

► This RA has been substantially re-written; for clarity, no change marks are presented – please read the RA in its entirety ◀

RA 2370 – Test and Evaluation

Rationale

In the Defence Air Environment (DAE), the Risks to Life (RtL) associated with Test and Evaluation (T&E) are two-fold: firstly the process of evidence gathering has the potential to present a greater RtL than that associated with the routine operating environment, and secondly the generation of flawed evidence may negatively impact the subsequent Safety Case or clearance. Therefore T&E activity, the associated evidence-generation and data interpretation, needs to be conducted and supervised by approved organizations and Suitably Qualified and Experienced Persons (SQEP). Conceptually Experimentation is a distinct activity from T&E. However, from a regulatory perspective it is treated as a subset of T&E within the DAE, due to the commonality of organizations that conduct Experimentation, SQEP requirements and process.

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Definitions

Definitions Relevant to this RA

1. **T&E.** T&E in the DAE is the end-to-end process of planning, executing, and analysing Air System or synthetic devices in a clearly defined context. Such activity is typically structured into trials, each with a specific set of objectives. T&E falls within the scope of this RA when it meets one or more of the following criteria:
 - a. Generates evidence in support of an Air System Safety Case (ASSC)¹, or an equivalent As Low As Reasonably Practicable (ALARP) and Tolerable Safety argument, including where that evidence may reasonably be expected to be used to do so in the future.
 - b. Validates whether a system is fit-for-purpose in its intended environment and / or is able to fulfil its intended role against stakeholder requirements. For example, to assure the acquisition or capability development process based on the User Requirement Document. *'Has the right system been built'?*
 - c. Verifies compliance with system requirements, Regulations, or specifications. For example, to assure that a system will operate as designed / intended based on the Systems Requirement Document. *'Has the system been built right'?*
 - d. Presents a greater or insufficiently characterised RtL than that associated with established operational use, due to the introduction or evaluation of new techniques, procedures, or flight profiles, or the technical Assurance level of the equipment under test.
2. The lower boundary for RA 2370 applicability is activities that operate or assess the Air System in its intended mode of use, such as flights, ground taxi, ground runs, and on-Air-System assessments (including simulator activity) in pursuit of the criteria in Paragraph 1. Purely engineering-led ground tests, which do not represent operation of the Air System, fall outside of RA 2370.

¹ The ASSC utilising evidence gathered by T&E may not necessarily be that of the article under test. For example, the use of an Air System as a test bed for an installation destined for a different Air System.

Definitions

3. **Trials Support Flying.** Sorties necessary to directly enable T&E activity but which do not themselves constitute test sorties.
4. **Experimentation.** Defence defines experimentation as controlled and directed activities designed to discover new information about an idea or concept, test a hypothesis or validate a solution or choice in support of Force Development².
5. **Experimentation in Flight Test.** In a flight test context, experimentation is conducted under the authority and oversight of a T&E organisation. Such activity may involve the evaluation of new configurations, operating regimes, Air Systems, novel concepts, or operating procedures that have not yet been fully validated.
6. The primary purpose of experimentation is to gain insight and understanding. Examples could include non-evidential feasibility studies, proof-of-concept demonstrations, and de-risking activities undertaken in advance of formal flight trials. Examples of what is not covered by experimentation include activity to generate or analyse data in support of an ASSC, fitness-for-purpose determinations, certification compliance or clearance arguments.
7. **Small Uncrewed Air Systems.** Small Uncrewed Air Systems (sUAS) are Uncrewed Air Systems (UAS) categorized in the Open Category and Specific S1 sub-category³.
8. **T&E on sUAS.** T&E for sUAS is any deliberate testing, data gathering or evidence generation associated with the development of new sUAS or changes to an existing sUAS that meaningfully change how it flies, what it can do or the level of RtL it poses to both involved and Uninvolved Persons⁴.

Applicability**Applicability of this RA**

9. This RA applies to all T&E activity conducted within the DAE. RA 2370(1), (2), (3) and (4) apply to all crewed Air Systems and certified and Specific S2 UAS. Airborne Forces Equipment (AFE) is additionally subject to RA 2370(6). sUAS are subject solely to RA 2370(5).
10. **DAE Approach to Experimentation.** Experimentation, by its nature, introduces new or novel elements that may present a greater RtL than routine operations. Accordingly, flight test experimentation in the DAE is governed by this RA.
11. This RA also governs any aviation activity that is new or novel in nature and presents an elevated or insufficiently characterised RtL. Demonstrations, spiral development, proof of concept trials and prototyping are likely to all fall under this RA. It is the nature of the activity that determines the applicability of this RA and not the naming of the activity.

