TSG-RAN Working Group 1 meeting #18

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**Title:** Proposed parameter values for default configurations

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# 1. Introduction

At the RAN WG1#17 meeting RAN1 discussed default configurations which are to be used for handover to UTRAN in response to a liaison from RAN 2. For default configurations the parameter values are specified in the standard. They are used because upon handover to UTRAN it is undesirable to signal all parameter values due to message transfer limitations in GSM.

RAN 1 was requested for guidance on the value of some TrCH and PhyCH parameters that are not covered in TS 34.108 [2]. RAN2 included a preliminary list of configurations for which these parameter values need to be specified. This contribution includes proposed values for the requested parameters for some of the configurations included in RAN2's preliminary list. The aim is to progress the issue, which is essential considering the RAN2 objective to complete the agreement of all parameter values prior to the next RAN meeting.

# 2. Proposed TrCH and PhyCH parameter values

## 2.1 Introduction

This chapter includes proposed values for the TrCH and PhyCH parameters for which RAN2 requested guidance. This contribution addresses the following configurations, included in RAN2's preliminary list and in TS 34.108 [2]:

?? 13.6 kbps SRB [2, 6.10.2.4.1.3]

?? 12.2 kbps speech + 3.4 kbps SRB [2, 6.10.2.4.1.4]

?? 64kbps conv. CS- data + 3.4 kbps SRB [2, 6.10.2.4.1.13]

?? 57.6 kbps streaming CS- data + 3.4 kbps SRB [2, 6.10.2.4.1.17]

For some RABs there are alternative values given in TS 34.108 [2]. In this contribution it is assumed that the default value is used rather than the alternative value. Other configurations may be addressed later, when RAN2' s list has been concluded.

## 2.2 Rationale Proposed parameter values

The proposal is to use a configuration that is agreeable even though it may not be the most optimal configuration for specific implementations. The reconfiguration procedure may be used to further optimise the configuration after handover.

### Gain factors

The proposal is to use calculated gain factors with one reference TFC. Gain factors for the other TFCs are calculated from the reference TFC. The proposed values are based on the DPCCH/DPDCH amplitude ratios defined for the measurement channels in 25.104, section A.1 [4]. No measurement channel has been defined for the 13.6 kbps SRB or the 57.6 kbps streaming RABs It is proposed that values defined for the conversational 12.2 kbps are used for the SRB and the 64 kbps values for the streaming RAB since they use the same physical channels and have so similar bit rates. The table provided below shows which TFC is used as reference for all other TFCs as well as the $?_c$ and $?_d$ values, which are signalled by RRC.

## Rate matching attributes

The proposal is to use a value in the middle of the range defined in TS 34.108 [2].

## BLER Quality Value

### 13.6 kbps SRB

What BLER target is suitable depends on what services WG2 expect will need this RAB at GSM to UMTS handover. Assuming SMS services,  the proposal to WG2 is 5%.

### 12.2 kbps speech + 3.4 kbps SRB

It is proposed that $7x10^{-3}$ is used for class A bits. This value has previously been used in speech codec discussions [3]. As the UE is not required to monitor the BLER of all TrCHs. No value is proposed for the SRB.

### 64kbps conv. CS- data + 3.4 kbps SRB

There are BER values proposed for different RABs in 34.108 [2]. For 64 kbps conv. CS- data the value is $1x10^{-4}$ (assuming that the lower value in [2] should be used together with the longer TTI). This value has been mapped to a BLER of $2x10^{-3}$. The mapping of BER to BLER is somewhat dependent on the propagation conditions and UE speed but in our simulations, the differences are small and it is believed that it should be possible to use one value that can be reconfigured later. As the simulations indicates that there are small differences between different environments, it is our belief that there would be small differences between different companies' channel models, simulation chains, etc.

*57.6 kbps streaming CS- data + 3.4 kbps SRB*
Through simulations, the BER value $2x10^{-3}$ [2], has been mapped to a BLER of $1x10^{-2}$.

