



The European Military Airworthiness Authorities Forum

Military Airworthiness Conference
6-7th July 2011 Warsaw



European Defence Agency

Building Capabilities for a Secure Europe



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Armaments Directorate

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Presentation outline



- **Background**
- **Formation of the Military Airworthiness Authorities Forum in EDA**
- **Ministerial decision (the mandate) and the Airworthiness Roadmap**
- **European harmonisation approach (JAA-EASA to start with airworthiness)**
- **European military airworthiness systems – MAWA structure**
- **MAWA Forum progress to date**
- **Future aspirations**



European Defence Agency

Building Capabilities for a Secure Europe



Video | Photo | P

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MILITARY AIRWORTHINESS

European countries operate aviation safety systems independently from each other and each country is individually responsible for the regulation of its aircraft. As a result, all military airworthiness activities are conducted and regulated on a national basis and harmonisation is only achieved at individual project level and repeated for each new project.

This generates many problems in multinational programmes and is a primary cause for delay and additional cost. There is a unique opportunity to agree on an EU-wide harmonisation and unification strategy on military airworthiness. Such an EU-wide harmonisation on military airworthiness will also be of benefit to the European industry and thus strengthen the European Defence Technology and Industrial Base (EDTIB).



"European cooperation through EDA is part of the solution: the Agency allows Member States to save and to optimize their investments. Airworthiness is a good case. By developing common European airworthiness standards and certification regulations billions can be saved." *Alexander Weis, EDA's Chief Executive, September 2009*



MORE LINKS

Armaments Directorate

European Armaments Co-operation Strategy



MAWA ON THE NEWS

Defence Ministers launch European Helicopter Training

Progress of the EDA Future Unmanned Aerial System project

EDA Supported the Military Airworthiness Harmonisation Workshop

CONTINUE

- Early results
- MAWA Forum
- Certification
- Requirements



Strategies

Strategies overview
Capabilities Development Plan
Research & Technology
Armaments Co-operation
Technological & Industrial Base

Capabilities priorities

Top 10 priorities
Mature actions
Core drivers & environments

Software Defined Radio
Intelligence
21st Century Soldier
Armoured Systems
Non-lethal capabilities
Personnel Recovery
Maritime Surveillance
UAS Air traffic insertion
R&T Projects and

Activities overview

Defence Industry Data
REACH
Future Air Systems
Ammunition Pilot Case
Depth & diversity: SMEs
Defence Test and Evaluation Base
Standardization
Military Airworthiness

EDA Portals

Offsets Portal
Defence Data
EDRC Portal
TPLS Portal
EDSIS Portal
Electronic Bulletin Board
REACH Portal

HERINE ASHTON

Representative,
President of the
European Commission
of EDA

EVENTS

May
31

On the agenda
31 May 2011
Press briefing
(Brussels) - IT...

Press Day - ITALIAN CALL
11
Countering Improvised
Explosives...
MARSUR Demonstration
Day
Open Day & industrial
exhibition -...



