| EMC TEST REPORT | |
|---|---|
| **TEST REPORT NUMBER** | DOJ 1513TEL708-A1 |
| **TEST REPORT DATE** | 08th May 2015 |
| **TEST REPORT VERSION** | 1.0 |
| **MANUFACTURER** | Gemtek Electronics (ChangSHU) Co. |
| **PRODUCT NAME** | 5GHz ePMP Integrated Radio and 5GHz ePMP Connectorized Radio |
| **PRODUCT MODEL NO.** | C058900P072A, C058900C072A, C058900P062A, C058900C062A |
| **PART NO.** | 142000001193A |
| **REV** | 0B |
| **CONDITION OF EUT WHEN RECEIVED** | GOOD and in working condition |
| **ISSUED TO** | 3800 Golf Road, Suite 360<br>Rolling Meadows, IL 60008. USA<br>+1 888-863-5250 |
| **ISSUED BY** | **TARANG Lab**<br>Wipro Technologies, SJP2, Survey#70,77,78/8A,<br>Dodda Kanelli, Sarjapur road, Bangalore.<br>Karnataka. India - 560 035<br>Tel: +91-80-30292929Fax: +91-80-30298200<br>Email: tarang.planet@wipro.com<br>Web: www.wipro.com |




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# AMENDMENT HISTORY

| Amendment Number | Amendment Date | Author of Amendment | Previous Report Version | Previous Report Date |
|---|---|---|---|---|
| | | | | |
| **Amendment Details** | | | | |



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# 1 TEST REPORT SUMMARY

| | | | | |
|---|---|---|---|---|
| **Applicant** | Cambium Networks | | | |
| **Manufacturer** | Gemtek Electronics (ChangSHU) Co. | | | |
| **Equipment Under Test** | 5GHz ePMP Integrated Radio and 5GHz ePMP Connectorized Radio | | | |
| **Model** | C058900P072A, C058900C072A, C058900P062A, C058900C062A | | | |
| **Serial number** | **Type of test** | **Serial no.** | **Wi-Fi MAC** | **Ethernet MAC** |
| | **Radiated & Conducted** | AE50013161 | 000456F802FD | 000456F802FC |
| **Date of Submission** | 12th Mar 2015 | | | |
| **Date of Test** | 12th Mar 2015 to 28th Apr 2015 | | | |
| **Venue of Test** | Tarang Lab | | | |

| **Applicable Standard** | **FCC Section** | **RSS Rule part** | **Description** | **Results** |
|---|---|---|---|---|
| 47 CFR Ch. I (10–1–14 Ed), Part 15, Subpart C;<br><br>RSS-Gen, Issue 4, Nov 2014 | §15.207 | RSS-Gen, 8.8 | Conducted Emission test | PASS |
| | §15.205, §15.209 | RSS-Gen, 8.1, RSS-Gen, 7.1.2 | Radiated Emissions test | PASS |




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**5GHz ePMP Integrated Radio and 5GHz ePMP Connectorized Radio**was tested by Tarang Lab as per the standards that are listed in the table above. Based on the observations during the test and interpretations by Tarang lab, results have been indicated. The test results produced in this report shall apply only to the above sample that have been tested under the specific conditions and modes of testing as described in the report. Other similar equipment may not necessarily reproduce same result due to production tolerances and measurement uncertainties. Any measurement uncertainties listed in this report are for information purpose only.

The results shall stand invalid, in case there are any modifications / additions / removals to the hardware or software or end use atmosphere to the product tested. This report shall not be modified or in any way revised unless it is expressly permitted and endorsed by Tarang lab, through a duly authorized representative. Particulars on Manufacturer / Supplier / Product configuration / performance criteria, given in this report, are based on the information given by the customer, along with test request. Tarang does not assume any responsibility for the correctness of such information for the above mentioned equipment under test.

Customer acknowledges that this is a test report and not a certificate to gain market access for the product. To gain market access, Customer needs appropriate clearance from the Government or authorized agency for the target market. For markets that allow self-declaration, customer needs to follow the procedure defined by the target market.

| Prepared by | Reviewed by | Approved by |
|---|---|---|
| | | |
| Harsha K S | Subhendu | Rajneesh R |
| Test Engineer | Test Engineer | Functional Head |

# 2 GENERAL INFORMATION

## 2.1 TEST DETAILS

The tests documented in this report are performed according to the following standards:

- ANSI C63.4-2014
- 47 CFR Ch. I (10–1–14 Ed), Part 15, Subpart C
- RSS-Gen, Issue 4, Nov 2014

## 2.2 TEST FACILITY DETAILS

All the tests were carried out at Tarang –Product Qualification and Compliance Planet located at Wipro Limited, SJP2, Dodda Kanelli, Sarjapur road, Bangalore, Karnataka, India. 560035.

Following are the accreditation and listing details for Tarang.

| Accreditation / Listing body | Registration / Company / Certificate Number |
|---|---|
| ISO 17025 Accreditation | Certificate Number :T-1533 and T-1534(NABL)<br>http://www.nabl-india.org |
| FCC (Federal Communications Commission) | Registration Number: 799247<br>http://www.fcc.gov/ |
| IC (Industry Canada) | Company Number: 9023A<br>http://www.ic.gc.ca |
| TEC Approval | Certificate Number: TEC/MRA/CAB/IND-D/3<br>CAB Identification: IND003 |
| DGAQA Approval | 1415/F-15/DGAQA/Aircraft |
| CEMILAC approval | Certificate Number: F-07-22<br>Reference Number: CEMILAC/6042/TH-13/TC & S |

## 2.3 MEASUREMENT UNCERTAINTY

The following measurement uncertainties are applicable to the relevant tests that are mentioned below:

| Test performed | Measurement Uncertainty |
|---|---|
| Radiated Emission from 9 kHz to 30MHz at 3meter | ± 3.968dB |
| Radiated Emission from 30MHz to 1GHz at 3meter | ± 5.173dB |
| Radiated Emission from 1 GHz to 18 GHz at 3meter | ± 4.112dB |
| Radiated Emission from 18 GHz to 40 GHz at 3meter | ± 4.878dB |
| Conducted Emission from 150kHz to 30MHz | ± 2.194dB |

# 3 INSTRUMENTATION AND CALIBRATION

## 3.1 TEST AND MEASURING EQUIPMENT

The list of following measuring equipment used for this testing conforms to the applicable standards. Performance of all test and measuring equipment including any accessories are checked periodically to ensure accuracy.

## 3.2 EQUIPMENTS USED

| Name of Equipment | Manufacturer | Model No | Serial No | Calibration Due |
|---|---|---|---|---|
| EMI TestReceiver | R&S | ESU8 | 100324 | 10th Mar 2016 |
| EMI TestReceiver | R&S | ESIB40 | 100306 | 07th Oct 2015 |
| Hybrid Log Periodic Antenna | TDK | HLP-3003C | 130334 | 25th Jul 2015 |
| Pre-Amplifier | SONOMA | 310 | 270817 | 31st May 2015 |
| V-LISN | SME | NNLK 8128 | 8128-243 | 08th Aug 2015 |
| Pulse Limiter | Impuls-Bergrelzer | ESH3-Z2 | 101260 | 26th Mar 2016 |
| Double Ridged BB Horn | SME | BBHA 9120D | 9120D 688 | 05th Aug 2015 |
| Broadband Horn Antenna | SME | BBHA 9170 | 9170 336 | 11th Nov 2015 |
| Preamplifier | TDK RF solutions | PA 02 | 100008 | 31st May 2015 |
| Preamplifier | TDK RF solutions | Preamp | 2007331 | 10th Nov 2015 |
| Preamplifier | TDK RF solutions | Preamp | 2007332 | 10th Nov 2015 |
| Active Loop Antenna | ETS Lindgren | 6507 | 00104711 | 22nd Apr 2015 |
| Tunable Band reject/Notch filter | Wainwright Instruments GmbH | WTRCJV8-5150-5850-40-160-50SSK | 01 | NA |



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# 4 PRODUCT INFORMATION

## 4.1 DESCRIPTION OF THE PRODUCT

EUT is a Point to point & Point to Multipoint Fixed outdoor Transceiver.

| | |
|---|---|
| **Product Category / Type of Equipment** | TEL (Telecom) |
| **EUT Operating AC Voltage** | 120V AC |
| **Max EUT AC Operating Current** | 0.5A |
| **Max EUT AC Power Rating** | 60W |
| **EUT Operating DC Voltage** | 30V DC |
| **Max EUT DC Operating Current** | 0.5A |
| **Max EUT DC Power Rating** | 12W |

## 4.2 SOFTWARE AND FIRMWARE DETAILS

The 5GHz ePMP Integrated Radio and 5GHz ePMP Connectorized Radio was configured with test software and configured to have the following settings during the course of testing:

- 40MHz modulation bandwidth
  - Rate - HT40,
  - 54Mbps OFDM, MCS15/270Mbps
  - Interframe spacing is tx100
  - Tx gain is 90 for Radiated Emissions& Conducted Emissions testing

- 10MHz modulation bandwidth
  - Rate – HT20,
  - 54Mbps OFDM, MCS15/ 130Mbps
  - Interframe spacing is tx100
  - Tx gain is 90 for Radiated Emissions& Conducted Emissions testing

The unit was continuously monitored for transmission using an auxiliary antenna during the radiated tests

## 4.3 LIST OF PRODUCT CABLES

| Cable No. | Cable Name | Cable Length | Power / Interconnection cable | Shielded / Unshielded |
|---|---|---|---|---|
| Cable - 1 | Cat. 5E_Ethernet cable | 0.5 meter | Interconnection | Unshielded |
| Cable - 2 | Cat. 5E_Ethernet cable | 2 meter | Interconnection | Unshielded |
| Cable - 3 | RF cable (50 Ω) | 0.125 meter | Interconnection | Shielded |
| Cable - 4 | Power Cord | 0.8 meter | Power | Unshielded |

# 5 TEST DETAILS

## 5.1 PRODUCT AND TEST SETUP

### 5.1.1 PRODUCT CONFIGURATION

The EUT was powered through AC power supply (120VAC / 60Hz). The EUT was connected to Ethernet switch by using RJ45 cable. Figure 1 shows the product configuration during the tests. Following power supply module was used during the test to power ON the EUT.

| Name of the Equipment | Manufacturer | Model Number | Serial Number |
|---|---|---|---|
| Switching Power Supply Gigabit Compatible | PHIHONG | PSA15M-300 (AP) | N000900L001A |

During Radiated Emissions & Conducted Emissions test, RF ports of EUT were terminated using 50Ω terminations. And EUT was configured to radiate at highest operating power. During Radiated Emissions, a tunable Band reject filter offering an attenuation of approximately 40dB was used to attenuate the intentional band during the testing.

### 5.1.2 TEST SETUP DETAILS

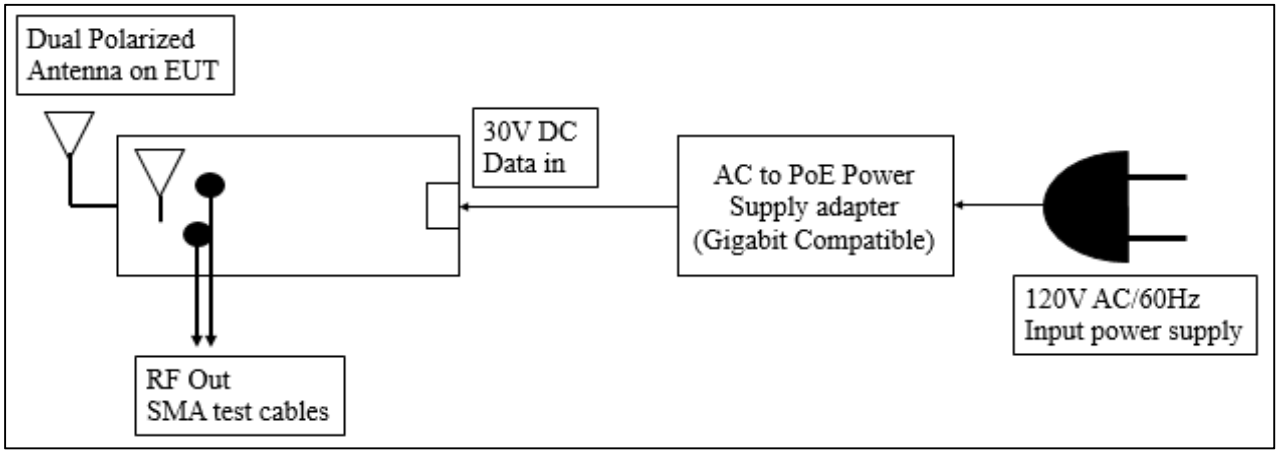


**Figure 1: Block Diagram of the EUT test setup during the tests**

### 5.1.3 ACCESSORIES

| Name of the Equipment | Manufacturer | Model Number | Serial Number |
|---|---|---|---|
| Laptop | Wipro Technologies Ltd | WLG7E1100 | 1221 |

## 5.2 APPLICABLE TESTS

| Applicable Standard | Description | Test level / Test Voltage | Applicability |
|---|---|---|---|
| 47 CFR Ch. I (10–1–14 Ed), Part 15, Subpart C; | Conducted Emission test | 150 kHz to 30MHz | Power lines |
| RSS-Gen, Issue 4, Nov 2014 | Radiated Emissions test | 9kHz to 40GHz | Enclosure |



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## 5.3 TEST RESULT

### 5.3.1 CONDUCTED EMISSION

#### 5.3.1.1 TEST SPECIFICATION

| | |
|---|---|
| **Test Standard** | 47 CFR Ch. I (10–1–14 Ed), Part 15, Subpart C<br>RSS-Gen, Issue 4, Nov 2014 |
| **Test Procedure** | ANSI C63.4-2014 |
| **Type of Cable (Shielded/Unshielded)** | Unshielded |
| **Frequency Range** | 150kHz to 30MHz |
| **Resolution Bandwidth** | 9 kHz |
| **Video Bandwidth** | 30 kHz |
| **Step size** | 4 kHz |
| **Pre Scan Measurement Time** | 20ms |
| **Final Measurement Time** | 1s |
| **Attenuation** | 10 dB |
| **Detector** | Peak, Quasipeak and Average |
| **Input Voltage** | 120V AC |
| **Input Frequency** | 60 Hz |
| **Temperature** | 23.0 ºC |
| **Humidity** | 56.0 % |
| **Tested By** | Harsha K |
| **Test Date** | 03rd Apr 2015 |

#### 5.3.1.2 LIMITS

##### 5.3.1.2.1 LIMITS FOR POWER LINES

| **Standard** | **Reference section** | **Frequency range** | **Quasi Peak Limit (dBµV/m)** | **Average Limit (dBµV/m)** |
|---|---|---|---|---|
| 47 CFR Ch. I (10–1–14 Ed), Part 15, Subpart C<br><br>RSS-Gen, Issue 4, Nov 2014 | §15.207<br><br>8.8 | 150 kHz to 500 kHz<br>500 kHz to 5 MHz<br>5 MHz to 30 MHz | 66 to 56*<br>56<br>60 | 56 to 46*<br>46<br>50 |

*Note: * Decreases with the logarithm of the frequency*



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### 5.3.1.3 TEST SETUP

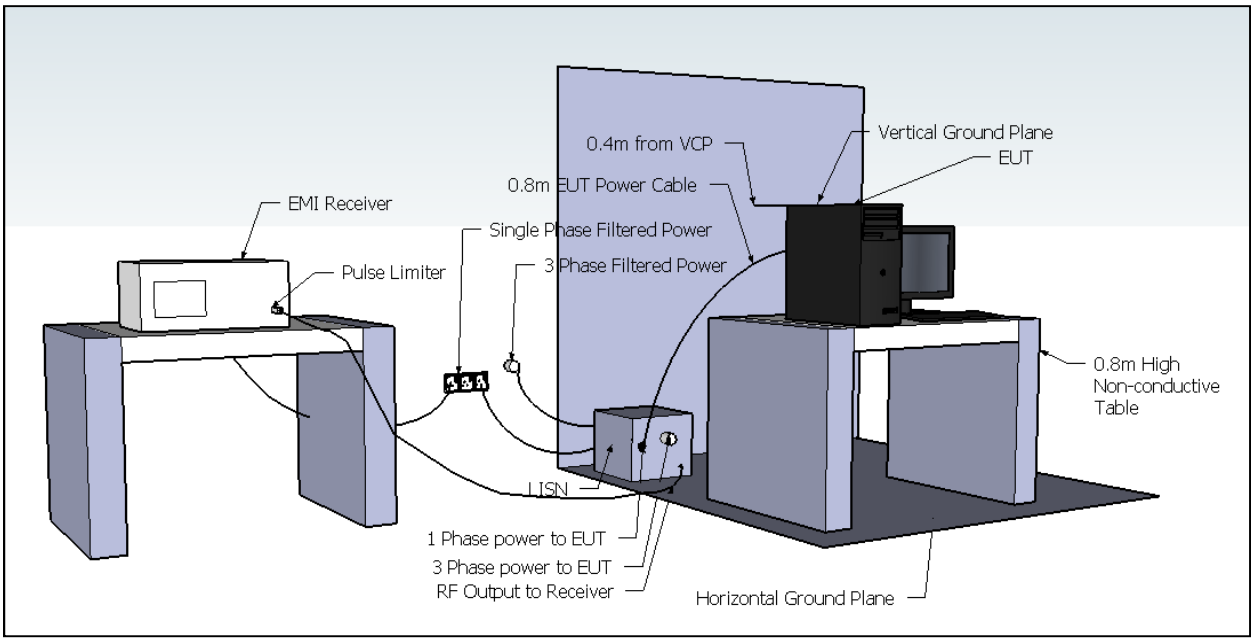


**Figure 2: Typical test setup for conducted Emission test**

### 5.3.1.4 TEST PROCEDURE

The test procedure is in accordance with ANSI C63.4-2014.

The Conducted Emission test was performed in the test site with a horizontal ground reference plane and a vertical ground reference plane bonded together. The EUT was placed on a 0.8m height non-metallic wooden table. The Power supply to the EUT was feed through a LISN (50Ω/50µH). The conducted emission measurement test system was configured through software as per standard. The EUT was powered through power adapter connected to LISN and getting charged by 120 V / 60Hz AC supply and made operational.

### 5.3.1.5 RESULT (SUPPORTING GRAPHS / DATA) FOR 40MHZ MODULATION BANDWIDTH

#### 5.3.1.5.1 LOW CHANNEL_5495 MHZ

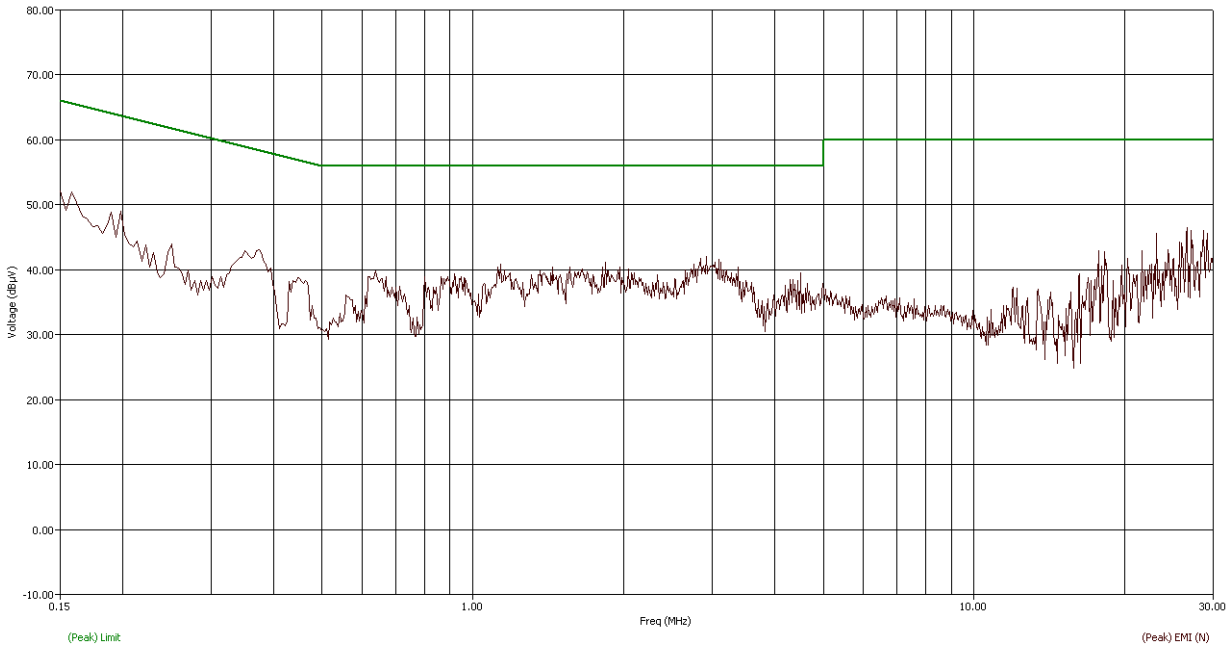


**Figure 3: CE graph from 150 kHz to 30MHz using Peak detector-Neutral**



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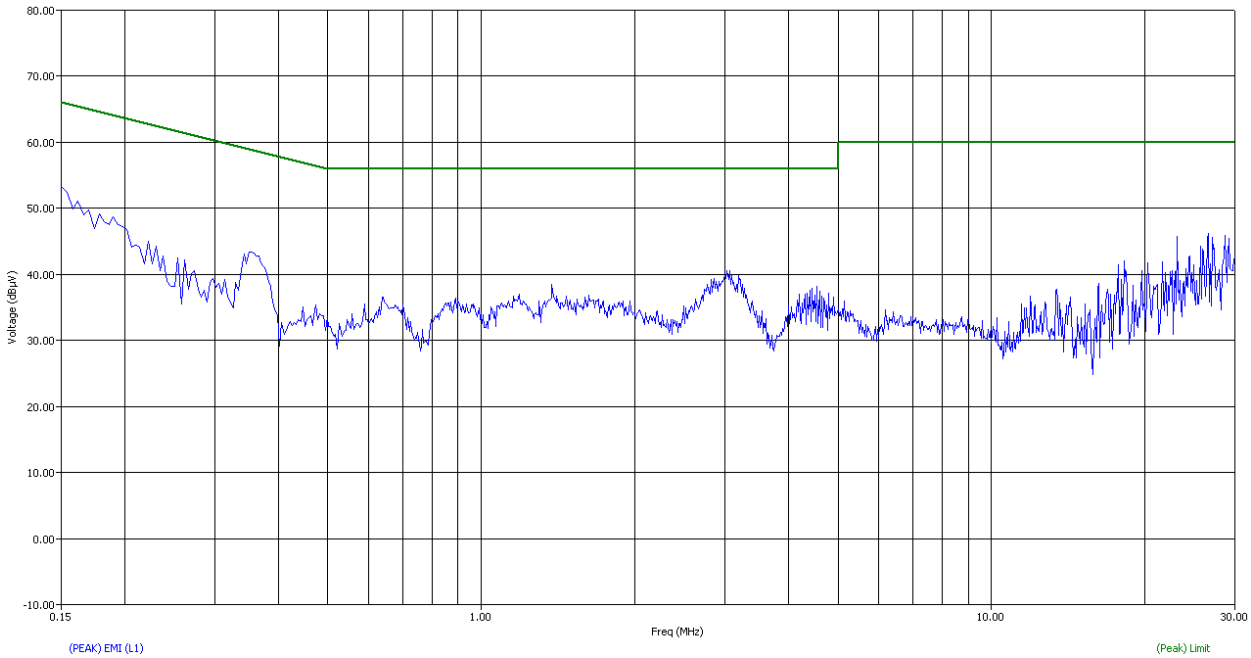


**Figure 4: CE graph from 150 kHz to 30MHz using Peak detector-Line**

| Freq (MHz) | Freq (Max) (MHz) | Line | (QP) Trace (dBµV) | Pulse Limiter+ Cable (dB) | Transducer N (dB) | Transducer L1 (dB) | (QP) EMI (dBµV) | (QP) Margin AVL (dB) | (QP) Limit (dBµV) | (QP) Margin QPL (dB) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.150 | 0.151 | N | 37.70 | 9.89 | 0.10 | 0.00 | 47.69 | -8.27 | 65.96 | -18.27 |
| 0.150 | 0.151 | L1 | 37.38 | 9.89 | 0.00 | 0.07 | 47.34 | -8.62 | 65.96 | -18.62 |
| 23.130 | 23.129 | N | 34.08 | 10.26 | 0.38 | 0.00 | 44.71 | -5.29 | 60.00 | -15.29 |
| 23.130 | 23.129 | L1 | 33.68 | 10.26 | 0.00 | 0.35 | 44.29 | -5.71 | 60.00 | -15.71 |
| 26.486 | 26.487 | N | 34.75 | 10.31 | 0.39 | 0.00 | 45.45 | -4.55 | 60.00 | -14.55 |
| 26.486 | 26.487 | L1 | 34.10 | 10.31 | 0.00 | 0.38 | 44.79 | -5.21 | 60.00 | -15.21 |
| 26.550 | 26.548 | N | 33.80 | 10.31 | 0.39 | 0.00 | 44.50 | -5.50 | 60.00 | -15.50 |
| 26.550 | 26.549 | L1 | 33.17 | 10.31 | 0.00 | 0.38 | 43.87 | -6.13 | 60.00 | -16.13 |
| 26.610 | 26.610 | N | 34.93 | 10.31 | 0.39 | 0.00 | 45.63 | -4.37 | 60.00 | -14.37 |
| 26.610 | 26.609 | L1 | 34.43 | 10.31 | 0.00 | 0.38 | 45.12 | -4.88 | 60.00 | -14.88 |
| 27.158 | 27.158 | N | 34.36 | 10.32 | 0.39 | 0.00 | 45.07 | -4.93 | 60.00 | -14.93 |
| 27.158 | 27.159 | L1 | 34.15 | 10.32 | 0.00 | 0.39 | 44.85 | -5.15 | 60.00 | -15.15 |
| 28.686 | 28.686 | N | 34.20 | 10.34 | 0.40 | 0.00 | 44.93 | -5.07 | 60.00 | -15.07 |
| 28.686 | 28.685 | L1 | 33.61 | 10.34 | 0.00 | 0.40 | 44.34 | -5.66 | 60.00 | -15.66 |
| 29.234 | 29.235 | N | 34.37 | 10.34 | 0.40 | 0.00 | 45.11 | -4.89 | 60.00 | -14.89 |
| 29.234 | 29.235 | L1 | 33.86 | 10.34 | 0.00 | 0.40 | 44.60 | -5.40 | 60.00 | -15.40 |

**Table 1: Quasi peak table for CE from 150 kHz to 30MHz – Line & Neutral**



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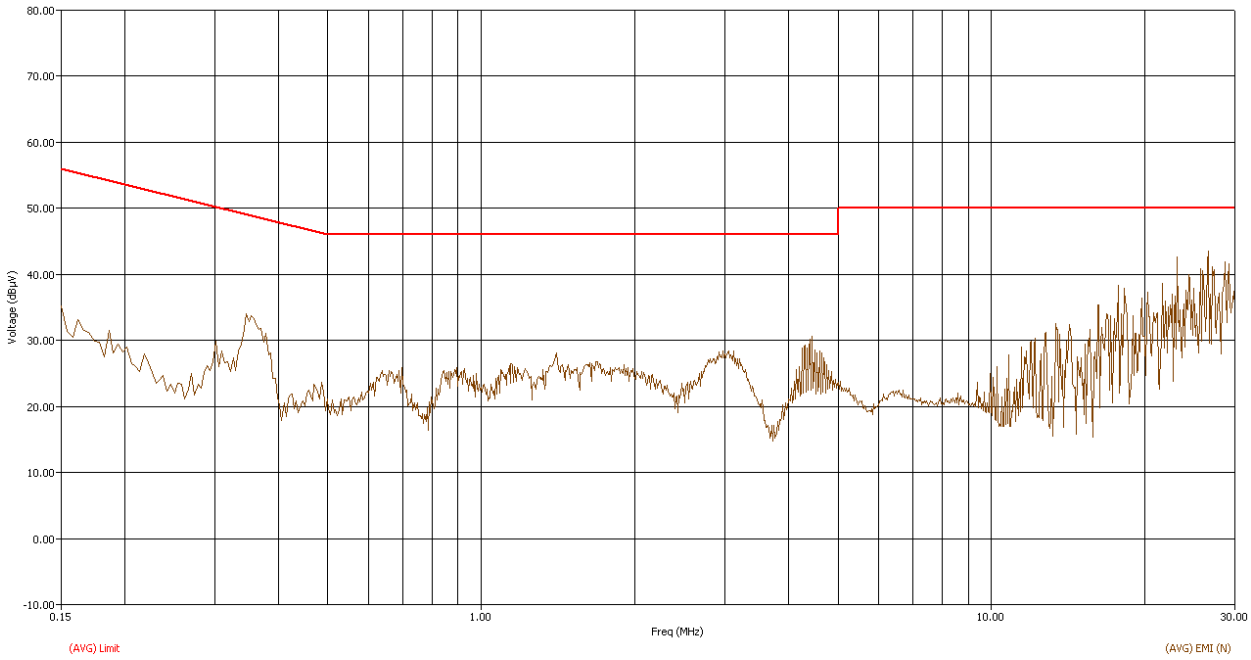


**Figure 5: CE graph from 150 kHz to 30MHz using Average detector -Neutral**

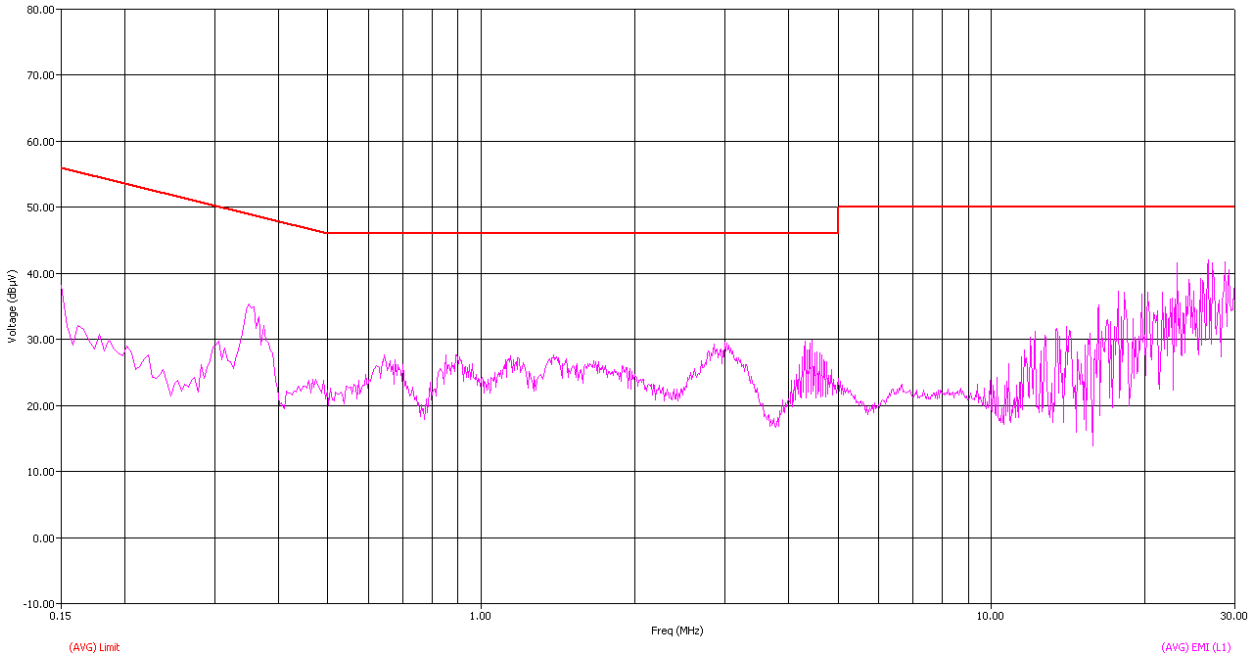


**Figure 6: CE graph from 150 kHz to 30MHz using Average detector - Line**



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| Freq (MHz) | Freq (Max) (MHz) | Line | (AVG) Trace (dBµV) | Pulse Limiter+ Cable (dB) | Transducer N (dB) | Transducer L1 (dB) | (AVG) EMI (dBµV) | (AVG) Margin AVL (dB) | (AVG) Limit (dBµV) | (AVG) Margin QPL (dB) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.150 | 0.151 | N | 23.81 | 9.89 | 0.10 | 0.00 | 33.80 | -22.16 | 55.96 | -32.16 |
| 0.150 | 0.151 | L1 | 23.96 | 9.89 | 0.00 | 0.07 | 33.92 | -22.03 | 55.96 | -32.03 |
| 23.130 | 23.129 | N | 31.05 | 10.26 | 0.38 | 0.00 | 41.68 | -8.32 | 50.00 | -18.32 |
| 23.130 | 23.129 | L1 | 30.70 | 10.26 | 0.00 | 0.35 | 41.31 | -8.69 | 50.00 | -18.69 |
| 26.486 | 26.487 | N | 31.46 | 10.31 | 0.39 | 0.00 | 42.16 | -7.84 | 50.00 | -17.84 |
| 26.486 | 26.487 | L1 | 30.78 | 10.31 | 0.00 | 0.38 | 41.47 | -8.53 | 50.00 | -18.53 |
| 26.550 | 26.548 | N | 30.45 | 10.31 | 0.39 | 0.00 | 41.15 | -8.85 | 50.00 | -18.85 |
| 26.550 | 26.549 | L1 | 29.80 | 10.31 | 0.00 | 0.38 | 40.50 | -9.50 | 50.00 | -19.50 |
| 26.610 | 26.610 | N | 31.69 | 10.31 | 0.39 | 0.00 | 42.39 | -7.61 | 50.00 | -17.61 |
| 26.610 | 26.609 | L1 | 31.12 | 10.31 | 0.00 | 0.38 | 41.81 | -8.19 | 50.00 | -18.19 |
| 27.158 | 27.158 | N | 31.11 | 10.32 | 0.39 | 0.00 | 41.82 | -8.18 | 50.00 | -18.18 |
| 27.158 | 27.159 | L1 | 30.79 | 10.32 | 0.00 | 0.39 | 41.50 | -8.50 | 50.00 | -18.50 |
| 28.686 | 28.686 | N | 30.67 | 10.34 | 0.40 | 0.00 | 41.40 | -8.60 | 50.00 | -18.60 |
| 28.686 | 28.685 | L1 | 30.05 | 10.34 | 0.00 | 0.40 | 40.79 | -9.21 | 50.00 | -19.21 |
| 29.234 | 29.235 | N | 30.75 | 10.34 | 0.40 | 0.00 | 41.49 | -8.51 | 50.00 | -18.51 |
| 29.234 | 29.235 | L1 | 30.16 | 10.34 | 0.00 | 0.40 | 40.91 | -9.09 | 50.00 | -19.09 |

**Table 2: Average table for CE from 150 kHz to 30MHz –Line & Neutral**

### 5.3.1.5.2 MID CHANNEL_5550MHZ

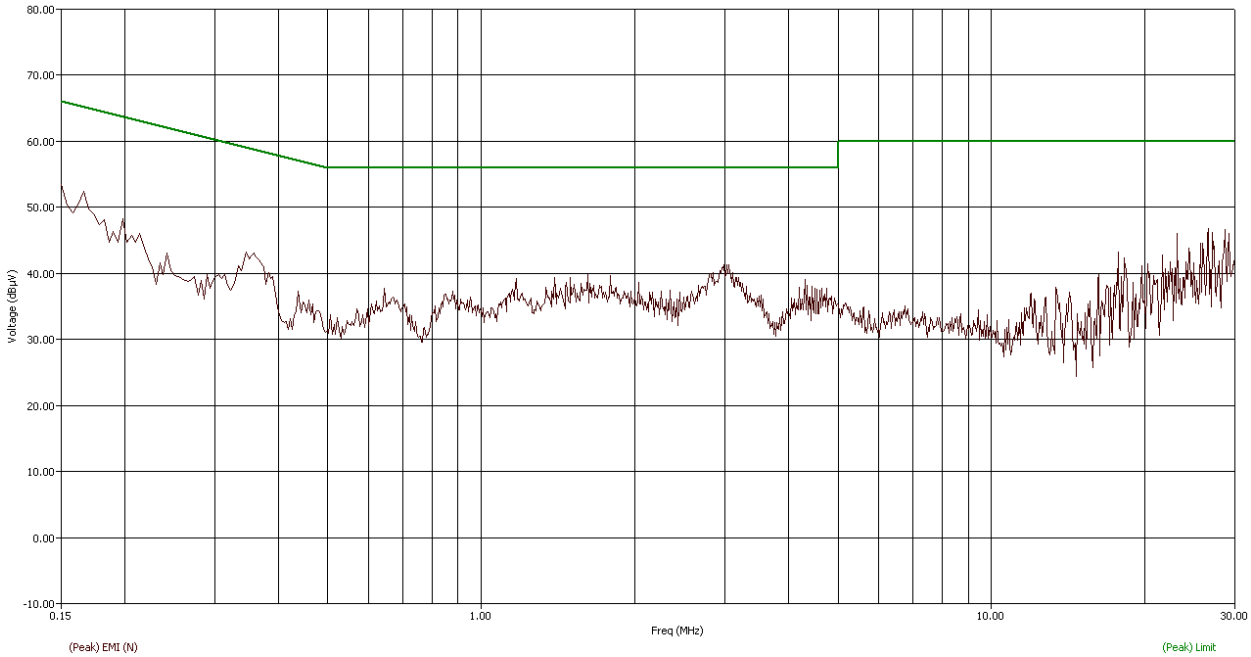


**Figure 7: CE graph from 150 kHz to 30MHz using Peak detector-Neutral**

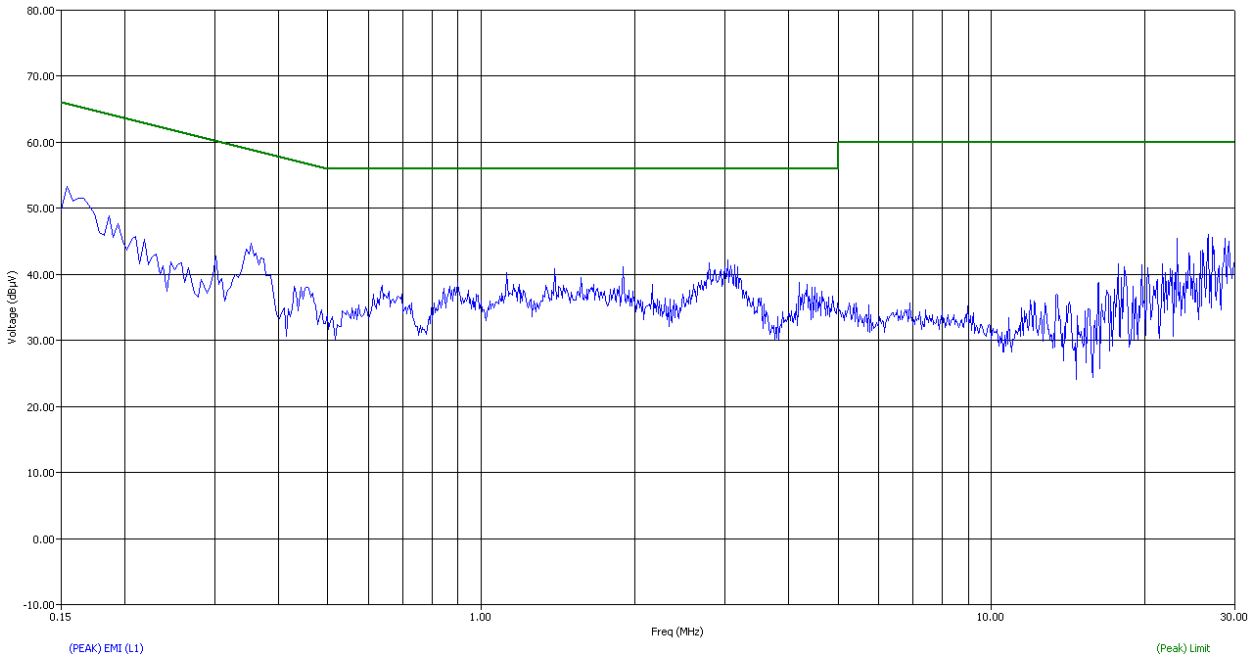


**Figure 8: CE graph from 150 kHz to 30MHz using Peak detector-Line**

| Freq (MHz) | Freq (Max) (MHz) | Line | (QP) Trace (dBµV) | Pulse Limiter+ Cable (dB) | Transducer N (dB) | Transducer L1 (dB) | (QP) EMI (dBµV) | (QP) Margin AVL (dB) | (QP) Limit (dBµV) | (QP) Margin QPL (dB) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.150 | 0.151 | N | 35.55 | 9.89 | 0.10 | 0.00 | 45.54 | -10.38 | 65.92 | -20.38 |
| 0.154 | 0.152 | L1 | 35.43 | 9.89 | 0.00 | 0.07 | 45.39 | -10.48 | 65.87 | -20.48 |
| 0.354 | 0.357 | L1 | 30.60 | 9.89 | 0.00 | 0.06 | 40.55 | -8.25 | 58.80 | -18.25 |
| 1.898 | 1.906 | L1 | 22.41 | 10.03 | 0.00 | 0.09 | 32.53 | -13.47 | 56.00 | -23.47 |
| 3.038 | 3.041 | L1 | 25.60 | 10.04 | 0.00 | 0.10 | 35.73 | -10.27 | 56.00 | -20.27 |
| 23.130 | 23.129 | N | 34.08 | 10.26 | 0.38 | 0.00 | 44.72 | -5.28 | 60.00 | -15.28 |
| 23.130 | 23.128 | L1 | 33.59 | 10.26 | 0.00 | 0.35 | 44.20 | -5.80 | 60.00 | -15.80 |
| 26.486 | 26.487 | N | 34.71 | 10.31 | 0.39 | 0.00 | 45.41 | -4.59 | 60.00 | -14.59 |
| 26.550 | 26.548 | N | 33.75 | 10.31 | 0.39 | 0.00 | 44.45 | -5.55 | 60.00 | -15.55 |
| 26.610 | 26.609 | N | 34.97 | 10.31 | 0.39 | 0.00 | 45.67 | -4.33 | 60.00 | -14.33 |
| 26.610 | 26.609 | L1 | 34.35 | 10.31 | 0.00 | 0.38 | 45.05 | -4.95 | 60.00 | -14.95 |
| 27.158 | 27.159 | N | 34.68 | 10.32 | 0.39 | 0.00 | 45.39 | -4.61 | 60.00 | -14.61 |
| 27.158 | 27.159 | L1 | 34.04 | 10.32 | 0.00 | 0.39 | 44.75 | -5.25 | 60.00 | -15.25 |
| 28.686 | 28.686 | N | 34.23 | 10.34 | 0.40 | 0.00 | 44.96 | -5.04 | 60.00 | -15.04 |
| 28.686 | 28.686 | L1 | 33.75 | 10.34 | 0.00 | 0.40 | 44.49 | -5.51 | 60.00 | -15.51 |
| 29.234 | 29.236 | N | 34.36 | 10.34 | 0.40 | 0.00 | 45.10 | -4.90 | 60.00 | -14.90 |

**Table 3: Quasi peak table for CE from 150 kHz to 30MHz – Line & Neutral**



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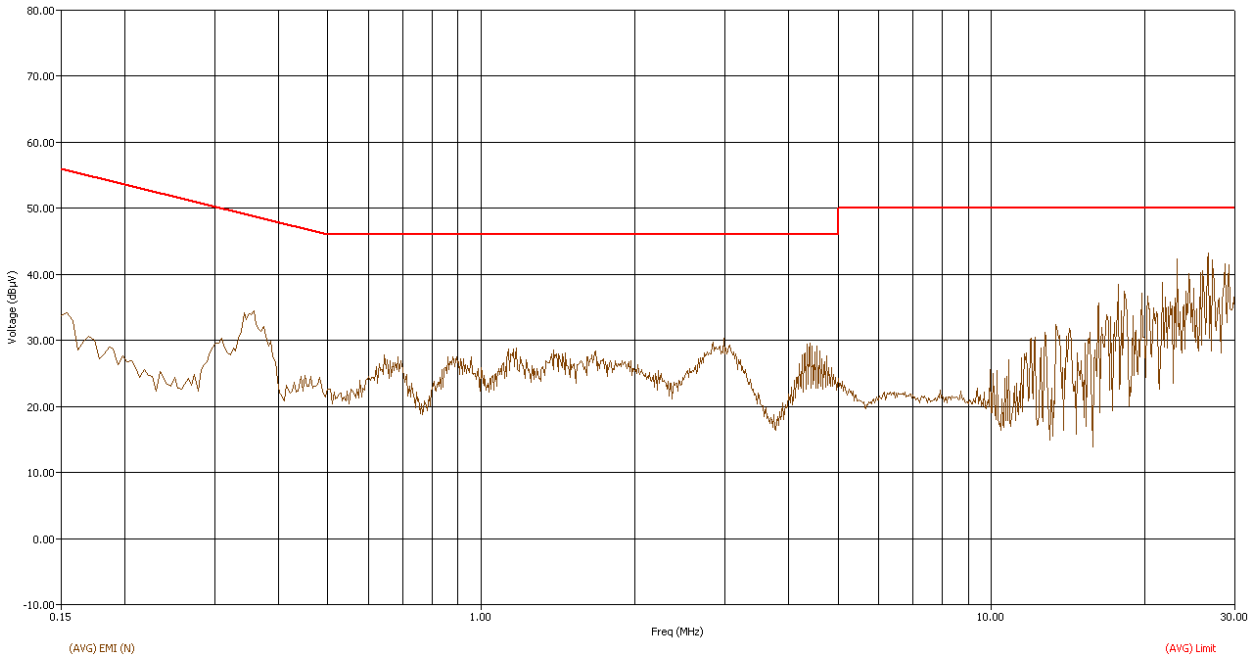


**Figure 9: CE graph from 150 kHz to 30MHz using Average detector -Neutral**

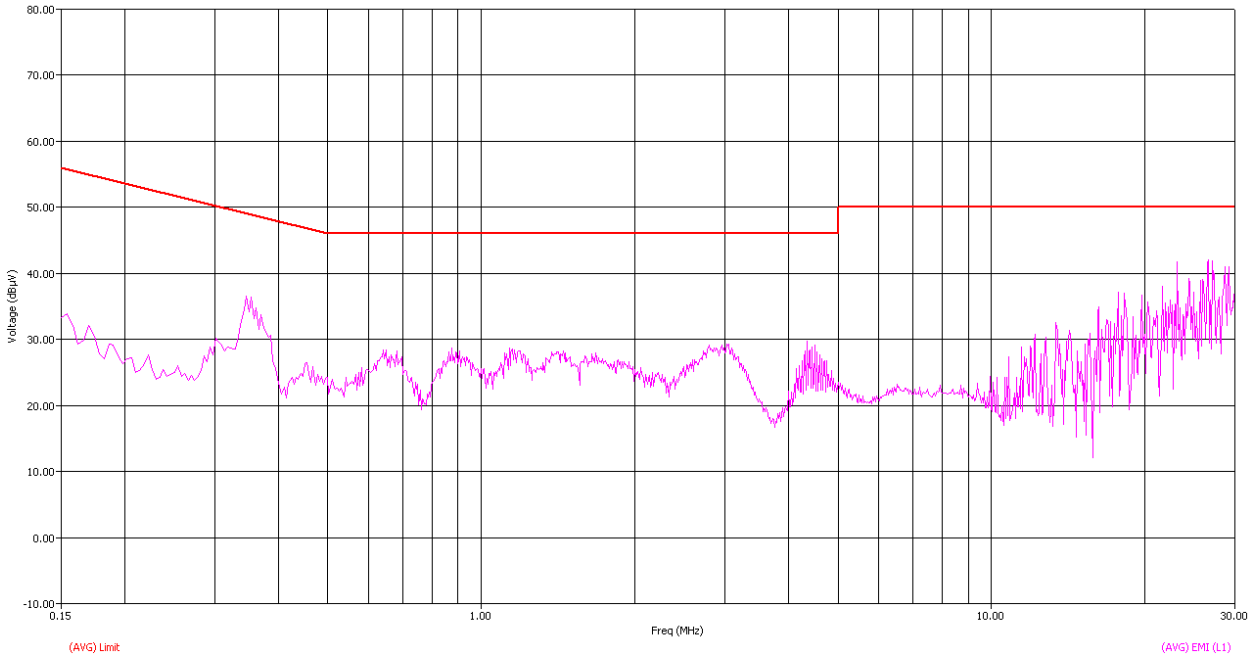


**Figure 10: CE graph from 150 kHz to 30MHz using Average detector - Line**

| Freq (MHz) | Freq (Max) (MHz) | Line | (AVG) Trace (dBµV) | Pulse Limiter+ Cable (dB) | Transducer N (dB) | Transducer L1 (dB) | (AVG) EMI (dBµV) | (AVG) Margin AVL (dB) | (AVG) Limit (dBµV) | (AVG) Margin QPL (dB) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.150 | 0.151 | N | 21.95 | 9.89 | 0.10 | 0.00 | 31.94 | -23.98 | 55.92 | -33.98 |
| 0.154 | 0.152 | L1 | 21.72 | 9.89 | 0.00 | 0.07 | 31.68 | -24.19 | 55.87 | -34.19 |
| 0.354 | 0.357 | L1 | 24.12 | 9.89 | 0.00 | 0.06 | 34.07 | -14.73 | 48.80 | -24.73 |
| 1.898 | 1.906 | L1 | 14.49 | 10.03 | 0.00 | 0.09 | 24.61 | -21.39 | 46.00 | -31.39 |
| 3.038 | 3.041 | L1 | 16.56 | 10.04 | 0.00 | 0.10 | 26.70 | -19.30 | 46.00 | -29.30 |
| 23.130 | 23.129 | N | 31.04 | 10.26 | 0.38 | 0.00 | 41.68 | -8.32 | 50.00 | -18.32 |
| 23.130 | 23.128 | L1 | 30.63 | 10.26 | 0.00 | 0.35 | 41.24 | -8.76 | 50.00 | -18.76 |
| 26.486 | 26.487 | N | 31.46 | 10.31 | 0.39 | 0.00 | 42.16 | -7.84 | 50.00 | -17.84 |
| 26.550 | 26.548 | N | 30.42 | 10.31 | 0.39 | 0.00 | 41.12 | -8.88 | 50.00 | -18.88 |
| 26.610 | 26.609 | N | 31.73 | 10.31 | 0.39 | 0.00 | 42.44 | -7.56 | 50.00 | -17.56 |
| 26.610 | 26.609 | L1 | 31.04 | 10.31 | 0.00 | 0.38 | 41.73 | -8.27 | 50.00 | -18.27 |
| 27.158 | 27.159 | N | 31.40 | 10.32 | 0.39 | 0.00 | 42.11 | -7.89 | 50.00 | -17.89 |
| 27.158 | 27.159 | L1 | 30.68 | 10.32 | 0.00 | 0.39 | 41.39 | -8.61 | 50.00 | -18.61 |
| 28.686 | 28.686 | N | 30.65 | 10.34 | 0.40 | 0.00 | 41.39 | -8.61 | 50.00 | -18.61 |
| 28.686 | 28.686 | L1 | 30.14 | 10.34 | 0.00 | 0.40 | 40.87 | -9.13 | 50.00 | -19.13 |
| 29.234 | 29.236 | N | 30.71 | 10.34 | 0.40 | 0.00 | 41.45 | -8.55 | 50.00 | -18.55 |

