



Global Operational Data Link Doc 10037

Global Operational Data Link (GOLD)
Familiarization with Performance Based Communications
and Surveillance (PBCS) Workshop
Dakar, Senegal 11-15 September 2017

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FAA



Federal Aviation
Administration

Overview

- GOLD Manual – Doc 10037 Development
- Scope and Contents
- Operational Data Link Specific Working Group
Gold team and job card
- Planned Updates and schedule

Historical Background

- The Doc 10037 is the result of the progressive evolution of:
 - The Asia Pacific (APAC) Initial Future Air Navigation System (FANS 1/A) Operations Manual,
 - The North Atlantic (NAT) Guidance Material for ATS Data Link Services in North Atlantic Airspace and
 - The European (EUR) LINK2000+ Guidance Material for the aeronautical telecommunication network baseline 1 (ATN B1).
 - These documents provided guidance on ATS data link services, namely data link initiation capability (DLIC), automatic dependent surveillance – contract (ADS-C) and controller-pilot data link communications (CPDLC).

Initial GOLD Development

Regional and Inter-Regional Efforts

- ✓ **5 September 2008** – North Atlantic (NAT) / Asia- Pacific (APAC) regions establish an ad-hoc working group to develop the Global Operational Data Link Document (GOLD)
 - Provided common guidance for CPDLC and ADS-C
- ✓ **14 June 2010** – NAT and APAC endorse the GOLD, 1st Edition, to replace regional guidance material
- ✓ **26 April 2013** – European (EUR) Region endorse the GOLD, 2nd Edition, to replace regional guidance material
 - NAT Data Link Guidance Material
 - FANS 1/A Operations Manual (FOM)

AFI and SAM Regions Adopt GOLD

- ✓ **17-18 May 2010** – SAT/FIT/5 – 5th South Atlantic (SAT) FANS Interoperability Team meeting, Lisbon, Portugal (Conclusion 7)
- ✓ **10-14 Oct 2011** – SAM/IG/8 – 8th South American (SAM) Implementation Group meeting, Lima, Peru (Regional Project RLA/06/901, convenient because of SAT/FIT/5)
- ✓ **27-30 Mar 2012** – APIRG/18 – 18th African Indian Ocean Planning and Implementation Regional Group meeting, Kampala

APIRG Conclusion 18/21 – Adoption of the Global Operational Data Link Document (GOLD)

That in order to ensure regional and global harmonization of data link operations; AFI States adopt the Global Operational Data Link Document (GOLD) in replacement of the previous FANS 1/A Operations Manual.

Note: South Africa coordinates the amendments to the GOLD for the AFI Region, as required

From Inter-Regional GOLD to the ICAO GOLD Manual (Doc 10037) and PBCS Manual (Doc 9869)

Inter-Regional – **G**lobal **O**perational Data **L**ink **D**ocument (**GOLD**)

ICAO HQ – **G**lobal **O**perational **L** **D**ata Link (**GOLD**) Manual

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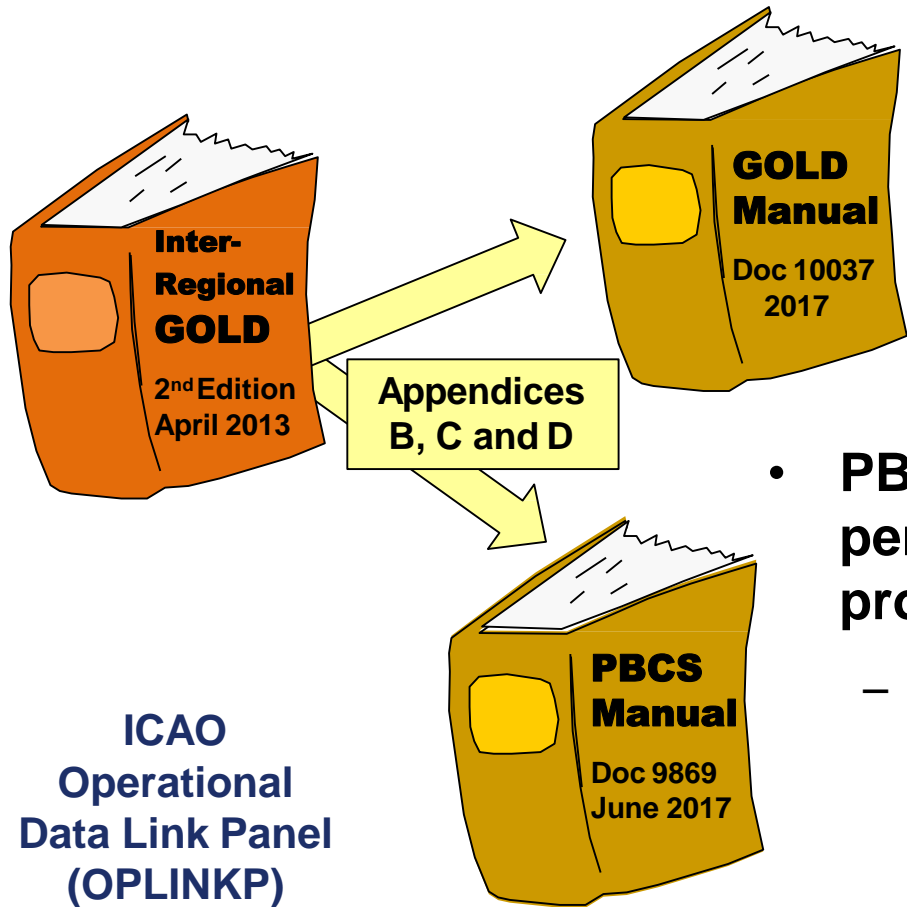
GOLD is now in ICAO Headquarters

