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Report On



Application for Grant of Equipment Authorization of the
LED Roadway Lighting
Radar Motion Sensor

FCC Part 15 Subpart C §15.245
IC RSS-210 Issue 9 November 2017

Report No: 1264057A

April 2019



| | |
|---------------------------|--|
| REPORT ON | Radio Testing of the LED Roadway Lighting Radar Motion Sensor Model T100 Radar Motion Sensor |
| TEST REPORT NUMBER | 1264057A |
| TEST REPORT DATE | April 2019 |
| PREPARED FOR | LED Roadway Lighting 115 Chain Lake Dr. Halifax, Nova Scotia Canada B3S 1B3 |
| CONTACT PERSON | Simon Lightbody Senior Design Engineer Slightbody@ledroadwaylighting.com 877-533-5755 |
| PREPARED BY |  Sandipan Basu Name Authorized Signatory Title: Wireless Engineer |
| APPROVED BY |  Ferdinand Custodio Name Authorized Signatory Title: Senior EMC Test Engineer / Wireless Team Lead |
| DATED | May 14, 2019 |



Revision History

| 1264057A LED Roadway Lighting Radar Motion Sensor Model T100 Radar Motion Sensor | | | | | |
|--|-----------------|--------------|---|----------------|--------------------|
| DATE | OLD REVISION | NEW REVISION | REASON | PAGES AFFECTED | APPROVED BY |
| 05/14/2018 | Initial Release | | | | Ferdinand Custodio |
| 06/24/2019 | Initial Release | Rev. 1 | Updated power measurements utilizing additional measurement points during scans for more precise measurements at three (3) meters | Section 2.1 | Ferdinand Custodio |
| | | | | | |
| | | | | | |
| | | | | | |



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SECTION 1

REPORT SUMMARY

Radio Testing of the
LED Roadway Lighting
Radar Motion Sensor



1.1 INTRODUCTION

The information contained in this report is intended to show verification of the LED Roadway Lighting Radar Motion Sensor Radar Motion Sensor to the requirements of FCC Part 15 Subpart C §15.245 and IC RSS-210 Issue 9 November 2017.

| | |
|-------------------------------|--|
| Objective | To perform Radio Testing to determine the Equipment Under Test's (EUT's) compliance with the Test Specification, for the series of tests carried out. |
| Manufacturer | LED Roadway Lighting |
| EUT | Radar Motion Sensor |
| Trade Name | Radar Motion Sensor |
| Model Name | T100 |
| FCC ID | 2ACR3-T100 |
| IC Number | 12047A-T100 |
| FCC Classification | Field Disturbance Sensor (FDS) |
| Serial Number(s) | EUI000D6F0002B5F64D(Radiated) EUI000D6F0002B6029A (Radiated) EUI000D6F0012F3CD68 (Radiated) |
| Number of Samples Tested | 3 |
| Test Specification/Issue/Date | <ul style="list-style-type: none">• FCC Part 15 Subpart C §15.245 (October, 2018).• RSS-210 Issue 9 November 2017• RSS-Gen - General Requirements for Compliance of Radio Apparatus (Issue 5, March 2019). |
| Start of Test | February 27, 2019 |
| Finish of Test | April 04, 2019 |
| Name of Engineer(s) | Sandipan Basu |
| Related Document(s) | Supporting documents for EUT certification are separate exhibits. |



1.2 BRIEF SUMMARY OF RESULTS

A brief summary of the tests carried out in accordance with FCC Part 15 Subpart C §15.245 and IC RSS-210 Issue 9 November 2017 with cross-reference to the corresponding IC RSS standard is shown below.

| Section | §15.245 Spec Clause | RSS | Test Description | Result | Comments/ Base Standard |
|---------|---------------------|-----------------|----------------------------------|-----------|----------------------------|
| 2.1 | §15.245(b) | RSS-210 Annex F | Fundamental Emissions | Compliant | |
| 2.2 | §15.245(b) | RSS-210 Annex F | Spurious Emissions | Compliant | |
| 2.3 | - | RSS-Gen 6.7 | 99% Emission Bandwidth | Compliant | |
| 2.4 | | RSS-Gen 8.8 | AC Powerline conducted Emissions | Compliant | |



1.3 PRODUCT INFORMATION

1.3.1 Technical Description

The Equipment Under Test (EUT) is a LED Roadway Lighting Radar Motion Sensor Radar Motion Sensor. The EUT is used for people and traffic monitoring.

1.3.2 EUT General Description

| | |
|---|---|
| EUT Description | Radar Motion Sensor |
| Trade Name | Radar Motion Sensor |
| Model Name | T100 |
| Rated Voltage | Unit works on 4.6 V DC but is powered by a base which works at 110-270VAC in. |
| Mode Verified | High Channel 24174.65 MHz Mid Channel 24134.28 MHz Low Channel 24103.19 MHz |
| Primary Unit (EUT) | <input type="checkbox"/> Production <input checked="" type="checkbox"/> Pre-Production <input type="checkbox"/> Engineering |
| Manufacturer Declared Temperature Range | -40 to 60 °C |
| Antenna Type | Custom PCB |
| Manufacturer | N/A (Integral) |
| Antenna Model | N/A (Integral) |
| Maximum Antenna Gain | 7.7 dBi |



1.4 EUT TEST CONFIGURATION

1.4.1 Test Configuration Description

| Test Configuration | Description |
|--------------------|--|
| Default | EUT is configured to operate in test mode in which it can transmit continuously. An AC power supply is provided that needs each of the High Channel, Mid Channel and Low Channel sample units to be tested separately one at a time in each of the separate units. |

1.4.2 EUT Exercise Software

The EUT doesn't need any special software to run. The manufacturer provided individual sample for each channel that will transmit continuously when powered.

1.4.3 Support Equipment and I/O cables

| Manufacturer | Equipment/Cable | Description |
|----------------------|--|----------------------------------|
| LED Roadway Lighting | CQC LC-10R/5 110-480 V 16A Max Power Supply | Power Supply to Power the units. |

1.4.4 Worst Case Configuration

Worst-case configuration used in this test report is the single configuration that the EUT runs at for each unit: High, Mid, Low Channels (Referring to the Frequencies of Operation)



1.5 DEVIATIONS FROM THE STANDARD

No deviations from the applicable test standards or test plan were made during testing.

1.6 MODIFICATION RECORD

| Description of Modification | Modification Fitted By | Date Modification Fitted |
|--|------------------------|--------------------------|
| Serial Number: EUI000D6F0002B5F64D EUI000D6F0002B6029A and EUI000D6F0012F3CD68 | | |
| NA | - | - |

The table above details modifications made to the EUT during the test programme. The modifications incorporated during each test (if relevant) are recorded on the appropriate test pages.

1.7 TEST METHODOLOGY

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

For conducted and radiated emissions the equipment under test (EUT) was configured to measure its highest possible emission level. This level was based on the maximized cable configuration from exploratory testing per ANSI C63.10-2013. The test modes were adapted according to the Operating Instructions provided by the manufacturer/client.

1.1 TEST FACILITY REGISTRATION

1.1.1 FCC – Registration No.: US1146

TUV SUD America Inc. (San Diego), is an accredited test facility with the site description report on file and has met all the requirements specified in §2.948 of the FCC rules. The acceptance letter from the FCC is maintained in our files and the Designation is US1146.

1.1.2 Innovation, Science and Economic Development Canada (IC) Registration No.: 3067A-1 & 22806-1

The 10m Semi-anechoic chamber of TUV SUD America Inc. (San Diego Rancho Bernardo) has been registered by Certification and Engineering Bureau of Innovation, Science and Economic Development Canada for radio equipment testing with Registration No. 3067A-1.

The 3m Semi-anechoic chamber of TUV SUD America Inc. (San Diego Mira Mesa) has been registered by Certification and Engineering Bureau of Innovation, Science and Economic Development Canada for radio equipment testing with Registration No. 22806-1.

1.1.3 BSMI – Laboratory Code: SL2-IN-E-028R (US0102)

TUV Product Service Inc. (San Diego) is a recognized EMC testing laboratory by the BSMI under the MRA (Mutual Recognition Arrangement) with the United States. Accreditation includes CNS 13438 up to 6GHz.



1.1.4 NCC (National Communications Commission - US0102)

TUV SUD America Inc. (San Diego) is listed as a Foreign Recognized Telecommunication Equipment Testing Laboratory and is accredited to ISO/IEC 17025 (A2LA Certificate No.2955.13) which under APEC TEL MRA Phase 1 was designated as a Conformity Assessment Body competent to perform testing of equipment subject to the Technical Regulations covered under its scope of accreditation including RTTE01, PLMN01 and PLMN08 for TTE type of testing and LP002 for Low-Power RF Device type of testing.

1.1.5 VCCI – Registration No. A-0280 and A-0281

TUV SUD America Inc. (San Diego) is a VCCI registered measurement facility which includes radiated field strength measurement, radiated field strength measurement above 1GHz, mains port interference measurement and telecommunication port interference measurement.

1.1.6 RRA – Identification No. US0102

TUV SUD America Inc. (San Diego) is National Radio Research Agency (RRA) recognized laboratory under Phase I of the APEC Tel MRA.

1.1.7 OFCA – U.S. Identification No. US0102

TUV SUD America Inc. (San Diego) is recognized by Office of the Communications Authority (OFCA) under Appendix B, Phase I of the APEC Tel MRA.



SECTION 2

TEST DETAILS

Radio Testing of the
LED Roadway Lighting
Radar Motion Sensor

2.1 FIELD STRENGTH OF EMISSIONS

2.1.1 Specification Reference

FCC 47 Chapter I Subchapter A Part 15 Subpart C §15.245
RSS-210, Annex F

2.1.2 Standard Applicable

(b) The field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

| Fundamental frequency (MHz) | Field strength of fundamental (mv/m) | Field strength of harmonics (mv/m) |
|------------------------------|--------------------------------------|------------------------------------|
| 902-928 | 500 | 1.6 |
| 2435-2465 | 500 | 1.6 |
| 5785-5815 | 500 | 1.6 |
| 10500-10550 | 2500 | 25.0 |
| 24075-24175 | 2500 | 25.0 |

1) Regardless of the limits shown in the above table, harmonic emissions in the restricted bands below 17.7 GHz, as specified in §15.205, shall not exceed the field strength limits shown in §15.209. Harmonic emissions in the restricted bands at and above 17.7 GHz shall not exceed the following field strength limits:

(i) For the second and third harmonics of field disturbance sensors operating in the 24075-24175 MHz band and for other field disturbance sensors designed for use only within a building or to open building doors, 25.0 mV/m.

(ii) For all other field disturbance sensors, 7.5 mV/m.

(iii) Field disturbance sensors designed to be used in motor vehicles or aircraft must include features to prevent continuous operation unless their emissions in the restricted bands, other than the second and third harmonics from devices operating in the 24075-24175 MHz band, fully comply with the limits given in §15.209. Continuous operation of field disturbance sensors designed to be used in farm equipment, vehicles such as fork lifts that are intended primarily for use indoors or for very specialized operations, or railroad locomotives, railroad cars and other equipment which travels on fixed tracks is permitted. A field disturbance sensor will be considered not to be operating in a continuous mode if its operation is limited to specific activities of limited duration (e.g., putting a vehicle into reverse gear, activating a turn signal, etc.).

2.1.3 Equipment Under Test and Modification State

Serial No: EU1000D6F0002B5F64D, EU1000D6F0002B6029A, EU1000D6F0012F3CD68 / Default Test Configuration



2.1.4 Date of Test/Initial of test personnel who performed the test

April 24, 2019/ SB
June 24, 2019 / FSC (Retest)

2.1.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.1.6 Environmental Conditions

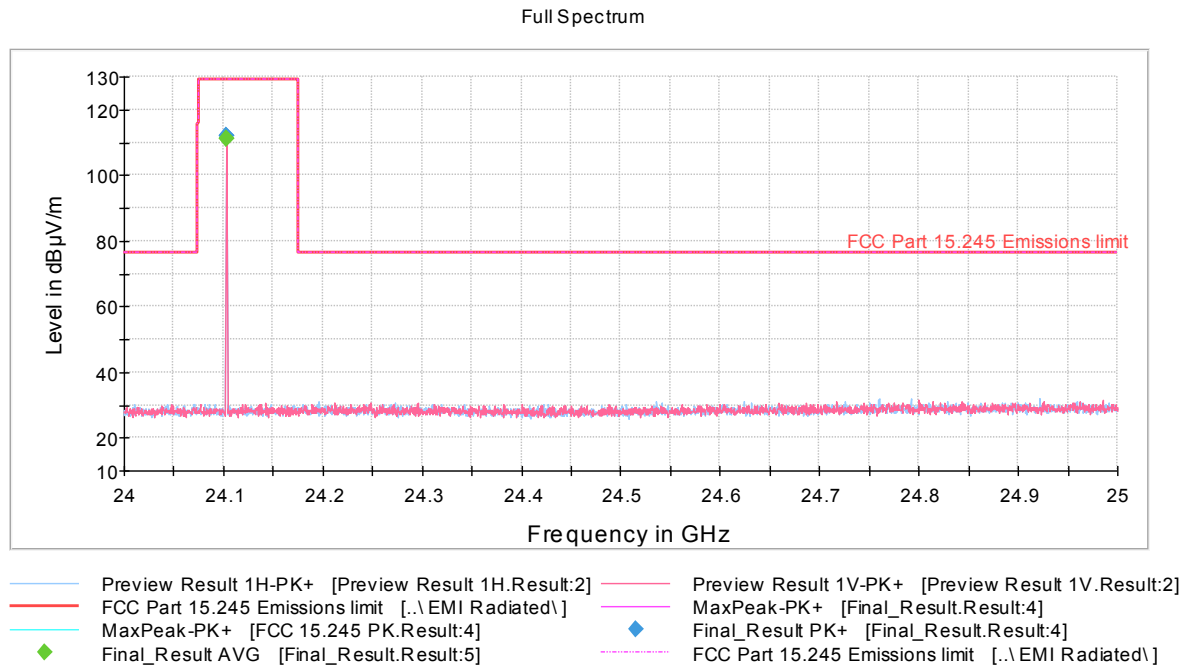
Test performed at Mira Mesa facility (SR5).

| | |
|---------------------|-----------------|
| Ambient Temperature | 26.2 – 26.8°C |
| Relative Humidity | 53.8 - 54.9% |
| ATM Pressure | 99.1 – 99.9 kPa |

2.1.7 Additional Observations

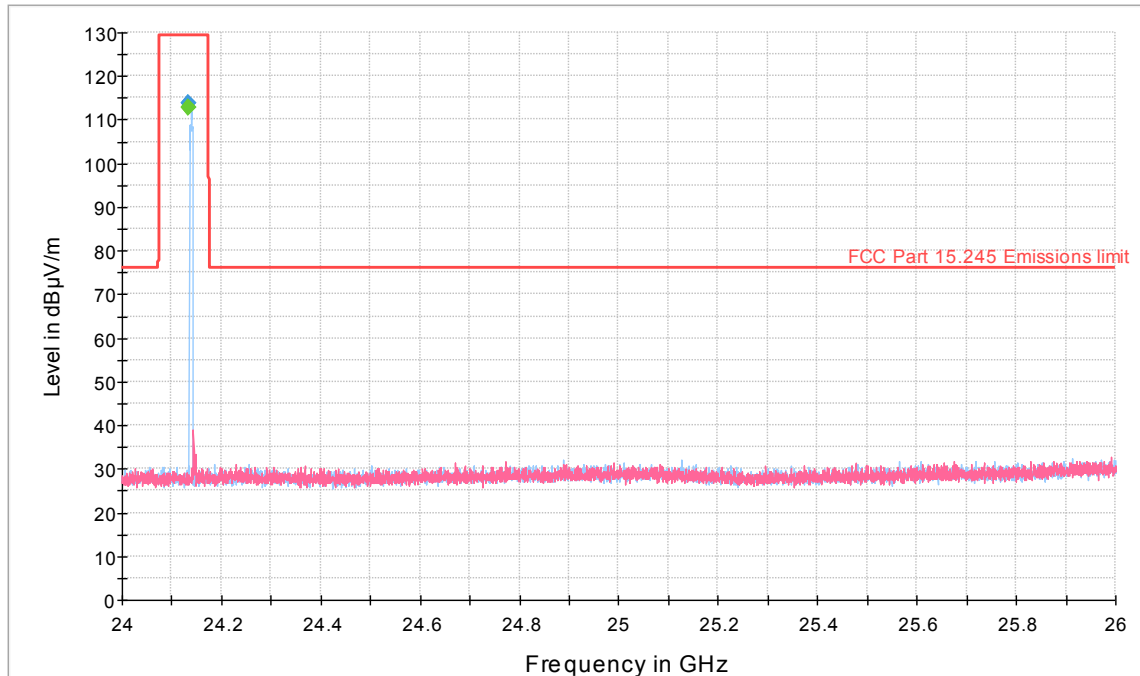
- This is a radiated test inside a semi Anechoic Chamber. The distance between EUT and Receiver Antenna was 3m.
- Measurement was made using EMC32 measurement software
- Both Peak and Average measurements were recorded.
- 2500 mV/m is 127.96 dB μ V/m and 25.0 mv is 87.96 dB μ V/m.

