#### *{Airport} {System}* Technical File

*{Document reference number & issue number}*

##### Associated with

***{Airport} {System}* EC Declaration of Verification**

*{Document reference number & issue number}*

# Executive Summary

1.1 The documents listed in the *{airport} {system}* Technical File contain all the necessary information relating to the characteristics of the system, including:

1.2 Conditions and limits of use.

1.3 Technical Specifications and Compliance with Essential Requirements.

1.4 Certification of the Constituents.

* 1. EC Declarations of Suitability for Use, supporting records.
  2. This document will accompany the EC Declaration of Verification throughout the system’s service life and will be held by the Senior Air Traffic Engineer at *{airport}.*

# Technical File Contents

[1. Executive Summary 1](#_Toc158531309)

[2. Technical File Contents 1](#_Toc158531310)

[3. Annex II Essential Requirements Satisfaction 2](#_Toc158531311)

[3.1 General Requirements – Part A 2](#_Toc158531312)

[3.2 Specific Requirements – Part B 10](#_Toc158531313)

[4. List of Constituents 26](#_Toc158531314)

[5. Characteristics of the System 27](#_Toc158531315)

[5.1 System Description 27](#_Toc158531316)

[5.2 Conditions and Limitations of Use 27](#_Toc158531317)

[6. Documents Certifying Conformity 28](#_Toc158531318)

[7. SAT Documentation 29](#_Toc158531319)

[8. Maintenance Procedures 29](#_Toc158531321)

[9. Operational ATC Procedures 29](#_Toc158531323)

# 3. Annex II Essential Requirements Satisfaction

**Part A**

## 3.1 General Requirements

|  | **Requirement** | **Keywords** | **Satisfaction Evidence** |
| --- | --- | --- | --- |
| **GR1. Seamless Operation** | Air traffic management systems and their constituents shall be designed, built, maintained and operated using the appropriate and validated procedures, in such a way as to ensure the seamless operation of the EATMN at all times and for all phases of flight. Seamless operation can be expressed, in particular, in terms of information sharing, including the relevant operational status information, common understanding of information, comparable processing performances and the associated procedures enabling common operational performances agreed for the whole or parts of the EATMN. | Designed (to ensure seamless operation) | System and installation design evidence is provided in *{part & section reference}* of the Safety Case *{Safety Case reference}*. |
| Built | Construction, installation and configuration evidence for the system is provided in the Site Acceptance Test Specification *{reference}* and associated results *{results reference}* completed on *{date of SAT completion}*. |
| Maintained | Maintenance of the system is managed using processes referenced in the EASA Common Requirement Matrix *{reference}*.  A *{system}* maintenance procedure has been produced and this is *{provided/referenced}* in Section 8 of this Technical File. |
| Operated | Operation of the system takes place in accordance with MATS Part 2 procedures *{MATS Part 2 section reference}*, which are referenced in Section 9 of this Technical File. |
| Information sharing (importing and exporting of information / data) | Operational Status Information is promulgated in the UK Aeronautical Information Publication using the NOTAM system and AIRAC Cycle amendments as appropriate.  Status information required by *{airport}* ATS staff is provided in accordance with CAP670, and its function tested where appropriate in the SAT documentation referred to in Section 7 of this Technical File.  And   * No external information sources or destinations are applicable to the *{airport} {system}*.   *Or*   * Information and data produced by this system is shared with *{other unit}* for the purpose of *{other unit purpose}*. * Common understanding of information is achieved through use of data in accordance with *{data format}* specification as specified in Contract *{contract reference}*. * Comparable processing capabilities for Units sharing information with the system is confirmed during SAT *{part & section reference}*, and industry standards are used where applicable. * Associated procedures for data sharing are defined in the Letter of Agreement. |

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Requirement** | **Keywords** | **Satisfaction Evidence** |
| **GR2. Support for New Concepts of Operation** | The EATMN, its systems and their constituents shall support, on a coordinated basis, new agreed and validated concepts of operation that improve the quality, sustainability and effectiveness of air navigation services, in particular in terms of safety and capacity | New and validated Concepts of Operation | New concepts of operation supported by the system are defined in *{Concept of Operations documentation, reference}*.  *Or*  There are no new concepts of operation, to be taken into account or associated with the *{airport} {system}*. |
| Improved quality | *{Describe how the system and its constituents improve the quality of air navigation services}*.  *Or*  Not applicable. *{where there are no new concepts of operation stated above}* |
| Improved sustainability | *{ Describe how the system improves environmental sustainability}*  *Or*  Not applicable. *{where there are no new concepts of operation stated above}* |
| Improved effectiveness | *{Describe how the system and its constituents improve the effectiveness of air navigation services}*.  *Or*  Not applicable. *{where there are no new concepts of operation stated above}* |
| Improved safety | *{Describe how the system and its constituents improve the safety of air navigation services}*.  *Or*  Not applicable. *{where there are no new concepts of operation stated above}* |
| Improved capacity | *{Describe how the system and its constituents improve capacity of air navigation services}*.  *Or*  Not applicable. *{where there are no new concepts of operation stated above}* |
|  |  |  |
| The potential of new concepts, such as collaborative decision-making, increasing automation and alternative methods of delegation of separation responsibility, shall be examined taking due account of technological developments and of their safe implementation, following validation. | New concepts examined | *{Describe which related new concepts were examined – this is to indicate awareness and consideration of defined new concepts that the system may need to support within the foreseeable period of operational use}*.  *Or*  Not applicable. |

