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# Report On

Application for Grant of Equipment Authorization of the
Inseego Corp.
MD8000 Wireless Module

FCC CFR 47 Part 2 and 27: 2018
RSS-195 Issue 2: 2014

**Report No. 72154465A** **December 2019**

| | |
|---|---|
| **REPORT ON** | Radio Testing of the<br>Inseego Corp.<br>MD8000 Wireless Module |
| **TEST REPORT NUMBER** | 72154465A |
| **PREPARED FOR** | Inseego Corp.<br>9605 Scranton Road, Suite 300<br>San Diego, CA 92121<br>USA |
| **CONTACT PERSON** | Roman Olmos<br>Senior Regulatory Engineer<br>(858) 812-0606<br>roman.olmos@inseego.com |
| **PREPARED BY** | Alex Chang<br>**Name**<br>Authorized Signatory<br>Title: Senior EMC/RF Wireless Test Engineer |
| **APPROVED BY** | Ferdinand S. Custodio<br>**Name**<br>Authorized Signatory<br>Title: Senior EMC Test Engineer/Wireless Team Lead |
| **DATED** | December 20, 2019 |



TÜV SÜD AMERICA INC 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone: 858 678 1400 FAX: 858 546 0364

**Revision History**

| 72154465A<br>Inseego Corp.<br>MD8000 Wireless Module | | | | | |
|---|---|---|---|---|---|
| DATE | OLD REVISION | NEW REVISION | REASON | PAGES AFFECTED | APPROVED BY |
| 12/20/2019 | — | Initial Release | | | Ferdinand Custodio |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

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**SECTION 1**

**REPORT SUMMARY**

Radio Testing of the
Inseego Corp.
MD8000 Wireless Module



TÜV SÜD AMERICA INC 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone: 858 678 1400 FAX: 858 546 0364

## 1.1 INTRODUCTION

The information contained in this report is intended to show verification of the Inseego Corp. MD8000 Wireless Module to the requirements of the following:

- FCC CFR 47 Part 2 and 27: 2018
- RSS-195 Issue 2: 2014

| | |
|---|---|
| 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 | Inseego Corp. |
| Product Marketing Name | MD8000 |
| Model Number(s) | MD8000 |
| FCC ID Number | PKRISGMD8000 |
| IC Number | 3229A-MD8000 |
| Serial Number(s) | FG090719C00033 |
| Number of Samples Tested | 1 |
| Test Specification/Issue/Date | • FCC CRF 47 Part 2 and 27 (October 1, 2018)<br>• RSS-195 Issue 2: April 2014 – Wireless Communication Service (WCS) Equipment Operating in the Bands 2305-2320 MHz and 2345-2360 MHz<br>• RSS-Gen Issue 5 Amendment1: March 2019 - General Requirements for Compliance of Radio Apparatus<br>• ANSI C63.26-2015: American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services |
| Start of Test | December 13, 2019 |
| Finish of Test | December 13, 2019 |
| Name of Engineer(s) | Alex Chang |
| Related Document(s) | • TÜV SÜD America Radio Test Report ref. no. 72152860A_Inseego MIFI8000_FCC Part 2 and 27_B30_38_40_RSS 195 and RSS 199_Test Report.pdf<br>• 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 CFR 47 Part 2 and 27: 2018 with cross-reference to the corresponding ISED RSS standard is shown below.

| Section | FCC Part Sections(s) | RSS Section(s) | Test Description | Result |
|---|---|---|---|---|
| - | 2.1046 | - | Transmitter Conducted Output Power | Compliant** |
| - | 2.1046<br>27.50(a)(3) | RSS-195 (5.5) | Equivalent Isotropic Radiated Power | Compliant** |
| - | 2.1049<br>27.53(a)(5) | RSS-Gen (6.7)<br>RSS-195 (5.6) | Occupied Bandwidth | Compliant** |
| - | - | - | Peak-Average Ratio | Compliant** |
| - | 2.1051<br>27.53(a)(4)(5) | RSS-195 (5.6) | Band Edge | Compliant** |
| - | 2.1051<br>27.53(a)(4)(5) | RSS-195 (5.6) | Conducted Spurious Emissions | Compliant** |
| 2.1 | 2.1053<br>27.53(a)(4) | RSS-195 (5.6) | Field Strength of Spurious Radiation | Compliant |
| - | 2.1055<br>27.54 | RSS-195 (5.4) | Frequency Stability | Compliant** |
| - | - | RSS-Gen 7.4 | Receiver Spurious Emissions | N/A* |
| - | - | RSS-GEN 8.8 | Power Line Conducted Emissions | Compliant** |

N/A* Not Applicable. No stand-alone receiver.

** The module was previously tested in a host under model number MIFI8000. All the conducted measurement for LTE Band 30 was from the host and covered under test report 72152860A_Inseego MIFI8000_FCC Part 2 and 27_B30_38_40_RSS 195 and RSS 199_Test Report.pdf issued on October 29, 2019.

## 1.3 PRODUCT INFORMATION

### 1.3.1 EUT General Description

The Equipment Under Test (EUT) was an Inseego Corp. MD8000 Wireless Module. The EUT is a Wireless Hotspot Modem supporting 2G/3G/4G Technologies. The EUT comes with a USB Port.

