Final Technical Specification

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Abstract

This document describes the final technical specifications of project 12.03.04. Software prototypes of Surface Guidance Server have been developed based on these specifications and validated by the operational project 06.03.01. Both projects contribute to OFA 04.02.01 Integrated Surface Management.

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Executive summary

This document describes the system requirements, which guided the prototype development of a Surface Guidance Server in the context of project 12.03.04. These requirements were derived from and traced to the operational requirements defined by SESAR project 06.07.02 and 06.07.03 in the documents: P06.07.02-D77 (OFA04.02.01 SPR), 06.07.02-D76 (Second Integrated Surface Management Interim OSED) and 06.07.03-D26 (Preliminary INTEROP Phase 2). Both projects belong to OFA 04.02.01 Integrated Surface Management[1].

The document takes into account the results from the merging of P06.08.07 with P06.07.03. In particular, P06.07.03 took on board the operational requirements coming from P06.08.07 about Virtual Block Control (management of Virtual Stop Bar and Watch Dog function for LVP).

Surface Guidance is one of the functions of the A-SMGCS (See section 2.1). It is split into four main functionalities:

- D-TAXI – data link message exchanges used in ground operations for pilots
- Vehicle Data link – data link message exchange used for instructing the vehicle drivers
- AGL (Airfield Ground Lighting) – automatic use of ground lights, including illumination of taxiway lights and stop bars, to provide guidance according to taxi instructions
- VBC (Virtual Block Control) – use of Virtual Stop Bar for ATCO to improve low visibility operations

For data link (D-TAXI) messages, the standards used as a reference in this document are ED-228 and ED-229, developed jointly by RTCA SC-214 and EUROCAE WG-78 [6] and [7].

The 12.03.04 scope is limited to a Surface Guidance Server, within a Tower ATC system, and its interactions with other actors or subsystems, which were defined by other SESAR projects. Typically, HMI requirements were out of 12.03.04 scope and developed by project 12.05.04, or on-board requirements were developed by WP9. Coverage of 06.07.02 and 06.07.03 operational requirements is specifically reported in Appendix A at the end of this document.

Furthermore, these system requirements fall under the functional blocks “Surface Guidance Management” and “Aircraft and Vehicle Datalink Management”, as stated in the 12.01.07 TAD [5].

Project 12.03.04 contributed to develop following SESAR Solutions:

- #23: D-TAXI service for CPDLC application
- #47: Guidance Assistance through Airfield Ground Lighting
- #48: Virtual Block Control in Low Visibility Procedure

According to ATM Master Plan Dataset 15 [15], the following system enablers, which belong to Step 1, were addressed by the requirements listed in the project:

- Surface Guidance Management:
  - AERODROME-ATC-61: Enhanced surface guidance management services enhanced to process the automatic triggering of airport ground signs according to the route issued by ATC;
  - AERODROME-ATC-67: Surface movement control workstation equipped with tools for management of Virtual Block Control supporting LVP

[1] Both OFA04.02.01 OSED and SPR are to be considered as consolidated deliverables delivered by P06.07.02 with the contribution of P06.07.03

- Aircraft and Vehicle Datalink Management:
    - AERODROME-ATC-02a: Surface movement management tools updated to provide the D-TAXI information to the pilot in Step 1;
    - AERODROME-ATC-14: Surface movement management tools updated to provide ground clearances and information to the vehicle driver.

This final version of the Technical Specifications comes after the development of the prototypes based on the technical specifications of Phase 3 [12]. The NATMIG prototype has been validated by Eurocontrol in the V3 exercise EXE-06.03.01-VP-761, the Selex prototype has been validated by ENAV in the V3 exercise EXE-06.03.01-VP-719 and the Indra prototype has been validated by Enaire in the V3 exercise EXE-06.03.01-VP-758. All three exercises are part of SESAR Release 5.

It is important to highlight that the validation results (Validation Report) are still under production during D40 production, so there are possibilities of misalignments.

1 Introduction

1.1 Purpose of the document

This document describes the final technical specifications after the implementation of the prototypes of the phase 3 of project 12.03.04. Selex ES, NATMIG and Indra implemented prototypes in this phase of the project to support Release 5 validations.

The document is an evolution of Phase 3 Technical Specifications (D22), satisfying new operational requirements received from the operational projects 06.07.02 and 06.07.03 (considering the merging with 06.08.07, too). Traceability to the operational requirements is provided within the document.

The scope of the specifications is limited to the definition of a Surface Guidance Server (SGS) and how it exchanges data with other subsystems, such as the controller HMI or other A-SMGCS functions. Other actors or subsystems are identified within the document, but they are not subject of implementation in the 12.03.04 prototypes

1.2 Intended readership

The following could be interested in reading the document and will be part of the formal review of the final draft:

- 12.03.04 project partners
- 06.07.02 and 06.07.03 projects, as operational projects providing requirements and validation activities
- 06.03.01, because validation activities are managed by this project.
- 12.03.03 and 12.04.03, as airport technical projects involved in OFA04.02.01
- 09.13, as airborne technical projects for D-TAXI involved in OFA04.02.01
- 10.07.01 project, as technical project defining and developing Datalink in all phases of flight
- 12.01.07 project, as responsible of Airport Technical Architecture definition
- 12.05.04 project, as technical project defining and developing the Controller Working Position
- OFA 04.02.01 partners

1.3 Inputs from other projects

The inputs considered in the production of this document are:

- Operational requirements defined by project 06.07.02 and 06.07.03:
  - 06.07.03 – D26 Preliminary INTEROP Phase 2 [8]
  - 06.07.02 - D76 – Second Integrated Surface Management Interim OSED[9]
  - 06.07.02 - D77 - OFA04.02.01 (Integrated Surface Management) Interim SPR [10]
- Project 12.01.07 Technical Architecture Description (TAD) Step1 [5]

1.4 Structure of the document

Section 1 is the introduction; it describes the purpose and scope of the document and the methodology used to derive the requirements, including the purpose of the system under analysis.

Section 2 gives a general description of SGS Server.

Section 3 describes the capabilities, conditions and constraints of the SGS server. In particular it contains functional and non-functional requirements.

Section 5 describes the referenced documents.

Appendix A describes the traceability of technical specifications against the operational ones. In particular there are listed the covered and not covered operational requirements.

1.5 Requirements Definitions – General Guidance

The requirements reported in this document have been developed according to the SESAR Requirements and V&V Guidelines [2].

Each requirements identified in this document is uniquely labelled with respect to the other requirements. So it can be possible to refer to it unambiguously.

The naming convention used in this document is the following:

[Object_type]-[Project_code]-[Document_code]-[Reference code 1]- [Reference number 2],

Where:

- [Object_Type] is a fixed text indicating requirement (REQ)
- [Project_code] is 12.03.04, indicating that the requirements specified are associated to P12.03.04 project
- [Document_code]: according to Requirements and V&V guidelines [2], the document code is set as TS (Technical Specification).
- Reference is a sequence of digits split between reference code 1 and reference number 2. The reference code 1 indicates the section where the requirement is placed and the reference number 2 is a sequence number identifying the requirement into the section.

The Reference Code 1 has been written according with the following decomposition:

1. **General D-TAXI Service Requirements:**

   *REQ-12.03.04-TS-**2010**.0010 – for requirements coming from phase 2 and still valid*

   *REQ-12.03.04-TS-**3010**.0010 – for requirements included in phase 3 or in final document*

2. **D-TAXI ATCO HMI Data Exchange Requirements:**

   *REQ-12.03.04-TS-**2020**.0010 – for requirements coming from phase 2 and still valid*

   *REQ-12.03.04-TS-**3020**.0010 – for requirements included in phase 3 or in final document*

3. **D-TAXI Start-Up Requirements:**

   *REQ-12.03.04-TS-**2030**.0010 – for requirements coming from phase 2 and still valid*

   *REQ-12.03.04-TS-**3030**.0010 – for requirements included in phase 3 or in final document*

4. **D-TAXI Push-Back Requirements:**

   *REQ-12.03.04-TS-**2040**.0010 – for requirements coming from phase 2 and still valid*

   *REQ-12.03.04-TS-**3040**.0010 – for requirements included in phase 3 or in final document*

5. **D-TAXI Taxi Requirements:**

   *REQ-12.03.04-TS-**2050**.0010 – for requirements coming from phase 2 and still valid*

   *REQ-12.03.04-TS-**3050**.0010 – for requirements included in phase 3 or in final document*

6. **D-TAXI General Data Requirements:**

   *REQ-12.03.04-TS-**2060**.0010 – for requirements coming from phase 2 and still valid*

   *REQ-12.03.04-TS-**3060**.0010 – for requirements included in phase 3 or in final document*

7. **Vehicle Datalink Requirements:**

   *REQ-12.03.04-TS-**2070**.0010 – for requirements coming from phase 2 and still valid*

*REQ-12.03.04-TS-**3070**.0010 – for requirements included in phase 3 or in final document*

8. **AGL service general Requirements:**

*REQ-12.03.04-TS-**2080**.0010 – for requirements coming from phase 2 and still valid*

*REQ-12.03.04-TS-**3080**.0010 – for requirements included in phase 3 or in final document*

9. **AGL TCL Segments Requirements:**

*REQ-12.03.04-TS-**2090**.0010 – for requirements coming from phase 2 and still valid*

*REQ-12.03.04-TS-**3090**.0010 – for requirements included in phase 3 or in final document*

10. **AGL Route Deviation and Stop Bar Requirements:**

*REQ-12.03.04-TS-**2100**.0010 – for requirements coming from phase 2 and still valid*

*REQ-12.03.04-TS-**3100**.0010 – for requirements included in phase 3 or in final document*

11. **AGL APTR Requirements:**

*REQ-12.03.04-TS-**2110**.0010 – for requirements coming from phase 2 and still valid*

*REQ-12.03.04-TS-**3110**.0010 – for requirements included in phase 3 or in final document*

12. **Virtual Block Control Requirements:**

*REQ-12.03.04-TS-**2120**.0010 – for requirements coming from phase 2 and still valid*

*REQ-12.03.04-TS-**3120**.0010 – for requirements included in phase 3 or in final document*

13. **Safety & Security Requirements:**

*REQ-12.03.04-TS-**2200**.0010 – for requirements coming from phase 2 and still valid*

*REQ-12.03.04-TS-**3200**.0010 – for requirements included in phase 3 or in final document*

14. **Interface Requirements:**

*REQ-12.03.04-TS-**2300**.0010 – for requirements coming from phase 2 and still valid*

*REQ-12.03.04-TS-**3300**.0010 – for requirements included in phase 3 or in final document*

For example, the identifier:

REQ-12.03.04-TS-2010.0010

refers to a requirement written by the 12.03.04 project, reported inside the TS document in the section 3.1.1.1 and coming from phase 2 of the project. The number “0010” refers to the first requirement of the same section.

In order to enable the import of SE Data in the SESAR SE Repository, the description uses the layout described in Templates and Toolbox User Manual [3].

1.6 Functional block Purpose

The purpose of this project has been to develop an SGS for the ATC capable of providing the necessary information to the guidance means needed to perform the services identified by projects 06.07.02 and 06.07.03 (including the inputs coming from merging P06.08.07):

- D-TAXI and Vehicle Datalink: D-TAXI – exchanging D-TAXI messages with aircraft and data link messages with vehicles (covering Aircraft and Vehicle Datalink Management FB)
- AGL – making available the necessary information to provide guidance via the ground lighting system (covering the Surface Guidance Management FB)

- VBC – making available to ATCO mechanisms to control the aircrafts during Low Visibility Operations thanks to management of Virtual Stop Bar (linked to Surface Guidance Management FB)

Functional block decomposition from 12.1.7 TAD and relationships with other subsystems can be found in section 2.6 of this document

1.7 Functional block Overview

Further information about the functionalities is provided in section 2.6 of this document.

1.8 Glossary of terms

Term	Definition
Arbitrary position	It is intended that a Virtual Stop Bar can be placed on any point on the airport surface and not necessarily on a specific known point, such as a Holding Point. This term has been created by this project and it does not come from any specific source.

1.9 Acronyms and Terminology

Term	Definition
A-CDM	Airport CDM
ACC	Area Control Centre
ACM service	ATC Communications Management
ADD	Architecture Definition Document
AGL	Airfield Ground Lighting
AIBT	Actual In Block Time
ALDT	Actual Landing Time
AMDB	Aerodrome Map Data Base
AOBT	Actual On Block Time
APTR	Alternative Parallel Taxi Routes
A-SMGCS	Advanced Surface Movement Guidance and Control System
ATC	Air Traffic Control

Term	Definition
ATCO	Air Traffic Control Officer
ATM	Air Traffic Management
ATOT	Actual Take Off Time
ATS	Air Traffic Service
AU	Airspace Users
BT	Business Trajectory
CAA	Civil Aviation Authority
CDM	Collaborative Decision Making
CDS	Cockpit Display System
CPDLC	Controller-pilot data link communication
CVS	Combined Vision System
DLIC	Data Link Initiation Capabilities
DM	Downlink Message
DOD	Detailed Operational Description
D-TAXI	Digital Taxi
EASA	European Aviation Safety Agency
FDP	Flight Data Processor
GMG	Ground Marker Guidance
GMGS	Ground Marker Guidance Service
HMI	Human Machine Interface
ICAO	International Civil Aviation Organisation
INTEROP	Interoperability
LVP	Low Visibility Procedure
NATMIG	North European ATM Industry Group
OFA	Operational Focus Area
OSED	Operational Service and Environment Definition
R/T	Radio Telephony

Term	Definition
RWY	Runway
SE	System Engineering
SESAR	Single European Sky ATM Research
SESAR Programme	The programme which defines the Research and Development activities and Projects for the SJU.
SFPL	System Flight Plans
SGS	Surface Guidance Server
SJU	SESAR Joint Undertaking (Agency of the European Commission)
SJU Work Programme	The programme which addresses all activities of the SESAR Joint Undertaking Agency.
SPR	Safety and Performance Requirements
TAD	Technical Architecture Description
TCL	Taxiway Centre Line
TMA	Terminal Area
TS	Technical Specification
TWY	Taxiway
UM	Uplink Message
VBC	Virtual Block Control
VDS	Vehicle Display System
VSB	Virtual Stop Bar
WG	Working Group
WP	Work Package

2 General Functional block Description

2.1 Context

Surface Guidance is one of the four primary functional elements of an A-SMGCS, as specified in ICAO Doc 9830 A-SMGCS Manual:

a) **Surveillance**: to provide accurate position information on all movements within the movement area and to provide identification and labelling of authorized movements;

b) **Routing** (including Planning): to permit designation of a route for each aircraft or vehicle within the movement area;

c) **Guidance**: to provide clear indications to pilots and vehicle drivers to allow them to follow their assigned routes; and

d) **Control**: to provide continuous interpretation of the traffic situation, including verification of planned events and detection and alerting of potential conflicts and other hazardous situations.

The diagram below, taken from EUROCAE ED-87C Minimum Aviation System Performance Specification for A-SMGCS, indicates how the functional elements interact.

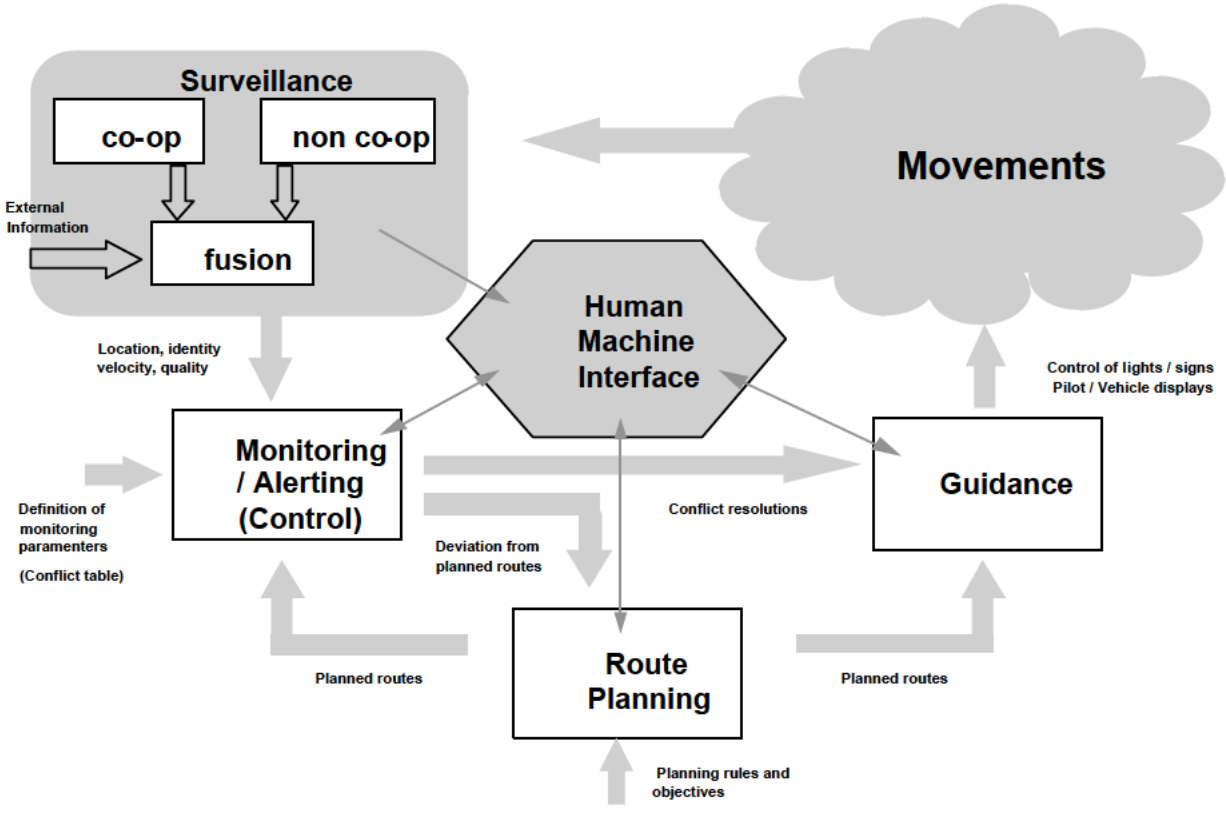

Figure 1: A-SMGCS Functional Elements

ICAO Doc 9476 SMGCS Manual (§1.1.1) gives the following definition of Guidance:

'Guidance relates to facilities, information and advice necessary to enable the pilots of aircraft or the drivers of ground vehicles to find their way on the aerodrome and to keep the aircraft or vehicles on the surfaces or within the areas intended for their use.'

To support this objective the Surface Guidance Service focuses in these three functions defined by the Integrated Surface Management Interim OSED (of OFA04.02.01) [9]:

- **D-TAXI and Data Link for mobile Services** –These services aim to reduce R/T by exchanging non-time critical messages between ATC and mobiles (Start Up, Push back, Taxi and Taxi Revision) by data link. R/T will still be used on first contact with the ATCO and will be available at any time in case the Flight Crew, Vehicle Driver or ATCO need to revert to voice communication.
- **Airfield Ground Lighting (AGL) Service** This service will correlate the cleared route with the taxi instructions provided by the ATCO automatically illuminating the taxiway lights and stop bars a specified distance ahead of the mobile in question and switching off the taxiway lights a specified distance behind the aircraft, taking into account other traffic and timing constraints, to guide the mobile as it progresses along its assigned route.
- **Virtual Block Control (VBC) Service**: This service will allow the Tower Controllers to regulate traffic on the ground thanks to implementation and management of Virtual Stop Bar. These stop bars are additionally introduced on the Controller Working Position but they do not physically exist on the airport surface. Aircrafts will be controlled in sequence from one virtual stop bar to the next, creating block movements The VBC is also combined with alerting function (Virtual Stop Bar violation or unauthorized movement – Watch Dog) and taxi route clearances. The service aims to add flexibility to procedural control reducing block sizes and increasing the number of blocks without building new infrastructure.

For data link messages, the standard used as a reference in this document is ED-229, developed jointly by RTCA SC-214 and EUROCAE WG-78 [6].

Table 1 provides the list of D-TAXI uplink (i.e. from ATC to aircraft) message (UM) elements from ED-229 which are relevant for the A-SMGCS Route Planning and Guidance functions, as defined within SESAR.

The CPDLC service allows concatenating several message elements into a single message. In the case of D-TAXI uplink messages related to the provision of the planned route, it is only possible for sending a planned route (UM73R+UM270: [departure clearanceR] EXPECT TAXI), a revision of a previously provided planned route (UM249+UM270: REVISED EXPECT TAXI) or a revision of a previously provided cleared route (UM249+UM308: REVISED TAXI).

Msg ID	Message element	Message intent/use
UM0	UNABLE	Indication that the message cannot be complied with.
UM1	STANDBY	Indication that the message will be responded to shortly.
UM73R	[*departure clearanceR*]	Instruction to proceed via the specified departure clearance.
UM117R	CONTACT *[unit nameR] ([frequencyR])*	Instruction to establish voice contact with the specified ATS unit on the specified frequency.
UM120R	MONITOR *[unit nameR] ([frequencyR])*	Instruction to monitor the specified ATS unit on the specified frequency. The flight crew is not required to establish voice contact on the frequency
UM159R	ERROR [*error informationR*]	System-generated notification of an error.
UM227	LOGICAL ACKNOWLEDGMENT	System generated notification that the received message is acceptable for display.
UM249	REVISED *[revision reason]*	Indication that the associated instruction is either a revision to a previously issued instruction or is different from the requested route/oceanic clearance.

Msg ID	Message element	Message intent/use
UM270	EXPECT *[clearance typeR] [assigned time]*	Notification that the specified clearance type may be issued at the time required to meet the specified time.
UM302	START UP APPROVED *[assigned time]*	Instruction that engine start up is approved. A time for start-up may be specified.
UM304	PUSH BACK APPROVED [*pushback position*] *[assigned time]*	Instruction to commence pushback. A pushback position(s) and direction, and/or time may be specified.
UM305	EXPECT TAXI [*taxi route] [taxi duration]*	Notification that a taxi clearance may be issued. For the specified taxi route. The estimated taxi duration may be specified.
UM306	RESUME TAXI	Instruction to resume a previously issued taxi that was interrupted. The conditions for resuming the taxi may be specified
UM308	[*runway*] TAXI [*taxi route*]	Instruction to taxi to the specified location; may include a hold short position
UM309	DE-ICING APPROVED	Indication that de-icing is approved.
UM311	HOLD POSITION	Instruction to hold the current position
UM312	FOR DE-ICING	Indication that the associated instruction is issued in order to perform de-icing.
UM313	CAN YOU ACCEPT INTERSECTION [*intersection*] FOR DEPARTURE RUNWAY [*runway*] ([*distance ground available*] AVAILABLE)	Request to indicate whether or not the specified intersection can be accepted on the specified departure runway and may include the remaining length of the runway.
UM317	[*runway*] INTERSECTION DEPARTURE [*intersection*] ([*distance ground available*] AVAILABLE)	Indication of the intersection departure for the associated taxi instruction or taxi route information and may include the remaining length of the runway.
UM318	HOLD SHORT *[ground location]*	Instruction to hold short of the specified ground location.

Table 1: Supported D-TAXI Uplink Messages

The UM315 message element is used to convey planned routes, and use the *[taxi route]* parameter type to describe the route assigned to a mobile. As described in ED-229, the *[taxi route]* parameter type is itself composed of several subtypes and keywords that allow describing any route on any airport, whatever the local working methods or taxiway naming conventions. The following examples illustrate how the *[taxi route]* sub-parameters and keywords can be combined to form strings of alphanumeric characters that convey whole planned or cleared routes.

- Route for departing aircraft: TO HOLDING POINT <string 1> RWY <string 2> VIA TWY <string 3> (e.g.: TO HOLDING POINT Q5 RWY 27L VIA TWY A N B QB7 Q)
- Route for departing aircraft under Cat. III: TO HOLDING POINT <string 1> CAT3 RWY <string 2> VIA TWY <string 3> (e.g.: TO HOLDING POINT Q5 CAT3 RWY 27L VIA TWY A N B QB7 Q)
- Route for arriving aircraft: TO STAND <string 1> VIA TWY <string 2> (e.g.: TO STAND S21 VIA TWY D4 BD6 D BD9 A)

Table 2 provides the list of D-TAXI downlink (i.e. from aircraft to ATC) message (DM) elements from ED-229 which are relevant for the A-SMGCS Route Planning and Guidance functions, as defined within SESAR.

