

## 12.8 Band edge compliance radiated

### Description:

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

### Measurement:

| Measurement parameter    |                            |
|--------------------------|----------------------------|
| Detector:                | Peak / RMS                 |
| Sweep time:              | Auto                       |
| Resolution bandwidth:    | 1 MHz                      |
| Video bandwidth:         | $\geq 3 \times \text{RBW}$ |
| Span:                    | See plots!                 |
| Trace – mode:            | Max Hold                   |
| Test setup:              | See sub clause 7.2 – A     |
| Measurement uncertainty: | See sub clause 9           |

### Limits:

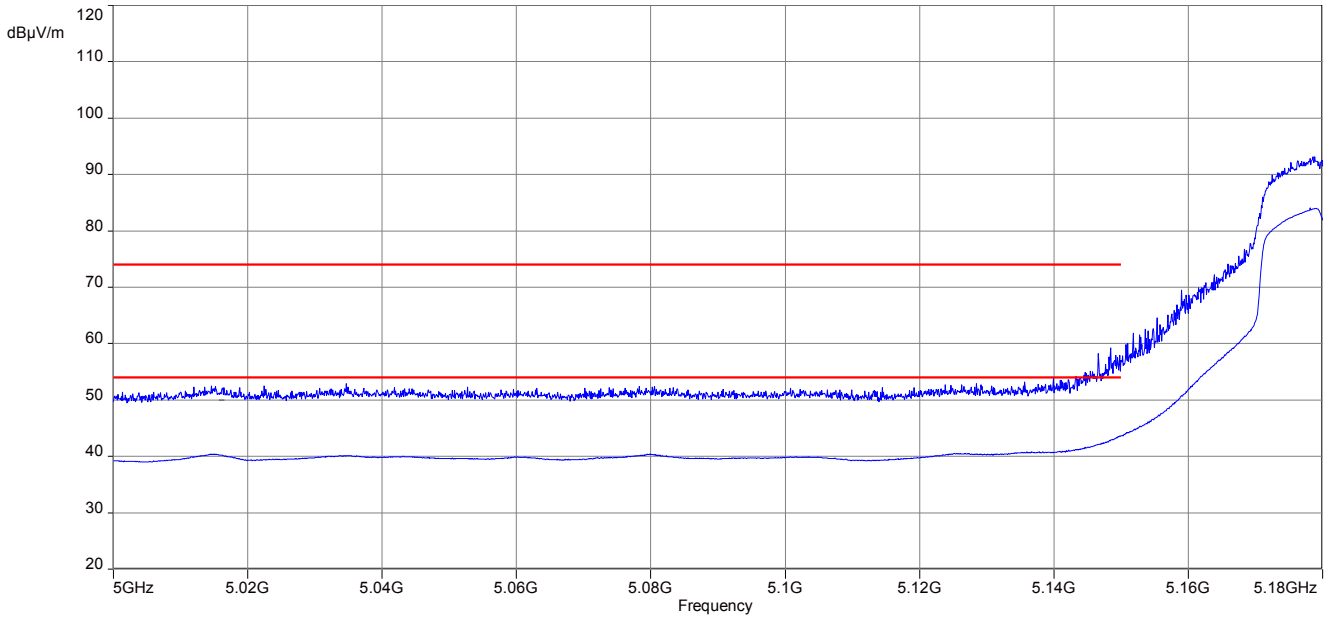
| Band Edge Compliance Radiated  |
|--|
| In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz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

### Result:

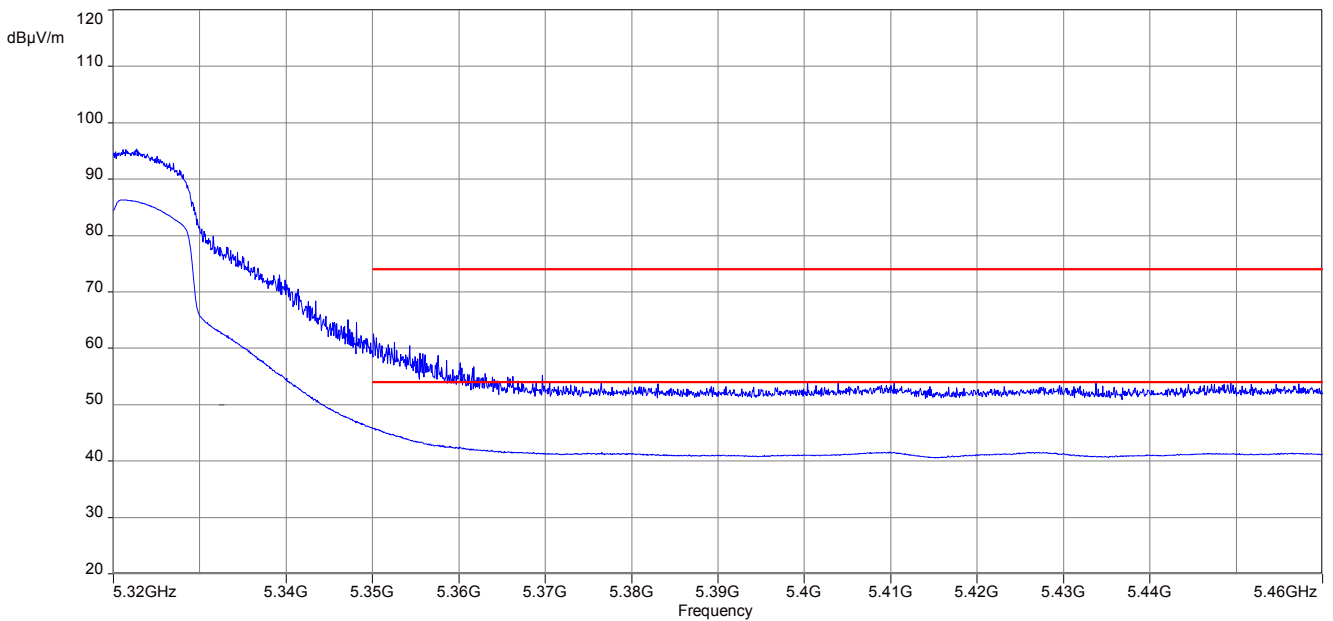
| Scenario  | Band Edge Compliance Radiated [dB $\mu$ V/m]            |
|-----------|---|
| band edge | < 74 dB $\mu$ V/m (peak)<br>< 54 dB $\mu$ V/m (average) |

**Plots:**

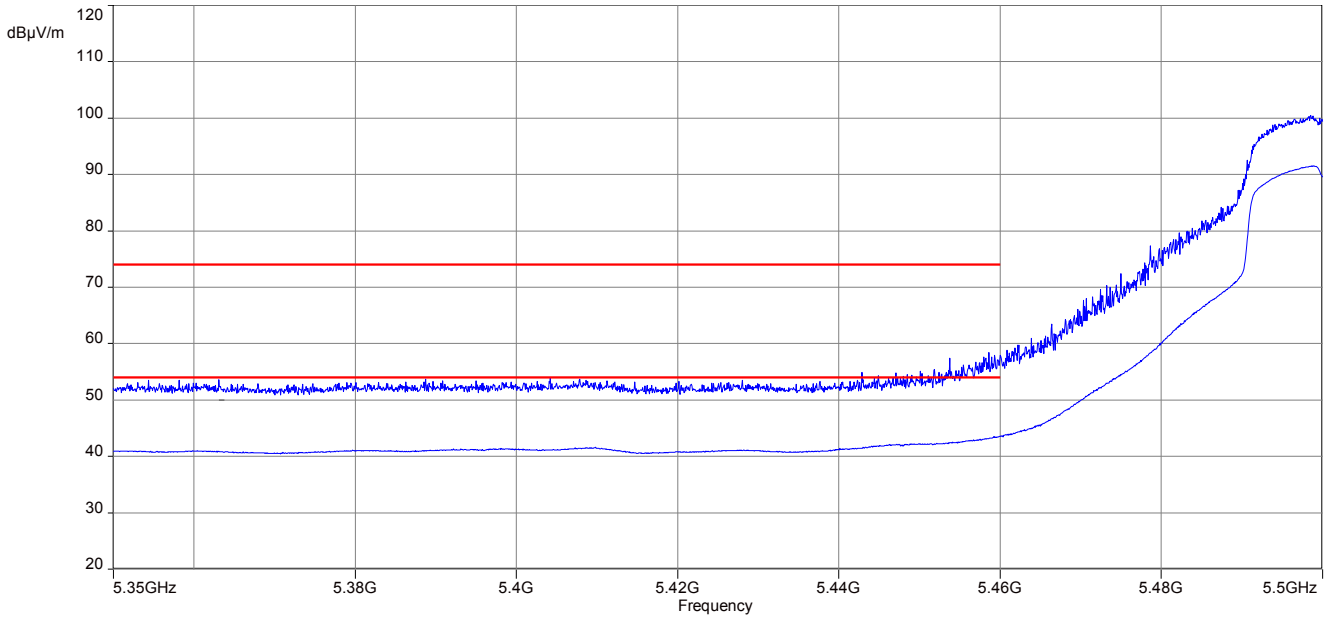
**Plot 1:** lower band edge, vertical & horizontal polarization – OFDM 20 MHz, 5180 MHz



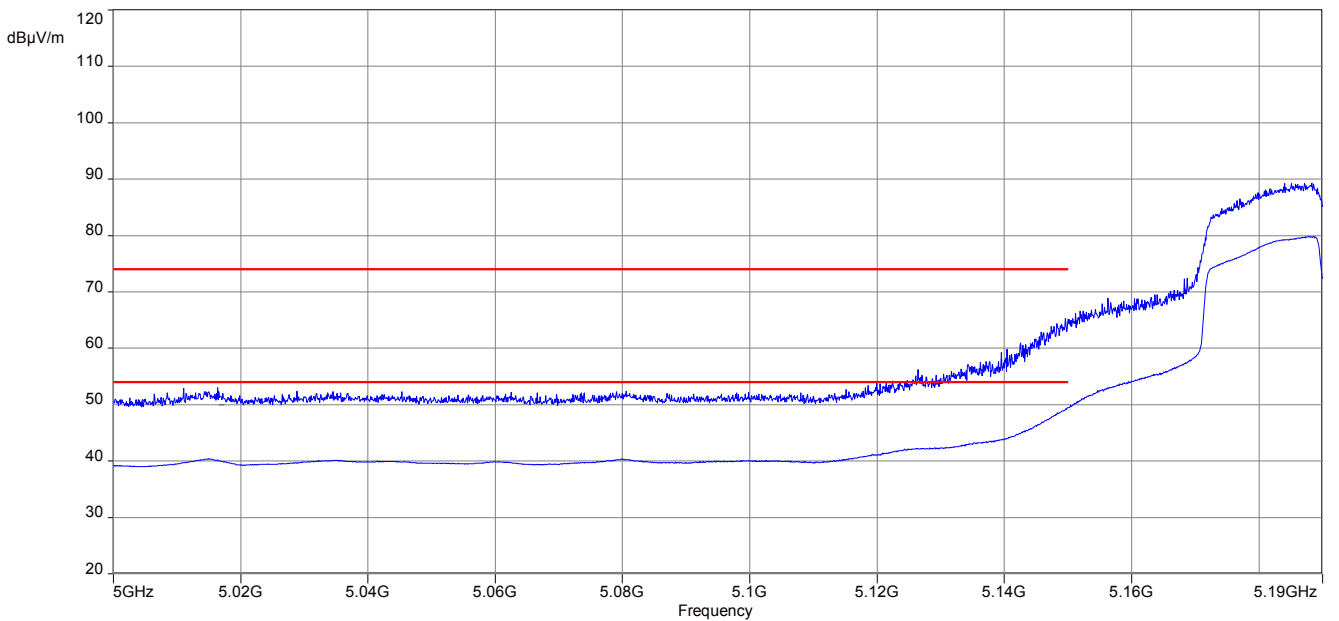
**Plot 2:** upper band edge, vertical & horizontal polarization – OFDM 20 MHz, 5320 MHz



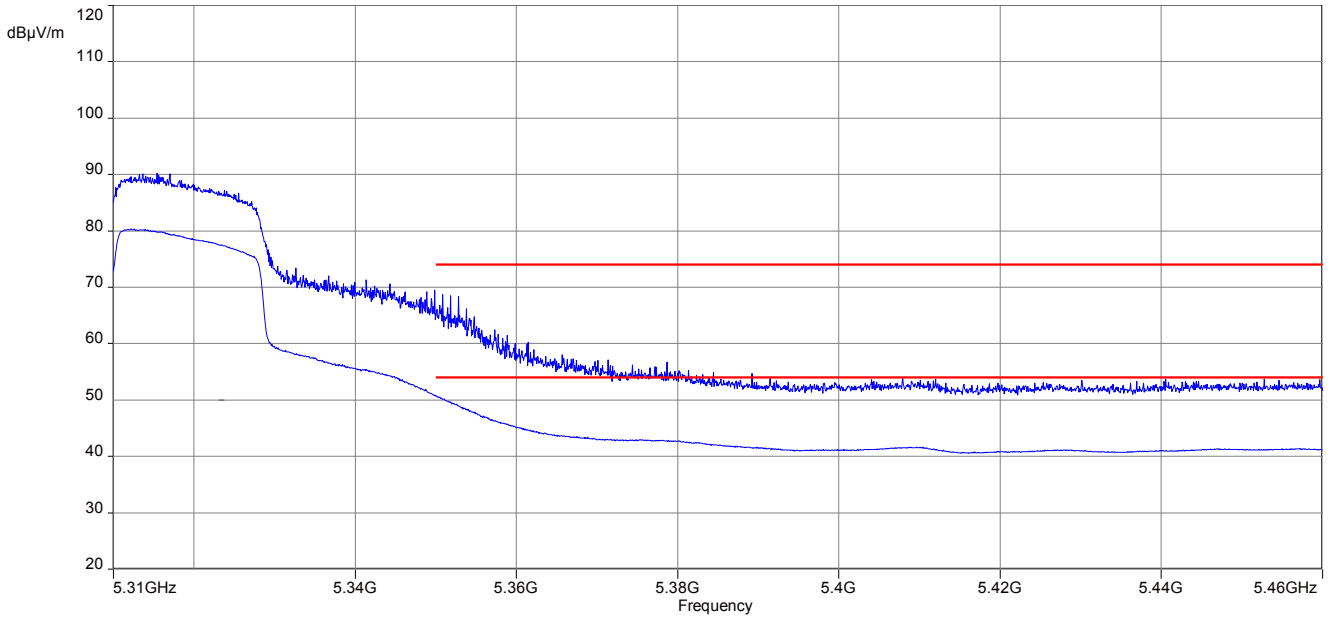
**Plot 3:** lower band edge, vertical & horizontal polarization – OFDM 20 MHz, 5500 MHz



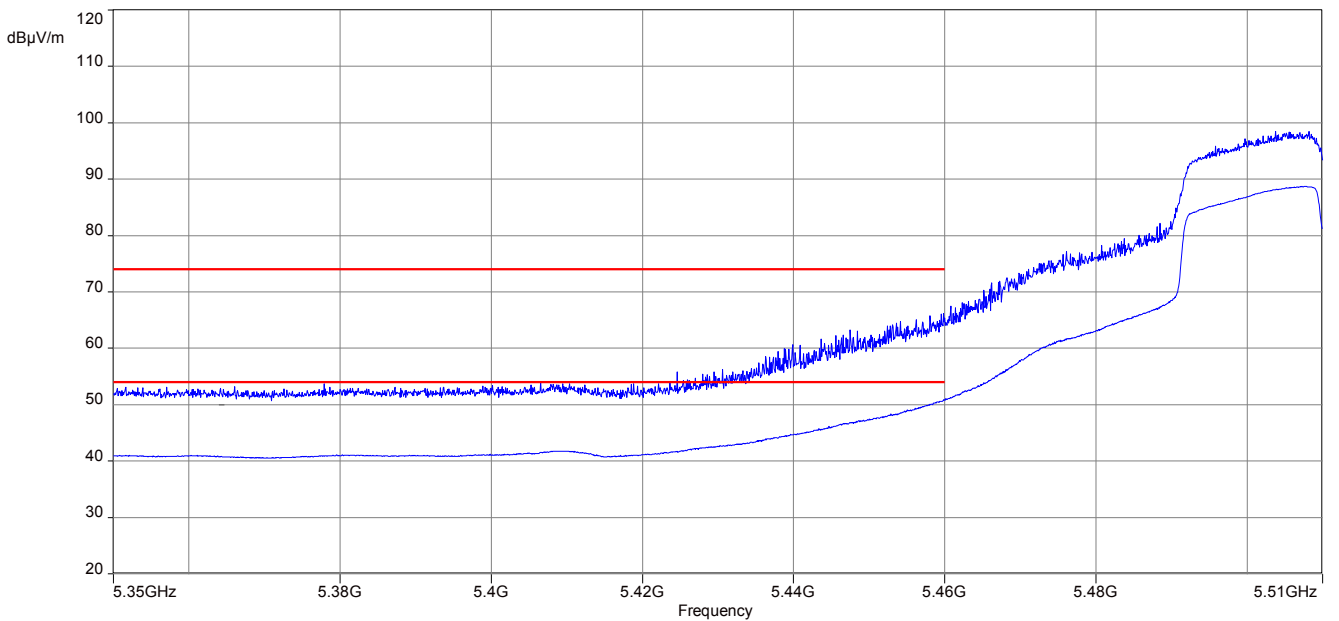
**Plot 4:** lower band edge, vertical & horizontal polarization – OFDM 40 MHz, 5190 MHz



**Plot 5:** upper band edge, vertical & horizontal polarization – OFDM 40 MHz, 5310 MHz



**Plot 6:** lower band edge, vertical & horizontal polarization – OFDM 40 MHz, 5510 MHz



## 12.9 TX spurious emissions radiated

### Description:

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

### Measurement:

| Measurement parameter    |   |
|--------------------------|---|
| Detector:                | Quasi Peak below 1 GHz<br>(alternative Peak)<br>Peak above 1 GHz / RMS                    |
| Sweep time:              | Auto  |
| Resolution bandwidth:    | F < 1 GHz: 100 kHz<br>F > 1 GHz: 1 MHz  |
| Video bandwidth:         | F < 1 GHz: 100 kHz<br>F > 1 GHz: ≥ 3 MHz / 1 MHz  |
| Span:                    | 30 MHz to 40 GHz  |
| Trace – mode:            | Max Hold / Average with 100 counts +<br>20 log (1 / X) for duty cycle lower than<br>100 % |
| Test setup:              | See sub clause 7.1 – A<br>See sub clause 7.2 – B<br>See sub clause 7.3 – A                |
| Measurement uncertainty: | See sub clause 9  |

### Limits:

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

**Results:** OFDM (20 MHz bandwidth)

| TX Spurious Emissions Radiated [dBµV/m] / dBm             |          |                   |         |          |                   |   |          |                   |  |  |  |
|---|----------|-------------------|---------|----------|-------------------|---|----------|-------------------|--|--|--|
| Lowest<br>5180 MHz  |          |                   | -/-     |          |                   | Highest<br>5240 MHz                                       |          |                   |  |  |  |
| F [MHz]   | Detector | Level<br>[dBµV/m] | F [MHz] | Detector | Level<br>[dBµV/m] | F [MHz]   | Detector | Level<br>[dBµV/m] |  |  |  |
| 5751  | Peak     | 62.53             |         |          |                   | All detected peak emissions are below the average limit.  |          |                   |  |  |  |
|   | AVG      | 51.83             |         |          |                   | For emissions above 18 GHz please take look at the plots. |          |                   |  |  |  |
| 6907  | Peak     | 53.59             |         |          |                   |   |          |                   |  |  |  |
|   | AVG      | 48.46             |         |          |                   |   |          |                   |  |  |  |
| For emissions above 18 GHz please take look at the plots. |          |                   |         |          |                   |   |          |                   |  |  |  |

| TX Spurious Emissions Radiated [dBµV/m] / dBm             |          |                   |         |          |                   |   |          |                   |
|---|----------|-------------------|---------|----------|-------------------|---|----------|-------------------|
| Lowest<br>5260 MHz  |          |                   | -/-     |          |                   | Highest<br>5320 MHz                                       |          |                   |
| F [MHz]   | Detector | Level<br>[dBµV/m] | F [MHz] | Detector | Level<br>[dBµV/m] | F [MHz]   | Detector | Level<br>[dBµV/m] |
| All detected peak emissions are below the average limit.  |          |                   |         |          |                   | All detected peak emissions are below the average limit.  |          |                   |
| For emissions above 18 GHz please take look at the plots. |          |                   |         |          |                   | For emissions above 18 GHz please take look at the plots. |          |                   |
|   |          |                   |         |          |                   |   |          |                   |
|   |          |                   |         |          |                   |   |          |                   |

| TX Spurious Emissions Radiated [dBµV/m] / dBm             |          |                   |   |          |                   |   |          |                   |
|---|----------|-------------------|---|----------|-------------------|---|----------|-------------------|
| Lowest<br>5500 MHz  |          |                   | Middle<br>5600 MHz  |          |                   | Highest<br>5700 MHz                                       |          |                   |
| F [MHz]   | Detector | Level<br>[dBµV/m] | F [MHz]   | Detector | Level<br>[dBµV/m] | F [MHz]   | Detector | Level<br>[dBµV/m] |
| 11000   | Peak     | 60.47             | 11200   | Peak     | 61.28             | 11400   | Peak     | 63.24             |
|   | AVG      | 49.77             |   | AVG      | 50.44             |   | AVG      | 52.54             |
| For emissions above 18 GHz please take look at the plots. |          |                   | For emissions above 18 GHz please take look at the plots. |          |                   | For emissions above 18 GHz please take look at the plots. |          |                   |
|   |          |                   |   |          |                   |   |          |                   |

| TX Spurious Emissions Radiated [dBµV/m] / dBm             |          |                   |   |          |                   |   |          |                   |
|---|----------|-------------------|---|----------|-------------------|---|----------|-------------------|
| Lowest<br>5745 MHz  |          |                   | Middle<br>5785 MHz  |          |                   | Highest<br>5825 MHz                                       |          |                   |
| F [MHz]   | Detector | Level<br>[dBµV/m] | F [MHz]   | Detector | Level<br>[dBµV/m] | F [MHz]   | Detector | Level<br>[dBµV/m] |
| 11490   | Peak     | 63.18             | 11570   | Peak     | 63.04             | 11650   | Peak     | 62.83             |
|   | AVG      | 52.16             |   | AVG      | 52.76             |   | AVG      | 53.53             |
| For emissions above 18 GHz please take look at the plots. |          |                   | For emissions above 18 GHz please take look at the plots. |          |                   | For emissions above 18 GHz please take look at the plots. |          |                   |
|   |          |                   |   |          |                   |   |          |                   |

**Results:** OFDM (40 MHz bandwidth)

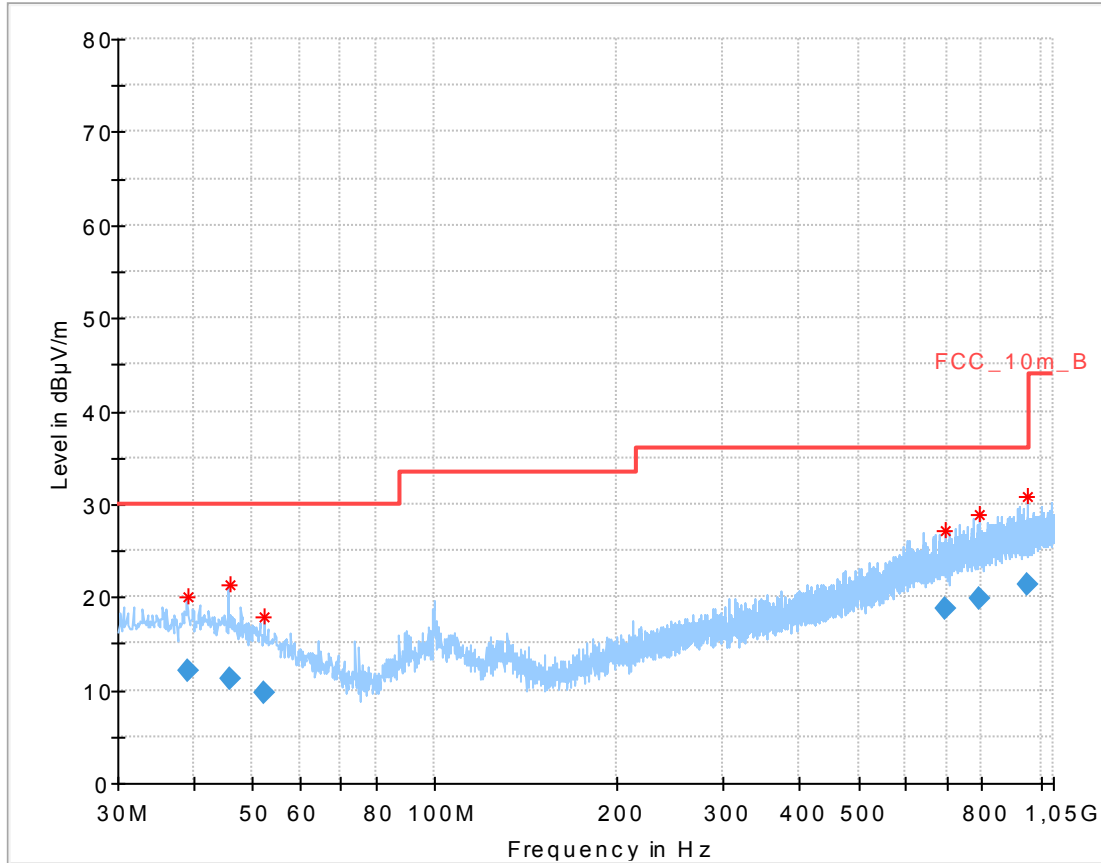
| TX Spurious Emissions Radiated [dBµV/m] / dBm             |          |                   |   |          |                   |   |          |                   |
|---|----------|-------------------|---|----------|-------------------|---|----------|-------------------|
| Lowest<br>5190 MHz  |          |                   | Highest<br>5230 MHz                                       |          |                   | Lowest<br>5270 MHz  |          |                   |
| F [MHz]   | Detector | Level<br>[dBµV/m] | F [MHz]   | Detector | Level<br>[dBµV/m] | F [MHz]   | Detector | Level<br>[dBµV/m] |
| 6920  | Peak     | 55.13             | 6973  | Peak     | 54.50             | 7027  | Peak     | 51.57             |
|   | AVG      | 49.90             |   | AVG      | 49.22             |   | AVG      | 46.26             |
| For emissions above 18 GHz please take look at the plots. |          |                   | For emissions above 18 GHz please take look at the plots. |          |                   | For emissions above 18 GHz please take look at the plots. |          |                   |
|   |          |                   |   |          |                   |   |          |                   |

| TX Spurious Emissions Radiated [dBµV/m] / dBm             |          |                   |   |          |                   |   |          |                   |
|---|----------|-------------------|---|----------|-------------------|---|----------|-------------------|
| Highest<br>5310 MHz                                       |          |                   | Lowest<br>5510 MHz  |          |                   | Middle<br>5590 MHz  |          |                   |
| F [MHz]   | Detector | Level<br>[dBµV/m] | F [MHz]   | Detector | Level<br>[dBµV/m] | F [MHz]   | Detector | Level<br>[dBµV/m] |
| 7080  | Peak     | 50.70             | All detected peak emissions are below the average limit.  |          |                   | 7453  | Peak     | 47.05             |
|   | AVG      | 44.73             |   |          |                   |   | AVG      | 38.27             |
| For emissions above 18 GHz please take look at the plots. |          |                   | For emissions above 18 GHz please take look at the plots. |          |                   | 11180   | Peak     | 61.16             |
|   |          |                   |   |          |                   |   | AVG      | 51.74             |
|   |          |                   |   |          |                   | For emissions above 18 GHz please take look at the plots. |          |                   |
|   |          |                   |   |          |                   |   |          |                   |

| TX Spurious Emissions Radiated [dBµV/m] / dBm             |          |                   |   |          |                   |   |          |                   |
|---|----------|-------------------|---|----------|-------------------|---|----------|-------------------|
| Highest<br>5670 MHz                                       |          |                   | Lowest<br>5755 MHz  |          |                   | Highest<br>5815 MHz                                       |          |                   |
| F [MHz]   | Detector | Level<br>[dBµV/m] | F [MHz]   | Detector | Level<br>[dBµV/m] | F [MHz]   | Detector | Level<br>[dBµV/m] |
| 11340   | Peak     | 60.85             | 11510   | Peak     | 61.25             | 11630   | Peak     | 59.24             |
|   | AVG      | 51.05             |   | AVG      | 51.40             |   | AVG      | 49.93             |
| For emissions above 18 GHz please take look at the plots. |          |                   | For emissions above 18 GHz please take look at the plots. |          |                   | For emissions above 18 GHz please take look at the plots. |          |                   |
|   |          |                   |   |          |                   |   |          |                   |

**Plots:** OFDM / n HT20 – mode

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

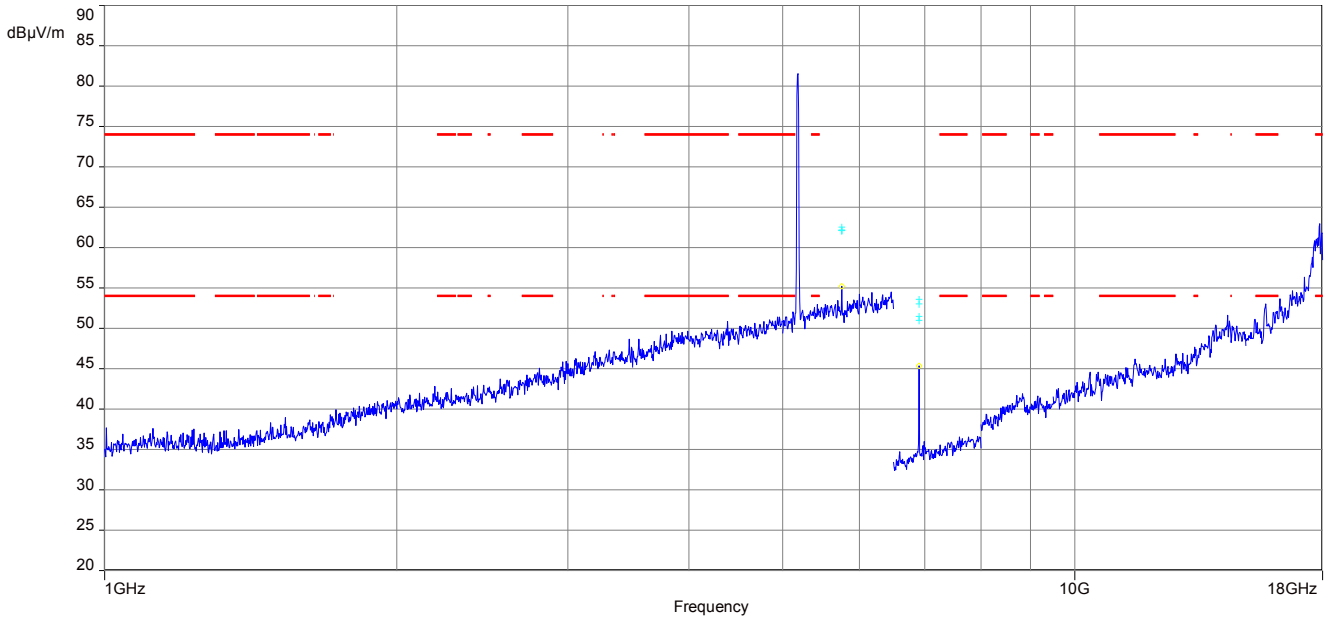


**Final\_Result**

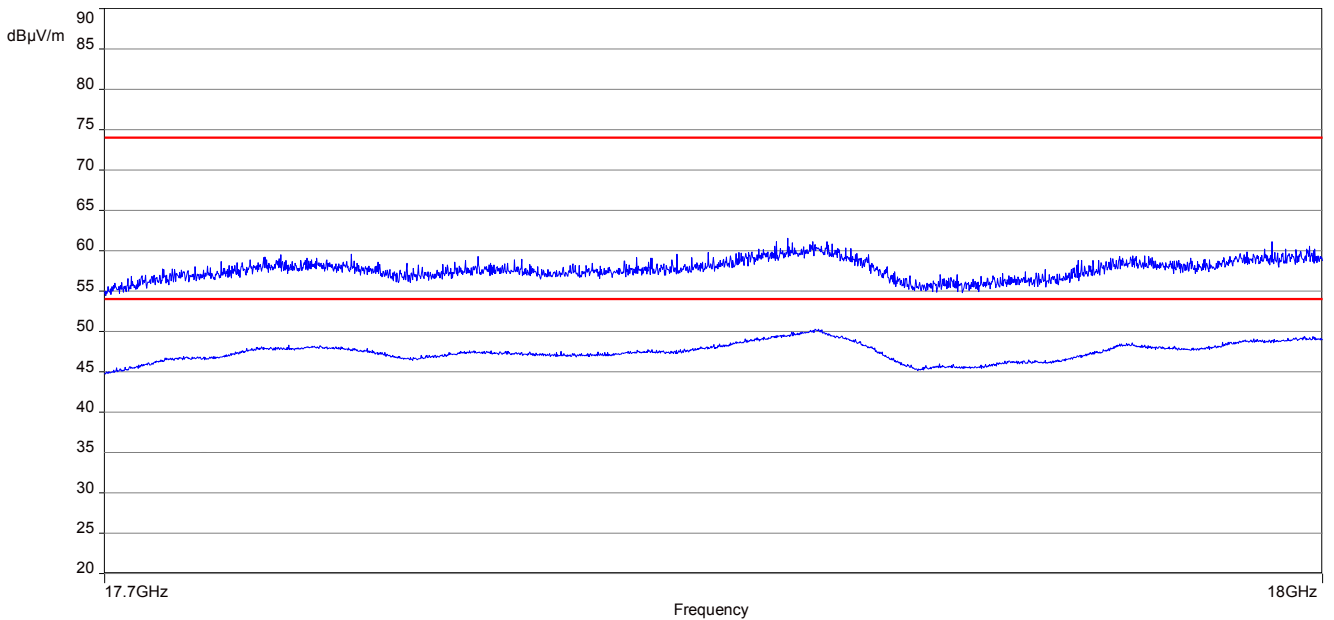
| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|------------|
| 39.064050       | 12.06              | 30.00          | 17.94       | 1000.0          | 120.000         | 98.0        | V   | 260.0         | 14.0       |
| 45.832500       | 11.27              | 30.00          | 18.73       | 1000.0          | 120.000         | 170.0       | V   | 171.0         | 13.6       |
| 52.268400       | 9.68               | 30.00          | 20.32       | 1000.0          | 120.000         | 98.0        | V   | 170.0         | 12.3       |
| 695.362800      | 18.74              | 36.00          | 17.26       | 1000.0          | 120.000         | 170.0       | V   | 100.0         | 21.5       |
| 793.170000      | 19.79              | 36.00          | 16.21       | 1000.0          | 120.000         | 170.0       | H   | 100.0         | 22.7       |
| 952.760700      | 21.37              | 36.00          | 14.63       | 1000.0          | 120.000         | 98.0        | V   | 190.0         | 24.3       |



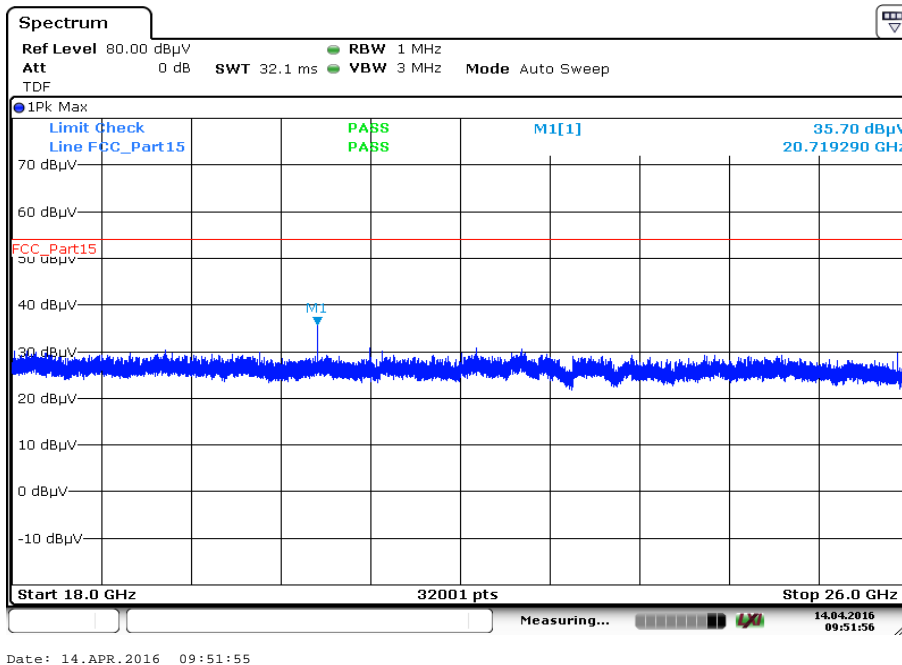
**Plot 2:** 1 GHz to 18 GHz, 5180 MHz, vertical & horizontal polarization



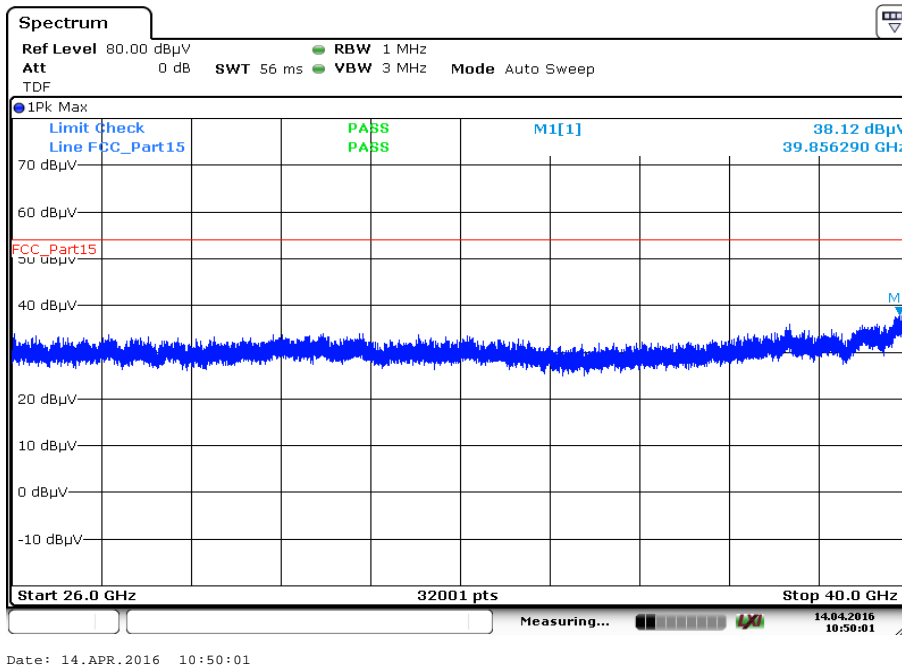
**Plot 3:** 17.7 GHz to 18 GHz, 5180 MHz, vertical & horizontal polarization



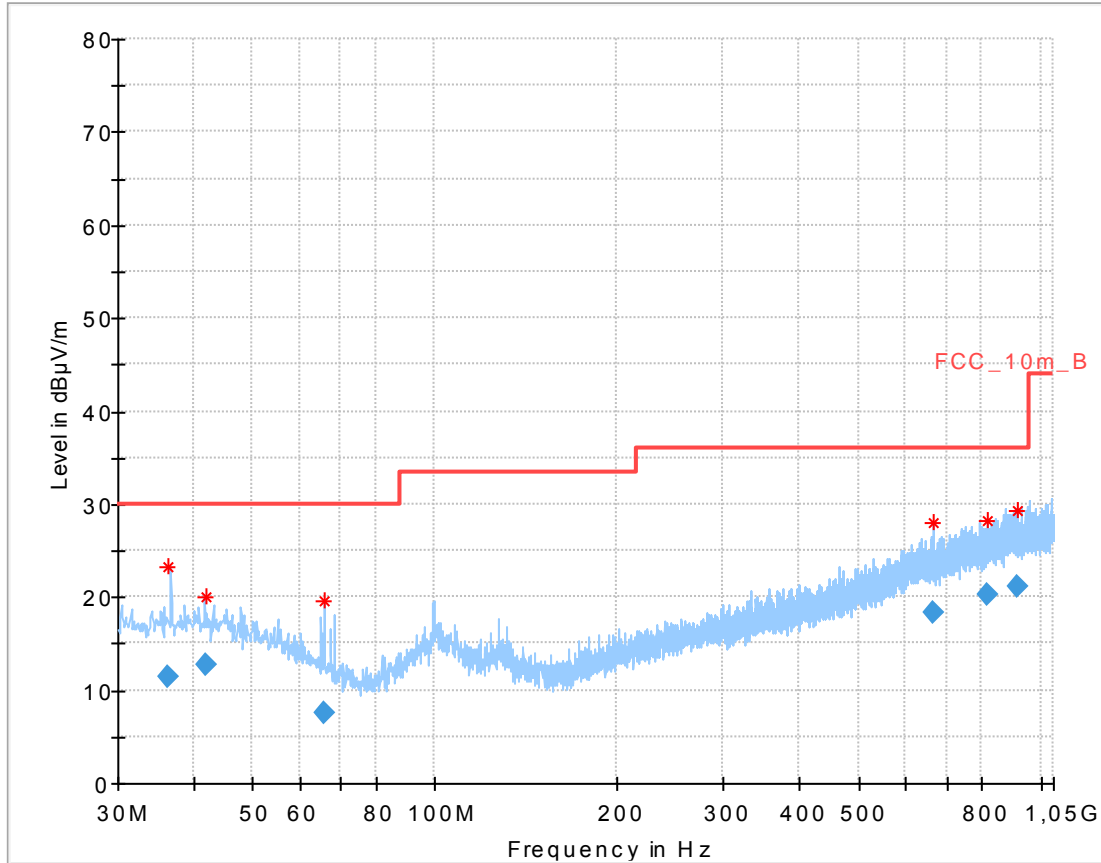
Plot 4: 18 GHz to 26 GHz, 5180 MHz, vertical & horizontal polarization



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



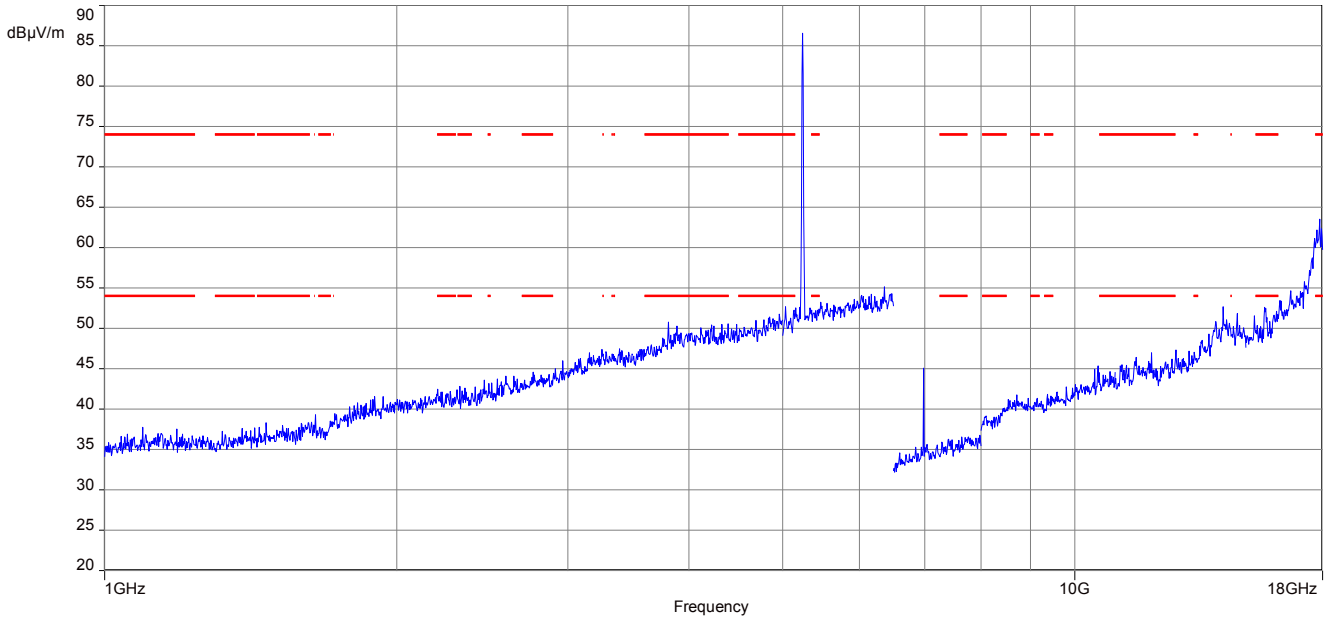
**Plot 6:** 30 MHz to 1 GHz, 5240 MHz, vertical & horizontal polarization



