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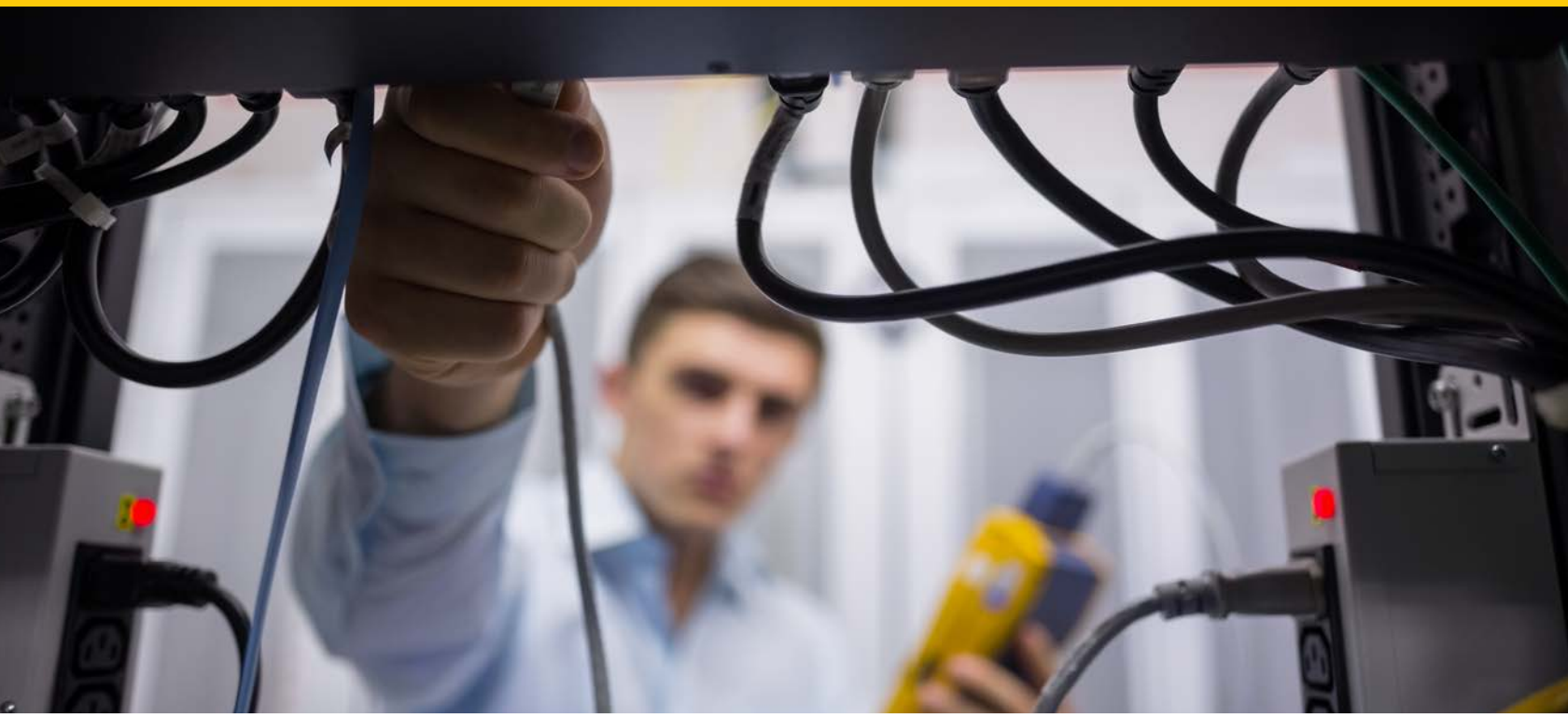
Manual on Air Traffic Safety Electronics Personnel Competency-based Training and Assessment

First Edition, 2017



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INTERNATIONAL CIVIL AVIATION ORGANIZATION

SUBJECT 9: SYSTEM MONITORING AND CONTROL

TOPIC 1: SYSTEM MONITORING AND CONTROL (SMC)

