



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

Test Result according to the standards
listed in clause 1 test standards:

POSITIVE

Test Report No. : 80192413-00 Rev_1

15. October 2024

Date of issue



Deutsche
Akkreditierungsstelle
D-PL-12030-01-00

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

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ATTACHMENT A to ATTACHMENT C as separate supplement

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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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 General Requirements and Information for the Certification of
Amendment 1 (March 2019) Radiocommunication Equipment
Amendment 2 (February 2021)

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

ANSI C63.10: 2013 Testing Unlicensed Wireless Devices

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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:

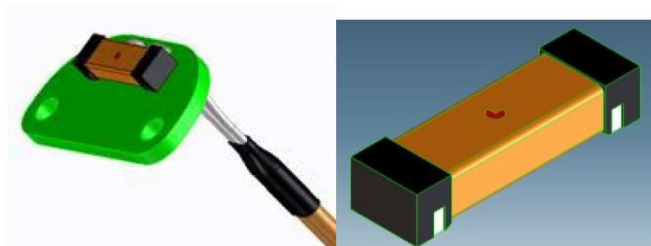
- Cont. TAG reading at 125 kHz (all antennas are read sequentially)

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:

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

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 RSS-210, 7	AC power line conducted emissions	passed
15.209	RSS-Gen, 8.9 RSS-210, 7	Field strength of fundamental	passed
15.209	RSS-Gen, 8.9 RSS-210, 7	Spurious emissions	passed
15.215	RSS-Gen, 6.7 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
2024.10.15
15:18:16 +02'00'

Klaus Gegenfurtner
Teamleader Radio

 Josef Knab
2024.10.15
15:04:02 +02'00'

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%	± 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%	± 3.53 dB
Radiated Spurious Emissions	30 MHz to 1000 MHz	95%	± 3.71 dB
Radiated Spurious Emissions	1000 MHz to 10000 MHz	95%	± 2.34 dB
Peak conducted output power	902 MHz to 928 MHz	95%	± 0.35 dB
Conducted Spurious Emissions	9 kHz to 10000 MHz	95%	± 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 ISCED

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".

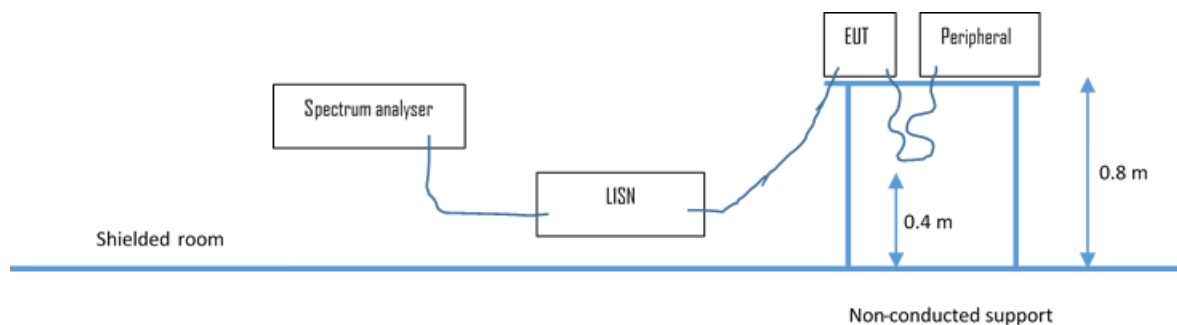
4.5.2.1 Justification

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 μ V, is arrived at by taking the reading directly from the Spectrum analyser. This level is compared to the limit.

To convert between dB μ V and μ V, the following conversions apply:

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

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

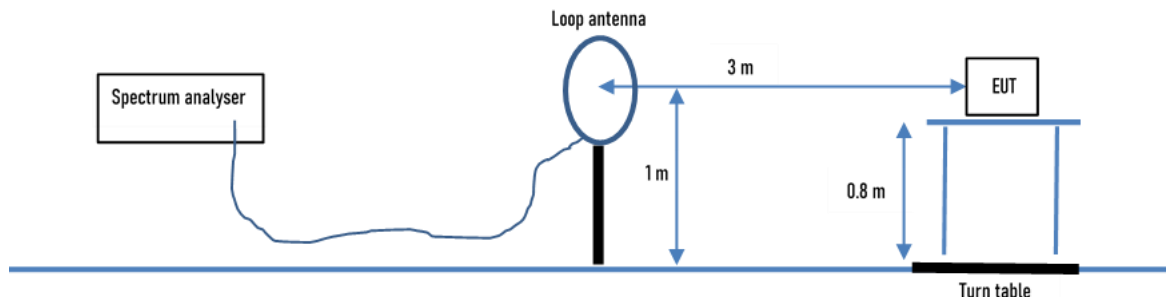
Conducted emissions on the 50 Hz and/or 60 Hz power interface of the EUT are measured in the frequency range of 150 kHz to 30 MHz. The measurements are performed using a receiver, which has CISPR characteristic bandwidth and quasi-peak detection and a Line Impedance Stabilization Network (LISN) with 50 Ω / 50 μ 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):

