

Agenda item : 10
Source : 3GPP RAN WG1
Title : Liaison statement to WG2 on work split for random access procedures
To : 3GPP RAN WG2
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During its second meeting 3GPP RAN WG1 discussed the Random access procedures in the framework of the merging process between ETSI and ARIB. During that discussion it appeared that the work split between WG1 and WG2 on the access procedures needs to be further clarified. Different views were expressed in WG1 on the work split. WG1 is therefore seeking guidance from WG2 on this aspect. Below is some more explanation on the current situation in WG1 on this access procedures and related physical layer issues.

- 1) The agreement reached in WG1 is that power ramping on the preamble is the basis for our further work on RACH, with its consequence that this would require an Acquisition Indicator Channel (AICH) used to transmit acquisition of the preamble before the message part is sent to the network.
- 2) The AICH (Acquisition Indication Channel) is currently defined as a physical channel rather than a transport channel, meaning that such AICH is not seen from higher layers and the acknowledgement is a pure layer 1 acknowledgement.
- 3) The access procedure as documented in the draft S1.14 (Physical layer procedures) , section 6 consists in two phases, characterised as follows
 - a) the preamble transmission phase, that consists in
 - i) Selection of the access slot, and signature if multiple signatures are available
 - ii) Transmission of the preamble
 - iii) Retransmission of the preamble by the UE if no acquisition indicator is received. The retransmission is such that it would appear in a regular pattern, unless otherwise decided by the persistence algorithm. The signature is also reselected (if multiple signatures are available). There is no maximum number of such preamble re-transmissions defined.
 - iv) Power of the initial preamble is set by the open loop power control, using the persistence algorithm.
 - v) Power for the retransmitted preamble is set using the power ramping scheme solely.

b) Message transmission

- i) The message is transmitted if the Acquisition indicator is received.

It is foreseen that in order to define AICH operation appropriately from physical layer point of view, it is needed to define in WG1 the preamble power ramping procedure and the AICH indication phase of the random access procedure. This power ramping scheme may need to be parametrised, the parameters being under the control of MAC layer, and hence part of the work of WG2. The further operation could be seen as part of work in WG2 (e.g. Message retransmission scheme).