Regulation 2370(1)**Test and Evaluation Governance**

2370(1) T&E activity **shall** be subject to governance by SQEP.

Acceptable Means of Compliance 2370(1)**Test and Evaluation Governance**

12. **Endorsement.**
 - a. Aviation Duty Holders (ADH) and Accountable Managers (Military Flying) (AM(MF)), who manage or conduct T&E activity **should** be endorsed by the Military Aviation Authority (MAA)⁵. Refer to Annex A for detailed guidance on completing the T&E Endorsement application.
 - b. When not themselves T&E SQEP, ADH or AM(MF), **should** appoint SQEP to oversee T&E activity. In these cases ADH or AM(MF) **should** provide evidence of said individual's SQEP when submitting their application for

² Defence Experimentation for Force Development Handbook, Version 2 dated January 2021.

³ Refer to RA 1600 – Uncrewed Air Systems Categorization for UAS Categorization criteria.

⁴ Refer to MAA02: MAA Master Glossary.

⁵ The T&E Endorsement application form is available on the [MAA's website](#).

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- endorsement by the MAA and note that Accountability for RtL remains with the endorsed ADH or AM(MF).
13. **Nomination of Units and organizations.** ADH or AM(MF) **should**:
- a. Nominate Units and organizations for T&E activity and its associated T&E category in accordance with (iaw) the endorsement issued by the MAA.
 - b. Nominate SQEP⁶ for T&E activity.
14. **Approval of T&E activity.** ADH or AM(MF) **should**:
- a. Detail in orders the manner in which T&E activity will be approved as follows:
 - (1) The scope of involvement of the ADH or AM(MF) in the Approval process, and how they will manage T&E RtL.
 - (2) The composition and Competency of the Approval Board, which will be SQEP for the activity being conducted, include minimum T&E qualifications iaw Annexes B, C and D and include representatives from the following areas as appropriate: Design Organization, T&E, Continuing Airworthiness, Type Airworthiness⁷ and flight operations.
 - (3) The categorization of T&E activity.
 - b. Detail in orders the process for allocating T&E activity to specific Units or organizations.
15. **T&E Approval Board.** The Approval Board **should**:
- a. Approve or reject T&E activity on behalf of the ADH or AM(MF), based on an assessment of the Hazards the activity generates, and agreement on both the level and appropriate ownership of RtL.
 - b. Examine each trial before detailed planning commences and endorse or reject the proposed T&E categorization.
 - c. Ensure that those designing, planning, supervising and conducting T&E activity are SQEP.
 - d. Ensure that the preliminary trial design is capable of generating the appropriate level and fidelity of evidence.
16. **Combined Test Teams (CTT).** CTT **should** operate under the governance of a single clearly identifiable ADH, AM(MF), UAS Responsible Officer (UAS RO), or UAS Accountable Manager (UAS AM) and within the boundaries of a governance arrangement agreed by all relevant participants / stakeholders (eg T&E Organizations, Design Organization, Delivery Team).

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Test and Evaluation Governance

17. Nil.

⁶ iaw Annexes B, C and D.

⁷ Refer to RA 5880 – Military Permit to Fly (Development) (MRP Part 21 Subpart P).

**Regulation
2370(2)**

Test and Evaluation Personnel

2370(2) T&E activity **shall** only be designed, planned, supervised and conducted by SQEP.

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2370(2)**

Test and Evaluation Personnel

18. ADH or AM(MF) **should** detail in orders the T&E Competencies required of those designing, conducting, reporting and supervising T&E across the T&E categories. These T&E Competencies **should** meet or exceed the minimum qualification requirements⁶ and include appropriate experience in the following:

- a. Test programme management, Risk Management and T&E governance.
- b. The planning, conduct and reporting of T&E activity, including data analysis and interpretation.
- c. The intended functionality of the Air System and / or the system under test.
- d. The application of relevant test techniques.

19. ADH or AM(MF) **should** record their personnels' T&E Competencies (including training, qualifications, and experience) and T&E currency.

20. ADH or AM(MF) **should** detail in orders T&E specific currency requirements appropriate to their personnels' role and qualification⁸.

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2370(2)**

Test and Evaluation Personnel

21. A wide range of T&E qualifications are available from various training establishments. For consistency, the MAA uses the courses offered by the Empire Test Pilots' School (ETPS) and the Aerosystems Course as reference points, as detailed in Annex B.

