

## 5 TEST CONDITIONS AND RESULTS

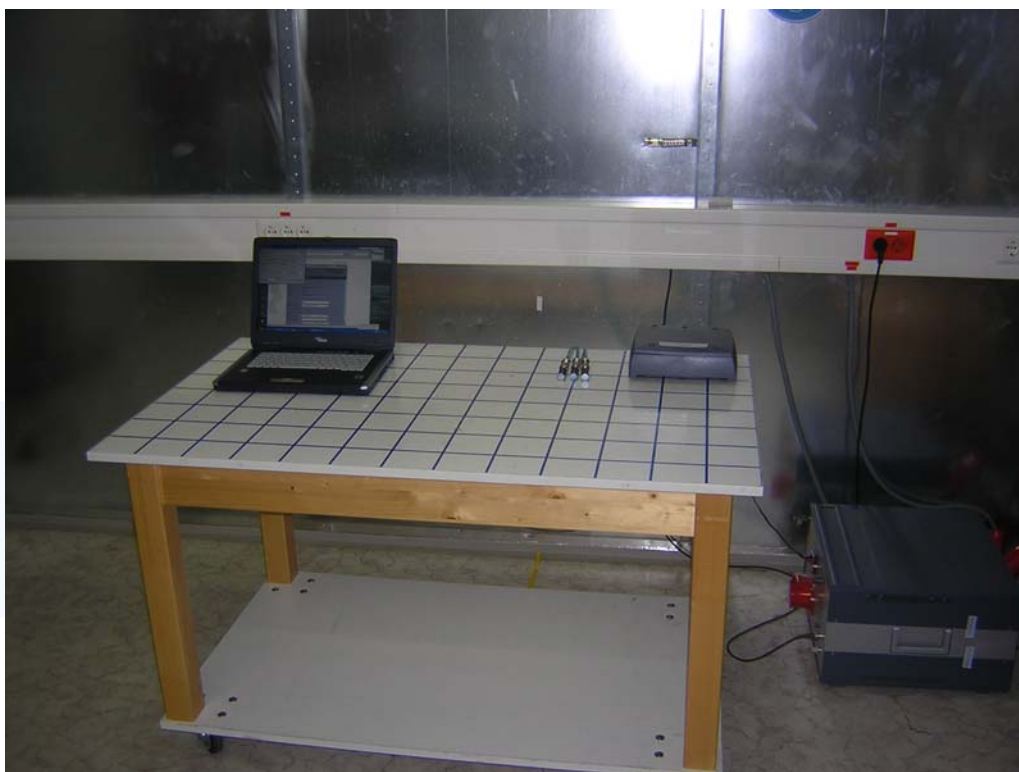
### 5.1 Power Line conducted emissions (Worst case data)

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



#### 5.1.3 Description of Measurement

The final level, expressed in dB $\mu$ V, is arrived at by taking the reading directly from the EMI receiver. This level is compared directly to the FCC Limit or to the CISPR 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. Table top equipment is placed on a non-conducting table 80 centimeters above the floor and is positioned 40 centimeters 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 emissions are remeasured using a tuned receiver with quasi-peak and average detection and recorded on the data sheets.

