



# EMI - TEST REPORT

- FCC Part 15.209, RSS-GEN -

**Type / Model Name** : G7117B

**Product Description** : Diode Array Detector

**Applicant** : Agilent Technologies Deutschland GmbH

**Address** : Hewlett-Packard-Strasse 8

76337 Waldbronn, Baden-Württemberg

GERMANY

**Manufacturer** : Agilent Technologies Singapore (International) Pte. Ltd.

**Address** : No. 1 Yishun Ave 7

SINGAPORE 768923

SINGAPORE

|  |                 |
|--|-----------------|
| <b>Test Result</b> according to the standards listed in clause 1 test standards: | <b>POSITIVE</b> |
|--|-----------------|

|   |   |
|---|---|
| <b>Test Report No. :</b> <b>80192413-00 Rev_1</b> | 15. October 2024<br><hr style="border: 0; border-top: 1px solid black;"/> Date of issue |
|---|---|



Deutsche  
Akkreditierungsstelle  
D-PL-12030-01-00

FCC ID: 2BGE529G7117X IC ID: 32551-29G7117X

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# **1 TEST STANDARDS**

The tests were performed according to following standards:

## **FCC Rules and Regulations Part 15, Subpart A - General (January 2024)**

### **FCC Rules and Regulations Part 15, Subpart C - Intentional Radiators (January 2024)**

Part 15, Subpart C, Section 15.207 Conducted limits

Part 15, Subpart C, Section 15.209 Radiated emission limits, general requirements

### **RSS Rules and Regulations**

RSS-Gen, Issue 5, March 2018  
Amendment 1 (March 2019)  
Amendment 2 (February 2021) General Requirements and Information for the Certification of Radiocommunication Equipment

RSS-210, Issue 11, June 2024 Licence-Exempt Radio Apparatus: Category I Equipment

ANSI C63.10: 2013 Testing Unlicensed Wireless Devices

The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

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## **2 EQUIPMENT UNDER TEST**

### **2.1 Information provided by the Client**

Please note, we do not take any responsibility for information provided by the client or his representative which may have an influence on the validity of the test results.

### **2.2 Sampling**

The customer is responsible for the choice of sample. Sample configuration, start-up and operation is carried out by the customer or according his/her instructions.

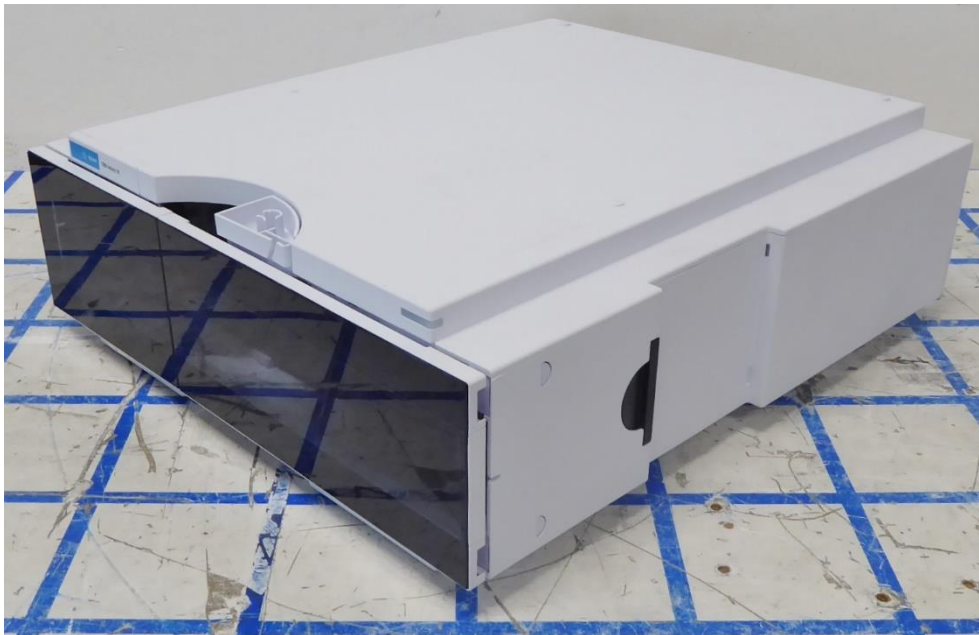
### **2.3 Photo documentation of the EUT**

Detailed photos see ATTACHMENT A and ATTACHMENT C

ATTACHMENT A: External views

ATTACHMENT B: Internal views

ATTACHMENT C: Test setup



### **2.4 Short description of the equipment under test (EUT)**

The EUT is a Diode Array Detector (DAD) used for liquid chromatography systems and offers multiple wavelength and full spectral detection at sampling rates up to 240 Hz.

Two internal 125 kHz antennas are located in the device. The TAG reader reads sequentially each antenna.

Number of tested samples: 1  
 Serial number: DEBAW06283

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## 2.5 Variants of the EUT

According to the customer, there are other variants of this device.  
It is expressly pointed out here, that no measurements have been carried out on these devices!

G7117A Diode Array Detector FS (fixed slit) for liquid chromatography systems offers multiple wavelength and full spectral detection at sampling rates up to 120 Hz.

G7117C Diode Array Detector HS (high sensitivity) for liquid chromatography systems offers multiple wavelength and full spectral detection at sampling rates up to 120 Hz. Without illumination of front.

## 2.6 EUT operation mode

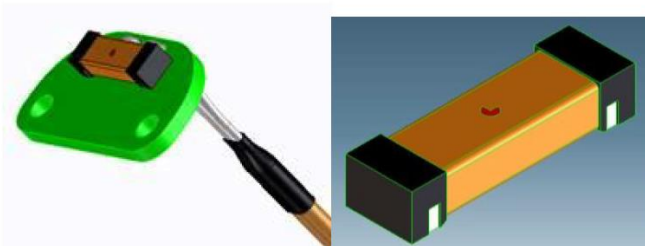
The equipment under test was operated during the measurement under the following conditions:

- Cont. TAG reading at 125 kHz (all antennas are read sequentially)
- 
- 

## 2.7 Antenna

Antenna: 125KHz

Agilent PN 9140-5210: PCB Mountable Part • IND-FXD 900uH 5% 10mA 3.6X11.8mm SMT  
Manufacturer: Premo, SDTR1103-0090J



## 2.8 EUT configuration

The following peripheral devices and interface cables were connected during the measurements:

- 5 Port Gigabit Switch Model : Netgear – GS105 v4
- Measurement Laptop Model : HP – EliteBook 840 (CSA No.:01-01/01-15-019)

## 2.9 Power supply system utilised

Power supply voltage : 100 – 240 V AC, 50 or 60 Hz

All tests were carried out with a supply voltage of 120 V, 60 Hz unless otherwise stated. Exceptions are described in the detailed test conditions.

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### 3 TEST RESULT SUMMARY

| FCC Rule Part | RSS Rule Part              | Description                       | Result |
|---------------|----------------------------|-----------------------------------|--------|
| 15.207        | RSS-Gen, 8.8<br>RSS-210, 7 | AC power line conducted emissions | passed |
| 15.209        | RSS-Gen, 8.9<br>RSS-210, 7 | Field strength of fundamental     | passed |
| 15.209        | RSS-Gen, 8.9<br>RSS-210, 7 | Spurious emissions                | passed |
| 15.215        | RSS-Gen, 6.7<br>RSS-210, 7 | Occupied bandwidth                | passed |

#### 3.1 Revision history of test report

| Test report No | Rev. | Issue Date        | Changes                                    |
|----------------|------|-------------------|--|
| 80192413-00    | 0    | 25 September 2024 | Initial test report                        |
| 80192413-00    | 1    | 15 October 2024   | Changes in point 2.5 (Variants of the EUT) |

The test report with the highest revision number replaces the previous test reports.

#### 3.2 FINAL ASSESSMENT

The equipment under test fulfills the EMI requirements cited in clause 1 test standards.

