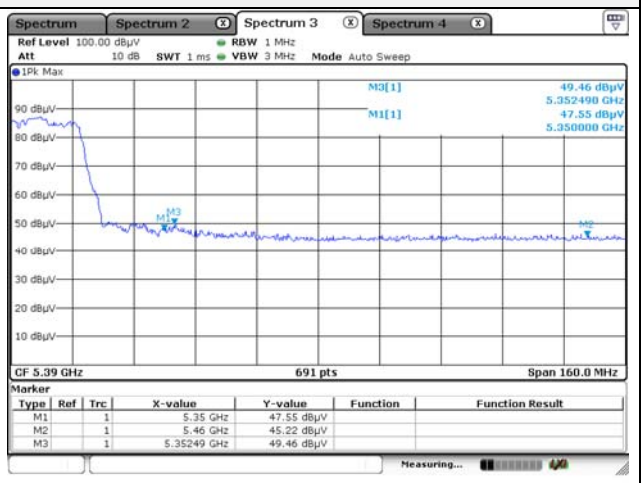
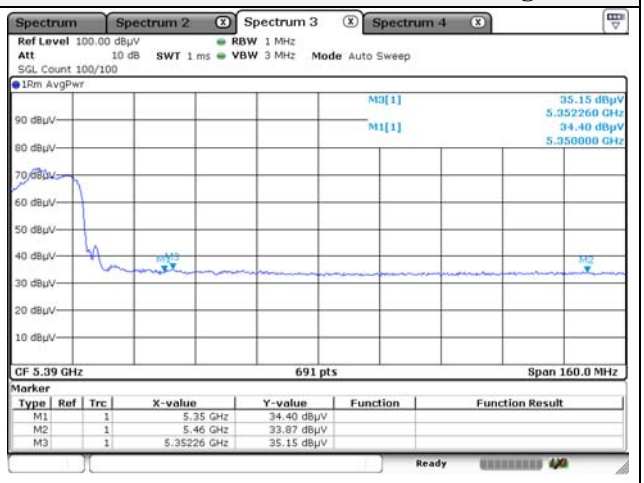
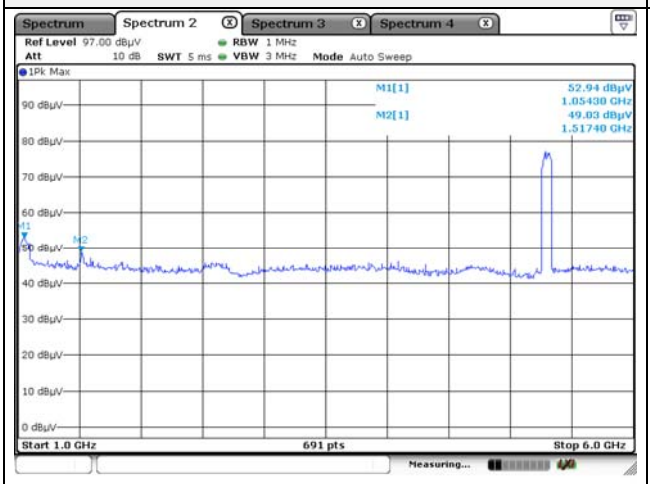
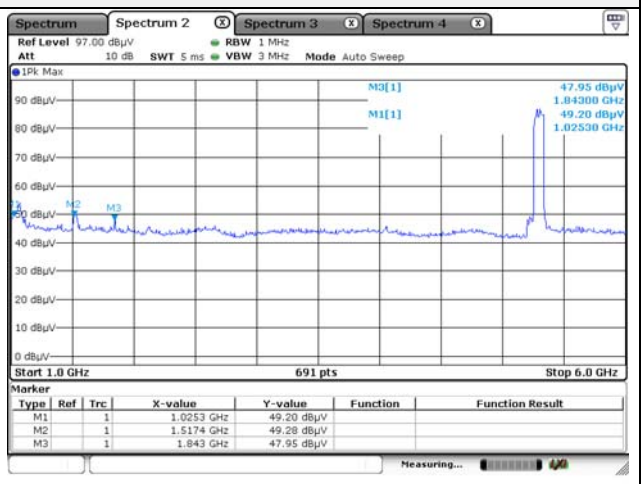
| Restricted band // Horizontal // Peak | Restricted band // Vertical // Peak |
|---|---|
|  |  |
| **Restricted band // Horizontal // Average** | **Restricted band // Vertical // Average** |
| Blank |  |

