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Integration of US sourced military platforms into an EMAR-based airworthiness system

2018 Military Airworthiness Conference

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Overview – Integration of US platforms under DASR

- Background and context
- Key enabling features supporting integration of US platforms into AUS under DASR

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Background

- 2017 AU DASA presentation: ***EMAR implementation by Australia***
- High level of audience level of interest:
  - *'General philosophy that the DASRs would cover all Military Aviation:*
    - *All aspects of aviation safety including airworthiness (EMAR) and operations; and*
    - *All military aviation operations including normal peacetime and active operations both at home and abroad'*
  - *DASR applied to all Defence platforms and regulated community*

- *2018 AU DASA presentation*
  - Focus on a challenging group of platforms designed, certified and supported under non-EMAR like airworthiness frameworks
    - *US sourced military platforms and DASR compliance*

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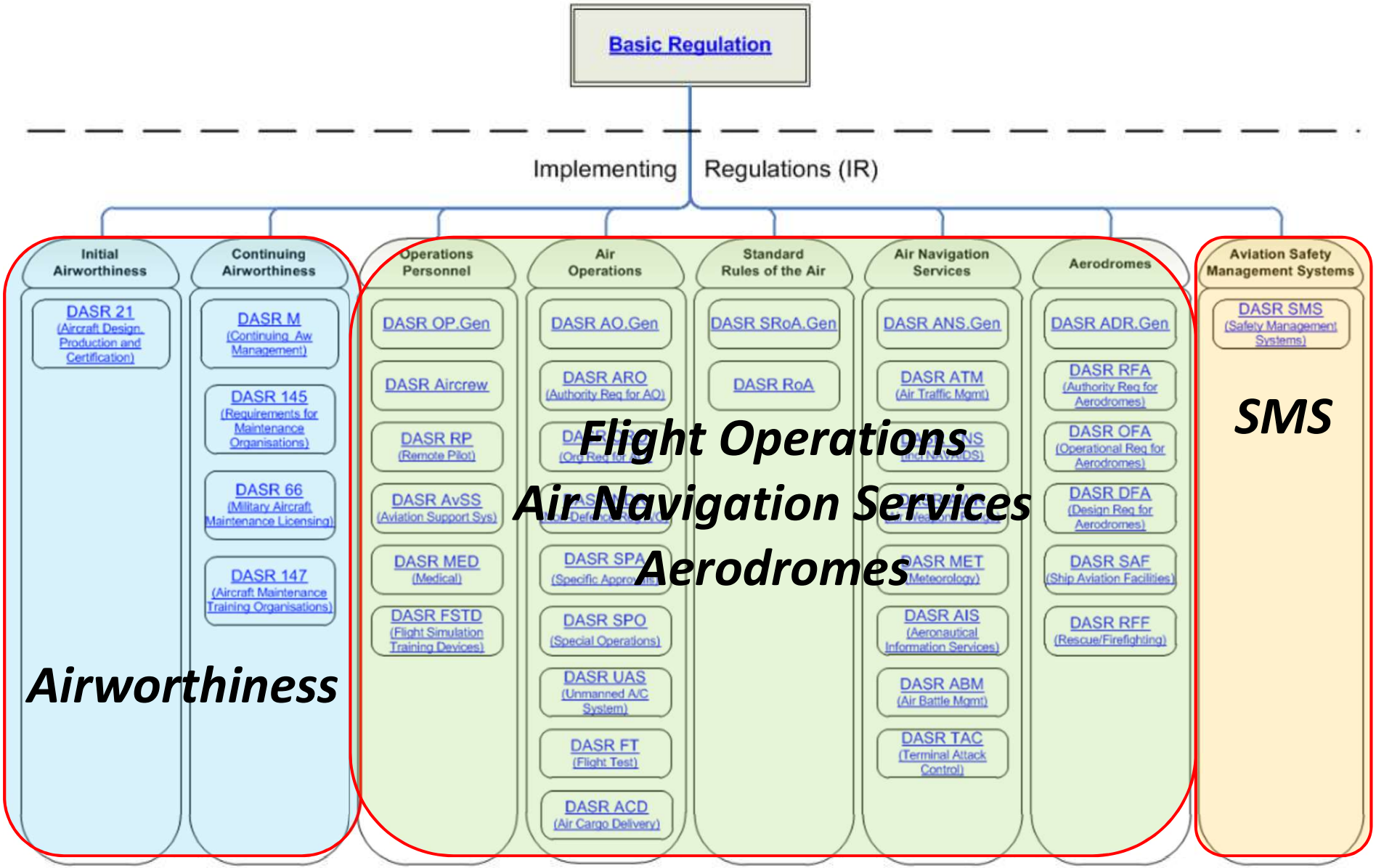

