

GM MLE-ANS

**Guidance Material Militaire Luchtvaarteisen voor de verlening van
luchtvaartnavigatiediensten**

MAR-ANS

Guidance Material Military Aviation Requirements for the provision of Air Navigation Services

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Subpart B - Approval

ANS.25 Terms of Approval

GM1.ANS.25.a Analysis of scope and operations

- a. The applicant should provide all necessary information needed in order to demonstrate to the MAA-MLD that its proposed organisation and management, including its financial capability, are suitable and properly matched to the scale and scope of the operation. In demonstrating such compliance the applicant should, amongst others, take into account in its analysis the following:
 1. the size and complexity of the air navigation service provider (ANSP);
 2. the type of traffic;
 3. the type of operations and services provided;
 4. the level and the density of the traffic;
 5. the operating hours of the ANSP and/or its units;
 6. the amount of full-time-equivalent (FTEs) necessary for each activity;
 7. human factors principles;
 8. labour legislation; and
 9. the degree of subcontracting.
- b. In case of subcontracting, the applicant should provide all necessary evidence of such contracts to the MAA-NLD. The organisation should have the ability to discharge its responsibilities with regard to safety. The accountable manager should have access, as well as the authorisation, to the necessary resources to ensure that operations are carried out in accordance with the regulations. The resources should also include personnel, tools and equipment as well as financial resources.

GM2.ANS.25.a Provision of evidence of arrangements with third parties

- a. The applicant should provide all necessary evidence for arrangements with third parties that provide or intend to provide services or undertake activities influencing the ANSP's operations and service provision, whose activities may have an impact on safety. Such evidence should cover all organisations with which the organisation needs to have arrangements.

ANS.40 Changes to the organisation

GM1.ANS.40 Changes requiring prior approval

- a. The organisation should ensure that prior to initiating any change to the ANSP or its operation, which requires prior approval, an application is submitted to the MAA-NLD. The applicant should provide documentation containing a description of the proposed change, in which the following are identified:
 1. the parts of the organisation, operations and the organisation exposition, which are affected by the change, including relevant appropriately detailed procedures, technical details and design drawings;
 2. the specifications with which the proposed change has been designed to comply with; including the specifications for which the applicant proposes to show compliance in a different manner in order to accomplish an equivalent level of safety;
 3. the required safety assessment.
- b. Examples of such changes include, but are not limited to, the following:
 1. a reduced separation minimum to be applied within an airspace or at an aerodrome;
 2. a new operating procedure, including departure and arrival procedures, to be applied within an airspace or at an aerodrome;
 3. a reorganization of the ATS route structure;
 4. a resectorization of an airspace;
 5. physical changes to the layout of runways and/or taxiways at an aerodrome; and
 6. implementation of new communications, surveillance or other safety-significant systems and equipment, including those providing new functionality and/or capabilities;

Subpart C - Organisation

ANS.55 Organisational structure and management

GM1.ANS.55.b Accountable manager

- a. The accountable manager should:
 1. ensure that all necessary resources are available to operate in accordance with the organisation exposition;
 2. ensure that, if there is a reduction in the level of resources or abnormal circumstances which may affect safety, the required reduction in the level of operations or service provision is implemented;
 3. establish, implement and promote the safety policy; and
 4. ensure compliance with relevant applicable requirements, certification basis and the organisation's safety management system, as well as its quality and security management system.
- a. The accountable manager should have:
 1. an appropriate level of authority within the organisation to ensure that activities are financed and carried out to the standard required;
 2. knowledge and understanding of the documents that prescribe relevant safety standards;
 3. understanding of the requirements for competence of management personnel, so as to ensure that competent persons are in place;
 4. knowledge and understanding of safety, quality and security management systems related principles and practices, and how these are applied within the organisation;
 5. knowledge of the role of the accountable manager; and
 6. knowledge and understanding of the key issues of risk management within the organisation.

GM2.ANS.55.b Responsibilities accountable manager

- a. If the responsibilities mentioned in paragraph (c) are delegated, the level of technical knowledge and understanding expected of an accountable manager is high level, with particular reference to his/her own role in ensuring that standards are maintained. If the responsibilities mentioned in paragraph (c) are not delegated, the accountable manager should meet the qualification requirements for each non-delegated task and responsibility.
- b. During periods of absence, the day-to-day responsibilities of the accountable manager may be delegated; however, the accountability ultimately remains with the accountable manager.
- c. Depending on the size and the complexity of operations, the accountable manager may delegate some of the responsibilities to other persons within the organisation, who have demonstrated that they possess adequate experience, knowledge and technical expertise in those areas. Such responsibilities could be:
 1. the day-to-day management of operations;
 2. establishment and implementation of emergency and contingency plans;
 3. establishment and implementation of an appropriate infrastructure and facilities maintenance programme;
 4. establishment, implementation, coordination and recording of a personnel training programme; and
 5. the implementation and management of the quality and security management systems.In any case, the accountability, ultimately, remains with the accountable manager.

GM1.ANS.55.b.2 Quality manager

- a. To ensure that the organisation continues to meet the requirements of this MAR-ANS, the accountable manager should identify and nominate a *quality* manager whose role is to verify, by monitoring the activities of the organisation, that the standards required by MAR-ANS and other applicable parts, and any additional requirements as established by the organisation, are being carried out properly under the supervision of the relevant head of each functional area of the organisation; if more than one person is nominated, then there should be clearly defined responsibilities and one person should be the focal point and have the overall responsibilities of the *quality* manager.
- b. The *quality* manager should be responsible for ensuring that the compliance monitoring programme is properly established, implemented, maintained and continually reviewed and improved.
- c. The *quality* manager should:
 1. have direct access to the accountable manager;
 2. in the fulfillment of its role be independent of line management;
 3. have access to all parts of the organisation, and as necessary, any contracted organisation.
- d. The *quality* manager should have:

1. adequate practical experience and expertise in the organisation's operations or maintenance or similar area;
2. adequate knowledge of safety and quality assurance principles and management;
3. knowledge of the organisation exposition;
4. comprehensive knowledge of the applicable requirements in the area of ANS.

GM2.ANS.55.b.2 Independency of compliance monitoring function

Depending on the size of the organisation and the type and complexity of operations, the quality management function may be exercised by the accountable manager or other independent means.

GM1.ANS.55.b.3 Safety manager

- a. The safety manager should be the focal point and responsible for the development, administration and maintenance of an effective safety management system. If more than one person is nominated to the safety management function, then there should be clearly defined responsibilities and one person should be the focal point and have the overall responsibilities of the safety manager.
- b. The role of the safety manager should be to:
 1. facilitate hazard identification, risk analysis and management;
 2. monitor the implementation and functioning of the safety management system, including the necessary safety actions;
 3. manage the safety reporting system of the organisation;
 4. provide periodic reports on safety performance;
 5. ensure maintenance of safety management documentation;
 6. ensure that there is safety management training available and that it meets acceptable standards;
 7. provide advice on safety matters; and
 8. initiate and participate in internal occurrence/accident investigations.
- c. The safety manager should have:
 1. adequate practical experience and expertise in operations or maintenance or similar area;
 2. adequate knowledge of safety and quality management;
 3. knowledge of the organisation exposition;
 4. comprehensive knowledge of the applicable requirements in the area of ANS provision.
- d. The safety management function should normally belong to the Safety Services Office.

GM2.ANS.55.b.3 Independency of safety management functions

In the case of small organisations where combination of responsibilities may prevent sufficient independence in this regard, the arrangement for safety assurance may be supplemented by additional independent means.

GM.ANS.55.b.4 Nominated postholder

- a. The nominated postholder should have:
 1. clearly defined responsibilities, authorisations and resources available for the management and coordination of the day-to-day operation of the organisation, in accordance with the applicable requirements and the organisation exposition;
 2. adequate practical experience and expertise in ANS operations or maintenance or similar area;
 3. comprehensive knowledge of the applicable requirements in the area of ANS provision;
 4. appropriate level of knowledge of safety and quality management; and
 5. knowledge of the organisation exposition.

GM1.ANS.55.c Organisational structure

- a. The organisation should have designed and documented its internal organisation with a level of detail relevant to the size and complexity of the organisation. This document should reflect a clear and non ambiguous allocation of the authorities, duties and responsibilities of the management personnel in charge of safety, quality, security, finance and human resources. Although not explicitly required, it is recommended that similar information be given for the providers of the main technical and operational functions, as well as for their relationship with the management.
- b. Delegation of power and of signature should be documented. The allocation of responsibilities between the different job holders should be documented through job descriptions. It should be complemented by an organisational chart presenting the relationship and reporting lines between the different parts and processes of the organisation.
- c. The organisation should also provide information on its outsourced / external activities and document the legal framework for these activities (e.g. contracts).

- d. Additional information on the status of the staff (civil servant/ private law employee) and on the potential liability of the organisation for the damage caused by its staff should also be specified. The document describing the organisation can be used as evidence for the certification.

GM2.ANS.55.c Management of operations

- a. The management of the day-to-day operations may include, but not limited to:
1. supervising and inspecting ATC units;
 2. ensuring that all units operate in accordance with approved policies, standards and procedures;
 3. assisting in investigating complaints, incidents, accidents, and breaches of air regulations and air navigation orders;
 4. resolving operational problems between regions and making recommendations concerning inter-unit problems, where required;
 5. ensuring appropriate distribution of responsibility and workload to regions or units;
 6. arranging for flight surveillance of ATS procedures, controller performance and the adequacy of airground communications
 7. coordination with the other Air Navigation Services Providers; and
 8. coordination with aerodromes.
- a. The emergency plan management may include, but not limited to:
1. establishment of an emergency plan;
 2. coordination with other organisations, such as aircraft operators and Local/State Authorities in implementing the emergency plan;
 3. coordination of aerodrome e emergency exercises;
 4. revision of emergency plan.
- b. The contingency plan management may include, but not limited to:
1. establishment of a contingency plan;
 2. coordination with other organisations, such as other ANSPs, aircraft operators and Local/State Authorities in implementing the contingency plan;
 3. coordination of contingency exercises;
 4. revision of contingency plan.
- d. The training management may include, but not limited to:
1. establishment of training needs analysis for personnel involved in operations and maintenance;
 2. establishment of an effective training programme;
 3. coordination of personnel training programme; and
 4. maintenance of personnel training records;
- e. The maintenance management may include, but not limited to:
1. establishment of a maintenance programme for the ANSPs infrastructure and facilities;
 2. monitoring of the implementation of the maintenance programme; and
 3. provision of resources for ad hoc repairs.
- f. The quality and security management may include, but not limited to:
1. establishing and maintaining the quality and security;
 2. establishing and maintaining arrangements with third parties involved in the provision of required services.

ANS.60 Personnel

GM1.ANS.60.a Determination of personnel needs and qualifications

- a. The organisation should determine the required personnel for the planned tasks in accordance with the analysis of the scope and operations of the organization according the analysis of scope and operations.
- b. The organization should determine the required personnel qualifications, in accordance with the applicable requirements (and the national and European Union legislation where this is applicable), and include them in the organisation exposition. A documented system with defined responsibilities should be in place, in order to identify any needs for changes with regard to personnel qualifications.

GM2.ANS.60.a Qualification

The term qualification denotes fitness for the purpose through fulfillment of the necessary conditions such as completion of required training, or acquisition of a diploma or degree. Qualification could also be interpreted

to mean capacity, knowledge, or skill that matches or suits an occasion, or makes someone eligible for a duty, office, position, privilege, or status. Qualification does not necessarily imply competence. Certain posts may by nature be associated with the possession of certain qualifications in a specific field (e.g. rescue and fire-fighting, civil, mechanical or electrical engineering, wildlife biology etc.). In such cases, the person occupying such a post is expected to possess the necessary qualifications at a level that is in accordance with the applicable legislation.

GM3.ANS.60.a Personnel records

- a. The organisation should have a system in place to record the following information for each person:
 - 1. personnel previous working experience;
 - 2. competency checks, including language proficiency as appropriate;
 - 3. training.
- b. Latest changes should be reflected into personnel records.
- c. Personnel records should be kept, as long as they are employed by the organisation.

GM4.ANS.60.a Training records

- a. The training records maintained for each individual should include as a minimum:
 - 1. the name of the trainee;
 - 2. the date(s) and the duration of the training;
 - 3. the place where the training was received;
 - 4. the name of the organisation that provided the training;
 - 5. the subjects covered and the methodology of the course;
 - 6. any comments made by the instructor, if applicable;
 - 7. the performance evaluation of the trainee, if applicable;
 - 8. the name of the instructor; and
 - 9. The signature of the individual that received the training.

GM5.ANS.60.a Training programme

- a. The training programme should cover all personnel involved in operations, maintenance and management within the organisation.
- b. The training programme should consist of the following:
 - 1. a documented process, included in the organisation exposition, to identify training requirements for each area of activity and track completion of required training;
 - 2. a documented validation process that measures the effectiveness of training;
 - 3. initial training;
 - 4. on the job training;
 - 5. continuation training;
 - 6. recurrent training.
- c. Training frequencies, contents, syllabi and checking programmes should comply with the applicable requirements.
- d. The training programme should contain procedures:
 - 1. for training and checking;
 - 2. to be applied in the event that personnel do not achieve or maintain the required standards.
- e. A training file should be developed for each employee, including management, to assist in identifying and tracking employee training requirements and verifying that personnel have received the planned training.
 - 1. The organisation should specify training standards for initial, on-the-job, and recurrent training, including training responsibilities, contents, syllabi, frequency, validation and training records management, of the persons referred to in paragraph (a).
- f. The information provided in paragraph (d), (e) and (f) above should be included in the organisation exposition.