As for uplink messages, downlink message elements can be concatenated to clarify an answer or a request, such as: DM1+DM65: UNABLE DUE TO

Msg ID	Message element	Message intent/usage
DM0	WILCO	Indication that the instruction will be complied with.
DM1	UNABLE	Indication that the instruction cannot be complied with.
DM2	STANDBY	Indication that the message will be responded to shortly.
DM3	ROGER	Indication that the message is understood.
DM4	AFFIRM	Indication of a positive response to a message.
DM5	NEGATIVE	Indication of a negative response to a message.
DM62	ERROR [*error information*]	System-generated notification of an error
DM65R	DUE TO *[due to reason]*	Indication of the reason for the associated message.
DM100	LOGICAL ACKNOWLEDGMENT	System-generated notification that the received message is acceptable for display.
DM125	REQUEST DEPARTURE CLEARANCE [*departure clearance request*]	Request for the specified departure clearance.
DM127	FOR DE-ICING	Indication that the associated request is issued in order to perform de-icing.
DM128	ABLE INTERSECTION *[intersection]* FOR DEPARTURE RUNWAY *[runway]*	Specifies the intersection for the specified departure runway in a taxi request
DM129	READY FOR [*clearance type*] [*assigned time*]	Indication that the aircraft will be ready for the specified clearance at the time required to meet the specified time.
DM130	CANCELLING STARTUP	Indication the aircraft is cancelling start up
DM131	REQUEST PUSHBACK	Request to pushback.
DM132	REQUEST DE-ICING [*ground location*]	Request for de-icing at the current position or at the specified position
DM133	NO DE-ICING REQUIRED	Indication that de-icing is not required
DM134	REQUEST STARTUP	Request to start-up
DM135	REQUEST TAXI	Request for taxi clearance.
DM136	REQUEST EXPECTED TAXI ROUTING [*ground location*]	Request for taxi routing information
DM137	WE CAN ACCEPT [*clearance type*] [*assigned time*]	Indication that the specified clearance type can be accepted at the time required to meet the specified time
DM138	WE CANNOT ACCEPT [*clearance type*]	Indication that the specified clearance type cannot accepted

Table 2: Supported D-TAXI Downlink Messages

The Data Link for Vehicles is a new service and is not mature like the CPDLC D-TAXI service. It will be necessary to define the data link messages to be used when communicating with vehicles and

similar to aircraft the messages should closely follow the R/T phraseology. Vehicles should request to PROCEED (if not towing) or request to TOW if they are connected to an aircraft.

The Data Link for Vehicles service for vehicle drivers consists of the following two sub-services:

- **Proceed / Tow** –instructions for vehicle drivers to proceed/tow from a point on the airport to another point on the airport surface.
- **Proceed / Tow Revision** – Change to any previously delivered route.

It is worthwhile to highlight that vehicles can move freely on the movement area, but access to some areas (e.g. runway, specific taxi) needs authorisation from the ATCO. To have access to the limited areas, all vehicles must respect some specific points referred to the local procedures. For that reason the Data Link messages cited above will be used only in the limited areas.

The tables below show the supported downlink and uplink messages for vehicles.

Msg ID	Message element	Message intent/usage
DM0	WILCO	Indication that the instruction will be complied with.
DM1	UNABLE	Indication that the instruction cannot be complied with.
DM2	STANDBY	Indication that the message will be responded to shortly.
DM62R	ERROR [*error information*]	System-generated notification of an error
DM65R	DUE TO *[due to reason]*	Indication of the reason for the associated message.
DM100	LOGICAL ACKNOWLEDGMENT	System-generated notification that the received message is acceptable for display.
DM181	REQUEST PROCEED FROM *[ground location]* TO *[ground location]*	Request for permission to proceed, for example to enter or cross a runway
DM138	WE CANNOT ACCEPT [*clearance type*]	Indication that the specified clearance type cannot accepted
DM138	WE CANNOT ACCEPT [*clearance type*]	Indication that the specified clearance type cannot accepted

Table 3: Supported Vehicle Downlink Messages

Msg ID	Message element	Message intent/usage
UM0	UNABLE	Indication that the instruction cannot be complied with.
UM1	STANDBY	Indication that the message will be responded to shortly.
UM159R	ERROR *[error informationR]*	System-generated notification of an error
UM227	LOGICAL ACKNOWLEDGEMENT	System generated notification that the received message is acceptable for display.
UM249	REVISED *[revision reason]*	Indication that the associated instruction is either a revision to a previously issued instruction or is different from the requested route/oceanic clearance.
UM311	HOLD POSITION	Instruction to hold the current position
UM419	PROCEED [TaxiRoute]	Instruction to proceed to the specified location; may include a hold short position
UM420	TOW [TaxiRoute]	Instruction to tow to the specified location; may include a hold short position

Table 4: Supported Vehicle Uplink Messages

The ID of messages related to TOW and PROCEED listed above have been agreed by NATMIG and Eurocontrol within the context of EXE-06.03.01-VP-761.

They don't reflect any standard and so their use is not mandatory for development of prototype.

NOTE: Project 12.03.04 does not provide aerodrome ground lighting system, controller HMI and avionic guidance devices and platforms.

2.2 Functional block Modes and States

2.2.1 States

The state is a technical configuration of the system. The system can be in only one state at a time even if it is possible to switch from one state to another by a supervision command.

The SGS can be configured in three different states to provide operational and test capabilities:

- **Operational** state identifies the SGS states running in the operational environment and the system is able to meet all the operational objectives.
- **Shadow** state identifies the SGS states running in the operational environment but it is not used to run user daily operational tasks but to verify and to test them.
- **Test** state identifies the SGS running in the Tower ATC test environment.

2.2.2 Modes

The mode characterises the way the system is operating in respect to the availability of its functions.

The SGS can be in three different modes:

- **Operational**: In operational mode, the SGS is designed to provide continuous operational service despite the failure of a function. This mode is the operational one which is the normal mode of operation of the system.
- **Degraded**: A function can be automatically (as a result of failure) or manually switched off, at any time, leading to a degraded mode of operation. The user can continue working but some functions of the SGS are missing.
- **Failed**: In case a significant set of functions necessary for the continuation of the service are not available, the SGS is considered in failed mode.

2.3 Major Functional block Capabilities

Operational requirements coming from project 06.07.03 (and from P06.07.02) concern the overall surface guidance functions of the A-SMGCS, which are distributed between the people, the equipment, and the procedures involved.

Project 12.03.04 examined and evaluated several technical solutions to improve surface guidance such as data link, AGL and VBC.

This section describes the major groupings of the requirements of the Surface Guidance Service, its sources of information and its data exchanges with other functional blocks and parts of the system.

The Surface Guidance Function requirements are provided in Chapter 3 of this document. They are presented as a list without any hierarchical structure. The requirements are divided into several sections according to the TS template, as follows:

1. Capabilities

   These are the functional requirements; they specify what the SGS shall do and they are traceable to the P06.07.03 OSED.

   These requirements correspond to the three main capabilities and are grouped following this schema:

   - D-TAXI and Vehicle Data link Service:
     - D-TAXI Service
     - D-TAXI ATCO HMI Data Exchange
     - D-TAXI Start-Up
     - D-TAXI Pushback
     - D-TAXI Taxi Instruction
     - D-TAXI General Data link
     - Data link for Vehicles
   - Airfield Ground Lighting Service
     - AGL TCL Segments
     - AGL Route Deviation and Stop Bars
     - AGL Apron Parallel Taxi Routes (APTR)
   - VBC Service

2. Safety & Performance

   These requirements are traceable to the P06.07.03 SPR – they specify how well the SGS needs to perform in terms of capacity, response times, etc.

3. Design and Construction Constraints

4. Functional Block Interface Requirements

   These requirements specify how the SGS interfaces with other Functional Block of Aerodrome ATC Domain System

2.4 User Characteristics

The Surface Guidance service is predominantly for pilots and drivers, helping them to follow clearances and instructions given by the controller, and improving flight crew and vehicle drivers' situational awareness to reduce the risk of deviation from their assigned routes and from intruding into restricted areas.

On airports not equipped with advanced guidance systems, guidance is managed by the aerodrome (ground) controller or apron controller, who will inform the pilot about the surface route to follow (from stand via taxiways to runway entrance for departures; from runway exit via taxiways to parking stand for arrivals).

Pilots are responsible for navigating their aircraft and use airport maps and ground signs to follow painted lines along the assigned taxi route. Vehicles use service roads and may only enter the movement area when given ATC clearance to proceed. Vehicle drivers are responsible for navigating their vehicles, but they do not necessarily follow taxiway and runway centrelines.

For the controller, the Surface Guidance service should provide HMI that makes it possible to operate and monitor the guidance means

2.5 Operational Scenarios

Scenarios refer to 06.02 DOD [14].

2.5.1 Surface-In Scenario

The scenario assumes a generic airport configuration; scenarios concerning specific configurations, e.g. single runway mixed mode operations, may be developed as an alternative flow. For the scope of this deliverable, the scenario starts with taxiing in (when the aircraft enters the Ground sector after having vacated the runway) and ends when the aircraft is in-block. In contrast to the definition available in the A-CDM implementation manual, “taxi in” is intended as the section of a BT where the aircraft is leaving the runway and taxiing between the runway and its stand/gate position (in block procedure with chock on included). The scenario ends when the aircraft is parked with blocks on.

2.5.1.1 List of Actors

The actors and their relevant roles in the scenario are:

Tower Runway Controller

The Tower Runway Controller is responsible for the provision of air traffic services to aircraft within the control zone, or otherwise operating in the vicinity of controlled aerodromes (unless transferred to Approach Control/ACC, or to the Tower Ground Controller), by issuing clearances, instructions and permission to aircraft, vehicles and persons as required for the safe and efficient flow of traffic. The Tower Runway Controller will be assisted by arrival, departure and surface management systems, where available. All communication related to the runway management are handled via voice, and not via data link

Tower Ground Controller

The Tower Ground Controller is part of the controller team responsible for providing an Air Traffic Service (ATS) at controlled aerodromes. His main task is the provision of ATS to aircraft and vehicles on the manoeuvring area. He must also ensure that airport maintenance vehicles carrying out necessary improvements on an active manoeuvring area do not interfere with the movement of aircraft. He will be assisted by an advanced surface movement guidance and control system (A-SMGCS), for planning of a conflict free taxi routing in order to guarantee on time in block.

Apron Manager

Normally, control of the activities and the movement of aircraft and vehicles rest with ATC with respect to the manoeuvring area. In the case of aprons, such responsibility sometimes rests with the apron management. Apron Manager's main responsibilities are the guidance of aircraft to and from the stands, ensuring the safe and efficient movement of aircraft and vehicles within his/her area of responsibility according to local procedures, and maintaining close coordination with other actors on planned aircraft movements using CDM.

Flight Crew (Pilot)

The Flight Crew remains ultimately responsible for the safe and orderly operation of the flight in compliance with the ICAO Rules of the Air, other relevant ICAO and CAA/EASA provisions, and within airline standard operating procedures. It ensures that the aircraft operates in accordance with ATC clearances and with the agreed Reference Business Trajectory

Systems

Systems are no actors as defined in SESAR WPB4.2 Actors - Roles and Responsibilities, but they are mentioned in the scenario description and are required for modelling the scenarios, for this reason the following system is defined.

ATM System

A collection of ATM components organised to accomplish a specific ATM function or set for ATM functions.

2.5.1.2 Surface-In Process

The following diagram presents the high-level activities of the Surface-In operation.

The high-level process model tries to synthesize all recurrent activities that are performed by involved stakeholders during Surface-In operation. In order to do that, the ATM Top Level Overview document was used to identify the background activities, such as "Avoid Collision", "Execute / Monitor Trajectory" for the Airspace User. "Manage Aircraft Surface Movement" and "Manage Airport resources status" were identified as ATS processes when managing traffic on ground. They might be considered and introduced into the B04.02 high-level processes view.

"Execute safe manoeuvres on movement area" depicting the airport airside operations should be considered as well, even though it is not directly related to "Surface-In" process. A process oriented modelling approach should help integrating these background activities.

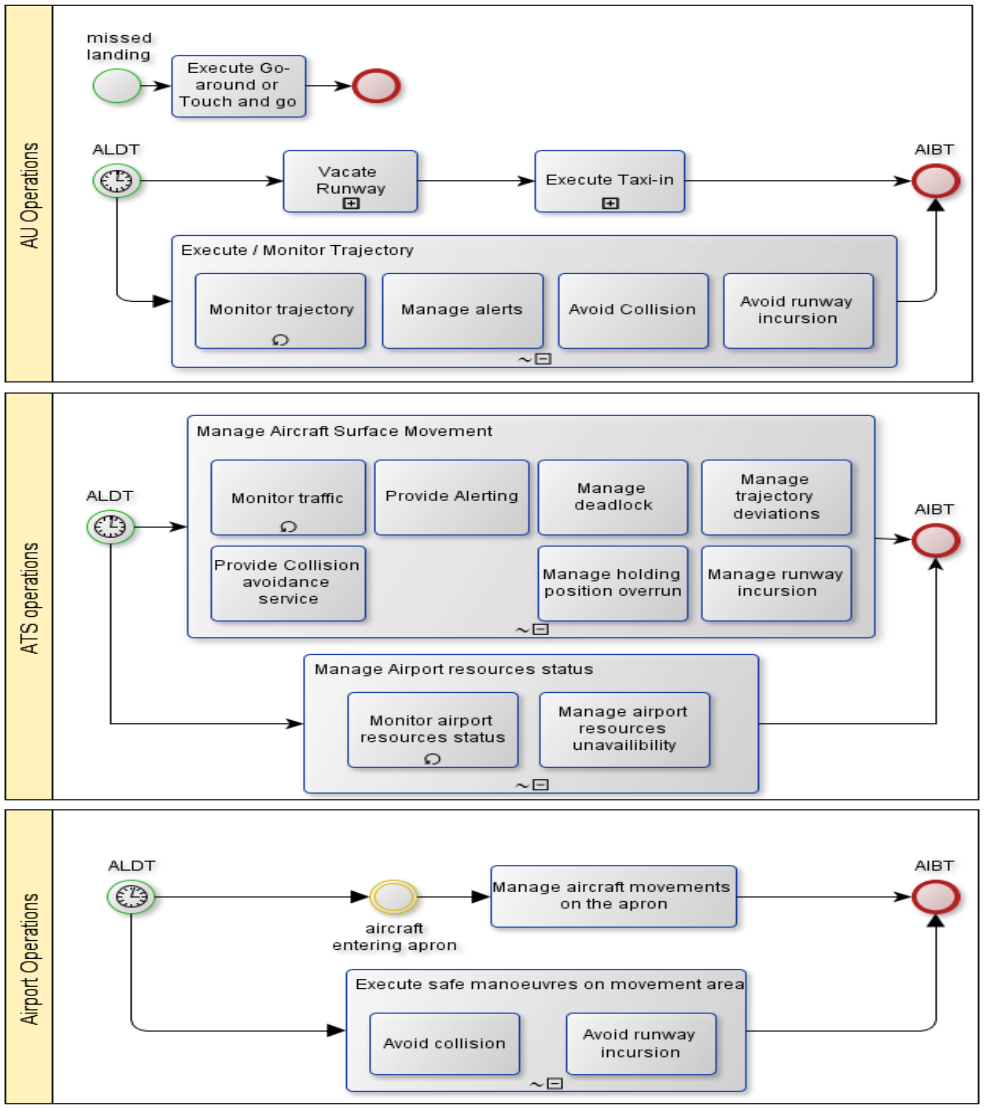

Figure 2: Surface-In High Level Process

2.5.2 Surface-Out Scenario

For the scope of this deliverable, the Surface-Out scenario describes the processes and interactions that an aircraft encounters from the time the aircraft is off block till the aircraft reaches the runway holding point.

The scenario assumes a generic airport configuration; scenarios concerning specific configurations, e.g. single runway mixed mode operations, may be developed as required.

2.5.2.1 List of Actors

The actors and their relevant roles in the scenario and use cases are:

Apron Manager

Normally, control of the activities and the movement of aircraft and vehicles rest with ATC with respect to the manoeuvring area. In the case of aprons, such responsibility sometimes rests with the apron management. Apron Manager's main responsibilities are the guidance of aircraft to and from the stands, ensuring the safe and efficient movement of aircraft and vehicles within his/her area of responsibility according to local procedures, and maintaining close coordination with other actors on planned aircraft movements using CDM.

Flight Crew (Pilot)

The Flight Crew remains ultimately responsible for the safe and orderly operation of the flight in compliance with the ICAO Rules of the Air, other relevant ICAO and CAA/EASA provisions, and within airline standard operating procedures. It ensures that the aircraft operates in accordance with ATC clearances and with the agreed Reference Business Trajectory (RBT).

Tower Ground Controller

The Tower Ground Controller is part of the controller team responsible for providing an Air Traffic Service (ATS) at controlled aerodromes. His main task is the provision of ATS to aircraft and vehicles on the manoeuvring area. He must also ensure that airport maintenance vehicles carrying out necessary improvements on an active manoeuvring area do not interfere with the movement of aircraft. He will be assisted by an advanced surface movement guidance and control system (A-SMGCS).

Tower Runway Controller

The Tower Runway Controller is responsible for the provision of air traffic services to aircraft within his zone of responsibility by issuing clearances, instructions and permission to aircraft, vehicles and persons as required for the safe and efficient flow of traffic. The Tower Runway Controller will be assisted by arrival, departure and surface management systems, where available. All communication related to the runway management are handled via voice, and not via data link

Tower Clearance Delivery Controller

The Tower Clearance Delivery Controller is part of the controller team responsible for providing an Air Traffic Service at controlled aerodromes. His main task is to provide the Flight crew its departure clearance (which consists of information like, clearance limit, departure procedure, route and altitude information, communication frequency and transponder code). The Tower Clearance Delivery Controller also provides the flight crew with start-up information (TSAT).

Vehicle Driver

The Vehicle Driver is the one operating on the airport manoeuvring area (i.e. beyond the apron) and as such is licensed by the Airport Operator. The single main responsibility of the Vehicle Driver is to ensure the safe and efficient movement of his assigned vehicle on the airport manoeuvring area.

System

Systems are no actors as defined in SESAR WPB4.2 Actors - Roles and Responsibilities, but they are mentioned in the scenario description and are required for modelling the scenarios. For this reason the following system is defined.

ATM System

A collection of ATM components organised to accomplish a specific ATM function or set of ATM functions. It also comprises the systems on board the aircraft or the vehicles.

2.5.2.2 Surface-Out Process

The following diagram presents the high-level operational activities of the Surface-out operation as described in the "Surface-Out" scenario.

The high-level process model tries to synthesize all recurrent activities that are performed by all involved stakeholders during Surface-Out operation. In order to do that, the ATM Top Level Overview document was used to identify the background activities, such as "Avoid Collision", "Execute / Monitor Trajectory" for the Airspace User. "Manage Aircraft Surface Movement" and "Manage Airport resources status" were identified as ATS processes when managing traffic on ground. They might be considered and introduced into the B4.2 high-level processes view.

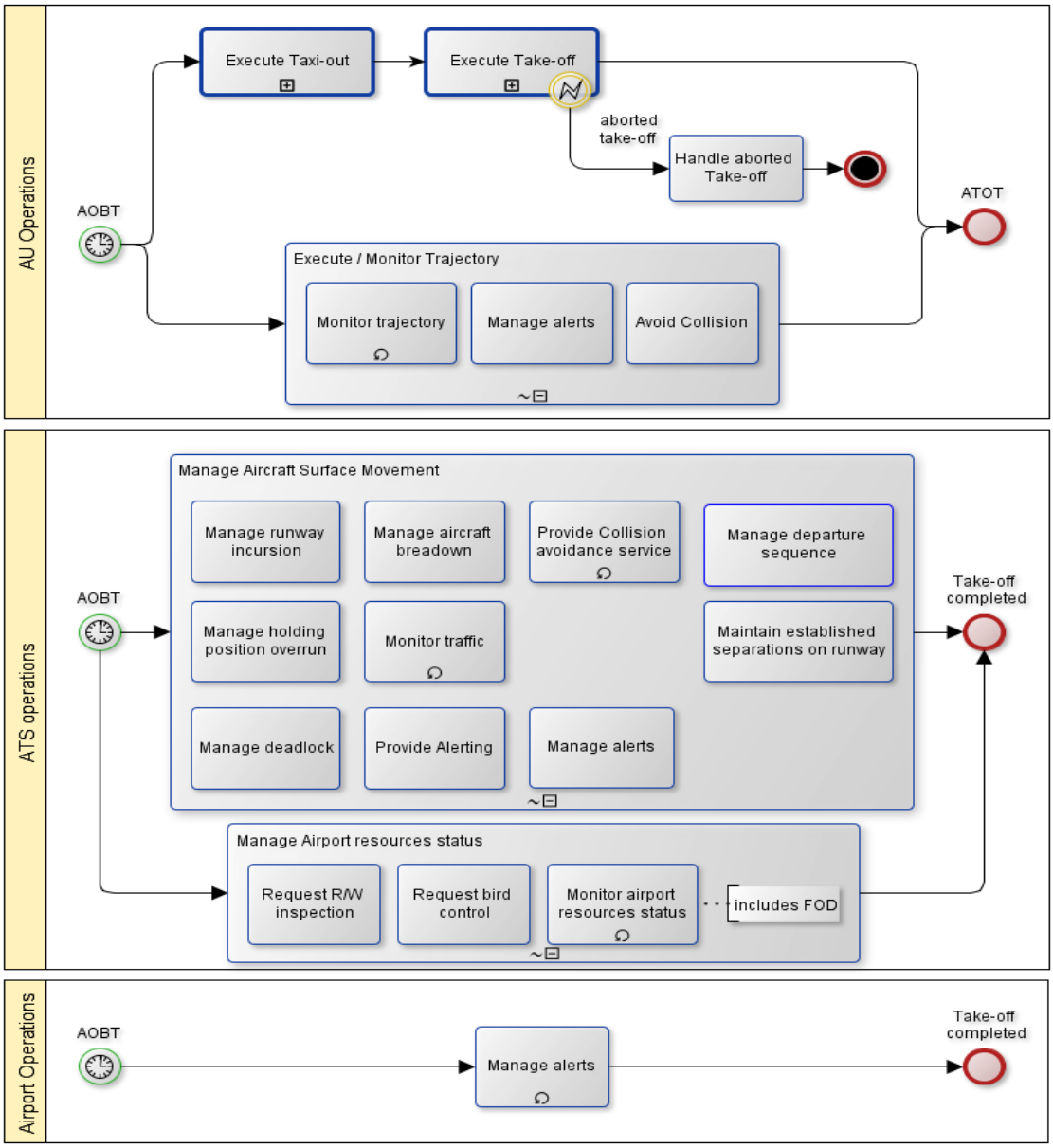

Figure 3: Surface-Out High Level Process

2.6 Functional

2.6.1 Functional decomposition

The current version of TAD document, provided by P12.01.07 [5], decomposes the Aerodrome ATC Domain System in several Functional Blocks, according to Figure 4.

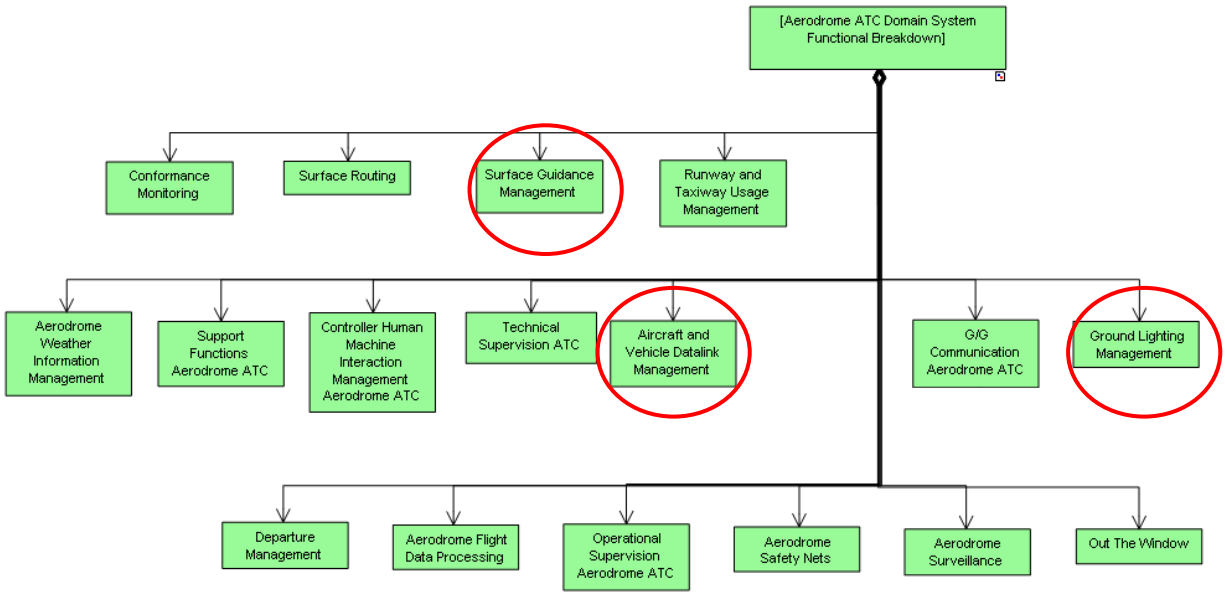

Figure 4: Aerodrome ATC Domain System - Functional Breakdown

In the picture, some Functional Blocks are highlighted because of interest in this document. They are:

Surface Guidance Management: This functional block provides automatic dynamic ground signs switching and on-board guidance to aircraft, in addition to the current provision of guidance service to aircraft and other vehicles on the apron and the manoeuvring area using visual aids and including lighting systems.