2.1.8 Test Plots



LED Roadway Low Channel Field Strength Measurements

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) |
|-----------------|------------------|------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|------------|
| 24103.1925 | - | 111.24 | 129.20 | 17.96 | 1000.0 | 1000.000 | 99.8 | H | 339.0 | 1.3 |
| 24103.1925 | 111.88 | - | 129.20 | 17.32 | 1000.0 | 1000.000 | 99.8 | H | 339.0 | 1.3 |

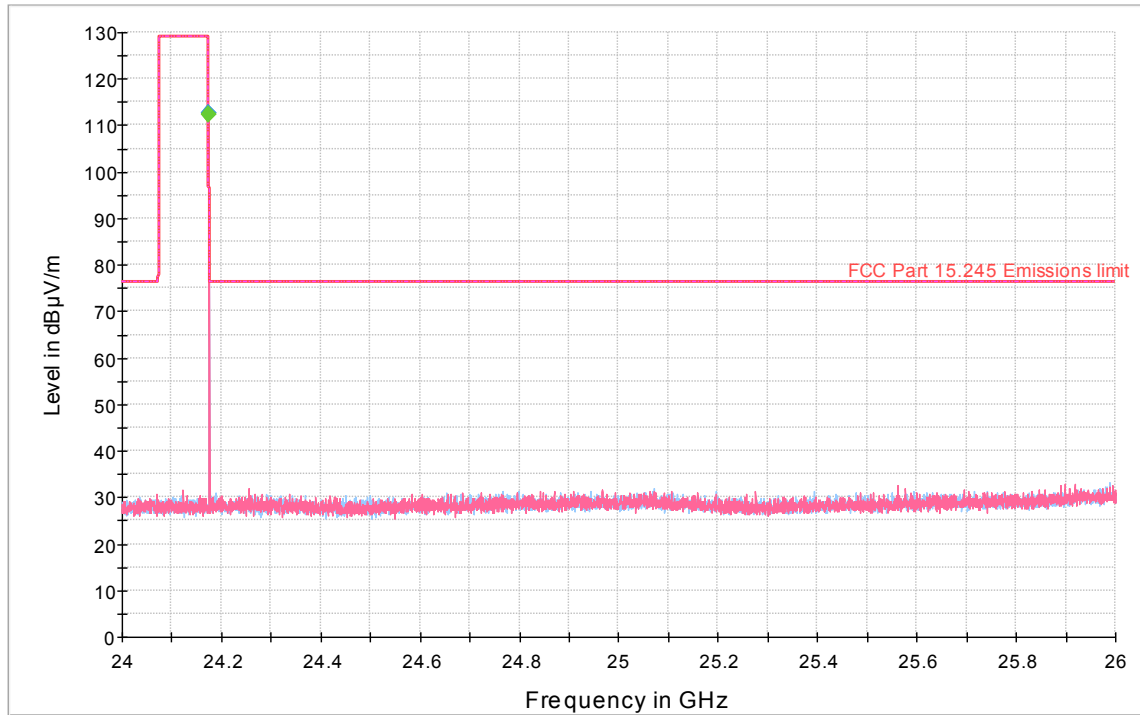


— Preview Result 1H-PK+ [Preview Result 1H.Result:2]
— FCC Part 15.245 Emissions limit [.\EMI Radiated\
◆ Final_Result AVG [Final_Result.Result:5]
— Preview Result 1V-PK+ [Preview Result 1V.Result:2]
◆ Final_Result PK+ [Final_Result.Result:4]

LED Roadway Mid Channel Field Strength Measurements

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) |
|-----------------|------------------|------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|------------|
| 24134.2815 | - | 112.84 | 129.20 | 16.36 | 1000.0 | 1000.000 | 99.8 | H | 310.0 | 1.3 |
| 24134.2815 | 112.91 | - | 129.20 | 16.29 | 1000.0 | 1000.000 | 99.8 | H | 310.0 | 1.3 |

Full Spectrum



— Preview Result 1H-PK+ [Preview Result 1H.Result:2]
— FCC Part 15.245 Emissions limit [..\EMI Radiated\
◆ Final_Result PK+ [Final_Result.Result:4]
— Preview Result 1V-PK+ [Preview Result 1V.Result:2]
— FCC Part 15.245 Emissions limit [..\EMI Radiated\
◆ Final_Result AVG [Final_Result.Result:5]

LED Roadway Max Channel Power Measurements

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) |
|-----------------|------------------|------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|------------|
| 24174.6440 | - | 112.34 | 129.20 | 16.86 | 1000.0 | 1000.000 | 99.8 | H | 314.0 | 1.3 |
| 24174.6440 | 112.71 | - | 129.20 | 16.49 | 1000.0 | 1000.000 | 99.8 | H | 314.0 | 1.3 |



2.2 SPURIOUS EMISSIONS

2.2.1 Specification Reference

FCC 47 Chapter I Subchapter A Part 15 Subpart C §15.245
RSS-210, Annex F

2.2.2 Standard Applicable

(2) Field strength limits are specified at a distance of 3 meters.

(3) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

(4) The emission limits shown above are based on measurement instrumentation employing an average detector. The provisions in §15.35 for limiting peak emissions apply.

2.2.3 Equipment Under Test and Modification State

Serial No: EUI000D6F0002B5F64D, EUI000D6F0002B6029A, EUI000D6F0012F3CD68 / Default Test Configuration

2.2.4 Date of Test/Initial of test personnel who performed the test

March 14 2019 to April 7 2019/ SB

2.2.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.2.6 Environmental Conditions

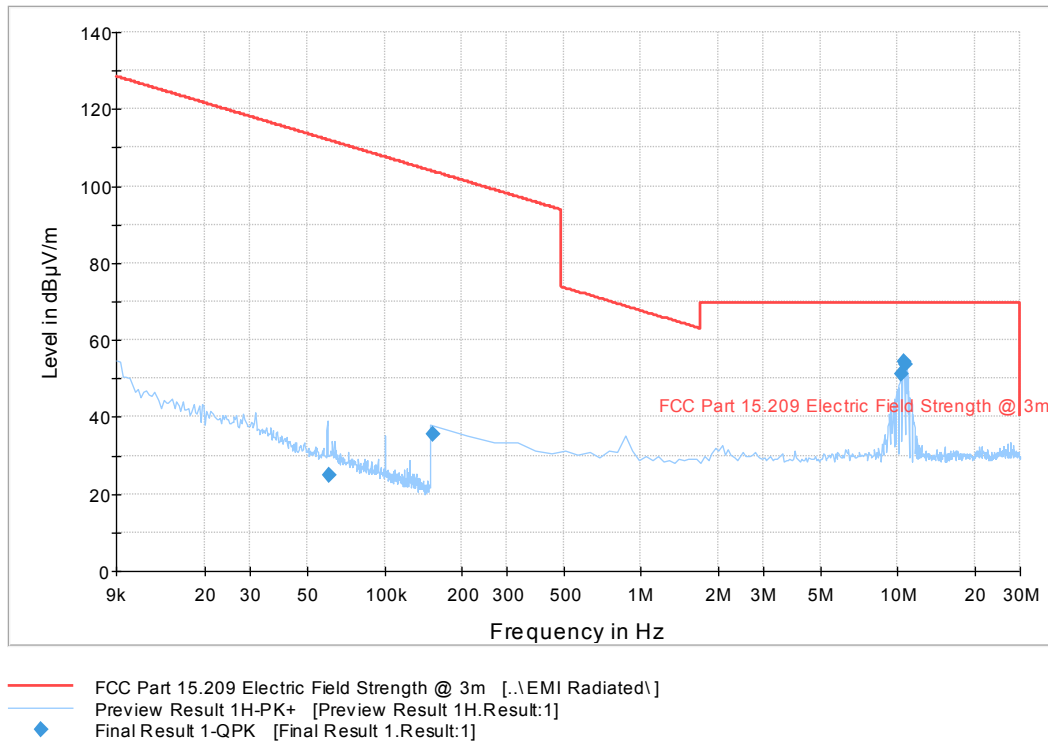
| | |
|---------------------|----------------|
| Ambient Temperature | 25.4 – 26.8°C |
| Relative Humidity | 53.2 - 54.8% |
| ATM Pressure | 98.4 - 99.9kPa |

2.2.7 Additional Observations

- This is a radiated test inside a semi Anechoic Chamber. The distance between EUT and Receiver Antenna was 3m.
- Measurement was made using EMC32 measurement software.
- For above 40GHz measurements, all correction factors were programmed as TDF (Transducer Factor) directly to the Spectrum analyzer. Final maximization plot presented.

2.2.8 Test Results

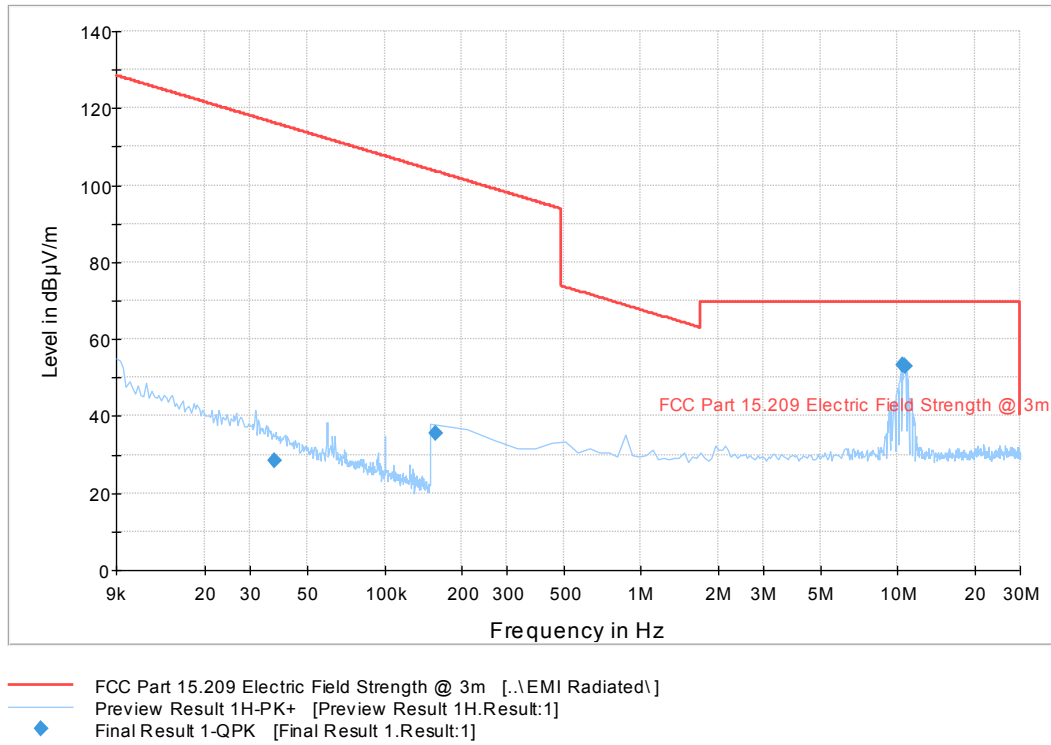
Discrete Rotation TUV 3m Radiated 9kHz to 30MHz.



9KHz to 30 MHz Spurious Emission Low Channel.

| Frequency (MHz) | QuasiPeak (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Polarization | Azimuth (deg) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) |
|-----------------|--------------------|-----------------|-----------------|-------------|--------------|---------------|------------|-------------|----------------|
| 0.060862 | 24.7 | 1000. | 0.200 | 100.0 | H | 313.0 | 20.3 | 87.2 | 111.9 |
| 0.154000 | 35.5 | 1500. | 9.000 | 100.0 | H | 277.0 | 19.6 | 68.4 | 103.9 |
| 10.332339 | 51.3 | 1500. | 9.000 | 100.0 | H | 66.0 | 21.2 | 18.2 | 69.5 |
| 10.535437 | 54.5 | 1500. | 9.000 | 100.0 | H | 286.0 | 21.2 | 15.1 | 69.5 |
| 10.739076 | 53.6 | 1500. | 9.000 | 100.0 | H | 103.0 | 21.2 | 15.9 | 69.5 |

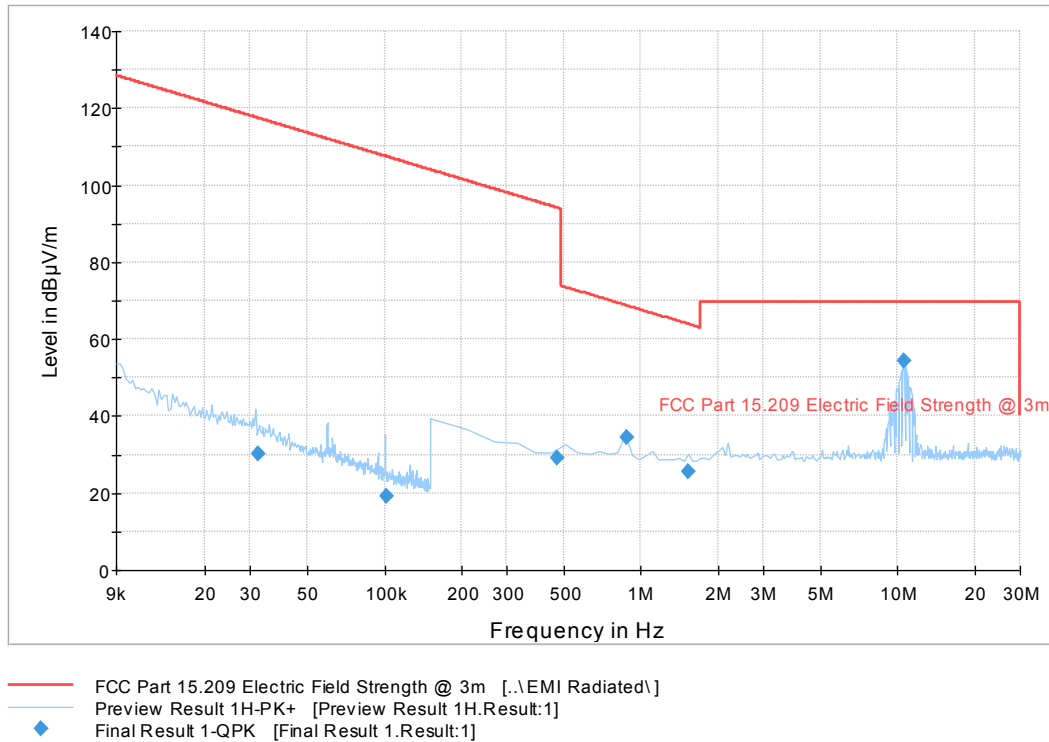
Discrete Rotation TUV 3m Radiated 9kHz to 30MHz..



9KHz to 30 MHz Spurious Emission Mid Channel.

| Frequency (MHz) | MaxPeak-MaxHold (dBµV/m) | Height (cm) | Polarization | Azimuth (deg) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) |
|-----------------|--------------------------|-------------|--------------|---------------|------------|-------------|----------------|
| 0.036387 | 33.6 | 100.0 | H | 308.0 | 21.2 | 82.8 | 116.4 |
| 0.158000 | 42.6 | 100.0 | H | 330.0 | 19.6 | 61.0 | 103.6 |
| 10.440978 | 56.0 | 100.0 | H | 220.0 | 21.2 | 13.6 | 69.5 |
| 10.740076 | 55.6 | 100.0 | H | 198.0 | 21.2 | 13.9 | 69.5 |

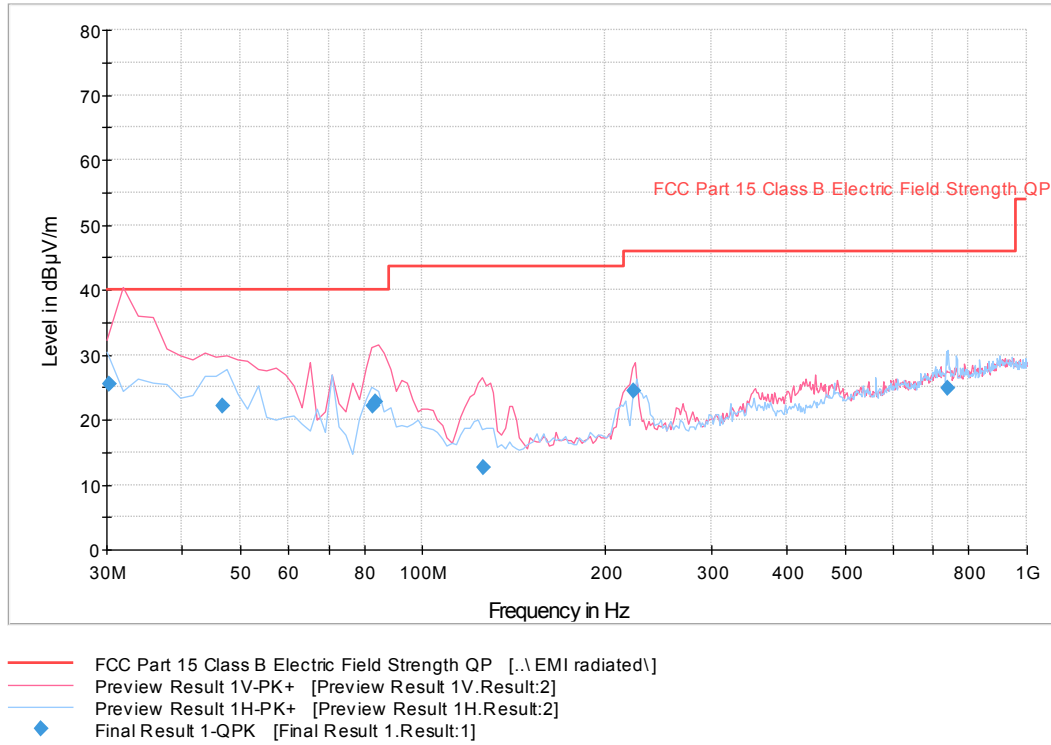
Discrete Rotation TUV 3m Radiated 9kHz to 30MHz..