|  | **Requirement** | **Keywords** | **Satisfaction Evidence** |
| --- | --- | --- | --- |
| **GR3. Safety** | Systems and operations of the EATMN shall achieve agreed high levels of safety. Agreed safety management and reporting methodologies shall be established to achieve this. | Agreed Safety Management Methodologies | *{Airport}* has a Safety Management System, which has been accepted by the UK National Supervisory Authority during the process of Certification of *{airport}* under Single European Sky legislation. |
| Agreed reporting methodologies | *{Airport}* uses the UK Mandatory Occurrence Scheme as published in CAP382, which is published on the UK CAA Website [www.caa.co.uk](http://www.caa.co.uk). Internal reporting methodologies are in place for both ATC and Engineering staff. These are described in the *{airport}* Safety Management System. |
|  |  |  |
| In respect of appropriate ground-based systems, or parts thereof, these high levels of safety shall be enhanced by safety nets, which shall be subject to agreed common performance characteristics. | Safety Nets (not duplicate or standby systems) | *{Describe safety nets supporting or provided by the system or its constituents}*.  *Or*  The system is not supported by Safety Nets. |
|  |  |  |
| A harmonised set of safety requirements for the design, implementation, maintenance and operation of systems and their constituents, both for normal and degraded modes of operation, shall be defined with a view to achieving the agreed safety levels, for all phases of flight and for the entire EATMN. | Safety requirements | Safety Requirements for the systemhave been produced in accordance with the *{airport}* Safety Management System. The system uses guidance published by the UK National Supervisory Authority in CAP760 for the identification of Safety Requirements. The Safety requirements are recorded in *{part & section reference}* of the Safety Case. |
| Normal and degraded modes (safety aspects) | Normal operations are described in *{part or section reference}* of the MATS Part 2 *{MATS Part 2 ref}* referenced in Section 9 of this Technical File.  Degraded modes of operation are covered by the *{airport}* TRUCE plan, which has been accepted by the UK National Supervisory Authority. |
| Agreed safety levels for all phases of flight | Safety Requirements identification for the *{system}* covers all phases of flight through adherence to the *{airport}* Safety Management System, which has been accepted by the UK National Supervisory Authority. |

|  | **Requirement** | **Keywords** | **Satisfaction Evidence** |
| --- | --- | --- | --- |
| **GR3. Safety** | Systems shall be designed, built, maintained and operated, using the appropriate and validated procedures, in such a way that the tasks assigned to the control staff are compatible with human capabilities, in both the normal and degraded modes of operation, and are consistent with required safety levels. | Compatible with human capabilities | The measures taken through design, build and maintenance to ensure tasks assigned to control staff are compatible with human capabilities is *{provided /referenced}* in *{document/section}.*  Operational aspects detailing the tasks assigned to control staff in relation to this system are given in MATS Part 2 procedures referenced in Section 9 of this Technical File. |
| Normal and degraded modes (HMI aspects) | Normal operations are described in *{part or section reference}* of the MATS Part 2 referenced in Section 9 of this Technical File. Degraded modes of operation are covered by the *{airport}* TRUCE plan *{Truce Plan reference}*, which has been accepted by the UK National Supervisory Authority. |
|  |  |  |
| Systems shall be designed, built, maintained and operated using the appropriate and validated procedures, in such a way as to be free from harmful interference in their normal operational environment. | Free from harmful [electromagnetic] interference | The constituents of the system are CE marked. This confirms that the constituents meet the requirements of the EMC or R&TTE Directives where applicable. Copies of the Declaration of Conformity are provided in Section 6 of this Technical File.  System installation design and testing confirmed that the *{system}* is not adversely affected by other systems and does not cause harmful interference to other systems. *{Note - See the fixed installation requirements of EMC Directive 2004/108/EC}.*  *{Include frequency licensing details where applicable}.*  *{For ILS, include CAP 670 ILS 08 compliance details}.* |

|  | **Requirement** | **Keywords** | **Satisfaction Evidence** |
| --- | --- | --- | --- |
| **GR4. Civil – Military Coordination** | The EATMN, its systems and their constituents shall support the progressive implementation of civil/military coordination, to the extent necessary for effective airspace and air traffic flow management, and the safe and efficient use of airspace by all users, through the application of the concept of the flexible use of airspace. | Support civil / military coordination | The system incorporates *{detail}* interfaces to enable coordination and information sharing with military systems for the flexible use of airspace.  *or*  This system has no interface or requirement for coordination with military systems. |
| Effective airspace management | Airspace Management in the UK is overseen by CAA DAP and is therefore outside the scope of this Technical File. |
| Safe and efficient use of airspace | Airspace Management in the UK is overseen by CAA DAP and is therefore outside the scope of this Technical File. |
|  |  |  |
| To achieve these objectives, the EATMN, its systems and their constituents shall support the timely sharing of correct and consistent information covering all phases of flight, between civil and military parties. | Sharing of timely and correct information between civil and military parties. | The system does not provide any specific shared data. Availability of the service that the *{system}* supports is promulgated in the *{airport}* AIP entries. |
|  |  |  |
| Account should be taken of national security requirements. | National security | The requirements of national security are met as detailed in *{reference}.*  *or*  There are no national security implications of the *{airport} {system}.* |

|  | **Requirement** | **Keywords** | **Satisfaction Evidence** |
| --- | --- | --- | --- |
| **GR5. Environmental Constraints** | Systems and operations of the EATMN shall take into account the need to minimise environmental impact in accordance with Community legislation. | Minimise environmental impact | The systemcomplies with relevant community legislation such as EC Directive 2002/30 on the establishment of rules and procedures with regard to the introduction of noise related operating restrictions at Community airports (civil airports which have more than 50 000 movements of civil jet aeroplanes per year); EC Directive 2008/50 on ambient air quality; the Waste Electrical and Electronic Equipment (the WEEE Directive 2002/96/EC) and the restriction of certain hazardous substances, (the RoHS directive 2002/95/EC).  And  *{Airport}* operates in accordance with UK planning and development legislation. In the case of the deployment of the *{system}* no planning permissions or environmental impact studies were required.  *or*  *{Airport}* operates in accordance with UK planning and development legislation. In the case of deployment of the *{system}* planning consent was granted on *{consent date}* by *{local council}.* |