GM.ANS.60.b Rostering arrangements

- a. The organization should have the rostering arrangements in place to ensure sufficient capacity and continuity of service;
- b. The organisation should take on board national rules on working time that would need to be respected. The organisation should also have specific rules on shiftwork stated in the organisation's working conditions. When determining the staffing requirements the organization needs to take into account staff needed for ops duties and non ops duties (training, projects, refresher training etc).
- c. The organization should:
 - 1. have a short term and long term planning process in place;
 - 2. have in place appropriate methodology to determine the staffing requirement at various times of the year;

3. details of the roster actually worked to ensure sufficient capacity and continuity of service;
4. have a policy/procedure in place to deal with unexpected absences;
5. adhere to working time rules in place when establishing the roster;
6. have transparent, reliable, valid and objective methods and tools for rostering staff.

GM1.ANS.60.d Competence requirements

- a. Competence: The quality of being adequately or well qualified physically and intellectually to accomplish assigned responsibilities. Competency is taken to mean possession of the required level of knowledge, skills, experience and where required, proficiency in English, to permit the safe and efficient provision of aviation services.
- b. As the competency requirements and safety responsibilities and accountabilities need to be defined for all safety-related positions throughout the organisation, the organisation must ensure that:
 1. The competency requirements, and where appropriate, licensing requirements for those positions are documented;
 2. The competency requirements are specified in the recruitment description and job responsibilities;
 3. The individuals in the positions identified meet the competency requirements;
 4. The competency is enhanced through internal or external training

GM2.ANS.60.d Job descriptions

- a. The organisation should establish formal job descriptions for all personnel involved in operations, maintenance and management within the organisation.
- b. A job description should contain at least the following items:
 1. Job title
 2. Based at (Business Unit, Section - if applicable)
 3. Position reports to (Line Manager title, location, and Functional Manager, location if matrix management structure)
 4. Job purpose summary (ideally one sentence)
 5. Key responsibilities and accountabilities, (or 'duties'. 8-15 numbered points)
 6. Dimensions/territory/scope/scale indicators (the areas to which responsibilities extend and the scale of responsibilities - staff, customers, territory, products, equipment, premises, etc)
 7. Competency requirements:
 - i Qualifications;
 - ii Education;
 - iii Skills;
 - iv Level of knowledge;
 - v Experience
 8. Date and other relevant internal references.

GM.ANS.60.e Continuation training

In order to maintain the required qualification and competency of its personnel, the organisation should, as a part of its training programme, provide continuation training to all personnel involved in operations, maintenance and management within the organisation.

ANS.65 Infrastructure, facility and equipment

GM.ANS.65.a Adequacy of resources

- a. The applicant should provide all necessary information needed in order to demonstrate to the MAA-MLD that its infrastructure, facilities and equipment is suitable and properly matched to the scale and scope of the operation. The determination of the required infrastructure, facilities and equipment should be based on the analysis of scope and operations.

GM.ANS.65.b Maintenance programme

- a. The organisation should ensure that a maintenance programme is established, including preventive maintenance where appropriate to maintain the ANSP's facilities in a condition which does not impair the safety of aeronautical operations. The scope of the maintenance programme should include, but may not be limited to, the following items:
 1. Power supply and other electrical systems;
 2. Fencing and other access control devices;
 3. Equipment which is necessary for the safety of Air Navigation Service Provision;
 4. Buildings which are necessary for the safety of Air Navigation Service Provision.

- b. The design and application of the maintenance programme should observe human factors principles.

ANS.70 External services and supplies

GM.ANS.70.a External services and supplies

- a. In order to ensure adequate justification of the safety of the externally provided services and supplies, the organisation should:
 - 1. identify the list of stakeholders subject to this requirement;
 - 2. formalise interfaces and binding procedures (e.g. Service Level Agreements; contracts), related to the concerned stakeholders, for providing and receiving the information necessary for the provision of a certain part of the service provided by an organisation;
 - 3. provide evidence of formal interfaces with these stakeholders –such as formal meetings, establishment of empowered bodies-, especially in a way that allow to decisions taken in the field of relations with stakeholders, that may impact safety, are clearly documented as well as the rationale for these decisions.
- b. The organisation should have formal arrangements in place with organisations that provide services for the ANSP, including but not limited to:
 - 1. air traffic services;
 - 2. aeronautical information services;
 - 3. communication, navigation and surveillance services;
 - 4. meteorological services;
 - 5. design and maintenance of the flight procedures;
 - 6. security services;Unless such services are provided directly by the organisation itself.
- c. Evidence of formal interfaces with the appropriate stakeholders such as formal meetings, the establishment of empowered bodies, that contracts are implemented (especially in a way that allow for decisions to be taken in the field of relations with stakeholders that may impact safety), are clearly documented together with the rationale for the decisions taken.

ANS.80 Emergency plan

GM1.ANS.80a Emergency plans

An air navigation service provider should have in place adequate emergency plans for all the services it provides in the case of events which result in significant degradation or interruption of its services.

- a. These plans describe how, in case of interruption or degradation, the provision of service will be stopped or delegated. Specifically it should contain agreements with adjacent units describing actions to be taken. This could include, for example ACCs, APP units and TWRs and actions to be taken by CFMU. The plans should also describe the actions to be taken when normal service provision is resumed.
- b. The following items are to be considered depending upon circumstances:
 - 1. re-routing of traffic to avoid the whole or part of the airspace concerned, normally involving establishment of additional routes or route segments with associated conditions for their use;
 - 2. establishment of a simplified route network through the airspace concerned, if it is available, together with a flight level allocation scheme to ensure lateral and vertical separation, and a procedure for adjacent area control centres to establish longitudinal separation at the entry point and to maintain such separation through the airspace;
 - 3. reassignment of responsibility for providing air traffic services in airspace over the high seas or in delegated airspace;
 - 4. provision and operation of adequate air-ground communications, AFTN and ATS direct speech links, including reassignment, to adjacent States, of the responsibility for providing meteorological information and information on status of navigation aids;
 - 5. special arrangements for collecting and disseminating in-flight and post-flight reports from aircraft;
 - 6. a requirement for aircraft to maintain continuous listening watch on a specified pilot-pilot VHF frequency in specified areas where air-ground communications are uncertain or non-existent and to broadcast on that frequency, preferably in English, position information and estimates, including

- start and completion of climb and descent;
7. a requirement for all aircraft in specified areas to display navigation and anti-collision lights at all times;
 8. a requirement and procedures for aircraft to maintain an increased longitudinal separation that may be established between aircraft at the same cruising level;
 9. a requirement for climbing and descending well to the right of the centre line of specifically identified routes;
 10. establishment of arrangements for controlled access to the contingency area to prevent overloading of the contingency system; and
 11. a requirement for all operations in the contingency area to be conducted in accordance with IFR, including allocation of IFR flight levels, from the relevant Table of Cruising Levels in Appendix 3 of Annex 2, to ATS routes in the area.
- c. The emergency plan should observe human factors principles to ensure optimum response in emergency operations.
 - d. The organisation should include at least the following in the emergency plan document:
 1. Types of emergencies planned for;
 2. Agencies involved in the plan;
 3. Responsibility and role of each agency, the emergency operations centre and the command post for each type of emergency;
 4. Information on names and telephone numbers of offices or people to be contacted in the case of a particular emergency; and
 5. A grid map of the ANSP's and its immediate vicinity.
 6. Check-lists to be used.
 - e. The organisation should ensure that the emergency plan is tested by conducting:
 1. a full-scale emergency exercise at intervals not exceeding two years; and
 2. partial emergency exercises in the intervening year to ensure that any deficiencies found during the full-scale emergency exercise have been corrected and reviewed thereafter, or after an actual emergency, so as to correct any deficiency found during such exercises or actual emergency.

Subpart D - Safety and quality management

ANS.100 Quality management system

GM.ANS.100.a Quality management system

- a. The quality management system should:
 - 1. set up a quality assurance programme that contains procedures designed to verify that all operations are being conducted in accordance with applicable requirements, standards and procedures, including the relevant requirements of the MAR;
 - 2. provide evidence of the functioning of the quality system by means of manuals and monitoring documents;
 - 3. appoint management representatives to monitor compliance with, and adequacy of, procedures to ensure safe and efficient operational practices; and

GM.ANS.100.b.2 Compliance monitoring function

- a. The implementation and use of a compliance monitoring function should enable the organisation to monitor compliance with the relevant requirements of MAR-ANS and any other applicable requirements.
 - 1. The organisation should specify the basic structure of the compliance monitoring function applicable to the activities conducted;
 - 2. The compliance monitoring function should be structured according to the size of organisation and the complexity of the activities to be monitored, including those which have been sub-contracted.
- b. The organisation should monitor compliance with the procedures it has designed to ensure safe activities. In doing so, the organisation should as a minimum, and where appropriate, monitor:
 - 1. organisational structure;
 - 2. plans and objectives;
 - 3. privileges of the organisation;
 - 4. manuals, logs and records;
 - 5. training standards;
 - 6. required resources; and
 - 7. management system.

GM1.ANS.100.b.3 Compliance monitoring – audit schedule

- a. The compliance monitoring function should include a defined audit schedule and a periodic review cycle for each area. The organisation should ensure that the compliance monitoring function is audited according to a defined audit schedule. The schedule should allow for unscheduled audits when trends are identified. Follow-up audits should be scheduled to verify that corrective action was carried out and that it was effective and completed, in accordance with the policies and procedures specified in the Organisation Exposition.
- b. The organisation should establish a schedule of audits to be completed during a specified calendar period.

GM2.ANS.100.b.3 Compliance monitoring - staffing

- a. Auditors used for compliance monitoring audits and inspections should meet the following criteria:
 - 1. should not have involvement in the area of the activity which is to be audited;
 - 2. should have relevant operational and/or maintenance experience or other appropriate experience;
 - 3. external auditors used, should be familiar with the type of operation, maintenance or other activities of the organisation.

GM1.ANS.100.b.5 Record keeping

- a. The organisation should establish an adequate system of record-keeping.
- b. The format of the records should be specified in the Organisation Exposition.
- c. Records should be stored in a manner that ensures protection of damage, alteration and theft.
- d. Records should be kept as follows:
 - 1. the application for approval, the self evaluation including the compliance checklist and the current approval, for unlimited duration;
 - 2. arrangements with other organisations, for as long as such arrangements are in effect;
 - 3. manuals of the organisation's equipment or systems employed within the organisation
 - 4. safety assessment reports for the lifetime of the system/procedure/activity;
 - 5. personnel training, qualifications, and medical records as well as their proficiency checks, until the end of their employment;

6. the current version of the hazard register;
 7. emergency exercise reports, reviews and corrective actions for a minimum of 10 years;
 8. accident, incident and occurrence data for a minimum of 15 years.
- e. Any other safety record should be kept for a minimum of 5 years, unless otherwise agreed with the MAA-MLD.

GM2.ANS.100.b.5 Documentation to be retained

- a. The system employed by the organisation for record-keeping should provide for adequate procedures, storage facilities, and reliable traceability of the records related to the activities of the organisation that are subject to the MAR.
- b. Records should be kept in paper form or in electronic format or a combination of both. Records stored on microfilm or optical disc format are also acceptable. The records should remain legible throughout the required retention period. The retention period starts when the record has been created or last amended.
- c. Paper systems should use robust material which can withstand normal handling and filing.
- d. Computer systems should have at least one backup system which should be updated within 24 hours of any new entry. Computer systems should include safeguards against the ability of unauthorised personnel to alter the data.
- e. All computer hardware used to ensure data backup should be stored in a different location from that containing the working data and in an environment that ensures they remain in good condition. When hardware or software changes take place, special care should be taken that all necessary data continues to be accessible at least through the full retention period. In the absence of any indication, all records should be kept for a minimum period of five years.

GM1.ANS.100.d.1 Document control

- a. The ANSP should ensure that it has a suitable procedure in place for the control, provision, maintenance and distribution of new versions of its operations manuals (i.e. an effectively functioning document control system).
- b. An effective document control system is an integral part of the Quality Management. Best practice standards or criteria of eligibility for a document control system are inter alia contained in the EN ISO 9001:2000 standard.
- c. The ANSP should have an effective document control system in place, which ensures:
 1. the appropriate operations manuals are in place, in accordance with the scope of services provided;
 2. the content of operations manuals contain the appropriate instructions and information required by the operations personnel to perform their duties;
 3. the relevant part(s) of operations manuals are accessible to the appropriate people, particularly for the use by and guidance of operations personnel;
 4. any amendments or revisions to operations manuals are expeditiously communicated to the relevant operations personnel.
- d. The ANSP should ensure that it has an effectively functioning document control system and evidence demonstrating this could include:
 1. a copy of the ANSP's document control procedure, together with a list of controlled documents;
 2. the documents listed are appropriate to the scope of the ANSP's services and include the relevant operations manuals;
 3. copies of the relevant operations manuals;
 4. documentation management system covering the change management and records demonstrating an effectively functioning document control system, for example management reviews, quality audit reports and corrective action plans (internal and/or external).

GM2.ANS.100.d.1 Compliance monitoring procedures and documentation

- a. Relevant documentation should include the relevant part(s) of the organisation's management system documentation.
- b. In addition, relevant documentation should also include the following:
 1. terminology;
 2. specified activity standards;
 3. a description of the organisation;
 4. the allocation of duties and responsibilities;
 5. procedures to ensure regulatory compliance;
 6. the compliance monitoring programme, reflecting:

- i schedule of the monitoring programme;
 - ii audit procedures;
 - iii reporting procedures;
 - iv follow-up and corrective action procedures; and
 - v recording system;
- 7. training syllabus for compliance monitoring; and
- 8. document control.
- c. Training
 - 1. Staff responsible for the compliance monitoring function should receive training on this task. Such training should cover the requirements of compliance monitoring, manuals and procedures related to the task, audit techniques, reporting and recording;
 - 2. Time should be provided to train all personnel involved in compliance management and for briefing the remaining personnel; and
 - 3. The allocation of time and resources should be governed by the volume and complexity of the activities concerned.