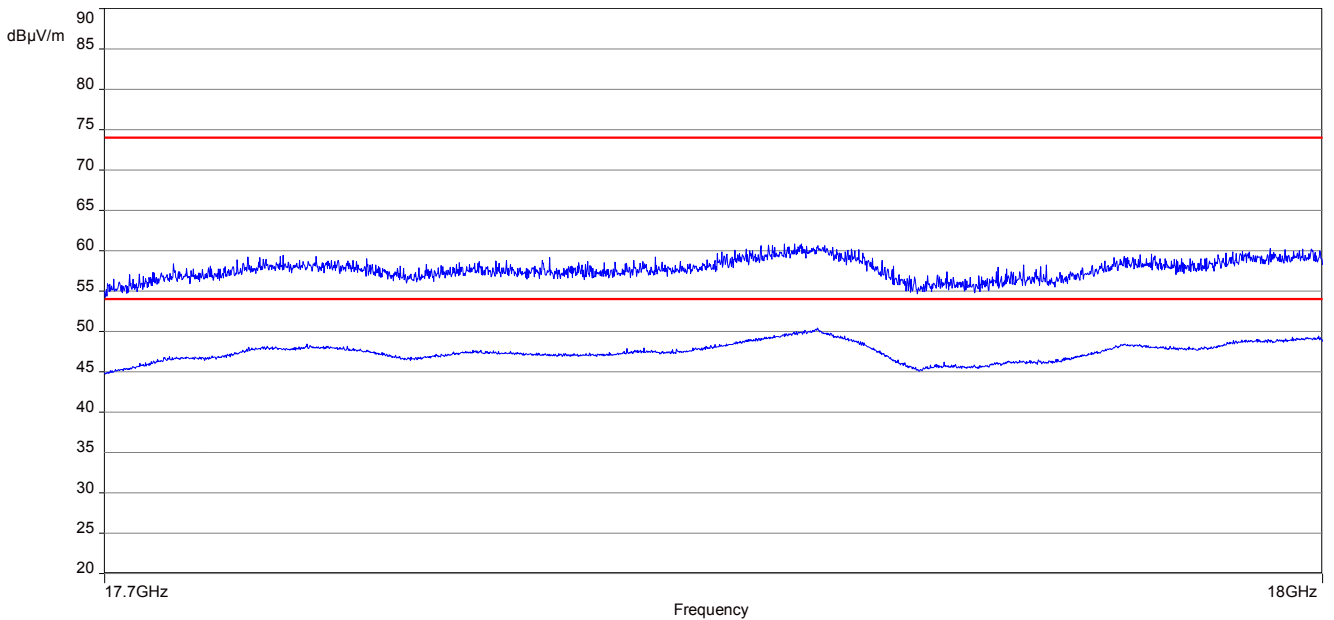
**Final\_Result:**

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|------------|
| 36.236250       | 11.43              | 30.00          | 18.57       | 1000.0          | 120.000         | 98.0        | V   | 100.0         | 13.9       |
| 41.793000       | 12.76              | 30.00          | 17.24       | 1000.0          | 120.000         | 98.0        | V   | 280.0         | 14.0       |
| 65.760450       | 7.46               | 30.00          | 22.54       | 1000.0          | 120.000         | 170.0       | V   | 280.0         | 9.3        |
| 663.594600      | 18.37              | 36.00          | 17.63       | 1000.0          | 120.000         | 98.0        | V   | 171.0         | 21.2       |
| 819.247200      | 20.28              | 36.00          | 15.72       | 1000.0          | 120.000         | 170.0       | V   | 190.0         | 23.0       |
| 917.289600      | 21.14              | 36.00          | 14.86       | 1000.0          | 120.000         | 98.0        | H   | 10.0          | 24.2       |

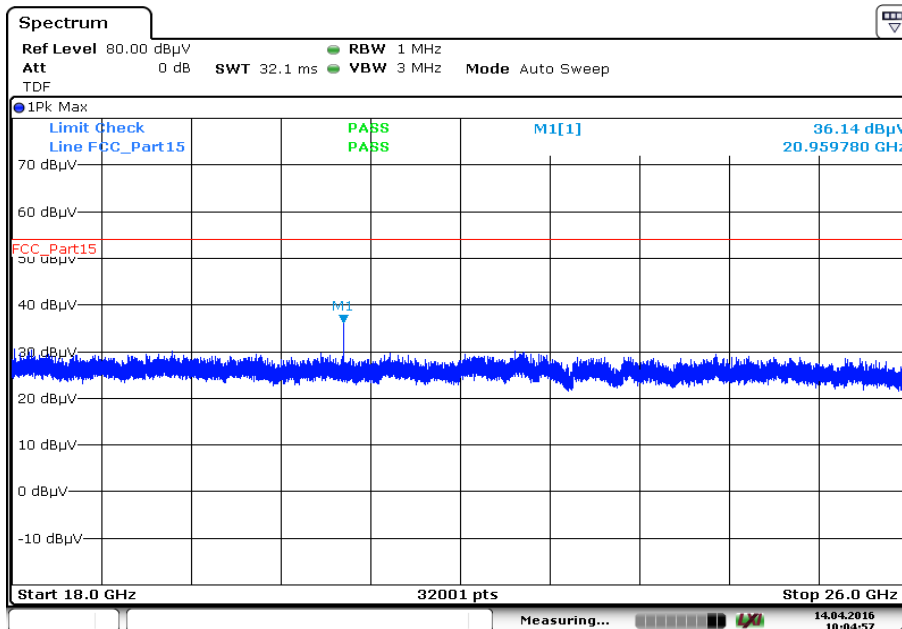
**Plot 7:** 1 GHz to 18 GHz, 5240 MHz, vertical & horizontal polarization



**Plot 8:** 17.7 GHz to 18 GHz, 5240 MHz, vertical & horizontal polarization

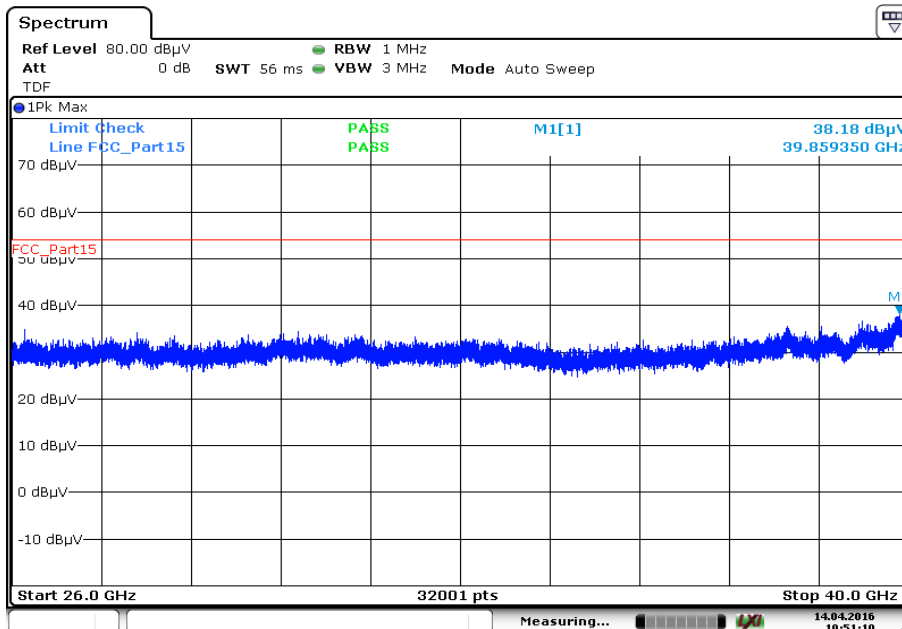


Plot 9: 18 GHz to 26 GHz, 5240 MHz, vertical & horizontal polarization



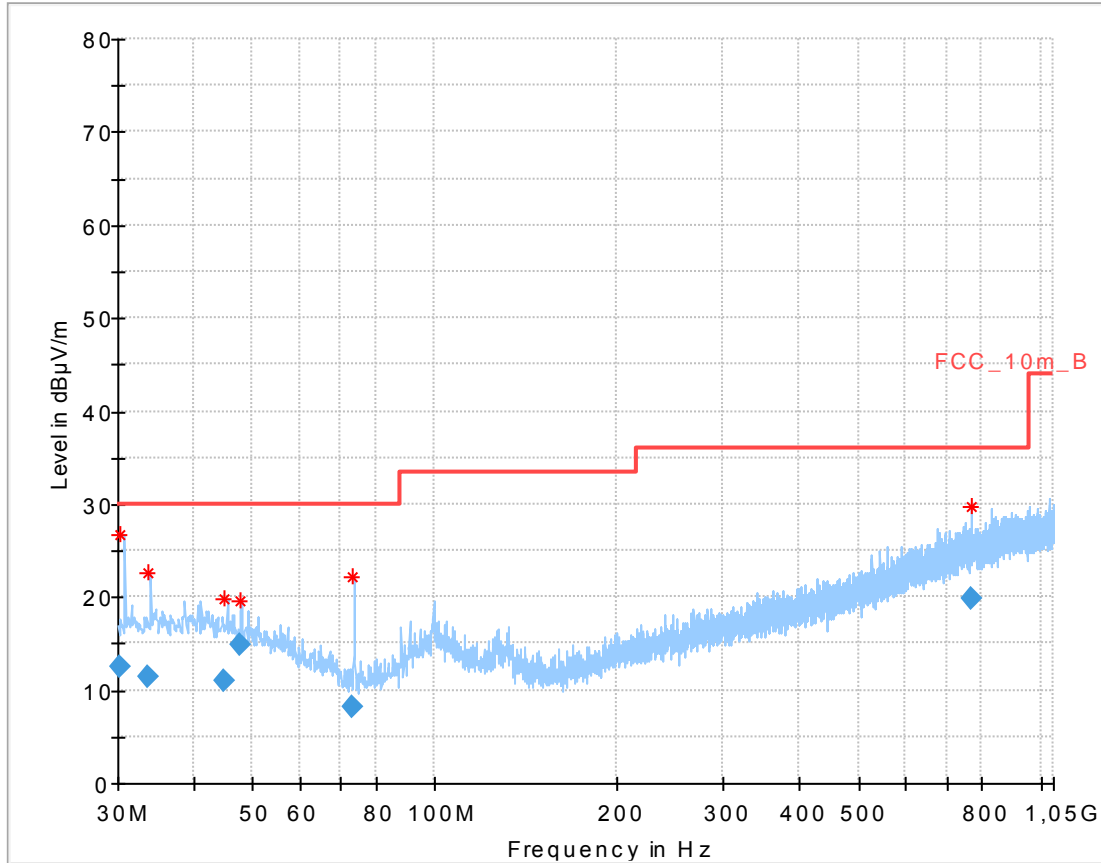
Date: 14.APR.2016 10:04:57

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



Date: 14.APR.2016 10:51:09

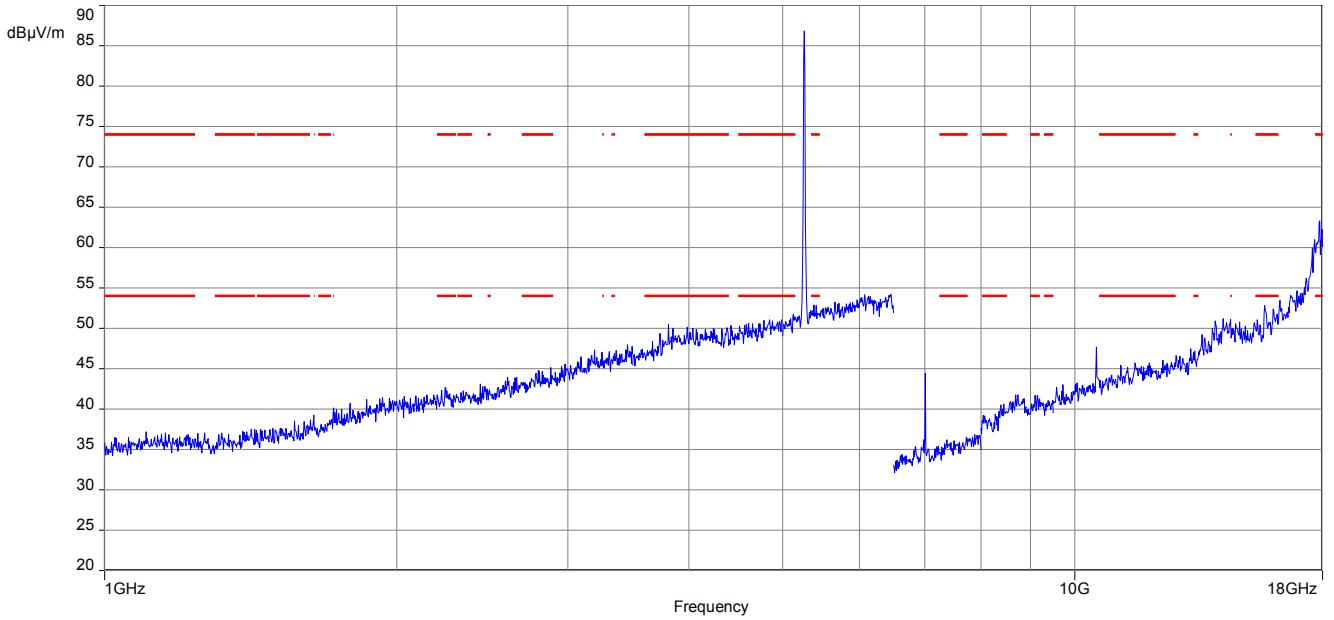
Plot 11: 30 MHz to 1 GHz, 5260 MHz, vertical & horizontal polarization



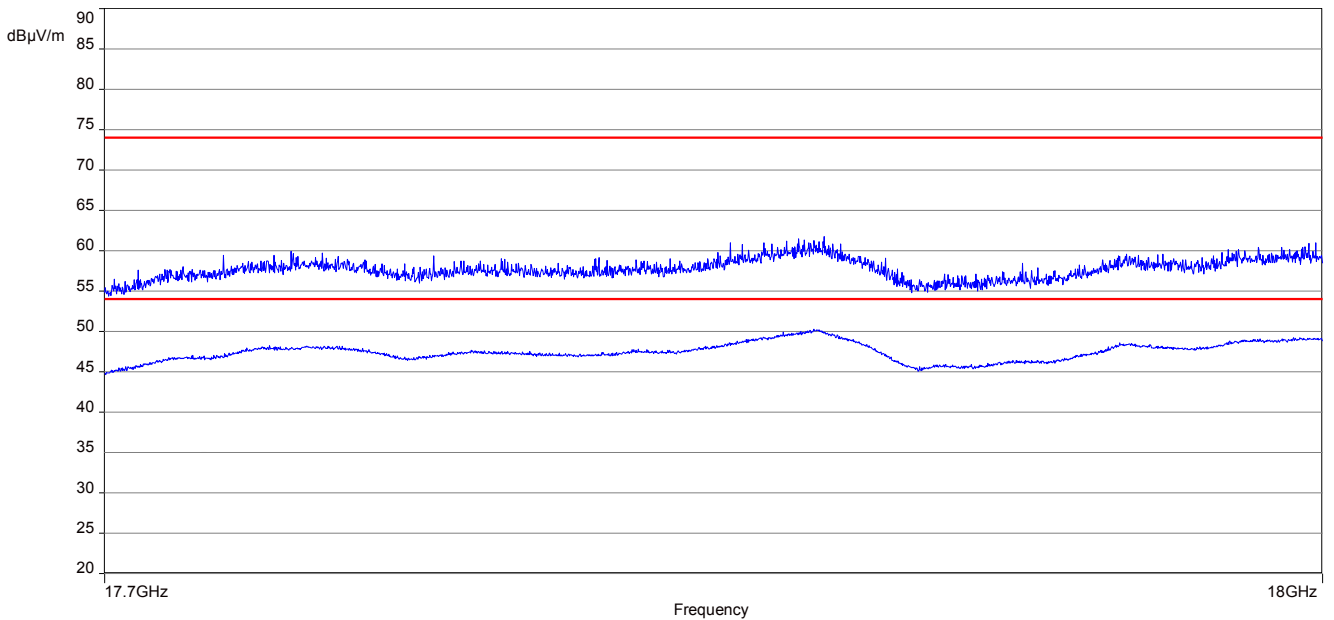
Final\_Result:

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|------------|
| 30.187350       | 12.42              | 30.00          | 17.58       | 1000.0          | 120.000         | 98.0        | V   | 100.0         | 13.3       |
| 33.599250       | 11.39              | 30.00          | 18.61       | 1000.0          | 120.000         | 98.0        | V   | 81.0          | 13.7       |
| 44.933550       | 11.00              | 30.00          | 19.00       | 1000.0          | 120.000         | 98.0        | V   | 260.0         | 13.9       |
| 47.881350       | 14.90              | 30.00          | 15.10       | 1000.0          | 120.000         | 98.0        | V   | -9.0          | 13.1       |
| 73.122300       | 8.29               | 30.00          | 21.71       | 1000.0          | 120.000         | 170.0       | V   | 260.0         | 8.3        |
| 769.440900      | 19.82              | 36.00          | 16.18       | 1000.0          | 120.000         | 170.0       | H   | 280.0         | 22.7       |

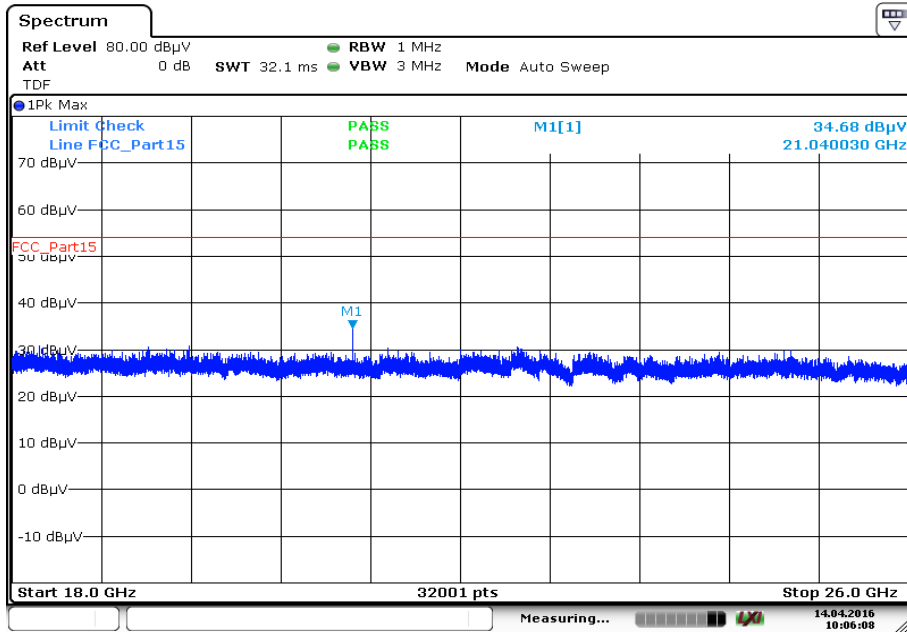
**Plot 12:** 1 GHz to 18 GHz, 5260 MHz, vertical & horizontal polarization



**Plot 13:** 17.7 GHz to 18 GHz, 5260 MHz, vertical & horizontal polarization

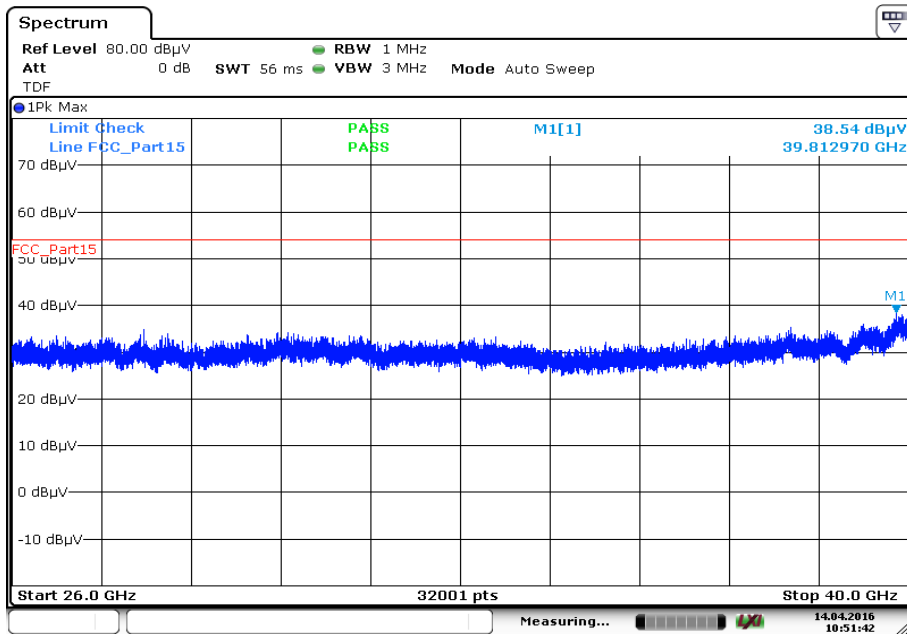


Plot 14: 18 GHz to 26 GHz, 5260 MHz, vertical & horizontal polarization



Date: 14.APR.2016 10:06:08

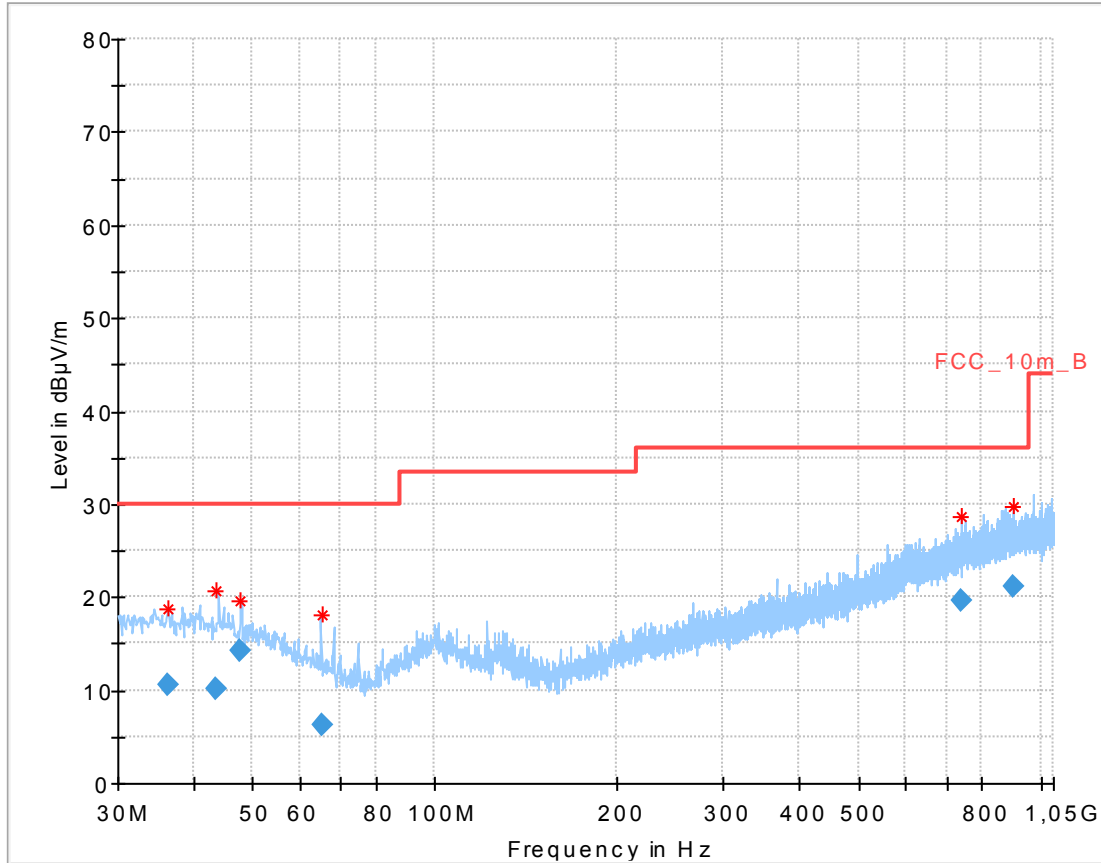
Plot 15: 26 GHz to 40 GHz, 5260 MHz, vertical & horizontal polarization



Date: 14.APR.2016 10:51:42



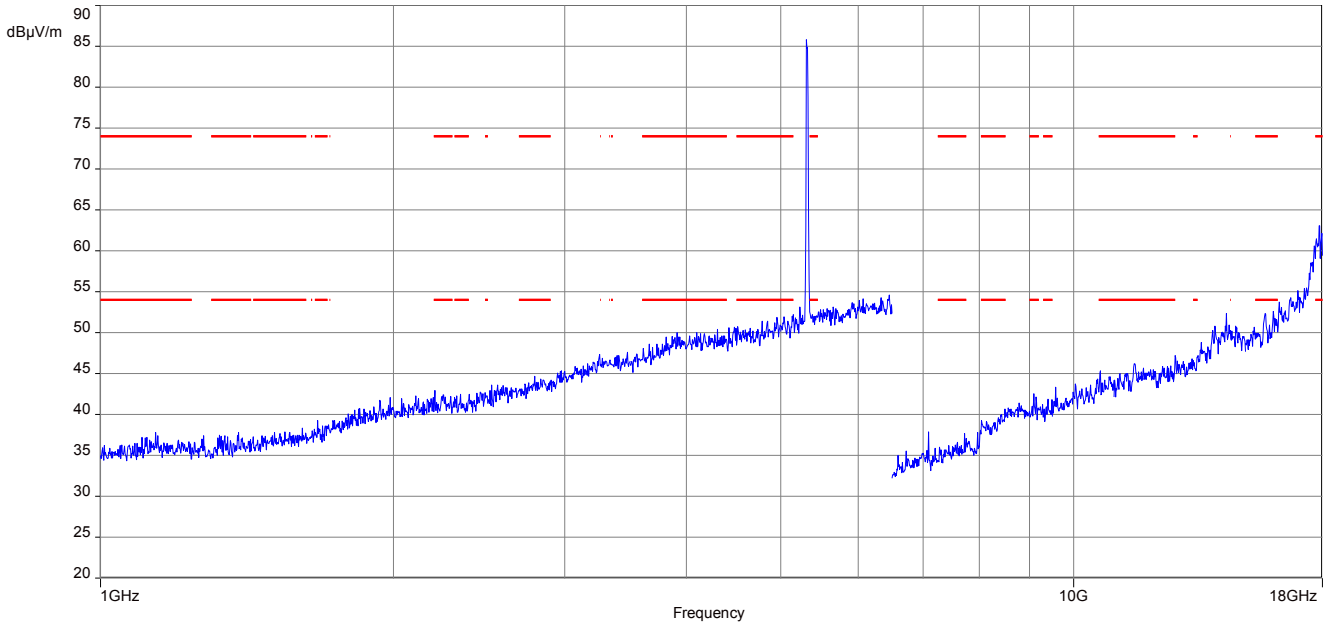
Plot 16: 30 MHz to 1 GHz, 5320 MHz, vertical & horizontal polarization



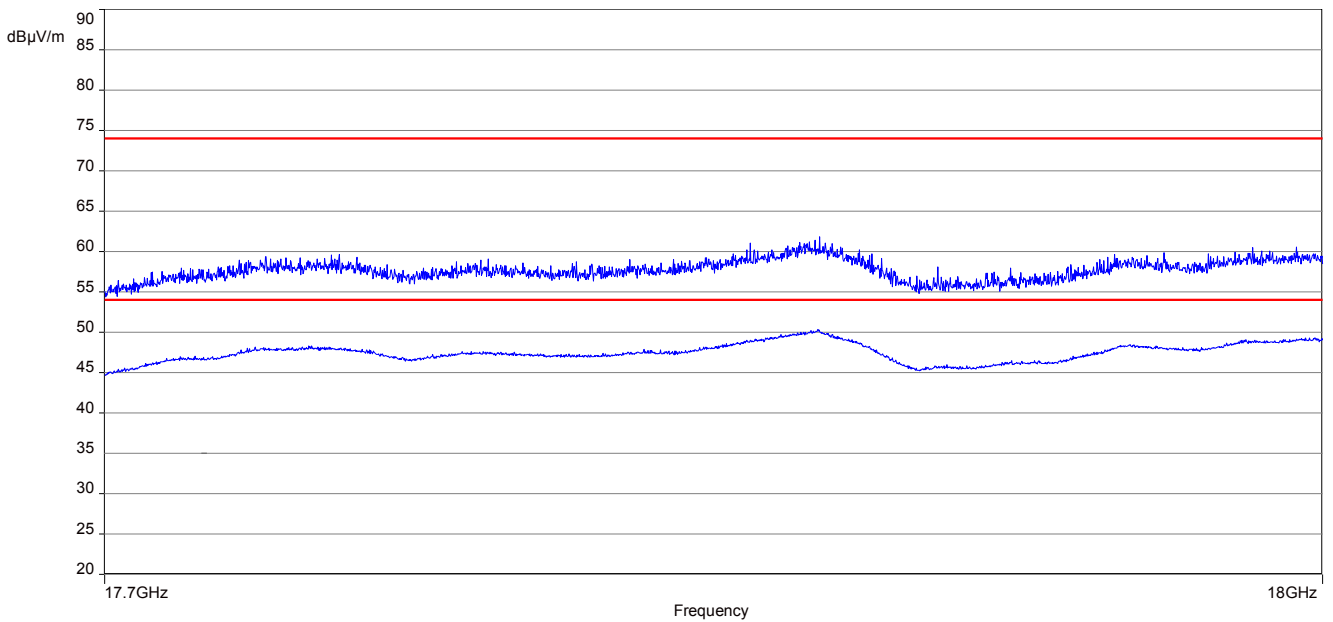
Final\_Result:

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|------------|
| 36.186150       | 10.62              | 30.00          | 19.38       | 1000.0          | 120.000         | 101.0       | H   | 190.0         | 13.9       |
| 43.610100       | 10.17              | 30.00          | 19.83       | 1000.0          | 120.000         | 170.0       | V   | 171.0         | 13.9       |
| 47.825550       | 14.14              | 30.00          | 15.86       | 1000.0          | 120.000         | 98.0        | V   | 171.0         | 13.2       |
| 65.094900       | 6.28               | 30.00          | 23.72       | 1000.0          | 120.000         | 101.0       | V   | 171.0         | 9.4        |
| 737.641050      | 19.62              | 36.00          | 16.38       | 1000.0          | 120.000         | 170.0       | V   | 100.0         | 22.4       |
| 904.648950      | 21.13              | 36.00          | 14.87       | 1000.0          | 120.000         | 170.0       | H   | 280.0         | 24.1       |

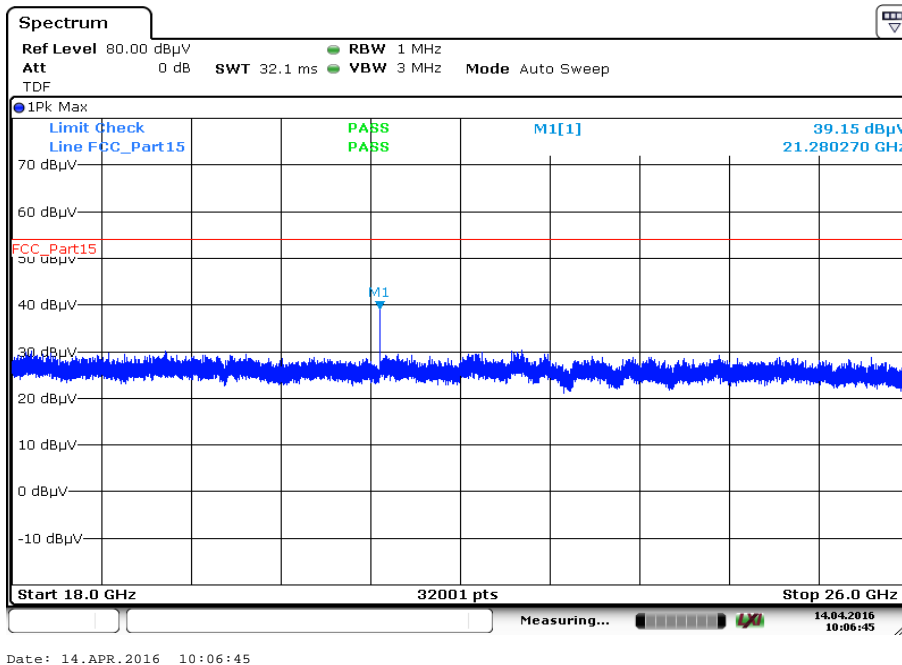
**Plot 17:** 1 GHz to 18 GHz, 5320 MHz, vertical & horizontal polarization



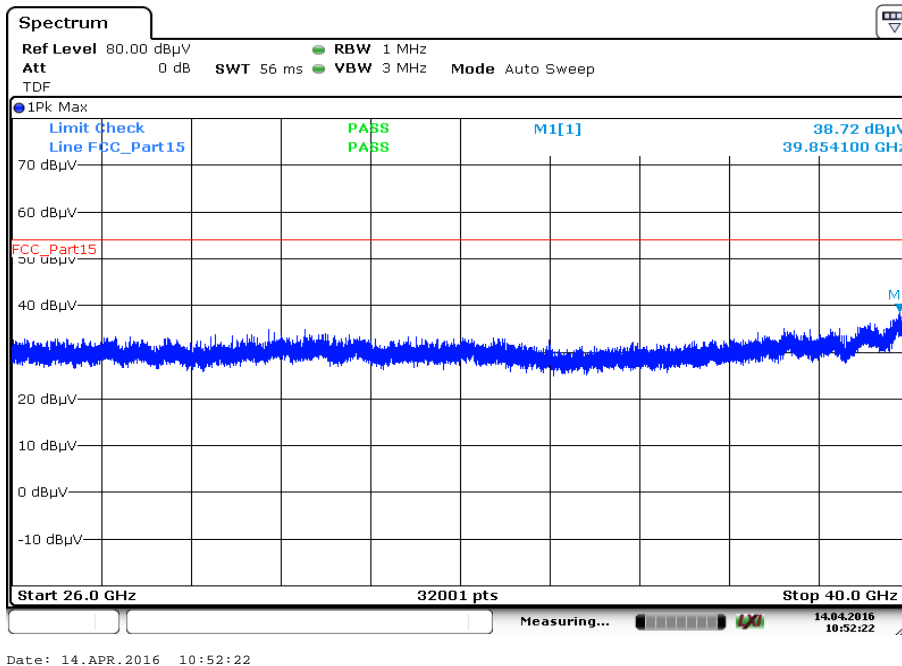
**Plot 18:** 17.7 GHz to 18 GHz, 5320 MHz, vertical & horizontal polarization



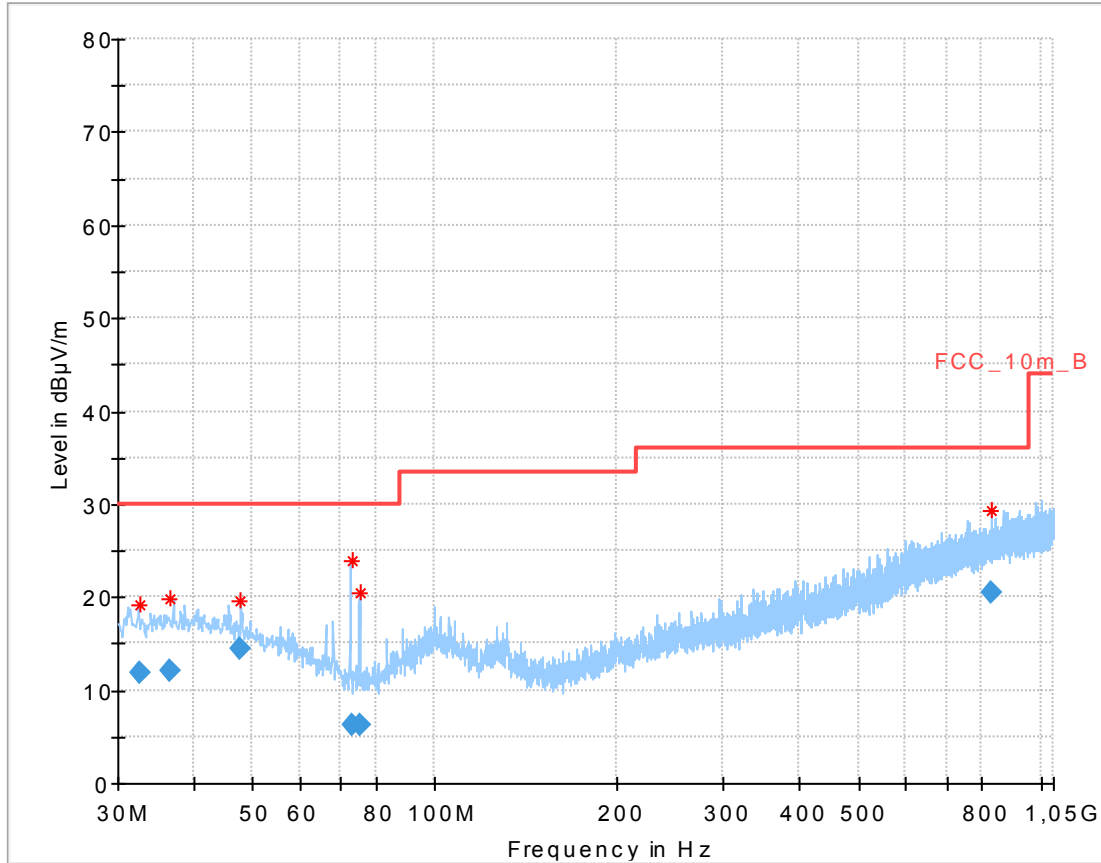
Plot 19: 18 GHz to 26 GHz, 5320 MHz, vertical & horizontal polarization



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



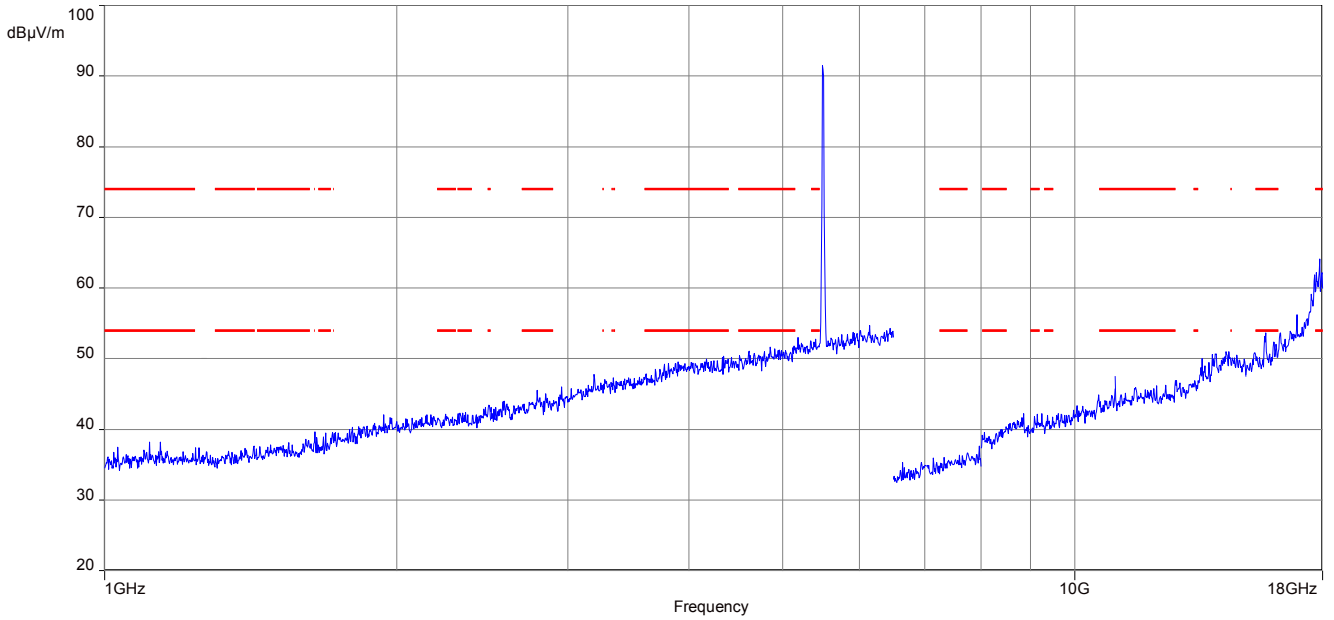
Plot 21: 30 MHz to 1 GHz, 5500 MHz, vertical & horizontal polarization



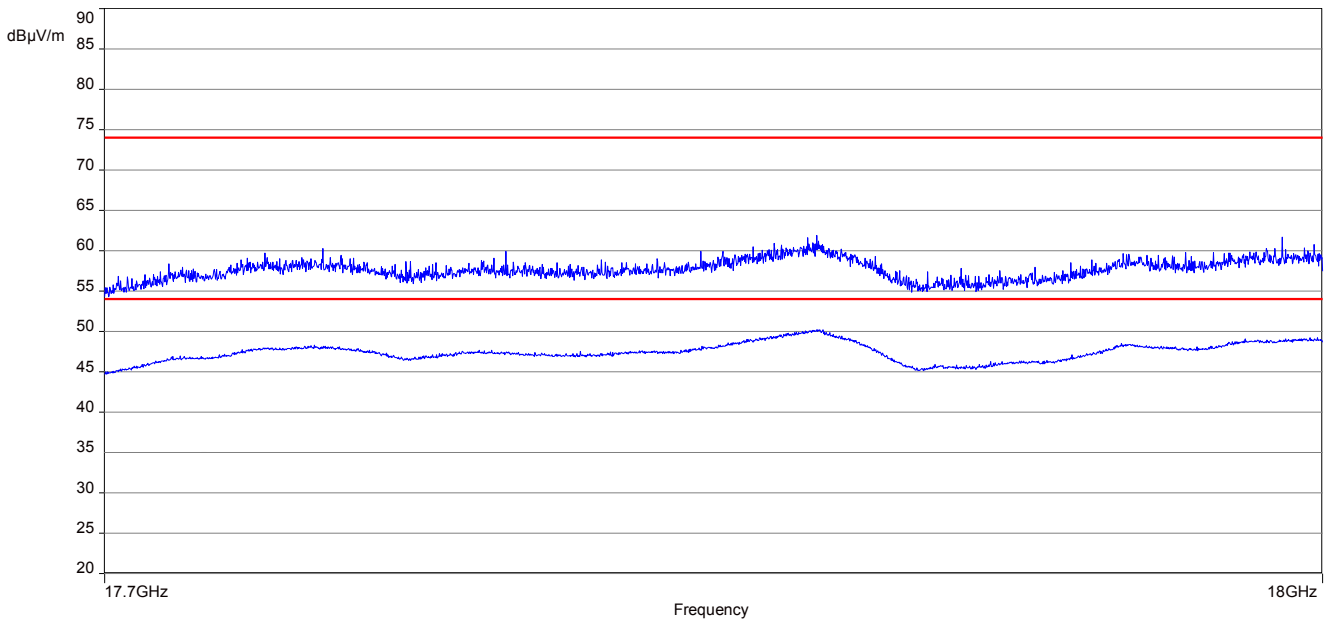
Final\_Result:

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|------------|
| 32.647350       | 11.85              | 30.00          | 18.15       | 1000.0          | 120.000         | 170.0       | V   | 80.0          | 13.6       |
| 36.662250       | 11.97              | 30.00          | 18.03       | 1000.0          | 120.000         | 170.0       | V   | 80.0          | 13.9       |
| 47.883750       | 14.53              | 30.00          | 15.47       | 1000.0          | 120.000         | 98.0        | V   | 190.0         | 13.1       |
| 73.174800       | 6.19               | 30.00          | 23.81       | 1000.0          | 120.000         | 101.0       | V   | 260.0         | 8.3        |
| 75.221850       | 6.30               | 30.00          | 23.70       | 1000.0          | 120.000         | 170.0       | V   | 100.0         | 8.2        |
| 831.876300      | 20.41              | 36.00          | 15.59       | 1000.0          | 120.000         | 170.0       | V   | 170.0         | 23.2       |

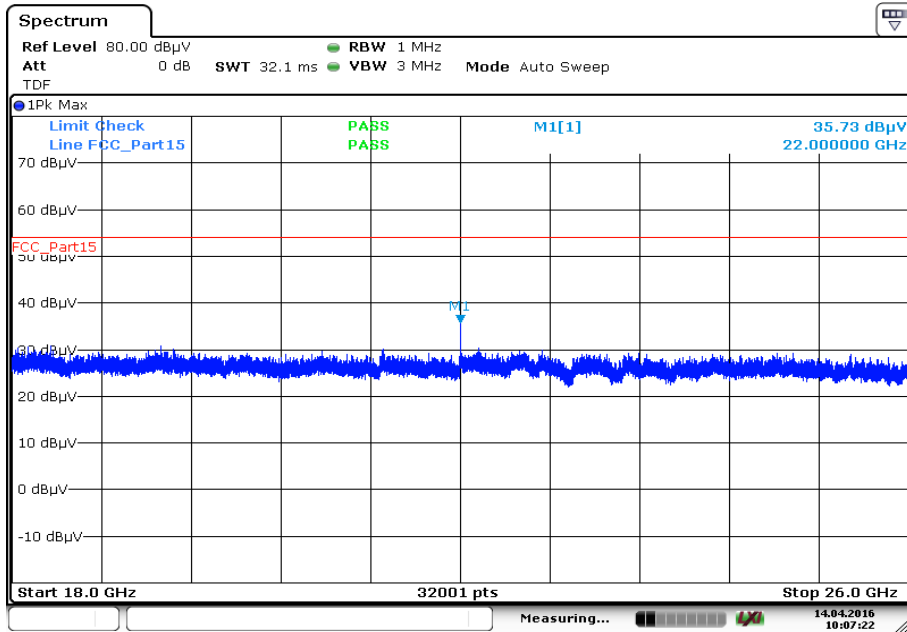
**Plot 22:** 1 GHz to 18 GHz, 5500 MHz, vertical & horizontal polarization