Date of receipt of test sample : acc. to storage records

Testing commenced on : 07 February 2024

Testing concluded on : 26 February 2024

Checked by:

Tested by:

\_\_\_\_\_  
Klaus Gegenfurtner  
Teamleader Radio

\_\_\_\_\_  
Josef Knab  
Radio Team

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## 4 TEST ENVIRONMENT

### 4.1 Address of the test laboratory

**CSA Group Bayern GmbH  
Ohmstrasse 1-4  
94342 STRASSKIRCHEN  
GERMANY**

### 4.2 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature: 15 - 35 ° C

Humidity: 30 - 60 %

Atmospheric pressure: 86 - 106 kPa

### 4.3 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. It is noted that the expanded measurement uncertainty corresponds to the measurement results from the standard measurement uncertainty multiplied by the coverage factor  $k = 2$ . The true value is located in the corresponding interval with a probability of 95 %. The measurement uncertainty was calculated for all measurements listed in this test report on basis of the ETSI Technical Report TR 100 028 Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 1 and Part 2. The results are documented in the quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

| Measurement Type                | Range                   | Confidence Level (%) | Calculated Uncertainty  |
|---------------------------------|-------------------------|----------------------|-------------------------|
| AC Conducted Spurious Emissions | 0.15 MHz to 30 MHz      | 95%                  | $\pm 3.29$ dB           |
| 20 dB Bandwidth                 | Center frequency of EuT | 95%                  | $\pm 2.5 \cdot 10^{-7}$ |
| 99% Occupied Bandwidth          | Center frequency of EuT | 95%                  | $\pm 2.5 \cdot 10^{-7}$ |
| Radiated Spurious Emissions     | 9 kHz to 30 MHz         | 95%                  | $\pm 3.53$ dB           |
| Radiated Spurious Emissions     | 30 MHz to 1000 MHz      | 95%                  | $\pm 3.71$ dB           |
| Radiated Spurious Emissions     | 1000 MHz to 10000 MHz   | 95%                  | $\pm 2.34$ dB           |
| Peak conducted output power     | 902 MHz to 928 MHz      | 95%                  | $\pm 0.35$ dB           |
| Conducted Spurious Emissions    | 9 kHz to 10000 MHz      | 95%                  | $\pm 2.15$ dB           |

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#### 4.4 Conformity Decision Rule

The applied conformity decision rule is based on ILAC G8:09/2019 clause 4.2.1 Binary Statement for Simple Acceptance Rule ( $w = 0$ ).  
 Details can be found in the procedure CSA\_B\_V50\_29.

#### 4.5 Measurement protocol for FCC and ISED

##### 4.5.1 GENERAL INFORMATION

CSA Group Bayern GmbH is recognized as wireless testing laboratory under the CAB identifier:

**FCC: DE 0011  
 ISED: DE0009**

##### 4.5.2 General Standard information

The test methods used comply with ANSI C63.10 - "Testing Unlicensed Wireless Devices".

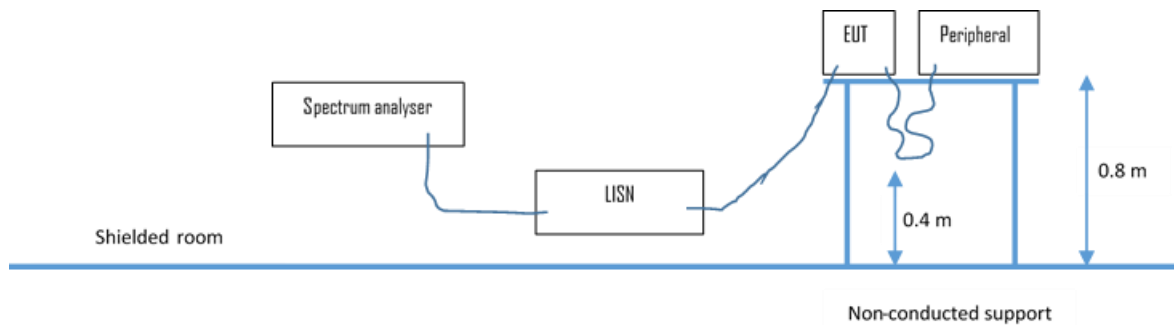
##### 4.5.2.1 Justification

The equipment under test (EUT) is configured in a typical user arrangement in accordance with the manufacturer's instructions.

##### 4.5.3 Details of test procedures

##### 4.5.3.1 Conducted emission

Test setup according ANSI C63.10



The final level, expressed in dB $\mu$ V, is arrived at by taking the reading directly from the Spectrum analyser. This level is compared to the limit.

To convert between dB $\mu$ V and  $\mu$ V, the following conversions apply:

$$\text{dB}\mu\text{V} = 20(\log \mu\text{V})$$

$$\mu\text{V} = \text{Inverse log}(\text{dB}\mu\text{V}/20)$$

Conducted emissions on the 50 Hz and/or 60 Hz power interface of the EUT are measured in the frequency range of 150 kHz to 30 MHz. The measurements are performed using a receiver, which has CISPR characteristic bandwidth and quasi-peak detection and a Line Impedance Stabilization Network (LISN) with 50  $\Omega$  / 50  $\mu$ H (CISPR 16) characteristics. The receiver is protected by means of an impedance matched pulse limiter connected directly to the RF input. Table top equipment is placed on a non-conducting table 80 centimetres above the floor and is positioned 40 centimetres from the vertical ground plane (wall) of the screen room. If the minimum limit margin appears to be less than 20 dB with a peak mode measurement, the emission is re-measured using a tuned receiver with quasi-peak and average detection and recorded on the data sheets.

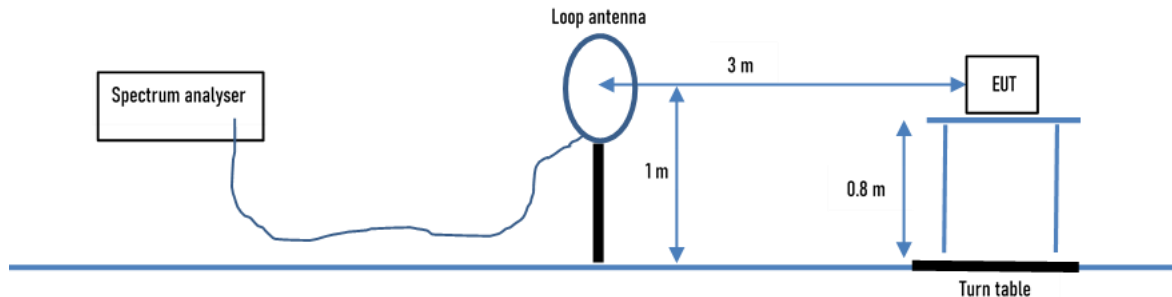


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**4.5.3.2 Radiated emission**

**4.5.3.2.1 OATS1 test site (9 kHz - 30 MHz):**

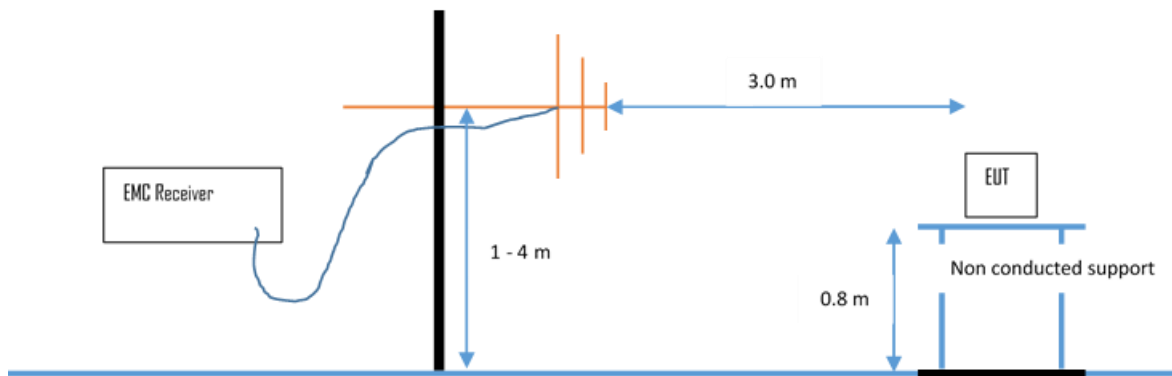
Test setup according ANSI C63.10



Emissions from the EUT are measured in the frequency range of 9 MHz to 30 MHz using a tuned receiver and a calibrated loop antenna. Table top equipment is placed on a 1.0 X 1.5 m non-conducting table 80 centimetres above the ground plane. Cables to simulators/testers (if used in this test) are routed through the center of the table and to a screened room located outside the test area. The antenna is positioned 3, 10 or 30 metres horizontally from the EUT and is repeated vertically. To locate maximum emissions from the test sample the antenna is varied along the site axis and the EUT is rotated 360 degrees.

**4.5.3.2.2 OATS1 test site (30 MHz - 1 GHz):**

Test setup according ANSI C63.10.



Spurious emissions from the EUT are measured in the frequency range of 30 MHz to 1000 MHz using a tuned receiver and appropriate broadband linearly polarised antennas. Measurements between 30 MHz and 1000 MHz are made with 120 kHz/6 dB bandwidth and quasi-peak detection. Table top equipment is placed on a 1.0 X 1.5 m non-conducting table 80 centimetres above the ground plane. Floor standing equipment is placed directly on the turntable/ground plane. Cables to simulators/testers (if used in this test) are routed through the center of the table and to a screened room located outside the test area. To locate maximum emissions from the test sample the antenna is varied in height from 1 to 4 metres and the EUT is rotated 360 degrees. The final level in dBµV/m is calculated by taking the reading from the EMI receiver (Level dBµV) and adding the correction factors and cable loss factor (dB). The FCC limit is subtracted from this result in order to provide the limit margin listed in the measurement protocol.

