P06.07.01 SPR for "Conflicting ATC Clearances" and " Conformance Monitoring for Controllers"

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Abstract

This document is the Updated Safety and Performance Requirements (SPR) relating to following elements of the SESAR operational concept **Step 1**
- Conflicting ATC Clearances
- Detection of non-conformance to ATC instructions and/or procedures for controllers.

This consolidated version is based on the results of the V3 trials EXE-06.07.01-VP-438 on Conflicting ATC Clearances and the V2 trials EXE-06.07.01-VP-537 on Conformance Monitoring. It reflects the D28 updated Operational Services and Environment Description (OSED).

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Rational for rejection

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This deliverable consists of SJU foreground.

Table of Contents

List of tables

List of figures

Executive summary

This document is the consolidated Safety and Performance Requirements document D29 related to the **Detection of Conflicting ATC Clearances** and the **Detection of Non Conformance to ATC instructions and/or procedures** elements of the SESAR operational concept.

Generally speaking, the safety and performance requirements are related to each operational process and services defined in the Operational Services and Environment Description (OSED), here deliverable D28 [14] of the P06.07.01 SESAR project Airport Safety and Support Tools for Pilots, Vehicle Drivers and Controllers.

This version delivers safety and performance requirements following the guidance material of P16.06.01 [8] and taking into account the previous work between DFS (DLR), THALES and SEAC in this area in P06.07.01. It defines the safety and performance requirements for the SESAR operational concept elements mentioned above. These requirements were derived in Safety Assessment Report (SAR) for Conflicting ATC Clearances [15] and in SAR for Conformance Monitoring for Controllers [16]. The SARs are delivered as separate documents. They derive requirements from safety criteria and safety objectives. It contains information which should be consolidated back into the higher level SESAR concepts using a "bottom up" approach.

The "Conflicting ATC Clearances" service delivers alerts when the CATC detects clearances to a mobile contradictory to another clearance already given to another mobile. It is important to note that the term 'Conflicting' refers to the fact that it is not normal practice for an Tower Runway Controller to give certain clearances at the same time, it does not mean that the aircraft/vehicles have ended up in confliction with each other.

The "Conformance Monitoring for Controllers" service delivers alerts when an aircraft maneuvering on the airport deviates from local rules or procedures.

This SPR is a consolidated version based on the results of the V3 trials EXE-06.07.01-VP-438 on Conflicting ATC Clearances and the V2 trials EXE-06.07.01-VP-537 on Conformance Monitoring, both trials were performed at the end of year 2012.
Detailed methods and results of the validation trial of Conflicting ATC Clearances can be found in the Validation Plan (VALP) P06.07.01 – D18 – V3 Validation Plan for Conflicting ATC Clearances Edition 00.01.00 [20] and in Validation Report (VALR) P06.07.01 – D19 – V3 Validation Report for Conflicting ATC Clearances Edition 00.01.00 [21].
In P06.07.01 – D24 – V2 Validation Plan for Conformance Monitoring for Controllers Edition 00.01.00 [22] and in P06.07.01 – D25 – V2 Validation Report for Conformance Monitoring for Controllers
Edition 00.01.00 [23] you can found detailed information about the methods and results of the V2 validation on Conformance Monitoring for Controllers.

This SPR will be also the last version produced within P06.07.01 meaning that no updates will be performed following the V3 validation trials in Release 5. For detailed information please refer to Appendix B in this document.

1 Introduction

1.1 Purpose of the document

This Safety and Performance Requirements (SPR) document provides the safety and performance requirements for Services related to the operational Processes defined the Operational Service and Environment Definition (OSED), D28 [14]. The SPR also provides their allocation to Functional Blocks. They shall identify the requirements needed to fulfil each KPA and include, or reference, the sources justifying those requirements. This document is used to provide the basis for ensuring that these SPR requirements are applicable during initial implementation and continued operation. This *consolidated* Safety and Performance Requirements (SPR) document (D29) is based on the results of the V3 trials EXE-06.07.01-VP-438 on Conflicting ATC Clearances and the V2 trials 671-EXE-537 on Conformance Monitoring.

The purpose of this document is to consolidate and identify the main parameters involved in both assessments for Conflicting ATC Clearance service and for Conformance Monitoring service.

1.2 Scope

This document supports the operational services and concept elements identified in the Operational Service and Environment Definition (OSED) [14].
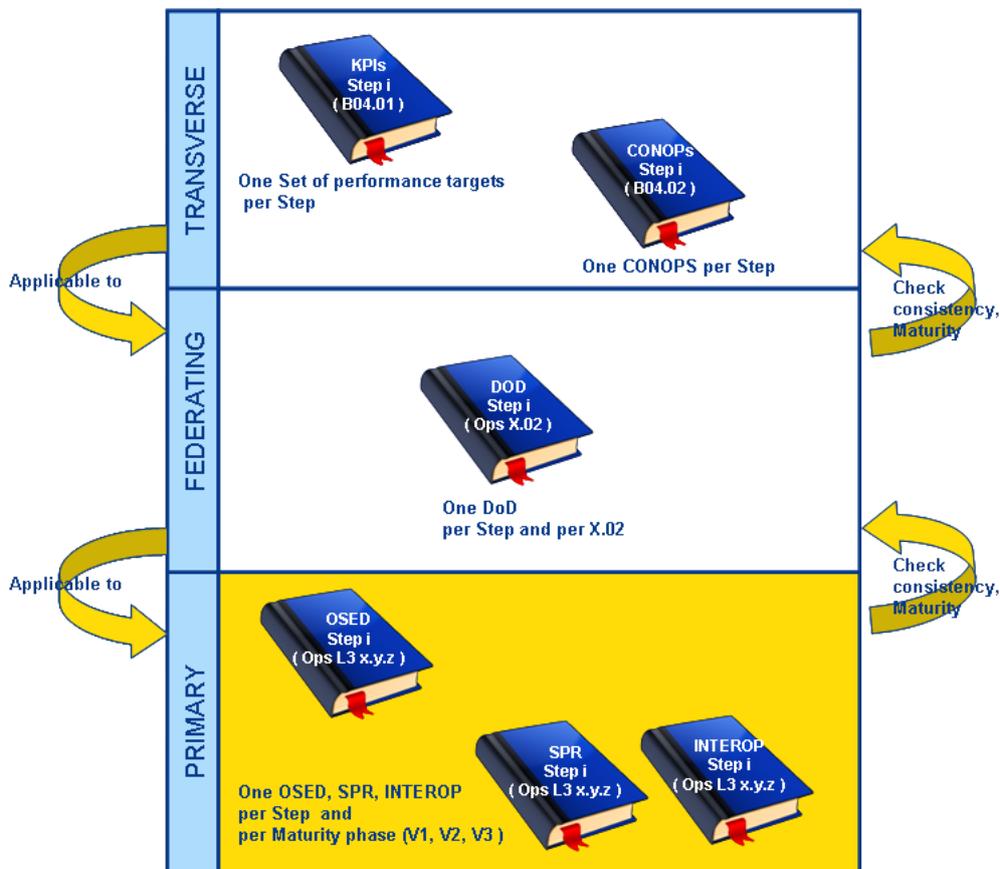

Figure 1 SPR document with regards to other SESAR deliverables

In Figure 1 the Steps are driven by the OI Steps addressed by the project in the Integrated Roadmap document [13].

1.3 Intended readership

The main audience for this SPR is:

- The other tasks within the P06.07.01 using the SPR as input, e.g. Validation Plan for Conflicting ATC Clearances,
- The projects P06.07.02 and P06.07.03, as input for their SPR teams,
- The federating project P06.02 (Coordination and consolidation of operational concept definition and validation),
- The project P12.03.02 developing the next prototype for P06.07.01 validation.

1.4 Structure of the document

The structure of the document is as follows:

- Chapter 1 (this section) introduces the document,
- Chapter 2 addresses what is to be developed and provides the traceability to the relevant DODs and OSED. It details in simple terms and plain language the operational concept and scope. §2.1 and §2.2 are new sections in this updated SPR. §2.3 describes the operational environment.
- Chapter 3 describes the Requirements for the Operational Services.
- Chapter 4 contains references and applicable documents
- Appendix A describes the updated and refined Operational Safety Assessment.

1.5 Background

International organisations such as ICAO, EUROCONTROL and European Commission (DG TREN) have run dedicated programmes for the prevention of ground accidents. ICAO SMGCS Manual (Doc 9476) describes how traffic should be controlled on the surface of an airport, based on the principle of "see and be seen". ICAO (Doc. 9830), EUROCAE (Doc ED.87A) and EUROCONTROL A-SMGCS Project have established the A-SMGCS Levels 1 (Surveillance function) and 2 (Control function including Safety Nets). The European Commission (DG TREN) has also initiated major R&D projects (NUP-2, BETA, EMMA, EMMA-2) dedicated to the future evolutions of A-SMGCS.

This sub chapter will give you information about past activities in the SESAR Project 06.07.01 about CATC and CMAC.

The *preliminary* Safety and Performance Requirements (SPR) document (D13) for Conflicting ATC Clearances and the preliminary SPR (D23) [24] for Conformance Monitoring provided the first results of the Operational Safety Assessment (OSA) and the Operational Performance Assessment (OPA). Both documents were delivered before V2 validation activities.

A V2 validation exercise studying Conflicting ATC Clearances was performed in the Tower Simulator at the EUROCONTROL Institute of Air Navigation Services (IANS) in Luxembourg, between the 18th and 21st October 2011. There were two main aims of the validation, the first aim was to integrate and use the Work Package WP12 industrial prototype with the EUROCONTROL Integrated Tower Working Position (ITWP) simulation platform in order to perform the validation. The WP12 prototype was developed by Park Air Systems (Norway), who were representing the NATMIG consortium, and after a period of off-site testing the necessary equipment was transported from Norway to IANS and successfully installed and used for the validation. This was the first SESAR WP6 validation where an industrial prototype has been integrated and used with a simulation platform. The second aim was to evaluate the Conflicting ATC Clearance concept in a realistic environment using operational ATCOs. This was achieved by using two ATCOs from Paris Charles de Gaulle (CDG) airport in France and one from Leipzig airport in Germany. The ATCOs performed nine simulation runs where they assessed different situations where Conflicting ATC Clearances were input on the Electronic Flight Strips and an alarm was raised to warn the ATCO of the potentially unsafe situation.

The *updated* SPR (D17) for Conflicting ATC Clearances provided the results after V2 validation activities and was delivered before V3 validation activities. It took into account both results of the V2 trials and input from an ATCO workshop held January 19th 2012 in Leipzig.

The V3 validation shadow mode trials were performed by DFS at the airport environment in Hamburg with ten active and one retired ATCO between the 26th and 30th November 2012. The aims of the V3 validation were to perform the V3 tests in shadow mode at the Hamburg test platform with industrial prototypes from P12.03.02 and P12.05.02 and especially characteristics of the new system for crossing runways could and would be tested here for the first time. This speciality is beyond the topic of the V2 exercise. The alarms that are triggered in the case of converging or crossing runways were discussed during a working group meeting only and it was therefore recommended that they are further evaluated during the V3 validation exercises.

As far as Conformance Monitoring a V2 validation (EXE-06.07.01-VP-537) was conducted to validate the initial concept defined in the "06.07.01 Preliminary OSED for Conformance Monitoring for Controllers" [25]. The validation took place from 22nd until 26th October 2012 at the EUROCONTROL Institute of Air Navigation Services in Luxembourg and used a simulation based on Paris Charles De Gaulle operational environment. The technical platform integrated the P06.07.01 validation mock-up (EUROCONTROL ITWP) and the P12.03.02 prototype (NATMIG) developed by WP12. Twelve simulation runs were conducted where two operational ATCOs from Paris CDG controlled traffic on the northern half of Paris CDG airport. Half of the exercises were conducted with the alerting function enabled and the other half were run as today with only A-SMGCS Level 2 operating. The results show that when the alert function was enabled the ATCOs were able to quickly see the alerts and deal with the situation. Without the alerts the ATCOs still noticed most of the situations but often a good while after the event and sometimes they didn't notice the problem at all. A V3 validation activity is planned in 2015 within the EXE-06.03.02-VP-699 at the simulation platform of Paris Charles de Gaulle using the WP12 Thales prototype.