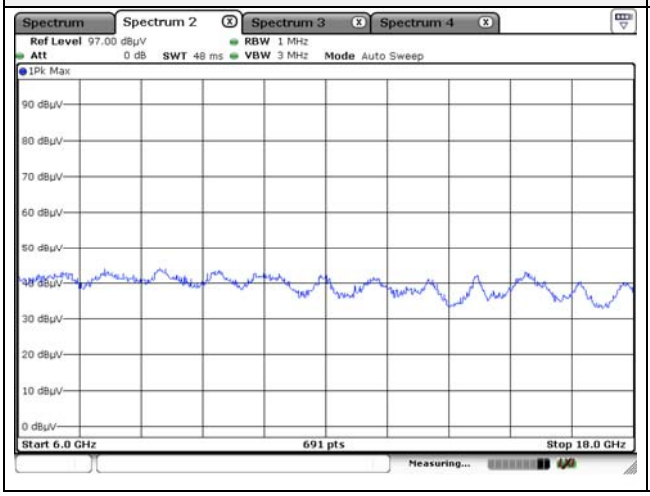
**Horizontal // Peak for 1 ㎓ to 6 ㎓**



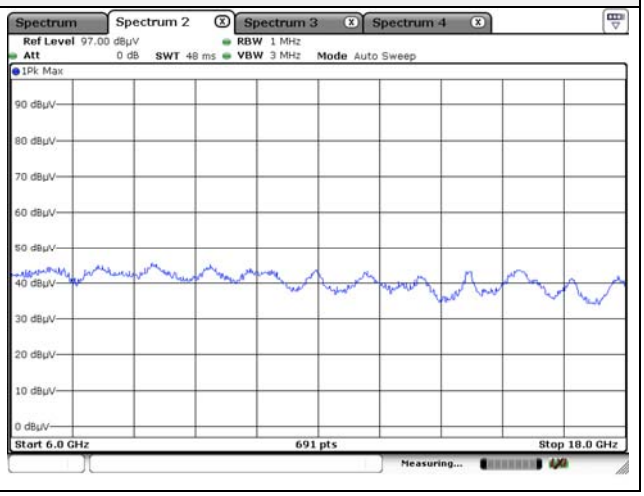

**Vertical // Peak for 1 ㎓ to 6 ㎓**




**Horizontal // Peak for 6 ㎓ to 18 ㎓**




**Vertical // Peak for 6 ㎓ to 18 ㎓**




Note.
1. No spurious emission were detected above 6 ㎓.
2. Average test would be performed if the peak result were greater than the average limit.

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Mode: UNII-2C(VHT80)

Distance of measurement: 3 meter

Channel: 106

- **Spurious**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 1 047.00 | 48.25 | Peak | H | -8.37 | - | 39.88 | 74.00 | 34.12 |
| 1 850.20 | 47.53 | Peak | H | -2.35 | - | 45.18 | 68.20 | 23.02 |
| 1 336.50 | 54.25 | Peak | V | -6.63 | - | 47.62 | 74.00 | 26.38 |
| 1 850.20 | 48.19 | Peak | V | -2.35 | - | 45.84 | 68.20 | 22.36 |
| 2 125.20 | 48.52 | Peak | V | -0.67 | - | 47.85 | 68.20 | 20.35 |

- **Band edge**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 5 452.31 | 45.11 | Peak | H | 7.82 | - | 52.93 | 74.00 | 21.07 |
| 5 442.47 | 47.71 | Peak | V | 7.83 | - | 55.54 | 74.00 | 18.46 |
| 5 460.00 | 47.78 | Peak | V | 7.81 | - | 55.59 | 74.00 | 18.41 |
| 5 402.37 | 33.73 | Average | V | 7.88 | 3.70 | 45.31 | 54.00 | 8.69 |
| 5 460.00 | 34.40 | Average | V | 7.81 | 3.70 | 45.91 | 54.00 | 8.09 |

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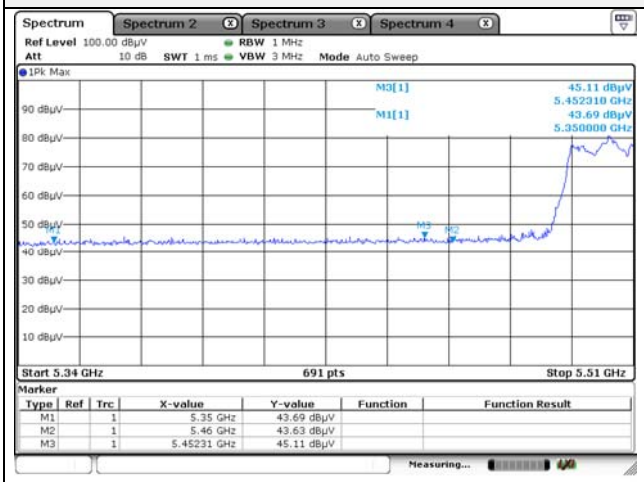
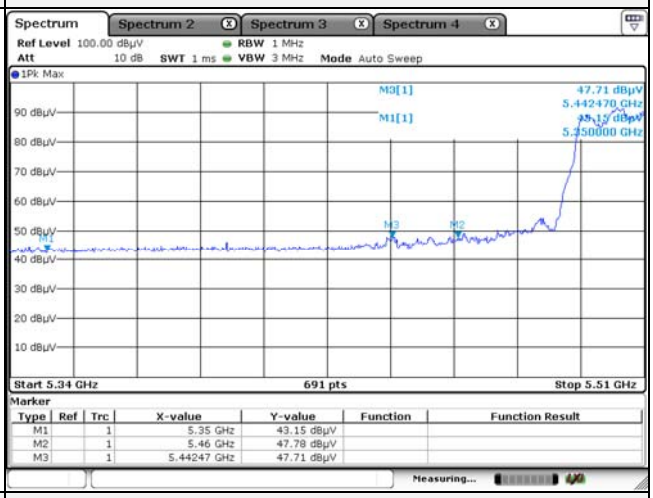
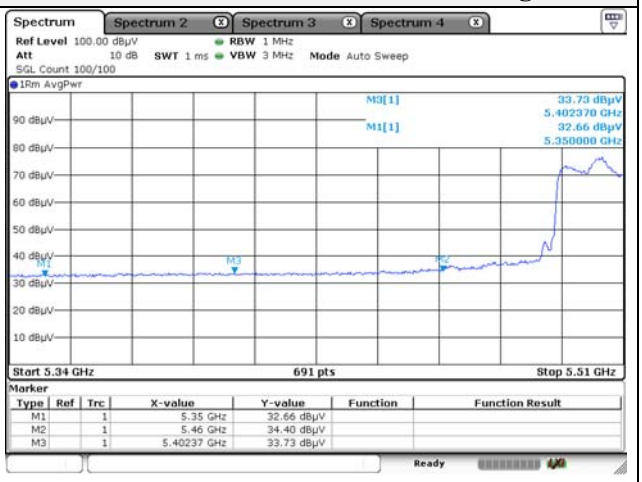
| Restricted band // Horizontal // Peak | Restricted band // Vertical // Peak |
|---|---|
|  |  |
| **Restricted band // Horizontal // Average** | **Restricted band // Vertical // Average** |
| Blank |  |

