

Non-Destructive-Testing

Qualification and Certification of Personnel in Aerospace Sector

6 November 2017
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Agenda

- CAAS
 - Changes in the requirements
 - SNANDTB
 - AC 145-12
- SNANDTB (Singapore National Aerospace NDT Board)
 - Members
 - Roles and Responsibilities
 - Plans
- NDTSS (NDT Society of Singapore)
 - Approved Outside Agency
 - Approved Internal Agency
- Question and Answer

NDT Personnel Competency

- NDT Personnel Competency Assessment
- Enhancement Programme
- SAR 145 Revision
- Key SAR 145-12 clauses
- Certification System
- What AMO needs to do

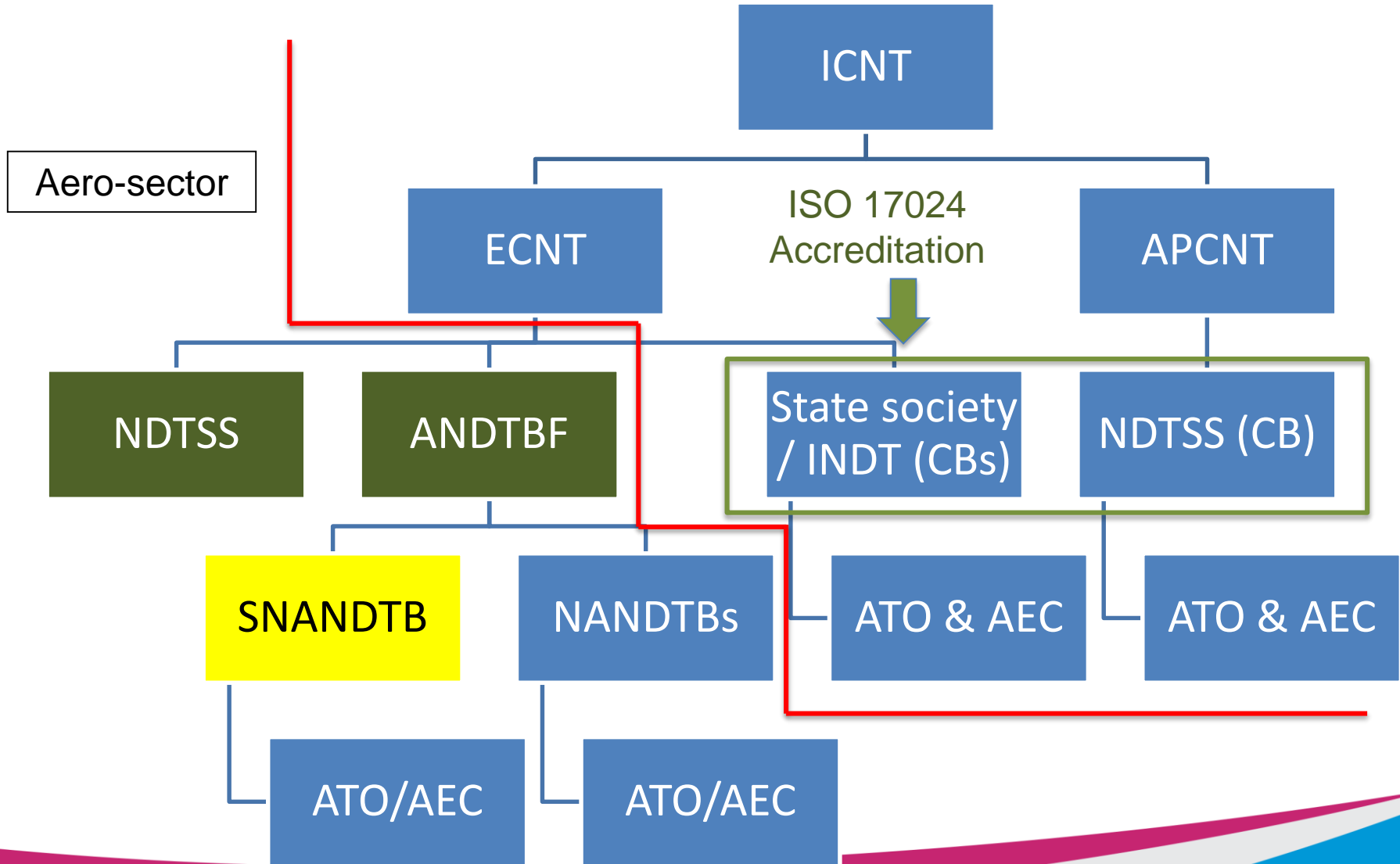
Aerospace Sector NDT Inspector

- Aerospace sector NDT characteristics
 - Variety of materials
 - High material cost
 - Innovative and complex designs
- Inspectors
 - Manage & control the NDT line
 - Perform NDT steps
 - Interpret indications
 - Accept or reject the material – part, structure
- Competency
 - Cost of rejecting good parts – turn-time or replacement
 - Higher cost for accepting bad parts – pre-matured failure

NDT – Personnel Competency Assessment

	Entry control	Types of Standards & Schemes	Certification providers & Examinations controllers	Source providing questions	Impartiality assurance
Mechanism	General, Specific & Practical examination	Central or Employer Based	NDT societies / institutions, employer RL3 or NANDTB	NDT societies / institutions, OA / IA, ATO or NANDTB	Accreditation Agencies
General Industry, central	According to ISO 9712	PCN SGNDT 9712 CP-189 EN 473	NDT Societies / institutions	BINDT NDTSS ASNT COFREND	UKAS SAC ANAB COFRAC
Aerospace sector, Employer based	According to EN 4179 NAS 410 AS 3669 MHT 3001	EN 4179, NAS 410, AS 3669, MHT 3001	Responsible Level 3, NANDTB as ATO, NANDTB by ATO	Identified L3 (IA / OA), NANDTB NANDTB & ATO	Accredited certification body (NDTSS) overseeing ATOs

Harmonising Standard, System, Qualification



ANDTBF – Aims and Objectives

AIMS AND OBJECTIVES OF THE ANDTBF

1.1. The Aerospace NDT Board Forum (hereinafter referred to as 'the ANDTBF'), has the following aims and objectives in relation to EASA regulations (i.e., part 145 and part 21 etc.) and EN 4179:

- 1.1.1. provide a forum for discussion of matters of common interest to all NANDTB;