### 1.3.2 Technical Description

| | |
|---|---|
| EUT Description | Wireless Module |
| Product Marketing Name | MD8000 |
| Model Number(s) | MD8000 |
| Rated Voltage | Input 5VdB (External Power)<br>(Note: USB Cable and AC Wall adapter were only provided and used in support of testing to power up the device. They are not used when integrated into host devices) |
| Mode Verified | LTE Band 30: 2305-2315 MHz |
| Capability | WCDMA Band 2, 4, 5, LTE Band 2, 4, 5, 7, 12, 13, 14, 17, 25, 26, 30, 38, 40, 41, 42, 48, 66 |
| Primary Unit (EUT) | ☒ Production |
| | ☐ Pre-Production |
| | ☐ Engineering |

## 1.4 EUT TEST CONFIGURATION

### 1.4.1 Test Configuration Description

| Test Configuration | Description |
|---|---|
| Default | Radiated test setup / case spurious emissions. The EUT is connected to the call box in connect to the call box with antenna port terminated by the call box. |

### 1.4.2 EUT Exercise Software

EUT is controlled by a CMW 500 Wideband Radio Communication Tester. There is no other test software used during verification.

### 1.4.3 Support Equipment and I/O cables

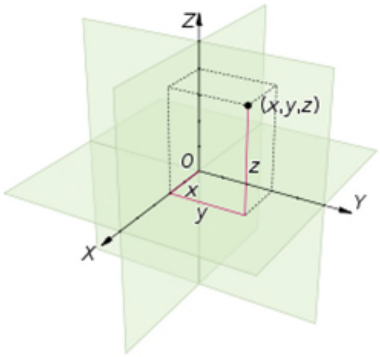
| Manufacturer | Equipment/Cable | Description |
|---|---|---|
| Inseego Corp. | USB Cable | Standard USB Type A to USB Type C |
| Inseego Corp. | External AC-DC Power Adapter | Model: SSW-2783, PN: 40123126.01<br>Input: 100-240VAC, 50/60Hz, 0.5A<br>Output: 5VDC, max. 2A |

### 1.4.4 Worst Case Configuration

Worst-case configuration used in this test report as per output power measurements:

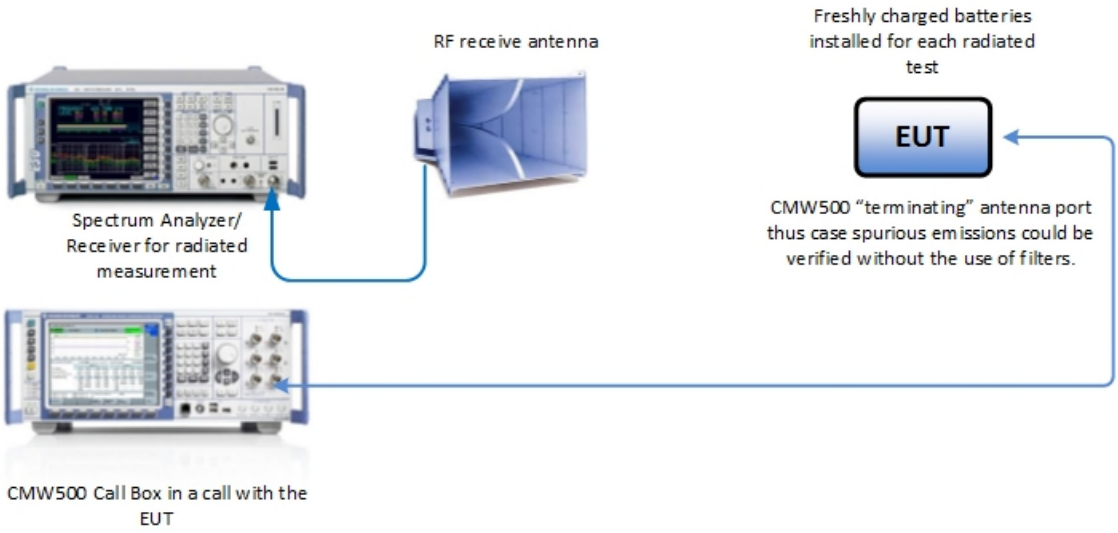
| Band | Channel BW | Modulation | RB Size/Offset |
|---|---|---|---|
| LTE Band 30 | 5 MHz | QPSK | 1/13 |

For radiated measurements X, Y, and Z orientations were verified. The verification was determined “X” as worst-case configuration.



### 1.4.5 Simplified Test Configuration Diagram

**Radiated Test Configuration**



## 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: FG090719C00033 | | |
| None | — | — |

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 C63.26-2015, American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services.

For conducted and radiated emissions, the equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted according to the Operating Instructions provided by the manufacturer/client.