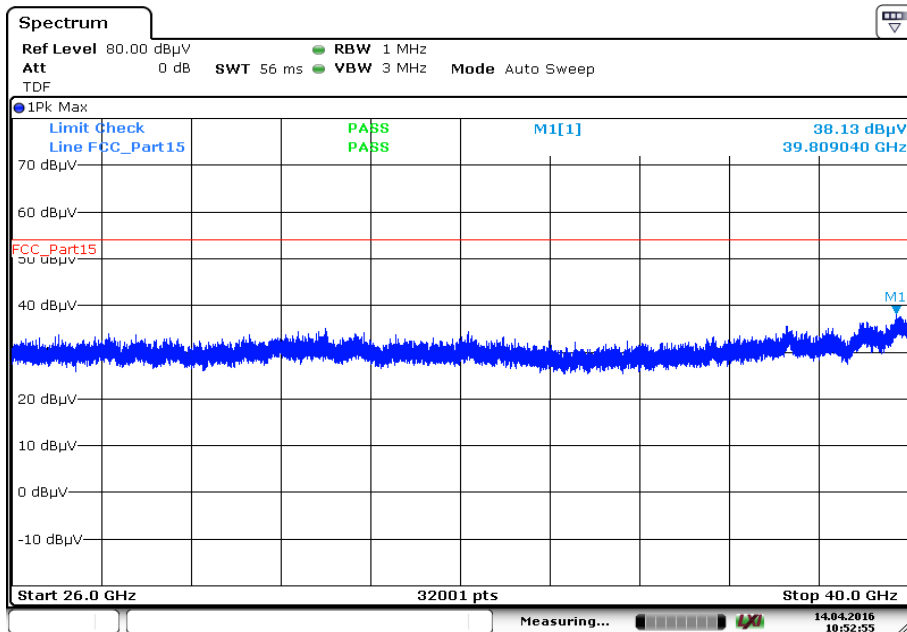
**Plot 23:** 17.7 GHz to 18 GHz, 5500 MHz, vertical & horizontal polarization



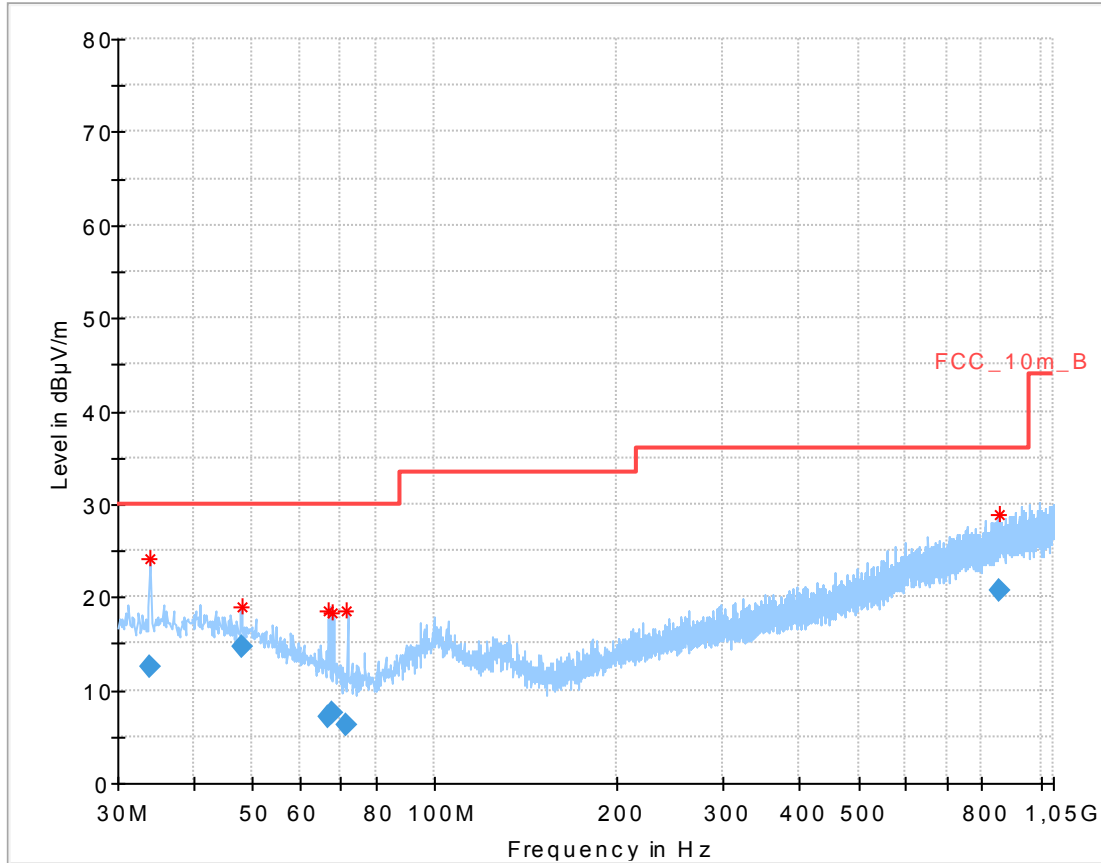
Plot 24: 18 GHz to 26 GHz, 5500 MHz, vertical & horizontal polarization



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



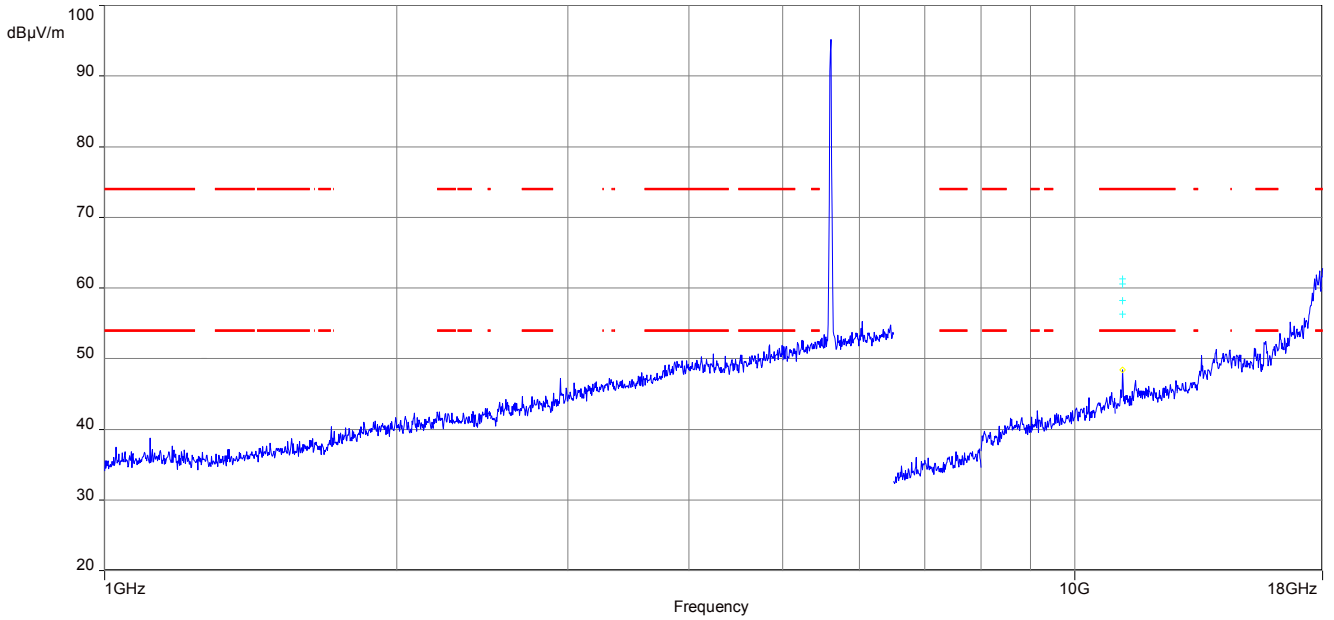
Plot 26: 30 MHz to 1 GHz, 5600 MHz, vertical & horizontal polarization



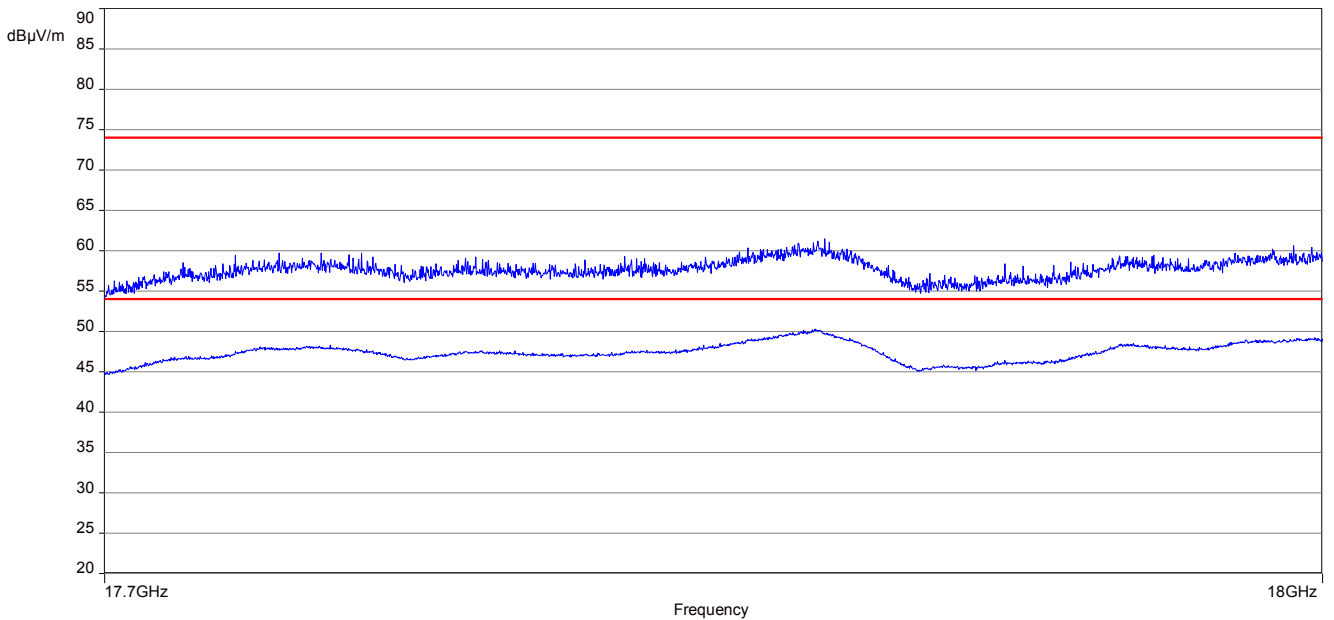
Final\_Result

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|------------|
| 33.912000       | 12.44              | 30.00          | 17.56       | 1000.0          | 120.000         | 98.0        | V   | -9.0          | 13.7       |
| 47.969550       | 14.58              | 30.00          | 15.42       | 1000.0          | 120.000         | 98.0        | V   | 280.0         | 13.1       |
| 66.636600       | 7.13               | 30.00          | 22.87       | 1000.0          | 120.000         | 101.0       | V   | 100.0         | 9.1        |
| 67.902750       | 7.57               | 30.00          | 22.43       | 1000.0          | 120.000         | 101.0       | V   | 81.0          | 8.9        |
| 71.629950       | 6.15               | 30.00          | 23.85       | 1000.0          | 120.000         | 170.0       | V   | 260.0         | 8.4        |
| 854.347500      | 20.74              | 36.00          | 15.26       | 1000.0          | 120.000         | 170.0       | H   | 10.0          | 23.5       |

**Plot 27:** 1 GHz to 18 GHz, 5600 MHz, vertical & horizontal polarization

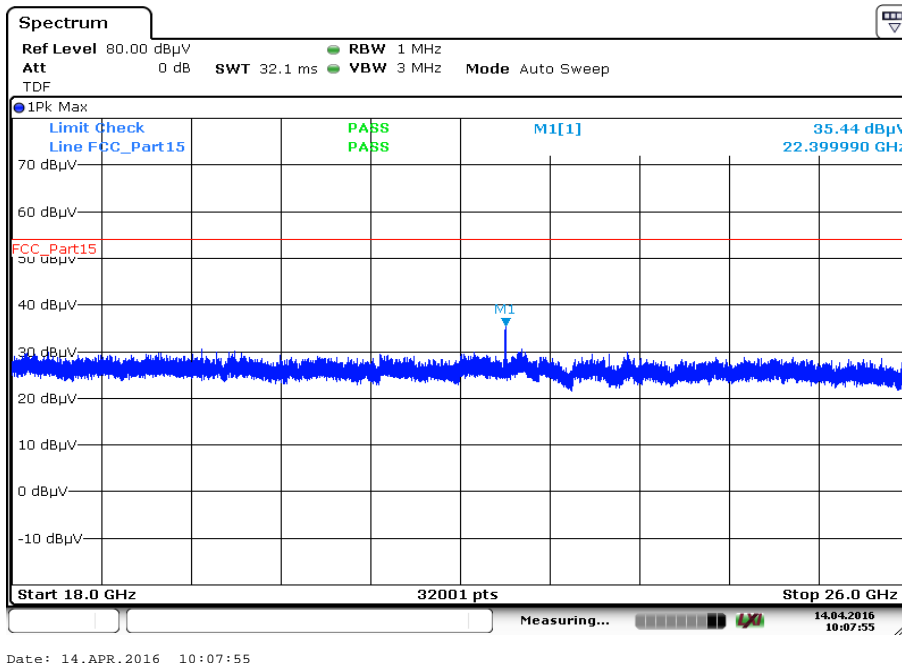


**Plot 28:** 17.7 GHz to 18 GHz, 5600 MHz, vertical & horizontal polarization

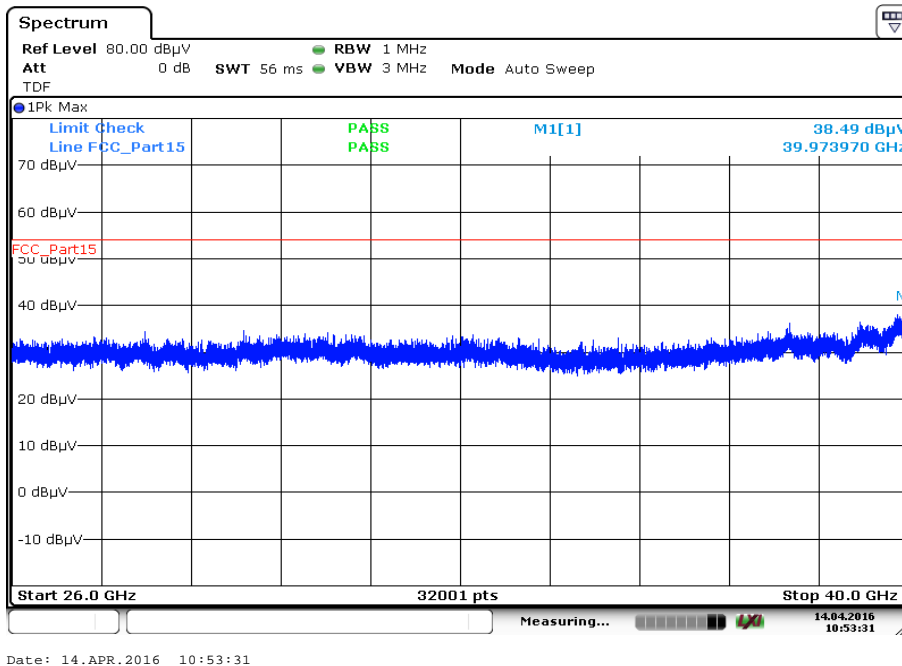




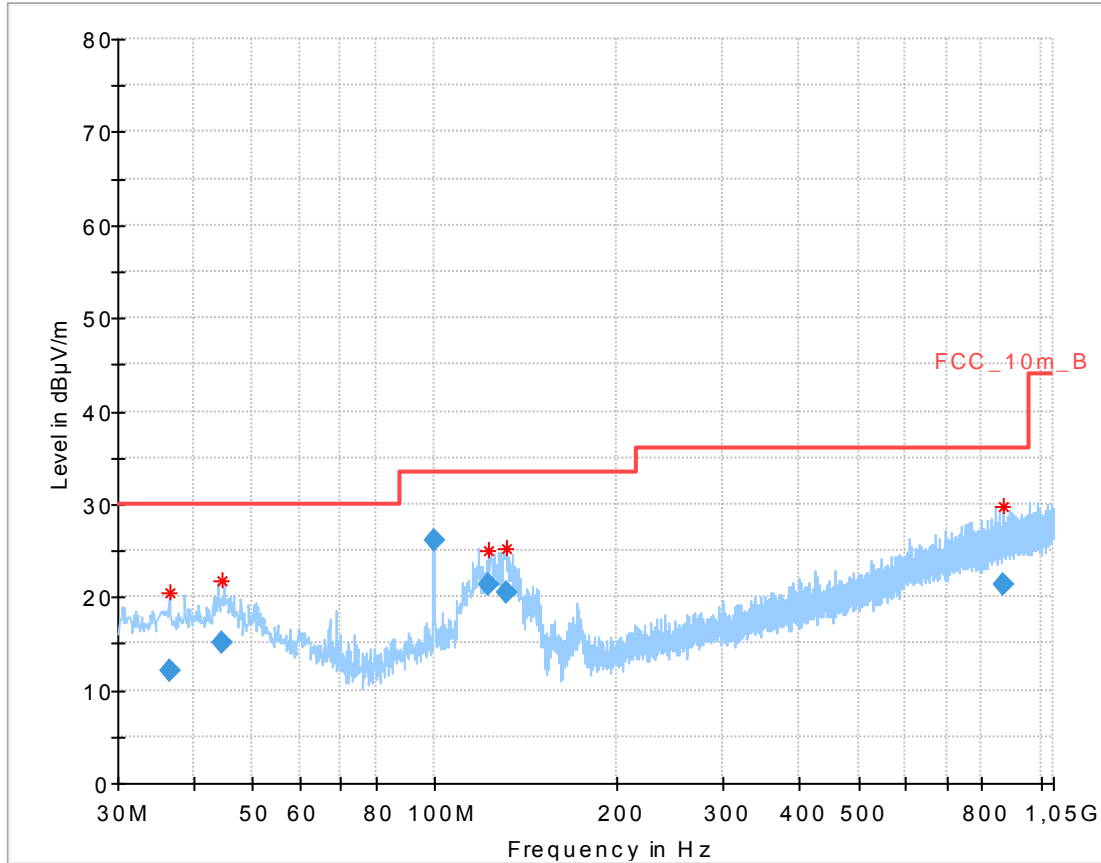
Plot 29: 18 GHz to 26 GHz, 5600 MHz, vertical & horizontal polarization



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



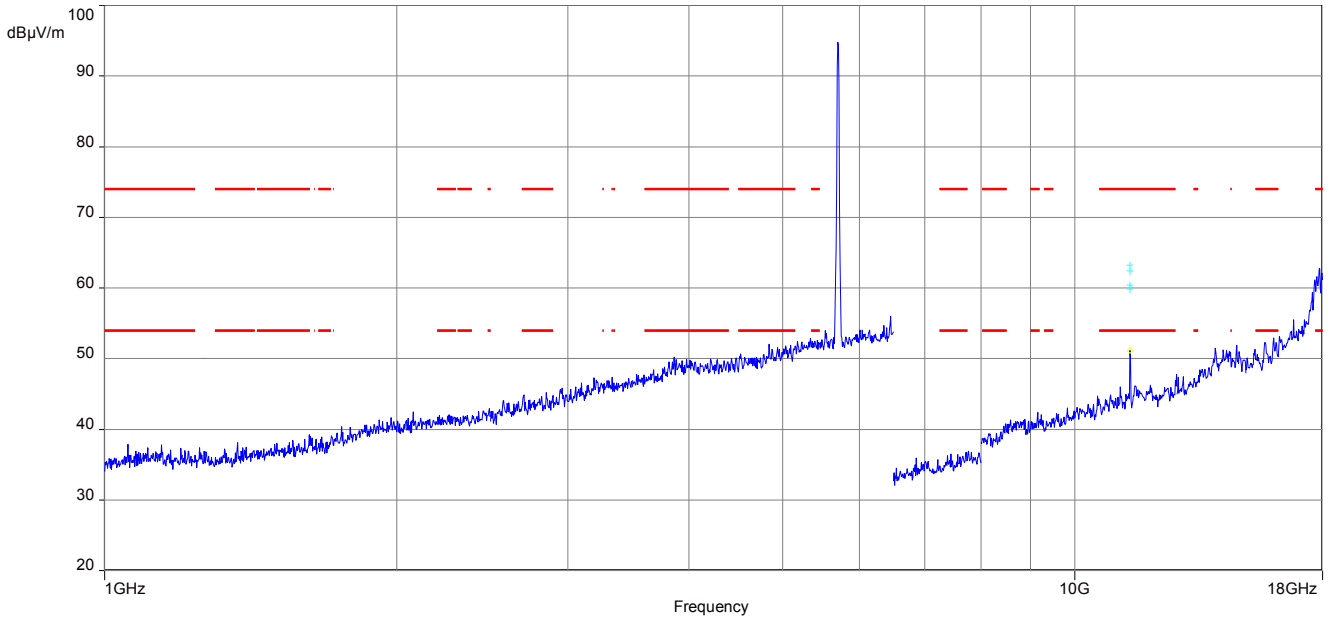
Plot 31: 30 MHz to 1 GHz, 5700 MHz, vertical & horizontal polarization



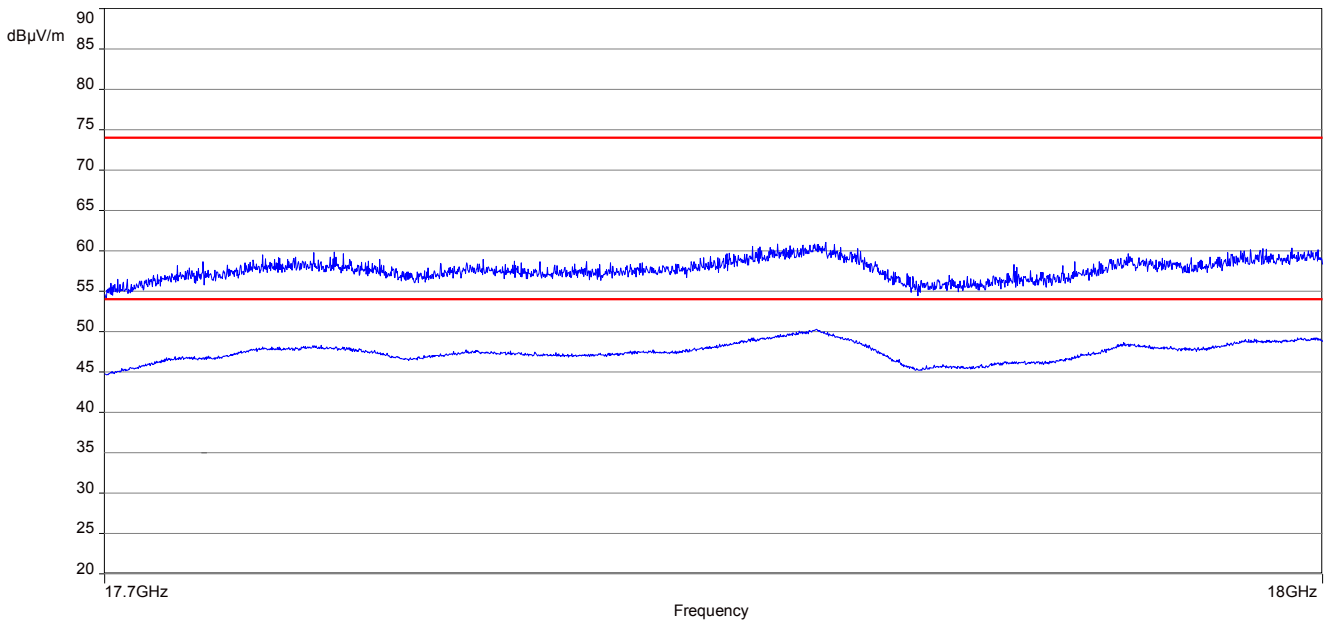
Final\_Result:

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|------------|
| 36.702450       | 12.01              | 30.00          | 17.99       | 1000.0          | 120.000         | 170.0       | V   | 81.0          | 13.9       |
| 44.507400       | 15.07              | 30.00          | 14.93       | 1000.0          | 120.000         | 101.0       | V   | 190.0         | 13.9       |
| 99.584400       | 26.06              | 33.50          | 7.44        | 1000.0          | 120.000         | 101.0       | V   | 190.0         | 12.1       |
| 122.655300      | 21.29              | 33.50          | 12.21       | 1000.0          | 120.000         | 98.0        | V   | 10.0          | 9.9        |
| 131.277900      | 20.50              | 33.50          | 13.00       | 1000.0          | 120.000         | 98.0        | V   | 81.0          | 9.3        |
| 868.790850      | 21.26              | 36.00          | 14.74       | 1000.0          | 120.000         | 98.0        | V   | 190.0         | 23.7       |

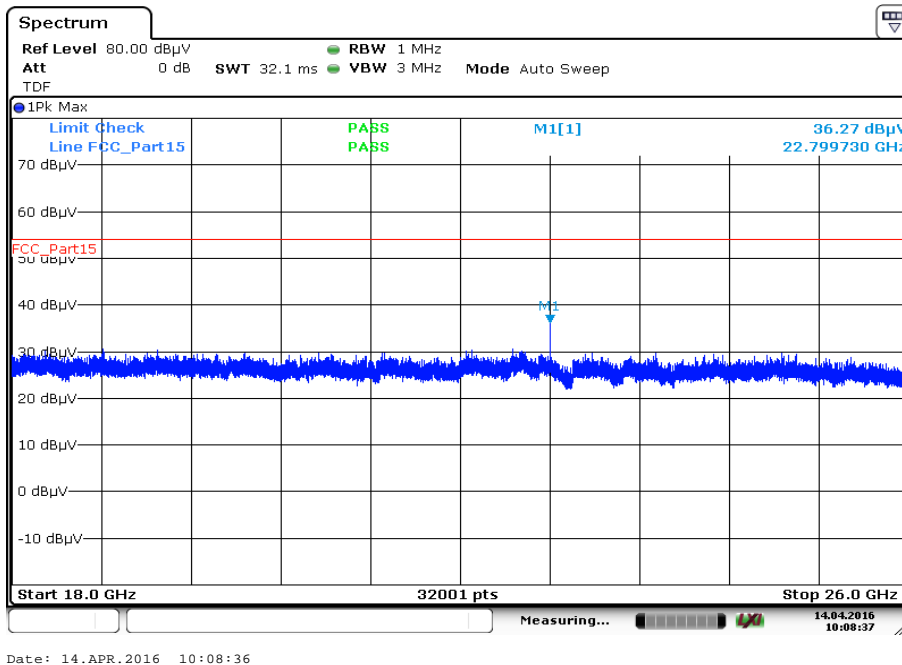
**Plot 32:** 1 GHz to 18 GHz, 5700 MHz, vertical & horizontal polarization



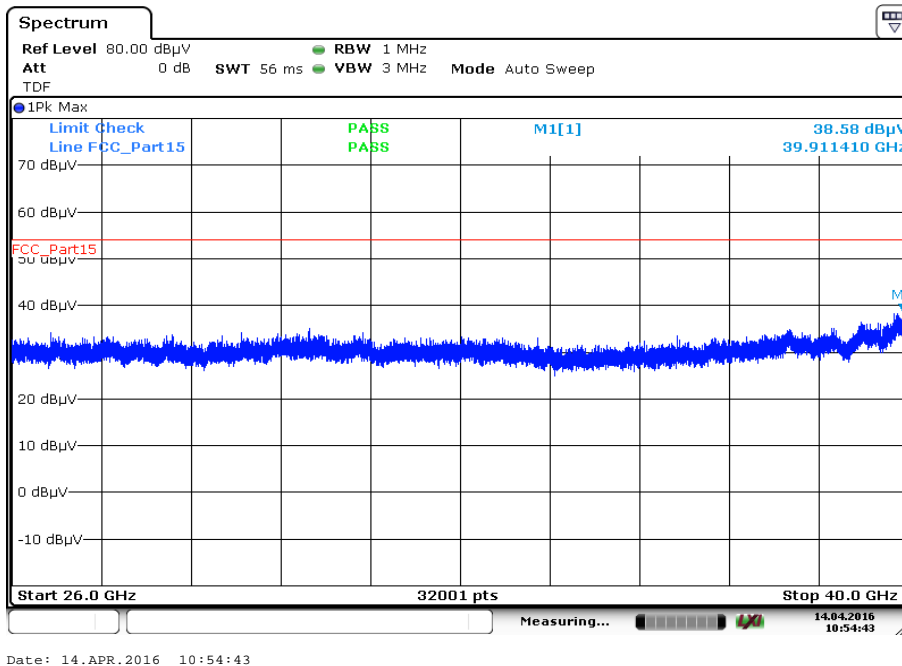
**Plot 33:** 17.7 GHz to 18 GHz, 5700 MHz, vertical & horizontal polarization



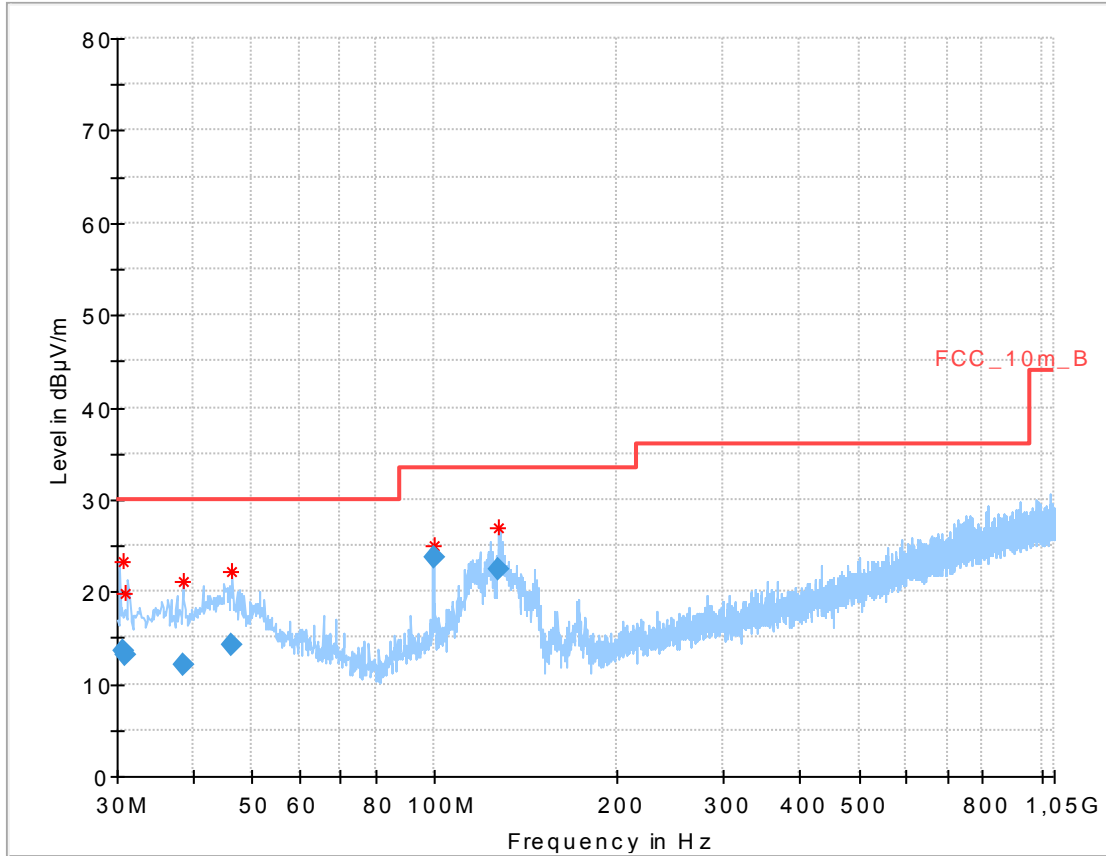
Plot 34: 18 GHz to 26 GHz, 5700 MHz, vertical & horizontal polarization



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



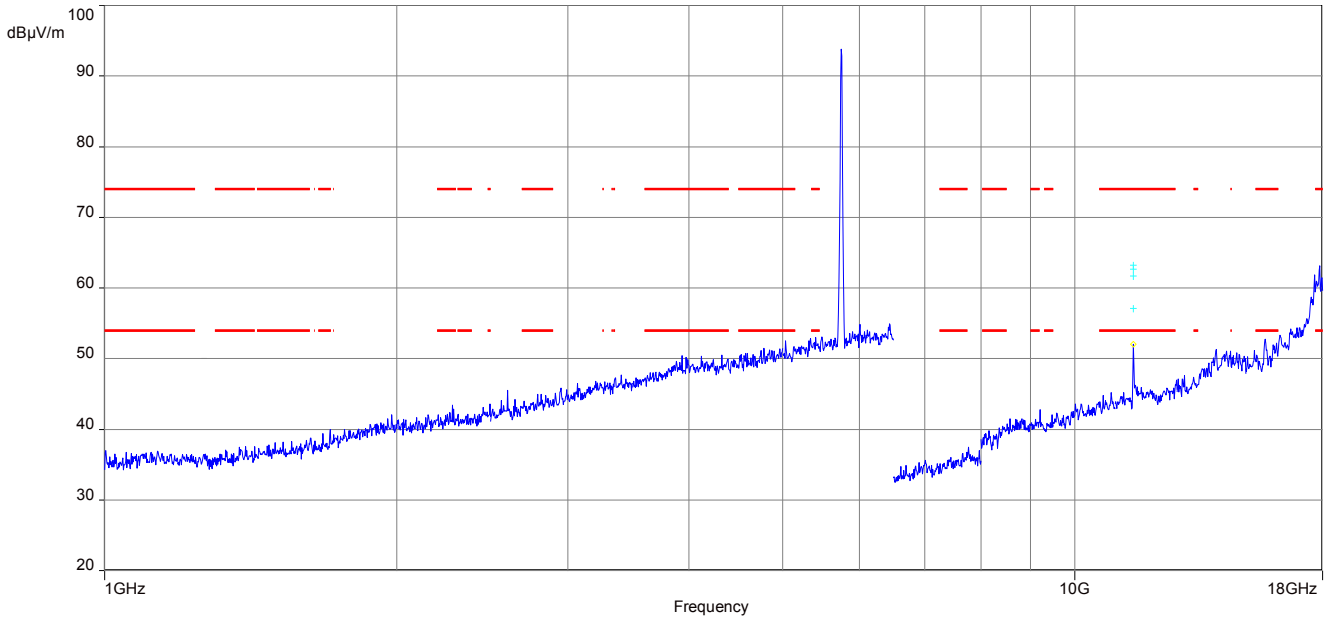
**Plot 36:** 30 MHz to 1 GHz, 5745 MHz, vertical & horizontal polarization



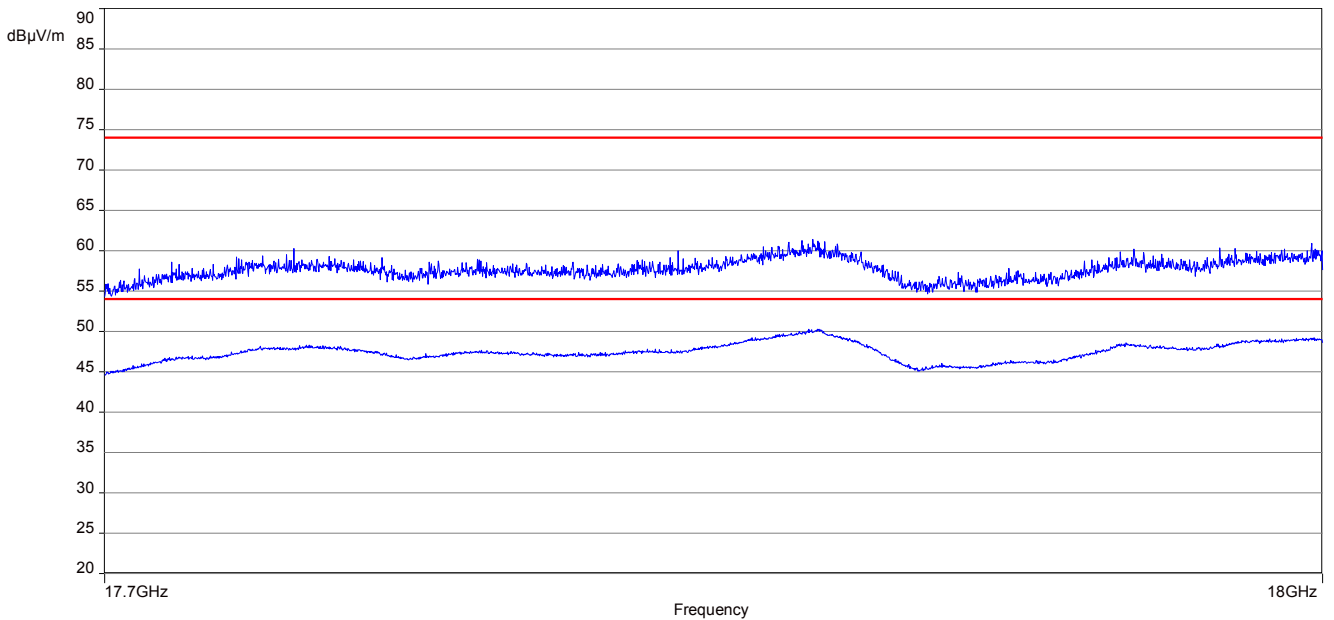
**Final\_Result:**

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|------------|
| 30.807654       | 13.65              | 30.00          | 16.35       | 1000.0          | 120.000         | 98.0        | V   | 80.0          | 13.4       |
| 30.926250       | 13.12              | 30.00          | 16.88       | 1000.0          | 120.000         | 101.0       | V   | 261.0         | 13.4       |
| 38.465850       | 11.98              | 30.00          | 18.02       | 1000.0          | 120.000         | 98.0        | V   | 10.0          | 14.0       |
| 46.306500       | 14.30              | 30.00          | 15.70       | 1000.0          | 120.000         | 101.0       | V   | 280.0         | 13.5       |
| 99.578850       | 23.64              | 33.50          | 9.86        | 1000.0          | 120.000         | 98.0        | V   | 190.0         | 12.1       |
| 127.454850      | 22.45              | 33.50          | 11.05       | 1000.0          | 120.000         | 98.0        | V   | 10.0          | 9.6        |

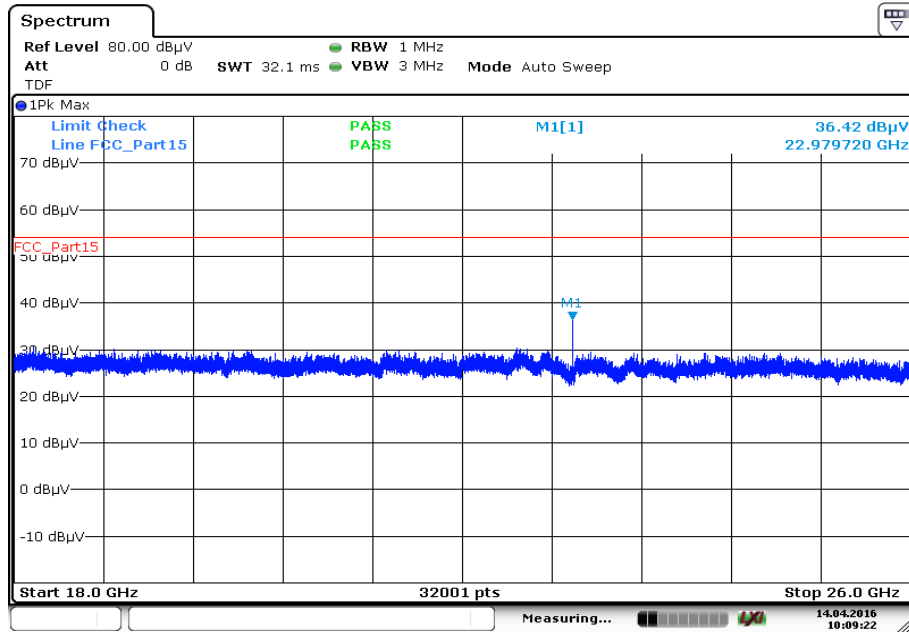
**Plot 37:** 1 GHz to 18 GHz, 5745 MHz, vertical & horizontal polarization



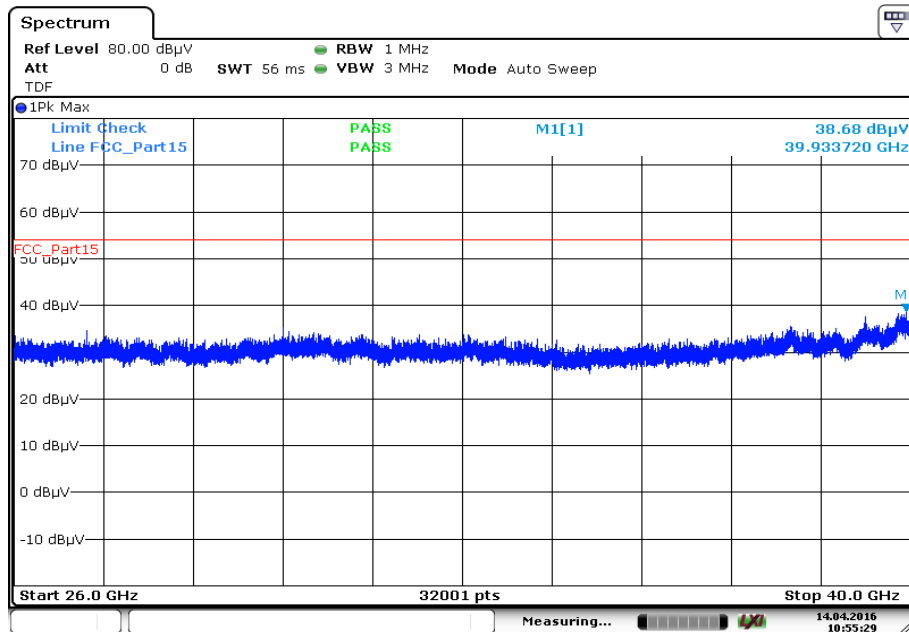
**Plot 38:** 17.7 GHz to 18 GHz, 5745 MHz, vertical & horizontal polarization



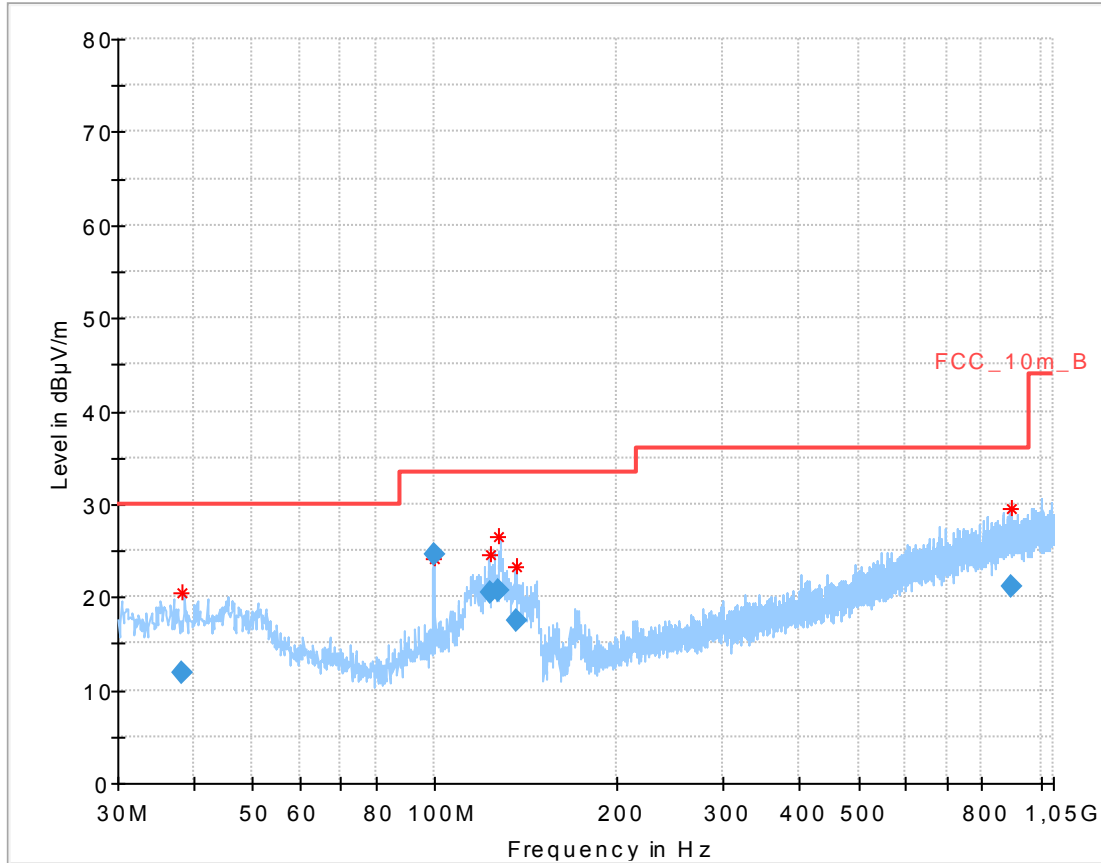
Plot 39: 18 GHz to 26 GHz, 5745 MHz, vertical & horizontal polarization