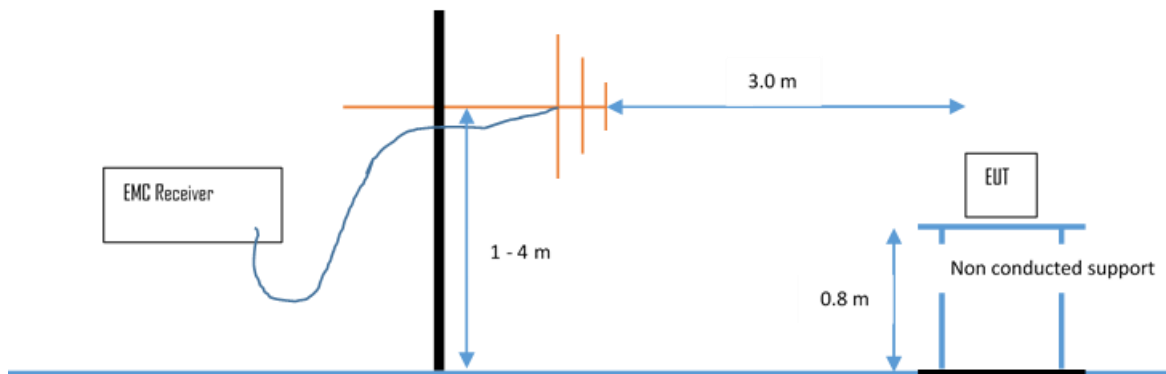
Test setup according ANSI C63.10



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 (MHz)	Level (dBμV)	+	Factor (dB)	=	Level (dBμV/m)	-	Limit (dBμV/m)	=	Delta (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

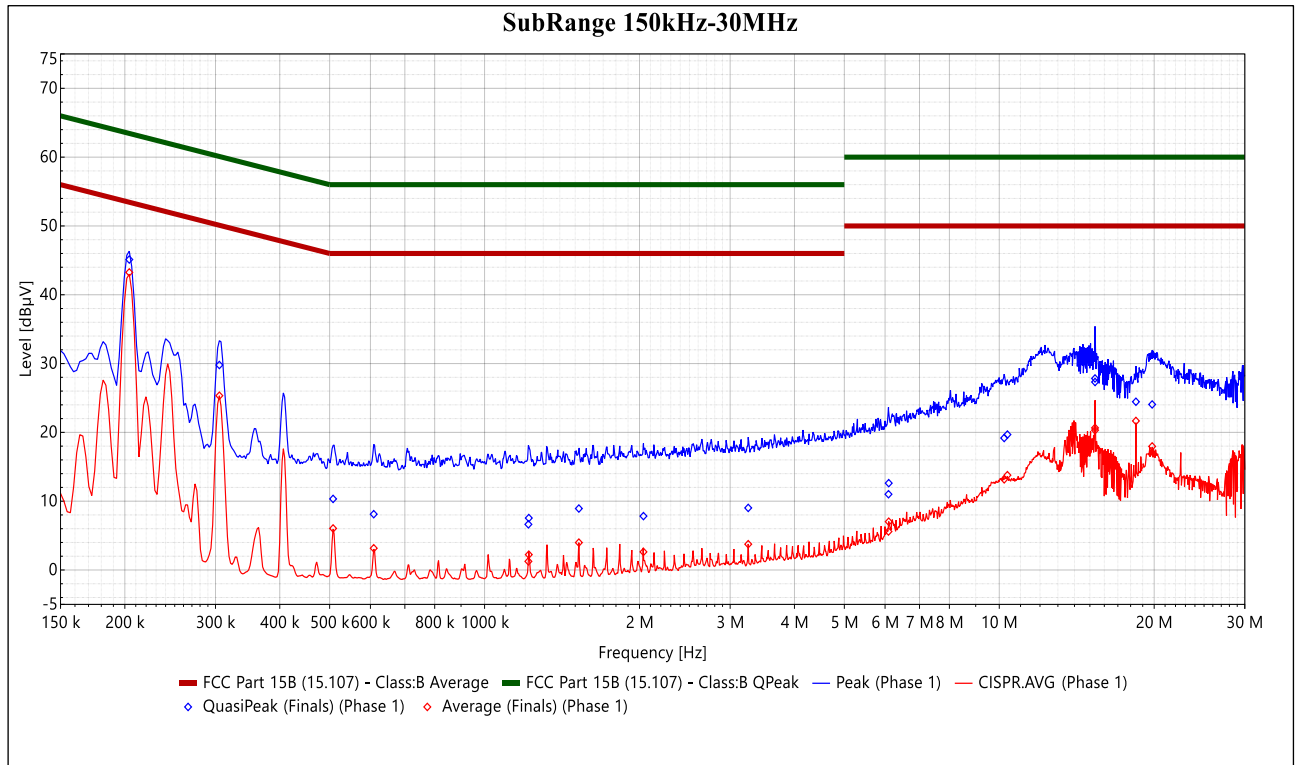
* Decreases with the logarithm of the frequency

The requirements are **FULFILLED**.