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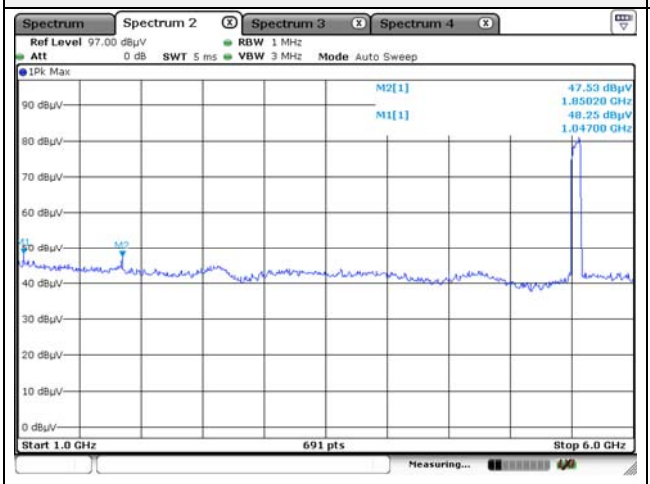
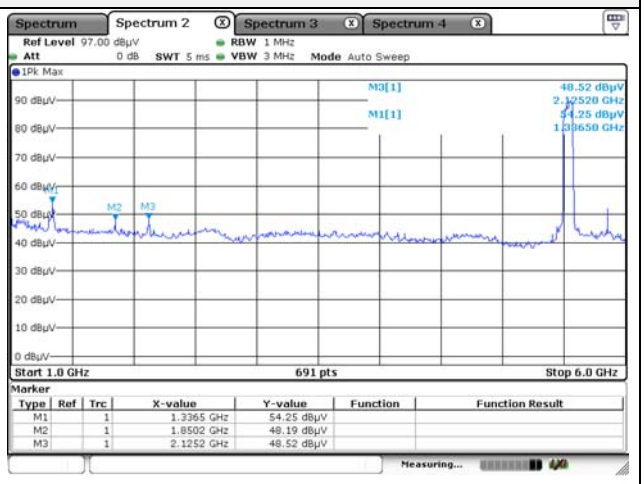
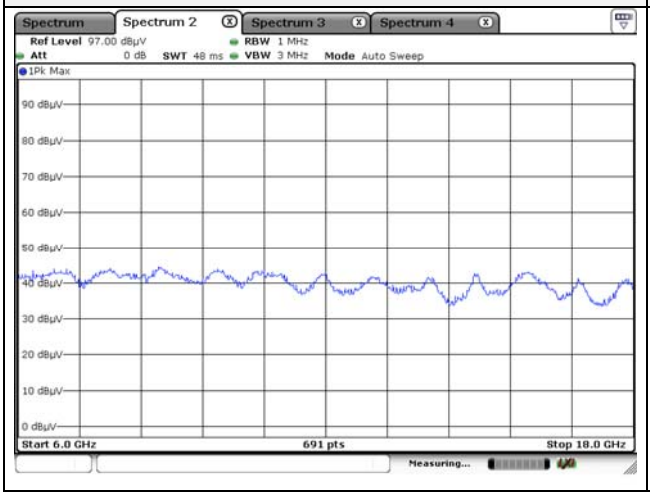
**Horizontal // Peak for 1 ㎓ to 6 ㎓**



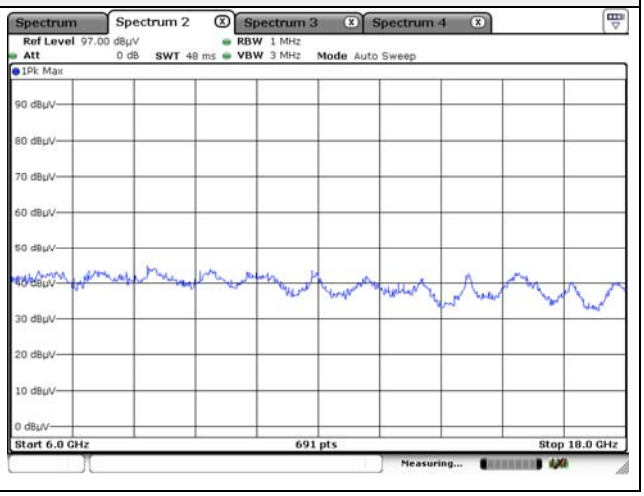

**Vertical // Peak for 1 ㎓ to 6 ㎓**




**Horizontal // Peak for 6 ㎓ to 18 ㎓**




**Vertical // Peak for 6 ㎓ to 18 ㎓**




Note.
1. No spurious emission were detected above 6 ㎓.
2. Average test would be performed if the peak result were greater than the average limit.