**Table 4: Average table for CE from 150 kHz to 30MHz –Line & Neutral**

### 5.3.1.5.3 HIGH CHANNEL_5700MHZ

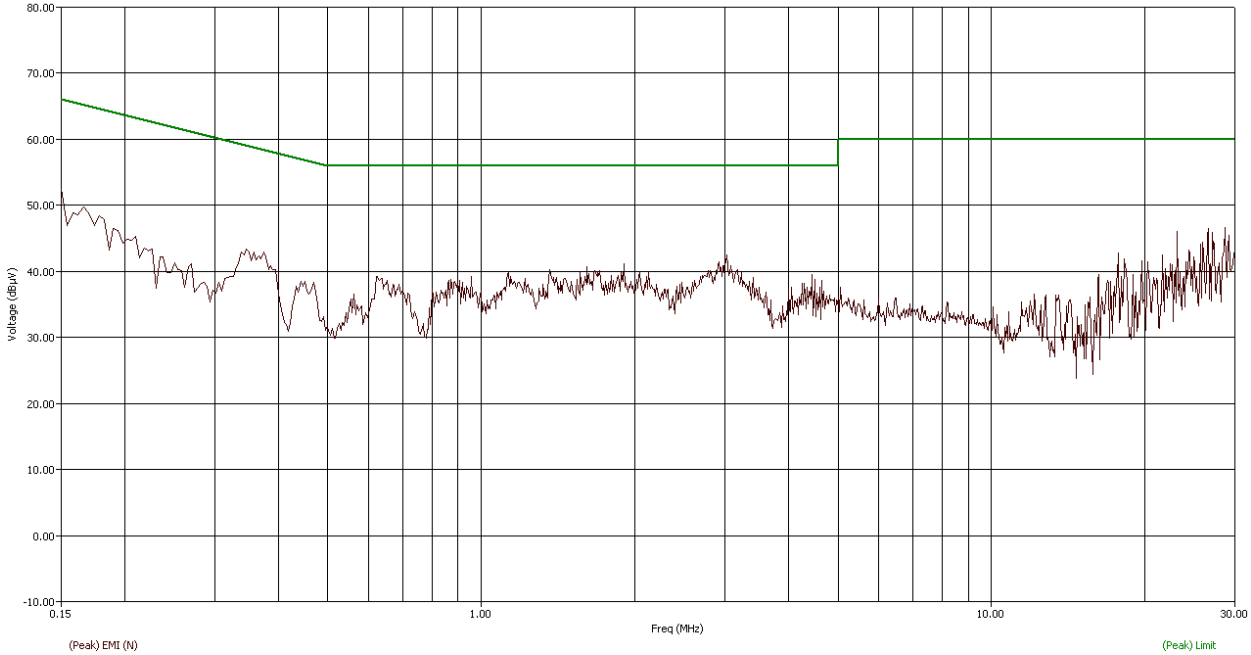


**Figure 11: CE graph from 150 kHz to 30MHz using Peak detector-Neutral**



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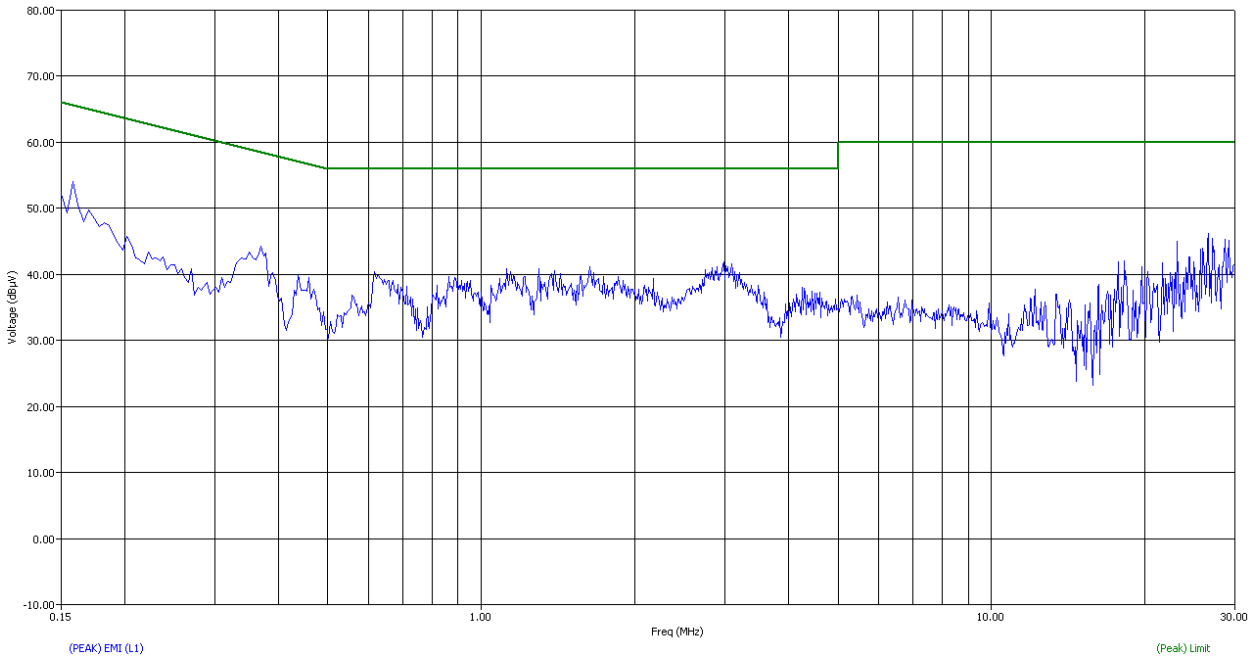


**Figure 12: CE graph from 150 kHz to 30MHz using Peak detector-Line**

| Freq (MHz) | Freq (Max) (MHz) | Line | (QP) Trace (dBµV) | Pulse Limiter+ Cable (dB) | Transducer N (dB) | Transducer L1 (dB) | (QP) EMI (dBµV) | (QP) Margin AVL (dB) | (QP) Limit (dBµV) | (QP) Margin QPL (dB) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.150 | 0.151 | N | 34.45 | 9.89 | 0.10 | 0.00 | 44.44 | -11.53 | 65.97 | -21.53 |
| 0.158 | 0.157 | L1 | 34.00 | 9.89 | 0.00 | 0.07 | 43.96 | -11.66 | 65.62 | -21.66 |
| 1.630 | 1.622 | L1 | 24.09 | 10.02 | 0.00 | 0.08 | 34.19 | -11.81 | 56.00 | -21.81 |
| 2.994 | 2.991 | L1 | 25.57 | 10.04 | 0.00 | 0.10 | 35.71 | -10.29 | 56.00 | -20.29 |
| 3.030 | 3.027 | N | 25.25 | 10.04 | 0.13 | 0.00 | 35.42 | -10.58 | 56.00 | -20.58 |
| 23.130 | 23.129 | N | 34.01 | 10.26 | 0.38 | 0.00 | 44.65 | -5.35 | 60.00 | -15.35 |
| 23.130 | 23.129 | L1 | 33.55 | 10.26 | 0.00 | 0.35 | 44.16 | -5.84 | 60.00 | -15.84 |
| 26.486 | 26.487 | N | 34.62 | 10.31 | 0.39 | 0.00 | 45.32 | -4.68 | 60.00 | -14.68 |
| 26.610 | 26.610 | N | 34.72 | 10.31 | 0.39 | 0.00 | 45.42 | -4.58 | 60.00 | -14.58 |
| 26.610 | 26.610 | L1 | 34.22 | 10.31 | 0.00 | 0.38 | 44.91 | -5.09 | 60.00 | -15.09 |
| 27.158 | 27.159 | N | 34.56 | 10.32 | 0.39 | 0.00 | 45.27 | -4.73 | 60.00 | -14.73 |
| 27.158 | 27.159 | L1 | 33.98 | 10.32 | 0.00 | 0.39 | 44.69 | -5.31 | 60.00 | -15.31 |
| 28.686 | 28.685 | N | 33.99 | 10.34 | 0.40 | 0.00 | 44.73 | -5.27 | 60.00 | -15.27 |
| 28.686 | 28.685 | L1 | 33.46 | 10.34 | 0.00 | 0.40 | 44.20 | -5.80 | 60.00 | -15.80 |
| 29.234 | 29.234 | N | 33.82 | 10.34 | 0.40 | 0.00 | 44.56 | -5.44 | 60.00 | -15.44 |
| 29.234 | 29.235 | L1 | 33.64 | 10.34 | 0.00 | 0.40 | 44.39 | -5.61 | 60.00 | -15.61 |

**Table 5: Quasi peak table for CE from 150 kHz to 30MHz – Line & Neutral**



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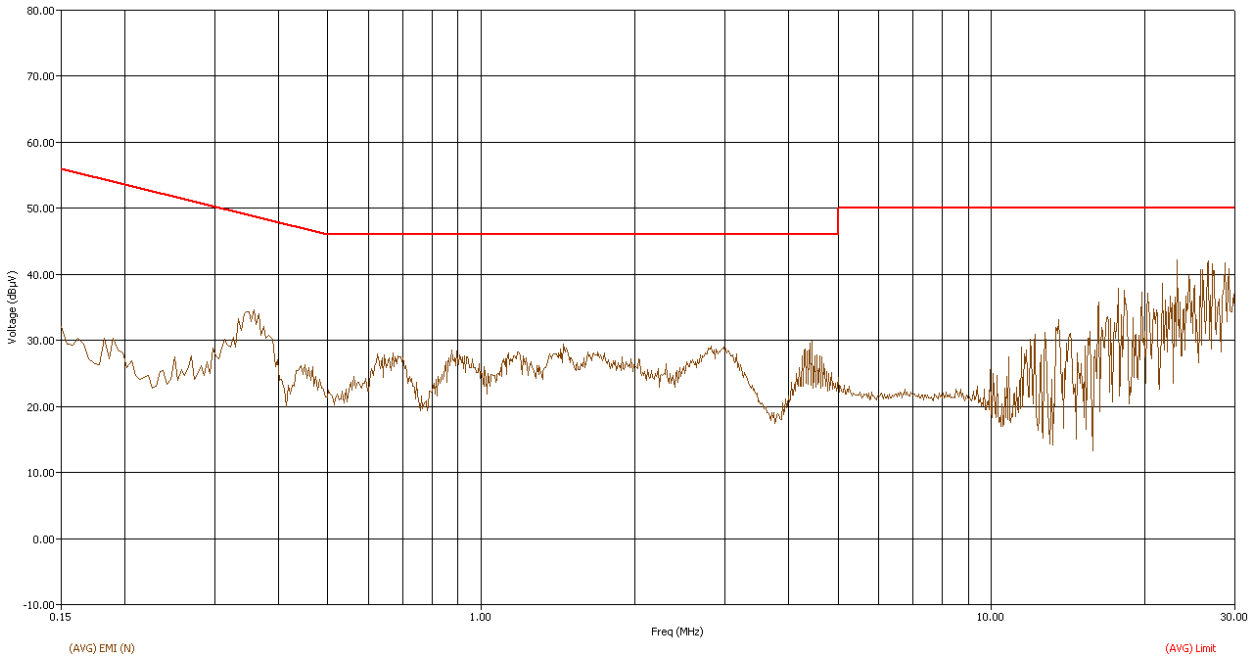


**Figure 13: CE graph from 150 kHz to 30MHz using Average detector -Neutral**

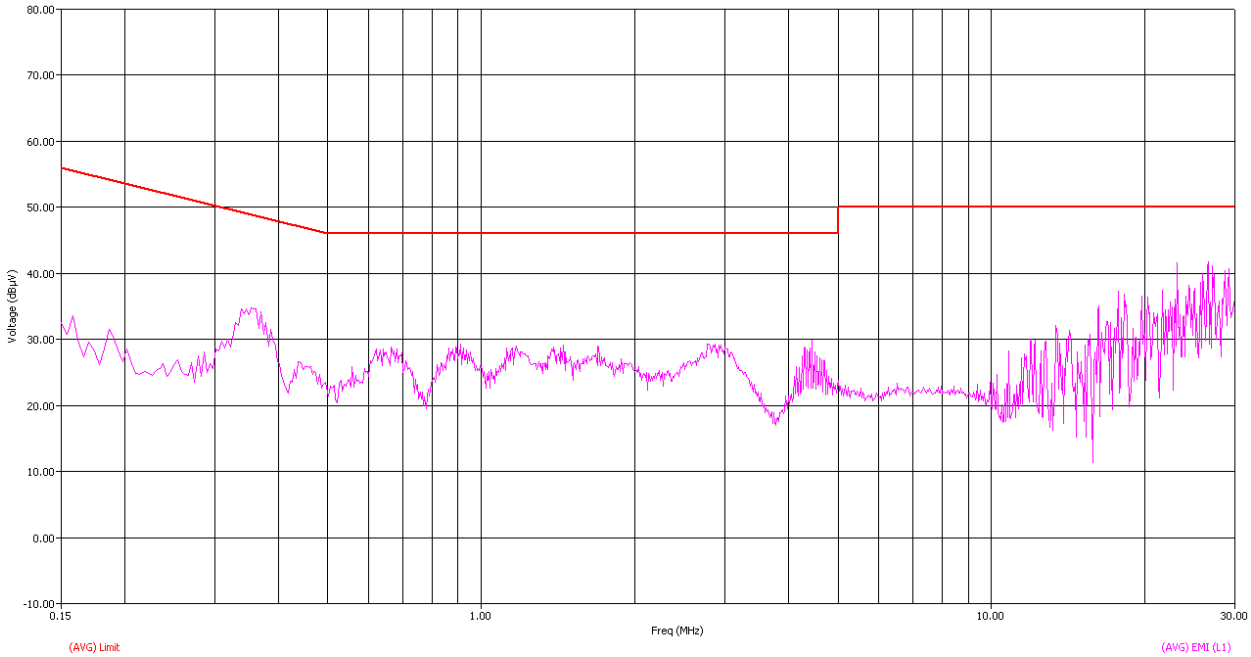


**Figure 14: CE graph from 150 kHz to 30MHz using Average detector - Line**

| Freq (MHz) | Freq (Max) (MHz) | Line | (AVG) Trace (dBµV) | Pulse Limiter+ Cable (dB) | Transducer N (dB) | Transducer L1 (dB) | (AVG) EMI (dBµV) | (AVG) Margin AVL (dB) | (AVG) Limit (dBµV) | (AVG) Margin QPL (dB) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.150 | 0.151 | N | 21.36 | 9.89 | 0.10 | 0.00 | 31.35 | -24.62 | 55.97 | -34.62 |
| 0.158 | 0.157 | L1 | 19.08 | 9.89 | 0.00 | 0.07 | 29.04 | -26.58 | 55.62 | -36.58 |
| 1.630 | 1.622 | L1 | 15.74 | 10.02 | 0.00 | 0.08 | 25.85 | -20.15 | 46.00 | -30.15 |
| 2.994 | 2.991 | L1 | 16.60 | 10.04 | 0.00 | 0.10 | 26.73 | -19.27 | 46.00 | -29.27 |
| 3.030 | 3.027 | N | 16.34 | 10.04 | 0.13 | 0.00 | 26.51 | -19.49 | 46.00 | -29.49 |
| 23.130 | 23.129 | N | 30.98 | 10.26 | 0.38 | 0.00 | 41.62 | -8.38 | 50.00 | -18.38 |
| 23.130 | 23.129 | L1 | 30.57 | 10.26 | 0.00 | 0.35 | 41.18 | -8.82 | 50.00 | -18.82 |
| 26.486 | 26.487 | N | 31.37 | 10.31 | 0.39 | 0.00 | 42.07 | -7.93 | 50.00 | -17.93 |
| 26.610 | 26.610 | N | 31.44 | 10.31 | 0.39 | 0.00 | 42.14 | -7.86 | 50.00 | -17.86 |
| 26.610 | 26.610 | L1 | 30.91 | 10.31 | 0.00 | 0.38 | 41.60 | -8.40 | 50.00 | -18.40 |
| 27.158 | 27.159 | N | 31.29 | 10.32 | 0.39 | 0.00 | 42.00 | -8.00 | 50.00 | -18.00 |
| 27.158 | 27.159 | L1 | 30.64 | 10.32 | 0.00 | 0.39 | 41.35 | -8.65 | 50.00 | -18.65 |
| 28.686 | 28.685 | N | 30.40 | 10.34 | 0.40 | 0.00 | 41.13 | -8.87 | 50.00 | -18.87 |
| 28.686 | 28.685 | L1 | 29.81 | 10.34 | 0.00 | 0.40 | 40.55 | -9.45 | 50.00 | -19.45 |
| 29.234 | 29.234 | N | 30.16 | 10.34 | 0.40 | 0.00 | 40.90 | -9.10 | 50.00 | -19.10 |
| 29.234 | 29.235 | L1 | 29.91 | 10.34 | 0.00 | 0.40 | 40.66 | -9.34 | 50.00 | -19.34 |

**Table 6: Average table for CE from 150 kHz to 30MHz –Line & Neutral**

## 5.3.1.6 RESULT (SUPPORTING GRAPHS / DATA) FOR 10MHZ MODULATION BANDWIDTH

### 5.3.1.6.1 LOW CHANNEL_5485MHZ

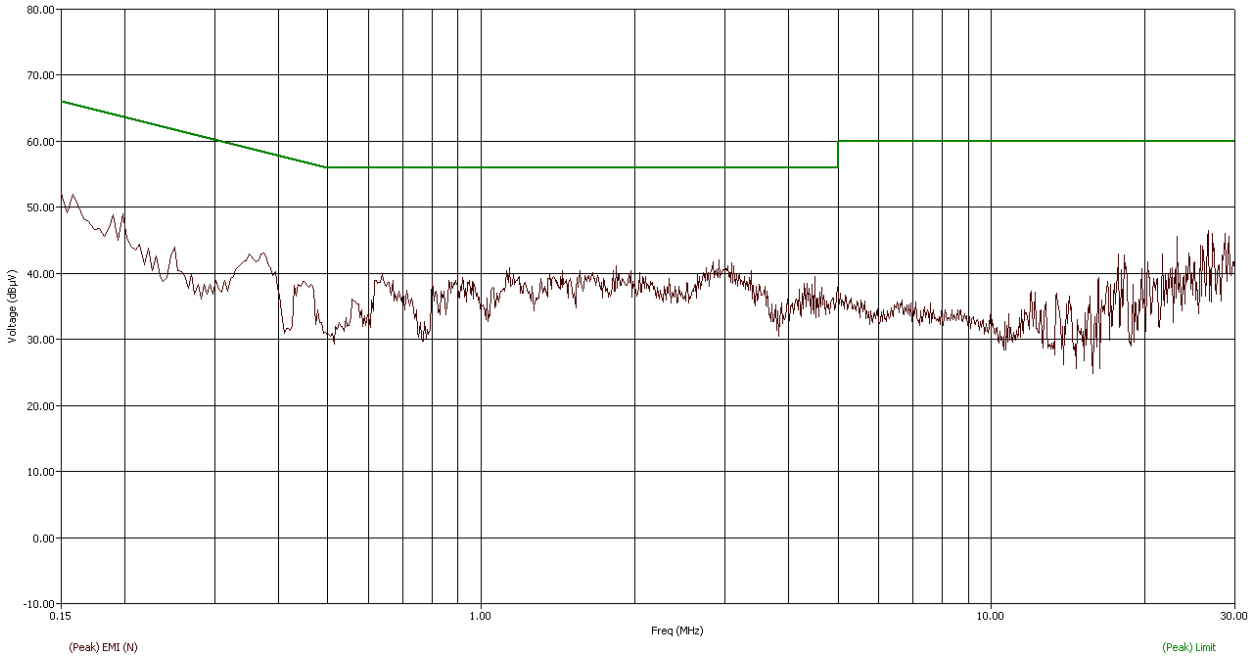


**Figure 15: CE graph from 150 kHz to 30MHz using Peak detector-Neutral**

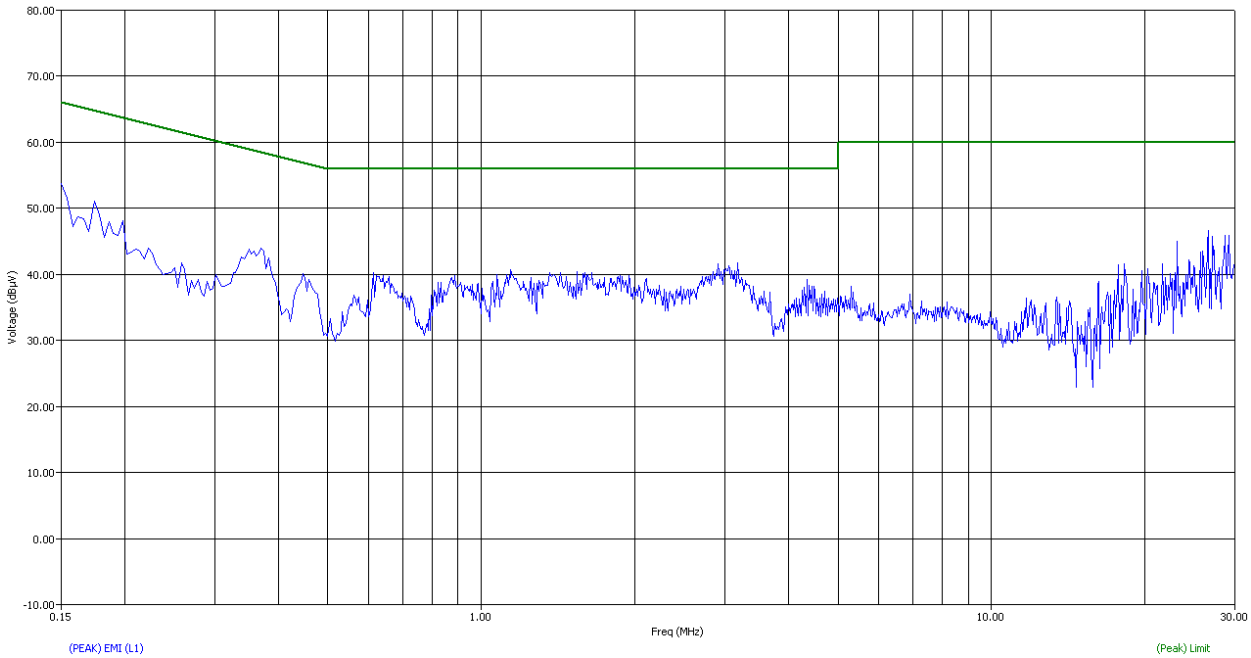


**Figure 16: CE graph from 150 kHz to 30MHz using Peak detector-Line**

| Freq (MHz) | Freq (Max) (MHz) | Line | (QP) Trace (dBµV) | Pulse Limiter+ Cable (dB) | Transducer N (dB) | Transducer L1 (dB) | (QP) EMI (dBµV) | (QP) Margin AVL (dB) | (QP) Limit (dBµV) | (QP) Margin QPL (dB) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.150 | 0.156 | N | 34.12 | 9.89 | 0.10 | 0.00 | 44.11 | -11.57 | 65.69 | -21.57 |
| 0.150 | 0.154 | L1 | 34.38 | 9.89 | 0.00 | 0.07 | 44.34 | -11.44 | 65.78 | -21.44 |
| 2.926 | 2.926 | N | 25.22 | 10.04 | 0.13 | 0.00 | 35.39 | -10.61 | 56.00 | -20.61 |
| 3.174 | 3.181 | L1 | 23.81 | 10.04 | 0.00 | 0.10 | 33.95 | -12.05 | 56.00 | -22.05 |
| 23.130 | 23.129 | N | 33.96 | 10.26 | 0.38 | 0.00 | 44.59 | -5.41 | 60.00 | -15.41 |
| 23.130 | 23.129 | L1 | 33.40 | 10.26 | 0.00 | 0.35 | 44.01 | -5.99 | 60.00 | -15.99 |
| 26.610 | 26.609 | N | 34.79 | 10.31 | 0.39 | 0.00 | 45.50 | -4.50 | 60.00 | -14.50 |
| 26.610 | 26.610 | L1 | 34.17 | 10.31 | 0.00 | 0.38 | 44.87 | -5.13 | 60.00 | -15.13 |
| 27.158 | 27.159 | N | 34.55 | 10.32 | 0.39 | 0.00 | 45.26 | -4.74 | 60.00 | -14.74 |
| 27.158 | 27.158 | L1 | 33.72 | 10.32 | 0.00 | 0.39 | 44.43 | -5.57 | 60.00 | -15.57 |
| 28.686 | 28.686 | N | 34.05 | 10.34 | 0.40 | 0.00 | 44.78 | -5.22 | 60.00 | -15.22 |
| 28.686 | 28.685 | L1 | 33.51 | 10.34 | 0.00 | 0.40 | 44.25 | -5.75 | 60.00 | -15.75 |
| 29.234 | 29.235 | N | 34.10 | 10.34 | 0.40 | 0.00 | 44.84 | -5.16 | 60.00 | -15.16 |
| 29.234 | 29.236 | L1 | 33.69 | 10.34 | 0.00 | 0.40 | 44.44 | -5.56 | 60.00 | -15.56 |

**Table 7: Quasi peak table for CE from 150 kHz to 30MHz – Line & Neutral**



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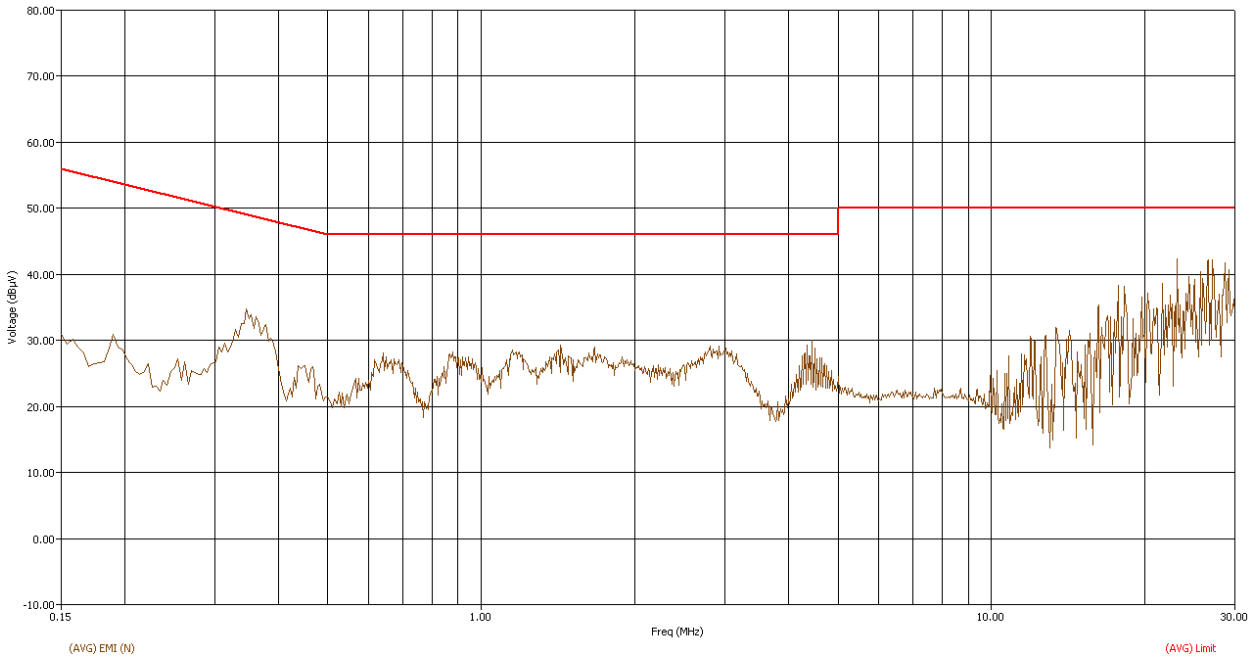


**Figure 17: CE graph from 150 kHz to 30MHz using Average detector -Neutral**

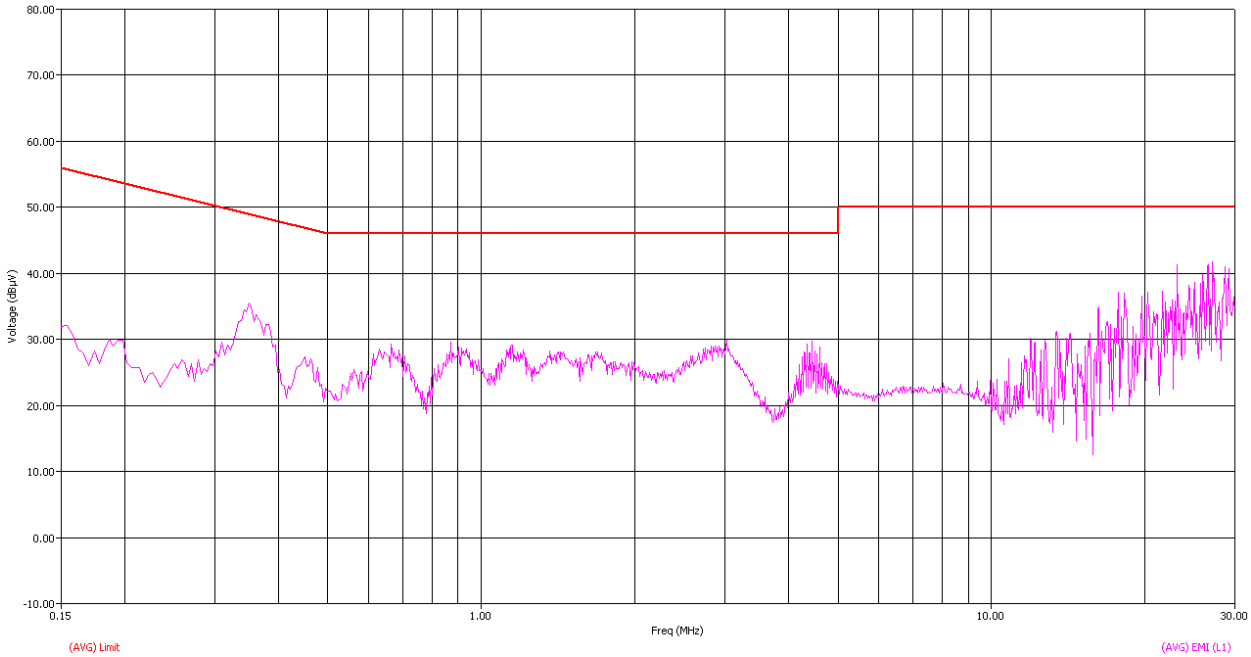


**Figure 18: CE graph from 150 kHz to 30MHz using Average detector - Line**

| Freq (MHz) | Freq (Max) (MHz) | Line | (AVG) Trace (dBµV) | Pulse Limiter+ Cable (dB) | Transducer N (dB) | Transducer L1 (dB) | (AVG) EMI (dBµV) | (AVG) Margin AVL (dB) | (AVG) Limit (dBµV) | (AVG) Margin QPL (dB) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.150 | 0.156 | N | 19.28 | 9.89 | 0.10 | 0.00 | 29.27 | -26.42 | 55.69 | -36.42 |
| 0.150 | 0.154 | L1 | 19.92 | 9.89 | 0.00 | 0.07 | 29.88 | -25.90 | 55.78 | -35.90 |
| 2.926 | 2.926 | N | 16.49 | 10.04 | 0.13 | 0.00 | 26.65 | -19.35 | 46.00 | -29.35 |
| 3.174 | 3.181 | L1 | 14.70 | 10.04 | 0.00 | 0.10 | 24.84 | -21.16 | 46.00 | -31.16 |
| 23.130 | 23.129 | N | 30.93 | 10.26 | 0.38 | 0.00 | 41.57 | -8.43 | 50.00 | -18.43 |
| 23.130 | 23.129 | L1 | 30.39 | 10.26 | 0.00 | 0.35 | 41.00 | -9.00 | 50.00 | -19.00 |
| 26.610 | 26.609 | N | 31.55 | 10.31 | 0.39 | 0.00 | 42.25 | -7.75 | 50.00 | -17.75 |
| 26.610 | 26.610 | L1 | 30.85 | 10.31 | 0.00 | 0.38 | 41.55 | -8.45 | 50.00 | -18.45 |
| 27.158 | 27.159 | N | 31.25 | 10.32 | 0.39 | 0.00 | 41.96 | -8.04 | 50.00 | -18.04 |
| 27.158 | 27.158 | L1 | 30.36 | 10.32 | 0.00 | 0.39 | 41.07 | -8.93 | 50.00 | -18.93 |
| 28.686 | 28.686 | N | 30.46 | 10.34 | 0.40 | 0.00 | 41.19 | -8.81 | 50.00 | -18.81 |
| 28.686 | 28.685 | L1 | 29.85 | 10.34 | 0.00 | 0.40 | 40.59 | -9.41 | 50.00 | -19.41 |
| 29.234 | 29.235 | N | 30.46 | 10.34 | 0.40 | 0.00 | 41.20 | -8.80 | 50.00 | -18.80 |
| 29.234 | 29.236 | L1 | 29.95 | 10.34 | 0.00 | 0.40 | 40.69 | -9.31 | 50.00 | -19.31 |

**Table 8: Average table for CE from 150 kHz to 30MHz –Line & Neutral**

### 5.3.1.6.2 MID CHANNEL_5550MHZ

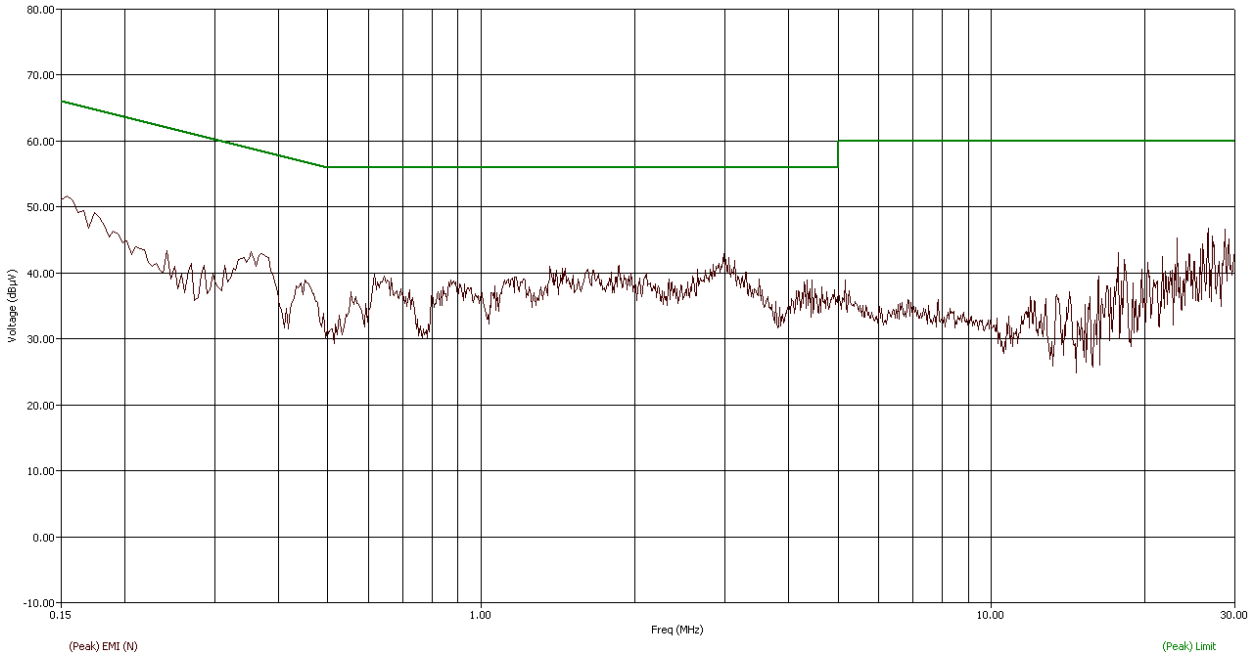


**Figure 19: CE graph from 150 kHz to 30MHz using Peak detector-Neutral**



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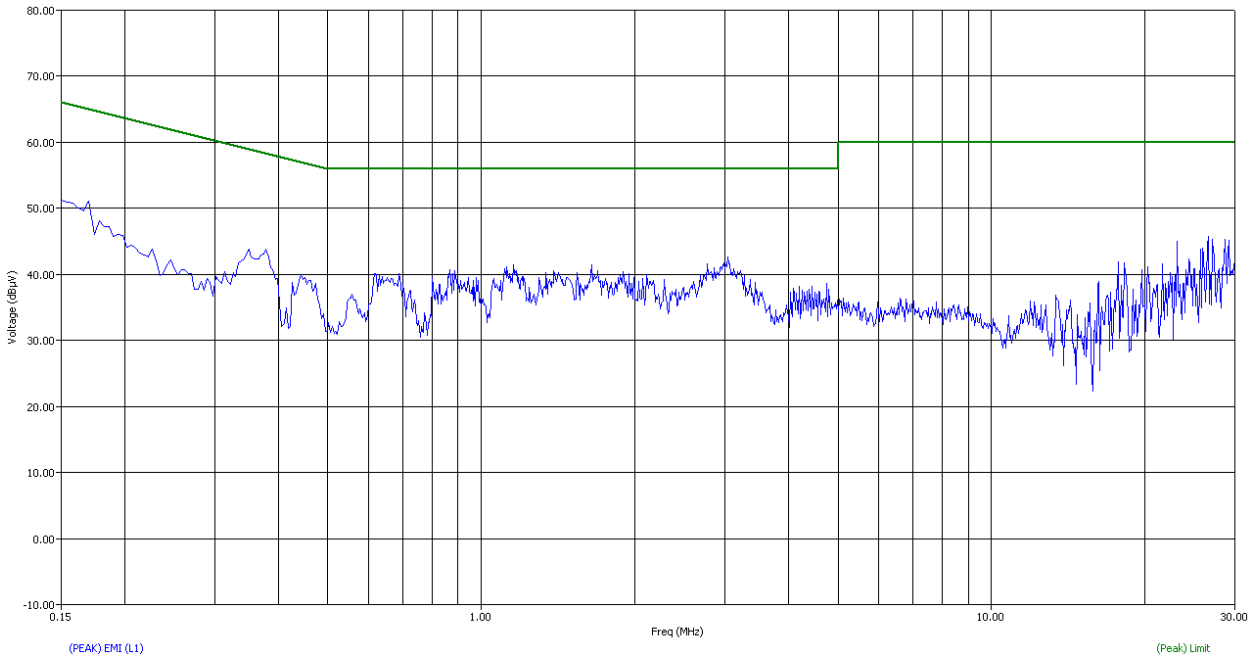


**Figure 20: CE graph from 150 kHz to 30MHz using Peak detector-Line**

| Freq (MHz) | Freq (Max) (MHz) | Line | (QP) Trace (dBµV) | Pulse Limiter+ Cable (dB) | Transducer N (dB) | Transducer L1 (dB) | (QP) EMI (dBµV) | (QP) Margin AVL (dB) | (QP) Limit (dBµV) | (QP) Margin QPL (dB) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.150 | 0.152 | L1 | 34.39 | 9.89 | 0.00 | 0.07 | 44.35 | -11.56 | 65.91 | -21.56 |
| 0.154 | 0.154 | N | 33.91 | 9.89 | 0.10 | 0.00 | 43.90 | -11.87 | 65.77 | -21.87 |
| 1.642 | 1.648 | L1 | 24.60 | 10.02 | 0.00 | 0.08 | 34.71 | -11.29 | 56.00 | -21.29 |
| 2.982 | 2.986 | N | 25.51 | 10.04 | 0.13 | 0.00 | 35.68 | -10.32 | 56.00 | -20.32 |
| 3.046 | 3.051 | L1 | 25.38 | 10.04 | 0.00 | 0.10 | 35.52 | -10.48 | 56.00 | -20.48 |
| 23.130 | 23.129 | N | 33.89 | 10.26 | 0.38 | 0.00 | 44.53 | -5.47 | 60.00 | -15.47 |
| 23.130 | 23.129 | L1 | 33.45 | 10.26 | 0.00 | 0.35 | 44.06 | -5.94 | 60.00 | -15.94 |
| 26.486 | 26.487 | N | 34.40 | 10.31 | 0.39 | 0.00 | 45.10 | -4.90 | 60.00 | -14.90 |
| 26.610 | 26.609 | N | 34.74 | 10.31 | 0.39 | 0.00 | 45.45 | -4.55 | 60.00 | -14.55 |
| 26.610 | 26.610 | L1 | 34.01 | 10.31 | 0.00 | 0.38 | 44.71 | -5.29 | 60.00 | -15.29 |
| 27.158 | 27.159 | N | 34.49 | 10.32 | 0.39 | 0.00 | 45.20 | -4.80 | 60.00 | -14.80 |
| 27.158 | 27.159 | L1 | 34.06 | 10.32 | 0.00 | 0.39 | 44.77 | -5.23 | 60.00 | -15.23 |
| 28.686 | 28.686 | N | 33.92 | 10.34 | 0.40 | 0.00 | 44.65 | -5.35 | 60.00 | -15.35 |
| 28.686 | 28.685 | L1 | 33.30 | 10.34 | 0.00 | 0.40 | 44.04 | -5.96 | 60.00 | -15.96 |
| 29.234 | 29.235 | N | 34.05 | 10.34 | 0.40 | 0.00 | 44.79 | -5.21 | 60.00 | -15.21 |
| 29.234 | 29.234 | L1 | 33.31 | 10.34 | 0.00 | 0.40 | 44.05 | -5.95 | 60.00 | -15.95 |

**Table 9: Quasi peak table for CE from 150 kHz to 30MHz – Line & Neutral**



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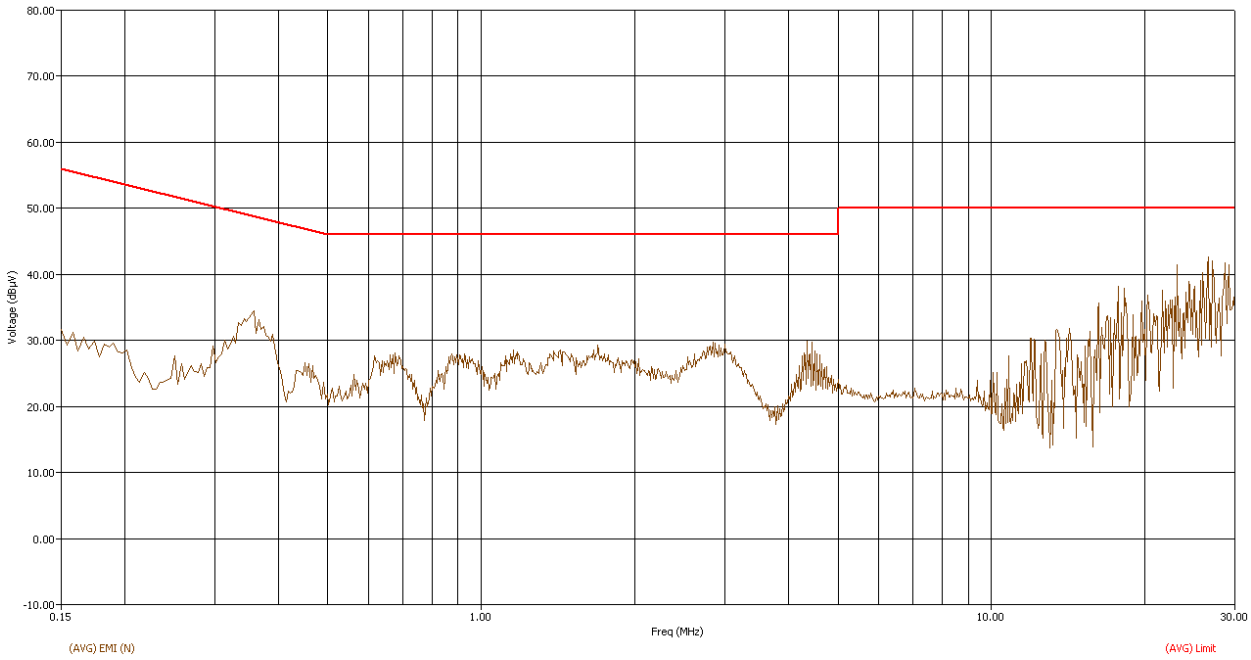


**Figure 21: CE graph from 150 kHz to 30MHz using Average detector -Neutral**

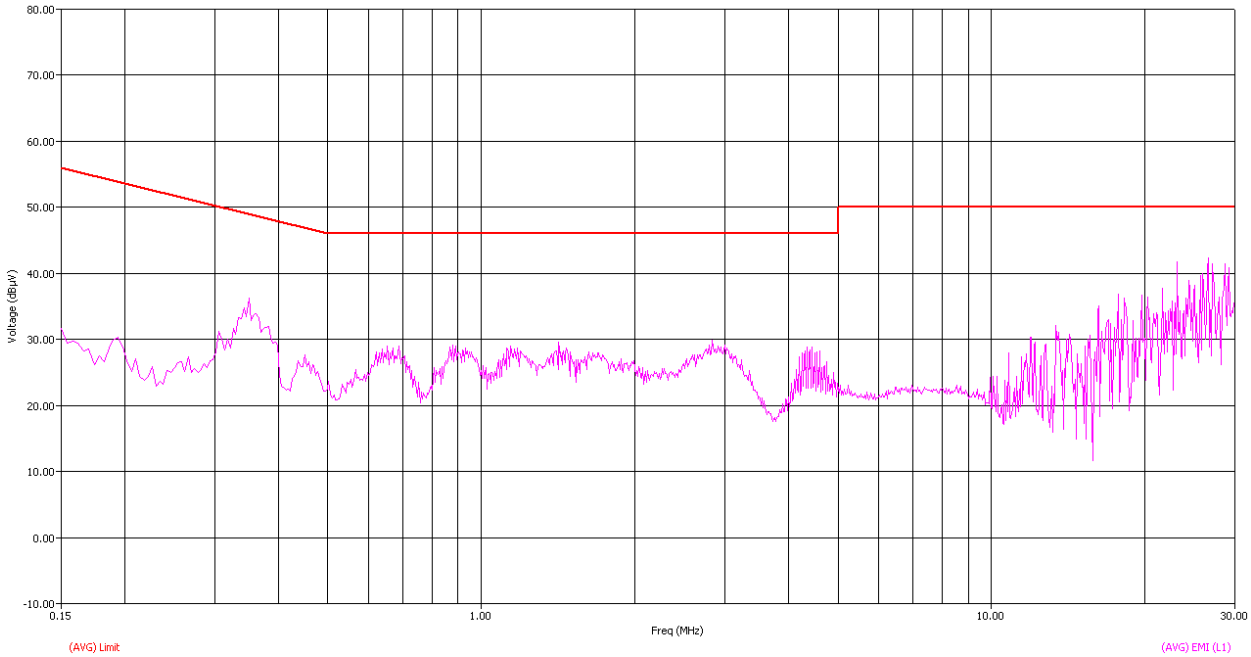


**Figure 22: CE graph from 150 kHz to 30MHz using Average detector - Line**



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| Freq (MHz) | Freq (Max) (MHz) | Line | (AVG) Trace (dBµV) | Pulse Limiter+ Cable (dB) | Transducer N (dB) | Transducer L1 (dB) | (AVG) EMI (dBµV) | (AVG) Margin AVL (dB) | (AVG) Limit (dBµV) | (AVG) Margin QPL (dB) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.150 | 0.152 | L1 | 21.09 | 9.89 | 0.00 | 0.07 | 31.05 | -24.86 | 55.91 | -34.86 |
| 0.154 | 0.154 | N | 19.46 | 9.89 | 0.10 | 0.00 | 29.45 | -26.31 | 55.77 | -36.31 |
| 1.642 | 1.648 | L1 | 16.08 | 10.02 | 0.00 | 0.08 | 26.19 | -19.81 | 46.00 | -29.81 |
| 2.982 | 2.986 | N | 16.58 | 10.04 | 0.13 | 0.00 | 26.75 | -19.25 | 46.00 | -29.25 |
| 3.046 | 3.051 | L1 | 16.47 | 10.04 | 0.00 | 0.10 | 26.61 | -19.39 | 46.00 | -29.39 |
| 23.130 | 23.129 | N | 30.86 | 10.26 | 0.38 | 0.00 | 41.49 | -8.51 | 50.00 | -18.51 |
| 23.130 | 23.129 | L1 | 30.49 | 10.26 | 0.00 | 0.35 | 41.09 | -8.91 | 50.00 | -18.91 |
| 26.486 | 26.487 | N | 31.29 | 10.31 | 0.39 | 0.00 | 41.99 | -8.01 | 50.00 | -18.01 |
| 26.610 | 26.609 | N | 31.53 | 10.31 | 0.39 | 0.00 | 42.23 | -7.77 | 50.00 | -17.77 |
| 26.610 | 26.610 | L1 | 30.73 | 10.31 | 0.00 | 0.38 | 41.43 | -8.57 | 50.00 | -18.57 |
| 27.158 | 27.159 | N | 31.20 | 10.32 | 0.39 | 0.00 | 41.91 | -8.09 | 50.00 | -18.09 |
| 27.158 | 27.159 | L1 | 30.59 | 10.32 | 0.00 | 0.39 | 41.30 | -8.70 | 50.00 | -18.70 |
| 28.686 | 28.686 | N | 30.51 | 10.34 | 0.40 | 0.00 | 41.24 | -8.76 | 50.00 | -18.76 |
| 28.686 | 28.685 | L1 | 29.66 | 10.34 | 0.00 | 0.40 | 40.40 | -9.60 | 50.00 | -19.60 |
| 29.234 | 29.235 | N | 30.43 | 10.34 | 0.40 | 0.00 | 41.17 | -8.83 | 50.00 | -18.83 |
| 29.234 | 29.234 | L1 | 29.62 | 10.34 | 0.00 | 0.40 | 40.36 | -9.64 | 50.00 | -19.64 |

**Table 10: Average table for CE from 150 kHz to 30MHz –Line & Neutral**

### 5.3.1.6.3 HIGH CHANNEL_5710MHZ

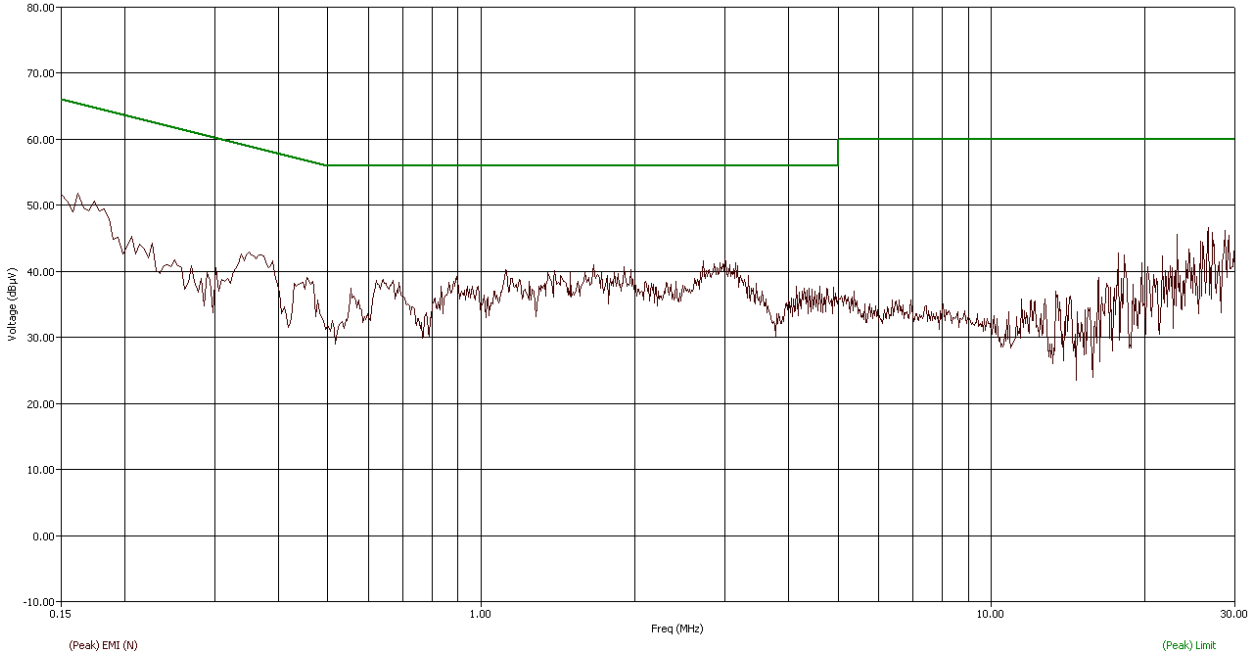


**Figure 23: CE graph from 150 kHz to 30MHz using Peak detector-Neutral**



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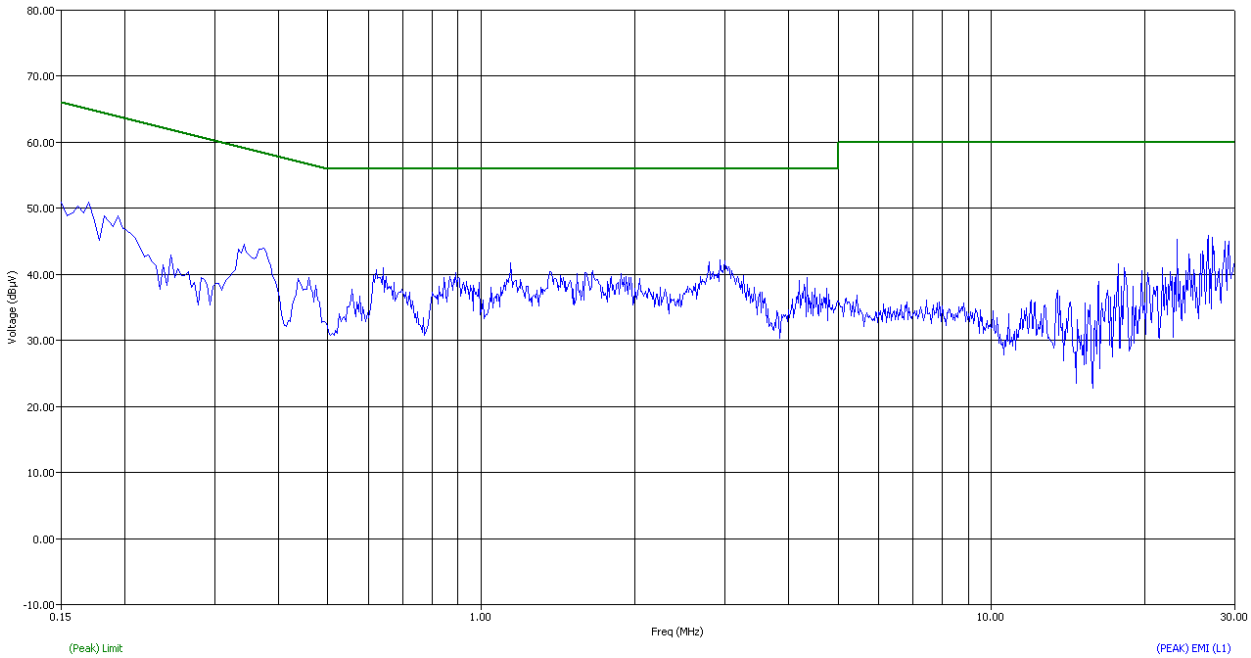