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

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5.1.6 Test protocol

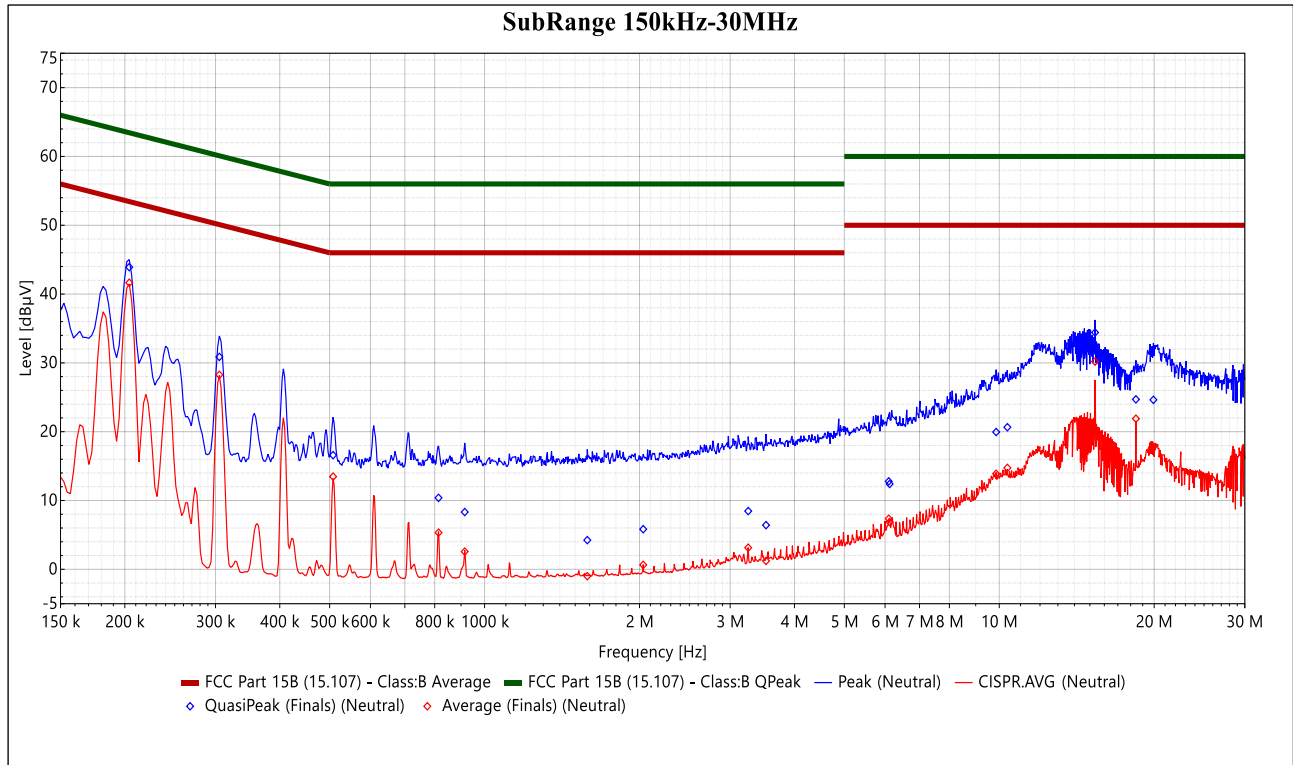
File No.:	80192413-00 Rev_1	Result:	PASS
Operation mode:	Cont. TAG reading at 125 kHz		
Tested by:	KJ	Nexio Version:	2022.0.32.0
Location:	S2	Date:	07.02.2024 14:44:03
Remarks:	Test point L1		



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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File No.:	80192413-00 Rev_1	Result:	PASS
Operation mode:	Cont. TAG reading at 125 kHz		
Tested by:	KJ	Nexio Version:	2022.0.32.0
Location:	S2	Date:	07.02.2024 13:41:58
Remarks:	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 μ V)	Ant. factor (dB 1/m)	Field strength dB(μ V/m)
125.00	39.2	18.0	57.2

- b) Result extrapolated to a distance of 300 m

Frequency (kHz)	Field strength dB(μ V/m) @3m	Extrapolation factor (dB)	Field strength dB(μ V/m) @300m	Limit dB(μ 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		Measurement distance
	(μ V/m)	dB(μ V/m)	(metres)
125	19.2	25.7	300

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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		Measurement distance
	(μA/m)	dB(μA/m)	(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.

