RA 5011 - Type Airworthiness Safety Management System

Rationale	*A comprehensive Air Safety Management System (ASMS)[1] is necessary to deliver a systematic, pro-active and auditable approach to Air Safety and enable the delivery of effective operational capability. Type Airworthiness (TAw) organizations have specific Safety Management System (SMS) requirements which must interface effectively with other adjoining ASMS. An ineffective TAw SMS is likely to compromise TAw. This RA sets out the specific requirements for a TAw SMS to include all activity and decision-making key to managing TAw and Hazards in support of the Air System Safety Case (ASSC)[2].*

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Regulation 5011(1)	**Type Airworthiness Safety Management System**
	5011(1) The TAw Authority (TAA) and / or TAw Manager (TAM)[3] **shall** be responsible for the Safety Management of TAw activity.

Acceptable Means of Compliance 5011(1)	**Type Airworthiness Safety Management System**
	1. The TAA and / or TAM **should** develop, own and manage an SMS[1], which is described in a Safety Management Plan (SMP) detailing how the TAw Strategy[4] is enacted.
	2. During the generation and management of the SMP, the TAA and / or TAM **should** consult with all relevant stakeholders[5].
	3. The SMP, articulating the requirements of RA 1200[1], **should** be integrated and coordinated with relevant Safety Management documentation generated by the Design Organization (DO)[6] to cover their activities[7]. The SMP **should** also articulate interaction with relevant Commodity Delivery Team SMS[8].
	Hazard Management Process
	4. As part of the SMP, the TAA and / or TAM **should** implement a standardized process to identify, review, manage and record all TAw Hazards[9].
	5. The Hazard management process **should** account for an overall Air System approach (eg Hazards identified through Type Certification activity[10], In-Service civil or military usage, and emerging Hazards).
	6. The Hazard management process **should** be conducted in line with the recognized principles of Risk Management[11].
	7. As a subset of this Hazard management process[12], when a Hazard is identified that may lead to a Risk to Life (RtL)[13], the TAA and / or TAM **should** communicate this to all relevant stakeholders[5] and obtain formal acknowledgement.

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[1] Refer to RA 1200 – Air Safety Management.
[2] Refer to RA 1205 – Air System Safety Cases.
[3] Refer to RA 1162 – Air Safety Governance Arrangements for Civilian Operated (Development) and (In-Service) Air Systems and RA 1163 – Air Safety Governance Arrangements for Special Case Flying Air Systems.
[4] Refer to RA 5010 – Type Airworthiness Strategy.
[5] Necessary stakeholders for the communication of TAw SMS activity, depending on the phase of the project and approach to delivery, are likely to include the Senior Responsible Owner (SRO), Aviation Duty Holders (ADH), Accountable Manager (Military Flying) (AM(MF)), Defence Equipment and Support (DE&S) Operating Centre (OC) Director, Sponsor, and all relevant TAA, TAM and Commodity Chief Engineers (CE).
[6] The DO is required to develop an SMP in accordance with (iaw) Def Stan 00-056.
[7] Refer to RA 1014 – Design Organizations and Co-ordinating Design Organizations – Airworthiness Responsibilities.
[8] Refer to RA 5013 – Air Safety Management of Equipment and Commodity Items.
[9] MAA02 provides definitions for Risk to Life, Hazard and Risk which are to be used in conjunction with this RA.
[10] If Type Certification activity has not been undertaken, Hazards identified through DO Safety Analysis **should** be accounted for.
[11] Refer to Manual of Air Safety (MAS), Figure 4 – The Risk Management Cycle.
[12] RA 1210 specifically excludes damage to assets where no injury results, but Hazards leading to such damage still require management.
[13] Refer to RA 1210 – Ownership and Management of Operating Risk (Risk to Life).

Acceptable Means of Compliance 5011(1)	**Type Airworthiness Safety Panel (TAwSP)**

Type Airworthiness Safety Panel (TAwSP)

8.   The TAA or TAM **should** establish and chair a TAwSP every six months, with the appropriate stakeholder attendance, to coordinate and manage the SMS. The TAwSP **should** review the continued validity of the Type Airworthiness Safety Assessment Report and the sufficiency of supporting products[14, 15].

9.   Under arrangements for Civilian Operated Air Systems which invoke a TAA and TAM[3], the TAA **should** chair the TAwSP. Under arrangements for Special Case Flying, the TAM **should** chair the TAwSP.

10.   The TAA or TAM **should** ensure that the TAwSP:

a.   Reviews Hazard management activities and ensures ADH / AM(MF) agreement that Hazards which may lead to a RtL have been communicated.

b.   Reviews relevant design changes[16] for impact on activities within the SMP.

c.   Provides advice to the appropriate SRO, Operating Duty Holder (ODH), AM(MF) and their staff in support of the ASSC.

d.   Reviews independent evaluation and Assurance activity.

e.   Reviews Instructions for Sustaining Type Airworthiness[17] and Data Exploitation[18].

f.   Co-ordinates the SMP.

11.   To support the TAwSP, the TAA or TAM **should** ensure they are suitably represented at equivalent DO Safety Management meetings[19].

Independent Audit

12.   The TAA and / or TAM **should** ensure that the TAw SMS and its outputs are subjected to audit iaw Defence Standard (Def Stan) 00-056, by a competent and suitably qualified Independent Safety Auditor (ISA), independent of the outcome or processes they are reviewing.

