



Technical Document - Confidential

GSM PROTOCOL STACK

G23

**FCMM – MESSAGE SEQUENCE CHARTS FOR
GPRS**

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Change History

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| | | | | | |

Notes:

1. Initial version

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| [ISO 9000:2000] | International Organization for Standardization. Quality management systems - Fundamentals and vocabulary. December 2000 |
|------------------------|---|

1.1 References

[GSM 04.08] Draft EN 300 940: April 1999 (GSM 04.08 version 6.3.0)
Mobile radio interface layer 3 specification, ETSI

2 Flow Control and Memory Management (FCMM)

The data transfer between the layers (layer 3, LLC, RLC/MAC) has to be coordinated, so that it can be ensured that the layers are able to process the data and no buffer overflow occurs.

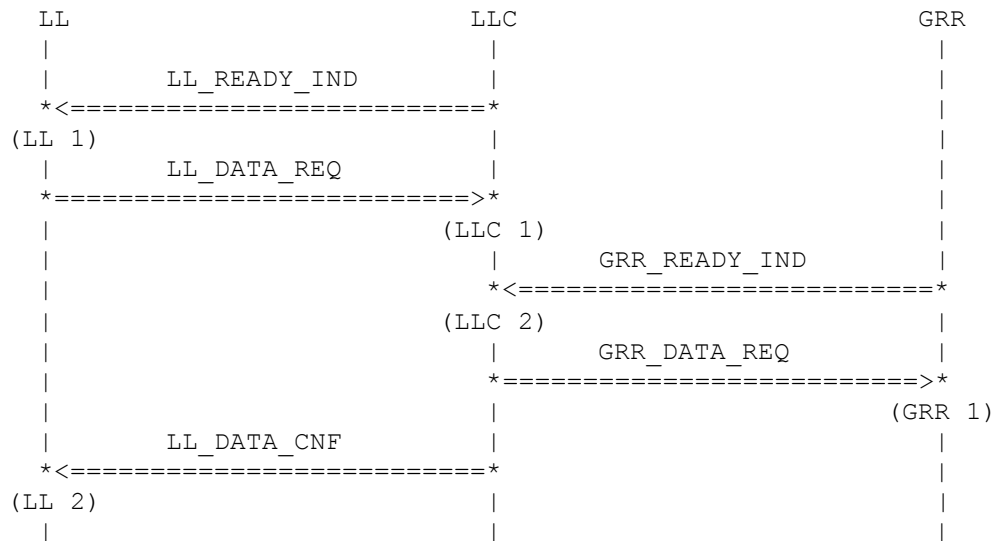
Therefore a number of primitives are introduced as extension to the specified GPRS primitives. Only the procedures that are used for sending frames to layer 3 or RLC/MAC are described in this section. The primitives that are sent to layer 3 and RLC/MAC to indicate that LLC is ready to receive data are described in the appropriate sections.

Unacknowledged frames can be exchanged in any state except in the 'TLLI Unassigned' state, but LLC is only permitted to send the next frame to RLC/MAC if the RLC/MAC layer indicates to LLC that it is ready to receive the next data frame. If no frame is waiting for transmission, LLC sets the variable `grr_send_ready` to TRUE, so that this possibility to send a frame is stored until a frame is available. After a frame has been sent to RLC/MAC, the variable `grr_send_ready` is set to FALSE.

Before layer 3 is allowed to send acknowledged frames to LLC in state 'ABM', LLC has to indicate to layer 3 that it is ready to receive acknowledged data. In this case, the variable `ll_receive_ready` is set to TRUE. After receiving a data frame from upper layer the parameter is set to FALSE and if possible, the receive ready procedure is started again.