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Sirkosky MH-60R

Boeing CH-47F

Sirkosky S-70A-9

F-35A

F/A-18 A/B

F/A-18 Super Hornet and Growler

Boeing C-17A

Lockheed C-130J-30

Boeing P-8A

Lockheed AP-3C

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Background

- Each US based support construct has unique characteristics (not aligned to EMAR), underpinned by a common configuration principle:
  - ***F-35/A*** Lightning - Joint US Service + Partners
    - United States Air Force (USAF) certification (F-35/A) / global support solution
  - ***Seahawk 60R***, ***Super Hornet F/A-18F*** and ***Growler F/A-18 G***;
    - Foreign Military Sales (FMS) via United States Navy (USN) – certification and support
  - ***Chinook CH-47***
    - FMS via United States Army (US Army) – certification and support
  - ***C-17***
    - FMS via USAF – certification and global 'fleet' support
  - ***Poseidon P-8 and Triton***
    - USN lead - Co-operative acquisition – certification and support

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Background - Challenges

- Multiple US military airworthiness frameworks
- Differences to EMAR
  - processes – particularly for continued and continuing airworthiness
  - absence of organisational approvals,
  - approach to safety assurance oversight by multiple organisations (MAA, DCMA and Services)
- We need to speak US Department of Defense language
  - US DoD will not change their policy/process to meet our needs

- ***Solution – focus on desired airworthiness regulatory outcomes***
  - *DASA supplementary guidance material in the form of 'Advisory Circulars'*

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Key enabling features supporting integration of US platforms - flexible and pragmatic assurance

- DASA airworthiness assurance function retained for US sourced platforms and services in a flexible / pragmatic manner
  - Major changes to type design approved by DASA (even if Authority Level of Involvement is minimal)
    - reliant on recognition
    - confirm that any appreciable differences in configuration, role or operating environment have been adequately considered
    - pragmatism in addressing eligibility and demonstration of compliance
  - Approved Organisations – equivalence (people, process, behaviour perspective)
  - Use of DASR flexibility/derogation provisions – *do not seek exemptions*

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Flexible and pragmatic safety assurance
AC002/2018 - Applications for MTCs and Major Changes to TCs

- Scenarios applicable to US DoD sourced military aircraft

– ***Scenario 1.*** Applications for major changes to TCs developed by DASR 21J Military Design Organisation
  - Generally not applicable

– ***Scenario 2***. Application based upon an aircraft type-design that has been certified by a recognised NMAA
  - Eg USN Flight Clearance recommendation, USAF MTC recommendation

– ***Scenario 3.*** Leveraging non-DASR design organisations in developing designs for DASA certification
  - '*the arrangements with the external DO provides an acceptable equivalence to the DASR 21 Subpart J requirements*'

