

FCC ID: KR5A2C35029700

IC ID: 7812D-35029700

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: NONE

Remarks: Not applicable, the EUT is a vehicular use.

5.2 Field strength of the fundamental wave

For test instruments and accessories used see section 6 Part CPR 2.

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



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5.3 Spurious emissions (magnetic field) 9 kHz – 30 MHz

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

5.3.1 Description of the test location

Test location: OATS 1
Test distance: 3 m

5.3.2 Photo documentation of the test set-up



5.3.3 Applicable standard

According to FCC Part 15C, Section 15.209:

The emissions from intentional radiators shall not exceed the field strength limits for spurious emissions in the table.

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5.4 Spurious emissions radiated (electric field)

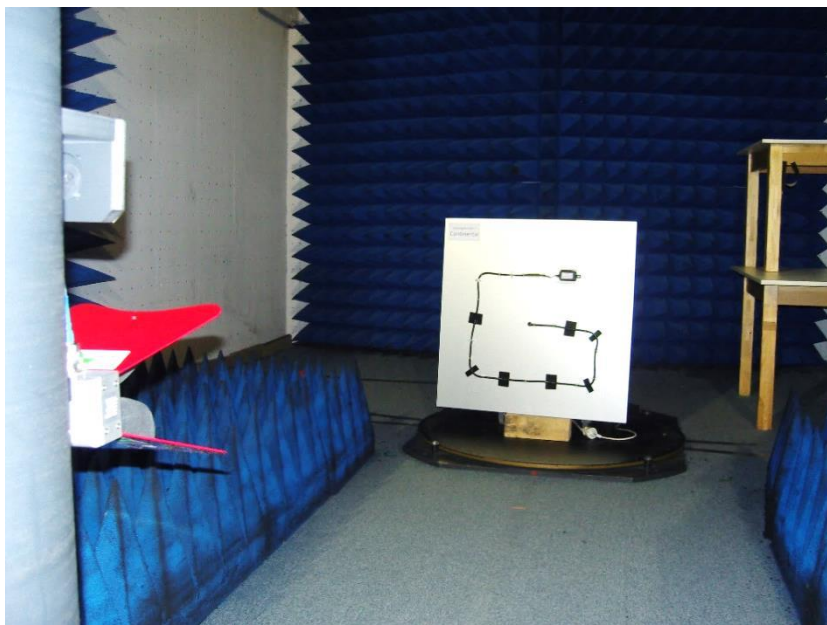
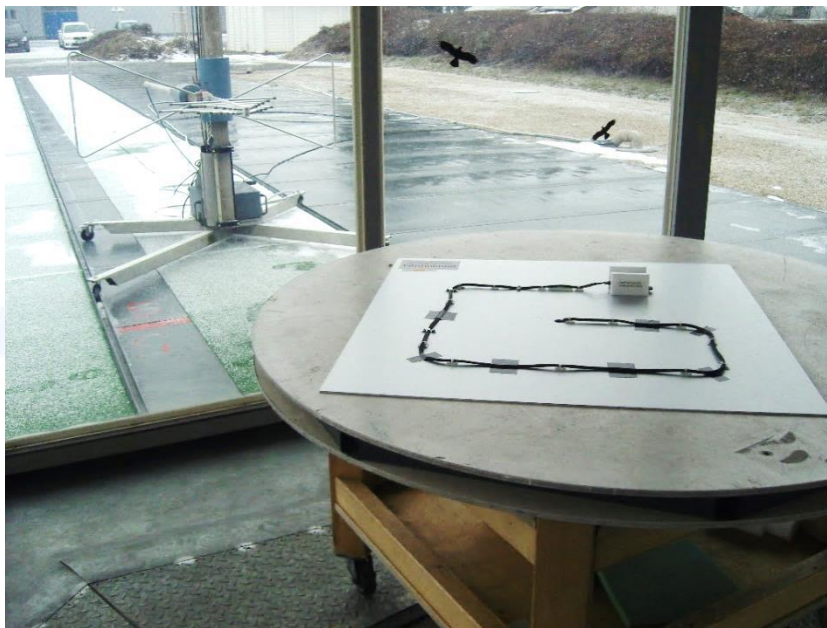
For test instruments and accessories used see section 6 Part SER 2, SER 3.

