TSG-RAN Working Group 1 meeting No. 11 — *TSGR1-00-0363*
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To:	**RAN WG1**
CC:	**RAN WG2, RAN WG4**
Title:	**LS to WG1 on the definition of a RL Set**
Source:	**RAN WG3 Iur/Iub SWG**
Document for:	**Information**
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RAN WG3 would like to inform RAN WG1 that RAN WG3 has agreed a definition of softer combined Radio Links (RLs) in a Node B. The definition is the following:

Radio Link Set: *A set of one or more Radio Links that has a common generation of Transmit Power Control (TPC) commands in the DL.*

This definition links the UL property (softer combining, e.g. maximum ratio combining) with the DL property common generation of TPC commands in the DL. This linking is in line with the current RAN WG3 definition of a RL comprising of the UL and the DL:

Radio Link: *A "radio link" is a logical association between a single User Equipment and a single UTRAN access point. Its physical realisation comprises one or more radio bearer transmissions.*
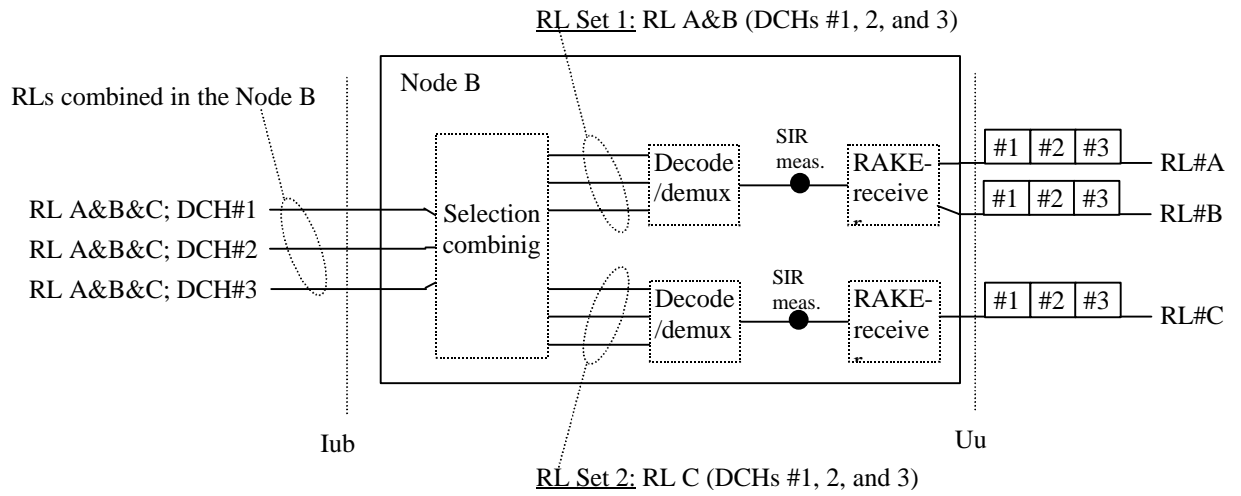
The reasons to adopt the above definition of a Radio Link Set are the following:

a) To ensure that the SRNC receives information on which RLs that are having a common generation of TPC commands in the DL. This can be used by the SRNC to inform the UE for which RLs it is possible to combine the TPC commands in the DL (RRC IE: *TPC Combination Index.*).

b) To have measurements, such as the UL SIR measurement (and UL SIR Error = UL SIR Target – UL SIR) requested and reported based on RL Sets.
    (The UL SIR measurement is currently defined as "for all combined RLs in a Node B" in TS 25.215.)

c) To report in-sync/out-of-sync over NBAP and RNSAP (RL Failure and RL Restoration procedures) on RL Sets in FDD.

RAN WG3 would like to point out that in the RAN WG3 specifications prior to this agreement it was possible to indicate whether or not RLs are combined in a Node B (over Iub) or a DRNS (over Iur). However, this notion of combined RLs did not distinguish between soft and softer combination. The focus of this indication was whether there would be one data stream per DCH (or set of co-ordinated DCHs) per combined RLs or if there would be one data stream per DCH (or set of co-ordinated DCHs) per RL. Introducing the RL Set it is also possible to indicate the RLs that are softer combined in the Node B.

In the figure below the case of both soft and softer combining in a Node B is shown. In this case there would

be one data stream per DCH for the combination of the three RLs but there would be two different RL Sets. Over NBAP (Iub) it would be indicated to the RNC both that all three RLs are combined and that RL A and B are belonging to one RL Set (RL Set 1) and that RL C is belonging to another RL Set (RL Set 2).

RL Set 1: RL A&B (DCHs #1, 2, and 3)

Node B

RLs combined in the Node B

RL A&B&C; DCH#1
RL A&B&C; DCH#2
RL A&B&C; DCH#3

Selection combinig

Decode /demux

SIR meas.

RAKE-receive

| #1 | #2 | #3 | RL#A
| #1 | #2 | #3 | RL#B

Decode /demux

SIR meas.

RAKE-receive

| #1 | #2 | #3 | RL#C

Iub

Uu

RL Set 2: RL C (DCHs #1, 2, and 3)

RAN WG3 kindly asks RAN WG1 to consider the possibility of introducing this terminology into the RAN WG1 specifications in order to achieve a common terminology.