Annex no. 6
to the Contract No. 183/2024/IS/010

General Conditions (GEN)

Version 1.0

Index

GENERAL NOTE

Document describes requirements for two PSR/SSR and RADOM collocated radar systems, PISEK and BUKOP radar site, which are subject of this call for tender.

Throughout this document the terms radar, radars, each of the radar, the system etc. are related to both radar sites and to SSR part of the collocated radar system.

Some requirements originate in EMS v.4 specification, but for the purpose of this tender, they are modified or extended to be valid for complete collocated PSR/SSR radar system. In this case, the ref. number is changed to ANS pattern, **ANS-GEN-xxx-xxxxx**.

If more than one value is requested by a requirement, the values will be assessed independently even though they are in single requirement.

For the purpose of the reference to the EMS original document, the chapter numbering starting with 8.

8 GENERAL EQUIPMENT REQUIREMENT

8.4 HARDWARE REQUIREMENTS

ANS-GEN-SHA-00010	The System shall comply with the Directive 2011/65/EU ([RD 63]) of restrictions in the use of certain hazardous substances in electronic equipment. Adopted from **EMS-C08-SYS-SHA-09600.**	
ANS-GEN-SHA-00020	The System **shall** comply with the Directive 2014/53/EU ([RD 62]) with regulatory framework for radio equipment. Adopted from **EMS-C08-SYS-SHA-09610**.	
ANS-GEN-SHA-00030	Compliance with the EMC standards, contained within Directive 2014/30/EU ([RD 56]), and Low Voltage standards, contained within Directive 2014/35/EU ([RD 57]), **shall** be required. Adopted from **EMS-C08-SYS-SHA-09620**.	
ANS-GEN-SHA-00040	The System **shall** be CE marked to demonstrate compliance with EU Directives. Adopted from **EMS-C08-SYS-SHA-09640**.	
ANS-GEN-SHA-00050	The Tenderer **shall** provide a list with information on compliance of the System with any other relevant EU regulatory standards. Adopted from **EMS-C08-TEN-SHA-09650**.	Q
ANS-GEN-SHA-00060	The Contractor **shall** agree with the Agency all the EU regulatory standards that the System complies and how the compliance will be shown. Adopted from **EMS-C08-CON-SHA-09660.**	

ANS-GEN-SHA-00070	Modification to the type of equipment supplied under the Contract made by the Contractor subsequent to delivery **shall** be notified to the Agency in order that consideration can be given to the embodiment of such modifications in ancillary equipment. Adopted from **EMS-C08-CON-SHA-09700**.	

8.4.1 Maintenance		
ANS-GEN-SHA-00080	Panels, units and chassis which require removal for maintenance **shall not** normally exceed 10 kg in weight (including the weight of the transit case). Adopted from **EMS-C08-SYS-SHA-09720**.	
ANS-GEN-SHA-00090	Units exceeding 10 kg in weight **shall** be provided with suitable lifting facilities. Adopted from **EMS-C08-SYS-SHA-09730**.	
ANS-GEN-SHA-00100	Units exceeding 10 kg **shall** be clearly labelled as being heavy with a warning label. Adopted from **EMS-C08-SYS-SHA-09740**.	
ANS-GEN-SHA-00110	The Tenderer **shall** identify in their proposal any special handling requirements. Adopted from **EMS-C08-TEN-SHA-09750**.	Q
ANS-GEN-SHA-00120	The design of panels, units, chassis, etc. **shall** be such that they can be safely set down without damage. Adopted from **EMS-C08-SYS-SHA-09760**.	

ANS-GEN-SHA-00130	Fragile components **shall not** be positioned in exposed places, but protected in the best way possible (e.g. guard rails). Adopted from **EMS-C08-SYS-SHA-09770**.	
ANS-GEN-SHA-00140	The Contractor **shall** bring to the Agency's notice components or devices supplied under the Contract that could be in any way affected by electrostatic discharge and which might as a consequence be damaged by incorrect handling or storage. Adopted from **EMS-C08-CON-SHA-09780**.	

8.4.2 Labelling		
ANS-GEN-SHA-00150	Each hardware element of the System **shall** have attached its part and serial number in a fix form. Adopted from **EMS-C08-SYS-SHA-09790**.	
ANS-GEN-SHA-00160	The system **shall** employ the Latin alphabet character set (A-Z and a-z) for textual, visual, and hardware elements. Non-Latin characters or symbols from other scripts are acceptable in legitimate cases (Greek letters, math symbols, etc.). This requirement covers all labels, printed circuit designators, documents, hardware labels etc.	
ANS-GEN-SHA-00170	The system **shall** primarily use Arabic numerals (0-9) for numerical representation in most contexts. Alternatively, in suitable cases, roman numerals are allowed.	

8.5 SOFTWARE AND FIRMWARE REQUIREMENTS		
ANS-GEN-SHA-00180	The software and firmware **shall** be designed to preclude abnormal behaviour and to limit the consequences of system failure conditions through appropriate fault avoidance techniques, fault tolerant design architecture, verification and validation methodologies. Adopted from **EMS-C08-SYS-SHA-09800**.	
ANS-GEN-SHA-00190	Software and firmware design, development, verification, validation and maintenance **shall** be carried out according to methodical and rigorous procedures to ensure that the System fully complies with the specification, and to ensure that performance, safety and quality objectives are met. Adopted from **EMS-C08-SYS-SHA-09810**.	
ANS-GEN-SHA-00200	The Tenderer **shall** list the software and firmware deliverables in a preliminary Configuration Management Plan, to be provided as part of their Tender Response. Adopted from **EMS-C08-TEN-SHA-09820**.	Q
ANS-GEN-SHA-00210	The software and firmware deliverables **shall** be produced in accordance with the best current practices and standards in force at the International and European levels. Adopted from **EMS-C08-SYS-SHA-09830**.	
ANS-GEN-SHA-00220	High order languages conforming to a recognised ISO or ANSI standard **shall** be used. Adopted from **EMS-C08-SYS-SHA-09840**.	
ANS-GEN-SHA-00230	The Tenderer **shall** state in their response the software and firmware languages to be used. Adopted from **EMS-C08-TEN-SHA-09850**.	Q

8.5.1 Design Methods		
ANS-GEN-SHA-00240	The standard for Software Integrity Assurance for CNS/ATM Systems ED-109A ([RD 52]) **should** be used as guidelines for the software and firmware requirements and tailoring the effort of development, verification and validation versus the criticality of the functions. Adopted from **EMS-C08-SYS-SHO-09900**.	

8.5.2 Software and Firmware		
ANS-GEN-SHA-00250	In order to meet the Safety Requirements defined in 9.4.2, it is essential that the software and firmware processes **shall** be examined as part of the FMECA (Failure Modes Effect and Criticality Analysis). Adopted from **EMS-C08-SYS-SHA-09910**.	
ANS-GEN-SHA-00260	The criticality considered in the FMECA of each module/process **shall** be identified according to the role carried out by the process within the System. Adopted from **EMS-C08-SYS-SHA-09920**.	
ANS-GEN-SHA-00270	The Tenderer **shall** identify in the Software and Firmware Development Plan the various criticalities of the tasks carried out by the software/firmware functions and the measures (in terms of developments, verification, validation and assurance activities and techniques) to ensure that the characteristics of the software/firmware, in particular its failure modes, do not impact on the overall system safety level as defined in 9.4.2. Adopted from **EMS-C08-TEN-SHA-09930**.	

ANS-GEN-SHA-00280	Software and Firmware design **should** follow the guidelines for assurance of software level AL4 contained in ED-109A ([RD 52]). Adopted from **EMS-C08-SYS-SHO-09940**.	
ANS-GEN-SHA-00290	The Tenderer **shall** state the levels according to which they have developed, or intend to develop the software and firmware components in terms of the Radar System. Adopted from **EMS-C08-TEN-SHA-09950**.	Q

8.5.3 Operating System		
ANS-GEN-SHA-00300	The Tenderer **shall** provide in their Tender response details of the Operating System to be used. Adopted from **EMS-C08-TEN-SHA-09960**.	Q
ANS-GEN-SHA-00310	The Contractor **shall** ensure that the Operating System design allows future hardware, software, firmware and communication enhancements. Adopted from **EMS-C08-CON-SHA-09970**.	
ANS-GEN-SHA-00320	The Tenderer **shall** state the level to which the Operating System can analyse the type and cause of detected system errors, including the level of ability to record data concerning the error and its cause for error notification and subsequent investigation from a maintenance position. Adopted from **EMS-C08-TEN-SHA-09980**.	Q
ANS-GEN-SHA-00330	The Tenderer **shall** state the software and firmware booting time. Adopted from **EMS-C08-TEN-SHA-10000**.	Q

8.5.4 Processing Load		
EMS-C08-SYS-SHA-10010	For the maximum targets load conditions and for the mean FRUIT and reflection rates specified in 2.6.8, 2.6.10 and ANNEX A, and 2.7.4, 2.7.6 and ANNEX B: (a) Each single processor shall not be utilised for more than 50% of the time when this time stands for a complete antenna revolution; (b) Each single processor **shall not** be utilised for more than 80% of the time when this time stands for a small sector peak of 3.5°.	
EMS-C08-TEN-SHA-10020	The Tenderer **shall** describe the maximum utilisation of each single processor for a scanning time corresponding to a large sector peak of 45°.	Q
EMS-C08-TEN-SHA-10030	The Tenderer **shall** state in their proposal the processor utilisation contingencies over and above the maximum capacities defined in 2.6.8.	Q
EMS-C08-TEN-SHA-10040	The Tenderer **shall** state in their proposal the available storage capacity for the software and firmware of each part of the Processing System.	Q
EMS-C08-SYS-SHA-10050	For the maximum targets load conditions defined in 2.6.8 and 2.7.4, the Processing System software within the proposed System **shall not** take up more than 50% of the available Random Access Memory (RAM) in each individual processors and 70% of the storage space.	
EMS-C08-SYS-SHA-10060	The contingencies about processors load, RAM and storage capacities **shall** be demonstrated and proved to be met during Factory Acceptance Testing (FAT) of the System, under maximum load conditions.	
EMS-C08-TEN-SHA-10070	The Tenderer **shall** provide in their proposal an outline of how the achievement of the contingencies about processors load, RAM and storage capacities will be demonstrated.	Q

EMS-C08-CON-SHA-10080	Where any form of distributed processing architecture is used, the Contractor **shall** provide details of procedures and specific techniques to ensure that the software/firmware that runs in each processor is compatible with the software/firmware running in all the other processors that make up one channel of the overall system.	Q
EMS-C08-SYS-SHA-10090	Suitable recovery mechanisms **shall** be coded for the case where incompatible software/firmware versions are found to be running in different processors.	
EMS-C08-SYS-SHA-10100	Unless a version of software/firmware for a processor is to be kept on removable media, where changing the version of software/firmware that is running is performed by changing the media and reloading the System, the storage medium built into the System **shall** be capable of holding two versions of the Processing System software/firmware.	
EMS-C08-TEN-SHA-10110	The Tenderer **shall** indicate the time to switch between the two available software/firmware versions in the Processing System.	Q

8.5.5 Verification and Validation

ANS-GEN-SHA-00340	The Contractor **shall** define in a Verification and Validation Plan the verification process being used to ensure that the results of a particular phase/activity in the software and firmware development has met the requirements of the previous phase. Adopted from **EMS-C08-CON-SHA-10120**.	
ANS-GEN-SHA-00350	Verification **shall** be carried out according to methodical and rigorous procedures to ensure that performance, safety and quality objectives allocated to the software and firmware are met. Adopted from **EMS-C08-CON-SHA-10130**.	