Plot 40: 26 GHz to 40 GHz, 5745 MHz, vertical & horizontal polarization



Plot 41: 30 MHz to 1 GHz, 5785 MHz, vertical & horizontal polarization

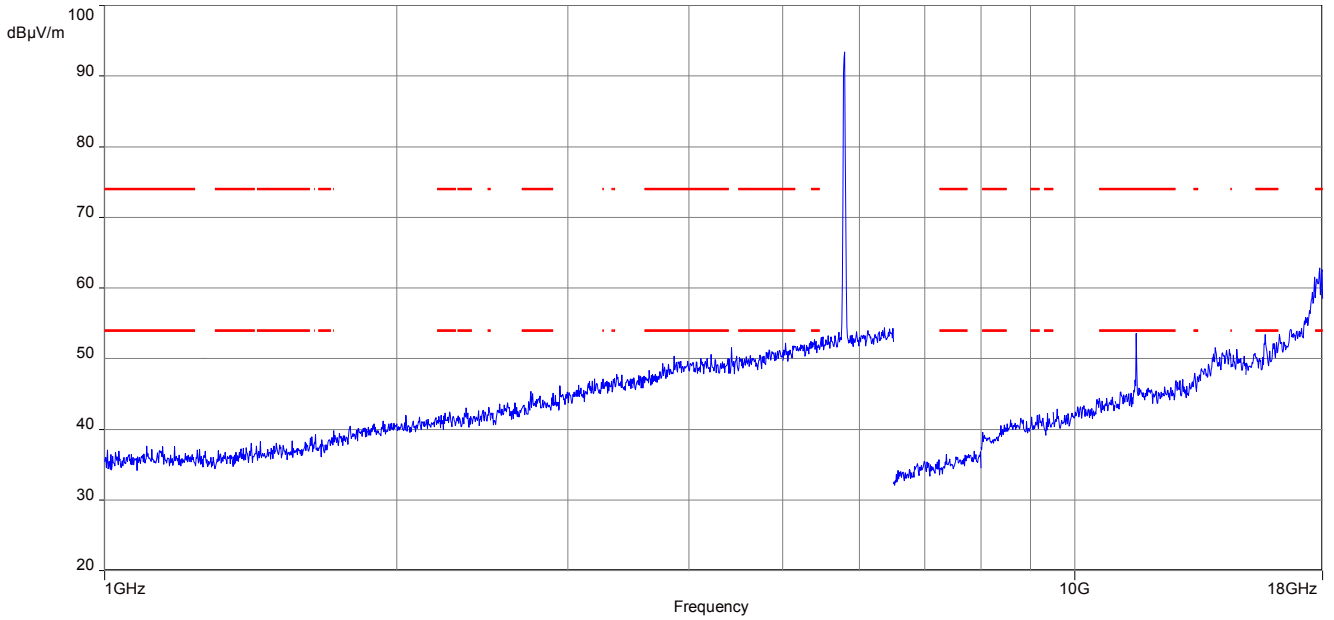


Final\_Result:

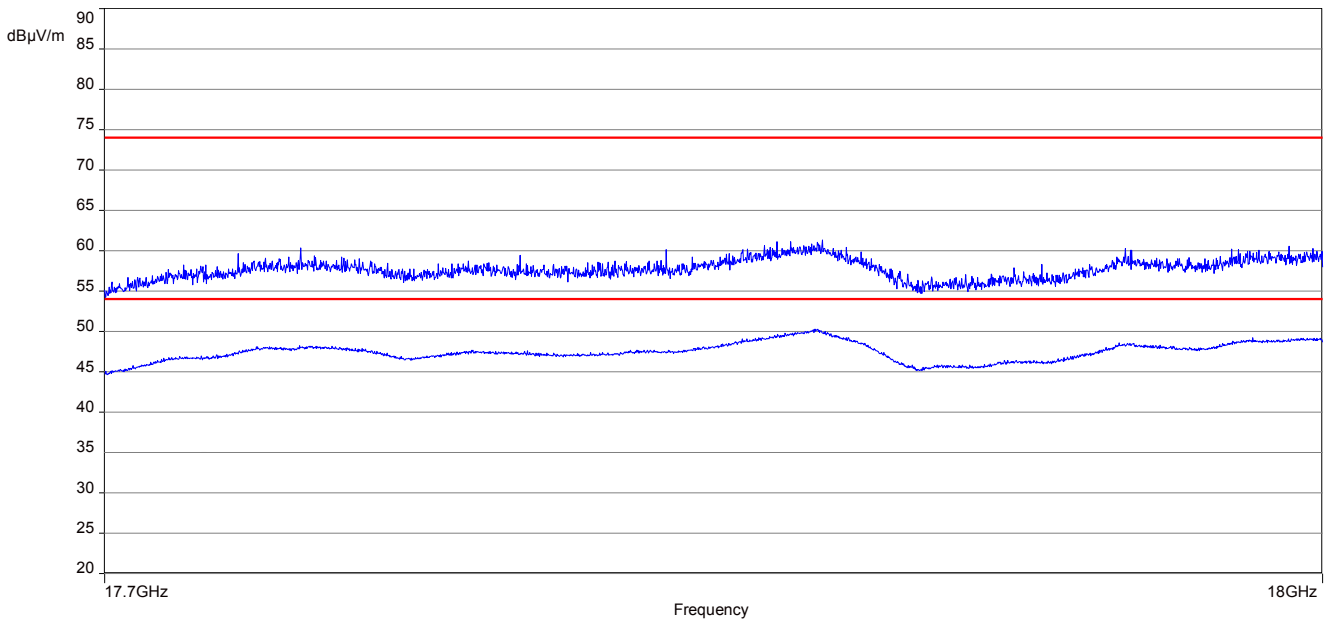
| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|------------|
| 38.395200       | 11.81              | 30.00          | 18.19       | 1000.0          | 120.000         | 101.0       | V   | 261.0         | 14.0       |
| 99.597900       | 24.48              | 33.50          | 9.02        | 1000.0          | 120.000         | 98.0        | V   | 261.0         | 12.1       |
| 123.373500      | 20.38              | 33.50          | 13.12       | 1000.0          | 120.000         | 98.0        | V   | 10.0          | 9.9        |
| 127.762950      | 20.79              | 33.50          | 12.71       | 1000.0          | 120.000         | 98.0        | V   | -10.0         | 9.6        |
| 136.035750      | 17.57              | 33.50          | 15.93       | 1000.0          | 120.000         | 170.0       | V   | 170.0         | 9.0        |
| 891.672750      | 21.21              | 36.00          | 14.79       | 1000.0          | 120.000         | 170.0       | V   | 81.0          | 24.0       |



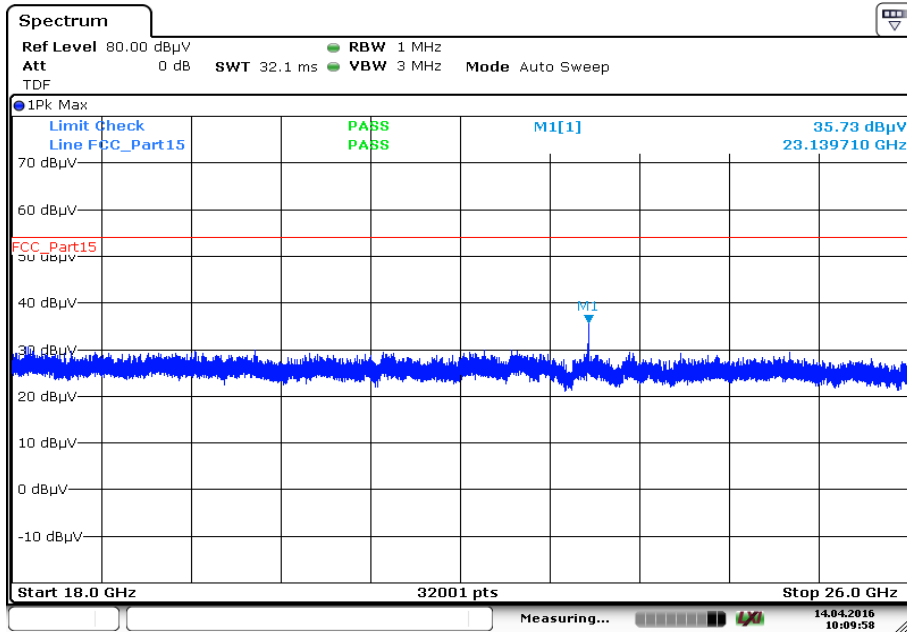
**Plot 42:** 1 GHz to 18 GHz, 5785 MHz, vertical & horizontal polarization



**Plot 43:** 17.7 GHz to 18 GHz, 5785 MHz, vertical & horizontal polarization

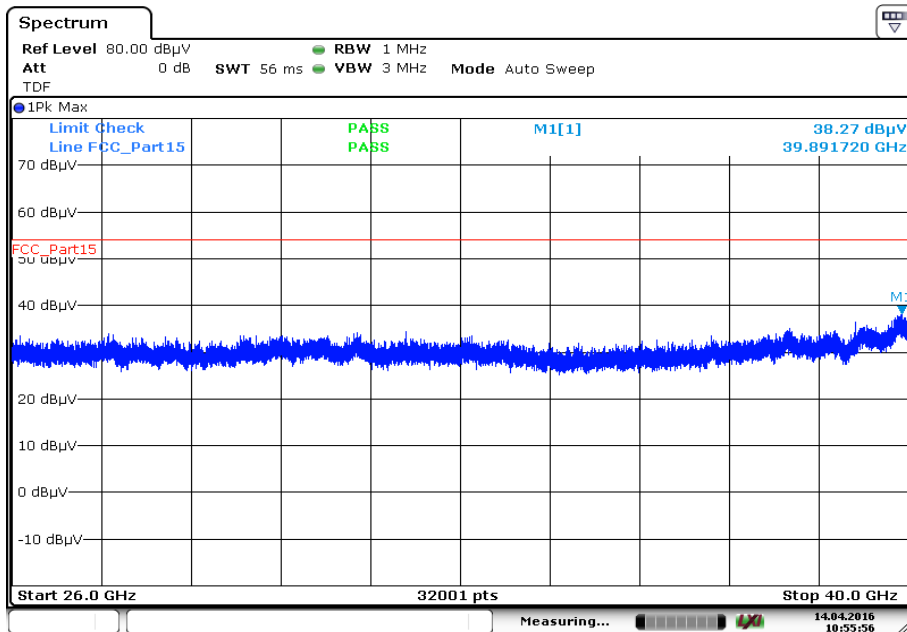


Plot 44: 18 GHz to 26 GHz, 5785 MHz, vertical & horizontal polarization



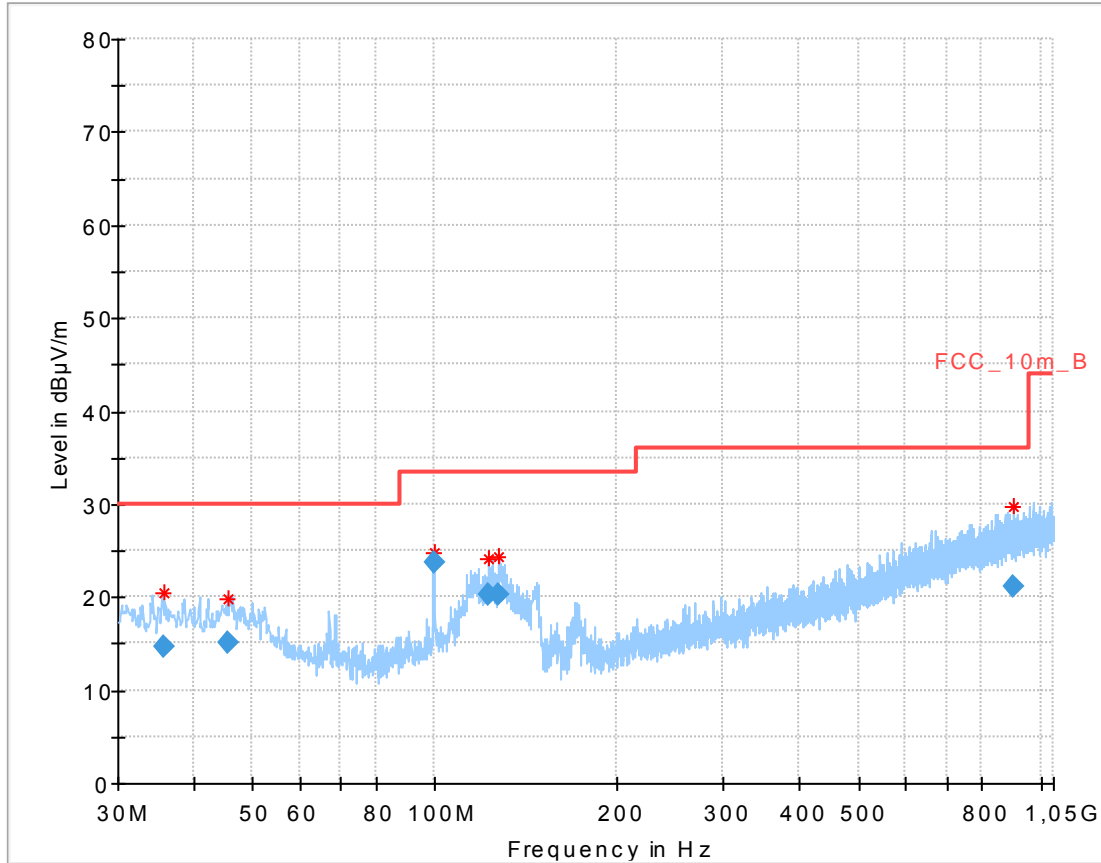
Date: 14.APR.2016 10:09:58

Plot 45: 26 GHz to 40 GHz, 5785 MHz, vertical & horizontal polarization



Date: 14.APR.2016 10:55:56

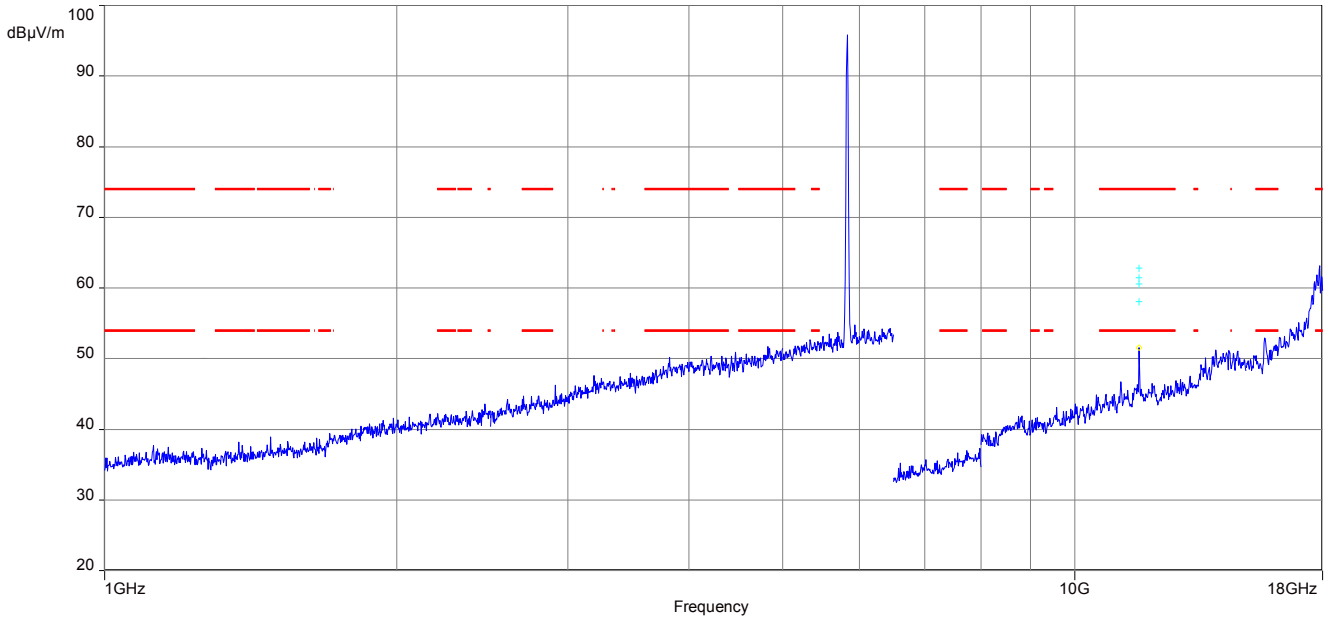
**Plot 46:** 30 MHz to 1 GHz, 5825 MHz, vertical & horizontal polarization



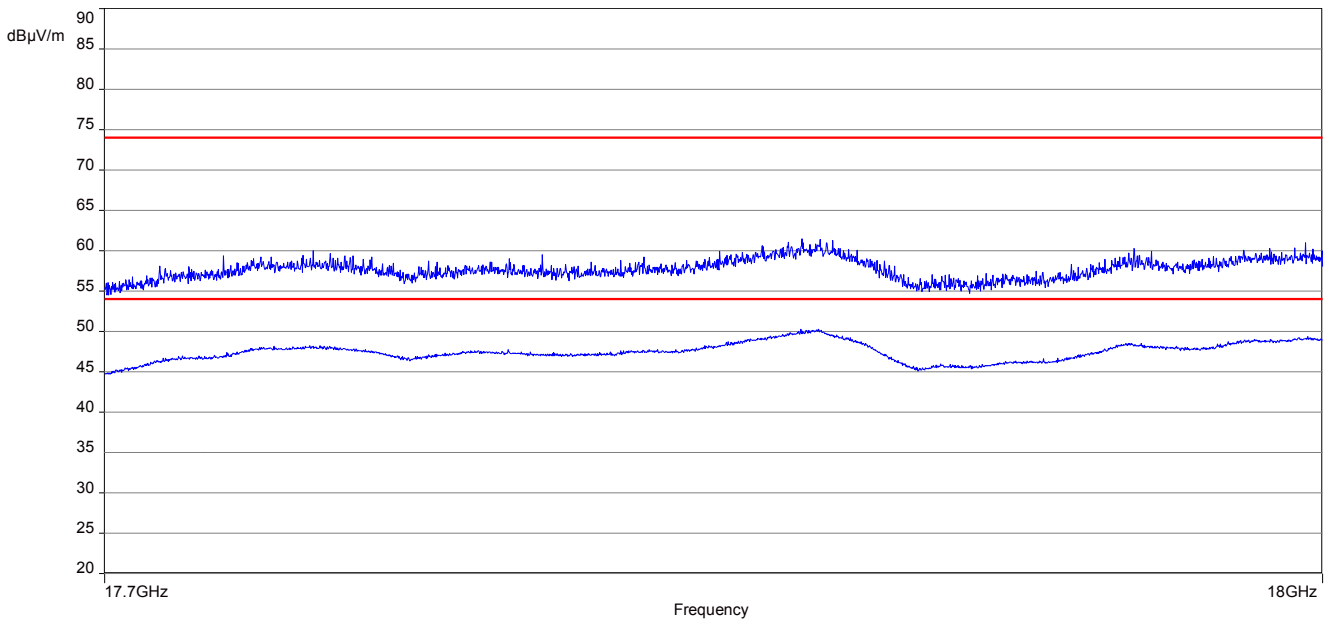
**Final\_Result:**

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|------------|
| 35.745150       | 14.57              | 30.00          | 15.43       | 1000.0          | 120.000         | 170.0       | V   | -10.0         | 13.8       |
| 45.679800       | 15.00              | 30.00          | 15.00       | 1000.0          | 120.000         | 101.0       | V   | 100.0         | 13.7       |
| 99.777300       | 23.74              | 33.50          | 9.76        | 1000.0          | 120.000         | 98.0        | V   | 190.0         | 12.1       |
| 122.778150      | 20.20              | 33.50          | 13.30       | 1000.0          | 120.000         | 98.0        | V   | -10.0         | 9.9        |
| 127.822650      | 20.36              | 33.50          | 13.14       | 1000.0          | 120.000         | 98.0        | V   | -10.0         | 9.6        |
| 903.786000      | 21.19              | 36.00          | 14.81       | 1000.0          | 120.000         | 170.0       | H   | 100.0         | 24.1       |

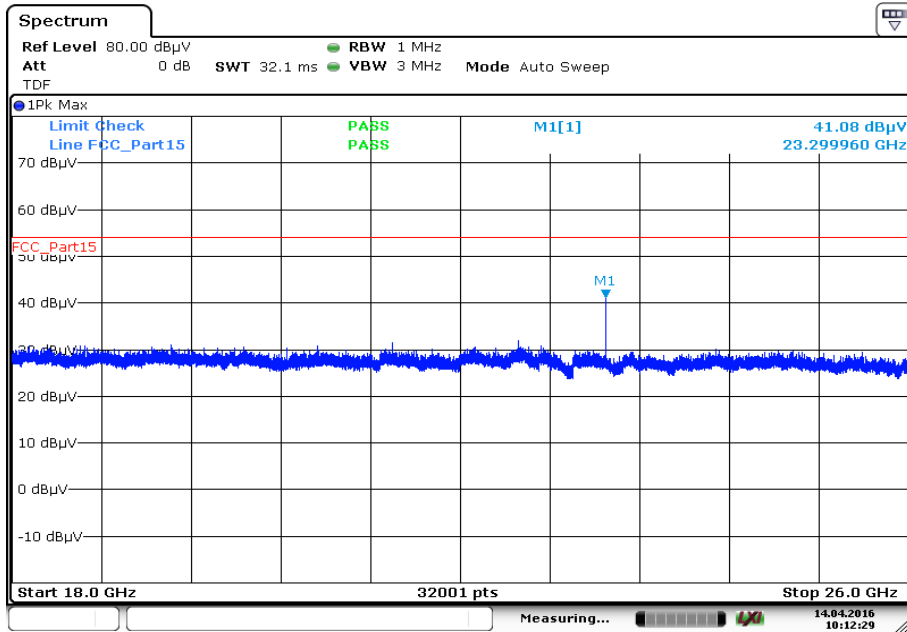
**Plot 47:** 1 GHz to 18 GHz, 5825 MHz, vertical & horizontal polarization



**Plot 48:** 17.7 GHz to 18 GHz, 5825 MHz, vertical & horizontal polarization

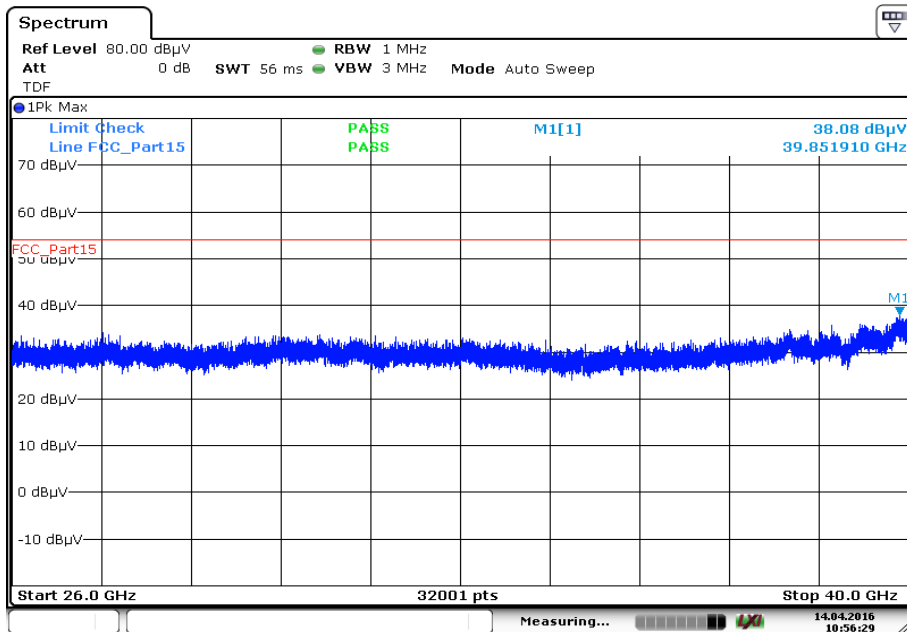


Plot 49: 18 GHz to 26 GHz, 5825 MHz, vertical & horizontal polarization



Date: 14.APR.2016 10:12:29

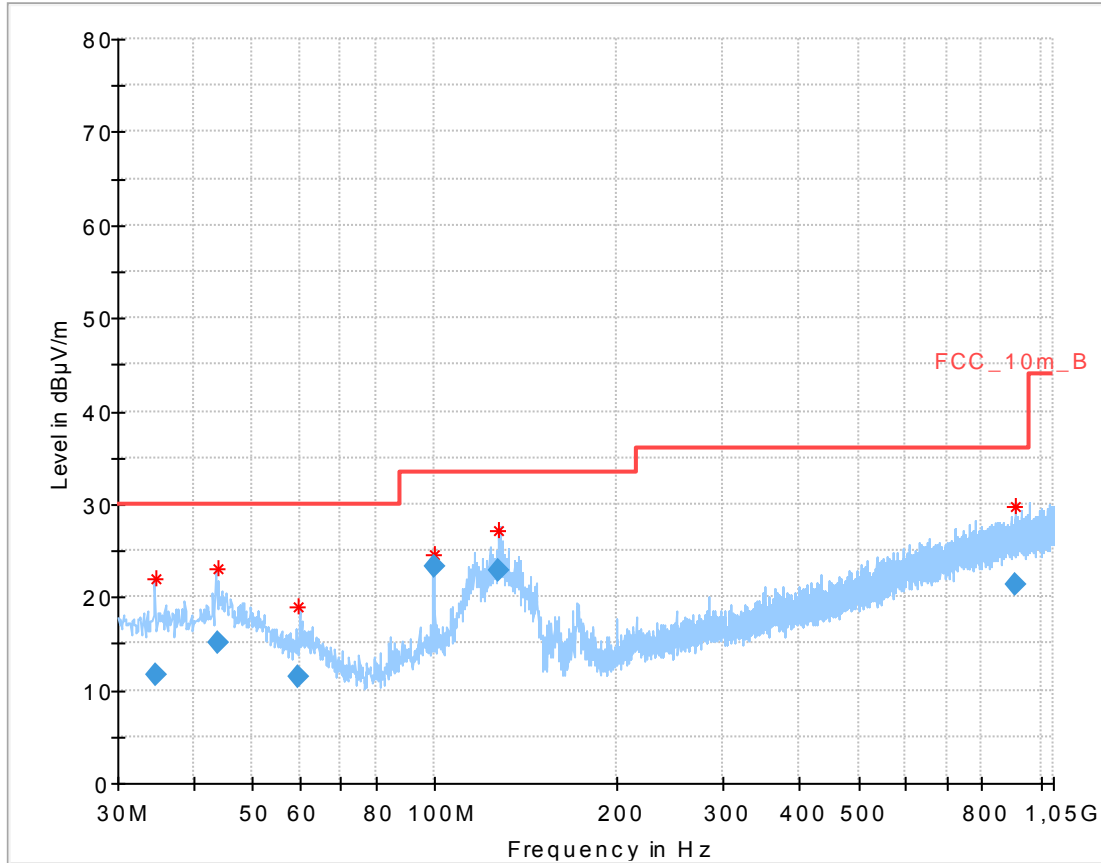
Plot 50: 26 GHz to 40 GHz, 5825 MHz, vertical & horizontal polarization



Date: 14.APR.2016 10:56:29

**Plots:** OFDM / n HT40 – mode

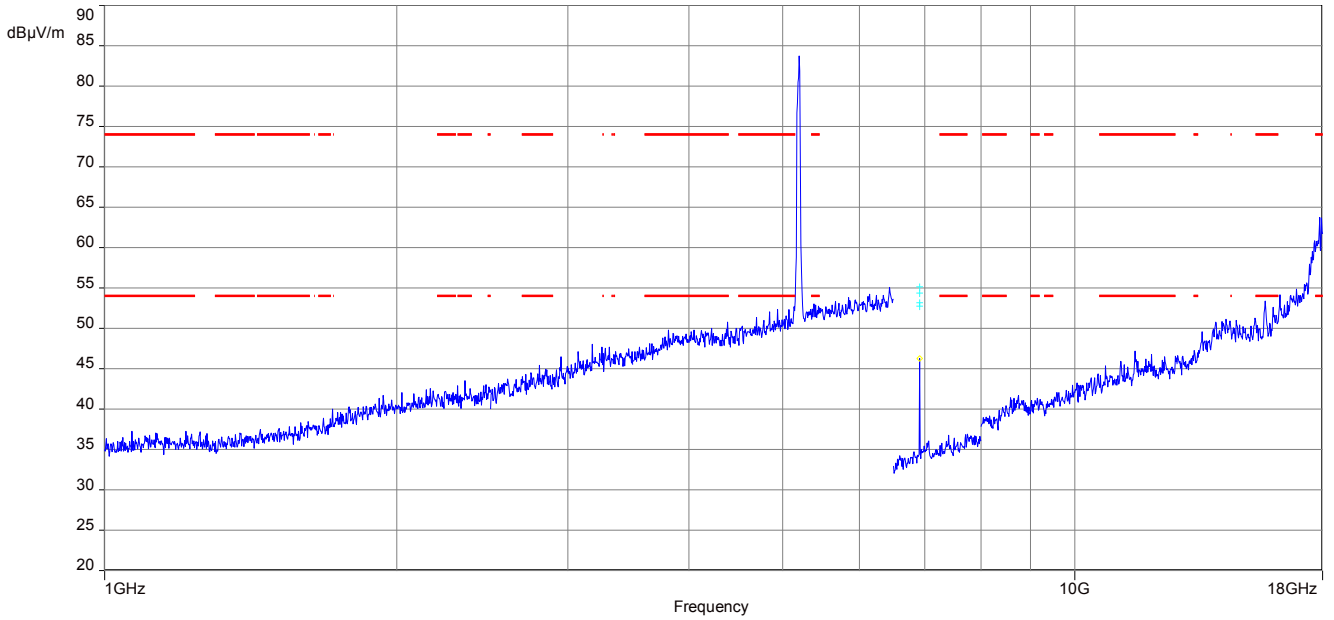
**Plot 1:** 30 MHz to 1 GHz, 5190 MHz, vertical & horizontal polarization



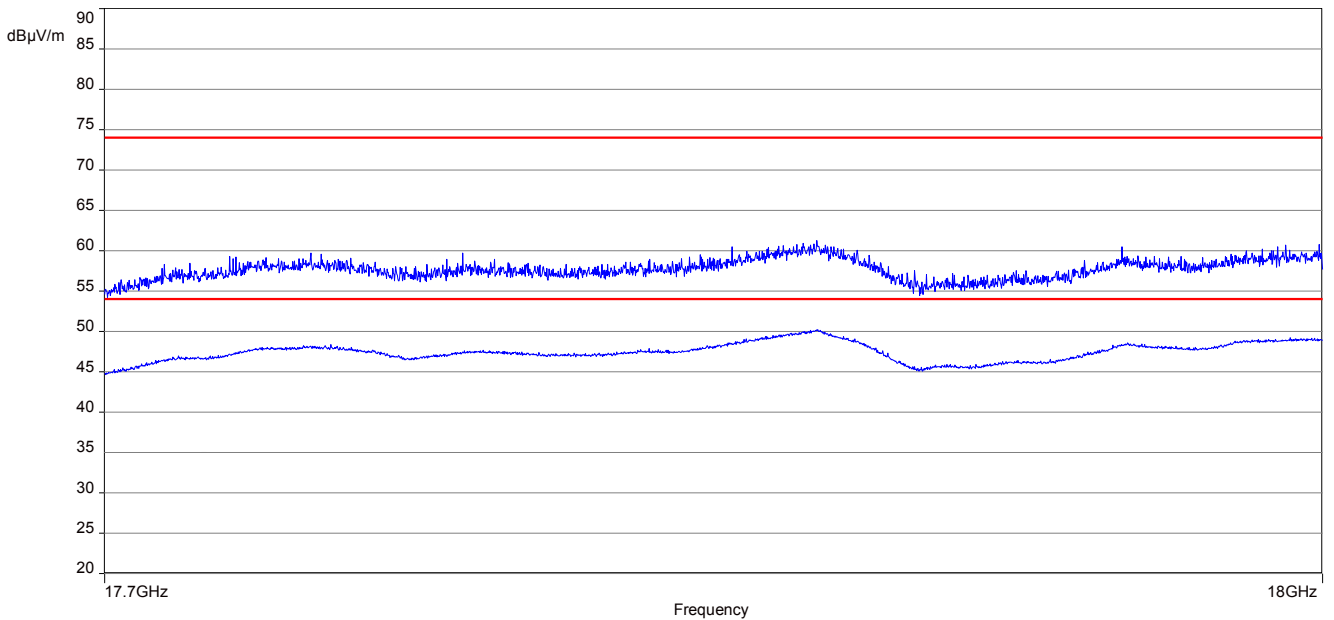
**Final\_Result:**

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|------------|
| 34.681200       | 11.59              | 30.00          | 18.41       | 1000.0          | 120.000         | 170.0       | V   | 280.0         | 13.8       |
| 43.934550       | 15.03              | 30.00          | 14.97       | 1000.0          | 120.000         | 101.0       | V   | 190.0         | 13.9       |
| 59.374350       | 11.53              | 30.00          | 18.47       | 1000.0          | 120.000         | 101.0       | V   | 81.0          | 10.7       |
| 99.777600       | 23.21              | 33.50          | 10.29       | 1000.0          | 120.000         | 101.0       | V   | -9.0          | 12.1       |
| 127.677750      | 22.88              | 33.50          | 10.62       | 1000.0          | 120.000         | 98.0        | V   | 10.0          | 9.6        |
| 909.591600      | 21.28              | 36.00          | 14.72       | 1000.0          | 120.000         | 101.0       | H   | 171.0         | 24.1       |

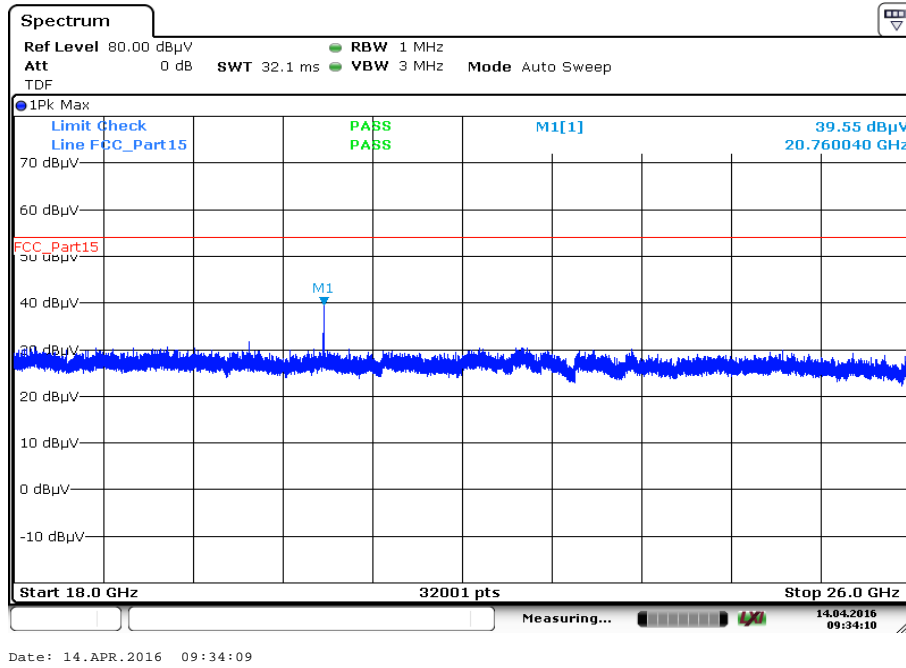
**Plot 2:** 1 GHz to 18 GHz, 5190 MHz, vertical & horizontal polarization



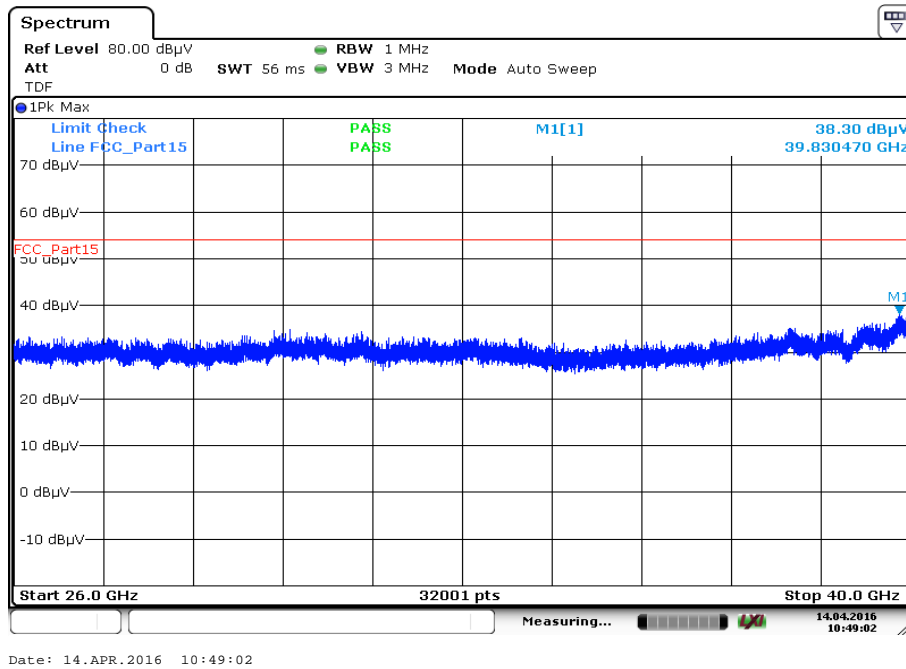
**Plot 3:** 17.7 GHz to 18 GHz, 5190 MHz, vertical & horizontal polarization



Plot 4: 18 GHz to 26 GHz, 5190 MHz, vertical & horizontal polarization

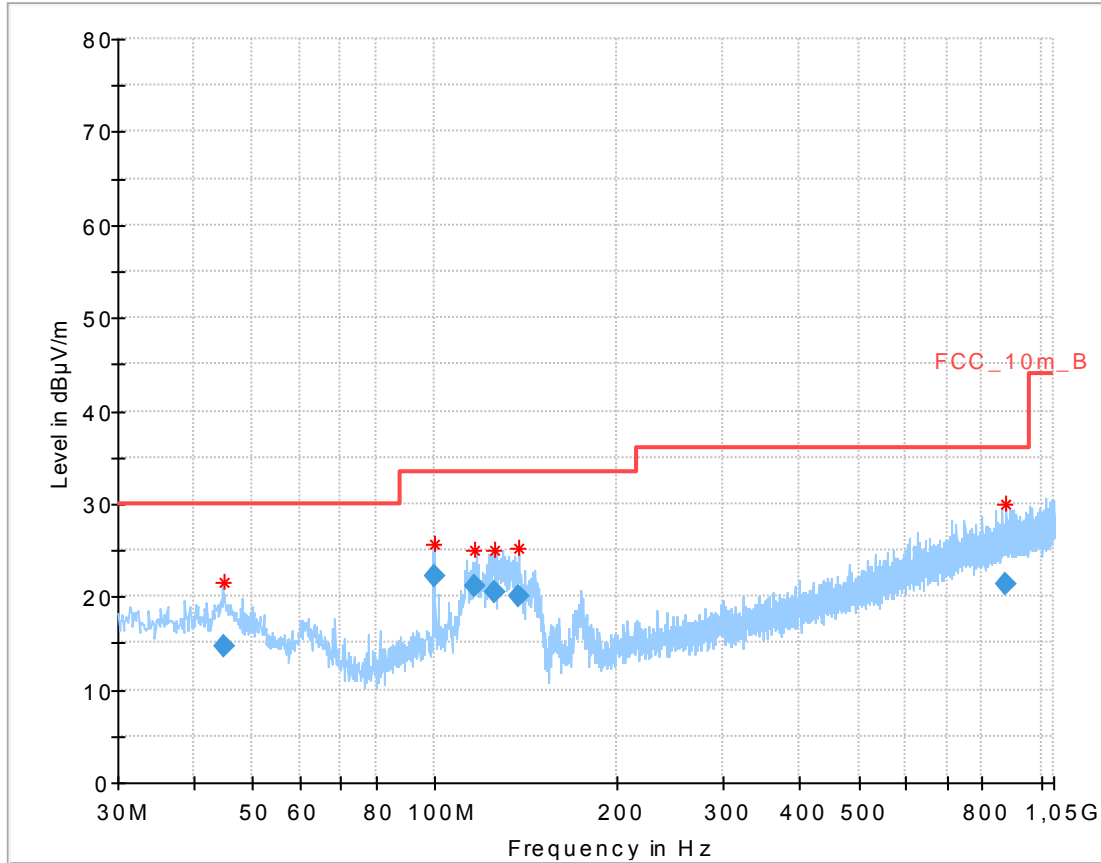


Plot 5: 26 GHz to 40 GHz, 5190 MHz, vertical & horizontal polarization





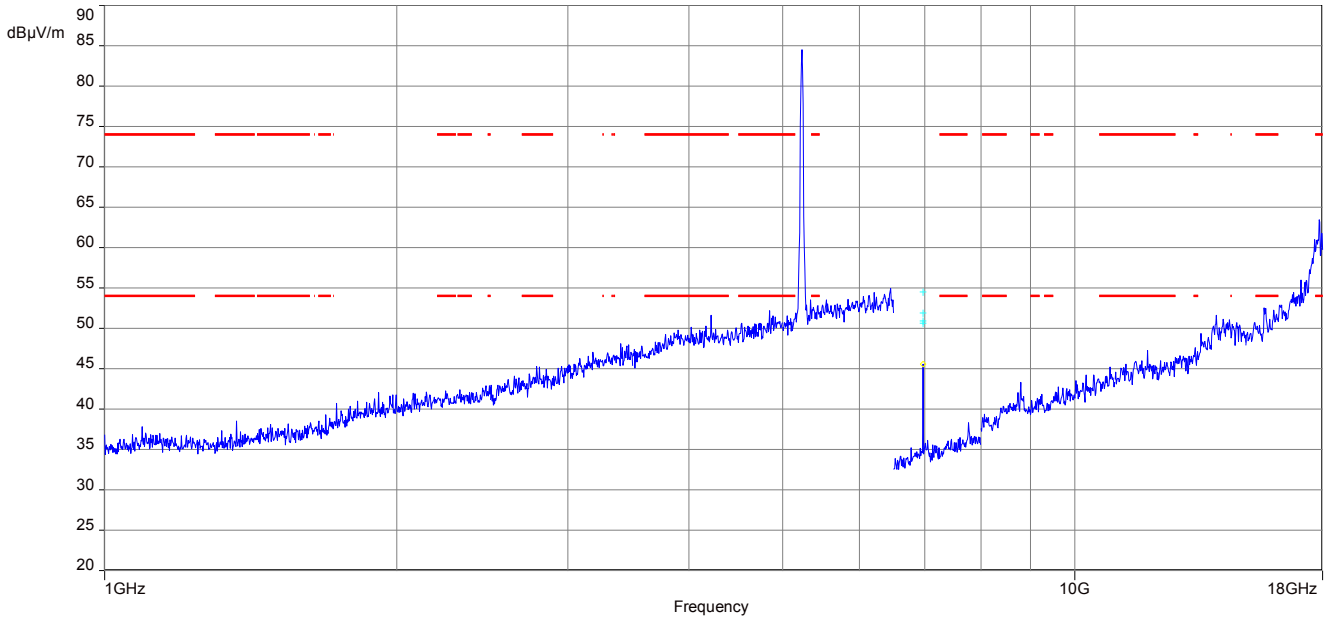
**Plot 6:** 30 MHz to 1 GHz, 5230 MHz, vertical & horizontal polarization



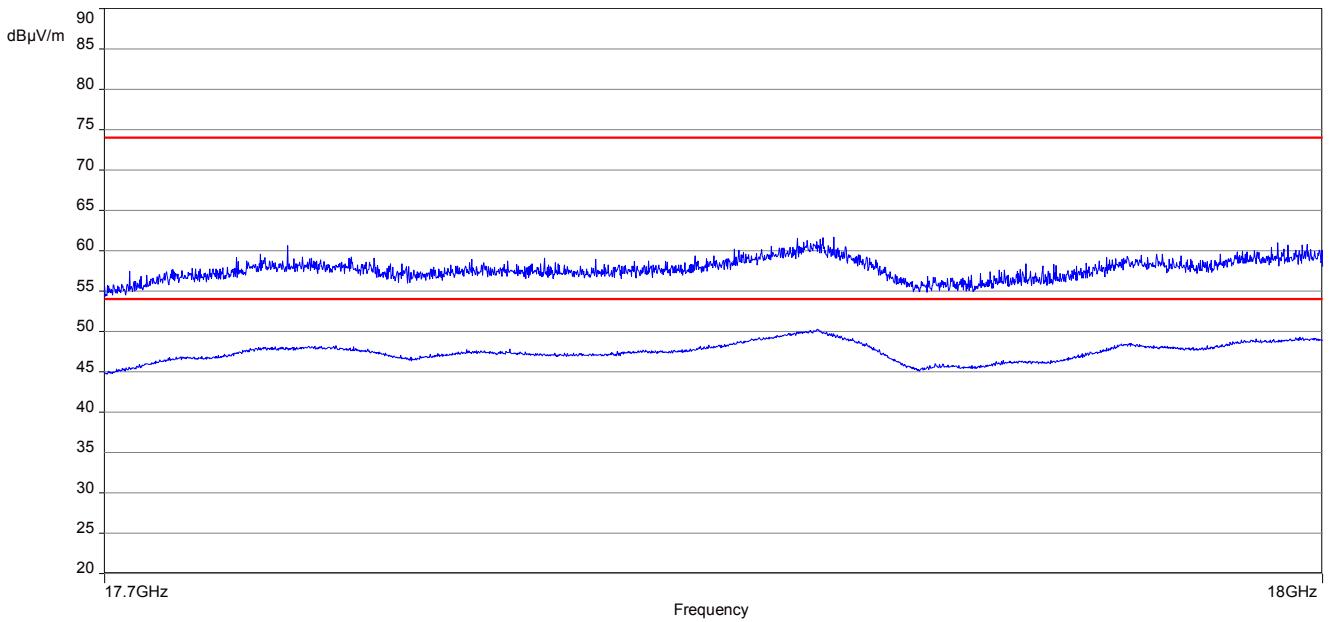
**Final\_Result:**

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|------------|
| 44.974800       | 14.57              | 30.00          | 15.43       | 1000.0          | 120.000         | 170.0       | V   | 190.0         | 13.9       |
| 99.681150       | 22.11              | 33.50          | 11.39       | 1000.0          | 120.000         | 98.0        | V   | 190.0         | 12.1       |
| 116.724300      | 21.12              | 33.50          | 12.38       | 1000.0          | 120.000         | 101.0       | V   | 80.0          | 10.5       |
| 125.440050      | 20.46              | 33.50          | 13.04       | 1000.0          | 120.000         | 98.0        | V   | 80.0          | 9.7        |
| 137.399850      | 20.00              | 33.50          | 13.50       | 1000.0          | 120.000         | 170.0       | V   | 171.0         | 8.9        |
| 874.576500      | 21.31              | 36.00          | 14.69       | 1000.0          | 120.000         | 170.0       | V   | 190.0         | 23.8       |