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

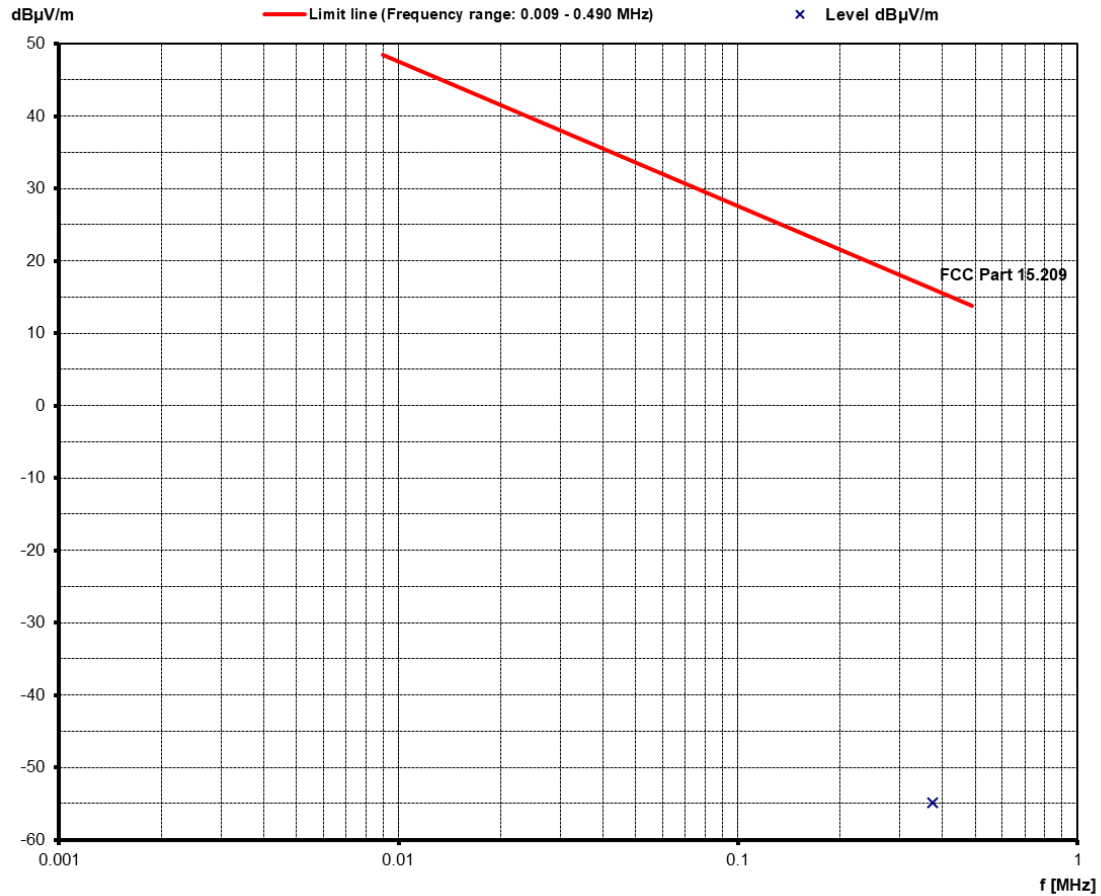
30 MHz – 1000 MHz: RBW: 120 kHz

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

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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5.3.5 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