## Test results according to §15.247 and RSS-210, Annex 8

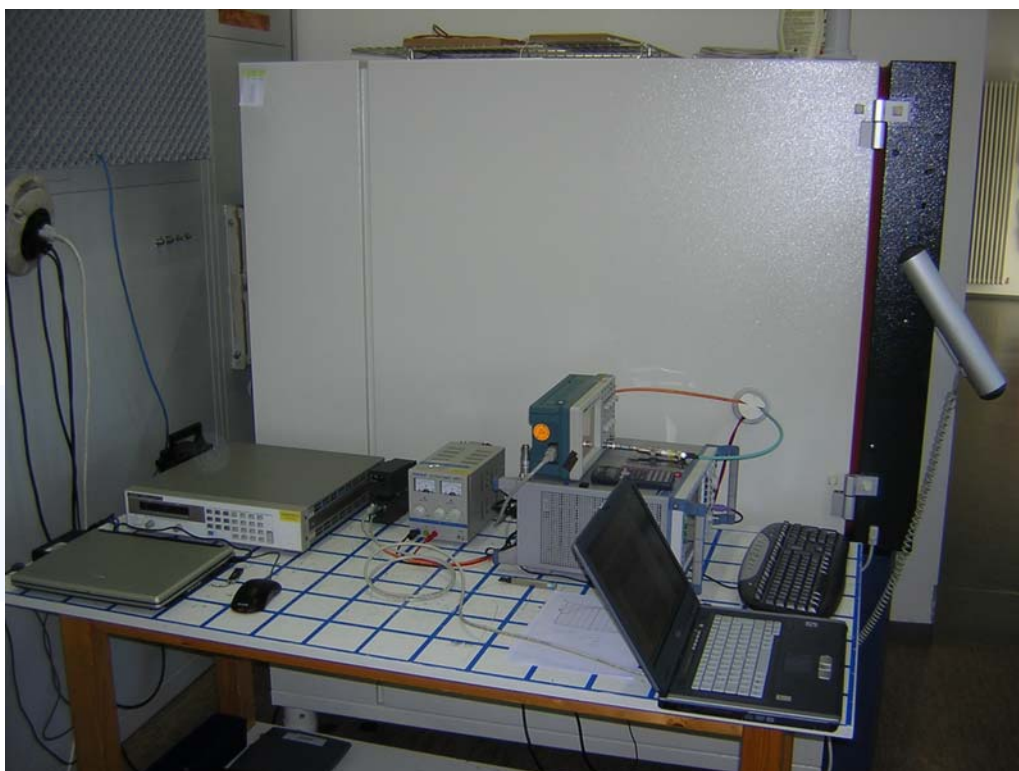
### 5.2 Maximum Output Power conducted

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

#### 5.2.1 Description of the test location

Test location: AREA4

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



#### 5.2.3 Description of Measurement

##### Conducted maximum output power:

A spectrum analyzer / EMI test receiver is connected to the output of the transmitter via a suitable attenuator while EuT was operating in transmit mode using the assigned frequency.

Analyzer Settings:

- Detector: Max hold
- RBW: greater than 20 dB Bandwidth
- VBW:  $\geq$  RBW
- Sweep Time: Coupled

##### Alternative test procedure:

If antenna conducted tests cannot be performed on the EuT, radiated tests to show compliance with the various conducted requirements of Section 15.247 and RSS-Gen are performed. A pre-amp have been used in making the following requirements.

### 5.3 Radiated emissions 9 kHz – 25 GHz

For test instruments and accessories used see section 6 Part SER 1, SER2 and SER 3.

#### 5.3.1 Description of the test location

Test location: OATS1  
Test location: Anechoic Chamber A2  
Test distance: 3 metres