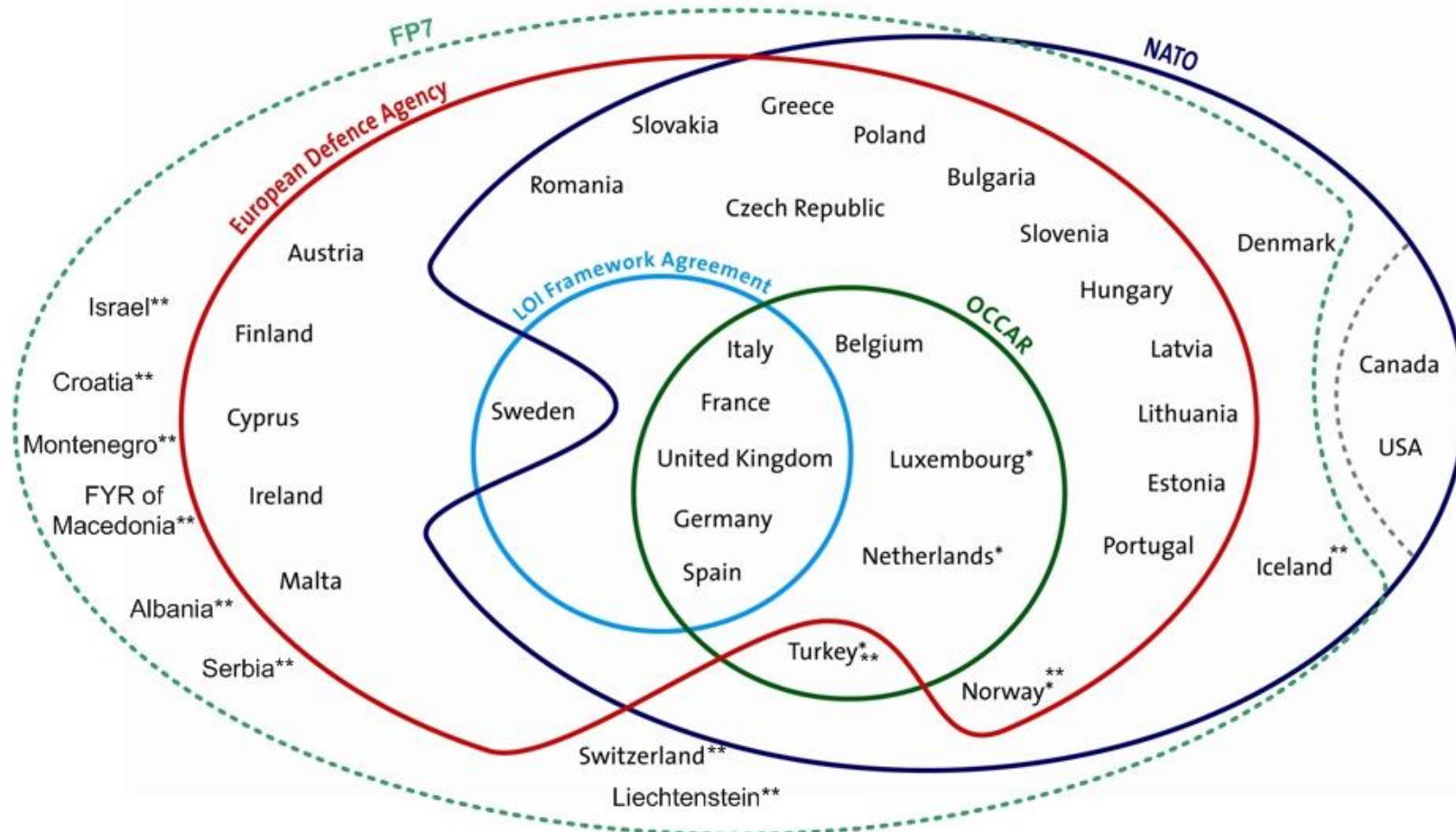
PORTALS



Cooperation – in which environment?



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* Participating at program level

** Third Country Agreement with EU on Seventh Framework Programme (03/2008)



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EDA & Airworthiness



- Civil aviation recognised the need for harmonisation much earlier than the military (sovereignty, competitions, limitations in defence technology export)
- ICAO 1944, FAA, JAA, EASA ...
- Military in Europe recognized certain drawbacks of the fragmented approach mainly after the geopolitical changes

- First signals were the international integration of air industry - common multinational projects (Typhoon, NH90, A400M....)
- Number of international activities for coordination of military airworthiness authorities started in 2003-4, EMAAG, FINAS, OCCAR, JMAAN, ETAP...
- November 2008 is an important milestone in EU military Airworthiness history:

EU Ministers of Defence approved the establishment of Military AirWorthiness Authorities (MAWA) Forum and endorsed the European Military Airworthiness Roadmap



What anticipated improvements?

Enabling cost
reductions

Accelerating
multinational
projects

Shortening the
definition phase

Enabling
cross border
maintenance of
military a/c

Improving
interoperability



What are the expected benefits of working together ?

- Civil & Military aviation safety is paramount,
- Military-military & civil-military cooperation,
- Reducing time & costs for new aircraft development
- Helping to improve competitiveness of EDTIB
- Common approach to maintenance and repair
- Better possibility for outsourcing of maintenance and repair
- Cross border maintenance
- Common licensing and educational schemes for maintenance personnel
- Mutual Recognition between the different authorities



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- **April 2008-** National Armaments Steering Board (SB) tasked EDA to prepare for the creation of an EU-wide forum for **Military Airworthiness Authorities (MAWA)**
- **Nov 2008-**EDA Steering Board (SB) decision of MODs for the establishment of a forum for Military Airworthiness Authorities (MAWA) with a view to developing an EU-wide regulatory framework
- The SB also approved a high level Military Road Map with the main objectives for airworthiness harmonisation
- **Nov 2009-**Defence Ministers' Political Declaration for the timely development and early implementation of the harmonised European Military Airworthiness Requirements (EMARs) into national regulations



The MAWA Roadmap Objectives



Common regulatory framework



Common certification processes



Common approach to organisational approvals



Common certification/design codes



Common approach to preservation of airworthiness



Arrangements for mutual recognition



Formation of a European Military Joint Airworthiness Authorities Organisation

Current work associated with the Roadmap objectives

1.	Common regulatory framework	Basic Framework			EMAR 1 Definitions		
2.	Common certification processes	EMAR 21				AMC	GM
3.	Common approach to organisational approvals	EMARs	21	145	147	M	AMC +GM
4.	Common certification/design codes	EMACC	FS		EMACC		GM
5.	Common approach to preservation of airworthiness	EMARs	145		66	M	AMC +GM
6.	Arrangements for mutual recognition	Question set on EMARs implementation				Mutual Recognition	
7.	Formation of a European Military Joint Airworthiness Authorities org.	FS			Concept		Go decision

