Downlink Repeated SACCH support

In 3GPP Rel-7 (?) of GERAN, the concept of "repeated SACCH" was introduced. The rationale for SACCH improvement can be found in 3GPP TDoc GP-042668 Section 1/2 (even though if later sections have not been implemented as suggested there): Particularly with AMR as a voice codec, the voice quality performance is better than that of control channels (and estimated 5dB).

So in the end, even though the voice channel would still be acceptable, calls fail due to signaling failure, both on SACCH and FACCH.

Repeated SACCH support basically replaces downlink System Information on SACCH (or even pending SAPI3 frames) with re-transmissions of SAPI0 frames. Due to some related logic (and signaling in the TS 44.004 header), the MS can then even combine the bursts from multiple transmissions to decode the SACCH block.

3GPP TS 44.006, section 11 describes a method how the downlink SACCH transmission can be repeated to increase transmission reliability.

Change-Id: I00806f936b15fbaf6a4e7b6d1f3bec262cdab28
Related: OS#4794, SYS#5114

3GPP TS 44.004 specifies an SRR bit in the SACCH uplink block format. This bit is used to request a repeated SACCH downlink SACCH from the BTS. When the MS is unable to decode the downlink SACCH blocks from the BTS, it should set the SRR bit. My idea for a first experiment was to trigger this by sending malformed SACCH blocks to the MS, so far this did not work, even though the MS has the Repeated ACCH Capability bit in

See also: Chapter 7.2 of "GSM/EDGE Evolution and Performance".
Note: Some of the work here overlaps with repeated FACCH support (Repeated ACCH Capability bit / signalling).

The SACCH repetition can now be requested from the MS. When I understand the spec correctly then only SAPI0 frames may be repeated, all others are not repeated.

See also: https://gerrit.osmocom.org/c/osmo-bts/+/21105 l1sap: add repeated downlink SACCH

The patch is still in review. I think we have most problems addressed now. See also: https://gerrit.osmocom.org/c/osmo-bts/+/21105

The patches are up for review, no open review issues at the moment.

I have fixed the currently pending review issues, so no open review issues at the moment.

All related patches are merged, so we can resolve this now.