

## FCC ID: T4511172

### 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: OATS1

Test distance: 3 metres

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



#### 5.2.1 Applicable standard

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

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

#### 5.2.2 Description of Measurement

The radiated power of the fundamental wave from the EUT is measured in the frequency range of 30 to 1000 MHz using a tuned receiver and appropriate broadband linearly polarized 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 metres non-conducting table 80 centimetres above the ground plane. Floor standing equipment is placed directly on the turntable/ground plane. The set up of the EUT will be in accordance to ANSI C63.4. The Interface cables that are closer than 40 centimetres to the ground plane are bundled in the centre in a serpentine fashion so they are at least 40 centimetres from the ground plane. Cables to simulators/testers (if used in this test) are routed through the centre of the table and to a screen room located outside the test area. The antenna was positioned 3, 10 or 30 metres horizontally from the EUT. To locate maximum emissions from the test sample the antenna is varied in height from 1 to 4 metres, measurement scans are made in horizontal and vertical antenna polarization's and the EUT is rotated 360 degrees.

**FCC ID: T4511172****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: OATS1

Test distance: 3 metres

**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 effective field strength limits.

**5.3.4 Description of Measurement**

The magnetic field strength from the EUT will be measured on an open area test site in the frequency range of 9 kHz to 30 MHz using a tuned receiver and a shielded loop antenna. The set up of the Equipment under test will be in accordance to ANSI C63.4. The antenna was positioned 3, 10 or 30 meters horizontally from the EUT. Measurements have been made in all three orthogonal axes and the shielded loop antenna was rotated to locate the maximum of the emissions. In the case where larger measuring distances are required the results will extrapolated based on the values measured on the closer distances according to Section 15.31(f)(2)(2). The final measurement will be performed with an EMI Receiver set to Quasi Peak detector except for the frequency bands 9 kHz to 90 kHz and 110 to 490 kHz where an average detector will be used according to Section 15.209(d)(2).

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## 5.4 Spurious emissions radiated (electric field)

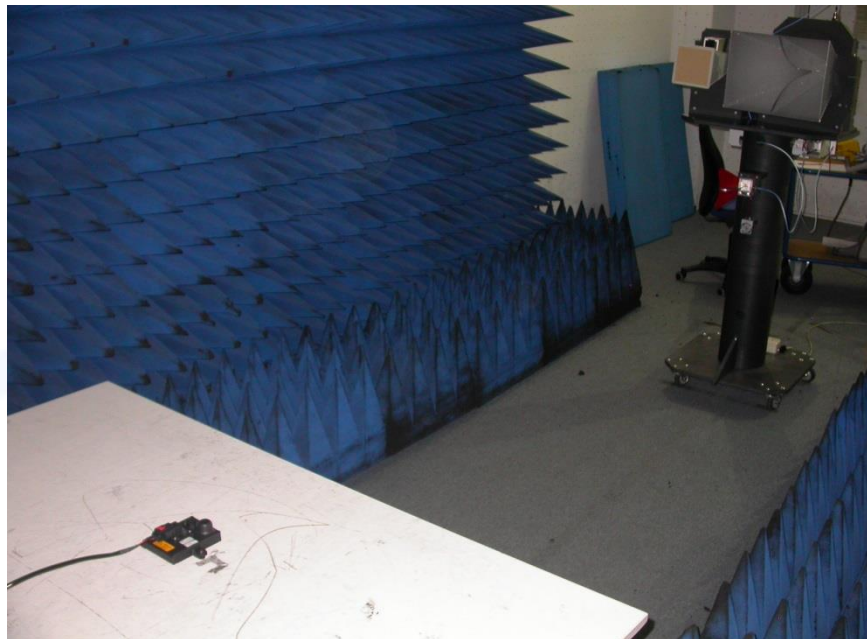
For test instruments and accessories used see section 6 Part SER 2, SER 3.

### 5.4.1 Description of the test location

Test location: OATS1  
Anechoic Chamber A2

Test distance: 3 metres

### 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: AREA 4

### 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 Test result

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

$$KE = 20 \log \left( \frac{t_B}{100} \right)$$

$KE$ : pulse operation correction factor (dB)  
 $t_B$ : pulse duration for one pulse (ms)

Maximum transmitting duration in every 100ms period: 11.55 ms

$$KE = 20 \log \left( \frac{11.55}{100} \right) = -18.75 \text{ dB}$$

**Remarks:** The pulse train ( $T_w$ ) exceeds 100 ms, therefore the duty cycle have been calculated by averaging the sum of the pulse widths over the 100 ms width with the highest average value.

For detailed results, please see the test protocol below.