- 1.1.2. harmonisation of methodology for the control of aerospace NDT training and EN 4179 qualification examinations provided at the various national levels;
- 1.1.3. provide formal representation of the common concerns of the ANDTBF members to EASA;
- 1.1.4. act as an advisory body for new NANDTB implementing applicable regulations and standards;
- 1.1.5. agree common specifications for outside agencies providing training and qualification examinations at the various national levels;
- 1.1.6. agree and promote a common format for company written practices in conformance with EN 4179;
- 1.1.7. provide a mechanism for interpretation in cases of dispute regarding the implementation of applicable regulations and standards.

1.2. The ANDTBF will seek multilateral recognition between its members, with organisations having similar aims, e.g., IAQG, and with any other pertinent body in order to benefit the Aerospace industry and to minimise duplication and multiple audit.

1.3. In order to obtain the widest possible representation, the ANDTBF encourages NANDTB or similar organisations outside of the European Union and Free Trade area to apply for membership or otherwise to seek involvement in its activities.

1.4. Any organisation wishing to apply for membership of the ANDTBF, and to nominate a representative to attend meetings, is requested to contact the Secretary to the ANDTBF, c/o Certification Services, British Institute of NDT, 1 Spencer Parade, Northampton NN1 5AA, United Kingdom. Further information on membership is available upon request.

Forum for discussion

Harmonisation of systems

Represents ANDTBF members to EASA

ANDTBF will seek multilateral recognition between members

Encourage membership outside of EU for widest representation

EASA's Acceptance - Australian

Dear Sir or Madam,

With this letter EASA would like to inform all approved EASA Part 145 Organisations located in Australia and New Zealand that the Australian Aerospace NDT Board is acceptable to the Agency in order to demonstrate compliance with the requirements of AMC 145.A.30(f) in particular: "Notwithstanding the general references in EN 4179 to a national aerospace non-destructive testing (NDT) board, all examinations should be conducted by personnel or organisations under the general control of such a board".