## 1.8 TEST FACILITY LOCATION

### 1.8.1 TÜV SÜD America Inc. (Mira Mesa)

10040 Mesa Rim Road, San Diego, CA 92121-2912 (32.901268,-117.177681). Phone: (858) 678 1400 Fax: (858) 546 0364

### 1.8.2 TÜV SÜD America Inc. (Rancho Bernardo)

16936 Via Del Campo, San Diego, CA 92127-1708 (33.018644,-117.092409). Phone: (858) 678 1400 Fax: (858) 546 0364.

## 1.9 TEST FACILITY REGISTRATION

### 1.9.1 FCC – Designation No.: US1146

TÜV SÜD 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.

### 1.9.2 Innovation, Science and Economic Development Canada (ISED) Registration No.: 3067A-1 & 22806-1

The 10m Semi-anechoic chamber of TÜV SÜD 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 TÜV SÜD 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.

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

TÜV 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.

### 1.9.4 NCC (National Communications Commission - US0102)

TÜV SÜD 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.

### 1.9.5 VCCI – Registration No. A-0280 and A-0281

TÜV SÜD 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.

### 1.9.6 RRA – Identification No. US0102

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

### 1.9.7 OFCA – U.S. Identification No. US0102

TÜV SÜD 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
Inseego Corp.
MD8000 Wireless Module

## 2.1 FIELD STRENGTH OF SPURIOUS RADIATION

### 2.1.1 Specification Reference

FCC 47 CFR Part 2, Clause 2.1053
FCC 47 CFR Part 27, Clause 27.53(a)(4)
RSS-195, Clause 5.6

### 2.1.2 Standard Applicable

FCC 47 CFR Part 27.53(a):
For mobile and portable stations operating in the 2305–2315 MHz and 2350–2360 MHz bands:
(i) By a factor of not less than: 43 + 10 log (P) dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than 55 + 10 log (P) dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than 61 + 10 log (P) dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than 67 + 10 log (P) dB on all frequencies between 2328 and 2337 MHz;
(ii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2296 and 2300 MHz, 61 + 10 log (P) dB on all frequencies between 2292 and 2296 MHz, 67 + 10 log (P) dB on all frequencies between 2288 and 2292 MHz, and 70 + 10 log (P) dB below 2288 MHz;
(iii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2365 MHz, and not less than 70 + 10 log (P) dB above 2365 MHz.

RSS-195, Clause 5.6:
The power of any emission outside the frequency range(s) in which the equipment operates shall be attenuated below the transmitter power, P(dBW), by the amount indicated in Table 2, where p is the transmitter output power measured in watts.

**Table 2 — Unwanted Emissions for Mobile, Portable and Low-Power Fixed Subscriber Equipment**

| Frequency (MHz) | Attenuation (dB) |
|---|---|
| <2200 | $43 + 10 \log_{10}(p)$ |
| 2200 - 2288 | $70 + 10 \log_{10}(p)$ |
| 2288 - 2292 | $67 + 10 \log_{10}(p)$ |
| 2292 - 2296 | $61 + 10 \log_{10}(p)$ |
| 2296 - 2300 | $55 + 10 \log_{10}(p)$ |
| 2300 - 2305 | $43 + 10 \log_{10}(p)$ |
| 2305 - 2320 | $43 + 10 \log_{10}(p)^{Note}$ |
| 2320 - 2324 | $55 + 10 \log_{10}(p)$ |
| 2324 - 2328 | $61 + 10 \log_{10}(p)$ |
| 2328 - 2337 | $67 + 10 \log_{10}(p)$ |
| 2337 - 2341 | $61 + 10 \log_{10}(p)$ |
| 2341 - 2345 | $55 + 10 \log_{10}(p)$ |
| 2345 - 2360 | $43 + 10 \log_{10}(p)^{Note}$ |
| 2360 - 2365 | $43 + 10 \log_{10}(p)$ |
| 2365 - 2395 | $70 + 10 \log_{10}(p)$ |
| >2395 | $43 + 10 \log_{10}(p)$ |

**Note:** Measured at the edges of the highest and lowest frequency range(s) in which the equipment is designed to operate. See Section 5.2 for the permitted frequency ranges for various equipment types.

### 2.1.3 Equipment Under Test and Modification State

Serial No: FG090719C00033 / Default Test Configuration

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

December 13, 2019 / AC

### 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 Location

Test performed at TÜV SÜD America Inc. Rancho Bernardo facility

| | |
|---|---|
| Ambient Temperature | 23.8 °C |
| Relative Humidity | 41.0 % |
| ATM Pressure | 99.8 kPa |

