

L-band Digital Aeronautical Communications System (LDACS)

draft-maeurer-raw-ldacs-04

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[BCP 79](#) (Patents, Participation)

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Abstract

This document provides an overview of the architecture of the L-band Digital Aeronautical Communications System (LDACS), which provides a secure, scalable and spectrum efficient terrestrial data link for civil aviation. LDACS is a scheduled, reliable multi-application cellular broadband system with support for IPv6. LDACS shall provide a data link for IP network-based aircraft guidance. High reliability and availability for IP connectivity over LDACS are therefore essential.

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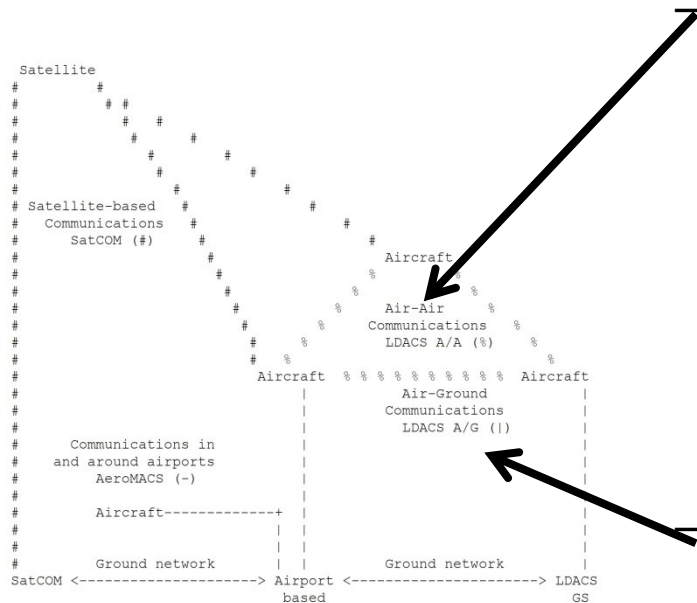
v03: New Chapter 5
Applicability of LDACS

v04: New Chapter 7
Reliability and Availability

Updates in **Version 03** in Chapter 5 (1)

- LDACS Advances Beyond State-of-the-Art
 - Priorities: Low (AOC services), Medium, High (safety critical ATS)
 - Security: Concepts for
 - (1) key and trust management
 - (2) mutual authenticated key exchange protocols
 - (3) key derivation measures
 - (4) user and control message-in- transit confidentiality and authenticity protection
 - (5) secure logging
 - (6) availability and robustness measures
 - High Data Rates:
 - 315 kbit/s to 1428 kbit/s on the forward link (Ground-to-Air)
 - 294 kbit/s to 1390 kbit/s on the reverse link (Air-to-Ground)

Updates in **Version 03** in Chapter 5 (2)