The resolution bandwidth setting:

30 MHz – 1000 MHz: RBW: 120 kHz

Example:

|                    |                 |   |                |   |                   |   |                   |   |               |
|--------------------|-----------------|---|----------------|---|-------------------|---|-------------------|---|---------------|
| Frequency<br>(MHz) | Level<br>(dBµV) | + | Factor<br>(dB) | = | Level<br>(dBµV/m) | - | Limit<br>(dBµV/m) | = | Delta<br>(dB) |
| 719.0              | 75.0            | + | 32.6           | = | 107.6             | - | 110.0             | = | -2.4          |

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## 5 TEST CONDITIONS AND RESULTS

### 5.1 Conducted emissions

For test instruments and accessories used, see section 6 Part A 4.

#### 5.1.1 Description of the test location

Test location: Shielded Room S2

#### 5.1.2 Photo documentation of the test set-up

See ATTACHMENT C to this test report.

#### 5.1.3 Applicable standard

FCC Part 15, Section 15.207 / RSS-GEN, Section 8.8

#### 5.1.4 Description of Measurement

The radiated power of the spurious emission from the EUT is measured in a test setup following the procedures set out in ANSI C63.10.

#### 5.1.5 Test result

Frequency range: 0.15 MHz - 30 MHz

Min. limit margin 10.2 dB at 204 kHz

Limit according to FCC Part 15, Section 15.207:

Limit according to RSS-GEN, Section 8.8:

| Frequency of Emission (MHz) | Conducted Limit (dBµV) |            |
|-----------------------------|------------------------|------------|
|                             | Quasi-peak             | Average    |
| 0.15-0.5                    | 66 to 56 *             | 56 to 46 * |
| 0.5-5                       | 56                     | 46         |
| 5-30                        | 60                     | 50         |

\* Decreases with the logarithm of the frequency

The requirements are **FULFILLED**.

**Remarks:** For detailed results, please see the following page(s).

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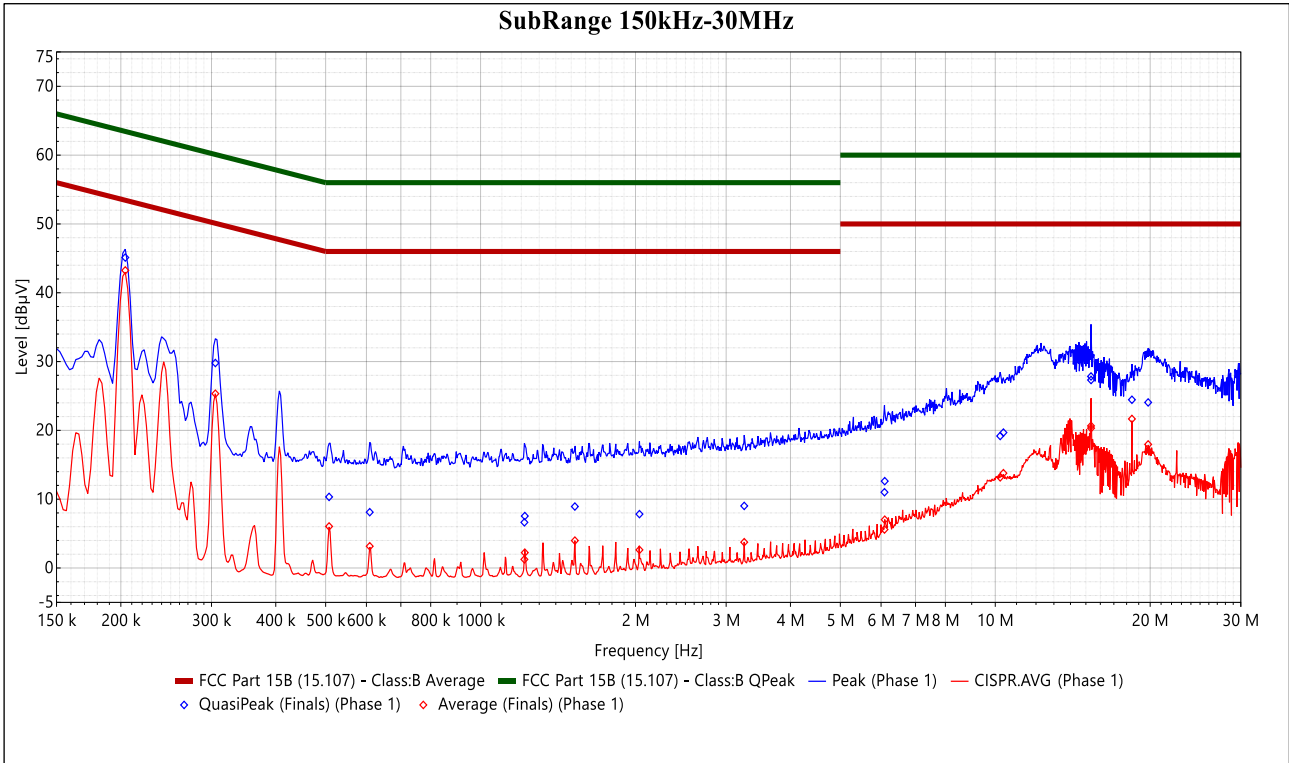
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The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

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5.1.6 Test protocol

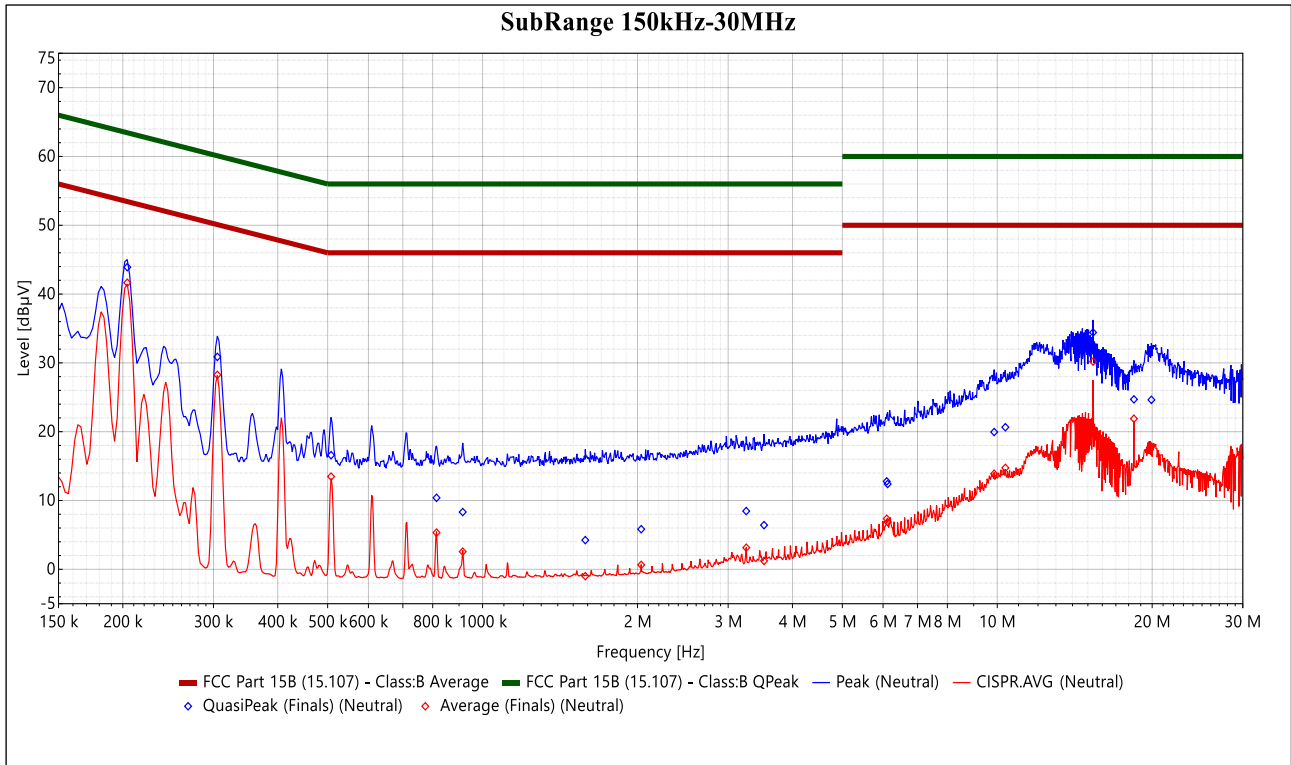
|                        |                              |                       |                     |
|------------------------|------------------------------|-----------------------|---------------------|
| <b>File No.:</b>       | 80192413-00 Rev_1            | <b>Result:</b>        | <b>PASS</b>         |
| <b>Operation mode:</b> | Cont. TAG reading at 125 kHz |                       |                     |
| <b>Tested by:</b>      | KJ                           | <b>Nexio Version:</b> | 2022.0.32.0         |
| <b>Location:</b>       | S2                           | <b>Date:</b>          | 07.02.2024 14:44:03 |
| <b>Remarks:</b>        | Test point L1                |                       |                     |



