

FCC-ID:LYHMPCIE1V1

5.1 Spurious emissions radiated (cabinet radiation)

For test instruments and accessories used see section 6 Part **SER 1**, **SER 2**, **SER 3**.

5.1.1 Description of the test location

Test location: OATS 1
Test location: Anechoic chamber 2
Test distance: 3 m

5.1.2 Photo documentation of the test set-up

Open area test site (Test setup for 9 kHz – 30 MHz)



Open area test site (Test setup for 30 MHz – 300 MHz)

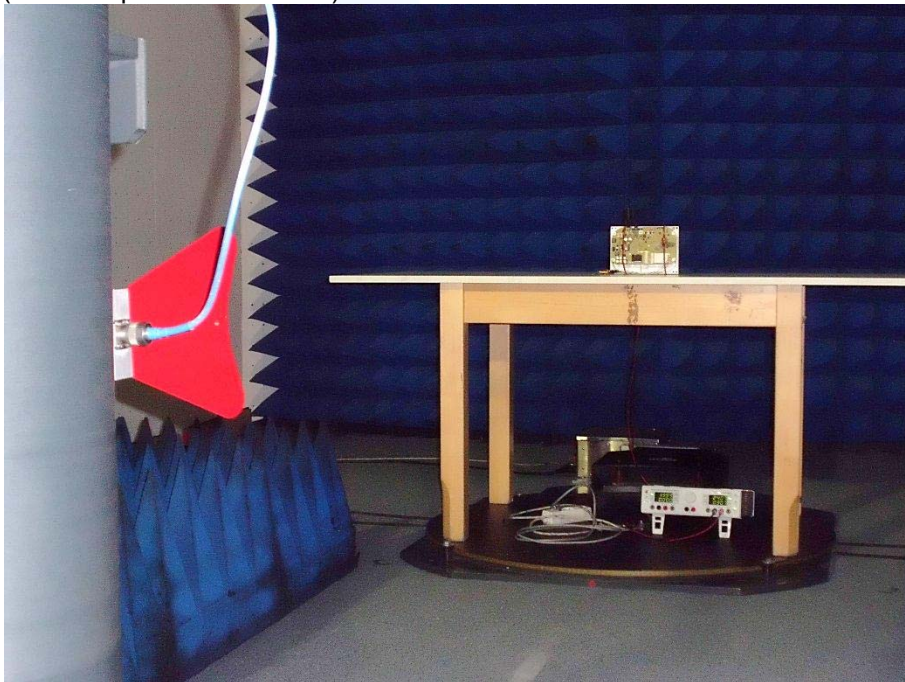


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Open area test site (Test setup for 300 MHz – 1000 MHz)

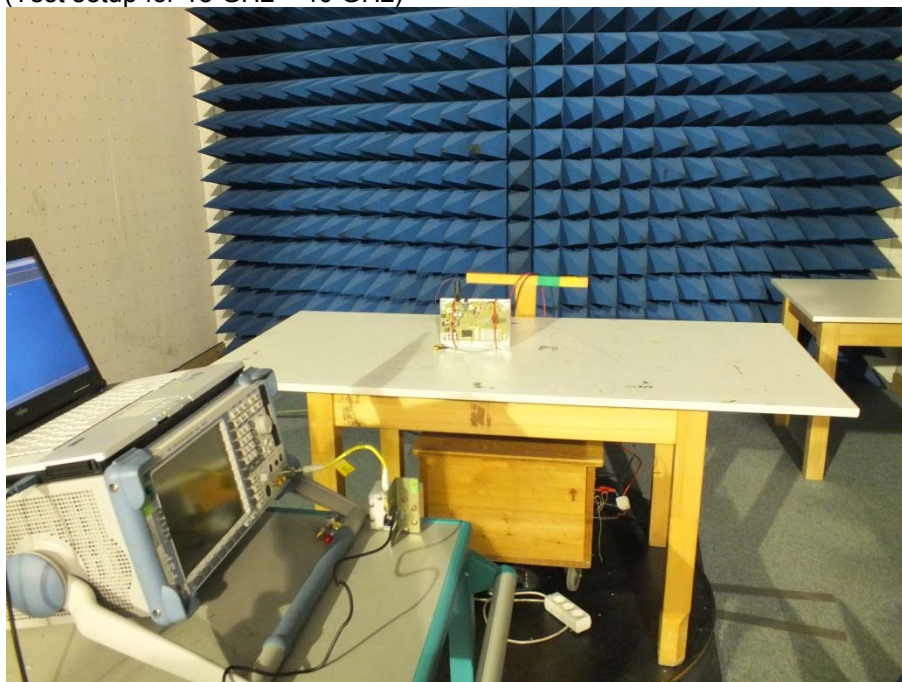


Anechoic chamber (Test setup 1GHz – 18 GHz)



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Anechoic chamber (Test setup for 18 GHz – 40 GHz)



5.1.3 Applicable standard

According to FCC Part 15, Section 15.407(b):

5.1.4 Description of Measurement

The radiated power of the spurious emission from the EUT cabinet is measured with terminated antenna connector in a test setup following the procedures set out in KDB 789033 D01. If the emission level of the EUT in peak mode complies with the general average limit then testing will be stopped and peak values of the EUT will be reported, otherwise the emission will be measured in average mode again and reported.