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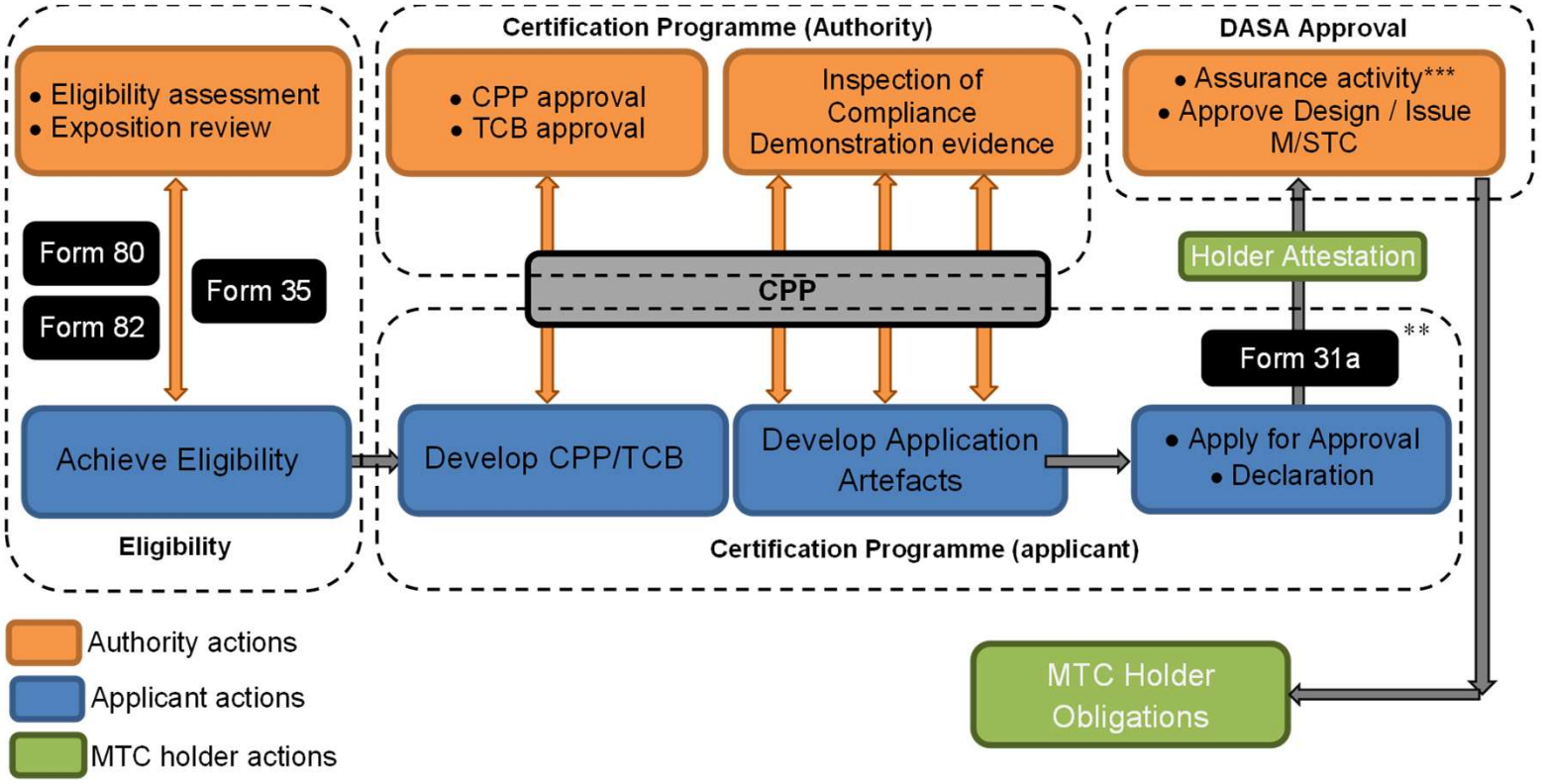
Flexible and pragmatic safety assurance

AC002/2018 - Applications for MTCs and Major Changes to TCs



** Format to apply for issue of an MTC will be agreed to by the applicant and DASA during the Project
*** Includes confirmation of ongoing validity of eligibility demonstration (i.e. via DASA oversight and surveillance)

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Flexible and pragmatic safety assurance
JSF JPO Military Design Organisation example

- DASA Military Design Organisation Approval awarded to F-35 Joint Program Office (JPO) in May 2018
  - Exposition documents the management system, organisation and relationships with contracted [design] organisations
  - Did not attempt to address individual regulatory requirements
- Privileges
  - targeted towards AU CAMO & MTCH who consume JPO products (eg modifications, repairs, ICA, Flight manual amendments)
  - withheld and caveated where necessary
    - nil privilege to classify designs – retain USAF Airworthiness classification
    - Authority shall accept major changes without further verification (on condition that differences (if any) to AU configuration, role or operating environment have nil appreciable effect on airworthiness)

