

NPA/26/14

Title of Proposal: Qualification, Approval and Use of Aircrew Training Devices

RA(s) or Manual Chapter(s): RA 2375 Issue 6

Organizations and / or business sectors affected: All of the Regulated Community.

RFC Serial No: MAA/RFC/2025/015, 2025/166

MAA Author

Post	Name	Rank	Signature
MAA-Reg-Fly1	Redacted	Redacted	Redacted - Original Signed

MAA Supervisor

Post	Name	Rank	Signature
MAA-Reg-Fly	Redacted	Redacted	Redacted - Original Signed

MAA Independent

Post	Name	Rank	Signature
MAA-Reg-Eng-1000a	Redacted	Redacted	Redacted - Original Signed

MAA LegAd (if required)

Post	Name	Rank	Signature
N/A	N/A	N/A	N/A

Cross-references to Other Documents or Relevant Sources

Other MRP Amendments: N/A

Service Inquiry Recommendations: N/A

AAIB Recommendations: N/A

Other Investigation Recommendations: N/A

Any Other Document: N/A

Feedback Notes for the Regulated Community

The Regulated Community are invited to offer feedback about the proposed amendment in the following areas:

- Air or Flight Safety impact
- Operational impact
- Errors or omissions
- Timescale for implementation

- Cost of implementation
- Amendment to internal processes/orders
- Resourcing the outcome of change
- (Contract amendments because of the change)

The format for feedback is available within a single Excel Template file on both internal and external MAA websites; it is important to use this format to ensure that your responses are considered and answered correctly.

Summary of Proposed Amendment

Objective: Clarify the regulatory requirements and reduce the ATD qualification burden on the RC.

Changes made:

- Amended Rationale to clarify the intent of the RA.
- Removal of reference to civil Certification Specifications (CS) from AMC to avoid the suggestion that the RC has a regulatory requirement to comply with civil CS. Reference remains in GM as a guide when determining the performance and fidelity levels which support individual training objectives.
- References to 'Validation criteria' amended to 'performance and fidelity levels' because Validation demands that a standard is attained and removes the ADH ability to accept deficiencies on Risk (with appropriate training design) if required.
- Clarity in para 5 that the QTG does not need to prove compliance with agreed criteria but that the test results from it are assessed prior to acceptance of the device by the SRO, and it will inform the artefacts required for the QS.
- Clarity in para 6 that an MQTG is used to assess in-service ATDs for degradation.
- Para 7 amended to be agnostic of Aircrew in order that the same definition of a Qualification Statement can be used for synthetic parachute training devices in RA1704.
- Addition of an 'Applicability of this RA' section for ATDs used for T&E and to clarify the relevance of an ATD's effect on Safety of flight.
- New para 11 to facilitate flexible application of the qualification process for Specific S2 Category UAS.
- Clarity in 13.a.(6) of who produces the QTG, and that it is an assessment tool rather than one which defines a standard which should be attained.
- Para 13.b (together with Annex A) amended to reflect that there may be a series of T&E evaluations, before the final report, which may influence the SRO's requirement to have the OEM rectify the ATD prior to acceptance.
- New para 15; an alternative process is offered for ATDs which were on contract prior to the publication of Issue 4, to overcome the inability to produce a QTG.
- Para 17 amended to clarify that re-qualification should also occur on the modification of the live Air System in addition to the ATD.
- Para 20 deals with already qualified ATDs that are moved, so the para is deleted from 2375(1) (Qualification) and recaptured at new para 34.b in 2375(2) (Approval). The intent is that a moved device is subsequently assessed and only re-qualified if degradation is encountered. This intent is clarified in para 36.
- New AMC at para 25.b. mandating that ATD faults are captured by the ATD Operator.
- Para 26 (together with Annex A) corrected to reflect that modifications are communicated from the TAA to the DH rather than the other way around.
- Paras 37 to 41 rearranged for clarity, with the addition that the DH should consider any recorded ATD faults when reviewing the ASSC.

- Para 47 deleted: Content covered earlier in the RA at para 13.d.(2) and in 2375(2).
- Para 49 deleted: Removal of the requirement for a Training Service Provider's training content to be agreed with the ADH from 2375(2); this will be contracted iaw the required ATD training output in the procurement phase in 2375(1).
- Para 55 deleted; superfluous.
- New Regulation 2375(4): ATD used for Test and Evaluation.
- Annex A amended to amplify and better reflect the qualification process in 2375(1).

Impact Assessment: Positive impact through reduced Regulatory burden.

Consultation Period Ends: 6 weeks.