GM3.ANS.100.d.1 Unit operating instructions

- a. While prepared under the direction of the manager of an ATS unit, ATS unit operating instructions are issued under the authority of the accountable manager. They primarily consist of procedures and instructions of a local nature which are either subject to frequent change or limited in application, but are, in all cases, supplementary to the applicable national provisions.
- b. Unit operating instructions should, as necessary, contain:
 - 1. detailed unit operational procedures and requirements;
 - 2. detailed unit administrative requirements, including the responsibilities of each operating position;
 - 3. amplification and/or explanation of provisions of the national manual of ATS, where necessary.
- c. Specific terminology should be used to differentiate between mandatory, recommended and optional application of the relevant provisions. Other terminology and abbreviations should conform to those used in other operating manuals and relevant documents.
- d. In the preparation of unit operating instructions, relevant instructions contained in other readily accessible documents should only be referred to but not repeated in order to avoid the need for amendment of the operating instructions every time the quoted instructions are changed.
- e. Amendments to unit operating instructions should be recorded in the document and brought to the attention of all controllers concerned in the most appropriate manner. In addition, as part of the conditions of taking over a specific operating position, controllers should be required to indicate, in an appropriate manner, that an amendment has been noted.

GM.ANS.100.d.2 Distribution of rules and procedures

- a. The organisation should have a system in place to distribute the rules and procedures to personnel to exercise their duties.

GM.ANS.100.d.3 Distribution means of rules and procedures

- a. The organisation may use electronic means or conventional means to distribute rules and procedures (including changes) to personnel. The method used should verify that the information reached the intended recipient.

ANS.105 Safety management system

GM1.ANS.105.a Safety management system

- a. The safety management system of an organisation should include an organizational structure for the management of safety proportionate and appropriate to the size of the organisation and the nature and type of operations. Clearly defined lines of responsibilities, authorisations and accountabilities within the organisation should be identified. Depending on the organisational complexity and structure, this should include a Safety Services Office and a Safety Review Board or similar.
- b. Safety Services Office
 - 1. The Safety Services Office should be independent and neutral in terms of the processes and decisions made regarding the delivery of services by the line managers of operational units;
 - 2. The function of the Safety Services Office should be to:

- i manage and oversee the hazard identification system;
 - ii monitor safety performance of operational units directly involved in the ANSP's operations;
 - iii advise senior management on safety management matters; and
 - iv assist line managers with safety management matters;
- 3. Operators of multiple, dislocated units should either establish a central Safety Services Office and appropriate safety departments/functions at all dislocated units or separate Safety Services Office at each unit. Arrangements should be made to ensure continuous flow of information and adequate coordination.
- c. Safety Review Board
 - 1. The Safety Review Board should be a high level committee that considers matters of strategic safety in support of the accountable manager's safety accountability;
 - 2. The board should be chaired by the accountable manager and be composed of heads of functional areas;
 - 3. The Safety Review Board should monitor:
 - i safety performance against the safety policy and objectives;
 - ii that any safety action is taken in a timely manner; and
 - iii the effectiveness of the organisation's safety management system
 - 4. The Safety Review Board should ensure that appropriate resources are allocated to achieve the established safety performance.
 - 5. Operators of multiple dislocated units should ensure that all units are represented in the Safety Review Board, at the appropriate management level.

GM2.ANS.105.a Organisational elements within the SMS

- a. Safety services office: The role of the Safety Services Office may be exercised by the nominated person(s) for the safety management function, considering the size of the organisation, the type and complexity of operations.
- b. Safety review board: Depending on the size of the organisation, the type and complexity of operations, the responsibilities of the Safety Review Board may be included in other high level committees of the organisation.

GM3.ANS.105.a Unit safety committees

- a. The organisation should:
 - 1. organise, coordinate and implement programmes to promote safety at the unit;
 - 2. coordinate and promote the exchange of information and joint investigation of incidents and accidents.

GM.ANS.105.a.4 Continuous improvement of the safety management system

- a. The organisation should develop and maintain a formal process to identify the causes of substandard performance of the Safety Management System, determine the implications of substandard performance of the Safety Management System in operations, and eliminate or mitigate such causes. Continuous improvement should be achieved through:
 - 1. proactive evaluation of facilities, equipment, documentation and procedures;
 - 2. proactive evaluation of an individual's performance, to verify the fulfillment of that individual's safety responsibilities;
 - 3. reactive evaluations in order to verify the effectiveness of the system for control and mitigation of safety risks.

GM1.ANS.105.b.1 Safety policy

The safety policy is the means whereby the organization states its intention to maintain and, where practicable, improve safety levels in all its activities and to minimise its contribution to the risk of an aircraft accident as far as is reasonably practicable.

GM2.ANS.105.b.1 Safety policy - general

- a. The safety policy should:
 - 1. be endorsed by the accountable manager;
 - 2. clearly identify safety as the highest organisational priority over commercial, operational, environmental or social pressures;
 - 3. reflect organisational commitments regarding safety and its proactive and systematic management;
 - 4. be communicated, with visible endorsement, throughout the organisation;
 - 5. include safety reporting principles;
 - 6. be periodically reviewed to ensure it remains relevant and appropriate to the organisation.
- b. The safety policy should:
 - 1. include a commitment:

- i to improve towards the highest safety standards;
- ii to comply with all applicable legal requirements, meet all applicable standards and consider best practices;
- iii to provide appropriate resources;
- iv to enforce safety as one primary responsibility of all managers and staff;
- 2. include the safety reporting procedures;
- 3. with reference to a just culture clearly indicate which types of operational behaviours are unacceptable and include the conditions under which disciplinary action would not apply;
- 4. be periodically reviewed to ensure it remains relevant and appropriate.

GM1.ANS.105.c.1 Training of staff on safety-related duties

- a. The organisation should establish a safety training programme to all staff, regardless of their level in the organisation.
- b. The safety training programme should consist of the following:
 - 1. a documented process to identify training requirements for each area of activity within the ANSP's organisation, and track completion of required training;
 - 2. a validation process that measures the effectiveness of training;
 - 3. initial job-specific training;
 - 4. induction/initial training incorporating safety management system, including Human Factors and organisational factors; and
 - 5. recurrent safety training.
- c. A training file should be developed for each employee, including management, to assist in identifying and tracking employee training requirements and verifying that personnel have received the planned training.
- d. The organisation should specify initial and recurrent safety training standards for operational personnel, managers and supervisors, senior managers and the accountable manager. The amount and level of detail of safety training should be appropriate to the individual's responsibility and involvement in the SMS.
- e. The organisation should specify safety training responsibilities, including contents, frequency, validation and safety training records management.
- f. The information provided in points (d) and (e) above should be included in the organisation exposition. This training programme may be combined with the training programme.

GM2.ANS.105.c.1 Staff safety training requirements

- a. Operational personnel
 - 1. Safety training should address safety responsibilities, including adherence to all operating and safety procedures, and recognising and reporting hazards;
 - 2. The training objectives should include the organisation's safety policy and SMS fundamentals and overview;
 - 3. The contents should include:
 - i definition of hazards;
 - ii consequences and risks;
 - iii the safety risk management process, including roles and responsibilities; and
 - iv safety reporting and the organisation's safety reporting system(s).
- b. Managers and supervisors
 - 1. Safety training should address safety responsibilities, including promoting the SMS and engaging operational personnel in hazard reporting;
 - 2. In addition to the training objectives established for operational personnel, training objectives for managers and supervisors should include a detailed knowledge of the safety process, hazard identification and safety risk management and mitigation, and change management;
 - 3. In addition to the contents specified for operational personnel, the training contents for supervisors and managers should include safety data analysis.
- c. Senior managers
 - 1. Safety training should include safety responsibilities, including compliance with European Union, national and the organisation's own safety requirements, allocation of resources, ensuring effective inter-departmental safety communication and active promotion of the SMS;
 - 2. In addition to the objectives of the two previous employee groups, safety training should include safety assurance and safety promotion, safety roles and responsibilities, and establishing acceptable levels of safety.
- d. Accountable manager
 - 1. The training should provide the accountable manager with a general awareness of the organisation's safety management system, including safety management system roles and responsibilities, safety policy and objectives, safety risk management and safety assurance.

- e. Further guidance on the issue staff safety training is contained in ICAO Doc 9859.

GM1.ANS.105.c.3 Compliance monitoring when contracting activities

- a. A contract should exist between the organisation and the contracted organisation clearly defining the contracted activities and the applicable requirements.
- b. The contracted safety related activities relevant to the agreement should be included in the organisation's safety assurance process;
- c. The organisation should ensure that the contracted organisation has the necessary authorisation, declaration or approval when required, and commands the resources and competence to undertake the task; to this end, a prior audit of the contracted party should be conducted to ensure that the contracted organisation meets the applicable requirements and the requirements specified by the organisation's itself.

If the organisation requires the contracted organisation to conduct an activity which exceeds the contracted organisation's authorisation or approval, the organisation is responsible for ensuring that the contracted organisation's compliance monitoring takes account of such additional requirements.

GM2.ANS.105.c.3 Coordination and interface other organisations

Coordination and interface with the safety procedures of other relevant organisations that are relevant for the services provided by the ANSP include but is not limited to the following: aircraft operators, other ANSPs, aerodromes, etc.

GM3.ANS.105.c.3 Coordination with other relevant organisations

- a. The organisation should:
 1. ensure that the safety management system of the ANSP explicitly addresses the coordination and interface with the safety procedures of other organisations whose operations or services affect the operations and services of the ANSP;
 2. ensure that such organisations have adequate safety procedures in place to comply with the requirements laid down in the organisation exposition;
 3. coordinate and document arrangements and responsibilities of other organisations whose operations or services affect the operations and services of the ANSP.
- b. The organisation should:
 1. develop, lead and implement programmes to promote safety and the exchange of safety-relevant information; and
 2. ensure that organisations mentioned in paragraph (a) are involved in such programmes.

GM1.ANS.105.c.4 Safety performance monitoring and measurement

- a. Safety performance monitoring and measurement should be the process by which the safety performance of the operator is verified in comparison to the safety policy and objectives, identified safety risks and the mitigation measures.
- b. This process should include:
 1. safety reporting;
 2. safety studies, which are rather large analyses encompassing broad safety concerns;
 3. safety reviews including trends reviews, which are conducted during introduction and deployment of new technologies, change or implementation of procedures, or in situations of structural change in operations, or to explore increase in incidents or safety reports;
 4. safety audits which focus in the integrity of the operator's management system, and periodically assess the status of safety risk controls;
 5. safety surveys, which examine particular elements or procedures of a specific operation, such as problem areas or bottlenecks in daily operations, perceptions and opinions of operational personnel and areas of dissent or confusion;
 6. internal safety investigations, whose scope should extend the scope of occurrences required to be reported to the MAA-MLD; and
 7. setting safety performance indicators and measuring performance against them.

GM2.ANS.105.c.4 Safety performance monitoring and measurement

- a. The following generic aspects/areas could be considered:
 1. accountability for management of the operational activities and its ultimate accomplishment;
 2. authority to direct, control or change the procedures as well as to make key decisions such as safety risk acceptance decisions;
 3. procedures for operational activities;
 4. controls, including hardware, software, special procedures or procedural steps and supervisory

- practices designed to keep operational activities on track;
- 5. interfaces, including lines of authority between departments, lines of communication between employees, consistency of procedures, and clear delineation of responsibility between organisations, work units and employees;
- 6. process measures to provide feedback to responsible parties that required actions are taking place, required outputs are being produced and expected outcomes are being achieved.

GM.ANS.105.d.1 Reporting system

- a. An effective occurrence reporting system should include, apart from organisation's personnel, aircraft operators and other air navigation service providers;
- b. The reporting system should include voluntary reporting possibilities intended for safety hazards identified by the reporter and that may have potential safety consequences;
- c. The organisation should identify which occurrences are mandatory to be reported;
- d. The organisation should provide the means and the format for the occurrence reporting, which should be such that meets the existing reporting requirements foreseen in the applicable legislation in terms of time, format and required information to be reported;
- e. The occurrence reporting system should include an acknowledgement to the reporter for the submission of the report;
- f. The reporting process should be as simple as possible and well documented, including details as to what, how, where, whom and when to report;
- g. Regardless of the source or method of submission, once the information is received, it should be stored in a manner suitable for easy retrieval and analysis;
- h. Access to the submitted reports should be restricted to persons responsible for storing and analysing them;
- i. Protection of the identity of the reporter should be ensured. This should be achieved by not recording any identifying information of the occurrence; and
- j. Occurrence reporting system should include a feedback system to the reporting person, on the outcome of the occurrence analysis.

GM.ANS.105.d.2 Occurrence reporting

- a. The organisation should establish procedures to be used according SMAR-1 for reporting to the MAA-NLD and any other organisation required. The procedures should include:
 - 1. description of the applicable requirements for reporting;
 - 2. description of the reporting mechanism, including reporting forms, means and deadlines;
 - 3. personnel responsible for reporting;
 - 4. description of mechanism and personnel responsibilities for identifying root causes and the actions that may be needed to be taken to prevent similar occurrences in the future, as appropriate.