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Mode: UNII-2C(VHT80)

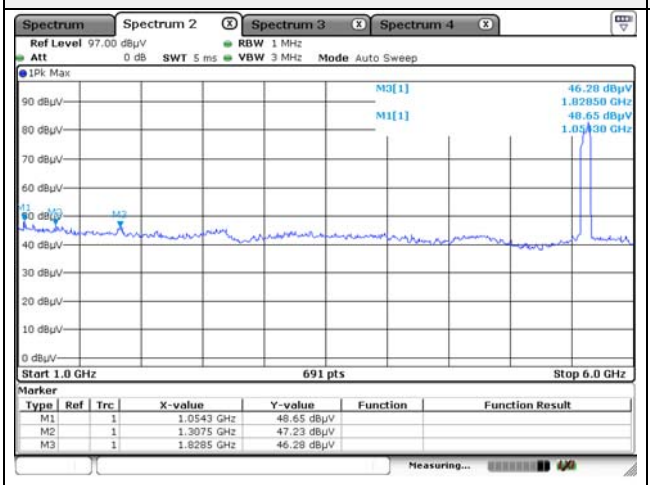
Distance of measurement: 3 meter

Channel: 122

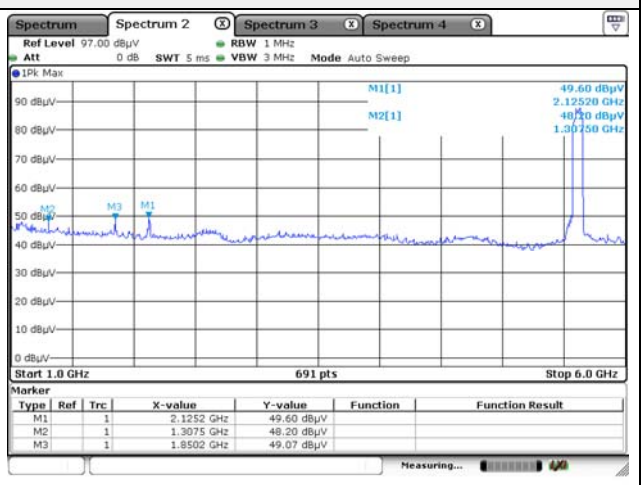
- **Spurious**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 1 054.30 | 48.65 | Peak | H | -8.33 | - | 40.32 | 74.00 | 33.68 |
| 1 307.50 | 47.23 | Peak | H | -6.82 | - | 40.41 | 74.00 | 33.59 |
| 1 829.50 | 46.28 | Peak | H | -2.54 | - | 43.74 | 68.20 | 24.46 |
| 1 307.50 | 48.20 | Peak | V | -6.82 | - | 41.38 | 74.00 | 32.62 |
| 1 850.20 | 49.07 | Peak | V | -2.35 | - | 46.72 | 68.20 | 21.48 |
| 2 125.20 | 49.60 | Peak | V | -0.67 | - | 48.93 | 68.20 | 19.27 |

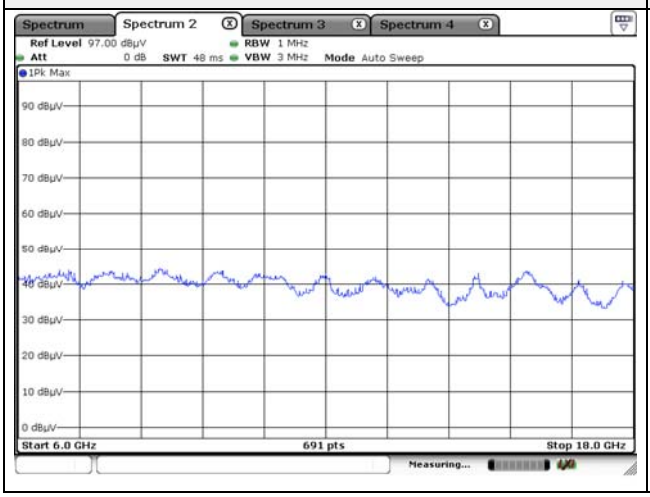
**Horizontal // Peak for 1 GHz to 6 GHz**



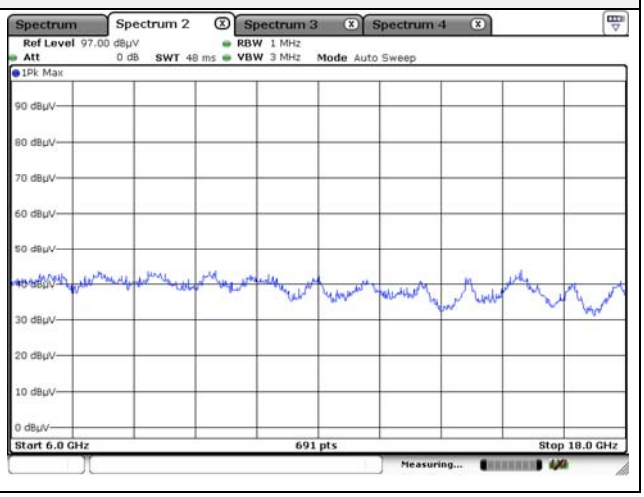

**Vertical // Peak for 1 GHz to 6 GHz**




**Horizontal // Peak for 6 GHz to 18 GHz**




**Vertical // Peak for 6 GHz to 18 GHz**




Note.