**Figure 24: CE graph from 150 kHz to 30MHz using Peak detector-Line**

| Freq (MHz) | Freq (Max) (MHz) | Line | (QP) Trace (dBµV) | Pulse Limiter+ Cable (dB) | Transducer N (dB) | Transducer L1 (dB) | (QP) EMI (dBµV) | (QP) Margin AVL (dB) | (QP) Limit (dBµV) | (QP) Margin QPL (dB) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.162 | 0.156 | N | 34.02 | 9.89 | 0.10 | 0.00 | 44.01 | -11.68 | 65.69 | -21.68 |
| 0.170 | 0.163 | L1 | 33.26 | 9.89 | 0.00 | 0.07 | 43.22 | -12.08 | 65.30 | -22.08 |
| 0.342 | 0.345 | L1 | 30.51 | 9.89 | 0.00 | 0.06 | 40.46 | -8.62 | 59.09 | -18.62 |
| 1.142 | 1.140 | L1 | 24.82 | 10.01 | 0.00 | 0.07 | 34.90 | -11.10 | 56.00 | -21.10 |
| 2.934 | 2.942 | L1 | 25.25 | 10.04 | 0.00 | 0.10 | 35.38 | -10.62 | 56.00 | -20.62 |
| 3.006 | 3.005 | N | 25.52 | 10.04 | 0.13 | 0.00 | 35.69 | -10.31 | 56.00 | -20.31 |
| 23.130 | 23.129 | N | 33.87 | 10.26 | 0.38 | 0.00 | 44.51 | -5.49 | 60.00 | -15.49 |
| 23.130 | 23.129 | L1 | 33.40 | 10.26 | 0.00 | 0.35 | 44.01 | -5.99 | 60.00 | -15.99 |
| 26.486 | 26.487 | N | 34.53 | 10.31 | 0.39 | 0.00 | 45.23 | -4.77 | 60.00 | -14.77 |
| 26.610 | 26.610 | N | 34.69 | 10.31 | 0.39 | 0.00 | 45.39 | -4.61 | 60.00 | -14.61 |
| 26.610 | 26.609 | L1 | 34.03 | 10.31 | 0.00 | 0.38 | 44.72 | -5.28 | 60.00 | -15.28 |
| 27.158 | 27.159 | N | 34.56 | 10.32 | 0.39 | 0.00 | 45.27 | -4.73 | 60.00 | -14.73 |
| 27.158 | 27.159 | L1 | 33.94 | 10.32 | 0.00 | 0.39 | 44.64 | -5.36 | 60.00 | -15.36 |
| 28.686 | 28.686 | N | 33.81 | 10.34 | 0.40 | 0.00 | 44.54 | -5.46 | 60.00 | -15.46 |
| 29.234 | 29.236 | N | 33.97 | 10.34 | 0.40 | 0.00 | 44.71 | -5.29 | 60.00 | -15.29 |
| 29.234 | 29.235 | L1 | 33.51 | 10.34 | 0.00 | 0.40 | 44.26 | -5.74 | 60.00 | -15.74 |

**Table 11: Quasi peak table for CE from 150 kHz to 30MHz – Line & Neutral**



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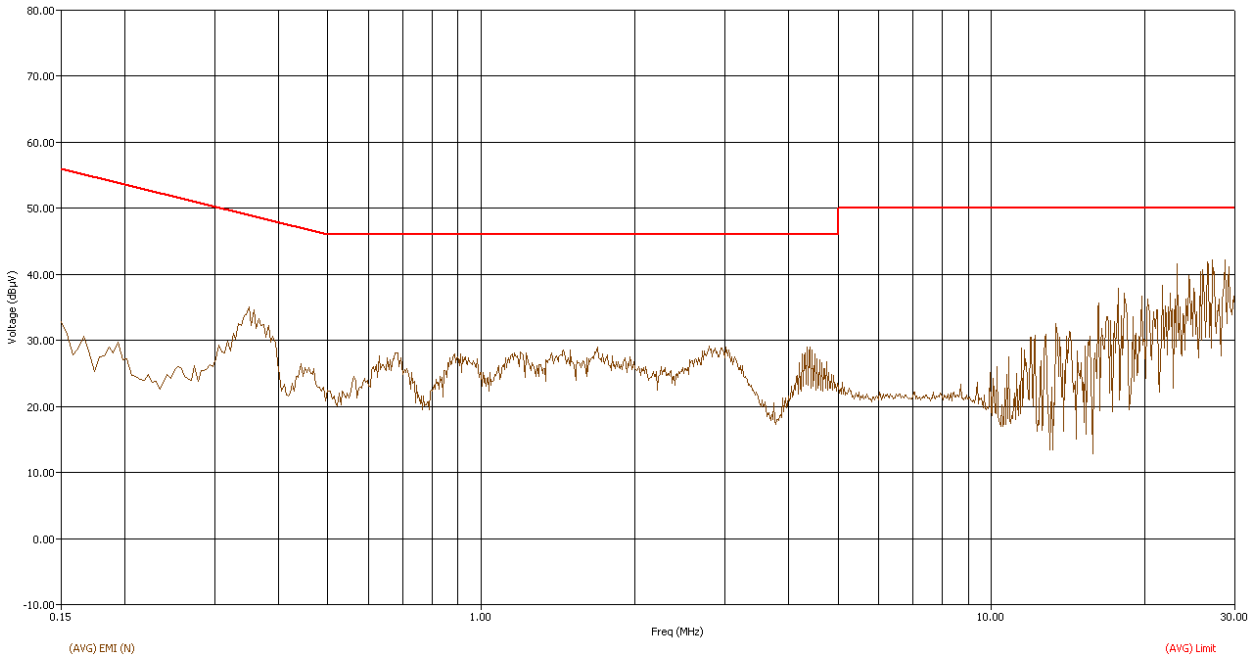


**Figure 25: CE graph from 150 kHz to 30MHz using Average detector -Neutral**

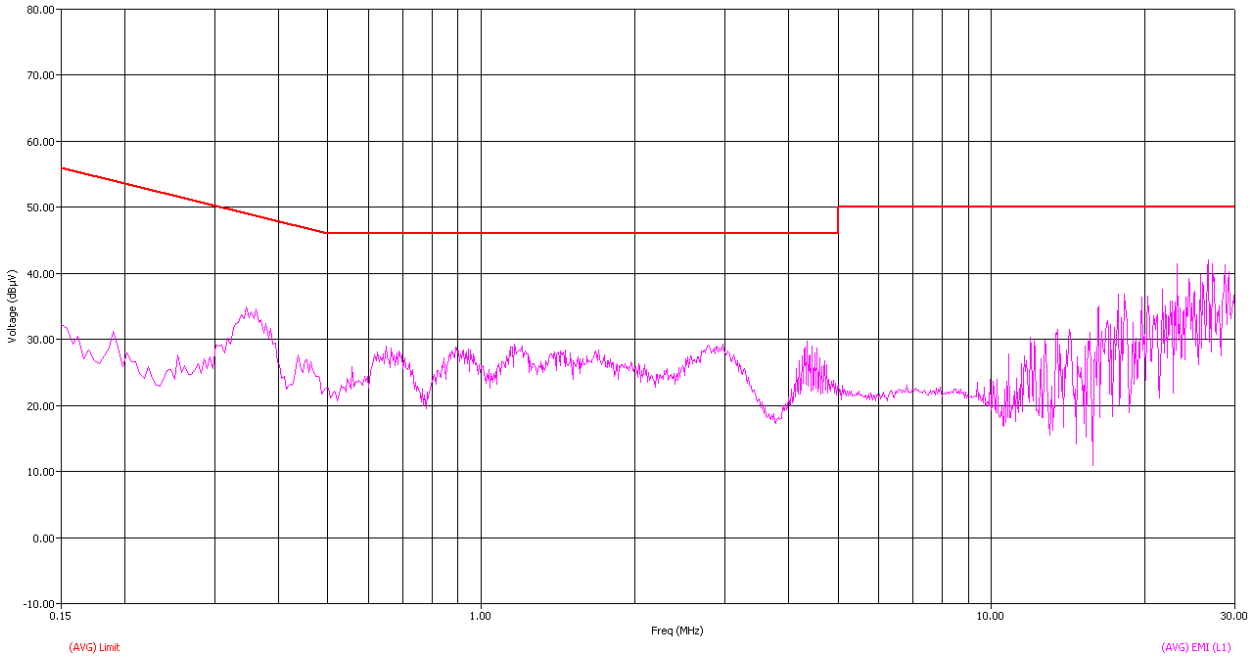


**Figure 26: CE graph from 150 kHz to 30MHz using Average detector - Line**

| Freq (MHz) | Freq (Max) (MHz) | Line | (AVG) Trace (dBµV) | Pulse Limiter+ Cable (dB) | Transducer N (dB) | Transducer L1 (dB) | (AVG) EMI (dBµV) | (AVG) Margin AVL (dB) | (AVG) Limit (dBµV) | (AVG) Margin QPL (dB) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.162 | 0.156 | N | 19.21 | 9.89 | 0.10 | 0.00 | 29.20 | -26.49 | 55.69 | -36.49 |
| 0.170 | 0.163 | L1 | 18.38 | 9.89 | 0.00 | 0.07 | 28.34 | -26.96 | 55.30 | -36.96 |
| 0.342 | 0.345 | L1 | 23.94 | 9.89 | 0.00 | 0.06 | 33.89 | -15.19 | 49.09 | -25.19 |
| 1.142 | 1.140 | L1 | 17.10 | 10.01 | 0.00 | 0.07 | 27.18 | -18.82 | 46.00 | -28.82 |
| 2.934 | 2.942 | L1 | 16.41 | 10.04 | 0.00 | 0.10 | 26.55 | -19.45 | 46.00 | -29.45 |
| 3.006 | 3.005 | N | 16.42 | 10.04 | 0.13 | 0.00 | 26.59 | -19.41 | 46.00 | -29.41 |
| 23.130 | 23.129 | N | 30.89 | 10.26 | 0.38 | 0.00 | 41.52 | -8.48 | 50.00 | -18.48 |
| 23.130 | 23.129 | L1 | 30.50 | 10.26 | 0.00 | 0.35 | 41.11 | -8.89 | 50.00 | -18.89 |
| 26.486 | 26.487 | N | 31.33 | 10.31 | 0.39 | 0.00 | 42.03 | -7.97 | 50.00 | -17.97 |
| 26.610 | 26.610 | N | 31.46 | 10.31 | 0.39 | 0.00 | 42.16 | -7.84 | 50.00 | -17.84 |
| 26.610 | 26.609 | L1 | 30.74 | 10.31 | 0.00 | 0.38 | 41.43 | -8.57 | 50.00 | -18.57 |
| 27.158 | 27.159 | N | 31.32 | 10.32 | 0.39 | 0.00 | 42.03 | -7.97 | 50.00 | -17.97 |
| 27.158 | 27.159 | L1 | 30.62 | 10.32 | 0.00 | 0.39 | 41.32 | -8.68 | 50.00 | -18.68 |
| 28.686 | 28.686 | N | 30.25 | 10.34 | 0.40 | 0.00 | 40.98 | -9.02 | 50.00 | -19.02 |
| 29.234 | 29.236 | N | 30.39 | 10.34 | 0.40 | 0.00 | 41.13 | -8.87 | 50.00 | -18.87 |
| 29.234 | 29.235 | L1 | 29.90 | 10.34 | 0.00 | 0.40 | 40.65 | -9.35 | 50.00 | -19.35 |

**Table 12: Average table for CE from 150 kHz to 30MHz –Line & Neutral**

Note:
*(QP) EMI (dBµV) = (QP) Trace (dBµV) + {Cable + Pulse limiter} (dB) +Cable (dB)*
*QP Margin (dB) = (QP) EMI (dBµV) – (QP) Limit (dBµV)*
*(AVG) EMI (dBµV) = (AVG) Trace (dBµV) + {Cable + Pulse limiter} (dB) +Cable (dB)*
*AVG Margin (dB) = (AVG) EMI (dBµV) – (AVG) Limit (dBµV)*

### 5.3.1.7 RESULT

Conducted Emissions from the EUT are **within the** specified Limit line.

## 5.3.2 RADIATED EMISSION

### 5.3.2.1 TEST SPECIFICATION for 40MHz Modulation Bandwidth

| | | | | | | |
|---|---|---|---|---|---|---|
| **Test Standard** | 47 CFR Ch. I (10–1–14 Ed), Part 15, Subpart C<br>RSS-Gen, Issue 4, Nov 2014 | | | | | |
| **Test Procedure** | ANSI C63.4-2014 | | | | | |
| **Frequency Range** | 9 kHz to 150 kHz | 150 kHz to 30 MHz | 30 MHz to 1 GHz | 1 GHz to 18 GHz | 18 GHz to 26.5 GHz | 26.5 GHz to 40 GHz |
| **Resolution Bandwidth** | 1 kHz | 10 kHz | 120 kHz | 1MHz | 1MHz | 1MHz |
| **Video Bandwidth** | 3 kHz | 30 kHz | 300 kHz | 3MHz | 3MHz | 3MHz |
| **Step size** | 400Hz | 4 kHz | 40 kHz | 400 kHz | 400 kHz | 400 kHz |
| **Pre Scan Measurement Time** | 50ms | 50ms | 20ms | 5ms | 5ms | 5ms |
| **Final Measurement Time** | 1 s | 1 s | 1 s | 1 s | 1 s | 1 s |
| **Attenuation** | 10 dB | 10 dB | 10 dB | 5 dB | 5 dB | 5 dB |
| **Test Distance** | 3 m | 3 m | 3 m | 3 m | 3 m | 3 m |
| **Polarization** | Parallel & Perpendicular | | Horizontal and Vertical | | | |
| **Detector** | Average, Quasi Peak and Peak | | | Average | | |
| **Input Voltage** | 120V AC | | | | | |
| **Input Frequency** | 60Hz | | | | | |
| **Temperature** | 21.0ºC | | 22.0ºC | | 22.0ºC | |
| **Humidity** | 56.0% | | 58.0% | | 56.0% | |
| **Tested By** | Harsha K | | Harsha K/Suresh R | | Harsha K | |
| **Test Date** | 24th Mar 2015 | | 25th Mar 2015 | | 26th Mar 2015 | |



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### 5.3.2.2 TEST SPECIFICATION for 10MHz Modulation Bandwidth

| | | | | | | |
|---|---|---|---|---|---|---|
| **Test Standard** | 47 CFR Ch. I (10–1–14 Ed), Part 15, Subpart C<br>RSS-Gen, Issue 4, Nov 2014 | | | | | |
| **Test Procedure** | ANSI C63.4-2014 | | | | | |
| **Frequency Range** | 9 kHz to 150 kHz | 150 kHz to 30 MHz | 30 MHz to 1 GHz | 1 GHz to 18 GHz | 18 GHz to 26.5 GHz | 26.5 GHz to 40 GHz |
| **Resolution Bandwidth** | 1 kHz | 10 kHz | 120 kHz | 1MHz | 1MHz | 1MHz |
| **Video Bandwidth** | 3 kHz | 30 kHz | 300 kHz | 3MHz | 3MHz | 3MHz |
| **Step size** | 400Hz | 4 kHz | 40 kHz | 400 kHz | 400 kHz | 400 kHz |
| **Pre Scan Measurement Time** | 50ms | 50ms | 20ms | 5ms | 5ms | 5ms |
| **Final Measurement Time** | 1 s | 1 s | 1 s | 1 s | 1 s | 1 s |
| **Attenuation** | 10 dB | 10 dB | 10 dB | 5 dB | 5 dB | 5 dB |
| **Test Distance** | 3 m | 3 m | 3 m | 3 m | 3 m | 3 m |
| **Polarization** | Parallel & Perpendicular | | Horizontal and Vertical | | | |
| **Detector** | Quasi Peak and Peak | | | Average | | |
| **Input Voltage** | 120V AC | | | | | |
| **Input Frequency** | 60Hz | | | | | |
| **Temperature** | 22.0 º C | | 21.0 º C | | 23.0 º C | |
| **Humidity** | 54.0 % | | 58.0 % | | 54.0 % | |
| **Tested By** | Harsha K/Suresh R | | Harsha K | | Harsha K | |
| **Test Date** | 28th Mar 2015 | | 29th Mar 2015 | | 30th Mar 2015 | |

### 5.3.2.3 LIMITS

| Standard | Reference section | Frequency range | Limit (dBµV/m) at 3 meter |
|---|---|---|---|
| 47 CFR Ch. I (10–1–14 Ed), Part 15, Subpart C<br><br>RSS-Gen, Issue 4, Nov 2014 | §15.205, §15.209<br><br>7.1.2 | 9 kHz to 490 kHz<br>490 kHz to 1.705 MHz<br>1.705 MHz to 30 MHz<br>30 MHz to 88 MHz<br>88 MHz to 216 MHz<br>216 MHz to 960 MHz<br>960 MHz to 40 GHz | 128.5194 to 93.8003*<br>73.8003 to 62.9697*<br>69.5429<br>39.54<br>43.52<br>46.02<br>53.98 |

*Note: * Decreases with the logarithm of the frequency*



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### 5.3.2.4 TEST SETUP

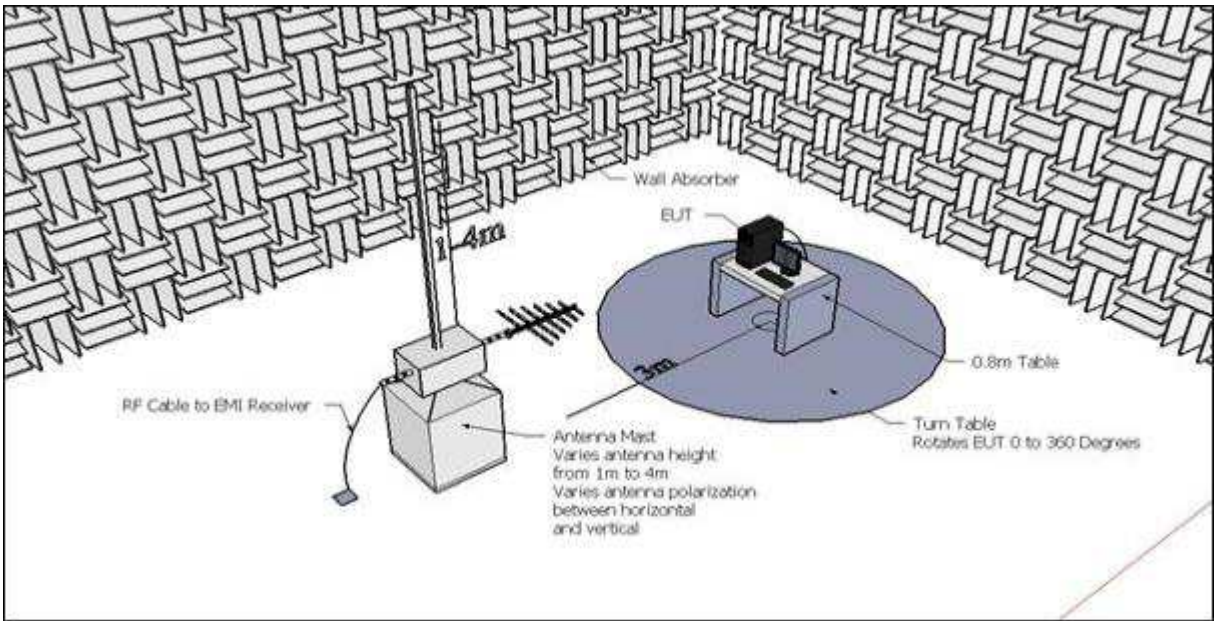


**Figure 27: Typical test setup for Radiated Emission test**

### 5.3.2.5 TEST PROCEDURE

The test procedure is in accordance with ANSI C63.4-2014.

The Radiated Emission test was performed inside a Semi-Anechoic chamber. The EUT was placed on a 0.8m height non-metallic table as specified in the standard. The test setup was placed on a rotating turn table to enable 0 to 360 degree rotation.

The EUT was placed 3 meter away from the receiving antenna for the radiated emission measurement in the frequency range 9 kHz to 40 GHz. The receiving antenna was mounted on an antenna mast to enable height variation from 1 to 4 meter above the ground plane for the frequency range 30MHz to 1GHz&1 to 2 meter for frequency range 1 GHz to 40 GHz. A tunable Band reject filter offering an attenuation of approximately 40dB was used to attenuate the intentional band during the testing.

The radiated emission measurement test system was configured through software as per standard. Pre-scan (Peak) was taken at different angles of EUT at 22.5 degree step, by rotating the turn table from 0 to 360 degree and by varying the antenna height from 1 to 4 meter in both vertical and horizontal polarization from 30 MHz to 1 GHz & 1 to 2 meter for 1 GHz to 40 GHz and in parallel & perpendicular orientation for 9 kHz to 30 MHz (using a loop antenna) with fixed height of 1 meter. The measurement was carried out in max hold mode and maximum amplitude of radiated emissions from the EUT was plotted in Graph. The predominant peaks at various frequencies, which are closer to limit line were identified using peak search option and listed. The Quasi-peak measurement was carried out for the listed frequencies and compared with the limit specified in standard. The average measurement was carried out for the listed frequency in the range of 1 GHz to 40 GHz.

### 5.3.2.6 RESULT (SUPPORTING GRAPHS / DATA) FOR 40MHZ MODULATION BANDWIDTH

#### 5.3.2.6.1 LOW CHANNEL_5495MHZ

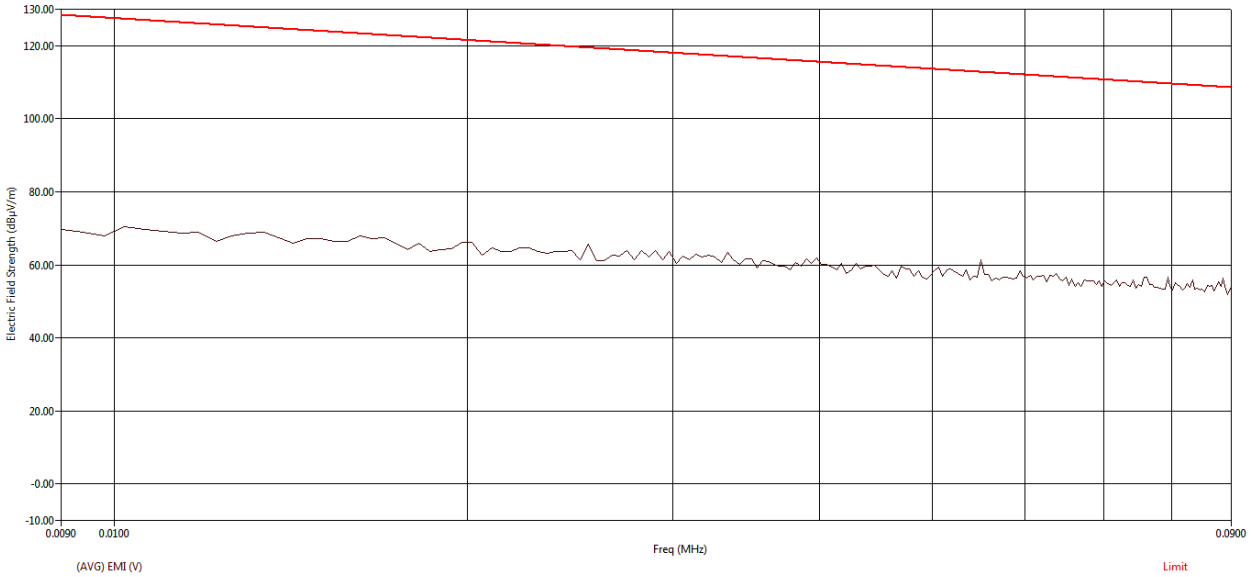


**Figure 28: Average RE from 9 kHz to 90 kHz-Parallel**

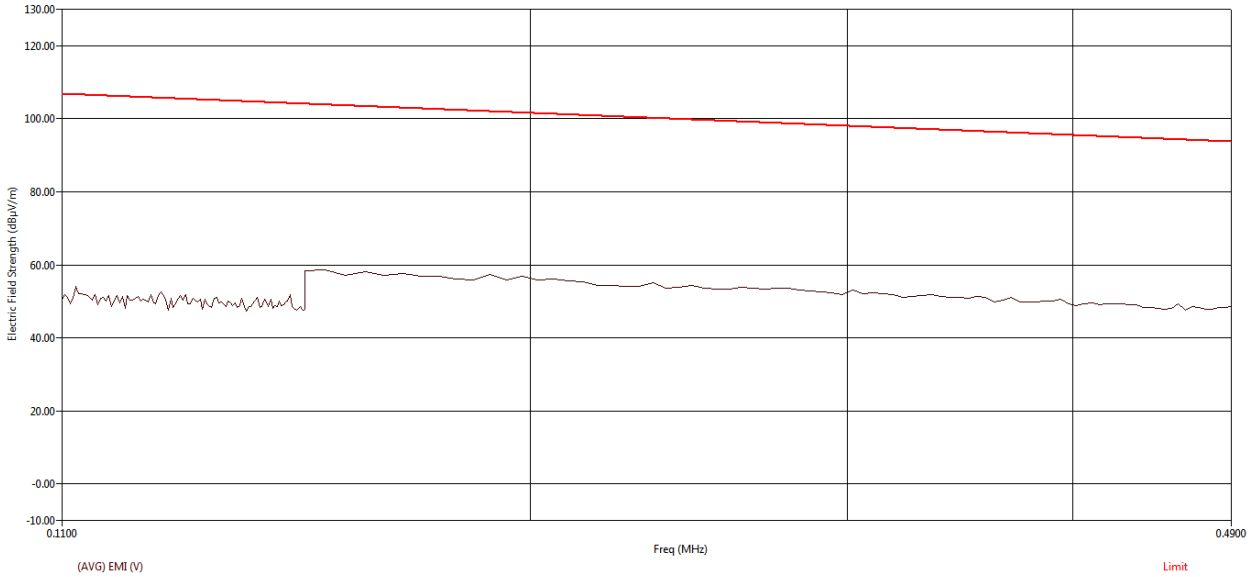


**Figure 29: Average RE from 110 kHz to 490 kHz-Parallel**

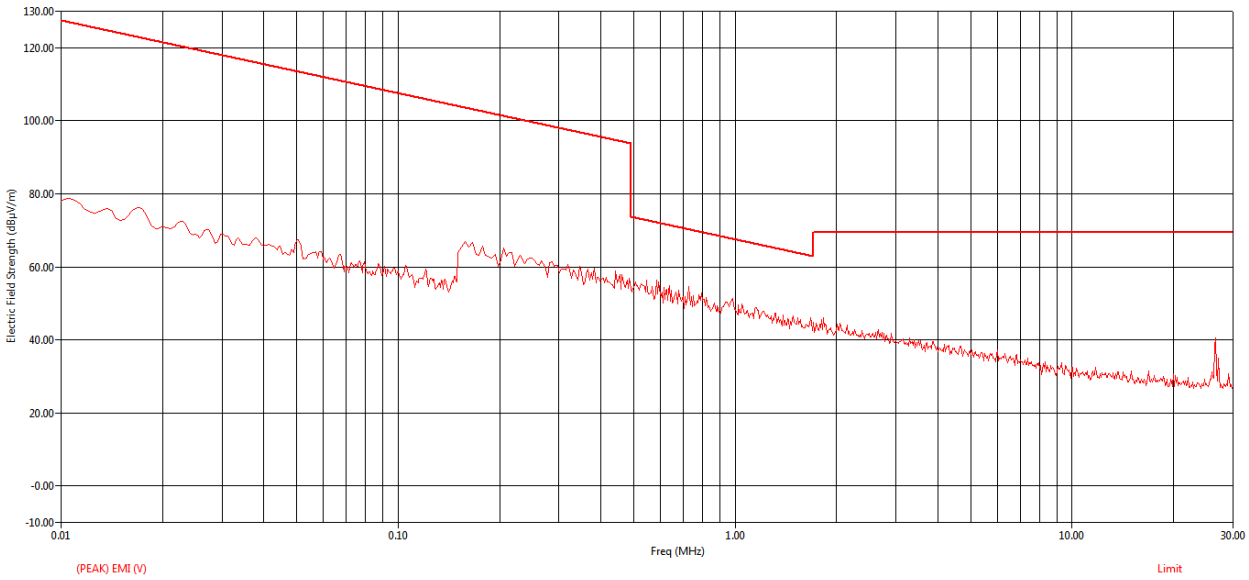


**Figure 30: Peak RE from 9 kHz to 30MHz–Parallel**

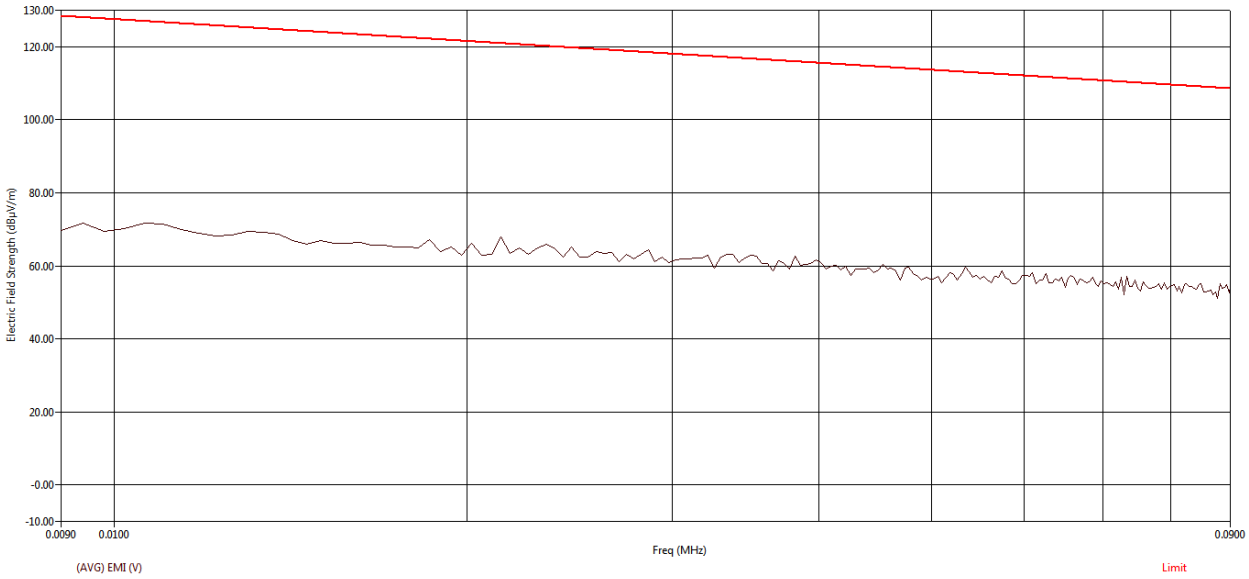


**Figure 31: Average RE from 9 kHz to 90 kHz-Perpendicular**

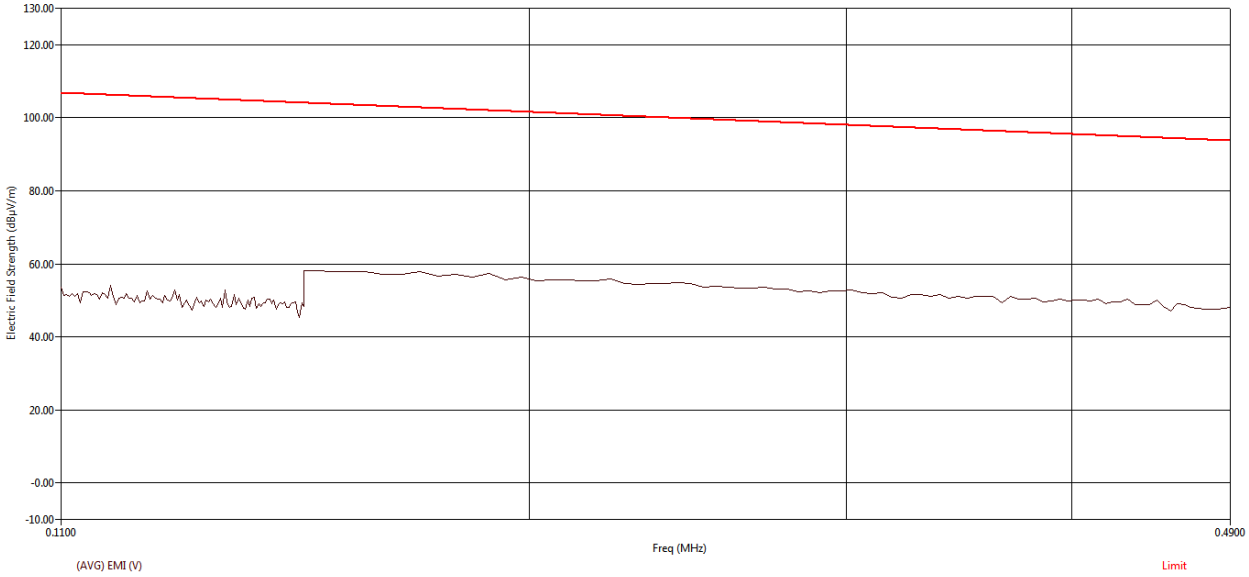


**Figure 32: Average RE from 110 kHz to 490 kHz–Perpendicular**

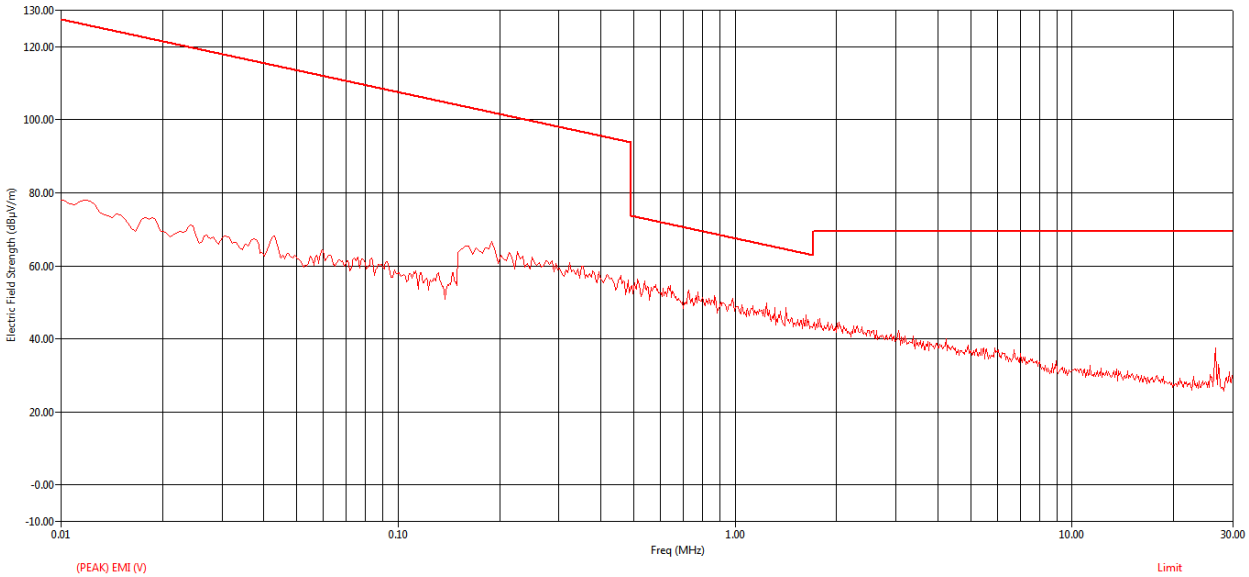


**Figure 33: Peak RE from 9 kHz to 30MHz-Perpendicular**

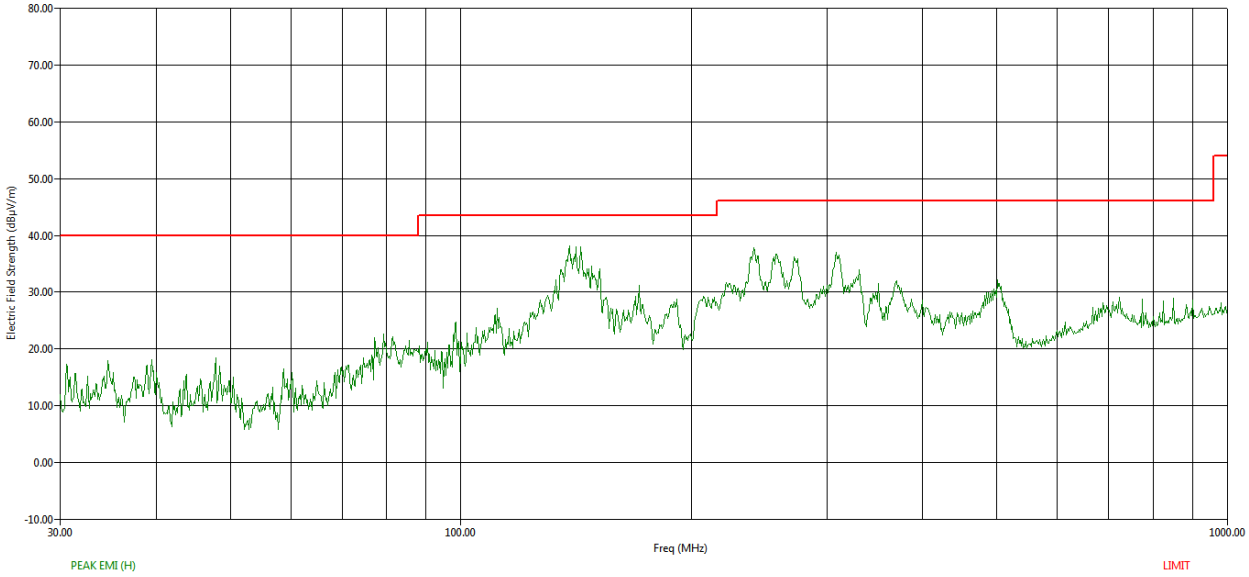


**Figure 34: Peak RE from30MHz to 1GHz-Horizontal polarization**

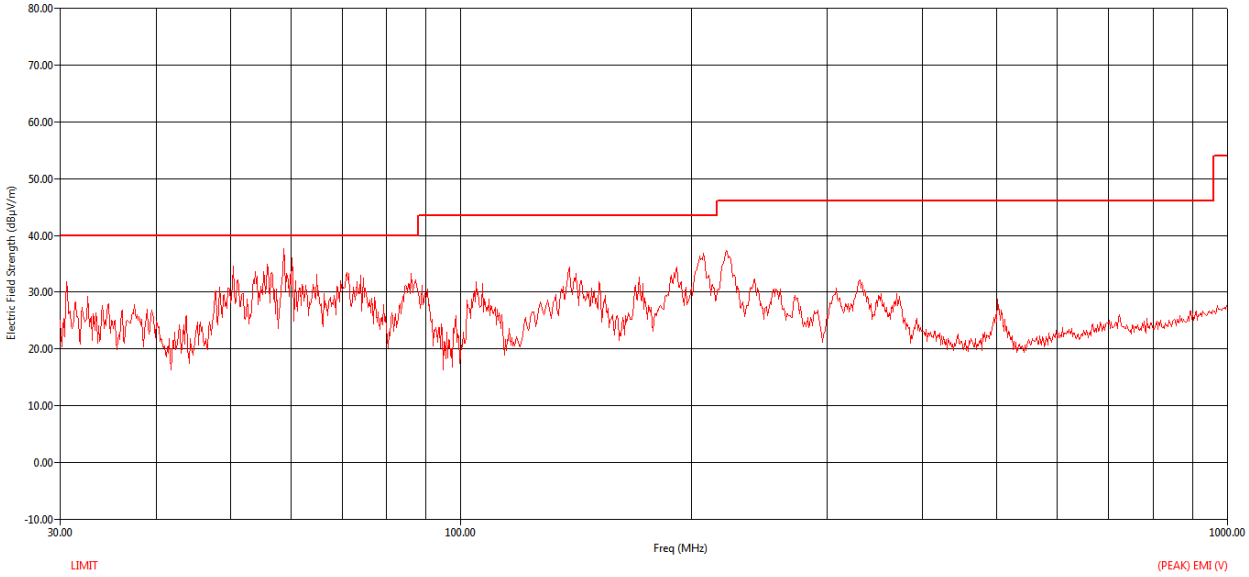


**Figure 35: Peak RE from30MHz to 1GHz-Vertical polarization**

| Freq (MHz) | Freq (Max) (MHz) | Pol | EUT Ttbl Agl (deg) | Twr Ht (cm) | (QP) Trace (dBµV) | Cable (dB) | Transducer (dB) | Preamp (dB) | (QP) EMI (dBµV/m) | Limit (dBµV/m) | (QP) Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 50.44 | 50.45 | V | 209.70 | 110.00 | 54.61 | 1.66 | 10.45 | 32.20 | 34.52 | 40.00 | -5.48 |
| 58.72 | 58.72 | V | 206.00 | 152.00 | 55.40 | 1.75 | 9.55 | 32.18 | 34.52 | 40.00 | -5.48 |
| 60.24 | 60.22 | V | 193.00 | 100.00 | 57.05 | 1.75 | 9.42 | 32.17 | 36.05 | 40.00 | -3.95 |
| 138.48 | 138.39 | H | 179.90 | 254.00 | 54.49 | 2.63 | 11.74 | 32.05 | 36.81 | 43.52 | -6.71 |
| 148.12 | 148.12 | H | 166.00 | 203.00 | 50.05 | 2.74 | 12.20 | 32.04 | 32.94 | 43.52 | -10.58 |
| 241.04 | 241.05 | H | 183.40 | 143.00 | 52.53 | 3.46 | 12.26 | 31.95 | 36.30 | 46.02 | -9.72 |

**Table 13: Radiated Emission – Quasi Peak table – 30 MHz to 1 GHz**



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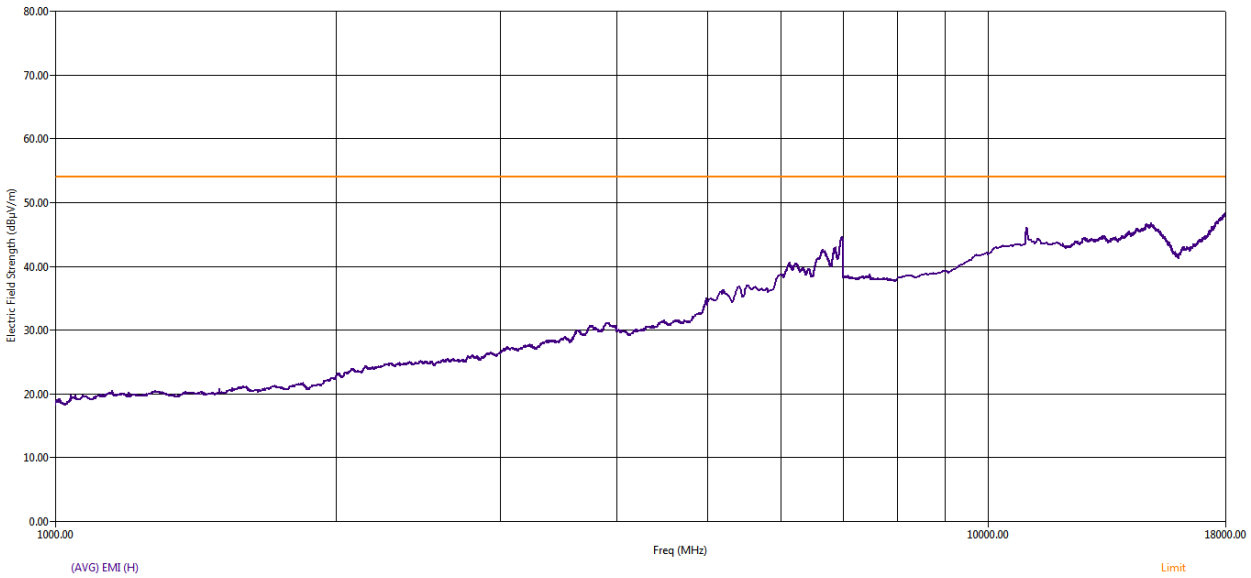