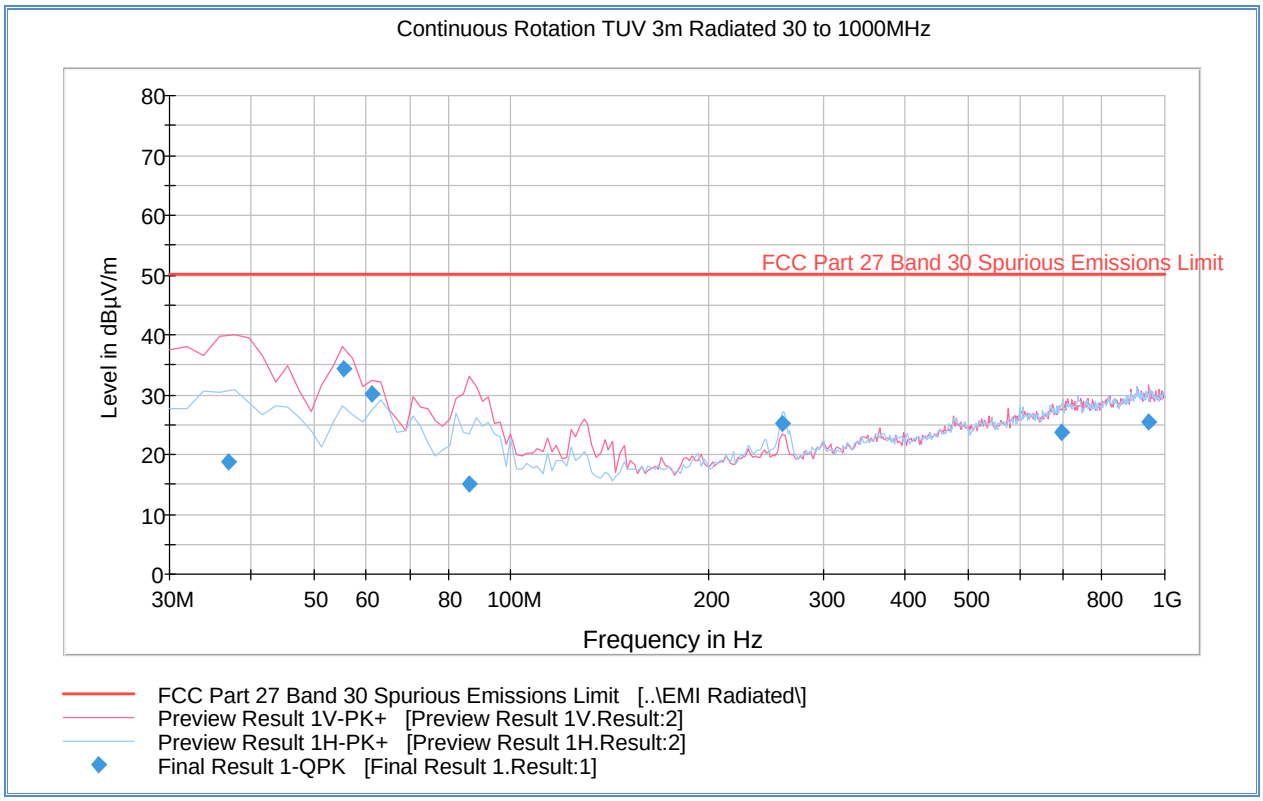
### 2.1.7 Additional Observations

- This is a radiated test using the direct Radiated Field Strength method of C63.26 2015.
- This is cabinet spurious emissions testing. Main antenna port was terminated during the test. Fundamental frequency measurement will be ignored for this test.
- Emissions within 6dB of the limit will be proven by substitution method.
- LTE Band 30 was verified as the worst case band and only its worst case configuration was presented in this test report.
- Only noise floor measurements observed above 18GHz.
- 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.

### 2.1.8 Test Results

Compliant. See attached plots.

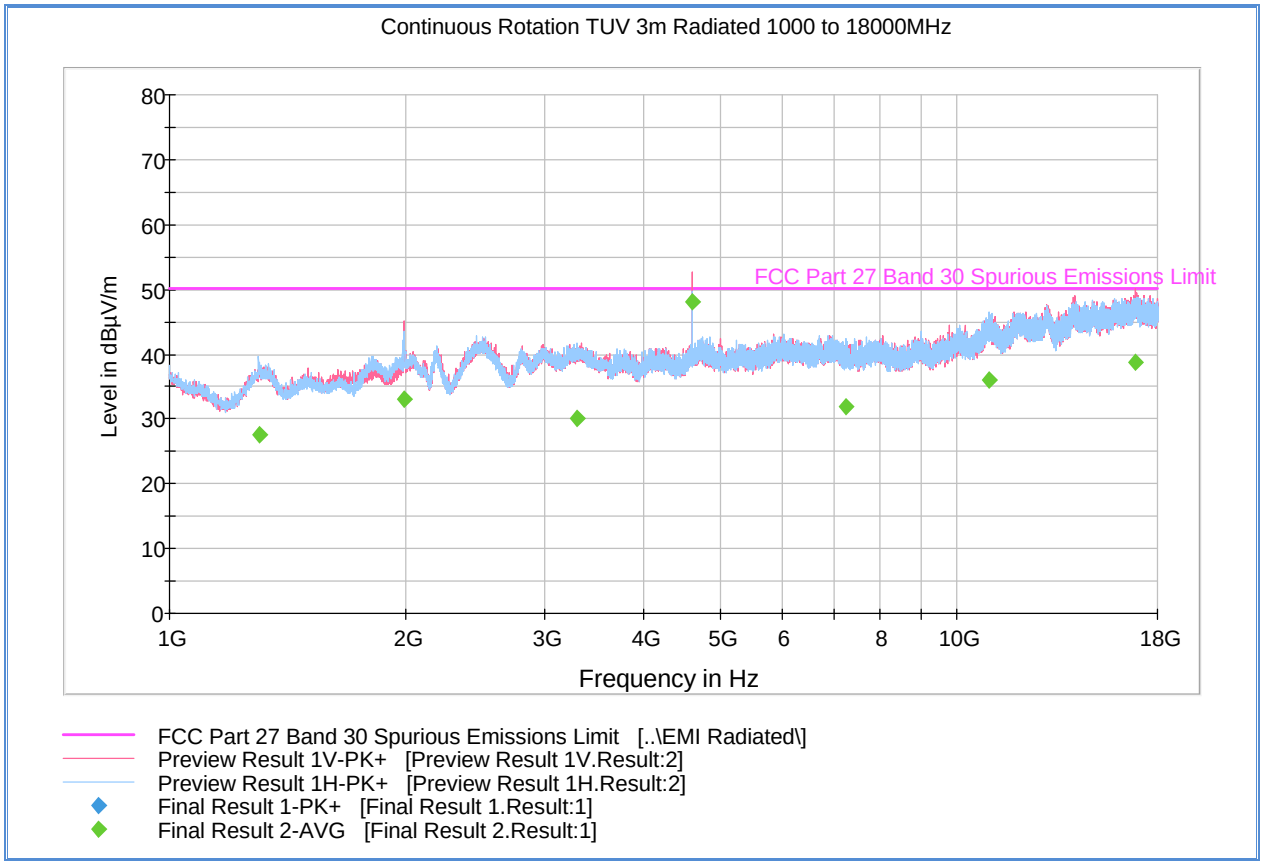
### 2.1.9 Radiated Emission Test Results Below 1GHz – Worst Case LTE Band 30_Low Channel 2307.5 MHz




