Sixth Meeting of the Aeronautical Information Management Sub-Group (AIM SG/6)

Cairo, Egypt, 21-23 January 2020

Saudi Arabia

Presented by

Khaled S. Hashlan

General Manager

GACA/ Aviation Information Standards

Outline

- SAUDI ARABIA National AIM Implementation Roadmap
- Status of AIM Implementation and future plans
- Status of AIM Deficiencies
- Lessons Learned
- Challenges
- Recommendations

SAUDI ARABIA National Regulation Implementation

- General Directorate of Aviation Information Standards within GACA:
  - ✓ Aeronautical Information Directorate
  - ✓ Flight Procedure Directorate
  - ✓ Obstacle assessment Directorate
  - ✓ Flight inspection Directorate
- Main function: Regulation, audit, inspection, certification, acceptance or approval

SAUDI ARABIA National Regulation Implementation

- GACAR-Safety Regulations
- Guidance
- E Book
- Airworthiness Directive
- Miscellaneous
- Forms

SAUDI ARABIA National Regulation Implementation

➢ KSA GACA Regulation Part 175

- ➢ Based on ICAO Annex 15 (new edition), Annex 4, PANS AIM Doc 10066, Doc 8697, Doc 8126
- ➢ 51 pages, 5 subparts:
  - ➢ SUBPART A — General requirements
  - ➢ SUBPART B — Data quality management
  - ➢ SUBPART C — Aeronautical information products and services
  - ➢ SUBPART D — Distribution, pre-flight information and post-flight information services
  - ➢ SUBPART E — Aeronautical information products updates

SAUDI ARABIA National Regulation Implementation

➢ KSA GACA Regulation Part 175

Table of Contents

SAUDI ARABIA National Regulation Implementation

➢ KSA GACA Regulation: Regulatory Advisory circular 175.001

GACAR Part 175 AIS – ACCEPTABLE MEANS OF COMPLIANCE

- ✓ The purpose of this Advisory Circular (AC) is to assist organizations in the interpretation and implementation of GACAR Part175 concerning the provision of aeronautical information services in the Kingdom of Saudi Arabia and associated requirements

SAUDI ARABIA National Regulation Implementation

➢ KSA GACA Regulation: Regulatory Advisory circular 175.001

GACAR Part 175 AIS – ACCEPTABLE MEANS OF COMPLIANCE

➢ 17 pages

- ✓ Chapter 1 – Introduction
- ✓ Chapter 2 – NOTAM
- ✓ Chapter 3 – The Management of Change
- ✓ Chapter 4 - Occurrence Reporting

SAUDI ARABIA National Regulation Implementation

- KSA GACA Regulation: Regulatory Advisory circular 175.001

GACAR Part 175 AIS – ACCEPTABLE MEANS OF COMPLIANCE

- ✓ Chapter 6 – AIP
- ✓ Chapter 7 – Personnel
- ✓ Chapter 8 – Appointment Acceptance of
- ✓ Director of Aeronautical Information Services
- ✓ Chapter 9 – Acceptance of the AIS Manual

SAUDI ARABIA National Regulation Implementation

➢ KSA GACA Regulation: Regulatory Advisory circular 175.002

AIP CHANGE NOTICE – ACCEPTABLE MEANS OF COMPLIANCE

- ✓ The purpose of this Advisory Circular (AC) is to provide all organizations certified in accordance with GACAR Part175 with guidance materials for submitting changes and information/data for publication in the Saudi Aeronautical Information Publication (AIP). It lays out the agreed standards for coordination, approval/acceptance for publication of aeronautical data and aeronautical information.
- ✓ All change request concerning Aeronautical Information Products must be processed in accordance with this advisory circular.

SAUDI ARABIA National Regulation Implementation

➢ KSA GACA Regulation: Regulatory Advisory circular 175.002

AIP CHANGE NOTICE – ACCEPTABLE MEANS OF COMPLIANCE

➢ 58 pages

- ✓ Chapter 1 – Introduction
- ✓ Chapter 2 – Change request
- ✓ Chapter 3 – Digital Data
- ✓ Appendix A

SAUDI ARABIA National Regulation Implementation

➢ KSA GACA Regulation Part 1

DEFINITIONS, ABBREVIATIONS AND EDITORIAL CONVENTIONS

➢ New terminologies and new definitions added

SAUDI ARABIA National Regulation Implementation

- GACA certify SANS as AIS provider according to GACAR Part 175

GACA
الهيئة العامة للطيران المدني
General Authority of Civil Aviation

Number: ANSC-001
Date: 1st April 2019

Air Navigation Service Provider Certificate

This certificate is issued to
Saudi Air Navigation Services (SANS) – Co. LTD

whose primary business address is
2681 Bani Malik- Jeddah - Saudi Arabia

Upon finding that its organization complies in all respects with the requirements of the General Authority of Civil Aviation Regulation Part 170, and is empowered to operate as Air Navigation Services Provider of the following services:

Air Traffic Services	(GACAR Part 171)
Instrument Flight Procedures	(GACAR Part 172)
Aeronautical Telecommunication	(GACAR Part 173)
Aeronautical Information Services	(GACAR Part 175)

Subject to the conditions and limitations specified in the attached Operations specifications document.