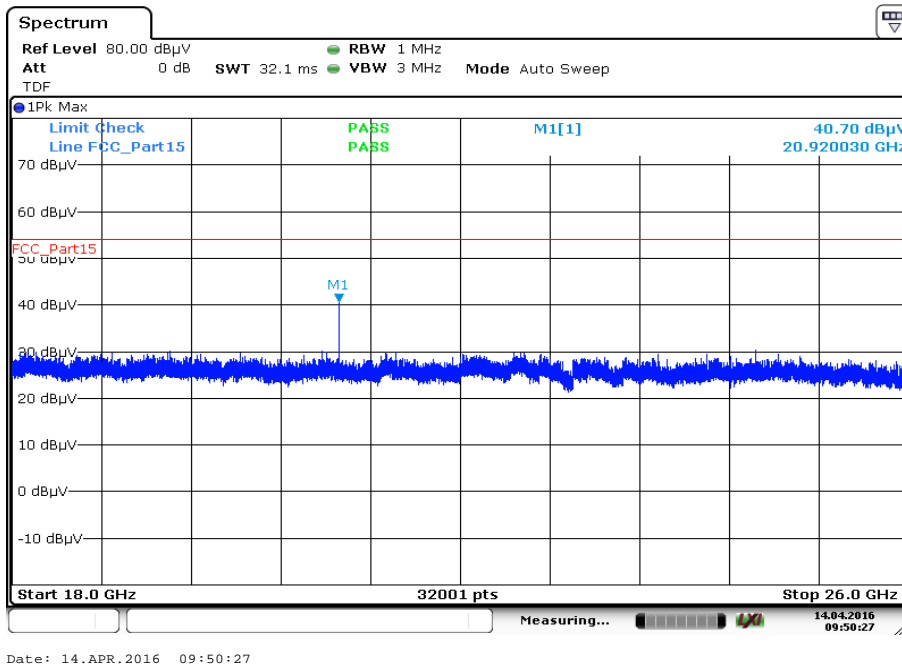
**Plot 7:** 1 GHz to 18 GHz, 5230 MHz, vertical & horizontal polarization



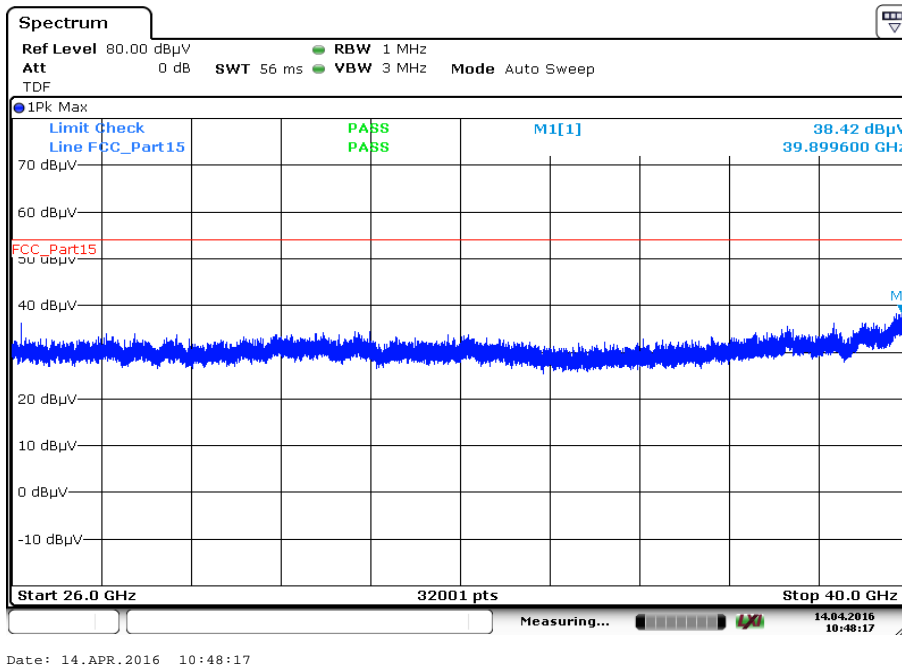
**Plot 8:** 17.7 GHz to 18 GHz, 5230 MHz, vertical & horizontal polarization



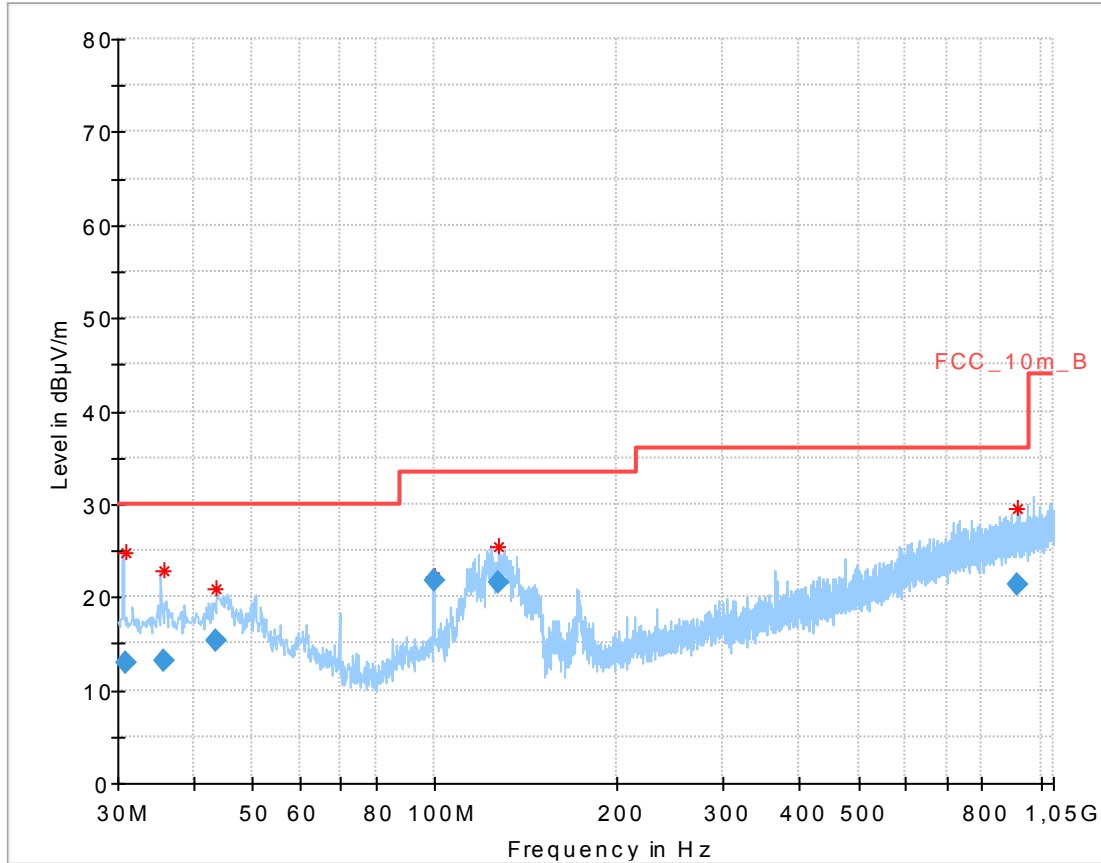
Plot 9: 18 GHz to 26 GHz, 5230 MHz, vertical & horizontal polarization



Plot 10: 26 GHz to 40 GHz, 5230 MHz, vertical & horizontal polarization



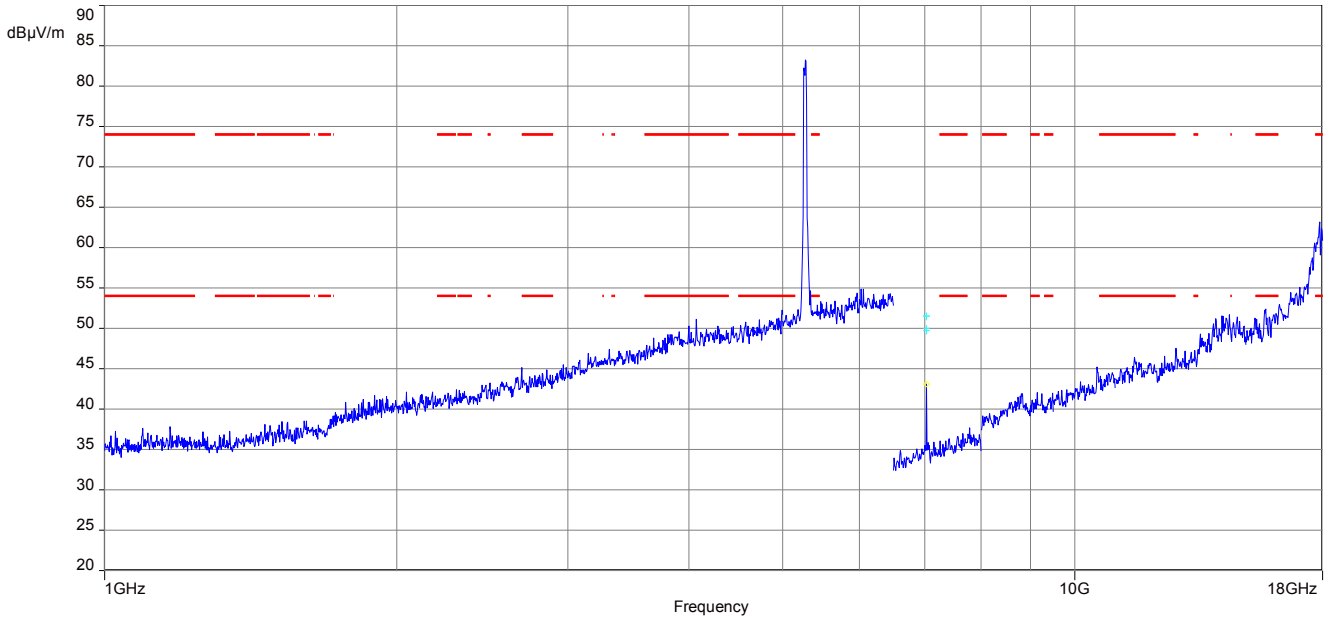
Plot 11: 30 MHz to 1 GHz, 5270 MHz, vertical & horizontal polarization



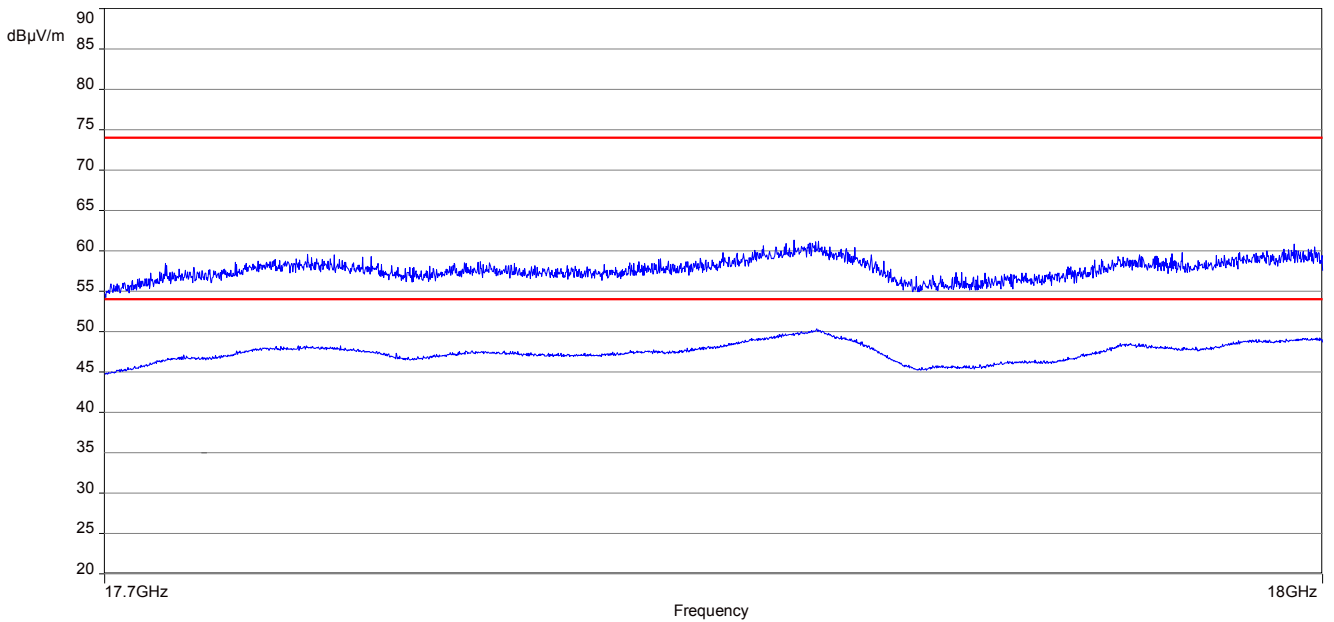
Final\_Result:

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|------------|
| 30.926295       | 12.90              | 30.00          | 17.10       | 1000.0          | 120.000         | 101.0       | V   | -10.0         | 13.4       |
| 35.742600       | 13.25              | 30.00          | 16.75       | 1000.0          | 120.000         | 170.0       | V   | 280.0         | 13.8       |
| 43.656600       | 15.39              | 30.00          | 14.61       | 1000.0          | 120.000         | 101.0       | V   | 190.0         | 13.9       |
| 99.592050       | 21.71              | 33.50          | 11.79       | 1000.0          | 120.000         | 101.0       | V   | 171.0         | 12.1       |
| 127.327500      | 21.61              | 33.50          | 11.89       | 1000.0          | 120.000         | 98.0        | V   | 10.0          | 9.6        |
| 918.687600      | 21.27              | 36.00          | 14.73       | 1000.0          | 120.000         | 101.0       | V   | 100.0         | 24.2       |

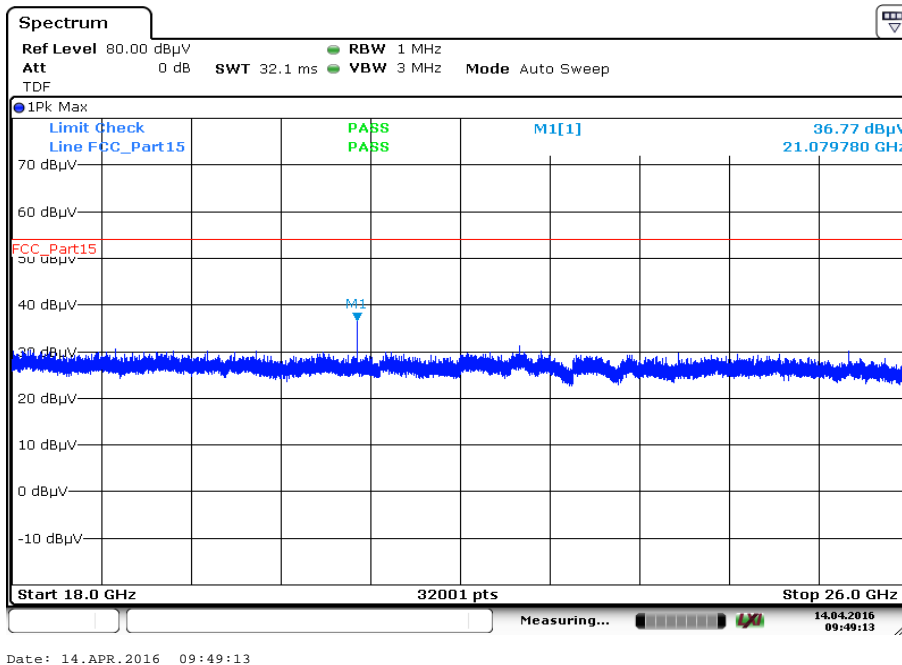
**Plot 12:** 1 GHz to 18 GHz, 5270 MHz, vertical & horizontal polarization



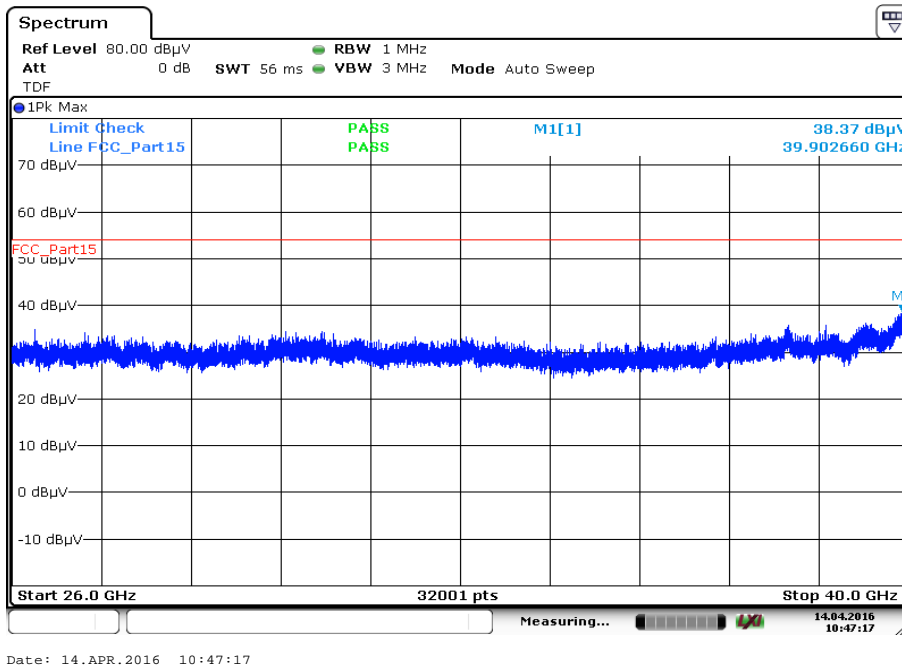
**Plot 13:** 17.7 GHz to 18 GHz, 5270 MHz, vertical & horizontal polarization



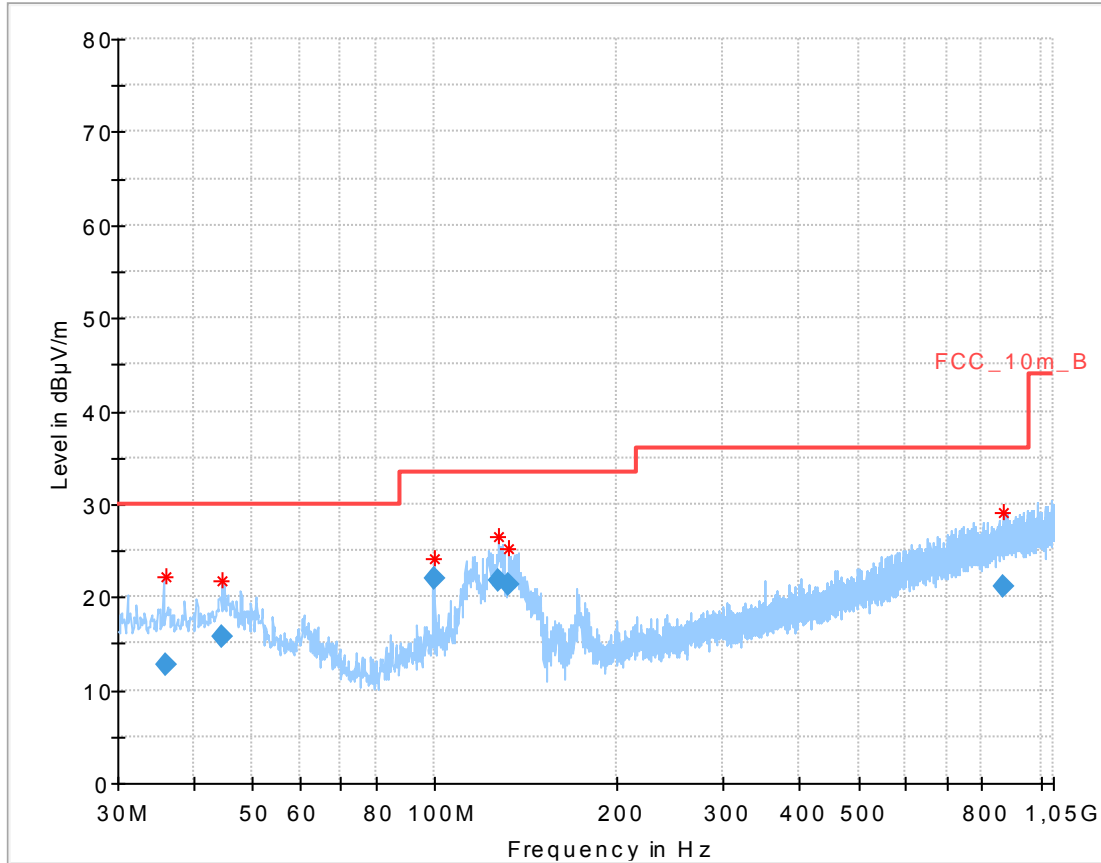
Plot 14: 18 GHz to 26 GHz, 5270 MHz, vertical & horizontal polarization



Plot 15: 26 GHz to 40 GHz, 5270 MHz, vertical & horizontal polarization



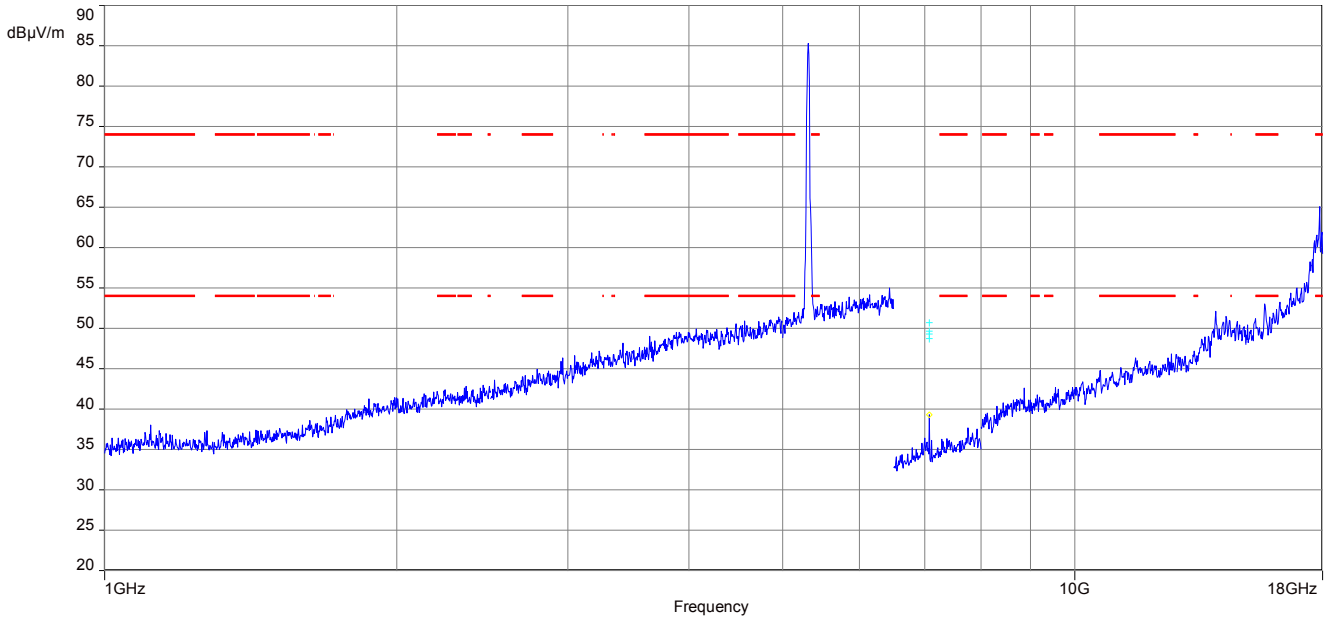
Plot 16: 30 MHz to 1 GHz, 5310 MHz, vertical & horizontal polarization



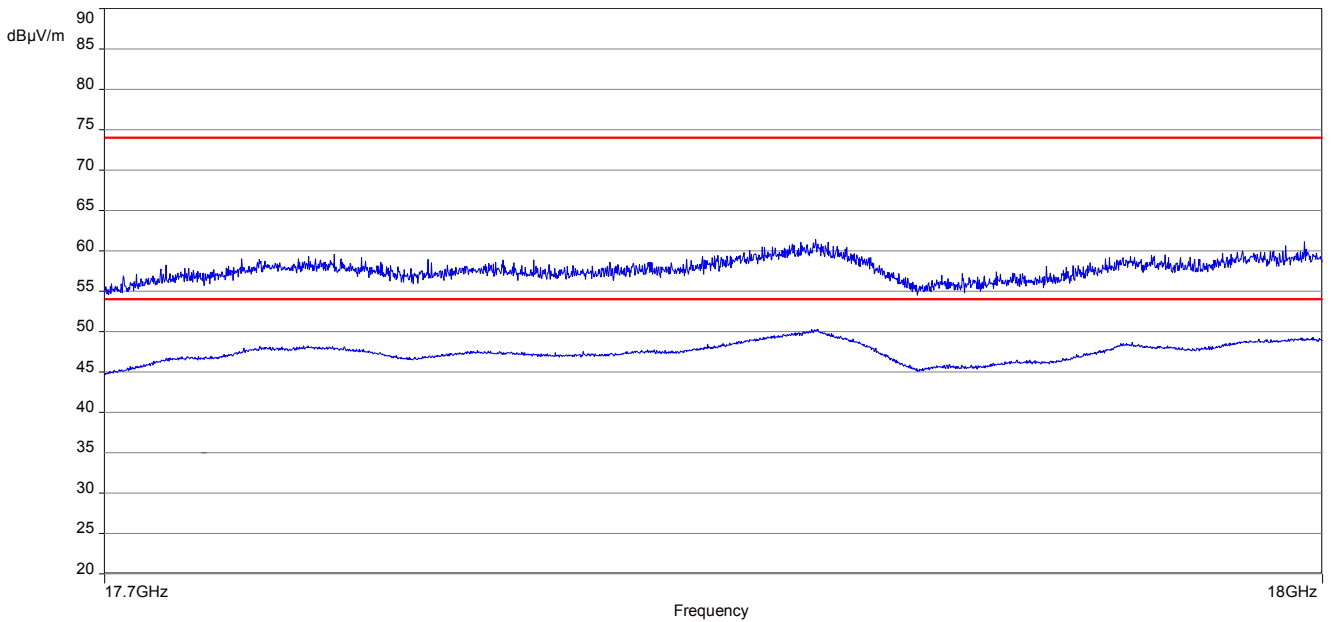
Final\_Result:

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|------------|
| 36.150750       | 12.79              | 30.00          | 17.21       | 1000.0          | 120.000         | 98.0        | V   | 261.0         | 13.9       |
| 44.687100       | 15.67              | 30.00          | 14.33       | 1000.0          | 120.000         | 170.0       | V   | 80.0          | 13.9       |
| 99.729900       | 22.06              | 33.50          | 11.44       | 1000.0          | 120.000         | 170.0       | V   | 170.0         | 12.1       |
| 127.223100      | 21.85              | 33.50          | 11.65       | 1000.0          | 120.000         | 170.0       | V   | 10.0          | 9.6        |
| 132.057000      | 21.25              | 33.50          | 12.25       | 1000.0          | 120.000         | 98.0        | V   | 80.0          | 9.3        |
| 865.201200      | 21.07              | 36.00          | 14.93       | 1000.0          | 120.000         | 170.0       | H   | 100.0         | 23.7       |

**Plot 17:** 1 GHz to 18 GHz, 5310 MHz, vertical & horizontal polarization

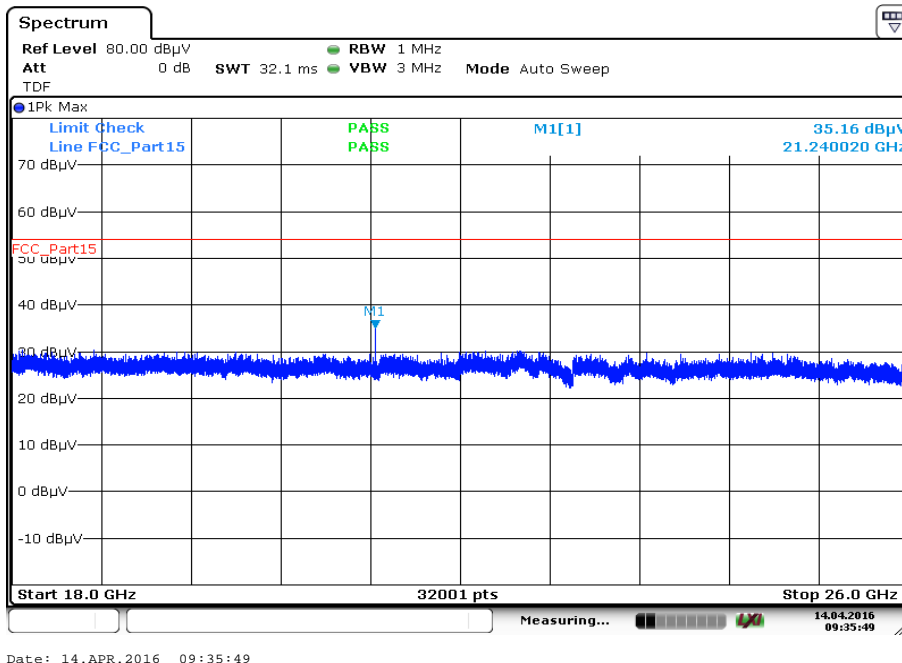


**Plot 18:** 17.7 GHz to 18 GHz, 5310 MHz, vertical & horizontal polarization

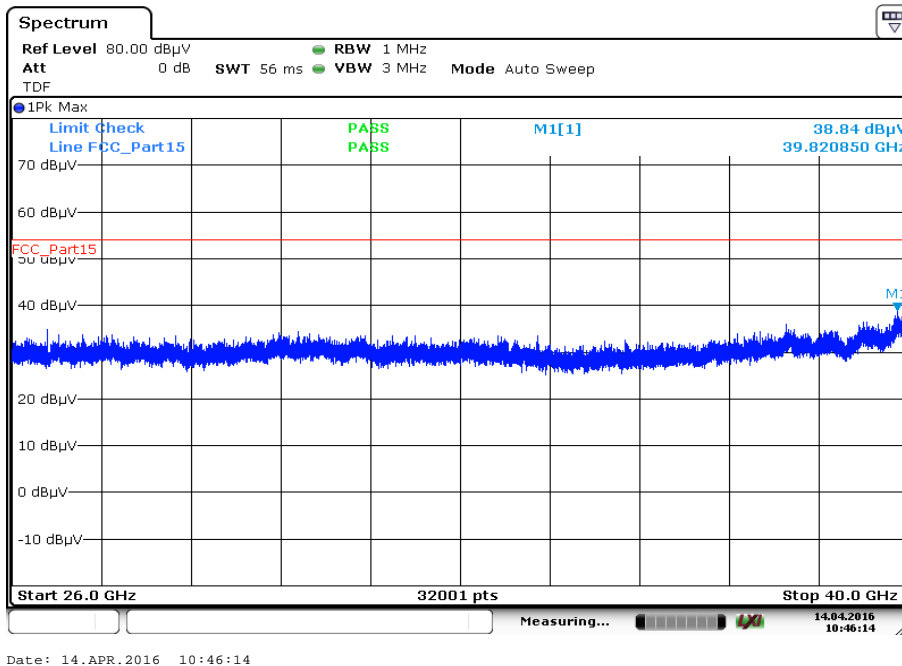




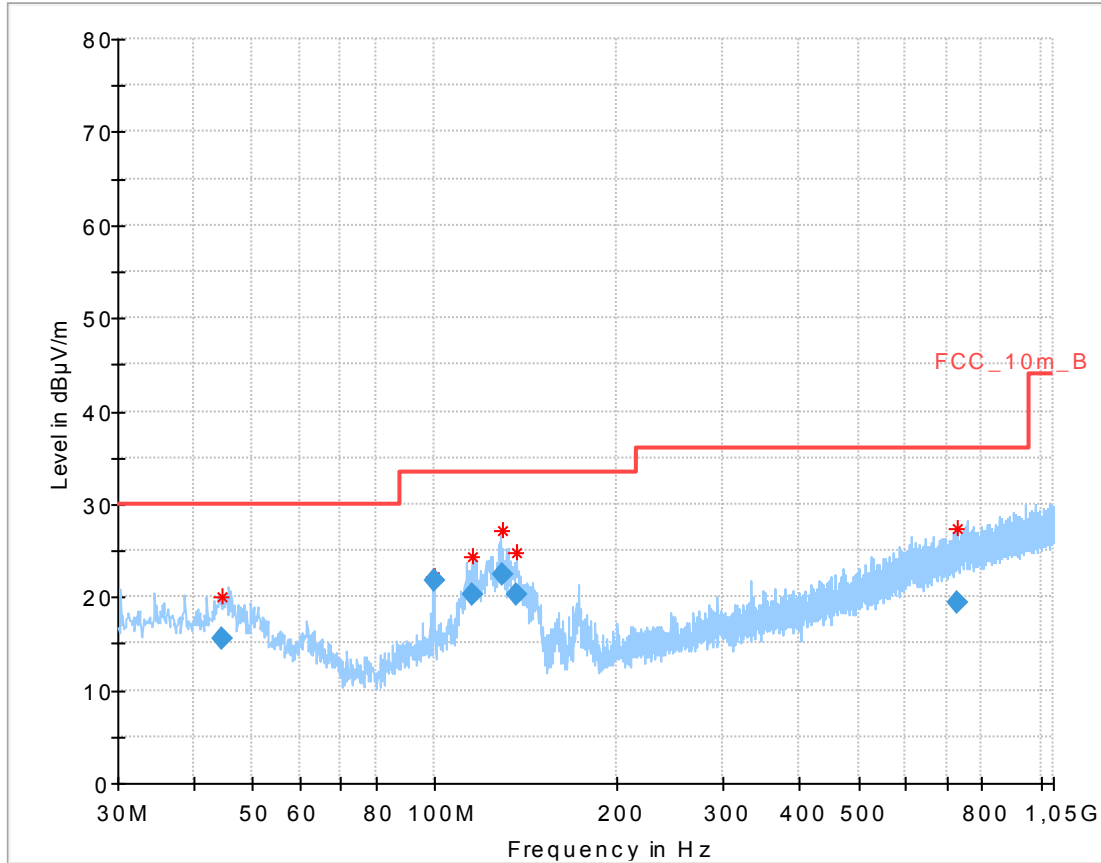
Plot 19: 18 GHz to 26 GHz, 5310 MHz, vertical & horizontal polarization



Plot 20: 26 GHz to 40 GHz, 5310 MHz, vertical & horizontal polarization



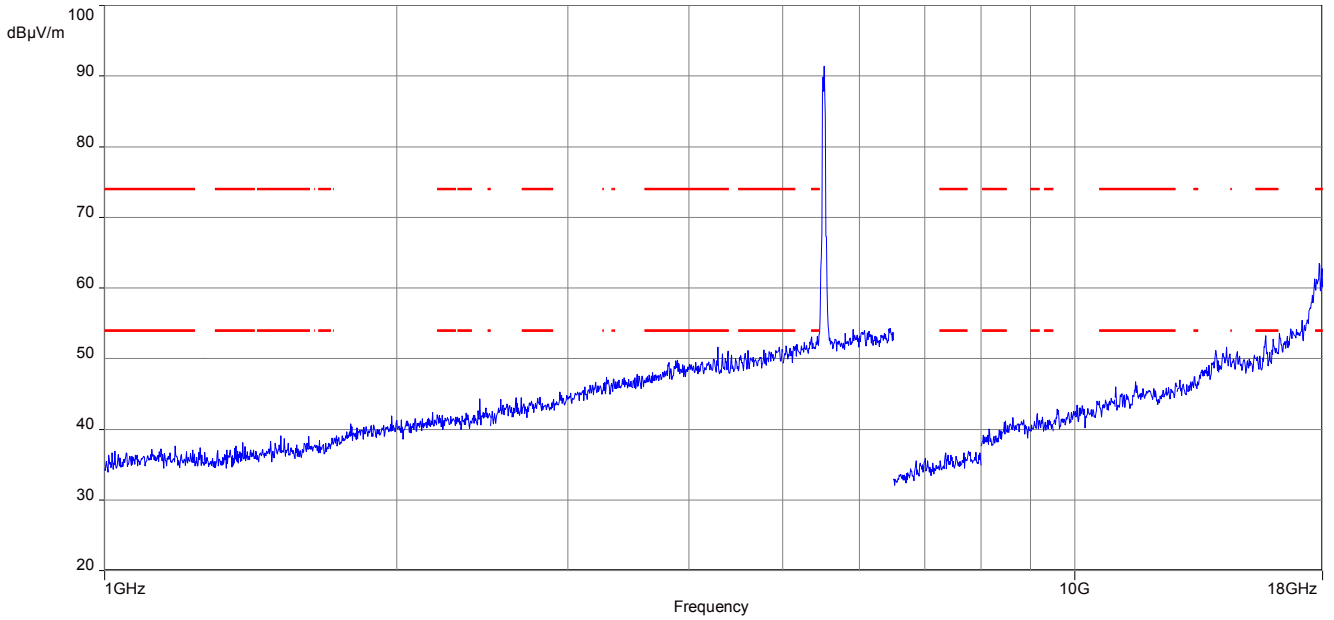
Plot 21: 30 MHz to 1 GHz, 5510 MHz, vertical & horizontal polarization



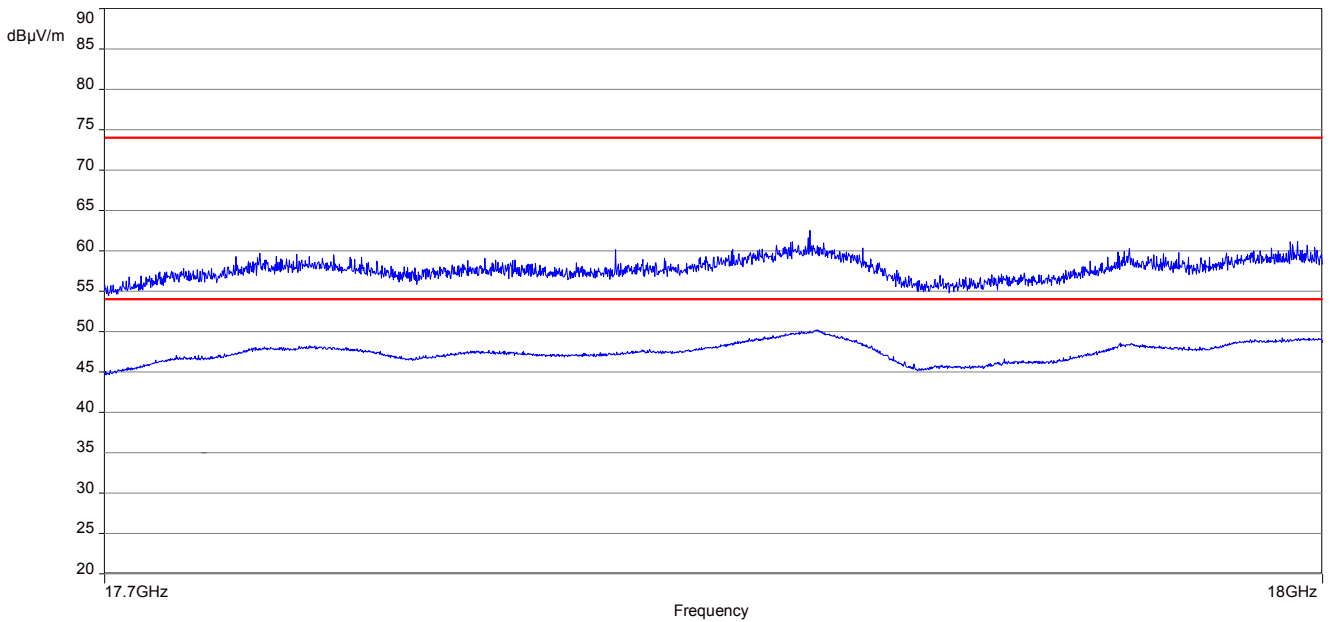
Final\_Result:

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|------------|
| 44.539200       | 15.51              | 30.00          | 14.49       | 1000.0          | 120.000         | 98.0        | V   | 170.0         | 13.9       |
| 99.781350       | 21.87              | 33.50          | 11.63       | 1000.0          | 120.000         | 101.0       | V   | 170.0         | 12.1       |
| 115.797600      | 20.24              | 33.50          | 13.26       | 1000.0          | 120.000         | 170.0       | V   | 100.0         | 10.6       |
| 129.134700      | 22.49              | 33.50          | 11.01       | 1000.0          | 120.000         | 170.0       | V   | 10.0          | 9.5        |
| 136.312650      | 20.36              | 33.50          | 13.14       | 1000.0          | 120.000         | 101.0       | V   | 171.0         | 9.0        |
| 728.623800      | 19.48              | 36.00          | 16.52       | 1000.0          | 120.000         | 170.0       | V   | 280.0         | 22.2       |

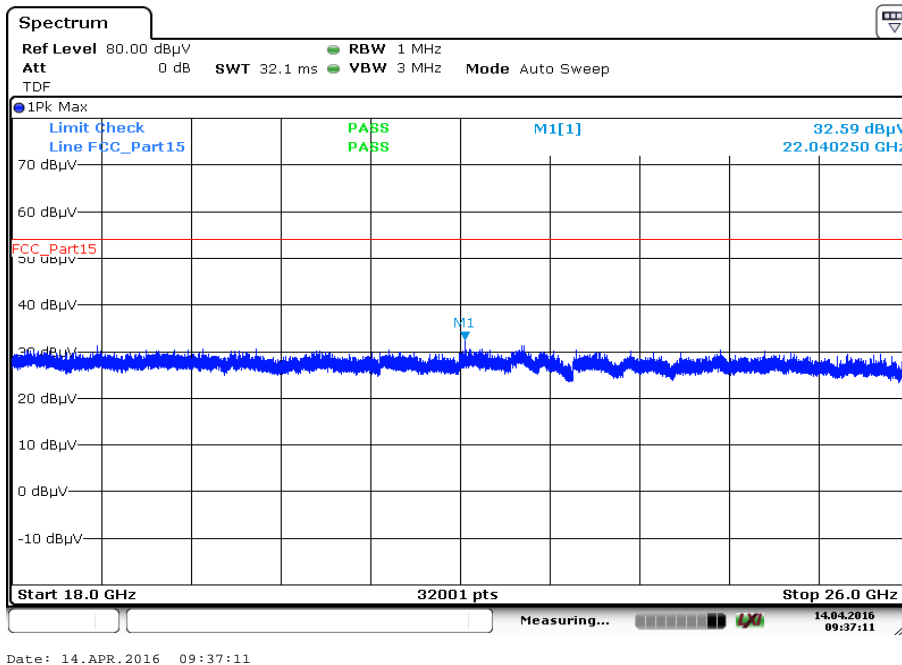
**Plot 22:** 1 GHz to 18 GHz, 5510 MHz, vertical & horizontal polarization



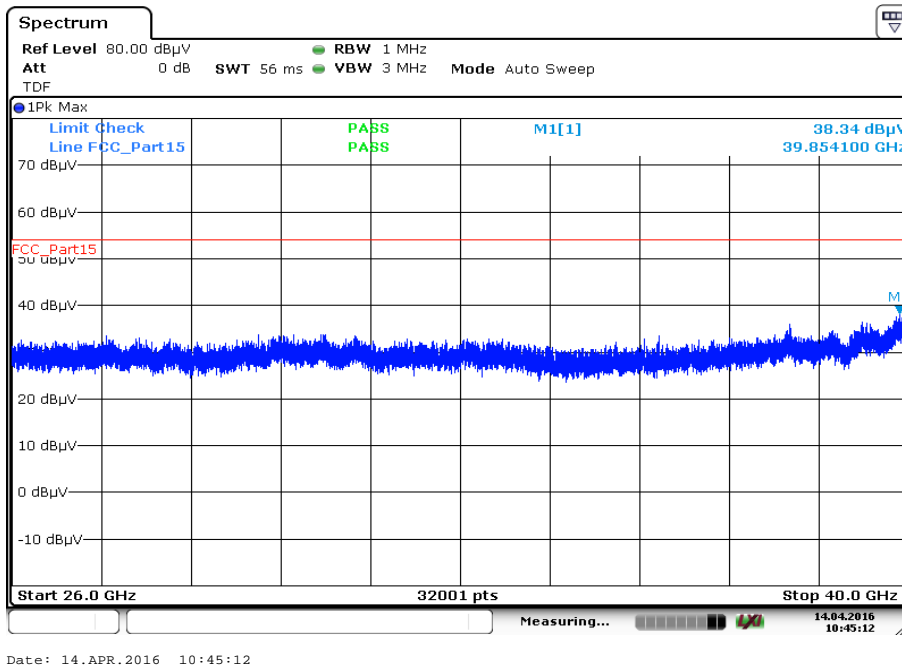
**Plot 23:** 17.7 GHz to 18 GHz, 5510 MHz, vertical & horizontal polarization