- ✓ **18 March 2008** – ICAO approves reconvening the Operational Data Link Panel (OPLINKP)
- ✓ **18 October 2010** – OPLINKP reconvenes
 - Monitored GOLD work in the ICAO Regions
- ✓ **17 October 2014** – Agreed to propose amendments to ICAO documents to include CPDLC, ADS-C and PBCS provisions, supported by guidance material contained in two Manuals
 - GOLD Manual (Doc 10037)
 - PBCS Manual (Doc 9869)

} Evolved from Inter-Regional GOLD and other region work
- ✓ **March 2016** – ICAO adopts / approves amendments
- ❑ **Applicability date for implementation is November 2016**

ICAO elevates **GOLD** status and includes **PBCS**

ICAO Manuals



- **GOLD Manual (Doc 10037) CPDLC / ADS-C**
 - Preparation and readiness – for ANSP and Operator
 - Procedures – for Controller and flight crew
- **PBCS Manual (Doc 9869), performance-based concept that provides global framework**
 - To prescribe criteria for communication and surveillance capabilities that are applicable to the air traffic operations in relevant airspace
 - To show that the different components of the system comply with prescribed criteria

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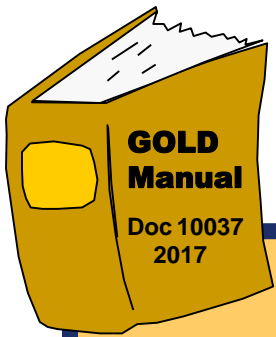
Global Operational Data Link (GOLD) Manual – Doc 10037 Edition 1

- Published 2017
- Supersedes previous versions and other guidance documents
- Doc 10037 is the GOLD Manual, but not all documents called “GOLD” were Doc 10037!



Scope and Purpose

- The GOLD Manual provides guidance and information concerning data link operations and is intended to facilitate the uniform application of Standards and Recommended Practices contained in:
 - Annex 2 — Rules of the Air
 - Annex 10 — Aeronautical Telecommunications
 - Annex 11 — Air Traffic Services
 - The provisions in the Procedures for Air Navigation Services — Air Traffic Management (PANS-ATM, Doc 4444)
 - And when applicable, the Regional Supplementary Procedures (Doc 7030).
- This guidance material is intended to improve safety and maximize operational benefits by promoting seamless and interoperable data link operations throughout the world.
- It applies to DLIC, ADS-C, and CPDLC using FANS 1/A and ATN B1 technologies. Additional guidance is provided that applies to CPDLC for automatic dependent surveillance – broadcast (ADS-B) in-trail procedure (ITP).