Aircraft and Vehicle Datalink Management: This functional block is responsible for the air-ground communication. Its main role is to handle data link messages, supporting the exchange of the messages between the TWR and the aircraft and vehicles on ground

Ground Lighting Management: This functional block provides the functionalities, for the Aerodrome ATC users, to control and monitoring in real time that the entire 'light system' is constantly able to support the operative needs, in order to assure all the airport operations in an appropriate way under all conditions (e.g. CAT I, CAT II, CAT III). This system is also the main enabler to support and implement the Surface Guidance.

2.6.2 Functional analysis

The Surface Guidance System described in this document is composed mainly by three services:

- D-TAXI and Vehicle Data link: it aims to exchange and manage the messages between Tower Controllers and Flight Crew / Vehicle Driver about the ground clearances and taxi plan
- Surface Guidance: it aims to translate the cleared taxi route (provided by Routing Function) in automatic commands for the Ground Lighting, providing the Flight Crew with the dynamic ground signs switch on/off.

- VBC – making available to ATCO mechanisms to control the aircrafts during Low Visibility Operations thanks to management of Virtual Stop Bar and Watch Dog (linked to Surface Guidance Management FB).

Figure 5 and Figure 6 show the relationship between the two interested Functional Blocks and the others of Aerodrome ATC Domain System.

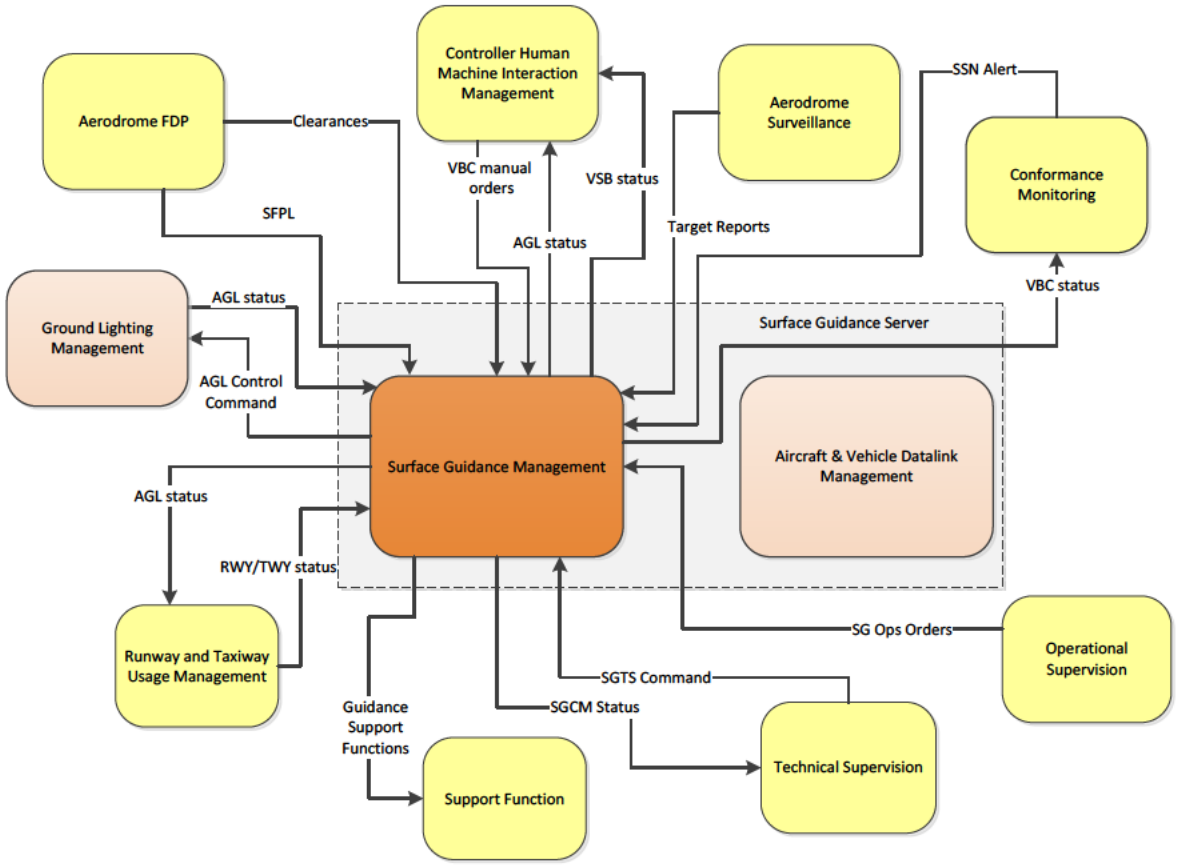

Figure 5: SGS Interactions – View of Surface Guidance Management

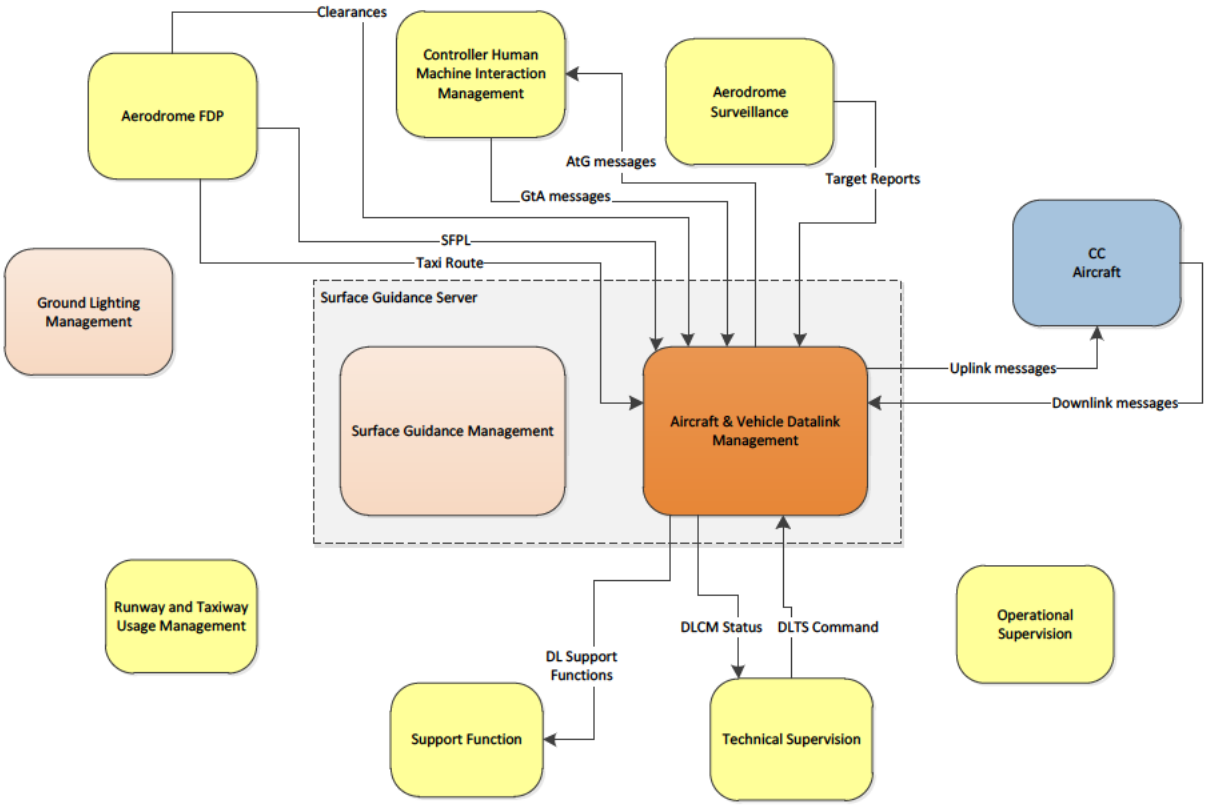

Figure 6: SGS Interactions – View of Aircraft and Vehicle Datalink Management

Interface	Content	Provided by	Required by
SFPL	Flight plans related to aircrafts and vehicles	Aerodrome Flight Data Processing	Surface Guidance Management
Clearances	Clearances by the controller over flights and vehicles.	Aerodrome Flight Data Processing	Surface Guidance Management
Surveillance Data	Reports of airport targets	Aerodrome Surveillance	Surface Guidance Management
Conformance Monitoring Alerts	Alerts related to taxi route deviation or stop-bar overrun	Conformance Monitoring	Surface Guidance Management
AGL Status	Status of Airfield Ground Lights (ON/OFF/failure)	Ground Lighting Management	Surface Guidance Management
AGL Status to CWP	Status of Airfield Ground Lights (ON/OFF/failure)	Surface Guidance Management	Controller Human Machine Interaction Management
VBC Manual Orders	Orders of activation/deactivation, switch on/off of VSB	Controller Human Machine Interaction Management	Surface Guidance Management
VSB Status	Status of Virtual Stop Bars (ON/OFF/inactive)	Surface Guidance Management	Controller Human Machine Interaction Management
VBC status	Status of Virtual Stop Bars (ON/OFF/inactive) and activation/deactivation of Watch Dog	Surface Guidance Management	Conformance Monitoring

AGL Status	Status of Airfield Ground Lights (ON/OFF/failure)	Surface Guidance Management	Runway and Taxiway Usage Management
RWY and TWY status	Status of Runways and Taxiways	Runway and Taxiway Usage Management	Surface Guidance Management
RWY and TWY status	Status of Runways and Taxiways	Runway and Taxiway Usage Management	Aircraft and Vehicle Datalink Management
AGL Control Commands	Commands of switch on/off of AGL following taxi clearances	Surface Guidance Management	Ground Lighting Management
Guidance Support Function	Recording of Guidance Data	Surface Guidance Management	Support Function
Status Information	Status of Surface Guidance function of SGS	Surface Guidance Management	Technical Supervision ATC
Configuration Commands	Technical Commands for Surface Guidance	Technical Supervision ATC	Surface Guidance Management
Surface Guidance Operational Orders	Orders about Operational Status of Airport	Operational Supervision	Surface Guidance Management
SFPL	Flight plans related to aircrafts and vehicles	Aerodrome Flight Data Processing	Aircraft and Vehicle Datalink Management
ATC Clearances	Clearances by the controller over flights and vehicles.	Aerodrome Flight Data Processing	Aircraft and Vehicle Datalink Management
Taxi Route Data	Planned taxi route calculated by Routing Function	Aerodrome Flight Data Processing	Aircraft and Vehicle Datalink Management
Ground to Air Data	Messages from the Controller to Flight Crew / Vehicle Driver	Controller Human Machine Interaction Management	Aircraft and Vehicle Datalink Management
Air to Ground Data	Messages from Flight Crew / Vehicle Driver to the Controller	Aircraft and Vehicle Datalink Management	Controller Human Machine Interaction Management
Uplink Messages	Messages from Controller to Flight Crew	Aircraft and Vehicle Datalink Management	Aircraft (Capability Configuration)
Downlink Messages	Messaged from Flight Crew to Controller	Aircraft (Capability Configuration)	Aircraft and Vehicle Datalink Management
Target Reports	Reports of airport targets	Aerodrome Surveillance	Aircraft and Vehicle Datalink Management
Configuration Commands	Technical Commands for Datalink	Technical Supervision ATC	Aircraft and Vehicle Datalink Management
Status Information	Status of Data Link function of SGS	Aircraft and Vehicle Datalink Management	Technical Supervision ATC
Datalink Support Functions	Recording of Data Link messages	Aircraft and Vehicle Datalink Management	Support Function ATC

Table 5: SGS Interactions

2.7 Service View

N/A

3 Functional block Functional and non-Functional Requirements

3.1 Capabilities

Some requirements of phase 3 have been updated in term of text description and/or typos correction. For these ones the Identifier has been maintained, since the content/object of the requirement was not changed. In other cases the phase 3 requirement has been deleted and created a new one. The deleted requirements have been moved in dedicated sections and a rationale is provided.

3.1.1 D-TAXI and Vehicle Datalink Service

This section describes the technical requirements of the D-TAXI and Vehicle Datalink service defined by operational projects of OFA 04.02.01.

3.1.1.1 General D-TAXI Service Requirements

[REQ]

Identifier	REQ-12.03.04-TS-2010.0020
Requirement	The D-TAXI ground subsystem shall consist in a processing function for D-TAXI messages.
Title	Ground domain
Status	<Validated>
Rationale	Design requirement for operating D-TAXI in aircraft domain.
Category	<Design>
Validation Method	
Verification Method	<Review of Design>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0009	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-DTAX.0001	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-SPR-DTAX.0135	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2010.0025
Requirement	The D-TAXI ground subsystem shall interface the ATC controllers' HMI and the ground communication network.
Title	Ground domain interfaces
Status	<Validated>
Rationale	Design requirement for operating D-TAXI in aircraft domain.
Category	<Design>
Validation Method	
Verification Method	<Review of Design>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-COMS.0001	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-COMS.0002	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-GENR.0001	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2010.0140
Requirement	The SGS shall establish the data link connection after the log-on procedure has been successfully completed.
Title	DLIC service
Status	<Validated>
Rationale	A log-on procedure precedes the exchange of information.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-DYNA.0002	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0026	
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-SPR-DTAX.0130	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

3.1.1.2 D-TAXI ATCO HMI Data Exchange Requirements

[REQ]

Identifier	REQ-12.03.04-TS-2020.0020
Requirement	The SGS shall send a message to the Controller HMI to indicate (e.g. on the flight strip) when a mobile has established a data link connection with the ATSU through the ground network.
Title	Identifier for data link connected mobile
Status	<Validated>
Rationale	Controller needs to know that the correct data link connection has been established before commencing the D-TAXI service.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0101	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-SPR-DTAX.0130	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

3.1.1.3 D-TAXI Start-Up Requirements

[REQ]

Identifier	REQ-12.03.04-TS-2030.0010
Requirement	The SGS shall send a message to the Controller HMI to display the reception of a REQUEST STARTUP message received by the ground station from any aircraft connected to the ATSU.
Title	START-UP Request display
Status	<Validated>
Rationale	Controller needs to see when an aircraft is requesting start up.
Category	<Functional>

Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0200	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-DYNA.0010	<Partial>
<SATISFIES>	<Information Exchange Requirement>	IER-06.07.02-OSED-0002.0004	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2030.0020
Requirement	The SGS shall be able to receive STARTUP APPROVED messages from the Controller HMI and forward them to the ground station for transmission to the aircraft.
Title	START-UP Approval
Status	<Validated>
Rationale	Pilot needs to see when START-UP approval has been given by data link.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0201	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-DYNA.0010	<Partial>
<SATISFIES>	<Information Exchange Requirement>	IER-06.07.02-OSED-0002.0004	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2030.0030
Requirement	The SGS shall be able to receive STANDBY messages sent from the Controller HMI in reply to REQUEST STARTUP messages and forward them to the ground station for transmission to the aircraft.
Title	STANDBY START-UP from ATCO
Status	<Validated>
Rationale	Pilot needs to see when STANDBY reply has been given by data link.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0202	<Full>
<SATISFIES>	<Information Exchange Requirement>	IER-06.07.02-OSED-0002.0004	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2030.0040
Requirement	The SGS shall be able to receive UNABLE messages sent from the

	Controller HMI in reply to REQUEST STARTUP messages and forward them to the ground station for transmission to the aircraft.
Title	UNABLE START-UP from ATCO
Status	<Validated>
Rationale	Pilot needs to see when UNABLE reply has been given by data link.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0203	<Full>
<SATISFIES>	<Information Exchange Requirement>	IER-06.07.02-OSED-0002.0004	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2030.0050
Requirement	The SGS shall send a message to the Controller HMI to display the reception of a STANDBY message received by ground station from an aircraft in reply to a STARTUP APPROVED message.
Title	STANDBY START-UP from Flight Crew
Status	<Validated>
Rationale	Controller needs to see when STANDBY has been sent in reply to a START-UP approval message.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0204	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0504	<Partial>
<SATISFIES>	<Information Exchange Requirement>	IER-06.07.02-OSED-0002.0004	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2030.0060
Requirement	The SGS shall send a message to the Controller HMI to display the reception of an UNABLE message received by ground station from an aircraft in reply to a STARTUP APPROVED message.
Title	UNABLE START-UP from Flight Crew
Status	<Validated>
Rationale	Controller needs to see when UNABLE has been sent in reply to a START-UP approval message.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0205	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0503	<Partial>
<SATISFIES>	<Information Exchange	IER-06.07.02-OSED-0002.0004	<Full>

	Requirement>		
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2030.0070
Requirement	The SGS shall send a message to the Controller HMI to display the reception of a WILCO message received by ground station from an aircraft in reply to a START-UP approval message.
Title	WILCO START-UP from Flight Crew
Status	<Validated>
Rationale	Controller needs to see when WILCO has been sent in reply to a START-UP approval message.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0206	<Full>
<SATISFIES>	<Information Exchange Requirement>	IER-06.07.02-OSED-0002.0004	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2030.0080
Requirement	The SGS shall be able to receive EXPECT STARTUP AT [Time] messages sent from the Controller HMI in reply to REQUEST STARTUP messages and forward them to the ground station for transmission to the aircraft.
Title	EXPECT START-UP from ATCO
Status	<Validated>
Rationale	Pilot needs to see when EXPECT STARTUP AT reply has been given by data link.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0207	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

An additional requirement about the reception of ROGER downlink message after the uplink message EXPECT START-UP should be added by 06.07.03 and then by 12.03.04 itself.

3.1.1.4 D-TAXI Push-Back Requirements

[REQ]

Identifier	REQ-12.03.04-TS-2040.0010
Requirement	The SGS shall send a message to the Controller HMI to display the

	reception of a PUSHBACK REQUEST message received by the ground station from any aircraft connected to the ATSU.
Title	DPUSH Request display
Status	<Validated>
Rationale	Controller needs to see when an aircraft is requesting pushback.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0300	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-DYNA.0011	<Partial>
<SATISFIES>	<Information Exchange Requirement>	IER-06.07.02-OSED-0002.0005	<Full>
<APPLIES TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2040.0020
Requirement	The SGS shall be able to receive PUSHBACK APPROVED messages from the Controller HMI and forward them to the ground station for transmission to the aircraft. An optional parameter is sent to indicate the pushback direction if more than one is possible.
Title	DPUSH Approval
Status	<Validated>
Rationale	Pilot needs to see when PUSHBACK approval has been given by data link.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0301	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-DYNA.0011	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0305	<Full>
<SATISFIES>	<Information Exchange Requirement>	IER-06.07.02-OSED-0002.0005	<Full>
<APPLIES TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2040.0030
Requirement	The SGS shall be able to receive STANDBY messages sent from the Controller HMI in reply to PUSHBACK REQUEST messages and forward them to the ground station for transmission to the aircraft.
Title	STANDBY DPUSH from ATCO
Status	<Validated>
Rationale	Pilot needs to see when a STANDBY reply has been given by data link.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0302	<Full>
<SATISFIES>	<Information Exchange	IER-06.07.02-OSED-0002.0005	<Full>

	Requirement>		
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2040.0040
Requirement	The SGS shall be able to receive UNABLE messages sent from the Controller HMI in reply to PUSHBACK REQUEST messages and forward them to the ground station for transmission to the aircraft.
Title	UNABLE DPUSH from ATCO
Status	<Validated>
Rationale	Pilot needs to see when an UNABLE reply has been given by data link.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0303	<Full>
<SATISFIES>	<Information Exchange Requirement>	IER-06.07.02-OSED-0002.0005	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2040.0050
Requirement	The SGS shall be able to receive EXPECT PUSHBACK AT [TIME] messages sent from the Controller HMI in reply to PUSHBACK REQUEST messages and forward them to the ground station for transmission to the aircraft.
Title	EXPECT PUSHBACK from ATCO
Status	<Validated>
Rationale	Pilot needs to see when an EXPECT PUSHBACK AT reply has been given by data link.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0304	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

An additional requirement about the reception of ROGER downlink message after the uplink message EXPECT PUSHBACK should be added by 06.07.03 and then by 12.03.04 itself.

