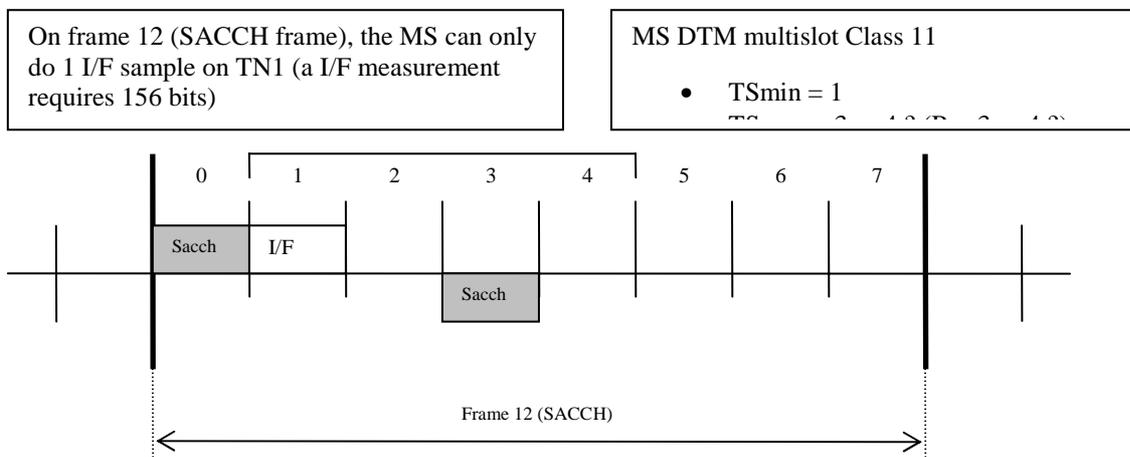
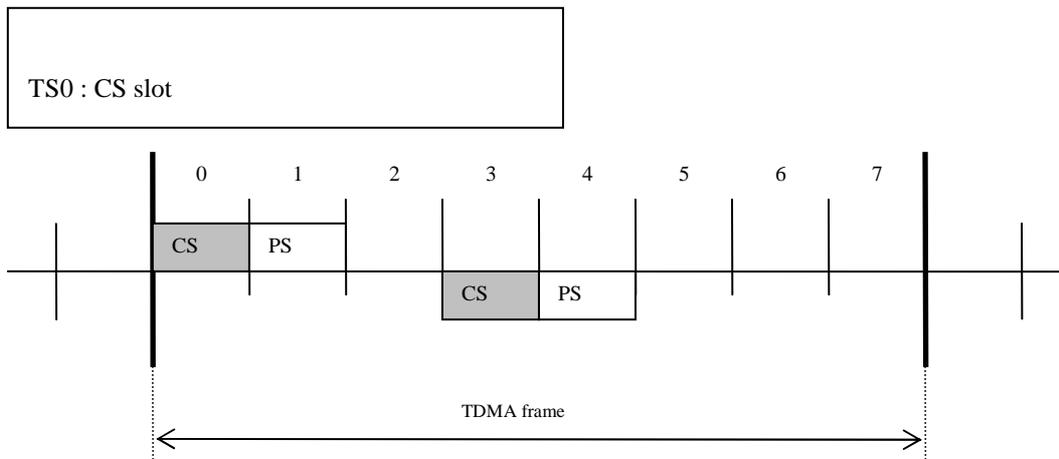


Discussion: interference measurements for DTM

The specifications for Dual Transfer Mode (DTM) simultaneous voice and data service imply that interference measurements on the Packet Switched domain would be made and reported in the same manner as for a non-DTM packet data transfer. This would involve making interference measurements on the Packet Data Channel (PDCH) as per [1, 2] and then reporting the measurements to the network via the downlink Ack/Nack message. Nevertheless, due to the fact that there is some coordination between Circuit-Switched (CS) and Packet Switched (PS) operation during DTM, we raise the question as to whether or not the limitations placed on performing and reporting the measurements are worth the additional effort and power consumption required to perform these measurements:

- 1) A smaller number of measurements may be available to the MS on different timeslots, and
- 2) Assuming that the measurements are available on the MS side, there exist a smaller number of opportunities for the MS to send the measurements to the network, especially in the case of Uplink Temporary Block Flow (TBF).

Consider the following DTM timeslot assignment:



Issue #1: limitations to measurements: If on frame 25 (search frame), there is no Base Station Identity Code (BSIC) decoding processing to be done, then we can perform other interference measurements on this frame as well.

This raises the question: on frame 25, shall the MS perform

- 3 or 4 measurements (cf. question on RX value defined in [1], 3GPP 45.008 section 10.2.3.2.1) on frame 25 from TN1 to TN4 (if Rx=4) or from TN1 to TN3 (if Rx=3), or
- only 1 measurement on frame 25 on TN1?

Then, the MS can take the minimum of the 2 samples made on frame 12 and frame 25.

Summary: If the MS has made interference measurements on TN1, few measurements will actually be acquired.

Issue #2: limitations to measurement reporting:

In DTM, the only RLC/MAC control messages that the MS can use for sending interference measurements are:

- Packet Downlink Ack/Nack (only used in Downlink TBF)
- Packet Resource Request, which can be used in Dynamic Allocation for Uplink TBF in some very particular situations e.g. to change radio priority and/or peak throughput class.

Summary: The number of interference measurements in DTM sent by the MS to the network is small in the case of an Uplink TBF.

Summary

Did we overlook these factors when specifying DTM? Based on limited utility value of the measurements themselves, should we remove the requirement to perform PS domain interference measurements in DTM? We welcome your comments and feedback.

References

[1], 3GPP 45.008, “Technical Specification; 3rd Generation Partnership Project; Technical Specification Group GSM/EDGE Radio Access Network; Radio subsystem link control”, (3rd Generation Partnership Project (3GPP) Technical Specification (TS)).

[2], 3GPP TS 45.002, “3rd Generation Partnership Project; Technical Specification Group GSM/EDGE Radio Access Network; Multiplexing and multiple access on the radio path”, (3rd Generation Partnership Project (3GPP) Technical Specification (TS)).