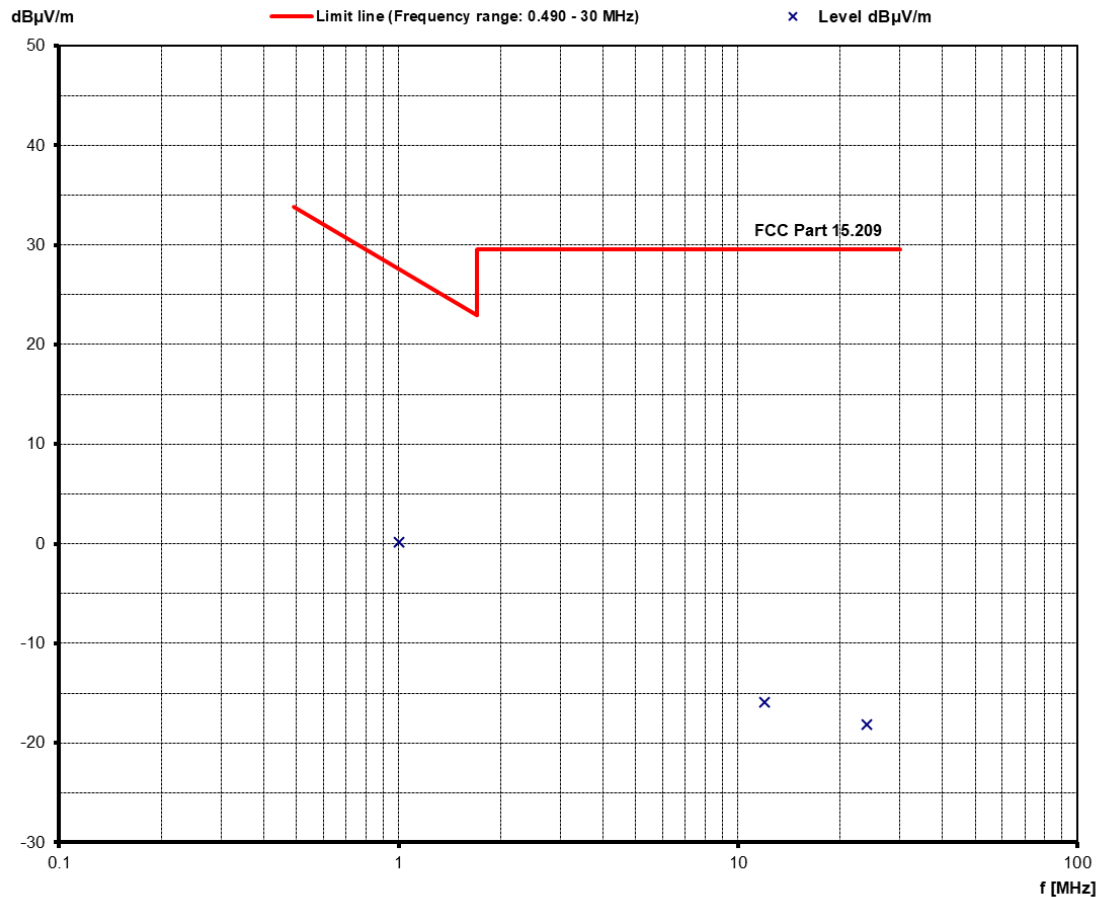


The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

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

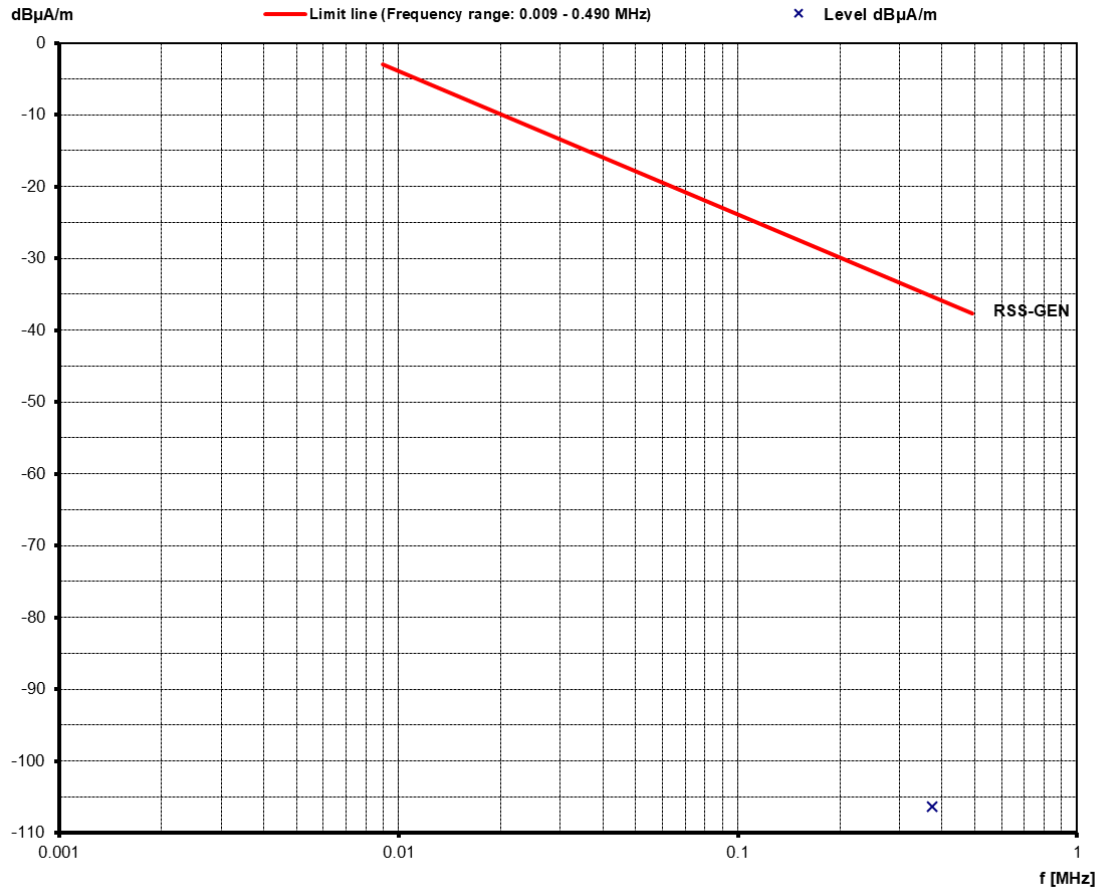


The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