[REQ]

Identifier	REQ-12.03.04-TS-2040.0070
Requirement	The SGS shall send a message to the Controller HMI to display the reception of a STANDBY message received by the ground station from an aircraft in reply to a PUSHBACK APPROVED message.
Title	STANDBY DPUSH from Flight Crew
Status	<Validated>

Rationale	Controller needs to see when a STANDBY reply has been given in response to a PUSHBACK approval message.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0306	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0504	<Partial>
<SATISFIES>	<Information Exchange Requirement>	IER-06.07.02-OSED-0002.0005	<Full>
<APPLIES TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2040.0080
Requirement	The SGS shall send a message to the Controller HMI to display the reception of a UNABLE message received by the ground station from an aircraft in reply to a PUSHBACK APPROVED message.
Title	UNABLE DPUSH from Flight Crew
Status	<Validated>
Rationale	Controller needs to see when a UNABLE reply has been given in response to a PUSHBACK approval message.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0307	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0503	<Partial>
<SATISFIES>	<Information Exchange Requirement>	IER-06.07.02-OSED-0002.0005	<Full>
<APPLIES TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2040.0090
Requirement	The SGS shall send a message to the Controller HMI to display the reception of a WILCO message received by the ground station from an aircraft in reply to a PUSHBACK APPROVED message.
Title	WILCO DPUSH from Flight Crew
Status	<Validated>
Rationale	Controller needs to see when a WILCO reply has been given in response to a PUSHBACK approval message.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0308	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<SATISFIES>	<Information Exchange Requirement>	IER-06.07.02-OSED-0002.0005	<Full>
<ALLOCATED TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

3.1.1.5 D-TAXI Taxi Instruction Requirements

[REQ]

Identifier	REQ-12.03.04-TS-2050.0001
Requirement	The SGS shall be able to receive the REQUEST EXPECTED TAXI ROUTING message received from ground station from any aircraft connected to the ATSU.
Title	Data link REQUEST EXPECTED TAXI ROUTING display
Status	<Validated>
Rationale	The SGS receives the request of planned route from the aircraft and forwards it to interested clients, which can be CWP or A-FDP.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0003	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2050.0002
Requirement	The SGS shall be able to send EXPECT TAXI message to the ground station for transmission to aircraft, including the planned route information, in reply to REQUEST EXPECTED TAXI ROUTING message.
Title	Data link EXPECT TAXI message
Status	<Validated>
Rationale	Pilots need to know in advance the planned taxi route.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0002	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0003	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2050.0003
Requirement	The SGS shall be able to receive ROGER message, in reply to EXPECT TAXI, from the ground station.
Title	ROGER message in reply to EXPECT TAXI
Status	<Validated>
Rationale	The SGS receives the confirmation of reception of planned route from the aircraft and forwards it to interested clients, which can be CWP or A-FDP.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0003	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-3050.0004
Requirement	The SGS shall deny to send EXPECT TAXI message to the ground station for transmission to aircraft, when the sending time is after a configurable threshold before TSAT for departure and TLDT for arrivals.
Title	EXPECT TAXI deny after threshold
Status	<In Progress>
Rationale	Pilots don't want to know the planned taxi route and its update, if the message arrives too late respect to landing or starting time. This requirement has not been validated in any of Release 5 exercise.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0001	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2050.0010
Requirement	The SGS shall send a message to the Controller HMI to display the reception of a TAXI REQUEST message received by the ground station from any aircraft connected to the ATSU.
Title	Data link TAXI REQUEST display
Status	<Validated>
Rationale	Controller needs to see when an aircraft is requesting taxi.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0400	<Full>
<SATISFIES>	<Information Exchange Requirement>	IER-06.07.02-OSED-0002.0006	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2050.0020
Requirement	The SGS shall be able to receive TAXI approval messages, including the cleared taxi route information, from the Controller HMI and forward them to the ground station for transmission to the aircraft.
Title	TAXI approval message
Status	<Validated>
Rationale	Pilot needs to see when TAXI approval has been given by data link.
Category	<Functional>

Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0002	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0003	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0401	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-DTAX.0014	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-DYNA.0012	<Full>
<SATISFIES>	<Information Exchange Requirement>	IER-06.07.02-OSED-0002.0003	<Full>
<SATISFIES>	<Information Exchange Requirement>	IER-06.07.02-OSED-0002.0006	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2050.0030
Requirement	The SGS shall be able to receive STANDBY messages sent from the Controller HMI in reply to TAXI REQUEST messages and forward them to the ground station for transmission to the aircraft.
Title	STANDBY data link TAXI from ATCO
Status	<Validated>
Rationale	Pilot needs to see when a STANDBY reply has been given by data link.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0402	<Full>
<SATISFIES>	<Information Exchange Requirement>	IER-06.07.02-OSED-0002.0006	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2050.0040
Requirement	The SGS shall be able to receive UNABLE messages sent from the Controller HMI in reply to TAXI REQUEST messages and forward them to the ground station for transmission to the aircraft.
Title	UNABLE Data link TAXI from ATCO
Status	<Validated>
Rationale	Pilot needs to see when an UNABLE reply has been given by data link.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0403	<Full>
<SATISFIES>	<Information Exchange Requirement>	IER-06.07.02-OSED-0002.0006	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2050.0050
Requirement	The SGS shall send a message to the Controller HMI to display the reception of a STANDBY message received by the ground station from an aircraft in reply to a TAXI approval message or a REVISED TAXI message.
Title	STANDBY data link TAXI from Flight Crew
Status	<Validated>
Rationale	Controller needs to see when a STANDBY reply has been given in response to a TAXI approval message.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0404	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0504	<Partial>
<SATISFIES>	<Information Exchange Requirement>	IER-06.07.02-OSED-0002.0006	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2050.0060
Requirement	The SGS shall send a message to the Controller HMI to display the reception of a UNABLE message received by the ground station from an aircraft in reply to a TAXI approval message or a REVISED TAXI message.
Title	UNABLE data link TAXI from Flight Crew
Status	<Validated>
Rationale	Controller needs to see when an UNABLE reply has been given in response to a TAXI approval message or a REVISED TAXI message.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0405	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0503	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-RGHM.0015	<Full>
<SATISFIES>	<Information Exchange Requirement>	IER-06.07.02-OSED-0002.0006	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2050.0070
Requirement	The SGS shall send a message to the Controller HMI to display the reception of a WILCO message received by the ground station from an aircraft in reply to a TAXI approval message or a REVISED TAXI message.
Title	WILCO data link TAXI / data link REVISED TAXI from Flight Crew
Status	<Validated>
Rationale	Controller needs to see when a WILCO reply has been given in response to a TAXI approval message or a REVISED TAXI message.
Category	<Functional>
Validation Method	

Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0406	<Full>
<SATISFIES>	<Information Exchange Requirement>	IER-06.07.02-OSED-0002.0006	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2050.0080
Requirement	The SGS shall be able to receive REVISED TAXI messages, including revised cleared taxi route information, from the Controller HMI and forward them to the ground station for transmission to the aircraft.
Title	Data link REVISED TAXI message
Status	<Validated>
Rationale	Pilot needs to see when a REVISED TAXI instruction has been given by data link.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0407	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-RGGE.0012	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-RGAU.0014	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-DYNA.0013	<Partial>
<SATISFIES>	<Information Exchange Requirement>	IER-06.07.02-OSED-0002.0006	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2050.0090
Requirement	The SGS shall be able to receive HOLD POSITION instructions from the Controller HMI and forward them to the ground station for transmission to the aircraft.
Title	Data link HOLD instruction
Status	<Validated>
Rationale	Pilot needs to see when a HOLD instruction has been given by data link.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0408	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-3050.0095
Requirement	The SGS shall be able to forward HOLD POSITION to the ground station for

	transmission to the aircraft only when the same aircraft is already stationary.
Title	HOLD instruction for stationary aircraft
Status	<In Progress>
Rationale	HOLD instruction has to be previously sent in R/T mode, so the aircraft is already stationary This requirement has not been validated in any Release 5 exercises.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0008	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2050.0100
Requirement	The SGS shall be able to receive EXPECT TAXI AT [TIME] messages sent from the Controller HMI in reply to TAXI REQUEST messages and forward them to the ground station for transmission to the aircraft.
Title	EXPECT TAXI AT from ATCO
Status	<Validated>
Rationale	Pilot needs to see when an EXPECT TAXI AT [TIME] message has been sent to him by data link.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0410	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

An additional requirement about the reception of ROGER downlink message after the uplink message EXPECT TAXI AT should be added by 06.07.03 and then by 12.03.04 itself.

[REQ]

Identifier	REQ-12.03.04-TS-2050.0110
Requirement	The SGS shall be able to receive CAN YOU ACCEPT INTERSECTION [position information] FOR DEPARTURE RUNWAY [runway] messages from the Controller HMI and forward them to the ground station for transmission to the aircraft.
Title	CAN YOU ACCEPT INTERSECTION message from ATCO
Status	<Validated>
Rationale	Pilot needs to see when a CAN YOU ACCEPT INTERSECTION message has been sent to him by data link.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0411	<Full>

<APPLIES TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2050.0120
Requirement	The SGS shall send a message to the Controller HMI to display the reception of a STANDBY message received by the ground station from an aircraft in reply to a CAN YOU ACCEPT INTERSECTION [position information] FOR DEPARTURE RUNWAY [runway] message.
Title	CAN YOU ACCEPT INTERSECTION message from FC(1/3)
Status	<Validated>
Rationale	Controller needs to see when a STANDBY reply has been given in response to a CAN YOU ACCEPT INTERSECTION message.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0411	<Full>
<APPLIES TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2050.0130
Requirement	The SGS shall send a message to the Controller HMI to display the reception of a UNABLE message received by the ground station from an aircraft in reply to a CAN YOU ACCEPT INTERSECTION [position information] FOR DEPARTURE RUNWAY [runway] message.
Title	CAN YOU ACCEPT INTERSECTION message from FC(2/3)
Status	<Validated>
Rationale	Controller needs to see when an UNABLE reply has been given in response to a CAN YOU ACCEPT INTERSECTION message.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0411	<Full>
<APPLIES TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-3050.0140
Requirement	The SGS shall send a message to the Controller HMI to display the reception of a ROGER message received by the ground station from an aircraft in reply to a CAN YOU ACCEPT INTERSECTION [position information] FOR DEPARTURE RUNWAY [runway] message.
Title	CAN YOU ACCEPT INTERSECTION message from FC(3/3)
Status	<Validated>
Rationale	Controller needs to see when a ROGER reply has been given in response to a CAN YOU ACCEPT INTERSECTION message.
Category	<Functional>

Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0411	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

3.1.1.6 D-TAXI General Data Requirements

[REQ]

Identifier	REQ-12.03.04-TS-2060.0010
Requirement	The SGS shall send a message to the Controller HMI to display information related to any open D-TAXI dialogue.
Title	Open data link dialogue information
Status	<Validated>
Rationale	Controller needs to see open data link dialogue information.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0500	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-SPR-DTAX.0016	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-SPR-DTAX.0134	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2060.0020
Requirement	The SGS shall send a message to the Controller HMI to remove the display of information related to an open D-TAXI dialogue after the reception of a WILCO or ROGER message received by the ground station from the aircraft concerned.
Title	Closure of data link dialogue information
Status	<Validated>
Rationale	Open dialogues should be closed automatically on the Controller HMI on receipt of a WILCO or ROGER response from the aircraft concerned.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0501	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2060.0030
Requirement	The SGS shall send a message to the Controller HMI to display a WARNING message when no reply has been received from the aircraft

	concerned via the ground station after the expiration of the pre-defined time-out period.
Title	NO REPLY WARNING display
Status	<Validated>
Rationale	Controller needs to be warned if no reply is received from the aircraft concerned within the pre-defined time-out period.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0502	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-DTAX.0007	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-SPR-DTAX.0021	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2060.0040
Requirement	The SGS shall be able to receive FREE TEXT messages from the Controller HMI and forward them to the ground station for transmission to the aircraft.
Title	ATCO Free Text data link Message
Status	<Validated>
Rationale	Pilot needs to see free text messages sent to him by data link.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0505	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2060.0050
Requirement	The SGS shall send a message to the Controller HMI to display a D-TAXI FREE TEXT message received by the ground station from any aircraft connected to the ATSU.
Title	Reception of a Free Text message from the Flight Crew
Status	<Validated>
Rationale	Controller needs to see free text messages sent to him by data link.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0506	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2060.0060
Requirement	The SGS shall send a message to the Controller HMI to give an alert if a message arrives from the ground station and is not actioned within the pre-defined time-out period for the message type.
Title	Warning for the ATCO of an untreated Data link message
Status	<Validated>
Rationale	Controller needs to be warned if he has not taken action in response to a data link message within The pre-defined time-out period.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0507	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-DTAX.0007	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-SPR-DTAX.0106	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-SPR-DTAX.0107	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2060.0070
Requirement	The SGS shall store previously sent and received D-TAXI messages and make them accessible to the Controller HMI.
Title	Access to message history window
Status	<Validated>
Rationale	Controller needs to be able to access Previously sent and received D-TAXI messages.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0508	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-SPR-DTAX.0017	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-SPR-DTAX.0018	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2060.0080
Requirement	The SGS shall send a message to the Controller HMI to be notified when mobile system rejects a CPDLC connection request, initiated by the ground system or the ATCO.
Title	ATSU display the indication provided by the aircraft system
Status	<Validated>
Rationale	The Controller needs to know if the sent messages are rejected by the aircraft or vehicle.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-SPR-DTAX.0131	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2060.0090
Requirement	The SGS shall send a message to the Controller HMI to be notified when mobile system rejects a CPDLC connection request, initiated by flight crew or vehicle driver.
Title	CPDLC connection 2
Status	<Validated>
Rationale	The Controller needs to know if the mobile segment reject the CPDLC connection request
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-SPR-DTAX.0132	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2060.0100
Requirement	The SGS shall send a message to the Controller HMI to be notified in case of loss of data link service.
Title	Ground indication of detection of loss of CPDLC service
Status	<Validated>
Rationale	The controller needs to know if the data link is no more available.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-SPR-DTAX.0133	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

3.1.1.7 Vehicle Datalink Requirements

[REQ]

Identifier	REQ-12.03.04-TS-2070.0010
Requirement	The SGS shall send a message to the Controller HMI to display the reception of a PROCEED REQUEST message received by ground station from any vehicle connected to the ATSU.
Title	Data link PROCEED Request display
Status	<Validated>
Rationale	The controller needs to be informed about a PROCEED REQUEST sent by a vehicle driver.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0600	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-14	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2070.0020
Requirement	The SGS shall be able to receive from the Controller HMI a PROCEED message that includes the cleared taxi route information and forward it to the ground station for transmission to vehicle.
Title	Data Link PROCEED approval message from ATCO
Status	<Validated>
Rationale	The ATCO shall be able to inform the vehicle driver about the cleared taxi route via data link.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0004	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0601	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-SPR-DTAX.0005	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-14	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2070.0030
Requirement	The SGS shall be able to receive from the Controller HMI a STANDBY message in reply to a PROCEED REQUEST message.
Title	STANDBY data link from ATCO
Status	<Validated>
Rationale	The controller shall be able to reply via data link with a STANDBY message to a PROCEED REQUEST message.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0602	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-14	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2070.0040
Requirement	The SGS shall be able to receive from the Controller HMI an UNABLE message in reply to a PROCEED REQUEST message.
Title	UNABLE Data link PROCEED REQUEST from ATCO
Status	<Validated>
Rationale	The controller shall be able to reply via data link with an UNABLE message to a PROCEED REQUEST message.

Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0603	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-14	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2070.0050
Requirement	The SGS shall send to the Controller HMI a STANDBY message received by ground station from a vehicle, in reply to a PROCEED approval message or a REVISED PROCEED message.
Title	STANDBY data link PROCEED from Vehicle Driver
Status	<Validated>
Rationale	The controller needs to be informed about the STANDBY message received by the vehicle driver in response to PROCEED or REVISED PROCEED message.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0604	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-14	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2070.0060
Requirement	The SGS shall send to the Controller HMI an UNABLE message received by ground station from a vehicle, in reply to a PROCEED approval message or a REVISED PROCEED message.
Title	UNABLE data link PROCEED from Vehicle Driver
Status	<Validated>
Rationale	The controller needs to be informed about the UNABLE message received by the vehicle driver in response to PROCEED or REVISED PROCEED message.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0605	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-14	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2070.0070
Requirement	The SGS shall send to the Controller HMI a WILCO message received by ground station from a vehicle, in reply to a PROCEED approval message or

	a REVISED PROCEED message.
Title	WILCO data link PROCEED / data link REVISED PROCEED from Vehicle Driver
Status	<Validated>
Rationale	The controller needs to be informed about the WILCO message received by the vehicle driver in response to PROCEED or REVISED PROCEED message.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0606	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-14	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2070.0080
Requirement	The SGS shall be able to receive from the Controller HMI a combined REVISED and PROCEED message that includes revised cleared taxi route information.
Title	Data link REVISED PROCEED message
Status	<Validated>
Rationale	The ATCO shall be able to inform the vehicle driver about the revision of the previous cleared taxi route, via data link
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0607	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-14	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2070.0090
Requirement	The SGS shall send to the Controller HMI a TOW REQUEST message received by ground station, from any vehicle connected to the ATSU.
Title	Data link TOW Request display
Status	<Validated>
Rationale	The controller needs to be informed about the TOW REQUEST message received by the vehicle driver.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0608	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-14	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2070.0100
Requirement	The SGS shall be able to receive from the Controller HMI a TOW message that includes the cleared taxi route information.
Title	Data Link TOW approval message
Status	<Validated>
Rationale	The controller shall be able to reply via data link with a TOW message including cleared route information to a TOW REQUEST message.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0611	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-14	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2070.0110
Requirement	The SGS shall be able to receive from the Controller HMI a STANDBY message in reply to a TOW REQUEST message.
Title	STANDBY data link TOW REQUEST from ATCO
Status	<Validated>
Rationale	The controller shall be able to reply via data link with a STANDBY message to a TOW REQUEST message.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0612	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-14	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2070.0120
Requirement	The SGS shall be able to receive from the Controller HMI an UNABLE message in reply to a TOW REQUEST message.
Title	UNABLE Data link TOW REQUEST from ATCO
Status	<Validated>
Rationale	The controller shall be able to reply via data link with an UNABLE message to a TOW REQUEST message.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0613	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-14	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2070.0130
Requirement	The SGS shall send to the Controller HMI a STANDBY message received by ground station from a vehicle, in reply to a TOW approval message or a REVISED TOW message.
Title	STANDBY data link TOW from Vehicle Driver
Status	<Validated>
Rationale	The controller needs to be informed about the STANDBY message received by the vehicle driver in response to TOW or REVISED TOW message.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0614	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-14	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2070.0140
Requirement	The SGS shall send to the Controller HMI an UNABLE message received by ground station from a vehicle, in reply to a TOW approval message or a REVISED TOW message.
Title	UNABLE data link TOW from Vehicle Driver
Status	<Validated>
Rationale	The controller needs to be informed about the UNABLE message received by the vehicle driver in response to TOW or REVISED TOW message.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0615	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-14	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2070.0150
Requirement	The SGS shall send to the Controller HMI a WILCO message received by ground station from a vehicle, in reply to a TOW approval message or a REVISED TOW message.
Title	WILCO data link TOW / data link REVISED TOW from Vehicle Driver
Status	<Validated>
Rationale	The controller needs to be informed about the WILCO message received by the vehicle driver in response to TOW or REVISED TOW message.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0616	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A

<SATISFIES>	<Enabler>	AERODROME-ATC-14	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2070.0160
Requirement	The SGS shall be able to receive from the Controller HMI a combined REVISED and TOW message that includes revised cleared taxi route information.
Title	Data link REVISED TOW message
Status	<Validated>
Rationale	The ATCO shall be able to inform the vehicle driver about the revision of the previous sent TOW instruction, via data link
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0617	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-14	<Partial>

3.1.1.8 Data link deleted requirements

In this section there are all the requirements concerning DTAXI and data link for vehicle defined for phase 1 and phase 2 that are no more valid for phase 3. In particular, the following has considered out of scope from 12.03.04. To correctly perform the service, some prerequisite are needed, that are defined by P10.07.01 (which is related to Data Link for all phase of flight), in its Technical Specification document [13].

[REQ]

Identifier	REQ-12.03.04-TS-2010.0010
Requirement	The transfer of voice communication and the transfer of CPDLC authority shall be completed, by ATC communication Management (ACM), before usage of D-TAXI.
Title	ACM service
Status	<Deleted>
Rationale	The aircraft shall be connected with the proper CPDLC authority. This requirement has been deleted because does not deal with DTAXI service.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0025	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>
<SATISFIES>	<Enabler>	AIRPORT-30	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2020.0030
Requirement	The SGS shall send a message to the Controller HMI to indicate (e.g. on the electronic strips) which vehicles are data link equipped and which are not

	equipped.
Title	Identifier for data link equipped vehicle
Status	<Deleted>
Rationale	Controller needs to know which vehicles are equipped for data link exchanges. This requirement has been deleted because from past validations, the controllers do not need the information about equipped mobiles. The only relevant information is about the connected mobiles, that indicates the possibility to exchange datalink messaged.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0104	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2040.0060
Requirement	If several pushback directions are available for the parking stand, the SGS shall receive a PUSHBACK direction, as an optional parameter in the PUSHBACK APPROVED message from the Controller HMI, and forward it to the ground station for transmission to the aircraft, as per REQ-12.03.04-TS-2040.0020
Title	PUSHBACK direction
Status	<Deleted>
Rationale	Pilot needs to see when a pushback direction has been given by data link. The requirement has been deleted because is merged with REQ-12.03.04-TS-2040.0020
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0305	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2040.0100
Requirement	The SGS shall send a message to the Controller HMI to provide an indication of which aircraft require pushback from the stand and which aircraft are able to taxi from the stand without pushback.
Title	Identifier for self-manoeuvring aircraft
Status	<Deleted>
Rationale	Controller needs to know which aircraft require pushback, and which do not, to perform correctly the right clearance (pushback or directly taxi). This requirement has been deleted because the information is not managed by the Guidance Server.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0309	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2020.0010
Requirement	The A-FDP shall send a message to the Controller HMI to indicate (e.g. on the flight strips) which aircraft are data link equipped and which are not equipped. The status of the A-FDP connection shall be monitored by the SGS and an alert shall be given in the event of a failure
Title	Identifier for data link equipped aircraft
Status	<Deleted>
Rationale	Controller needs to know which aircraft are equipped for data link exchanges. This requirement has been deleted because from past validations, the controllers do not need the information about equipped mobiles. The only relevant information is about the connected mobiles, that indicates the possibility to exchange datalink messaged.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0100	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2010.0150
Requirement	Vehicles domain shall encompass Vehicle driver, HMI and processing function for message management, and vehicular data link system as interface with ground communication network.
Title	Vehicle domain
Status	<Deleted>
Rationale	Design requirement for operating Vehicle Datalink. The requirement has been deleted because it does not refer to SGS, but to vehicle domain, that is not managed by 12.03.04.
Category	<Design>
Validation Method	
Verification Method	<Review of Design>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0020	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-GENR.0001	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-14	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2050.0140
Requirement	The SGS shall send a message to the Controller HMI to display the reception of a WILCO message received by the ground station from an

	aircraft in reply to a CAN YOU ACCEPT INTERSECTION [position information] FOR DEPARTURE RUNWAY [runway] message.
Title	CAN YOU ACCEPT INTERSECTION message from FC(3/3)
Status	<Deleted>
Rationale	Controller needs to see when a WILCO reply has been given in response to a CAN YOU ACCEPT INTERSECTION message. This requirement has been deleted because the right answer from the pilot is ROGER. It is replaced by REQ-12.03.04-TS-2050.0140.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0411	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

3.1.2 AGL service

[REQ]

Identifier	REQ-12.03.04-TS-2080.0010
Requirement	The SGS shall be connected to the AGL system composed by control and monitoring units, communication means, ground lights, a control and monitoring HMI.
Title	Ground domain
Status	<Validated>
Rationale	Ground domain requirement for the design of the AGL
Category	<Interoperability>
Validation Method	
Verification Method	<Review of Design>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLG.0001	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-AGLI.0005	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-AGLI.0006	<Partial>
<SATISFIES>	<Information Exchange Requirement>	IER-06.07.02-OSED-0002.0007	<Full>
<SATISFIES>	<Information Exchange Requirement>	IER-06.07.02-OSED-0002.0008	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-3080.0020
Requirement	The SGS shall be able to convert the routing information into commands to control TCL segments, or individual light and stop bars.
Title	Translate route into AGL control
Status	<Validated>
Rationale	The controller needs to be informed, on his HMI, about the routing information produced by the AGL system.
Category	<Functional>

Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLG.0002	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-AGLI.0001	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-AGLI.0002	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-AGLI.0004	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-AGLI.0006	<Partial>
<SATISFIES>	<Information Exchange Requirement>	IER-06.07.02-OSED-0002.0007	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-3080.0025
Requirement	The SGS shall be able to convert the manual inputs of switch on/off the TCL segments and intensity adjustment into commands to AGL.
Title	Translate inputs into AGL control
Status	<Validated>
Rationale	The controller needs to be informed, on his HMI, about the routing information produced by the AGL system after receiving input commands
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLG.0008	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLG.0009	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLG.0010	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-AGLI.0001	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-AGLI.0002	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-AGLI.0004	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-AGLI.0006	<Partial>
<SATISFIES>	<Information Exchange Requirement>	IER-06.07.02-OSED-0002.0007	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2080.0030
Requirement	The SGS shall be able to convert the status from AGL system into information to display on the Controller HMI.
Title	Translate AGL information into an HMI information
Status	<Validated>
Rationale	The controller needs to be informed, on his HMI, about the status information produced by the AGL system.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLG.0003	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-SPR-AGLS.0013	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-SPR-AGLS.0014	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-AGLI.0003	<Partial>

<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-AGLI.0006	<Full>
<SATISFIES>	<Information Exchange Requirement>	IER-06.07.02-OSED-0002.0008	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2080.0040
Requirement	The SGS shall be able to receive status information about each lamp from the AGL Control System.
Title	Light status
Status	<Validated>
Rationale	The controller needs to know the current status of each lamp.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLG.0004	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-AGLI.0003	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-AGLI.0006	<Full>
<SATISFIES>	<Information Exchange Requirement>	IER-06.07.02-OSED-0002.0008	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

3.1.2.1 AGL TCL Segments and Lamps Requirements

[REQ]

Identifier	REQ-12.03.04-TS-3090.0010
Requirement	The SGS shall receive information about how the TCL segments have been configured by the AGL System.
Title	Length of AGL segments
Status	<Validated>
Rationale	TCL segments need to be configurable in terms of number of lamps per segment.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLS.0001	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2090.0020
Requirement	The SGS shall send messages to the AGL Control System and to the Controller HMI to indicate each cleared taxi route by a configurable number of lit TCL segments ahead of each taxiing target.
Title	TCL segment lighting message

Status	<Validated>
Rationale	The AGL control system needs a message to activate a configurable number of lit TCL segments ahead of each taxiing target on its cleared taxi route. The same information is needed for display on the Controller HMI.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLS.0002	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-DYNA.0004	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-3090.0030
Requirement	The SGS shall allow to configure the number of TCL segments to be lit in front of the target, by having separate parameters for aircraft and vehicles.
Title	Configuration of number of segments
Status	<Validated>
Rationale	Aircraft and vehicles need different numbers of segments.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLS.0002	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-3090.0040
Requirement	The SGS shall allow to configure the number of TCL segments to be switched off between two consecutive targets per different visibility conditions
Title	Separation between two route Indications
Status	<Validated>
Rationale	The gap between any two taxi-route indications needs to be configurable depending on environmental and operational conditions.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLS.0003	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-3090.0045
Requirement	The SGS shall apply the configured separation according to current visibility

	category received from Operational Supervision.
Title	Separation change according to visibility
Status	<Validated>
Rationale	The gap between any two taxi-route indications needs to be configurable depending on environmental and operational conditions.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLS.0003	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-3090.0050
Requirement	The SGS shall maintain the TCL segments, or individual lights, switched off after the taxi clearance limit.
Title	Deactivation of TCLs beyond clearance limit
Status	<Validated>
Rationale	TCLs should not be lit beyond the current clearance limit for the taxi route.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLS.0004	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

3.1.2.2 AGL Route Deviation and Stop Bar Requirements

[REQ]

Identifier	REQ-12.03.04-TS-3100.0010
Requirement	On receipt of a route deviation alert for a mobile from Conformance Monitoring, the SGS shall switch off all the TCL segments, or individual lights, related to that specific mobile.
Title	Deactivation of TCLs in case of route deviations
Status	<Validated>
Rationale	TCLs need to be extinguished after a route deviation in order to indicate to the mobile concerned that it should stop and await further instructions.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLD.0001	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-3100.0015
Requirement	On receipt of stop bar overrun or clearance limit overrun alert for a mobile from Conformance Monitoring, the SGS shall switch off all the TCL segments, or individual lights, related to that specific mobile.
Title	Deactivation of TCLs in case of stop bar or clearance limit overrun
Status	<Validated>
Rationale	TCLs need to be extinguished after a clearance limit overrun in order to indicate to the mobile concerned that it should stop and await further instructions. Even if after an active stop-bar the TCL are switched off, this is included to be sure that all the TCL lights have to be switched off.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLD.0001	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2100.0020
Requirement	The SGS shall be able to send commands to the AGL Control System to switch stop bars on/off, in accordance with given clearances.
Title	Clearances through stop bar regulation
Status	<Validated>
Rationale	The AGL control system needs a message to activate or deactivate stop bars in accordance with clearances given.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLD.0002	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLD.0004	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2100.0030
Requirement	The SGS shall receive the status of the stop bars and TCLs from the AGL Control System.
Title	AGL monitoring
Status	<Validated>
Rationale	The controller and supervision personnel need to know the status of stop bars and TCLS.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-AGLI.0003	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A

<ALLOCATED TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2100.0040
Requirement	The SGS shall be able to receive LINE-UP clearances from the Controller HMI and send a command to the AGL Control System to de-activate the stop bar at the runway entry point for the cleared aircraft, when there is an active stop bar at the entry point and the aircraft is nearing the stop bar.
Title	Stop bar regulation following a controller LINE-UP input
Status	<Validated>
Rationale	The relevant stop bar must be deactivated when a LINE UP clearance is given.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLD.0005	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

It is suggested that the operational project 06.07.03 should specify what is the meaning of “nearing” in the previous requirement (in the REQ-06.07.02-OSED-AGLD.0005). A possible interpretation could be closer than a threshold. This has been used in prototype implementation.