The consultation period for this proposed amendment ends on the stated date. Please send your feedback, using the Response Form, via email to DSA-MAA-MRPEnquiries@mod.gov.uk

MAA Approval

Post	Name	Rank	Signature
MAA-OpAssure-Test-DepHd	Redacted	Redacted	Redacted - Original Signed



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RA 2375 – Qualification, Approval and Use of Aircrew Training Devices

Rationale

Aircrew Training Devices (ATD) are used across the Defence Air Environment as preparation, or substitution, for live flying. ATDs that misrepresent the real behaviour or performance or have significant material differences to the associated Air System could jeopardise the safe operation of the live Air System by Aircrew, and thereby increase Risk to Life (RtL). This ► **increased Risk can be mitigated through robust training design which is informed by a thorough understanding of any material differences and ATD limitations.** ◀

Contents

Definitions Relevant to this RA

► **Applicability of this RA** ◀

2375(1): Qualification of Aircrew Training Devices

2375(2): Approval of Aircrew Training Devices

2375(3): Use of Aircrew Training Devices

► **2375(4): Aircrew Training Devices used for Test and Evaluation** ◀

Definitions

Definitions Relevant to this RA

1. Simulator descriptors intentionally reflect civil terminology, amended to suit military application where appropriate, to allow industry partners to apply recognised civil standards where military standards are not codified or readily available.
2. **Aircrew Training Device.** A device used for Aircrew practical training which can support claims in the Air System Safety Case (ASSC)¹ which relate to Aircrew flying behaviours, qualifications, currency, or Competency. Such devices are categorised as either a Flight Simulation Training Device (FSTD) or Other Training Device (OTD).
3. **Flight Simulation Training Device (FSTD).** Is a device which can ► **deliver specific Aircrew flying training objectives** ◀, facilitate flying currency requirements, support claims about Aircrew behaviours in the ASSC or has the potential to provide negative training². FSTD may be categorised as a Full Flight Simulator (FFS), a Flight Training Device (FTD) or a Flight and Navigation Procedures Trainer (FNPT).
 - a. **Full Flight Simulator (FFS).** Means a physical, true-to-life replica of a specific Air System's flight deck or ► **Command Unit (CU)** ◀, including the assemblage of all equipment and computer programmes necessary to represent the Air System in surface and flight operations, a visual System³ providing an out of the flight deck / cockpit view and a force cueing motion System. FFS are qualified and approved as accurately replicating the crew environment and Air System performance of a single Aircraft type.

► **Uncrewed Air System (UAS)** ◀ FFS only require a force cueing motion System where necessary to emulate performance of the flying controls within the ► **CU** ◀, or where the ► **CU** ◀ is itself subject to motion (airborne, seaborne, or within a moving ground vehicle).
 - b. **Flight Training Device (FTD).** Means a physical replica of a specific Air System's instruments, equipment, panels, and controls in an open flight deck / ► **CU** ◀ / other crew station area or an enclosed flight deck / ► **CU** ◀ / other crew station, including the assemblage of equipment and computer software programmes necessary to represent the Air System in surface and flight operations to the extent of the Systems installed in the device. It does not

¹ Refer to RA 1205 – Air System Safety Cases.

² Where training devices are used for mission rehearsal, or other training not relating primarily to the safe conduct of flight, Senior Responsible Owner (SROs) / Aviation Duty Holder (ADH) / Accountable Manager (Military Flying (AM(MF))) need to consider whether there is any Risk of transfer of negative training that could compromise claims in the ASSC.

³ Visual Systems may include Augmented or Virtual Reality (AR / VR) Systems, subject to the same qualification and approval criteria as the overall ATD. This is also applicable when the AR / VR System is integrated to a live Air System.

Definitions

require a force cueing motion or visual System. FTD are qualified and approved as accurately replicating performance and behaviour of a single Aircraft type but may not fully represent all Aircraft Systems. A visual System³ (depicting the external environment) is not necessary, but if fitted ► **needs to** ◄ meet ► **the performance requirements** ◄ agreed by the Duty Holder or Accountable Manager (Military Flying) (AM(MF)) ► ◄.

c. **Flight and Navigation Procedures Trainer (FNPT)**. Means a training device which represents the flight deck / ► **CU** ◄ or other crew station, including the assemblage of equipment and computer programmes necessary to represent an Air System's in-flight operations to the extent that the Systems represented appear to function as they would in the live Air System. Where civil standards have been used to aid Qualification any reference to a flight deck or cockpit is also applicable to another crew workstation. An FNPT may, or may not, be linked to an FFS or FTD for whole crew training. FNPT are qualified and approved to represent the generic environment and performance of a class of Aircraft, although the design itself may depict a specific type. Simulator performance criteria may be representative of a class of Aircraft rather than ► **a specific** ◄ type ► ◄.

4. **Other Training Device (OTD)**. Means an ATD other than an FSTD which facilitates flying training without representing flight characteristics or where a complete flight deck, ► **CU** ◄ or Mission Crew Trainer environment is not necessary. OTD are not FSTD but, if they support claims in the ASSC (in accordance with (iaw) para 2), or have the potential to provide negative training², then compliance with RA 2375 is required.