**Figure 36: Average RE from 1GHz to 18GHz-Horizontal polarization**

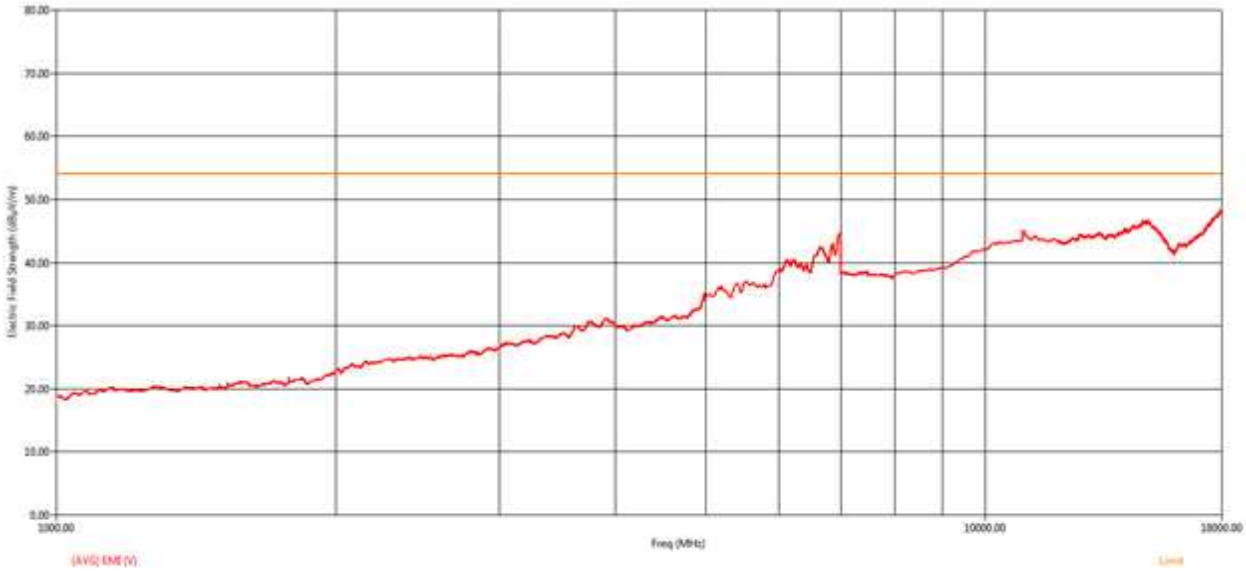


**Figure 37: Average RE from 1GHz to 18GHz-Vertical polarization**

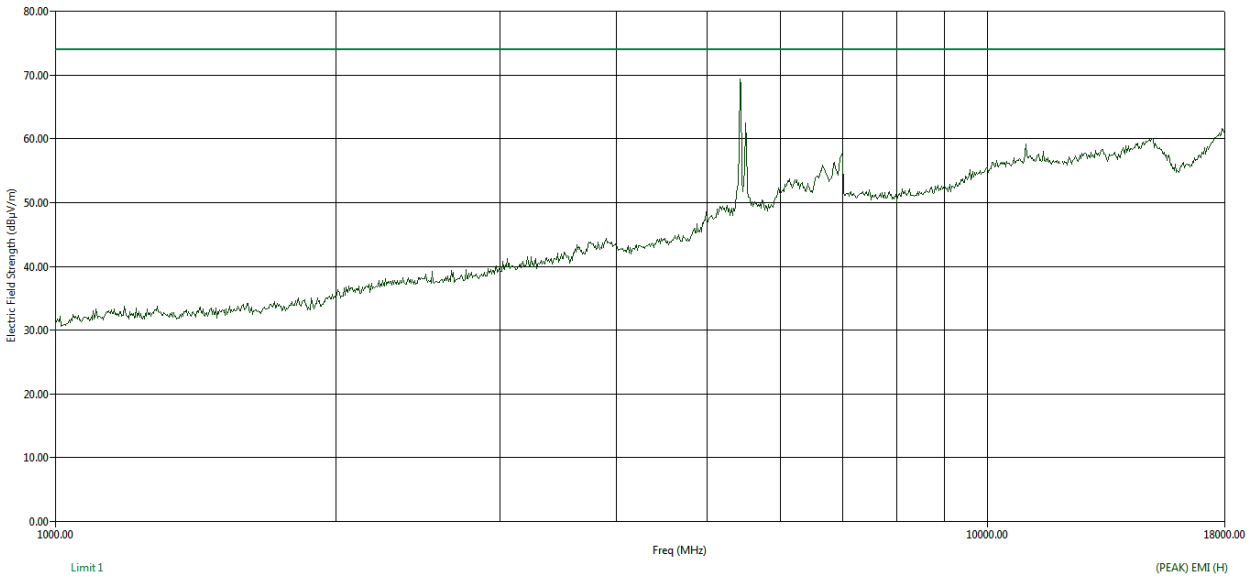


**Figure 38: Peak RE from 1GHz to 18GHz-Horizontal polarization**

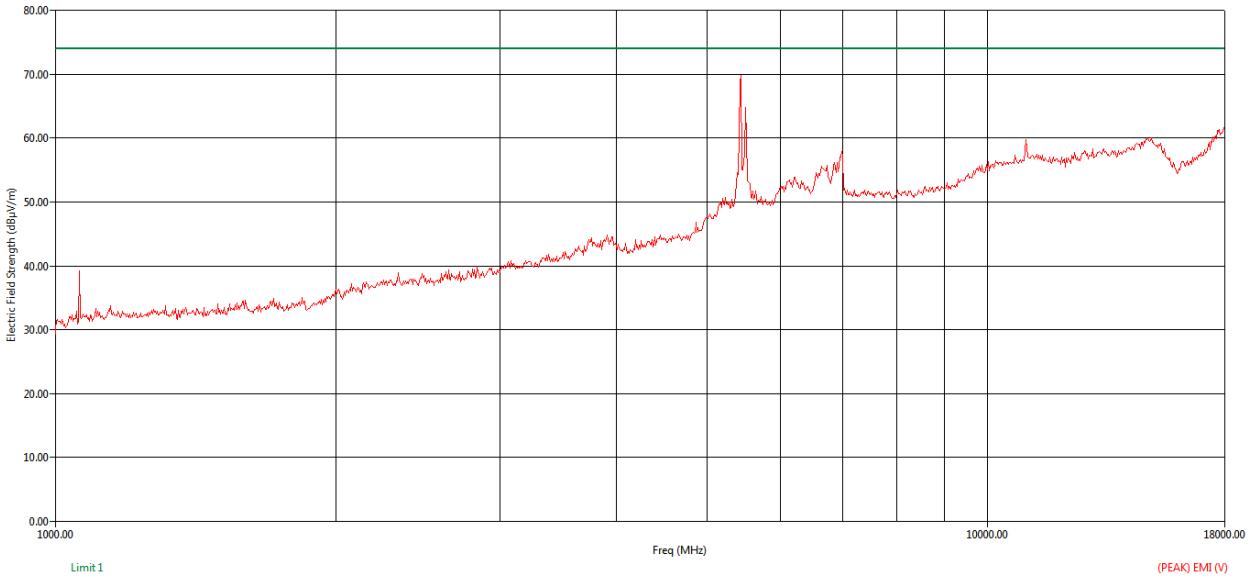


**Figure 39: Peak RE from 1GHz to 18GHz-Vertical polarization**

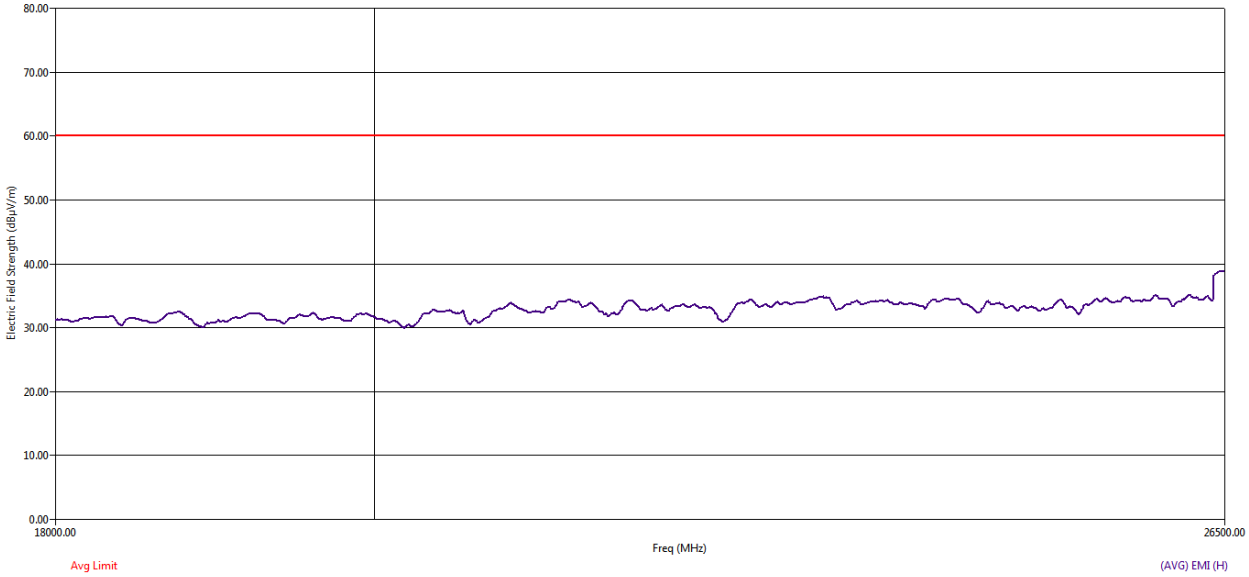


**Figure 40: Average RE from 18GHz to 26.5GHz - Horizontal polarization**

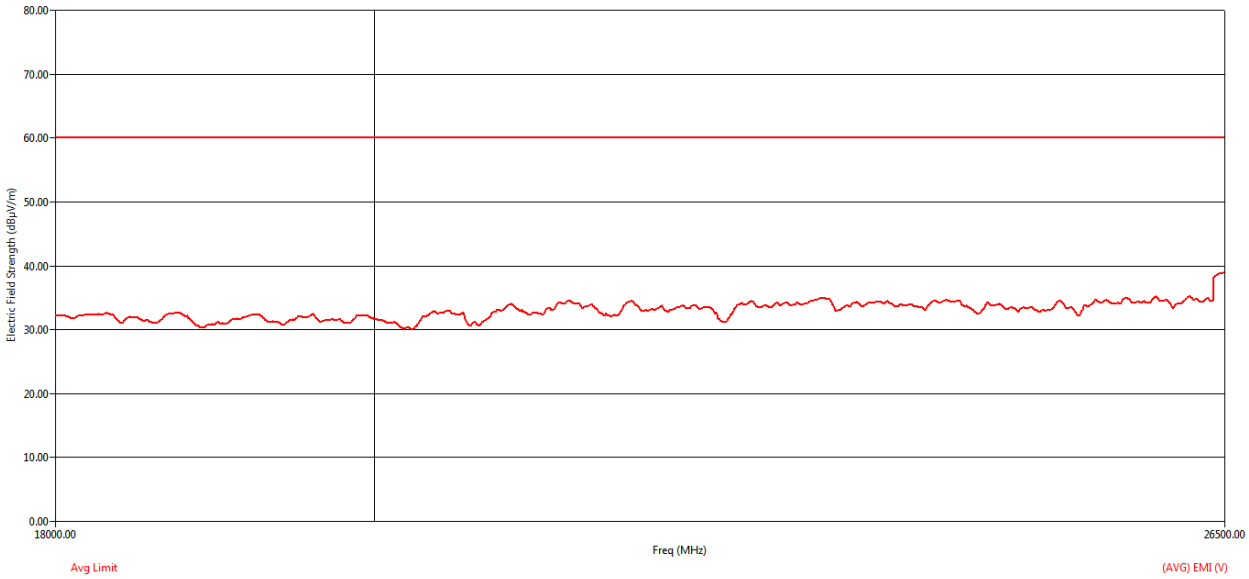


**Figure 41: Average RE from 18GHz to 26.5GHz - Vertical polarization**

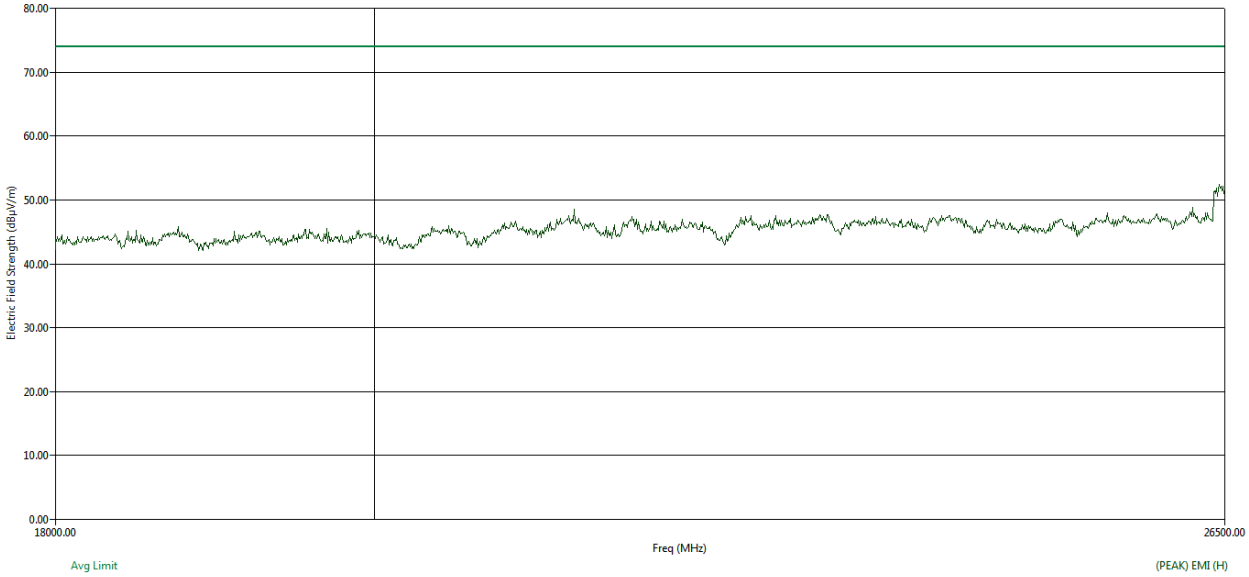


**Figure 42: Peak RE from 18GHz to 26.5GHz - Horizontal polarization**

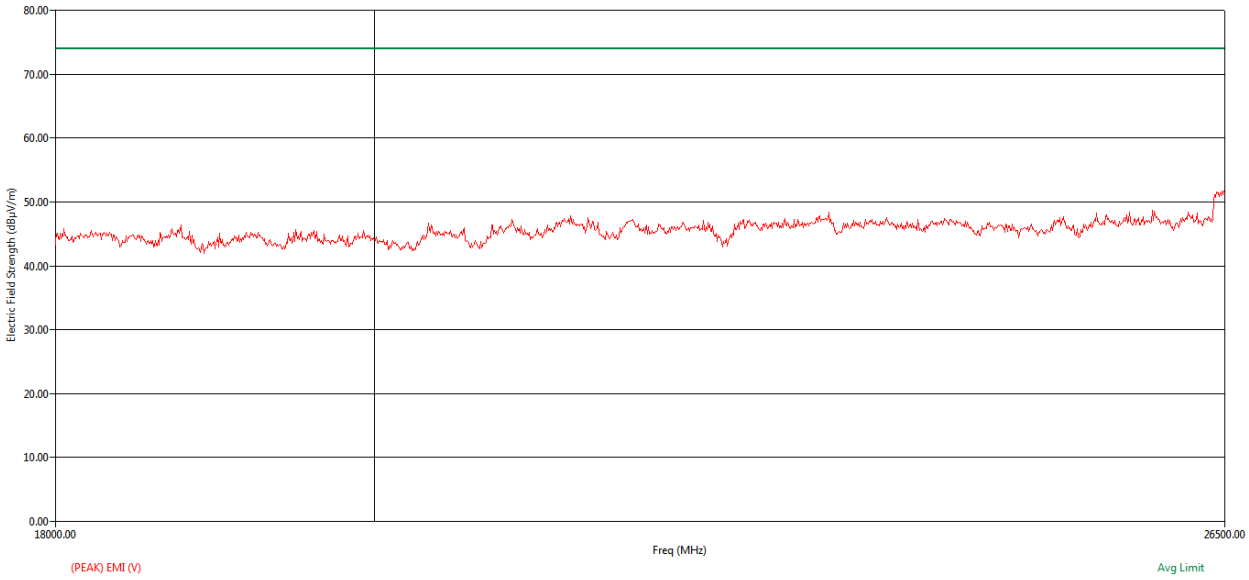


**Figure 43: Peak RE from 18GHz to 26.5GHz - Vertical polarization**

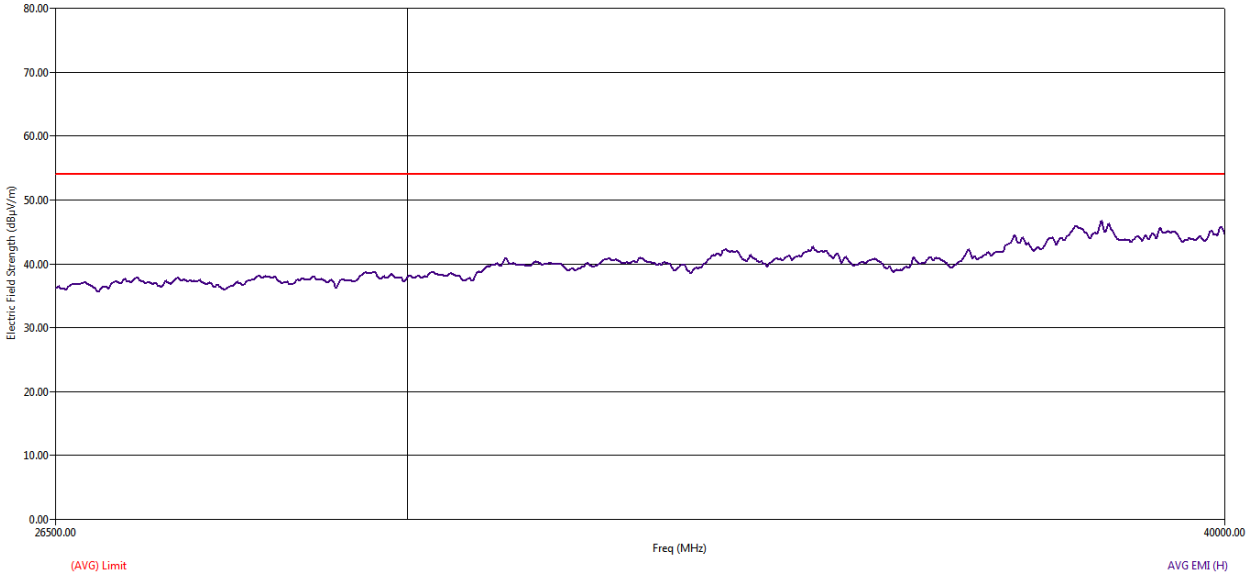


**Figure 44: Average RE from 26.5GHz to 40GHz - Horizontal polarization**

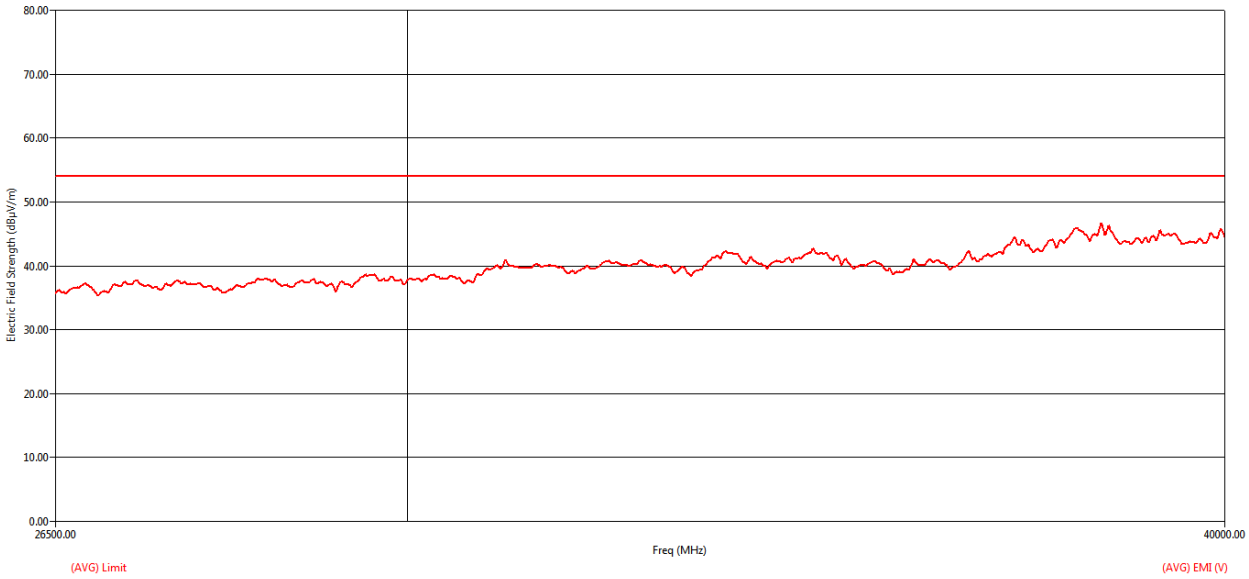


**Figure 45: Average RE from 26.5GHz to 40GHz - Vertical polarization**

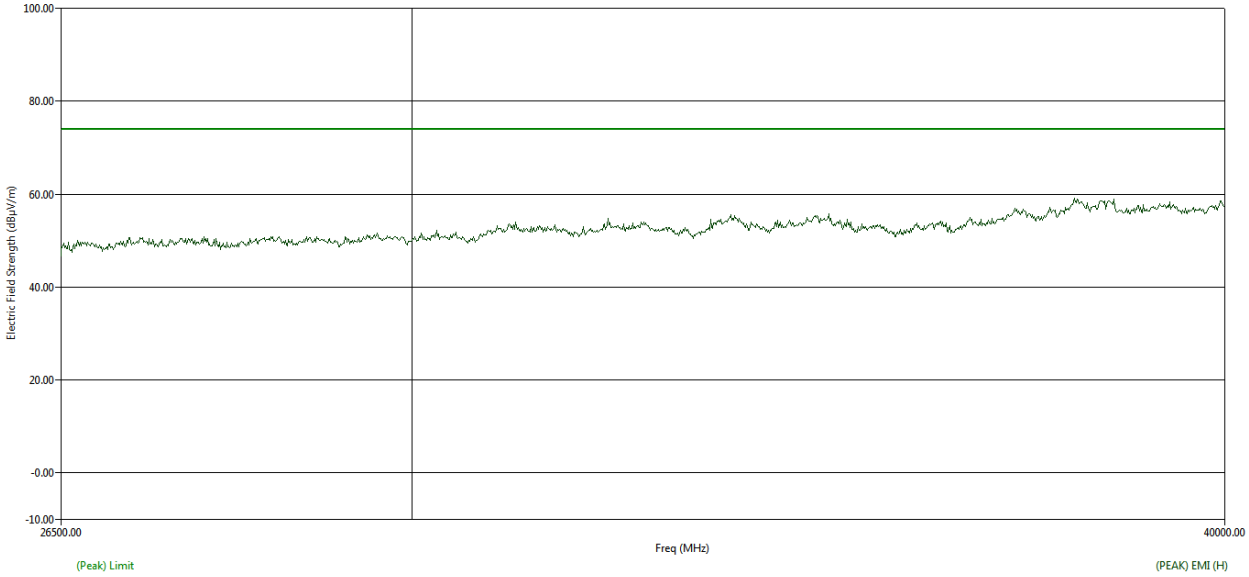


**Figure 46: Peak RE from 26.5GHz to 40GHz - Horizontal polarization**

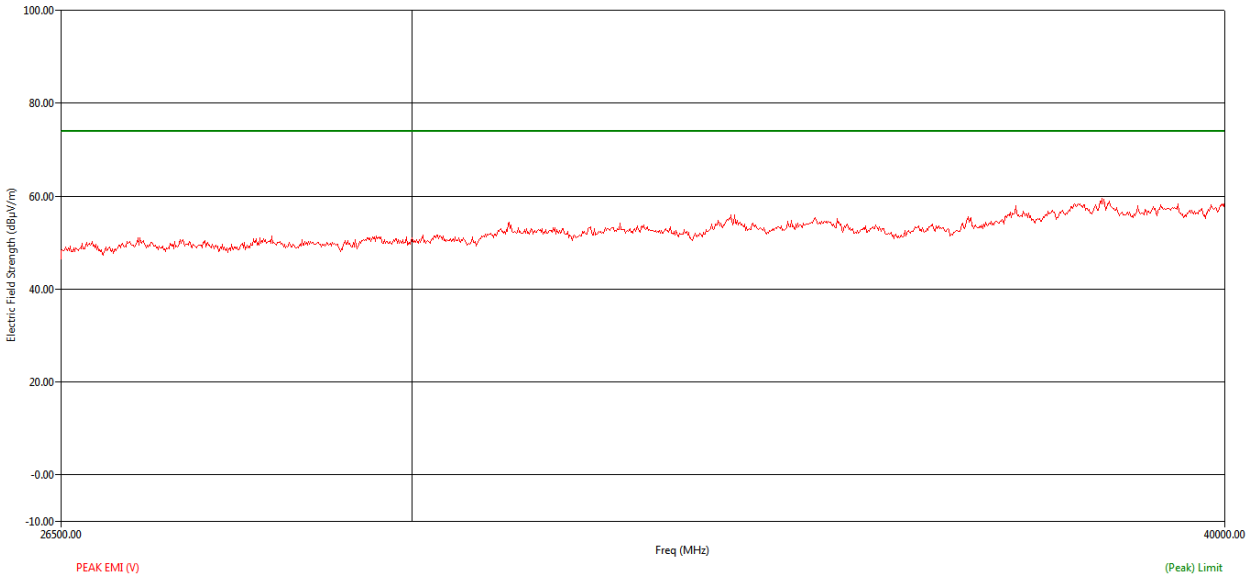


**Figure 47: Peak RE from 26.5GHz to 40GHz - Vertical polarization**

### 5.3.2.6.2 MID CHANNEL_5550MHZ

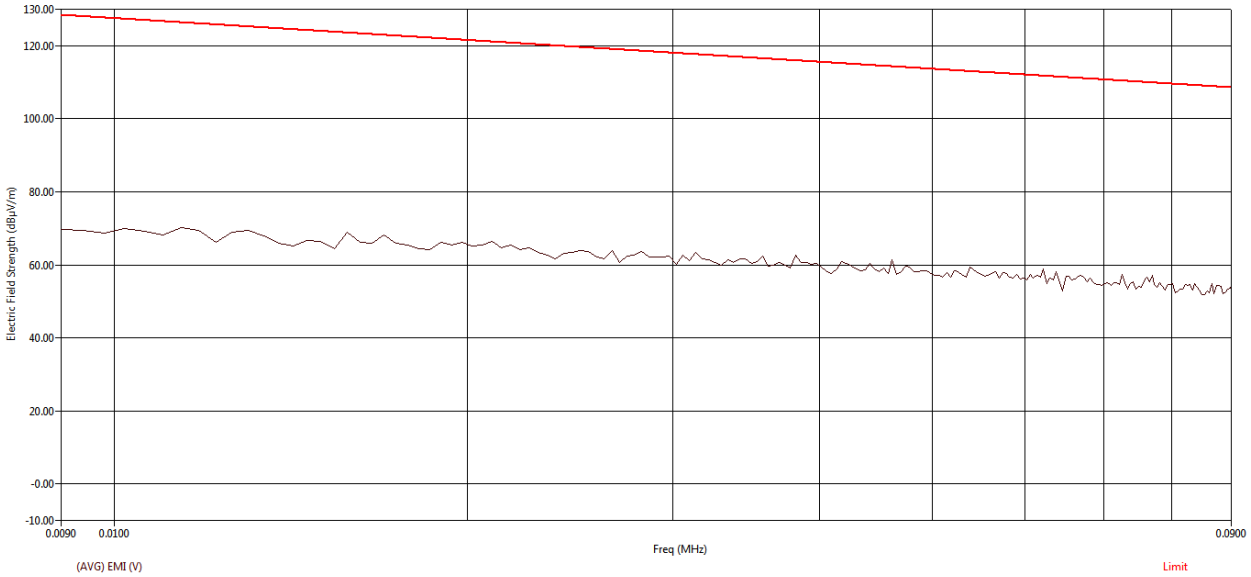


**Figure 48: Average RE from 9 kHz to 90 kHz –Parallel**

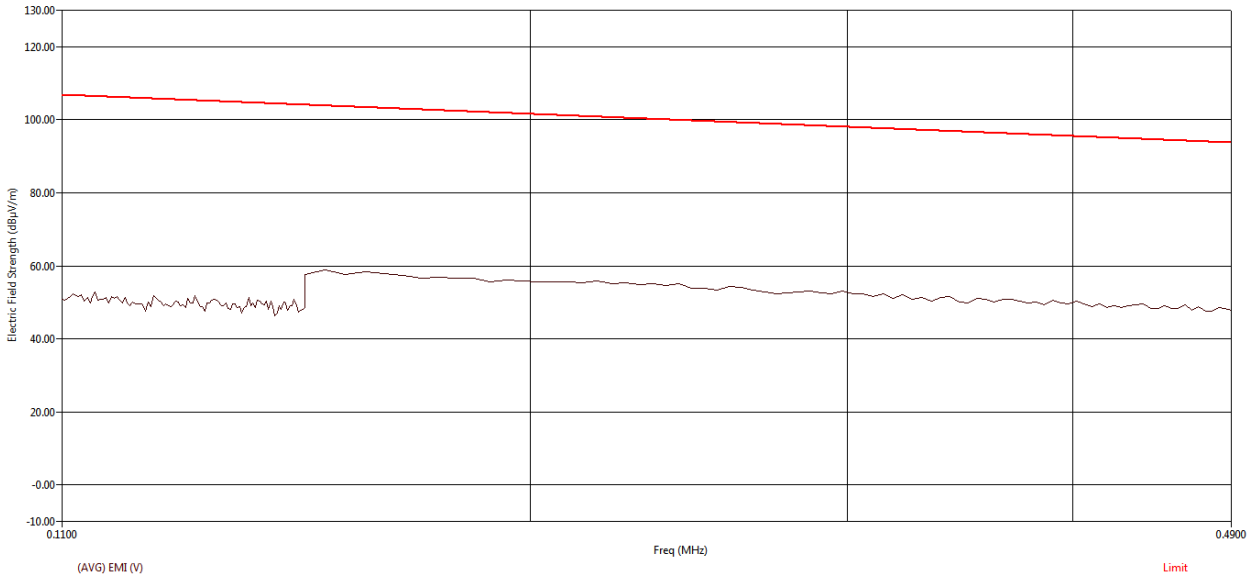


**Figure 49: Average RE from 110 kHz to 490 kHz-Parallel**

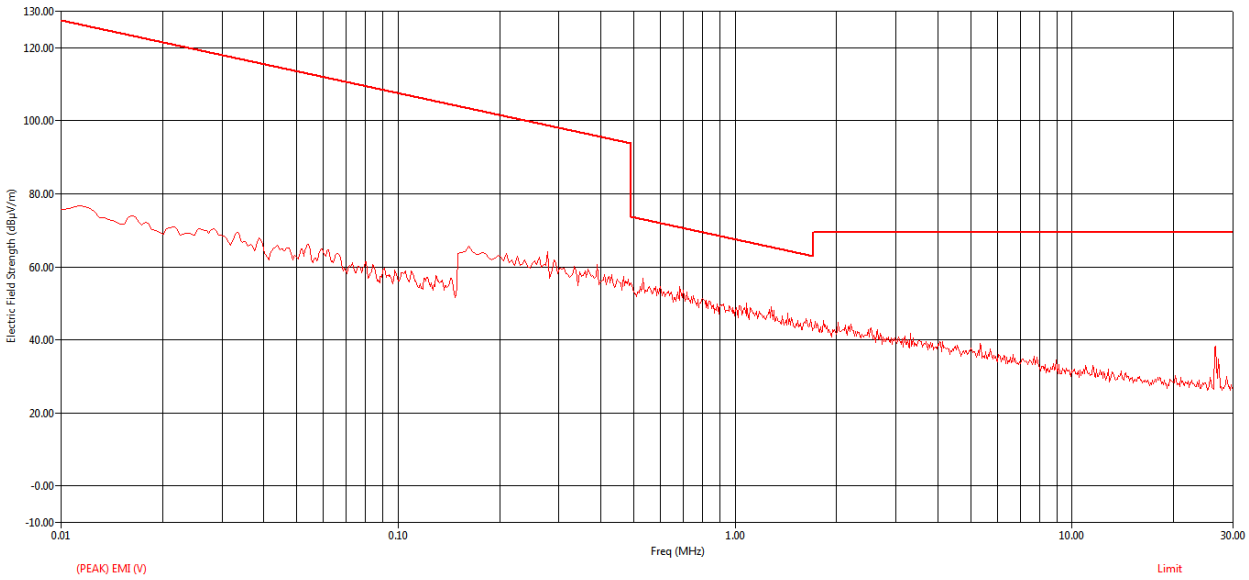


**Figure 50: Peak RE from 9 kHz to 30MHz–Parallel**

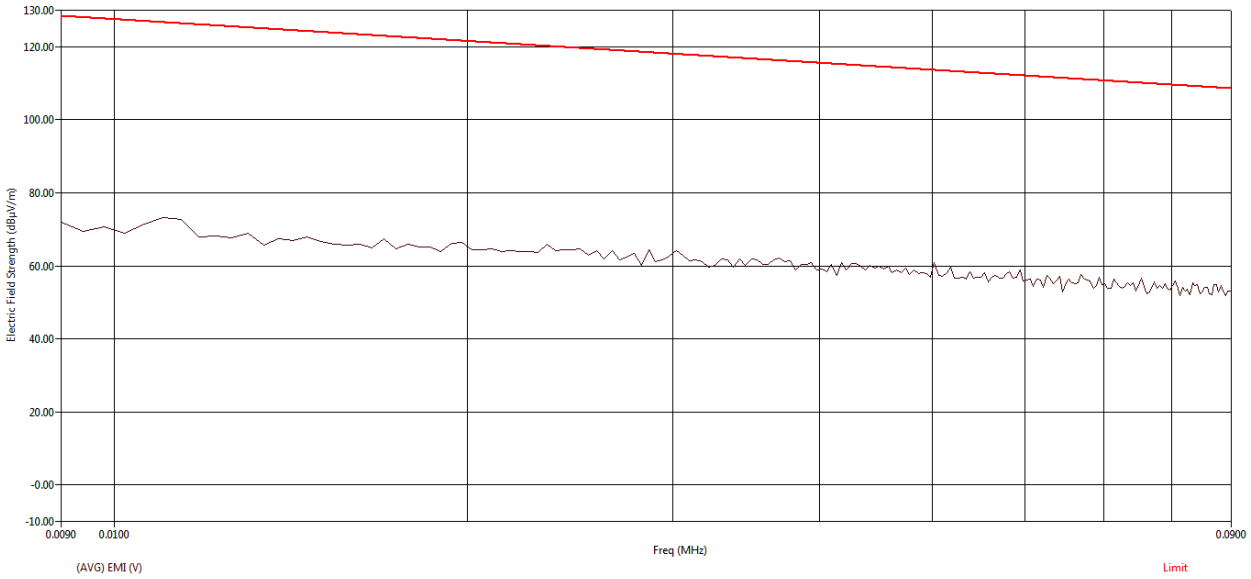


**Figure 51: Average RE from 9 kHz to 90 kHz-Perpendicular**

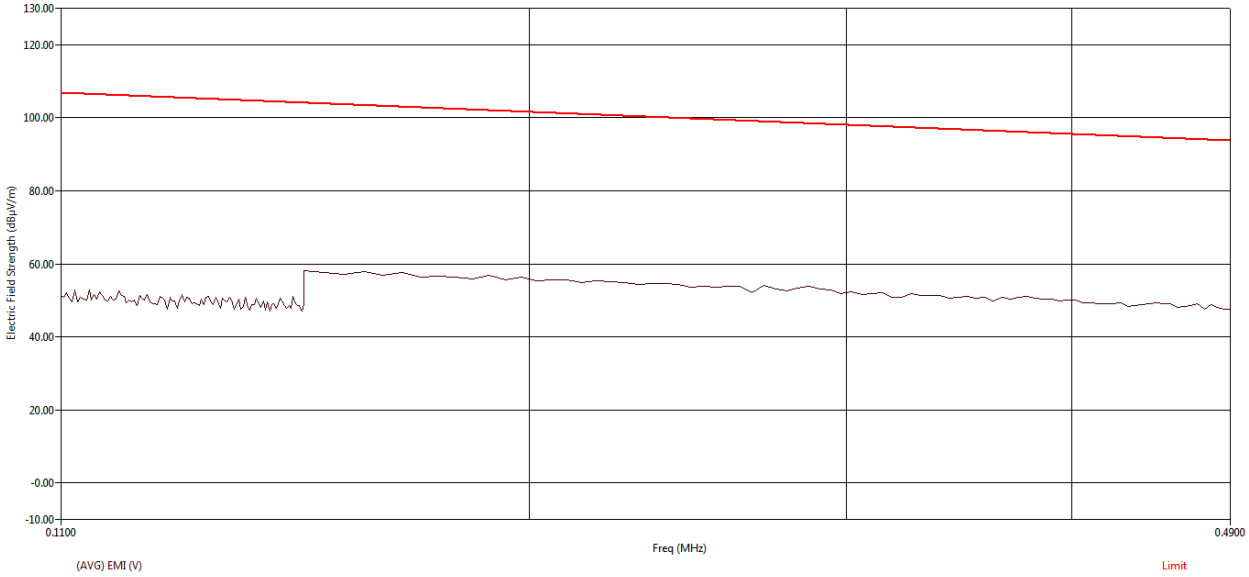


**Figure 52: Average RE from 110 kHz to 490 kHz–Perpendicular**

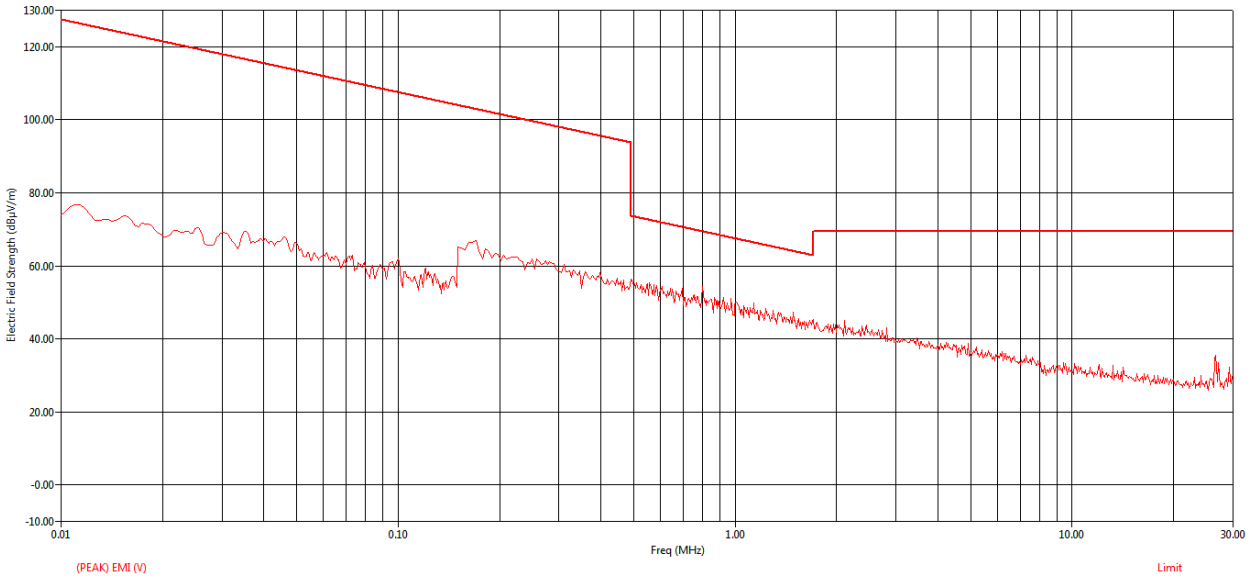


**Figure 53: Peak RE from 9 kHz to 30MHz–Perpendicular**

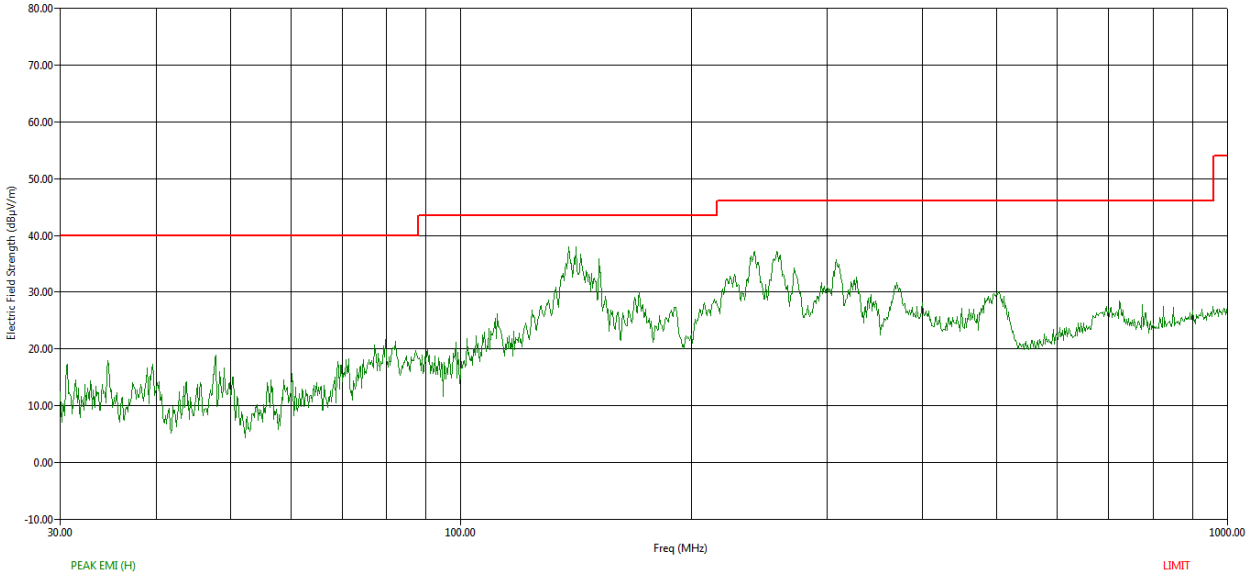


**Figure 54: Peak RE from30MHz to 1GHz-Horizontal polarization**

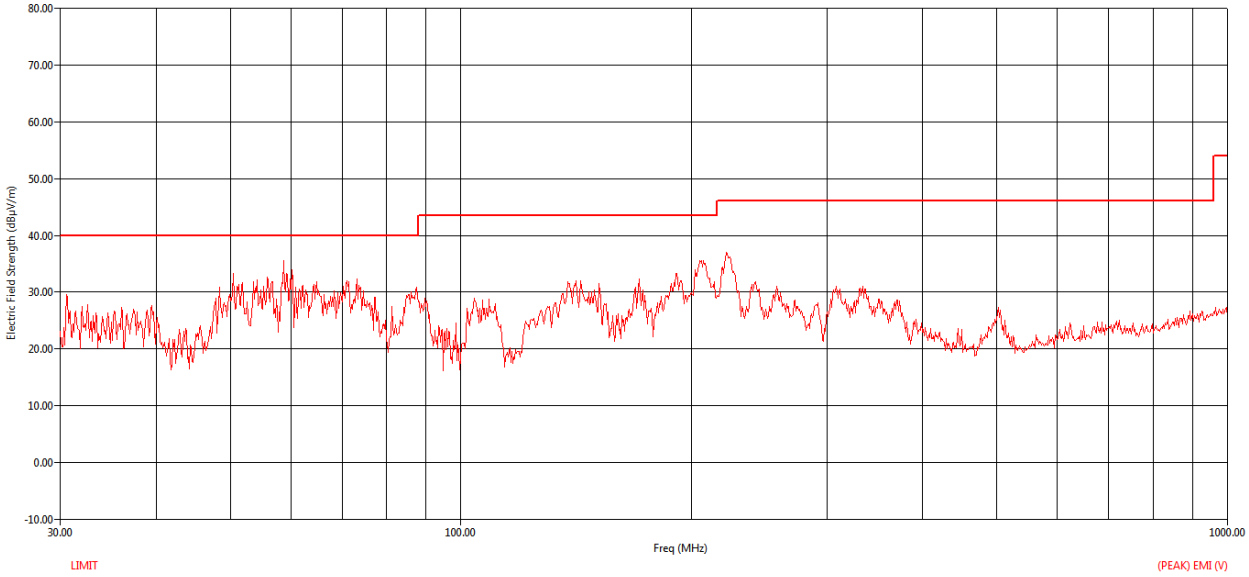


**Figure 55: Peak RE from30MHz to 1GHz-Vertical polarization**

| Freq (MHz) | Freq (Max) (MHz) | Pol | EUT Ttbl Agl (deg) | Twr Ht (cm) | (QP) Trace (dBµV) | Cable (dB) | Transducer (dB) | Preamp (dB) | (QP) EMI (dBµV/m) | Limit (dBµV/m) | (QP) Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 50.48 | 50.44 | V | 254.20 | 100.00 | 54.65 | 1.66 | 10.45 | 32.20 | 34.56 | 40.00 | -5.44 |
| 55.92 | 56.00 | V | 201.00 | 103.00 | 52.27 | 1.71 | 9.83 | 32.18 | 31.62 | 40.00 | -8.38 |
| 58.76 | 58.73 | V | 250.10 | 103.00 | 54.33 | 1.75 | 9.55 | 32.18 | 33.46 | 40.00 | -6.54 |
| 73.20 | 73.16 | V | 180.10 | 104.00 | 48.76 | 1.94 | 9.33 | 32.15 | 27.89 | 40.00 | -12.11 |
| 138.40 | 138.39 | H | 179.90 | 236.00 | 54.82 | 2.63 | 11.74 | 32.05 | 37.14 | 43.52 | -6.38 |
| 141.24 | 141.20 | H | 182.40 | 235.00 | 54.68 | 2.68 | 11.83 | 32.05 | 37.14 | 43.52 | -6.38 |
| 151.56 | 151.58 | H | 179.60 | 208.00 | 49.72 | 2.78 | 12.37 | 32.04 | 32.83 | 43.52 | -10.69 |
| 222.86 | 222.77 | H | 328.00 | 128.00 | 46.07 | 3.33 | 13.03 | 31.97 | 30.46 | 46.02 | -15.56 |

**Table 14: Radiated Emission – Quasi Peak table – 30 MHz to 1 GHz**



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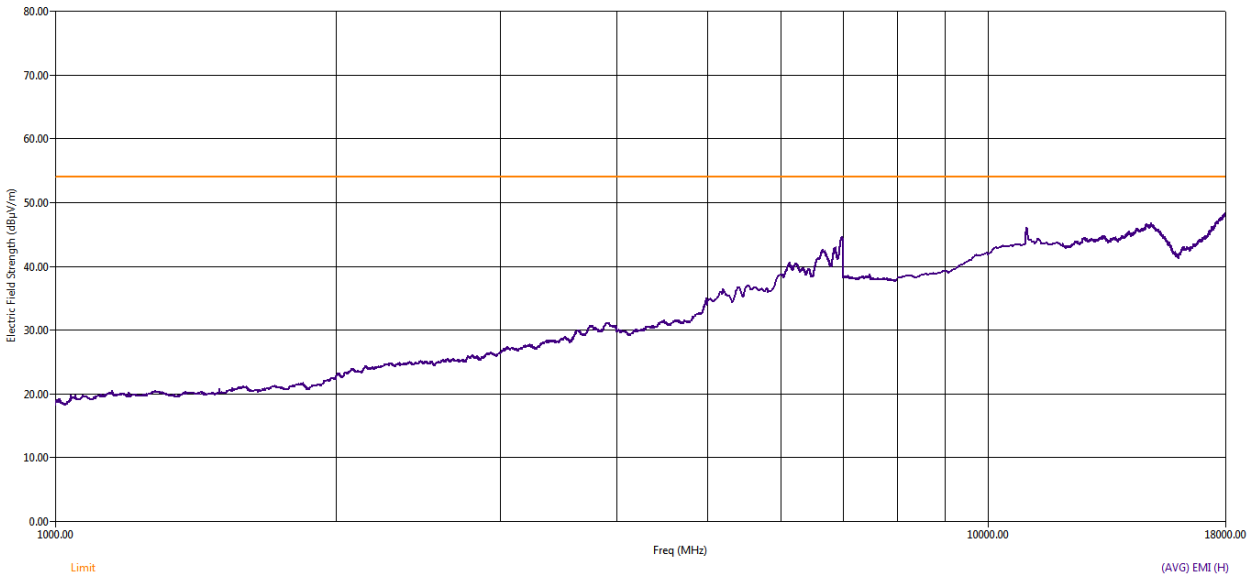