| Frequency (Hz) | QuasiPeak (dBµV) | QP Margin | QP Limit (dBµV) | Average (dBµV) | AV Margin | AV Limit (dBµV) | Line    | Correction (dB) |
|----------------|------------------|-----------|-----------------|----------------|-----------|-----------------|---------|-----------------|
| 204 k          | 45.121           | 18.325    | 63.446          | 43.254         | 10.192    | 53.446          | Phase 1 | 10.1            |
| 305.25 k       | 29.792           | 30.307    | 60.099          | 25.327         | 24.771    | 50.099          | Phase 1 | 10.13           |
| 507.75 k       | 10.325           | 45.675    | 56              | 6.036          | 39.964    | 46              | Phase 1 | 10.17           |
| 609 k          | 8.11             | 47.89     | 56              | 3.162          | 42.838    | 46              | Phase 1 | 10.177          |
| 1.2165 M       | 6.628            | 49.372    | 56              | 1.252          | 44.748    | 46              | Phase 1 | 10.212          |
| 1.21875 M      | 7.551            | 48.449    | 56              | 2.235          | 43.765    | 46              | Phase 1 | 10.212          |
| 1.52475 M      | 8.932            | 47.068    | 56              | 3.976          | 42.024    | 46              | Phase 1 | 10.244          |
| 2.0355 M       | 7.828            | 48.172    | 56              | 2.631          | 43.369    | 46              | Phase 1 | 10.25           |
| 3.25275 M      | 9.024            | 46.976    | 56              | 3.751          | 42.249    | 46              | Phase 1 | 10.321          |
| 6.09225 M      | 11.006           | 48.994    | 60              | 5.591          | 44.409    | 50              | Phase 1 | 10.481          |
| 6.099 M        | 12.616           | 47.384    | 60              | 7.018          | 42.982    | 50              | Phase 1 | 10.482          |
| 10.22325 M     | 19.177           | 40.823    | 60              | 13.172         | 36.828    | 50              | Phase 1 | 10.578          |
| 10.37175 M     | 19.683           | 40.317    | 60              | 13.781         | 36.219    | 50              | Phase 1 | 10.592          |
| 15.34875 M     | 27.842           | 32.158    | 60              | 20.652         | 29.348    | 50              | Phase 1 | 10.848          |
| 15.351 M       | 27.315           | 32.685    | 60              | 20.322         | 29.678    | 50              | Phase 1 | 10.848          |
| 18.43125 M     | 24.45            | 35.55     | 60              | 21.663         | 28.337    | 50              | Phase 1 | 10.915          |
| 19.8195 M      | 24.06            | 35.94     | 60              | 17.957         | 32.043    | 50              | Phase 1 | 10.942          |

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|                        |                              |                       |                     |
|------------------------|------------------------------|-----------------------|---------------------|
| <b>File No.:</b>       | 80192413-00 Rev_1            | <b>Result:</b>        | <b>PASS</b>         |
| <b>Operation mode:</b> | Cont. TAG reading at 125 kHz |                       |                     |
| <b>Tested by:</b>      | KJ                           | <b>Nexio Version:</b> | 2022.0.32.0         |
| <b>Location:</b>       | S2                           | <b>Date:</b>          | 07.02.2024 13:41:58 |
| <b>Remarks:</b>        | Test point N                 |                       |                     |



| Frequency (Hz) | QuasiPeak (dBµV) | QP Margin | QP Limit (dBµV) | Average (dBµV) | AV Margin | AV Limit (dBµV) | Line    | Correction (dB) |
|----------------|------------------|-----------|-----------------|----------------|-----------|-----------------|---------|-----------------|
| 204 k          | 43.911           | 19.535    | 63.446          | 41.648         | 11.798    | 53.446          | Neutral | 10.146          |
| 305.25 k       | 30.868           | 29.231    | 60.099          | 28.262         | 21.837    | 50.099          | Neutral | 10.169          |
| 507.75 k       | 16.595           | 39.405    | 56              | 13.474         | 32.526    | 46              | Neutral | 10.17           |
| 813.75 k       | 10.387           | 45.613    | 56              | 5.326          | 40.674    | 46              | Neutral | 10.208          |
| 915 k          | 8.324            | 47.676    | 56              | 2.569          | 43.431    | 46              | Neutral | 10.219          |
| 1.58325 M      | 4.24             | 51.76     | 56              | -1.001         | 47.001    | 46              | Neutral | 10.288          |
| 2.03325 M      | 5.827            | 50.173    | 56              | 0.641          | 45.359    | 46              | Neutral | 10.285          |
| 3.25275 M      | 8.457            | 47.543    | 56              | 3.138          | 42.862    | 46              | Neutral | 10.341          |
| 3.52275 M      | 6.416            | 49.584    | 56              | 1.223          | 44.777    | 46              | Neutral | 10.343          |
| 6.099 M        | 12.784           | 47.216    | 60              | 7.351          | 42.649    | 50              | Neutral | 10.507          |
| 6.12375 M      | 12.401           | 47.599    | 60              | 6.868          | 43.132    | 50              | Neutral | 10.51           |
| 9.86325 M      | 19.949           | 40.051    | 60              | 13.887         | 36.113    | 50              | Neutral | 10.589          |
| 10.3695 M      | 20.649           | 39.351    | 60              | 14.745         | 35.255    | 50              | Neutral | 10.616          |
| 15.351 M       | 34.415           | 25.585    | 60              | 30.185         | 19.815    | 50              | Neutral | 10.902          |
| 18.43125 M     | 24.703           | 35.297    | 60              | 21.889         | 28.111    | 50              | Neutral | 10.959          |
| 19.932 M       | 24.625           | 35.375    | 60              | 17.826         | 32.174    | 50              | Neutral | 11.071          |

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## 5.2 Field strength of the fundamental wave

For test instruments and accessories used see section 6 Part CPR 1.

### 5.2.1 Description of the test location

Test location: OATS 1  
 Test distance: 3 m

### 5.2.2 Photo documentation of the test set-up

See ATTACHMENT C to this test report.

### 5.2.3 Applicable standard

FCC Part 15, Section 15.209(a) / RSS-GEN, Section 8.9

### 5.2.4 Description of Measurement

The radiated power of the spurious emission from the EUT is measured in a test setup following the procedures set out in ANSI C63.10.

### 5.2.5 Test result accd. to FCC

- a) Result at a measurement distance of 3 m

| Frequency (kHz) | Level (dB $\mu$ V) | Ant. factor (dB 1/m) | Field strength dB( $\mu$ V/m) |
|-----------------|--------------------|----------------------|-------------------------------|
| 125.00          | 39.2               | 18.0                 | 57.2                          |

- b) Result extrapolated to a distance of 300 m

| Frequency (kHz) | Field strength dB( $\mu$ V/m) @3m | Extrapolation factor (dB) | Field strength dB( $\mu$ V/m) @300m | Limit dB( $\mu$ V/m) | Delta (dB) |
|-----------------|-----------------------------------|---------------------------|-------------------------------------|----------------------|------------|
| 125.00          | 57.2                              | -80.0                     | -22.8                               | 25.7                 | -48.5      |

Limit according to FCC Part 15, Section 15.209(a):

| Frequency (kHz) | Field strength of fundamental wave ( $\mu$ V/m) | Field strength of fundamental wave dB( $\mu$ V/m) | Measurement distance (metres) |
|-----------------|---|---|-------------------------------|
| 125             | 19.2  | 25.7  | 300                           |

The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

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**5.2.6 Test result accd. to RSS**

a) Result at a measurement distance of 3 m

| Frequency (kHz) | Level (dBµA) | Ant. factor (dB 1/m) | Field strength dB(µA/m) |
|-----------------|--------------|----------------------|-------------------------|
| 125.00          | -12.3        | 18.0                 | 5.7                     |

b) Result extrapolated to a distance of 300 m

| Frequency (kHz) | Field strength dB(µA/m) @3m | Extrapolation factor (dB) | Field strength dB(µA/m) @300m | Limit dB(µA/m) | Delta (dB) |
|-----------------|-----------------------------|---------------------------|-------------------------------|----------------|------------|
| 125.00          | 5.7                         | -80.0                     | -74.3                         | -25.9          | -48.4      |

Limit according to RSS-GEN, Section 8.9:

| Frequency (kHz) | Field strength of fundamental wave (µA/m) | dB(µA/m) | Measurement distance (metres) |
|-----------------|---|----------|-------------------------------|
| 125             | 0.05096                                   | -25.9    | 300                           |

The requirements are **FULFILLED**.

**Remarks:** The measurements were carried out with a PK detector because the EuT operate over several antennas at different times.

The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

FCC ID: 2BGE529G7117X IC ID: 32551-29G7117X

### 5.3 Spurious emissions

For test instruments and accessories used see section 6 Part SER 1, SER 2.