[REQ]

Identifier	REQ-12.03.04-TS-3100.0045
Requirement	The SGS shall be able to receive TAKE OFF clearance from the Controller HMI and send a command to the AGL Control System to de-activate the stop bar at the runway entry point for the cleared aircraft when no previous LINE-UP clearance for the flight has been received, there is an active stop bar at the entry point and the aircraft is nearing the stop bar
Title	Stop bar regulation following a controller Take-Off input
Status	<Validated>
Rationale	The relevant stop bar must be deactivated when a LINE UP or TAKE OFF clearance is given.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLD.0006	<Full>
<APPLIES TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

It is suggested that the operational project 06.07.03 should specify what is the meaning of “nearing” in the previous requirement (in the REQ-06.07.02-OSED-AGLD.0005). A possible interpretation could be closer than a threshold. This has been used in prototype implementation.

[REQ]

Identifier	REQ-12.03.04-TS-2100.0050
Requirement	The SGS shall be able to receive CROSS clearances from the Controller HMI and send a command to the AGL Control System to de-activate the stop bar at the runway entry point for the cleared mobile, when the aircraft is nearing the runway entry point.
Title	Stop bar regulation following a controller CROSS input
Status	<Validated>
Rationale	The relevant stop bar must be deactivated when a CROSS clearance is given.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLD.0007	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2100.0060
Requirement	The SGS shall be able to receive ENTER clearances from the Controller HMI and send a command to the AGL Control System to de-activate the stop bar at the runway entry point for the cleared mobile, when the same mobile is nearing the runway entry point.
Title	Stop bar regulation following a controller ENTER input
Status	<Validated>
Rationale	The relevant stop bar must be deactivated when an ENTER clearance is given.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLD.0008	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

It is suggested that the operational project 06.07.03 should specify what is the meaning of “nearing” in the previous two requirements (in the REQ-06.07.02-OSED-AGLD.0005). A possible interpretation could be closer than a threshold. This has been used in prototype implementation.

[REQ]

Identifier	REQ-12.03.04-TS-2100.0070
Requirement	The SGS shall be able to receive surveillance data and send a command to the AGL Control System to turn on a de-activated stop bar when the cleared mobile is detected to have passed over it by a configurable parameter distance.
Title	Automatic stop bars re-activation
Status	<Validated>
Rationale	The relevant stop bar must be reactivated when the cleared mobile is detected to have passed over it.
Category	<Functional>

Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLD.0002	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLD.0003	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLD.0009	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

3.1.2.3 AGL APTR Requirements

[REQ]

Identifier	REQ-12.03.04-TS-2110.0010
Requirement	For airports with Alternative Parallel Taxi Route (APTR), the SGS shall store in its internal database the colours of all TCL lamps.
Title	Route indication by coloured TCLs
Status	<Validated>
Rationale	The system needs to know the colours of the APTR lamps in order to display them correctly on the Controller HMI.
Category	<Design>
Validation Method	
Verification Method	<Review of Design>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLA.0001	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2110.0020
Requirement	The SGS shall send the colours of all TCL lamps to the Controller HMI.
Title	Visualization of coloured TCLs to the ATCO
Status	<Validated>
Rationale	The system needs to know the colours of all TCL lamps in order to display them correctly on the Controller HMI.
Category	<Design>
Validation Method	
Verification Method	<Review of Design>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLA.0002	
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

3.1.2.4 AGL Deleted Requirements

In this section there are all the requirements concerning AGL defined in phase 1, phase 2 or phase 3 that are considered no more valid for final technical specifications.

[REQ]

Identifier	REQ-12.03.04-TS-2080.0020
Requirement	The SGS shall be able to convert the routing information into commands to drive the taxiway centreline light (TCL) segments.
Title	Translate route into AGL control
Status	<Deleted>
Rationale	Guidance information produced by the SGS must be converted in commands to be handled by the AGL system. This requirement has been replaced by REQ-12.03.04-TS-3080.0020 and REQ-12.03.04-TS-3080.0025
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLG.0002	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-AGLI.0001	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-AGLI.0002	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-AGLI.0004	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2090.0010
Requirement	The length of taxiway centreline light (TCL) segments shall be a configurable system parameter.
Title	Length of AGL segments
Status	<Deleted>
Rationale	TCL segments need to be configurable in terms of number of lamps per segment. This requirement has been replaced by REQ-12.03.04-TS-3090.0010
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLS.0001	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

This requirement has been deleted because the configuration of TCL segments is not job of SGS.

In fact, normally, the length (number of lamps and distance between them) of each TCL segment is fixed by the AGL system provider. The SGS can only control which segments are lit.

[REQ]

Identifier	REQ-12.03.04-TS-2090.0030
Requirement	It shall be possible to configure different numbers of segments for aircraft and for vehicles by having separate parameters.
Title	Configuration of number of segments
Status	<Deleted>
Rationale	Aircraft and vehicles need different numbers of segments. This requirement has been replaced by REQ-12.03.04-TS-3090.0030
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLS.0002	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2090.0040
Requirement	The gap between two taxi route indications shall be a configurable system parameter, which can be modified by the Operational Supervision according to environmental and operational conditions.
Title	Separation between two route Indications
Status	<Deleted>
Rationale	The gap between any two taxi-route indications needs to be configurable depending on environmental and operational conditions. This requirement has been replaced by REQ-12.03.04-TS-3090.0040 and REQ-12.03.04-TS-3090.0045
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLS.0003	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2090.0050
Requirement	Taxiway centreline lights beyond the current clearance limit for the mobile shall not be lit.
Title	Deactivation of TCLs beyond clearance limit
Status	<Deleted>
Rationale	TCLs should not be lit beyond the current clearance limit for the taxi route. This requirement has been replaced by REQ-12.03.04-TS-3090.0050
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLS.0004	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2100.0010
Requirement	On receipt of a route deviation alert or stop bar overrun alert from the SSN, the taxi route indication for that target shall be extinguished.
Title	Deactivation of TCLs in case of route deviations
Status	<Deleted>
Rationale	TCLs need to be extinguished after a route deviation in order to indicate to the mobile concerned that it should stop and await further instructions. This requirement has been replaced by REQ-12.03.04-TS-3100.0010
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLD.0001	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

3.1.3 Virtual Block Control

[REQ]

Identifier	REQ-12.03.04-TS-2120.0010
Requirement	The SGS shall allow to assign a VSB on each Intermediate Holding Position.
Title	VSB on IHP
Status	<Validated>
Rationale	Virtual blocks are created by adding VSB positions on known point.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-OSED-VBCL.0004	<Full>
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Project>	12.03.04	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-67	<Full>

[REQ]

Identifier	REQ-12.03.04-TS-2120.0020
Requirement	The SGS shall allow to assign a VSB on an arbitrary position on the Aerodrome.
Title	VSB on arbitrary positions

Status	<In Progress>
Rationale	Virtual blocks are created by adding VSB positions on arbitrary positions. This requirement has not been validated in any of Release 5 exercises.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-OSED-VBCL.0003	<Full>
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Project>	12.03.04	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-67	<Full>

[REQ]

Identifier	REQ-12.03.04-TS-2120.0025
Requirement	The SGS shall allow to assign an arbitrary VSB only for aircraft which are data link equipped and able to display the VSB on an AMM.
Title	VSB on arbitrary positions to data link equipped aircrafts
Status	<In Progress>
Rationale	The arbitrary VSB can be assigned only to aircraft that can see an airport map on board with the VSB position sent via data link. This requirement has not been validated by any of Release 5 exercise.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-OSED-VBCL.0005	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-OSED-VBCL.0012	<Partial>
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Project>	12.03.04	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-67	<Full>

About previous requirement, it is not clear how the information that an aircraft is equipped with a moving map can arrive to Surface Guidance Server. It is suggested that the operational project 06.07.03 better specify this behaviour.

[REQ]

Identifier	REQ-12.03.04-TS-3120.0027
Requirement	The SGS shall allow to configure the default status (ON/OFF) of a created VSB.
Title	VSB default status
Status	<Validated>
Rationale	In certain areas, the VSB have to be switched on by default.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-OSED-VBCL.0010	<Partial>
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A

<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-67	<Full>
<ALLOCATED_TO>	<Project>	12.03.04	N/A

[REQ]

Identifier	REQ-12.03.04-TS-2120.0030
Requirement	The SGS shall manage following state of the VSB: • VSB switched off • VSB switched on • VSB not available
Title	VSB status
Status	<Validated>
Rationale	The SGS shall store and dispatch the current status of the VSB
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-SPR-0001.0080	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-SPR-0001.0090	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-SPR-0001.0100	<Partial>
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<ALLOCATED_TO>	<Functional block>	Controller Human Machine Interaction Management	N/A
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-67	<Full>
<ALLOCATED_TO>	<Project>	12.03.04	N/A

[REQ]

Identifier	REQ-12.03.04-TS-2120.0050
Requirement	The SGS shall be able to receive the manual activation / deactivation of the VSB from the Controller HMI.
Title	Activation / deactivation of VSB
Status	<Validated>
Rationale	The controller can manually switch on/off the VSB.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-OSED-VBCL.0006	<Partial>
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<ALLOCATED_TO>	<Functional block>	Controller Human Machine Interaction Management	N/A
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-67	<Full>
<ALLOCATED_TO>	<Project>	12.03.04	N/A

[REQ]

Identifier	REQ-12.03.04-TS-2120.0060
Requirement	The SGS shall be able to receive a taxi clearance with a VSB as limit from A-FDP and set this VSB as switched on for the specific mobile.

Title	Switch on VSB as taxi clearance limit
Status	<Validated>
Rationale	The controller must be able to use the block limits as clearance limit
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-OSED-VBCL.0007	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-SPR-0001.0100	<Full>
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<ALLOCATED_TO>	<Functional block>	Controller Human Machine Interaction Management	N/A
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-67	<Full>
<ALLOCATED_TO>	<Project>	12.03.04	N/A

[REQ]

Identifier	REQ-12.03.04-TS-2120.0070
Requirement	The SGS shall be able to receive a taxi clearance over a switched on VSB (authorisation to pass it) from A-FDP and set this VSB as switched off for the specific mobile.
Title	VSB switch off following a clearance
Status	<Validated>
Rationale	The controller must be able to use the block limits as clearance limit and further give the authorisation to pass over them
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-SPR-0001.0080	<Full>
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<ALLOCATED_TO>	<Functional block>	Controller Human Machine Interaction Management	N/A
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-67	<Full>
<ALLOCATED_TO>	<Project>	12.03.04	N/A

[REQ]

Identifier	REQ-12.03.04-TS-2120.0080
Requirement	The SGS shall switch on again a VSB once the aircraft, cleared to cross the VSB, is detected to have passed over it by a configurable parameter distance.
Title	VSB default switch on following aircraft cross
Status	<Validated>
Rationale	If a VSB has been lit by default, after the passage of aircraft, the VSB shall be switched on again.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-OSED-VBCL.0010	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-SPR-0001.0090	<Full>
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<ALLOCATED_TO>	<Functional block>	Controller Human Machine Interaction Management	N/A
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-67	<Full>
<ALLOCATED_TO>	<Project>	12.03.04	N/A

[REQ]

Identifier	REQ-12.03.04-TS-2120.0085
Requirement	The SGS shall send a notification to the Controller HMI if there are more than X (configurable parameter) aircraft with the same VSB as taxi clearance limit.
Title	VSB multiple clearances
Status	<In Progress>
Rationale	If a VSB has been lit by default, after the passage of aircraft, the VSB shall be switched on again. This requirement has not been validated by any of Release 5 exercise.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-OSED-VBCL.0002	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-SPR-0001.0040	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-SPR-0001.0050	<Partial>
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<ALLOCATED_TO>	<Functional block>	Controller Human Machine Interaction Management	N/A
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-67	<Full>
<ALLOCATED_TO>	<Project>	12.03.04	N/A

[REQ]

Identifier	REQ-12.03.04-TS-2120.0087
Requirement	The SGS shall be able to receive a Watch Dog activation on a flight if the aircraft has received the stop instruction.
Title	Watch Dog activation – stop constraint
Status	<In Progress>
Rationale	The controller can activate a Watch Dog control on a flight that has been issued to stop. This requirement has not been validated nor verified.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-SPR-0001.0140	<Full>
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<ALLOCATED_TO>	<Functional block>	Controller Human Machine Interaction Management	N/A
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-67	<Full>
<ALLOCATED_TO>	<Project>	12.03.04	N/A

About Watch Dog function, no requirements have been verified and validated. It is suggested that operational project 06.07.03 revises the description of the function.

This project (12.03.04) considers that Watch Dog is essentially a route deviation, that is alerted by other functions in the Airport Domain (i.e. Conformance Monitoring).

[REQ]

Identifier	REQ-12.03.04-TS-2120.0090
Requirement	The SGS shall be able to receive a Watch Dog activation on a flight if the aircraft has a speed below a configurable threshold.
Title	Watch Dog activation – speed constraint
Status	<In Progress>
Rationale	The controller can activate a Watch Dog control on a flight that has been issued to stop
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-SPR-0001.0140	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-SPR-0001.0150	<Full>
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<ALLOCATED_TO>	<Functional block>	Controller Human Machine Interaction Management	N/A
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-67	<Full>
<ALLOCATED_TO>	<Project>	12.03.04	N/A

[REQ]

Identifier	REQ-12.03.04-TS-2120.0100
Requirement	The SGS shall trigger an alert if an aircraft infringes a VSB that has been set as taxi clearance limit.
Title	VSB violation
Status	<Validated>
Rationale	The Controller shall be alerted in case of infringement of a VSB by an aircraft not authorised
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-OSED-VBCL.0009	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-SPR-0001.0070	<Full>
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<ALLOCATED_TO>	<Functional block>	Controller Human Machine Interaction Management	N/A
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-67	<Full>
<ALLOCATED_TO>	<Project>	12.03.04	N/A

[REQ]

Identifier	REQ-12.03.04-TS-2120.0110

Requirement	The SGS shall trigger an alert if an aircraft that has been activated a Watch Dog has a speed higher than a configurable threshold.
Title	Watch Dog alert
Status	<In Progress>
Rationale	The Controller shall be alerted in case of violation of Watch Dog
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-SPR-0001.0160	<Full>
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<ALLOCATED_TO>	<Functional block>	Controller Human Machine Interaction Management	N/A
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-67	<Full>
<ALLOCATED_TO>	<Project>	12.03.04	N/A

3.2 Adaptability

N/A

3.3 Performance Characteristics

[REQ]

Identifier	REQ-12.03.04-TS-2060.0110
Requirement	The data link service shall be established within 3 seconds to be available for operational use.
Title	Data link service established in sufficient time
Status	<In Progress>
Rationale	The dialogue shall be established in sufficient time for operational purpose.
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-SPR-DTAX.0218	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

3.4 Safety & Security

3.4.1 D-TAXI and Vehicle Data link Service

[REQ]

Identifier	REQ-12.03.04-TS-2200.0010
Requirement	The SGS shall be able to recognize when the clearance was successfully received and communicate such information to the ATCO HMI
Title	Clearance was sent successfully
Status	<Validated>
Rationale	The controller needs to be aware that the clearance he delivered was successfully received.

Category	<Safety>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-SPR-DTAX.0006	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-DTAX.0005	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-DTAX.0006	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>
<SATISFIES>	<Enabler>	AERODROME-ATC-14	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2200.0020
Requirement	The SGS shall be able to recognize when the clearance was not received and inform, consequently, the ATCO HMI.
Title	Clearance was not sent successfully
Status	<Validated>
Rationale	The controller needs to be promptly informed if the clearance he delivered was not received.
Category	<Safety>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-SPR-DTAX.0007	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-DTAX.0005	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-DTAX.0006	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>
<SATISFIES>	<Enabler>	AERODROME-ATC-14	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2200.0030
Requirement	The SGS shall generate an alert if it is not possible to send D-TAXI or Vehicle Data link messages.
Title	Alert to ATCO
Status	<Validated>
Rationale	The controller needs to be promptly informed if the clearance he delivered was not sent or received.
Category	<Safety>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-SPR-DTAX.0008	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-DTAX.0008	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-DTAX.0009	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-DTAX.0010	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-DTAX.0011	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-14	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2200.0040
Requirement	The SGS shall transmit the message to the selected aircraft or vehicle.
Title	Transmitting messages
Status	<Validated>
Rationale	To avoid dangerous situation.
Category	<Safety>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-SPR-DTAX.0015	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>
<SATISFIES>	<Enabler>	AERODROME-ATC-14	<Partial>

3.4.2 AGL Service

The requirements listed in this section have been neither verified nor validated during the lifecycle of the project. Their verification can be only made by a long period of testing in an operational environment, and this is not possible with a prototype to be used for purpose of validating operational concepts. In any case, they have been defined as possible input for a deployment stage.

[REQ]

Identifier	REQ-12.03.04-TS-3200.0050
Requirement	The probability of SGS calculating the longitudinal distance between two mobiles under a defined minimum shall be less than 10^{-4} per taxi-event.
Title	Longitudinal distance between two mobiles
Status	<In Progress>
Rationale	SGS has to calculate the distance between two mobile with high accuracy in order to maintain the light switched off. The requirement has not been verified.
Category	<Safety>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-SPR-AGLS.0002	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-3200.0060
Requirement	The probability of the SGS incorrectly de-activating stop-bar lights shall not exceed 10^{-4} per taxi-event.
Title	Incorrectly de-activated stop-bar
Status	<In Progress>
Rationale	SGS has to avoid to incorrectly de-activate a stop-bar for safety. The requirement has not been verified.
Category	<Safety>

Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-SPR-AGLS.0003	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-3200.0070
Requirement	The probability of the SGS incorrectly activating taxiway centreline lights shall not exceed 10^{-4} per taxi-event.
Title	Incorrectly activated taxiway centre line lights
Status	<In Progress>
Rationale	SGS has to avoid to incorrectly activate the TCL lights for safety. The requirement has not been verified.
Category	<Safety>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-SPR-AGLS.0004	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-3200.0080
Requirement	The probability that the SGS incorrectly displays the light status it receives from the AGL System shall not exceed 10^{-4} per taxi-event.
Title	Incongruent display of lights
Status	<In Progress>
Rationale	SGS has to avoid to incorrectly displays the lights' status for safety. The requirement has not been verified.
Category	<Safety>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-SPR-AGLS.0006	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-3200.0090
Requirement	The probability that the SGS incorrectly interprets the information it receives from Surveillance (about when a mobile has passed a segment) shall not exceed 10-4 per taxi-event.