5. **Qualification Test Guide (QTG)**. Means a template document describing the series of functional tests that ► **assess** ◄ performance, handling qualities and synthetic environment of an ATD, including mission Systems, ► **against the parameters agreed between the SRO and Operational Duty Holder (ODH)**. ◄ The QTG ► **uses** ◄ flight data from the Air System ► **to establish the datums around which the parameters are defined**. ◄

6. **Master QTG (MQTG)**. The MQTG is a documented process which ► **assesses** ◄ the ► **In-Service** ◄ performance, handling qualities and synthetic environment of an individual ATD (as installed in a given location), including mission Systems, ► **for degradation against the performance and fidelity levels accepted at entry into service**. ◄ It may refer to computer-based tests designed into the ATD that support the MQTG output. It is derived from the QTG and records the performance of the ATD when qualified and approved. It may also provide a reduced minimum set of objective and subjective tests to assure continued performance of the ATD (see Acceptable Means of Compliance (AMC) for suitable management system).

7. **Qualification Statement (QS)**. ► **A QS is** ◄ an overarching statement developed, managed, and owned by the SRO, ODH or AM(MF) on completion of the qualification process ► ◄. The QS records the training for which the ► **training device** ◄ may be used and any limitations. The QS explains the ► **training device's performance and fidelity levels** ◄ agreed between the SRO and ODH and references the ► **test criteria** ◄ against which the ► **training device** ◄ has been assessed.

8. **ATD Operator**. Means the organisation responsible for the provision of the ATD. Responsibilities may include availability, Maintenance, and testing. An ATD Operator may be different to the original manufacturer and any third party that provides instructional services.

Applicability

► **Applicability of this RA**

9. **Safety of Flight**. ATDs which the ADH / AM(MF) assess to have no effect on the Safety of flight of an Aircraft are not within the scope of this RA. Some or all of the qualification steps in RA 2375(1) will be beneficial, however, to ADH / AM(MF) in establishing the training objectives that an ATD is capable of delivering.

10. **ATDs used for Test and Evaluation (T&E)**. RA 2375(4) is applicable to ATD when used solely for T&E. ◄

**Regulation
2375(1)**

Qualification of Aircrew Training Devices

2375(1) The SRO⁴ **shall** ensure that the ATD⁵ within their Area of Responsibility (AoR) are Qualified for their intended use.

**Acceptable
Means of
Compliance
2375(1)**

Qualification of Aircrew Training Devices

11. **► Specific S2 Category UAS ATD.** For Specific S2 category UAS the SRO **should** identify in the submission for the Letter of Endorsed Categorisation which elements of the ATD qualification process in this RA are applicable. ◀
12. The SRO **should** own, develop, and manage a QS for each ATD within their AoR:
 - a. Each QS **should** have a single owner at any one time.
 - b. For new Air Systems that require an ATD, the SRO **should** own the QS until transfer of the device to the ODH or AM(MF)⁶.
 - c. Transfer from the SRO to ODH or AM(MF) **should** be before any routine In-Service employment of the ATD. Where the ATD is being used to train ahead of Air System delivery the SRO may retain ownership of the QS until the Air System is accepted into Service.
13. The QS **should** be produced on completion of the Qualification Process detailed below, which is also depicted pictorially at Annex A.
 - a. During the procurement process the SRO **should**:
 - (1) ▶◀
 - (2) ▶◀
 - (3) Define the desired training output and what level of ▶performance and◀ fidelity is required for each training objective (▶see para 27◀), including any environmental considerations. ▶When defining the intended use for off-the-shelf civil ATDs, this **should** include any military differences.
 - (4) Define the category of the procured device. ◀
 - (5) Ensure that the Air System or Commodity Delivery Team Leader (DTL) contracts the Design Organisation to provide flight data⁷, and the device manufacturer to use it together with available flight test data, to achieve the required ▶performance and◀ fidelity levels.
 - (6) Assure that the Air System or Commodity DTL contracts the device manufacturer to apply the appropriate Design Standards for ATD⁸.
 - (7) Ensure that ▶the Air System or Commodity DTL contracts the device manufacturer or◀ ATD Operator ▶to produce a QTG◀ that ▶assesses the ATD◀ performance and ▶fidelity levels against the parameters◀ that have been ▶Contracted iaw para 13.a.(5)◀. This **should** include any objective and subjective tests that are required to evaluate specific military tasks and capabilities.

⁴ Where an SRO is not appointed, the ODH / AM(MF), or In-Service Capability Manager on behalf of the ODH / AM(MF), **shall** fulfil this responsibility, eg In-Service Modification where an SRO is not appointed or Contractor Flying Approved Organisation Scheme (CFAOS) organisations.

⁵ Where multiple devices of the same specification exist, they will need to be individually assessed and qualified.

⁶ While the SRO will only own one QS, following transfer there may be more than one QS for a specific ATD, ie where that ATD is used by more than one ADH / AM(MF). In such cases the SRO will transfer the same QS to all ADH / AM(MF)s.

⁷ RA 5810 – Military Type Certificate (MRP 21 Subpart B) requires that where Operational Suitability Data, which includes Air System validation source data to support the objective qualification of simulator(s), is available it **should** be included as part of the Military Type Certification or Changes in Type Design.

⁸ International Civil Aviation Organisation (ICAO), Federal Aviation Administration (FAA), European Aviation Safety Agency (EASA) or an equivalent agreed by the MAA.