ANS-GEN-SHA-00360	The Contractor **shall** define in the Verification and Validation Plan the validation process being used to ensure that the results of the software and firmware development has met the requirements of the project. Adopted from **EMS-C08-CON-SHA-10140**.	
ANS-GEN-SHA-00370	Validation **shall** be carried out according to methodical and rigorous procedures to ensure that performance, safety and quality requirements are met. Adopted from **EMS-C08-CON-SHA-10150**.	
ANS-GEN-SHA-00380	When the Contractor identifies the use of simulation as appropriate to the validation process, the level of simulation **shall** be identified. Adopted from **EMS-C08-CON-SHA-10160**.	
ANS-GEN-SHA-00390	Any test bench used for module/subsystem testing **shall** be retained under configuration control for the duration of the Contract (including warranty period). Adopted from **EMS-C08-CON-SHA-10170**.	
ANS-GEN-SHA-00400	All test bench software and associated test specifications **shall** be maintained so that any test performed at any time during system development can be re-performed on the versions of software modules that form the final delivery of software and firmware. Adopted from **EMS-C08-CON-SHA-10180**.	
ANS-GEN-SHA-00410	The Contractor **shall** state what special arrangements will be undertaken to test and validate critical software and firmware. Adopted from **EMS-C08-CON-SHA-10190**.	

ANS-GEN-SHA-00420	The Test Specification **shall** detail and identify the test harnesses used Adopted from **EMS-C08-CON-SHA-10200**.	
ANS-GEN-SHA-00430	The Contractor **shall** identify in the Software and Firmware Development Plan the verification and validation processes used to integrate the Operating System and software/firmware with the hardware. Adopted from **EMS-C08-CON-SHA-10210**.	
ANS-GEN-SHA-00440	Results of all tests **shall** be recorded for subsequent audit. Adopted from **EMS-C08-CON-SHA-10220**.	

9 GENERAL CONDITIONS

9.1 ENVIRONMENTAL CONDITIONS

9.1.1 Internal Conditions

ANS-GEN-SHA-00450	Any equipment housed within the ground station equipment room(s) **shall** operate and maintain its full operational performance under the following conditions: (a) Temperature: 0 °C to +40 °C; (b) Relative Humidity: 90% (non-condensing at +25 °C). Adopted from **EMS-C09-SYS-SHA-10310**.	
ANS-GEN-SHA-00460	Where it is agreed that COTS equipment can be employed in the ground station equipment room, the following condition **shall** be considered acceptable for that equipment: (a) Temperature: +10 °C to +40 °C; (b) Humidity: 80% (non-condensing at +25 °C). Adopted from **EMS-C09-SYS-SHA-10320**.	

9.1.2 External Conditions

ANS-GEN-SHA-00470	Any equipment not housed within the ground station equipment room(s), including Far Field Monitor outdoor elements, LVA antenna, PSR antenna, turning gear together with any pedestal mounted electronics, **shall** operate and maintain its full operational performance under the following conditions: (a) Ambient Air Temperature: -40 °C to +50 °C; (b) Relative Humidity: Up to 100% (Lower than 90% at 40 °C); (c) Driving Rain: Up to 60 mm/h; (d) Snow load: Up to 200 kg/m2 (in or out of operations and in transport); (e) Solar radiation: 1135 W/m2h during 4 hours; (f) Hail: Up to 10 mm at 18 m/s; (g) Wind resistance: a. In operation, bursts up to 160 km/h without frost or ice, up to 130 km/h with 12 mm frost or ice; b. In survival, bursts up to 220km/h, without frost or ice, up to 180 km/h with 12 mm frost or ice. Adopted from **EMS-C09-SYS-SHA-10330**.	
ANS-GEN-SHA-00480	The Tenderer **shall** provide in their proposal information on the effects on the detection and accuracy performance of 2.6.1, 2.6.5 and 2.7.1 for a Mode S ground station subject to severe fresh and salt water rime ice formation on the antenna(s). Adopted from **EMS-C09-TEN-SHA-10350**.	
ANS-GEN-SHA-00490	The Tenderer **shall** provide in their proposal information on the external effects listed on the antenna (PSR and SSR) gain and beam patterns. Adopted from **EMS-C09-TEN-SHA-10360**.	Q

ANS-GEN-SHA-00500	Full, individual environmental specifications for all external equipment **shall** be provided in the proposal. Adopted from **EMS-C09-TEN-SHA-10380**.	Q

9.1.3 Storage Conditions		
ANS-GEN-SHA-00510	All types of equipment, including spares, **shall** be capable of being stored under cover for a period of up to 2 years at varying temperatures from -40 °C to +60 °C with an ambient relative humidity ranging from 40% to 90%, damp heat lower than 93% at 40 °C without affecting either their operation and performance to specification, or their normal expected operational life. Adopted from **EMS-C09-SYS-SHA-10390**.	
ANS-GEN-SHA-00520	Where it is agreed that COTS equipment can be employed, the following condition **shall** be considered acceptable for that equipment when stored: (a) Temperature: -10 °C to +60 °C; (b) Humidity: 80% (non-condensing at +25 °C). Adopted from **EMS-C09-SYS-SHA-10400**.	
ANS-GEN-SHA-00530	Any equipment with components whose operational life could include time in storage, for example memory devices dependent upon batteries, **shall** be identified and described in the proposal, including the appropriate precautions to be taken and the maximum storage life. Adopted from **EMS-C09-TEN-SHA-10410**.	Q
ANS-GEN-SHA-00540	The equipment items **shall** be capable of undergoing, in their package, the constraints related to the transport by air, sea or land. Adopted from **EMS-C09-SYS-SHA-10420**.	

9.2 DESIGN CONSIDERATIONS		
ANS-GEN-SHA-00550	Fault tolerant design **shall** be applied wherever the potential for critical consequences results from the design or operation of System (PSR+SSR) and associated equipment. Adopted from **EMS-C09-SYS-SHA-10430.**	
ANS-GEN-SHA-00560	The following deterministic safety design principles **shall** be implemented as a minimum: (a) No single failure condition has a critical consequence for ATC services; (b) No single operator error has a critical consequence for ATC services and the operator; (c) Hardware or software/firmware failures do not cause additional failures with hazardous effects; (d) Safety-critical functional paths (both hardware and software/firmware) are isolated or partitioned from non-safety critical functions, in order to prevent propagation of errors and failures; (e) Alternate or redundant safety-critical functional paths are separated or protected in such a way that any event that causes the loss of one functional path will not result in the loss of alternate back-up, or redundant paths; (f) Parametric operating ranges and performance limits for safe operation are established for the design and is specified by the Contractor; (g) The design provides protection to avoid the erroneous acceptance of commands that can affect personnel safety or cause hardware or software damage. Adopted from **EMS-C09-SYS-SHA-10440**.	
ANS-GEN-SHA-00570	Multiple failures that result from common cause or common mode failure mechanisms **shall** be considered as single failures for the purpose of determining and designing the fault tolerant system. Adopted from **EMS-C09-SYS-SHA-10450**.	

ANS-GEN-SHA-00580	Failures modes **shall** be considered to originate from: (a) Hardware; (b) Software; (c) Firmware; (d) Procedures as the result of design error; (e) Random failure due to environmental effects. Adopted from **EMS-C09-SYS-SHA-10460.**	
ANS-GEN-SHA-00590	The station **shall** be functionally modular and include facilities to evaluate the performance of individual processes for the specified operating conditions of chapter 2, ANNEX A and ANNEX B. Note: In this case chapter 2, ANNEX A and ANNEX B refer to the original EMS document. Adopted from **EMS-C09-SYS-SHA-10470.**	
ANS-GEN-SHA-00600	The Tenderer **shall** provide in their proposal details of the System and associated equipment modularity, including the design philosophy regarding technological updates and functional upgrade of the hardware and software/firmware. Adopted from **EMS-C09-TEN-SHA-10480**	Q
ANS-GEN-SHA-00610	The Design **shall** allow expansion to accommodate future growth through scalable, modular design, built on structured techniques that ensure traceability and consistency between the functional requirements and the ultimate design specifications. Adopted from **EMS-C09-SYS-SHA-10490**.	
ANS-GEN-SHA-00620	The Tenderer **shall** define the methodology, techniques and tools employed to achieve the system design objectives. Adopted from **EMS-C09-TEN-SHA-10500**.	Q

ANS-GEN-SHA-00630	Traceability, consistency and completeness **shall** be ensured between design specification and the system requirements. Adopted from **EMS-C09-SYS-SHA-10520**.	
ANS-GEN-SHA-00640	The System design **shall** take into account the necessary features for verification and validation testing, and for maintenance. Adopted from **EMS-C09-SYS-SHA-10530**.	
ANS-GEN-SHA-00650	The Tenderer **shall** state how such relationships will be fostered. Adopted from **EMS-C09-TEN-SHA-10540**.	Q

9.3 SAFETY		
9.3.1 Health of Personnel		
ANS-GEN-SHA-00660	The Contractor **shall** meet all International, European and National Health and Safety standards, rules and practices and the legislation that has relevance to the equipment being supplied. Adopted from **EMS-C09-CON-SHA-10570**.	
ANS-GEN-SHA-00670	The Tenderer **shall** state the National Health and Safety at Work requirements which will be adhered to. Adopted from **EMS-C09-TEN-SHA-10580**.	Q
ANS-GEN-SHA-00680	The Tenderer **shall** state the Health and Safety standards relevant to the equipment being supplied. Adopted from **EMS-C09-TEN-SHA-10590**.	Q
ANS-GEN-SHA-00690	The Contractor **shall**, at all times, follow the local rules regarding health and safety at work that are affecting to the personnel in their service. The expenses which arise from this obligation (including any necessary translation of documentation) are borne by the Contractor. Adopted from **EMS-C09-CON-SHA-10600**.	
ANS-GEN-SHA-00700	The Tenderer **shall** show their understanding of the rules in force for the sites selected for the implementation of the System. Adopted from **EMS-C09-TEN-SHA-10610**.	