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

SER 1



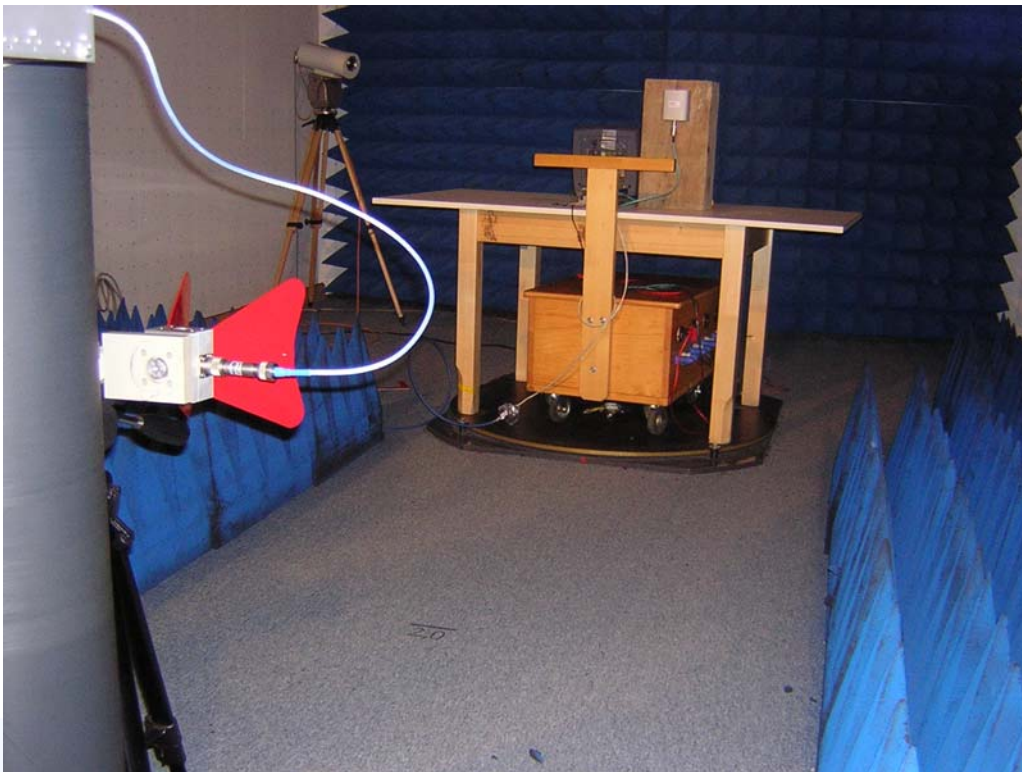
FCC ID: LYHMPC11V1

SER2



FCC ID: LYHMPC11V1

SER 3



## 5.4 Spurious RF Conducted Emission

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

### 5.4.1 Description of the test location

Test location: AREA4

### 5.4.2 Description of Measurement

A Spectrum analyzer / EMI test receiver is connected to the output of the transmitter via a suitable attenuator while EuT was operating in transmit mode using the assigned frequency.

Analyzer Settings:

- Detector: Max Hold
- RBW: 100 kHz
- VBW:  $\geq$  RBW
- Sweep Time: Coupled
- Detector function: Peak

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



## 5.5 6 dB Bandwidth

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

### 5.5.1 Description of the test location

Test location: AREA4

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



## 5.6 99%-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





## 5.7 Band edge test

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

### 5.7.1 Description of the test location

Test location: AREA4

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



## 5.8 Power Spectral Density

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

### 5.8.1 Description of the test location

Test location: AREA4

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



## Test results according to §15.407 and RSS-210, Annex 9

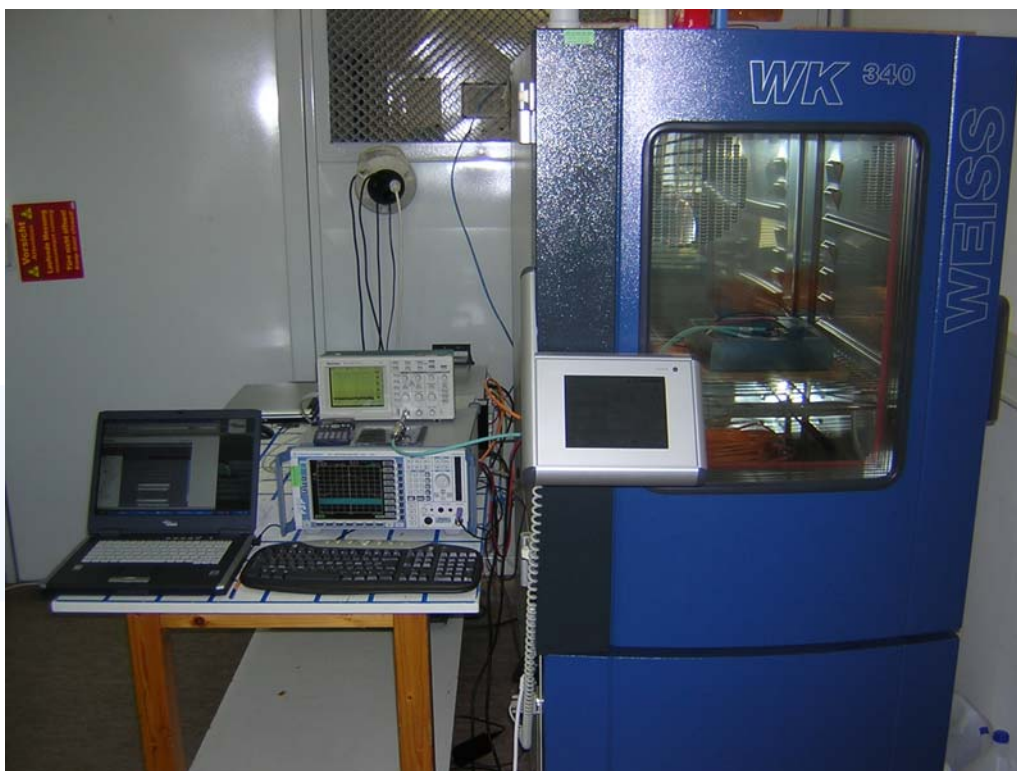
### 5.9 Maximum Output Power - Conducted

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

#### 5.9.1 Description of the test location

Test location: AREA4

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



#### 5.9.3 Description of Measurement

##### Conducted maximum output power:

A spectrum analyzer / EMI test receiver is connected to the output of the transmitter via a suitable attenuator while EuT was operating in transmit mode using the assigned frequency.