This certificate, unless cancelled, suspended, or revoked shall be valid until 1st April 2020.

This certificate is not transferable and any changes in the organization or facilities, or in the location thereof, must be immediately reported to General Authority of Civil Aviation.

By Direction of the President

Yassir Bin Mansour Al-Mayoof
Assistant President of Aviation Standards
General Authority of Civil Aviation

- Certification valid to 1 April 2020
- Process of recertification based on new GACAR Part 175 started

SAUDI ARABIA National AIM Implementation Roadmap

- KSA Roadmap updated on April 2017

  (as per ICAO SL AN8/4-16/261dated 22 September 2016).

- AIS automated system: **implemented** since 2008

- eAIP, QMS, WGS-84: **implemented**

- Formal agreement with originators: **implemented**

- AIRAC adherence: **implemented**

- AIXM 4.5 actual used **to be upgraded** to 5.1: end 2020

Status of AIM Implementation and future plans

➢ In progress (full implementation during 2020)

- ✓ AIXM 5.1 (new AIS automation system)
- ✓ New Integrated Aeronautical Information Database (IAID)
- ✓ Procedure Design (interoperable with IAID)
- ✓ ATS (interoperable with IAID)
- ✓ Digital data exchange with originators
- ✓ Metadata
- ✓ Data quality and integrity monitoring

Status of AIM Implementation and future plans

- **New AIS automation system: operational end 2020**
  - ✓ Factory Operational Training: **Completed**
  - ✓ Technical Operational Training: **Completed at 50%**
  - ✓ AIP Configuration: **Ongoing**
  - ✓ Charts Configuration: **Ongoing**
  - ✓ Safety Documentation Preparation: **Ongoing**
  - ✓ Air Navigation Register (ANR): Configuration **Ongoing**
  - ✓ Integration between AIM System and IFPS System: **Ongoing**

Status of AIM Implementation (B0-DATM)

Status of AIM Implementatior

DAIM: Digital Aeronautical Information Management				
Elements	**Applicability**	**Status**	**Action Plan/ Timelines**	**Remarks**
National AIM Roadmap	Saudi Arabia	FI		
AIXM (+version)	Saudi Arabia	FI (ver. 4.5)	Ver. 5.1 will be implemented end 2020	
eAIP	Saudi Arabia	FI		*Implemented since 2012*
QMS	Saudi Arabia	FC		*ISO 9000 version 2008: initial certification on 2012 ISO 9000 version 2008: renewed on 2015 ISO 9000 version 2015: on 3/4/2018 valid until 3/4/2021*
WGS-84	ENR	FC	GUND of OEDF airport on 2020	*Survey of OEDF completed Acceptance of the survey under process*
	AD	FC		
	TMA	FC		
	GUND	PC		
eTOD	Area 1 Terrain	FC		
	Area 1 Obstacle	FC		
	Area 4 Terrain	N/A		
	Area 4 Obstacle	N/A		

Status of AIM Implementation

Provision of AIS/AIM products and services based on the Integrated Aeronautical Information Database (IAID)			
Elements	**Status**	**Action Plan**	**Remarks**
IAID	NI	*End 2020*	*New AIM automation system*
AIXM (+version)	FI (version 4.5)	To be upgraded to 5.1 end 2020	*New AIM automation system*
eAIP (IAID-based)	NI	*End 2020*	*New AIM automation system*
NOTAM (IAID-based)	NI	*End 2020*	*New AIM automation system*
SNOWTAM (IAID-based)	NI	*End 2020*	*New AIM automation system*
PIB (IAID-based)	NI	*End 2020*	*New AIM automation system*
Charting (interoperable with IAID)	NI	*End 2020*	*New AIM automation system*
Procedure Design (interoperable with IAID)	NI	*End 2020*	*New AIM automation system*
ATS (interoperable with IAID)	NI	*End 2020*	*New AIM automation system*

Status of AIM Implementation

Aeronautical Data Quality			
Elements	**Status**	**Action Plan**	**Remarks**
QMS	FC		
Formal agreement with originators	FC		
Digital data exchange with originators	NI	*End 2020*	*New AIM automation system*
Metadata	NI	*End 2020*	*New AIM automation system*
Data quality monitoring	NI	*End 2020*	*New AIM automation system*
Data integrity monitoring	NI	*End 2020*	*New AIM automation system*
AIRAC adherence	FC		

Status of AIM Implementation

WGS-84			
Elements	**Status**	**Action Plan**	**Remarks**
FIR/ENR	FC		
Terminal	FC		
AD	FC		
GUND	PC	GUND of OEDF airport on 2020	*Survey of OEDF completed Acceptance of the survey under process*

Status of AIM Implementation

eTOD			
Elements	**Status**	**Action Plan**	**Remarks**
Area 1 Terrain	FC		
Area 1 Obstacles	FC		
Area 4 Terrain	N/A		
Area 4 Obstacles	N/A		
Area 2a Terrain	PC	Area 2a Terrain for OEJN on 2022	
Area 2a Obstacles	FC		
Area 2b Terrain	PC	Area 2b Terrain for OEJN on 2022	
Area 2b Obstacles	FC		
Area 2c Terrain	PC	Area 2c Terrain for OEJN on 2022	
Area 2c Obstacles	FC		
Area 2d Terrain	PC	Area 2d Terrain for OEJN on 2022	
Area 2d Obstacles	FC		
Area 3 Terrain	PC	Area 3 Terrain for OEJN Area 3 Obstacle for OEDF on 2022	
Area 3 Obstacles	PC	Area 3 Obstacle for OEDF on 2022	
AMDB	NI	planned	