GM1.ANS.105.d.3 The management of change

- a. Change can introduce new hazards, impact the appropriateness and/or effectiveness of existing safety risk mitigation strategies. Changes may be external to the organisation or internal. The organisation should manage safety risks related to a change. The management of change should be a documented process to identify external and internal change that may have an adverse effect on safety
- b. A formal process for the management of change should take into account the following considerations:
 - 1. Criticality of systems and activities;
 - 2. Stability of systems and operational environments;
 - 3. Past performance.
- c. It should make use of the organisation's existing hazard identification, safety risk assessment and mitigation processes.
- d. System description is one of the fundamental preliminary activities in the planning of the safety management system, to determine a baseline hazard analysis for the baseline system. As part of the formal process of the management of change, the system description and the baseline hazard analysis should be reviewed periodically, even if circumstances of change are not present, to determine their continued validity.
- e. When changes to the system are made, and periodically thereafter, the operator should go over its system and its actual operational environment, in order to make sure it continues to be fully aware of the circumstances under which the provision of service takes place.

GM2.ANS.105.d.3 Safety assessment for a change

- a. A safety assessment for a change should include:
 - 1. identification of the scope of the change;
 - 2. identification of hazards;

3. determination of the safety criteria applicable to the change;
4. risk analysis in relation to the harmful effects or improvements in safety related to the change;
5. risk evaluation and, if required, risk mitigation for the change to meet the applicable safety criteria;
6. verification that the change conforms to the scope that was subject to safety assessment and meets the safety criteria; and
7. the specification of the monitoring requirements necessary to ensure that the ANSP and its operation will continue to meet the safety criteria after the change has taken place.

GM3.ANS.105.d.3 Scope of the safety assessment

- a. The scope of the safety assessment should include the following elements and their interaction:
 1. the organisation, its facilities, its operation, management and human elements being changed;
 2. interfaces and interactions between the elements being changed and the remainder of the system;
 3. interfaces and interactions between the elements being changed and the environment in which it is intended to operate; and
 4. the full lifecycle of the change from definition to operations.

GM4.ANS.105.d.3 Safety assessment for risk management

- a. Applicability and Scope
 1. For the application of safety risk management to ANSPs, this guidance material presents the general methodology to conduct safety assessments within an ANSP. It provides guidance to defining the scope of the safety concern, Hazard Identification, safety risk assessment as well as through appropriate reasoning to evaluate the suitability of proposed solutions and the need for alternate measures, operational procedures or operating restrictions for the specific operations concerned.
 2. The methodology provides a basic safety assessment process and lists some key aspects that should be taken into consideration when conducting, reviewing or evaluating a safety assessment. The purpose of this guide is to:
 - i give guidance to when a safety assessment should be carried out;
 - ii outline a suitable safety assessment process that can be used by organisations;
 - iii identify the key aspects for conducting, reviewing and evaluation of a safety assessment.
 3. The safety assessment process can be used to assess safety risks associated to each identified safety concern in the ANSP's operations.
- b. Basic considerations
 1. A safety assessment is an element of the risk management process of a Safety Management System that is used to assess safety concerns, such as; identified changes in the operations of an ANSP or when any other safety concerns arise or hazards are identified in the ANSP's infrastructures, systems or operations.
 2. When an identified safety hazard affects other organizations or operators the involvement of all the affected parties in the safety assessment process is necessary. Examples of such stakeholders are:
 - i aviation professionals;
 - ii aircraft owners and operators;
 - iii manufacturers;
 - iv aviation regulatory authorities;
 - v industry trade associations;
 - vi regional air traffic service providers;
 - vii professional associations and federations;
 - viii international aviation organizations;
 - ix investigative agencies; and
 - x the flying public.
 3. A safety assessment considers the impact of the safety concern, on all relevant factors determined to be safety-significant. The list below provides a number of items that may need to be considered when conducting a safety assessment. The items in this list are non-exhaustive and in no particular order:
 - i human factors;
 - ii training;
 - iii safety management system;
 - iv organisational structure and management;
 - v operational procedures;
 - vi types of aircraft and their performance characteristics, including aircraft navigation capabilities and navigation
 - vii performance;
 - viii traffic density and distribution;

- ix airspace complexity, ATS route structure and classification of the airspace which may change the pattern of operations or the capacity of the same airspace;
 - x aerodrome layout, including runway configurations, runway lengths and taxiway configurations;
 - xi type of air-ground communications and time parameters for communication dialogues, including controller
 - xii intervention capability;
 - xiii type and capabilities of surveillance system, and the availability of systems providing controller support and
 - xiv alert functions. Where ADS-B implementation envisages reliance upon a common source for surveillance
 - xv and/or navigation, the safety assessment shall take account of adequate contingency measures to mitigate the
 - xvi risk of either degradation or loss of this common source (i.e. common mode failure); and
 - xvii any significant local or regional weather phenomena.
 - xviii flight instrument procedures and related (aerodrome) equipment;
 - xix technical installations, such as Advanced Control Systems (A-SMGCS) or NAVAIDS;
 - xx planned construction or maintenance works at or in the vicinity of involved aerodrome(s);
2. Subsequent to the completion of the safety assessment that requires mitigation measures, the organisation is responsible for monitoring the effectiveness of the implemented mitigation measures.
 3. Any measures taken that result in a change should be adequately promulgated to all affected personnel.
 4. Documentation of the whole safety assessment process applied with all working documents and results, including a detailed description of the risk assessment conducted for each case analysed should be made available for authority oversight.

c. Responsibility

1. The Safety Manager is responsible for the management and application of the safety assessment process.
2. A safety assessment should be carried out to assess if a particular risk is acceptable within the organisation's operations or whether mitigation measures are required. When the risk is determined as acceptable the assessment results should be endorsed by an accountable manager within the senior management.
3. To protect objectivity, care should be taken to avoid endorsement of safety assessment conclusions by persons within the management who have the responsibility to directly audit subsequent procedures.

d. Necessity for conducting a safety assessment

1. A safety assessment is carried out for all safety concerns, including; identified safety hazards, deviations from requirements or certification specifications or and identified change or for any other items or circumstances where such an assessment is considered a contribution to safety assurance. A safety assessment is an everyday process within an organisation with a functioning management system. It may be applied in different scale depending on the safety concern to be assessed. The list below is not exhaustive but identifies some of the main reasons for a safety assessment to be applied.
 - i A hazard is identified, through the voluntary safety reporting system, through an audit or an inspection, internal or external, through an accident or incident report or through any other mechanism;
 - ii A change in applicable requirements;
 - iii The organisation undergoes or is affected by a change in infrastructure, systems, processes, procedures, environment or organisation that may impact the safety of the ANSP's operations

e. Safety assessment process

1. Introduction
 - i The primary objective of a safety assessment is to ensure a defined level or attain a higher level of safety by assessing how a specific safety concern affects the safety of operations.
 - ii The safety assessment process includes the preparation for processing a safety concern, the safety risk management process, the verification of the adequacy of mitigation measures that may exist or be implemented to reduce the level of risk, the promulgation of safety information derived from the process and subsequent documentation and storage of the entire process.
 - iii The assessment process allows each identified hazard, and associated risk, to be evaluated in order of risk potential so that priorities can be established and, if necessary, resources can be allocated more effectively for the higher risks.
 - iv It is important that, all parties affected by or with a stake in the specific case under review are involved and can contribute to the assessment process. For example changes within an

organisation often impact several activities; therefore safety assessments for potential hazards associated with changes often need to be carried out in a cross-organisational manner, involving experts from all the involved parties, internal or external, to the organisation. Prior to the assessment, a preliminary identification of the required tasks and the organisations to be involved in the process should be conducted.

- v A safety assessment is initially composed of four basic steps:
 - (1) definition of the safety concern, root cause analysis where appropriate and identification of the relevant regulatory requirements and compliance;
 - (2) hazard identification and identification of potential consequences;
 - (3) risk assessment;
 - (4) mitigation definition, development of mitigation implementation plan, promulgation, documentation and conclusion of the assessment.
 - vi. Each one of the steps listed in (e)(1)(V) includes a number of detailed procedures, some listed here below, allowing for the full safety assessment process to be conducted. A generic safety assessment process flow chart is provided in Figure 1.
2. Definition of the safety concern, root cause analysis where appropriate and identification of the relevant regulatory requirements and compliance.
- i. The perceived safety concern is analysed to determine if it is sustained or rejected. Justification for rejecting the safety concern should be made and documented. Sustained safety concern should be precisely described, including timescales and projected phases if relevant, location, involved or affected parties, activities and entities as well as potential influence on specific processes, procedures, systems and operations.
 - ii. An initial evaluation of the compliance with the appropriate provisions in the regulations applicable to the organisation is conducted.
 - iii. In order to ensure that the safety assessment addresses the fundamental causes of the safety concern, a root cause analysis is performed and root causes are determined.
 - iv. Where special conditions are established their rationale and justification are identified, documented and taken into account in the risk assessment.
 - v. If a safety assessment has been previously conducted for similar cases (e.g. maintenance of the runway or of the visual aids) in the same context, the organisation can use some elements from these assessments as a basis for the assessment to be conducted. Nevertheless, as each assessment is specific to a particular safety concern at a given aerodrome or unit the suitability for reusing specific elements of an existing assessment is evaluated.
3. Hazard identification and identification of potential consequences
- i. To actively seek to identify safety hazards related to every aspect of the safety concern various hazard identification methods are applied. These should be conducted in a manner in which there is an acceptable level of confidence that all hazards are identified. It may be supported by brain storming sessions, expert opinion, industry knowledge, operational experience and judgement. The identification of hazards is conducted by at least considering:
 - (1) Accident causal factors and critical events based on a simple causal analysis of available accident and incident databases;
 - (2) Events that may have occurred in similar circumstances or that have been subsequent to the resolution of a similar problem.

Prior to implementing changes, hazard identification shall be conducted for potential new hazards that may emerge in the operation during or after implementation of the planned changes.
 - ii. Following the steps listed in (3)(i), for each identified hazard all potential outcomes or consequences are allocated.
 - iii. Where no hazards are identified a safety justification to support that the hazard identification process was complete and correct should be documented and stored.
4. Risk assessment overview
- i. Understanding all the risks is the basis for the subsequent evaluation of existing or potential new mitigation measures that might be needed for safe operations.
 - ii. The level of risk of each identified potential consequence is estimated in the risk assessment. This risk assessment will determine the severity of a consequence and the probability of the consequence occurring.

- iii. The appropriate safety objective for each type of risk is specified in terms of verifiable safety acceptance criteria which may be defined by:
- (1) Reference to a safety acceptance criteria associated with recognized standards and/or codes of practices;
 - (2) Reference to the safety performance of the existing system;
 - (3) Reference to the acceptance of a similar system elsewhere;
 - (4) Application of explicit safety risk levels.
- iv. Safety acceptance criteria are specified in either quantitative terms (e.g. identification of a numerical probability) or qualitative terms (e.g. comparison with an existing situation). The selection of the safety acceptance criteria is conducted according to the organisation's policy with respect to safety improvements and is justified for the specific hazard.
- v. Risk assessment
- (1) The risk assessment takes into account the probability of occurrence of a hazard and the severity of its consequences; the risk is evaluated by combining the two values for severity and probability of occurrence.
 - (2) Each identified risk must be classified by probability of occurrence and severity of impact. This process of risk classification will allow the organisation to determine the level of risk posed by a particular hazard. The classification of probability and severity refers to potential events.
 - (3) The severity classification includes five classes ranging from 'catastrophic' (class A) to 'not significant' (class E). The examples in Table 1 serve as a guide to better understand the definition.

Severity class	Definition	Examples
A (or 1) Catastrophic	<ul style="list-style-type: none"> - accident - equipment destroyed - loss of aircraft - multiple deaths 	<ul style="list-style-type: none"> - mid-air collision between aircraft - collision between aircraft and/or other object during take-off or landing
B (or 2) Hazardous	<ul style="list-style-type: none"> - a large reduction in safety margins / no safety barriers remaining - the outcome is not under control - major equipment damage - serious or fatal injury to a number of people 	<ul style="list-style-type: none"> - runway incursion, significant potential, extreme action to avoid collision) - attempted take-off or landing on a closed or engaged runway - take off / landing incidents, such as undershooting or overrunning - Controlled Flight Into Terrain is only marginally be avoided
C (or 3) Major	<ul style="list-style-type: none"> - serious incident or accident - significant reduction in safety margins - serious equipment damages - injury to persons 	<ul style="list-style-type: none"> - runway incursion, ample time and distance, (no potential for a collision) - collision with obstacle on apron/ parking position (hard collision) - employee falling down from height - near Controlled Flight Into Terrain - missed approach with ground contact of the wing ends during the touch down - large fuel puddle near the aircraft while passengers are on board
D (or 4) Minor	<ul style="list-style-type: none"> - nuisance, operations limitations - minor incident - small damages to aircraft, vehicles or objects 	<ul style="list-style-type: none"> - hard braking during landing or taxiing - damage due to jet blast (objects) - expendables are laying around - the stands - collision between maintenance vehicles on service road - breakage of drawbar during pushback (damage to the A/C) - slight excess of MTOW - aircraft is rolling into PAX-bridge (slight collision) - forklift is tilting
E (or 5) Not significant	<ul style="list-style-type: none"> - non-significant consequences - circumstances which may lead to a non-significant reduction of safety and no immediate effect on safety 	<ul style="list-style-type: none"> - increase in work load for the crew during taxiing slight increase of braking distance - hoarding is tumbling down because of strong wind - cart loosing baggage

Table 1: Severity classification scheme with examples

- (4) The classification of the severity of an event shall be based on a 'credible case' but not on a 'worst case' scenario. A credible case is expected to be possible under reasonable conditions (probable course of events). A worst case may be expected under extreme conditions and combinations of additional and improbable hazards. If worst cases are to be introduced implicitly, it is necessary to estimate appropriate low frequencies.
- (5) The probability classification includes five classes ranging from 'extremely improbable' (class 1) to 'frequent' (class 5). The examples in Table 2 serve as a guide to better understand the definition.