Analyzer Settings:

- Detector: Max hold
- RBW: greater than 20 dB Bandwidth
- VBW:  $\geq$  RBW
- Sweep Time: Coupled

##### Alternative test procedure:

If antenna conducted tests cannot be performed on the EuT, radiated tests to show compliance with the various conducted requirements of Section 15.247 and RSS-Gen are performed. A pre-amp have been used in making the following requirements.

## 5.10 Maximum Peak Output Power - Radiated

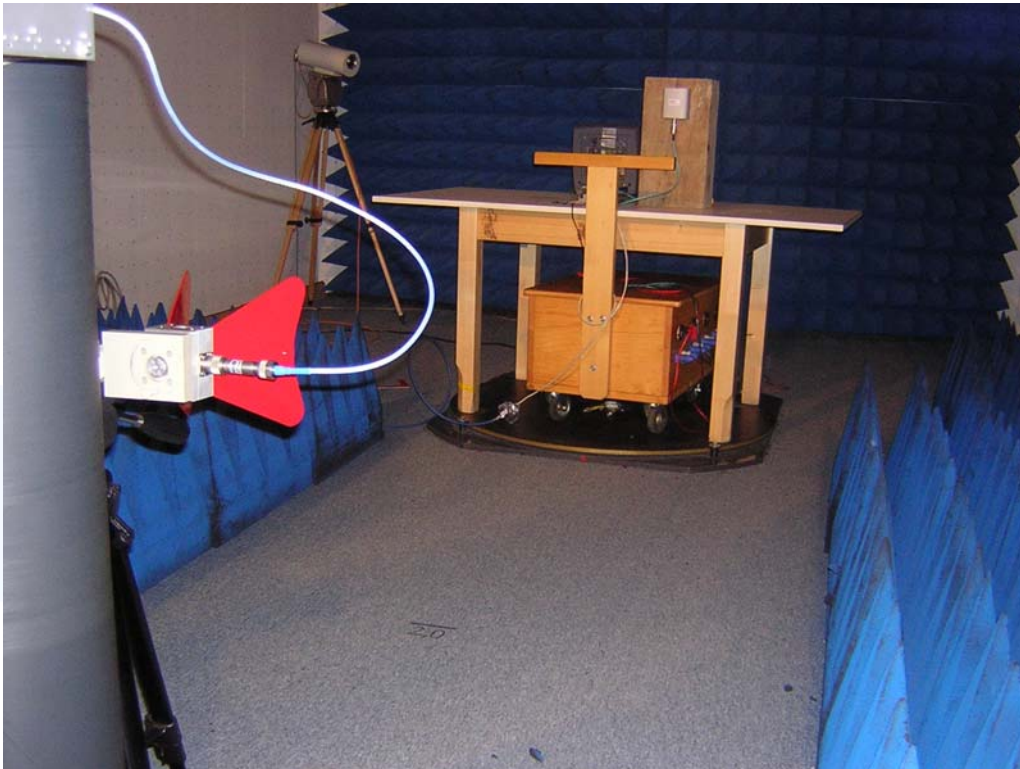
For test instruments and accessories used see section 6 Part CPR 3

### 5.10.1 Description of the test location

Test location: Anechoic Chamber A2

Test distance: 3 metres

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



### 5.10.3 Description of Measurement

Conducted maximum peak output power:

A spectrum analyzer / EMI test receiver is connected to the output of the transmitter via a suitable attenuator while EuT was operating in transmit mode using the assigned frequency.

Analyzer Settings:

- Detector: Max hold
- RBW: greater than 20 dB Bandwidth
- VBW:  $\geq$  RBW
- Sweep Time: Coupled

Alternative test procedure:

If antenna conducted tests cannot be performed on the EuT, radiated tests to show compliance with the various conducted requirements of Section 15.247 and RSS-Gen are performed. A pre-amp have been used in making the following requirements.