22. ADH or AM(MF) may recognize an equivalent Test Pilot (TP), Flight Test Engineer (FTE) or UAS Systems Test Specialist (STS) qualification awarded by alternative Test Pilot schools such as the United States Navy Test Pilot School (USNTPS), United States Air Force Test Pilot School (USAF TPS) and L'Ecole du Personnel Navigant d'Essais et de Reception (EPNER). In recognising the qualifications of another school, the ADH or AM(MF) will justify and record the suitability of the alternate school and be prepared to present that justification to the MAA if requested. ADH or AM(MF) may seek advice on qualification equivalence from the Air and Space Warfare Centre (ASWC).

23. The recognition of a TP or FTE qualification from a school other than ETPS does not transfer across ADH or AM(MF) organizations. Each ADH or AM(MF) will separately justify the recognition of alternative schools based on their T&E processes and the nature of T&E that they conduct.

24. European Union Aviation Safety Agency qualifications may be recognized but the differences between military and civilian qualifications need to be understood, justified and documented.

25. For non-TP or non-FTE qualifications, alternative qualifications or relevant experience can satisfy the intent of this RA. Recognition of an individual's equivalent qualification or experience will be based on a thorough review of the course syllabus, its relevance to the role, and the individual's demonstrable experience. All supporting evidence and justification for equivalence will be formally recorded and remain auditable.

26. **Trials supervisors.** Trial supervisors are Responsible to the endorsed ADH, or AM(MF) for ensuring that T&E Activity is carried out safely iaw the direction of the T&E Approval Board. They are not required to be flying supervisors or authorizers (unless stipulated by the ADH AM(MF)).

⁸ Refer to RA 2103 – Currency and Continuation Training.

**Regulation
2370(3)**

Test and Evaluation Activity

2370(3) ADH and AM(MF) **shall** issue orders detailing the governance, categorization, planning, conduct and reporting of T&E activity.

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2370(3)**

Test and Evaluation Activity

27. **T&E categorization.** ADH or AM(MF) **should** categorize T&E activity as follows:

- a. **Cat 1.** Developmental T&E.
- b. **Cat 2.** Flight Safety Critical T&E.
- c. **Cat 3.** Production T&E.
- d. **Cat 4.** Non-Flight Safety-critical T&E.
- e. **Cat 5.** Operational T&E.

28. **Risk and categorization.** When categorizing T&E activity, ADHs, and AM(MF)s **should** consider that the highest potential for RtL may result from the subsequent use of evidence generated by data gathering, analysis, reporting and conclusions rather than solely from the trials activity itself.

29. **SQEP and T&E Categorization.** ADHs and AM(MF)s **should** ensure the Approval Board and trials team include SQEP appropriate to the activity, including where Human Machine Interface (HMI), handling / piloting tasks or workload assessment is required; the minimum SQEP / qualification requirements for these assessments are defined at Annexes C and D.

30. **UAS and crewed T&E Interaction.** Where T&E activity involves the concurrent or integrated operation of UAS and crewed Air Systems, ADHs, AM(MF)s, UAS RO or UAS AM **should** ensure that the T&E category is determined with full consideration of both platforms.

31. **Trials Support Flying.** There are no predefined SQEP requirements for Trials Support Flying nor do they necessarily need to be flown by a T&E endorsed organization. The Approval Board **should** determine if there are any additional requirements to execute Trials Support Flying depending on its nature.

32. **T&E documentation.** ADH or AM(MF) **should** detail in orders the processes for determining:

- a. T&E objectives.
- b. Hazard identification and Risk Management processes specific to T&E.
- c. Test plans, flight test cards, post-flight reports and trial reports.
- d. Pre-flight trial training requirements.
- e. Currency requirements for the T&E activity.
- f. Additional / specific Safety and survival training requirements.
- g. Any T&E specific procedures for support personnel.
- h. SQEP to approve, supervise, plan and conduct T&E activity.
- i. SQEP to author and release trials reports.
- j. SQEP to approve, supervise, plan and conduct Trials Support Flying⁹.

⁹ Trials Support flying does not necessarily need to be conducted by T&E SQEP and could be provided by another (non-T&E) organization. However, the requirements need to be understood and documented.

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2370(3)****Test and Evaluation Activity**