## DPCCH Power Offset

This parameter is used by the UE to calculate the initial output power according to the open loop power control procedure. It is considered difficult to specify a value that works well for all different cell configurations (the parameter value range is very large). It is therefore proposed that this parameter is included in the HANDOVER TO UTRAN COMMAND message. This should be indicated to WG2. Obviously, the number of bits in this message it very limited. Hence it is proposed that WG1 indicates to WG2 that it is acceptable to use a lower granularity compared to what is used normally. The current range is (-164,..-6 by step of 2) and it should be possible to decrease the number of bits needed by 2, i.e. to steps of 8.

## PC preamble

By using a PC preamble of length 0, smallest possible data loss is obtained for CS services. The only benefit with longer PC preambles is to avoid unnecessary retransmission of RRC messages. However, it is not obvious that RRC transmission occurs immediately in UTRAN when coming from GSM. Hence, it is proposed to use the value of 0.

## 2.3 Proposed parameter values

The following table provides an overview of the actual proposed parameter values for the configurations previously identified.

| Item | Parameter | 13.6 kbps SRB [2, 6.10.2.4.1.3] | 12.2 kbps speech + 3.4 kbps SRB [2, 6.10.2.4.1.4] | 64kbps conv. CS-data + 3.4 kbps SRB [2, 6.10.2.4.1.13] | 57.6 kbps streaming CS- data + 3.4 kbps SRB [2, 6.10.2.4.1.17] |
|---|---|---|---|---|---|
| Common for all TrCH | TFC0 | (TF0) | (TF0,TF0,TF0,TF0) | (TF0,TF0) | (TF0,TF0) |
| | TFC1 | (TF1) | (TF1,TF0,TF0,TF0) | (TF1,TF0) | (TF1,TF0) |
| | TFC2 | | (TF2,TF1,TF1,TF0) | (TF0,TF1) | (TF2,TF0) |
| | TFC3 | | (TF0,TF0,TF0,TF1) | (TF1,TF1) | (TF3,TF0) |
| | TFC4 | | (TF1,TF0,TF0,TF1) | | (TF4,TF0) |
| | TFC5 | | (TF2,TF1,TF1,TF1) | | (TF0,TF1) |
| | TFC6 | | | | (TF1,TF1) |
| | TFC7 | | | | (TF2,TF1) |
| | TFC8 | | | | (TF3,TF1) |
| | TFC9 | | | | (TF4,TF1) |
| | Reference TFC (same used for all TFCs) | 1 | 5 | 3 | 9 |
| | ?c | 11 | 11 | 8 | 8 |
| | ?d | 15 | 15 | 15 | 15 |
| TrCH | Rate matching attribute | 160 | (200,190,235,160) | (170,160) | (145,160) |
| | >>bler-QualityValue | $5 \times 10^{-2}$ | $7 \times 10^{-3}$ (class A) | $2 \times 10^{-3}$ | $1 \times 10^{-2}$ |
| PhyCH | >>dpcch-PowerOffset | - | - | - | - |
| | >>pc-Preamble | 0 | 0 | 0 | 0 |

# 4. Proposal

The intention with this contribution is to reach a preliminary agreement on the values for the requested parameters. The values are to be concluded, also for the configurations not covered by this contribution, at the RAN WG1#19 meeting. Futhermore, it is proposed that RAN2 is informed about the progress made and to request for confirmation about the list of configurations for which these parameter values need to be specified.

# 5. References

[1], R1-00-1412 (R2-002463) LS on Default configurations [RAN2]
[2], TS 34.108, V3.2.0 (2001-01), Common Test Environments for User Equipment (UE) Conformance Testing
[3], TS 26.102, V3.2.0 (2000-12), AMR speech codec; Interface to Iu and Uu
[4], TS 25.104, V3.5.0 (2000-12), UTRA (BS) FDD; Radio transmission and Reception.