**Figure 56: Average RE from 1GHz to 18GHz-Horizontal polarization**

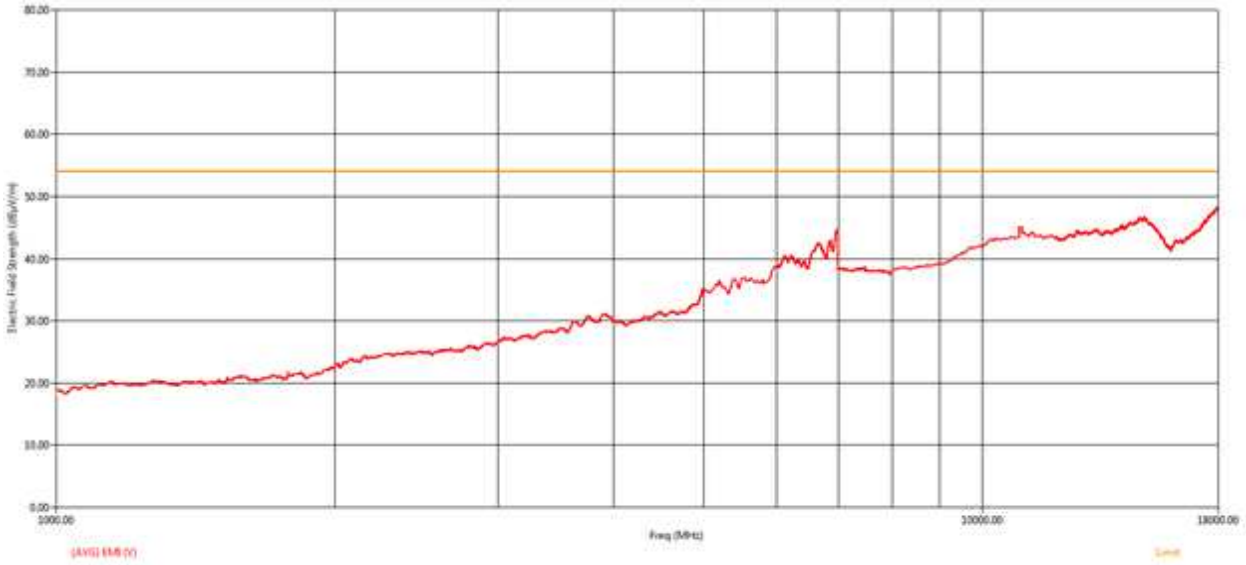

**Figure 57: Average RE from 1GHz to 18GHz-Vertical polarization**

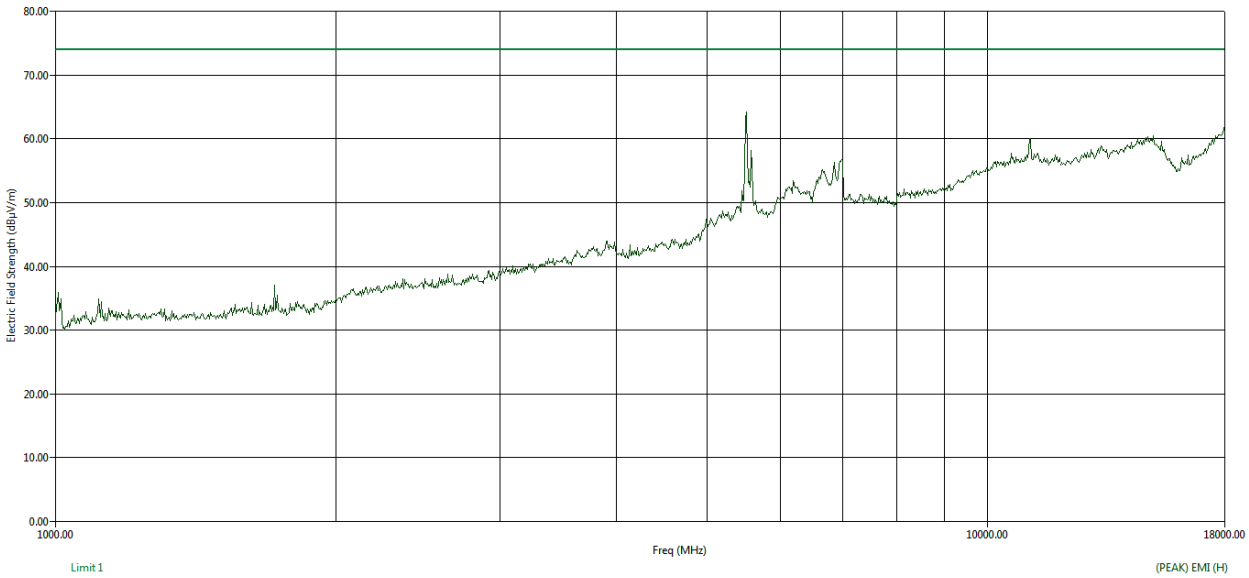


**Figure 58: Peak RE from 1GHz to 18GHz-Horizontal polarization**

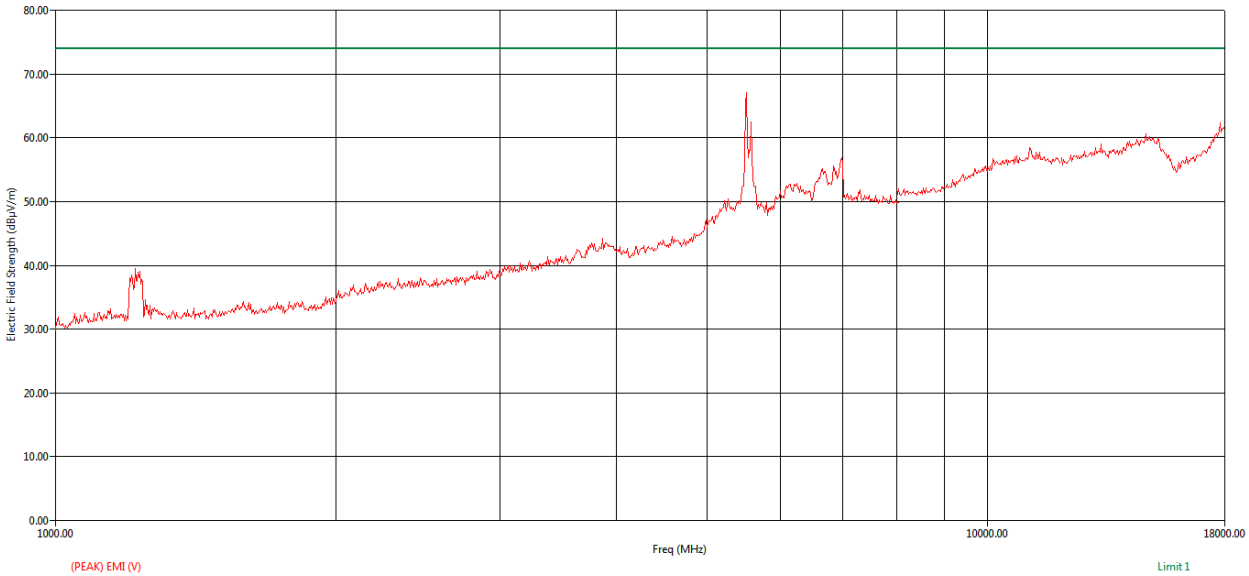


**Figure 59: Peak RE from 1GHz to 18GHz-Vertical polarization**

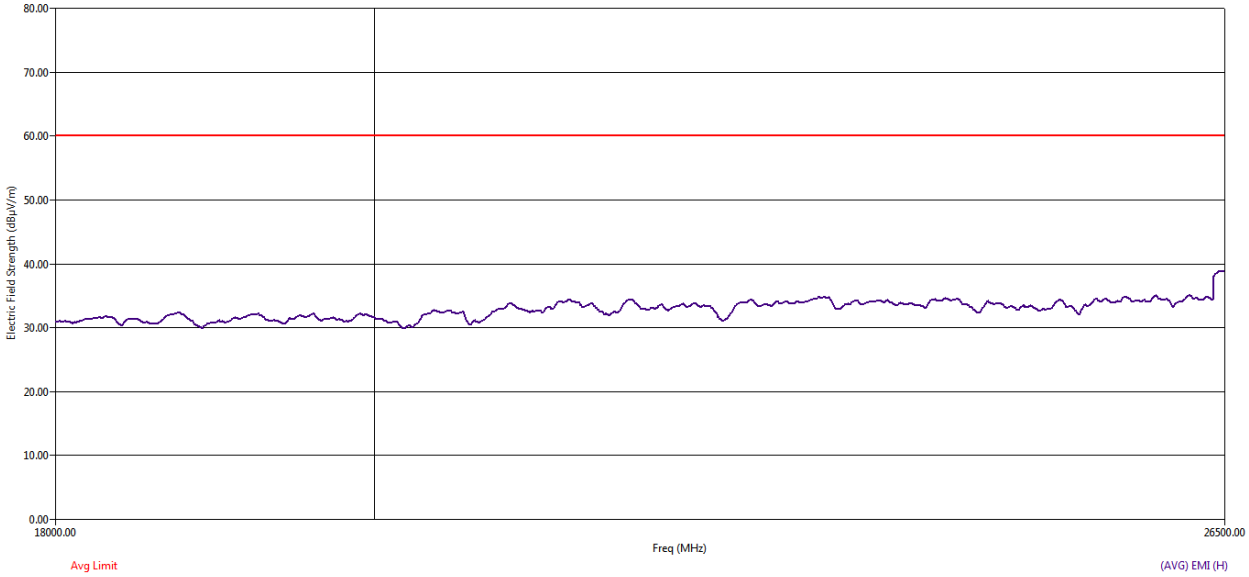


**Figure 60: Average RE from 18GHz to 26.5GHz - Horizontal polarization**

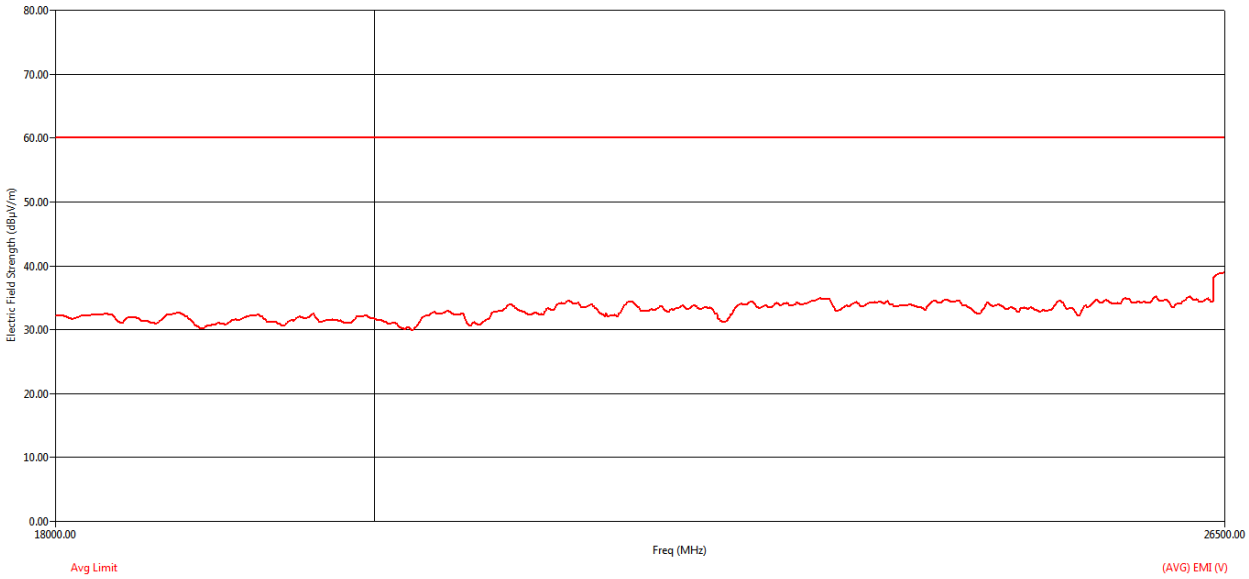


**Figure 61: Average RE from 18GHz to 26.5GHz - Vertical polarization**

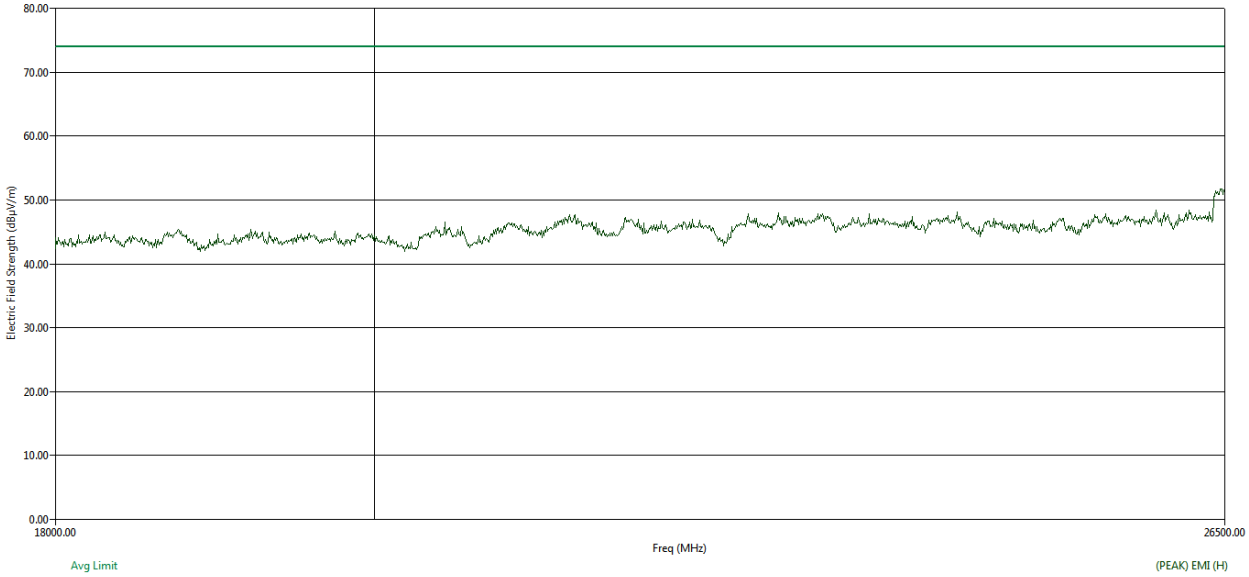


**Figure 62: Peak RE from 18GHz to 26.5GHz - Horizontal polarization**

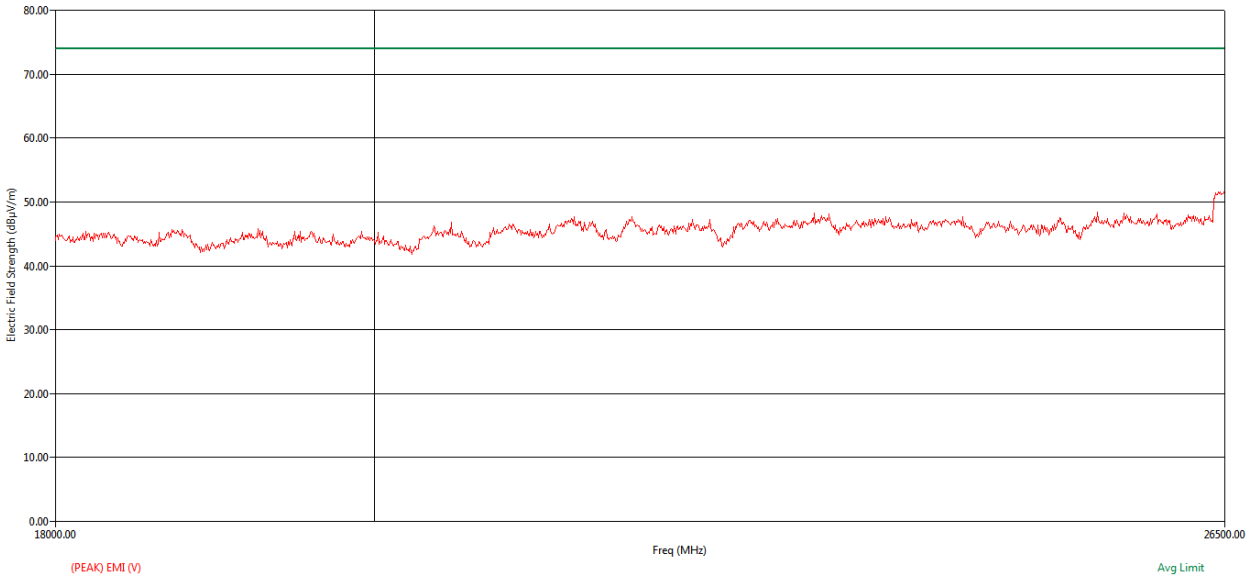


**Figure 63: Peak RE from 18GHz to 26.5GHz - Vertical polarization**

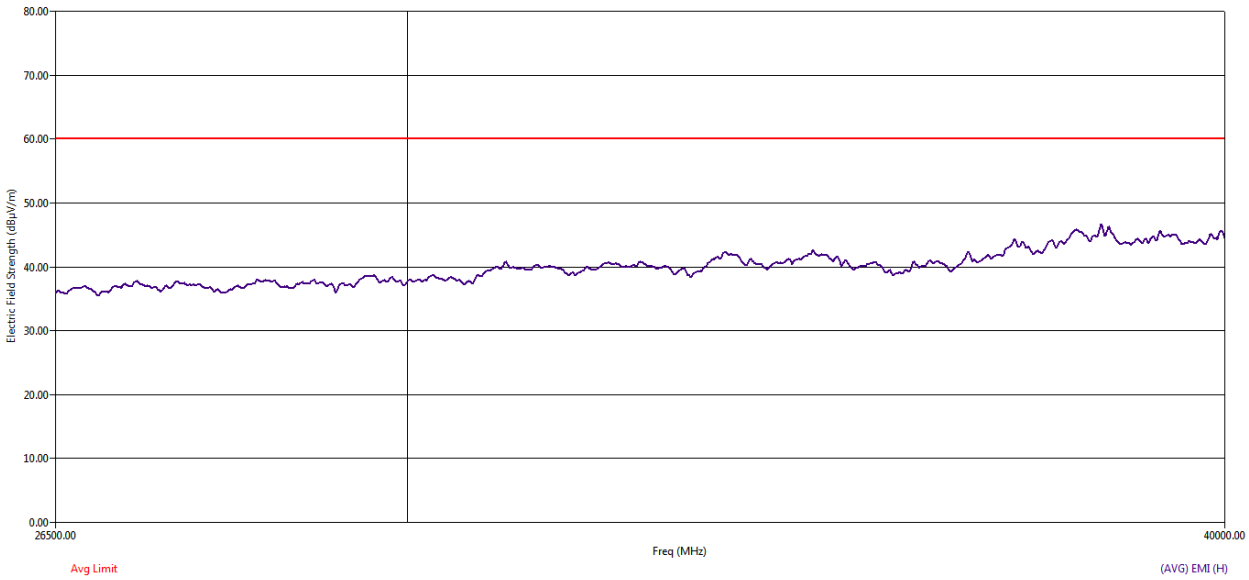


**Figure 64: Average RE from 26.5GHz to 40GHz - Horizontal polarization**

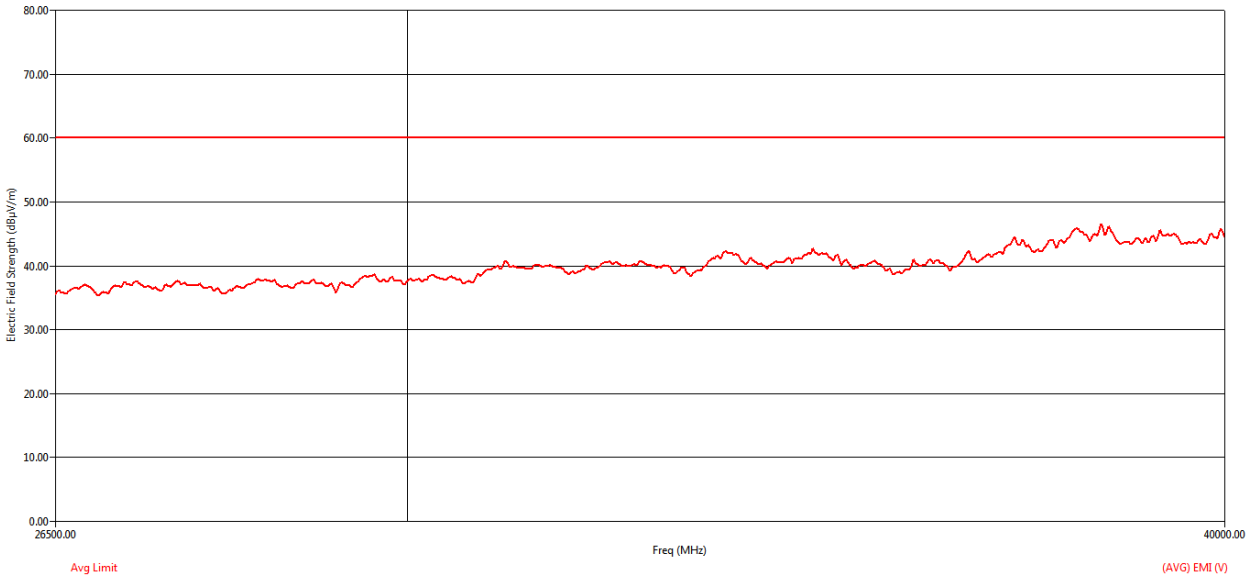


**Figure 65: Average RE from 26.5GHz to 40GHz - Vertical polarization**

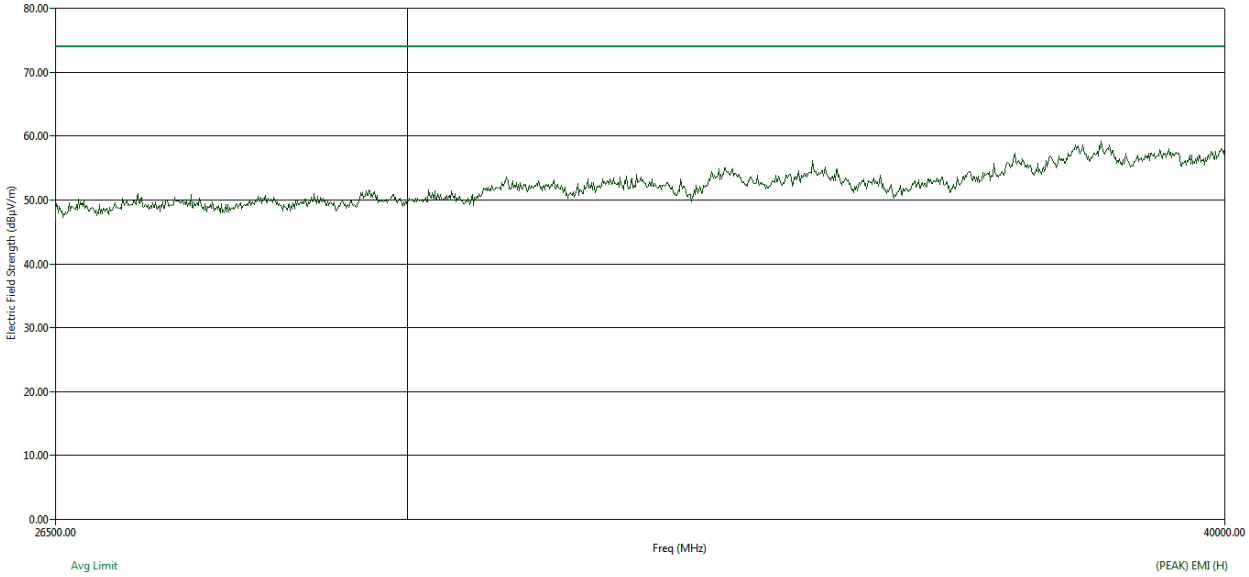


**Figure 66: Peak RE from 26.5GHz to 40GHz - Horizontal polarization**

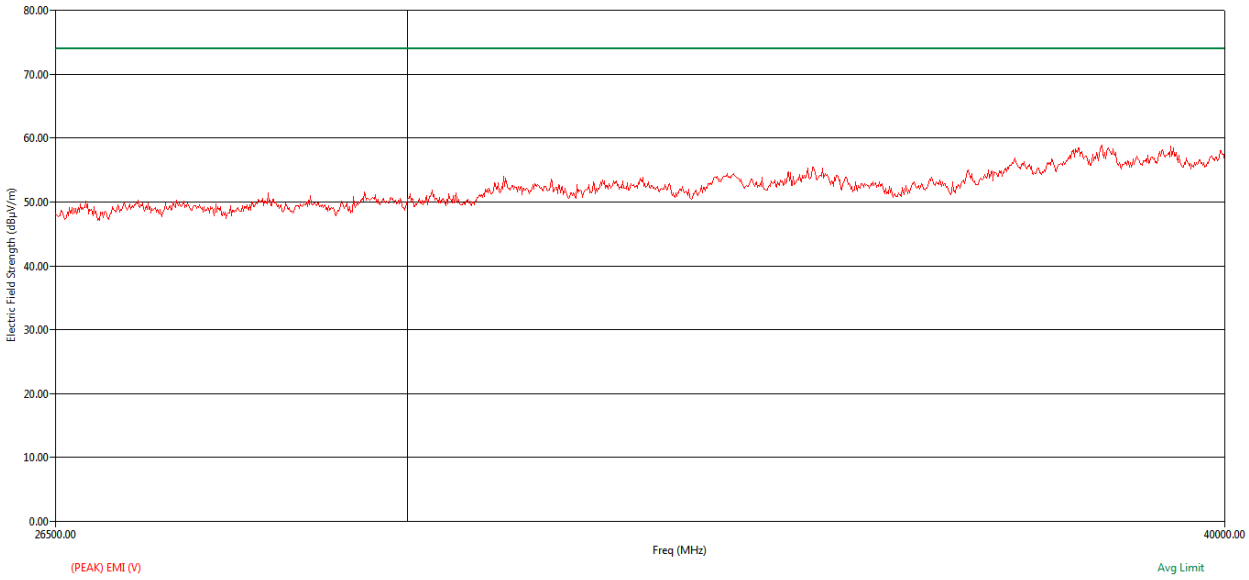


**Figure 67: Peak RE from 26.5GHz to 40GHz - Vertical polarization**

### 5.3.2.6.3 HIGH CHANNEL_5700MHZ

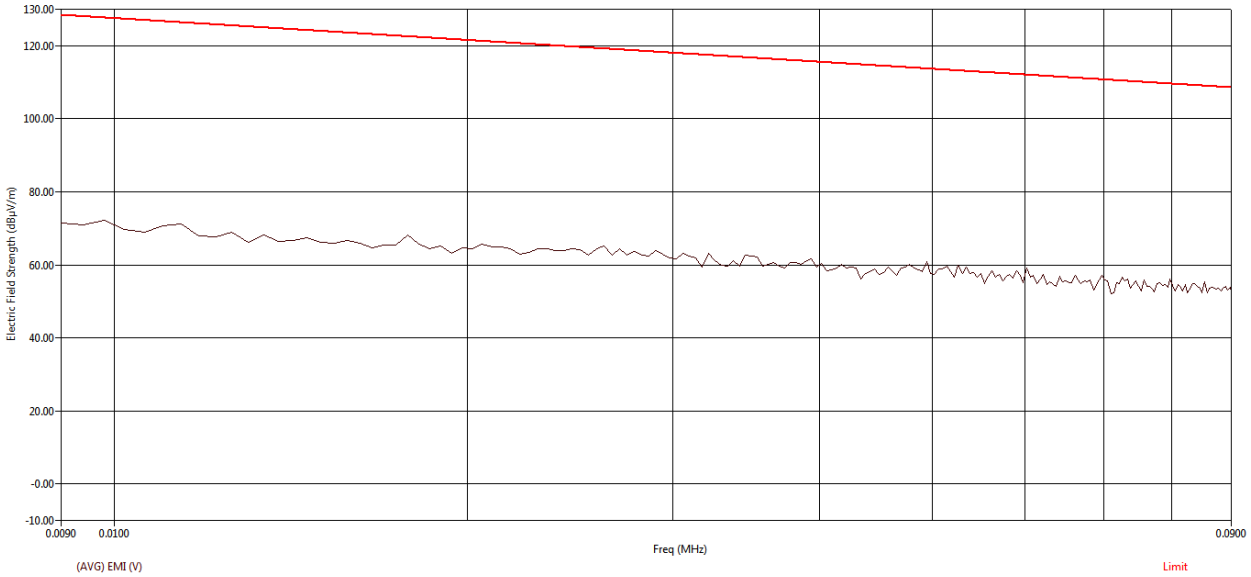


**Figure 68: Average RE from 9 kHz to 90 kHz –Parallel**

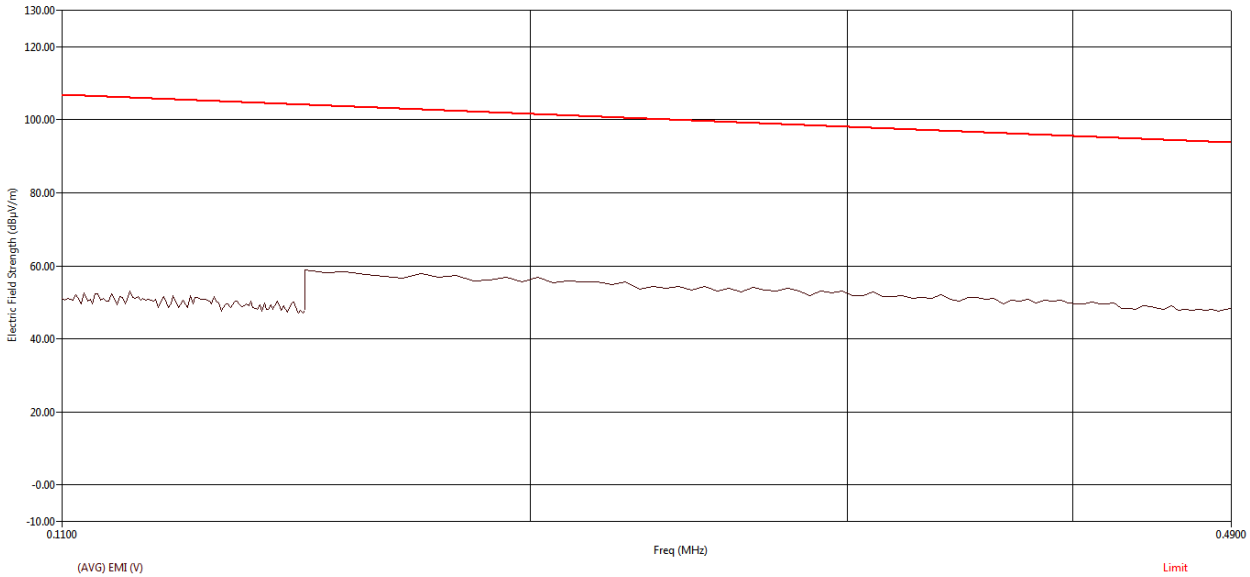


**Figure 69: Average RE from 110 kHz to 490 kHz-Parallel**

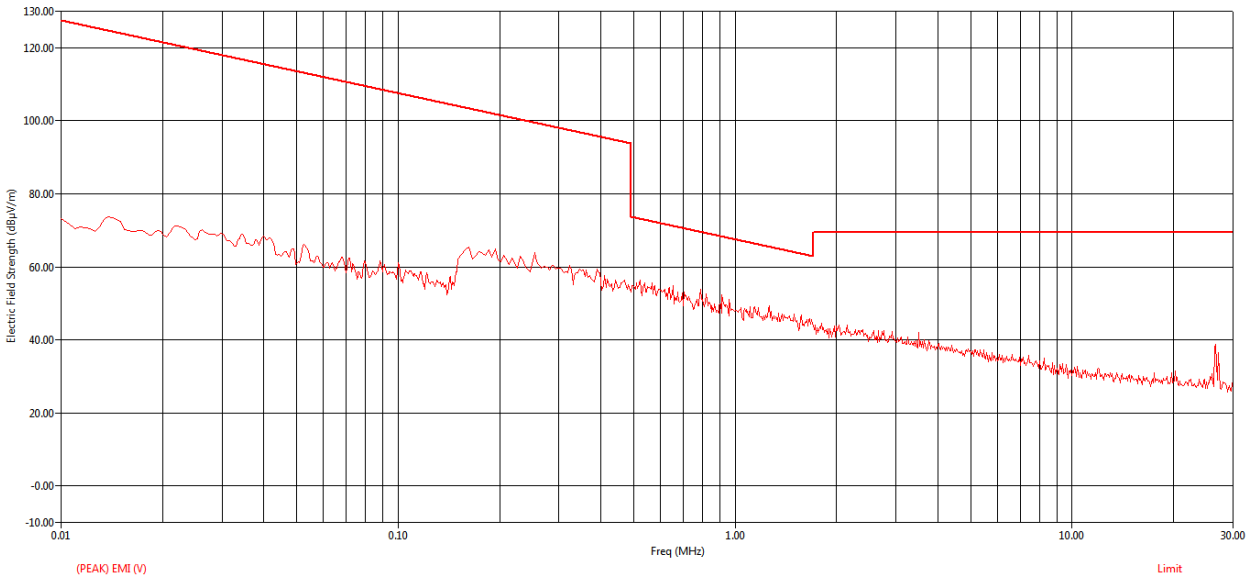


**Figure 70: Peak RE from 9 kHz to 30MHz–Parallel**

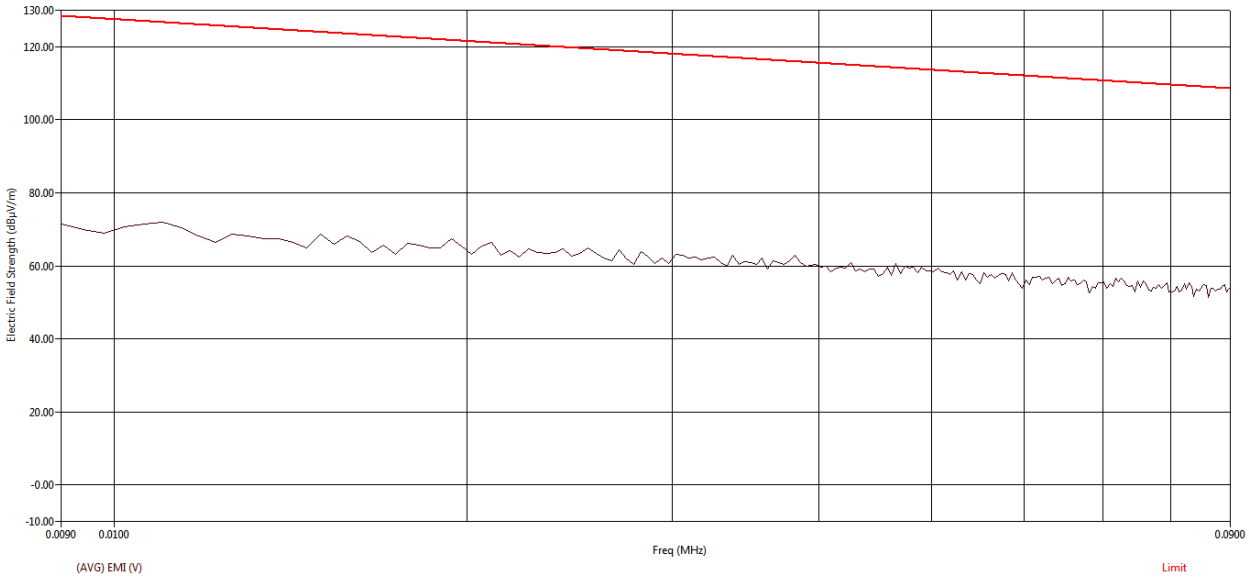


**Figure 71: Average RE from 9 kHz to 90 kHz -Perpendicular**

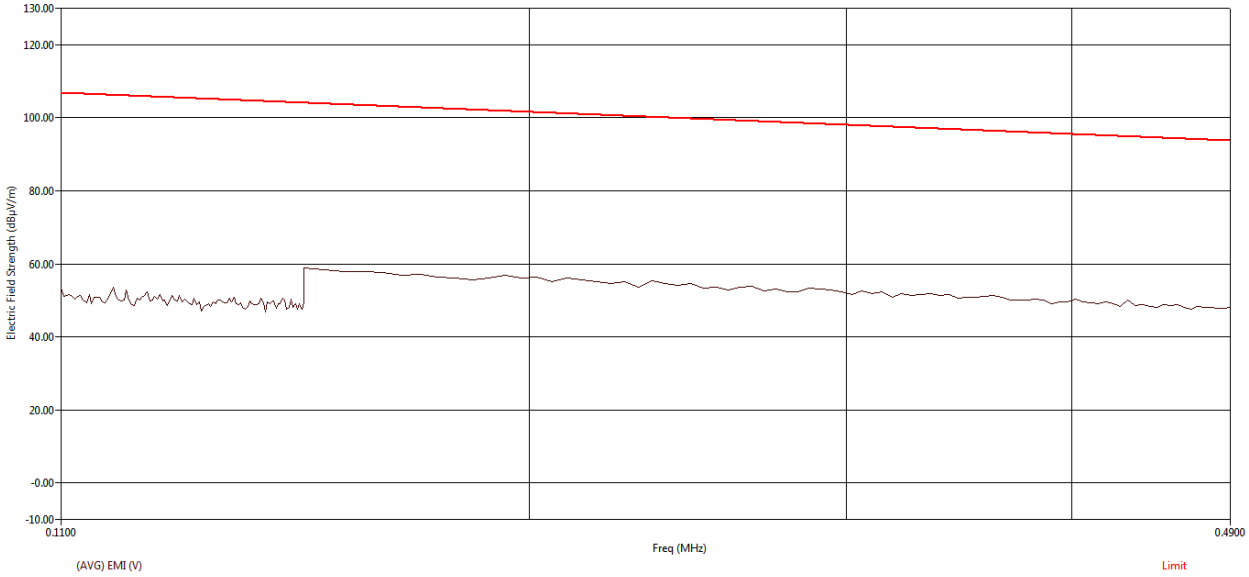


**Figure 72: Average RE from 110 kHz to 490 kHz–Perpendicular**

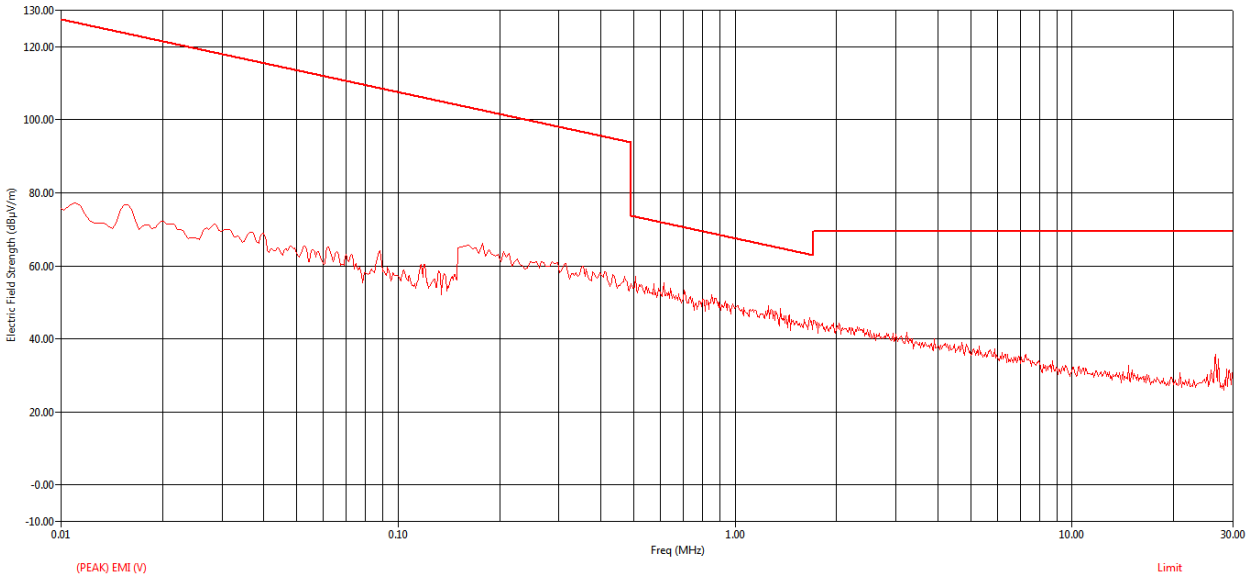


**Figure 73: Peak RE from 9 kHz to 30MHz-Perpendicular**

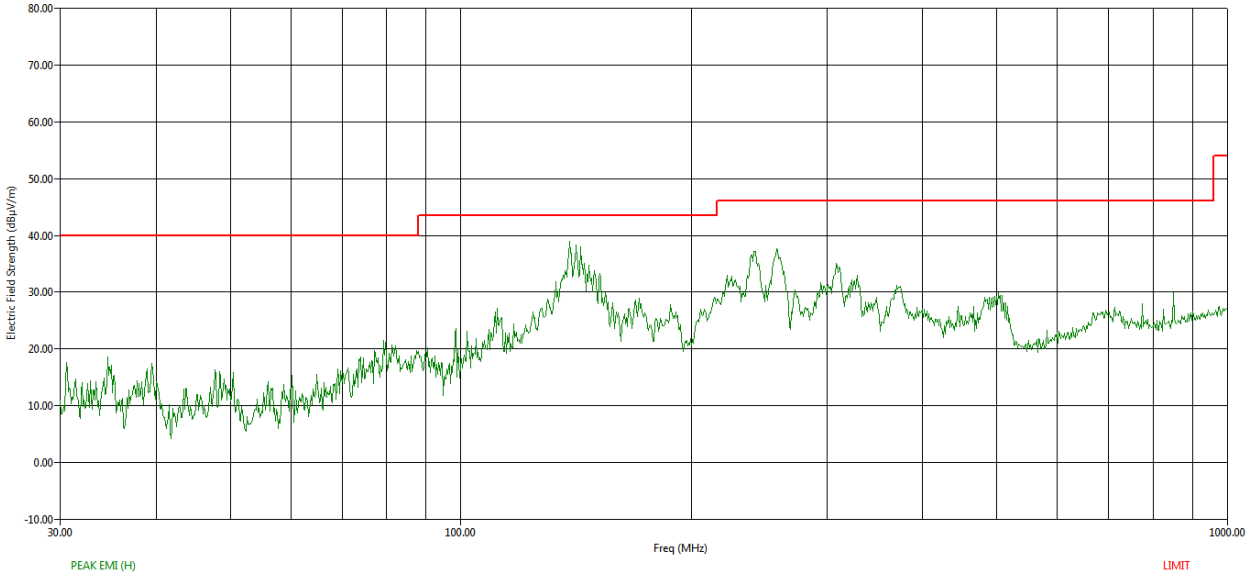


**Figure 74: Peak RE from30MHz to 1GHz-Horizontal polarization**

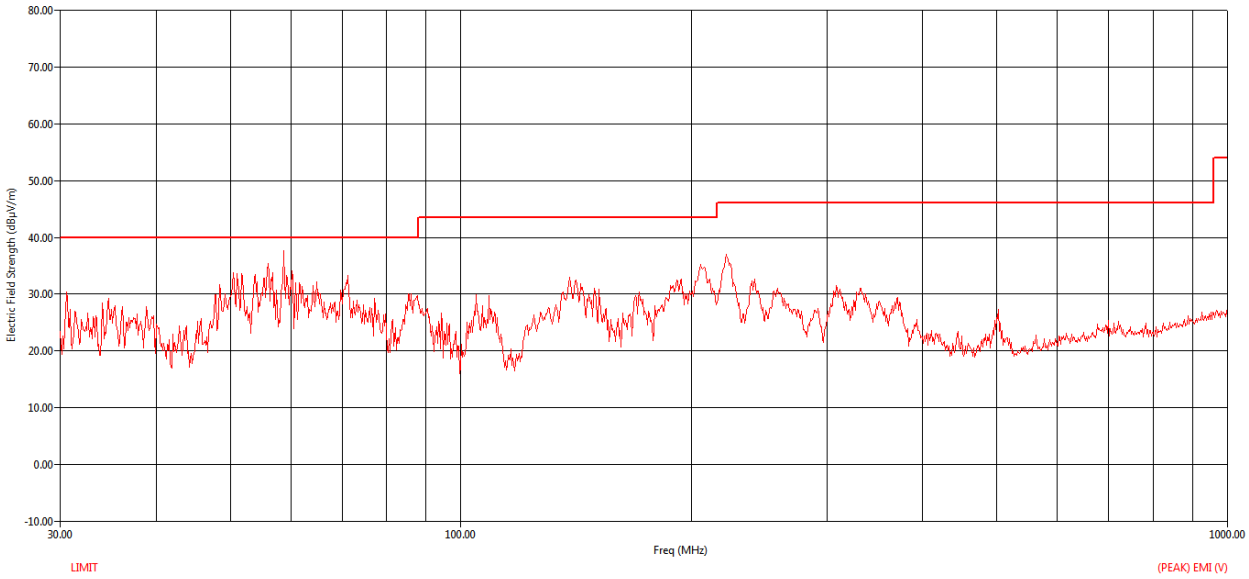


**Figure 75: Peak RE from30MHz to 1GHz-Vertical polarization**

| Freq (MHz) | Freq (Max) (MHz) | Pol | EUT Ttbl Agl (deg) | Twr Ht (cm) | (QP) Trace (dBµV) | Cable (dB) | Transducer (dB) | Preamp (dB) | (QP) EMI (dBµV/m) | Limit (dBµV/m) | (QP) Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 50.48 | 50.44 | V | 182.40 | 150.00 | 53.80 | 1.66 | 10.45 | 32.20 | 33.70 | 40.00 | -6.30 |
| 56.04 | 56.01 | V | 206.00 | 291.00 | 47.61 | 1.71 | 9.83 | 32.18 | 26.97 | 40.00 | -13.03 |
| 58.72 | 58.66 | V | 250.90 | 100.00 | 52.90 | 1.75 | 9.55 | 32.18 | 32.03 | 40.00 | -7.97 |
| 138.48 | 138.37 | H | 180.00 | 238.00 | 54.85 | 2.63 | 11.74 | 32.05 | 37.18 | 43.52 | -6.34 |
| 141.20 | 141.18 | H | 169.20 | 244.00 | 54.96 | 2.68 | 11.83 | 32.05 | 37.43 | 43.52 | -6.09 |
| 143.32 | 143.29 | H | 162.00 | 220.00 | 53.36 | 2.70 | 11.95 | 32.05 | 35.96 | 43.52 | -7.56 |
| 222.07 | 222.04 | V | 27.40 | 105.00 | 50.14 | 3.34 | 13.06 | 31.97 | 34.56 | 46.02 | -11.46 |

**Table 15: Radiated Emission – Quasi Peak table – 30 MHz to 1 GHz**



*This report should always be reproduced in full. Any extracts of this report is invalid.*