ANS-GEN-SHA-00710	The Tenderer **shall** provide in Tender response details of their management system for Health and Safety and demonstrate the processes used to ensure compliance. Adopted from **EMS-C09-TEN-SHA-10620**.	Q
ANS-GEN-SHA-00720	The System installation **shall** comply with the health and safety signs and markings standards described within Directives 92/58/ECC ([RD 58]) and 2014/27/EU ([RD 59]). Adopted from **EMS-C09-SYS-SHA-10630**	

9.3.1.1 Noise Exposure		
ANS-GEN-SHA-00730	The Tenderer **shall** provide in Tender response details of the acoustic noise level of the proposed equipment. Adopted from **EMS-C09-TEN-SHA-10670**.	Q
ANS-GEN-SHA-00740	The Tenderer **shall** provide information about the noise exposure levels during operation and maintenance activities. Adopted from **EMS-C09-TEN-SHA-10680**.	Q
ANS-GEN-SHA-00750	The Contractor shall provide information about noise level generated by the PSR and SSR.	Q

9.3.1.2 Electromagnetic Field Exposure		
ANS-GEN-SHA-00760	The exposure of personnel to electromagnetic field risks inside the shelter **shall** remain below the limits described in Directive 2013/35/EU ([RD 61]). Adopted from **EMS-C09-SYS-SHA-10690**.	

ANS-GEN-SHA-00770	The Tenderer **shall** provide information about the exposure of personnel to electromagnetic fields during operation and maintenance activities. Adopted from **EMS-C09-TEN-SHA-10700**.	Q
ANS-GEN-SHA-00780	The Contractor **shall** define the safe areas for personnel, in terms of exposure to electromagnetic field risks, according to Directive 2013/35/EU ([RD 61]) and considering the System transmitting at its maximum power. Proper labelling, to mark the areas where the electromagnetic fields exposure of personnel can be above the limits defined in Directive 2013/35/EU ([RD 61]), will be installed. Adopted from **EMS-C09-CON-SHA-10710**.	

9.3.2 Air Traffic Service		
ANS-GEN-SHA-00790	The Contractor **shall** demonstrate, through analysis of the design, components and maintenance procedures, their understanding of the safety requirements and that their design and implementation plans will meet all of the safety criteria. The Agency's safety policy is to secure high standards of safety within the air traffic services and systems. It plans, provides and operates by minimising those risks which contribute to aircraft accidents as far as reasonably practicable. Safety is afforded the highest priority and it is an integral part of the Management function. Adopted from **EMS-C09-CON-SHA-10740**.	

ANS-GEN-SHA-00800	The safety activities and analysis **should** present the evidence, arguments and assumptions, at significant points in the system life cycle, to provide assurance that: (a) The Safety Requirements of the System are either met or that any shortcomings, limitations or unresolved hazards are understood and accepted; (b) When introduced into operational service the new system does not, on itself, exhibit any hazards due to installation, commissioning and integration activities; (c) The introduction of the new system does not adversely affect the safety of the existing Air Traffic Service (ATS). Adopted from **EMS-C09-CON-SHO-10750**	
ANS-GEN-SHA-00810	The safety assurance activities **should** provide the necessary confidence that the following objectives have been met: (a) The Safety Requirements of the System have been correctly identified; (b) The procedures and standards used to design, develop and analyse the System are adequate and have been implemented correctly; (c) There is sufficient evidence available to show compliance with the Safety Requirements, and to allow the System to proceed to the next life cycle phase or continue in operation, as appropriate. Adopted from **EMS-C09-CON-SHO-10760**.	

9.3.2.1 Safety Plan		
ANS-GEN-SHA-00820	The Safety Plan **shall** define the safety management, safety analysis and assurance activities to be performed by the Contractor. Adopted from **EMS-C09-CON-SHA-10770**.	

ANS-GEN-SHA-00830	The Tenderer's Safety Plan **shall**, as a minimum, address the items detailed at ANNEX H and **shall** confirm that they are commensurate with ensuring the Safety Plan deliverables are met. Note: ANNEX H in this requirement refers to the original EMS document. Adopted from **EMS-C09-TEN-SHA-10780**.	Q
ANS-GEN-SHA-00840	The Contractor **shall** provide a Safety Plan. Adopted from **EMS-C09-CON-SHA-10800**.	
ANS-GEN-SHA-00850	The Contractor **shall** provide the following documented deliverables resulting from the activities defined in their Safety Plan: (a) Design Process and Assurance Deliverable; (b) Installation, Commissioning, Integration and Test and Evaluation Deliverable. Adopted from **EMS-C09-CON-SHA-10810**.	

EMS-C09-CON-SHA-10820	The Design Process and Assurance deliverable **shall**: (a) Provide a summary description of the Mode S functions, supported with diagrams, showing their physical location(s) and role. The boundaries of the Mode S ground station and its interface with other systems or facilities is clearly identified; (b) Identify or reference the Safety Requirements of the Mode S ground station; (c) Describe the physical configuration of Mode S, including permitted variations of the configuration during operation; (d) Identify the documentation and its status, which records the system build state for Mode S; (e) Provide a description of the design process used for the development of the hardware and software/firmware aspects of Mode S: a. Showing the design, coding, verification and validation methods to be employed that will allow the software/firmware to meet the Safety Requirements; b. Providing evidence, arguments and assumptions for claiming that the hardware design has been implemented to a level consistent with the Safety Requirements. (f) Identify any dependencies on other systems or facilities that affect the ability of Mode S to meet its Safety Requirements; (g) Address each Safety Requirement: a. Providing arguments to support the claim that the Mode S design will meet the (h) Safety Requirement; a. Summarising, and referencing, any evidence available that supports the arguments that the design will meet the Safety Requirement; b. Identifying the current compliant status of the Safety Requirement (met, not met, not proven); c. Identifying any further verification and subsequent validation that is to be performed during the Installation, Commissioning and Integration activities; d. Identifying any features in the design that specifically address the Safety Requirement. (i) State any limitations on the use, or maintenance, of the Mode S ground station or other shortcomings identified in the design;	

	(j) Specify any aspects of the Mode S and ADS-B performance that is monitored in service to provide assurance that the Safety Requirements continue to be met in operation; (k) Detail the confidence that has been gained that the Installation, Commissioning and Integration activities will not have an adverse effect on the safety of the existing ATS.	

9.3.2.2 Mode S Safety Requirements		
ANS-GEN-SHA-00860	The list of failure modes for the System **shall** be developed and refined by the Contractor, in consultation with the Agency. A provisional analysis has been undertaken for the Mode S Safety Requirements and was derived by consideration of the failure modes on Air Traffic Operations. ANNEX G provides the target figures for the Mode S system in the operational phase, for a limited list of failure modes. The contribution of Radar Data Processing Systems, communication links and ATC workstations to the Mode S system are not included in ANNEX G. Adopted from **EMS-C09-CON-SHA-10840**. Note: ANNEX G refers to the original EMS document.	
EMS-C09-CON-SHA-10850	The Contractor **shall** demonstrate that the Mode S ground station based on their design can meet the refined Mode S System Safety Requirements.	

9.4 CONFIGURATION MANAGEMENT		
ANS-GEN-SHA-00870	The Tenderer as part of their Tender Response **shall** provide details of the hardware and software/firmware Configuration Management (CM) plans they would implement following contract award. Adopted from **EMS-C09-TEN-SHA-11240**.	Q
ANS-GEN-SHA-00880	(a) The Preliminary CM Plan **shall** include as a minimum: (b) List of internal and external items of the project established as Configuration Items; (c) Responsibilities and relevant procedures to be used; (d) Configuration Management tools and techniques; (e) Configuration Identification and modification policy; (f) Configuration Status Accounting; (g) Configuration Auditing; (h) Software/Firmware/Hardware Interface Management; (i) Configuration Control for spares ranging and maintenance; Adopted from **EMS-C09-TEN-SHA-11250**	
ANS-GEN-SHA-00890	Change procedures **shall** be consistent with the configuration approach. Adopted from **EMS-C09-TEN-SHA-11260**	
ANS-GEN-SHA-00900	The CM Plan **shall** state the Configuration Management procedures to be used on the project. Adopted from **EMS-C09-CON-SHA-11270**.	