5.4.1 Description of the test location

Test location: OATS 1
Test location: Anechoic chamber 2

Test distance: 3 m

5.4.2 Photo documentation of the test set-up



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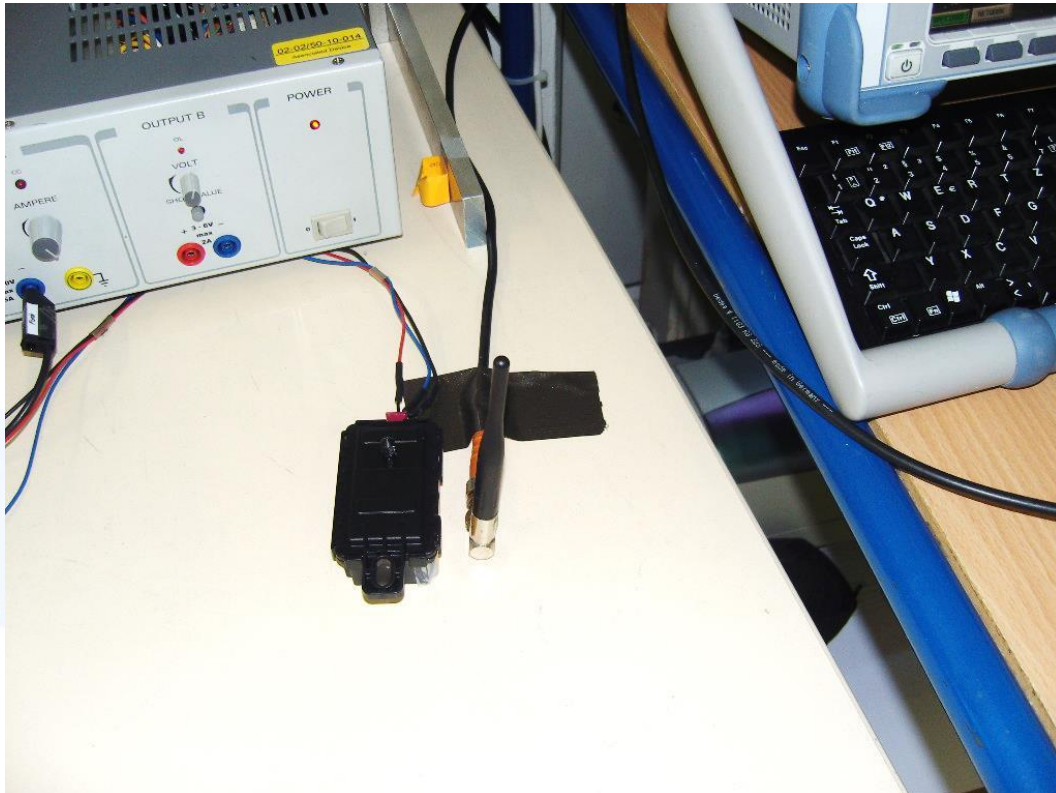
5.5 Correction for pulse operation (duty cycle)

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

5.5.1 Description of the test location

Test location: AREA4

5.5.2 Photo documentation of the test set-up



5.5.3 Applicable standard

According to FCC Part 15C, Section 15.35(c):

The emissions from intentional radiators shall not exceed the effective field strength limits.

5.5.4 Description of Measurement

The duty cycle is measured using stimulus signal from a car key as used in the real application.

The duty cycle factor (dB) is calculated applying the following formula:

$$KE = 20 \log ((t_{iB} * p) / T_w);$$

<i>KE</i> :	pulse operation correction factor	(dB)
<i>t_{iw}</i> :	pulse duration for one complete pulse track	(ms)
<i>t_{iB}</i> :	pulse duration for one pulse	(ms)
<i>T_w</i> :	a period of the pulse track	(ms)
<i>p</i> :	number of pulses in one train	

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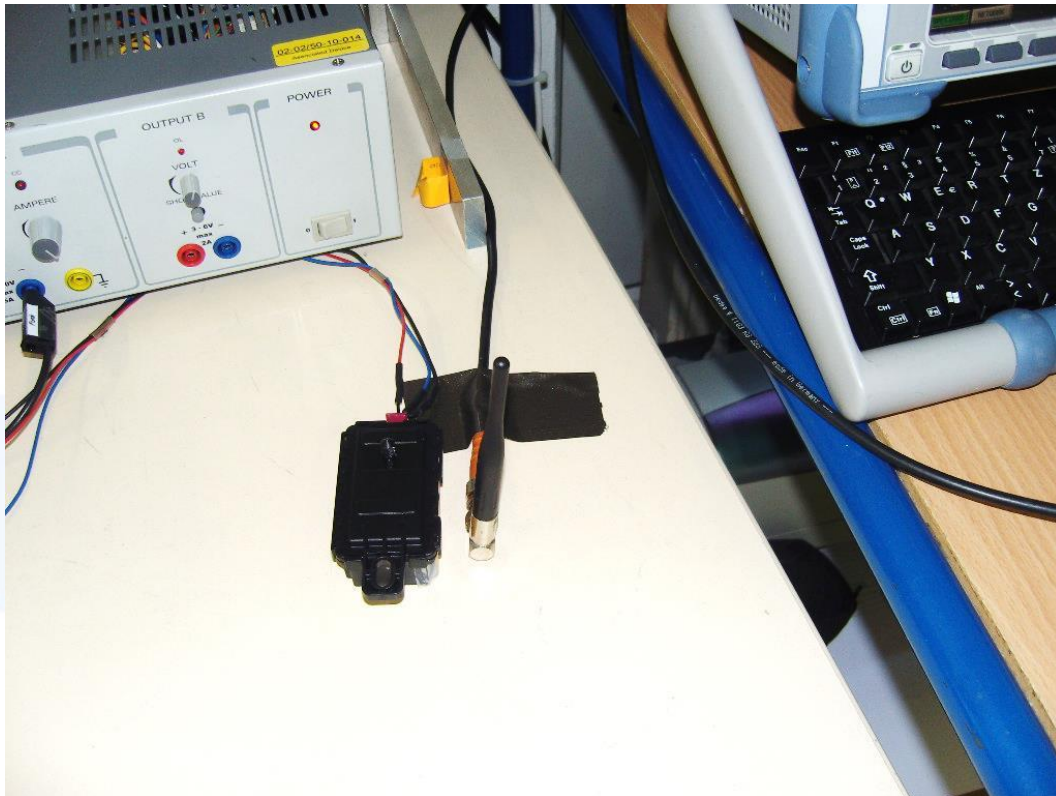
5.6 Emission bandwidth and OBW99

