
16 Reception time tracking speed

16.1 Definition and applicability

Reception time tracking speed is the speed at which the MS adapts its transmit time to a change in the timing of the received signal.

The requirement and this test apply to all types of GSM 400, GSM 900 and DCS 1 800 MS.

16.2 Conformance requirement

If the MS determines that the timing difference with signals received from the BS exceeds $2\ \mu\text{s}$, the MS shall adjust its timebase in steps of $1/4$ bit period, in intervals not less than 1 s and not greater than 2 s until the timing difference is less than $1/2$ bit period at 3 dB below reference sensitivity and 3 dB less carrier to interference ratio than the reference interference ratios.

GSM 05.10, 6/6.2.

16.3 Test purpose

- 1) To verify that the MS adapts its transmit time to the timing of the received signal as in the conformance requirement under TUHigh propagation conditions at 2 dB above reference sensitivity level().
- 2) To verify that the MS adapts its transmit time to the timing of the received signal as in the conformance requirement under RA propagation conditions at 2 dB above reference sensitivity level().

NOTE: This test is performed at a level higher than in the conformance requirement because of test implementation problems.

16.4 Method of test

16.4.1 Initial conditions

The SS sets up a call according to the generic call set up procedure on a channel in the Mid ARFCN range.

The SS sets TUHigh.

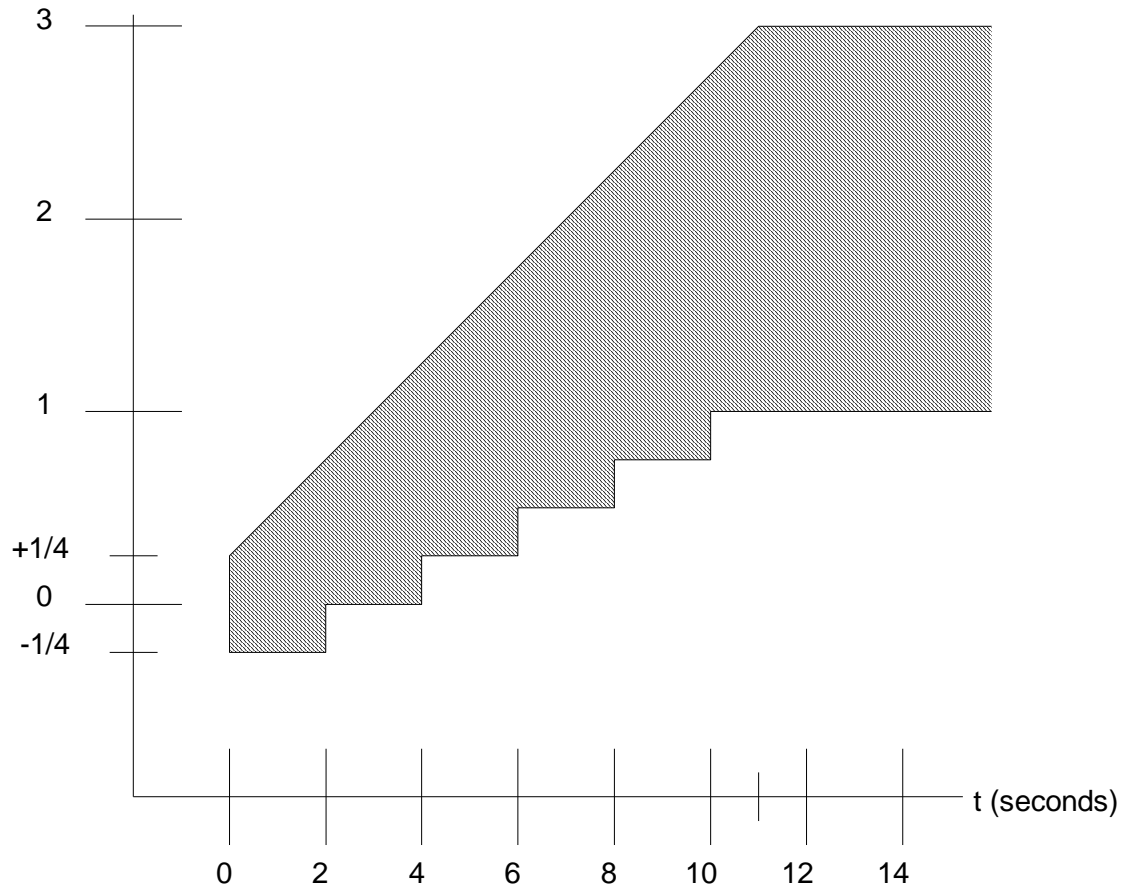
16.4.2 Procedure

- a) After 10 s the SS sets the input signal level to 2 dB above reference sensitivity level().
- b) For the last second before step c) the SS takes an average receive/transmit delay of all bursts in that 1 s.
- c) The SS increases the delay of the transmitted signal to the MS by a 2 bit step (about $7,4\ \mu\text{s}$) and keeps this delay for 20 s.
- d) The SS measures the absolute receive/transmit delay for each burst.
- e) The SS increases the input signal level to 5 dB above reference sensitivity level() and sets propagation condition RA.
- f) The SS repeats steps a) to d).

16.5 Test requirement

The MS shall adjust the timing of its transmit burst back to the correct receive/transmit timing delay. All burst timings shall be within the shaded part of Figure 16.1.

bits change
of transmit
timing



t=0 is the time at which the SS makes the transmission timing step change in c) of subclause 16.4.2.

Figure 16.1