ANS-GEN-SHA-00910	A system for identifying the configuration **shall** be defined and documented, including how the identification is allocated. Adopted from **EMS-C09-CON-SHA-11280**.	Q
ANS-GEN-SHA-00920	The Contractor **shall** maintain the system to identify the configuration. Adopted from **EMS-C09-CON-SHA-11290**.	
ANS-GEN-SHA-00930	Configuration control **shall** also be applied to spares in maintenance process. Adopted from **EMS-C09-CON-SHA-11300**.	
ANS-GEN-SHA-00940	The Tenderer **shall** document their controls over software/firmware/hardware interfaces Adopted from **EMS-C09-TEN-SHA-11310**.	Q

9.4.1 Configuration Items

ANS-GEN-SHA-00950	For each Configuration Item, the Tenderer **shall** state whether it classifies as COTS, OTS or needs to be developed. Adopted from **EMS-C09-TEN-SHA-11320**.	Q

9.4.2 Hardware and Software/Firmware CM Plan		
ANS-GEN-SHA-00960	The Contractor **shall** provide a detailed hardware CM Plan for Agency approval. Adopted from **EMS-C09-CON-SHA-11330**.	Q
ANS-GEN-SHA-00970	The CM Plan **shall** include details of how the configuration of subcontracted hardware is dealt with. Adopted from **EMS-C09-CON-SHA-11340**.	Q
ANS-GEN-SHA-00980	The plan **shall** describe the Contractor's CM programme that will be used to ensure adequate control of the status of all Configured Items, documentation and spares. Adopted from **EMS-C09-CON-SHA-11350**.	Q
ANS-GEN-SHA-00990	The hardware CM plan **shall** also identify proposals for the Agency to assume the CM responsibility post technical completion from the Contractor. Adopted from **EMS-C09-CON-SHA-11360**.	Q
ANS-GEN-SHA-01000	The Contractor **shall** provide a detailed software and firmware CM plan for Agency approval. Adopted from **EMS-C09-CON-SHA-11370**.	Q
ANS-GEN-SHA-01010	The CM plan **shall** describe the Contractor's software and firmware CM programme that will be used to ensure adequate control of the System software/firmware including documentation and deliverable software and firmware. Adopted from **EMS-C09-CON-SHA-11380**.	

ANS-GEN-SHA-01020	The software and firmware CM plan **shall** identify the participation of the Contractor SQA department in software/firmware CM activities. Adopted from **EMS-C09-CON-SHA-11390**.	
ANS-GEN-SHA-01030	Key personnel for the CM plan **shall** be identified using organisation charts. Adopted from **EMS-C09-CON-SHA-11400**.	
ANS-GEN-SHA-01040	The software and firmware CM plan **shall** also identify proposals for the Agency to assume software/firmware CM authority post technical completion from the Contractor. Adopted from **EMS-C09-CON-SHA-11410**.	

9.4.3 Configuration Control

ANS-GEN-SHA-01050	The Contractor **shall** use Configuration Management software to ensure that only authorised changes are made to source code modules. Adopted from **EMS-C09-CON-SHA-11420**.	
ANS-GEN-SHA-01060	All Modules/files that make up the System and/or the development environment (compilers, linkers, etc.) **shall** be under the control of the CM software at all times. This includes the output files from the compile/link process in addition to the input source files. Adopted from **EMS-C09-CON-SHA-11430**.	
ANS-GEN-SHA-01070	Compatibility between various versions of hardware and software/firmware of the Radar System **shall** be permanently addressed in the CM Plan. Adopted from **EMS-C09-CON-SHA-11440**	

ANS-GEN-SHA-01080	Where a third party Operating System is used, changes to the code **shall** only be allowed through formal Configuration Control procedures. Adopted from **EMS-C09-CON-SHA-11450**.	
ANS-GEN-SHA-01090	Third party Operating System **shall** allow future upgrades to be provided by the original vendor. Adopted from **EMS-C09-CON-SHA-11460**.	
ANS-GEN-SHA-01100	All configuration details for the Operating System employed **shall** be supplied to the Agency. Adopted from **EMS-C09-CON-SHA-11470.**	
ANS-GEN-SHA-01110	For an in-house Operating System, formal Configuration Control procedures **shall** be fully applied. Adopted from **EMS-C09-CON-SHA-11480.**	

9.4.4 Change Control		
ANS-GEN-SHA-01110	Design records **shall** be maintained by the Contractor as part of their CM programme. Adopted from **EMS-C09-CON-SHA-11490**.	
ANS-GEN-SHA-01120	Any changes, which can alter the agreed Contract production baseline **shall** be referred to the Agency for their approval. Adopted from **EMS-C09-CON-SHA-11500**.	
ANS-GEN-SHA-01130	The Tenderer **shall** propose specific procedures to monitor the project and control change. Adopted from **EMS-C09-TEN-SHA-11510.**	Q

ANS-GEN-SHA-01140	Shortcomings and subsequent corrective actions and/or proposed evolutions **shall** be described in a "Technical Issue Form" and submitted to the Agency. Adopted from **EMS-C09-CON-SHA-11520**.	
ANS-GEN-SHA-01150	If the proposed amendment is accepted, a "Change Request" **shall** be raised using an appropriate agreed procedure. Adopted from **EMS-C09-CON-SHA-11530**.	
ANS-GEN-SHA-01160	Before a change is made official, its validity **shall** be confirmed and the effects on other items identified and thoroughly examined. Adopted from **EMS-C09-CON-SHA-11540.**	
ANS-GEN-SHA-01170	Methods to show the traceability and compatibility between changes and modified parts of system software/firmware **shall** be provided. Adopted from **EMS-C09-CON-SHA-11550**.	
ANS-GEN-SHA-01180	Any change having a contractual impact **shall** be the subject of a formal Contract amendment. Adopted from **EMS-C09-CON-SHA-11560**.	

9.4.5 Audit

ANS-GEN-SHA-01290	The Configuration Management system **shall** be subject to audits by the Contractor to demonstrate that it is suitable and effective. Adopted from **EMS-C09-CON-SHA-11570**.	

ANS-GEN-SHA-01300	The Configuration Management audits **shall** verify the accuracy of the configuration information. Adopted from **EMS-C09-CON-SHA-11580**.	
ANS-GEN-SHA-01310	The results of these audits **shall** be made available to the Agency on request. Adopted from **EMS-C09-CON-SHA-11590**.	
ANS-GEN-SHA-01320	The Contractor **shall** allow access to all the necessary information to perform a specific Configuration audit by the Agency, in conformity with the agreed audit objectives and process. Adopted from **EMS-C09-CON-SHA-11600.**	

9.5 INTEGRATED LOGISTIC SUPPORT (ILS)		
9.5.1 Logistic		
ANS-GEN-SHA-01330	All parts of the ground station to be provided under this contract **shall** be designed and constructed in order to withstand possible operations of 24 hours per day, 7 days per week, and 52 weeks per year for a minimum 15 year life cycle. Adopted from **EMS-C09-SYS-SHA-11610**.	
ANS-GEN-SHA-01340	The ground station equipment **shall** in such a manner that it can be progressively upgraded in functionality and performance. Adopted from **EMS-C09-SYS-SHA-11620**.	
ANS-GEN-SHA-01350	A modular approach **shall** be employed to allow an easy access to each LRU and test point, and to facilitate rapid replacement of faulty units, in order to satisfy the availability and maintainability requirements, whilst minimising impact on personnel and equipment safety. Adopted from **EMS-C09-SYS-SHA-11630**.	
ANS-GEN-SHA-01360	A Logistic Support Plan for the entire planned life cycle of the System **shall** be provided by the Tenderer with their Proposal regarding cost efficient approaches to Engineering, Logistic Support and Maintenance of the system/subsystem(s), equipment and software/firmware. Adopted from **EMS-C09-TEN-SHA-11640**.	Q
ANS-GEN-SHA-01370	The Logistic Support Plan **shall** detail the methods and standards to be employed to achieve the Availability, Reliability and Maintainability objectives (including safety aspects) contained in this Specification. Adopted from **EMS-C09-TEN-SHA-11650**	

ANS-GEN-SHA-01380	The Logistic Support Plan **shall** also provide outline details of types of personnel, training, Support and Test Equipment requirements, Spares availability, and Corrective and Preventative maintenance tasks (particularly those expected to exceed 30 minutes in length). Adopted from **EMS-C09-TEN-SHA-11660**	
ANS-GEN-SHA-01390	The Tenderer **shall** indicate in their Tender response the level of support available from their own resources to provide backing for the Agency or the National organisation's support facilities. Adopted from **EMS-C09-TEN-SHA-11670**	Q
ANS-GEN-SHA-01400	The Tenderer **shall** indicate in their Tender Response their ability to comply with the objectives of the MIL-STD-1388-1A standard ([RD 69]) or equivalent, by citing previous examples of deliveries using Logistic Support Analysis. Adopted from **EMS-C09-TEN-SHA-11680**	

9.5.1.1 Delivery		
ANS-GEN-SHA-01410	The Contractor **shall** deliver the items as described in the 'List of Deliverables' at the dates agreed and to the locations specified by the Agency. Adopted from **EMS-C09-CON-SHA-11690**.	
ANS-GEN-SHA-01420	The Contractor **shall** deliver the Radar System to site for Site Acceptance Testing (SAT) as specified in this document, following successful completion of all Factory Acceptance Tests (FAT) on their factory test bench, and in addition to any internal verification and validation testing normally described in the project quality assurance and development plans. Adopted from **EMS-C09-CON-SHA-11700**.	

ANS-GEN-SHA-01430	For software and firmware, the Contractor **shall** provide the description and the identification of each delivered version, the associated source and executable code, the identification of the development and testing tools, the updated corresponding documentation (specifications, design, test plan, test results, listing) and the compatibility with the various hardware versions. Adopted from **EMS-C09-CON-SHA-11710**.	