|  | **Requirement** | **Keywords** | **Satisfaction Evidence** |
| --- | --- | --- | --- |
| **GR6. Principles governing the logical architecture of systems** | Systems shall be designed and progressively integrated with the objective of achieving a coherent and increasingly harmonised, evolutionary and validated logical architecture within the EATMN. | EATMN logical architecture | Where this system interfaces with other ATS units the current interface standard *{detail}* has been incorporated to enhance integration.  *or*  The EATMN logical architecture is outside the scope of the system project. |

|  | **Requirement** | **Keywords** | **Satisfaction Evidence** |
| --- | --- | --- | --- |
| **GR7. Principles governing the construction of systems** | Systems shall be designed, built and maintained on the grounds of sound engineering principles, in particular those relating to modularity, enabling interchangeability of constituents, high availability, and redundancy and fault tolerance of critical constituents. | Sound engineering principles | The systemwas designed and built, and is maintained, in accordance with processes and policies identified in the *{airport}* Safety Management System. *{section/para reference}* |
| Modularity  (enabling interchangeability of constituents) | The system Safety Case *{Safety Case section/para reference}* includes a block diagram showing the interchangeable of the *{system}* constituents. |
| Availability | The systemSafety Case *{Safety Case section/para reference}* identifies the availability requirement of the *{system}*. |
| Redundancy | The system Safety Case *{Safety Case section/para reference}* includes a block diagram showing redundancy of constituents of the *{system}*. |
| Fault tolerance | The safety requirements in the system Safety Case *{Safety Case section/para reference}* have been identified based on a process of consideration of consequence of all reasonably predicted faults and failure modes of the *{system}*. |

## Part B

## Specific Requirements (SR)

Only the specific requirements related to the system being brought into service need to be completed. More than one specific requirement may be applicable.

**SR 1. Systems and Procedures for Airspace Management**

|  | **Requirement** | **Keywords** | **Satisfaction Evidence** |
| --- | --- | --- | --- |
| **1.1 Seamless Operation** | Information relating to pre-tactical and tactical aspects of airspace availability shall be provided to all interested parties in a correct and timely way so as to ensure an efficient allocation and use of airspace by all airspace users. This should take into account national security requirements. | Pre-tactical | Pre-tactical information on airspace availability is generated by systemand made available to other interested parties as described in *{reference}.* |
| Tactical | Tactical information on airspace availability is generated by *{system}* and made available to other interested parties as described in *{reference}.* |
| Correct | The correctness of the data supplied is assured by the design being complaint with *{reference}* and demonstrated by *{reference}*.  *Or*  The correct transmission of the data is ensured by the uses of the standard communications protocol *{name}* as defined in *{reference}.* |
| Timely | The maximum delay in the availability of the data is as defined in *{section/para reference}*. This is demonstrated by testing reported in *{reference}*. |
| National security requirements. | The requirements of National Security regarding airspace availability are met as detailed in *{section/para reference}.*  *Or*  There are no national security implications regarding airspace availability of the *{airport} {system}.* |

**SR 2.**

**Systems and Procedures for Air Traffic Flow Management**

**SR 2. Systems and Procedures for Air Traffic Flow Management**

|  | **Requirement** | **Keywords** | **Satisfaction Evidence** |
| --- | --- | --- | --- |
| **2.1 Seamless Operation** | Systems and procedures for air traffic flow management shall support the sharing of correct, coherent and relevant strategic, pre-tactical and tactical, as applicable, flight information covering all phases of flight and offer dialogue capabilities with a view to achieving optimised use of airspace. | *Sharing* flight information | *{With reference to ANSPs systems and related procedures, that send and receive flight information}.* |
| *Correct* flight information | *{With reference to ANSPs systems and related procedures, that send and receive flight information}.*  ATFM requirements have been generated in support of their specific function as defined in the MATS documentation *{section/para reference}*. The ATFM system has been validated against these requirements and reported in *{document reference}.* |
| *Coherent* flight information | *{With reference to ANSPs systems and related procedures, that send and receive flight information}.* |
| *Relevant* flight information | With reference to ANSPs systems that send and receive flight information and the related procedures  The relevance of the information is demonstrated in *{document reference}* where the relevance of the information to the operation is identified with reference to operational procedures. |
| Dialogue capabilities | *{With reference to ANSPs systems that send and receive flight information}* |

# SR 3. Systems and Procedures for Air Traffic Services

**SR 3.1 Flight Data Processing**

|  | **Requirement** | **Keywords** | **Satisfaction Evidence** |
| --- | --- | --- | --- |
| **3.1.1 Seamless operation** | Flight data processing systems shall be interoperable in terms of the timely sharing of correct and consistent information, and a common operational understanding of that information, in order to ensure a coherent and consistent planning process and resource-efficient tactical co-ordination throughout the EATMN during all phases of flight. | *Timely* sharing | Evidence showing the systemtimely sharing of flight data is provided in Part *{part & section reference}* of the Safety Case. |
| *Correct* and *Consistent* information | Testing to show that correct flight data is provided in Part *{part & section reference}* of the Safety Case. |
| Common operational understanding of information | Evidence of systemdesign for common operational understanding of information in accordance with ICAO SARPs is provided in Part *{part & section reference}* of the Safety Case. |
| Ensure coherent and consistent planning | Evidence of systemdesign for coherent and consistent planning is provided in Part *{part & section reference}* of the Safety Case. |
| Resource efficient tactical coordination | Evidence of systemdesign for resource efficient tactical coordination is provided in Part *{part & section reference}* of the Safety Case.  *{include any new MATS Part 2 procedures for the new system}* |
|  |  |  |
| In order to ensure safe, smooth and expeditious processing throughout the EATMN, flight data processing performances shall be equivalent and appropriate for a given environment (surface, terminal manoeuvring area (TMA), en-route), with known traffic characteristics and exploited under an agreed and validated operational concept, in particular in terms of accuracy and error tolerance of processing results. | *Equivalent* flight data processing for a given environment | Evidence of systemdesign for equivalent flight data processing in accordance with ICAO SARPs is provided in Part *{part & section reference}* of the Safety Case. |
| *Appropriate* flight data processing for a given environment | Evidence of system design for appropriate flight data processing in accordance with ICAO SARPs is provided in Part *{part & section reference}* of the Safety Case. |
| Agreed and validated operational concept | Agreed and validated operational concept is defined in Part *{part & section reference}* of the Safety Case.  *{include any new MATS Part 2 procedures for the new system}* |
| *Accuracy* and *error tolerance* of processing results | Testing to show theaccuracy and error tolerance of processing results is referenced in Part *{part & section reference}* of the Safety Case. |