**Quasi Peak Data**

| Frequency (MHz) | QuasiPeak (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Polarization | Azimuth (deg) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) |
|---|---|---|---|---|---|---|---|---|---|
| 36.975551 | 18.8 | 1000.0 | 120.000 | 110.0 | V | 249.0 | -10.7 | 31.4 | 50.2 |
| 55.350541 | 34.4 | 1000.0 | 120.000 | 100.0 | V | 343.0 | -15.8 | 15.8 | 50.2 |
| 61.142204 | 30.1 | 1000.0 | 120.000 | 160.0 | V | 203.0 | -16.7 | 20.1 | 50.2 |
| 86.092745 | 15.1 | 1000.0 | 120.000 | 105.0 | V | 231.0 | -15.6 | 35.1 | 50.2 |
| 260.378758 | 25.1 | 1000.0 | 120.000 | 202.0 | H | 348.0 | -8.4 | 25.1 | 50.2 |
| 694.193507 | 23.7 | 1000.0 | 120.000 | 400.0 | H | 229.0 | 2.5 | 26.5 | 50.2 |
| 945.171142 | 25.4 | 1000.0 | 120.000 | 120.0 | V | 245.0 | 5.6 | 24.8 | 50.2 |

### 2.1.10 Radiated Emission Test Results Above 1GHz – LTE Band 30_Low Channel 2307.5 MHz




**Average Data**

| Frequency (MHz) | MaxPeak (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Polarization | Azimuth (deg) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) |
|---|---|---|---|---|---|---|---|---|---|
| 1299.233333 | 27.5 | 1000.0 | 1000.000 | 372.1 | H | 25.0 | -5.2 | 22.7 | 50.2 |
| 1986.933333 | 33.0 | 1000.0 | 1000.000 | 103.7 | V | 10.0 | -2.3 | 17.2 | 50.2 |
| 3295.000000 | 30.0 | 1000.0 | 1000.000 | 383.0 | H | 142.0 | 1.0 | 20.2 | 50.2 |
| 4615.133333 | 48.2 | 1000.0 | 1000.000 | 306.2 | V | 285.0 | 3.6 | 2.0 | 50.2 |
| 7233.700000 | 32.0 | 1000.0 | 1000.000 | 315.2 | H | 58.0 | 7.0 | 18.2 | 50.2 |
| 10980.933333 | 36.1 | 1000.0 | 1000.000 | 310.2 | H | 106.0 | 11.9 | 14.1 | 50.2 |
| 16885.500000 | 38.8 | 1000.0 | 1000.000 | 112.7 | V | 124.0 | 18.0 | 11.4 | 50.2 |

Note: A 2.0GHz – 3.0GHz notch filter was used during evaluation.

**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/ FRGE) | Test Equipment | Type | Serial Number | Manufacturer | Cal Date | Cal Due Date |
|---|---|---|---|---|---|---|
| ***Radiated Test Setup*** | | | | | | |
| 1033 | Bilog Antenna | 3142C | 00044556 | EMCO | 09/05/19 | 09/05/21 |
| 7575 | Double-ridged waveguide horn antenna | 3117 | 00155511 | EMCO | 06/16/18 | 06/16/20 |
| 1016 | Pre-amplifier | PAM-0202 | 187 | PAM | 03/08/19 | 03/08/20 |
| 1040 | EMI Test Receiver | ESIB40 | 100292 | Rhode & Schwarz | 10/11/19 | 10/11/20 |
| 7620 | EMI Test Receiver | ESU | 100399 | Rhode & Schwarz | 10/18/19 | 10/18/20 |
| 8628 | Pre-amplifier | QLJ 01182835-JO | 8986002 | QuinStar Technologies Inc. | 03/07/19 | 03/07/20 |
| 40813 | Wideband Radio Communication Tester | CMW500 | 145913-RH | Rhode & Schwarz | 04/22/19 | 04/22/20 |
| ***Miscellaneous*** | | | | | | |
| 7619 | Temp & Humidity Sensor | iBTHX-W | 15050268 | Omega | 06/18/19 | 06/18/20 |
| — | Test Software | EMC32 | V8.53 | Rhode & Schwarz | N/A | |