9.5.1.2 Maintenance		
ANS-GEN-SHA-01440	Maintenance philosophy for the ground station **should** be consistent with unattended operation, including at least: (a) Restoration of service by Line Replaceable Unit (LRU) exchange at Organisational level. This is carried out by appropriately trained Contractor, Agency or National personnel; (b) Further diagnosis and exchange of Field Replaceable Units (FRU) to be carried out by engineering staff, either Contractor, Agency or National, utilising Intermediate or Depot level facilities; (c) Defective LRU/FRU are returned for appropriate action (e.g. repair, recalibration, replacement) to the Contractor or a designated National Repair Centre. Adopted from **EMS-C09-SYS-SHO-11720**.	
ANS-GEN-SHA-01450	The System maintenance **shall not** require any adjustment or setting up following the replacement of a LRU. Adopted from **EMS-C09-SYS-SHA-11730.**	
ANS-GEN-SHA-01460	The Tenderer **shall** include details of their intended software/firmware Maintenance Policy, including life cycles and reprogramming, in their Tender Response. Adopted from **EMS-C09-TEN-SHA-11790**.	Q

ANS-GEN-SHA-01470	Software and Firmware maintenance, including reprogramming, **shall** be addressed specifically by the Tenderer who will include details of the intended software/firmware Maintenance Policy in their Tender Response Adopted from **EMS-C09-SYS-SHA-11800**.	
ANS-GEN-SHA-01480	The tendered **shall** describe required preventive maintenance of the System. The following shall be described at least: a. Scope of the preventive maintenance b. Periods of preventive maintenance (daily, weekly, monthly, yearly, etc., event triggered – e.g. once the air dryer indicates to replace a liner). In case of event-based preventive maintenance also the expected/average occurrence rate. c. Duration of preventive maintenance d. Number of personnel required for the maintenance. Required consumables	Q
ANS-GEN-SHA-01490	Tenderer **shall** provide number of man-days required for preventive maintenance during 1 average year. Note: Average year includes maintenance required in longer than 1 year interval (oil change, batteries replacemen etc.).	Q/A/min/10
ANS-GEN-SHA-01500	Tenderer **shall** provide list of all consumables for preventive maintenance, their amount for average year, industry label, name or identification. Note: This includes oil, lubricants, air filters, air dryer consumables etc.	Q
ANS-GEN-SHA-01510	The Bid **shall** specify the type and quantity of the applied oil and the required oil replacement frequency. Recommended period of oil change is assessed. Number of months between the recommended oil changes shall be provided.	Q/A/max/5

ANS-GEN-SHA-01520	Tenderer shall include a tool list in his Tender. Whenever special tools and measurement equipment (hardware and/or software) are necessary to perform required maintenance actions (including testing, preventive and corrective maintenance) on the delivered radar system, the Contractor shall deliver all these tools in the frame of delivery.	Q

9.5.1.3 Reparable Items
N/A

9.5.2 Reliability, Availability and Maintainability		
ANS-GEN-SHA-01530	Reliability, Availability and Maintainability are characteristics of the overall system which **shall** be specified, designed, implemented, tested, validated and documented. Adopted from **EMS-C09-SYS-SHA-11890**.	
ANS-GEN-SHA-01540	The methodology, techniques, processes and tools that the Tenderer intend to use to achieve the specified Reliability, Availability and Maintainability objectives **shall** be described or referenced in specific plans addressing architecture, hardware, software and firmware aspects. Adopted from **EMS-C09-TEN-SHA-11900**.	
ANS-GEN-SHA-01550	The Tenderer **shall** substantiate their ability to meet the specified Reliability, Availability and Maintainability by providing in their response a reliability model consisting of block diagrams covering all functions of the System. Adopted from **EMS-C09-TEN-SHA-11910.**	

ANS-GEN-SHA-01560	The MTBF (Mean Time Between Failures), MTTR (Mean Time To Repair) and the Availability **shall** be clearly shown in either the block diagram or in a list showing the equipment breakdown to functional unit level, with identification of specific common failure mode (e.g. switch over equipment). Adopted from **EMS-C09-TEN-SHA-11920**.	

9.5.2.1 Reliability		
ANS-GEN-SHA-01570	The System reliability requirement for each ground station **shall** be greater than 20 000 hours MTBF (interruption of correct and coherent surveillance data from the ground station). Adopted from **EMS-C09-SYS-SHA-11930**	
ANS-GEN-SHA-01580	Where appropriate, hardware and software/firmware **shall** be separately identified and included in the Reliability predictions. Adopted from **EMS-C09-SYS-SHA-11940**.	
ANS-GEN-SHA-01590	The Tenderer **shall** ensure that the design minimises System outage due to preventative maintenance. Adopted from **EMS-C09-SYSTEN-SHA-11960**.	

9.5.2.2 Availability		
ANS-GEN-SHA-01600	The figures for Availability quoted in this Specification are for Operational Availability (Ao) and **shall** be calculated using the following equation: $$A(o) = \frac{MTBF}{MTBF+MTTR+MRT}$$ with: • MTBF = Mean Time Between Failures, in hours; • MTTR = Mean Time To Repair, in hours; • MRT = Mean Response Time, in hours (i.e. the average time from notification of failure for a technician to be ready to commence repair action). Adopted from **EMS-C09-SYS-SHA-12060**.	
EMS-C09-SYS-SHA-12070	The operational availability of correct and coherent surveillance data from the Mode S ground station site **shall** be greater than 99.98%.	
ANS-GEN-SHA-01610	The full PSR data availability **shall** be not less than 99.5%, excluding periods of scheduled maintenance. Note: Adopted from [RD 6]	

9.5.2.3 Maintainability
N/A

9.5.3 Knowledge Transfer		
9.5.3.1 Documentation		
ANS-GEN-SHA-01620	The Tenderer **shall** provide a detailed list of technical documents to be delivered, which include, but is not limited to, the following documents: (a) System Overview; (b) List of Deliverable Items; (c) Statement of Compliance; (d) Project Management Documentation: a. Project Management Plan (PMP); b. Configuration Management Plan (CFGMP); c. Quality Plan (QP); d. Software and Firmware Development Plan (SFDP); e. Verification and Validation Plan (VVP); f. Installation and Commissioning Plan (ICP). (e) Reliability, Maintainability and Availability Predictions (RMA); (f) Lifecycle Documentation: a. Requirement Specification (SRS or DOD-2167 SSS); b. System Architecture Design Document (SAD or DOD-2167 SSDD); c. Software Requirement Documents (SRD or DOD-2167 SRS), for each CSCI; d. Software Architectural Design Documents (ADD or DOD-2167 SDD), for each CSCI; e. Interface Control Documents (ICD) for internal and external interfaces; f. Hardware Development Specifications, for each HWCI; g. Hardware Architectural Design Documents, for each HWCI; h. COTS customisation documents;	Q

	i. Operator Handbooks; j. Verification and Validation Documents (for the System, the hardware and software/firmware components). (g) COTS standard documentation; (h) Training and Maintenance documentation; (i) System Documentation. Adopted from **EMS-C09-TEN-SHA-12200**.	
ANS-GEN-SHA-01630	Technical documents listed of the previous requirement **shall** describe at least following topics: System • System manual - general description of the system • Technical manual - for each LRU/item: o General description ▪ Detailed description ▪ Physical characteristics ▪ Electrical characteristics ▪ Environmental characteristics ▪ Operating characteristics ▪ Parts list o Functional description o Setting up and operation o Preventive Maintenance o Corrective Maintenance o Input, output signals o Indication and control interface • Cabling, position, labels, connection points	

	• Technical drawings and diagrams Interface Control Documents: • ASTERIX, UAP, Cats, editions including RE fields • Recordings, format, description, complete items • Logs ICD for o CMS application o system logs o application logs o application logging to system logs • Internal LAN connections • CMS • CMOS + SNMP agent • Protocols, formats, APIs, integration guidelines Software: • Installation manual • Customization manual • Software, versions, backups • Licences, certificates, keys • Backup procedures • Restoration procedures Handbooks: • CMS, RCMS, LCMS, Local display, Servers o Installation procedures o Operation o Preventive Maintenance	

	○ Corrective Maintenance • HMI description of all available controls, indications and settings Cybersecurity measures • Recovery procedures from zero to fully operational system • Software integrity check procedure Parameters • List of operational parameters, default values for oper parameters • Procedure for backup of parameters, restoration of parameters Auxiliaries • Dangers warning • First aid warning/manual Safety and Compliance Documentation • Complete SAT documentation • Complete FAT documentation • Test report • Safety guidelines • Compliance documentation to industry standards • Legal obligations Training materials • Presentations, • manual, • operation procedures, • troubleshooting	
ANS-GEN-SHA-01640	The Tenderer **shall** deliver preliminary versions of the technical documents listed in points (a), (b), (c), (d) and (e) of the requirement **ANS-GEN-SHA-01620**. Adopted from **EMS-C09-SYSTEN-SHA-12210.**	Q

ANS-GEN-SHA-01650	The Tenderer **shall** state when the full set of documents will be delivered. Adopted from **EMS-C09-TEN-SHA-12220**.	
ANS-GEN-SHA-01660	The exact documents delivery schedule **shall** be subject to agreement with the Agency. Adopted from **EMS-C09-CON-SHA-12230**.	
ANS-GEN-SHA-01670	The Contractor **shall** deliver the documents identified in the Tenderer's list. Adopted from **EMS-C09-CON-SHA-12240**.	
ANS-GEN-SHA-01680	All deliverable documentation **shall** be written in English or Czech, using standardised presentation and notation. Adopted from **EMS-C09-SYS-SHA-12250**.	
ANS-GEN-SHA-01690	All deliverable documentation **shall** be provided as paper and computer readable in a format to be agreed with the Agency prior to contract let. Adopted from **EMS-C09-SYS-SHA-12260**.	
ANS-GEN-SHA-01700	The Contractor **shall** ensure that the Agency has the right to a free licence to copy the deliverable documentation called for under the contract, and to circulate or use the copies within the establishments of the Agency. Adopted from **EMS-C09-CON-SHA-12270**.	
ANS-GEN-SHA-01710	The Agency will not disclose the deliverable documentation called for under the contract outside their establishments without the prior written consent of the Contractor, which **shall not** be unreasonably withheld. Adopted from **EMS-C09-CON-SHA-12280**.	

ANS-GEN-SHA-01720	The Tenderer **shall** identify in their Tender Response any deliverable documentation which will not be subject to free licence. Adopted from **EMS-C09-TEN-SHA-12290**.	Q
ANS-GEN-SHA-01730	Delivered documentation **shall** always be identified on the cover page with the assigned code referred to in the List of Deliverables. Adopted from **EMS-C09-SYS-SHA-12300**.	
ANS-GEN-SHA-01740	Flow charts, block diagrams and preventative/ corrective procedures (including diagnostics) **shall** be included in the technical documentation to be delivered. Adopted from **EMS-C09-SYS-SHA-12310**	
ANS-GEN-SHA-01750	Traceability through cross references of the functional requirements **shall** exist throughout all levels of the documentation produced, including maintenance phases documentation. Adopted from **EMS-C09-SYS-SHA-12320**.	
ANS-GEN-SHA-01760	The Contractor **shall** deliver Operator Handbooks and Maintenance Documents to enable operation, maintenance, fault diagnosis and repair of the equipment by trained personnel in the Agency. Adopted from **EMS-C09-CON-SHA-12330**.	
ANS-GEN-SHA-01770	The System Cabling Schedule **shall** form part of the System Documentation. Adopted from **EMS-C09-SYS-SHA-12340**.	
ANS-GEN-SHA-01780	The COTS standard documentation (User Manual, Reference Manual, etc.) **shall** be provided, together with documents describing how they were customised to fit in the procured system. Adopted from **EMS-C09-CON-SHA-12350**.	