#### 5.3.1 Description of the test location

Test location: OATS 1  
Test distance: 3 metres

#### 5.3.2 Photo documentation of the test set-up

See ATTACHMENT C to this test report.

#### 5.3.3 Applicable standard

FCC Part 15, Section 15.209 / RSS-GEN, Section 8.9

#### 5.3.4 Description of Measurement

The radiated power of the spurious emission from the EUT is measured in a test setup following the procedures set out in ANSI C63.10.

The resolution bandwidth during the measurement is as follows:

9 kHz – 150 kHz: RBW: 200 Hz

150 kHz – 30 MHz: RBW: 9 kHz

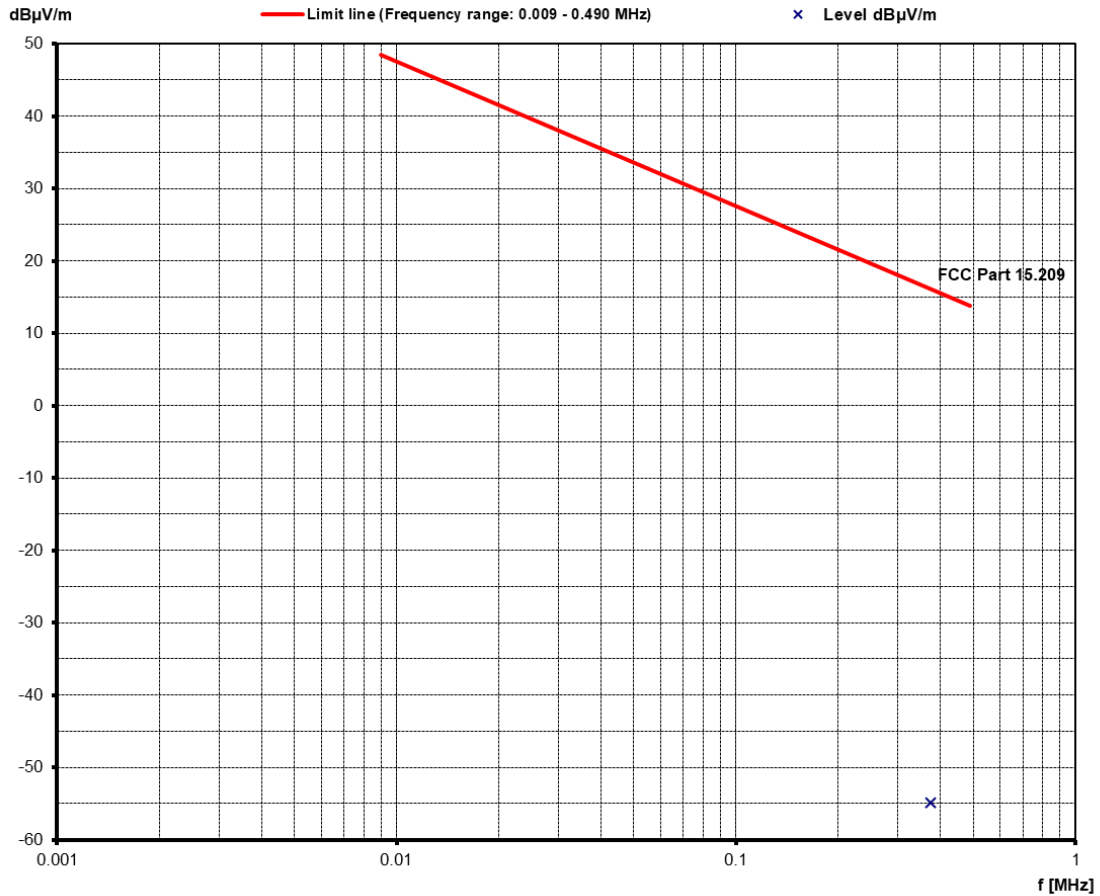
30 MHz – 1000 MHz: RBW: 120 kHz

Detector: QP (In frequency range 9-90 kHz and 110-490 kHz a linear average detector is used)

FCC ID: 2BGE529G7117X IC ID: 32551-29G7117X

5.3.5 Test result < 30MHz accd. to FCC

| Frequency (kHz) | Level @3m (dBµV) | Ant. factor (dB 1/m) | Field strength @3m dB(µV/m) | Extrapolation factor @300m (dB) | Field strength level @300m dB(µV/m) | Limit dB(µV/m) | Delta (dB) |
|-----------------|------------------|----------------------|-----------------------------|---------------------------------|-------------------------------------|----------------|------------|
| 375.00          | 8.2              | 16.9                 | 25.1                        | -80.0                           | -54.9                               | 16.1           | -71.0      |



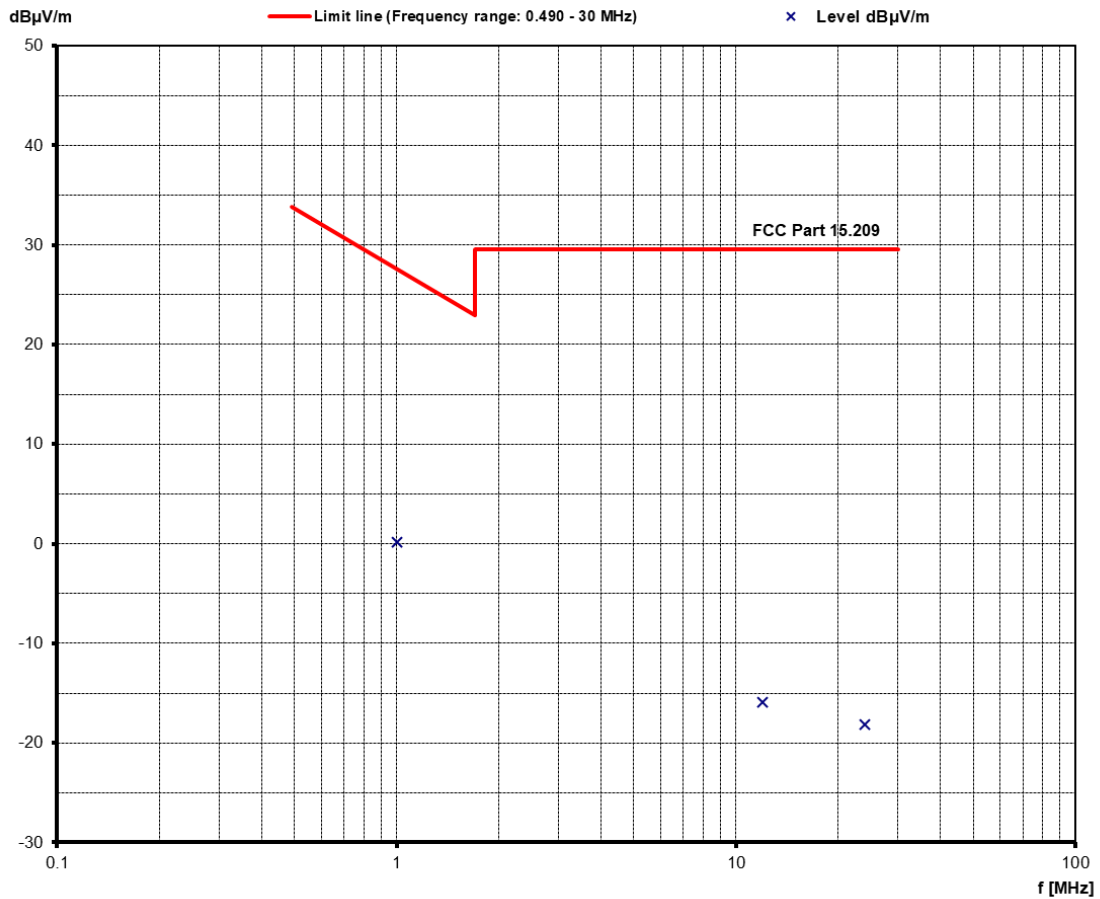
The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.