EMI receiver settings: $f < 1$ GHz:

9 kHz < f < 150 kHz:	RBW: 200 Hz;
150 kHz < f < 30 MHz:	RBW: 9 kHz;
30 MHz < f < 1000 MHz:	RBW: 120 kHz;

Spectrum analyser settings $f > 1$ GHz:

RBW: 1 MHz,	VBW: 3 MHz,	Detector: Max peak,	Trace: Max hold,	Sweep: Auto;
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5.1.5 Test result

9 kHz < f < 1000 MHz:

For all kinds of modulation no emission could be detected within 20 dB to the limit.

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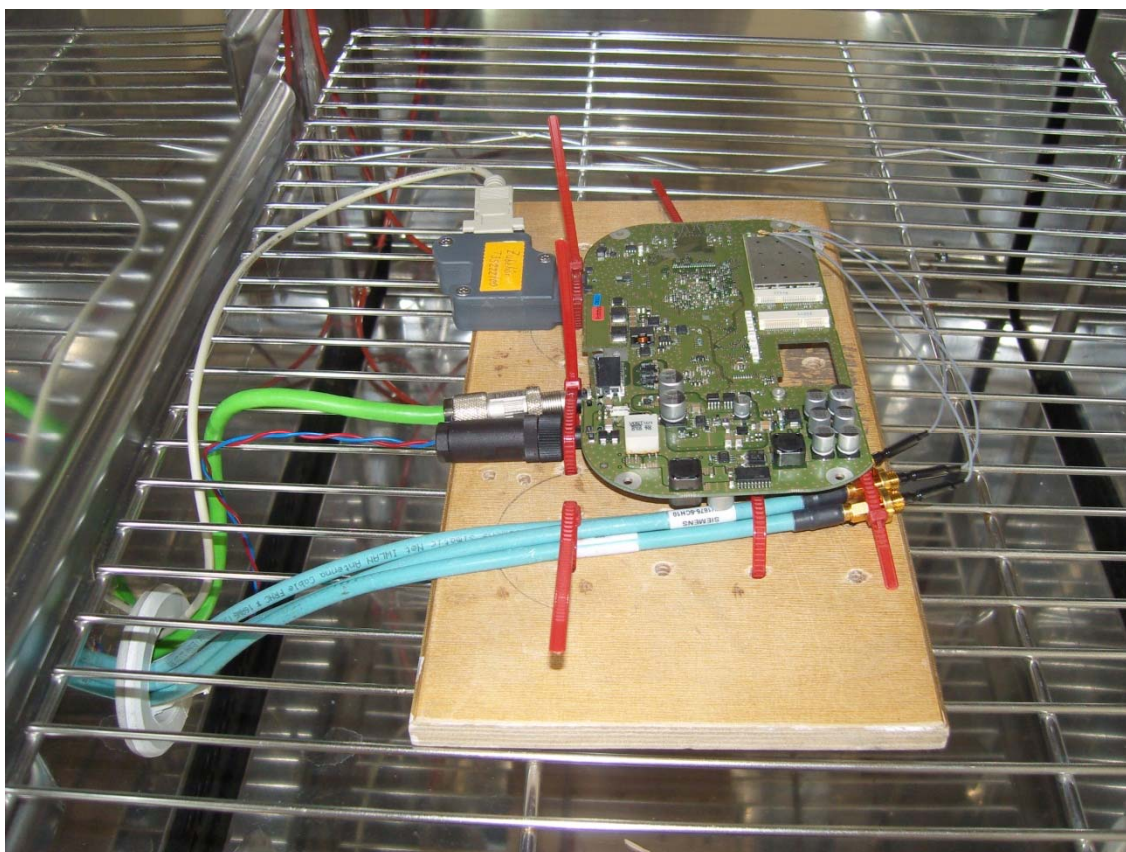
5.2 Frequency stability

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

5.2.1 Description of the test location

Test location: AREA4

5.2.2 Photo documentation of the test setup



5.2.3 Applicable standard

According to FCC Part 15, Subpart E, Section 15.407 (g):

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

5.2.4 Description of Measurement

This test has been performed over variations in temperature and voltage. The lowest and the highest channel in the operating frequency bands are measured at the 20 dB bandwidth under following conditions:

1. Supply voltage from 19.2 VDC to 28.8 VDC at normal temperature
2. Extreme temperature from -40°C to 60°C at nominal voltage.

