Agenda Item: 16.3

Source: Alcatel

Title: Proposal to add transmission power measurement reports per code in TS 25.433

Document for: Decision

---

1   Introduction

This document proposes that transmission power per code shall be reported on the Iub from Node B to CRNC.

2   Discussion

The measurements provided by the physical layer have been defined in TS 25.302 (RAN WG2). Among others, the transmission power used by the Node B on each channelisation code for each UE shall be reported after an averaging period.

This measurement report will be particularly useful for the CRNC MAC-sh in order to schedule data transmission on the DSCH. However, transmission of data will be discontinuous for each UE on the DSCH, and the transmission rate will vary on a TTI basis. The transmission power required for each UE will heavily depend on the actual transmitted bit rate, and the averaged power value shall be associated to the averaged bit rate transmitted over the averaging period, so that the CRNC can exploit these measurements. The bit rate can be easily evaluated and averaged by the Node B from the TBS size received at each TTI. The CRNC has also the knowledge of the bit rate which has been scheduled for each UE. However, doing the bit rate averaging in the Node B eases the synchronisation between power and bit rate measurements, and also permits to take into account potential loss or delays (which means discard) of data frames on the Iub interface.

It is therefore proposed that Node B reports on Iub both the transmitted power and the bit rate averaged over a same specified period, for each UE using the DSCH. It is proposed to have a single measurement report message for all UEs using the DSCH, in order to limit the number of messages on the NBAP transport bearer.

Measurement reports on codes supporting DCH channels could also be useful to the CRNC, and the same issue of variable bit rate applies. It is therefore also proposed to define a similar measurement report procedure as for the DSCH.

This measurement needs to be defined in the NBAP measurement procedures, as new measurement type. It is proposed to define it as a NBAP common measurement for the codes supporting the DSCH, and as a NBAP dedicated measurement type for the codes supporting the DCH.
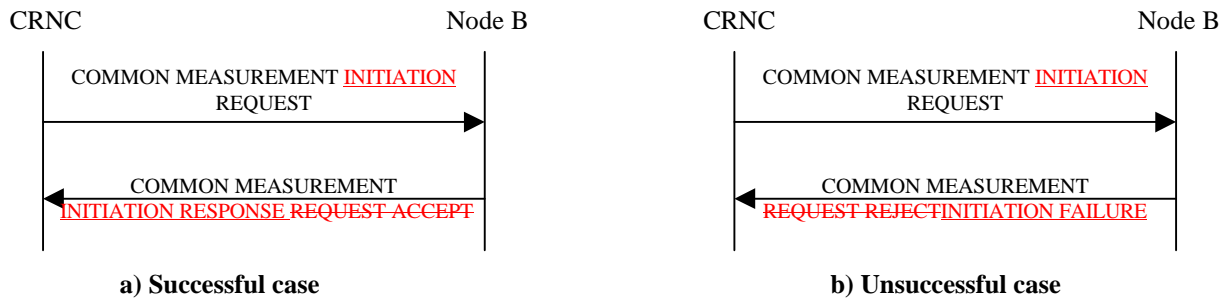
3   Change proposal in TS25.433

Changes are proposed in section 8.1.4.1 of TS 25.433, for common measurement procedure on the DSCH. A similar change shall be done in the dedicated measurement procedure, once this will be defined.

8.1.4   Radio Network Performance Measurement

8.1.4.1   Measurement Request

For requesting measurements, the RNC use the following procedure:

```
CRNC                        Node B        CRNC                        Node B

    COMMON MEASUREMENT INITIATION              COMMON MEASUREMENT INITIATION
            REQUEST                                    REQUEST
  ───────────────────────────────▶         ───────────────────────────────▶

       COMMON MEASUREMENT                         COMMON MEASUREMENT
  INITIATION RESPONSE REQUEST ACCEPT        REQUEST REJECTINITIATION FAILURE
  ◀───────────────────────────────         ◀───────────────────────────────

        a) Successful case                        b) Unsuccessful case
```

Measurement Request Procedure

The COMMON MEASUREMENT INITIATION REQUEST message includes the following information:

- **Measurement Id:** This is a RNC defined identifier that uniquely identifies the measurement.

- **Measurement Object:** This defines on which resource the measurement should be performed. For example might this identifier point out a cell or a carrier within the Node B.

- **Measurement Type:** This defines what measurement that should be performed. This could for example be "interference on the uplink", "Undecoded RACH frames", or "DL Cell Power Load", DL transmission power and associated bit rate for each UE on the DSCH.

- **Measurement Characteristics:** This defines how the measurements should be performed. For example measurement frequency, timing information, filtering information. *The exact structure and contents of this parameter is dependent on the Measurement Type and is FFS.*

- **Report Characteristics:** The reporting could be any of the following classes:

    Periodic: Reports should be delivered in a periodic matter with some frequency. In this case the update frequency have to be specified.

    Event Triggered: Reports should be delivered upon a specific event in Node B e.g Performance threshold crossing. In this case the event have to be specified.

    Immediate Reporting: A report should be delivered immediately. Only one measurement report should be sent and after that the measurement is automatically cancelled.

The possibility to request several measurements for the same event is FFS.

The COMMON MEASUREMENT INITIATION REQUEST message is used to accept a requested measurement and it includes the following information:

- **Measurement Id:** This is the same Id that was used in the request.

The COMMON MEASUREMENT INITIATION FAILURE message is used to reject a requested measurement and it includes the following information:

- **Measurement Id:** This is the same Id that was used in the request.

- **Cause:** This states the cause for the reject. *The exact content of this parameter is FFS.*

4   Conclusion

It is proposed to include changes proposed in section 3 of this document into TS 25.433.

5 References

[1]   TS 25.433 version 1.1.1, July 1999