33. **Categorizing T&E activity.** Categorization advice is available from the ASWC.
34. **T&E categories.** The following provides guidance for determining the category of T&E Activity:
- a. **Cat 1. Developmental T&E.** T&E that expands the flight envelope or extends the flight limitations of an Air System. This entails operations outside, or to the limits of, existing, temporary or proposed Airworthiness and flight limitations of the Air System but still requires appropriate controls to be in place. It may include, but is not exclusive to, assessment of:
 - (1) Initial flight or significantly modified Air Systems.
 - (2) Changes in flight characteristics or flight envelope definition or expansion.
 - (3) Novel or unusual design, features or techniques.
 - (4) Changes to handling qualities of an Air System that might include changes to visual references, flight instruments and symbology, flying controls, flying control Systems, Air System performance, external stores and weapons carriage / release / jettison and underslung loads.
 - b. **Cat 2. Flight Safety-critical T&E.** T&E that is conducted on a production standard Air System that provides evidence for an Airworthiness clearance of Flight Safety-critical Systems. This will entail operating to the limits of existing, temporary or proposed Airworthiness and flight limitations of the Air System. It may include, but is not exclusive to, assessment of:
 - (1) Communications Systems.
 - (2) Navigation Systems.
 - (3) Sensors that affect Flight Safety.
 - (4) Weapon integration.
 - (5) Collision avoidance Systems.
 - (6) Secondary role Systems.
 - c. **Cat 3. Production T&E.** This may be referred to as post-manufacture test flying or post-factory flight test. This activity assures the production standard of a newly built Air System and / or associated Systems that have been newly installed; this activity is not Maintenance test flying¹⁰.
 - d. **Cat 4. Non-Flight Safety-critical T&E.** Assessment of new Systems or software whose operation is not considered Flight Safety-critical, but which requires T&E activity for clearance. It could also include flying conducted by an Air System to facilitate the testing of a system with which it would not normally be fitted in order to assess that system in the airborne environment. It may include, but is not exclusive to, assessment of:
 - (1) New cabin installations.
 - (2) Passenger radio Systems.
 - (3) Mission system software.
 - (4) Integration of Aircrew Equipment Assemblies to an Air System.
 - e. **Cat 5. Operational T&E.** T&E aimed at determining the performance or effectiveness of an Air System's non-Flight Safety-critical Systems / software and developing or ensuring the validity of tactics, techniques and procedures of the Air System and associated doctrine, where they affect the ASSC. It is normally carried out within the limits of existing or temporary Airworthiness limitations of the Air System. It may include, but is not exclusive to, assessment or development of the following:

¹⁰ Refer to RA 2220 – Maintenance Test Flights.

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- (1) Tactics, Techniques and Procedures.
- (2) Weapon effectiveness.
- (3) The operational employment of mission Systems.

35. **Trial Support Flying.** Sorties essential to enabling T&E activity but do not directly generate data or evidence. It may include, but is not limited to:

- a. Positioning flights.
- b. Chase / Photo support.
- c. Telemetry relay.
- d. Target / Threat simulation.

**Regulation
2370(4)**

Experimentation

2370(4) Experimentation **shall** be subject to governance by SQEP and ADH, or AM(MF), who **shall** issue orders detailing the categorization, SQEP requirements, planning, conduct and reporting of experimentation.

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Experimentation

36. **Experimentation Criteria.** T&E endorsed ADH and AM(MF) **should** classify activity as Experimentation when it is intended to explore concepts rapidly, assess feasibility, and derisk ideas in the early stages of the procurement life cycle. Where no formal evidence package is required and there is no intent, nor reasonable likelihood, that outputs will support an ALARP argument, fitness-for-purpose, compliance, or clearance arguments, the activity may be classed as experimentation.

37. **Categorising Experimentation.** Experimentation activity **should** follow the same principles as all other categories of trial and will still require structured planning and Risk Assessment but is not subject to the same formal data generation or post-sortie analysis requirements. Experimentation activity **should** be aligned to the T&E Category that most accurately reflects its nature and associated Risks. The conduct of Experimentation is bounded by an organization's existing T&E Category privileges. An organization authorized to conduct a given T&E Category (Cat 1–5) may conduct Experimentation mapped to that Category only. Experimentation does not confer authority to conduct activity aligned to a higher or otherwise unauthorized T&E Category.

38. **Assessing Experimentation Requirements.** Aligning an activity to an analogous T&E Category establishes the minimum Delivery Duty Holder (DDH) or AM(MF) qualification and the minimum T&E Approval Board qualification required. Once these minima are set, the Approval Board **should** determine the appropriate SQEP for the activity, which may be lower than that required for a similarly categorized trial. The Approval board **should** also consider the Risks and technical Competence required to safely execute the experimentation activity as well as the artefacts required to enable the activity. Experimentation may require T&E SQEP, as per Annex B, involvement where appropriate, but it is not mandated.

39. **Experimentation Category Marking.** Where the activity is deemed to fall under the definition of experimentation it **should** be categorized under the most appropriate T&E Cat (1-5) but suffixed with an X to highlight the differing data and SQEP requirements.

40. **Labelling Experimentation Outputs.** All written outputs from experimentation activity **should** be clearly marked that the contents are exploratory and non-evidential and therefore **should not** be used to support an ALARP, fitness-for-purpose, compliance, or clearance argument.

