Source: Nokia

Title: Rel'99 Terminal testing & interim marker

Agenda item: **7.2.2**

Document for: Discussion

TSG RAN#14 addressed the terminal testing issues and discussed the testing aspects and terminal market availability as well as the use of the interim marker to indicate the interim and fully tested terminals. During the TSG RAN#15 discussions the concept of interim marker seemed still to be unclear for several companies. This contribution addresses the meaning of the interim marker bit, proposed to be covered in the March 02 RRC specification (25.331).

During the discussions it has been a slight confusion on how the indication is done. It has been noted as well that the deployment can be considered to be split into 3 stages, which is reality as there are pre-commercial terminals in the field as of today. Will network then assume that in ASN.1 the absence of bit (default value) means terminal is interim tested is another question.

The process, when the "full" testing capability is commercially available, will last for some time. Also the time when the majority of terminal population is based on "full" test suite is naturally even further away. We feel that this approach allows earlier deployment of the system with a lower risk of equipment suppliers and operators.

The interim marker will allow using the bit for following purposes: (Note: 2 or 3 cases depends on the ASN.1 implementation).

- Absence of bit: To separate "pre-interim" phase terminals (which do not send the bit at all as they have not implemented the CR), depending on how the signalling is agreed.
- Interim value: To separate terminals that have been tested with the interim set and thus this terminal population may be subject for special means to ensure operation of features outside the interim test set. Hence this allows reliable deployment network features, which are foreseen being introduced during the interim testing period.
- Fully tested value: To separate terminals which are fully tested and thus can be configured to use features/combinations/signalling methods part of the fully tested set or also to use cases (features) which have experienced corrections in Release'99 since the market entry of interim tested terminals.

In this case the content of the interim marker testing is visible beforehand, and it is possible to be aware of the coverage of testing and the meaning of the marker. Also this is possible to link this to the availability of test cases. Naturally this assumes that the content of the bit is recorded somewhere, and industry commonly agrees when the activation is done per interim and full testing phase.

The marker could be considered to be introduced later than March 02 as well; in the case problems are faced in the field. In this case also the terminals not having the problem

identified in the field would need to implement the marker to allow indicate that they are working properly. There would not be such a clearly defined time reference for the meaning of this type marker, since:

- Specifications are expected to face corrections for identified problems between interim and final phase of testing versions as well.
- When interim marker is introduced for example December 2002 RRC, one cannot require having the terminal to adopt all corrections up to the same date (also noting that interim phase testing will be based on earlier version than December 2002). This is just to allow signalling the interim marker to the network to enable the use of a feature where another UE vendor has an erroneous implementation.

This approach will also mean that the marker may be implemented per identified problem, which is not possible to solve by any other means. If e.g. feature X is identified to have a problem in TSG RAN#N and that is corrected with marker, then feature Y is identified to have a problem in TSG RAN#N+1, then there may be a new marker every cycle.

What are the consequences in the network side?:
a) If the marker is introduced in March 02. In the first phase RNC does not need to do anything, only when it wants to separate e.g. if some feature needs to be deactivated for interim tested terminals or operated otherwise in different manner for interim tested terminals.
b) If the marker is introduced per problem. Network needs to monitor the marker to see when UE population with a feature fixed is sufficient as for non-marker terminals the may need to be switched off in any case. There may be even multiple markers per single feature as there can be different problems even for the same feature. (Especially if using the marker to fix a feature for which there does not exists a test case).

This leaves with the question raised: "To which set does the interim marker refer to?" This set would ideally be the TSG T defined test set. However, in practice the set will be the commercially available set of the implemented test cases in the testing equipments.
Thus the detailed set may not be written in a 3GPP specification but will be defined by the industry based on the commercial availability of test cases within a reasonable time scale. Anyway this matter is open for further discussions.

Considering the above issues it is recommended to introduce the interim marker in March 02 Release'99 RRC specifications.