|  | **Requirement** | **Keywords** | **Satisfaction Evidence** |
| --- | --- | --- | --- |
| **3.1.2 Support for New Concepts of Operation** | Flight data processing systems shall accommodate the progressive implementation of advanced, agreed, and validated concepts of operation for all phases of flight in particular as envisaged in the ATM Master Plan. | *Accommodate* advanced concepts of operation | Accommodation of advanced concepts of operation in detailed in Part *{part & section reference}* of the Safety Case.  *Or*  No new flight data processing concepts of operation have been identified.  *Or*  There is an upgrade contract with the manufacturer /supplier. |
|  |  |  |
| The characteristics of automation-intensive tools must be such as to enable coherent and efficient pre-tactical and tactical processing of flight information in parts of the EATMN. | *Coherent* pre-tactical and tactical processing of flight information | Evidence of the systemcoherent pre-tactical and tactical processing of flight information is provided in Part *{part & section reference}* of the Safety Case.  *Or*  Not applicable. |
| *Efficient* pre-tactical and tactical processing of flight information | Evidence of the system efficient pre-tactical and tactical processing of flight information is provided in Part *{part & section reference}* of the Safety Case.  *Or*  Not applicable. |
|  |  |  |
|  | Airborne and ground systems and their constituents supporting new, agreed and validated concepts of operation shall be designed, built, maintained, and operated using appropriate and validated procedures, in such a way as to be interoperable in terms of timely sharing of correct and consistent information and a common understanding of the current and predicted operational situation | *Designed* | Evidence of the system design for new concepts of operation is provided in Part *{part & section reference}* of the Safety Case.  Or  Not applicable. |
| *Built* | Evidence of the systemand installation build for new concepts of operation, is provided in Part *{part & section reference}* of the Safety Case.  Or  Not applicable. |
| *Maintained* | Evidence of the systemand installation maintenance for new concepts of operation is provided in Part *{part & section reference}* of the Safety Case.  Or  Not applicable. |
| *Operated* | Evidence of the systemoperation for new concepts of operation takes place in accordance with MATS Part 2 procedures *{MATS Part 2 section reference}*, which is referenced in Section 9 of this Technical File.  *Or*  Not applicable. |
| *Procedures* | Evidence of the systemprocedures for new concepts of operation is provided in Part *{part & section reference}* of the Safety Case.  *Or*  Not applicable. |
| **3.1.2 Support for New Concepts of Operation (Cont)** | *Timely sharing* of Information | Evidence showing the systemtimely sharing of information is provided in Part *{part & section reference}* of the Safety Case.  *Or*  Not applicable. |
| *Correct* information | Testing to show that correct flight data is provided in Part *{part & section reference}* of the Safety Case *{Safety Case reference}*.  *Or*  Not applicable. |
| *Consistent* information | Testing to show that consistent flight data is provided in Part *{part & section reference}* of the Safety Case *{Safety Case reference}*.  *Or*  Not applicable. |
| Common understanding of the *current* operational situation | Evidence of system design for common operational understanding of current operational situation in accordance with ICAO SARPs is provided in Part *{part & section reference}* of the Safety Case.  *Or*  Not applicable |
| Common understanding of the *predicted* operational situation | Evidence of system design for common operational understanding of the predicted operational situation in accordance with ICAO SARPs is provided in Part *{part & section reference}* of the Safety Case.  *Or*  Not applicable |

**SR 3.2 Surveillance Data Processing Systems**

|  | **Requirement** | **Keywords** | **Satisfaction Evidence** |
| --- | --- | --- | --- |
| **3.2.1 Seamless Operation** | Surveillance data processing systems shall be designed, built, maintained and operated using the appropriate and validated procedures, in such a way as to provide the required performance and quality of service within a given environment (surface, TMA, en-route) with known traffic characteristics, in particular in terms of accuracy and reliability of computed results, correctness, availability, continuity and timeliness of information at the control position. | *Designed* to provide the required performance and quality of service within a given environment | Evidence of the systemdesign for the required performance and quality of service is provided in Part *{part & section reference}* of the Safety Case. |
| *Built* to provide the required performance and quality of service within a given environment | Evidence of the systembuild for the required performance and quality of service is provided in Part *{part & section reference}* of the Safety Case *{Safety Case reference}*. |
| *Maintained* to provide the required performance and quality of service within a given environment | Evidence of how the systemis maintained to provide the required performance and quality of service is provided in Part *{part & section reference}* of the Safety Case *{Safety Case reference}*. |
| *Operated* to provide the required performance within a given environment | Evidence of the systemoperation for new concepts of operation takes place in accordance with MATS Part 2 procedures *{MATS Part 2 section reference}*, which is included in Section 9 of this Technical File. |
| *Operated* to provide quality of service within a given environment | Evidence of the systemoperation to provide quality of service in accordance with MATS Part 2 procedures *{MATS Part 2 section reference}*, which is included in Section 9 of this Technical File. |
| *Accuracy* of computed results | Evidence of the systemaccuracy of computed results is provided in Part *{part & section reference}* of the Safety Case.  *{Was this verified during the SAT and compliance with CAP 670, RAD 05, RAD 06, RAD 08?*  *Flight trials carried out in accordance with CAP 670 FLI 03?}* |
|  |