41. **Data Use and Reclassification.** Data collection and analysis can be undertaken to safely progress the activity through an incremental approach; if evidential use becomes intended or likely, or Risk changes materially, the activity

Acceptable Means of Compliance 2370(4)

should be escalated to the appropriate T&E category with the associated SQEP requirements.

42. **Novelty and Experimentation.** Any aviation activity that does not qualify as Cat 1-5 evidential T&E activity but is new or novel and carries an elevated Rtl, whether it is classed as a Demonstration, Research and Development, Proof of concept, Innovation activity, Prototyping etc. **should** follow the process of Experimentation as described in this RA.

Guidance Material 2370(4)

Experimentation

43. **Proportionality in Experimentation.** When an activity is classed as Experimentation, proportionality applies. The Approval Board may mandate a reduced artefact set appropriate to novelty and Risk, typically including concise objectives and hypotheses and an appropriate Risk Assessment. The Approval board may also consider escalation criteria that would transfer the activity to a Cat 1-5 (as appropriate) trial.

44. **Experimentation-Enabled T&E.** T&E conducted under RA 1167¹¹ such as rapid spiral development of a new or novel technology, limited demonstration or assessment to down select a product or technology for further assessment could be enabled by the Experimentation category. A T&E endorsed organization may provide the Approval board setting the requirements for the experimentation activity and then determine the appropriate SQEP to assist in the execution.

Regulation 2370(5)

Test and Evaluation of Small Uncrewed Air Systems

2370(5) T&E of sUAS **shall** only be undertaken with an Approval granted by the MAA.

Acceptable Means of Compliance 2370(5)

Test and Evaluation of Small Uncrewed Air Systems

45. **Organizational Approval.** ADH, AM(MF), UAS RO or UAS (AM) tasked to conduct regular sUAS T&E **should** hold a Pre-Approved sUAS Test Clearance (PUTC). The PUTC will be proportionate to the category of sUAS, the Competence of the organization and personnel, and the highest Risks expected from planned activity.

46. **sUAS and crewed T&E Interaction.** For T&E that includes both sUAS and crewed Aircraft interacting, the crewed Aircraft T&E SQEP requirements **should** take precedence. The activity cannot solely be covered by a PUTC.

47. **Contractor Flying Approved Organization Scheme (small Uncrewed Air Systems) (CFAOS (sUAS)).** CFAOS (sUAS) organizations conducting sUAS T&E **should** hold a PUTC in addition to their CFAOS (sUAS) Approval.

Guidance Material 2370(5)

Test and Evaluation of Small Uncrewed Air Systems

48. **T&E on sUAS.** T&E on sUAS is required as part of the development of new sUAS or when physical changes to a platform or how it is used affect the assessed Risk of operation. Data from T&E will be used to confirm that any changes to the platform or its operating concept do not introduce unacceptable Rtl or the environment. This includes validating that the system remains airworthy and that operational procedures keep Risks ALARP. T&E provides data to support updated Risk Assessments when Modifications or new roles are introduced. Without evidence, Risk arguments would be speculative and unreliable. It can also verify that the system continues to meet relevant standards, Regulations, and operational requirements after changes.

49. An activity qualifies as T&E when it deliberately produces evidence to substantiate Safety or compliance arguments, or to assess operational effectiveness, and involves changes that could introduce new or increased Rtl. Examples include:

- a. **Major Change / Modification.** A change that has appreciable effect on the mass, balance, structural strength, operational characteristics, armament system, or other characteristics affecting the Airworthiness of the Air System.

¹¹ Refer to RA 1167 – Contracting Civil-Registered Air Systems for Military Purposes.