Future Plans - Outlook 2025

- Dissemination of Aeronautical Information in SWIM environment (Using AIM to exchange digital information with other parties over the System Wide Information Management (SWIM) makes it possible to use that information in real-time for a much more efficient management of local and international air traffic).
- Digital NOTAM
- Electronic Aeronautical Chart
- Update of eTOD areas

Status of AIM Deficiencies

AIM Deficiency	Status	Action Plan/Timelines	Remarks
No deficiency			

AIM IMPLEMENTATION ROADMAP

Steps/Elements	2018 and before		2019		2020		2021		2022		2023		2024		2025		Priority	Remarks	Related Steps
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2			
AIXM database (AIXM V 5.X)																	1	Database 4.5 will be upgraded to AIXM 5.1 version.	Phase 2 (P07, P08)
AIP datasets																	1	(ATS airspace, Special activity airspace, ATS route and other routes, Route segment, Waypoint — en-route, Aerodrome/heliport, Runway, Runway direction, Final approach and take-off area (FATO), Touchdown and lift-off area (TLOF), Radio navigation aid)	Phase 2 (P06)
eAIP	Implemented																1	Implemented (2012)	Phase 2 (P11-Electronic AIP)

AIM IMPLEMENTATION ROADMAP

Steps / Elements	2018 and before		2019		2020		2021		2022		2023		2024		2025		Priority	Remarks	Related Steps
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2			
Terrain A-1 Dataset																	1		Phase2 (P13)
Obstacle A-1 Dataset																	1		Phase2 (P14)
Terrain A-4 Dataset(s)																	1		Phase2 (P13)
Obstacle A-4 Dataset(s)																	1		Phase2 (P14)
Terrain A-2a Dataset(s)																	1		Phase2 (P13)
Obstacle A-2a Dataset(s)																	1		Phase2 (P14)
NOTAM Improvements																	1	Implementation of Digital NOTAM	Phase3 (P21-Digital NOTAM)
Agreement with data originators	Implemented																1	Implemented (2018)	Phase 3 (P18)

AIM IMPLEMENTATION ROADMAP

Steps / Elements	2018 and before		2019		2020		2021		2022		2023		2024		2025		Priority	Remarks	Related Steps
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2			
Provision of quality-assured aeronautical data and information																	1	Implemented	Phase 2 (P01 and P02)
Training																	1	Continuous	Phase 3 (P16)
Aeronautical Data Exchange																	2		Phase 3 (P09-Aeronautical data exchange)
Instrument Flight Procedure (IFP) Dataset(s)																	2		Phase 2 (P06)

AIM IMPLEMENTATION ROADMAP

Steps / Elements	2018 and before		2019		2020		2021		2022		2023		2024		2025		Priority	Remarks	Related Steps
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2			
Dissemination of Aeronautical Information in SWIM environment																	3		Phase 3 (P09)
Aerodrome Mapping Dataset(s)																	3		Phase 2 (P15)
Interoperability with MET																	3		Phase 3 (P19)
Aeronautical Information Briefing																	3	implemented	Phase 3 (P12)
Electronic Aeronautical Charts																	3		Phase 3 (P20)

Phase 1 — Consolidation	AIRAC adherence monitoring	Implemented
	Monitoring of States' differences to Annex 4 and Annex 15	Implemented
	WGS-84 implementation	Implemented
	Quality	Implemented

Lessons Learned

- Obstacle and aeronautical data surveyors to be certified by the Civil Aviation Authority;
- To involve all airspace stakeholders in the implementation of AIM action plan;
- Instrument Flight Procedure Design unit belong to AIM Department within AIS provider (SANS) audited and certified by specialized Directorate within the General Authority of Civil Aviation (GACA): good way for follow-up and implementation;
- Continuous training for AIS inspectors and AIS specialists is the most important reason for AIM success.