1. No spurious emission were detected above 6 GHz.

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Mode: UNII-2C(VHT80)

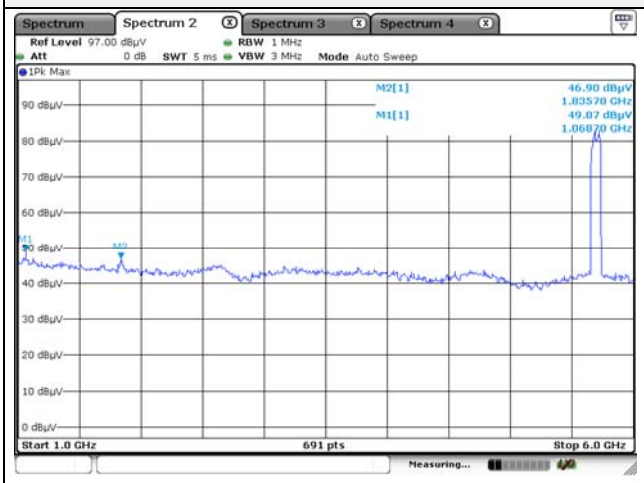
Distance of measurement: 3 meter

Channel: 138

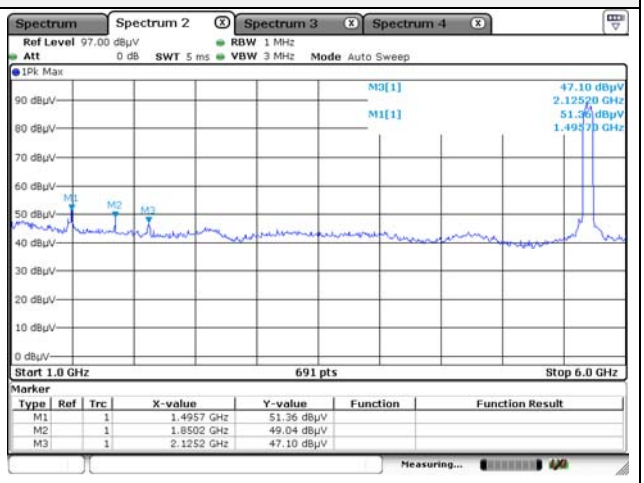
- **Spurious**

| Frequency (㎒) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 1 068.70 | 49.07 | Peak | H | -8.25 | - | 40.82 | 74.00 | 33.18 |
| 1 835.70 | 46.90 | Peak | H | -2.48 | - | 44.42 | 68.20 | 23.78 |
| 1 495.70 | 51.36 | Peak | V | -5.69 | - | 45.67 | 74.00 | 28.33 |
| 1 850.20 | 49.04 | Peak | V | -2.35 | - | 46.69 | 68.20 | 21.51 |
| 2 125.20 | 47.10 | Peak | V | -0.67 | - | 46.43 | 68.20 | 21.77 |

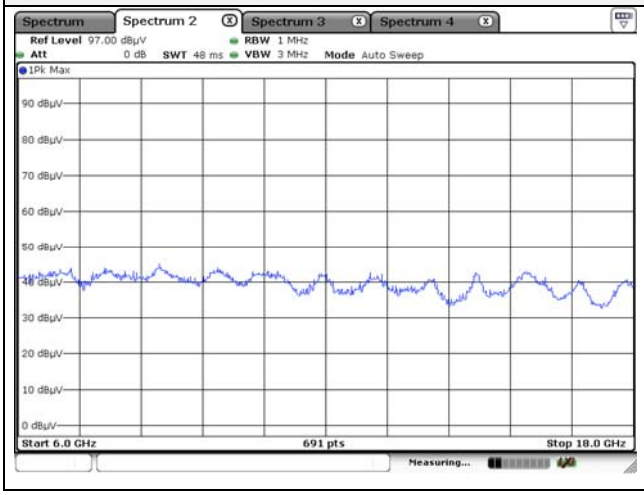
**Horizontal // Peak for 1 ㎓ to 6 ㎓**



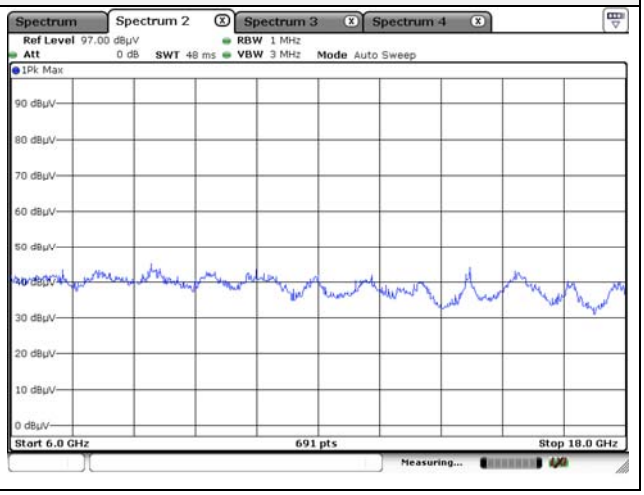

**Vertical // Peak for 1 ㎓ to 6 ㎓**




**Horizontal // Peak for 6 ㎓ to 18 ㎓**




**Vertical // Peak for 6 ㎓ to 18 ㎓**




Note.
1. No spurious emission were detected above 6 ㎓.