**FCC ID: 2BGE529G7117X IC ID: 32551-29G7117X**

| Frequency (kHz) | Level @3m (dBµV) | Ant. factor (dB 1/m) | Field strength @3m dB(µV/m) | Extrapolation factor @30m (dB) | Field strength level @30m dB(µV/m) | Limit dB(µV/m) | Delta (dB) |
|-----------------|------------------|----------------------|-----------------------------|--------------------------------|------------------------------------|----------------|------------|
| 1000*           | 22.0             | 18.2                 | 40.2                        | -40.0                          | 0.2                                | 27.6           | -27.4      |
| 12000*          | 6.5              | 17.6                 | 24.1                        | -40.0                          | -15.9                              | 29.5           | -45.4      |
| 24000*          | 3.8              | 18.0                 | 21.8                        | -40.0                          | -18.2                              | 29.5           | -47.7      |

Note: \*) Ambient noise, no other spurious emissions could be detected

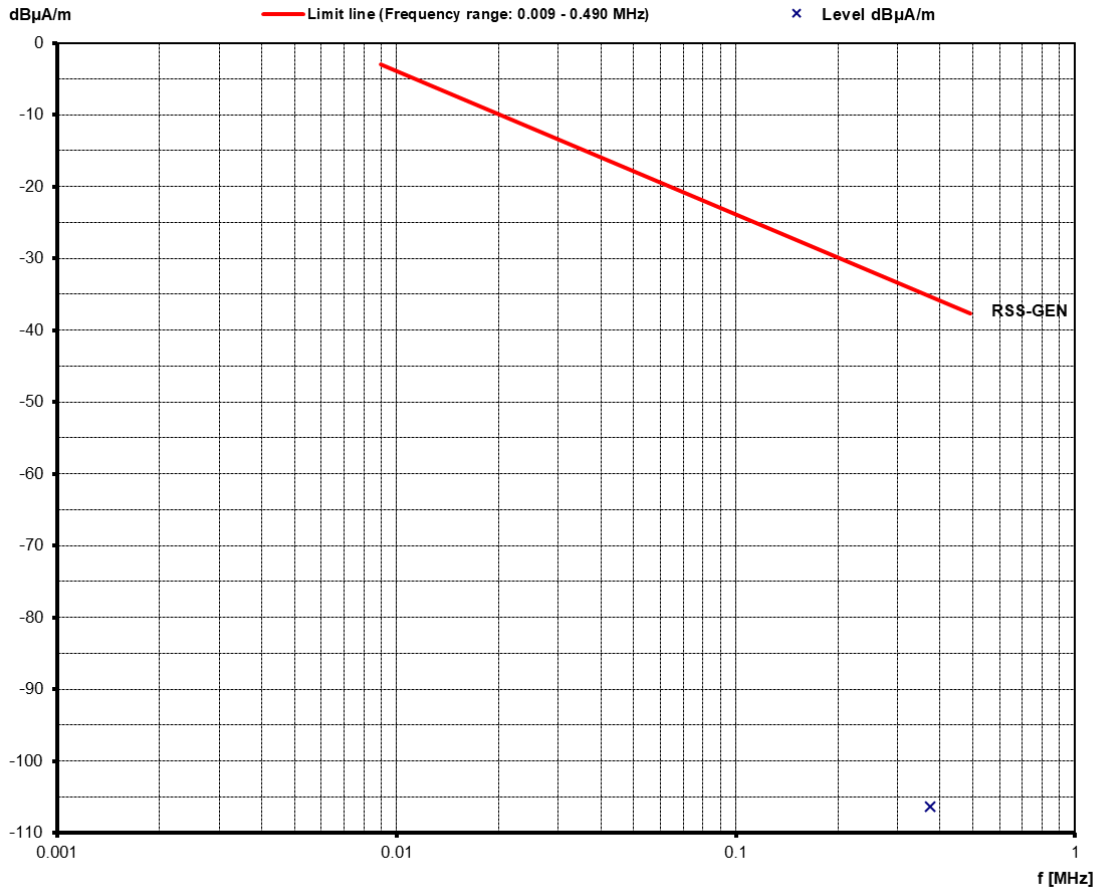


The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

FCC ID: 2BGE529G7117X IC ID: 32551-29G7117X

5.3.6 Test result < 30MHz accd. to RSS

| Frequency (kHz) | Level @3m (dBμA) | Ant. factor (dB 1/m) | Field strength @3m dB(μA/m) | Extrapolation factor @300m (dB) | Field strength level @300m dB(μA/m) | Limit dB(μA/m) | Delta (dB) |
|-----------------|------------------|----------------------|-----------------------------|---------------------------------|-------------------------------------|----------------|------------|
| 375.00          | -43.3            | 16.9                 | -26.4                       | -80.0                           | -106.4                              | -35.4          | -71.0      |

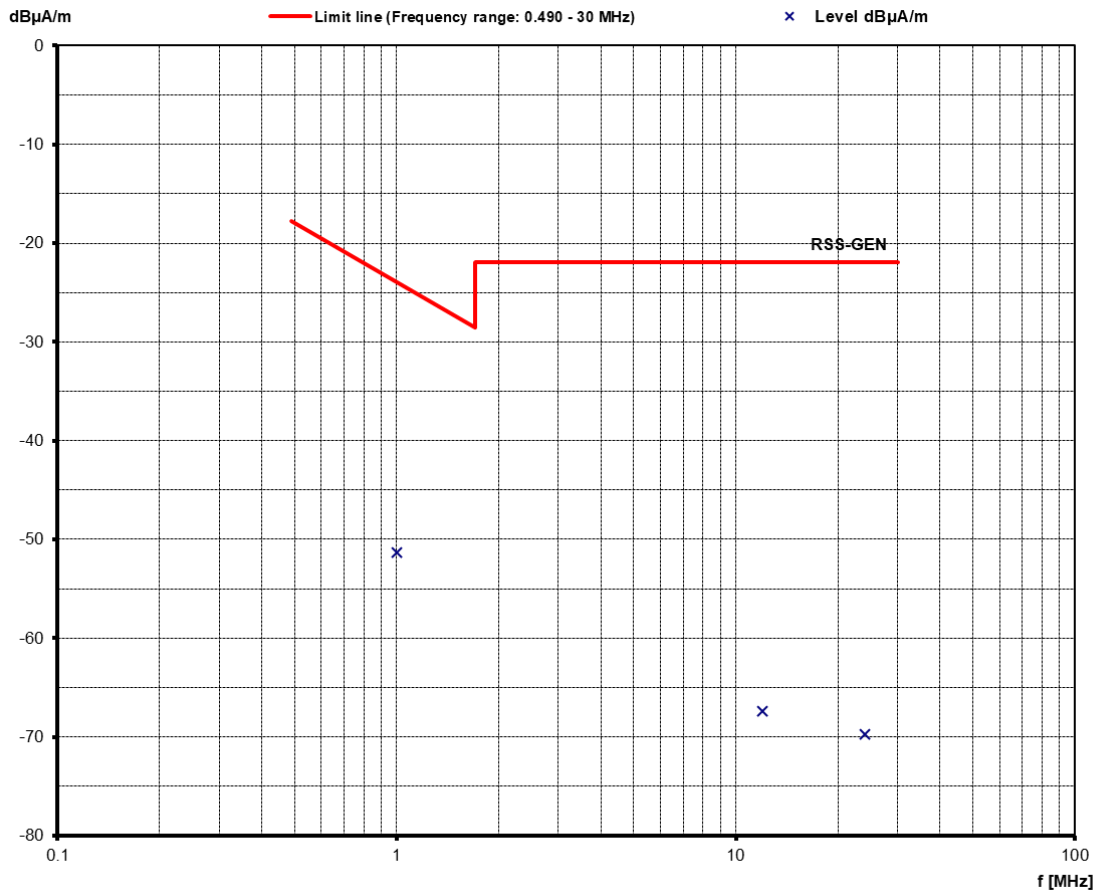


The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

**FCC ID: 2BGE529G7117X IC ID: 32551-29G7117X**

| Frequency (kHz) | Level @3m (dBµA) | Ant. factor (dB 1/m) | Field strength @3m dB(µA/m) | Extrapolation factor @30m (dB) | Field strength level @30m dB(µA/m) | Limit dB(µA/m) | Delta (dB) |
|-----------------|------------------|----------------------|-----------------------------|--------------------------------|------------------------------------|----------------|------------|
| 1000*           | -29.5            | 18.2                 | -11.3                       | -40.0                          | -51.3                              | -23.9          | -27.4      |
| 12000*          | -45.0            | 17.6                 | -27.4                       | -40.0                          | -67.4                              | -21.9          | -45.5      |
| 24000*          | -47.7            | 18.0                 | -29.7                       | -40.0                          | -69.7                              | -21.9          | -47.8      |

Note: \*) Ambient noise, no other spurious emissions could be detected.