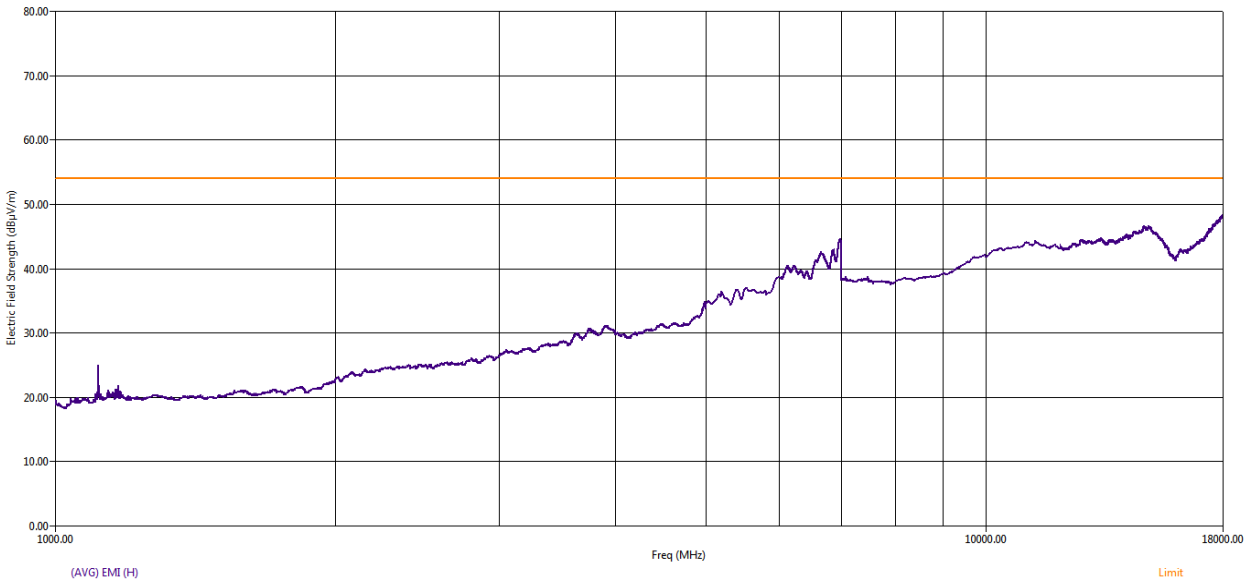


**Figure 76: Average RE from 1GHz to 18GHz-Horizontal polarization**

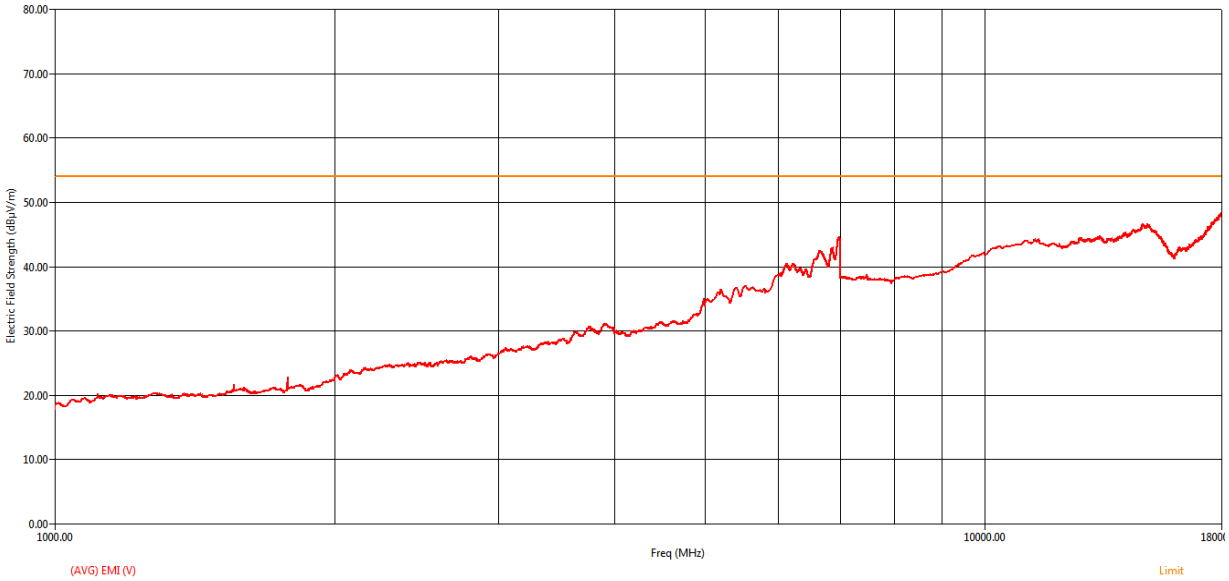


**Figure 77: Average RE from 1GHz to 18GHz-Vertical polarization**

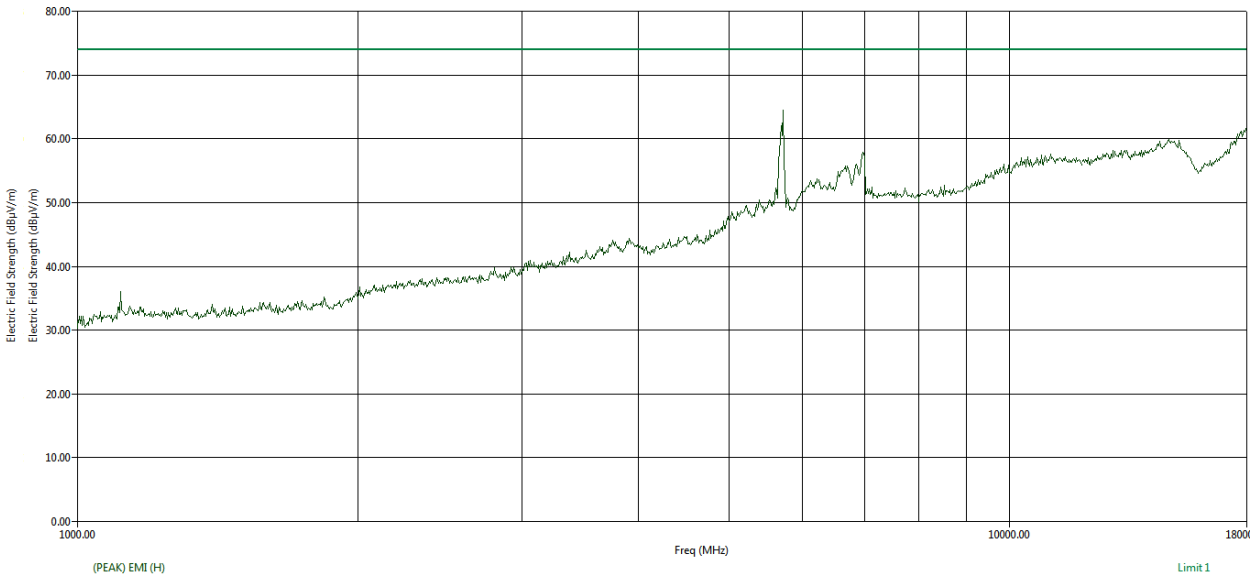


**Figure 78: Peak RE from 1GHz to 18GHz-Horizontal polarization**

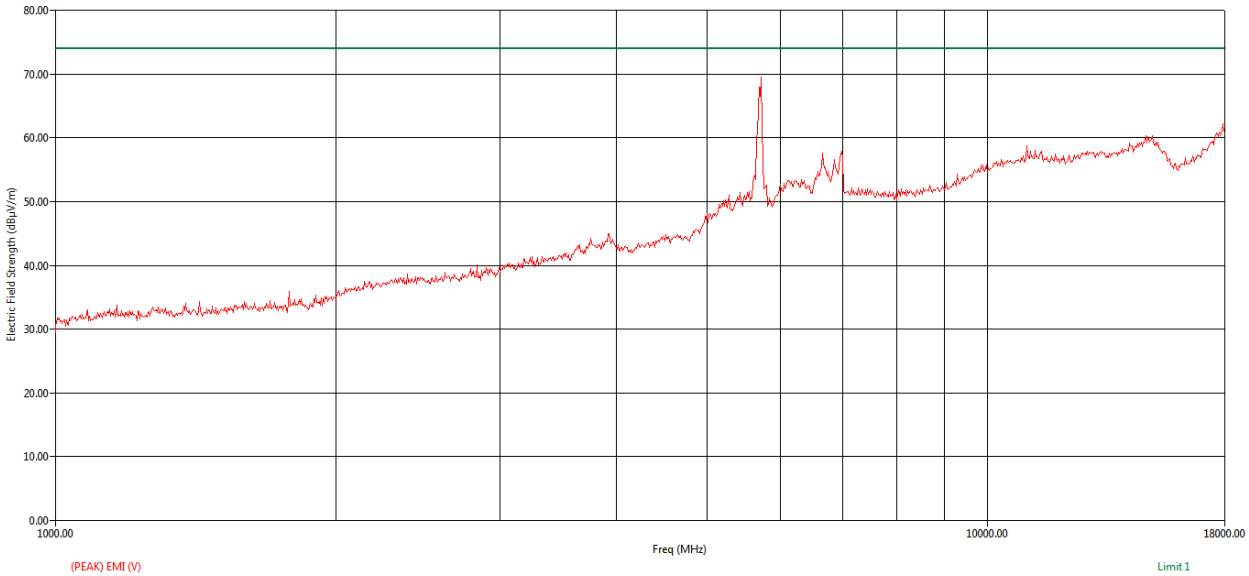


**Figure 79: Peak RE from 1GHz to 18GHz-Vertical polarization**

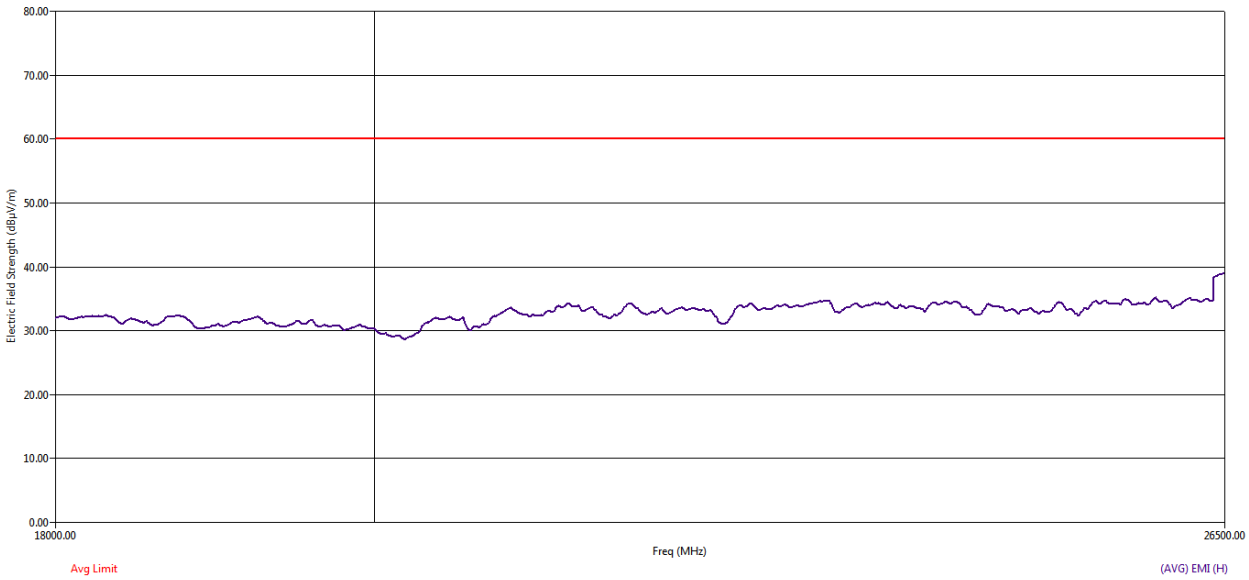


**Figure 80: Average RE from 18GHz to 26.5GHz - Horizontal polarization**

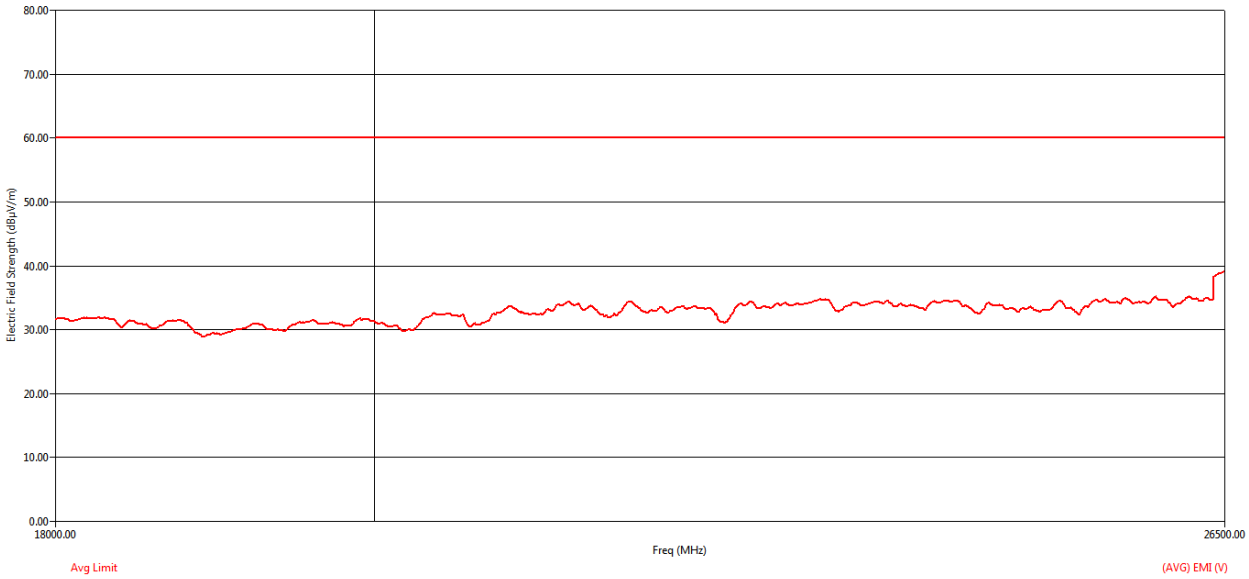


**Figure 81: Average RE from 18GHz to 26.5GHz - Vertical polarization**

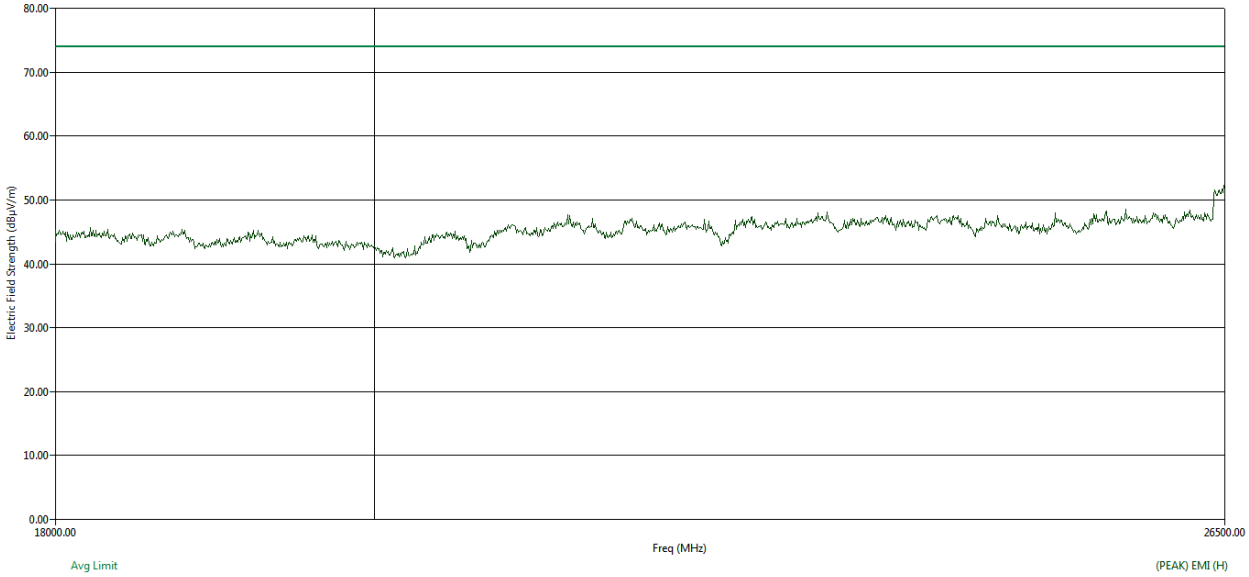


**Figure 82: Peak RE from 18GHz to 26.5GHz - Horizontal polarization**

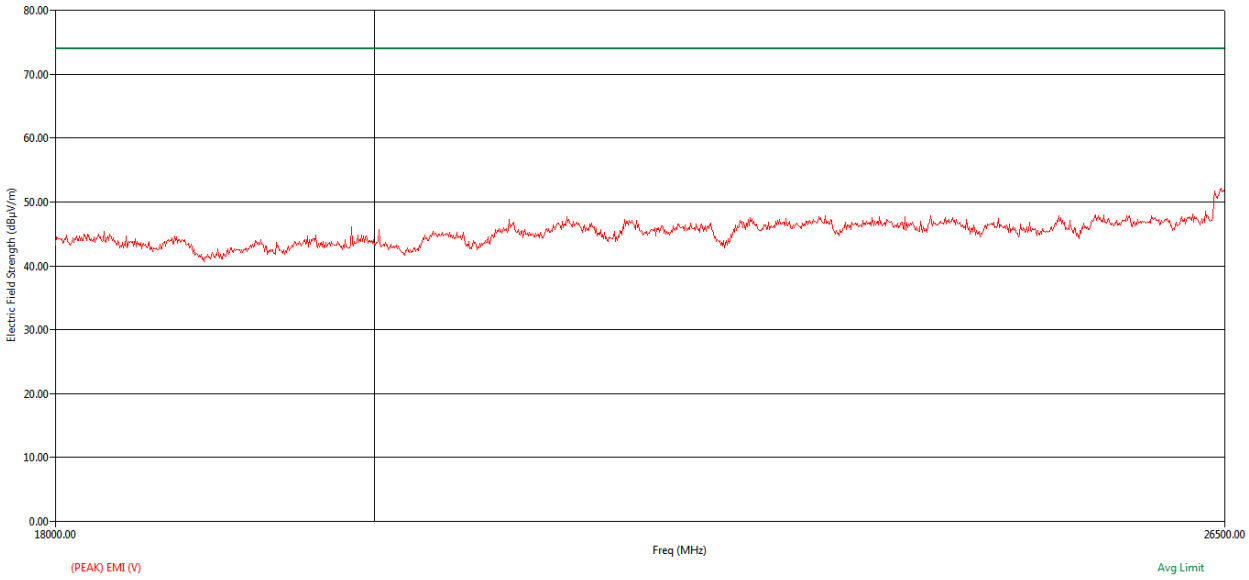


**Figure 83: Peak RE from 18GHz to 26.5GHz - Vertical polarization**

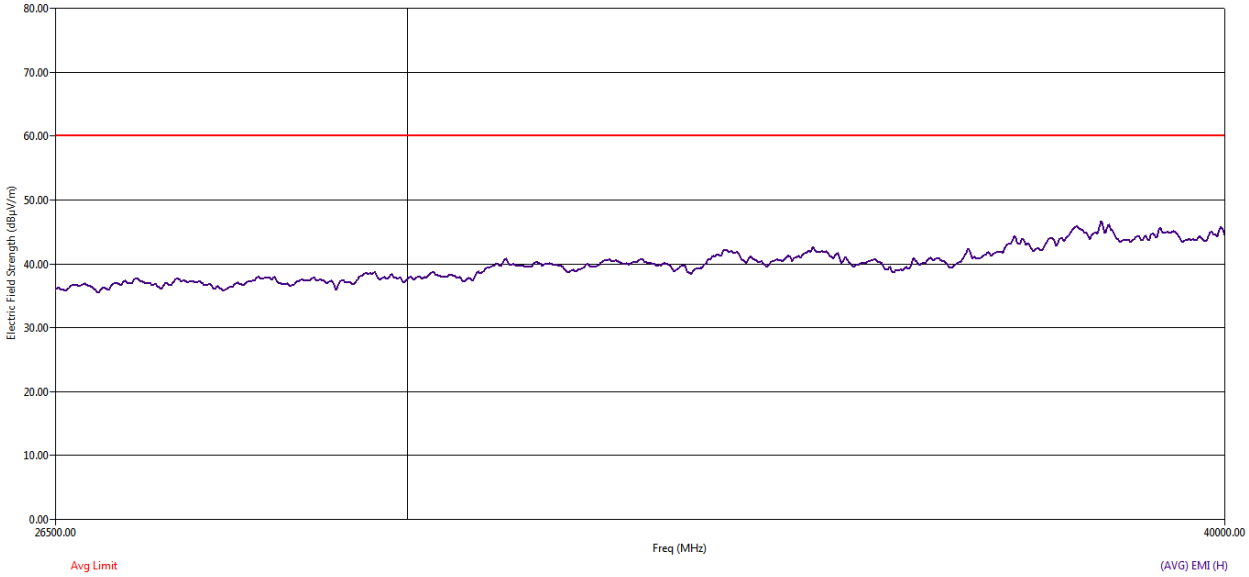


**Figure 84: Average RE from 26.5GHz to 40GHz - Horizontal polarization**

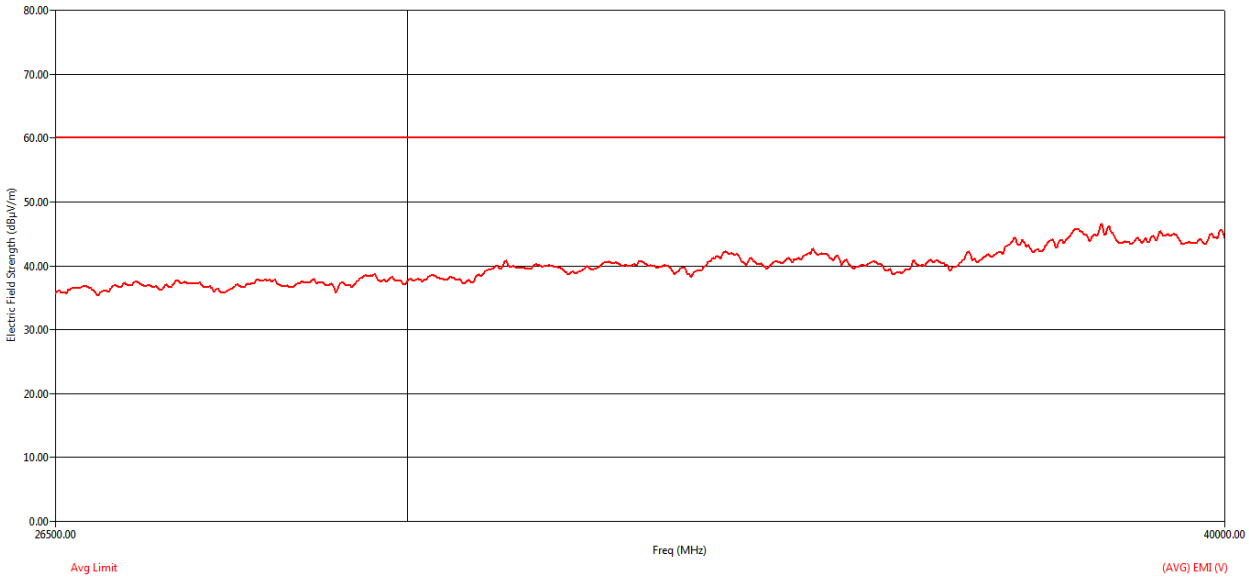


**Figure 85: Average RE from 26.5GHz to 40GHz - Vertical polarization**

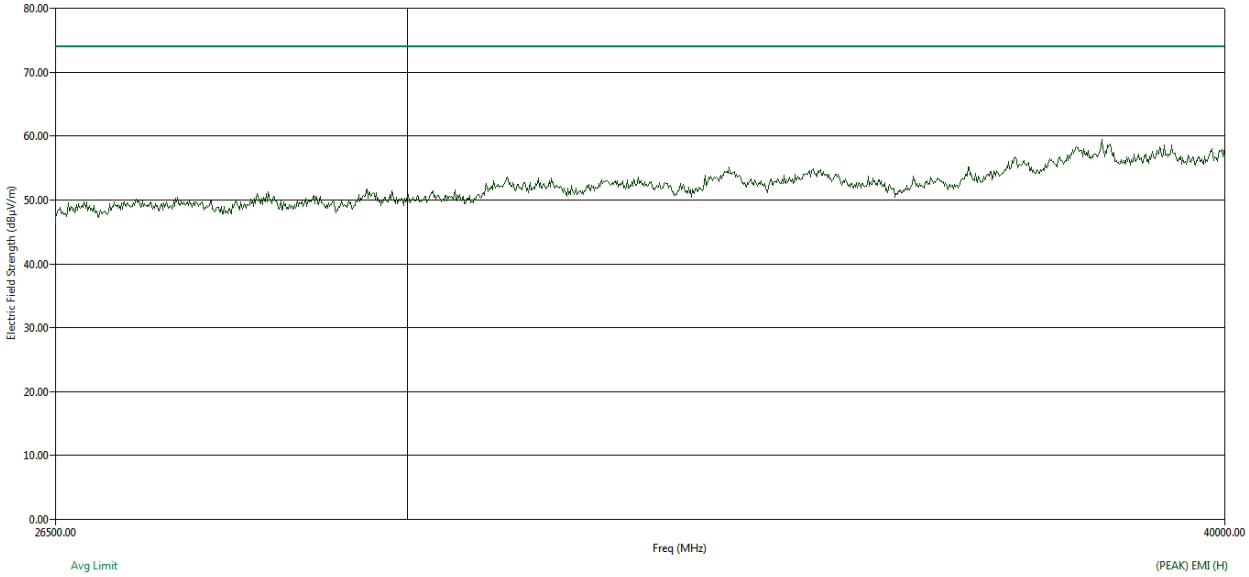


**Figure 86: Peak RE from 26.5GHz to 40GHz - Horizontal polarization**

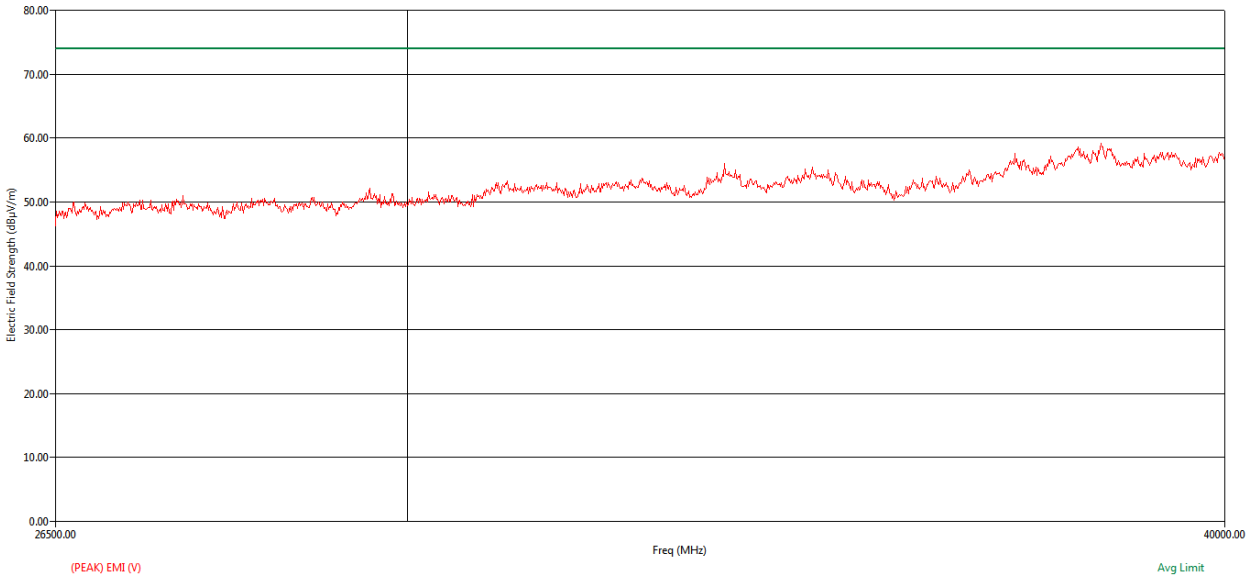


**Figure 87: Peak RE from 26.5GHz to 40GHz - Vertical polarization**



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## 5.3.2.7 RESULT (SUPPORTING GRAPHS / DATA) FOR 10MHZ

### 5.3.2.7.1 LOW CHANNEL_5485 MHZ

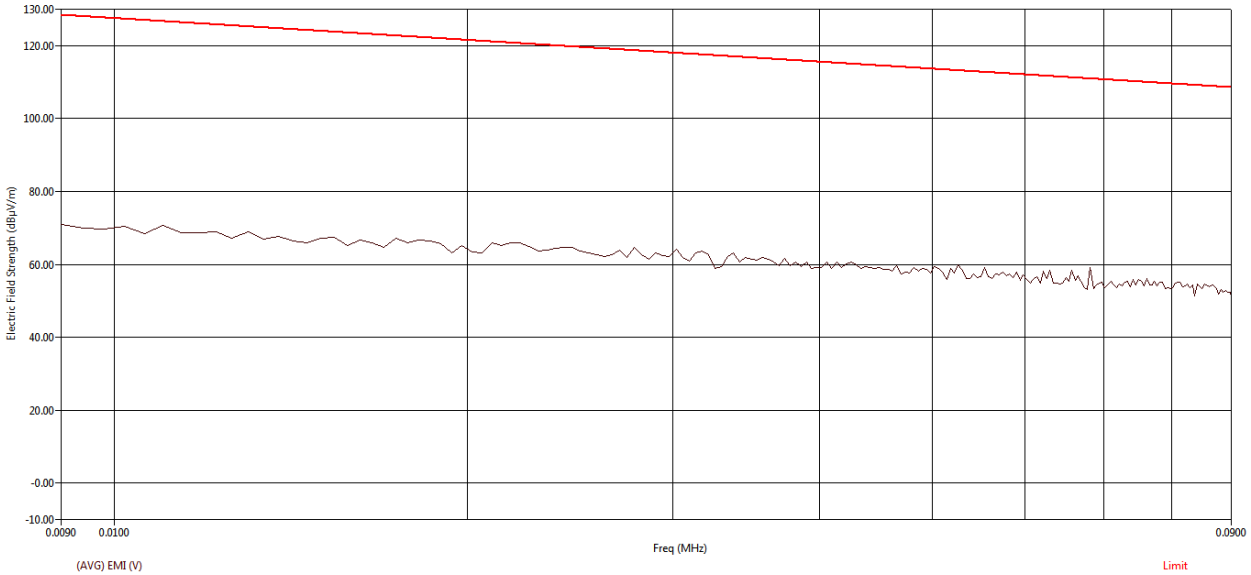


**Figure 88: Average RE from 9 kHz to 90kHz–Parallel**

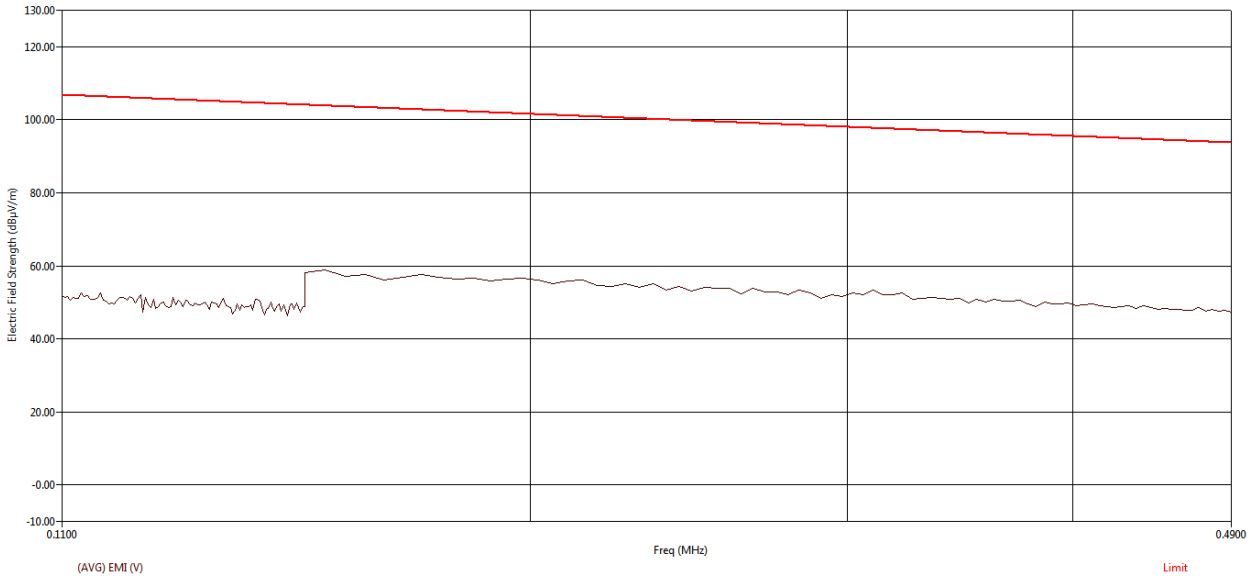


**Figure 89: Average RE from 110 kHz to 490 kHz-Parallel**

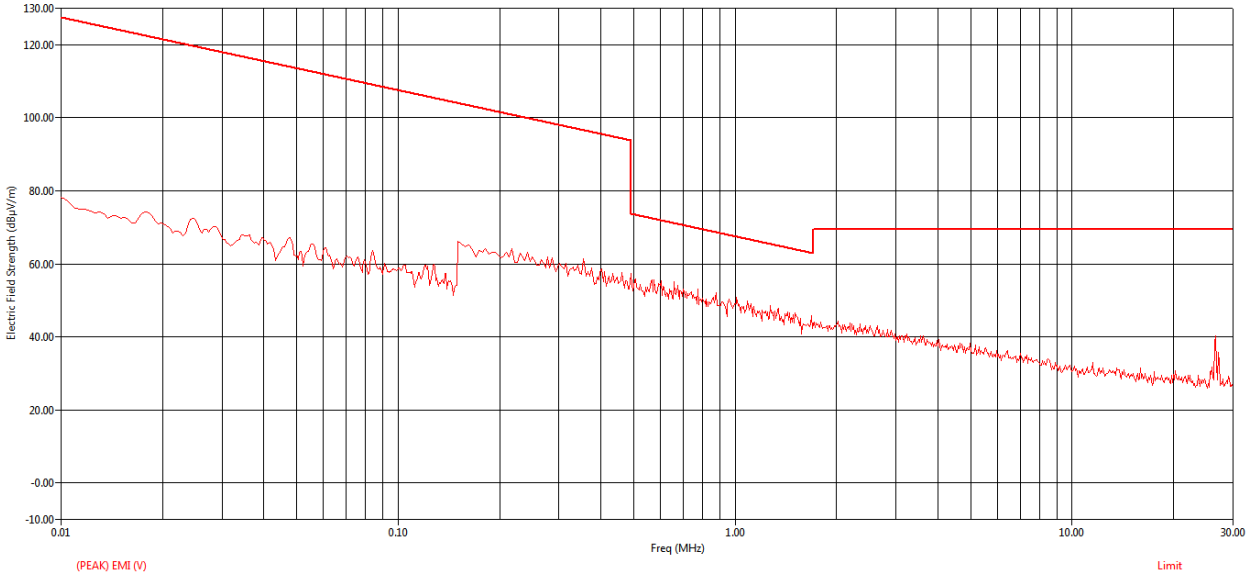


**Figure 90: Peak RE from 9 kHz to 30MHz–Parallel**

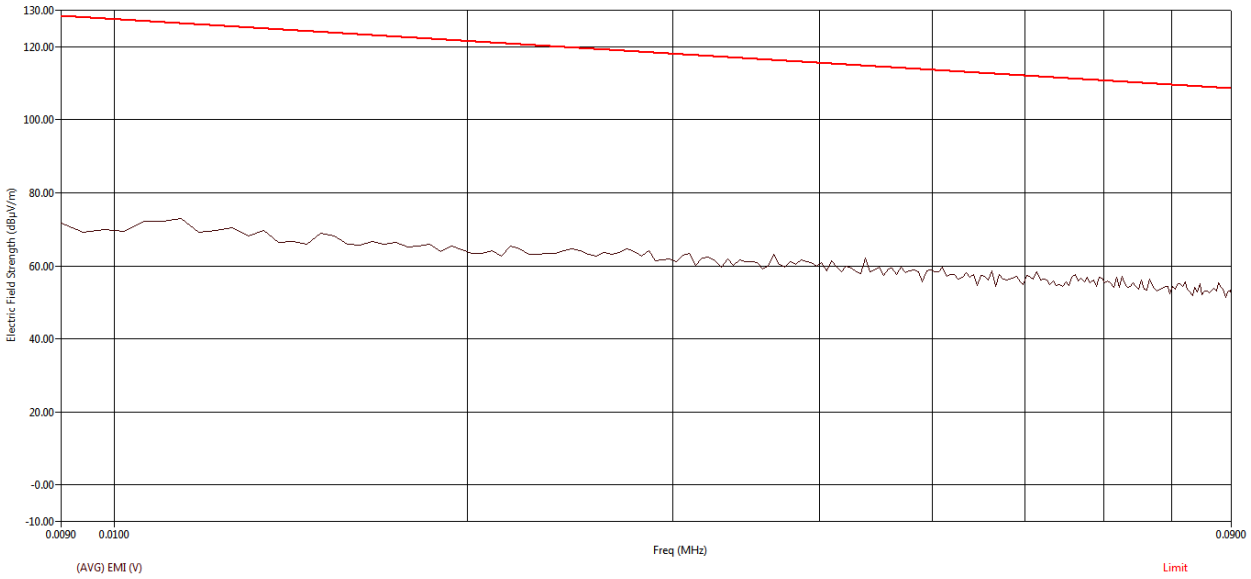


**Figure 91: Average RE from 9 kHz to 90kHz-Perpendicular**

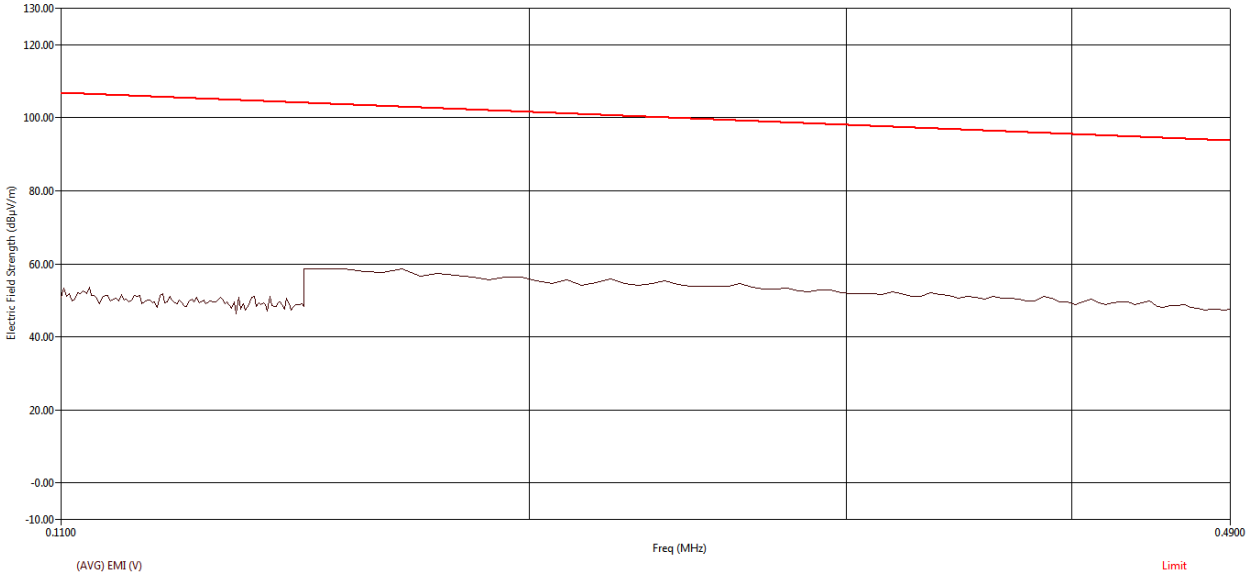


**Figure 92: Average RE from 110 kHz to 490 kHz–Perpendicular**

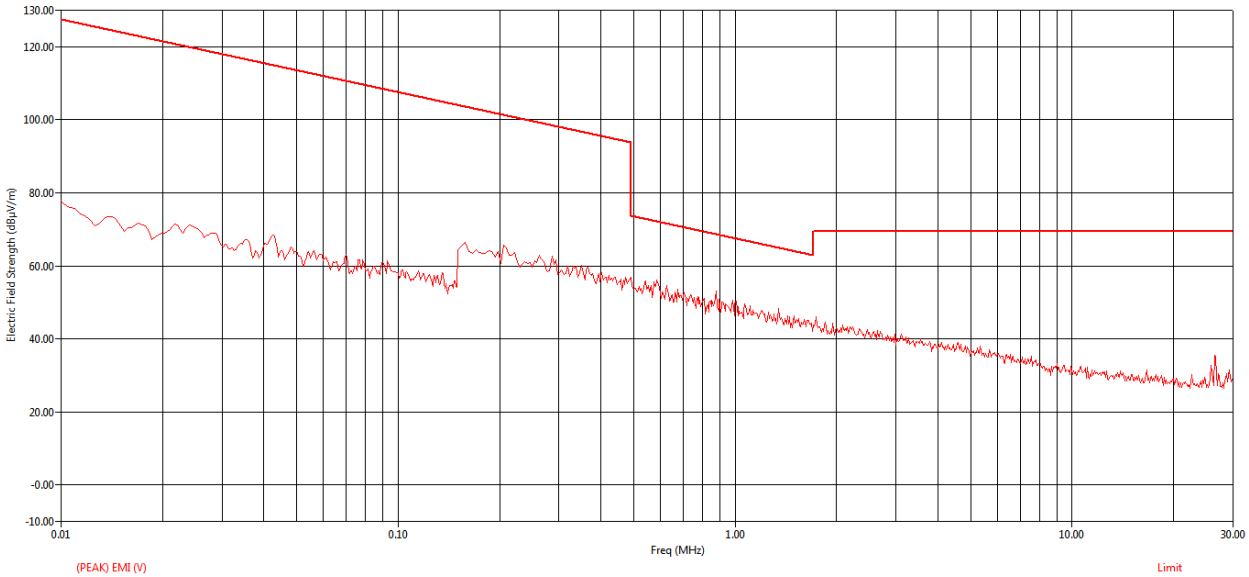


**Figure 93: Peak RE from 9 kHz to 30MHz-Perpendicular**

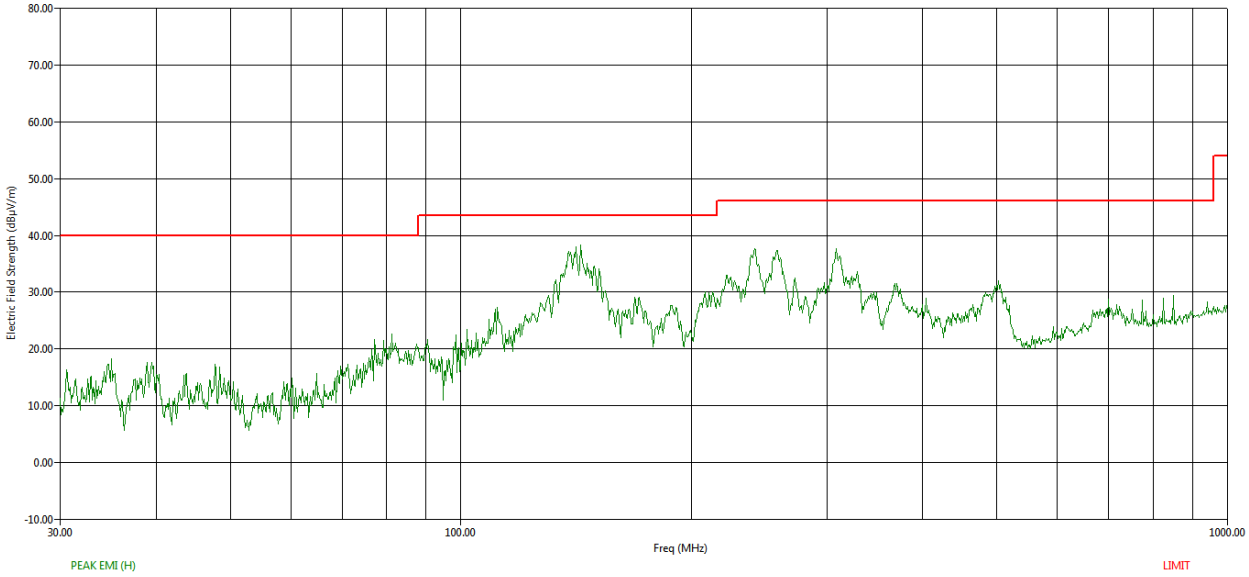


**Figure 94: Peak RE from30MHz to 1GHz-Horizontal polarization**

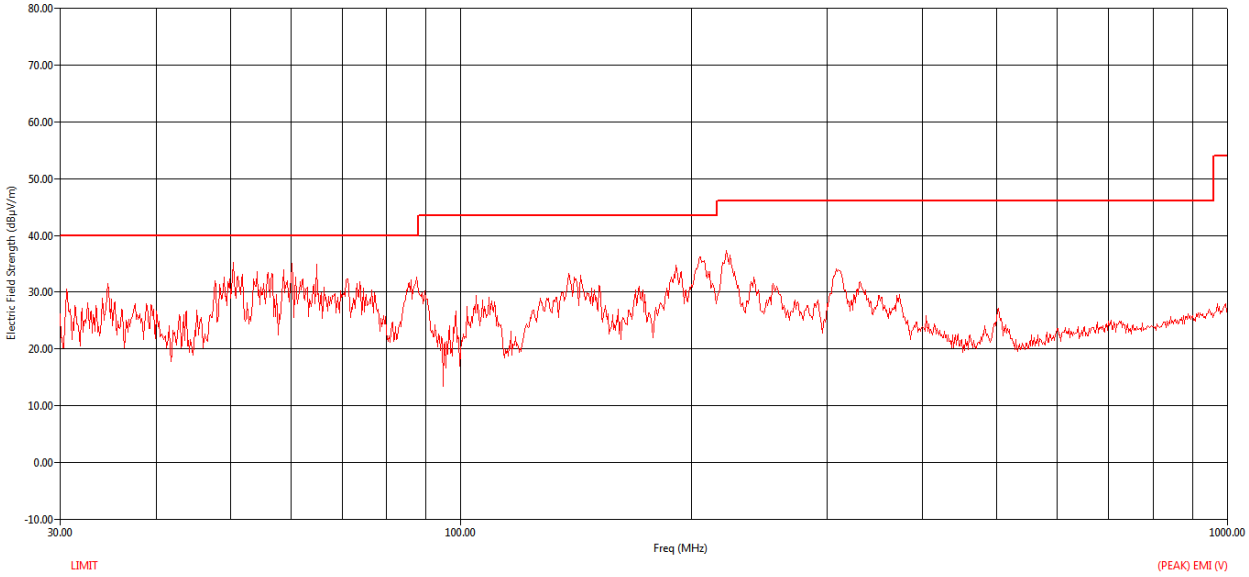


**Figure 95: Peak RE from30MHz to 1GHz-Vertical polarization**

| Freq (MHz) | Freq (Max) (MHz) | Pol | EUT Ttbl Agl (deg) | Twr Ht (cm) | (QP) Trace (dBµV) | Cable (dB) | Transducer (dB) | Preamp (dB) | (QP) EMI (dBµV/m) | Limit (dBµV/m) | (QP) Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 50.48 | 50.43 | V | 216.80 | 117.00 | 55.36 | 1.66 | 10.45 | 32.20 | 35.26 | 40.00 | -4.74 |
| 58.76 | 58.71 | V | 210.00 | 109.00 | 54.07 | 1.75 | 9.55 | 32.18 | 33.19 | 40.00 | -6.81 |
| 60.24 | 60.19 | V | 221.50 | 100.00 | 55.24 | 1.75 | 9.42 | 32.17 | 34.24 | 40.00 | -5.76 |
| 64.80 | 64.80 | V | 234.60 | 156.00 | 54.02 | 1.86 | 9.46 | 32.16 | 33.18 | 40.00 | -6.82 |
| 143.32 | 143.33 | H | 180.00 | 234.00 | 53.70 | 2.70 | 11.95 | 32.05 | 36.30 | 43.52 | -7.22 |
| 241.68 | 241.64 | H | 182.50 | 143.00 | 52.68 | 3.47 | 12.23 | 31.95 | 36.43 | 46.02 | -9.59 |
| 308.76 | 308.86 | H | 283.60 | 100.00 | 48.80 | 3.91 | 14.69 | 31.90 | 35.49 | 46.02 | -10.53 |

**Table 16: Radiated Emission – Quasi Peak table – 30 MHz to 1 GHz**



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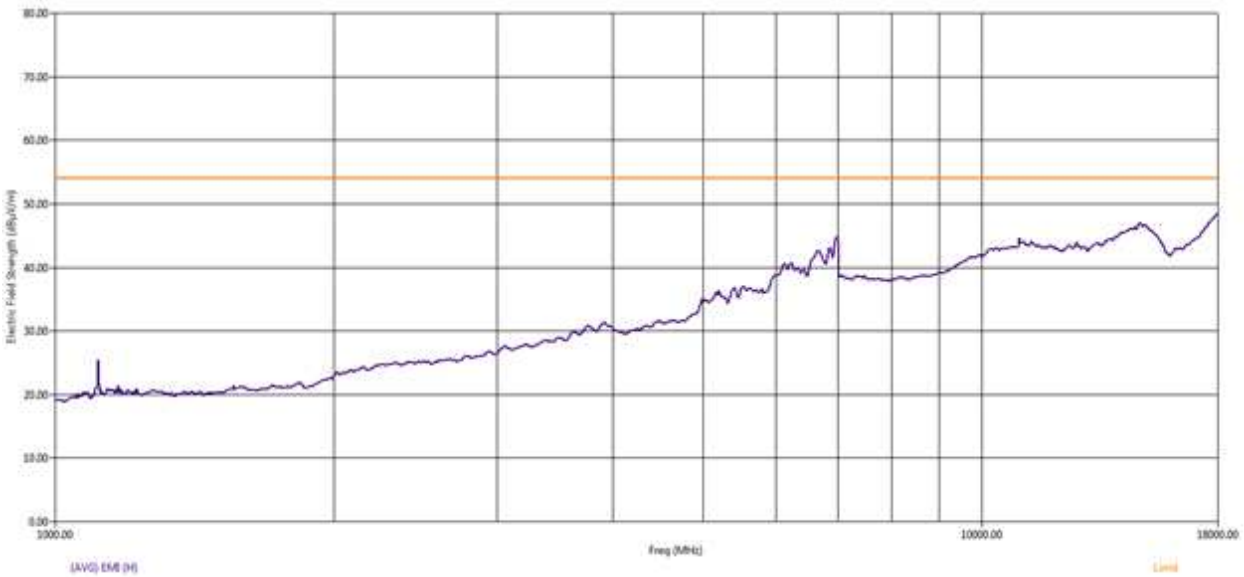


**Figure 96: Average RE from 1GHz to 18GHz-Horizontal polarization**

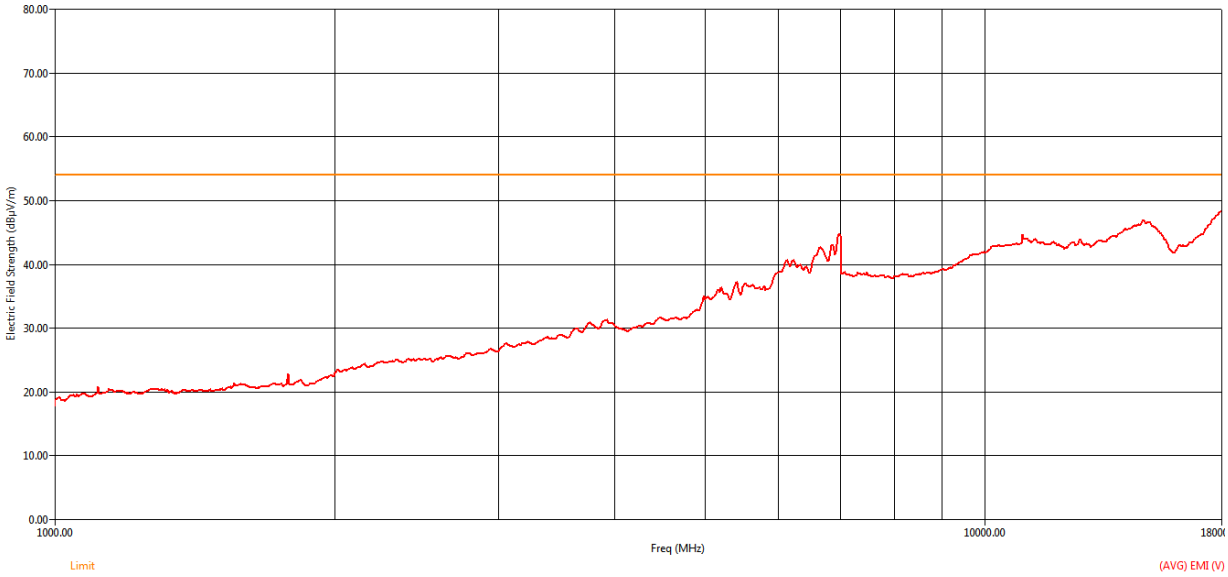


**Figure 97: Average RE from 1GHz to 18GHz-Vertical polarization**

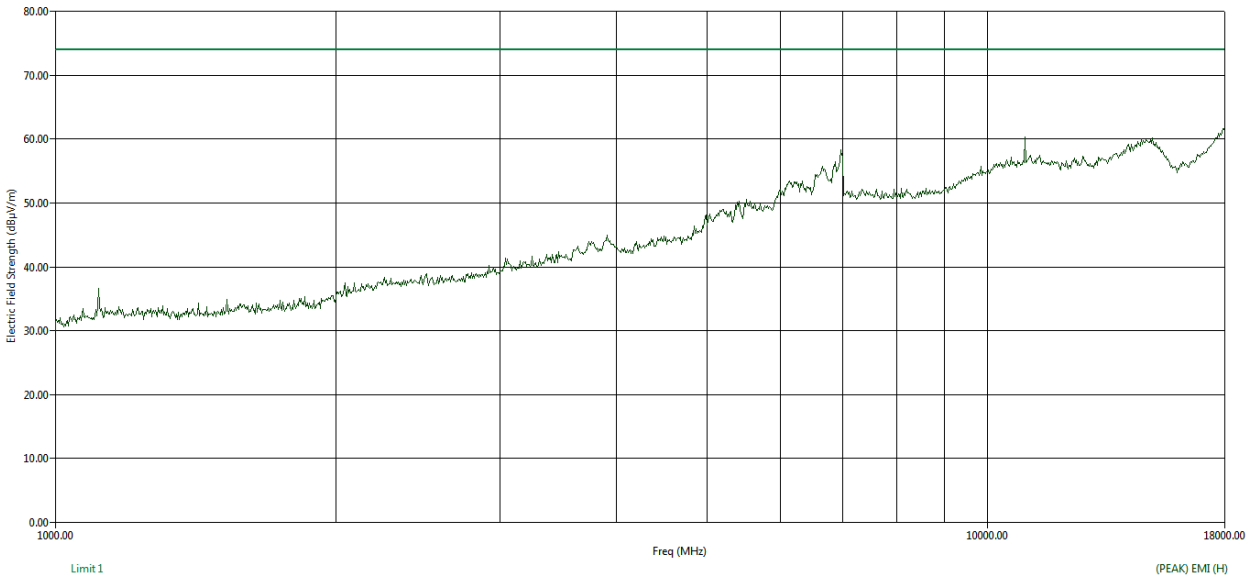


**Figure 98: Peak RE from 1GHz to 18GHz-Horizontal polarization**

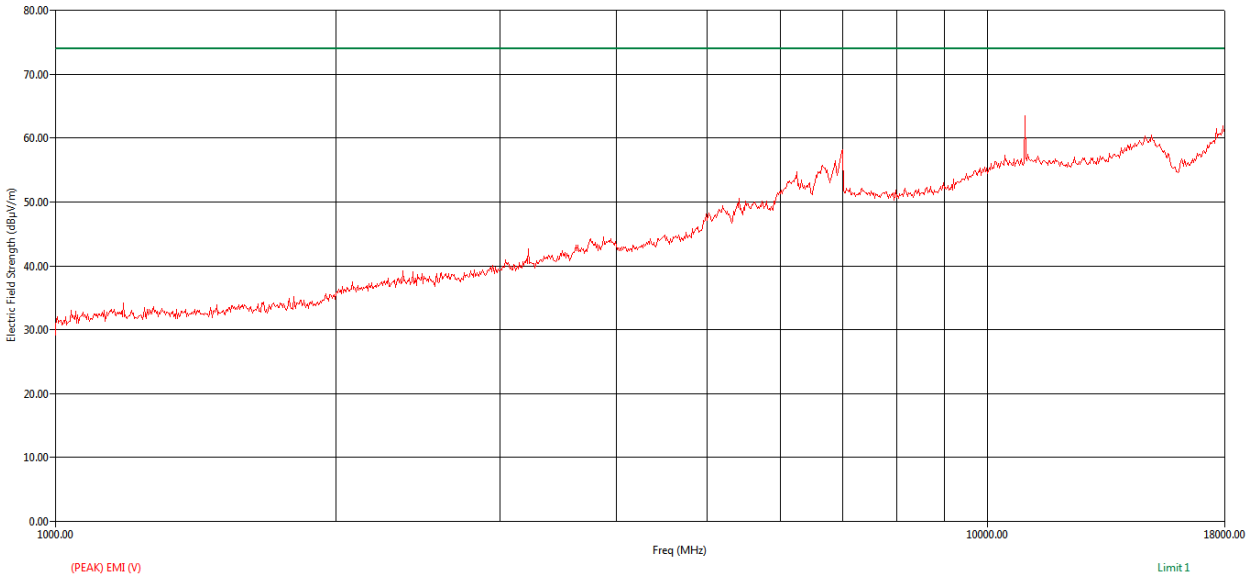


**Figure 99: Peak RE from 1GHz to 18GHz-Vertical polarization**

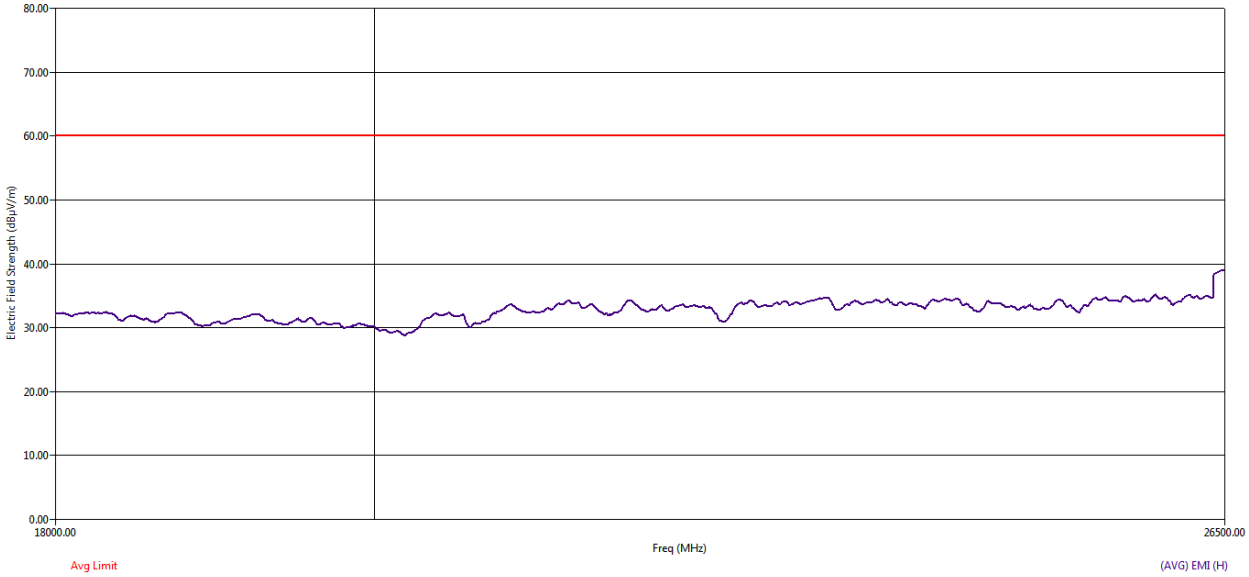


**Figure 100: Average RE from 18GHz to 26.5GHz - Horizontal polarization**

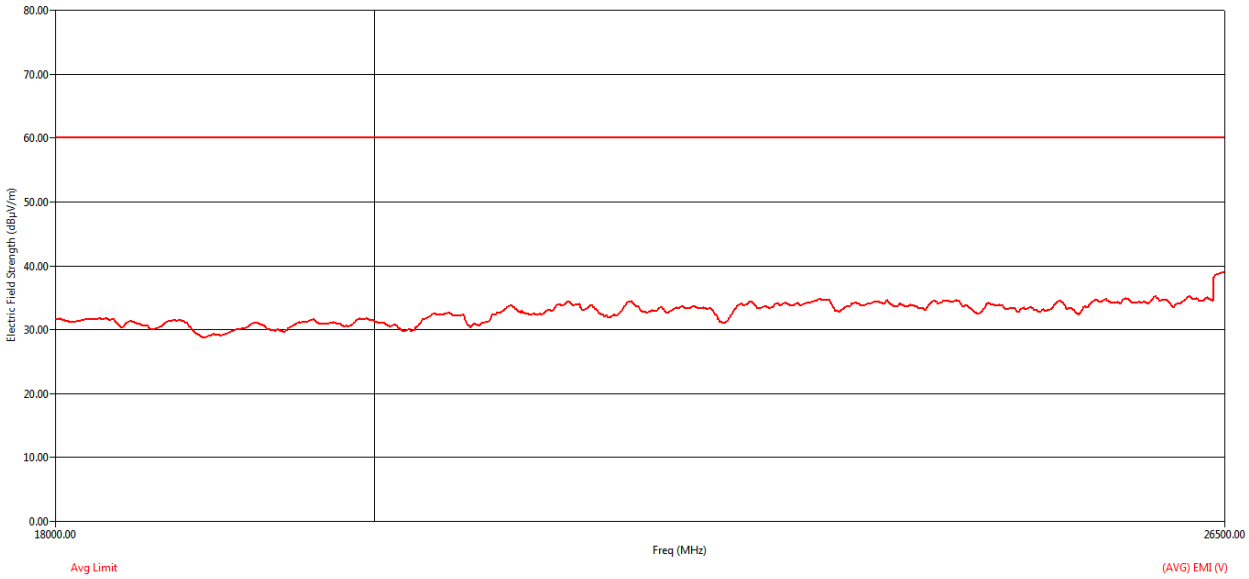


**Figure 101: Average RE from 18GHz to 26.5GHz - Vertical polarization**

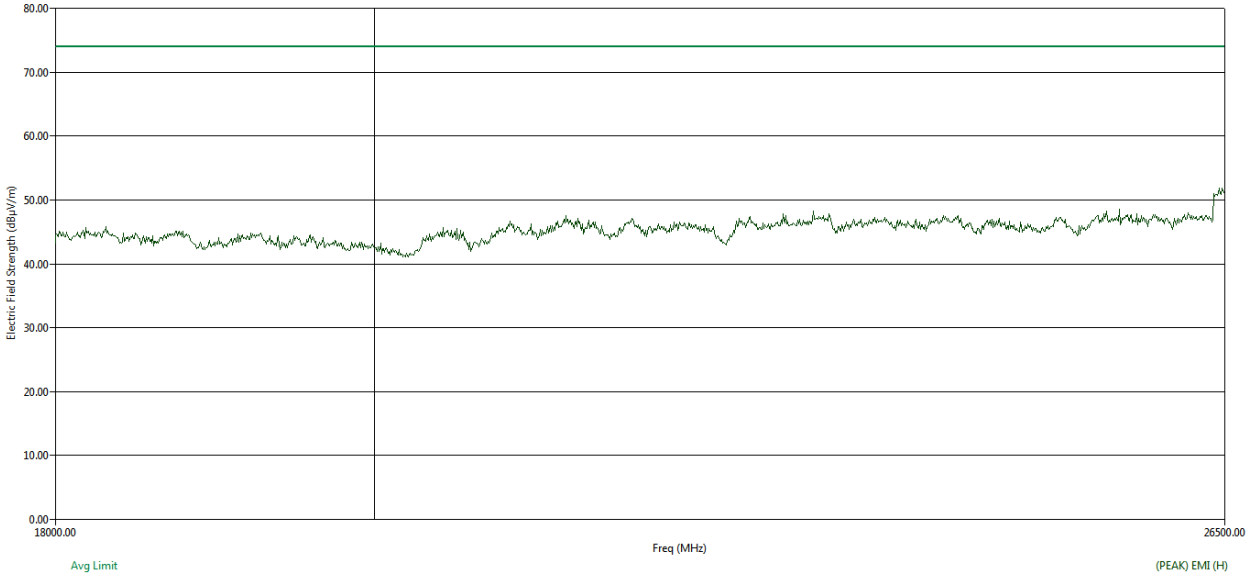


**Figure 102: Peak RE from 18GHz to 26.5GHz - Horizontal polarization**

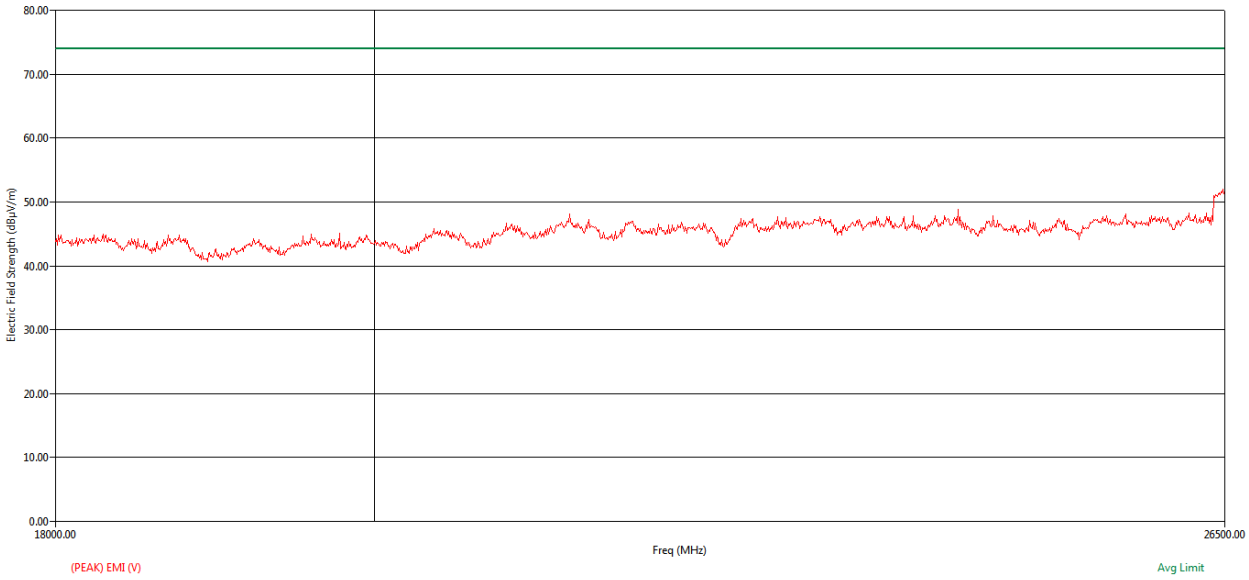


**Figure 103: Peak RE from 18GHz to 26.5GHz - Vertical polarization**



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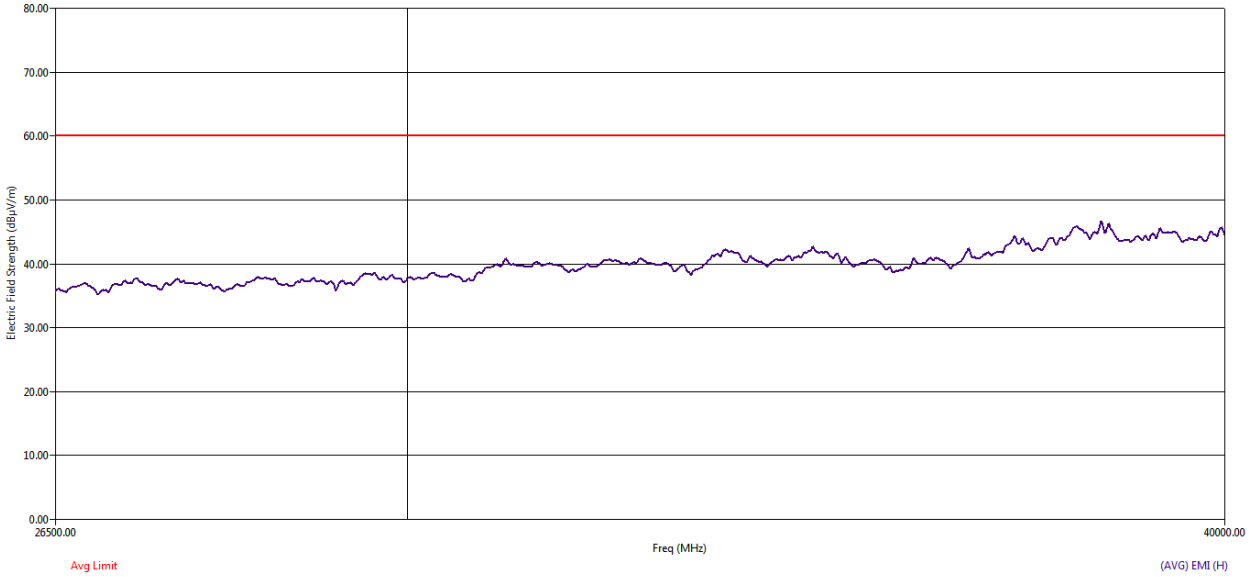