Title	No detection of passing segment
Status	<In Progress>
Rationale	SGS has to correctly detects the passage of a mobile over a segment for safety. The requirement has not been verified.
Category	<Safety>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-SPR-AGLS.0008	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-3200.0100
Requirement	The probability that the SGS does not send a command to re-activate a stop bar when it receives information from Surveillance that the mobile has passed shall not exceed 10-4 per taxi-event.
Title	Turn off after rollover
Status	<In Progress>
Rationale	SGS has to correctly activate the stop-bar after a passage of a mobile for safety. The requirement has not been verified.
Category	<Safety>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-SPR-AGLS.0009	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-3200.0110
Requirement	The probability that the SGS does not send a command to correctly activate TCL segments in front of a mobile when it receives correct information from Surveillance about the mobile position shall not exceed 10^{-4} per taxi-event.
Title	Turn off in front of mobile
Status	<In Progress>
Rationale	SGS has to correctly activate the TCL in front of a mobile for safety. The requirement has not been verified.
Category	<Safety>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-SPR-AGLS.0010	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A

<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

3.5 Maintainability

N/A

3.6 Reliability

N/A

3.7 Functional block Internal Data Requirements

N/A

3.8 Design and Construction Constraints

3.8.1 D-TAXI message

[REQ]

Identifier	REQ-12.03.04-TS-2310.0010
Requirement	The SGS shall use the D-TAXI service over CPDLC application following the rules & recommendation described in EUROCAE ED-229.
Title	D-TAXI message sequences.
Status	<Deleted>
Rationale	This requirement has been deleted because the complete adherence to the standard is not requested for prototype development and validation
Category	<Design>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-DTAX.0012	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

3.9 Functional block Interface Requirements

[REQ]

Identifier	REQ-12.03.04-TS-2300.0010
Requirement	The SGS shall receive the Flight Plans from the Aerodrome FDP functional block.
Title	Reception of flight plans
Status	<Validated>
Rationale	The SGS shall receive the Flight Plans to manage the D-TAXI messages and AGL instructions
Category	<Interface>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-CSRQ.0001	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-SPR-DTAX.0022	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-SPR-DTAX.0023	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>
<SATISFIES>	<Enabler>	AERODROME-ATC-14	<Partial>
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>
<SATISFIES>	<Enabler>	AERODROME-ATC-67	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2300.0020
Requirement	The SGS shall receive the clearances related to ground operations performed by the Tower Controllers from the Aerodrome FDP functional block.
Title	Reception of Clearances
Status	<Validated>
Rationale	The SGS shall receive the clearances to manage the D-TAXI messages and the commands for AGL
Category	<Interface>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-CSRQ.0001	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-DYNA.0005	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-SPR-DTAX.0010	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>
<SATISFIES>	<Enabler>	AERODROME-ATC-14	<Partial>
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>
<SATISFIES>	<Enabler>	AERODROME-ATC-67	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2300.0030
Requirement	The SGS shall receive the planned Taxi Route from Aerodrome Flight Data Processing functional block.
Title	Reception of Planned Taxi Route
Status	<Validated>
Rationale	The SGS shall receive the planned Taxi Route to manage the related D-TAXI message
Category	<Interface>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-CSRQ.0001	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-CSRQ.0003	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2300.0040
Requirement	The SGS shall receive the messages to be delivered to flight crew or vehicle driver from the Controller Human Machine Interaction Management functional block.
Title	Reception of Uplink Messages
Status	<Validated>
Rationale	The SGS shall receive the messages from the Controller for uplinking them
Category	<Interface>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0009	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>
<SATISFIES>	<Enabler>	AERODROME-ATC-14	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2300.0050
Requirement	The SGS shall send the messages from flight crew or vehicle driver to Controller Human Machine Interaction Management functional block.
Title	Sending of Downlink Messages
Status	<Validated>
Rationale	The SGS shall send the messages received from on-board system to the Controller
Category	<Interface>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0009	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>
<SATISFIES>	<Enabler>	AERODROME-ATC-14	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2300.0060
Requirement	The SGS shall send the Uplink Messages to Aircraft Capability Configuration.
Title	Sending of Uplink Messages
Status	<Validated>
Rationale	The SGS shall send the messages received from the Controller to the Aircraft
Category	<Interface>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-CSRQ.0005	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-COMS.0002	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2300.0070
Requirement	The SGS shall receive the Downlink Messages from Aircraft Capability Configuration.
Title	Reception of Downlink Messages
Status	<Validated>
Rationale	The SGS shall send the messages received from the Aircraft to the Controller
Category	<Interface>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-COMS.0002	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-DTXI.0009	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2300.0080
Requirement	The SGS shall receive the target reports related to airport from Aerodrome Surveillance functional block.
Title	Reception of Target Reports
Status	<Validated>
Rationale	The SGS shall receive the target reports to correctly manage the AGL commands and VSB
Category	<Interface>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-CSRQ.0002	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-CSRQ.0007	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-DYNA.0003	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>
<SATISFIES>	<Enabler>	AERODROME-ATC-67	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2300.0100
Requirement	The SGS shall send the status of its functions to Technical Supervision functional block.
Title	Sending of SGS functions' status
Status	<Validated>

Rationale	The SGS sends the status of its functions (D-TAXI service, AGL service, Virtual Block Control service) to Tech Sup for monitoring
Category	<Interface>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-SPR-0001.0010	<Full>
<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-SPR-0001.0020	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-SPR-0002.0040	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-COMS.0003	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-COMS.0004	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>
<SATISFIES>	<Enabler>	AERODROME-ATC-14	<Partial>
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>
<SATISFIES>	<Enabler>	AERODROME-ATC-67	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2300.0110
Requirement	The SGS shall receive technical commands from Technical Supervision functional block.
Title	Reception of technical commands
Status	<Validated>
Rationale	The SGS shall be able
Category	<Interface>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>
<SATISFIES>	<Enabler>	AERODROME-ATC-14	<Partial>
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>
<SATISFIES>	<Enabler>	AERODROME-ATC-67	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2300.0120
Requirement	The SGS shall send all the messages and commands to Support Function functional block for recording purposes.
Title	Sending of data for recording
Status	<Validated>
Rationale	The SGS shall send all the messages and the commands to Recording function
Category	<Interface>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-02a	<Partial>
<SATISFIES>	<Enabler>	AERODROME-ATC-14	<Partial>
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>
<SATISFIES>	<Enabler>	AERODROME-ATC-67	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2300.0130
Requirement	The SGS shall receive the SSN alerts related to taxi route deviation and stop-bar overrun from Conformance Monitoring functional block to send right commands to AGL and VSB.
Title	Reception of SSN alerts
Status	<Validated>
Rationale	The SGS uses the taxi deviation and stop-bar overrun alerts
Category	<Interface>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLD.0001	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>
<SATISFIES>	<Enabler>	AERODROME-ATC-67	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2300.0140
Requirement	The SGS shall receive the status of AGL from Ground Lighting Management functional block.
Title	Reception of AGL status
Status	<Validated>
Rationale	The SGS has to know the status of AGL to correctly manage the commands for the same AGL following the clearances
Category	<Interface>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.02-OSED-AGLD.0004	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2300.0150
Requirement	The SGS shall send the status of AGL to Controller Human Machine Interaction Management functional block.
Title	Sending of AGL status
Status	<Validated>

Rationale	The Controller has to know the AGL status to receive feedback about the implementation of his clearances
Category	<Interface>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-CSRQ.0006	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2300.0170
Requirement	The SGS shall send the commands for AGL to Ground Lighting Management functional block.
Title	Sending of commands to AGL
Status	<Validated>
Rationale	The AGL have to switch on/off according to right commands provided by SGS
Category	<Interface>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-CSRQ.0006	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-CSRQ.0008	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-61	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2300.0180
Requirement	The SGS shall receive manual orders about VBC from Controller Human Machine Interaction Management functional block.
Title	Reception of VSB manual orders
Status	<Validated>
Rationale	The SGS has to use the orders on the VSB to correctly manage the Virtual Block Control function
Category	<Interface>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-OSED-VBCL.0003	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-67	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2300.0190
Requirement	The SGS shall send VSB status to Controller Human Machine Interaction Management functional block.
Title	Sending of VSB status to CWP
Status	<Validated>
Rationale	The controller has to know the status of VSB to correctly use of Virtual Block function during LVP
Category	<Interface>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-OSED-VBCL.0006	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-67	<Partial>

[REQ]

Identifier	REQ-12.03.04-TS-2300.0220
Requirement	The SGS shall receive the Airport Visibility Category to activate the VSB and the stop bar from Operational Supervision functional block.
Title	Reception of Airport Operational Status
Status	<Validated>
Rationale	The SSN has to know the visibility category of the airport to activate the LVP.
Category	<Interface>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-OSED-VBCL.0001	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<SATISFIES>	<Enabler>	AERODROME-ATC-67	<Partial>

3.9.1 Interface Deleted Requirements

[REQ]

Identifier	REQ-12.03.04-TS-2300.0090
Requirement	The SGS shall send the target reports related to airport to Aircraft capability configuration.
Title	Sending of Target Reports
Status	<Deleted>
Rationale	The SGS shall send the target report to Aircraft to allow showing the tracks on the Aircraft Moving Map. The requirement has been deleted because the SGS is not responsible to send target reports to aircraft, from 12.1.7 TAD
Category	<Interface>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-CSRQ.0004	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Aircraft and Vehicle Datalink Management	N/A

[REQ]

Identifier	REQ-12.03.04-TS-2300.0200
Requirement	The SGS shall allow to send the VSB and its status to Airport FDP.
Title	VSB status to A-FDP
Status	<Deleted>
Rationale	Virtual Stop Bars are sent to Airport FDP for using them as limit of taxi clearance. The requirement has been deleted because A-FDP doesn't need of this kind of information
Category	<Functional>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-SPR-0001.0080	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-SPR-0001.0090	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-SPR-0001.0100	<Partial>
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<ALLOCATED_TO>	<Functional block>	Aerodrome Flight Data Processing	N/A
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Project>	12.03.04	N/A

[REQ]

Identifier	REQ-12.03.04-TS-2300.0210
Requirement	The SGS shall send VSB status and activation/deactivation of Watch Dog on a flight to Conformance Monitoring functional block.
Title	Sending of VBC info to SSN
Status	<Deleted>
Rationale	The SSN has to know the status of VSB and Watch Dog to raise possible non-conformances
Category	<Interface>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-SPR-0001.0140	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.08.07-SPR-0001.0150	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<ALLOCATED_TO>	<Functional block>	Conformance Monitoring	N/A

[REQ]

Identifier	REQ-12.03.04-TS-2300.0160
Requirement	The SGS shall send the AGL status to Runway and Taxiway Usage

	Management.
Title	Sending of AGL to RTUM
Status	<Deleted>
Rationale	The RTUM has to know the AGL status to declare possible shortage of taxiways and runways. The requirement has been deleted because RTUM should receive AGL status directly from the AGL system and not via Surface Guidance.
Category	<Interface>
Validation Method	
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.03-INTEROP-CSRQ.0006	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA04.02.01	N/A
<ALLOCATED_TO>	<Functional block>	Surface Guidance Management	N/A
<ALLOCATED_TO>	<Functional block>	Runway and Taxiway Usage Management	N/A

4 Assumptions

N/A.

5 References

[1] Template Toolbox 03.01.03
https://extranet.sesarju.eu/Programme%20Library/SESAR%20Template%20Toolbox.dot

[2] Requirements and V&V Guidelines 03.01.00
https://extranet.sesarju.eu/Programme%20Library/Requirements%20and%20VV%20Guidelines.doc

[3] Templates and Toolbox User Manual 03.01.01
https://extranet.sesarju.eu/Programme%20Library/Templates%20and%20Toolbox%20User%20Manual.doc

[4] EUROCONTROL ATM Lexicon
https://extranet.eurocontrol.int/http://atmlexicon.eurocontrol.int/en/index.php/SESAR

[5] SESAR – P12.01.07 – D30 SESAR 1 Airport Technical Architecture Description, version 00.01.00, 31/05/2016

[6] EUROCAE, ED-229 Interoperability Requirements Standard for Baseline 2 ATS Data Communications, March 2014

[7] EUROCAE, ED-228 Safety and Performance Standard for Baseline 2 ATS data communications (Baseline 2 SRP Standard, March 2014

[8] SESAR – DEL06.07.03-D26 – Preliminary INTEROP Phase 2, Edition 00.01.00, 30/10/2014

[9] SESAR – P06.07.02-D76 Second OFA04.02.01 (Integrated Surface Management) Interim OSED, Edition 00.01.01, 04/08/2015

[10] SESAR –P06.07.02-D77 OFA04.02.01 (Integrated Surface Management) Interim SPR, Edition 00.01.00, 05/08/2015

[11] OFA 04.02.01 Roll-out Plan, v00.01.02 (December 2013)

[12] 12.03.04-D22-Phase 3 - Technical Specification, version 00.01.00, 14/05/2016

[13] 10.07.01-D87 AGDL System Requirements – TS 2014, edition 00.01.00, 07/07/2014

[14] 06.02 – D122 Step 1 Airport DOD 2014 Update, 15/01/2015

[15] WPB.01 Integrated Roadmap Dataset15 Release Note, D83, Edition 00.01.00, 21/12/2015)

5.1 Use of copyright / patent material /classified material

N/A.

5.1.1 Classified Material

N/A.

Appendix A Requirement Traceability

A.1 Covered Requirements

The table below reports the traceability of system requirements produced in this document respect to operational requirements produced in [8], [9] and [10] (the traceability with IER defined in [9] is not reported in this table)

OPS REQ Title	OPS REQ ID	SYS REQ ID
General D-TAXI Service		
Ground domain	REQ-06.07.02-OSED-DTXI.0009	REQ-12.03.04-TS-2010.0020
ATSU transmitting messages	REQ-06.07.03-SPR-DTAX.0135	REQ-12.03.04-TS-2010.0020
Controller is involved in the D-TAXI transaction	REQ-06.07.03-INTEROP-DTAX.0001	REQ-12.03.04-TS-2010.0020
Communication Link CS to Mobile	REQ-06.07.03-INTEROP-COMS.0001	REQ-12.03.04-TS-2010.0025
Two-way COM between CS and Mobile	REQ-06.07.03-INTEROP-COMS.0002	REQ-12.03.04-TS-2010.0025
CS interaction with other systems	REQ-06.07.03-INTEROP-GENR.0001	REQ-12.03.04-TS-2010.0025
DLIC service	REQ-06.07.02-OSED-DTXI.0026	REQ-12.03.04-TS-2010.0140
ATSU indication to the controller	REQ-06.07.03-SPR-DTAX.0130	REQ-12.03.04-TS-2010.0140
Data link initiations capabilities service	REQ-06.07.03-INTEROP-DYNA.0002	REQ-12.03.04-TS-2010.0140
D-TAXI - ATCO HMI		
Identifier for data link connected mobile	REQ-06.07.02-OSED-DTXI.0101	REQ-12.03.04-TS-2020.0020
ATSU indication to the controller	REQ-06.07.03-SPR-DTAX.0130	REQ-12.03.04-TS-2020.0020

OPS REQ Title	OPS REQ ID	SYS REQ ID
D-TAXI - START UP		
START-UP Request display	REQ-06.07.02-OSED-DTXI.0200	REQ-12.03.04-TS-2030.0010
Provision of start-up approval	REQ-06.07.03-INTEROP-DYNA.0010	REQ-12.03.04-TS-2030.0010
START-UP Approval	REQ-06.07.02-OSED-DTXI.0201	REQ-12.03.04-TS-2030.0020
Provision of start-up approval	REQ-06.07.03-INTEROP-DYNA.0010	REQ-12.03.04-TS-2030.0020
STANDBY START-UP from ATCO	REQ-06.07.02-OSED-DTXI.0202	REQ-12.03.04-TS-2030.0030
UNABLE DPUSH from ATCO	REQ-06.07.02-OSED-DTXI.0203	REQ-12.03.04-TS-2030.0040
STANDBY START-UP from Flight Crew	REQ-06.07.02-OSED-DTXI.0204	REQ-12.03.04-TS-2030.0050
STANDBY display	REQ-06.07.02-OSED-DTXI.0504	REQ-12.03.04-TS-2030.0050
UNABLE START-UP from Flight Crew	REQ-06.07.02-OSED-DTXI.0205	REQ-12.03.04-TS-2030.0060
UNABLE display	REQ-06.07.02-OSED-DTXI.0503	REQ-12.03.04-TS-2030.0060
WILCO START-UP from Flight Crew	REQ-06.07.02-OSED-DTXI.0206	REQ-12.03.04-TS-2030.0070
EXPECT START-UP from ATCO	REQ-06.07.02-OSED-DTXI.0207	REQ-12.03.04-TS-2030.0080
D-TAXI - PUSH BACK		
DPUSH Request display	REQ-06.07.02-OSED-DTXI.0300	REQ-12.03.04-TS-2040.0010

OPS REQ Title	OPS REQ ID	SYS REQ ID
Provision of push-back approval	REQ-06.07.03-INTEROP-DYNA.0011	REQ-12.03.04-TS-2040.0010
DPUSH Approval	REQ-06.07.02-OSED-DTXI.0301	REQ-12.03.04-TS-2040.0020
Provision of push-back approval	REQ-06.07.03-INTEROP-DYNA.0011	REQ-12.03.04-TS-2040.0020
PUSHBACK direction	REQ-06.07.02-OSED-DTXI.0305	REQ-12.03.04-TS-2040.0020
STANDBY DPUSH from ATCO	REQ-06.07.02-OSED-DTXI.0302	REQ-12.03.04-TS-2040.0030
UNABLE DPUSH from ATCO	REQ-06.07.02-OSED-DTXI.0303	REQ-12.03.04-TS-2040.0040
EXPECT PUSHBACK from ATCO	REQ-06.07.02-OSED-DTXI.0304	REQ-12.03.04-TS-2040.0050
STANDBY DPUSH from Flight Crew	REQ-06.07.02-OSED-DTXI.0306	REQ-12.03.04-TS-2040.0070
STANDBY display	REQ-06.07.02-OSED-DTXI.0504	REQ-12.03.04-TS-2040.0070
UNABLE DPUSH from Flight Crew	REQ-06.07.02-OSED-DTXI.0307	REQ-12.03.04-TS-2040.0080
UNABLE display	REQ-06.07.02-OSED-DTXI.0503	REQ-12.03.04-TS-2040.0080
WILCO DPUSH from Flight Crew	REQ-06.07.02-OSED-DTXI.0308	REQ-12.03.04-TS-2040.0090
D-TAXI - TAXI Instruction		
Routing and Planning Service – CDS interface	REQ-06.07.02-OSED-DTXI.0003	REQ-12.03.04-TS-2050.0001
Continuity of uplinked route	REQ-06.07.02-OSED-DTXI.0002	REQ-12.03.04-TS-2050.0002

OPS REQ Title	OPS REQ ID	SYS REQ ID
Routing and Planning Service – CDS interface	REQ-06.07.02-OSED-DTXI.0003	REQ-12.03.04-TS-2050.0002
Routing and Planning Service – CDS interface	REQ-06.07.02-OSED-DTXI.0003	REQ-12.03.04-TS-2050.0003
Limit on provision of planned route	REQ-06.07.02-OSED-DTXI.0001	REQ-12.03.04-TS-3050.0004
Data link -TAXI Request display	REQ-06.07.02-OSED-DTXI.0400	REQ-12.03.04-TS-2050.0010
Continuity of uplinked route	REQ-06.07.02-OSED-DTXI.0002	REQ-12.03.04-TS-2050.0020
Routing and Planning Service – CDS interface	REQ-06.07.02-OSED-DTXI.0003	REQ-12.03.04-TS-2050.0020
D-TAXI message	REQ-06.07.02-OSED-DTXI.0401	REQ-12.03.04-TS-2050.0020
Completeness of taxi route clearance uplink	REQ-06.07.03-INTEROP-DTAX.0014	REQ-12.03.04-TS-2050.0020
Provision of taxi clearance	REQ-06.07.03-INTEROP-DYNA.0012	REQ-12.03.04-TS-2050.0020
STANDBY data link TAXI from ATCO	REQ-06.07.02-OSED-DTXI.0402	REQ-12.03.04-TS-2050.0030
UNABLE Data link TAXI from ATCO	REQ-06.07.02-OSED-DTXI.0403	REQ-12.03.04-TS-2050.0040
STANDBY data link TAXI from Flight Crew	REQ-06.07.02-OSED-DTXI.0404	REQ-12.03.04-TS-2050.0050
STANDBY display	REQ-06.07.02-OSED-DTXI.0504	REQ-12.03.04-TS-2050.0050
UNABLE Message Triggers Information	REQ-06.07.02-OSED-RGHM.0015	REQ-12.03.04-TS-2050.0060
UNABLE data link TAXI from Flight Crew	REQ-06.07.02-OSED-DTXI.0405	REQ-12.03.04-TS-2050.0060

OPS REQ Title	OPS REQ ID	SYS REQ ID
UNABLE display	REQ-06.07.02-OSED-DTXI.0503	REQ-12.03.04-TS-2050.0060
WILCO data link TAXI / data link REVISED TAXI from Flight Crew	REQ-06.07.02-OSED-DTXI.0406	REQ-12.03.04-TS-2050.0070
ATCO Route Modification of Planned Route Triggers Route Update	REQ-06.07.02-OSED-RGGE.0012	REQ-12.03.04-TS-2050.0080
Accepting the Route Proposal in Automatic Mode	REQ-06.07.02-OSED-RGAU.0014	REQ-12.03.04-TS-2050.0080
data link REVISED TAXI message	REQ-06.07.02-OSED-DTXI.0407	REQ-12.03.04-TS-2050.0080
Provision of revised taxi route	REQ-06.07.03-INTEROP-DYNA.0013	REQ-12.03.04-TS-2050.0080
Data link STOP AT instruction	REQ-06.07.02-OSED-DTXI.0408	REQ-12.03.04-TS-2050.0090
Precedence of R/T for instructions to hold position	REQ-06.07.02-OSED-DTXI.0008	REQ-12.03.04-TS-3050.0095
EXPECT TAXI from ATCO	REQ-06.07.02-OSED-DTXI.0410	REQ-12.03.04-TS-2050.0100
Able to accept Runway Holding Point	REQ-06.07.02-OSED-DTXI.0411	REQ-12.03.04-TS-2050.0110
Able to accept Runway Holding Point	REQ-06.07.02-OSED-DTXI.0411	REQ-12.03.04-TS-2050.0120
Able to accept Runway Holding Point	REQ-06.07.02-OSED-DTXI.0411	REQ-12.03.04-TS-2050.0130
Able to accept Runway Holding Point	REQ-06.07.02-OSED-DTXI.0411	REQ-12.03.04-TS-2050.0140
D-TAXI - General Data link Requirements		
Open data link dialogue information	REQ-06.07.02-OSED-DTXI.0500	REQ-12.03.04-TS-2060.0010

OPS REQ Title	OPS REQ ID	SYS REQ ID
Indication of detection of loss of CPDLC Service	REQ-06.07.03-SPR-DTAX.0016	REQ-12.03.04-TS-2060.0010
ATSU message cannot be successfully transmitted	REQ-06.07.03-SPR-DTAX.0134	REQ-12.03.04-TS-2060.0010
Closure of data link dialogue information	REQ-06.07.02-OSED-DTXI.0501	REQ-12.03.04-TS-2060.0020
NO REPLY display	REQ-06.07.02-OSED-DTXI.0502	REQ-12.03.04-TS-2060.0030
Ground Time out status related to an open uplink dialogue	REQ-06.07.03-SPR-DTAX.0021	REQ-12.03.04-TS-2060.0030
D-TAXI timer expiration	REQ-06.07.03-INTEROP-DTAX.0007	REQ-12.03.04-TS-2060.0030
ATCO Free Text data link Message	REQ-06.07.02-OSED-DTXI.0505	REQ-12.03.04-TS-2060.0040
Reception of a Free Text message from the Flight Crew	REQ-06.07.02-OSED-DTXI.0506	REQ-12.03.04-TS-2060.0050
Warning for the ATCO of an untreated Data link message	REQ-06.07.02-OSED-DTXI.0507	REQ-12.03.04-TS-2060.0060
Ground warning status related to an open downlink dialogue	REQ-06.07.03-SPR-DTAX.0106	REQ-12.03.04-TS-2060.0060
Ground Time out status related to an open downlink dialogue	REQ-06.07.03-SPR-DTAX.0107	REQ-12.03.04-TS-2060.0060
D-TAXI timer expiration	REQ-06.07.03-INTEROP-DTAX.0007	REQ-12.03.04-TS-2060.0060
Access to message history window	REQ-06.07.02-OSED-DTXI.0508	REQ-12.03.04-TS-2060.0070
Unambiguous and unique identification	REQ-06.07.03-SPR-DTAX.0017	REQ-12.03.04-TS-2060.0070
Transmitting of messages to the designated recipient	REQ-06.07.03-SPR-DTAX.0018	REQ-12.03.04-TS-2060.0070

OPS REQ Title	OPS REQ ID	SYS REQ ID
ATSU display the indication provided by the aircraft system	REQ-06.07.03-SPR-DTAX.0131	REQ-12.03.04-TS-2060.0080
CPDLC connection 2	REQ-06.07.03-SPR-DTAX.0132	REQ-12.03.04-TS-2060.0090
Ground indication of detection of loss of CPDLC service	REQ-06.07.03-SPR-DTAX.0133	REQ-12.03.04-TS-2060.0100
Vehicle Data link Requirements		
Data link -PROCEED Request display	REQ-06.07.02-OSED-DTXI.0600	REQ-12.03.04-TS-2070.0010
Routing and Planning Service – VDS interface	REQ-06.07.02-OSED-DTXI.0004	REQ-12.03.04-TS-2070.0020
Data Link message	REQ-06.07.02-OSED-DTXI.0601	REQ-12.03.04-TS-2070.0020
Providing clearances	REQ-06.07.03-SPR-DTAX.0005	REQ-12.03.04-TS-2070.0020
STANDBY data link TAXI from ATCO	REQ-06.07.02-OSED-DTXI.0602	REQ-12.03.04-TS-2070.0030
UNABLE Data link PROCEED from ATCO	REQ-06.07.02-OSED-DTXI.0603	REQ-12.03.04-TS-2070.0040
STANDBY data link PROCEED from Vehicle Driver	REQ-06.07.02-OSED-DTXI.0604	REQ-12.03.04-TS-2070.0050
UNABLE data link TAXI from Vehicle Driver	REQ-06.07.02-OSED-DTXI.0605	REQ-12.03.04-TS-2070.0060
WILCO data link PROCEED / data link REVISED PROCEED from Vehicle Driver	REQ-06.07.02-OSED-DTXI.0606	REQ-12.03.04-TS-2070.0070
data link REVISED PROCEED message	REQ-06.07.02-OSED-DTXI.0607	REQ-12.03.04-TS-2070.0080
Data link -TOW Request display	REQ-06.07.02-OSED-DTXI.0608	REQ-12.03.04-TS-2070.0090