Presentation outline



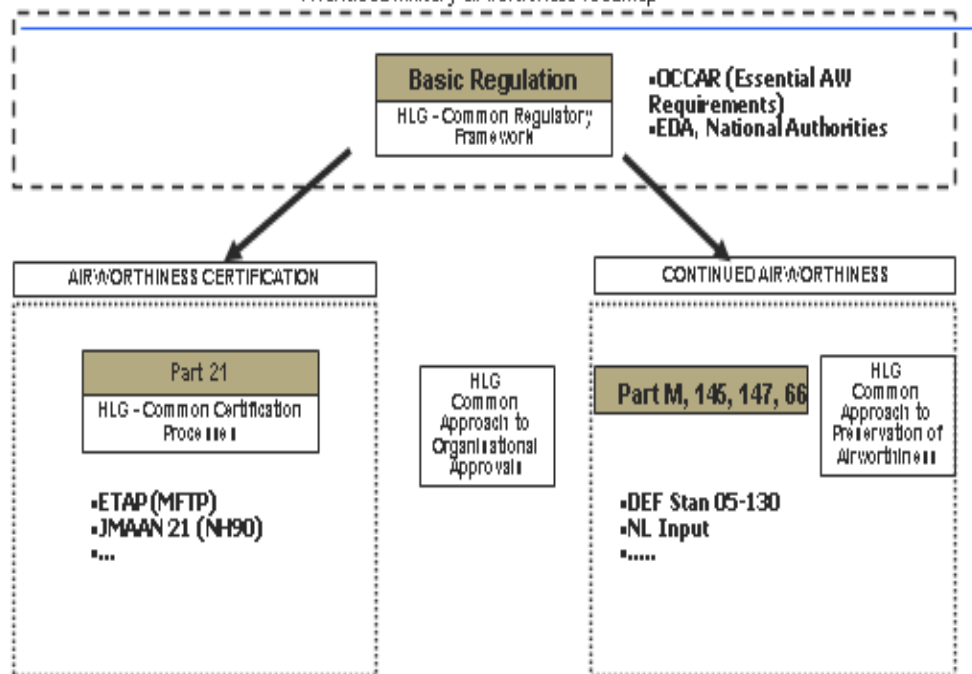
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Determining an appropriate airworthiness structure



Appendix 1 to Annex D to EDA COM 069-2008-AR M

Prioritised military airworthiness roadmap



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EU MoD

Basic Regulation

(EC) No 216/2008

Implementing rules

Regulation No 1702/2003

For the airworthiness and environmental certification of aircraft and related products, parts and appliances, as well as for the certification of design and production organisations.

Implementing rules

Regulation No 2042/2003

On the continuing airworthiness of aircraft and aeronautical products, parts and appliances, and on the approval of organisations and personnel involved in these tasks.

Part 21

- Acceptable means of compliance (AMC)
- Guidance material (GM)

Guidance Material
Part 21

Certification specifications

- Airworthiness codes

Certification Specifications

AMC 20
AMC 21
CS 25
CS 34
CS 36
CS E
CS P
CS APU
CS AWO
CS ETSO
CS Definitions
CS 22
CS 23
CS 27
CS 29
CS VLA
CS VLR

Acceptable means of compliance (AMC)
Guidance Material (GM)

- Part M – Continuing Airworthiness
- Part-145 – Maintenance Organisations Approvals
- Part-66 – Certifying staff
- Part-147 – Training organisations requirements