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- b. Flight termination system testing.
 - c. Change of role which increases the assessed Risk of operation, eg Intelligence, Surveillance and Reconnaissance to Beyond Visual Line of Sight (BVLOS) dropping of stores.
 - d. Developing new procedures that increase the assessed RtL.
50. **Not considered T&E.** Activity is not considered T&E if it does not deliberately generate evidence for Safety or compliance arguments, or assess operational effectiveness, and does not introduce new or increased assessed RtL. Examples include:
- a. **Minor Change / Modification.** A change that has no appreciable effect on the mass, balance, structural strength, operational characteristics, armament system, or other characteristics affecting the Airworthiness of the Air System.
 - b. Repair.
 - c. Replacement of original parts with equivalent built to a similar standard.
 - d. Cosmetic change.
51. **PUTC.** Approved sUAS T&E organizations will operate under a PUTC, which defines the freedoms, limits, and rules under which sUAS trials may be conducted without reference to the MAA. The PUTC allows organizations to operate sUAS within a more permissive framework that is not tied to a type of Air System or location.
- a. In such cases each PUTC will be underpinned by:
 - (1) Documented orders.
 - (2) SQEP.
 - (3) Risk identification and mitigation processes.
 - b. A PUTC will be tailored to the organization's capability. ADH, AM(MF), UAS RO, or UAS AM can apply for a PUTC via the template at Annex E.
52. **Documentation.** PUTCs will be submitted to and endorsed by the MAA. Applications will specify; SQEP, supporting orders, the freedoms sought and the mitigation to justify the requested freedoms. Guidance on the information required is at Annex E.
53. **sUAS Categorization Limitations.** With appropriate mitigations, S1 T&E may be permitted to operate beyond the standard limitations defined in RA 1600¹², particularly regarding Aircraft mass and BVLOS.
54. **Trial Categorization.** Within the PUTC there is no categorization of trials on sUAS. SQEP requirements will be determined by the UAS RO or UAS AM to match the Risk and complexity of the activity rather than aligned to crewed aviation standards. Similarly, there is no experimentation as defined in this RA, all activity will be covered by the PUTC.
55. **sUAS Registration** For the avoidance of doubt organizations will still need to appropriately register their sUAS¹² prior to operating within the bounds of an MAA approved PUTC.

¹² Refer to RA 1600 – Uncrewed Air Systems Categorization.

**Regulation
2370(6)****Test and Evaluation of Airborne Forces Equipment**

2370(6) ADH or AM(MF) **shall** issue orders detailing the governance, categorization, planning, conduct and reporting of AFE T&E.

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2370(6)****Test and Evaluation of Airborne Forces Equipment**

56. **AFE T&E activity.** AFE T&E activity is subject to the same governance as outlined in RA 2370(1) and RA 2370(2) but T&E endorsed AFE ADH or AM(MF) **should** determine the governance, categorization, planning, conduct and reporting of AFE T&E activity required and are not required to use the categorization system outlined in RA 2370(3).

57. **AFE and Crewed Aviation Interaction.** ADHs and AM(MF)s **should** determine the T&E Category with full consideration of both the AFE activity and the Aircraft. The T&E Category, associated control measures, and SQEP requirements **should** be set at the highest level required by either activity.

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2370(6)****Test and Evaluation of Airborne Forces Equipment**

58. **AFE T&E categories.** T&E endorsed AFE ADH or AM(MF) may use the trials categories outlined in RA 2370(3) but are free to develop their own categorization system with appropriate SQEP requirements.

59. **AFE SQEP.** ADH and AM(MF) may consider the need for AFE SQEP in the Approvals Board and Trials Team for AFE T&E.

Annex A**T&E Endorsements**

1. The following information is designed to assist in the completion of the Application for Test and Evaluation Endorsement form. Units wishing to conduct T&E on sUAS only **should** refer to Annex E.
2. The primary purpose of the application will ensure compliance with RA 2370. The following aspects need to be addressed:
 - a. Detail the reason(s) as to why the organization is required to conduct T&E and the roles of the nominated T&E units within the organization.
 - b. Detail the chain of RtL holders.
 - c. Detail the SQEP of key nominated personnel and SQEP available in the broader organization. Justify how this supports the breadth of T&E endorsements requested.
3. Detail how T&E will be approved and categorized. Specifically cover the role of the ADH or AM(MF) in the process and the composition of the Approval Board.
 - a. Detail the orders and process which describes the T&E competencies of those designing, conducting, reporting and supervising T&E.
 - b. Provide links to orders which cover the following:
 - (1) How T&E objectives are identified and confirmed.
 - (2) Hazard identification and Risk Management processes specific to T&E.
 - (3) The management and Approval of test plans, flight test cards, post-flight reports and trial reports.
 - (4) T&E specific training and Competency checks.
 - (5) Any T&E specific procedures support personnel.
 - (6) SQEP to approve, supervise, plan and conduct T&E activity.
 - (7) SQEP to author and release trials reports.
 - c. **CTT only**. Confirm the other party has the appropriate T&E SQEP and describe the governance arrangements (such as a Memorandum of Understanding).
 - d. **CFAOS only**. Confirm T&E is supported as a Sponsor requirement via the MAA CFAOS Form 2. New T&E Approvals will require an updated MAA CFAOS Form 2 to be submitted for Sponsor agreement, and no T&E can be conducted until reflected on the extant CFAOS schedule.