9KHz to 30 MHz Spurious Emission High Channel.

| Frequency (MHz) | QuasiPeak (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Polarization | Azimuth (deg) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) |
|-----------------|--------------------|-----------------|-----------------|-------------|--------------|---------------|------------|-------------|----------------|
| 0.032323 | 30.3 | 1000. | 0.200 | 100.0 | H | 238.0 | 21.5 | 87.1 | 117.4 |
| 0.101269 | 19.0 | 1000. | 0.200 | 100.0 | H | 243.0 | 19.7 | 88.5 | 107.5 |
| 0.469918 | 29.1 | 1500. | 9.000 | 100.0 | H | 301.0 | 19.7 | 65.1 | 94.2 |
| 0.876836 | 34.4 | 1500. | 9.000 | 100.0 | H | 279.0 | 19.8 | 34.4 | 68.7 |
| 1.522852 | 25.6 | 1500. | 9.000 | 100.0 | H | 35.0 | 20.1 | 38.3 | 63.9 |
| 10.535617 | 54.4 | 1500. | 9.000 | 100.0 | H | 125.0 | 21.2 | 15.2 | 69.5 |

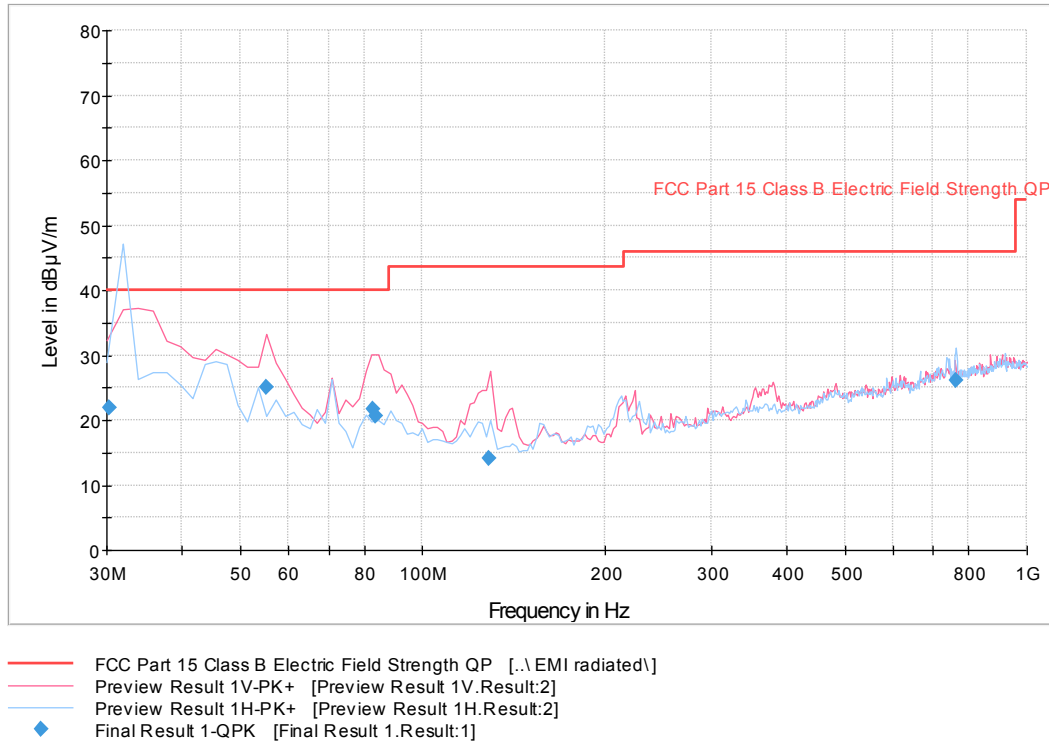
Continuous Rotation TUV 3m Radiated 30 to 1000MHz



30MHz to 1 GHz Spurious Emission Low Channel

| Frequency (MHz) | QuasiPeak (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Polarization | Azimuth (deg) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) |
|-----------------|--------------------|-----------------|-----------------|-------------|--------------|---------------|------------|-------------|----------------|
| 30.280000 | 25.4 | 1000. | 120.000 | 115.0 | V | -6.0 | -7.9 | 14.6 | 40.0 |
| 46.567214 | 22.2 | 1000. | 120.000 | 139.0 | V | 94.0 | -14.0 | 17.8 | 40.0 |
| 82.932745 | 22.1 | 1000. | 120.000 | 105.0 | V | 345.0 | -16.4 | 17.9 | 40.0 |
| 83.468858 | 22.7 | 1000. | 120.000 | 109.0 | V | 295.0 | -16.2 | 17.3 | 40.0 |
| 126.13050 | 12.6 | 1000. | 120.000 | 300.0 | V | 1.0 | -14.3 | 30.9 | 43.5 |
| 223.70877 | 24.5 | 1000. | 120.000 | 109.0 | V | 49.0 | -9.4 | 21.5 | 46.0 |
| 738.63903 | 24.8 | 1000. | 120.000 | 400.0 | H | 249.0 | 2.9 | 21.2 | 46.0 |

Continuous Rotation TUV 3m Radiated 30 to 1000MHz



30MHz to 1 GHz Spurious Emission Mid Channel

| Frequency (MHz) | QuasiPeak (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Polarization | Azimuth (deg) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) |
|-----------------|--------------------|-----------------|-----------------|-------------|--------------|---------------|------------|-------------|----------------|
| 30.280000 | 21.9 | 1000.0 | 120.000 | 109.0 | H | 130.0 | -7.9 | 18.1 | 40.0 |
| 55.030541 | 25.0 | 1000.0 | 120.000 | 100.0 | V | 275.0 | -15.8 | 15.0 | 40.0 |
| 82.868858 | 21.7 | 1000.0 | 120.000 | 111.0 | V | 301.0 | -16.4 | 18.3 | 40.0 |
| 83.652745 | 20.6 | 1000.0 | 120.000 | 115.0 | V | 307.0 | -16.2 | 19.4 | 40.0 |
| 128.738277 | 14.1 | 1000.0 | 120.000 | 300.0 | V | 0.0 | -14.3 | 29.4 | 43.5 |
| 764.229579 | 26.2 | 1000.0 | 120.000 | 150.0 | H | 186.0 | 3.1 | 19.8 | 46.0 |

Continuous Rotation TUV 3m Radiated 30 to 1000MHz

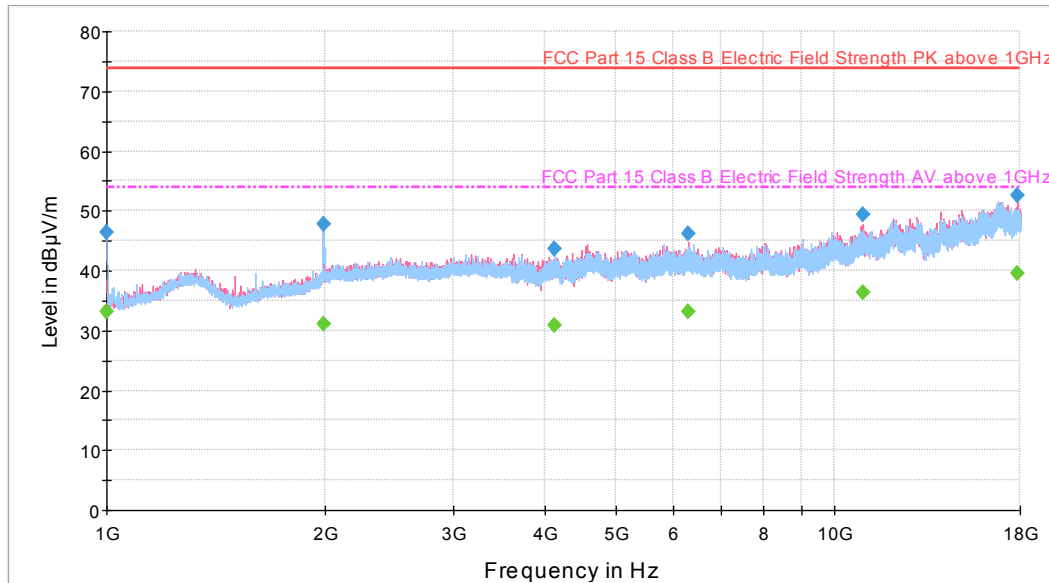


30MHz to 1 GHz Spurious Emission High Channel

| Frequency (MHz) | QuasiPeak (dBμV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Polarization | Azimuth (deg) | Corr. (dB) | Margin (dB) | Limit (dBμV/m) |
|-----------------|--------------------|-----------------|-----------------|-------------|--------------|---------------|------------|-------------|----------------|
| 31.567776 | 22.8 | 1000.0 | 120.000 | 122.0 | V | 114.0 | -8.4 | 17.2 | 40.0 |
| 57.254429 | 29.6 | 1000.0 | 120.000 | 122.0 | V | 198.0 | -16.2 | 10.4 | 40.0 |
| 83.508858 | 24.8 | 1000.0 | 120.000 | 100.0 | V | 310.0 | -16.2 | 15.2 | 40.0 |
| 83.612745 | 23.9 | 1000.0 | 120.000 | 106.0 | V | 311.0 | -16.2 | 16.1 | 40.0 |
| 128.354389 | 16.6 | 1000.0 | 120.000 | 100.0 | V | 19.0 | -14.3 | 26.9 | 43.5 |
| 764.013467 | 26.9 | 1000.0 | 120.000 | 140.0 | H | 72.0 | 3.1 | 19.1 | 46.0 |



Continuous Rotation TUV 3m Radiated 1000 to 18000MHz



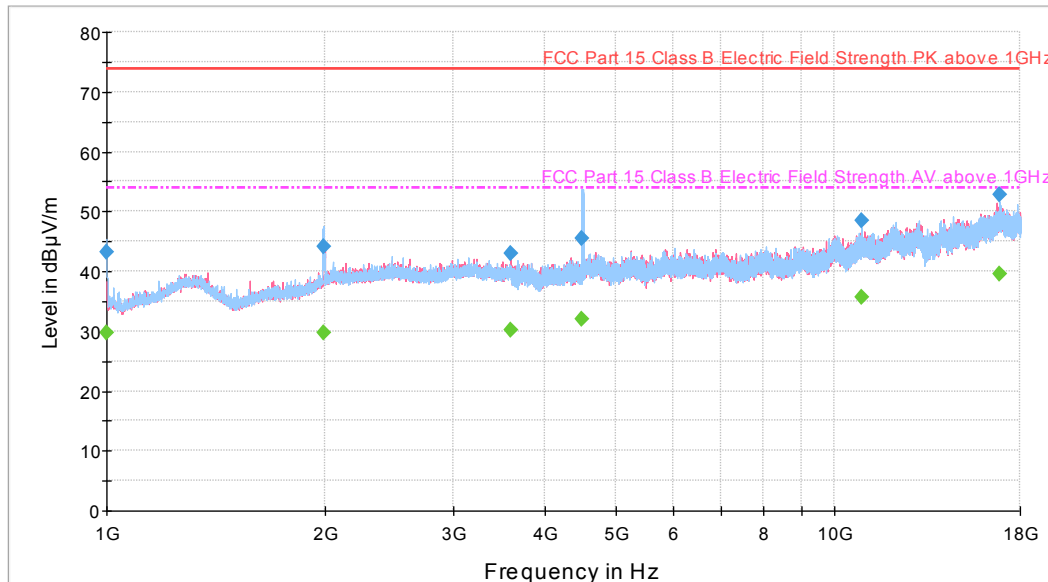
- FCC Part 15 Class B Electric Field Strength PK above 1GHz [..\EMI Radiated\]
- - - FCC Part 15 Class B Electric Field Strength AV above 1GHz [..\EMI Radiated\]
- Preview Result 1V-PK+ [Preview Result 1V.Result:2]
- Preview Result 1H-PK+ [Preview Result 1H.Result:2]
- ◆ Final Result 1-PK+ [Final Result 1.Result:1]
- ◆ Final Result 2-AVG [Final Result 2.Result:1]

1 GHz – 18 GHz Spurious Emission Low Channel

| Frequency (MHz) | MaxPeak (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Polarization | Azimuth (deg) | Corr. (dB) | Margin - PK+ (dB) | Limit - PK+ (dBµV/m) |
|-----------------|------------------|-----------------|-----------------|-------------|--------------|---------------|------------|-------------------|----------------------|
| 1000.000000 | 46.4 | 1000.0 | 1000.000 | 112.8 | H | 320.0 | -7.0 | 27.5 | 73.9 |
| 1986.966667 | 47.8 | 1000.0 | 1000.000 | 314.2 | H | 104.0 | -2.3 | 26.1 | 73.9 |
| 4132.533333 | 43.7 | 1000.0 | 1000.000 | 274.3 | H | 75.0 | 2.5 | 30.2 | 73.9 |
| 6286.966667 | 46.1 | 1000.0 | 1000.000 | 127.7 | V | 106.0 | 5.9 | 27.8 | 73.9 |
| 10967.700000 | 49.5 | 1000.0 | 1000.000 | 174.6 | V | 177.0 | 11.5 | 24.4 | 73.9 |
| 17873.633333 | 52.7 | 1000.0 | 1000.000 | 280.3 | V | 171.0 | 17.7 | 21.2 | 73.9 |

| Frequency (MHz) | Average (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Polarization | Azimuth (deg) | Corr. (dB) | Margin - AVG (dB) | Limit - AVG (dBµV/m) |
|-----------------|------------------|-----------------|-----------------|-------------|--------------|---------------|------------|-------------------|----------------------|
| 1000.000000 | 33.2 | 1000.0 | 1000.000 | 112.8 | H | 320.0 | -7.0 | 20.7 | 53.9 |
| 1986.966667 | 31.0 | 1000.0 | 1000.000 | 314.2 | H | 104.0 | -2.3 | 22.9 | 53.9 |
| 4132.533333 | 30.9 | 1000.0 | 1000.000 | 274.3 | H | 75.0 | 2.5 | 23.0 | 53.9 |
| 6286.966667 | 33.1 | 1000.0 | 1000.000 | 127.7 | V | 106.0 | 5.9 | 20.8 | 53.9 |
| 10967.700000 | 36.4 | 1000.0 | 1000.000 | 174.6 | V | 177.0 | 11.5 | 17.5 | 53.9 |
| 17873.633333 | 39.4 | 1000.0 | 1000.000 | 280.3 | V | 171.0 | 17.7 | 14.5 | 53.9 |

Continuous Rotation TUV 3m Radiated 1000 to 18000MHz



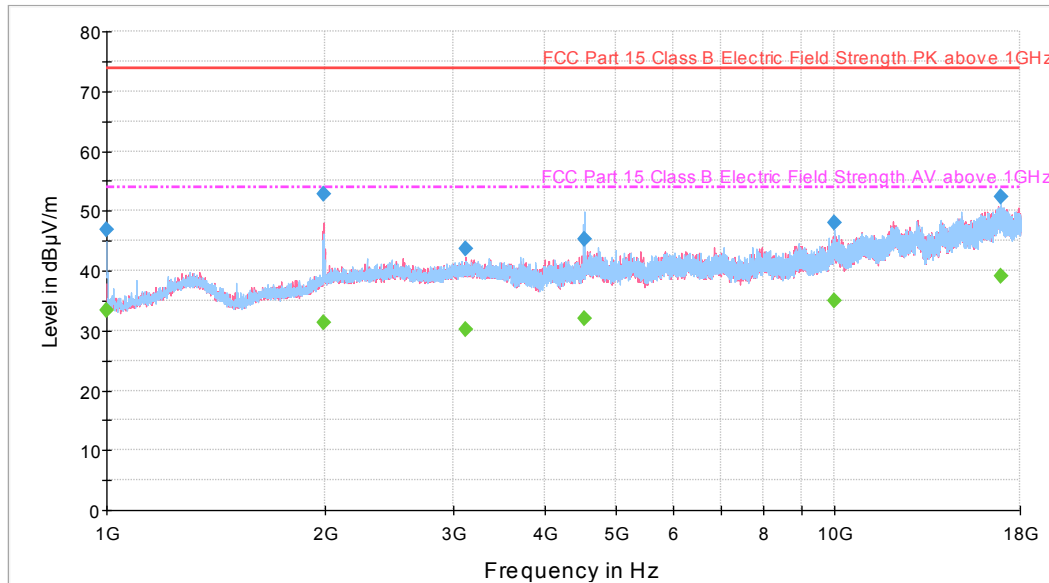
— FCC Part 15 Class B Electric Field Strength PK above 1GHz [..\EMI Radiated\
 - - - - - FCC Part 15 Class B Electric Field Strength AV above 1GHz [..\EMI Radiated\
 — Preview Result 1V-PK+ [Preview Result 1V.Result:2]
 — Preview Result 1H-PK+ [Preview Result 1H.Result:2]
 ◆ Final Result 1-PK+ [Final Result 1.Result:1]
 ◆ Final Result 2-AVG [Final Result 2.Result:1]

1 GHz – 18 GHz Spurious Emission Mid Channel

| Frequency (MHz) | MaxPeak (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Polarization | Azimuth (deg) | Corr. (dB) | Margin - PK+ (dB) | Limit - PK+ (dBµV/m) |
|-----------------|------------------|-----------------|-----------------|-------------|--------------|---------------|------------|-------------------|----------------------|
| 1000.000000 | 43.1 | 1000. | 1000.000 | 127.7 | H | 166.0 | -7.0 | 30.8 | 73.9 |
| 1987.933333 | 44.0 | 1000. | 1000.000 | 283.3 | H | 30.0 | -2.3 | 29.9 | 73.9 |
| 3589.900000 | 43.0 | 1000. | 1000.000 | 152.7 | V | 233.0 | 1.5 | 30.9 | 73.9 |
| 4501.433333 | 45.5 | 1000. | 1000.000 | 410.7 | H | -12.0 | 3.4 | 28.4 | 73.9 |
| 10886.06666 | 48.4 | 1000. | 1000.000 | 182.6 | H | 348.0 | 11.5 | 25.5 | 73.9 |
| 16857.16666 | 52.8 | 1000. | 1000.000 | 293.3 | H | 13.0 | 17.9 | 21.1 | 73.9 |

| Frequency (MHz) | Average (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Polarization | Azimuth (deg) | Corr. (dB) | Margin - AVG (dB) | Limit - AVG (dBµV/m) |
|-----------------|------------------|-----------------|-----------------|-------------|--------------|---------------|------------|-------------------|----------------------|
| 1000.000000 | 29.8 | 1000. | 1000.000 | 127.7 | H | 166.0 | -7.0 | 24.1 | 53.9 |
| 1987.933333 | 29.8 | 1000. | 1000.000 | 283.3 | H | 30.0 | -2.3 | 24.1 | 53.9 |
| 3589.900000 | 30.2 | 1000. | 1000.000 | 152.7 | V | 233.0 | 1.5 | 23.7 | 53.9 |
| 4501.433333 | 32.0 | 1000. | 1000.000 | 410.7 | H | -12.0 | 3.4 | 21.9 | 53.9 |
| 10886.06666 | 35.6 | 1000. | 1000.000 | 182.6 | H | 348.0 | 11.5 | 18.3 | 53.9 |
| 16857.16666 | 39.5 | 1000. | 1000.000 | 293.3 | H | 13.0 | 17.9 | 14.4 | 53.9 |