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Compliance
2375(1)**

b. The QTG **should** be designed and used to assess the procured device against the procurement requirement. It **should** ► be provided to the independent evaluating T&E Suitably Qualified and Experienced Person (SQEP) to form part of their evaluation and support their statement of material differences and RtL assessment. Initial evaluations **should** be used to support rectification by the manufacturer to the contracted standard if required. ◀

(1) ►◀

(2) ►◀

c. Following the evaluation of the device using the QTG, three Artefacts⁹ **should** be produced:

(1) A T&E report that includes the relevant material differences between the device and the live Air System, with an assessment of associated RtL that may occur in the live Air System.

(2) An MQTG that **should** be used as a baseline for future evaluations of the individual device.

(3) A recommendation for release to training by an Aircrew Instructor (AI) who is current on type and deemed SQEP by the ADH / AM(MF), underpinning what the device is and is not suitable to be used for, including any possible transfer of training Risk to the live Air System. This **should** be based on a review of the T&E report and identify and explain any training objectives identified in the procurement requirement (see AMC para ► 13 ◀.a.(3)) for which the ATD is not suitable - and explain how this is mitigated (such as through adjustment to training design).

d. After review of the T&E report, MQTG and recommendation for release to training - the SRO **should** produce a definitive QS¹⁰ which includes, as a minimum:

(1) The category of the device.

(2) The training objectives (TO) the device can and cannot support, including the currency limitations, qualifications, ratings, and supervisory checks that may be conducted in the device. This **should** be based on the recommendation for release to training (see AMC para ► 13 ◀.c.(3)).
►◀

(3) The implications of any environmental misrepresentation and the environmental conditions in which the device may be used.

(4) Any relevant material differences between the device and the Air System. These may be reproduced in documentation that is available to Aircrew and training staff.

(5) Any areas where there is a reasonable prospect of negative training occurring, specifying any associated limitations or exceptions and where RtL may be increased in the live Air System as a result.

14. For a device that has been procured through Foreign Military Sales the SRO **should** ensure that an independent T&E SQEP is able to observe, where possible, and validate the T&E assessment conducted by the foreign military provider to enable an initial QS to be produced. If not possible or evidence gaps exist, the SRO **should** develop a plan, in consultation with independent T&E Aircrew¹¹, to gather the evidence required to support a full QS.

15. ► For devices Contracted prior to 30 September 2020^{Error! Bookmark not defined.}, and where a QTG cannot be provided, the ADH / AM(MF) **should** consult with independent T&E SQEP to develop a series of tests that will support the production of the Artefacts required by para 13.c. and enable the production of a QS. ◀

⁹ These artefacts **should** be maintained and updated, as required, throughout the life of the device.

¹⁰ A suggested template for a Qualification Statement can be found on the MAA website.

¹¹ Refer to RA 2370 – Test and Evaluation.

Acceptable Means of Compliance 2375(1)

16. The initial assessment **should** be conducted by appropriately qualified T&E Aircrew¹¹ where accurate handling Qualities, Quality of the mission System representation, synthetic environment or Air System performance and operation are material to the intended usage.
17. A device **should** be re-qualified following an expansion of the intended use, or a Modification to the device ► or live Air System, ◄ which might have affected the ► accuracy of the ◄ handling Qualities, ► ◄ mission System representation, synthetic environment, or Air System performance. This re-qualification **should** be conducted by T&E Aircrew¹¹.
18. Where the representation of the operational performance of non-Flight Safety critical mission Systems is material to the intended usage, qualification of ► these Systems ◄ **should** be conducted by personnel deemed SQEP by the SRO¹².
19. An appropriate SQEP stakeholder group, which includes T&E Aircrew¹¹, **should** be established where unique and emerging technologies are involved and there is no end user expertise.
20. ► ◄
21. Where an AI is expected to manage the Instructor Operating Station (IOS), whilst simultaneously monitoring the trainee, an assessment of the IOS functionality **should** be made against any impact on the supervision and training Risk.
22. Where a commercially Contracted civil Air System ATD is used to support a live Air System within their AoR the SRO **should** produce a QS based on the device's civil Qualification certificate. Unless the conditions of para ► 23 ◄ are met, this **should** be supported by a T&E assessment of the device's suitability for military use. Whilst it may be the same type of Air System there may be significant material differences or intended use between the civil ATD and the Air System which **should** be quantified, assessed, and recorded (see AMC para ► 13 ◄.c.(1)). In these circumstances the civil Qualification certificate **should** be used together with the T&E assessment to produce the recommendation for release to training and QS required by this RA (see AMC para ► 13 ◄.c.(3)).
23. Where a civil ATD certified to level D, which simulates a type not on the Military Aircraft Register (MAR), is used to support currency on multiple types including Air Systems on the MAR, the SRO **should**:
 - a. Ensure the ATD's use remains within the scope of the FSTD Data Sheet.
 - b. Evidence why there is no potential for transfer of negative training to MAR Aircraft.
 - c. Produce a QS based on the ATD's civil Qualification Certificate. The level D Certification can be taken as the recommendation for release to training.
24. Where devices can be network linked, they **should** be assessed both independently and when linked. Where differences in performance or use exist, they **should** be included in the QS.
25. The ADH / AM(MF) **should** ensure that the ATD Operator:
 - a. Progressively tests the ATD against the Master QTG over a rolling 12 month period to identify any degradation in performance between annual Approvals.
 - b. ► Records any ATD Faults which constitute undocumented material differences with the live Air System (see para 34). ◄
 - c. Can demonstrate they have a suitable management system to enable compliance with this RA.