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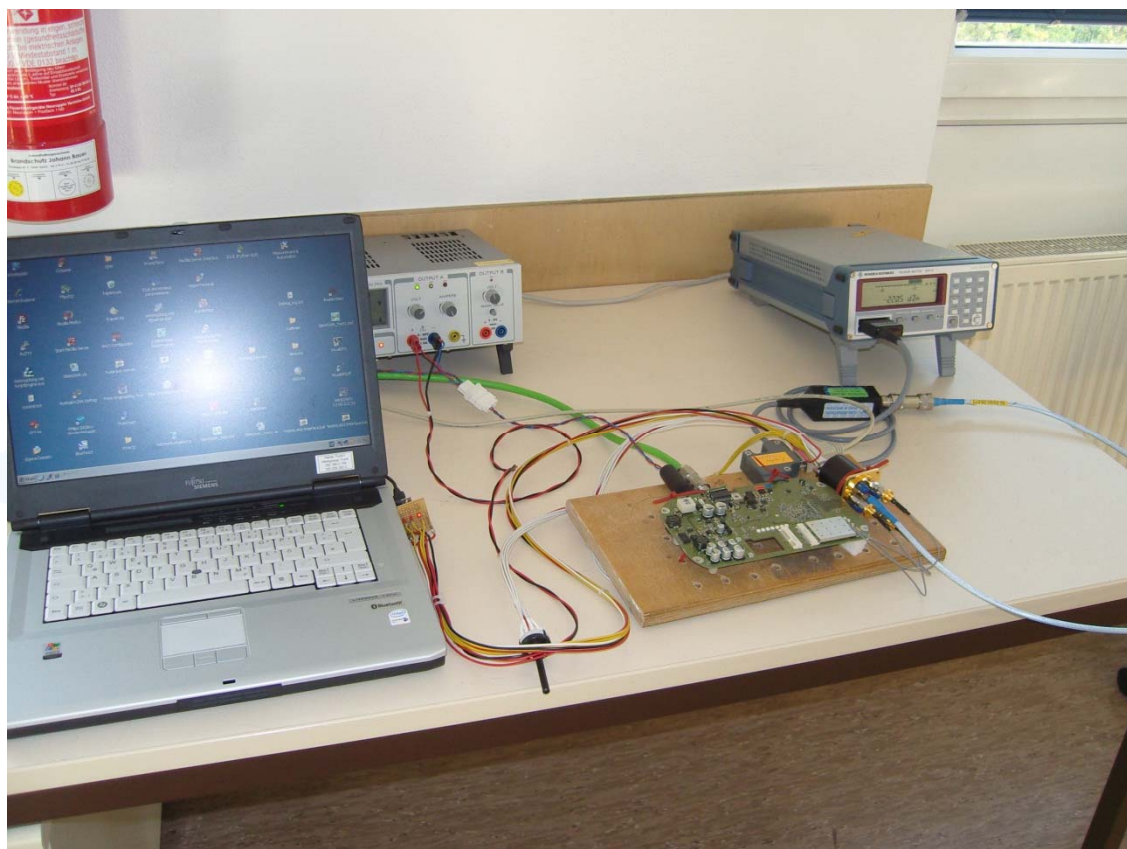
5.3 Maximum permissible exposure (MPE)

For test instruments and accessories used see section 6 Part **CPC 3**.

5.3.1 Description of the test location

Test location: AREA4

5.3.2 Photo documentation of the test set-up



5.3.3 Applicable standard

According to FCC Part 15, Section 15.407(f):

U-NII devices are subject to the radio frequency radiation exposure requirements specified in Section 1.1307(b), 2.1091 and 2.1093 of this chapter, as appropriate. All equipment shall be considered to operate in a "general population/uncontrolled" environment. The test methods used comply with ANSI/IEEE C95.1-2005, "IEEE Standard for Safety Levels with respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz".

5.3.4 Description of Measurement

The maximum total power input to the antenna has been measured conducted as described in clause 5.3 of this document. Through the Friis transmission formula, which is a far field assumption and the known maximum gain of the antenna, the maximum MPE at a defined distance away from the product, can be calculated.

Friis transmission formula:

$$P_d = \frac{P_{out} * G}{4 * \pi * r^2}$$

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Limits for maximum permissible exposure (MPE):

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(B) Limits for General Population / Uncontrolled Exposure				
0.3 – 3.0	614	1.63	100	30
3.0 – 30	824/f	2.19/f	180/ f ²	30
30 - 300	27.5	0.073	0.2	30
300-1500	---	---	f/1500	30
1500-100000	---	---	1.0	30

f = Frequency (MHz)

The requirements are **FULFILLED**.

Remarks: This test shows the compliance with the limits for maximum permissible exposure (MPE) specified in FCC 1.1310 and the criteria to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in FCC 1.1307(b).

5.4 Co-location and Co-transmission

Applicable standard:

OET Bulletin 65, Edition 97-01, Section 2: Multiple-transmitter sites and complex environments

The MPE limits of FCC vary with frequency. Therefore, in mixed or broadband RF fields where several sources and frequencies are involved, the fraction of the recommended limit (in terms of power density or square of the electric or magnetic field strength) incurred within each frequency interval should be determined, and the sum of all fractional contributions should not exceed 1.0, or 100 % in terms of percentage.