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

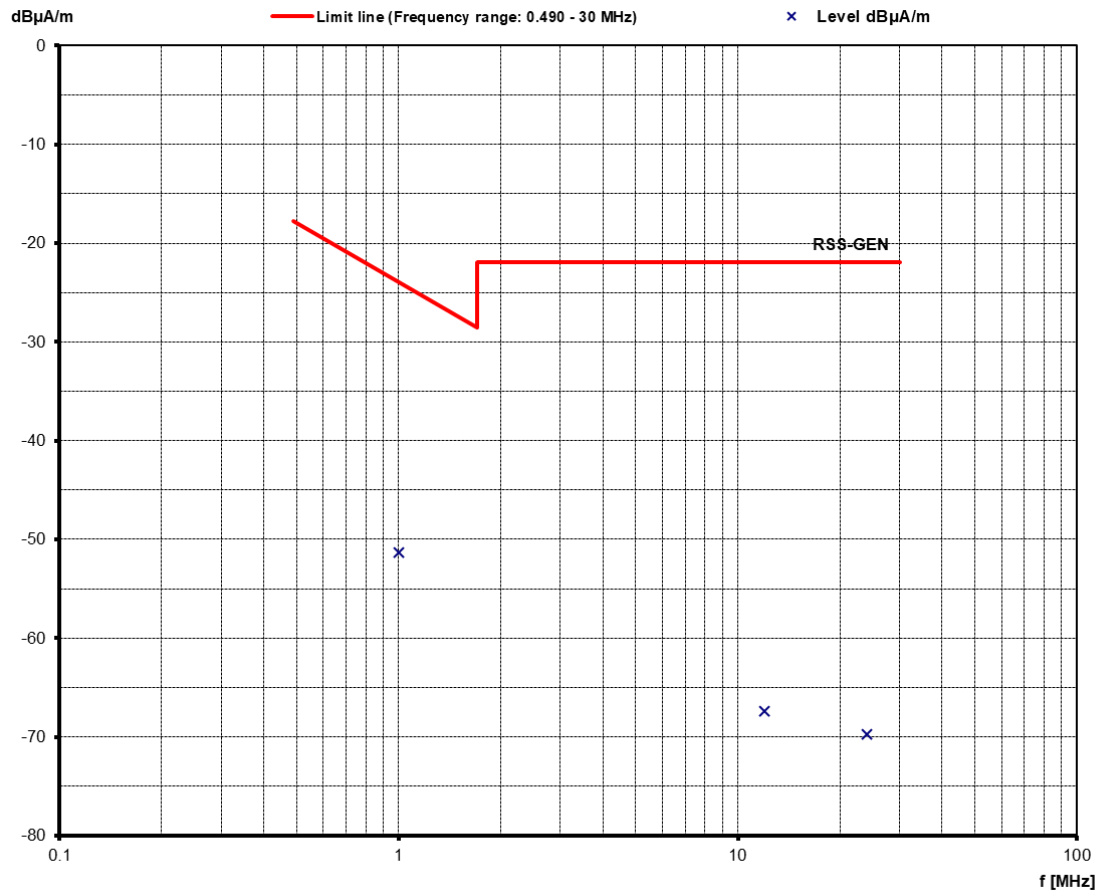


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FCC ID: 2BGE529G7117X IC ID: 32551-29G7117X

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.



