Agenda Item: **16.4**

Source: **Vodafone**

Title: **NBAP : Proposal for additional Cause Values**

Document for: **Approval**

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1   Introduction

This document proposes a number of additional cause values for use within NBAP failure messages.

2   Proposed Additional Failure Messages

Section 9.4.33 of 25.433 currently identifiers a numbers of cause values for use in the cause IE contained within NBAP failure messages. In order to enable comprehensive system fault analysis and debugging, as well as optimisation of the radio resource algorithms, the following additional cause values are also proposed.

Node B Synchronisation Fault – Where Node B has suffered a fault relating to its timing and synchronisation functions, this will have an immediate impact on the handover performance and idle mode cell reselection of the UE's served from that Node B, and in the neighbouring cells.
In order to allow the RNC to properly compensate for this scenario, the cause value 'Node B synchronisation fault' should be included in any associated failure or reject messages. This will enable the RNC to take actions which can specifically allow for this fault scenario (e.g. alter reselection parameters or handover candidate lists).

Carrier Output Power Reduced – In the scenario where Node B experiences a failure which results in a reduction in the maximum possible transmitter output power, it should be possible for failure and reject messages to include the cause value 'Carrier output power reduced'.
Under these conditions, the capacity of the cell is reduced and the inclusion of this cause value will enable the RNC to alter its admission control algorithms to accommodate the fault.

Management Interface Link Loss – The RNC is responsible for the configuration of the logical cell resources provided in Node B. However, under certain circumstances the configuration requests originated from the Node B may require the Node B to interact with its management entity to perform the configuration (i.e. to request additional vendor specific parameters or software).
In this scenario, if the Implementation Specific O&M link is unavailable the Node B must issue a failure response to the configuration request, and the cause value 'Management Interface Link Loss' should be included in this failure response. This will allow the RNC to optimise subsequent actions taken based on this cause value (e.g. a retry may be attempted after a given time before the operation is classed as failed by the RNC).

Processor Overload – If the Node B experiences a processor overload due to an internal fault condition or excessive loading, it should be possible for any associated failure and reject messages to include the cause value 'Processor Overload'.
Under processor overload conditions, the RNC will then be capable of taking appropriate action in order to reduce the load on Node B (e.g. remove 'lower priority' radio links).

3   Proposal

The additional cause values identified above should be included in the cause value table in section 9.4.33 of 25.433.