TSG-RANWG1#3 **TSGR1#3(99)145**
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Nynashamn(Sweden)

Agenda item:
Source : NEC
Title: Split of adjacent channel protection rule
Document for: Approval and action

Measurements for adjacent channel protection rule is described in 6.4 of 3GPP RAN S1.15 (which has been renamed S1.31). The editor's comment says "the rule in itself is outside the scope of this document. Only the measurement aspects should remain." In accordance with the editor's comment, we divided the described features into layer 1 aspects and higher layer aspects as shown in annex 1 and annex 2 respectively. We suggest that annex 1 remains in S1.31.

In order to handover the higher layer aspects to WG2, we also suggest that annex 2 is moved to the annex of S1.31 at the first stage, and then the liaison which includes annex 2 is sent to WG2. The liaison could be sent with other layer 2/3 features included in S1.XX documents.

Annex 1 The measurement aspects of adjacent channel protection rule

6.4.1.1 Definitions
A candidate frequency is defined as a frequency that can be used by the own network, and a neighbouring frequency is defined as a frequency that is adjacent to a candidate frequency and cannot be used by the own network. Candidate frequencies are classified into adjacent frequencies and non-adjacent frequencies. An adjacent frequency is defined as a candidate frequency that is adjacent to a neighbouring frequency, and a non-adjacent frequency is defined as a candidate frequency that is not adjacent to a neighbouring frequency.

6.4.1.2 Measurement to perform
To support adjacent channel protection rule, UE measures Q_1 and Q_2 , where Q_1 is the received power in dBm of the downlink adjacent frequency, and Q_2 is the received power in dBm of the downlink neighbouring frequency that is adjacent to the downlink adjacent frequency. During communication using a pair of downlink and uplink adjacent frequencies, the UE measures Q_1 and Q_2 at least once in T_{INT} second by the same means with the power measurement for inter-frequency handover described in 6.1 (Measurements for the handover preparation). The information of candidate frequencies (i. e. adjacent and non-adjacent frequencies) and neighbouring frequencies are broadcasted on the BCCH by UTRAN.

Annex 2 The higher layer aspects of adjacent channel protection rule

To support adjacent channel protection rule, following descriptions should be included in the

specifications:

(1) Definitions
A candidate frequency is defined as a frequency that can be used by the own network, and a neighbouring frequency is defined as a frequency that is adjacent to a candidate frequency and cannot be used by the own network. Candidate frequencies are classified into adjacent frequencies and non-adjacent frequencies. An adjacent frequency is defined as a candidate frequency that is adjacent to a neighbouring frequency, and a non-adjacent frequency is defined as a candidate frequency that is not adjacent to a neighbouring frequency.

(2) Frequency information from UTRAN
On the BCCH, UTRAN transmits frequency information of candidate frequencies (i. e. adjacent and non-adjacent frequencies) and neighbouring frequencies.

(3) Request from UE
UE receives values of Q_1 and Q_2 from layer 1, where Q_1 is the received power in dBm of the downlink adjacent frequency, and Q_2 is the received power in dBm of the downlink neighbouring frequency that is adjacent to the downlink adjacent frequency. If Q_2 is larger than $Q_1 + R_{ACP}$, UE sends a request for non-adjacent frequencies.

(4) Frequency allocation
IF UTRAN receives a request for non-adjacent frequencies, UTRAN allocates a pair of downlink and uplink non-adjacent frequencies to the UE. Otherwise UTRAN may allocate a pair of downlink and uplink adjacent frequencies to the UE.

(5) Inter-frequency handover
During communication using a pair of downlink and uplink adjacent frequencies, the UE receives values of Q_1 and Q_2 from layer 1 at least once in T_{INT} second. If Q_2 is larger than $Q_1 + R_{ACP}$, the UE sends a request for inter-frequency handover to a pair of downlink and uplink non-adjacent frequencies. On the request, UTRAN allocates a pair of downlink and uplink non-adjacent frequencies to the UE, and starts the inter-frequency handover.