|  |  |  |  |
| --- | --- | --- | --- |
| **3.2.1 Seamless Operation** |  | *Reliability* of computed results | Evidence of the system reliability of computed results is provided in Part *{part & section reference}* of the Safety Case *{Safety Case reference}*. |
| *Integrity* of information at the control position. | Evidence of the system reliability of computed results is provided in Part *{part & section reference}* of the Safety Case *{Safety Case reference}*. |
| *Availability* of information at the control position | Evidence of the availability ofinformation at the control positionis provided in Part *{part & section reference}* of the Safety Case *{Safety Case reference}*. |
| *Continuity* of information at the control position | Evidence of the system reliability of computed results is provided in Part *{part & section reference}* of the Safety Case *{Safety Case reference}*. |
| *Timeliness* of information at the control position | Evidence of the systemreliability of computed results is provided in Part *{part & section reference}* of the Safety Case *{Safety Case reference}*. |
| **Requirement** | **Keywords** | **Satisfaction Evidence** |
| Surveillance data processing systems shall accommodate the timely sharing of relevant, accurate, consistent, and coherent information between them to ensure optimised operations through different parts of the EATMN. | Timely sharing of *relevant* information | Evidence of the systemtimely sharing of relevantinformation is provided in Part *{part & section reference}* of the Safety Case *{Safety Case reference}*. |
| Timely sharing of *accurate* information | Evidence of the systemtimely sharing of accurateinformation is provided in Part *{part & section reference}* of the Safety Case *{Safety Case reference}*. |
| Timely sharing of *consistent and coherent* information | Evidence of the systemtimely sharing of consistent and coherentinformation is provided in Part *{part & section reference}* of the Safety Case *{Safety Case reference}*.  *{Data is supplied in RDIF / Asterix format}* |

|  | **Requirement** | **Key words** | **Satisfaction Evidence** |
| --- | --- | --- | --- |
| **3.2.2 Support for New Concepts of Operation** | Surveillance data processing systems shall accommodate the progressive availability of new sources of surveillance information in such a way as to improve the overall quality of service in particular as envisaged in the ATM Master Plan. | Accommodate new sources of surveillance | *{Detail how the system accommodates new sources of surveillance information}*  *Or*  There are no facilities for incorporating new surveillance information. |
| Improve the quality of service. | *{Detail how the quality of service has been improved}.*  *Or*  There are no improvements or degradation to the quality of service*.* |

**SR 3.3 Human-Machine Interface Systems**

|  | **Requirement** | **Key words** |  |
| --- | --- | --- | --- |
| **3.3.1 Seamless Operation** | Human-machine interfaces of ground air traffic management systems shall be designed, built, maintained and operated using the appropriate and validated procedures, in such a way as to offer to all control staff a progressively harmonised working environment, including functions and ergonomics, meeting the required performance for a given environment (surface, TMA, en-route), with known traffic characteristics. | *Designed* to offer to all control staff a progressively harmonised working environment | Detail of how the systemhas been designed to provide a progressively harmonised working environment is provided in *{document} {part & section reference}.* |
| *Built* to offer to all control staff a progressively harmonised working environment | Detail of how the systemhas been built to provide a progressively harmonised working environment is provided in *{document} {part & section reference}.* |
| *Maintained* to offer to all control staff a progressively harmonised working environment | Detail of how the systemis maintained to provide a progressively harmonised working environment is provided in *{document} {part & section reference}.* |
| *Operated* to offer to all control staff a progressively harmonised working environment | Detail of how the systemis operated to provide a progressively harmonised working environment is provided in *{document} {part & section reference}.* |
|  | *Functions and Ergonomics.* | The functions and procedures are detailed in the MATS Part 2 *{section reference}*.  ATC personnel assessed and accepted the equipment which is reported in *{document} {part & section reference}*.  *{Detail any user input into the operation such as agreement of the installed position with ATC personnel.*  *Was a Human Factors assessment carried out?}.* |

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Requirement** | **Keywords** | **Satisfaction Evidence** |
| **3.3.2 Support for New Concepts of Operation** | Human-machine interface systems shall accommodate the progressive introduction of new, agreed and validated concepts of operation and increased automation, in such a way as to ensure that the tasks assigned to the control staff remain compatible with human capabilities, in both the normal and degraded modes of operation. | Accommodate new concepts of operation | Detail of how the system accommodates new concepts of operation is provided in *{document} {part & section reference}.* |
| Accommodate increased automation | Detail of how the system accommodates increased automation is provided in *{document} {part & section reference}.* |
| Ensure control staff tasks remain compatible with human capabilities in *normal* modes of operation. | The HMI assessment of the *{system}* operation is reported in *{document} {part & section reference}.* |
| Ensure control staff tasks remain compatible with human capabilities in *degraded* modes of operation. | The HMI assessment of the degraded mode of *{system}* operation is reported in *{document} {part & section reference}.*  *Or*  There are no designed degraded modes of operation. |