## 5.11 Radiated emissions 9 kHz – 40 GHz

For test instruments and accessories used see section 6 Part SER 1, SER2 and SER 3.

### 5.11.1 Description of the test location

Test location: OATS1  
Test location: Anechoic Chamber A2  
Test distance: 3 metres

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

SER 1



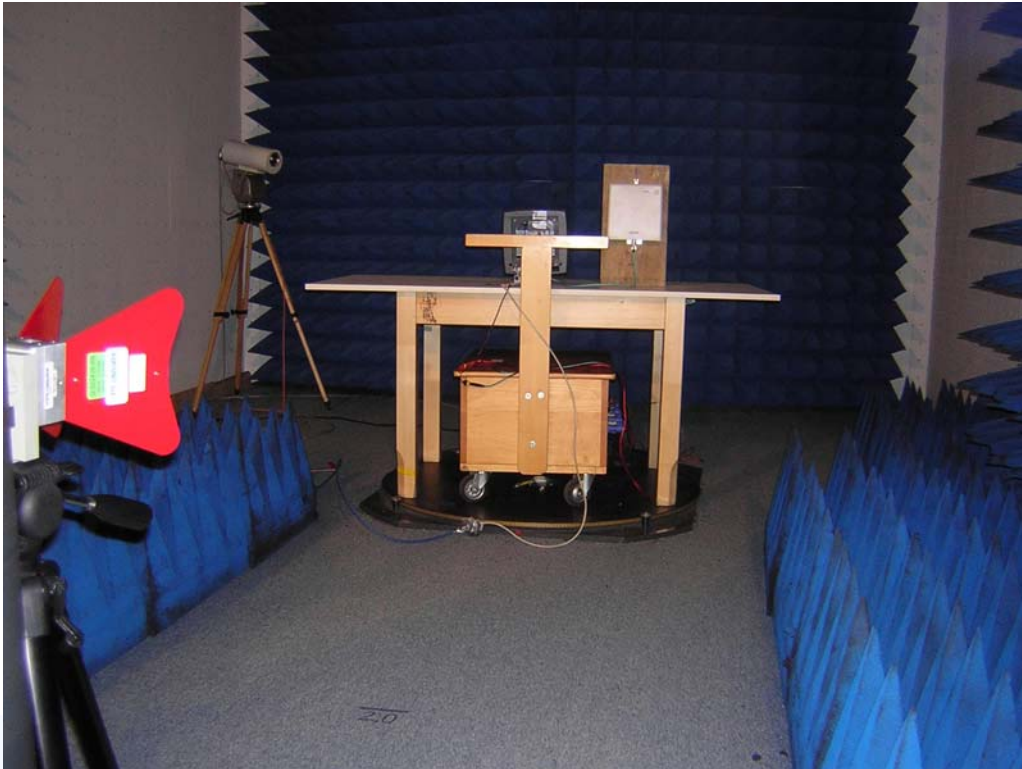
FCC ID: LYHMPC11V1

SER2



FCC ID: LYHMPC11V1

SER 3



SER 3



## 5.12 Spurious RF Conducted Emission

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

### 5.12.1 Description of the test location

Test location: AREA4

### 5.12.2 Description of Measurement

A Spectrum analyzer / EMI test receiver is connected to the output of the transmitter via a suitable attenuator while EuT was operating in transmit mode using the assigned frequency.

Analyzer Settings:

- Detector: Max Hold
- RBW: 100 kHz
- VBW:  $\geq$  RBW
- Sweep Time: Coupled
- Detector function: Peak