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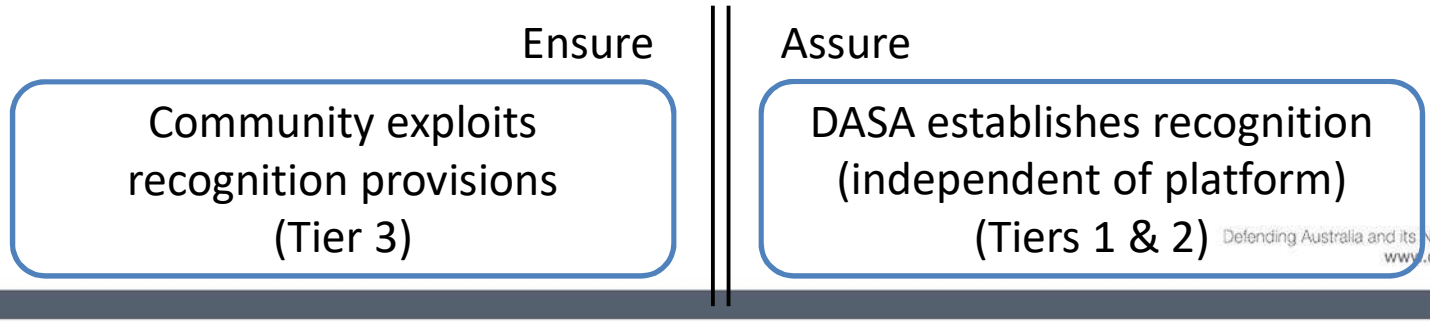
DASA approach to Recognition

- Recognition: an acknowledgement *by DASA* that another airworthiness authority applies a credible and defensible safety assurance framework.
- DASA takes a '***top-down***' approach to recognition:
  - *AC 004/2018 Airworthiness Recognition in the Defence Aviation Safety Program*
    - Tier 1: Competent authority assessment (DASA) : *EMAD R + sampling*
    - Tier 2: Credible and defensible airworthiness management system (DASA) : *EMAD R + additional assessment of airworthiness framework*
    - Tier 3: Suitable platform arrangements (Regulated Community)
- Each recognition has a set of terms telling the regulated community:
  - what is possible through recognition (scope & conditions); and
  - how to ensure the suitability of arrangements (caveats).



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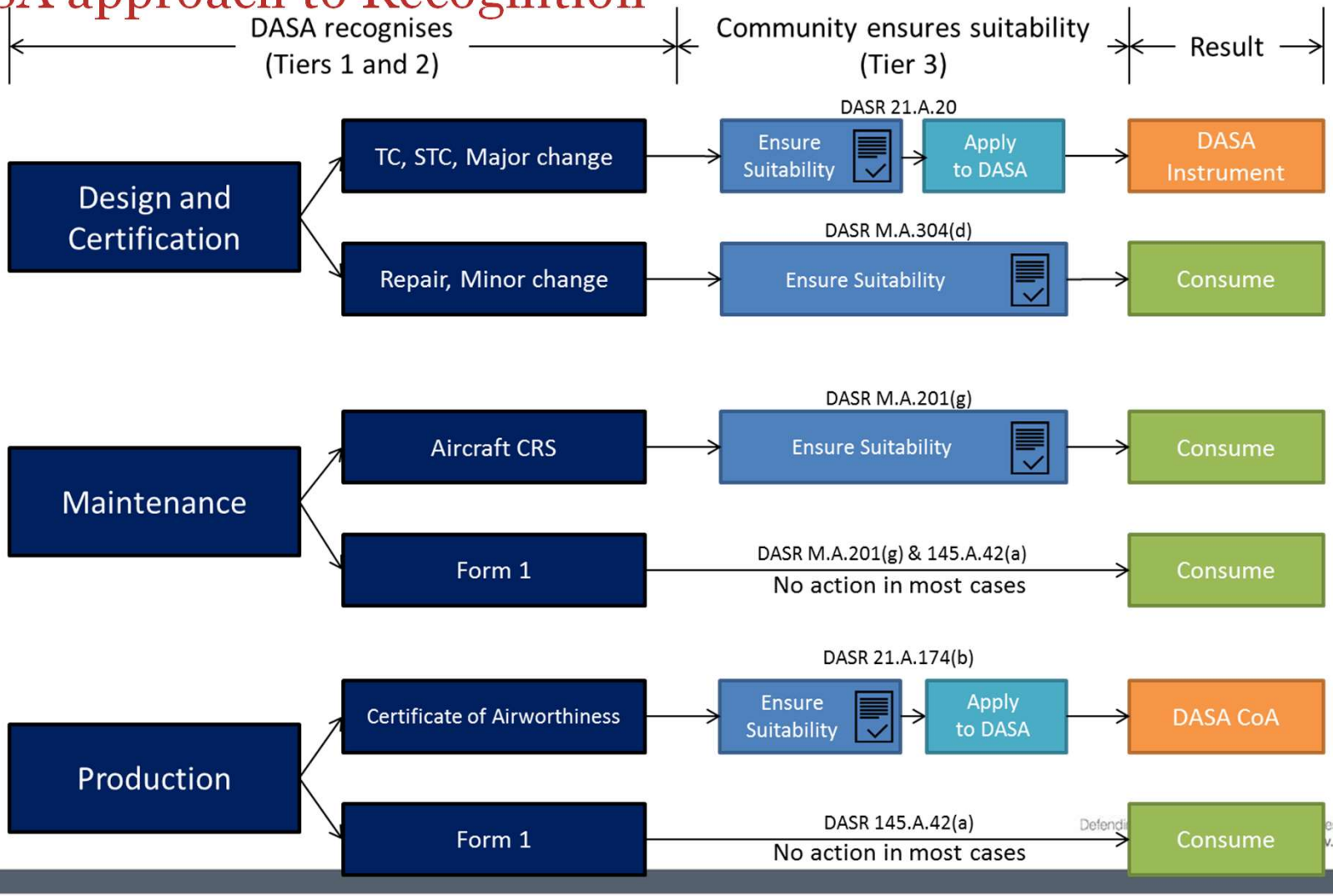
DASA approach to Recognition