ANS-GEN-SHA-01790	The existing lifecycle documents belonging to the OTS products **shall** be provided, updated if they were modified to fit in the procured system. Adopted from **EMS-C09-CON-SHA-12360**.	
ANS-GEN-SHA-01800	Full lifecycle documentation **shall** be produced and delivered for newly developed components. Adopted from **EMS-C09-CON-SHA-12370**.	
ANS-GEN-SHA-01810	The Tenderer **shall** advise the Agency in their Tender Response on the exact procedures that will be employed to amend the documentation to include subsequent updates. Adopted from **EMS-C09-TEN-SHA-12390**	Q
ANS-GEN-SHA-01820	Specific Procedures **shall** be defined to control the various status of documentation, its approval and to ensure that the pertinent issues of appropriate documents are available at the appropriate locations, particularly when computerised documentation is used distributed and archived. Adopted from **EMS-C09-CON-SHA-12400**	

9.5.3.2 Training		
ANS-GEN-SHA-01830	Training for the delivered equipment **shall** be sufficient to enable Agency engineers to efficiently undertake the necessary trials to operate and evaluate the System. Adopted from **EMS-C09-SYS-SHA-12410**.	
ANS-GEN-SHA-01840	The Tenderer **shall** provide a Training Plan for the System as part of their Tender response. Adopted from **EMS-C09-TEN-SHA-12420**.	Q

ANS-GEN-SHA-01850	The Training Plan **shall** describe the objectives, pre-requisites, duration and approach for training personnel involved with the delivered equipment (both hardware and software/firmware). Adopted from **EMS-C09-SYS-SHA-12430**.	
ANS-GEN-SHA-01860	The Contractor's training personnel **shall** utilise a complete and fully functioning system for all practical training. Adopted from **EMS-C09-CON-SHA-12450**.	
ANS-GEN-SHA-01870	To ensure a good standard of training, the Contractor **shall** employ Instructors who are fully trained in Instructional Techniques. Adopted from **EMS-C09-CON-SHA-12460**.	

9.6 PROJECT MANAGEMENT		
ANS-GEN-SHA-01880	The Tenderer **shall** provide in their Tender Response a PMP that clearly describes all stages of the project including FAT, installation, commissioning, SAT, flight trial, etc. Adopted from **EMS-C09-TEN-SHA-12470**.	Q
ANS-GEN-SHA-01890	The Tenderer **shall** state in their Tender Response the requirements in terms of resources required from the Agency at all phases of the Project. Adopted from **EMS-C09-REQ-TEN-SHA-12480**.	Q
ANS-GEN-SHA-01900	If different development sites are planned, coordination links and procedures **shall** be provided. Adopted from **EMS-C09-REQ-TEN-SHA-12490**.	
ANS-GEN-SHA-01910	The Tenderer **shall** provide in their Tender Response a Risk Management Plan (RMP) detailing how they will manage risks associated with this project. Adopted from **EMS-C09-TEN-SHA-12500**.	Q
ANS-GEN-SHA-01920	The areas to be covered in the RMP **shall** be, as a minimum, financial, technical (hardware and software/firmware), quality and programme. Adopted from **EMS-C09-REQ-TEN-SHA-12510**.	

9.7 TESTING AND ACCEPTANCE		
ANS-GEN-SHA-01930	It is particularly important that all Test Specifications used for proving that the System fulfils the requirement **shall** be generated directly from the overall system requirement specification, including cross references to trace back to the pertinent requirement area. Adopted from **EMS-C09-CON-SHA-12520**.	
ANS-GEN-SHA-01940	In addition, module and subsystem Test Specifications **shall** be generated directly from the relevant design document, including cross references to trace back to the pertinent design area. Adopted from **EMS-C09-CON-SHA-12530.**	
ANS-GEN-SHA-01950	A Verification Cross Reference Index (VCRI) **shall** be produced to trace continuity from the Specification through the Design Document to the FAT and SAT Acceptance Test Specifications. Adopted from **EMS-C09-CON-SHA-12540**.	
ANS-GEN-SHA-01960	The cross reference document **shall** be updated and re-issued whenever any other document changes, including first draft issues of any other document. Adopted from **EMS-C09-CON-SHA-12550**.	
ANS-GEN-SHA-01970	If a deliverable is non-conformant, the Contractor **shall** correct it at their own expense and, after rectification, resubmit it for acceptance within a time schedule agreed by the Agency. Adopted from **EMS-C09-CON-SHA-12560**.	
ANS-GEN-SHA-01980	The Contractor **shall** formulate, arrange and conduct tests to satisfactorily demonstrate, to the Agency, compliance of the deliverable equipment with all the performance requirements of this specification. Adopted from **EMS-C09-CON-SHA-12570**.	

ANS-GEN-SHA-01990	The Tenderer **shall** include in their proposal a preliminary Verification and Validation Plan, as detailed in section 9.9.1.2, which outlines their test programme. Adopted from **EMS-C09-TEN-SHA-12580**.	
ANS-GEN-SHA-02000	The Contractor **shall** develop an overall Verification and Validation Plan, as detailed in section 9.9.1.2, which will detail how the performance requirements of this specification will be verified, recorded and accepted. Adopted from **EMS-C09-CON-SHA-12590.**	
ANS-GEN-SHA-02010	It **shall** be the responsibility of the Contractor to arrange and perform the acceptance testing. Adopted from **EMS-C09-CON-SHA-12600.**	
ANS-GEN-SHA-02020	The acceptance tests **shall** be witnessed by Agency personnel in accordance with an agreed plan. Adopted from **EMS-C09-CON-SHA-12610**.	

9.7.1 Test Resources

ANS-GEN-SHA-02030	The Contractor **shall** bear the cost of all resources required for testing (including personnel, equipment and premises) to complete FAT and SAT testing as defined in 9.9.1.4.1 and 9.9.1.4.2. Adopted from **EMS-C09-CON-SHA-12620**.	
ANS-GEN-SHA-02040	The Contractor **shall** provide details in the Verification and Validation Plan to show that all resources (test equipment, procedures, personnel and premises, etc.) are adequate and available to perform the testing. Adopted from **EMS-C09-CON-SHA-12630**.	

ANS-GEN-SHA-02050	If live data is not available at the Contractor's premises, the Contractor **may** use recorded or simulated traffic data. Adopted from **EMS-C09-CON-MAY-12640**.	
ANS-GEN-SHA-02060	The Tenderer **shall** state the methods they intend to use to verify the targets load models described in 2.6.8 and 2.7.4. Adopted from **EMS-C09-TEN-SHA-12650.**	Q
ANS-GEN-SHA-02070	The Contractor **shall** provide details in the Verification and Validation Plan of all tests that cannot be performed at the Contractors or Subcontractors premises, including the reasons. Adopted from **EMS-C09-CON-SHA-12660.**	
ANS-GEN-SHA-02080	Agreement **shall** be required with the Agency of any tests that are to be deferred. Adopted from **EMS-C09-CON-SHA-12670.**	
ANS-GEN-SHA-02090	The Contractor **shall** submit, within the proposed Verification and Validation Plan, adequate evidences to the Agency that the methods of testing provide confirmation that the equipment actually meets the performance requirements of this specification, and that the test procedures provide the required precision and accuracy. Adopted from **EMS-C09-CON-SHA-12680**.	

9.7.2 Verification and Validation Plan

ANS-GEN-SHA-02100	The Tenderer **shall** include in their Tender Response a preliminary Verification and Validation Plan for the project. Adopted from **EMS-C09-TEN-SHA-12690**.	Q

ANS-GEN-SHA-02110	The Verification and Validation Plan **shall** include at least the following: (a) A list of the systems and subsystems to be tested; (b) A list of the types of test to be employed (e.g. QT, FAT, SAT, System) and the tools required at each stage; (c) A verification matrix that will show for each paragraph of this specification which of the types of tests in (b) applies; (d) The names, positions, authority, role and interrelationships of the personnel to be involved in the tests stated in (b). Adopted from **EMS-C09-TEN-SHA-12700**.	Q
ANS-GEN-SHA-02120	The Contractor **shall** develop and supply a comprehensive Verification and Validation Plan, including at least all the following: (a) List of the systems and subsystems to be tested with identification of the hardware and software/firmware versions for the equipment under test, and for the development and testing support tools; (b) Identification of all the parameters which will be tested; (c) A Test Specification for FAT and SAT detailing the methods and procedures that will show compliance with the performance requirements of this specification; (d) A verification matrix that relates each and every performance requirement of this specification to the specific test(s) that will be performed to demonstrate compliance with that requirement; (e) A verification matrix that relates each and every requirement of this specification to the specific test(s) that will be performed to demonstrate compliance with that requirement; (f) The names, positions, authority, role and interrelationships of the personnel to be involved in the tests stated in (c). Adopted from **EMS-C09-CON-SHA-12710**.	

ANS-GEN-SHA-02130	The agreed procedures and test data sheets **shall** form the basis for the testing of the deliverable items. Adopted from **EMS-C09-CON-SHA-12720**.	
ANS-GEN-SHA-02140	Testing, as identified in 9.9, **shall not** begin until the test specifications have been agreed between the Agency and the Contractor. Adopted from **EMS-C09-CON-SHA-12740**.	
ANS-GEN-SHA-02150	After agreement has been reached the Contractor **shall** provide 30 working days' notice of the commencement of scheduled testing. Adopted from **EMS-C09-CON-SHA-12750**.	
ANS-GEN-SHA-02160	Test notification **shall not** be given until the Contractor has carried out preliminary tests to ensure the equipment is fully compliant with the test procedures. Adopted from **EMS-C09-CON-SHA-12760**.	
ANS-GEN-SHA-02170	A QA certified copy of the preliminary test results **shall** be provided 10 working days prior to the commencement of official testing. Adopted from **EMS-C09-CON-SHA-12770**.	