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Mode: UNII-3(VHT80)

Distance of measurement: 3 meter

Channel: 155

- **Spurious**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 1 068.70 | 48.33 | Peak | H | -8.25 | - | 40.08 | 74.00 | 33.92 |
| 1 814.04 | 47.58 | Peak | H | -2.68 | - | 44.90 | 68.20 | 23.30 |
| 2 125.20 | 46.86 | Peak | H | -0.67 | - | 46.19 | 68.20 | 22.01 |
| 1 054.30 | 50.15 | Peak | V | -8.33 | - | 41.82 | 74.00 | 32.18 |
| 1 850.20 | 49.76 | Peak | V | -2.35 | - | 47.41 | 68.20 | 20.79 |
| 2 125.20 | 48.68 | Peak | V | -0.67 | - | 48.01 | 68.20 | 20.19 |

- **Band edge // Below 5725 MHz**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 5 696.30 | 44.01 | Peak | H | 8.64 | - | 52.65 | 102.46 | 49.81 |
| 5 725.00 | 43.71 | Peak | H | 8.77 | - | 52.48 | 122.20 | 69.72 |
| 5 721.06 | 51.15 | Peak | V | 8.76 | - | 59.91 | 113.22 | 53.31 |
| 5 725.00 | 50.52 | Peak | V | 8.77 | - | 59.29 | 122.20 | 62.91 |

- **Band edge // Above 5850 MHz**

| Frequency (MHz) | Level (dBμV) | Detect mode | Ant. Pol. (H/V) | CF (dB) | DCF (dB) | Field strength (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 5 867.37 | 49.78 | Peak | H | 9.39 | - | 59.17 | 107.34 | 48.17 |
| 5 850.00 | 52.72 | Peak | H | 9.32 | - | 62.04 | 122.20 | 60.16 |
| 5 867.10 | 55.39 | Peak | V | 9.38 | - | 64.77 | 107.41 | 42.64 |

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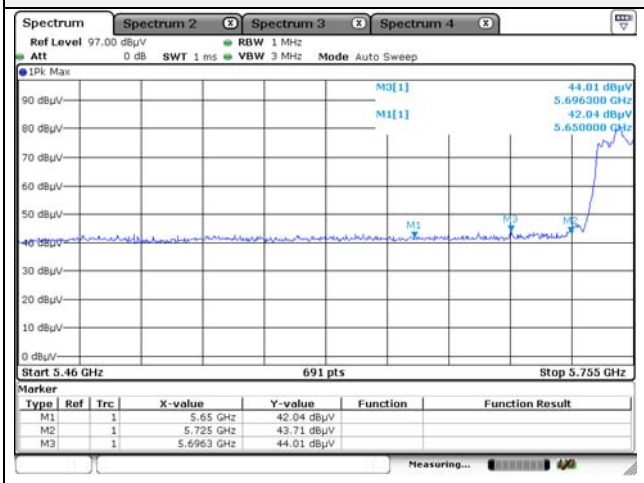
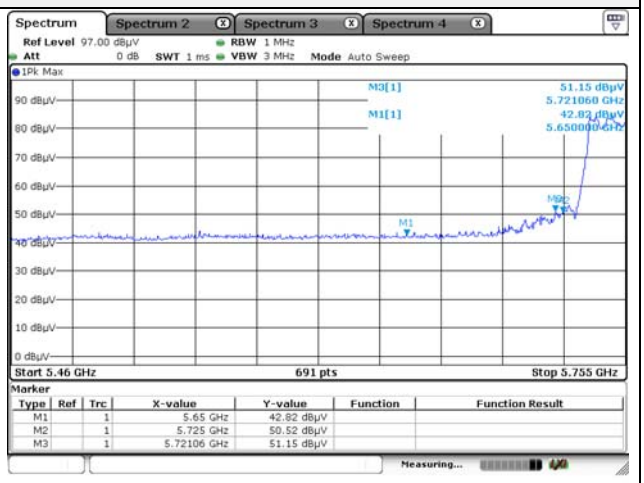
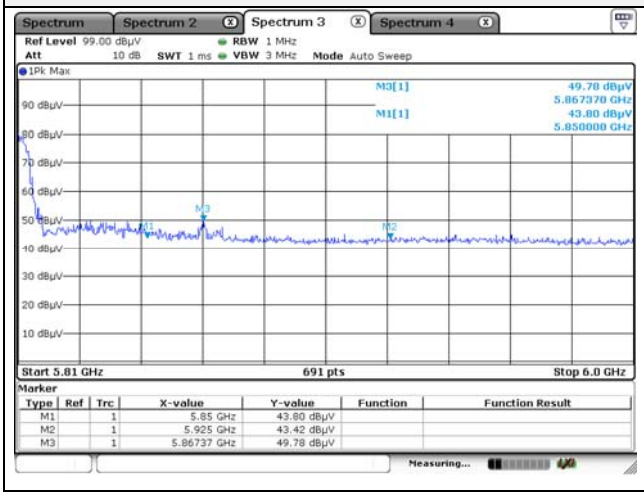
**Restricted band // Horizontal // Peak // Below 5725 ㎒**