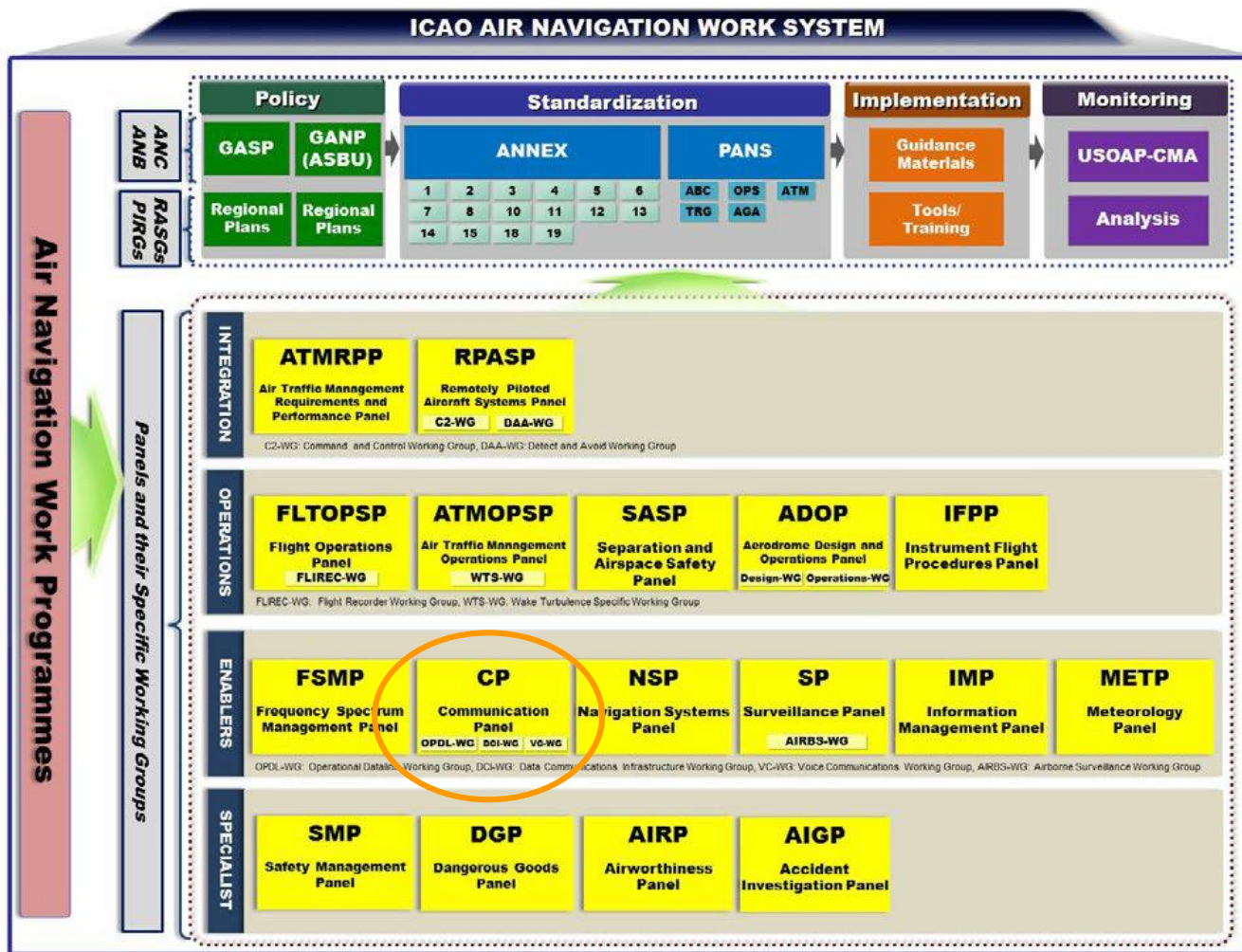
GOLD Manual (Doc 10037) Contents

Information	Background	Foreword
	Publications, Acronyms, Glossary	Introductory
	Overview of data link operations CPDLC / ADS-C general familiarization	Chapter 1
Guidelines	Administrative Provisions	Chapter 2
	CPDLC / ADS-C service provision	Section 2.1
	Operator – aircraft preparation	Section 2.2
	Controller procedures	Chapter 3
	Flight crew procedures	Chapter 4
	Advanced ATS supported by CPDLC/ADS-C	Chapter 5
	State aircraft CPDLC / ADS-C operations	Chapter 6
Supporting Guidelines	CPDLC message sets	Appendix A
	Region/State specific information	Appendix B
	Operator/Aircraft specific information	Appendix C

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Air Navigation Commission (ANC)



Communications Panel - OPDLWG

- The Communication Panel (CP) undertakes specific studies and develops technical and operational ICAO provisions for ATM voice and data communications systems, supporting procedures and their applications as outlined in the Global Air Navigation Plan (GANP)
- The **Operational Data Link Specific Working Group** (formerly known as OPLINKP) aims to advance the use and performance of datalink and satellite voice technologies, addressing all operational aspects of ATS that use these technologies for communications, whether between aircraft and the ground or multiple ground facilities

GOLD Project Team Updates

- Gold project team is in place to maintain and update the document
- ICAO Doc 10037, 2nd Edition currently planned for November 2018
- 10 items currently on work program for next and future editions

ICAO Gold Job Card

CP-OPDLCWG.001.01

- In the light of technological developments, the DLIWG and OPDLWG, (and with support from the ATMGRP and IM Panels in ICAO and industry groups as needed), shall work together on the consideration of the operational aspects and development of operational material (performance based requirements) for future services This shall include:
 - B) If necessary, update of GOLD with operational services and procedures beyond ATN B1 in alignment with Job Card CP-OPDLWG.001.01.

GOLD 2nd Edition - Scope

- Address EUROCAE/RTCA Baseline 2 services
- Address feedback from operational experience of FANS 1/A and ATN B1
- Controller Pilot Data Link Communications-Departure Clearance (CPDLC-DCL)
- STANDBY system messages
- NDA address forwarding
- Message failure procedures
- Reinstatement of PANS-ATM messages
- Other tasks – B2 services
- Issues deferred from 1st edition 1
- Other corrections



GOLD Project Team Updates

- Nov 2018 - publish date
- Summer 2018 – final draft to HQ ICAO
- Three version of created – corresponds to OPDLWG meeting schedule:
 - Draft 1: June 2017
 - Draft 2: December 2017
 - Draft 3: June 2018
- Change comments can always be submitted through various ICAO and industry groups

Summary and Questions

- Reviewed the development of the current GOLD First Edition 2017
 - Evolved from Inter-Regional GOLD and other region work
 - Companion PBCS manual was developed in parallel
 - The GOLD Manual is more operational oriented
 - The PBCS manual contains more technical details
- The GOLD Manual Doc10037 addresses ATS data link service provision, operator readiness, controller and flight crew procedures.
- The guidance intended to improve safety and maximize operational benefits by promoting seamless and interoperable data link operations throughout the world.