9.7.3 Test Results

ANS-GEN-SHA-02180	Two copies of all test results, certified by an authorised representative of the Contractor's QA organisation, **shall** be provided to the Agency. Adopted from **EMS-C09-CON-SHA-12780**.	

ANS-GEN-SHA-02190	One copy **shall** be sent to site with the tested equipment and another, i.e. a second copy, to the Agency's designated Project Manager. Adopted from **EMS-C09-CON-SHA-12790**.	
ANS-GEN-SHA-02200	The test result sheets **shall** clearly identify the equipment name, type, serial number, test specification number and the test date. Adopted from **EMS-C09-CON-SHA-12800.**	
ANS-GEN-SHA-02210	Each individual test result **shall** be clearly identified and signed, in the test result sheet, by the Contractor's QA representative and countersigned by the Agency witness. Adopted from **EMS-C09-CON-SHA-12810**.	
ANS-GEN-SHA-02220	Any failed unit during testing **shall** be repaired. Adopted from **EMS-C09-CON-SHA-12820**.	
ANS-GEN-SHA-02230	The cause of failure of any unit during testing **shall** be determined and if necessary processes and/or materials or components changed so that all requirements of the specification are met. Adopted from **EMS-C09-CON-SHA-12830**.	
ANS-GEN-SHA-02240	Repaired units, and all other units that can have been affected by the failed unit, **shall** be re-tested to demonstrate final compliance with the test specification. Adopted from **EMS-C09-CON-SHA-12840**.	
ANS-GEN-SHA-02250	All software and firmware failures **shall** be rectified and the cause of the error determined. Adopted from **EMS-C09-CON-SHA-12850**.	

ANS-GEN-SHA-02260	All software and firmware modules that can have been affected by a failed module **shall** be re-tested. Adopted from **EMS-C09-CON-SHA-12860**.	
ANS-GEN-SHA-02270	All test failures **shall** be logged, as Problem Reports by the Contractor's QA Representative, and subject to closure, following explanation to be agreed by the Agency, or the raising of an approved engineering change order. Adopted from **EMS-C09-CON-SHA-12870**.	
ANS-GEN-SHA-02280	All test failures **shall** be categorised and agreed with the Agency. Adopted from **EMS-C09-CON-SHA-12880**.	
ANS-GEN-SHA-02290	Any equipment damage caused as a result of any testing **shall** be corrected and the equipment refurbished at the Contractor's expense prior to Agency acceptance. Adopted from **EMS-C09-CON-SHA-12890**.	

9.7.4 Testing		
9.7.4.1 Factory Accetance Test (FAT)		
ANS-GEN-SHA-02300	Complete and thorough testing **shall** be conducted in factory to demonstrate compliance with the equipment design criteria. Adopted from **EMS-C09-CON-SHA-12900**.	
ANS-GEN-SHA-02310	Unless otherwise agreed by the Agency, all factory testing (FAT) **shall** occur at the Contractor's or main Subcontractor's premises. Adopted from **EMS-C09-CON-SHA-12910**.	

ANS-GEN-SHA-02320	The FAT **shall** prove conclusively that the equipment meets all applicable specifications and will meet the operational and performance requirements of this specification. Adopted from **EMS-C09-CON-SHA-12930**.	
ANS-GEN-SHA-02330	The Factory Acceptance Test **shall** include the following software/operating system aspects: (a) Configuration Identification of every file/module under test. No file or module used in this process is in a development state as reported by the CM software. All files are registered/authenticated before the process starts. (b) Recompilation of every source file to be built into the system software followed by rebuilding the executable software loads. If a Software Development Facility is one of the deliverables, every file used, at the version used in this process, is delivered to the Agency under the control of CM software. (c) Recreation of the operating system from either: a. The delivery kit and configuration details if a third-party operating system is used. b. The source code and configuration details if an in-house operating system is used. (d) Validation of operating system performance. (e) Confirmation that each adaptation parameter can be changed, and that the changes have the required impact on the operation of the overall system. Adopted from **EMS-C09-CON-SHA-12940**.	
ANS-GEN-SHA-02340	To confirm the performance parameters not tested during FAT at the factory, the Contractor **shall** make provision for demonstrations of the systems functionality, prior to delivering the equipment for SAT, in a test site nominated by the Contractor. Adopted from **EMS-C09-CON-SHA-12950**.	

9.7.4.2 Site Acceptance Tests (SAT)		
ANS-GEN-SHA-02350	The following **shall** be provided to the Agency 10 working days prior to the commencement of SAT testing: (a) Evidence of closure of all previously raised observations, or agreement of action with respect to outstanding observations; (b) Records of changes made since the FAT; (c) The hardware, software and firmware build states; (d) All test documentation to be available and agreed; (e) Justification and explanation in writing of the choice of site parameters. Adopted from **EMS-C09-CON-SHA-12960**.	
ANS-GEN-SHA-02360	The SAT testing **shall** demonstrate the accuracy, stability, electromagnetic compatibility, availability, reliability and maintainability of the deliverable hardware and software/firmware over all parameters to meet all the operational and performance requirements of this specification. Adopted from **EMS-C09-CON-SHA-12970**.	
ANS-GEN-SHA-02370	The SAT testing **shall** utilise all the deliverable hardware and software/firmware of all subsystems, both individually and as a complete system, and will be performed using test equipment and live target data as appropriate. Adopted from **EMS-C09-CON-SHA-12980**.	

ANS-GEN-SHA-02380	The SAT testing **shall** comprise the following discrete elements: (a) Deferred FAT Tests; (b) System; (c) Reliability Demonstration; (d) Maintainability Demonstration; (e) Environmental Tests. (f) Cyber security Penetration Test Adopted from **EMS-C09-CON-SHA-12990**. Note: Cyber Security Penetration Test will be organized by Agency.	
ANS-GEN-SHA-02390	The Contractor **shall** conclude the Factory Acceptance Testing by performing all tests deferred to site due to lack of live data or associated facilities. Adopted from **EMS-C09-CON-SHA-13000**	
ANS-GEN-SHA-02400	The Contractor **shall** perform complete and thorough testing of all units, modules and subsystems interconnected to form the whole deliverable System to demonstrate the System's compliance with all the operational and performance requirements of this specification. Adopted from **EMS-C09-CON-SHA-13010**.	
ANS-GEN-SHA-02410	The System tests **shall** include network or site to site interfaces and functional tests as necessary to prove compliance with the requirements of this specification. Adopted from **EMS-C09-CON-SHA-13020**.	
ANS-GEN-SHA-02420	The Reliability demonstration **shall** be performed in accordance with 9.7.2.1. Adopted from **EMS-C09-CON-SHA-13030**.	

ANS-GEN-SHA-02430	The Maintainability demonstration **shall** be performed in accordance with 9.7.2.3. Adopted from **EMS-C09-CON-SHA-13040**.	
ANS-GEN-SHA-02440	The Contractor **shall** provide a QA-approved report which ensures that the System continues to operate and meet all the operational and performance requirements of this specification whilst operating in the internal and external conditions described in 9.2. Adopted from **EMS-C09-CON-SHA-13050**.	

9.7.5 Acceptance		
ANS-GEN-SHA-02450	Following satisfactory completion of all Site Acceptance Tests the Contractor **shall** offer the System for formal acceptance by the Agency. Adopted from **EMS-C09-CON-SHA-13060**.	

ANS-GEN-SHA-02460	The Technical Completion (TC) meeting **shall** examine the following areas to establish their completion or identify outstanding observations that have to be cleared within prescribed timescales: (a) System: The complete Configuration Control (build state) will be provided for all deliverable hardware, software and firmware. Special to type test equipment and support/test software is included as part of the build state. A complete list of all major concessions and production permits is provided with their relevant build states; (b) Training: All training is complete to ensure that adequately trained engineers are available to undertake equipment maintenance; (c) Spares: The Configuration Control (build state) of all deliverable spares is provided. All spares has been tested and delivered prior to TC. The build state of spares is identical to that of the main equipment; (d) Documentation: All deliverable documentation has been provided; (e) Test Equipment: All deliverable test equipment including software and hardware support facilities (if applicable) has been provided. Adopted from **EMS-C09-CON-SHA-13080**.	
ANS-GEN-SHA-02470	All Problem Reports and observations **shall** be closed or action assigned and agreed. Adopted from **EMS-C09-CON-SHA-13090**.	
ANS-GEN-SHA-02480	Completion of the SAT **shall** be recorded on the SAT Completion Certificate. Adopted from **EMS-C09-CON-SHA-13100**.	
ANS-GEN-SHA-02490	Certificate of Conformance documentation **shall** be provided for all deliverable items (including software and firmware) Adopted from **EMS-C09-CON-SHA-13110**.	
ANS-GEN-SHA-02500	Technical Completion can occur on a subsystem basis, if this option is chosen then a System Technical Completion meeting **shall** be held to ensure all System aspects have been completed. Adopted from **EMS-C09-CON-SHA-13120**.	

9.8 INSTALLATION AND COMMISSIONING		
ANS-GEN-SHA-02510	The System **shall** be designed to be located in a site which has been prepared for the purpose of containing the ground station (SSR+PSR). Adopted from **EMS-C09-SYS-SHA-13130.**	
ANS-GEN-SHA-02520	The Installation and Commissioning Plan **shall** be subject to a specific planned review, not later than 120 working days before delivery of the radar system. Adopted from **EMS-C09-CON-SHA-13150.**	
ANS-GEN-SHA-02530	The Contractor **shall** provide all necessary studies and equipment to complete installation at the chosen installation site, and all welfare and temporary services in support of their installation team Adopted from **EMS-C09-CON-SHA-13160**.	
ANS-GEN-SHA-02540	The Installation and Commissioning Plan **shall** be approved by the Agency. Adopted from **EMS-C09-CON-SHA-13170**.	