1.6 Glossary of terms

A-SMGCS	*Advanced Surface Movement Guidance and Control System* is a system providing routing, guidance and surveillance for the control of aircraft and vehicles in order to maintain the declared surface movement rate under all weather conditions within the aerodrome visibility operational level (AVOL) while maintaining the required level of safety. *Advanced Surface Movement Guidance and Control System*. The A-SMGCS level 1 and 2**:** • provides a high resolution map of the runways and adjacent runway protected areas • indicates on the airport map the position and all aircraft on the airport surface adjacent to the runways and their destination (runway, stand or other) • provides the identity and position of cooperating vehicles (those equipped with suitable transponders) • provides the position of non-cooperating vehicles • provide an alerting service for runway conflicts [19]
False Alert	A false alert is an alert which does not correspond to a situation requiring particular attention or action (e.g. caused by split tracks and radar reflections). An alert is given but no conflict exists. No alert should be indicated in this case. [26]
FDP/EFS	*Flight Data Processing/ Electronic Flight Strip.* FDP/EFS automates the production, distribution and administrative management of flight plan information and other air traffic control data and replaces the paper strip systems previously used by TWC. With the electronic flight strips all data

Project Number 06.07.01
D29 - P06.07.01 SPR for "Conflicting ATC Clearances" and "Conformance Monitoring for Controllers"

Edition 00.01.01

	updates received from an FDP system or by manual inputs are automatically available to all TWC. Note: In some places within the document the difference between FDP and EFS is not quite clear. The term EFS describes the HMI for the controller and the term FDP is the service behind the EFS. [15]
Nuisance Alert	Alert which is correctly generated according to the rule set but is considered operationally inappropriate. In contrast to false alerts, there is no objective definition for "nuisance alerts", but we use this name to label alerts which are not false alerts, but which at least one tower runway controller in the validation subjectively considered this alert as a nuisance. [26]
RIMS	*Runway Incursion Monitoring System*. The RIMS detects actual or potential runway incursions and provides an alert to TWC. The RIMS is shown as being logically separate from A-SMGCS since it can be regarded as a safety net rather than a continuously-acting control system. A number of alerts will be generated including • actual or potential runway incursion if an aircraft is taking off or is cleared to land • an aircraft enters the runway without a line-up instruction • an aircraft remains stationary after landing or after take-off clearance for a significant period of time (for example 15 seconds). [14]

1.7 Acronyms and Terminology

Term	Definition
A-SMGCS	Advanced – Surface Movement Guidance and Control System
ATC	Air Traffic Control
ATC System	In the context of this document the term ATC system refers to a combination of the A-SMGCS (Surveillance and Control) and the Electronic Flight Strips
ATCO	Air Traffic Control Officer
ATS	Air Traffic Service
BETA	Operational Benefit Evaluation by Testing an A-SMGCS
CMAC	Conformance Monitoring for Controllers
CATC	Conflicting ATC Clearances
DG Tren	Directorate-General for Transport and Energy
DOD	Detailed Operational Description
EFS	Electronic Flight Strips
EMMA	European Airport Movement Management by A-SMGCS

Term	Definition
E-OCVM	European Operational Concept Validation Methodology
EUROCAE	European Organisation for Civil Aviation Equipment
EUROCONTROL	European Organisation for the Safety of Air Navigation
FDPS	Flight Date Processing System
HMI	Human Machine Interface
ICAO	International Civil Aviation Organization
KPA	Key Performance Areas
OFA	Operational Focus Areas
OI	Operational Improvement
OSED	Operational Service and Environment Definition
R&D	Research and Development
RIMS	Runway Incursion Monitoring System
SDPS	Surveillance Data Processing System
SESAR	Single European Sky ATM Research Programme
SESAR Programme	The programme which defines the Research and Development activities and Projects for the SJU.
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
TWC	Tower Runway Controller
VALP	Validation Plan
VALR	Validation Report

2 Summary of Operational Concept

This section refers to the consolidated OSED for Conflicting ATC Clearances and Conformance Monitoring for Controllers [14] and describes the concept elements for Conflicting ATC Clearances and Conformance Monitoring.

2.1 Description of the Concept Element for Conflicting ATC Clearances and Conformance Monitoring

2.1.1 Conflicting ATC Clearances

The ATC system detects potential conflicting situations and prevents incursions involving mobiles (both aircraft and vehicles; stationary traffic is included as well) on runways. Appropriate alerts are provided to controllers only. The proposed improvement is the detection of Conflicting ATC Clearances input by the controller. It is important to note that the term 'Conflicting' refers to the fact that certain clearances input on the EFS at the same time by an ATCO do not comply with the local ATC rules/procedures, it does not mean that the aircraft/vehicles have ended up in conflict with each other.

Currently the only safety net available to tower runway controllers to avoid runway incursions is the Runway Incursion Monitoring System (RIMS). It uses Advanced Surface Movement Guidance and Control System (A-SMGCS) surveillance data to detect dangerous situations within the runway protection area. Detections and subsequent alerts to controllers are often provided at the very last moment and require immediate reaction. The new CATC Safety Net will not replace the existing RIMS but is intended as an additional layer of safety. It will give tower runway controller more time to react by detecting conflicting ATC clearances much earlier – typically at the moment when the tower runway controller inputs clearances into the Electronic Flight Strips (EFS), which are already in operational use in many control towers. To do so, it will perform crosschecks with previous clearances input on the EFS, and in most cases the aircraft position, to check whether one of the situations described in the subsequent paragraphs occurs which could lead to a runway incursion or other hazardous situation.

Below we define the types of "conflicting clearances". Our definition follows the one in the OSED [14]. In the OSED 4 types of runway related ATC clearances were consider: Line Up (LUP), Cross (CRS), Take-Off (TOF) and Land (LND). Based on these four clearances the following conflicting clearance situations were defined:

LUP/LUP: two aircraft are cleared to line up from opposing runway entries on the same end of a runway; or: two aircraft are cleared to line up on opposite ends of the same runway; or: two aircraft are cleared to line up on the same or adjacent runway entries on the same runway, and multiple line-up is not authorized.

LUP/CRS: one aircraft is cleared to line up and another mobile is cleared to cross the same runway from an opposing runway entry.

LUP/TOF: one aircraft is cleared to line up and another is cleared to take-off on the same runway, and the runway entry of the aircraft lining up is in front of the position of the aircraft taking off.

LUP/LND: one aircraft is cleared to line up and another is cleared to land on the same runway, and the runway entry of the aircraft lining up is in front of the position of the landing aircraft, and the landing aircraft is not expected to vacate the runway before the line up point.

CRS/CRS: two mobiles are cleared to cross the runway from opposing runway entries.

CRS/TOF: one mobile is cleared to cross and another is cleared to take-off on the same runway, and the runway entry point of the crossing mobile is in front of the position of the aircraft taking off.

CRS/LND: one mobile is cleared to cross and another aircraft is cleared to land on the same runway, and the entry point of the crossing mobile is in front of the position of the landing aircraft, and the landing aircraft is not expected to vacate the runway before crossing point.

TOF/TOF: two aircraft are cleared for take-off on the same runway or on dependent runways.

TOF/LND: one aircraft is cleared to take-off and another aircraft is cleared to land on the same runway or on dependent runways.

LND/LND: two aircraft are cleared for land on the same runway or on dependent runways.

The CATC system provides an alert to the responsible tower runway controller whenever it detects one of these conflicts. Some of these different clearance types are only based on the controller input; others are in addition using other data such as A-SMGCS Surveillance data to confirm that an abnormal situation is detected.

The detection of Conflicting ATC Clearances will be performed by the ATC system and depending on the situation, some or all of the following data will need to be known by the ATC system,

- The clearances given to the mobiles concerned.

- The assigned runway.

- The assigned holding point.

- The route of the mobile/s.

- The position of the mobile/s using A-SMGCS Surveillance.

The ATCO should therefore be provided with an HMI to input into the ATC system when clearances are given to aircraft or vehicles. The HMI should also be capable of displaying alert messages to the controllers for the CATC detected by the ATC system. Therefore definitions of alert types were made:

False Alert: an alert is given but no conflict exists. No alert should be indicated in this case.

Nuisance Alerts: in contrast to false alerts, there is no objective definition for "nuisance alerts", but we use this name to label alerts which are not false alerts, but which at least one tower runway controller in the validation subjectively considered this alert as a nuisance.

Working procedures for the controllers shall be adapted to ensure that all clearances given to aircraft or vehicles are input in the ATC system by the controller. Any clearance input in the ATC system will be a triggering event for the ATC system to detect any new conflicting ATC clearances.

An alert message shall be automatically triggered when conditions matching those described above are detected by the ATC system. Validations in Luxembourg and at Hamburg airport have identified that there are various ways of indicating conflicting ATC clearances to an ATCO. The following examples detail the possible implementation solutions of the HMI developed by DFS GmbH tested in V3 exercise at Hamburg airport.

1. Prediction of a CATC shown on the FDPS
Following a recommendation that resulted from the V2 real time simulation in Luxembourg the prototype includes a predictive indication of conflicts in addition to the regular alerting mechanism.

The system continuously checks for every active mobile whether entering the typical next clearance (according to standard procedures) would, at this point in time, cause a clearance conflict or not.

Figure 2 LED predictive information: two possible conflicting clearances indicated by a red circle in the flight strips UAE25 and DLH1MA (in the figure highlighted by blue circle) [1]

The result is shown as a little red or green dot in the flight strip. For example, in Figure 2, the system indicates that giving a LUP clearance to UAE25 or to DLH1MA would currently create a clearance conflict, whereas giving a LUP clearance to GEC9834 would not.

2. Display of CATC shown on the FDPS

A CATC can also show on the Flight Data Processing System (FDPS). Figure 3 shows the FDPS of the DFS prototype which was tested in a V3 shadow mode trial at Hamburg airport.

Figure 3 TOF/LND alert on FDPS [1]

The tower runway controller may *acknowledge* an active alert by clicking on the "ACK" button the very right of a flight strip. Acknowledged alerts continue to be displayed, but become less obtrusive.

3. Display of CATC shown in the SDPS display

Figure 4 shows a Line up (LUP) / Land (LND) conflict on the surveillance data processing system (SDPS) display of the DFS prototype.

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[1] The EFS presented was used during V3 exercise only as a possible solution. In the V2 exercise an HMI developed by Park Air System (NATMIG) was also tested.
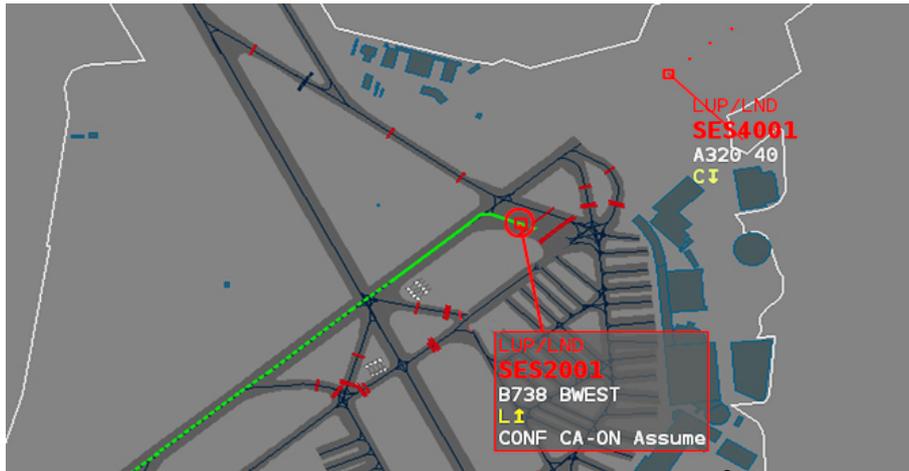
Figure 4 : LUP/LND alert in SDPS display [2]

The different situations where Conflicting ATC Clearances can occur are described in the OSED requirements. [14] In each case it is deemed that the first clearance in the header is the one that has been input by the ATCO first and the second clearance triggers the alert.

Figure 5 describes the SPR-level model associated to the Conflicting ATC Clearances System. The SPR-level Design is the level at which Safety Requirements for Conflicting ATC Clearances System are specified. This Model is a subpart of the ATM SPR-level Model for the SESAR Runway Operations (landing/take-off phases of flight).
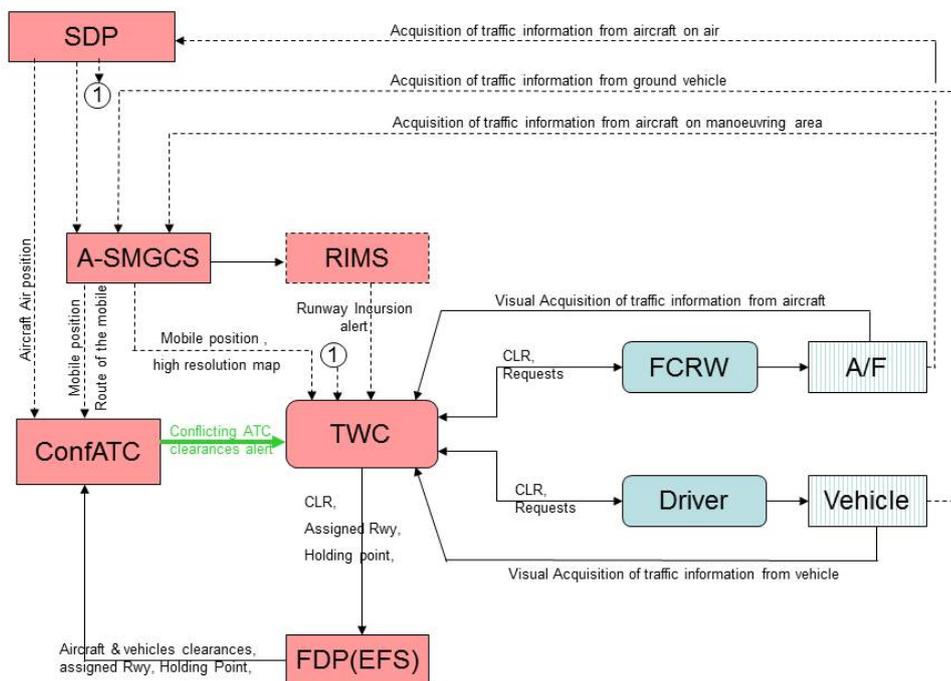
Figure 5 functional architecture of Conflicting ATC Clearance system

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[2] The EFS presented was used during V3 exercise only as a possible solution. In the V2 exercise an HMI developed by Park Air System (NATMIG) was also tested.