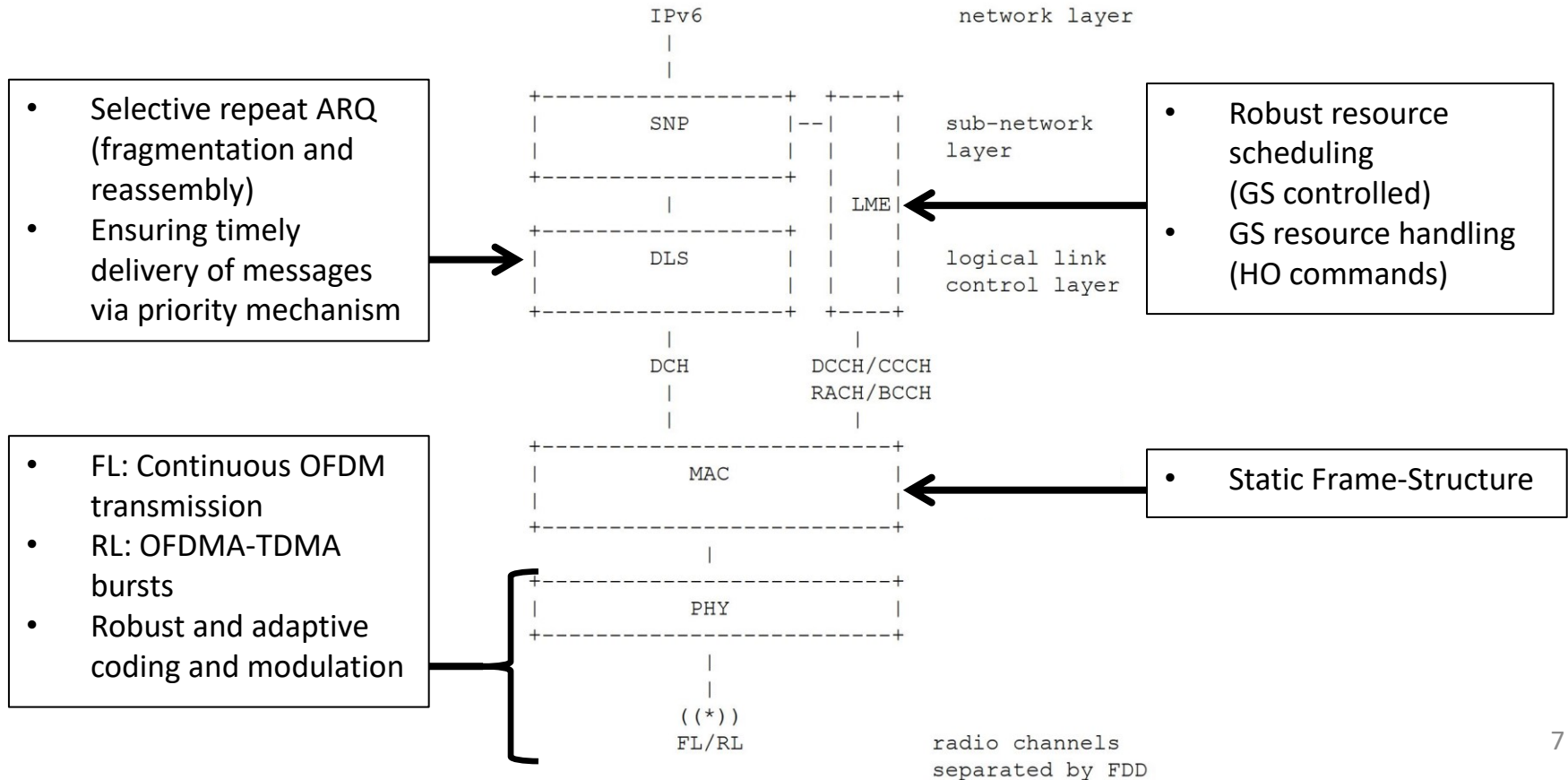


Air-to-Air Extension for LDACS

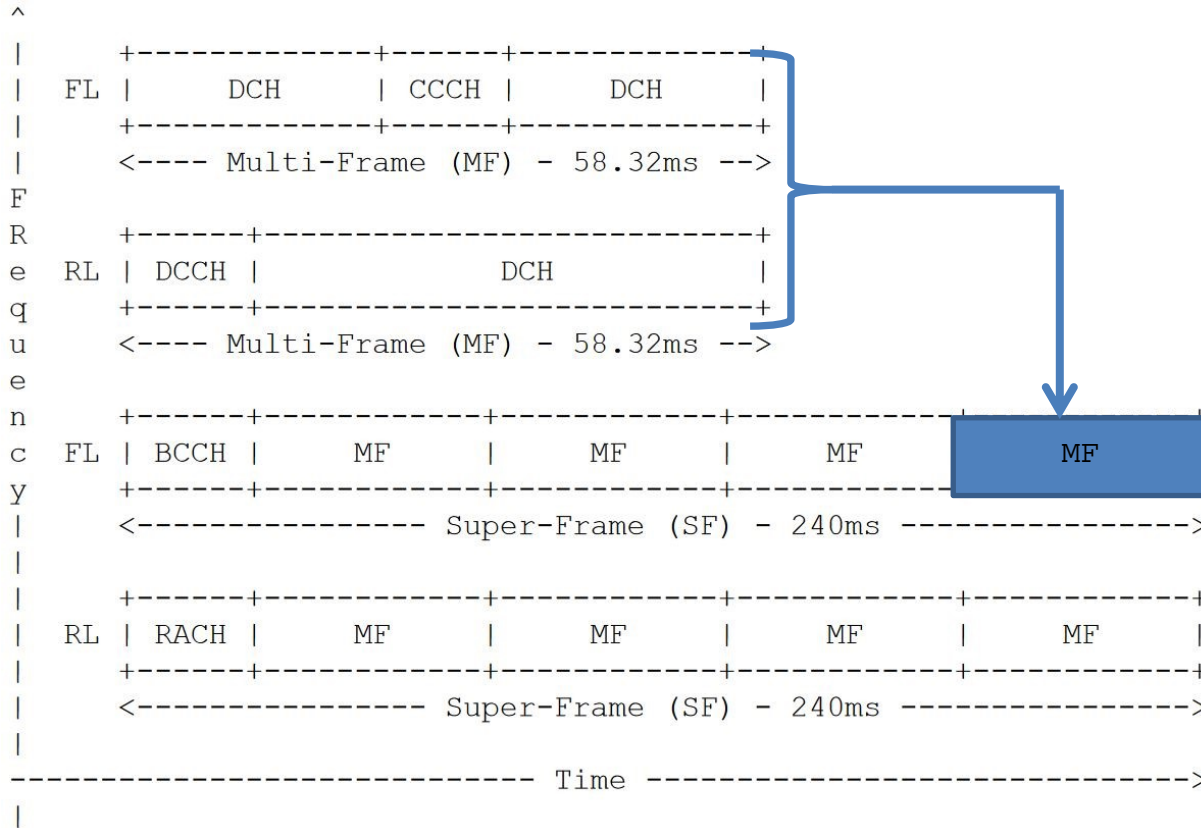
- **Flight Guidance:** Context Management (CM), Controller Pilot Data Link Communication (CPDLC), Automatic Dependent Surveillance - Contract (ADS-C), 4D-Trajectories
- **Business Communication of Airlines:** AOC Communications
- **LDACS Navigation:** GS as Alternative Positioning, Navigation, and Timing (APNT) pseudolites and LDACS GSs as ground navigation network

Air-to-Ground Multilink

Updates in **Version 04** in Chapter 7 (1)



Updates in **Version 04** in Chapter 7 (2)



FL: Forward Link

RL: Reverse Link

DCH: Data Channel

CCCH: Common Control Channel

DCCH: Dedicated Control Channel

BCCH: Broadcast Control Channel

MF: Multi-Frame

RACH: Random Access Channel

SF: Super-Frame

Scheduled Updates for Version 05

- Thanks for the feedback so far!
- Pointing out more clearly what problems LDACS will solve
- Extending the following items
 - Interoperability and modularity in LDACS radio
 - Amount of terrestrial access points and fault management
 - Security relations
 - Infrastructural requirements
 - Requirements for security fundamentals (e.g., CIA-principle)
 - Solution and benefits
 - Application Quality-of-Service (QoS) communication to LDACS

Thanks