EASA user guide UG.CAO.00024-00x specifies that in the absence of an EU Member State NDT board it is acceptable that the responsible Level III within the organisation has been qualified in at least one method in accordance with EN 4179 by an organisation under the control of an EU Member State board. This approach that was meant to alleviate the provisions of aforementioned AMC, has still proven difficult for many organisations in Australia and New Zealand. Therefore EASA and the Australian Aerospace NDT board have worked closely together to establish an acceptable alternative and have reached a common understanding that the function described in said User Guide could as well be performed by the Australian Board for organisations located in Australia and New Zealand.

In order to comply with the AMC and the user guide, the nominated level III for the EASA Part 145 approval holder should ensure that his next recertification is done under the provisions of EN 4179 via the Australian Aerospace NDT Board. We do not require the current level III qualification to be recertified until the next expiry date.

Enhancement programme

- CAAS –
 - revise the requirements,
 - provide guidance and implementation plan
 - recognise the NANDTB
 - engage as an observer in the NANDTB
- SNANDTB –
 - develop policies and procedures,
 - supervise the certification body and
 - approve the ATOs (i.e. OAs and IAs)
 - join ANDTBF

Enhancement programme

- NDTSS –
 - obtain Accreditation as CB
 - audit ATOs (i.e. OAs / IAs)
- AMOs –
 - join as corporate member SNANDTB
 - nominate staff into SNANDTB
 - support ATOs (i.e. OAs / IAs)

SAR 145 Revised Clauses

- (e) AMO shall ensure that **personnel** who carry out or control a continued airworthiness NDT of structures or components are appropriately **qualified** for the particular NDT test in accordance with the **EN 4179, NAS 410** or an equivalent standard recognised by the DGCA.
- (ea) From **1 January 2018**, where the personnel mentioned in paragraph (e) are qualified in accordance with EN 4179 or NAS 410, the AMO shall **nominate a Responsible L3** person acceptable to DGCA.
- (eb) From **1 January 2018**, an AMO whose principal place of business is in **Singapore** shall ensure that its NDT personnel is certified by an **accredited certification body** that is acceptable to the DGCA.