¹² Considered on a case-by-case basis, eg tactical mission Systems may be more appropriately evaluated by an Operational Evaluation Unit or specialised role mission equipment may require end user SQEP advice during evaluation.

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2375(1)**

26. The ►SRO / ◀ ADH / AM(MF) **should** ensure that ►Air System Modifications which affect the ATD¹³ are also applied to the ATD or captured as a material difference within the QS, and addressed appropriately within the training design. ◀

**Guidance
Material
2375(1)**

Qualification of Aircrew Training Devices

27. EASA Certification Specifications (CS) for Aeroplane Flight Simulation Training Devices (CS-FSTD(A)) or Helicopter Flight Simulation Training Devices (CS-FSTD(H))¹⁴, detail the ►◀ requirements for civil FSTD qualification; other equivalent civil CS are also available. These documents are derived from ICAO Doc 9625 Volume 1 and Volume 2 respectively, which provide a structured means of determining ►the desired performance and fidelity levels◀ according to training requirement. ►For a commercially Contracted ATD these documents◀ may assist the SRO ►in determining◀ the category of ATD and the qualifications, ratings and training output that can be ►supported.◀ These documents ►also◀ provide guidance on the construction of a QTG ►◀. However, the guidance is based on civil Air Systems, designed to conduct civil flying tasks and these may not fully satisfy military usage. Therefore, specific military tasks and capabilities may need to be included in the device QTG, such as Night Vision Device visual Systems, and ►acceptable performance and fidelity levels◀ adjusted to suit military usage.

28. Commercially Contracted ATD that are level D certified CAA / FAA / EASA ATDs will have been subject to rigorous Assurance. However, when they are used for Aircrew training and currency for Air Systems on the MAR, there may be variation in the capabilities and fidelity of ATD, so SROs need to assure themselves that the differences from the Air System and its intended operation are understood and reflected in the ►recommendation for release to training and the QS.◀

29. Where a Training Service Provider has been Contracted to provide end to end training requirements set by the SRO it is recognised that this may include the procurement and employment of one or more ATD. In this situation the SRO will still be the owner of the QS iaw para 7 and ►12,◀ but the development and management of the QS may be the Responsibility of the Contracted Training Service Provider, subject to agreement by the SRO.

30. The following could be used to describe the qualifications, rating and types of training that may be conducted in an ATD and assist with the creation of a matrix of training objectives to be evaluated:

a. Formal Training Statement (comprising training objectives as they relate to Role Performance Standards) for the following Aircrew Qualifications:

- (1) Initial Aircrew Qualification¹⁵.
- (2) Certificate of Qualification on Type (CQT)¹⁶.
- (3) Certificates of Competence¹⁶.
- (4) Instrument Rating (IR)¹⁷.
- (5) AI Training Requirements¹⁸.

31. Where CS-FSTD(A/H), ICAO 9625 Vol 1/2 or other civil specifications do not provide sufficient guidance for ►defining◀ the ►required performance and◀ fidelity ►levels◀ of military devices the following considerations may be considered:

¹³ ►The Type Airworthiness Authority will communicate Air System Modifications which affect the ATD to the SRO iaw RA 5103 - Air System Configuration Management.◀

¹⁴ CS-FSTD(A) is derived from ICAO Doc 9625 Volume 1, Manual of Criteria for the Qualification of FSTD — Aeroplanes and CS-FSTD(H) is derived from ICAO Doc 9625 Volume 2, Manual of Criteria for the Qualification of FSTD — Helicopters which could also be used to assist the qualification of an FSTD. Where the term 'cockpit representation' is used, this is equally applicable to mission Systems and mission workstations.

¹⁵ Refer to RA 2101 – Aircrew Qualifications.

¹⁶ Refer to RA 2102 – Aircrew Competence in Role.

¹⁷ Refer to RA 2120 – Pilots' Instrument Rating Scheme.