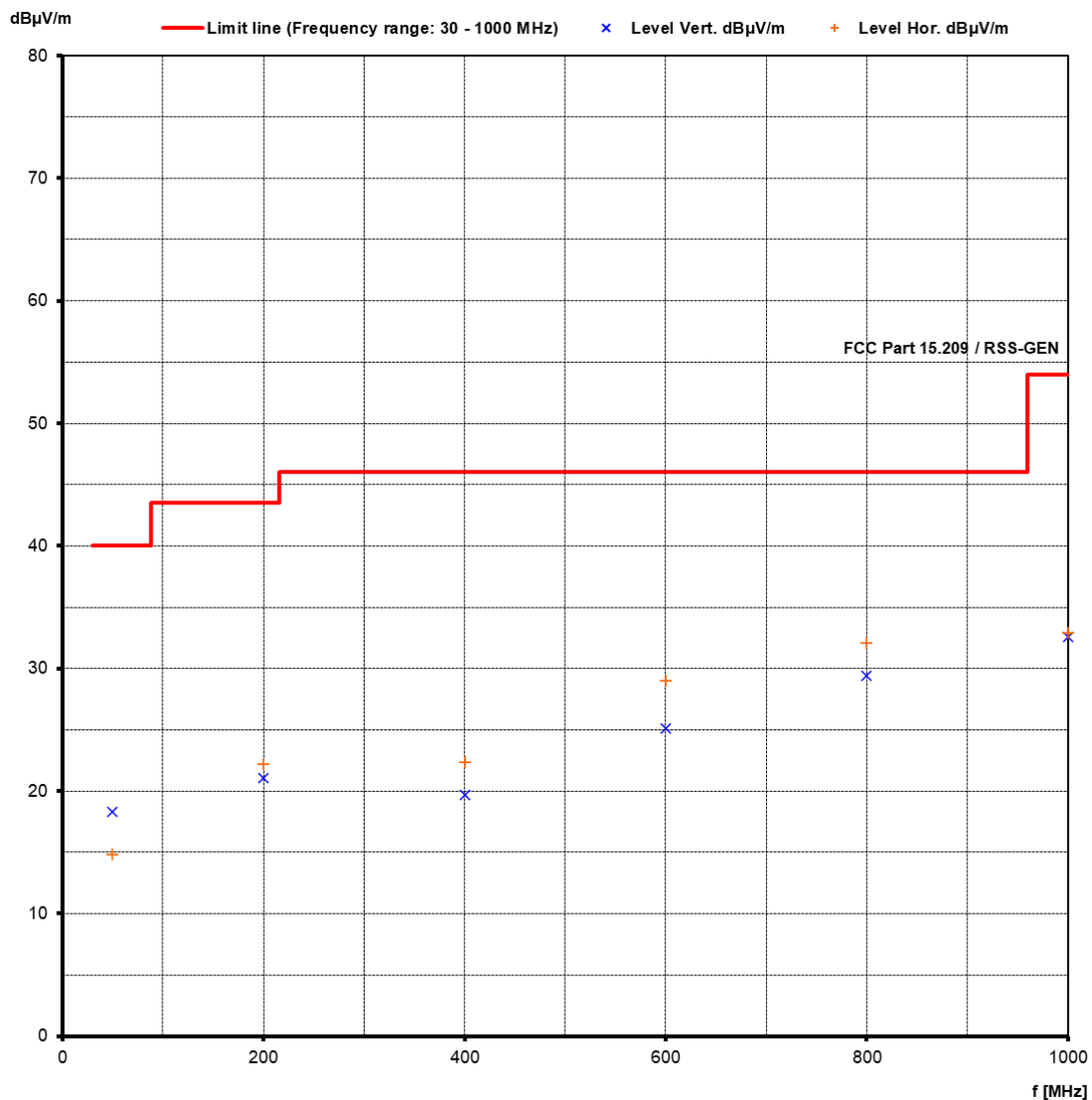
The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

FCC ID: 2BGE529G7117X IC ID: 32551-29G7117X

5.3.7 Test result 30 MHz < f < 1 GHz

| Frequency (MHz) | Reading Vert. (dBµV) | Reading Hor. (dBµV) | Correct. Vert. (dB) | Correct. Hor. (dB) | Level Vert. (dBµV/m) | Level Hor. (dBµV/m) | Limit (dBµV/m) | Dlimit (dB) |
|-----------------|----------------------|---------------------|---------------------|--------------------|----------------------|---------------------|----------------|-------------|
| 50*             | 0.7                  | -4.0                | 17.6                | 18.8               | 18.3                 | 14.8                | 40.0           | -21.7       |
| 200*            | 4.1                  | 5.7                 | 17.0                | 16.5               | 21.1                 | 22.2                | 43.5           | -21.3       |
| 400*            | -3.6                 | -1.2                | 23.3                | 23.6               | 19.7                 | 22.4                | 46.0           | -23.6       |
| 600*            | -3.2                 | 0.4                 | 28.3                | 28.6               | 25.1                 | 29.0                | 46.0           | -17.0       |
| 800*            | -2.2                 | 0.2                 | 31.6                | 31.9               | 29.4                 | 32.1                | 46.0           | -13.9       |
| 1000*           | -1.4                 | -1.5                | 34.0                | 34.4               | 32.6                 | 32.9                | 54.0           | -21.1       |

Note: The correction factor includes cable loss and antenna factor.  
 Note: \*) Ambient noise, no other spurious emissions could be detected.



The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

**FCC ID: 2BGE529G7117X IC ID: 32551-29G7117X**

Limit according to FCC Part 15, Section 15.209(a)

| Frequency<br>(MHz) | Field strength of spurious emissions |                | Measurement distance<br>(metres) |
|--------------------|--------------------------------------|----------------|----------------------------------|
|                    | ( $\mu$ V/m)                         | dB( $\mu$ V/m) |                                  |
| 0.009 - 0.490      | 2400/F(kHz)                          | --             | 300                              |
| 0.490 - 1.705      | 24000/F (kHz)                        | --             | 30                               |
| 1.705 - 30.0       | 30                                   | 29.5           | 30                               |
| 30 - 88            | 100                                  | 40             | 3                                |
| 88 - 216           | 150                                  | 43.5           | 3                                |
| 216 - 960          | 200                                  | 46             | 3                                |
| Above 960          | 500                                  | 54             | 3                                |

Limit according to RSS-Gen, Section 8.9

| Frequency<br>(MHz) | Field strength of spurious emissions |                | Measurement distance<br>(metres) |
|--------------------|--------------------------------------|----------------|----------------------------------|
|                    | ( $\mu$ A/m)                         | dB( $\mu$ A/m) |                                  |
| 0.009 - 0.490      | 6.37/F(kHz)                          | --             | 300 (Note 1)                     |
| 0.490 - 1.705      | 63.7/F (kHz)                         | --             | 30                               |
| 1.705 - 30.0       | 0.08                                 | -22            | 30                               |
| Frequency<br>(MHz) | Field strength of spurious emissions |                | Measurement distance<br>(metres) |
|                    | ( $\mu$ V/m)                         | dB( $\mu$ V/m) |                                  |
| 30 - 88            | 100                                  | 40             | 3                                |
| 88 - 216           | 150                                  | 43.5           | 3                                |
| 216 - 960          | 200                                  | 46             | 3                                |
| Above 960          | 500                                  | 54             | 3                                |

Note 1: The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.

The requirements are **FULFILLED**.

**Remarks:** Measurement has been performed up to 1000 MHz.  
The measurements were carried out with a PK detector because the EuT operate over several  
antennas at different times.

The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

FCC ID: 2BGE529G7117X IC ID: 32551-29G7117X

## 5.4 Bandwidth

For test instruments and accessories used see section 6 Part MB.

### 5.4.1 Description of the test location

Test location: AREA4

### 5.4.2 Photo documentation of the test set-up

See ATTACHMENT C to this test report.

### 5.4.3 Applicable standard

According to FCC Part 15, Section 15.215(c) / RSS-GEN, Section 6.7

### 5.4.4 Test result

| Measured Bandwidth | result (kHz) | Limit (kHz) |
|--------------------|--------------|-------------|
| 20dB               | 11.185       | --          |
| 99%                | 22.707       | --          |

The requirements are **FULFILLED**.