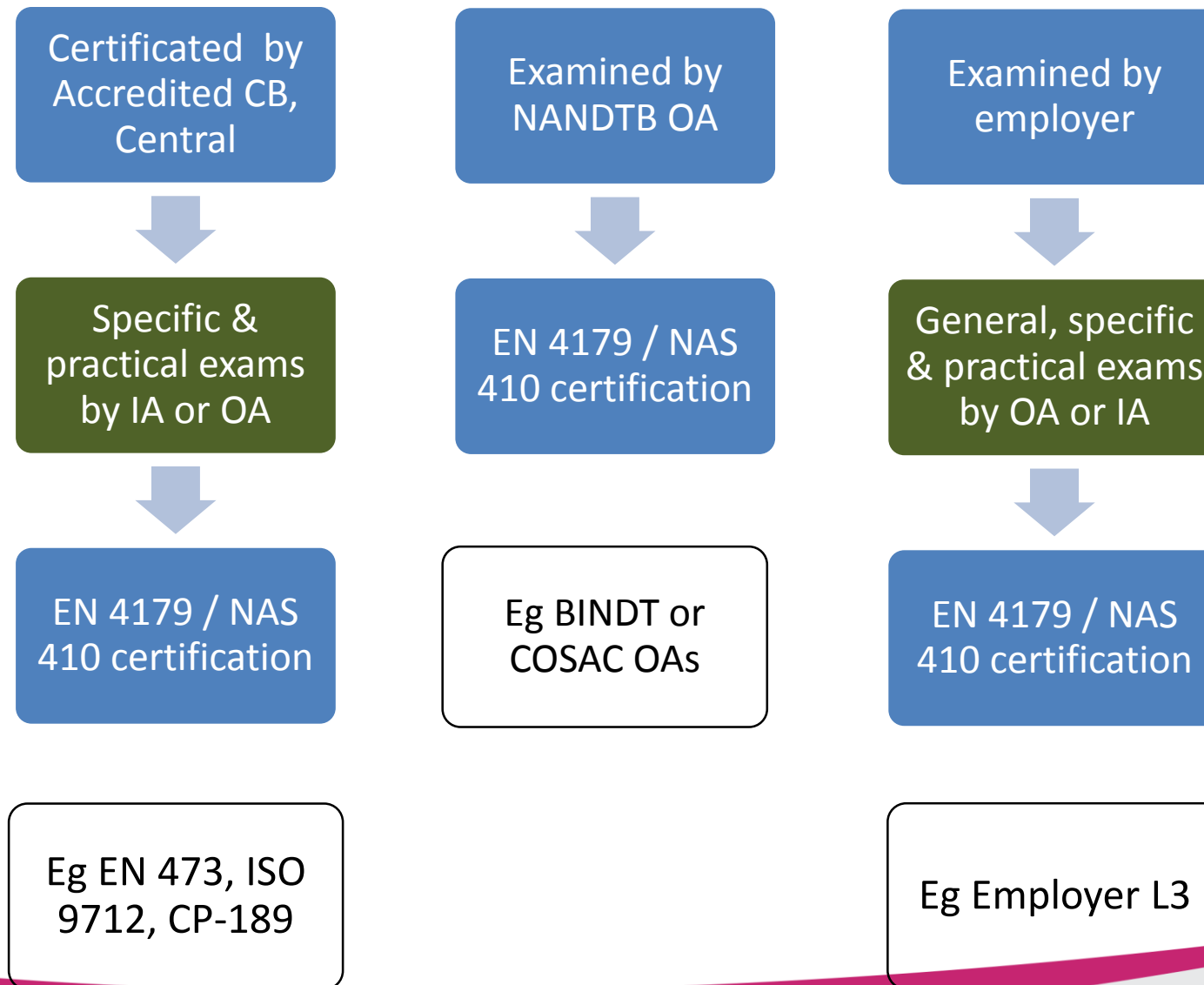
AC 145-12 – Key point Para 9 & 11

- Responsible L3 & L3 minimum qualification, one of these:
 - EN 4179 / NAS 410 compliant schemes by Agencies (ATO or OA or IA) of NDTSS/SNANDTB, BINDT or COSAC.
 - ISO 9712 (Aero) compliant schemes such as PCN (AERO), SGNDT (Aero)
 - ISO 9712 compliant schemes

AC 145-12 – Key point Para 10

- Approved Agency –
 - NDTSS audits
 - SNANDTB approves
 - Conducts Specific Exam and Practical Test.
 - Outside or internal of the organisation (employer).
 - Equals Approved Training Organisation (ATO)
- Accredited Certification Body – NDTSS is the certification body in Singapore
- SNANDTB and NDTSS provide or support NDT qualification and examination services