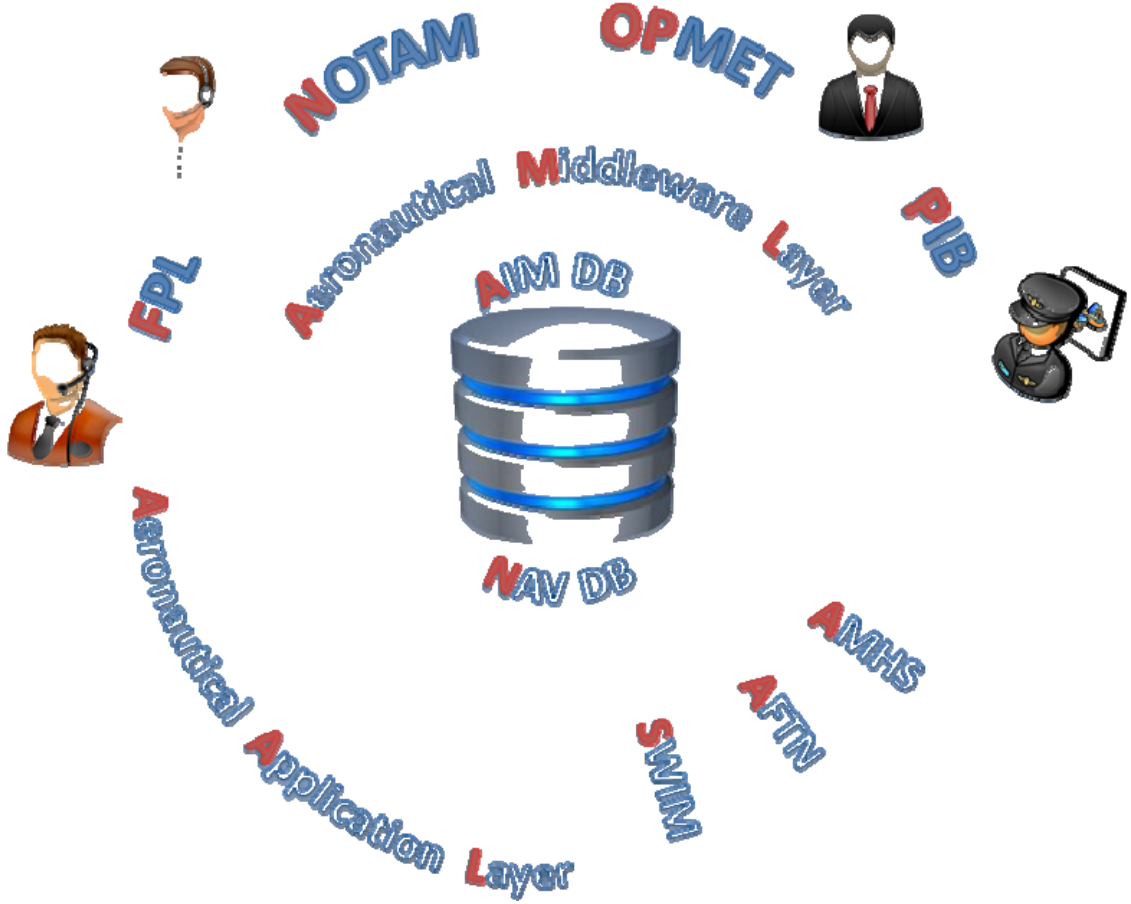
Challenges

- Obstacle datasets (area2 and area3);
- Aerodrome Mapping Dataset(s);
- Exchange data with adjacent FIRs/AIS.