Guidance Material

Parliament and Council

European Commission

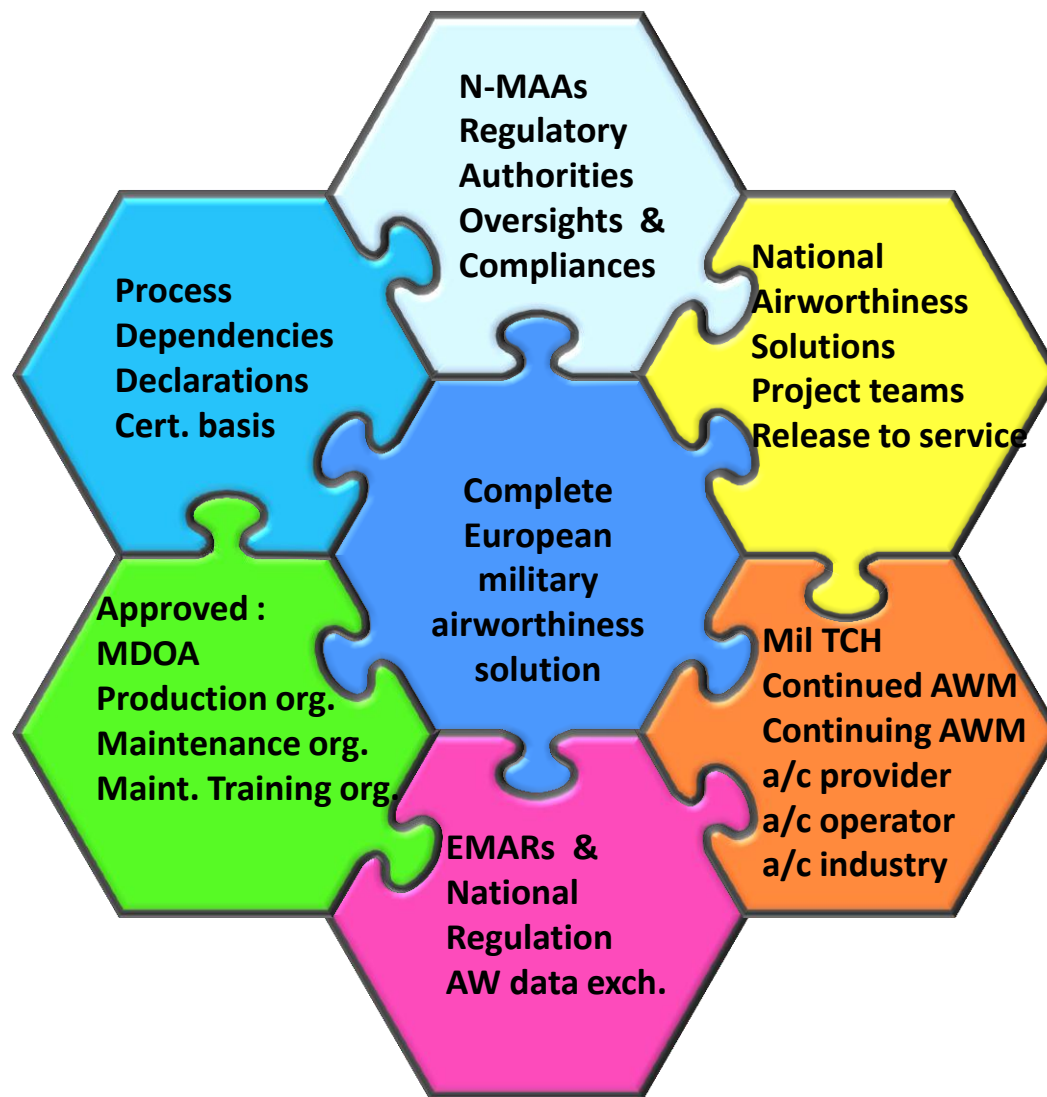
Part M,
145,66,147



Main elements of airworthiness



How it's fits together



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- MAWA Forum is made up of representatives from National Military Airworthiness Authorities (or equivalent)
- MAWA Forum has no authority on airworthiness and Nations retain their sovereignty in this area
- To meet the Roadmap objectives common European Military Airworthiness Requirements (EMARs) must be developed
- Implementation of EMARs remains a national decision although political declaration has been made (Nov 2009)
- The European Joint Military Airworthiness Authorities Organisation (EMJAAO) once set up can address the common harmonisation tasks as required.



ICAO (*Chicago Convention*)

ICAO Doc 7300, Chicago, December 7. 1944 + 18 Annexes



Basic Regulation 216/2008



Regulation (EC) 1702/2003 on
Airworthiness and
Environmental Certification



Regulation (EC) 2042/2003
on Continuing Airworthiness

Annex
Part 21

Certification
Specification

Annex I
Part M
CAMO

Annex II
Part 145
Maint. Org.