Continuous Rotation TUV 3m Radiated 1000 to 18000MHz



— FCC Part 15 Class B Electric Field Strength PK above 1GHz [..\EMI Radiated\
 - - - FCC Part 15 Class B Electric Field Strength AV above 1GHz [..\EMI Radiated\
 — Preview Result 1V-PK+ [Preview Result 1V.Result:2]
 — Preview Result 1H-PK+ [Preview Result 1H.Result:2]
 ◆ Final Result 1-PK+ [Final Result 1.Result:1]
 ◆ Final Result 2-AVG [Final Result 2.Result:1]

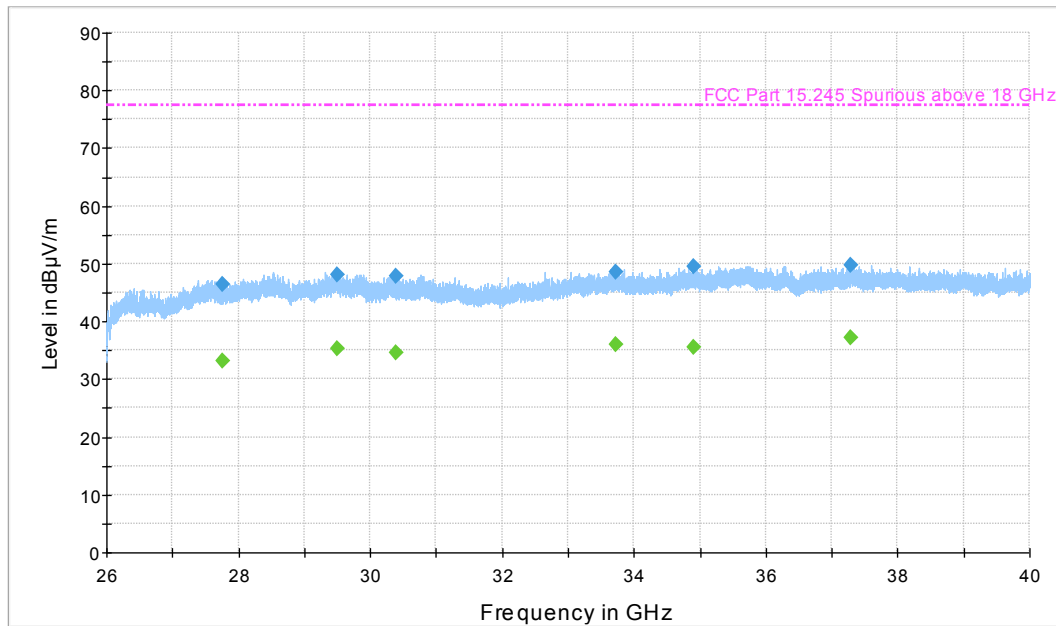
1 GHz – 18 GHz Spurious Emission High Channel

| Frequency (MHz) | MaxPeak (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Polarization | Azimuth (deg) | Corr. (dB) | Margin - PK+ (dB) | Limit - PK+ (dBµV/m) |
|-----------------|------------------|-----------------|-----------------|-------------|--------------|---------------|------------|-------------------|----------------------|
| 1000.400000 | 46.9 | 1000.0 | 1000.000 | 102.8 | H | 192.0 | -7.0 | 27.0 | 73.9 |
| 1988.500000 | 52.8 | 1000.0 | 1000.000 | 152.2 | V | 109.0 | -2.3 | 21.1 | 73.9 |
| 3117.300000 | 43.6 | 1000.0 | 1000.000 | 131.7 | V | 137.0 | 0.8 | 30.3 | 73.9 |
| 4544.133333 | 45.4 | 1000.0 | 1000.000 | 341.2 | H | 175.0 | 3.5 | 28.5 | 73.9 |
| 10012.066667 | 47.9 | 1000.0 | 1000.000 | 306.2 | H | 208.0 | 9.5 | 26.0 | 73.9 |
| 16979.466667 | 52.4 | 1000.0 | 1000.000 | 146.7 | H | 130.0 | 17.8 | 21.5 | 73.9 |

| Frequency (MHz) | Average (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Polarization | Azimuth (deg) | Corr. (dB) | Margin - AVG (dB) | Limit - AVG (dBµV/m) |
|-----------------|------------------|-----------------|-----------------|-------------|--------------|---------------|------------|-------------------|----------------------|
| 1000.400000 | 33.5 | 1000.0 | 1000.000 | 102.8 | H | 192.0 | -7.0 | 20.4 | 53.9 |
| 1988.500000 | 31.2 | 1000.0 | 1000.000 | 152.2 | V | 109.0 | -2.3 | 22.7 | 53.9 |
| 3117.300000 | 30.3 | 1000.0 | 1000.000 | 131.7 | V | 137.0 | 0.8 | 23.6 | 53.9 |
| 4544.133333 | 31.9 | 1000.0 | 1000.000 | 341.2 | H | 175.0 | 3.5 | 22.0 | 53.9 |
| 10012.066667 | 35.0 | 1000.0 | 1000.000 | 306.2 | H | 208.0 | 9.5 | 18.9 | 53.9 |
| 16979.466667 | 39.2 | 1000.0 | 1000.000 | 146.7 | H | 130.0 | 17.8 | 14.7 | 53.9 |



Continuous Rotation TUV 3m Radiated 26G to 40GHz



- - - - - FCC Part 15.245 Spurious above 18 GHz [..\EMI radiated\
 Preview Result 1-PK+ [Preview Result 1.Result:2]
 ◆ Final Result 1-PK+ [Final Result 1.Result:1]
 ◆ Final Result 2-AVG [Final Result 2.Result:1]

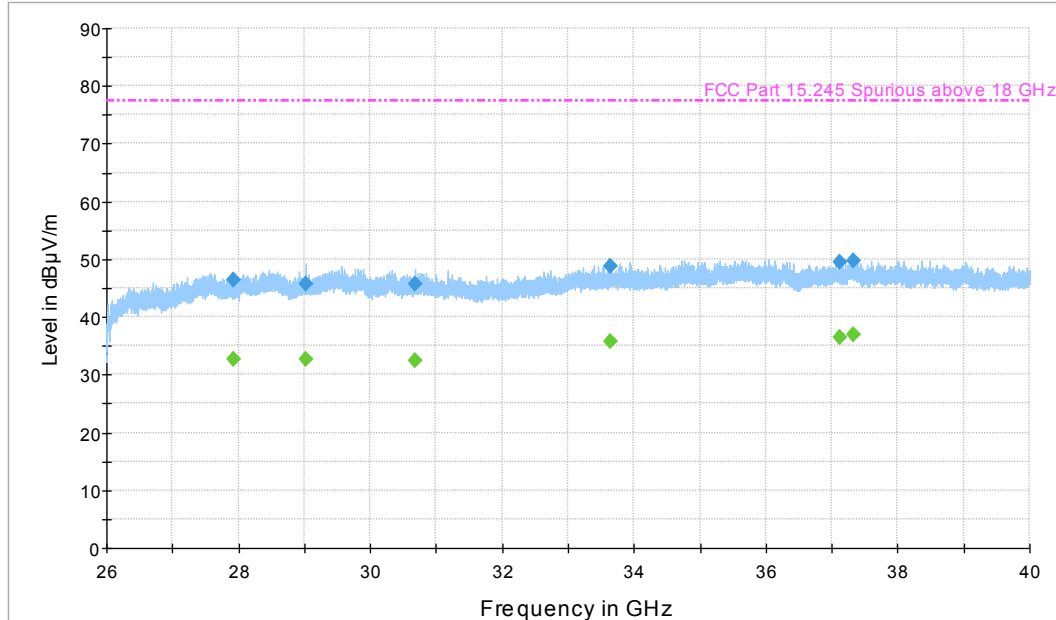
26 GHz – 40 GHz Spurious Emission Low Channel

| Frequency (MHz) | MaxPeak (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Polarization | Azimuth (deg) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) |
|-----------------|------------------|-----------------|-----------------|-------------|--------------|---------------|------------|-------------|----------------|
| 27761.666667 | 46.4 | 1000.0 | 1000.000 | 139.0 | V | 200.0 | 3.0 | 31.1 | 77.5 |
| 29508.266667 | 48.2 | 1000.0 | 1000.000 | 175.0 | H | 268.0 | 3.4 | 29.3 | 77.5 |
| 30396.866667 | 47.8 | 1000.0 | 1000.000 | 125.0 | H | 58.0 | 3.8 | 29.7 | 77.5 |
| 33724.133333 | 48.6 | 1000.0 | 1000.000 | 189.0 | V | 136.0 | 5.7 | 28.9 | 77.5 |
| 34902.800000 | 49.5 | 1000.0 | 1000.000 | 155.0 | H | 10.0 | 6.2 | 28.0 | 77.5 |
| 37286.000000 | 49.7 | 1000.0 | 1000.000 | 200.0 | V | 167.0 | 7.0 | 27.8 | 77.5 |

| Frequency (MHz) | Average (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Polarization | Azimuth (deg) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) |
|-----------------|------------------|-----------------|-----------------|-------------|--------------|---------------|------------|-------------|----------------|
| 27761.666667 | 33.2 | 1000.0 | 1000.000 | 139.0 | V | 200.0 | 3.0 | 44.3 | 77.5 |
| 29508.266667 | 35.2 | 1000.0 | 1000.000 | 175.0 | H | 268.0 | 3.4 | 42.3 | 77.5 |
| 30396.866667 | 34.6 | 1000.0 | 1000.000 | 125.0 | H | 58.0 | 3.8 | 42.9 | 77.5 |
| 33724.133333 | 35.9 | 1000.0 | 1000.000 | 189.0 | V | 136.0 | 5.7 | 41.6 | 77.5 |
| 34902.800000 | 35.5 | 1000.0 | 1000.000 | 155.0 | H | 10.0 | 6.2 | 42.0 | 77.5 |
| 37286.000000 | 37.1 | 1000.0 | 1000.000 | 200.0 | V | 167.0 | 7.0 | 40.4 | 77.5 |



Continuous Rotation TUV 3m Radiated 26G to 40GHz



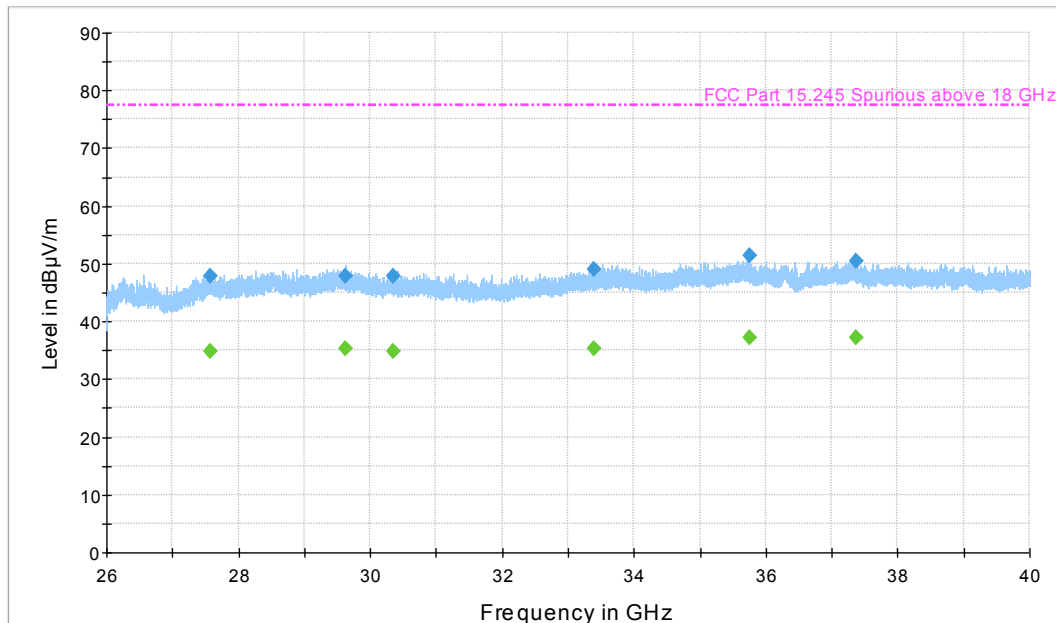
--- FCC Part 15.245 Spurious above 18 GHz [..\EMI radiated\
 Preview Result 1-PK+ [Preview Result 1.Result:2]
 ◆ Final Result 1-PK+ [Final Result 1.Result:1]
 ◆ Final Result 2-AVG [Final Result 2.Result:1]

26 GHz – 40 GHz Spurious Emission Mid Channel

| Frequency (MHz) | MaxPeak (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Polarization | Azimuth (deg) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) |
|-----------------|------------------|-----------------|-----------------|-------------|--------------|---------------|------------|-------------|----------------|
| 27933.866667 | 46.4 | 1000.0 | 1000.000 | 139.0 | V | 295.0 | 3.1 | 31.1 | 77.5 |
| 29018.733333 | 45.7 | 1000.0 | 1000.000 | 205.0 | H | 114.0 | 3.5 | 31.8 | 77.5 |
| 30677.666667 | 45.7 | 1000.0 | 1000.000 | 150.0 | V | 50.0 | 4.1 | 31.8 | 77.5 |
| 33650.933333 | 48.7 | 1000.0 | 1000.000 | 162.0 | V | 228.0 | 5.7 | 28.8 | 77.5 |
| 37120.466667 | 49.6 | 1000.0 | 1000.000 | 175.0 | H | 357.0 | 6.9 | 27.9 | 77.5 |
| 37324.933333 | 49.7 | 1000.0 | 1000.000 | 139.0 | V | 197.0 | 7.1 | 27.8 | 77.5 |

| Frequency (MHz) | Average (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Polarization | Azimuth (deg) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) |
|-----------------|------------------|-----------------|-----------------|-------------|--------------|---------------|------------|-------------|----------------|
| 27933.866667 | 32.7 | 1000.0 | 1000.000 | 139.0 | V | 295.0 | 3.1 | 44.8 | 77.5 |
| 29018.733333 | 32.6 | 1000.0 | 1000.000 | 205.0 | H | 114.0 | 3.5 | 44.9 | 77.5 |
| 30677.666667 | 32.5 | 1000.0 | 1000.000 | 150.0 | V | 50.0 | 4.1 | 45.0 | 77.5 |
| 33650.933333 | 35.7 | 1000.0 | 1000.000 | 162.0 | V | 228.0 | 5.7 | 41.8 | 77.5 |
| 37120.466667 | 36.4 | 1000.0 | 1000.000 | 175.0 | H | 357.0 | 6.9 | 41.1 | 77.5 |
| 37324.933333 | 37.0 | 1000.0 | 1000.000 | 139.0 | V | 197.0 | 7.1 | 40.5 | 77.5 |

Continuous Rotation TUV 3m Radiated 26G to 40GHz



- - - - - FCC Part 15.245 Spurious above 18 GHz [..\EMI radiated\
 Preview Result 1-PK+ [Preview Result 1.Result:2]
 ◆ Final Result 1-PK+ [Final Result 1.Result:1]
 ◆ Final Result 2-AVG [Final Result 2.Result:1]

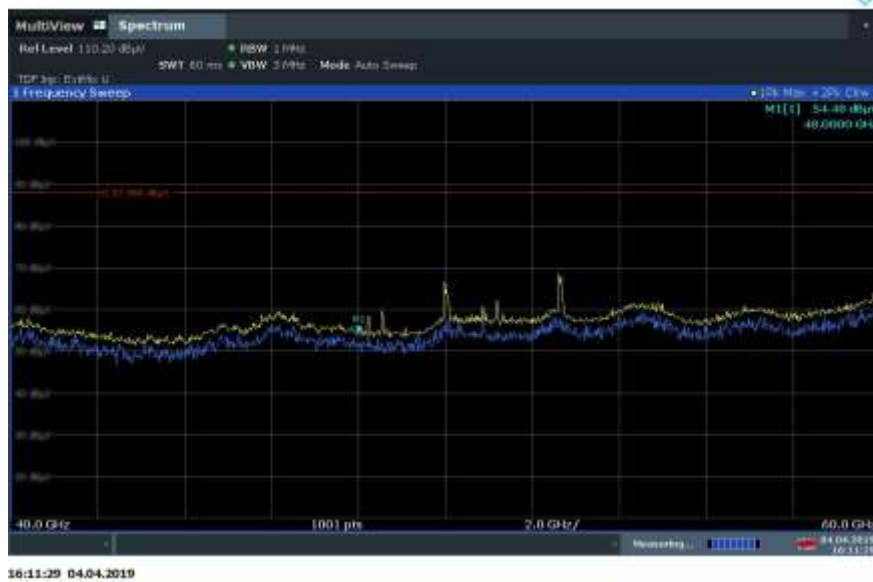
26 GHz – 40 GHz Spurious Emission High Channel

| Frequency (MHz) | MaxPeak (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Polarization | Azimuth (deg) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) |
|-----------------|------------------|-----------------|-----------------|-------------|--------------|---------------|------------|-------------|----------------|
| 27577.733333 | 47.9 | 1000.0 | 1000.000 | 123.0 | V | 221.0 | 2.9 | 29.6 | 77.5 |
| 29615.200000 | 48.0 | 1000.0 | 1000.000 | 200.0 | V | 121.0 | 3.4 | 29.5 | 77.5 |
| 30356.666667 | 47.9 | 1000.0 | 1000.000 | 225.0 | H | 253.0 | 3.8 | 29.6 | 77.5 |
| 33398.400000 | 49.1 | 1000.0 | 1000.000 | 205.0 | V | 349.0 | 5.6 | 28.4 | 77.5 |
| 35756.933333 | 51.4 | 1000.0 | 1000.000 | 175.0 | H | 182.0 | 6.6 | 26.1 | 77.5 |
| 37377.800000 | 50.5 | 1000.0 | 1000.000 | 225.0 | V | 334.0 | 7.1 | 27.0 | 77.5 |

| Frequency (MHz) | Average (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Polarization | Azimuth (deg) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) |
|-----------------|------------------|-----------------|-----------------|-------------|--------------|---------------|------------|-------------|----------------|
| 27577.733333 | 34.9 | 1000.0 | 1000.000 | 123.0 | V | 221.0 | 2.9 | 42.6 | 77.5 |
| 29615.200000 | 35.3 | 1000.0 | 1000.000 | 200.0 | V | 121.0 | 3.4 | 42.2 | 77.5 |
| 30356.666667 | 34.7 | 1000.0 | 1000.000 | 225.0 | H | 253.0 | 3.8 | 42.8 | 77.5 |
| 33398.400000 | 35.4 | 1000.0 | 1000.000 | 205.0 | V | 349.0 | 5.6 | 42.1 | 77.5 |
| 35756.933333 | 37.1 | 1000.0 | 1000.000 | 175.0 | H | 182.0 | 6.6 | 40.4 | 77.5 |
| 37377.800000 | 37.1 | 1000.0 | 1000.000 | 225.0 | V | 334.0 | 7.1 | 40.4 | 77.5 |