# SR 4 Communications Systems and Procedures for Ground-to-Ground,

# Air-to-Ground and Air-To-Air Communications

|  | **Requirement** | **Keywords** | **Satisfaction Evidence** |
| --- | --- | --- | --- |
| **4.1 Seamless Operation** | Communication systems shall be designed, built, maintained and operated using the appropriate and validated procedures, in such a way as to achieve the required performances within a given volume of airspace or for a specific application, in particular in terms of communication processing time, integrity, availability and continuity of function. | *Designed* to achieve the required performances within a given volume of airspace | System and installation design evidence to achieve the required performance is provided in Part *{part & section reference}* of the Safety Case *{Safety Case reference}.* |
| *Built* to achieve the required performances within a given volume of airspace | Construction, installation and configuration evidence is provided in the Site Acceptance Test Specification *{reference}* and associated results *{results reference}* completed on *{date of SAT completion}*. |
| *Maintained* to achieve the required performances within a given volume of airspace | Maintenance of the systemis carried out as defined in the *{airport}* Single European Sky Common Requirement Matrix *{reference}.*  A *{system}* maintenance procedure has been produced and this is *{referenced}* in Section 8 of this Technical File. |
| *Operated* to achieve the required performances within a given volume of airspace | Operation of the systemtakes place in accordance with MATS Part 2 procedures *{MATS Part 2 reference}*, which are referenced in Section 9 of this Technical File and in accordance with the performance defined in Part *{part & section reference}* of the Safety Case *{Safety Case reference}*. |
| Achieve the required performances in terms of *communication processing time* | Detail of how the systemachieves the required communication processing time performance is provided in *{document} {part & section reference}.*  *{Make reference to compliance with relevant sections of CAP 670 such as:*  *AGA VHF Compliance with CAP 670 Com 03, Com 02.*  *GG Telephones, SAT testing.*  *GG UHF Compliance with CAP 670 Com 07.*  *ATIS Tx Compliance with CAP 670 Com 06.*  *FDP – AFTN Compliance with CAP 670 Com 05}.* |
| Achieve the required performances in terms of *integrity* | Detail of how the system achieves the required integrity performance is provided in *{document, part & section reference}.* |
| Achieve the required performances in terms of *continuity of function.* | Detail of how the systemachieves the required continuity of function is provided in *{document, part & section reference}.* |
| **4.1 Seamless Operation** | **Requirement** | **Keywords** | **Satisfaction Evidence** |
| The communications network within EATMN shall be such as to meet the requirements of quality, service, coverage, and redundancy. | Meet the requirements of network *quality of service,* | Detail of how the systemachieves the network quality of serviceis provided in *{document, part & section reference}.*  *{Was the speech quality tested during the SAT?}.* |
| Meet the requirements of network *coverage,* | Detail of how the system achieves the required network coverage is provided in *{document, part & section reference}.*  *{Were coverage plots taken?}.*  *{Reference flight trials carried out as part of the system testing}.* |
| Meet the requirements of *redundancy* | Detail of how the system redundancyrequirements are met is provided in *{document, part & section reference}.*  *Or*  Not applicable. |

|  | **Requirement** | **Keywords** | **Satisfaction Evidence** |
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| **4.2 Support for new concepts of Operation** | Communications systems shall support the implementation of advanced, agreed, and validated concepts of operation for all phases of flight, in particular as envisaged in the ATM Master Plan. | Support the implementation of advanced, concepts of operation | Detail of how the system supports the implementation of advanced, agreed, and validated concepts of operation is provided in *{document, part & section reference}.*  *{i.e. 8.33kHz capability}.*  *Or*  There are no new concepts of operation. |

**SR 5 Navigation Systems and Procedures**

|  | **Requirement** | **Keywords** | **Satisfaction Evidence** |
| --- | --- | --- | --- |
| **5.1 Seamless Operation** | Navigation systems shall be designed, built, maintained and operated using appropriate and validated procedures in such a way as to achieve the required horizontal and vertical navigation performance, in particular in terms of accuracy and functional capability, for a given environment (surface, TMA, en-route), with known traffic characteristics and exploited under an agreed and validated operational concept. | *Designed* to achieve the required horizontal and vertical navigation | Design objectives for navigation performance is provided in Part *{part & section reference}* of the Safety Case. |
| *Built* to achieve the required horizontal and vertical navigation | Construction, installation and configuration evidence to provide the required navigation performance is provided in the Site Acceptance Test Specification *{reference}* and associated results *{results reference}* completed on *{date of SAT completion}*. |
| *Maintained* to achieve the required horizontal and vertical navigation | The required navigation performance of the *system* is maintained as defined in the *{airport}* Single European Sky Common Requirement Matrix.  A *{system}* maintenance procedure has been produced and this is *{referenced}* in Section 8 of this Technical File. |
| *Operated* to achieve the required horizontal and vertical navigation performance | Operation of the systemtakes place in accordance with MATS Part 2 procedures *{MATS Part 2 Reference}*, which are referenced in Section 9 of this Technical File and in accordance with the performance defined in Part *{part & section reference}* of the Safety Case. |
| Horizontal and vertical navigation | The required horizontal and vertical navigation is defined in Part *{part & section reference}* of the Safety Case and confirmed by flight inspection reported in *{reference}.*  *{Compliance with CAP 670 ILS 02, NAV 03 or NAV 06? The flight trials report/certificate can be referenced here}.* |
| Horizontal and vertical navigation *accuracy and functional capability* | The horizontal and vertical navigation functional capability is defined in Part *{part & section reference}* of the Safety Case.  *{was the accuracy and functional capability tested during the SAT for compliance with CAP 670 ILS 06, ILS 10, NAV 01, NAV 02, NAV 04, NAV 05, or VDF 01?}.* |
| Agreed and validated operational concept. | The system is operated to *{define}* agreed and validated operational concept as detailed in the MATS Part 2 *{section reference}*.  *Or*  There is no current relevant agreed and validated operational concept. |