OPS REQ Title	OPS REQ ID	SYS REQ ID
Data Link message	REQ-06.07.02-OSED-DTXI.0611	REQ-12.03.04-TS-2070.0100
STANDBY data link TOW from ATCO	REQ-06.07.02-OSED-DTXI.0612	REQ-12.03.04-TS-2070.0110
UNABLE Data link TOW from ATCO	REQ-06.07.02-OSED-DTXI.0613	REQ-12.03.04-TS-2070.0120
STANDBY data link TOW from Vehicle Driver	REQ-06.07.02-OSED-DTXI.0614	REQ-12.03.04-TS-2070.0130
UNABLE data link TOW from Vehicle Driver	REQ-06.07.02-OSED-DTXI.0615	REQ-12.03.04-TS-2070.0140
WILCO data link TOW / data link REVISED TOW from Vehicle Driver	REQ-06.07.02-OSED-DTXI.0616	REQ-12.03.04-TS-2070.0150
data link REVISED TOW message	REQ-06.07.02-OSED-DTXI.0617	REQ-12.03.04-TS-2070.0160
AGL		
Ground domain	REQ-06.07.02-OSED-AGLG.0001	REQ-12.03.04-TS-2080.0010
CS Information Exchange	REQ-06.07.03-INTEROP-AGLI.0005	REQ-12.03.04-TS-2080.0010
Use of Communication Service	REQ-06.07.03-INTEROP-AGLI.0006	REQ-12.03.04-TS-2080.0010
Translate AGL information into an HMI information	REQ-06.07.02-OSED-AGLG.0003	REQ-12.03.04-TS-2080.0030
Unmistakable HMI	REQ-06.07.03-SPR-AGLS.0013	REQ-12.03.04-TS-2080.0030
Clear representation of traffic	REQ-06.07.03-SPR-AGLS.0014	REQ-12.03.04-TS-2080.0030
CS interaction with lights 2	REQ-06.07.03-INTEROP-AGLI.0003	REQ-12.03.04-TS-2080.0030

OPS REQ Title	OPS REQ ID	SYS REQ ID
Use of Communication Service	REQ-06.07.03-INTEROP-AGLI.0006	REQ-12.03.04-TS-2080.0030
Light status	REQ-06.07.02-OSED-AGLG.0004	REQ-12.03.04-TS-2080.0040
CS interaction with lights 2	REQ-06.07.03-INTEROP-AGLI.0003	REQ-12.03.04-TS-2080.0040
Use of Communication Service	REQ-06.07.03-INTEROP-AGLI.0006	REQ-12.03.04-TS-2080.0040
Translate route into AGL control	REQ-06.07.02-OSED-AGLG.0002	REQ-12.03.04-TS-3080.0020
CS interaction with other systems 1	REQ-06.07.03-INTEROP-AGLI.0001	REQ-12.03.04-TS-3080.0020
CS interaction with lights 1	REQ-06.07.03-INTEROP-AGLI.0002	REQ-12.03.04-TS-3080.0020
CS interaction with other systems 2	REQ-06.07.03-INTEROP-AGLI.0004	REQ-12.03.04-TS-3080.0020
Use of Communication Service	REQ-06.07.03-INTEROP-AGLI.0006	REQ-12.03.04-TS-3080.0020
AGL intensity adjustment	REQ-06.07.02-OSED-AGLG.0008	REQ-12.03.04-TS-3080.0025
Manual AGL segment control	REQ-06.07.02-OSED-AGLG.0009	REQ-12.03.04-TS-3080.0025
Segment control	REQ-06.07.02-OSED-AGLG.0010	REQ-12.03.04-TS-3080.0025
CS interaction with other systems 1	REQ-06.07.03-INTEROP-AGLI.0001	REQ-12.03.04-TS-3080.0025
CS interaction with lights 1	REQ-06.07.03-INTEROP-AGLI.0002	REQ-12.03.04-TS-3080.0025
CS interaction with other systems 2	REQ-06.07.03-INTEROP-AGLI.0004	REQ-12.03.04-TS-3080.0025

OPS REQ Title	OPS REQ ID	SYS REQ ID
Use of Communication Service	REQ-06.07.03-INTEROP-AGLI.0006	REQ-12.03.04-TS-3080.0025
AGL - TCL Segments		
Different route indication for aircraft and vehicles	REQ-06.07.02-OSED-AGLS.0002	REQ-12.03.04-TS-2090.0020
Availability of the same information	REQ-06.07.03-INTEROP-DYNA.0004	REQ-12.03.04-TS-2090.0020
Length of AGL segments	REQ-06.07.02-OSED-AGLS.0001	REQ-12.03.04-TS-3090.0010
Different route indication for aircraft and vehicles	REQ-06.07.02-OSED-AGLS.0002	REQ-12.03.04-TS-3090.0030
Separation between two route Indications	REQ-06.07.02-OSED-AGLS.0003	REQ-12.03.04-TS-3090.0040
Separation between two route Indications	REQ-06.07.02-OSED-AGLS.0003	REQ-12.03.04-TS-3090.0045
Clearance limit for the mobile	REQ-06.07.02-OSED-AGLS.0004	REQ-12.03.04-TS-3090.0050
AGL - Route Deviations and Stop Bars		
Clearances through stop bar regulation	REQ-06.07.02-OSED-AGLD.0002	REQ-12.03.04-TS-2100.0020
Stop bar regulation at intersection points	REQ-06.07.02-OSED-AGLD.0004	REQ-12.03.04-TS-2100.0020
CS interaction with lights 2	REQ-06.07.03-INTEROP-AGLI.0003	REQ-12.03.04-TS-2100.0030
Use of Communication Service	REQ-06.07.03-INTEROP-AGLI.0006	REQ-12.03.04-TS-2100.0030
Stop bar regulation following a controller Line-Up input	REQ-06.07.02-OSED-AGLD.0005	REQ-12.03.04-TS-2100.0040
Stop bar regulation following a controller CROSS input	REQ-06.07.02-OSED-AGLD.0007	REQ-12.03.04-TS-2100.0050

OPS REQ Title	OPS REQ ID	SYS REQ ID
Stop bar regulation following a controller ENTER input	REQ-06.07.02-OSED-AGLD.0008	REQ-12.03.04-TS-2100.0060
Clearances through stop bar regulation	REQ-06.07.02-OSED-AGLD.0002	REQ-12.03.04-TS-2100.0070
Separation through stop bar regulation	REQ-06.07.02-OSED-AGLD.0003	REQ-12.03.04-TS-2100.0070
Automatic stop bars re-activation	REQ-06.07.02-OSED-AGLD.0009	REQ-12.03.04-TS-2100.0070
Deactivation of AGL segments in case of route deviations	REQ-06.07.02-OSED-AGLD.0001	REQ-12.03.04-TS-3100.0010
Deactivation of AGL segments in case of route deviations	REQ-06.07.02-OSED-AGLD.0001	REQ-12.03.04-TS-3100.0015
Stop bar regulation following a controller Take-Off input	REQ-06.07.02-OSED-AGLD.0006	REQ-12.03.04-TS-3100.0045
AGL - APTR		
Route indication by coloured TWY centreline lights	REQ-06.07.02-OSED-AGLA.0001	REQ-12.03.04-TS-2110.0010
Visualization of coloured TWY centreline lights to the ATCO	REQ-06.07.02-OSED-AGLA.0002	REQ-12.03.04-TS-2110.0020
Virtual Block Control		
Use of Intermediate Holding Positions as Virtual Stop Bar Positions	REQ-06.08.07-OSED-VBCL.0004	REQ-12.03.04-TS-2120.0010
Dynamic Use of Virtual Stop Bars	REQ-06.08.07-OSED-VBCL.0003	REQ-12.03.04-TS-2120.0020
Use of Arbitrary Positions as VSB Positions	REQ-06.08.07-OSED-VBCL.0005	REQ-12.03.04-TS-2120.0025
Secure VSB Related Data Link Elements	REQ-06.08.07-OSED-VBCL.0012	REQ-12.03.04-TS-2120.0025

OPS REQ Title	OPS REQ ID	SYS REQ ID
VSB switching to the GO status after crossing authorization	REQ-06.08.07-SPR-0001.0080	REQ-12.03.04-TS-2120.0030
VSB switching back to the STOP status after aircraft crossing	REQ-06.08.07-SPR-0001.0090	REQ-12.03.04-TS-2120.0030
Display of the VSB cleared limit position	REQ-06.08.07-SPR-0001.0100	REQ-12.03.04-TS-2120.0030
Stop Bar and VSB Control	REQ-06.08.07-OSED-VBCL.0006	REQ-12.03.04-TS-2120.0050
Assign Clearance Limits	REQ-06.08.07-OSED-VBCL.0007	REQ-12.03.04-TS-2120.0060
Display of the VSB cleared limit position	REQ-06.08.07-SPR-0001.0100	REQ-12.03.04-TS-2120.0060
VSB switching to the GO status after crossing authorization	REQ-06.08.07-SPR-0001.0080	REQ-12.03.04-TS-2120.0070
Stop Bar and VSB Statuses in Critical Areas	REQ-06.08.07-OSED-VBCL.0010	REQ-12.03.04-TS-2120.0080
VSB switching back to the STOP status after aircraft crossing	REQ-06.08.07-SPR-0001.0090	REQ-12.03.04-TS-2120.0080
Carry Out Enhanced Block Control	REQ-06.08.07-OSED-VBCL.0002	REQ-12.03.04-TS-2120.0085
Control block occupancy	REQ-06.08.07-SPR-0001.0040	REQ-12.03.04-TS-2120.0085
Free block	REQ-06.08.07-SPR-0001.0050	REQ-12.03.04-TS-2120.0085
Watch dog functionality	REQ-06.08.07-SPR-0001.0140	REQ-12.03.04-TS-2120.0087
Watch dog functionality	REQ-06.08.07-SPR-0001.0140	REQ-12.03.04-TS-2120.0090
Watch dog functionality: aircraft speed of application	REQ-06.08.07-SPR-0001.0150	REQ-12.03.04-TS-2120.0090

OPS REQ Title	OPS REQ ID	SYS REQ ID
Stop Bar and VSB Violation Alert	REQ-06.08.07-OSED-VBCL.0009	REQ-12.03.04-TS-2120.0100
VSB violation alert	REQ-06.08.07-SPR-0001.0070	REQ-12.03.04-TS-2120.0100
Watch dog alarm	REQ-06.08.07-SPR-0001.0160	REQ-12.03.04-TS-2120.0110
Stop Bar and VSB Statuses in Critical Areas	REQ-06.08.07-OSED-VBCL.0010	REQ-12.03.04-TS-3120.0027
Performance Characteristics		
Data link service established in sufficient time	REQ-06.07.03-SPR-DTAX.0218	REQ-12.03.04-TS-2060.0110
SAFETY - D-TAXI and Vehicle Data Link Service		
Clearance was sent successfully	REQ-06.07.03-SPR-DTAX.0006	REQ-12.03.04-TS-2200.0010
Mandatory implementation of timers	REQ-06.07.03-INTEROP-DTAX.0005	REQ-12.03.04-TS-2200.0010
D-TAXI Timer values	REQ-06.07.03-INTEROP-DTAX.0006	REQ-12.03.04-TS-2200.0010
Clearance was not sent successfully	REQ-06.07.03-SPR-DTAX.0007	REQ-12.03.04-TS-2200.0020
Mandatory implementation of timers	REQ-06.07.03-INTEROP-DTAX.0005	REQ-12.03.04-TS-2200.0020
D-TAXI Timer values	REQ-06.07.03-INTEROP-DTAX.0006	REQ-12.03.04-TS-2200.0020
Alert to ATCO	REQ-06.07.03-SPR-DTAX.0008	REQ-12.03.04-TS-2200.0030
tr timer life cycle.	REQ-06.07.03-INTEROP-DTAX.0008	REQ-12.03.04-TS-2200.0030

OPS REQ Title	OPS REQ ID	SYS REQ ID
ttr timer life cycle.	REQ-06.07.03-INTEROP-DTAX.0009	REQ-12.03.04-TS-2200.0030
tts timer life cycle	REQ-06.07.03-INTEROP-DTAX.0010	REQ-12.03.04-TS-2200.0030
t-CPDLC-end	REQ-06.07.03-INTEROP-DTAX.0011	REQ-12.03.04-TS-2200.0030
Transmitting messages	REQ-06.07.03-SPR-DTAX.0015	REQ-12.03.04-TS-2200.0040
Interface Requirement		
Clearance providing between HMI and system 1	REQ-06.07.03-SPR-DTAX.0022	REQ-12.03.04-TS-2300.0010
Clearance providing between HMI and system 2	REQ-06.07.03-SPR-DTAX.0023	REQ-12.03.04-TS-2300.0010
CS for AGL and Traffic Display Combined With Routing Service.	REQ-06.07.03-INTEROP-CSRQ.0001	REQ-12.03.04-TS-2300.0010
CS for AGL and Traffic Display Combined With Routing Service.	REQ-06.07.03-INTEROP-CSRQ.0001	REQ-12.03.04-TS-2300.0020
CS interaction with A-CWP	REQ-06.07.03-INTEROP-DYNA.0005	REQ-12.03.04-TS-2300.0020
Information flow between HMI and System	REQ-06.07.03-SPR-DTAX.0010	REQ-12.03.04-TS-2300.0020
CS for AGL and Traffic Display Combined With Routing Service.	REQ-06.07.03-INTEROP-CSRQ.0001	REQ-12.03.04-TS-2300.0030
CS Routing Information	REQ-06.07.03-INTEROP-CSRQ.0003	REQ-12.03.04-TS-2300.0030
Ground domain	REQ-06.07.02-OSED-DTXI.0009	REQ-12.03.04-TS-2300.0040
Ground domain	REQ-06.07.02-OSED-DTXI.0009	REQ-12.03.04-TS-2300.0050

OPS REQ Title	OPS REQ ID	SYS REQ ID
CS transmit data link clearance	REQ-06.07.03-INTEROP-CSRQ.0005	REQ-12.03.04-TS-2300.0060
Two-way COM between CS and Mobile	REQ-06.07.03-INTEROP-COMS.0002	REQ-12.03.04-TS-2300.0060
Ground domain	REQ-06.07.02-OSED-DTXI.0009	REQ-12.03.04-TS-2300.0070
Two-way COM between CS and Mobile	REQ-06.07.03-INTEROP-COMS.0002	REQ-12.03.04-TS-2300.0070
CS Traffic Information	REQ-06.07.03-INTEROP-CSRQ.0002	REQ-12.03.04-TS-2300.0080
CS Island Position as Traffic Data Hub	REQ-06.07.03-INTEROP-CSRQ.0007	REQ-12.03.04-TS-2300.0080
CS interaction with surveillance function	REQ-06.07.03-INTEROP-DYNA.0003	REQ-12.03.04-TS-2300.0080
Monitoring of VSB status	REQ-06.08.07-SPR-0001.0010	REQ-12.03.04-TS-2300.0100
HMI notification of VSB function failure	REQ-06.08.07-SPR-0001.0020	REQ-12.03.04-TS-2300.0100
Watch Dog tool self-diagnosis	REQ-06.08.07-SPR-0002.0040	REQ-12.03.04-TS-2300.0100
Communication loss between CS and other services	REQ-06.07.03-INTEROP-COMS.0003	REQ-12.03.04-TS-2300.0100
Communication loss between AGL and CS	REQ-06.07.03-INTEROP-COMS.0004	REQ-12.03.04-TS-2300.0100
		REQ-12.03.04-TS-2300.0110
		REQ-12.03.04-TS-2300.0120
Deactivation of AGL segments in case of route deviations	REQ-06.07.02-OSED-AGLD.0001	REQ-12.03.04-TS-2300.0130

OPS REQ Title	OPS REQ ID	SYS REQ ID
Stop bar regulation at intersection points	REQ-06.07.02-OSED-AGLD.0004	REQ-12.03.04-TS-2300.0140
CS generate & transmit guidance information	REQ-06.07.03-INTEROP-CSRQ.0006	REQ-12.03.04-TS-2300.0150
CS generate & transmit guidance information	REQ-06.07.03-INTEROP-CSRQ.0006	REQ-12.03.04-TS-2300.0160
CS generate & transmit guidance information	REQ-06.07.03-INTEROP-CSRQ.0006	REQ-12.03.04-TS-2300.0170
CS lamp control	REQ-06.07.03-INTEROP-CSRQ.0008	REQ-12.03.04-TS-2300.0170
Dynamic Use of Virtual Stop Bars	REQ-06.08.07-OSED-VBCL.0003	REQ-12.03.04-TS-2300.0180
Stop Bar and VSB Control	REQ-06.08.07-OSED-VBCL.0006	REQ-12.03.04-TS-2300.0190
Enhance Block Control by Increasing Number of Control Blocks using VBC	REQ-06.08.07-OSED-VBCL.0001	REQ-12.03.04-TS-2300.0220

A.2 Out of Scope Requirements

Some operational requirements have not been translated into technical specification because they have been considered out of scope of the Surface Guidance Server.

A.2.1 General Requirements

REQ-06.07.02-OSED-DTXI.0020 "Vehicle Domain" has been considered out of scope because it refers to vehicle system, that is not managed by the SGS.

REQ-06.07.02-OSED-DTXI.0025 "ACM service" has been considered out of scope because it is more related to general CPDLC function, so it is addressed by P10.7.1 in document P10.07.01-D87 [13] .

REQ-06.08.07-SPR-0001.0030 "VSB_{NIHP} publication" and **REQ-06.08.07-SPR-DTAX.0012** "Sending the message again the mobile in case of no reaction of mobile" are been considered as a procedural requirements more than an operational requirement useful to be translated into technical requirements.

REQ-06.07.03-INTEROP-DTAX.0002 "D-TAXI message set" has been considered out of scope because the project's members decided to not consider the specific messages ID as mandatory for prototype development.

REQ-06.07.03-INTEROP-DTAX.0003 "Routing information used in D-TAXI message contained in AIP" has been considered out of scope because it should be addressed to Operational Supervision, to Routing Function or to Airport FDP.

REQ-06.07.03-INTEROP-DTAX.0012 "D-TAXI message sequences" has been considered out of scope because validation exercises guide the choice of messages to be implemented in prototypes, depending on the operational context of the exercise and its objectives. Therefore, the message set implemented in a given prototype results from an agreement between the partners involved in the validation exercise.

REQ-06.07.03-INTEROP-CSRQ.0004 "CS transmit Traffic Information" has been considered out of scope because is a TIS-B surveillance function.

A.2.2 Route generation integrated with planning information

The following table reports the list of requirements considered out of scope, being related to Route Generation with planning information. These requirements are defined in the 12.03.03 project

OPS REQ Title	OPS REQ ID
General requirements on route generation	
Three Different Levels of Automation (Operational Modes)	REQ-06.07.02-OSED-RGGE.0001
Mode Availability and Selection	REQ-06.07.02-OSED-RGGE.0002
Routing and Planning Service Route Generation Capability	REQ-06.07.02-OSED-RGGE.0003
Route Status	REQ-06.07.02-OSED-RGGE.0004
No reverting to planned status	REQ-06.07.02-OSED-RGGE.0005
Planning scope	REQ-06.07.02-OSED-RGGE.0006
Route Modification for Routes through Multiple AoRs	REQ-06.07.02-OSED-RGGE.0007
Planned route Modification within the ATCO's AoR	REQ-06.07.02-OSED-RGGE.0008
Route Modification outside the ATCO's AoR for Routes through Multiple AoRs	REQ-06.07.02-OSED-RGGE.0009
Route Validation for Routes through Multiple AoRs	REQ-06.07.02-OSED-RGGE.0010
Handover Point Adjustment	REQ-06.07.02-OSED-RGGE.0011
APTR Integration into Routes	REQ-06.07.02-OSED-RGGE.0013
Destination Point of Pushbacks	REQ-06.07.02-OSED-RGGE.0014

OPS REQ Title	OPS REQ ID
Capability to Manage Operational Change Automatically	REQ-06.07.02-OSED-RGGE.0015
Entities management	REQ-06.07.02-OSED-RGGE.0016
Entities generation and dissolution	REQ-06.07.02-OSED-RGGE.0017
Starting point for EBS-equipped arriving aircraft	REQ-06.07.02-OSED-RGGE.0018
Constraints	REQ-06.07.02-OSED-RGGE.0019
Rerouting calculation	REQ-06.07.02-OSED-RGGE.0020
Alternative rerouting	REQ-06.07.02-OSED-RGGE.0021
Initial estimated unimpeded taxi time calculation	REQ-06.07.02-OSED-RGGE.0022
Remaining estimated unimpeded taxi time calculation	REQ-06.07.02-OSED-RGGE.0023
Initial and remaining estimated unimpeded taxi time update.	REQ-06.07.02-OSED-RGGE.0024
Automatic Mode Route Generation Not Requiring ATCO Input	REQ-06.07.02-OSED-RGAU.0001
Planning starting time	REQ-06.07.02-OSED-RGAU.0002
Automatic Mode Route Generation Restricted Time Window	REQ-06.07.02-OSED-RGAU.0003
Standard Taxi Routes as Basis for Route Generation in Automatic Mode	REQ-06.07.02-OSED-RGAU.0004
Automatic Mode Starting and End Point of Route from Other Airport Systems	REQ-06.07.02-OSED-RGAU.0005
Starting point for arrivals	REQ-06.07.02-OSED-RGAU.0006
Destination point	REQ-06.07.02-OSED-RGAU.0007
Runway Exit Information in Semi-Automatic and Automatic Mode	REQ-06.07.02-OSED-RGAU.0008
Stand Information in Semi-Automatic and Automatic Mode	REQ-06.07.02-OSED-RGAU.0009
Holding Point Information in Semi-Automatic and Automatic Mode	REQ-06.07.02-OSED-RGAU.0010
Route Generator Checks Aircraft Type in Semi-Automatic and Automatic Mode	REQ-06.07.02-OSED-RGAU.0011
Automatic Mode Route Generator Proposes Shortest Route to ATCO	REQ-06.07.02-OSED-RGAU.00012
Unavailable route	REQ-06.07.02-OSED-RGAU.0013
Accepting the Route Proposal in Automatic Mode	REQ-06.07.02-OSED-RGAU.0015
Alternative Route Proposal in Automatic Mode	REQ-06.07.02-OSED-RGAU.0016

OPS REQ Title	OPS REQ ID
Change from Automatic Mode to Semi-Automatic Mode	REQ-06.07.02-OSED-RGAU.0017
Automatic Mode Route Modification Finished Indication	REQ-06.07.02-OSED-RGAU.0018
Automatic Mode Route Modifications in Case of Change of Runway Direction	REQ-06.07.02-OSED-RGAU.0019
Constraint Table Manager in Semi-Automatic and Automatic Mode	REQ-06.07.02-OSED-RGAU.0020
New Constraint and Cleared Route Conflict Resolution in Automatic Mode	REQ-06.07.02-OSED-RGAU.0021
Planning routes to vehicles	REQ-06.07.02-OSED-RGAU.0022
Route edition requirements	
ATCO to Provide Start and End Point to Routing and Planning Service in Semi-Automatic Mode	REQ-06.07.02-OSED-RGED.0001
Routing and Planning Service Assistance to ATCO Route Generation in Semi-Automatic Mode	REQ-06.07.02-OSED-RGED.0002
Route Generator Checks Capabilities of Taxiways in Semi-Automatic and Automatic Mode	REQ-06.07.02-OSED-RGED.0003
Route Generator Checks Compatibility of Mobile and Movement with Taxiways in Semi-Automatic Mode	REQ-06.07.02-OSED-RGED.0004
Route Modification Finished Indication in Semi-Automatic Mode	REQ-06.07.02-OSED-RGED.0005
Display of Route Elements on the HMI Semi-Automatic Mode	REQ-06.07.02-OSED-RGED.0006
Display of Route Elements on the HMI in Manual Mode	REQ-06.07.02-OSED-RGED.0007
Manual override warning	REQ-06.07.02-OSED-RGED.0008
Route Generation Not Requiring Specific Direction in Manual and semi-automatic Mode	REQ-06.07.02-OSED-RGED.0009
Pre-Defined Pushback and Pull-Out Destination Depiction in Manual and Semi-Automatic Mode	REQ-06.07.02-OSED-RGED.0010
Pre-Defined Pushback and Push-Pull Destination Integration in Manual and Semi-Automatic Modes	REQ-06.07.02-OSED-RGED.0011
Pre-Defined Pushback and Push-Pull Destination Integration at APTR Airport in Manual and Semi-Automatic Modes	REQ-06.07.02-OSED-RGED.0012
Free and Manual Pushback and Push-Pull Destination Integration Manual and semi-automatic Mode	REQ-06.07.02-OSED-RGED.0013
Manual Definition of Push-Pull Route Manual and Semi-Automatic Modes	REQ-06.07.02-OSED-RGED.0014
Route Completion in Manual Mode	REQ-06.07.02-OSED-RGED.0015
Route Modification Possible Anytime in Manual Mode	REQ-06.07.02-OSED-RGED.0016
Interface requirements	
Routing and Planning Service – Surveillance Interface	REQ-06.07.02-OSED-RGIN.0001