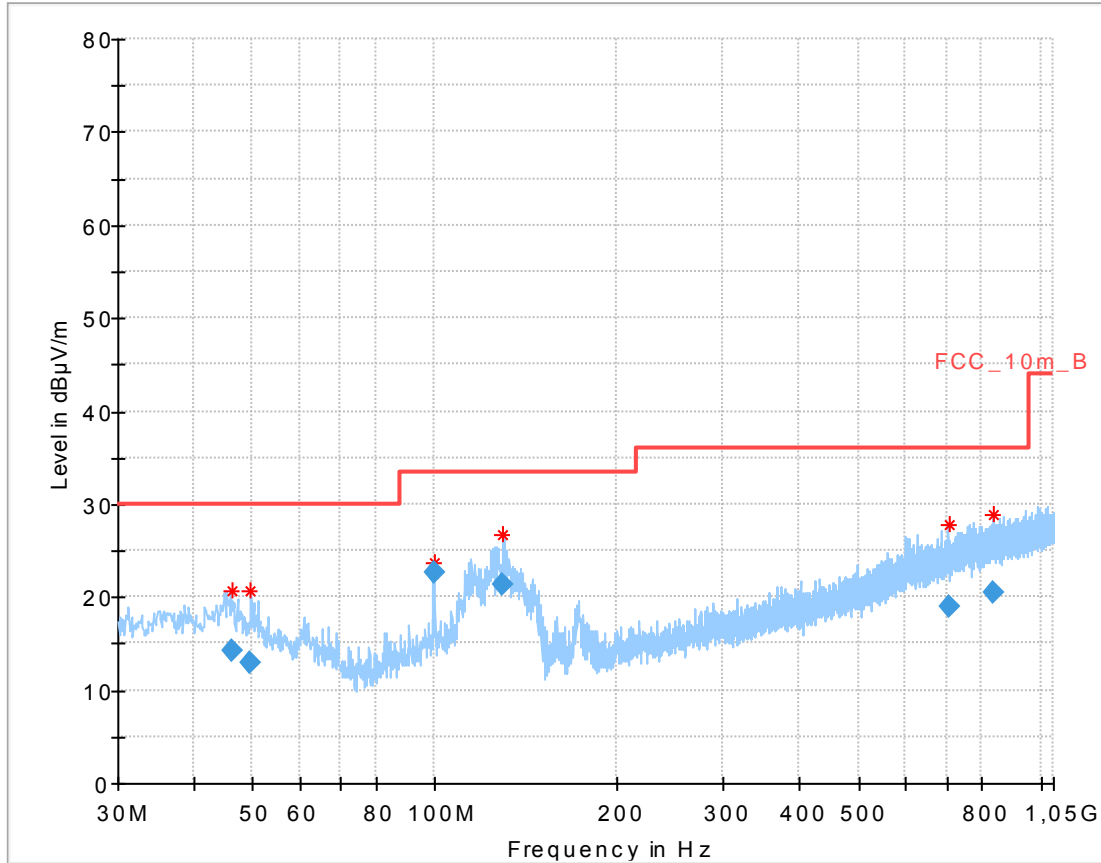
Plot 24: 18 GHz to 26 GHz, 5510 MHz, vertical & horizontal polarization



Plot 25: 26 GHz to 40 GHz, 5510 MHz, vertical & horizontal polarization



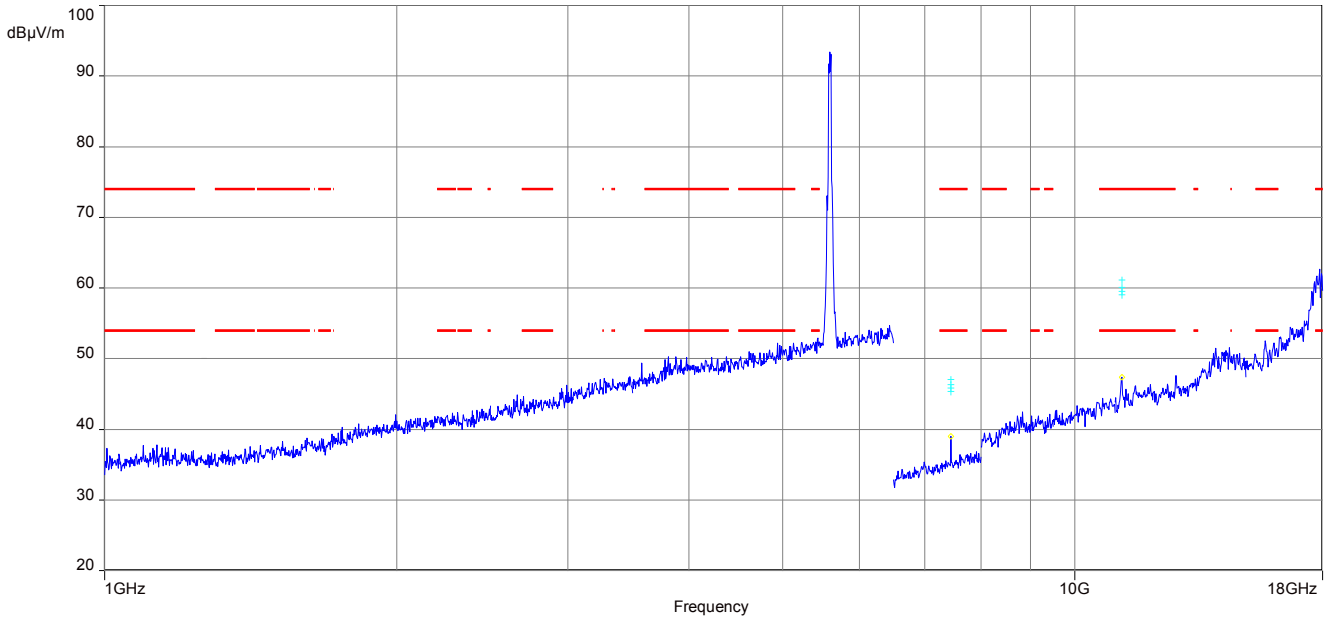
**Plot 26:** 30 MHz to 1 GHz, 5590 MHz, vertical & horizontal polarization



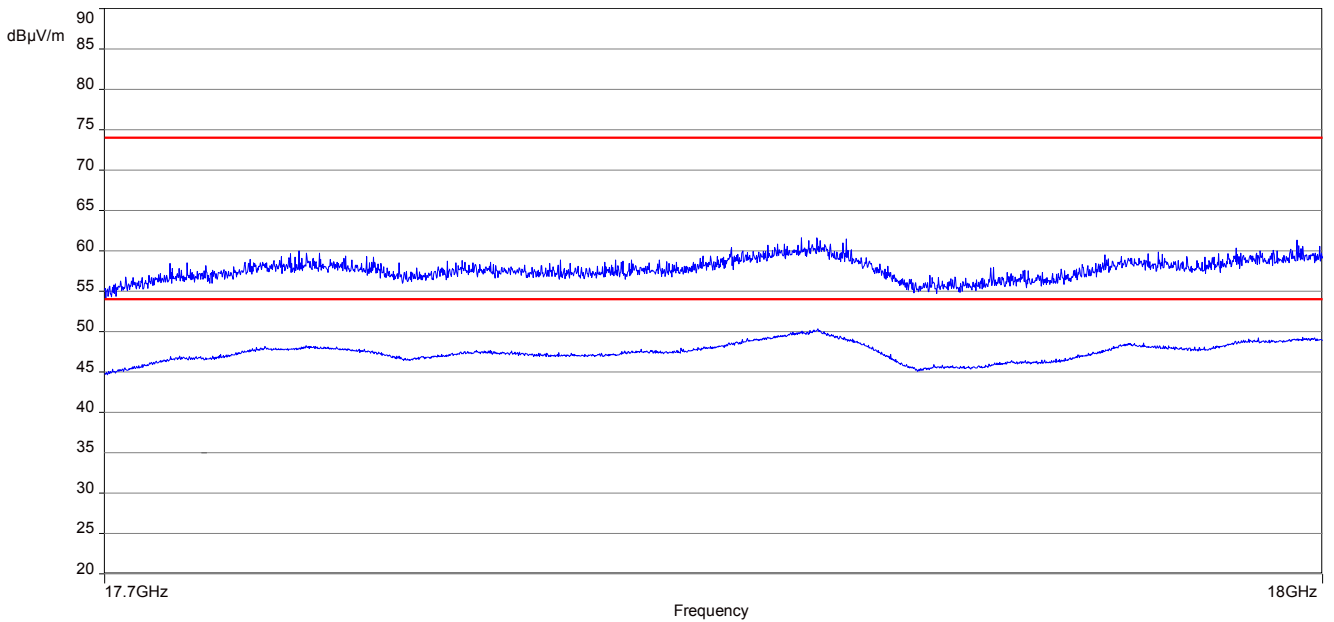
**Final\_Result:**

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|------------|
| 46.369050       | 14.27              | 30.00          | 15.73       | 1000.0          | 120.000         | 100.0       | V   | -9.0          | 13.5       |
| 49.666500       | 12.85              | 30.00          | 17.15       | 1000.0          | 120.000         | 101.0       | V   | 10.0          | 12.7       |
| 99.572400       | 22.62              | 33.50          | 10.88       | 1000.0          | 120.000         | 170.0       | V   | 171.0         | 12.1       |
| 129.785100      | 21.38              | 33.50          | 12.12       | 1000.0          | 120.000         | 101.0       | V   | 80.0          | 9.4        |
| 704.386800      | 18.88              | 36.00          | 17.12       | 1000.0          | 120.000         | 170.0       | V   | 100.0         | 21.6       |
| 833.031750      | 20.49              | 36.00          | 15.51       | 1000.0          | 120.000         | 101.0       | H   | 261.0         | 23.2       |

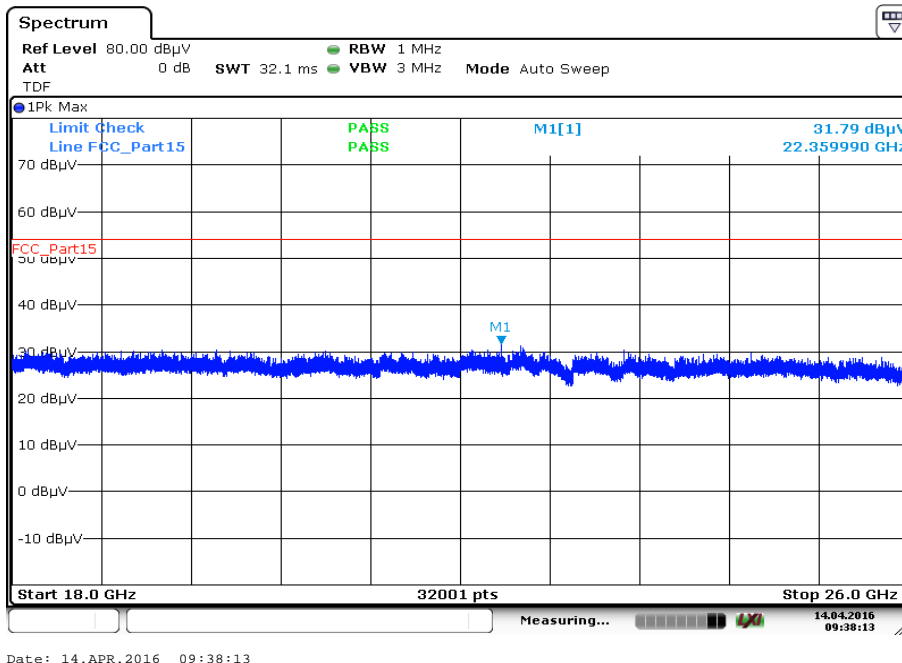
**Plot 27:** 1 GHz to 18 GHz, 5590 MHz, vertical & horizontal polarization



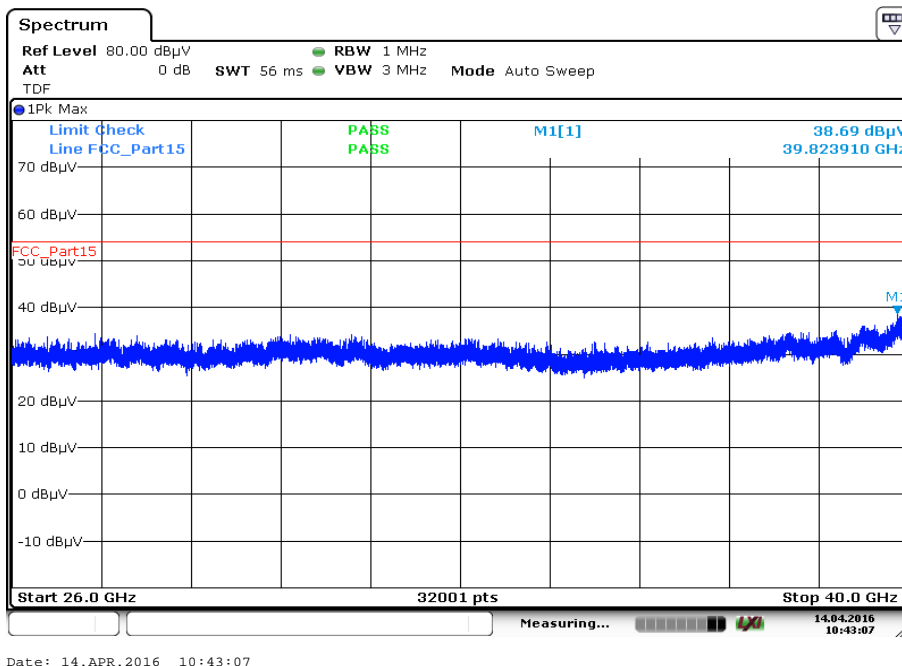
**Plot 28:** 17.7 GHz to 18 GHz, 5590 MHz, vertical & horizontal polarization



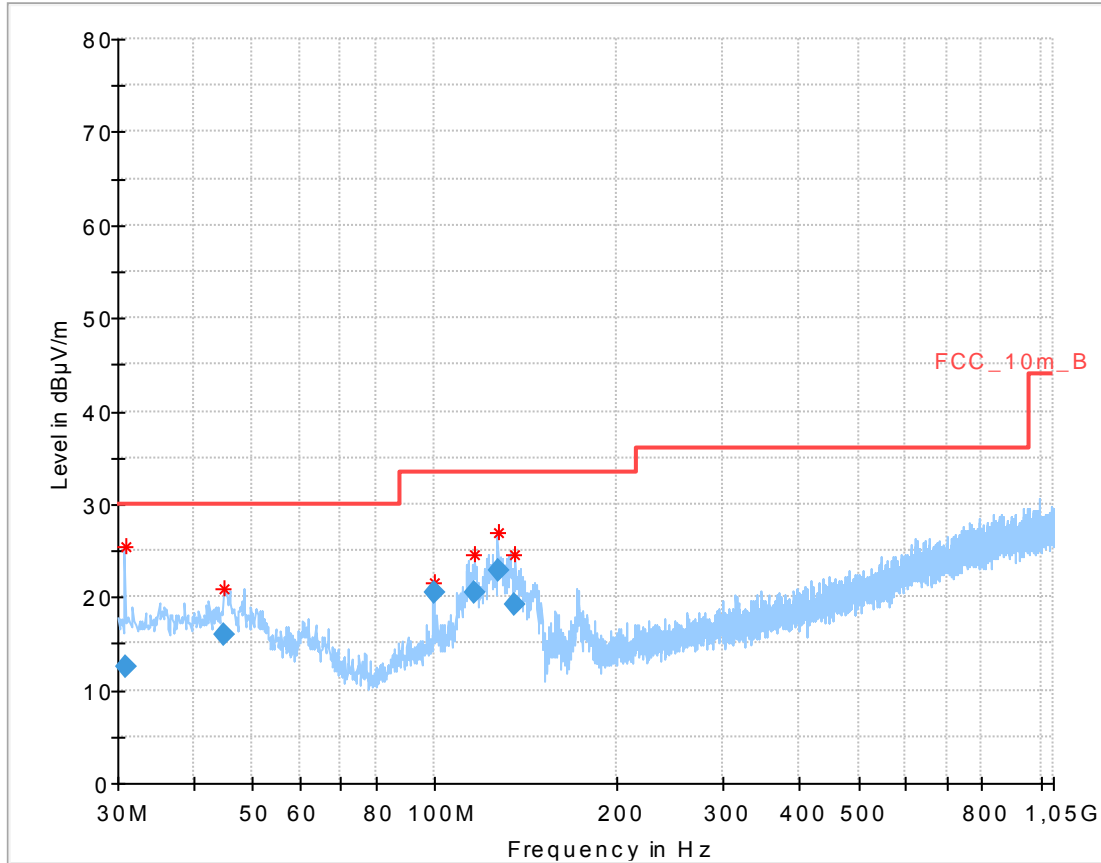
Plot 29: 18 GHz to 26 GHz, 5590 MHz, vertical & horizontal polarization



Plot 30: 26 GHz to 40 GHz, 5590 MHz, vertical & horizontal polarization



Plot 31: 30 MHz to 1 GHz, 5670 MHz, vertical & horizontal polarization

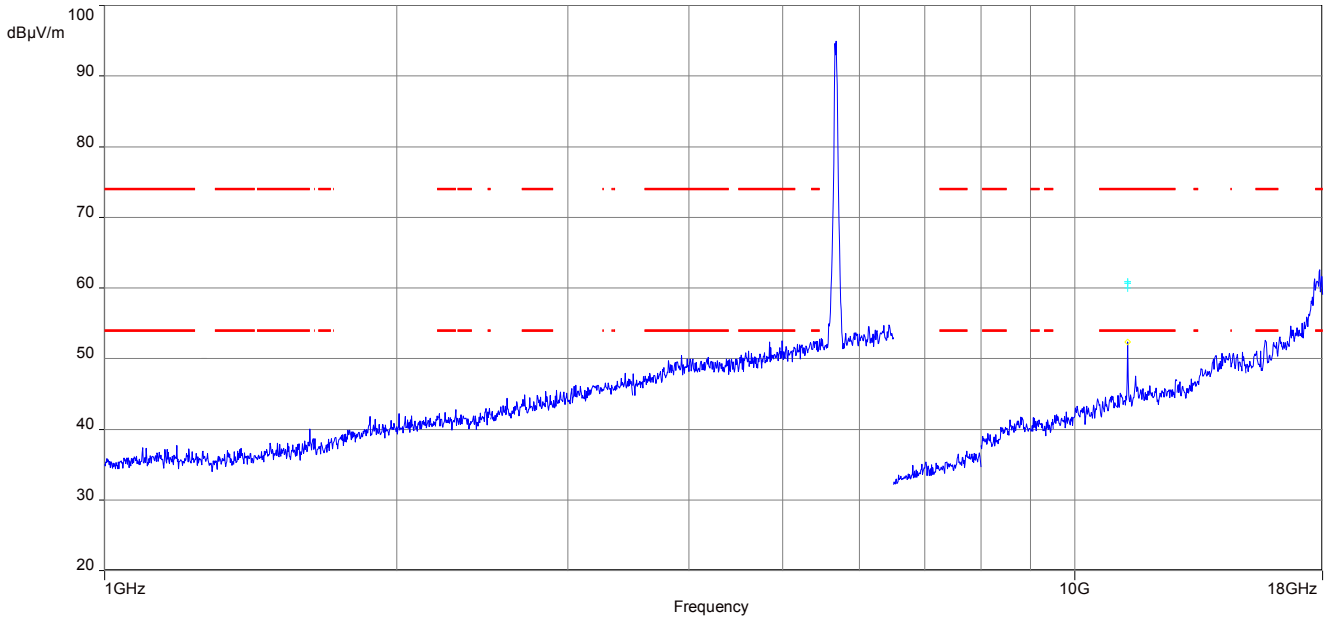


Final\_Result:

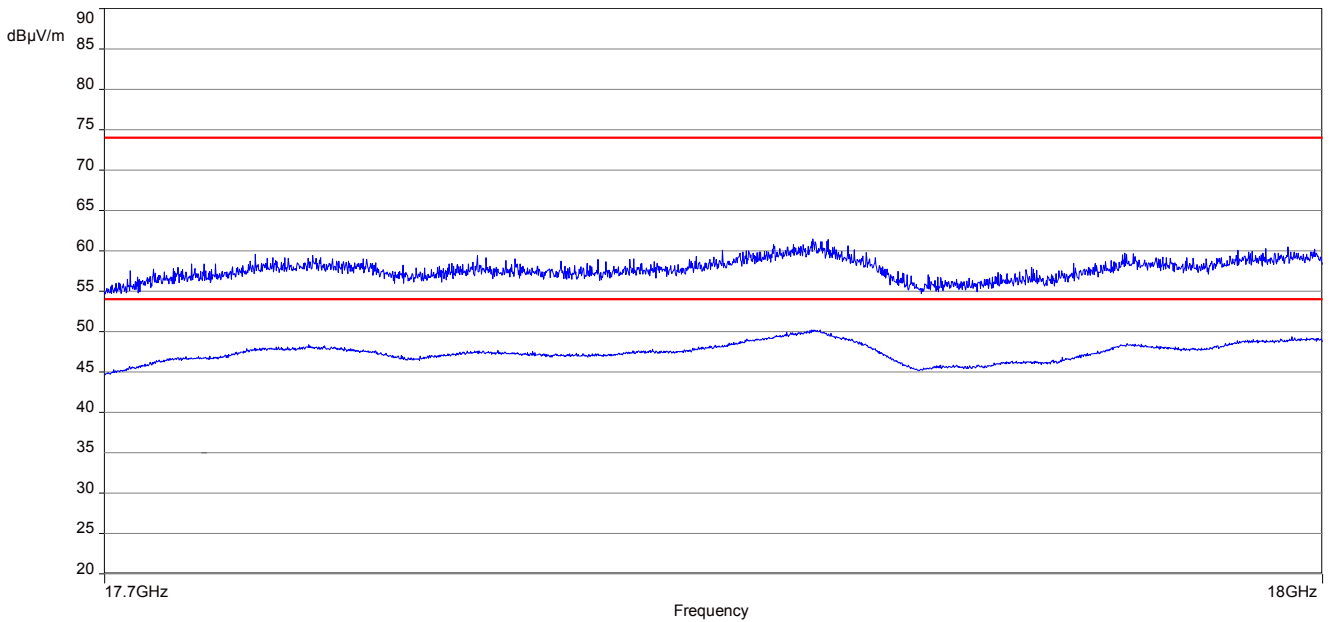
| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|------------|
| 30.820650       | 12.44              | 30.00          | 17.56       | 1000.0          | 120.000         | 100.0       | V   | 280.0         | 13.4       |
| 44.873850       | 16.04              | 30.00          | 13.96       | 1000.0          | 120.000         | 101.0       | V   | 100.0         | 13.9       |
| 99.747900       | 20.47              | 33.50          | 13.03       | 1000.0          | 120.000         | 170.0       | V   | -9.0          | 12.1       |
| 116.616000      | 20.43              | 33.50          | 13.07       | 1000.0          | 120.000         | 170.0       | V   | 80.0          | 10.5       |
| 127.327950      | 22.92              | 33.50          | 10.58       | 1000.0          | 120.000         | 101.0       | V   | 10.0          | 9.6        |
| 135.696600      | 19.27              | 33.50          | 14.23       | 1000.0          | 120.000         | 98.0        | V   | 100.0         | 9.0        |



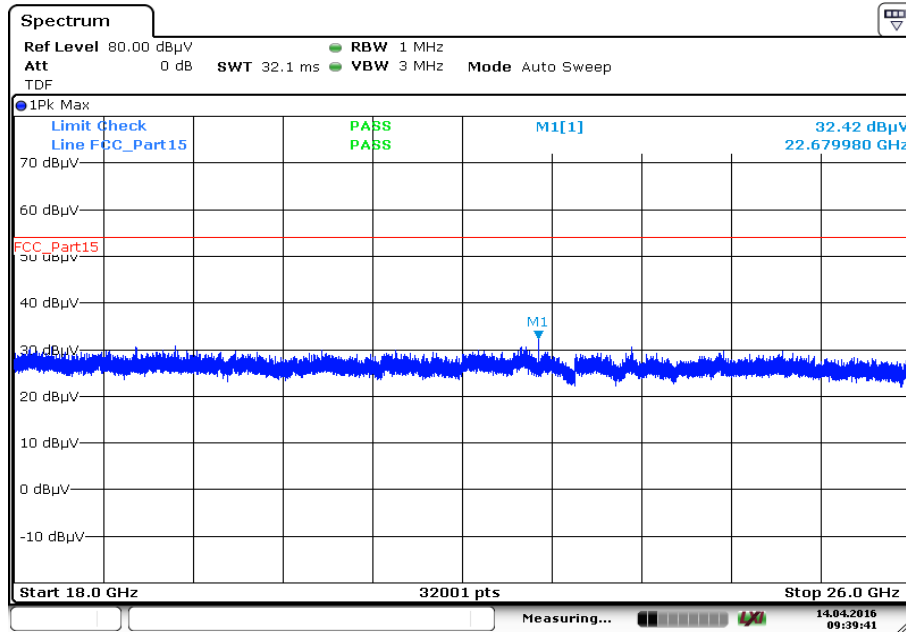
**Plot 32:** 1 GHz to 18 GHz, 5670 MHz, vertical & horizontal polarization



**Plot 33:** 17.7 GHz to 18 GHz, 5670 MHz, vertical & horizontal polarization

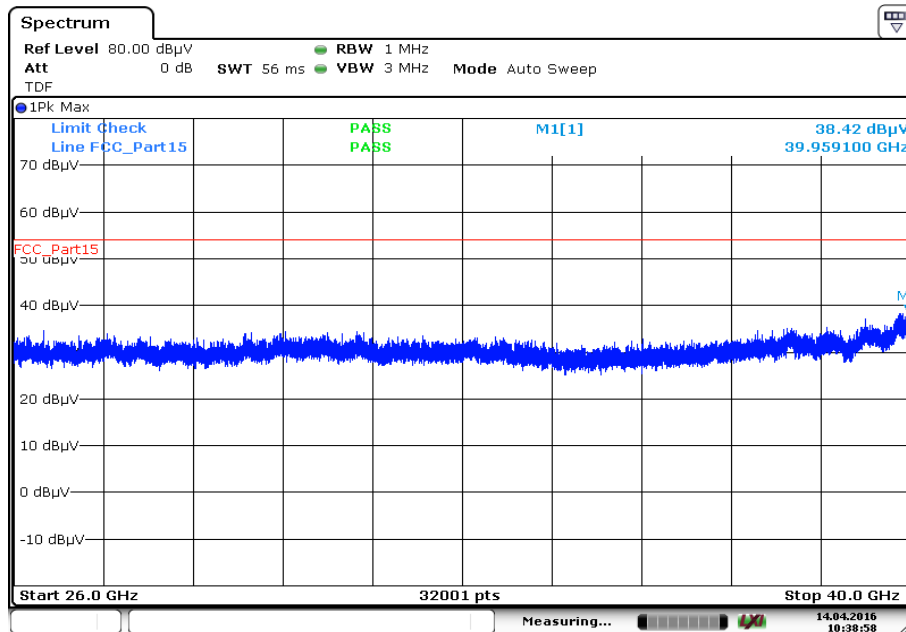


Plot 34: 18 GHz to 26 GHz, 5670 MHz, vertical & horizontal polarization



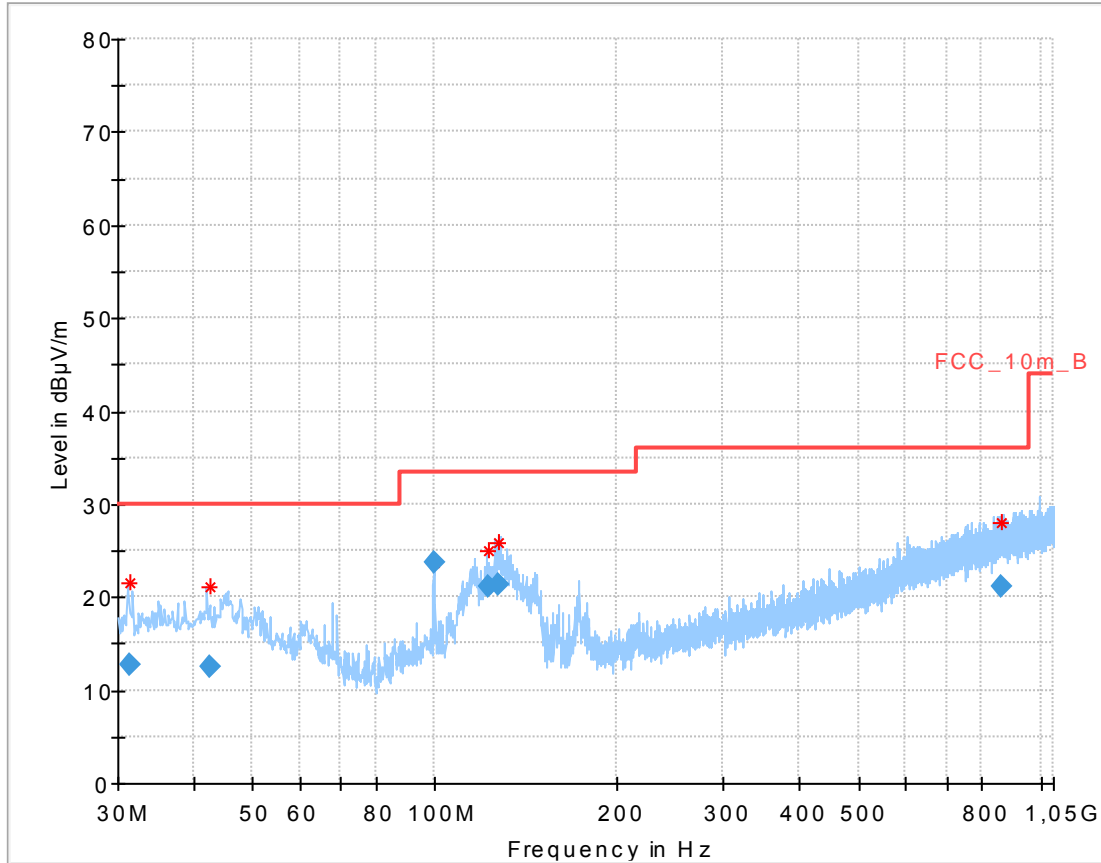
Date: 14.APR.2016 09:39:41

Plot 35: 26 GHz to 40 GHz, 5670 MHz, vertical & horizontal polarization



Date: 14.APR.2016 10:38:58

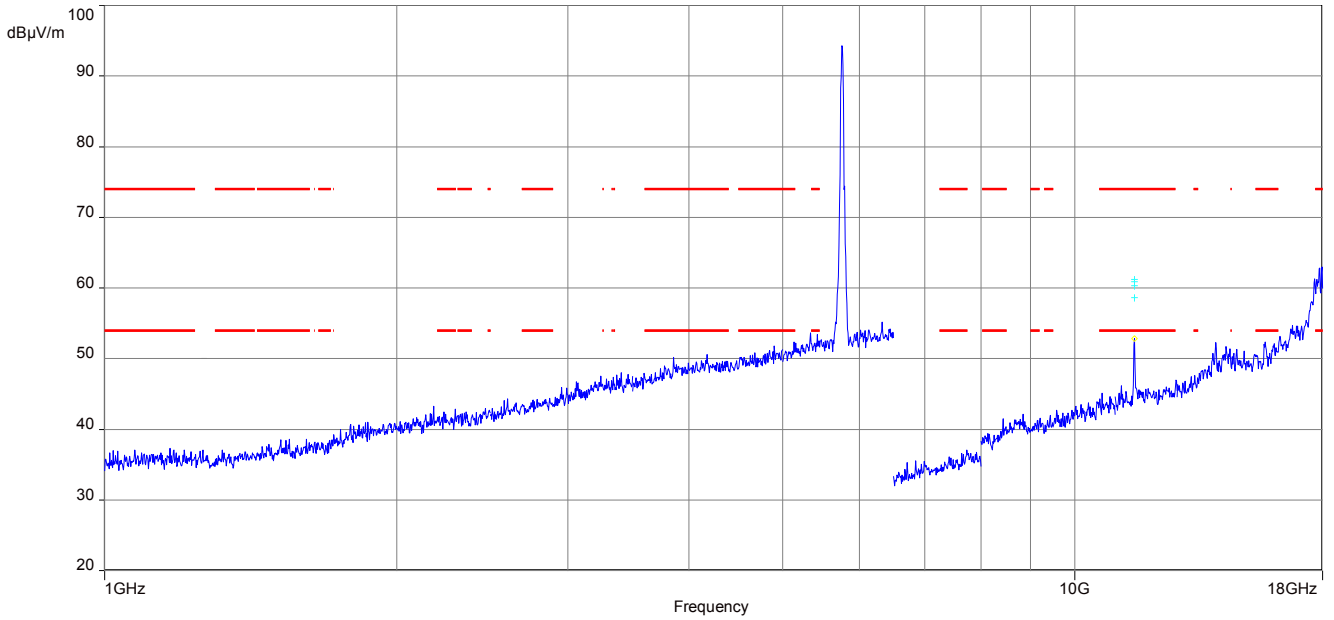
**Plot 36:** 30 MHz to 1 GHz, 5755 MHz, vertical & horizontal polarization



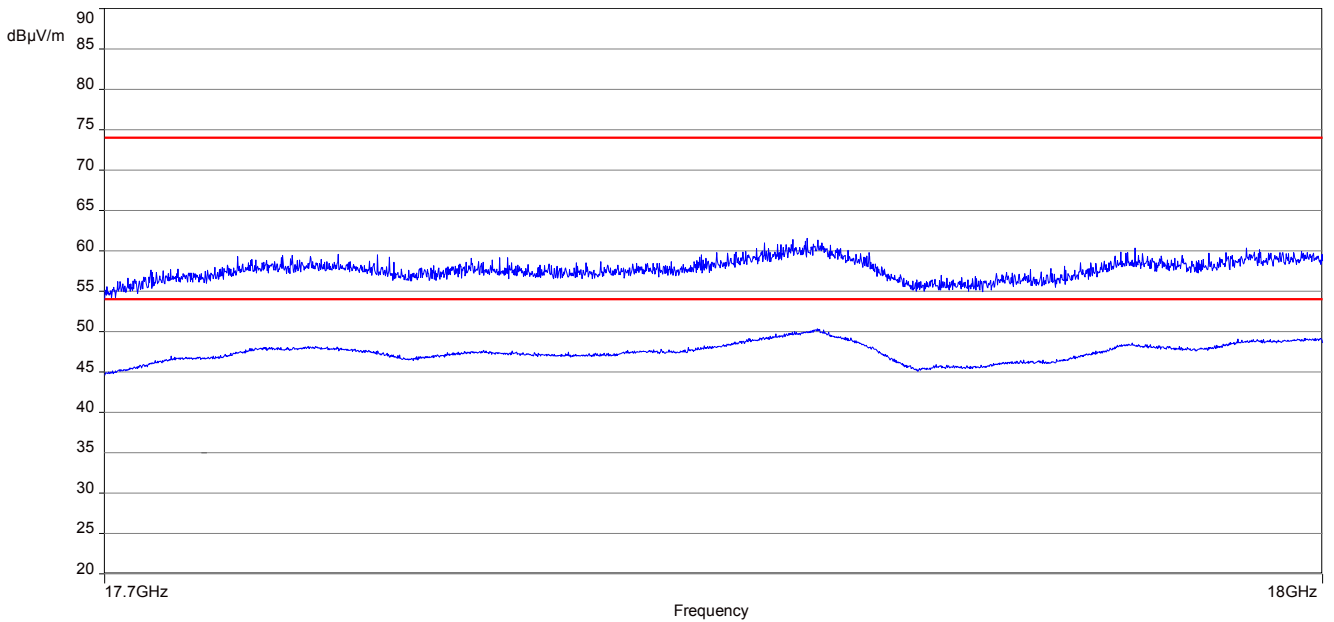
**Final\_Result:**

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|------------|
| 31.379850       | 12.68              | 30.00          | 17.32       | 1000.0          | 120.000         | 170.0       | V   | 100.0         | 13.5       |
| 42.579000       | 12.40              | 30.00          | 17.60       | 1000.0          | 120.000         | 101.0       | V   | 10.0          | 13.9       |
| 99.599400       | 23.81              | 33.50          | 9.69        | 1000.0          | 120.000         | 98.0        | V   | 170.0         | 12.1       |
| 122.476200      | 21.09              | 33.50          | 12.41       | 1000.0          | 120.000         | 170.0       | V   | 10.0          | 10.0       |
| 127.549950      | 21.26              | 33.50          | 12.24       | 1000.0          | 120.000         | 98.0        | V   | 100.0         | 9.6        |
| 863.711700      | 21.06              | 36.00          | 14.94       | 1000.0          | 120.000         | 98.0        | H   | 10.0          | 23.6       |

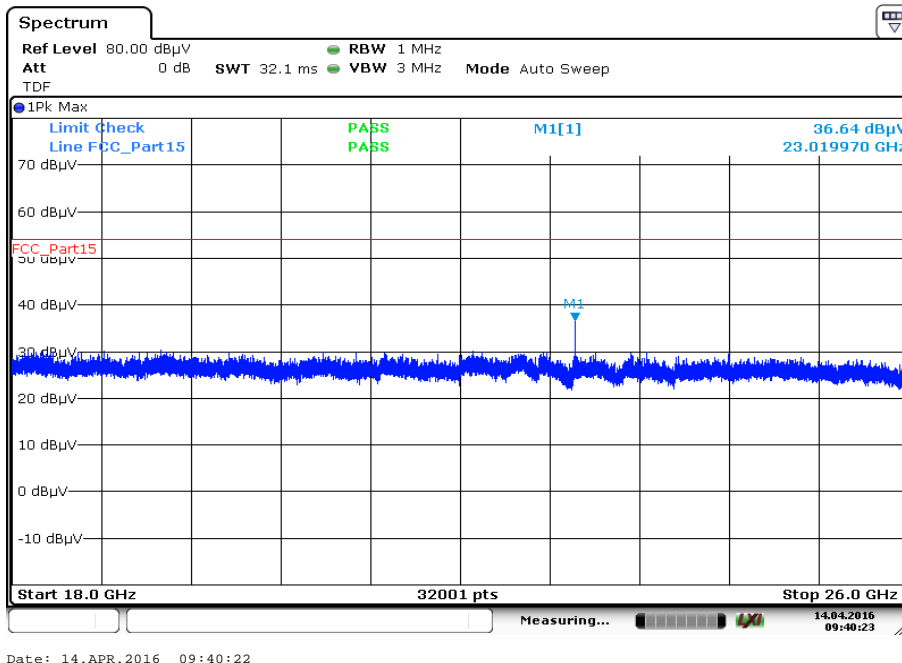
**Plot 37:** 1 GHz to 18 GHz, 5755 MHz, vertical & horizontal polarization



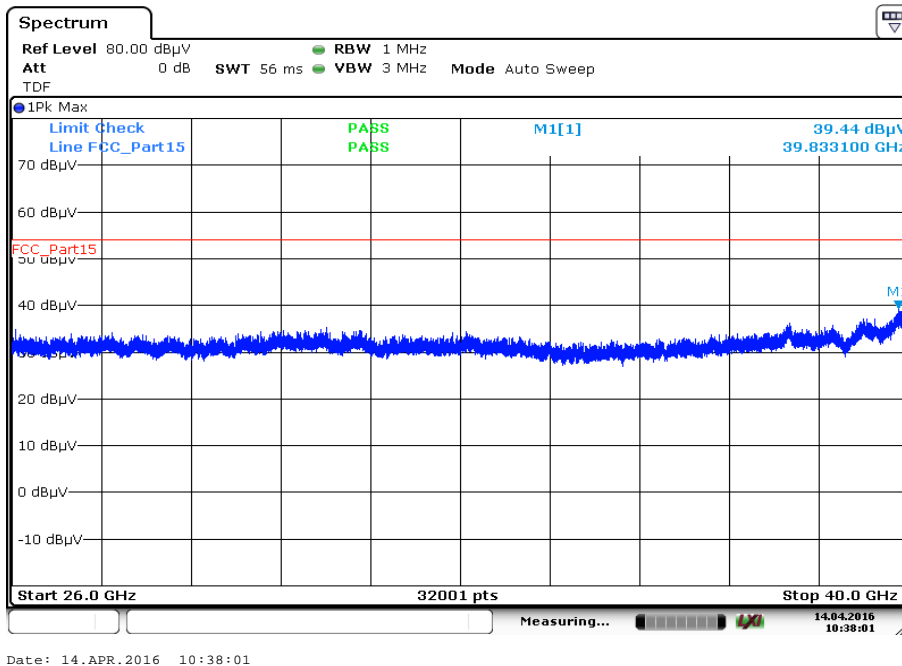
**Plot 38:** 17.7 GHz to 18 GHz, 5755 MHz, vertical & horizontal polarization



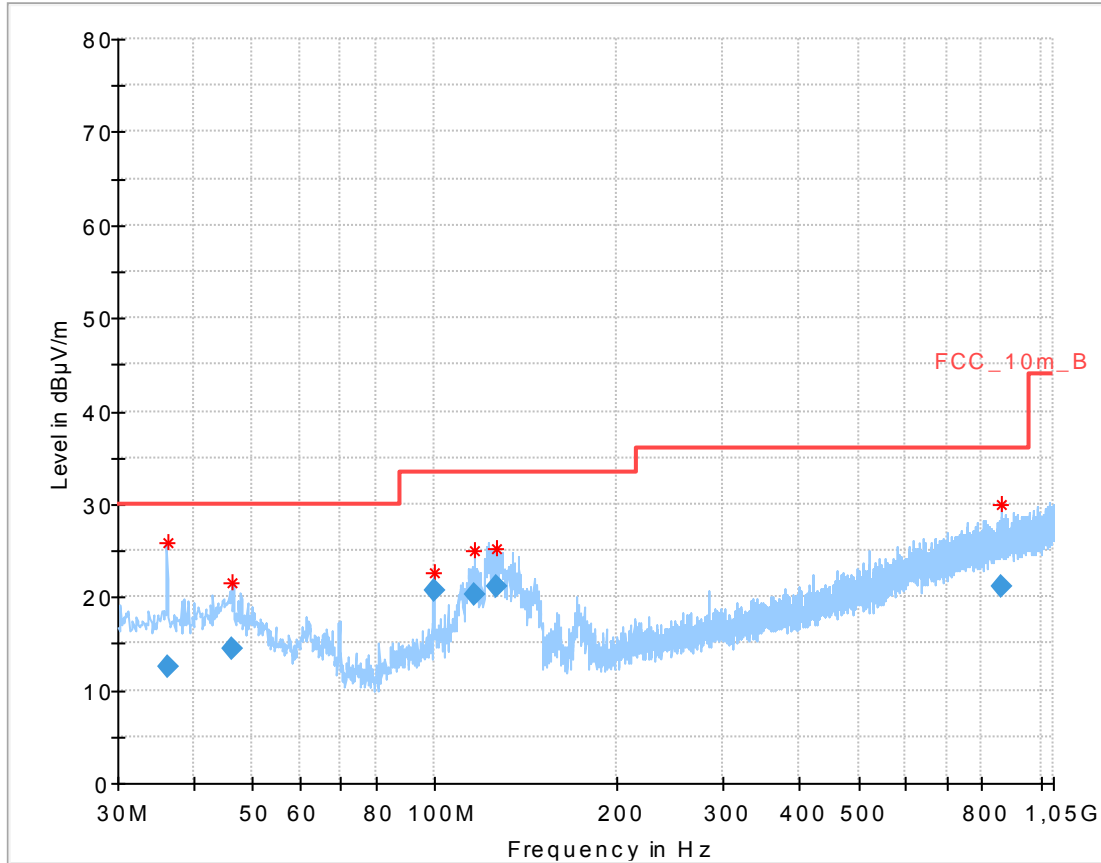
Plot 39: 18 GHz to 26 GHz, 5755 MHz, vertical & horizontal polarization



Plot 40: 26 GHz to 40 GHz, 5755 MHz, vertical & horizontal polarization



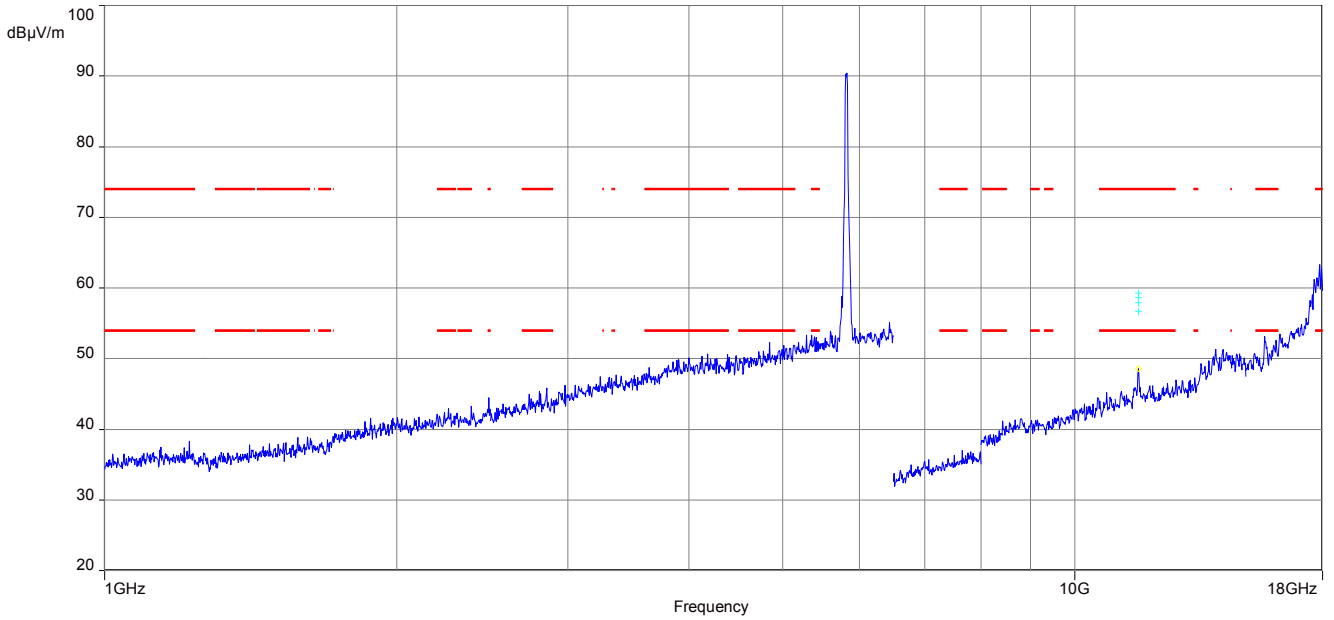
Plot 41: 30 MHz to 1 GHz, 5815 MHz, vertical & horizontal polarization