**SR 6.Surveillance Systems and Procedures**

|  | **Requirement** | **Keywords** | **Satisfaction Evidence** |
| --- | --- | --- | --- |
| **6.1 Seamless Operation** | Surveillance systems shall be designed, built, maintained and operated using appropriate and validated procedures in such a way as to provide the required performance applicable in a given environment (surface, TMA, en-route) with known traffic characteristics and exploited under an agreed and validated operational concept, in particular in terms of accuracy, coverage, range and quality of services. | Surveillance systems *designed* to provide the required performance. | System and installation design evidence to achieve the required performance is provided in Part *{part & section reference}* of the Safety Case. |
| *Built* to provide the required performance. | Construction, installation and configuration evidence of the *{airport} {system* is provided in the Site Acceptance Test Specification *{reference}* and associated results *{results reference}* completed on *{date of SAT completion}*. |
| *Maintained* to provide the required performance. | Maintenance of the systemis carried out as defined in the *{airport}* Single European Sky Common Requirement Matrix *{reference}*.  A *{system}* maintenance procedure has been produced and this is *{provided/referenced}* in Section 8 of this Technical File. |
| *Operated* to provide the required performance. | Operation of the systemtakes place in accordance with MATS Part 2 procedures *{MATS Part 2 reference}*, which are referenced in Section 9 of this Technical File and in accordance with the performance defined in Part *{part & section reference}* of the Safety Case. |
| Surveillance systems *accuracy*, *coverage and* *range.* | The required surveillance accuracy, coverage and range is defined in Part *{part & section reference}* of the Safety Case and confirmed by flight inspection to the requirements of CAP 670 FL03 reported in *{reference}.* |
| Surveillance systems *quality of service.* | The required surveillance quality of service is defined in Part *{part & section reference}* of the Safety Case and confirmed by flight inspection reported in *{reference}.* |

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|  | **Requirement** | **Keywords** | **Satisfaction Evidence** |
| **6.1 Seamless Operation** | The surveillance **network** within the EATMN shall be such as to meet the requirements of accuracy, timeliness, coverage, and redundancy. The surveillance network shall enable surveillance data to be shared in order to enhance operations throughout the EATMN. | Surveillance network accuracy | The *{airport}* surveillance system is a standalone sensor *{incorporating PSR, SSR, Multilateration}* used exclusively by *{airport}*. The accuracy requirements for the sensor are identified in Part *{part & section reference}* of the Safety Case and evidence that the requirement is met is provided in the remaining parts of the Safety Case.  *Or*  The Surveillance Network Safety Case *{part & section reference}* identifies the accuracy requirement for surveillance sensors, which form the network. Evidence that the requirement is met is provided in the System Safety Case *{part & section reference}.* |
| Surveillance network timeliness | The *{airport}* surveillance system is a standalone sensor *{incorporating PSR, SSR, Multilateration}* used exclusively by *{airport}*. The timeliness requirements for the sensor are identified in the Safety Case Part One *{section reference}* and evidence that the requirement is met is provided in the remaining parts of the Safety Case *{part & section reference}*.  *Or*  The Surveillance Network Safety Case *{part & section reference}* identifies the timeliness requirement for surveillance sensors, which form the network. Evidence that the requirement is met is provided in the System Safety Case *{part & section reference}.* |
| Surveillance network coverage | The *{airport}* surveillance system is a standalone sensor *{incorporating PSR, SSR, Multilateration}* used exclusively by *{airport}*. The coverage requirements for the sensor are identified in the Safety Case Part *{part & section reference}* and evidence that the requirement is met is provided in the Safety Case *{part & section reference}*.  *Or*  The Surveillance Network Safety Case *{part & section reference}* identifies the coverage requirement for surveillance sensors, which form the network. Evidence that the requirement is met is provided in the System Safety Case *{part & section reference}.* |

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| **6.1 Seamless Operation** | **Keywords** | **Sa**Redundancy**ion Evidence** | The *{airport}* surveillance system is a standalone sensor *{incorporating PSR, SSR, Multilateration}* used exclusively by *{airport}*. Other than the individual surveillance systems *{PSR, SSR, Multilateration}* no redundancy is provided.  *Or*  The Surveillance Network Safety Case *{part & section reference}* identifies where redundant surveillance coverage is required. Evidence that the requirement is met is provided in the Surveillance Network Safety Case *{part & section reference}.* |
| Enable surveillance data to be shared | The *{airport}* surveillance system is a standalone sensor *{incorporating PSR, SSR, Multilateration}* used exclusively by *{airport}*. No data sharing takes place.  *Or*  The Surveillance Network Safety Case {Ref, section & date} identifies the data-sharing requirement for surveillance sensors, which form the network. Evidence that the requirement is met is provided in the System Safety Case *{part & section reference}.* |

**SR 7 Systems and procedures for Aeronautical Information Services**

|  | **Requirement** | **Keywords** | **Satisfaction Evidence** |
| --- | --- | --- | --- |
| **7.1 Seamless Operation** | Accurate, timely and consistent aeronautical information shall be provided progressively in an electronic form, based on a commonly agreed and standardised data set. | Accurate, timely and consistent aeronautical information provided progressively in an electronic form | Evidence of the system sharing accurate, timely and consistentinformation is provided in Part *{part & section reference}* of the Safety Case.  *{Include SAT reference for the testing of parameters.*  *Was the system tested against ICAO Annex 11, Chapter 7?*  *Was the system tested against CAP 670, Com 06?}.* |
| Commonly agreed and standardised data set. | Details of the commonly agreed data set used by system are provided in Part *{part & section reference}* of the Safety Case.  *{Is the data in accordance with ICAO Doc 4444 chapter 4, Paragraph 4.2?}* |
| Accurate and consistent aeronautical information, in particular concerning airborne and ground-based constituents or systems, shall be made available in a timely manner. | Timely availability of *accurate* information concerning airborne and ground based constituents or systems | The process used by the systemto ensure the availability of timely and accurate information regarding airborne and ground based constituents is provided in Part *{part & section reference}* of the Safety Case. |
| Timely availability of *consistent* information concerning airborne and ground-based constituents or systems | The process used by the systemto ensure the availability of consistent information regarding airborne and ground based constituents is provided in Part *{part & section reference}* of the Safety Case. |