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





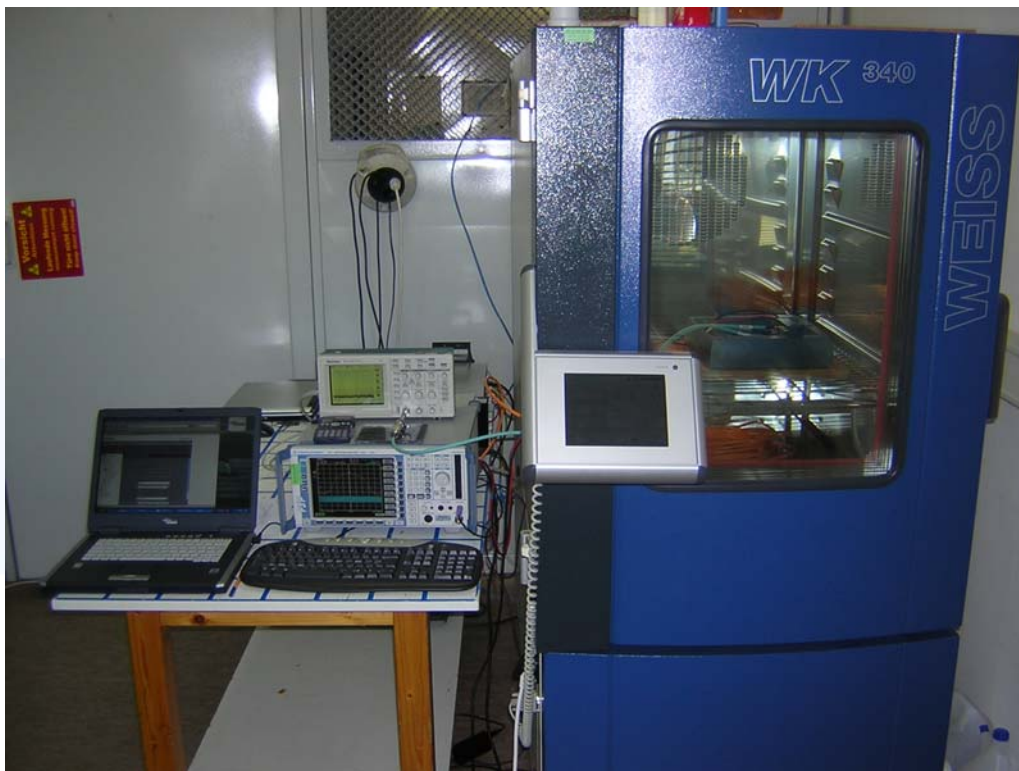
### 5.13 Band edge test

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

#### 5.13.1 Description of the test location

Test location: AREA4

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



#### 5.13.3 Description of Measurement

The EuT was connected to the spectrum analyzer with a suitable attenuator. The span of the spectrum analyzer was set wide enough to capture the peak level of the emission operating on the channel closest to the bandedge, as well as any modulation products which fall outside of the authorized band of operation. The highest amplitude appearing on spectral display was measured and it was set as the reference level for the emission mask. It was allowed the trace to stabilize and after then it was set the emission mask on the reference level to show the compliance with the bandedge requirements.

Further settings on the spectrum analyzer:

RBW:  $\geq 1\%$  of the span  
VBW:  $\geq$  RBW  
Sweep: Auto  
Detector function: Peak