OPS REQ Title	OPS REQ ID
Routing and Planning Service – airport data systems interface	REQ-06.07.02-OSED-RGIN.0002
Routing and Planning Service – airport data systems interface – holding point	REQ-06.07.02-OSED-RGIN.0003
Routes data base	REQ-06.07.02-OSED-RGIN.0004
AIP Route Update	REQ-06.07.02-OSED-RGIN.0005
Routing and Planning Service – sequencer systems interface	REQ-06.07.02-OSED-RGIN.0006
Routing and Planning Service – Guidance Function Interface	REQ-06.07.02-OSED-RGIN.0007
Architecture requirements	
Sub-service autonomy	REQ-06.07.02-OSED-RGAR.0001
Independency of modes	REQ-06.07.02-OSED-RGAR.0002
Manual mode limitations	REQ-06.07.02-OSED-RGAR.0003
Runway exits data base	REQ-06.07.02-OSED-RGAR.0004
Route Generator Fall-Back Strategy	REQ-06.07.02-OSED-RGAR.0005
Failure resilience	REQ-06.07.02-OSED-RGAR.0008
Routing and Planning Service Fall-back	REQ-06.07.02-OSED-RGAR.0009
Training requirements	
Training requirements	REQ-06.07.02-OSED-RGTR.0001

A.2.3 HMI Requirements

The following table reports the list of requirements considered out of scope, being related to HMI aspects. HMI are developed in the 12.05.04 project

OPS REQ Title	OPS REQ ID
Route generation integrated with planning information	
Routing and Planning Service – controller interaction	REQ-06.07.02-OSED-RGHM.0001
Mode selection	REQ-06.07.02-OSED-RGHM.0002
Route visualisation	REQ-06.07.02-OSED-RGHM.0003

OPS REQ Title	OPS REQ ID
Route generation integrated with planning information	
Routing and Planning Service – controller interaction	REQ-06.07.02-OSED-RGHM.0001
Route status visualisation	REQ-06.07.02-OSED-RGHM.0006
Route visualisation 2	REQ-06.07.02-OSED-RGHM.0007
Route generation display	REQ-06.07.02-OSED-RGHM.0008
Automatic Mode No Nodes Depicted on HMI	REQ-06.07.02-OSED-RGHM.0009
APTR Display of Selected Centre Line	REQ-06.07.02-OSED-RGHM.0010
Planned rerouting proposal	REQ-06.07.02-OSED-RGHM.0011
Cleared rerouting proposal	REQ-06.07.02-OSED-RGHM.0012
Automatic Mode HMI Function for Accepting or Modifying the Route Proposal	REQ-06.07.02-OSED-RGHM.0013
Status of the service	REQ-06.07.02-OSED-RGHM.0014
Single ATCO Input for Multiple Routes	REQ-06.07.02-OSED-RGHM.0016
Statuses of Route Depicted Differently	REQ-06.07.02-OSED-RGHM.0017
Complete route display	REQ-06.07.02-OSED-RGHM.0018
Cleared route display starting from current position	REQ-06.07.02-OSED-RGHM.0019
Transmission of cleared route by R/T service	
PUSHBACK Approval	REQ-06.07.02-OSED-CLRT.0001
TAXI Approval	REQ-06.07.02-OSED-CLRT.0002
HOLD Instruction	REQ-06.07.02-OSED-CLRT.0003
HOLD SHORT instruction	REQ-06.07.02-OSED-CLRT.0004
LINE UP Clearance	REQ-06.07.02-OSED-CLRT.0005
CONDITIONAL LINE UP Clearance	REQ-06.07.02-OSED-CLRT.0006
PUSHBACK Long	REQ-06.07.02-OSED-CLRT.0015
PUSHBACK Push and Pull	REQ-06.07.02-OSED-CLRT.0016
Precedence of R/T for transfer from RWY	REQ-06.07.02-OSED-CLRT.0017

OPS REQ Title	OPS REQ ID
Route generation integrated with planning information	
Routing and Planning Service – controller interaction	REQ-06.07.02-OSED-RGHM.0001
Safety Requirements for Provision of Cleared Route to Mobiles R/T service	
Entering of Instructions	REQ-06.07.03-SPR-CLRT.0001
EFS status aligned with ATCO clearance	REQ-06.07.03-SPR-CLRT.0002
Discrepancies between mobiles operation and mobiles status	REQ-06.07.03-SPR-CLRT.0003
Clearances on the EFS	REQ-06.07.03-SPR-CLRT.0004
Entering of instructions following current mobile status – R/T operations	REQ-06.07.03-SPR-CLRT.0005
Performance Requirement for Provision of Cleared Route to Mobiles R/T service	
EFS transition time	REQ-06.07.03-SPR-CLRT.0006
EFS response probability	REQ-06.07.03-SPR-CLRT.0007
D-TAXI - ATCO HMI	
Identifier for data link equipped aircraft	REQ-06.07.02-OSED-DTXI.0100
Option for data link or non-data link	REQ-06.07.02-OSED-DTXI.0102
Parking position (stand)	REQ-06.07.02-OSED-DTXI.0103
Identifier for data link equipped vehicle	REQ-06.07.02-OSED-DTXI.0104
Different identifiers between aircraft and vehicle	REQ-06.07.02-OSED-DTXI.0105
Identifier for self-manoeuvring aircraft	REQ-06.07.02-OSED-DTXI.0309
Route status after STOP AT instruction	REQ-06.07.02-OSED-DTXI.0409
Status monitoring	REQ-06.07.02-OSED-AGLG.0005
AGL failure indication	REQ-06.07.02-OSED-AGLG.0006
Route Indication on the HMI	REQ-06.07.02-OSED-AGLG.0007
AGL intensity adjustment	REQ-06.07.02-OSED-AGLG.0008
Manual AGL segment control	REQ-06.07.02-OSED-AGLG.0009
Segment control	REQ-06.07.02-OSED-AGLG.0010

OPS REQ Title	OPS REQ ID
Route generation integrated with planning information	
Routing and Planning Service – controller interaction	REQ-06.07.02-OSED-RGHM.0001
AGL profiles	REQ-06.07.02-OSED-AGLG.0011
Configurable settings	REQ-06.07.02-OSED-AGLG.0012
Traffic situation in each AoR	REQ-06.07.02-OSED-AGLG.0013
Routes (or part of routes) responsibility	REQ-06.07.02-OSED-AGLG.0014
Colour coding	REQ-06.07.02-OSED-AGLG.0015
TCL status	REQ-06.07.02-OSED-AGLG.0016
Routing Information Display Status	REQ-06.07.02-OSED-AGLG.0017
Route status after STOP AT instruction	REQ-06.07.02-OSED-DTXI.0409
SAFETY - D-TAXI Service	
Entering of Clearances Case 1	REQ-06.07.03-SPR-DTAX.0001
Entering of Clearances Case 2	REQ-06.07.03-SPR-DTAX.0002
Providing aircraft information	REQ-06.07.03-SPR-DTAX.0003
Providing vehicle information	REQ-06.07.03-SPR-DTAX.0004
Information flow between ATCO and HMI	REQ-06.07.03-SPR-DTAX.0009
Contact the mobile in case of Message not received	REQ-06.07.03-SPR-DTAX.0011
Contact the mobile in case of no reaction of mobile	REQ-06.07.03-SPR-DTAX.0013
Contact the mobile in case of no DLIC service	REQ-06.07.03-SPR-DTAX.0014
On-board Warning status related to an open uplink dialogue	REQ-06.07.03-SPR-DTAX.0019
On-board time out status related to an open uplink dialogue	REQ-06.07.03-SPR-DTAX.0020
PERFORMANCE D-TAXI	
Probability of no entering the clearance	REQ-06.07.03-SPR-DTAX.0200
Probability of too late entering the clearance	REQ-06.07.03-SPR-DTAX.0201
Probability messages not successfully sent	REQ-06.07.03-SPR-DTAX.0202

OPS REQ Title	OPS REQ ID
Route generation integrated with planning information	
Routing and Planning Service – controller interaction	REQ-06.07.02-OSED-RGHM.0001
Probability undetected message	REQ-06.07.03-SPR-DTAX.0203
Entering of clearances in a timely manner	REQ-06.07.03-SPR-DTAX.0216
Providing any clearance of the ATCO	REQ-06.07.03-SPR-DTAX.0217
aircraft system shall time stamp	REQ-06.07.03-SPR-DTAX.0219
ATSU time stamp	REQ-06.07.03-SPR-DTAX.0220
SAFETY - AGL Centralized System	
Longitudinal Distance between two mobiles	REQ-06.07.03-SPR-AGLS.0002
Incorrectly activated stop-bars	REQ-06.07.03-SPR-AGLS.0003
Incorrectly activated centre line lights	REQ-06.07.03-SPR-AGLS.0004
Translation from CS into the Lights	REQ-06.07.03-SPR-AGLS.0005
Incongruent display between CWP and lights	REQ-06.07.03-SPR-AGLS.0006
Incongruent display between CKDS/VDS and lights	REQ-06.07.03-SPR-AGLS.0007
No detection of passing segment	REQ-06.07.03-SPR-AGLS.0008
Turn off after rollover	REQ-06.07.03-SPR-AGLS.0009
Turn off in front of mobile	REQ-06.07.03-SPR-AGLS.0010
Unambiguous Taxi Route	REQ-06.07.03-SPR-AGLS.0011
Clear representation of Routes	REQ-06.07.03-SPR-AGLS.0015
Alarms in case of stop-bar overrun	REQ-06.07.03-SPR-AGLS.0017
Providing TCL status	REQ-06.07.03-SPR-AGLS.0018
Providing Stop bar light status	REQ-06.07.03-SPR-AGLS.0019
Providing Routing Information Display	REQ-06.07.03-SPR-AGLS.0020
Safety Requirements for ATS Provider	
Entering of instructions following current mobile status – data link operations	REQ-06.07.03-SPR-DTAX.0136

OPS REQ Title	OPS REQ ID
Route generation integrated with planning information	
Routing and Planning Service – controller interaction	REQ-06.07.02-OSED-RGHM.0001
Virtual Block Control	
Verify Clearance Limits	REQ-06.08.07-OSED-VBCL.0008
Discern Runway Incursions from Stop Bar and VSB Violations	REQ-06.08.07-OSED-VBCL.0011
VSB simbology	REQ-06.08.07-SPR-0001.0120
Virtual Stop Bar position: CWP HMI accuracy	REQ-06.08.07-SPR-0002.0010
Safety requirements for GMG Centralised Service	
Repetition indicated on ATCO HMI	REQ-06.07.03-SPR-GMGS.0007
Repetition indicated on ATCO HMI	REQ-06.07.03-SPR-GMGS.0008
Providing marker transmitter status	REQ-06.07.03-SPR-GMGS.0014

A.2.4 R/T Service Requirements

The following table reports the list of requirements considered out of scope, being related to R/T service. These requirements, which relate to functionalities that can be considered as baseline functions, should be allocated to the Aerodrome FDP functional Block, so they should be taken into account by 12.04.03 project.

OPS REQ Title	OPS REQ ID
Transmission of cleared route by R/T service	
Change of route status (PUSHBACK approval)	REQ-06.07.02-OSED-CLRT.0007
Change of route status (TAXI Approval)	REQ-06.07.02-OSED-CLRT.0008
Change of route status (HOLD instruction)	REQ-06.07.02-OSED-CLRT.0009
Change of route status (HOLD SHORT instruction)	REQ-06.07.02-OSED-CLRT.0010
Change of route status (LINE UP Clearance)	REQ-06.07.02-OSED-CLRT.0011
Change of route status (CONDITIONAL LINE UP Clearance)	REQ-06.07.02-OSED-CLRT.0012
Change of route status (CROSS Clearance)	REQ-06.07.02-OSED-CLRT.0013
Change of route status (ENTER Clearance)	REQ-06.07.02-OSED-CLRT.0014

A.2.5 CVS System Requirements

The following table reports the list of requirements considered out of scope, being related to CVS system. 6.7.3 ICVS requirements do not generate 12.3.4 requirements as the CVS is an on-board autonomous system and no ground equipment is foreseen.

OPS REQ Title	OPS REQ ID
SAFETY - Improved Cockpit Vision	
Aircraft AMM display respect to the aerodrome layout	REQ-06.07.03-SPR-ICVS.1001
Aircraft AMM display respect to the aerodrome elements references in ATC instructions	REQ-06.07.03-SPR-ICVS.1002
On-board navigation maps and charts	REQ-06.07.03-SPR-ICVS.1003
AMM training for pilots	REQ-06.07.03-SPR-ICVS.1004
Aircraft AMM self-diagnosis	REQ-06.07.03-SPR-ICVS.1005
Aircraft AMM failure notification	REQ-06.07.03-SPR-ICVS.1006
Image of the external topography	REQ-06.07.03-SPR-ICVS.1007
On-board EVS guidance symbology	REQ-06.07.03-SPR-ICVS.1008
EVS training for pilots	REQ-06.07.03-SPR-ICVS.1009
EVS self-diagnosis	REQ-06.07.03-SPR-ICVS.1010
EVS failure notification	REQ-06.07.03-SPR-ICVS.1011
GTD display of surrounding traffic	REQ-06.07.03-SPR-ICVS.1012
Aircraft GTD self-diagnosis	REQ-06.07.03-SPR-ICVS.1013
GTD failure notification	REQ-06.07.03-SPR-ICVS.1014
PERFORMANCE - Improved Cockpit Vision	
EVS Time processing	REQ-06.07.03-SPR-ICVS.2001
EVS availability	REQ-06.07.03-SPR-ICVS.2002
AMM Time processing	REQ-06.07.03-SPR-ICVS.2003
AMM availability	REQ-06.07.03-SPR-ICVS.2004
AMM accuracy	REQ-06.07.03-SPR-AMMS.2005

OPS REQ Title	OPS REQ ID
AMM reliability	REQ-06.07.03-SPR-ICVS.2006
GTD accuracy	REQ-06.07.03-SPR-ICVS.2007

A.2.6 On-board System Requirements

The following table reports the list of requirements considered out of scope, being related to on-board system and for which no ground equipment is foreseen

OPS REQ Title	OPS REQ ID
D-TAXI Service	
Use of standardised AMDB for airport layout	REQ-06.07.02-OSED-DTXI.0005
Update of standardised AMDB for airport layout	REQ-06.07.02-OSED-DTXI.0006
Entities generation input	REQ-06.07.02-OSED-DTXI.0007
Aircraft domain	REQ-06.07.02-OSED-DTXI.0010
Routing information consistent in ground and on-board database.	REQ-06.07.03-INTEROP-DTAX.0004
Routing information consistent in ground and on-board database.	REQ-06.07.03-INTEROP-DTAX.0013
Unable sender functionality	REQ-06.07.02-OSED-DTXI.0609
Unable sender functionality	REQ-06.07.02-OSED-DTXI.0610
Flight crew interface	REQ-06.07.02-OSED-RGHM.0004
Driver interface	REQ-06.07.02-OSED-RGHM.0005
Unable sender functionality	REQ-06.07.02-OSED-HMIR.0078
SAFETY - Information to Vehicles	
Vehicle Airport Moving Map	REQ-06.07.03-SPR-PTIV.1001
AMM training for vehicle drivers	REQ-06.07.03-SPR-PTIV.1002
Vehicle AMM self-diagnosis	REQ-06.07.03-SPR-PTIV.1003
Vehicle AMM failure notification	REQ-06.07.03-SPR-PTIV.1004
Vehicle Ground Traffic Display	REQ-06.07.03-SPR-PTIV.1005
Vehicle drivers training about Ground Traffic Display	REQ-06.07.03-SPR-PTIV.1006

OPS REQ Title	OPS REQ ID
Vehicle GTD self-diagnosis	REQ-06.07.03-SPR-PTIV.1007
Safety Requirements for Aircraft and Vehicle System	
On-board indication of detection of loss of CPDLC Service	REQ-06.07.03-SPR-DTAX.0100
Transmitting of messages to the designated recipient	REQ-06.07.03-SPR-DTAX.0101
CPDLC connection 1	REQ-06.07.03-SPR-DTAX.0102
CPDLC connection 2	REQ-06.07.03-SPR-DTAX.0103
Request reject	REQ-06.07.03-SPR-DTAX.0104
Unsuccessfully transmitting	REQ-06.07.03-SPR-DTAX.0105
On-board Time out status related to an open downlink dialogue	REQ-06.07.03-SPR-DTAX.0108
communication on a diagnostic window for pilot / vehicle driver	REQ-06.07.03-SPR-DTAX.0109
History of data link messages for pilot / vehicle driver	REQ-06.07.03-SPR-DTAX.0110
Acknowledge of messages for pilot / vehicle driver	REQ-06.07.03-SPR-DTAX.0111
Safety Requirements for Aircraft Operators	
Flight Crew executes clearances	REQ-06.07.03-SPR-DTAX.0140
Mobile Service	
Mobile Service Interface with CS via Communication Service	REQ-06.07.03-INTEROP-MOBS.0001
Communication loss between mobile and CS	REQ-06.07.03-INTEROP-COMS.0005
Textual display of datalink taxi instructions	REQ-06.07.03-INTEROP-DTAX.0015
Enhanced Vision Service - Aircraft	
Access to aircraft flight data	REQ-06.07.03-INTEROP-EVSI.0001
Access to an aircraft position data	REQ-06.07.03-INTEROP-EVSI.0002
Display of CVS imagery.	REQ-06.07.03-INTEROP-EVSI.0003
CVS failure indication	REQ-06.07.03-INTEROP-EVSI.0004
CVS sensor location	REQ-06.07.03-INTEROP-EVSI.0005
Detectable runway and taxiway elements by the EVS sensor	REQ-06.07.03-INTEROP-EVSI.0006

OPS REQ Title	OPS REQ ID
VBC for Aircraft	
Uplink time of new Virtual Stop Bar	REQ-06.08.07-SPR-0002.0050
Secure Other Traffic Related Data Link Elements	REQ-06.08.07-OSED-VBCL.0013
Integrate VSB Application with AMM	REQ-06.08.07-OSED-VBCL.0014
Stop Bar and VSB Management	REQ-06.08.07-OSED-VBCL.0015
Stop Bar and VSB Information	REQ-06.08.07-OSED-VBCL.0016
Stop Bar and VSB Visualisation	REQ-06.08.07-OSED-VBCL.0017
Stop Bar and VSB Discriminability	REQ-06.08.07-OSED-VBCL.0018
Stop Bar and VSB Labels	REQ-06.08.07-OSED-VBCL.0019
Stop Bar and VSB Label Readability	REQ-06.08.07-OSED-VBCL.0020
Traffic Data Integrated on AMM	REQ-06.08.07-OSED-VBCL.0021
Traffic Data Visualisation	REQ-06.08.07-OSED-VBCL.0022
Minimum AMM Symbol Set	REQ-06.08.07-OSED-VBCL.0023
AMM De-clutter	REQ-06.08.07-OSED-VBCL.0024
Minimum AMM Control Set	REQ-06.08.07-OSED-VBCL.0025
Flight Crew Alerting	REQ-06.08.07-OSED-VBCL.0026
VSB Application Monitoring	REQ-06.08.07-OSED-VBCL.0027
VSB Position Accuracy	REQ-06.08.07-OSED-VBCL.0028
VSBs display on the AMM	REQ-06.08.07-SPR-0001.0060
On-board VSB function failure notification	REQ-06.08.07-SPR-0001.0110
Mismatch between AMM display and data link clearance: safety procedures	REQ-06.08.07-SPR-0001.0130
Virtual Stop Bar position: AMM Accuracy	REQ-06.08.07-SPR-0002.0020
GTD displays virtual stop bar	REQ-06.07.03-INTEROP-CGTD.0001
GTD displays safety bubble	REQ-06.07.03-INTEROP-CGTD.0002
PERFORMANCE - Information to Vehicles	

OPS REQ Title	OPS REQ ID
Vehicle AMM Time processing	REQ-06.07.03-SPR-PTIV.2001
Vehicle AMM availability	REQ-06.07.03-SPR-PTIV.2002
Vehicle AMM accuracy	REQ-06.07.03-SPR-PTIV.2003
Vehicle AMM reliability	REQ-06.07.03-SPR-PTIV.2004
GTD accuracy	REQ-06.07.03-SPR-PTIV.2005
Dynamic functions / operations	
Registration with the Centralised Service	REQ-06.07.03-INTEROP-DYNA.0001
Provision of data link clearance	REQ-06.07.03-INTEROP-DYNA.0006
Pilots / vehicle drivers requesting taxi clearance	REQ-06.07.03-INTEROP-DYNA.0007
ATCO requesting unavailable cleared route	REQ-06.07.03-INTEROP-DYNA.0008
On-board notification of the AGL path unavailability	REQ-06.07.03-INTEROP-DYNA.0009
IT architecture compatibility	REQ-06.07.03-INTEROP-UNIQ.0001

A.2.7 Not Relevant Safety and Performance Requirements

Some safety and performance requirements produced in [10] have been considered as not relevant for the project since they have no impact on SGS. They are reported below:

OPS REQ Title	OPS REQ ID
SAFETY - D-TAXI Service	
Contact the mobile in case of Message not received	REQ-06.07.03-SPR-DTAX.0011
Contact the mobile in case of no reaction of mobile	REQ-06.07.03-SPR-DTAX.0013
Contact the mobile in case of no DLIC service	REQ-06.07.03-SPR-DTAX.0014
SAFETY - AGL Centralized System	
AGL and CS availability	REQ-06.07.03-SPR-AGLS.0001
Translation from CS into the Lights	REQ-06.07.03-SPR-AGLS.0005
Incongruent display between CKDS/VDS and lights	REQ-06.07.03-SPR-AGLS.0007
Unambiguous Taxi Route	REQ-06.07.03-SPR-AGLS.0011

OPS REQ Title	OPS REQ ID
Performance Requirements for AGL Ground Service	
GS availability	REQ-06.07.03-SPR-AGLS.0027
SAFETY - AGL Ground Service	
Incorrect activated lights	REQ-06.07.03-SPR-AGLS.0021
Undetected incorrect activated lights	REQ-06.07.03-SPR-AGLS.0022
AGL in snowy conditions	REQ-06.07.03-SPR-AGLS.0024
SAFETY - AGL Communication Service	
Incongruent communication between centralised service and ground service	REQ-06.07.03-SPR-AGLS.0025
Communication breakdown	REQ-06.07.03-SPR-AGLS.0026
Performance Requirements for AGL Communication Service	
Communication Service availability	REQ-06.07.03-SPR-AGLS.0028
Safety requirements for GMG Centralised Service	
Incorrectly addressed marker transmitter	REQ-06.07.03-SPR-GMGS.0001
Incorrectly calculated and encoded relative distance	REQ-06.07.03-SPR-GMGS.0002
Incorrectly calculated and encoded relative angle	REQ-06.07.03-SPR-GMGS.0003
Incorrect instruction transmission	REQ-06.07.03-SPR-GMGS.0004
Maximum delay duration	REQ-06.07.03-SPR-GMGS.0005
Instruction repetition	REQ-06.07.03-SPR-GMGS.0006
Providing marker transmitter status	REQ-06.07.03-SPR-GMGS.0014
Alternative transmission strategy	REQ-06.07.03-SPR-GMGS.0015
Call sign in messages	REQ-06.07.03-SPR-GMGS.0016
Performance Requirements for GMG Centralized Service	
CS availability	REQ-06.07.03-SPR-GMGS.0017
Safety Requirements for GMG Ground Service	
Wrong or illegible instructions	REQ-06.07.03-SPR-GMGS.0018

OPS REQ Title	OPS REQ ID
Broadcast without instruction	REQ-06.07.03-SPR-GMGS.0019
Performance Requirements for GMG Ground Service	
GS availability	REQ-06.07.03-SPR-GMGS.0020
Safety requirements for GMG Communication service	
Incongruent communication between centralised service and ground service	REQ-06.07.03-SPR-GMGS.0021
Communication breakdown	REQ-06.07.03-SPR-GMGS.0022
Performance Requirements for GMG Communication Service	
Communication Service availability	REQ-06.07.03-SPR-GMGS.0023

A few SPR requirements have not been considered for Technical Specifications because the probability figure is not defined. In this case a Technical Requirement cannot be defined.

OPS REQ Title	OPS REQ ID
PERFORMANCE VBC	
Detection of virtual stop bar violation	REQ-06.08.07-SPR-0002.0060
Virtual stop bar violation reliability	REQ-06.08.07-SPR-0002.0070
Watch dog reliability	REQ-06.08.07-SPR-0002.0030
System Design Assurance Level (DAL)	REQ-06.08.07-SPR-0001.0170
Integrity failure of controller display	REQ-06.08.07-SPR-0001.0180
Accuracy of surveillance data	REQ-06.08.07-SPR-0002.0080

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