¹⁸ Refer to RA 2125 – Aircrew Instructor Training ►and Aircrew Examiner Training.◀

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- a. Handling characteristics throughout the flight envelope, including ground handling.
 - b. Flight model performance characteristics throughout the flight envelope.
 - c. Mission realism, including specific military role manoeuvres and tasks.
 - d. Accuracy of cockpit layout and Structure.
 - e. Accuracy of whole crew environment.
 - f. Realistic Systems architecture (eg software menus etc).
 - g. Representative malfunctions, including isolated and compound degraded modes.
 - h. Representative visuals, sound, and motion cues.
 - i. Environmental characteristics to include Air Traffic Control, navigation, atmosphere, weather, Aerodromes, terrain, threats, and external players.
 - j. IOS operator and System interaction capabilities.
 - k. Linked capability or formation with entity / other ATD.
 - l. Mission planning, briefing and debriefing facilities.
 - m. Accuracy of sensor System simulations to be used for provision of Flight Safety critical activities such as Aircraft guidance.
 - n. Fidelity of Systems used to support weapon targeting.
32. ► **Fidelity Levels.** ◀ There are several acceptable methodologies that could be used to determine the required fidelity level for specific training objectives¹⁹. These include, but not exclusively, ICAO 9625 Vol 1/2 and the Liverpool Rating Scale for Subjective Testing of Simulator Fidelity. Based on a modified version of the ICAO 9625 Vol 1/2 fidelity levels could be applied against each training objective, see Annex B for greater detail:
- a. None or Not Required (N).
 - b. Generic (G).
 - c. Representative (R).
 - d. Specific (S).
33. ► ◀
34. Relevant material differences could be extensive so may be referenced in the QS but recorded in a ► **technical log** ◀²⁰ style document ► **(often referred to as a differences log)**, ◀ which will be familiar to Aircrew and training staff, for the device. ADFs could also be recorded and tracked with this document.

Regulation 2375(2)

Approval of Aircrew Training Devices

2375(2) The ADH and AM(MF) **shall** approve the use of the ATD within their AoR.

Acceptable Means of Compliance 2375(2)

Approval of Aircrew Training Devices

35. The ADH or AM(MF) **should** approve an ATD for use based on the QS specific to that device.
36. ATD **should** be approved on initial entry into service.
37. ATD Approvals **should** be renewed and recorded at least annually ► **and on the following occasions:**

¹⁹ Further guidance may be found in the RAF Air and Space Warfare Centre Trials Directive.

²⁰ Refer to the Manual of Airworthiness Maintenance - Documentation (MAM-D).

Acceptable Means of Compliance 2375(2)

- a. Modification²¹ of the QS or ATD.
 - b. When an ATD that is not designed to be mobile is moved. ◀
38. ▶◀ Approvals ▶ **should be renewed** ◀ following an assessment of the progressive testing ▶ (or post-Modification / post-move testing in the case of paras 37.a and b.) ◀ conducted by the ATD Operator, compared to the MQTG for that individual device. This assessment **should** be conducted by SQEP and a practical, subjective assessment of the ATD by SQEP Aircrew **should** also be conducted. The criteria for SQEP **should** be determined by the ADH or AM(MF).
- a. ▶◀
 - b. ▶◀
 - c. ▶◀
 - d. ▶◀
39. ▶ **Degradation of Performance.** If at any time the performance of the device is suspected to have degraded, undermining the validity of the QS, the ATD Operator **should** conduct an assessment against the MQTG. In all cases where degradation is confirmed, the affected Systems **should** be re-qualified iaw paras 17 and 18.
40. The ADH or AM(MF) **should** assess the material differences between the ATD and the 'as flown' Air System, including any recorded ATD Faults, when reviewing the ASSC and ensure that any differences are published and reflected in the recommendation for release to training and QS.
41. The ADH or AM(MF) **should** ensure that the ATD Operator has a suitable management system in place to demonstrate compliance with this RA as part of the annual Approval process. ◀
42. Where an ATD is a civil Contracted device The ADH / AM(MF) **should** ensure that any Modification to the ATD or QS, not reported by the civil Contractor, are identified during the annual Approval process ▶◀. Significant Modifications ▶⁴◀²¹ **should** be assessed by T&E Aircrew¹¹.

Guidance Material 2375(2)

Approval of Aircrew Training Devices

43. The ADH or AM(MF) could use appropriate SQEP Aircrew, eg the Air System STANEVAL or AI, rather than T&E Aircrew¹¹ to conduct some subjective assessment in order to ▶ **renew an** ◀ Approval for use ▶ **providing** ◀ there have been no ▶ **significant** ◀ Modifications ▶²¹◀ to the live Air System, or the ATD, or its use, that have the potential to impact on the safe operation of the live Air System.
44. Re-qualification of the ATD, iaw RA 2375(1), will be required following any significant Modification to the live Air System, or the ATD, or its use, which has the potential to impact on the safe operation of the live Air System. The updated QS ▶ **will** ◀ be used to support the Approval for use of the ATD.
45. Where training objectives may be prohibited in the live Air System, eg practise ▶◀ engine failures, and specific live Air System performance is unknown or the data is unavailable, a lower fidelity level may be acceptable if the training benefit achieved synthetically will enhance Safety in the live Air System. This will be specifically addressed in the ASSC.
46. Where high Risk area or high-cost training is conducted in environmental conditions that would not be routinely practised, or would be highly undesirable to practise in the live Air System, a lower fidelity level may be acceptable if ▶ **SQEP Aircrew assess that** ◀ the training benefit achieved synthetically enhances Safety in the live Air System. This will be specifically addressed in the ASSC.

