

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



5.2 6 dB Bandwidth

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 set-up



5.2.3 Applicable standard

According to FCC Part 15 Subpart 15.247 (a) (2): Systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 – 2483.5 MHz and 5725 – 5850 MHz bands. The minimum 6 dB band width shall be at least 500 kHz

5.2.4 Description of Measurement

The bandwidth was measured at an amplitude level reduced from the reference level by a specified ratio of -6 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.

Spectrum analyzer with the following settings:

RBW=100 kHz
VBW=300 kHz
PEAK Detector

The table below shows the settings according to ANSI C63.4-2003.

Fundamental frequency	Minimum resolution bandwidth
9 kHz to 30 MHz	1kHz
30 to 1000 MHz	10 kHz
1000 MHz to 40 GHz	100 kHz

5.3 Maximum Peak Conducted Output Power

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 Subpart 15.247 (b): For systems using digital modulation in the 2400-2483.5 MHz and 5725 – 5850 MHz bands, the maximum peak output power of the transmitter shall not exceed 1 Watt. If transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

5.3.4 Description of Measurement

The transmitter output was connected to the spectrum analyzer through an attenuator. The center frequency of the spectrum analyzer is set to the fundamental frequency using 1 MHz RBW and 300 kHz VBW. The span of the spectrum analyzer should be larger than the Emission Band Width (EBW). To get the total power of the occupied band width the function "Channel Power Measurement" of the analyzer has been used. The channel band width has been set to EBW. With Peak detector and Power Mode Max Hold the result is the summed maximum output power of the EBW.

5.4 Spurious emissions

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

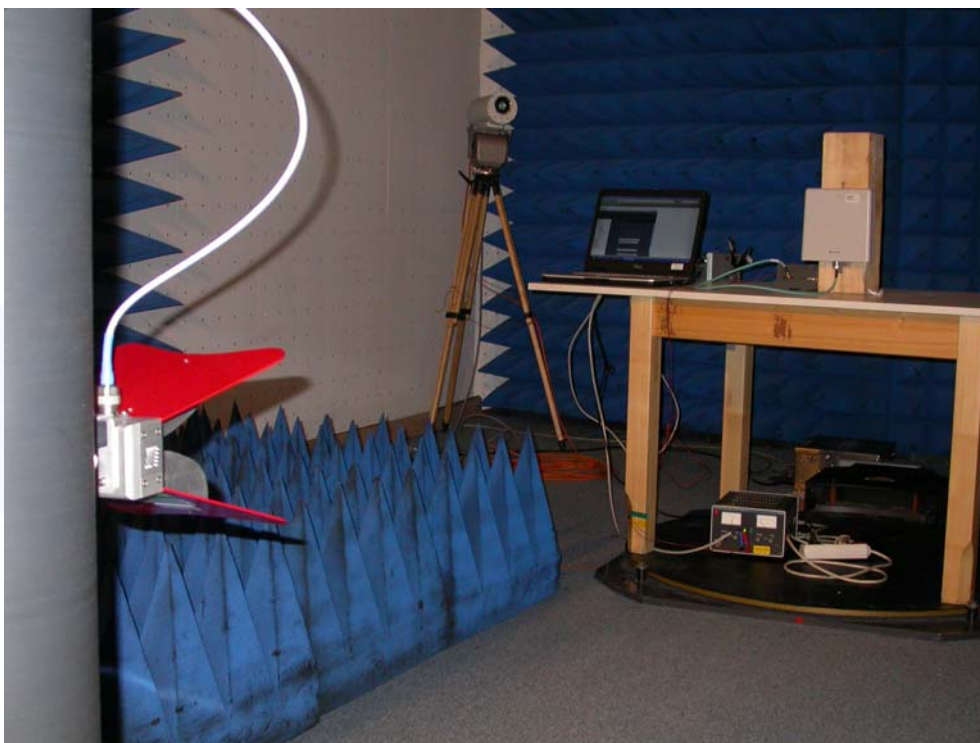
5.4.1 Description of the test location

Test location: OATS1
Test location: Anechoic Chamber A2

Test distances: 3 metres

5.4.2 Photo documentation of the test set-up

Anechoic chamber



Open area test site



5.4.3 Applicable standard

According to FCC Part 15 Subpart 15.247 (d): In any 100 kHz bandwidth outside the frequency bands 2400 – 2483.50 MHz and 5725 – 5850 MHz, the digitally modulated radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in §15.209(a) is not required.

In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limit specified in §15.209(a) (see §15.205(c)).

5.4.4 Description of Measurement

Radiated 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 polarized antennas. The measurements are made with 120 kHz/6 dB bandwidth and quasi-peak detection. The EUT is placed on a 1.0 X 1.5 metres non-conducting table 80 centimetres above the ground plane. The set up of the Equipment under test will be in accordance to ANSI C63.4-2003.

The antenna was positioned 3 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 with both horizontal and vertical antenna polarization's and the EUT are rotated 360 degrees.

The final level, expressed in dB μ V/m, is arrived by taking the reading from the EMI receiver (Level dB μ V) and adding the correction factors and cable loss factor (Factor dB) to it. This is done automatically in the EMI receiver, where the correction factors are stored.

The radiated emissions from the EUT are measured in the frequency range of 1 GHz to maximum frequency as specified in section 15.33, using a Spectrum Analyzer and appropriate linearly polarized antennas. The EUT is

5.5 Power Spectral Density

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

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 15 Subpart 15.247 (e): For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

5.5.4 Description of Measurement

The EUT was connected to the spectrum analyzer with a suitable attenuator. The bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3 kHz RBW and 30 kHz VBW, set sweep time equal to span/3 kHz. The power spectral density was measured using the analyzer function "Channel Power" in dBm/Hz. The result is calculated by adding 35 dB ($10\log 3000 \text{ Hz/Hz}$) as band width correction factor to the analyzer reading.

Spectrum analyzer settings:

RBW: 3 kHz
VBW: 30 kHz
Sweep time: auto
Detector function: AV