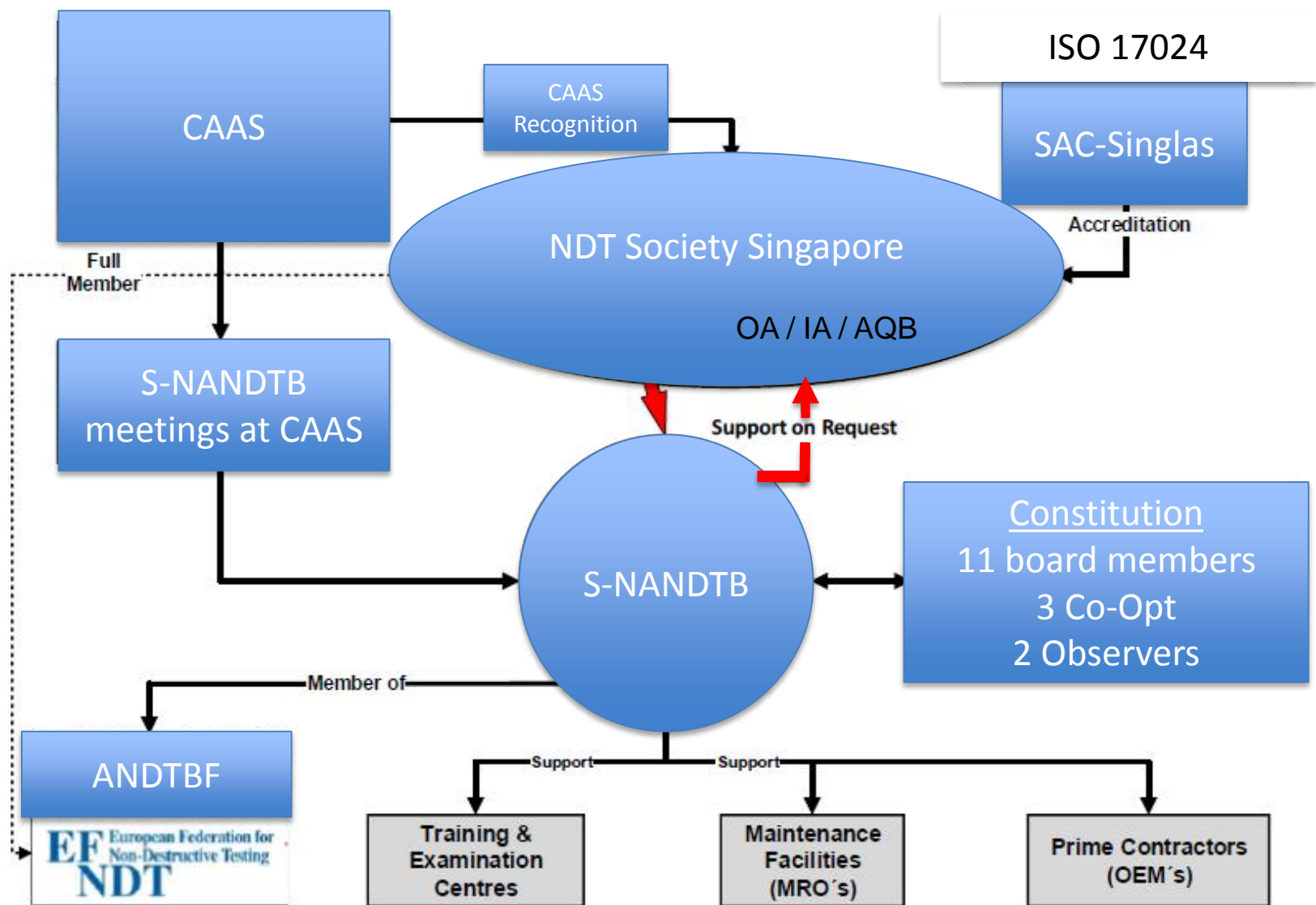
Moving into S-NANDTB System



AMO participation in the SNANDTB

- Join SNANDTB
 - As Corporate members
 - As auditors
- Provide assistance to OAs and IAs
 - Supply of scrapped parts as test specimens
 - Supply codes and specifications

Certification Structure



Maybe 4 centers

Summary

- Why the change –
 - cater to the growth in demand
- Why SNANDTB –
 - Control and supervise Singapore's system for implementing EN 4179 / NAS 410
 - Harmonise the system at the international platform
 - Achieve mutual recognition
- Why NDTSS –
 - Apply accredited system on the control of training and examinations
 - Provide acceptable level of impartiality
- Why approved training organisations (Outside / Internal)
 - Ensure system of training and examinations is checked
 - Allows employer based training and examinations

What AMO Needs To Do

Singapore based:

- AMO – check RL3 and L3s are qualified per AC
- AMO – check personnel qualified by
 - OAs of BINDT or COSAC
 - Approved SNANDTB/NDTSS OA
 - Approved SNANDTB/NDTSS Internal Agency
- OA – not yet approved by SNANDTB
 - Seek OA approval

What AMO Needs To Do

Overseas AMO

- Check Certification Standards
 - EN 4179 / NAS 410 and local Aerospace Standard – Ok
 - Other Standard & accepted by National Aviation Authority – consult PMI
- Check RL 3 & NDT personnel qualification
 - Certified / qualified by OA / IA of member of ANDTBF
 - Others accepted by National Aviation Authority – consult PMI

- Thank you