## 3.2 MEASUREMENT UNCERTAINTY

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

### 3.2.1 Radiated Emission 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 | 1.10 | dB | Normal, k=2 | 2.000 | 0.55 | 0.30 |
| 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 | 3.91 | dB | Triangular | 2.449 | 1.60 | 2.55 |
| 16 | Separation distance at 3 m | 0.30 | dB | Rectangular | 1.732 | 0.17 | 0.03 |
| 17 | Effect of setup table material | 0.40 | dB | Rectangular | 1.732 | 0.23 | 0.05 |
| 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 | 3.00 | dB | |
| | **Expanded uncertainty** | | | **Normal, k=2** | **6.00** | **dB** | |

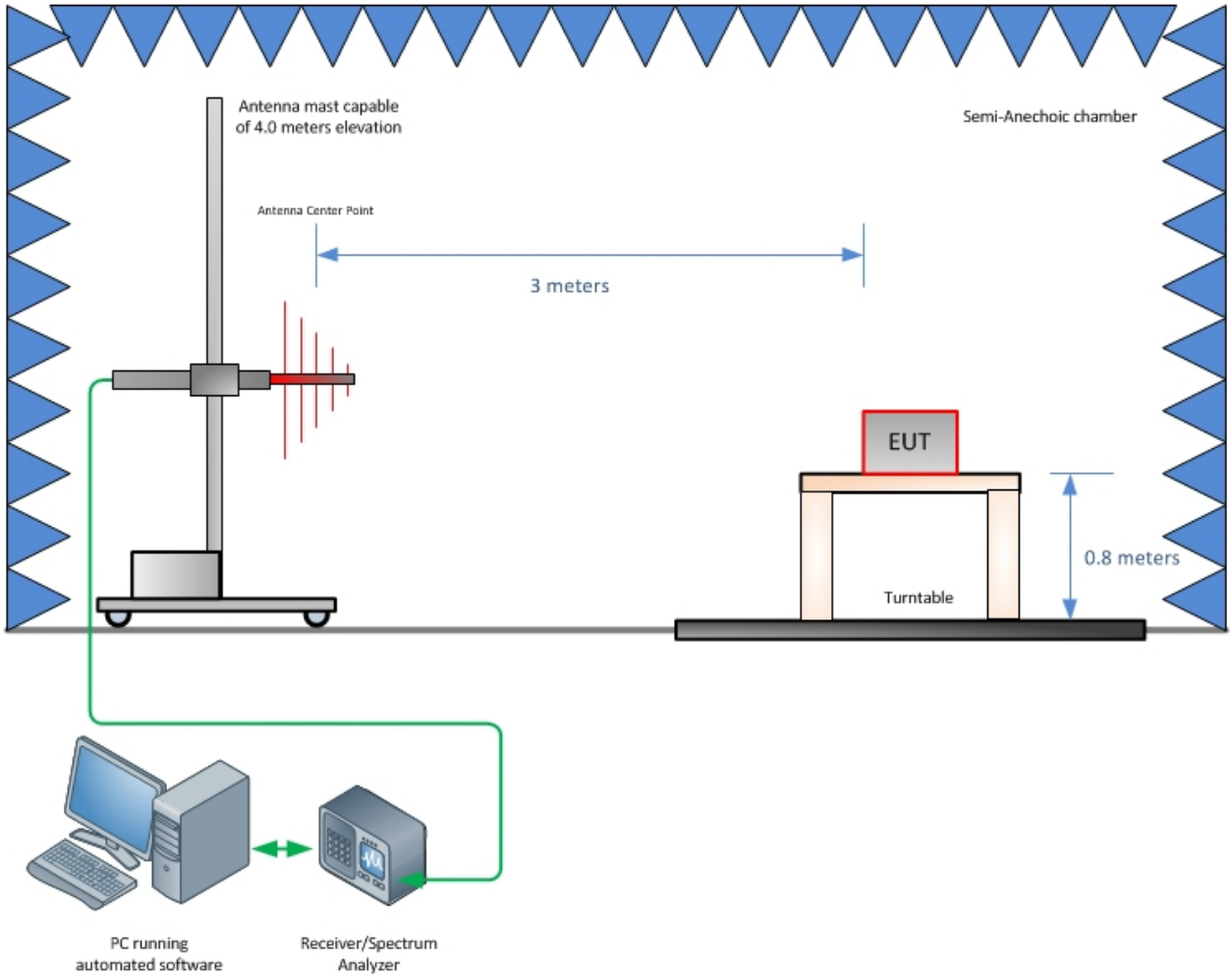
### 3.2.2 Radiated Emission Measurements (Above 1GHz)