Probability class	Meaning	Definition
5 Frequent	Likely to occur many times (has occurred frequently)	more frequent than once in a year ($>1/y$)
4 Reasonably probable	Likely to occur some times (has occurred infrequently)	once in a year to once in 10 years ($1-0.1/y$)
3 Remote	Unlikely to occur (has occurred rarely)	once in 10 years to once in 100 years ($0.1-0.01/y$)
2 Extremely remote	Very unlikely to occur (not known to have occurred)	once in 100 years to once in 1000 years ($0.01-0.001/y$)
1 Extremely improbable	Almost inconceivable that the event will occur	less than once in 1'000 years ($<0.001/y$)

Table 2: Probability classification scheme

- (6) The probability classes presented in Table 2 are defined with quantitative limits.
 - (a) The classification refers to the probability of events per year. This is reasoned through the following:
 - (i) Many hazards at airports are not directly related to aircraft movements.
 - (ii) The assessment of risks should be conducted with the emphasis to minimise use of expert judgement by using where available, appropriate objective methods for evaluating risk.
 - (b) Frequencies per year are numbers which correspond to experience and they are easier to estimate and validate than extremely small frequencies per movement. If necessary probability per year can easily be transformed into frequencies per movement and vice versa. The following transformation rules must be considered:
 - (i) Transformation of frequencies per year to frequencies per movement:
 - 1. The estimated frequency per year shall be divided by the number of movement related to the respective hazard.
 - (ii) Transformation of frequencies per movement to frequencies per year (e.g. if generally known accident rates shall be used for the estimation of a frequency per year):
 - 1. The known frequency per movement (= rate) shall be multiplied with the related

- number of movements.
2. Example: The failure rate to pass a stop bar on a defined airport is assumed to be 10^{-4} per passage. If 10'000 aircraft will annually pass that stop bar, the frequency will be one stop bar violation per year
- (7) A risk assessment matrix may be used to classify the identified risks. The aim of the matrix is to provide means to obtain a safety risk index for each risk. The index can be used to determine tolerability of the risk and to enable the prioritisation of relevant actions in order to make a decision on risk tolerability and acceptance.
- (a) Given that the prioritisation is dependent on both probability and severity of the events, the prioritisation criteria will be two-dimensional. Three main classes of risk priority are defined:
- (i) risks with high priority;
 - (ii) risks with mean priority;
 - (iii) risks with low priority
- (b) The risk assessment matrix presented in Table 3 has no fixed limits for tolerability but points to a floating assessment where identified hazards are given risk priority for their risk contribution towards the safety of operations. For this reason, the priority classes are intentionally not edged along the probability and severity classes.
- (c) The definition of the edged limits for the probability and severity classes can be conducted by the organisation in order to establish the specific level of risk tolerability for the operations

Probability		Risk Assessment Matrix				
Frequent	5	High priority				
Reasonably probable	4					
Remote	3			Mean priority		
Extremely remote	2					
Extremely improbable	1					Low priority
Severity		A	B	C	D	E
		Catastrophic	Hazardous	Major	Minor	Not significant

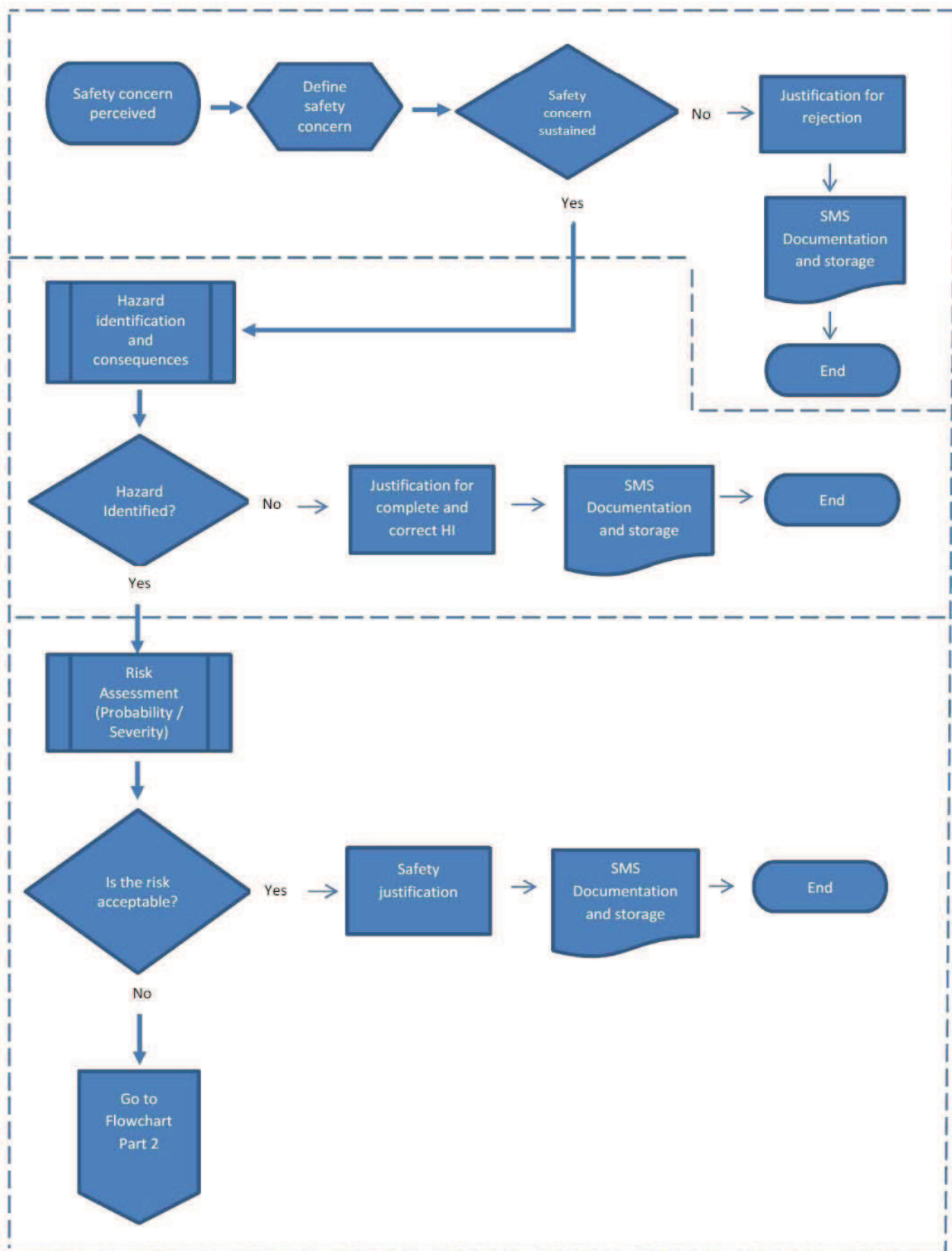
Table 3: Risk Assessment matrix with prioritisation classes

5. Mitigation, verification, promulgation, documentation and conclusion
- i. Risk mitigation
- (1) In some cases, the result of the risk assessment can be that the safety acceptance criteria are met. In such a case no specific mitigation measures are necessary and the safety assessment process can be documented and stored. In the other cases further measures, operational procedures and operating restrictions to mitigate risks may be required to reduce the frequency of the event occurring or reduce the severity of its consequences until the specified safety acceptance criteria is met.
 - (2) If the risk falls in the high priority, or mean priority areas of the assessment matrix, elimination of the hazard or other mitigation measures will be required to reduce the risk to a lower level. Mitigation measures are actions such as elimination of the risk or changes to operating procedures, equipment or infrastructure that are aimed to reduce either one or both the level of severity and the level of probability.
 - (3) As a general guideline the following actions or measures can be associated with the risk classes defined in (e)(iv)(7)(a):
 - (a) High priority: Urgent mitigation measures may be necessary and, if not already conducted, a detailed safety assessment of the specific hazard shall be performed.
 - (b) Mean priority: If mitigation measures are identified and provide adequate risk reduction,

they shall be applied. A detailed safety assessment should be performed.

- (c) Low priority: The hazard shall be further monitored
- (4) Once each hazard is identified, its consequences and associated risks shall be assessed in terms of severity and probability, it must be ascertained that all the assessed hazards are appropriately managed. The exposure to a given hazard is taken into account to decide its acceptability in terms of risk. An initial identification of existing risk mitigation measures are conducted prior to identifying additional mitigation measures.
- (5) Once the existing mitigation measures have been identified or additional mitigation measures have been defined, the level of risk needs to be reassessed in terms of severity and likelihood taking into account the further mitigation measures introduced.
- (6) All identified risk mitigation measures should be documented and included in an implementation plan. In order to control the risk during implementation, the implementation plan should include the order of implementation, timeframes for implementation, promulgation as well as responsibilities for specific mitigation measures.
- ii. Verification that the mitigation measures reduce risk to an acceptable level may require a safety justification
 - (1) Implementation should begin only after verification of the effectiveness of the mitigation measures, supported by a safety justification.
 - (2) The verification of the effectiveness of mitigation measure should be conducted with a review process, such as an inspection, audit or other means.
- iii. Promulgation to all affected personnel and other concerned parties of appropriate safety information derived from the safety assessment shall be ensured.
 - (1) In order to ensure adequate dissemination of information to interested parties, safety relevant conclusions of the safety assessment should be promulgated in the relevant documentation or information systems.
 - (2) The promulgation of this information may be done by amending the appropriate procedures in the Organisation Exposition, direct documented communication to the concerned personnel and parties, through the Aeronautical Information Publication (AIP), Notice to Airmen (NOTAM) Automated Terminal Information Service (ATIS) or by other relevant means.
- iv. Documentation and storage
 - (1) The safety assessment is documented and stored according to the organisation's SMS documentation procedures.
 - (2) The safety assessment documentation has to be accessible in its entirety and readily available to be presented to the MAA-MLD for oversight purposes.
 - (3) The safety assessment is concluded by ensuring it is referred to the appropriate regular review process.

Safety Assessment Flowchart Part 1



Safety Assessment Flowchart part 2

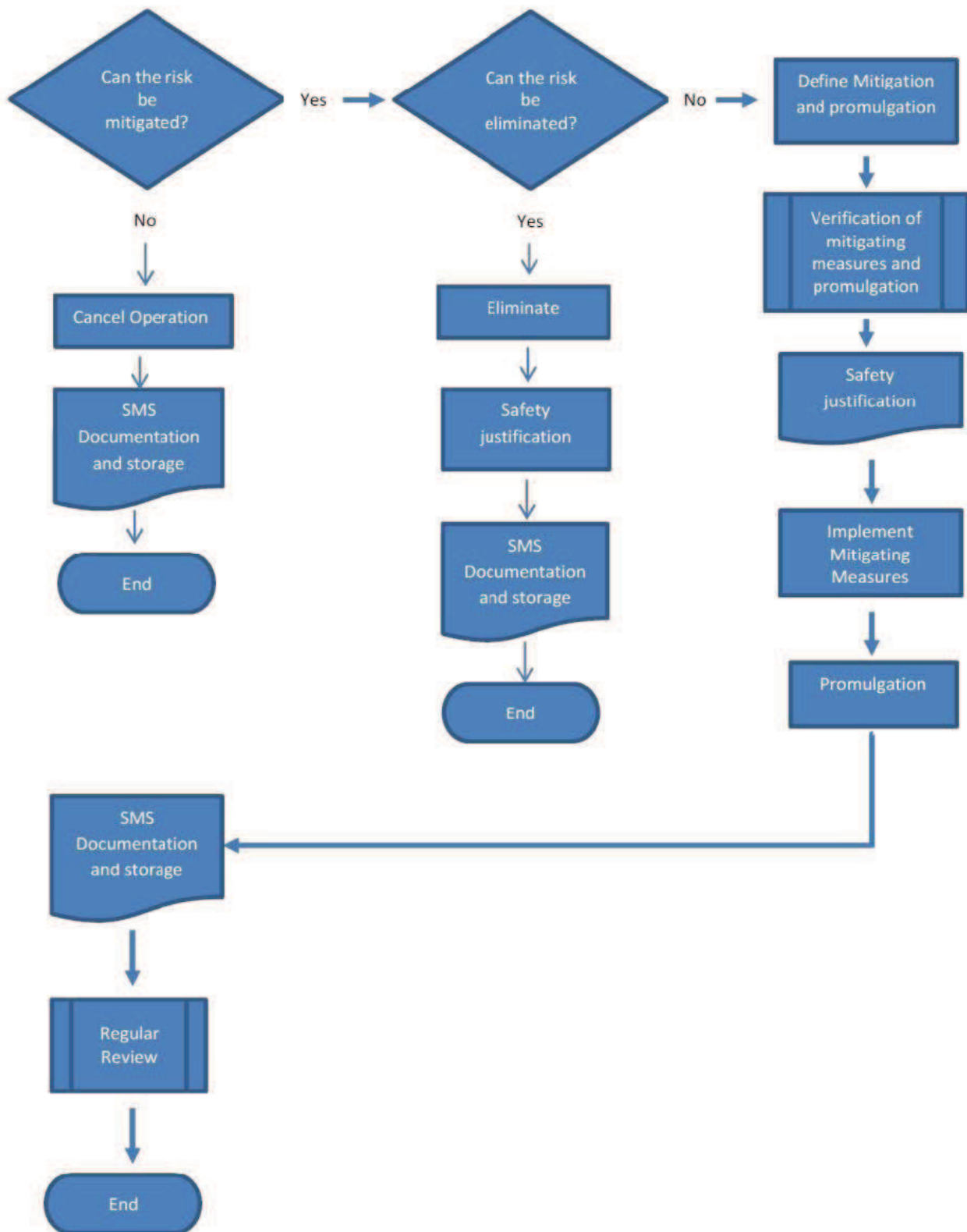


Figure 1 — Safety Assessment Process Flow Charts Part 1 and 2

- f. Regular review
 1. Changes applied after safety assessments should be reviewed at regular intervals to determine if the risk controls are still valid.
 2. If any of the factors involved in the safety assessment that was conducted have changed either the entire safety assessment or relevant parts will need to be reviewed in order to determine the new level of implied risk and adequacy of risk mitigation measures.
 3. The regular review can be included in the regular internal audit schedule or conducted through a separate review process established and documented in the Organisation Exposition.
- g. Submitting a safety assessment to the MAA-MLD
 1. A safety assessment should be registered and documented according to SMS documentation procedures and when requested for review or approval as foreseen in the applicable requirements, submitted to the MAA-MLD to show that the organisation has suitably assessed the safety concern and taken subsequent actions as appropriate for elimination or mitigation measures.