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

5.6.1 Description of the test location

Test location: AREA4

5.6.2 Photo documentation of the test set-up



5.6.3 Applicable standard

According to FCC Part 15C, Section 15.231(c):
The bandwidth of the emission shall not exceed the effective limits.

5.6.4 Description of Measurement

The measurement is performed conducted using a spectrum analyser. The analyser span is set wide enough to capture the most of the power envelope of the signal. The function "20-dB-down" (OBW 99%) is used to determine the BW.

Analyser settings:

Span: 100 kHz,	RBW: 1 kHz	VBW: 3 kHz	Detector: peak;
For RSS:			
Span: 100 kHz,	RBW: 300 Hz	VBW: 1 kHz	Detector: sample;

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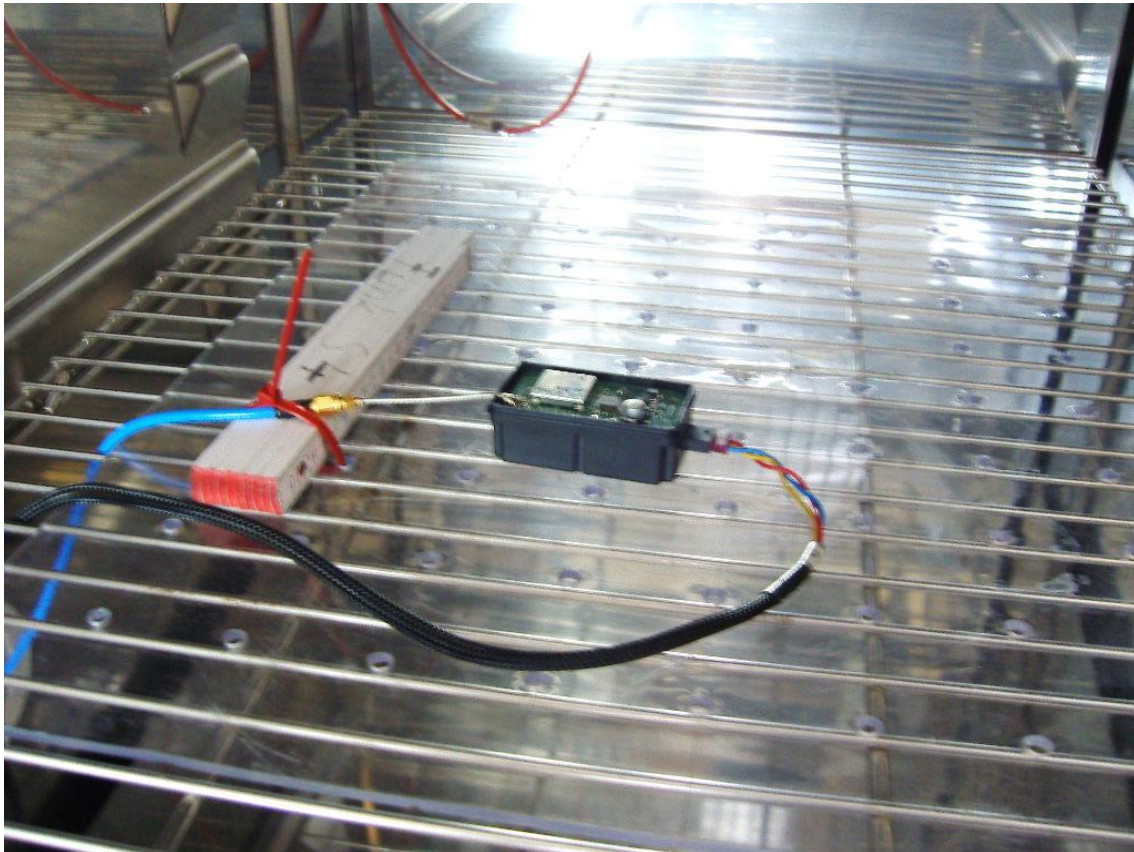
5.7 Frequency tolerance