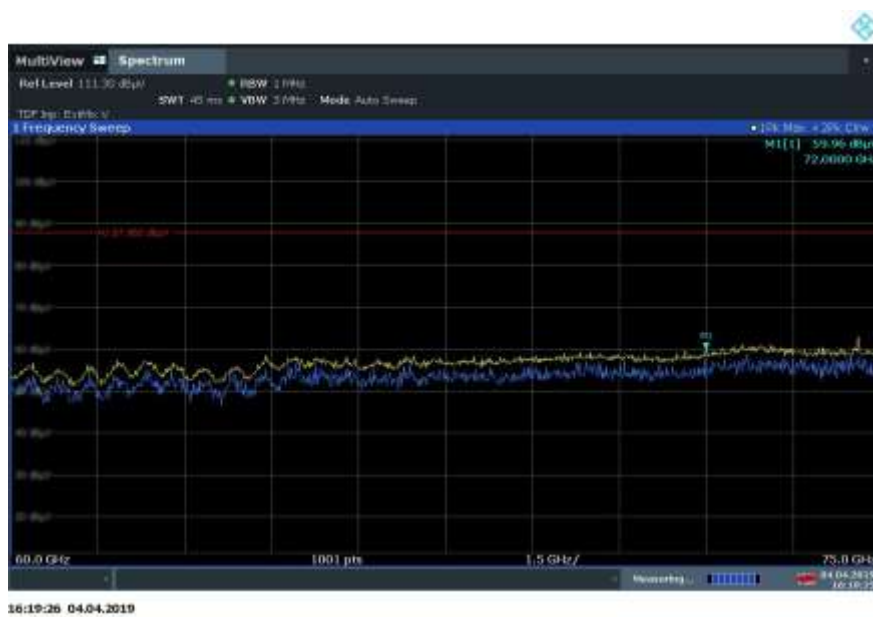
40-60 GHz Spurious Low Channel



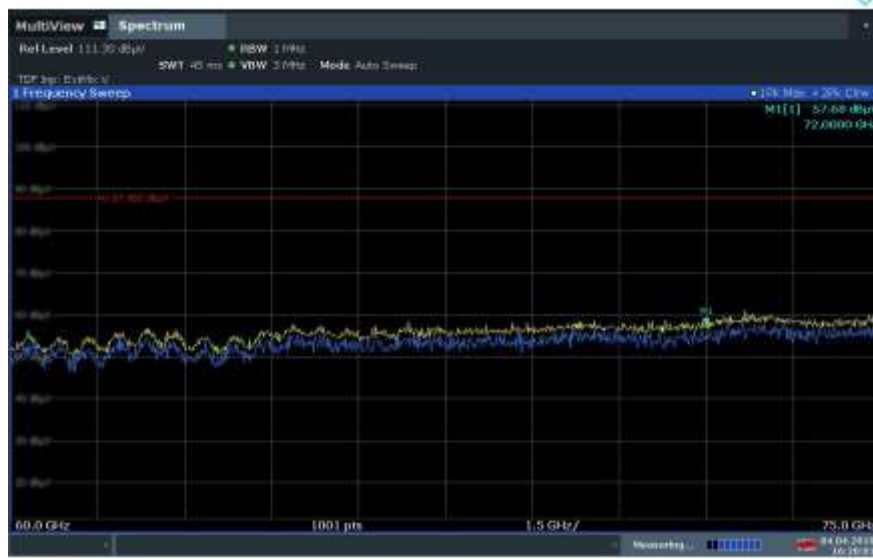
40-60 GHz Spurious Mid Channel



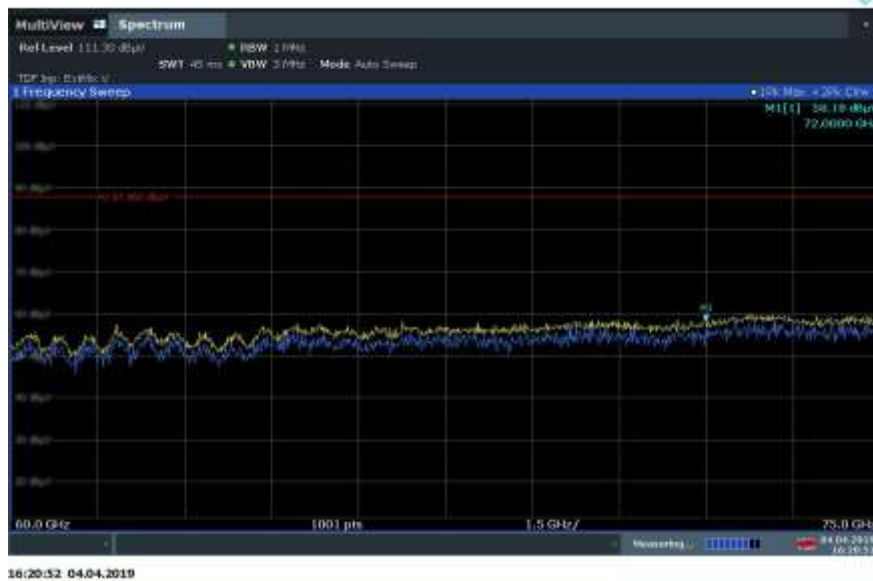
40-60 GHz Spurious High Channel



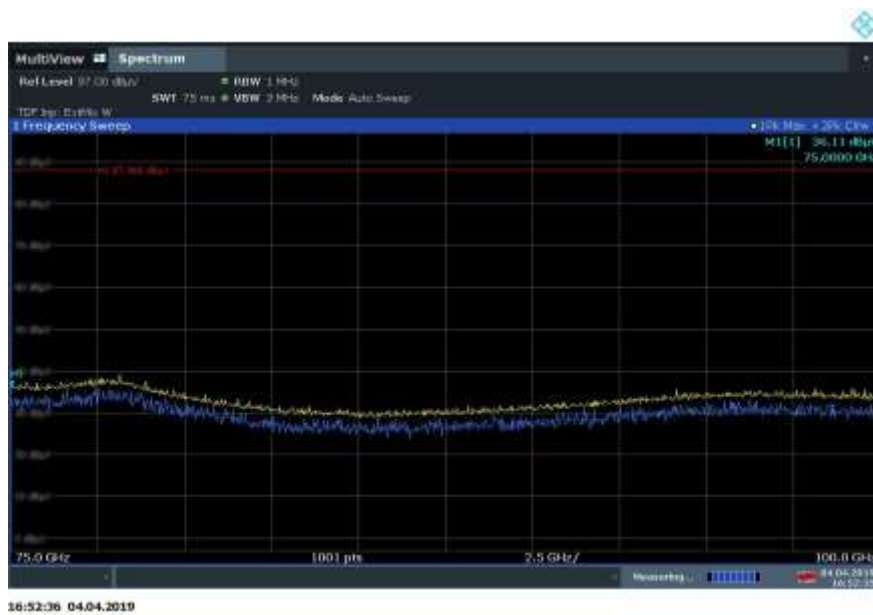
60-75 GHz Spurious Low Channel



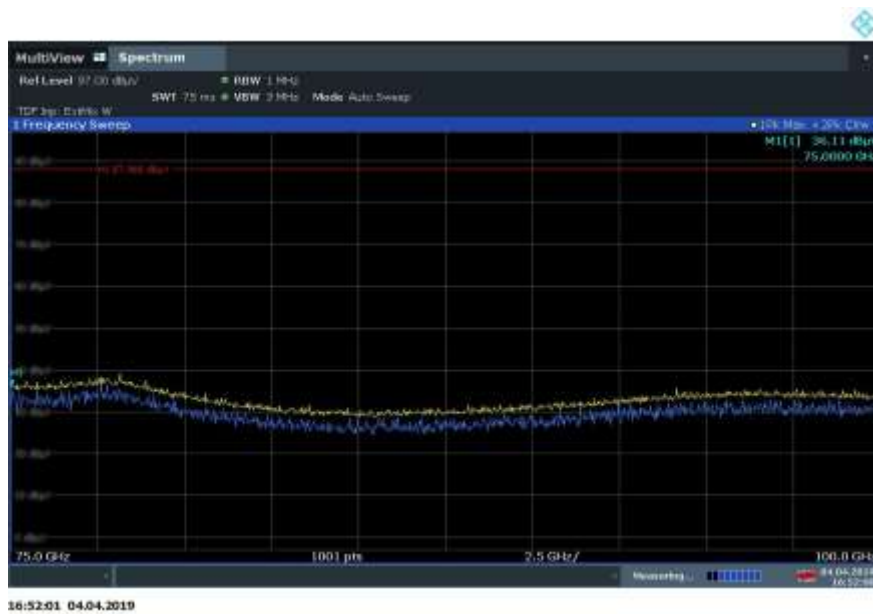
60-75 GHz Spurious Mid Channel



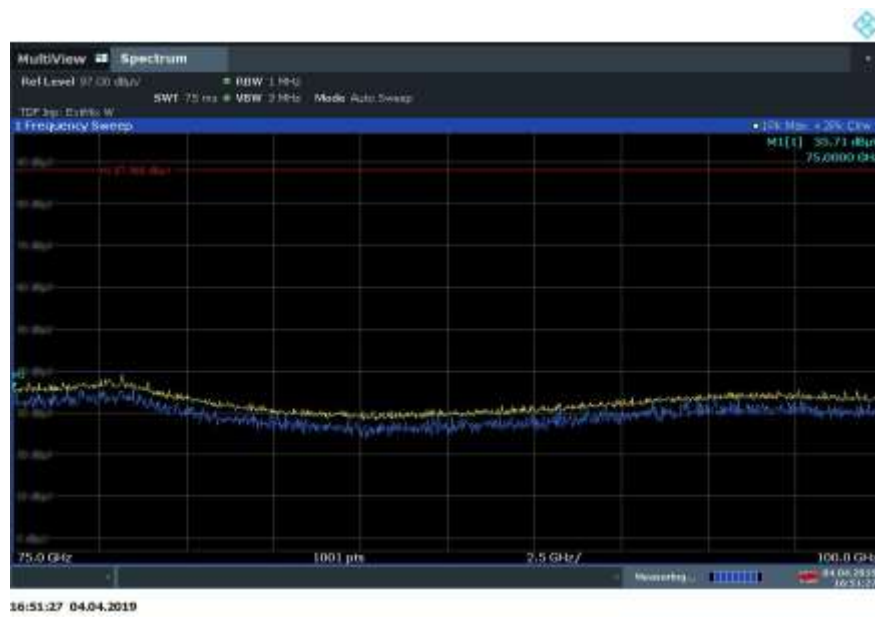
60-75 GHz Spurious High Channel



75-100 GHz Spurious Low Channel



75-100 GHz Spurious Mid Channel



75-100 GHz Spurious High Channel



2.3 OCCUPIED BANDWIDTH

2.3.1 Specification Reference

FCC 47 CFR Part 2, Clause 2.1049 and 2.202(a)
RSS-GEN Issue 5 Section 6.7

2.3.2 Standard Applicable

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured.

2.3.3 Equipment Under Test and Modification State

Serial No: EUI000D6F0002B5F64D/ Default Test Configuration

2.3.4 Date of Test/Initial of test personnel who performed the test

April 4, 2019/SB

2.3.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.3.6 Environmental Conditions

Test performed at TÜV SÜD America Inc. Rancho Bernardo facility

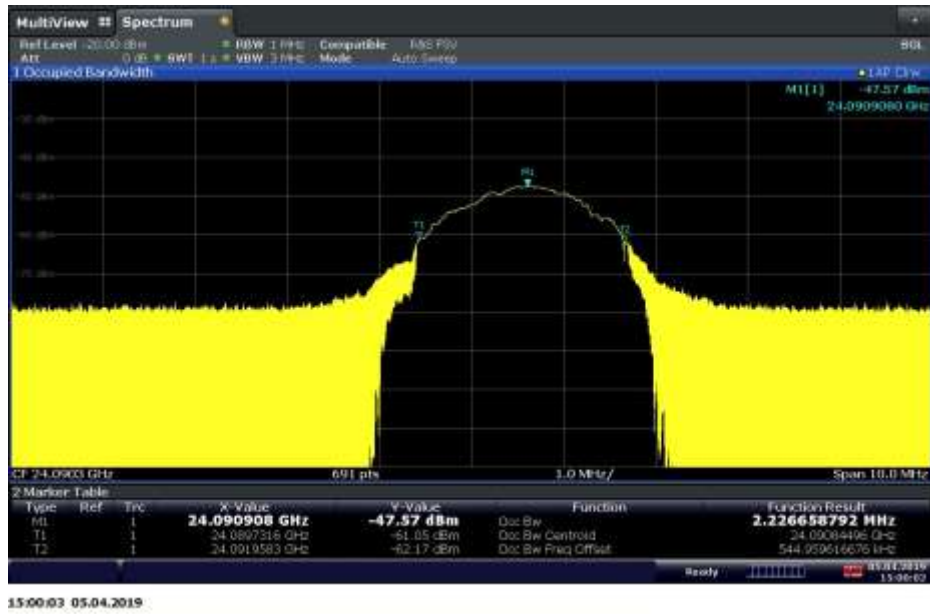
| | |
|---------------------|------------|
| Ambient Temperature | 22.22°C |
| Relative Humidity | 72% |
| ATM Pressure | 101.12 kPa |

2.3.7 Additional Observations

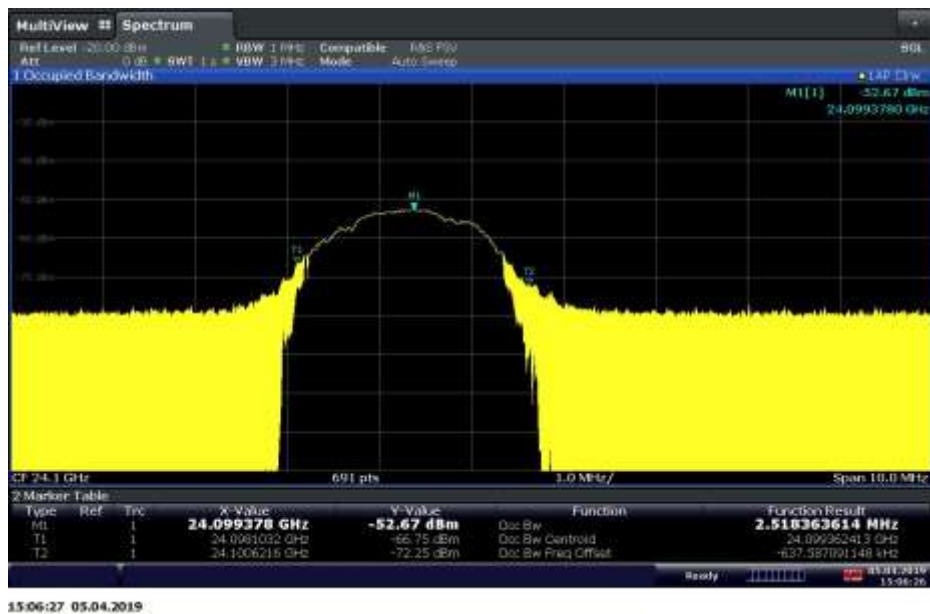
- This is a radiated test.
- Span is wide enough to capture the channel transmission.
- VBW > RBW.
- Trace is max hold.
- Detector is peak.

- Sweep time is set to Auto.
- 99% OBW measurement function of the spectrum analyzer was used for this test.
- RBW adjusted until RBW/EBW ratio is approximately 1% or as the SA setting permits (i.e next setting after 3 MHz RBW is limited to 5 MHz).

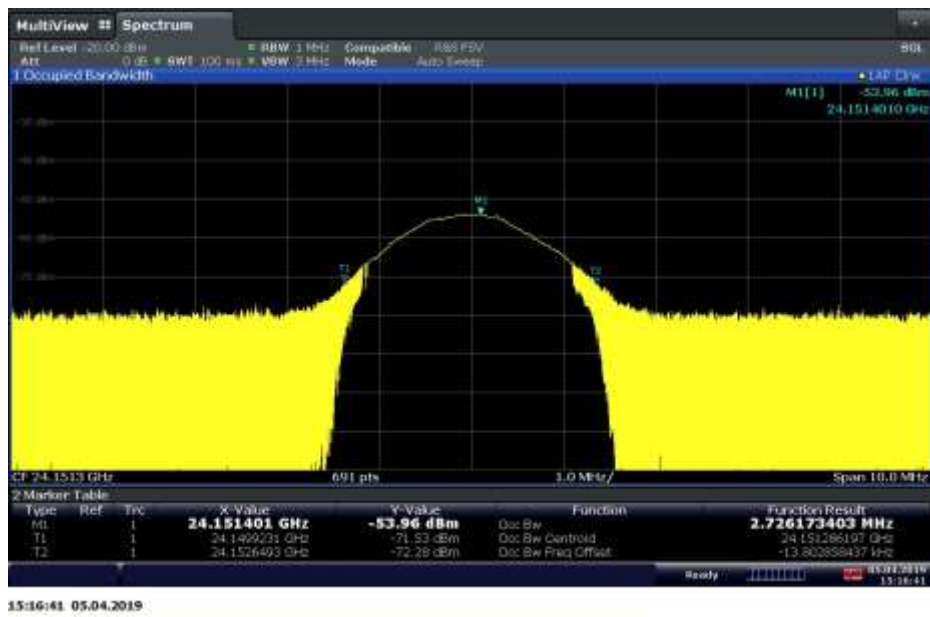
2.3.8 Test Results Plots



99% Bandwidth Low Channel



99% Bandwidth Mid Channel



99% Bandwidth High Channel

2.4 AC POWER-LINE CONDUCTED EMISSION LIMITS

2.4.1 Specification Reference

RSS Gen 7.2

2.4.2 Standard Applicable

The receiver shall comply with the conducted emissions limits specified in section 8.8 on its AC power-line input cable(s), or on the AC power-line input cable(s) of the device powering the receiver under test, when the receiver has no provisions for direct connection to the AC power network and is instead powered through another device.