**Figure 104: Average RE from 26.5GHz to 40GHz - Horizontal polarization**

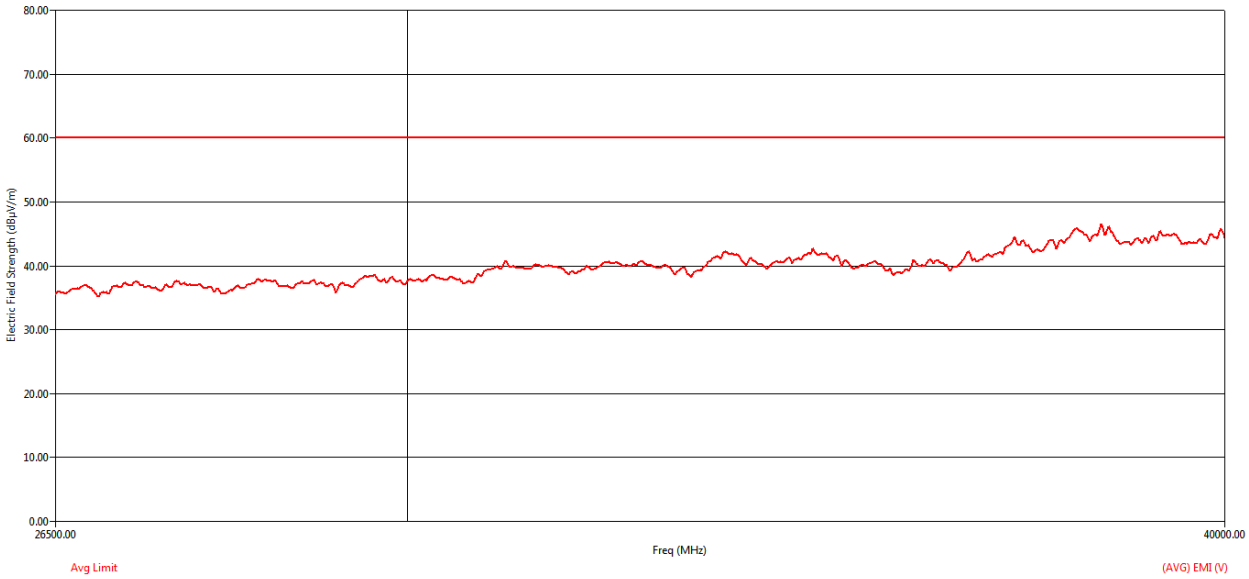


**Figure 105: Average RE from 26.5GHz to 40GHz - Vertical polarization**



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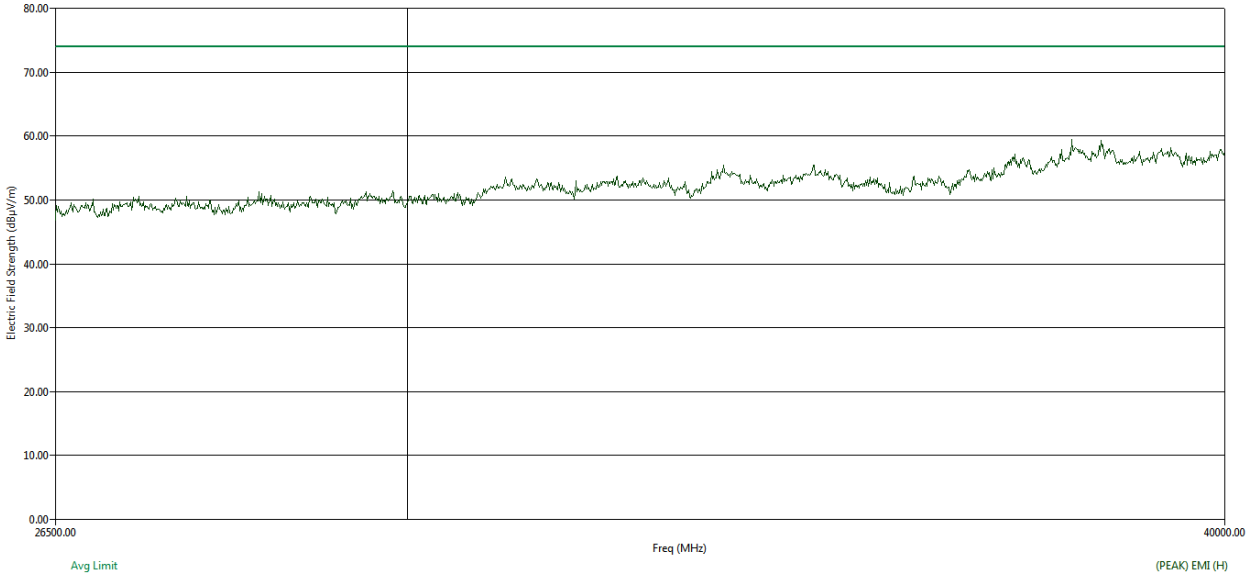


**Figure 106: Peak RE from 26.5GHz to 40GHz - Horizontal polarization**

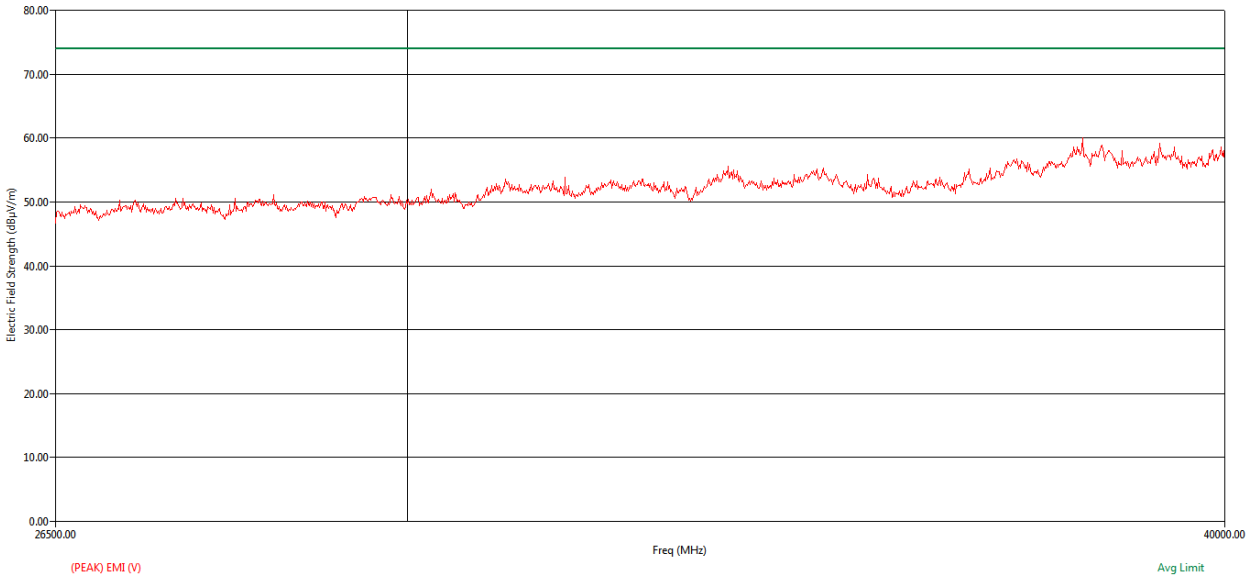


**Figure 107: Peak RE from 26.5GHz to 40GHz - Vertical polarization**

### 5.3.2.7.2 MID CHANNEL_5550MHZ

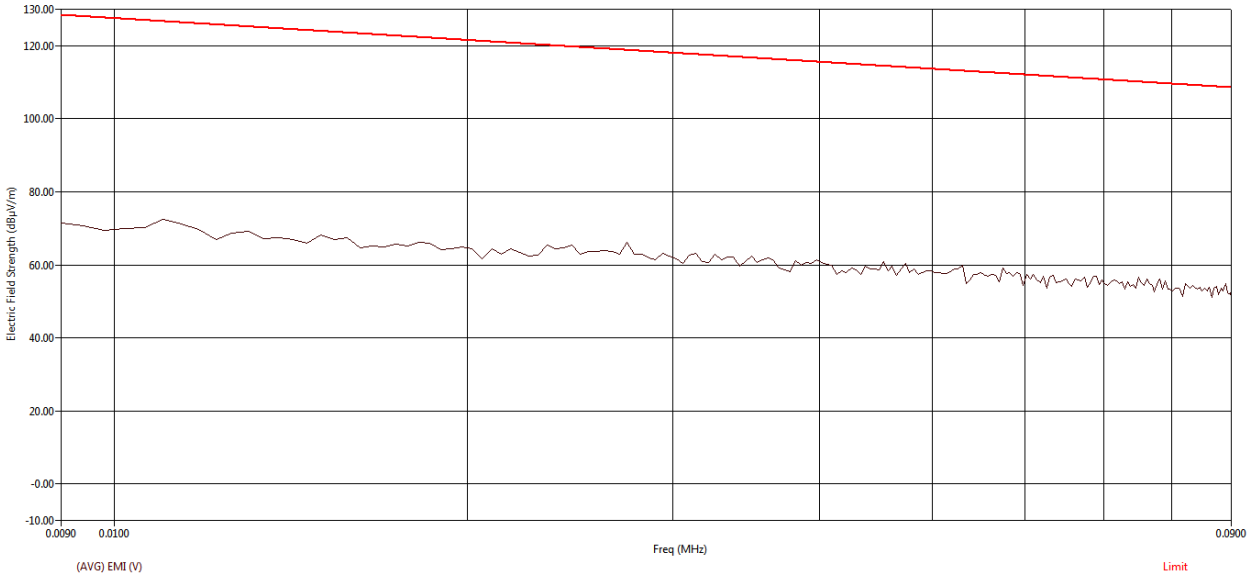


**Figure 108: Average RE from 9 kHz to 90kHz–Parallel**

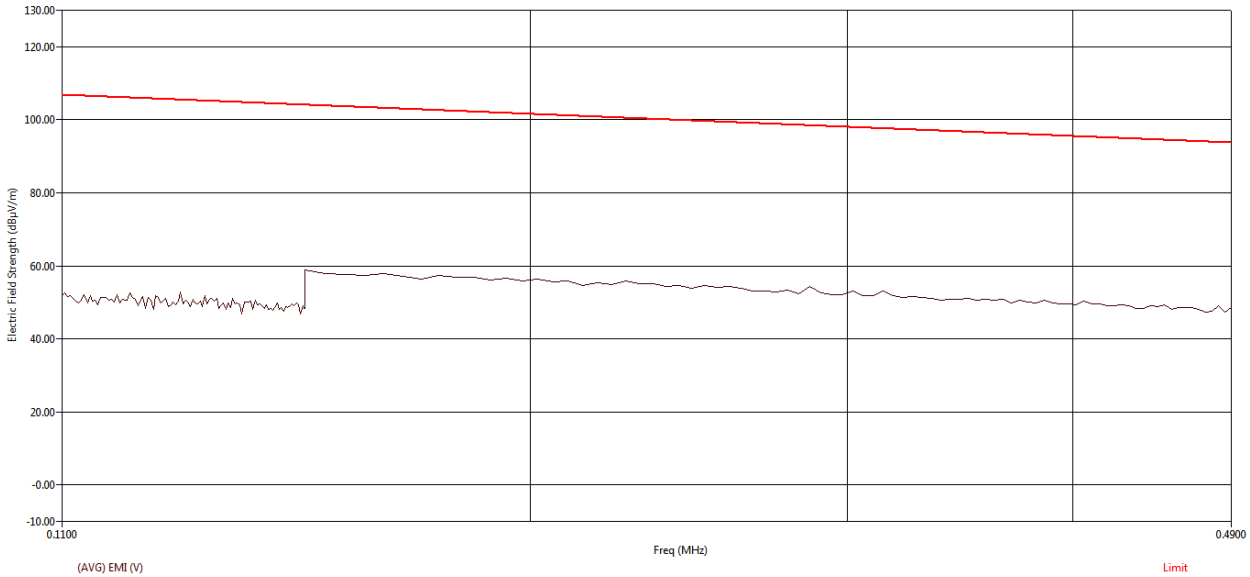


**Figure 109: Average RE from 110 kHz to 490 kHz-Parallel**

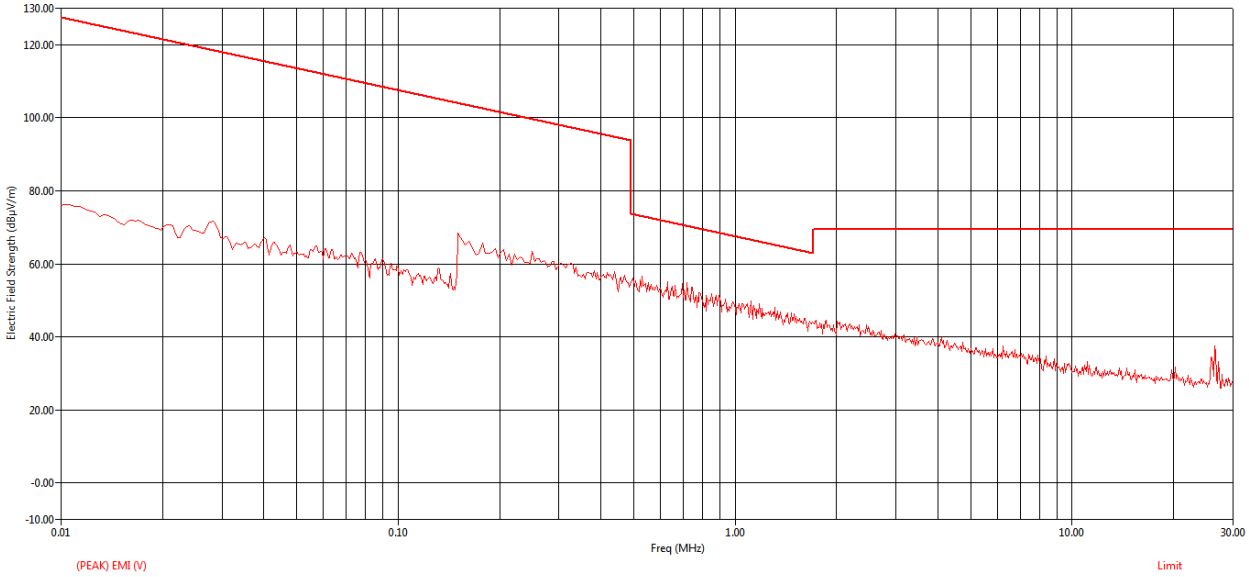


**Figure 110: Peak RE from 9 kHz to 30MHz–Parallel**

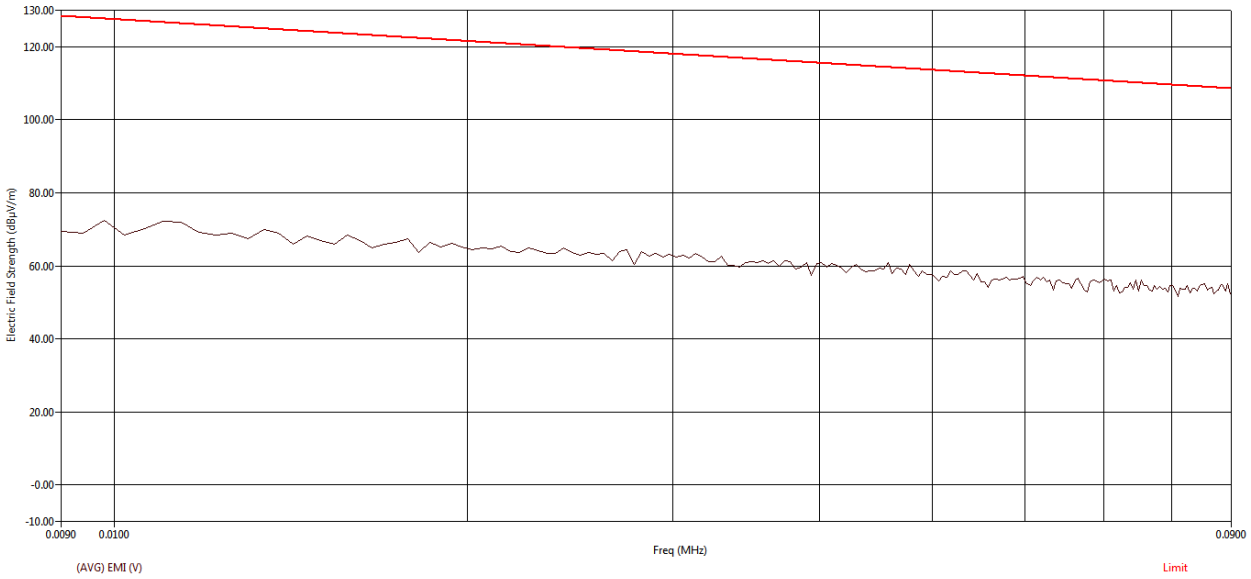


**Figure 111: Average RE from 9 kHz to 90kHz-Perpendicular**

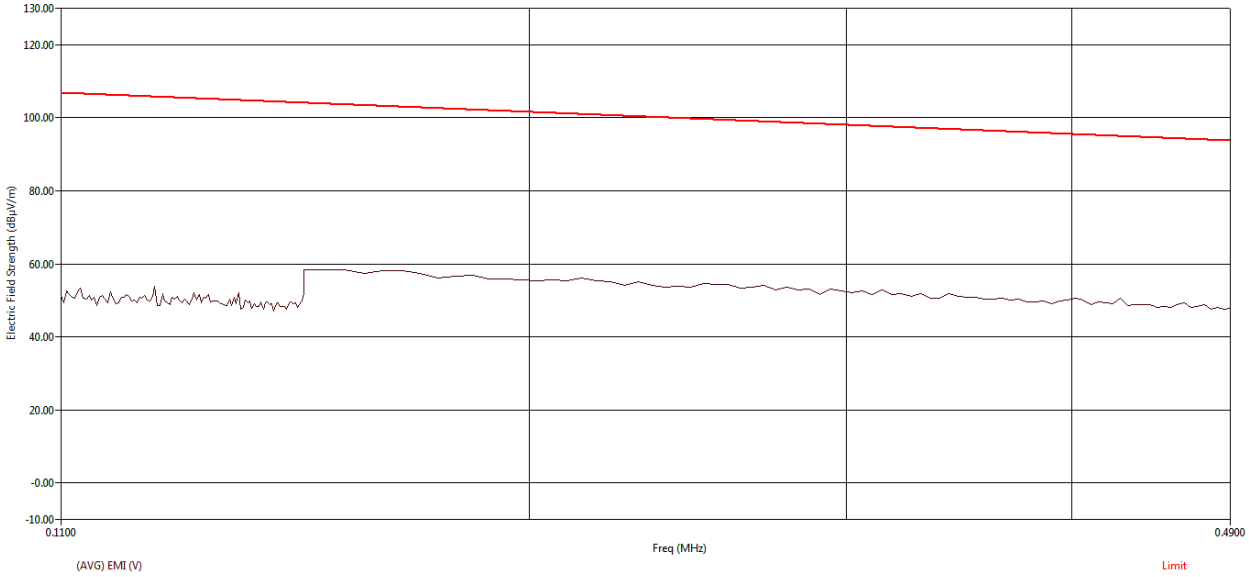


**Figure 112: Average RE from 110 kHz to 490 kHz–Perpendicular**

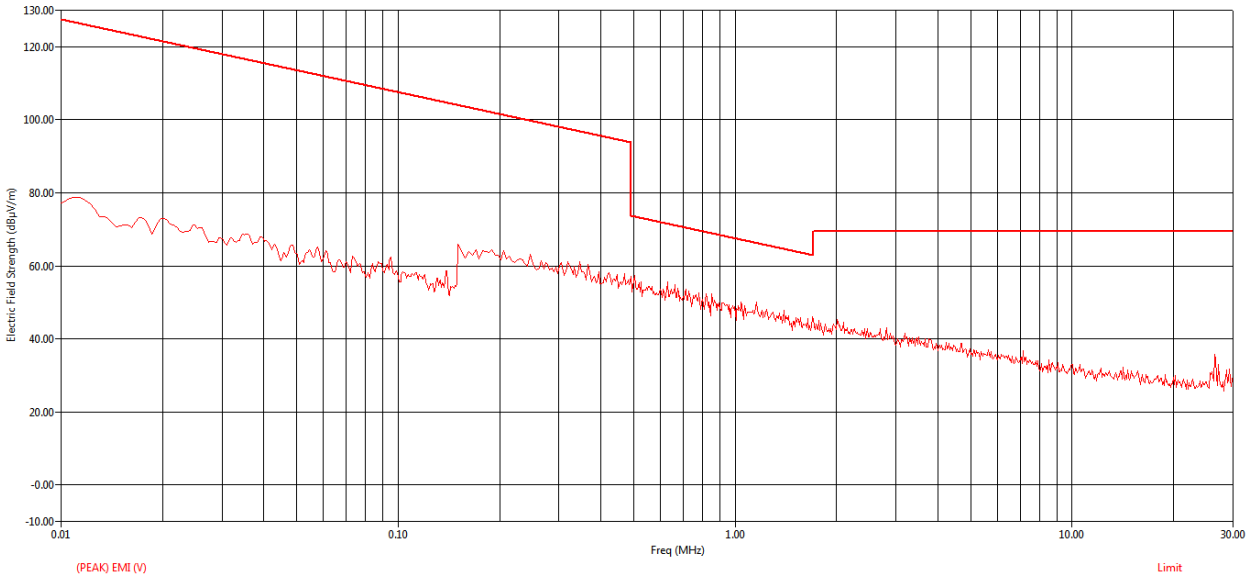


**Figure 113: Peak RE from 9 kHz to 30MHz-Perpendicular**

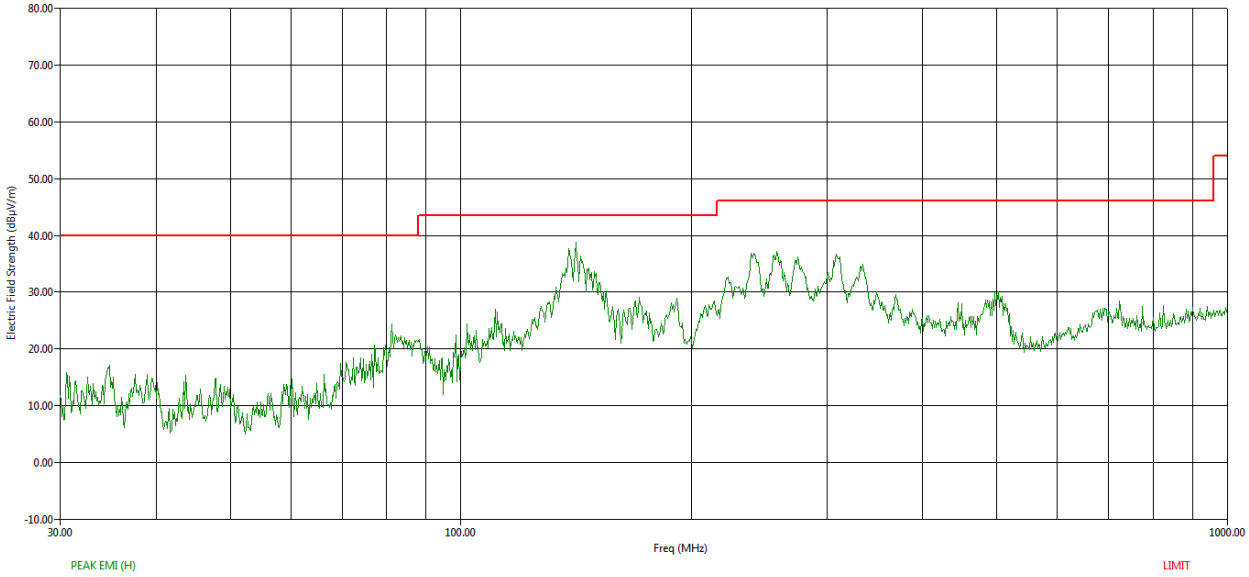


**Figure 114: Peak RE from30MHz to 1GHz-Horizontal polarization**

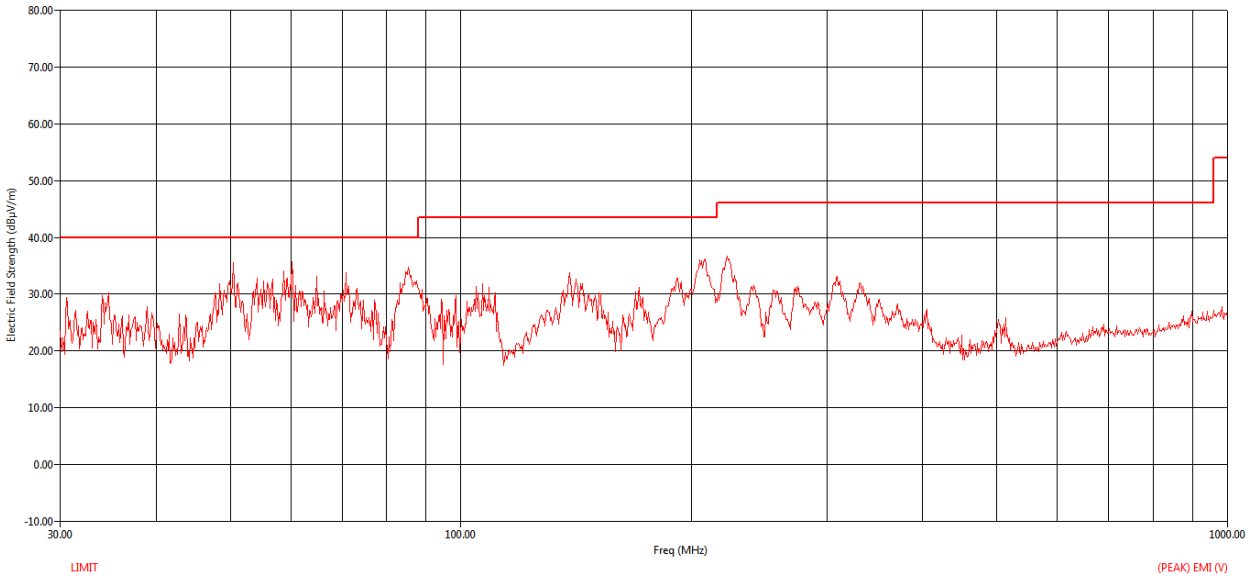


**Figure 115: Peak RE from30MHz to 1GHz-Vertical polarization**

| Freq (MHz) | Freq (Max) (MHz) | Pol | EUT Ttbl Agl (deg) | Twr Ht (cm) | (QP) Trace (dBµV) | Cable (dB) | Transducer (dB) | Preamp (dB) | (QP) EMI (dBµV/m) | Limit (dBµV/m) | (QP) Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 50.48 | 50.43 | V | 230.00 | 100.00 | 56.14 | 1.66 | 10.45 | 32.20 | 36.05 | 40.00 | -3.95 |
| 51.08 | 51.07 | V | 226.30 | 100.00 | 52.59 | 1.66 | 10.37 | 32.20 | 32.43 | 40.00 | -7.57 |
| 58.72 | 58.70 | V | 234.50 | 103.00 | 54.63 | 1.75 | 9.55 | 32.18 | 33.75 | 40.00 | -6.25 |
| 138.40 | 138.42 | H | 180.10 | 244.00 | 54.94 | 2.63 | 11.74 | 32.05 | 37.27 | 43.52 | -6.25 |
| 141.20 | 141.17 | H | 179.90 | 219.00 | 54.67 | 2.68 | 11.83 | 32.05 | 37.13 | 43.52 | -6.39 |
| 151.60 | 151.56 | H | 170.10 | 192.00 | 50.13 | 2.78 | 12.37 | 32.04 | 33.24 | 43.52 | -10.28 |
| 257.96 | 258.05 | H | 348.20 | 136.00 | 50.83 | 3.54 | 12.35 | 31.94 | 34.79 | 46.02 | -11.23 |

**Table 17: Radiated Emission – Quasi Peak table – 30 MHz to 1 GHz**



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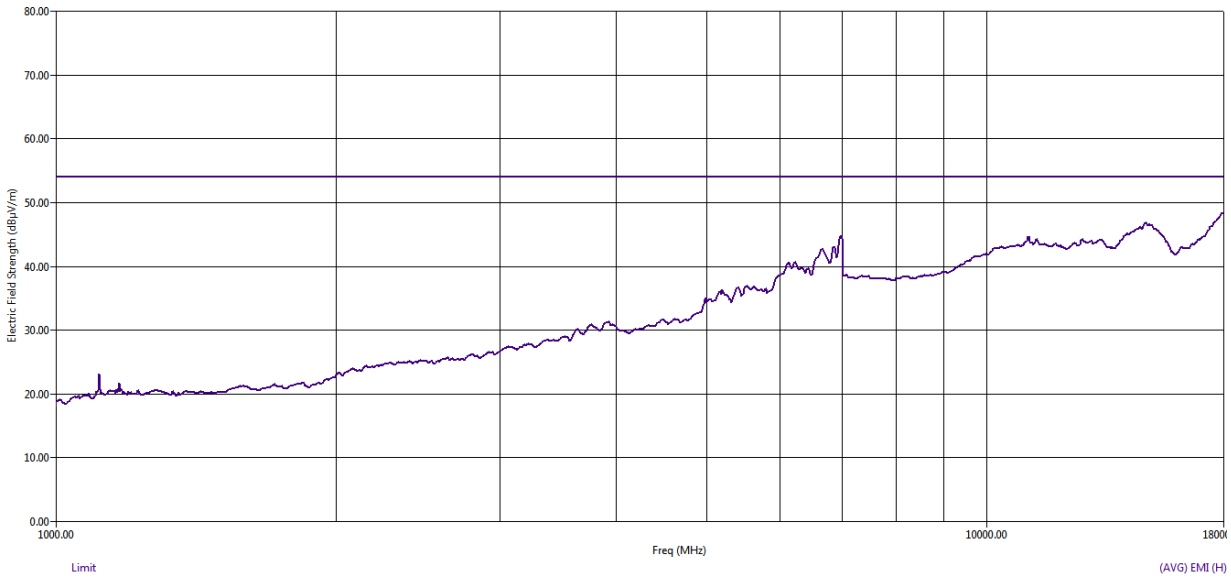


**Figure 116: Average RE from 1GHz to 18GHz-Horizontal polarization**

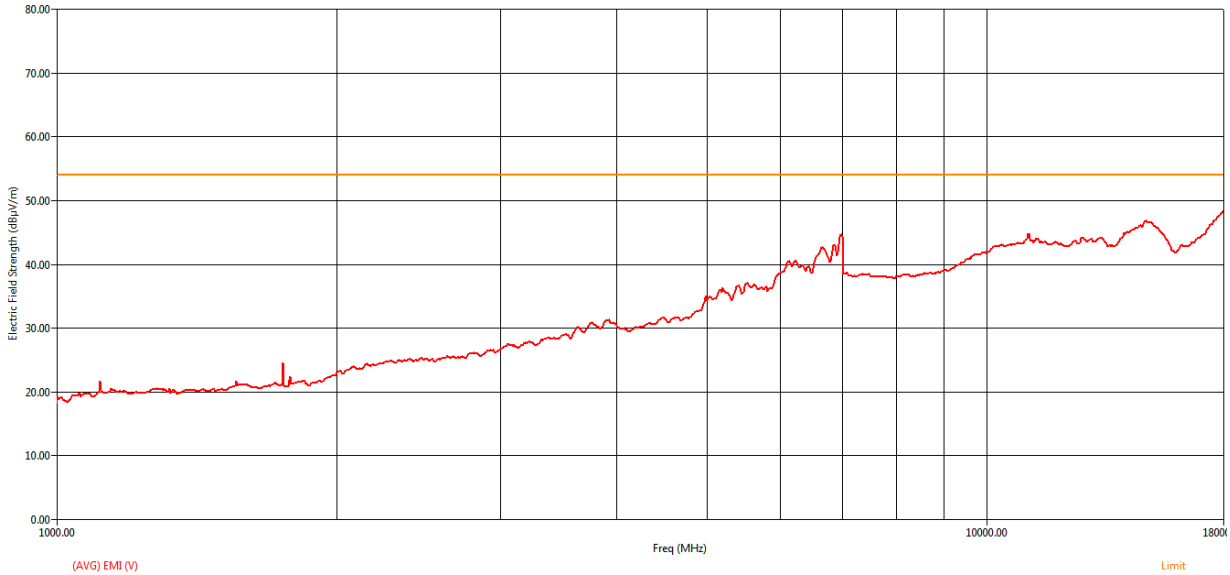


**Figure 117: Average RE from 1GHz to 18GHz-Vertical polarization**

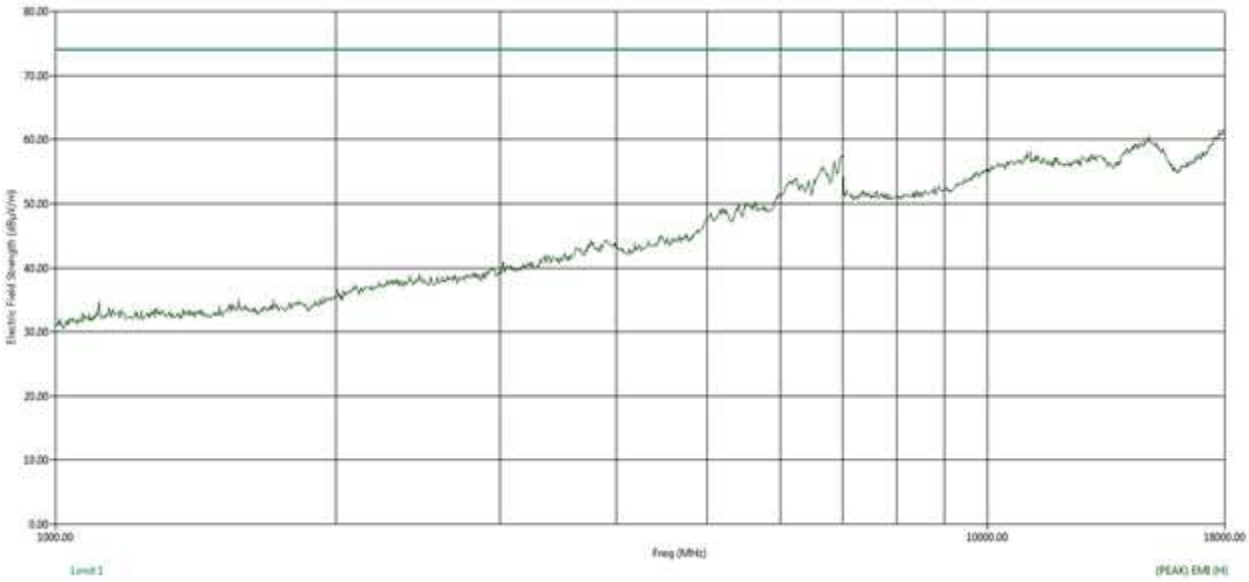


**Figure 118: Peak RE from 1GHz to 18GHz-Horizontal polarization**

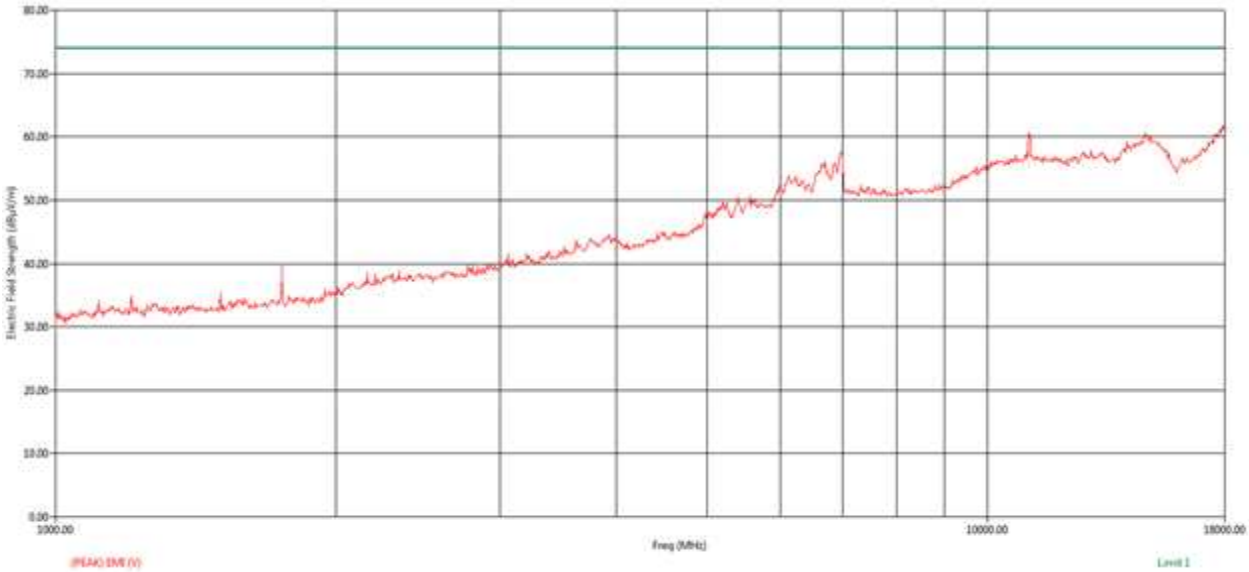


**Figure 119: Peak RE from 1GHz to 18GHz-Vertical polarization**



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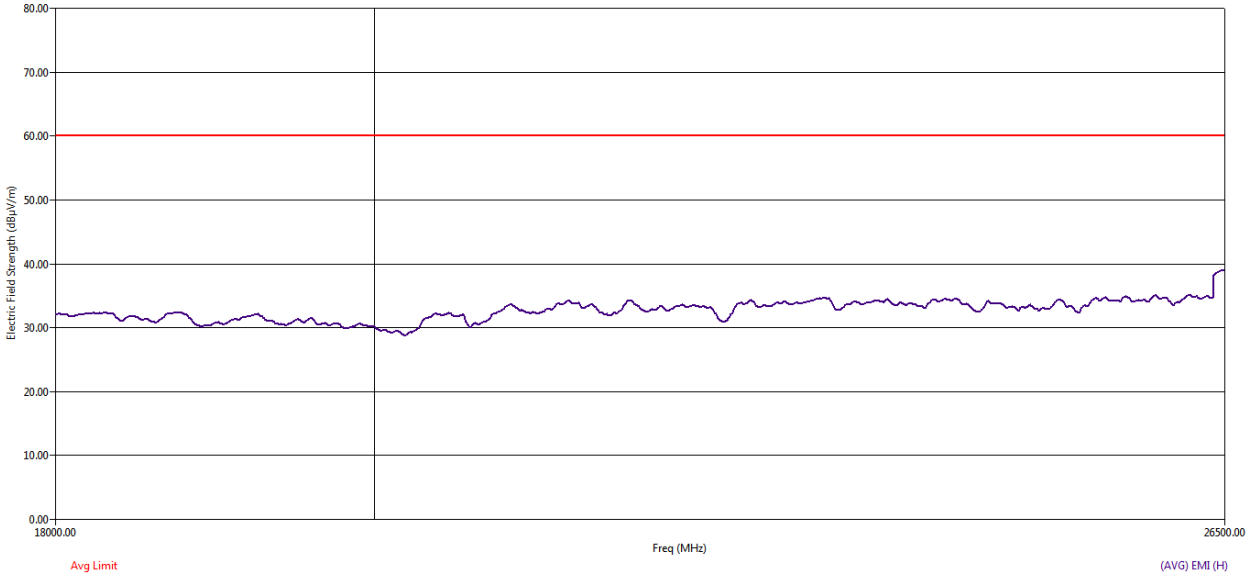


**Figure 120: Average RE from 18GHz to 26.5GHz - Horizontal polarization**

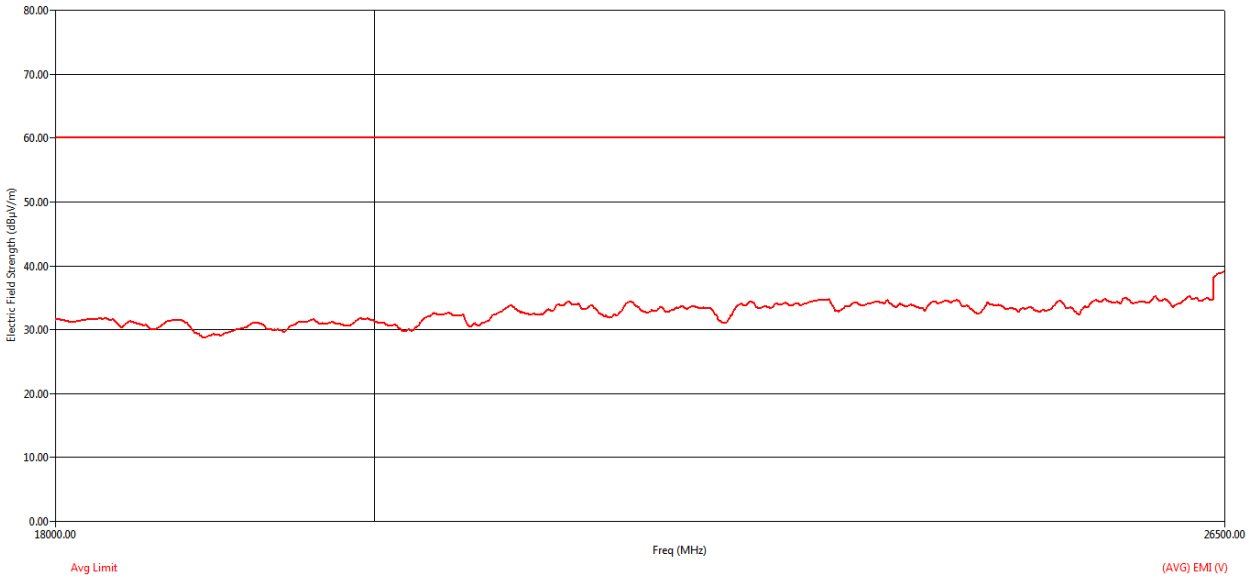


**Figure 121: Average RE from 18GHz to 26.5GHz - Vertical polarization**

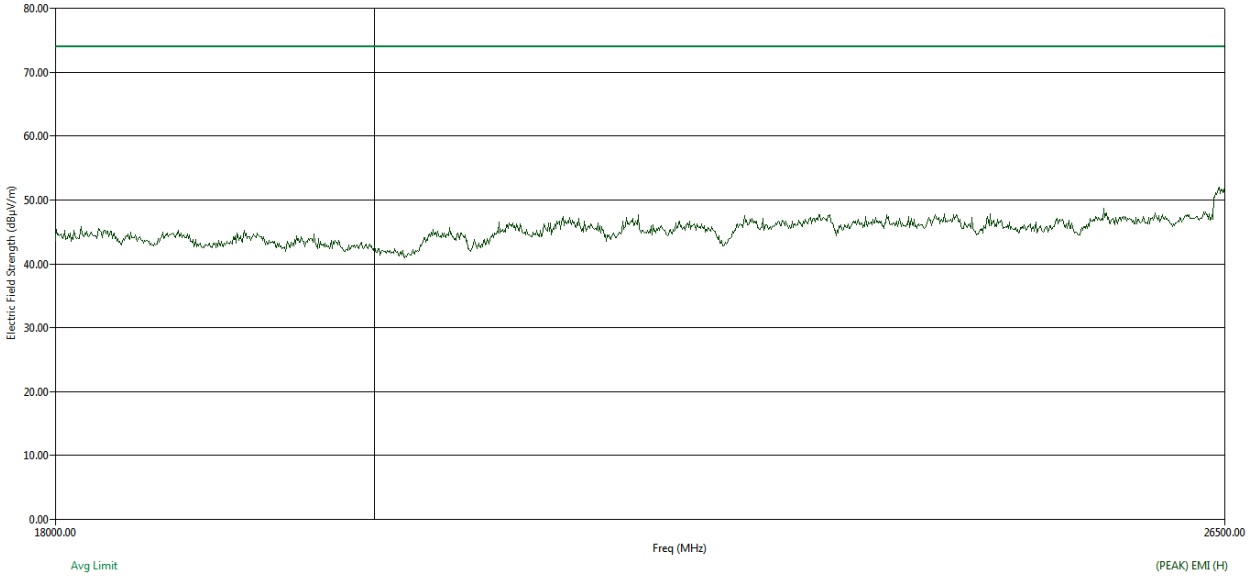


**Figure 122: Peak RE from 18GHz to 26.5GHz - Horizontal polarization**

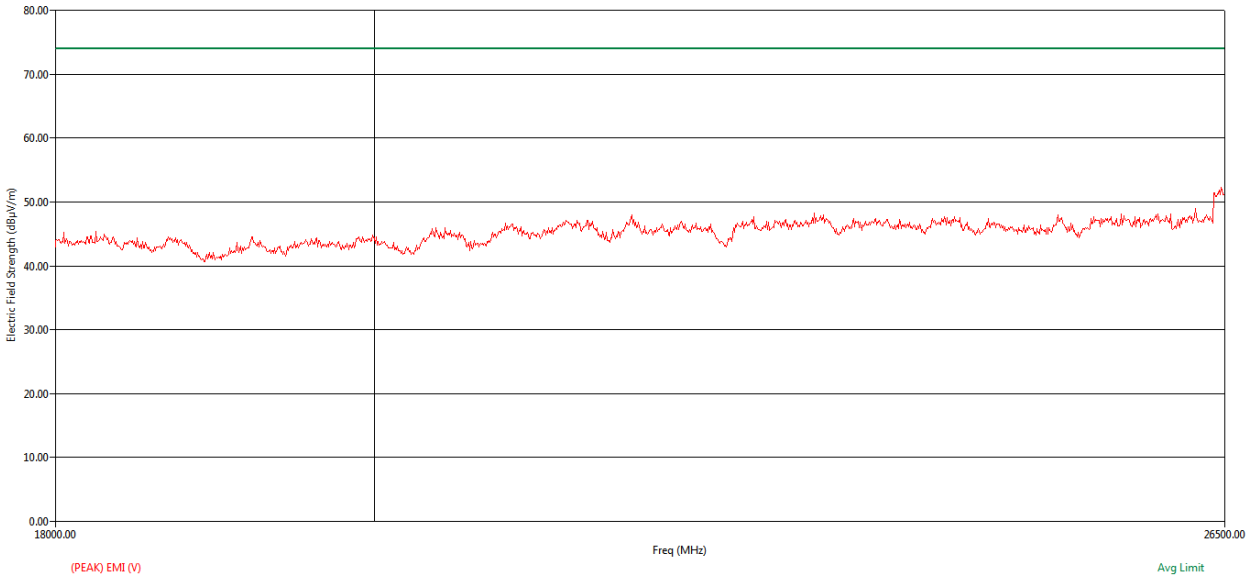


**Figure 123: Peak RE from 18GHz to 26.5GHz - Vertical polarization**

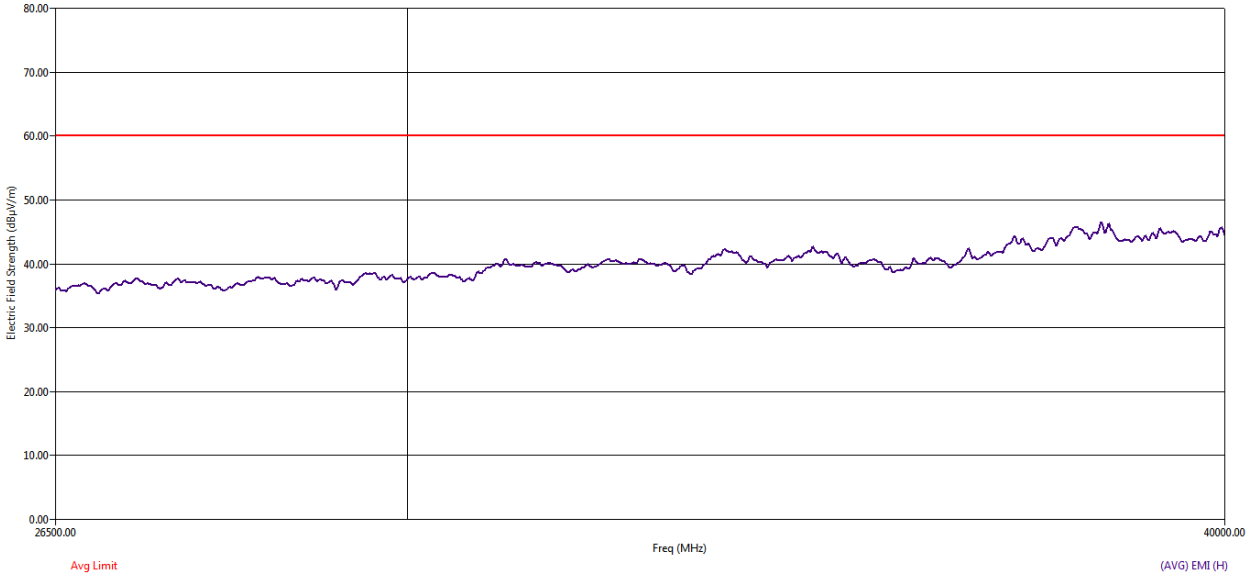


**Figure 124: Average RE from 26.5GHz to 40GHz - Horizontal polarization**

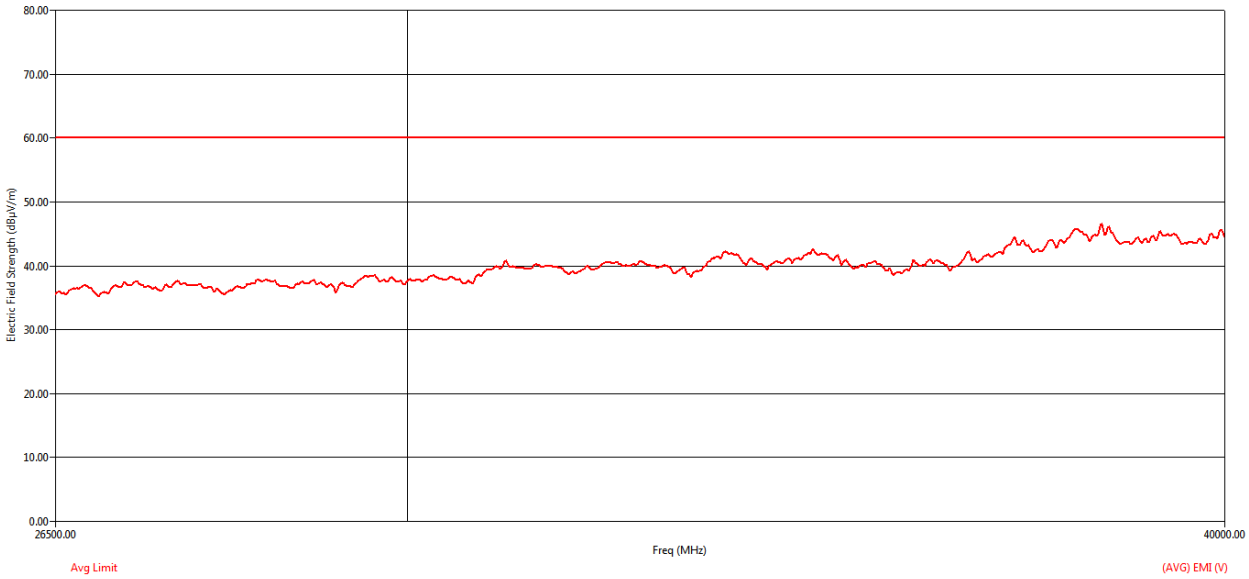


**Figure 125: Average RE from 26.5GHz to 40GHz - Vertical polarization**



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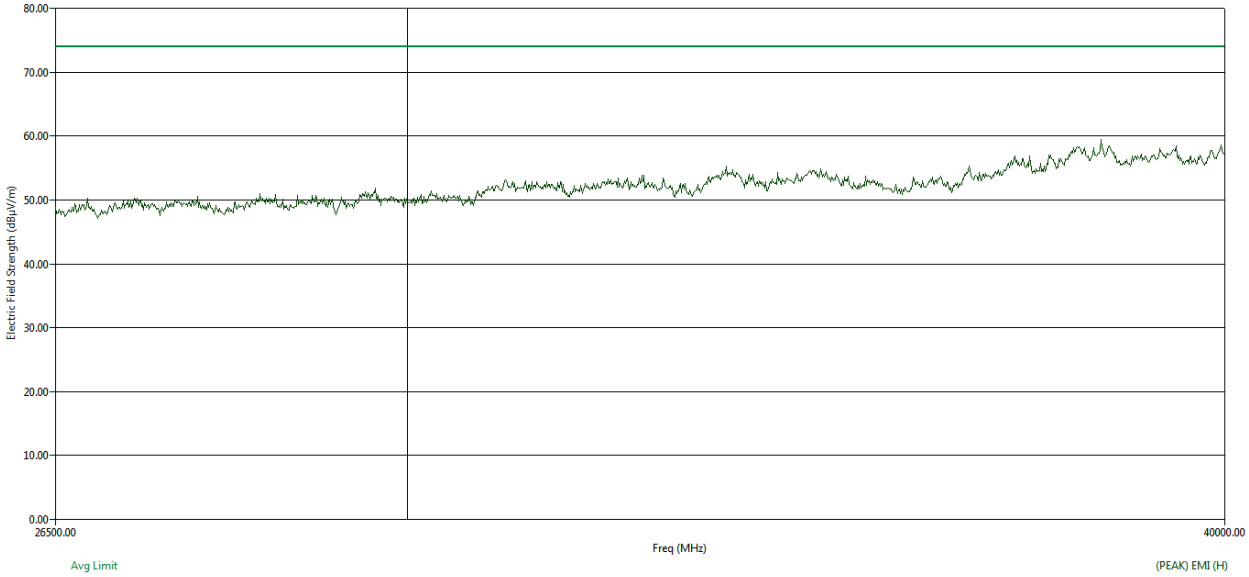