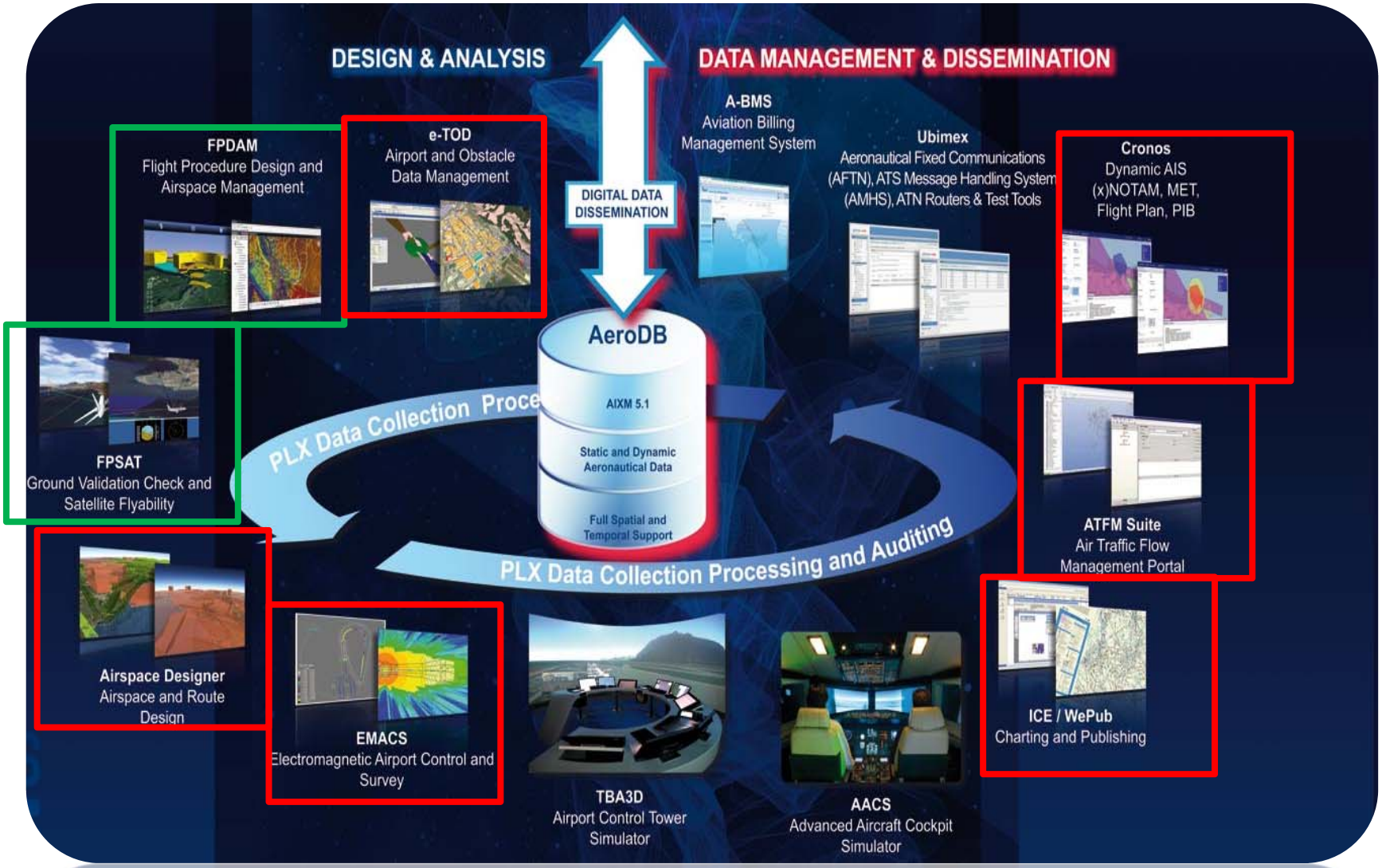
Recommendations

- Start a trial exchange AIXM 5.1 data with adjacent AIM systems as follow :
  - Exchange baseline data for initial loading,
  - Test system compatibility,
  - Report any data inconsistency.
- ICAO to provide definition in Annex 15 or PANS-AIM for (AICM) & (AIXM).

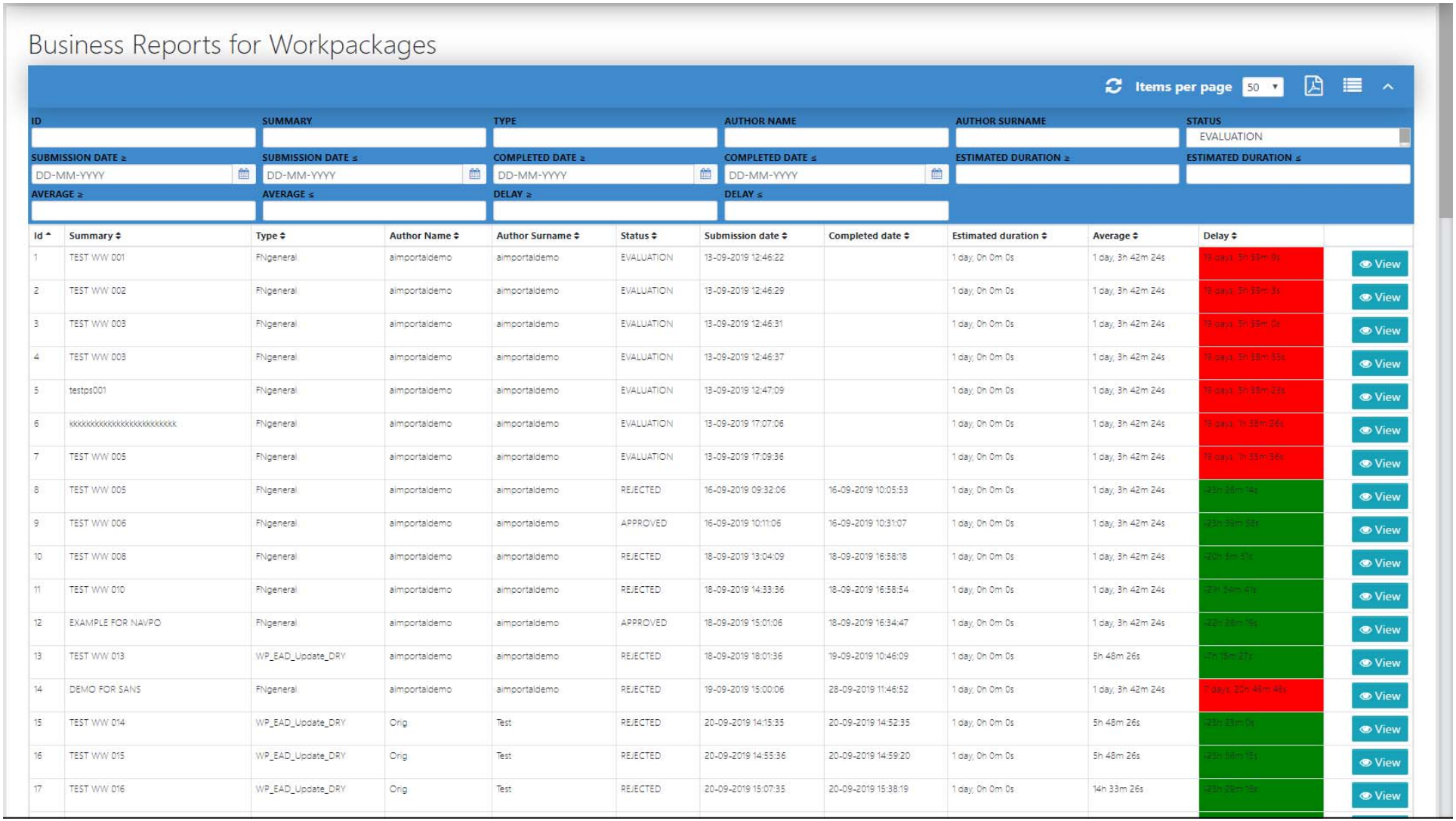
New AIS Automation System


NOTAM
OPMET
PIB
FPL
Aeronautical Middleware Layer
AIM DB
NAV DB
Aeronautical Application Layer
SWIM
AFTN
AMHS