Unless stated otherwise in the applicable RSS, for radio apparatus that are designed to be connected to the public utility AC power network, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the range 150 kHz to 30 MHz shall not exceed the limits in table 4, as measured using a 50 μ H / 50 Ω line impedance stabilization network. This requirement applies for the radio frequency voltage measured between each power line and the ground terminal of each AC power-line mains cable of the EUT.

For an EUT that connects to the AC power lines indirectly, through another device, the requirement for compliance with the limits in table 4 shall apply at the terminals of the AC power-line mains cable of a representative support device, while it provides power to the EUT. The lower limit applies at the boundary between the frequency ranges. The device used to power the EUT shall be representative of typical applications.

| Frequency (MHz) | Conducted limit (dBuV) | |
|-----------------|------------------------|----------|
| | Quasi Peak | Average |
| 0.15-0.5 | 66 to 56 Note 1 | 56 to 46 |
| 0.5 – 5 | 56 | 46 |
| 5-30 | 60 | 50 |

Note 1: The level decreases linearly with the logarithm of the frequency.

For an EUT with a permanent or detachable antenna operating between 150 kHz and 30 MHz, the AC power-line conducted emissions must be measured using the following configurations:

- Perform the AC power-line conducted emissions test with the antenna connected to determine compliance with the limits of table 4 outside the transmitter's fundamental emission band.
- Retest with a dummy load instead of the antenna to determine compliance with the limits within the transmitter's fundamental emission band. For a detachable antenna, remove the antenna and connect a suitable dummy load to the antenna connector. For a permanent antenna, remove the antenna and terminate the RF output with a dummy load or network that simulates the antenna in the fundamental frequency band.

2.4.3 Equipment Under Test and Modification State

Serial No: EU1000D6F0002B5F64D / Default Test Configuration

2.4.4 Date of Test/Initial of test personnel who performed the test

April 5 to 6 2019/SB



2.4.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.4.6 Environmental Conditions

| | |
|---------------------|---------|
| Ambient Temperature | 26.2°C |
| Relative Humidity | 54.9% |
| ATM Pressure | 99.1kPa |

2.4.7 Additional Observations

Measurement was done using EMC32 automated software. Reported level is the actual level with all the correction factors factored in. Correction Factor column is for informational purposes only. See Section 2.4.8 for sample computation.

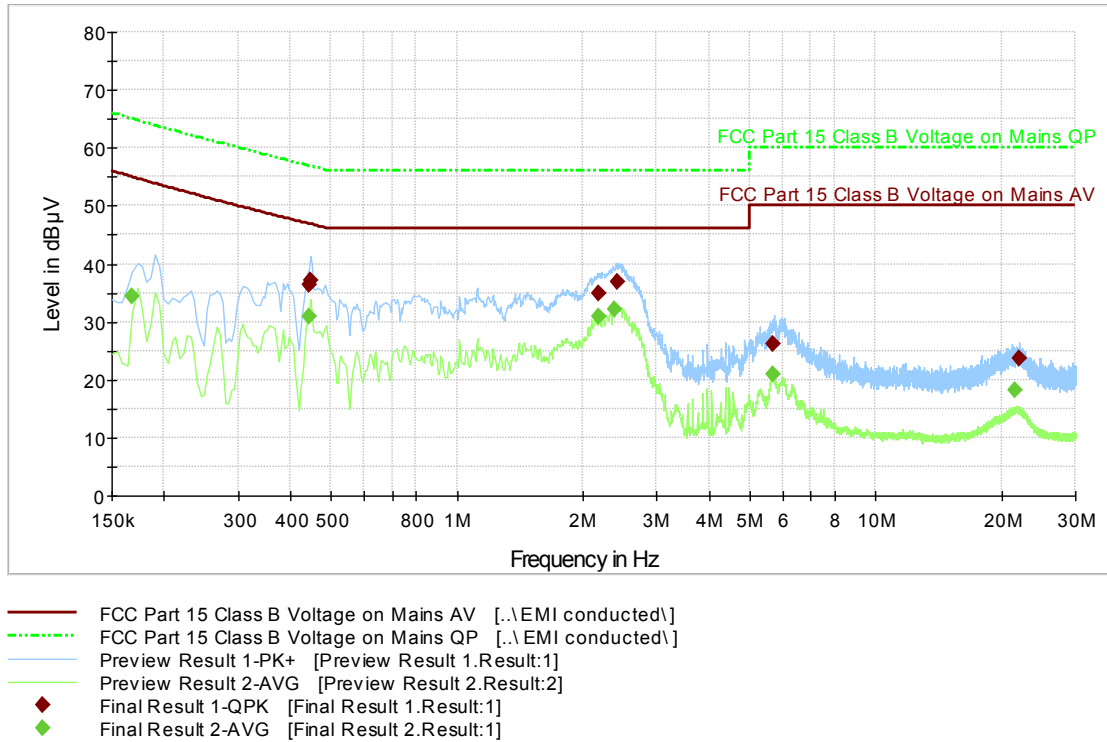
2.4.8 Sample Computation (Conducted Emission – Quasi Peak)

| | | |
|--|-------------------------------|------|
| Measuring equipment raw measurement (dbμV) @ 150kHz | | 5.5 |
| Correction Factor (dB) | Asset# 8822(20 dB attenuator) | 19.9 |
| | Asset# 1177 (cable) | 0.15 |
| | Asset# 1176 (cable) | 0.35 |
| | Asset# 7567(LISN) | 0.30 |
| Reported QuasiPeak Final Measurement (dbμV) @ 150kHz | | 26.2 |

2.4.9 Test Results Plots

See attached plots

TUV SR7 Line 1 ESCS

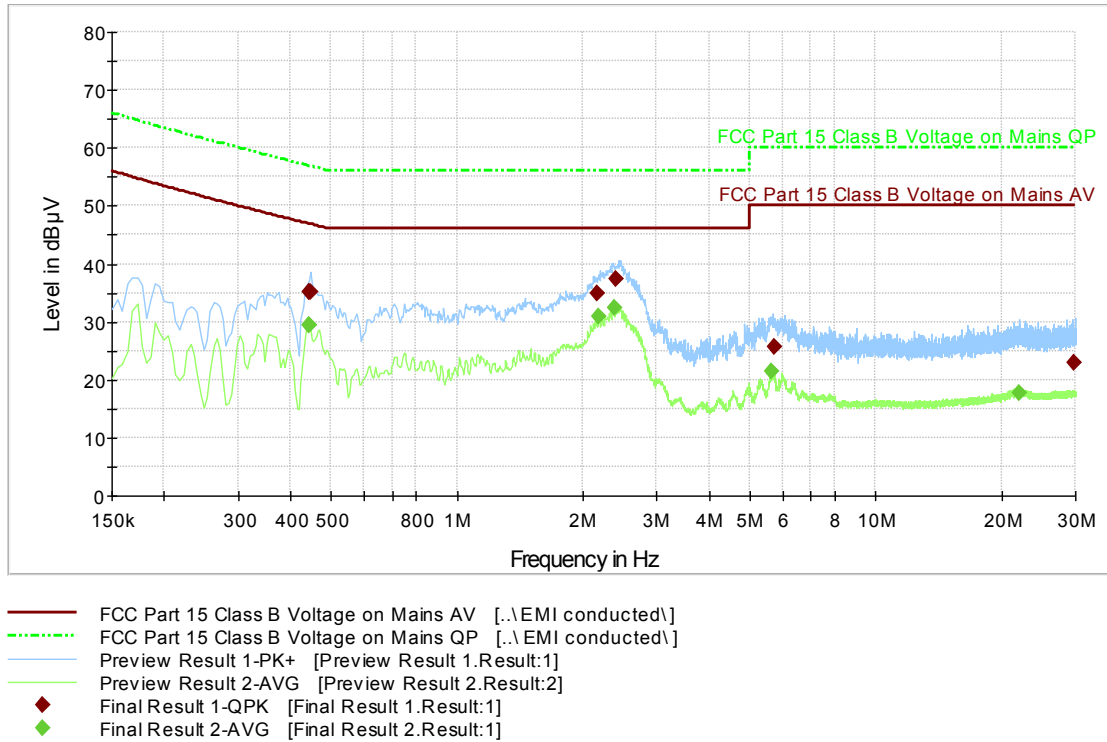


AC Conducted Test Low Channel Line 1

| Frequency (MHz) | QuasiPeak (dBµV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|-----------------|------------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 0.442500 | 36.4 | 1000.0 | 9.000 | Off | L1 | 20.2 | 10.5 | 46.9 |
| 0.447000 | 37.0 | 1000.0 | 9.000 | Off | L1 | 20.2 | 9.8 | 46.8 |
| 2.175000 | 34.9 | 1000.0 | 9.000 | Off | L1 | 20.5 | 11.1 | 46.0 |
| 2.422500 | 37.0 | 1000.0 | 9.000 | Off | L1 | 20.4 | 9.0 | 46.0 |
| 5.694000 | 26.2 | 1000.0 | 9.000 | Off | L1 | 20.4 | 23.8 | 50.0 |
| 21.970500 | 23.6 | 1000.0 | 9.000 | Off | L1 | 20.8 | 26.4 | 50.0 |

| Frequency (MHz) | Average (dBµV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|-----------------|----------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 0.168000 | 34.5 | 1000.0 | 9.000 | Off | L1 | 20.2 | 30.5 | 65.0 |
| 0.442500 | 30.9 | 1000.0 | 9.000 | Off | L1 | 20.2 | 26.1 | 56.9 |
| 2.184000 | 30.8 | 1000.0 | 9.000 | Off | L1 | 20.5 | 25.2 | 56.0 |
| 2.386500 | 32.2 | 1000.0 | 9.000 | Off | L1 | 20.5 | 23.8 | 56.0 |
| 5.685000 | 20.9 | 1000.0 | 9.000 | Off | L1 | 20.4 | 39.1 | 60.0 |
| 21.583500 | 18.1 | 1000.0 | 9.000 | Off | L1 | 20.8 | 41.9 | 60.0 |

TUV SR7 Line 2 ESCS

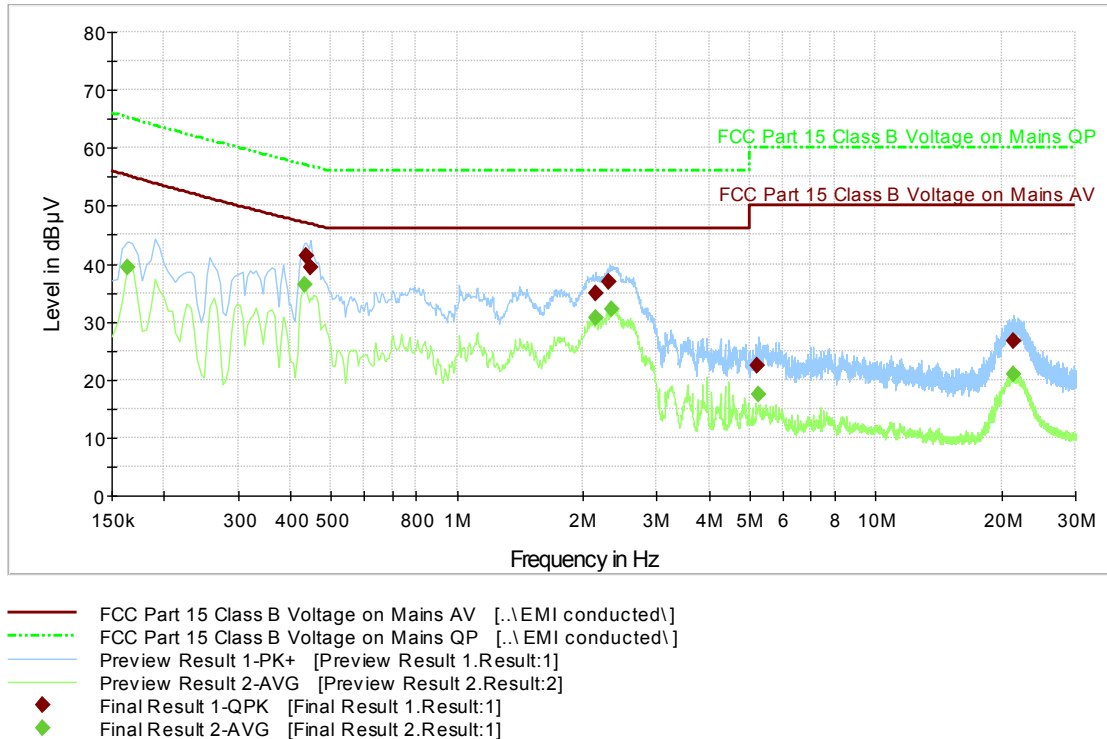


AC Conducted Test Low Channel Line 2

| Frequency (MHz) | QuasiPeak (dBµV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|-----------------|------------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 0.442500 | 35.2 | 1000.0 | 9.000 | Off | N | 20.2 | 11.7 | 46.9 |
| 0.447000 | 35.2 | 1000.0 | 9.000 | Off | N | 20.2 | 11.7 | 46.8 |
| 2.166000 | 34.8 | 1000.0 | 9.000 | Off | N | 20.4 | 11.2 | 46.0 |
| 2.400000 | 37.3 | 1000.0 | 9.000 | Off | N | 20.4 | 8.7 | 46.0 |
| 5.739000 | 25.7 | 1000.0 | 9.000 | Off | N | 20.4 | 24.3 | 50.0 |
| 29.854500 | 22.9 | 1000.0 | 9.000 | Off | N | 20.8 | 27.1 | 50.0 |

| Frequency (MHz) | Average (dBµV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|-----------------|----------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 0.442500 | 29.5 | 1000.0 | 9.000 | Off | N | 20.2 | 27.4 | 56.9 |
| 0.442500 | 29.4 | 1000.0 | 9.000 | Off | N | 20.2 | 27.5 | 56.9 |
| 2.184000 | 31.0 | 1000.0 | 9.000 | Off | N | 20.4 | 25.0 | 56.0 |
| 2.386500 | 32.5 | 1000.0 | 9.000 | Off | N | 20.4 | 23.5 | 56.0 |
| 5.649000 | 21.5 | 1000.0 | 9.000 | Off | N | 20.4 | 38.5 | 60.0 |
| 22.038000 | 17.8 | 1000.0 | 9.000 | Off | N | 20.7 | 42.2 | 60.0 |

TUV SR7 Line 1 ESCS

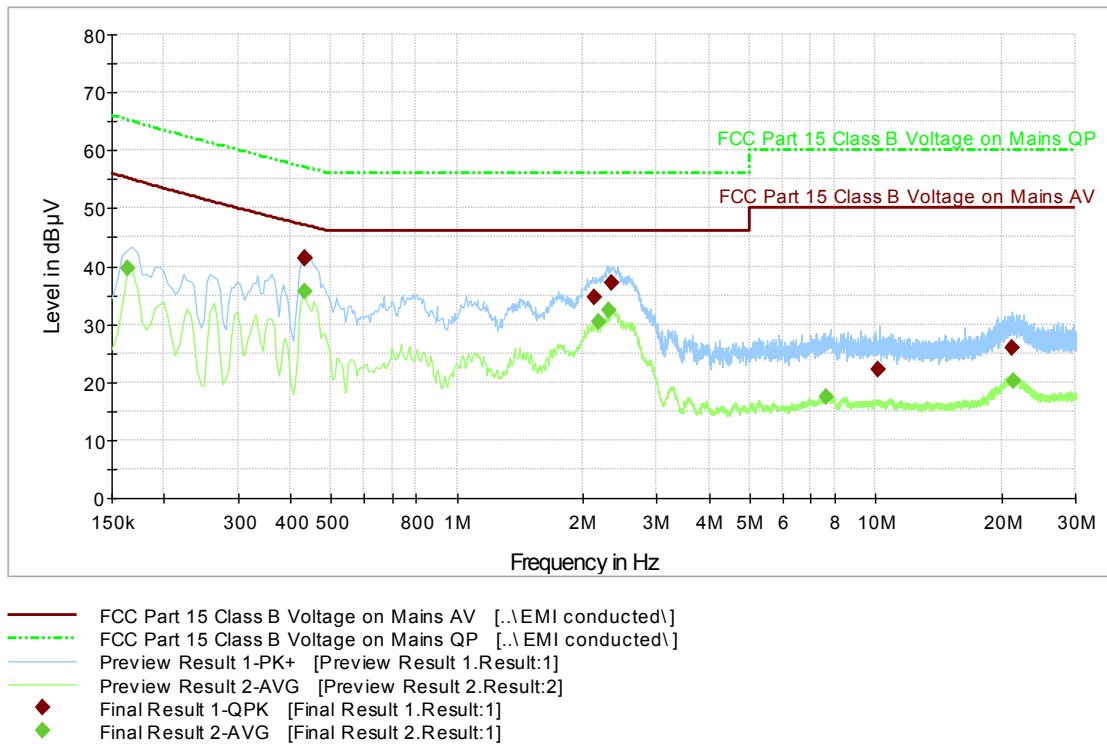


AC Conducted Test Mid Channel Line 1

| Frequency (MHz) | QuasiPeak (dBµV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|-----------------|------------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 0.438000 | 41.4 | 1000.0 | 9.000 | Off | L1 | 20.2 | 5.6 | 47.0 |
| 0.447000 | 39.3 | 1000.0 | 9.000 | Off | L1 | 20.2 | 7.5 | 46.8 |
| 2.139000 | 35.0 | 1000.0 | 9.000 | Off | L1 | 20.5 | 11.0 | 46.0 |
| 2.305500 | 37.0 | 1000.0 | 9.000 | Off | L1 | 20.5 | 9.0 | 46.0 |
| 5.226000 | 22.3 | 1000.0 | 9.000 | Off | L1 | 20.5 | 27.7 | 50.0 |
| 21.277500 | 26.7 | 1000.0 | 9.000 | Off | L1 | 20.7 | 23.3 | 50.0 |

| Frequency (MHz) | Average (dBµV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|-----------------|----------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 0.163500 | 39.5 | 1000.0 | 9.000 | Off | L1 | 20.2 | 25.7 | 65.2 |
| 0.433500 | 36.4 | 1000.0 | 9.000 | Off | L1 | 20.2 | 20.7 | 57.1 |
| 2.143500 | 30.7 | 1000.0 | 9.000 | Off | L1 | 20.5 | 25.3 | 56.0 |
| 2.341500 | 32.3 | 1000.0 | 9.000 | Off | L1 | 20.5 | 23.7 | 56.0 |
| 5.244000 | 17.4 | 1000.0 | 9.000 | Off | L1 | 20.5 | 42.6 | 60.0 |
| 21.408000 | 21.0 | 1000.0 | 9.000 | Off | L1 | 20.8 | 39.0 | 60.0 |