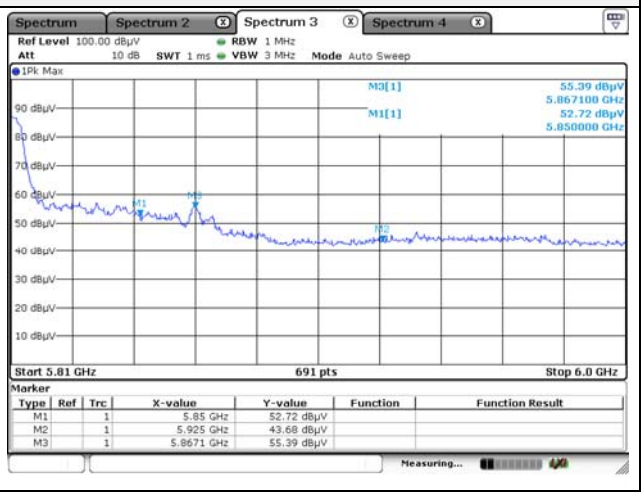

**Restricted band // Vertical // Peak // Below 5725 ㎒**




**Restricted band // Horizontal // Peak // Above 5850 ㎒**




**Restricted band // Vertical // Peak // Above 5850 ㎒**

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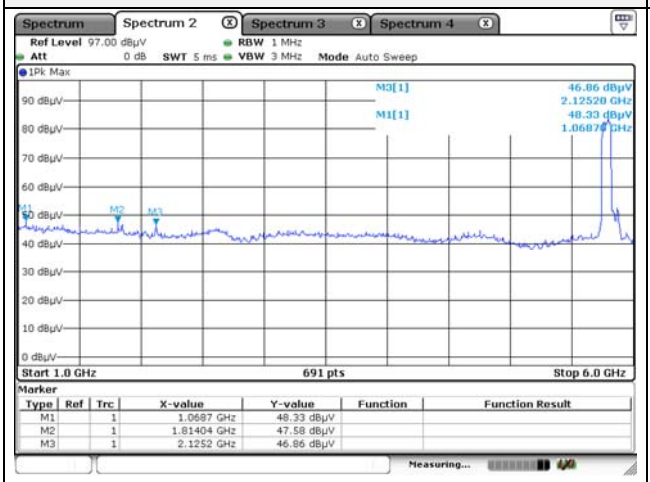
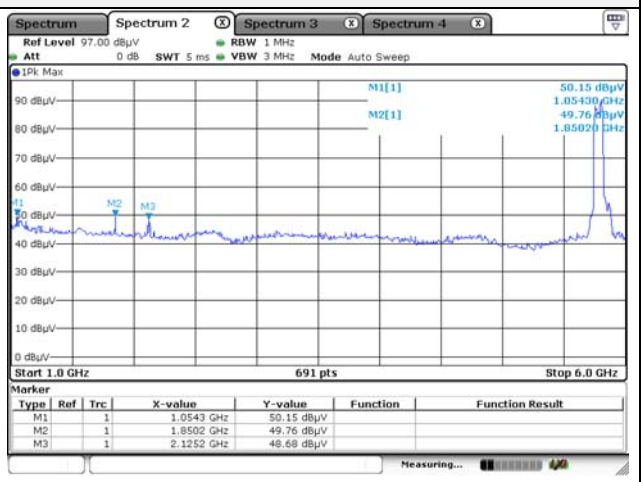
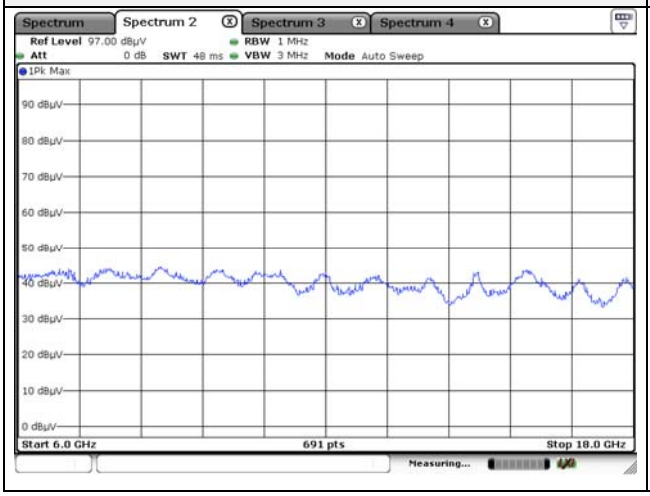
**Horizontal // Peak for 1 ㎓ to 6 ㎓**



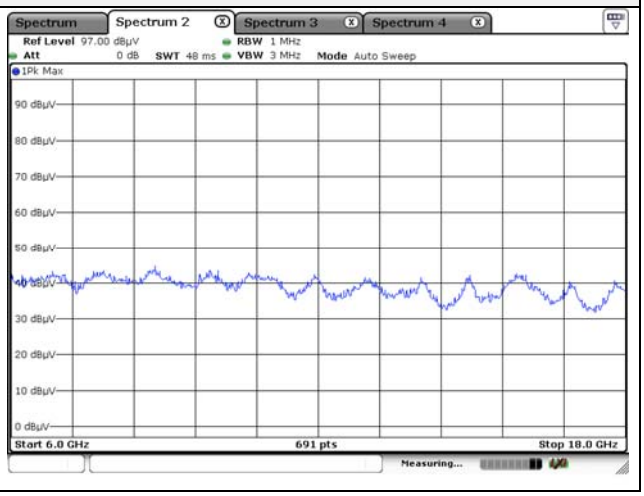

**Vertical // Peak for 1 ㎓ to 6 ㎓**




**Horizontal // Peak for 6 ㎓ to 18 ㎓**




**Vertical // Peak for 6 ㎓ to 18 ㎓**




Note.
1. No spurious emission were detected above 6 ㎓.