**SR 8 Systems and procedures for Use of Meteorological Information**

|  | **Requirement** | **Keywords** | **Satisfaction Evidence** |
| --- | --- | --- | --- |
| **8.1 Seamless Operation** | Systems and procedures for the use of meteorological information shall improve the consistency and timeliness of its provision and the quality of its presentation, using an agreed data set. | Consistency and timeliness improvement | The improvements to the consistency of the systemMet information are detailed in Part *{part & section reference}* of the Safety Case.  *{Was the system tested against CAP 746? State the relevant parts complied with.*  *Did the system meet CAP 670, Met 01?}.*  *Or*  The system *does not improve* the consistency or timeliness of Met Information. |
| Quality of presentation | The improvements to the quality of presentation from the systemMet information are detailed in Part *{part & section reference}* of the Safety Case.  *{Is the data in accordance with CAP 746, relevant parts and ICAO Annex 3, Chapter 4?}.*  *Or*  The system *does not improve* the quality of presentation of Met Information. |

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| **8.2 Support for new concepts of Operation** | Systems and procedures for the use of meteorological information shall improve the promptness of its availability and the speed with which it may be used, in order to support continuous improvement of the efficiency of airspace and airport use. | Improve the *promptness* of its availability | The improvements to the promptness of availability of the systemMet information are detailed in Part *{part & section reference}* of the Safety Case.  *Or*  The system *does not improve* the promptness of availability of Met Information. |
| Improve the *speed* with which it may be used | Details of the improved speed with which the systemenables Met information to be used is detailed in Part *{part & section reference}* of the Safety Case.  *Or*  The systemdoes not *improve* the speed at which Met Information can be used. |
| Improve *efficiency* of airspace and airport use. | The details of how the system improves the efficiency of airspace and airport use is provided in Part *{part & section reference}* of the Safety Case.  *Or*  The systemdoes not improve the efficiency of airspace and airport use. |
| *Procedures* for use | The procedures for the use of the systemare contained in the *{airport}* MATS Part 2 and these procedures is provided in Section 9 of this technical file. |

# 4. List of Constituents

*{Do not provide a link to an external document. The list of constituents must be incorporated into the Technical File.*

*List here the constituents that form the system. See para 4.2 ‘Constituents’ of ANSP Interoperability Compliance guidance (available at* [*www.caa.co.uk/sesinteroperability*](http://www.caa.co.uk/sesinteroperability)*). The related IOP EC Declarations of Suitability for Use (DSU) or EC Declarations of Conformity (DoC) should be included in Section 6 from manufacturers or suppliers. Avoid identification of individual components.*

*For example an NDB system might have the following constituents:*

* *NDB Transmitter*
* *NDB Antenna*
* *NDB Monitor*

*or the complete NDB may be covered by a single DSU, a copy of which will need to be included in the Section 6 of this Technical File, or the separate DSUs if the above items are from separate sources}.*

*At the simplest end of the scale, an emergency VHF handheld transceiver would be a single standalone constituent.*

# 5 Characteristics of the System

## 5.1 System Description

*{Do not provide a link to an external document. The system description must be incorporated into the Technical File. Where part of a system is being replaced, that section of the system needs to be clearly defined.*

*Describe here the system configuration and principal functions, which the system being introduced is intended to provide. Material could be extracted from the Safety Case introduction.*

*Describe all constituents being introduced and the Air Traffic Service it will provide. The description should enable clear identification of any parts of the system that remain in place from earlier installations such as displays or antennas.*

*Where elements of an existing system are being replaced or upgraded, the system description should clearly define the system changes, and this needs to be reflected through the TF}.*

## 5.2 Conditions and Limitations of Use

*{Do not provide a link to an external document. The Conditions and Limitations of Use must be incorporated into the Technical File.*

*Describe here any principle conditions or limitations of use. For example emergency VHF transceivers’ usage would be limited to use for the safe termination of services for which the main equipment has failed.*

*Further examples could be:*

* *a limit in separation standard applied to a radar;*
* *maxima or minima values for key operational parameters or*
* *interdependencies on the operation of other ATM systems}.*

# 6. Documents Certifying Conformity

*{Provide in this section:*

* + *Copies of EC IOP DSU or DoC.*
  + *EC DoC [other than IOP] with EC Directives}*

*Where Community Specifications are available and fully complied with, an EC Declaration of Conformity replaces the DSU.*

*One DSU should be included for each identified type of constituent listed in Section 4 of this Technical File.*

*The ANSP should assess and be satisfied with the completeness and acceptability of the EC Declarations of Suitability for Use. In certain circumstances an ANSP may produce a DSU in lieu of this being available from a manufacturer. See ‘ANSP Interoperability Compliance’ on* [www.caa.co.uk/sesinteroperability](http://www.caa.co.uk/sesinteroperability) *for further details}*

# 7. SAT Documentation

*{Provide in this section:*

* + *Reference to SAT Specification and Issue state*
  + *Reference to SAT Results*
  + *SAT Completion Certificate where produced}*

*{You may also include/reference Flight Inspection documentation where a system necessitates such checks. The flight inspection report reference may be added when the TF is otherwise accepted as being complete}*

# 8. Maintenance Procedures

*{Provide or reference in this section the completed Maintenance Procedure for the system}*

# 9. Operational ATC Procedures

*{Provide or reference in this section the completed MATS Part 2 Instructions for the system}*