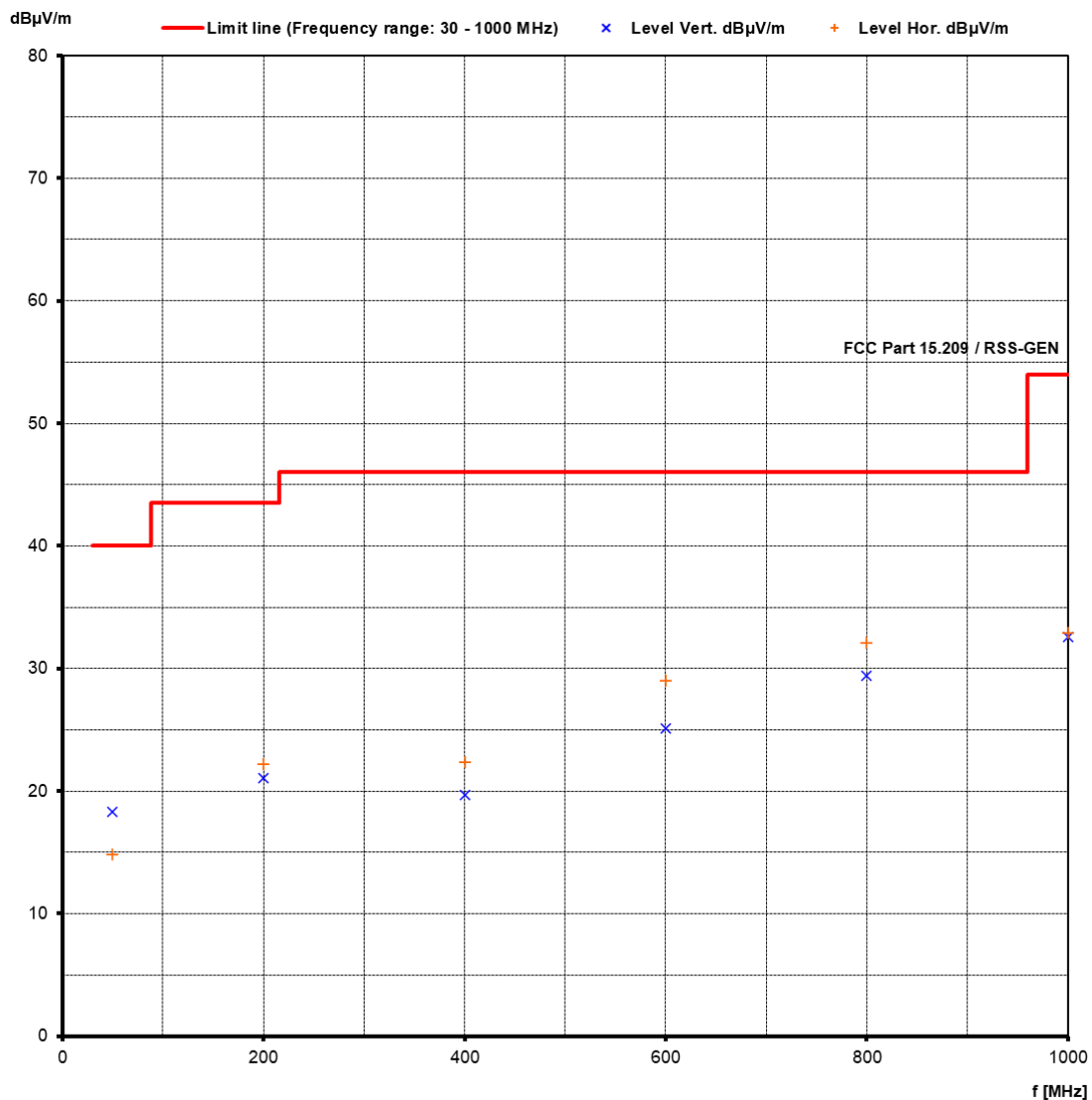
The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

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.



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

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

Frequency (MHz)	Field strength of spurious emissions		Measurement distance
	($\mu\text{V/m}$)	dB($\mu\text{V/m}$)	(metres)
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 (MHz)	Field strength of spurious emissions		Measurement distance
	($\mu\text{A/m}$)	dB($\mu\text{A/m}$)	(metres)
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 (MHz)	Field strength of spurious emissions		Measurement distance
	($\mu\text{V/m}$)	dB($\mu\text{V/m}$)	(metres)
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.

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	--

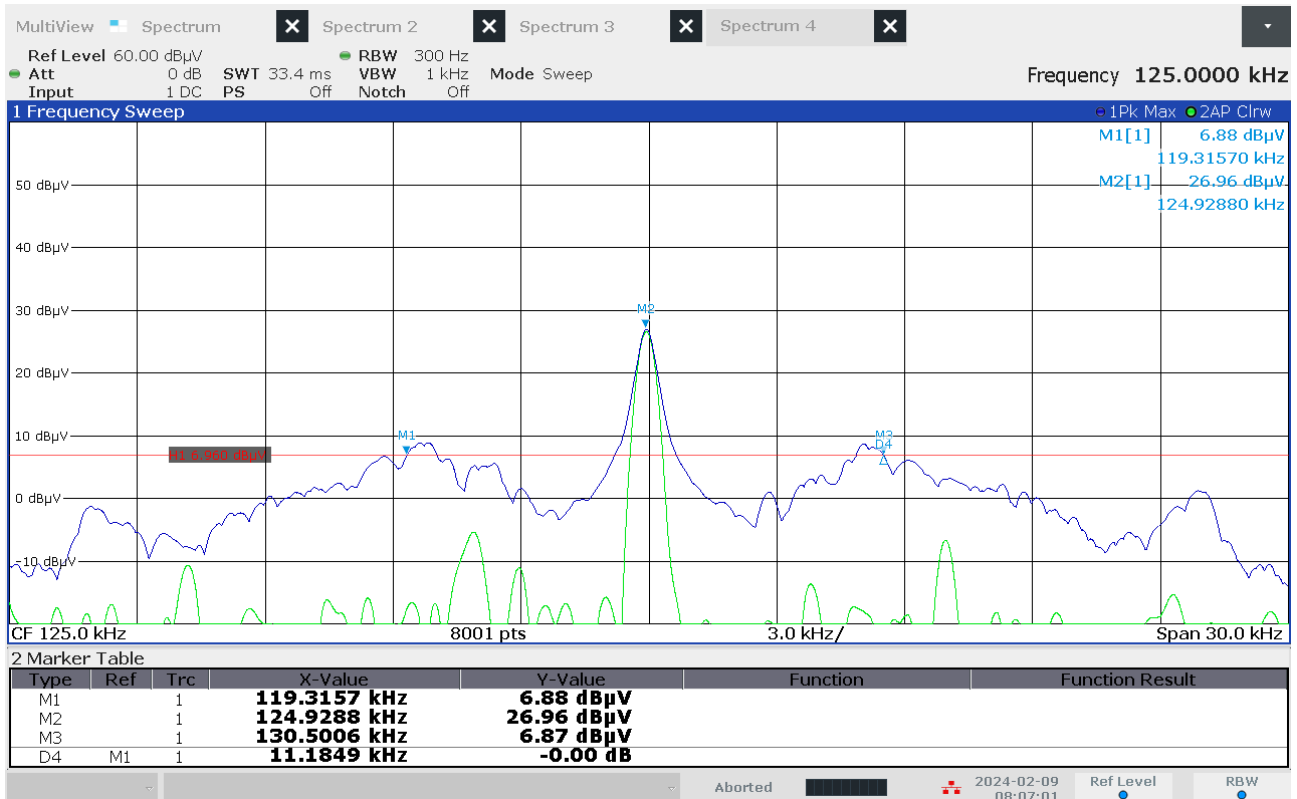
The requirements are **FULFILLED**.