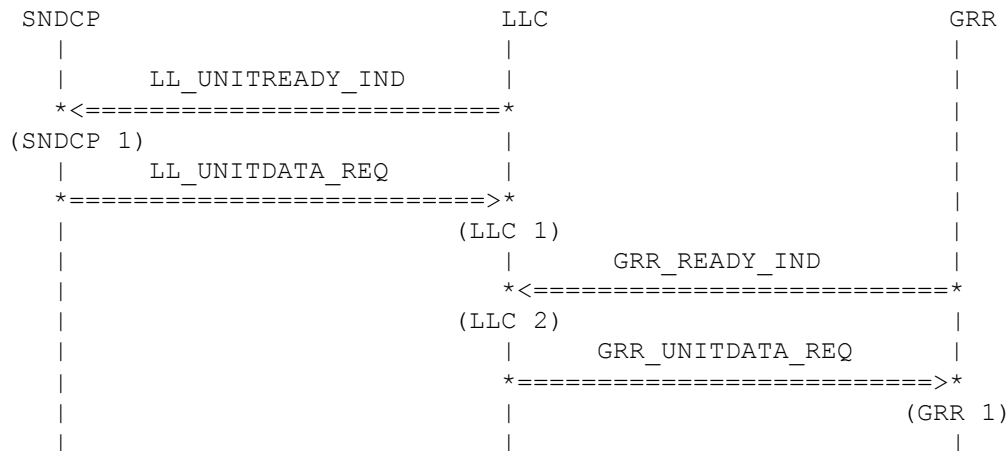
3 Uplink

3.1 I Frames

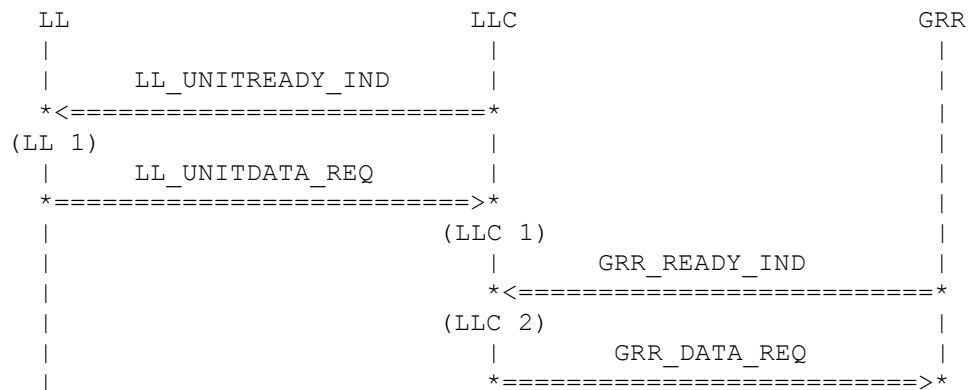


3.2 UI Frames

3.2.1 RLC/MAC unacknowledged mode

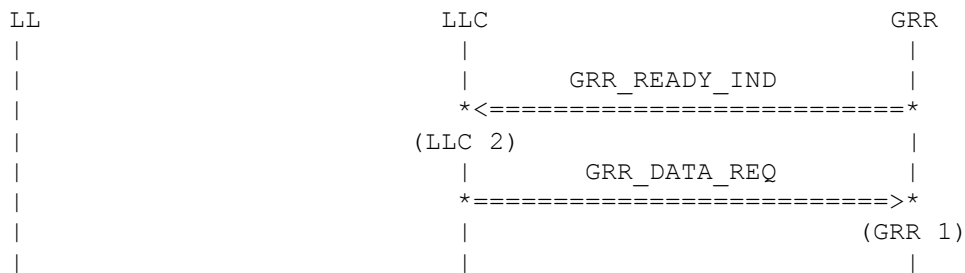


3.2.2 RLC/MAC Acknowledged mode (GMM/SM, SMS)



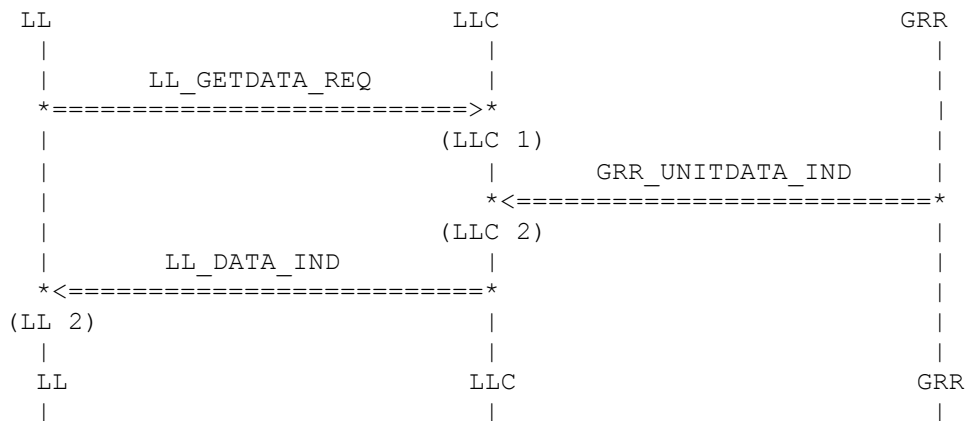


3.2.3 U Frames



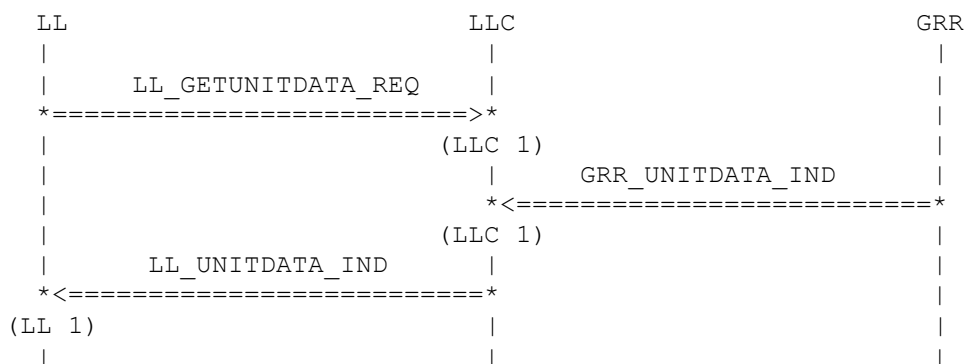
4 Downlink

4.1 I Frames

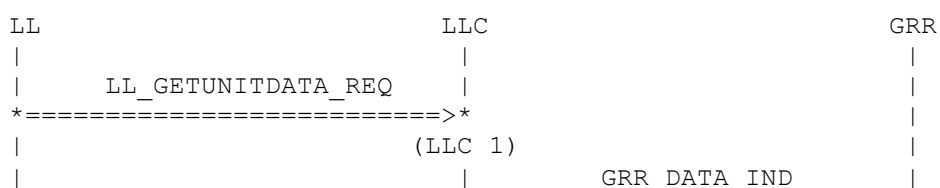


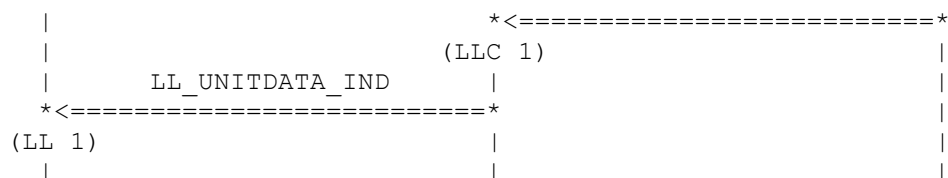
4.2 UI Frames

4.2.1 RLC/MAC unacknowledged mode

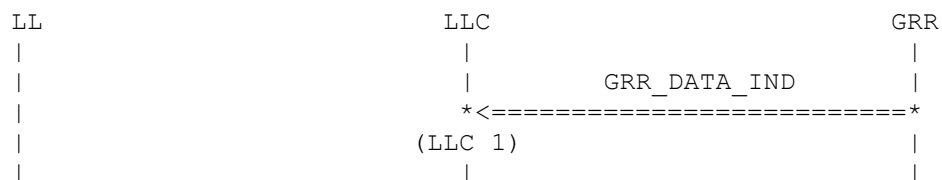


4.2.2 RLC/MAC Acknowledged mode





4.3 U Frames



Appendices

A. Acronyms

DS-WCDMA Direct Sequence/Spread Wideband Code Division Multiple Access

B. Glossary

International Mobile Telecommunication 2000 (IMT-2000/ITU-2000) Formerly referred to as FPLMTS (Future Public Land-Mobile Telephone System), this is the ITU's specification/family of standards for 3G. This initiative provides a global infrastructure through both satellite and terrestrial systems, for fixed and mobile phone users. The family of standards is a framework comprising a mix/blend of systems providing global roaming. <URL: <http://www.imt-2000.org/>>