**Remarks:** For detailed test result please refer to following test protocol.

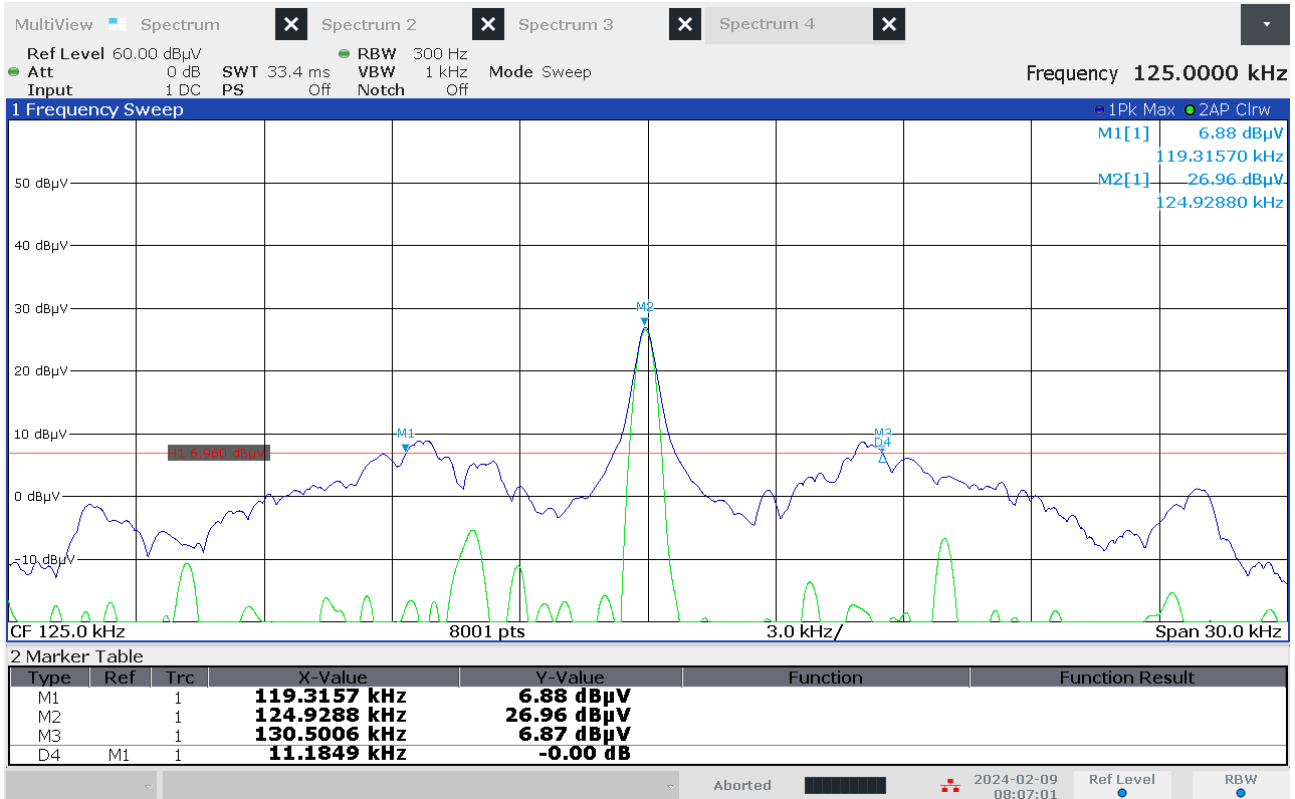
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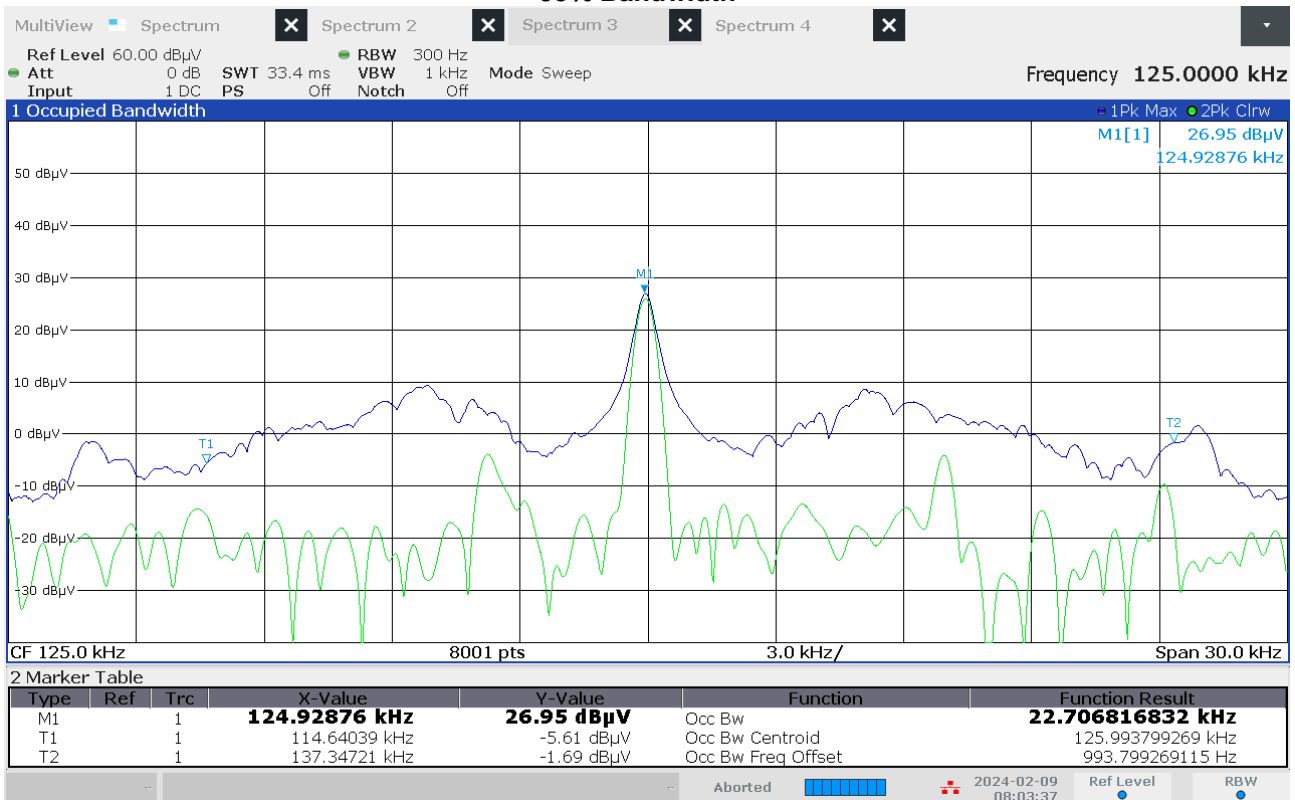
FCC ID: 2BGE529G7117X IC ID: 32551-29G7117X

5.4.5 Test protocol

20 dB bandwidth



99% Bandwidth



FCC ID: 2BGE529G7117X IC ID: 32551-29G7117X

## 6 USED TEST EQUIPMENT AND ACCESSORIES

All test instruments used are calibrated and verified regularly. The calibration history is available on request.  
All listed measuring devices were calibrated at the time of use.

| Test ID | Model Type             | Equipment No.   | Next Calib. | Last Calib. | Next Verif. | Last Verif. |
|---------|------------------------|-----------------|-------------|-------------|-------------|-------------|
| A 4     | BAT-EMC 2023.0.8.0     | 01-02/68-13-001 |             |             |             |             |
|         | ESR 7                  | 02-02/03-17-001 | 01/08/2024  | 01/08/2023  |             |             |
|         | ESH 2 - Z 5            | 02-02/20-05-004 | 13/10/2025  | 13/10/2022  | 17/04/2024  | 17/04/2023  |
|         | N-4000-BNC             | 02-02/50-05-138 |             |             |             |             |
|         | ESH 3 - Z 2            | 02-02/50-05-155 | 09/11/2025  | 09/11/2022  | 25/07/2024  | 25/07/2023  |
|         | 6430                   | 02-02/50-13-014 |             |             |             |             |
| CPR 1   | ESW26                  | 02-02/03-17-002 | 08/03/2024  | 08/03/2023  |             |             |
|         | HFH 2 - Z 2            | 02-02/24-05-020 | 01/06/2025  | 01/06/2022  | 05/09/2024  | 05/09/2023  |
|         | KK-EF393-21N-16        | 02-02/50-05-033 |             |             |             |             |
|         | NW-2000-NB             | 02-02/50-05-113 |             |             |             |             |
|         | KK-EF393/U-16N-21N20 m | 02-02/50-12-018 |             |             |             |             |
|         | KK-SD_7/8-2X21N-33,0M  | 02-02/50-15-028 |             |             |             |             |
| MB      | METRAHIT WORLD         | 02-02/32-15-001 | 22/11/2024  | 22/11/2023  |             |             |
|         | WK-340/40              | 02-02/45-05-001 | 27/07/2024  | 27/07/2023  |             |             |
|         | Type 5315.5            | 02-02/50-05-197 |             |             |             |             |
|         | 7405                   | 02-02/50-05-235 |             |             |             |             |
|         | ESW44                  | 09-16/03-24-001 | 21/11/2024  | 21/11/2023  |             |             |
| SER 1   | ESW26                  | 02-02/03-17-002 | 08/03/2024  | 08/03/2023  |             |             |
|         | HFH 2 - Z 2            | 02-02/24-05-020 | 01/06/2025  | 01/06/2022  | 05/09/2024  | 05/09/2023  |
|         | KK-EF393-21N-16        | 02-02/50-05-033 |             |             |             |             |
|         | NW-2000-NB             | 02-02/50-05-113 |             |             |             |             |
|         | KK-EF393/U-16N-21N20 m | 02-02/50-12-018 |             |             |             |             |
|         | KK-SD_7/8-2X21N-33,0M  | 02-02/50-15-028 |             |             |             |             |
| SER 2   | ESVS 30                | 02-02/03-05-006 | 27/07/2024  | 27/07/2023  |             |             |
|         | ESW26                  | 02-02/03-17-002 | 08/03/2024  | 08/03/2023  |             |             |
|         | VULB 9168              | 02-02/24-05-005 | 20/04/2024  | 20/04/2023  | 03/05/2024  | 03/05/2023  |
|         | NW-2000-NB             | 02-02/50-05-113 |             |             |             |             |
|         | KK-EF393/U-16N-21N20 m | 02-02/50-12-018 |             |             |             |             |
|         | KK-SD_7/8-2X21N-33,0M  | 02-02/50-15-028 |             |             |             |             |
|         | 50F-003 N 3 dB         | 02-02/50-21-010 |             |             |             |             |

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