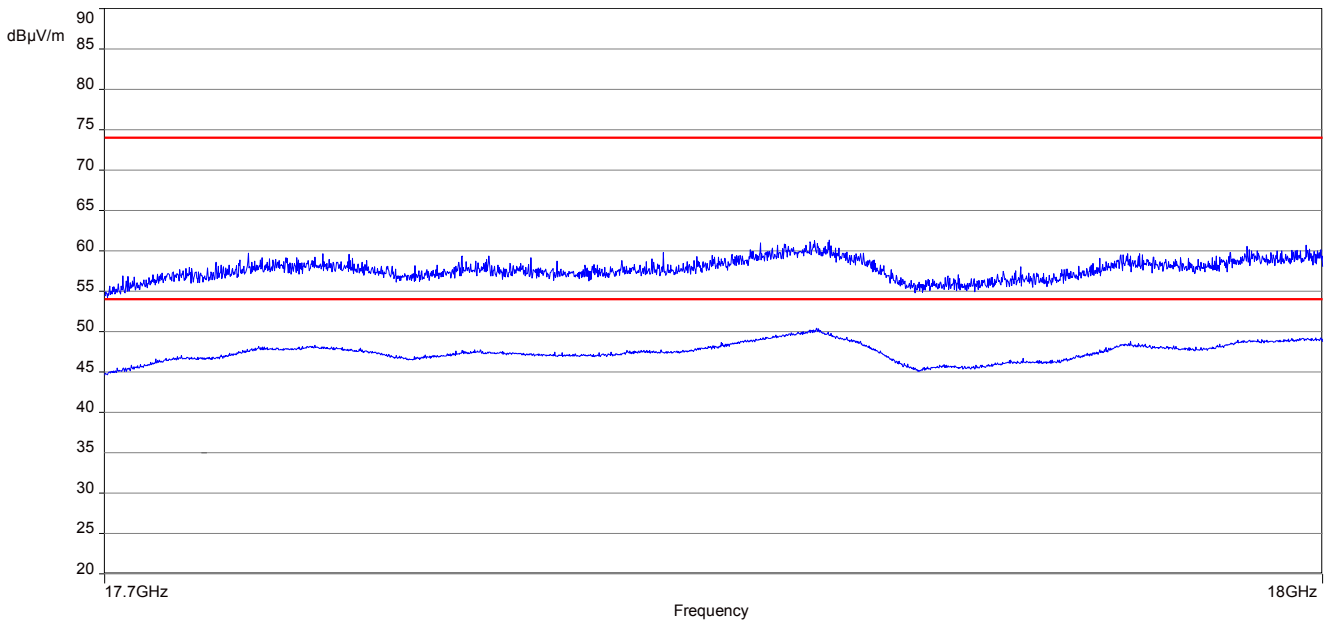
Final\_Result:

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|------------|
| 36.387150       | 12.57              | 30.00          | 17.43       | 1000.0          | 120.000         | 101.0       | V   | 260.0         | 13.9       |
| 46.416600       | 14.52              | 30.00          | 15.48       | 1000.0          | 120.000         | 170.0       | V   | 170.0         | 13.5       |
| 99.765150       | 20.66              | 33.50          | 12.84       | 1000.0          | 120.000         | 170.0       | V   | 171.0         | 12.1       |
| 115.900200      | 20.25              | 33.50          | 13.25       | 1000.0          | 120.000         | 170.0       | V   | 80.0          | 10.5       |
| 126.423450      | 21.18              | 33.50          | 12.32       | 1000.0          | 120.000         | 170.0       | V   | 10.0          | 9.7        |
| 862.403850      | 21.03              | 36.00          | 14.97       | 1000.0          | 120.000         | 170.0       | H   | 100.0         | 23.6       |

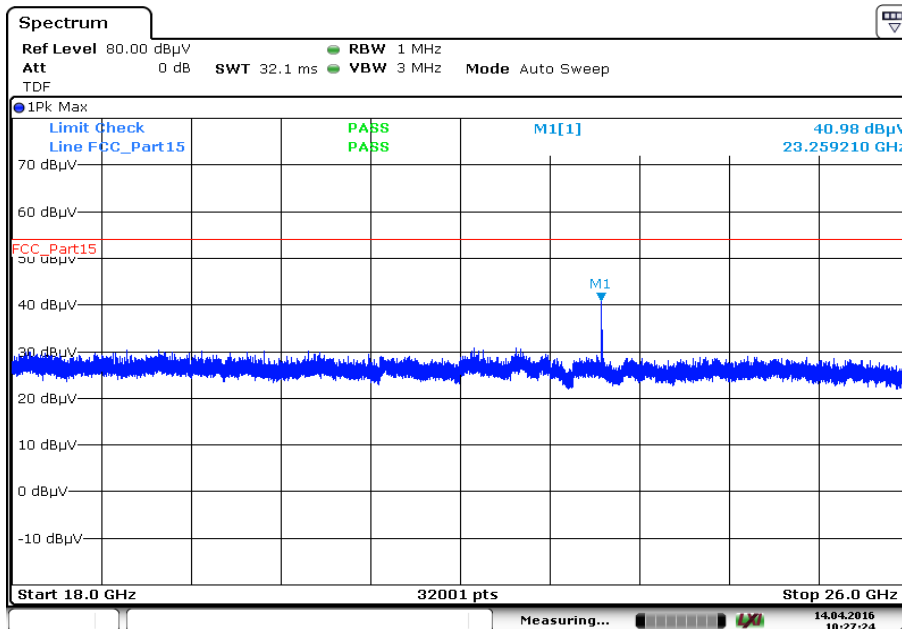
**Plot 42:** 1 GHz to 18 GHz, 5815 MHz, vertical & horizontal polarization



**Plot 43:** 17.7 GHz to 18 GHz, 5815 MHz, vertical & horizontal polarization

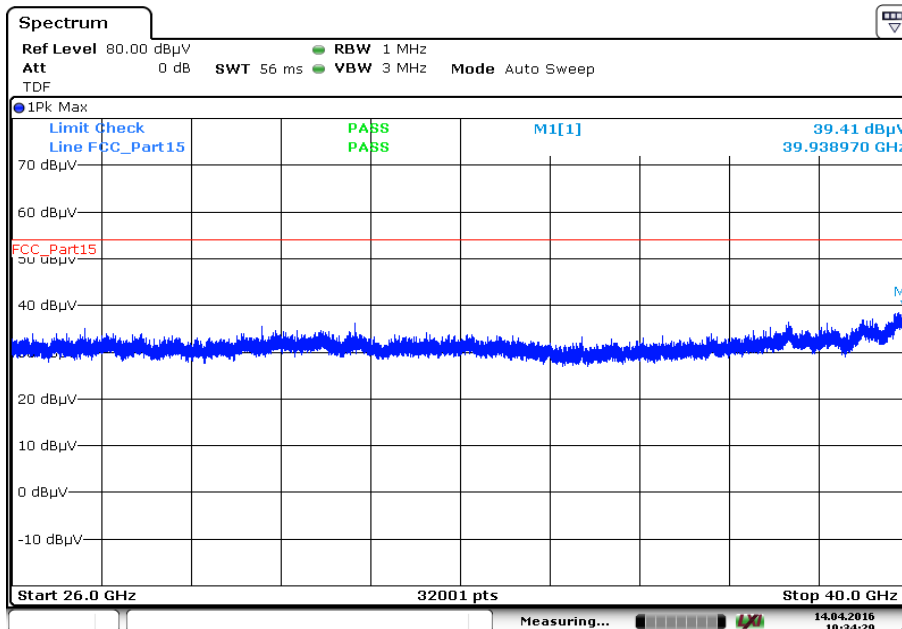


Plot 44: 18 GHz to 26 GHz, 5815 MHz, vertical & horizontal polarization



Date: 14.APR.2016 10:27:23

Plot 45: 26 GHz to 40 GHz, 5815 MHz, vertical & horizontal polarization



Date: 14.APR.2016 10:34:29



## 12.10 RX spurious emissions radiated

**Description:**

Measurement of the radiated spurious emissions in idle/receive mode.

**Measurement:**

| Measurement parameter    |   |
|--------------------------|---|
| Detector:                | Quasi Peak below 1 GHz (alternative Peak)<br>Peak above 1 GHz / RMS                 |
| Sweep time:              | Auto  |
| Resolution bandwidth:    | F < 1 GHz: 100 kHz<br>F > 1 GHz: 1 MHz  |
| Video bandwidth:         | F < 1 GHz: 100 kHz<br>F > 1 GHz: ≥ 3 MHz  |
| Span:                    | 30 MHz to 40 GHz  |
| Trace – mode:            | Max Hold / Average with 100 counts + 20 log (1 / X) for duty cycle lower than 100 % |
| Test setup:              | See sub clause 7.2 – B  |
| Measurement uncertainty: | See sub clause 9  |

**Limits:**

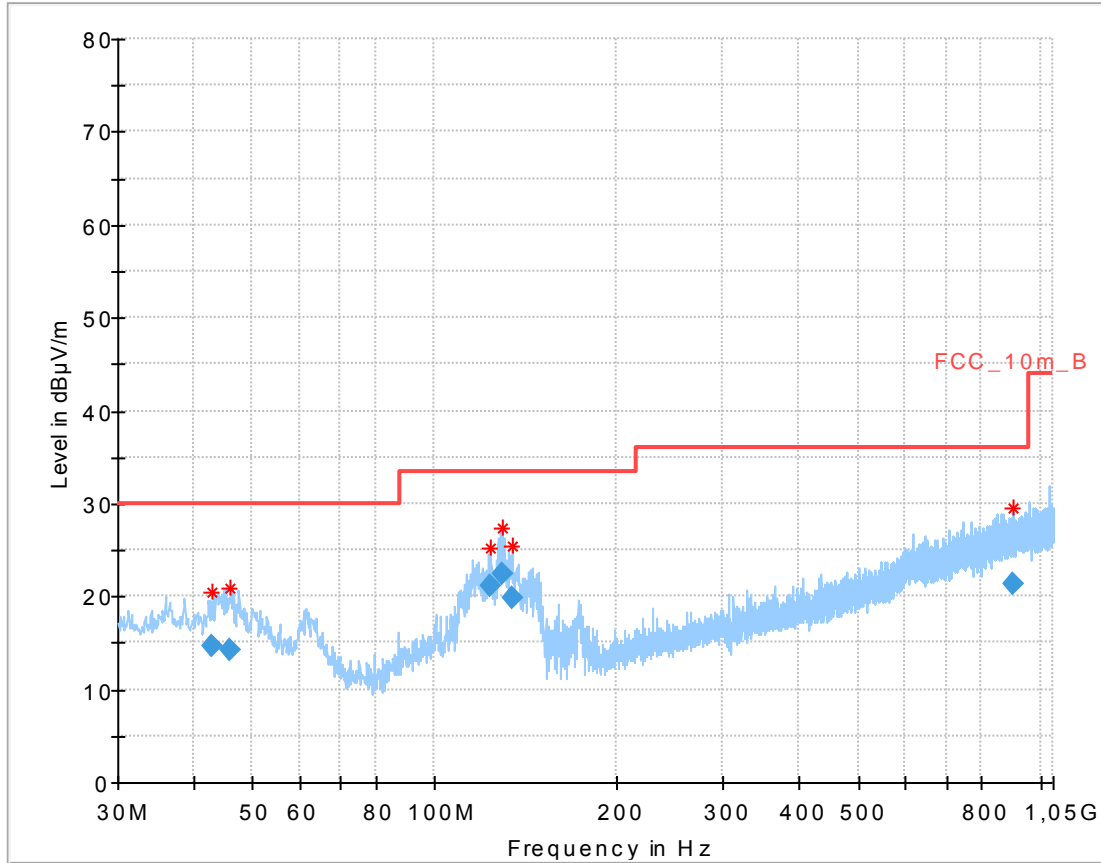
| RX Spurious Emissions Radiated |                         |                      |
|--------------------------------|-------------------------|----------------------|
| Frequency (MHz)                | Field Strength (dBµV/m) | Measurement distance |
| 30 - 88                        | 30.0                    | 10                   |
| 88 – 216                       | 33.5                    | 10                   |
| 216 – 960                      | 36.0                    | 10                   |
| Above 960                      | 54.0                    | 3                    |

**Results:**

| RX Spurious Emissions Radiated [dBµV/m] |          |                |
|---|----------|----------------|
| F [MHz]                                 | Detector | Level [dBµV/m] |
| No critical peaks found                 |          |                |
|   |          |                |
|   |          |                |

**Plots:**

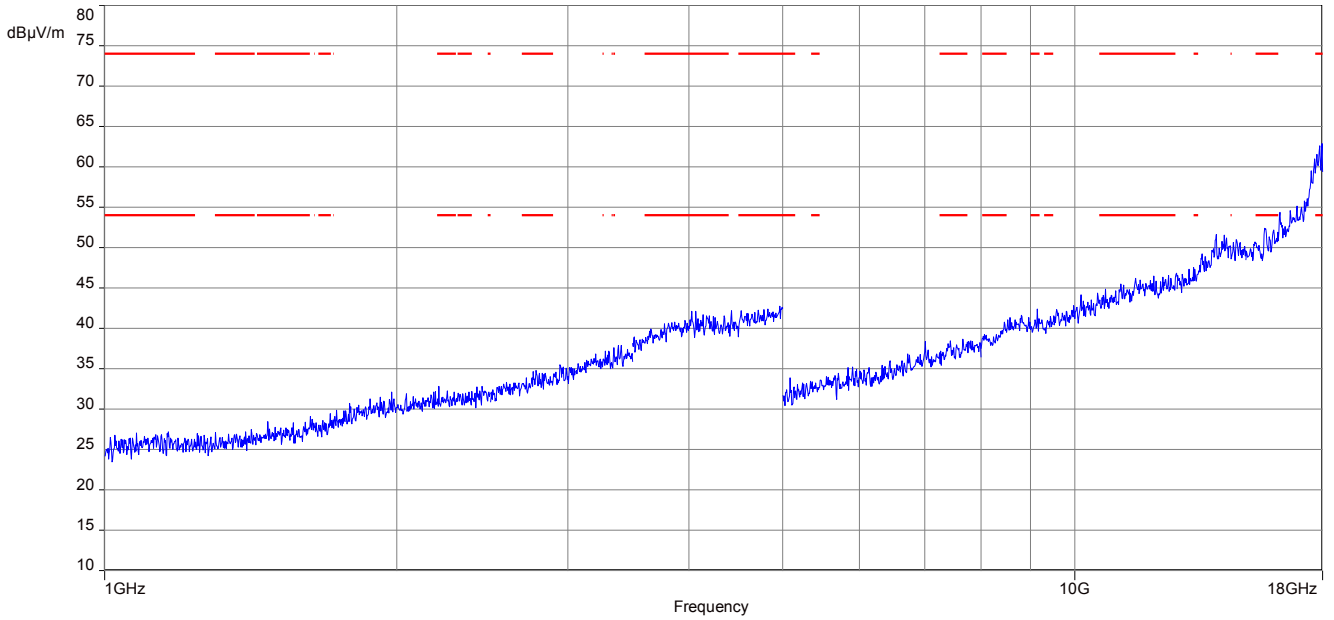
**Plot 1:** 30 MHz to 1 GHz, vertical & horizontal polarization



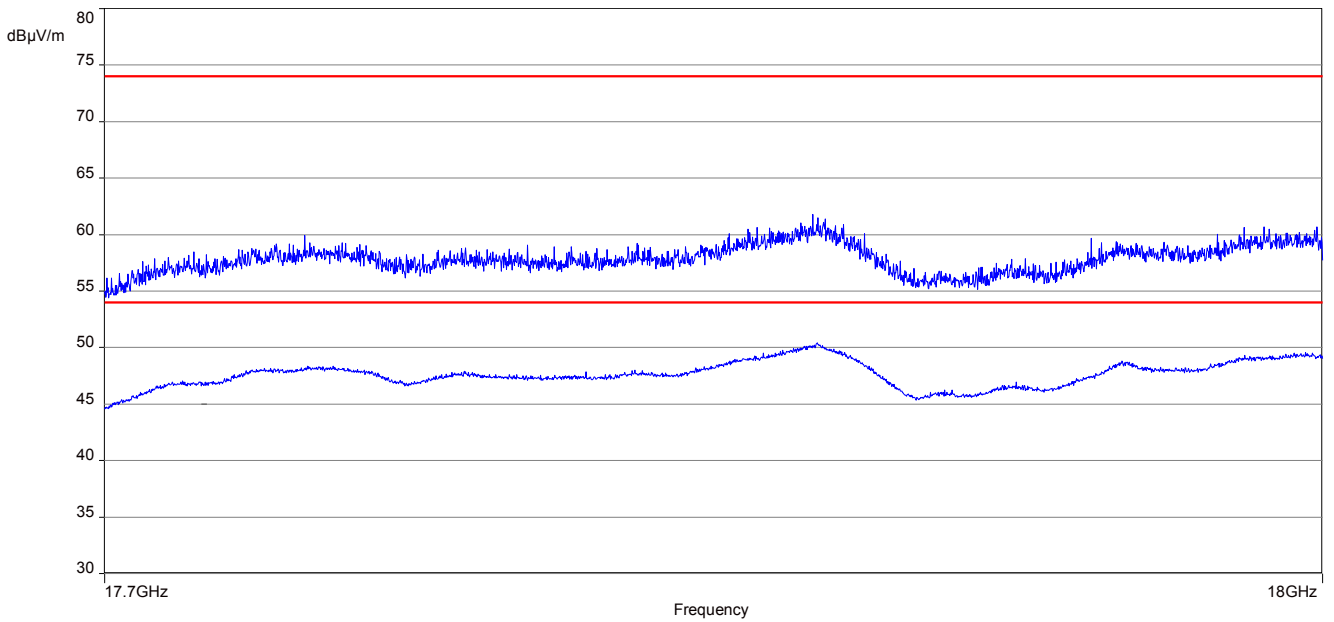
**Final\_Result:**

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|------------|
| 42.944100       | 14.59              | 30.00          | 15.41       | 1000.0          | 120.000         | 101.0       | V   | 80.0          | 13.9       |
| 45.959400       | 14.27              | 30.00          | 15.73       | 1000.0          | 120.000         | 170.0       | V   | 261.0         | 13.6       |
| 123.784800      | 21.07              | 33.50          | 12.43       | 1000.0          | 120.000         | 170.0       | V   | -10.0         | 9.9        |
| 129.689550      | 22.48              | 33.50          | 11.02       | 1000.0          | 120.000         | 101.0       | V   | 10.0          | 9.4        |
| 133.961250      | 19.90              | 33.50          | 13.60       | 1000.0          | 120.000         | 170.0       | V   | 80.0          | 9.1        |
| 904.318500      | 21.26              | 36.00          | 14.74       | 1000.0          | 120.000         | 170.0       | H   | 280.0         | 24.1       |

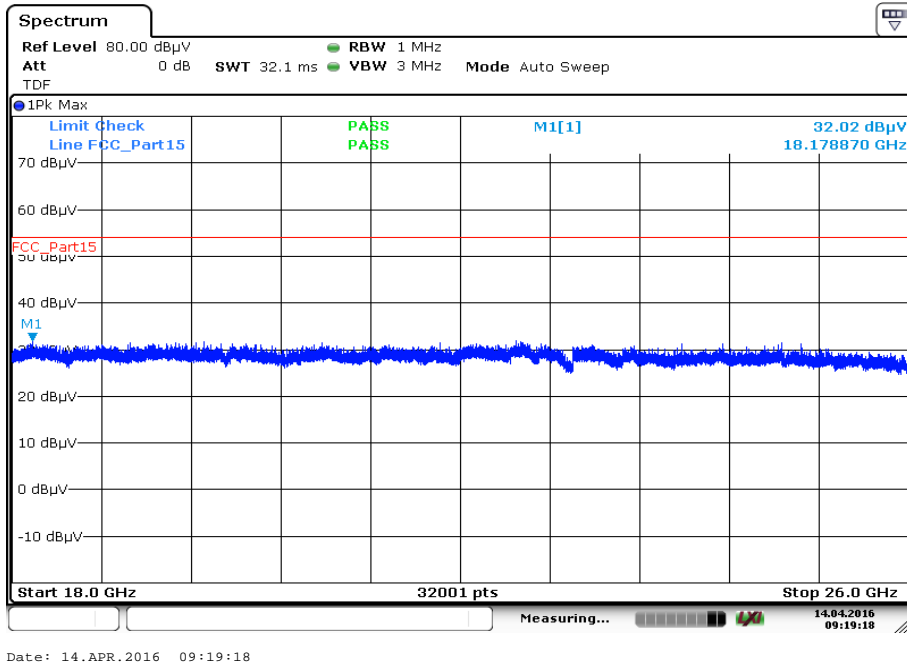
**Plot 2:** 1 GHz to 18 GHz, vertical & horizontal polarization



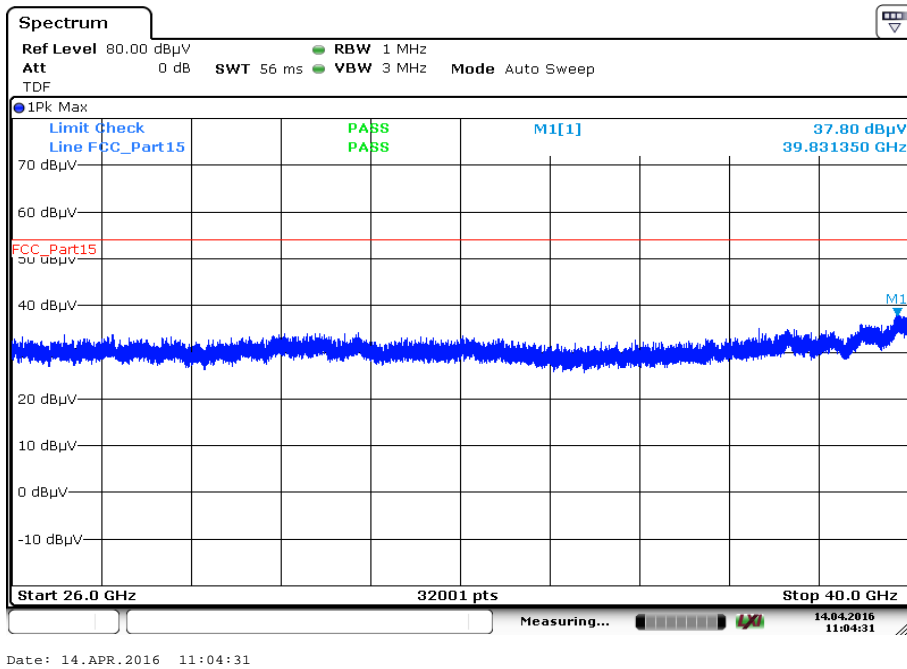
**Plot 3:** 17.7 GHz to 18 GHz, vertical & horizontal polarization



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



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



### 12.11 Spurious emissions radiated < 30 MHz

**Description:**

Measurement of the radiated spurious emissions in transmit mode and receive mode below 30 MHz. The EUT is set first to middle channel. This measurement is representative for all channels and modes. If critical peaks are found the lowest channel and the highest channel will be measured too. Then the EUT is set to receive or idle mode. The limits are recalculated to a measurement distance of 3 m with 40 dB/decade according CFR Part 2.

**Measurement:**

| Measurement parameter    |  |
|--------------------------|--|
| Detector:                | Peak / Quasi Peak                          |
| Sweep time:              | Auto                                       |
| Video bandwidth:         | F < 150 kHz: 200 Hz<br>F > 150 kHz: 9 kHz  |
| Resolution bandwidth:    | F < 150 kHz: 1 kHz<br>F > 150 kHz: 100 kHz |
| Span:                    | 9 kHz to 30 MHz                            |
| Trace – mode:            | Max Hold                                   |
| Test setup:              | See sub clause 7.2 – C                     |
| Measurement uncertainty: | See sub clause 9                           |

**Limits:**

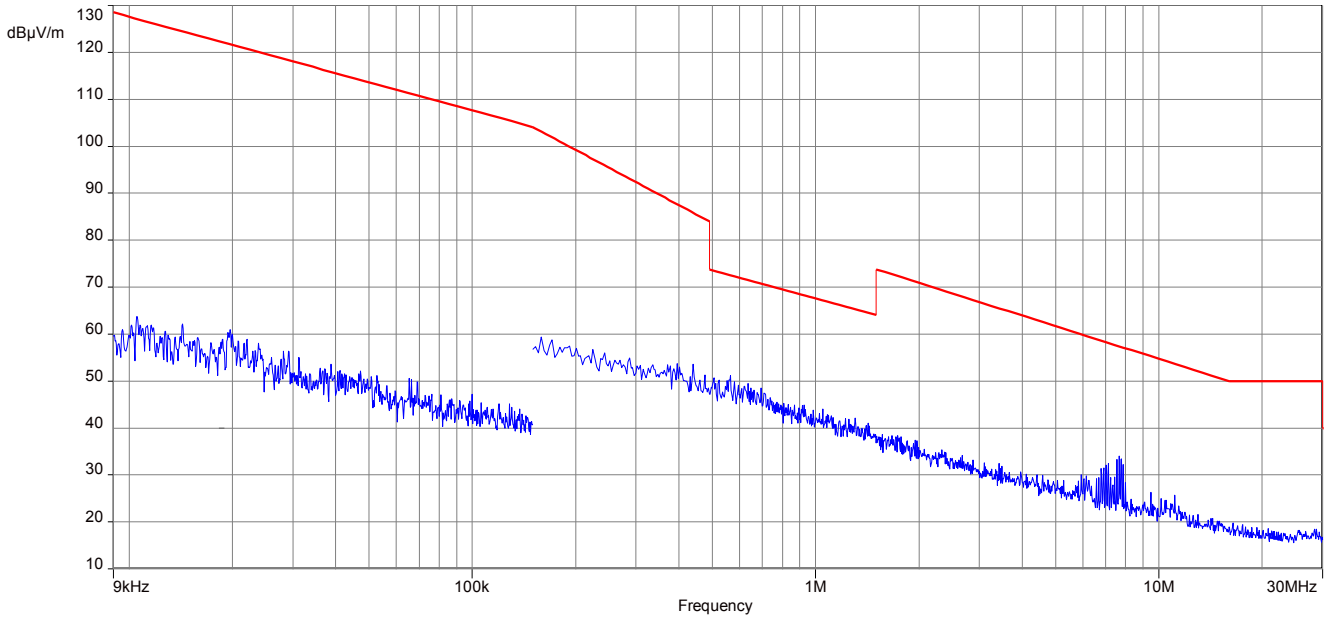
| Spurious Emissions Radiated < 30 MHz |                         |                      |
|--------------------------------------|-------------------------|----------------------|
| Frequency (MHz)                      | Field Strength (dBµV/m) | Measurement distance |
| 0.009 – 0.490                        | 2400/F(kHz)             | 300                  |
| 0.490 – 1.705                        | 24000/F(kHz)            | 30                   |
| 1.705 – 30.0                         | 30                      | 30                   |

**Results:**

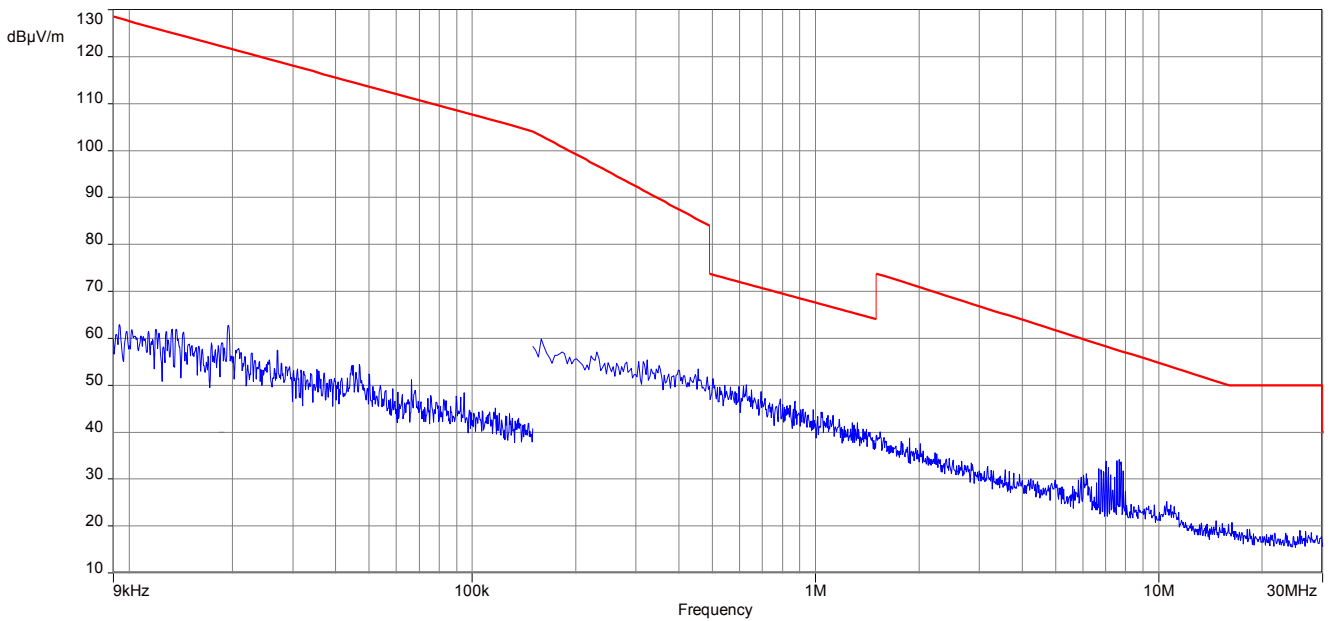
| Spurious Emissions Radiated < 30 MHz [dBµV/m]               |          |                |
|---|----------|----------------|
| F [MHz]   | Detector | Level [dBµV/m] |
| All detected emissions are more than 20 dB below the limit. |          |                |
|   |          |                |
|   |          |                |

**Plots:**

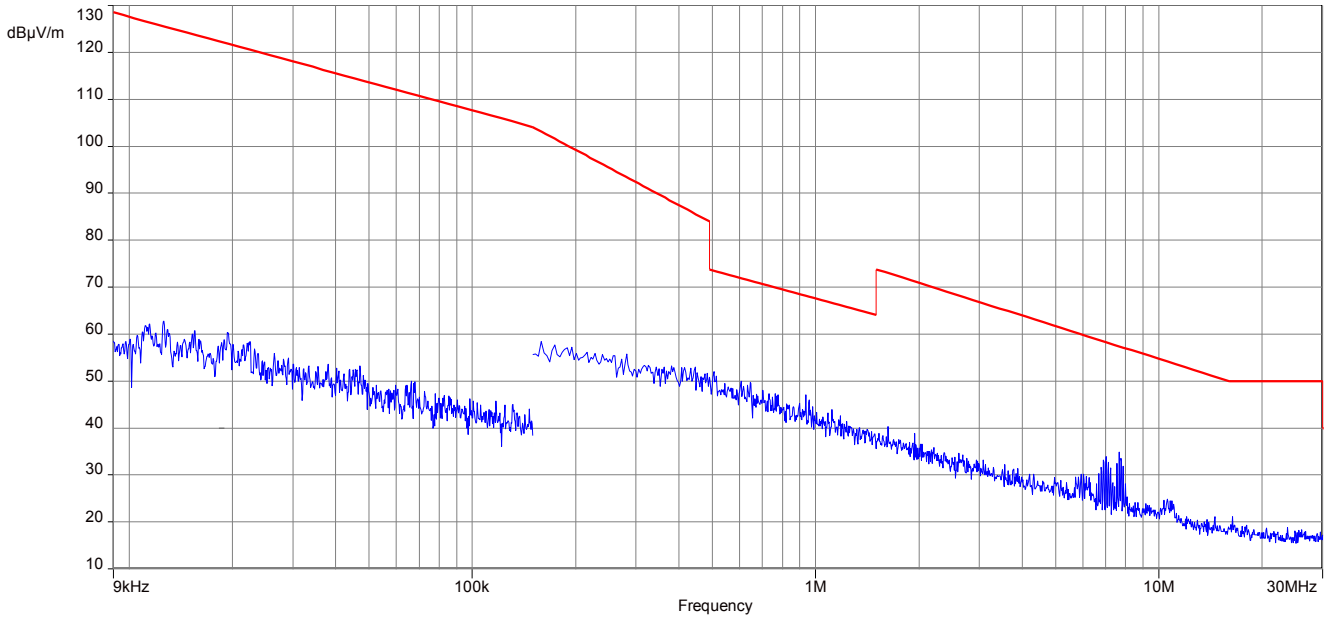
**Plot 1:** 9 kHz to 30 MHz, OFDM 20 MHz, 5180 MHz



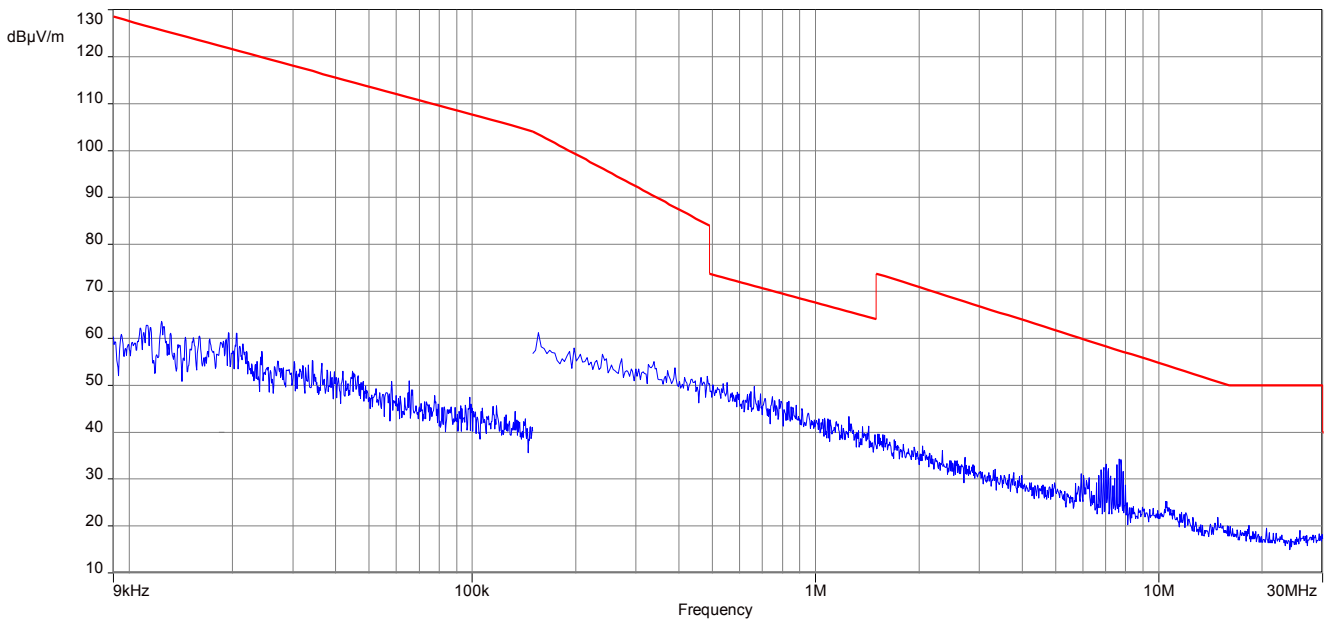
**Plot 2:** 9 kHz to 30 MHz, OFDM 20 MHz, 5240 MHz



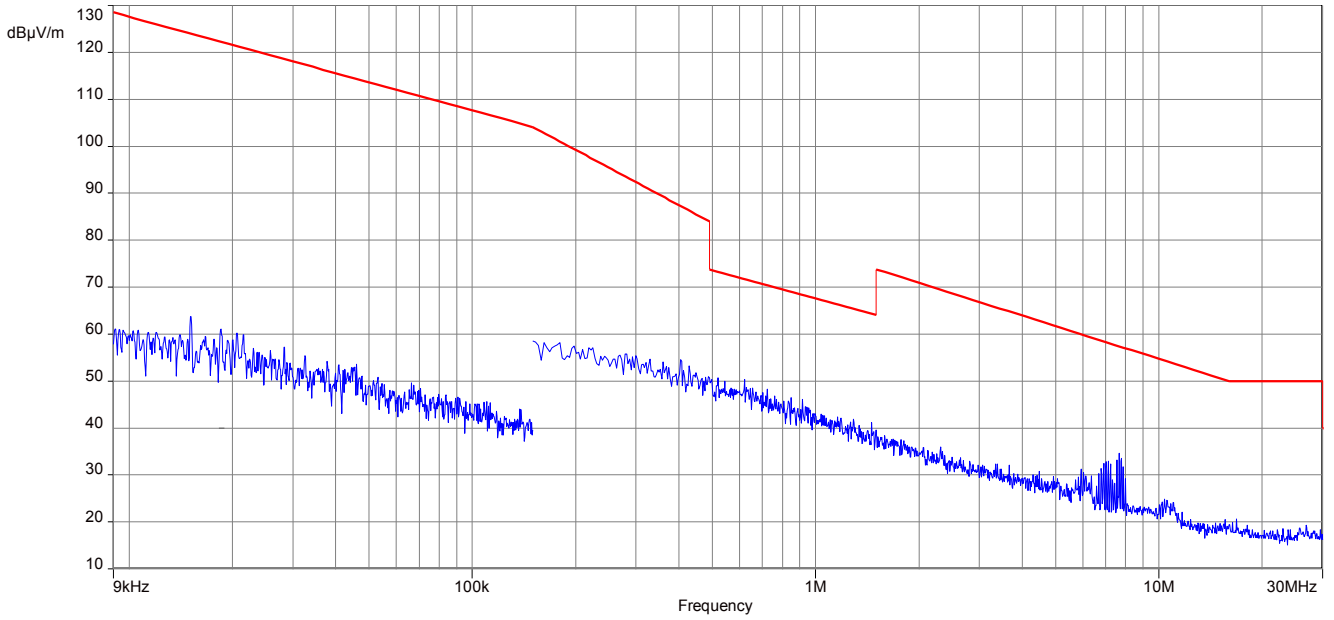
**Plot 3:** 9 kHz to 30 MHz, OFDM 20 MHz, 5260 MHz



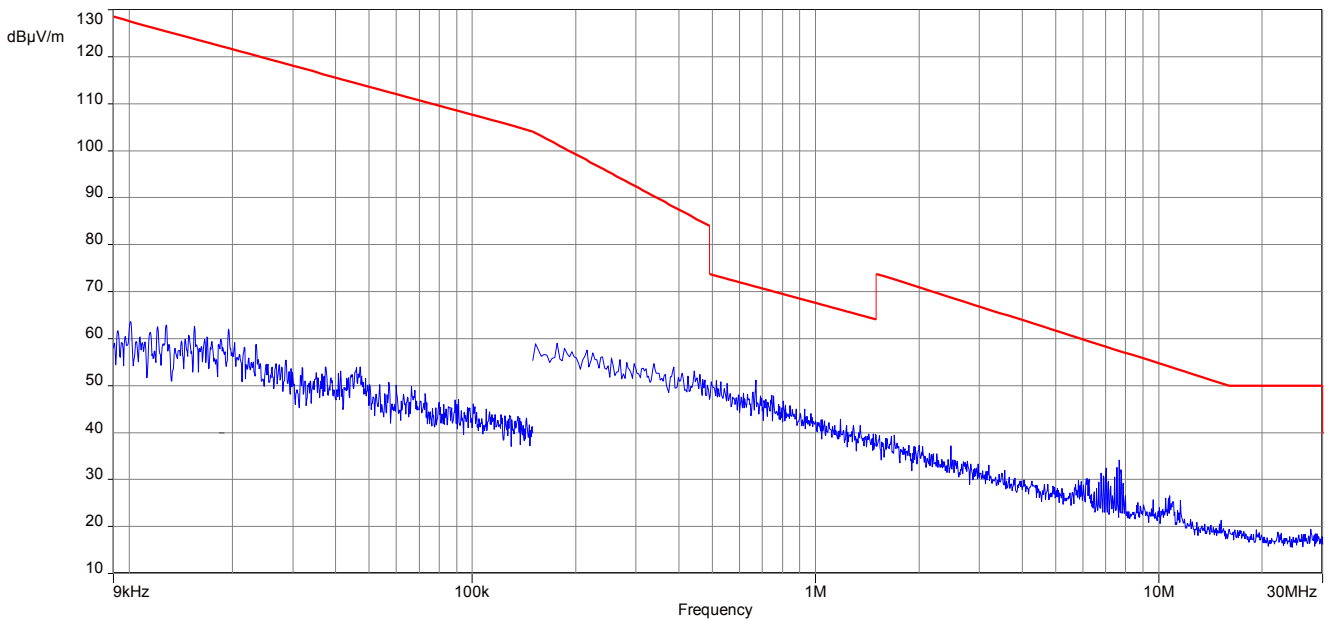
**Plot 4:** 9 kHz to 30 MHz, OFDM 20 MHz, 5320 MHz



