3GPP TSG-N WG1□□□□□□□□□□□□□□□□**N1-000518**
Umea, Sweden
28 Feb – 03 Mar 2000

Source:	**N1**
To:	**RAN3, S4**
CC:	**N2B, RAN2**
Agenda Item:	**LS out (OoBTC)**
Title:	**LS on AMR modes & Supported Subflow Combinations**

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1.   Introduction

N1 is currently undergoing the standardisation of call control procedures for support of the work item for Out Of Band Transcoder Control. These procedures assume the goal is to establish Transcoder Free connections for MS to MS calls. Multirate codecs (such as UMTS AMR) could be negotiated between end points and it is assumed by N1 that the result could in some cases be a subset of the modes applicable to a particular codec type -ACS.

2. Allocation Of RFCIs

If the endpoints of a Transcoder Free negotiated connection are connected via UTRANs then each MSC must perform a RAB assignment requesting a set of SDU formats which correspond to the negotiated modes of the selected codec type – the ACS.

It is assumed by N1 that if the RNC accepts the RAB Assignment Request then it can support all of the SDU formats requested by the MSC. If this is not the case then the TrFO connection could result in a through connected call with no compatible Sub-flow combinations because there is no possibility for the OoBTC to subsequently insert a transcoder – it doesn't know there is a problem.

N1 is concerned that this assumption has not been supported by RAN WGs due to the inclusion of point 2 in Annex A of TS 25.415:

" Allocation of RFCIs: the RNC dynamically allocates an identification (RFCI) to each permitted/possible combinations that it can offer……."

Although this statement is part of an Informative annex it suggests that it is possible for an RNC to only initialise a subset of the requested SDU formats from the RAB assignment.

3. Active Codec Set to the MS

The AMR codec types for UMTS & GSM include the defined parameter ACS – Active Codec Set. This is defined as the common total set of modes for a given connection between two AMR codecs. It is understood by N1 that rate control techniques perfomed inband may reduce this set to an Allowed Set, or to a single mode – Exact rate control. However it must always be within the agreed ACS.

It is assumed by N1 that no downlink call control message (Direct Transfer) is required because this ACS will be conveyed to the mobile station via the Transport Configuration sets sent by RNC to MS at RB set-up. These will correspond to the same modes requested by the MSC in the RAB assignment request.

4. Initial Codec Mode

It is not clear to N1 if the ICM is really needed in the OoBTC parameters. It is stated in the TS 26.103 that the ICM is optional and if not included by the originating side then the terminating side may select freely. It is assumed that this indicates the mode that one side wishes to receive as a downlink frame. Thus for a given type if ICM is important (i.e. the received frame from the other end) then it would be included in both directions (the returned, Selected Codec with ICM set would be what the terminating end requests that the originating end should send). If a codec type did not have any restriction on which modes from the active set that it could receive from the other end then it would not include the ICM parameter.

If the ICM should be conveyed to the mobile station it could be performed by downlink call control message (Direct Transfer). An alternative to this would be that the RNC informs the UE at RB setup. This would require that the MSC informs the RNC of the ICM at RAB assignment.

It is presumed by N1 that the Direct Transfer proposal is preferred by RAN groups if the MS must be informed at all. This however can only be achieved successfully if the RNC initialises all subflow combinations from the requested SDU's in the RAB assignment.

If ICM is not required then the MS is free to select a start mode from the transport configuration sets allocated at RB setup.

5. Conclusion

N1 requests that it is stated in the RAN technical specifications that the RNC shall initialise all subflow combinations requested by the MSC. In conjunction it should be stated that the MSC shall not request any SDU formats that the serving RNC cannot support.

N1 requests clarification from S4 on the relevance of the ICM in a downlink call control message to the MS. Due to time constraints for N1 to complete this WI by the end of this week, if no decision can be reached in S4, N1 will include the ICM in Selected Codec message sent in Direct Transfer to the MS. However this will be optional as described in TS 26.103.