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Key enabling features supporting integration of US platforms US DoD NMAA Recognition

- Formal recognition of US DoD regulatory frameworks
  - Formal recognition established 2014 (legacy AUS Aw framework)
  - Updated recognition certificates (USN & USAF 2018; US Army- early 2019)
  - http://www.defence.gov.au/DASP/DASR-Regulations/Recognition.asp

- Realising benefits of recognition (product level)
  - Tier 1 and 2 recognition of US DoD NMAA (by DASA)
    - US DoD MARQ assessment + further /deeper review of US DoD policy and execution (including Defense Contract Management Agency (DCMA) function)
  - Tier 3 - direct consumption by CAMO/MTCH (suitability assessment) for:
    - Maintenance (acknowledging DCMA QA)
    - Production (acknowledging DCMA QA)
    - Minor design changes (including ICA, Flight Manual amendment) and all repairs
  - Tier 3 - Maximise leverage (by AU MTCH / DASA) for major changes

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Key enabling features supporting integration of US platforms Government TC Holder and Instrument Flexibility

- Use of Government TC Holder provisions (DASR 21.A.14(c))
  - *AC 006/2017 Military Type Certificate Arrangements*
  - Government organisation generally not a design organisation
    - Underpinned by an appropriate design organisation to fulfil holder obligations
  - Generation of a Type Continued Airworthiness Exposition
    - Explains TCH support arrangements

http://www.defence.gov.au/DASP/DASR-Regulations/DASR-Templates.asp

- Instrument Flexibility – Military Permit to Fly (MPTF)
  - Used to support risk based operations prior to completion of evidence based Type Certification (& where restricted type certificate not appropriate)
  - *AC 003/2017 DASR Implementation of Military Permits to Fly*
    - MPTF used for AU F-35 (leveraging off USAF F-35 Military Flight Release)

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Summary

- With pragmatism, DASR (EMAR) have sufficient flexibility to account for US DoD sourced aircraft and [global] sustainment arrangement
- DASA has overcome challenges for US sourced equipment through:
  - Flexible and pragmatic safety assurance (nil exemptions)
  - NMAA Recognition (product level)
  - Government TC Holder and Instrument Flexibility

http://www.defence.gov.au/DASP/DASR-Regulations/AdvisoryCirculars.asp

QUESTIONS