**Plot 5:** 9 kHz to 30 MHz, OFDM 20 MHz, 5500 MHz

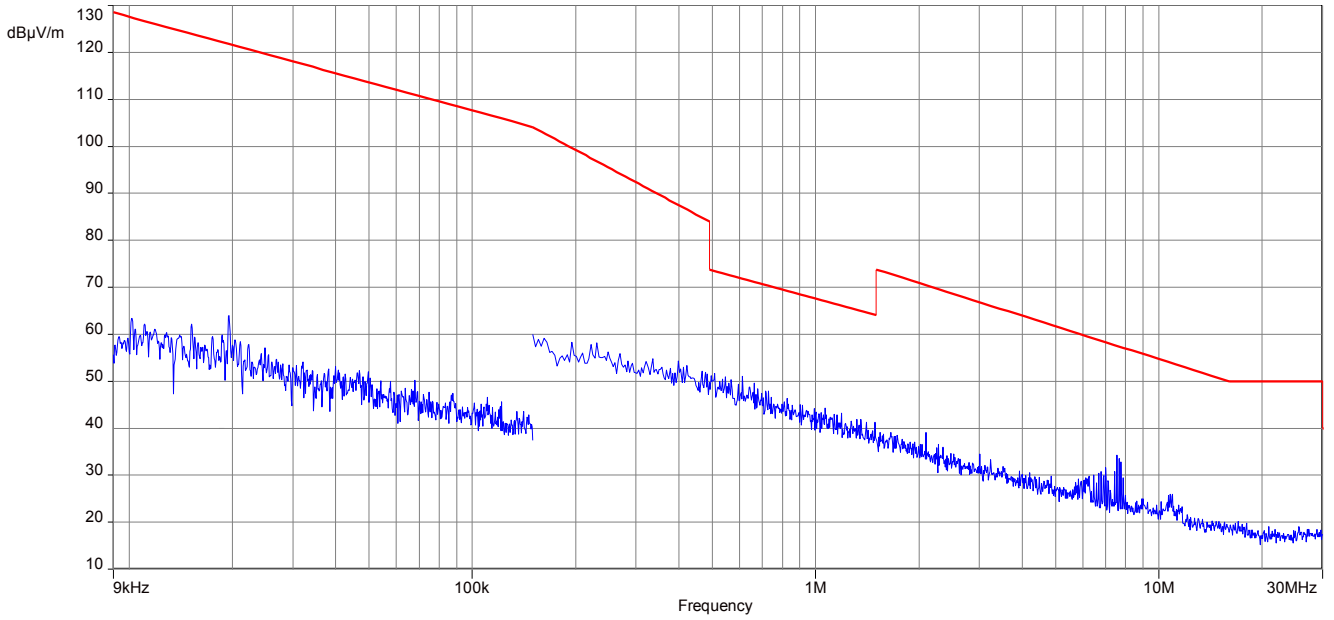


**Plot 6:** 9 kHz to 30 MHz, OFDM 20 MHz, 5600 MHz

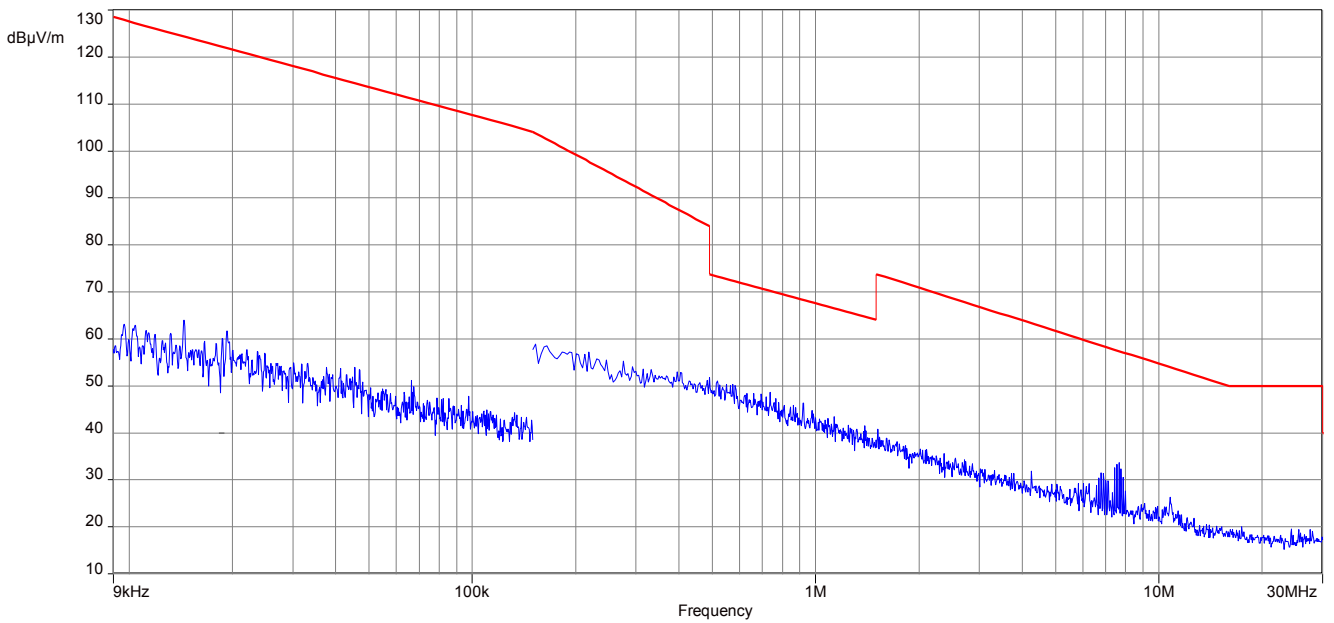




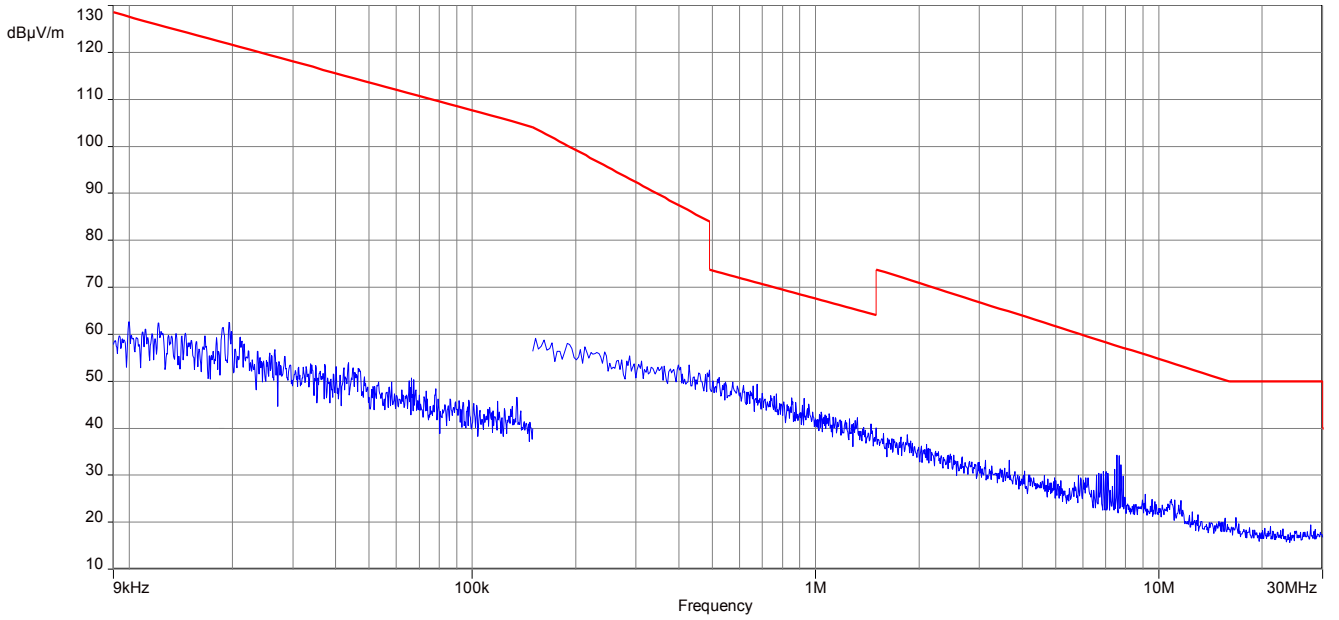
**Plot 7:** 9 kHz to 30 MHz, OFDM 20 MHz, 5700 MHz



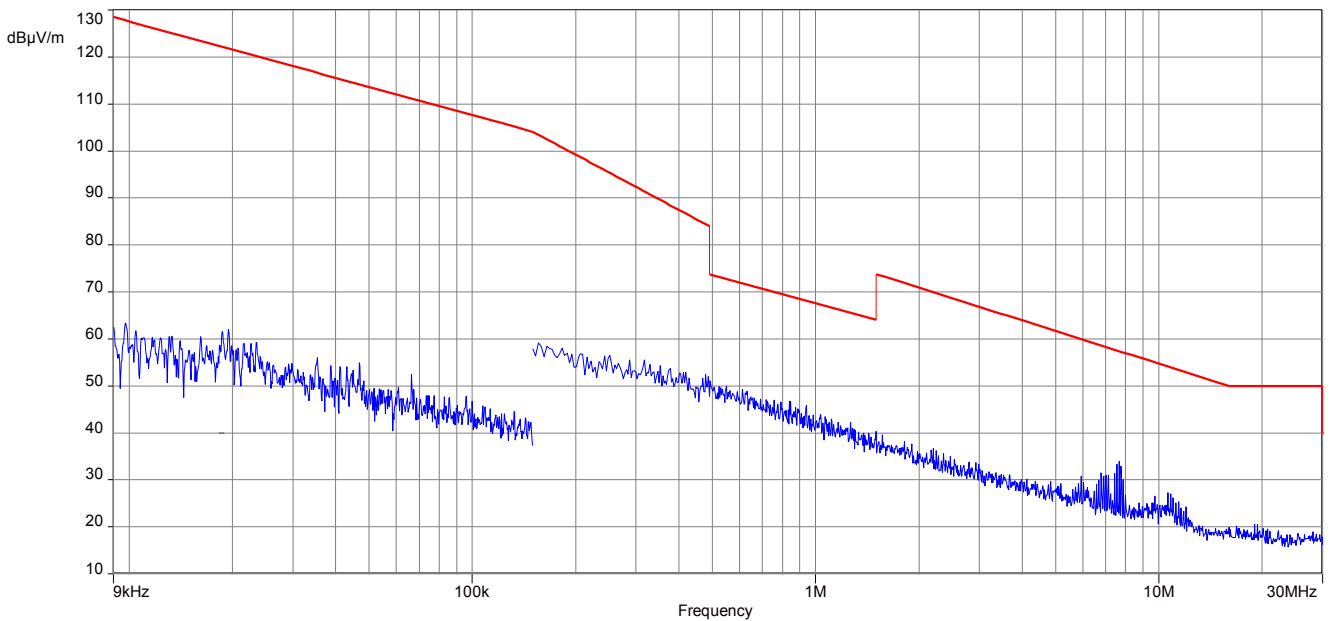
**Plot 8:** 9 kHz to 30 MHz, OFDM 20 MHz, 5745 MHz



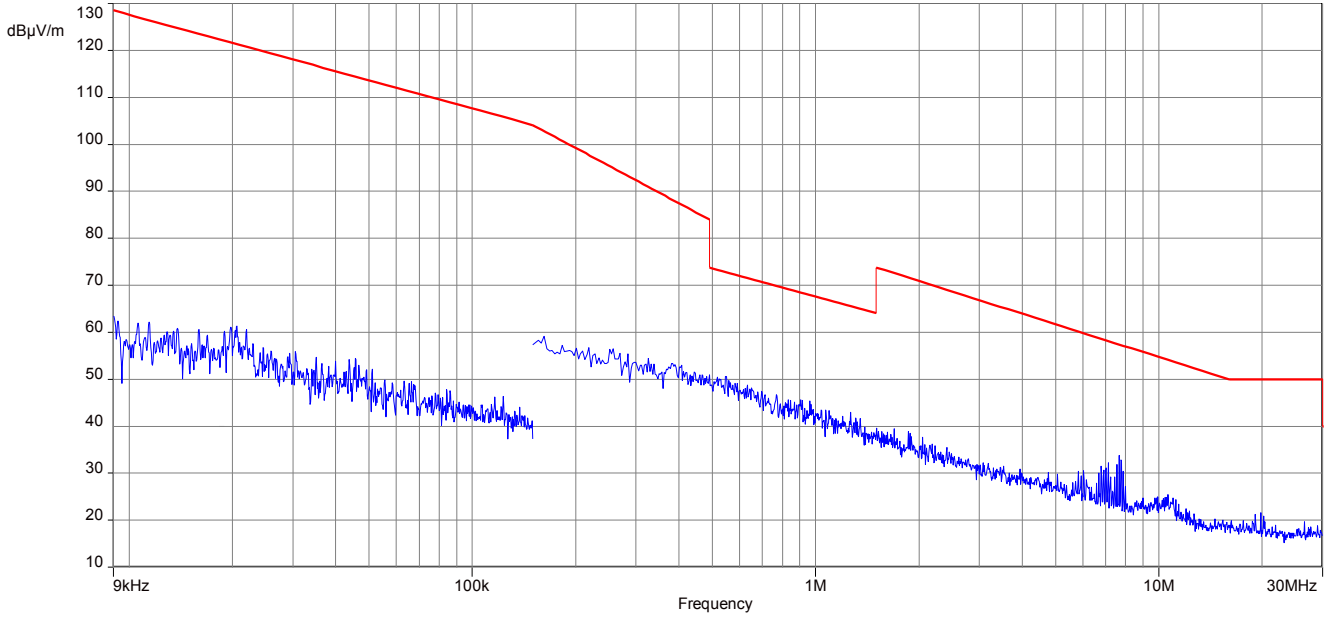
**Plot 9:** 9 kHz to 30 MHz, OFDM 20 MHz, 5785 MHz



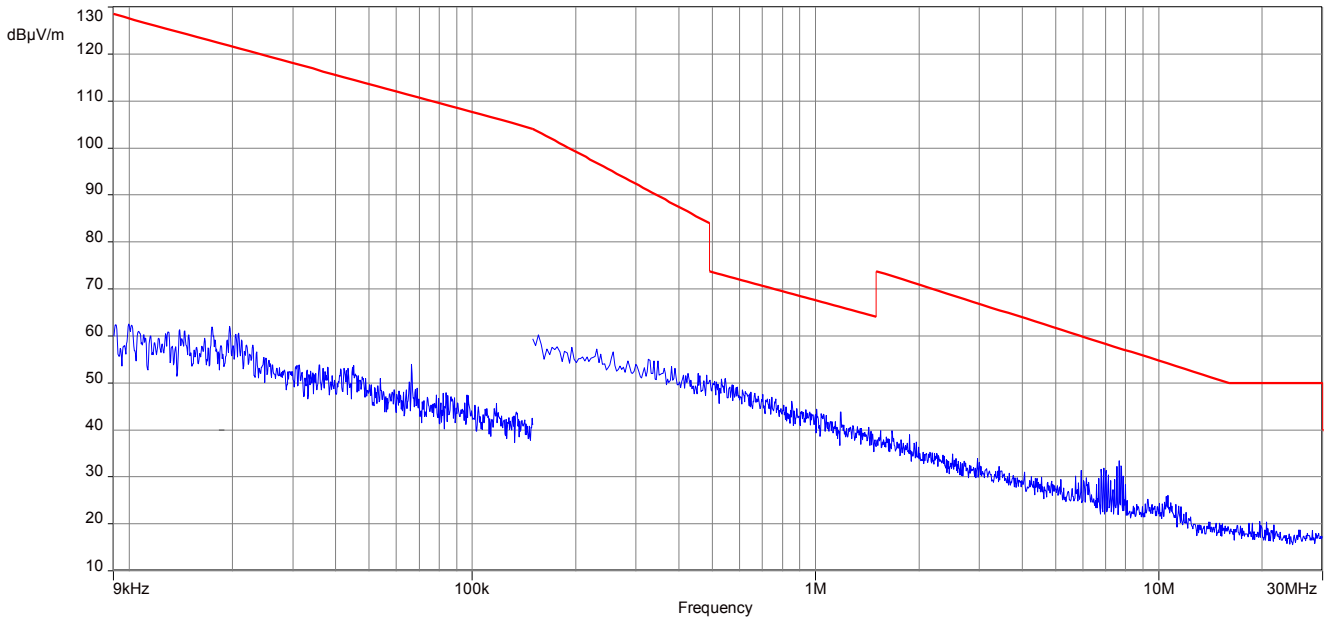
**Plot 10:** 9 kHz to 30 MHz, OFDM 20 MHz, 5825 MHz



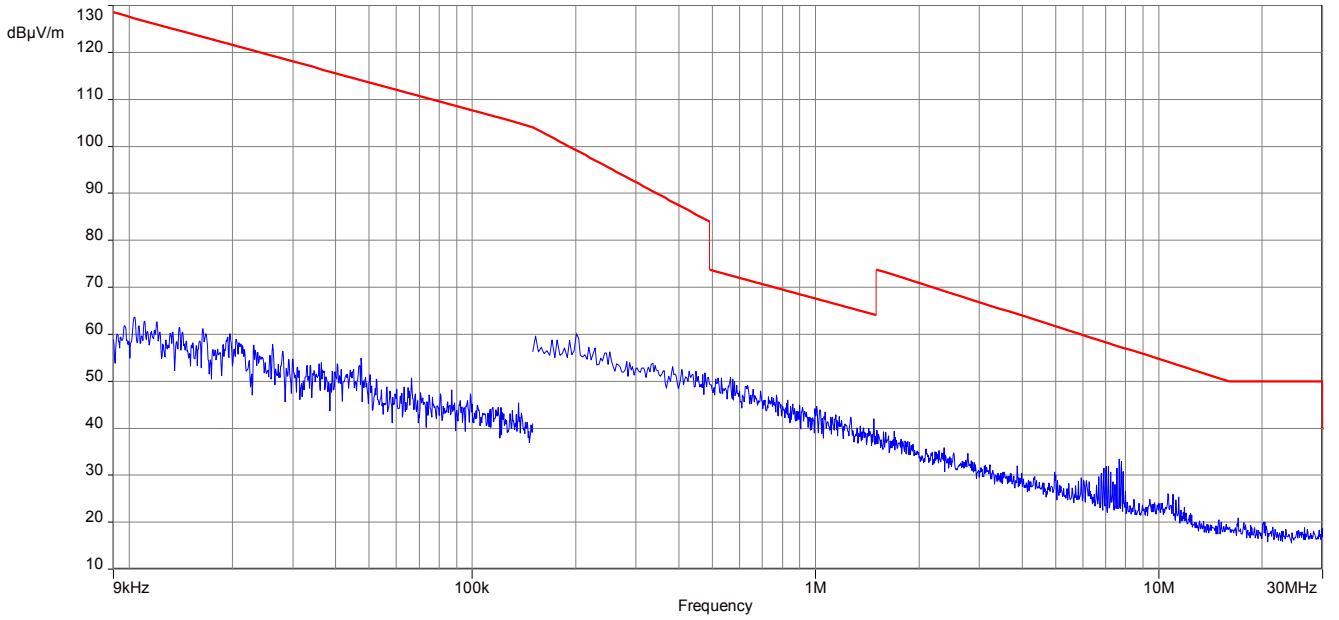
**Plot 11:** 9 kHz to 30 MHz, OFDM 40 MHz, 5190 MHz



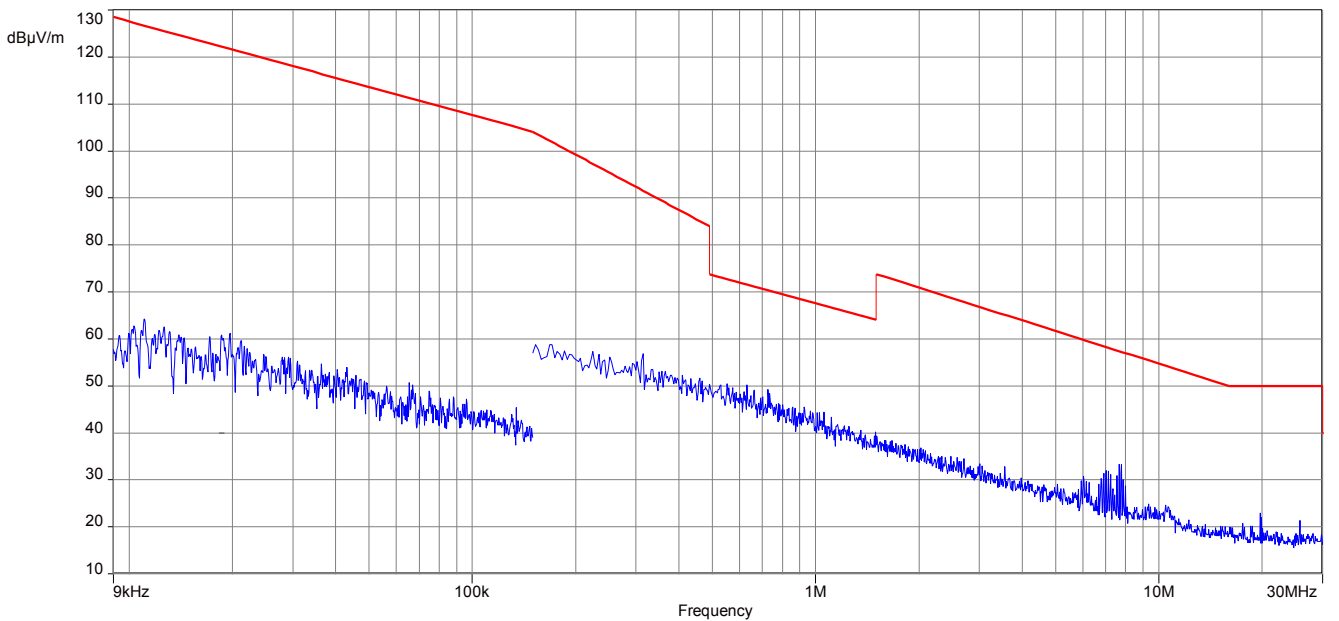
**Plot 12:** 9 kHz to 30 MHz, OFDM 40 MHz, 5210 MHz



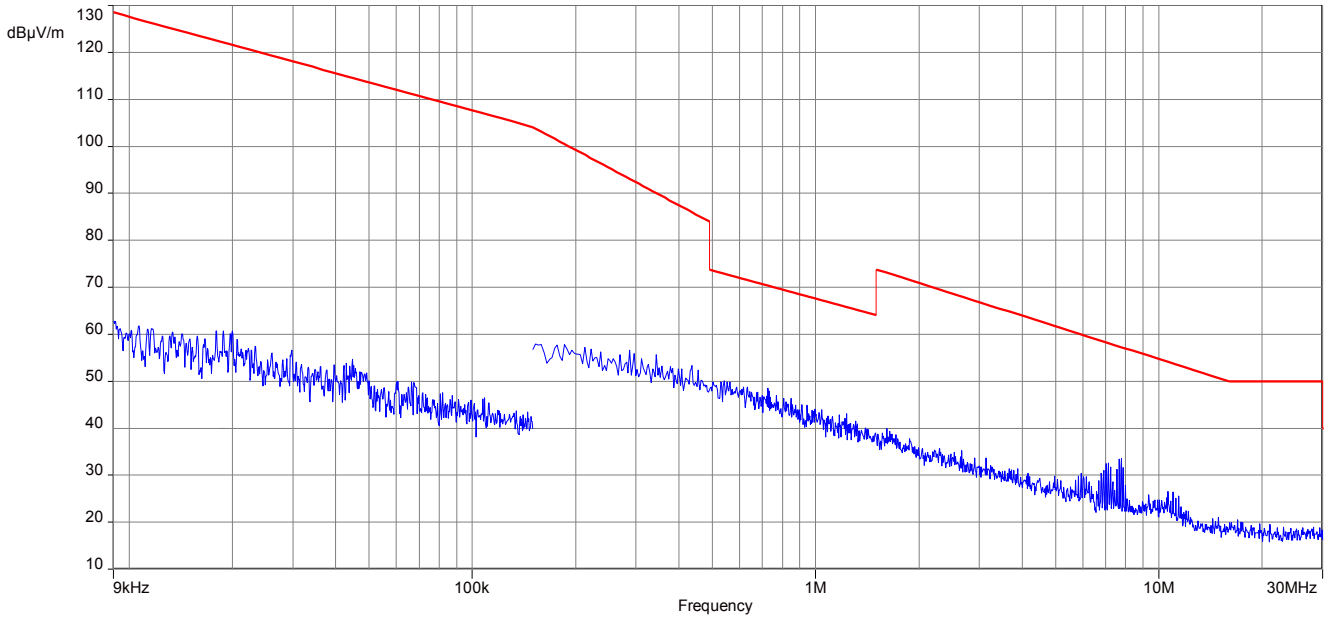
**Plot 13:** 9 kHz to 30 MHz, OFDM 40 MHz, 5270 MHz



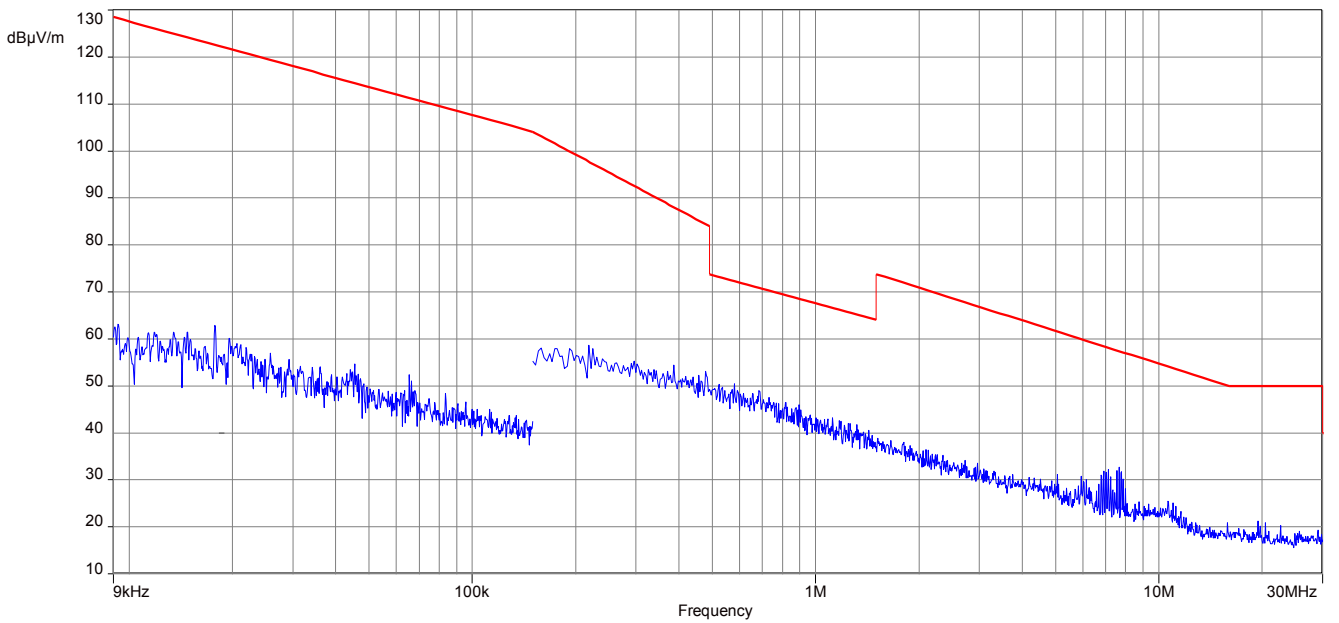
**Plot 14:** 9 kHz to 30 MHz, OFDM 40 MHz, 5310 MHz



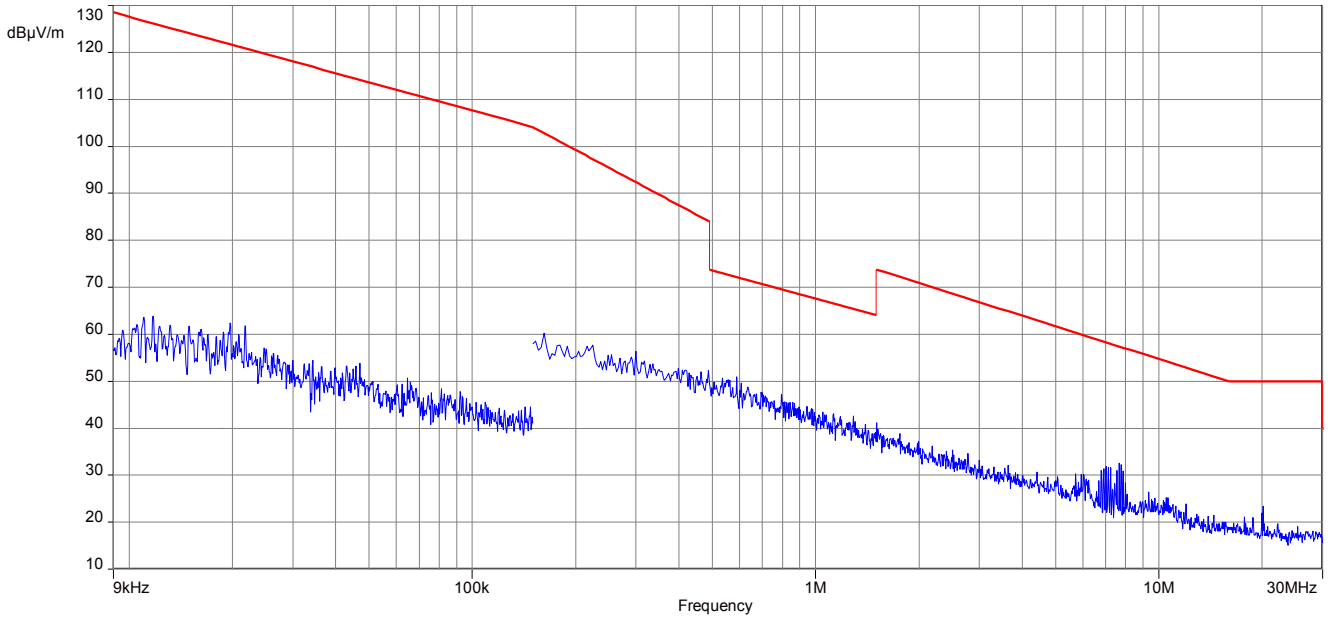
**Plot 15:** 9 kHz to 30 MHz, OFDM 40 MHz, 5510 MHz



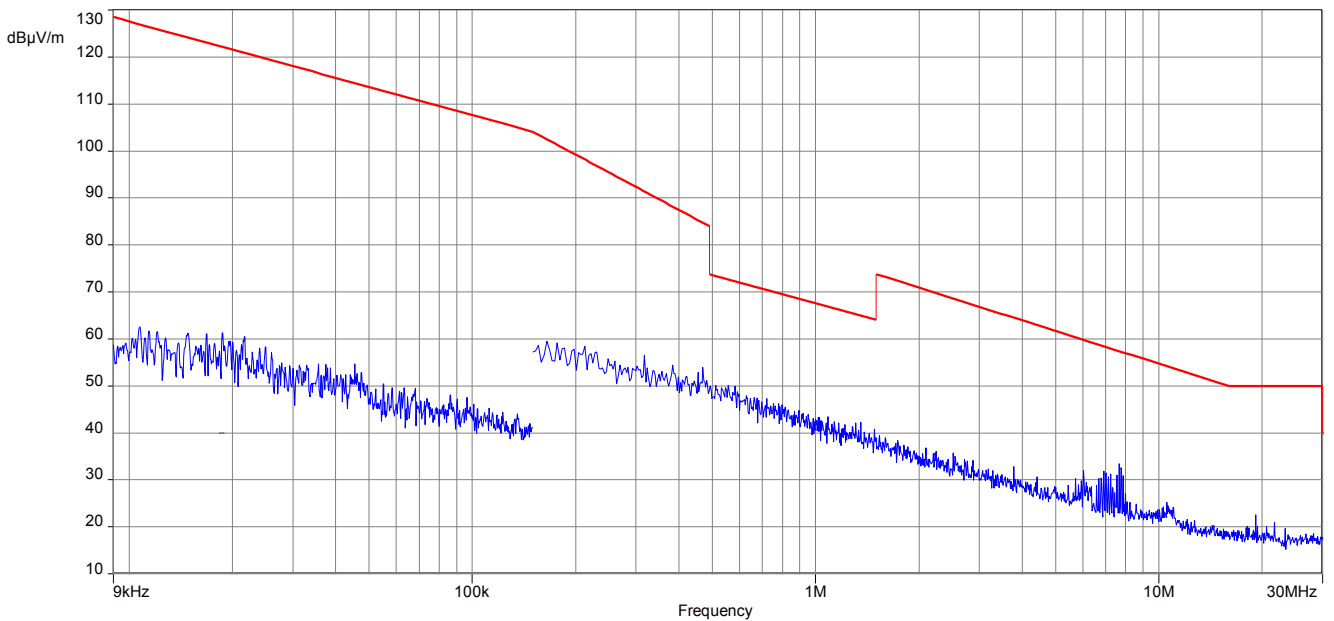
**Plot 16:** 9 kHz to 30 MHz, OFDM 40 MHz, 5590 MHz



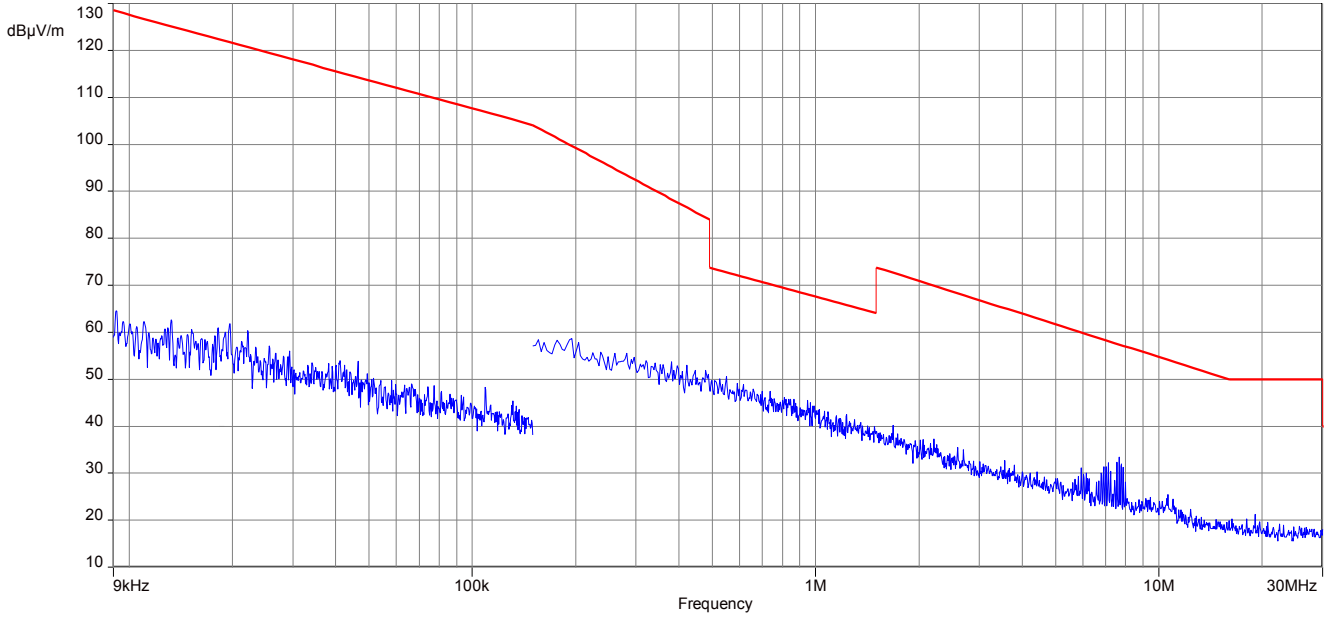
**Plot 17:** 9 kHz to 30 MHz, OFDM 40 MHz, 5670 MHz



**Plot 18:** 9 kHz to 30 MHz, OFDM 40 MHz, 5785 MHz



**Plot 19:** 9 kHz to 30 MHz, OFDM 40 MHz, 5810 MHz



## 12.12 Spurious emissions conducted < 30 MHz

### Description:

Measurement of the conducted spurious emissions in transmit mode below 30 MHz. The EUT is set to middle channel. If critical peaks are found the lowest channel and the highest channel will be measured too. Both power lines, phase and neutral line, are measured. Found peaks are remeasured with average and quasi peak detection to show compliance to the limits.

### Measurement:

| Measurement parameter    |                             |
|--------------------------|-----------------------------|
| Detector:                | Peak - Quasi Peak / Average |
| Sweep time:              | Auto                        |
| Video bandwidth:         | 9 kHz                       |
| Resolution bandwidth:    | 100 kHz                     |
| Span:                    | 150 kHz to 30 MHz           |
| Trace – mode:            | Max Hold                    |
| Test setup:              | See sub clause 7.4 – A      |
| Measurement uncertainty: | See sub clause 9            |

### Limits:

| Spurious Emissions Conducted < 30 MHz |                     |                  |
|---------------------------------------|---------------------|------------------|
| Frequency (MHz)                       | Quasi-Peak (dBµV/m) | Average (dBµV/m) |
| 0.15 – 0.5                            | 66 to 56*           | 56 to 46*        |
| 0.5 – 5                               | 56                  | 46               |
| 5 – 30.0                              | 60                  | 50               |

\*Decreases with the logarithm of the frequency

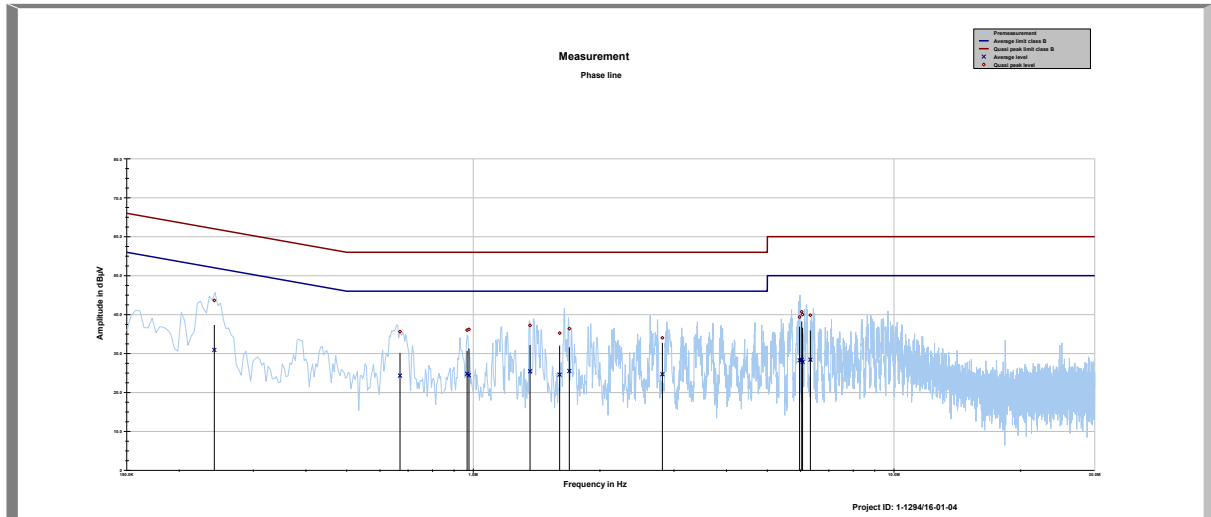
### Results:

| Spurious Emissions Conducted < 30 MHz [dBµV/m]              |          |                |
|---|----------|----------------|
| F [MHz]   | Detector | Level [dBµV/m] |
| All detected emissions are more than 20 dB below the limit. |          |                |
|   |          |                |



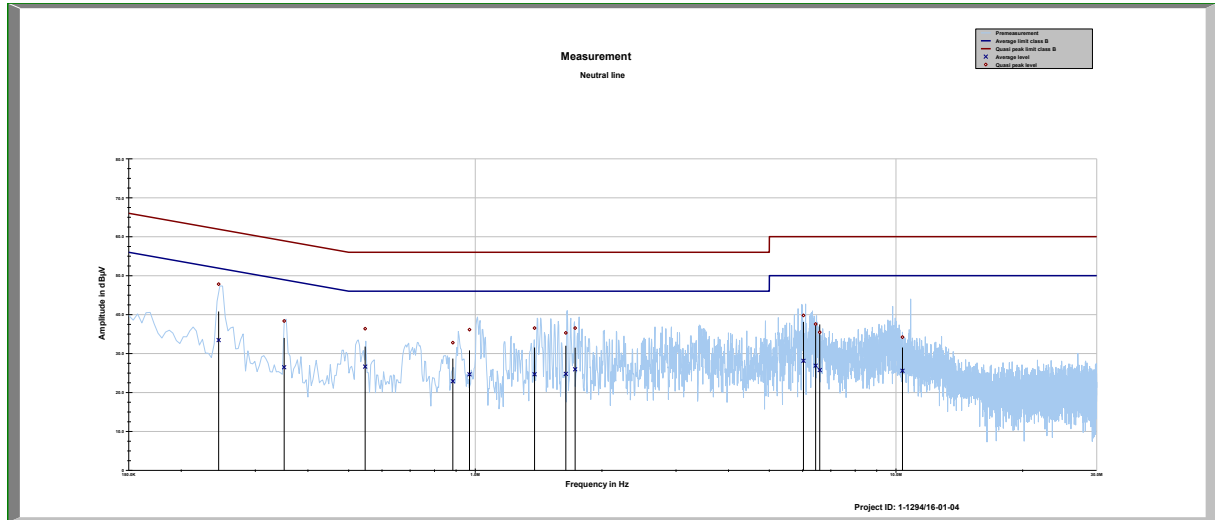
**Plots:**

**Plot 1:** 150 kHz to 30 MHz, phase line



| Frequency<br>MHz | Quasi peak<br>level<br>dBµV | Margin<br>quasi peak<br>dB | Limit QP<br>dBµV | Average<br>level<br>dBµV | Margin<br>average<br>dB | Limit AV<br>dBµV |
|------------------|-----------------------------|----------------------------|------------------|--------------------------|-------------------------|------------------|
| 0.242349         | 43.63                       | 18.38                      | 62.015           | 30.91                    | 22.45                   | 53.361           |
| 0.669614         | 35.62                       | 20.38                      | 56.000           | 24.31                    | 21.69                   | 46.000           |
| 0.966699         | 36.01                       | 19.99                      | 56.000           | 24.79                    | 21.21                   | 46.000           |
| 0.976580         | 36.19                       | 19.81                      | 56.000           | 24.39                    | 21.61                   | 46.000           |
| 1.363974         | 37.22                       | 18.78                      | 56.000           | 25.45                    | 20.55                   | 46.000           |
| 1.604309         | 35.24                       | 20.76                      | 56.000           | 24.58                    | 21.42                   | 46.000           |
| 1.691766         | 36.40                       | 19.60                      | 56.000           | 25.51                    | 20.49                   | 46.000           |
| 2.814546         | 34.02                       | 21.98                      | 56.000           | 24.68                    | 21.32                   | 46.000           |
| 5.965352         | 39.38                       | 20.62                      | 60.000           | 28.26                    | 21.74                   | 50.000           |
| 6.036838         | 40.71                       | 19.29                      | 60.000           | 28.37                    | 21.63                   | 50.000           |
| 6.063208         | 40.03                       | 19.97                      | 60.000           | 27.83                    | 22.17                   | 50.000           |
| 6.328900         | 39.86                       | 20.14                      | 60.000           | 28.40                    | 21.60                   | 50.000           |

Plot 2: 150 kHz to 30 MHz, neutral line



| Frequency<br>MHz | Quasi peak<br>level<br>dBµV | Margin<br>quasi peak<br>dB | Limit QP<br>dBµV | Average<br>level<br>dBµV | Margin<br>average<br>dB | Limit AV<br>dBµV |
|------------------|-----------------------------|----------------------------|------------------|--------------------------|-------------------------|------------------|
| 0.245491         | 47.82                       | 14.09                      | 61.908           | 33.45                    | 19.82                   | 53.272           |
| 0.351306         | 38.34                       | 20.59                      | 58.932           | 26.47                    | 23.78                   | 50.248           |
| 0.547320         | 36.36                       | 19.64                      | 56.000           | 26.64                    | 19.36                   | 46.000           |
| 0.884476         | 32.77                       | 23.23                      | 56.000           | 22.89                    | 23.11                   | 46.000           |
| 0.968889         | 36.14                       | 19.86                      | 56.000           | 24.65                    | 21.35                   | 46.000           |
| 1.383030         | 36.53                       | 19.47                      | 56.000           | 24.69                    | 21.31                   | 46.000           |
| 1.641429         | 35.29                       | 20.71                      | 56.000           | 24.76                    | 21.24                   | 46.000           |
| 1.727572         | 36.53                       | 19.47                      | 56.000           | 25.95                    | 20.05                   | 46.000           |
| 6.026412         | 39.78                       | 20.22                      | 60.000           | 28.11                    | 21.89                   | 50.000           |
| 6.442626         | 37.57                       | 22.43                      | 60.000           | 26.87                    | 23.13                   | 50.000           |
| 6.589191         | 35.46                       | 24.54                      | 60.000           | 25.76                    | 24.24                   | 50.000           |
| 10.364982        | 34.22                       | 25.78                      | 60.000           | 25.56                    | 24.44                   | 50.000           |

### 13 Observations

No observations except those reported with the single test cases have been made.

### Annex A Document history

| Version | Applied changes | Date of release |
|---------|-----------------|-----------------|
|         | Initial release | 2016-04-30      |

### Annex B Further information

#### Glossary

|          |   |  |
|----------|---|--|
| AVG      | - | Average  |
| DUT      | - | Device under test                              |
| EMC      | - | Electromagnetic Compatibility                  |
| EN       | - | European Standard                              |
| EUT      | - | Equipment under test                           |
| ETSI     | - | European Telecommunications Standard Institute |
| FCC      | - | Federal Communication Commission               |
| FCC ID   | - | Company Identifier at FCC                      |
| HW       | - | Hardware                                       |
| IC       | - | Industry Canada                                |
| Inv. No. | - | Inventory number                               |
| N/A      | - | Not applicable                                 |
| PP       | - | Positive peak                                  |
| QP       | - | Quasi peak                                     |
| S/N      | - | Serial number                                  |
| SW       | - | Software                                       |
| PMN      | - | Product marketing name                         |
| HMN      | - | Host marketing name                            |
| HVIN     | - | Hardware version identification number         |
| FVIN     | - | Firmware version identification number         |

**Annex C Accreditation Certificate**

Front side of certificate

Back side of certificate



Deutsche Akkreditierungsstelle GmbH

Bellehene gemäß § 8 Absatz 1 AkkStelleG i.V.m. § 1 Absatz 1 AkkStelleGBV  
 Unterzeichnerin der Multilateralen Abkommen  
 von EA, ILAC und IAF zur gegenseitigen Anerkennung

**Akkreditierung**



Die Deutsche Akkreditierungsstelle GmbH bestätigt hiermit, dass das Prüflaboratorium

**CETECOM ICT Services GmbH**  
 Untertürkheimer Straße 6-10, 66117 Saarbrücken

die Kompetenz nach DIN EN ISO/IEC 17025:2005 besitzt, Prüfungen in folgenden Bereichen durchzuführen:

- Drahtgebundene Kommunikation einschließlich xDSL**
- VoIP und DECT
- Akustik
- Funk einschließlich WLAN
- Short Range Devices (SRD)
- RFID
- WiFi und Richtfunk
- Mobilefunk (GSM / GPRS, Over the Air (OTA) Performance)
- Elektromagnetische Verträglichkeit (EMV) einschließlich Automotive
- Produktsicherheit
- SAR und Hearing Aid Compatibility (HAC)
- Umweltsimulation
- Smart Card Terminals
- Bluetooth
- Wi-Fi-Services

Die Akkreditierungskunde gilt nur in Verbindung mit dem Bescheid vom 07.03.2014 mit der Akkreditierungsnummer D-PL-12076-01 und ist gültig bis 17.01.2018. Sie besteht aus diesem Deckblatt, der Rückseite des Deckblatts und der folgenden Anlage mit insgesamt 77 Seiten.

Registrierungsnummer der Urkunde: D-PL-12076-01-00

Frankfurt am Main, 07.03.2014  
 Datum des Bescheides

*[Signature]*  
 In Auftrag gegeben von: *[Signature]*  
 Akkreditierungsstelle

Deutsche Akkreditierungsstelle GmbH

|  |   |  |
|--|---|--|
| Standort Berlin<br>Spittelmarkt 20<br>10117 Berlin | Standort Frankfurt am Main<br>Gartenstraße 6<br>60594 Frankfurt am Main | Standort Braunschweig<br>Bundesallee 100<br>38115 Braunschweig |
|--|---|--|

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 ILAC: [www.ilac.org](http://www.ilac.org)

**Note:**  
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