Annex III
Part 66
Certifying
Staff

Annex IV
Part 147
Training
Organisation



EDA SB MoDs decision Nov 2008

MAWA Basic Framework Document 2009

National Military Airworthiness Regulations

EMAR 21

EMACC

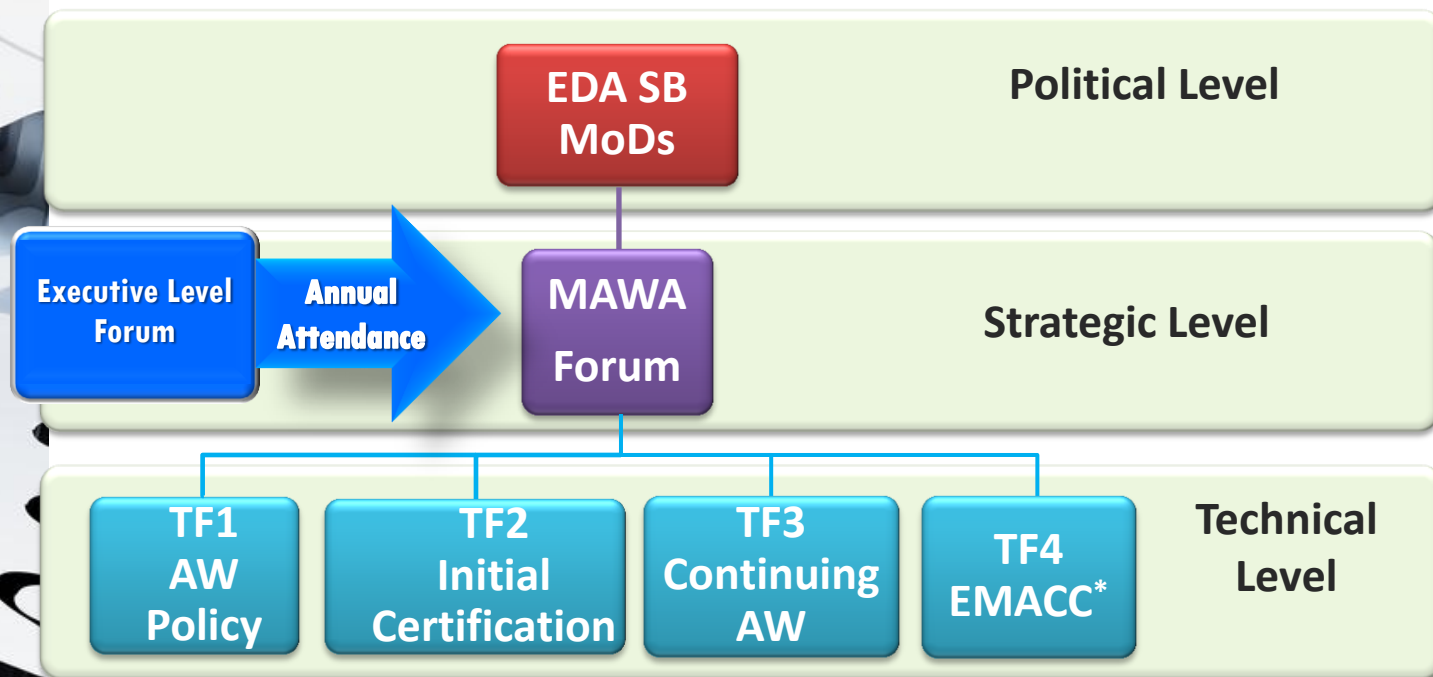
EMAR M

EMAR 145

EMAR 66

EMAR 147

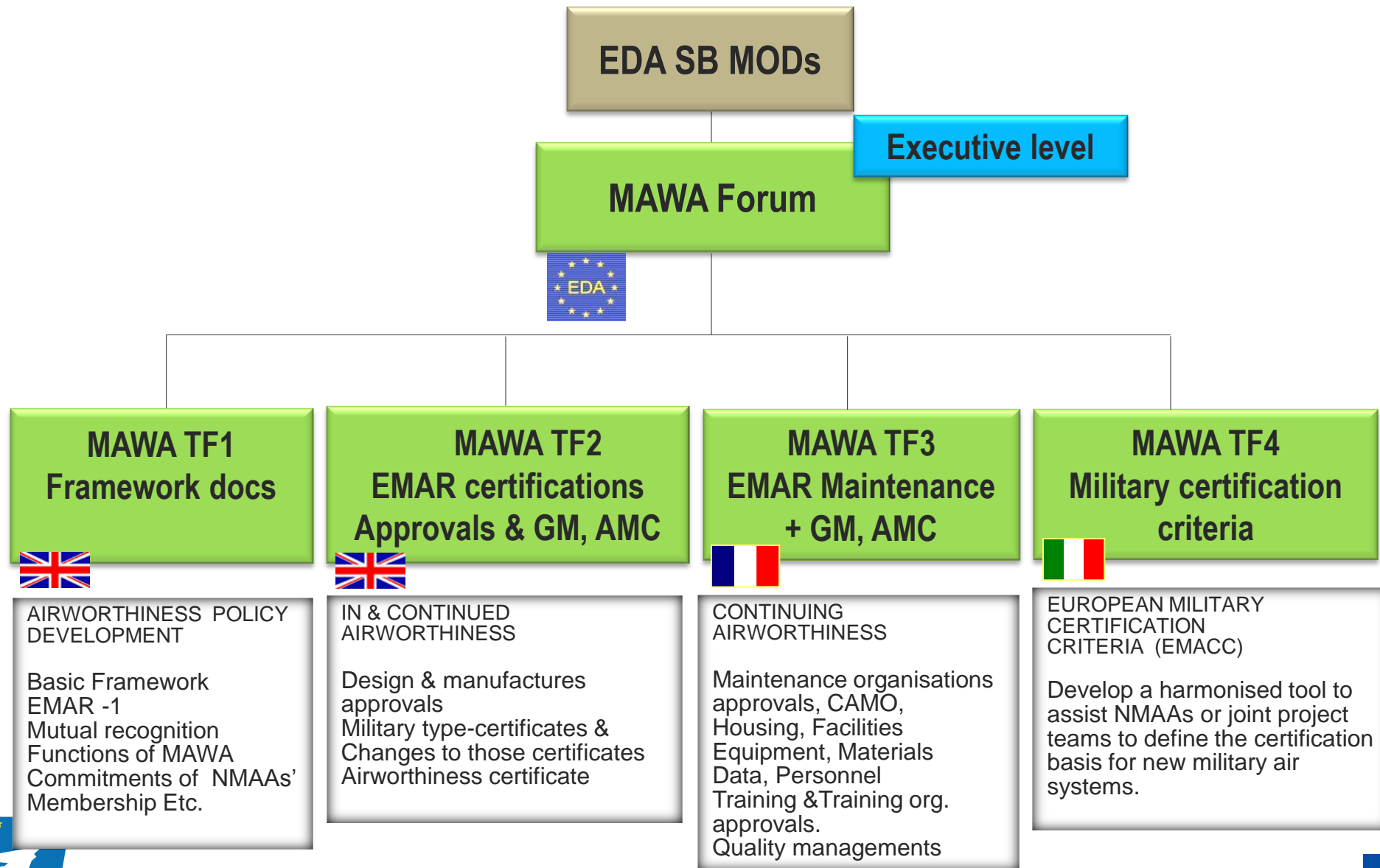
MAWA governance



*** European Military Airworthiness Certification Criteria**



EDA MAWA Forum current structure



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Chairman Mr. John Allan
(pMS – BE,DE,FR,IT,NL,SE,UK)

- The development and update of Basic Framework Document (BFD) based on JAA Cyprus agreement but taking into account military needs
- To develop and propose the principles (including essential requirements) for European harmonised military airworthiness system
- To agree on the level of NMAA commitments and closer co-operation on the topic of military airworthiness
- To develop and propose mutual recognition arrangements between NMAAs
- To develop and coordinate EMAR 1 – Definitions.

MAWA Forum (BFD)

- Version 1.1 of the BFD circulated in 2009
- Positive responses received 18 pMS
- Last agreement received from authority (Jan 2011 AI_7.1)
- No negative responses received
- Version 1.2 is ready and 1.1 prepared for issue in 2011
- Considered as a living document
- Annual updates may be organized and approved if necessary MAWA Forum
- Only major change in principle BFD will require to repeat the formal consultation with pMS MAAs'

NO	CODE	PMS	THE AIRWORTHINESS AUTHORITY	Comments
1	AT	Austria	Minister of Defence and Sports:KATTER	
			ection	
			thority CZE	
			/Directorate C1	
			Area MoD Spain	
			ority FI	
			ministerial iere & technical field	
			Authority	
			menico	
			Authority	
			e Air Force Chief of es Miranda	
			iation Safety nt Safety	
			ority	
			oritySK	

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European Defence Agency
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Belgium

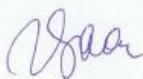
21. December 2010 No *545-3.2-1/44152*

Military Airworthiness Basic Framework

Reference:

- The European Harmonised Military Airworthiness Basic Framework v1.1.
- Having reviewed the document at Reference A, please accept this as our national agreement in principle of the Basic Framework.
 - The Estonian Defence Forces can agree with the text in the subject document.
 - The document at Reference A is very useful for future work of the Air Force's certification procedures harmonization.