The symbols used in the model are as follows:

▮	Equipment function- ground
▮	Human actor- ground
▮	Human actor- airborne or vehicle
▥	Standard Function – not specific to SESAR
⬚	Optional element
▮	External entity
──────▶	Main interface
┄┄┄┄▶	Optional interface
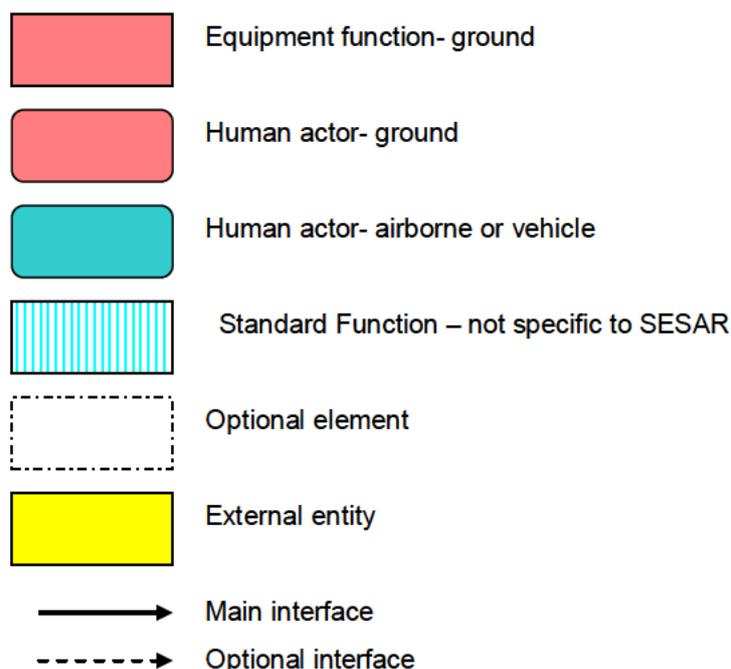
P06.07.01 – D29B - Conflicting ATC Clearance Safety Assessment Report (SAR) Edition 00.01.0 [15] contains a detailed description of the SPR-level model.

2.1.2 Conformance Monitoring for Controllers

The introduction of Electronic Flight Strips (EFS) means that the instructions given by the ATCO are now available electronically and can be integrated with other data such as flight plan, surveillance, routing, published rules and procedures. The integration of this data allows the system to monitor the information and when inconsistencies are detected, the ATCO can be alerted via the HMI or audibly with a buzzer. The main benefit of this is the early detection of flight crew / vehicle driver errors that, if not detected and resolved, might result in a hazardous situation. The current A-SMGCS Level 2 will still exist as the last minute warning system based on the position of the mobiles.

When a hazardous situation is detected, the A-SMGCS will provide the controller with two types of alerts, named 'INFORMATION' and 'ALARM'

- INFORMATION: When receiving an 'information alert', this means that a potential hazardous situation may occur. The tower controller will use his skill and backgrounds to decide if, with remaining possible actions, the situation can be saved without using a too restrictive procedure (e.g. go around). If successful, there will be no alarm; if not successful the alarm will be activated and be presented on the surveillance display.

- ALARM: When receiving an "alarm", it is said that a critical situation is developing and that an immediate action should be performed.

The alerts can be displayed on the EFS, the radar label and in a dedicated Alert Window on the screen (see Figure 7). Previous studies have highlighted the following issues

- Display of alerts will be subject to local agreements as there has been a divided opinion on when to show an ALARM to ATCOs, when an INFORMATION alert would suffice, in other words restrict the number of ALARM to a minimum so that when they are triggered ATCOs

react with the urgency they warrant. Also, should a Runway Incursion alert always be an <mark>ALARM</mark> regardless of whether other traffic is present or not?

- The number of false or nuisance alerts must be kept to a minimum so that ATCOs do not become complacent and ignore them. An example could be at an airport with high intensity runway operations where arrivals are closely spaced and regularly receive a late landing clearance; there might not be a need to implement the No Landing Clearance alert.

- The question of where (which controller position) and when to display alerts also brings divided opinion, for example should the alert just be displayed to the ATCO who has the flight under their control or should adjacent ATCOs also be shown the alert to provide situational awareness. This will be further assessed during validation exercises, however it is known to be difficult to define a generic rule that applies to all towers, therefore, it will be left to individual sites to define their own rules for this.

Figure 6 shows the ground functional architecture of the conformance monitoring alerts.
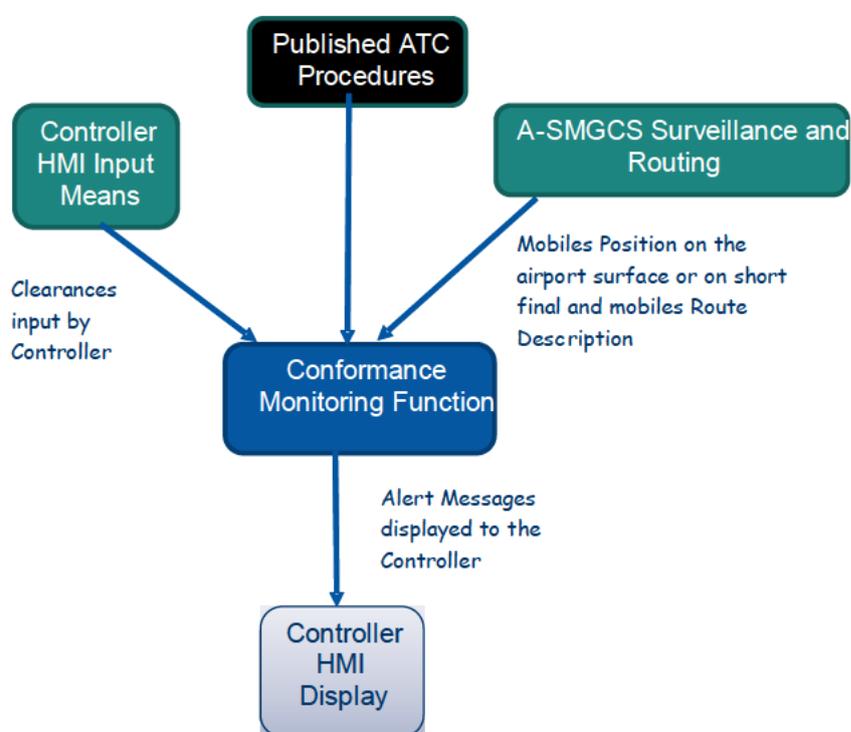
Figure 6 Conformance monitoring alerts – Ground functional architecture

An example of a taxi route deviation is shown in Figure 7. The assigned taxi route is displayed for 10 seconds to show the ATCO the taxi route the aircraft should be following.
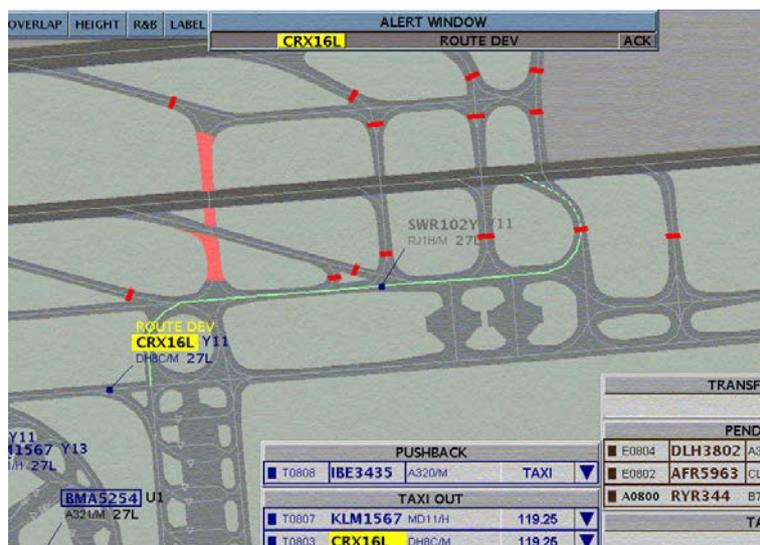
Figure 7 Route deviation

The required data are mobile under control, taxi instruction issued, surveillance and assigned route. The alert type can be INFORMATION or ALARM (Local implementation decision e.g. depending on whether the aircraft is deviating within a specified distance and heading towards an active runway). The alert trigger condition is when the mobile is detected deviating from the cleared taxi route on the taxiway or entering a runway. The alert will be cancelled when the mobile either re-joins the original taxi route or the ATCO issues new instructions or updates the taxi route via the HMI. The alert can be displayed on Ground or Runway position this depends on local procedures and position of mobile. For instance, if the taxiing aircraft is close to the runway it could be shown on both ground position and runway position.

2.2 Description of Operational Services

This section provides a brief description of the related operational Processes and Services (P&S). This section is referring to the OSED [14]. In this OSED are two processes described. The following sub-chapter detail these processes.

2.2.1 Surface-Out process

The following diagrams present the high level operational activities of the Surface-out operation process.

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.
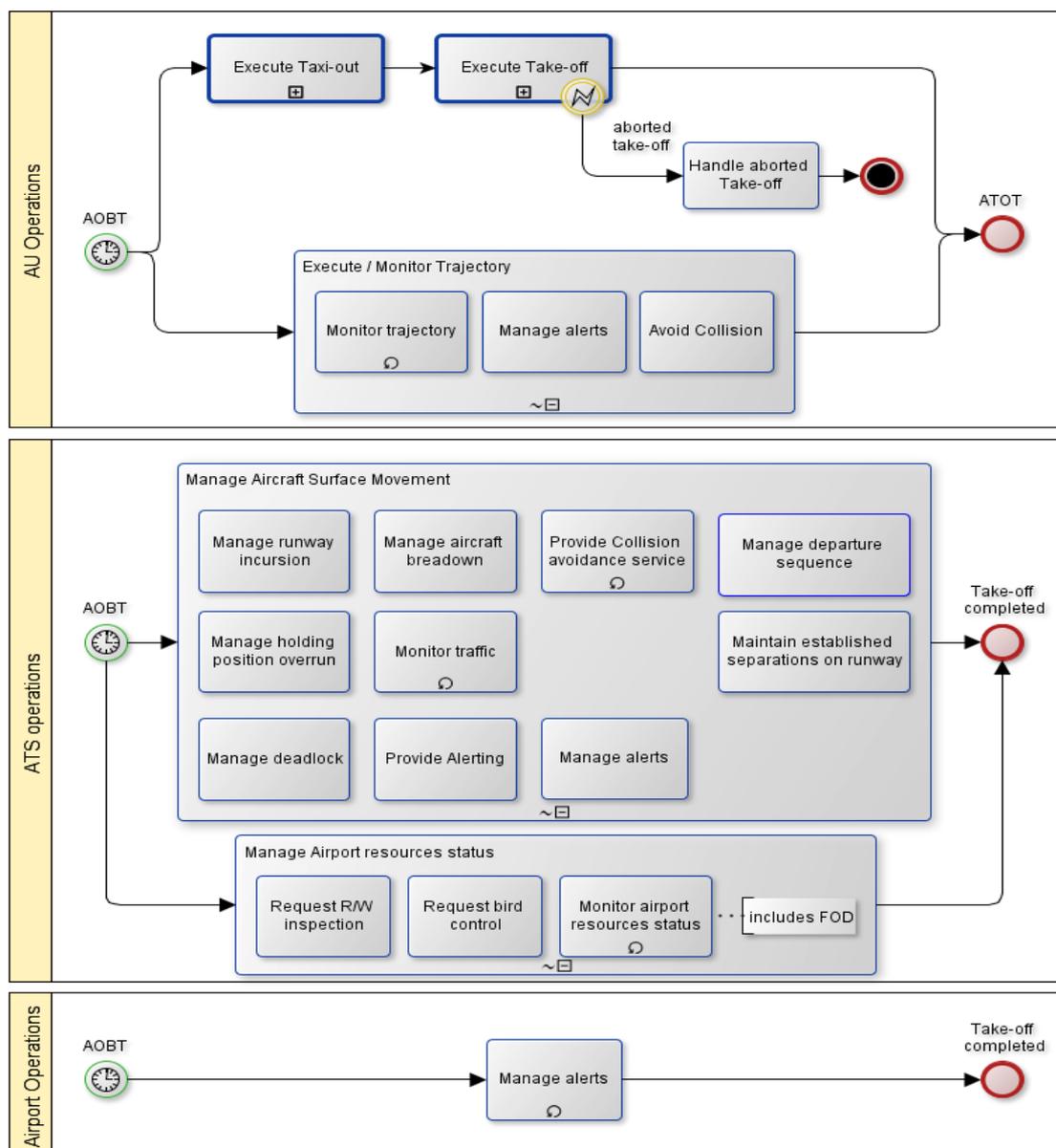
Figure 8 Surface-Out high level process

2.2.2 Surface-In process

The following diagrams present the high level activities of the Surface-In operation process.