GM1.ANS.105.d.4 Hazard identification process

- a. Reactive, proactive and predictive schemes for hazard identification should be the formal means of collecting, recording, analysing, acting on and generating feedback about hazards and the associated risks that affect the safety of the operational activities.
- b. All reporting systems, including confidential reporting schemes, should include an effective feedback process.

GM2.ANS.105.d.4 Hazard identification

- a. Hazard identification may include the following factors and processes:
 1. design factors, including equipment and task design;
 2. procedures and operating practices, including their documentation and checklists, and their validation under actual operating conditions;
 3. communications, including means, terminology and language;
 4. personnel factors, such as company policies for recruitment, training, remuneration and allocation of resources;
 5. organisational factors, such as the compatibility of production and safety goals, the allocation of resources, operating pressures and the corporate safety culture;
 6. work environment factors, such as ambient noise and vibration, temperature, lighting and the availability of protective equipment and clothing;
 7. regulatory oversight factors, including the applicability and enforceability of regulations, the certification of equipment, personnel and procedures and the adequacy of oversight;
 8. defences, including such factors as the provision of adequate detection and warning systems, the error tolerance of equipment and the resilience of equipment to errors and failures; and
 9. human performance, restricted to medical conditions and physical limitations.
- b. Hazard identification may use internal and external sources.
 1. Internal sources:
 - i. voluntary occurrence reporting schemes;
 - ii. safety surveys;
 - iii. safety audits;
 - iv. normal operations;
 - v. monitoring schemes;
 - vi. trend analysis;
 - vii. feedback from training; and
 - viii. investigation and follow-up of incidents
 2. External sources:
 - i. accident reports;
 - ii. state mandatory occurrence reporting system; and
 - iii. state voluntary reporting system.
- c. The methods used for hazard identification depends on the resources and constraints of each particular organisation and on the size and the complexity of the operations. Nevertheless, hazard identification, regardless of implementation, complexity and size, is part of the organisation's safety documentation. Under mature safety management practices, hazard identification is a continuous, ongoing daily activity. It is an integral part of the organisation's processes. There are three specific conditions under which special attention to hazard identification should be paid. These three conditions should trigger more in depth and far reaching hazard identification activities and include:
 1. any time that the organisation experiences an unexplained increase in safety related events or regulatory infractions;
 2. any time major operational changes are foreseen, including changes to key personnel or other major equipment or systems; and

3. before and during periods of significant organisational change, including rapid growth or contraction, corporate mergers, acquisitions or downsizing.
- d. Hazard identification may use the following tools and techniques:
1. brainstorming, which is an unbounded but facilitated discussion with a group of experts;
 2. Hazard and Operability (HAZOP) Study, which is a systematic and structured approach using parameter and deviation guidewords. This technique relies on a very detailed system description being available for study and usually involves breaking down the system into well-defined subsystems and functional or process flows between subsystems. Each element of the system is then subject to discussion within a multidisciplinary group of experts, against the various combinations of the guidewords and deviations;
 3. checklists, which are lists of known hazards or hazard causes that have been derived from past experience. The past experience could be previous risk assessments or similar systems or operations, or from actual incidents that have occurred in the past. The technique involves the systematic use of an appropriate checklist and the consideration of each item on the checklist for possible applicability to a particular system. Checklists should always be validated for applicability prior to use;
 4. Failure Modes and Effects Analysis (FMEA), which is a 'bottom up' technique, used to consider ways in which the basic components of a system can fail to perform their design intent. The technique relies on a detailed system description and considers the ways in which each sub-component of the system could fail to meet its design intent and what the consequences could be for the overall system. For each sub-component of a system the FMEA should consider:
 - i. all the potential ways that the component could fail;
 - ii. the effects that each of these failures would have on the system behaviour;
 - iii. the possible causes of the various failure modes;
 - iv. how the failures might be mitigated within the system or its environment.
 The system level at which the analysis is applied can vary and is determined by the level of detail of the system description used to support the analysis. Depending on the nature and complexity of the system, the analysis could be undertaken by an individual system expert or by a team of system experts acting in group sessions.
 5. the Structured What-If Technique (SWIFT) is a simple and effective alternative technique to HAZOP and involves a multidisciplinary team of experts. It is a facilitated brainstorming group activity but is typically carried out on a higher level system description, having fewer sub-elements, than for HAZOP and with a reduced set of prompts.
- e. Identified hazards are registered in a hazard log. The nature and format of such log may vary from a simple list of hazards to a more sophisticated relational database linking hazards to mitigations, responsibilities and actions. The following information may be included in the hazard log:
1. unique hazard reference number against each hazard;
 2. hazard description;
 3. indication of the potential causes of the hazard;
 4. qualitative assessment of the possible outcomes and severities of consequences arising from the hazard;
 5. qualitative assessment of the risk associated with the possible consequences of the hazard;
 6. description of the risk controls for the hazard;
 7. indication of responsibilities in relation to the management of risk controls.
- f. Additionally, the following information may also be included in the log:
1. a quantitative assessment of the risk associated with the possible consequences of the hazard;
 2. record of actual incidents or events related to the hazard or its causes;
 3. risks tolerability statement;
 4. statement of formal system monitoring requirements;
 5. indication of how the hazard was identified;
 6. hazard owner;
 7. assumptions;
 8. Third party stakeholders.

GM3.ANS.105.d.4 Hazard identification - indicators

a. PROACTIVE (LEADING) INDICATORS:

1. Metrics that measure inputs to the safety system (either within an organisation, a sector or across the total aviation system) to manage and improve safety performance.
2. Proactive indicators indicate good safety practices being introduced, developed and adapted, which by their inclusion seek to establish a proactive safety environment that engenders continuous

improvement. They provide useful information when accident and incident rates are low to identify latent hazards and potential threats, and consequent opportunities for improvement.

3. There should always be a connection between a proactive indicator and the unwanted outcomes (or reactive indicators) that their monitoring is intended to warn against.
- b. **REACTIVE (LAGGING) INDICATORS:**
 1. Metrics that measure events that have already occurred and that impact on safety performance.
 2. As reactive indicators only reflect system failures their use can only result in determining a reactive response. Although they do measure failure to control hazards, they do not normally reveal why the system failed or if there are any latent hazards.
- c. **PREDICTIVE INDICATORS (PRECURSOR EVENTS):**
 1. These metrics can be considered as Indicators that do not manifest themselves in accidents or serious incidents. They indicate less severe system failures or 'near misses', which when combined with other events may lead to an accident or serious incident.
 2. In a large organisation, a mature safety management system should include all of these measures. Risk management effort, however, should be targeted at Leading Indicators and Precursor Events.

Further guidance on hazard identification is contained in ICAO Doc 9859.

GM4.ANS105.d.4 Safety risk assessment and mitigation

- a. A formal safety risk assessment and mitigation process should be developed and maintained that ensures analysis (in terms of probability and severity of occurrence), assessment (in terms of tolerability) and control (in terms of mitigation) of risks.
- b. The levels of management who have the authority to make decisions regarding the tolerability of safety risks, in accordance with (a) above, should be specified in the organisation exposition.
- c. Safety risk assessment is the analysis of the safety risks of the consequences of the hazards that have been determined. Safety risk analysis breaks down the risks into two components — the probability of occurrence of a damaging event or condition and the severity of the event or condition, should it occur. Safety risk decision making and acceptance should be specified through a risk tolerability matrix. The definition and final construction of the matrix should be left to the operator to design, be documented in the organisation exposition and be subject to an approval by the MAA-MLD.

Further guidance on safety risk assessment is contained in ICAO Doc 9859.

GM.ANS.105.e.2 Safety communication

- a. The organisation should communicate safety management system objectives and procedures to all operational personnel, and the SMS should be visible in all aspects of operations.
- b. Communication should flow between the safety manager and operational personnel throughout the organisation.
- c. Safety communication should aim to:
 1. ensure that all staff are fully aware of the safety management system;
 2. convey safety-critical information;
 3. explain why particular actions are taken;
 4. explain why safety procedures are introduced or changed.

GM.ANS.105.e.1/3 Just culture

The safety policy should actively encourage effective safety reporting and, by defining the line between acceptable performance (often unintended errors) and unacceptable performance (such as negligence, recklessness, violations or sabotage), provide fair protection to reporters. A safety or just culture may not however preclude the 'criminalisation of error', which is legally, ethically and morally within the sovereign rights of any Member State, provided Community law and established international agreements are observed. A judicial investigation, and consequences of some form, may be expected following an accident or serious incident especially if a system failure resulted in lives lost or property damaged, even if no negligence or ill-intent existed. A potential issue could therefore exist if voluntary hazard reports, which relate to latent deficiencies of a system or its performance, are treated in the same way as those concerning accident and serious incident investigations. The intent of protecting hazard reports should not challenge the legitimacy of a judicial investigation or demand undue immunity. However, legal argument does usually take precedence over any technical or safety-related argument

ANS.110 Organisation Exposition

GM.ANS.110 Organisation Exposition - General

- a. The organisation exposition may vary in detail according to the complexity of the operation and services of the ANSP.
- b. The Organisation Exposition or parts of it may be presented in any form, including electronic form. In all cases, the accessibility, usability and reliability should be assured.
- c. The organisation exposition should be such that:
 - 1. all parts of the manual are consistent and compatible in form and content;
 - 2. the manual can be readily amended; and
 - 3. the content and amendment status of the manual is controlled and clearly indicated.
- d. The organisation exposition should include a description of its amendment and revision process specifying:
 - 1. the person(s) who may approve amendments or revisions;
 - 2. the conditions for temporary revisions and/or immediate amendments or revision required in the interest of safety; and
 - 3. the methods by which all personnel and organisations are advised of changes to the organisation exposition.
- e. The organisation exposition may contain parts of, or refer to other controlled documents, such as equipment manuals, which are available for use by the personnel.

Subpart E – Specific requirements for the provision of air traffic services

ANS.120 Safety requirements for risk assessment and mitigation with regard to changes in the functional system

GM.ANS.120 Safety requirements for risk assessment and mitigation with regard to changes in the functional system

- a. A safety argument is developed by the service provider to demonstrate and to provide evidence that a proposed change can be implemented safely, i.e. within tolerable levels of safety. The service provider conducts specific procedures to produce that demonstration, notably a full risk assessment and mitigation process is conducted in accordance with ESARR 4.
- b. The safety argument is formed by:
 1. All the safety-related conditions that exist with regard to a system or change;
 2. Other outputs of the risk assessment and mitigation process, such as lists of hazards that are used within the process to derive safety-related conditions;
 3. Demonstration and evidence that those safety-related conditions have been properly derived in a process compliant with ESARR 4;
 4. Demonstration and evidence that the safety-related conditions are effective to meet the safety objectives identified in the risk assessment and mitigation process, and that they will continue to be met;
 5. That the safety-related conditions are effectively implemented, and will continue to be implemented.

GM.ANS.120.a. System description

- a. A system description is the first prerequisite for the development of an SMS in an organization. Every system contains inherent potential safety vulnerabilities, which are characterized in terms of hazards. The hazard identification process can identify only hazards that come within the scope of the system description. The boundaries of the system, as per its formal description, must therefore be sufficiently wide to encompass all possible hazards that the system could confront or generate. In particular, it is important that the description includes the interfaces within the system, as well as the interfaces with the larger systems of which the system being assessed is a part.
- b. In formal or technical terms, a system description in aviation should include the following:
 1. system interactions with other systems in the air transportation system;
 2. system functions;
 3. required human performance considerations for system operation;
 4. hardware components of the system;
 5. software components of the system, including related procedures that define guidance for the operation and use of the system;
 6. the operational environment; and
 7. contracted and purchased products and services.
- c. A detailed description of the system should include:
 1. the purpose of the system;
 2. how the system will be used;
 3. the system's functions;
 4. the system's boundaries and the external interfaces; and
 5. the environment in which the system will operate.
- d. The safety consequences of a potential loss or degradation of the system will be determined, in part, by the characteristics of the operational environment in which the system will be integrated. The description of the environment should therefore include any factors that could have a significant effect on safety. These factors will vary from one organization to another. They could include, for example, air and ground traffic characteristics, aerodrome infrastructure and weather-related factors. The description of the system should also address contingency procedures and other non-normal operations, for example, failure of communications or navigation aids.