ANS-GEN-SHA-02550	The Installation and Commissioning Plan **shall** include, but not be limited to, the following aspects: (a) Physical dimensions and weight of all equipment; (b) Power consumption of all equipment; (c) Heat dissipation of all equipment; (d) Full wiring schedules, interconnection diagram and routing for power, signal, earthing cables; (e) Full details of waveguide and RF coax connections and fixing including full dimensions and routing; (f) All details for lifting, assembling and fixing the Antennas; (g) Procedures for levelling of antenna platform and alignment of the antenna(s); (h) Details of site accommodation requirements; (i) Details of site plant requirements Adopted from **EMS-C09-CON-SHA-13180**.	
ANS-GEN-SHA-02560	The documentation **shall** be updated periodically in order to reflect accurately the complete installation. Adopted from **EMS-C09-CON-SHA-13190.**	
ANS-GEN-SHA-02570	The Tenderer **shall** state in their proposal the aspects of the installation to be included in the documentation concerning: (a) Cabling Arrangements, routing and identification; (b) Interference and susceptibility to radio frequency; (c) Earthing arrangements; (d) Equipment mounting and cooling. Adopted from **EMS-C09-TEN-SHA-13200**.	

ANS-GEN-SHA-02580	The Contractor **shall** be responsible for all transportation and delivery of equipment to the sites where installation takes place. Adopted from **EMS-C09-CON-SHA-13210**.	
ANS-GEN-SHA-02590	Commissioning will be granted after successful on site testing with a specified operational environment and acceptance of the associated deliverables specified in the plans. Adopted from **EMS-C09-CON-SHA-13220**.	

Annex 9 of the Contract no. 183/2024/IS/010 – Cyber Security

Contractual assurance of measures in the area of information and cyber security within the meaning of Section 8 (2) of the Regulation No. 82/2018 on security measures, cybersecurity incidents, reactive measures, filing requirements in the area of cybersecurity and data removal (the "Cybersecurity Regulation"), as amended

1. Preamble

1.1 The Contractor understands and acknowledges that it is a major contractor within the meaning of Section 2 (n) of the Cybersecurity Regulation for the Client, which is Air Navigation Services of the Czech Republic (ANS CR), which is an administrator of information and communication systems of the critical information infrastructure.

1.2 The information/communication system to which the role of the major contractor relates is as follows: **Radar System**.

1.3 The Contractor undertakes to comply with the information security management system requirements specified in this Annex and the Security Rules distributed in compliance with Article 4 of this Annex.

2. Definitions of Terms

2.1 "Information/communication system" means a collection of applications, services and assets of information technology or other components dealing with information.

2.2 "Asset" means a collection of elements, information and services necessary for the operation of the information/communication systems referred to in Article 1.2 of this Annex.

2.3 "Security incident" means a breach of the security of information in information systems or a breach of the security of services or the security and integrity of electronic communications networks, as a result of which there has been or may be a breach of protected assets (in terms of their confidentiality, integrity and availability) in the information/communication systems referred to in Article 1.2 of this Annex.

2.4 "Security measure" means an action aimed at ensuring the security of protected assets in the information/communication systems referred to in Article 1.2 of this Annex, their availability and reliability in cyberspace.

2.5 "Security policy" means a set of rules and principles that determine the manner, in which the protection of assets is ensured.

2.6 "Contractor" means a contractor under the Contract who is also a major contractor as defined in Section 2 (n) of the Cybersecurity Regulation.

2.7 "Critical information infrastructure" means an element or a system of elements that are necessary for the operation of the information/communication systems referred to in Article 1.2 of this Annex.

3. Information Security

3.1 The Contractor is obliged to implement and execute security measures to the extent necessary to ensure the security of the information/communication systems referred to in Article 1.2 of this Annex, and to maintain appropriate security documentation of such measures.

3.2 The security measures are established in accordance with the requirements of Act No. 181/2014 Coll. on Cybersecurity and on amendments to related acts (the Cybersecurity Act), as amended, the requirements of the Cybersecurity Regulation and the applicable international ISMS standards of the ISO/IEC 27xxx series.

3.3 The Client shall verify the implementation and execution of the security measures by the Contractor in accordance with the procedure set out in Article 16 of the Contract, or by acceptance of a valid ISO/IEC 27001 certificate, or by acceptance of any other established and internationally recognized information security management system at the Contractor.

4. Adherence to the Customer's Security Policies

4.1 The Contractor shall comply with the Client´s "Security Rules for Major Contractors" that are available on the following website:

https://www.ans.cz/content/documents/Security_rules_for_major_contractors.pdf

(hereinafter referred to as the "**Security Rules**"). The Contractor hereby confirms that it is familiar with and agrees to be bound by the Security Rules.

4.2 The Client, through its cybersecurity manager, shall provide the Contractor with details of the Client´s security standards by electronically signed email within 10 days of the effective date of the Contract.

4.3 The Client may amend the Security Rules after the Contract has been signed in connection with changes in legislation, decisions, or warnings of the National Cyber and Information Security Agency, decisions of other administrative authorities or the fulfilment of corrective measures resulting from state supervision. The amended Security Rules shall be distributed in electronic (digital) form, i.e. via email with attachments converted to pdf format and signed by the cybersecurity manager with a recognized electronic signature (in accordance with eIDAS), via data box, or via letter signed by the cybersecurity manager and sent via the holder of a postal licence with confirmation of delivery to the address of the Contractor´s cybersecurity manager. If the Contractor does not object to the amended Security Rules within 10 working days of delivery of the notice, it shall be deemed to have accepted the amendment and the Contractor shall comply with the amended Security Rules.

4.4 The Contractor shall ensure that all of its personnel involved in the performance of the obligations under the Contract are demonstrably familiar with the Security Rules of the Client.

5. Change Management

5.1 The Contractor shall manage the risks associated with the performance of the subject matter of the Contract. If requested by the Client's cybersecurity manager or the persons performing the control activities as defined in Article 16 of the Contract, the Contractor shall demonstrably document the way in which the risks are managed.

5.2 The Contractor acknowledges that the Client shall proceed in accordance with Section 11 of the Cybersecurity Regulation when implementing the changes.

5.3 In the case of major changes, the Client shall carry out a risk analysis in compliance with the recommendations of the ISO/IEC 27005standard, using the support tools currently available and owned by the Client.

5.4 The Contractor shall provide the Client with the necessary cooperation and assistance in change management, in particular during regular risk assessments and inspections of the implemented security measures carried out by persons appointed by the Client. The Contractor shall also ensure that such cooperation is provided by its subcontractors.

5.5 If the Contractor uses technical or software tools of Huawei Technologies Co., Ltd. or ZTE Corporation, including their subsidiaries, as part of its solution required for the performance of the Contract, the Contractor has provided the Client during the tender procedure with a risk analysis prepared in compliance with the methodology of the National Cyber and Information Security Agency (NÚKIB).

6. Notification Requirements

6.1 The Contractor shall promptly notify the Client through the cybersecurity manager if it detects a breach of security of the protected assets as a result of a security incident and shall provide the Client with sufficient information to enable the Client to remedy the consequences of such incident, investigate it and report it to the National Cyber and Information Security Agency in compliance with the requirements of the Cybersecurity Regulation. The Contractor shall cooperate in such actions and to take all financially reasonable steps required by the Client.

6.2 The Contractor, through the cybersecurity manager, shall inform the Client on an ongoing and timely basis of all significant and critical threats and vulnerabilities known to the Contractor that may affect the Client´s risk assessment.

6.3 The Contractor shall promptly notify the Client, through the Client´s cybersecurity manager, of any significant change in the control of the Contractor pursuant to Act No. 90/2012 Coll. on Commercial Companies and Cooperatives (Commercial Companies Act), as amended (the "**Commercial Companies Act**"), or of any change in the ownership of significant assets, or of any change in the authorization to dispose of such assets used by the Contractor for the performance under the Contract. It is understood that a significant change in control means a change in the controlling entity pursuant to Sections 74 et seq. of the Commercial Companies Act.

6.4 More detailed conditions for the reporting and classification of security incidents are set out in the Security Rules.

7. Subcontractors

7.1 Pursuant to Section 105 (4) in connection with Section 3 of Act No. 134/2016 Coll. on Public Procurement, as amended, the Contractor shall inform the Client in writing in advance of its intention to use a subcontractor that it did not announce during the procurement procedure, including the subcontractor´s identification and details of the activities to be carried out by the subcontractor and the data made available to the subcontractor. The Contractor shall provide the Client with the identification data of the subcontractors who will be involved in the performance of the subject matter of the Contract after the conclusion of the Contract, the subject matter of the activities to be performed by the subcontractor and the data made available to the subcontractor before the subcontractor concerned commences the performance of the Contract.

7.2 If the Contractor employs a subcontractor to carry out activities or disclose data within the meaning of this Annex to the Contract, the Contractor shall enter into a contract or other legal instrument with the subcontractor giving rise to the same rights and obligations in relation to information and cyber security as are set out in this Annex. This shall include in particular the provision of sufficient guarantees for the implementation of appropriate technical and organizational measures so that the processing complies with the requirements of the Cybersecurity Regulation.

7.3 The Contractor shall, in relation to each subcontractor,

a) make all reasonable efforts to verify that the subcontractor provides the level of information and cyber security protection required by this Annex;

b) ensure that, in the case of a chain of subcontracting, the mutual rights and obligations in relation to information and cyber security are governed by a written contract containing terms and conditions that provide at least the same level of protection as that specified in this Annex and that meet the requirements of the relevant legislation in relation to the performance of the Contract;

c) provide the Client, on request, with copies of selected parts of contracts with subcontractors (or similar documents) relevant to the performance of the Contract;

d) ensure that any subcontractor fulfils the obligations arising from this Annex, which apply to the protection of information and cyber security performed by the subcontractor, as if the subcontractor were a party to the Contract instead of the Contractor.

7.4 If the Security Rules are provided as part of an agreement with subcontractors or between subcontractors, the Contractor shall inform the Client in advance. The Client shall be entitled to object, within five working days of the notification of the need to provide Security Rules to subcontractors, that the provision of Security Rules to subcontractors is not necessary or that the provision of Security Rules to a particular subcontractor creates a security risk for the Client. In this case, the Contractor shall demonstrate the necessary need to provide these Security Rules to a particular subcontractor or propose the use of another subcontractor. If the Customer considers that this need is justified or that the new subcontractor does not pose a security risk, it shall allow the Security Rules to be provided to the particular subcontractor.