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.
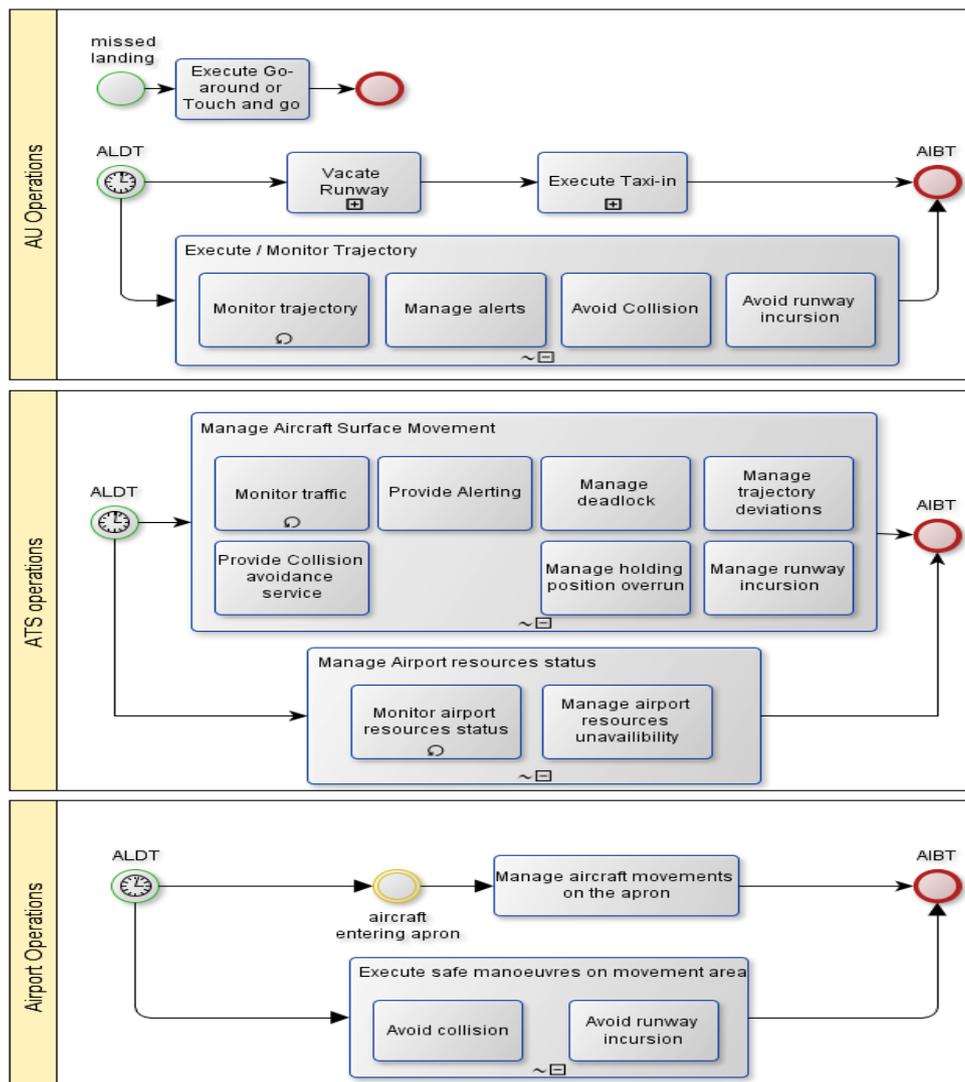
Figure 9 Surface-In high level Process

2.3 Description of Operational Environment

This section provides a brief description of the service operational environment for Conflicting ATC service and for Conformance Monitoring service. For a more comprehensive description of the operational environment, compare to the OSED for Conflicting ATC and Conformance Monitoring [14].

2.3.1 Operational Characteristics

The Detection of Conflicting Clearances shall be applied to all mobiles under ATC control that are moving on the runways and taxiways close to the runway.

The Conformance Monitoring application for checking non-conformance to ATC instructions is using in all cases A-SMGCS Surveillance data. This requires that traffic is transponder equipped and it is operating correctly and that airports also have an A-SMGCS infrastructure in operation.

The Detection of non-conformance to ATC instructions and/or procedures shall be applied to

- all mobiles that are moving on the <u>manoeuvring</u> area (runways, taxiways),

- all mobiles under, or foreseen to be under, Air Traffic Control on the apron. Example: This could be an aircraft pushing back without authorisation.

2.3.2 Roles and Responsibilities

The Detection of Conflicting Clearances is a support tool for the Tower Runway Controller who is responsible for managing departing and arrival flights on the manoeuvring area (mainly on the runway and on taxiways close to the runway).

The detection of non-conformance to ATC instructions and/or procedures is a support tool for the Tower Ground Controller, the Tower Runway Controller, the Tower Supervisor and the Apron Manager who are responsible for managing mobiles on the movement area.

2.3.3 Constraints

Most of the Conflicting Clearances that will be detected require the availability of the A-SMGCS Surveillance data. Even if the airport is A-SMGCS equipped, the detection of conflicting clearances involving vehicles will require vehicles to be transponder equipped. The ATC system shall also need to know the runway used by every mobile in order to detect conflicting clearances.

The non-conformance to ATC instructions and/or procedures that will be detected by the A-SMGCS requires the availability of the A-SMGCS Surveillance data and/or ATCO inputs. An adequate controller HMI will be necessary to permit the input of clearances given to aircraft and vehicles, and it will be imperative that ATCOs make timely inputs to the HMI coincident with the R/T transmissions. Even if the airport is A-SMGCS equipped, the detection of non-conformance to ATC instructions and/or procedures involving vehicles will require vehicles to be transponder equipped and switched on. The A-SMGCS shall know the status (open, closed, restricted) of runways and taxiways and the runway and taxiways assigned to every mobile in order to detect non-conformance to ATC instructions and/or procedures.

3 Requirements

3.1 General

This section describes the safety and performance requirements. The SPR requirements show traceability to the operational requirements (applicable to Processes and Services (P&S)) as described in the OSED. Requirements are written using Requirements and V&V Guidelines [2].
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].

3.2 General Requirements for CATC and CMAC

[REQ]

Identifier	REQ-06.07.01-SPR-GENL.0001
Requirement	The ATC system shall be able to record and replay any alert that has been triggered
Title	Replay of Alerts
Status	<In Progress>
Rationale	It is necessary to evaluate what happened when an alert has been triggered
Category	<Functional>
Validation Method	<Shadow Mode>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-GENL.0001	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-GENL.0002
Requirement	The ATC system shall display RIMS, CATC and CMAC alerts to the ATCO
Title	RIMS, CATC and CMAC alerts
Status	<In Progress>
Rationale	Display of RIMS, CATC and CMAC alerts
Category	<Functional>
Validation Method	<Shadow Mode>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-GENL.0002	<Full>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-GENL.0003
Requirement	The ATCO shall be able to recognize that RIMS alerts have a higher priority compared to CATC and CMAC alerts.
Title	Higher priority of RIMS alert
Status	<In Progress>
Rationale	To clearly state that RIMS alerts have a higher priority compared to CATC and CMAC alerts.
Category	<Operational>
Validation Method	<Shadow Mode>

Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-GENL.0003	<Full>
<APPLIES TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-GENL.0004
Requirement	The ATC system shall be able to display alerts for either one mobile or more than one mobile.
Title	Display of multiple alerts
Status	<In Progress>
Rationale	The ATCO needs to be able to see all alerts that are triggered, this could be one mobile generating 2 alerts or 2 mobiles generating individual alerts
Category	<Functional>
Validation Method	<Shadow Mode>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
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<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-GENL.0005
Requirement	The ATCO shall have a means to see alerts on the HMI associated with the mobile position and identification.
Title	Display of alerts on the mobile/s concerned
Status	<In Progress>
Rationale	The ATCO needs to be able to see which mobile is involved in an alert and what type of alert is being triggered
Category	<Functional>
Validation Method	<Shadow Mode>
Verification Method	

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
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<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

3.3 Requirements for Service "Detection of Conflicting ATC Clearances"

3.3.1 Safety Requirements

For SESAR applications, Safety guidance is provided by WP16.06.01 (Safety Reference Material) [8]. In order to develop a safety assessment, a Safety Assessment Report (SAR) (see [15]) was carried out for Conflicting ATC Clearances In the SAR requirements were determined through the broader approach (success and failure). For these safety assessments the Safety Reference Material (SRM) [8] guidance material and template was provided by P16.06.01. This document contains the Specimen Safety Assessment for a typical application of the Conflicting ATC Clearances in airport operations and Conformance Monitoring for Controllers. The report presents the assurance that the Safety Requirements for the V1-V3 phases are complete, correct and realistic, thereby providing all

material to adequately inform the Conflicting ATC Clearances and Conformance Monitoring for Controllers SPR (this document).

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0001
Requirement	Tower Runway Controller shall input in the Electronic Flight Strip System (EFS) the clearances given to the aircraft to line up, land on, take off from, go around, hold short of, cross, taxi and backtrack on the runway
Title	Entering of Clearances Case 1
Status	<In Progress>
Rationale	To avoid hazardous situation. The Tower Runway Controller has to be able to input clearances into the EFS.
Category	<Operational>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

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<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0002
Requirement	Tower Runway Controller shall provide to the Electronic Flight Strip System (EFS) the aircraft information relative to the assigned Runway and the holding point

Title	The Tower Runway Controller must be able to input additional information into the EFS to avoid hazardous situation.
Status	<In Progress>
Rationale	To avoid hazardous situation. The Tower Runway Controller has to be able to input information relative to the runway and the holding point into the EFS.
Category	<Operational>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
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[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0003
Requirement	The Electronic Flight Strip System (EFS) shall provide to the Conflicting ATC Clearances System the clearances given to the aircraft, to line up, land on, take off from, hold short of, cross, taxi and backtrack on the runway
Title	Providing of clearances Case 1
Status	<In Progress>
Rationale	There has to be a data transfer between EFS and CATC
Category	<Functional>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
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<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0004
Requirement	The Electronic Flight Strip System (EFS) shall provide to the Conflicting ATC Clearances System the aircraft information relative to the assigned Runway and the holding point
Title	Providing of aircraft information to the Conflicting ATC Clearances System
Status	<Deleted>
Rationale	To avoid hazardous situation. There has to be a data transfer between EFS and CATC relating information of aircraft, runway and holding points.
Category	<Functional>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
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<APPLIES TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0005
Requirement	A-SMGCS shall provide to the Conflicting ATC Clearances System the position of aircraft taxiing on the manoeuvring area
Title	A-SMGCS Providing of aircraft position to the Conflicting ATC Clearances System (manoeuvring area)
Status	<In Progress>
Rationale	There has to be a data transfer between A-SMGCS and CATC relating position information on ground.
Category	<Functional>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0001	<Partial>
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<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0006
Requirement	Surveillance System shall provide to the Conflicting ATC Clearances System the position of aircraft in flight (landing and/or Take off phase)
Title	Providing of aircraft position in flight to the Conflicting ATC Clearances System
Status	<In Progress>
Rationale	There has to be a data transfer between a surveillance system and CATC relating aircraft in flight information.
Category	<Functional>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0001	<Partial>
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<APPLIES TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0007
Requirement	The Conflicting ATC Clearances System shall provide an alert to the Tower Runway Controller when clearances are given to two mobiles which, when executed, might lead to a runway conflict.
Title	Alert Providing to the Tower Runway Controller
Status	<In Progress>
Rationale	To avoid hazardous situation or runway incursions.
Category	<Functional>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-GENL.0002	<Partial>
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<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0008
Requirement	The different alerts of the CATC system and RIMS shall be distinguishable for the Tower Runway Controller.
Title	RIMS and conflicting ATC System alerts
Status	<In Progress>
Rationale	The tower runway controller must be able to distinguish between the different alerts of CATC and RIMS to recognize the priority of the alerts.
Category	<Functional>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
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<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-GENL.0003	<Partial>
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<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0001	<Partial>
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<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0003	<Partial>
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<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0009
Requirement	The Tower Runway Controller shall input clearances given to the aircraft/vehicles in the Electronic Flight Strip System (EFS) as soon as practicable and within less than 3 seconds.
Title	Entering of Clearances Case 2
Status	<In Progress>
Rationale	To avoid hazardous situation. The Tower Runway Controller shall be able to input clearances.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0026	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0027	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0028	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0029	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0030	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0031	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0010
Requirement	The Conflicting ATC Clearances System shall provide alert to the Tower Runway Controller not more than 1 second following the reception of the conflicting clearance from the Electronic Flight Strip System (EFS)
Title	TWC Alerting
Status	<In Progress>
Rationale	To avoid hazardous situation it is necessary that the system alerts within 1 second.
Category	<Safety>

