Annex B. Test Equipment

B.1 Introduction

B.1.1 General

The test equipment is either an equipment or assembly of equipment which enables the tests described in this specification to be conducted. This annex describes requirements for the test equipment which cannot be derived from and which are assumed in, the conformance test descriptions described in this specification.

Specifically stimulus setting and measurement uncertainties are defined.

B.1.2 Test equipment terms

The term "System Simulator" (SS) is used to describe the complete suite of test equipment required to perform the tests in this specification when interacting with the following MS interfaces:

- Antenna (Connector or radiated);
- Acoustic;
- Data Port(s);
- Power supply;
- DAI.

B.1.3 Confidence level

All uncertainty values stated in this annex are quoted for a Confidence Level of 95 %.

B.2 Standard test signals

The Cx signals represent the wanted signals and the Ix signals represent the unwanted signals.

Signal C0 Unmodulated continuous carrier.

Signal C1 A standard GSM signal with the modulation derived by applying a data reversals signal to the input of a channel coder. The channel coder will depend on the test and the cipher mode shall be selectable by the test method. When using this signal in the non hopping mode, the

unused seven time slots shall also contain dummy bursts, with power levels variable with respect to the used timeslot.

Signal I1 A GMSK modulated carrier following the structure of the GSM signals, but with all modulating bits (including the midamble period) derived directly from a random or pseudo random data stream.

Signal I2 A standard GSM signal with valid midamble, different from C1. The data bits (including bits 58 and 59) shall be derived from a random or pseudo random data stream.

B.3 SS functional requirements

B.3.1 Level setting range

It is assumed that the SS is capable of setting stimulus levels, at the MS interface, to those required in the test specification extended by the measurement uncertainty defined in this Annex.

NOTE: This ensures that the SS is able adequately to stimulate the MS performance at and just beyond the limit requirement under all conditions.

B.3.2 Level Measurement / operation range

It is assumed that the SS is capable of performing measurements, within the uncertainty defined in this Annex, over a level range, at the MS interface, as required in the test specification extended by the SS measurement uncertainty defined in this annex and extended by a further 3dB on the MS conformity requirement.

NOTE: This ensures that the SS is able adequately to measure the MS performance at and just beyond the limit requirement under all conditions.

B.3.3 MS power supply interface

Test DC power supply for MS:

Voltage setting uncertainty < 1 %.

Ripple < 10 mV RMS, 50 mV peak to peak.

Test AC power supply for MS:

Voltage setting uncertainty < 1 %.

B.3.4 MS antenna interface

The SS is assumed to offer a nominal 50ohm impedance to the MS.

	GSM/DCS band	< 4GHz	< 10GHz	< 12.75GHz
VSWR	≤1.3	≤1.3	≤1.3	≤1.3

B.3.4.1 Power versus time measurements

Measurement uncertainty of peak transmitter carrier power: ± 1dB

Measurement uncertainty of power level (relative to peak transmitter carrier power):

Power level	Measurement uncertainty
+ 6 dB to –7 dB	± 0,25 dB
–7 dB to –20 dB	± 1,0 dB
–20 dB to –32 dB	± 2,0 dB
–32 dB to –45 dB	± 5,0 dB
–45 dB to –71 dB	± 1,0 dB
< –71 dB	± 2,0 dB

B.3.5 Block diagram of test equipment