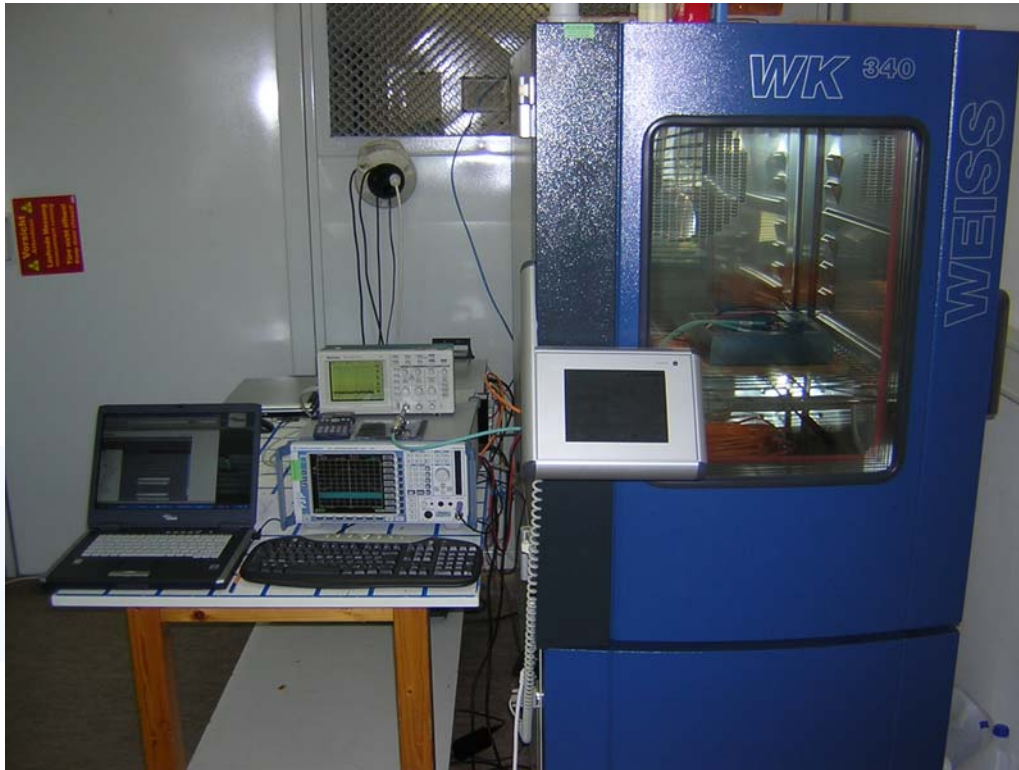
## 5.14 26 dB Bandwidth

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

### 5.14.1 Description of the test location

Test location: AREA4

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



### 5.14.3 Description of Measurement

The bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio of -26 dB. The reference level is the level of the highest amplitude signal observed from the transmitter at either the fundamental frequency or the first-order modulation products in all typical modes of operation, including the unmodulated carrier, even if atypical.

The resolution bandwidth of measuring instrument was set to a value as shown in the following table below according to ANSI C63.4-2003 and RSS-Gen.

Fundamental frequency	Minimum resolution bandwidth
1000 MHz to 40 GHz	100 kHz

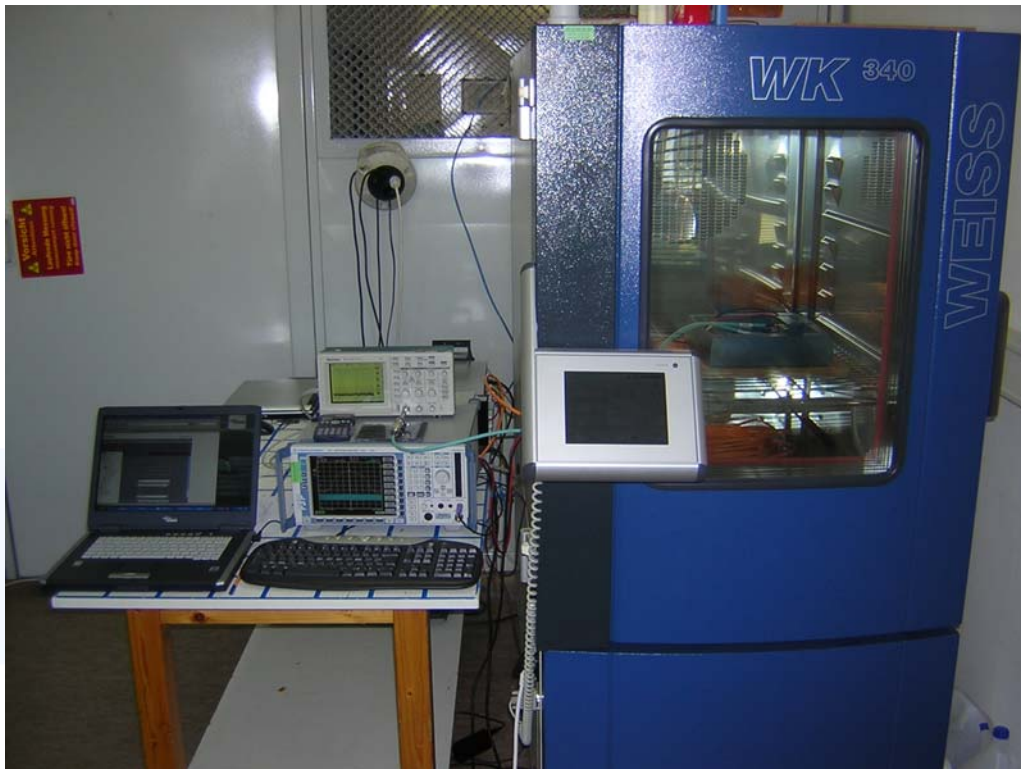
## 5.15 Peak power excursion measurement

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

### 5.15.1 Description of the test location

Test location: AREA4

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



## 5.16 Power Spectral Density

For test instruments and accessories used see section 6 Part CPC3.

### 5.16.1 Description of the test location

Test location: AREA4

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