**Figure 126: Peak RE from 26.5GHz to 40GHz - Horizontal polarization**

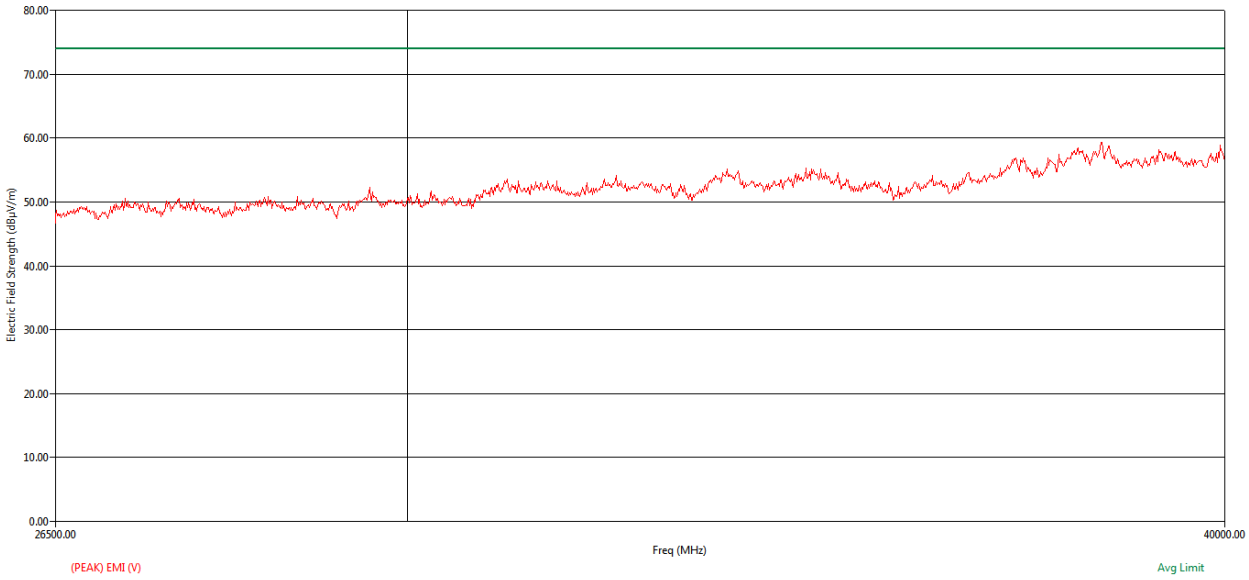


**Figure 127: Peak RE from 26.5GHz to 40GHz - Vertical polarization**



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### 5.3.2.7.3 HIGH CHANNEL_5710 MHZ

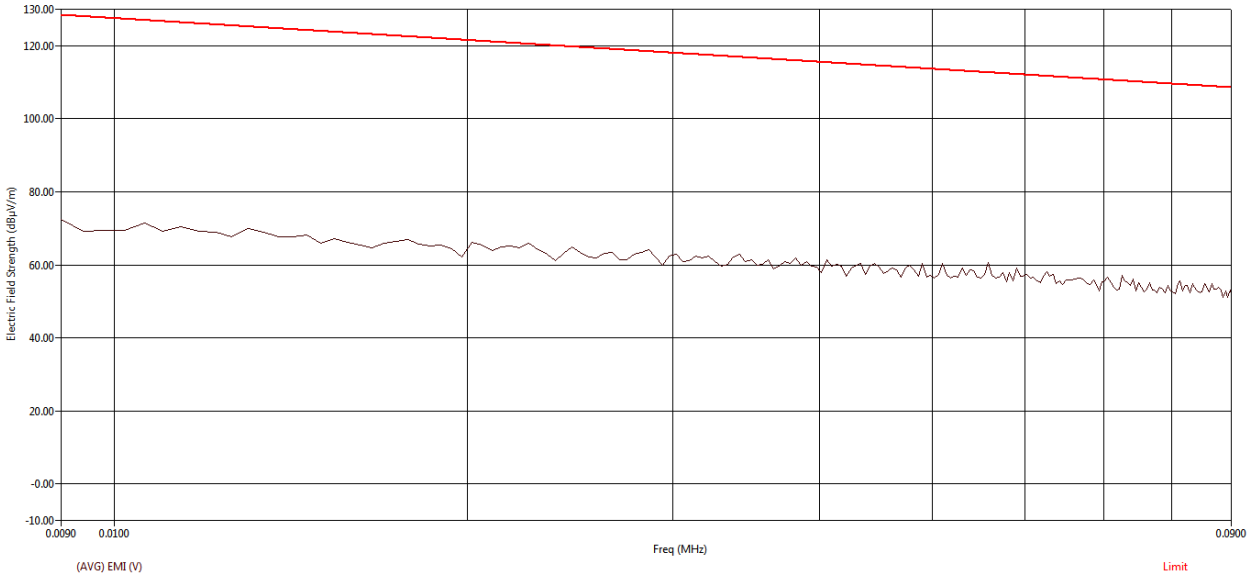


**Figure 128: Average RE from 9 kHz to 90kHz–Parallel**

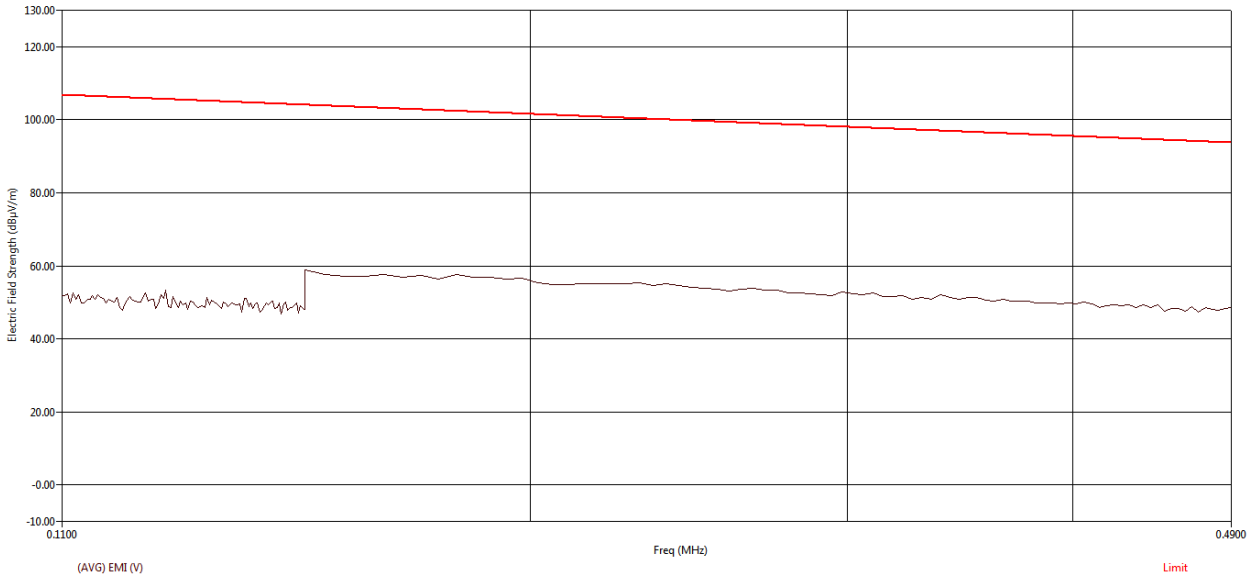


**Figure 129: Average RE from 110 kHz to 490 kHz-Parallel**

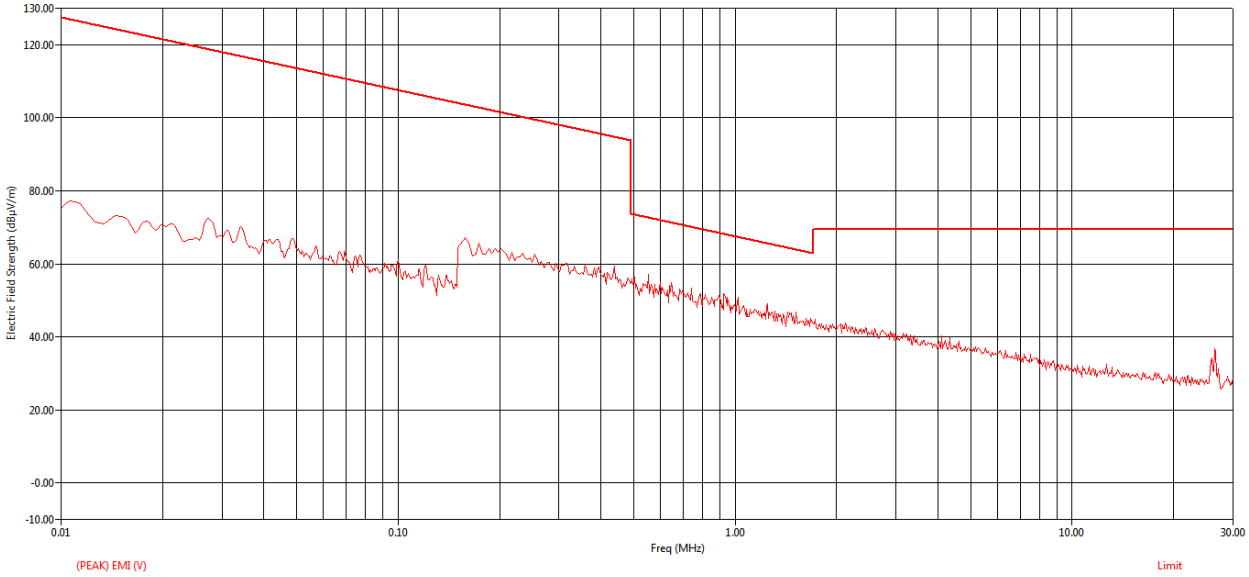


**Figure 130: Peak RE from 9 kHz to 30MHz-Parallel**

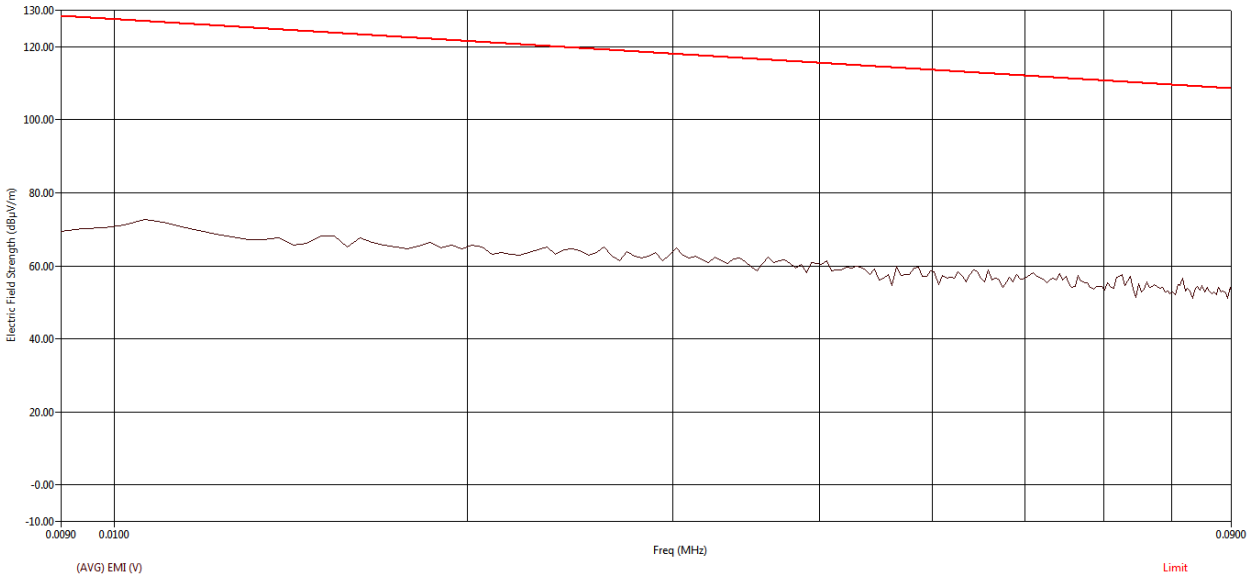


**Figure 131: Average RE from 9 kHz to 90kHz-Perpendicular**



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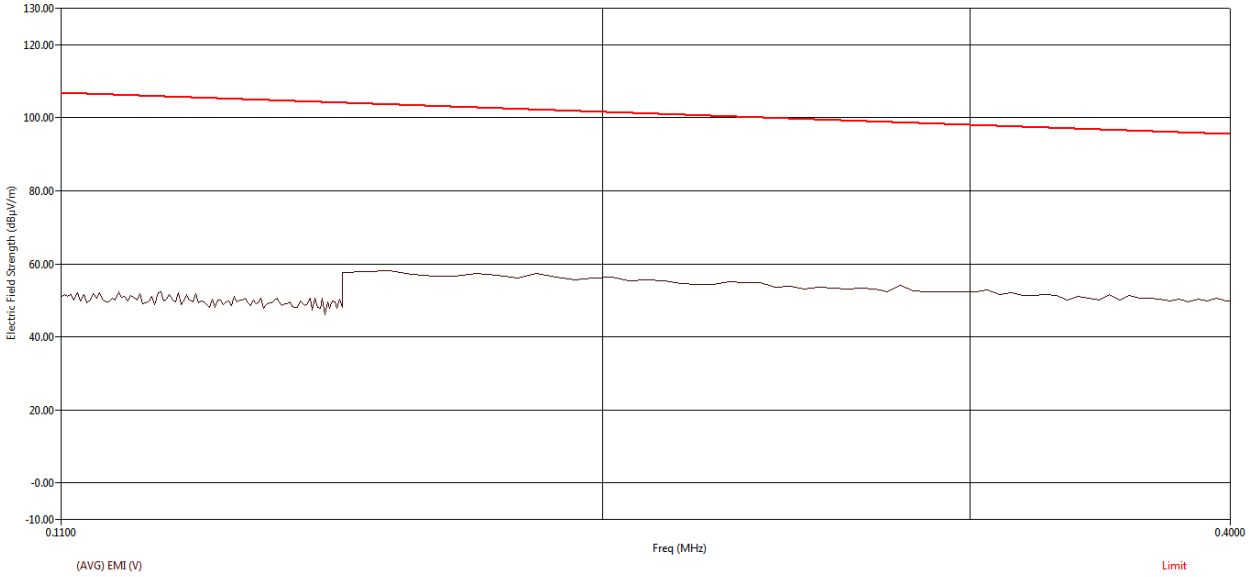


**Figure 132: Average RE from 110 kHz to 490 kHz–Perpendicular**

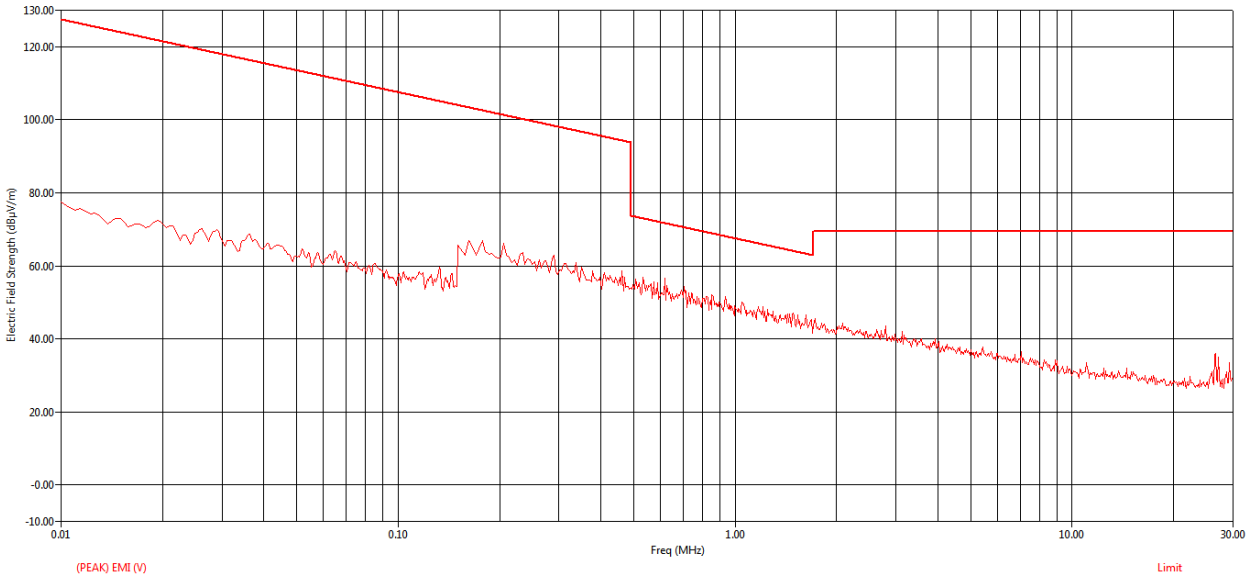


**Figure 133: Peak RE from 9 kHz to 30MHz-Perpendicular**

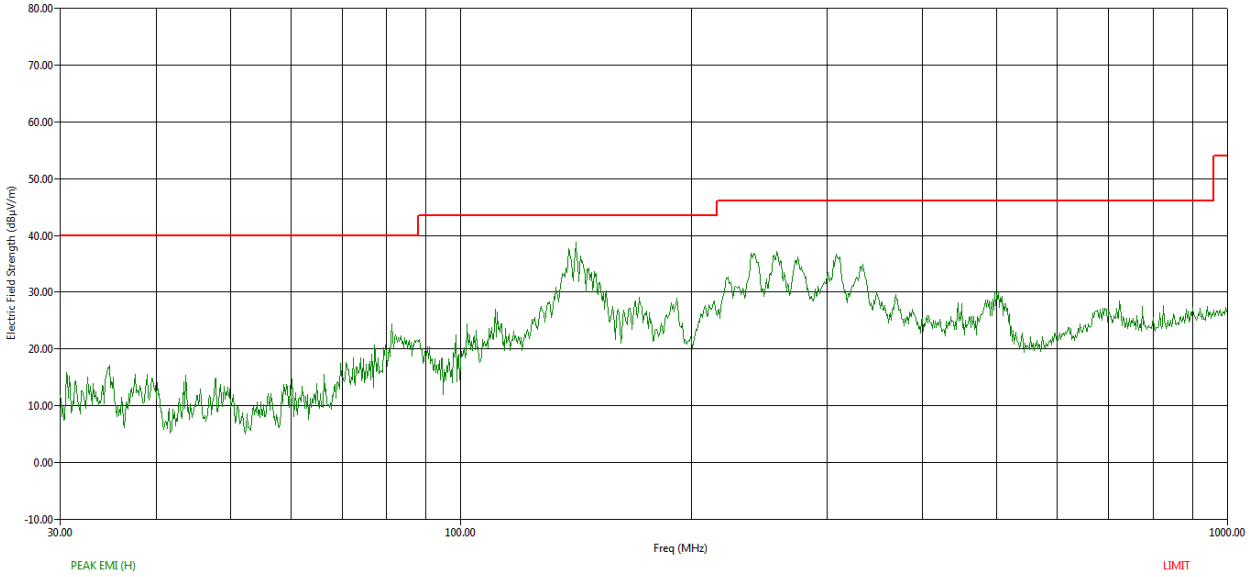


**Figure 134: Peak RE from30MHz to 1GHz-Horizontal polarization**

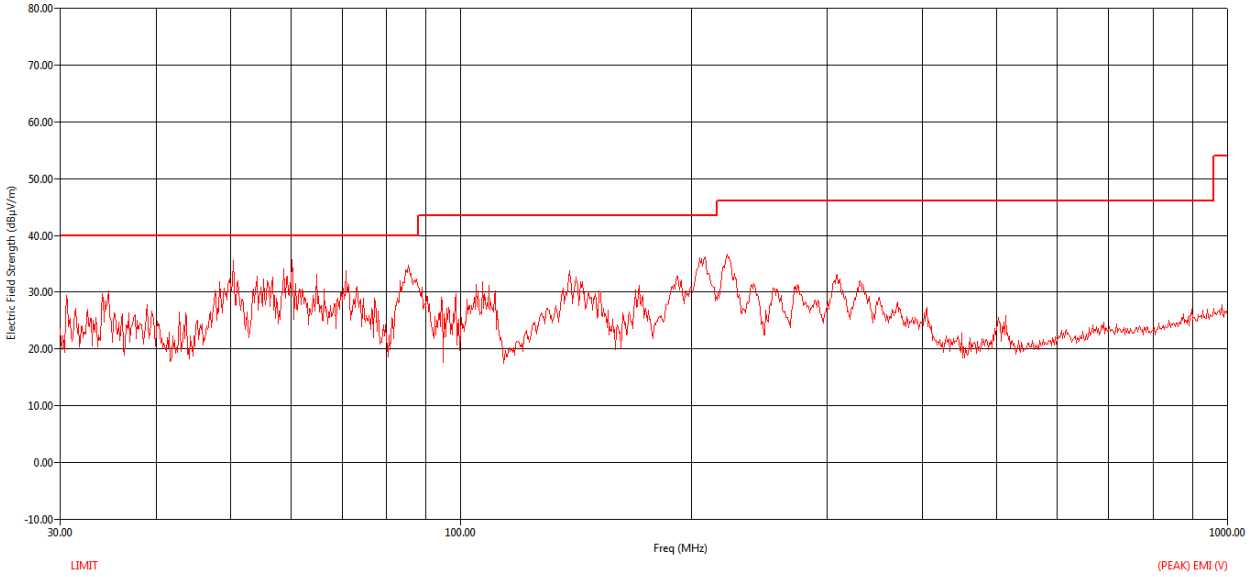


**Figure 135: Peak RE from30MHz to 1GHz-Vertical polarization**

| Freq (MHz) | Freq (Max) (MHz) | Pol | EUT Ttbl Agl (deg) | Twr Ht (cm) | (QP) Trace (dBµV) | Cable (dB) | Transducer (dB) | Preamp (dB) | (QP) EMI (dBµV/m) | Limit (dBµV/m) | (QP) Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 50.44 | 50.46 | V | 250.40 | 134.00 | 55.27 | 1.66 | 10.45 | 32.20 | 35.18 | 40.00 | -4.82 |
| 60.24 | 60.23 | V | 237.70 | 100.00 | 57.60 | 1.76 | 9.42 | 32.17 | 36.61 | 40.00 | -3.39 |
| 70.80 | 70.81 | V | 179.90 | 100.00 | 53.85 | 1.95 | 9.46 | 32.15 | 33.11 | 40.00 | -6.89 |
| 85.36 | 85.35 | V | 15.10 | 100.00 | 53.70 | 2.13 | 9.02 | 32.12 | 32.73 | 40.00 | -7.27 |
| 138.40 | 138.43 | H | 174.10 | 226.00 | 54.51 | 2.63 | 11.74 | 32.05 | 36.83 | 43.52 | -6.69 |
| 141.20 | 141.19 | H | 180.30 | 243.00 | 54.62 | 2.68 | 11.83 | 32.05 | 37.08 | 43.52 | -6.44 |
| 208.00 | 207.96 | V | 357.70 | 100.00 | 49.26 | 3.26 | 13.70 | 31.99 | 34.23 | 43.52 | -9.29 |
| 258.36 | 258.29 | H | 180.00 | 129.00 | 53.02 | 3.55 | 12.37 | 31.94 | 37.00 | 46.02 | -9.02 |

**Table 18: Radiated Emission – Quasi Peak table – 30 MHz to 1 GHz**



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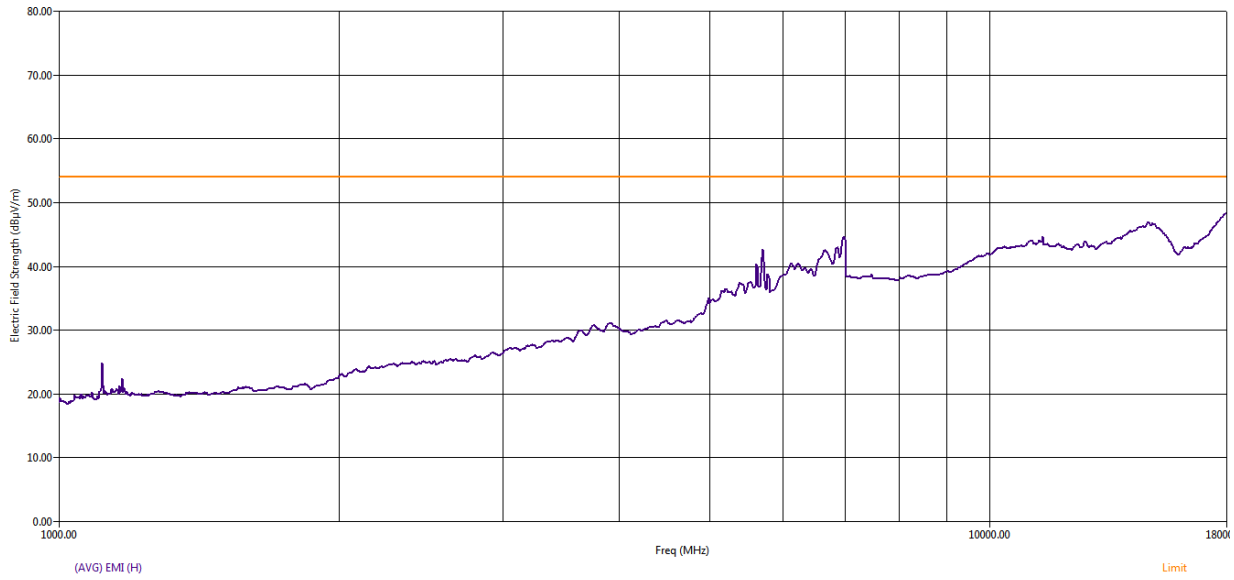


**Figure 136: Average RE from 1GHz to 18GHz-Horizontal polarization**

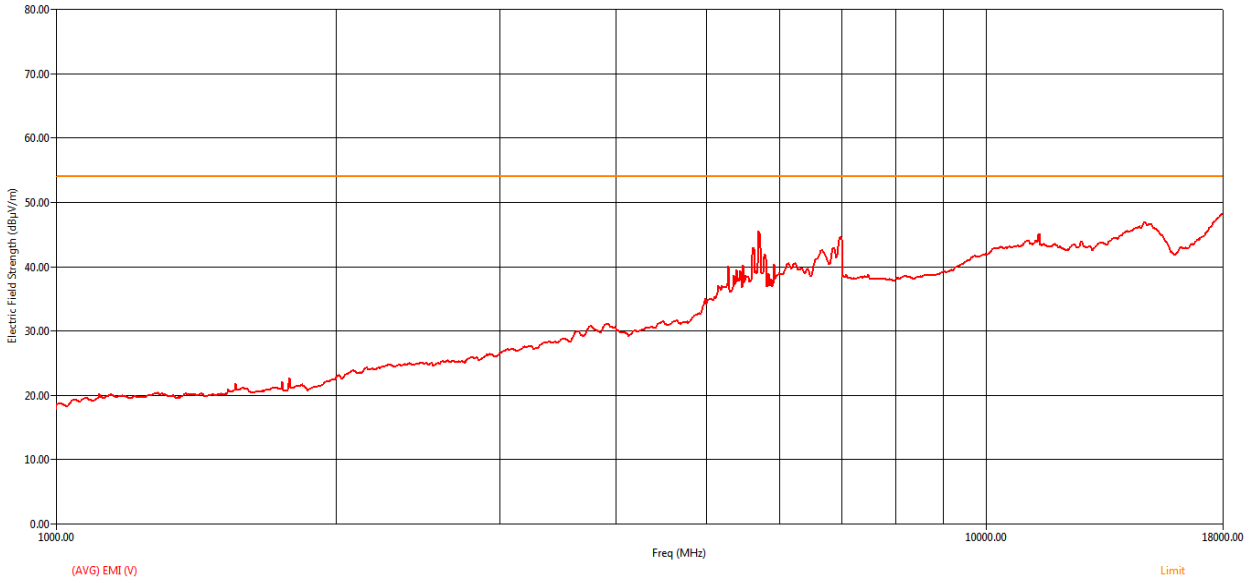


**Figure 137: Average RE from 1GHz to 18GHz-Vertical polarization**

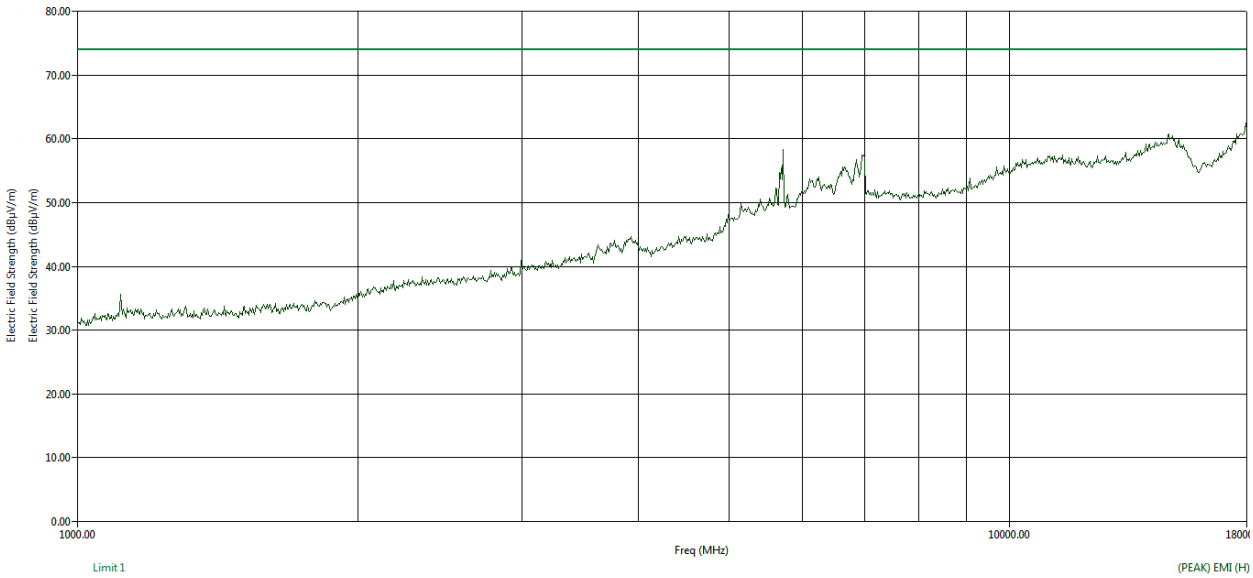


**Figure 138: Peak RE from 1GHz to 18GHz-Horizontal polarization**

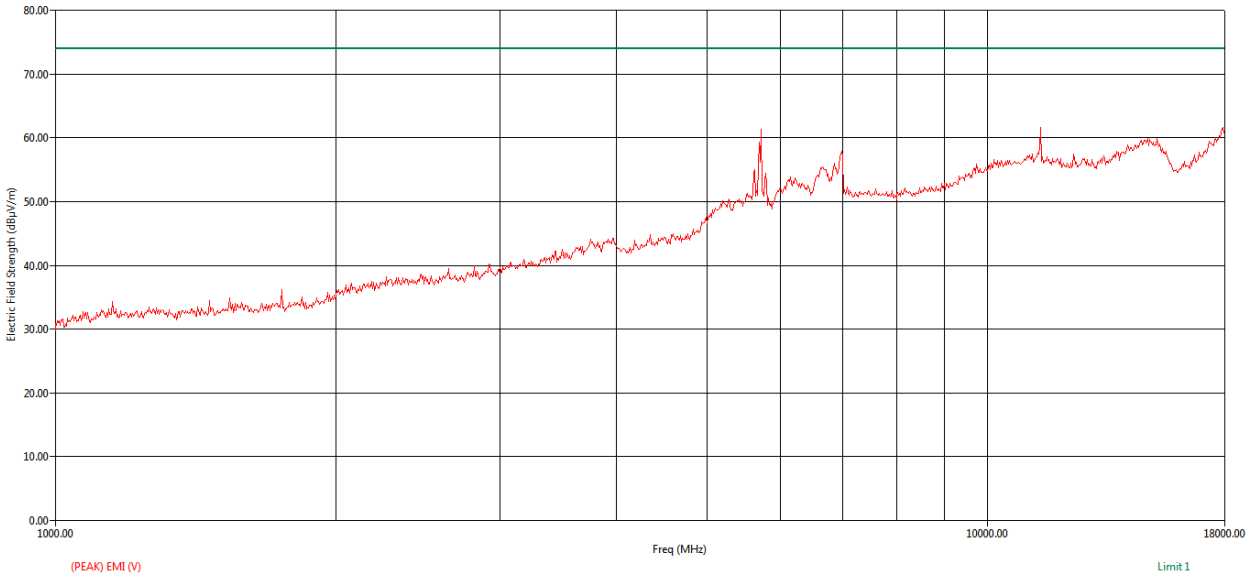


**Figure 139: Peak RE from 1GHz to 18GHz-Vertical polarization**



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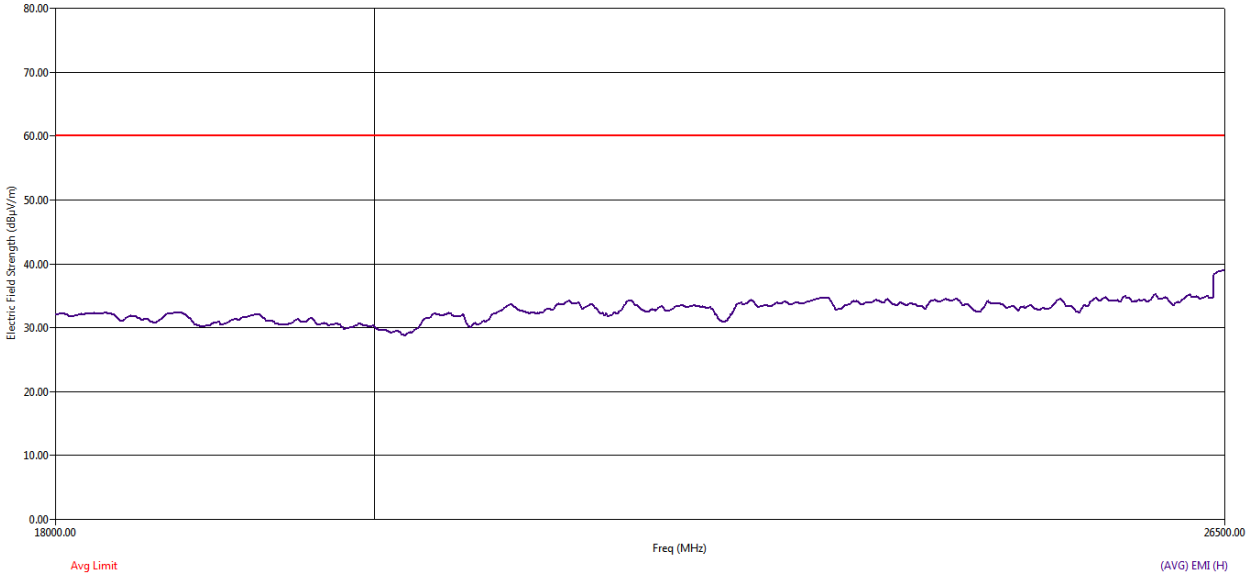


**Figure 140: Average RE from 18GHz to 26.5GHz - Horizontal polarization**

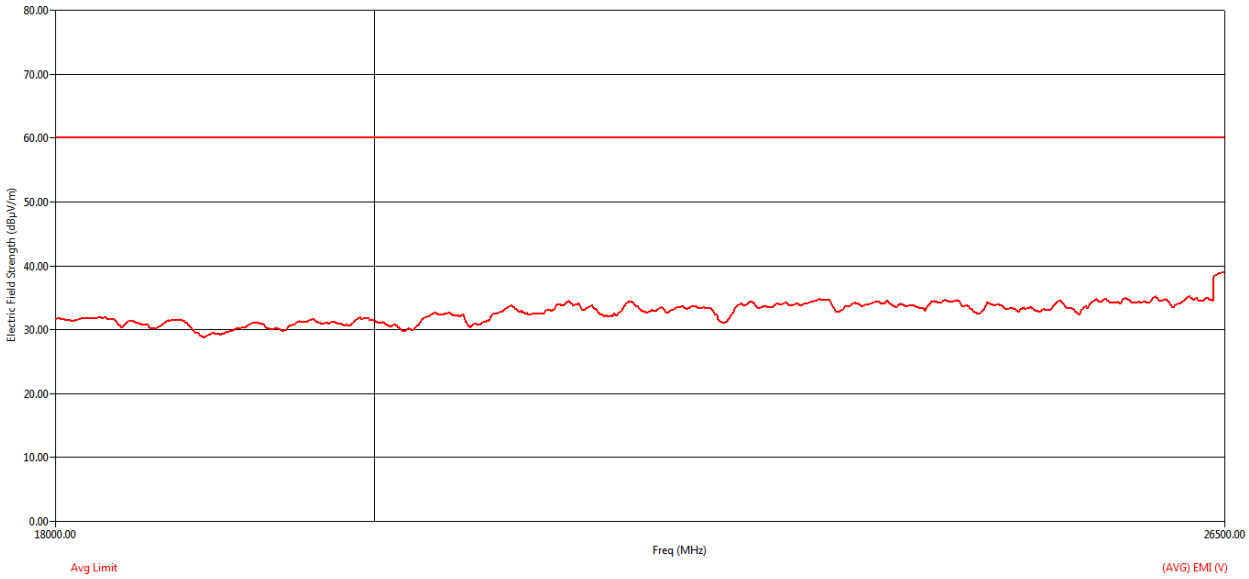


**Figure 141: Average RE from 18GHz to 26.5GHz - Vertical polarization**

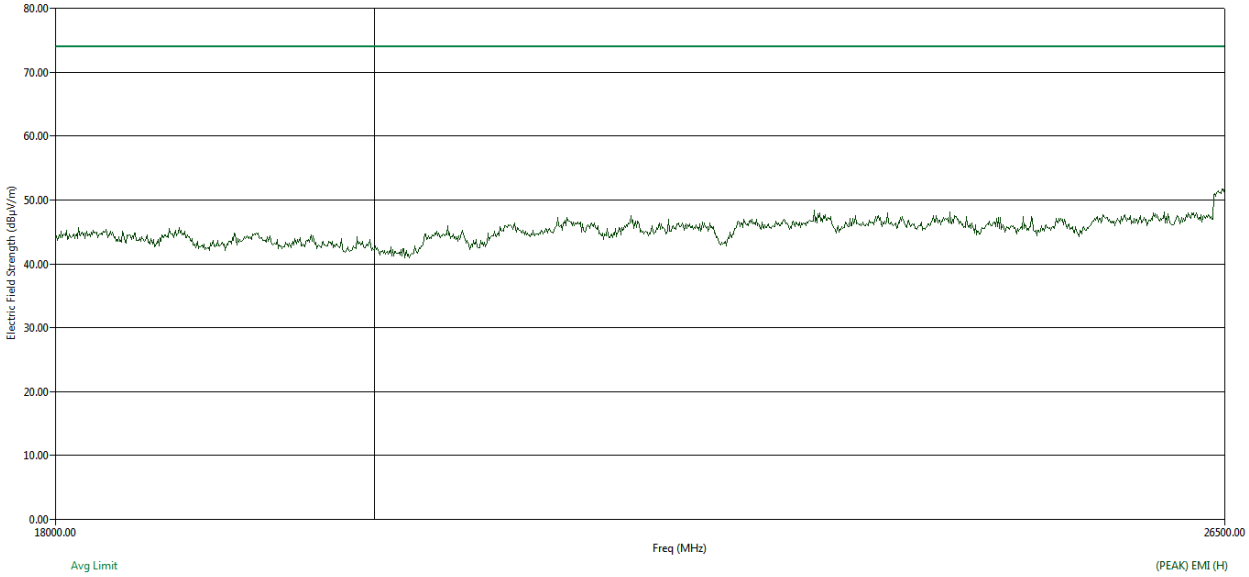


**Figure 142: Peak RE from 18GHz to 26.5GHz - Horizontal polarization**

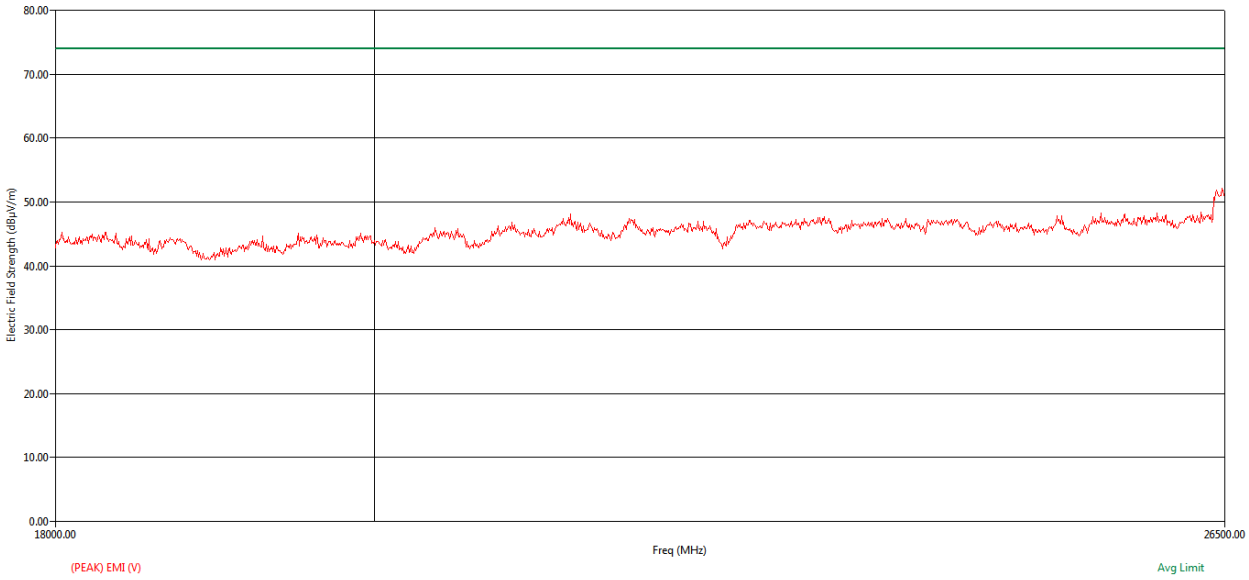


**Figure 143: Peak RE from 18GHz to 26.5GHz - Vertical polarization**

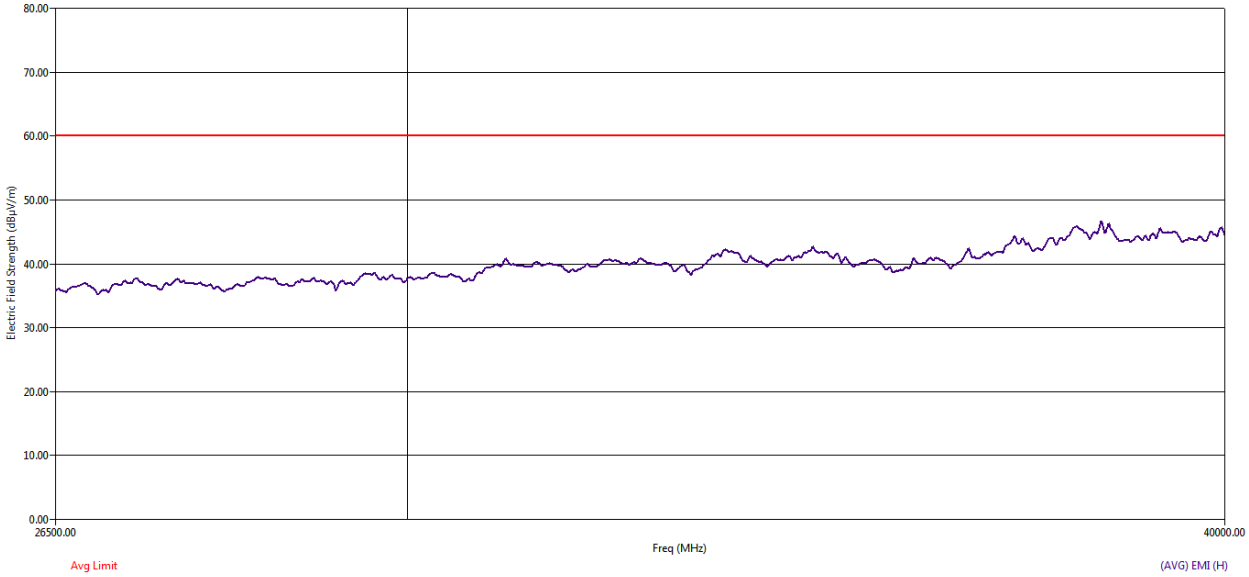


**Figure 144: Average RE from 26.5GHz to 40GHz - Horizontal polarization**

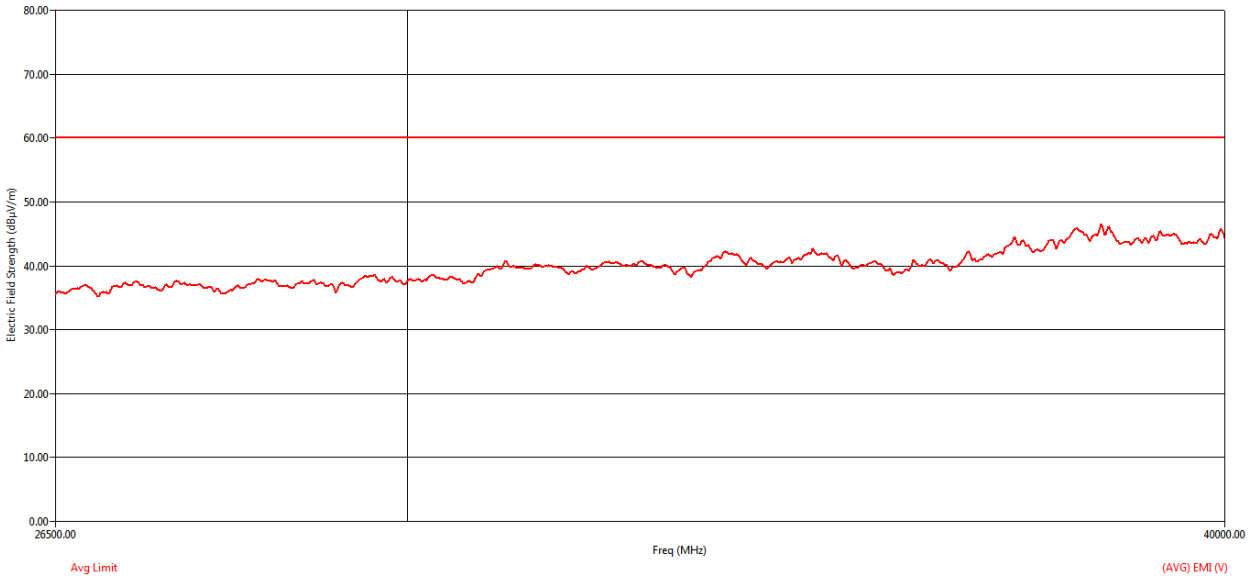


**Figure 145: Average RE from 26.5GHz to 40GHz - Vertical polarization**

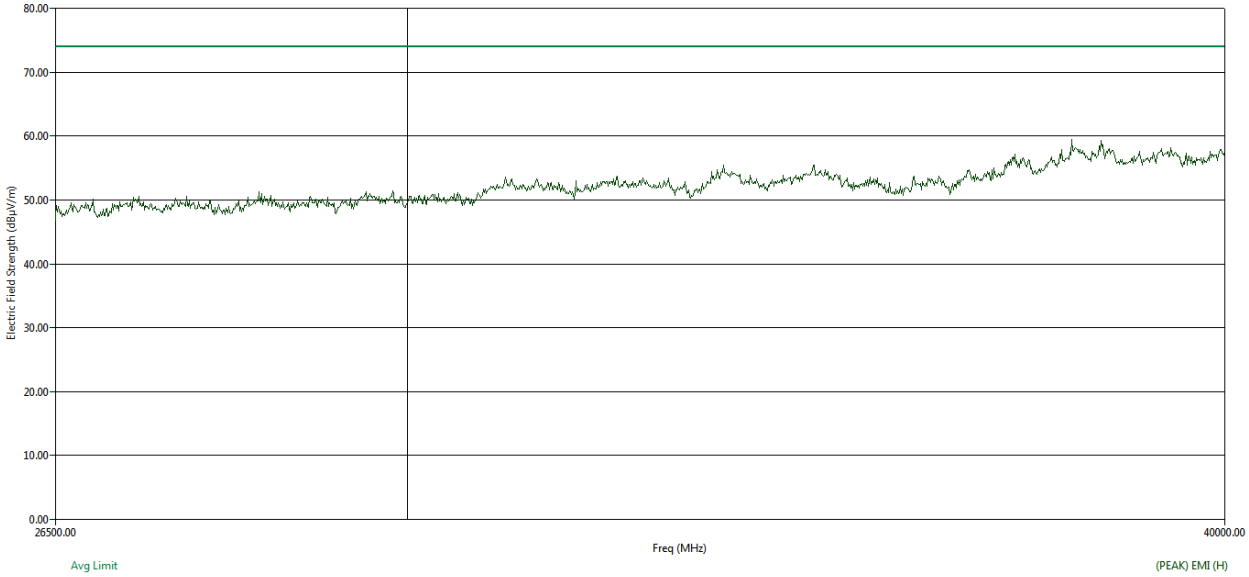


**Figure 146: Peak RE from 26.5GHz to 40GHz - Horizontal polarization**

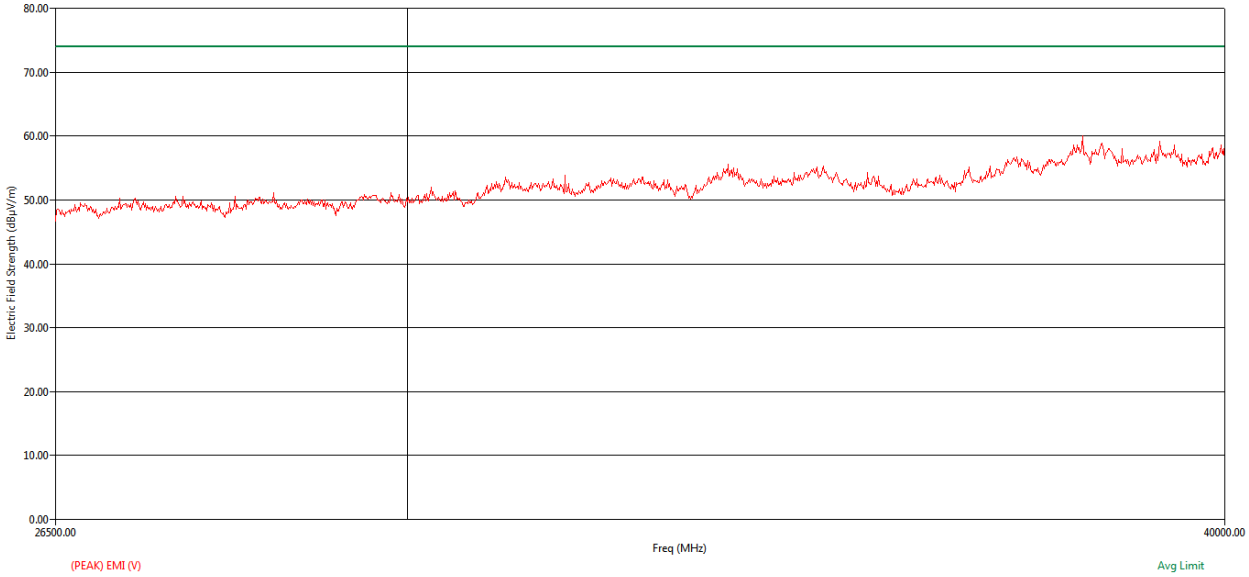


**Figure 147: Peak RE from 26.5GHz to 40GHz - Vertical polarization**

Note:

*QP EMI (dBµV/m) = QP Trace (dBµV) + Cable (dB) + Transducer (dB/m) – Preamp (dB)*
*QP Margin (dB) = QP EMI (dBµV/m) – Limit (dBµV/m)*
*Avg EMI (dBµV/m) = Avg Trace (dBµV) + Cable (dB) + Transducer (dB/m) – Preamp (dB)*
*Avg Margin (dB) = Avg EMI (dBµV/m) – Limit (dBµV/m)*

### 5.3.2.8 RESULT

Radiated Emissions from the EUT are **within the** specified Limit line.

# APPENDIX I – ACRONYMS

| | |
|---|---|
| dBµV | Decibel micro Volts |
| EUT | Equipment Under Test |
| FCC | Federal Communications Commission |
| GHz | Giga Hertz |
| kHz | Kilo Hertz |
| LISN | Line Impedance Stabilization Network |
| MHz | Mega Hertz |
| QP | Quasi Peak |

**END OF REPORT**




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