GM.ANS.120.b Hazard identification, risk assessment and mitigation processes

See:

- **GM1.ANS.105.d.3 The management of change**
- **GM2.ANS.105.d.3 Safety assessment for a change**
- **GM3.ANS.105.d.3 Scope of the safety assessment**
- **GM4.ANS.105.d.3 Safety assessment for risk management**

GM.ANS.120.c Risk assessment and mitigation

See:

- **GM4.ANS.105.d.3 Safety assessment for risk management** Mitigation, verification, promulgation, documentation and conclusion

GM.ANS.120.d Hazard severity classification

See

- **GM.4.ANS.105.d.3 Safety assessment for risk management** 4. Risk assessment overview
- **GM.1.ANS.105.d.4 Hazard identification process**
- **GM.2.ANS.105.d.4 Hazard identification**
- **GM3.ANS.105.d.4 Hazard identification – indicators**

GM.ANS.120.e Safety objectives

- a. The safety objectives must identify what the organization wants to achieve, in terms of the management of safety, and lay out the steps the organization needs to take to achieve the objectives.
- b. Establish safety objectives for the SMS, by developing safety performance standards in terms of:
 1. safety performance indicators;
 2. safety performance targets; and
 3. action plans.

ANS.125 Working methods and operational procedures

GM.ANS.125 Compliance with ICAO Annexes and NATO STANAGS

This requirement addresses the need for providing evidence that the working methods and operating procedures are compliant with relevant ICAO standards (Annex 2, Annex 10 - Volume 2, and Annex 11), NATO Standardization Agreements (NATO STANAGS) and that any deviations were published by ICAO or NATO.

This is to prove that methods and procedures are compliant with the relevant ICAO Standards, NATO STANAGS or with a difference from the Standards duly notified to ICAO or NATO by the State concerned and which are then published in a supplement to the ICAO Annex or STANAG and in the State's AIP.

- a. The organization should establish working methods and operating procedures in accordance with the relevant ICAO Standards, NATO STANAGS and the applicable differences;
- b. The organization should have documented working methods and operating procedures with references to ICAO standards or NATO STANAGS;
- c. The organization should, by means of evidence, provide a review to the MAA-NLD regarding compliance with ICAO and NATO STANAG working methods and operating procedures.

Additional information:

EAM 1/ GUI 7 "Guidance on the Criteria for the Assessment of Compliance with the Standards of ICAO Annex 11" Edition 1.0, provides comprehensive guidance on possible evidence to show compliance with the ICAO Annex 11 standards and

Subpart F - Specific requirements for the provision of meteorological services

ANS.130 Technical and operational competence and capability

GM.ANS.130 Technical and operational competence and capability

A provider of meteorological services should have in place a system for receiving and/or originating, collating or assembling, editing, formatting, publishing/storing and distributing meteorological information/data in accordance with the specifications given by the NSA. A provider of meteorological services should establish procedures for regular verification of the availability and suitability and, when necessary, for corrective action.

ANS.135 Working methods and operating procedures

GM.ANS.135 Compliance with ICAO annexes and NATO STANAGS

This requirement addresses the need for providing evidence that the working methods and operating procedures are compliant with relevant ICAO standards (Annex 3, Annex 11, and Annex 14), NATO Standardization Agreements (NATO STANAGS) and that any deviations were published by ICAO or NATO.

This is to prove that methods and procedures are compliant with the relevant ICAO Standards, NATO STANAGS or with a difference from the Standards duly notified to ICAO or NATO by the State concerned and which are then published in a supplement to the ICAO Annex or STANAG and in the State's AIP.

- a. The organization should establish working methods and operating procedures in accordance with the relevant ICAO Standards, NATO STANAGS and the applicable differences;
- b. The organization should have documented working methods and operating procedures with references to ICAO standards or NATO STANAGS;
- c. The organization should, by means of evidence, provide a review to the MAA-NLD regarding compliance with ICAO and NATO STANAG working methods and operating procedures.

Additional Information

ICAO Annex 14 is relevant only to a limited extent (e.g. concerning the placement of meteorological equipment at aerodromes).

Subpart G Specific requirements for the provision of aeronautical information services

ANS.140 Technical and operational competence and capability

GM.ANS.140 Technical and operational competence and capability

AISP should have in place a system for receiving and/or originating, collating or assembling, editing, formatting, publishing/storing and distributing aeronautical information/data in accordance with the specifications given by the NSA. AISP should establish procedures for regular verification of the availability and suitability and, when necessary, for corrective action.

ANS.145 Working methods and operating procedures

GM.ANS.145 Compliance with ICAO annexes and NATO STANAGS

This requirement addresses the need for providing evidence that the working methods and operating procedures are compliant with relevant ICAO standards (Annex 3, Annex 4, and Annex 15), NATO Standardization Agreements (NATO STANAGS) and that any deviations were published by ICAO or NATO.

This is to prove that methods and procedures are compliant with the relevant ICAO Standards, NATO STANAGS or with a difference from the Standards duly notified to ICAO or NATO by the State concerned and which are then published in a supplement to the ICAO Annex or STANAG and in the State's AIP.

- a. The organization should establish working methods and operating procedures in accordance with the relevant ICAO Standards, NATO STANAGS and the applicable differences;
- b. The organization should have documented working methods and operating procedures with references to ICAO standards or NATO STANAGS;
- c. The organization should, by means of evidence, provide a review to the MAA-NLD regarding compliance with ICAO and NATO STANAG working methods and operating procedures.

Additional information

There are no requirements in Annex 3 relevant for AIS EUROCONTROL Guidance material is available on the Internet at: <http://www.eurocontrol.int/ais/> -> Projects -> AIS Data & Procedures improvement

Subpart H Specific requirements for the provision of communication, navigation and surveillance services

ANS.150 Technical and operational competence and capability

GM1.ANS.150.a Ground-Ground ATS Voice Communications

The Ground-Ground ATS Voice Communications shall meet the requirements, which are referred to ICAO Annex 10 VIII, Part II, Chapter 4 (Aeronautical Speech Circuits). Although, not legally mandatory, it is also advisable to consider the associated requirements for the availability, continuity, accuracy and integrity of the Ground-Ground ATS Voice Communications are stated in the various in place documents of ICAO SARPS and Docs, ITU and ETSI standards, EUROCONTROL Guidelines and EU rules.

- a. The Ground-Ground ATS Voice Communications should meet the requirements, which are referred to:
 1. ICAO Annex 10 VIII, Part II, Chapter 4 (Aeronautical Speech Circuits);
- b. Although not mandatory in the certification exercise, the following set of documentation can also be considered:
 1. ICAO Doc 9804: Manual on Air Traffic Services (ATS) Ground-Ground Voice Switching and Signalling (In particular Par. 2.1.6, 2.2 and 2.8);
 2. EUROCONTROL: ATS Voice Network Implementation and Planning Guidelines- Edition 1.0 January 2005;
 3. EUROCONTROL: Voice Communication System Procurement Guidelines – Edition 2.0 January 2005 (In particular Pars. 1.3., 1.4., 1.7., 1.11.);
 4. EUROCONTROL: ATS R2 and ATS No5 signalling protocol specifications – Edition 2.0 June 2005;
 5. EUROCONTROL: Inter-working between ATS-QSIG and ATS R2 signalling system - Edition 1.0 January 2005;
 6. EUROCONTROL: Inter-working between ATS-QSIG and ATS Number 5 signalling systems – Edition 1.0.
- c. The organization should:
 1. Provide demonstration of the equipment and redundant network configuration (Implement appropriate redundant VCS equipment and network configuration (pass-by and back-up facilities, hot stand-by links, etc);
 2. Have documentation available (Configuration Diagrams, Availability Calculations, etc.);
 3. Provide theoretical calculations of the availability of various telecommunications means (Availability's calculations should be made in order to assess and prove that associated figures required are met);
 4. Keep records on statistical data on the availability in practice. Calculations should be in line with the attachment F of Annex 10, Volume I;;
 5. Provide evidence and investigation reports;
 6. Implement Safety and Functional Hazard Assessments (FHA) for VCS and telephone lines;
 7. Have documented risks mitigation procedures in place;
 8. Set up Service Level Agreements with adjacent ATS Units and as well between the Technical CNS Supporting Units and Operational Unit within the same ATS units.

GM2.ANS.150.a Air-Ground ATS Voice and Data Communications

The highest possible availability, continuity, accuracy and integrity of the Air-Ground ATS Voice and Data Communications shall meet the requirements, which are referred to ICAO Annex 10 V III, Part II, Chapters 2 and 5 (Aeronautical Mobile Service). Although, not legally mandatory, it is also advisable to consider the associated requirements of ICAO SARPS, ITU and ETSI standards, EUROCONTROL Guidelines and EU rules. Also, common and best practice configurations can be met.

- a. The Air-Ground ATS Voice or Data Communications shall meet the requirements, which are referred to:
 1. ICAO Annex 10 V III, Part II, Chapters 2 and 5 (Aeronautical Mobile Service).
- b. Although not mandatory in the certification exercise, the following other set of documentation can also be considered:

1. ICAO Doc 9739: Comprehensive Aeronautical Telecommunication Network (ATN) Manual.;
2. ICAO Doc 9705: Manual of Technical Provisions for the Aeronautical Telecommunication Network (ATN), 3rd Ed.;
3. ICAO Doc 9705: Manual of Technical Provisions for the Aeronautical Telecommunication Network (ATN), 3rd Ed., Volume II Air-Ground Applications;
4. ICAO Doc 9816: Manual on VHF Digital Link (VDL) Mode 2, 1st Ed. 2004;
5. ICAO Doc 9776: Manual on VHF Digital Link (VDL) Mode 4, 1st Ed. 2004;
6. RTCA DO-224A VDL Mode 2 MASPS: Signal-In-Space Minimum Aviation System Performance Standards (MASPS) for Advanced VHF Digital Data Communications including compatibility with Digital Voice Techniques, Ed.1
7. ETSI Standard ETSI ETS 300 676, Ed. 1: Radio Equipment and Systems (RES); Radio transmitters and receivers at aeronautical stations of the aeronautical mobile service operating in the VHF band (118 MHz -137 MHz) using amplitude modulation and 8,33 kHz channel spacing; Technical characteristics and methods of measurement;
8. ETSI Standard, ETSI ETS 300 676, V1.3.1.: Electromagnetic compatibility and Radio spectrum Matters (ERM);Ground-based VHF hand-held, mobile and fixed radio transmitters, receivers and transceivers for the VHF aeronautical mobile service using amplitude modulation; Technical characteristics and methods of measurement;
9. ETSI Standard, ETSI ETS 301 842-1, V1.1.1.:Electromagnetic compatibility and Radio spectrum Matters (ERM);Ground-based VHF Air-Ground Data Link (VDL) Mode 4 radio equipment, Technical characteristics and methods of measurement for ground based equipment, Parts 1, 2, 3, and 4;
10. ETSI Standard, ETSI EN 301 841-1 V1.2.1.: Electromagnetic compatibility and Radio spectrum Matters (ERM);VHF air-ground Digital Link (VDL) Mode 2; Technical characteristics and methods of measurement for ground based equipment, Part 1: Physical layer and MAC sublayer;
11. ETSI Standard, ETSI EN 301 841-2 V1.1.1: Electromagnetic compatibility and Radio spectrum Matters (ERM); VHF air-ground Digital Link (VDL) Mode 2; Technical characteristics and methods of measurement for ground based equipment; Part 2: Upper layers.

c. The organisation should:

1. implement appropriate redundant radio equipment and network configuration (back-up radios, hot stand-by links, etc.);
2. ensure that availability's calculations are made in order to assess and prove that associated figures required have been met and provide statistical data on the availability in practice;
3. ensure that at least double full coverage (two sites) is implemented for each channel (frequency) of the area of the responsibility;
4. develop and implement associated studies on frequency management and physical separation of the various radiation means (antennae) to avoid interference from collocated emissions in sites.
5. implement VHF/AM Radios Safety and Functional Hazard Assessment;
6. apply documented procedures on risk mitigations.

GM.3.ANS.150.a Ground-Ground ATS Data Communications

The availability, continuity, accuracy and integrity of the Ground-Ground ATS Data Communications shall meet the requirements , which are referred to ICAO Annex 10 V II, Chapter 3, Pars: 3.2., 3.3. (General Procedures for the International Aeronautical Telecommunication Service). Although, not legally mandatory , it is also advisable to consider the associated requirements of ICAO SARPS, ITU and ETSI standards, EUROCONTROL Guidelines and EU rules.

a. The Ground-Ground ATS Data Communications shall meet the requirements, which are referred to:

1. ICAO Annex 10 V II, Chapter 3, Pars: 3.2., 3.3. (General Procedures for the International Aeronautical Telecommunication Service).

b. Although not mandatory in the certification exercise, the following other set of documentation can also be considered:

1. LCIP Objectives; COM 04 (Migrate flight data exchange from X.25 to TCP/IP) and COM05 (Migrate from AFTN/CIDIN to AMHS for International Communications), ECIP 2006-10 Detail Objective Descriptions;
2. EUROCONTROL Guidelines for Implementation Support (EGIS), Part 5, Chapter 13 (Flight Message Transfer Protocol (FMTP), Ed. 1.0 22 April 2005;
3. ICAO Doc 9739: Comprehensive Aeronautical Telecommunication Network (ATN) Manual, Part III, Chapter 6, 7, Part IV;
4. ICAO Doc 9705: Manual of Technical Provisions for the Aeronautical Telecommunication Network (ATN), 3rd Ed., Volume III: Ground-Ground Applications;

- c. The organisation should:
 1. implement appropriate redundant radio equipment and network configuration (back-up radios, hot stand-by links, etc.);
 2. ensure that availability calculations are made in order to assess and prove that associated figures required have been met and provide records on statistical data on the availability in practice.
 3. implement systems' Safety and Functional Hazard Assessment (SSA, FHA);
 4. apply documented procedures on risk mitigations.
 5. make clear plans and start implementation of the COM 04 and COM05 LCIP Objectives.