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

5.7.1 Description of the test location

Test location: AREA4

5.7.2 Photo documentation of the test set-up



5.7.3 Applicable standard

According to FCC Part 15C, Section 15.215(c):

If frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

5.7.4 Description of Measurement

The frequency tolerance is measured with the spectrum analyser. The sweep points are set to maximum for higher the frequency resolution or the function "frequency counter" is used. The signal is unmodulated; the marker of the analyser is set to maximum amplitude at normal temperature, the frequency was recorded. Then the maximum supply voltage is set and the marker of the analyser is set to maximum amplitude. This procedure is done again for the minimum supply voltage. The EUT was now driven at normal supply voltage but in the climatic chamber to range the temperature from -20 °C to +50 °C in steps of 10 degrees. The drifting carrier is measured by setting the marker at the analyser.

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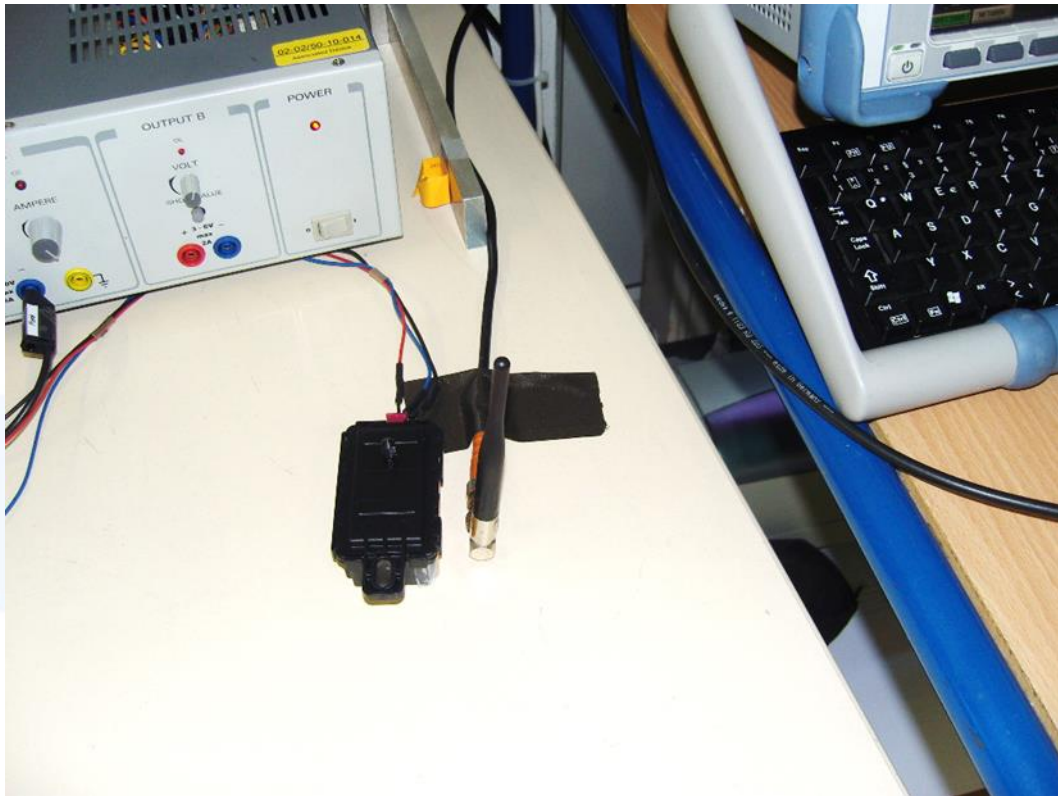
5.8 Signal deactivation

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

5.8.1 Description of the test location

Test location: AREA4

5.8.2 Photo documentation of the test set-up



5.8.3 Applicable standard

According to FCC Part 15C, Section 15.231(a)(1):

A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter not exceeding the defined on time limit.

5.8.4 Description of Measurement

The duration of transmission is measured with the spectrum analyser. The sweep points were set to maximum for higher the time resolution. The signal is modulated; the marker of the analyser is set to maximum amplitude at normal temperature and zero span. The analyser is set to single sweep and video triggered, the marker is set to the edges in order to measure the duration time and then recorded.