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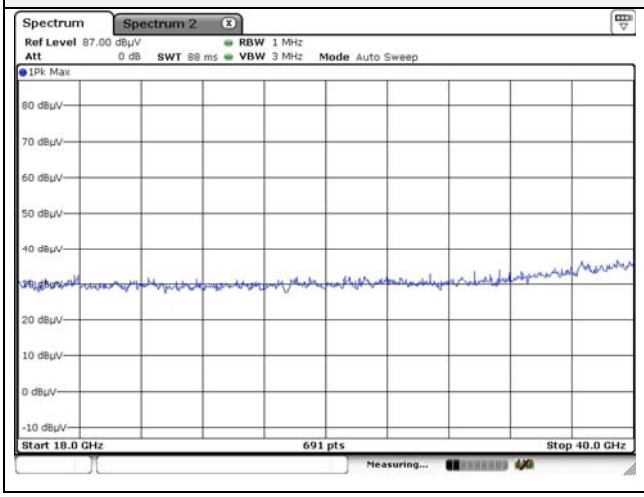
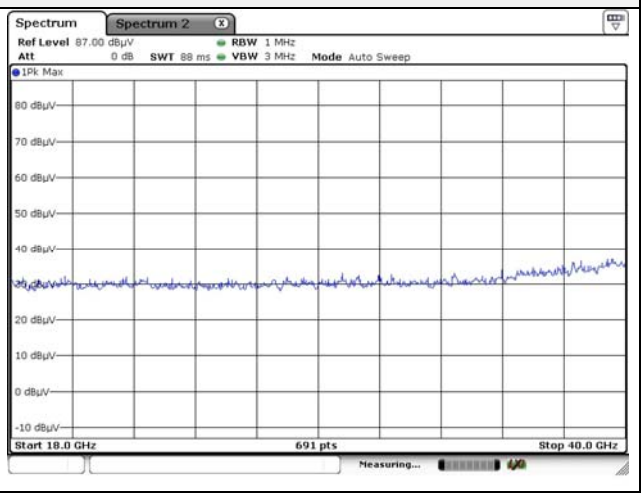
**Test results (18 ㎓ to 40 ㎓) – Worst case**

| | |
|---|---|
| Mode: | UNII-3 |
| Distance of measurement: | 3 meter |
| Channel: | 165(worst case) |

| Horizontal | Vertical |
|---|---|
|  |  |



Note.
1. No spurious emission were detected above 18 ㎓.

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## Appendix A. Measurement equipment

| Equipment | Manufacturer | Model | Serial No. | Calibration interval | Calibration date. | Calibration due. |
|---|---|---|---|---|---|---|
| Spectrum Analyzer | R&S | FSV30 | 100736 | 1 year | 2018.06.28 | 2019.06.28 |
| | | | | | 2019.01.09 | 2020.01.09 |
| Spectrum Analyzer | R&S | FSV40 | 101002 | 1 year | 2018.06.29 | 2019.06.29 |
| 8360B Series Swept Signal Generator | HP | 83630B | 3844A00786 | 1 year | 2018.01.22 | 2019.01.22 |
| | | | | | 2019.01.15 | 2020.01.15 |
| Power Meter | Anritsu | ML2495A | 1438001 | 1 year | 2018.01.25 | 2019.01.25 |
| | | | | | 2019.01.15 | 2020.01.15 |
| Pulse Power Sensor | Anritsu | MA2411B | 1339205 | 1 year | 2018.01.25 | 2019.01.25 |
| | | | | | 2019.01.15 | 2020.01.15 |
| Attenuator | HP | 8494B | 2630A12857 | 1 year | 2018.01.18 | 2019.01.18 |
| | | | | | 2019.01.15 | 2020.01.15 |
| Loop Antenna | Schwarzbeck | FMZB1513 | 225 | 2 years | 2017.05.10 | 2019.05.10 |
| Trilog-broadband antenna | SCHWARZBECK | VULB 9163 | 9168-714 | 2 years | 2018.11.26 | 2020.11.26 |
| Horn Antenna | A.H | SAS-571 | 414 | 2 years | 2017.02.15 | 2019.02.15 |
| Horn Antenna | SCHWARZBECK | BBHA9120D | 9120D-1802 | 2 years | 2017.09.04 | 2019.09.04 |
| High Pass Filter | Wainwright Instrument Gmbh | WHJS3000-10TT | 1 | 1 year | 2018.06.29 | 2019.06.29 |
| Amplifier | R&S | SCU 01 | 100603 | 1 year | 2018.11.26 | 2019.11.26 |
| Preamplifier | AGILENT | 8449B | 3008A01742 | 1 year | 2018.01.11 | 2019.01.11 |
| | | | | | 2019.01.08 | 2020.01.08 |
| EMI Test Receiver | R&S | ESR3 | 101781 | 1 year | 2018.04.25 | 2019.04.25 |
| EMI Test Receiver | R&S | ESU26 | 100551 | 1 year | 2018.04.11 | 2019.04.11 |
| Pulse Limiter | R&S | ESH3-Z2 | 101915 | 1 year | 2018.11.26 | 2019.11.26 |
| LISN | R&S | ENV216 | 101787 | 1 year | 2018.01.31 | 2019.01.31 |
| | | | | | 2019.01.04 | 2020.01.04 |
| DC Power supply | EXTENDED | EX-1500H2 | 405410100030 | 1 year | 2018.04.13 | 2019.04.13 |

### Peripheral devices

| Device | Manufacturer | Model No. | Serial No. |
|---|---|---|---|
| Notebook Computer | SAMSUNG | NT-R519 | ZKPA93ES900086Z |

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