GM4.ANS.150.a Navigation services

The availability, continuity, accuracy and integrity of the Navigation Services shall meet the requirements, which are referred to in the ICAO Annexes. Although, not be legally speaking mandatory, it is also advised to consider the associated relevant requirements stated in the various in place documents of ICAO SARPS and Docs, EUROCAE/RTCA documents, EUROCONTROL Guidelines and EU rules.

- a. The Navigation Services and supporting systems shall meet the requirements, which are referred to in:
 1. ICAO Annex 10 Volume I, Radio Navigation Aids (all chapters) and Volume V, Aeronautical Radio Frequency Spectrum Utilization (chapter 3 and chapter 4, sections 4.2,4.3, 4,4);
 2. ICAO Annex 2, Rules of the Air;
 3. ICAO Annex 11, Air Traffic Services;
 4. ICAO Annex 15, Aeronautical Information Services;
 5. ICAO Doc 4444, Rules of the Air and Air Traffic Services
- b. Although not mandatory in the certification exercise, the following other set of documentation can also be considered:
 1. ICAO Doc 9613 - AN/937 "Manual on Required Navigation Performance
 2. ICAO Document 9650 – SP COM/OPS/95 – Report on the Special Communications/Operations Divisional Meeting (1995) Agenda Item No.4- Appendix A – Description of Proposed Required Navigation Performance (RNP) Concept for Approach, Landing and Landing Operations ;
 3. ICAO Doc 8168 "Procedures for Air Navigation Services -- Aircraft Operations (PANS-OPS)";
 4. ICAO EUR Doc 7754, European Region Air Navigation Plan;
 5. ICAO EUR Doc 7030, Regional Supplementary Procedures;
 6. ICAO EUR Doc 001, Guidance Material on the Application of Area Navigation (RNAV) in the EUR Region, Fifth Edition;
 7. EUR Doc 016 "European Guidance Material on Integrity Demonstration in Support of Certification of ILS and MLS Systems;
 8. RTCA Do 236/EUROCAE ED-75, Minimum Aviation System Performance Standards (MASPS) for RNP Area Navigation;
 9. JAA Administrative & Guidance Material, Section One: General Part 3: Temporary Guidance Leaflet No 2 (rev 1) – AMJ 20-X2 – JAA Guidance Material on Airworthiness Approval and Operational Criteria for the use of Navigation Systems in European Airspace Designated for Basic RNAV Operations. (JAA TGL No.2);
 10. JAA Administrative & Guidance Material, Section One, General Part 3: Temporary Guidance Leaflet No. 10 – Airworthiness and Operational Approval for Precision RNAV Operations in Designated European Airspace;
 11. EUROCAE ED-76 / RTCA DO-200A – Standards for Processing Aeronautical Data;
 12. JAA Administrative & Guidance Material, Section One, General Part 3: Temporary Guidance Leaflet No. 9 – Recognition of EUROCAE Document ED 76 (RTCA DO 200A) – Standards for Processing Aeronautical Data;
 13. EUROCONTROL RNAV Standard 003-93, edition 2.2;
 14. EUROCONTROL Guidance Material for Flight Inspection of RNAV Procedures, edition 3, March 2005;
 15. LCIP Objectives; NAV 03 (Implementation of Precision Area Navigation RNAV (P-RNAV) as an interim step towards Required Navigational Performance Area Navigation (RNP RNAV), NAV06 (Rationalisation of the Navigation Infrastructure), ECIP 2006-10 Detail Objective Descriptions.
- c. The organisation should:
 1. implement appropriate and redundant radio navigation equipment and data transmission configuration;
 2. ensure that availability and accuracy calculations are made in order to assess and prove that associated figures required have been met;

3. theoretical coverage diagrams and other theoretical performance analyses are carried out before the implementation;
 4. flight inspection of navigation facilities and/or procedures is carried out before the implementation;
 5. implement Safety and Functional Hazard Assessment (SSA, FHA); and System Safety Assessment (SSA);
 6. apply documented procedures on risk mitigations;
 7. keep records on statistical data on the availability in practice. Calculations should be in line with the Attachment F of Annex 10, Volume I;
 8. show clear plans and actions being taken for the implementation of the NAV03 where applicable.
- d. Possible evidence of compliance:
1. demonstration of the equipment and its built-in redundancy capabilities;
 2. demonstration that all essential functions of the equipment are monitored and that Maintenance personnel are immediately informed of anomalies;
 3. regular checks of the equipment are made in co-operation with Technical and/or Operational Staff and where necessary on request;
 4. there is a Maintenance Organisation in place capable of supporting the Navigation equipment (if applicable);
 5. records of Acceptance Tests (Factory, Site and Handover to ATC);
 6. records that the equipment under test has met the requirements for detection, coverage, accuracy, resolution, availability etc. as described in points 4 and 5 of the Criteria of Eligibility above. Where necessary these records shall be supported by special Calibration Flights and Endurance Tests;
 7. records of flight inspections, demonstrating that the equipment and/or procedures meet the requirements set out in points 2, 3, and 4;
 8. full Documentation is available (Configuration Diagrams, Availability Calculations, Training Manuals, Maintenance Records (preventive and corrective) etc.);
 9. theoretical calculations of the required availability were made using recommended methodologies or acceptable alternatives;
 10. records on statistical data on the availability in practice (these shall include MTBF, MTBO, etc.);
 11. there is a Logistic Support Organisation in place (A full complement of Spares, a Spares replacement programme, Technical Support);
 12. evidence and investigation reports;
 13. Systems Safety and Functional Hazard Assessment in place;
 14. Documented risks mitigation procedures in place;
 15. plans and actions being taken for the implementation of the NAV 03 LCIP Objective (where applicable).
 16. bilateral Service Level Agreements are in place between Technical CNS Supporting Unit(s) and Operational Unit(s) of the same ATS unit, as well as with Service Providers of adjacent States, to ensure that there is a redundant source of navigation data (duplicated coverage of the area of interest at least).

GM5.ANS.150.a Surveillance Services

The associated requirements for the availability, continuity, accuracy and integrity of Surveillance services shall meet the requirements, which are referred to in the ICAO Annexes. Although, not legally mandatory, it is also advisable to consider the associated relevant requirements distributed and stated in the various in place documents of ICAO SARPS and Docs, ITU and ETSI standards, EUROCONTROL Guidelines and EU rules.

- a. The Surveillance systems should meet the requirements, which are referred to in:
 1. ICAO Annex 10 Volume IV, Surveillance Radar and Collision Avoidance Systems (all Chapters).
- b. Although not mandatory in the certification exercise, the following other set of documentation can also be considered:
 1. LCIP Objectives SUR01 (Implement dual Secondary Surveillance Radar (SSR) Coverage, SUR02 (Implement Mode S elementary surveillance (in applicable areas)), SUR03 (implement radar data processing and distribution systems), SUR04 (Implement Mode-S enhanced surveillance (in applicable areas));
 2. ICAO Doc 8071, Volume III (Testing of Surveillance Radar Systems);
 3. EUROCONTROL Standard Document for Radar Surveillance in En-Route Airspace and Major Terminal Areas (Ref SUR.ET1.1000-STD-01-01);
 4. EUROCONTROL Document Radar Performance Analysis (Ref. SUR-ET1.ST03.1000-01-01) Dated June 1997;

5. ICAO Document 7192, Training Manual : ATS Electronic Personnel (ANTSEP), Preliminary Edition, 2004;
 6. ICAO Document 9735 Safety Oversight Manual.
- c. The organisation should:
1. implement appropriate data Surveillance equipment and data transmission configuration (Bypass and back-up facilities, hot stand-by systems, etc.).
 2. ensure that theoretical coverage diagrams and other theoretical performance analyses are carried out before the implementation;
 3. ensure that availability calculations are made in order to assess and prove that associated figures required have been met;
 4. implement Safety and Functional Hazard Assessment (FHA) and System Safety Assessment (SSA);
 5. apply documented procedures on risk mitigations;
 6. keep records on statistical data on the availability in practice. Calculations should be in line with the attachment F of Annex 10, Volume I
- d. Possible evidence of compliance:
1. demonstration of the equipment and its built-in redundancy capabilities;
 2. demonstration that all vital functions of the equipment are constantly monitored and that Maintenance personnel are immediately informed of anomalies;
 3. regular checks of the equipment are made in co-operation with Operational Staff and where necessary on request;
 4. there is a Maintenance Organisation in place capable of supporting the Surveillance equipment;
 5. records of Acceptance Tests (Factory, Site and Handover to ATC);
 6. records that the equipment under test has met the requirements for detection, coverage, accuracy, resolution, availability etc. as described in points 4 and 5 of the Criteria of Eligibility above. Where necessary these records shall be supported by special Calibration Flights and Endurance Tests;
 7. full Documentation is available (Configuration Diagrams, Availability Calculations, Training Manuals, Maintenance Records (preventive and corrective) etc.);
 8. theoretical calculations of the required availability were made using as a minimum the Buzacott methodology prior to the implementation of the equipment;
 9. records on statistical data on the availability in practice (this shall include MTBF, MTTR, MDT etc.);
 10. there is a Logistic Support Organisation in place (A full complement of Spares, a Spares replacement programme, Technical Support;
 11. evidence and investigation reports;
 12. Safety and Functional Hazard Assessment measures in place;
 13. documented risks mitigation procedures in place;
 14. bilateral Service Level Agreements are in place with adjacent ATS units, as well internally within the same ATS Unit to ensure that there is a redundant source of Surveillance data (duplicated coverage of the area of interest at least).

Additional information:

Point 3 of Evidence assumes that the techniques described in the document EUROCONTROL Standard Document for Radar Surveillance in En-Route Airspace and Major Terminal Areas (Ref SUR.ET1.1000-STD-01-01)": are used (SASS-C and SASS-S equipment or similar equipment capable of verifying the performance, with opportunity traffic). The successful implementation (i.e. "Completed) of the LCIP SUR objectives SUR 01, 02, 03, and 04, together with SAF 01, 02, 03, 04 and 05, ATC06 and SRC 03, 04, 05.1 imply automatically that the overall availability and reliability of the Surveillance System meets the requirements of the guidance material.

GM.ANS.150.b. Quality of services

The Quality of Services is related to the parameter figures for all the ATS communication, navigation and surveillance equipment, which can guarantee the achievement of an accepted level of performance.

Those parameters are referred to the various documents in place, ICAO SARPS, manuals, ETSI standards and ITU standards, EUROCONTROL guidelines and EU Rules. The associated documentation is mentioned in the CNSPCRA5.1 para. 1. above (Criteria of Eligibility) for each type of communication.

- a. The ANSP should have all means to be able to identify, validate, confirm, maintain and demonstrate

the aforesaid figures.

- b. Criteria to be checked could be the conformance of the ATS Communications measurable parameter figures with ones provided in the associated documentation mentioned in the analysis of the requirement.
- c. The organisation should:
 - 1. Have documentation available (Operations Manual, which essential performance figures of the most important technical parameters of the equipment, Preventive and Corrective Maintenance Procedures in place, Configuration/Change and Problem Management, etc.);
 - 2. Provide demonstration in professional way of the equipment and where applicable, network configuration and technical characteristics (Diagrams, tables, etc.);
 - 3. Provide evidence of investigation/anomaly reports;
 - 4. associate Bilateral Service Level Agreements with adjacent ATS units, as well internally within the same ATS Unit should be in place.
- d. Possible evidence of compliance:
 - 1. Define figures of the QoS parameters of the various ATS communication, navigation or surveillance equipment and specially to those specified in the ICAO SARPS, ITU Recommendations, ETSI Standards and Eurocontrol associated Guidelines;
 - 2. Set up documented procedures concerning measurements of the various equipment QoS parameters defined;
 - 3. Develop and implement documented procedures for regular preventive and corrective maintenance of the various equipment;
 - 4. Develop and implement documented procedures for the regular calibration of tools and test equipment used for the corrective and preventive maintenance of the equipment;
 - 5. Develop an Operations Manual for the CNS Unit and associated SW databases and tools for day to day work;
 - 6. There is a Logic Support Organisation in place (a full complement of Spares, a Spares replacement programme, Technical Support contracts, a Configuration/ Change and Problem Investigation/Management Management organisation exists)

ANS.160 Working methods and operating procedures

GM.ANS.160 Compliance with ICAO Annexes and NATO STANAGS

This requirement concerns the competence of the organisation to professionally demonstrate that the procedures and working methods, from operational and technical point of view, in place are sufficient to meet and in some areas to exceed and maintain all the related standards of Annex 10 and NATO Standardization Agreement (NATO STANAG) 3374.

This is to prove the conformance of the specified ATS System operating procedures and day to day working methodology with ones provided in the associated ICAO documentation of Annex 10, NATO STANAG 3374 or with a difference from the Standard duly notified to ICAO or NATO by the State concerned and which are then published in a supplement to the ICAO Annex or NATO STANAG and in the State's AIP.

- a. The organization should:
 - 1. Develop documentation for detailed procedures in place in line with the Standards of ICAO (Operating Manuals, Processes and Procedures) and STANAG 3374;
 - 2. Implement associated procedures how to assess the compliance of working methods with ICAO Standards and STANAG 3374 in the framework of a safety Management System;
 - 3. Set up internal and external audits in the framework of a Quality Management Policy in the ANSP
- b. Possible evidence of compliance
 - 1. Documentation available (Operation Manuals, Preventive and Corrective Maintenance Procedures in place, Configuration/Change and Problem Management, etc.);
 - 2. Evidence of problem/ investigation reports;
 - 3. Bilateral Service Level Agreements with adjacent ATS units, as well internally within the same ATS Unit should be in place;
 - 4. Documented Functional Hazard Assessment (FHA) and System Safety Assessment (SSA) for all the ATS Communications equipment and means.