

**Agenda Item:**

**Source:** 3GPP TSG RAN WG1  
**To:** 3GPP TSG RAN WG2  
**cc:** 3GPP TSG RAN WG4  
**Title:** Answer to LS R2-010205 (R1-01-0145) "Results of HSDPA Study Item AdHoc"  
**Document for:** Decision  
**Contact person:** Farooq Khan, Lucent Technologies  
Email: [fkhan1@lucent.com](mailto:fkhan1@lucent.com)

---

RAN WG1 would like to thank RAN WG2 for the information provided in the LS R2-010205 (R1-01-0145). During RAN1 WG1#18 in Boston many contributions on HSDPA have been discussed. At the end of the meeting RAN1 will be providing RAN2 with an updated version of the RAN1 TR 25.848 for information as well as an appropriate text to go with the RAN2 relevant sections in RAN2 TR 25.950.

RAN1 has discussed the questions sent in the LS and has the following answers:

1. *There have been proposals providing flexibility to change the modulation and coding schemes on retransmissions when implementing HARQ. WG2 would like to ask WG1 to comment on the feasibility and related complexity issues.*

Answer:

RAN1 has had a few contributions on this topic. Two main schemes are being studied: one which allows changing MCS in retransmission when implementing HARQ and another that does not provide such flexibility in the same manner. Both schemes have performance and complexity trade-offs which will be assessed thoroughly in future meetings.

RAN1 will provide further information on this topic in due time.

2. *In the above context or in case of variable SF, it could also be possible to change the number of transport blocks in the retransmission attempts. WG2 would like to ask WG1 to comment on the feasibility and related complexity issues.*

Answer:

RAN1 discussed this issue and it is understood by RAN1 that when the HSDPA TTI is in error, the majority of the transport blocks within the TTI are also erroneous. Thus, it is desirable to retransmit the whole TTI. Hence, there is no gain in doing per transport block Ack/Nack which adds extra overhead and complexity. Therefore, it is not recommended to change the number of the transport blocks in the retransmission attempts.

3. *It has also been proposed to have the TTI as dynamic attribute of the HS-DSCH transport channel. This is a substantial change from R99 and WG2 sees it as needing further study especially in terms of scheduling aspects. WG2 requests WG1 comments regarding the desirability of such a feature.*

Answer:

Two approaches have been identified by RAN1 for Transmission Time Interval in HS-DSCH: an approach with fixed TTI and the second approach of dynamic TTI. With the variable TTI approach, the duration of the transmission is varied while the code block size in bits is kept fixed.

It was noted that variable TTI adds flexibility in resource allocation in the time domain in addition to the flexibility that exists in code domain for fixed TTI.

Further information on this topic will be provided to RAN2 after RAN1 has evaluated performance and complexity trade-offs on variable and fixed TTI schemes.

4. *The R99 architecture permits multiple DSCH transport channels to be multiplexed onto a single CCTrCH. WG2 requests comments from WG1 on the feasibility of this to HS-DSCH for HSDPA*

Answer:

It is understood by RAN1 that features supported in R99 architecture should be inherent for HS-DSCH. Therefore, it is well understood that the architecture will support multiple transport channels on a single CCTrCH for HS-DSCH.

5. *There has also been a proposal discussed in RAN2 to consider introduction of a stand-alone DSCH which should be deployed on a separate carrier. This channel could reuse the R'99 protocol architecture above the physical layer, but would allow to consider physical layer processing schemes different from the ones used presently. RAN WG2 would like to ask RAN WG1 and RAN WG4 to consider this high-speed downlink access approach and to comment on feasibility, including aspects of coexistence and compatibility with UMTS R'99 physical channels.*

Answer:

RAN1 has had no contributions on this topic and has not yet discussed it. RAN1 will provide information on this when they become available in future meetings.

Further RAN WG1 requests RAN WG2 to add TDD reference R1-01-144 in RAN2 TR 25.950.