Annex B**T&E Qualifications**

1. To ensure the safe and effective conduct of T&E activity within the DAE, individuals **should** possess qualifications that demonstrate their SQEP status. This annex outlines the T&E Qualifications offered by ETPS (as well as the AeroSystems Course). The MAA has used these as a baseline to establish a hierarchy that supports the consistent application of SQEP across various roles and categories of T&E.
2. For TP and FTE qualifications the ADH, AM(MF), UAS RO, or UAS AM may recognize an equivalent Test Pilot (TP) or Flight Test Engineer (FTE) qualification awarded by Test Pilot schools such as USNTPS, USAF TPS or EPNER.
3. The T&E qualifications used in Annexes C and D are defined below:

Qualification	Description
Class A TP	Class A Test Pilot graduate of ETPS or a course deemed equivalent by the T&E ADH or AM(MF).
Class A UAS TP	Class A UAS Test Pilot Graduate of ETPS or a course deemed equivalent by the T&E ADH or AM(MF). For UAS trials treat as a Class A TP, for non-UAS trials treat as Class A FTE.
Class A FTE	Class A Flight Test Engineer graduate of ETPS, or a course deemed equivalent by the T&E ADH or AM(MF).
Class B TP	Class B Test Pilot graduate of ETPS or a course deemed equivalent by the T&E ADH or AM(MF).
Class B FTE	Class B Flight Test Engineer graduate of ETPS or a course deemed equivalent by the T&E ADH or AM(MF).
UAS STS Cse Graduate	UAS STS graduate of ETPS or a course deemed equivalent by the T&E ADH or AM(MF).
Qualified AeroSystems (QAS)	Graduate of the ASWC AeroSystems Course or an equivalent course that is approved and assured by ASWC on behalf of the T&E ADH, UAS RO, AM(MF) or UAS AM.
Evaluator Aircrew (EA)	Aircrew who have successfully completed a dedicated training course that includes live flying, including but not limited to the ETPS Evaluator Aircrew Course, that includes the Competencies listed at paragraph 18 and who are deemed SQEP and are authorized to participate in T&E by the ADH, UAS RO, AM(MF) or UAS AM.
Defence Evaluator (DE)	Personnel who have successfully completed a dedicated training course that does not include live flying, including but not limited to the ETPS Defence Evaluator Course, that includes the Competencies listed at paragraph 18 and who are deemed SQEP and are authorized to participate in T&E by the ADH, UAS RO, AM(MF) or UAS AM.
Production Pilot	Aircrew approved as SQEP, Competent and endorsed by the ADH or AM(MF) or to conduct Production T&E.

4. **Hierarchy.** For the purposes of Annexes C and D when determining SQEP minima, the qualification hierarchy is (in descending order): Class A TP / FTE, Class B TP / FTE, UAS STS, QAS, EA, DE and Production Pilot.

Annex C

T&E Categories and Minimum Qualification Requirements for Crewed Air Systems and Certified UAS.

T&E Category	T&E Activity Description	Minimum DDH, AM(MF), or CFAOS Post Holder Qualification	T&E Approval Board Qualification (Minimum one per Approval Board)	Trial Supervisor Qualification ¹	Aircrew Qualification ^{1,2} (Minimum one per air system crew)
CAT 1	Developmental T&E	Class A TP / Class A FTE	Class A TP / Class A FTE	Class A TP / Class A FTE	Class A TP
CAT 2	Flight Safety-critical T&E	Class B TP / Class B FTE	Class B TP / Class B FTE	Class B TP / Class B FTE	If handling qualities task, workload or HMI assessment required: Class B TP. For all else: EA
CAT 3	Production T&E	N/A	Class A TP / Class A FTE	N/A	Production Pilot
CAT 4	Non-Flight Safety-critical T&E	Nil	Class B TP / Class B FTE	EA	EA
CAT 5	Operational T&E	Nil	EA	EA	EA

Note:

¹ For Experimentation (X Category), Trial Supervisor Qualification and Aircrew Qualification can be determined by the Approval Board.² For Trials Support Flying, Aircrew Qualification can be determined by the Approval Board.

Annex D

T&E Categories and Minimum Qualification Requirements for Specific S2 Category UAS.

T&E Category	T&E Activity Description	Minimum DDH, AM(MF), or CFAOS Post Holder Qualification	T&E Approval Board Qualification (Minimum one per Approval Board)	Trial Supervisor Qualification ¹	Aircrew Qualification ^{1,2} (Minimum one per Air System Crew)
CAT 1	Developmental T&E	Nil	UAS STS	QAS	EA
CAT 2	Flight Safety-critical T&E	Nil	UAS STS	QAS	EA
CAT 3	Production T&E	N/A	N/A	N/A	Nil
CAT 4	Non-Flight Safety-critical T&E	Nil	EA	EA	DE
CAT 5	Operational T&E	Nil	EA	EA	DE

Note:

¹ For Experimentation (X Category), Trial Supervisor Qualification and Aircrew Qualification can be determined by the Approval Board.