SOAR HIGH


DESIGN & ANALYSIS
DATA MANAGEMENT & DISSEMINATION
FPDAM
Flight Procedure Design and Airspace Management
e-TOD
Airport and Obstacle Data Management
DIGITAL DATA DISSEMINATION
A-BMS
Aviation Billing Management System
Ubimex
Aeronautical Fixed Communications (AFTN), ATS Message Handling System (AMHS), ATN Routers & Test Tools
Cronos
Dynamic AIS (x)NOTAM, MET, Flight Plan, PIB
AeroDB
AIXM 5.1
Static and Dynamic Aeronautical Data
Full Spatial and Temporal Support
PLX Data Collection Proce
PLX Data Collection Processing and Auditing
FPSAT
Ground Validation Check and Satellite Flyability
ATFM Suite
Air Traffic Flow Management Portal
Airspace Designer
Airspace and Route Design
EMACS
Electromagnetic Airport Control and Survey
TBA3D
Airport Control Tower Simulator
AACS
Advanced Aircraft Cockpit Simulator
ICE / WePub
Charting and Publishing

Business Reports for Workpackages



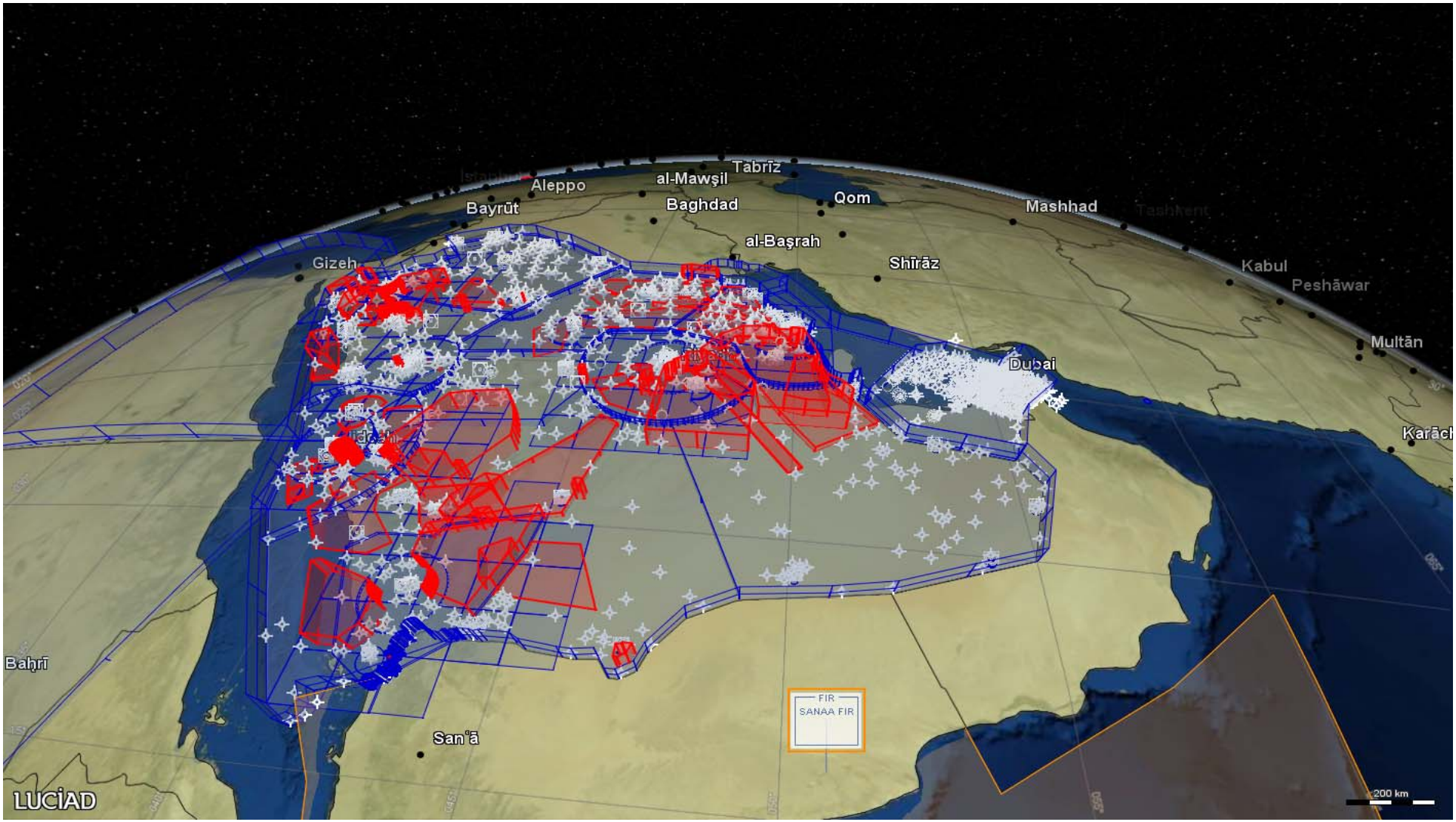
Items per page 50

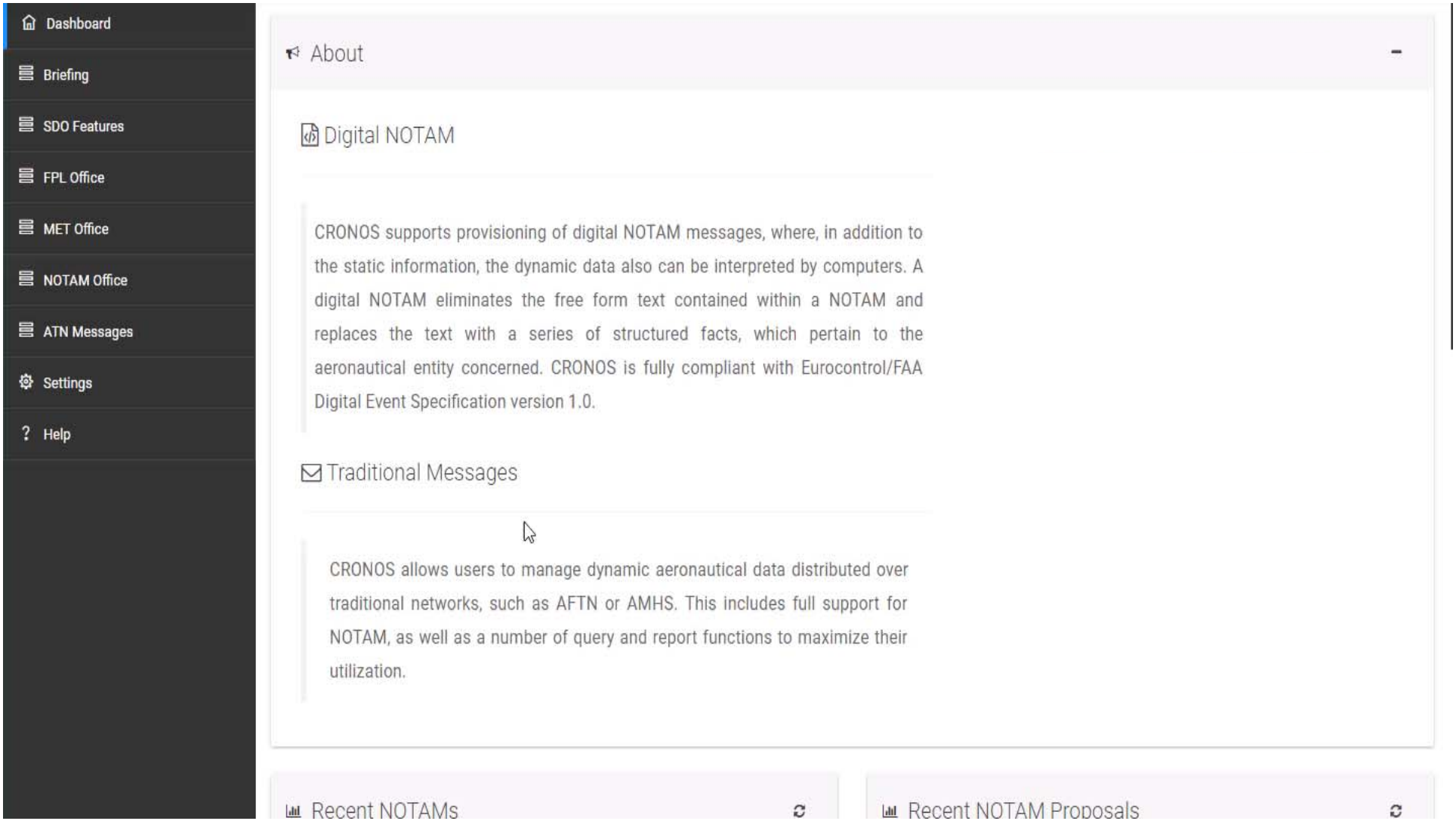
ID	SUMMARY	TYPE	AUTHOR NAME	AUTHOR SURNAME	STATUS
					EVALUATION

SUBMISSION DATE ≥	SUBMISSION DATE ≤	COMPLETED DATE ≥	COMPLETED DATE ≤	ESTIMATED DURATION ≥	ESTIMATED DURATION ≤
DD-MM-YYYY	DD-MM-YYYY	DD-MM-YYYY	DD-MM-YYYY		

