

TSG-RAN Working Group 3 meeting #8
Abiko, Japan, 25 – 29 October 1999

TSGR3#8(99)e60

TSG-RAN Working Group 1 meeting #8
New York, Oct. 12-15, 1999

TSGR1#8(99)H48

Agenda item:

Title: Answer to the LS about TDD synchronisation methods
To: TSG RAN WG3
Source: TSG RAN WG1
CC: TSG RAN WG4
Document for: Information

TSG RAN WG1 thanks TSG RAN WG3 for their liaison statement about TDD Node B synchronisation methods. In our document TSGR1#7(99)E39 which was sent as a liaison to TSG RAN WG3 we indicated that TSG RAN WG1 needed some more time to consider this topic. Now, we are in a position to give an answer to the request of TSG RAN WG3.

TSG RAN WG1 sees that we can do TDD Node B synchronisation over the air and a signalling method in the higher layers for this purpose is useful. TSG RAN WG1 has not yet analysed whether the proposed methods are able to fulfill the requirements set by TSG RAN WG4 on TDD Node B synchronisation accuracy.

The following is a short summary of the current status of TDD Node B synchronisation methods discussed in Layer 1; the details can be found in TSGR1#8(99)G42. This explanation is necessary to understand our more detailed comments on the text proposed in the attachment of the Liaison statement from WG3.

Reference TSGR3#6(99)905 proposes a method for TDD Node B synchronisation that uses the already existing synchronisation signals on the physical synchronisation channel (PSCH). Therefore, this method does not require any special air interface waveform defined in the physical layer, but does use new messages between the RNC and Node B only. Transmission pauses have to be introduced to enable reception of the neighbouring cell's synchronisation channel.

TSGR1#8(99)G42 proposes a synchronisation technique that uses a special synchronisation signal that is sent in selected PRACH time slots. Each Node B is assigned a number of frames within a system frame in which the PRACH time slot will not be available and instead it transmits a particular synchronisation burst. If the presence of a synchronisation burst is detected by a Node B, the Node B can include the measure in a timing message to the RNC indicating the timing measurement, the frame and system frame number in which it was detected and which sequence was received. This method requires the transmission of special air interface waveforms, but no hearing pauses have to be introduced which means that no reshuffling or stopping of the SCH, CCPCH or traffic transmission is needed.

To summarise, there are two methods for TDD Node B synchronisation under discussion in TSG RAN WG1. Presently, the signalling described in the attachment of TSGR3#6(99)905 in TSG RAN WG3 is specific for the first of the two mentioned methods for TDD Node B synchronisation and may not completely support the flexibility of introducing other physical layer methods for TDD Node B synchronisation. Therefore, TSG RAN WG1 would like to ask TSG RAN WG3 that the signalling to support TDD Node B synchronisation should be included in their specifications or reports, but this signalling should not exclude other methods, e.g. the physical layer solution that is given in TSGR1#8(99)G42. Therefore, it would be useful to include sufficient parameters in TSG RAN WG3 specifications/reports now to be able to introduce other layer 1 Node B synchronisation methods later.