² The minimum T&E qualification may be held by another individual, other than the Remote Pilot (RP), who is directly supporting the RP in the operation of the UAS. The T&E qualified individual **must** be empowered to influence the conduct of the T&E activity, whilst recognising the authority of the RP, akin to a crew member on a crewed Air System.

Annex E
Pre-Approved sUAS Test Clearance

The PUTC applies to sUAS only. Annex A covers the full T&E Endorsement.

Completed PUTC applications **should** be emailed to: DSA-MAA-OA-ACC@mod.gov.uk.

The PUTC application **should** provide sufficient evidence to assure the MAA that the organization has the governance, SQEP, and processes necessary to conduct sUAS T&E safely within the requested freedoms. The following headlines are a guide as to what is required.

The PUTC does not replace the Categorization Submission iaw RA 1600, which may reference the PUTC. The PUTC is an organizational Approval to be used in conjunction with a Letter of Endorsed Categorization (LEC) or Operator ID.

To avoid duplication, CFAOS Small Uncrewed Air Systems (CFAOS (sUAS))¹³ approved organizations may reference or signpost existing information already provided within their CFAOS (sUAS) Form 2, Contractor Flying Organization Exposition (sUAS) (CFOE (sUAS)) or Operations Manual, provided a direct reference to each required element is clearly identified within the PUTC submission.

For CFAOS (sUAS) organizations the PUTC is in addition to the requirements of RA 1031, and approval to operate under the privileges of RA 2370 and the PUTC will be clearly articulated in the CFOE (sUAS) and CFAOS (sUAS) Approval Certificate¹⁴.

1. Organization

- 1.1. The details required for 'Organization' as listed in the Categorization Safety Checklist, detailed in RA 1600 Annex B **should** be provided¹⁵.

2. Operations

- 2.1. The details required for 'Operations' as listed in the Categorization Safety Checklist, detailed in RA 1600 Annex B **should** be provided¹⁵.

3. T&E SQEP Evidence

- 3.1. Provide T&E and aviation relevant qualifications, experience, and currency requirement of key personnel involved in T&E¹⁵.
- 3.2. Include T&E and aviation relevant training and Competency requirements for trial design, UAS operation, and emergency procedures¹⁵.

4. T&E Governance and Orders

- 4.1. Provide copies or links to orders covering T&E Approval, Risk Management, and reporting.
- 4.2. Include processes for Hazard identification and Risk Management specific to T&E.

5. Safety Management

- 5.1. Provide copies or links to any overarching Air Safety Management Plan, Safety Management Plan or documents that detail Safety processes to be applied / followed (such as Risk management processes, UAS RO / UAS AM Terms of Reference etc)¹⁵.
- 5.2. Confirm Air Safety reporting processes¹⁵.

6. Engineering Assurance

- 6.1. Provide evidence of Airworthiness review and Configuration Control processes associated with T&E¹⁵.
- 6.2. Include Maintenance and Modification management procedures associated with T&E¹⁵.

7. Trial Assurance

- 7.1. Describe the trial Approval process and technical Assurance of trial plans and reports.
- 7.2. Include Risk Assessment methodology for trials.

¹³ Previously referred to as CFAOS (Basic RPAS) and CFAOS (Basic UAS).

¹⁴ For the avoidance of doubt CFAOS (sUAS) organizations are not required to submit a separate UAS Categorization submission nor hold an MAA LEC – refer to RA 1031– Contractor Flying Approved Organization Scheme (Basic Uncrewed Air Systems).

¹⁵ Or direct reference provided to the appropriate document for CFAOS (sUAS) organizations.

8. Freedoms Requested and Mitigations

8.1. List the specific freedoms requested and provide justification and Risk mitigations for each requested freedom.

8.2. Possible freedoms could include (Note; this list is indicative not exhaustive):

- Freedom to test A1 within RA 1600 limits
- Freedom to test A2 within RA 1600 limits
- Freedom to test A3 within RA 1600 limits
- Freedom test S1 within RA 1600 limits
- Freedom to test S1 beyond RA 1600 BVLOS limits
- Freedom to test S1 above RA 1600 mass limits
- Freedom to test S1 above RA 1600 mass and beyond RA 1600 BVLOS limits

8.3. Elevated Risk activities may be approved under a PUTC but require stronger justification, enhanced Risk mitigation, and will be subject to increased scrutiny. As a guide, such activities will require close liaison with the MAA and typically align with SQEP requirements for an S2 category trial and may include (Note; this list is indicative, not exhaustive):

- Freedom to be armed
- Freedom to test complex Swarming
- Freedom to operate autonomously