AVERAGE ≥	AVERAGE ≤	DELAY ≥	DELAY ≤

Id	Summary	Type	Author Name	Author Surname	Status	Submission date	Completed date	Estimated duration	Average	Delay	
1	TEST WW 001	FNgeneral	aimportaldemo	aimportaldemo	EVALUATION	13-09-2019 12:46:22		1 day, 0h 0m 0s	1 day, 3h 42m 24s	78 days, 5h 59m 0s	View
2	TEST WW 002	FNgeneral	aimportaldemo	aimportaldemo	EVALUATION	13-09-2019 12:46:29		1 day, 0h 0m 0s	1 day, 3h 42m 24s	78 days, 5h 59m 0s	View
3	TEST WW 003	FNgeneral	aimportaldemo	aimportaldemo	EVALUATION	13-09-2019 12:46:31		1 day, 0h 0m 0s	1 day, 3h 42m 24s	78 days, 5h 59m 0s	View
4	TEST WW 003	FNgeneral	aimportaldemo	aimportaldemo	EVALUATION	13-09-2019 12:46:37		1 day, 0h 0m 0s	1 day, 3h 42m 24s	78 days, 5h 58m 55s	View
5	testps001	FNgeneral	aimportaldemo	aimportaldemo	EVALUATION	13-09-2019 12:47:09		1 day, 0h 0m 0s	1 day, 3h 42m 24s	78 days, 5h 58m 23s	View
6	kkkkkkkkkkkkkkkkkkkkkkkkkk	FNgeneral	aimportaldemo	aimportaldemo	EVALUATION	13-09-2019 17:07:06		1 day, 0h 0m 0s	1 day, 3h 42m 24s	78 days, 1h 38m 24s	View
7	TEST WW 005	FNgeneral	aimportaldemo	aimportaldemo	EVALUATION	13-09-2019 17:09:36		1 day, 0h 0m 0s	1 day, 3h 42m 24s	78 days, 1h 35m 54s	View
8	TEST WW 005	FNgeneral	aimportaldemo	aimportaldemo	REJECTED	16-09-2019 09:32:06	16-09-2019 10:05:53	1 day, 0h 0m 0s	1 day, 3h 42m 24s	23h 28m 14s	View
9	TEST WW 006	FNgeneral	aimportaldemo	aimportaldemo	APPROVED	16-09-2019 10:11:06	16-09-2019 10:31:07	1 day, 0h 0m 0s	1 day, 3h 42m 24s	23h 39m 58s	View
10	TEST WW 008	FNgeneral	aimportaldemo	aimportaldemo	REJECTED	18-09-2019 13:04:09	18-09-2019 16:58:18	1 day, 0h 0m 0s	1 day, 3h 42m 24s	20h 3m 51s	View
11	TEST WW 010	FNgeneral	aimportaldemo	aimportaldemo	REJECTED	18-09-2019 14:33:36	18-09-2019 16:58:54	1 day, 0h 0m 0s	1 day, 3h 42m 24s	18h 34m 41s	View
12	EXAMPLE FOR NAVPO	FNgeneral	aimportaldemo	aimportaldemo	APPROVED	18-09-2019 15:01:06	18-09-2019 16:34:47	1 day, 0h 0m 0s	1 day, 3h 42m 24s	18h 28m 19s	View
13	TEST WW 013	WP_EAD_Update_DRY	aimportaldemo	aimportaldemo	REJECTED	18-09-2019 18:01:36	19-09-2019 10:46:09	1 day, 0h 0m 0s	5h 48m 26s	17h 18m 27s	View
14	DEMO FOR SANS	FNgeneral	aimportaldemo	aimportaldemo	REJECTED	19-09-2019 15:00:06	28-09-2019 11:46:52	1 day, 0h 0m 0s	1 day, 3h 42m 24s	7 days, 20h 46m 46s	View
15	TEST WW 014	WP_EAD_Update_DRY	Orig	Test	REJECTED	20-09-2019 14:15:35	20-09-2019 14:52:35	1 day, 0h 0m 0s	5h 48m 26s	23h 23m 0s	View
16	TEST WW 015	WP_EAD_Update_DRY	Orig	Test	REJECTED	20-09-2019 14:55:36	20-09-2019 14:59:20	1 day, 0h 0m 0s	5h 48m 26s	23h 56m 15s	View
17	TEST WW 016	WP_EAD_Update_DRY	Orig	Test	REJECTED	20-09-2019 15:07:35	20-09-2019 15:38:19	1 day, 0h 0m 0s	14h 33m 26s	23h 25m 16s	View


Tabrīz
Aleppo
al-Mawşil
Bayrūt
Baghdad
Qom
Mashhad
Tashkent
al-Başrah
Gizeh
Shīrāz
Kabul
Peshāwar
Multān
Dubai
Karāch
Baḥrī
FIR
SANAA FIR
San'ā
LUCIAD
200 km


Dashboard
Briefing
SDO Features
FPL Office
MET Office
NOTAM Office
ATN Messages
Settings
Help
About
Digital NOTAM
CRONOS supports provisioning of digital NOTAM messages, where, in addition to the static information, the dynamic data also can be interpreted by computers. A digital NOTAM eliminates the free form text contained within a NOTAM and replaces the text with a series of structured facts, which pertain to the aeronautical entity concerned. CRONOS is fully compliant with Eurocontrol/FAA Digital Event Specification version 1.0.
Traditional Messages
CRONOS allows users to manage dynamic aeronautical data distributed over traditional networks, such as AFTN or AMHS. This includes full support for NOTAM, as well as a number of query and report functions to maximize their utilization.
Recent NOTAMs
Recent NOTAM Proposals