Validation Method	\<Shadow Mode>
Verification Method	\<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
\<SATISFIES>	\<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0047	\<Partial>
\<SATISFIES>	\<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0048	\<Partial>
\<SATISFIES>	\<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0052	\<Partial>
\<APPLIES_TO>	\<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0011
Requirement	When alerted by the Conflicting ATC Clearances System, the Tower Runway Controller shall solve the potential runway conflict by issuing a corrective clearance or by confirming that the given clearances are acceptable.
Title	Solving the runway conflict
Status	\<In Progress>
Rationale	To avoid hazardous situation it is important that the Tower Runway Controller solves the potential conflict with a corrective clearance or by acknowledge the alert.
Category	\<Operational>
Validation Method	\<Shadow Mode>
Verification Method	\<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
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\<SATISFIES>	\<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0048	\<Partial>
\<SATISFIES>	\<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0051	\<Partial>
\<APPLIES_TO>	\<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0012
Requirement	The Tower Runway Controller shall input in the Electronic Flight Strip System (EFS) the clearances given to the vehicle to enter or to cross the runway
Title	Entering of Clearances Case 3
Status	\<In Progress>
Rationale	To avoid hazardous situation the Tower Runway Controller must be able to input clearances.
Category	\<Operational>
Validation Method	\<Shadow Mode>
Verification Method	\<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
\<SATISFIES>	\<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0004	\<Partial>
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<APPLIES TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0013
Requirement	The Tower Runway Controller shall provide to the Electronic Flight Strip System (EFS) the vehicle information relative to the assigned Runway and the holding point.
Title	Entering of Clearances Case 4
Status	<In Progress>
Rationale	The Tower Runway Controller must be able to input additional information into the EFS to avoid hazardous situation.
Category	<Operational>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
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<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0013	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0014	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0015	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0016	<Partial>
<APPLIES TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0014
Requirement	The Electronic Flight Strip System (EFS) shall provide to the Conflicting ATC Clearances System the clearances given to the vehicle to enter or to cross the runway
Title	Providing of clearances Case 2
Status	<In Progress>
Rationale	To avoid hazardous situation it is important that the EFS provide clearances to the CATC
Category	<Functional>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0004	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0005	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0010	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0011	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0012	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0013	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0014	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0015	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0016	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0015

Requirement	The Electronic Flight Strip System (EFS) shall provide to the Conflicting ATC Clearances System the vehicle information relative to the assigned Runway and the holding point
Title	Providing of clearances Case 3
Status	<In Progress>
Rationale	To avoid hazardous situation it is important that the EFS provides the CATC with vehicle information.
Category	<Functional>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0004	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0005	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0010	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0011	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0012	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0013	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0014	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0015	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0016	<Partial>
<APPLIES TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0016
Requirement	A-SMGCS shall provide to the Conflicting ATC Clearances System the position of vehicles being driven on the manoeuvring area
Title	Position providing by A-SMGCS
Status	<In Progress>
Rationale	A-SMGCS has to provide position of vehicles to avoid hazardous situation.
Category	<Functional>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0004	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0005	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0010	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0011	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0012	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0013	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0014	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0015	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0016	<Partial>
<APPLIES TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0017
Requirement	The Conflicting ATC Clearances System shall provide an alert to the Tower Runway Controller when clearances are given to an aircraft and a vehicle which, when executed, might lead to a runway conflict
Title	Clearance alert for runway conflict case 1
Status	<In Progress>
Rationale	It is necessary to avoid hazardous situations that system gives an alert to the Tower Runway Controller in case the given clearance to an aircraft or vehicle could lead to a runway conflict.
Category	<Functional>

Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0004	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0005	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0010	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0011	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0012	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0013	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0014	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0015	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0016	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0018
Requirement	The Conflicting ATC Clearances System shall provide an alert to the Tower Runway Controller when clearances are given to two vehicles which, when executed, might lead to a runway conflict
Title	Clearance alert for runway conflict case 2
Status	<Deleted>
Rationale	It is necessary to avoid hazardous situations that system gives an alert to the Tower Runway Controller in case the given clearance to two vehicles could lead to a runway conflict.
Category	<Functional>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0010	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0011	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0012	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0019
Requirement	The Conflicting ATC Clearances System shall detect the conflicting ATC clearances with a probability of 99,9% per movement.
Title	Detection of conflicting ATC Clearances
Status	<In Progress>
Rationale	It is important, that the system detect conflicting ATC Clearances as precisely as possible.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0047	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0048	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0052	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0053	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0020
Requirement	The position accuracy of A-SMGCS shall be 7,5 meter on 95% confidence interval to support the Conflicting ATC Clearances System detection rate of 99,9% per movement.
Title	Accuracy of A-SMGCS
Status	<In Progress>
Rationale	The A-SMGCS should to support the CATC with ground positions to avoid hazardous situation. It is important, that the system detect conflicting ATC Clearances as precisely as possible.
Category	<Performance>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0001	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0002	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0021
Requirement	Surveillance system shall be sufficiently accurate to support the Conflicting ATC Clearances System detection rate of 99,9% per movement.
Title	Accuracy of Surveillance System
Status	<Deleted>
Rationale	Surveillance system should to support the CATC with in flight positions to avoid hazardous situation. It is important, that the system detect conflicting ATC Clearances as precisely as possible.
Category	<Performance>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0047	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0054	<Partial>
<APPLIES TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0022
Requirement	When the Tower Runway Controller decides to cancel detected conflicting ATC clearances, he/she shall inform the Electronic Flight Strip System about this cancelation.
Title	Information of EFS when ATC conflict was cancelled by user.
Status	<In Progress>
Rationale	The Tower Runway Controller should be able to insert cancellation into the EFS.
Category	<Operational>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0047	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0051	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

Project Number 06.07.01
D29 - P06.07.01 SPR for "Conflicting ATC Clearances" and "Conformance Monitoring for Controllers"

Edition 00.01.01

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0023
Requirement	The Electronic Flight Strip System (EFS) shall inform the conflicting ATC clearances System about the cancelled clearance
Title	EFS informs Conflicting ATC system
Status	<In Progress>
Rationale	There must be a communication between the CATC and the EFS to avoid hazardous situation.
Category	<Functional>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0051	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0024
Requirement	The Tower Runway Controller shall accept the detected conflicting ATC clearances only when he/she has assessed that the potential conflict will not lead to an actual runway conflict.
Title	Acceptation of conflicting clearances without runway conflict
Status	<In Progress>
Rationale	The Tower Runway Controller must be able to accept alerts to avoid hazardous situation.
Category	<Operational>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0051	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0054	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0025
Requirement	When a detected conflicting clearance is accepted by the Tower Runway Controller, he/she shall inform the conflicting ATC clearances System about this acceptation.
Title	Acceptation of conflicting clearances
Status	<In Progress>
Rationale	The Tower Runway Controller must be able to input accepted clearances into the EFS to avoid hazardous situation.
Category	<Operational>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0051	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0026
Requirement	The Electronic Flight Strip System (EFS) shall provide to the Conflicting ATC Clearances System any clearance entered by the Tower Runway Controller within 0.5 second.
Title	Providing of clearances case 4
Status	<In Progress>
Rationale	There must be a communication between CATC and the EFS to avoid hazardous situation.
Category	<Functional>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0047	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0048	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0052	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0053	<Partial>
<APPLIES TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0027
Requirement	When alerted by the Conflicting ATC Clearances System and where a corrective clearance is necessary to prevent the runway incursion, the Tower Runway Controller shall issue such corrective clearance as soon as practicable but at least within 3 seconds.
Title	Clearance Correction
Status	<In Progress>
Rationale	A corrective clearance in a timely manner is important to avoid hazardous situation.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0047	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0048	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0052	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0053	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0028
Requirement	When alerted by the Conflicting ATC Clearances System and where the last conflicting clearance entered shall be cancelled to prevent the runway incursion, the Tower Runway Controller shall cancel this clearance as soon as practicable but at least within 3 seconds.
Title	Clearance Cancellation
Status	<In Progress>
Rationale	A cancellation in a timely manner is important to avoid hazardous situation.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0047	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0048	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0051	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0052	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0053	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0029
Requirement	When alerted by the Conflicting ATC Clearances System and where the conflicting ATC clearances do not lead to a runway incursion, the Tower Runway Controller shall accept the conflicting ATC clearances as soon as practicable to cancel the alert but at least within 3 seconds.
Title	Accepting ATC clearances
Status	<In Progress>
Rationale	A cancellation in a timely manner is important to avoid hazardous situation.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0047	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0048	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0051	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0052	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0053	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0033
Requirement	The Tower Runway Controller shall verify that ATC clearances entered in the Electronic Flight Strip System are the same than those provided to aircraft or vehicles.
Title	Comparison given ATC clearances provided to aircraft or vehicle
Status	<In Progress>
Rationale	It is important that the clearance entered into the EFS is the same as the provided clearance to the aircraft or vehicle.
Category	<Operational>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0052	<Partial>
<APPLIES TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0034
Requirement	The Tower Runway Controller shall verify that the triggered alert provides complete information for the conflicting ATC clearances situation.
Title	Situational awareness Complete information
Status	<In Progress>
Rationale	It is important that the alert contains complete information about the conflicting ATC clearance situation or that the Tower Runway Controller has got a situational awareness about the current traffic on the manoeuvring

	area.
Category	<Operational>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0047	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0048	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0035
Requirement	The Tower Runway Controller shall verify the triggered alert and detect, whenever practicable, incorrect alert information based on his/her situational awareness of the current traffic on the maneuvering area.
Title	Situational awareness incorrect alert
Status	<Deleted>
Rationale	To avoid hazardous situation it is important that the Tower Runway Controller verifies and detects alerts and their information based on his or her situational awareness.
Category	<Operational>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0047	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0048	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

3.3.2 Performance Requirements

The performance requirements will be expressed in terms of Quality of Service (QoS) Requirements. Their expression depends on the nature of the service (for example a data link receives throughput, response time, message loss rate requirements; a navigation service should receive accuracy, timeliness requirement). These QoS requirements will trace the Performance Indicator (PI) requirements expressed in the OSED. Demonstration that the full set of QoS requirements is sufficient to satisfy the related Performance Indicators will be provided. The demonstration should indicate how the combination of services, with their required quality of service satisfies the PIs of the Ops service.

Performance requirements are associated to quantitative values that can be measured (metrics). In case the Performance requirement depends on the Operational environment, this will be indicated and the corresponding environment will be identified.

Validation targets and Influence Diagrams, as provided by B.04.01 shall be used to trace contributions to performance. The project Benefit and Impact Mechanisms (under [12]) developed for the Validation Plan can help identify these performance contributions.

Guidance material detailing how to assess the different KPAs and develop requirements to feed into the SPR document are provided by WP16.06.01 Safety – Reference [8].

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0030
Requirement	The conflicting ATC Clearances System shall not generate false alert with a probability greater than $1.0x10^{-4}$ per movement when no conflicting clearances and no corrupted inputs are present at the entry of the system.

Title	False Alert 1
Status	<In Progress>
Rationale	It is important to define a probability of a false alert rate to avoid hazardous situation.
Category	<Performance>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0047	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0048	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0052	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0053	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0031
Requirement	The conflicting ATC Clearances System shall not generate false alert with a probability greater than 1.0×10^{-4} per movement due to surveillance data corruption
Title	False Alert 2
Status	<In Progress>
Rationale	The CATC should generate false alerts as less as possible to avoid hazardous situation.
Category	<Performance>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0047	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0048	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0052	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0053	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0032
Requirement	The conflicting ATC Clearances System shall not generate false alert with a probability greater than 1.0×10^{-4} per movement due to Electronic Flight Strip System data corruption
Title	False Alert 3
Status	<In Progress>
Rationale	The CATC should generate false alerts as less as possible to avoid hazardous situation.
Category	<Performance>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0047	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0048	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0052	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0053	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

3.3.3 Safety Requirements Integrity

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0036
Requirement	The number of wrong clearances input in the system shall not be greater than one per operational day.
Title	Entering Wrong Clearance
Status	<In Progress>
Rationale	Thereby the Tower Runway Controller enters as few as possible wrong clearances into the CATC s/he should be trained to be familiar with the system.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0026	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0027	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0028	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0029	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0030	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0031	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0037
Requirement	The probability that the Tower Runway Controller does not enter a clearance (when he/she should do it) in the Conflicting ATC Clearances System should be kept to a minimum.
Title	No Entering a clearance
Status	<In Progress>
Rationale	Thereby the Tower Runway Controller enters a clearance into the CATC when s/he should do so, s/he should be trained to be familiar with the system to avoid hazardous situation.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0026	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0027	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0028	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0029	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0030	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0031	<Partial>
<APPLIES TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0038
Requirement	The probability that the Tower Runway Controller enters a clearance in the Conflicting ATC Clearances System too late (more than 3 seconds after it has been provided to aircraft/vehicle) should be kept to a minimum.
Title	Entering a clearance too late
Status	<In Progress>

Rationale	Thereby the Tower Runway Controller does not enter a clearance too late into the CATC, s/he should be trained to be familiar with the system to avoid hazardous situation.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0026	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0027	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0028	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0029	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0030	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0031	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0039
Requirement	The probability of an undetected loss of the Conflicting ATC Clearances System shall be less than 1.0×10^{-4} per movement.
Title	Undetected loss of Conflicting ATC Clearances
Status	<In Progress>
Rationale	It is important that an undetected loss of the CATC must be kept to a minimum to avoid hazardous situation.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0052	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0040
Requirement	The probability of conflicting ATC clearances situation miss-detection by the Conflicting ATC Clearance System shall be less than 1.0×10^{-4} per movement.
Title	Miss-Detection
Status	<In Progress>
Rationale	It is important that a miss-detection of the CATC must be kept to a minimum to avoid hazardous situation.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0052	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0041
Requirement	When an alert is triggered by the Conflicting ATC Clearance System, probability that incomplete identification of the conflicting situation is displayed to the Tower Runway Controller shall be less than 1.0×10^{-4} per

	movement.
Title	Incomplete identification
Status	<In Progress>
Rationale	A displayed incomplete identification of a conflicting situation must be kept to a minimum to avoid hazardous situation.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0052	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0042
Requirement	When an alert is triggered by the Conflicting ATC Clearance System, probability that incorrect identification of the conflicting situation is displayed to the Tower Runway Controller shall be less than 1.0×10^{-4} per movement.
Title	Incorrect Identification
Status	<In Progress>
Rationale	An incorrect identification of a conflicting situation must be kept to a minimum to avoid hazardous situation.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0052	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0043
Requirement	The probability that the Tower Runway Controller does not handle/interpret the alarm properly by "Accepting" the conflicting ATC clearances whereas he shouldn't do it due to a potential conflict should be kept to a minimum.
Title	Not handle/interpret alarm by accepting
Status	<In Progress>
Rationale	It is important that the Tower Runway Controller handles or interprets the alarm properly to avoid hazardous situation.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0047	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0048	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0051	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0052	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0053	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0044