Sincerely



Valeri Saar
Brigadier General
Commander of the Air Force

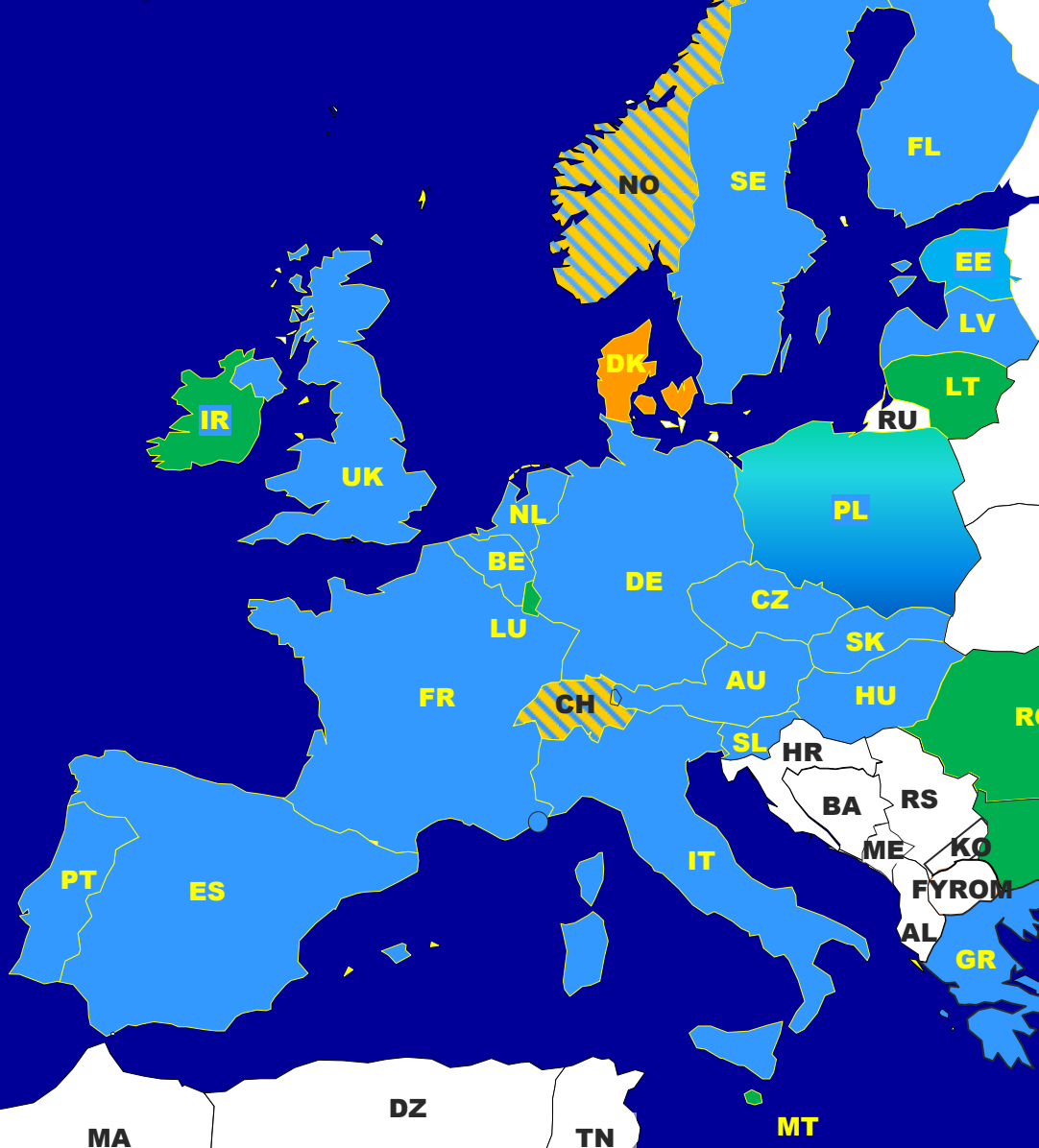
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Reg nr 70007144



**The EDA Member States:
27 EU States
-Denmark**



RU

KZ

BY

UA

MD

GE

AZ

AM

IR

TR

SY

IQ

MA

DZ

TN

MT



first chairman LtCol Rik van Zwol, second Mr. David Barker

current chairman Mr. Paul Robinson
(pMS – BE,CZ,DE,FR,IT,NL,ES,SE,UK & PT)

EMAR 21 Section A in consultation phase

- **Subpart A** General provisions
- **Subpart B** Military type-certificates & Military restricted-TC
- **Subpart D** Changes to Military TC & Military restricted-TC
- **Subpart E** Military supplemental type-certificates
- **Subpart H** Airworthiness certificates
- **Subpart J** Military design organisation approval
- **Subpart K** Parts and appliances
- **Subpart Q** Identification of specific parts and appliances

Question set for EMAR 21 EMAR 1 (definitions) participation

EMAR - Acceptable Means of Compliance (AMC) and Guidance Material (GM)





first chairman LtCol Marc Latour

Current chairman LtCol Rigel Hebman (pMS – BE,DE,ES,FR,IT,NL,SE,UK, Obs. PO & cM.SK)

• EMAR 145 (A&) – approved

EMARs in developing phase:

EMAR 1 (Definitions)

EMAR M (Continuing AW)

EMAR 147 (Tech training org.)

EMAR Part 66 (Qualifications of maintenance personnel)

EMARs related MMCs & GMs



**Maintenance
Facilities**



**Personnel
Requirements**



**Equipment,
Tools and
Material**



**Maintenance Data and
Records**



**Quality
System**



First chairman LtCol Alessio GRASO

Current chairman LtCol Carlo Rubino (pMS – DE,FR,IT,NL,SE,UK & PT)

Based on existing certification criteria (Mil Hdbk. 516B, DEF std + civil codes...)