²¹ ▶ After significant Modifications (see para 44) use of the ATD **should** be re-approved following the qualification process from para 13.b. by T&E SQEP. ◀

Regulation 2375(3)

Use of Aircrew Training Devices

2375(3) The ADH and AM(MF) **shall** determine the extent that ATD can be used as preparation for, or as a substitute for, live flying.

Acceptable Means of Compliance 2375(3)

Use of Aircrew Training Devices

47. ▶◀

48. The ADH or AM(MF) **should** specify in orders and instructions the amount of synthetic flying time and the training objectives to be conducted in an ATD, the periodicity that applies and how the training ▶will◀ be recorded.

49. ▶◀

50. Where an ATD is used to support training credit or currency, hours flown in it **should** be recorded in the relevant section of the Aircrew logbook or training record.

51. The ADH or AM(MF) **should** specify in orders and instructions when Incidents during the use of an ATD ▶need◀ to be reported iaw RA 1410²².

52. Where ATD substitute live flying training, currency, and Competency requirements, including CQT and Instrument Flying, consideration to other RA concerning live flying **should** be applied, where deemed appropriate by the ADH or AM(MF).

Guidance Material 2375(3)

Use of Aircrew Training Devices

53. It may not be appropriate to report all Incidents in the ATD as they would be in the live Air System. The stage of training or experience level ▶will◀ be considered when deciding if reporting an Incident is appropriate. Where ATD Systems have been intentionally degraded for training to induce an emergency or the environmental conditions have been manipulated to create a scenario at the extremes, or even outside, of limits it may be anticipated that the likelihood of a mishap is increased, therefore reporting may not be appropriate. However, reporting ▶will◀ be considered if an adverse outcome has resulted from incorrect procedures or poor handling. Equally, if there is value to other users from lessons identified, eg relevant material differences between the ATD and the live Air System or incorrect procedures, reporting will be considered.

54. Due consideration of other RAs will include areas such as:

- a. RA 2307 – Rules of the Air
- b. RA 2309 – Flight Procedures: General
- c. RA 2310 – Flight Procedures: Role Specific Fixed Wing
- d. RA 2315 – Flight Procedures: Role Specific Rotary Wing
- e. RA 2320 – Flight Procedures: Role Specific S2 and Certified Remotely Piloted Air Systems
- f. RA 2125 – Aircrew Instructor and Aircrew Examiner Training
- g. RA 2350 – Air System Emergencies

55. ▶◀

- a. ▶◀
- b. ▶◀
- c. ▶◀

²² Refer to RA 1410 – Occurrence Reporting and Management.

**Regulation
2375(4)**

► Aircrew Training Devices used for Test and Evaluation

2375(4) Where an ATD is used solely for T&E activity the ADH / AM(MF) **shall** ensure that Risk associated with the use of ATD, whose differences with the live Air System are not fully understood, is As Low As Reasonably Practicable and Tolerable.

**Acceptable
Means of
Compliance
2375(4)**

Aircrew Training Devices used for Test and Evaluation

56. Where the development or Modification cycle has not yet produced, or in the context of experimentation cannot produce, the evidence needed to support compliance with RA 2375(1), T&E ADH / AM(MF) **should** capture within the T&E plan the Risk associated with the use of ATD (particularly where there is incomplete live Aircraft data to compare with ATD performance).

