

Module Interfaces (GSM Mobile Originated SMS)

Cell	Mobile Network		EventStudio System Designer 6
Mobile Station	Base Stations	NSS	

GSM Mobile Originated SMS

This scenario describes the session setup for a GSM originating SMS. This sequence diagram describes the SMS signaling and data transfer between the mobile subscriber and the SMS service center. [SMS is implemented by sending Short message transported via a GSM SDCCH (Standalone Dedicated Control CHannel) signalling channel. Thus they can be received while the user is talking. The MS establishes an SDCCH using RR establishment procedure. Copyright © 2013 EventHelix.com Inc. All Rights Reserved.

SMS Protocol stack consists of (1) SM Application layer (AL) (2) SM Transfer layer (TL):SM-TL transfers SM-AL messages. SM-TL messages are called Transfer Protocol Data units (TPDUs). (3) SM Relay layer (RL):SM-RL provides services to transfer TPDUs and corresponding delivery report for the SM-TL. SM-RP is the protocol between peer SM-RL entities at MS and MSC. SM-RP messages are Relay Protocol Data Units (RPDUs). (4) SM Connection Management sub-layer (CM-sub). CM-sub layer protocol, Short Message Control Protocol SM-CP provides services to SM-RL and communication between peer Short message Control entities, SMCs. (5) SC talks to MSC via TCAP/MAP.

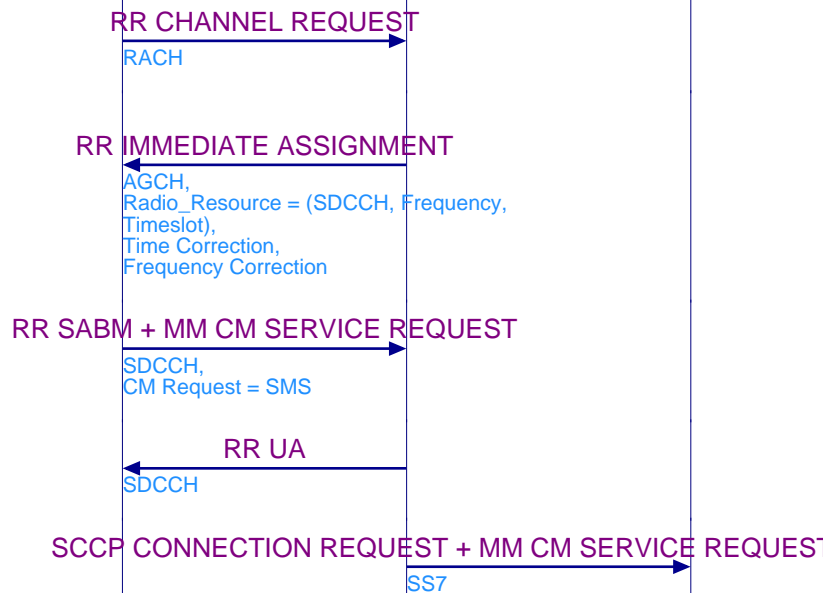
Before any message of CM-sub layer is delivered, a Mobility Management MM connection must be established between MS and MSC. Then RPDU is transferred over the connection. Then MM-connection is released by SMC with a flag indicating whether or not the transmission was successful.

SMS session related information needs to be transported from the mobile phone to the SMS Service Center (SC). This requires the establishment of a Radio Resource (RR) connection to the BSS. The first phase of the session setup just sets up this RR connection.

The MS establishes an SDCCH using the standard RR establishment procedure.

RR and MM Setup

Begin RR Connection Establishment



RR connection establishment is triggered by sending the Channel Request message. This message requests the Base Station System (BSS) for allocation for radio resources for the RR connection setup. The mobile now waits for an assignment on the Access Grant Channel (AGCH). At this point the mobile is listening to the AGCH for a reply.

The BSS transmits the radio resource assignment to the Mobile via the AGCH channel. The message also contains the time and frequency corrections. The time corrections allow the mobile to time its transmissions so that they reach the BSS only in the specified slot. The frequency corrections correct for the Doppler shift caused by the mobile's motion.

This is the first message that is sent after tuning to the channel. The CM Service Request is sent to the MSC.

The BSS replies with Unnumbered Acknowledge (UA) to complete the LAPm setup handshake

The BSS receives the CM Service Request message from the mobile and forms a "BSSMAP COMPLETE LAYER 3 INFORMATION". The BSS then piggy backs the message on the SCCP connection request message.

LEG: Initiate Authentication Procedure

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