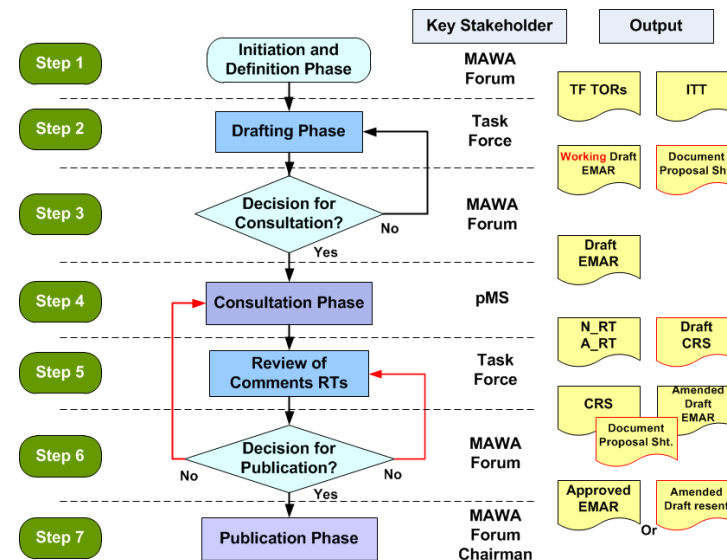
- Development of military EMACC for future military aircraft programmes or major modifications.
- Furthermore, platform unique criteria (special conditions) need to be added to fully address the safety aspects of unique military configurations.
- EMACC addresses airworthiness certification criteria to be used in the determination of airworthiness of all manned and unmanned, fixed and rotary wing air vehicle systems.
- It is a foundation and tailorable document to be used to define the air systems airworthiness certification basis.
- This document will cross reference relevant military and civil requirements.





- The image shows the front cover of a document titled "European Military Airworthiness Requirements (EMAR-145)". At the top, there is a blue rectangular logo with the text "EMAR 145" in white. Below this, the text "EUROPEAN DEFENCE AGENCY" is centered. The main title "European Military Airworthiness Requirements (EMAR-145)" is enclosed in a rounded rectangular box. Below this box, the text "REQUIREMENTS FOR MAINTENANCE ORGANISATIONS" is centered. At the bottom left, there is a blue square logo with a white stylized bird or wing design. To the right of this logo, the text "MILITARY AIRWORTHINESS AUTHORITIES FORUM" is centered. In the bottom right corner, there is a table with two rows and two columns. The first row contains "Edition Number" and "3.2". The second row contains "Edition Date" and "29 March 2010". Below the table, the text "Document" is on the left and "Prepared by Issue" is on the right.

Edition Number	3.2
Edition Date	29 March 2010
Document	Prepared by Issue

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Future aims

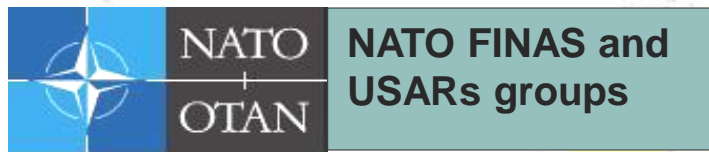


- To keep the momentum and continue in the timely development of EMARs and associated AMCs and GMs
- The main focus for National Military Airworthiness Authorities (NMAA) will be EMAR implementation
- EMAR compliance declaration process by pMS has yet to be agreed
- Further work is required to define the mutual recognition basis and process between NMAAs
- Mutual recognition will be key to unlocking the benefits of the EMARs
- An important milestone of the MAWA Forum will be to form a European Joint Military Airworthiness Authorities Organisation (EMJAAO)
- The ultimate goal is to have a seamless harmonised military airworthiness system taking into account military environments

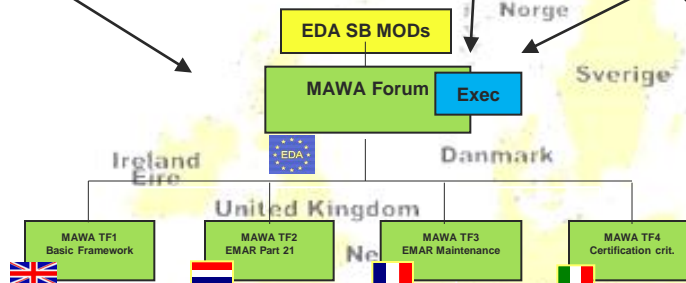
MAWA interrelationship



- MAWA Member States:**
- Austria
 - Belgium
 - Bulgaria
 - Cyprus
 - Czech Republic
 - Estonia
 - Finland
 - France
 - Germany
 - Greece
 - Hungary
 - Ireland
 - Italy
 - Latvia
 - Lithuania
 - Luxembourg
 - Malta
 - Netherlands
 - Poland
 - Portugal
 - Romania
 - Slovakia
 - Slovenia
 - Spain
 - Sweden
 - United Kingdom



MAWA database for sharing national and IO regulations



MAWA Common EMARS

JMAAN



ASD



**US
AUS
NOR
CH**

Implementation Phase



Important Events



MAWA Conference Warsaw

July 5-7 2011

EDA-SE Conference

Oct 2009

MAWA/EXEC F08 EDA

Sep 15 2010

CZP WS Olomouc

5-6 Jun 2009

MAWA F07 Portugal

May 26-27 2010

Next event ?

Questions...



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