Requirement	The probability that the Tower Runway Controller does not handle/interpret the alarm properly by **not** "Cancelling" the conflicting clearance with the mobile whereas he should do it due to a potential conflict shall be kept to a minimum.
Title	Not handle/interpret alarm by cancelling
Status	<In Progress>
Rationale	It is important that the Tower Runway Controller handles or interprets the alarm properly to avoid hazardous situation.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0047	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0048	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0051	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0052	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0053	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0045
Requirement	The probability that the Tower Runway Controller does not handle/interpret the alert properly by "Cancelling" the conflicting clearance with the mobile too late (within more than 1 second) shall be less than 1.0×10^{-3} per movement.
Title	Not handle/interpret alarm by cancelling too late
Status	<Deleted>
Rationale	To avoid hazardous situation. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0051	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0046
Requirement	When an alert is triggered by the Conflicting ATC Clearance System, the probability that Tower Runway Controller, flight Crew and Vehicle driver have not sufficient time to solve the conflict before an accident occurs should be kept to a minimum.
Title	Time to solve the conflict
Status	<In Progress>
Rationale	The Tower Runway Controller, flight crew or vehicle driver need sufficient time to solve the conflict to avoid hazardous situation.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0047	<Partial>

<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0048	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0051	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0052	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0053	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CATC.0047
Requirement	The Tower Runway Controller shall be trained on the conflicting ATC system and on the importance of reacting promptly against a triggered alert to solve the conflicting ATC situation
Title	Provision of training with the CATC
Status	<In Progress>
Rationale	ATCO adequate training is essential for efficient CATC service delivery.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Inspection>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0001	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0002	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0003	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0004	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0005	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0006	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0007	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0008	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0009	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0010	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0011	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0012	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0013	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0014	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0015	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0016	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0017	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0018	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0019	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0020	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0021	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0022	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0023	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0024	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0025	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0055	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0056	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0057	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0058	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0059	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0060	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CATC.0061	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

3.4 Requirements for Service "Non Conformance to ATC instructions and/or procedures"

3.4.1 Safety Requirements

For SESAR applications, Safety guidance is provided by WP16.06.01 (Safety Reference Material) [8]. In order to develop a safety assessment, a Safety Assessment Report (SAR) (see [16]) was carried out for Conformance Monitoring. In the SAR requirements were determined through the broader approach (success and failure). For these safety assessments the Safety Reference Material (SRM) [8] guidance material and template was provided by P16.06.01. This document contains the Specimen Safety Assessment for a typical application of the Conflicting ATC Clearances in airport operations and Conformance Monitoring for Controllers. The report presents the assurance that the Safety Requirements for the V1-V3 phases are complete, correct and realistic, thereby providing all material to adequately inform the Conflicting ATC Clearances and Conformance Monitoring for Controllers SPR (this document).

3.4.1.1 Ground ATC conformance monitoring safety requirements equally applicable to taxiway and runway operations

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0001
Requirement	A-SMGCS level 1 shall provide an accurate position and speed of aircraft and vehicles to the Ground ATC Conformance Monitoring System in accordance to EUROCAE ED-87B
Title	A-SMGCS level 1 input accuracy
Status	<In Progress>
Rationale	Input surveillance data are essential for service delivery. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0001	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0002	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0003	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0006	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0007	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0008	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0009	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0013	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0012	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0016	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0015	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0025	<Partial>
<APPLIES TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0002
Requirement	The Airport/LVP Data & Status should provide to the Ground ATC Conformance Monitoring System the Low Visibility Procedure (LVP) activation in case of Low Visibility Operation
Title	CMAC service is depending on LVP conditions.
Status	<In Progress>
Rationale	This requirement was derived within the SAR document. LVP activations need to be strictly known at those airports where different procedures are applied for different LV conditions.

Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0006	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0007	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0008	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0009	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0013	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0012	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0016	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0015	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0025	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0003
Requirement	FDP (EFS) shall provide to the Ground ATC Conformance Monitoring System the condition/status of the different flights (Arrival, Departure, flight assumed, flight transferred,…)
Title	Provision of FDP
Status	<In Progress>
Rationale	CMAC service is depending on mobile flight status. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0026	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0027	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0028	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0029	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0030	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0031	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0004
Requirement	FDP(EFS) shall provide to the Ground ATC Conformance Monitoring System the aircraft type for each departing and arriving aircraft
Title	Provision of aircraft type. This requirement was derived within the SAR document.
Status	<In Progress>
Rationale	CMAC service is depending on mobile flight status
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0013	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0005
Requirement	The Airport/LVP Data & Status shall provide to the Ground ATC Conformance Monitoring System the suitability of the different runway and taxi route for the different aircraft type
Title	Provision of RWY and TWY aircraft suitability

Status	<In Progress>
Rationale	Inform ATCO that a non-suitable runway or taxiway is assigned to an aircraft. This requirement was derived within the SAR document. This information is needed in order to detect when the aircraft is deviating from its cleared route and enters or goes towards closed or unsuitable taxiway and runways.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0013	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0036	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0006
Requirement	The Airport/LVP Data & Status shall provide to the Ground ATC Conformance Monitoring System the description of the airport layout (TWY, RWY, etc.), the reference points (holding positions, stop bars, RWY thresholds) and fixed obstacles.
Title	Provision of airport layout and topology
Status	<In Progress>
Rationale	CMAC service is dependent on airport layout and topology. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0006	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0007	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0008	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0009	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0013	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0012	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0025	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0007
Requirement	The Ground ATC Conformance Monitoring System shall indicate to the Tower Controller its unavailability when data (A-SMGCS-level 1, Airport/MET data & status, AGLC or FDP(EFS)) required for the conformance monitoring function have been detected to be lost or corrupted
Title	CMAC service degraded indication.
Status	<Deleted>
Rationale	ATCO needs to be informed when CMAC service is degraded. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0025	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A
[REQ]			
Identifier	REQ-06.07.01-SPR-CMAC.0008		

Requirement	The Tower Controller shall be informed about the unavailability of the ground ATC conformance monitoring function
Title	CMAC service unavailability indication.
Status	<In Progress>
Rationale	ATCO needs to be informed when CMAC service is unavailable. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0025	<Partial>
<APPLIES TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0009
Requirement	The ground ATC conformance monitoring alert shall be appropriately located within the controller working position to facilitate a quick controller response to the alert
Title	CMAC alert position on CWP HMI
Status	<In Progress>
Rationale	ATCO has to easily identify an alert. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0023	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0010
Requirement	The Tower Controller shall be trained on the ground ATC conformance monitoring system and on the importance of reacting promptly against a triggered alert to solve the non-conformance situation
Title	Provision of training.
Status	<In Progress>
Rationale	ATCO adequate training is essential for efficient CMAC service delivery. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Inspection>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0021	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0011
Requirement	The Tower Controller shall continue to monitor the manoeuvring area to detect any non-conformance situation through visual scanning **despite** a ground ATC conformance monitoring is fitted
Title	Visual scan of non-conformance
Status	<In Progress>
Rationale	CMAC service is also provisionable by ATCO visual scan. This requirement was derived within the SAR document. Note: This requirement should be

	introduced at OSED level.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Inspection>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	None	<Partial>
<APPLIES TO>	<Operational Focus Area>	OFA01.02.01	N/A

3.4.1.2 Ground ATC conformance monitoring safety requirements applicable to taxiway operations

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0012
Requirement	The Tower Ground Controller shall enter all clearances given to aircraft relative to their push-back, taxi-out and taxi-in in the FDP(EFS)
Title	ATCO input of aircraft taxiway clearances
Status	<In Progress>
Rationale	CMAC service depends on aircraft taxiways clearance status. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0006	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0007	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0008	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0009	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0013	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0012	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0016	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0015	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0025	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0013
Requirement	The Tower Ground Controller shall enter all clearances given to vehicles relative to their taxi clearances in the FDP(EFS)
Title	ATCO input of vehicle taxiway clearances
Status	<In Progress>
Rationale	CMAC service depends on vehicle taxiways clearance status. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0006	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0007	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0008	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0009	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0013	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0012	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0016	<Partial>

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0015	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0025	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0014
Requirement	The Tower Ground Controller shall enter taxi clearances given to aircraft or vehicle in the FDP(EFS) as soon as practicable and within less than 3 seconds
Title	Timely input of given taxi clearances
Status	<In Progress>
Rationale	CMAC service is critically depending on timely updates of clearances status. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0006	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0007	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0008	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0009	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0013	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0012	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0016	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0015	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0025	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0015
Requirement	FDP(EFS) shall provide to the Ground ATC Conformance Monitoring System all clearances which have been entered by the Tower Ground Controller
Title	Ground ATCO clearances update from FDP
Status	<In Progress>
Rationale	CMAC service is depending on mobile flight status. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0006	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0007	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0008	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0009	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0013	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0012	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0016	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0015	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0025	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0016

Requirement	Ground ATC Conformance Monitoring System shall provide an alert to the Tower Ground Controller when an aircraft is moving from its stand and has not received a push back approval
Title	Moving aircraft without push-back approval
Status	<In Progress>
Rationale	Inform ATCO that an aircraft is pushing back without authorisation. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0002	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0032	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0017
Requirement	Ground ATC Conformance Monitoring System shall provide an alert to the Tower Ground Controller when an aircraft starts to move on the taxiway without taxi approval
Title	Moving aircraft without taxi approval
Status	<In Progress>
Rationale	Inform ATCO that an aircraft is taxing without authorisation. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0003	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0032	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0018
Requirement	Ground ATC Conformance Monitoring System shall provide an alert to the Tower Ground Controller when an aircraft is deviating from its cleared taxi route
Title	Aircraft route deviation
Status	<In Progress>
Rationale	Inform ATCO that an aircraft is deviating from its cleared route. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0001	<Partial>
<APPLIES TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0019

Requirement	The Airport/LVP Data & Status shall provide to the Ground ATC Conformance Monitoring System the list of closed taxiway
Title	Provision of closed taxiways.
Status	<In Progress>
Rationale	Inform system if a taxiway is closed. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0013	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0015	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0020
Requirement	Ground ATC Conformance Monitoring System shall provide an alert to the Tower Ground Controller when an aircraft is deviating from its cleared route and enters or goes towards a closed or unsuitable taxiway.
Title	Closed taxiway assignment
Status	<In Progress>
Rationale	Inform ATCO that a closed taxiway has been assigned to an aircraft. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0015	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0036	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0021
Requirement	The Ground ATC Conformance Monitoring System shall provide an alert to the Tower Ground Controller when a mobile starts to make positioning movements on the apron/taxiway without a clearance
Title	Moving mobile without taxi clearance
Status	<In Progress>
Rationale	Inform ATCO that a mobile is taxing without authorisation This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0002	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0003	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0009	<Partial>
<APPLIES TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0022
Requirement	Airport/LVP Data & Status shall provide to the Ground ATC Conformance Monitoring System the holding points for a given taxi-route
Title	Provision of holding points.
Status	<In Progress>
Rationale	Inform system of taxiways holding points. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0006	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0007	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0008	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0012	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0025	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0023
Requirement	The Ground ATC Conformance Monitoring System shall provide an alert to the Tower Ground Controller when an aircraft crosses a holding position marking without a clearance
Title	Unauthorised aircraft crossing holding position
Status	<In Progress>
Rationale	Inform ATCO that an aircraft has crossed an holding point without clearance. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0006	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0007	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0008	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0012	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0025	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0024
Requirement	Ground ATC Conformance Monitoring System shall provide an alert to the Tower Ground Controller when an aircraft on the taxiway exceed a speed to be defined locally which indicates an attempt to take-off from a taxiway
Title	Attempt to take-off from taxiway.
Status	<In Progress>
Rationale	Inform ATCO that an aircraft is attempting to take-off from a taxiway. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0017	<Partial>

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| <SATISFIES> | <ATMS Requirement> | REQ-06.07.01-OSED-CMAC.0037 | <Partial> |
| <APPLIES_TO> | <Operational Focus Area> | OFA01.02.01 | N/A |

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0025
Requirement	Ground ATC Conformance Monitoring System shall provide an alert to the Tower Ground Controller when the longitudinal separation between two aircraft on a taxiway in Low Visibility Conditions is lower than a value specified by the appropriate ATS authority
Title	Taxiway LVP separation infringement
Status	<In Progress>
Rationale	Inform ATCO of aircraft longitudinal separation violation during LVP. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0025	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0026
Requirement	Ground ATC Conformance Monitoring System shall provide an alert to the Tower Ground Controller when a taxi-out aircraft proceeds past a point without having been transferred to the Tower Runway Controller
Title	Ground to Tower missed handover
Status	<In Progress>
Rationale	Inform ground ATCO that an aircraft has passed the point where handover to Runway ATCO is necessary. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0025	<Partial>
<APPLIES TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0027
Requirement	Ground ATC Conformance Monitoring System shall provide an alert to the Tower Ground Controller when a mobile, having received a clearance to move, remains stationary on the taxiway for a period of time exceeding a predetermined value (to be defined locally)
Title	Taxiway stationary aircraft
Status	<In Progress>
Rationale	Inform ATCO when a taxi cleared aircraft is stationary for long time. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