SUB-TOPIC 1.1: Overview of SMC Function

1.1.1	Describe the principles and purpose of the operational management of the technical services.	2	Service requirements, interfaces, boundaries of tactical responsibility e.g. Hierarchy of authority for the technical and ATC structures.
1.1.2	Describe the technical system architecture of the SMC function and its subordinate systems.	2	Main monitoring and control architecture e.g. Surveillance: Radar stations, communications, processing, display Communications: TX/RX, circuit management, networks, HMI, standby facilities, recording Navigation: NDB, VOR, ILS, DF DP: FDPS, data communications Facilities: Power, generators, UPS, battery, environmental (heating, cooling), fire and security.
1.1.3	Describe the transfer of responsibility for a service.	2	Operational and technical responsibility, configuration and monitoring access and responsibility.

SUB-TOPIC 1.2: System configuration:

1.2.1	Describe the range of configurations that can be used.	2	Equipment or channel switching, parameter settings.
1.2.2	Describe the general techniques that are employed to make configuration changes.	2	e.g. Physical switching.
1.2.3	State procedures required to implement a planned major system change.	1	e.g. Safety requirement, authorization, coordination, implementation plan, fallback strategies, major system change, activation of new version of software in a subordinate system, transfer of a service to a new system, change of a database.

SUB-TOPIC 1.3: Monitoring and control functions

1.3.1	State the monitoring functions that are available.	1	e.g. BITE, status, parameters, software and hardware watchdogs.
1.3.2	State the control functions that are available.	1	e.g. Switching, parameters, set configurations.
1.3.3	Explain the importance of SMC management and coordination of maintenance activities.	2	—
1.3.4	State analysis tools associated with SMC.	1	e.g. Possible malfunctions (SASS-C track and noise monitoring tools).

SUB-TOPIC 1.4: Coordination and reporting

1.4.1	State why coordination and reporting is required and how it is achieved.	1	Facility interrupts, deconflict multiple outages, legal requirements e.g. Causes: service failure, planned outage, loss of backup, software upgrade Relevant parties: external service providers, ATC, other centres Relevant information: NOTAM, logbook.

SUB-TOPIC 1.5: Emergency coordination

1.5.1	Describe situations where coordination and reporting will be necessary.	2	e.g. Hijack, mayday, r/t fail, loss of aircraft, MIL action, fire, flood, security, terrorist threat or action, medical.
1.5.2	State which parties may be involved in the coordination and reporting of emergency situations.	1	e.g. ATC supervisors (local and remote), ATSEP supervisors (local and remote), management, police, MIL, medical, accident investigation branch.
1.5.3	Explain the responsibilities and/or duties of SMC members during an emergency situation by using an example scenario.	2	—
1.5.4	State the succession of authorities and responsibilities in the event that the nominated person or function is not available.	1	Hierarchy of responsibility.

SUB-TOPIC 1.6: Equipment operating

1.6.1	Define the principles and ergonomics of the HMI of the SMC central system and its subordinate systems.	1	Permissions, control tokens, ergonomic conventions (e.g. Green is good or safe, red is fail or unsafe).
1.6.2	State the routine tasks required and the criticality of their completion and any legal requirements.	1	e.g. Audio circuit voice checking, audio recording checking, archive media changing and storage, VOLMET.

EASA
European Aviation Safety Agency

ATM/ANS (IR + AMC/GM)