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Type Airworthiness Safety Management System

13.   RA 1200 requires all ADH-Facing organizations to have an ASMS[1]. This RA supports and complements the standing ASMS requirements by highlighting aspects which require specific TAw focus.

Hazard Management Process

14.   The TAA and / or TAM is expected to manage a variety of Hazards to ensure that the Air System can be operated without significant Hazard. A subset of this Hazard management activity is the management of Hazards associated with RtL, which require management at ADH / AM(MF) level. In these cases, the TAA / TAM will propose an As Low As Reasonably Practicable position and communicate this to the ADH / AM(MF), for formal acknowledgement and a decision on tolerability.

15.   The recording of TAw Hazards is best achieved through a Hazard Log[20] that supports the legal requirement for an ADH / AM(MF) to ensure that Risk Assessments are carried out[13]. Hazard attributes will, therefore, need to complement their standardized approach to managing RtL.

16.   A Hazard Log accounts for Hazards, a subset of which contribute to RtL. It is expected to incorporate information from a number of Hazard data sources.

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[14] Refer to RA 5012 – Type Airworthiness Safety Assessment.
[15] Refer to RA 5013 – Air Safety Management of Equipment and Commodity Items.
[16] Refer to RA 5305(2): In-Service Design Changes – Safety.
[17] Refer to RA 5815 – Instructions for Sustaining Type Airworthiness.
[18] Refer to RA 1207 – Air Safety Data Management and Exploitation.
[19] Such as a DO Project Safety Committee (PSC).
[20] As defined within MAA02, the term Hazard Log refers to the approach, not a specific tool. It accommodates a range of tools which can be used to record and manage Risk.

Guidance Material 5011(1)	17. Where Hazards are managed by external organizations, including where the Air System DO manages the Type Certificate, the Hazard Log will need to incorporate information resulting from clear and robust interfaces with these organizations.

17.   Where Hazards are managed by external organizations, including where the Air System DO manages the Type Certificate, the Hazard Log will need to incorporate information resulting from clear and robust interfaces with these organizations.

18.   The Hazard Log may need to absorb information on transient / emerging Hazards, due to DE&S driven Occurrence / Fault investigations, global Faults which have not yet been addressed by appropriate mandatory, advisory and deferred instructions[21], or proactive investigations identified through Integrity management activity. This allows the transient Hazard to be assessed and communicated to the SRO, ADH or AM(MF).

19.   To fully identify Hazards, TAAs and / or TAMs will need to consider any exemptions and concessions attached to a Type Certificate, as well as additional Hazards caused by certification non-compliances and changes in context from a previously certified civil or military usage.

TAwSP

20.   The TAwSP may be referred to by a different title (such as a Platform or Project Safety Panel), providing all regulatory requirements are appropriately met.

21.   The TAwSP will include representatives from the following areas as appropriate:

    a.   The TAA and / or TAM organization (technical, contracts and finance officers as required).

    b.   Other relevant TAA, TAM or Commodity CE.

    c.   Front Line Command Capability Organization.

    d.   Continuing Airworthiness Management Organization.

    e.   Release To Service (RTS) Authority.

    f.   ADH and AM(MF).

    g.   Co-ordinating Design Organization (CDO) / DO.

    h.   The appropriate Test and Evaluation organization.

    i.   Defence Aircrew Publications Squadron or competent appointed contractor.

    j.   ISA.

    k.   DE&S OC Safety Team.

    l.   Specialist advisers where appropriate.

22.   The SRO, ADH or AM(MF) involvement with the TAwSP will vary dependant on project phase. For each phase the relative role of the TAA and / or TAM, Commodity CE, SRO, ADH or AM(MF) will need to be described in the SMP, and when appropriate, in an Internal Business Agreement (or equivalent).

23.   To support the TAwSP the TAA and / or TAM may establish one or more Working Groups (WGs) (proportionate to the scale of the Project). Possible examples include a WG to assess Hazards or review the Integrity of specific systems.

Independent Audit

24.   ISA assurance will cover such activities as (but not limited to) the TAwSP and supporting products, RTS WG, TAA and / or TAM organizational processes, and DO Safety Management documentation.

25.   Care will need to be taken to ensure that independent auditing of the TAw SMS is undertaken by demonstrably Suitably Qualified and Experienced Person(s) or organization(s) that are not unduly influenced by commercial, peer or rank / status pressures.

26.   Def Stan 00-056 states that the appointment of an ISA will be at the sole discretion of the MOD. Early appointment will allow the ISA to engage with the DO and

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[21] Such as Airworthiness Directive or Service Bulletin activity. Refer to RA 5805 – Airworthiness Directivies and Service Bulletins (MRP Part 21 Subpart A).

Guidance Material 5011(1)	better assess early versions of the SMP, assist with tendering and provide Safety advice throughout the project's life. The ISA could also provide generic Safety advice about the TAw SMS to the Type Airworthiness organization, the DO and other stakeholders. 27. It is acceptable for the ISA and Independent Technical Evaluator (ITE[14]) to be involved in the joint working environment between the TAw organization and DO; for example in a Hazard Log WG or in a Combined Test Team approach. Duplication of effort will be avoided if the ISA and ITE work collaboratively with the MOD and DO so that their assessments can be incorporated in the overall project schedule. 28. It is important that the ISA and ITE work is conducted on behalf of the TAA and / or TAM and that any advice they may have about the design and / or Safety is directed to them.