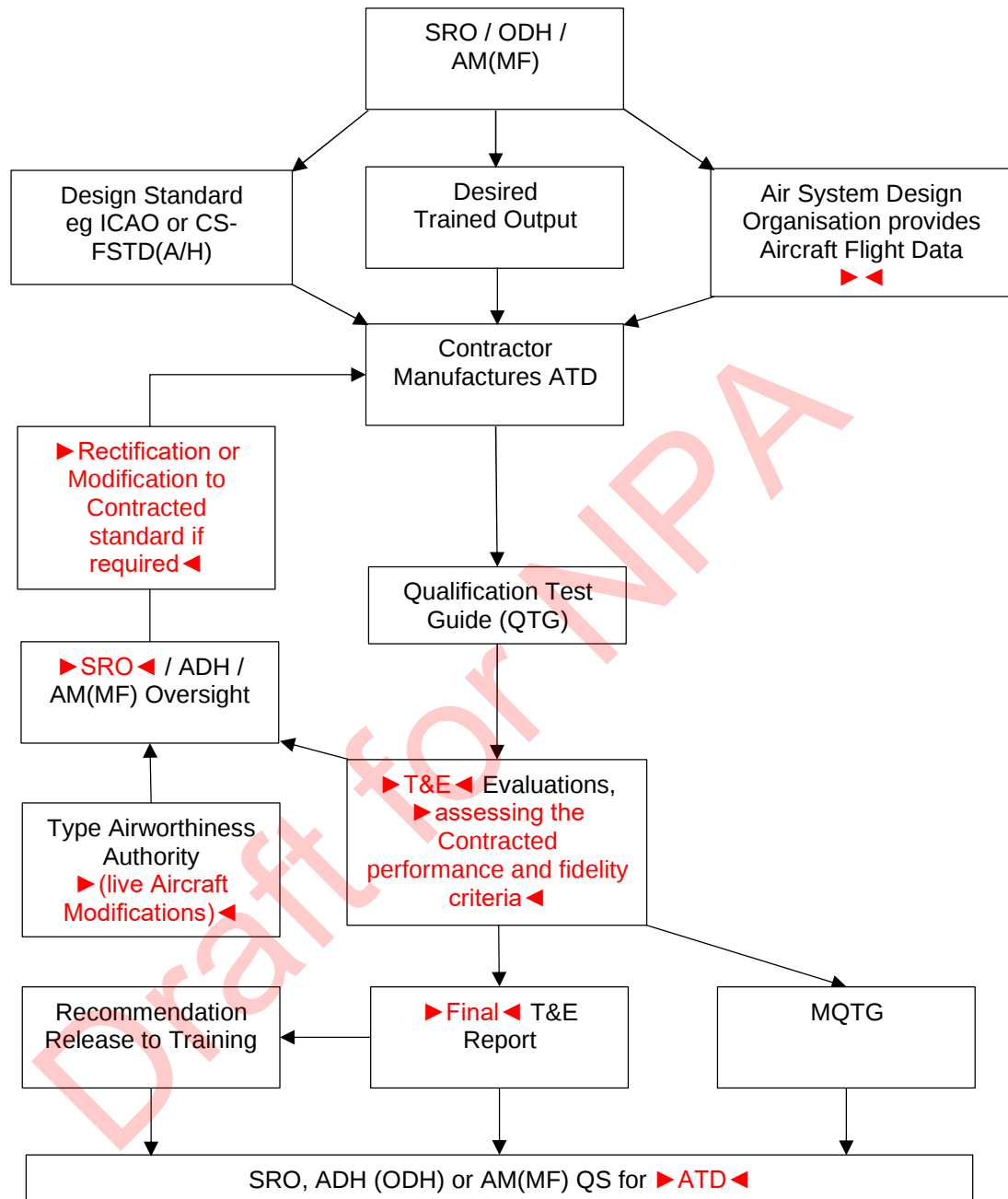
57. T&E ADH / AM(MF) **should**, where applicable, closely consult with the SRO / ADH / AM(MF) for any relevant In-Service Air Systems to ensure evidence generation is used efficiently to support compliance for the In-Service Air System, which may be developed in parallel with the trials programme.

**Guidance
Material
2375(4)**

Aircrew Training Devices used for Test and Evaluation

58. When considering Risk associated with the use of an ATD within a T&E plan, particular emphasis will be placed on the fidelity of the simulation, as this determines both the scope of activity for which the device can be sensibly used and the level of Risk associated with the data it generates. This applies whether the ATD is used as a sole source of evidence as a replacement to live flying, or to de-Risk subsequent live flying trials activity. Fidelity will be considered as a broad construct, encompassing all relevant performance, behavioural, and environmental characteristics necessary for the test team to make an informed assessment, with specific attention to the potential for negative transfer. Accordingly, the guidance and principles within RA 2375(1) can be considered best practice when informing the trials Risk Assessment process. ◀

Annex A

► Initial ◀ Qualification Process ►²³◀

²³ ► This process is detailed in para 13. It may be amended for re-qualification of a device (paras 17 and 18), or if the device falls under the criteria within paras 14 and 15. ◀

Annex B
Fidelity Level

Level	Air System Simulation	Cueing Simulation	Environmental Simulation
None	Not Required.	Not Required.	Not Required.
Generic	Not specific to Air System model, type, or variant. Can include skills not possible to replicate in Aircraft, eg Air to Ground Gunnery judgemental training engaging targets.	Generic to an Air System of its class. Simple modelling of key basic cueing features. For <i>visual cueing</i> only: generic visual environment with perspective sufficient to support basic Instrument Flying and transition to visual from straight-in Instrument Approaches.	Simple modelling of key basic environment features.
Representative	Representative of an Air System of its class, eg four-engine turbofan or tandem rotor helicopter. Indications can be incorrect, but subsequent technique is correct, an objective that can be contrived to produce a representative outcome. Can include malfunctions and conditions specific to type that do not require representative handling but cannot be initiated on the live Air System (cannot be turned off / CBs cannot be pulled etc).	For <i>sound and motion cueing</i> only: replicates the specific Air System to the maximum extent possible. However, physical limitations may only provide representative, not specific, cues. For <i>visual cueing</i> only: representative of the real-world visual environment and perspective.	Representative of the real-world environment.
Specific	Replicates the specific Air System. The desired objective can be accurately replicated on any sortie, such as those skills that do not require a failure mode or a specific environmental condition.	Applicable to <i>visual cueing</i> replicates the real-world visual environment and (infinity) perspective. However, ► needs ◄ to be supported by the appropriate level of motion and sound cueing.	Replicates the real-world environment, as far as required to meet the training objectives, for any specific location.