eRules

Appendix 2a – ATSEP Basic training – Streams

ATSEP UOID *(Unique Objective IDentifier)*	**CORPUS**	**Tax**	**CONTENT**
ATSEP.BAS.SMC	**SYSTEM MONITORING AND CONTROL**		
ATSEP.BAS.SMC_1	**SYSTEM MONITORING AND CONTROL (SMC)**		
ATSEP.BAS.SMC_1.1	**Overview of SMC Function**		
ATSEP.BAS.SMC_1.1.1	Describe the principles and purpose of the operational management of the technical services	2	Service requirements, interfaces, boundaries of tactical responsibility e.g. hierarchy of authority for the technical and ATC structures
ATSEP.BAS.SMC_1.1.2	Describe the technical system architecture of the SMC function and its subordinate systems	2	Main monitoring and control architecture e.g. Surveillance: Radar stations, communications, processing, display Communication: TX/RX, circuit management, networks, HMI, standby facilities, recording Navigation: NDB, VOR, ILS, DF Facilities: Power, generators, UPS, battery, environmental (heating, cooling), fire and security DP: FDPS, data communications
ATSEP.BAS.SMC_1.1.3	Describe the transfer of responsibility for a service	2	Operational and technical responsibility Configuration and monitoring access and responsibility
ATSEP.BAS.SMC_1.2	**System Configuration**		
ATSEP.BAS.SMC_1.2.1	Describe the range of configurations that can be used	2	Equipment or channel switching, parameter settings
ATSEP.BAS.SMC_1.2.2	Describe the general techniques that are employed to make configuration changes	2	e.g. physical switching
ATSEP.BAS.SMC_1.2.3	State procedures required to implement a planned major system change	1	e.g. safety requirement, authorisation, coordination, implementation plan, fallback strategies, major system change, activation of new version of software in a subordinate system, transfer of a service to a new system, change of a database
ATSEP.BAS.SMC_1.3	**Monitoring and Control Functions**		
ATSEP.BAS.SMC_1.3.1	State the monitoring functions that are available	1	e.g. BITE, status, parameters, software and hardware watchdogs
ATSEP.BAS.SMC_1.3.2	State the control functions that are available	1	e.g. switching, parameters, set configurations
ATSEP.BAS.SMC_1.3.3	Explain the importance of SMC management and coordination of maintenance activities	2	-
ATSEP.BAS.SMC_1.3.4	State analysis tools associated with SMC	1	e.g. possible malfunctions (SASS-C, SASS-S, RAPS, track and noise monitoring tools)

Appendix 2a – ATSEP Basic training – Streams

ATSEP UOID *(Unique Objective IDentifier)*	**CORPUS**	**Tax**	**CONTENT**
ATSEP.BAS.SMC_1.4	**Coordination and Reporting**		
ATSEP.BAS.SMC_1.4.1	State why coordination and reporting is required and how it is achieved	1	Facility interrupts, deconflict multiple outages, legal requirements e.g. causes: service failure, planned outage, loss of backup, software upgrade Relevant parties: external service providers, ATC, other centres Relevant information: NOTAM, logbook
ATSEP.BAS.SMC_1.5	**Emergency Coordination**		
ATSEP.BAS.SMC_1.5.1	Describe situations where coordination and reporting will be necessary	2	e.g. hijack, mayday, R/T fail, loss of aircraft, MIL action, fire, flood, security, terrorist threat or action, medical
ATSEP.BAS.SMC_1.5.2	State which parties may be involved in the coordination and reporting of emergency situations	1	e.g. ATC supervisors (local and remote), ATSEP supervisors (local and remote), management, police, MIL, medical, accident investigation branch
ATSEP.BAS.SMC_1.5.3	Explain the responsibilities and/or duties of SMC members during an emergency situation by using an example scenario	2	-
ATSEP.BAS.SMC_1.5.4	State the succession of authorities and responsibilities in the event that the nominated person or function is not available	1	Hierarchy of responsibility
ATSEP.BAS.SMC_1.6	**Equipment Operating**		
ATSEP.BAS.SMC_1.6.1	Define the principles and ergonomics of the HMI of the SMC central system and its subordinate systems	1	Permissions, control tokens, ergonomic conventions (e.g. green is good or safe, red is fail or unsafe)
ATSEP.BAS.SMC_1.6.2	State the routine tasks required and the criticality of their completion and any legal requirements	1	e.g. audio circuit voice checking, audio recording checking, archive media changing and storage, VOLMET