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Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0004	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0032	<Partial>
<APPLIES TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0028
Requirement	Ground ATC Conformance Monitoring System shall provide an alert to the Tower Ground Controller when an aircraft is assigned to use an unsuitable taxiway considering the aircraft type or is already on that unsuitable taxiway
Title	Aircraft using an unsuitable taxiway
Status	<In Progress>
Rationale	Inform ATCO when an aircraft is assigned to an unsuitable taxiway. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0013	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0029
Requirement	The Ground ATC Conformance Monitoring System shall provide an Information alert (caution) to the Tower Ground Controller for non-conformance situations requiring immediate controller awareness but not necessarily immediate response: for a route deviation not in the proximity of the runway protected area, for a movement without push-back/taxi approval or a stationary situation but without traffic in the immediate vicinity, for an aircraft not yet on the unsuitable taxiway type or on the closed taxiway, for an aircraft having a taxiing speed important but not yet considered excessive.
Title	Provision of information taxiway-related alerts
Status	<In Progress>
Rationale	Inform ATCO of non-conformance situations that do not require immediate responses. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0018	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0020	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0032	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0035	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0036	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0037	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0030
Requirement	The Ground ATC Conformance Monitoring System shall provide an Alarm alert (warning) to the Tower Ground Controller for non-conformance situations requiring immediate controller awareness and immediate

	response: for a taxi route deviation near the runway protected area, for a detected stationary situation with traffic in the vicinity, for an aircraft on the unsuitable taxiway type or on the closed taxiway, for an aircraft taxiing with an excessive speed or for a red stop bar which has been crossed.
Title	Provision of warning taxiway-related alerts
Status	<In Progress>
Rationale	Inform ATCO of non-conformance situations that require immediate responses. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0018	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0019	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0032	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0035	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0036	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0037	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0031
Requirement	The Ground ATC Conformance Monitoring System alerts and other airport safety net alerts (A-SMGCS level 2, RIMCAS) shall be compatible each other to facilitate Tower Ground Controller recognition and problem resolution. If necessary an alert priority scheme between these systems should be defined.
Title	Taxiway-related alerts compatibility with other safety nets.
Status	<Deleted>
Rationale	Allow the simultaneous presence of CMAC alerts and other safety net alerts. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-GENL.0002	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-GENL.0003	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0032
Requirement	In the event of sudden closure of section(s) of the movement area, the Tower Ground Controller shall revert back to standard practices for coordination of unplanned taxiway closure and suspend further aircraft operations on the section(s) until the airport advises the taxiway is open
Title	Revert to taxiway-related standard practices.
Status	<In Progress>
Rationale	Allows ATCO to revert to standard practices in case of unsuitable input data to CMAC system. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	None	<Partial>
<APPLIES TO>	<Operational Focus Area>	OFA01.02.01	N/A

3.4.1.3 Ground ATC conformance monitoring safety requirements applicable to runway operations

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0033
Requirement	The Tower Runway Controller shall enter all clearances given to aircraft relative to their line-up, take-off, landing and runway crossing in the FDP(EFS)
Title	ATCO input of aircraft runway clearances
Status	<In Progress>
Rationale	CMAC service depends on aircraft runway clearance status. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0006	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0007	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0008	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0009	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0013	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0012	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0016	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0015	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0025	<Partial>
<APPLIES TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0034
Requirement	The Tower Runway Controller shall enter all clearances given to vehicles relative to the runway crossing in the FDP(EFS)
Title	ATCO input of vehicle runway clearances
Status	<In Progress>
Rationale	CMAC service depends on vehicle runway clearance status. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0006	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0007	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0008	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0009	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0013	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0012	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0016	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0015	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0025	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0035
Requirement	The Tower Runway Controller shall enter clearances given to aircraft or vehicle in the FDP(EFS) as soon as practicable and within less than 3 seconds
Title	Timely input of given runway clearances
Status	<In Progress>
Rationale	CMAC service is critically depending on timely updates of clearances status. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0006	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0007	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0008	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0009	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0013	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0012	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0016	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0015	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0025	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0036
Requirement	FDP(EFS) shall provide to the Ground ATC Conformance Monitoring System all clearances which have been entered by the Tower Runway Controller
Title	Runway ATCO clearances update from FDP
Status	<In Progress>
Rationale	CMAC service is depending on mobile flight status. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0007	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0008	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0009	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0013	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0012	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0016	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0015	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0025	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0037
Requirement	The Airport/MET Data & Status shall provide to the Ground ATC Conformance Monitoring System the location of the ILS/MLS Critical and Sensitive area
Title	Provision of ILS/MLS critical and sensitive areas This requirement was

	derived within the SAR document.
Status	<In Progress>
Rationale	Inform system of existing ILS/MLS critical and sensitive areas.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0006	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0007	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0008	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0038
Requirement	The Ground ATC Conformance Monitoring System shall provide an alert to the Tower Runway Controller when a mobile enters the runway protected area without a clearance
Title	Unauthorised mobile access to runway protected area
Status	<In Progress>
Rationale	Inform ATCO when an unauthorised mobile enters a runway protected area. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0006	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0007	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0008	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0039
Requirement	The Ground ATC Conformance Monitoring System shall provide an alert to the Tower Runway Controller when a mobile starts to make positioning movements on the runway protected area without a clearance
Title	Unauthorised mobile moving into a runway protected area
Status	<In Progress>
Rationale	Inform ATCO when an unauthorised mobile is moving within a runway protected area. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0002	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0003	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0009	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0040
Requirement	Airfield Ground Lighting Control (AGLC) shall provide the status of the stop

	bar (turned-off/turned-on) to the ground ATC Conformance Monitoring System
Title	Provision of stop bar status
Status	<In Progress>
Rationale	Inform system about the stop bar status. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0006	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0007	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0008	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0009	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0012	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0025	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0041
Requirement	The Ground ATC Conformance Monitoring System shall provide an alert to the Tower Runway Controller when a mobile is crossing a stop bar turned-on (red)
Title	Red stop bar crossing.
Status	<In Progress>
Rationale	Inform ATCO when a mobile crosses a red stop bar. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0006	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0007	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0008	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0009	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0012	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0025	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0042
Requirement	The Airport/LVP Data & Status shall provide to the Ground ATC Conformance Monitoring System the list of closed runway
Title	Provision of closed runways
Status	<In Progress>
Rationale	Inform system of closed runways. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0014	<Partial>

<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0016	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0043
Requirement	Ground ATC Conformance Monitoring System shall provide an alert to the Tower Runway Controller when a mobile is assigned to use a closed runway or when the mobile is already on that closed runway
Title	Closed runway assignment
Status	<In Progress>
Rationale	Inform ATCO that a closed runway has been assigned to an aircraft. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0014	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0016	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0036	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0044
Requirement	FDP(EFS) shall provide to the Ground ATC Conformance Monitoring System the aircraft assigned runway for departure
Title	Provision of assigned runway
Status	<In Progress>
Rationale	Inform system of the aircraft assigned runway. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0014	<Partial>
<APPLIES TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0045
Requirement	Ground ATC Conformance Monitoring System shall provide an alert to the Tower Runway Controller when an aircraft is lining up on a runway that differs from the runway assigned
Title	Line-up to wrong runway
Status	<In Progress>
Rationale	Inform ATCO when an aircraft is lining-up to a wrong runway. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0006	<Partial>

<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0034	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0046
Requirement	Ground ATC Conformance Monitoring System shall provide an alert to the Tower Runway Controller when a departing aircraft proceeds past a point without having been transferred to the departure controller
Title	Tower to ground missed handover
Status	<In Progress>
Rationale	Inform Tower ATCO that an aircraft has passed the point where handover to Ground ATCO is necessary. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0025	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0047
Requirement	Ground ATC Conformance Monitoring System shall provide an alert to the Tower Runway Controller when an arriving aircraft proceeds past a point without having been transferred by the approach controller to the Tower Runway Controller
Title	Approach to Tower missed handover
Status	<In Progress>
Rationale	Inform Tower ATCO that an aircraft has passed the point where handover from Approach ATCO is necessary. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0025	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0048
Requirement	Ground ATC Conformance Monitoring System shall provide an alert to the Tower Runway Controller when a taxi-in aircraft or a vehicle crossing/entering the runway proceeds past a point without having been transferred to the Tower Ground Controller
Title	Ground to Tower missed handover for crossing runway
Status	<In Progress>
Rationale	Inform Tower ATCO that mobile has passed the point where handover from ground ATCO is necessary for runway crossing. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0025	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0049
Requirement	Ground ATC Conformance Monitoring System shall provide an alert to the Tower Runway Controller when an aircraft enters the runway to line up without instructions
Title	Unauthorised line-up
Status	<In Progress>
Rationale	Inform ATCO when an aircraft is lining-up to a runway without having received a clearance. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0006	<Partial>
<APPLIES TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0050
Requirement	Ground ATC Conformance Monitoring System shall provide an alert to the Tower Runway Controller when a mobile, having received a clearance to move, remains stationary on the runway protected area for a period of time exceeding a predetermined value (to be defined locally)
Title	Stationary mobile on runway.
Status	<In Progress>
Rationale	Inform ATCO when a cleared mobile remains stationary on a runway. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0004	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0032	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0071
Requirement	Ground ATC Conformance Monitoring system shall provide an alert to TWC-R when a mobile, having received a line-up clearance, does not receive a take-off clearance within a period of time exceeding a predetermined value (to be defined locally) "
Title	Delayed take-off clearance
Status	<In Progress>
Rationale	Inform ATCO when a mobile, ready to take-off, does not receive take-off clearance after a certain time. This requirement was derived within the SAR document.

Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0030	<Partial>
<APPLIES TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0051
Requirement	Ground ATC Conformance Monitoring System shall provide an alert to the Tower Runway Controller when an aircraft is starting to Take off without clearance
Title	Unauthorised take-off
Status	<In Progress>
Rationale	Inform ATCO when an aircraft is taking-off without clearance. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0009	<Partial>
<APPLIES TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0052
Requirement	Ground ATC Conformance Monitoring System shall provide an alert to the Tower Runway Controller when an aircraft reaches a point to be defined locally (e.g. 2 Nm from the touchdown) and has not received a landing clearance
Title	Unauthorised landing.
Status	<In Progress>
Rationale	Inform ATCO when an aircraft is passing a point on a landing path without having received a landing clearance. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0010	<Partial>
<APPLIES TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0053
Requirement	FDP(EFS) shall provide to the Ground ATC Conformance Monitoring System the runway exit point for the landing aircraft
Title	Provision of runway exit point.
Status	<In Progress>
Rationale	Inform system of the landing aircraft assigned runway exit point. This requirement was derived within the SAR document.
Category	<Safety>

Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0003	<Partial>
<APPLIES TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0054
Requirement	Ground ATC Conformance Monitoring System shall provide an alert to the Tower Runway Controller when an aircraft starts to taxi-in from the runway exit point without a taxi clearance
Title	Unauthorised taxi-in
Status	<In Progress>
Rationale	Inform ATCO when a landed aircraft is taxing-in without having received a clearance. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0003	<Partial>
<APPLIES TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0055
Requirement	FDP(EFS) shall provide to the Ground ATC Conformance Monitoring System the assigned runway for landing aircraft
Title	Provision of landing runway
Status	<In Progress>
Rationale	Inform system of the landing aircraft assigned runway. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0024	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0056
Requirement	Ground ATC Conformance Monitoring System shall provide an alert to the Tower Runway Controller when an arriving aircraft is aligned to a runway which differs from the assigned runway landing clearance
Title	Wrong runway alignment.
Status	<In Progress>
Rationale	Inform ATCO when a landing aircraft is aligned to a wrong runway. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0024	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0034	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0057
Requirement	Ground ATC Conformance Monitoring System shall provide an alert to the Tower Runway Controller when an aircraft is assigned to use an unsuitable runway considering the aircraft type or is already on that unsuitable runway
Title	Aircraft using an unsuitable runway
Status	<In Progress>
Rationale	Inform ATCO when an aircraft is assigned to an unsuitable runway. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0013	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0058
Requirement	The Ground ATC Conformance Monitoring System shall provide an Information alert (caution) to the Tower Runway Controller for non-conformance situations requiring immediate controller awareness but not necessarily immediate response: for situations where aircraft/vehicle are moving from their position without having received line-up, crossing, take-off, landing clearance but without other traffic foreseen in the runway protected area (RPA) within a specified time; for an aircraft not yet on the unsuitable runway type or on the closed runway; for an aircraft landing or lining up on wrong runway but without other traffic foreseen in the RPA within a specified time or for a runway incursion without other traffic in the RPA.
Title	Provision of information runway-related alerts
Status	<In Progress>
Rationale	Inform ATCO of non-conformance situations that do not require immediate responses. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0020	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0034	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0035	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0036	<Partial>
<APPLIES TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0059
Requirement	The Ground ATC Conformance Monitoring System shall provide an Alarm alert (warning) to the Tower Runway Controller for non-conformance

	situations requiring immediate controller awareness and immediate response:. for situations where aircraft/vehicle are moving from their position without having received line-up, crossing, take-off, landing clearance and with other traffic foreseen in the runway protected area (RPA) within a specified time; for an aircraft on the unsuitable runway type or on a closed runway; for an aircraft landing or lining up on wrong runway with other traffic foreseen in the RPA within a specified time; for a runway incursion with other traffic foreseen on the RPA or for a red stop bar crossed
Title	Provision of warning runway-related alerts
Status	<In Progress>
Rationale	Inform ATCO of non-conformance situations that do not require immediate responses. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0019	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0033	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0034	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0035	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0036	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0060
Requirement	The Ground ATC Conformance Monitoring System alerts and other airport safety net alerts (A-SMGCS level 2, RIMCAS, Conflicting ATC clearances,..) shall be compatible each other to facilitate Tower Runway Controller recognition and problem resolution. If necessary an alert priority scheme between these systems should be defined.
Title	Runway-related alerts compatibility with other safety nets.
Status	<Deleted>
Rationale	Allow the simultaneous presence of CMAC alerts and other safety net alerts. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-GENL.0002	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-GENL.0003	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0061
Requirement	In the event of sudden closure of section(s) of the movement area, the Tower Runway Controller shall revert back to standard practices for coordination of unplanned runway closure and suspend further aircraft operations on the section(s) until the airport advises the runway is open
Title	Revert to runway-related standard practices.
Status	<In Progress>
Rationale	Allows ATCO to revert to standard practices in case of unsuitable input data to CMAC system. This requirement was derived within the SAR document.
Category	<Safety>

Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	None	<Partial>
<APPLIES TO>	<Operational Focus Area>	OFA01.02.01	N/A

3.4.2 Safety Requirements Integrity

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0062
Requirement	The probability of corrupted or loss of data (Surveillance, Airport/LVP Data & Status, AGLC or FDP(EFS)) leading to a non-conformance situation not detected by the ground ATC conformance monitoring system shall be not greater than $1.0x10^{-4}$.
Title	Corrupted/loss data probability
Status	<In Progress>
Rationale	To avoid hazardous situations. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0001	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0002	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0003	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0004	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0005	<Partial>
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<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0008	<Partial>
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<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0013	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0014	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0015	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0016	<Partial>
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<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0024	<Partial>
<APPLIES TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0063
Requirement	The probability of an undetected loss of the ground ATC conformance monitoring system shall be not greater than $1.0x10^{-4}$.
Title	Detection probability of system loss
Status	<In Progress>
Rationale	To avoid hazardous situations. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance

<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0001	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0002	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0003	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0004	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0005	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0006	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0007	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0008	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0009	<Partial>
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<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0016	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0017	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0024	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0064
Requirement	The probability of loss of data (Surveillance, Airport/LVP Data & Status, AGLC or FDP(EFS)) leading to a partial ground ATC conformance monitoring detection with missing information shall be not greater than 1.0×10^{-4}.
Title	Detection probability of loss of data input.
Status	<In Progress>
Rationale	To avoid hazardous situations. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0001	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0002	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0003	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0004	<Partial>
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<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0015	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0016	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0017	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0024	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0065
Requirement	The probability of a conformance monitoring partial detection with missing information due to failure of the ground ATC conformance monitoring function shall be not greater than 1.0×10^{-4}.
Title	Detection probability of system partial loss detection.

Status	<In Progress>
Rationale	To avoid hazardous situations. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0001	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0002	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0003	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0004	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0005	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0006	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0007	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0008	<Partial>
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<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0024	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0066
Requirement	The probability of corrupted data (Surveillance, Airport/LVP Data & Status, AGLC or FDP(EFS)) leading to a partial ground ATC conformance monitoring detection with incorrect information shall be not greater than 1.0×10^{-4}.
Title	Detection probability of partial loss of data input.
Status	<In Progress>
Rationale	To avoid hazardous situations. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0001	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0002	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0003	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0004	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0005	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0006	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0007	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0008	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0009	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0010	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0011	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0012	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0013	<Partial>
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<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0017	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0024	<Partial>

<APPLIES TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0067
Requirement	The probability of a conformance monitoring partial detection with incorrect information due to failure of the ground ATC conformance monitoring function shall be not greater than 1.0×10^{-4}.
Title	Detection probability of partial system incorrect information
Status	<In Progress>
Rationale	To avoid hazardous situations. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0001	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0002	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0003	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0004	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0005	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0006	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0007	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0008	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0009	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0010	<Partial>
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<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0013	<Partial>
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<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0017	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0024	<Partial>
<APPLIES TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0068
Requirement	The probability that the Tower Controller does not react appropriately against a valid ground ATC conformance alert shall be not greater than 4.0×10^{-3}.
Title	Probability of inappropriate controller reaction
Status	<Deleted>
Rationale	To avoid hazardous situations. This requirement was derived within the SAR document.
Category	<Safety>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0001	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0002	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0003	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0004	<Partial>
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<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0024	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

3.4.3 Performance Requirements

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0069
Requirement	The ground conformance monitoring System shall not generate false alert with a probability greater than 5.0×10^{-5} when no corrupted data inputs are present at the entry of the system.
Title	Probability of CMAC false alerts with no input corrupted data
Status	<In Progress>
Rationale	To avoid hazardous situations. This requirement was derived within the SAR document.
Category	<Performance>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0001	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0002	<Partial>
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<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0007	<Partial>
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<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0016	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0017	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0024	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

[REQ]

Identifier	REQ-06.07.01-SPR-CMAC.0070
Requirement	The ground conformance monitoring System shall not generate false alert with a probability greater than 5.0×10^{-5} due to corrupted data input (Surveillance data, Airport/LVP Data & Status, AGLC or FDP(EFS))
Title	Probability of CMAC false alerts with input corrupted data
Status	<In Progress>
Rationale	To avoid hazardous situations. This requirement was derived within the SAR document.
Category	<Performance>
Validation Method	<Shadow Mode>
Verification Method	<Test>

[REQ Trace]

Relationship	Linked Element Type	Identifier	Compliance
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0001	<Partial>
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<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0003	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0004	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0005	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0006	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0007	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0008	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0009	<Partial>
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<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0017	<Partial>
<SATISFIES>	<ATMS Requirement>	REQ-06.07.01-OSED-CMAC.0024	<Partial>
<APPLIES_TO>	<Operational Focus Area>	OFA01.02.01	N/A

3.5 Information Exchange Requirements (IER)

[IER]

Identifier	Name	Content Type	Frequency	Safety Criticality	Confidentiality	Maximum Time of Delivery	Interaction Type	Free

Table 1: IER layout

As the IER is described in the OSED for the operational part and in the SPR for the performance aspects, the same identifier and the same name shall be used in both documents. To write the safety and performance characterisation of the IER, the list of the identifier and name of the IER shall be extract from the OSED.

There is no IER within OSED because the services defined by the OSED [14] do not involve exchange of information between actors hence no IERs are identified.

4 References and Applicable Documents

4.1 Applicable Documents

This SPR complies with the requirements set out in the following documents:

[1] Template Toolbox 03.00.00
https://extranet.sesarju.eu/Programme%20Library/SESAR%20Template%20Toolbox.dot

[2] Requirements and V&V Guidelines 03.00.00
https://extranet.sesarju.eu/Programme%20Library/Requirements%20and%20VV%20Guidelines.doc

[3] Templates and Toolbox User Manual 03.00.00
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

4.2 Reference Documents

The following documents were used to provide input / guidance / further information / other:

[5] ED-78A GUIDELINES FOR APPROVAL OF THE PROVISION AND USE OF AIR TRAFFIC SERVICES SUPPORTED BY DATA COMMUNICATIONS. [3]

[6] B.4.1 Performance Framework (validation targets, influence diagrams)

[7] B.4.3 Architecture Description Document

[8] SESAR Safety Reference Material
https://extranet.sesarju.eu/Programme%20Library/Forms/Procedures%20and%20Guidelines.aspx

[9] SESAR Security Reference Material
https://extranet.sesarju.eu/Programme%20Library/Forms/Procedures%20and%20Guidelines.aspx

[10] SESAR Environment Reference Material
https://extranet.sesarju.eu/Programme%20Library/Forms/Procedures%20and%20Guidelines.aspx

[11] SESAR Human Performance Reference Material
https://extranet.sesarju.eu/Programme%20Library/Forms/Procedures%20and%20Guidelines.aspx

[12] SESAR Business Case Reference Material
https://extranet.sesarju.eu/Programme%20Library/Forms/Procedures%20and%20Guidelines.aspx

[13] WPB.01 Integrated Roadmap Latest version

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[3] *The EUROCAE ED-78A has been used as an initial guidance material. ED-78A is useful, but is not an applicable document, because it mostly addresses the V4-V5 phases, whilst the SESAR R&D programme is focussed on development (V1-V2-V3, and because of its partial compliance with safety regulatory requirements).*

[14] P06.07.01 – D28 – OSED for "Conflicting ATC Clearances" and "Conformance Monitoring for Controllers" Edition 00.01.00

[15] P06.07.01 – D29B - Conflicting ATC Clearance Safety Assessment Report (SAR) Edition 00.01.00

[16] P06.07.01 – D29C – Conformance Monitoring for Controllers Safety Assessment Report (SAR) Edition 00.01.00

[17] Runway Safety -February 12, 2010- Cardosi, K. ,Chase, S., and Eon, D – US. Department of Transportation, Volpe Center, Cambridge, MA
[http://ntl.bts.gov/lib/35000/35000/35095/Cardosi_Runway_Safety_2010.pdf]

[18] DOT/FAA/AR-01/66 Runway Safety: It's everybody's business July 2001

[19] ICAO Doc 9830: Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual

[20] P06.07.01 – D18 – V3 Validation Plan for Conflicting ATC Clearances Edition 00.01.00

[21] P06.07.01 – D19 – V3 Validation Report for Conflicting ATC Clearances Edition 00.01.00

[22] P06.07.01 – D24 – V2 Validation Plan for Conformance Monitoring for Controllers Edition 00.01.00

[23] P06.07.01 – D25 – V2 Validation Report for Conformance Monitoring for Controllers Edition 00.01.00

[24] P06.07.01 – D23 – Preliminary SPR for Conformance Monitoring for Controllers Edition 00.01.00

[25] P06.07.01 – D22 – Preliminary OSED for Conformance Monitoring for Controllers. Edition 00.01.02

[26] EUROCAE Minimum Aviation System Performance Specifications (MASPS) for ASMGCS (Level 1 and 2), Edition ED-87B, January 2008, including ED-87B amendment No 1 of January 2009

Appendix A   Assessment / Justifications

A.1 Safety and Performance Assessments

A.1.1 Safety assessment

In order to develop a safety assessment, a Safety Assessment Report (SAR) (see [15] and [16] was carried out for Conflicting ATC Clearances and Conformance Monitoring for Controllers. In the SAR requirements were determined through the broader approach (success and failure). For these safety assessments the Safety Reference Material (SRM) [8] guidance material and template was provided by P16.06.01. This document contains the Specimen Safety Assessment for a typical application of the Conflicting ATC Clearances in airport operations and Conformance Monitoring for Controllers. The report presents the assurance that the Safety Requirements for the V1-V3 phases are complete, correct and realistic, thereby providing all material to adequately inform the Conflicting ATC Clearances and Conformance Monitoring for Controllers SPR (this document).

A.1.2 Security risk assessment

NA

A.1.3 Environment impact assessment

NA

A.1.4 OPA

The OPA is now included in the SAR. In the SAR requirements were determined through the broader approach (success and failure).

Appendix B   Consolidated SPR

This SPR is a consolidated version based on the results of the V3 trials EXE-06.07.01-VP-438 on Conflicting ATC Clearances (CATC) and of the V2 trials EXE-06.07.01-VP-537 on Conformance Monitoring alerts for controllers (CMAC), according to trials that were performed at the end of year 2012.

This SPR is also the result of:

- The OSED update for CMAC and CATC (D28), as delivered in November 2013 and re-submitted in February 2014.

- The production of a Safety Assessment Report delivered as D29C for CMAC and D29B for CATC and produced according to guidance material provided by P16.06.01.

This SPR will be also the last version produced within P06.07.01 meaning that no updates will be performed following the V3 validation trials in Release 5, which will include Conformance Monitoring testing:

- EXE-06.03.01-VP-699 in Paris-CDG mid-2015 with THALES prototype,

- EXE-06.03.01- VP-719 in Milan-Malpensa mid-2015 with SELEX prototype,

- EXE-06.03.01- VP-758 in Barcelona end of 2015 with INDRA prototype, and

- EXE-06.03.01- VP-761 in Bretigny early 2016 with NATMIG prototype.

After the V3 validation exercises execution, the project P06.07.01 will produce and deliver a final OSED for CMAC and CATC to take account of the V3 validation results. However, no SPR will be produced and delivered after these Release 5 validation exercises.

The lack of an SPR update after the Release 5 validation exercises execution will create some gaps in term of introduction or update of requirements as the following results will not be considered in the SPR:

- The results obtained during the V3 validation process (e.g. on performance parameters).

- The content of the final OSED (D32) delivery (e.g. management of priorities for alerts generated within CMAC and CATC and between these services and RIMS).

- Additional requirements derivable from the execution of a Safety Assessment performed at physical level (currently missing).

The group in charge of the standardization activities should thus be made aware of the results of latest exercises carried out.

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