TUV SR7 Line 2 ESCS

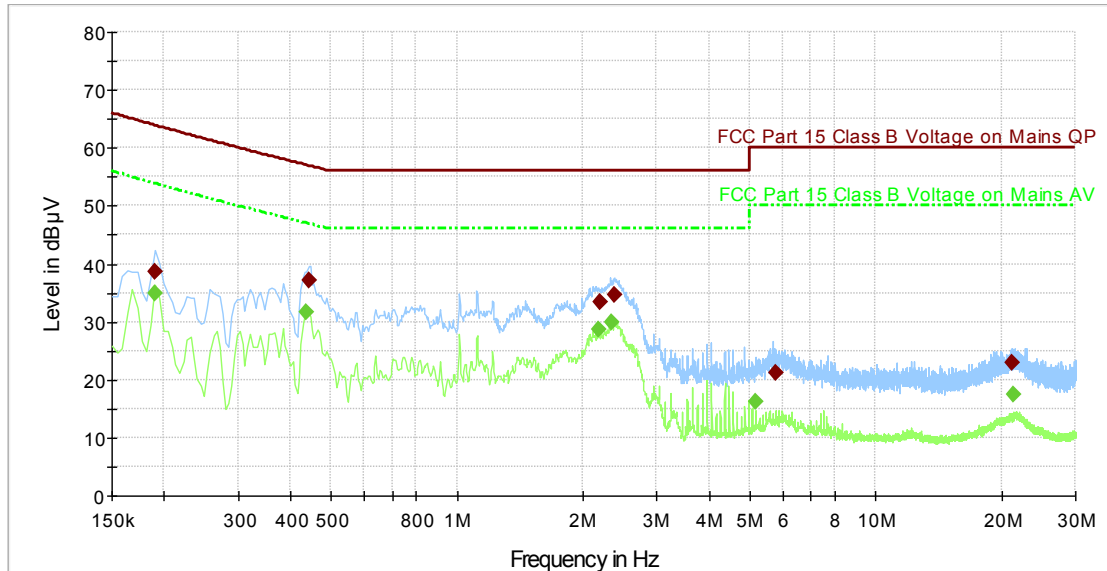


AC Conducted Test Mid Channel Line 2

| Frequency (MHz) | QuasiPeak (dBµV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|-----------------|------------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 0.433500 | 41.3 | 1000.0 | 9.000 | Off | N | 20.2 | 5.8 | 47.1 |
| 0.433500 | 41.4 | 1000.0 | 9.000 | Off | N | 20.2 | 5.7 | 47.1 |
| 2.125500 | 34.6 | 1000.0 | 9.000 | Off | N | 20.4 | 11.4 | 46.0 |
| 2.346000 | 37.1 | 1000.0 | 9.000 | Off | N | 20.4 | 8.9 | 46.0 |
| 10.140000 | 22.2 | 1000.0 | 9.000 | Off | N | 20.7 | 27.8 | 50.0 |
| 21.201000 | 25.8 | 1000.0 | 9.000 | Off | N | 20.7 | 24.2 | 50.0 |

| Frequency (MHz) | Average (dBµV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|-----------------|----------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 0.163500 | 39.7 | 1000.0 | 9.000 | Off | N | 20.1 | 25.5 | 65.2 |
| 0.433500 | 35.7 | 1000.0 | 9.000 | Off | N | 20.2 | 21.4 | 57.1 |
| 2.179500 | 30.5 | 1000.0 | 9.000 | Off | N | 20.4 | 25.5 | 56.0 |
| 2.305500 | 32.5 | 1000.0 | 9.000 | Off | N | 20.4 | 23.5 | 56.0 |
| 7.651500 | 17.4 | 1000.0 | 9.000 | Off | N | 20.5 | 42.6 | 60.0 |
| 21.345000 | 20.2 | 1000.0 | 9.000 | Off | N | 20.7 | 39.8 | 60.0 |

TUV SR7 Line 1 ESCS



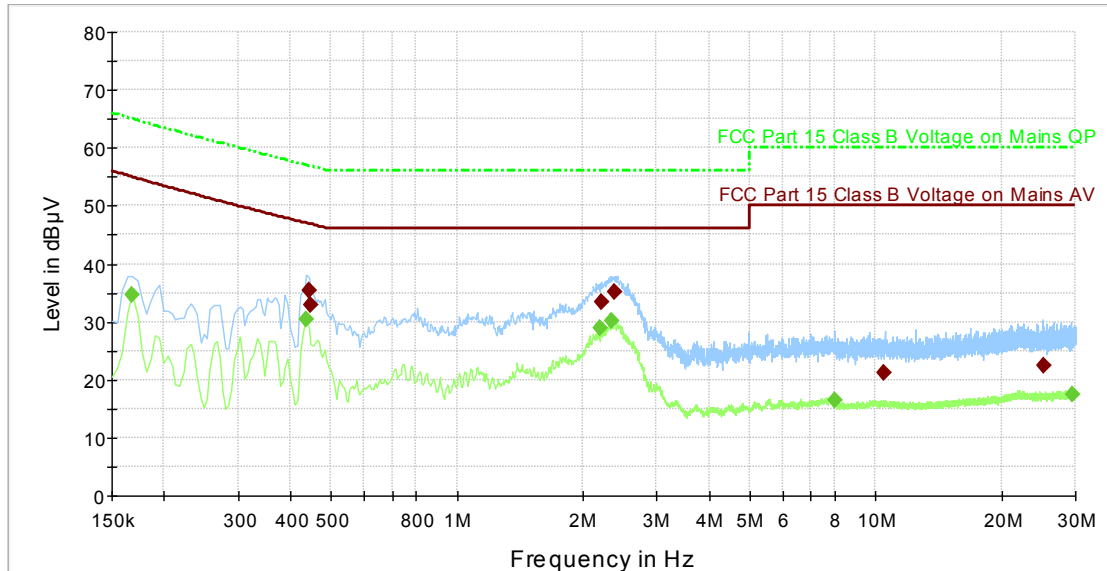
— FCC Part 15 Class B Voltage on Mains QP [..\EMI conducted\
 - - - FCC Part 15 Class B Voltage on Mains AV [..\EMI conducted\
 — Preview Result 1-PK+ [Preview Result 1.Result:1]
 — Preview Result 2-AVG [Preview Result 2.Result:2]
 ◆ Final Result 1-QPK [Final Result 1.Result:1]
 ◆ Final Result 2-AVG [Final Result 2.Result:1]

AC Conducted Test High Channel Line 1

| Frequency (MHz) | QuasiPeak (dBμV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) |
|-----------------|------------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 0.190500 | 38.6 | 1000.0 | 9.000 | Off | L1 | 20.3 | 25.3 | 63.9 |
| 0.442500 | 37.0 | 1000.0 | 9.000 | Off | L1 | 20.2 | 19.9 | 56.9 |
| 2.206500 | 33.3 | 1000.0 | 9.000 | Off | L1 | 20.6 | 22.7 | 56.0 |
| 2.373000 | 34.7 | 1000.0 | 9.000 | Off | L1 | 20.5 | 21.3 | 56.0 |
| 5.757000 | 21.2 | 1000.0 | 9.000 | Off | L1 | 20.4 | 38.8 | 60.0 |
| 21.201000 | 22.8 | 1000.0 | 9.000 | Off | L1 | 20.7 | 37.2 | 60.0 |

| Frequency (MHz) | Average (dBμV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) |
|-----------------|----------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 0.190500 | 34.8 | 1000.0 | 9.000 | Off | L1 | 20.3 | 19.0 | 53.9 |
| 0.438000 | 31.6 | 1000.0 | 9.000 | Off | L1 | 20.2 | 15.4 | 47.0 |
| 2.175000 | 28.6 | 1000.0 | 9.000 | Off | L1 | 20.5 | 17.4 | 46.0 |
| 2.337000 | 29.9 | 1000.0 | 9.000 | Off | L1 | 20.5 | 16.1 | 46.0 |
| 5.172000 | 16.2 | 1000.0 | 9.000 | Off | L1 | 20.5 | 33.8 | 50.0 |
| 21.426000 | 17.6 | 1000.0 | 9.000 | Off | L1 | 20.8 | 32.4 | 50.0 |

TUV SR7 Line 2 ESCS



— FCC Part 15 Class B Voltage on Mains AV [.\EMI conducted\
- - - - - FCC Part 15 Class B Voltage on Mains QP [.\EMI conducted\
— Preview Result 1-PK+ [Preview Result 1.Result:1]
— Preview Result 2-AVG [Preview Result 2.Result:2]
◆ Final Result 1-QPK [Final Result 1.Result:1]
◆ Final Result 2-AVG [Final Result 2.Result:1]

AC Conducted Test High Channel Line 2

| Frequency (MHz) | QuasiPeak (dBµV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|-----------------|------------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 0.442500 | 35.5 | 1000.0 | 9.000 | Off | N | 20.2 | 11.4 | 46.9 |
| 0.447000 | 33.0 | 1000.0 | 9.000 | Off | N | 20.2 | 13.9 | 46.8 |
| 2.211000 | 33.5 | 1000.0 | 9.000 | Off | N | 20.4 | 12.5 | 46.0 |
| 2.373000 | 35.2 | 1000.0 | 9.000 | Off | N | 20.4 | 10.8 | 46.0 |
| 10.495500 | 21.1 | 1000.0 | 9.000 | Off | N | 20.7 | 28.9 | 50.0 |
| 25.111500 | 22.5 | 1000.0 | 9.000 | Off | N | 20.7 | 27.5 | 50.0 |

| Frequency (MHz) | Average (dBµV) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|-----------------|----------------|-----------------|-----------------|--------|------|------------|-------------|--------------|
| 0.168000 | 34.7 | 1000.0 | 9.000 | Off | N | 20.2 | 30.3 | 65.0 |
| 0.438000 | 30.5 | 1000.0 | 9.000 | Off | N | 20.2 | 26.5 | 57.0 |
| 2.206500 | 28.9 | 1000.0 | 9.000 | Off | N | 20.4 | 27.1 | 56.0 |
| 2.341500 | 30.1 | 1000.0 | 9.000 | Off | N | 20.4 | 25.9 | 56.0 |
| 8.011500 | 16.4 | 1000.0 | 9.000 | Off | N | 20.5 | 43.6 | 60.0 |
| 29.598000 | 17.4 | 1000.0 | 9.000 | Off | N | 20.8 | 42.6 | 60.0 |



SECTION 3

TEST EQUIPMENT USED



3.1 TEST EQUIPMENT USED

List of absolute measuring and other principal items of test equipment.

| ID Number (SDGE/SDRB) | Test Equipment | Type | Serial Number | Manufacturer | Cal Date | Cal Due Date |
|--------------------------|--------------------------------------|------------------|---------------|----------------------------|---------------------------|--------------|
| AC Conducted Emission | | | | | | |
| 6837 | LISN | FCC-LISN-50-25-2 | 5025 | Fischer Custom Comm. | 06/26/18 | 06/26/19 |
| 7661 | 50MHz-18GHz Wideband Power Sensor | N1921A | MY45241383 | Agilent | 06/15/18 | 06/15/19 |
| 1003 | Signal Generator | SMR-40 | 1104.0002.40 | Rhode & Schwarz | 06/08/18 | 06/08/19 |
| 7582 | Signal/Spectrum Analyzer | FSW26 | 101614 | Rhode & Schwarz | 01/07/19 | 01/07/20 |
| 8825 | 20dB Attenuator | 46-20-34 | BK5773 | Weinschel Corp. | Verified by 7582 and 7608 | |
| Radiated Emission | | | | | | |
| 1003 | Signal Generator | SMR-40 | 1104.0002.40 | Rhode & Schwarz | 06/08/2018 | 06/08/2019 |
| 7611 | Signal/Spectrum Analyzer | FSW26 | 102017 | Rhode & Schwarz | 05/09/2018 | 05/09/2019 |
| 1002 | Bilog Antenna | 3142C | 00058717 | ETS-Lindgren | 11/20/17 | 11/20/19 |
| 8891 | Pre-Amplifier | PE15A3262 | 1012 | TUV SUD America | 09/28/2018 | 09/28/2019 |
| 7631 | Double-ridged waveguide horn antenna | 3117 | 00205418 | ETS-Lindgren | 08/20/2018 | 08/20/2020 |
| 9001 | Horn antenna (18-26 GHz) | HO42S | 101 | Custom Microwaves | 08/18/17 | 08/18/19 |
| 9002 | Horn antenna (26-40 GHz) | HO28S | 102 | Custom Microwaves | 07/14/17 | 07/14/19 |
| 9003 | Horn antenna (40-60 GHz) | HO19R | 103 | Custom Microwaves | 07/19/17 | 07/19/19 |
| 9004 | Horn antenna (50-75 GHz) | HO15R | 104 | Custom Microwaves | 07/19/17 | 07/19/19 |
| 7628 | Horn antenna (75-110 GHz) | SAR-2309-10-S2 | 13481-01 | Sage Millimeter, Inc. | 08/16/17 | 08/16/19 |
| 9081 | Horn antenna (110-170 GHz) | HO6R | N/A | Custom Microwaves | Verified | |
| 9082 | Horn antenna (140-220 GHz) | HO5R | N/A | Custom Microwaves | Verified | |
| 9080 | Horn antenna (220-325 GHz) | HO3R | N/A | Custom Microwaves | Verified | |
| 7620 | EMI Test Receiver | ESU40 | 100399 | Rhode & Schwarz | 10/18/2018 | 10/18/2019 |
| 8628 | Pre-amplifier | QLJ 01182835-JO | 8986002 | QuinStar Technologies Inc. | 03/06/2018 | 03/06/2019 |
| 8893 | Pre-amplifier (18-40 GHz) | SLKka-30-6 | 15G27 | Spacek Labs | Verified by 1003 and 7611 | |
| 7637 | Harmonics mixer (40-60 GHz) | FS-Z60 | 100009 | Rhode & Schwarz | 05/31/2018 | 05/31/2020 |
| 7636 | Harmonics mixer (60-90 GHz) | FS-Z90 | 100092 | Rhode & Schwarz | Verified | |
| 7633 | Harmonics mixer (75-110 GHz) | HM-110-7 | 101000 | Radiometer Physics | Verified | |
| 7634 | Harmonics mixer (110-170 GHz) | HM-170 | 0062 | Radiometer Physics | Verified by 1003 & 7611 | |
| 7635 | Harmonics mixer (170-220 GHz) | HM-220 | 020022 | Radiometer Physics | Verified by 1003 & 7611 | |



| | | | | | | |
|---------------|----------------------------------|---------------|-----------------|-----------------------|-------------------------|----------|
| 7632 | Harmonics mixer (220-325 GHz) | HM-325 | 020075 | Radiometer Physics | Verified by 1003 & 7611 | |
| 8872 | Direct Reading Attenuator | STA-60-19-D1 | 11875-01 | Sage Millimeter, Inc. | Verified | |
| 8860 | Direct Reading Attenuator | STA-60-15-D1 | 11466-01 | Sage Millimeter, Inc. | Verified | |
| 8861 | Direct Reading Attenuator | STA-60-10-D1 | 11466-01 | Sage Millimeter, Inc. | Verified | |
| 8873 | Active Multiplier (40-60 GHz) | AMC-19-RFH00 | 124 | Millitech, Inc. | Verified | |
| 8914 | Active Multiplier (50-75 GHz) | AMC-15-RFH00 | 283 | Millitech, Inc. | Verified | |
| 8915 | Active Multiplier (75-110 GHz) | AMC-10-RFH00 | 606 | Millitech, Inc. | Verified | |
| 8922 | High-frequency cable | R90-088-200 | N/A | Teledyne | Verified | |
| 1026 | High-frequency cable | 3M-7/C2 | N/A | MicroCoax | Verified | |
| 8849 | High-frequency cable (1-18 GHz) | SAC-26G-6.1 | 363 | A.H.Systems | Verified | |
| 8771 | 6dB attenuator | 606-06-1F4/DR | N/A | MECA | Verified | |
| Miscellaneous | | | | | | |
| 6708 | Multimeter | 34401A | US36086974 | Hewlett Packard | 07/18/18 | 07/18/19 |
| 11312 | Mini Environmental Quality Meter | 850027 | CF099-56010-340 | Sper Scientific | 02/26/28 | 02/26/19 |
| | Test Software | EMC32 | V8.53 | Rhode & Schwarz | N/A | |

3.1 MEASUREMENT UNCERTAINTY

For a 95% confidence level, the measurement uncertainties for defined systems are:

3.1.1 Conducted Measurements

| | Input Quantity (Contribution) X_i | Value | Prob. Dist. | Divisor | $u_i(x)$ | $u_i(x)^2$ |
|-------------------------------|-------------------------------------|---------|-------------|---------|----------|------------|
| 1 | Receiver reading | 0.10 dB | Normal, k=1 | 1.000 | 0.10 | 0.01 |
| 2 | LISN-receiver attenuation | 0.10 dB | Normal, k=2 | 2.000 | 0.05 | 0.00 |
| 3 | LISN voltage division factor | 0.30 dB | Normal, k=2 | 2.000 | 0.15 | 0.02 |
| 4 | Receiver sinewave accuracy | 0.36 dB | Normal, k=2 | 2.000 | 0.18 | 0.03 |
| 5 | Receiver pulse amplitude | 1.50 dB | Rectangular | 1.732 | 0.87 | 0.75 |
| 6 | Receiver pulse repetition rate | 1.50 dB | Rectangular | 1.732 | 0.87 | 0.75 |
| 7 | Noise floor proximity | 0.00 dB | Rectangular | 1.732 | 0.00 | 0.00 |
| 8 | AMN VDF frequency interpolation | 0.10 dB | Rectangular | 1.732 | 0.06 | 0.00 |
| 9 | Mismatch | 0.07 dB | U-shaped | 1.414 | 0.05 | 0.00 |
| 10 | LISN impedance | 2.65 dB | Triangular | 2.449 | 1.08 | 1.17 |
| 11 | Effect of mains disturbance | 0.00 dB | | | 0.00 | 0.00 |
| 12 | Effect of the environment | | | | | |
| | | | | | | |
| Combined standard uncertainty | | | Normal | 1.66 | dB | |
| Expanded uncertainty | | | Normal, k=2 | 3.31 | dB | |

