Agenda item:

Source: Nokia

Title: DSCH and DCH operation in soft handover

Document for: Discussion & Decision

1   Introduction

In liaison from RAN WG2 (R2-32299) it was asked about the possibility to use DSCH together with DCH in soft handover in such a way that the control information between TFCI could be different from different connections. It was asked with respect to the extended coding method that is this already possible from physical layer point of view. The underlaying higher layer case was the special case when there were two RNCs involved for the connection.

The same liaison asks about the status of the DSCH control channel, thus it is recommended that Ad Hoc 14 would take the action for answering to the liaison statement.

2   Consideration

It is evident from the physical layer point of view that in case of extended coding case the code words can be decoded also in such a way that for decoding the code word relevant for DSCH, only the symbols from one of the links are taken into account.

This results naturally that soft handover is no longer giving gain to the detection of that particular code word and thus the error rate will increase with this code word.

The lack of soft handover gain is however similar to that with the DSCH itself, which is not in soft handover either. Thus if another base station becomes substantially stronger, the obviously most optimum solution is to handover the DSCH to the stronger base station. This is rather fast process from the physical layer perspective as connection exists between the base stations (or Node Bs) already with DCH.

It is recommended that this is communicated to WG2 as a response to the liaison statement and the possibility of decoding the information separately from different links, similar to the e.g. extracting pilot bits for the connection specific channels estimation, shall be covered in the specification document.

The overall background in WG2 discussions is related to the special case when serving RNC (SRNC) is not the same as controlling RNC (CRNC), i.e. that the data from UTRAN comes via different RNC than the one controlling the DSCH allocations for the cell where UE is located.

3   Text proposal for 25.212

The following section is proposed to be added (new section):

4.3.2. Operation of Transport-format-combination indicator (TFCI) in soft handover

In the case of DCH in soft handover situation, each Node B shall transmit the identical (32,6) code word for the UE.

In the case of extended TFCI coding, the Node B shall operate with one of the following modes:

- Both words are identical from all links

- If one of the links is associated with a DSCH, the TFCI code word may be split in such a way that the code word relevant for TFCI activity indication is not transmitted from every Node B. The use of such a functionality shall be indicated by higher layer signalling.