| | 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 | 0.30 dB | Normal, k=2 | 2.000 | 0.15 | 0.02 |
| 3 | Preamplifier Gain | 0.20 dB | Normal, k=2 | 2.000 | 0.10 | 0.01 |
| 4 | Antenna factor AF | 0.37 dB | Normal, k=2 | 2.000 | 0.19 | 0.03 |
| 5 | Sinewave accuracy | 0.57 dB | Normal, k=2 | 2.000 | 0.29 | 0.08 |
| 6 | Instability of preamp gain | 1.21 dB | Rectangular | 1.732 | 0.70 | 0.49 |
| 7 | Noise floor proximity | 0.70 dB | Rectangular | 1.732 | 0.40 | 0.16 |
| 8 | Mismatch: antenna-preamplifier | 1.41 dB | U-shaped | 1.414 | 1.00 | 0.99 |
| 9 | Mismatch: preamplifier-receiver | 1.30 dB | U-shaped | 1.414 | 0.92 | 0.85 |
| 10 | AF frequency interpolation | 0.30 dB | Rectangular | 1.732 | 0.17 | 0.03 |
| 11 | Directivity difference at 3 m | 1.50 dB | Rectangular | 1.732 | 0.87 | 0.75 |
| 12 | Phase center location at 3 m | 0.30 dB | Rectangular | 1.732 | 0.17 | 0.03 |
| 13 | Cross-polarisation | 0.90 dB | Rectangular | 1.732 | 0.52 | 0.27 |
| 14 | Site imperfections VSWR (Method 2) | 5.30 dB | Triangular | 2.449 | 2.16 | 4.68 |
| 15 | Effect of setup table material | 1.15 dB | Rectangular | 1.732 | 0.66 | 0.44 |
| 16 | Separation distance at 3 m | 0.30 dB | Rectangular | 1.732 | 0.17 | 0.03 |
| 17 | Table height at 3 m | 0.00 dB | Normal, k=2 | 2.000 | 0.00 | 0.00 |
| | Combined standard uncertainty | | Normal | | 2.98 dB | |
| | **Expanded uncertainty** | | **Normal, k=2** | | **5.96 dB** | |