3.1.1 Radiated Measurements (Below 1GHz)

| | Input Quantity (Contribution) X_i | Value | Prob. Dist. | Divisor | $u_i(x)$ | $u_i(x)^2$ |
|-------------------------------|-------------------------------------|---------|-------------|---------|----------|------------|
| 1 | Receiver reading | 0.10 dB | Normal, k=1 | 1.000 | 0.10 | 0.01 |
| 2 | Attenuation: antenna-receiver | 0.20 dB | Normal, k=2 | 2.000 | 0.10 | 0.01 |
| 3 | Antenna factor AF | 0.75 dB | Normal, k=2 | 2.000 | 0.38 | 0.14 |
| 4 | Receiver sinewave accuracy | 0.45 dB | Normal, k=2 | 2.000 | 0.23 | 0.05 |
| 5 | Receiver pulse amplitude | 1.50 dB | Rectangular | 1.732 | 0.87 | 0.75 |
| 6 | Receiver pulse repetition rate | 1.50 dB | Rectangular | 1.732 | 0.87 | 0.75 |
| 7 | Noise floor proximity | 0.50 dB | Rectangular | 1.732 | 0.29 | 0.08 |
| 8 | Mismatch: antenna-receiver | 0.95 dB | U-shaped | 1.414 | 0.67 | 0.45 |
| 9 | AF frequency interpolation | 0.30 dB | Rectangular | 1.732 | 0.17 | 0.03 |
| 10 | AF height deviations | 0.10 dB | Rectangular | 1.732 | 0.06 | 0.00 |
| 11 | Directivity difference at 3 m | 3.12 dB | Rectangular | 1.732 | 1.80 | 3.24 |
| 12 | Phase center location at 3 m | 1.00 dB | Rectangular | 1.732 | 0.58 | 0.33 |
| 13 | Cross-polarisation | 0.90 dB | Rectangular | 1.732 | 0.52 | 0.27 |
| 14 | Balance | 0.00 dB | Rectangular | 1.732 | 0.00 | 0.00 |
| 15 | Site imperfections | 3.76 dB | Triangular | 2.449 | 1.54 | 2.36 |
| 16 | Separation distance at 3 m | 0.30 dB | Rectangular | 1.732 | 0.17 | 0.03 |
| 17 | Effect of setup table material | 0.77 dB | Rectangular | 1.732 | 0.44 | 0.20 |
| 18 | Table height at 3 m | 0.10 dB | Normal, k=2 | 2.000 | 0.05 | 0.00 |
| 19 | Near-field effects | 0.00 dB | Triangular | 2.449 | 0.00 | 0.00 |
| 20 | Effect of ambient noise on OATS | 0.00 dB | | | | 0.00 |
| | | | | | | |
| Combined standard uncertainty | | | Normal | 2.95 | dB | |
| Expanded uncertainty | | | Normal, k=2 | 5.90 | dB | |



3.1.2 Radiated Emission Measurements (Above 1GHz)

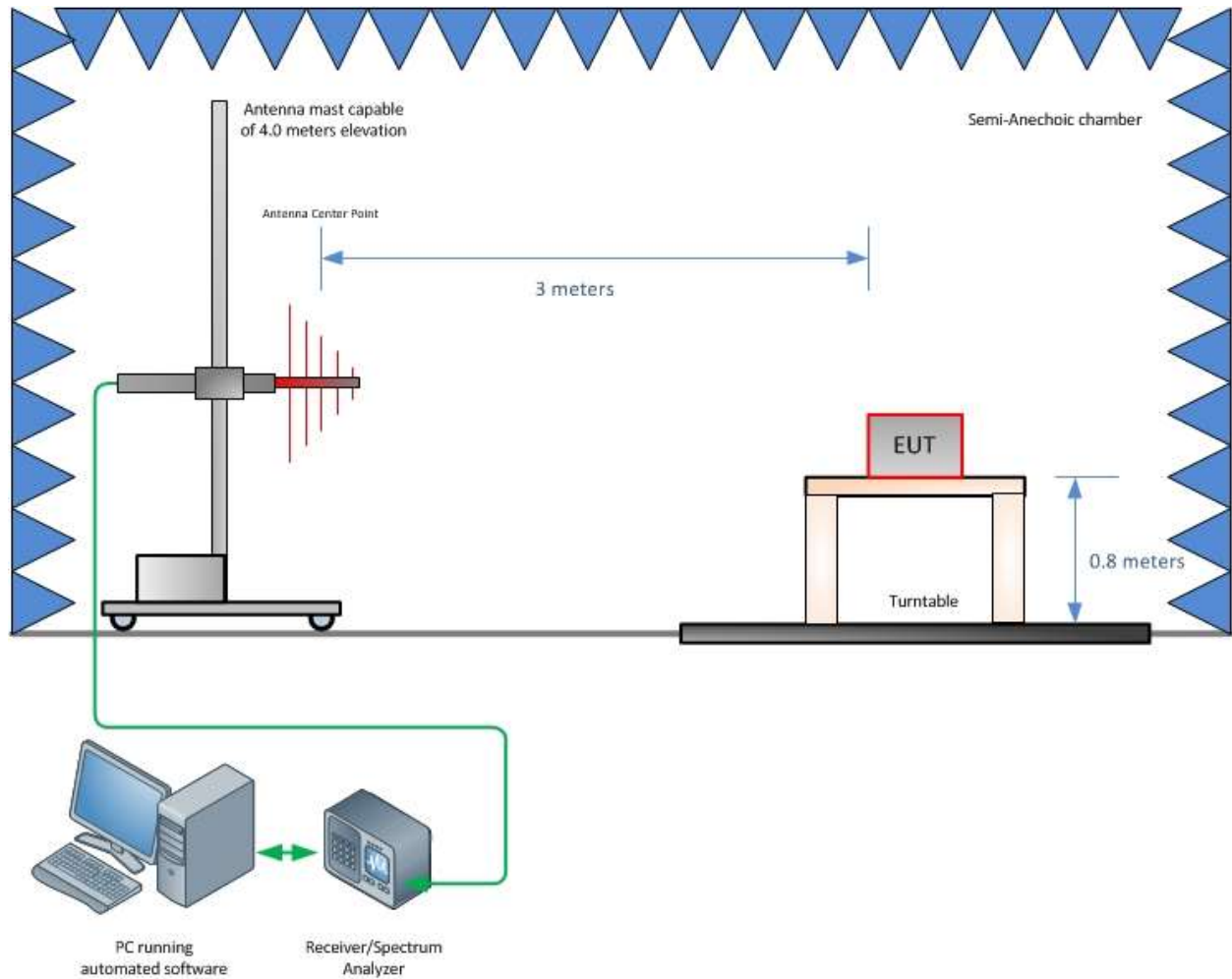
| | Input Quantity (Contribution) X_i | Value | Prob. Dist. | Divisor | $u_i(x)$ | $u_i(x)^2$ |
|-------------------------------|-------------------------------------|---------|-------------|---------|----------|------------|
| 1 | Receiver reading | 0.10 dB | Normal, k=1 | 1.000 | 0.10 | 0.01 |
| 2 | Attenuation: antenna-receiver | 0.20 dB | Normal, k=2 | 2.000 | 0.10 | 0.01 |
| 3 | Antenna factor AF | 0.75 dB | Normal, k=2 | 2.000 | 0.38 | 0.14 |
| 4 | Receiver sinewave accuracy | 0.45 dB | Normal, k=2 | 2.000 | 0.23 | 0.05 |
| 5 | Receiver pulse amplitude | 1.50 dB | Rectangular | 1.732 | 0.87 | 0.75 |
| 6 | Receiver pulse repetition rate | 1.50 dB | Rectangular | 1.732 | 0.87 | 0.75 |
| 7 | Noise floor proximity | 0.50 dB | Rectangular | 1.732 | 0.29 | 0.08 |
| 8 | Mismatch: antenna-receiver | 0.95 dB | U-shaped | 1.414 | 0.67 | 0.45 |
| 9 | AF frequency interpolation | 0.30 dB | Rectangular | 1.732 | 0.17 | 0.03 |
| 10 | AF height deviations | 0.10 dB | Rectangular | 1.732 | 0.06 | 0.00 |
| 11 | Directivity difference at 3 m | 3.12 dB | Rectangular | 1.732 | 1.80 | 3.24 |
| 12 | Phase center location at 3 m | 1.00 dB | Rectangular | 1.732 | 0.58 | 0.33 |
| 13 | Cross-polarisation | 0.90 dB | Rectangular | 1.732 | 0.52 | 0.27 |
| 14 | Balance | 0.00 dB | Rectangular | 1.732 | 0.00 | 0.00 |
| 15 | Site imperfections | 3.25 dB | Triangular | 2.449 | 1.33 | 1.76 |
| 16 | Separation distance at 3 m | 0.30 dB | Rectangular | 1.732 | 0.17 | 0.03 |
| 17 | Effect of setup table material | 0.77 dB | Rectangular | 1.732 | 0.44 | 0.20 |
| 18 | Table height at 3 m | 0.10 dB | Normal, k=2 | 2.000 | 0.05 | 0.00 |
| 19 | Near-field effects | 0.00 dB | Triangular | 2.449 | 0.00 | 0.00 |
| 20 | Effect of ambient noise on OATS | 0.00 dB | | | | 0.00 |
| | | | | | | |
| Combined standard uncertainty | | | Normal | 2.85 | dB | |
| Expanded uncertainty | | | Normal, k=2 | 5.70 | dB | |



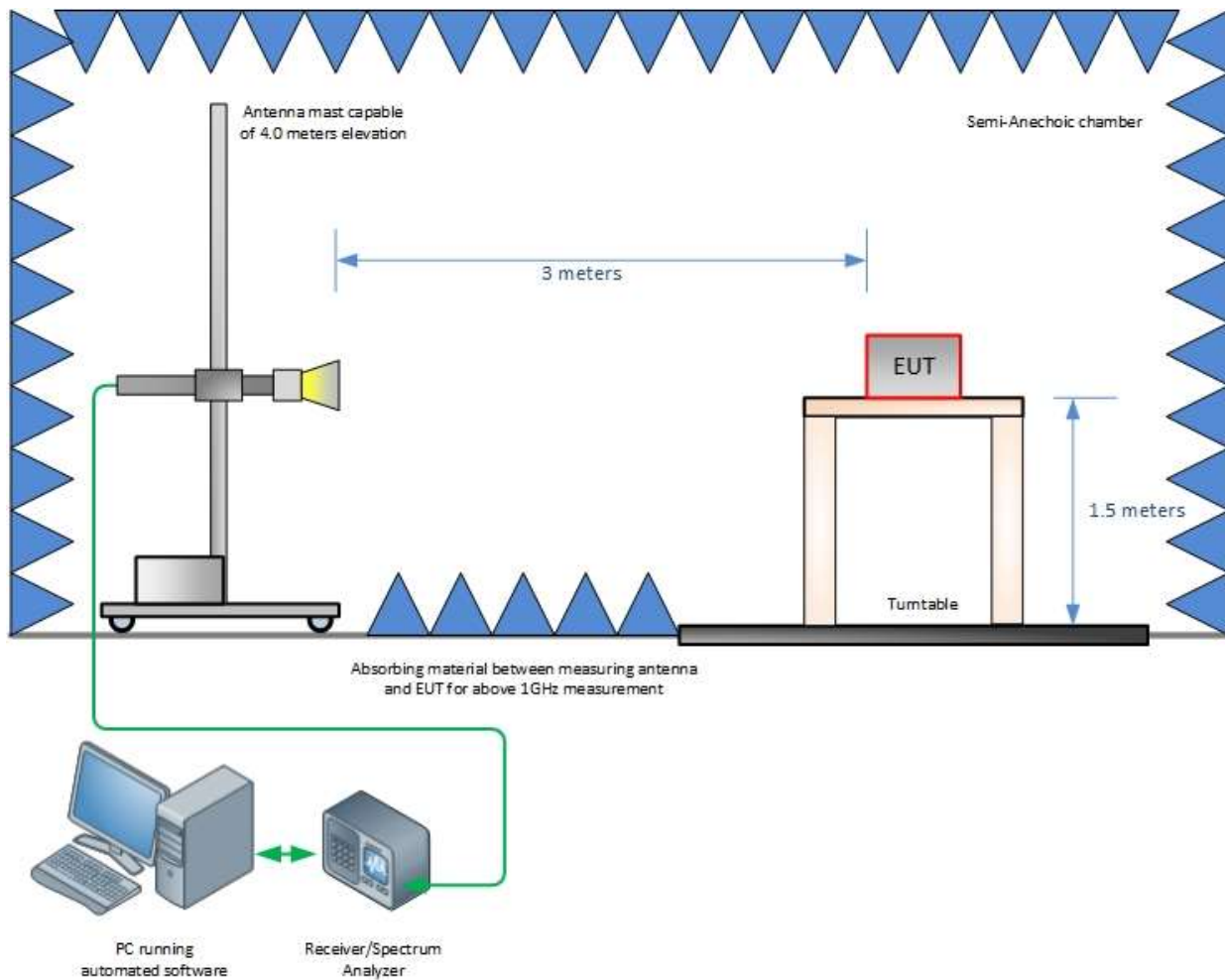
SECTION 4

DIAGRAM OF TEST SETUP

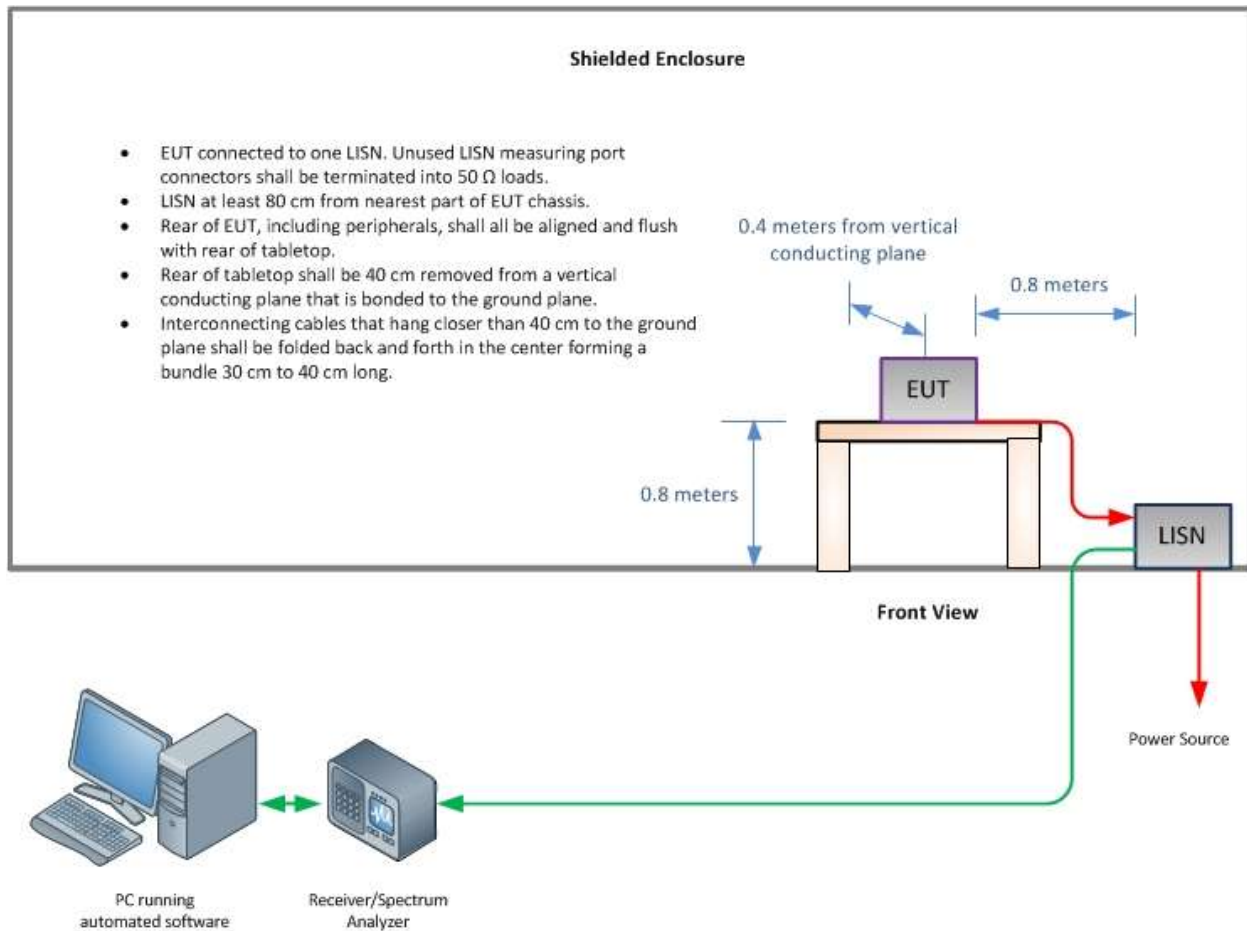
4.1 TEST SETUP DIAGRAM



Radiated Emission Test Setup (Below 1GHz)



Radiated Emission Test Setup (Above 1GHz)





SECTION 5

ACCREDITATION, DISCLAIMERS AND COPYRIGHT



5.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT

TÜV SÜD America Inc.'s reports apply only to the specific sample tested under stated test conditions. It is the manufacturer's responsibility to assure the continued compliance of production units of this model. TÜV SÜD America, Inc. shall have no liability for any deductions, inferences or generalizations drawn by the client or others from TÜV SÜD America, Inc.'s issued reports.

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