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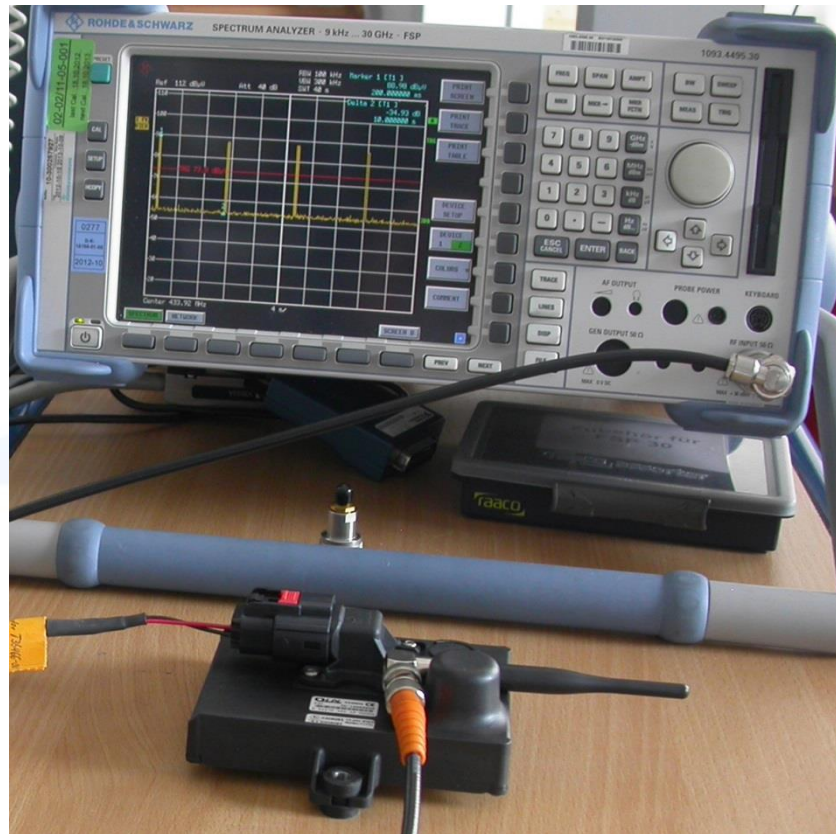
## 5.6 Emission bandwidth

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 was performed conducted with intentional modulation using a spectrum analyser. The analyser span was set wide enough to capture the most of the power envelope of the signal. The function "20-dB-down" is used to determine the BW. For an overview on the adjacent restricted bands the span was set as wide as needed to show that the restricted bands are not affected.

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## 5.7 On / Off Period

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

### 5.7.1 Description of the test location

Test location: AREA 4

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



### 5.7.3 Applicable standard

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

### 5.7.4 Description of Measurement

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

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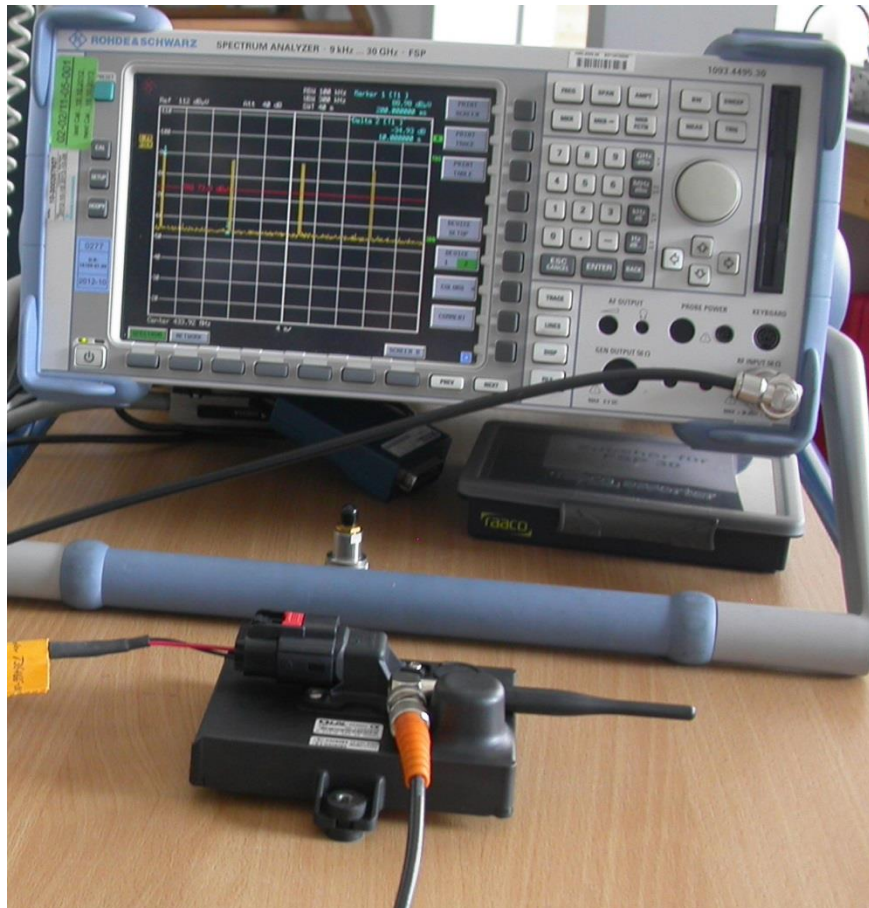
## 5.8 Signal deactivation

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

### 5.8.1 Description of the test location

Test location: AREA 4

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



### 5.8.3 Applicable standard

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

### 5.8.4 Description of Measurement

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