**TSG-RAN Working Group 1** ***TSGR1#8(99)e51***
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3GPP TSG-SA Codec Working Group *TSGS4#6(99)264R*

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| **Liaison To:** | **TSG-R1** |
| **From:** | **SA WG4** |
| **cc:** | **TSG-R2, TSG-R3, TSG-R4** |
| **Title:** | **Liaison statement on Support of Speech Service in RAN** |

TSG-S4 would like to thank R1 for the information on the current L1 assumptions for the support of AMR speech provided in LSs TSGR1#7(99)E32, TSGR1#7(99)e31 and TSGR1#7(99)e42. S4 has the following comments and answers to the issues raised in these three LSs.

It was proposed to create a joint R1, R2, R3, S4 subgroup to advance the work on the speech service definition. S4 supports this proposal, and understand that the role of the subgroup would be primarily to agree on issues relating to radio channel simulations and error patterns. Additionally, there still seems to be open issues regarding the support for AMR over the RAN. S4 would welcome joint handling of these issues as well.

Regarding the number of bits for class A, S4 has reviewed the reasons and the consequences of the proposed change. S4 has updated TS 26.101 so that the 6.7 kbit/s mode include 56 class A bits.

Noting that R1 is reviewing which CRCs to support, S4 is of the opinion that from a speech coder perspective the performance of an 8 bits CRC is sufficient.

In TSGR1#7(99)E32, the different possibilities and mapping rules regarding TFCI and BRD are outlined. The possible limitations raised some concern in S4. In particular it was not clear why the TFCI limitations would be identical to the BRD case with flexible positions. In addition, S4 would like to point out that there are several reasons including compatibility with e.g. GSM systems why any limitation in mode sets are highly undesirable.

TSGR1#7(99)E31 lists a number of questions regarding AMR rate control. S4 has the following general comments to these.

Rate adaptation in UTRA context:

It is fully recognised that UTRAN and e.g. GSM have different channel behaviour, and hence different requirements on the AMR rate adaptation. The main application in UTRAN is believed to be the network adaptation based on capacity and load considerations. However, this should not limit the usage. Furthermore, S4 believes that tandem free scenarios within UMTS and also to GSM are important for high quality (i.e. no transcoding) and high efficiency in the transport network (i.e. carry the compressed voice). In these cases, the need for rate adaptation occurs in both mobile networks. Rate changes initiated by the far end must therefore simply be carried out also on the downlink in UTRA. From this perspective, AMR rate changes are similar to the more or less continuous rate changes caused by the source controlled rate operation.

Signaling for rate adaptation:

It appears that several methods are possible for this, and S4 does not have a strong view on which is the preferred solution. The following comments should however be taken into account when deciding on the most suitable methods for RAN. Rate changes requested as a result of capacity or load changes in UTRAN are expected to be relatively infrequent. However, the reaction time may still be required to be low. The scenarios which should be taken into account include also the case of UE - UE or UE - MS in GSM. In these cases the UTRAN signaling mechanism must be able to fully interoperate with the symmetric inband control used by GSM for rate adaptation.

Transmission scenarios:

There are no reasons to exclude any of the listed scenarios. It must be possible to use rate control on both up- and downlink. The UE - UE and UE - MS (in GSM) are important cases which must be considered.