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

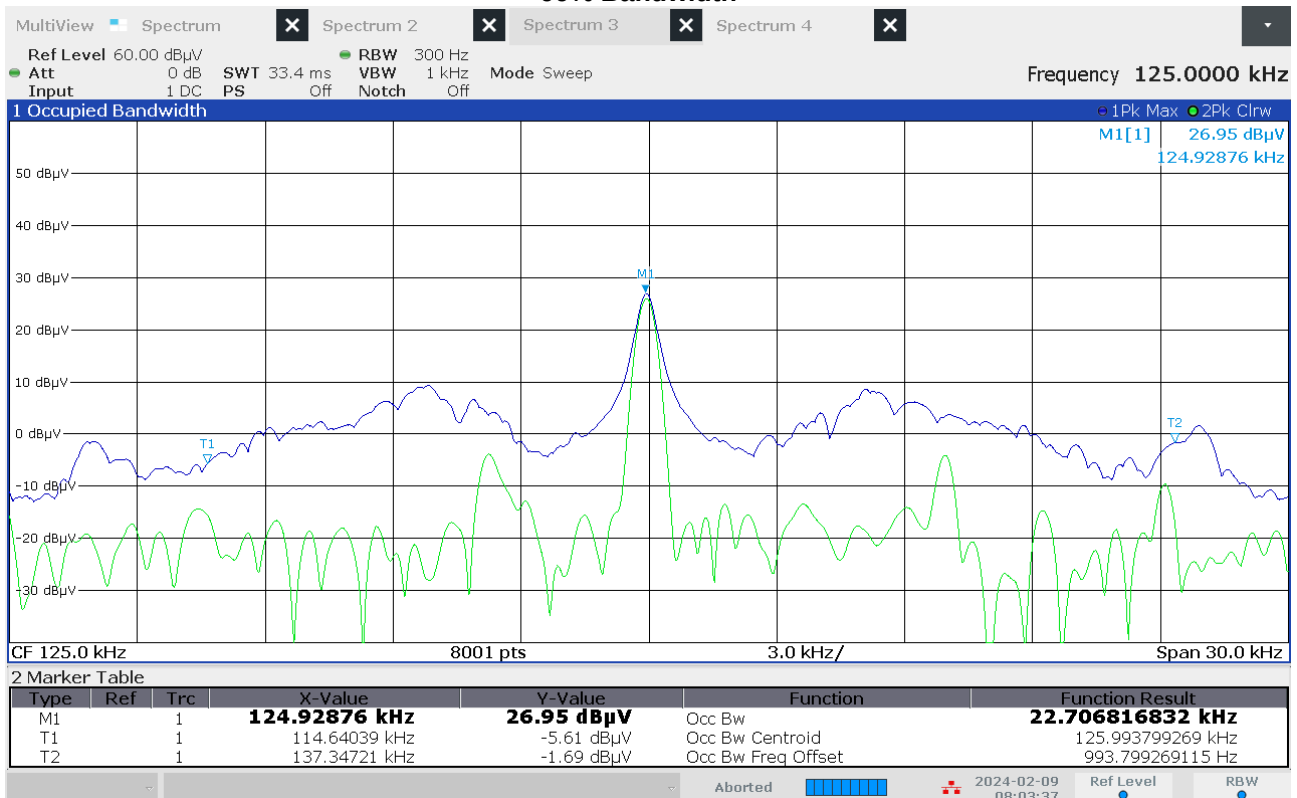
FCC ID: 2BGE529G7117X IC ID: 32551-29G7117X

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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