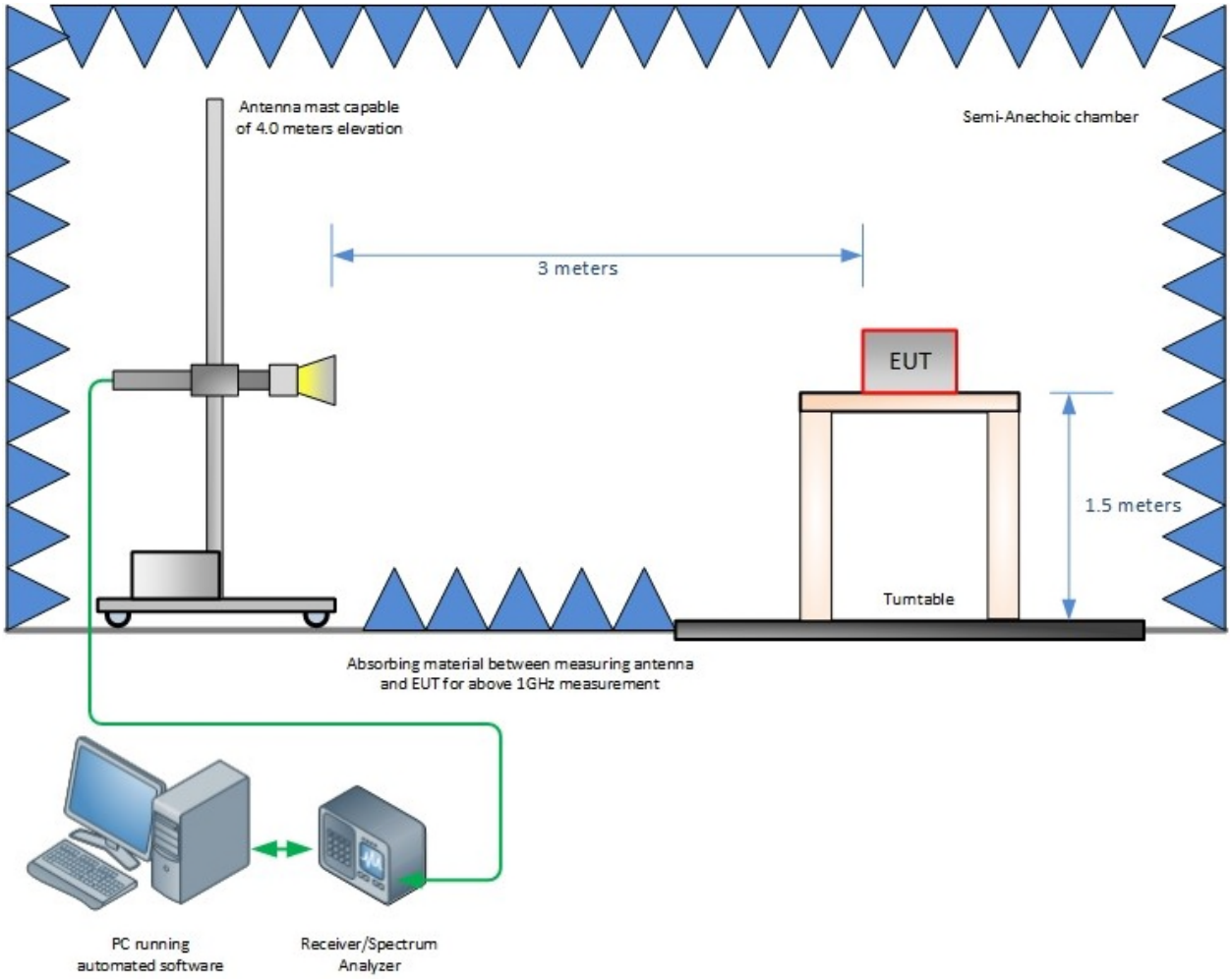
**SECTION 4**

**DIAGRAM OF TEST SETUP**

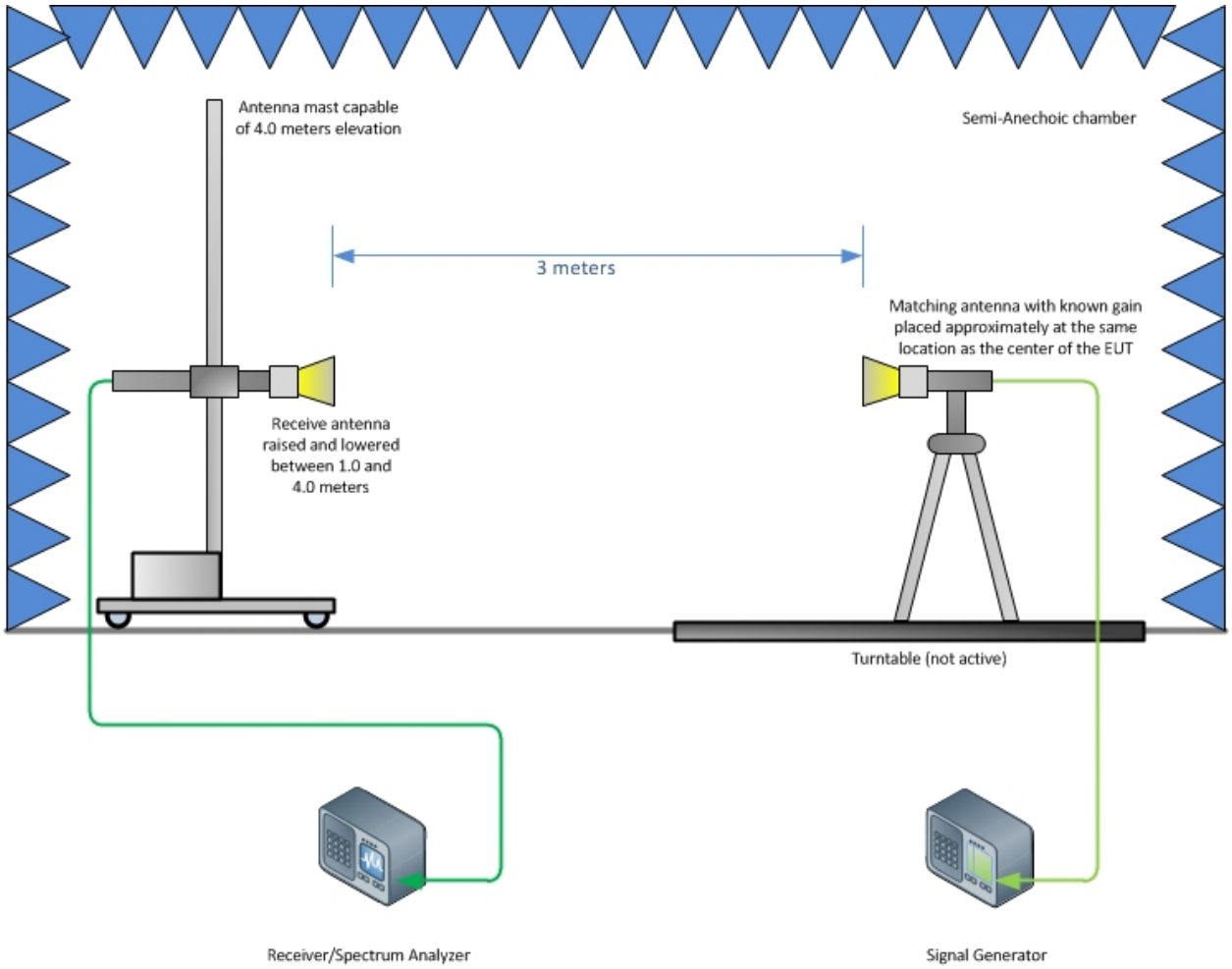
## 4.1 TEST SETUP DIAGRAM




**Radiated Emission Test Setup (Below 1GHz)**




**Radiated Emission Test Setup (Above 1GHz)**




**Substitution Test Method (Above 1GHz)**

**SECTION 5**

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